

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050231	1	101

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

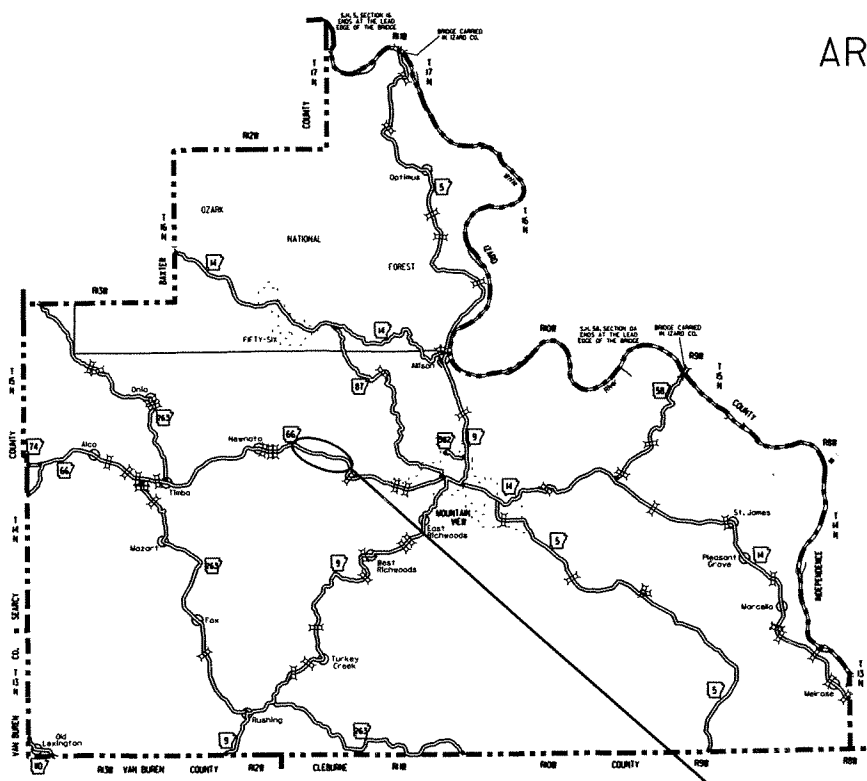
**MT. VIEW - WEST
(PASSING LANE) (S)**

STONE COUNTY
ROUTE 66 SECTION 2

JOB 050231

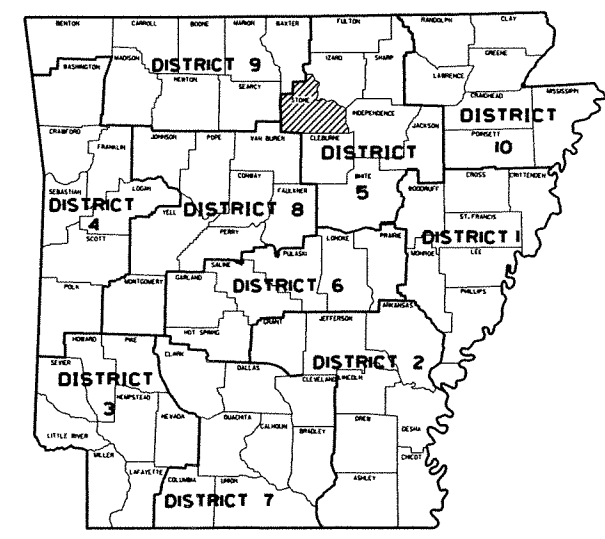
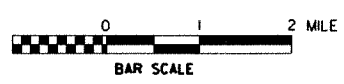
FED. AID PROJ. STP-0069(19)

2 MT. VIEW - WEST (PASSING LANE) (S)



VICINITY MAP

PROJECT LOCATION



ARK. HWY. DIST. NO. 5

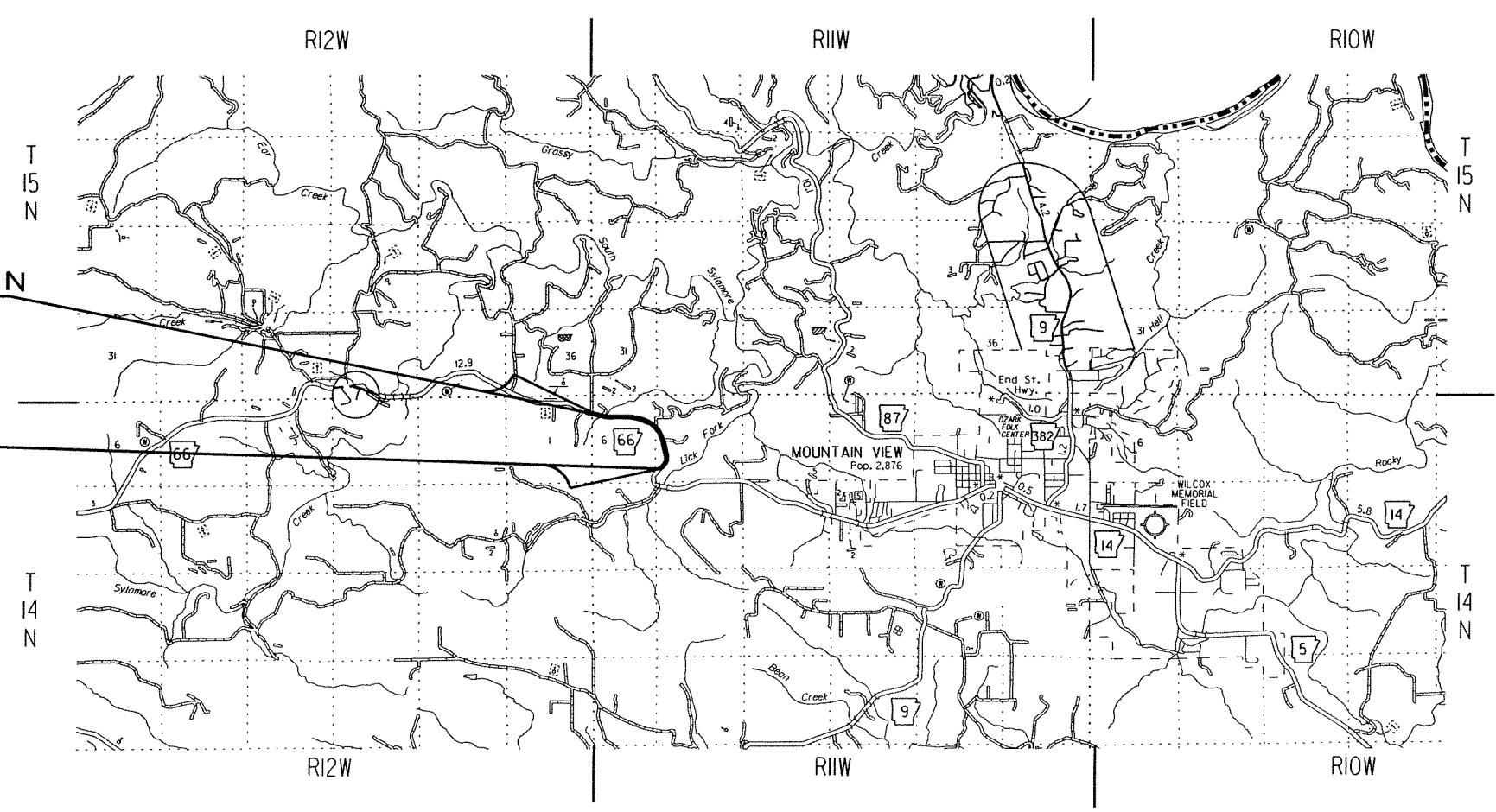
• DESIGN TRAFFIC DATA •

DESIGN YEAR	-----	2033
2013 ADT	-----	5000
2033 ADT	-----	6500
2033 DHV	-----	715
DIRECTIONAL DISTRIBUTION	-----	60 %
TRUCKS	-----	10 %
AVERAGE RUNNING SPEED	-----	55 MPH

STA. 484+97.59 - BEGIN
JOB 050231
L. M. 14.26

STA. 551+52.08 - END
JOB 050231
L. M. 15.52

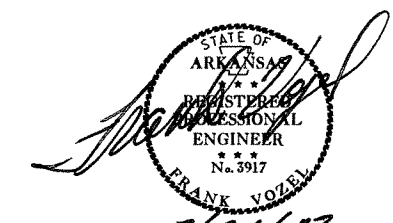
BEGINNING:	
LAT: N 35° 52' 57"	
LONG: W 92° 12' 03"	
MID POINT:	
LAT: N 35° 52' 35"	
LONG: W 92° 11' 11"	
ENDING:	
LAT: N 35° 52' 23"	
LONG: W 92° 11' 16"	



GROSS LENGTH OF PROJECT	6654.49	FEET	OR	1.260	MILES
NET " " ROADWAY	6654.49	"	"	1.260	"
NET " " BRIDGES	0.00	"	"	0.000	"
NET " " PROJECT	6654.49	"	"	1.260	"

P.E. 050231
NON-PART.

APPROVED



7/26/13
DEPUTY DIRECTOR
AND CHIEF ENGINEER

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2 INDEX, GOVERN. SPECS., AND GENERAL NOTES

INDEX OF SHEETS

SHEET NO.	TITLE	DRWG. NO.	DATE
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5-6	SPECIAL DETAILS		
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13-20	MAINTENANCE OF TRAFFIC DETAILS		
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22-27	QUANTITIES		
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29-32	SURVEY CONTROL DETAILS		
33-37	PLAN AND PROFILE SHEETS		
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NOTE: CROSS SECTIONS ARE 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 2003, 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
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
102-1	BIDDING REQUIREMENTS AND CONDITIONS
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
105-3	CONTROL OF WORK
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
404-2	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-2	INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 050231	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050231	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050231	DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB 050231	EXTENSION OF PIPE CULVERTS
JOB 050231	INTERNET BIDDING
JOB 050231	PARTNERING REQUIREMENTS
JOB 050231	PLASTIC PIPE
JOB 050231	ROCK FILL
JOB 050231	STORM WATER POLLUTION PREVENTION PLAN
JOB 050231	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050231	TEMPORARY IMPACT ATTENUATION BARRIER
JOB 050231	UTILITY ADJUSTMENTS
JOB 050231	VALUE
JOB 050231	WARM MIX ASPHALT

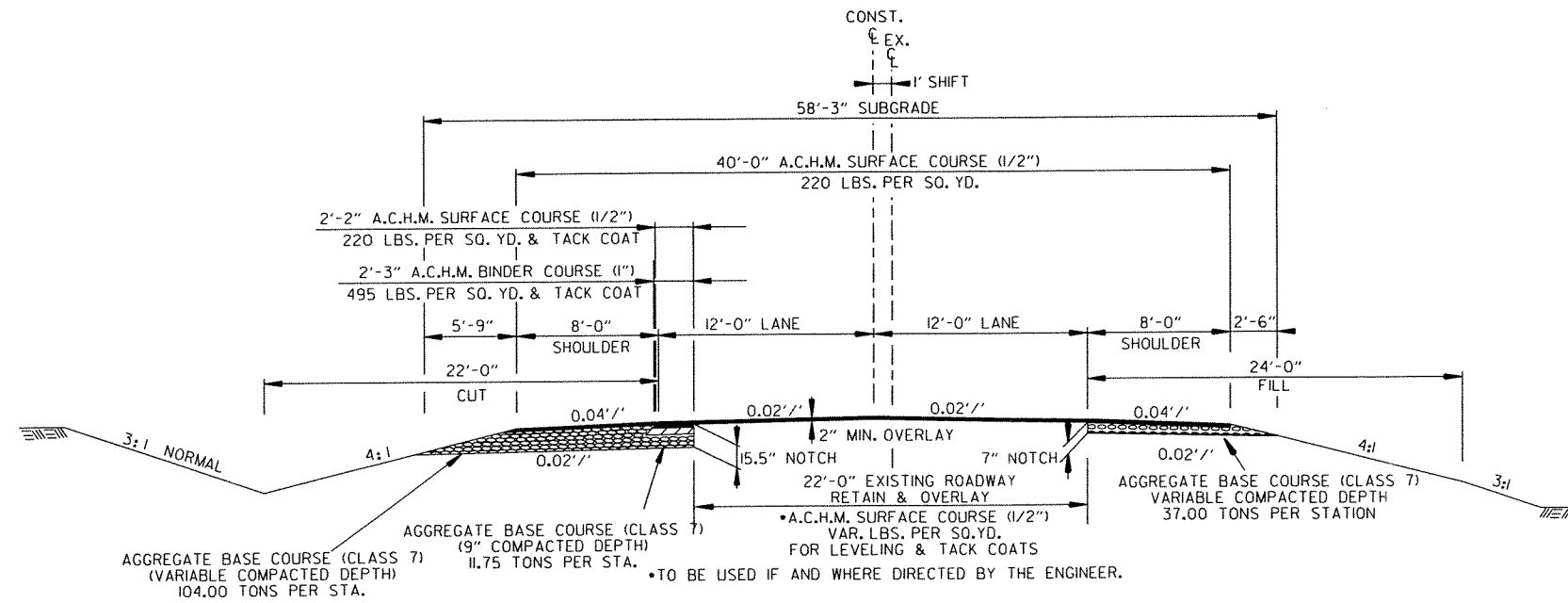
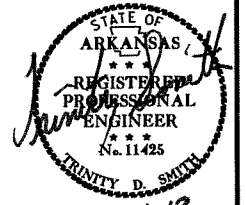


GENERAL NOTES

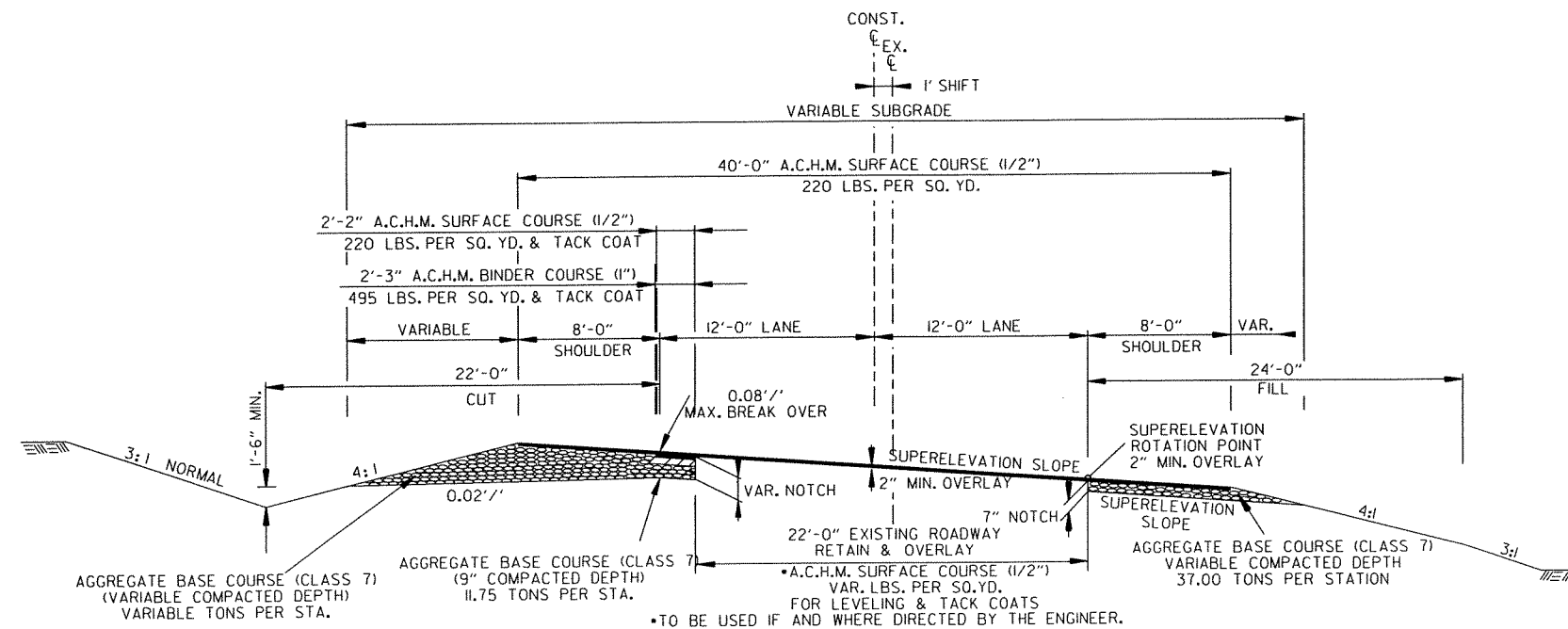
1.	ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT SUCH OWNERS.
2.	ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
3.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
4.	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.
5.	ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6.	ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7.	THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
8.	THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
9.	ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 UNCLASSIFIED EXCAVATION.

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2 TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
TANGENT SECTION - TWO LANE
STA. 484+97.59
STA. 551+52.08



TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
SUPERELEVATION SECTION
STA. 484+97.59
STA. 551+52.08

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.

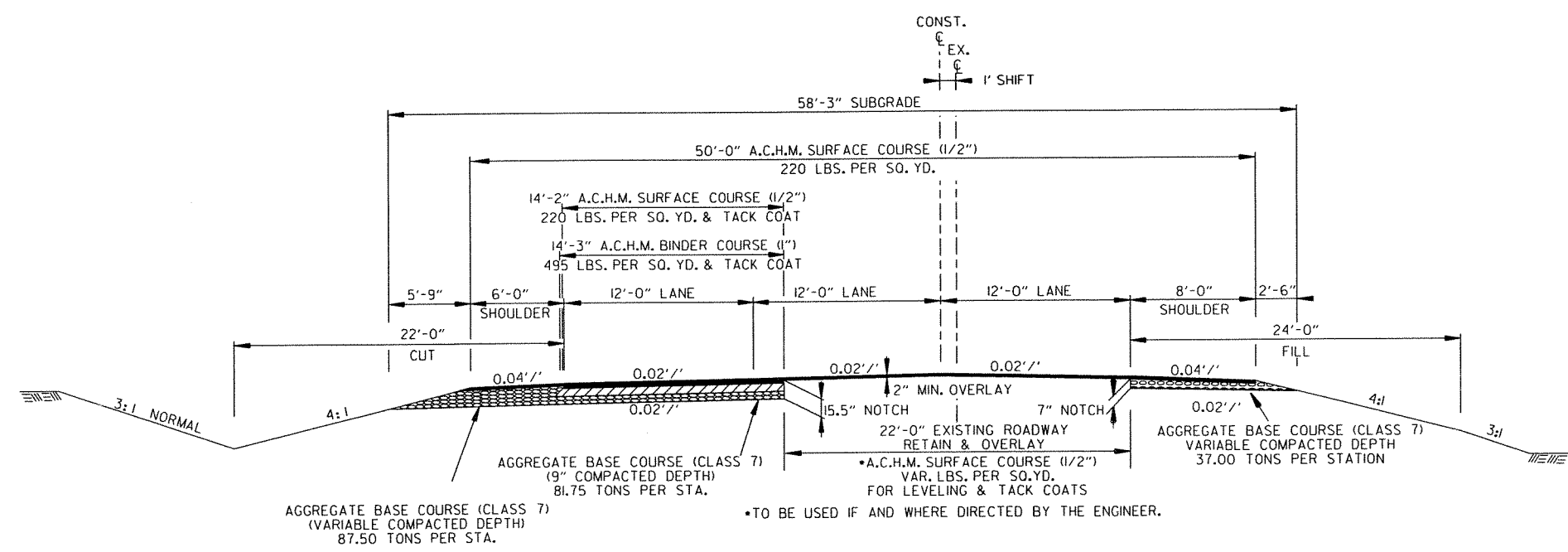
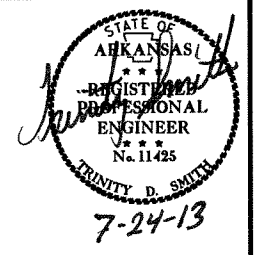
ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS CONTRACT ITEMS.

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

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

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② TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
TANGENT SECTION-PASSING LANE
STA. 491+57.59 - STA. 549+52.08

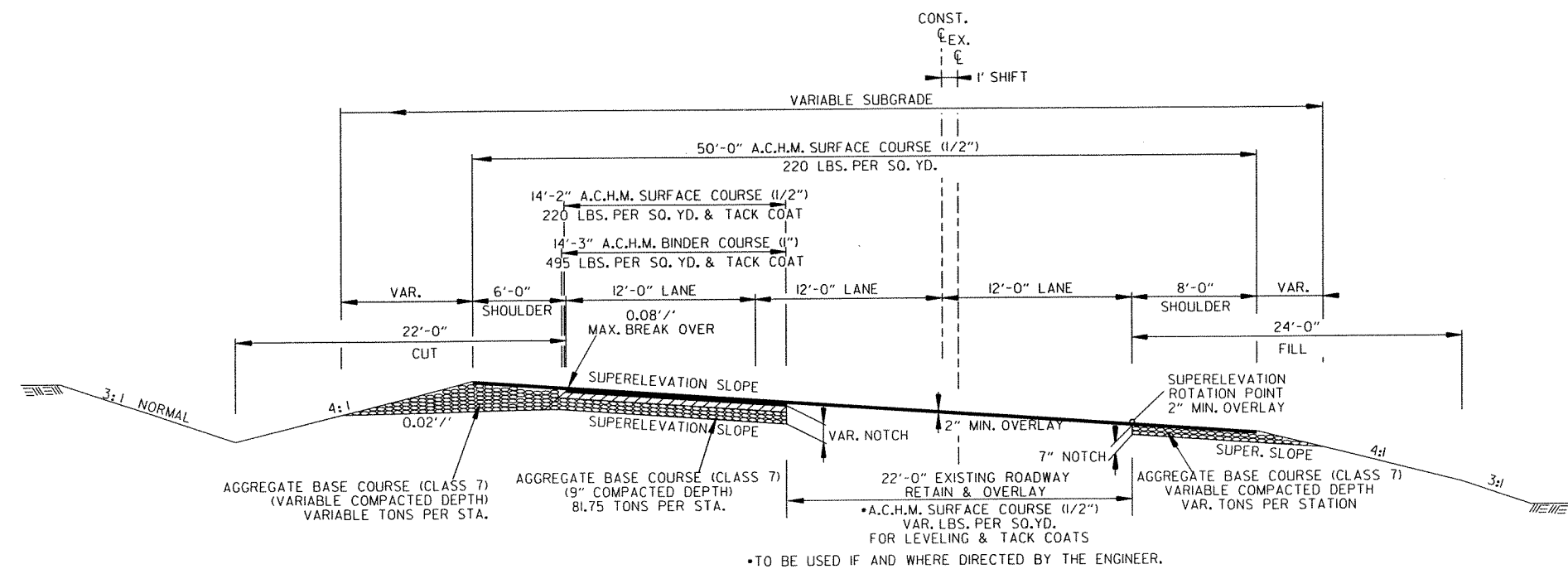
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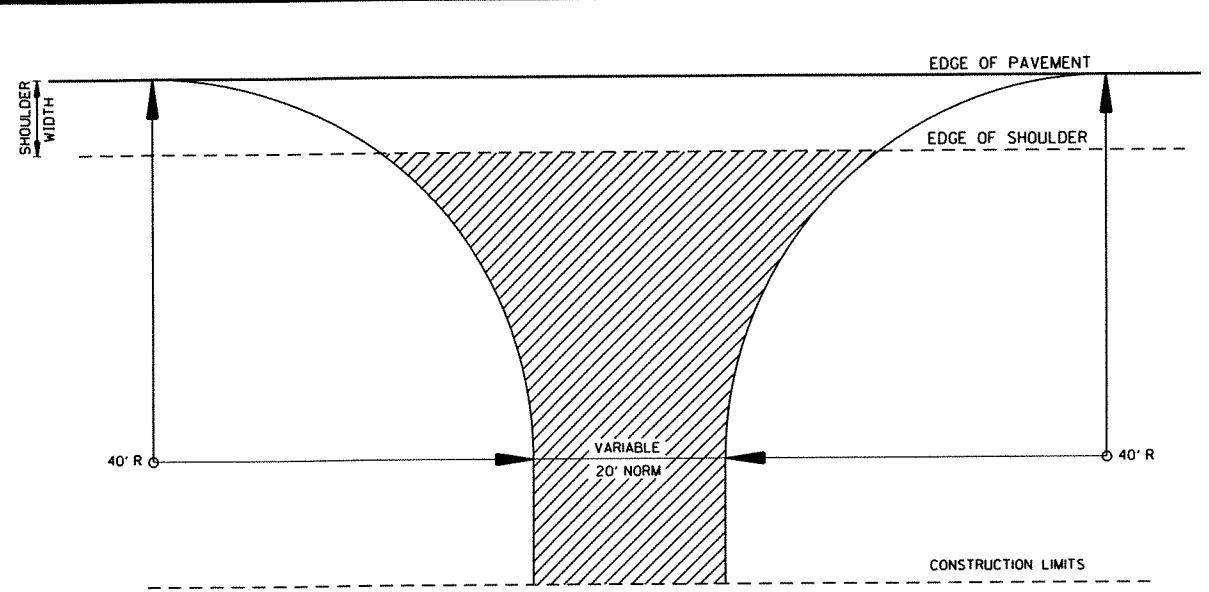
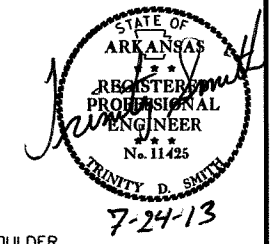


TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
SUPERELEVATION SECTION-PASSING LANE
STA. 491+57.59 - STA. 549+52.08

TYPICAL SECTIONS OF IMPROVEMENT

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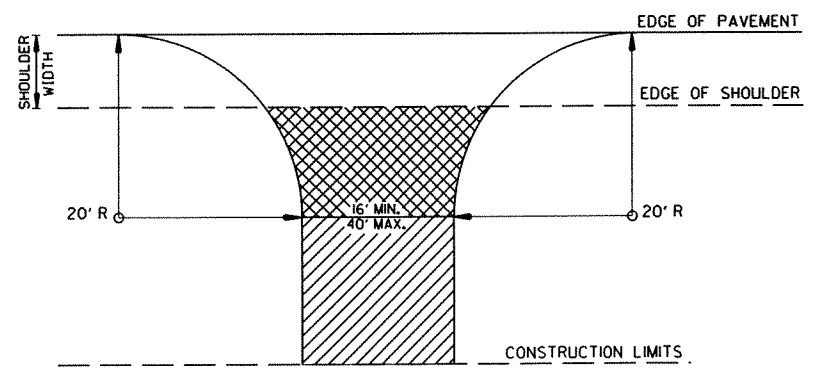
2 SPECIAL DETAILS



NOTE: REFER TO PLAN SHEETS FOR WIDTHS 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)

DETAIL FOR COUNTY ROAD TURNOUT



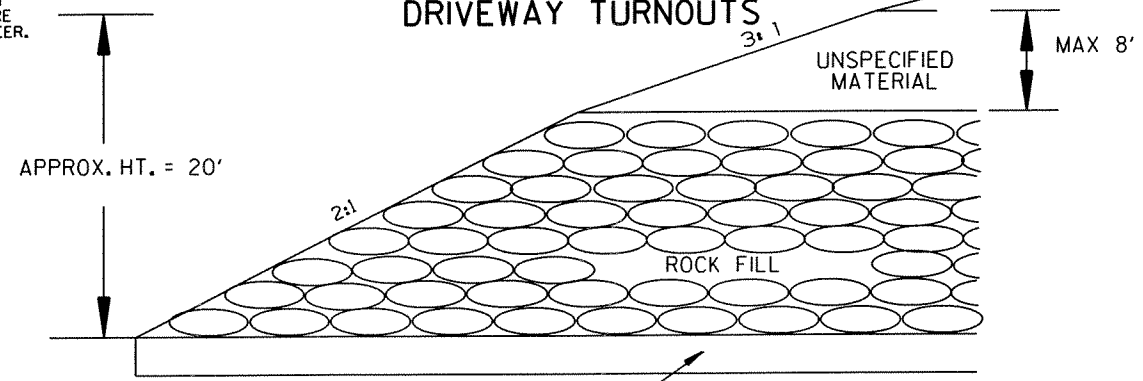
A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH) IF ASPHALT DRIVE EXISTS OR 6" CONCRETE IF CONCRETE DRIVE EXISTS. OVERLAY FOR EXISTING DRIVES SHALL BE A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) AND TACK COAT (0.10 GAL./SQ. YD.).

AGGREGATE BASE COURSE (CLASS 7) 9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY.

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

DETAIL FOR DRIVEWAY TURNOUTS

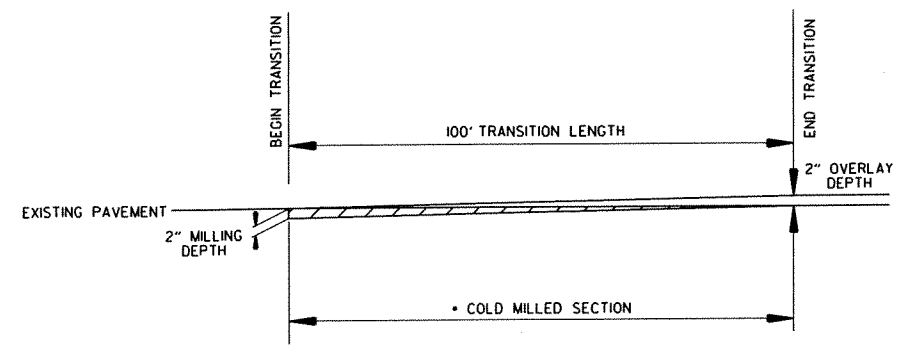
TURNOUTS SHALL BE MODIFIED AS NECESSARY TO MEET LOCAL CONDITIONS, AS SHOWN IN PLANS AND IF AND WHERE DIRECTED BY THE ENGINEER.



MAXIMUM 2' UNDERCUT, IF AND WHERE DIRECTED BY THE ENGINEER.

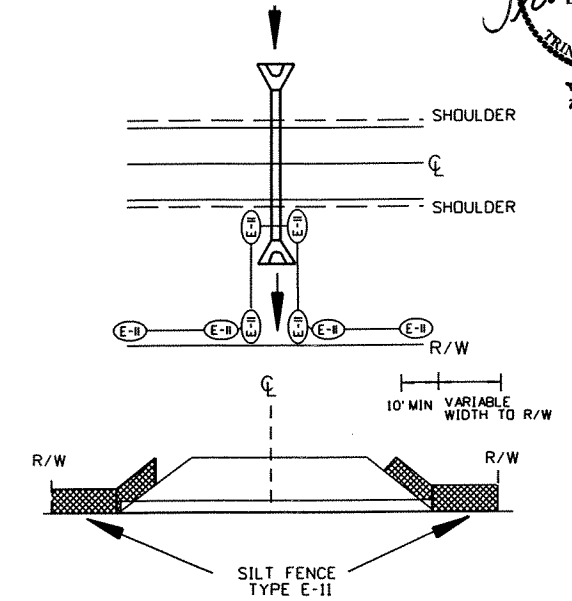
DETAIL OF ROCK FILL

STA. 489+00.00 - STA. 491+57.59

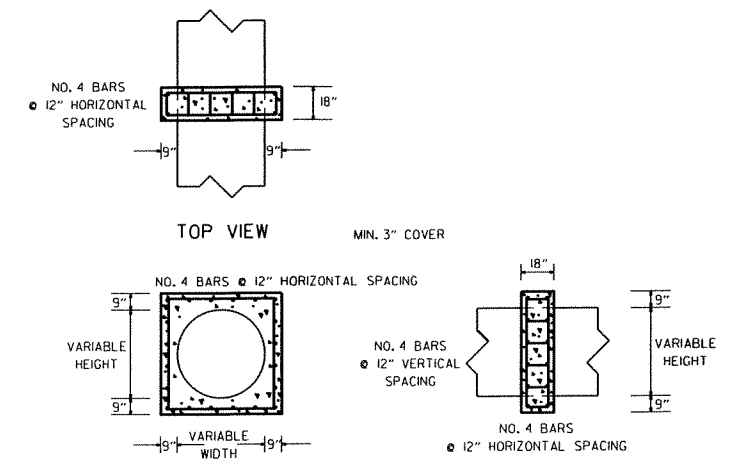


DETAIL SHOWING TAPER TO EXISTING PAVEMENT

TO BE USED AS DIRECTED BY THE ENGINEER

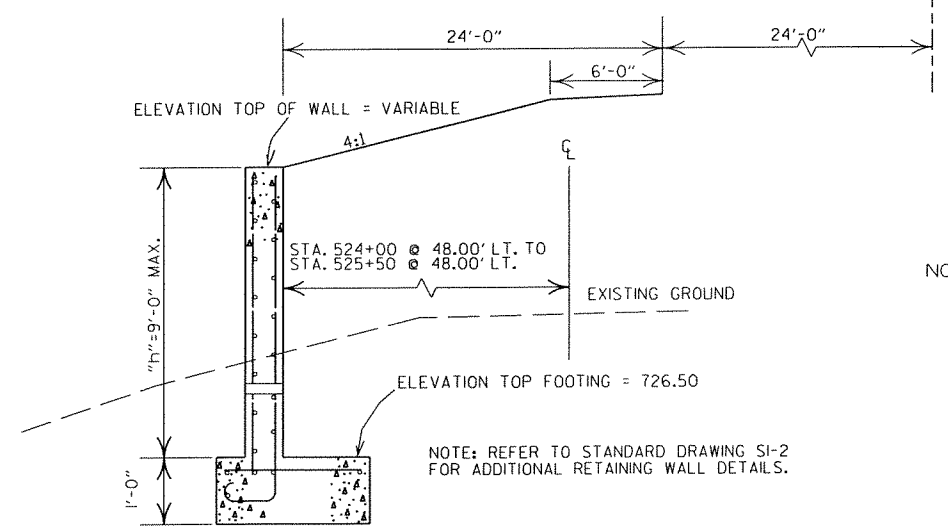


DETAILS OF SILT FENCE AT CROSS DRAINS



NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER.

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



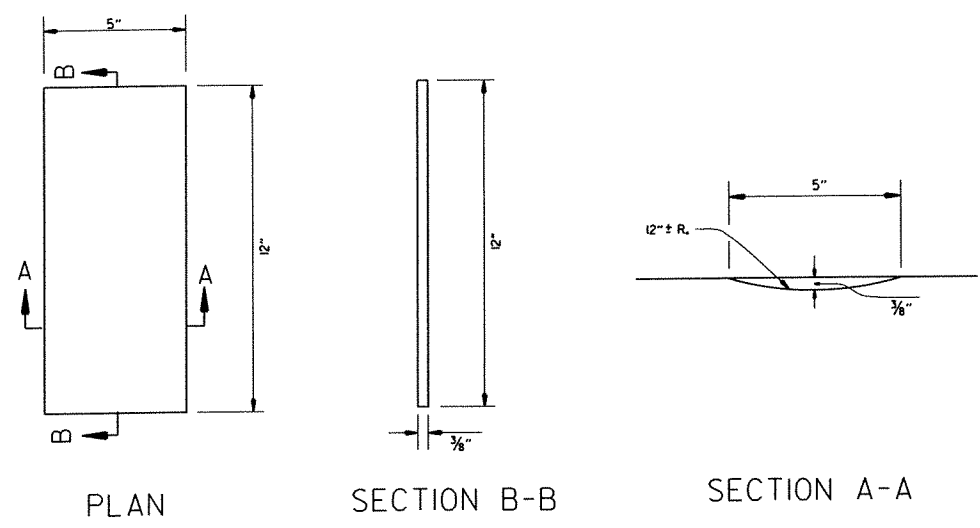
DETAIL FOR RETAINING WALL STA. 524+00 - STA. 525+50

NOTE: REFER TO STANDARD DRAWING SI-2 FOR ADDITIONAL RETAINING WALL DETAILS.

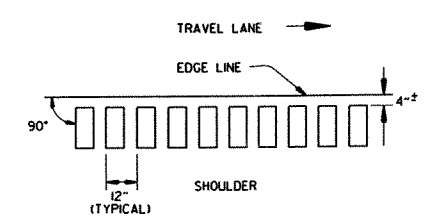
SPECIAL DETAILS

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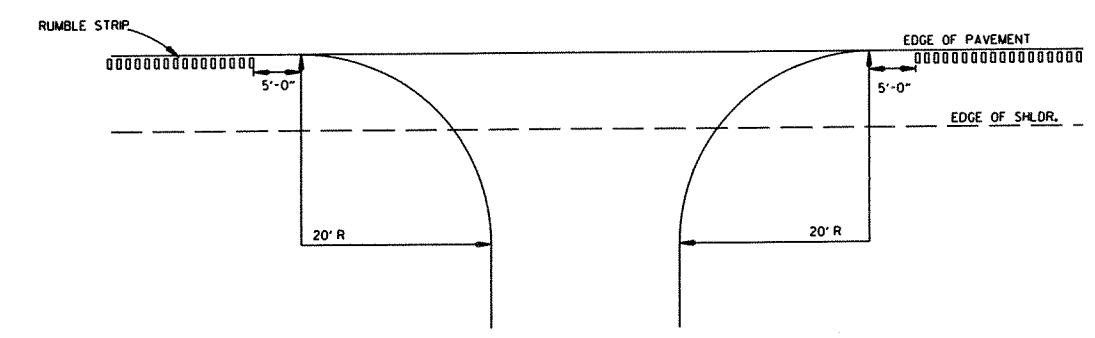
② SPECIAL DETAILS



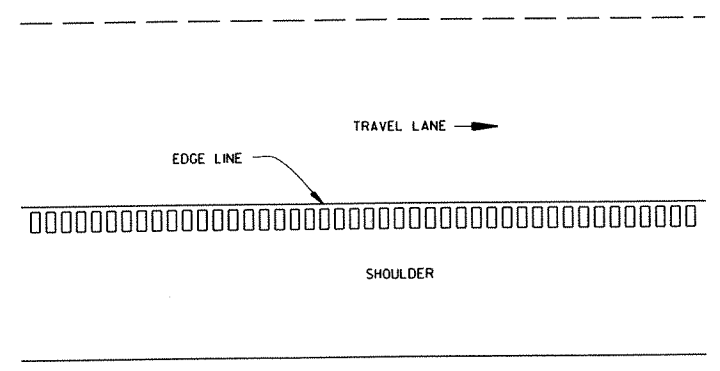
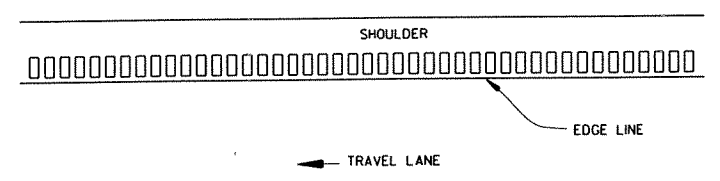
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



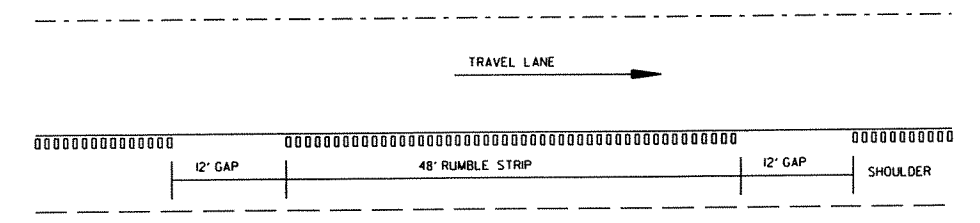
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



DETAIL FOR GAP PATTERN RUMBLE STRIP

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

7/23/2013 R050231.DGN

SILT FENCE (E-11)

STA. 483+97.59 - STA. 487+20.00	LT.	211 LIN. FT.
STA. 487+50.00 - STA. 494+00.00	LT.	770 LIN. FT.
STA. 494+20.00 - STA. 495+00.00	LT.	90 LIN. FT.

ROCK DITCH CHECKS (E-6)

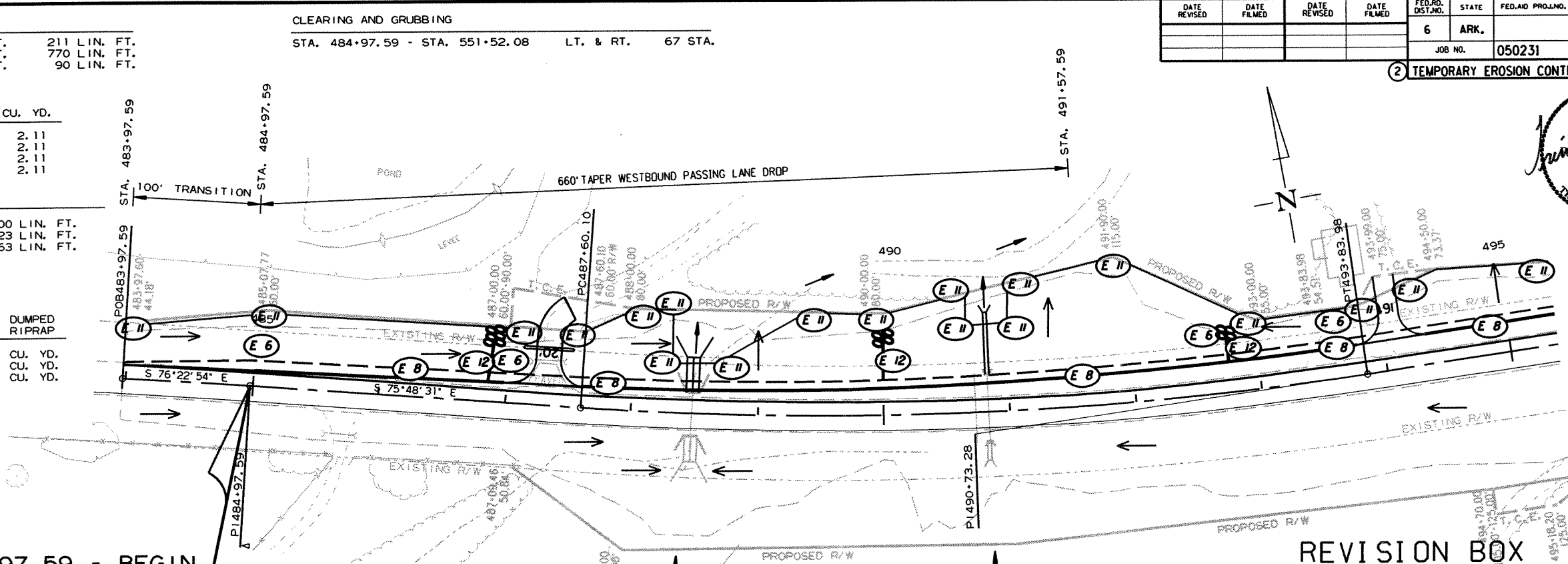
STA. 485+00	LT.	1 INSTALLATION	2.11 CU. YD.
STA. 487+00	LT.	1 INSTALLATION	2.11
STA. 492+60	LT.	1 INSTALLATION	2.11
STA. 493+70	LT.	1 INSTALLATION	2.11

DIVERSION DITCH (E-8)

STA. 485+00 - STA. 487+00	LT.	200 LIN. FT.
STA. 487+60 - STA. 493+83	LT.	623 LIN. FT.
STA. 474+37 - STA. 495+00	LT.	63 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)

STA. 487+00	LT.	42 LIN. FT.	1 CU. YD.
STA. 490+00	LT.	40 LIN. FT.	1 CU. YD.
STA. 492+80	LT.	22 LIN. FT.	1 CU. YD.



STA 484+97.59 - BEGIN
JOB 050231
L.M. 14.26

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				6	ARK.		7	101

2 TEMPORARY EROSION CONTROL DETAILS



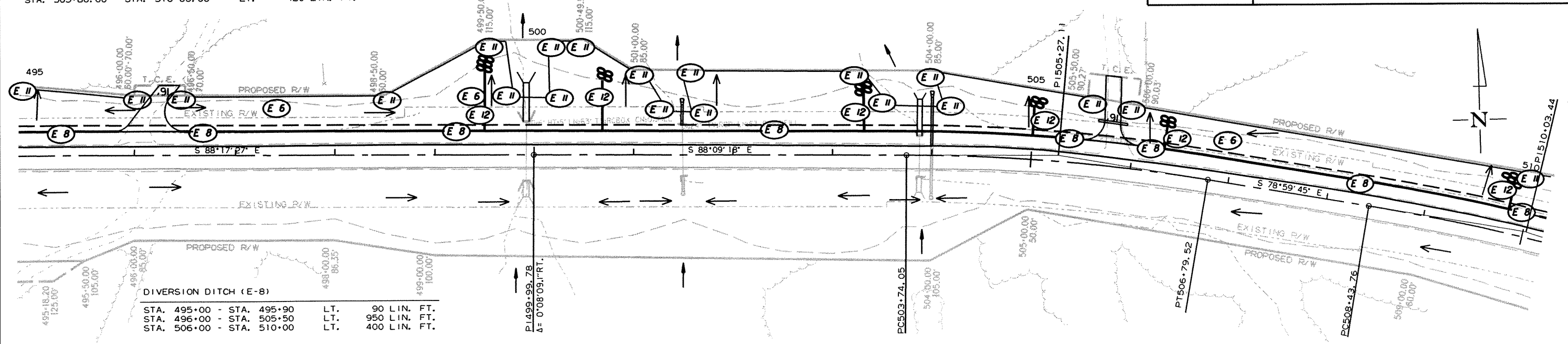
REVISION BOX	
DATE	REVISION

SILT FENCE (E-11)

STA. 495+00.00 - STA. 496+00.00	LT.	100 LIN. FT.
STA. 496+40.00 - STA. 505+60.00	LT.	123 LIN. FT.
STA. 505+80.00 - STA. 510+00.00	LT.	420 LIN. FT.

ROCK DITCH CHECKS (E-6)

STA. 497+40.00	LT.	1 INSTALLATION	2.11 CU. YD.
STA. 499+42.00	LT.	1 INSTALLATION	2.11
STA. 507+00.00	LT.	1 INSTALLATION	2.11



DIVERSION DITCH (E-8)

STA. 495+00 - STA. 495+90	LT.	90 LIN. FT.
STA. 496+00 - STA. 505+50	LT.	950 LIN. FT.
STA. 506+00 - STA. 510+00	LT.	400 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)

STA. 499+54	LT.	70 LIN. FT.	1 CU. YD.
STA. 500+70	LT.	52 LIN. FT.	1 CU. YD.
STA. 503+32	LT.	49 LIN. FT.	1 CU. YD.
STA. 505+00	LT.	32 LIN. FT.	1 CU. YD.
STA. 506+50	LT.	24 LIN. FT.	1 CU. YD.
STA. 509+82	LT.	25 LIN. FT.	1 CU. YD.

STAGE I
TEMPORARY EROSION CONTROL DETAILS

7/10/2013

R050231.DGN

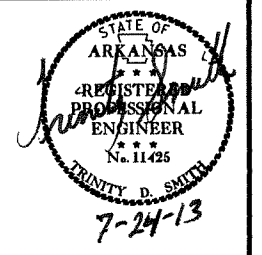
SILT FENCE (E-11)			
STA. 510+00.00 - STA. 512+65.00	LT.	380 LIN. FT.	
STA. 518+00.00 - STA. 522+00.00	LT.	425 LIN. FT.	
STA. 522+40.00 - STA. 525+00.00	LT.	348 LIN. FT.	

ROCK DITCH CHECKS (E-6)			
STA. 513+34.00	LT.	1 INSTALLATION	2.11 CU. YD.
STA. 515+40.00	LT.	1 INSTALLATION	2.11
STA. 517+00.00	LT.	1 INSTALLATION	2.11
STA. 518+37.00	LT.	1 INSTALLATION	2.11

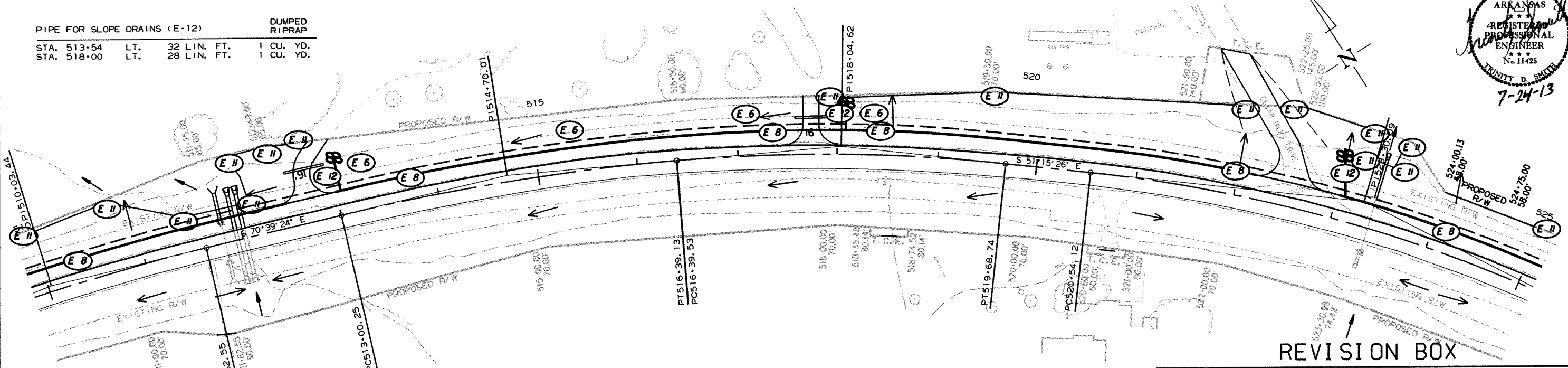
DIVERSION DITCH (E-8)			
STA. 510+00 - STA. 512+50	LT.	250 LIN. FT.	
STA. 513+00 - STA. 517+50	LT.	450 LIN. FT.	
STA. 518+00 - STA. 522+20	LT.	420 LIN. FT.	
STA. 523+00 - STA. 525+00	LT.	200 LIN. FT.	

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				6	ARK.		8	101

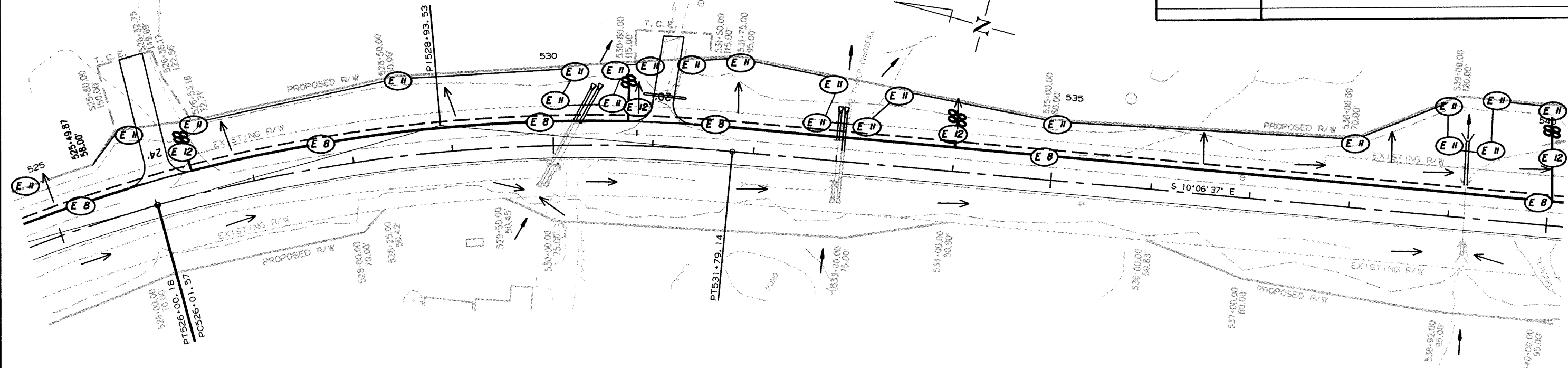
2 TEMPORARY EROSION CONTROL DETAILS



PIPE FOR SLOPE DRAINS (E-12)			
STA. 513+54	LT.	32 LIN. FT.	1 CU. YD.
STA. 518+00	LT.	28 LIN. FT.	1 CU. YD.



DATE	REVISION



SILT FENCE (E-11)			
STA. 525+80.00 - STA. 525+94.00	LT.	98 LIN. FT.	
STA. 526+60.00 - STA. 531+00.00	LT.	515 LIN. FT.	
STA. 531+23.00 - STA. 540+00.00	LT.	1048 LIN. FT.	

DIVERSION DITCH (E-8)			
STA. 525+00 - STA. 526+00	LT.	100 LIN. FT.	
STA. 526+50 - STA. 530+80	LT.	430 LIN. FT.	
STA. 531+50 - STA. 540+00	LT.	850 LIN. FT.	

PIPE FOR SLOPE DRAINS (E-12)			
STA. 526+46	LT.	32 LIN. FT.	1 CU. YD.
STA. 530+80	LT.	40 LIN. FT.	1 CU. YD.
STA. 540+00	LT.	84 LIN. FT.	1 CU. YD.

DUMPED RIPRAP	
1 CU. YD.	
1 CU. YD.	
1 CU. YD.	

STAGE I
TEMPORARY EROSION CONTROL DETAILS

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				6	ARK.		9	101
							JOB NO.	050231

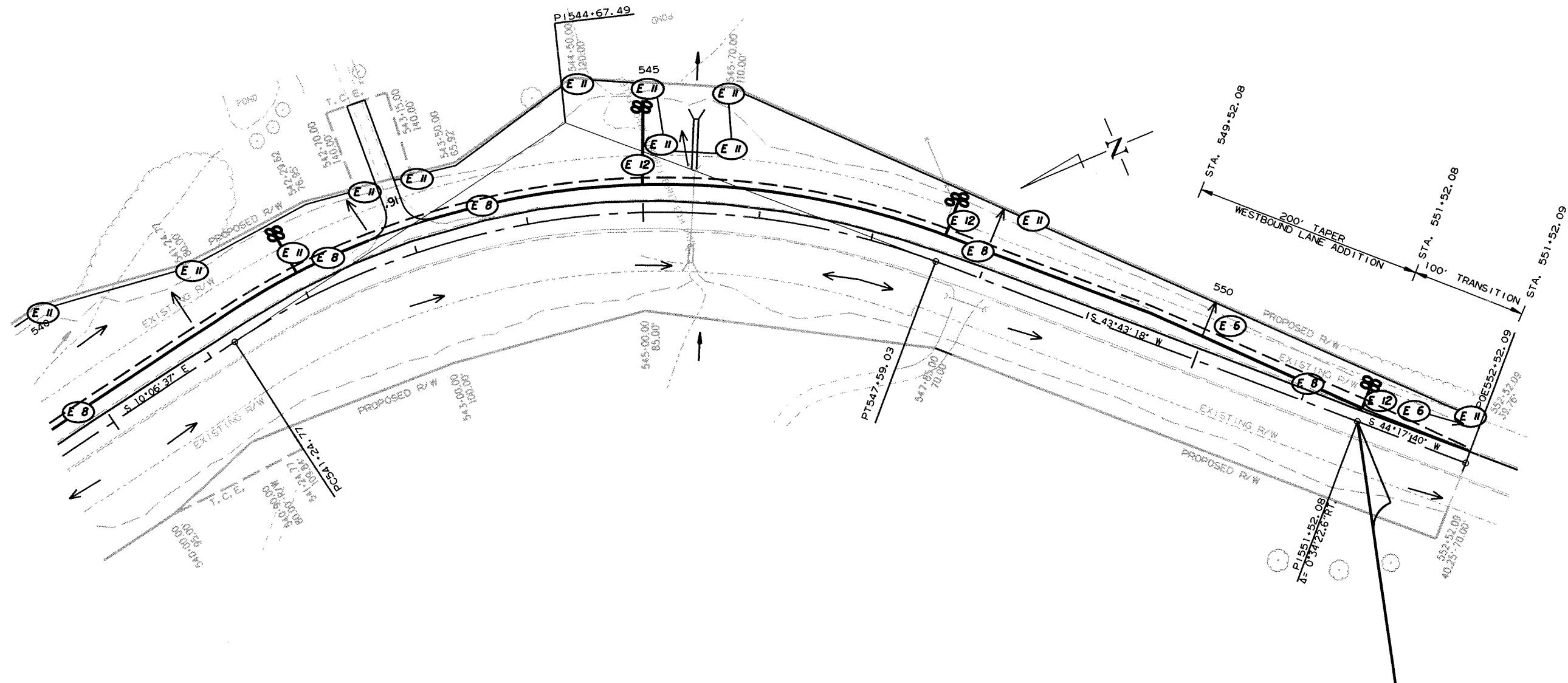
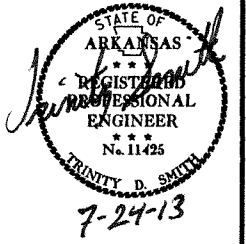
SILT FENCE (E-11)
 STA. 540+00.00 - STA. 542+80.00 LT. 310 LIN. FT.
 STA. 543+00.00 - STA. 522+52.09 LT. 1155 LIN. FT.

ROCK DITCH CHECKS (E-6) CU. YD.
 STA. 550+50.00 LT. 1 INSTALLATION 2.11
 STA. 552+50.00 LT. 1 INSTALLATION 2.11

DIVERSION DITCH (E-8)
 STA. 540+00 - STA. 542+65 LT. 265 LIN. FT.
 STA. 543+20 - STA. 551+52 LT. 832 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12) DUMPED RIPRAP
 STA. 542+46 LT. 45 LIN. FT. 1 CU. YD.
 STA. 545+00 LT. 75 LIN. FT. 1 CU. YD.
 STA. 547+600 LT. 35 LIN. FT. 1 CU. YD.

2 TEMPORARY EROSION CONTROL DETAILS



REVISION BOX

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STA 551+52.08 - END
 JOB 050231
 L.M. 15.52

STAGE I
 TEMPORARY EROSION CONTROL DETAILS

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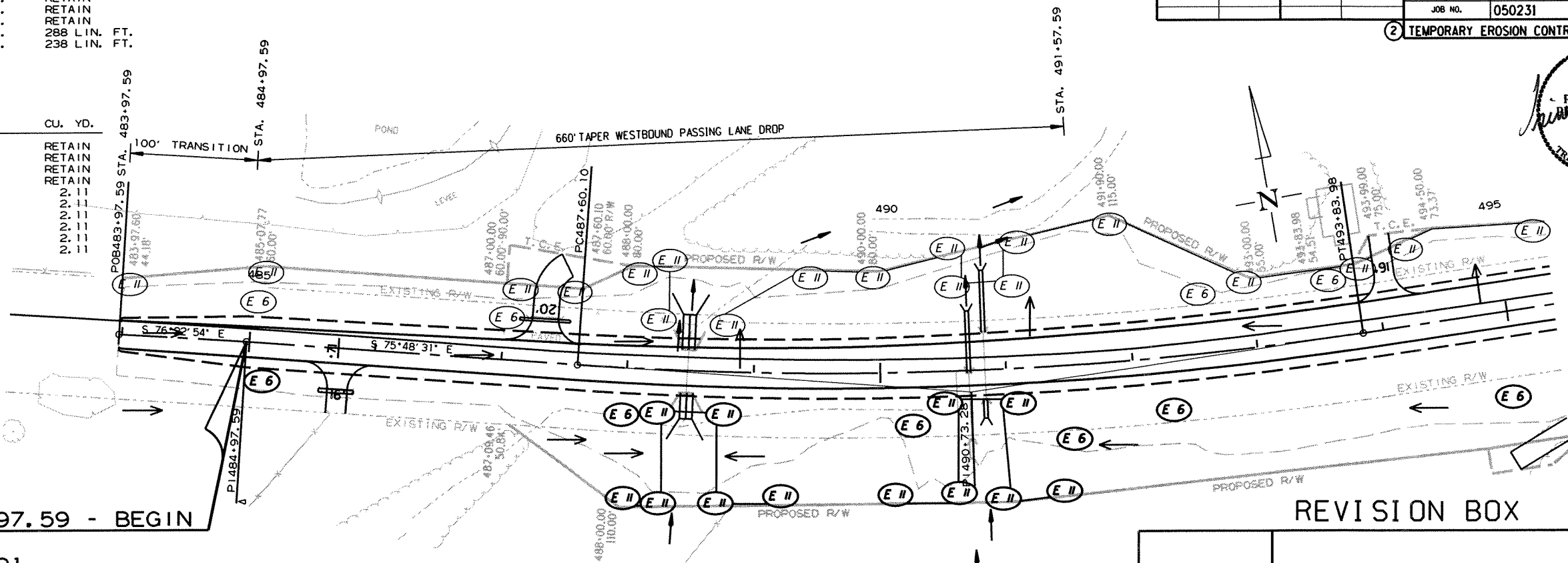
SILT FENCE (E-11)

STA. 483+97.59 - STA. 487+20.00	LT.	RETAIN
STA. 487+50.00 - STA. 494+00.00	LT.	RETAIN
STA. 494+20.00 - STA. 495+00.00	LT.	RETAIN
STA. 488+00.00 - STA. 489+00.00	RT.	288 LIN. FT.
STA. 490+00.00 - STA. 491+20.00	RT.	238 LIN. FT.

ROCK DITCH CHECKS (E-6)

STA.	LT.	INSTALLATION	CU. YD.
STA. 485+00	LT.	INSTALLATION	RETAIN
STA. 487+00	LT.	INSTALLATION	RETAIN
STA. 492+60	LT.	INSTALLATION	RETAIN
STA. 493+70	LT.	INSTALLATION	RETAIN
STA. 485+00	RT.	INSTALLATION	2.11
STA. 488+00	RT.	INSTALLATION	2.11
STA. 490+00	RT.	INSTALLATION	2.11
STA. 491+50	RT.	INSTALLATION	2.11
STA. 492+20	RT.	INSTALLATION	2.11
STA. 495+00	RT.	INSTALLATION	2.11

STA 484+97.59 - BEGIN
SITE 1
JOB 050231
L.M. 14.26



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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2 TEMPORARY EROSION CONTROL DETAILS



REVISION BOX

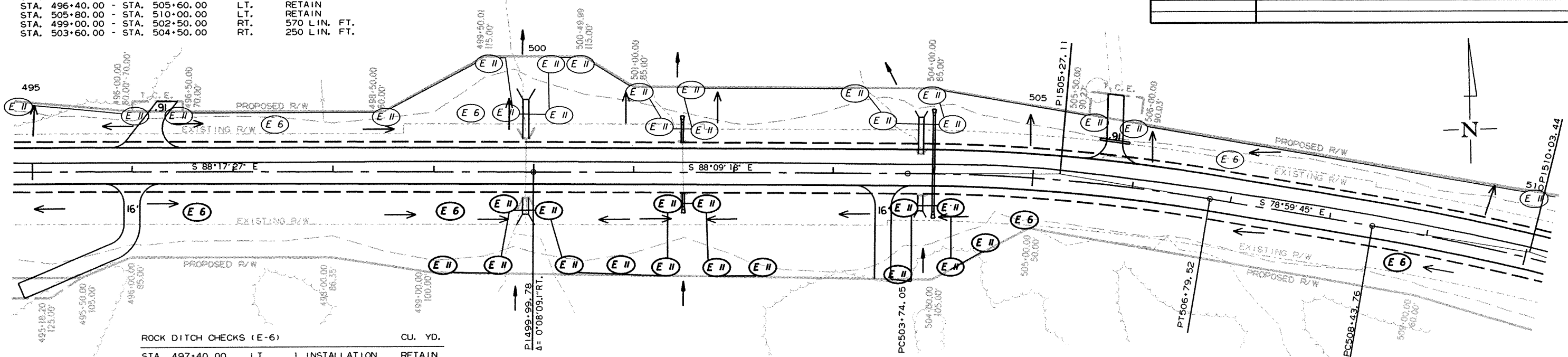
DATE	REVISION

SILT FENCE (E-11)

STA. 495+00.00 - STA. 496+00.00	LT.	RETAIN
STA. 496+40.00 - STA. 505+60.00	LT.	RETAIN
STA. 505+80.00 - STA. 510+00.00	LT.	RETAIN
STA. 499+00.00 - STA. 502+50.00	RT.	570 LIN. FT.
STA. 503+60.00 - STA. 504+50.00	RT.	250 LIN. FT.

ROCK DITCH CHECKS (E-6)

STA.	LT.	INSTALLATION	CU. YD.
STA. 497+40.00	LT.	INSTALLATION	RETAIN
STA. 499+42.00	LT.	INSTALLATION	RETAIN
STA. 507+00.00	LT.	INSTALLATION	RETAIN
STA. 496+50.00	RT.	INSTALLATION	2.11
STA. 499+00.00	RT.	INSTALLATION	2.11
STA. 505+00.00	RT.	INSTALLATION	2.11
STA. 509+00.00	RT.	INSTALLATION	2.11



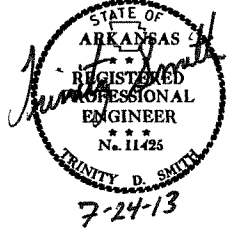
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/10/2013

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		11	101

2 TEMPORARY EROSION CONTROL DETAILS

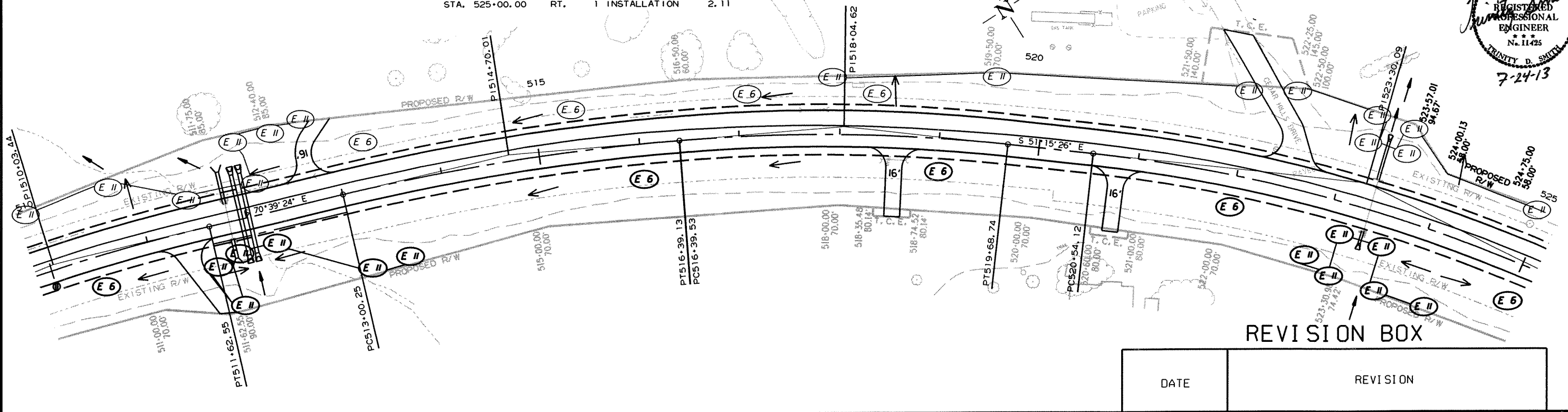


SILT FENCE (E-11)

STA. 510+00.00 - STA. 512+65.00	LT.	RETAIN
STA. 518+00.00 - STA. 522+00.00	LT.	RETAIN
STA. 522+40.00 - STA. 525+00.00	LT.	RETAIN
STA. 511+53.00 - STA. 513+60.00	RT.	320 LIN. FT.
STA. 522+70.00 - STA. 524+36.00	RT.	232 LIN. FT.

