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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	1	194
(2) HAMPTON - HWY. 274 (WIDENING) (S)				

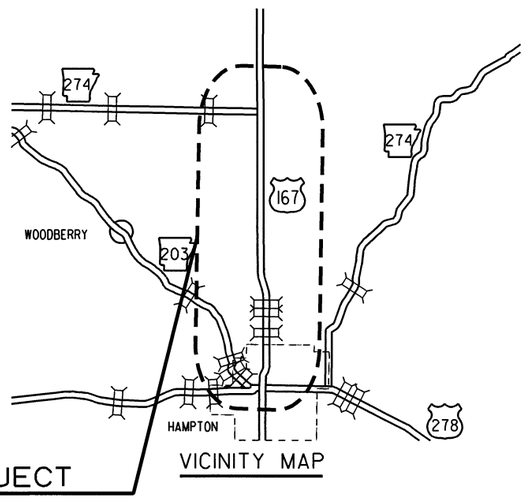
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

HAMPTON - HWY. 274 (WIDENING) (S)

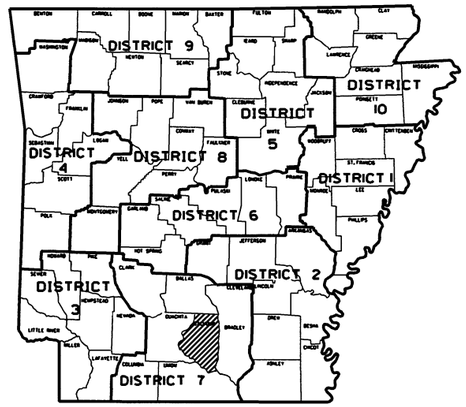
CALHOUN COUNTY
ROUTE 167 SECTION 4

JOB CA0702

FED. AID PROJ. ACNHPP-0007(27)

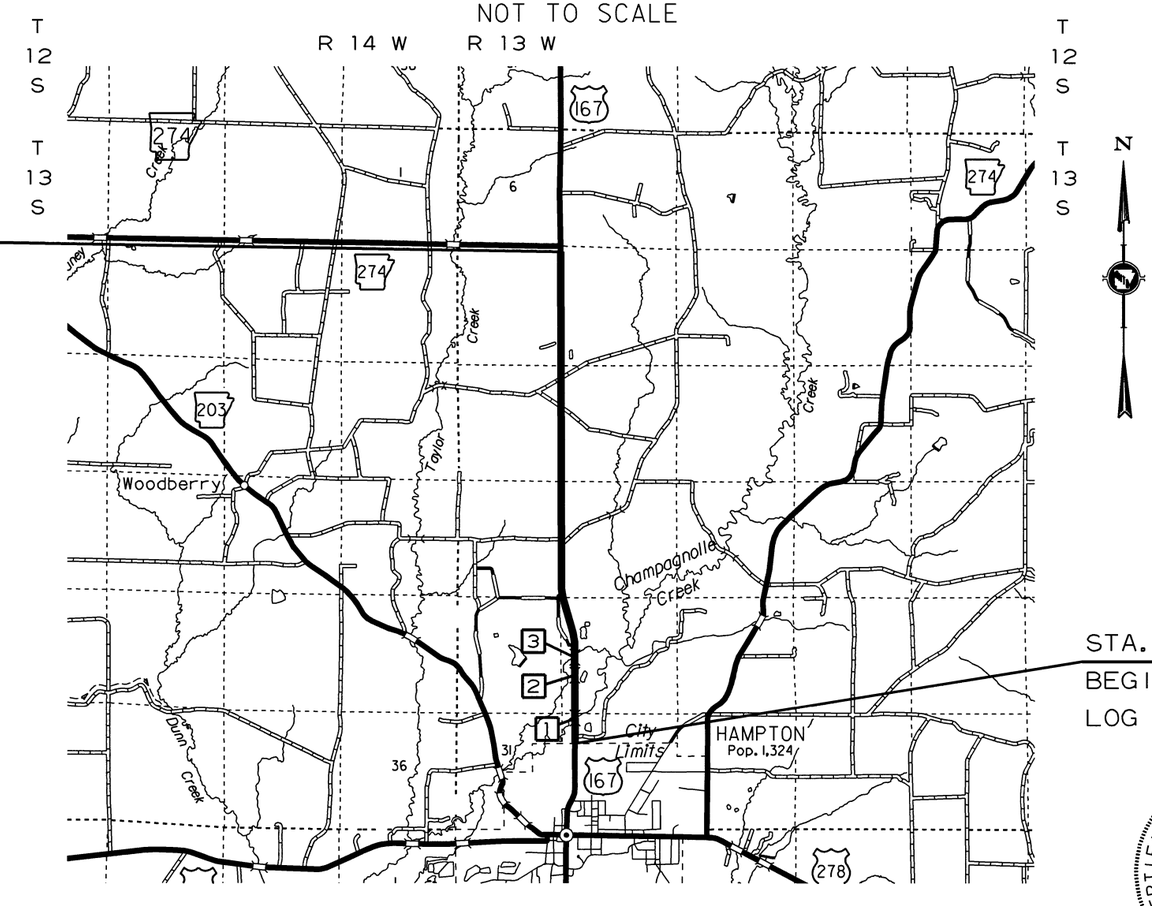


VICINITY MAP



ARK. HWY. DIST. NO. 7

NOT TO SCALE



STA. 421+20.00
END JOB CA0702
LOG MILE 5.04

STA. 196+00.00
BEGIN JOB CA0702
LOG MILE 0.78

STRUCTURES OVER 20'-0" SPAN

[1] STA. 208+96 CONSTRUCT
NON. 12'X8'X140'
R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
(30°RT. FWD. SKEW)
DESIGN DISCHARGE Q50 = 3,465 CFS
TOTAL DISCHARGE Q50 = 5,411 CFS
D.A. = 69 SQ. MI.
TOTAL DISCHARGE INCLUDES WATER THROUGH STRUCTURES AT STA. 228+57 & STA. 236+69
SPAN = 132'-4⅞" L.M. 1.03

[2] STA. 228+57 CONSTRUCT
SEXTUPLE 12' X 7' X 142'
R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
(30° RT. FWD. SKEW)
DESIGN DISCHARGE Q50 = 1,198 CFS
TOTAL DISCHARGE Q50 = 5,411 CFS
D.A. = 69 SQ. MI.
TOTAL DISCHARGE INCLUDES WATER THROUGH STRUCTURES AT STA. 208+96 & 236+69
SPAN = 88'-4" L.M. 1.40

[3] STA. 236+69 CONSTRUCT
QUADRUPLE 10' X 7' X 140'
R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
(30° RT. FWD. SKEW)
DESIGN DISCHARGE Q50 = 748 CFS
TOTAL DISCHARGE Q50 = 5,411 CFS
D.A. = 69 SQ. MI.
TOTAL DISCHARGE INCLUDES WATER THROUGH STRUCTURES AT STA. 208+96 & 228+57
CHANNEL CHANGE = 165 CU. YD.
SPAN = 49'-10" L.M. 1.55

DESIGN TRAFFIC DATA

DESIGN YEAR	2037
2017 ADT	3,700
2037 ADT	4,600
2037 DHV	500
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	26%
DESIGN SPEED	60 MPH

BEGINNING OF PROJECT
LAT. = N 33°32'56"
LONG. = W 92°28'06"

MID-POINT OF PROJECT
LAT. = N 33°34'47"
LONG. = W 92°28'09"

END OF PROJECT
LAT. = N 33°36'39"
LONG. = W 92°28'06"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	22,520.00	FEET	OR	4.265	MILES
NET " " ROADWAY	22,249.43	"	"	4.214	"
NET " " BRIDGES	270.57	"	"	0.051	"
NET " " PROJECT	22,520.00	"	"	4.265	"

P.E. CA0702
NON-PART.

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
5/3/17
HUBERT BURNS

CA0702

JOB CA0702

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
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7-10-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0702		2	194

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

INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES
3-6	TYPICAL SECTIONS OF IMPROVEMENT
7-21	SPECIAL DETAILS
22-37	TEMPORARY EROSION CONTROL DETAILS
38-55	MAINTENANCE OF TRAFFIC DETAILS
56-63	PERMANENT PAVEMENT MARKING DETAILS
64-68	QUANTITIES
69	SUMMARY OF QUANTITIES AND REVISIONS
70-79	SURVEY CONTROL DETAILS
80-95	PLAN AND PROFILE SHEETS
96-194	CROSS SECTIONS

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

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	2-27-14
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	1-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	2-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	2-27-14
PM-1	PAVEMENT MARKING DETAILS	6-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	7-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
SI-1	DETAILS OF SPECIAL ITEMS	9-12-13
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	4-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	2-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
TEC-1	TEMPORARY EROSION CONTROL DEVICES	12-15-11
TEC-2	TEMPORARY EROSION CONTROL DEVICES	6-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-2	WIRE FENCE WATER GAPS	4-20-79
WF-3	CHAIN LINK FENCE	11-17-10
WF-4	WIRE FENCE TYPE C AND D	8-22-02
R-100X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	2-08-63
R-200X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	2-15-63
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	5-10-66

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB CA0702
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1	AGGREGATE BASE COURSE
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB CA0702	AIRPORT CLEARANCE REQUIREMENTS
JOB CA0702	BIDDING REQUIREMENTS AND CONDITIONS
JOB CA0702	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA0702	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA0702	CARGO PREFERENCE ACT REQUIREMENTS
JOB CA0702	COORDINATION OF WORK
JOB CA0702	CULVERT CLEAN OUT
JOB CA0702	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA0702	EMPLOYMENT REPORTING
JOB CA0702	EXTENSION FOR PIPE CULVERTS
JOB CA0702	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB CA0702	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA0702	MANDATORY ELECTRONIC CONTRACT
JOB CA0702	NESTING SITES OF MIGRATORY BIRDS
JOB CA0702	PARTNERING REQUIREMENTS
JOB CA0702	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB CA0702	PLASTIC PIPE
JOB CA0702	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB CA0702	PROTECTION OF WATER QUALITY AND WETLANDS
JOB CA0702	SECTION 404 STANDARD INDIVIDUAL PERMIT REQUIREMENTS
JOB CA0702	SHORING FOR CULVERTS
JOB CA0702	SITE USE (A + C METHOD) - CALENDAR DAY CONTRACT
JOB CA0702	SOIL STABILIZATION
JOB CA0702	STORM WATER POLLUTION PREVENTION PLAN
JOB CA0702	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA0702	UTILITY ADJUSTMENTS
JOB CA0702	VALUE ENGINEERING
JOB CA0702	WARM MIX ASPHALT
JOB CA0702	WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. 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.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. 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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
7-10-17

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, & GENERAL NOTES

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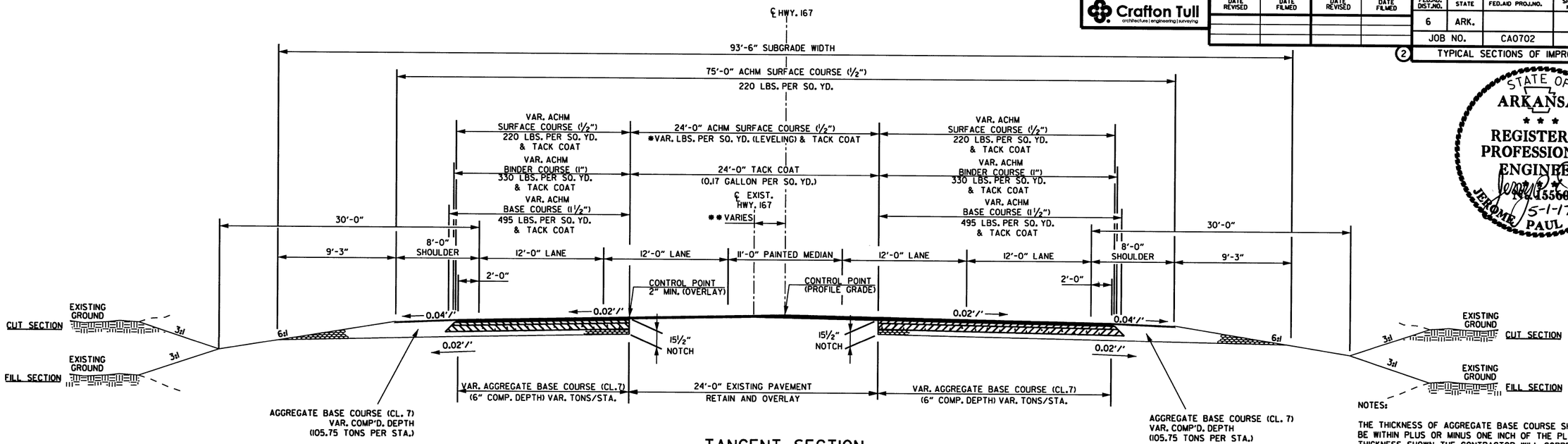
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6	ARK.			
JOB NO.	CA0702	3	194	

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
PE-15560
5-1-17

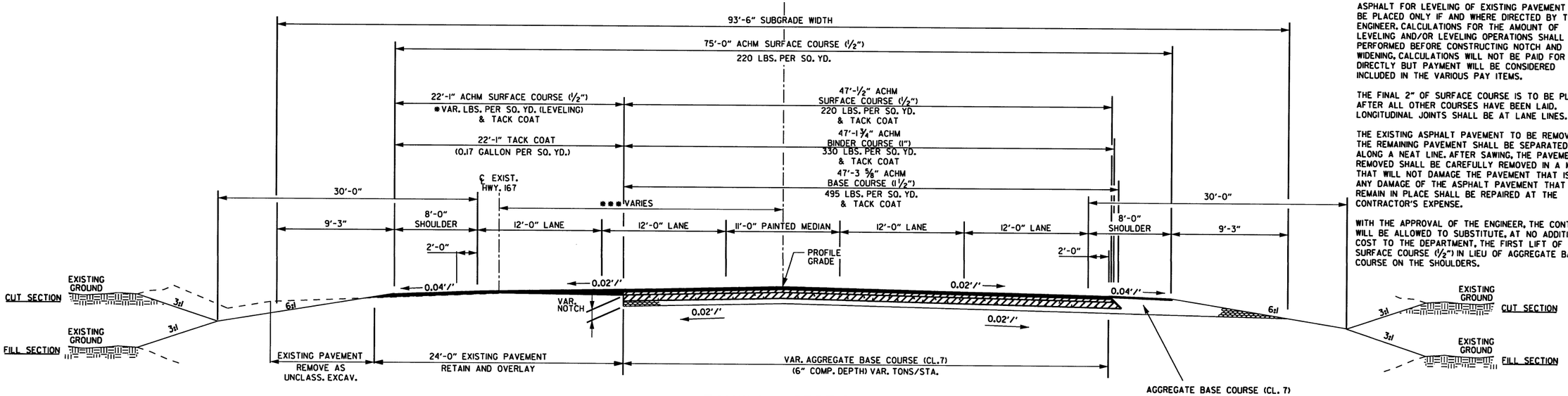


TANGENT SECTION NOTCH AND WIDEN

STA. 274+38.69 TO STA. 274+81.92 (OVERLAY)

* LEVELING COURSE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** VARIES FROM 0'-0" AT STA. 196+20.16 TO 26'-4" AT STA. 207+40.44
VARIES FROM 0'-6" AT STA 274+38.69 TO 0'-0" AT STA. 274+81.92



TANGENT SECTION NOTCH AND WIDEN - RIGHT

STA. 202+72.54 TO STA. 207+50.00
STA. 209+95.00 TO STA. 227+31.00
STA. 229+62.00 TO STA. 235+81.00

* LEVELING COURSE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

*** VARIES FROM 26'-4" AT STA. 209+71.76 TO 27'-0" AT STA. 227+55.53
VARIES FROM 27'-2" AT STA. 229+19.66 TO 26'-11" AT STA. 236+03.98
VARIES FROM 26'-9" AT STA. 236+81.05 TO 27'-1" AT STA. 237+30.00

NOTES:

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.

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

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 PAY 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.

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.

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 COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

TYPICAL SECTIONS OF IMPROVEMENT

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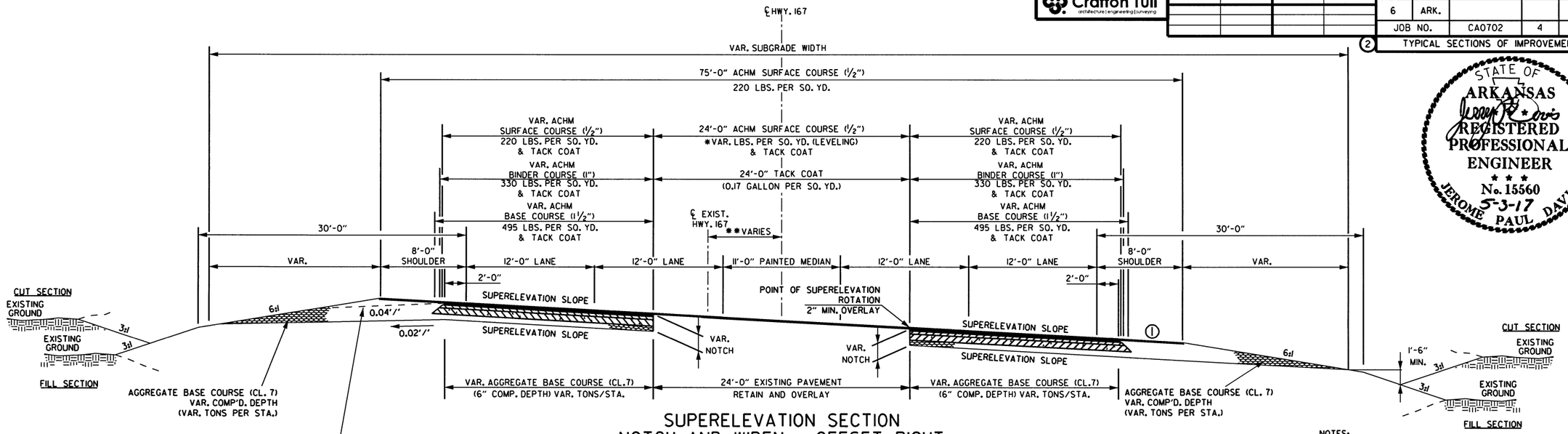
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6	ARK.			
JOB NO.		CA0702	4	194

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-3-17



SUPERELEVATION SECTION NOTCH AND WIDEN - OFFSET RIGHT

STA. 247+54.37 TO STA. 274+38.69

NOTE: ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

* LEVELING COURSE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** VARIES FROM 17'-8" AT STA. 247+54.37 TO 0'-0" AT STA. 268+07.03
VARIES FROM 0'-0" AT STA. 268+07.03 TO 0'-6" AT STA. 274+38.69

(1) SLOPE = 0.04'/' OR S.E. SLOPE WHICHEVER IS GREATER

NOTES:

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.

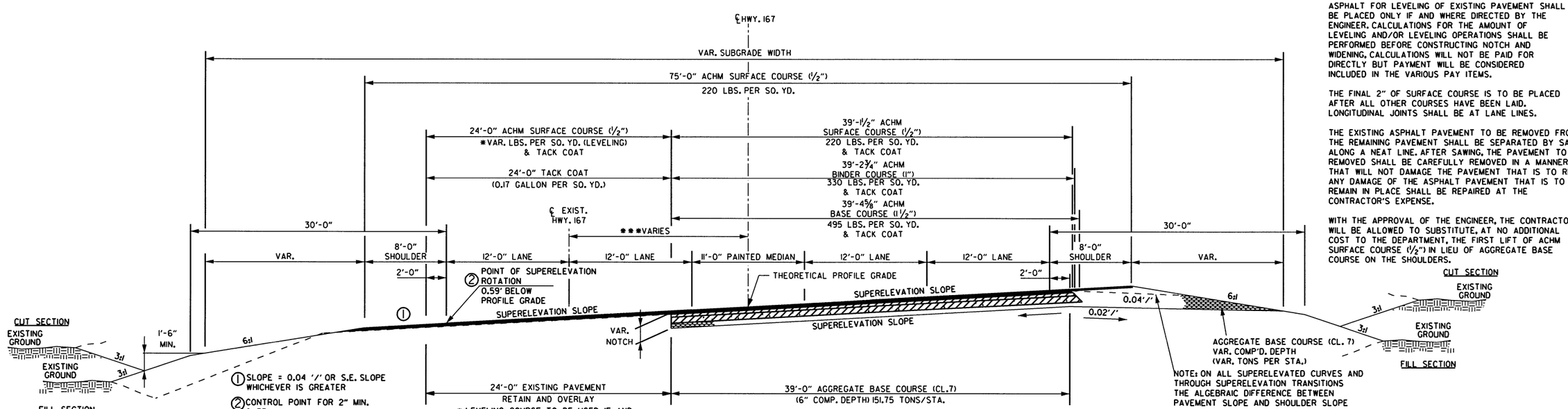
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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.

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 COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



SUPERELEVATION SECTION NOTCH AND WIDEN - OFFSET RIGHT

STA. 237+27.00 TO STA. 241+30.00 (PROFILE GRADE)
STA. 241+30.00 TO 247+54.37 (OVERLAY)

* LEVELING COURSE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

*** VARIES FROM 27'-1" AT STA. 237+30.00 TO 25'-0" AT STA. 241+30.00
VARIES FROM 25'-0" AT STA. 241+30.00 TO 17'-8" AT STA. 247+54.37

NOTE: ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

TYPICAL SECTIONS OF IMPROVEMENT

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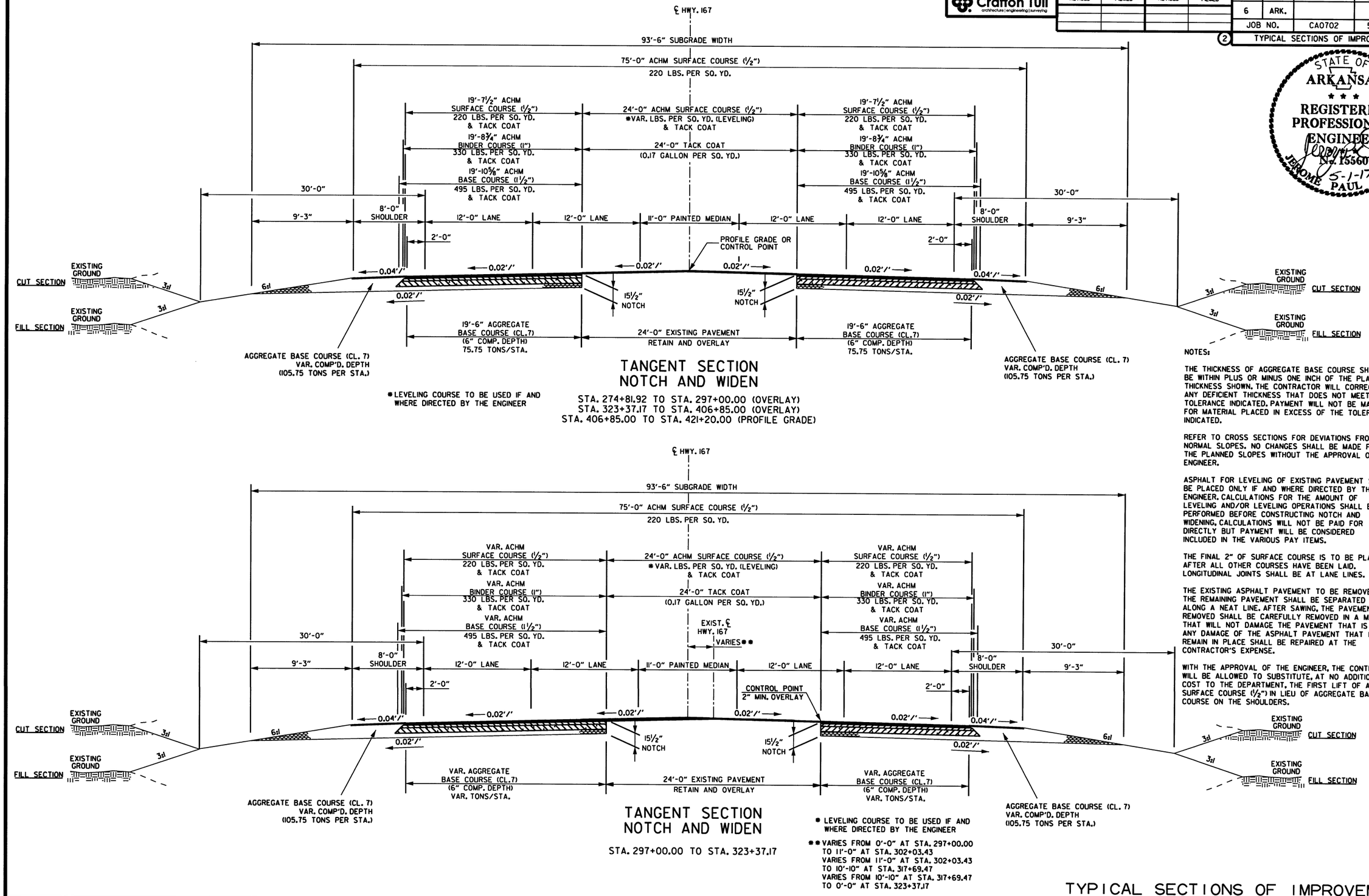
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6	ARK.			
JOB NO.		CA0702	5	194

2 TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
5-1-17



TANGENT SECTION NOTCH AND WIDEN

STA. 274+81.92 TO STA. 297+00.00 (OVERLAY)
STA. 323+37.17 TO STA. 406+85.00 (OVERLAY)
STA. 406+85.00 TO STA. 421+20.00 (PROFILE GRADE)

* LEVELING COURSE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

TANGENT SECTION NOTCH AND WIDEN

STA. 297+00.00 TO STA. 323+37.17

* LEVELING COURSE TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** VARIES FROM 0'-0" AT STA. 297+00.00 TO 11'-0" AT STA. 302+03.43
VARIES FROM 11'-0" AT STA. 302+03.43 TO 10'-10" AT STA. 317+69.47
VARIES FROM 10'-10" AT STA. 317+69.47 TO 0'-0" AT STA. 323+37.17

NOTES:

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.

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

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 PAY 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.

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.

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 COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

TYPICAL SECTIONS OF IMPROVEMENT

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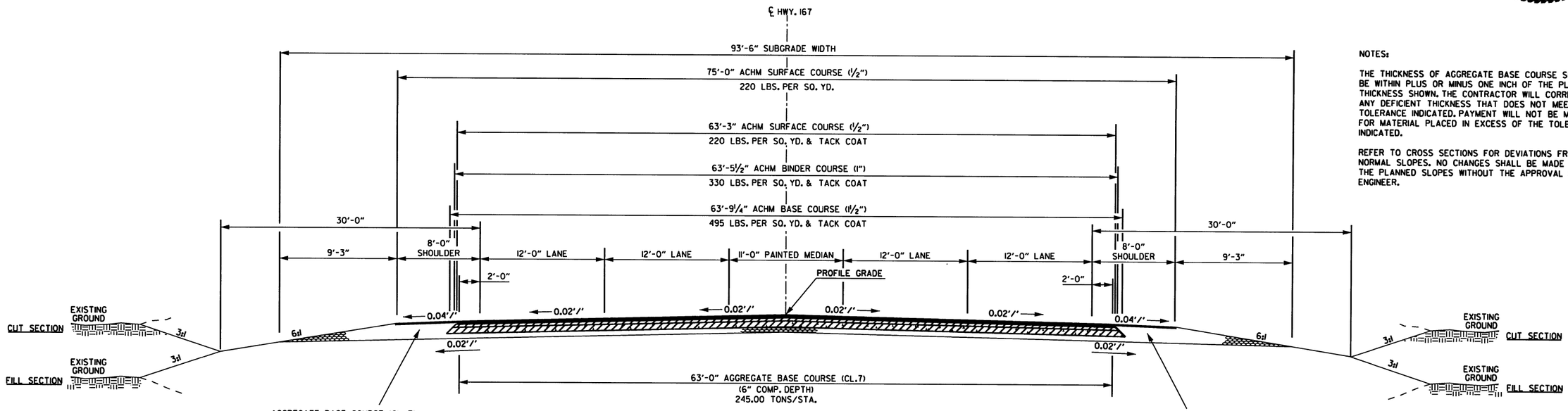
Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	6	194

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
5-1-17



FULL DEPTH SECTION

STA. 196+00.00 TO STA. 202+72.54
STA. 207+50.00 TO STA. 209+95.00
STA. 227+31.00 TO STA. 229+62.00
STA. 235+81.00 TO STA. 237+27.00

NOTES:

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.

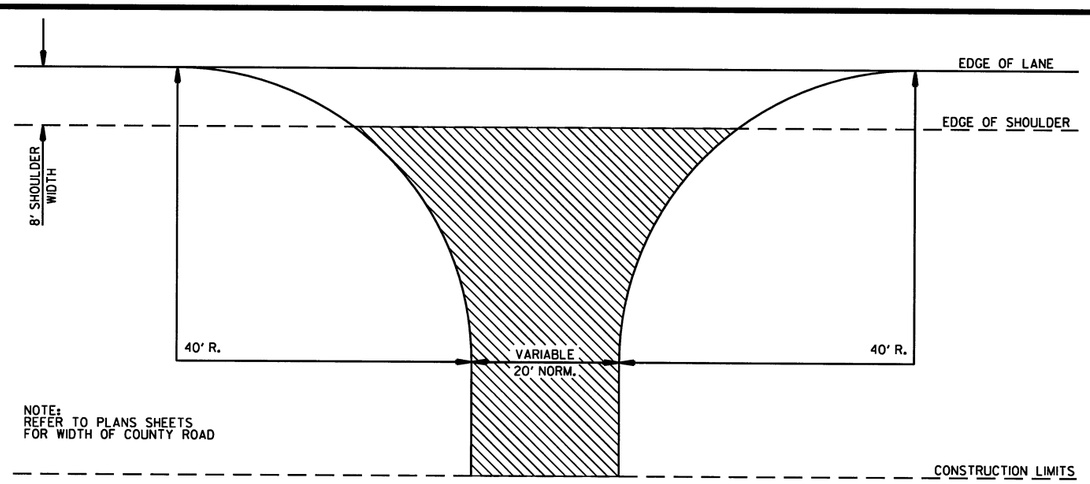
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE 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 COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

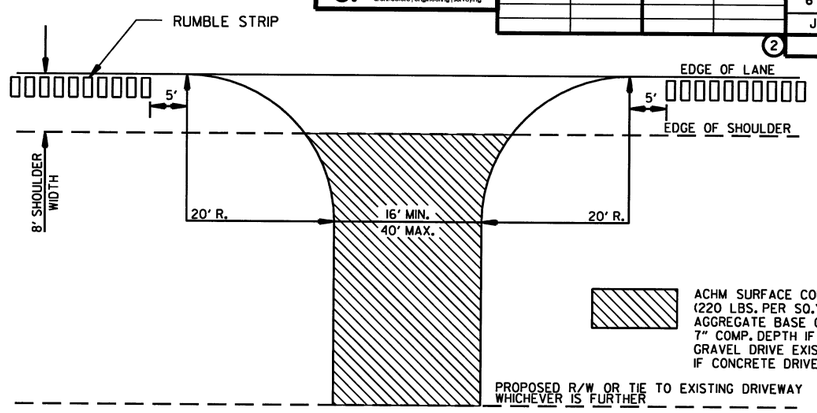
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TYPICAL SECTIONS OF IMPROVEMENT



NOTE:
REFER TO PLANS SHEETS FOR WIDTH OF COUNTY ROAD

DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

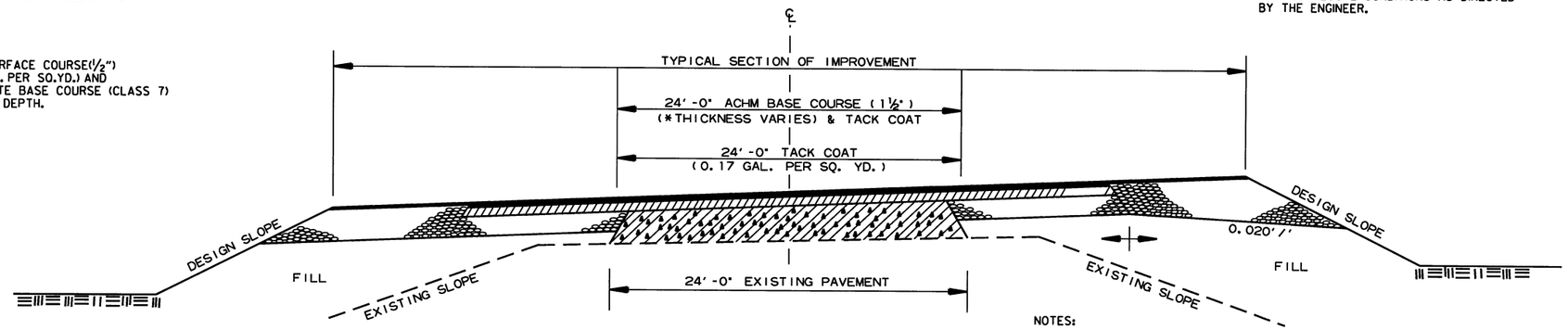


ACHM SURFACE COURSE(1/2")
(220 LBS. PER SQ.YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6" CONCRETE
IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)

NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACHM SURFACE COURSE(1/2")
(220 LBS. PER SQ.YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH.

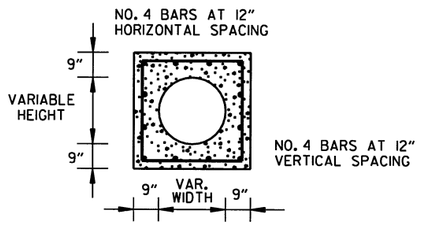


*6" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BASE COURSE (1 1/2")

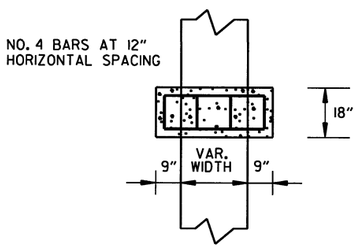
METHOD OF RAISING GRADE

NOTES:

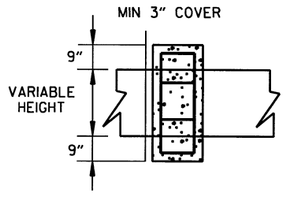
(1) THIS DETAIL TO BE USED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014.



FRONT VIEW

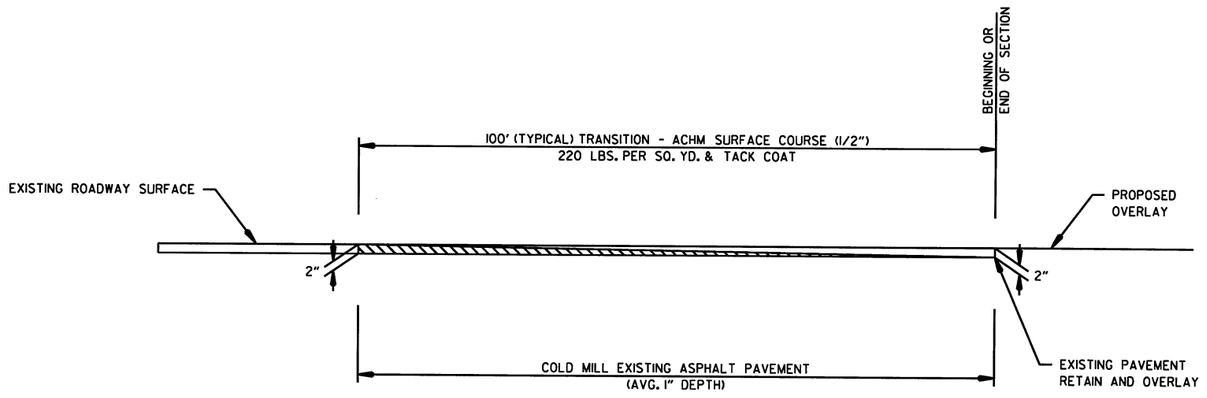


TOP VIEW



SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



DETAIL FOR PAVEMENT TRANSITIONS
100' TRANSITION @ BEGINNING & END OF JOB

SPECIAL DETAILS

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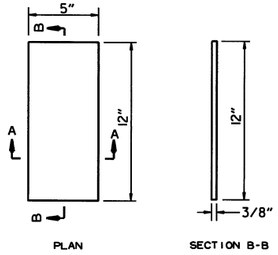
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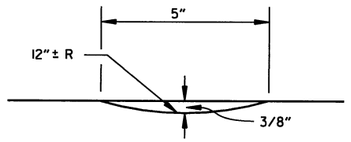
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6	ARK.			
JOB NO.		CA0702	7	194

(2) SPECIAL DETAILS

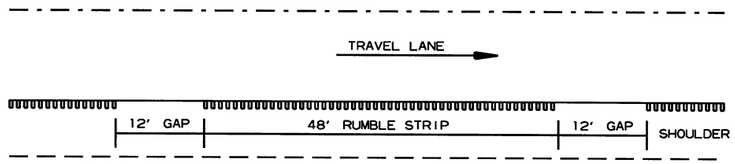
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

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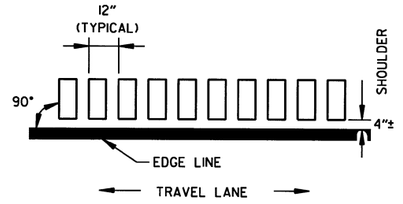


SECTION A-A



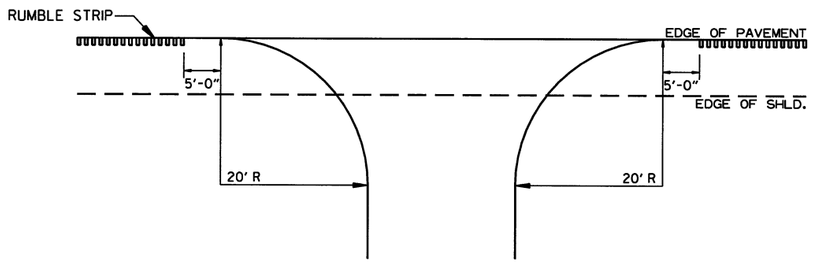
NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

DETAIL FOR GAP PATTERN RUMBLE STRIP



LOCATION PLAN OF RUMBLE STRIPS

LEFT OR RIGHT SHOULDER



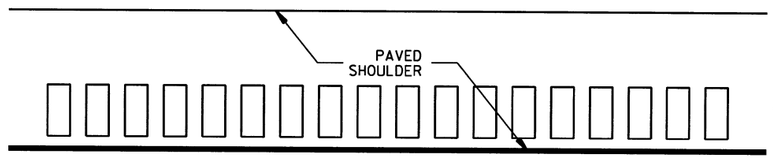
DETAIL FOR RUMBLE STRIP GAP

AT DRIVEWAY TURNOUTS

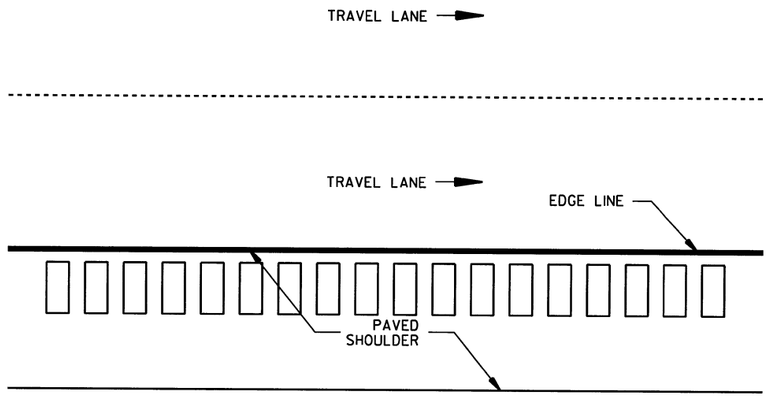
GENERAL NOTES

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 $\frac{3}{8}$" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.

DETAILS OF RUMBLE STRIPS

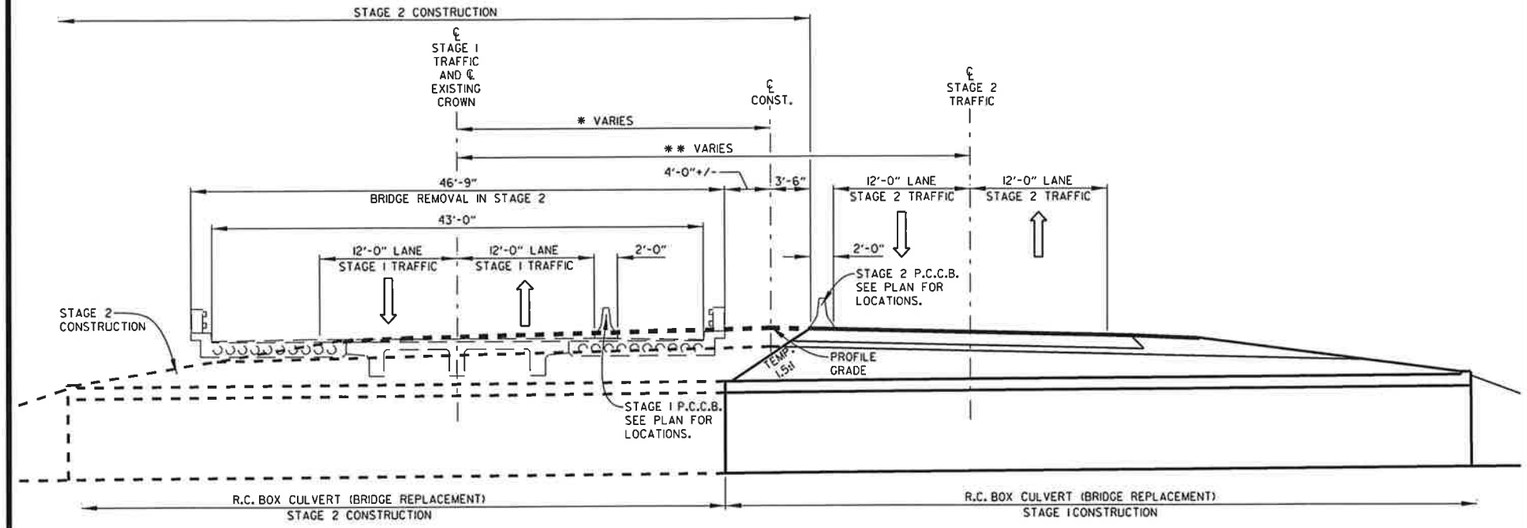


STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



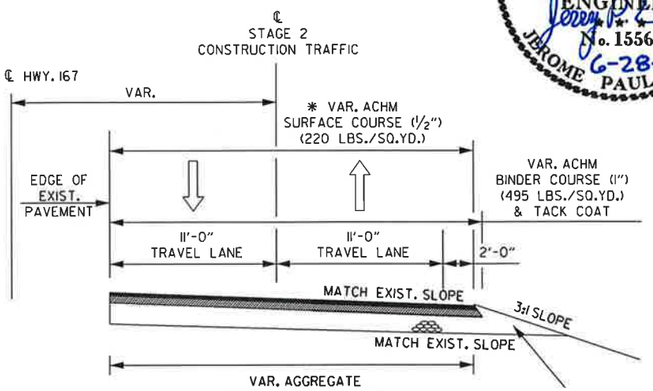
PLAN VIEW

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CONSTRUCTION AT BRIDGE REMOVAL

STA. 207+84.00 TO STA. 209+61.00 * 26'-5½" TO 26'-4¼" ** 43'-11½" TO 43'-10¼"
STA. 227+66.00 TO STA. 229+28.00 * 27'-3" TO 27'-7" ** 44'-9" TO 45'-1"
STA. 236+15.00 TO STA. 236+92.00 * 27'-2" TO 27'-3¾" ** 44'-8" TO 44'-9¾"

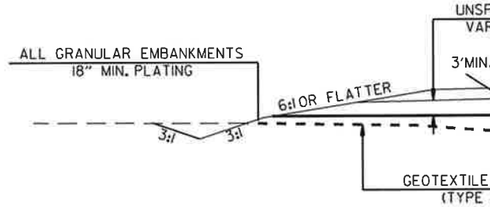


THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

* WIDTH VARIES FROM 2'-0" AT STA. 191+48 TO 24'-0" AT STA. 195+40.
WIDTH = 24'-0" FROM 195+40 TO 196+00.

WIDENING FOR MAINTENANCE OF TRAFFIC

(STAGE 1)

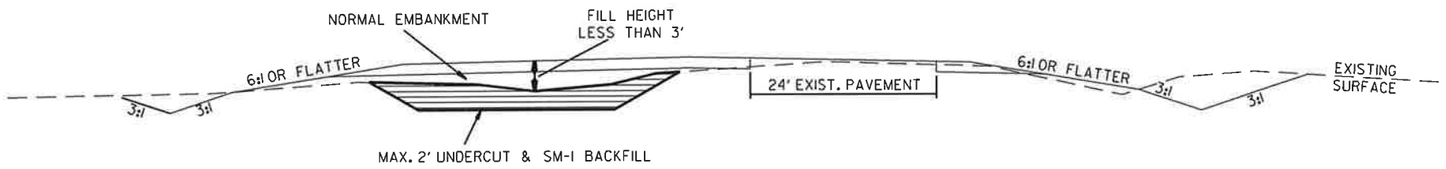


NOTE: GEOSYNTHETIC FABRIC TO BE INSTALL A LOCATIONS WHERE THE GRADE LINE IS AT LEAST THREE FEET ABOVE THE EXISTING GRADE.

DETAIL OF EMBANKMENTS (GREATER THAN 3 FEET)

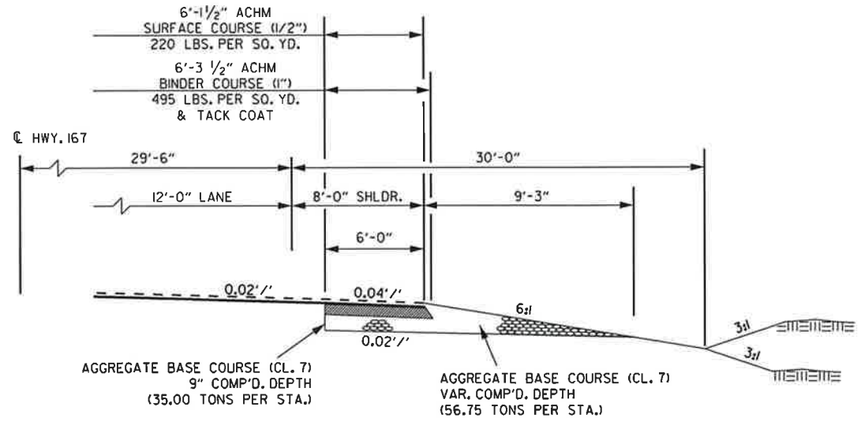
NOTE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

* MATERIAL FOR PLATING TO BE CONSIDERED SUBSIDIARY TO THE PLAY ITEM "COMPACTED EMBANKMENT".



DETAIL OF EMBANKMENTS (3 FEET OR LESS)

NOTE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



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

FULL DEPTH SHOULDER FOR MAINTENANCE OF TRAFFIC (SHOWN IN THE DIRECTION OF TRAFFIC)

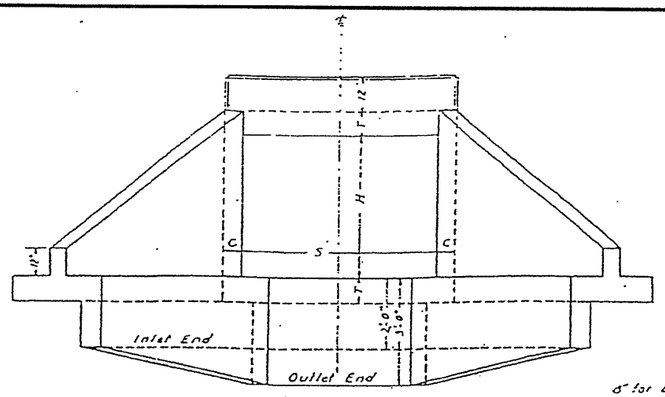
STA. 196+00 TO STA. 199+75 RT.
STA. 321+20 TO STA. 331+60 RT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
6-28-17

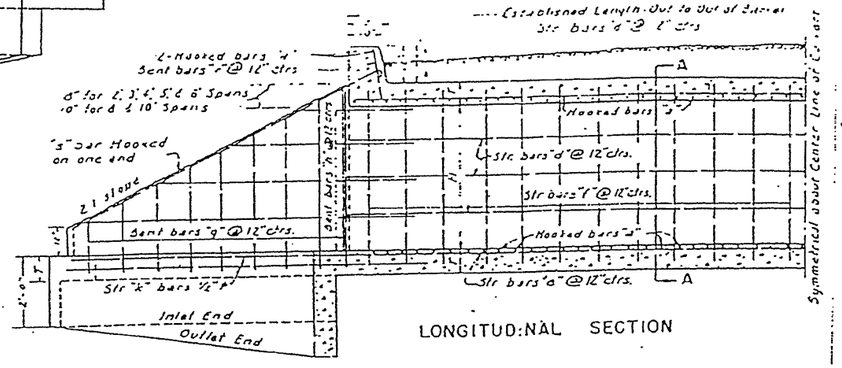
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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	10	194

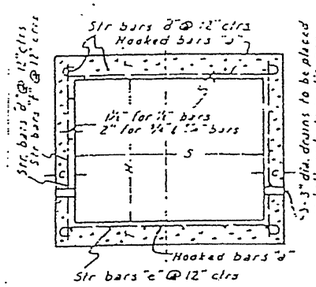
(2) SPECIAL DETAILS



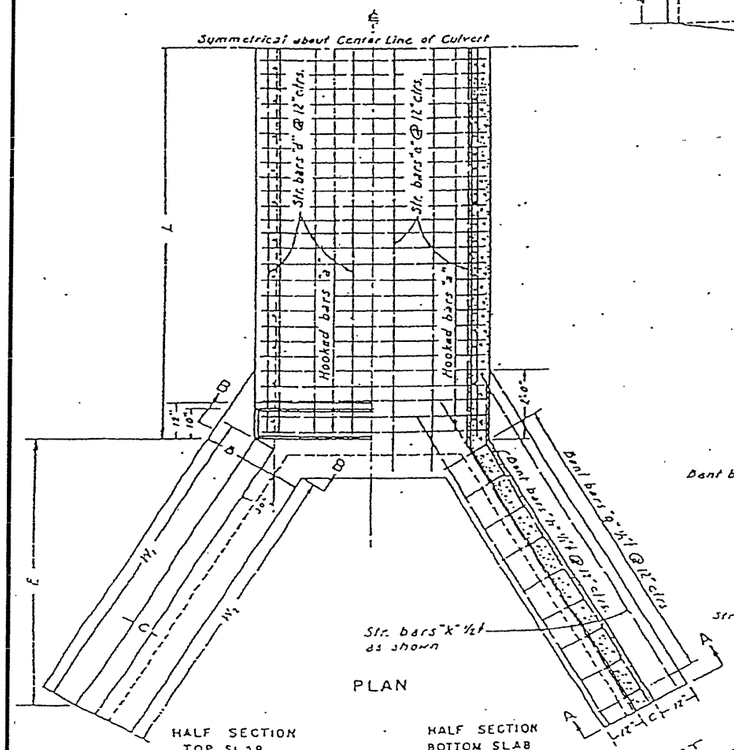
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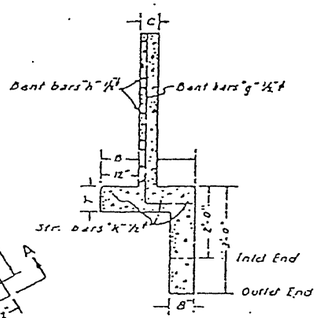
LONGITUDINAL SECTION



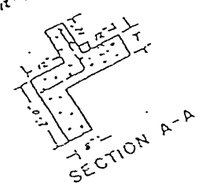
SECTION A-A



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



SECTION B-B



SECTION A-A

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
5-1-12
JEROME PAUL DAVIS

DIMENSIONS & QUANTITIES

SPAN	HEIGHT	ANGLE OF WINGWALLS TO ℄ OF BARREL	MINIMUM DEPTH OF COVER	THICKNESS OF TOP SLAB	THICKNESS OF SIDE WALLS & DIAPHRAGMS	WIDTH OF FOOTING	LENGTH OF FOOTING	LENGTH OF WING WALLS	LENGTH OF WINGWALL FOOTING	CONCRETE CU YD HEADWALLS & WINGWALLS INCL FOOTING	CONCRETE CU YD PER LINEAL FT BARREL	STEEL LB. HEADWALLS & WINGWALLS INCL FOOTING	STEEL LB. PER LINEAL FT BARREL	STEEL LB. PER SQ FT TOP SLAB
S	H	λ	O	T	C	B	W_2	W_1	E					
2	2	64°-4	6¼	6"	6"	2'-6"	3'-2¾	3'-10"	3'-4"	2.34	1341	155	17.91	8.9
3	2	6	26°-4	7"	6"	2'-6"	3'-4¾	3'-10"	3'-4"	2.65	.247	164	22.77	11.1
	3	9			6"		5'-10¾	6'-2"	5'-4"	4.10	.284	243	23.43	13.4
4	2	6	16°-8"	7½"	6"	2'-6"	3'-6¾	3'-10"	3'-4"	2.90	.306	173	28.28	13.4
	3	12			6"		5'-10¾	6'-2"	5'-4"	4.36	.343	251	30.94	15.6
	4	16			6"		8'-2"	8'-5¾	7'-4"	5.84	.380	332	33.60	17.8
5	2	10	10°-0"	8"	6"	2'-6"	3'-6¾	3'-10"	3'-4"	3.15	.370	189	34.56	15.6
	3	15			6"		5'-10¾	6'-2"	5'-4"	4.60	.407	267	37.22	17.8
	4	20			6"		8'-2"	8'-5¾	7'-4"	6.29	.444	370	39.89	20.0
	5	25			7"	2'-9"	10'-5⅛	10'-9¾	9'-4"	8.38	.521	478	42.55	22.3
6	3	18	7'-0"	8½"	6"	2'-6"	5'-10¾	6'-2"	5'-4"	4.94	.478	278	41.68	20.0
	4	24			6"		8'-2"	8'-5¾	7'-4"	6.61	.505	383	44.54	22.3
	5	30			7"	2'-9"	10'-8	10'-9⅜	9'-4"	9.14	.592	492	47.20	24.5
	6	36			7"	3'-0"	13'-1"	13'-1"	11'-4"	11.58	.635	611	49.36	26.7
8	3	24	5'-0"	10½"	7"	2'-9"	6'-5¾	6'-6¾	5'-8"	6.58	.724	336	60.81	24.5
	4	32			7"	2'-9"	8'-5¾	8'-10¾	7'-8"	8.43	.767	478	62.47	26.7
	5	40			7"	2'-9"	11'-0¾	11'-2	9'-8"	10.32	.810	536	64.13	28.9
	6	48			7"	3'-0"	13'-5¾	13'-5¾	11'-8"	13.06	.853	673	66.80	31.2
	7	56			7"	3'-4"	16'-0"	15'-5¾	13'-8"	16.03	.897	976	71.46	33.4
	8	64			8"	3'-10"	18'-8"	14'-1"	15'-8"	20.69	1.000	1168	74.81	35.6
10	4	40	4'-0"	11¾"	7"	2'-7"	6'-7¾	6'-10¾	7'-8"	8.91	.943	505	80.62	31.2
	5	50			7"	2'-9"	11'-0¾	11'-2"	9'-8"	11.33	1.026	611	83.28	33.4
	6	60			7"	3'-0"	13'-5¾	13'-5¾	11'-8"	13.99	1.067	748	85.94	35.6
	7	70			7"	3'-4"	16'-0"	15'-5¾	13'-8"	17.27	1.112	1060	88.60	37.9
	8	80			8"	3'-10"	18'-8"	18'-1"	15'-8"	21.88	1.217	1253	101.22	40.1
	9	90			9"	4'-3"	21'-2"	19'-6¾	17'-8"	27.55	1.334	1740	111.86	42.3
	10	100			10"	4'-6"	23'-9¾	22'-8¾	19'-8"	34.36	1.463	2181	1115.27	44.5

LAP NOTE:
In computing quantities of steel from the above table, add one lap for culverts up to 50' in length and one lap for each additional 25' in length.

STEEL SCHEDULE

For Culvert 32' in Length Out to Out of Barrel

LENGTH OF STRUCTURE	HEIGHT	"a" bars: Size	"a" bars: Spacing	"a" bars: Number	"a" bars: Length	"a" bars: X	"d" bars, "e" bars: Size	"d" bars, "e" bars: Length	"d" bars, "e" bars: Number	"d" bars, "e" bars: Length	"f" bars: Size	"f" bars: Spacing	"f" bars: Number	"f" bars: Length	"g" bars: Size	"g" bars: Spacing	"g" bars: Number	"g" bars: X Length	"g" bars: Y Min.	"g" bars: Y Max.	"h" bars: Number	"h" bars: K Length	"h" bars: Z Min.	"h" bars: Z Max.	"k" bars: Number	"k" bars: Length	"r" bars: Number	"r" bars: Length	"s" bars: Number	"s" bars: Length
S	H																													
2	2	½"ø	6"	122	3'-7"	2'-3"	#5		3		½"ø	12"	64	2'-10"	¾"ø	12"	16	3'-4"	1'-4"	2'-3"	12	4'-7"	1'-4"	3'-8"	12	5'-4"	6	3'-2"	4	5'-3"
3	2	¾"ø	6"	132	4'-7"	3'-3"	#5		4		½"ø	12"	64	2'-11"	¾"ø	12"	16	3'-4¾"	1'-4¾"	2'-3¾"	12	4'-7"	1'-4"	3'-8"	12	5'-4"	8	3'-2"	4	5'-3"
	3			132	4'-7"	3'-9"	#5		4				64	3'-11"		24	3'-4¾"	1'-4¾"	3'-3¾"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	8	3'-2"	4	7'-9"
4	2	⅞"ø	5¼"	144	5'-7"	4'-3"	7		5		½"ø	12"	64	3'-5"	¾"ø	12"	16	3'-5"	1'-5"	2'-11"	12	4'-7"	1'-4"	3'-8"	12	5'-4"	10	3'-2"	4	5'-3"
	3			144	5'-7"	4'-9"	9		5				64	4'-0"		24	3'-11"	1'-5"	3'-10"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	10	3'-2"	4	7'-9"
	4			144	5'-7"	4'-9"	11		5				64	5'-0"		36	4'-5"	1'-5"	4'-10"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-4"	12	10'-0"	10	3'-2"	4	10'-3"
5	2	¹⅛"ø	5"	158	6'-7"	5'-3"	6		6		½"ø	12"	64	3'-7"	¾"ø	12"	16	3'-6"	1'-5"	2'-11"	12	4'-7"	1'-4"	3'-8"	12	5'-4"	14	3'-2"	4	5'-3"
	3			158	6'-7"	5'-9"	10		6				64	4'-2"		24	3'-11"	1'-5"	3'-11"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	14	3'-2"	4	7'-9"
	4			158	6'-7"	5'-9"	12		6				64	5'-7"		36	4'-6"	1'-6"	4'-11"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-4"	12	10'-0"	14	3'-2"	4	10'-3"
	5			158	6'-7"	5'-11"	14		6				64	6'-7"		44	5'-2"	1'-7"	5'-11"	1'-3"	1'-3"	24	8'-3"	1'-4"	10'-8"	12	12'-4"	14	3'-2"	4	12'-9"
6	3	⅜"ø	5"	158	7'-7"	6'-9"	11		7		½"ø	12"	64	4'-2"	¾"ø	12"	16	3'-6"	1'-5"	3'-3"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	16	3'-2"	4	7'-9"
	4			158	7'-7"	6'-9"	13		7				64	5'-2"		36	4'-8"	1'-6"	5'-3"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-4"	12	10'-0"	16	3'-2"	4	10'-3"
	5			158	7'-7"	6'-9"	15		7				64	6'-2"		44	5'-4"	1'-7"	6'-3"	1'-3"	1'-3"	24	8'-3"	1'-4"	10'-8"	12	12'-4"	16	3'-2"	4	12'-9"
	6			158	7'-7"	6'-9"	17		7				64	7'-2"		52	5'-11"	1'-7"	7'-3"	1'-3"	1'-3"	28	9'-8"	1'-4"	13'-0"	12	14'-9"	16	3'-2"	4	15'-3"
8	3	⅝"ø	6"	132	9'-8"	8'-10"	13		9		½"ø	12"	64	4'-5"	¾"ø	12"	16	4'-0"	1'-4"	4'-2"	1'-4"	1'-4"	16	6'-4"	1'-4"	4'-5"	12	5'-4"	20	3'-2"	4	6'-3"
	4			132	9'-8"	8'-10"	15		9				64	5'-5"		24	4'-11"	1'-8"	5'-2"	1'-4"	1'-4"	20	7'-6"	1'-4"	8'-9"	12	10'-4"	20	3'-2"	4	10'-3"
	5			132	9'-8"	8'-10"	17		9				64	6'-5"		44	6'-5"	1'-8"	6'-4"	1'-4"	1'-4"	24	8'-9"	1'-4"	11'-0"	12	12'-10"	20	3'-2"	4	13'-3"
	6			132	9'-8"	8'-10"	19		9				64	7'-5"		56	6'-8"	1'-7"	7'-4"	1'-3"	1'-3"	28	10'-0"	1'-4"	13'-2"	12	15'-0"	20	3'-2"	4	13'-3"
	7			132	9'-8"	8'-10"	21		9				64	8'-5"	½"ø	64	6'-9"	1'-9"	8'-4"	2'-1"	2'-1"	32	11'-2"	1'-8"	15'-8"	12	17'-4"	20	3'-2"	4	14'-3"
	8			132	9'-10"	9'-0"	23		9				64	9'-3"		72	7'-5"	1'-7"	9'-2"	1'-5"	2'-4"	36	12'-5"	1'-8"	17'-11"	12	19'-6"	20	3'-2"	4	15'-3"
10	4	⅞"ø	9¾"	86	12'-4"	10'-16"	17		11		½"ø	12"	64	5'-7"	¾"ø	12"	16	3'-6"	1'-5"	3'-3"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	24	3'-2"	4	7'-9"
	5			86	12'-4"	10'-16"	19		11				64	6'-7"		24	3'-11"	1'-5"	3'-11"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	24	3'-2"	4	7'-9"
	6			86	12'-4"	10'-16"	21		11				64	7'-7"		36	4'-6"	1'-6"	4'-11"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-4"	12	10'-0"	24	3'-2"	4	10'-3"
	7			86	12'-4"	10'-16"	23		11				64	8'-7"	½"ø	64	6'-11"	1'-10"	6'-8"	2'-1"	2'-1"	32	11'-2"	1'-8"	15'-8"	12	17'-4"	24	3'-2"	4	14'-3"
	8			86	12'-4"	10'-16"	25		11				64	9'-7"		72	7'-7"	1'-8"	9'-2"	1'-5"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-6"	24	3'-2"	4	15'-3"
	9			86	12'-8"	11'-2"	27		11				64	10'-7"	¾"ø	64	7'-3"	1'-10"	10'-6"	2'-6"	3'-0"	40	13'-7"	1'-8"	20'-2"	12	22'-10"	24	3'-2"	4	17'-3"
	10			86	12'-10"	11'-4"	29		11				64	11'-7"		8"	136	3'-3"	1'-10"	11'-6"	2'-7"	3'-6"	44	14'-5"	1'-8"	22'-5"	12	24'-4"	24	3'-2"	4	18'-9"

NOTE: Lengths given above do not include lap.

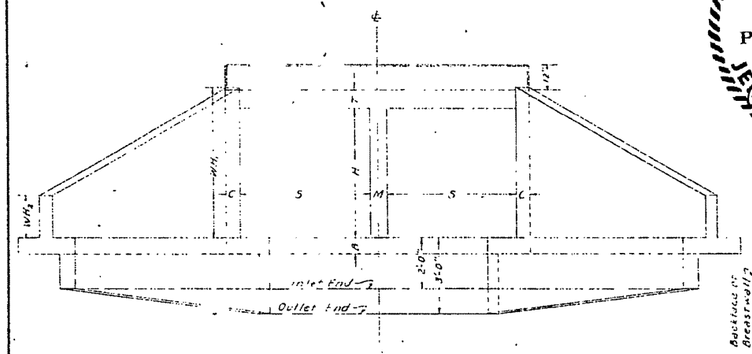
SPECIFICATIONS:- Arkansas Standard Road and Bridge Specifications.
REINFORCING STEEL:- To be deformed bars of structural or intermediate grade.
CHAMFER:- All exposed corners to have ¾" Chamfer
CONCRETE:- All Concrete to be Class "S"

3/26/2015
R070281.DGN

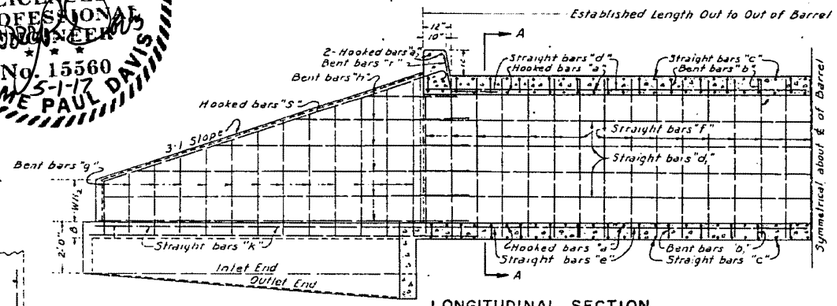
SPECIAL DETAILS

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.				
JOB NO.	CA0702	11	194		

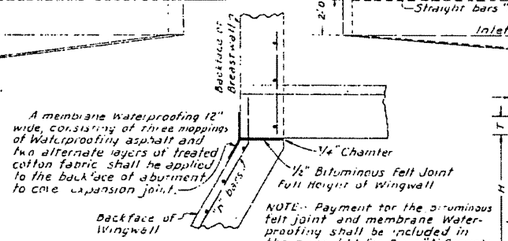
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



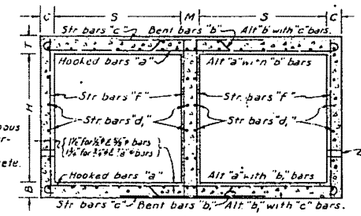
END ELEVATION



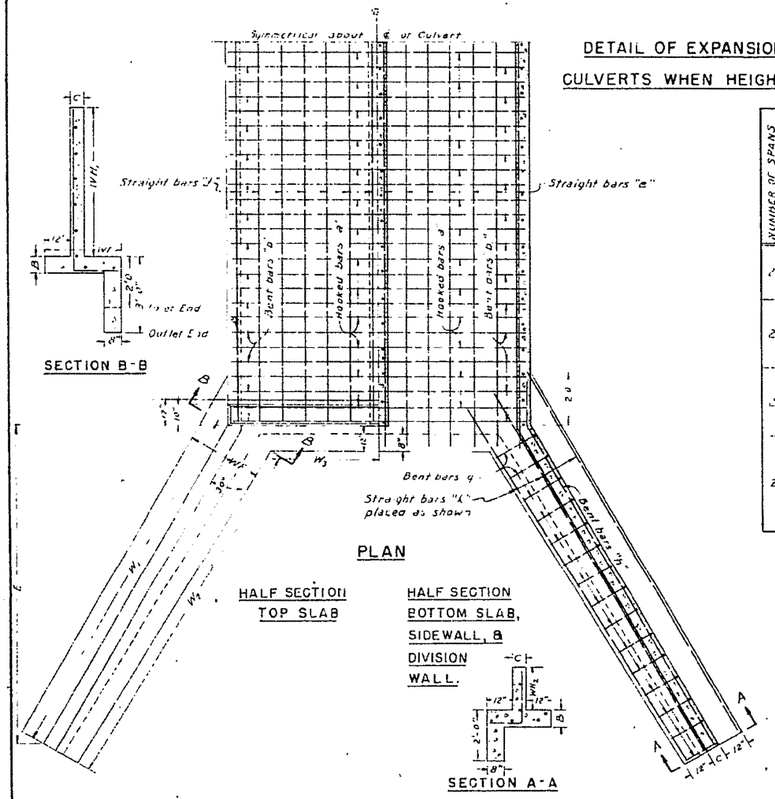
LONGITUDINAL SECTION



DETAIL OF EXPANSION JOINT FOR CULVERTS WHEN HEIGHT "H"= 8' OR MORE



SECTION A-A



DIMENSIONS AND QUANTITES

NUMBER OF SPANS	SPAN	HEIGHT	AREA OF OPENING SQ FT	MAXIMUM DEPTH AT ℄	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS & WINGWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT WING END	MAXIMUM WIDTH OF WING FOOTING	PERPENDICULAR DIST. FROM HEADWALL TO END OF WING	LENGTH OF WINGWALLS	INSIDE LENGTH OF WING FOOTING.	FOOTING DIMENSION FROM ℄ OF BOX	CONCRETE CU. YD. HEADWALLS, WINGWALLS & FOOTINGS	CONCRETE CU. YD. P.R LINEAR FOOT OF BARREL	STEEL LB. HEADWALLS, WINGWALLS & FOOTINGS	STEEL LB. P.R LINEAR FOOT OF BARREL	STEEL LB. ADD'L STEEL FOR LAPS
	S	H	A	D	T	C	N1	B	WH1	WH2	WF	E	W1	W2	W3					
2	4	2	16	3'-6"	8"	6"	8"	7"	2'9"	1'-0"	2'-6"	5'-3"	6'-0½"	5'-9¾"	3'-8½"	4.98	0.571	284	70.05	35.6
		3	24						3'-9"	1'-0"	2'-6"	6'-3"	9'-6¾"	9'-2¾"	3'-8½"	7.14	0.633	401	75.46	40.1
		4	32						4'-9"	1'-9"	2'-6"	10'-3"	11'-10"	11'-6½"	3'-8½"	9.02	0.694	510	80.87	44.5
		6	48		8"	7"	9"		6'-9"	2'-0"	3'-4½"	14'-3"	16'-5½"	16'-1¾"	2'-9½"	14.99	0.885	815	92.62	53.4
2	5	2	20	3'-6"	8½"	6"	8"	7½"	2'-10"	1'-0"	2'-6"	5'-6"	6'-4¾"	6'-0¾"	4'-8½"	5.65	0.700	326	87.22	40.1
		3	30						3'-10"	1'-0"	2'-6"	8'-6"	9'-5¾"	9'-0¾"	4'-8½"	7.87	0.761	445	92.63	44.5
		4	40						4'-10"	1'-4"	2'-6"	10'-6"	12'-1½"	11'-10"	4'-8½"	9.80	0.823	568	98.04	49.0
		5	50						5'-10"	1'-8"	2'-11"	12'-6"	14'-5¾"	14'-0¾"	4'-11½"	12.18	0.885	704	103.45	53.4
		7	70			7½"	10"		7'-10"	2'-4"	3'-11"	16'-6"	19'-0½"	19'-7½"	3'-3"	20.06	1.137	1288	116.08	62.3
2	6	3	36	3'-6"	9"	6"	8"	8½"	3'-10"	1'-0"	2'-6"	8'-6"	9'-9¾"	9'-6¾"	5'-6½"	8.54	0.923	459	109.68	49.0
		4	48						4'-10"	1'-4"	2'-6"	10'-6"	12'-1½"	11'-10"	5'-6½"	10.53	0.985	591	115.09	53.4
		5	60						5'-10"	1'-8"	2'-11"	12'-6"	14'-5¾"	14'-0¾"	5'-11½"	13.00	1.047	725	120.50	57.9
		6	72			7"	9"		6'-10"	2'-0"	3'-5"	14'-6"	16'-9"	17'-0"	4'-9"	16.92	1.178	889	127.05	62.3
		8	96			8"	10"		8'-10"	2'-8"	4'-5"	18'-6"	21'-4½"	22'-3"	3'-8½"	26.01	1.401	1566	153.28	71.3
2	8	3	48	3'-6"	10½"	7"	9"	10½"	4'-0"	1'-0"	2'-3"	9'-0"	10'-4¾"	10'-1¾"	7'-3½"	10.77	1.174	543	143.04	57.9
		4	64						5'-0"	1'-4"	2'-7"	11'-0"	12'-8½"	12'-5½"	7'-3½"	13.18	1.443	659	148.46	62.3
		5	80						6'-0"	1'-8"	3'-0"	13'-8"	15'-0"	15'-0¼"	7'-3½"	16.11	1.516	815	153.87	66.8
		6	96						7'-0"	2'-0"	3'-6"	15'-0"	17'-3½"	17'-3¾"	6'-7¾"	19.54	1.587	979	159.28	71.3
		7	112			7½"	10"		8'-0"	2'-4"	4'-0"	17'-0"	19'-7½"	20'-3"	6'-1½"	24.12	1.712	1400	165.56	75.7
		8	128			8"	10"		9'-0"	2'-8"	4'-6"	19'-0"	21'-11½"	22'-10¾"	5'-7½"	29.49	1.819	1655	186.04	80.2
		10	160			10"	12"		11'-0"	3'-4"	5'-6"	23'-0"	26'-6½"	28'-1¾"	4'-8¾"	45.25	2.197	2510	202.48	89.1

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 ¾" Chamfer.
CONCRETE:- All concrete to be Class "A"
*Reinforcing Steel to be deformed bars of intermediate or rail grade on a Interstate highways

STEEL SCHEDULE

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

NUMBER OF SPANS	SPAN	HEIGHT	"a" bars: 1" for ½"ϕ & ⅝"ϕ bars; 1¼" for ¾"ϕ & ⅞"ϕ bars; X; SPACING; NUMBER; LENGTH	"b" bars: 3" for ½"ϕ & ⅝"ϕ bars; 4" for ¾"ϕ & ⅞"ϕ bars; X; Y; Z; SPACING; NUMBER; LENGTH	"b," bars: 3" for ½"ϕ & ⅝"ϕ bars; 4" for ¾"ϕ & ⅞"ϕ bars; X; Y; Z; SPACING; NUMBER; LENGTH	"c" bars STRAIGHT: In Top & Bottom Slab of Barrel Alt with "b" & "b," bars: SIZE; SPACING; NUMBER; LENGTH	"d" bars STRAIGHT ½"ϕ bars: In Top Slab of Barrel: SPACING; NUMBER; LENGTH	"d," bars STRAIGHT ½"ϕ bars: In Sidewall & Division Wall: SPACING; NUMBER; LENGTH	"e" bars STRAIGHT ½"ϕ bars: In bottom Slab of Barrel: SPACING; NUMBER; LENGTH	"f" bars STRAIGHT: Vertical bars in Sidewalls & Division Wall: SIZE; SPACING; NUMBER; LENGTH	"g" bars: Vertical bars in back face of Wingwall bent into bottom of Footing.: SIZE; SPACING; NUMBER; X LENGTH Min; X LENGTH Max; Y Min; Y Max	"h" bars ½"ϕ bars @ 12" Ctrs: Horizontal bars in Wingwalls.: NUMBER; A; Z Min; Z Max	"k" bars ½"ϕ bars STRAIGHT: In Wing Footings: NUMBER; LENGTH	"r" bars ½"ϕ bars @ 12" Ctrs: Dowels in H'walls: NUMBER; LENGTH	"s" bars ½"ϕ bars: In Top of each Wingwall: NUMBER; LENGTH	Z
2	4	2	16	10'-2"	9'-5"																											
		3	24	10'-2"	9'-5"																											
		4	32	10'-2"	9'-5"																											
		6	48	10'-5"	9'-8"																											
2	5	2	20	12'-2"	11'-5"																											
		3	30	12'-2"	11'-5"																											
		4	40	12'-2"	11'-5"																											
		5	50	12'-2"	11'-5"																											
		7	70	12'-2"	11'-10"																											
2	6	3	36	14'-2"	13'-5"																											
		4	48	14'-2"	13'-5"																											
		5	60	14'-2"	13'-5"																											
		6	72	14'-3"	13'-8"																											
		8	96	14'-8"	13'-11"																											
2	8	3	48	18'-5"	17'-5"																											
		4	64	18'-5"	17'-8"																											
		5	80	18'-5"	17'-8"																											
		6	96	18'-5"	17'-8"																											
		7	112	18'-7"	17'-10"																											
		8	128	18'-8"	17'-11"																											
		10	160	19'-2"	18'-5"																											

NOTE:- Lengths given above do not include Lap.