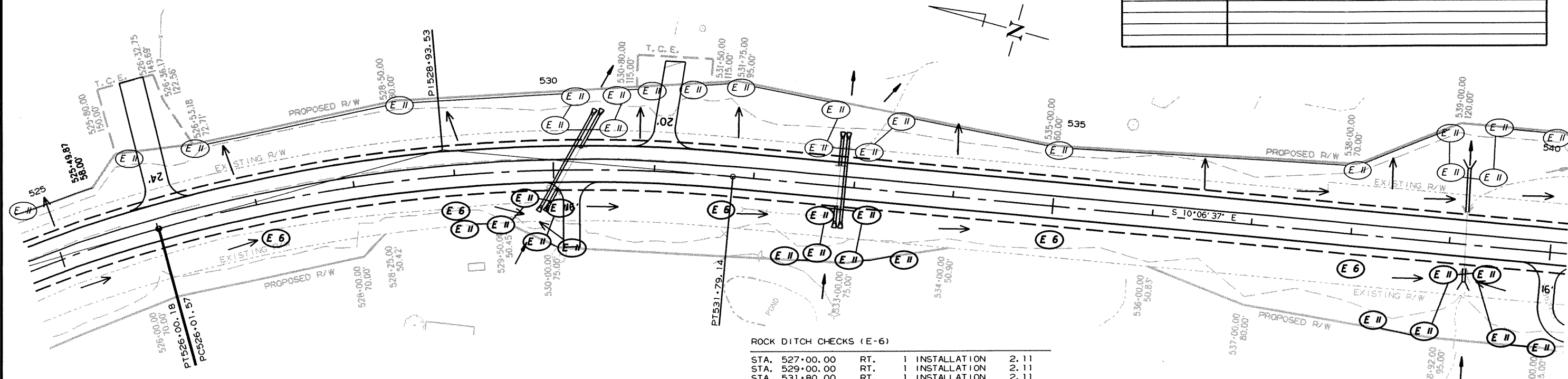
ROCK DITCH CHECKS (E-6)

STA. 513+34.00	LT.	1	INSTALLATION	RETAIN
STA. 515+40.00	LT.	1	INSTALLATION	RETAIN
STA. 517+00.00	LT.	1	INSTALLATION	RETAIN
STA. 518+37.00	LT.	1	INSTALLATION	RETAIN
STA. 510+50.00	RT.	1	INSTALLATION	N,N,N, 11
STA. 516+00.00	RT.	1	INSTALLATION	N,N,N, 11
STA. 519+00.00	RT.	1	INSTALLATION	N,N,N, 11
STA. 522+00.00	RT.	1	INSTALLATION	N,N,N, 11
STA. 525+00.00	RT.	1	INSTALLATION	2, 11



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SILT FENCE (E-11)

STA. 525+80.00 - STA. 525+94.00	LT.	RETAIN
STA. 526+60.00 - STA. 531+00.00	LT.	RETAIN
STA. 531+23.00 - STA. 540+00.00	LT.	RETAIN
STA. 529+00.00 - STA. 530+00.00	RT.	180 LIN. FT.
STA. 532+50.00 - STA. 533+50.00	RT.	215 LIN. FT.
STA. 538+30.00 - STA. 540+00.00	RT.	284 LIN. FT.

ROCK DITCH CHECKS (E-6)

STA. 527+00.00	RT.	1	INSTALLATION	2, 11
STA. 529+00.00	RT.	1	INSTALLATION	2, 11
STA. 531+80.00	RT.	1	INSTALLATION	2, 11
STA. 535+00.00	RT.	1	INSTALLATION	2, 11
STA. 538+00.00	RT.	1	INSTALLATION	2, 11

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/10/2013

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				6	ARK.		12	101
JOB NO. 050231								

② TEMPORARY EROSION CONTROL DETAILS



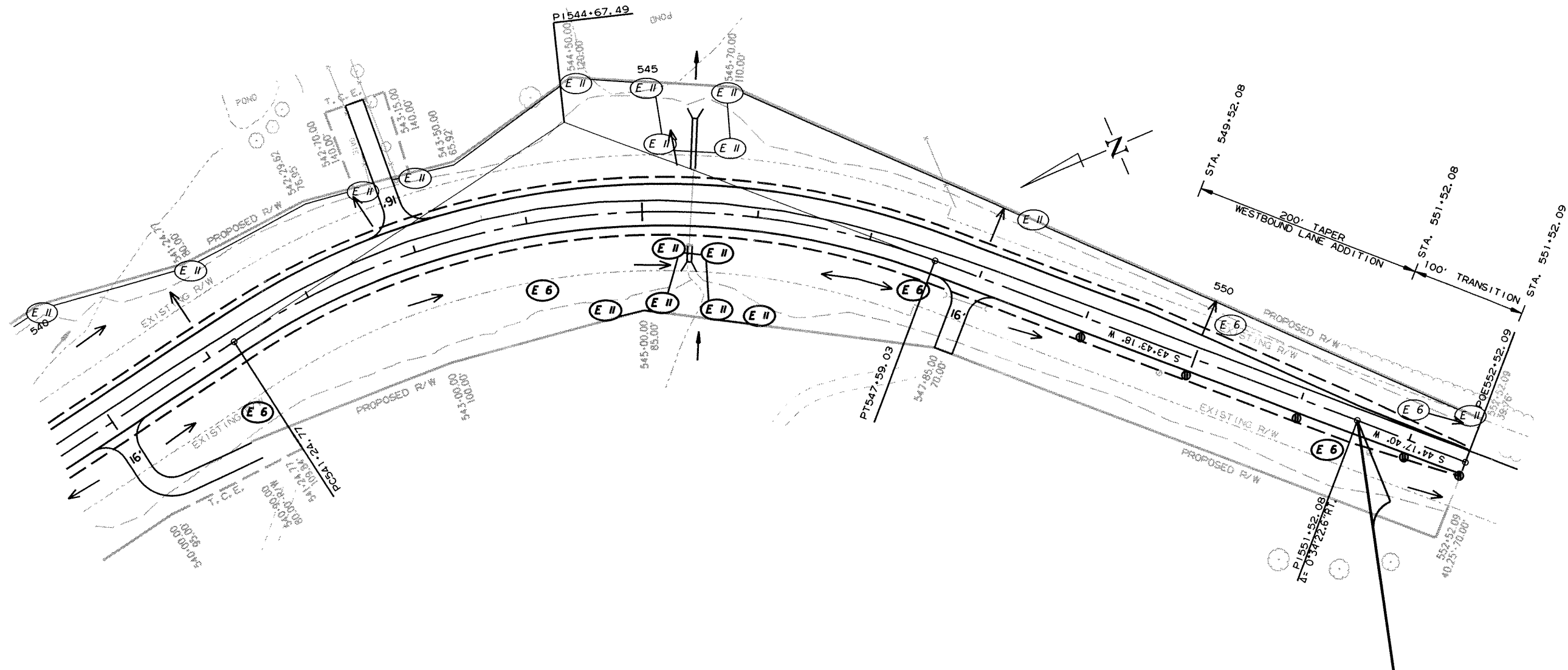
7-24-13

SILT FENCE (E-11)

STA. 540+00.00 - STA. 542+80.00	LT.	RETAIN
STA. 543+00.00 - STA. 522+52.09	LT.	RETAIN
STA. 544+50.00 - STA. 546+50.00	RT.	240 LIN. FT.

ROCK DITCH CHECKS (E-6)

STA. 550+50.00	LT.	1	INSTALLATION	RETAIN
STA. 552+50.00	LT.	1	INSTALLATION	RETAIN
STA. 541+00.00	RT.	1	INSTALLATION	2.11
STA. 544+00.00	RT.	1	INSTALLATION	2.11
STA. 547+60.00	RT.	1	INSTALLATION	2.11
STA. 551+50.00	RT.	1	INSTALLATION	2.11



REVISION BOX

DATE	REVISION

STA 551+52.08 - END
SITE 1
JOB 050231
L.M. 15.52

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/10/2013

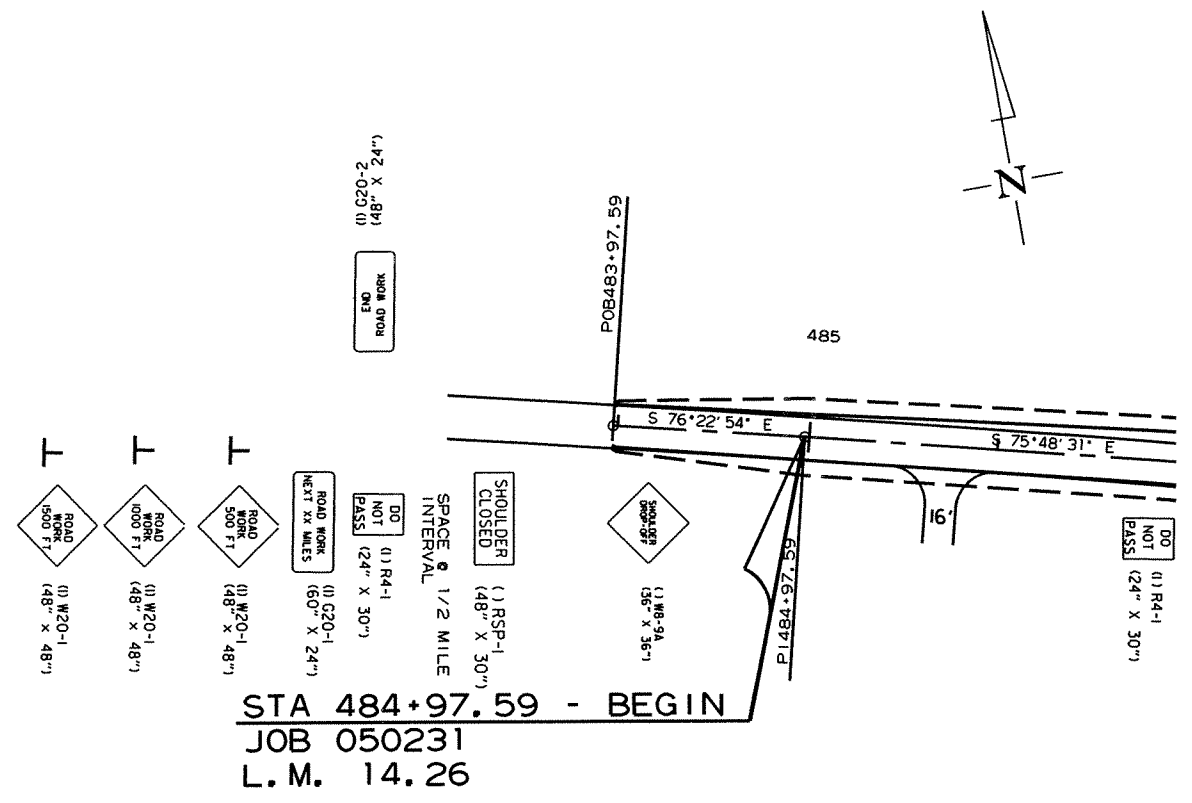
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050231	13	101

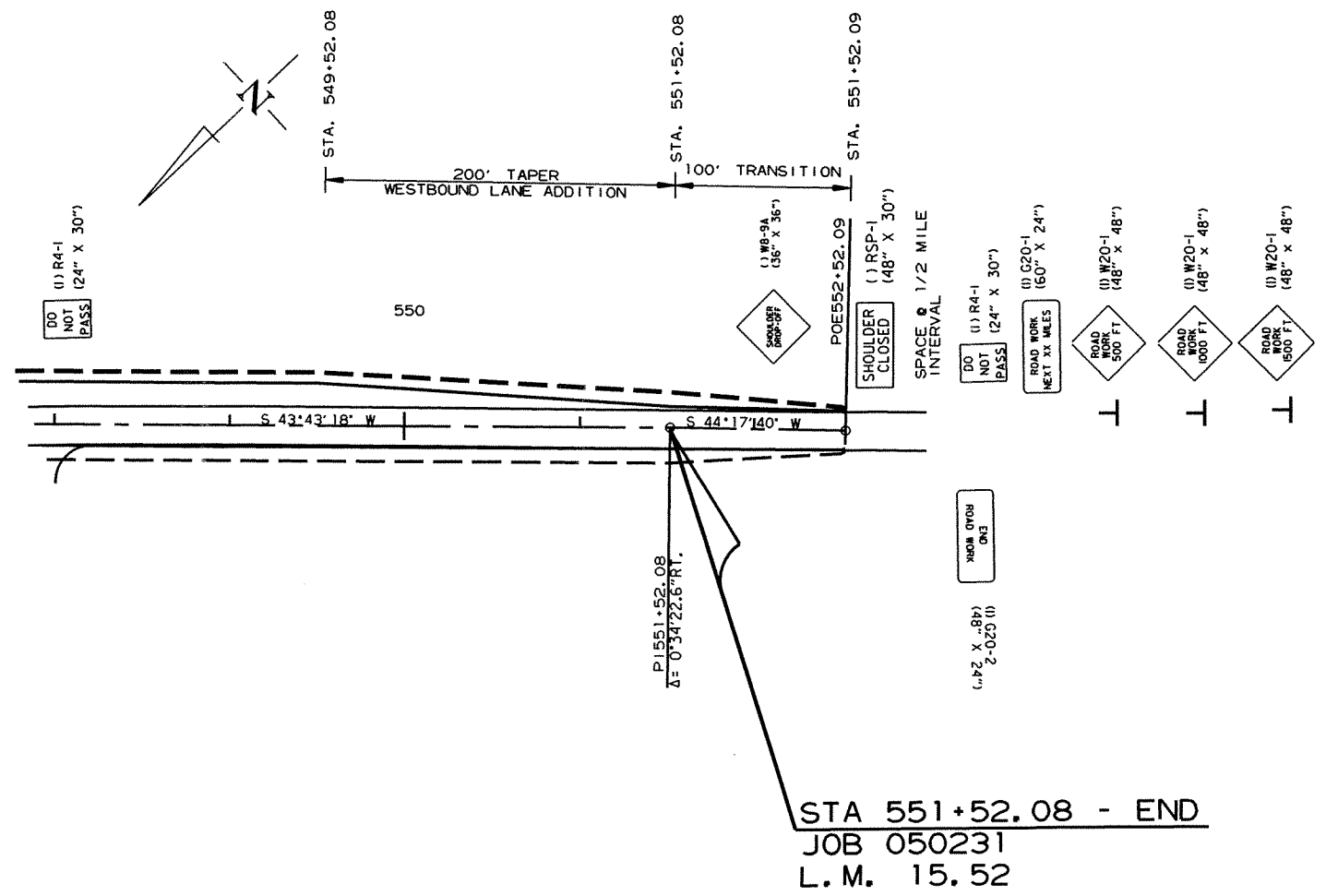
2 MAINTENANCE OF TRAFFIC DETAILS



7-24-13



STA 484+97.59 - BEGIN
JOB 050231
L.M. 14.26

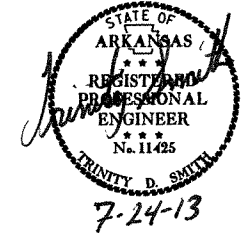


STA 551+52.08 - END
JOB 050231
L.M. 15.52

MAINTENANCE OF TRAFFIC DETAILS
ADVANCE WARNING SIGNS

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				6	ARK.			
				JOB NO.	050231		14	101

② MAINTENANCE OF TRAFFIC DETAILS



SEQUENCING:

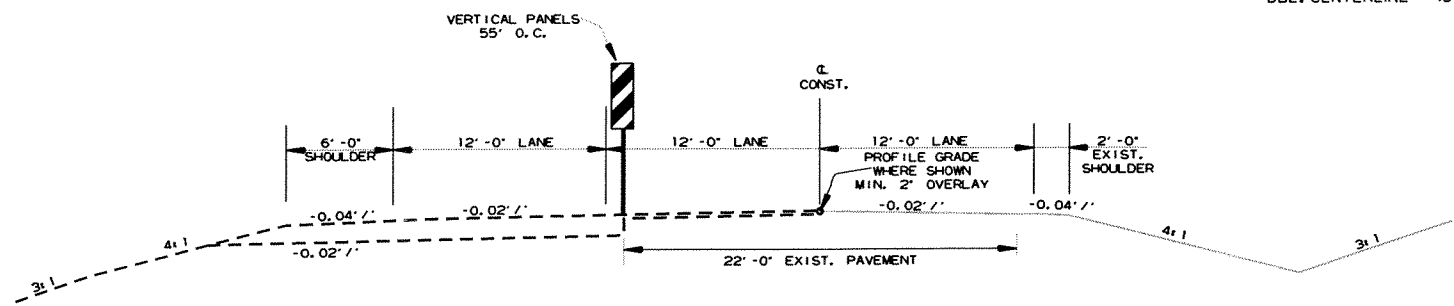
STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 55' O.C. SPACING.

STAGE 2: WIDEN SHOULDER ON RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.

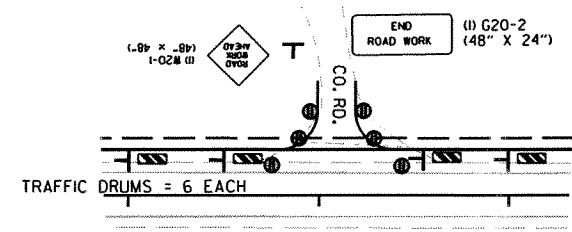
STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

CONSTRUCTION PAVEMENT MARKINGS:

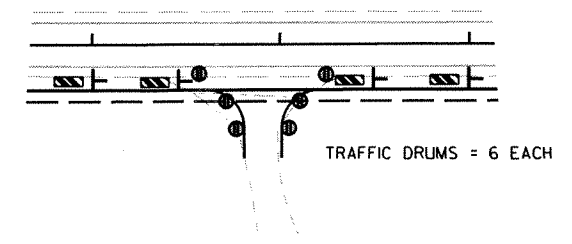
AS DIRECTED BY THE ENGINEER OVER LEVELING COURSE:
 RT. AND LT. EDGE LINES = 13309 LIN. FT.
 DBL. CENTERLINE = 13309 LIN. FT.



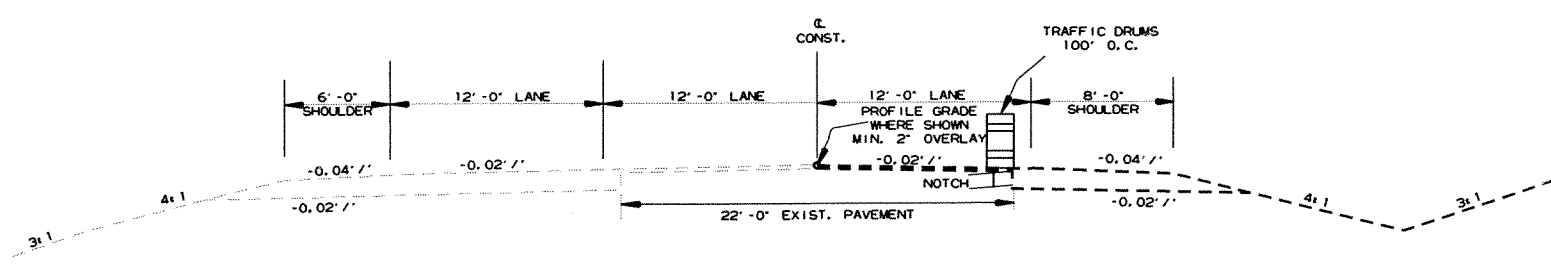
OVERLAY TANGENT - PASSING LANE (LEFT SIDE) WIDENING
 STAGE 1



COUNTY ROAD TRAFFIC DRUM
 AND ADVANCE SIGN WARNING DETAIL



DRIVEWAY TRAFFIC DRUM DETAIL



OVERLAY TANGENT - PASSING LANE (RIGHT SIDE) WIDENING
 STAGE 2

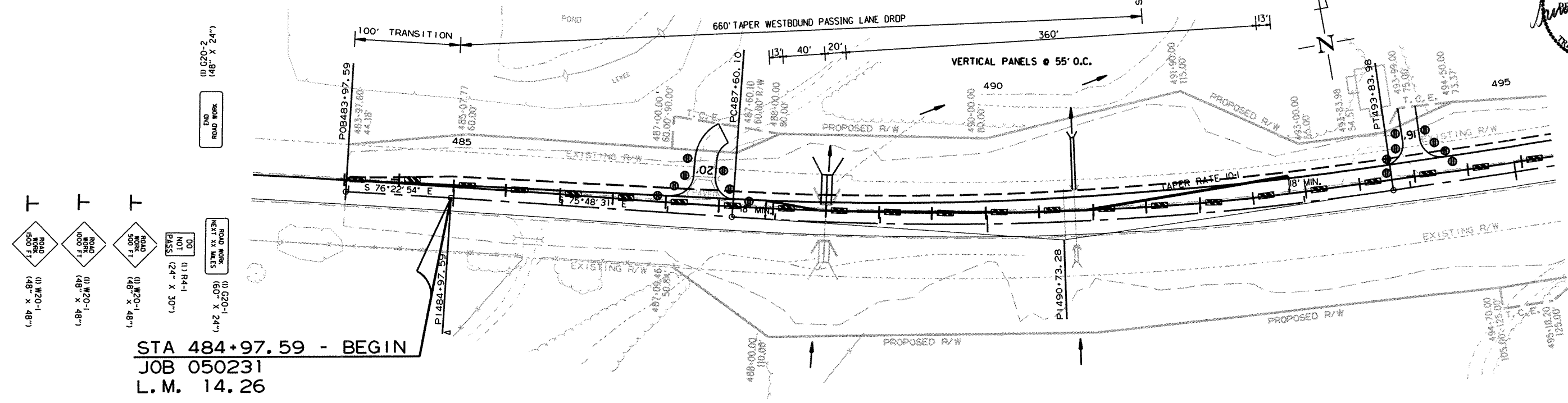
STA. 487+85 - STA. 492+31 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 446 LIN. FT.

VERTICAL PANELS @ 55' O.C. = 20 EACH

TRAFFIC DRUMS = 16 EACH

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				6	ARK.			

2 MAINTENANCE OF TRAFFIC DETAILS



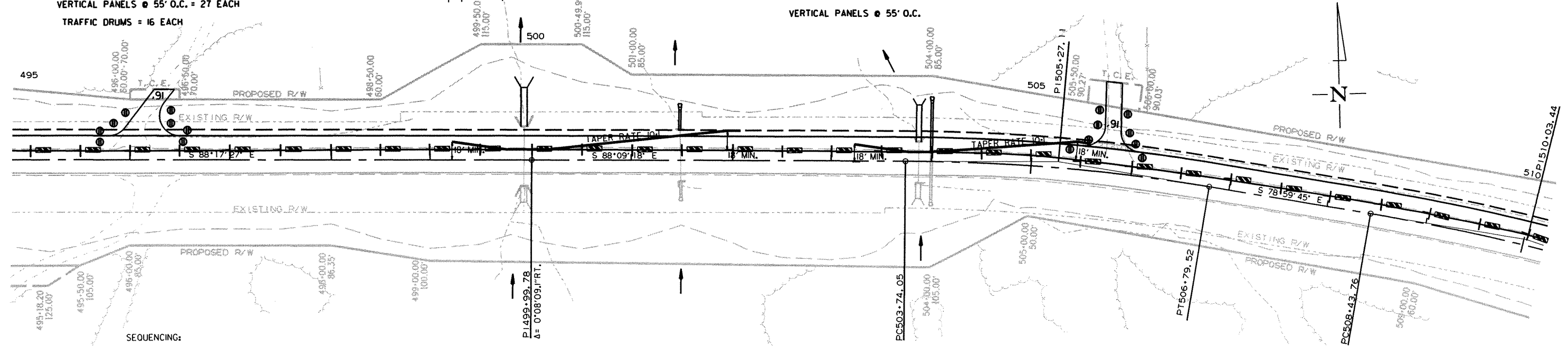
STA 484+97.59 - BEGIN
JOB 050231
L.M. 14.26

STA. 499+22 - STA. 502+08 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 286 LIN. FT.

VERTICAL PANELS @ 55' O.C. = 27 EACH
TRAFFIC DRUMS = 16 EACH

STA. 503+25 - STA. 505+51 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 226 LIN. FT.

VERTICAL PANELS @ 55' O.C.



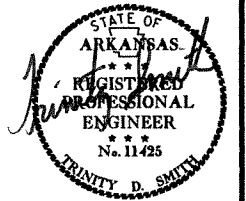
SEQUENCING:

- STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 55' O.C. SPACING.
- STAGE 2: WIDEN SHOULDER ON RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.
- STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

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				6	ARK.		17	101
JOB NO. 050231								

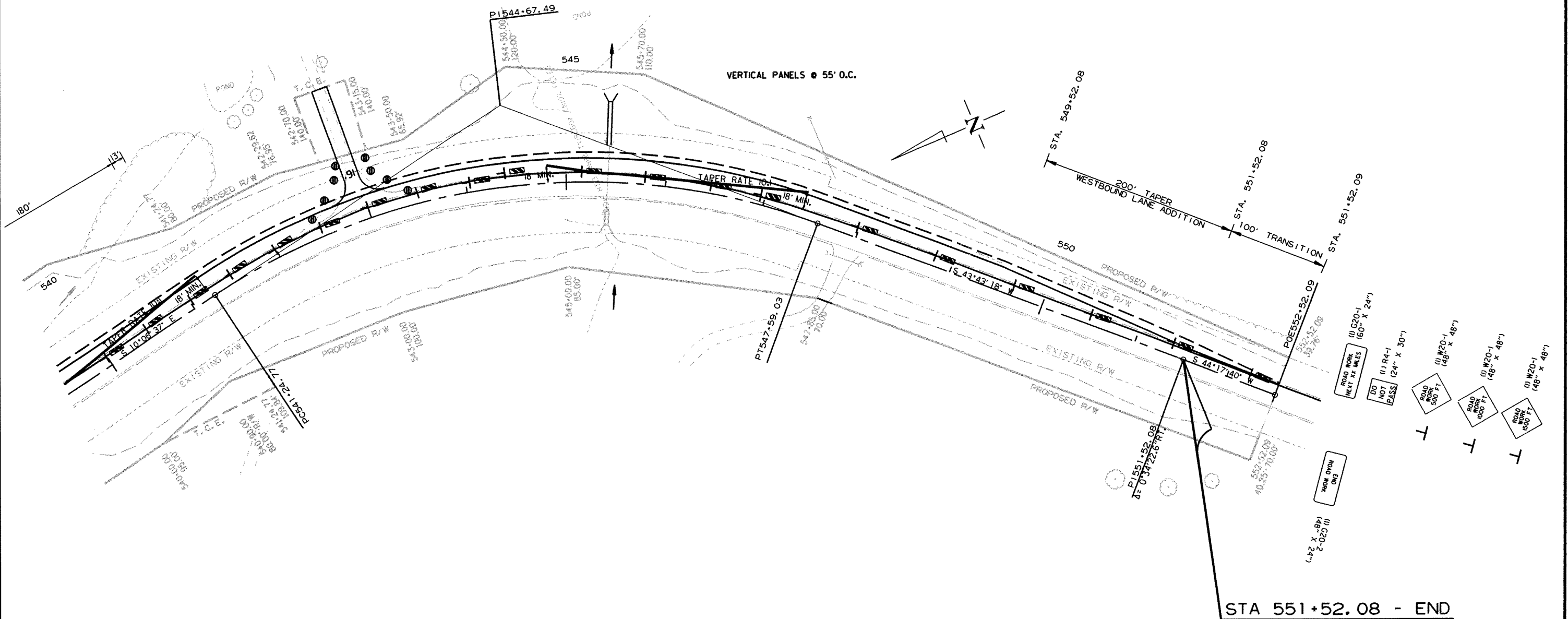
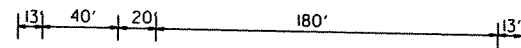
② MAINTENANCE OF TRAFFIC DETAILS



STA. 544+79 - STA. 547+35- FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.

VERTICAL PANELS @ 55' O.C. = 2/EACH

TRAFFIC DRUMS = 8 EACH



STA 551+52.08 - END
JOB 050231
L.M. 15.52

SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 55' O.C. SPACING.

STAGE 2: WIDEN SHOULDER ON RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.

STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

01/09/2012

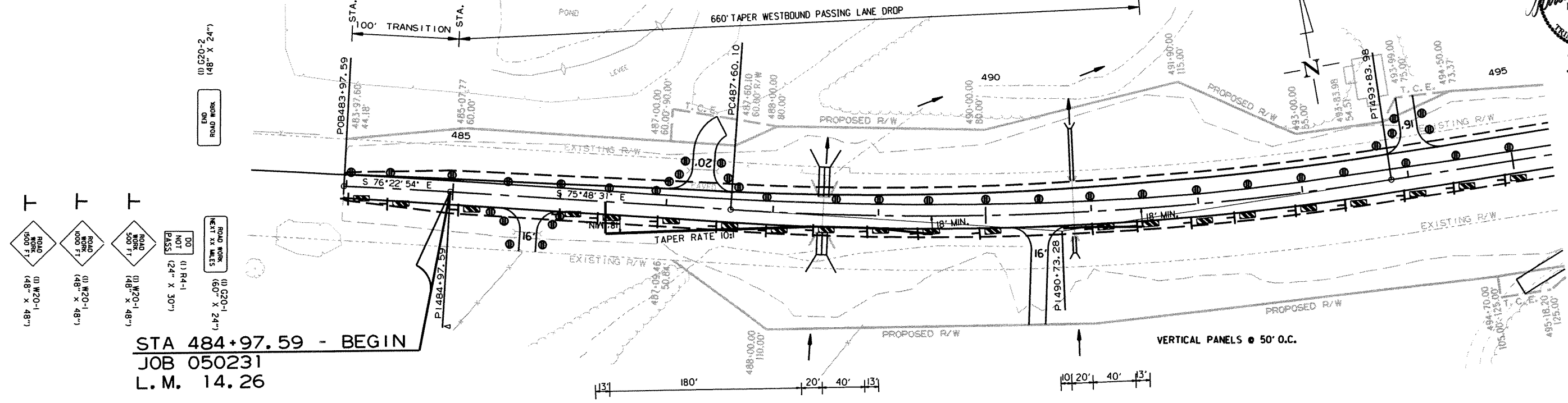
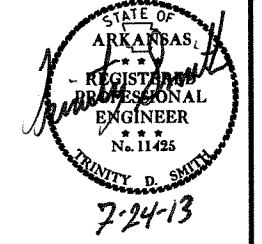
050231

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		18	101
JOB NO. 050231							② MAINTENANCE OF TRAFFIC DETAILS	

STA. 486+45 - STA. 489+11 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.
 TRAFFIC DRUMS @ 50' O.C. = 22 EACH
 TRAFFIC DRUMS = 18 EACH
 VERTICAL PANELS @ 50' O.C. = 22 EACH

STA. 490+74 - STA. 491+57 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH ONE (10') TEMPORARY IMPACT ATTENUATION BARRIER AND ONE (13') SPECIAL END UNIT = 83 LIN. FT.
 STA. 490+74 - STA. 490+84 - TEMPORARY IMPACT ATTENUATION BARRIER - IEACH
 TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) - IEACH

TRAFFIC DRUMS @ 50' O.C.

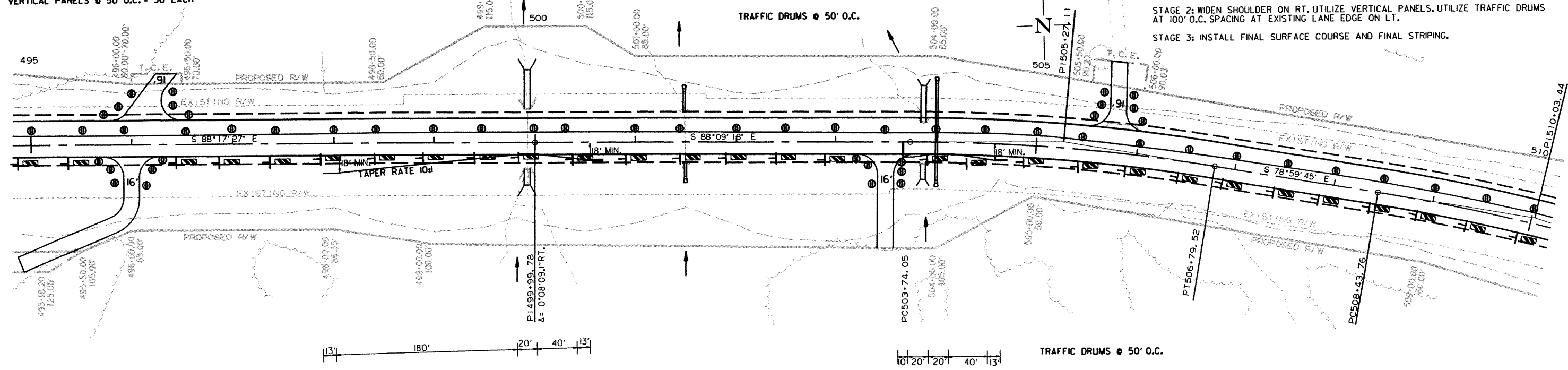


STA 484+97.59 - BEGIN
 JOB 050231
 L.M. 14.26

STA. 497+89 - STA. 500+55 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.
 TRAFFIC DRUMS @ 50' O.C. = 30 EACH
 TRAFFIC DRUMS = 24 EACH
 VERTICAL PANELS @ 50' O.C. = 30 EACH

STA. 503+67 - STA. 504+70 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH ONE (10') TEMPORARY IMPACT ATTENUATION BARRIER AND ONE (13') SPECIAL END UNIT = 83 LIN. FT.
 STA. 503+67 - STA. 503+77 - TEMPORARY IMPACT ATTENUATION BARRIER - IEACH
 TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) - IEACH

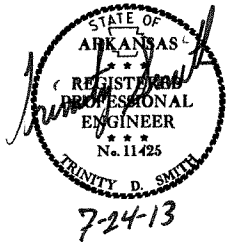
SEQUENCING:
 STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS, NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 55' O.C. SPACING.
 STAGE 2: WIDEN SHOULDER ON RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.
 STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



STAGE 2
 MAINTENANCE OF TRAFFIC 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.	050231		19	101

② MAINTENANCE OF TRAFFIC DETAILS



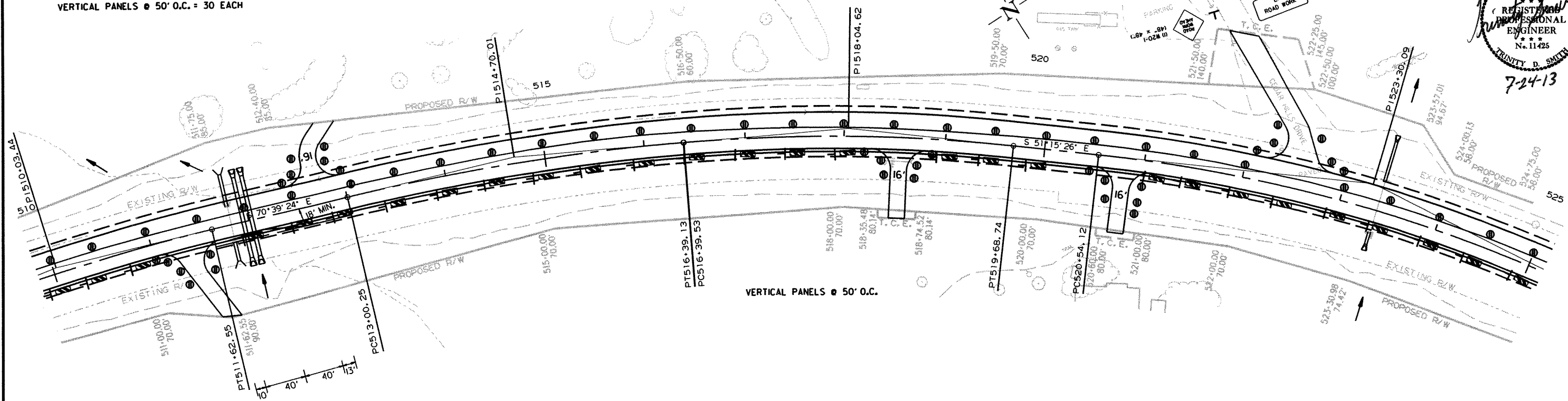
STA. 511+63 - STA. 512+66 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 93 LIN. FT.

STA. 511+63 - STA. 511+73 - TEMPORARY IMPACT ATTENUATION BARRIER - IEACH
 TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) - IEACH

TRAFFIC DRUMS @ 50' O.C. = 30 EACH
 TRAFFIC DRUMS = 30 EACH
 VERTICAL PANELS @ 50' O.C. = 30 EACH

TRAFFIC DRUMS @ 50' O.C.

VERTICAL PANELS @ 50' O.C.

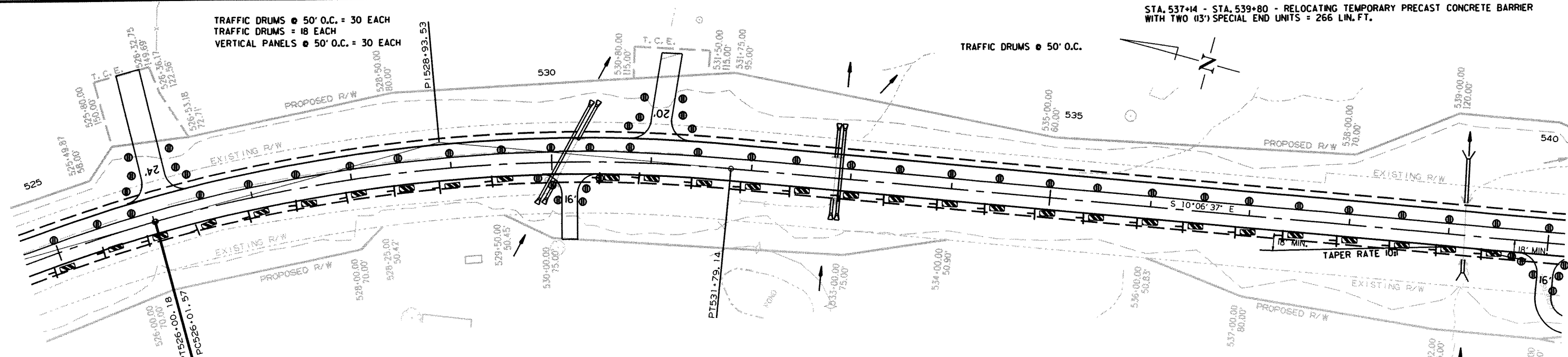


TRAFFIC DRUMS @ 50' O.C. = 30 EACH
 TRAFFIC DRUMS = 18 EACH
 VERTICAL PANELS @ 50' O.C. = 30 EACH

STA. 537+14 - STA. 539+80 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.

TRAFFIC DRUMS @ 50' O.C.

VERTICAL PANELS @ 50' O.C.



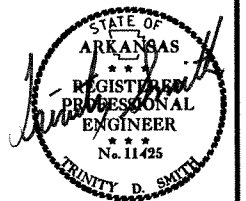
SEQUENCING:

- STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS, PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAVEMENT MARKINGS, NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 55' O.C. SPACING.
- STAGE 2: WIDEN SHOULDER ON RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.
- STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STAGE 2
 MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		20	101
				JOB NO.		050231		

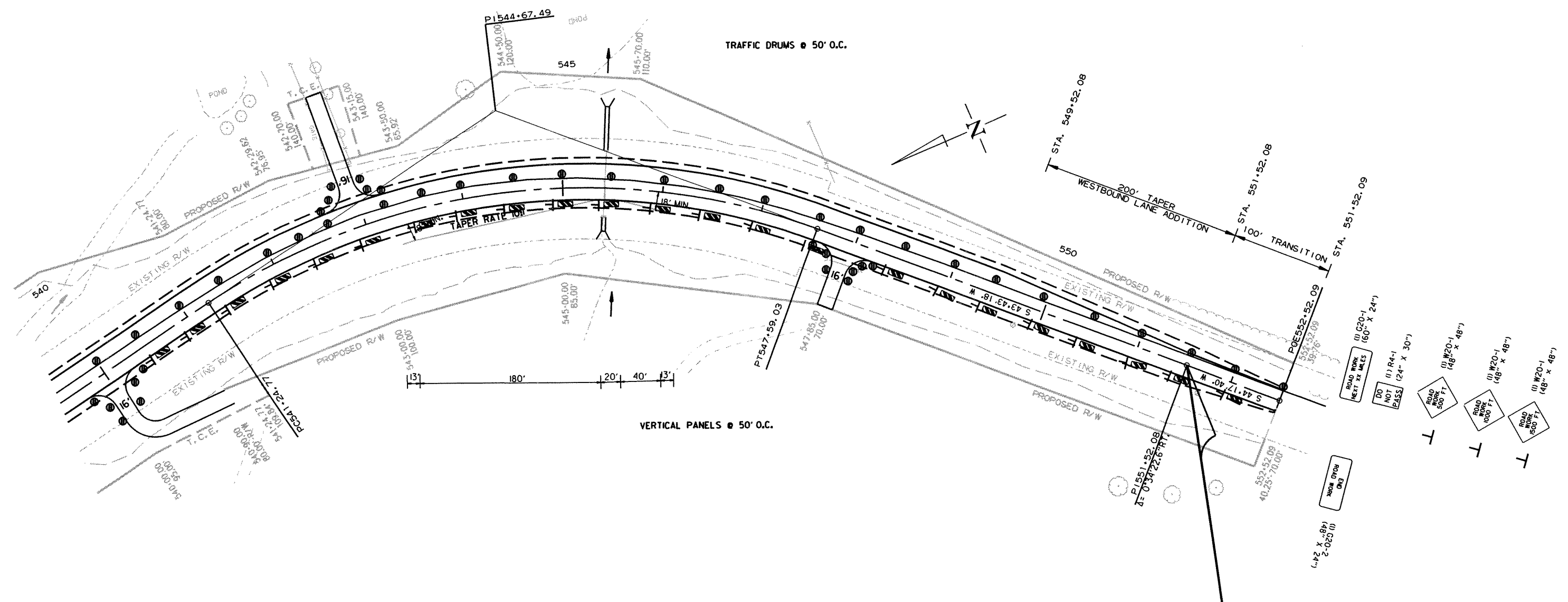
2 MAINTENANCE OF TRAFFIC DETAILS



7-24-13

STA. 543+29 - STA. 545+95 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.

TRAFFIC DRUMS @ 50' O.C. = 23 EACH
 TRAFFIC DRUMS = 18 EACH
 VERTICAL PANELS @ 50' O.C. = 23 EACH



STA 551+52.08 - END
 JOB 050231
 L.M. 15.52

SEQUENCING:
 STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 55' O.C. SPACING.
 STAGE 2: WIDEN SHOULDER ON RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.
 STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

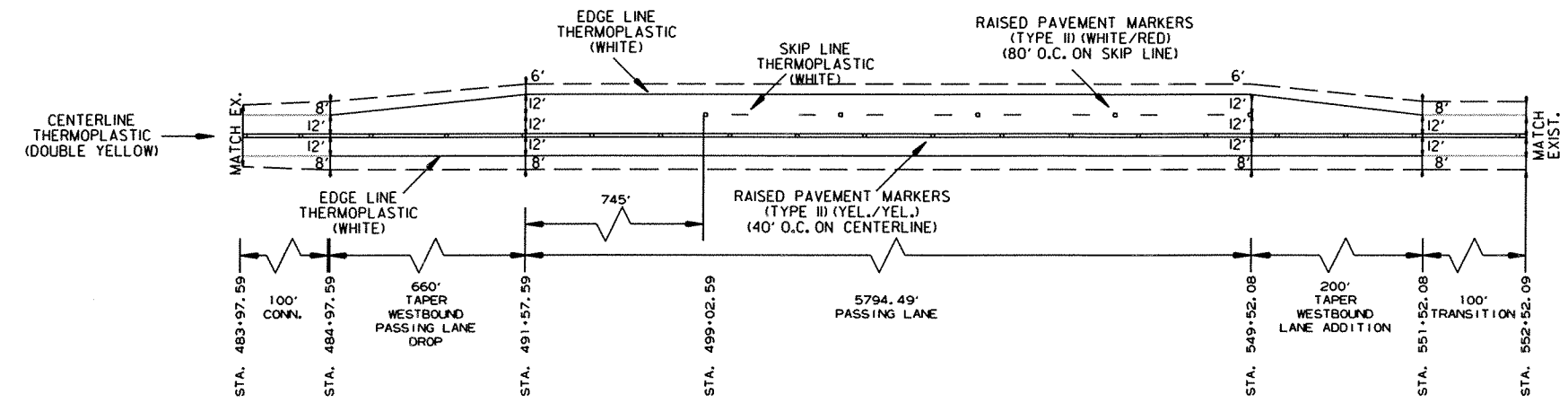
STAGE 2
 MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		21	101
				JOB NO. 050231				

② PERMANENT PAVEMENT MARKING DETAILS



7-24-13



CONSTRUCTION PAVEMENT MARKINGS: 13709 LIN. FT.

PERMANENT PAVEMENT MARKING DETAILS:

THERMOPLASTIC PAVEMENT MARKINGS:
 RT. AND LT. EDGE LINES = 13709 LIN. FT. WHITE
 DBL. CENTERLINE = 13709 LIN. FT. YELLOW
 SKIP LINE = 1260 LIN. FT. WHITE
 EDGE LINES ON COUNTY ROADS = 326 LIN. FT. WHITE

RAISED PAVEMENT MARKERS:
 TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 172 EACH
 TYPE II (WHITE/RED) 80' O.C. ON SKIP LINE = 64 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
							JOB NO. 050231	22	101

2 QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES, CONSTRUCTION PAVEMENT MARKINGS, AND PERMANENT PAVEMENT MARKINGS

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER	RELOCATING TEMPORARY PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	RAISED PAVEMENT MARKERS		CONSTRUCTION PAVEMENT MARKINGS	THERMOPLASTIC PAVEMENT MARKINGS		RUMBLE STRIPS IN ASPHALT SHOULDERS			
						NO.	SQ. FT.							EACH	EACH		LIN. FT.	EACH		EACH	4"	
																					WHITE	YELLOW
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2		2	32.0															
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2		2	32.0															
W20-1	ROAD WORK 500 FT.	48"x48"	2	2		2	32.0															
W20-1	ROAD WORK AHEAD	48"x48"	3	3		3	48.0															
G20-2	END ROAD WORK	48"x24"	3	3		3	24.0															
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2		2	20.0															
R11-2	ROAD CLOSED	48"x30"	24	18		4	40.0															
R4-1	DO NOT PASS	24"x30"	4	4		4	20.0															
RSP-1	SHOULDER CLOSED	48"x30"	3	3		3	30.0															
W8-9a	SHOULDER DROP OFF	36"x36"	3	3		3	27.0															
	VERTICAL PANELS RT.		122	135	135			135														
	TRAFFIC DRUMS		72	266	266				266													
	FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER									1756												
	RELOCATING TEMPORARY PRECAST CONCRETE BARRIER										1323											
	TEMPORARY IMPACT ATTENUATION BARRIER											3										
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)												3									
	CONSTRUCTION PAVEMENT MARKINGS															13709						
	RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED)													64								
	RAISED PAVEMENT MARKERS (TYPE II) (YEL/YEL)														172							
	THERMOPLASTIC PAVEMENT MARKING WHITE (4")																15295					
	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")																	13709				
	RUMBLE STRIPS																			13381		
TOTALS:							305.0	135	266	1756	1323	3	3	64	172	13709	15295	13709	13381			

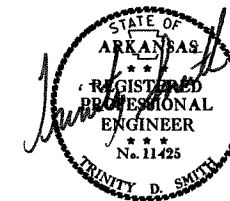
NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050231		23	101

② QUANTITIES

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
483+97	552+52	70	70
TOTALS:		70	70



EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT		ROCK FILL
				CU. YD.		
483+97.59	552+52.09	MAIN LANES	24883	33849		
489+00.00	491+57.59	ROCK FILL				1100
ENTIRE PROJECT		DRIVEWAYS		3270		
TOTALS:			24883	37119		1100

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO SOIL CLASS	COLOR
501+00	5' RT	0-5	26	13	A-6(5)	BROWN
501+00	22' RT	0-5	23	12	A-6(4)	BROWN
509+00	6' LT	0-2Z	17	3	A-2-4(0)	BROWN
509+00	28' LT	0-5	32	17	A-6(4)	RD/BR
517+00	6' RT	0-5	51	38	A-7-6(31)	GRAY
517+00	22' LT	0-5	48	32	A-7-6(24)	BR/GR
525+00	6' LT	0-5	43	27	A-7-6(15)	BROWN
525+00	24' LT	0-4Z	61	38	A-7-6(31)	BROWN
533+00	6' RT	0-5	44	28	A-7-6(18)	BROWN
533+00	30' RT	0-5	38	21	A-6(14)	RD/BR
541+00	6' LT	0-5	38	21	A-6(11)	BROWN
541+00	30' LT	0-5	39	16	A-6(13)	BROWN
549+00	6' RT	0-5	21	11	A-6(4)	BROWN
549+00	24' RT	0-5	48	28	A-7-6(21)	BROWN

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

REMOVAL AND DISPOSAL OF STRUCTURES

STATION	DESCRIPTION	REMOVAL AND DISPOSAL OF PIPE CULVERTS	REMOVAL AND DISPOSAL OF CONCRETE DRIVE
		EACH	SQ. YD.
485+71	42" X 30" X 47' ARCH CM PIPE CULVERT RT. SIDE DRAIN	1	
487+32	24" X 22" CORR. PLASTIC PIPE CULVERT LT. SIDE DRAIN	1	
505+82	18" X 27" CM PIPE CULVERT LT. SIDE DRAIN	1	
512+63	21" X 15" X 24' ARCH CM PIPE CULVERT LT. SIDE DRAIN	1	
517+74	18" X 24" C.M. PIPE CULVERT LT. SIDE DRAIN	1	
518+55	21" X 15" X 25' ARCH CM PIPE CULVERT RT. SIDE DRAIN	1	
531+13	18" X 40' CM PIPE CULVERT LT. SIDE DRAIN	1	
532+04	18" X 22" CM PIPE CULVERT RT. SIDE DRAIN	1	
540+00	CONCRETE DRIVE ON RT.		540
548+47	24" X 30' CM PIPE CULVERT RT. SIDE DRAIN	1	
TOTALS:		9	540

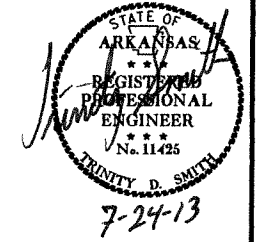
BENCH MARKS

STATION	DESCRIPTION	BENCH MARK
		EACH
488+48	RIGHT HEADWALL	1
511+82	RIGHT HEADWALL	1
545+42	RIGHT HEADWALL	1
TOTAL:		3

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050231	24	101	

② QUANTITIES



MAIN LANE BASE AND SURFACING

10581.91	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1") (PG 64-22)				ACHM SURFACE COURSE (1/2") (PG 64-22)								
				TON / STATION	TON	LEVELING			BETWEEN COURSES			GALLON	COURSES			TON	LEVELING *				COURSES			
						TOTAL WID. FEET	SQ. YD.	GAL / SQ. YD.	TOTAL WID. FEET	SQ. YD.	GAL / SQ. YD.		AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.		AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	TON
483+97.59	484+97.59	MAIN LANE NOTCH AND WIDEN TRANSITION-TWO LANE	100.00	76.50	77	22.00	244	0.10	24.21	269	0.03	32	1.13	13	495	3	22.00	244	220	27	32.08	356	220	39
484+97.59	491+57.59	MAIN LANES NOTCH AND WIDEN- TAPER PASSING LANE DROP	660.00	179.50	1185	22.00	1613	0.10	16.42	1204	0.03	197	8.25	605	495	150	22.00	1613	220	177	53.17	3899	220	429
491+57.59	549+52.08	MAIN LANES NOTCH AND WIDEN- PASSING LANE	5794.49	206.25	11951	22.00	14164	0.10	28.42	18298	0.03	1965	14.25	9175	495	2271	22.00	14164	220	1558	64.17	41315	220	4545
549+52.08	551+52.08	MAIN LANES NOTCH AND WIDEN- TAPER WESTBOUND LANE ADDITION	200.00	179.50	359	22.00	489	0.10	16.42	365	0.03	60	8.25	183	495	45	22.00	489	220	54	53.17	1182	220	130
551+52.08	552+52.08	MAIN LANE NOTCH AND WIDEN TRANSITION-TWO LANE	100.00	76.50	77	22.00	244	0.10	2.21	25	0.03	25	1.13	13	495	3	22.00	244	220	27	32.08	356	220	39
ENTIRE PROJECT		ADDITIONAL FOR SUPERELEVATION			3366							254				1396								
TOTALS:					17015							2533		9989		3868		16754		1843		47108		5182

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER (PG 64-22) * QUANTITY ESTIMATED. SEE SECTION 104.3 OF THE STANDARD SPECIFICATIONS.
 ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER (PG 64-22)

MAXIMUM NUMBER OF GYRATIONS = 115

DRIVEWAYS & TURNOUTS - BASE & SURFACING

STATION	SIDE	DESCRIPTION	WIDTH FEET	ADD'L. LENGTH	ACHM		AGGREGATE BASE COURSE (CLASS 7)	PORTLAND CEMENT CONCRETE DRIVEWAY	SIDE DRAINS 24"	SIDE DRAINS 36"				
					SQ. YD.	ACHM SURFACE COURSE (1/2") PG 64-22 220 LB/SY					TON	SQ. YD.	LIN. FT.	LIN. FT.
485+71	RT	INSTALL 36" X 28" SIDE DRAIN	16	19	64	7	3			28				
487+32	LT	INSTALL 24" X 40" SIDE DRAIN	20	34	106	12	5		40					
490+50	RT	INSTALL 24" X 38" SIDE DRAIN	16	71	150	17	7			38				
494+07	LT	CONSTRUCT APPROACH	16	31	79	9	4							
496+00	LT	CONSTRUCT APPROACH	16	21	62	7	3							
496+00	RT	CONSTRUCT APPROACH	16	144	286	31	13							
503+50	RT	CONSTRUCT APPROACH	16	74	161	18	7							
505+82	LT	INSTALL 24" X 30" SIDE DRAIN	16	46	106	12	5			30				
511+37	RT	CONSTRUCT APPROACH	16	54	126	14	6							
512+63	LT	INSTALL 24" X 40" SIDE DRAIN	16	35	86	9	4			40				
517+74	LT	INSTALL 24" X 32" SIDE DRAIN	16	14	49	5	2			32				
518+55	RT	INSTALL 24" X 34" SIDE DRAIN	16	48	115	13	5			34				
520+80	RT	CONSTRUCT APPROACH	16	43	106	12	5							
522+63	LT	CONSTRUCT APPROACH	20	111	277	30	13							
526+10	LT	CONSTRUCT APPROACH	24	106	319	35	14							
530+18	RT	CONSTRUCT APPROACH	16	45	110	12	5							
531+13	LT	INSTALL 24" X 42" SIDE DRAIN	20	66	176	19	8			42				
540+00	RT	CONSTRUCT APPROACH	16	144				286.00						
542+95	LT	CONSTRUCT APPROACH	16	95	193	21	9							
547+93	RT	INSTALL 24" X 36" SIDE DRAIN TEMPORARY DRIVES	16	38	97	11	4			36				
TOTALS:					2668	294	222	286.00	40	280				

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER (PG 64-22)
 MAXIMUM NUMBER OF GYRATIONS = 115
 FOR C.M. PIPE CULVERT INSTALLATIONS, USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.
 FOR R.C. PIPE CULVERT INSTALLATIONS, USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

COLD MILLING

STATION	STATION	LOCATION	COLD MILLING ASPHALT PAVEMENT SQ. YD.
483+97.59	484+97.59	BEGIN JOB	244
551+52.08	552+52.08	END JOB	244
TOTAL:			488

AVG. 1" DEPTH

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	ASPHALT CONCRETE PATCHING FOR M.O.T.	TACK COAT
	TON	GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	32	64
TOTALS:	32	64

NOTE: QUANTITIES ESTIMATED.
 SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
 BASIS OF ESTIMATE: 25 TONS PER MILE TACK COAT = 50 GALLONS PER MILE

ACHM PATCHING OF EXISTING ROADWAY

LOCATION	ACHM PATCHING OF EXISTING ROADWAY	TACK COAT
	TON	GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100	200
TOTALS:	100	200

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8-26-13				6	ARK.		25	101
							JOB NO. 050231	

2 QUANTITIES

CONCRETE DITCH PAVING

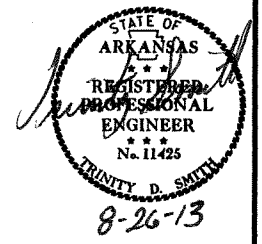
STATION	STATION	LOCATION	CONCRETE DITCH PAVING (TYPE B) (W=7'-0")	SOLID SODDING	WATER
			SQ. YD.		M. GAL.
487+42	488+64	LT.	95	54	0.7
488+34	490+42	RT.	162	92	1.2
490+58	494+00	RT.	266	152	1.9
498+00	503+40	RT.	420	240	3.0
503+61	510+00	RT.	497	284	3.6
505+95	509+00	LT.	237	136	1.7
511+76	512+57	LT.	63	36	0.5
511+65	515+00	RT.	261	149	1.9
512+89	516+00	LT.	242	138	1.7
529+00	530+09	RT.	85	48	0.6
530+27	532+93	RT.	207	118	1.5
537+00	540+14	RT.	244	140	1.8
540+20	547+79	RT.	590	337	4.2
548+07	552+00	RT.	306	175	2.2
ENTIRE PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER		500	175	2.2
TOTALS:			4175	2274	28.7

QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
 BASIS OF ESTIMATE:
 WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
 NOTE: EXPANSION JOINTS TO BE PLACED 45' ON CENTERS.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
ENTIRE PROJECT IF AND WHERE DIRECTED BY THE ENGINEER	CU. YD. 50
TOTAL:	50

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



4" PIPE UNDERDRAIN

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

NOTE: QUANTITIES ARE ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

PAVEMENT REPAIR OVER CULVERTS

STATION	DESCRIPTION	CONCRETE
		CU. YD.
503+87	CROSS DRAIN	6.9
511+82	CROSS DRAIN	15.1
530+15	CROSS DRAIN	7.4
532+84	CROSS DRAIN	7.4
TOTAL:		36.8

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL											
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SILT FENCE (E-11)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DIVERSION DITCH (E-8)	PIPE FOR SLOPE DRAIN (E-12)	DUMPED RIPRAP	*SEDIMENT BASIN (E-14)	*OBLITERATION OF SEDIMENT BASIN (E-14)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M. GAL.	ACRE	ACRE	ACRE	M. GAL.	LIN. FT.	BAG	CU. YD.	LIN. FT.	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	CU. YD.
484+97.59	551+52.08	MAIN LANES	9.00	18	9.00	918.0	9.00	9.00	183.6						17	3600	3600	3600	
484+97.59	551+52.08	MAIN LANES (STAGE 1)								5993	220	27	6123	727					
484+97.59	551+52.08	MAIN LANES (STAGE 2)								2817	220	51							
TOTALS:			9.00	18	9.00	918.0	9.00	9.00	183.6	8810	440	78	6123	727	17	3600	3600	3600	

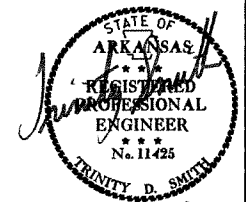
BASIS OF ESTIMATE:
 LIME2 TONS / ACRE OF SEEDING
 WATER.....102.0 M.G. / ACRE OF SEEDING.
 WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
 SAND BAG DITCH CHECKS.....20 BAGS / LOCATION
 ROCK DITCH CHECKS.....2.11 CU. YDS / LOCATION

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.

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050231		26	101

2 QUANTITIES



STRUCTURES - PIPE CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS						FLARED END SECTIONS						SOLID SODDING	WATER	STD. DWG. NOS.		
		REINFORCED CONCRETE (CLASS III)		R.C. (CL. III)			CORR. STEEL & PLASTIC PIPE			REINFORCED CONCRETE		REIN. CONC. & CORR. STEEL						
		ALTERNATES		ALTERNATES			ALTERNATES			ALTERNATES								
		24"	30"	24"	30"	42"	24"	30"	42"	24"	30"	24"	30"				42"	42"
LIN. FT.		LIN. FT.			LIN. FT.			EACH				SQ. YD.	M. GAL.					
501+49	EXTEND 24"x53' R.C. PIPE CULVERT 18' LT. AND 12' RT. WITH FES LT. AND RT.	38									2				16	0.2	PCC-1, PCM-1, FES-1, FES-2	
503+87	CONSTRUCT 24" PIPE CULVERT WITH FES LT. AND RT.			95				100					2		18	0.2	PCC-1, PCM-1, PCP-1, PCP-2, FES-1, FES-2	
511+82	CONSTRUCT DBL. 42" PIPE CULVERT WITH FES LT. AND RT.					82							4		92	1.2	PCC-1, PCM-1, PCP-1, PCP-2, FES-1, FES-2	
523+37	EXTEND 30"x56' R.C. PIPE CULVERT 39' LT. AND 11' RT. WITH FES LT. AND RT.		58												26	0.3	PCC-1, PCM-1, FES-1, FES-2	
530+15	EXTEND 30"x50' R.C. PIPE CULVERT 36' LT. AND 18' RT. WITH FES LT. AND RT.		62												26	0.3	PCC-1, PCM-1, FES-1, FES-2	
530+15	CONSTRUCT 30" PIPE CULVERT @ 30° LT. FWD. SKEW WITH FES LT. & RT.				103				107				2		26	0.3	PCC-1, PCM-1, PCP-1, PCP-2, FES-1, FES-2	
532+84	EXTEND 30"x42' R.C. PIPE CULVERT 27' LT. AND 14' RT. WITH FES LT. AND RT.		49												26	0.3	PCC-1, PCM-1, FES-1, FES-2	
532+84	CONSTRUCT 30" PIPE CULVERT WITH FES LT. & RT.				83				86				2		26	0.3	PCC-1, PCM-1, PCP-1, PCP-2, FES-1, FES-2	
TOTALS :		38	169	95	186	82	100	193	88	2	6	2	4	4	256	3.1		

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

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

STRUCTURES - R.C. BOX CULVERTS

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE - ROADWAY	REINFORCING STEEL - ROADWAY (GRADE 60)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER	DUMPED RIPRAP	CONCRETE DITCH PAVING	STD. DWG. NOS.
488+48	10'x7'x40' R.C. BOX CULVERT RETAIN AND EXTEND 27' LT. AND 19' RT. WITH 3:1 WINGS LT. AND RT.	10	7	50	73.59	8299	44	11	0.1	40		R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3, PBC-1
490+83	3'x2'x50' R.C. BOX CULVERT RETAIN AND EXTEND 49' LT. AND 14' RT. WITH 2:1 WING LT. AND 3:1 WING RT.	3	2	67	20.25	1646	17	2	0.1	5	4	R-1004-A, W-X003-1, RCB-1, RCB-2, RCB-3, PBC-1
499+92	6'x5'x63' R.C. BOX CULVERT RETAIN AND EXTEND 38' LT. AND 16' RT. WITH 3:1 WINGS LT. AND RT.	6	5	58	40.67	4087	26	8	0.1	15		R-100X-X1, W-X003-1, RCB-1, RCB-2, RCB-3, PBC-1
503+87	5'x2'x45' R.C. BOX CULVERT RETAIN AND EXTEND 35' LT. AND 15' RT. WITH 3:1 WINGS LT. AND RT.	5	2	54	26.39	2549	20	3	0.1	10		R-1004-A, W-X002-1, RCB-1, RCB-2, RCB-3, PBC-1
511+82	3'x2'x38' R.C. BOX CULVERT RETAIN AND EXTEND 32' LT. AND 19' RT. WITH 3:1 WINGS LT. AND RT.	3	2	55	17.43	1376	15	3	0.1	5		R-1004-A, W-X003-1, RCB-1, RCB-2, RCB-3, PBC-1
539+16	3'x3'x60' R.C. BOX CULVERT RETAIN AND EXTEND 43' LT. AND 13' RT. WITH 3:1 WINGS LT. AND RT.	3	3	60	22.58	3627	16	2	0.1	10		R-1004-A, W-X003-1, RCB-1, RCB-2, RCB-3, PBC-1
545+42	4'x3'x68' R.C. BOX CULVERT RETAIN AND EXTEND 43' LT. AND 14' RT. WITH 3:1 WINGS LT. AND RT.	4	3	61	24.98	2033	18	5	0.1	10		R-100X-X1, W-X003-1, RCB-1, RCB-2, RCB-3, PBC-1
TOTALS :					225.89	23617	156	34	0.7	95	4	

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

7/23/2013

R050231.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.							050231	27	101

② QUANTITIES



7-24-13

FENCING

STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE	WIRE FENCE			6' CHAIN LINK	16' GATES
				(TYPE C)	(TYPE D)	(TYPE D-1)		
LIN. FT.								EACH
484+00	485+65	RT	165					
485+84	487+17	RT	133					
489+32	492+55	LT	323	335				
489+69	492+50	RT	286			281		
493+65	495+00	RT	135		135			
495+00	495+86	RT	86		86			
496+22	510+00	RT	1378		1460			1
498+00	499+50	LT	150	175				
500+00	502+70	LT	270	283				
506+05	510+00	LT	411			396		
510+00	518+42	RT	849	842				
510+00	512+50	LT	294			250		
517+58	517+90	LT	60				32	
518+60	520+20	RT	32		33			1
522+00	525+00	RT	300		300			
522+45	525+00	LT	309			245		
525+00	526+20	LT	120					
525+00	525+91	LT				100		
526+50	526+60	LT	21					
525+00	528+50	RT	350		320			
531+00	531+50	RT	50					
531+00	540+00	RT		910				
531+20	540+00	LT	930					
531+80	539+47	RT	767					
540+00	542+85	LT	285			285		
543+00	545+85	LT	300			348		1
546+72	552+52	LT	580			580		
TOTALS:			8584	2545	2334	2485	32	3

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	MAILBOX SUPPORTS
		(SINGLE)	(DOUBLE)
EACH			
ENTIRE PROJECT	10	8	1
TOTALS:	10	8	1

RETAINING WALL

STATION	STATION	SIDE	LENGTH	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	CLASS S CONCRETE-ROADWAY	REINFORCING STEEL-ROADWAY (GRADE 60)
				CU. YD.		LB.
524+00.00	525+50.00	LT.	150	109	53.70	5211
TOTALS:				109	53.70	5211

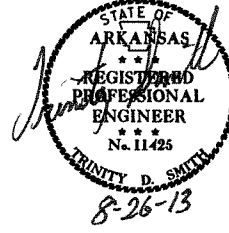
SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	70	STATION
201	GRUBBING	70	STATION
202	REMOVAL AND DISPOSAL OF FENCE	8584	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	9	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	540	SQ. YD.
210	UNCLASSIFIED EXCAVATION	24883	CU. YD.
210	COMPACTED EMBANKMENT	37119	CU. YD.
SP	ROCK FILL	1100	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	17237	TON
401	TACK COAT	2797	GALLON
SP,SS & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	3702	TON
SP,SS & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	166	TON
SP,SS & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	6916	TON
SP,SS & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	403	TON
412	COLD MILLING ASPHALT PAVEMENT	488	SQ. YD.
SP,SS & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	32	TON
SP,SS & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
601	PORTLAND CEMENT CONCRETE DRIVEWAY	286.00	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	305	SQ. FT.
SS & 604	TRAFFIC DRUMS	266	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1756	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	1323	LIN. FT.
SS & 604	CONSTRUCTION PAVEMENT MARKINGS	13709	LIN. FT.
SS & 604	VERTICAL PANELS	135	EACH
605	CONCRETE DITCH PAVING (TYPE B)	4179	SQ. YD.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	38	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	169	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	95	LIN. FT.
606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	100	LIN. FT.
606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	100	LIN. FT.
606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	100	LIN. FT.
SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	100	LIN. FT.
SP & 606	24" PVC PIPE	100	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	186	LIN. FT.
606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	193	LIN. FT.
606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	193	LIN. FT.
606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	193	LIN. FT.
SP & 606	30" HIGH DENSITY POLYETHYLENE PIPE	193	LIN. FT.
SP & 606	30" PVC PIPE	193	LIN. FT.
SS & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	82	LIN. FT.
606	42" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	88	LIN. FT.
606	42" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	88	LIN. FT.
606	42" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	88	LIN. FT.
SP & 606	42" HIGH DENSITY POLYETHYLENE PIPE	88	LIN. FT.
SP,SS & 606	24" SIDE DRAIN	88	LIN. FT.
SP,SS & 606	36" SIDE DRAIN	40	LIN. FT.
606	24" FLARED END SECTIONS FOR PIPE CULVERTS	280	LIN. FT.
606	30" FLARED END SECTIONS FOR PIPE CULVERTS	2	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	2	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	30" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	4	EACH
606	42" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	4	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
606	42" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	4	EACH
606	SELECTED PIPE BEDDING	4	EACH
611	UNDERDRAIN/OUTLET PROTECTORS	50	CU. YD.
611	4" PIPE UNDERDRAIN	8	EACH
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	1000	LIN. FT.
619	WIRE FENCE (TYPE C)	36.8	CU. YD.
619	WIRE FENCE (TYPE D)	2545	LIN. FT.
619	WIRE FENCE (TYPE D-1)	2334	LIN. FT.
619	6" STEEL CHAIN LINK FENCE	2465	LIN. FT.
619	6" ALUMINUM CHAIN LINK FENCE	32	LIN. FT.
619	16" STEEL GATES	32	LIN. FT.
619	16" ALUMINUM GATES	3	EACH
620	LIME	3	EACH
620	SEEDING	18	TON
620	MULCH COVER	9.00	ACRE
SS & 620	WATER	18.00	ACRE
621	TEMPORARY SEEDING	1134.1	M.GAL.
621	SILT FENCE	9.00	ACRE
621	SAND BAG DITCH CHECKS	8810	LIN. FT.
621	DIVERSION DITCH	440	BAG
621	PIPE FOR SLOPE DRAINS	6123	LIN. FT.
621	OBLITERATION OF SEDIMENT BASIN	727	LIN. FT.
621	SEDIMENT BASIN	3600	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	3600	CU. YD.
621	ROCK DITCH CHECKS	3600	CU. YD.
623	SECOND SEEDING APPLICATION	78	CU. YD.
624	SOLID SODDING	9.00	ACRE
635	ROADWAY CONSTRUCTION CONTROL	2564	SQ. YD.
637	MAILBOXES	1.00	LUMP SUM
637	MAILBOX SUPPORTS (SINGLE)	10	EACH
637	MAILBOX SUPPORTS (DOUBLE)	8	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	1	EACH
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	13381	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	15295	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	13709	LIN. FT.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	236	EACH
802	CLASS S CONCRETE-ROADWAY	265	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	279.59	CU. YD.
816	DUMPED RIPRAP	28828	POUND
SP	TEMPORARY IMPACT ATTENUATION BARRIER	112	CU. YD.
SP	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3	EACH

* DENOTES ALTERNATE BID ITEM.

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8-26-13				6	ARK.			
				JOB NO.	050231		28	101

2 SUMMARY OF QUANTITIES & REVISIONS



REVISIONS

DATE	REVISION	SHEET NUMBER(S)
8/26/2013	PLACED ASTERISK ON SEDIMENT BASIN, DESIGNATING ESTIMATED QUANTITY.	25, 28

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						050231	29	101

SURVEY CONTROL COORDINATES

Project Name: 050231
 Date: 6/17/2011
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

2 SURVEY CONTROL DETAILS



7-24-13

Point Name	Northing	Easting	Elev	Feature	Description
1	565942.0541	1238749.5777	560.186	CTL	5/8" REBAR W* CAP
2	565784.3751	1239388.2393	545.365	CTL	5/8" REBAR W* CAP
3	565475.2684	1240031.9489	529.425	CTL	5/8" REBAR W* CAP
4	565428.8900	1241164.2283	500.182	CTL	5/8" REBAR W* CAP
5	565458.4325	1242147.1524	545.231	CTL	5/8" REBAR W* CAP
6	565770.8441	1242712.9306	597.539	CTL	5/8" REBAR W* CAP
7	566372.1149	1243332.4497	666.919	CTL	5/8" REBAR W* CAP
8	566496.7651	1244007.2479	721.248	CTL	5/8" REBAR W* CAP
9	566769.7854	1244463.3774	751.457	CTL	5/8" REBAR W* CAP
10	566820.5770	1244941.9532	762.799	CTL	5/8" REBAR W* CAP
11	566796.5031	1245539.6485	764.494	CTL	5/8" REBAR W* CAP
12	566429.3776	1246119.0624	741.097	CTL	5/8" REBAR W* CAP
13	565883.6329	1246938.6655	700.842	CTL	5/8" REBAR W* CAP
14	565689.8231	1247394.3730	700.318	CTL	5/8" REBAR W* CAP
15	565379.3690	1247881.1906	704.754	CTL	5/8" REBAR W* CAP
16	565140.7441	1248600.6388	687.498	CTL	5/8" REBAR W* CAP
17	564796.0712	1249509.5734	689.113	CTL	5/8" REBAR W* CAP
18	564739.5627	1250252.9673	729.335	CTL	5/8" REBAR W* CAP
19	564773.2486	1250803.3983	746.984	CTL	5/8" REBAR W* CAP
20	564699.8308	1251485.5907	733.547	CTL	5/8" REBAR W* CAP
21	564239.7520	1252237.1653	699.246	CTL	5/8" REBAR W* CAP
22	564044.7214	1252724.9590	663.867	CTL	5/8" REBAR W* CAP
23	563816.5138	1253878.9813	662.898	CTL	5/8" REBAR W* CAP
24	563828.3917	1254997.3269	672.588	CTL	5/8" REBAR W* CAP
25	563495.1773	1256124.4159	728.683	CTL	5/8" REBAR W* CAP
26	563229.0652	1256509.6069	735.441	CTL	5/8" REBAR W* CAP
27	562707.2663	1256911.6696	731.242	CTL	5/8" REBAR W* CAP
28	561816.7005	1257145.1873	697.315	CTL	5/8" REBAR W* CAP
29	561147.1148	1257243.7285	673.426	CTL	5/8" REBAR W* CAP
30	560692.5207	1256962.4914	666.649	CTL	5/8" REBAR W* CAP
31	560420.8592	1256653.2462	647.643	CTL	5/8" REBAR W* CAP
32	560004.3597	1256367.9052	619.477	CTL	5/8" REBAR W* CAP
33	559637.4767	1256481.1955	590.316	CTL	5/8" REBAR W* CAP
34	559463.3115	1256964.3514	577.343	CTL	5/8" REBAR W* CAP
35	559256.7497	1257498.6769	612.546	CTL	5/8" REBAR W* CAP
36	559323.9277	1257880.3524	635.771	CTL	5/8" REBAR W* CAP
37	559476.2427	1258602.9160	641.965	CTL	5/8" REBAR W* CAP
38	559674.5664	1258960.3586	649.356	CTL	5/8" REBAR W* CAP
39	559702.5590	1259638.9820	646.581	CTL	5/8" REBAR W* CAP
40	559697.0071	1260707.3250	622.593	CTL	5/8" REBAR W* CAP
41	559685.6126	1261222.6787	619.016	CTL	5/8" REBAR W* CAP
42	559631.2653	1261120.4543	622.567	CTL	5/8" REBAR W* CAP
43	559233.1702	1262705.8314	642.102	CTL	5/8" REBAR W* CAP
44	559038.0526	1263073.6788	650.314	CTL	5/8" REBAR W* CAP
45	558667.4161	1263582.2102	662.900	CTL	5/8" REBAR W* CAP
46	558279.9754	1264296.8867	652.743	CTL	5/8" REBAR W* CAP
47	558233.8987	1265020.5152	670.358	CTL	5/8" REBAR W* CAP
48	557847.2935	1265820.6718	660.770	CTL	5/8" REBAR W* CAP
49	557159.5409	1266565.6242	635.348	CTL	5/8" REBAR W* CAP
50	557154.6346	1267882.5287	648.113	CTL	5/8" REBAR W* CAP
51	556747.5709	1269093.3182	626.532	CTL	5/8" REBAR W* CAP
100	557380.3911	1267287.3569	653.346	GPS	AHTD GPS 690010
101	557722.4455	1267333.9417	672.283	GPS	AHTD GPS 690010A
102	563751.3735	1254889.3919	697.271	GPS	AHTD GPS 690011
103	563853.6258	1254082.6478	666.121	GPS	AHTD GPS 690011A
104	566189.2666	1237993.4776	602.870	GPS	AHTD GPS 690012
105	566102.2289	1236652.7109	684.618	GPS	AHTD GPS 690012A
900	566111.5609	1237282.4040	634.061	TBM	SO CUT CNTR S HW
901	566015.7205	1238634.2082	562.229	TBM	SO CUT CNTR N HW
902	565428.3893	1240360.7835	516.007	TBM	SO CUT CNTR S HW
903	565707.3500	1242580.6662	584.849	TBM	SO CUT E ORNL SHAPED HW
904	566537.7141	1243986.4113	721.411	TBM	SO CUT CNTR W HW
905	566146.4185	1246512.7482	716.072	TBM	SO CUT S END CNTR RCP
906	565119.0783	1248671.7883	685.466	TBM	SO CUT CNTR OF N HW
907	-99999.0000	-99999.0000	726.747	TBM	SO CUT CNTR S END RCP
908	563841.0673	1254691.9393	660.129	TBM	SO CUT CNTR N HW
909	562442.6665	1257017.0246	722.968	TBM	SO CUT CNTR N HW
910	560302.8941	1256538.4912	637.410	TBM	CHSLD SQR N HW
911	559387.7645	1258364.2630	637.271	TBM	SO CUT CNTR S HW
912	559698.4015	1260512.1662	621.890	TBM	SO CUT CNTR S HW
913	559110.4120	1262893.7767	646.739	TBM	SO CUT CNTR S HW
914	558066.8918	1265482.5979	665.314	TBM	CHSLD SQR
915	557060.2910	1268171.8839	637.739	TBM	CHSLD SQR
916	557100.4715	1271090.7927	671.663	TBM	CHSLD SQR
917	557827.1856	1273546.2393	686.243	TBM	CHSLD SQR
918	55820.6208	1275857.9273	730.882	TBM	CHSLD SQR
919	558833.7518	1277378.2139	768.040	BM	NGS BRASS CAP SET VERTICAL
1500	557009.4989	1269903.6406	656.770	CTL	RTK ELEV
1501	557002.3268	1269335.1528	643.096	CTL	RTK ELEV
1502	557615.7400	1267345.5800	655.057	CTL	RTK ELEV
1503	558008.6335	1267406.4951	658.082	CTL	RTK ELEV
1504	559482.8070	1263139.8714	670.516	CTL	RTK ELEV
1505	560239.0699	1263168.0231	675.732	CTL	RTK ELEV
1506	559327.9683	1256457.9033	676.931	CTL	RTK ELEV
1507	558833.1101	1256138.9349	585.960	CTL	RTK ELEV
1508	563633.2029	1256658.3420	720.761	CTL	RTK ELEV
1509	563996.2134	1257055.5356	722.214	CTL	RTK ELEV
1510	564334.7811	1252747.9224	668.322	CTL	RTK ELEV
1511	565173.7857	1252775.4368	685.516	CTL	RTK ELEV
1513	558563.1687	1264813.1277	666.350	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1514	558477.2962	1264216.8782	655.734	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1515	559366.8931	1261605.8957	624.963	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1516	558026.3121	1261561.1199	658.525	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1517	559837.0299	1259037.3755	642.477	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1518	559626.6782	1258244.9046	644.623	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1519	561105.4773	1257817.8612	651.229	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV
1520	562349.3952	1257288.4070	698.786	CTL	ST 5/8" REBAR W/AL CAP TRIG ELEV

HORIZONTAL ALIGNMENT NAME: CONST W6

POINT TYPE	POINT NUMBER	STATION	NORTHING	EASTING
POB	8000	483+97.59	564007.1736	1252958.7526
P1	8001	484+97.59	563983.6273	1253055.9451
PC	8002	487+60.10	563919.2725	1253310.4351
PT	8003	493+83.98	563833.1510	1253927.1071
P1	8004	499+99.78	563814.7842	1254542.6288
PC	8005	503+74.05	563802.7341	1254916.7061
PT	8006	506+79.52	563768.5902	1255219.9298
PC	8007	508+43.76	563737.2389	1255381.1555
PT	8008	511+62.55	563653.6701	1255688.5595
PC	8009	513+00.25	563606.2615	1255818.4820
PT	8010	516+39.13	563472.5554	1256128.6631
PC	8011	516+39.53	563472.3689	1256129.0151
PT	8012	519+68.74	563291.7550	1256403.6666
PC	8013	520+54.12	563238.3181	1256470.2647
PT	8014	526+00.18	562828.5469	1256826.7916
PC	8015	526+01.57	562827.3548	1256827.5020
PT	8016	531+79.14	562289.1260	1257028.2214
PC	8017	541+24.77	561356.1762	1257194.2190
PT	8018	547+59.03	560773.0973	1257017.5094
P1	8019	551+52.08	560489.0336	1256745.8471
POE	8020	552+52.09	560417.4547	1256676.0095

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
 *(standard markings common to all caps), or as indicated
 (other markings indicated in the point description of the individual point).
 ALL DISTANCES ARE GROUND.
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
 A PROJECT CAF OF 0.9999174466 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
 THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
 GRID DISTANCE = GROUND DISTANCE X CAF.
 GRID COORDINATES ARE STORED UNDER FILE NAME s050231.gi.CTL
 HORIZONTAL DATUM: NAVD 83 (1997)
 VERTICAL DATUM: NAD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
 AT A SPECIFIC POINT.

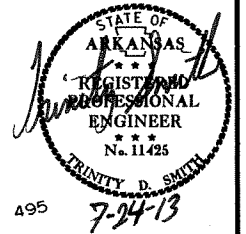
REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL
 IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
 REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: 690010 - 690010A, 690011 - 690011A, 690012 - 690012A
 CONVERGENCE ANGLE: 00 06 31 LEFT AT LT: 35-52-35.6 LG: 092-11-11.8
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

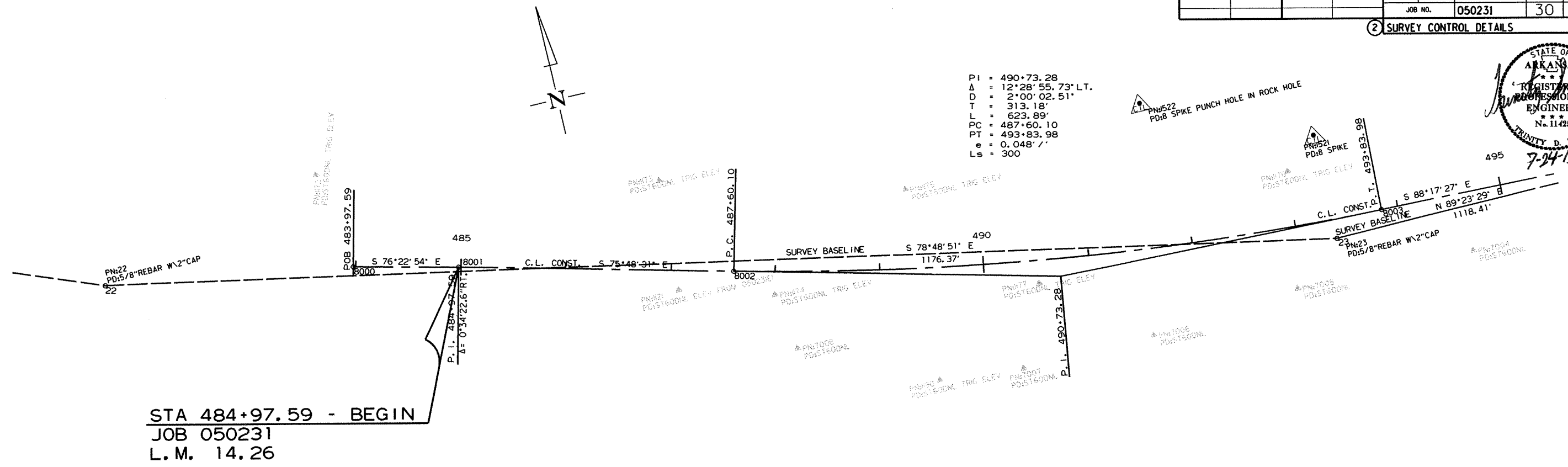
SURVEY CONTROL DETAILS

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.	050231		30	101

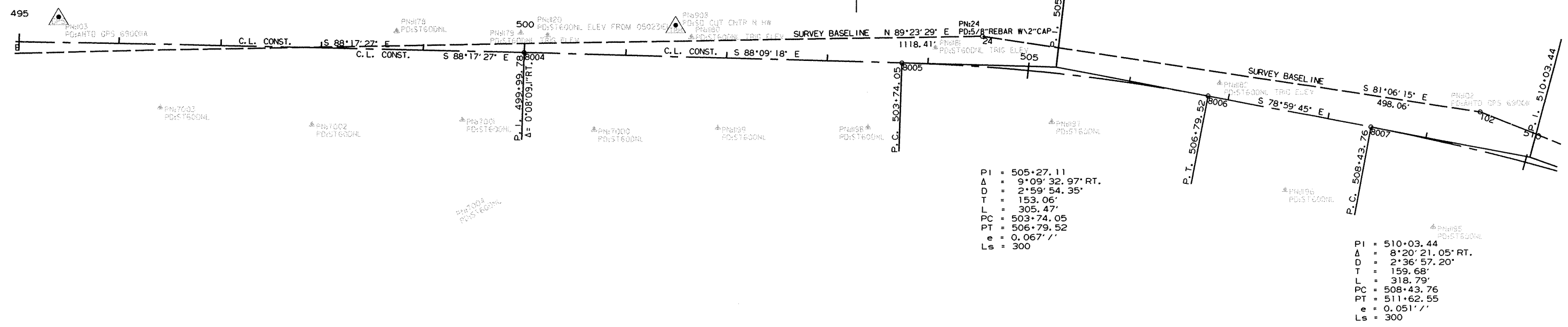
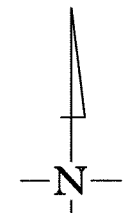
2 SURVEY CONTROL DETAILS



PI = 490+73.28
 Δ = 12°28'55.73" LT.
 D = 2°00'02.51"
 T = 313.18'
 L = 623.89'
 PC = 487+60.10
 PT = 493+83.98
 e = 0.048' / '
 Ls = 300



STA 484+97.59 - BEGIN
 JOB 050231
 L.M. 14.26



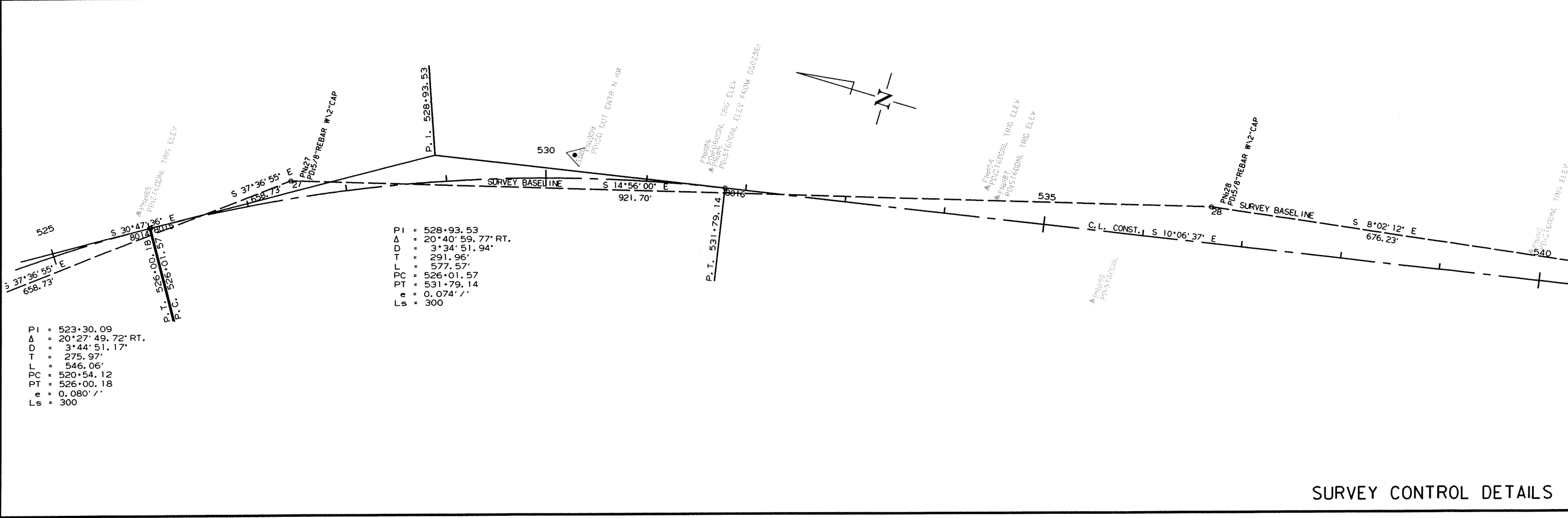
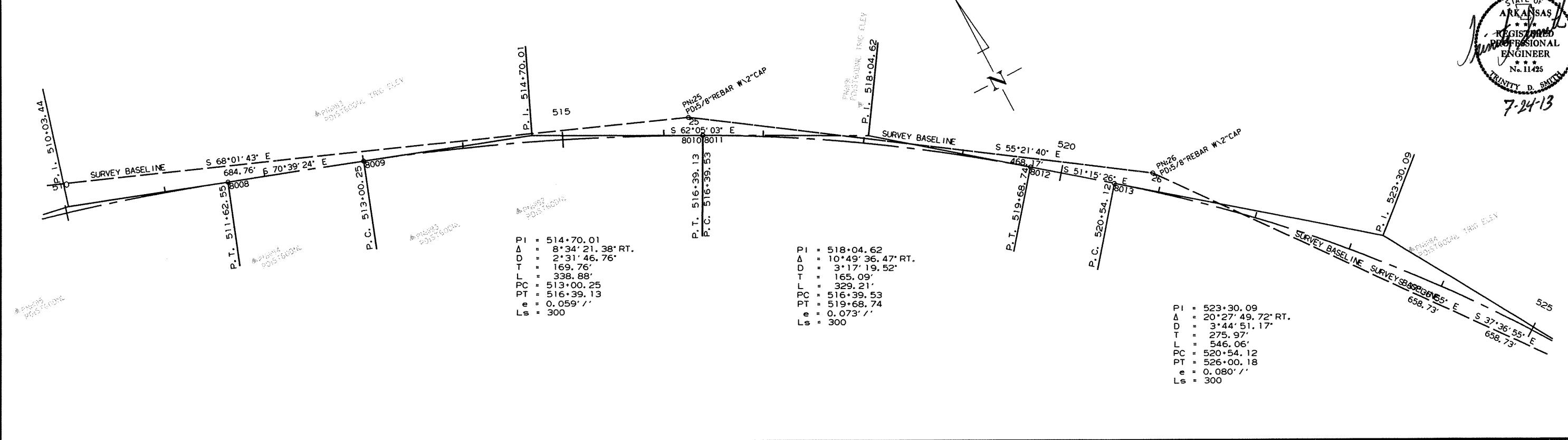
PI = 505+27.11
 Δ = 9°09'32.97" RT.
 D = 2°59'54.35"
 T = 153.06'
 L = 305.47'
 PC = 503+74.05
 PT = 506+79.52
 e = 0.067' / '
 Ls = 300

PI = 510+03.44
 Δ = 8°20'21.05" RT.
 D = 2°36'57.20"
 T = 159.68'
 L = 318.79'
 PC = 508+43.76
 PT = 511+62.55
 e = 0.051' / '
 Ls = 300

SURVEY CONTROL DETAILS

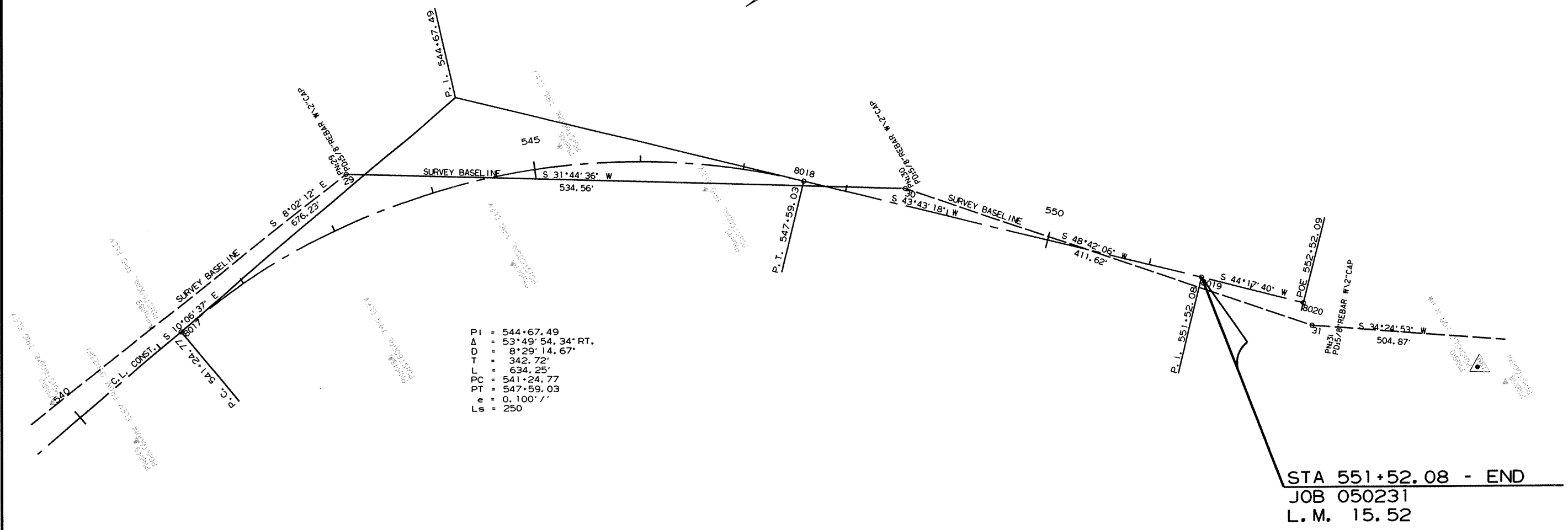
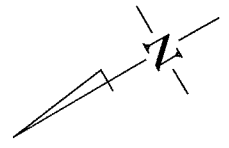
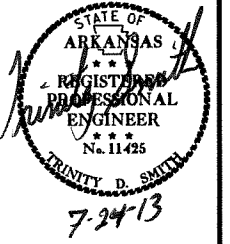
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		31	101
				JOB NO.		050231		

② SURVEY CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		32	101
				JOB NO.		050231		

2 SURVEY CONTROL DETAILS



REMOVAL AND DISPOSAL OF FENCE

STA. 495+00 - STA. 495+86	RT.	86 LIN. FT.
STA. 496+22 - STA. 510+00	RT.	1378 LIN. FT.
STA. 498+00 - STA. 499+50	LT.	150 LIN. FT.
STA. 500+00 - STA. 502+70	LT.	270 LIN. FT.
STA. 506+05 - STA. 510+00	LT.	411 LIN. FT.

WIRE FENCE (TYPE D)

STA. 495+00 - STA. 495+86	RT.	86 LIN. FT.
STA. 496+22 - STA. 510+00	RT.	1460 LIN. FT.

16'-0" VEHICULAR GATE

WIRE FENCE (TYPE C)

STA. 498+00 - STA. 499+50	LT.	175 LIN. FT.
STA. 500+00 - STA. 502+70	LT.	283 LIN. FT.

WIRE FENCE (TYPE D-1)

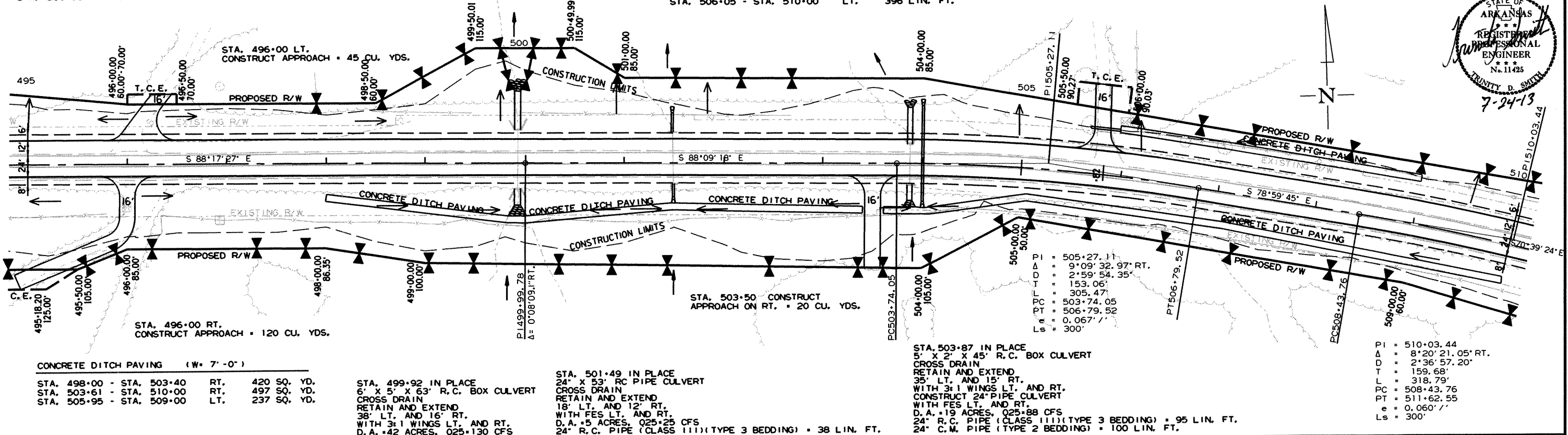
STA. 506+05 - STA. 510+00	LT.	396 LIN. FT.
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STA. 505+82 IN PLACE

18" X 27" CM PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE & INSTALL
 24" X 30" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 125 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AD PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							34	101

PLAN AND PROFILE STA. 495+00-STA. 510+00



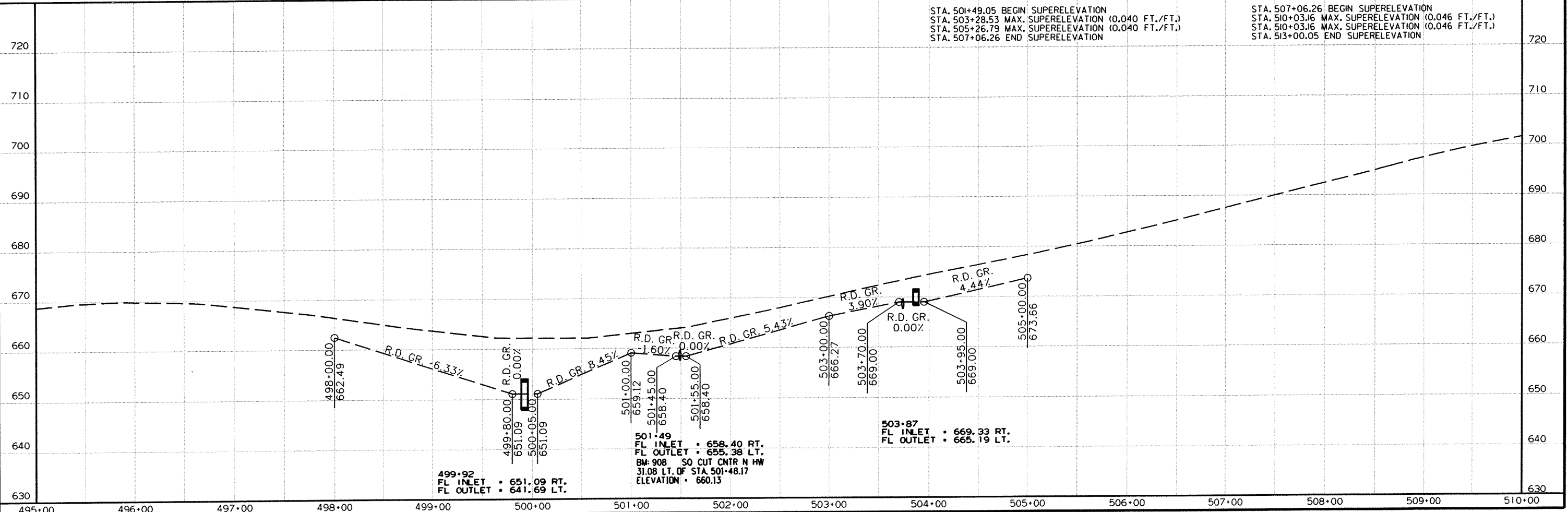
CONCRETE DITCH PAVING (W= 7'-0")

STA. 498+00 - STA. 503+40	RT.	420 SQ. YD.
STA. 503+61 - STA. 510+00	RT.	497 SQ. YD.
STA. 505+95 - STA. 509+00	LT.	237 SQ. YD.

STA. 499+92 IN PLACE
 6' X 5' X 63' R.C. BOX CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 38' LT. AND 16' RT.
 WITH 3:1 WINGS LT. AND RT.
 D.A. = 42 ACRES, Q25=130 CFS

STA. 501+49 IN PLACE
 24" X 53' R.C. PIPE CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 18' LT. AND 12' RT.
 WITH FES LT. AND RT.
 D.A. = 5 ACRES, Q25=25 CFS
 24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 38 LIN. FT.

STA. 503+87 IN PLACE
 5' X 2' X 45' R.C. BOX CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 35' LT. AND 15' RT.
 WITH 3:1 WINGS LT. AND RT.
 CONSTRUCT 24" PIPE CULVERT
 WITH FES LT. AND RT.
 D.A. = 19 ACRES, Q25=88 CFS
 24" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 95 LIN. FT.
 24" C.M. PIPE (TYPE 2 BEDDING) = 100 LIN. FT.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. 050231	35

2 PLAN AND PROFILE STA. 510+00-STA. 525+00



REMOVAL AND DISPOSAL OF FENCE

STA. 510+00 - STA. 518+42	RT.	849 LIN. FT.
STA. 510+00 - STA. 512+50	LT.	294 LIN. FT.
STA. 517+58 - STA. 517+90	LT.	60 LIN. FT.
STA. 518+60 - STA. 520+20	RT.	32 LIN. FT.
STA. 522+00 - STA. 525+00	RT.	300 LIN. FT.
STA. 522+45 - STA. 525+00	LT.	309 LIN. FT.

WIRE FENCE (TYPE D-1)

STA. 510+00 - STA. 512+50	LT.	250 LIN. FT.
STA. 522+55 - STA. 525+00	LT.	245 LIN. FT.

CHAIN LINK FENCE

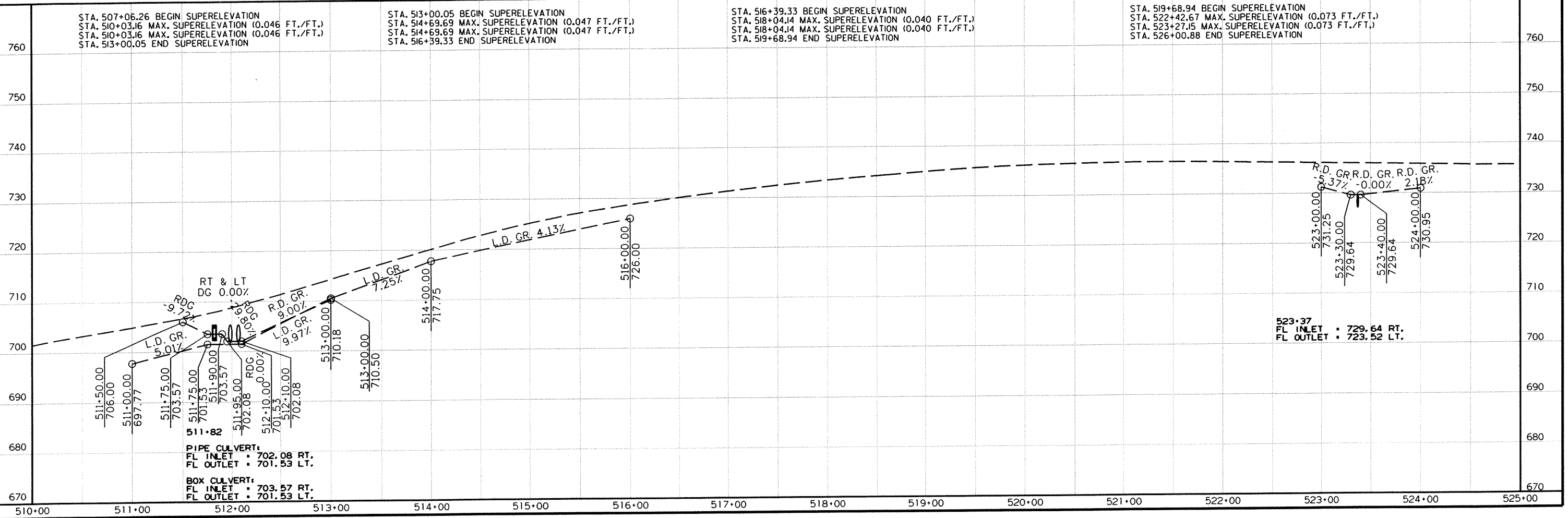
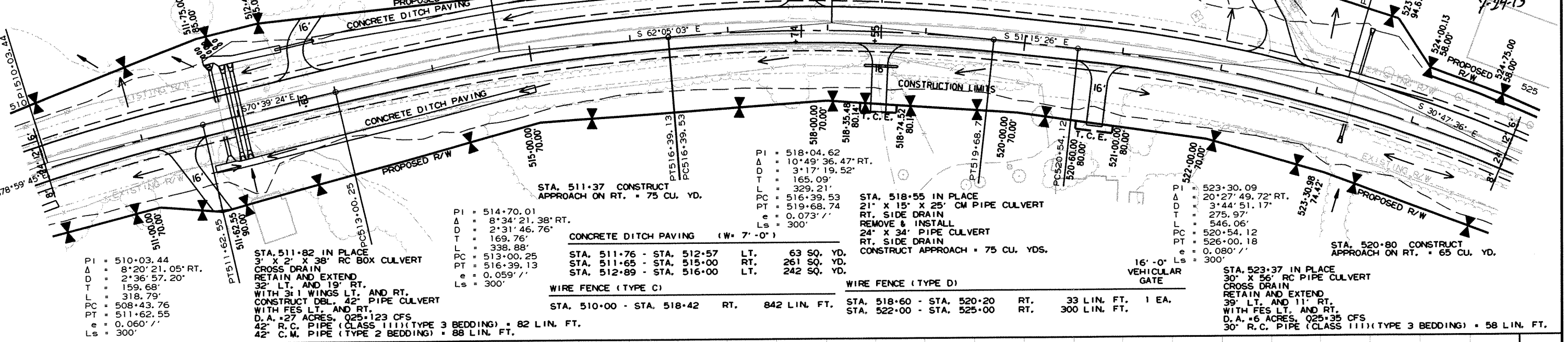
STA. 517+58 - STA. 517+90	LT.	32 LIN. FT.
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STA. 512+63 IN PLACE
21" x 15" x 24" CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
24" x 40" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

STA. 517+74 IN PLACE
18" x 24" CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
24" x 32" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

STA. 522+63 CONSTRUCT
TURNOUT ON LT. = 580 CU. YD.

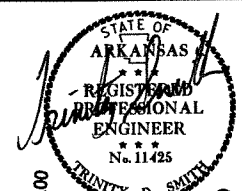
STA. 524+00 - STA. 525+50 ON LT.
CONSTRUCT REINFORCED CONCRETE RETAINING WALL



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050231		36	101

2 PLAN AND PROFILE STA. 525+00-STA. 540+00



STA. 526+10 CONSTRUCT APPROACH ON RT. = 555 CU. YD.

REMOVAL AND DISPOSAL OF FENCE

STA. 525+00 - STA. 526+20	LT.	120 LIN. FT.
STA. 526+50 - STA. 526+60	LT.	21 LIN. FT.
STA. 525+00 - STA. 528+50	RT.	350 LIN. FT.
STA. 531+00 - STA. 531+50	RT.	50 LIN. FT.
STA. 531+20 - STA. 540+00	LT.	930 LIN. FT.
STA. 531+80 - STA. 539+47	RT.	767 LIN. FT.

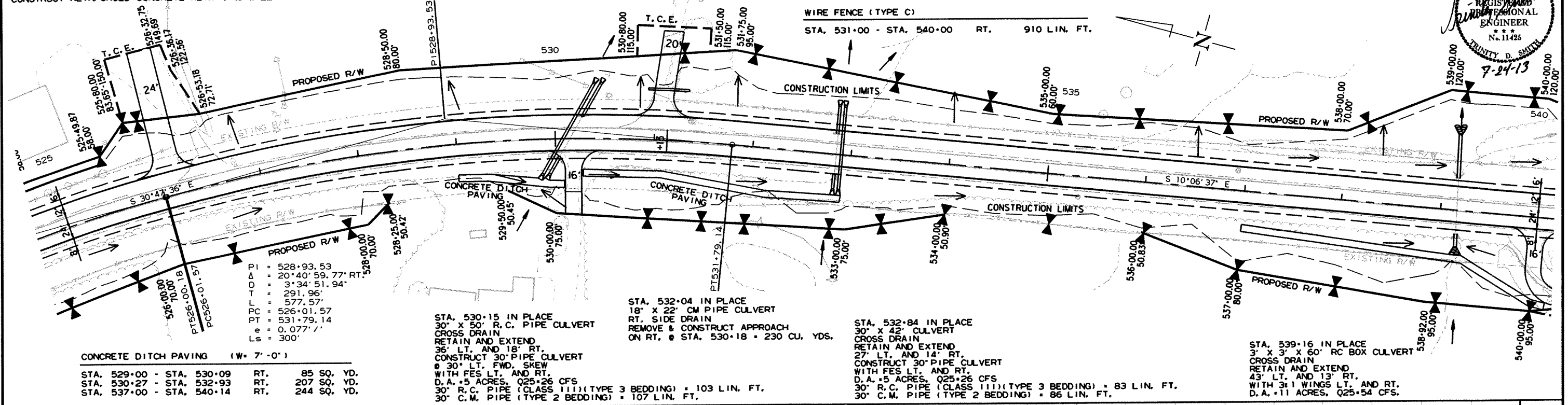
STA. 531+13 IN PLACE
18" x 40" CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
24" x 42" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 230 CU. YDS.

WIRE FENCE (TYPE D-1)
STA. 525+00 - STA. 525+91 LT. 100 LIN. FT.

WIRE FENCE (TYPE D)
STA. 525+00 - STA. 528+30 RT. 320 LIN. FT.

WIRE FENCE (TYPE C)
STA. 531+00 - STA. 540+00 RT. 910 LIN. FT.

STA. 524+00 - STA. 525+50 ON LT.
CONSTRUCT REINFORCED CONCRETE RETAINING WALL



PI = 528+93.53
Δ = 20°40'59.77" RT.
D = 3°34'51.94"
T = 291.96'
L = 577.57'
PC = 526+01.57
PT = 531+79.14
e = 0.077' /'
Ls = 300'

CONCRETE DITCH PAVING (W = 7'-0")

STA. 529+00 - STA. 530+09	RT.	85 SQ. YD.
STA. 530+27 - STA. 532+93	RT.	207 SQ. YD.
STA. 537+00 - STA. 540+14	RT.	244 SQ. YD.

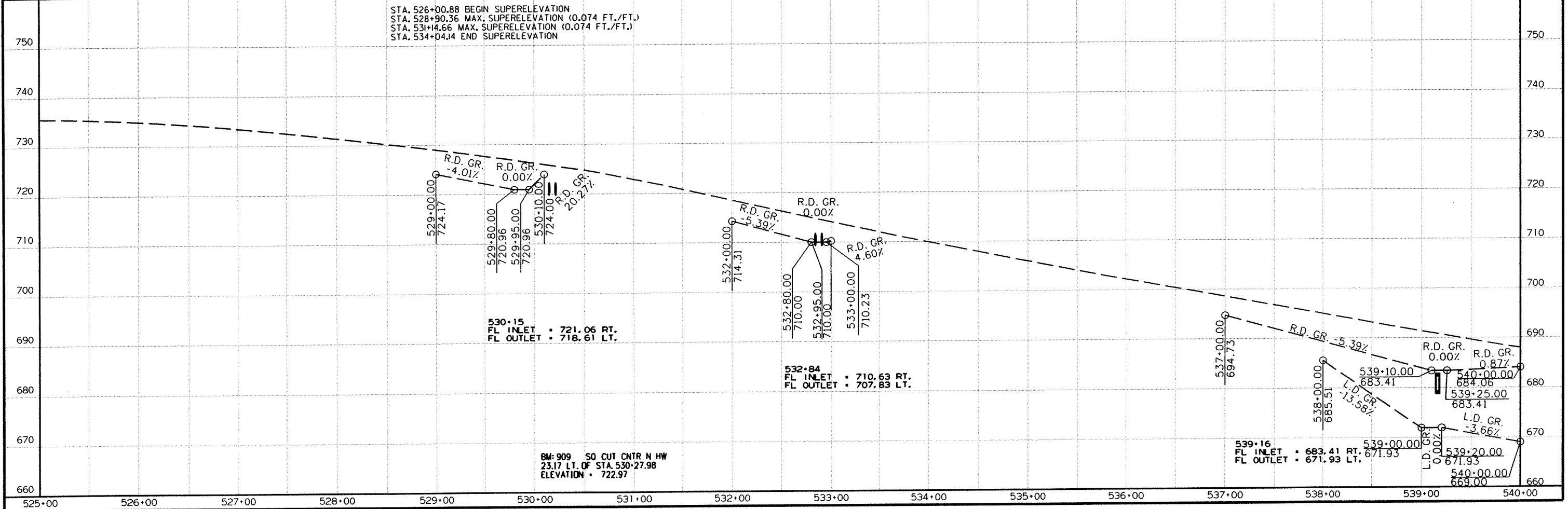
STA. 530+15 IN PLACE
30" x 50" R.C. PIPE CULVERT
CROSS DRAIN
RETAIN AND EXTEND
36' LT. AND 18' RT.
CONSTRUCT 30" PIPE CULVERT
@ 30' LT. FWD. SKEW
WITH FES LT. AND RT.
D.A. = 5 ACRES, Q25+26 CFS
30" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 103 LIN. FT.
30" C.M. PIPE (TYPE 2 BEDDING) = 107 LIN. FT.

STA. 532+04 IN PLACE
18" x 22" CM PIPE CULVERT
RT. SIDE DRAIN
REMOVE & CONSTRUCT APPROACH
ON RT. @ STA. 530+18 = 230 CU. YDS.

STA. 532+84 IN PLACE
30" x 42" CULVERT
CROSS DRAIN
RETAIN AND EXTEND
27' LT. AND 14' RT.
CONSTRUCT 30" PIPE CULVERT
WITH FES LT. AND RT.
D.A. = 5 ACRES, Q25+26 CFS
30" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 83 LIN. FT.
30" C.M. PIPE (TYPE 2 BEDDING) = 86 LIN. FT.

STA. 539+16 IN PLACE
3' x 3' x 60" RC BOX CULVERT
CROSS DRAIN
RETAIN AND EXTEND
43' LT. AND 13' RT.
WITH 3:1 WINGS LT. AND RT.
D.A. = 11 ACRES, Q25+54 CFS.

STA. 526+00.88 BEGIN SUPERELEVATION
STA. 528+90.36 MAX. SUPERELEVATION (0.074 FT./FT.)
STA. 531+4.66 MAX. SUPERELEVATION (0.074 FT./FT.)
STA. 534+04.14 END SUPERELEVATION



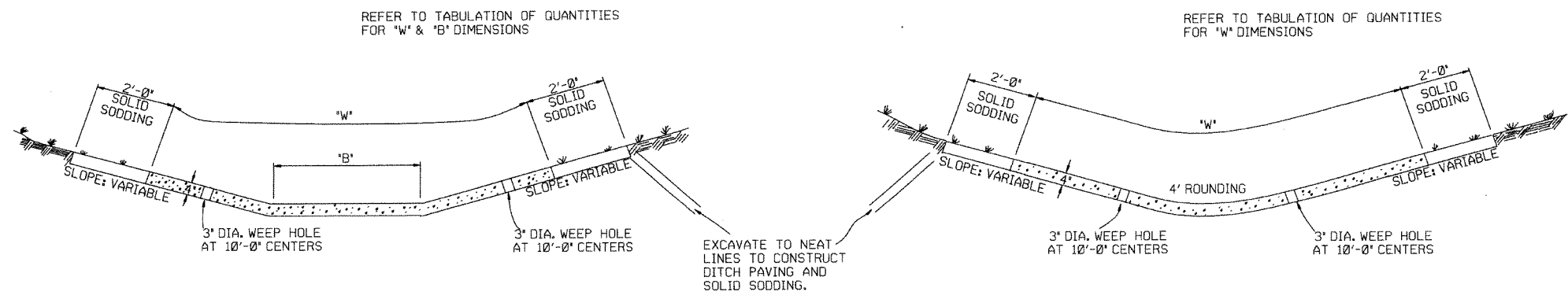
530+15
FL INLET = 721.06 RT.
FL OUTLET = 718.61 LT.

532+84
FL INLET = 710.63 RT.
FL OUTLET = 707.83 LT.

539+16
FL INLET = 683.41 RT.
FL OUTLET = 671.93 LT.

BM: 909 SO CUT CNTR N HW
23.17 LT. OF STA. 530+27.98
ELEVATION = 722.97

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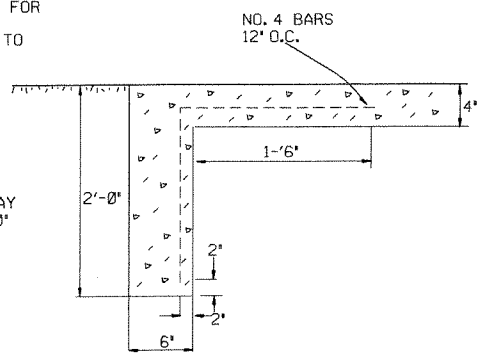


TYPE A

TYPE B

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



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

TOE WALL DETAIL FOR CONCRETE DITCH PAVING

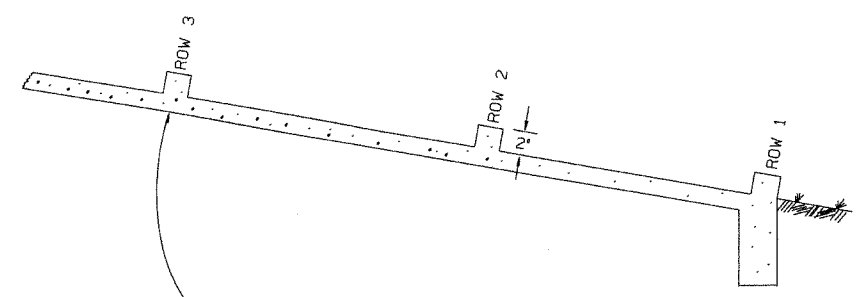
GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

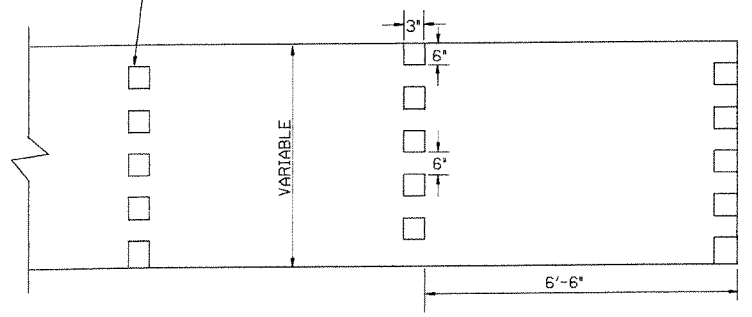
SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



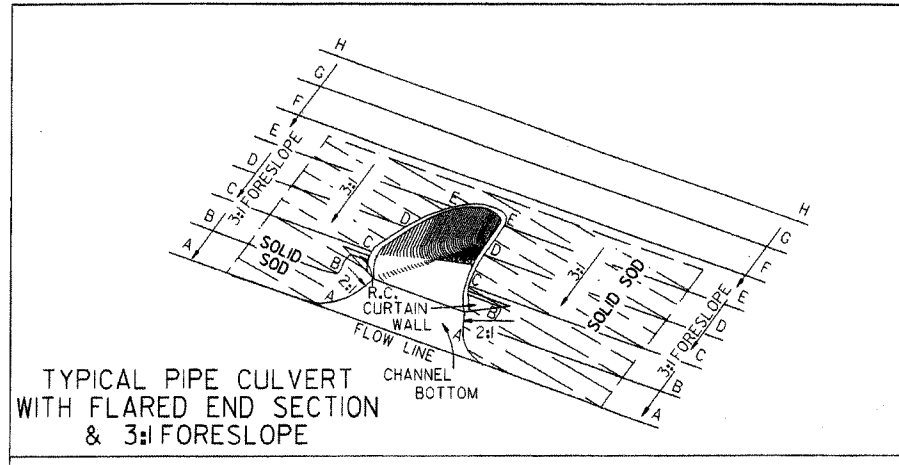
ENERGY DISSIPATORS
(NO SCALE)

11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS	508-11-1-84
11-1-84	ADDED	
11-1-84	EXCAVATION DETAILS ADDED	
	TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72
DATE	REVISION	DATE FILM'D

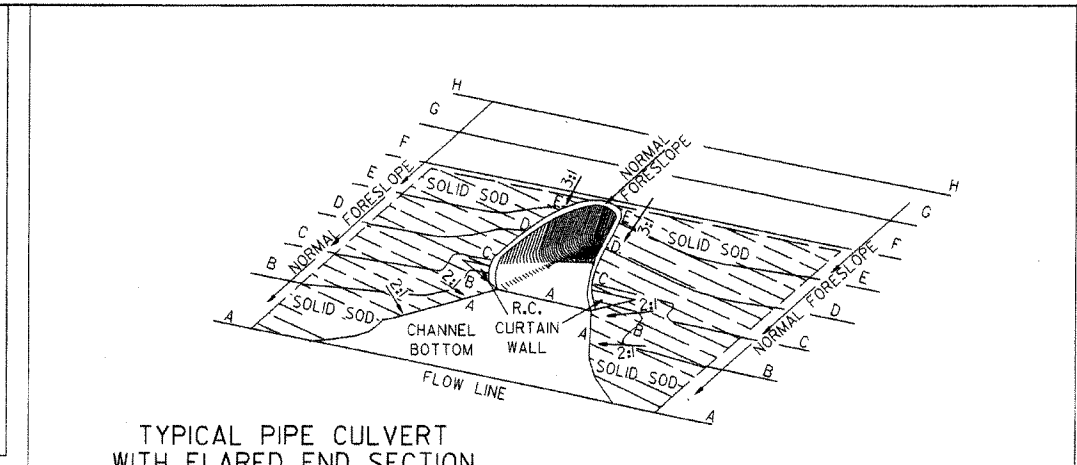
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

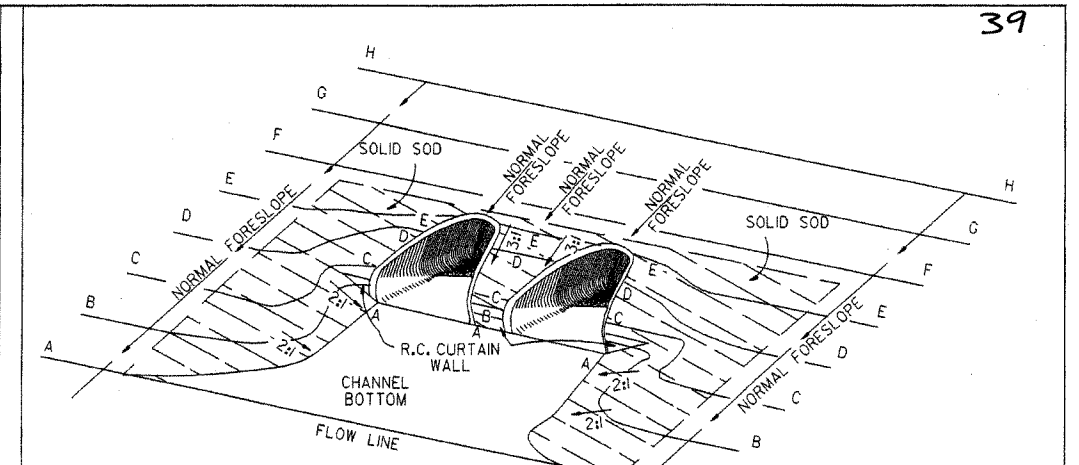
STANDARD DRAWING CDP-1



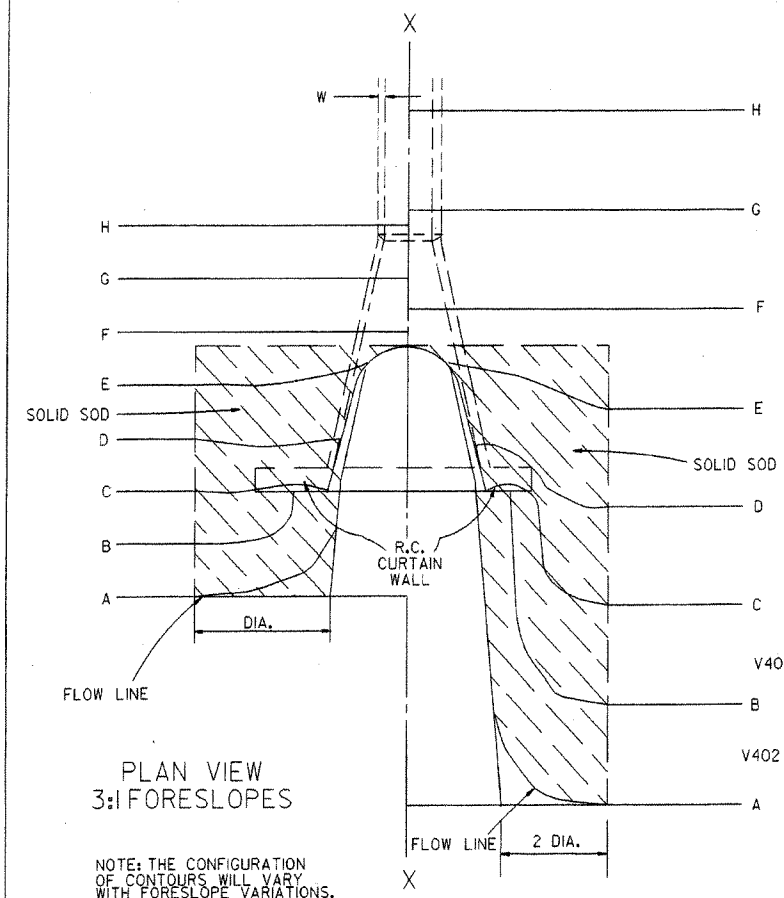
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



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



PLAN VIEW 3:1 FORESLOPES

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

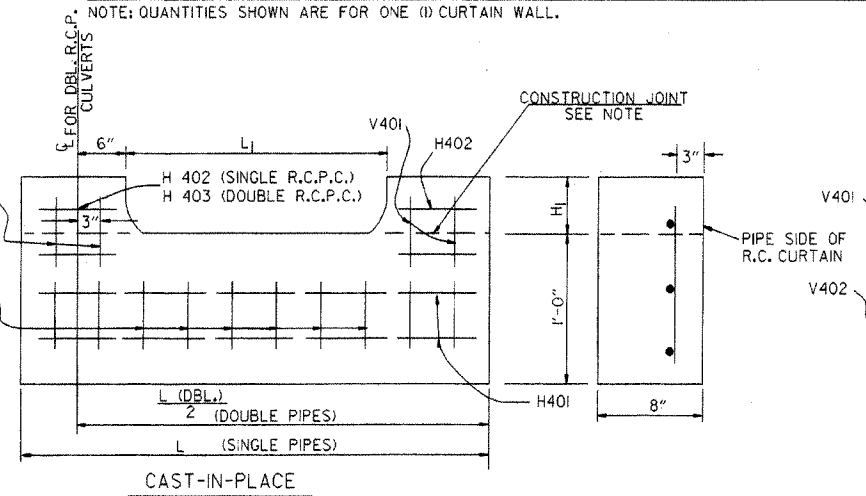
PIPE DIA.	H ₁	L ₁	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11-1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0-1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3-1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"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

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

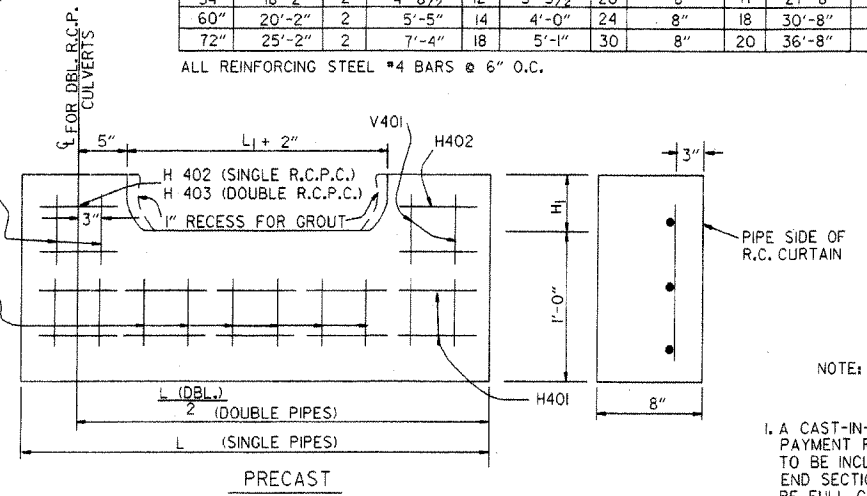
REINFORCING STEEL SCHEDULE

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

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



R.C. CURTAIN WALL DETAILS



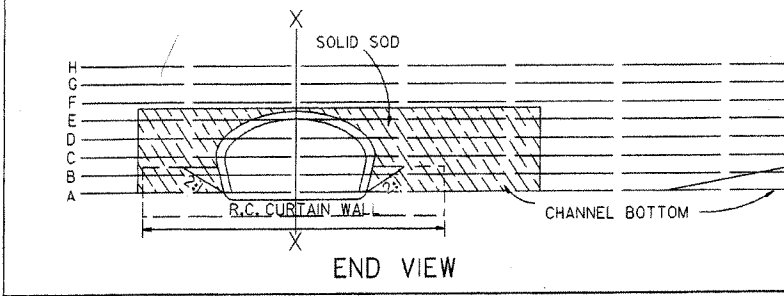
NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION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

SOLID SODDING

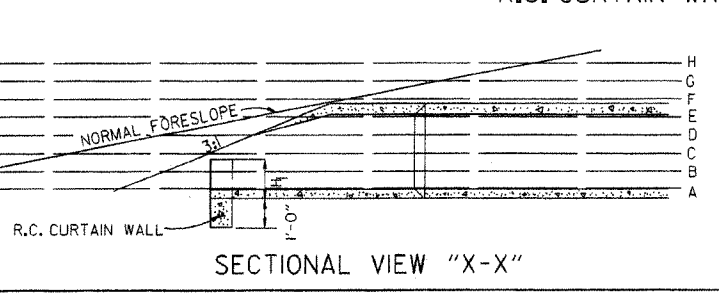
PIPE DIA.	SINGLE R.C.P.C.						DOUBLE R.C.P.C.					
	3:1		4:1		6:1		3:1		4:1		6:1	
	SQ. YDS.						SQ. YDS.					
18"	5	12	12	6	8	13	5	12	12	6	8	13
24"	8	19	19	9	13	20	8	19	19	9	13	20
30"	13	29	29	14	19	30	13	29	29	14	19	30
36"	17	38	38	18	26	43	17	38	38	18	26	43
42"	23	51	51	24	35	57	23	51	51	24	35	57
48"	29	66	66	30	46	70	29	66	66	30	46	70
54"	35	81	81	37	57	87	35	81	81	37	57	87
60"	45	104	104	48	75	107	45	104	104	48	75	107
72"	64	156	156	67	95	159	64	156	156	67	95	159

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

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



END VIEW



SECTIONAL VIEW "X-X"

10-18-96	ADDED NOTE TO SOLID SODDING		ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING	10-8-90	
11-3-94	ADDED GENERAL NOTE NO. 4		
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.		
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES, CHAMFER EDGES		
5-15-80	ADDED PRECAST WALL & GENERAL NOTES		
10-2-72	REVISED AND REDRAWN		
DATE	REVISION	FILMED	STANDARD DRAWING FES-1

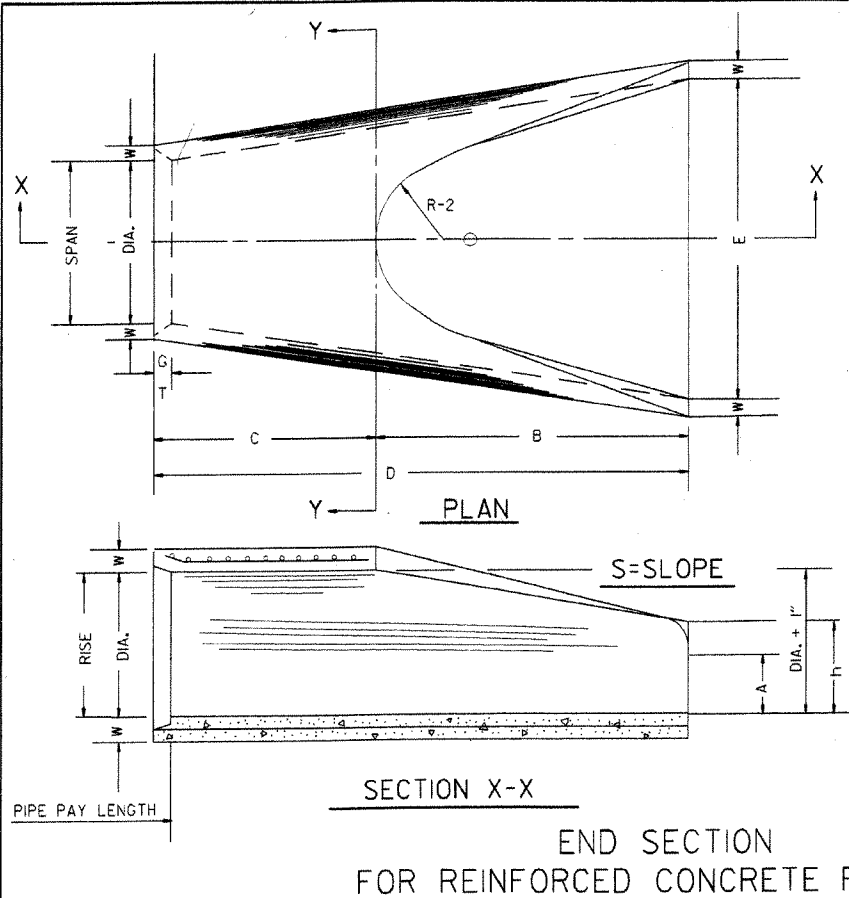
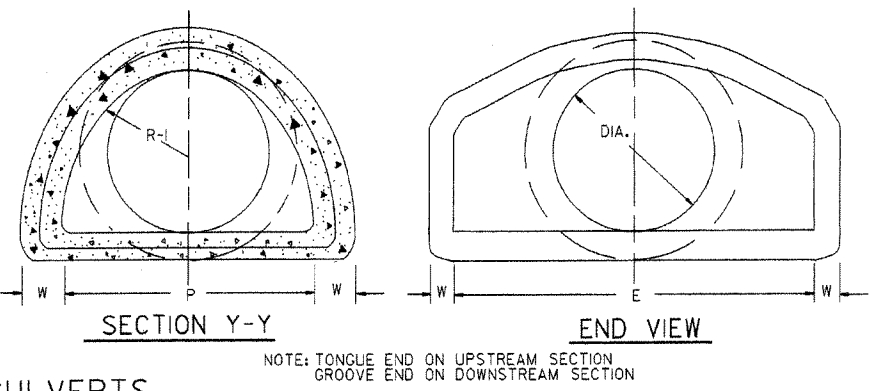