REVISIONS	
Dec 1956	Re-drawn
Nov 1957	Military Loading

A.A.S.H.O. DESIGN LIVE LOADING H20-S16
UNIT STRESSES

Concrete (n=15) - 860 Lbs per Sq In
Reinf Steel (Str. Gr.) - 18000 Lbs per Sq In

SPECIAL MILITARY LOADING

Add 1 Loading For Interstate Highways
2-24000 Lb Axles @ 4'-0" Ctrs.
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
4' TO 8' SPAN 3:1 SLOPES
DOUBLE UNDER 3'-6" COVER
DRWG. NO. R-2003

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	12	194

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
114'-8"	8'-0"	0'-9"	0'-8"	30	3:1	130'-10	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/2"	4'-9 7/8"	1'-2 1/2"	2'-7"	18'-6"	37'-0"	21'-9 3/8"	40'-3 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
23.21	1732

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	19	L	Min	3'-8"	4	12	6	L	4'-8"	-	-	-	L	-	4	18	6	Min	4	18	4	18'-2"	4	18	13	L	Min	5'-3"	4	8	22'-7"	4	18	12	Min	-	-	-	Min	4	2	19'-0"	4	2	19'-4"	6	12	8	L	3'-4"	598
					Max	10'-5"													6'-4"									Max	11'-3"							2'-8"				-										
				X	Min	0'-9"				X	1'-3"				X	-			Max								X	Min	2'-4"							Max				Max									X	1'-8"	
					Max	1'-6"													15'-4"									Max	2'-4"							3'-4"				-										
				Y	Min	3'-0"				Y	3'-6"				Y	-			Min								Y	Min	3'-0"							Min				Min										
					Max	9'-0"													3'-10"									Max	9'-1"							37'-9"				-										
WING B	4	12	37	L	Min	3'-8"	4	12	12	L	5'-3"	-	-	-	L	-	4	18	8	Min	4	18	4	36'-8"	4	18	25	L	Min	5'-3"	4	8	41'-1"	4	18	26	Min	4	18	2	Min	4	2	37'-0"	4	2	41'-9"	6	12	8	L	3'-4"	1134
					Max	11'-4"													4'-3"									Max	11'-4"							4'-3"				Max										
				X	Min	0'-9"				X	1'-10"				X	-			Min								X	Min	2'-4"							Min				Min									X	1'-8"	
					Max	2'-4"													30'-10"									Max	2'-4"							37'-9"				37'-9"										
				Y	Min	3'-0"				Y	3'-6"				Y	-			Min								Y	Min	3'-0"							Min				Min										
					Max	9'-1"													30'-10"									Max	9'-1"							4'-3"				37'-9"										

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTHS VARY
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH		SPACING	LENGTHS VARY	NO. REQ'D		SPACING	LENGTHS VARY	NO. REQ'D		SPACING	LENGTHS VARY	NO. REQ'D		SPACING	LENGTHS VARY	NO. REQ'D		SPACING	NO. REQ'D	LENGTH		SPACING	NO. REQ'D	LENGTH		SPACING	NO. REQ'D	LENGTHS VARY		SPACING	NO. REQ'D	LENGTHS VARY		SPACING	NO. REQ'D	LENGTH		SPACING	NO. REQ'D	LENGTHS VARY
30	3:1	5	12	8	35'-1"	14	3	14	8	8	114'-8"	10'-4"	5	4.5	Max 114'-4" Min 3'-2" 114'-4"	172 6	7	6	Max 114'-4" Min 3'-2" 114'-4"	129 4	4	4.5	Max 114'-4" Min 3'-2" 114'-4"	172 6	4	5.5	Max 114'-4" Min 3'-2" 114'-4"	140 5	5	5	169	10'-0"	4	12	592	10'-0"	5	12	233	Max 68'-0" Min 1'-10"	5	12	233	Max 68'-0" Min 1'-10"	4	12	8	LONG 67'-9" SHORT 2'-1"	4	12	16	LONG 60'-8"
																																																								48	MID 34'-11"
																																																								16	SHORT 9'-2"

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
419.83	68398

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
5	67'-1"	18	5	67'-1"	18	4	2'-1"	1'-1"	134

INLET SLOPE SECTION(S)

R.C. BOX SECTION ,	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	"h" BARS Y	"h" BARS LENGTH	"h" BARS NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	5	12	8	14	14	8	8	114'-8"	10'-4"	69.8333	5	114'-4"	8	116'-7"	4	114'-4"	18	46	4	114'-4"	5	116'-5"	4	114'-4"	12	69	5	5	334	10'-0"	4	12	690	10'-0"	5	12	233	5	12	233	4	12	16	4	12	128

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	③ ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.
11.88	1351	1221	15

③ MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16720
5/1/17
KENNETH RANDALL MILLER

TABULAR DATA BY: KRM DATE: 9/6/16
CHECKED BY: CAW DATE: 9/16/16

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
NINE BARREL BOX CULVERT
Sta. 208+96.00 (Ex. Br. No. A0309)
SPECIAL DETAILS

USER: jd503
DESIGN FILE: G:\409400_HWY_67\TRANSPC\dgn\special_details\Culvert-Nine.dgn
PLOTTED: 3/16/2017 16:26 SCALE: 2.44444d

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	13	194

SPECIAL DETAILS

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
114'-8"	8'-0"	0'-9"	0'-8"	30	3:1	130'-10	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/2"	4'-9 7/8"	1'-2 1/2"	2'-7"	18'-6"	37'-0"	21'-9 3/8"	40'-3 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
27.04	1732

		F1					F2				F3				F4			F5		F6				F7		F8			F9			F10		F11		F12				
	WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS		REINF. STEEL QTY. PER WING (LBS)
	WING A	4	12	19	L	Min	4	12	6	L 4'-8"	-	-	-	L -	4	18	6	Min	4	18	4	18'-2"	4	18	13	L Min	5'-3"	4	8	22'-7"	4	18	12	Min	-	-	-	Min	-	4	2	19'-0"	4	2	19'-4"	6	12	8	L	3'-4"	598
						Max												6'-4"									2'-8"																				
					X	Min				X 1'-3"				X -				Max								X Min	2'-4"							Max												X	1'-8"	
						Max												15'-4"								Max	2'-4"							3'-4"													
					Y	Min				Y				Y												Y Min	3'-0"							Min														
						Max				3'-6"				-												Max	9'-0"							-														
	WING B	4	12	37	L	Min	4	12	12	L 5'-3"	-	-	-	L -	4	18	8	Min	4	18	4	36'-8"	4	18	25	L Min	5'-3"	4	8	41'-1"	4	18	26	Min	4	18	2	Min	37'-9"	4	2	37'-0"	4	2	41'-9"	6	12	8	L	3'-4"	1134
						Max												3'-10"								Max	11'-4"							2'-8"				Max										
					X	Min				X 1'-10"				X -				Max								X Min	2'-4"							Max												X	1'-8"	
						Max												30'-10"								Max	4'-3"							37'-9"													
					Y	Min				Y				Y												Y Min	3'-0"																				
						Max				3'-6"				-												Max	9'-1"																				

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
KENNETH RANDALL MILLER
No. 16720
5/16/17

TABULAR DATA BY: KRM DATE: 04/04/17
CHECKED BY: CAW DATE: 04/17/17

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

| SKEW (DEGREE) | SLOPE | DESIGN FILL DEPTH (FT.) | CLEAR SPAN (FT.) | CLEAR HEIGHT (FT.) | SECTION LENGTH | TOP SLAB THK. | HDWL THK. | BOTTOM SLAB THK. | SIDE WALL THK. | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | TOP SLAB REINFORCING STEEL "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "a" NO. REQ'D | "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" NO. REQ'D | "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" NO. REQ'D | SIDE WALL REINFORCING STEEL "f0" SIZE | "f0" SPACING | "f0" NO. REQ'D | "f0" LENGTH | INTERIOR WALL REINFORCING STEEL "f1" SIZE | "f1" SPACING | "f1" NO. REQ'D | "f1" LENGTH | TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTHS VARY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	14	194

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
76'-6"	7'-0"	0'-9"	0'-8"	30	3:1	86'-11 7/8"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	19'-11 3/8"	36'-5 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
17.81	1414

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	17	L	Min	3'-4"	4	12	3	L	3'-5"					L	-		4	18	6	Min	4	18	4	16'-2"
					Max	9'-0"																3'-4"				
				X	Min	0'-9"				X	1'-0"		-	-	-	X	-					Max				
					Max	1'-1"																12'-4"				
				Y	Min	2'-8"				Y	2'-6"					Y	-					Min				
					Max	8'-0"																3'-0"				
WING B	4	12	33	L	Min	3'-4"	4	12	6	L	4'-0"					L	-		4	18	6	Min	4	18	4	32'-8"
					Max	9'-8"																6'-10"				
				X	Min	0'-9"				X	1'-7"		-	-	-	X	-					Max				
					Max	1'-9"																24'-10"				
				Y	Min	2'-8"				Y	2'-6"					Y	-									
					Max	8'-0"																				

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	11	L	Min	5'-3"	4	8	20'-9"	4	18	11	Min				Min	4	2	16'-11"	4	2	17'-4"	6	12	7	L	3'-4"	482
					Max	10'-3"							2'-8"				-												
				X	Min	2'-4"							Max				Max										X	1'-8"	
					Max	2'-4"											-												
				Y	Min	3'-0"							Y																
					Max	8'-0"							Min																
WING B	4	18	22	L	Min	5'-1"	4	8	37'-3"	4	18	23	2'-8"	4	18	2	52'-2"	4	2	33'-0"	4	2	36'-7"	6	12	7	L	3'-4"	932
					Max	10'-3"							Max				Max												
				X	Min	2'-4"							3'-8"				52'-2"										X	1'-8"	
					Max	2'-4"																							
				Y	Min	2'-10"																							
					Max	8'-0"																							

③ MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft - 344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
KENNETH RANDALL MILLER
No. 16720
5/16/17

TABULAR DATA BY: KRM DATE: 8/31/16
CHECKED BY: CAW DATE: 09/16/16

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	FL	T	HW	B	C	W	OW	OH
30	3:1	5	12	7	24'-1"	14	3	14	7	8	76'-6"	9'-4"

TOP SLAB REINFORCING STEEL	a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D
	7	8.5	Max 76'-2"	60	8	6	Max 76'-2"	85
			Min 3'-1"				Min 3'-1"	
			76'-2"	3			76'-2"	4

BOTTOM SLAB REINFORCING STEEL	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SPACING	f LENGTHS VARY	f NO. REQ'D
	4	Max 76'-2"	127	5	Max 76'-2"	64
		Min 3'-1"		8	Min 3'-1"	
	4	76'-2"	6		76'-2"	3

SIDE WALL REINFORCING STEEL "f0" SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH
6	7.5	78	9'-0"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH
4	12	260	9'-0"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY
5	12	155	Max 46'-0"
			Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY
5	12	155	Max 46'-0"
			Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH
4	12	7	LONG 45'-9"
			SHORT 2'-1"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTHS VARY
4	12	14	LONG 38'-8"
		42	MID 31'-3"
		14	SHORT 9'-2"

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
5	45'-1"	12	5	45'-1"	12	4	2'-1"	1'-1"	90

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	1 REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
189.09	34835

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL

TOP SLAB REINFORCING STEEL — LENGTH = OW - 4" + BENDS

a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL — LENGTH = OW - 4" + BENDS

d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	"h" BARS Y	"h" BARS LENGTH	"h" BARS NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	③ ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
A	5	12	7	14	14	7	8	76'-6"	9'-4"	93.8333

TOP SLAB REINFORCING STEEL — LENGTH = OW - 4" + BENDS

a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D
5	76'-2"	8	78'-5"	4	76'-2"	18	62

BOTTOM SLAB REINFORCING STEEL — LENGTH = OW - 4" + BENDS

d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D
4	76'-2"	5	78'-3"	4	76'-2"	12	93

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
6	7.5	300	9'-0"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	930	9'-0"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
5	12	155

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
5	12	155

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	14

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	70

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	③ ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS LAP LBS. PER LIN. FT.
7.78	893	799	15

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SEXTUPLE BARREL BOX CULVERT
Sta. 228+57.00 (Ex. Br. No. A2041)
SPECIAL DETAILS

USER: jd5103
DESIGN FILE: G:\4109400_HWY_167\TRANSP\dgn\special_details\Culvert-Sext.dgn
PLOTTED: 3/16/2017 16:26
SCALE: 21.44

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	15	194

① SPECIAL DETAILS

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
76'-6"	7'-0"	0'-9"	0'-8"	30	3:1	86'-11 7/8"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	19'-11 3/8"	36'-5 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
20.51	1414

WING		F1				F2				F3				F4			F5			F6				F7		F8			F9			F10		F11		F12				REINF. STEEL QTY. PER WING (LBS)
	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	
WING A	4	12	17	L	Min	4	12	3	L 3'-5"	-	-	-	L -	4	18	6	4	18	4	16'-2"	4	18	11	L Min 5'-3"		4	8	20'-9"	4	18	11	Min 2'-8"		-	-	-	4	2	16'-11"	4	2	17'-4"	6	12	7	L 3'-4"	482
					Max																			Max 3'-4"								Max -											X 1'-8"	
				X	Min				X -				X -											X Min 2'-4"								Min -												
					Max																			Max 2'-4"								Max -												
				Y	Min				Y -				Y -											Y Min 3'-0"								Min -												
					Max																			Max 8'-0"								Max -												
WING B	4	12	33	L	Min	4	12	6	L 4'-0"	-	-	-	L -	4	18	6	4	18	4	32'-8"	4	18	22	L Min 5'-1"		4	8	37'-3"	4	18	23	Min 2'-8"		4	18	2	4	2	33'-0"	4	2	36'-7"	6	12	7	L 3'-4"	932
					Max																			Max 6'-10"								Max 52'-2"											X 1'-8"	
				X	Min				X -				X -											X Min 2'-4"								Min 52'-2"												
					Max																			Max 2'-4"								Max 52'-2"												
				Y	Min				Y -				Y -											Y Min 2'-10"																				
					Max																			Max 8'-0"																				

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
KENNETH RANDALL MILLER
No. 16720
9/1/17

TABULAR DATA BY: KRM DATE: 8/31/16
CHECKED BY: CAW DATE: 09/16/16

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	FL	T	HW	B	C	W	OW	OH
30	3:1	5	12	7	24'-1"	14	3	14	7	8	76'-6"	9'-4"

TOP SLAB REINFORCING STEEL												BOTTOM SLAB REINFORCING STEEL								SIDE WALL REINFORCING STEEL				INTERIOR WALL REINFORCING STEEL				TOP SLAB DISTRIBUTION REINFORCING STEEL				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL				SIDE WALL DISTRIBUTION REINFORCING STEEL				INTERIOR WALL DISTRIBUTION REINFORCING STEEL				CLASS "S" CONCRETE (Includes HDWL)	② REINFORCING STEEL (GR 60) (Includes HDWL)
a				c				d				f				f0				f1				g				e				d1				d2					
SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	CU. YDS.	LBS.
7	8.5	Max 76'-2"	60	8	6	Max 76'-2"	85	4	4	Max 76'-2"	127	5	8	Max 76'-2"	64	6	7.5	78	9'-0"	4	12	260	9'-0"	5	12	155	Max 46'-0"	5	12	155	Max 46'-0"	4	12	7	LONG 45'-9"	4	12	14	LONG 38'-8"	189.09	34835
		Min 3'-1"				Min 3'-1"				Min 3'-1"				Min 3'-1"													Min 1'-10"				Min 1'-10"			7	SHORT 2'-1"			42	MID 31'-3"		
		76'-2"	3			76'-2"	4			76'-2"	6			76'-2"	3																							14	SHORT 9'-2"		

k1			k2			h			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
5	45'-1"	12	5	45'-1"	12	4	2'-1"	1'-1"	90

OUTLET SLOPE SECTIONS)

| R.C. BOX SECTION | DESIGN FILL DEPTH (FT.) | CLEAR SPAN (FT.) | CLEAR HEIGHT (FT.) | TOP SLAB THK. | BOTTOM SLAB THK | SIDE WALL THK | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | SECTION LENGTH (FT.) | TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS | | | | | | | | BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS | | | | | | | | SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" | | | | INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" | | | | TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL | | | BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL | | | SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL | | | INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL | | | CLASS "S" CONCRETE | REINFORCING STEEL (GR. 60) | ② ADTL. REINF. PER LONG. LAP LOCATION | ADTL. REINF. FOR TRANS. LAP | ADDITIONAL CONCRETE FOR HDWL | TOTAL ADTL. REINF. FOR HDWL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
43'-2"	7'-0"	0'-9"	0'-8"	30	3:1	48'-6"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	19'-11 3/8"	36'-5 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
15.56	1363

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			F1	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	F2	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	F3	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F4	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	F5	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F6	BAR SIZE	NO. REQ'D	LENGTHS	F7	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F8	BAR SIZE	NO. REQ'D	LENGTHS	F9	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F10	BAR SIZE	NO. REQ'D	LENGTHS	F11	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F12	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min	3'-4"					L	3'-5"					L	-																																															
					Max	9'-0"																																																												
				X	Min	0'-9"					X	1'-0"	-	-	-		X	-																																															
					Max	1'-1"																																																												
				Y	Min	2'-8"					Y	2'-6"					Y	-																																															
					Max	8'-0"																																																												
								4	12	3																																																							
WING B	4	12	33	L	Min	3'-4"					L	4'-0"					L	-																																															
					Max	9'-8"																																																												
				X	Min	0'-9"					X	1'-7"	-	-	-		X	-																																															
					Max	1'-9"																																																												
				Y	Min	2'-8"					Y	2'-6"					Y	-																																															
					Max	8'-0"																																																												
								4	12	6																																																							

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			F1	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	F2	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	F3	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F4	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	F5	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F6	BAR SIZE	NO. REQ'D	LENGTHS	F7	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F8	BAR SIZE	NO. REQ'D	LENGTHS	F9	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F10	BAR SIZE	NO. REQ'D	LENGTHS	F11	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	F12	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min	3'-4"					L	3'-5"					L	-																																														
					Max	9'-0"																																																												
				X	Min	0'-9"					X	1'-0"	-	-	-		X	-																																															
					Max	1'-1"																																																												
				Y	Min	2'-8"					Y	2'-6"					Y	-																																															
					Max	8'-0"																																																												
								4	12	3																																																							
WING B	4	12	33	L	Min	3'-4"					L	4'-0"					L	-																																															
					Max	9'-8"																																																												
				X	Min	0'-9"					X	1'-7"	-	-	-		X	-																																															
					Max	1'-9"																																																												
				Y	Min	2'-8"					Y	2'-6"					Y	-																																															
					Max	8'-0"																																																												
								4	12	6																																																							

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	FL	T	HW	B	C	W	OW	OH																		

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	17	194

① SPECIAL DETAILS

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
43'-2"	7'-0"	0'-9"	0'-8"	30	3:1	48'-6"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	19'-11 3/8"	36'-5 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
17.31	1363

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY		F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	17	L	Min 3'-4"	4	12	3	L	3'-5"	-	-	-	L -	4	18	6	Min 3'-4"	4	18	4	16'-2"
					Max 9'-0"																	
				X	Min 0'-9"				X	1'-0"				X -				Max 12'-4"				
					Max 1'-1"																	
				Y	Min 2'-8"				Y	2'-6"				Y -								
					Max 8'-0"																	
WING B	4	12	33	L	Min 3'-4"	4	12	6	L	4'-0"	-	-	-	L -	4	18	6	Min 6'-10"	4	18	4	32'-8"
					Max 9'-8"																	
				X	Min 0'-9"				X	1'-7"				X -				Max 24'-10"				
					Max 1'-9"																	
				Y	Min 2'-8"				Y	2'-6"				Y -								
					Max 8'-0"																	

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY		F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS VARY		F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	11	L	Min 5'-3"	16'-11"	4	8	20'-9"	4	18	11	Min 2'-8"		-	-	-	Min -		4	2	16'-11"	4	2	17'-4"	6	12	7	L	3'-4"	457
					Max 10'-3"								Max 3'-0"					Max -													
				X	Min 2'-4"																								X	1'-8"	
					Max 2'-4"																										
				Y	Min 3'-0"																										
					Max 8'-0"																										
WING B	4	18	22	L	Min 5'-1"	32'-8"	4	8	37'-3"	4	18	23	Min 2'-8"		4	18	2	Min 52'-2"		4	2	33'-0"	4	2	36'-7"	6	12	7	L	3'-4"	906
					Max 10'-3"								Max 3'-8"					Max 52'-2"													
				X	Min 2'-4"																								X	1'-8"	
					Max 2'-4"																										
				Y	Min 2'-10"																										
					Max 8'-0"																										

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

TABULAR DATA BY: KRM DATE: 08/31/16
CHECKED BY: CAW DATE: 09/16/16

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the Item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH
SK	SL	D	S	H	FL	T	HW	B	C	W	OW	OH																				
30	3:1	5	10	7	14'-6"	12	3	12	7	8	43'-2"	9'-0"	5	6	Max 42'-10" Min 3'-1"	46	5	7	Max 42'-10" Min 3'-1"	40	4	5.5	Max 42'-10" Min 3'-1"	51	4	7.5	Max 42'-10" Min 3'-1"	37	6	8	44	8'-8"
															42'-10"	4			42'-10"	4			42'-10"	5			42'-10"	4				

INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
4	12	94	8'-8"	4	9	119	Max 26'-9" Min 1'-10"	4	9	119	Max 26'-9" Min 1'-10"	4	12	7	LONG 26'-6"	4	12	14	LONG 20'-6"
															SHORT 2'-1"				MID 14'-4"
																			SHORT 8'-1"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
59.11	8425

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
4	25'-8"	12	4	25'-8"	12	4	1'-11"	0'-11"	51

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	c SPACING	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	f SPACING	f NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH
	D	S	H	T	B	C	W	OW	OH	SL																				

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	g SPACING	g NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	e SPACING	e NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	d1 SPACING	d1 NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	d2 SPACING	d2 NO. REQ'D

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS SIZE	"h" BARS Y	"h" BARS LENGTH	"h" BARS NO. REQ'D
HW	LBS.				

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION (S)	ADTL. REINF. FOR TRANS. LAP	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	LBS. PER LIN. FT.	CU. YDS.	LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

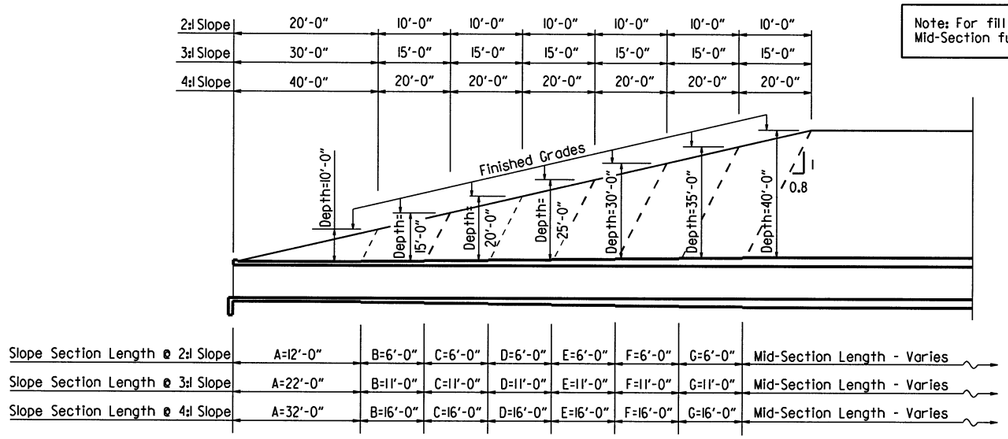
Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 236+69.00 (Ex. Br. No. A0308)
SPECIAL DETAILS

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				6	ARK.			
				JOB NO.		CA0702	18	194

① SPECIAL DETAILS

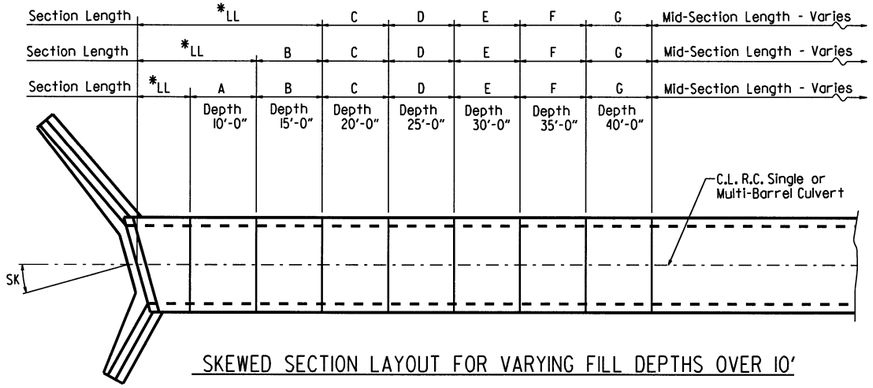


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

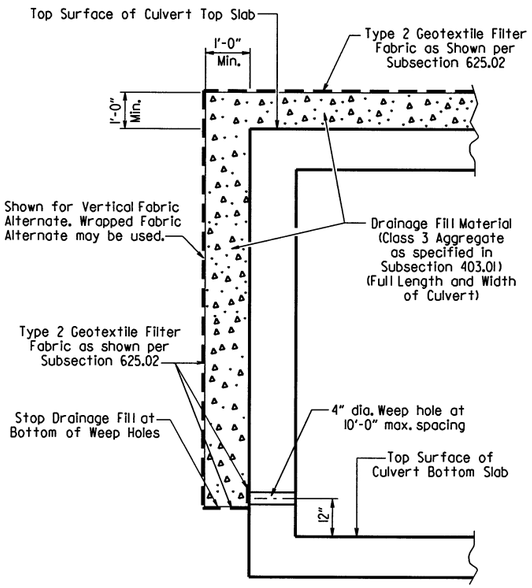
Lengths for Non-Skewed Boxes

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.



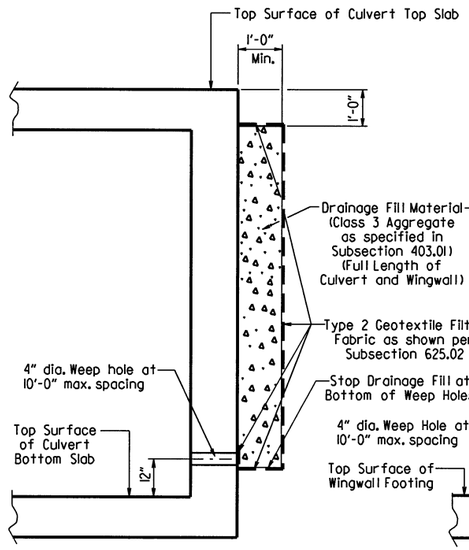
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'





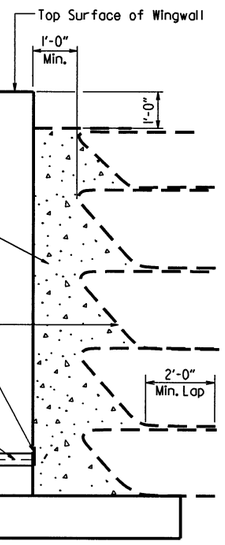
CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.



VERTICAL FABRIC ALTERNATE

(Shown for Culvert, Similar for Wingwall)



WRAPPED FABRIC ALTERNATE

(Shown for Wingwall, Similar for Culvert)

For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

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.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

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 barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

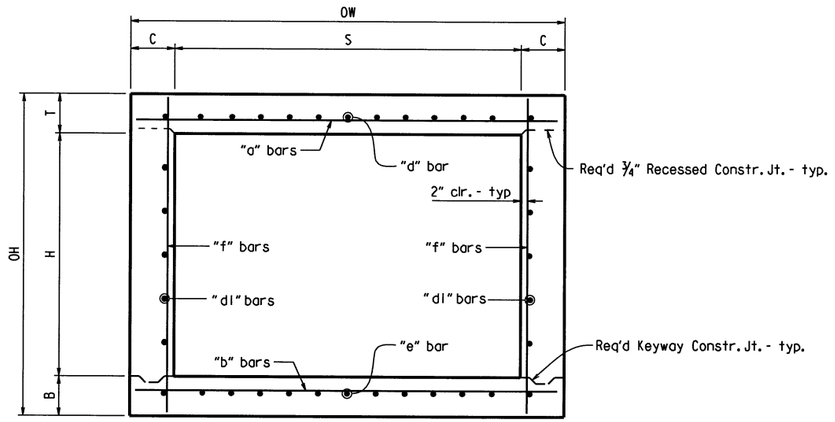
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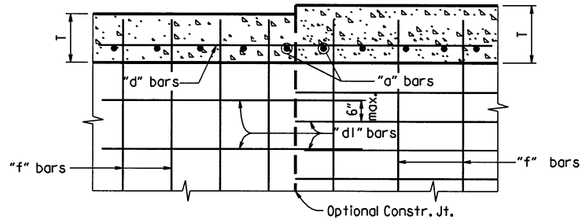
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				6	ARK.			
				JOB NO.		CA0702	19	194

(1) SPECIAL DETAILS

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



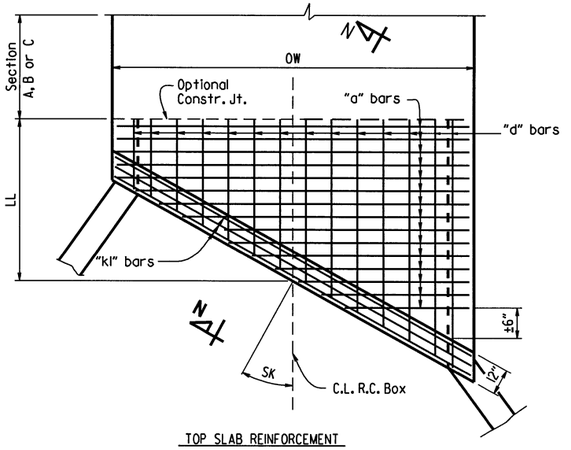
TYPICAL SECTION M-M



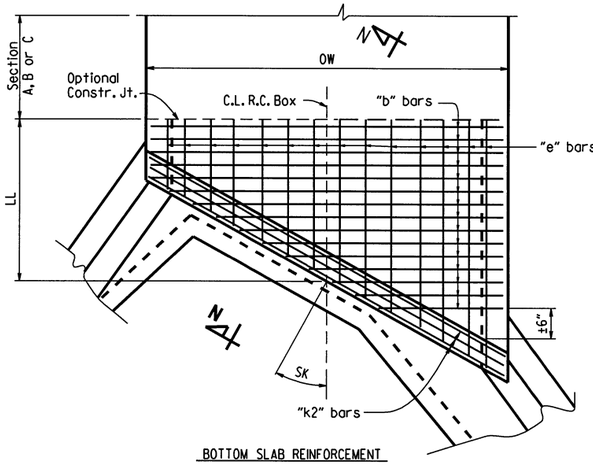
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

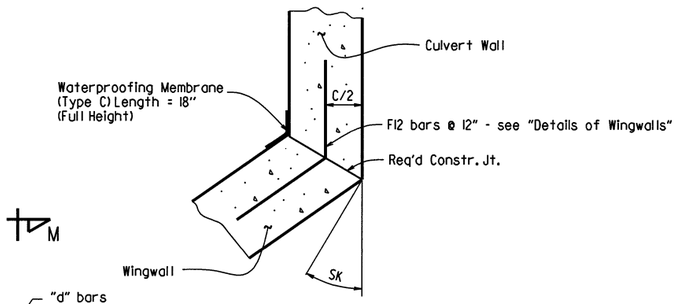


TOP SLAB REINFORCEMENT



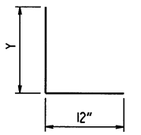
BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

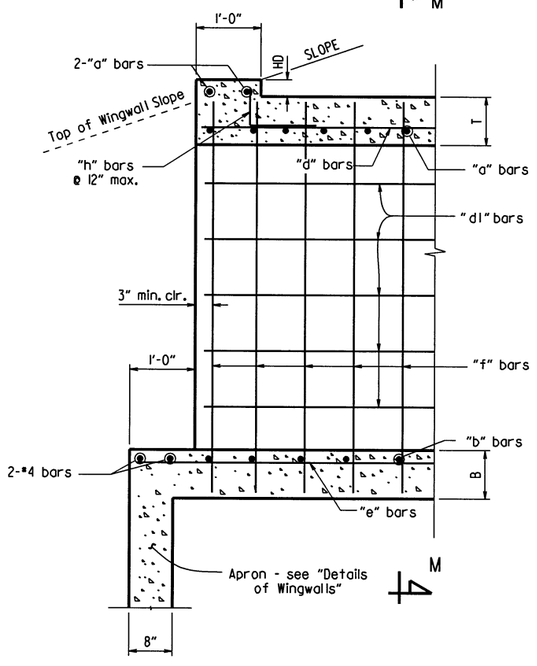


WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.

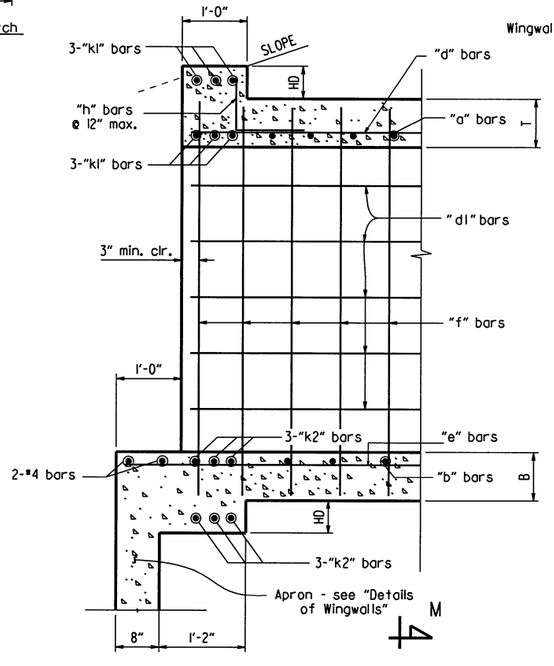


"h" bars sketch



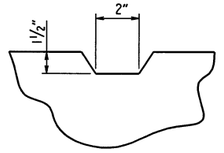
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
KENNETH RANDALL MILLER
No. 16720
5/1/17

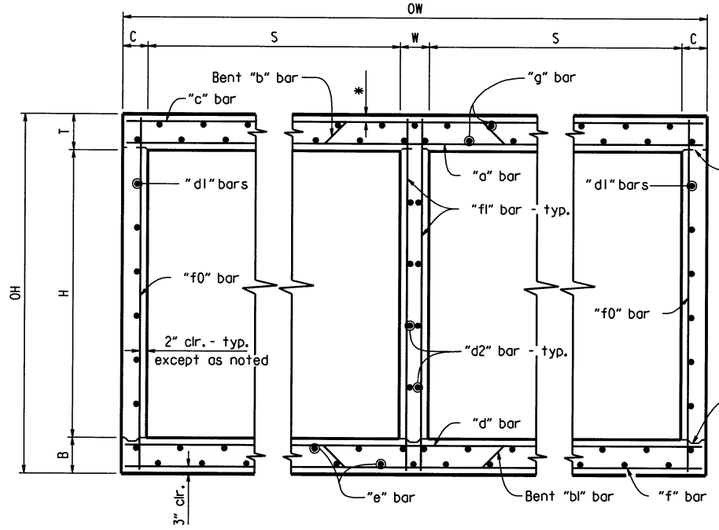
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Ver. 1.14

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				6	ARK.			
				JOB NO.		CA0702	20	194

SPECIAL DETAILS

*2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

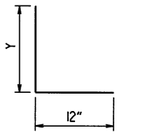
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



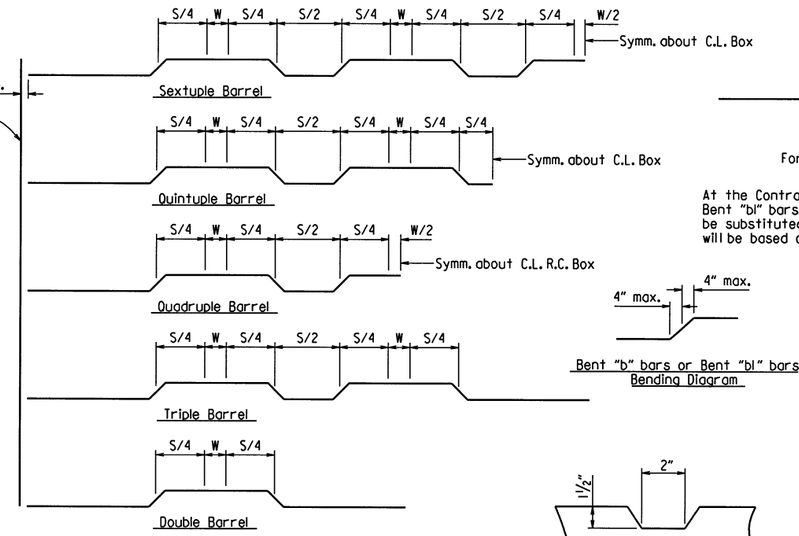
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

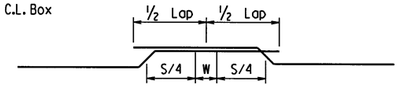
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



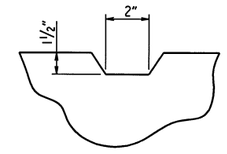
Bent "b" bars or Bent "bl" bars sketch



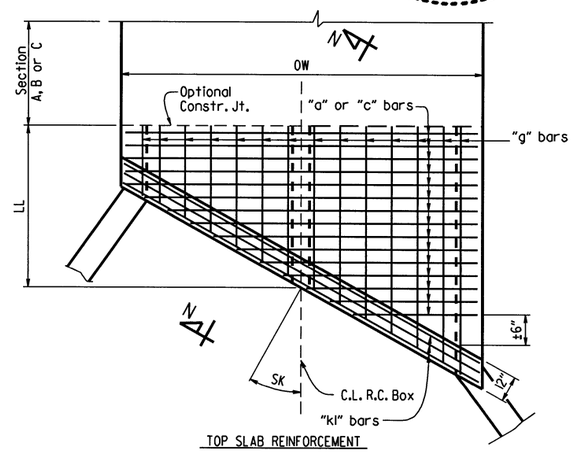
Lap Detail
For Bent "b" bars and Bent "bl" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

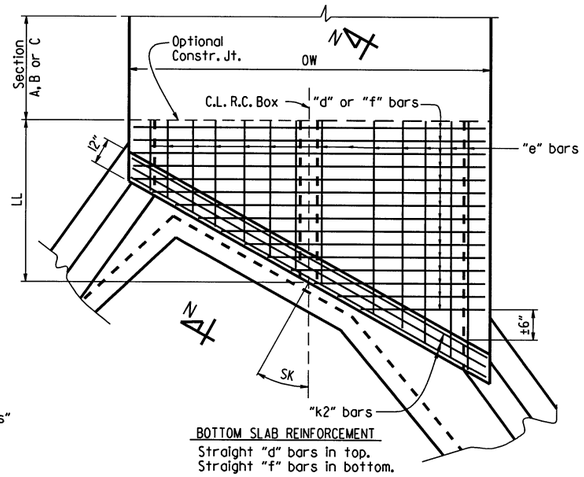
Bent "b" bars or Bent "bl" bars Bending Diagram



TYPICAL KEYWAY DETAIL
(All Construction Joints)

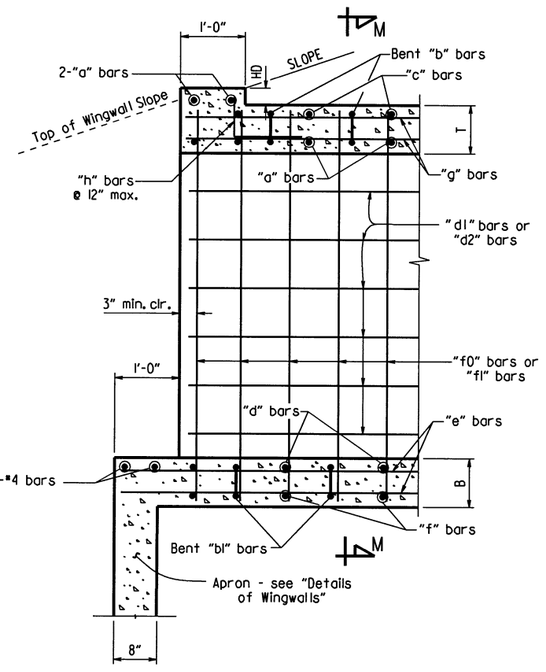


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.

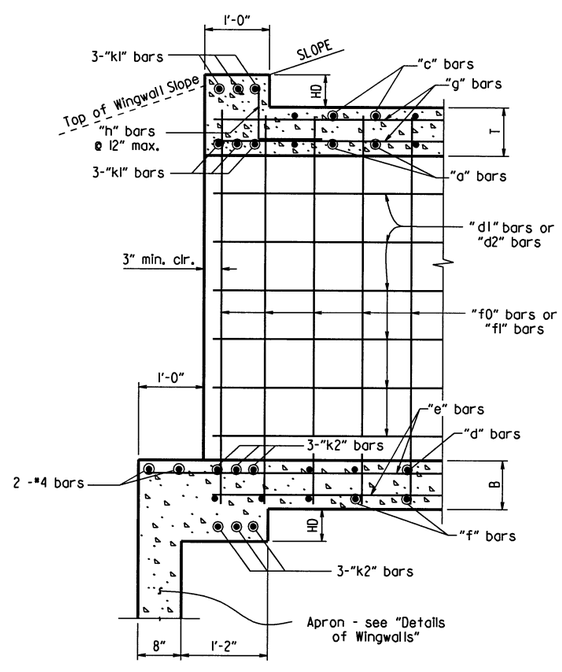


BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

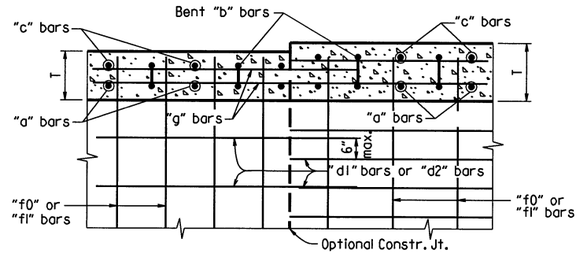
SKEWED END SECTION DETAILS



PART LONGITUDINAL SECTION
(Non-Skewed Ends)

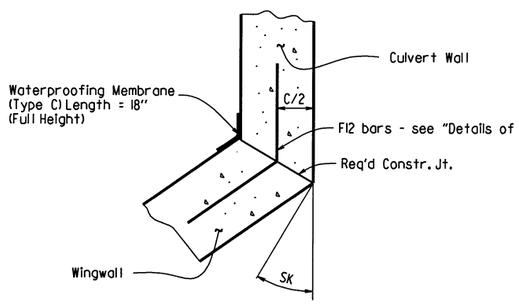


PART LONGITUDINAL SECTION N-N
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT
See "Details of Wingwalls" for additional information and wingwall details.

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL R.C. BOX CULVERT

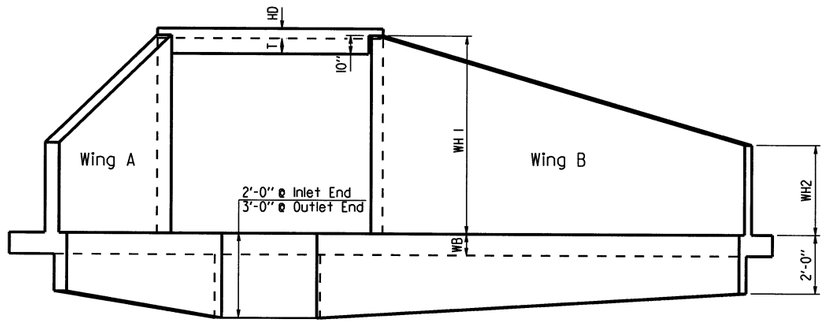
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16720
5/1/17
KENNETH RANDALL MILLER

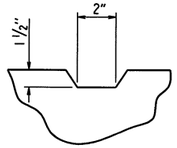
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				6	ARK.			
				JOB NO.		CA0702	21	194

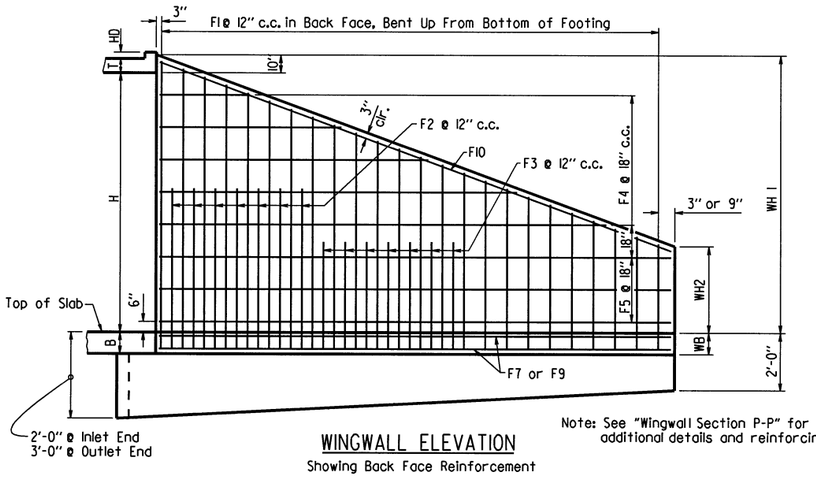
SPECIAL DETAILS



END ELEVATION
Flared Wingwalls Shown

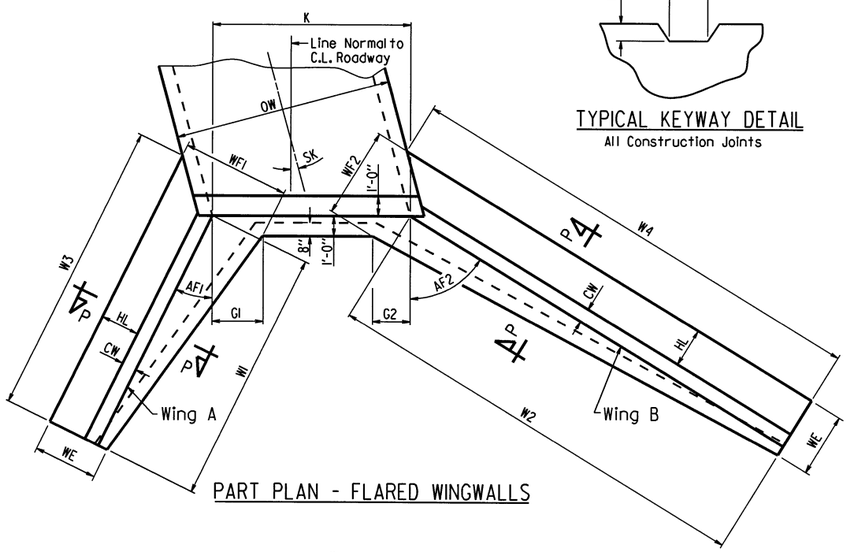


TYPICAL KEYWAY DETAIL
All Construction Joints

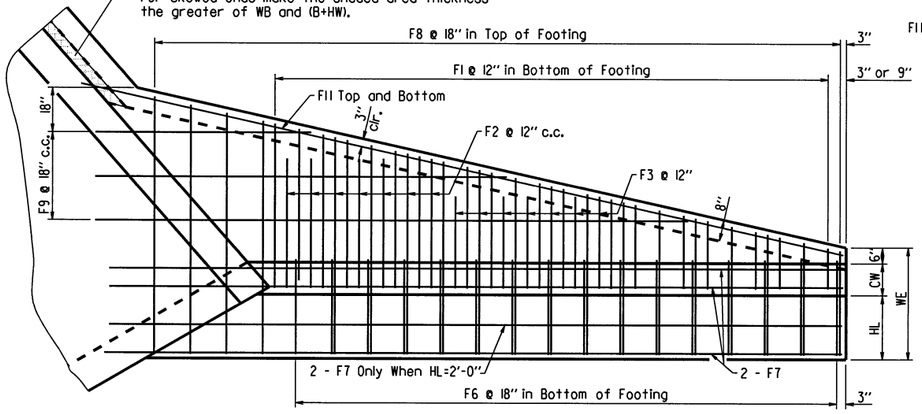


WINGWALL ELEVATION
Showing Back Face Reinforcement

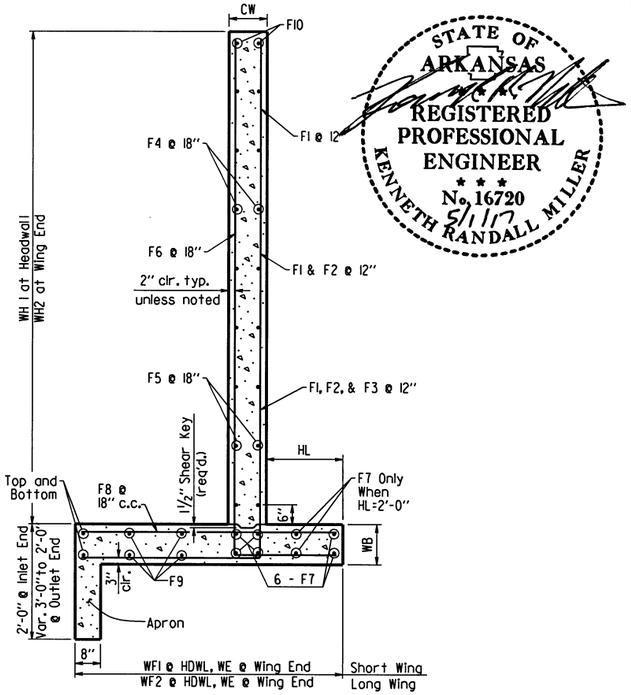
Note: See "Wingwall Section P-P" for additional details and reinforcing.



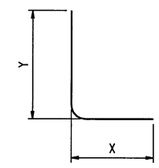
PART PLAN - FLARED WINGWALLS



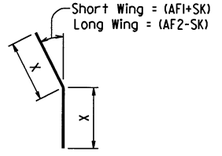
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



WINGWALL SECTION P-P

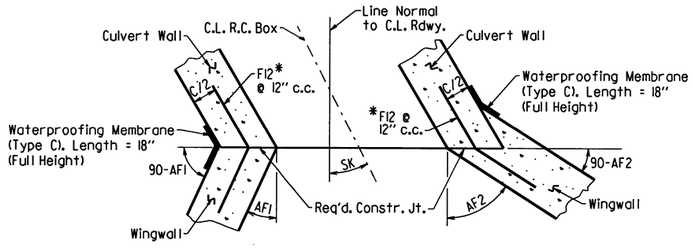


F1, F2, F3, & F6 BARS

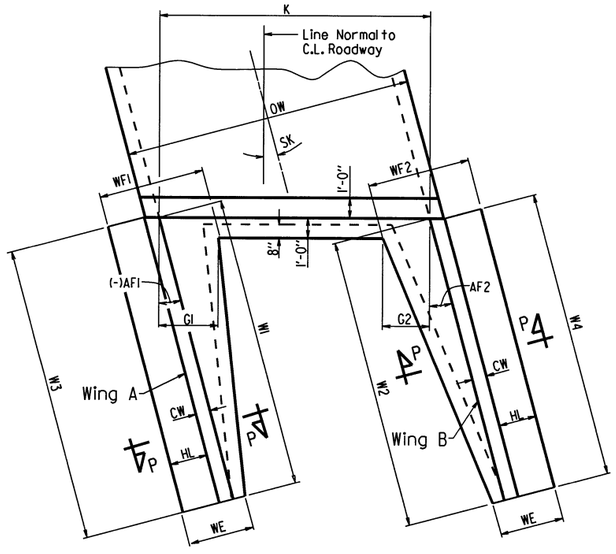


*F12 BAR

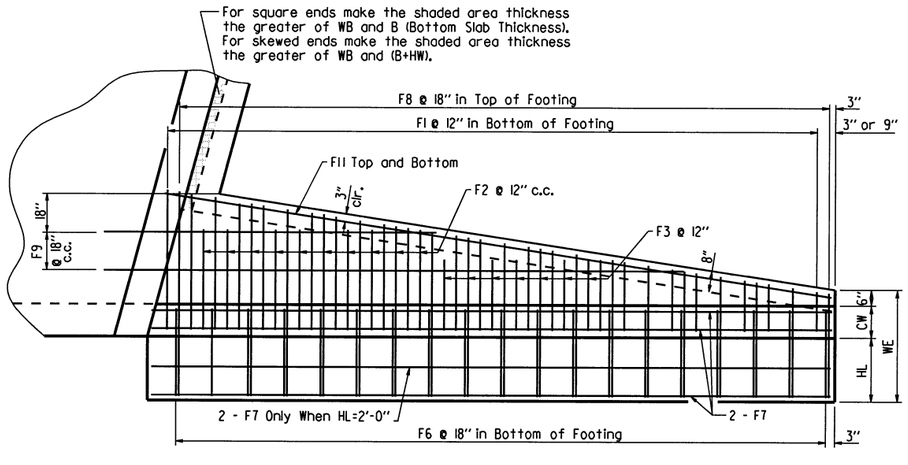
*F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



Showing Footing Reinforcement

SHEET 4 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF WINGWALLS

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
KENNETH RANDALL MILLER
No. 16720
5/1/17

DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\special_details\bl409400_culvert.dgn
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Ver. 1.114

Crafton Tull
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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.		CA0702	22	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

STA. 196+00.00
BEGIN JOB CA0702
LOG MILE 0.78

100' TRANSITION

P.C. 196+20.16
P.I. 199+00.29
P.R.C. 201+80.30
P.I. 204+60.43
P.I. 207+40.44

N01°37'10"E
N04°25'12.5"E

NATURAL BUFFER
SWAMP

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 (XXXX CU FT) = SEDIMENT BASIN

SILT FENCE 50 LIN.FT.
SILT FENCE 46 LIN.FT.

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: ANS106
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
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Crafton Tull
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	23	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

NATURAL BUFFER
220 225 230 235
WALL
NATURAL BUFFER
N01°37'10"E
+70
E-5 +80
E-6 +80
E-5 +80
E-5 +20
E-6 +20
+60 16' +05 75' +81.42 85' +00 95' +00 95'

REVISIONS

DATE OF REVISION	REVISION

LEGEND
E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-14 XXXX CU FT = SEDIMENT BASIN

250 +32.38 81.81
245 +05.12 69.12
240
235
NATURAL BUFFER
P.C. 238+73.92
WALL WALL
NATURAL BUFFER
N01°37'10"E
E-5 +20
+00 80'
NATURAL BUFFER
+90 125'
E-11 SILT FENCE 87 LIN.FT.
E-11 SILT FENCE 152 LIN.FT.
E-11 SILT FENCE 101 LIN.FT.
+65 +50 +00 +00 90' +35 +35 +50 +00 104'-91.62' +50 104'-92.82' +00 95'
+25 E-5 +85 E-6 +75 E-5 +35 E-6 +10 E-5 +85 N17°09'12"W +00 80'
P.I. 248+21.05
16'

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: jd5103
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Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	24	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: Jd503
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Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	26	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

310 315 320 325

P.C. 316+68.76 P.I. 318+42.10 P.T. 323+37.17

N01°28'05"E N03°12'04.7"E N01°35'33"E

SILT FENCE 45 LIN.FT. SILT FENCE 50 LIN.FT. SILT FENCE 201 LIN.FT. SILT FENCE 165 LIN.FT.

P.R.C. 320+15.41 P.I. 321+76.30

GATE

CELL TOWER

NATURAL BUFFER

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

325 330 335 340

E-14 2952 CU FT E-14 2409 CU FT E-14 6339 CU FT

N01°35'33"E

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: AN506
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architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	25	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

REVISIONS

DATE OF REVISION	REVISION

LEGEND
- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN (XXXX CU FT)

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: AN5106
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Crafton Tull
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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.		CA0702	27	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

340 345 350 355

N01°35'33"E

P.O.B. 6+93.28
S54°06'17"E
P.I. 9+08.47
P.C. 8+14.55
P.I. 8+39.58
P.R.C. 8+64.57
P.T. 9+55.14
S38°24'27"E
P.C. 10+47.85
P.I. 10+91.75
P.R.C. 11+35
P.I. 11+60.45
S17°E

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

SWAMP

355 360 365 370

P.O.B. 8+00.00
N61°35'33"E
P.C. 8+67.83
P.R.C. 9+12.57
P.I. 9+34.95
P.I. 8+90.21
P.T. 9+57.31
P.C. 10+48.29
P.I. 10+62.67
P.R.C. 10+85.03
P.T. 11+29.77
P.I. 11+07.41
P.O.E. 12+00.00
N61°35'33"E

NATURAL BUFFER

N01°35'33"E

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

USER: jd5103
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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.		CA0702	28	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

370 375 380 385

N01°35'33"E

E-5 E-14 1656 CU FT E-5 E-6 E-5 E-6 E-5 5040 CU FT E-14 E-6 E-5

NATURAL BUFFER

REVISIONS

DATE OF REVISION	REVISION

385 390 395 400

N01°35'33"E

E-6 E-5 E-6 E-5 E-6 E-5 E-6 E-5 E-6 E-14 1983 CU FT

3539 CU FT E-14 E-14 4561 CU FT

NATURAL BUFFER

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

USER: ANSIO6
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
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STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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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.		CA0702	29	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

NATURAL BUFFER
400
405
410
415
+80.44 75'
+00 75'
85'
N01°35'33"E
+50
E-6 +00
E-5 +50
E-11
E-14 1545 CU FT
E-14 9252 CU FT
E-5 +10
E-5 +00
E-6 +10
+05
35'
16'
+00 85'
+00 75'
+80.04 75'
NATURAL BUFFER
NATURAL BUFFER
NATURAL BUFFER

REVISIONS

DATE OF REVISION	REVISION

LEGEND
E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-14 XXXX CU FT = SEDIMENT BASIN

415
420
105
+78.71 199.85'
S87°16'18"E
+78.73 199.54'
+71.43 75'
+20
100' TRANSITION
+97.61
P.I. 10+00.00
Δ = 00°04'25" RT.
+94.40 79.39'
P.I. 104+46.82
Δ = 01°26'40" LT.
+50 70'
+50 77'
+95 72'
N01°35'33"E
N01°31'08"E
N00°04'28"E
E-6 +10
E-5 +10
E-6
E-5 +00
+00 75'
+96.10
℄ HWY. 167 STA. 422+10.94 BK. =
℄ HWY. 167 STA. 100+88.55 AHD.
+17 81'
+32 82'
+51 91'
STA. 421+20.00
END JOB CA0702
LOG MILE 5.04

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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USER: ANS106
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Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	30	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerome Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

STA. 196+00.00
BEGIN JOB CA0702
LOG MILE 0.78

100' TRANSITION

P.C. 196+20.16
P.I. 199+00.29
P.R.C. 199+17.40
P.R.C. 201+80.30
P.I. 200+06.62
P.I. 204+60.43
P.I. 207+40.44

4254 CU FT E-14
E-14 3842 CU FT

NO1°37'10"E
NO4°25'12.5"E
NO1°37'10"E

NATURAL BUFFER
SILT FENCE 1800 LIN.FT.
SWAMP

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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USER: jd503
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
PLOTTED: 3/16/2017 16:28
SCALE: 100'

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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.		CA0702	31	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerry Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

NATURAL BUFFER
220
225
230
235
SILT FENCE: 1800 LIN.FT.
SILT FENCE: 630 LIN.FT.
E-11
NATURAL BUFFER
N01°37'10"E
+70
FO
E-5.1
+80
+95
16'
+81.42
+00
95'
+00
95'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-14 XXXX CU FT	= SEDIMENT BASIN

235
240
245
250
NATURAL BUFFER
SILT FENCE: 630 LIN.FT.
WALL
P.C. 238+73.92
E-14 2664 CU FT
E-14 3276 CU FT
E-14 3635 CU FT
+50
+25
+15
+94
N01°37'10"E
+00
80'
+90
125'
+05.12
79.14'
+34.78
+00
80'
+80
+20
+00
+50
104'-91.09'
104'-32.82'
+00
95'
P.I. 248+21.05
N17°09'12"W
+00.23
80'

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: jd503
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
PLOTTED: 3/16/2017 16:29
SCALE: 100d

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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.		CA0702	32	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
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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.		CA0702	33	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

280 285 290 295 300 305 310

NO1°28'05"E N00°23'10"W

P.C. 10+14.16 P.I. 10+67.13 P.I. 11+18.30 P.C. 297+00.00 P.R.C. 300+70.84 P.I. 302+56.28 P.I. 304+41.68 P.I. 298+85.44

1692 CU FT E-14 1476 CU FT E-14 2520 CU FT E-14 1548 CU FT E-14 5328 CU FT E-14

NATURAL BUFFER

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn SCALE: 100d
PLOTTED: 3/16/2017 16:30

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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.		CA0702	34	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

310 315 320 325

P.C. 316+68.76 +73.08 80'
P.I. 318+42.10
P.T. 323+37.17 75'
+15.41 70'
SILT FENCE 150 LIN.FT.
SILT FENCE 201 LIN.FT.

N01°28'05"E
N03°12'04.7"E
N01°35'33"E

+45 80', 70.62'
+85 80', 70.54'
+24.09 69.29'
P.R.C. 320+15.41
+75 100', 70.83'
+25 100', 71.16'
P.I. 321+76.30
+37.17 75'
CELL TOWER
GATE
NATURAL BUFFER
+00 130' 80'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

325 330 335 340

+87.73 70'
+87.26 75'
+58.64 140'
+50 150'
2020 CU FT
2480 CU FT
4409 CU FT
6331 CU FT
NATURAL BUFFER

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: AN506
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
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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.		CA0702	35	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

340 345 350 355

P.O.B. 6+93.28
S54°08'17"E
P.I. 9+08.47
P.C. 8+14.55
P.I. 8+39.58
P.R.C. 8+64.31
P.I. 9+55.14
S58°24'27"E
N01°35'33"E
P.C. 10+47.85
P.I. 10+91.75
P.R.C. 11+35
P.I. 11+60.45

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

355 360 365 370

SWAMP
P.O.B. 8+00.00
N61°35'33"E
P.C. 8+67.83
P.R.C. 9+12.57
P.I. 8+90.21
1548 CU FT
P.I. 9+34.95
P.C.C. 9+57.31
710 CU FT
1414 CU FT
SILT FENCE- 112 LIN.FT.
N61°35'33"E
P.C. 10+46.29
P.I. 10+62.67
P.R.C. 10+85.03
P.I. 11+29.77
P.I. 11+07.41
N61°35'33"E
P.O.E. 12+00.00
NATURAL BUFFER
NATURAL BUFFER

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
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SCALE: 100d

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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.		CA0702	36	194

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerome Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

370 375 380 385

SILT FENCE* 102 LIN.FT.

E-14 3546 CU FT

E-14 3546 CU FT

GATE

N01°35'33"E

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

NATURAL BUFFER

385 390 395 400

E-14 3686 CU FT

E-14 2578 CU FT

SILT FENCE* 70 LIN.FT.

E-14 3041 CU FT

N01°35'33"E

NATURAL BUFFER

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\erosion\rCA0702_EC_HWY167.dgn
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SCALE: 100d

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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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.		CA0702	37	194

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
Jerome Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

400 405 410 415 420 105

E-14 420 CU FT

SILT FENCE 126 LIN.FT.
SILT FENCE 115 LIN.FT.
SILT FENCE 160 LIN.FT.

NATURAL BUFFER
NATURAL BUFFER

N01°35'33"E
N01°31'08"E
N00°04'28"E
S87°16'18"E

100' TRANSITION

P.I. 101+00.00
Δ = 00°04'25" RT.

P.I. 104+46.82
Δ = 01°26'40" LT.

℄ HWY. 167 STA. 422+10.94 BK. =
℄ HWY. 167 STA. 100+88.55 AHD.

STA. 421+20.00
END JOB CA0702
LOG MILE 5.04

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- E-14 XXXX CU FT = SEDIMENT BASIN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

USER: ANS106
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SCALE: 100ft

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STAGE IA CONSTRUCTION SEQUENCE:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AS SHOWN ON MAINTENANCE OF TRAFFIC ADVANCE WARNING SHEET.

REMOVE AND REPLACE CROSS ROAD DRAINAGE STRUCTURES AS SHOWN ON PLANS AT STA. 251+03, STA. 270+72, STA. 299+24, STA. 364+65, & STA. 380+44.

STAGE IB CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS & END ROAD WORK SIGNS FROM STAGE IA.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE IB MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 50' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS. PLACE P.C.C.B.

CONSTRUCT PORTIONS OF HWY. 167 & CROSS DRAINS RT. OF C.L. FROM STA. 196+00 TO STA. 421+20.

PLACE LEVELING (AS DIRECTED BY THE ENGINEER) RT. OF C.L. UNDER TRAFFIC IN AREAS NEEDED TO MATCH STAGE IB PAVING.

CONSTRUCT FULL DEPTH SHOULDERS & PAVEMENT WIDENING AT LOCATIONS SHOWN IN SPECIAL DETAILS.

STAGE 2 CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS & END ROAD WORK SIGNS FROM STAGE IB.

APPLY LEVEL COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 50' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS. RELOCATE P.C.C.B.

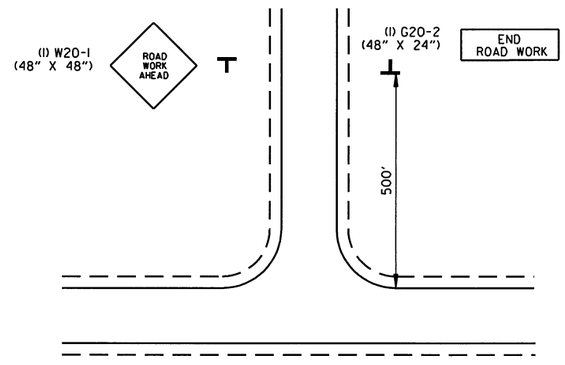
REMOVE BRIDGES STA. 208+96, STA. 228+57 & 236+69. CONSTRUCT LEFT SIDE OF CULVERTS STA. 208+96, STA. 228+57, & STA. 236+69.

CONSTRUCT PORTION OF HWY. 167 AND CROSS DRAINS FROM LT. OF CL. FROM STA. 196+00 TO STA. 421+20.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS AND REFER TO STANDARD DRAWING PM-1.

NOTE: THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 3" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

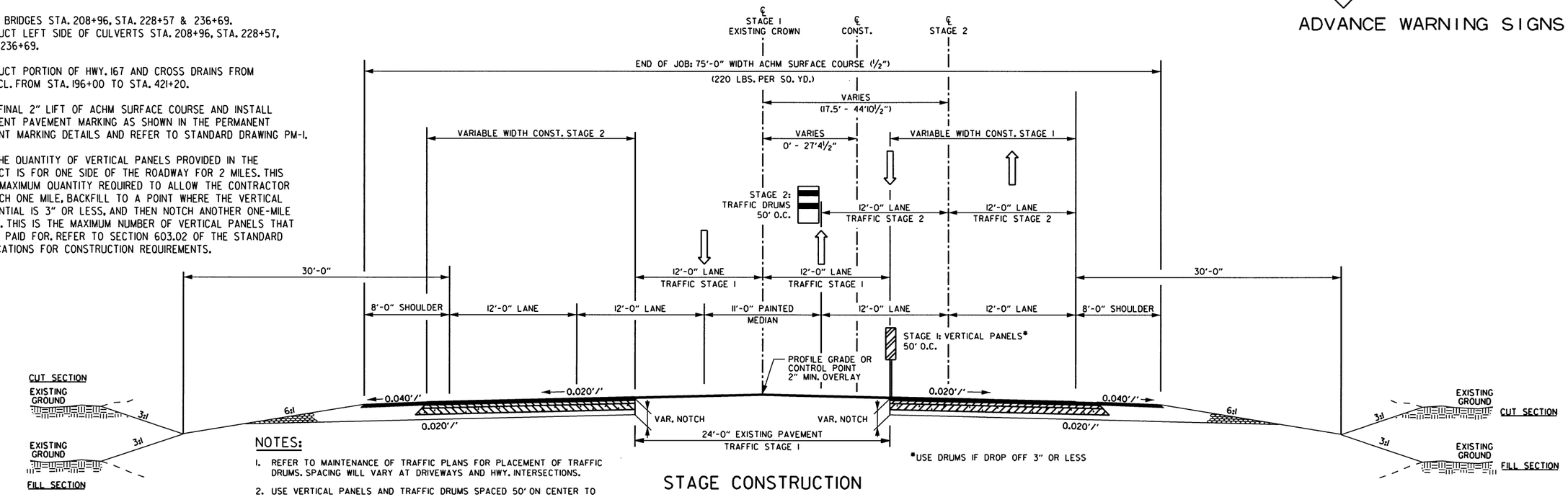
STA. 263+83.72 LT. CO. RD. 50
STA. 276+39.00 LT. CO. RD. 51
STA. 288+60.00 LT. CO. RD. 53
STA. 350+83.58 LT. & RT. CO. RD. 54
STA. 363+64.94 LT. & RT. CO. RD. 89
STA. 423+46.88 LT. HWY 274



ADVANCE WARNING - SIDE ROADS
(ALL ROADS)

SHOULDER DROP-OFF	(2) W8-9A (36" X 36")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
RIGHT SHOULDER CLOSED	(2) W21-5a (48" X 48")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
DO NOT PASS	(8) R4-1 (24" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
BUMP	(1) W8-1 (30" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
	(2) W1-4aL (48" X 48")	STAGE 2 STA. 417+20 RT. STA. 425+20 LT.
	(2) W1-4aR (48" X 48")	STAGE 2 STA. 203+00 LT. STA. 192+00 RT.

ADVANCE WARNING SIGNS



NOTES:

1. REFER TO MAINTENANCE OF TRAFFIC PLANS FOR PLACEMENT OF TRAFFIC DRUMS. SPACING WILL VARY AT DRIVEWAYS AND HWY. INTERSECTIONS.
2. USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 50' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

*USE DRUMS IF DROP OFF 3" OR LESS

STAGE CONSTRUCTION

MAINTENANCE OF TRAFFIC DETAILS

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	38	194

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerrott Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-3-17
JEROME PAUL DAVIS

USER: ANS106
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\maint_of_traffic\rCA0702_MOT_HWY167.dgn
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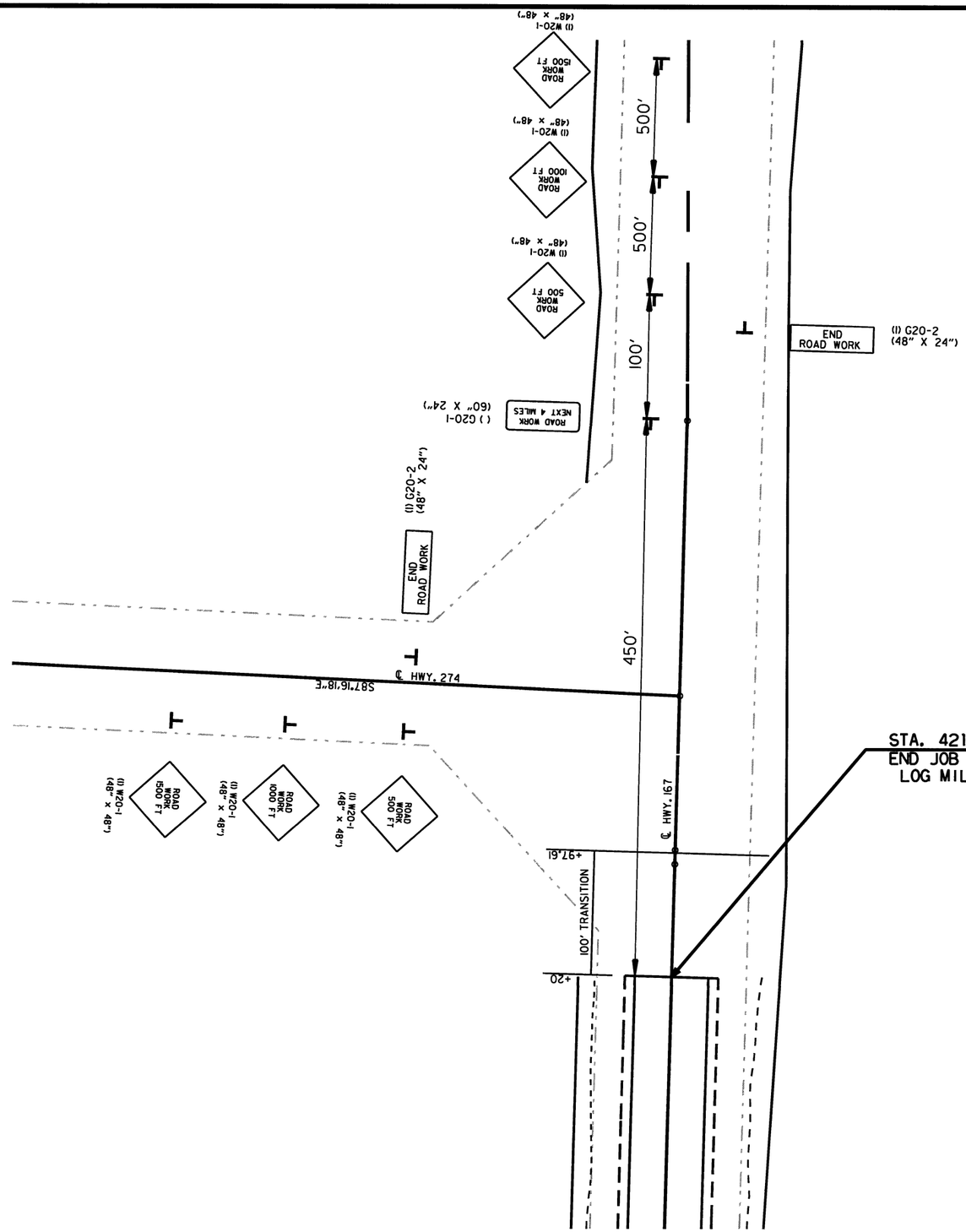
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

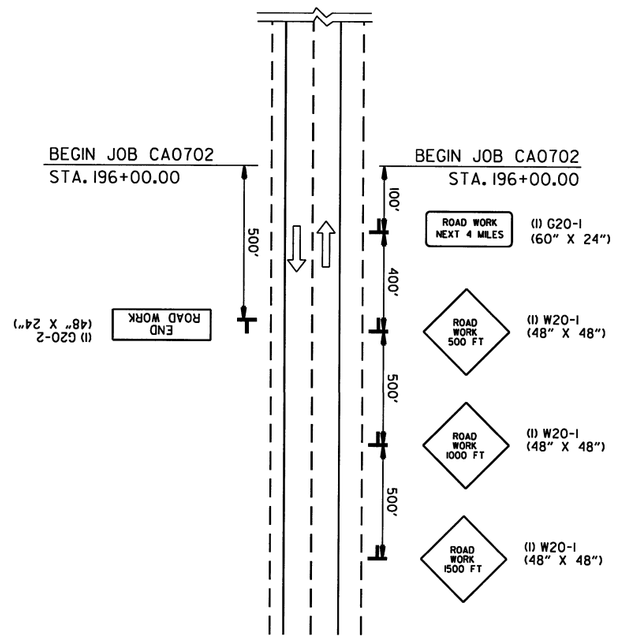
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6	ARK.			
JOB NO.		CA0702	39	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



ADVANCE WARNING (ALL STAGES)



ADVANCE WARNING (ALL STAGES)

MAINTENANCE OF TRAFFIC DETAILS

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STAGE IA CONSTRUCTION SEQUENCE:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AS SHOWN ON MAINTENANCE OF TRAFFIC ADVANCE WARNING SHEET.

REMOVE AND REPLACE CROSS ROAD DRAINAGE STRUCTURES AS SHOWN ON PLANS AT STA. 251+03, STA. 270+72, STA. 299+24, STA. 364+65, STA. 380+44, & STA. 386+56.

STAGE IB CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS & END ROAD WORK SIGNS FROM STAGE IA.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE IB MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 50' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT PORTIONS OF HWY. 167 & CROSS DRAIN RT. OF C.L. FROM STA. 196+00 TO STA. 421+20

PLACE LEVELING (AS DIRECTED BY THE ENGINEER) RT. OF C.L. UNDER TRAFFIC IN AREAS NEEDED TO MATCH STAGE IB PAVING.

STAGE I QUANTITIES

SIGNS = 544 SQ. FT.
TRAFFIC DRUMS = 369 EACH
VERTICAL PANELS = 198 EACH
FURNISHING AND INSTALLING P.C.C.B. = 1,416 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 69,395 LIN. FT.

NOTE: THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 3" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

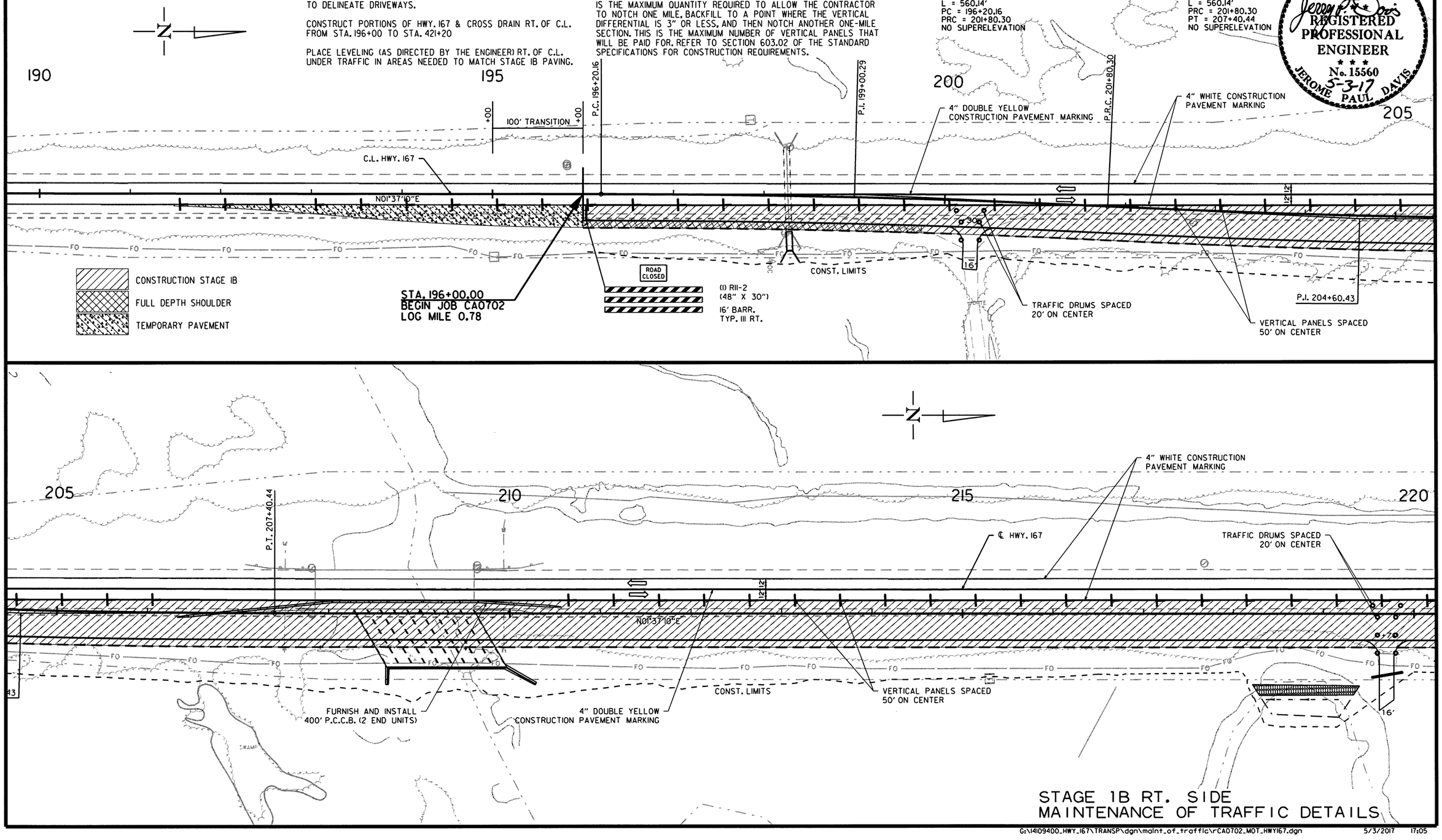
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	40	194

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-3-17
JEROME PAUL DAVIS



C.L. HWY. 167
PI = 199+00.29
Δ = 02°48'02.5" RT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PC = 196+20.16
PRC = 201+80.30
NO SUPERELEVATION

C.L. HWY. 167
PI = 204+60.43
Δ = 02°48'02.5" LT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PRC = 201+80.30
PT = 207+40.44
NO SUPERELEVATION

STAGE 1B RT. SIDE MAINTENANCE OF TRAFFIC DETAILS

USER: AN506
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\maint_of_traffic\rCA0702_MOT_HWY167.dgn
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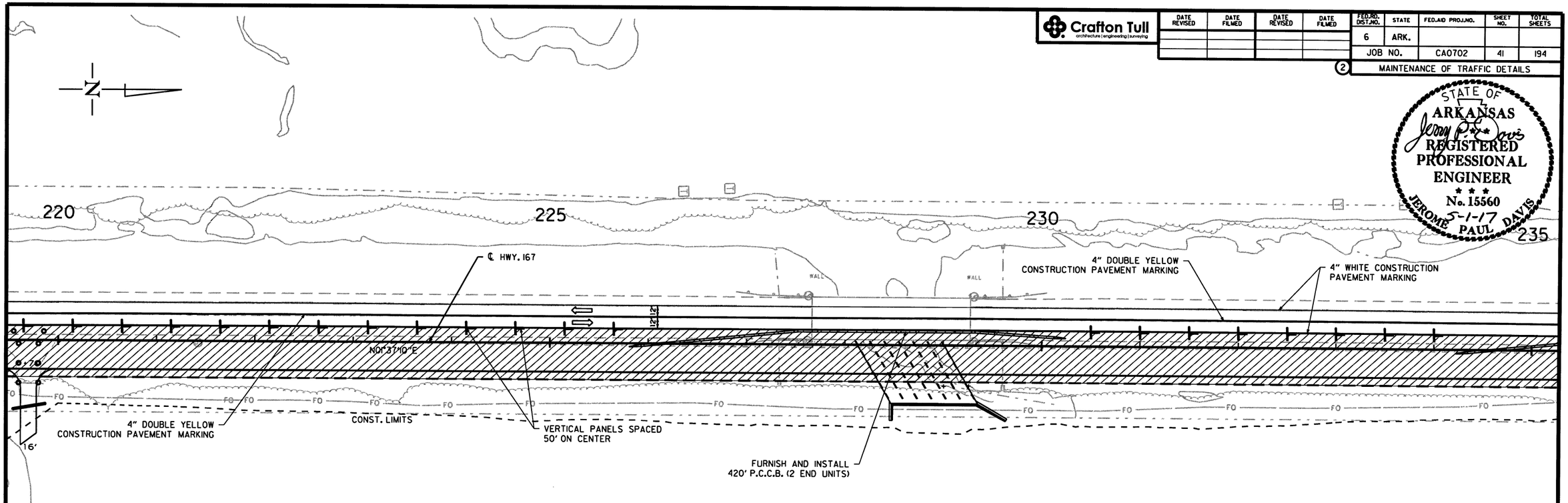
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	41	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



STAGE 1B RT. SIDE
MAINTENANCE OF TRAFFIC DETAILS

USER: jd5103
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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.		CA0702	42	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerry Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

250 255 260 265

4" WHITE CONSTRUCTION PAVEMENT MARKING

℄ HWY. 167

P.T. 257+51.20

P.C. 261+02.62

VERTICAL PANELS SPACED 50' ON CENTER

N17°09'12"W

2"W

CONST. LIMITS

16' GATE

TRAFFIC DRUMS SPACED 50' ON CENTER

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

REPLACE CULVERT STAGE IA

CONSTRUCTION STAGE IB

265 270 275 280

P.I. 265+72.30

P.T. 270+33.69

REPLACE CULVERT STAGE IA

℄ HWY. 167

N01°28'05"E

4" WHITE CONSTRUCTION PAVEMENT MARKING

16' GATE

CONST. LIMITS

TRAFFIC DRUMS SPACED 20' ON CENTER

C.L. HWY. 167
PI = 265+72.30
Δ = 18°37'17" RT.
D = 02°00'00"
T = 469.68'
L = 931.07'
PC = 261+02.62
PT = 270+33.69
e = 0.055 '/'
Ls = 540'

VERTICAL PANELS SPACED 50' ON CENTER

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

STAGE 1B RT. SIDE
MAINTENANCE OF TRAFFIC DETAILS

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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.		CA0702	43	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

280 285 290 295

(1) RII-2 (48" X 30")
16' BARR. TYP. III LT.

ROAD CLOSED

℄ HWY. 167

4" WHITE CONSTRUCTION PAVEMENT MARKING

N01°28'05"E

CONST. LIMITS

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

VERTICAL PANELS SPACED 50' ON CENTER

TRAFFIC DRUMS SPACED 20' ON CENTER

P.C. 10+44.16

P.I. 10+67.13

P.T. 11+18.30

ROAD CLOSED

(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.

C.L. CO. RD. 53
P.I. = 10+67.13
Δ = 25°46'32" LT.
D = 28°38'52"
T = 45.76'
L = 89.97'
PC= 10+21.37
PT= 11+11.34
NO SUPERELEVATION

CO. RD. 53
N50°41'33"E

CONSTRUCTION STAGE IB

295 300 305 310

C.L. HWY. 167
PI = 298+85.44
Δ = 01°51'15.1" LT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PC = 297+00.00
PRC = 300+70.84
NO SUPERELEVATION

P.C. 297+00.00

REPLACE CULVERT STAGE IA

P.R.C. 300+70.84

P.I. 302+56.28

P.T. 304+41.68

4" WHITE CONSTRUCTION PAVEMENT MARKING

℄ HWY. 167

N01°28'05"E

N00°23'10"W

N01°28'05"E

CONST. LIMITS

VERTICAL PANELS SPACED 50' ON CENTER

P.I. 298+85.44

C.L. HWY. 167
PI = 302+56.28
Δ = 01°51'15.1" RT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PRC = 300+70.84
PT = 304+41.68
NO SUPERELEVATION

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

16'

TRAFFIC DRUMS SPACED 20' ON CENTER

TRAFFIC DRUMS SPACED 50' ON CENTER

POND 208Z.

STAGE 1B RT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	44	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

310 315 320 325

C.L. HWY. 167
PI = 318+42.10
Δ = 01°43'59.7" RT.
D = 00°30'00"
T = 173.34'
L = 346.65'
PC = 316+68.76
PRC = 320+15.41
NO SUPERELEVATION

C.L. HWY. 167
PI = 321+76.30
Δ = 01°36'31.7" LT.
D = 00°30'00"
T = 160.89'
L = 321.76'
PRC = 320+15.41
PT = 323+37.17
NO SUPERELEVATION

P.C. 316+68.76
P.I. 318+42.10
P.T. 323+37.17
℄ HWY. 167
N01°28'05"E
N03°12'04.7"E
N01°35'33"E
12'
107'
78'
16'
16'
16'
16'
CELL TOWER
TRAFFIC DRUMS SPACED 50' ON CENTER
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
4" WHITE CONSTRUCTION PAVEMENT MARKING
TRAFFIC DRUMS SPACED 20' ON CENTER
P.R.C. 320+15.41
P.I. 321+76.30
200'
16' GATE
CONST. LIMITS
1040'
FO

CONSTRUCTION STAGE IB
FULL DEPTH SHOULDER

325 330 335 340

4" WHITE CONSTRUCTION PAVEMENT MARKING
℄ HWY. 167
N01°35'33"E
12'
42'
60'
24'
TRAFFIC DRUMS SPACED 20' ON CENTER
CONST. LIMITS
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
TRAFFIC DRUMS SPACED 50' ON CENTER
1040'
FURNISH AND INSTALL 200' P.C.C.B. + (2) END UNITS
GATE
FO

STAGE 1B RT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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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.		CA0702	45	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

340 345 350 355

4" WHITE CONSTRUCTION PAVEMENT MARKING

℄ HWY. 167

N01°35'33"E

11+12

TRAFFIC DRUMS SPACED 50' ON CENTER

(1) RII-2 (48" X 30")
16' BARR. TYP. III LT.
ROAD CLOSED

TRAFFIC DRUMS SPACED 20' ON CENTER

CO. RD. 54

P.C. 10+47.85
P.I. 10+91.75
P.I. 11+60.46
P.R.C. 11+35.43

C.L. CO. RD. 54
P.I. = 10+91.76
Δ = 10°02'05" RT.
D = 11°27'33"
T = 43.90'
L = 87.57'
PC= 10+47.86
PRC= 11+35.43
NO SUPERELEVATION

(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.
ROAD CLOSED

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

CONST. LIMITS

C.L. CO. RD. 54
P.I. = 11+60.46
Δ = 05°43'55" LT.
D = 11°27'33"
T = 25.03'
L = 50.02'
PRC= 11+35.43
PT= 11+85.45
NO SUPERELEVATION

CONSTRUCTION STAGE IB

355 360 365 370

SWAMP

CO. RD. 89

(1) RII-2 (48" X 30")
16' BARR. TYP. III LT.
ROAD CLOSED

℄ HWY. 167

N01°35'33"E

11+12

TRAFFIC DRUMS SPACED 50' ON CENTER

TRAFFIC DRUMS SPACED 20' ON CENTER

P.I. 10+62.67
P.R.C. 10+85.03
P.I. 11+29.77

C.L. CO. RD. 89
P.I. = 10+62.67
Δ = 05°07'35" LT.
D = 11°27'33"
T = 22.38'
L = 44.74'
PC= 10+40.28
PRC= 10+85.02
NO SUPERELEVATION

REPLACE CULVERT STAGE IA

10

P.I. 11+07.41

N61°35'33"E

CO. RD. 89

P.O.E. 12+00.00

(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.
ROAD CLOSED

4" WHITE CONSTRUCTION PAVEMENT MARKING

N01°35'33"E

CONST. LIMITS

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

C.L. CO. RD. 89
P.I. = 11+07.40
Δ = 05°07'35" RT.
D = 11°27'33"
T = 22.38'
L = 44.74'
PRC= 10+85.02
PT= 11+29.76
NO SUPERELEVATION

STAGE 1B RT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	46	194

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

370 375 380 385

REPLACE CULVERT STAGE IA

4" WHITE CONSTRUCTION PAVEMENT MARKING

℄ HWY. 167

N01°35'33"E

50'

77'

16'

16'

TRAFFIC DRUMS SPACED 50' ON CENTER

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 20' ON CENTER

CONST. LIMITS

CONSTRUCTION STAGE IB

385 390 395 400

℄ HWY. 167

4" WHITE CONSTRUCTION PAVEMENT MARKING

N01°35'33"E

TRAFFIC DRUMS SPACED 50' ON CENTER

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

CONST. LIMITS

STAGE 1B RT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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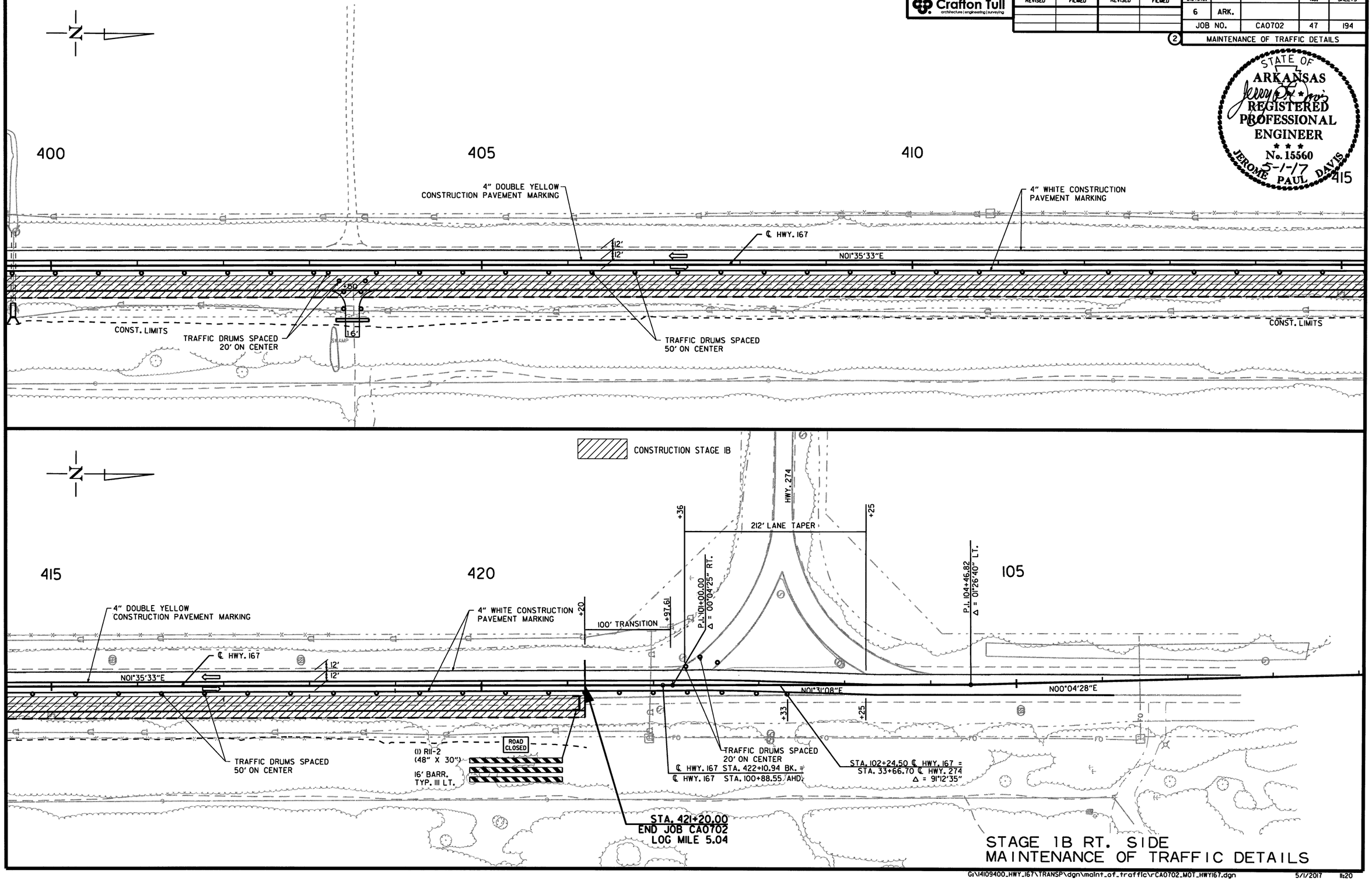
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	47	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerry D. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



STAGE 1B RT. SIDE
MAINTENANCE OF TRAFFIC DETAILS

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STAGE 2 CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS & END ROAD WORK SIGNS FROM STAGE IB.