TABLE OF DIMENSIONS

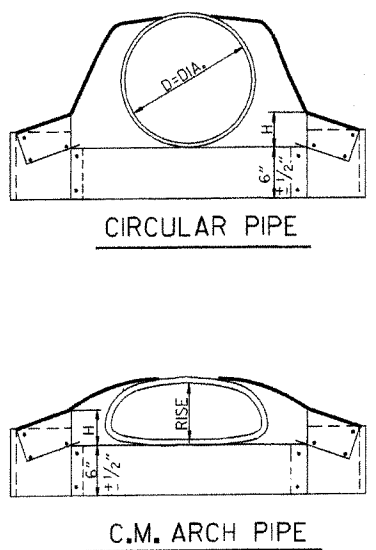
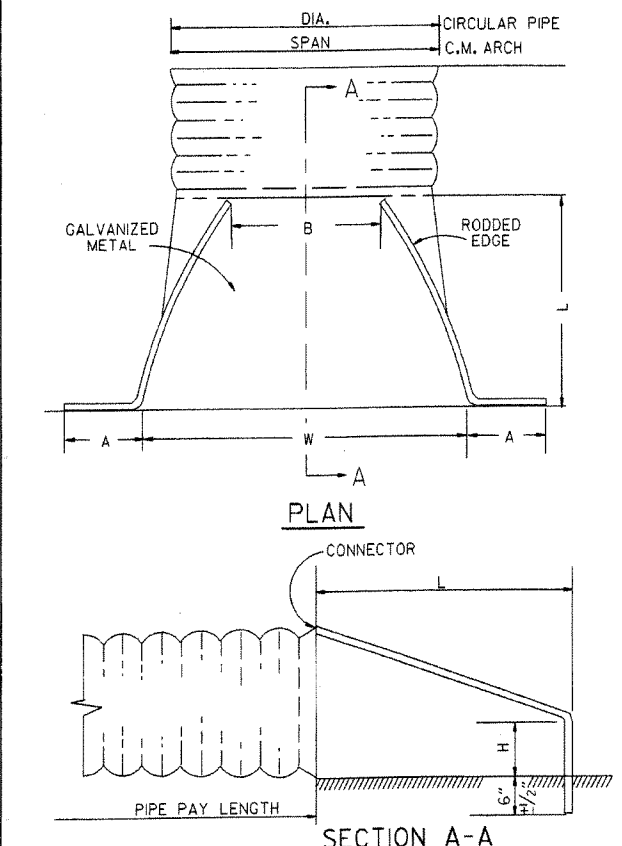
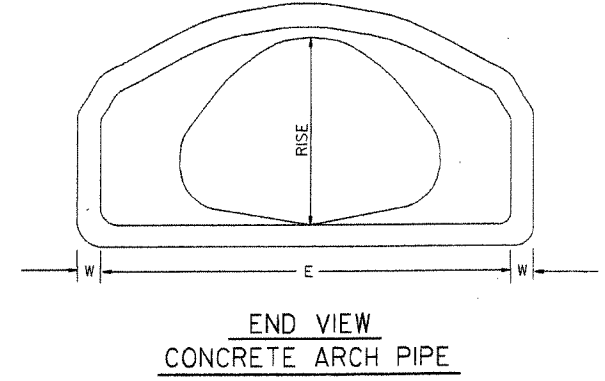
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 1/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"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



ARCH PIPE

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

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

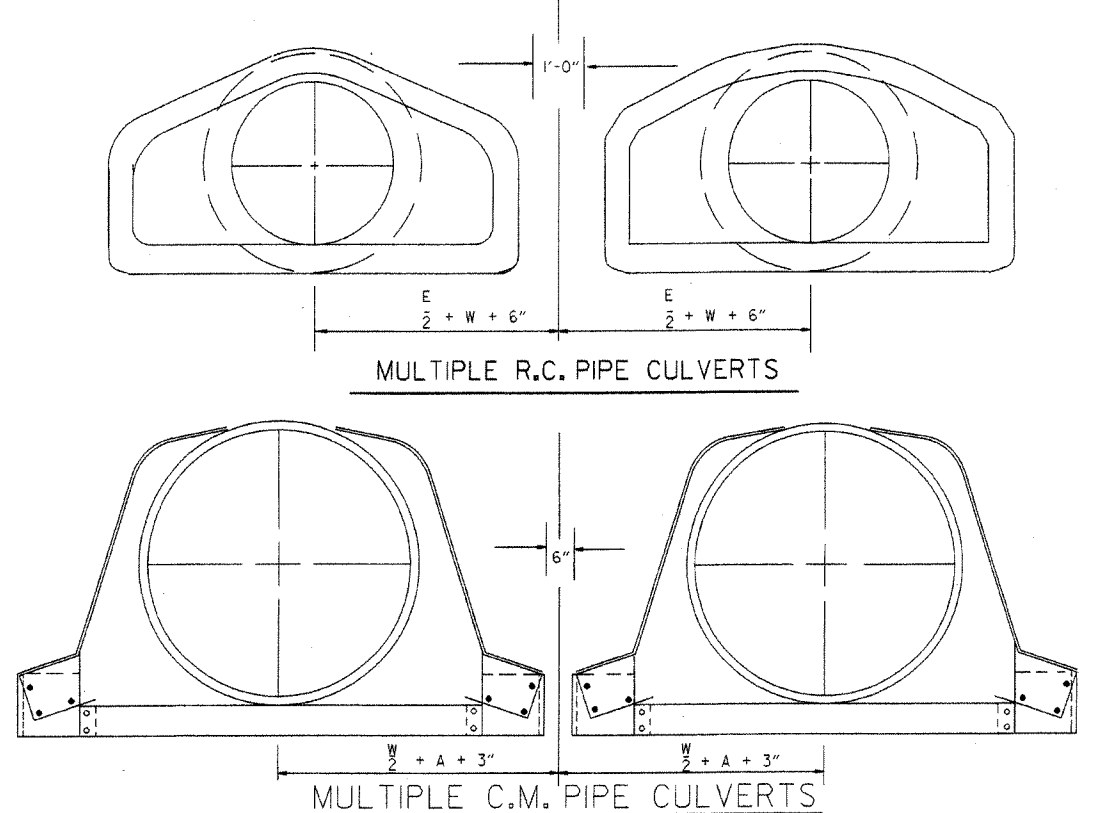


CIRCULAR PIPE

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

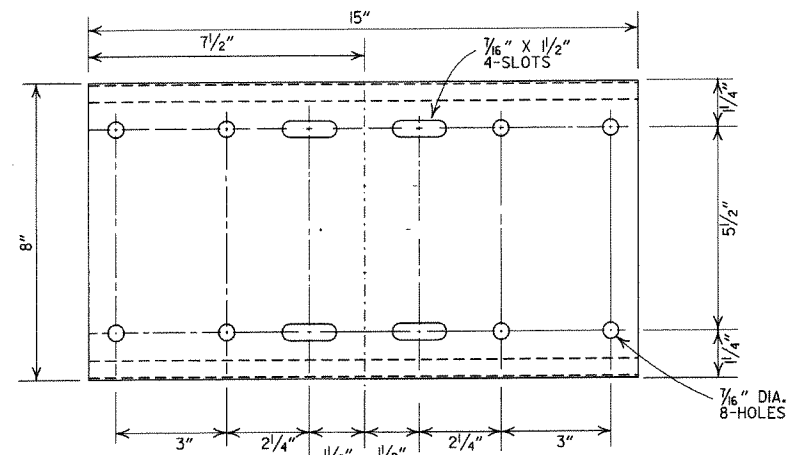
C.M. ARCH PIPE

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

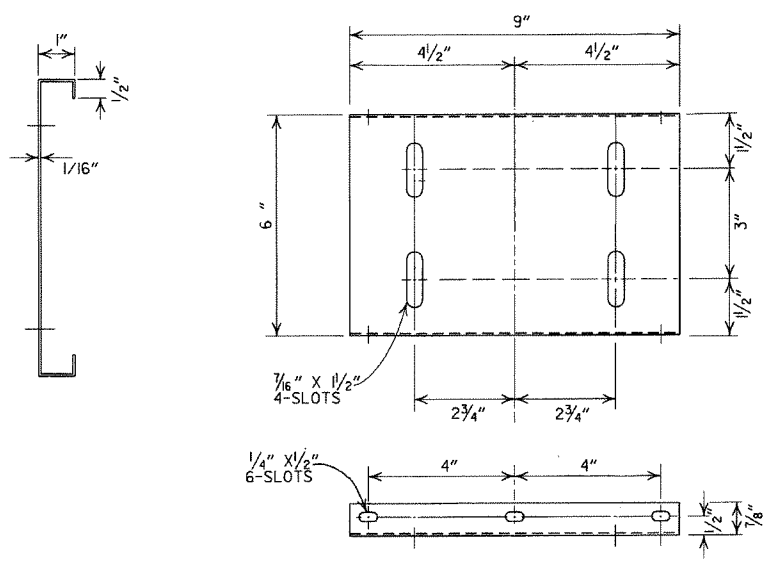


10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	FLARED END SECTION
12-5-74	REMOVED NOTE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

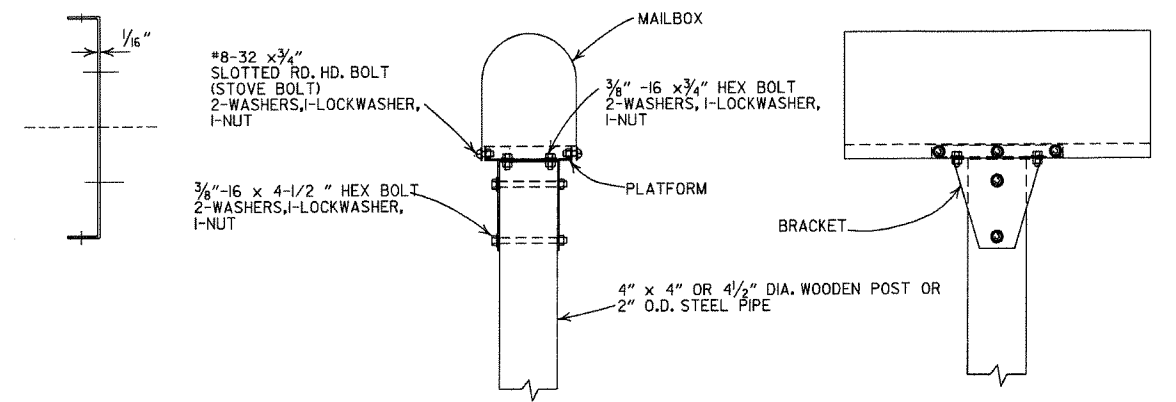
END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



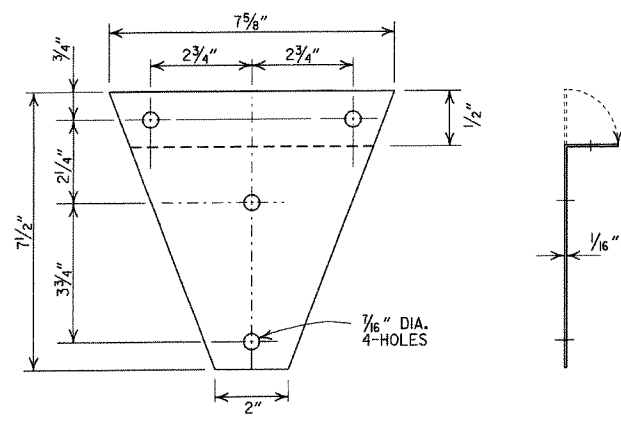
SHELF



PLATFORM

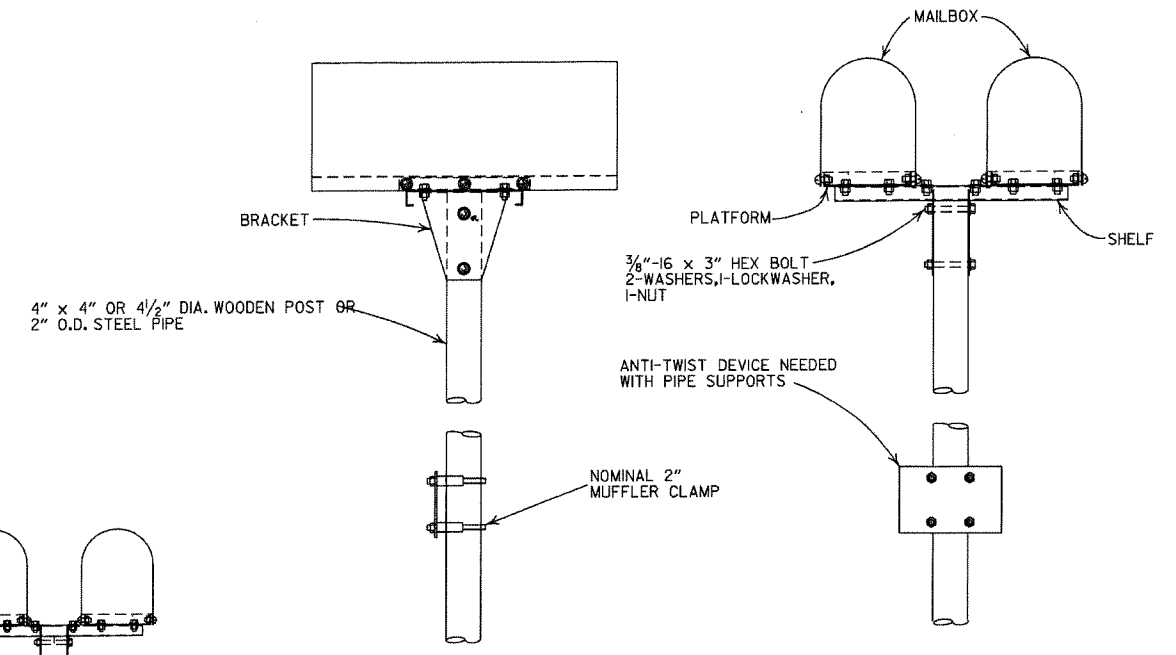


SINGLE INSTALLATION

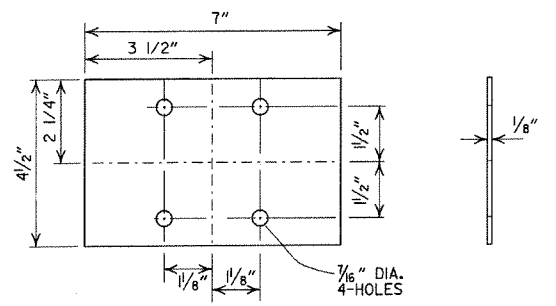


BRACKET

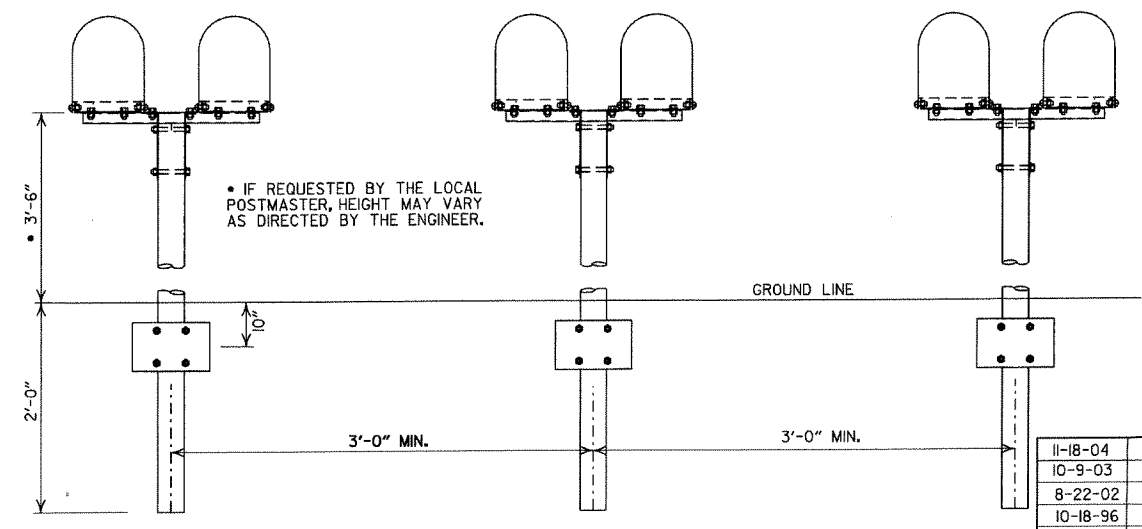
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED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



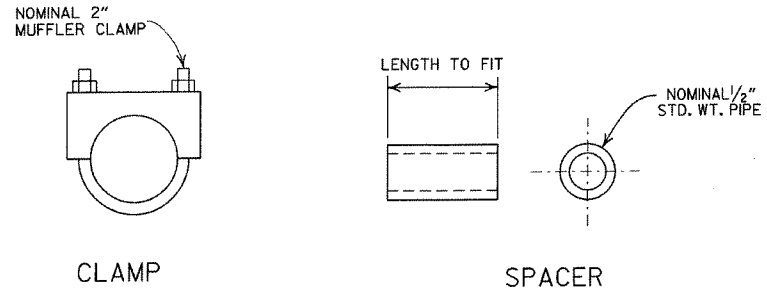
DOUBLE INSTALLATION



ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 3/8	27
42	51 1/8	51	31 1/8	31
48	58 1/2	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 1/8	97
132	168 3/4	169	106 1/2	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

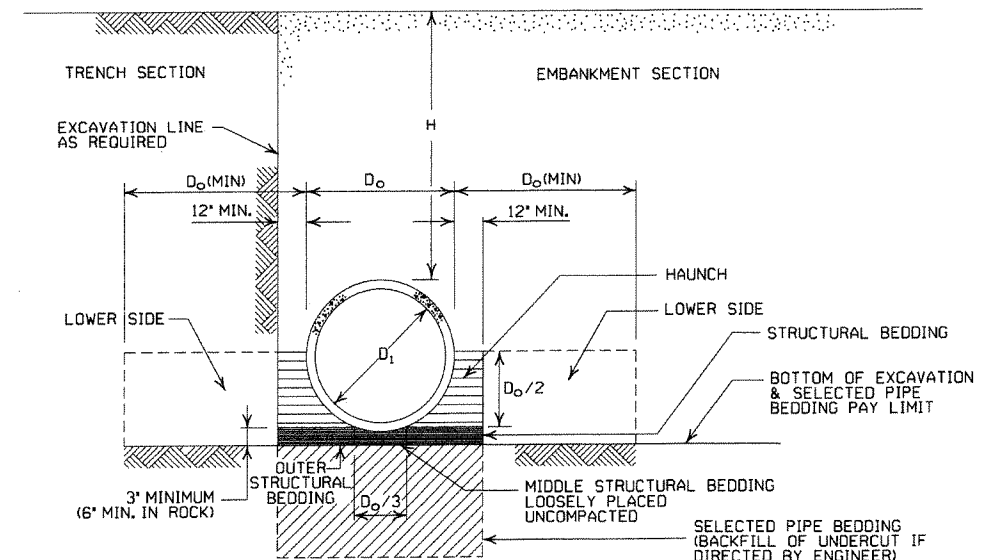
- LEGEND -

- D₁ = 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 (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

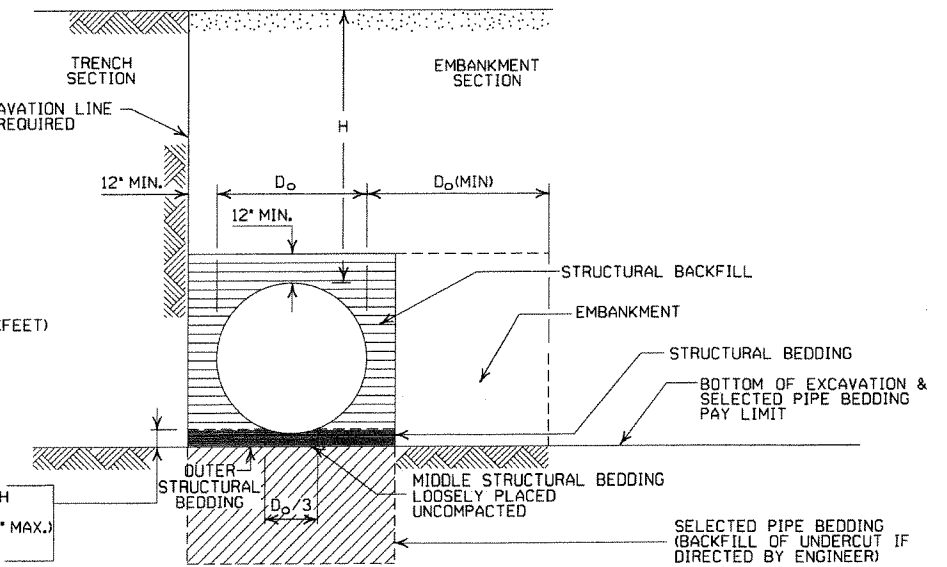
1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT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

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

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

③ SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

CORRUGATED ALUMINUM PIPE (ROUND)

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

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION			INSTALLATION			
				TYPE 1	TYPE 1		TYPE 1	TYPE 1		
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
15	17x13	3	0.064	2	15	0.060	2	15		
18	21x15	3	0.064	2	15	0.060	2	15		
21	24x18	3	0.064	2.25	15	0.060	2.25	15		
24	28x20	3	0.064	2.5	15	0.075	2.5	15		
30	35x24	3	0.079	3	12	0.075	3	12		
36	42x29	3 1/2	0.079	3	12	0.105	3	12		
42	49x33	4	0.079	3	12	0.105	3	12		
48	57x38	5	0.109	3	13	0.135	3	13		
54	64x43	6	0.109	3	14	0.135	3	14		
60	71x47	7	0.138	3	15	0.135	3	14		
66	77x52	8	0.168	3	15	0.164	3	15		
72	83x57	9	0.168	3	15					
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
			INSTALLATION				INSTALLATION			
			TYPE 2		TYPE 1		TYPE 2		TYPE 1	
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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

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

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/4 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MAXIMUM FILL HEIGHT
BASED ON STRUCTURAL BACKFILL

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

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

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"

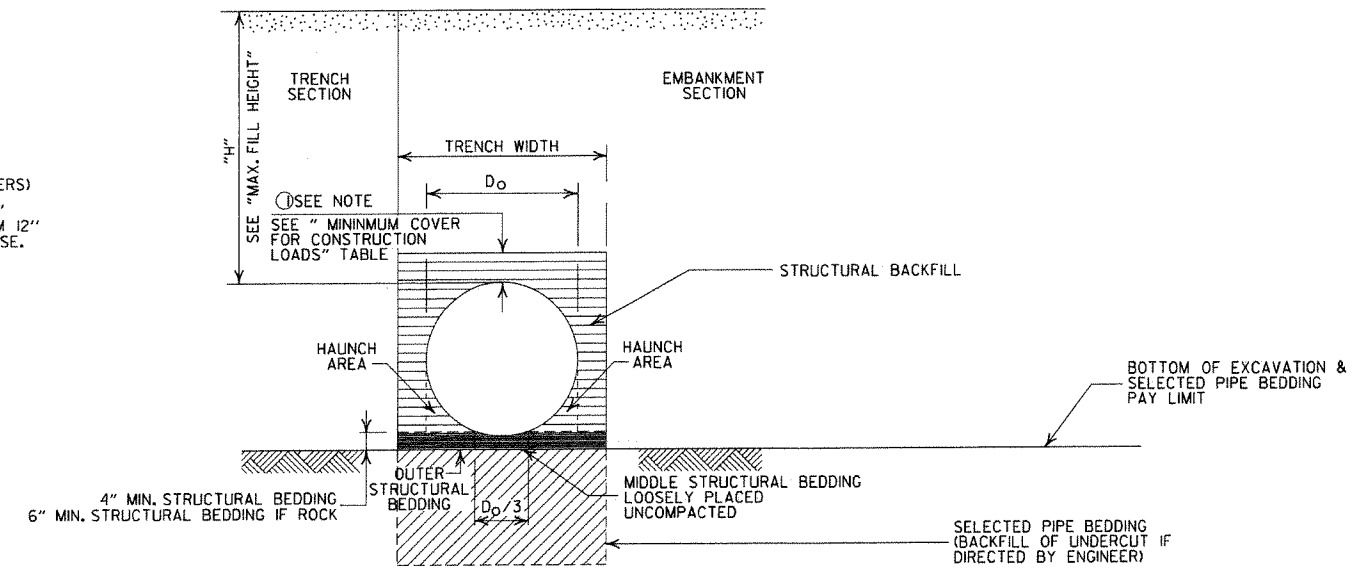
MULTIPLE INSTALLATION OF
PVC PIPES

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

MINIMUM COVER FOR
CONSTRUCTION LOADS

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

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



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.

- LEGEND -

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

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 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.

12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

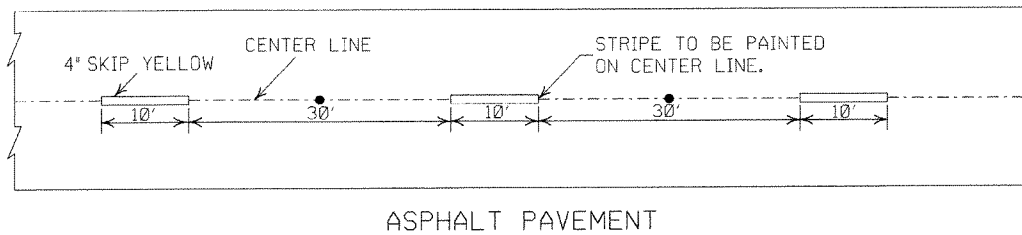
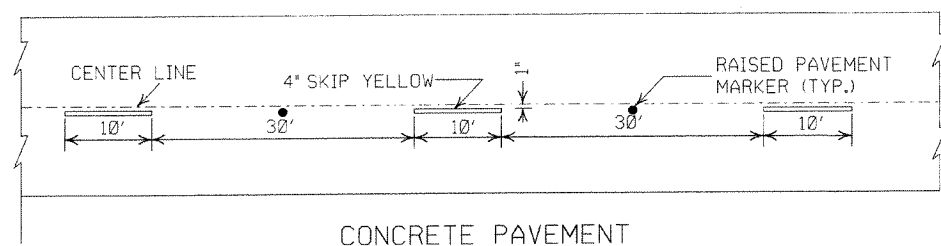
PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

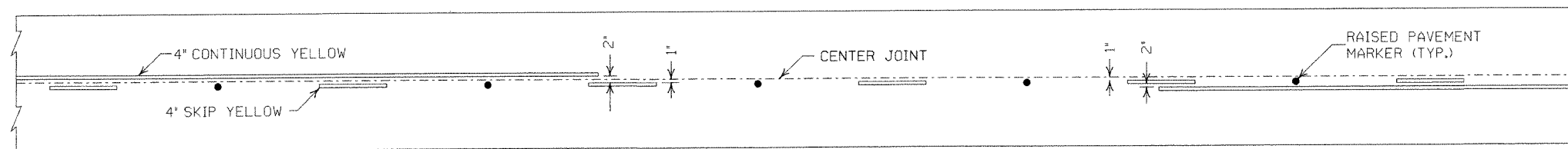
NOTES:

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

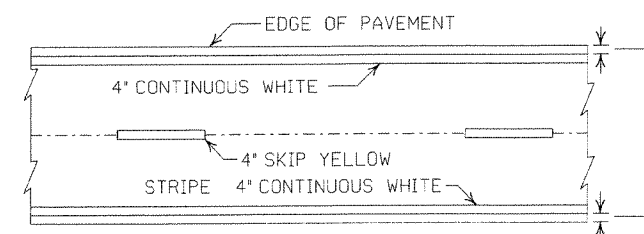
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



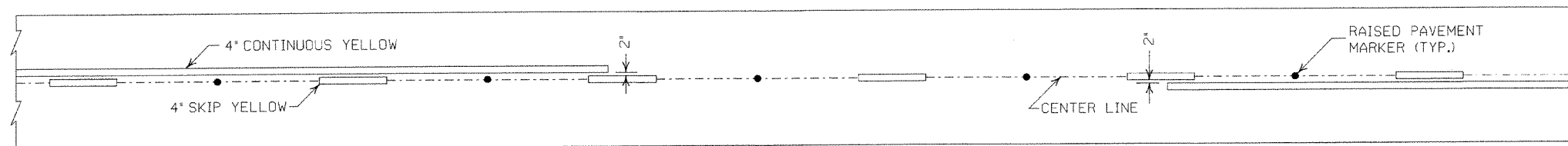
BROKEN LINE STRIPING



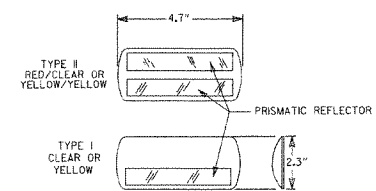
SOLID LINE STRIPING ON CONCRETE PAVEMENT



PAVEMENT EDGE LINE MARKING

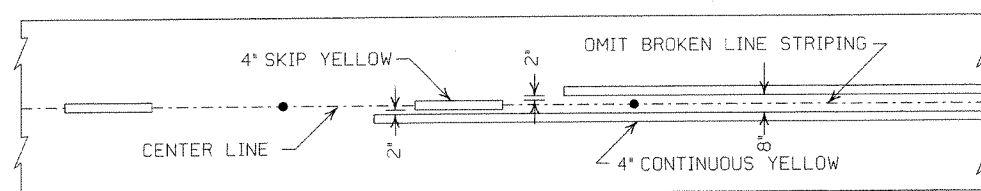


SOLID LINE STRIPING ON ASPHALT PAVEMENT

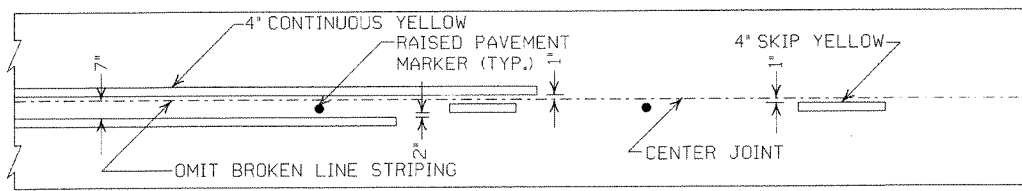


NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS



ASPHALT PAVEMENT



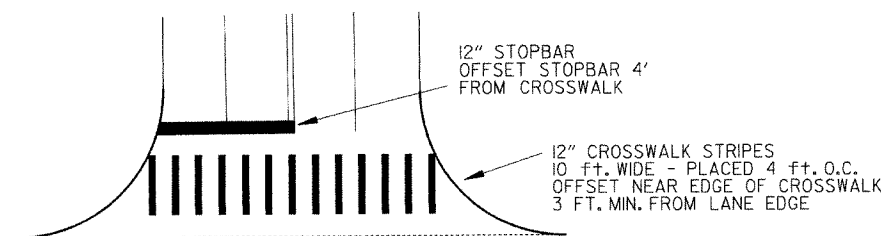
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

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.



CROSSWALK AND STOPBAR DETAILS

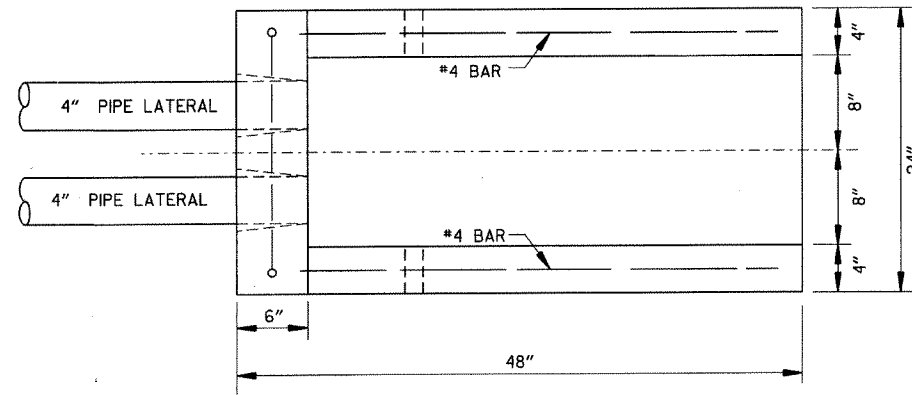
DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

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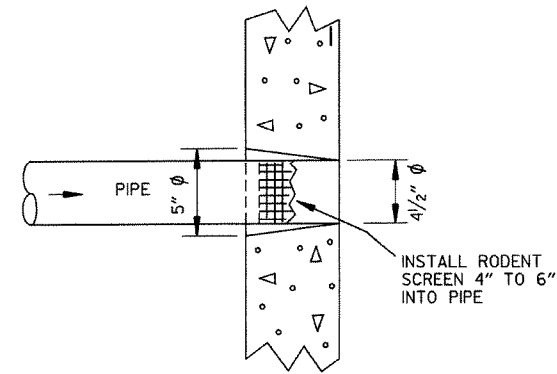
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

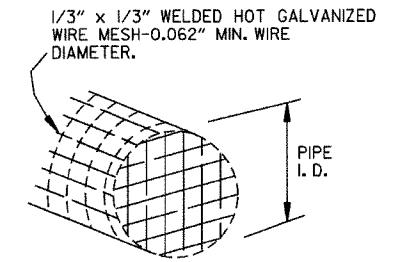
NOTE:
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



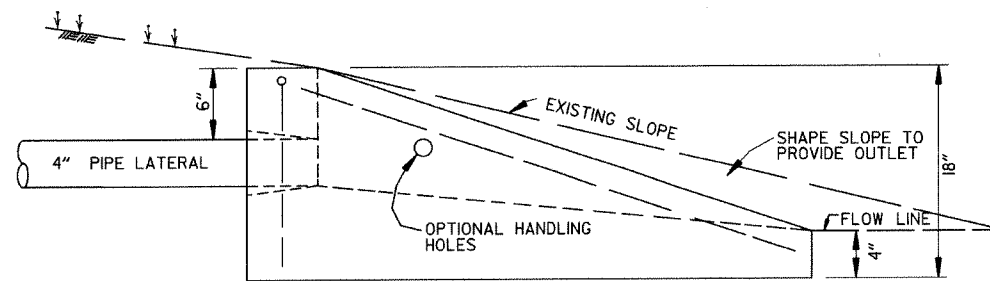
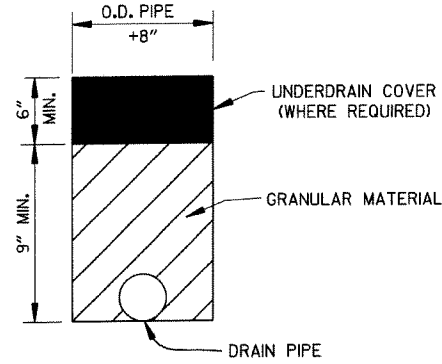
PLAN VIEW



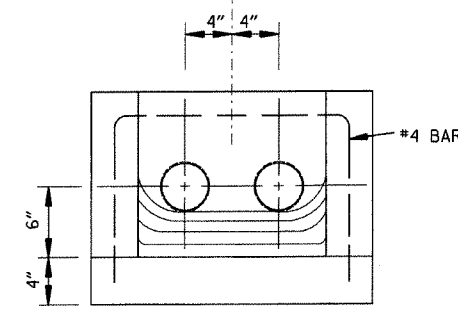
DETAIL OF HOLE FOR 4" PIPE



DETAIL OF RODENT SCREEN



SIDE VIEW

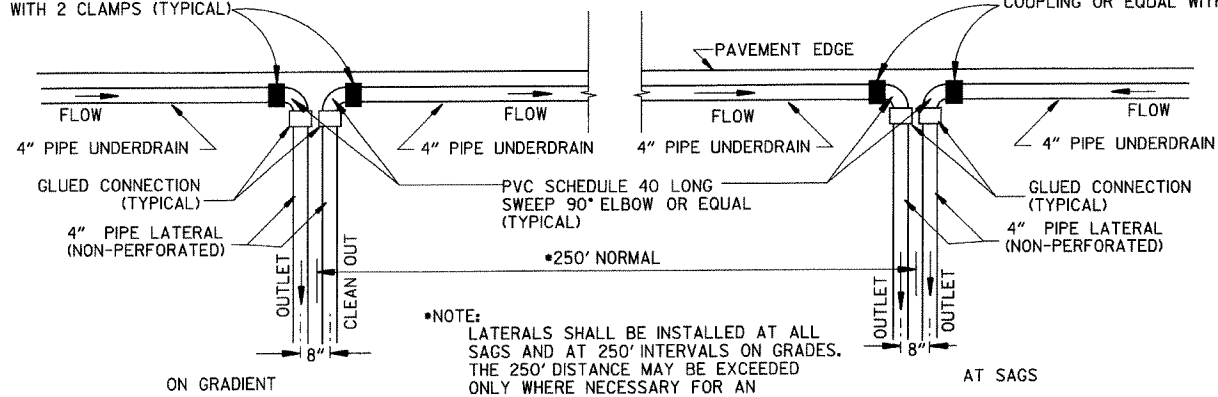


FRONT VIEW

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

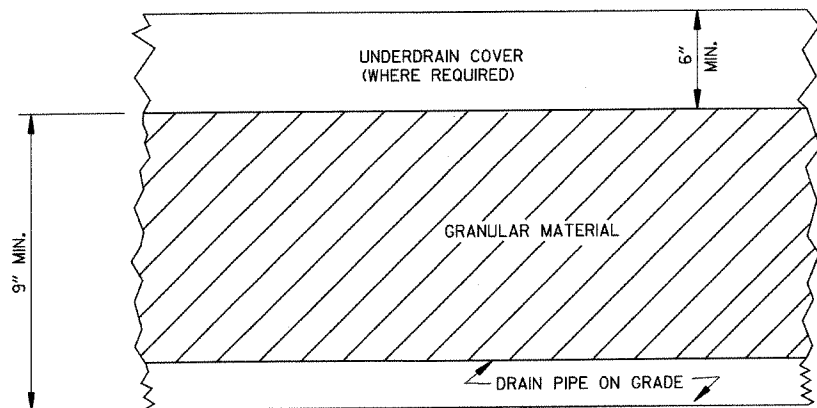
UNDERDRAIN OUTLET PROTECTORS



NOTE:
 LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

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.



DETAILS OF PIPE UNDERDRAIN

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; 5 1/2" 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 POLYETHYLENE 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
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

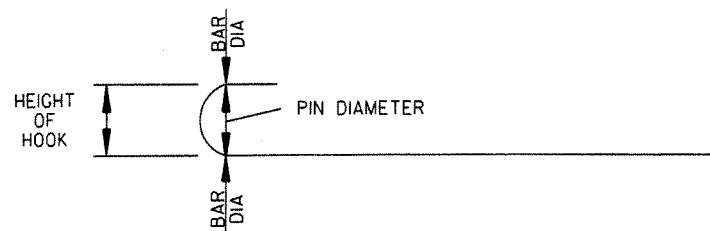
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3"	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2 3/4 INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

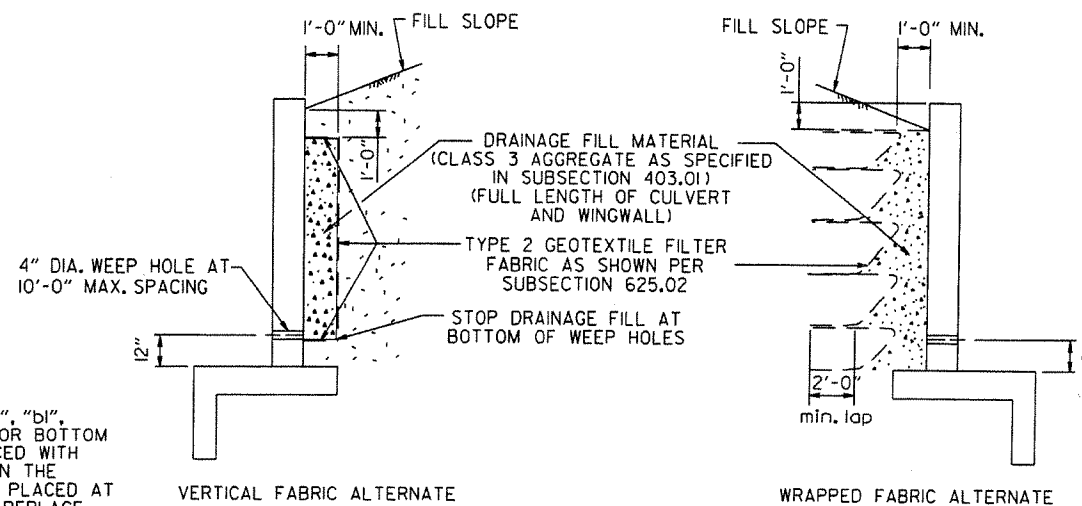
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

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

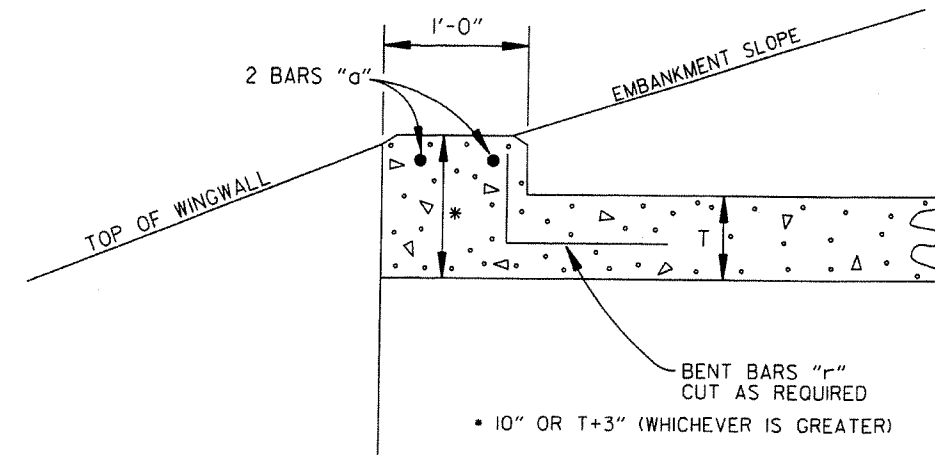
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS 1/2 INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

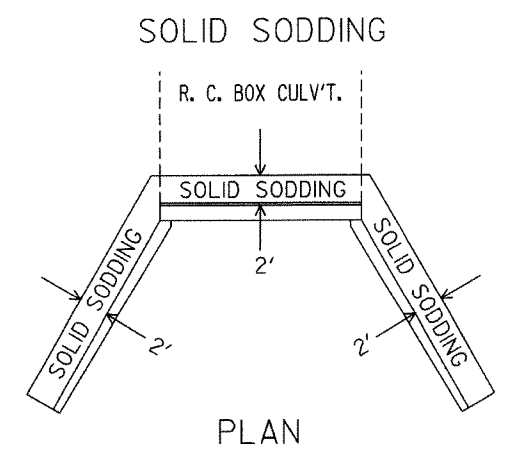
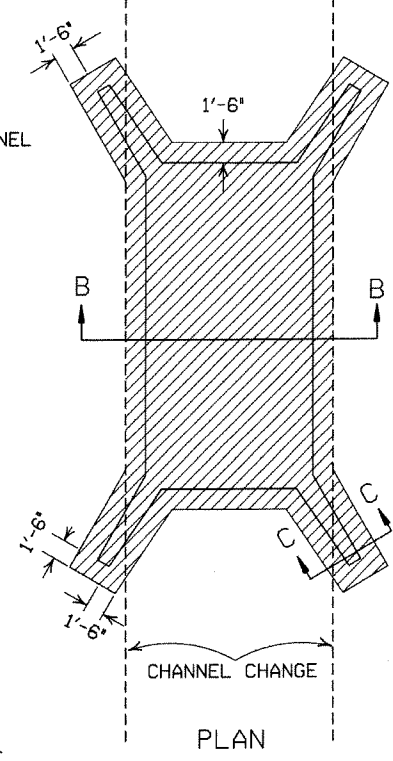
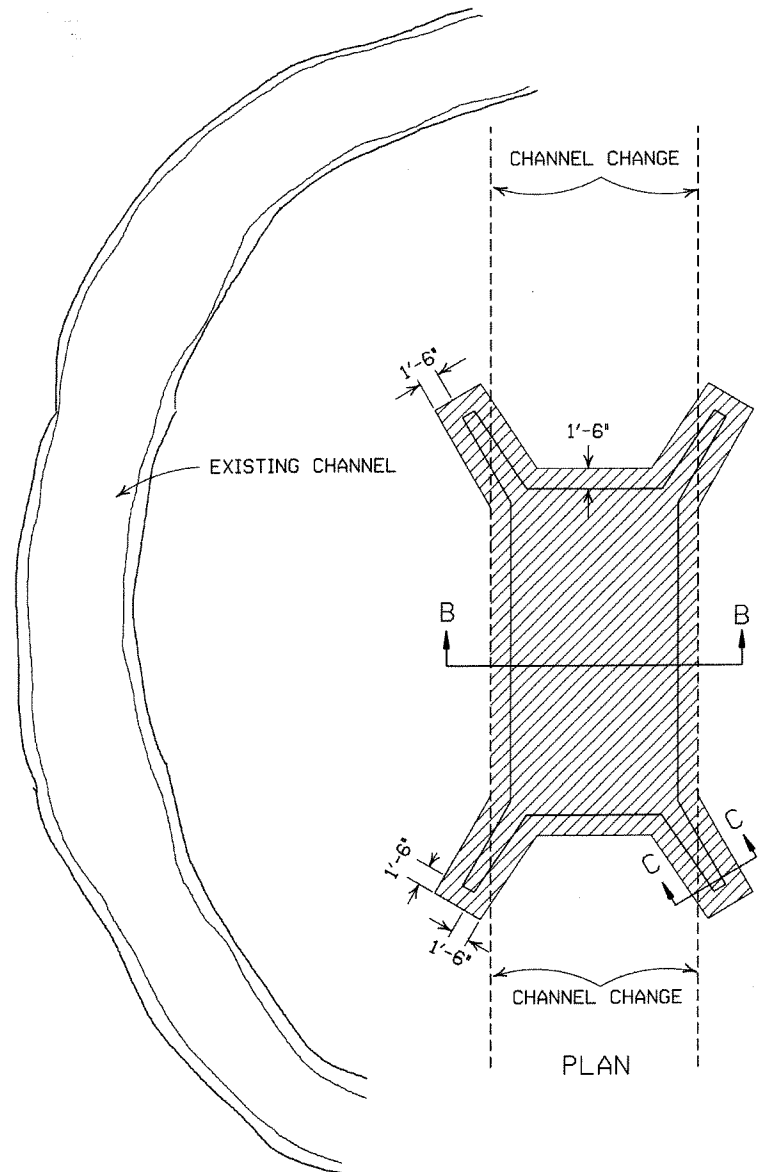
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

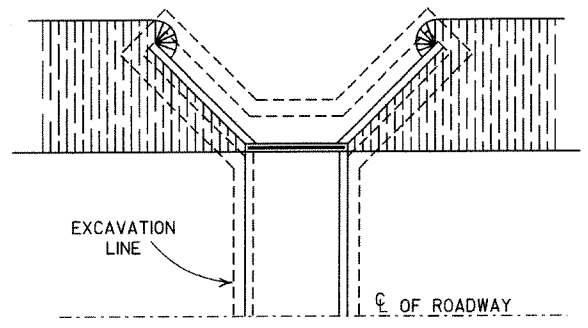
STANDARD DRAWING RCB-1



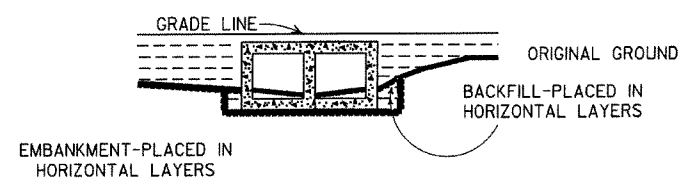
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

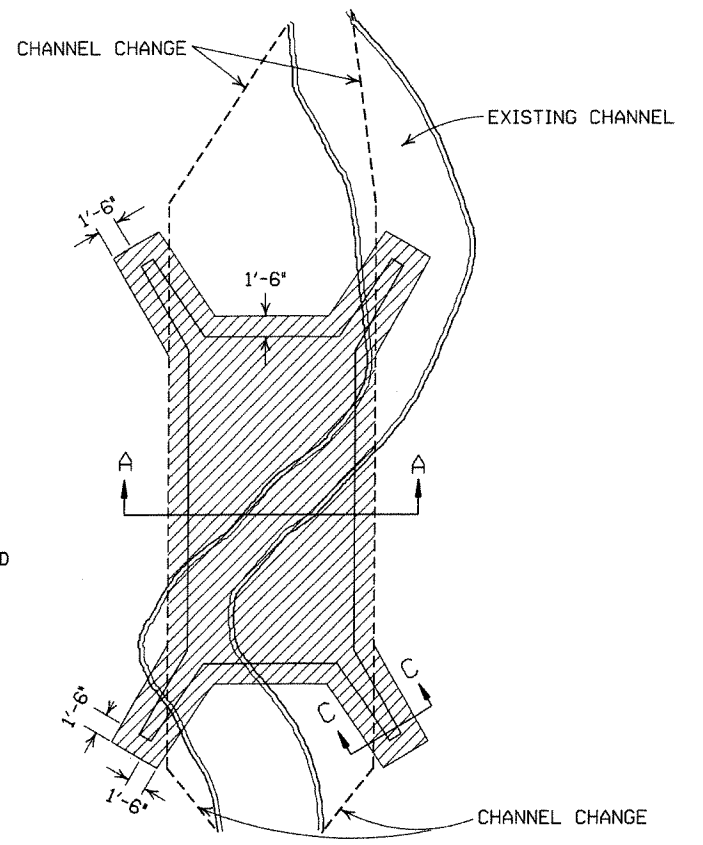


PLAN

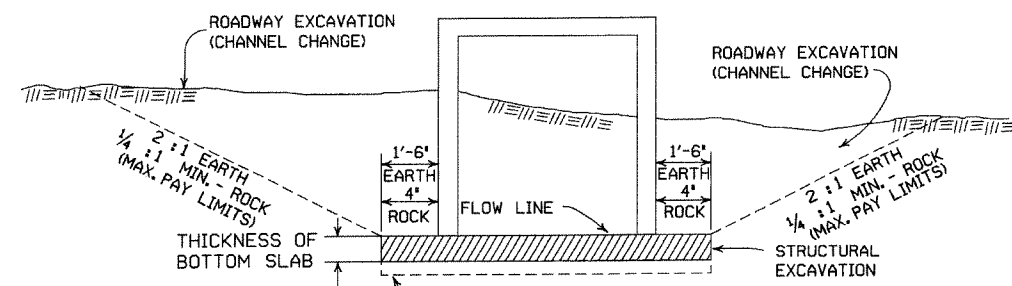


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

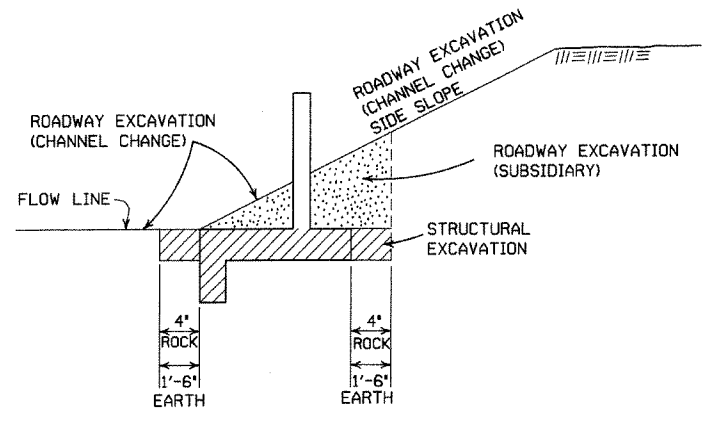


PLAN

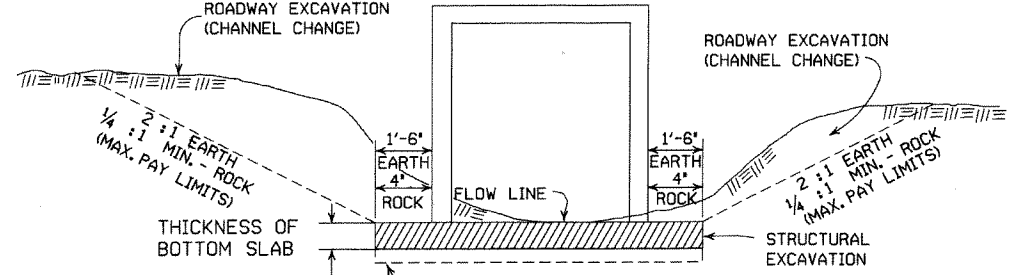


SECTION B-B
DETAILS FOR NEW CHANNELS

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



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

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

GENERAL NOTES:

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

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

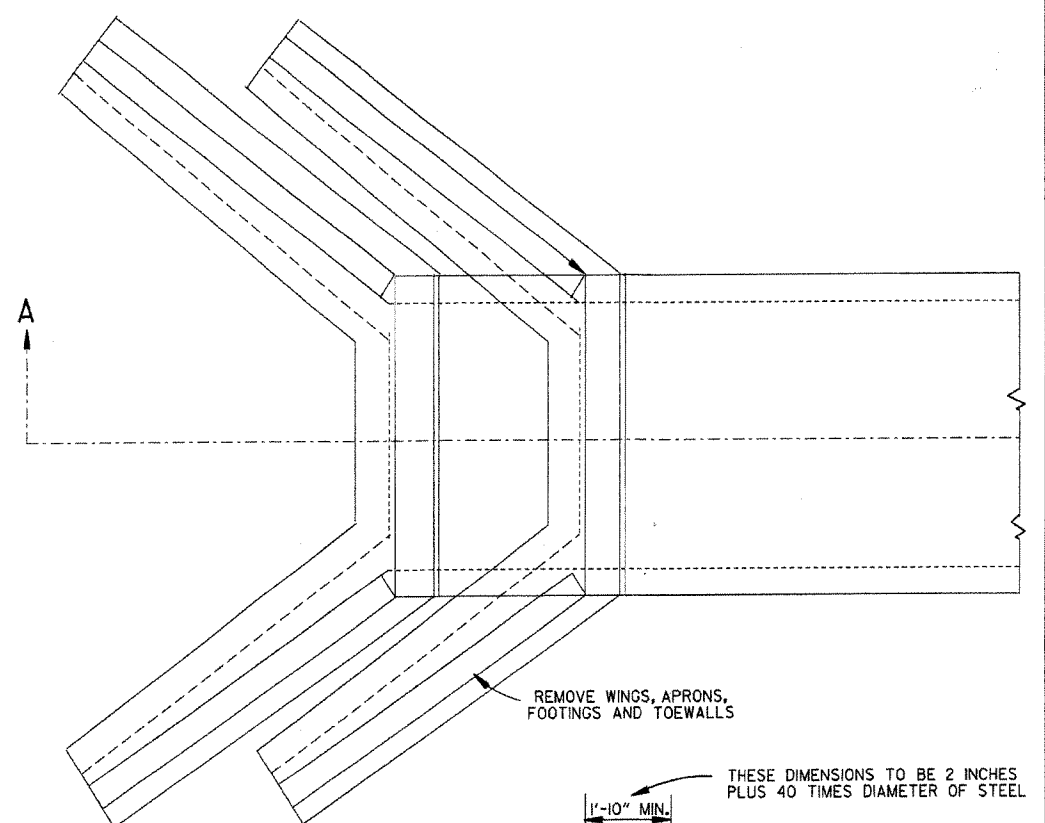
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

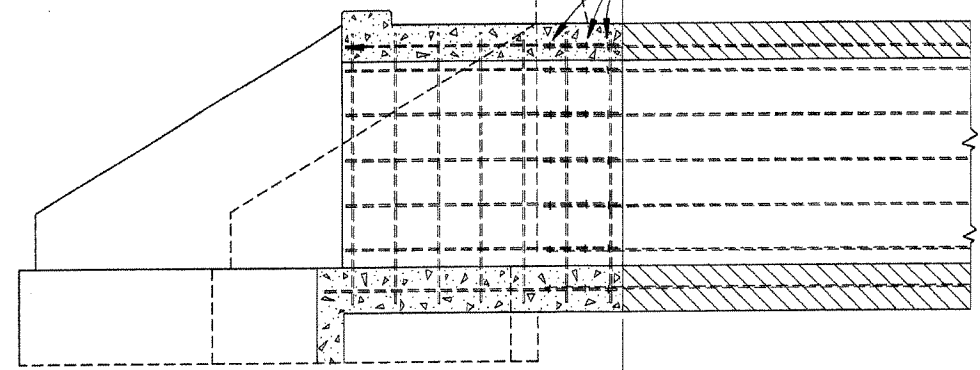
ARKANSAS STATE HIGHWAY COMMISSION

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

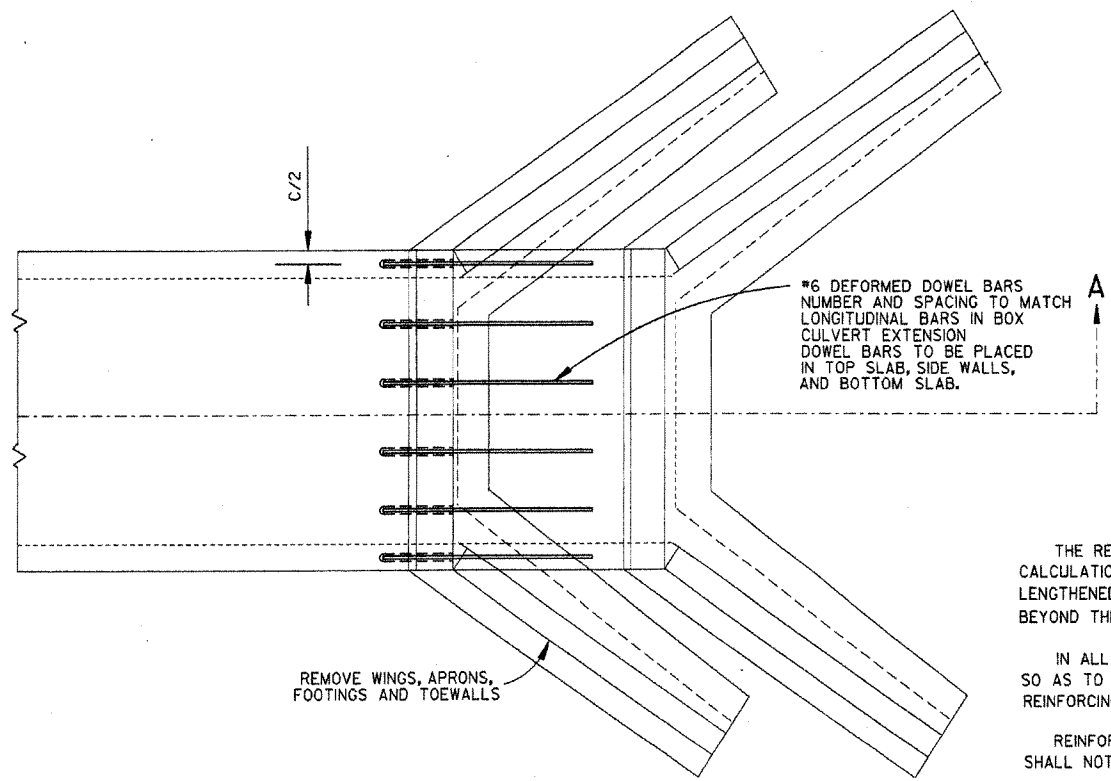
STANDARD DRAWING RCB-2



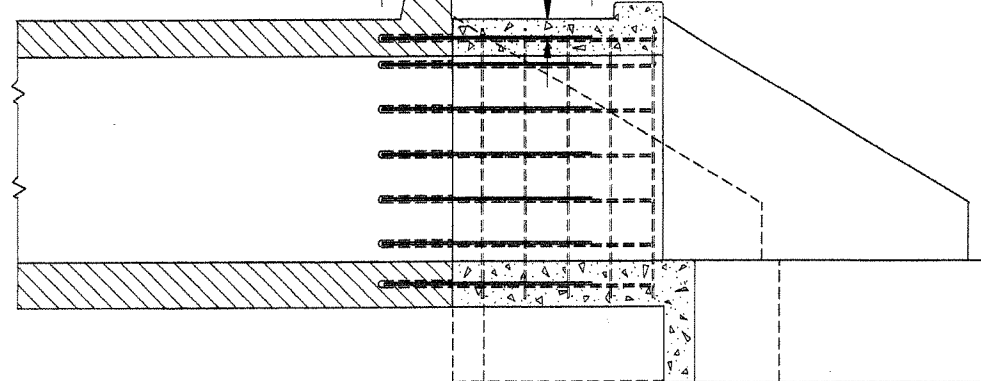
TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 2

- GENERAL NOTES
- 1 THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.
- 1 IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.
- 1&2 REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.
- 1&2 ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 2 MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.
- 2 DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.
- 1&2 THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2, REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.
SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

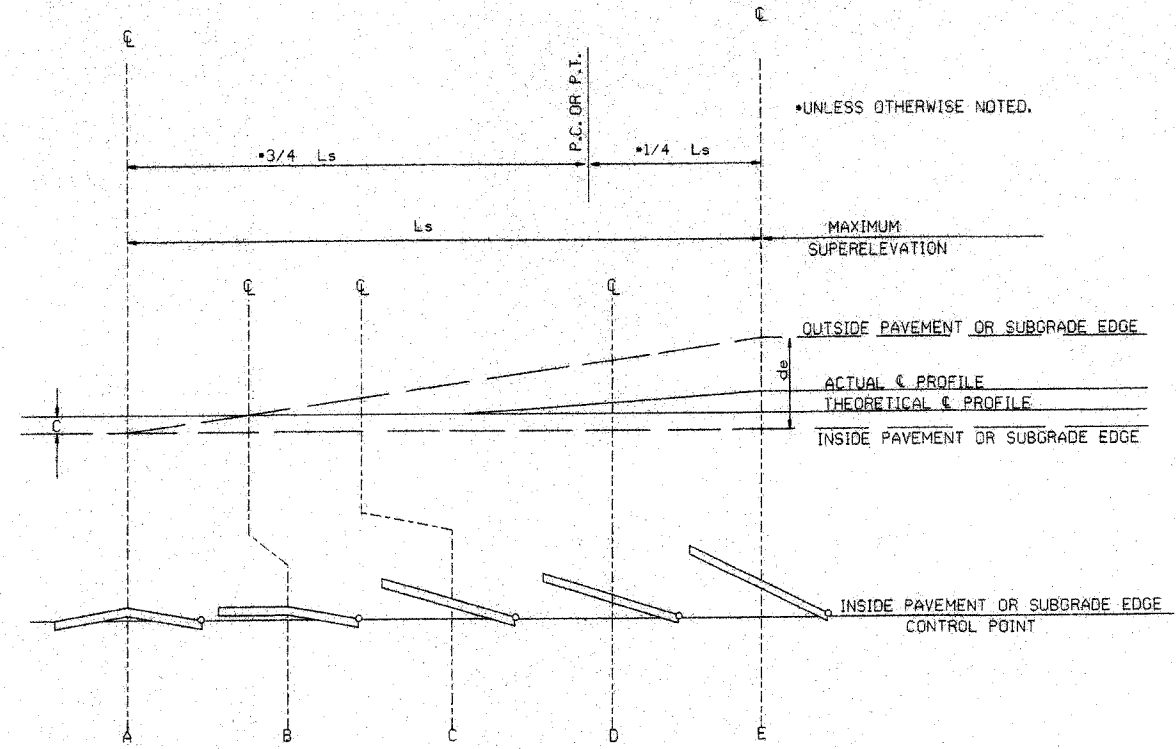
ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING
EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 15'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 30'	0.021		0.021		0.021		0.021		0.021		0.021	
2° 45'	0.023		0.023		0.023		0.023		0.023		0.023	
3° 00'	0.025		0.025		0.025		0.025		0.025		0.025	
3° 15'	0.027		0.027		0.027		0.027		0.027		0.027	
3° 30'	0.029		0.029		0.029		0.029		0.029		0.029	
3° 45'	0.031		0.031		0.031		0.031		0.031		0.031	
4° 00'	0.033		0.033		0.033		0.033		0.033		0.033	
4° 30'	0.037		0.037		0.037		0.037		0.037		0.037	
5° 00'	0.040		0.040		0.040		0.040		0.040		0.040	
5° 30'	0.043		0.043		0.043		0.043		0.043		0.043	
6° 00'	0.046		0.046		0.046		0.046		0.046		0.046	
6° 30'	0.049		0.049		0.049		0.049		0.049		0.049	
7° 00'	0.051		0.051		0.051		0.051		0.051		0.051	
7° 30'	0.053		0.053		0.053		0.053		0.053		0.053	
8° 00'	0.056		0.056		0.056		0.056		0.056		0.056	
8° 30'	0.061		0.061		0.061		0.061		0.061		0.061	
9° 00'	0.066		0.066		0.066		0.066		0.066		0.066	
10° 00'	0.072		0.072		0.072		0.072		0.072		0.072	
11° 00'	0.076		0.076		0.076		0.076		0.076		0.076	
12° 00'	0.080		0.080		0.080		0.080		0.080		0.080	
13° 00'	0.083		0.083		0.083		0.083		0.083		0.083	
14° 00'	0.086		0.086		0.086		0.086		0.086		0.086	
15° 00'	0.089		0.089		0.089		0.089		0.089		0.089	
16° 00'	0.091		0.091		0.091		0.091		0.091		0.091	
17° 00'	0.093		0.093		0.093		0.093		0.093		0.093	
18° 00'	0.095		0.095		0.095		0.095		0.095		0.095	
19° 00'	0.097		0.097		0.097		0.097		0.097		0.097	
20° 00'	0.099		0.099		0.099		0.099		0.099		0.099	
21° 00'	0.099		0.099		0.099		0.099		0.099		0.099	
22° 00'	0.099		0.099		0.099		0.099		0.099		0.099	
23° 00'	0.099		0.099		0.099		0.099		0.099		0.099	
24° 00'	0.100		0.100		0.100		0.100		0.100		0.100	



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

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

ABBREVIATIONS

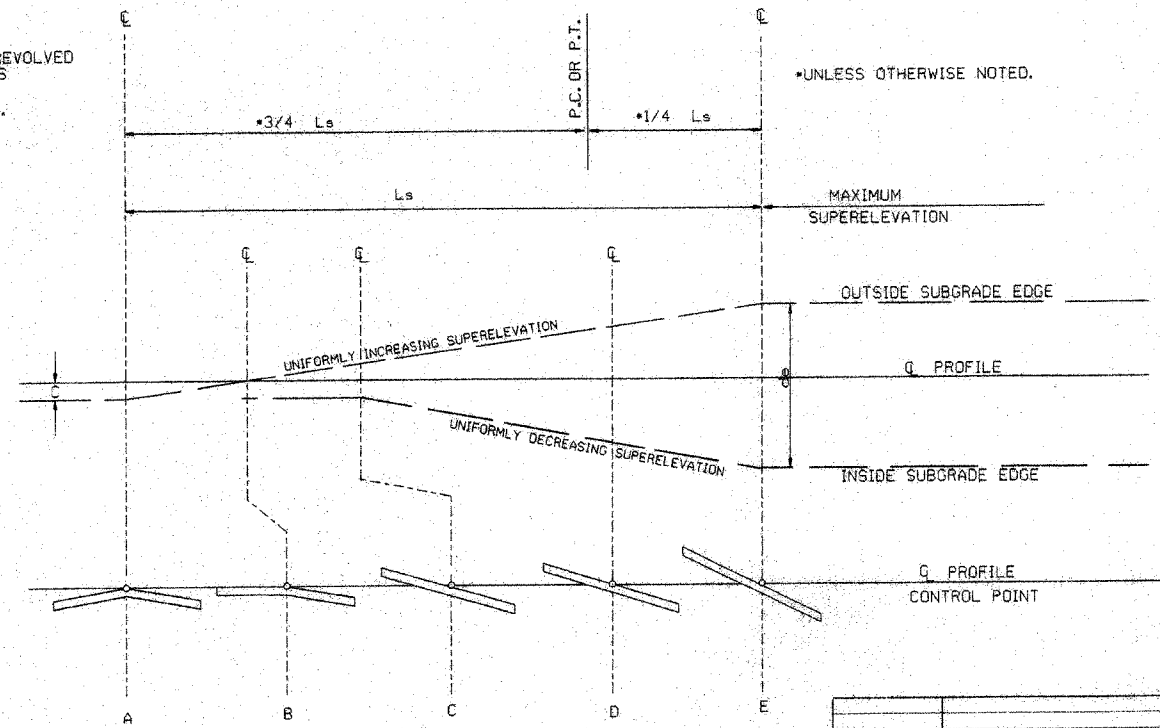
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)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

GENERAL NOTES

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

- 3 LANE UNDIVIDED - - - - - +20%
- 4 LANE UNDIVIDED - - - - - +50%
- 5 LANE UNDIVIDED - - - - - +80%
- 6 LANE UNDIVIDED - - - - - +100%

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

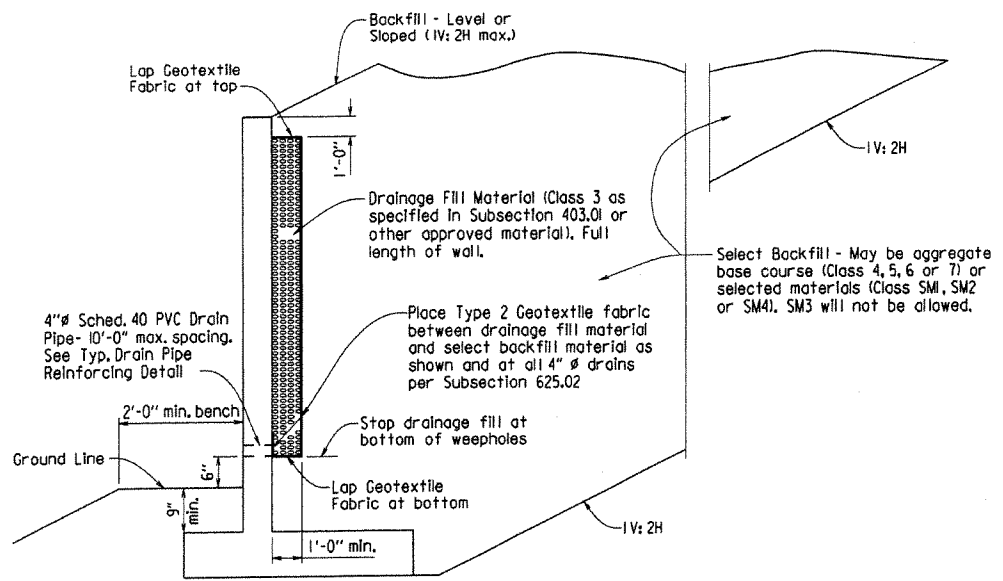
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

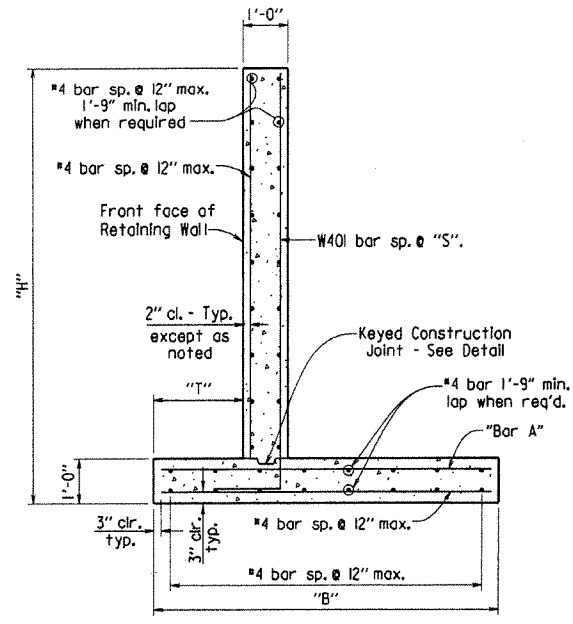
STANDARD DRAWING SE-2

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



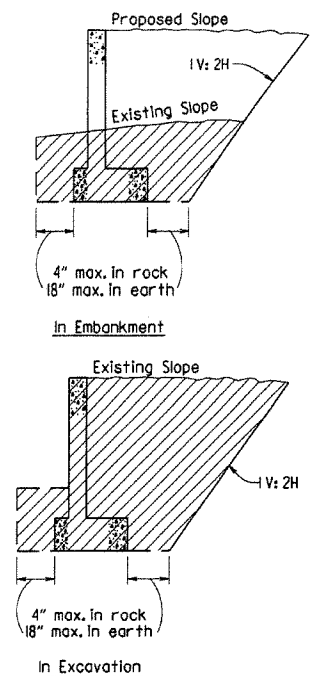
TYPICAL DRAINAGE & BACKFILL DETAILS

N.T.S.



TYPICAL SECTION

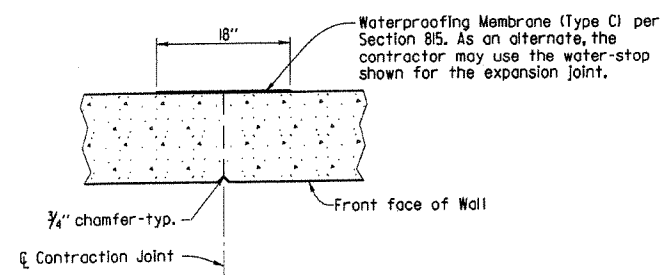
N.T.S.



DETAILS OF EXCAVATION

N.T.S.

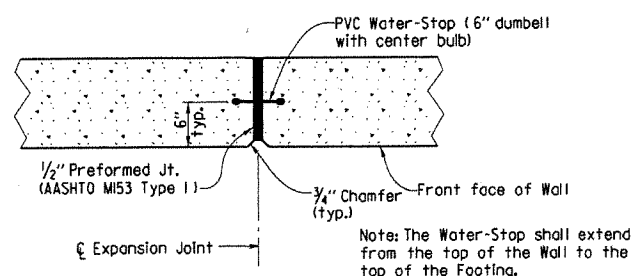
NOTE: Hatched area denotes maximum limits of pay excavation.



TYPICAL CONTRACTION JOINT DETAIL

N.T.S.

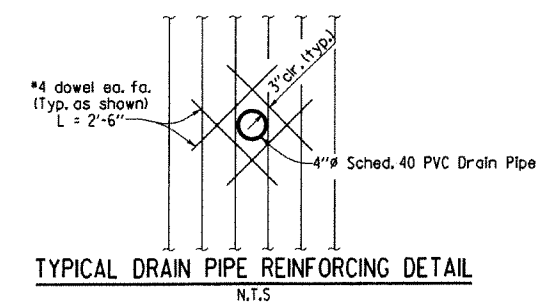
Note: 20'-0" Max. Spacing between Contraction Joints. Horizontal reinforcement shall be continuous through Contraction joints.



TYPICAL EXPANSION JOINT DETAIL

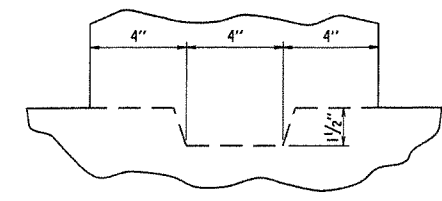
N.T.S.

Note: 60'-0" Max. Spacing between Expansion Joints. Horizontal reinforcement shall stop 2" from Expansion Joint.



TYPICAL DRAIN PIPE REINFORCING DETAIL

N.T.S.



KEYED CONSTRUCTION JOINT DETAIL

N.T.S.

SEISMIC ZONE: These walls have been designed for the following site adjusted peak ground accelerations (A_S):
 Level Backfill - A_S ≤ .40g
 Sloped Backfill (1V:2H max.) - A_S ≤ .30g

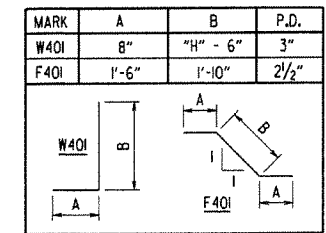
TABLE OF RETAINING WALL VARIABLES (LEVEL BACKFILL)

"H"	"T"	"B"	"S"	"Bar A" Size & Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-0"	12"	#4 @ 12"
6'-0"	9"	4'-6"	12"	#4 @ 12"
7'-0"	9"	5'-6"	12"	#4 @ 10"
8'-0"	9"	6'-0"	12"	#5 @ 10"
9'-0"	1'-0"	7'-0"	12"	#5 @ 6 1/2"

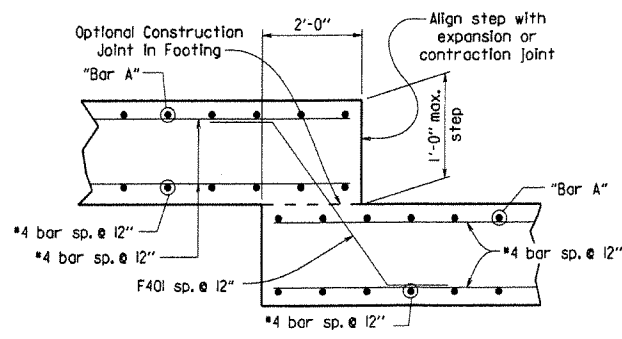
TABLE OF RETAINING WALL VARIABLES (SLOPED BACKFILL) (1V:2H MAX.)

"H"	"T"	"B"	"S"	"Bar A" Size & Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-6"	12"	#4 @ 12"
6'-0"	9"	5'-6"	12"	#4 @ 6"
7'-0"	9"	6'-6"	12"	#5 @ 6 1/2"
8'-0"	1'-6"	8'-0"	7 1/2"	#6 @ 6"
9'-0"	1'-11"	9'-6"	5"	#8 @ 6"

BENDING DIAGRAMS



Dimensions are out to out of bars.



FOOTING STEP DETAIL

N.T.S.

DATE	REVISION	DATE FILMED
7-26-12	DRAWING ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION
**REINFORCED CONCRETE
 RETAINING WALL
 (WITHOUT LIVE LOAD
 SURCHARGE)**

STANDARD DRAWING SI - 2



ADVANCE DISTANCES (XXXX)

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

GENERAL NOTES:


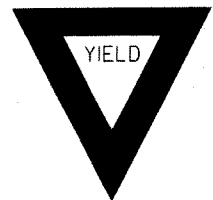


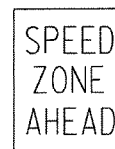
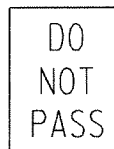
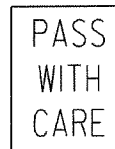

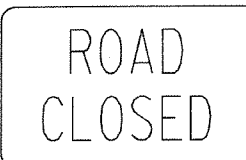
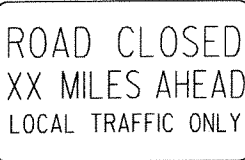
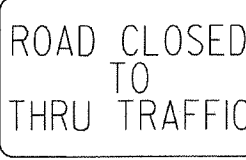

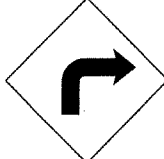



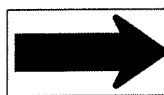

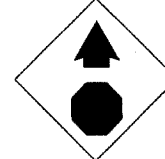
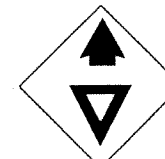
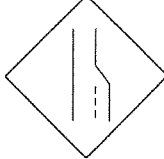



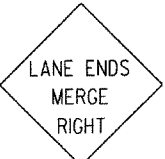


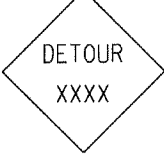



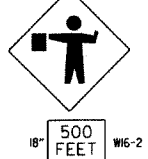



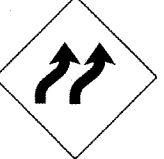

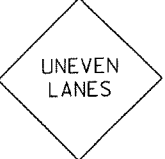
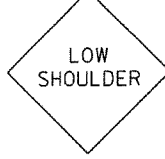
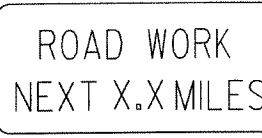
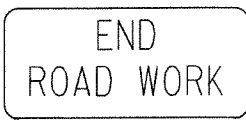
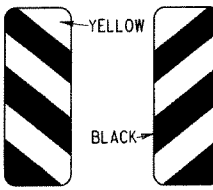
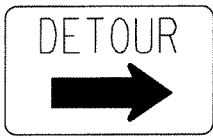

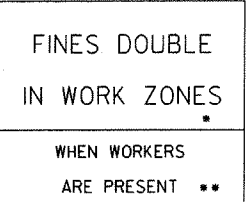
- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
- TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START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

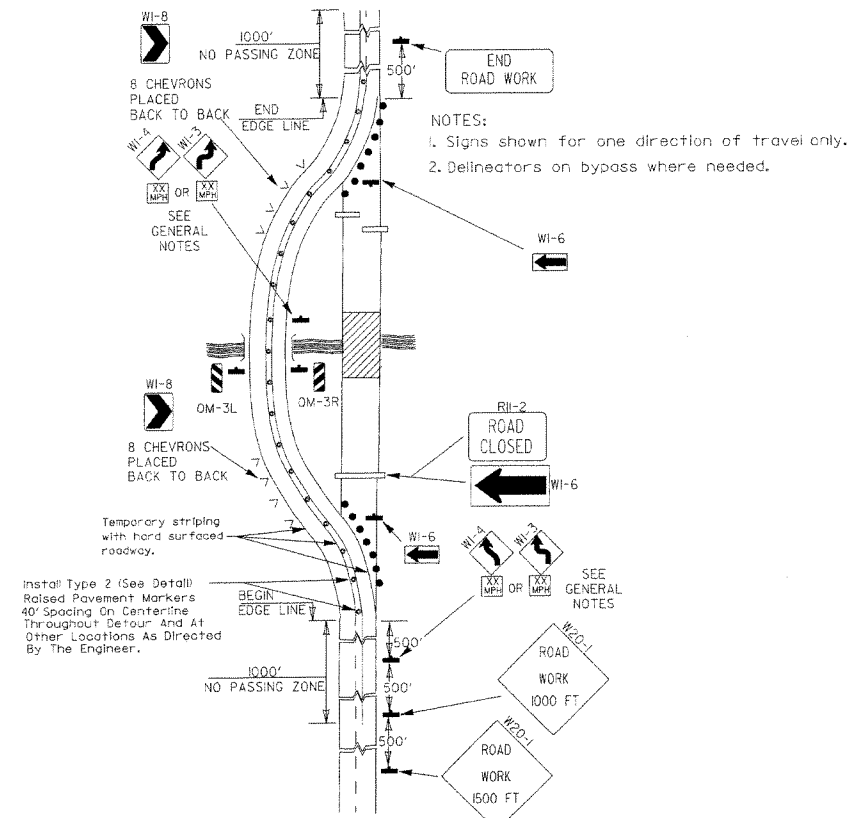
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER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

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

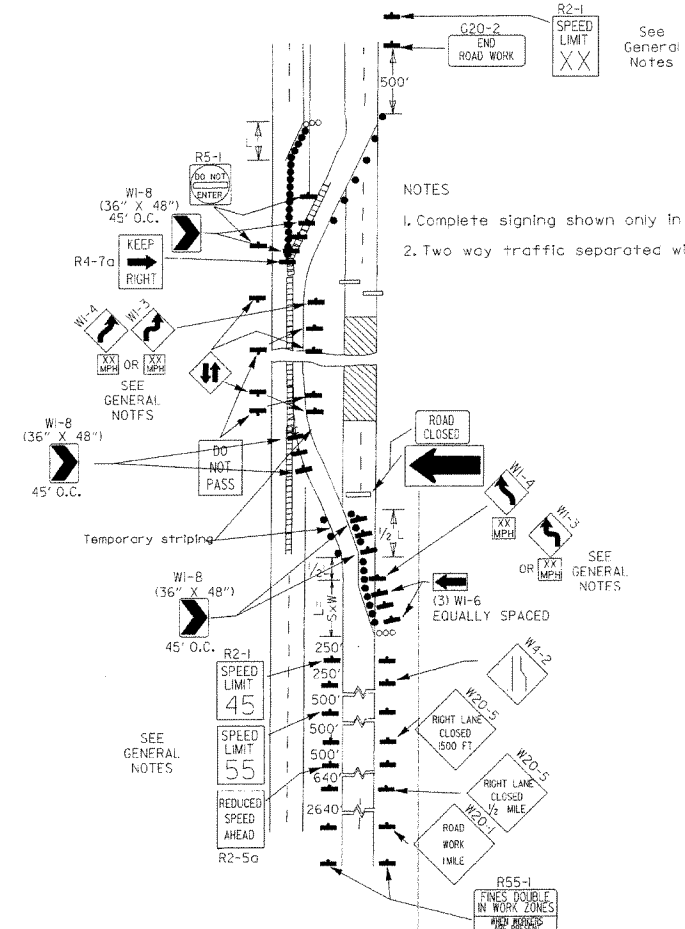
DATE	REVISION	FILMED
12-15-88	REVISED W24-1	
11-17-10	DELETED W8-9c & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1

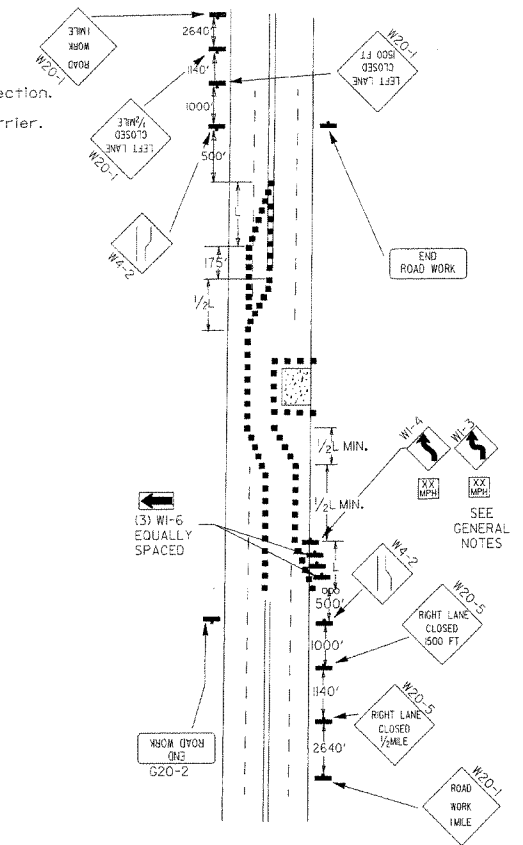
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY.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



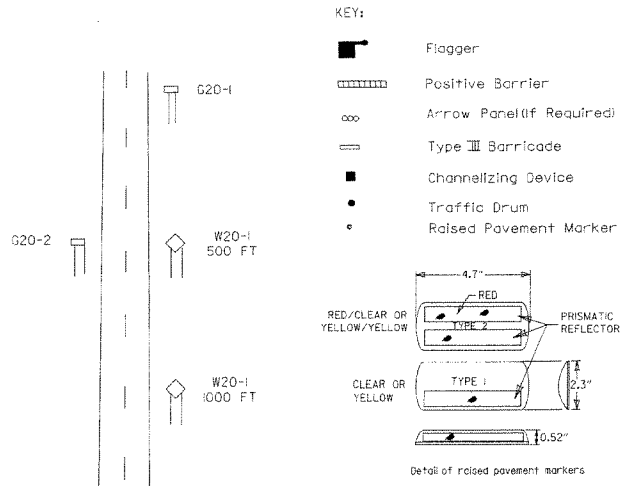
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



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

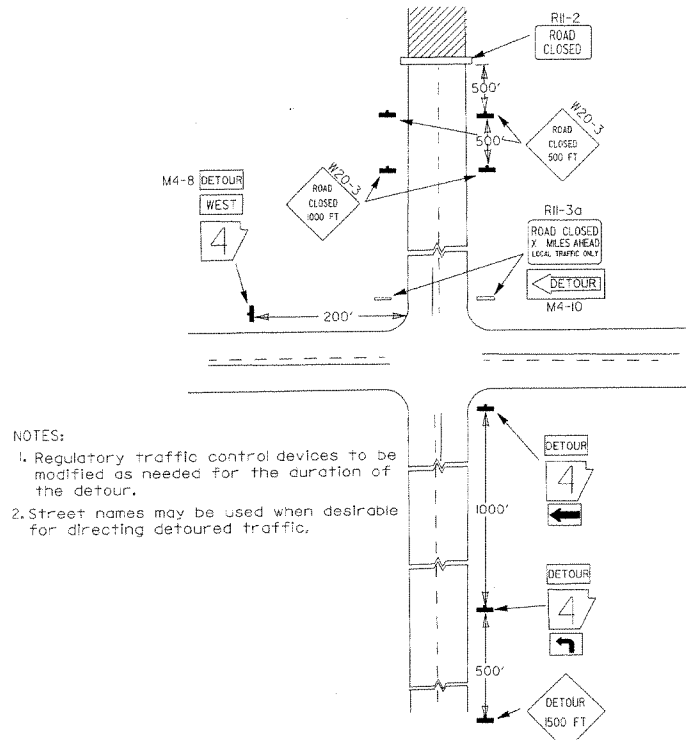


(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.

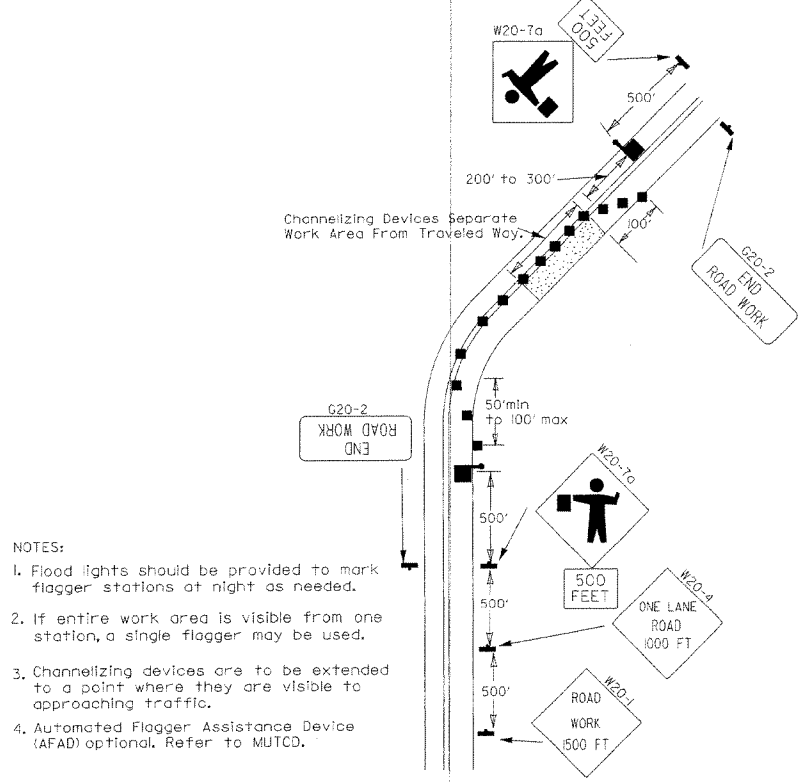


Taper formulae:
 $L = SxW$ for speeds of 45mph or more.
 $L = \frac{WS^2}{60}$ for speeds of 40mph or less.
 Where:
 L = Minimum length of taper.
 S = Numerical value of posted speed limit prior to work or 85th percentile speed.
 W = Width of offset.

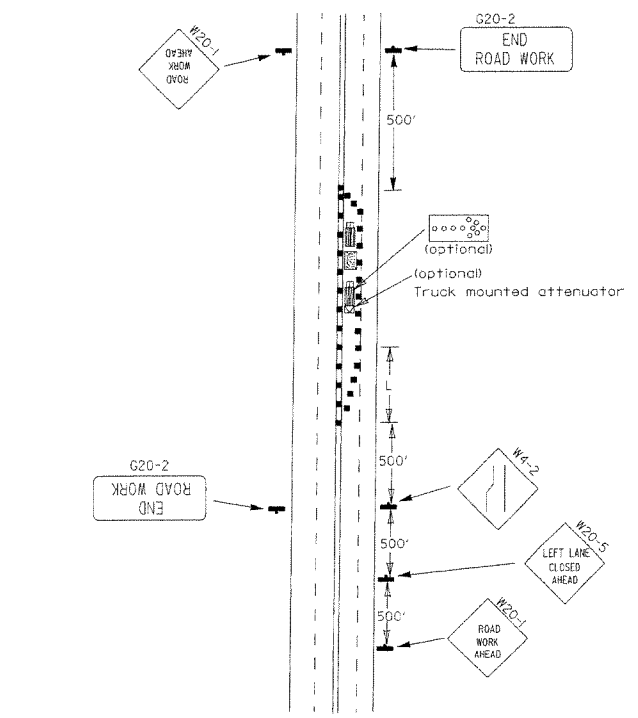
- GENERAL NOTES:
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
 - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(45) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(45) shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(45) shall be installed to match original speed limit.
 - The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



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



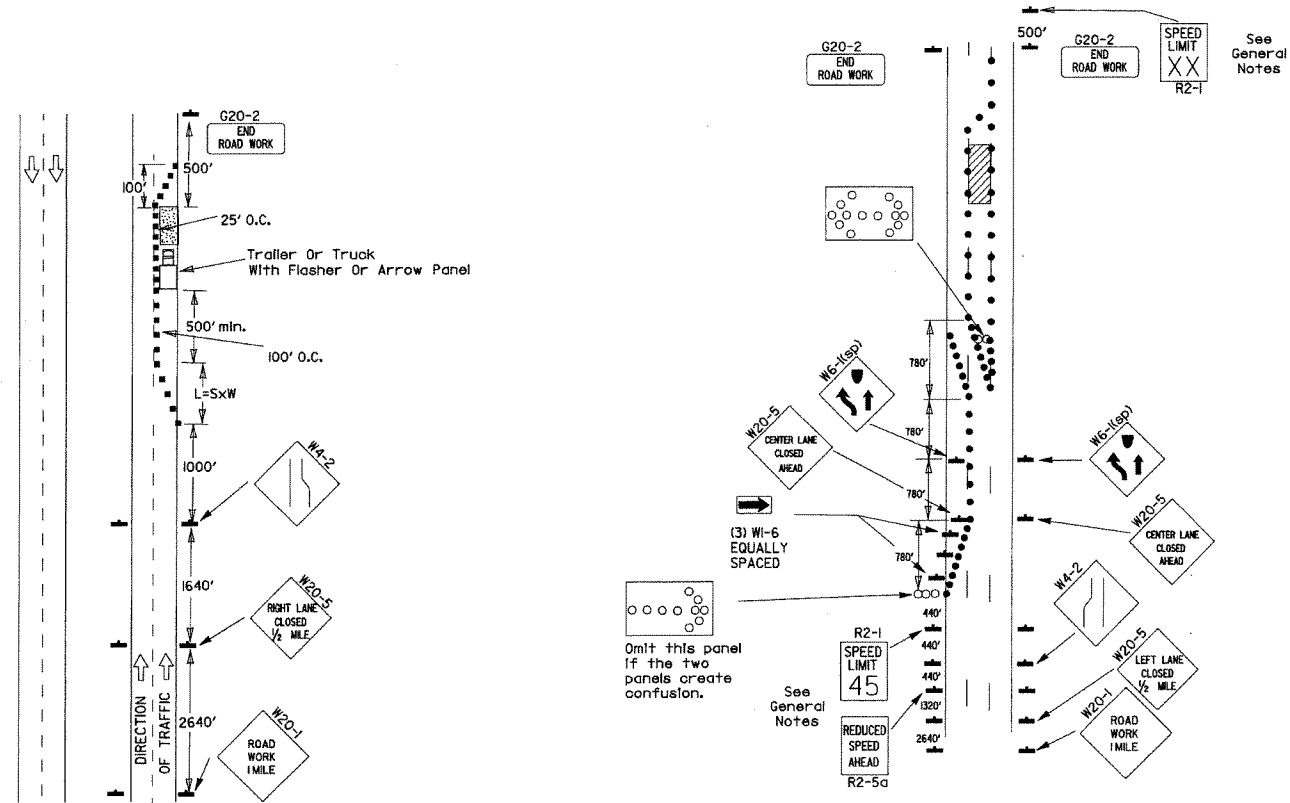
(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



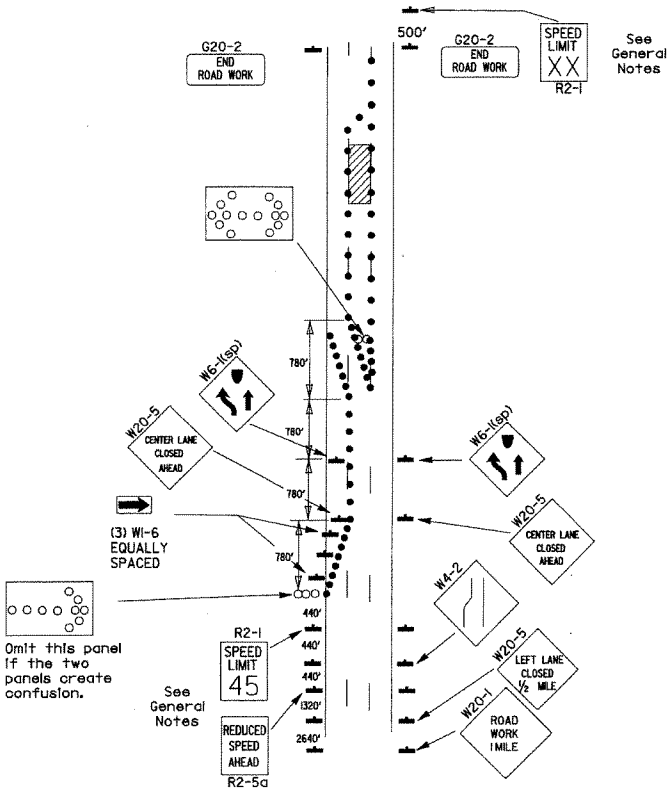
(F) Typical application - 4-lane undivided roadway with inside lane closed.

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

Channelizing devices

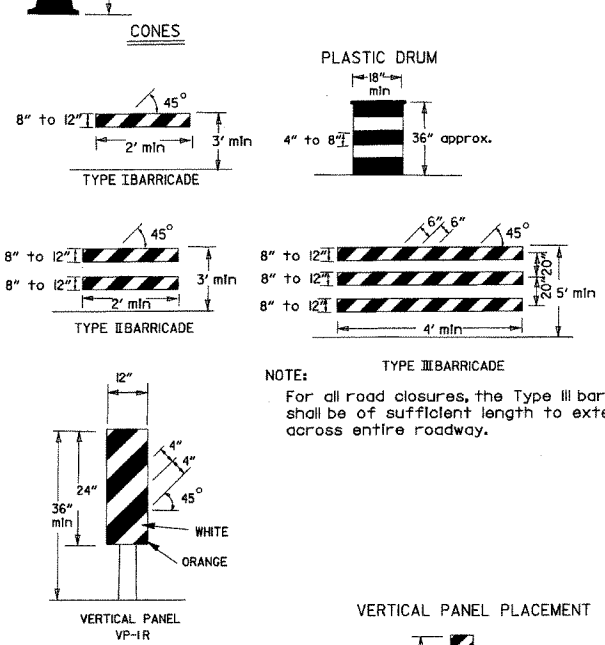


(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



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

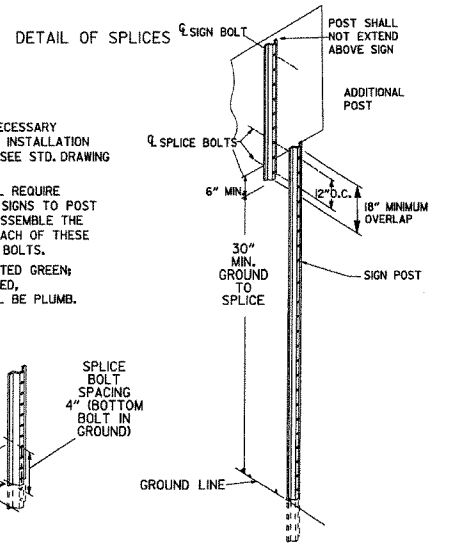
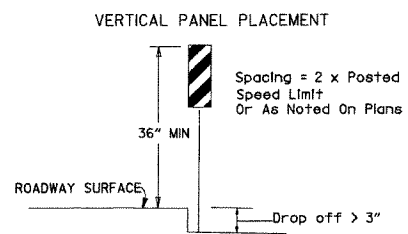
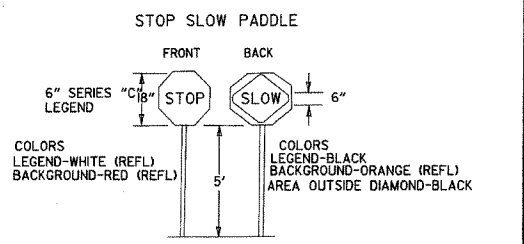
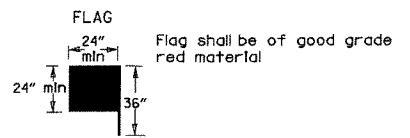
When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.



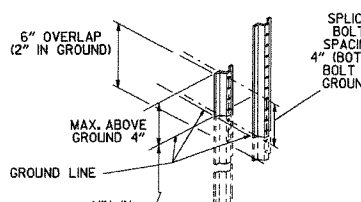
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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.

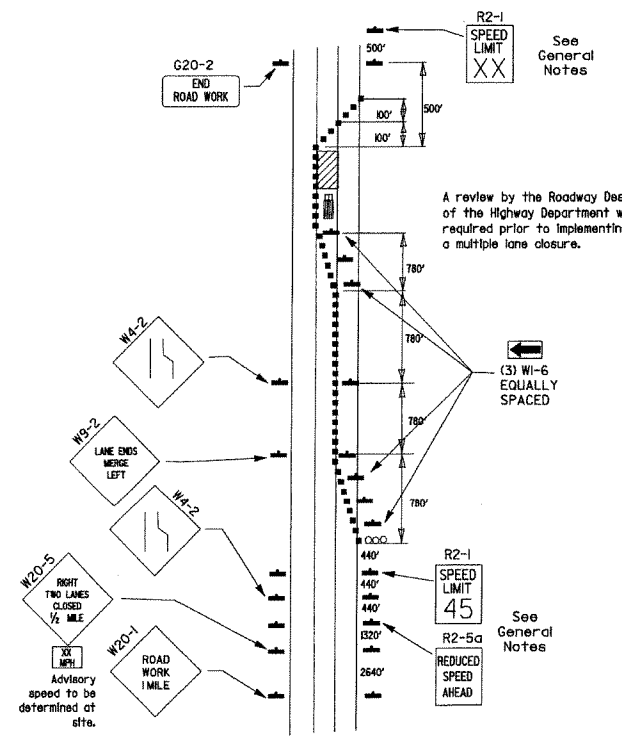


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2) NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS, EACH OF THESE BOLTS SHALL BE CARRIAGE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

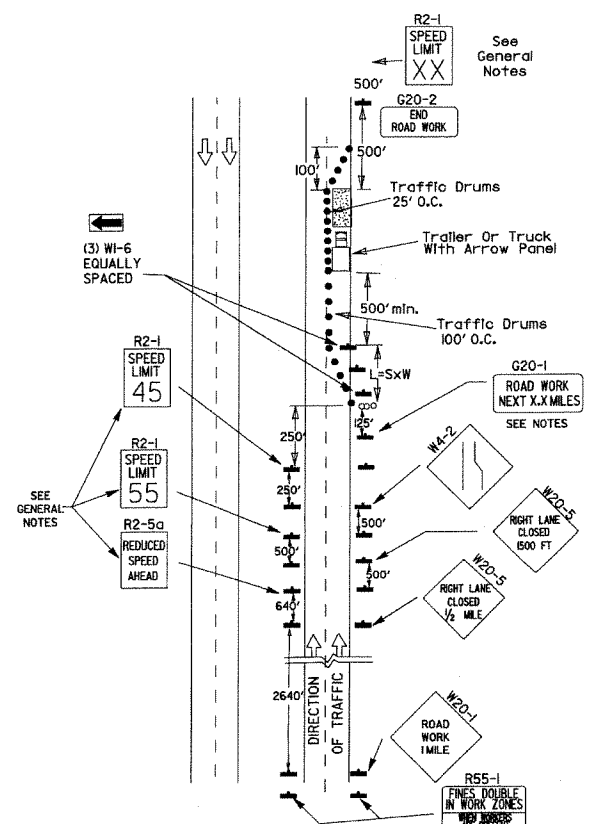


- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

- GENERAL NOTES:
- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
 - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1XX shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1XX shall be installed to match original speed limit.
 - The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
 - Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
 - All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
 - Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



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

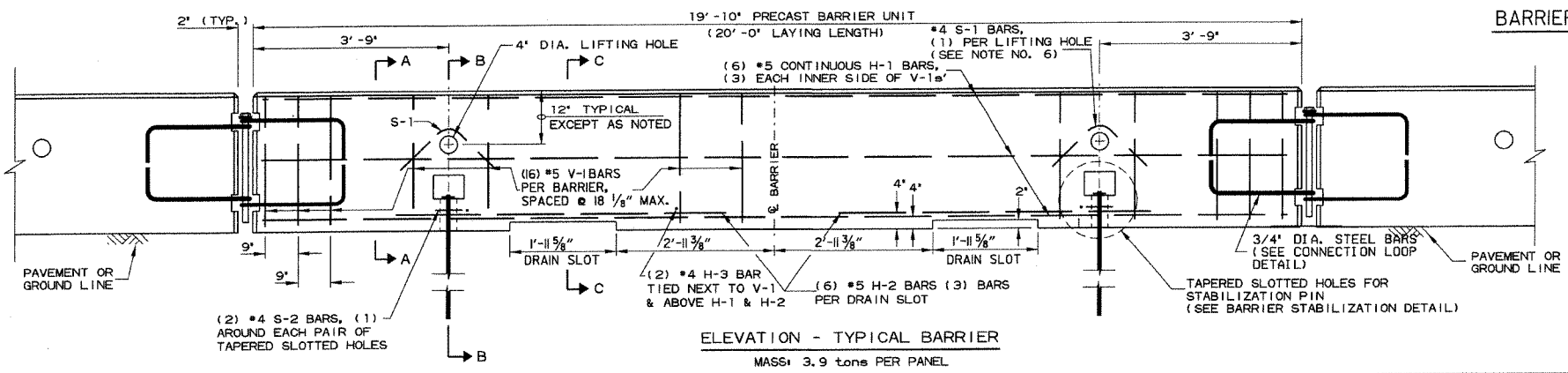
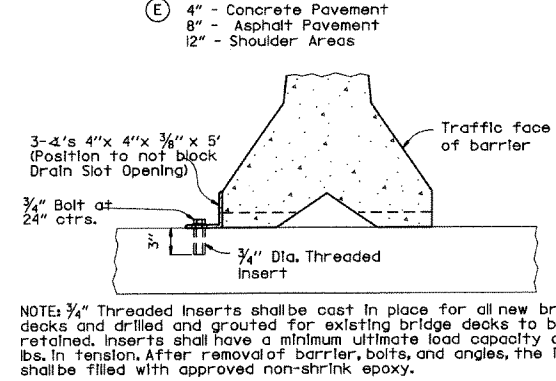
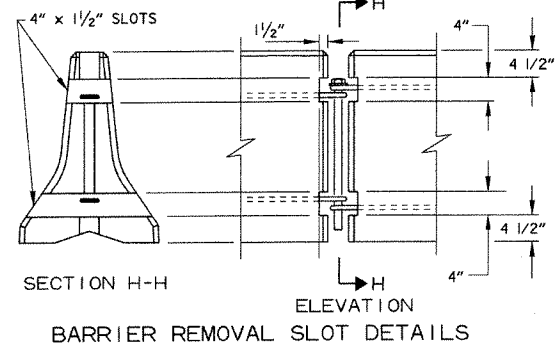
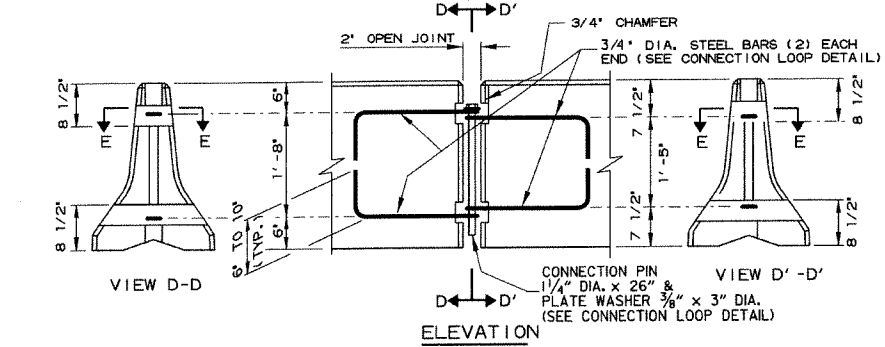
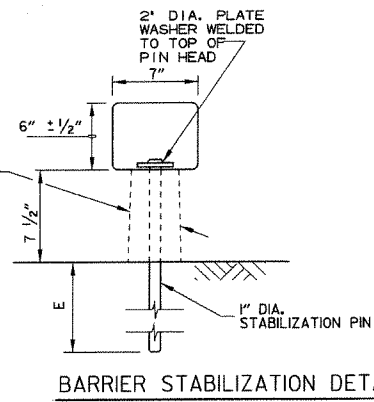
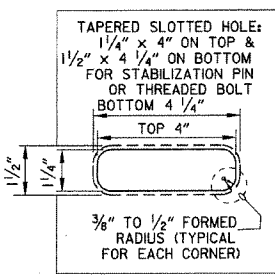
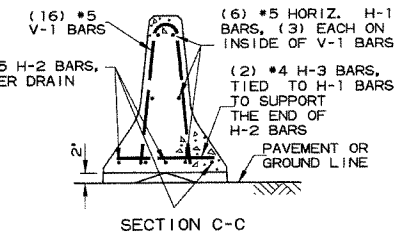
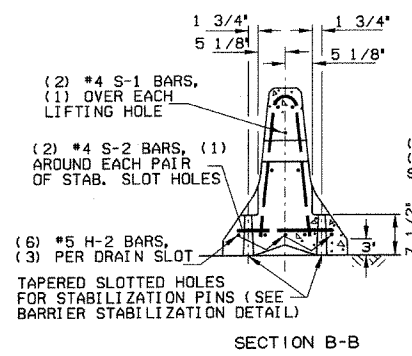
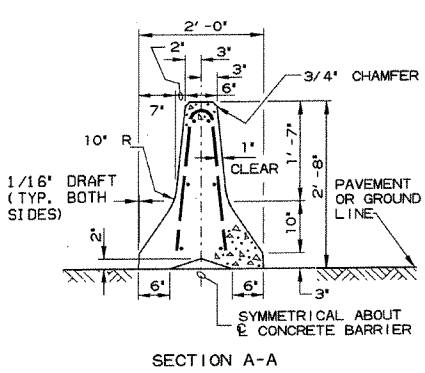
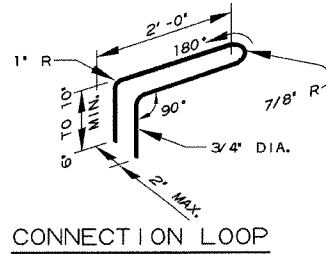
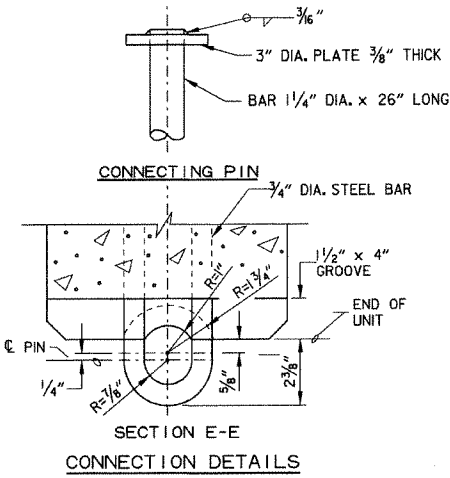


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

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

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE (NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5 (6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5 (6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4 (2)	1'-6"
S-1	OVER LIFT HOLES	#4 (2)	
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4 (2)	
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5 (16)	



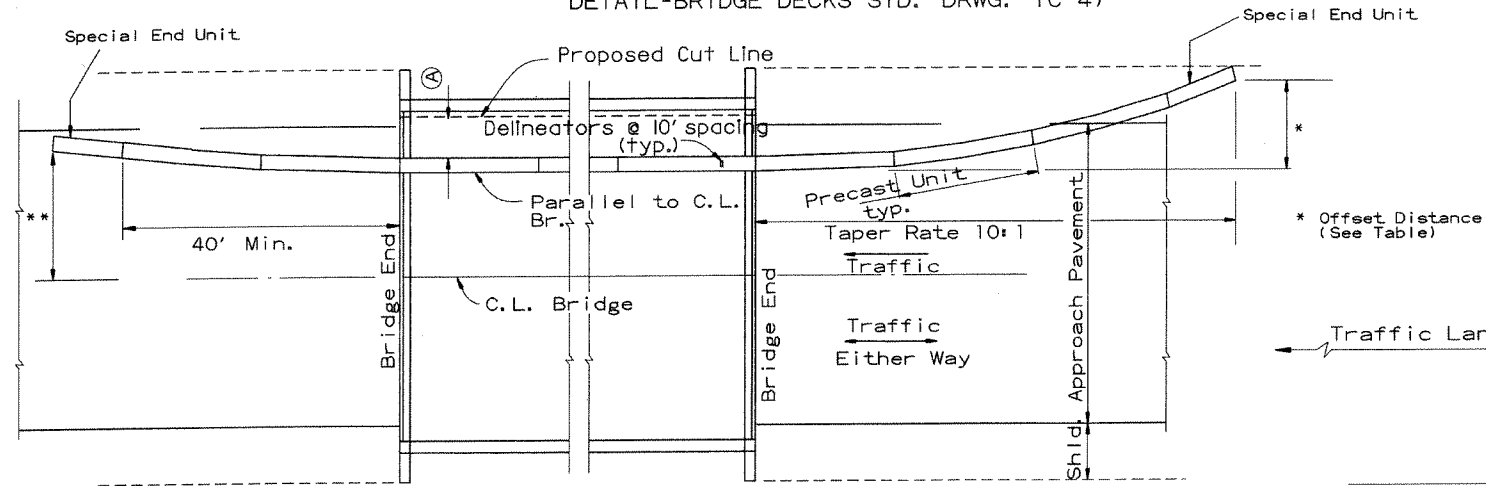
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following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

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

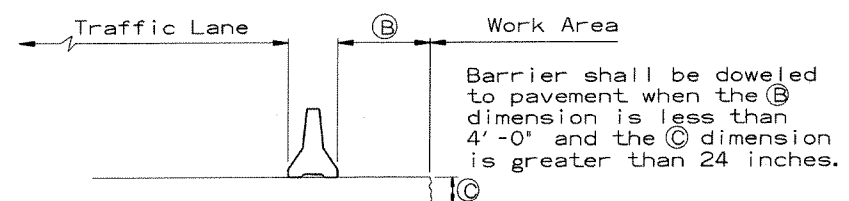
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

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

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

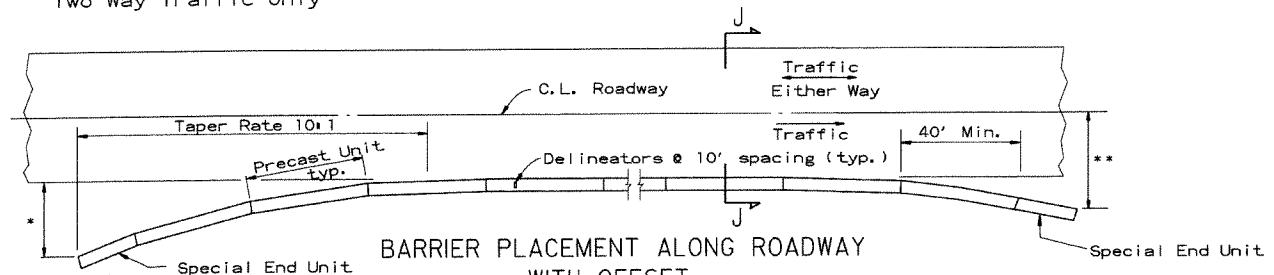


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET
No Scale



SECTION J-J
No Scale

** Offset Distance for Two Way Traffic Only



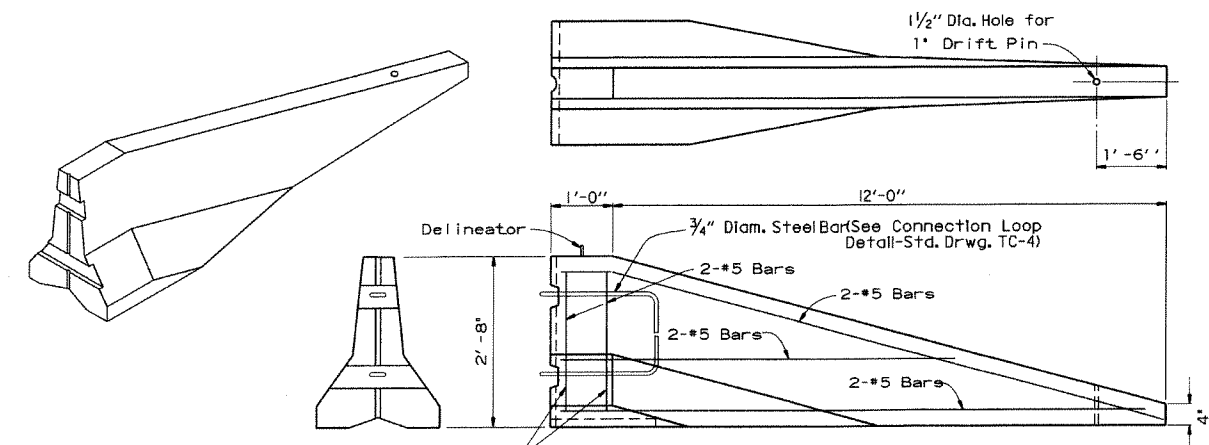
BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET
No Scale

* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

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

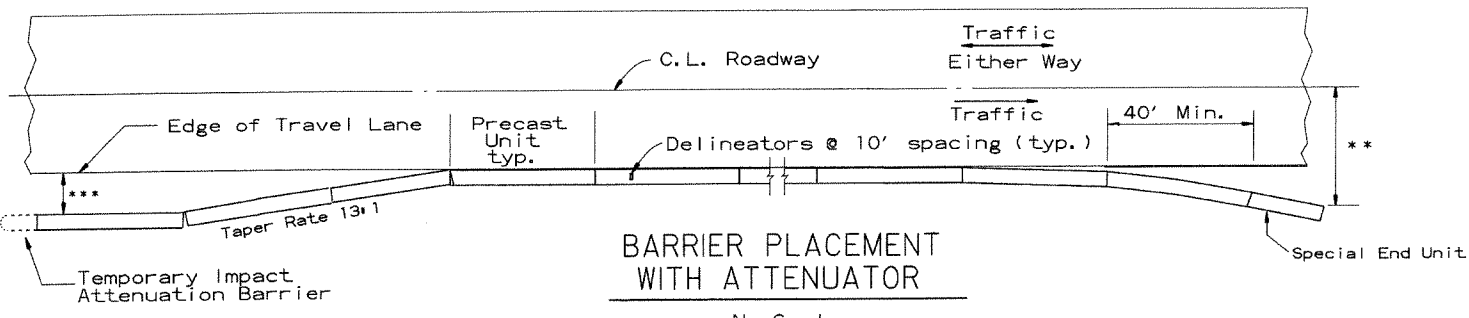
If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.



SPECIAL END UNIT
No Scale

General Notes

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

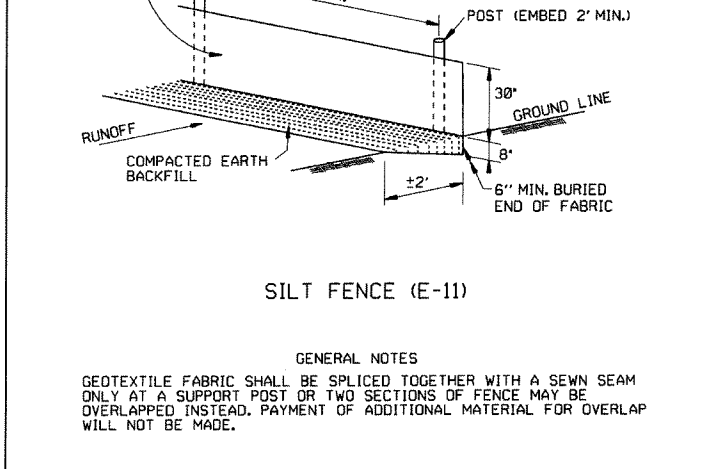
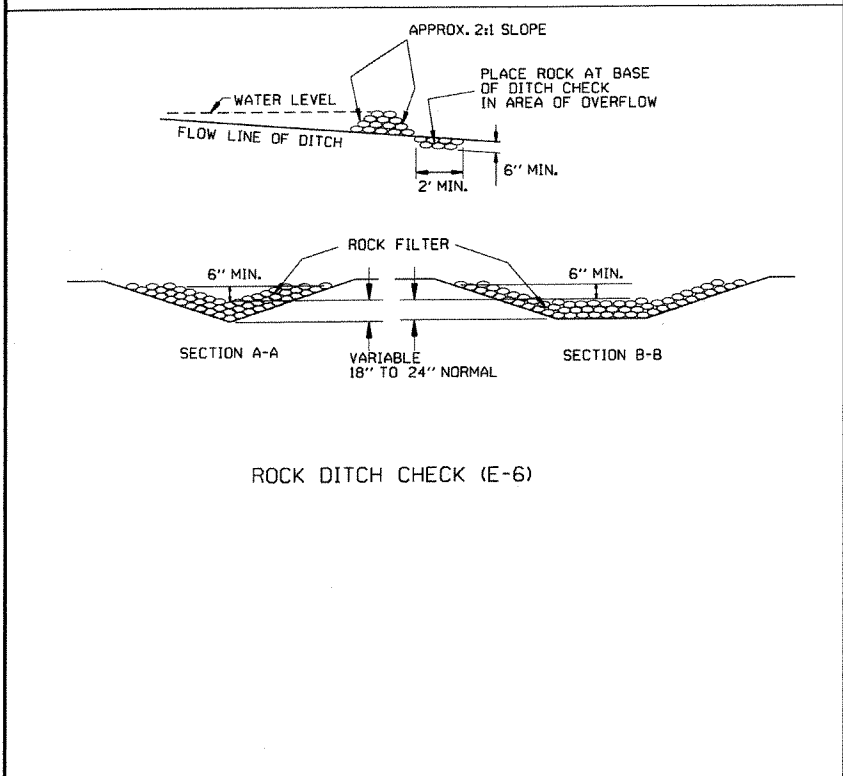
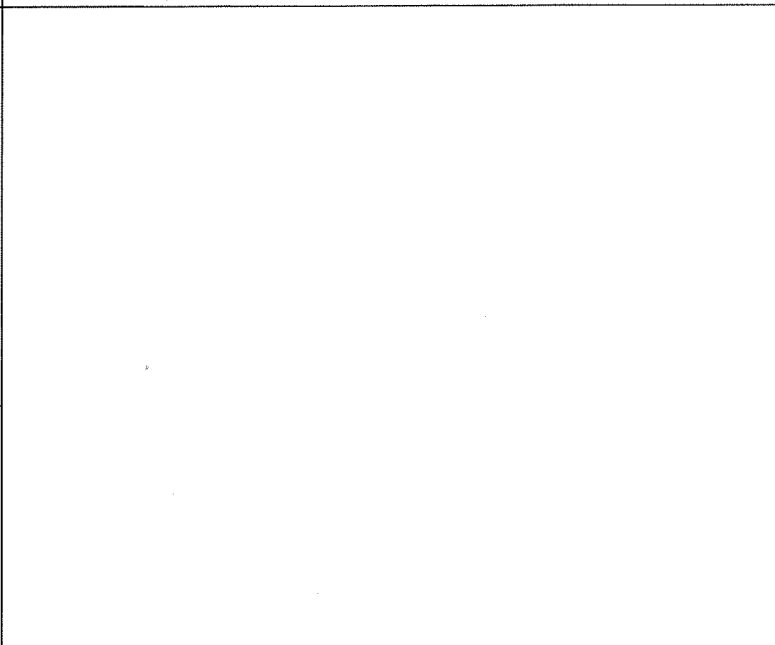
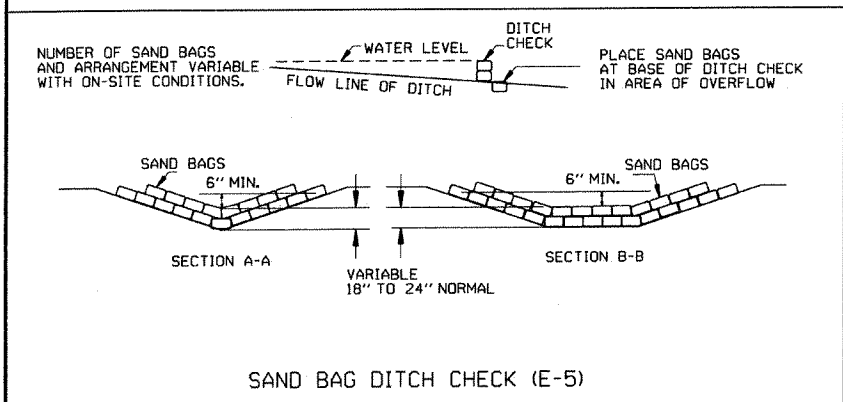
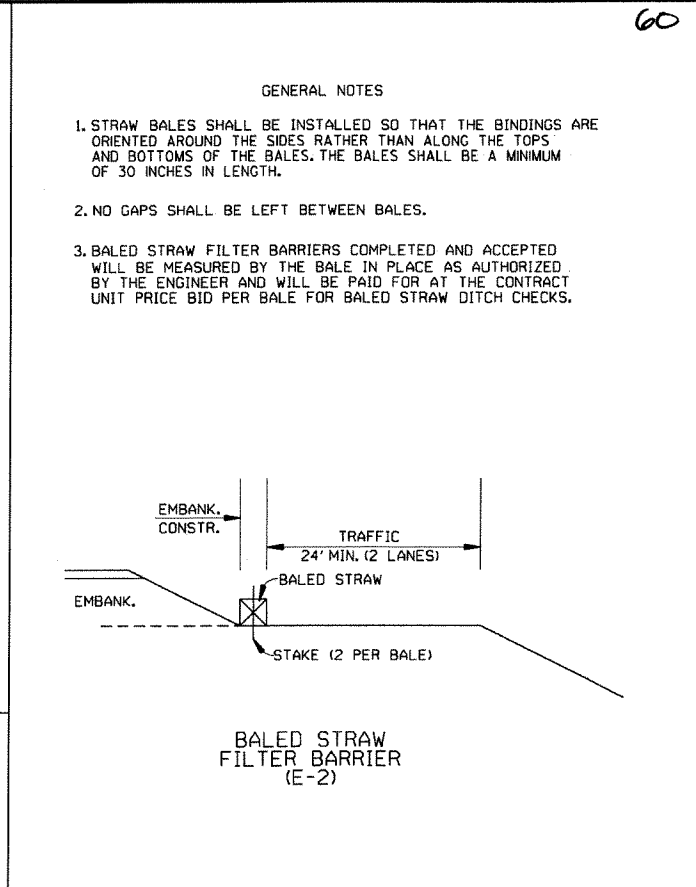
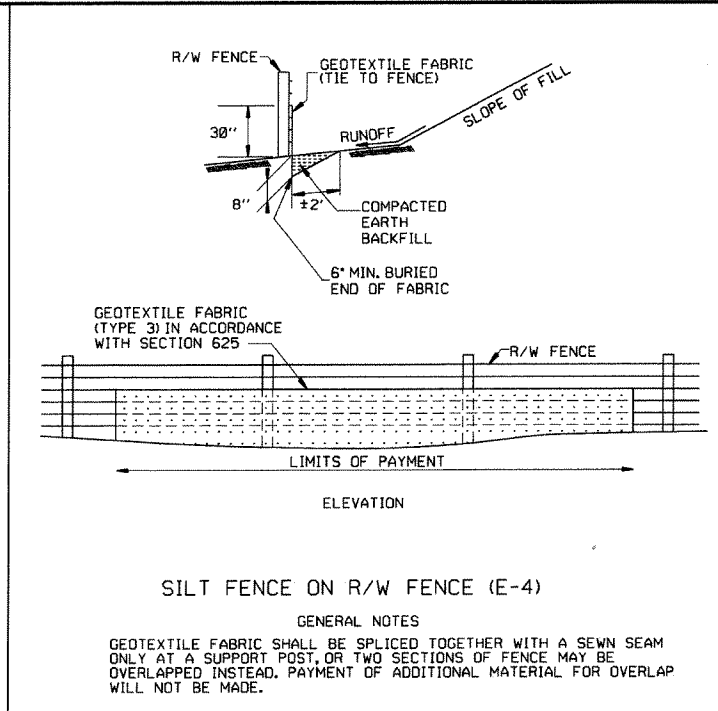
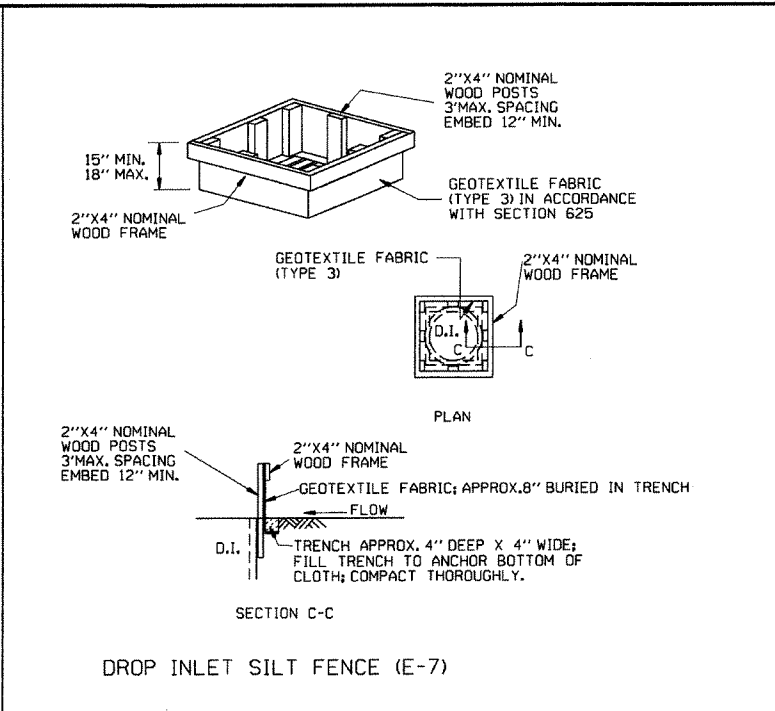
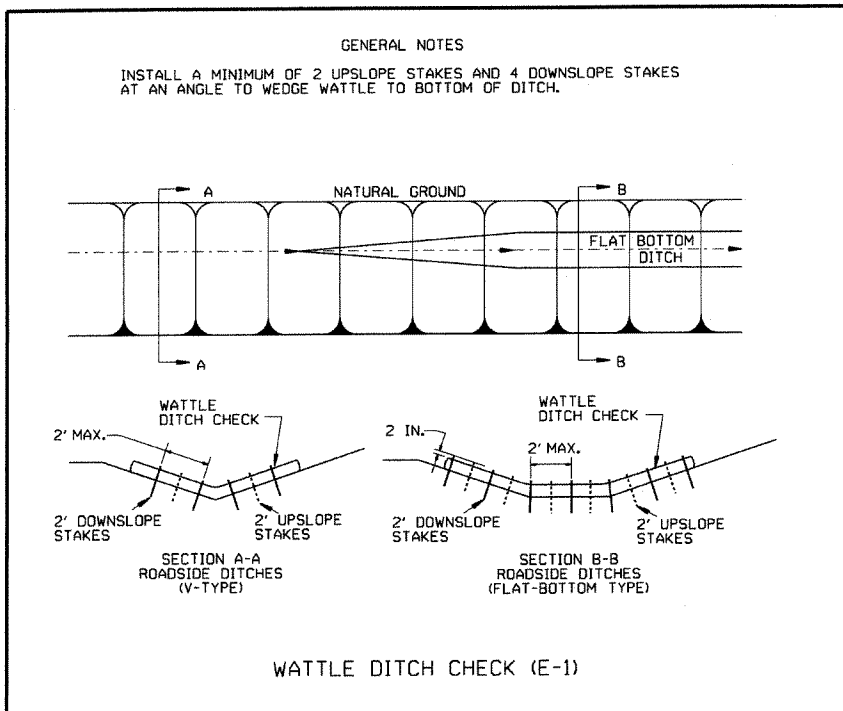


BARRIER PLACEMENT WITH ATTENUATOR
No Scale

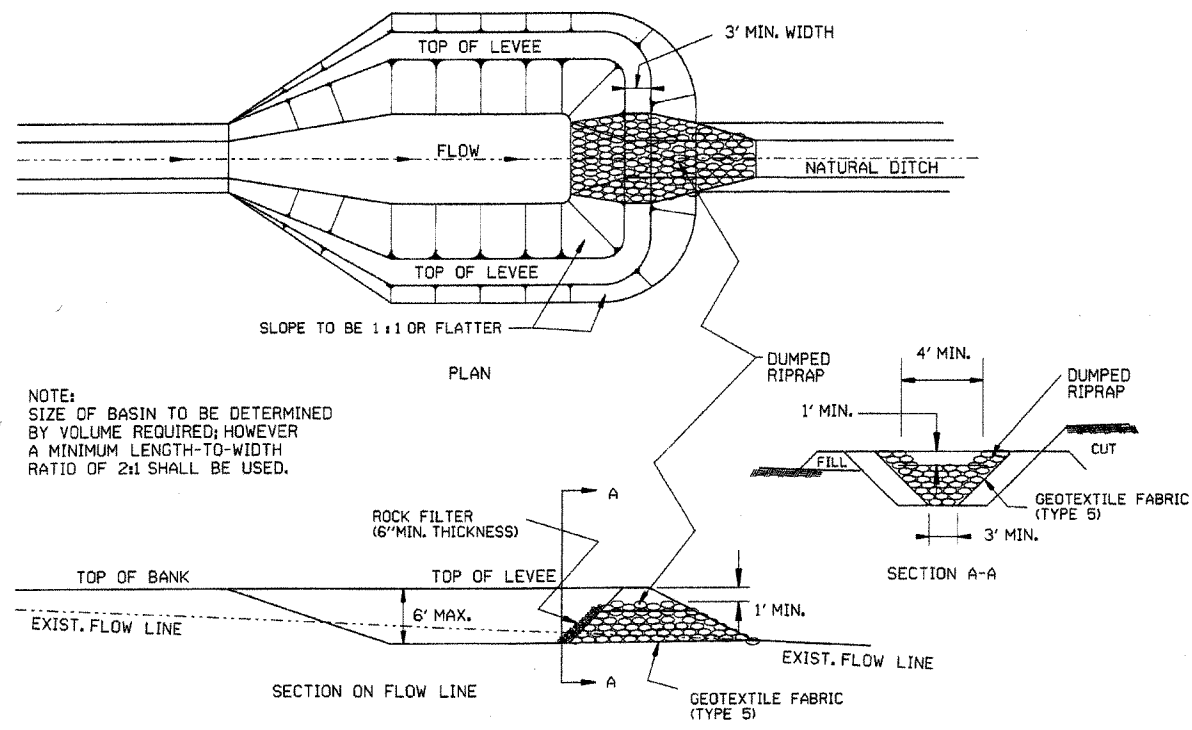
***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only

			ARKANSAS STATE HIGHWAY COMMISSION
			STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER
			STANDARD DRAWING TC-5
10-15-09	ADDED REFERENCE TO MASH		
5-25-06	REVISED BARRIER PLACEMENT		
8-22-02	ISSUED NEW DRAWING		
DATE	REVISION	FILMED	

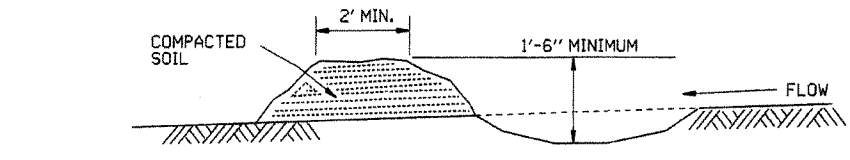


12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		TEMPORARY EROSION CONTROL DEVICES
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	STANDARD DRAWING TEC-1
7-15-94	REV. E-4 & E-11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

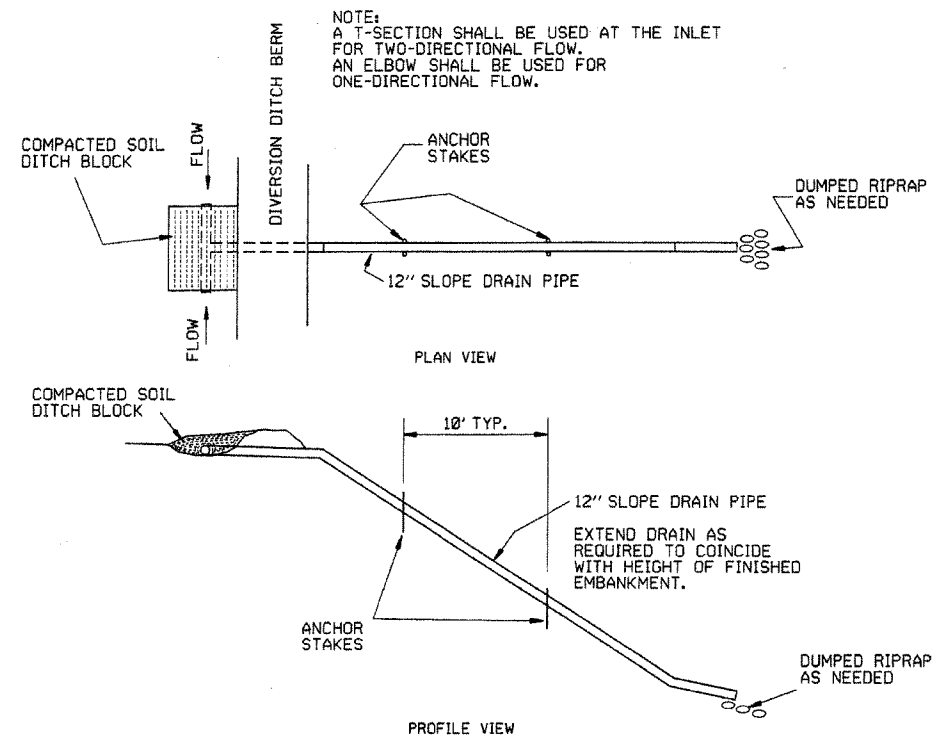


NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.