APPLY LEVEL COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 50' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS. RELOCATE P.C.C.B.

STAGE 2 CONSTRUCTION SEQUENCE (CONTINUED):

REMOVE BRIDGES STA. 208+96, STA. 228+57 & 236+69.
CONSTRUCT LEFT SIDE OF CULVERTS STA. 208+96, STA. 228+57, & STA. 236+69.

CONSTRUCT PORTION OF HWY. 167 AND CROSS DRAINS FROM LT. OF CL. FROM STA. 196+00 TO STA. 421+20.

STAGE 2 QUANTITIES:

SIGNS = 608 SQ. FT.
TRAFFIC DRUMS = 762 EACH
RELOCATING P.C.C.B. = 1336 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 2103 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 84,621 LIN. FT.
BARRICADE (TYPE III) - RT. (16') = 64 LIN. FT.
BARRICADE (TYPE III) - LT. (16') = 64 LIN. FT.

STAGE 2 CONSTRUCTION SEQUENCE (CONTINUED):

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS AND REFER TO STANDARD DRAWING PM-1.

NOTE: THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 3" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0702		48	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-3-17

190 195 200 205 210 215 220

HWY. 167 (STAGE 2 MOT)
P.I. = 192+06.24
Δ = 05°14'46" RT.
D = 02°00'00"
T = 131.24'
L = 262.30'
PC = 190+75.00
PRC = 193+37.30

P.C. 190+75.00
P.I. 192+06.24
P.R.C. 193+37.30
+00 100' TRANSITION +00
P.C. 196+20.16
(1) RII-2 (48" X 30")
16' BARR. TYP. III RT. ROAD CLOSED
P.I. 199+00.29
P.R.C. 201+80.30
TRAFFIC DRUMS SPACED 50' ON CENTER
CONST. LIMITS
℄ HWY. 167
N01°37'10"E
N06°51'56"E
4" DOUBLE YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING
4" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING
HWY. 167 (STAGE 2 MOT)
P.I. = 194+68.54
Δ = 05°14'46" LT.
D = 02°00'00"
T = 131.24'
L = 262.30'
PRC = 193+37.30
PT = 195+99.60
P.I. 194+68.54
P.T. 195+99.60
STA. 196+00.00
BEGIN JOB CA0702
LOG MILE 0.78
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
CONST. LIMITS
P.O.E. 200+06.52
C.L. HWY. 167
PI = 204+60.43
Δ = 02°48'02.5" LT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PRC = 201+80.30
PT = 207+40.44
NO SUPERELEVATION
P.I. 204+60.43
4" WHITE CONSTRUCTION PAVEMENT MARKING
P.T. 207+40.44
RELOCATE 400' P.C.C.B. + (2) END UNITS
TRAFFIC DRUMS SPACED 50' ON CENTER
CONST. LIMITS
℄ HWY. 167
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
CONST. LIMITS
4" WHITE CONSTRUCTION PAVEMENT MARKING
SWAMP
FO
12'
+30'
+70'
16'

CONSTRUCTION STAGE 2
FULL DEPTH SHOULDER
TEMPORARY PAVEMENT

STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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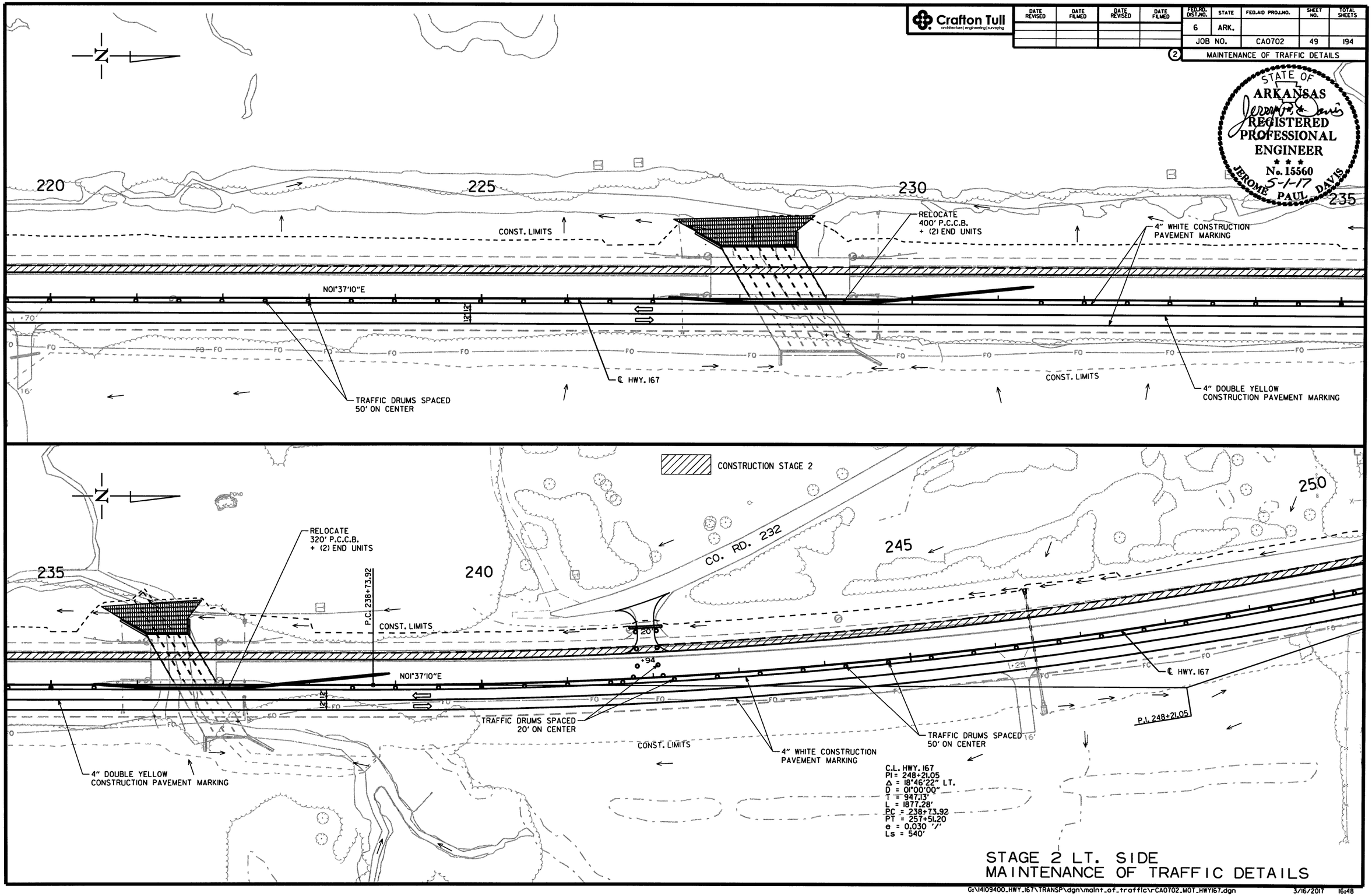
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	49	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17



STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0702		50	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

250 255 260 265

TRAFFIC DRUMS SPACED 20' ON CENTER

℄ HWY. 167

P.T. 257+51.20

P.C. 261+02.62

P.O.E. 1+44.73

CO. RD. 232

S00°00'00"E

38.78' TO ℄

CONST. LIMITS

N17°09'12"W

4" WHITE CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 50' ON CENTER

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

(1) RII-2 (48" X 30") 16' BARR. TYP. III RT.

(1) RII-2 (48" X 30") 16' BARR. TYP. III LT.

ROAD CLOSED

GATE

CONSTRUCTION STAGE 2

265 270 275 280

P.I. 265+72.30

P.T. 270+33.69

TRAFFIC DRUMS SPACED 20' ON CENTER

℄ HWY. 167

N01°28'05"E

TRAFFIC DRUMS SPACED 50' ON CENTER

4" WHITE CONSTRUCTION PAVEMENT MARKING

CONST. LIMITS

GATE

STAGE 2 LT. SIDE
MAINTENANCE OF TRAFFIC DETAILS

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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.		CA0702	51	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerome Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

280 285 290 295

16' CONST. LIMITS

TRAFFIC DRUMS SPACED 20' ON CENTER

℄ HWY. 167

20'

+42 +00 +90 +17 +15 +12 +76 +47

N01°28'05"E

12'

P.C. 10+14.76

N15°28'05"E

FO

4" WHITE CONSTRUCTION PAVEMENT MARKING

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

P.I. 10+67.13

P.T. 11+18.30

DEGREE 35'E

C.L. CO. RD. 53
P.I. = 10+67.13
Δ = 25°46'32" LT.
D = 28°38'52"
T = 45.76'
L = 89.97'
PC= 10+21.37
PT= 11+11.34
NO SUPERELEVATION

CONST. LIMITS

TRAFFIC DRUMS SPACED 50' ON CENTER

CONSTRUCTION STAGE 2

295 300 305 310

C.L. HWY. 167
PI = 298+85.44
Δ = 01°51'15.1" LT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PC = 297+00.00
PRC = 300+70.84
NO SUPERELEVATION

P.C. 297+00.00

P.R.C. 300+70.84

P.I. 302+56.28

C.L. HWY. 167
PI = 302+56.28
Δ = 01°51'15.1" RT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PRC = 300+70.84
PT = 304+41.68
NO SUPERELEVATION

P.T. 304+41.68

℄ HWY. 167

TRAFFIC DRUMS SPACED 50' ON CENTER

CONST. LIMITS

N01°28'05"E

N00°23'40"W

N01°28'05"E

12'

+90

4" WHITE CONSTRUCTION PAVEMENT MARKING

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

P.I. 298+85.44

CONST. LIMITS

POND

STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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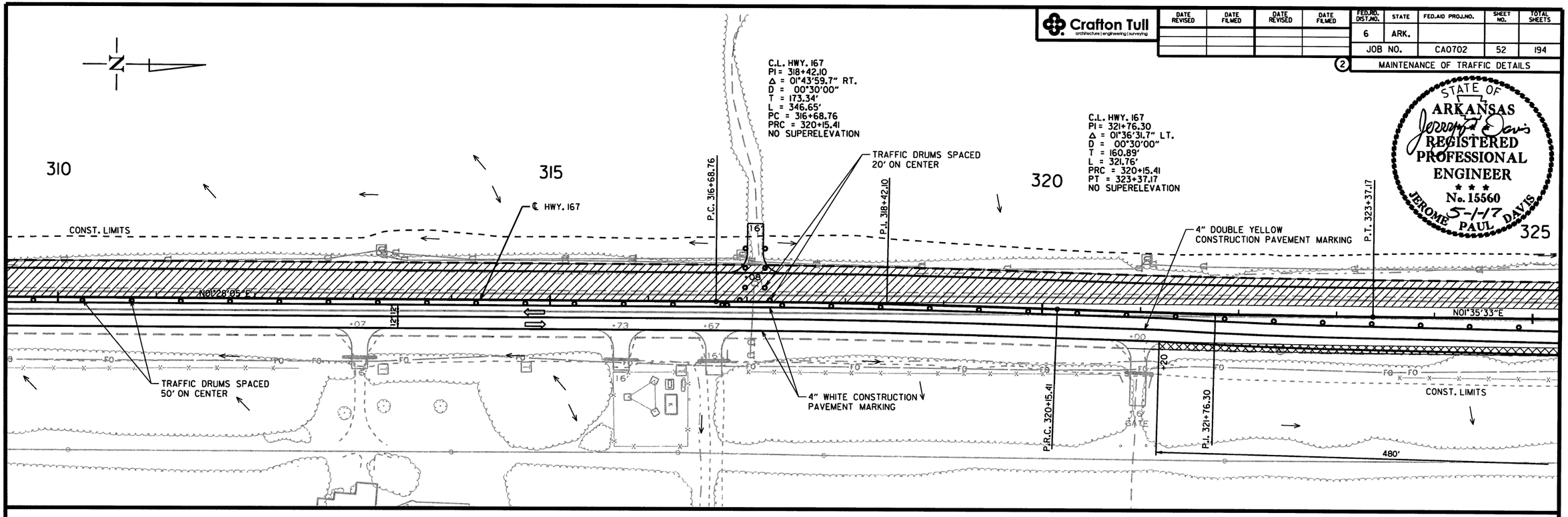
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architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	52	194

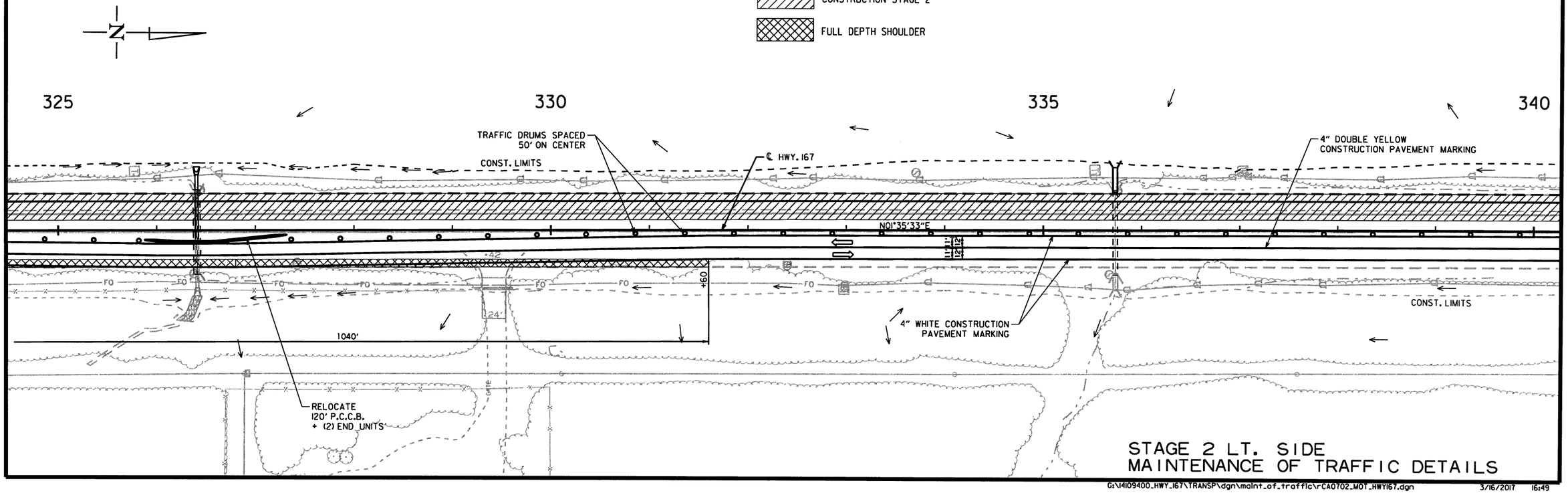
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerrod Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



CONSTRUCTION STAGE 2

FULL DEPTH SHOULDER



STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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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.		CA0702	53	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

C.L. CO. RD. 54
P.I. = 9+08.47
Δ = 10°02'05" LT.
D = 11°27'33"
T = 43.90'
L = 87.57'
PRC= 8+64.57
PT= 9+52.15
NO SUPERELEVATION

C.L. CO. RD. 54
P.I. = 10+91.76
Δ = 10°02'05" RT.
D = 11°27'33"
T = 43.90'
L = 87.57'
PC= 10+47.86
PRC= 11+35.43
NO SUPERELEVATION

C.L. CO. RD. 54
P.I. = 8+39.58
Δ = 05°43'55" RT.
D = 11°27'33"
T = 25.03'
L = 50.02'
PC= 8+14.55
PRC= 8+64.57
NO SUPERELEVATION

C.L. CO. RD. 54
P.I. = 11+60.46
Δ = 05°43'55" LT.
D = 11°27'33"
T = 25.03'
L = 50.02'
PRC= 11+35.43
PT= 11+85.45
NO SUPERELEVATION

340 345 350 355

CONST. LIMITS
℄ HWY. 167
16'
12'
12'
TRAFFIC DRUMS SPACED 50' ON CENTER
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
4" WHITE CONSTRUCTION PAVEMENT MARKING
TRAFFIC DRUMS SPACED 20' ON CENTER
(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.
ROAD CLOSED
(1) RII-2 (48" X 30")
16' BARR. TYP. III LT.
ROAD CLOSED
P.O.B. 6+93.28
S54°06'17"E
CO. RD. 54
P.I. 9+08.47
P.C. 8+14.55
P.I. 8+39.58
P.R.C. 8+64.57
S58°24'27"E
P.C. 10+47.85
P.I. 10+91.75
P.R.C. 11+35
P.I. 11+60.45
CO. RD. 54
CONST. LIMITS

CONSTRUCTION STAGE 2
SWAMP
P.O.B. 8+00.00
N6°35'33"E
CO. RD. 89
P.C. 8+67.83
P.R.C. 9+12.57
P.I. 8+90.21
P.I. 9+34.95
P.T. 9+57.31
C.L. CO. RD. 89
P.I. = 8+90.21
Δ = 05°07'35" LT.
D = 11°27'33"
T = 22.38'
L = 44.74'
PC= 8+67.82
PRC= 9+12.56
NO SUPERELEVATION

C.L. CO. RD. 89
P.I. = 9+34.94
Δ = 05°07'35" RT.
D = 11°27'33"
T = 22.38'
L = 44.74'
PRC= 9+12.56
PT= 9+57.30
NO SUPERELEVATION

355 360 365 370

℄ HWY. 167
CONST. LIMITS
TRAFFIC DRUMS SPACED 20' ON CENTER
ROAD CLOSED
(1) RII-2 (48" X 30")
16' BARR. TYP. III LT.
N01°35'33"E
N6°35'33"E
P.C. 10+40.28
12'
12'
TRAFFIC DRUMS SPACED 50' ON CENTER
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.
ROAD CLOSED
P.I. 10+62.67
P.R.C. 10+85.03
P.I. 11+29.77
P.I. 11+07.41
4" WHITE CONSTRUCTION PAVEMENT MARKING
CONST. LIMITS
P.O.E. 12+00.00
CO. RD. 89

C.L. CO. RD. 89
P.I. = 10+62.67
Δ = 05°07'35" LT.
D = 11°27'33"
T = 22.38'
L = 44.74'
PC= 10+40.28
PRC= 10+85.02
NO SUPERELEVATION

C.L. CO. RD. 89
P.I. = 11+07.40
Δ = 05°07'35" RT.
D = 11°27'33"
T = 22.38'
L = 44.74'
PRC= 10+85.02
PT= 11+29.76
NO SUPERELEVATION

STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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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.		CA0702	54	194

2 MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

370 375 380 385

CONST. LIMITS

℄ HWY. 167

TRAFFIC DRUMS SPACED 20' ON CENTER

GATE

TRAFFIC DRUMS SPACED 50' ON CENTER

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

4" WHITE CONSTRUCTION PAVEMENT MARKING

N01°35'33"E

CONSTRUCTION STAGE 2

385 390 395 400

TRAFFIC DRUMS SPACED 20' ON CENTER

CONST. LIMITS

℄ HWY. 167

N01°35'33"E

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 50' ON CENTER

4" WHITE CONSTRUCTION PAVEMENT MARKING

CONST. LIMITS

STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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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.		CA0702	55	194

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-3-17
JEROME PAUL DAVIS

400 405 410 415

CONST. LIMITS

TRAFFIC DRUMS SPACED 20' ON CENTER

℄ HWY. 167

16'

+50

N01°35'33"E

12' 12'

+50

16'

RAMP

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 50' ON CENTER

4" WHITE CONSTRUCTION PAVEMENT MARKING

CONST. LIMITS

HWY. 167 (STAGE 2 MOT)
P.I. = 417+75.14
Δ = 04°36'19.9" LT.
D = 02°00'00"
T = 115.20'
L = 230.28'
PC = 416+59.94
PRC = 418+90.22

HWY. 167 (STAGE 2 MOT)
P.I. = 420+05.42
Δ = 04°36'19.9" RT.
D = 02°00'00"
T = 115.20'
L = 230.28'
PRC = 418+90.22
PT = 421+20.49

CONSTRUCTION STAGE 2

(1) R11-2
(48" X 30")

ROAD CLOSED 16' BARR. TYP. III RT.

S87°16'18"E
C.L. HWY. 274

+54

466' LANE TAPER

+20

415 420 105

P.C. 416+59.94

P.R.C. 418+90.22

P.I. 420+05.42

+20

P.T. 421+20.49

100' TRANSITION

+97.61

P.I. 101+00.00

P.I. 104+46.82
Δ = 01°26'40" LT.

CONST. LIMITS

℄ HWY. 167

N01°35'33"E

12' 12'

N03°00'46.9"W

+38

+25

FO FO FO

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

4" WHITE CONSTRUCTION PAVEMENT MARKING

TRAFFIC DRUMS SPACED 50' ON CENTER

CONST. LIMITS

TRAFFIC DRUMS SPACED 20' ON CENTER

℄ HWY. 167 STA. 422+10.94 BK. =
℄ HWY. 167 STA. 100+88.55 AHD.

STA. 102+24.50 ℄ HWY. 167 =
STA. 33+66.70 ℄ HWY. 274
Δ = 91°12'35"

P.I. 417+75.14

STA. 421+20.00
END JOB CA0702
LOG MILE 5.04

STAGE 2 LT. SIDE MAINTENANCE OF TRAFFIC DETAILS

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PERMANENT PAVEMENT MARKING QUANTITIES

LEFT MAIN LANES
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 22,187 LIN. FT.
6" SKIP WHITE = 5,343 LIN. FT.
RAISED PAVEMENT MARKERS (80' O.C.)
TYPE II (WHITE/RED) = 270 EACH

CENTER TURN LANE
THERMOPLASTIC PAVEMENT MARKINGS
6" YELLOW = 47,663 LIN. FT.
6" SKIP YELLOW = 10,540 LIN. FT.
RAISED PAVEMENT MARKERS
TYPE II (YELLOW/YELLOW) = 581 EACH

RIGHT MAIN LANES
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE = 22,170 LIN. FT.
6" SKIP WHITE = 5,285 LIN. FT.
RAISED PAVEMENT MARKERS (80' O.C.)
TYPE II (WHITE/RED) = 268 EACH

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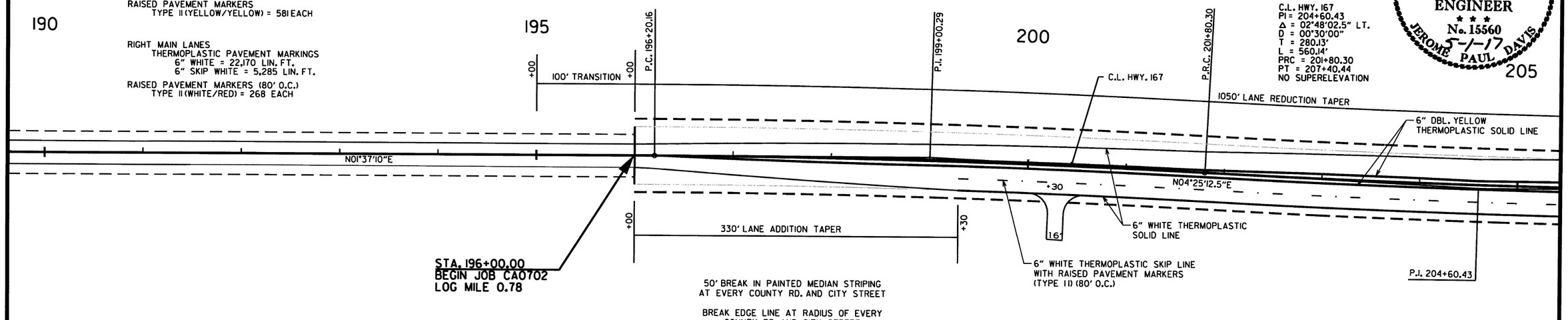
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6	ARK.			
JOB NO.		CA0702	56	194

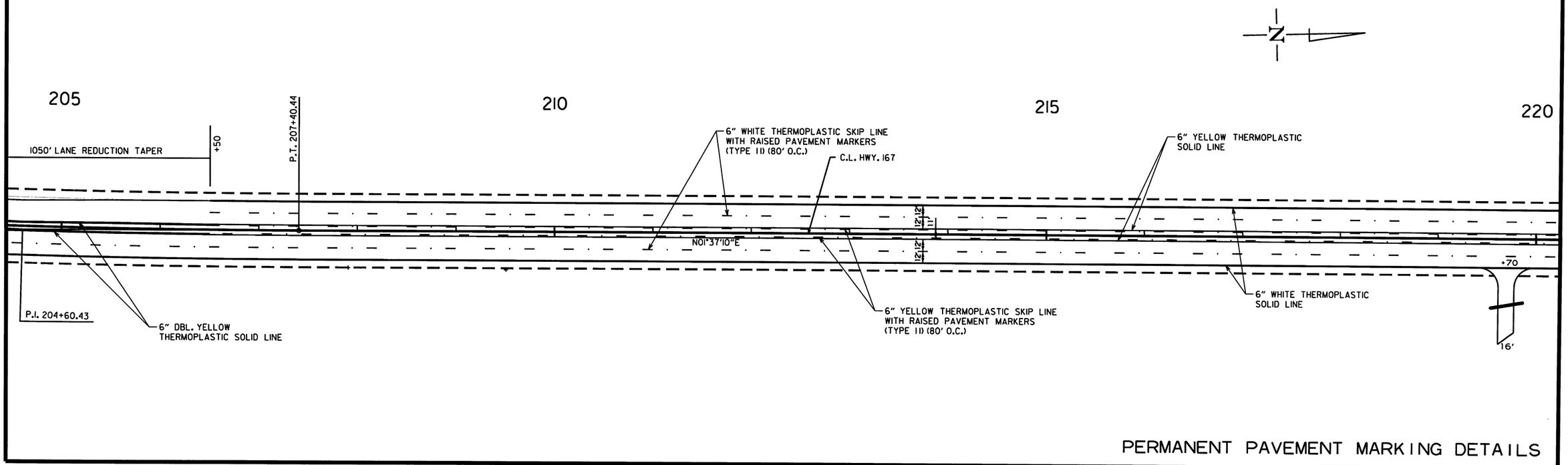
(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

C.L. HWY. 167
PI = 199+00.29
Δ = 02°48'02.5" RT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PC = 196+20.16
PRC = 201+80.30
NO SUPERELEVATION

C.L. HWY. 167
PI = 204+60.43
Δ = 02°48'02.5" LT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PRC = 201+80.30
PT = 207+40.44
NO SUPERELEVATION





PERMANENT PAVEMENT MARKING DETAILS

USER: jd5103
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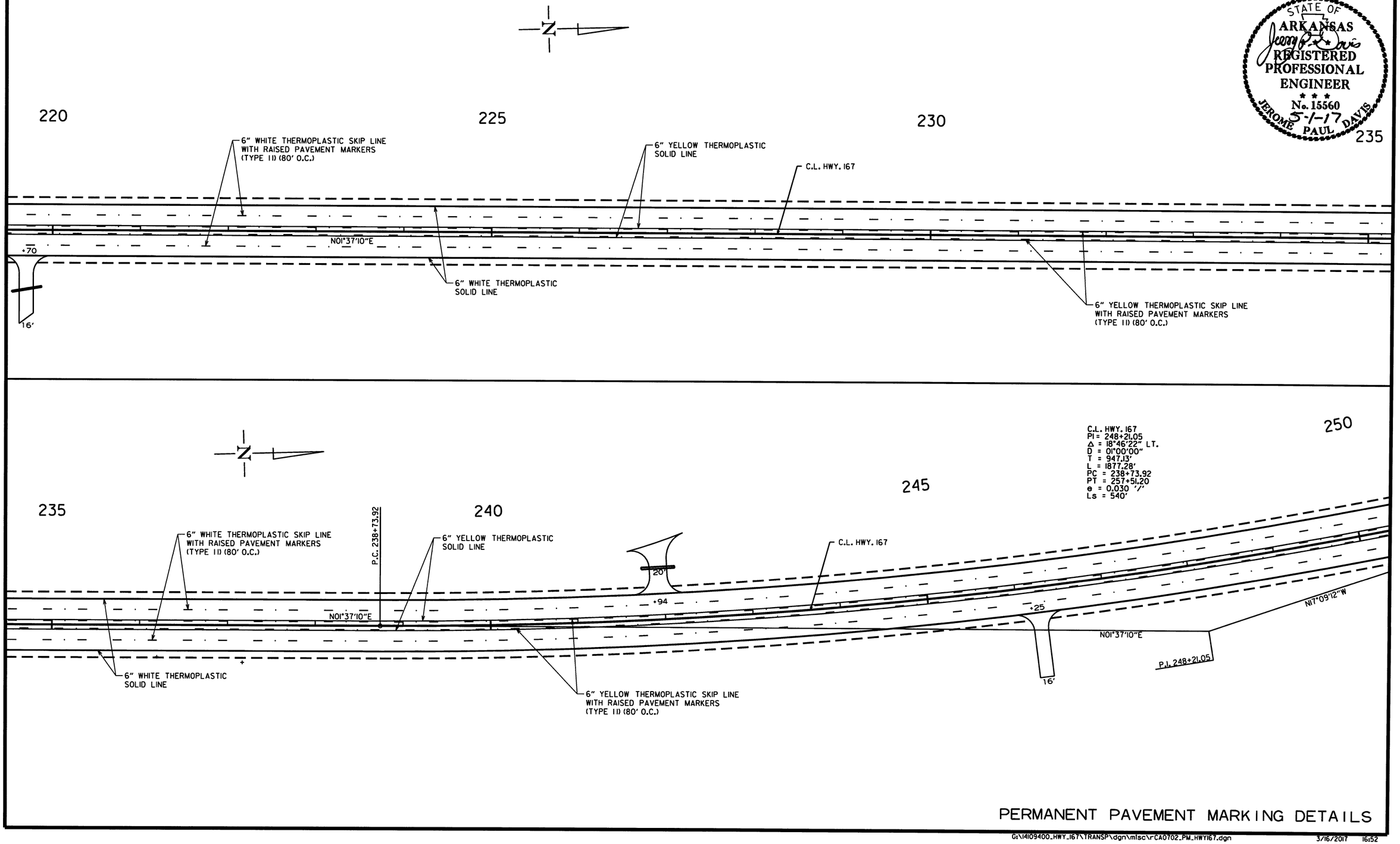
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	57	194

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



PERMANENT PAVEMENT MARKING DETAILS

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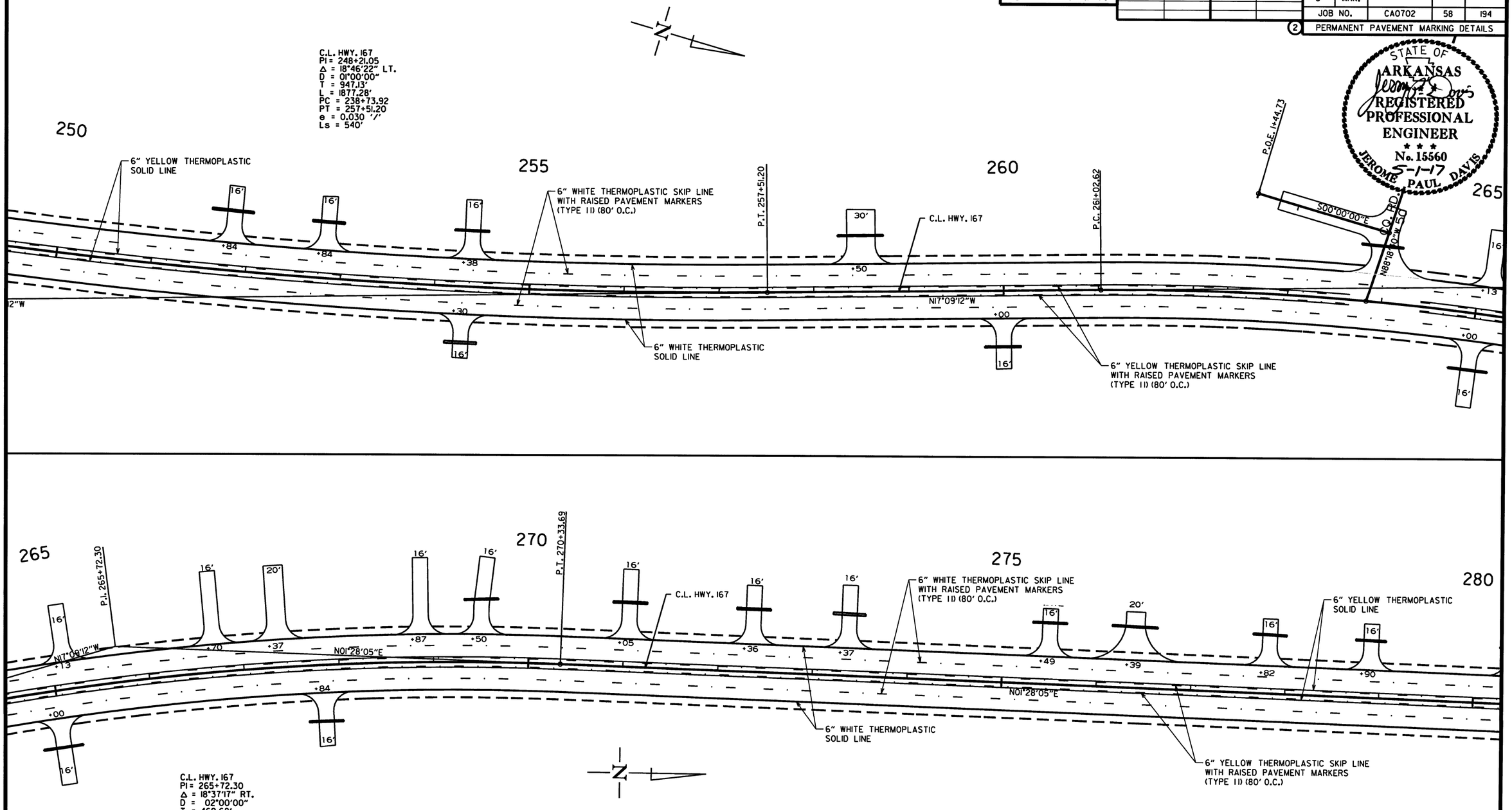
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6	ARK.			
JOB NO.		CA0702	58	194

2 PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

C.L. HWY. 167
PI = 248+21.05
Δ = 18°46'22" LT.
D = 01°00'00"
T = 947.13'
L = 1877.28'
PC = 238+73.92
PT = 257+51.20
e = 0.030 '/'
Ls = 540'



C.L. HWY. 167
PI = 265+72.30
Δ = 18°37'17" RT.
D = 02°00'00"
T = 469.68'
L = 931.07'
PC = 261+02.62
PT = 270+33.69
e = 0.055 '/'
Ls = 540'

PERMANENT PAVEMENT MARKING DETAILS

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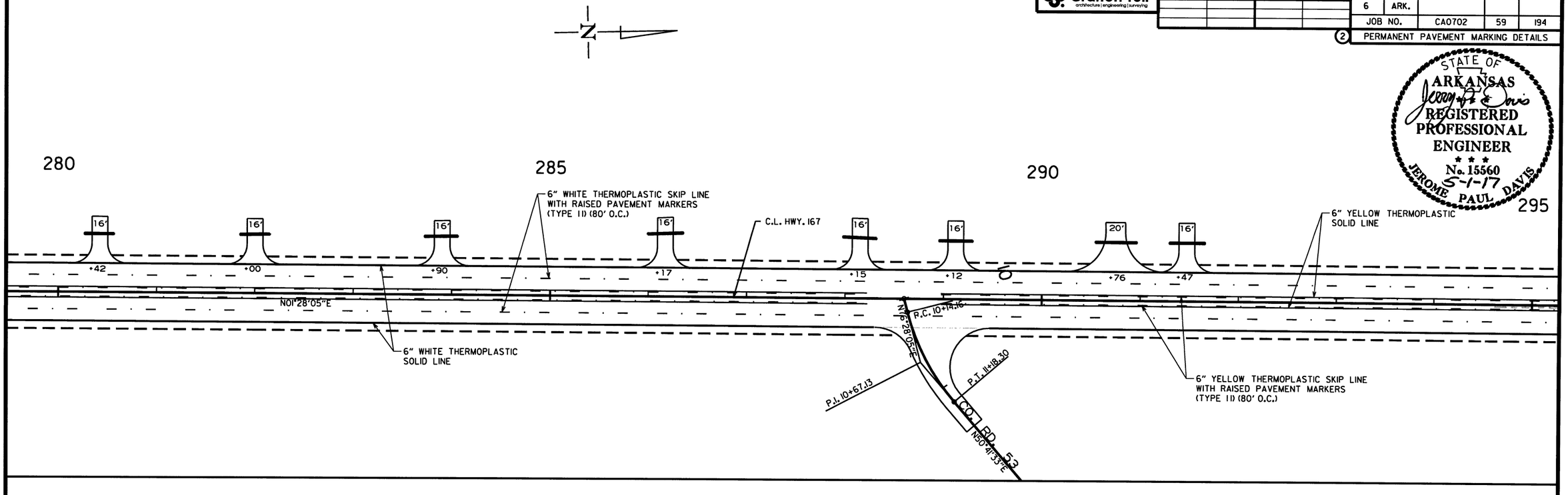
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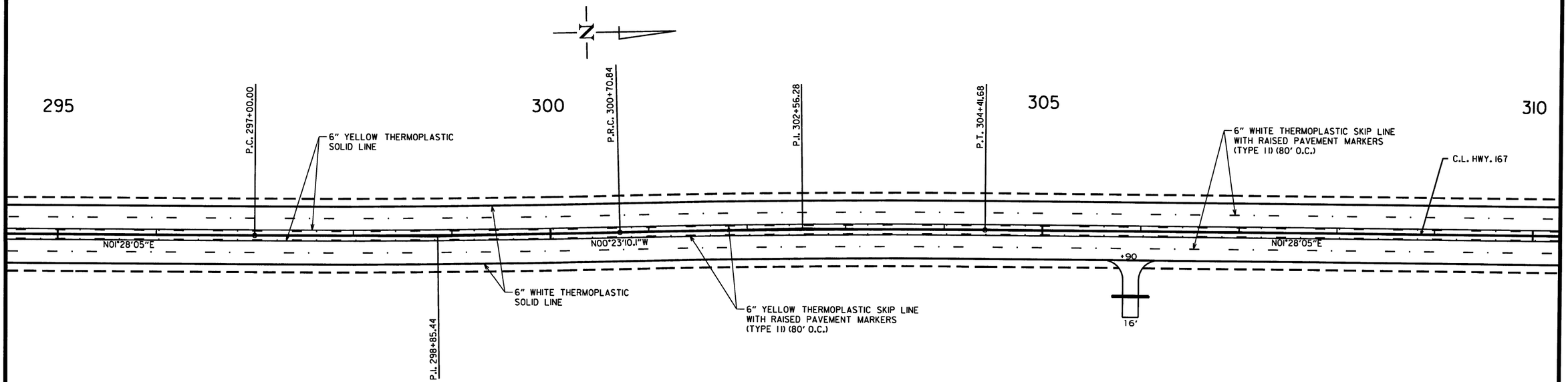
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6	ARK.			
JOB NO.		CA0702	59	194

2 PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS





PERMANENT PAVEMENT MARKING DETAILS

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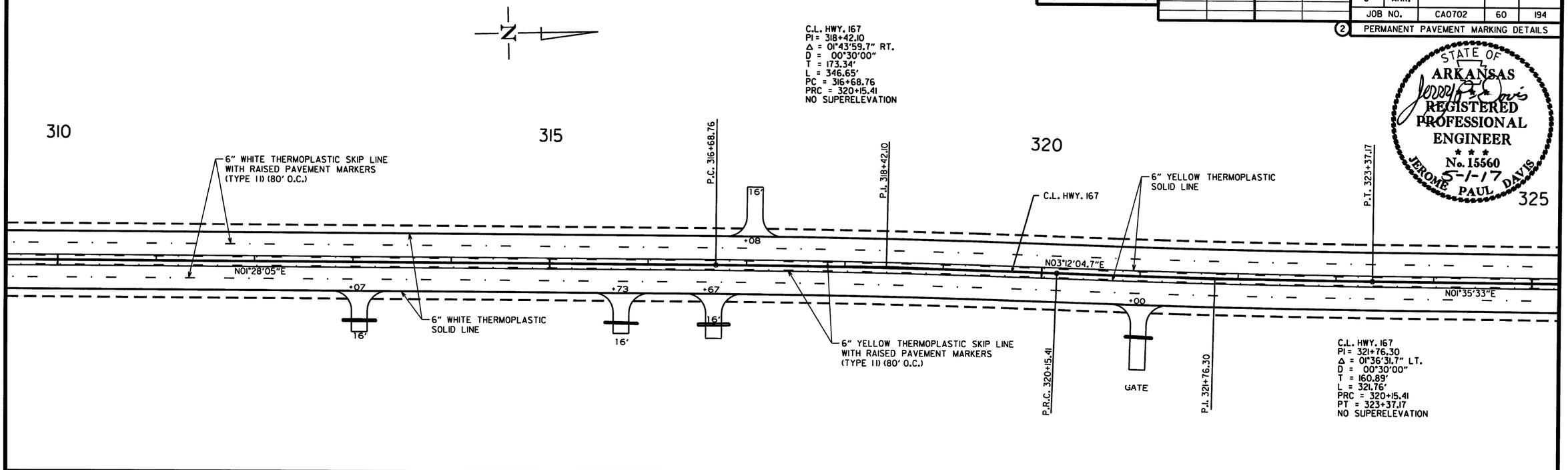
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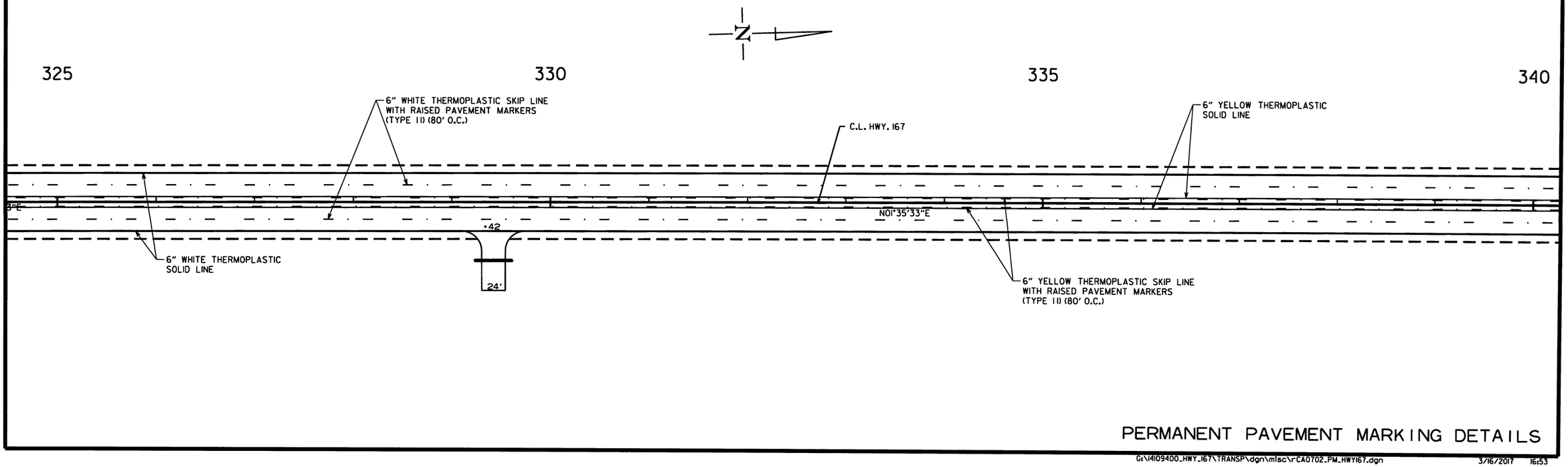
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FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	60	194

2 PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
Jerry Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS





PERMANENT PAVEMENT MARKING DETAILS

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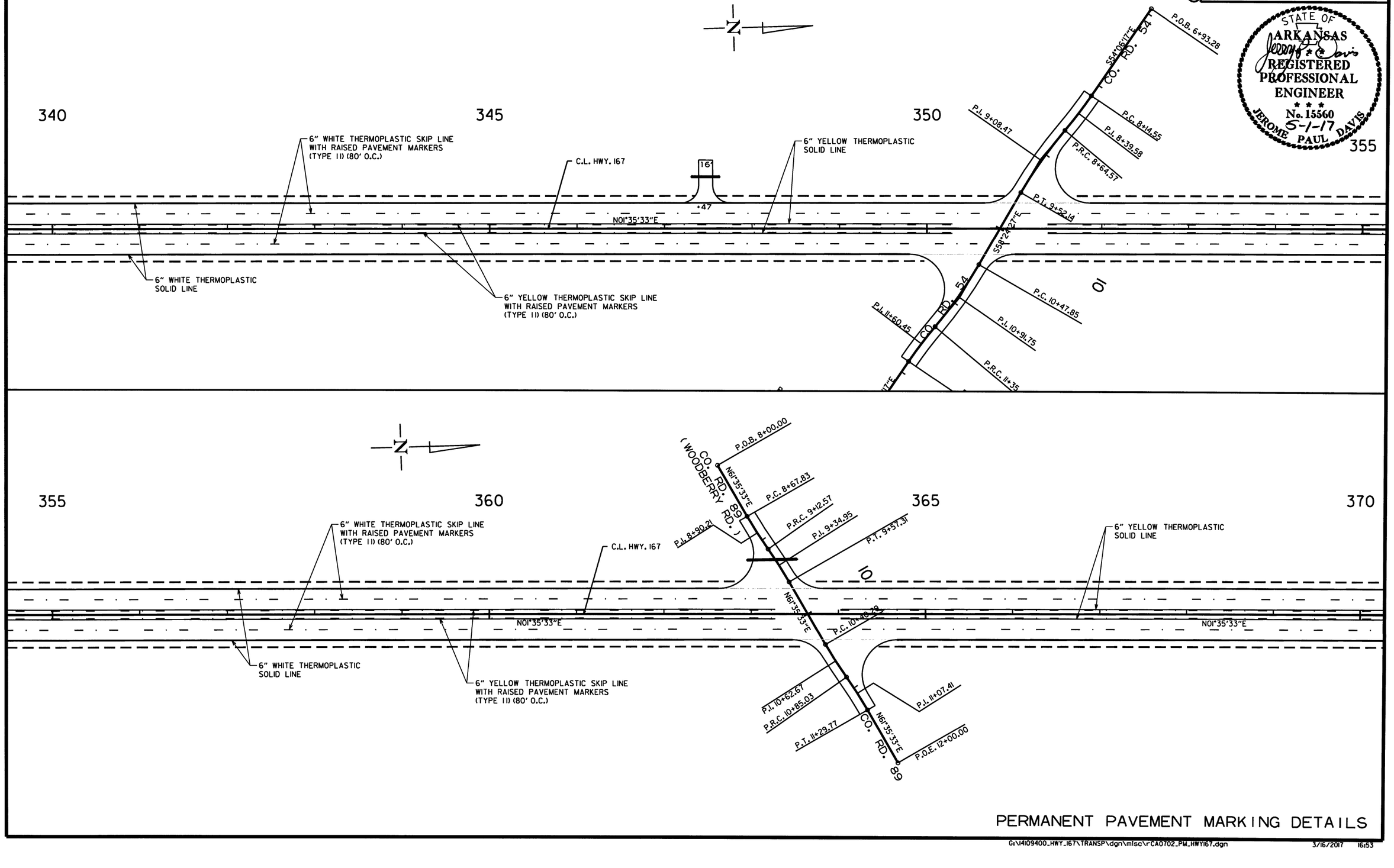
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	61	194

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS



PERMANENT PAVEMENT MARKING DETAILS

USER: jd5103
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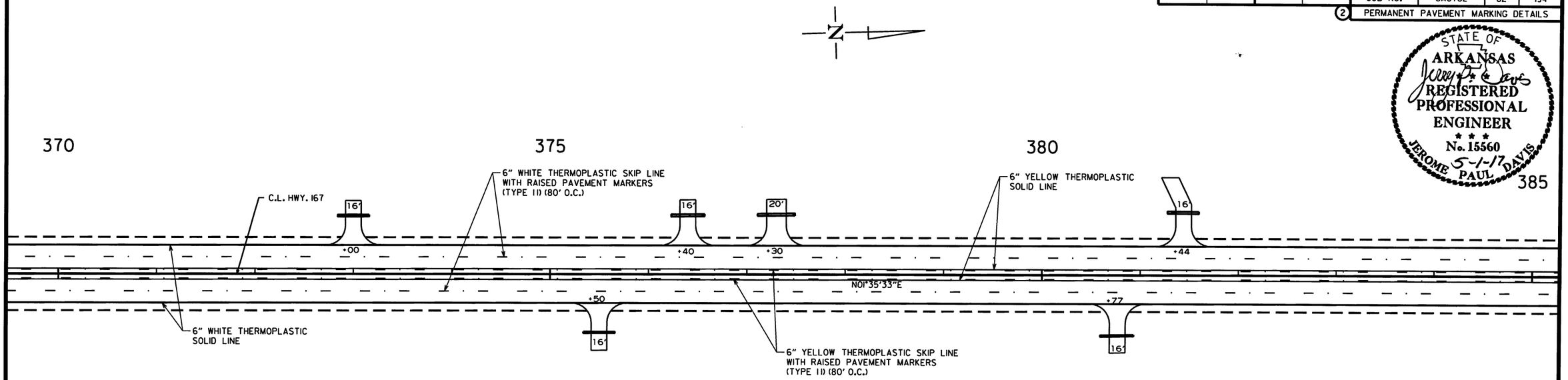
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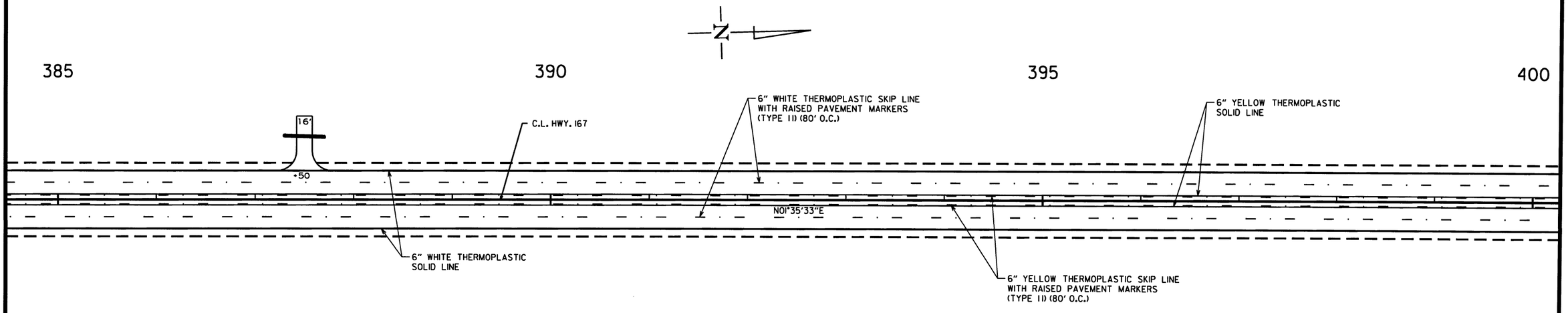
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	62	194

2 PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS





PERMANENT PAVEMENT MARKING DETAILS

USER: jd5103
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Crafton Tull
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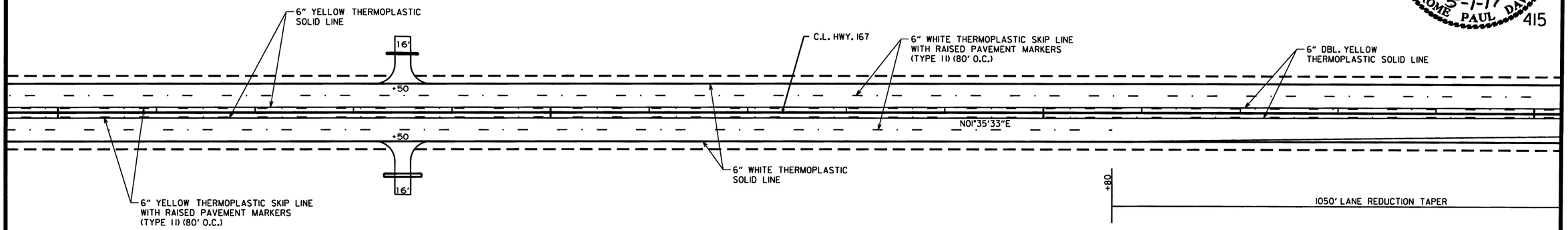
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	63	194

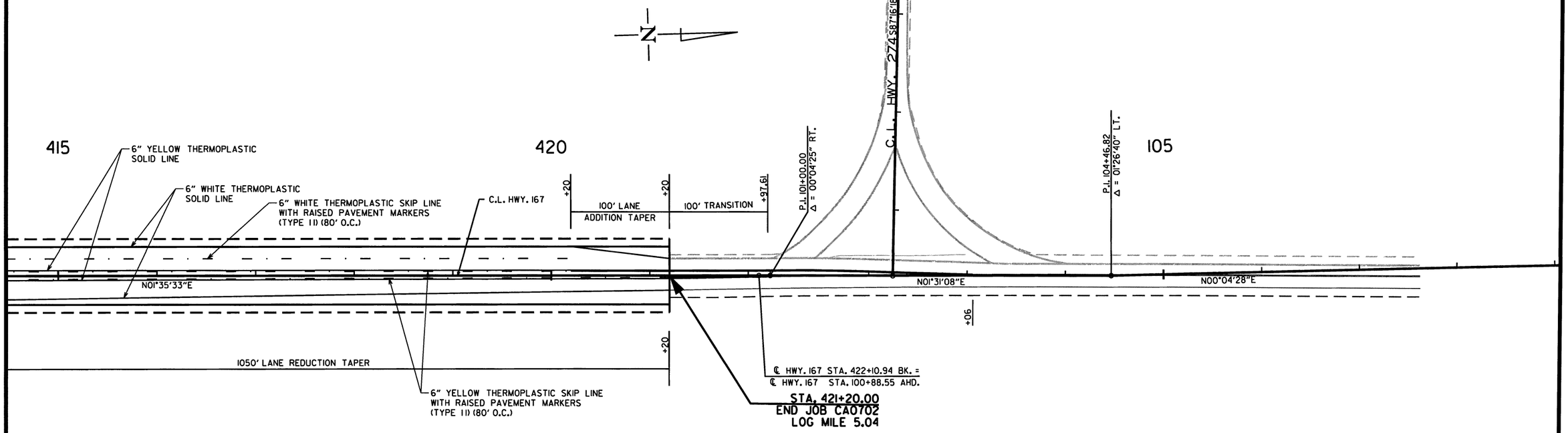
2 PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

400 405 410 415



415 420 105



PERMANENT PAVEMENT MARKING DETAILS

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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
6-15-17				6	ARK.			
				JOB NO.		CA0702	64	194

(2) QUANTITIES

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER
			LIN. FT. - EACH			NO.	SQ. FT.	EACH			LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	3	3	3	3	48.0					
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3	3	48.0					
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3	3	48.0					
W20-1	ROAD WORK AHEAD	48"x48"	8	8	8	8	128.0					
G20-2	END ROAD WORK	48"x24"	11	13	13	13	104.0					
G20-1	ROAD WORK NEXT XX MILES	60"x24"	2	2	2	2	20.0					
R11-2	ROAD CLOSED	48"x30"	8	8	8	8	80.0					
W1-4AR	REVERSE CURVE RT.	48"x48"		2	2	2	32.0					
W1-4AL	REVERSE CURVE LT.	48"x48"		2	2	2	32.0					
R4-1	DO NOT PASS	24"x30"	8	8	8	8	40.0					
W21-5a	RIGHT SHOULDER CLOSED	48"x48"	2	2	2	2	32.0					
W8-1	BUMP	30"x30"	1	1	1	1	6.0					
W8-9A	SHOULDER DROP OFF	36"X36"	2	2	2	2	18.0					
	VERTICAL PANELS		198		198			198				
	TRAFFIC DRUMS		369	762	762				762			
	BARRICADE (TYPE III)- RT. (16')		4	4	4					64		
	BARRICADE (TYPE III)- LT. (16')		4	4	4					64		
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1416		1416						1416	
	RELOCATING PRECAST CONCRETE BARRIER			1336	1336							1336
TOTALS:							636.0	198	762	128	1416	1336

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

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 3" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING 6"	
								TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.			LIN. FT.	EACH		LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	69395	84621				154016					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		2103			2103						
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		69395	86724				156119				
REMOVAL OF PERMANENT PAVEMENT MARKINGS	34225			34225							
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			538					538			
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			581						581		
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			54985							54985	
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			58203								58203
TOTALS:				34225	2103	154016	156119	538	581	54985	58203

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING	19.59	39.18	19.59	1998.2	19.59	19.59	19.59	399.6						
ENTIRE	PROJECT	STAGE 1	16.51	33.02	16.51	1684.0	16.51	16.51	16.51	336.8	1474	159	1131	2721	2721	2852
ENTIRE	PROJECT	STAGE 2	11.84	23.68	11.84	1207.7	11.84	11.84	11.84	241.5	1232	159	3826	3219	3219	3366
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.											132	15	248	297	297	162
TOTALS:			47.94	95.88	47.94	4889.9	47.94	47.94	47.94	977.9	2838	333	5205	6237	6237	6380

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.

SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	107	214
DIRECTED BY THE ENGINEER		
TOTALS:	107	214

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

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC....25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome P. Davis
No. 15560
6-15-17
JEROME PAUL DAVIS

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
207+85.08	209+60.21	HWY. 167 BRIDGE NO. A0309 (SITE NO. 1)	1.00
227+66.12	229+27.12	HWY. 167 BRIDGE NO. A2041 (SITE NO. 2)	1.00
236+15.96	236+91.87	HWY. 167 BRIDGE NO. A0308 (SITE NO. 3)	1.00

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS EACH	BOX CULVERTS EACH
219+70	18" x 30' PIPE CULVERT RT.	1	
241+94	18" x 33' PIPE CULVERT LT.	1	
251+03	24" x 88' R.C. PIPE CULVERT	1	
251+84	24" x 25' PIPE CULVERT LT.	1	
252+84	18" x 25' PIPE CULVERT LT.	1	
254+30	18" x 29' PIPE CULVERT RT.	1	
254+38	15" x 30' PIPE CULVERT LT.	1	
258+50	15" x 40' PIPE CULVERT LT.	1	
260+00	18" x 24' PIPE CULVERT RT.	1	
263+84	18" x 38' PIPE CULVERT LT.	1	
267+37	18" x 39' PIPE CULVERT LT.	1	
267+84	18" x 28' PIPE CULVERT RT.	1	
268+87	18" x 31' PIPE CULVERT LT.	1	
269+50	18" x 21' PIPE CULVERT LT.	1	
270+72	24" x 94' R.C. PIPE CULVERT	1	
271+05	18" x 32' PIPE CULVERT LT.	1	
272+36	18" x 25' PIPE CULVERT LT.	1	
273+37	18" x 25' PIPE CULVERT LT.	1	
275+49	18" x 37' PIPE CULVERT LT.	1	
276+39	18" x 25' PIPE CULVERT LT.	1	
277+82	18" x 31' PIPE CULVERT LT.	1	
278+90	18" x 25' PIPE CULVERT LT.	1	
280+42	18" x 25' PIPE CULVERT LT.	1	
282+00	18" x 25' PIPE CULVERT LT.	1	
283+90	18" x 23' PIPE CULVERT LT.	1	
286+17	18" x 25' PIPE CULVERT LT.	1	
288+15	12" x 29' PIPE CULVERT LT.	1	
289+12	18" x 25' PIPE CULVERT LT.	1	
290+76	18" x 36' PIPE CULVERT LT.	1	
291+47	18" x 29' PIPE CULVERT LT.	1	
299+24	24" x 88' R.C. PIPE CULVERT	1	
305+90	18" x 28' PIPE CULVERT	1	
313+07	24" x 25' PIPE CULVERT RT.	1	
315+73	18" x 21' PIPE CULVERT RT.	1	
316+67	24" x 25' PIPE CULVERT RT.	1	
321+00	18" x 28' PIPE CULVERT RT.	1	
326+41	DBL. 3' x 2' x 86' R.C. BOX CULVERT		1
329+42	18" x 37' PIPE CULVERT LT.	1	
363+29	18" x 37' PIPE CULVERT LT.	1	
363+99	18" x 36' PIPE CULVERT RT.	1	
373+00	24" x 25' PIPE CULVERT LT.	1	
376+40	24" x 29' PIPE CULVERT LT.	1	
377+30	24" x 28' PIPE CULVERT LT.	1	
380+44	24" x 87' R.C. PIPE CULVERT	1	
381+44	24" x 24' PIPE CULVERT LT.	1	
387+50	18" x 38' PIPE CULVERT LT.	1	
403+50	18" x 29' PIPE CULVERT RT.	1	
TOTALS:		46	1

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

QUANTITIES

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	65	194

2 QUANTITIES

SOIL LOG (BOX 1 OF 2)

STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
189+32	31' RT	0.5 - 1.5	20	5	A-4	RD/TN & TN
189+32	31' RT	4.5 - 5.5	--	--	A-4	RD/TN & GR
199+15	32' RT	0.5 - 1.5	23	10	A-2-4	BR/GR & GR
209+78	3' RT	0.5 - 1.5	21	6	A-4	BR
209+78	3' RT	6.5 - 7.5	21	6	A-4	TN /GR
219+45	11' RT	0.5 - 1.5	25	11	A-2-6	GR/TN/RD
229+67	8' RT	0.5 - 1.5	28	13	A-6	TN/GR
239+86	9' RT	0.5 - 1.5	21	7	A-2-4	TN/BR
249+72	14' RT	2.5 - 3.5	NP	NP	A-4	TN
259+64	17' RT	0.5 - 1.5	25	10	A-4	TN/GR
269+50	22' RT	0.5 - 1.5	16	2	A-4	GR/TN
269+50	22' RT	4.5 - 5.5	41	25	A-7-6	TN/GR & RD/TN
279+88	26' RT	0.5 - 1.5	NP	NP	A-4	TN
279+88	26' RT	4.5 - 5.5	38	19	A-6	GR/TN & GR/RD/TN
289+52	29' RT	0.5 - 1.5	NP	NP	A-4	BR
289+52	29' RT	2.5 -3.5	25	9	A-4	GR/TN
299+68	41' RT	0.5 - 1.5	29	12	A-2-6	BR &RD
299+68	41' RT	4.5 - 5.5	--	--	A-4	TN & GR/TN
309+50	40' RT	2.5 - 3.5	33	13	A-6	RD/TN
319+61	46' RT	2.5 - 3.5	--	--	A-4	TN
329-65	46' RT	0.5 - 1.5	NP	NP	A-4	BR
329+65	46' RT	4.5 - 5.5	27	11	A-6	BR & RD/TN
339+49	51' RT	0.5 - 1.5	NP	NP	A-4	TN
349+64	40' RT	0.5 - 1.5	NP	NP	A-2-4	BR
349+64	40' RT	2.5 - 3.5	--	--	A-4	GR/TN
349+64	40' RT	6.5 - 7.5	35	20	A-6	RD/TN & TN & GR
359+49	28' RT	0.5 - 1.5	16	2	A-4	GR/TN
359+49	28' RT	2.5 - 3.5	NP	NP	A-4	GR/TN
359+49	28' RT	4.5 - 5.5	--	--	A-4	GR/TN
369+35	24' RT	0.5 - 1.5	21	6	A-4	GR/TN
369+35	24' RT	2.5 - 3.5	NP	NP	A-4	GR
379+58	30' RT	0.5 - 1.5	18	4	A-4	TN/GR
389+41	28' RT	0.5 - 1.5	NP	NP	A-4	GR/TN
389+41	28' RT	2.5 - 3.5	17	3	A-4	TN/GR
399+38	33' RT	0.5 - 1.5	45	31	A-7-6	TN & RD/TN
399+38	33' RT	6.5 - 7.5	22	7	A-4	TN/GR
409+51	32' RT	0.5 - 1.5	27	12	A-6	RD/TN
409+51	32' RT	4.5 - 5.5	35	17	A-2-6	TN/RD
419+37	38' RT	2.5 - 3.5	33	17	A-6	TN/GR
419+37	38' RT	9 - 10	82	58	A-7-6	TN
423+03	32' RT	2.5 - 3.5	22	5	A-4	TN/GR
423+03	32' RT	6.5 - 7.5	38	19	A-6	RD/TN & TN
186+95	28' LT	0.5 - 1.5	21	6	A-4	RD/TN
196+63	40' LT	0.5 - 1.5	20	6	A-4	BR
196+63	40' LT	6.5 - 7.5	28	15	A-6	TN/GR
206+97	53' LT	0.5 - 1.5	23	9	A-4	TN
206+97	53' LT	2.5 - 3.5	17	3	A-4	BR
216+66	3' RT	0.5 - 1.5	NP	NP	A-1-b	TN/RD
216+66	3' RT	2.5 - 3.5	NP	NP	A-1-b	RD/TN & TN/GR
226+83	4' RT	0.5 - 1.5	20	6	A-4	TN/GR
226+83	4' RT	4.5 - 5.5	21	6	A-4	TN/GR
237+01	2' RT	0.5 - 1.5	21	5	A-1-b	BR
237+01	2' RT	4.5 - 5.5	23	10	A-4	TN/GR
247+12	47' LT	0.5 - 1.5	21	8	A-2-4	TN/RD & GR
247+12	47' LT	6.5 - 7.5	21	8	A-4	TN
257+10	47' LT	0.5 - 1.5	25	11	A-6	TN & RD/TN
257+10	47' LT	6.5 - 7.5	NP	NP	A-2-4	TN
266+93	54' LT	0.5 - 1.5	20	2	A-1-b	TN & RD/TN
266+93	54' LT	2.5 - 3.5	NP	NP	A-4	TN/GR
277+02	42' LT	0 - 1.5	NP	NP	A-2-4	TN & RD/TN
287+17	40' LT	0.5 - 1.5	NP	NP	A-1-a	BR
287+17	40' LT	2.5 - 3.5	21	5	A-4	GR & RD/TN
296+97	19' LT	0.5 - 1.5	21	6	A-4	TN & RD/TN
296+97	19' LT	4.5 - 5.5	27	12	A-6	GR/TN
307+25	11' RT	2.5 - 3.5	22	8	A-4	RD/TN & GR/TN
317+06	36' LT	2.5 - 3.5	NP	NP	A-4	TN/BR & TN/GR
317+06	36' LT	9 - 10	47	30	A-7-6	RD/TN & TN
327+09	12' LT	0.5 - 1.5	27	10	A-4	RD/TN & TN
336+91	10' LT	0.5 - 1.5	17	3	A-2-4	BR/TN & GR/TN
347+02	13' LT	0.5 - 1.5	20	5	A-4	TN
347+02	13' LT	2.5 - 3.5	NP	NP	A-4	GR
357+16	17' LT	0.5 - 1.5	NP	NP	A-2-4	BR/TN
367+11	38' LT	2.5 - 3.5	22	8	A-4	TN/GR

SOIL LOG (BOX 2 OF 2)

STATION	LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
377+00	39' LT	0.5 - 1.5	18	4	A-4	BR
377+00	39' LT	4.5 - 5.5	NP	NP	A-4	GR/TN
386+80	39' LT	0.5 - 1.5	--	--	A-2-4	BR & TN/GR
397+11	28' LT	0.5 - 1.5	19	9	A-4	TN/GR
397+11	28' LT	6.5 - 7.5	30	12	A-6	RD/TN & GR
406+61	24' LT	0.5 - 1.5	NP	NP	A-1-a	BR/TN
406+61	24' LT	6.5 - 7.5	37	21	A-6	TN/GR
416+40	24' LT	0.5 - 1.5	--	--	A-2-4	BR
421+80	20' LT	2.5 - 3.5	28	12	A-6	TN
421+80	20' LT	6.5 - 7.5	55	34	A-7-6	RD/BR & GR

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	APPROACH SLAB AND GUTTERS	GUARDRAIL	BUILDINGS	POSTS	SIGNS	SIGN FOUNDATIONS
			EACH	LIN. FT.	EACH			
207+07	207+83	HWY. 167 RT.		76				
207+08	207+83	HWY. 167 LT.		76				
207+64	207+85	HWY. 167	1					
209+60	209+97	HWY. 167	1					
209+62	210+38	HWY. 167 RT.		77				
209+63	210+38	HWY. 167 LT.		76				
226+89	227+64	HWY. 167 RT.		75				
226+89	227+64	HWY. 167 LT.		76				
227+30	227+66	HWY. 167	1					
229+27	229+63	HWY. 167	1					
229+30	230+05	HWY. 167 RT.		76				
229+30	230+05	HWY. 167 LT.		76				
235+38	236+14	HWY. 167 LT.		76				
235+39	236+14	HWY. 167 RT.		76				
235+81	236+16	HWY. 167	1					
236+92	237+25	HWY. 167	1					
236+94	237+69	HWY. 167 RT.		76				
236+94	237+69	HWY. 167 LT.		76				
272+85		HWY. 167 LT.				1		
286+05		HWY. 167 LT.					1	2
305+20		HWY. 167 RT.			1			
305+45		HWY. 167 RT.			1			
333+70		HWY. 167 LT.					1	2
423+10		HWY. 167 RT.					1	2
TOTALS:			6	912	2	1	3	6

CULVERT CLEAN OUT

STATION	LOCATION	EACH
284+73	HWY. 167	1
TOTAL:		1

SELECTED PIPE BEDDING

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

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS EACH
208+80	RT. HEADWALL OF BOX CULVERT	1
228+57	RT. HEADWALL OF BOX CULVERT	1
236+69	RT. HEADWALL OF BOX CULVERT	1
335+73	RT. HEADWALL OF BOX CULVERT	1
386+56	RT. HEADWALL OF BOX CULVERT	1
TOTAL:		5

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

MAILBOXES

LOCATION	MAILBOXES EACH	MAILBOX SUPPORTS (SINGLE) EACH
265+00	1	1
267+84	1	1
269+30	1	1
272+36	1	1
273+37	1	1
277+82	1	1
278+90	1	1
280+42	1	1
282+00	1	1
286+17	1	1
305+16	1	1
313+07	1	1
315+73	1	1
TOTALS:	13	13

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING STATION	GRUBBING STATION
196+00	421+20		226	226
TOTALS:			226	226

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT NORMAL	COMPACTED EMBANKMENT * SM-1	* GEOTEXTILE FABRIC (TYPE 10)	* SOIL STABILIZATION	*STONE BACKFILL
				CU. YD.			SQ. YD.	TON	
	ENTIRE	PROJECT	HWY. 167 STAGE 1	24738	66486				
	ENTIRE	PROJECT	HWY. 167 STAGE 2	20942	25500				
	ENTIRE	PROJECT	APPROACHES		7582				
	ENTIRE	PROJECT	CHANNEL CHANGE	764					
			CULVERT A0309						2190
			CULVERT A2041						624
			CULVERT A0308						430
	193+02	196+00	HWY. 167 TEMP. WIDENING	165	5				
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE			19310	35000	1400	200
			DIRECTED BY THE ENGINEER						
**	ENTIRE	PROJECT	UNDERCUT FOR UNSUITABLE MATERIAL IN EXISTING DITCHES	690		690			
	TOTALS:			47299	99573	20000	35000	1400	3444

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
6-27-17

QUANTITIES

USER: fs513
DESIGN FILE: G:\14109400_HWY.167\TRANSP\dgn\quantities\CA0702_OBOXES.dgn
PLOTTED: 6/27/2017 07:45
SCALE: 10:1

Crafton Tull
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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
6-15-17				6	ARK.			
				JOB NO.		CA0702	66	194

(2) QUANTITIES

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
250+20	254+20	HWY. 167 RT.	400	
254+40	264+20	HWY. 167 RT.	980	
266+60	267+80	HWY. 167 RT.	120	
267+80		HWY. 167 RT.		1
267+10	267+25	HWY. 167 LT.	15	
267+25		HWY. 167 LT.		1
267+50		HWY. 167 LT.		1
267+50	269+15	HWY. 167 LT.	180	
267+90	288+60	HWY. 167 RT.	2100	
281+80	283+55	HWY. 167 LT.	175	
284+00	285+95	HWY. 167 LT.	235	
289+15	303+50	HWY. 167 RT.	440	
320+80		HWY. 167 RT.	20	
321+20		HWY. 167 RT.	20	
321+20	329+30	HWY. 167 RT.	810	
369+31	372+90	HWY. 167 LT.	380	
373+10		HWY. 167 LT.	20	
373+10	375+95	HWY. 167 LT.	300	
381+60	387+50	HWY. 167 LT.	590	
387+50		HWY. 167 LT.		1
408+80	420+00	HWY. 167 LT.	1120	
408+80	421+70	HWY. 167 RT.	1290	
106+60		HWY. 167 RT.		1
109+80		HWY. 167 RT.		1
TOTALS:			9195	6

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
195+00	196+00	HWY. 167	24	267
421+20	422+20	HWY. 167	32.5	361
TOTAL:				628

NOTE: AVERAGE MILLING DEPTH 1".

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D-1)	7' CHAIN LINK FENCE	* 16'-0" GATES	* 20'-0" GATES
			LIN. FT.			EACH	EACH
250+00	264+08	HWY. 167 RT.	1413			2	
266+44	277+84	HWY. 167 RT.		1071		1	
267+15	268+76	HWY. 167 LT.			165		1
274+43	276+19	HWY. 167 LT.	175			1	
278+07	288+09	HWY. 167 RT.		1002			
282+14	283+54	HWY. 167 LT.	140				
284+10	286+02	HWY. 167 LT.	192				
289+55	303+66	HWY. 167 RT.	1412				
292+46	303+03	HWY. 167 LT.		1057			
318+24	320+85	HWY. 167 RT.	260				
321+11	321+23	HWY. 167 RT.	12				
323+64	329+14	HWY. 167 RT.	552				
329+76	329+87	HWY. 167 RT.	11				
369+32	372+86	HWY. 167 LT.	354				
373+09	375+89	HWY. 167 LT.	281				
377+75	382+48	HWY. 167 RT.	473			1	
407+61	418+48	HWY. 167 LT.	1087				
408+93	418+44	HWY. 167 RT.	951				
TOTALS:			7313	3130	165	5	1

* DENOTES ALTERNATE BID ITEM.

NOTE: 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.