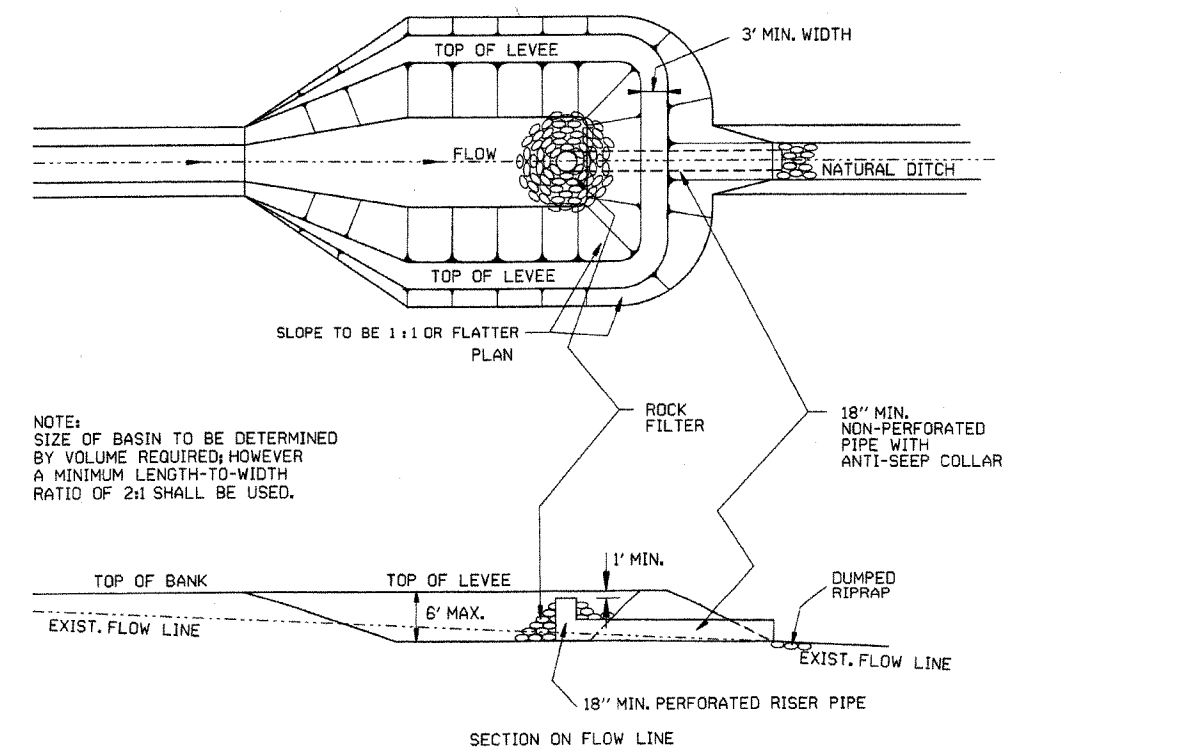
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



DIVERSION DITCH (E-8)

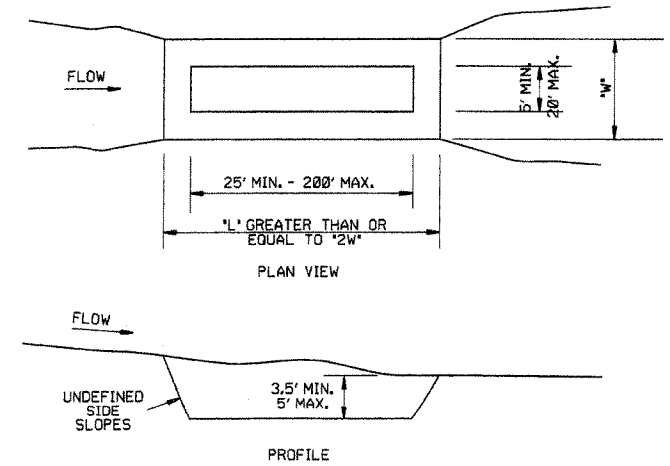


SLOPE DRAIN (E-12)



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

SEDIMENT BASIN WITH PIPE OUTLET (E-10)



SEDIMENT BASIN (E-14)

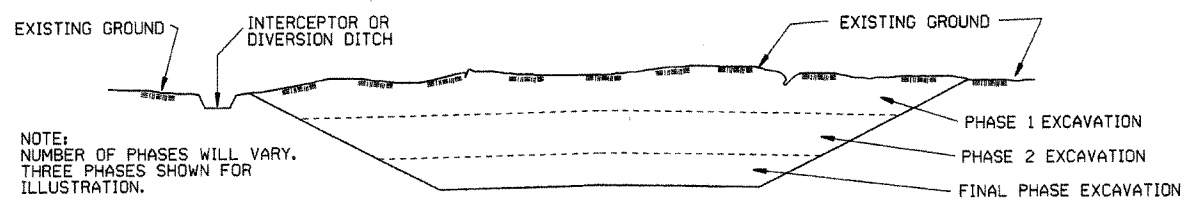
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

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

CLEARING AND GRUBBING

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

EXCAVATION



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

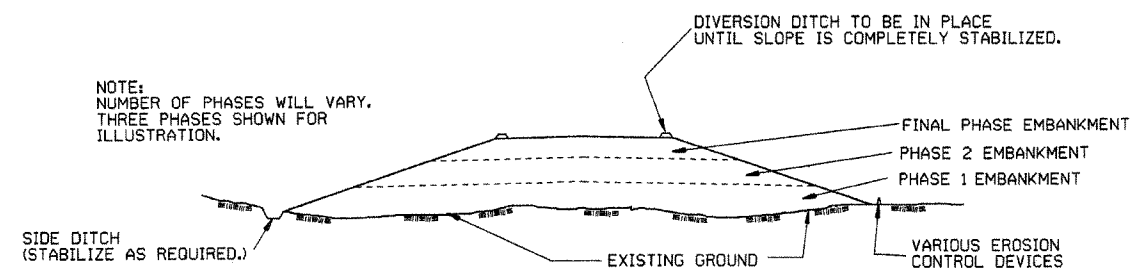
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



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

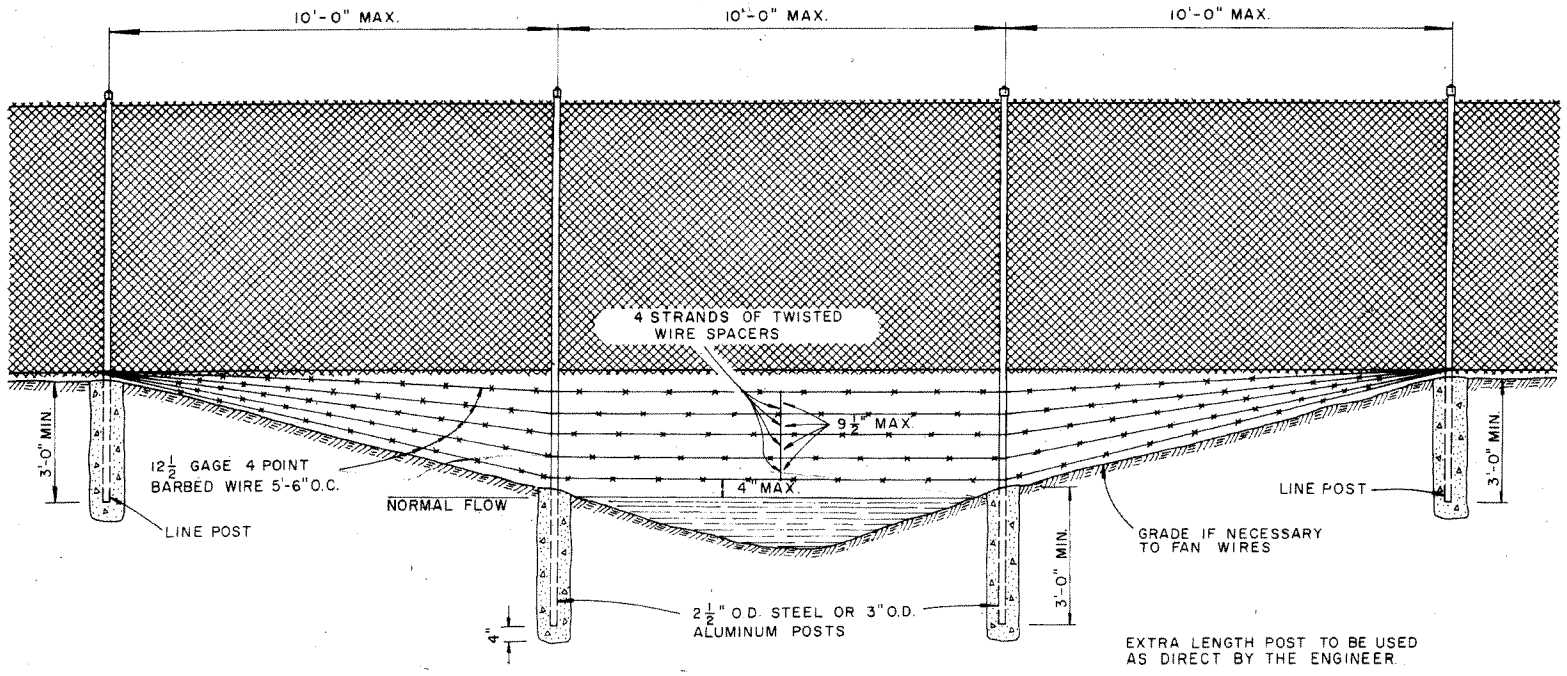
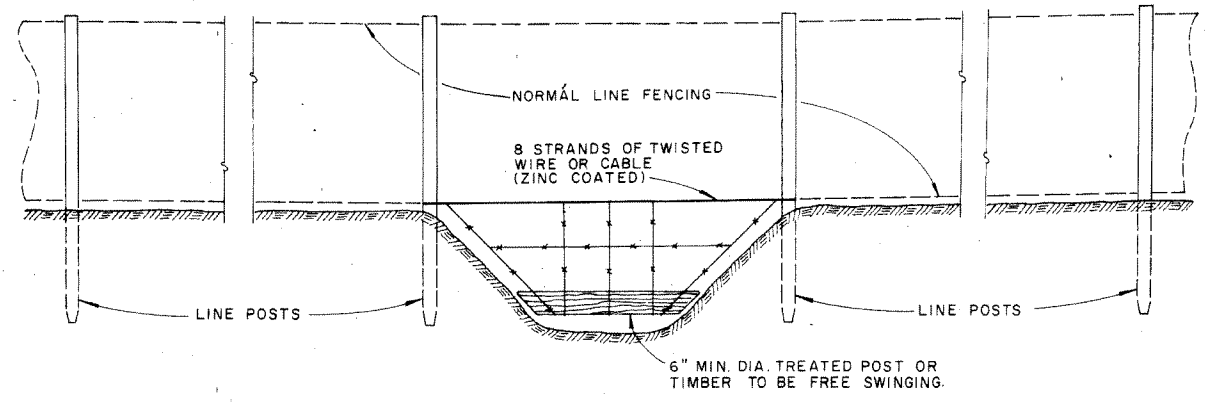
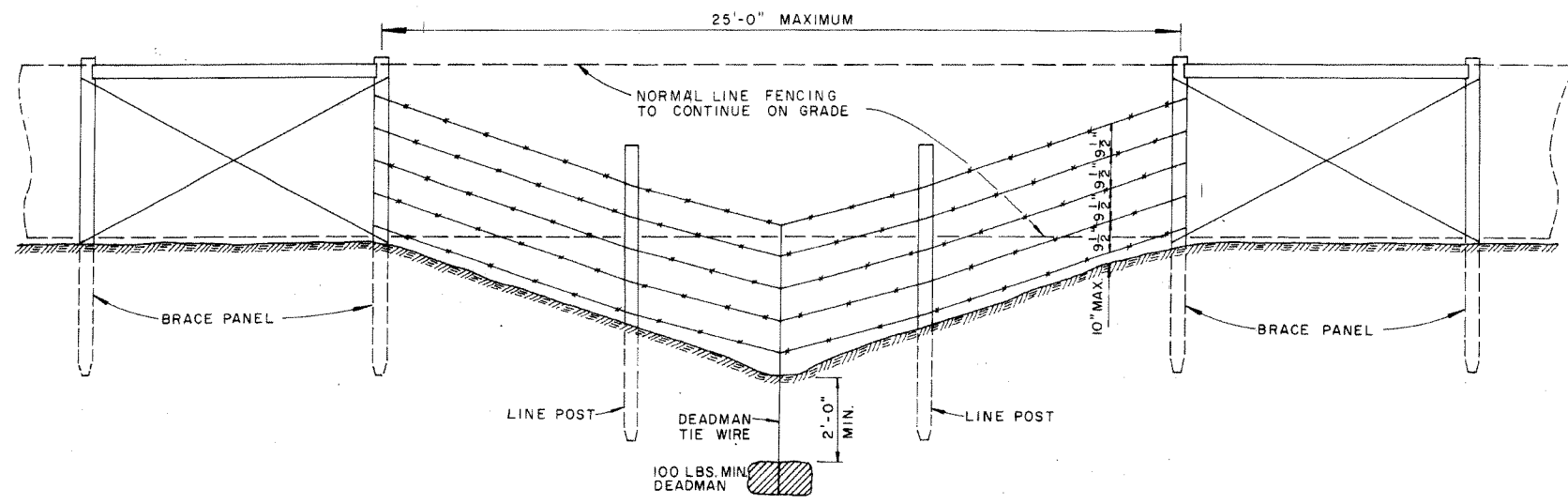
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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



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.

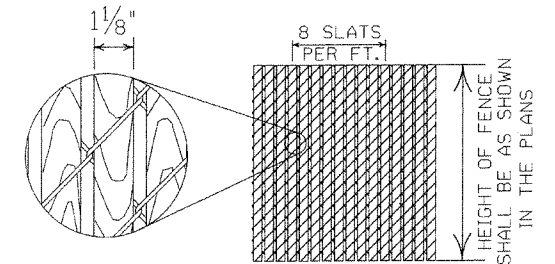
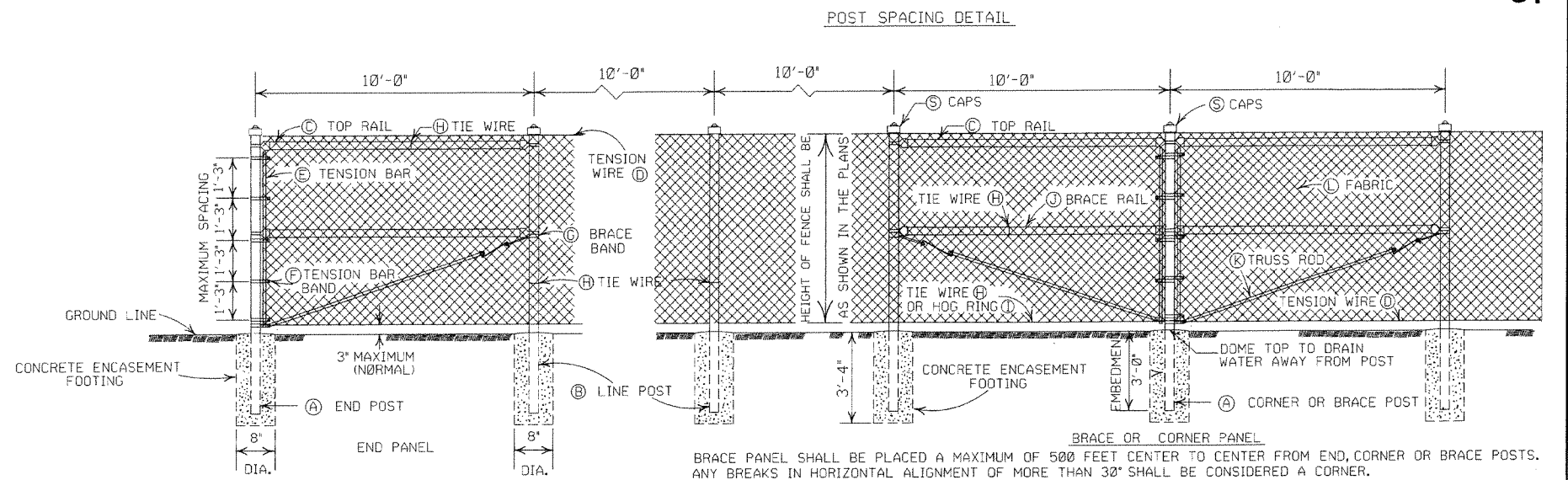
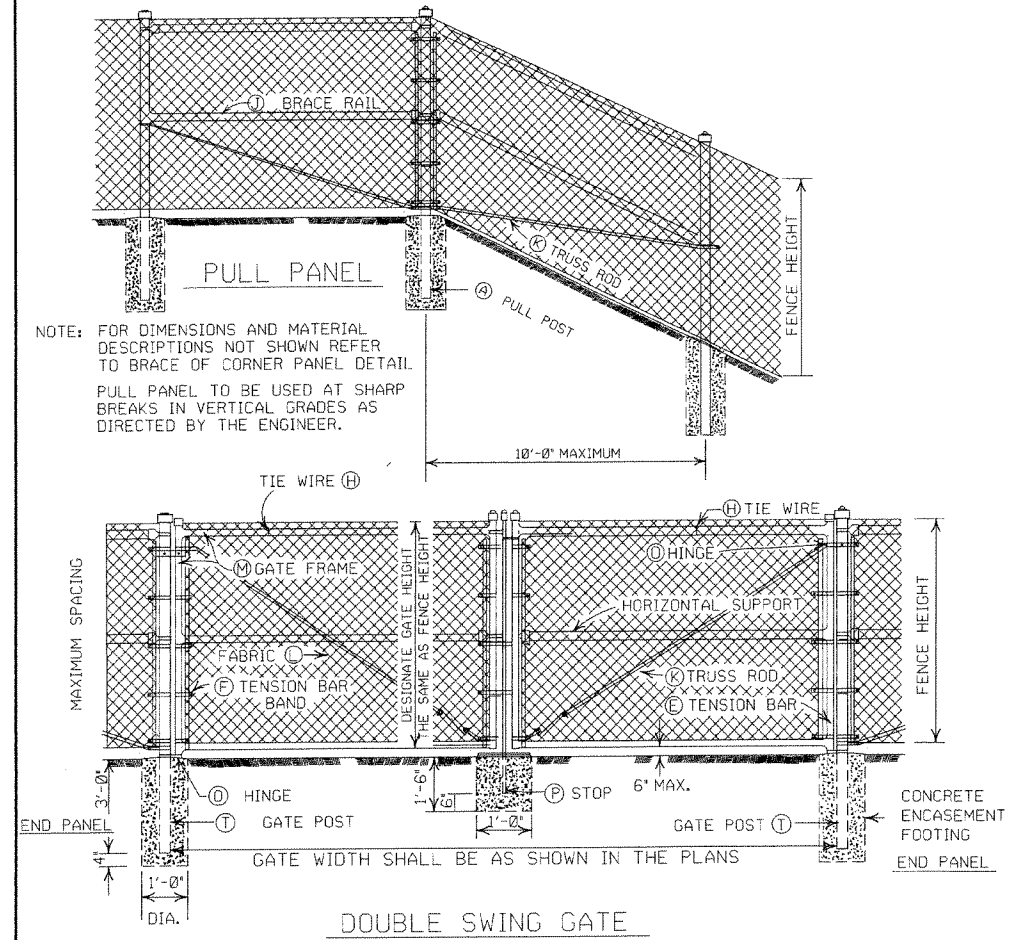
WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

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.

ARKANSAS STATE HIGHWAY COMMISSION		
WIRE FENCE WATER GAPS		
STANDARD DRAWING		
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72
DATE	REVISION	DATE FILMD

WF-2



- GENERAL NOTES:**
- (C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.
 - (D) TENSION WIRE SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.
 - (J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALF WAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.
 - (L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.
 - (M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.
 - (O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.
 - (P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.
 - (S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST		(B) LINE POSTS		(C) TOP RAIL			(D) TENSION WIRE		(E) TENSION BAR		(F) TENSION BAR BAND		(G) BRACE BAND		
	SIZE	TIE SPACING	SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE	BOLT SIZE
6' AND LESS	2 1/2" O.D.	2" O.D.	2" O.D.	1 TIE EVERY 1'-2"	1 1/8" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF 3/16"	MIN. OF 2" LESS THAN FABRIC HEIGHT	3/4" x 1/4"	0.074	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF 3/4" x 0.105	5/16" x 1/4"
OVER 6' TO 12' INCL.	3" O.D.	2 1/2" O.D.	2 1/2" O.D.	1 TIE EVERY 2'-0"	1 1/8" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF 3/16"	MIN. OF 2" LESS THAN FABRIC HEIGHT	3/4" x 1/4"	0.074	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF 3/4" x 0.105	5/16" x 1/4"

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL		(K) TRUSS ROD	(L) FABRIC		(M) GATE FRAME		(N) HORIZONTAL SUPPORT		(O) HINGE	(P) GATE POST	
	SIZE	SIZE	SIZE	TIE SPACING	SIZE	SIZE	MESH SELVAGE	SIZE	TIE SPACING	SIZE	TIE SPACING	SIZE	GATE WIDTH	GATE WIDTH OVER
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1 1/8" O.D.	1 TIE EVERY 2'-0"	MIN. OF 3/8" ROUND WITH TIGHTENERS AND FITTINGS	9 GA.	2" AND/OR TWIST	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3' O.D.	4' O.D.
OVER 6' TO 12' INCL.	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1 1/8" O.D.	1 TIE EVERY 2'-0"	MIN. OF 3/8" ROUND WITH TIGHTENERS AND FITTINGS	9 GA.	2" AND/OR TWIST	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3' O.D.	4' O.D.

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2 1/2" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3 1/2" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3 1/2" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY				GRADE 2		
	O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.		O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1 1/8"	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2"	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2 1/2"	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3"	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3 1/2"	3.500	0.216	7.50	2.621	3.500	0.160	5.71
4"	4.000	0.226	9.11	3.151	4.000	0.160	6.56

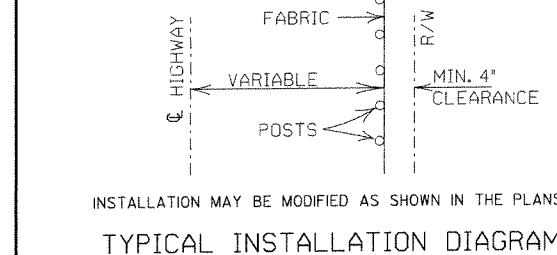
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

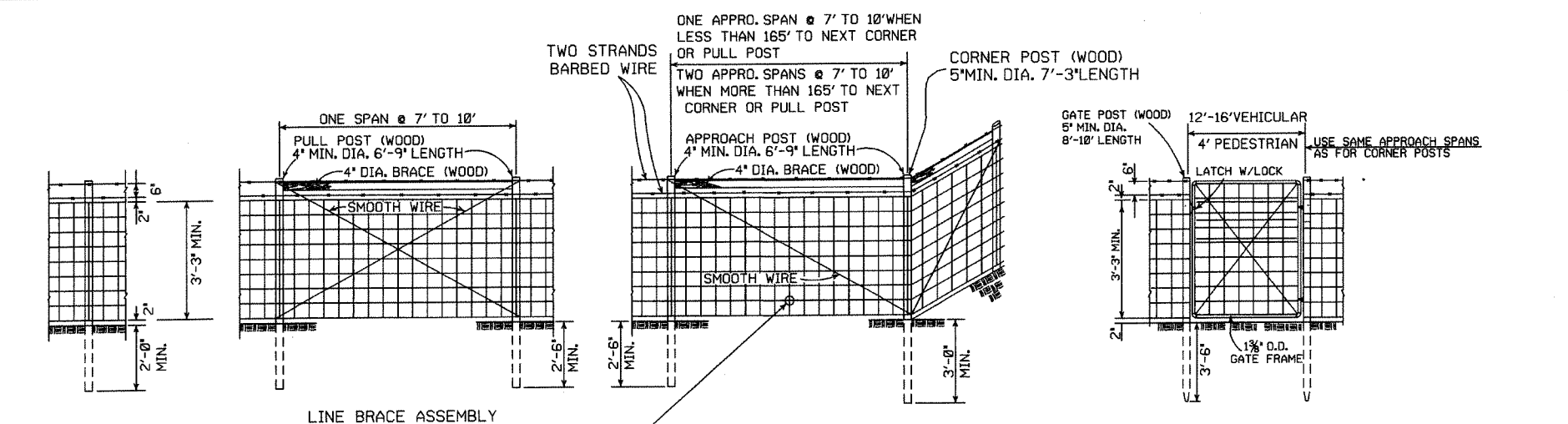
DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

STANDARD DRAWING WF-3





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.

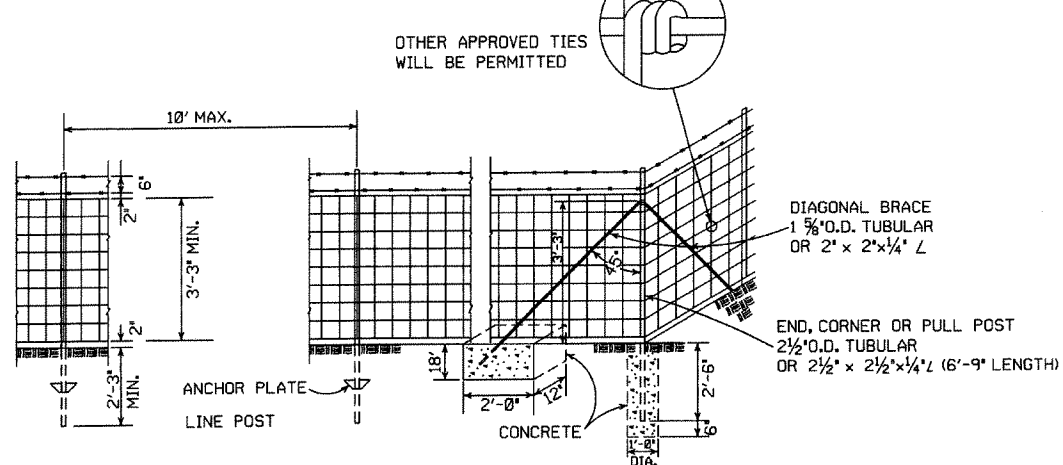
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

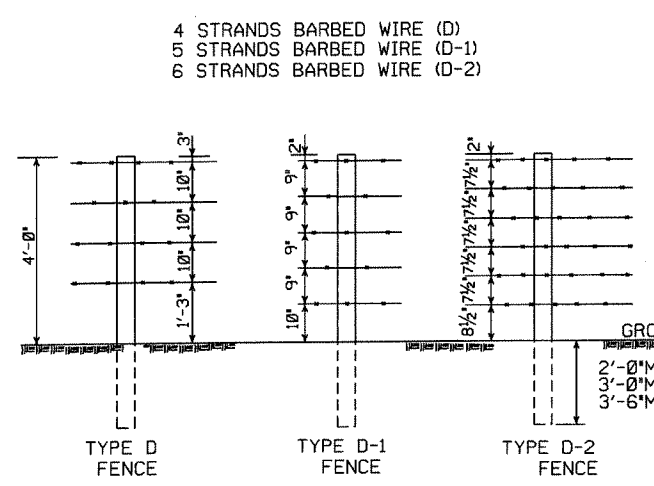
LINE POST 3" MIN. DIA. 6'-3" LENGTH MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY MAX. SPACING TO BE 330'

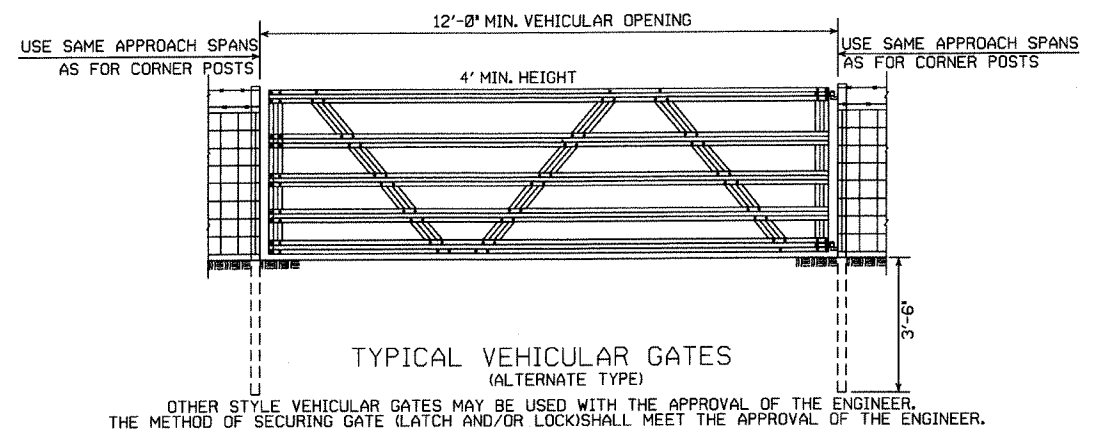
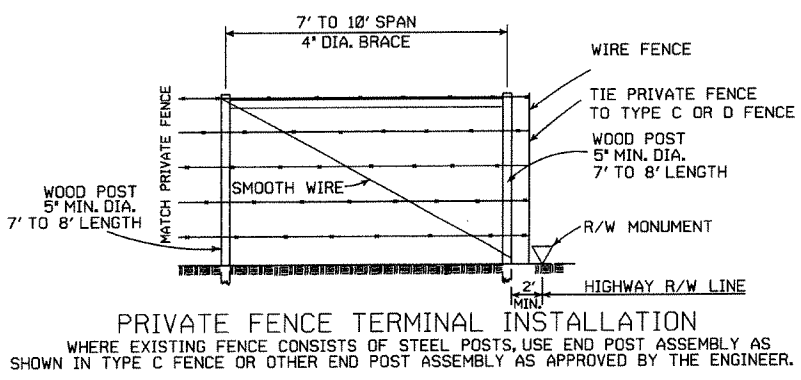
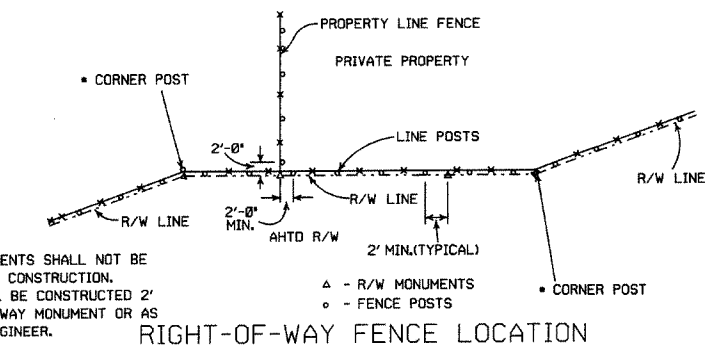
TYPE C FENCE (WOOD POSTS)



TYPE C FENCE (STEEL POSTS)



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

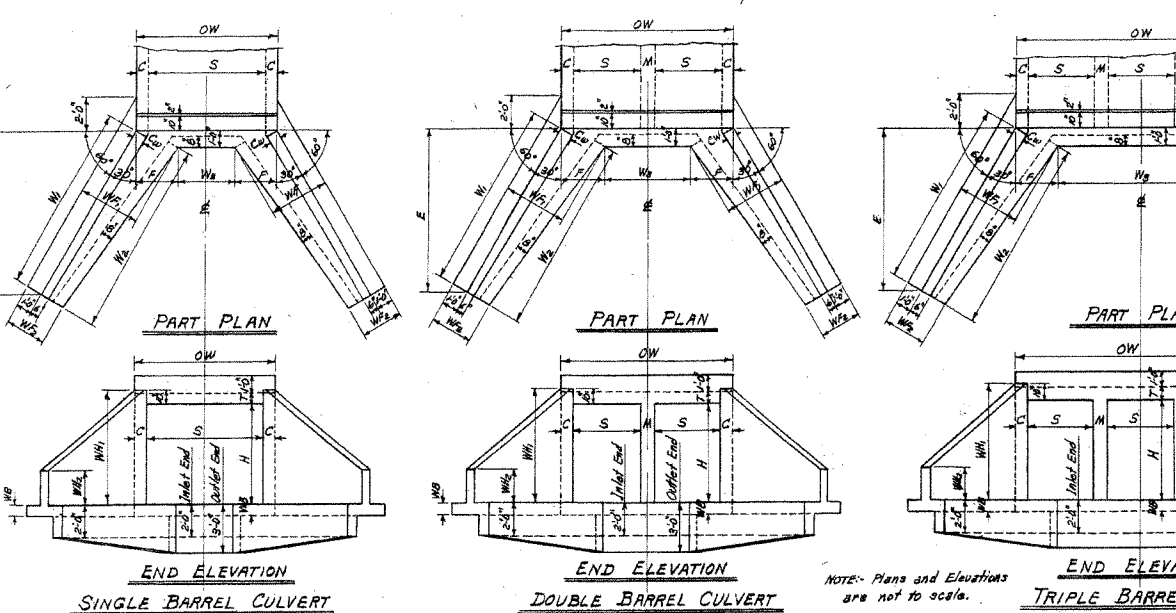
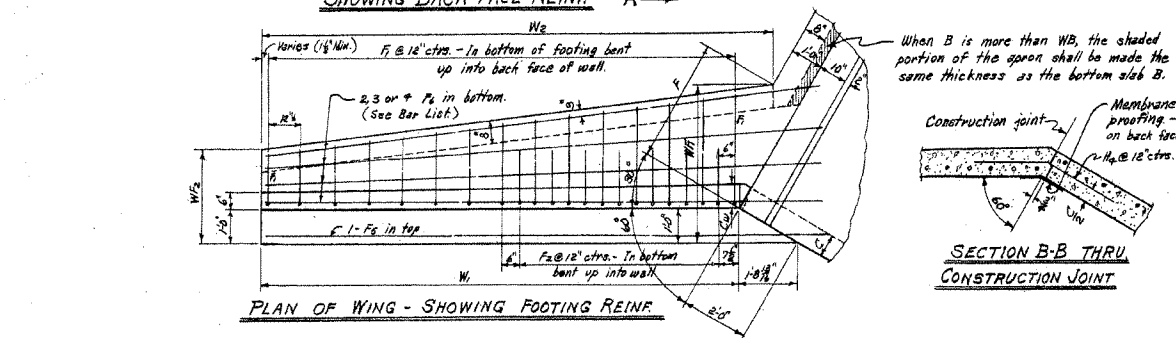
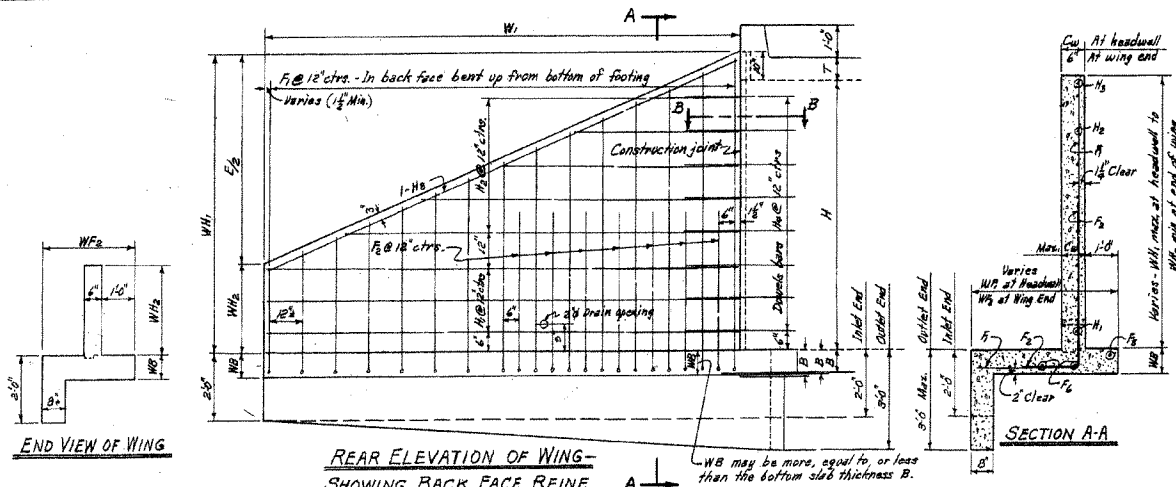


DATE	REVISION	REVISION
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	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
	DATE	REVISION
		FILMED

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
 TYPE C AND D

STANDARD DRAWING WF-4



BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F ₁ BENT		F ₂ BENT		F ₃ STRAIGHT		F ₄ STRAIGHT		H ₁ BENT		H ₂ STRAIGHT		H ₃ BENT		H ₄ BENT		QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING		
2'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	20.8	
3'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	29.9	
4'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	95.8	
5'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	68.3	
6'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	108.8	
7'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	193.4	
8'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	251.2	

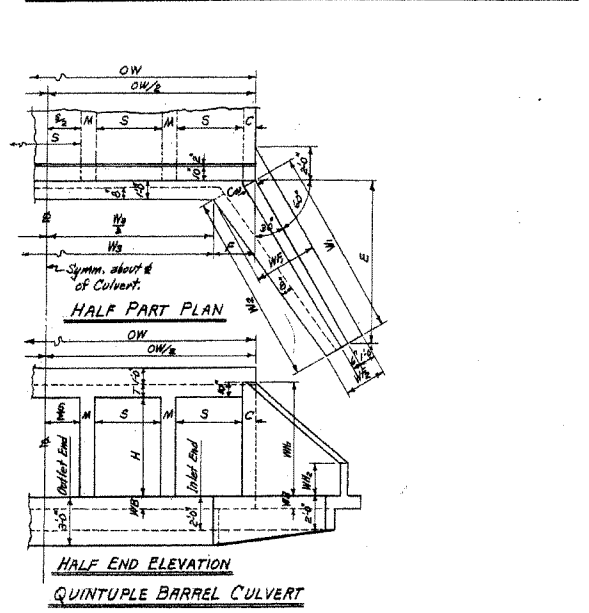
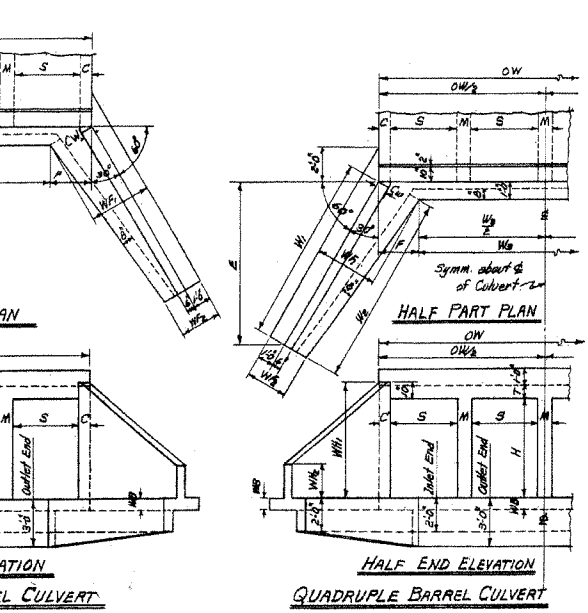
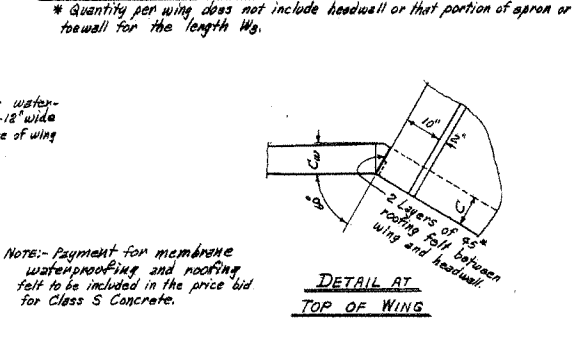
WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING	THICKNESS OF WING AT HEADWALL - C	WING WALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR FOOTING DIMENSION FROM HEADWALL TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT END OF WING	AT HEADWALL					INLET END	OUTLET END
2'	6"	2'-0"	0'-8"	2'-4"	2'-0"	2'-4"	4'-4"	5'-0"	4'-4"	0.40	0.670	
3'	6"	3'-0"	1'-0"	2'-8"	2'-4"	2'-8"	5'-0"	4'-4"	0.40	0.996		
4'	6"	4'-0"	1'-4"	3'-0"	2'-8"	3'-0"	5'-0"	4'-4"	0.40	1.267		
5'	6"	5'-0"	1'-8"	3'-4"	2'-8"	3'-4"	5'-0"	4'-4"	0.40	1.679		
6'	6"	6'-0"	2'-0"	3'-8"	2'-8"	4'-0"	5'-0"	4'-4"	0.40	2.330		
7'	6"	7'-0"	2'-4"	4'-0"	2'-8"	4'-4"	5'-0"	4'-4"	0.40	2.979		
8'	6"	8'-0"	2'-8"	4'-4"	2'-8"	5'-0"	5'-0"	4'-4"	0.40	3.627		
9'	6"	9'-0"	3'-0"	4'-8"	2'-8"	5'-4"	5'-0"	4'-4"	0.40	4.276		
10'	6"	10'-0"	3'-4"	5'-0"	2'-8"	5'-8"	5'-0"	4'-4"	0.40	4.924		
11'	6"	11'-0"	3'-8"	5'-4"	2'-8"	6'-2"	5'-0"	4'-4"	0.40	5.573		
12'	6"	12'-0"	4'-0"	5'-8"	2'-8"	6'-6"	5'-0"	4'-4"	0.40	6.221		

APRON DIMENSION W₂

W₂ = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
		OW	W ₂	OW	W ₂	OW	W ₂	OW	W ₂	OW	W ₂
4'	4'	11'-0"	5'-0"	11'-0"	5'-0"	11'-0"	5'-0"	11'-0"	5'-0"	11'-0"	5'-0"
5'	5'	12'-0"	5'-0"	12'-0"	5'-0"	12'-0"	5'-0"	12'-0"	5'-0"	12'-0"	5'-0"
6'	6'	13'-0"	5'-0"	13'-0"	5'-0"	13'-0"	5'-0"	13'-0"	5'-0"	13'-0"	5'-0"
7'	7'	14'-0"	5'-0"	14'-0"	5'-0"	14'-0"	5'-0"	14'-0"	5'-0"	14'-0"	5'-0"
8'	8'	15'-0"	5'-0"	15'-0"	5'-0"	15'-0"	5'-0"	15'-0"	5'-0"	15'-0"	5'-0"
9'	9'	16'-0"	5'-0"	16'-0"	5'-0"	16'-0"	5'-0"	16'-0"	5'-0"	16'-0"	5'-0"
10'	10'	17'-0"	5'-0"	17'-0"	5'-0"	17'-0"	5'-0"	17'-0"	5'-0"	17'-0"	5'-0"
11'	11'	18'-0"	5'-0"	18'-0"	5'-0"	18'-0"	5'-0"	18'-0"	5'-0"	18'-0"	5'-0"
12'	12'	19'-0"	5'-0"	19'-0"	5'-0"	19'-0"	5'-0"	19'-0"	5'-0"	19'-0"	5'-0"



QUANTITIES

CLASS S CONCRETE - 4 WINGS

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL PER 4 WINGS	HEADWALLS, WING WALLS, FOOTINGS, SIDEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
4'	4'	6"	6"	258.2	3.30	4.25	5.21	6.17	7.13
5'	5'	6"	6"	283.3	4.45	5.41	6.37	7.33	8.29
6'	6'	6"	6"	308.4	5.60	6.56	7.52	8.48	9.44
7'	7'	6"	6"	333.5	6.75	7.71	8.67	9.63	10.59
8'	8'	6"	6"	358.6	7.90	8.86	9.82	10.78	11.74
9'	9'	6"	6"	383.7	9.05	10.01	10.97	11.93	12.89
10'	10'	6"	6"	408.8	10.20	11.16	12.12	13.08	14.04
11'	11'	6"	6"	433.9	11.35	12.31	13.27	14.23	15.19
12'	12'	6"	6"	459.0	12.50	13.46	14.42	15.38	16.34

For reinforcing steel in Headwalls and Aprons, see Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-
 CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 1/4 chamfers.
 REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
 CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
 SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
 UNIT STRESSES:-
 Class S Concrete (n=10) 1200 PSI
 Reinforcing Steel 20000 PSI

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-1	R-200X-1	R-300X-1	R-400X-1	R-500X-1
R-100X-2	R-200X-2	R-300X-2	R-400X-2	R-500X-2
	R-200X-3	R-300X-3		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS

FOR

REINFORCED CONCRETE BOX CULVERTS

4.5', 6', 7', 8', 9', 10', 11' & 12' SPANS

2:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES.

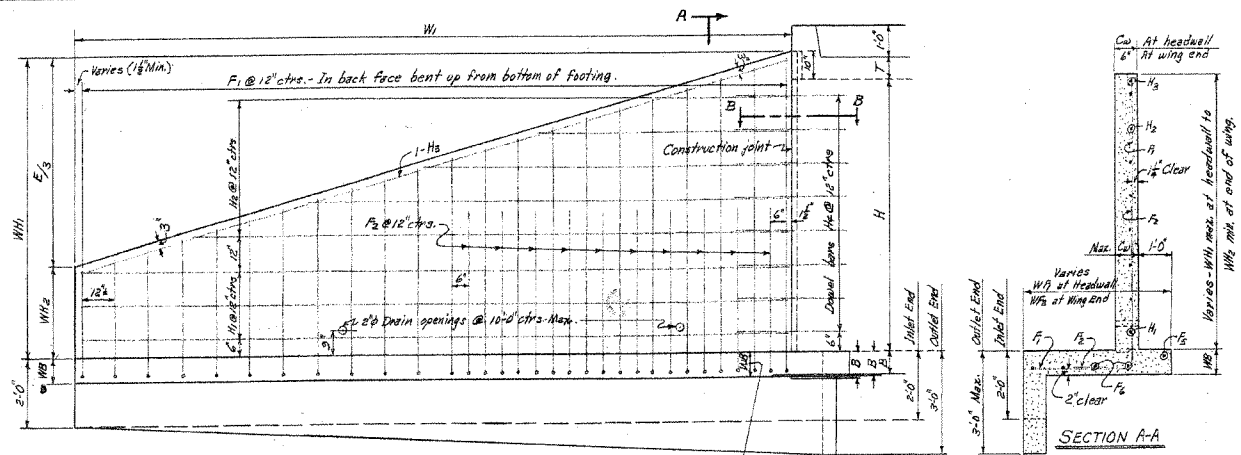
ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X002

Checked by - J.S.M. - 5-5-63

Designed by - W.C.H.

REVISIONS:- Membrane added 5-10-66 W.C.H.

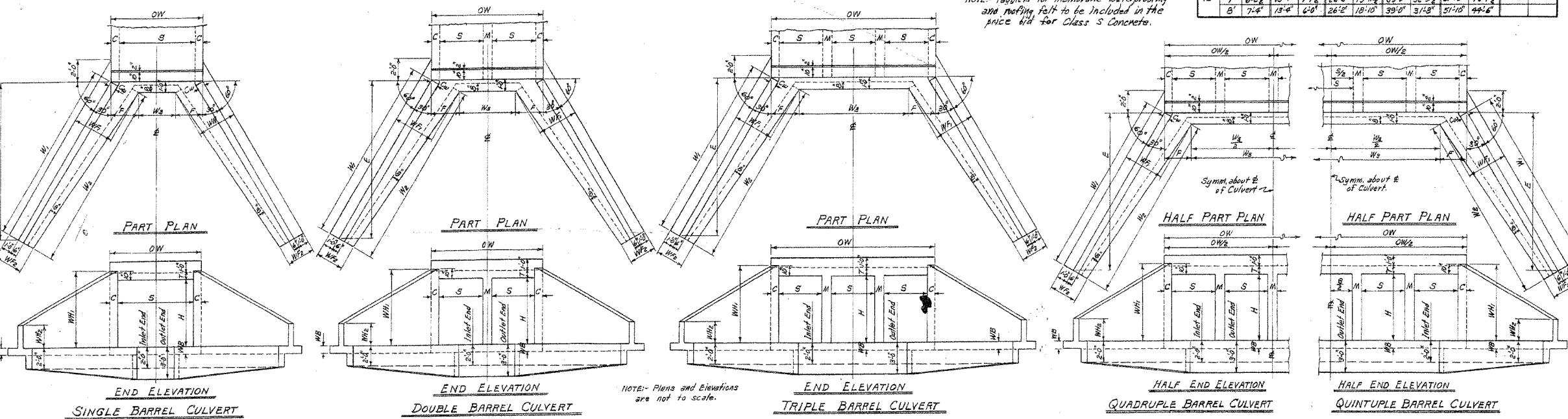
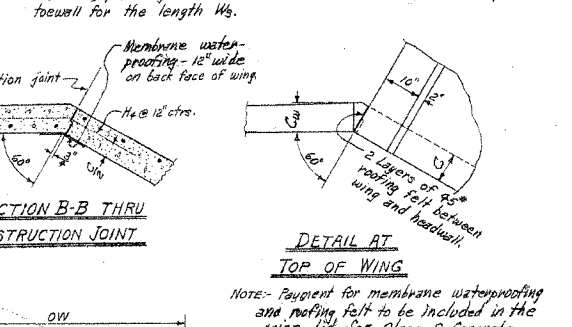
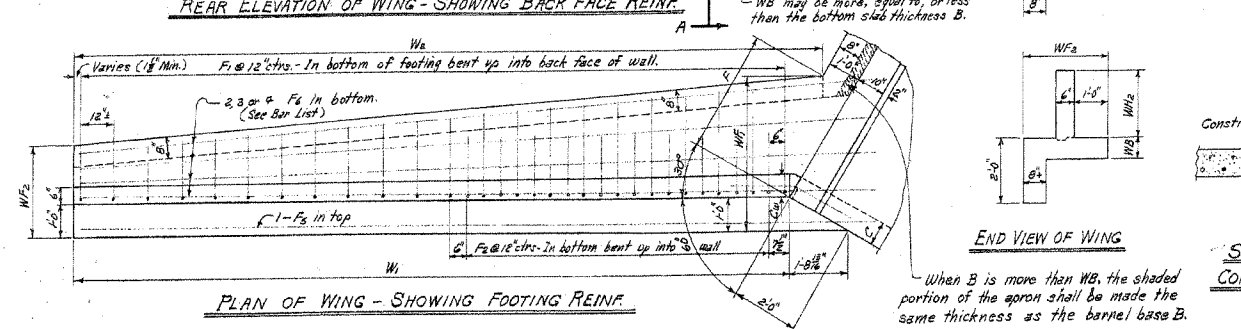


WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HEADWALL TO END OF WING	LENGTH OF WING WALLS	OUTSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING					INLET END	OUTLET END
2'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
3'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
4'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
5'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
6'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
7'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
8'	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"

APRON DIMENSION W3
 $W_3 = (W_1 - 2F)$

CLEAR SPAN	CLEAR HEIGHT	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
		OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
2'	2'-0"	5'-0"	3'-0"	9'-0"	7'-0"	13'-0"	11'-0"	17'-0"	15'-0"	21'-0"	19'-0"
3'	3'-0"	6'-0"	4'-0"	10'-0"	8'-0"	14'-0"	12'-0"	18'-0"	16'-0"	22'-0"	20'-0"
4'	4'-0"	7'-0"	5'-0"	11'-0"	9'-0"	15'-0"	13'-0"	19'-0"	17'-0"	23'-0"	21'-0"
5'	5'-0"	8'-0"	6'-0"	12'-0"	10'-0"	16'-0"	14'-0"	20'-0"	18'-0"	24'-0"	22'-0"
6'	6'-0"	9'-0"	7'-0"	13'-0"	11'-0"	17'-0"	15'-0"	21'-0"	19'-0"	25'-0"	23'-0"
7'	7'-0"	10'-0"	8'-0"	14'-0"	12'-0"	18'-0"	16'-0"	22'-0"	20'-0"	26'-0"	24'-0"
8'	8'-0"	11'-0"	9'-0"	15'-0"	13'-0"	19'-0"	17'-0"	23'-0"	21'-0"	27'-0"	25'-0"



QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	CLASS S CONCRETE - 4 WINGS									
		HEADWALLS		WING WALLS		FOOTINGS		TELEWALLS		APRONS	
S	H	CW	WB	LB	CUYD.	CUYD.	CUYD.	CUYD.	CUYD.	CUYD.	
2'	2'-0"	108.0	9.50	5.44	6.42	7.38	8.34				
3'	3'-0"	169.9	6.26	7.21	8.17	9.13	10.09				
4'	4'-0"	259.6	8.32	9.28	10.24	11.20	12.16				
5'	5'-0"	373.8	10.72	11.68	12.64	13.60	14.56				
6'	6'-0"	523.1	14.55	15.51	16.47	17.43	18.39				
7'	7'-0"	704.9	19.29	20.25	21.21	22.17	23.13				
8'	8'-0"	925.6	25.42	26.38	27.34	28.30	29.26				

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F1		F2		F3		F4		H1		H2		H3		H4		BAR BENDING DIAGRAMS
	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	
2'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	
3'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	
4'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	
5'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	
6'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	
7'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	
8'	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	#3	12"	

MEMBRANE: A membrane waterproofing 12" wide, consisting of three mappings of waterproofing asphalt and two alternate layers of treated cotton fabric, shall be applied to the back face of wing to cover the construction joints in wings.

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

NOTE: This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-1	R-200X-1	R-300X-1	R-400X-1	R-500X-1
R-100X-2	R-200X-2	R-300X-2	R-400X-2	R-500X-2
	R-200X-3	R-300X-3		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS

FOR

REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS

3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER FOR H=8'-0" OR LESS

QUADRUPLES & QUINTUPLES.

STANDARD DRAWING NO. W-X003-1

Designed By: M.C.H. 8-20-62. Checked By: R.M.S. 1-9-63
 Drawn By: M.C.H. 8-4-62. Checked By: R.M.S. 1-31-63
 Quantities By: M.C.H. 12-14-62. Checked By: R.M.S. 1-31-63

REVISIONS: Membrane added, 8-10-66 M.C.H.

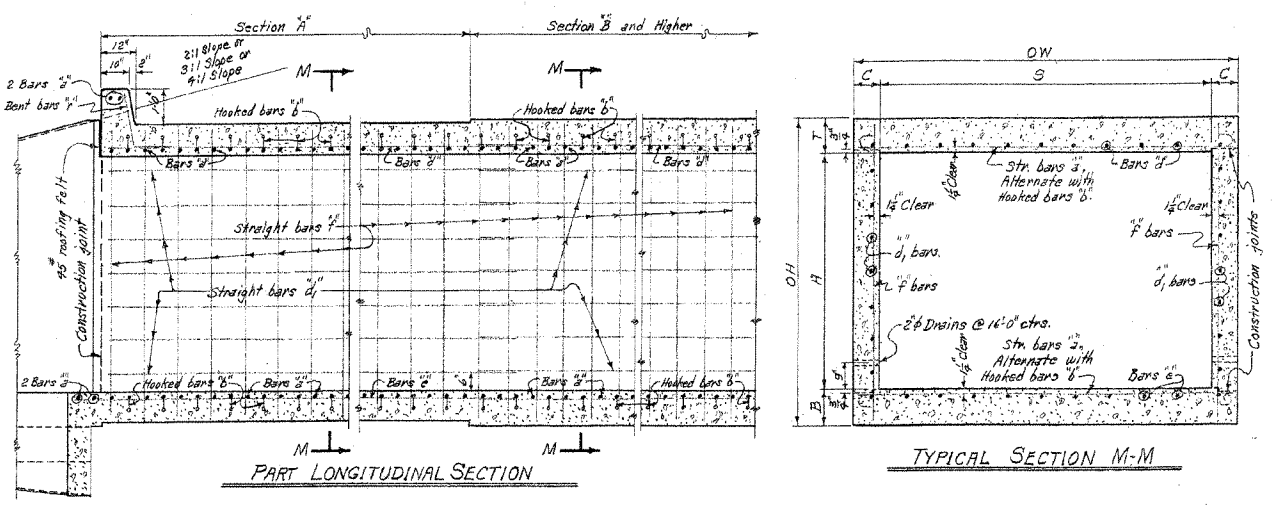
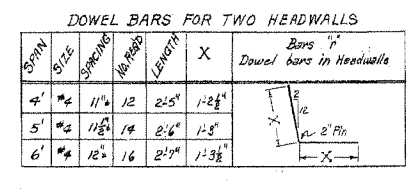
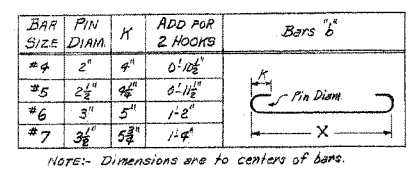
FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.			68	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

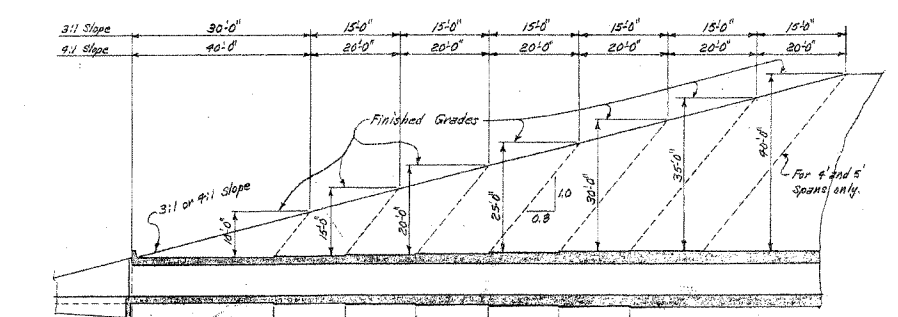
SECTION & BAR GROUP	DEPTH OF COVER	LENGTH OF SECTION	5" bars						6" bars						7" bars						8" bars						9" bars											
			STRAIGHT			BENT - See Diagram at Right			STRAIGHT			BENT - See Diagram at Right			STRAIGHT			BENT - See Diagram at Right			STRAIGHT			BENT - See Diagram at Right			STRAIGHT			BENT - See Diagram at Right			STRAIGHT			BENT - See Diagram at Right		
			SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH			
SECTION A & BAR GROUP A	4'-1" to 32'-0"	10'-0"	4	48	6.6	4.9'	4	48	6.6	4.9'	4	48	6.6	4.9'	4	48	6.6	4.9'	4	48	6.6	4.9'	4	48	6.6	4.9'	4	48	6.6	4.9'	4	48	6.6	4.9'				

DIMENSIONS QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										UNIT QUANTITIES																						
	CLEAR SPAN					OVERALL WIDTH					REINFORCING STEEL					ADDITIONAL																	
	D	S	H	A	OW	T	C	B	OH	CUYD	LB.	LB.	LB.	LB.	LB.	LB.	LB.																
SECTION A - 10'-0"	3	12	5'-0"	6'	6'	6'	6'	6'	6'	0.312	29.62	13.36	51.44	4	16	5'-0"	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'



TYPICAL SECTION M-M



DEPTH OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS						MID-SECTION AND BAR GROUP
	A	B	C	D	E	F	
5.0 to 9.5							A
10.0 to 14.5							B
15.0 to 19.5							C
20.0 to 24.5							D
25.0 to 29.5							E
30.0 to 34.5							F
35.0 to 40.0							G

SKEW ANGLE	SEC. OF SKEW	3:1 SLOPES						4:1 SLOPES						
		A	B	C	D	E	F	A	B	C	D	E	F	
0°	10	22.0'	11.0'	32.0'	16.0'									
15°	1.0353	22.776'	11.388'	33.129'	16.564'									
30°	1.1547	23.903'	12.702'	36.250'	18.475'									
45°	1.4142	31.112'	15.556'	43.255'	22.621'									

TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE: Lengths of Sections, with Bar Groups to be shown on Cross Section Sheets.

GENERAL NOTES:
 CONCRETE - All concrete to be Class S, and shall be poured in the dry.
 ALL EXPOSED CORNERS TO HAVE 3/8" CHAMFERS.
 REINFORCING STEEL - Reinforcing to be deformed bars of intermediate or hard grade.
 BAR LAP - In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
 CONSTRUCTION JOINTS - Construction joints between wingwalls, side walls and slabs shall be only where shown on plans.
 SPECIFICATIONS - Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
 H20-S16 LOADING A.R.S.H.O. 1961
 AND
 SPECIAL MILITARY LOADING
 Two 28,000 Lb. Axles @ 9'-5" CTR.
UNIT STRESSES:
 Class S Concrete (f' = 10) 1200 PSI
 Reinforcing Steel 20,000 PSI

NOTE: This drawing to be used in conjunction with Standard Drawing Nos. W-X002-1, W-X003-1 and W-X004-1.

ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD BARREL SECTIONS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 4', 5' & 6' SPANS
 SINGLES
 3:1 OR 4:1 SLOPES
 OVER 5'-0" COVER
 STANDARD DRAWING NO. R-100X-X1

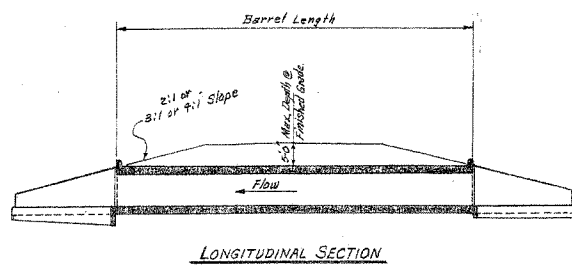
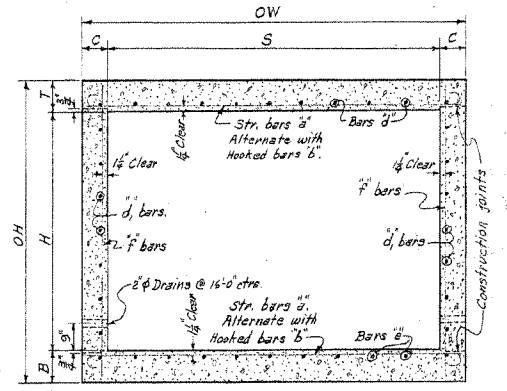
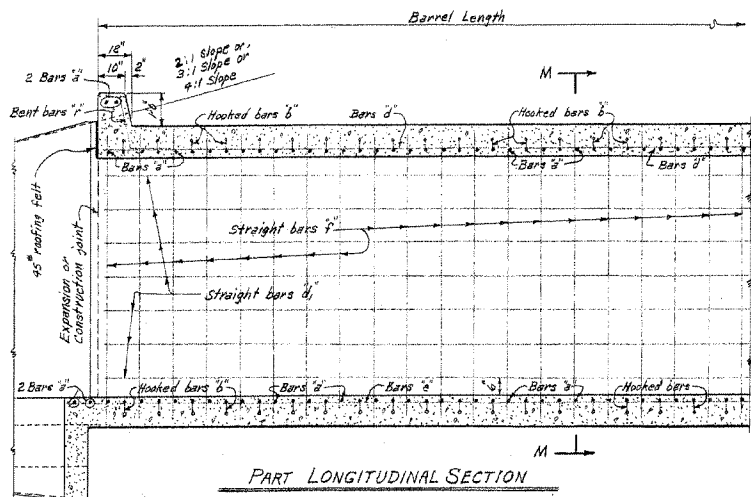
Designed By: M.C.H. 9-5-42
 Checked By: R.H. 11-8-42
 Drawn By: M.C.H. 10-10-42
 Checked By: J.S.M. 11-12-42
 Quantities By: W.C.H. 11-7-42

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

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	DIMENSIONS												QUANTITIES				
			3" bars				4" bars				5" bars				REINFORCING STEEL				
			STRAIGHT		BENT - See Diagram below		STRAIGHT		STRAIGHT		STRAIGHT		STRAIGHT		PER LIN. FT. OF BARREL	PER LAP	TWO HEADWALLS		
D	S	H	SIZE	SPACING	NUMBER REQ'D	LENGTH	X	SIZE	SPACING	NUMBER REQ'D	LENGTH	X	SIZE	SPACING	NUMBER REQ'D	LENGTH	LB.	LB.	LB.

MAX. DESIGN DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	DIMENSIONS												UNIT QUANTITIES				
			3" bars				4" bars				5" bars				REINFORCING STEEL				
			STRAIGHT		BENT - See Diagram below		STRAIGHT		STRAIGHT		STRAIGHT		STRAIGHT		PER LIN. FT. OF BARREL	PER LAP	TWO HEADWALLS		
D	S	H	SIZE	SPACING	NUMBER REQ'D	LENGTH	X	SIZE	SPACING	NUMBER REQ'D	LENGTH	X	SIZE	SPACING	NUMBER REQ'D	LENGTH	LB.	LB.	LB.

Notes for details of wings and bar laps, see Drawing Nos. W-X002-1 or W-X003-1 or W-X004-1 or W-X004-2.



GENERAL NOTES:-
 CONCRETE:- All concrete to be Class S, and shall be poured in the dry.
 All exposed corners to have 3/8" chamfers.
 REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
 BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 33'-0". Lap longitudinal bars 30 diameters.
 CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
 SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
 H20-S16 LOADING, A.A.S.H.O. 1961
 AND
 SPECIAL MILITARY LOADING
 Two 25,000 lb. Axles @ 9'-0" cts.

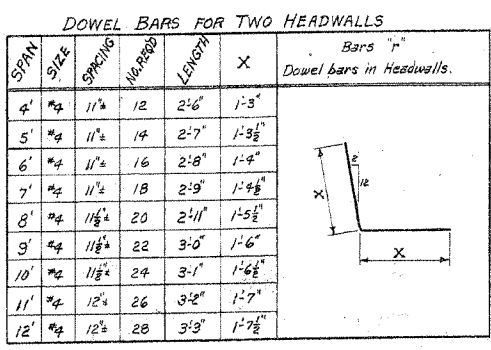
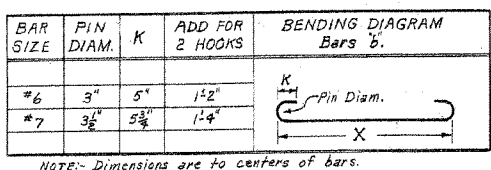
UNIT STRESSES:-
 Class S Concrete (n=10) 1800 psi
 Reinforcing Steel 20,000 psi

Note:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing No. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD BARREL SECTIONS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 4, 5, 6, 7, 8, 9, 10, 11, 12 SPANS 3:1 OR 4:1 SLOPES
 SINGLES UNDER 5'-0" COVER
 STANDARD DRAWING NO. R-100X-0

Designed By: W.C.H. 1-23-63
 Checked By: W.C.H. 2-8-63
 Drawn By: W.C.H. 2-8-63
 Quantities By: W.C.H. 2-10-63



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	NO. SHEET	TOTAL SHEETS
6	ARK.			70	
JOB NO.					