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		LIN. FT.		
251+03	HWY. 167	5.08	24	10
270+72	HWY. 167	4.50	24	9
299+24	HWY. 167	5.08	24	10
326+41	HWY. 167	13.33	24	25
364+65	HWY. 167	5.08	24	10
380+44	HWY. 167	5.67	24	11
TOTAL:				75

AVG. DEPTH = 13"

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	120
DIRECTED BY THE ENGINEER	
TOTAL:	120

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
Jerome P. Davis
6-15-17

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YDS.	SQ. YDS.
198+26	BOX CULVERT OUTLET	15	44
208+96	BOX CULVERT OUTLET	304	682
228+57	BOX CULVERT OUTLET	217	494
236+69	BOX CULVERT OUTLET	152	348
246+44	PIPE CULVERT OUTLET	4	7
251+03	PIPE CULVERT OUTLET	5	10
299+24	PIPE CULVERT OUTLET	6	10
306+69	PIPE CULVERT OUTLET	4	7
326+41	PIPE CULVERT OUTLET	15	29
364+65	PIPE CULVERT OUTLET	6	10
369+60	PIPE CULVERT OUTLET	5	9
380+44	PIPE CULVERT OUTLET	8	13
*208+96	UNDER CULVERT A0309	1980	1980
*ENTIRE PROJECT		50	100
TOTALS:		2771	3743

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

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24"	(CLASS III) 30"	(CLASS III) 36"	(CLASS IV) 24"	(CLASS IV) 30"	(CLASS V) 30"	(CLASS V) 36"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	30"	36"	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.							EACH			LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
198+26	EXTEND BOX CULVERT 19' RT. & 7' LT.											6	5	30	26.75	2507	13	18	0.23	W-X003-1, R-100X-0, RCB-1, RCB-2, RCB-3
246+44	EXTEND PIPE CULVERT 36' RT. & REMOVE 6' LT.	40							2									16	0.20	FES-1, FES-2, PCC-1
251+03	CONSTRUCT PIPE CULVERT		124							2								26	0.33	FES-1, FES-2, PCC-1
270+72	CONSTRUCT PIPE CULVERT				119				2									16	0.20	FES-1, FES-2, PCC-1
284+73	EXTEND PIPE CULVERT 8' RT. & 18' LT.	34							2									16	0.20	FES-1, FES-2, PCC-1
299+24	CONSTRUCT PIPE CULVERT					119				2								26	0.33	FES-1, FES-2, PCC-1
306+69	EXTEND PIPE CULVERT 4' RT. & 26' LT.	38							2									16	0.20	FES-1, FES-2, PCC-1
326+41	CONSTRUCT PIPE CULVERT			116							2							34	0.43	FES-1, FES-2, PCC-1
335+73	EXTEND BOX CULVERT 11' RT. & 25' LT.											4	2	40	15.78	1768	10	11	0.14	W-X003-1, RCB-1, RCB-2, RCB-3, R-100X-0
364+65	CONSTRUCT PIPE CULVERT						119		2									26	0.33	FES-1, FES-2, PCC-1
369+60	EXTEND PIPE CULVERT 14' RT. & 10' LT.	32							2									16	0.20	FES-1, FES-2, PCC-1
380+44	CONSTRUCT PIPE CULVERT							116		2								34	0.43	FES-1, FES-2, PCC-1
386+56	EXTEND DBL. BOX CULVERT 14' RT. & 19' LT.											5	2	70	26.12	3113	27	13	0.16	RCB-1, RCB-2, RCB-3, SPECIAL DETAILS
399+56	EXTEND BOX CULVERT 15' RT. & 20' LT.											5	2	39	16.57	1862	19	10	0.13	RCB-1, RCB-2, RCB-3, SPECIAL DETAILS
SUBTOTALS:		144	124	116	119	119	119	116	12	6	2				85.22	9250	69	278	3.51	
STRUCTURES OVER 20' - 0" SPAN																				
208+96	CONSTRUCT NONCUPLE BOX CULVERT											12	8	140	1719.53	240724	741	78	0.98	RCB-1, RCB-2, PCB-1, SPECIAL DETAILS
228+57	CONSTRUCT SEXTUPLE BOX CULVERT											12	7	142	1146.24	159266	513	58	0.73	RCB-1, RCB-2, PCB-1, SPECIAL DETAILS
236+69	CONSTRUCT QUADRUPLE BOX CULVERT											10	7	140	597.15	74758	267	43	0.54	RCB-1, RCB-2, PCB-1, SPECIAL DETAILS
SUBTOTALS:															3462.92	474748	1521	179	2.25	
TOTALS:		144	124	116	119	119	119	116	12	6	2				3548.14	483998	1590	457	5.76	

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

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

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

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SCALE: 10:1

QUANTITIES

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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.		CA0702	67	194

(2) QUANTITIES

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS					STANDARD DRAWINGS
							18"	24"	22"x14"	28"x20"	36"	
			FEET	SQ. YD.	TON	TON	LIN. FT.					
200+30	RT	HWY. 167	16	51.50	5.67	21.03						PCC-1, PCM-1, PCP-1, PCP-2
219+70	RT	HWY. 167	16	82.50	9.08	33.69	34					PCC-1, PCM-1, PCP-1, PCP-2
241+94	LT	HWY. 167	20	30.10	3.31	12.29				38		PCC-1, PCM-1, PCP-1, PCP-2
246+25	RT	HWY. 167	16	79.00	8.69	32.26						PCC-1, PCM-1, PCP-1, PCP-2
251+84	LT	HWY. 167	16	65.10	7.16	26.58		44				PCC-1, PCM-1, PCP-1, PCP-2
252+84	LT	HWY. 167	16	61.50	6.77	25.11		34				PCC-1, PCM-1, PCP-1, PCP-2
254+30	RT	HWY. 167	16	50.90	5.60	20.78				34		PCC-1, PCM-1, PCP-1, PCP-2
254+38	LT	HWY. 167	16	67.30	7.40	27.48	36					PCC-1, PCM-1, PCP-1, PCP-2
258+50	LT	HWY. 167	30	81.20	8.93	33.16	48					PCC-1, PCM-1, PCP-1, PCP-2
260+00	RT	HWY. 167	16	58.40	6.42	23.85	38					PCC-1, PCM-1, PCP-1, PCP-2
263+84	LT	HWY. 167	28	133.70	14.71	54.59	44					PCC-1, PCM-1, PCP-1, PCP-2
265+00	RT	HWY. 167	16	75.10	8.26	30.67	42					PCC-1, PCM-1, PCP-1, PCP-2
265+13	LT	HWY. 167	16	65.60	7.22	26.79						PCC-1, PCM-1, PCP-1, PCP-2
266+70	LT	HWY. 167	16	82.60	9.09	33.73						PCC-1, PCM-1, PCP-1, PCP-2
267+37	LT	HWY. 167	20	89.00	9.79	36.34						PCC-1, PCM-1, PCP-1, PCP-2
267+84	RT	HWY. 167	16	61.40	6.75	25.07	36					PCC-1, PCM-1, PCP-1, PCP-2
268+87	LT	HWY. 167	16	86.10	9.47	35.16						PCC-1, PCM-1, PCP-1, PCP-2
269+50	LT	HWY. 167	16	87.90	9.67	35.89	36					PCC-1, PCM-1, PCP-1, PCP-2
271+05	LT	HWY. 167	16	78.60	8.65	32.10		36				PCC-1, PCM-1, PCP-1, PCP-2
272+36	LT	HWY. 167	16	66.90	7.36	27.32		36				PCC-1, PCM-1, PCP-1, PCP-2
273+37	LT	HWY. 167	16	71.30	7.84	29.11				34		PCC-1, PCM-1, PCP-1, PCP-2
275+49	LT	HWY. 167	16	55.20	6.07	22.54	36					PCC-1, PCM-1, PCP-1, PCP-2
276+39	LT	HWY. 167	20	116.70	12.84	47.65	48					PCC-1, PCM-1, PCP-1, PCP-2
277+82	LT	HWY. 167	16	54.40	5.98	22.21	36					PCC-1, PCM-1, PCP-1, PCP-2
278+90	LT	HWY. 167	16	53.60	5.90	21.89	32					PCC-1, PCM-1, PCP-1, PCP-2
280+42	LT	HWY. 167	16	52.50	5.78	21.44	30					PCC-1, PCM-1, PCP-1, PCP-2
282+00	LT	HWY. 167	16	51.40	5.65	20.99	30					PCC-1, PCM-1, PCP-1, PCP-2
283+90	LT	HWY. 167	16	50.80	5.59	20.74	34					PCC-1, PCM-1, PCP-1, PCP-2
286+17	LT	HWY. 167	16	55.50	6.11	22.66	36					PCC-1, PCM-1, PCP-1, PCP-2
288+15	LT	HWY. 167	16	57.20	6.29	23.36	34					PCC-1, PCM-1, PCP-1, PCP-2
288+89	RT	HWY. 167	20	138.80	15.27	56.68						PCC-1, PCM-1, PCP-1, PCP-2
289+12	LT	HWY. 167	16	55.20	6.07	22.54	34					PCC-1, PCM-1, PCP-1, PCP-2
290+76	LT	HWY. 167	20	115.10	12.66	47.00	42					PCC-1, PCM-1, PCP-1, PCP-2
291+47	LT	HWY. 167	16	55.20	6.07	22.54	36					PCC-1, PCM-1, PCP-1, PCP-2
305+90	RT	HWY. 167	16	62.90	6.92	25.68	38					PCC-1, PCM-1, PCP-1, PCP-2
313+07	RT	HWY. 167	16	46.40	5.10	18.95		34				PCC-1, PCM-1, PCP-1, PCP-2
315+73	RT	HWY. 167	16	45.90	5.05	18.74		34				PCC-1, PCM-1, PCP-1, PCP-2
316+67	RT	HWY. 167	16	50.20	5.52	20.50				32		PCC-1, PCM-1, PCP-1, PCP-2
317+08	LT	HWY. 167	16	55.10	6.06	22.50						PCC-1, PCM-1, PCP-1, PCP-2
321+00	RT	HWY. 167	16	70.80	7.79	28.91			28			PCC-1, PCM-1, PCP-1, PCP-2
329+42	RT	HWY. 167	24	75.90	8.35	30.99	38					PCC-1, PCM-1, PCP-1, PCP-2
347+47	LT	HWY. 167	16	54.10	5.95	22.09	32					PCC-1, PCM-1, PCP-1, PCP-2
350+41	RT	HWY. 167	20	60.50	6.66	24.70						PCC-1, PCM-1, PCP-1, PCP-2
351+26	LT	HWY. 167	20	60.50	6.66	24.70						PCC-1, PCM-1, PCP-1, PCP-2
363+29	LT	HWY. 167	20	61.50	6.77	25.11	58					PCC-1, PCM-1, PCP-1, PCP-2
363+99	RT	HWY. 167	20	62.50	6.88	25.52	58					PCC-1, PCM-1, PCP-1, PCP-2
373+00	LT	HWY. 167	16	50.20	5.52	20.50		32				PCC-1, PCM-1, PCP-1, PCP-2
375+50	RT	HWY. 167	16	53.10	5.84	21.68	32					PCC-1, PCM-1, PCP-1, PCP-2
376+40	LT	HWY. 167	16	51.30	5.64	20.95				34		PCC-1, PCM-1, PCP-1, PCP-2
377+30	LT	HWY. 167	20	57.40	6.31	23.44		38				PCC-1, PCM-1, PCP-1, PCP-2
380+77	RT	HWY. 167	16	54.70	6.02	22.34	34					PCC-1, PCM-1, PCP-1, PCP-2
381+44	LT	HWY. 167	16	78.50	8.64	32.05				32		PCC-1, PCM-1, PCP-1, PCP-2
387+50	LT	HWY. 167	16	60.20	6.62	24.58		42				PCC-1, PCM-1, PCP-1, PCP-2
403+50	LT	HWY. 167	16	53.10	5.84	21.68	32					PCC-1, PCM-1, PCP-1, PCP-2
403+50	RT	HWY. 167	16	59.20	6.51	24.17					38	PCC-1, PCM-1, PCP-1, PCP-2
												PCC-1, PCM-1, PCP-1, PCP-2
*ENTIRE PROJECT TEMPORARY DRIVES						1000.00						PCC-1, PCM-1, PCP-1, PCP-2
												PCC-1, PCM-1, PCP-1, PCP-2
TOTALS:				**3661.30**	**402.77**	**2495.02**	**1064**	**330**	**28**	**204**	**38**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2") .....94.7% MIN. AGGR .....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
196+00	199+97	HWY. 167 RT.	316.8
200+63	219+37	HWY. 167 RT.	1500.0
220+03	245+92	HWY. 167 RT.	2074.6
246+58	253+97	HWY. 167 RT.	594.9
254+63	259+67	HWY. 167 RT.	404.7
260+33	264+66	HWY. 167 RT.	325.2
265+34	267+50	HWY. 167 RT.	171.6
268+18	288+26	HWY. 167 RT.	1604.6
289+52	305+57	HWY. 167 RT.	1283.7
306+23	312+74	HWY. 167 RT.	520.8
313+40	315+40	HWY. 167 RT.	160.0
316+06	316+34	HWY. 167 RT.	22.4
317+00	320+67	HWY. 167 RT.	293.0
321+33	329+05	HWY. 167 RT.	618.2
329+79	349+75	HWY. 167 RT.	1597.2
351+06	363+42	HWY. 167 RT.	989.0
364+72	375+17	HWY. 167 RT.	836.0
375+83	380+44	HWY. 167 RT.	368.8
381+10	403+17	HWY. 167 RT.	1765.6
403+83	421+20	HWY. 167 RT.	1389.6
196+00	241+59	HWY. 167 LT.	3645.7
242+29	251+51	HWY. 167 LT.	733.1
252+17	252+51	HWY. 167 LT.	26.6
253+17	254+05	HWY. 167 LT.	69.6
254+71	258+10	HWY. 167 LT.	269.8
258+90	263+53	HWY. 167 LT.	372.3
264+55	264+81	HWY. 167 LT.	21.0
265+45	266+38	HWY. 167 LT.	74.5
266+98	267+08	HWY. 167 LT.	8.1
267+71	268+55	HWY. 167 LT.	67.2
269+82	270+72	HWY. 167 LT.	72.1
271+38	272+03	HWY. 167 LT.	52.0
272+69	273+04	HWY. 167 LT.	28.0
273+70	275+16	HWY. 167 LT.	116.8
276+94	277+49	HWY. 167 LT.	43.8
278+15	278+57	HWY. 167 LT.	33.6
279+23	280+09	HWY. 167 LT.	68.8
280+75	281+67	HWY. 167 LT.	73.6
282+33	283+57	HWY. 167 LT.	99.2
284+23	285+84	HWY. 167 LT.	128.8
286+50	287+82	HWY. 167 LT.	105.6
288+48	288+79	HWY. 167 LT.	24.8
289+45	290+20	HWY. 167 LT.	59.8
291+80	316+75	HWY. 167 LT.	1996.1
317+41	347+14	HWY. 167 LT.	2378.4
347+80	350+61	HWY. 167 LT.	224.8
351+92	362+58	HWY. 167 LT.	853.0
363+87	372+67	HWY. 167 LT.	703.6
373+33	376+07	HWY. 167 LT.	219.2
376+73	376+95	HWY. 167 LT.	17.6
377+65	381+11	HWY. 167 LT.	276.8
381+77	387+17	HWY. 167 LT.	432.0
387+83	403+17	HWY. 167 LT.	1227.2
403+83	421+20	HWY. 167 LT.	1389.6
TOTAL:			**32749.8**

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATION	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
*ENTIRE PROJECT TO BE USED IF AND			11000	45
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			**11000**	**45**

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

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
ENTIRE PROJECT	IF AND WHERE DIRECTED BY THE ENGINEER	40
TOTAL:		**40**

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
251+03	262+50	LT	1143.58	4	508.26	508.26	6.40
251+03	262+50	RT	1152.15	4	512.07	512.07	6.45
TOTALS:					**1020.33**	**1020.33**	**12.85**

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

QUANTITIES

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SCALE: 10i

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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
7-10-17				6	ARK.			
				JOB NO.	CA0702		68	194

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
7-10-17

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON
MAIN LANES																					
196+00.00	202+72.54	HWY. 167 RT.	672.54	181.50	1220.66	95.25	7117.72	0.05	355.89	31.89	2383.03	495	589.80	31.73	2371.08	330	391.23	31.63	2363.60	220	260.00
196+00.00	202+72.54	HWY. 167 LT.	672.54	228.25	1535.07	95.25	7117.72	0.05	355.89	31.89	2383.03	495	589.80	31.73	2371.08	330	391.23	31.63	2363.60	220	260.00
202+72.54	207+50.00	HWY. 167 RT.	477.46	228.25	1089.80	95.37	5059.48	0.05	252.97	31.93	1693.92	495	419.25	31.77	1685.43	330	278.10	31.67	1680.13	220	184.81
202+72.54	207+50.00	HWY. 167 LT.	477.46	59.10	282.18	36.00	1909.84	0.05	95.49	12.14	644.04	495	159.40	11.98	635.55	330	104.87	11.88	630.25	220	69.33
207+50.00	209+95.00	HWY. 167 RT.	245.00	228.25	559.21	95.25	2592.92	0.05	129.65	31.89	868.12	495	214.86	31.73	863.76	330	142.52	31.63	861.04	220	94.71
207+50.00	209+95.00	HWY. 167 LT.	245.00	228.25	559.21	95.25	2592.92	0.05	129.65	31.89	868.12	495	214.86	31.73	863.76	330	142.52	31.63	861.04	220	94.71
209+95.00	227+31.00	HWY. 167 RT.	1736.00	220.98	3836.21	95.25	18372.67	0.05	918.63	31.89	6151.23	495	1522.43	31.73	6120.36	330	1009.86	31.63	6101.08	220	671.12
209+95.00	227+31.00	HWY. 167 LT.	1736.00	66.94	1162.08	45.93	8859.39	0.05	442.97	15.45	2980.13	495	737.58	15.29	2949.27	330	486.63	15.19	2929.98	220	322.30
227+31.00	229+62.00	HWY. 167 RT.	231.00	228.25	527.26	95.25	2444.75	0.05	122.24	31.89	818.51	495	202.58	31.73	814.40	330	134.38	31.63	811.84	220	89.30
227+31.00	229+62.00	HWY. 167 LT.	231.00	228.25	527.26	95.25	2444.75	0.05	122.24	31.89	818.51	495	202.58	31.73	814.40	330	134.38	31.63	811.84	220	89.30
229+62.00	235+81.00	HWY. 167 RT.	619.00	225.32	1394.73	95.25	6551.08	0.05	327.55	31.89	2193.32	495	542.85	31.73	2182.32	330	360.08	31.63	2175.44	220	239.30
229+62.00	235+81.00	HWY. 167 LT.	619.00	59.89	370.72	46.99	3231.87	0.05	161.59	15.80	1086.69	495	268.96	15.65	1076.37	330	177.60	15.54	1068.81	220	117.57
235+81.00	237+27.00	HWY. 167 RT.	146.00	228.25	333.25	95.25	1545.17	0.05	77.26	31.89	517.33	495	128.04	31.73	514.73	330	84.93	31.63	513.11	220	56.44
235+81.00	237+27.00	HWY. 167 LT.	146.00	228.25	333.25	95.25	1545.17	0.05	77.26	31.89	517.33	495	128.04	31.73	514.73	330	84.93	31.63	513.11	220	56.44
237+27.00	241+30.00	HWY. 167 RT.	403.00	244.64	985.90	95.40	4271.80	0.05	213.59	31.94	1430.20	495	353.97	31.78	1423.04	330	234.80	31.68	1418.56	220	156.04
237+27.00	241+30.00	HWY. 167 LT.	403.00	144.48	582.25	45.51	2037.84	0.05	101.89	15.31	685.55	495	169.67	15.15	678.38	330	111.93	15.05	673.91	220	74.13
241+30.00	247+54.37	HWY. 167 RT.	624.37	235.10	1467.89	95.50	6625.26	0.05	331.26	31.97	2217.90	495	548.93	31.82	2207.49	330	364.24	31.71	2199.86	220	241.98
241+30.00	247+54.37	HWY. 167 LT.	624.37	70.41	439.62	28.33	1965.38	0.05	98.27	9.58	664.61	495	164.49	9.43	654.20	330	107.94	9.32	646.57	220	71.12
247+54.37	274+38.69	HWY. 167 RT.	2684.32	214.22	5750.35	75.52	22524.43	0.05	1126.22	25.31	7548.90	495	1868.35	25.16	7504.17	330	1238.19	25.05	7471.36	220	821.85
247+54.37	274+38.69	HWY. 167 LT.	2684.32	170.39	4573.81	31.72	9460.74	0.05	473.04	10.71	3194.34	495	790.60	10.56	3149.60	330	519.68	10.45	3116.79	220	342.85
274+38.69	274+81.92	HWY. 167 RT.	43.23	181.50	78.46	58.48	280.90	0.05	14.05	19.63	94.29	495	23.34	19.48	93.57	330	15.44	19.37	93.04	220	10.23
274+38.69	274+81.92	HWY. 167 LT.	43.23	181.50	78.46	59.98	288.10	0.05	14.41	20.13	96.69	495	23.93	19.98	95.97	330	15.84	19.87	95.44	220	10.50
274+81.92	297+00.00	HWY. 167 RT.	2218.08	181.50	4025.82	54.00	13308.48	0.05	665.42	18.14	4470.66	495	1106.49	17.98	4431.23	330	731.15	17.88	4406.59	220	484.72
274+81.92	297+00.00	HWY. 167 LT.	2218.08	181.50	4025.82	64.47	15888.85	0.05	794.44	21.63	5330.79	495	1319.37	21.47	5291.35	330	873.07	21.37	5266.71	220	579.34
297+00.00	323+37.18	HWY. 167 RT.	2637.18	181.50	4786.48	75.63	22161.10	0.05	1108.06	25.35	7428.06	495	1838.44	25.19	7381.17	330	1217.89	25.09	7351.87	220	808.71
297+00.00	323+37.18	HWY. 167 LT.	2637.18	181.50	4786.48	120.82	35402.68	0.05	1770.13	40.41	11840.94	495	2930.63	40.26	11796.99	330	1946.50	40.15	11764.75	220	1294.12
323+37.18	406+85.00	HWY. 167 RT.	8347.82	181.50	15151.29	57.60	53426.05	0.05	2671.30	19.34	17938.54	495	4439.79	19.18	17790.13	330	2935.37	19.08	17697.38	220	1946.71
323+37.18	406+85.00	HWY. 167 LT.	8347.82	181.50	15151.29	60.87	56459.09	0.05	2822.95	20.43	18949.55	495	4690.01	20.27	18801.15	330	3102.19	20.17	18708.39	220	2057.92
406+85.00	421+20.00	HWY. 167 RT.	1435.00	181.50	2604.53	55.03	8774.23	0.05	438.71	18.48	2946.53	495	729.27	18.33	2922.62	330	482.23	18.22	2905.08	220	319.56
406+85.00	421+20.00	HWY. 167 LT.	1435.00	181.50	2604.53	63.45	10116.75	0.05	505.84	21.29	3394.57	495	840.16	21.13	3369.06	330	555.89	21.03	3353.12	220	368.84
TRANSITION OVERLAY																					
195+00.00	196+00.00	HWY. 167	100.00			24.00	266.67	0.17	45.33									24.00	266.67	220	29.33
421+20.00	422+20.00	HWY. 167	100.00			36.00	400.00	0.17	68.00									36.00	400.00	220	44.00
FINAL OVERLAY																					
196+00.00	421+20.00	HWY. 167	22520.00															75.00	187666.67	220	20643.33
ADDITIONAL FOR STAGE CONSTRUCTION																					
191+48.00	196+00.00	HWY. 167 RT - TEMP. PAVEMENT	452.00	160.50	725.46	14.94	748.27	0.05	37.41					14.94	750.28	495	185.69	15.08	757.31	220	83.30
196+00.00	199+75.00	HWY. 167 RT - 6' FULL DEPTH SHLDR.	375.00	91.75	344.06	12.00	250.00	0.05	12.50					6.00	250.00	495	61.88	6.00	250.00	220	27.50
321+20.00	331+60.00	HWY. 167 RT - 6' FULL DEPTH SHLDR.	1040.00	91.75	954.20	12.00	693.33	0.05	34.67					6.00	693.33	495	171.60	6.00	693.33	220	76.27
ADDITIONAL FOR LEVELING																					
202+72.54	207+50.00	HWY. 167 LT	477.46			18.44	978.26	0.17	166.30	18.44	978.26	440	215.22								
209+31.00	228+00.00	HWY. 167 LT	1869.00			24.09	5002.69	0.17	850.46	24.09	5002.69	440	1100.59								
229+00.00	236+35.00	HWY. 167 LT	735.00			14.53	1186.62	0.17	201.73	14.53	1186.62	440	261.06								
237+05.00	253+00.00	HWY. 167 LT	1595.00			9.18	1626.90	0.17	276.57	9.18	1626.90	330	268.44								
253+00.00	302+00.00	HWY. 167 LT & RT	4900.00			11.71	6375.44	0.17	1083.82	11.71	6375.44	330	1051.95								
302+00.00	315+00.00	HWY. 167 RT	1300.00			13.47	1945.67	0.17	330.76	13.47	1945.67	330	321.04								
315+00.00	422+20.00	HWY 167, LT & RT	10720.00			8.18	9743.29	0.17	1656.36	8.18	9743.29	330	1607.64								
ENTIRE PROJECT IF AND WHERE DIRECTED BY THE ENGINEER																					6525.00
TOTALS:					**82847.59**		**363594.27**		**21482.77**		**139014.30**		**32584.41**		**113060.97**		**18794.78**		**300888.27**		**39622.68**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2") .....94.7% MIN. AGGR .....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1") .....95.6% MIN. AGGR .....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2") .....96.0% MIN. AGGR .....4.0% ASPHALT BINDER

MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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QUANTITIES

USER: AN5106
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SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		226	STATION
201	GRUBBING		226	STATION
202	REMOVAL AND DISPOSAL OF FENCE		9195	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES		6	EACH
202	REMOVAL AND DISPOSAL OF POSTS		1	EACH
202	REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS		6	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		6	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		46	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS		1	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		912	LIN. FT.
202	REMOVAL AND DISPOSAL OF BUILDINGS		2	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		3	EACH
206	FLOWABLE SELECT MATERIAL		40	CU. YD.
207	STONE BACKFILL		3444	TON
210	UNCLASSIFIED EXCAVATION		47299	CU. YD.
210	COMPACTED EMBANKMENT		99573	CU. YD.
SP & 210	SOIL STABILIZATION		1400	TON
302	SELECTED MATERIAL (CLASS SM-1)		20000	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		85343	TON
SS & 401	TACK COAT		21697	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		31281	TON
SP & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		1303	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		17968	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		827	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		37904	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		2121	TON
412	COLD MILLING ASPHALT PAVEMENT		628	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		107	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		120	TON
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		636	SQ. FT.
SS & 604	BARRICADES		128	LIN. FT.
SS & 604	TRAFFIC DRUMS		762	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1416	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER		1336	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		154016	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		2103	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		156119	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		34225	LIN. FT.
SS & 604	VERTICAL PANELS		198	EACH
605	CONCRETE DITCH PAVING (TYPE B)		1020	SQ. YD.
SP	CULVERT CLEAN OUT		1	EACH
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		144	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		119	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		124	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		119	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)		119	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		116	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)		116	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		1064	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		330	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN		38	LIN. FT.
SS & 606	28" X 20" SIDE DRAIN		204	LIN. FT.
SS & 606	22" X 14" SIDE DRAIN		28	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		12	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		6	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	SELECTED PIPE BEDDING		100	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS		45	EACH
611	4" PIPE UNDERDRAINS		11000	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)		75	TON
619	WIRE FENCE (TYPE C)		7313	LIN. FT.
619	WIRE FENCE (TYPE D-1)		3130	LIN. FT.
619	7' STEEL CHAIN LINK FENCE		165	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO.1)	5	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO.2)	5	EACH
* 619	20' STEEL GATES	(ALTERNATE NO.1)	1	EACH
* 619	20' ALUMINUM GATES	(ALTERNATE NO.2)	1	EACH
620	LIME		96	TON
620	SEEDING		47.94	ACRE
SS & 620	MULCH COVER		95.88	ACRE
620	WATER		5886.4	M. GAL.
621	TEMPORARY SEEDING		47.94	ACRE
621	SILT FENCE		5205	LIN. FT.
621	SAND BAG DITCH CHECKS		2838	BAG
621	SEDIMENT BASIN		6237	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		6237	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		6380	CU. YD.
621	ROCK DITCH CHECKS		333	CU. YD.
623	SECOND SEEDING APPLICATION		47.94	ACRE
624	SOLID SODDING		1477	SQ. YD.
625	GEOTEXTILE FABRIC (TYPE 10)		35000	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		13	EACH
637	MAILBOX SUPPORTS (SINGLE)		13	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		32750	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")		54985	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")		58203	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		1119	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		69	CU. YD.
802	CLASS S CONCRETE-ROADWAY		85.22	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		9250	POUND
816	FILTER BLANKET		3743	SQ. YD.
816	DUMPED RIPRAP		2771	CU. YD.
	STRUCTURES OVER 20'-0" SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		1521	CU. YD.
802	CLASS S CONCRETE-ROADWAY		3462.92	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		474748	POUND

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
6-15-17	ADDED SM-1 AND GEOTEXTILE FABRIC DETAIL TO SPECIAL DETAIL SHEET, MOVED QUANTITY BOX, REVISED REMOVAL AND DISPOSAL OF ITEMS QUANTITY BOX, REVISED REMOVAL AND DISPOSAL OF FENCE QUANTITY BOX, REVISED SM-1 QUANTITY AND ADDED GEOTEXTILE FABRIC (TYPE 10) QUANTITY, REVISED SUMMARY OF QUANTITIES, REVISED REMOVAL AND DISPOSAL OF FENCE NOTES.	9, 64, 65, 66, 69, 84, 85, 86, 88, 91, 92, 93, 94, 95
7-7-17	REMOVED SPECIAL PROVISION: PROSECUTION AND PROGRESS - CONNECTING ARKANSAS PROGRAM, ADDED SPECIAL PROVISIONS: FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT AND PROSECUTION AND PROGRESS WITH BID SCHEDULE.	2, 69
7-10-17	REVISED ACHM SURFACE, BINDER, AND BASE QUANTITIES, REMOVED SPECIAL PROVISION: SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT - CONNECTING ARKANSAS PROGRAM, AND ADDED SPECIAL PROVISION: SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT.	2, 68, 69

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
PAUL DAVIS
7-10-17

Crafton Tull
civil engineering surveying planning

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			
7-7-17			
7-10-17			

RECORD DISTRICT	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0702		69	194

SUMMARY OF QUANTITIES & REVISIONS

SUMMARY OF QUANTITIES AND REVISIONS

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SURVEY CONTROL COORDINATES

Project Name: sCA0702
Date: 6/20/2013
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1631814.871200	1169670.034500	177.499	CTL	AHTD STD. MON STAMPED T-1
2	1632643.039700	1169762.101200	164.697	CTL	AHTD STD. MON STAMPED T-2
3	1633603.395000	1169788.646200	164.756	CTL	AHTD STD. MON STAMPED T-3
4	1634353.141300	1169810.600300	164.731	CTL	AHTD STD. MON STAMPED T-4
5	1635213.555600	1169839.078700	166.014	CTL	AHTD STD. MON STAMPED T-5
6	1636252.661600	1169863.905200	166.324	CTL	AHTD STD. MON STAMPED T-6
7	1637009.110600	1169888.107600	167.648	CTL	AHTD STD. MON STAMPED T-7
8	1637519.783000	1169901.217400	166.748	CTL	AHTD STD. MON STAMPED T-8
9	1637941.463700	1169914.776000	166.529	CTL	AHTD STD. MON STAMPED T-9
10	1638600.096800	1169913.849100	171.928	CTL	AHTD STD. MON STAMPED T-10
11	1639293.383700	1169841.536300	182.537	CTL	AHTD STD. MON STAMPED T-11
12	1640004.349100	1169673.193700	204.295	CTL	AHTD STD. MON STAMPED T-12
13	1640632.407400	1169506.972900	220.387	CTL	AHTD STD. MON STAMPED T-13
14	1641320.680900	1169467.079400	221.728	CTL	AHTD STD. MON STAMPED T-14
15	1642039.809300	1169486.701500	224.886	CTL	AHTD STD. MON STAMPED T-15
16	1642758.873500	1169506.209800	228.409	CTL	AHTD STD. MON STAMPED T-16
17	1643428.379900	1169521.816400	223.289	CTL	AHTD STD. MON STAMPED T-17
18	1644240.903700	1169539.047400	216.188	CTL	AHTD STD. MON STAMPED T-18
19	1644942.582100	1169555.543900	216.194	CTL	AHTD STD. MON STAMPED T-19
20	1645810.719000	1169577.945300	222.038	CTL	AHTD STD. MON STAMPED T-20
21	1646473.110800	1169593.212100	221.837	CTL	AHTD STD. MON STAMPED T-21
22	1647177.499500	1169615.549800	223.056	CTL	AHTD STD. MON STAMPED T-22
23	1648501.520700	1169653.081200	226.054	CTL	AHTD STD. MON STAMPED T-23
24	1649269.238400	1169678.687600	228.949	CTL	AHTD STD. MON STAMPED T-24
25	1649955.211700	1169689.971600	226.156	CTL	AHTD STD. MON STAMPED T-25
26	1650545.449500	1169711.024200	225.112	CTL	AHTD STD. MON STAMPED T-26
27	1651501.714200	1169738.629400	224.648	CTL	AHTD STD. MON STAMPED T-27
28	1652259.907400	1169758.330400	223.342	CTL	AHTD STD. MON STAMPED T-28
29	1653001.955300	1169777.593200	224.446	CTL	AHTD STD. MON STAMPED T-29
30	1653706.550400	1169797.473300	231.261	CTL	AHTD STD. MON STAMPED T-30
31	1654376.422200	1169814.853000	233.212	CTL	AHTD STD. MON STAMPED T-31
32	1655067.623400	1169833.910000	240.736	CTL	AHTD STD. MON STAMPED T-32
33	1655827.538600	1169856.635600	250.470	CTL	AHTD STD. MON STAMPED T-33
34	1656491.219600	1169816.578200	265.984	CTL	AHTD STD. MON STAMPED T-34
35	1657285.479600	1169894.652100	276.390	CTL	AHTD STD. MON STAMPED T-35
36	1658184.543300	1169894.203600	255.168	CTL	AHTD STD. MON STAMPED T-36
100	1645393.899000	1169490.986900	217.421	GPS	AHTD GPS *070008
101	1647756.804100	1169641.732600	222.516	GPS	AHTD GPS *070008A
114	1629465.414500	1175560.048300	199.408	GPS	AHTD GPS *070003
115	1629677.427600	1172962.986400	206.432	GPS	AHTD GPS *070003A
900	1637014.019300	1169883.652100	168.859	TBM	CHSD SQ ON SE CNR OF BR
901	1637863.778800	1169907.090600	167.884	TBM	CHSD SQ ON SE CNR OF BR
902	1638895.266000	1169918.564600	170.690	TBM	CHSD SQ CNTR OF E HW
903	1639350.100000	1169845.983200	181.427	TBM	CHSD SQ CNTR IF E HW
904	1641266.313200	1169388.854800	221.174	TBM	CHSD SQ CNTR OF W HW, 46' W OF CL 167
905	1642667.239700	1169429.833000	228.477	TBM	CHSD SQ CNTR OF W HW, 39' W CL 167
906	1644112.873800	1169532.634300	213.825	TBM	CHSD SQ CNTR OF E HW, 43' E OF CL 167
907	1644858.482500	1169570.691400	214.129	TBM	CHSD SQ CNTR OF W HW
908	1646831.218200	1169621.181200	218.037	TBM	CHSD SQ CNTR OF W HW
909	1650636.424900	1169726.795500	225.041	TBM	CHSD SQ CNTR OF E HW
910	1651149.732200	1169740.305300	225.217	TBM	CHSD SQ CNTR OF E HW
911	1652232.700600	1169771.540300	223.501	TBM	CHSD SQ CNTR OF W HW
912	1652843.601000	1169790.012800	223.178	TBM	CHSLD SQ CNTR OF W HW
913	1654143.215300	1169825.471700	232.510	TBM	CHSD SQ CNTR OF W HW
956	1631257.365000	1169514.539000	177.578	TBM	CHL SQ IN CTR OF HW
959	1632670.030400	1169762.339600	165.220	TBM	SQ CUT BACK OF CA
960	1634076.263800	1169819.059500	163.960	TBM	SQ CUT IN CENT HW
970	1635033.419700	1169827.827700	167.461	BM	USGS BM UE TT 12 B "A"
990	1643273.470900	1169519.936000	224.118	BM	32WMC 1972 BRASS DISK

*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 = 1.00000000 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999266997 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 s070285gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS:
070009 - 070009A
070010 - 070010A
070011 - 070011A
CONVERGENCE ANGLE: 00-15-45.21 LEFT AT PN: 18
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.
MID POINT LAT N 33-34-39.20
MID POINT LON W092-28-08.81

CA0702 CL HWY. 167

POINT NO.	TYPE	STATION	NORTHING	EASTING
8020	P.O.B.	177+65.60	1632016.3621	1169716.8830
8021	P.C.	196+20.16	1633870.1917	1169769.2950
	P.I.	199+00.29	1634150.2050	1169777.2116
8022	C.C.		1633546.3446	1181223.8739
8023	P.R.C.	201+80.30	1634429.4969	1169798.8007
	P.I.	204+60.43	1634708.7895	1169820.3899
8024	C.C.		1635312.6492	1158373.7276
8025	P.T.	207+40.44	1634988.8035	1169828.3065
8062	P.C.	238+73.92	1638121.0261	1169916.8612
	P.I.	248+21.05	1639067.7749	1169943.6279
8063	C.C.		1638282.9490	1164189.5718
8064	P.T.	257+51.20	1639972.7728	1169664.2918
8065	P.C.	261+02.62	1640308.5709	1169560.6445
	P.I.	265+72.30	1640757.3554	1169422.1230
8066	C.C.		1641153.4828	1172298.0045
8067	P.T.	270+33.69	1641226.8775	1169434.1559
8068	P.C.	297+00.00	1643892.3046	1169502.4655
	P.I.	298+85.44	1644077.6797	1169507.2163
8069	C.C.		1644185.8836	1158047.0709
8070	P.R.C.	300+70.84	1644263.1113	1169505.9666
	P.I.	302+56.28	1644448.5430	1169504.7168
8071	C.C.		1644340.3391	1180964.8622
8072	P.T.	304+41.68	1644633.9180	1169509.4676
8073	P.C.	316+68.76	1645860.6041	1169540.9051
	P.I.	318+42.10	1646033.8839	1169545.3460
8074	C.C.		1645567.0251	1180996.2997
8075	P.R.C.	320+15.41	1646206.9501	1169555.0258
	P.I.	321+76.30	1646367.5887	1169564.0105
8076	C.C.		1646846.8751	1158113.7518
8077	P.T.	323+37.17	1646528.4161	1169568.4817
8192	POE	422+10.94	1656398.3670	1169842.8815

CA0703 CONSTRUCTION HWY. 167

POINT NO.	TYPE	STATION	NORTHING	EASTING
8192	POB	100+88.55	1656398.3670	1169842.8815
8120	PI	101+00.00	1656409.8124	1169843.1702
8121	PI	104+46.82	1656756.5080	1169852.3626
8122	PI	117+00.84	1658010.5273	1169853.9905
8123	PC	129+73.86	1659283.4385	1169837.5393
	PI	130+39.83	1659349.4086	1169836.6867
8124	CC		1659320.4600	1172702.0891
8125	PT	131+05.78	1659415.3479	1169838.8720
8126	PI	138+43.65	1660152.8115	1169863.3117
8127	PI	150+00.27	1661308.8736	1169899.0517

CA0702 CL HWY. 274

POINT NO.	TYPE	STATION	NORTHING	EASTING
8060	P.O.B.	25+00.00	1656575.5260	1168980.7545
8061	P.O.E.	33+66.96	1656534.2569	1169846.7295

CL CO. RD. 50

POINT NO.	TYPE	STATION	NORTHING	EASTING
8006	P.O.B.	10+00.00	1640580.7910	1169491.0418
8007	P.O.E.	13+42.80	1640590.9112	1169148.3884

CL CO. RD. 232

POINT NO.	TYPE	STATION	NORTHING	EASTING
8008	P.O.B.	0+00.00	1640583.0432	1169414.7845
8009	P.O.E.	1+44.73	1640438.3109	1169414.7845

CL CO. RD. 53 RT.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8103	P.O.B.	9+99.85	1643052.5803	1169480.9450
8104	P.C.	10+14.16	1643055.9300	1169494.8631
	P.I.	10+67.13	1643068.3238	1169546.3606
8105	C.C.		1643281.0016	1169440.6955
8106	P.T.	11+18.30	1643101.8780	1169587.3450
8107	P.O.E.	13+16.98	1643227.7313	1169741.0674

CL CO. RD. 54 LT. & RT.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8079	P.O.B.	6+93.28	1649453.3985	1169396.6104
8080	P.C.	8+14.55	1649382.3005	1169494.8459
	P.I.	8+39.58	1649367.6241	1169515.1241
8081	C.C.		1648977.2258	1169201.6729
8082	P.R.C.	8+64.57	1649350.9960	1169533.8351
	P.I.	9+08.47	1649321.8352	1169566.6487
8083	C.C.		1649724.7662	1169865.9973
8084	P.T.	9+52.14	1649298.8379	1169604.0413
8085	P.C.	10+47.85	1649248.6945	1169685.5721
	P.I.	10+91.75	1649225.6972	1169722.9647
8086	C.C.		1648822.7662	1169423.6161
8087	P.R.C.	11+35.42	1649196.5364	1169755.7783
	P.I.	11+60.45	1649179.9083	1169774.4893
8088	C.C.		1649570.3065	1170087.9405
8089	P.T.	11+85.44	1649165.2320	1169794.7674
8090	P.O.E.	13+02.31	1649096.7165	1169889.4346

CL CO. RD. 89 LT. & RT.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8091	P.O.B.	8+00.00	1650456.0171	1169506.5072
8092	P.C.	8+67.83	1650488.2826	1169566.1623
	P.I.	8+90.21	1650498.9315	1169585.8509
8093	C.C.		1650928.1073	1169328.2756
8094	P.R.C.	9+12.57	1650511.2969	1169604.5092
	P.I.	9+34.95	1650523.6624	1169623.1675
8095	C.C.		1650094.4866	1169880.7428
8096	P.T.	9+57.31	1650534.3113	1169642.8561
8097	P.C.	10+40.29	1650573.7899	1169715.8474
	P.I.	10+62.67	1650584.4388	1169735.5360
8098	C.C.		1651013.6147	1169477.9607
8099	P.R.C.	10+85.03	1650596.8043	1169754.1943
	P.I.	11+07.41	1650609.1698	1169772.8526
8100	C.C.		1650179.9939	1170030.4279
8101	P.T.	11+29.77	1650619.8187	1169792.5412
8102	P.O.E.	12+00.00	1650653.2360	1169854.3259

CL M.O.T. STAGE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8010	P.C.	190+75.00	1633325.2391	1169753.8879
	P.I.	192+06.24	1633456.4300	1169757.5970
8011	C.C.		1633244.2774	1172617.5327
8012	P.R.C.	193+37.30	1633586.7323	1169773.2857
	P.I.	194+68.54	1633717.0345	1169788.9745
8013	C.C.		1633929.1872	1166929.0388
8014	P.T.	195+99.60	1633848.2254	1169792.6836
8015	P.O.E.	200+06.52	1634254.9749	1169804.1833

CL M.O.T. STAGE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8003	P.C.	416+59.94	1655847.0717	1169846.0618
	P.I.	417+75.14	1655962.2274	1169849.2633
8004	C.C.		1655926.6865	1166982.3793
8005	P.R.C.	418+90.22	1656077.2683	1169843.2080
	P.I.	420+05.42	1656192.3092	1169837.1527
8115	C.C.		1656227.8501	1172704.0367
8116	P.T.	421+20.49	1656307.4648	1169840.3542

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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.		CA0702	70	194

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

USER: jdi03
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn
PLOTTED: 3/16/2017 17:06
SCALE: 100:1

SURVEY CONTROL DETAILS

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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.		CA0702	71	194

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

BEARINGS ARE GRID BASED ON GPS

W–N–E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

180

PN:1
PD:AHTD STD. MON STAMPED T-1

SURVEY BASELINE

SURVEY BASELINE N06°20'36"E
833.27'

8020

C.L. HWY. 167

N01°37'10"E

SURVEY BASELINE N01°35'00"E
960.72'

PN:2
PD:AHTD STD. MON STAMPED T-2

BEARINGS ARE GRID BASED ON GPS

W–N–E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

185

190

195

STA. 196+00.00
BEGIN JOB CA0702
LOG MILE 0.78

C.L. HWY. 167
PI = 199+00.29
Δ = 02°48'02.5" RT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PC = 196+20.16
PRC = 201+80.30
NO SUPERELEVATION

P.C. 190+75.00

P.I. 192+06.24

P.C. 196+20.16

P.I. 199+00.29

N01°37'10"E

8010

C.L. HWY. 167

SURVEY BASELINE N01°35'00"E
960.72'

N06°51'56"E

8012

8021

N04°25'13"E

8014

N01°37'10"E

SURVEY BASELINE N01°40'38"E
750.07'

C.L. M.O.T. STAGE 2

SURVEY BASELINE

C.L. M.O.T. STAGE 2
PI = 192+06.24
Δ = 05°14'46" RT.
D = 02°00'00"
T = 131.24'
L = 262.30'
PC = 190+75.00
PRC = 193+37.30
NO SUPERELEVATION

P.R.C. 193+37.30

PN:3
PD:AHTD STD. MON STAMPED T-3

P.I. 194+68.54

C.L. M.O.T. STAGE 2
PI = 194+68.54
Δ = 05°14'46" LT.
D = 02°00'00"
T = 131.24'
L = 262.30'
PRC = 193+37.30
PT = 195+99.60
NO SUPERELEVATION

P.T. 195+99.60

C.L. M.O.T. STAGE 2

P.I. 200+06.62

SURVEY CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn
PLOTTED: 3/6/2017 17:06
SCALE: 100:1

G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn 3/6/2017 17:06

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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.		CA0702	72	194

2 SURVEY CONTROL DETAILS

C.L. HWY. 167
PI = 204+60.43
Δ = 02°48'02.5" LT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PRC = 201+80.30
PT = 207+40.44
NO SUPERELEVATION

BEARINGS ARE GRID BASED ON GPS

N
W E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

200 205 210 215

P.O.E. 200+06.52
P.R.C. 201+80.30
P.T. 207+40.44
P.I. 204+60.43

N01°37'10"E 8015
N04°25'13"E 8023
N01°37'10"E 8025

PN:4
PD:AHTD STD. MON STAMPED T-4

C.L. M.O.T. STAGE 2

SURVEY BASELINE N01°53'45"E
860.89'

SURVEY BASELINE

C.L. HWY. 167

PN:5
PD:AHTD STD. MON STAMPED T-5

N01°37'10"E
SURVEY BASELINE N01°22'07"E
1039.40'

215 220 225

SURVEY BASELINE N01°22'07"E
1039.40'

C.L. HWY. 167
N01°37'10"E

PN:6
PD:AHTD STD. MON STAMPED T-6

SURVEY BASELINE N01°49'57"E
756.84'

SURVEY BASELINE

SURVEY BASELINE N01°28'14"E
510.84'
PN:7
PD:AHTD STD. MON STAMPED T-7

SURVEY CONTROL DETAILS

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn
PLOTTED: 3/16/2017 17:06
SCALE: 100:1

G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn 3/16/2017 17:06

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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.		CA0702	73	194

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

BEARINGS ARE GRID BASED ON GPS

W–N–E–S

0 25 50 100 FEET
SCALE RATIO 1"=100'

230

235

240

P.C. 238+73.92

C.L. HWY. 167

N01°37'10"E
SURVEY BASELINE N01°28'14"E
510.84'

PN:8
PD:AHTD STD. MON STAMPED T-8

SURVEY BASELINE N01°50'30"E
421.90'

SURVEY BASELINE

PN:9
PD:AHTD STD. MON STAMPED T-9

8062

SURVEY BASELINE N00°04'50"W
658.63'

N01°37'10"E

SURVEY BASELINE N05°57'17"W
697.05'

PN:10
PD:AHTD STD. MON STAMPED T-10

245

250

255

C.L. HWY. 167
PI = 248+21.05
Δ = 18°46'22" LT.
D = 01°00'00"
T = 947.13'
L = 1877.28'
PC = 238+73.92
PT = 257+51.20
e = 0.030 '/'
Ls = 540'

SURVEY BASELINE N05°57'17"W
697.05'

C.L. HWY. 167

PN:11
PD:AHTD STD. MON STAMPED T-11

SURVEY BASELINE

N17°09'12"W

SURVEY BASELINE N13°19'16"W 730.62'

P.T. 257+51.20

8064

N17°09'12"W

SURVEY BASELINE N14°49'26"W
649.68'

PN:12
PD:AHTD STD. MON STAMPED T-12

N01°37'10"E

P.T. 248+21.05

BEARINGS ARE GRID BASED ON GPS

W–N–E–S

0 25 50 100 FEET
SCALE RATIO 1"=100'

SURVEY CONTROL DETAILS

USER: jd503
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn SCALE: 100d
PLOTTED: 3/16/2017 17:06

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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.		CA0702	74	194

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

8007 P.O.E. 13+42.80

CO. RD. 50 N88°18'30"W

P.O.E. 1+44.73

8009 CO. RD. 232 S00°00'00"E 8008

STA. 10+90.12 ℄ CO. RD. 50 =
STA. 0+00.00 ℄ CO. RD. 232
Δ = 91°41'30"

265

P.I. 265+72.30

270

P.T. 270+33.69

N01°28'05"E

8067

N01°28'05"E

260

P.C. 261+02.62

N17°09'12"W

N17°09'12"W

8065

C.L. HWY. 167

SURVEY BASELINE N14°49'26"W 649.68'

8006

SURVEY BASELINE N03°19'02"W 689.43'

PN:13
PD:AHTD STD. MON STAMPED T-13

SURVEY BASELINE

PN:14
PD:AHTD STD. MON STAMPED T-14

SURVEY BASELINE N01°33'47"E 719.40'

STA. 263+83.72 ℄ HWY. 167 =
STA. 10+00.00 ℄ CO. RD. 50
Δ = 76°46'36"

C.L. HWY. 167
PI = 265+72.30
Δ = 18°37'17" RT.
D = 02°00'00"
T = 469.68'
L = 931.07'
PC = 261+02.62
PT = 270+33.69
e = 0.055 '/'
Ls = 540'

BEARINGS ARE GRID BASED ON GPS

W — N — E — S

0 25 50 100 FEET
SCALE RATIO 1"=100'

275

280

285

SURVEY BASELINE N01°33'47"E 719.40'

PN:15
PD:AHTD STD. MON STAMPED T-15

SURVEY BASELINE N01°33'15"E 719.33'

SURVEY BASELINE

PN:16
PD:AHTD STD. MON STAMPED T-16

SURVEY BASELINE N01°20'07"E 669.69'

C.L. HWY. 167

N01°28'05"E

N01°28'05"E

STA. 288+60.00 ℄ HWY. 167 =
STA. 9+99.85 ℄ CO. RD. 53 RT.
Δ = 75°00'00"

C.L. CO. RD. 53 RT.
PI = 10+67.13
Δ = 25°46'32" LT.
D = 24°45'00"
T = 52.97'
L = 104.14'
PC = 10+14.16
PT = 11+18.30
NO SUPERELEVATION

8103

8104 P.C. 10+21.31

N76°28'05"E

P.I. 10+67.13

P.T. 11+18.30

8106

BEARINGS ARE GRID BASED ON GPS

W — N — E — S

0 25 50 100 FEET
SCALE RATIO 1"=100'

SURVEY CONTROL DETAILS

USER: jd5103
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SCALE: 100:1

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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.		CA0702	75	194

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerry Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

290

295

300

o 8105

0+21.37

C.L. HWY. 167

N01°28'05"E

8068

8070

N00°23'10"W

8072

SURVEY BASELINE N01°20'07"E 669.69'

PN:17
PD:AHTD STD. MON STAMPED T-17

SURVEY BASELINE N01°12'54"E 812.71'

SURVEY BASELINE

SURVEY BASELINE N01°20'48"E 701.87'

PN:18
PD:AHTD STD. MON STAMPED T-18

P.T. 11+18.30

8106

N50°41'33"E

CO. RD. 53

P.O.E. 13+16.98

8107

P.C. 297+00.00

P.I. 298+85.44

P.R.C. 300+70.84

P.I. 302+56.28

C.L. HWY. 167
PI = 298+85.44
Δ = 01°51'15.1" LT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PC = 297+00.00
PRC = 300+70.84
NO SUPERELEVATION

C.L. HWY. 167
PI = 302+56.28
Δ = 01°51'15.1" RT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PRC = 300+70.84
PT = 304+41.68
NO SUPERELEVATION

BEARINGS ARE GRID BASED ON GPS

W — N — E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

305

310

315

P.T. 304+41.68

8072

N01°28'05"E

C.L. HWY. 167

N01°28'05"E

8073

SURVEY BASELINE N01°20'48"E 701.87'

PN:19
PD:AHTD STD. MON STAMPED T-19

SURVEY BASELINE N01°28'41"E 868.43'

SURVEY BASELINE

PN:20
PD:AHTD STD. MON STAMPED T-20

SURVEY BASELINE N01°19'13"E 662.57'

P.C. 316+68.76

P.I. 318+42.10

C.L. HWY. 167
PI = 318+42.10
Δ = 01°43'59.7" RT.
D = 00°30'00"
T = 173.34'
L = 346.65'
PC = 316+68.76
PRC = 320+15.41
NO SUPERELEVATION

BEARINGS ARE GRID BASED ON GPS

W — N — E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

SURVEY CONTROL DETAILS

USER: jd5103
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SCALE: 100:1

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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.		CA0702	76	194

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerry P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

C.L. HWY. 167
PI = 321+76.30
Δ = 01°36'31.7" LT.
D = 00°30'00"
T = 160.89'
L = 321.76'
PRC = 320+15.41
PT = 323+37.17
NO SUPERELEVATION

320 325 330

N03°12'05"E
8075
SURVEY BASELINE N01°19'13"E 662.57'
P.R.C. 320+15.41
P.I. 321+76.30
P.T. 323+37.17
8077
N01°35'33"E
C.L. HWY. 167
PN:21
PD:AHTD STD. MON STAMPED T-21
SURVEY BASELINE
SURVEY BASELINE N01°48'59"E 704.74'
PN:22
PD:AHTD STD. MON STAMPED T-22
N01°35'33"E
SURVEY BASELINE N01°37'25"E 1324.55'

BEARINGS ARE GRID BASED ON GPS
W — N — E — S

0 25 50 100 FEET
SCALE RATIO 1"=100'

8086

335 340 345

N01°35'33"E
C.L. HWY. 167
SURVEY BASELINE N01°37'25"E 1324.55'
SURVEY BASELINE
PN:23
PD:AHTD STD. MON STAMPED T-23
N01°35'33"E
SURVEY BASELINE N01°54'37"E 768.14'

BEARINGS ARE GRID BASED ON GPS
W — N — E — S

0 25 50 100 FEET
SCALE RATIO 1"=100'

SURVEY CONTROL DETAILS

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USER: jd5103
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PLOTTED: 3/16/2017 17:06 SCALE: 100:1

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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.		CA0702	77	194

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerome P. Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

350

355

365

370

375

STA. 350+83.58 ℄ HWY. 167 =
STA. 10+00.00 ℄ CO. RD. 54
Δ = 60°00'00"

STA. 363+64.94 ℄ HWY. 167 =
STA. 10+00.00 ℄ CO. RD. 89
Δ = 60°00'00"

C.L. HWY. 167

SURVEY BASELINE N01°54'37"E 768.14'

SURVEY BASELINE N00°56'33"E 686.07'

SURVEY BASELINE N02°02'34"E 590.61'

N01°35'33"E

SURVEY BASELINE N01°39'13"E 956.66'

SURVEY BASELINE N01°29'18"E 758.45'

SURVEY BASELINE

PN:24 PD:AHTD STD. MON STAMPED T-24

PN:25 PD:AHTD STD. MON STAMPED T-25

PN:26 PD:AHTD STD. MON STAMPED T-26

PN:27 PD:AHTD STD. MON STAMPED T-27

CO. RD. 54

S54°06'17"E

P.O.B. 6+93.28

8080

P.I. 9+08.47

8082

P.C. 8+14.55

P.I. 8+39.58

P.R.C. 8+64.57

8084

P.T. 9+52.14

S58°24'27"E

8085

P.C. 10+47.85

P.I. 10+91.75

8087

P.I. 11+60.45

8089

P.R.C. 11+35.42

P.T. 11+85.44

P.O.E. 13+02.31

8090

C.L. CO. RD. 54
PI = 8+39.58
Δ = 05°43'54" RT.
D = 11°27'30"
T = 25.03'
L = 50.02'
PC = 8+14.55
PRC = 8+64.57
NO SUPERELEVATION

C.L. CO. RD. 54
PI = 9+08.47
Δ = 10°02'04" LT.
D = 11°27'30"
T = 43.90'
L = 87.57'
PRC = 8+64.57
PT = 9+52.14
NO SUPERELEVATION

C.L. CO. RD. 54
PI = 10+91.75
Δ = 10°02'04" RT.
D = 11°27'30"
T = 43.90'
L = 87.57'
PC = 10+47.85
PRC = 11+35.42
NO SUPERELEVATION

C.L. CO. RD. 54
PI = 11+60.45
Δ = 05°43'54" LT.
D = 11°27'30"
T = 25.03'
L = 50.02'
PRC = 11+35.42
PT = 11+85.44
NO SUPERELEVATION

8083

8095

8098

C.L. CO. RD. 89
PI = 8+90.21
Δ = 05°07'34" LT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PC = 8+67.83
PRC = 9+12.57
NO SUPERELEVATION

C.L. CO. RD. 89
PI = 9+34.95
Δ = 05°07'34" RT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PRC = 9+12.57
PRC = 9+57.31
NO SUPERELEVATION

8091

P.O.B. 8+00.00

N6°35'33"E

P.C. 8+67.83

8092

P.R.C. 9+12.57

P.I. 9+34.95

8094

P.T. 9+57.31

P.I. 8+90.21

CO. RD. 89

8096

N6°35'33"E

P.C. 10

8097

8099

P.I. 10+62.67

BEARINGS ARE GRID BASED ON GPS

W — N — E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

8+67.83

P.R.C. 9+12.57

P.I. 9+34.95

94

P.T. 9+57.31

8096

N6°35'33"E

P.C. 10+40.28

8097

P.R.C. 10+85.03

P.I. 11+07.41

P.T. 11+29.77

P.I. 10+62.67

8099

8101

CO. RD. 89

N6°35'33"E

P.O.E. 12+00.00

8102

C.L. CO. RD. 89
PI = 10+62.67
Δ = 05°07'34" LT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PC = 10+40.29
PRC = 10+85.03
NO SUPERELEVATION

C.L. CO. RD. 89
PI = 11+07.41
Δ = 05°07'34" RT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PRC = 10+85.03
PT = 11+29.77
NO SUPERELEVATION

BEARINGS ARE GRID BASED ON GPS

W — N — E
S

0 25 50 100 FEET
SCALE RATIO 1"=100'

SURVEY CONTROL DETAILS

USER: jd503
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn
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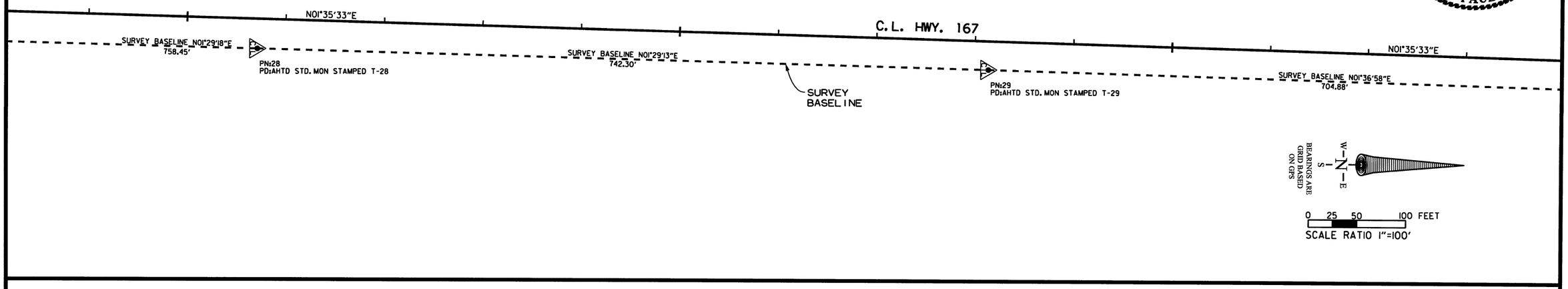
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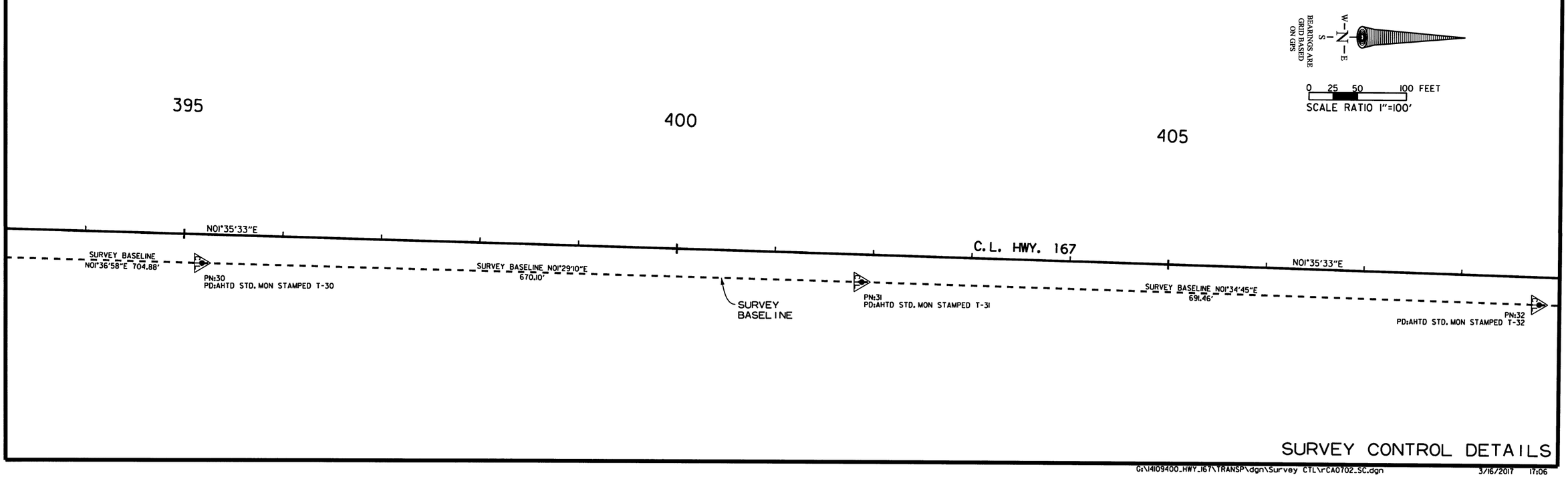
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	78	194

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
Jerry Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS





SURVEY CONTROL DETAILS

USER: jd5103
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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.		CA0702	79	194

(2) SURVEY CONTROL DETAILS

410

415

420

C.L. HWY. 167

NOI°35'33"E

SURVEY BASELINE NOI°42'47"E 760.25'

PN:32
PD:AHTD STD. MON STAMPED T-32

SURVEY BASELINE

P.C. 416+59.94

8003

PN:33
PD:AHTD STD. MON STAMPED T-33

P.I. 417+75.14

P.R.C. 418+90.22

8005

NO3°00'47"W

C.L. M.O.T. STAGE 2

P.I. 420+05.42

SURVEY BASELINE

P.T. 421+20.49

8116

NOI°35'33"E

P.I. 101+00.00
Δ = 00°04'25" RT.

8192

8120

NOI°26'43"E

C.L. HWY. 274

PN:34
PD:AHTD STD. MON STAMPED T-34

8061

NOI°31'08"E

℄ HWY. 167 STA. 422+10.94 BK. =
℄ HWY. 167 STA. 100+88.55 AHD.

STA. 421+20.00
END JOB CA0702
LOG MILE 5.04

STA. 102+24.50 ℄ HWY. 167 =
STA. 33+66.70 ℄ HWY. 274
Δ = 91°12'35"

BEARINGS ARE GRID BASED ON GPS

W — N — E — S

0 25 50 100 FEET

SCALE RATIO 1"=100'

C.L. M.O.T. STAGE 2
PI = 417+75.14
Δ = 04°36'20" LT.
D = 02°00'00"
T = 115.20'
L = 230.28'
PC = 416+59.94
PRC = 418+90.22
NO SUPERELEVATION

C.L. M.O.T. STAGE 2
PI = 420+05.42
Δ = 04°36'20" LT.
D = 02°00'00"
T = 115.20'
L = 230.28'
PRC = 418+90.22
PT = 421+20.49
NO SUPERELEVATION

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

8060 P.O.B. 25+00.00

S87°16'18"E

C.L. HWY. 274

P.I. 104+46.82
Δ = 01°26'40" LT.

105

110

115

PN:34
PD:AHTD STD. MON STAMPED T-34

8061

NOI°31'08"E

SURVEY BASELINE N05°36'50"E 798.09'

8121

C.L. HWY. 167

N00°04'28"E

SURVEY BASELINE

PN:35
PD:AHTD STD. MON STAMPED T-35

SURVEY BASELINE N00°01'43"W 899.06'

PN:36
PD:AHTD STD. MON STAMPED T-36

STA. 102+24.50 ℄ HWY. 167 =
STA. 33+66.70 ℄ HWY. 274
Δ = 91°12'35"

BEARINGS ARE GRID BASED ON GPS

W — N — E — S

0 25 50 100 FEET

SCALE RATIO 1"=100'

SURVEY CONTROL DETAILS

USER: jd503
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\Survey CTL\rCA0702_SC.dgn
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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.		CA0702	80	194

2 PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

STA. 198+26 IN PLACE
6'X5'X97' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 19' RT. & 7' LT.
TO A COMPLETED LENGTH OF 123'
050 = 230 CFS D.A. = 173.6 ACRES
DUMPED RIPRAP = 15 CU. YD.

C.L. HWY. 167
PI = 199+00.29
Δ = 02°48'02.5" RT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PC = 196+20.16
PRC = 201+80.30
NO SUPERELEVATION

C.L. HWY. 167
PI = 204+60.43
Δ = 02°48'02.5" LT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PRC = 201+80.30
PT = 207+40.44
NO SUPERELEVATION

190 195 200 205

+00 100' TRANSITION +00

+97.46 69.31'
+50 74.41'
P.C. 196+20.16
+46.50 95'
+40 95'
P.I. 199+00.29
+25 83.45'
P.R.C. 201+80.30
+93.97 98.16'

EXIST. R/W
PROPOSED R/W
EXIST. R/W
EXIST. CL. HWY. 167
LIMITS OF CONSTRUCTION
LIMITS OF CONSTRUCTION

N01°37'10"E C.L. HWY. 167
N04°25'12.5"E

8' 29.5' 29.5' 8' +30 8' 29.5' 29.5' 8'

FO FO FO FO FO FO FC FC FO FO FO FO FO FO FO

+97.48 70.71'
+50 70.61'
+20.16 80'
+25 90'
+00 75'
+80.30 80'

STA. 196+00.00
BEGIN JOB CA0702
LOG MILE 0.78

STA. 200+30
CONSTRUCT APPR. ON RT.
= 23 CU. YD.

P.I. 204+60.43

HWY. 167

185 180 175 170 165 160 155 150 145 140

PVI 191+00.00 ELEV. 167.17
PVI 196+00.00 ELEV. 165.85
PVC 196+20.00 ELEV. 165.79
PVI 202+20.00 ELEV. 166.20
PVC 204+50.00 ELEV. 167.12

0.30% -0.26% 600' V.C. K = 909 e=0.50' 0.40%

1000' V.C.
K = 1786
e=-0.70'

PROFILE GRADE

-0.26%

EXISTING GROUND @ C.L.

-1.08% RT. DT. GR.
-1.58% LT. DT. GR.
2.02% RT. DT. GR.
2.01% LT. DT. GR.
-0.46% RT. DT. GR.
2.33% LT. DT. GR.

+00 160.23 LT. DT.
+00 159.91 RT. DT.
+26 157.38 LT. DT.
+26 156.72 RT. DT.
+14.00 161.24 RT. DT.
+30 161.25 LT. DT.
+50 161.25 RT. DT.
+00 162.38 LT. DT.

+26
F.L. ELEV. IN = 157.38 RT.
F.L. ELEV. OUT = 156.72 LT.

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

190+00 191+00 192+00 193+00 194+00 195+00 196+00 197+00 198+00 199+00 200+00 201+00 202+00 203+00 204+00 205+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.		CA0702	81	194

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

N

C.L. HWY. 167
PI = 204+60.43
Δ = 02°48'02.5" LT.
D = 00°30'00"
T = 280.13'
L = 560.14'
PRC = 201+80.30
PT = 207+40.44
NO SUPERELEVATION

STA. 208+96 CONSTRUCT
NON. 12'X8'X140'
R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
(30°RT. FWD. SKEW)
DESIGN DISCHARGE Q50 = 3,465 CFS
TOTAL DISCHARGE Q50 = 5,411 CFS D.A.= 69 SQ. MI.
TOTAL DISCHARGE INCLUDES WATER THROUGH
STRUCTURES AT STA. 228+57 & STA. 236+69
SPAN = 132'-4⅛" L.M. 1.03
DUMPED RIPRAP = 304 CU.YD.

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 207+07 TO STA. 207+83 RT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 207+08 TO STA. 207+83 LT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 209+62 TO STA. 210+38 RT. OF C.L. HWY. 167 = 77 LIN. FT.
STA. 209+63 TO STA. 210+38 LT. OF C.L. HWY. 167 = 76 LIN. FT.

CHAMPAGNOLLE CREEK

EXIST. R/W

205 210 215 220

P.T. 207+40.44

LIMITS OF CONSTRUCTION

EXIST. C.L. HWY. 167

8' 29.5' 29.5' 8'

N01°37'10"E C. L. HWY. 167

FO

EXIST. R/W

LIMITS OF CONSTRUCTION

PROPOSED R/W

+40.44 90'

+15 110'

+68.14 95'

+70 +90 80' +05 75' 16'

+25 135'

SWAMP

STA. 207+85.08 TO STA. 209+60.21
IN PLACE 175' X 47' SPAN BRIDGE
CONSISTING
OF CONCRETE-CAST-IN-PLACE
DECK & R.C.D.G.
REMOVE AS EXISTING BRIDGE
STRUCTURE (SITE NO. 1)= 1.00 LUMP SUM

STA. 219+70 IN PLACE
18"x 30' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
18"x 34' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 54 CU. YD.

STA. 218+21 - STA. 219+40
CHANNEL CHANGE = 539 CU. YD.
DUMPED RIPRAP = 68 CU. YD.

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 160 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2014 STANDARD SPECIFICATIONS.

PVI 206+00.00 ELEV. 167.72
PVT 207+50.00 ELEV. 167.72
PVC 214+50.00 ELEV. 167.72
PVI 216+00.00 ELEV. 167.72
PVT 217+50.00 ELEV. 167.88

0.40%
300' V.C.
K = 750
e=-0.15'
2.33% LT. DT. GR.
1.95% RT. DT. GR.
0.00%
PROFILE GRADE
EXISTING GROUND @ C.L.
2.53% RT. DT. GR.
0.38% RT. DT. GR.
0.80% RT. DT. GR.
300' V.C.
K = 2727
e=0.04'
1.29% RT. DT. GR.
0.11%

+38 LT. DT. 154.50
+60 RT. DT. 158.00
+96
F.L. ELEV. IN = 155.50 RT.
F.L. ELEV. OUT = 154.50 LT.
+88 RT. DT. 155.50
+66 RT. DT. 155.50
+30 RT. DT. 158.23
+30 RT. DT. 159.75
+50 RT. DT. 160.71
+28.58 RT. DT. 154.09
+17.12 RT. DT. 155.23

175 170 165 160 155 150 145 140

205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00

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

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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.		CA0702	82	194

(2) PLAN AND PROFILE SHEETS

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 226+88 TO STA. 227+64 RT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 226+89 TO STA. 227+64 LT. OF C.L. HWY. 167 = 75 LIN. FT.
STA. 229+30 TO STA. 230+05 RT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 229+30 TO STA. 230+05 LT. OF C.L. HWY. 167 = 76 LIN. FT.

STA. 228+57 CONSTRUCT
SEXTUPLE 12' X 7' X 142'
R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
(30° RT. FWD. SKEW)
DESIGN DISCHARGE Q50 = 1,198 CFS
TOTAL DISCHARGE Q50 = 5,411 CFS D.A.= 69 SQ. MI.
TOTAL DISCHARGE INCLUDES WATER THROUGH
STRUCTURES AT STA. 208+96 & 236+69
SPAN = 88'-4" L.M. 1.40
DUMPED RIPRAP = 217 CU.YD.

STATE OF ARKANSAS
Jerome Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17
JEROME PAUL DAVIS

EXIST. R/W
220 225 230 235
LIMITS OF CONSTRUCTION
EXIST. C.L. HWY. 167
8' 29.5'
N01°37'10"E
C. L. HWY. 167
+70
FO FO FO FO FO FO FO FO FO FO FO FO FO FO FO FO
EXIST. R/W
LIMITS OF CONSTRUCTION
16'
+05 75'
+81.42 85'
+00 95'
PROPOSED R/W
STA. 227+66.12 TO STA. 229+27.12
IN PLACE 161' X 47' BRIDGE CONSISTING
OF CONCRETE CAST-IN-PLACE
DECK & R.C.D.G.
REMOVE AS EXISTING BRIDGE
STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM
+00 95'

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS. THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 160 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2014 STANDARD SPECIFICATIONS.

185 180 175 170 165 160 155 150 145 140

0.11% 300' V.C. K = 1579 e=0.07' 0.30% 300' V.C. K = 1000 e=-0.11' 0.00% 300' V.C. K = 909 e=-0.13' -0.33% 300' V.C. K = 909 e=0.13'

PVC 220+50.00 ELEV. 168.19
+20 RT. DT. 160.14
PVI 222+00.00 ELEV. 168.35
PVT 223+50.00 ELEV. 168.80
PVC 224+00.00 ELEV. 168.95
-0.40% RT. DT. GR.
EXISTING GROUND @ C.L.
PVI 225+50.00 ELEV. 169.40
PVT 227+00.00 ELEV. 169.40
+60 RT. DT. 158.58
-0.56% RT. DT. GR.
+64 RT. DT. 158.40
+57
F.L. ELEV. IN = 157.91 RT.
F.L. ELEV. OUT = 155.27 LT.
-48 RT. DT. 158.00
PVC 230+00.00 ELEV. 169.40
0.67% RT. DT. GR.
+50 RT. DT. 158.68
PVI 231+50.00 ELEV. 169.40
PVC 233+00.00 ELEV. 168.90
0.40% RT. DT. GR.
+95 RT. DT. 160.09
PVI 234+50.00 ELEV. 168.40
0.67% RT. DT. GR.

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

220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00 234+00 235+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.		CA0702	83	194

PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
Jerome Paul Davis
REGISTERED PROFESSIONAL ENGINEER
No. 15560
3-1-17
JEROME PAUL DAVIS

REMOVAL & DISPOSAL OF GUARDRAIL
STA. 235+38 TO STA. 236+14 LT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 235+39 TO STA. 236+14 RT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 236+94 TO STA. 237+69 RT. OF C.L. HWY. 167 = 76 LIN. FT.
STA. 236+94 TO STA. 237+69 LT. OF C.L. HWY. 167 = 76 LIN. FT.

STA. 236+69 CONSTRUCT
QUADRUPLE 10' X 7' X 140'
R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
(30° RT. FWD. SKEW)
DESIGN DISCHARGE Q50 = 748 CFS
TOTAL DISCHARGE Q50 = 5,411 CFS D.A.= 69 SQ. MI.
TOTAL DISCHARGE INCLUDES WATER THROUGH
STRUCTURES AT STA. 208+96 & 228+57
CHANNEL CHANGE = 165 CU. YD.
SPAN = 49'-10" L.M. 1.55
DUMPED RIPRAP = 152 CU.YD.

STA. 241+94 IN PLACE
18"x 33' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 38' ARCH PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 34 CU. YD.

C.L. HWY. 167
PI = 248+21.05
Δ = 18°46'22" LT.
D = 01°00'00"
T = 947.13'
L = 1877.28'
PC = 238+73.92
PT = 257+51.20
e = 0.030 '/'
Ls = 540'

STA. 246+44 - IN PLACE
24"X96' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE 6' LT. & EXTEND 36' RT.
(CLASS III) (TYPE 3 BEDDING)
TO A COMPLETED LENGTH OF 126'
WITH FES LT. & RT.
Q50 = 9 CFS D.A. = 5.3 ACRES
24" R.C. PIPE (CL. III) = 40 LIN. FT.
24" FES = 2 EACH
DUMPED RIPRAP = 4 CU. YD.

STA. 236+15.98 TO STA. 236+91.87
IN PLACE 75' X 47' BRIDGE CONSISTING
OF CONCRETE CAST-IN-PLACE
DECK & R.C.D.G.
REMOVE AS EXISTING BRIDGE
STRUCTURE (SITE NO. 3) = 1.00 LUMP SUM

STA. 246+25
CONST. APPR. ON RT.
= 71 CU. YD.

HWY. 167

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 160 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2014 STANDARD SPECIFICATIONS.

STA. 234+68.92 BEGIN SUPERELEVATION
STA. 240+08.92 MAX. SUPERELEVATION (0.030'/')
STA. 253+86.91 MAX. SUPERELEVATION (0.030'/')
STA. 259+26.91 END SUPERELEVATION

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

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	84	194

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
6-15-17

STA. 252+84 IN PLACE
18"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
24"x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 33 CU. YD.

STA. 254+38 IN PLACE
15"x 30' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 36 CU. YD.

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. GATE
250+20	254+20	RT.	400
254+40	264+20	RT.	980

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE
250+00	264+08	RT.	C	1413	2

C.L. HWY. 167
PI = 265+72.30
Δ = 18°37'17" RT.
D = 02°00'00"
T = 469.68'
L = 931.07'
PC = 261+02.62
PT = 270+33.69
e = 0.055 '/'
Ls = 540'

STA. 263+84 IN PLACE
18"x 38' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 44' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 671 CU. YD.

STA. 10+90.12 ℄ CO. RD. 50 =
STA. 0+00.00 ℄ CO. RD. 232
Δ = 91°41'30"

CO. RD. 50 STA. 10+90
CONST. APPR. ON LT.
= 494 CU. YD.

STA. 251+84 IN PLACE
24"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
24"x 44' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 48 CU. YD.

C.L. HWY. 167
PI = 248+21.05
Δ = 18°46'22" LT.
D = 01°00'00"
T = 947.13'
L = 1877.28'
PC = 238+73.92
PT = 257+51.20
e = 0.030 '/'
Ls = 540'

STA. 258+50 IN PLACE
15"x 40' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 48' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 56 CU. YD.

CO. RD. 232
EXIST. R/W
EXIST. C.L. HWY. 167
LIMITS OF CONSTRUCTION
PROPOSED R/W
T.C.E.
P.T. 257+51.20
P.C. 261+02.62
P.O.E. 1+44.73
S00°00'00"E
OBLITERATE EXISTING ROAD BED
R= 40'
N17°09'12"W
C.L. HWY. 167
GATE

STA. 251+03 IN PLACE
24"X88' R.C. PIPE CULV'T.
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
30"X 124' R.C. PIPE CULV'T.
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 36 CFS; D.A. = 12.2 ACRES
DUMPED RIPRAP = 5 CU. YD.

STA. 254+30 IN PLACE
18"X 29' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 34' ARCH PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 260+00 IN PLACE
18"x 24' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
18"x 38' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 39 CU. YD.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YD.
251+03	262+50	LT.	B	4	508
251+03	262+50	RT.	B	4	512

STA. 263+83.72 ℄ HWY. 167 =
STA. 10+00.00 ℄ CO. RD. 50
Δ = 76°46'36"

HWY. 167

STA. 234+68.92 BEGIN SUPERELEVATION
STA. 240+08.92 MAX. SUPERELEVATION (0.030'/')
STA. 253+86.91 MAX. SUPERELEVATION (0.030'/')
STA. 259+26.91 END SUPERELEVATION

STA. 259+26.91 BEGIN SUPERELEVATION
STA. 264+66.91 MAX. SUPERELEVATION (0.055'/')
STA. 268+98.69 MAX. SUPERELEVATION (0.055'/')
STA. 274+38.69 END SUPERELEVATION

EXISTING GROUND @ C.L.

+00 RT. DT. 179.15
+45 LT. DT. 179.82
+85 LT. DT. 179.28
+05 LT. DT. 178.80
+05 RT. DT. 178.11
+03
F.L. ELEV. IN = 178.79 LT.
F.L. ELEV. OUT = 178.13 RT.

2.50% DT. GR. LT.
0.23% DT. GR. LT.
4.02% RT. DT. GR.
3.36% LT. DT. GR.
0.23% DT. GR.
0.76% RT. DT. GR.

+39 RT. DT. 187.24
+10.17 DT. 189.12
+50 RT. DT. 214.56

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

CO. RD. 50

10+44.12 224.10
10+60.00 224.10
0.00%
-9.96%
11+93.67 219.75
30' VC K = 3.00 e = -0.37'

CO. RD. 232

0+10.00 220.90
0+30.00 220.30
-5.09%
0+85.00 217.50
1+20.00 216.37
60' VC K = 14.32 e = -0.14'
30' VC K = 14 e = -0.08'

210 205 200 195 190 185 180 175 170 165
225 220 215 210 205 200 195 190 185
230 225 220 215 210 205 200 195 190
250+00 251+00 252+00 253+00 254+00 255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00 263+00 264+00 265+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	85	194

PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry P. Davis
No. 15560
6-15-17
JEROME PAUL DAVIS

STA. 265+13 CONST. APPR. ON LT. = 50 CU. YD.

STA. 265+00 INSTALL 18"x 42' PIPE CULV'T. RT. SIDE DRAIN CONST. APPR. = 44 CU. YD.

STA. 266+70 CONST. APPR. ON LT. = 91 CU. YD.

STA. 267+37 IN PLACE 18"x 39' PIPE CULV'T. LT. SIDE DRAIN REMOVE & CONST. APPR. = 114 CU. YD.

STA. 267+84 IN PLACE 18"x 28' PIPE CULV'T. RT. SIDE DRAIN REMOVE & INSTALL 18" X 36' PIPE CULV'T. CONST. APPR. = 35 CU. YD.

STA. 268+87 IN PLACE 18"x 31' PIPE CULV'T. LT. SIDE DRAIN REMOVE & CONST. APPR. = 116 CU. YD.

STA. 269+50 IN PLACE 18"x 21' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 18"x 36' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 117 CU. YD.

STA. 271+05 IN PLACE 18"x 32' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 24"x 36' PIPE CULV'T. CONST. APPR. = 80 CU. YD.

STA. 272+36 IN PLACE 18"x 25' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 24"x 36' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 45 CU. YD.

STA. 273+37 IN PLACE 18"x 25' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 28"x 20"x 34' ARCH PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 36 CU. YD.

STA. 275+49 IN PLACE 18"x 37' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 18"x 36' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 35 CU. YD.

STA. 276+39 IN PLACE 18"x 25' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 18"x 48' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 78 CU. YD.

STA. 277+82 IN PLACE 18"x 31' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 18"x 36' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 27 CU. YD.

STA. 278+90 IN PLACE 18"x 25' PIPE CULV'T. LT. SIDE DRAIN REMOVE & INSTALL 18"x 32' PIPE CULV'T. LT. SIDE DRAIN CONST. APPR. = 23 CU. YD.

STA. 270+72 IN PLACE 24"X94' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE AND CONSTRUCT 24"X 119' R.C. PIPE CULVERT (CLASS IV) (TYPE 3 BEDDING) WITH FES LT. & RT. 050 = 9 CFS D.A. = 7.1 AC.

LIMITS OF CONSTRUCTION
C.L. HWY. 167
PI = 265+72.30
Δ = 18°37'17" RT.
D = 02°00'00"
T = 469.68'
L = 931.07'
PC = 261+02.62
PT = 270+33.69
e = 0.055 '/'
Ls = 540'

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. GATE
266+60	267+80	RT.	120
267+80		RT.	
267+10	267+25	LT.	15
267+25		LT.	
267+50		LT.	
267+50	269+15	LT.	180
267+90	288+60	RT.	2100

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE	20' GATE
266+44	277+84	RT.	D-1	1071		
267+15	268+76	LT.	7' CHAIN LINK	165		
274+43	276+19	LT.	C	175		
278+07	288+09	RT.	D-1	1002		

EXIST. C.L. HWY. 167
C.L. HWY. 167 N01°28'05"E
LIMITS OF CONSTRUCTION
PROPOSED R/W
EXIST. R/W
OVERHEAD POWER LINE
CO. RD. 51
GATE
R= 40'

HWY. 167

STA. 259+26.91 BEGIN SUPERELEVATION
STA. 264+66.91 MAX. SUPERELEVATION (0.055'/')
STA. 268+98.69 MAX. SUPERELEVATION (0.055'/')
STA. 274+38.69 END SUPERELEVATION

EXISTING GROUND ⊗ C.L.

-0.23% RT. DT. GR.
-0.09% RT. DT. GR.
-0.34% RT. DT. GR.
-0.38% LT. DT. GR.
-0.40% LT. DT. GR.
1.28% LT. DT. GR.

+00 RT. DT. 217.23
+00 RT. DT. 217.93
+85 RT. DT. 218.10
+72 LT. DT. 217.72
+72 RT. DT. 218.02
+72
F.L. ELEV. IN = 218.02 RT.
F.L. ELEV. OUT = 217.72 LT.
+62 LT. DT. 217.00
+00 RT. DT. 218.79
+00 LT. DT. 218.35
+00 LT. DT. 223.38

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

240 235 230 225 220 215 210 205 200 195

265+00 266+00 267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00 279+00 280+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	86	194

PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry D. Davis
No. 15560
6-15-17
JEROME PAUL DAVIS

STA. 280+42 IN PLACE
18"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 19 CU. YD.

STA. 282+00 IN PLACE
18"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 21 CU. YD.

STA. 284+73 - IN PLACE
24"X94' R.C. PIPE CULV'T.
WITH HEADWALLS LT. & RT.
REMOVE HEADWALLS LT. & RT. &
EXTEND R.C. PIPE 8' RT. & 18' LT.
(CLASS III) (TYPE 3 BEDDING)
FOR A COMPLETED LENGTH OF 120'
WITH FES LT. & RT.
Q50 = 4 CFS; D.A. = 2.7 AC.
24" R.C. PIPE (CL. III) = 34 LIN FT.
24" FES = 2 EACH

STA. 283+90 IN PLACE
18"x 23' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 24 CU. YD.

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. GATE
281+80	283+55	LT.	175
284+00	285+95	LT.	235
289+15	303+50	RT.	440

STA. 286+17 IN PLACE
18"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 29 CU. YD.

STA. 288+15 IN PLACE
12"x 29' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 31 CU. YD.

STA. 289+12 IN PLACE
18"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 27 CU. YD.

STA. 288+60.00 ℄ HWY. 167 =
STA. 9+99.85 ℄ CO. RD. 53 RT.
Δ = 75°00'00"

STA. 290+76 IN PLACE
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 42' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 38 CU. YD.

STA. 291+47 IN PLACE
18"x 29' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.

280 285 290 295

CO. RD. 53

PROPOSED R/W
EXIST. R/W
LIMITS OF CONSTRUCTION
TELEPHONE LINE
C.L. HWY. 167
N01°28'05"E
R= 40'
P.C. 10+14.16
P.I. 10+67.13
P.I. 11+18.30
EXIST. R/W
PROPOSED R/W
LIMITS OF CONSTRUCTION

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE	20' GATE
282+14	283+54	LT.	C	140		
284+10	286+02	LT.	C	192		
289+55	303+66	RT.	C	1412		
292+46	303+03	LT.	D-I	1057		

C.L. CO. RD. 53
P.I. = 10+67.13
Δ = 25°46'32" LT.
D = 24°45'00"
T = 52.97'
L = 104.14'
PC= 10+14.16
PT= 11+18.30
NO SUPERELEVATION

STA. 288+89 RT.
CONST. APPR. = 1100 CU. YD.

HWY. 167

CO. RD. 53 (SOUTH)

10+30.45 229.36
10+50.00 228.77
11+00.00 226.35
11+50.00 225.84
0.0%
-4.84%
-1.26%
40' VC
K = 14
e=-0.14'
40' VC
K = 11
e=0.18'
10+00 11+00 12+00

EXISTING GROUND ℄ C.L.

0.76% RT. DT. GR.
0.26% LT. DT. GR.
0.52% LT. DT. GR.
0.58% RT. DT. GR.

+70 LT. DT. 224.6
+90 RT. DT. 226.32
+74 LT. DT. 225.39
+73 RT. DT. 225.69
+00 LT. DT. 225.53
+00 RT. DT. 227.00
+73
F.L. ELEV. IN = 225.69 RT.
F.L. ELEV. OUT = 225.39 LT.

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

280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00 293+00 294+00 295+00

200 205 210 215 220 225 230 235 240 245

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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.		CA0702	87	194

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

STA. 299+24 IN PLACE
24"X88' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
30"X 119' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
050 = 33 CFS D.A. = 48.3 ACRES
DUMPED RIPRAP = 6 CU. YD.

C.L. HWY. 167
PI = 302+56.28
Δ = 01°51'15.1" RT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PRC = 300+70.84
PT = 304+41.68
NO SUPERELEVATION

STA. 306+69 IN PLACE
24"X88' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. &
EXTEND 26' LT. & 4' RT.
(CLASS III) (TYPE 3 BEDDING)
FOR A COMPLETED LENGTH OF 118'
WITH FES LT. & RT.
050 = 17 CFS D.A. = 20.1 ACRES
24" R.C. PIPE (CL. III)= 38 LIN. FT.
24" FES = 2 EACH
CHANNEL CHANGE = 20 CU. YD.
DUMPED RIPRAP = 4 CU. YD.

295 300 305 310

P.C. 297+00.00 80'
+50 70'
P.R.C. 300+70.84 85'
PROPOSED R/W
P.I. 302+56.28
+67.34 80'
P.T. 304+41.68
+50 80'
+70 85'
TELEPHONE LINE
+00 75'
LIMITS OF CONSTRUCTION
EXIST. R/W
8'
29.5'
N01°28'05"E
N00°23'10"W
C.L. HWY. 167
EXIST. C.L. HWY. 167
+90
FO
EXIST. R/W
PROPOSED R/W
LIMITS OF CONSTRUCTION
+00 75'
C.L. HWY. 167
PI = 298+85.44
Δ = 01°51'15.1" LT.
D = 00°30'00"
T = 185.44'
L = 370.84'
PC = 297+00.00
PRC = 300+70.84
NO SUPERELEVATION
P.I. 298+85.44
+25 85'
+65.82 72.40'
+55 80'
16'
T.C.E.
+00 115.68' 80°
+70 135' 80°
+00 135'
+00 71.96'
STA. 305+90 IN PLACE
18"× 28' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
18"× 38' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 37 CU. YD.

HWY. 167

240 235 230 225 220 215 210 205 200 195

EXISTING GROUND ⊗ C.L.

+00 RT. DT. 214.16
-1.91% RT. DT. GR.
+85 LT. DT. 212.39
-1.03% LT. DT. GR.
+24 LT. DT. 211.99
+24 RT. DT. 211.01
+24
F.L. ELEV. IN = 211.99 LT.
F.L. ELEV. OUT = 211.01 RT.
0.58% LT. DT. GR.
1.04% RT. DT. GR.
+00 LT. DT. 213.88
+00 RT. DT. 213.88
+00 LT. DT. 214.15
+55 RT. DT. 214.19
+00 RT. DT. 212.90
-0.58% LT. DT. GR.
-0.27% RT. DT. GR.
+69 LT. DT. 211.61
+69 RT. DT. 210.82
+69
F.L. ELEV. IN = 211.61 LT.
F.L. ELEV. OUT = 210.84 RT.
1.07% LT. DT. GR.
1.51% RT. DT. GR.
+50 LT. DT. 213.55
+50 RT. DT. 213.55

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

295+00 296+00 297+00 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	88	194
(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
6-15-17

STA. 317+08 CONST.
APPR. ON LT. = 27 CU. YD.

C.L. HWY. 167
PI = 318+42.10
Δ = 01°43'59.7" RT.
D = 00°30'00"
T = 173.34'
L = 346.65'
PC = 316+68.76
PRC = 320+15.41
NO SUPERELEVATION

C.L. HWY. 167
PI = 321+76.30
Δ = 01°36'31.7" LT.
D = 00°30'00"
T = 160.89'
L = 321.76'
PRC = 320+15.41
PT = 323+37.17
NO SUPERELEVATION

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. GATE
320+80		RT.	20
321+20		RT.	20
321+20	329+30	RT.	810

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE	20' GATE
318+24	320+85	RT.	C	260		
321+11	321+23	RT.	C	12		
323+64	329+14	RT.	C	552		
329+76	329+87	RT.	C	11		

310 315 320 325

LIMITS OF CONSTRUCTION
EXIST. R/W
TELEPHONE LINE
PROPOSED R/W
EXIST. C.L. HWY. 167
C.L. HWY. 167
N01°28'05"E
N03°12'04.7"E
N01°35'33"E
P.C. 316+68.76
P.I. 318+42.10
P.T. 323+37.17
P.R.C. 320+15.41
P.I. 321+76.30
T.C.E.
CELL TOWER
16' GATE
29.5'
16'

STA. 313+07 IN PLACE
24"x 25' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
24"x 34' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 28 CU. YD.