DIMENSIONS AND QUANTITIES

SPAN	HEIGHT	AREA OF DECKING SQ. FT. DEPTH	MAXIMUM DEPTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDE WALLS & WINGWALLS	THICKNESS OF BOTTOM SLAB	WINGWALL HEIGHTS						CONCRETE CU YD		STEEL LB			
							AT HEADWALLS	AT WINGWALLS	MAXIMUM WIDTH OF WING FOOTING PERPENDICULAR DIST. FROM FACE OF WALL TO END OF WING	INSIDE LENGTH OF WINGWALLS	INSIDE LENGTH OF WING FOOTINGS	FRONT DIMENSION FROM E of Box	HEADWALLS PER LINEAR FT. OF BARREL	WINGWALLS PER LINEAR FT. OF BARREL	ADD'L STEEL FOR LAPS			
3	2	6	6"	6"	6"	6"	2'-9"	1'-0"	2'-6"	7'-0"	8'-1"	7'-8"	0'-10"	4.76	0.235	286	22.56	111
3	3	9	6"	6"	6"	6"	3'-9"	1'-0"	2'-6"	11'-0"	12'-9"	12'-5"	0'-10"	7.59	0.272	440	25.27	134
4	4	12	6"	6"	6"	6"	4'-9"	1'-0"	2'-6"	13'-8"	15'-8"	15'-6"	0'-10"	10.06	0.309	587	27.97	156
4	2	8	6"	6"	6"	6"	2'-9"	1'-0"	2'-6"	7'-0"	8'-1"	7'-8"	0'-10"	5.10	0.306	298	31.05	156
4	3	12	6"	6"	6"	6"	3'-9"	1'-0"	2'-6"	11'-0"	12'-9"	12'-5"	0'-10"	8.03	0.343	453	33.76	178
4	4	16	6"	6"	6"	6"	4'-9"	1'-0"	2'-6"	13'-8"	15'-8"	15'-6"	0'-10"	10.64	0.380	600	36.46	200
4	6	24	6"	6"	6"	6"	6'-9"	1'-0"	2'-6"	19'-8"	21'-11"	22'-2"	0'-5"	18.73	0.498	993	42.41	245
5	2	10	6"	6"	6"	6"	2'-10"	1'-0"	2'-6"	7'-4"	8'-5"	8'-2"	0'-10"	6.36	0.370	325	38.31	178
5	3	15	6"	6"	6"	6"	3'-10"	1'-0"	2'-6"	10'-4"	12'-3"	12'-0"	0'-10"	8.73	0.427	482	41.06	200
5	4	20	6"	6"	6"	6"	4'-10"	1'-0"	2'-6"	14'-0"	16'-2"	15'-10"	0'-10"	11.93	0.444	645	43.77	223
5	5	25	6"	6"	6"	6"	5'-10"	1'-0"	2'-6"	17'-0"	19'-3"	19'-0"	0'-10"	14.63	0.481	830	46.47	245
5	7	35	6"	6"	6"	6"	7'-10"	1'-0"	2'-6"	23'-11"	25'-4"	25'-11"	0'-4"	25.20	0.633	1551	58.60	289
6	3	18	6"	6"	6"	6"	3'-10"	1'-0"	2'-6"	11'-4"	13'-1"	12'-9"	0'-2"	9.26	0.500	495	50.41	223
6	4	24	6"	6"	6"	6"	4'-10"	1'-0"	2'-6"	14'-0"	16'-2"	15'-10"	0'-2"	11.93	0.537	645	53.11	245
6	5	30	6"	6"	6"	6"	5'-10"	1'-0"	2'-6"	17'-0"	19'-3"	19'-0"	0'-2"	15.30	0.574	845	55.82	267
6	6	36	6"	6"	6"	6"	6'-10"	1'-0"	2'-6"	20'-0"	22'-4"	22'-0"	0'-2"	18.73	0.611	1045	58.53	289
6	8	48	6"	6"	6"	6"	8'-10"	1'-0"	2'-6"	26'-0"	28'-4"	28'-0"	0'-3"	25.20	0.802	1402	72.49	334
7	5	27	6"	6"	6"	6"	5'-10"	1'-0"	2'-6"	17'-0"	19'-3"	19'-0"	0'-2"	14.63	0.552	733	54.24	245
8	8	48	6"	6"	6"	6"	8'-10"	1'-0"	2'-6"	26'-0"	28'-4"	28'-0"	0'-2"	25.20	0.802	1402	72.49	334
8	10	60	6"	6"	6"	6"	10'-0"	1'-0"	2'-6"	30'-0"	32'-4"	32'-0"	0'-2"	31.67	1.029	2089	88.05	423
8	12	72	6"	6"	6"	6"	12'-0"	1'-0"	2'-6"	36'-0"	38'-4"	38'-0"	0'-2"	38.14	1.270	3217	101.18	468
10	8	60	6"	6"	6"	6"	8'-10"	1'-0"	2'-6"	26'-0"	28'-4"	28'-0"	0'-2"	25.20	0.802	1402	72.49	334
10	10	72	6"	6"	6"	6"	10'-0"	1'-0"	2'-6"	30'-0"	32'-4"	32'-0"	0'-2"	31.67	1.029	2089	88.05	423
10	12	84	6"	6"	6"	6"	12'-0"	1'-0"	2'-6"	36'-0"	38'-4"	38'-0"	0'-2"	38.14	1.270	3217	101.18	468

LAP NOTE: In computing quantities of steel from the above table, add one lap for culverts up to 50'-0" in length and one lap for each additional 25'-0" in length. SPECIFICATIONS: Arkansas Standard Road and Bridge Specifications. *REINFORCING STEEL: To be deformed bars of Structural or Intermediate grade. CHAMFER: All exposed corners to have 3/4" Chamfer. CONCRETE: All Concrete to be Class A. *Reinforcing Steel to be deformed bars of intermediate or rail grade on all Interstate Highways. CONSTRUCTION JOINTS: Construction joints in wing walls and apron slabs shall be made only where shown on the plans. Maximum length of culvert between headwalls for which continuous pours will be permitted is 75'. For longer culverts construction joints shall be provided in slabs and walls at intervals not greater than 50'. Joints shall be normal to E of barrel and shall have 2' continuous keys. Longitudinal reinforcing shall be continuous through joints.

REVISIONS	
March, 59	Drawn
July, 1955	Construction Joints

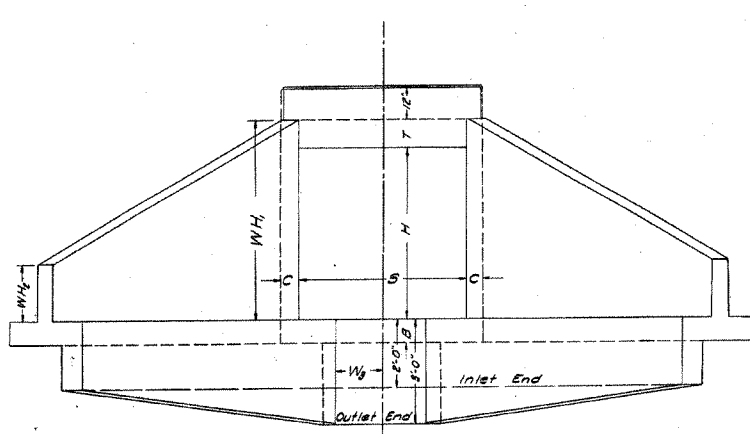
AASHTO DESIGN LIVE LOADING H-20 S-16

UNIT STRESSES
 Concrete (n=15) 840 Lbs Per Sq In.
 Reinforcing Steel (Str. Gr.) 18000 Lbs Per Sq In.

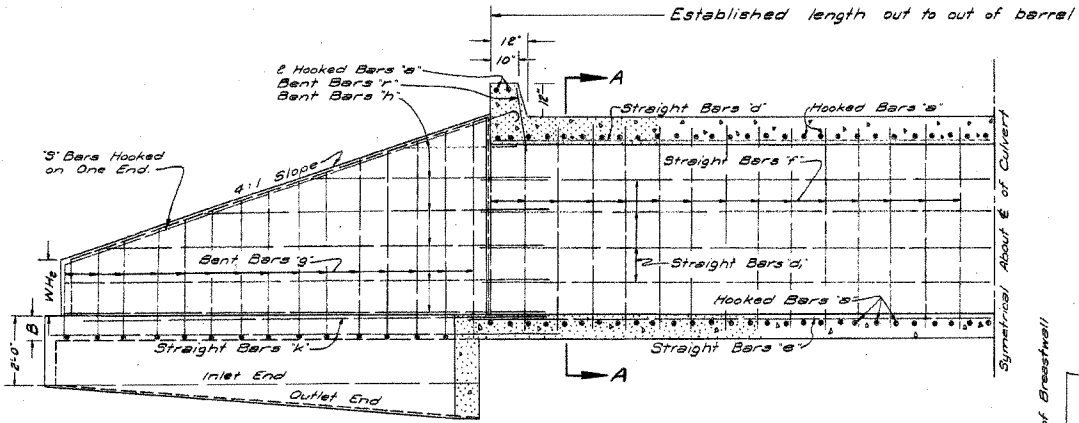
SPECIAL MILITARY LOADING

Add'l Loading for Interstate Highways
 2 - 24,000 Lb Axles @ 4'-0" Ctr.
 Concrete (n=15) 840 Lbs Per Sq In.
 Reinf. Steel (Int. or Rail) - 20000 Lbs Per Sq In.

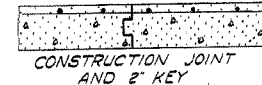
ARKANSAS STATE HIGHWAY COMMISSION
REINFORCED CONCRETE BOX CULVERTS
 3' TO 10' SPAN 4:1 SLOPES
 SINGLE OVER 3'-6" COVER
 STD. DWG. NO. R-1004A



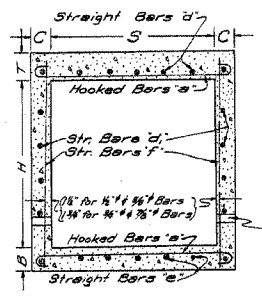
END ELEVATION



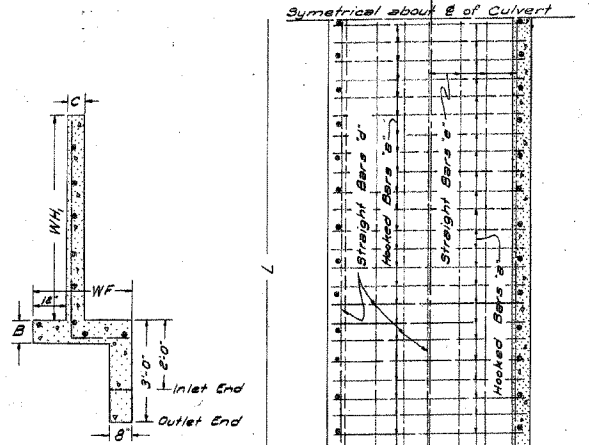
LONGITUDINAL SECTION



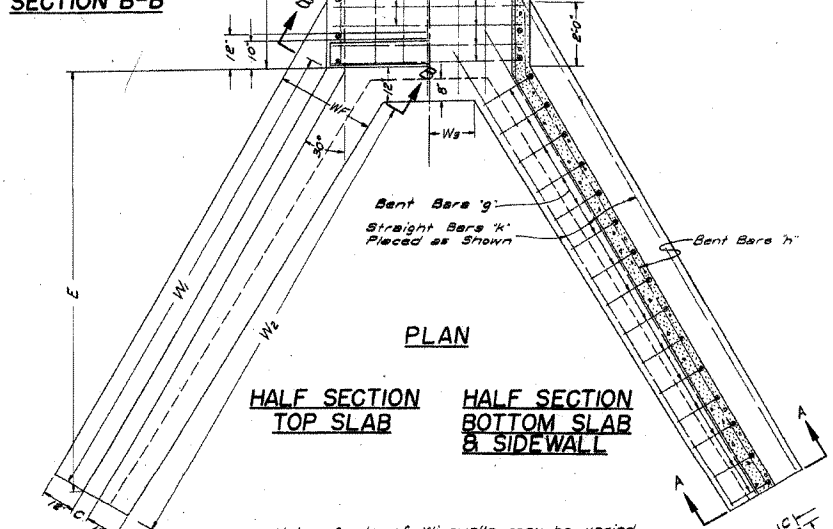
DETAIL OF EXPANSION JOINT FOR CULVERT WHEN HEIGHT "H"=8' OR MORE
 Scale 3/4" = 1'-0"



SECTION A-A



SECTION B-B



PLAN
 HALF SECTION TOP SLAB
 HALF SECTION BOTTOM SLAB & SIDEWALL

Note: Angle of Wingwalls may be varied to conform to the natural or proposed inlet or outlet channel.

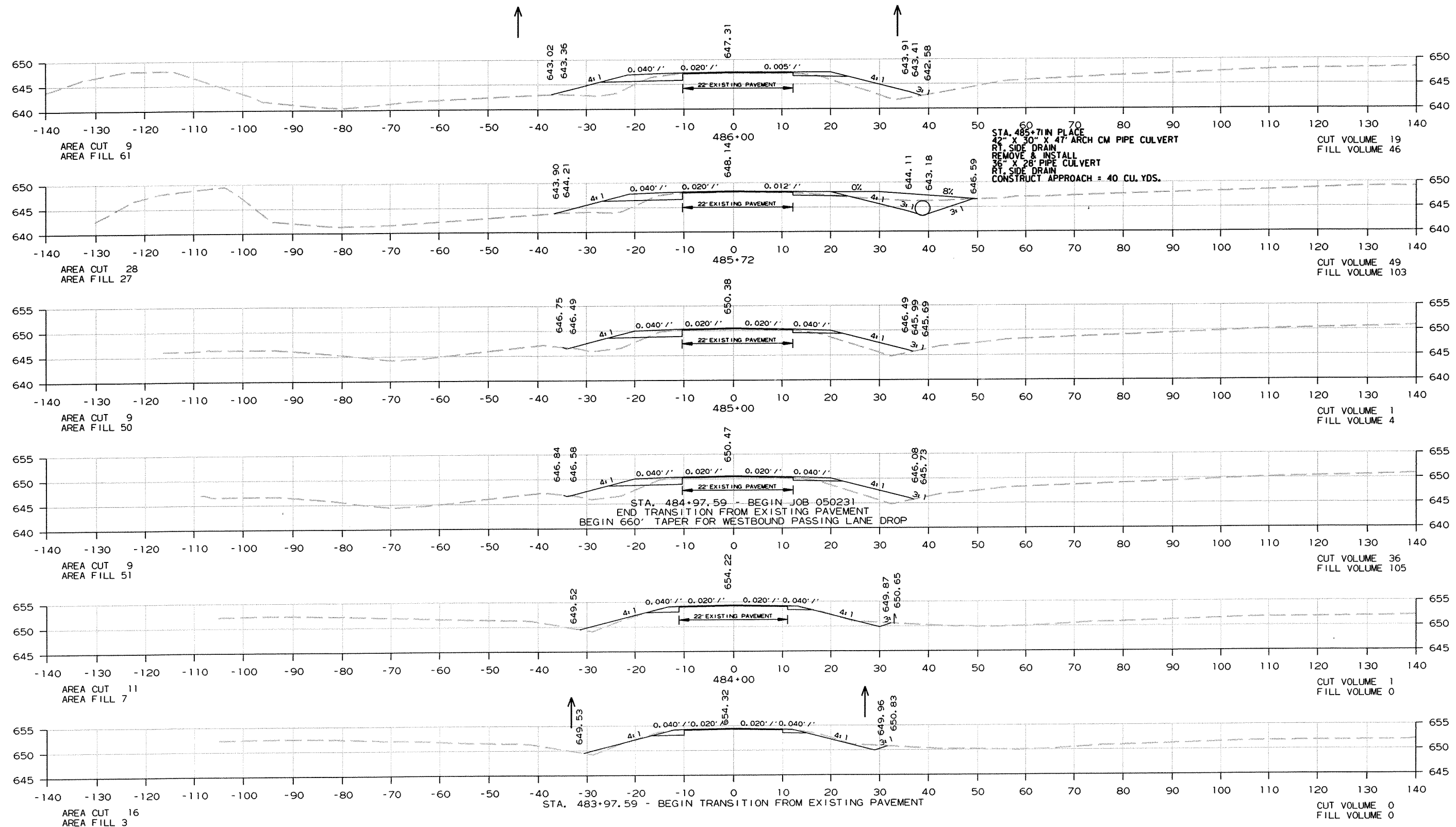
STEEL SCHEDULE
 For Culverts 30'-0" in Length - Out to Out of Barrel

SPAN	HEIGHT	'a' bars		'd' bars		'd' bars		'e' bars		'f' bars		'g' bars		'h' bars		'k' bars		'r' bars		's' bars	
		SIZE	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing	Spacing
3	2	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
3	3	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
4	2	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
4	3	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
4	4	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
4	6	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
5	2	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
5	3	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
5	4	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
5	5	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
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6	4	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
6	5	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
6	8	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
7	5	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
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10	8	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
10	10	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"
10	12	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"	1/2"	12"

NOTE: Lengths given above do not include lap.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		71	101
				JOB NO.		050231		

2 CROSS SECTIONS

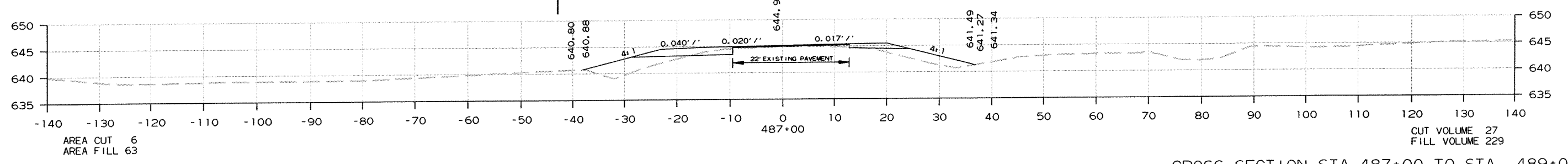
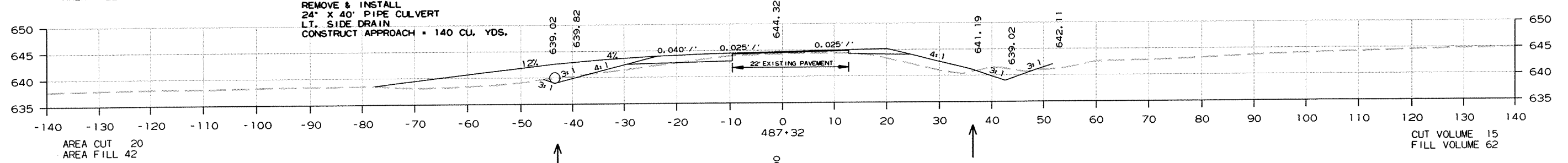
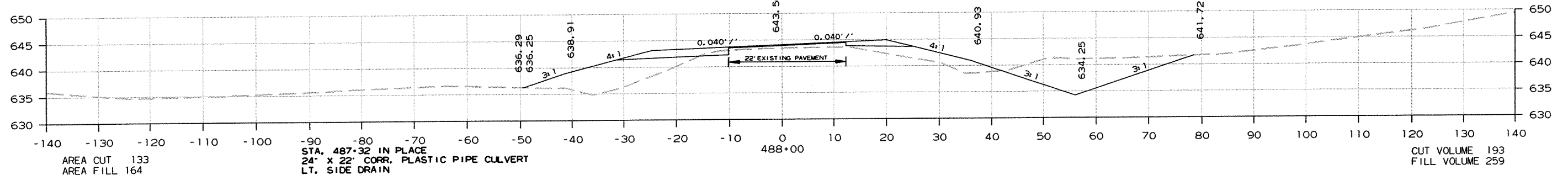
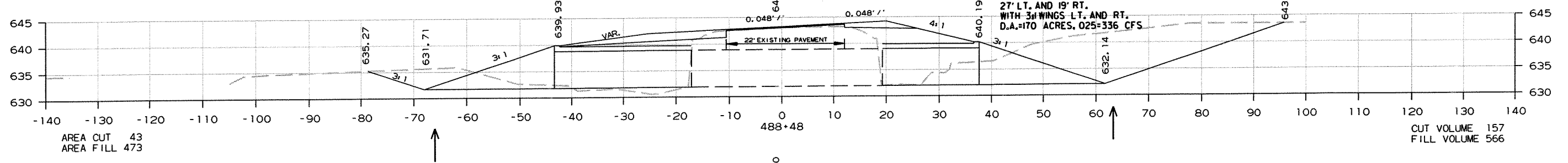
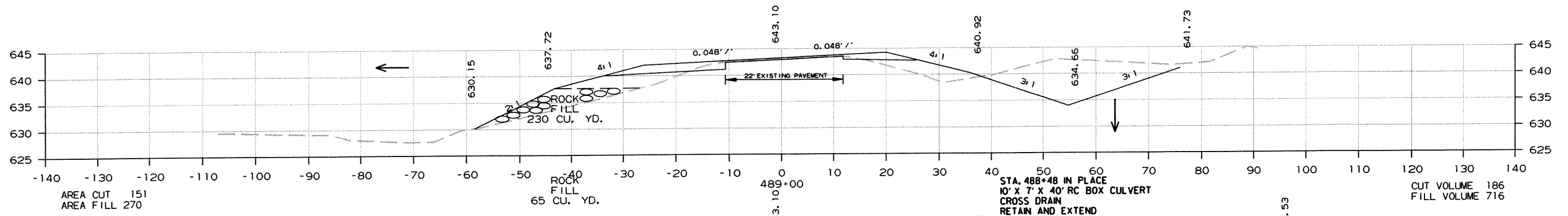


CROSS SECTION STA. 483+98 TO STA. 486+00

7/18/2013
R050231.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.	050231		72	101

2 CROSS SECTIONS

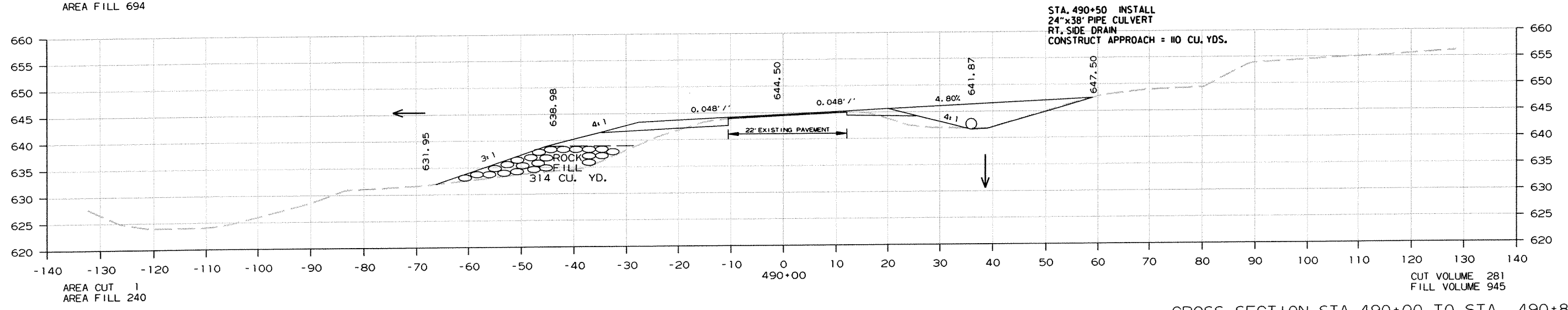
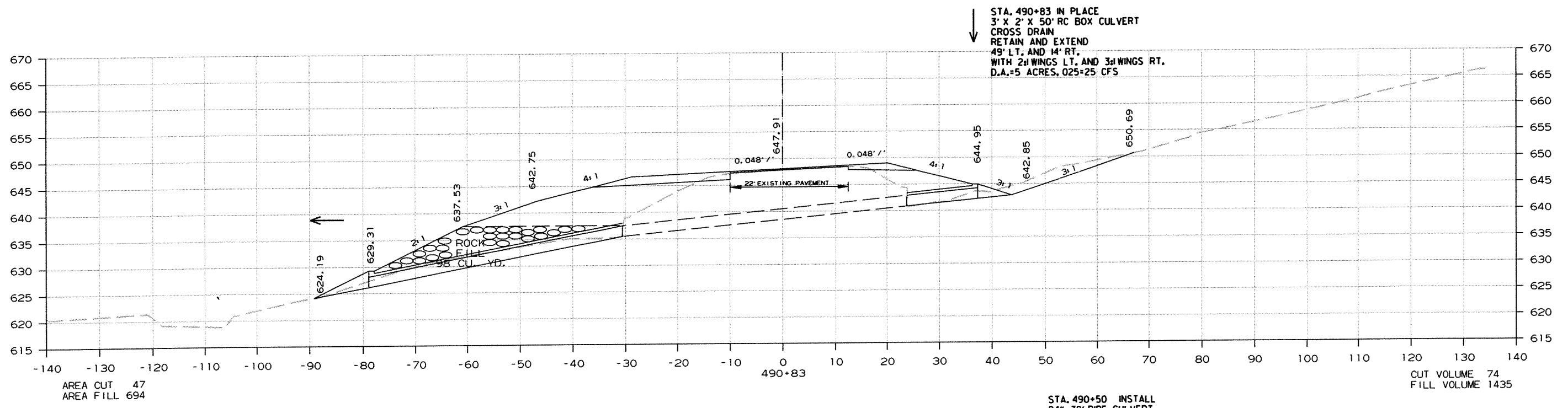


CROSS SECTION STA. 487+00 TO STA. 489+00

7/25/2013 R050231.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. 050231							73	101

2 CROSS SECTIONS

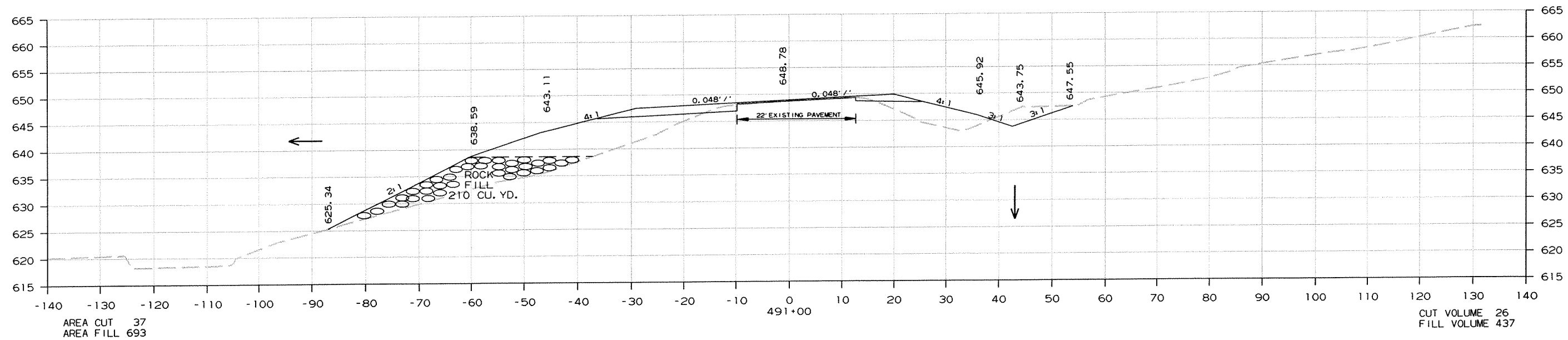
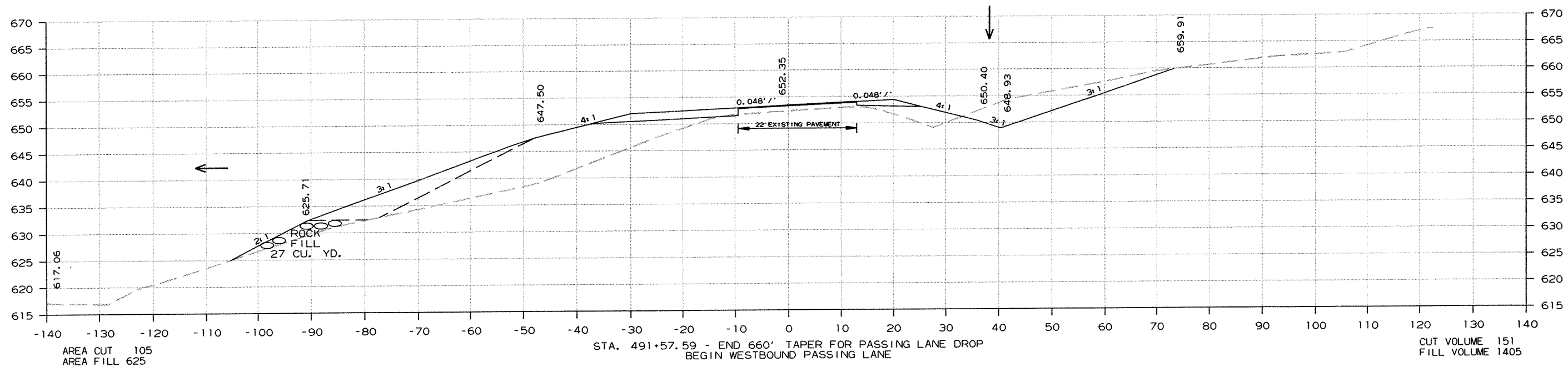


CROSS SECTION STA. 490+00 TO STA. 490+83

7/25/2013
R050231.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. 050231	74	101

② CROSS SECTIONS



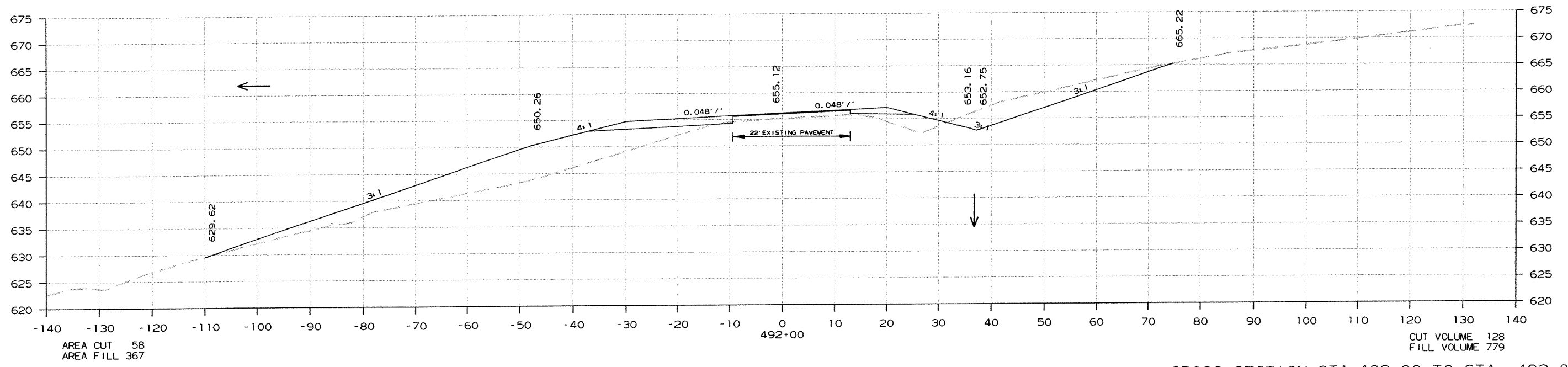
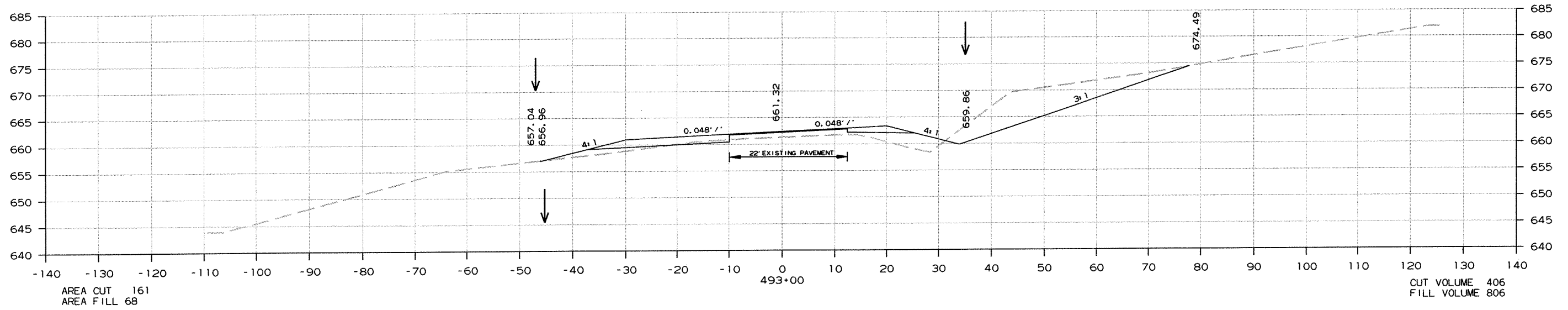
CROSS SECTION STA. 491+00 TO STA. 491+58

7/25/2013

R050231.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.						050231	75	101

2 CROSS SECTIONS

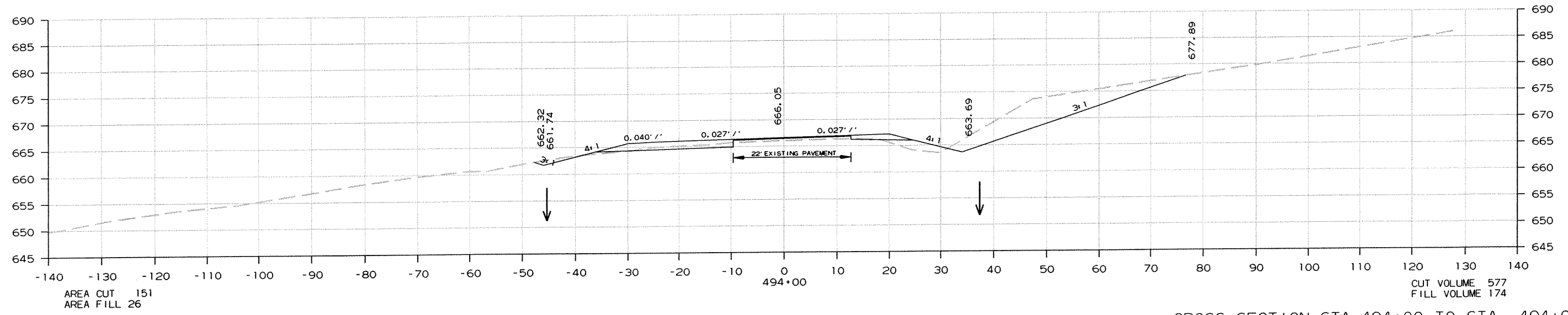
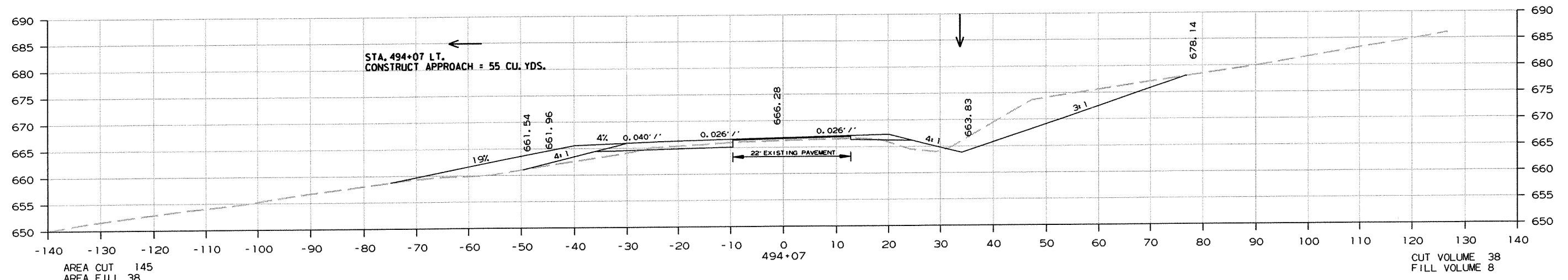


CROSS SECTION STA. 492+00 TO STA. 493+00

R050231.DGN 7/18/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050231	76	101

2 CROSS SECTIONS

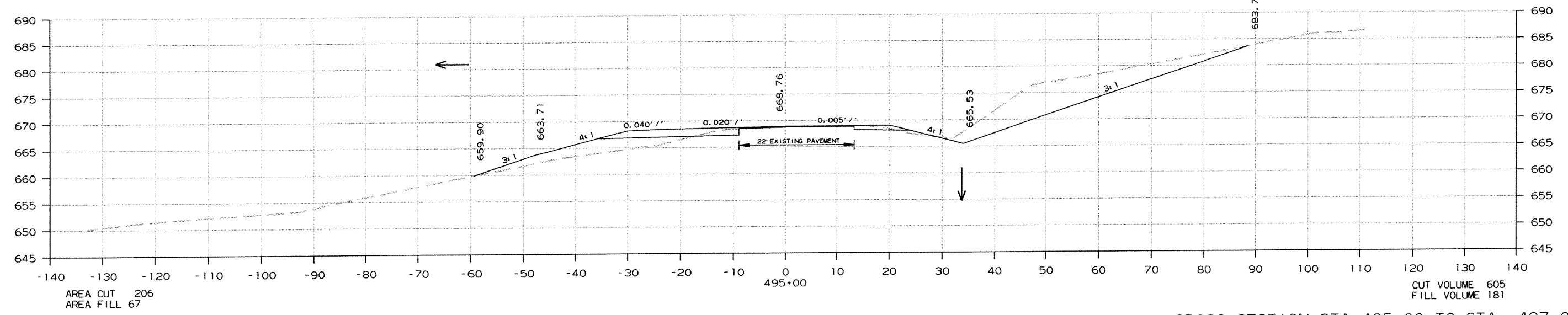
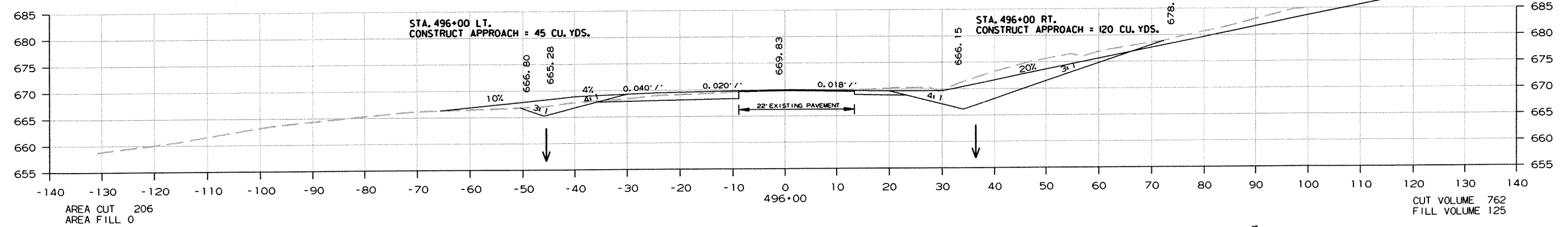
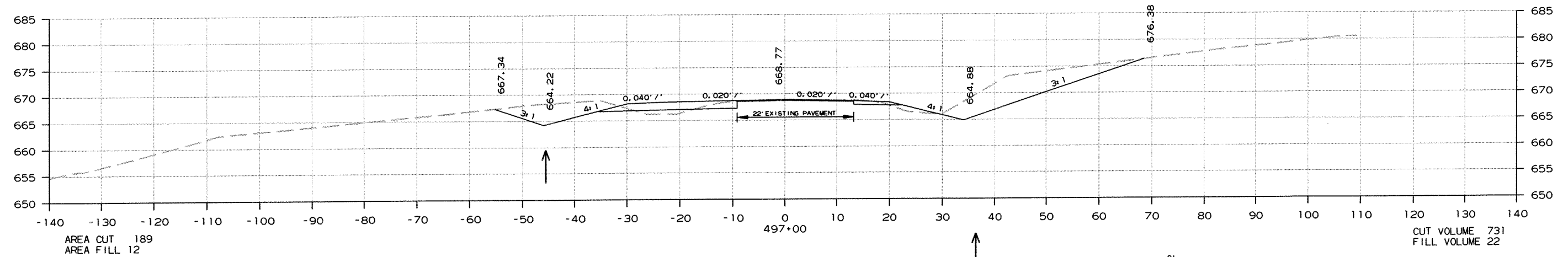


CROSS SECTION STA. 494+00 TO STA. 494+07

7/18/2013 R050231.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. 050231	77	101

2 CROSS SECTIONS



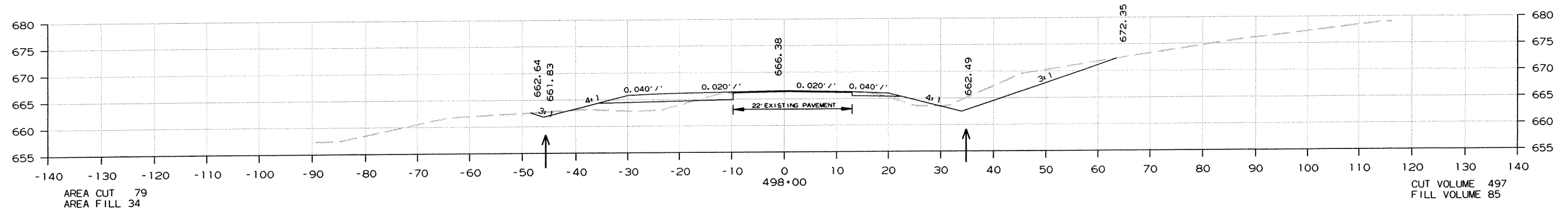
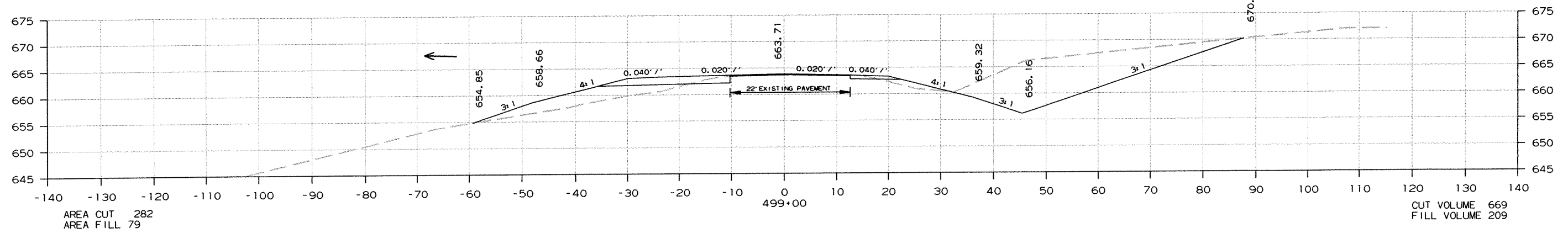
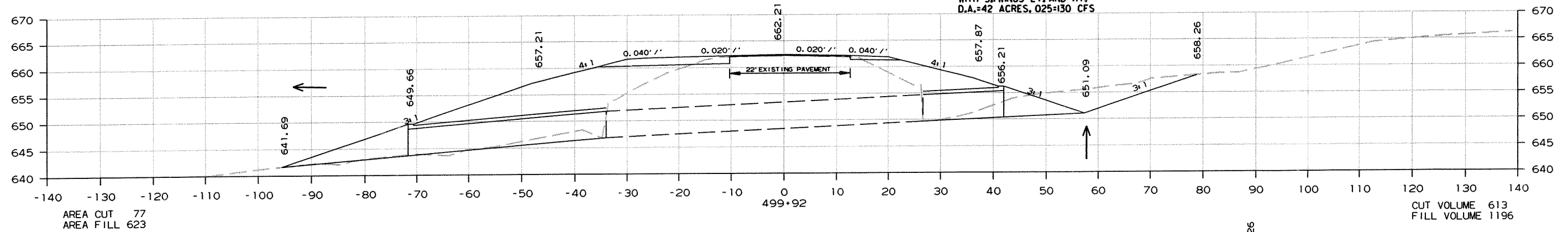
CROSS SECTION STA. 495+00 TO STA. 497+00

7/18/2013 R050231.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.	050231	78

2 CROSS SECTIONS

STA. 499+92 IN PLACE
 6' X 5' X 63' R.C. BOX CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 38' LT. AND 16' RT.
 WITH 3rd WINGS LT. AND RT.
 D.A.=42 ACRES, 025=130 CFS



CROSS SECTION STA. 498+00 TO STA. 499+92

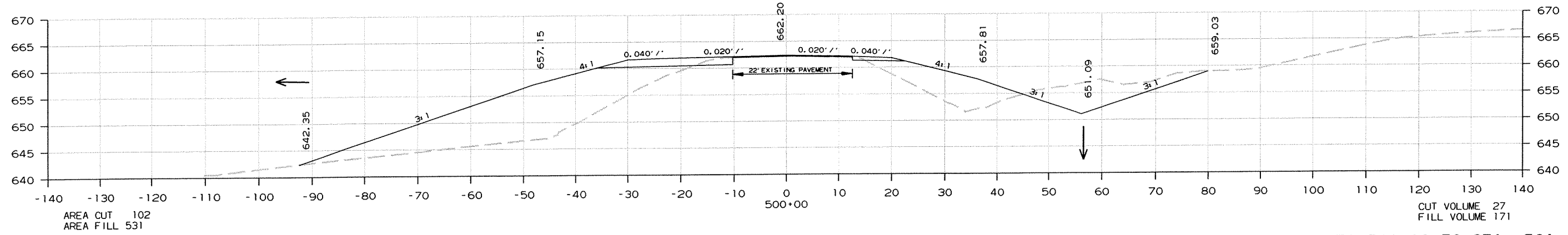
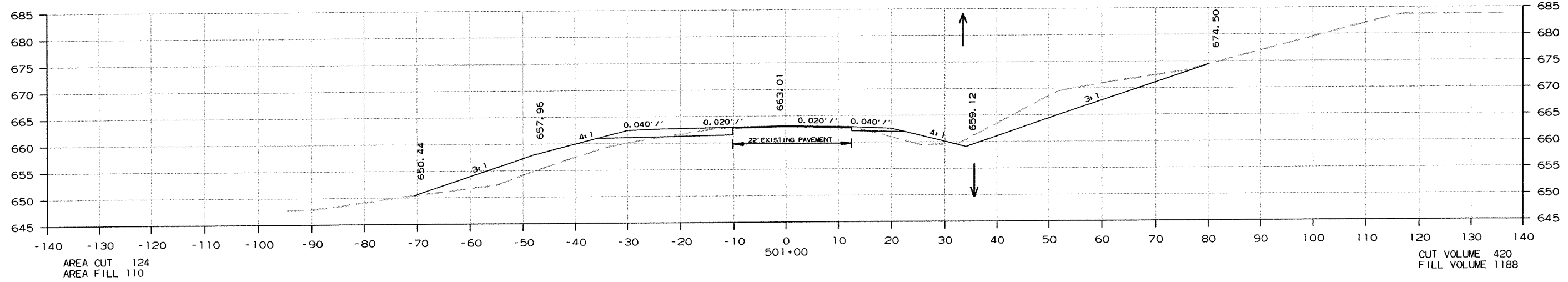
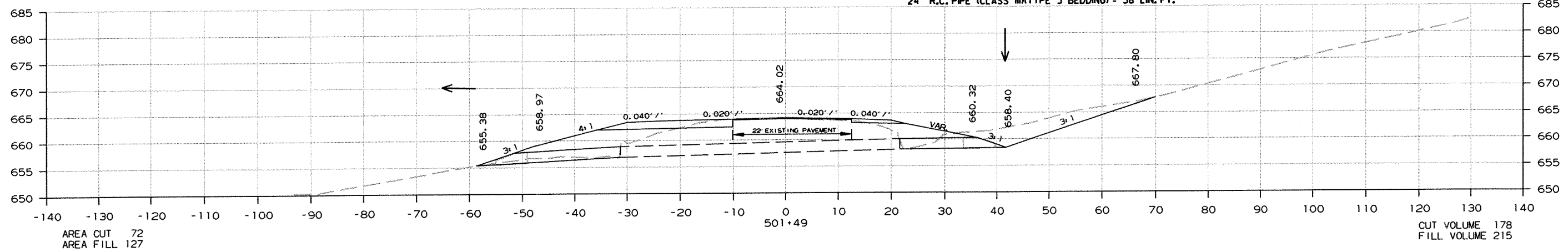
7/18/2013

R050231.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. 050231	79	101

2 CROSS SECTIONS

STA. 501+49 IN PLACE
 24" X 53' RC PIPE CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 18' LT. AND 12' RT.
 WITH FES LT. AND RT.
 D.A.-5 ACRES, 0.25-25 CFS
 24" R.C. PIPE (CLASS III TYPE 3 BEDDING) = 38 LIN. FT.



CROSS SECTION STA. 500+00 TO STA. 501+49

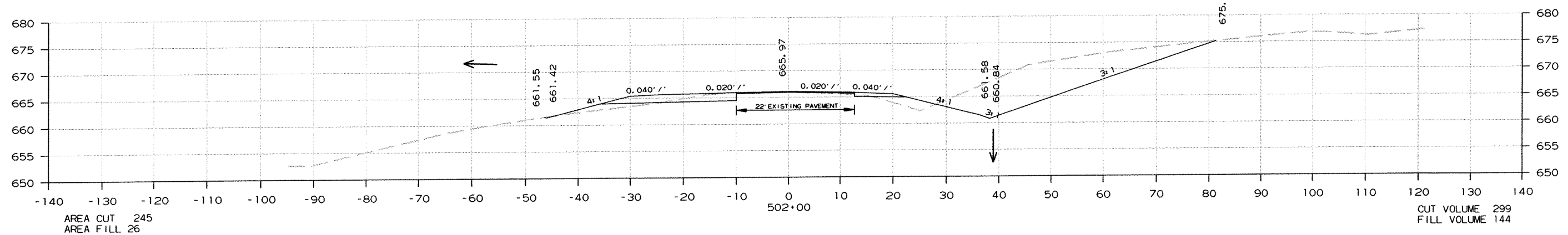
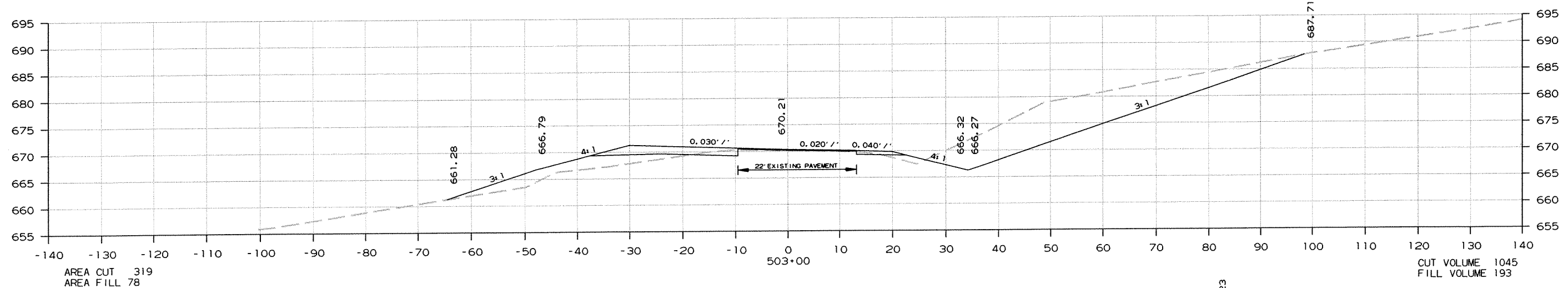
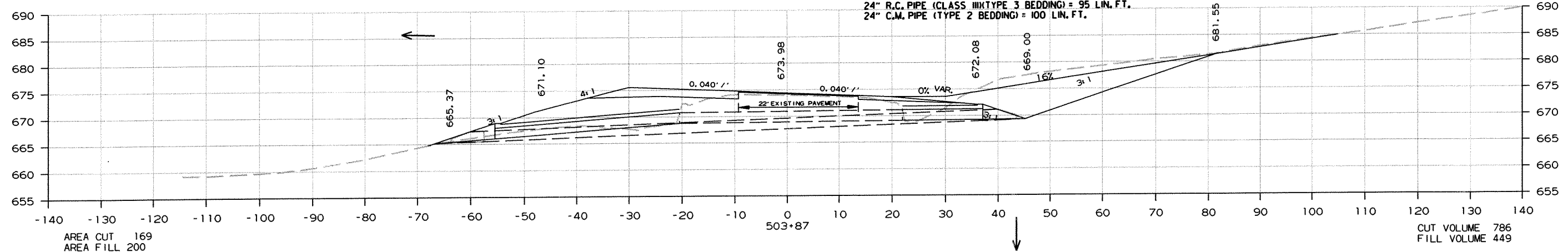
7/18/2013
 R050231.DGN

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.		050231	80	101

2 CROSS SECTIONS

STA. 503+87 IN PLACE
 5' X 2' X 45' R.C. BOX CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 35' LT. AND 15' RT.
 WITH 3:1 WINGS LT. AND RT.
 CONSTRUCT 24" PIPE CULVERT
 WITH FES LT. AND RT.
 D.A. = 19 ACRES, 0.25 = 88 CFS
 24" R.C. PIPE (CLASS III TYPE 3 BEDDING) = 95 LIN. FT.
 24" C.M. PIPE (TYPE 2 BEDDING) = 100 LIN. FT.

STA. 503+50 CONSTRUCT
 APPROACH ON RT. = 20 CU. YDS.

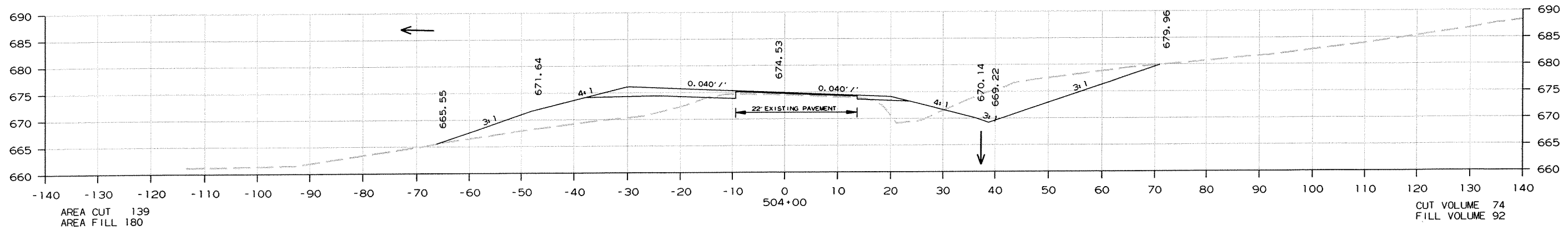
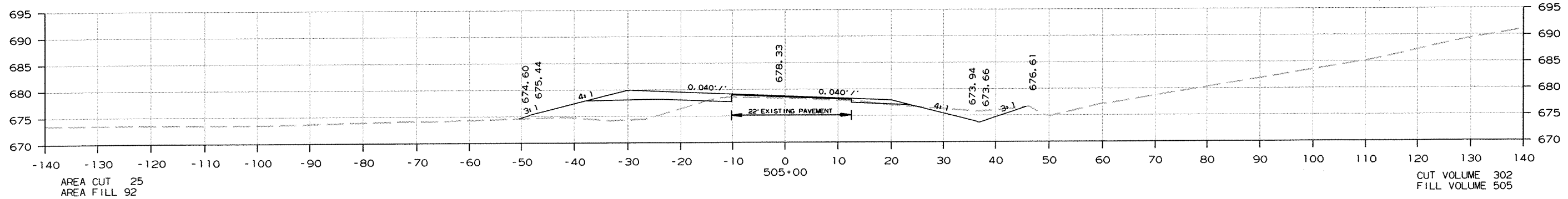
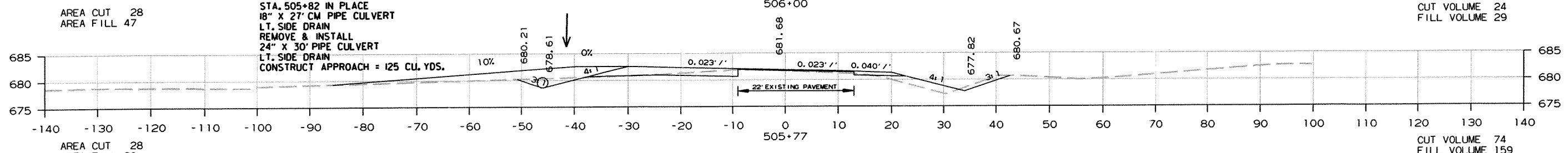
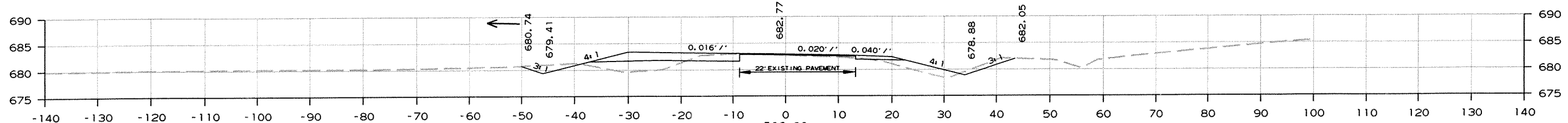


CROSS SECTION STA. 502+00 TO STA. 503+87

7/18/2013
 R050231.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.	050231		81	101

② CROSS SECTIONS



CROSS SECTION STA. 504+00 TO STA. 506+00

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AREA CUT 28
AREA FILL 47

CUT VOLUME 24
FILL VOLUME 29

AREA CUT 28
AREA FILL 20

CUT VOLUME 74
FILL VOLUME 159

AREA CUT 25
AREA FILL 92

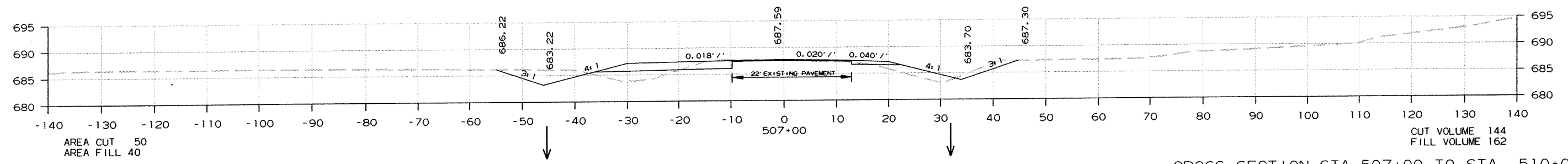
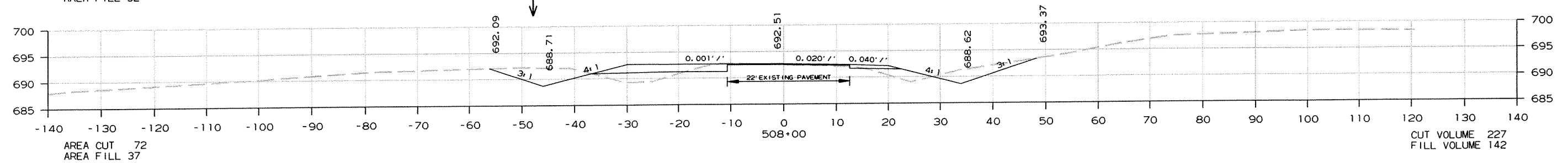
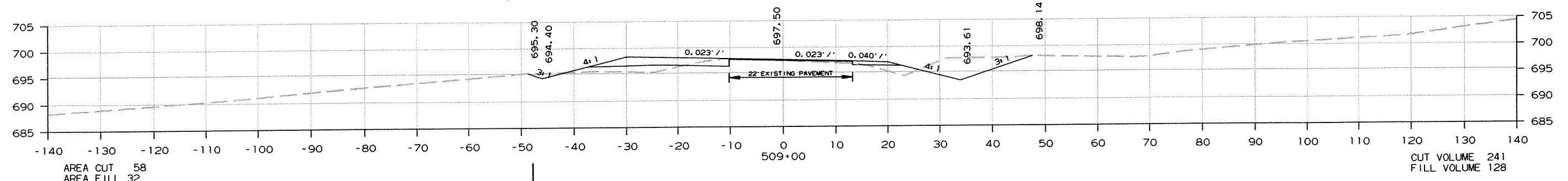
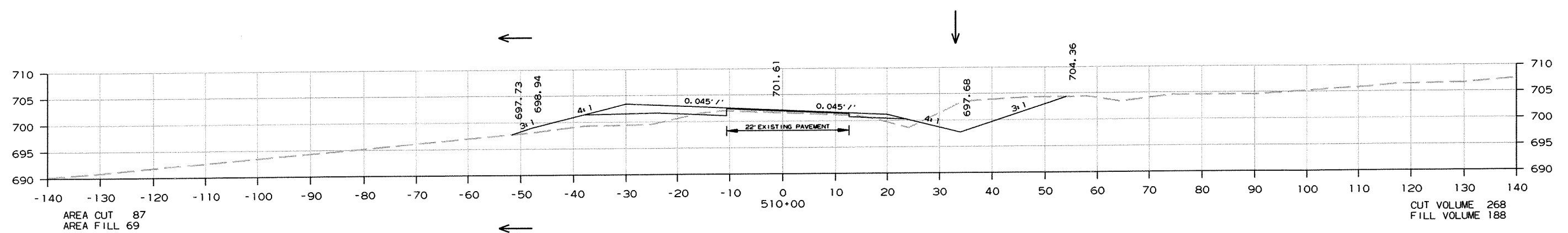
CUT VOLUME 302
FILL VOLUME 505

AREA CUT 139
AREA FILL 180

CUT VOLUME 74
FILL VOLUME 92

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050231		82	101

2 CROSS SECTIONS

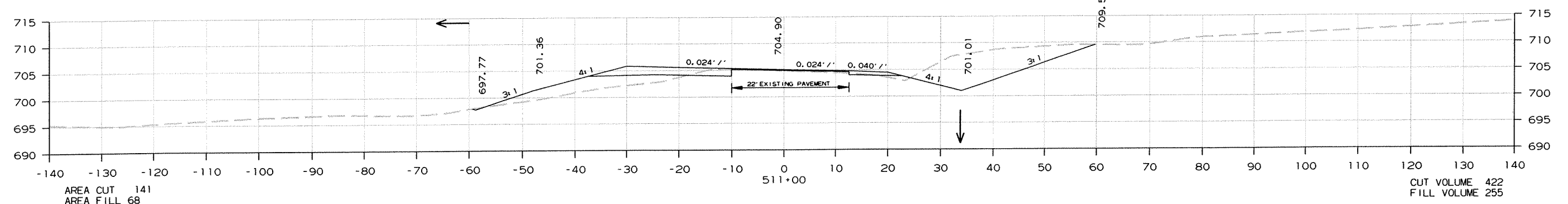
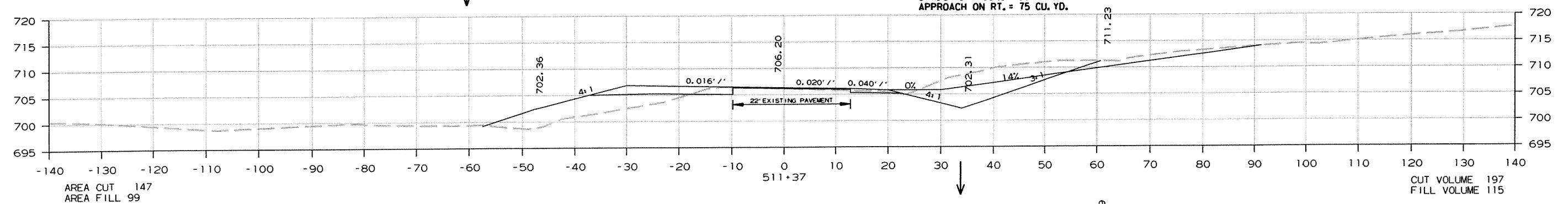
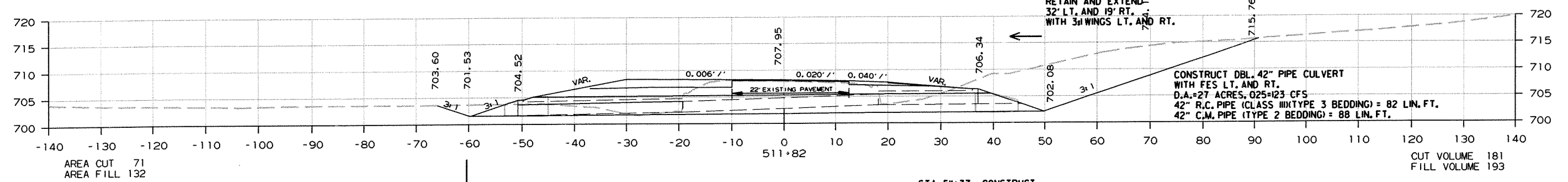
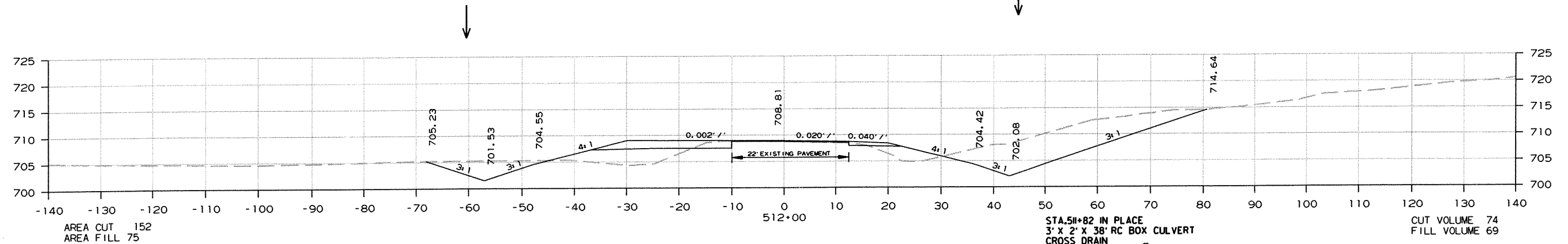


CROSS SECTION STA. 507+00 TO STA. 510+00

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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							83	101

2 CROSS SECTIONS

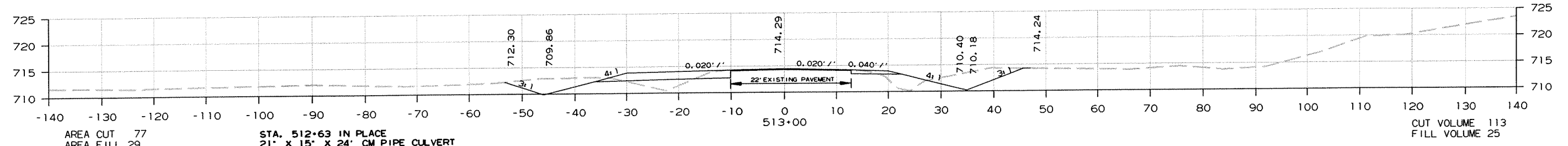
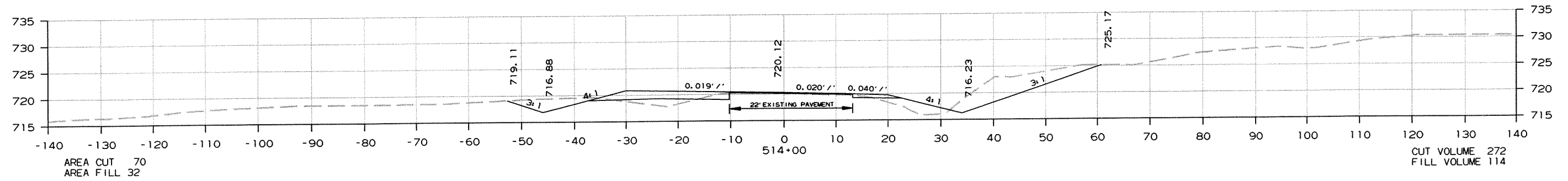
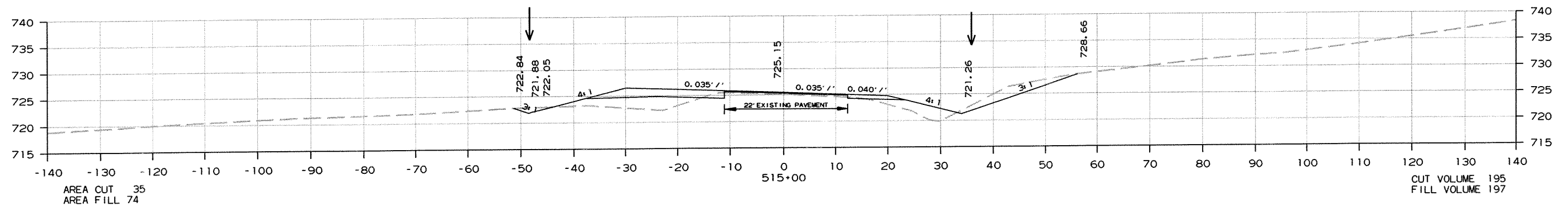


CROSS SECTION STA. 511+00 TO STA. 512+00

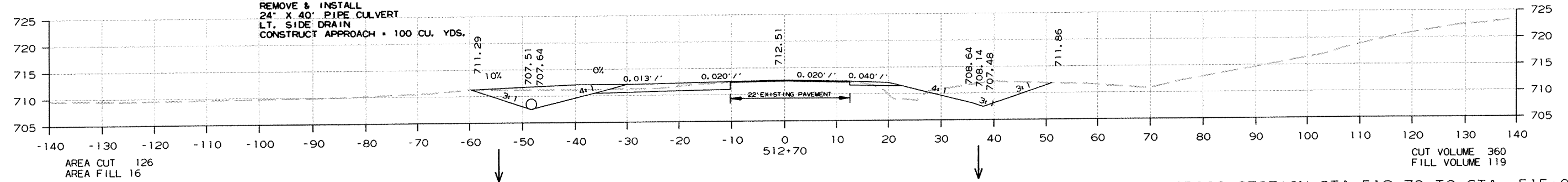
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							84	101

2 CROSS SECTIONS



STA. 512+63 IN PLACE
21" X 15" X 24' CM PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
24" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

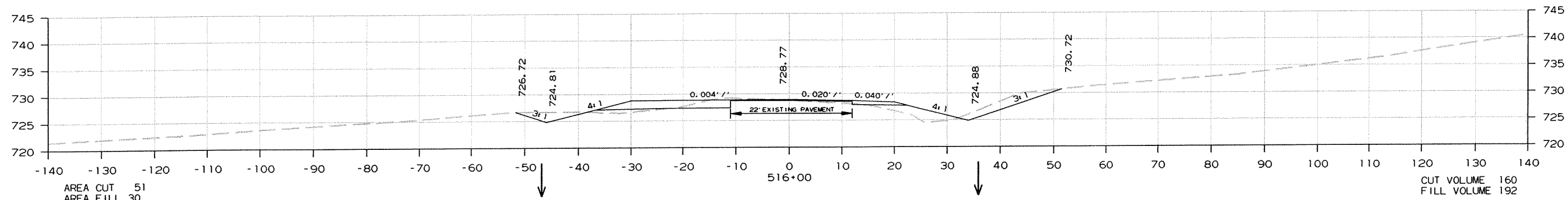
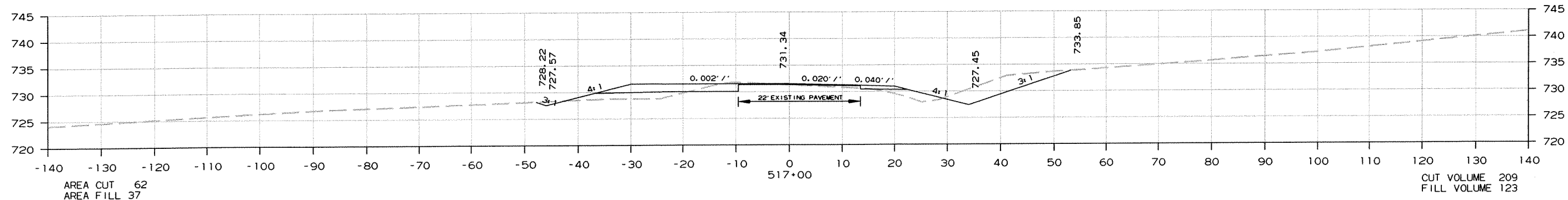
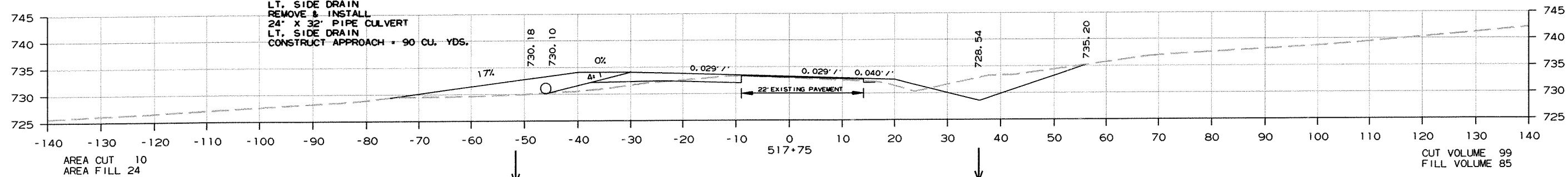
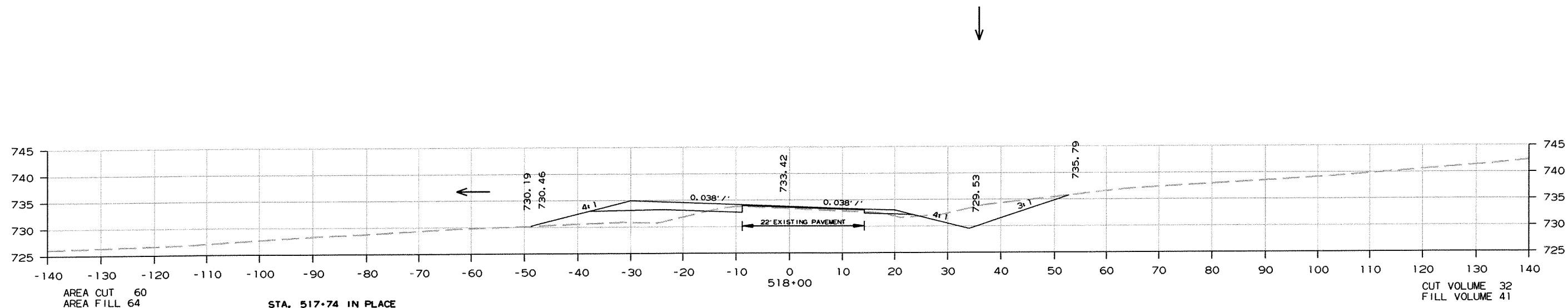


CROSS SECTION STA. 512+70 TO STA. 515+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							85	101

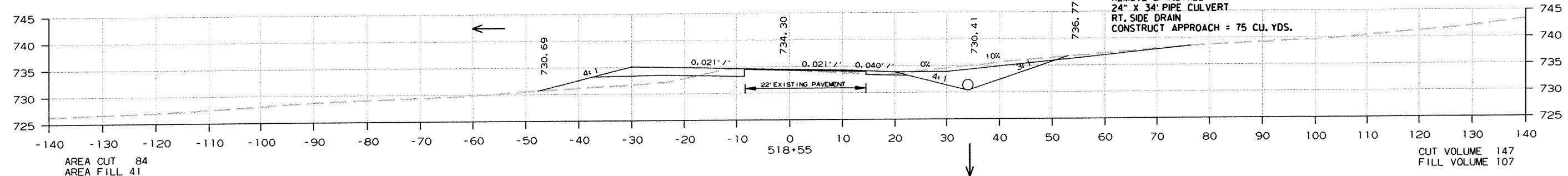
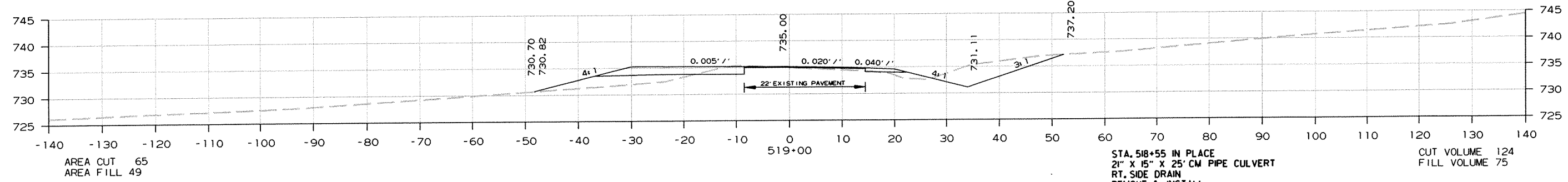
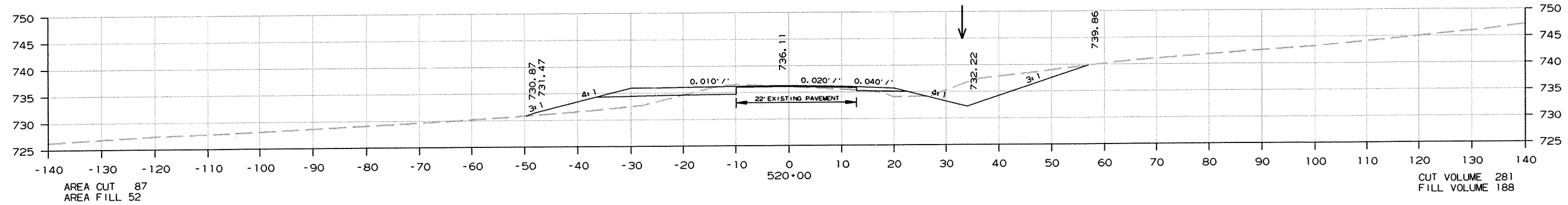
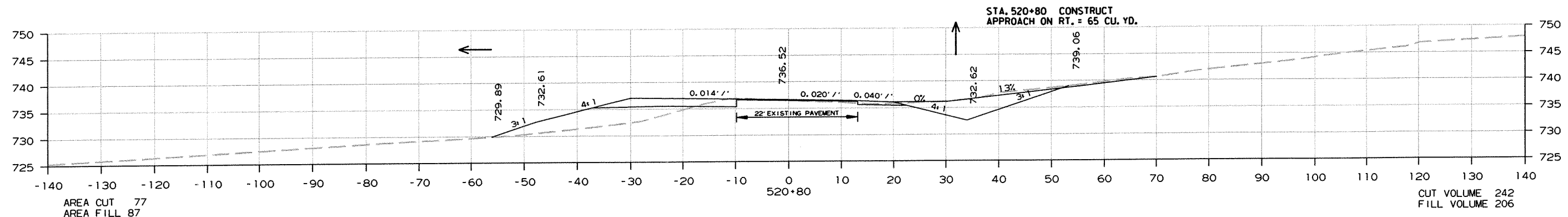
2 CROSS SECTIONS



CROSS SECTION STA. 516+00 TO STA. 518+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AD PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							86	101

2 CROSS SECTIONS

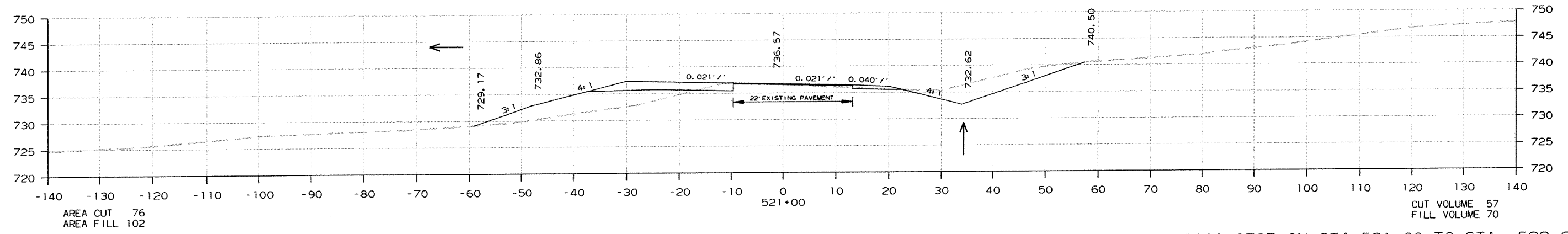
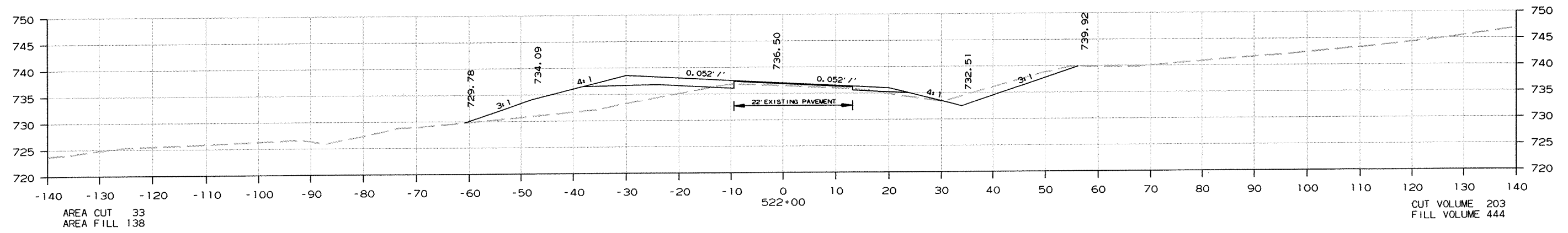
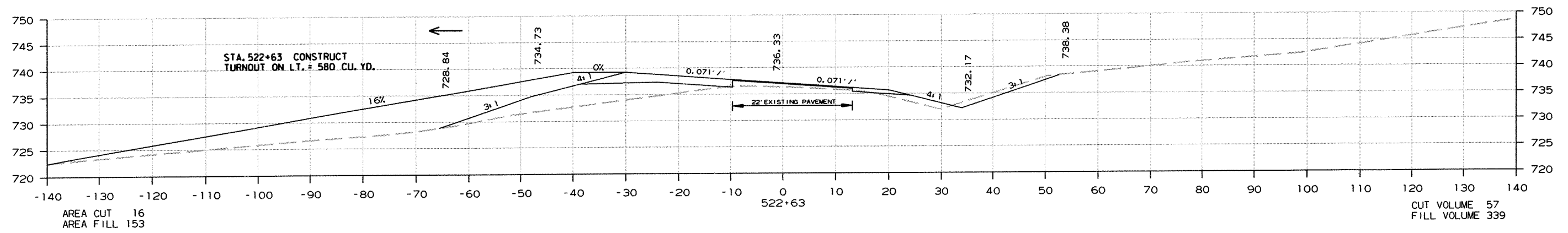


CROSS SECTION STA. 518+55 TO STA. 520+80

7/18/2013 R050231.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.						050231	87	101

2 CROSS SECTIONS

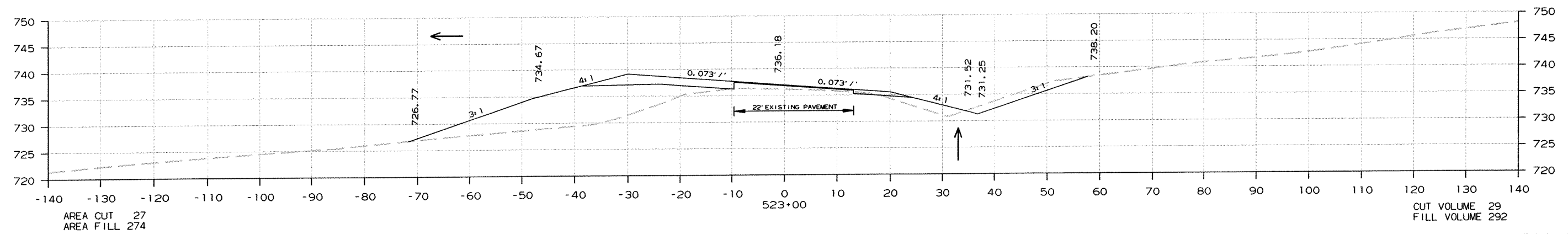
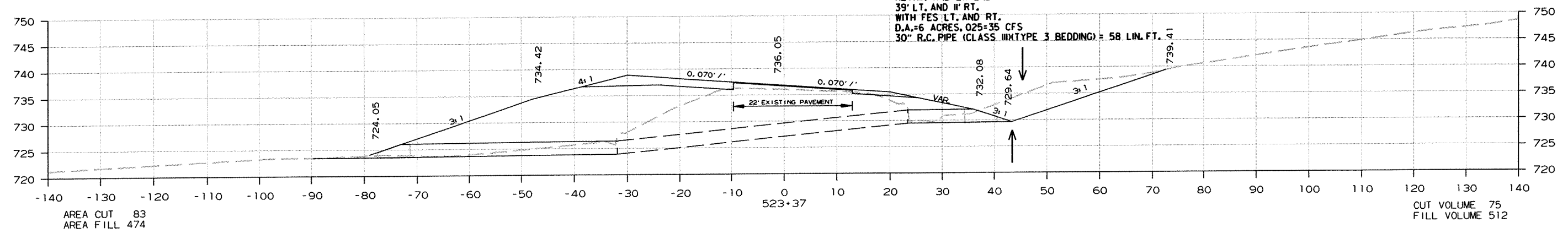
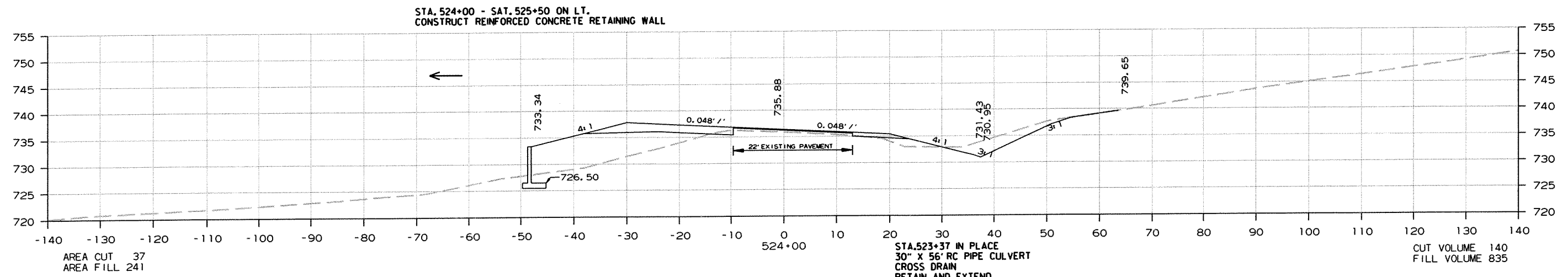


CROSS SECTION STA. 521+00 TO STA. 522+63

7/18/2013 R050231.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. 050231	88	101

2 CROSS SECTIONS



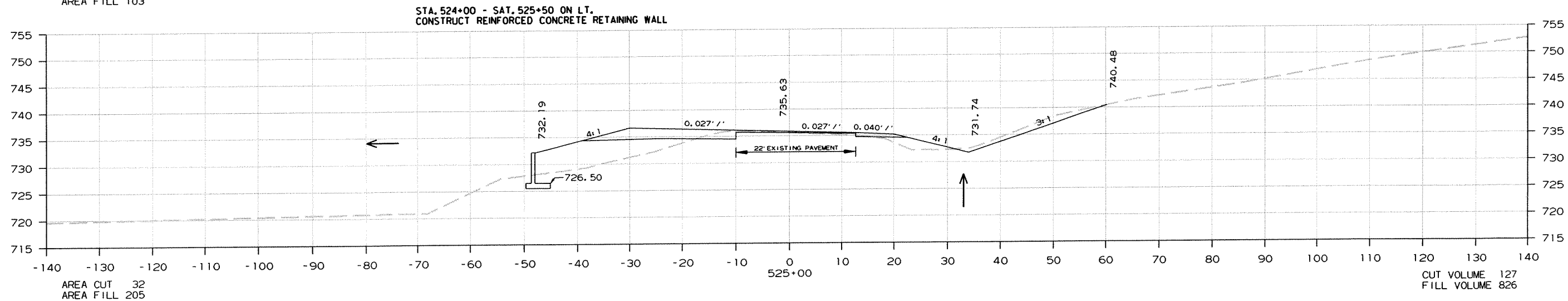
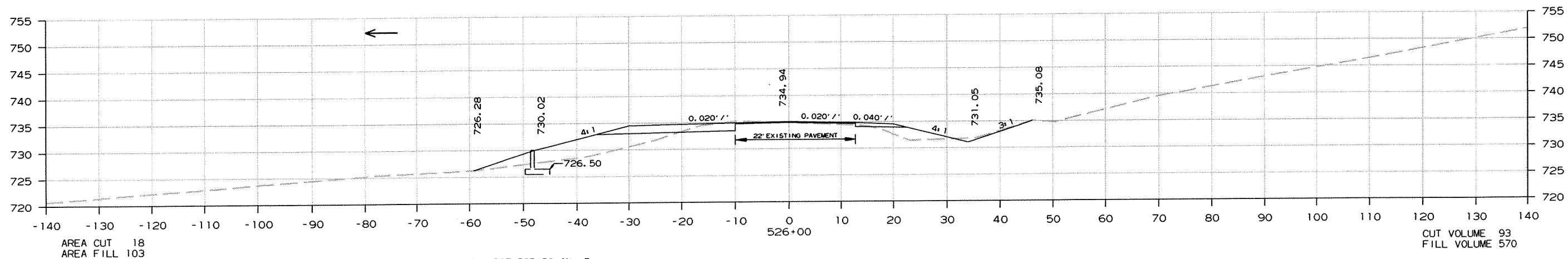
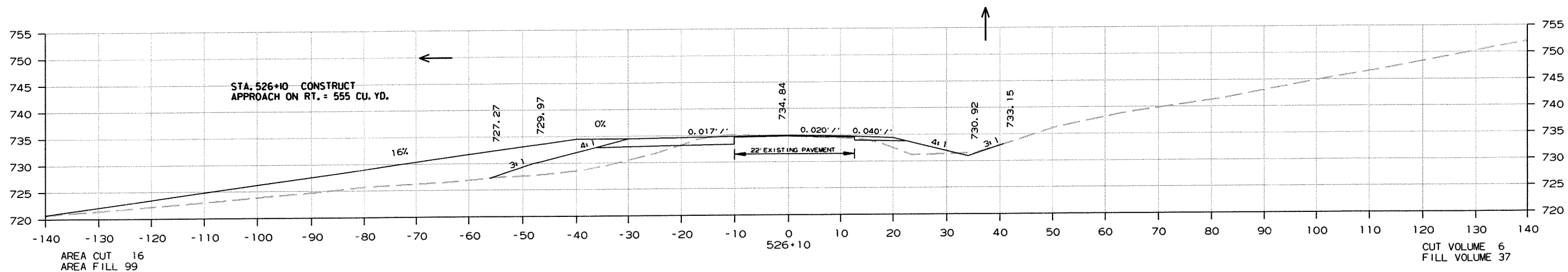
CROSS SECTION STA. 523+00 TO STA. 524+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							89	101

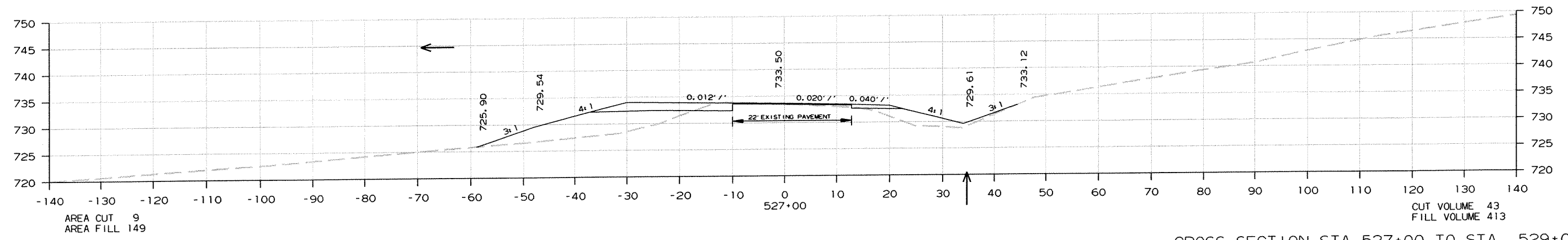
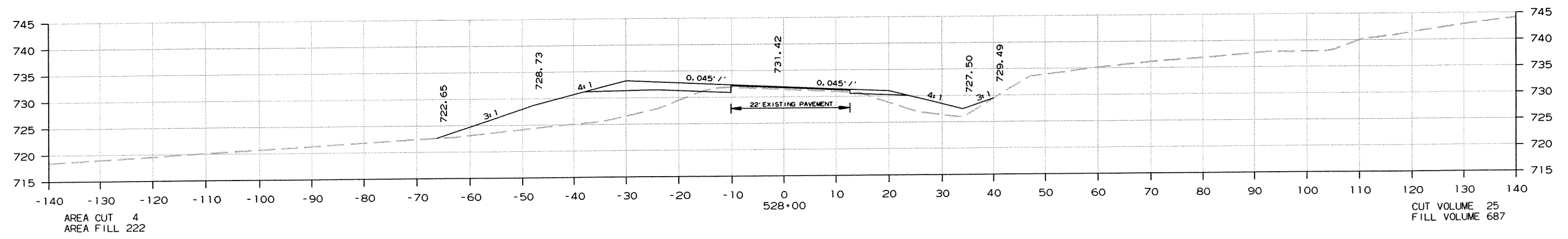
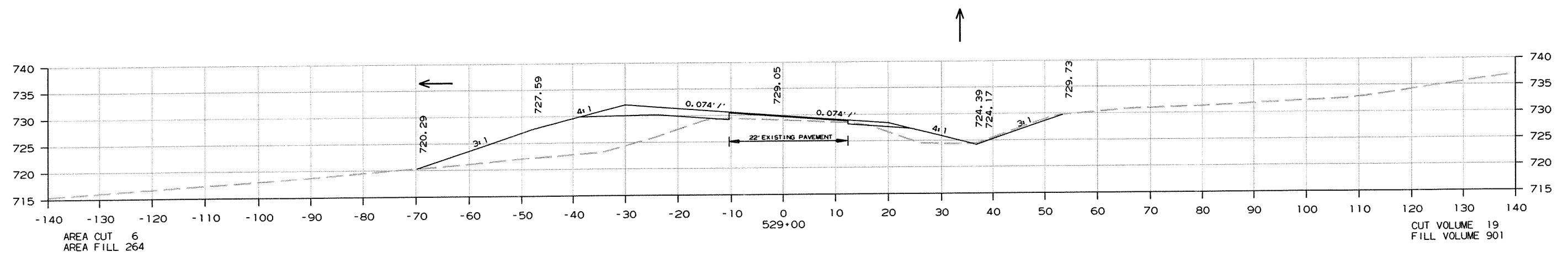
2 CROSS SECTIONS



CROSS SECTION STA. 525+00 TO STA. 526+10

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050231	90	101

2 CROSS SECTIONS

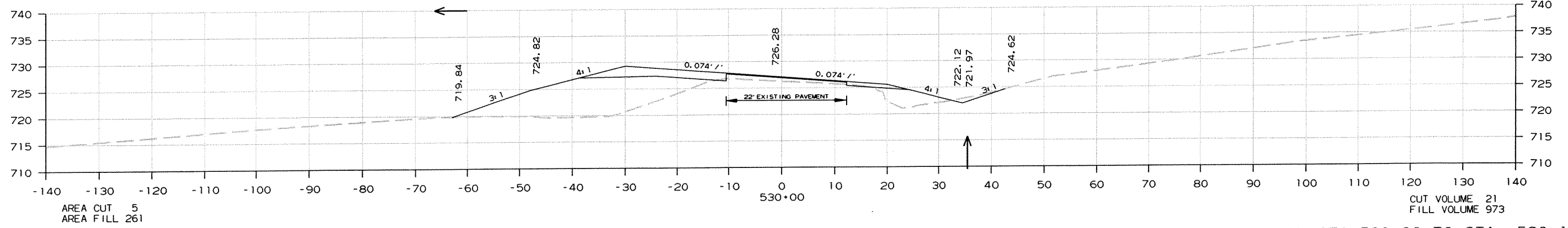
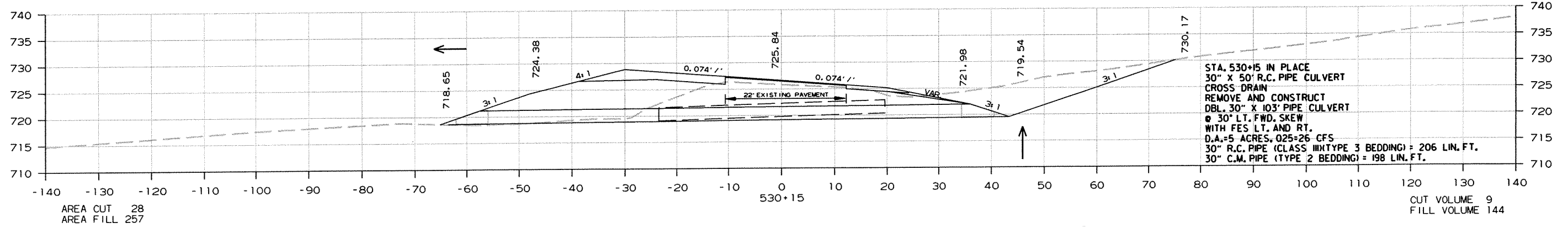
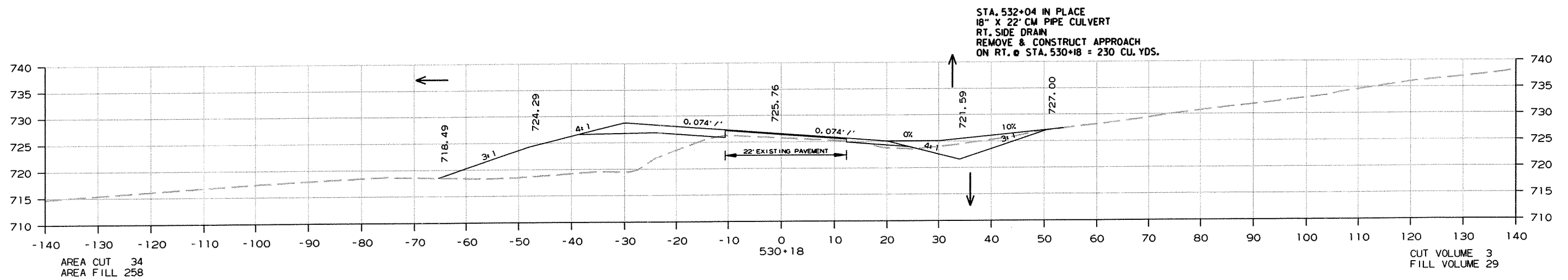


CROSS SECTION STA. 527+00 TO STA. 529+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							91	101

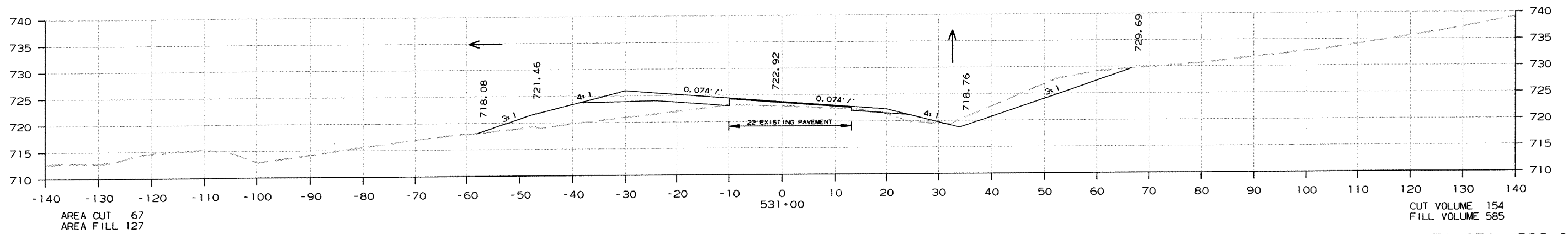
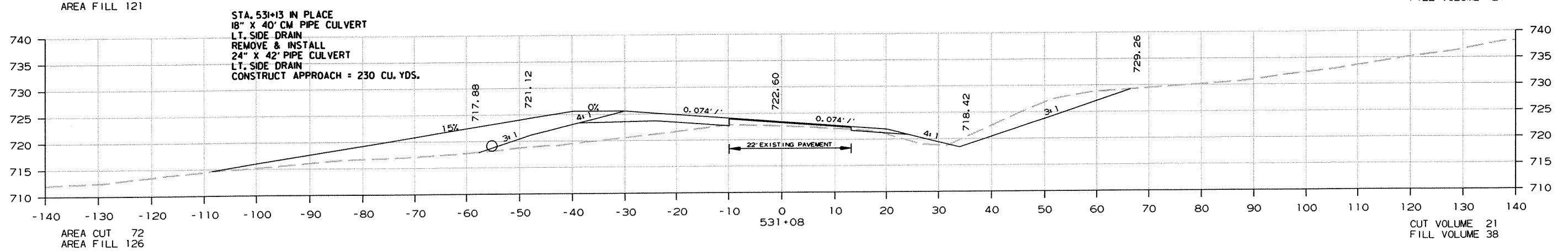
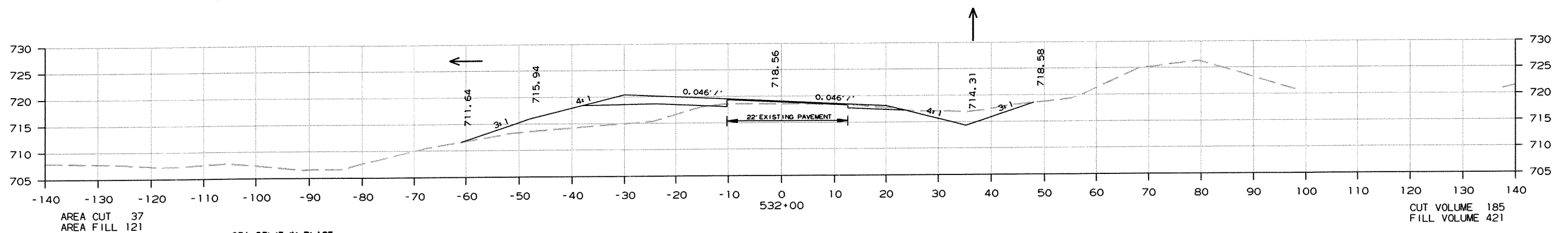
2 CROSS SECTIONS



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050231	92	101

2 CROSS SECTIONS

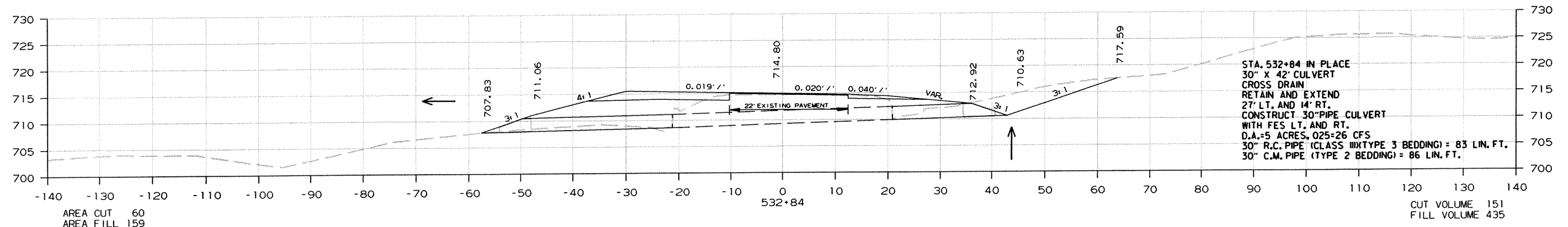
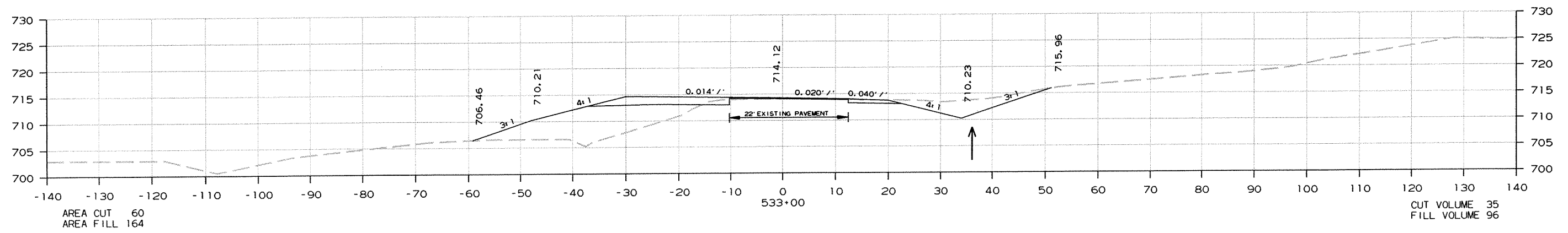
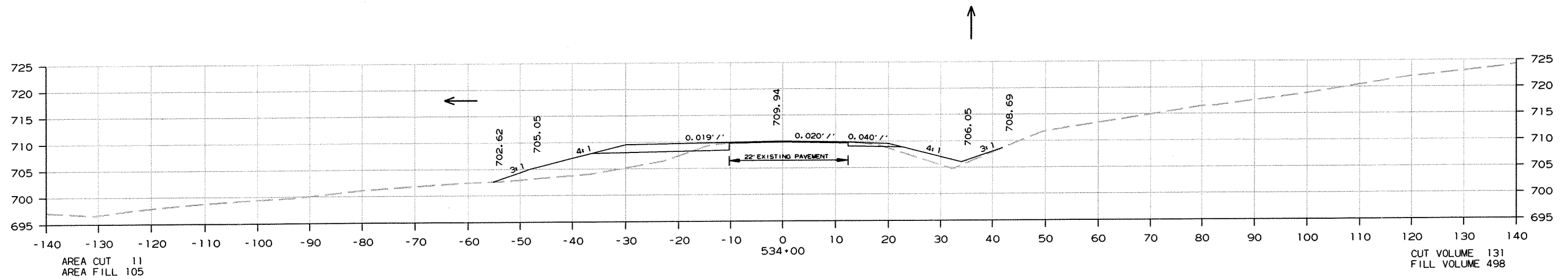


CROSS SECTION STA. 531+00 TO STA. 532+00

7/18/2013
R050231.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.	050231		93	101

② CROSS SECTIONS

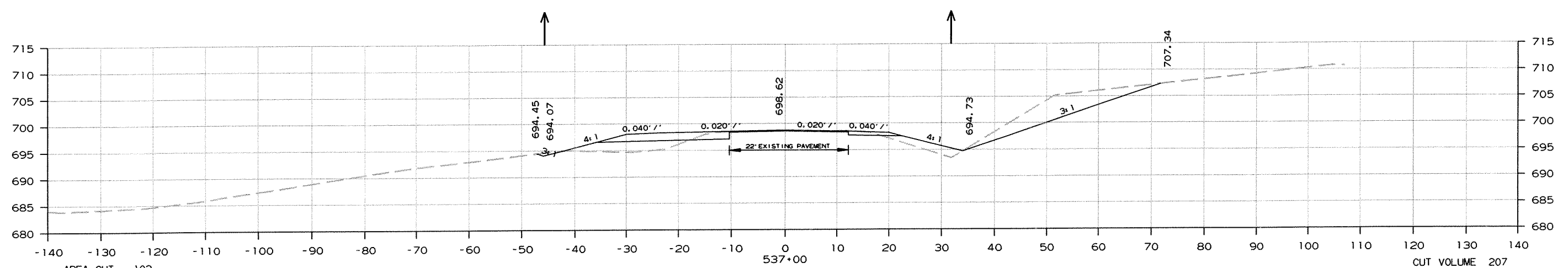


CROSS SECTION STA. 532+84 TO STA. 534+00

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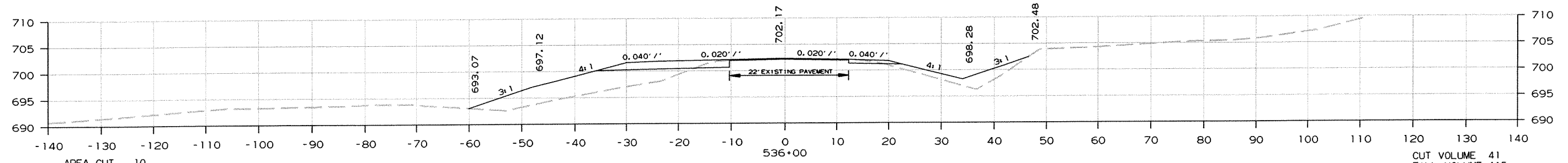
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						050231	94	101

2 CROSS SECTIONS



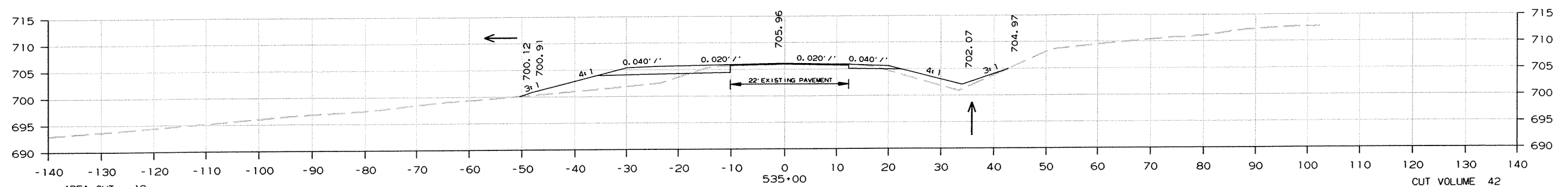
AREA CUT 102
AREA FILL 53

CUT VOLUME 207
FILL VOLUME 382



AREA CUT 10
AREA FILL 153

CUT VOLUME 41
FILL VOLUME 415



AREA CUT 12
AREA FILL 71

CUT VOLUME 42
FILL VOLUME 325

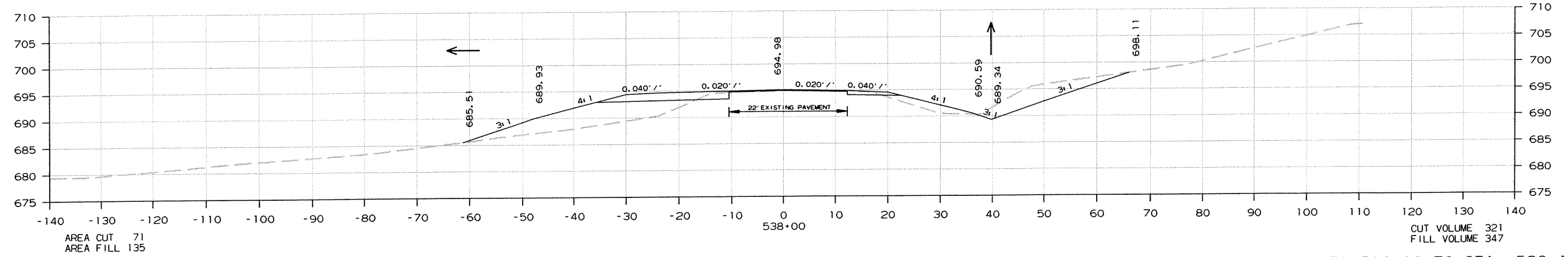
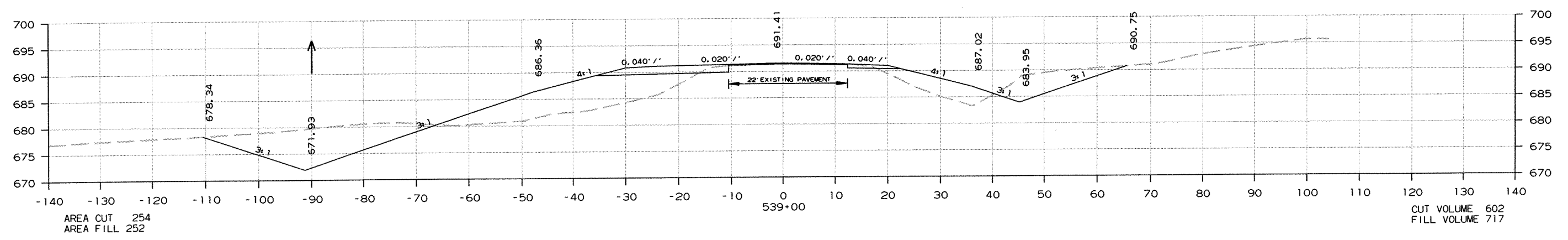
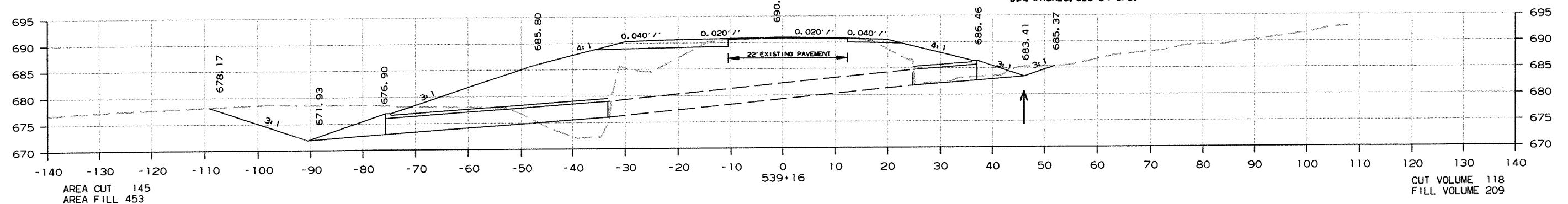
CROSS SECTION STA. 535+00 TO STA. 537+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							95	101

2 CROSS SECTIONS

STA. 539+16 IN PLACE
 3' X 3' X 60' RC BOX CULVERT
 CROSS DRAIN
 RETAIN AND EXTEND
 43' LT. AND 13' RT.
 WITH 3:1 WINGS LT. AND RT.
 D.A.=H ACRES, 025=54 CFS.

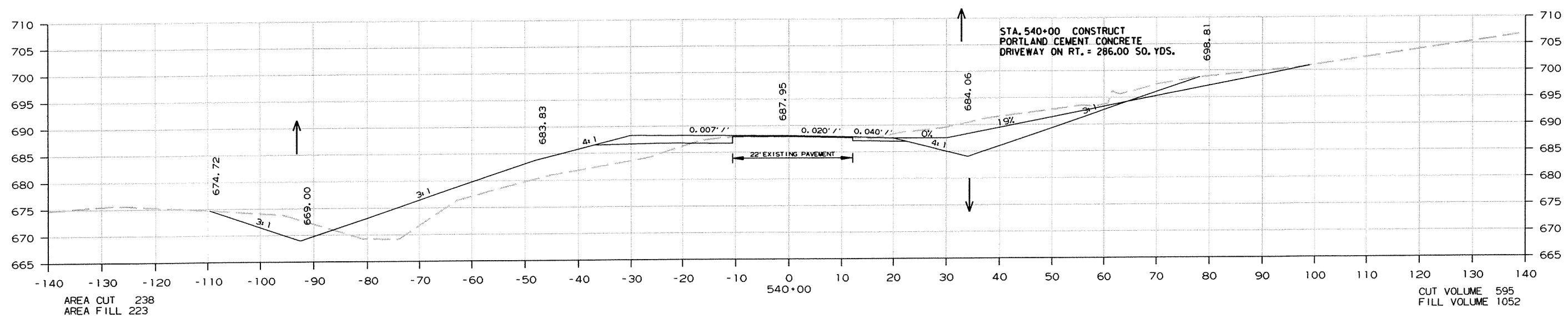
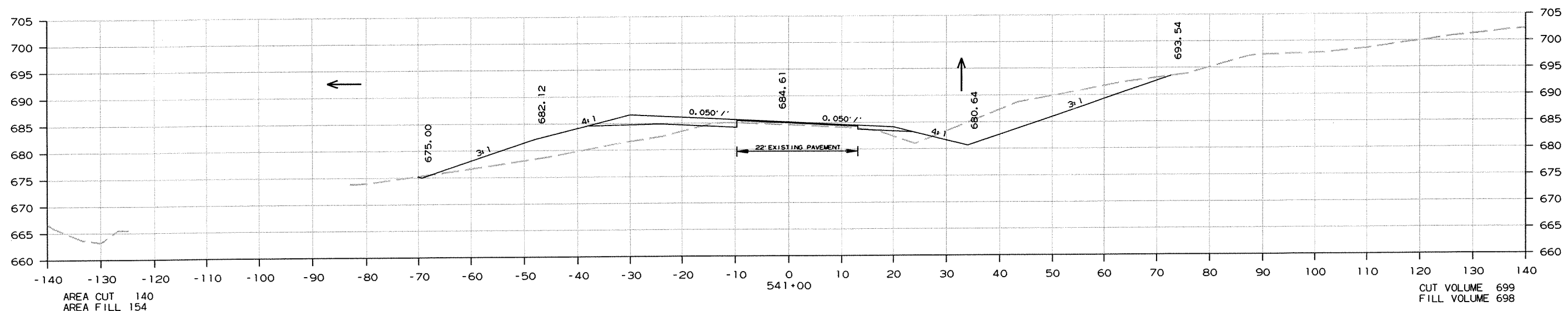


CROSS SECTION STA. 538+00 TO STA. 539+16

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 R050231.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							96	101

2 CROSS SECTIONS

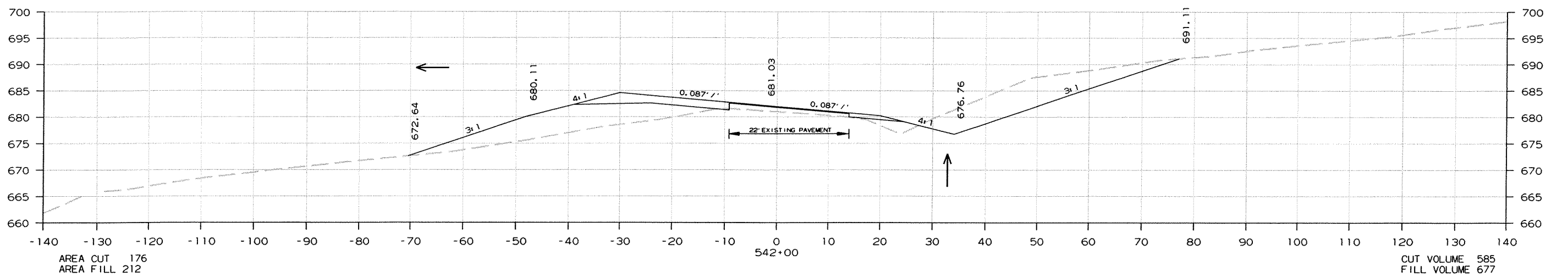
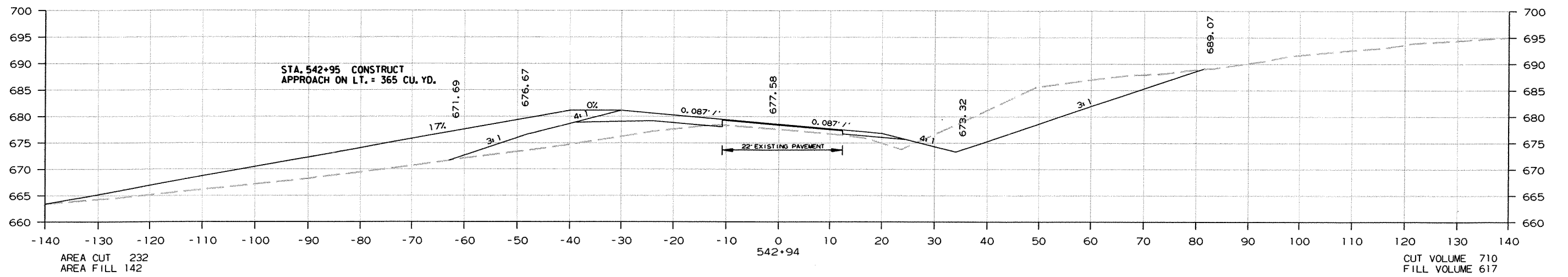
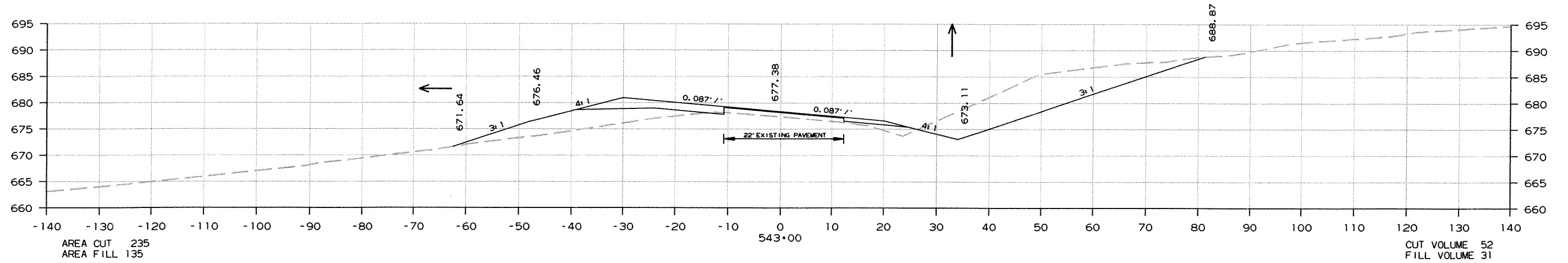


CROSS SECTION STA. 540+00 TO STA. 541+00

7/18/2013 R050231.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.						050231	97	101

2 CROSS SECTIONS



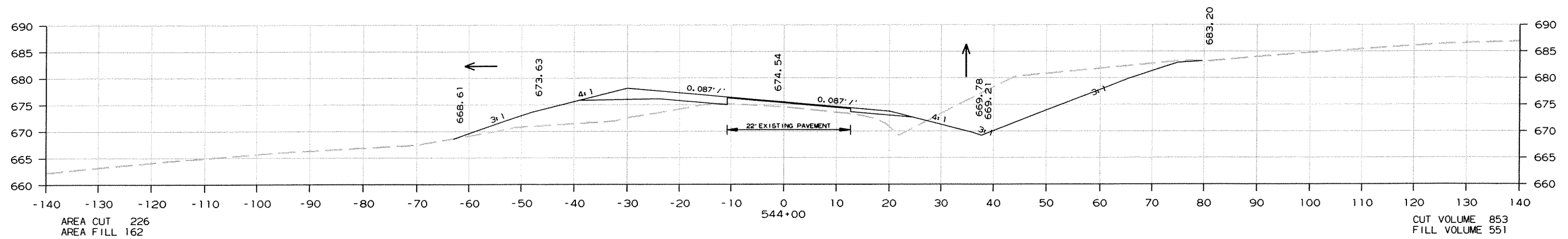
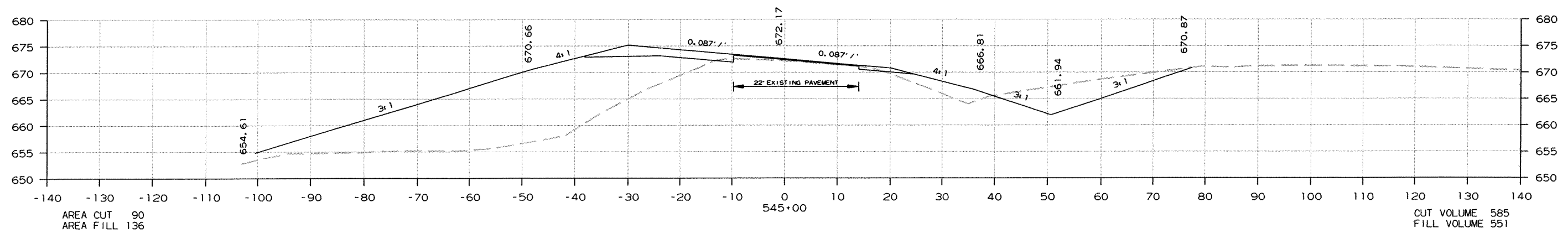
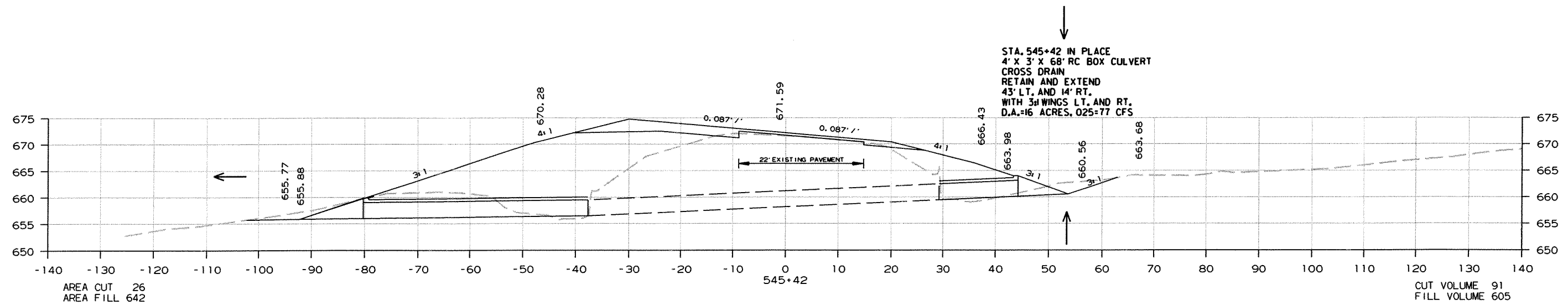
CROSS SECTION STA. 542+00 TO STA. 543+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							98	101

2 CROSS SECTIONS



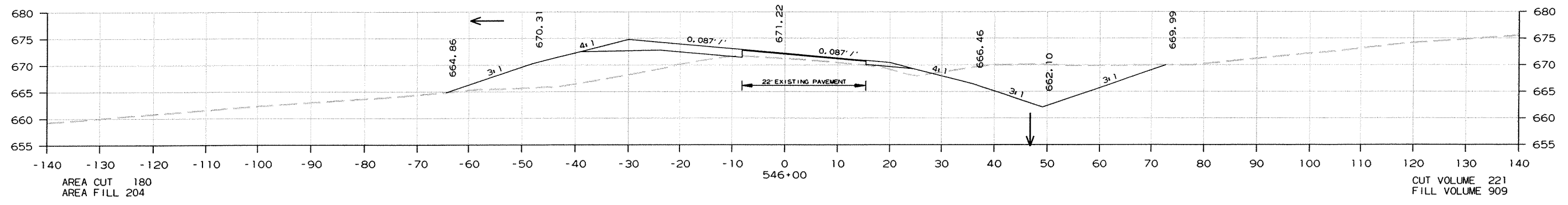
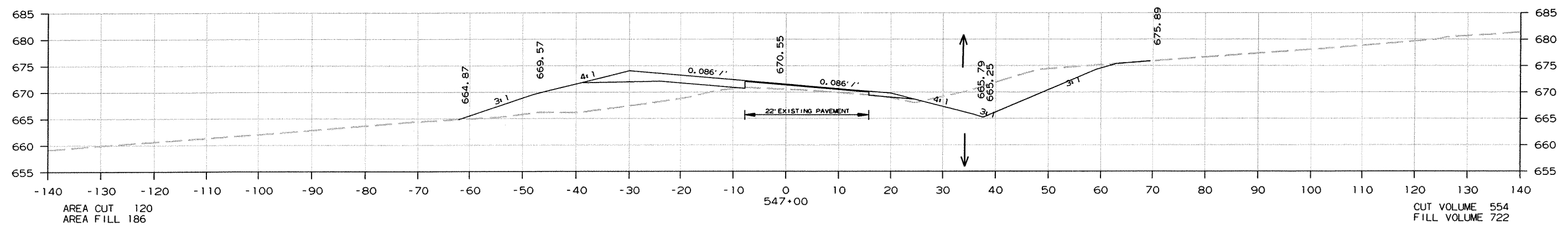
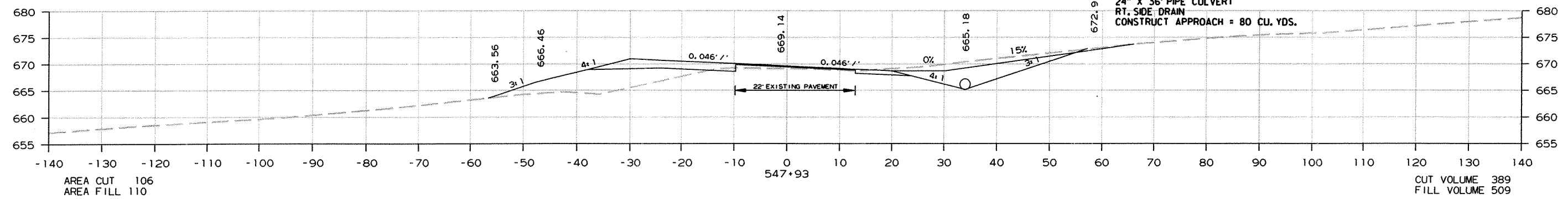
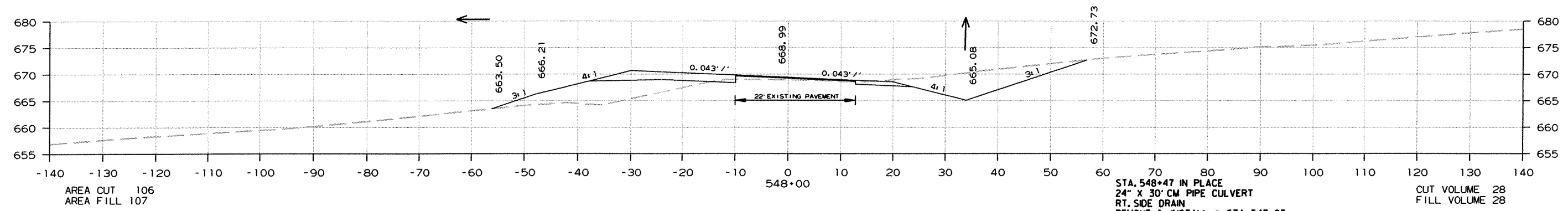
CROSS SECTION STA. 544+00 TO STA. 545+42

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 050231	99	101

2 CROSS SECTIONS



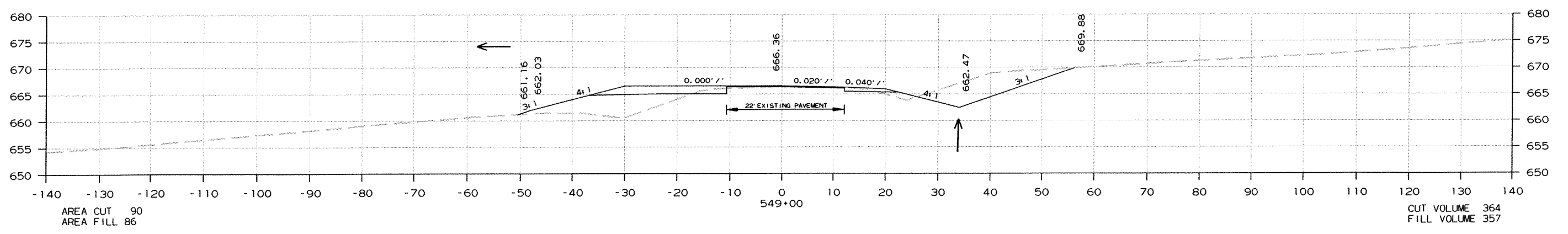
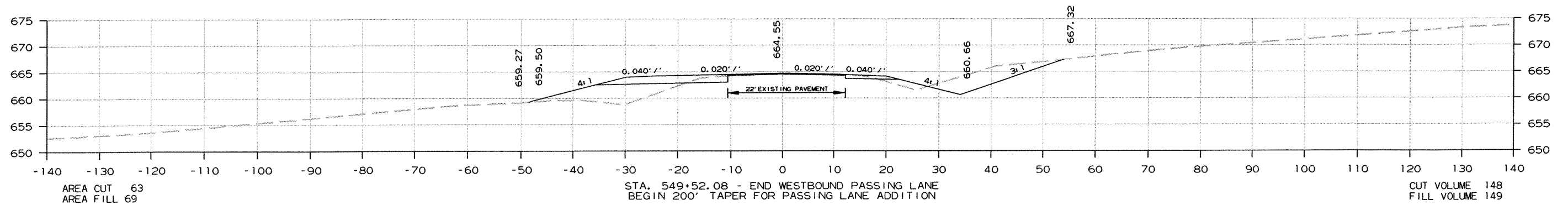
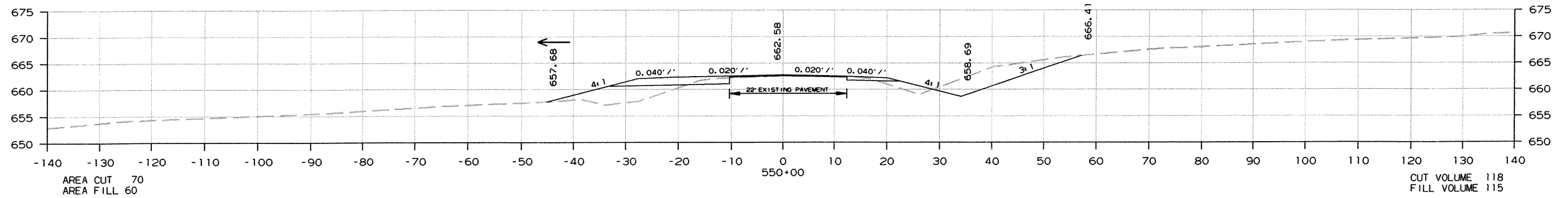
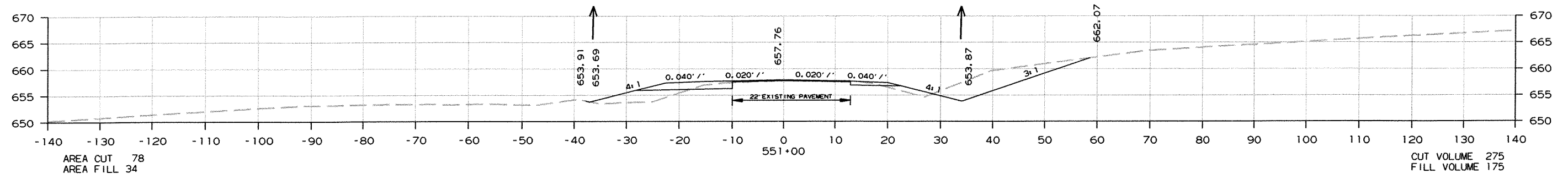
CROSS SECTION STA. 546+00 TO STA. 548+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 050231							100	101

2 CROSS SECTIONS

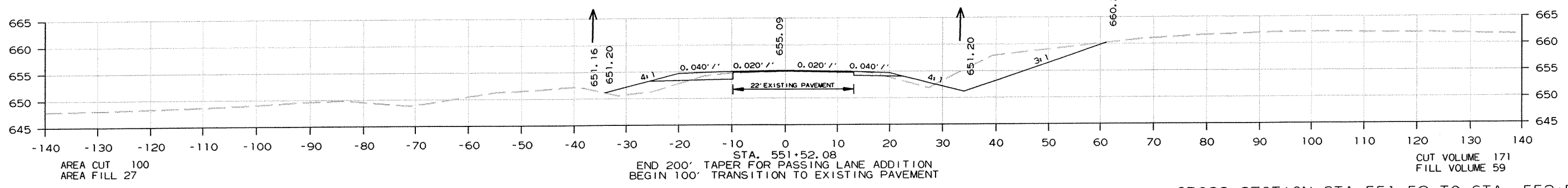
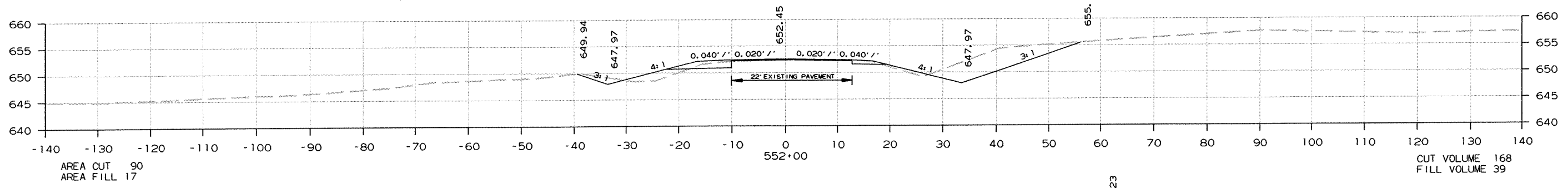
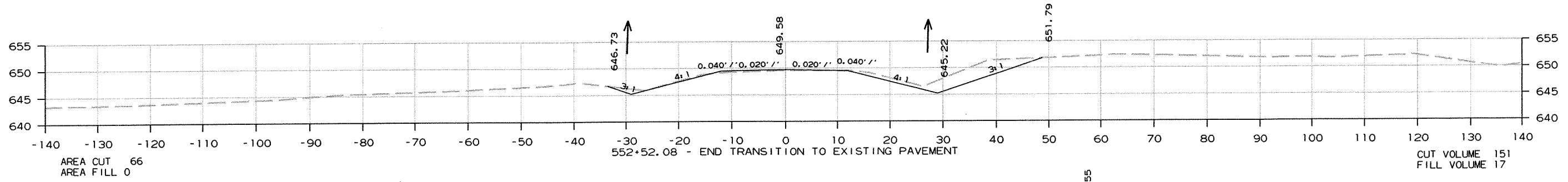


CROSS SECTION STA. 549+00 TO STA. 551+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050231		101	101

② CROSS SECTIONS



CROSS SECTION STA. 551+52 TO STA. 552+52

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