STA. 315+73 IN PLACE
18"x 21' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
24"x 34' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 28 CU. YD.

STA. 316+67 IN PLACE
24"x 25' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 32' ARCH PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 23 CU. YD.

STA. 321+00 IN PLACE
18"x 28' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
22" x 14"x 28' ARCH
PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 17 CU. YD.

HWY. 167

EXISTING GROUND @ C.L.
0.30% RT. DT. GR.
+00 RT. DT. 218.40
+50 RT. DT. 219.45

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

240 235 230 225 220 215 210 205 200 195

310+00 311+00 312+00 313+00 314+00 315+00 316+00 317+00 318+00 319+00 320+00 321+00 322+00 323+00 324+00 325+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.		CA0702	89	194

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
5-17-

STA. 326+41 - IN PLACE
DBL. 3'X2'X86' R.C. BOX CULV'T.
WITH 3:1 WINGS LT. & RT.
REMOVE AND CONSTRUCT
36" X 116' R.C. PIPE CULV'T.
(CLASS III)(TYPE 3 BEDDING)
WITH FES LT. & RT.
050 = 33 CFS; D.A. = 42.3 AC.
CHANNEL CHANGE = 20 CU. YD.
DUMPED RIPRAP = 15 CU. YD.

STA. 329+42 IN PLACE
18"x 37' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
18"x 38' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 29 CU. YD.

STA. 335+73 - IN PLACE
4'X2'X86' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 25' LT. & 11' RT.
TO A COMPLETED LENGTH OF 122'
050 = 22 CFS D.A. = 32.1 ACRES

325 330 335 340

TELEPHONE LINE
EXIST. R/W
LIMITS OF CONSTRUCTION
PROPOSED R/W
C.L. HWY. 167
N01°35'33"E
+42
24' T.C.E.
T.C.E.
FO
TELEPHONE LINE
HWY. 167

EXISTING GROUND @ C.L.

0.67% LT. DT. GR.
0.71% RT. DT. GR.
1.46% RT. DT. GR.
1.65% LT. DT. GR.
1.49% RT. DT. GR.
1.01% LT. DT. GR.
1.68% LT. DT. GR.
2.03% RT. DT. GR.

+00 LT. DT. 216.96
+85 RT. DT. 214.96
+41 LT. DT. 216.02
+41 RT. DT. 215.36
+41
F.L. ELEV. IN = 216.02 LT.
F.L. ELEV. OUT = 215.36 RT.
+00 LT. DT. 218.10
+35 RT. DT. 218.24
+00 LT. DT. 219.76
+60 LT. DT. 221.35
+00 RT. DT. 221.32
+73 LT. DT. 219.19
+73 RT. DT. 218.74
+73
F.L. ELEV. IN = 219.18 LT.
F.L. ELEV. OUT = 218.77 RT.
+00 LT. DT. 221.32
+00 RT. DT. 221.32

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

235 230 225 220 215 210 205 200 195

325+00 326+00 327+00 328+00 329+00 330+00 331+00 332+00 333+00 334+00 335+00 336+00 337+00 338+00 339+00 340+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.		CA0702	90	194
2	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
JEROME PAUL DAVIS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
5-1-17

C.L. CO. RD. 54
P.I. = 9+08.47
Δ = 10°02'04" LT.
D = 11°27'30"
T = 43.90'
L = 87.57'
PRC= 8+64.57
PT= 9+52.14
NO SUPERELEVATION

C.L. CO. RD. 54
P.I. = 8+39.58
Δ = 05°43'54" RT.
D = 11°27'30"
T = 25.03'
L = 50.02'
PC= 8+14.55
PRC= 8+64.57
NO SUPERELEVATION

STA. 347+47 INSTALL
18"x 32' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 27 CU. YD.

STA. 350+83.58 ℄ HWY. 167 =
STA. 10+00.00 ℄ CO. RD. 54
Δ = 60°00'00"

STA. 351+26 LT.
CONST. APPR. = 836 CU. YD.

340 345 350 355

TELEPHONE LINE
PROPOSED R/W
LIMITS OF CONSTRUCTION
EXIST. R/W
C.L. HWY. 167
N01°35'33"E
S58°24'27"E
P.O.B. 6+93.28
P.I. 9+08.47
P.C. 8+14.55
P.I. 8+39.58
P.R.C. 8+64.57
P.I. 9+52.14
P.C. 10+47.85
P.I. 10+91.75
P.R.C. 11+35.42
P.T. 11+85.44
R= 40'
CO. RD. 54
S54°06'17"E

C.L. CO. RD. 54
P.I. = 11+60.45
Δ = 05°43'54" LT.
D = 11°27'30"
T = 25.03'
L = 50.02'
PRC= 11+35.42
PT= 11+85.44
NO SUPERELEVATION

P.O.E. 13+02.31

C.L. CO. RD. 54
P.I. = 10+91.75
Δ = 10°02'04" RT.
D = 11°27'30"
T = 43.90'
L = 87.57'
PC= 10+47.85
PRC= 11+35.42
NO SUPERELEVATION

STA. 350+41 RT.
CONST. APPR. = 985 CU. YD.

HWY. 167

CO. RD. 54

8+14.55 228.61
9+00.00 229.21
9+65.93 230.09
10+34.06 230.19
11+00.00 228.87
11+85.44 228.35
0.70%
1.38%
-2.00%
-0.61%
0.28% RT. DT. GR.
50' VC K = 79 e=0.04'
50' VC K = 36 e=0.09'
50' RT. DT. @ 223.62
43' RT. DT. @ 226.17

EXISTING GROUND ℄ C.L.

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

6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00
340+00 341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00
215 220 225 230 235 240 245 250

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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
6-15-17				6	ARK.			
				JOB NO.		CA0702	91	194
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
6-15-17

C.L. CO. RD. 89
P.I. = 8+90.21
Δ = 05°07'34" LT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PC= 8+67.83
PRC= 9+12.57
NO SUPERELEVATION

C.L. CO. RD. 89
P.I. = 9+34.95
Δ = 05°07'34" RT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PRC= 9+12.57
PT= 9+57.31
NO SUPERELEVATION

STA. 363+29 IN PLACE
18"x 37' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 58' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 1125 CU. YD.

STA. 364+47 IN PLACE
24"X88' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. &
FILL & ABANDON PIPE CULVERT

STA. 364+65 CONSTRUCT
30"X 119' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
050 = 23 CFS D.A. = 32.7 ACRES
DUMPED RIPRAP = 6 CU. YD.

STA. 369+60 IN PLACE
24"X92' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND 10' LT. & 14' RT.
(CLASS III) (TYPE 3 BEDDING)
FOR A COMPLETED LENGTH OF 116'
WITH FES LT. & RT.
050 = 9 CFS D.A. = 18.8 ACRES
24" R.C. PIPE (CL. III) = 32 LIN. FT.
24" FES = 2 EA.
DUMPED RIPRAP = 5 CU. YD.

REMOVAL AND DISPOSAL FENCE			
STA.	STA.	SIDE	LIN. FT. GATE
369+31	372+90	LT.	380

FENCE					
STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE 20' GATE
369+32	372+86	LT.	C	354	

355 360 365 370

TELEPHONE LINE
LIMITS OF CONSTRUCTION
PROPOSED R/W
EXIST. R/W
TELEPHONE LINE
LIMITS OF CONSTRUCTION
PROPOSED R/W
EXIST. R/W

CO. RD. 89 (WOODBERRY RD.)
P.O.B. 8+00.00
P.C. 8+67.83
P.R.C. 9+12.57
P.I. 8+90.21
P.I. 9+34.95
P.T. 9+57.31
N61°35'33"E
STA. 363+64.94 ℄ HWY. 167 =
STA. 10+00.00 ℄ CO. RD. 89
Δ = 60°00'00"
R= 40'
C.L. HWY. 167
N01°35'33"E
P.C. 10+40.29
P.I. 10+62.67
P.R.C. 10+85.03
P.I. 11+07.41
P.T. 11+29.77
P.O.E. 12+00.00
CO. RD. 89
HWY. 167

C.L. CO. RD. 89
P.I. = 10+62.67
Δ = 05°07'34" LT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PC= 10+40.29
PRC= 10+85.03
NO SUPERELEVATION

STA. 363+99 IN PLACE
18"x 36' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
24"x 58' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 942 CU. YD.

C.L. CO. RD. 89
P.I. = 11+07.41
Δ = 05°07'34" RT.
D = 11°27'30"
T = 22.38'
L = 44.74'
PRC= 10+85.03
PT= 11+29.77
NO SUPERELEVATION

CO. RD. 89

8+67.83 PC 225.89
8+80.00 225.15
9+12.57 PRC 222.17
9+50.00 225.89
9+65.94 226.17
10+34.06 226.28
10+50.00 225.75
11+05.00 223.25
11+29.77 PT 222.93

20' VC K = 8 e=0.08
20' VC K = 10 e=-0.05'
30' VC K = 24 e=-0.05'
30' VC K = 9 e=0.12'

-0.38% LT. DT. GR.
-0.06% RT. DT. GR.
0.16% LT. DT. GR.
1.04% LT. DT. GR.
0.37% RT. DT. GR.
-0.24% RT. DT. GR.
1.08% LT. DT. GR.
0.30% LT. DT. GR.
0.08% RT. DT. GR.

EXISTING GROUND ℄ C.L.

+70 LT. DT. 222.56
+00 RT. DT. 222.22
+80 LT. DT. 221.39
+60 LT. DT. 221.25
+65 LT. DT. 221.44
+65 RT. DT. 222.05
+65 LT. DT. 222.48
+85 RT. DT. 222.76
+00 LT. DT. 222.05
+60 LT. DT. 221.40
+60 RT. DT. 222.03

+65
F.L. ELEV. IN = 222.05 RT.
F.L. ELEV. OUT = 221.44 LT.

+60
F.L. ELEV. IN = 222.03 RT.
F.L. ELEV. OUT = 221.40 LT.

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

245 240 235 230 225 220 215 210

355+00 356+00 357+00 358+00 359+00 360+00 361+00 362+00 363+00 364+00 365+00 366+00 367+00 368+00 369+00 370+00

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Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	92	194
(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
6-15-17

STA. 373+00 IN PLACE
24"x 25' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
24"x 32' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 21 CU. YD.

STA. 376+40 IN PLACE
24"x 29' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 34' ARCH PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 28 CU. YD.

STA. 377+30 IN PLACE
24"x 28' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
24"x 38' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 38 CU. YD.

STA. 380+44 IN PLACE
24"X87' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
36"X 116' R.C. PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
WITH FES LT. & RT.
050 = 29 CFS D.A. = 47.0 ACRES
DUMPED RIPRAP = 8 CU. YD.

STA. 381+44 IN PLACE
24"x 24' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
28" x 20" x 32' ARCH PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. 16' GATE
373+10		LT.	20
373+10	375+95	LT.	300
381+60	387+50	LT.	590

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE
373+09	375+89	LT.	C	281	
377+75	382+48	LT.	C	473	

370 375 380 385

OVERHEAD POWER LINE

PROPOSED R/W

EXIST. R/W

TELEPHONE LINE

LIMITS OF CONSTRUCTION

T.C.E.

GATE

N01°35'33"E C.L. HWY. 167

STA. 375+50 INSTALL
18"x 32' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

STA. 380+77 INSTALL
18"x 34' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 35 CU. YD.

HWY. 167

EXISTING GROUND @ C.L.

0.30% LT. DT. GR.
0.08% RT. DT. GR.
-0.31% LT. DT. GR.
-0.23% RT. DT. GR.
0.26% RT. DT. GR.
-0.25% RT. DT. GR.

+00 LT. DT. 221.82
+80 RT. DT. 222.29
+00 LT. DT. 221.11
+00 RT. DT. 220.74
+44 LT. DT. 219.73
+44 RT. DT. 220.19
+15 RT. DT. 220.64

+44
F.L. ELEV. IN = 220.19 RT.
F.L. ELEV. OUT = 219.73 LT.

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

370+00 371+00 372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00

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civil/structural engineering/surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	93	194
(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome Paul Davis
No. 15560
6-15-17
JEROME PAUL DAVIS

STA. 386+56 IN PLACE
DBL. 5'X2'X88' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 19' LT. & 14' RT.
TO A COMPLETED LENGTH OF 121'
Q50 = 83 CFS D.A. = 134.0 ACRES
CHANNEL CHANGE = 20 CU. YD.

STA. 387+50 IN PLACE
18"x 38' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
24"x 42' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 46 CU. YD.

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. 16' GATE
387+50		LT.	1

STA. 399+56 IN PLACE
5'X2'X86' R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
RETAIN & EXTEND 20' LT. & 15' RT.
TO A COMPLETED LENGTH OF 121'
Q50 = 79 CFS D.A. = 88.5 ACRES

385 390 395 400

PROPOSED R/W
EXIST. R/W
LIMITS OF CONSTRUCTION
TELEPHONE LINE
16'
8'
29.5'
29.5'
8'
N01°35'33"E C.L. HWY. 167
EXIST. R/W
LIMITS OF CONSTRUCTION
TELEPHONE LINE
PROPOSED R/W

HWY. 167

EXISTING GROUND @ C.L.

-0.94% LT. DT. GR.
-0.25% RT. DT. GR.
+00 LT. DT. 220.50
+38 LT. DT. 219.04
+56 RT. DT. 219.53
F.L. ELEV. IN = 219.53 RT.
F.L. ELEV. OUT = 219.04 LT.
1.23% RT. DT. GR.
1.43% LT. DT. GR.
+00 LT. DT. 222.52
+00 RT. DT. 222.52
-0.26% RT. DT. GR.
-0.30% LT. DT. GR.
+75 LT. DT. 229.05
+00 RT. DT. 229.39
+56 LT. DT. 228.21
+56 RT. DT. 228.73
+56
F.L. ELEV. IN = 228.73 RT.
F.L. ELEV. OUT = 228.21 LT.

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

250 245 240 235 230 225 220 215 210 205

385+00 386+00 387+00 388+00 389+00 390+00 391+00 392+00 393+00 394+00 395+00 396+00 397+00 398+00 399+00 400+00

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architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
6-15-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	94	194
(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
6-15-17
JEROME PAUL DAVIS

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. GATE
408+80	420+00	LT.	1120
408+80	421+70	RT.	1290

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE	20' GATE
407+61	418+48	LT.	C	1087		
408+93	418+44	RT.	C	951		

STA. 403+50 INSTALL
18"× 32' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.

400 405 410 415

TELEPHONE LINE
+80.44 75'
PROPOSED R/W
LIMITS OF CONSTRUCTION
EXIST. R/W
16'
+50
8'
29.5'
C.L. HWY. 167
N01°35'33"E
EXIST. R/W
LIMITS OF CONSTRUCTION
TELEPHONE LINE
PROPOSED R/W
+00 80'
+00 85'
+00 75'
+80.04 75'

STA. 403+50 IN PLACE
18"× 38' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
36"× 38' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 42 CU. YD.

HWY. 167

EXISTING GROUND @ C.L.
PROFILE GRADE
0.83% LT. DT. GR.
0.35% RT. DT. GR.
1.99% RT. DI. GR.
1.03%
0.16%
300' V.C.
K = 213
e=0.53'
350' V.C.
K = 154
e=-1.00'
PVC 406+85.00
ELEV. 239.36
PVI 408+35.00
ELEV. 240.96
PVT 409+85.00
ELEV. 244.56
PVC 410+00.00
ELEV. 244.93
PVI 411+75.00
ELEV. 249.20
PVT 413+50.00
ELEV. 249.49
PVC 413+65.00
ELEV. 249.51
+00 LT. DI.
231.89
+00 RT. DI.
230.28
+50 RT. DT.
233.27

260 255 250 245 240 235 230 225 220 215

400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00 413+00 414+00 415+00

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

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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
6-15-17				6	ARK.			
				JOB NO.		CA0702	95	194
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
6-15-17

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT. GATE
106+60		RT.	1
109+80		RT.	1

415 420 105

N

C. L. HWY. 274

S87°16'18"E

+78.71 199.85

+78.73 199.54

EXIST. R/W

+20 100' TRANSITION +97.61

+71.43 75

EXIST. R/W

P.I. 101+00.00 Δ = 00°04'25" RT.

+94.40 79.39

P.I. 104+46.82 Δ = 01°26'40" LT.

+50 70

+50 77

+95 12

EXIST. R/W

PROPOSED R/W

TELEPHONE LINE

LIMITS OF CONSTRUCTION

EXIST. R/W

8'

29.5'

29.5'

8'

N01°35'33"E

C. L. HWY. 167

N01°31'08"E

N00°04'28"E

LIMITS OF CONSTRUCTION

PROPOSED R/W

TELEPHONE LINE

EXIST. R/W

+00 75

+96.10 90

℄ HWY. 167 STA. 422+10.94 BK. = ℄ HWY. 167 STA. 100+88.55 AHD.

STA. 102+24.50 ℄ HWY. 167 = STA. 33+66.70 ℄ HWY. 274 Δ = 91°12'35"

+17 81

+32 82

+51 16

STA. 421+20.00
END JOB CA0702
LOG MILE 5.04

HWY. 167

280 275 270 265 260 255 250 245 240 235

PVI 421+40.00 ELEV. 264.15

PVC 419+25.00 ELEV. 259.67

℄ HWY. 167 STA. 422+10.94 BK. = ℄ HWY. 167 STA. 100+88.55 AHD.

PROFILE GRADE

350' V.C. K = 380 e=-0.40'

42+20.00 ELEV. 264.16

PVT 100+97.61 ELEV. 265.32

EXISTING GROUND @ C.L.

350' V.C. K = 146 e=1.05'

2.56%

-2.21% LT. DT. GR.

PVI 415+40.00 ELEV. 249.80

PVT 417+15.00 ELEV. 254.28

+50 LT. DT. 253.21

+50 LT. DT. 255.42

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

415+00 416+00 417+00 418+00 419+00 420+00 421+00 422+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00

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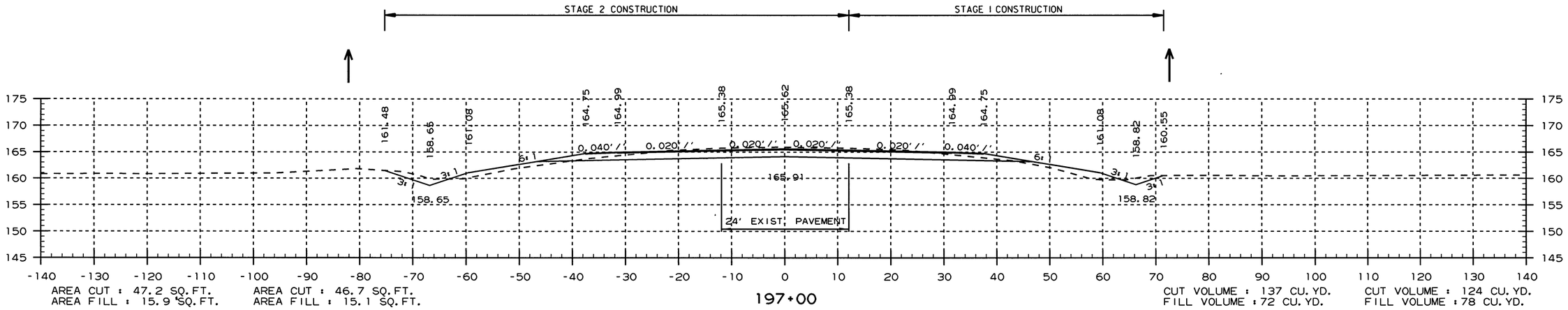
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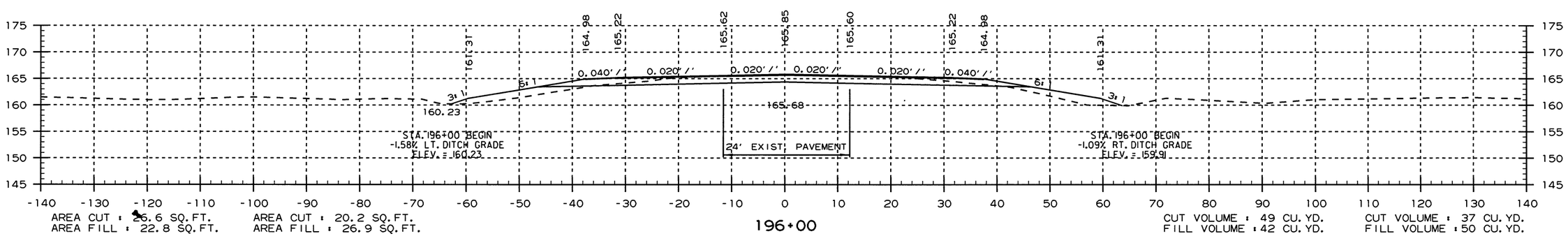
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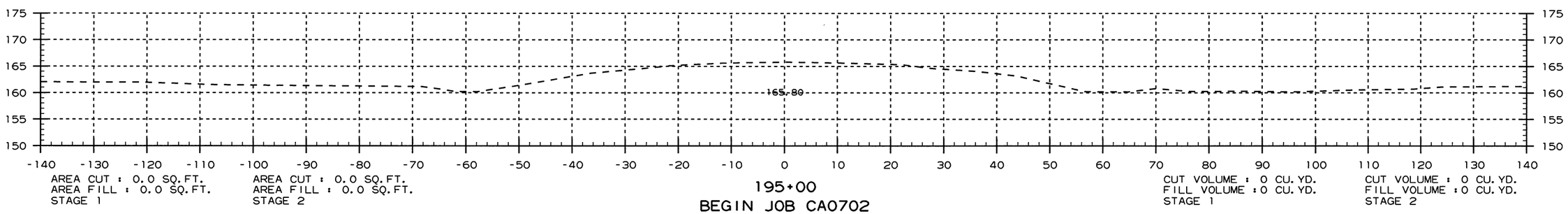
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	96	194

(2) CROSS SECTIONS







CROSS SECTION STA. 195+00 TO STA. 197+00

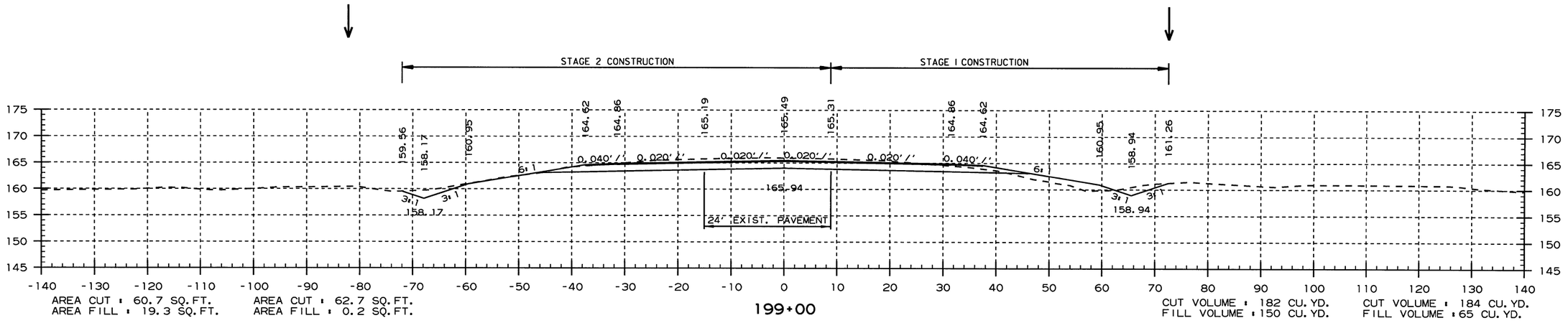
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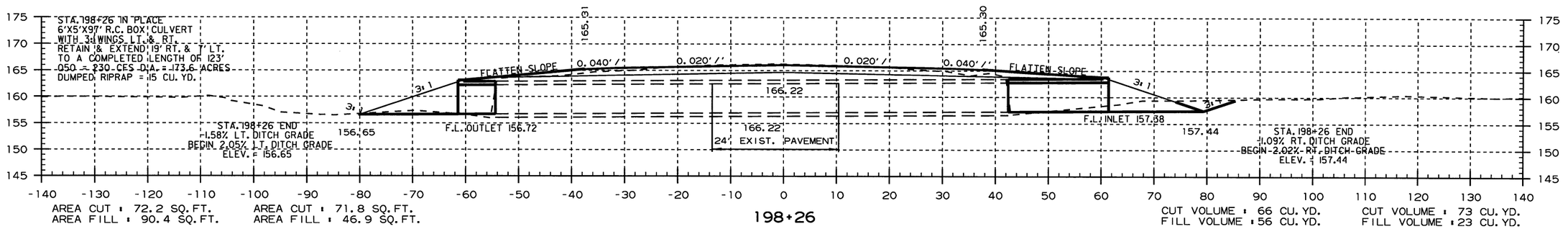
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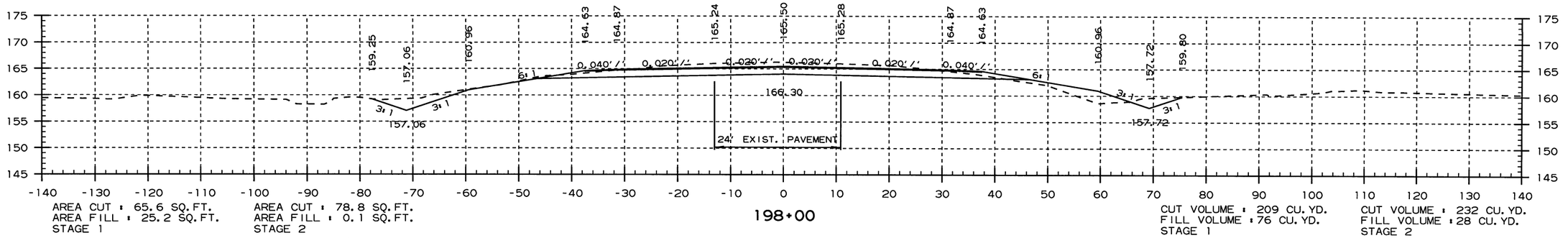
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	97	194

(2) CROSS SECTIONS







CROSS SECTION STA. 198+00 TO STA. 199+00

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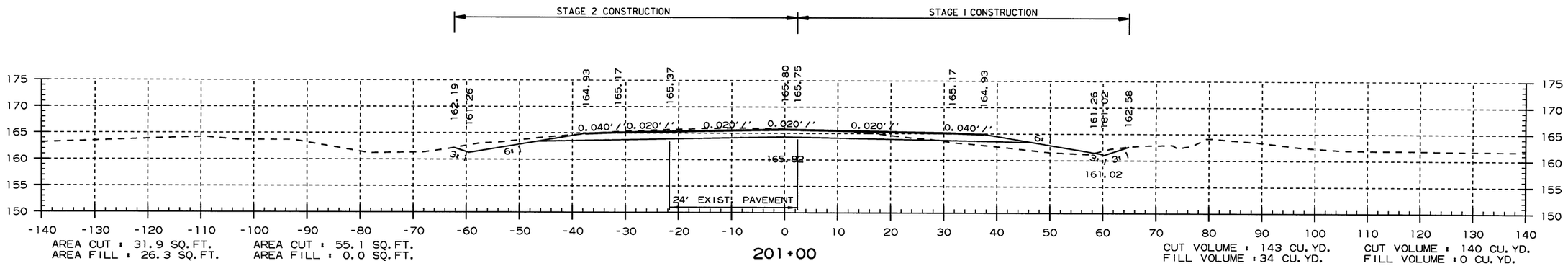
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Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	98	194

2 CROSS SECTIONS



CROSS SECTION STA. 200+00 TO STA. 201+00

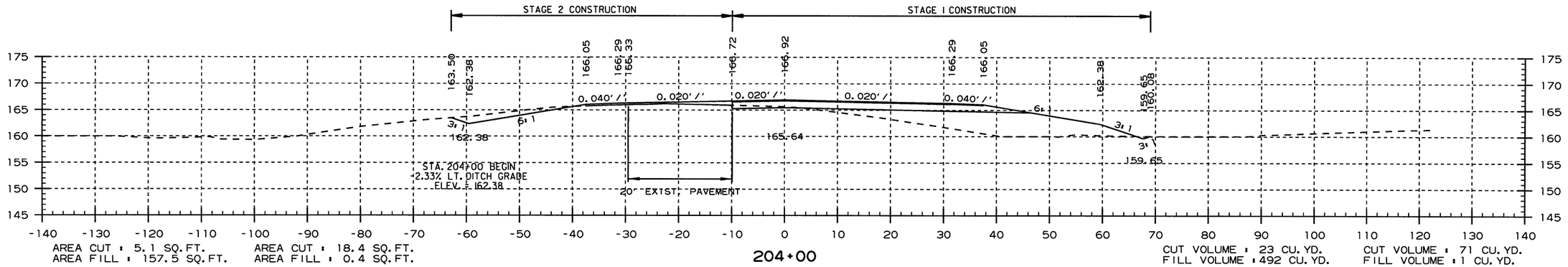
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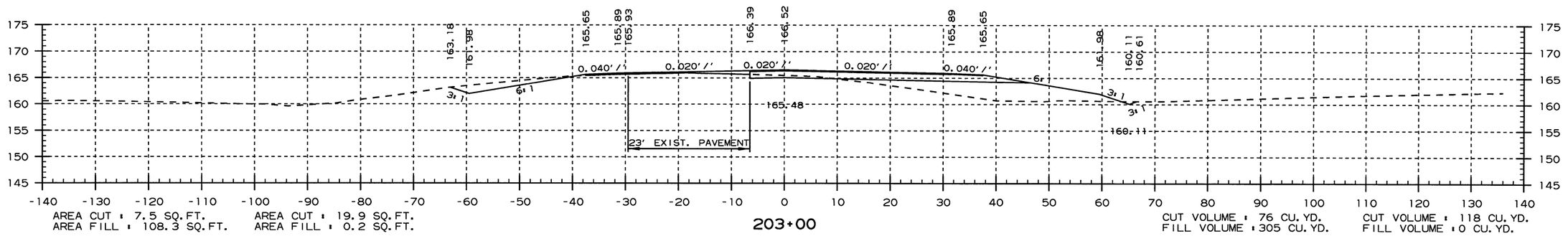
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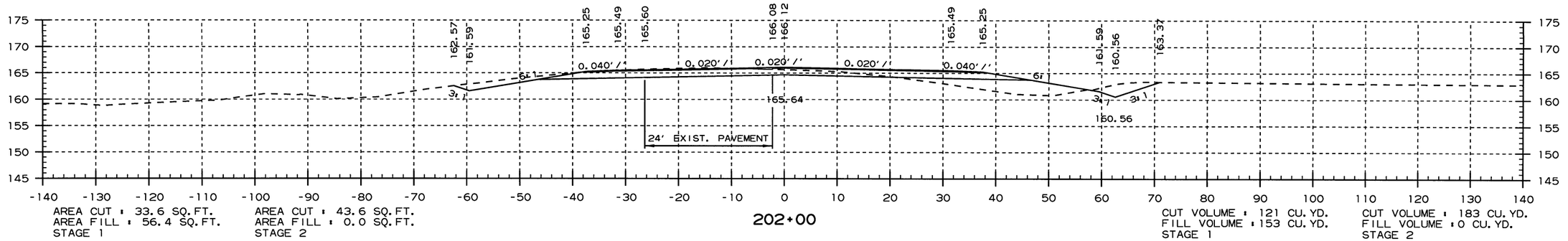
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	99	194

(2) CROSS SECTIONS







CROSS SECTION STA. 202+00 TO STA. 204+00

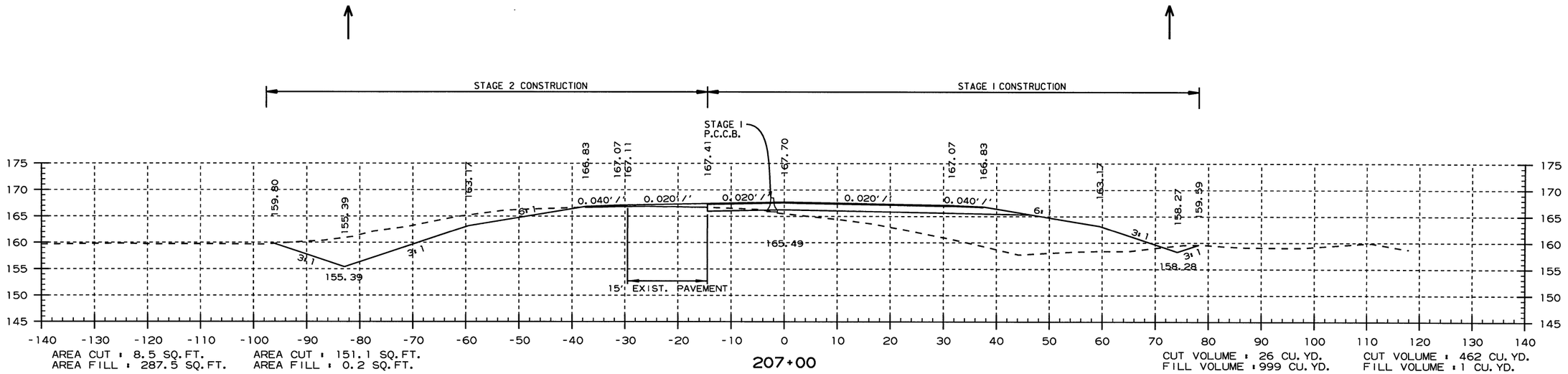
USER: mw59
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:12
SCALE: 20:1

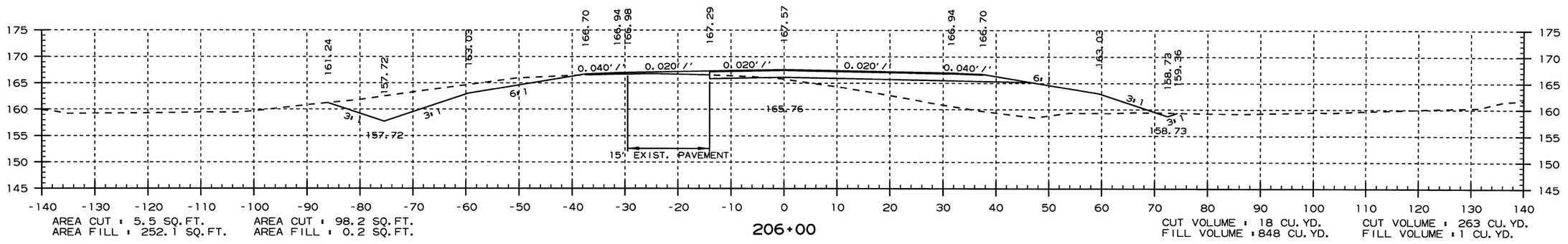
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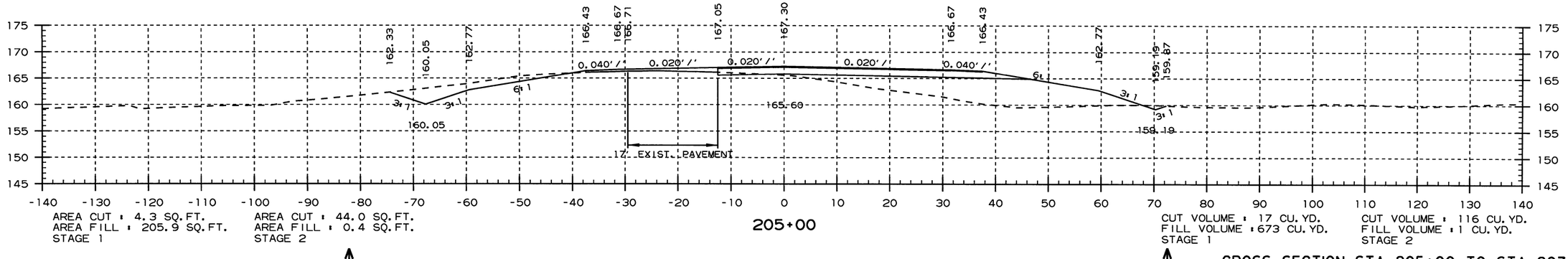
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	100	194

2 CROSS SECTIONS







CROSS SECTION STA. 205+00 TO STA. 207+00

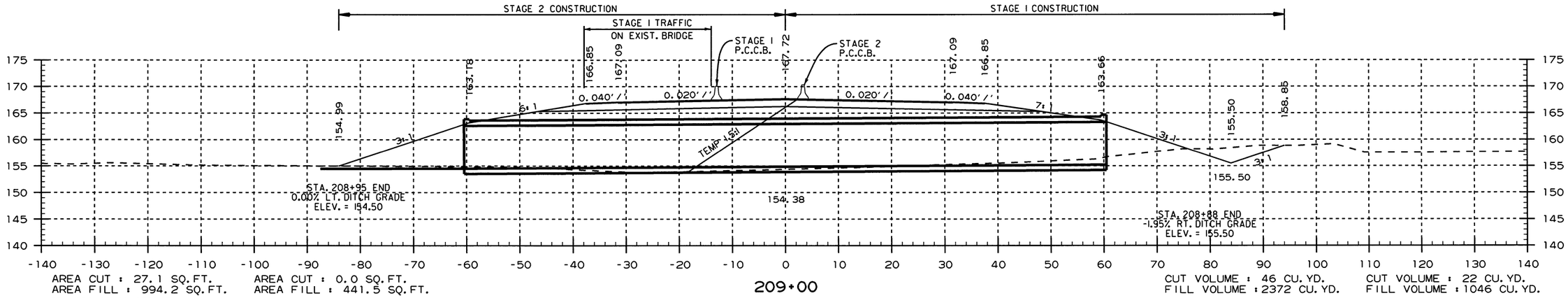
USER: mw919
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn SCALE: 20:1
PLOTTED: 3/17/2017 09:12

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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.		CA0702	101	194

(2) CROSS SECTIONS



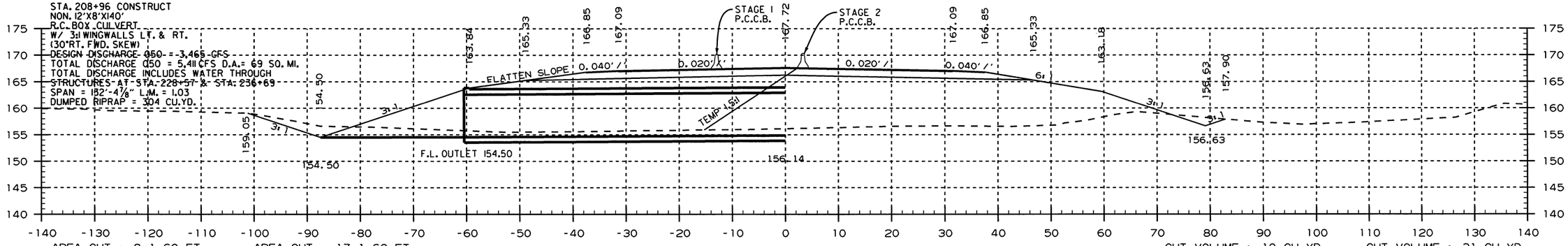
AREA CUT : 27.1 SQ.FT.
AREA FILL : 994.2 SQ.FT.

AREA CUT : 0.0 SQ.FT.
AREA FILL : 441.5 SQ.FT.

209+00

CUT VOLUME : 46 CU.YD.
FILL VOLUME : 2372 CU.YD.

CUT VOLUME : 22 CU.YD.
FILL VOLUME : 1046 CU.YD.



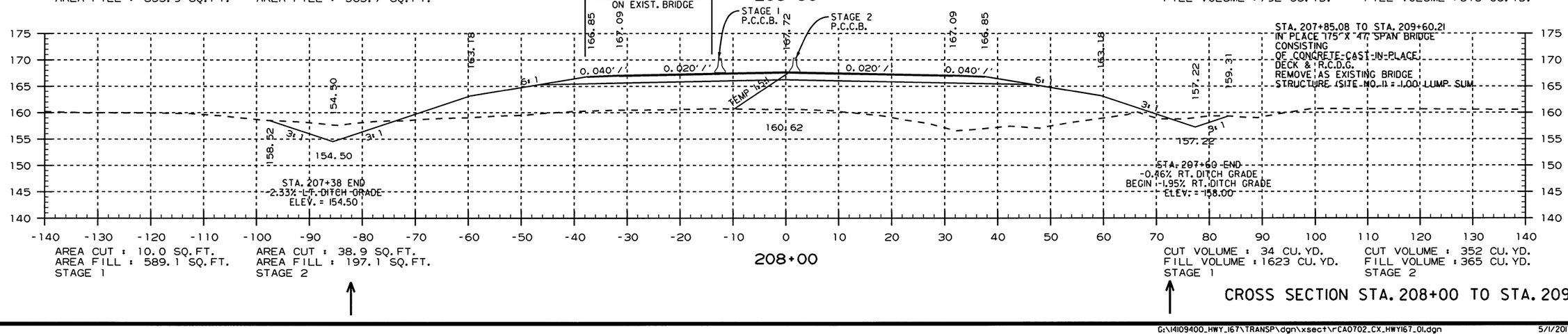
AREA CUT : 8.1 SQ.FT.
AREA FILL : 835.9 SQ.FT.

AREA CUT : 17.1 SQ.FT.
AREA FILL : 365.7 SQ.FT.

208+30

CUT VOLUME : 10 CU.YD.
FILL VOLUME : 792 CU.YD.

CUT VOLUME : 31 CU.YD.
FILL VOLUME : 313 CU.YD.



AREA CUT : 10.0 SQ.FT.
AREA FILL : 589.1 SQ.FT.
STAGE 1

AREA CUT : 38.9 SQ.FT.
AREA FILL : 197.1 SQ.FT.
STAGE 2

208+00

CUT VOLUME : 34 CU.YD.
FILL VOLUME : 1623 CU.YD.
STAGE 1

CUT VOLUME : 352 CU.YD.
FILL VOLUME : 365 CU.YD.
STAGE 2

CROSS SECTION STA. 208+00 TO STA. 209+00

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 5/1/2017 17:06
SCALE: 20:1

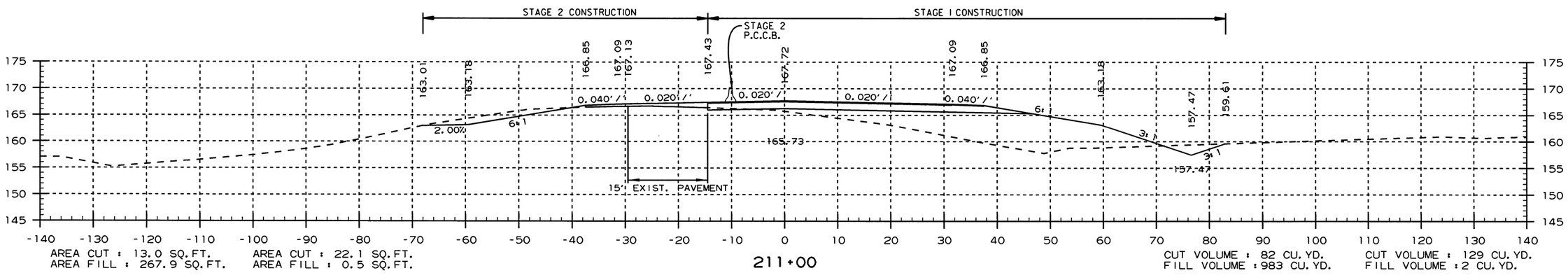
G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 5/1/2017 17:06

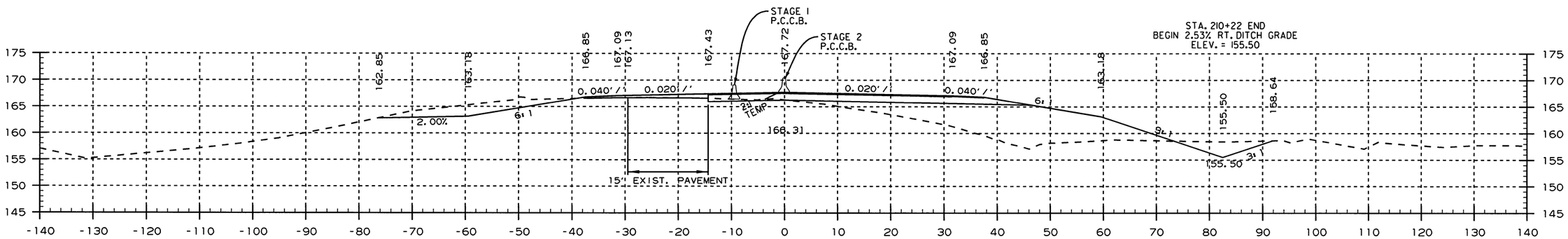
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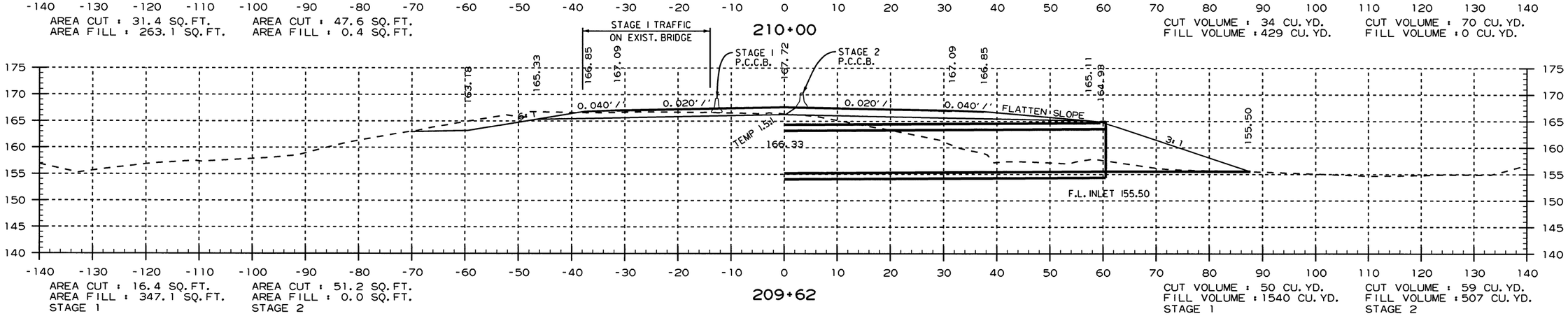
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	102	194

(2) CROSS SECTIONS







CROSS SECTION STA. 209+31 TO STA. 211+00

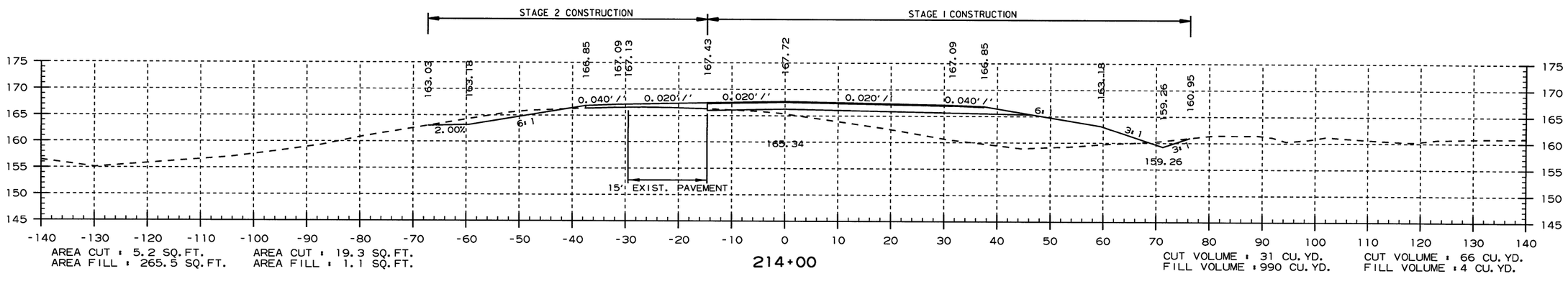
USER: jd5103
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PLOTTED: 5/1/2017 17:06
SCALE: 20:1

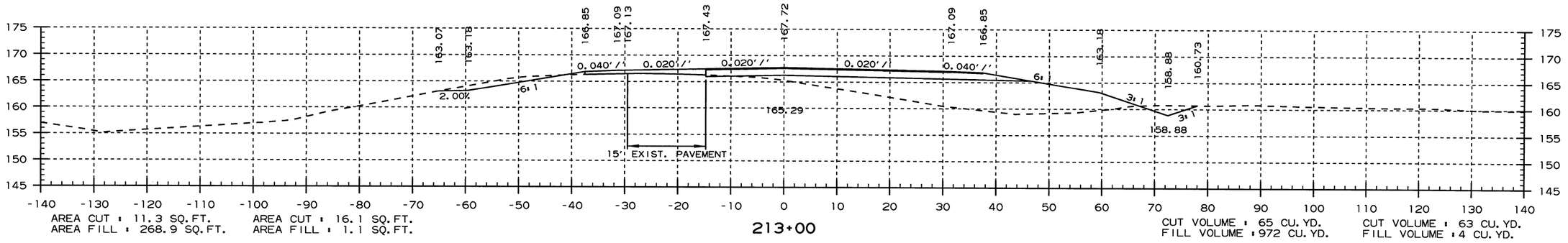
Crafton Tull
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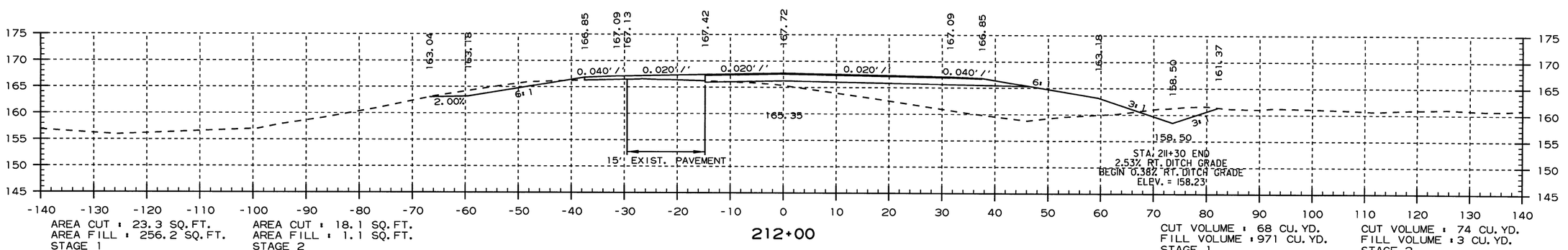
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	103	194

(2) CROSS SECTIONS







CROSS SECTION STA. 212+00 TO STA. 214+00

USER: mw59
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:12
SCALE: 20:1

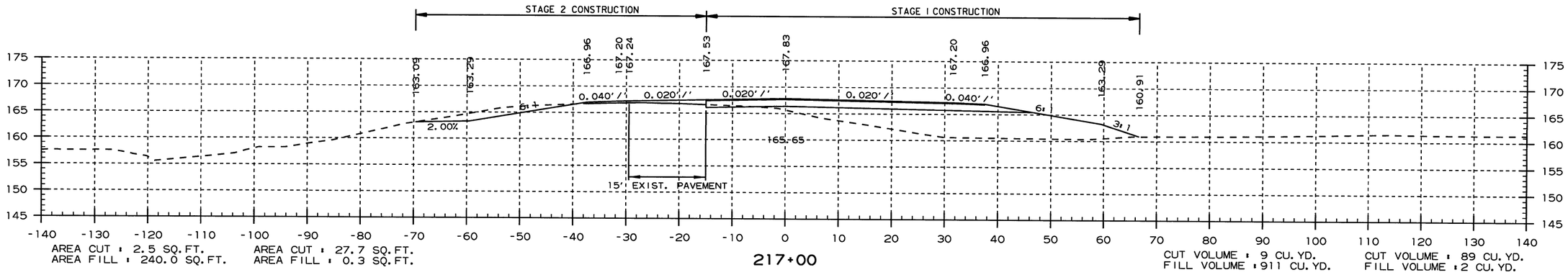
G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 3/17/2017 09:12

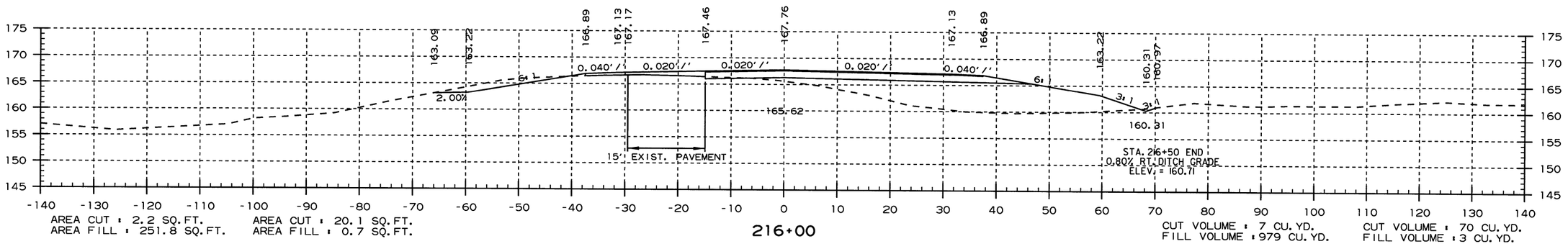
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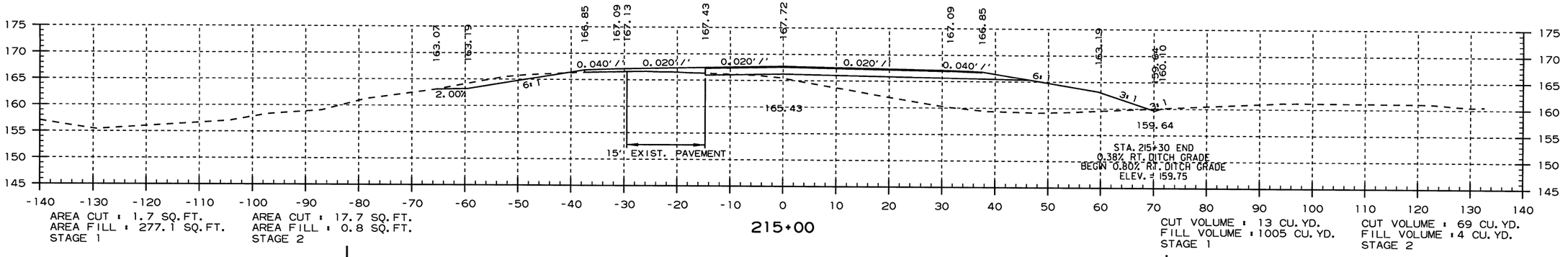
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	104	194

2 CROSS SECTIONS







CROSS SECTION STA. 215+00 TO STA. 217+00

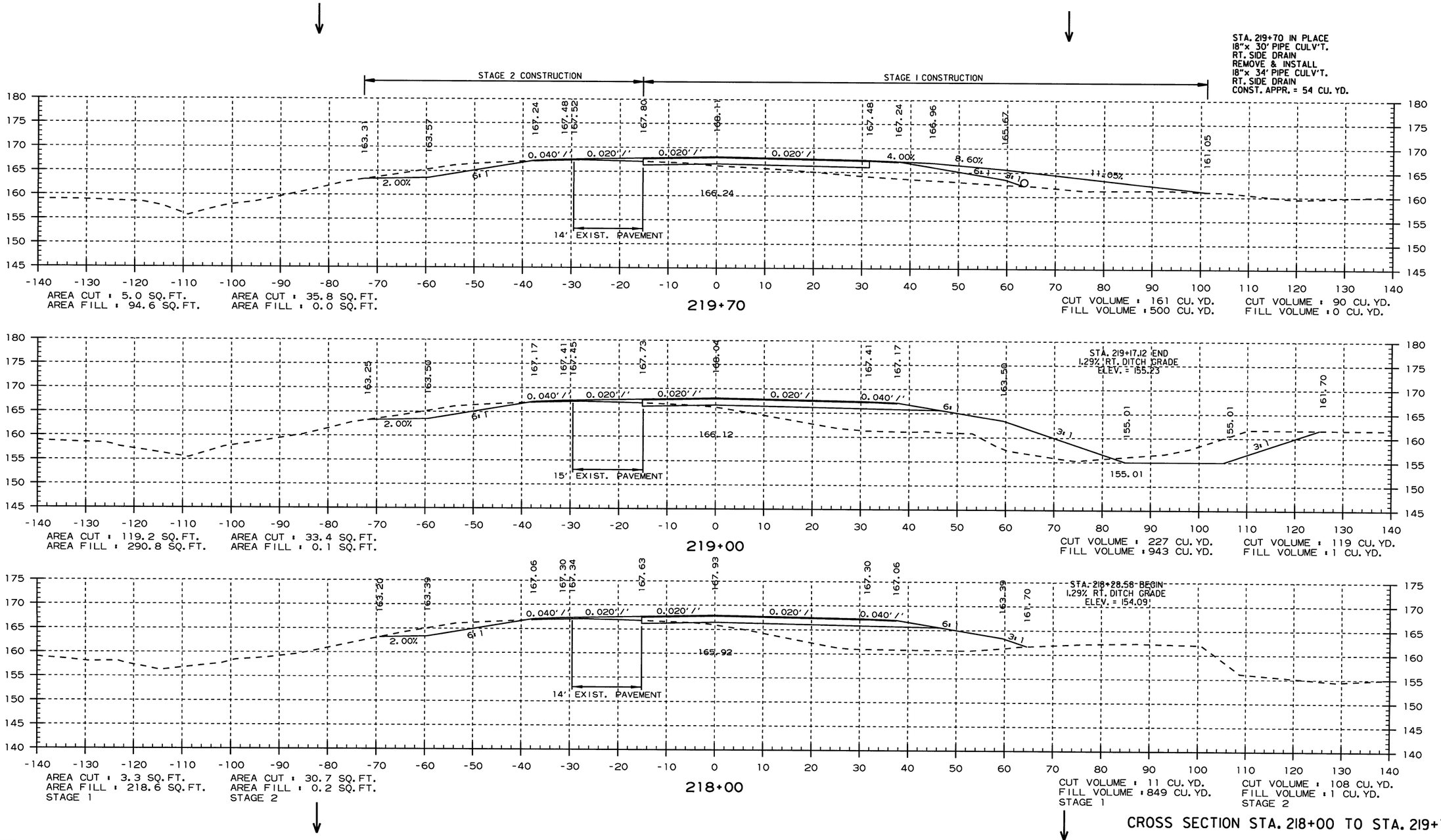
USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:12
SCALE: 20:1

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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.		CA0702	105	194

2 CROSS SECTIONS



USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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SCALE: 20:1

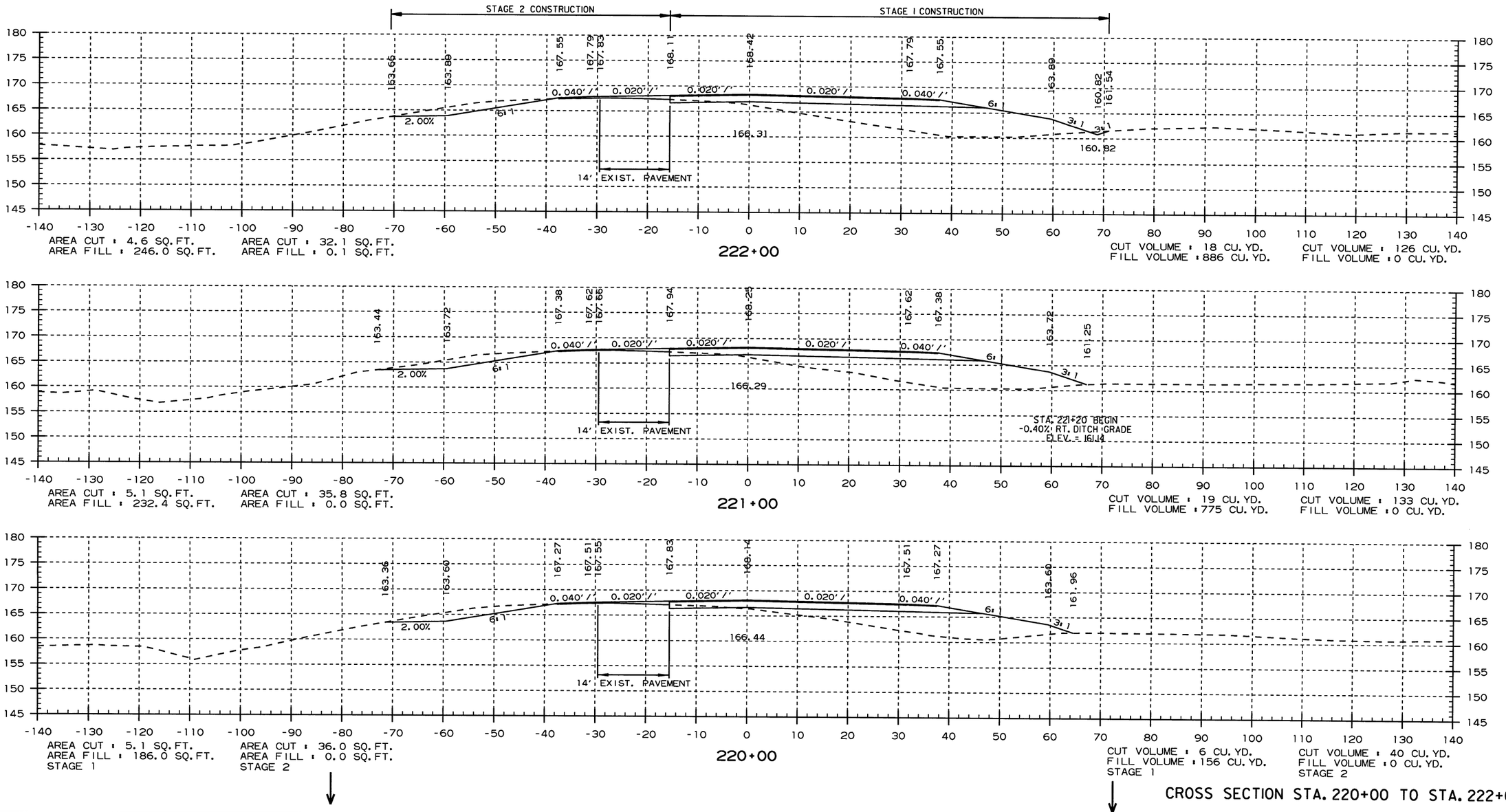
G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 3/17/2017 09:12

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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.		CA0702	106	194

2 CROSS SECTIONS



CROSS SECTION STA. 220+00 TO STA. 222+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn SCALE: 20:1
PLOTTED: 3/17/2017 09:12

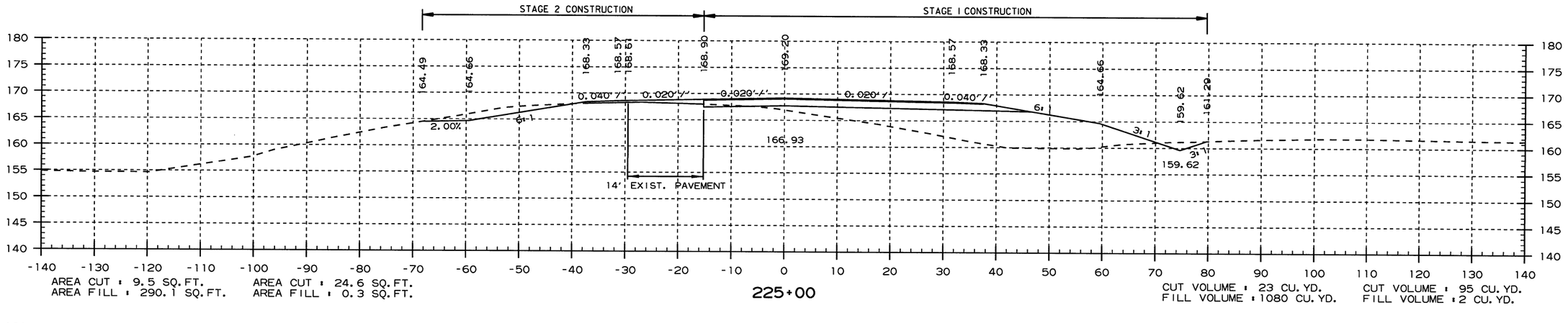
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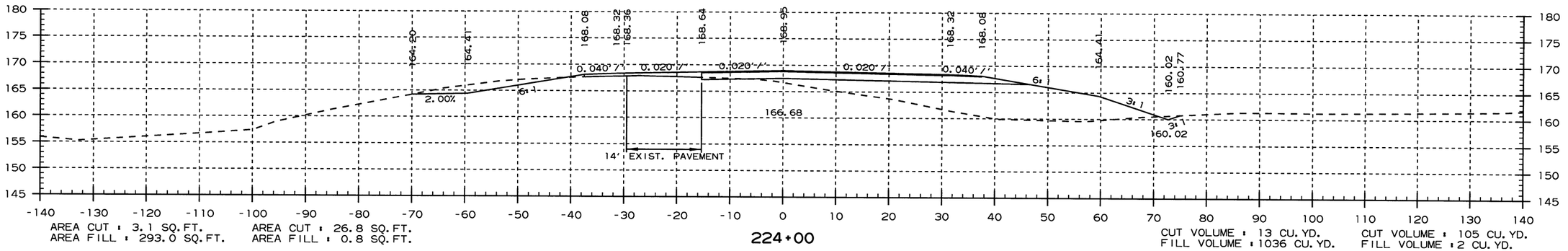
Crafton Tull
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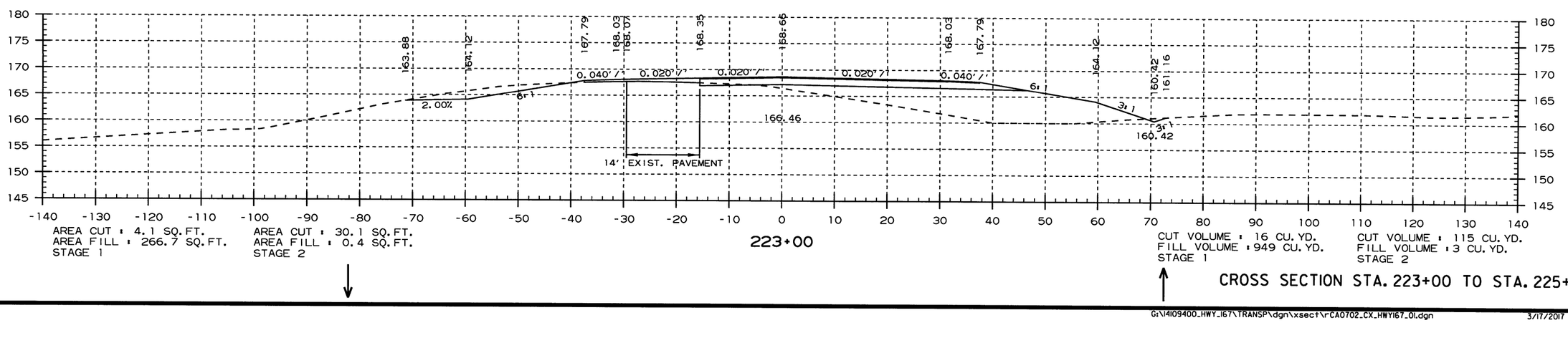
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	107	194

(2) CROSS SECTIONS







CROSS SECTION STA. 223+00 TO STA. 225+00

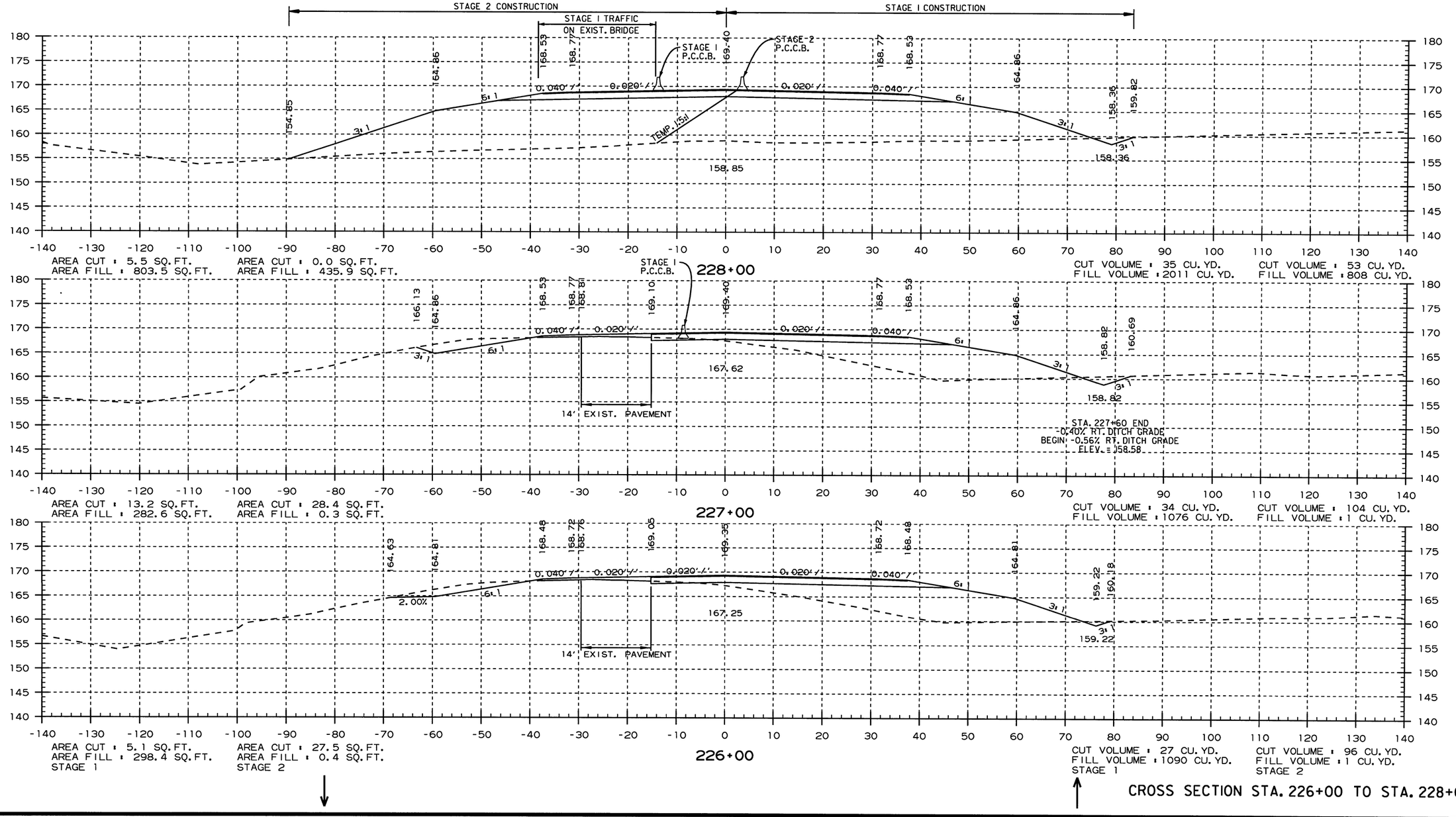
USER: mw519
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWYI67_01.dgn
PLOTTED: 3/17/2017 09:12
SCALE: 20:1

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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.		CA0702	108	194

2 CROSS SECTIONS



CROSS SECTION STA. 226+00 TO STA. 228+00

USER: mw519
DESIGN FILE: G:\4109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn SCALE: 20:1
PLOTTED: 3/17/2017 09:12

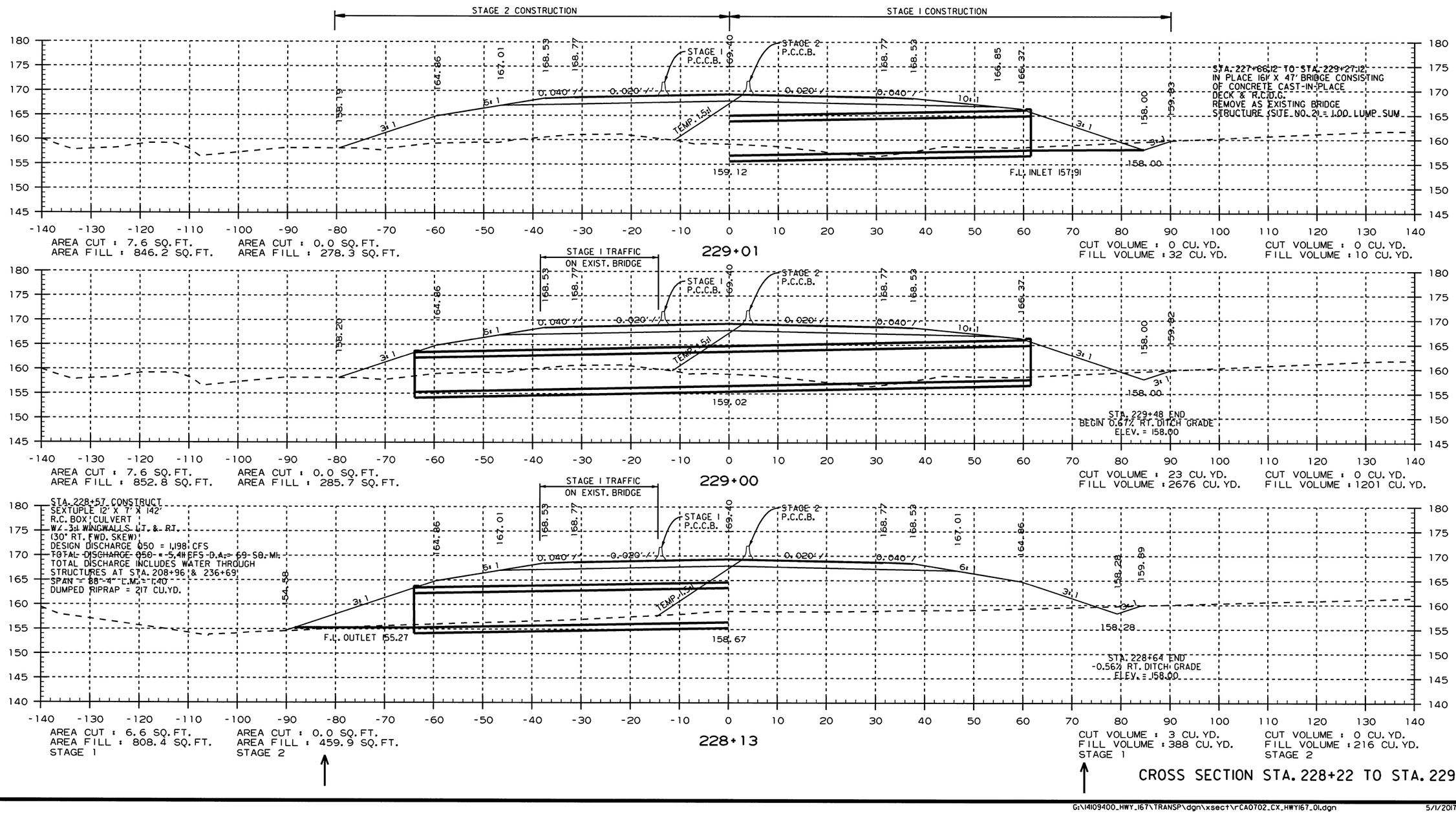
G:\4109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 3/17/2017 09:12

Crafton Tull
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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.		CA0702	109	194

2 CROSS SECTIONS



CROSS SECTION STA. 228+22 TO STA. 229+00

USER: jd5103
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 5/1/2017 17:07
SCALE: 20:1

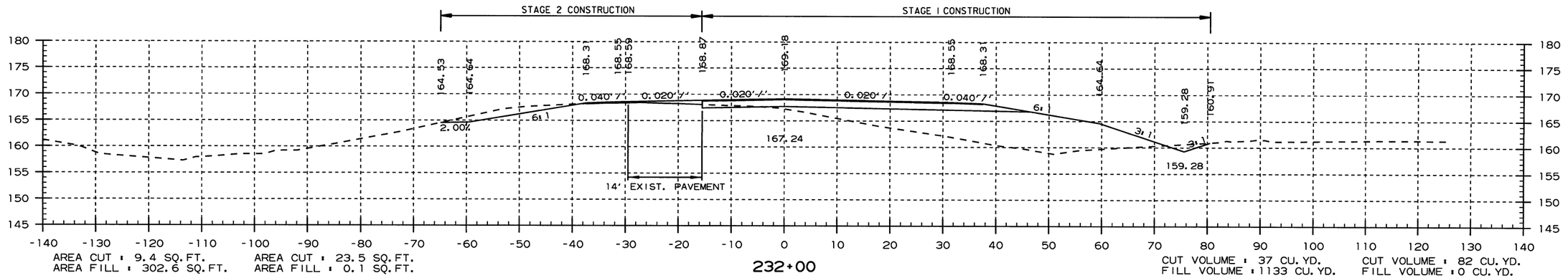
G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 5/1/2017 17:07

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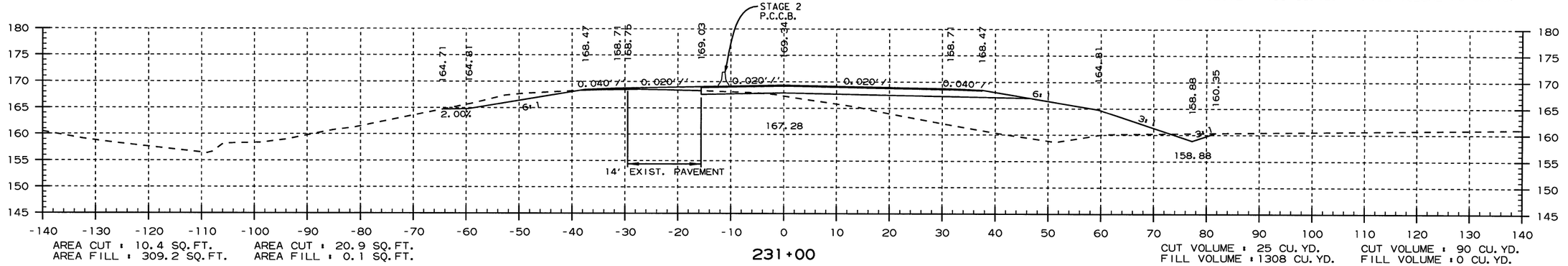
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	110	194

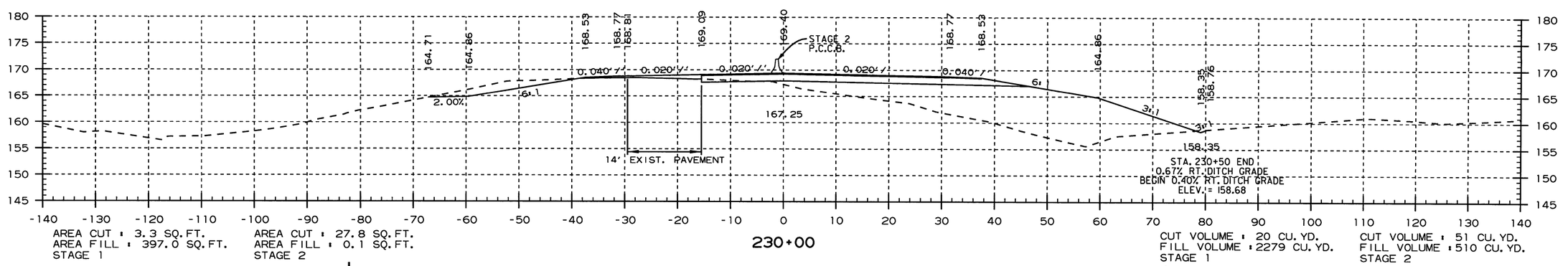
2 CROSS SECTIONS



232+00



231+00



230+00

CROSS SECTION STA. 230+00 TO STA. 232+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:12
SCALE: 20:1

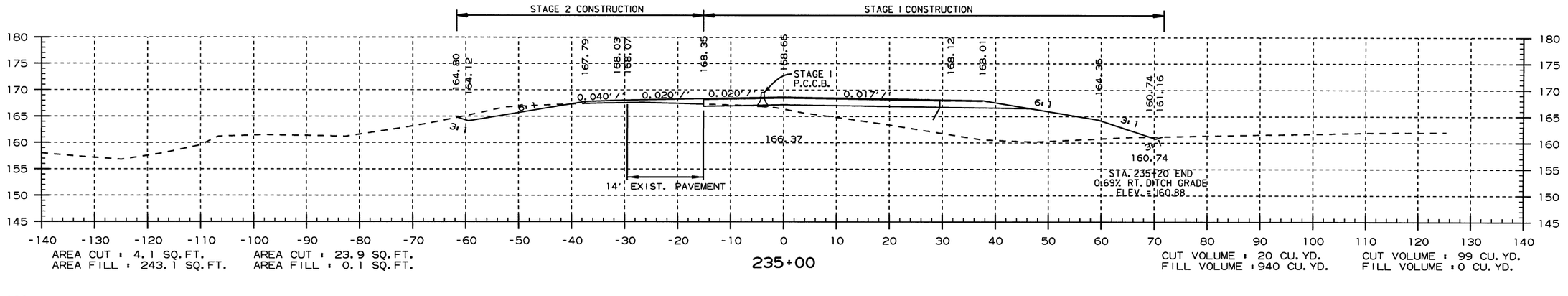
G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 3/17/2017 09:12

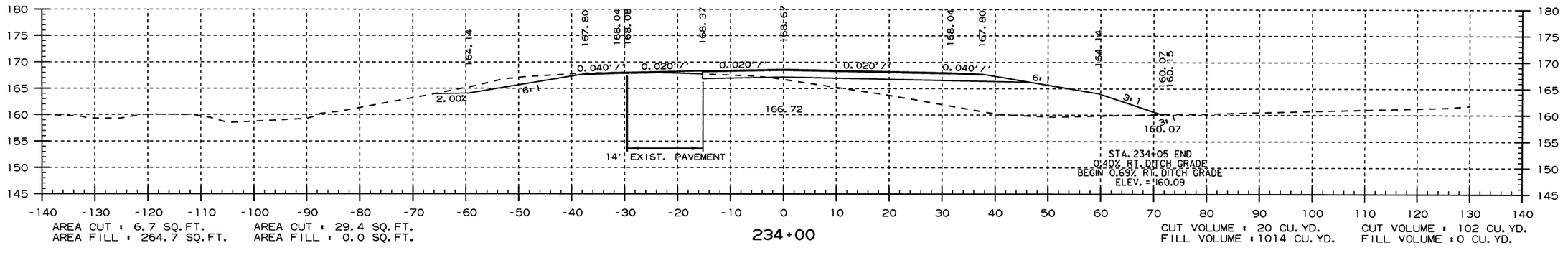
Crafton Tull
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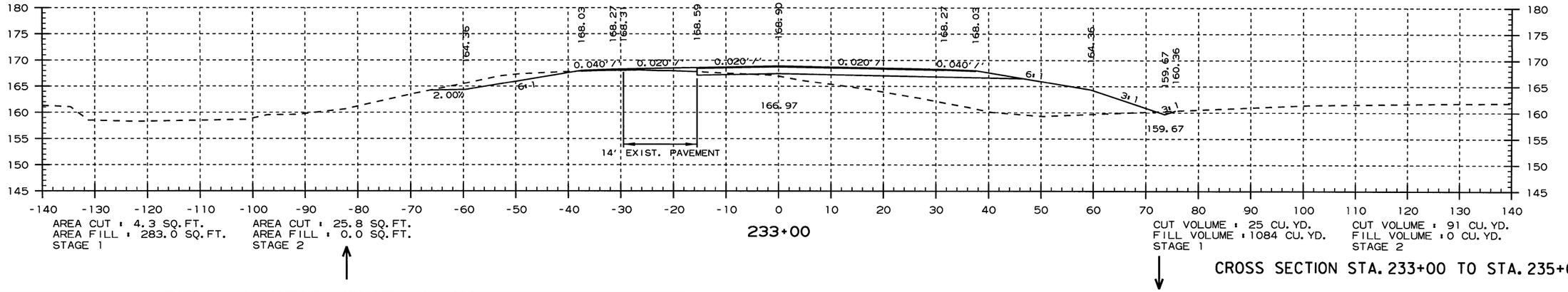
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	III	194

2 CROSS SECTIONS







CROSS SECTION STA. 233+00 TO STA. 235+00

USER: mw59
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:12
SCALE: 20:1

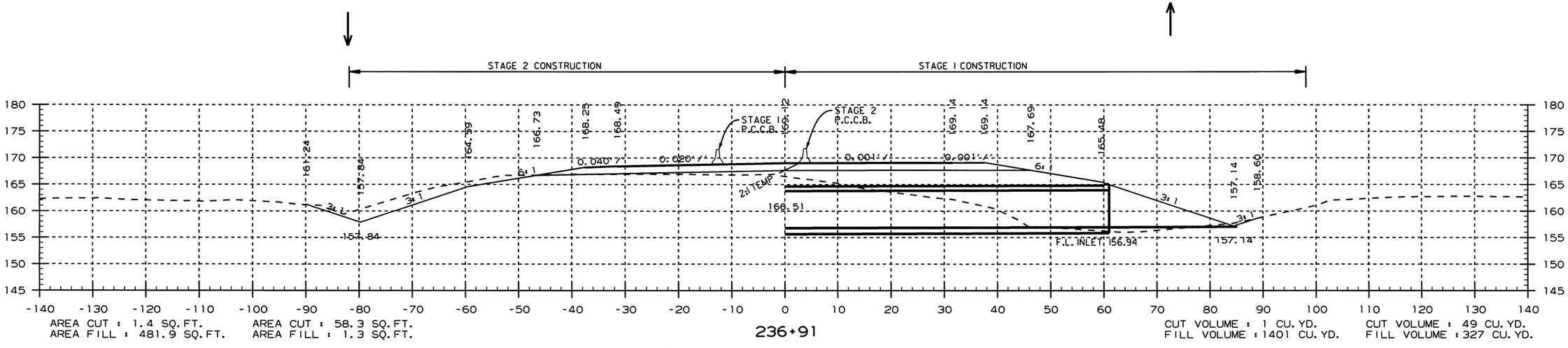
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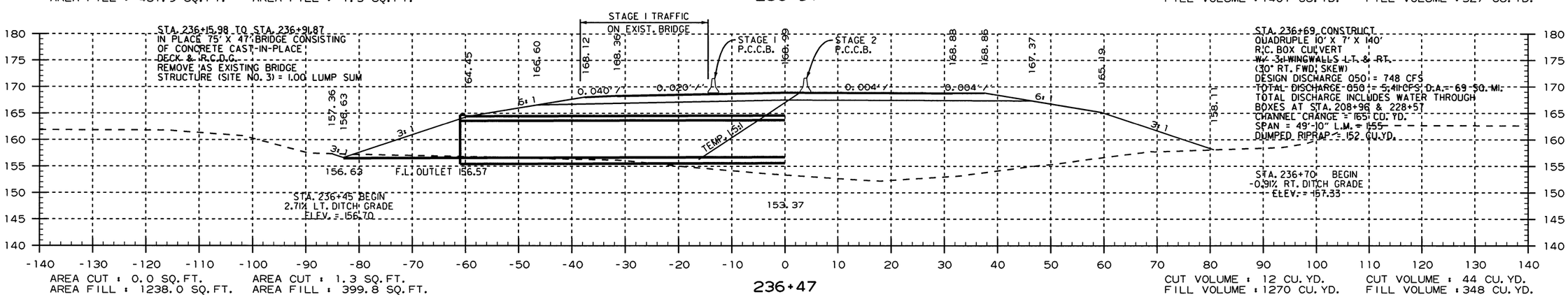
Crafton Tull
architecture | engineering | surveying

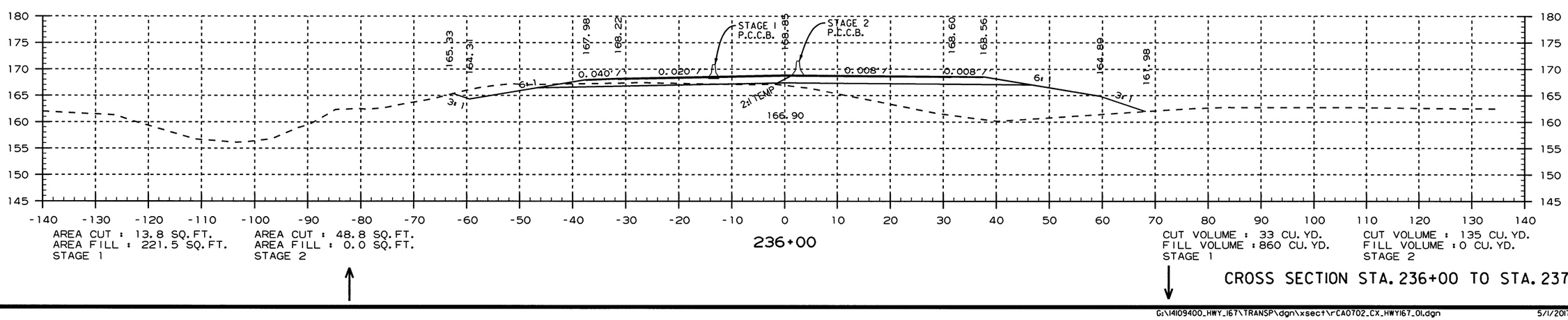
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	112	194

(2) CROSS SECTIONS







CROSS SECTION STA. 236+00 TO STA. 237+00

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 5/1/2017 17:07 SCALE: 20:1

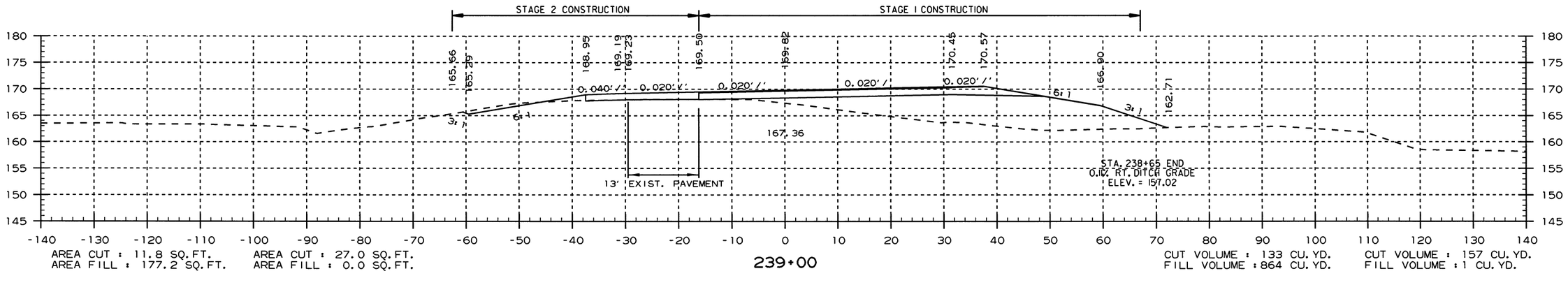
G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 5/1/2017 17:07

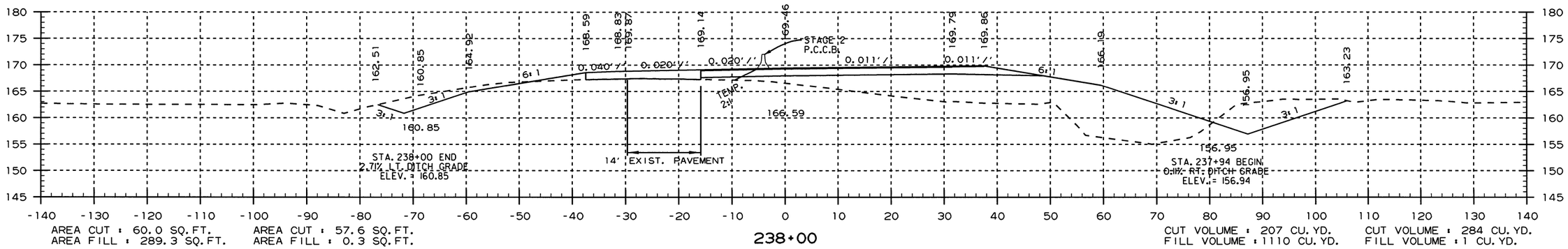
Crafton Tull
architecture | engineering | surveying

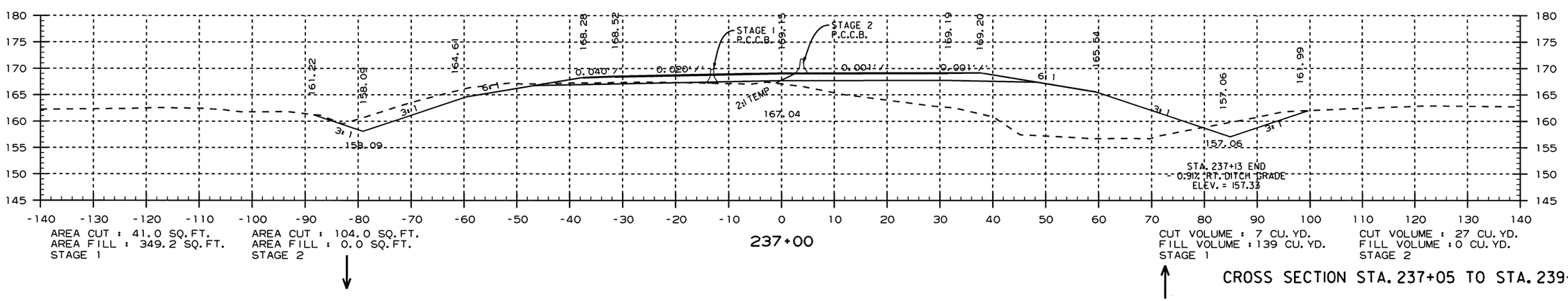
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	113	194

2 CROSS SECTIONS







CROSS SECTION STA. 237+05 TO STA. 239+00

USER: JD503
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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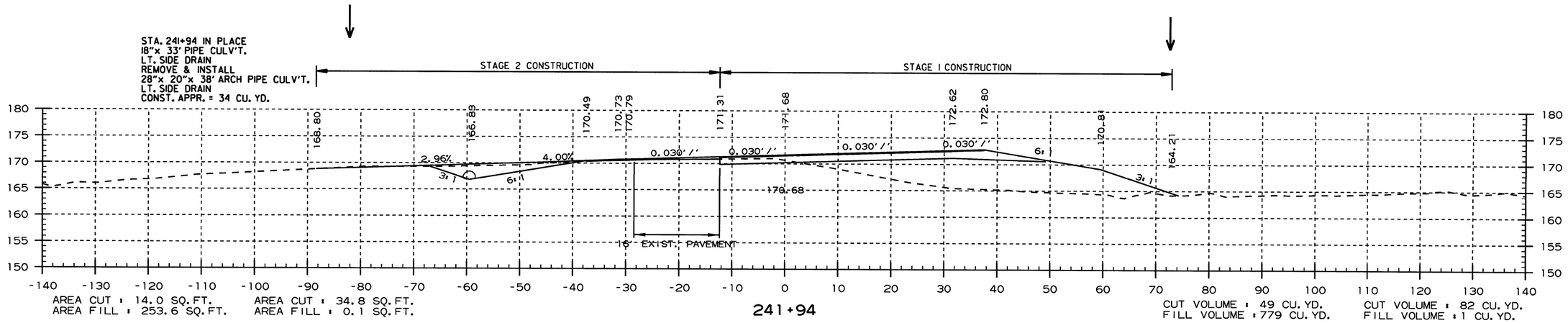
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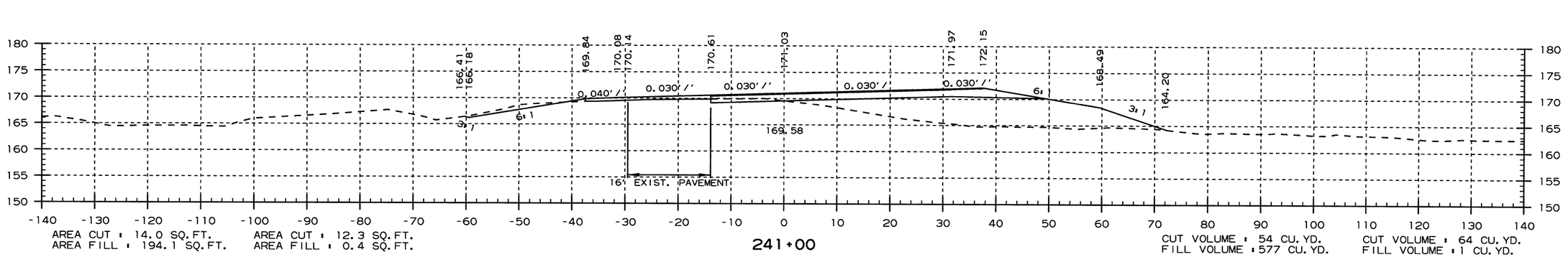
Crafton Tull
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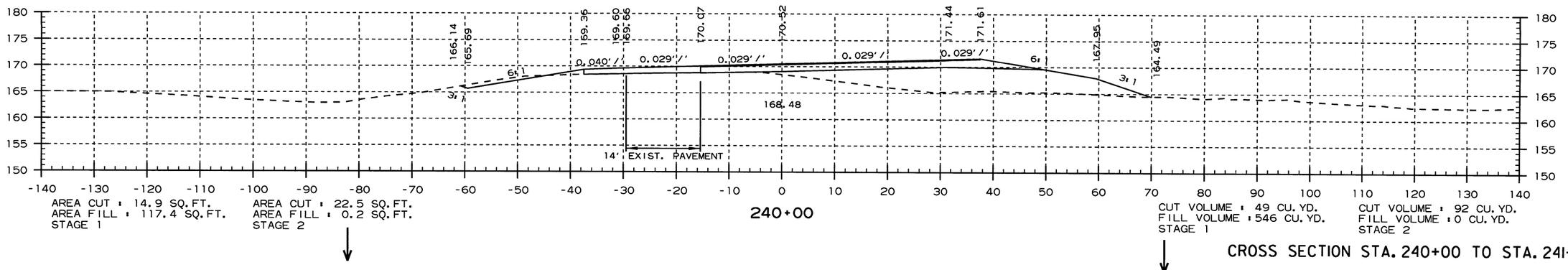
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	114	194

(2) CROSS SECTIONS







CROSS SECTION STA. 240+00 TO STA. 241+94

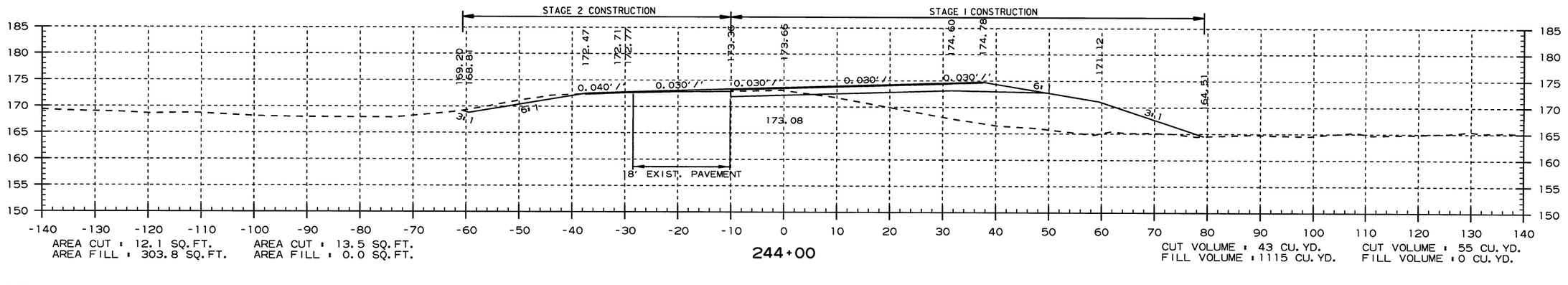
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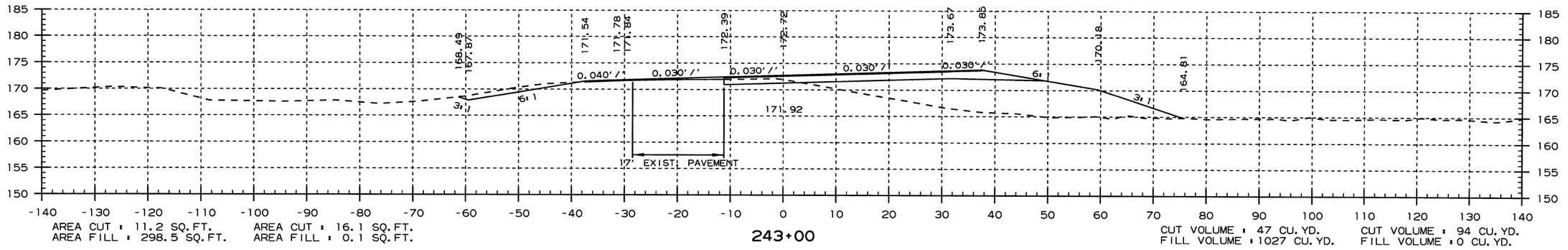
Crafton Tull
architecture | engineering | surveying

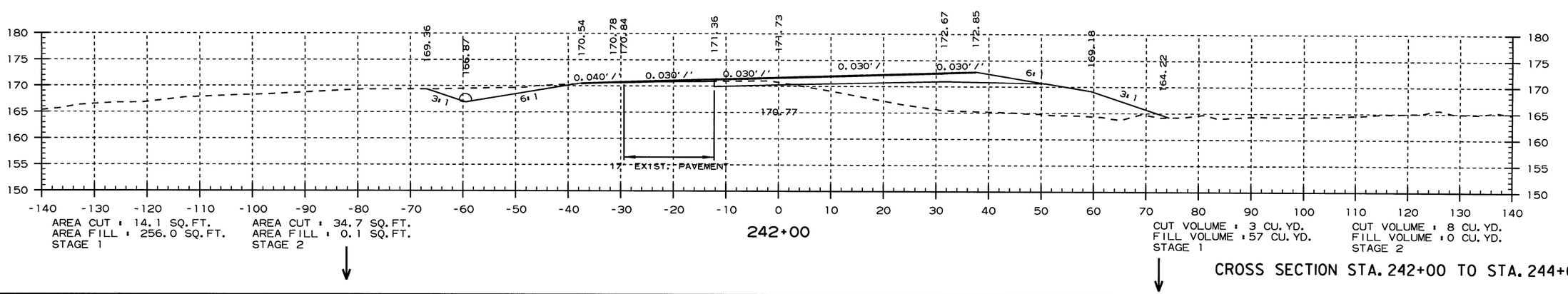
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	115	194

2 CROSS SECTIONS







CROSS SECTION STA. 242+00 TO STA. 244+00

USER: mw59
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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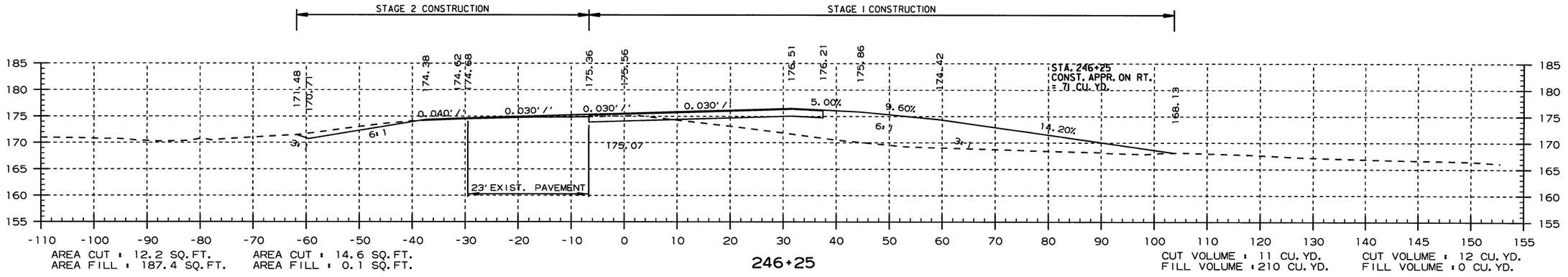
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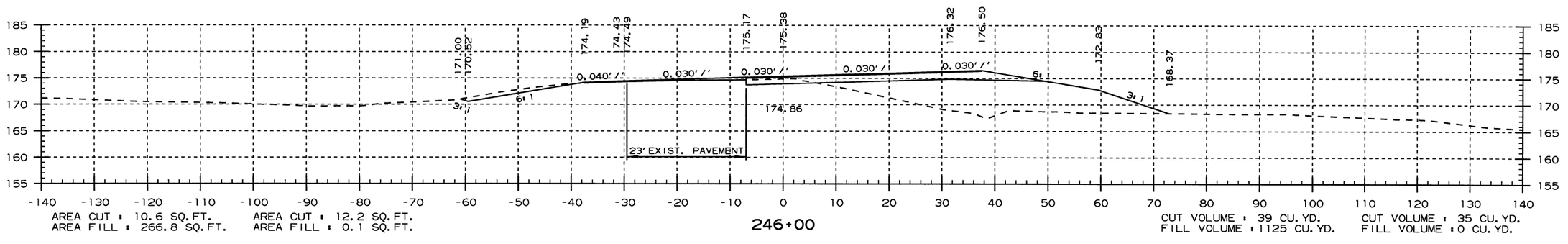
Crafton Tull
architecture | engineering | surveying

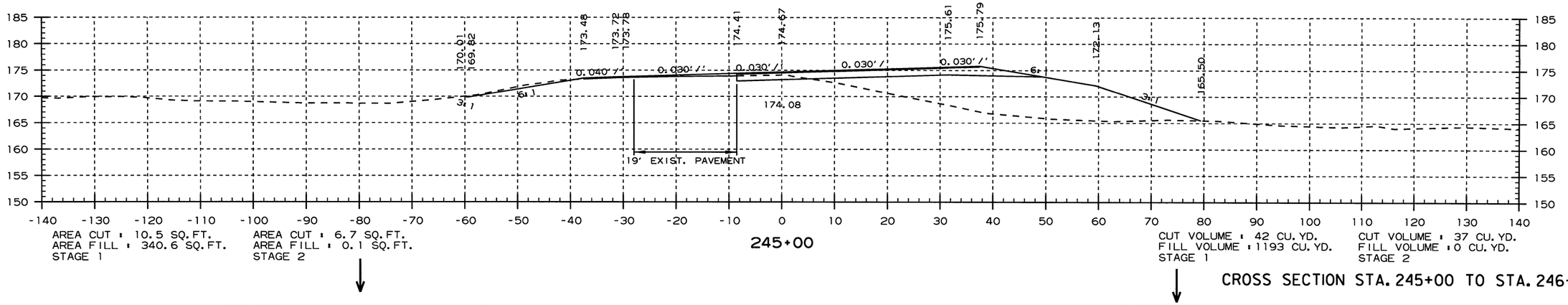
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	116	194

2 CROSS SECTIONS







CROSS SECTION STA. 245+00 TO STA. 246+25

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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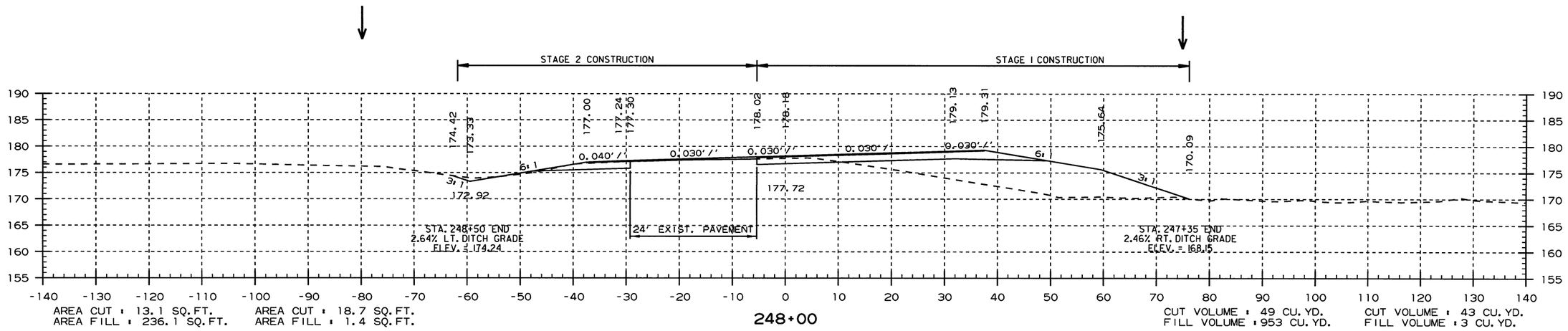
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Crafton Tull
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	117	194

2 CROSS SECTIONS



CROSS SECTION STA. 246+44 TO STA. 248+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn SCALE: 20:1
PLOTTED: 3/17/2017 09:13

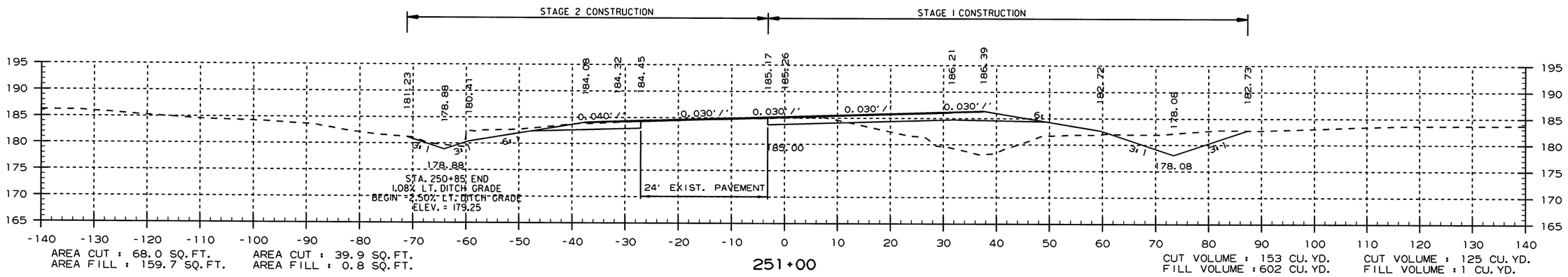
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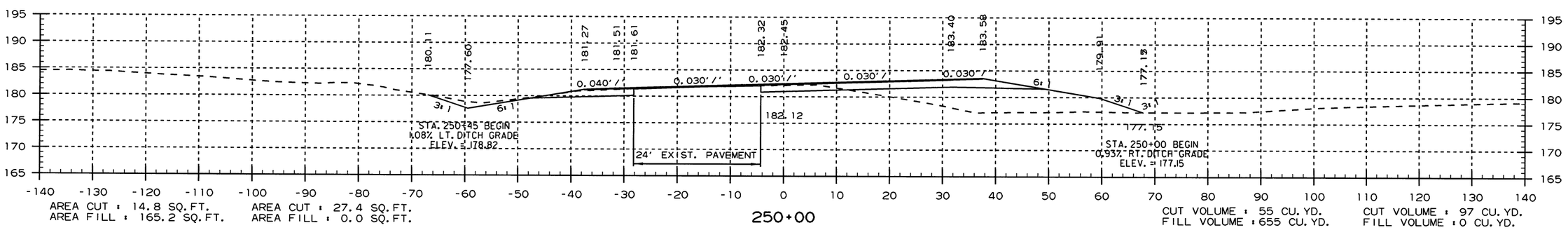
Crafton Tull
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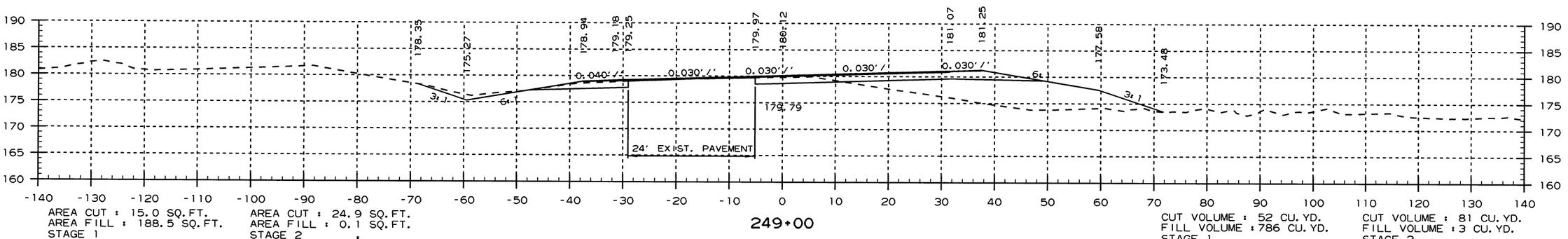
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	118	194

(2) CROSS SECTIONS







CROSS SECTION STA. 249+00 TO STA. 251+00

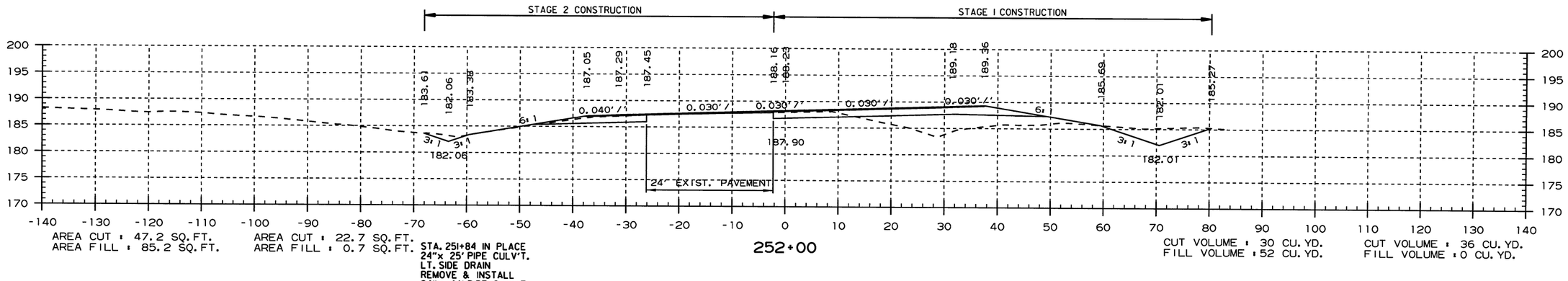
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PLOTTED: 5/1/2017 17:07
SCALE: 20:1

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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.		CA0702	119	194

2 CROSS SECTIONS



CROSS SECTION STA. 251+03 TO STA. 252+00

USER: mw519
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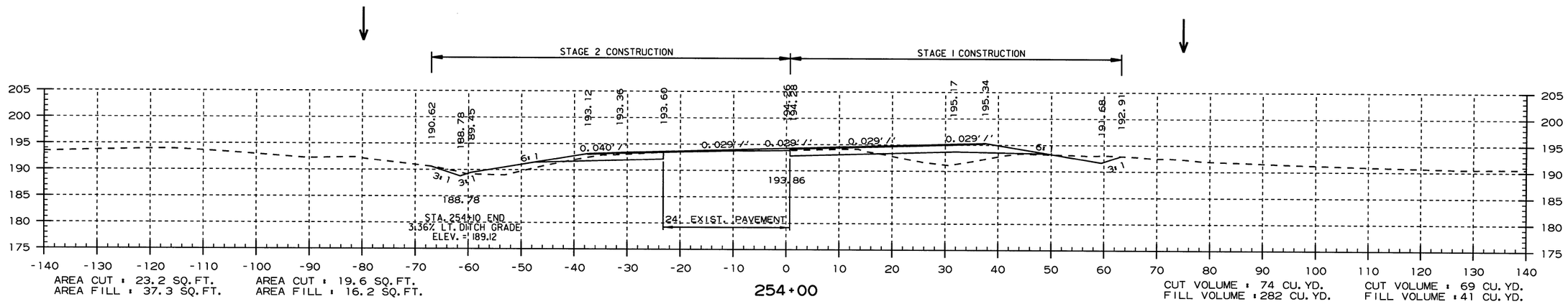
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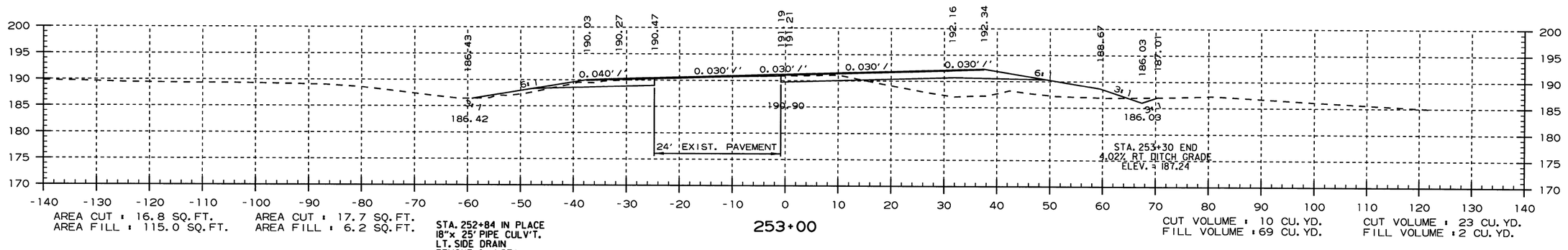
Crafton Tull
architecture | engineering | surveying

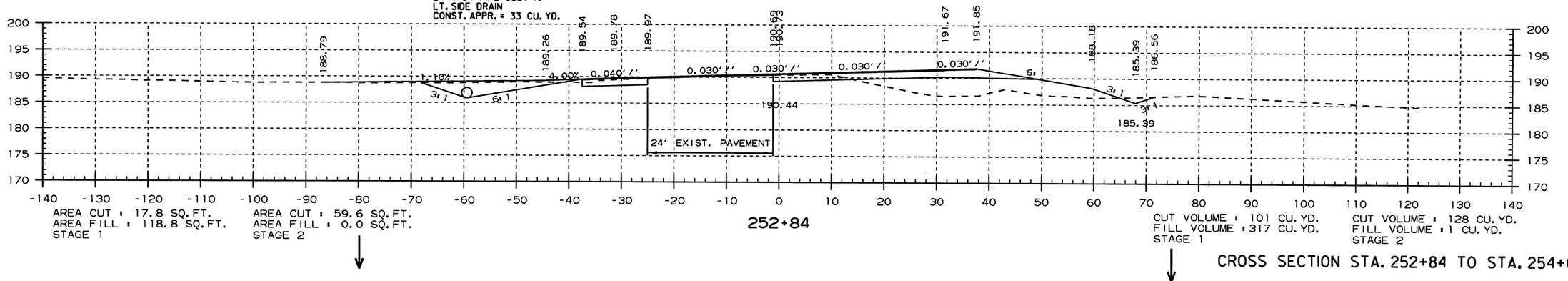
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	120	194

2 CROSS SECTIONS







CROSS SECTION STA. 252+84 TO STA. 254+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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SCALE: 20:1

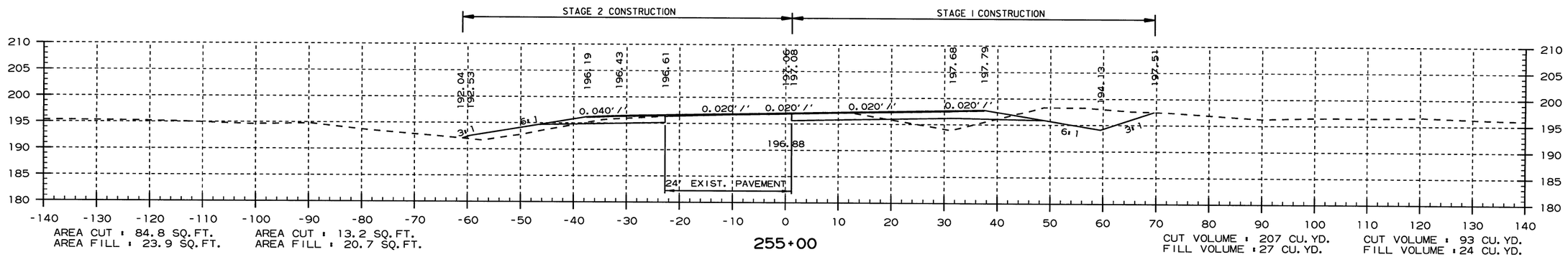
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Crafton Tull
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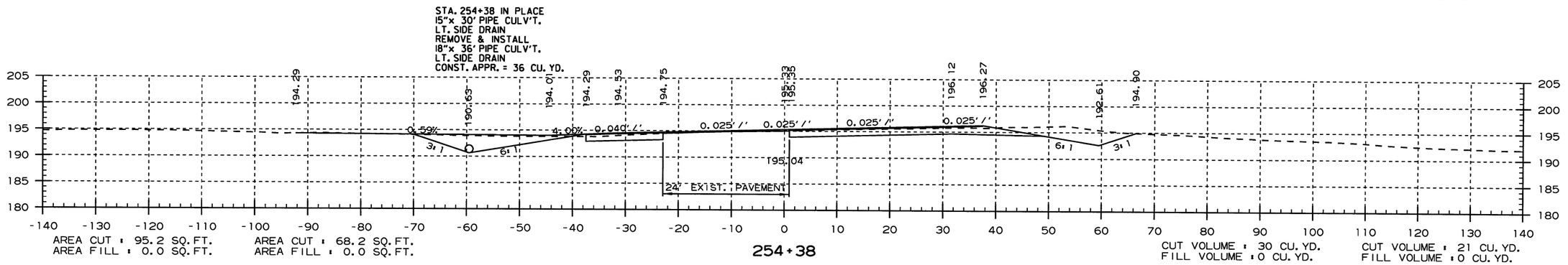
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	121	194

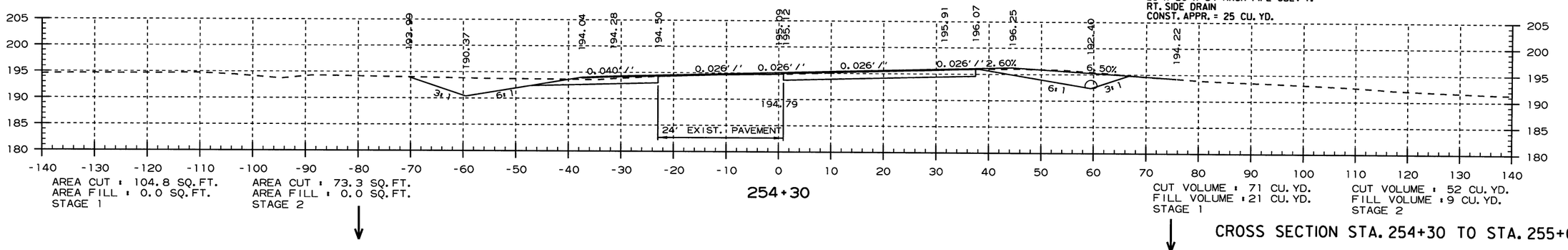
2 CROSS SECTIONS



STA. 254+38 IN PLACE
15"x 30' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 36 CU. YD.



STA. 254+30 IN PLACE
18"X 29' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 34' ARCH PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YD.



CROSS SECTION STA. 254+30 TO STA. 255+00

USER: mw519
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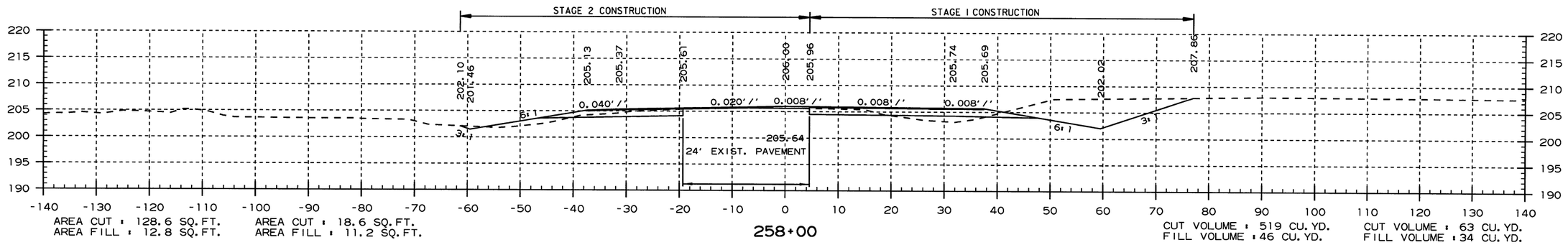
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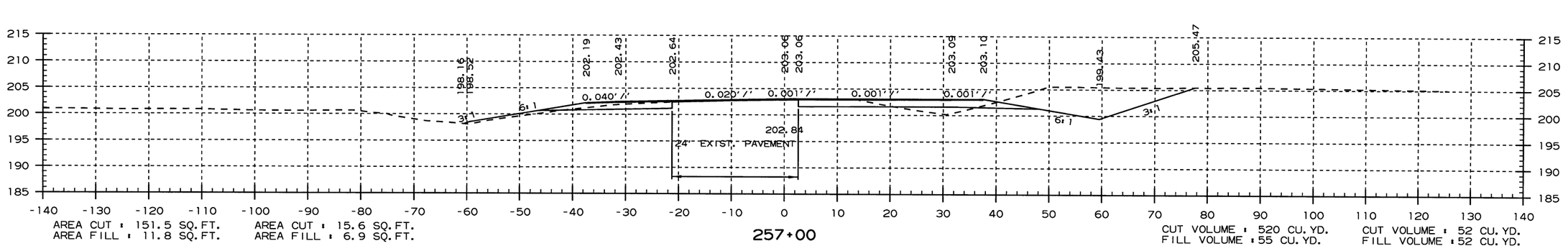
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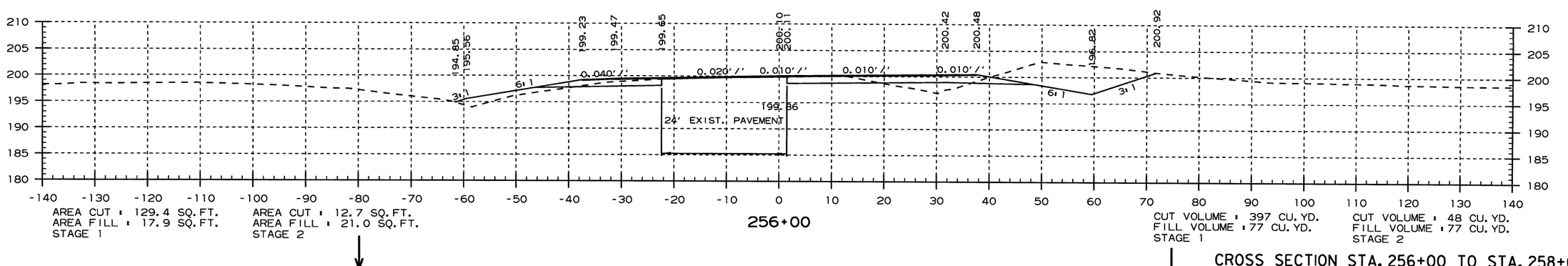
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	122	194

2 CROSS SECTIONS







CROSS SECTION STA. 256+00 TO STA. 258+00

USER: mw519
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PLOTTED: 3/17/2017 09:13
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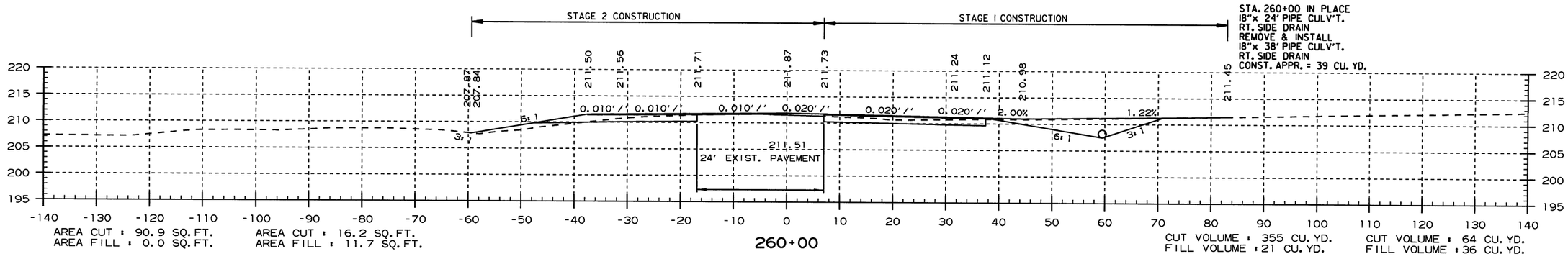
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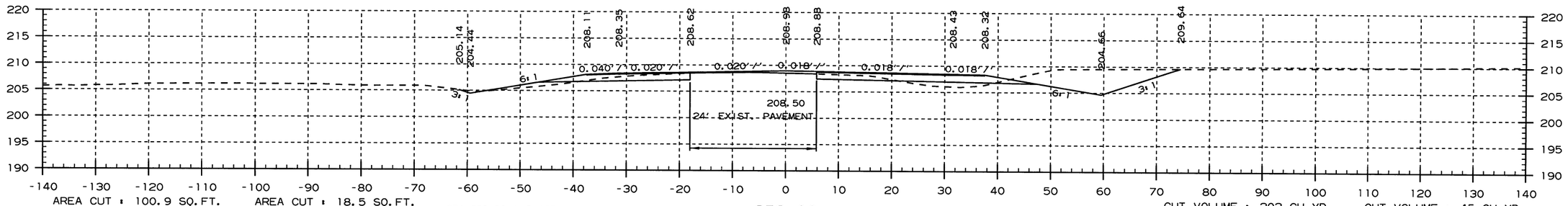
Crafton Tull
architecture | engineering | surveying

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

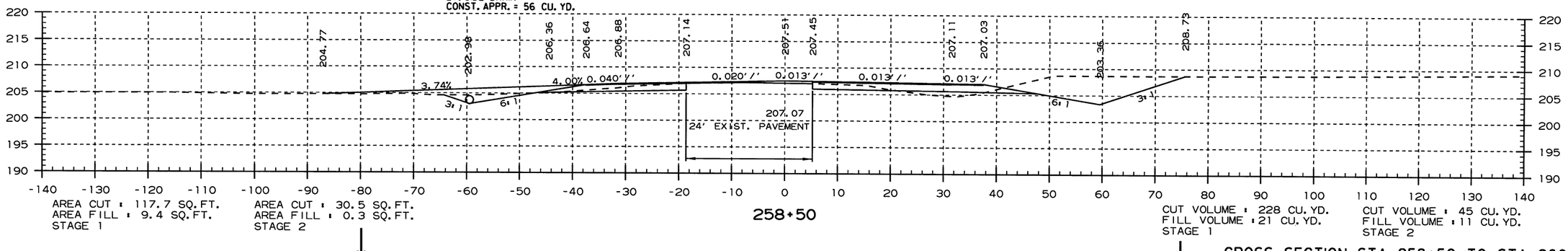
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	123	194

2 CROSS SECTIONS





STA. 258+50 IN PLACE
15"x 40' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 48' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 56 CU. YD.



CROSS SECTION STA. 258+50 TO STA. 260+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:13
SCALE: 20:1

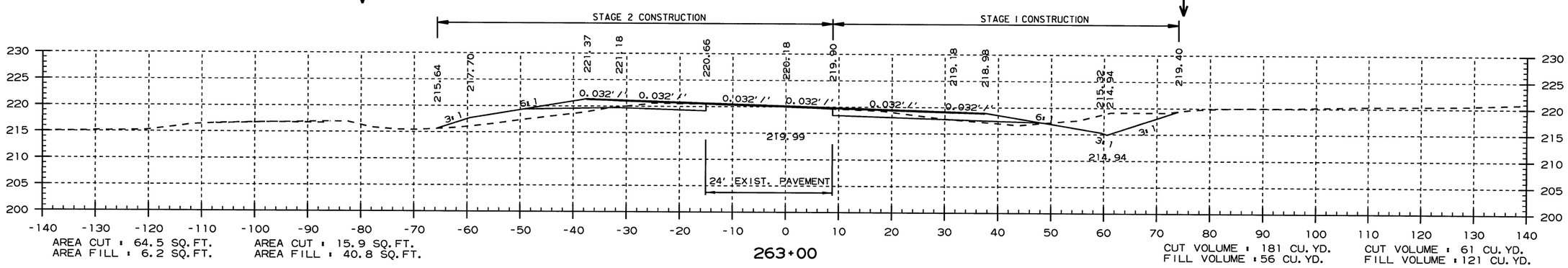
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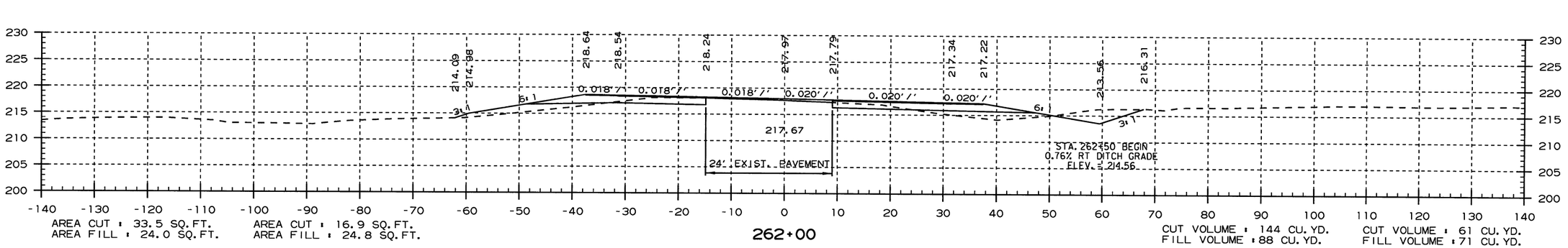
Crafton Tull
architecture | engineering | surveying

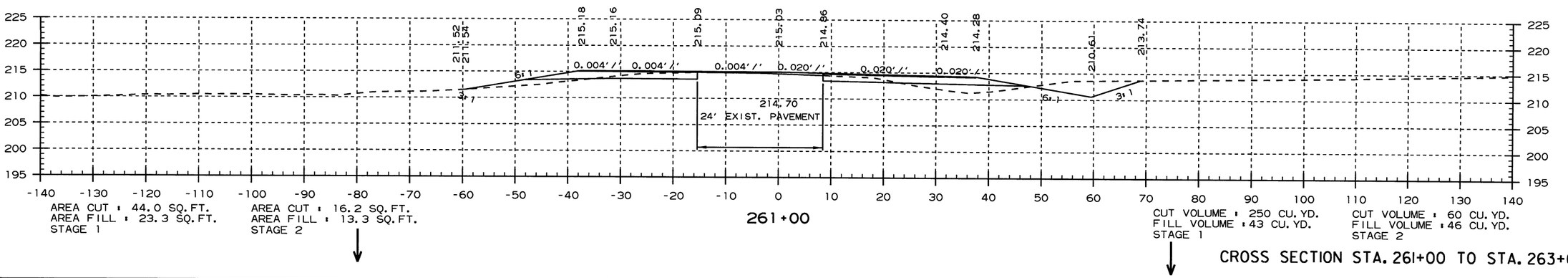
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	124	194

2 CROSS SECTIONS







CROSS SECTION STA. 261+00 TO STA. 263+00

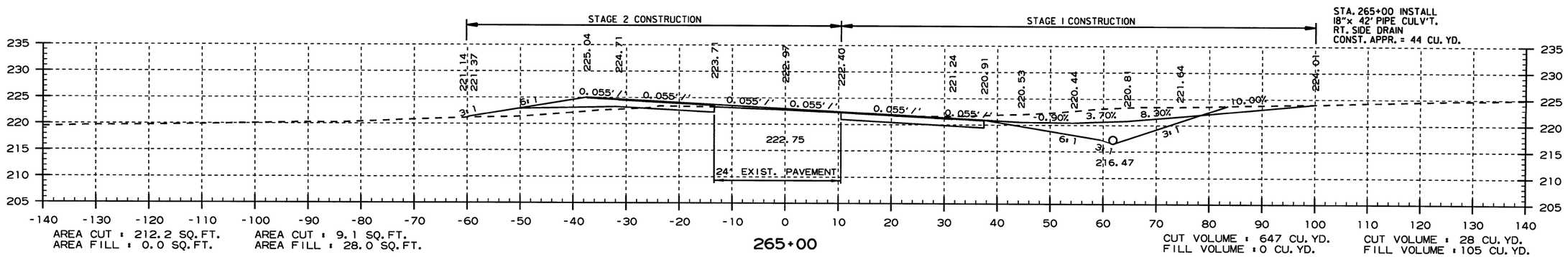
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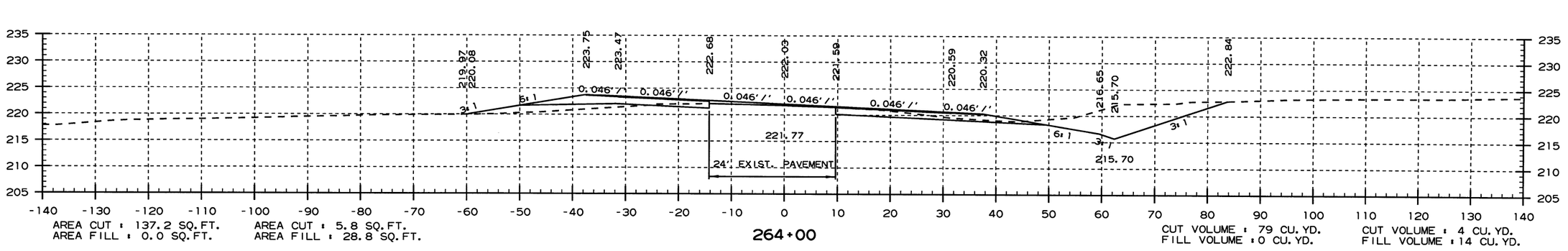
Crafton Tull
architecture | engineering | surveying

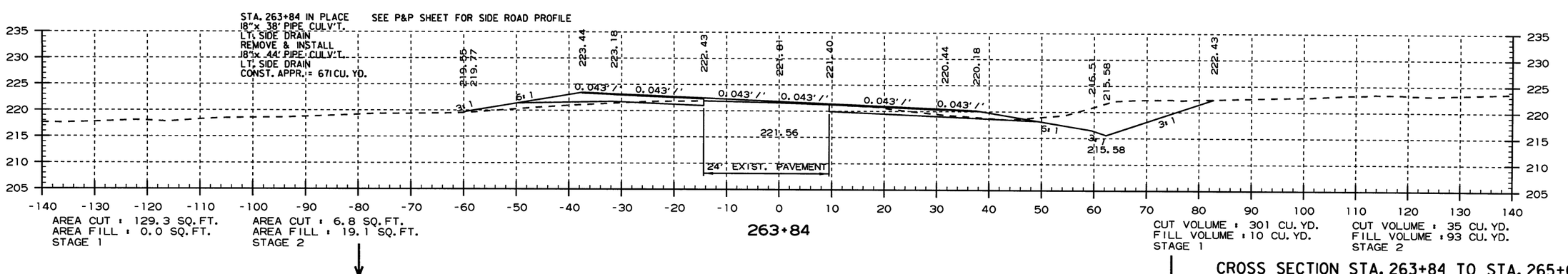
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	125	194

(2) CROSS SECTIONS







CROSS SECTION STA. 263+84 TO STA. 265+00

USER: AN5106
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PLOTTED: 5/1/2017 13:27
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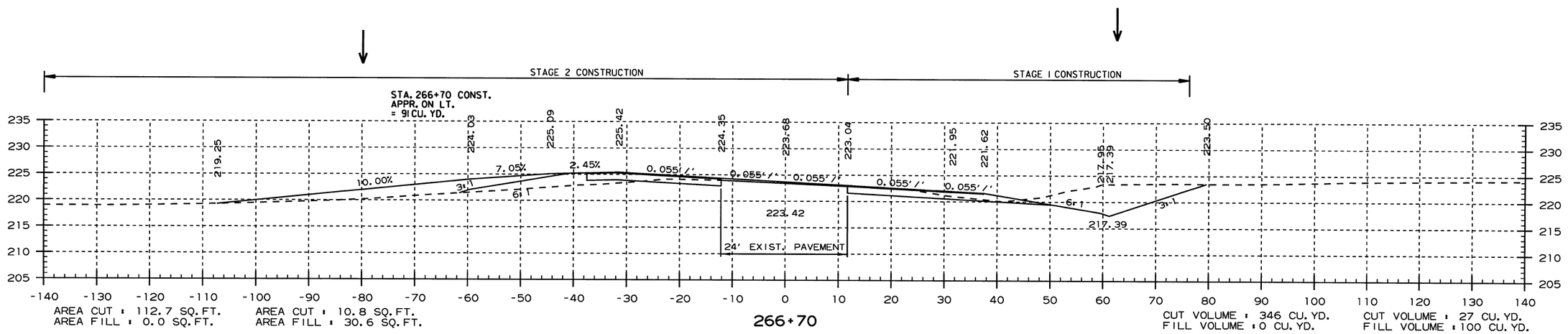
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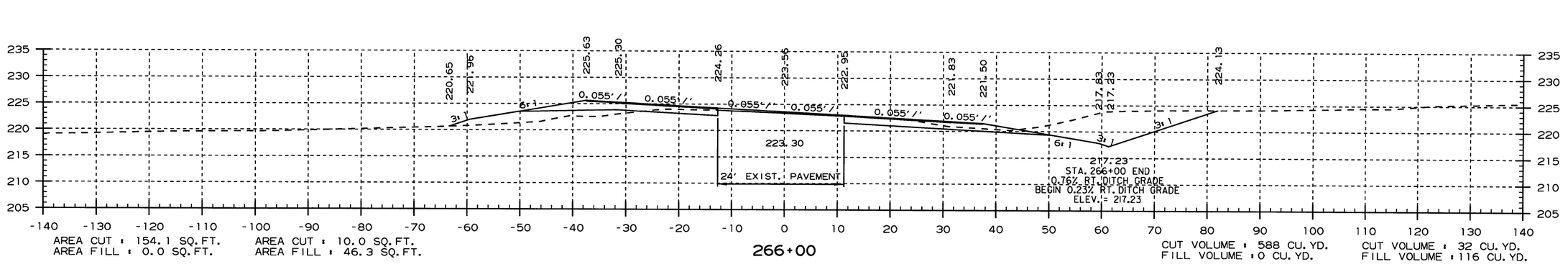
Crafton Tull
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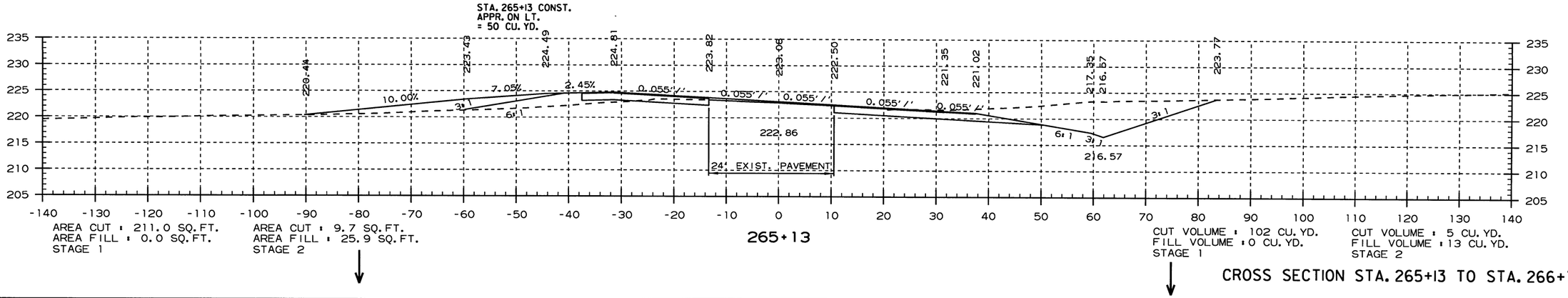
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	126	194

2 CROSS SECTIONS







CROSS SECTION STA. 265+13 TO STA. 266+70

USER: mw519
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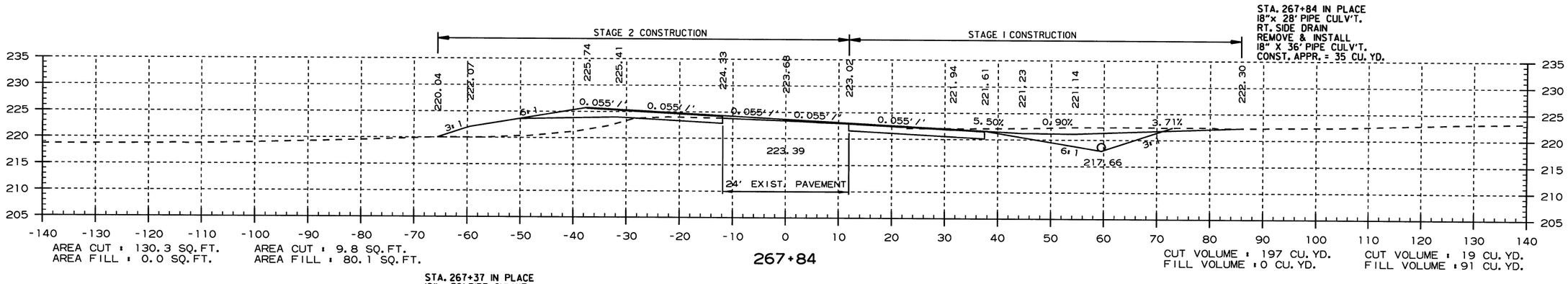
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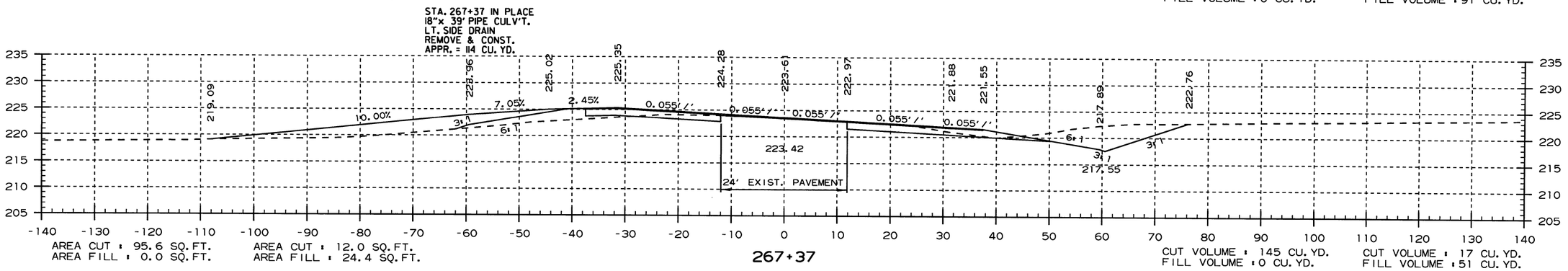
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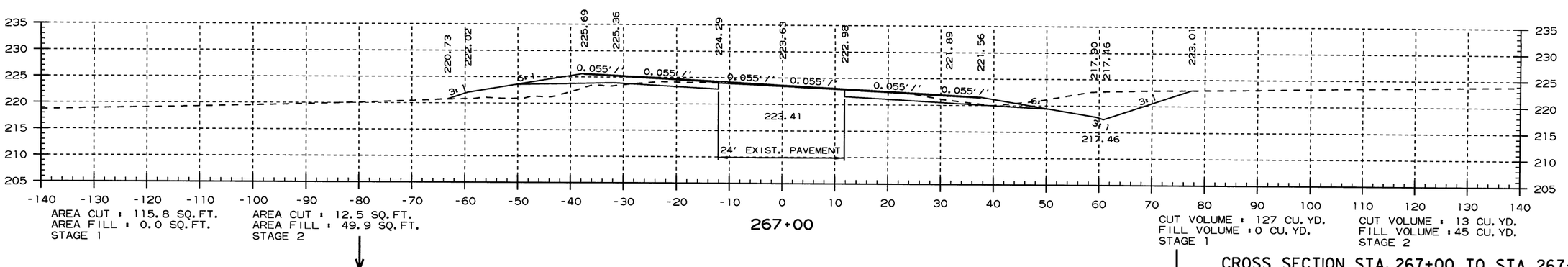
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	127	194

2 CROSS SECTIONS







CROSS SECTION STA. 267+00 TO STA. 267+84

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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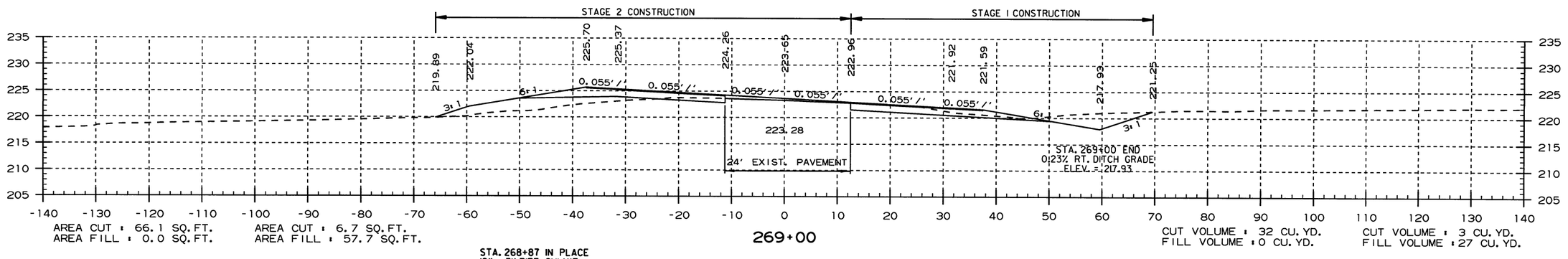
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	128	194

(2) CROSS SECTIONS



CROSS SECTION STA. 268+00 TO STA. 269+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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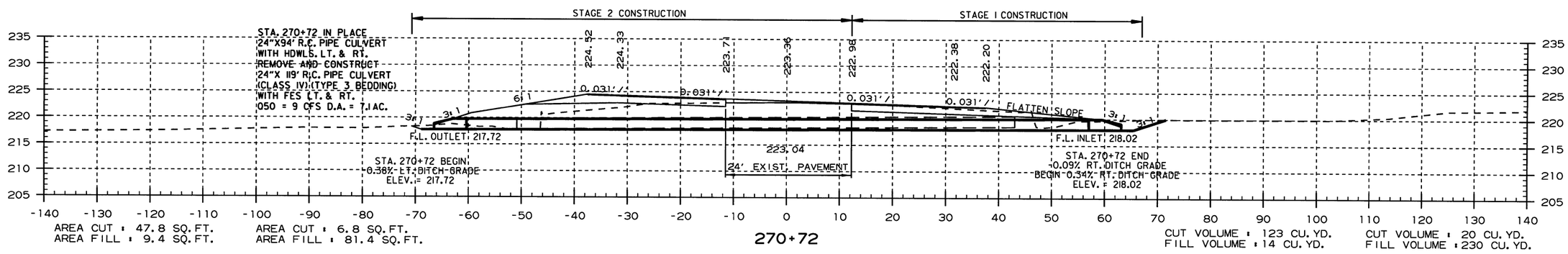
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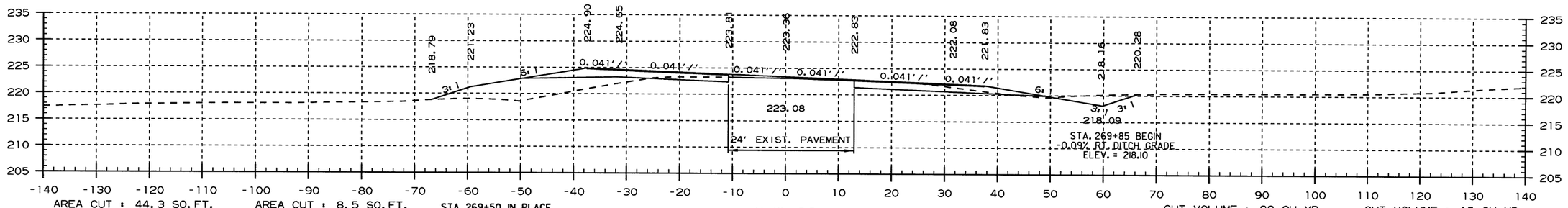
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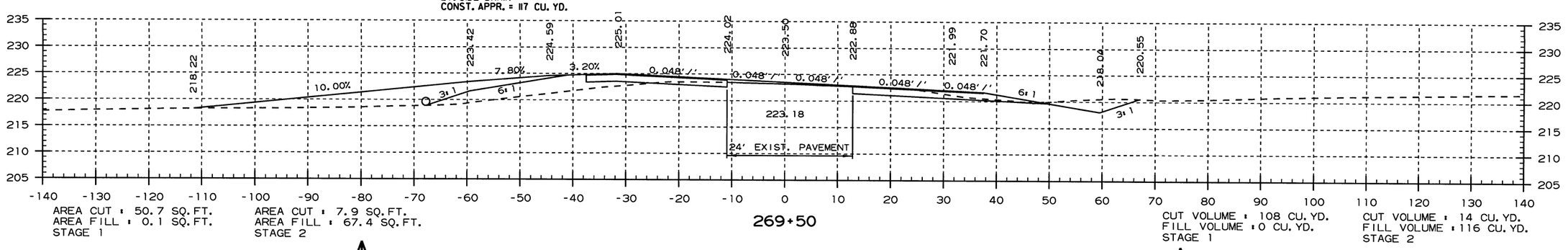
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	129	194

2 CROSS SECTIONS







CROSS SECTION STA. 269+50 TO STA. 270+72

USER: mw519
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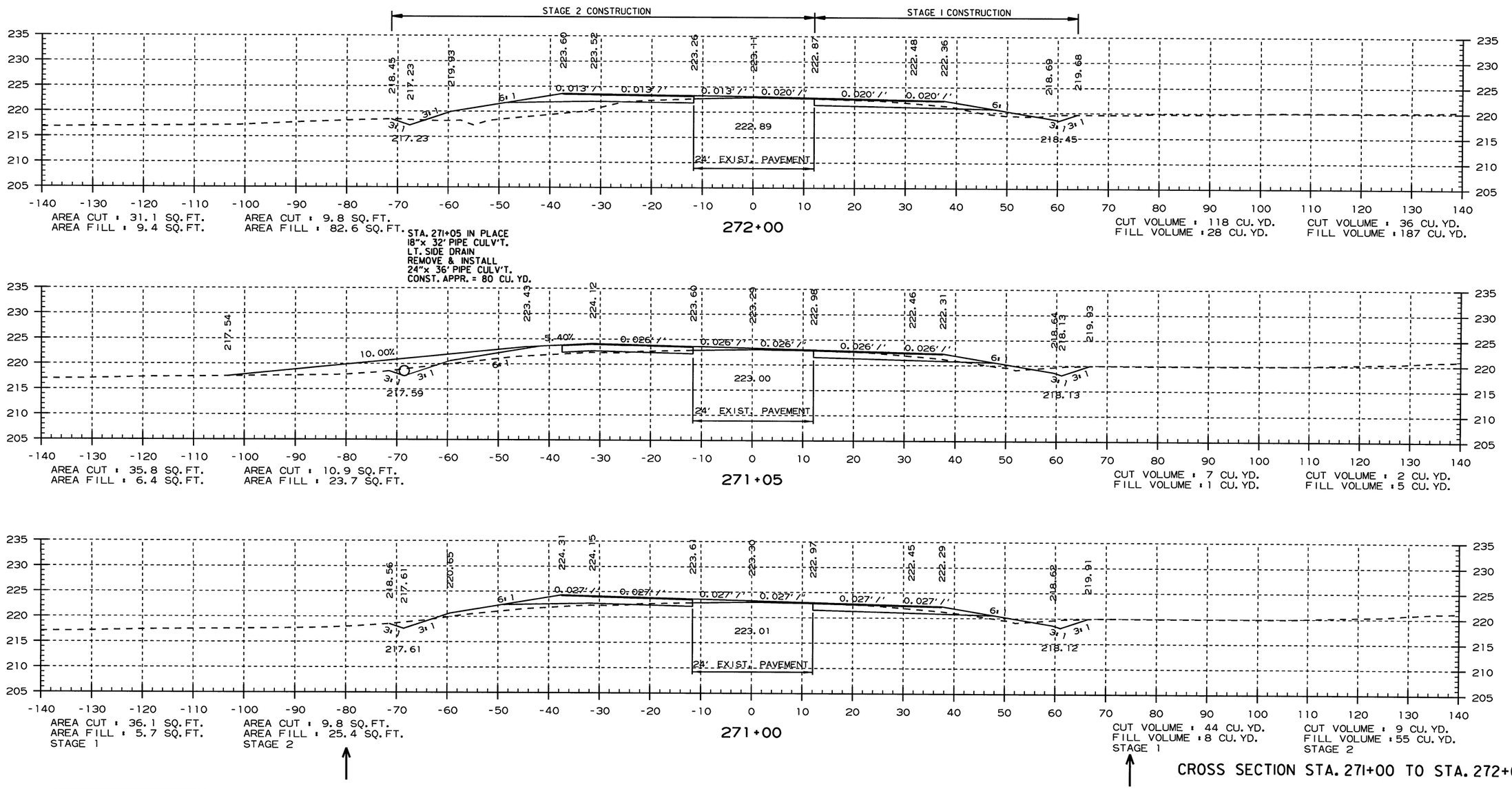
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	130	194

(2) CROSS SECTIONS



CROSS SECTION STA. 271+00 TO STA. 272+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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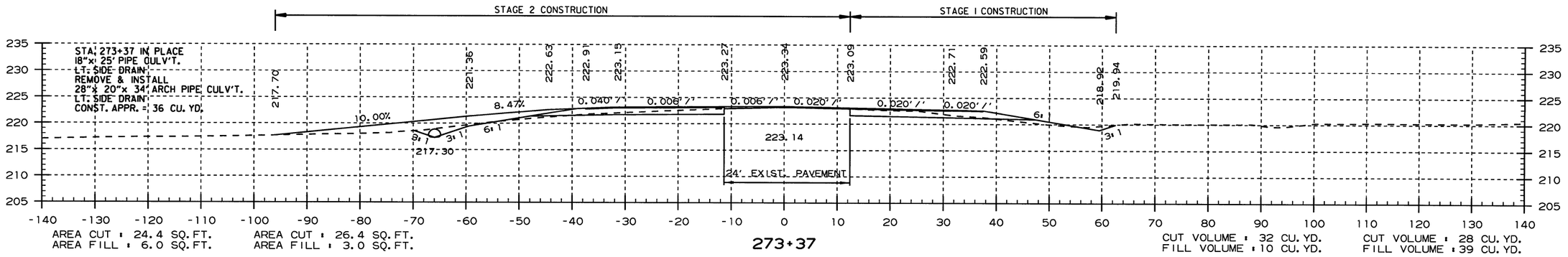
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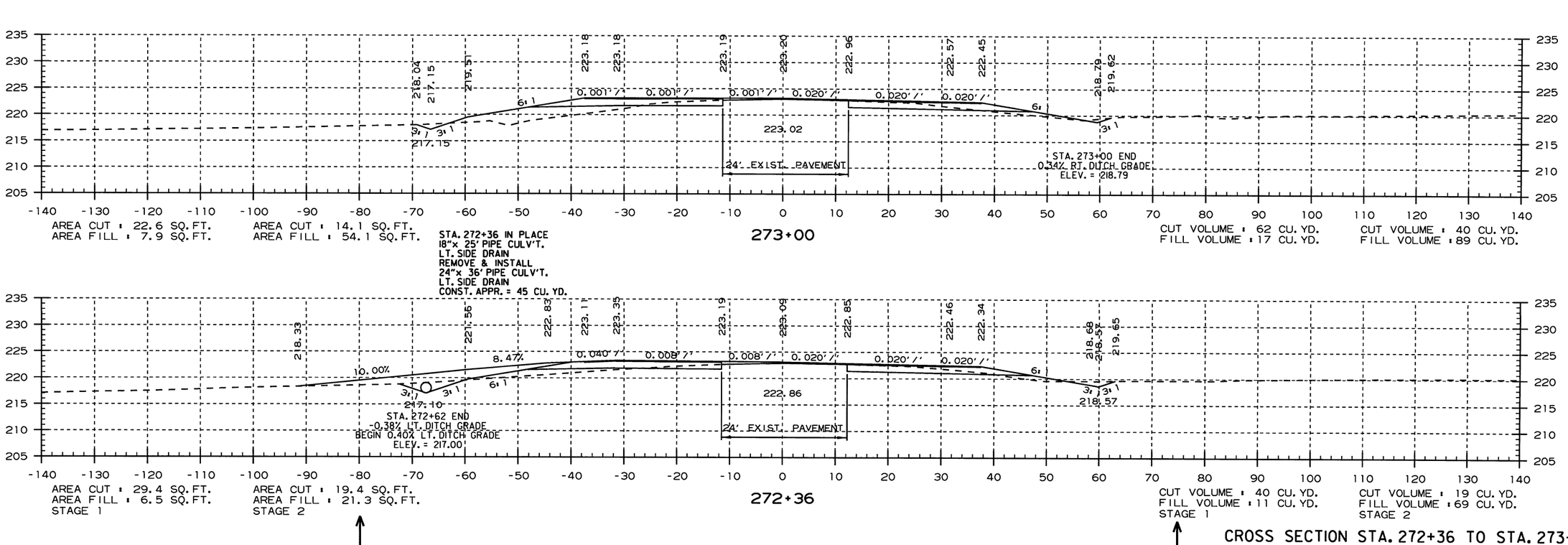
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	131	194

(2) CROSS SECTIONS





CROSS SECTION STA. 272+36 TO STA. 273+37

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:13
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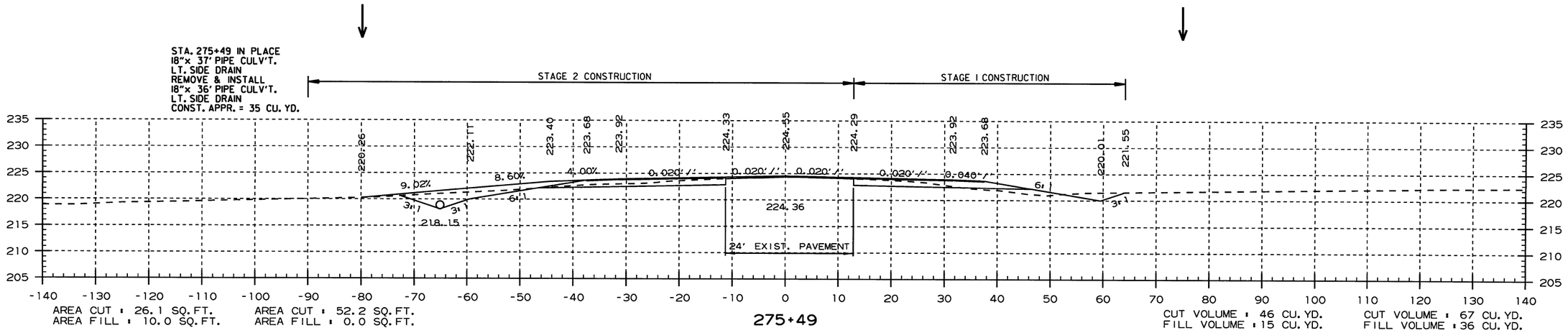
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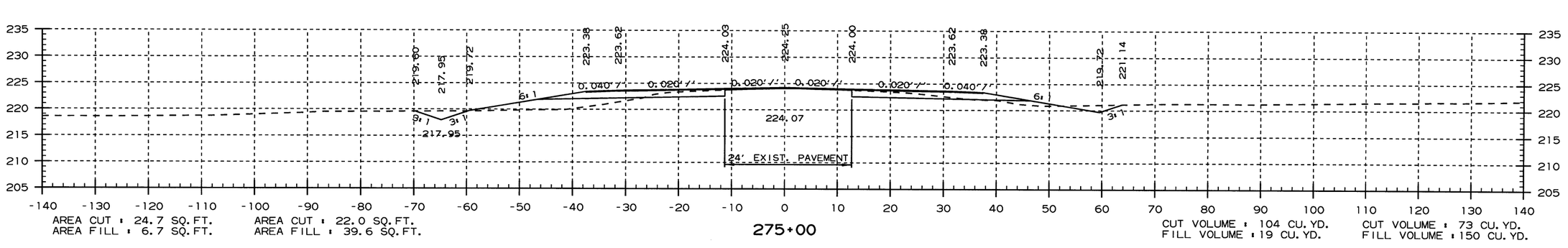
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

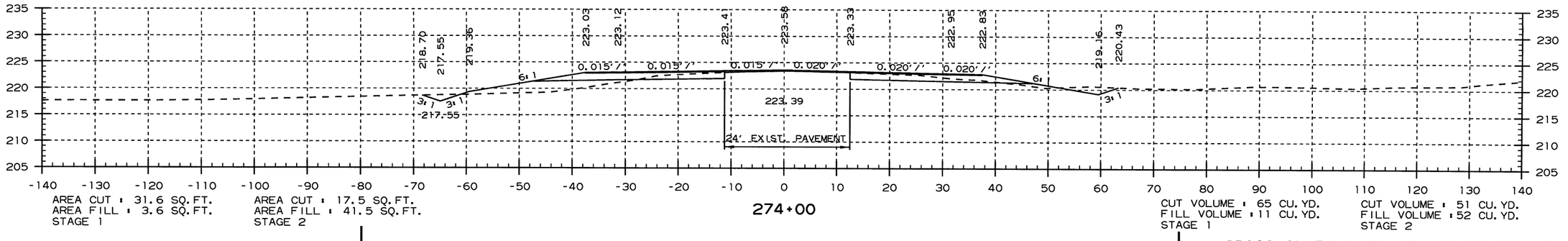
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	132	194

2 CROSS SECTIONS

STA. 275+49 IN PLACE
18"x 37' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 35 CU. YD.







CROSS SECTION STA. 274+00 TO STA. 275+49

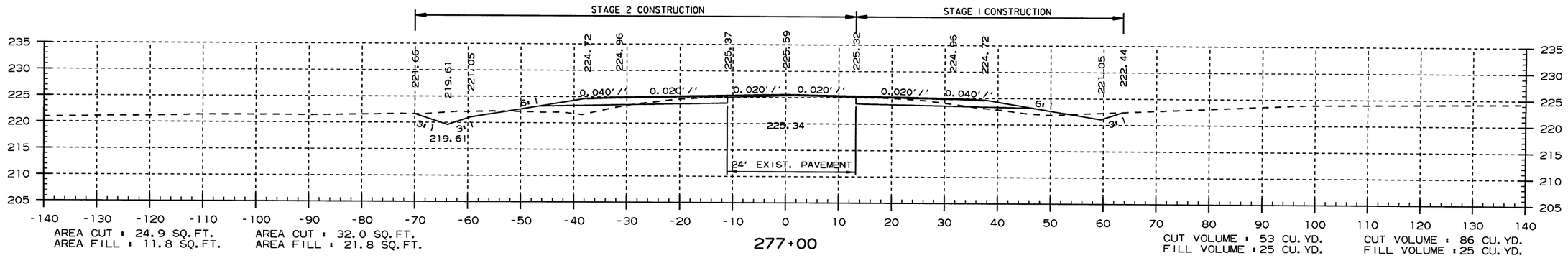
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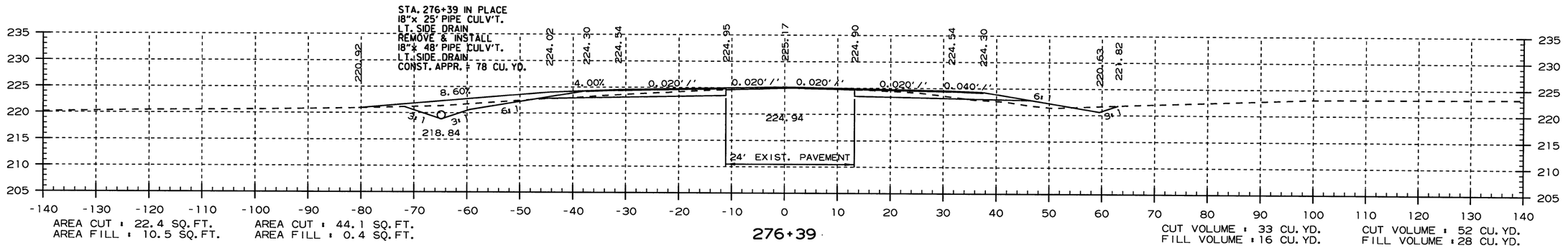
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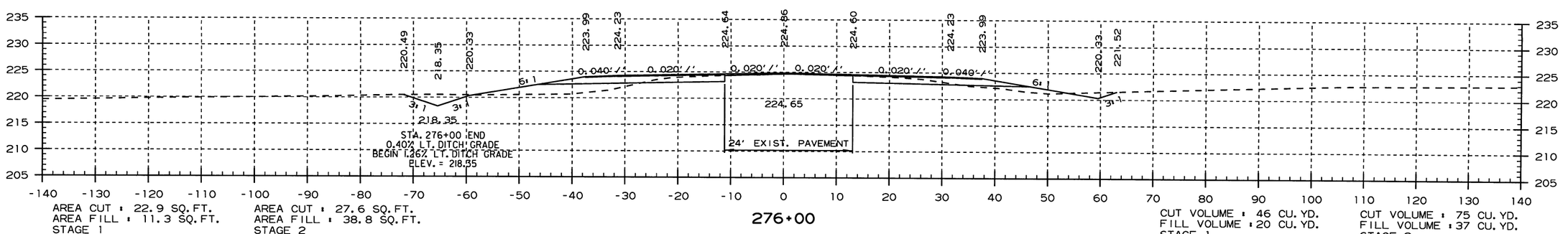
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	133	194

2 CROSS SECTIONS







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

USER: mw519
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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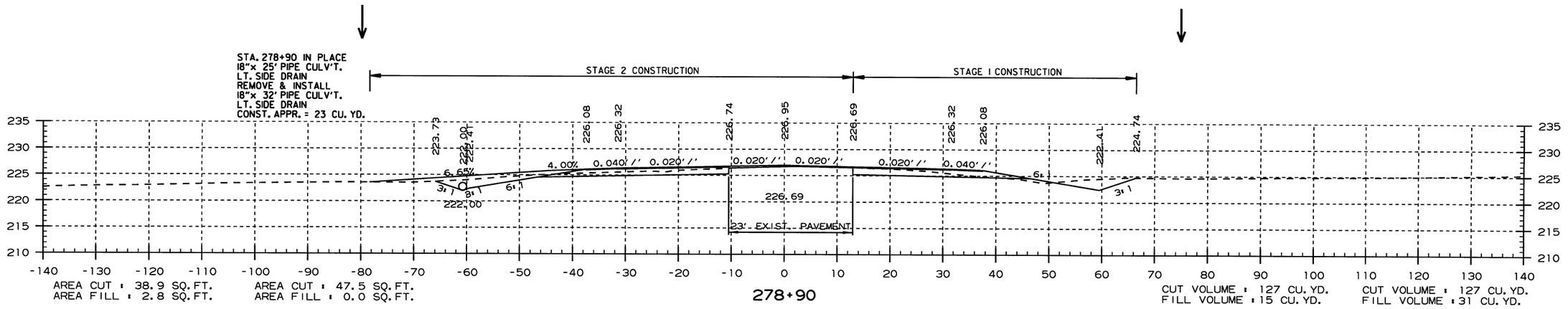
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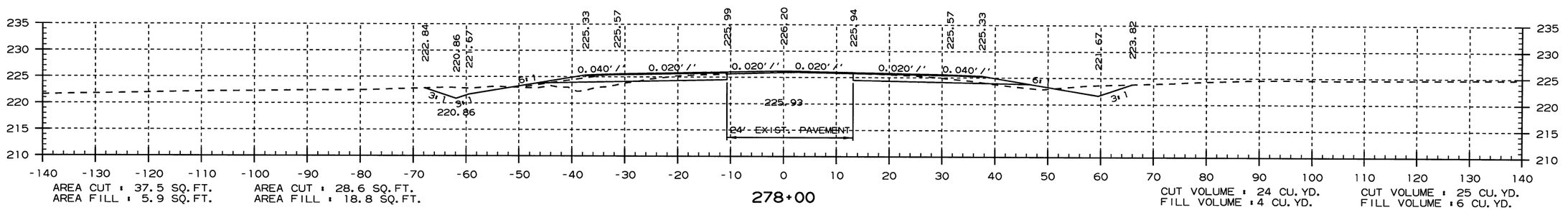
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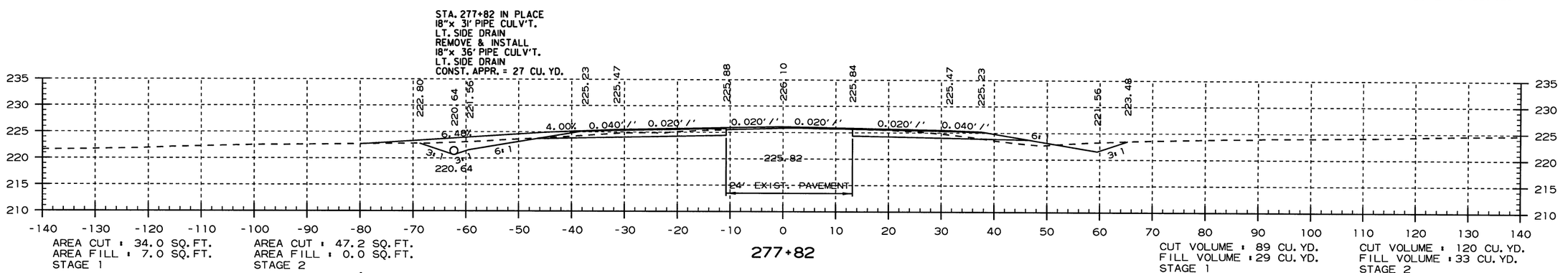
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	134	194

(2) CROSS SECTIONS







CROSS SECTION STA. 277+82 TO STA. 278+90

USER: mw519
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PLOTTED: 3/17/2017 09:14

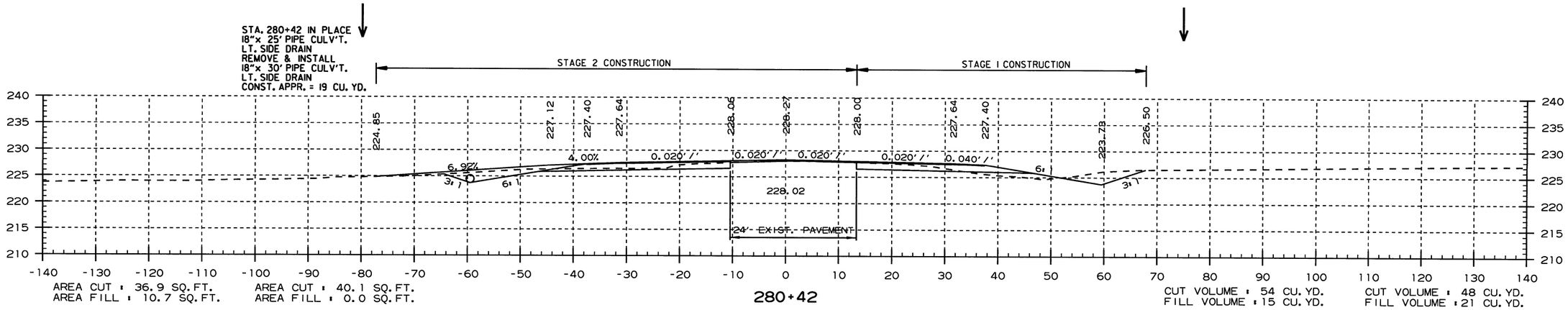
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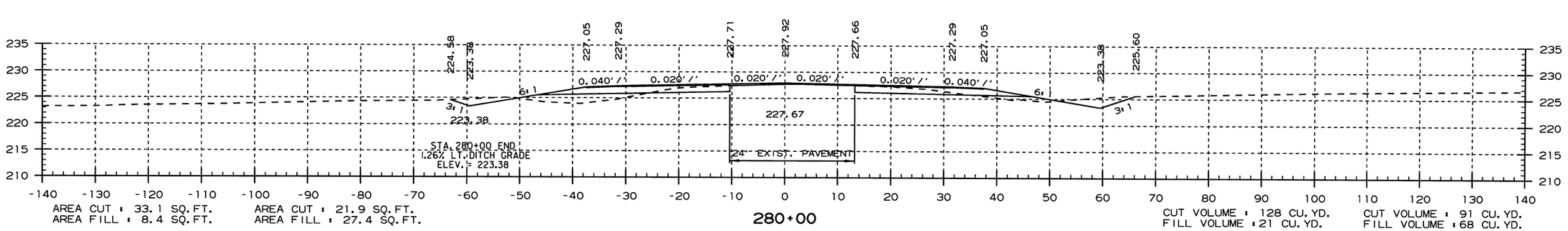
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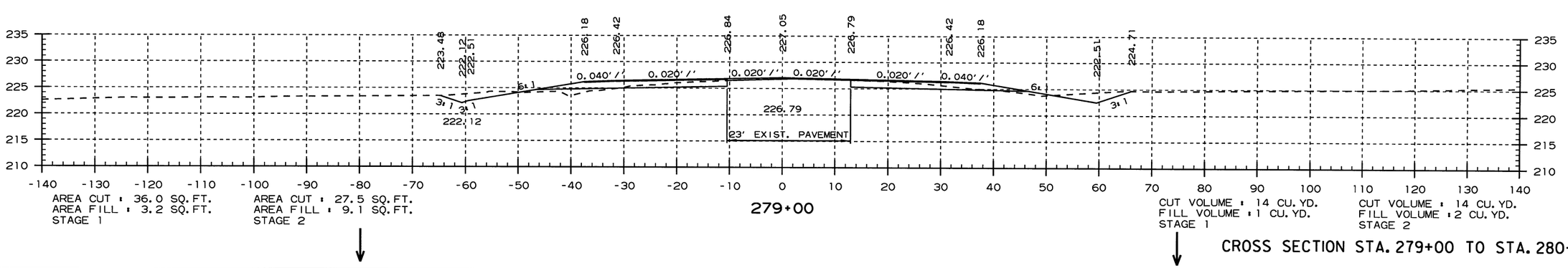
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	135	194

2 CROSS SECTIONS







CROSS SECTION STA. 279+00 TO STA. 280+42

USER: mw59
DESIGN FILE: G:\1409400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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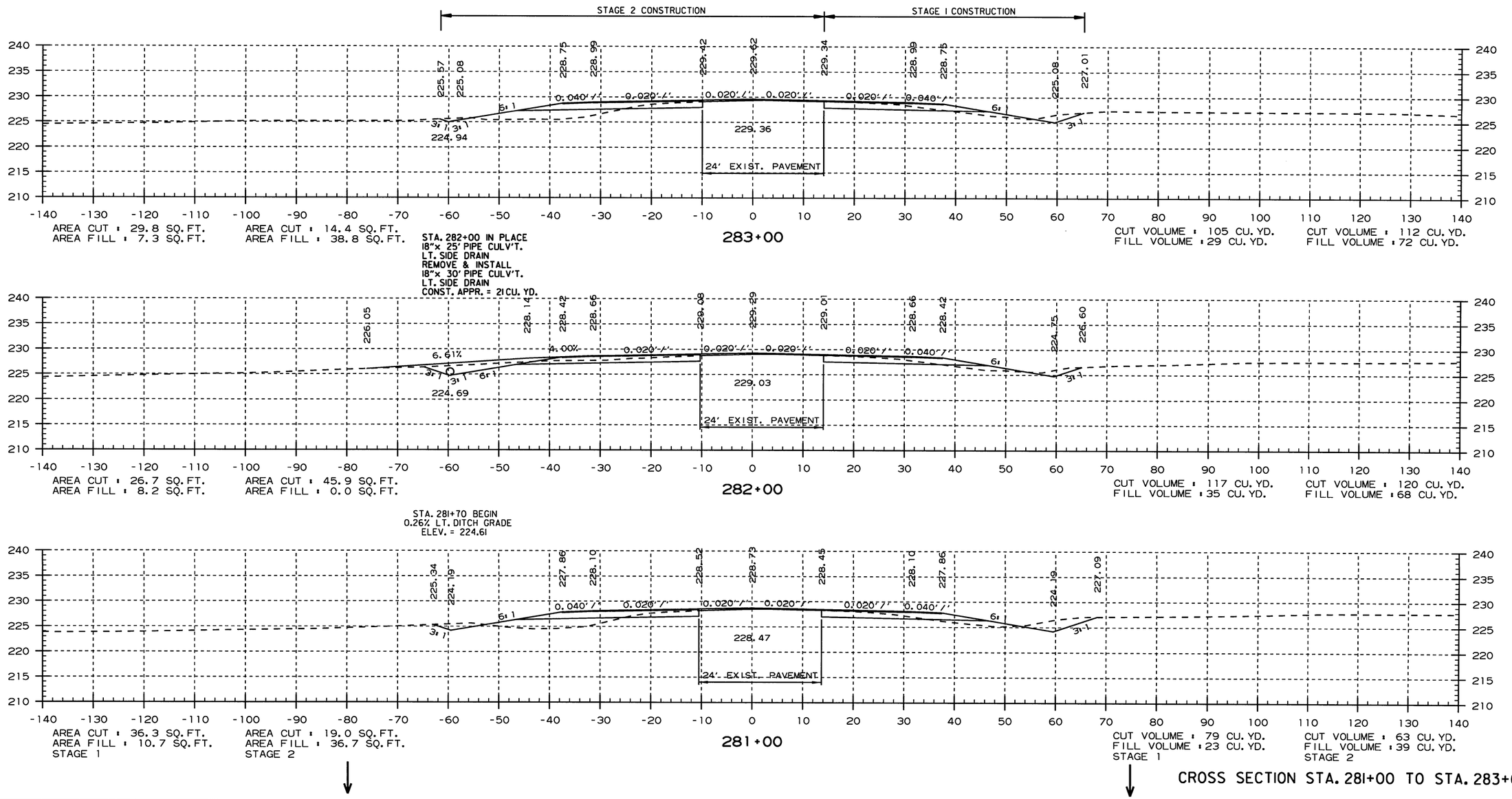
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	136	194

(2) CROSS SECTIONS



USER: mw59
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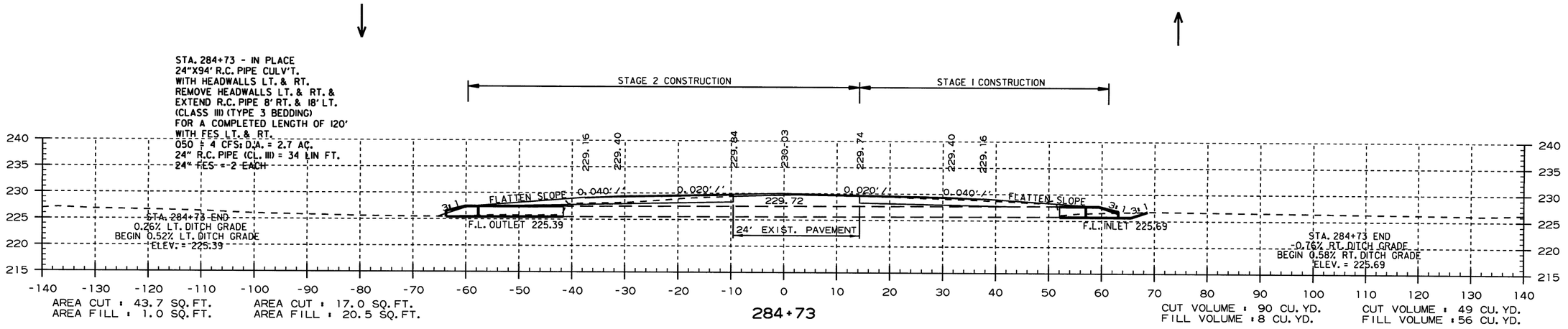
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	137	194

2 CROSS SECTIONS

STA. 284+73 - IN PLACE
24"X94' R.C. PIPE CULV'T.
WITH HEADWALLS LT. & RT.
REMOVE HEADWALLS LT. & RT. &
EXTEND R.C. PIPE 8' RT. & 18' LT.
(CLASS III) (TYPE 3 BEDDING)
FOR A COMPLETED LENGTH OF 120'
WITH FES LT. & RT.
Q50 = 4 CFS; D.A. = 2.7 AC.
24" R.C. PIPE (CL. III) = 34 LIN FT.
24" FES = 2 EACH



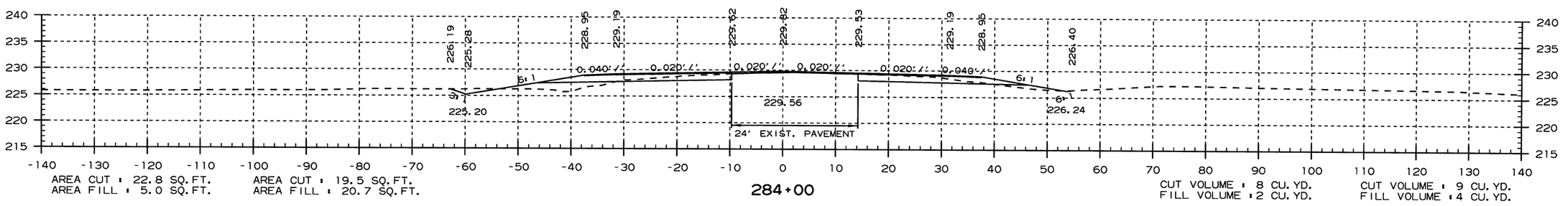
AREA CUT = 43.7 SQ. FT.
AREA FILL = 1.0 SQ. FT.

AREA CUT = 17.0 SQ. FT.
AREA FILL = 20.5 SQ. FT.

284+73

CUT VOLUME = 90 CU. YD.
FILL VOLUME = 8 CU. YD.

CUT VOLUME = 49 CU. YD.
FILL VOLUME = 56 CU. YD.



AREA CUT = 22.8 SQ. FT.
AREA FILL = 5.0 SQ. FT.

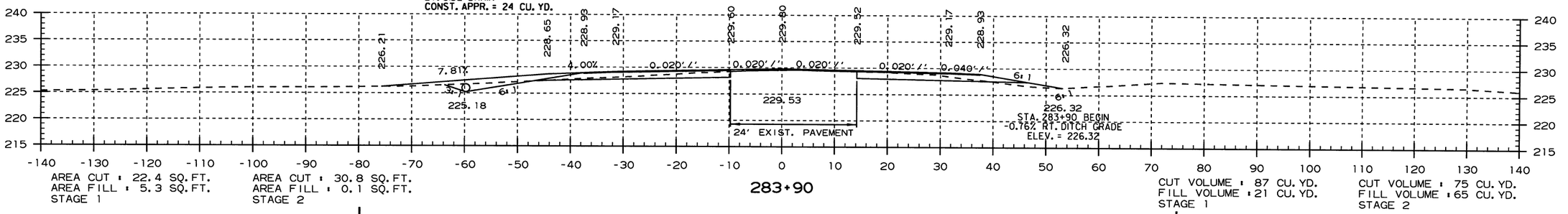
AREA CUT = 19.5 SQ. FT.
AREA FILL = 20.7 SQ. FT.

284+00

CUT VOLUME = 8 CU. YD.
FILL VOLUME = 2 CU. YD.

CUT VOLUME = 9 CU. YD.
FILL VOLUME = 4 CU. YD.

STA. 283+90 IN PLACE
18"x 23' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 24 CU. YD.



AREA CUT = 22.4 SQ. FT.
AREA FILL = 5.3 SQ. FT.
STAGE 1

AREA CUT = 30.8 SQ. FT.
AREA FILL = 0.1 SQ. FT.
STAGE 2

283+90

CUT VOLUME = 87 CU. YD.
FILL VOLUME = 21 CU. YD.
STAGE 1

CUT VOLUME = 75 CU. YD.
FILL VOLUME = 65 CU. YD.
STAGE 2

CROSS SECTION STA. 283+90 TO STA. 284+73

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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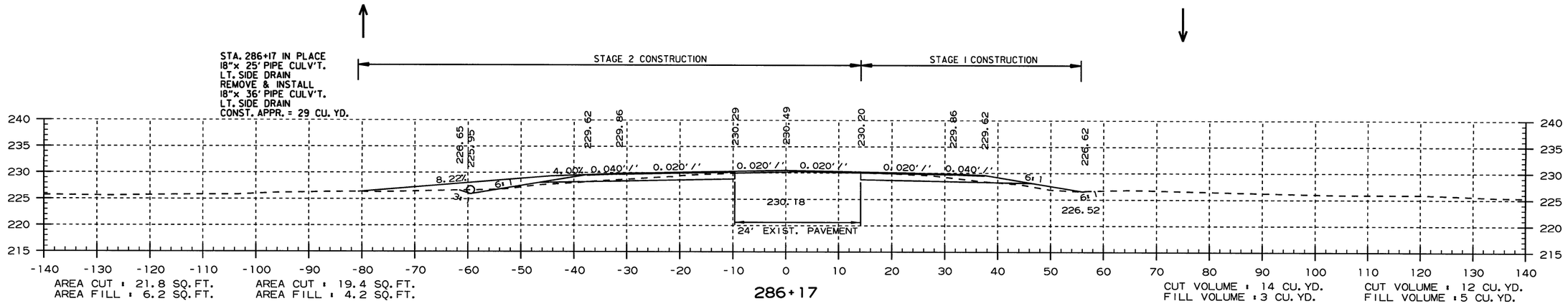
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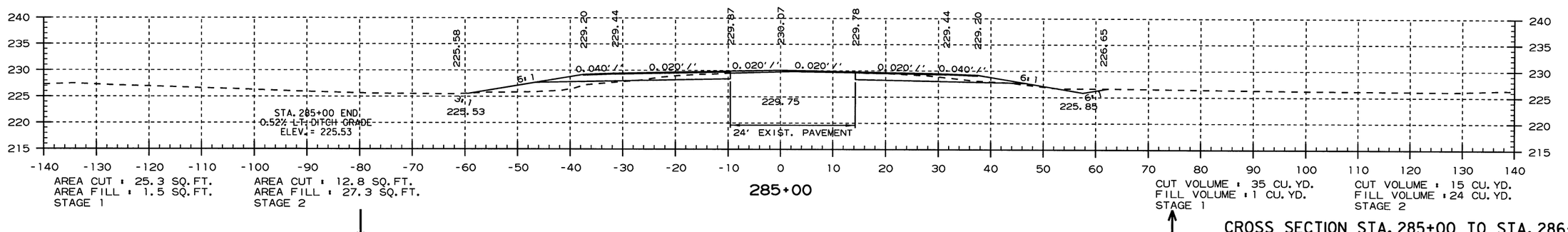
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	138	194

2 CROSS SECTIONS







CROSS SECTION STA. 285+00 TO STA. 286+17

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:14
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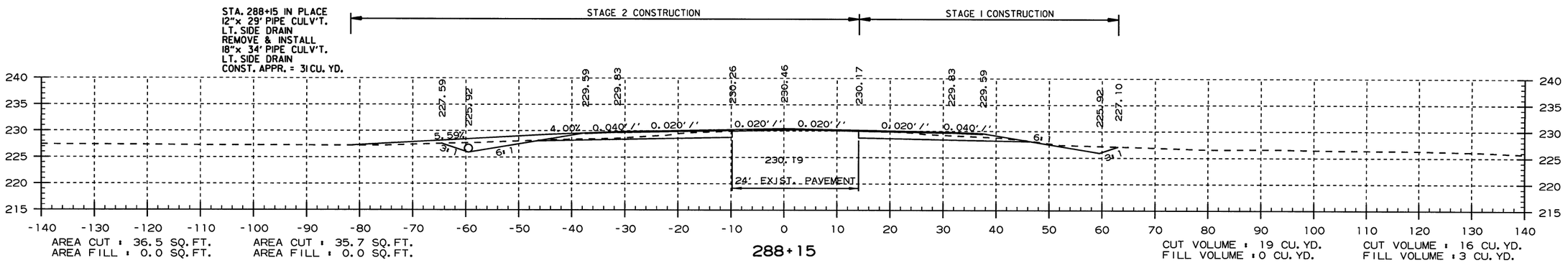
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	139	194

2 CROSS SECTIONS

STA. 288+15 IN PLACE
12"x 29' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 31 CU. YD.



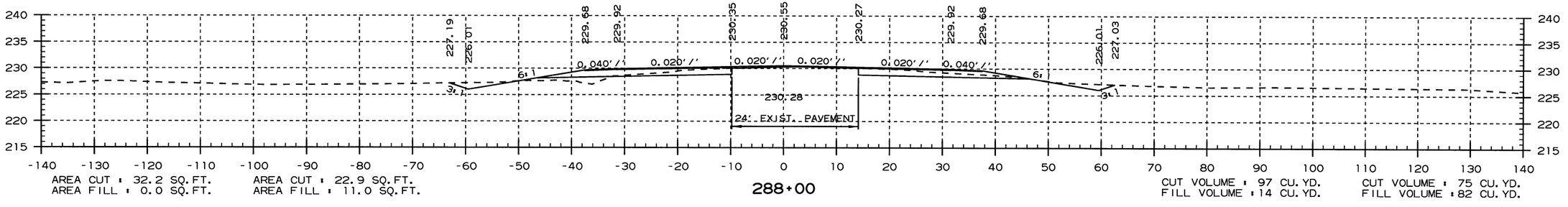
AREA CUT = 36.5 SQ. FT.
AREA FILL = 0.0 SQ. FT.

AREA CUT = 35.7 SQ. FT.
AREA FILL = 0.0 SQ. FT.

288+15

CUT VOLUME = 19 CU. YD.
FILL VOLUME = 0 CU. YD.

CUT VOLUME = 16 CU. YD.
FILL VOLUME = 3 CU. YD.



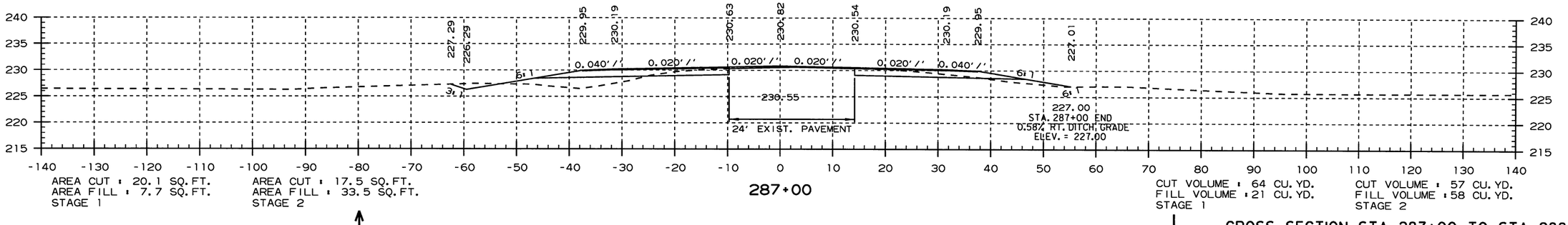
AREA CUT = 32.2 SQ. FT.
AREA FILL = 0.0 SQ. FT.

AREA CUT = 22.9 SQ. FT.
AREA FILL = 11.0 SQ. FT.

288+00

CUT VOLUME = 97 CU. YD.
FILL VOLUME = 14 CU. YD.

CUT VOLUME = 75 CU. YD.
FILL VOLUME = 82 CU. YD.



AREA CUT = 20.1 SQ. FT.
AREA FILL = 7.7 SQ. FT.
STAGE 1

AREA CUT = 17.5 SQ. FT.
AREA FILL = 33.5 SQ. FT.
STAGE 2

287+00

CUT VOLUME = 64 CU. YD.
FILL VOLUME = 21 CU. YD.
STAGE 1

CUT VOLUME = 57 CU. YD.
FILL VOLUME = 58 CU. YD.
STAGE 2

CROSS SECTION STA. 287+00 TO STA. 288+15

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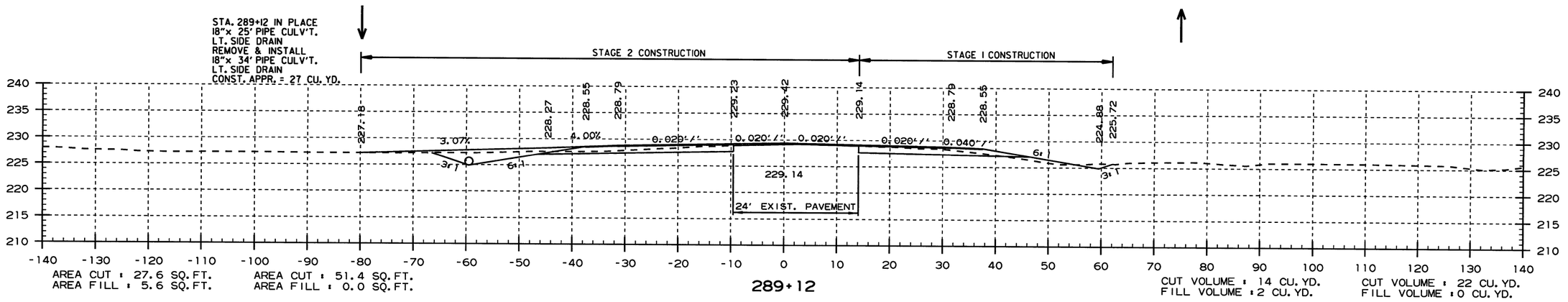
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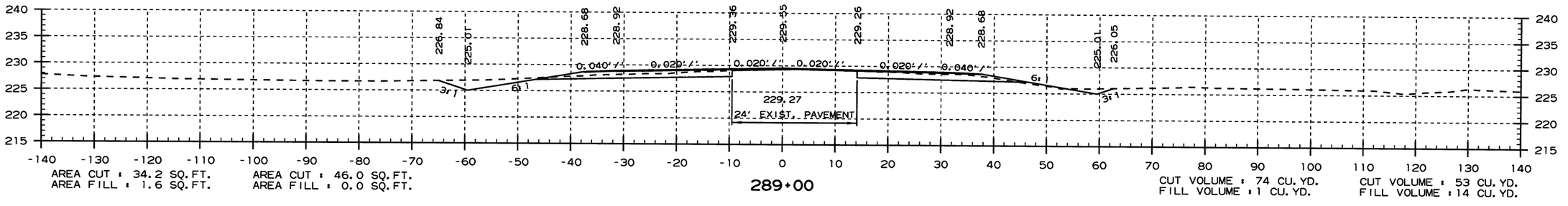
Crafton Tull
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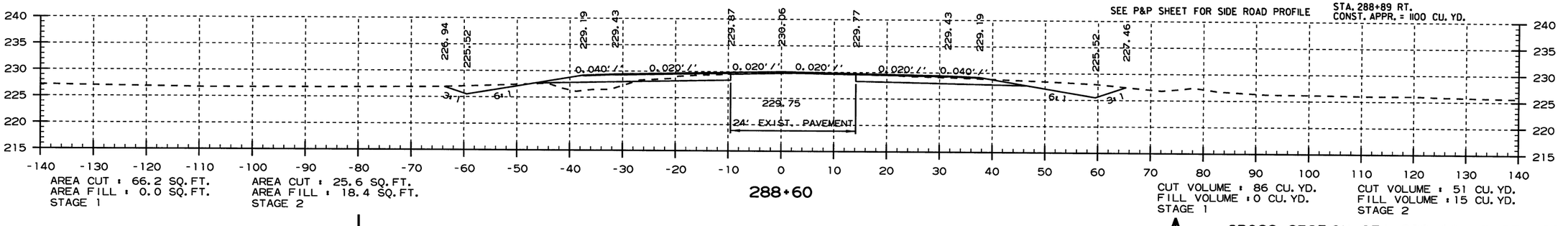
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0702		140	194

2 CROSS SECTIONS







CROSS SECTION STA. 288+60 TO STA. 289+12

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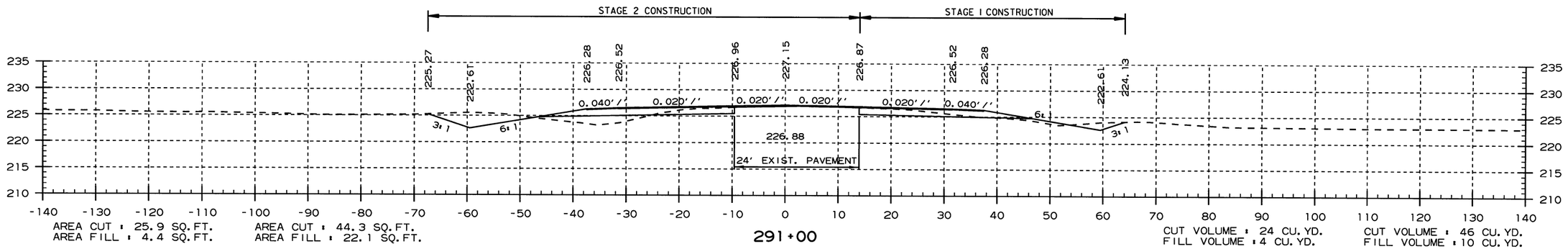
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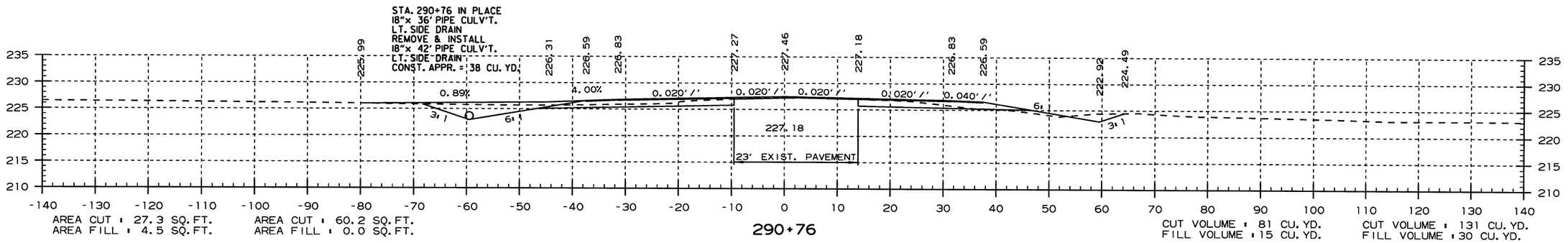
Crafton Tull
architecture | engineering | surveying

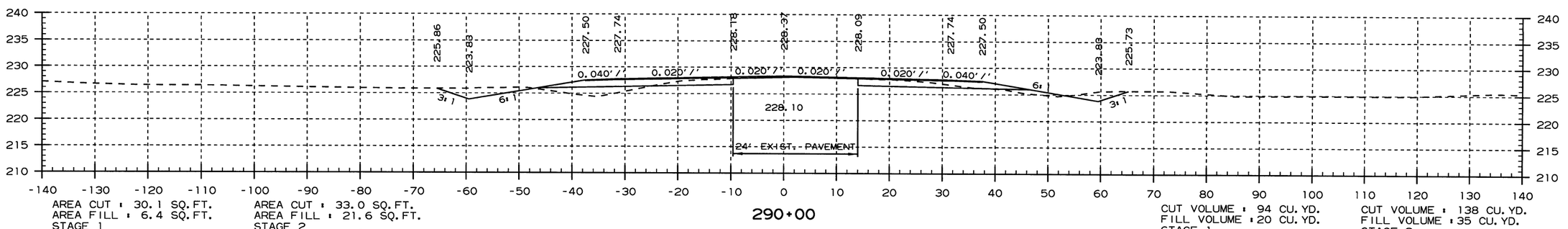
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	141	194

(2) CROSS SECTIONS







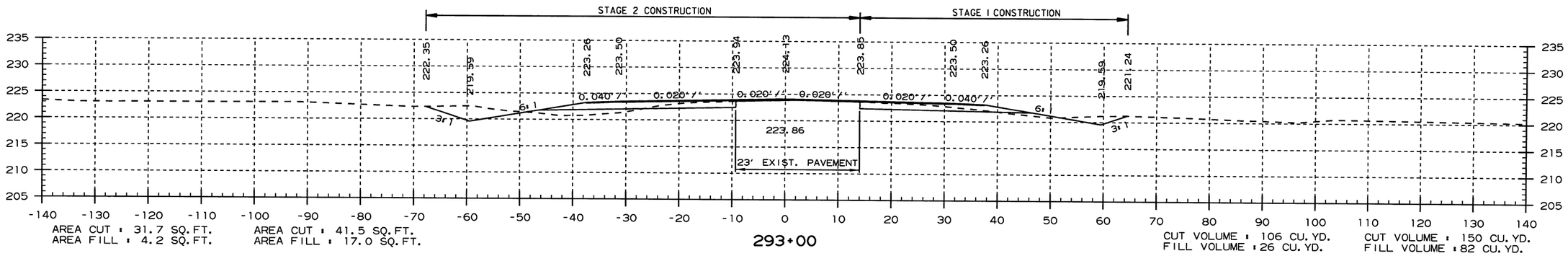
CROSS SECTION STA. 290+00 TO STA. 291+00

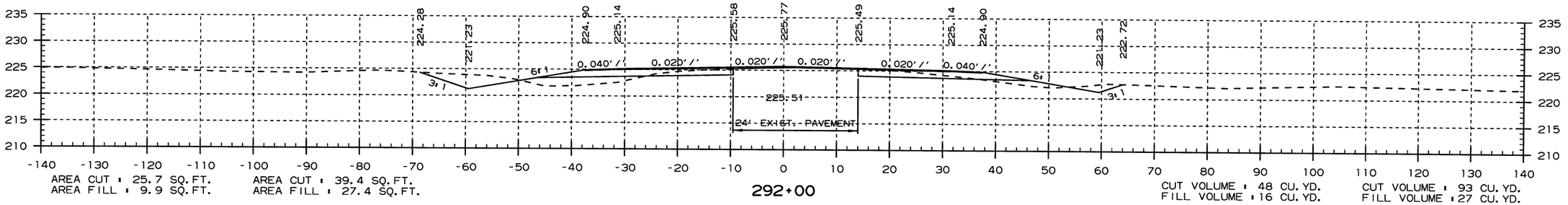
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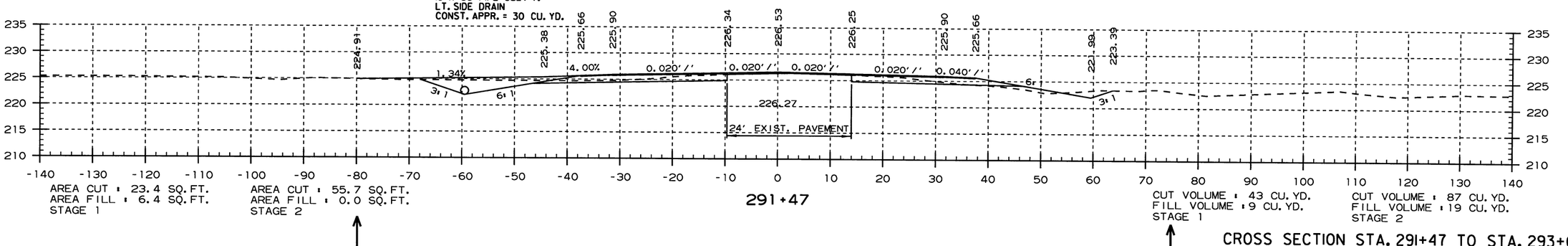
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	142	194

(2) CROSS SECTIONS





STA. 291+47 IN PLACE
18"x 29' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
18"x 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YD.



CROSS SECTION STA. 291+47 TO STA. 293+00

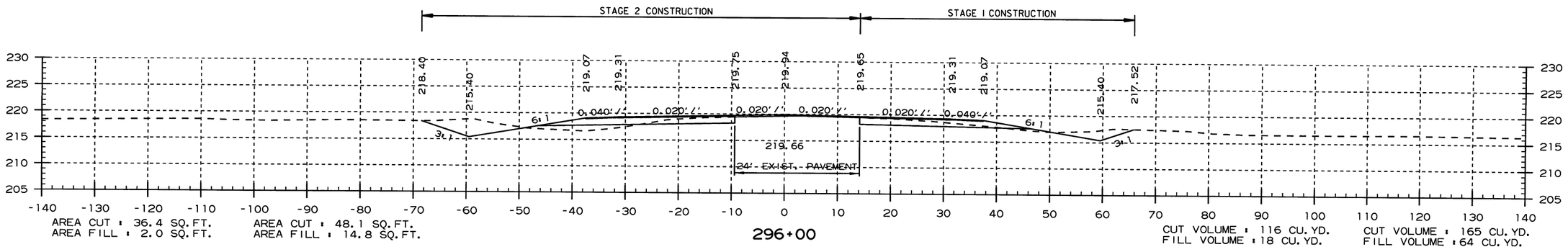
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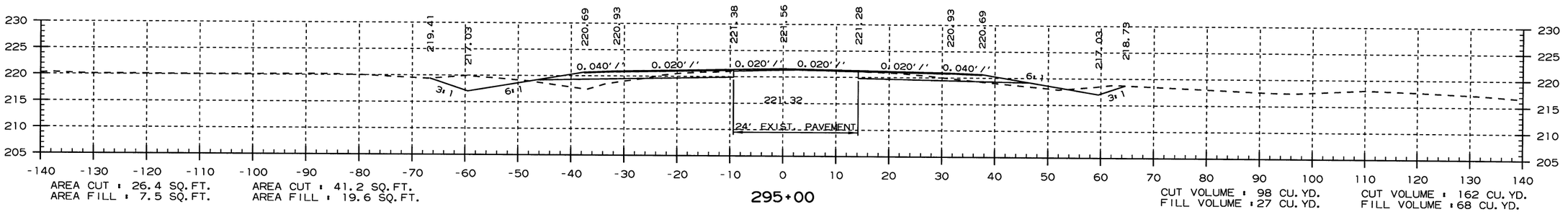
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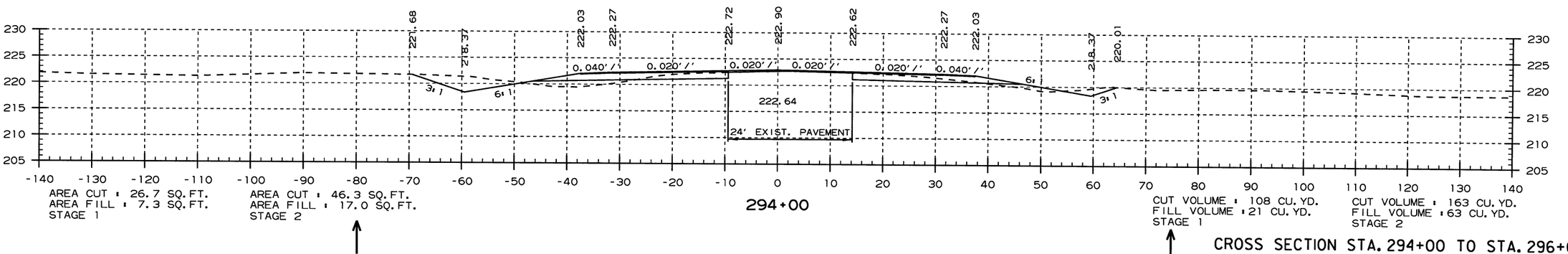
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	143	194

2 CROSS SECTIONS







CROSS SECTION STA. 294+00 TO STA. 296+00

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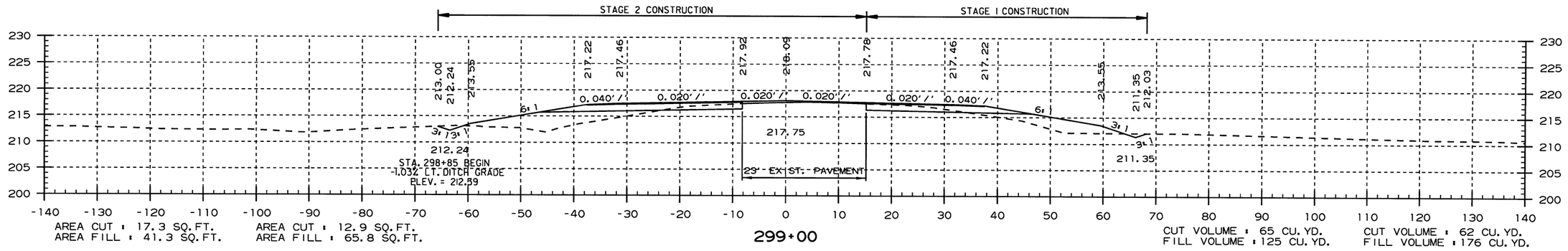
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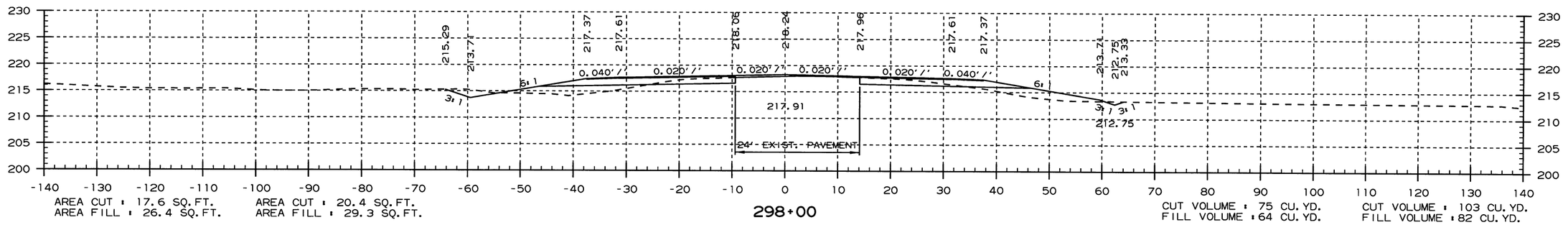
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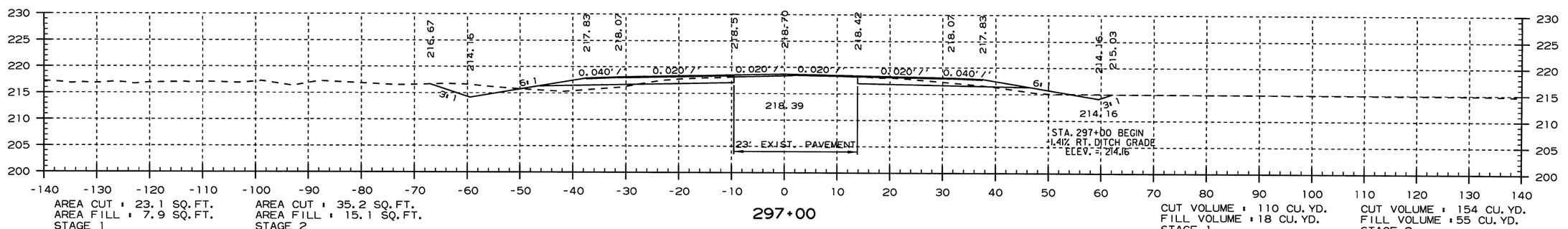
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	144	194

2 CROSS SECTIONS







CROSS SECTION STA. 297+00 TO STA. 299+00

USER: mwsig
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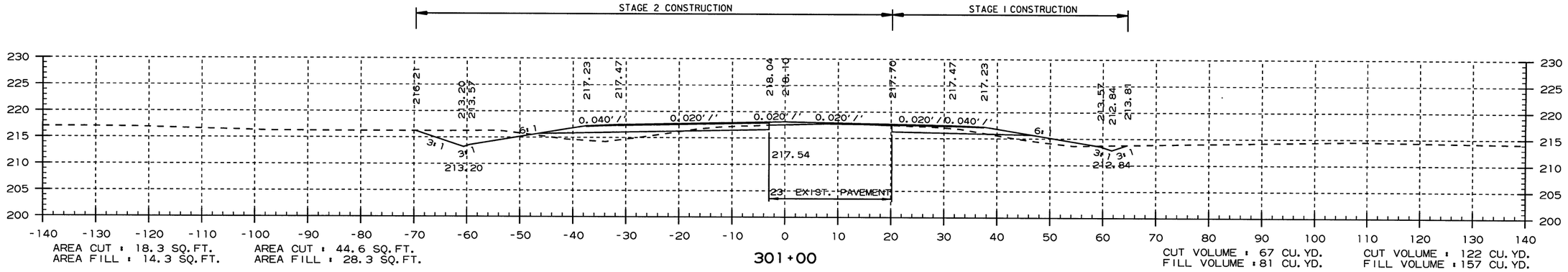
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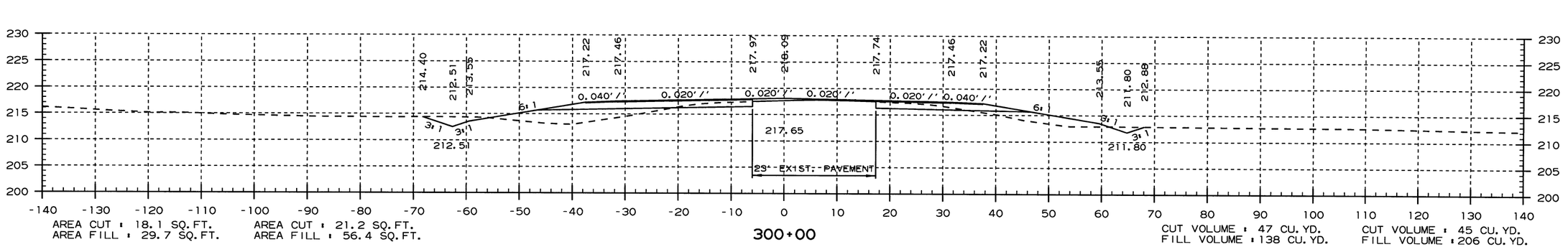
Crafton Tull
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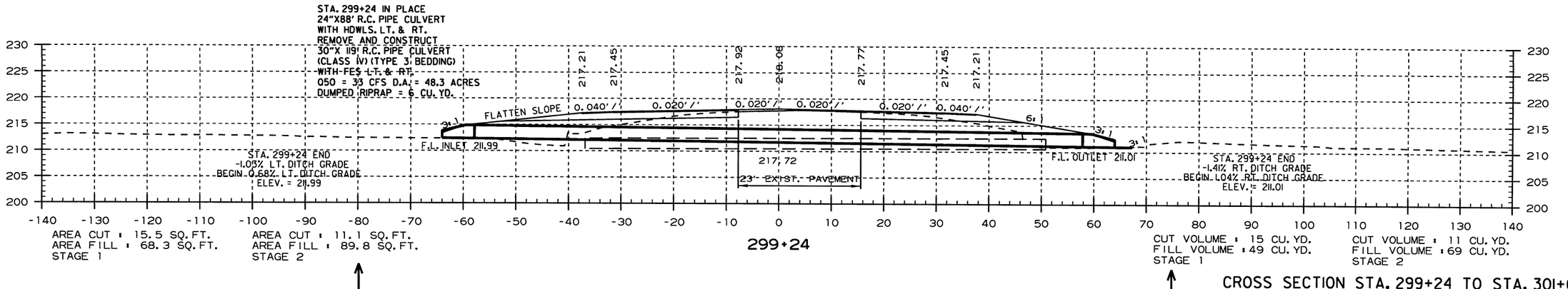
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	145	194

2 CROSS SECTIONS







CROSS SECTION STA. 299+24 TO STA. 301+00

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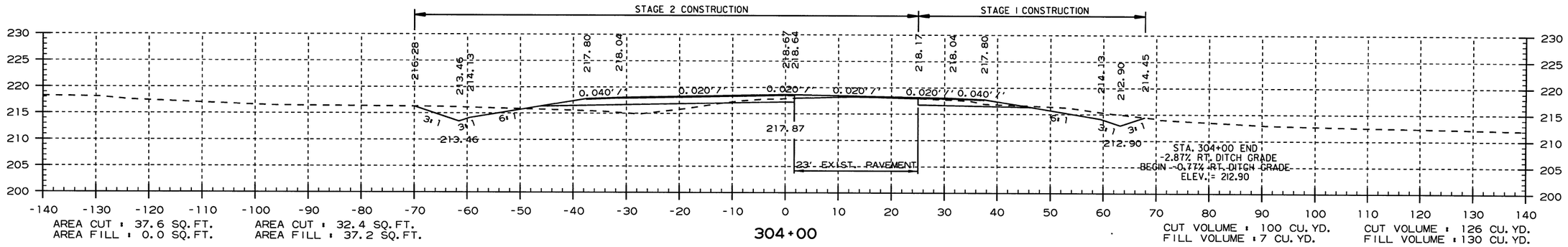
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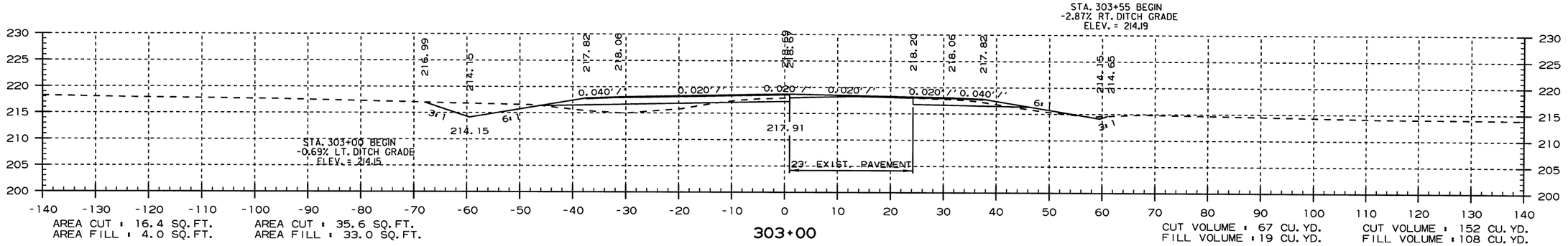
Crafton Tull
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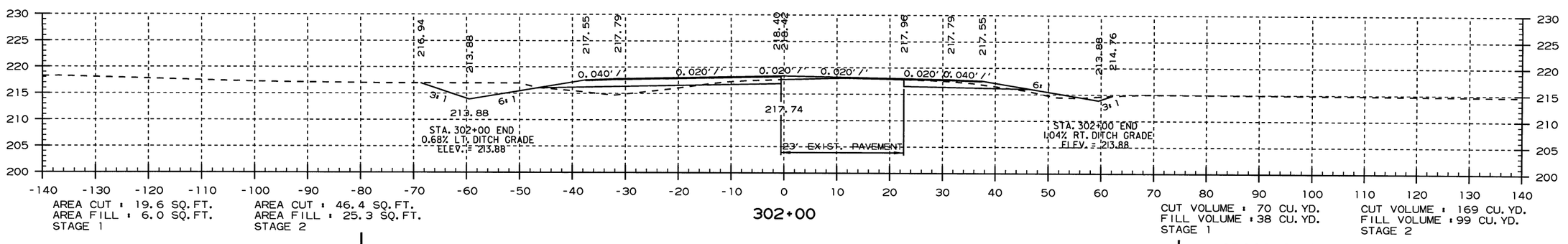
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	146	194

(2) CROSS SECTIONS







CROSS SECTION STA. 302+00 TO STA. 304+00

USER: mw519
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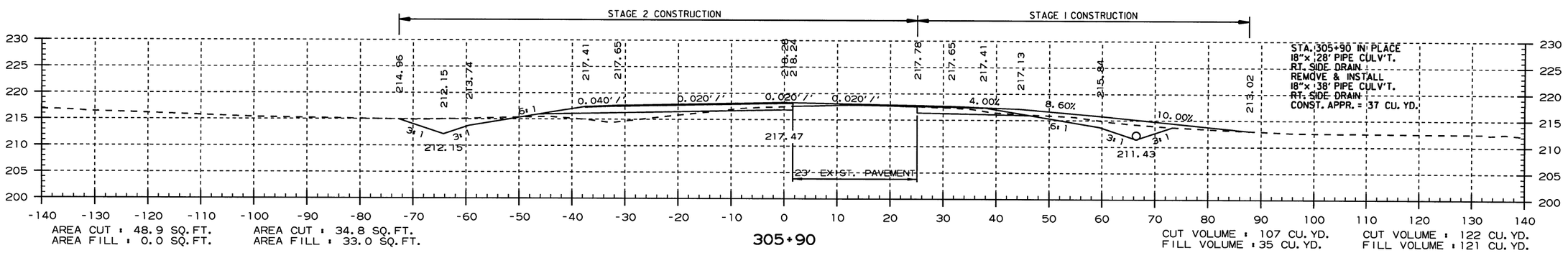
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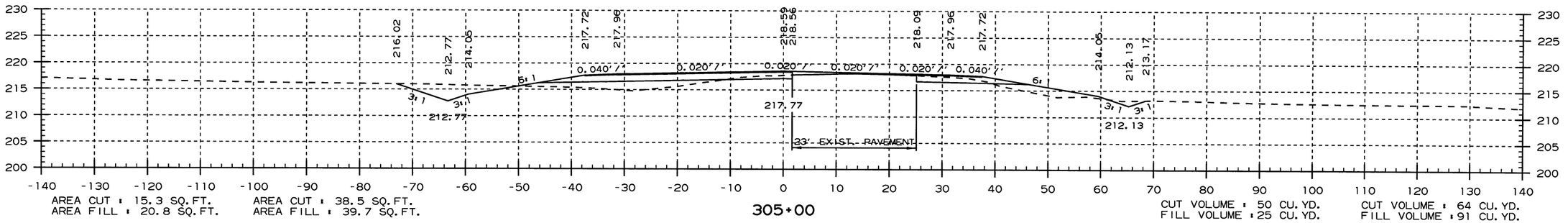
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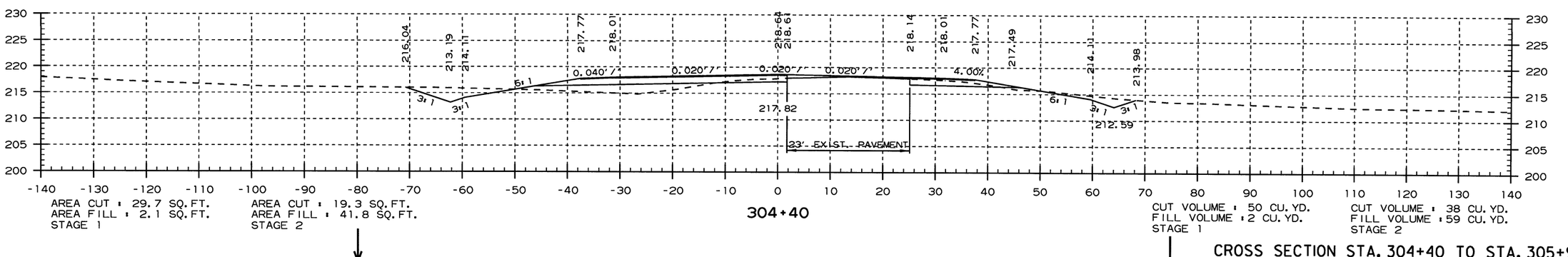
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	147	194

2 CROSS SECTIONS







CROSS SECTION STA. 304+40 TO STA. 305+90

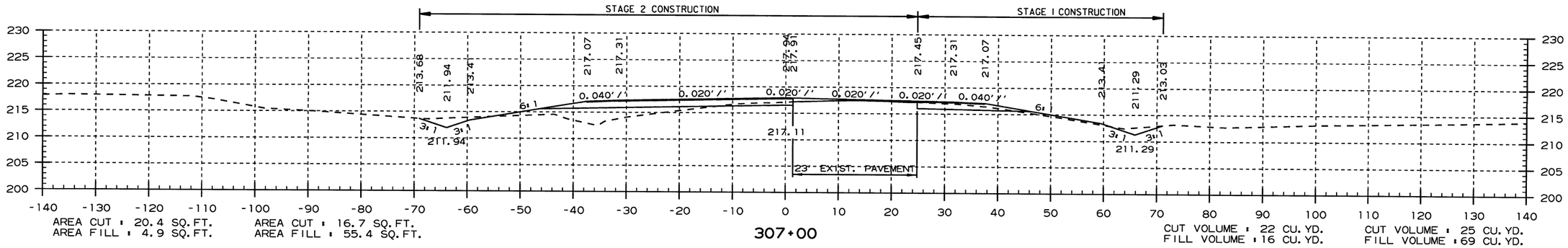
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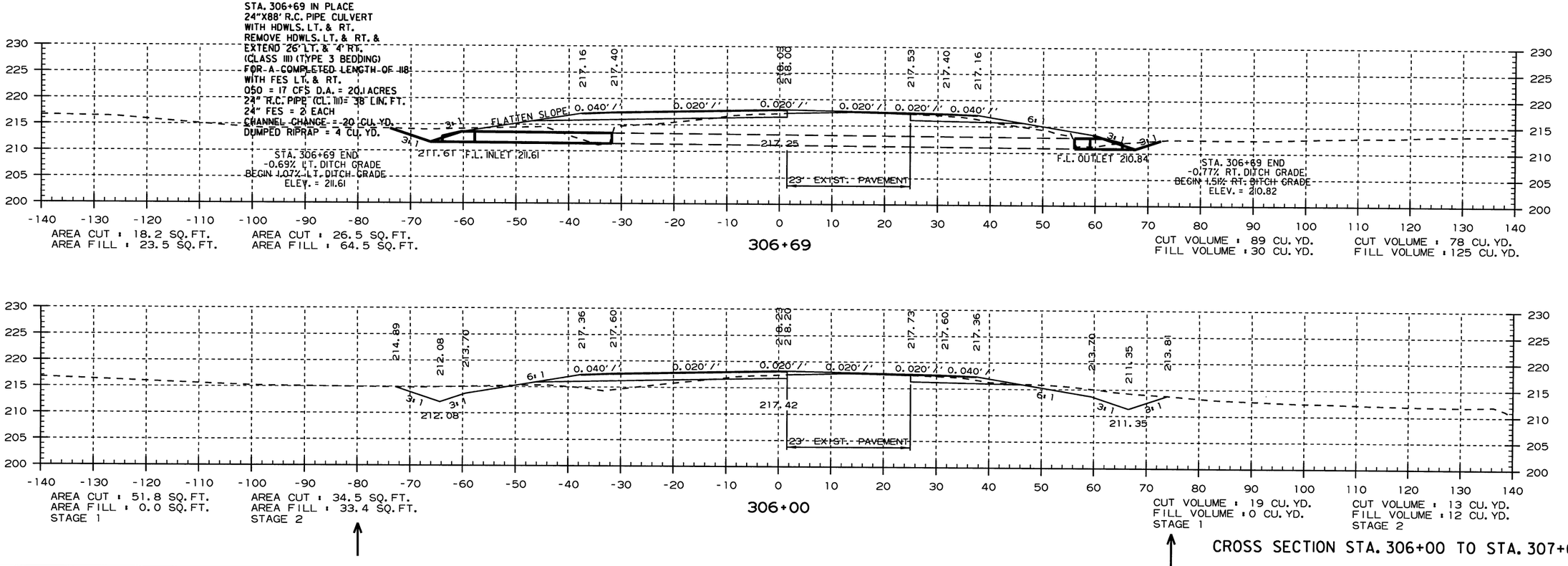
Crafton Tull
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	CA0702		148	194

2 CROSS SECTIONS





CROSS SECTION STA. 306+00 TO STA. 307+00

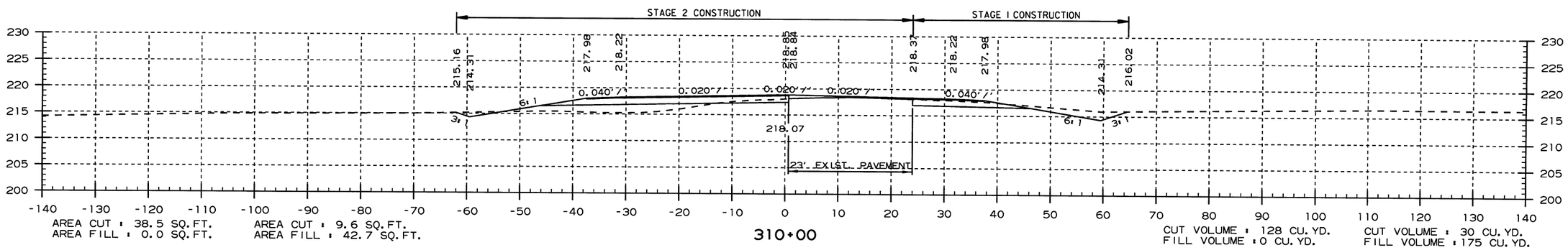
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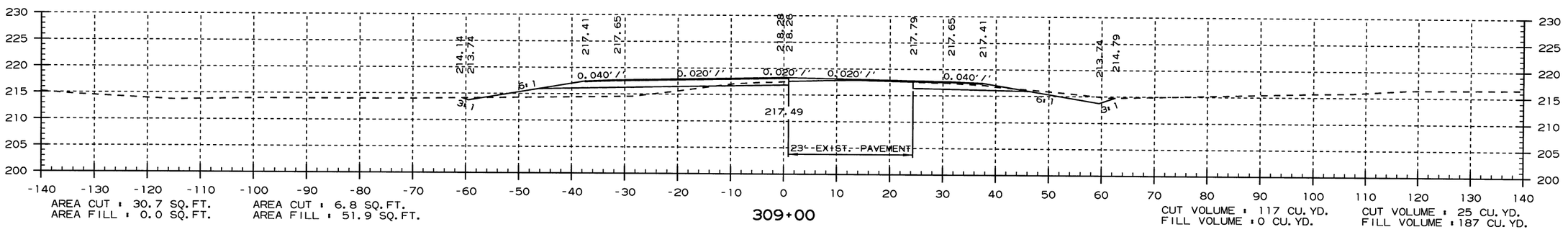
Crafton Tull
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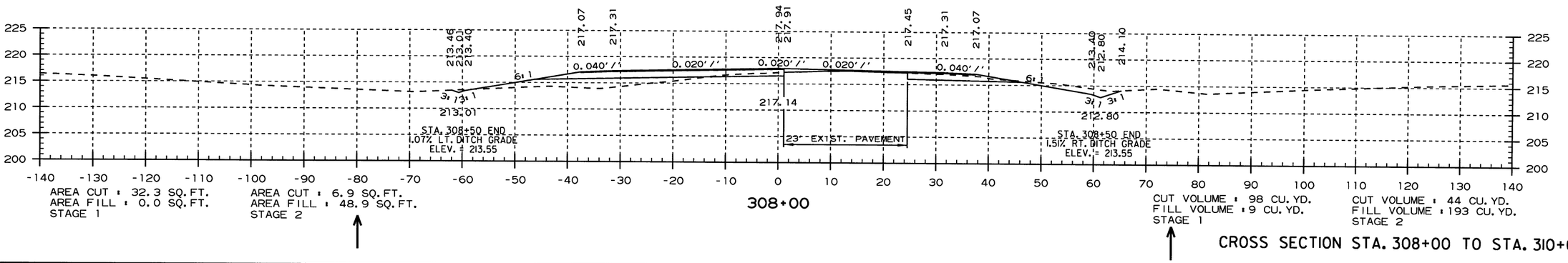
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	149	194

2 CROSS SECTIONS







CROSS SECTION STA. 308+00 TO STA. 310+00

USER: mw519
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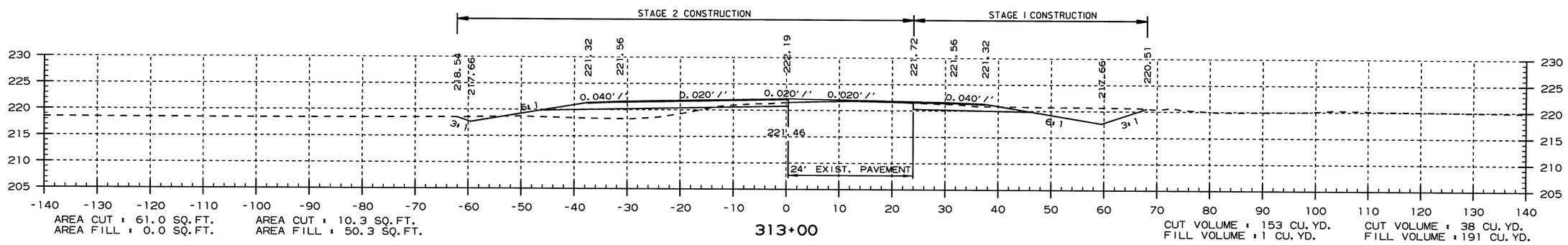
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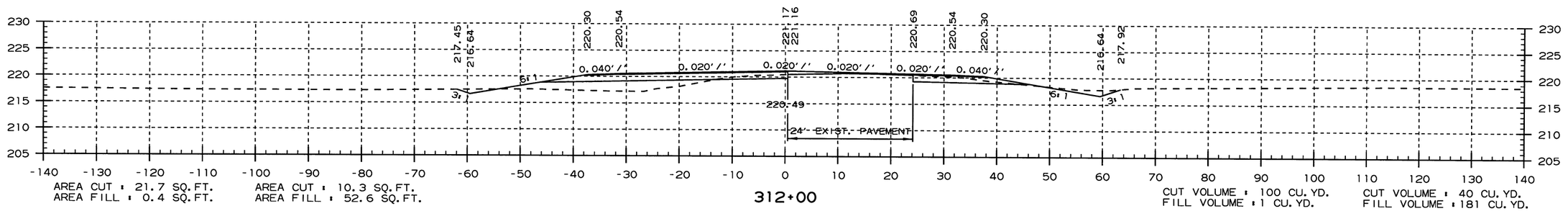
Crafton Tull
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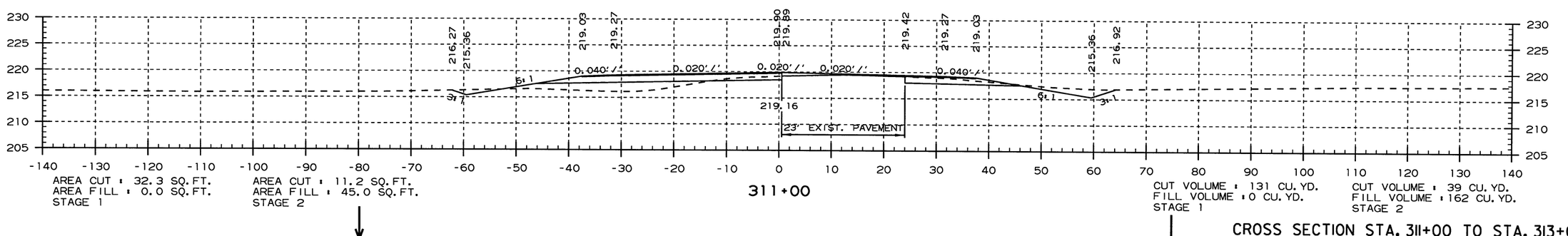
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	150	194

2 CROSS SECTIONS







CROSS SECTION STA. 311+00 TO STA. 313+00

USER: mw519
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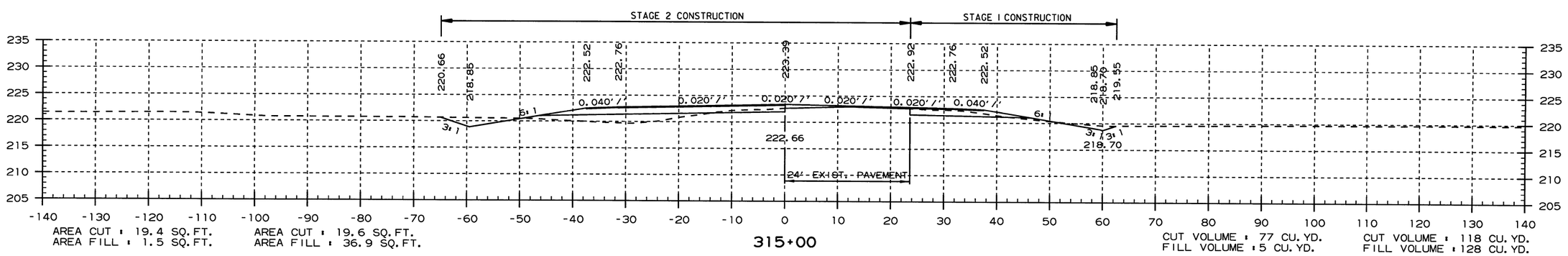
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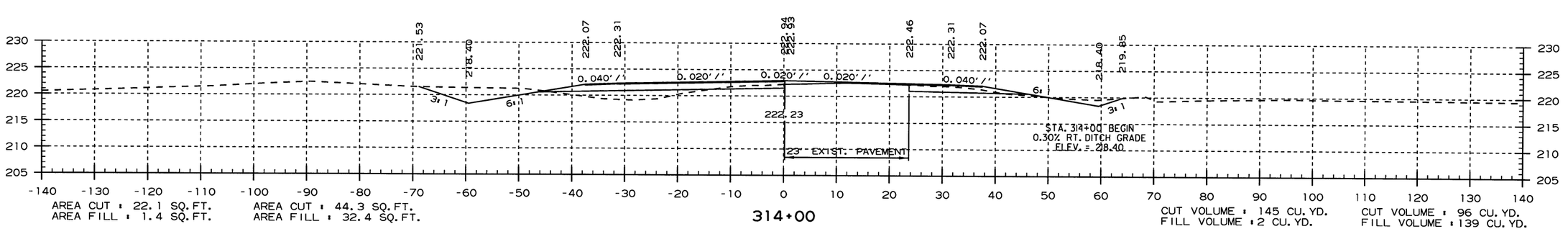
Crafton Tull
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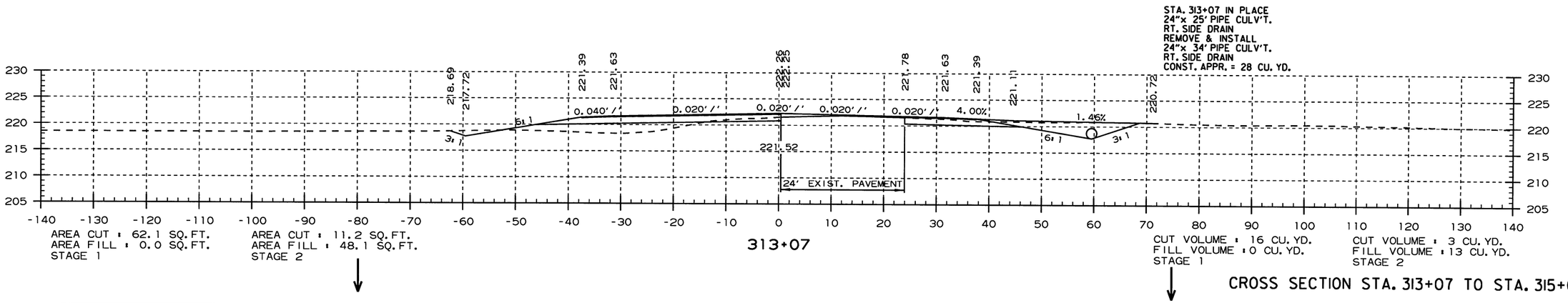
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	151	194

2 CROSS SECTIONS







CROSS SECTION STA. 313+07 TO STA. 315+00

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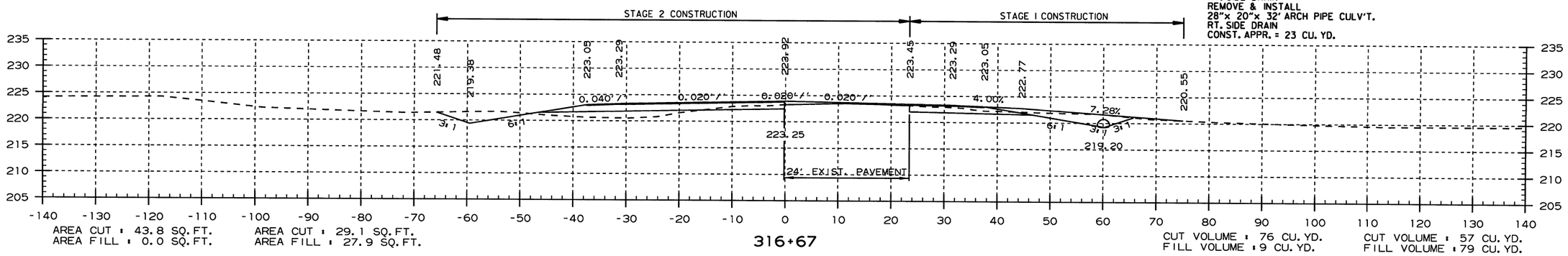
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	152	194

(2) CROSS SECTIONS

STA. 316+67 IN PLACE
24"x 25' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 32' ARCH PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 23 CU. YD.



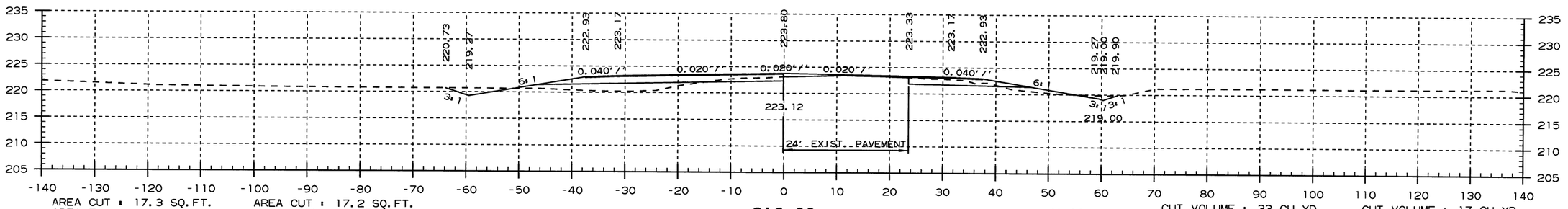
AREA CUT = 43.8 SQ.FT.
AREA FILL = 0.0 SQ.FT.

AREA CUT = 29.1 SQ.FT.
AREA FILL = 27.9 SQ.FT.

316+67

CUT VOLUME = 76 CU.YD.
FILL VOLUME = 9 CU.YD.

CUT VOLUME = 57 CU.YD.
FILL VOLUME = 79 CU.YD.



AREA CUT = 17.3 SQ.FT.
AREA FILL = 7.3 SQ.FT.

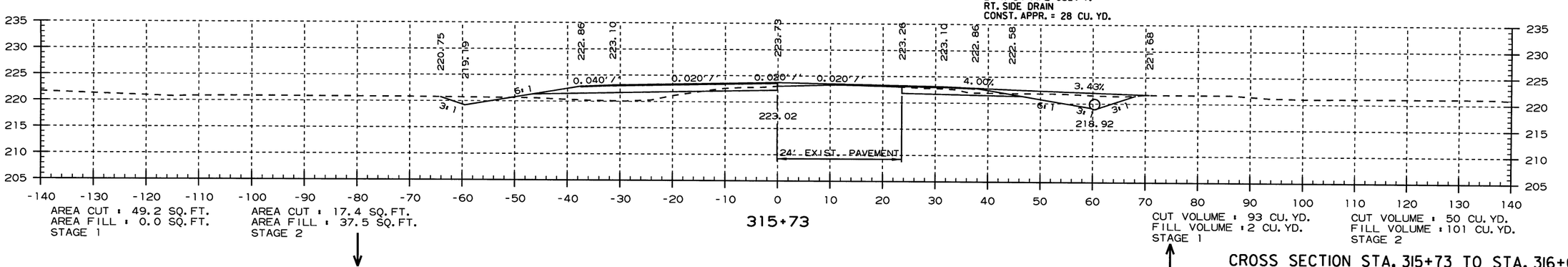
AREA CUT = 17.2 SQ.FT.
AREA FILL = 35.7 SQ.FT.

316+00

CUT VOLUME = 33 CU.YD.
FILL VOLUME = 4 CU.YD.

CUT VOLUME = 17 CU.YD.
FILL VOLUME = 37 CU.YD.

STA. 315+73 IN PLACE
18"x 21' PIPE CULV'T.
RT. SIDE DRAIN
REMOVE & INSTALL
24"x 34' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. = 28 CU.YD.



AREA CUT = 49.2 SQ.FT.
AREA FILL = 0.0 SQ.FT.
STAGE 1

AREA CUT = 17.4 SQ.FT.
AREA FILL = 37.5 SQ.FT.
STAGE 2

315+73

CUT VOLUME = 93 CU.YD.
FILL VOLUME = 2 CU.YD.
STAGE 1

CUT VOLUME = 50 CU.YD.
FILL VOLUME = 101 CU.YD.
STAGE 2

CROSS SECTION STA. 315+73 TO STA. 316+67

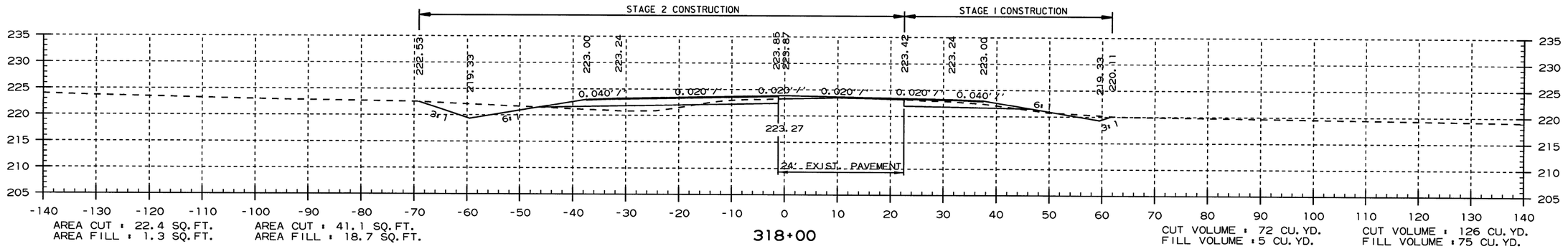
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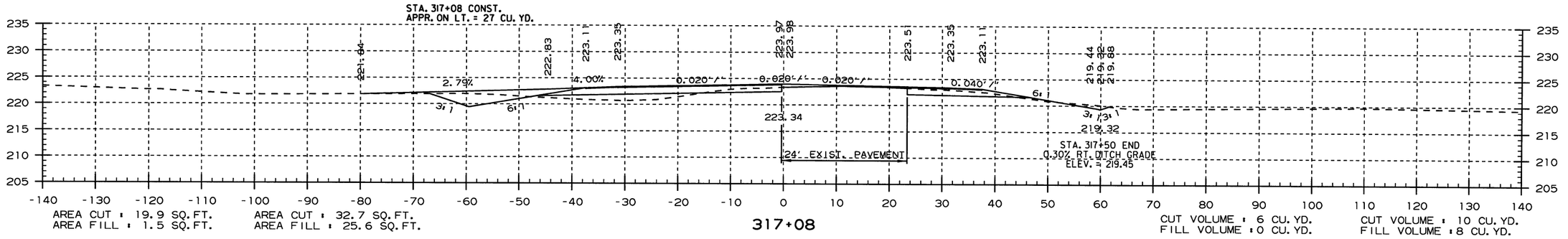
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	153	194

(2) CROSS SECTIONS





CROSS SECTION STA. 317+00 TO STA. 318+00

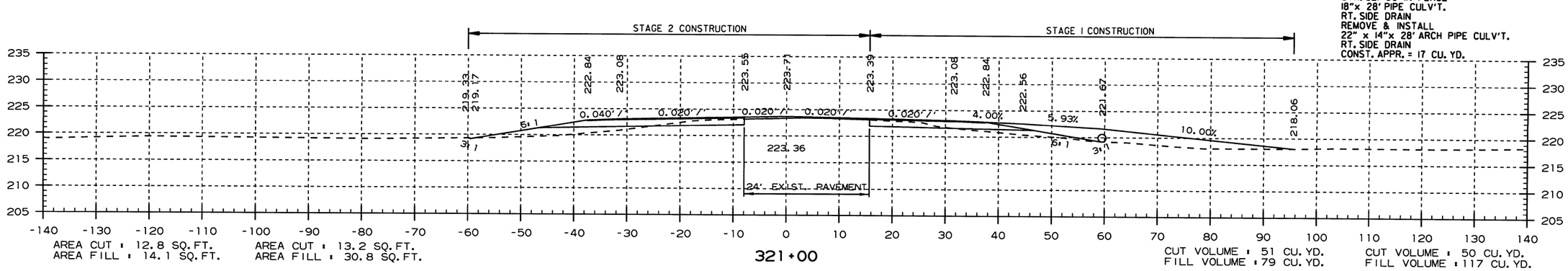
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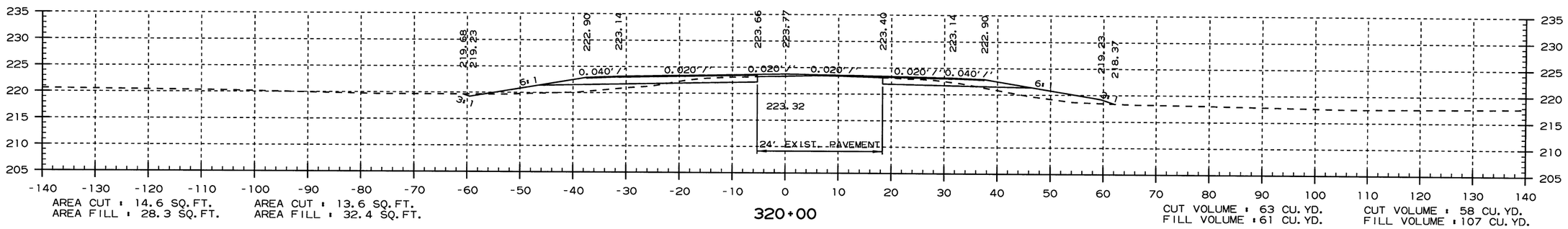
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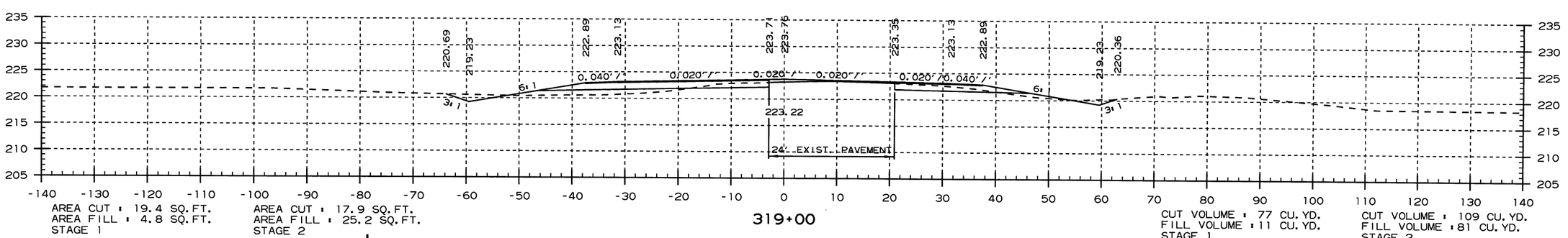
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	154	194

2 CROSS SECTIONS







CROSS SECTION STA. 319+00 TO STA. 321+00

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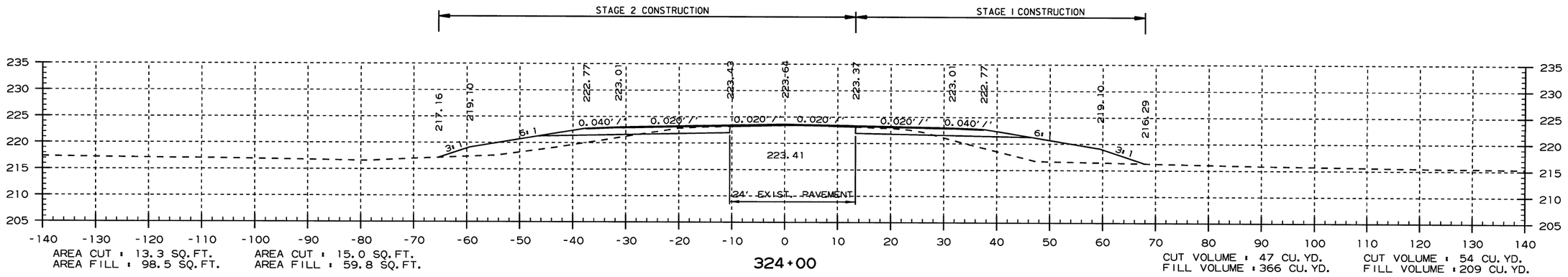
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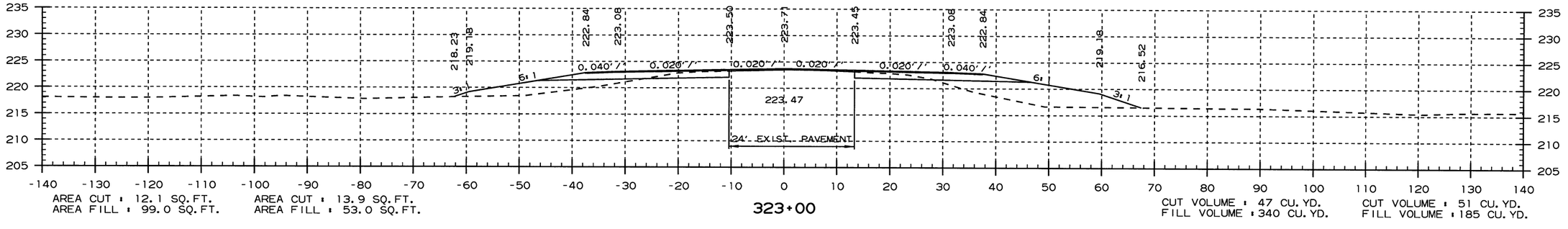
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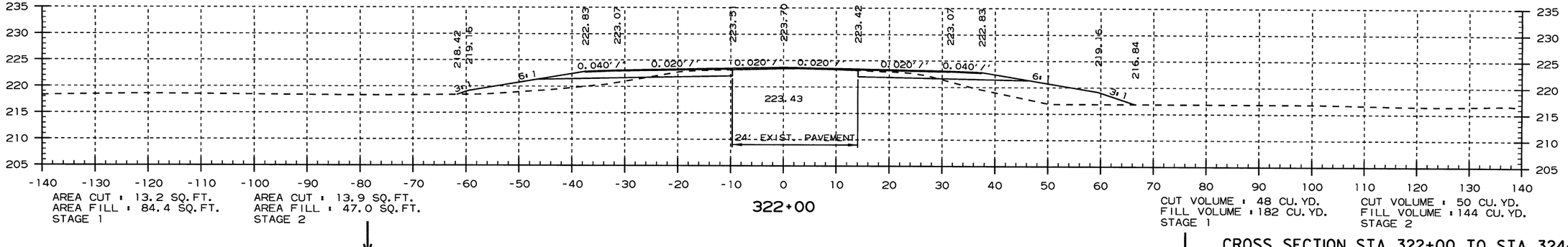
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	155	194

2 CROSS SECTIONS







CROSS SECTION STA. 322+00 TO STA. 324+00

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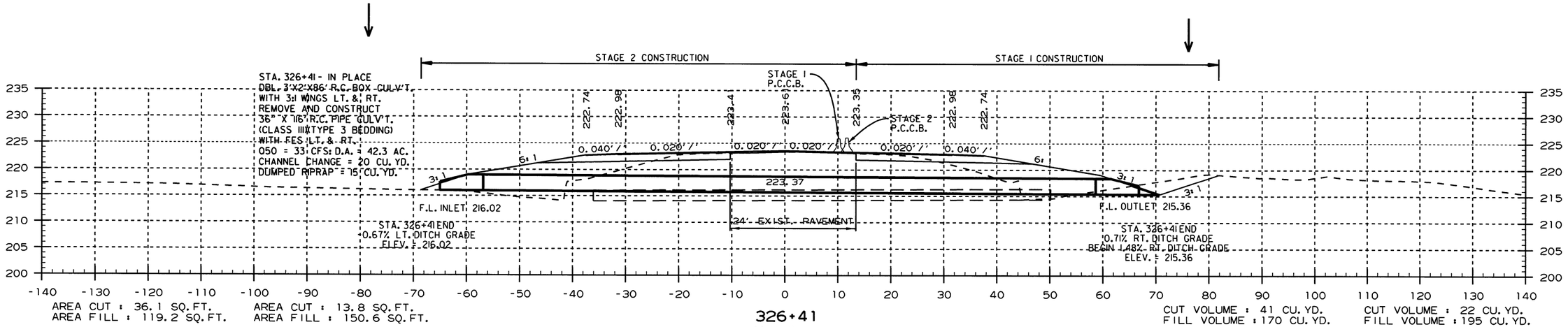
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	156	194

(2) CROSS SECTIONS



USER: jd503
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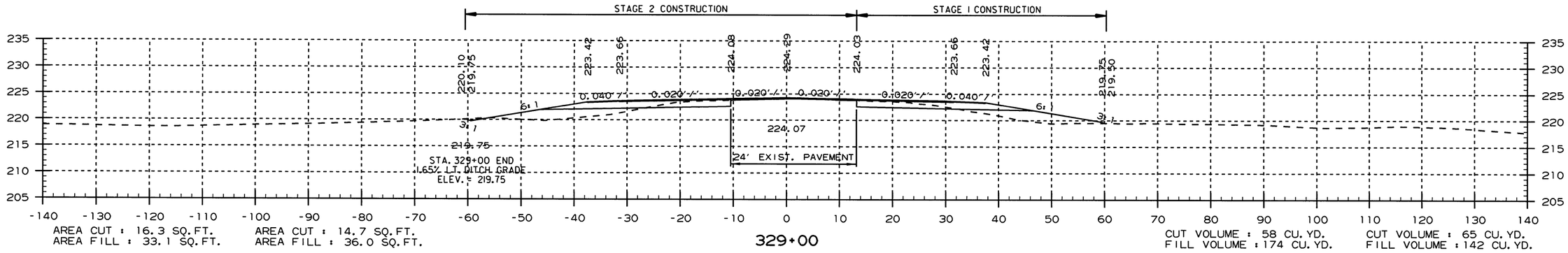
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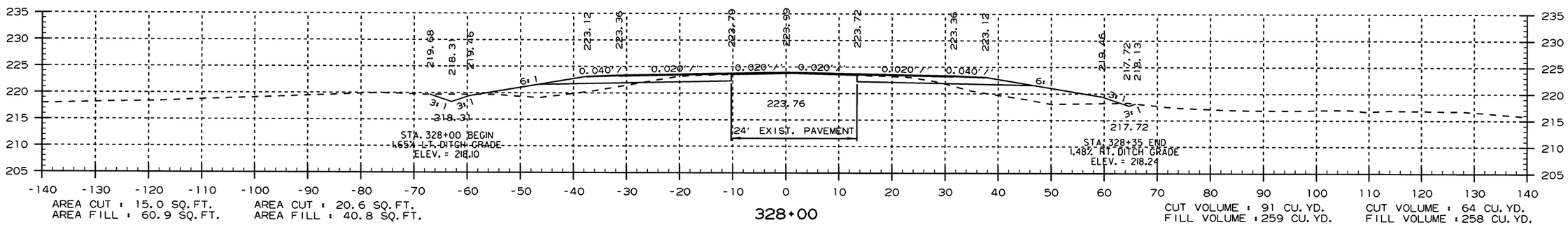
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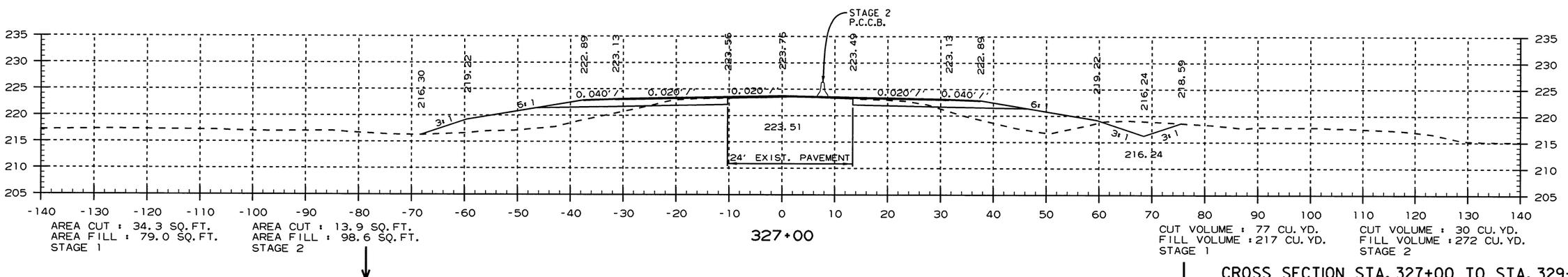
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	157	194

2 CROSS SECTIONS







CROSS SECTION STA. 327+00 TO STA. 329+00

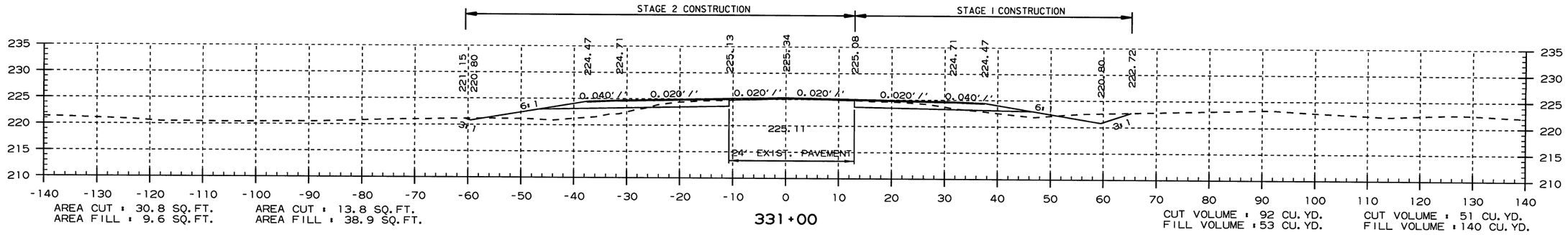
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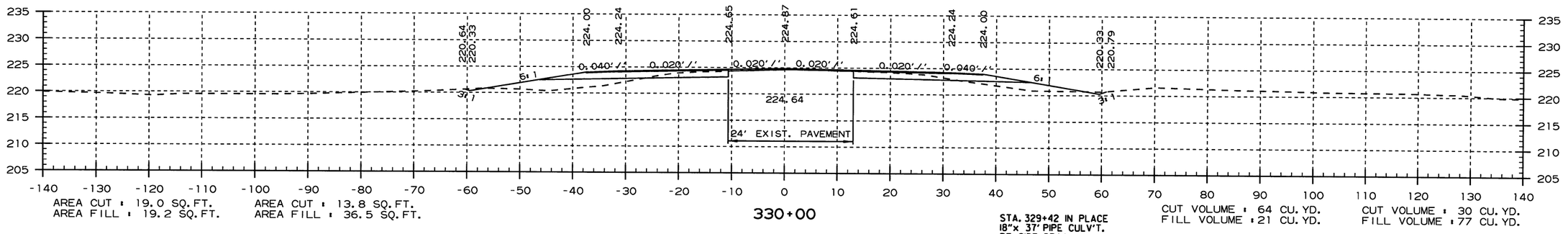
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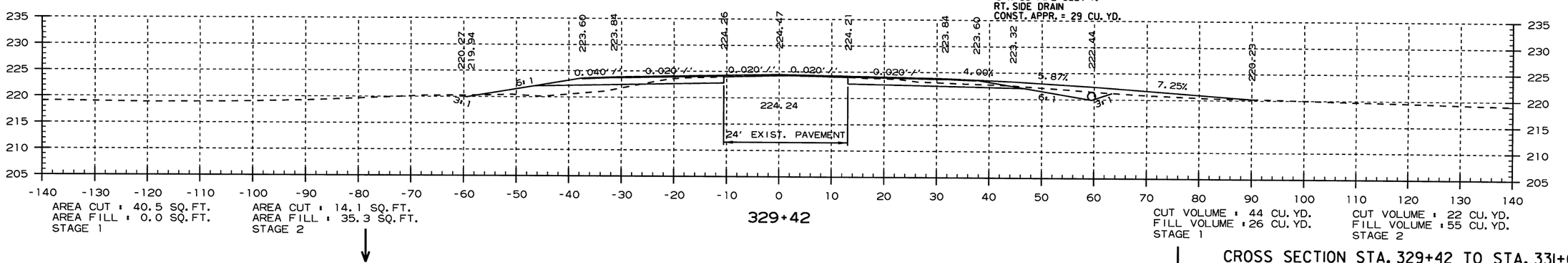
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6	ARK.			
JOB NO.		CA0702	158	194

2 CROSS SECTIONS







CROSS SECTION STA. 329+42 TO STA. 331+00

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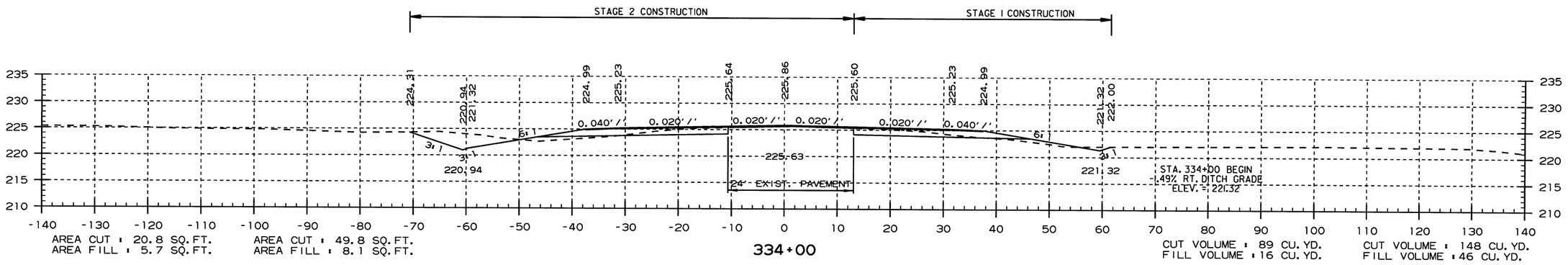
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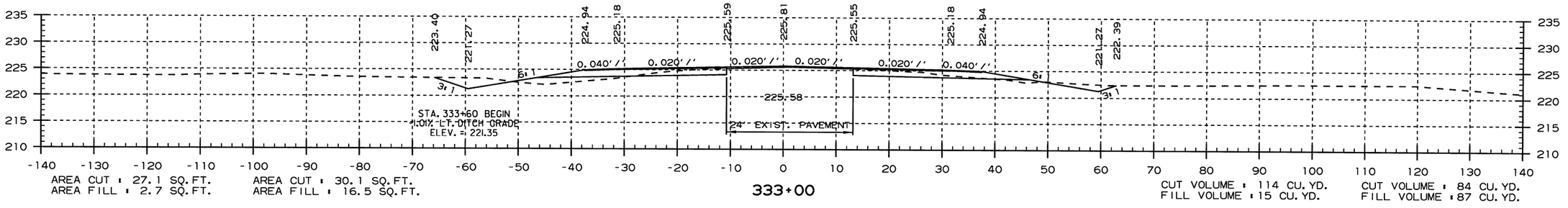
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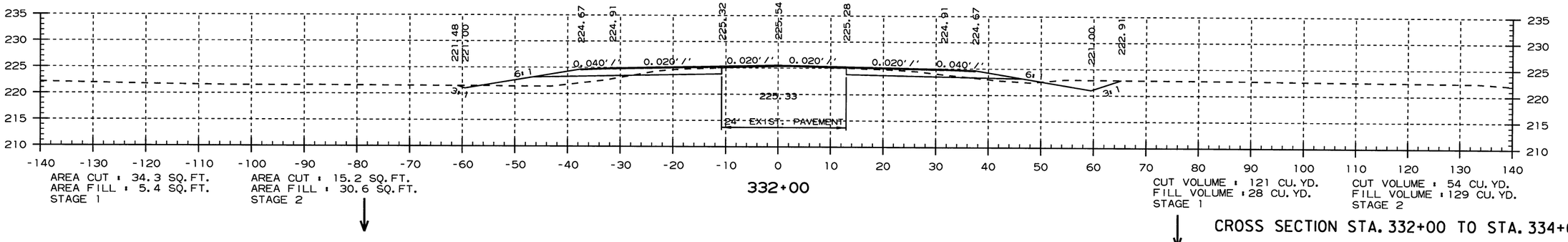
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	159	194

2 CROSS SECTIONS







CROSS SECTION STA. 332+00 TO STA. 334+00

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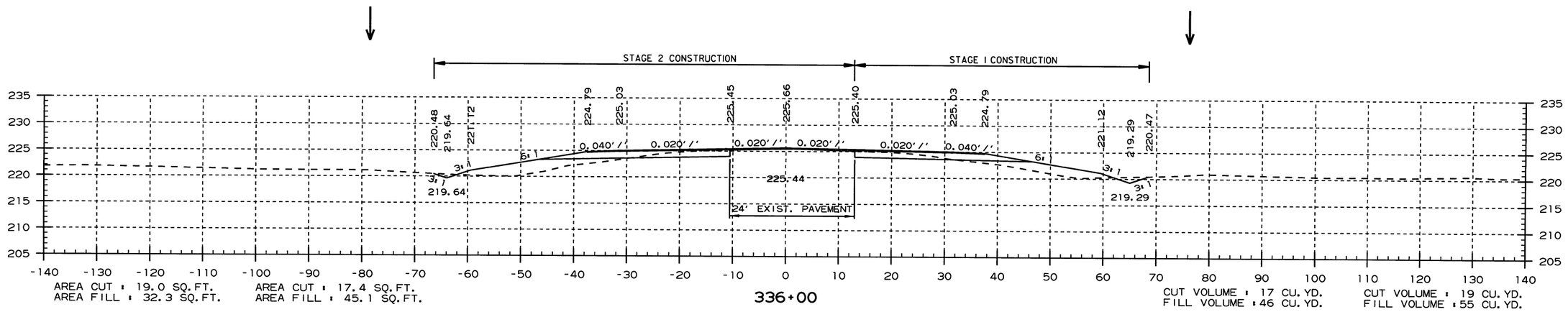
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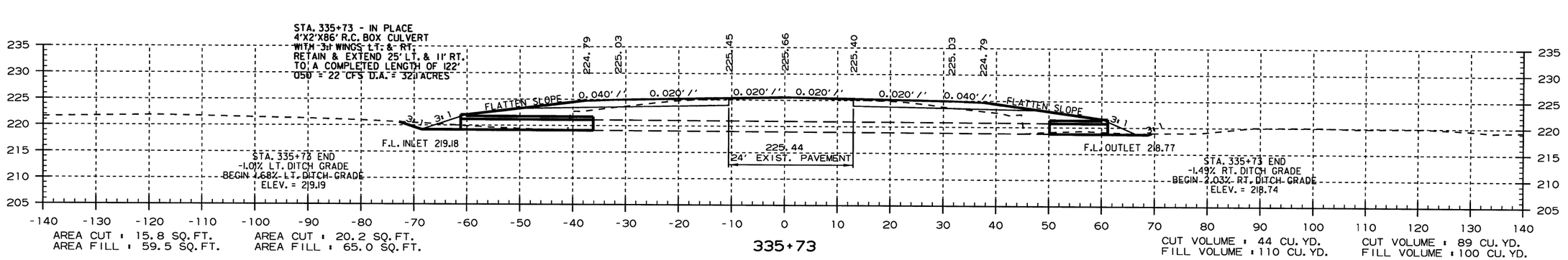
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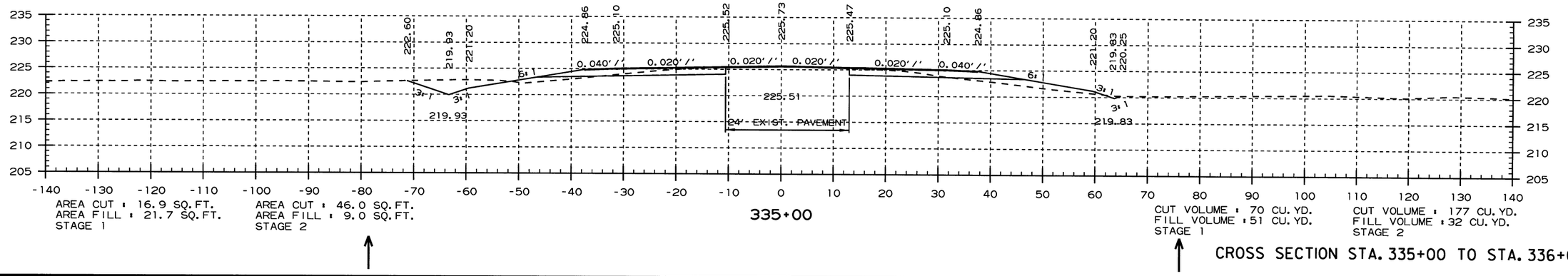
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JOB NO.		CA0702	160	194

2 CROSS SECTIONS







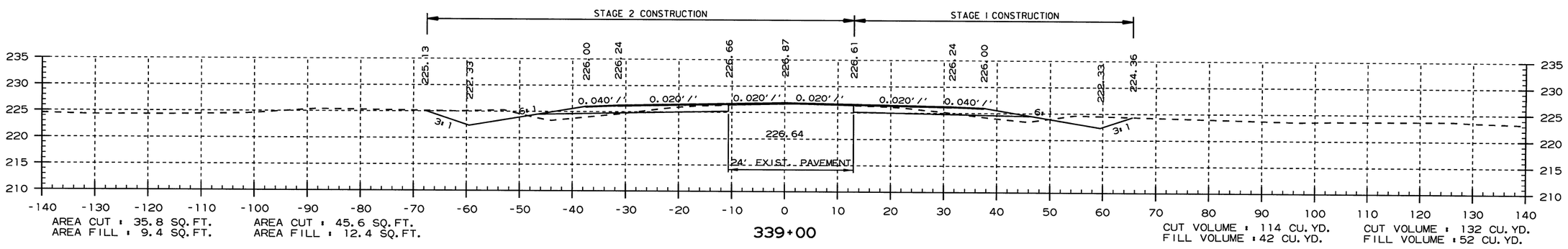
CROSS SECTION STA. 335+00 TO STA. 336+00

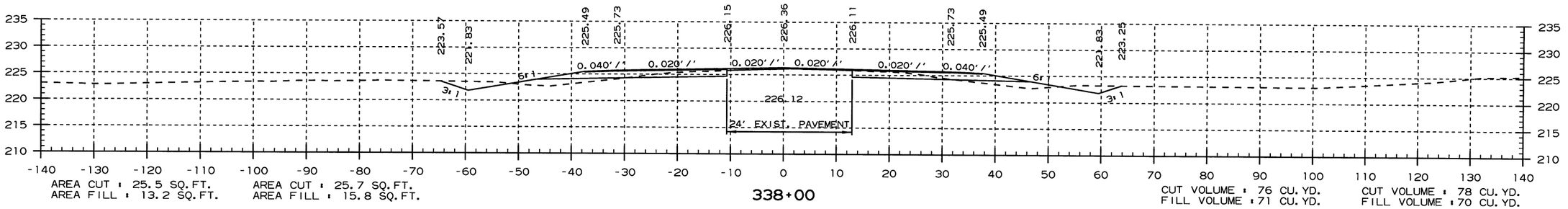
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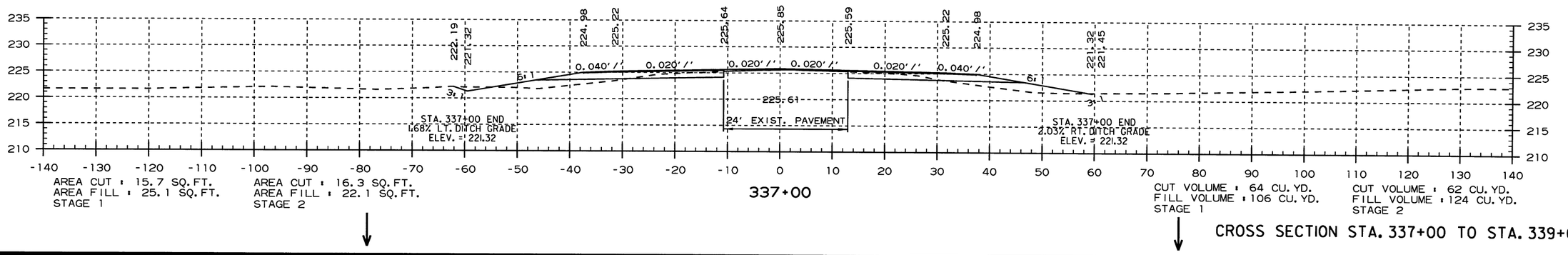
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA0702	161	194
				(2)	CROSS SECTIONS			







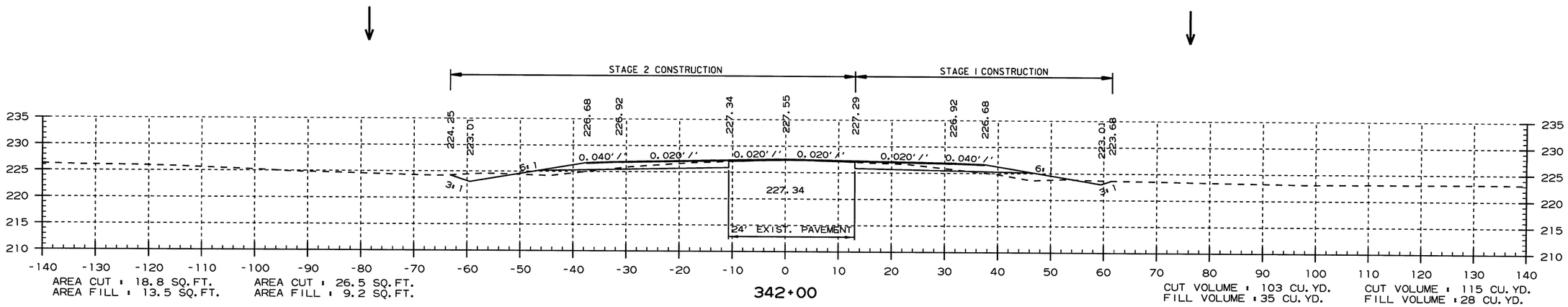
CROSS SECTION STA. 337+00 TO STA. 339+00

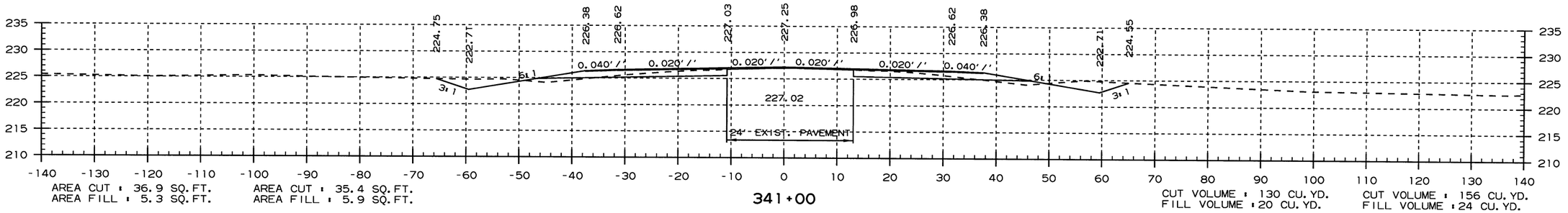
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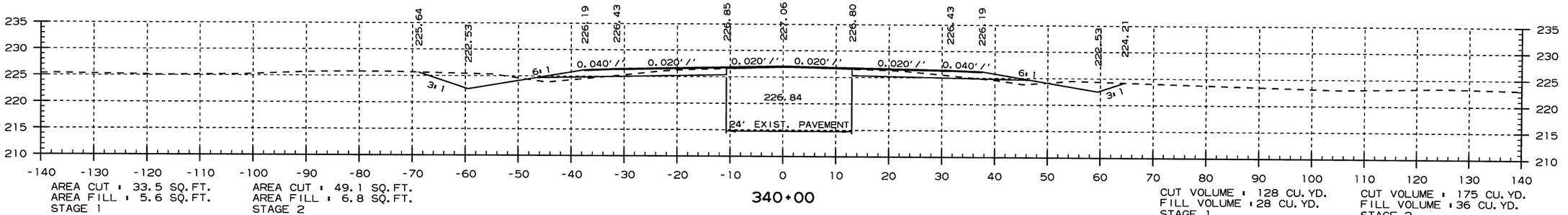
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	162	194
				2	CROSS SECTIONS			







CROSS SECTION STA. 340+00 TO STA. 342+00

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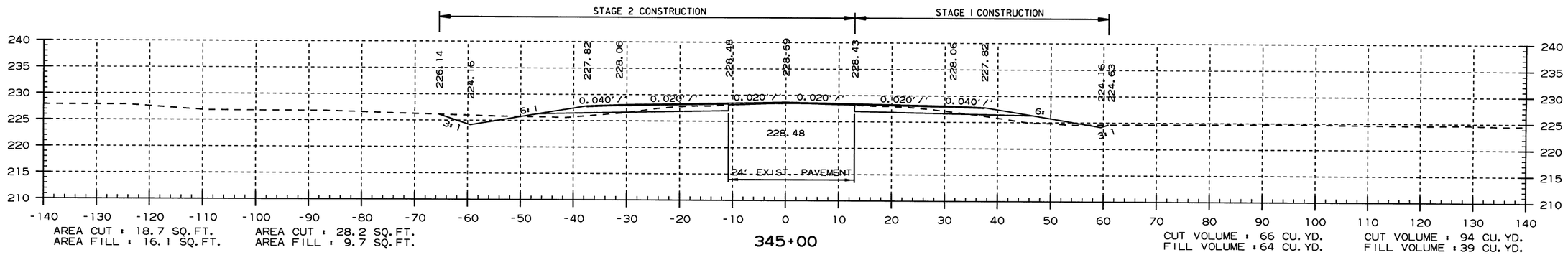
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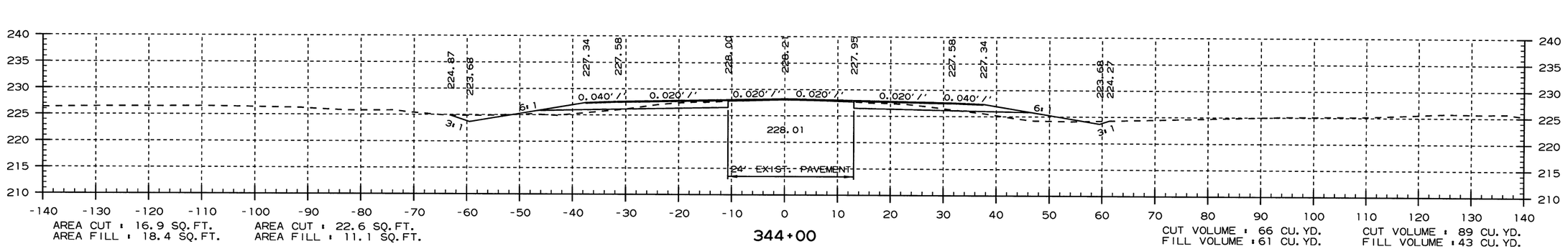
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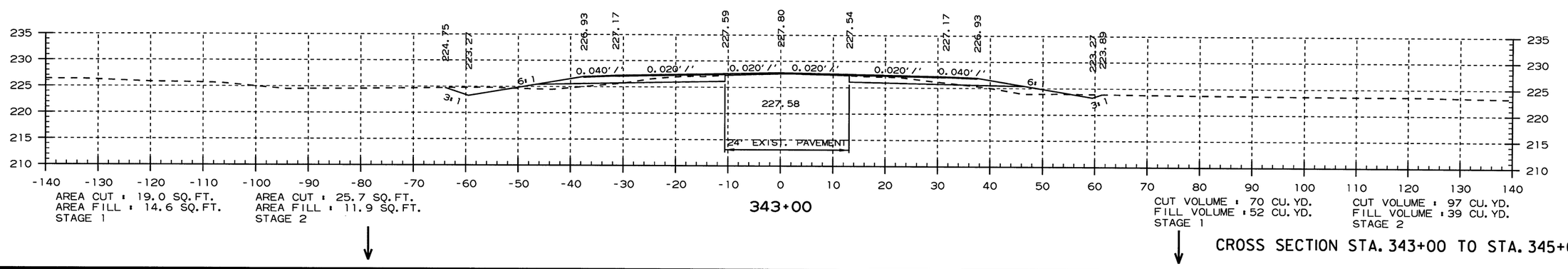
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	163	194

2 CROSS SECTIONS







CROSS SECTION STA. 343+00 TO STA. 345+00

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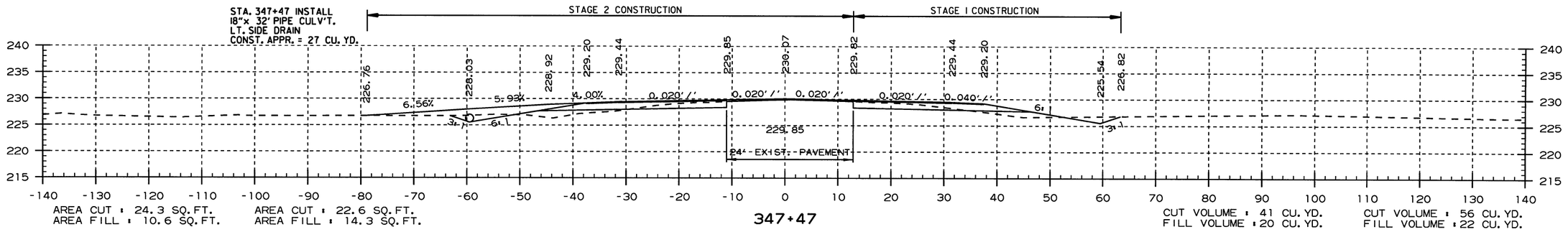
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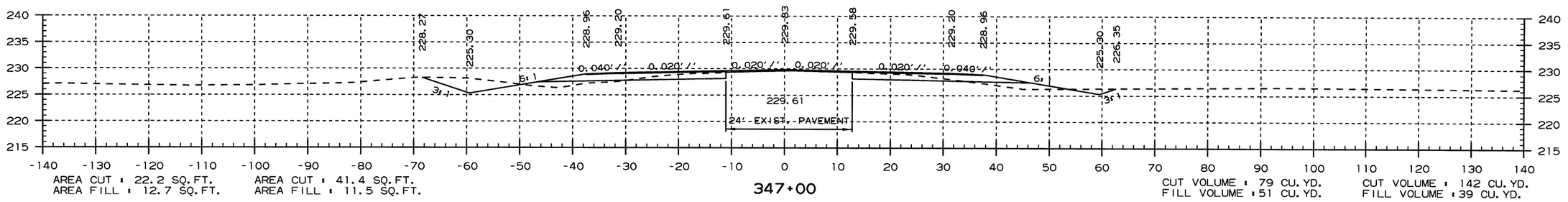
Crafton Tull
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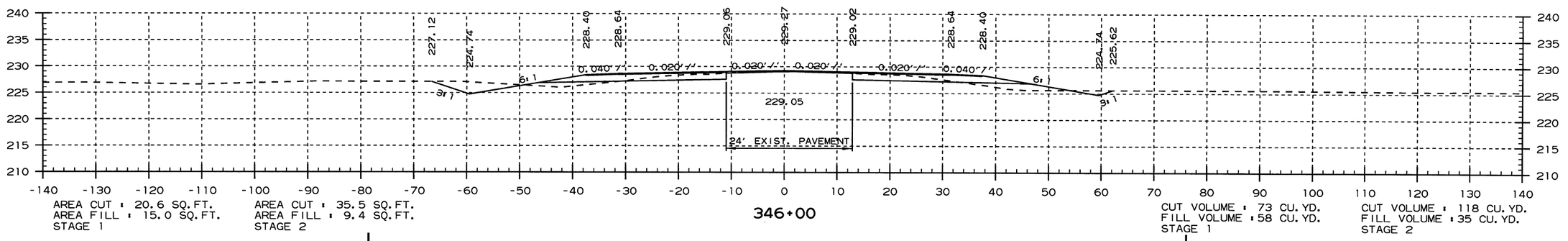
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	164	194

2 CROSS SECTIONS







CROSS SECTION STA. 346+00 TO STA. 347+47

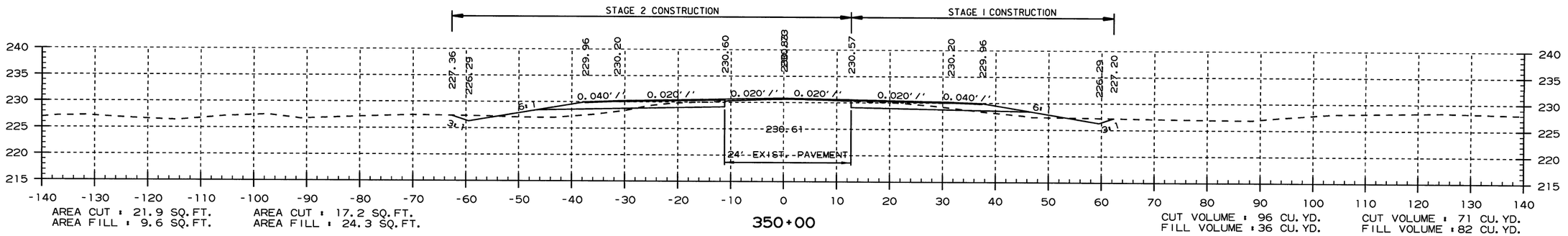
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SCALE: 20:1

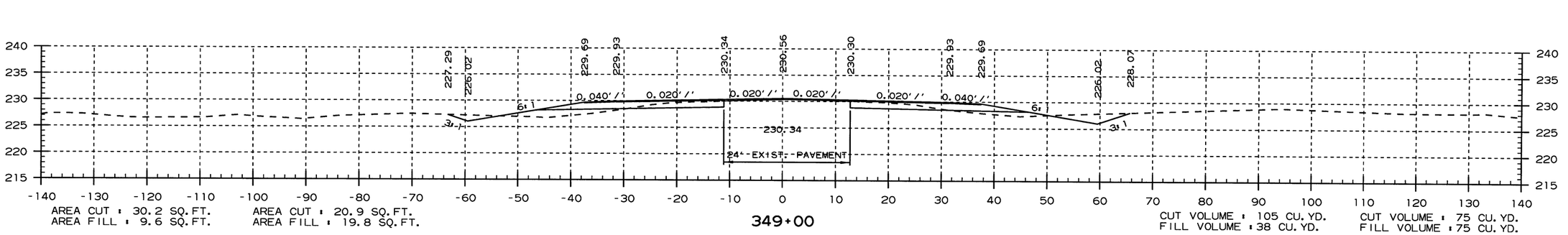
Crafton Tull
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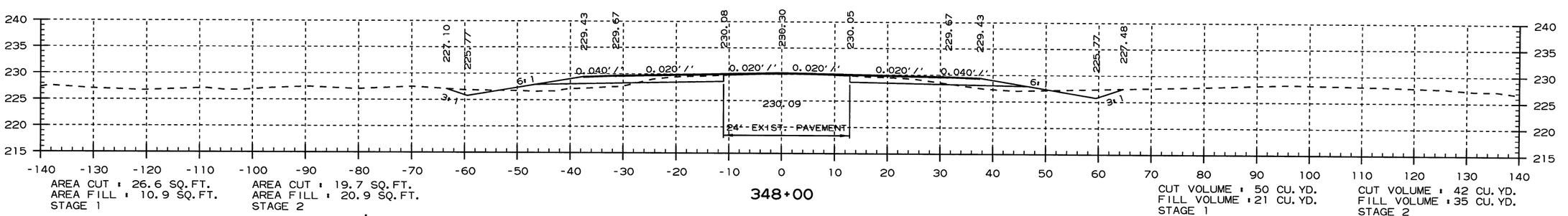
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	165	194

2 CROSS SECTIONS







CROSS SECTION STA. 348+00 TO STA. 350+00

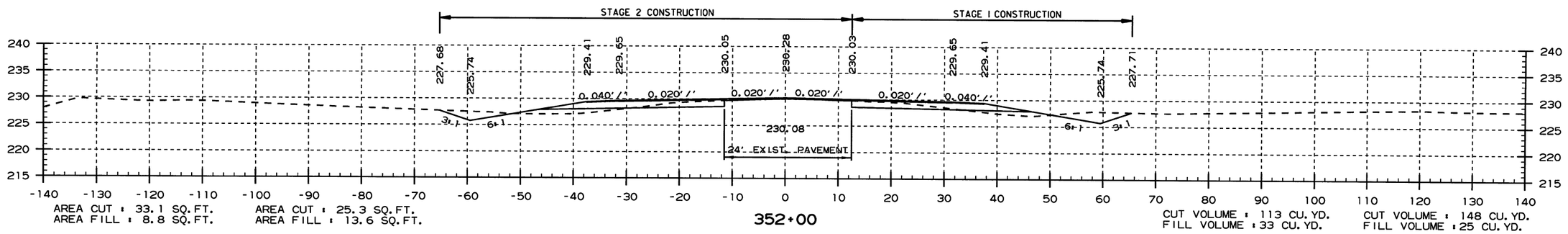
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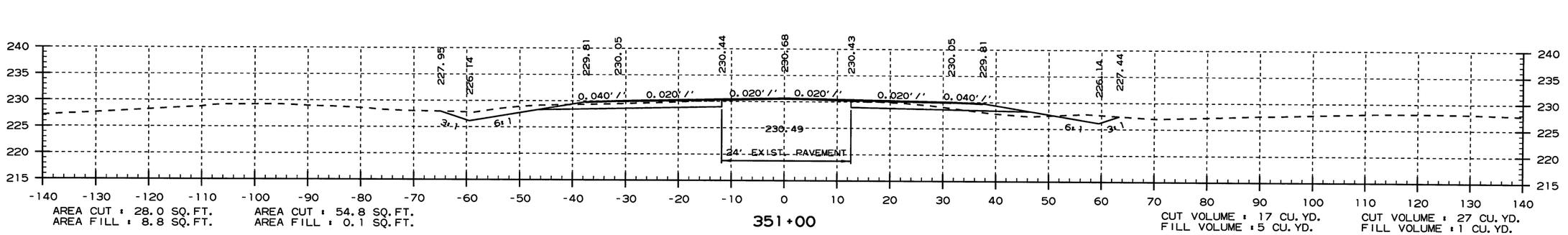
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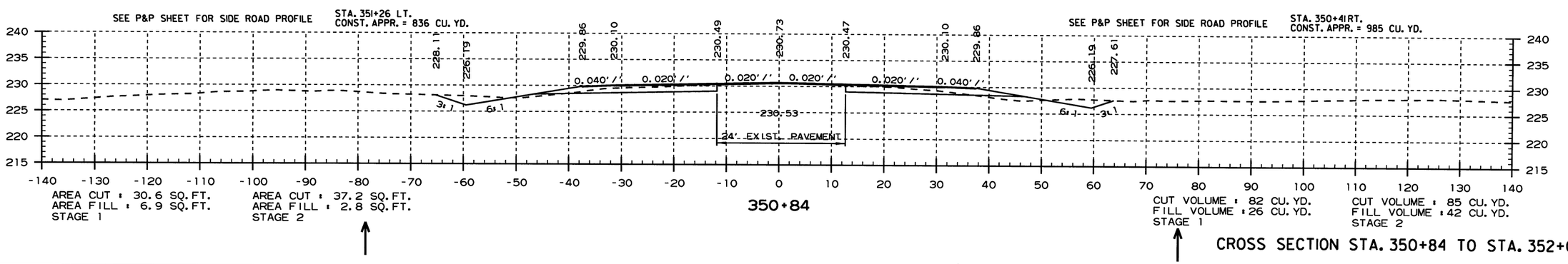
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	166	194
2	CROSS SECTIONS			







CROSS SECTION STA. 350+84 TO STA. 352+00

USER: AN5106
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PLOTTED: 5/1/2017 13:22
SCALE: 20:1

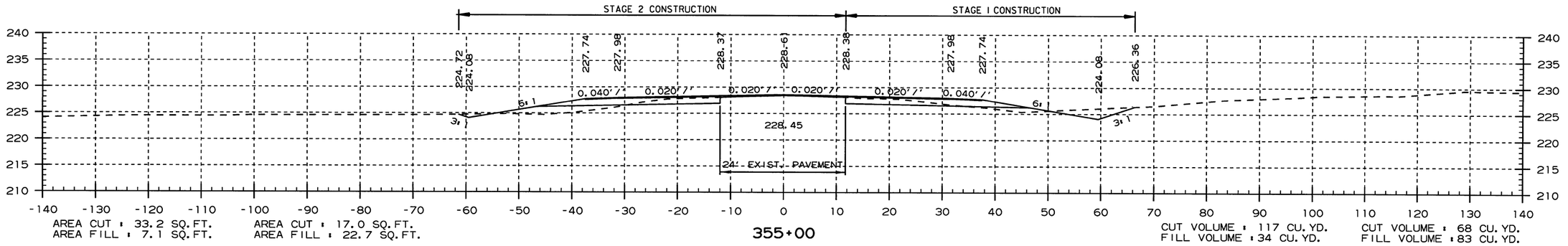
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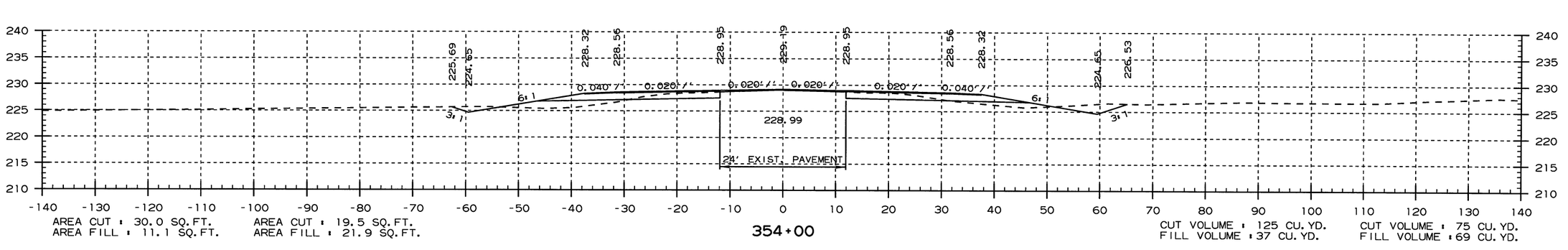
Crafton Tull
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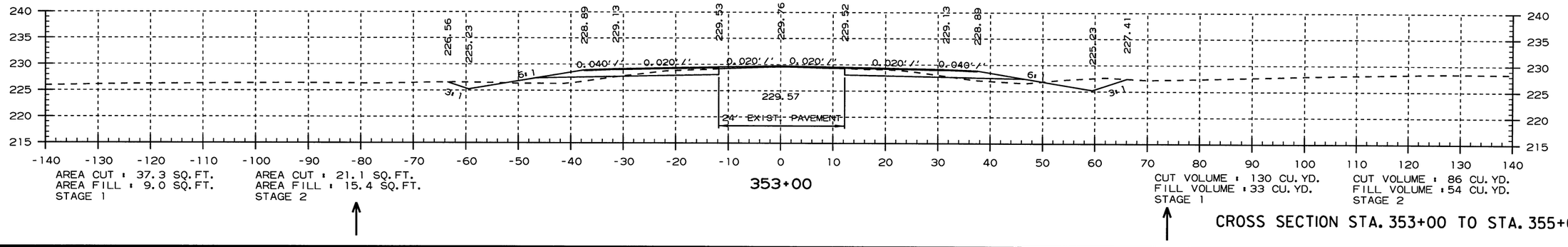
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	167	194

2 CROSS SECTIONS







CROSS SECTION STA. 353+00 TO STA. 355+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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SCALE: 20:1

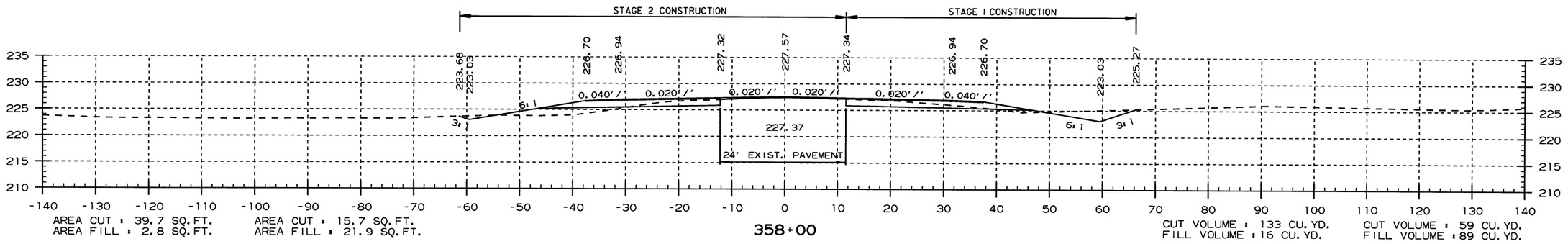
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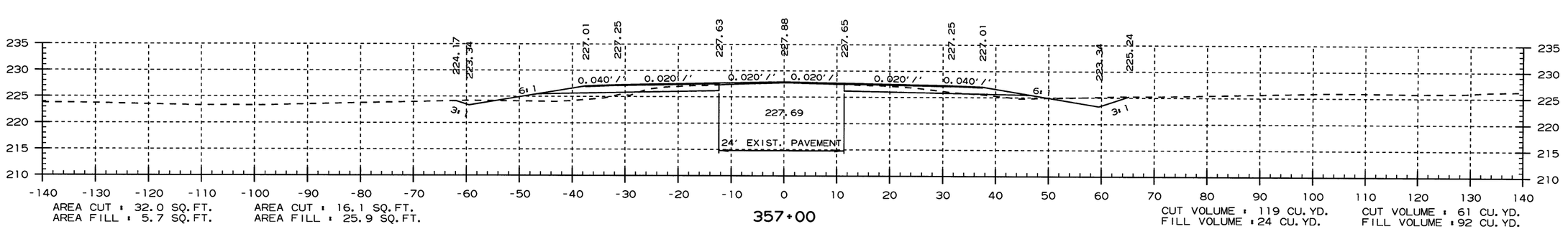
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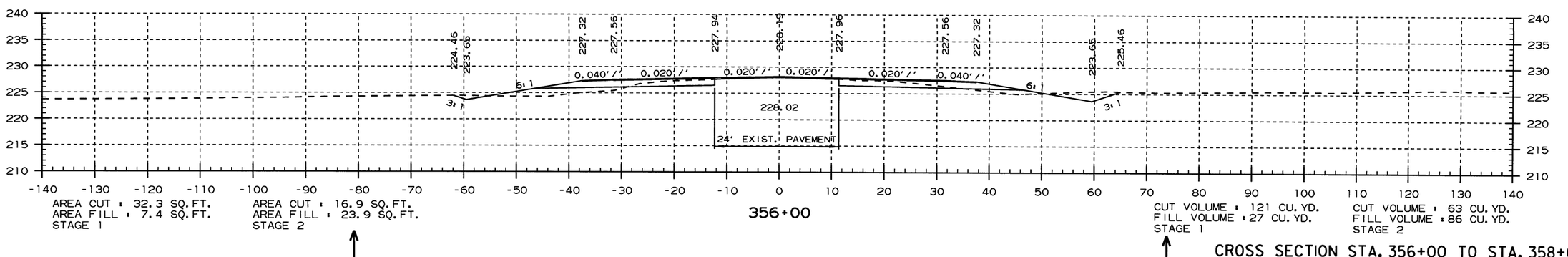
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	168	194

2 CROSS SECTIONS







CROSS SECTION STA. 356+00 TO STA. 358+00

USER: mw519
DESIGN FILE: G:\1409400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:15
SCALE: 20:1

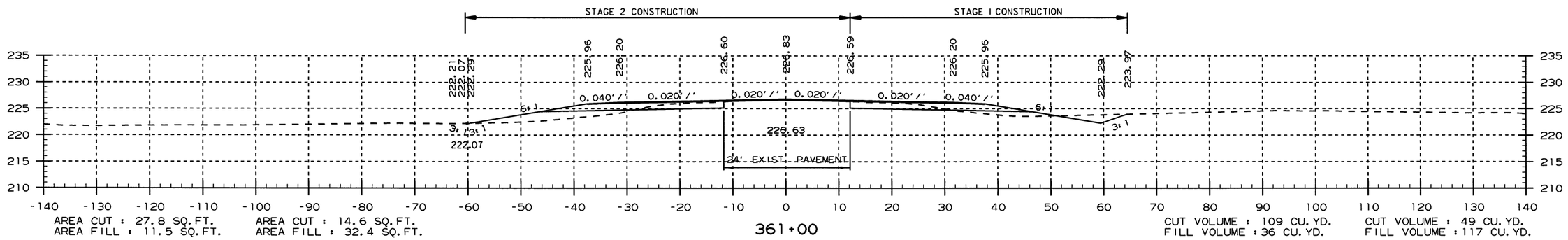
G:\1409400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn 3/17/2017 09:15

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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.		CA0702	169	194

2 CROSS SECTIONS



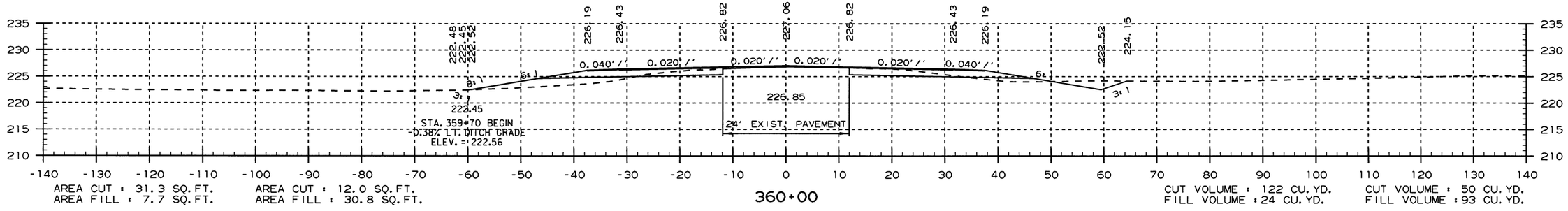
AREA CUT : 27.8 SQ.FT.
AREA FILL : 11.5 SQ.FT.

AREA CUT : 14.6 SQ.FT.
AREA FILL : 32.4 SQ.FT.

361+00

CUT VOLUME : 109 CU.YD.
FILL VOLUME : 36 CU.YD.

CUT VOLUME : 49 CU.YD.
FILL VOLUME : 117 CU.YD.



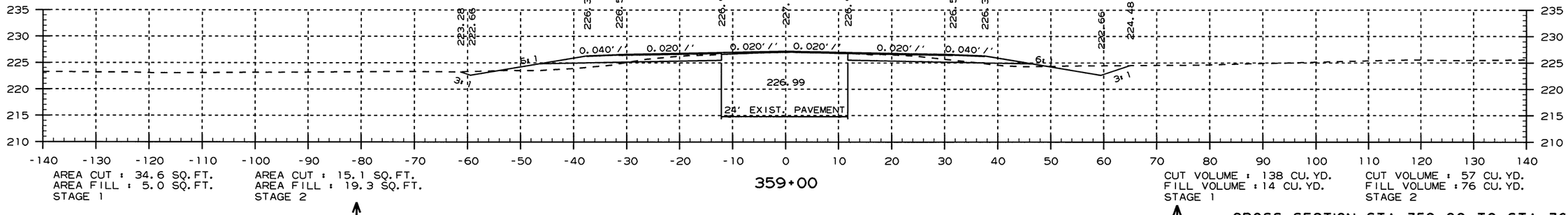
AREA CUT : 31.3 SQ.FT.
AREA FILL : 7.7 SQ.FT.

AREA CUT : 12.0 SQ.FT.
AREA FILL : 30.8 SQ.FT.

360+00

CUT VOLUME : 122 CU.YD.
FILL VOLUME : 24 CU.YD.

CUT VOLUME : 50 CU.YD.
FILL VOLUME : 93 CU.YD.



AREA CUT : 34.6 SQ.FT.
AREA FILL : 5.0 SQ.FT.
STAGE 1

AREA CUT : 15.1 SQ.FT.
AREA FILL : 19.3 SQ.FT.
STAGE 2

359+00

CUT VOLUME : 138 CU.YD.
FILL VOLUME : 14 CU.YD.
STAGE 1

CUT VOLUME : 57 CU.YD.
FILL VOLUME : 76 CU.YD.
STAGE 2

CROSS SECTION STA. 359+00 TO STA. 361+00

USER: jd5103
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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SCALE: 20:1

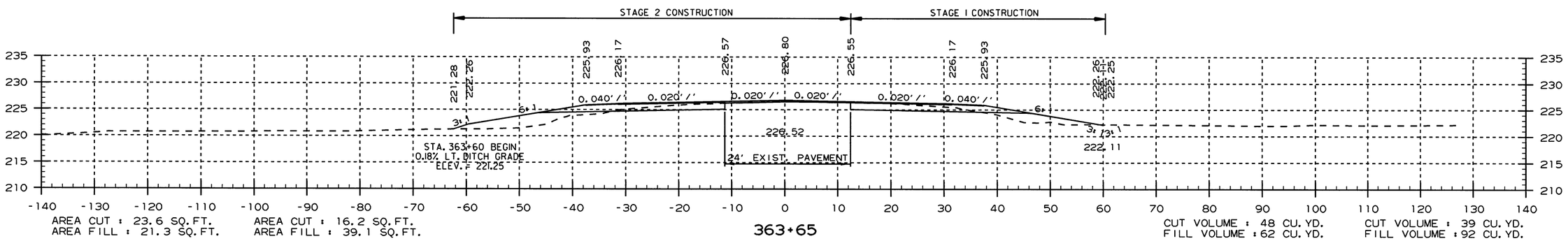
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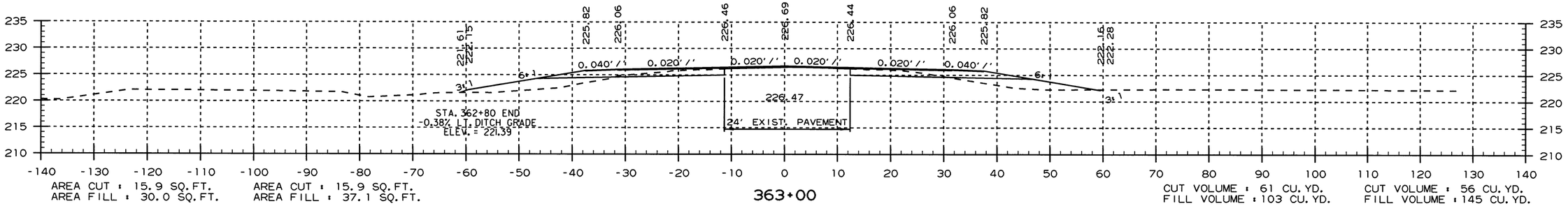
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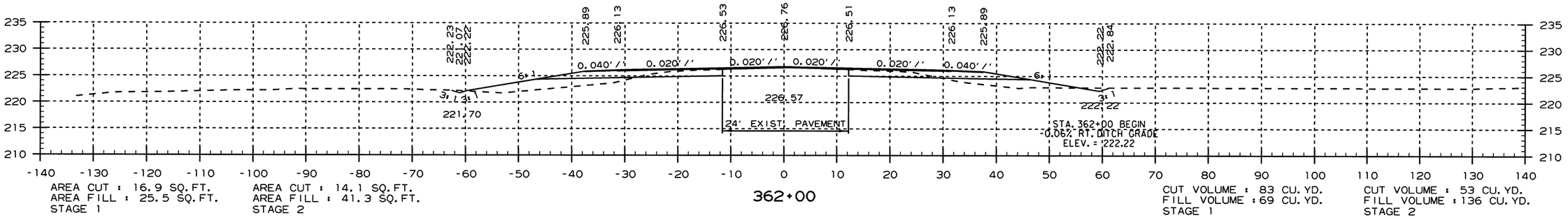
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	170	194

2 CROSS SECTIONS







CROSS SECTION STA. 362+00 TO STA. 363+65

USER: jd5103
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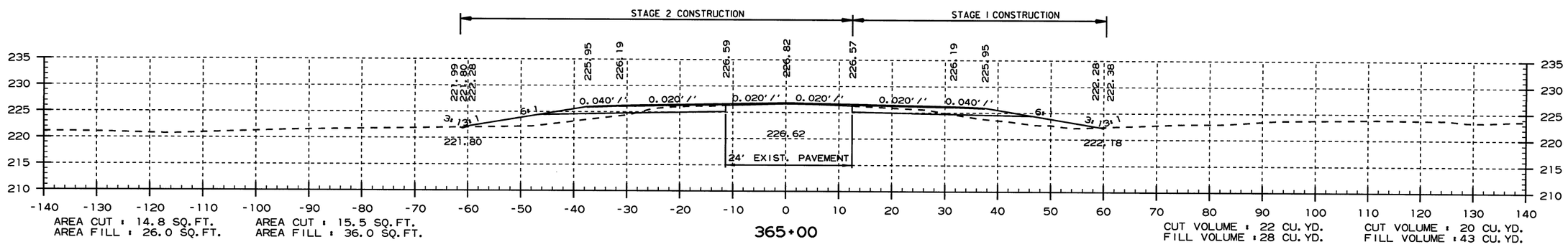
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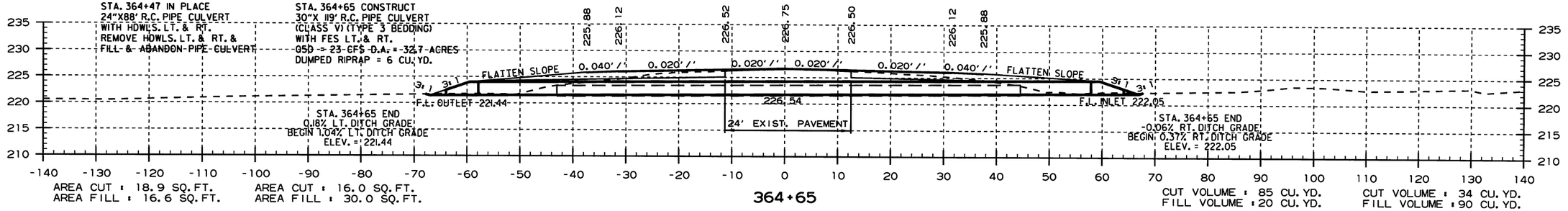
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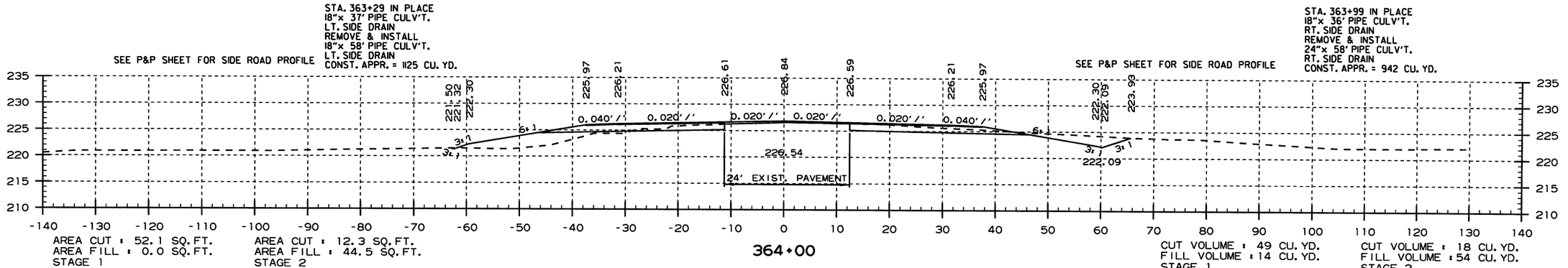
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	171	194

2 CROSS SECTIONS







CROSS SECTION STA. 364+00 TO STA. 365+00

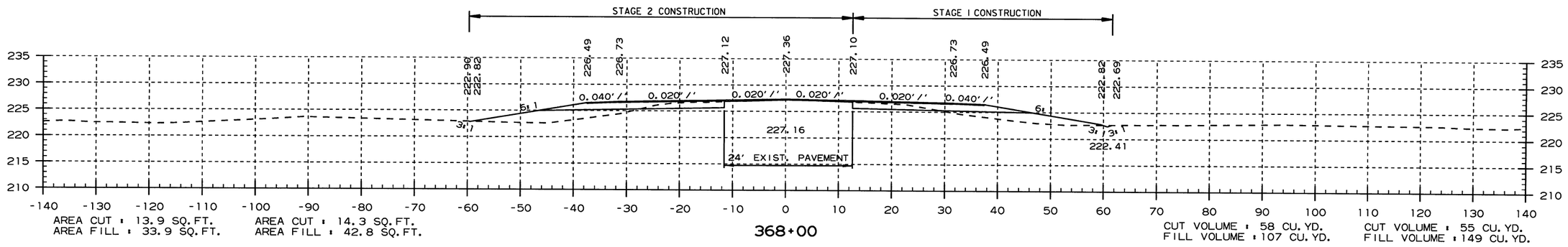
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SCALE: 20:1

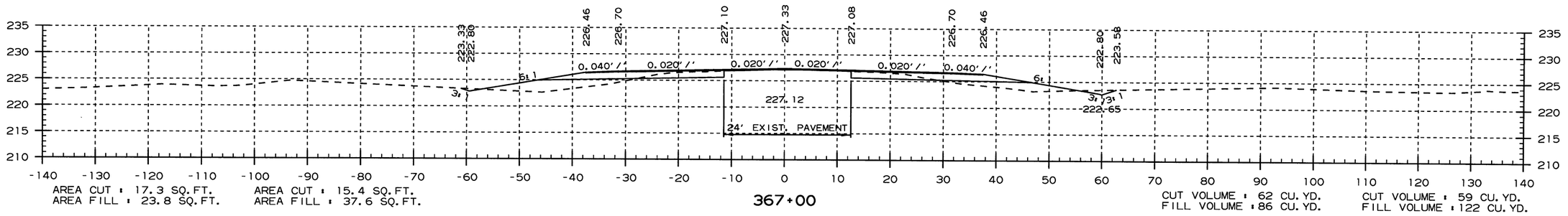
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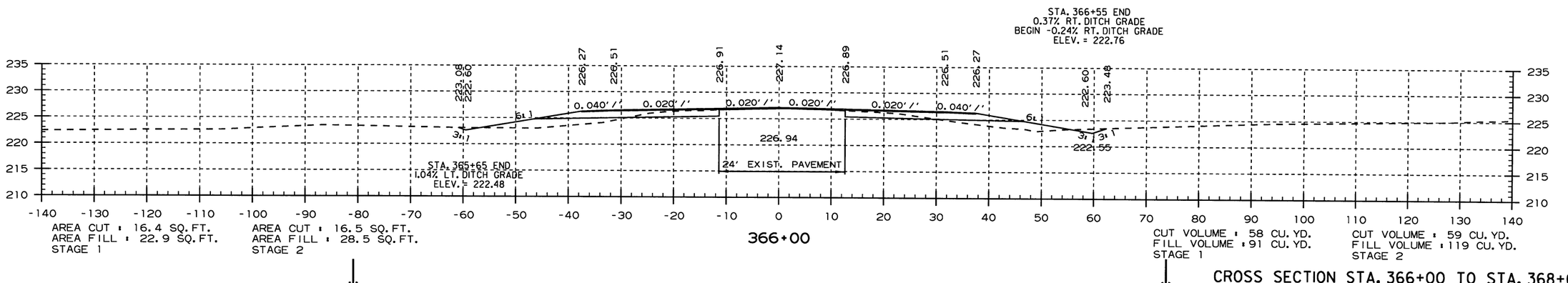
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	172	194

2 CROSS SECTIONS







CROSS SECTION STA. 366+00 TO STA. 368+00

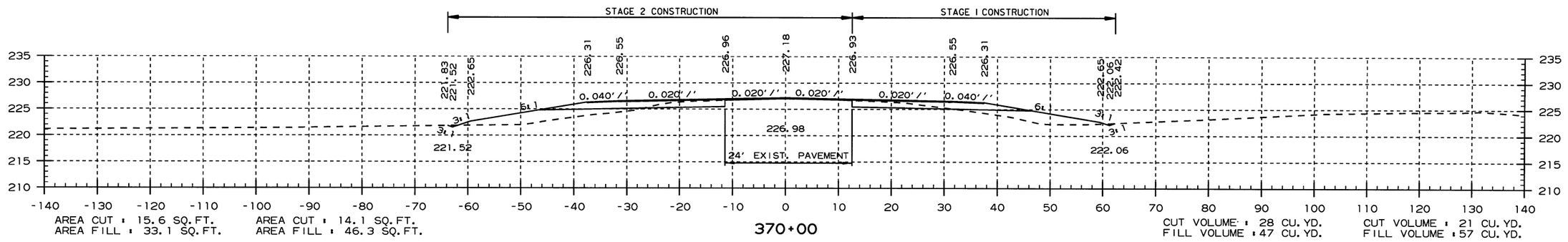
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PLOTTED: 3/17/2017 09:16

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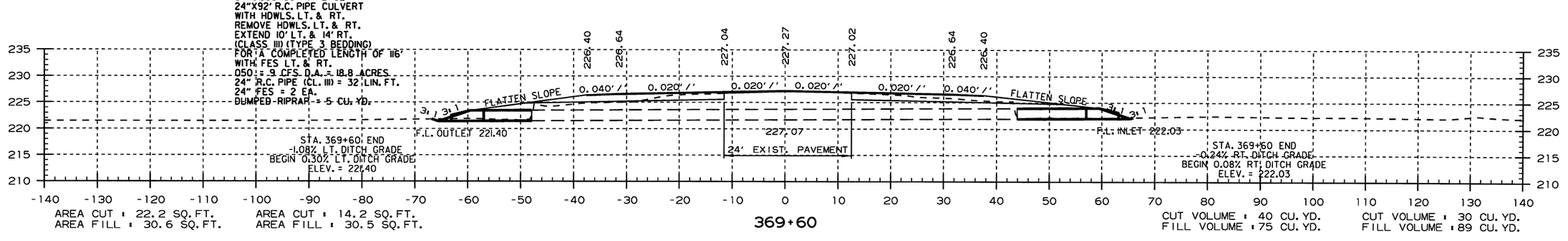
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

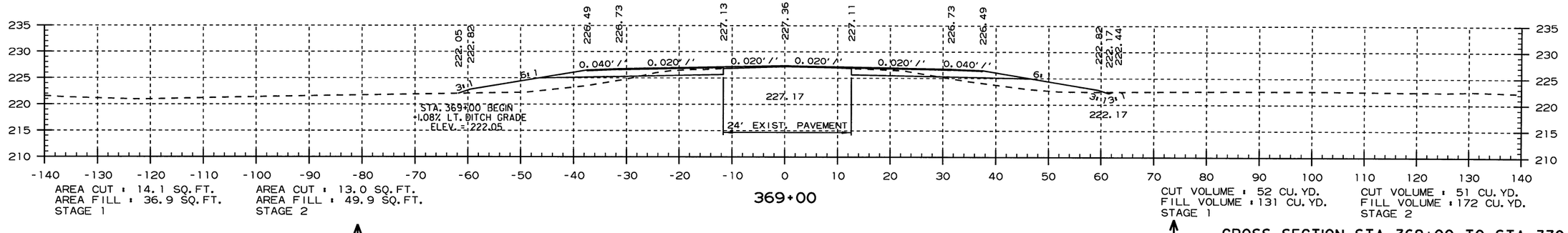
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	173	194

2 CROSS SECTIONS



STA. 369+60 IN PLACE
24"X92' R.C. PIPE CULVERT
WITH HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT.
EXTEND 10' LT. & 14' RT.
(CLASS III) (TYPE 3 BEDDING)
FOR A COMPLETED LENGTH OF 116'
WITH FES LT. & RT.
050 = 9 CFS D.A. = 18.8 ACRES
24" R.C. PIPE (CL. III) = 32 LIN. FT.
24" FES = 2 EA.
DUMPED RIPRAP = 5 CU. YD.





CROSS SECTION STA. 369+00 TO STA. 370+00

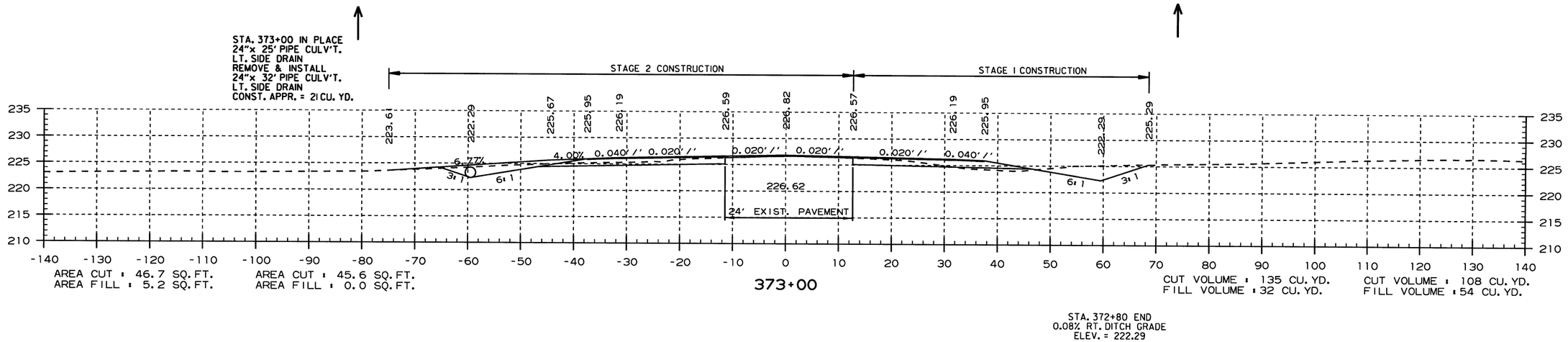
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	174	194

2 CROSS SECTIONS



CROSS SECTION STA. 371+00 TO STA. 373+00

USER: mw519
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SCALE: 20:1

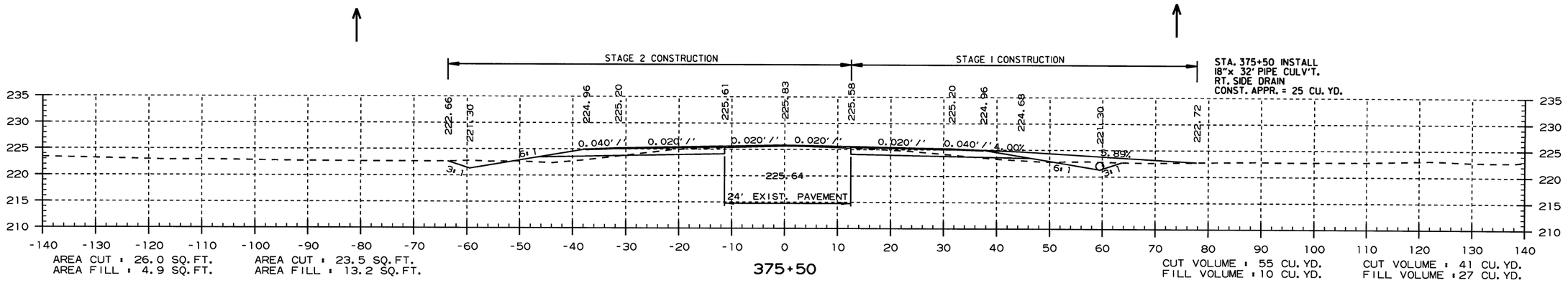
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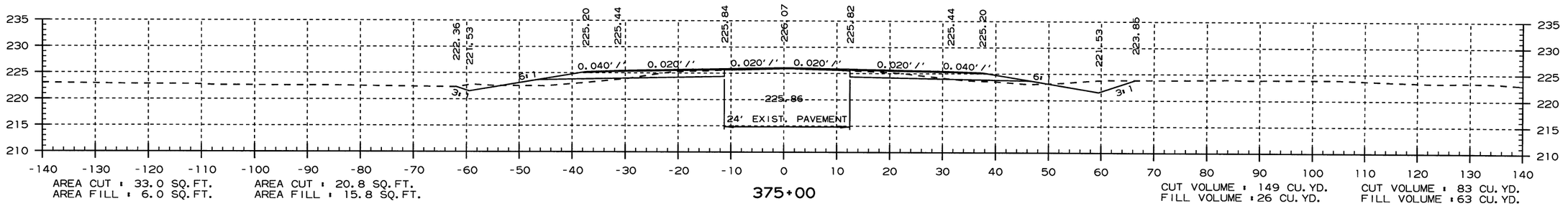
Crafton Tull
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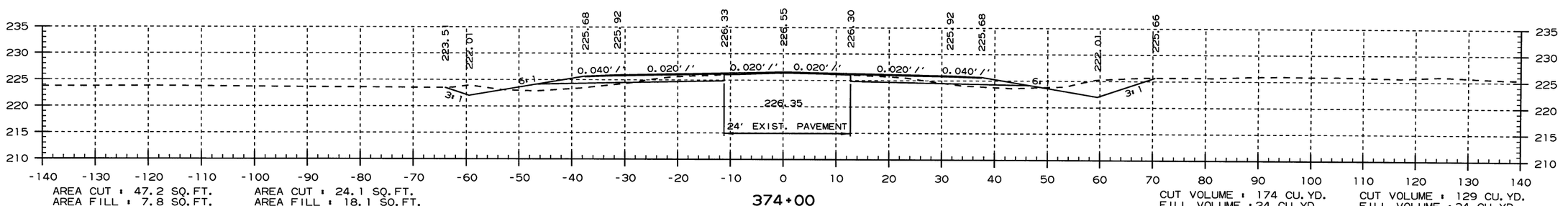
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	175	194

2 CROSS SECTIONS







CROSS SECTION STA. 374+00 TO STA. 375+50

USER: mw519
DESIGN FILE: G:\1409400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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SCALE: 20:1

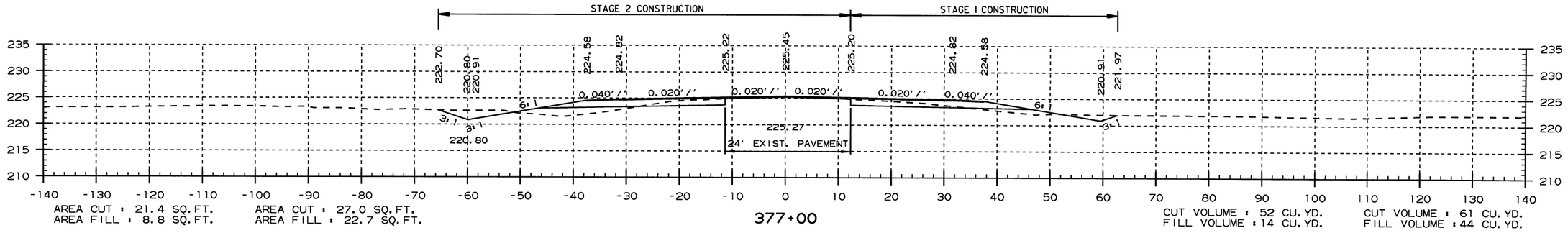
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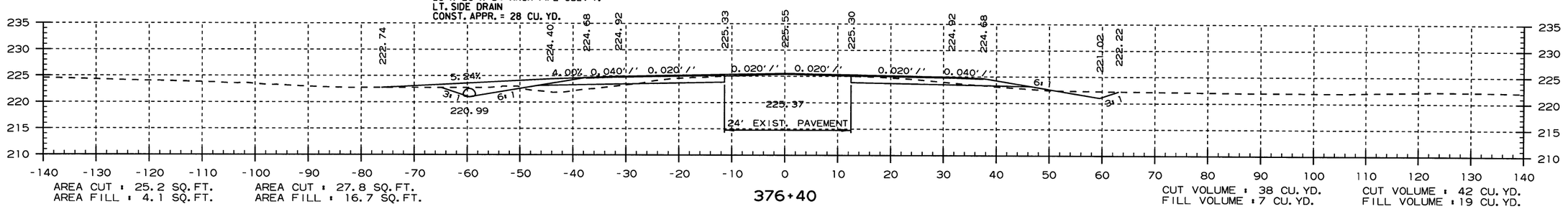
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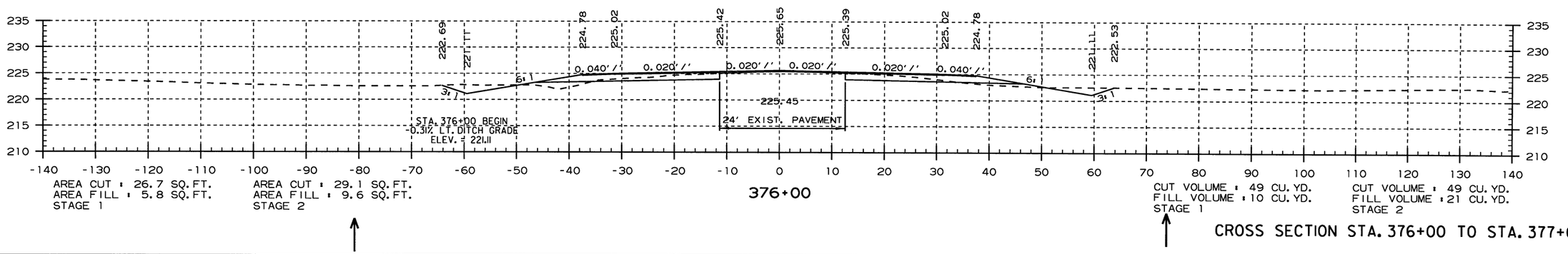
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	176	194

2 CROSS SECTIONS



STA. 376+40 IN PLACE
24"x 29' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE & INSTALL
28"x 20"x 34' ARCH PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. = 28 CU.YD.





CROSS SECTION STA. 376+00 TO STA. 377+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_I67\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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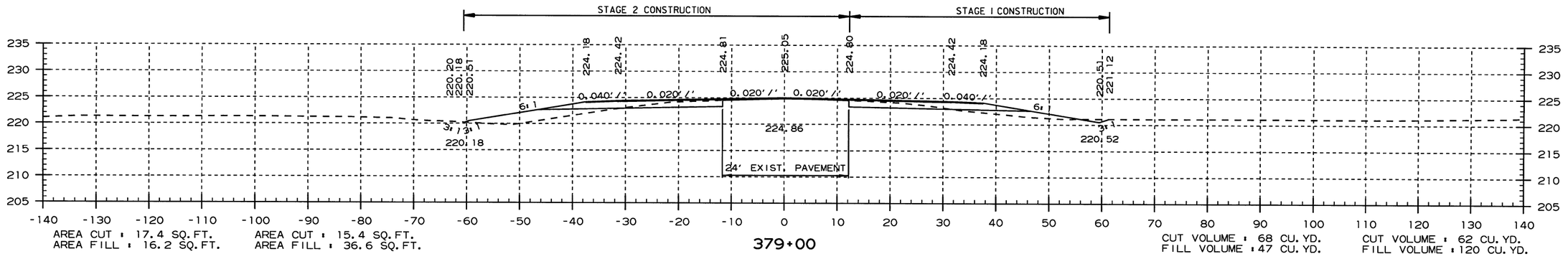
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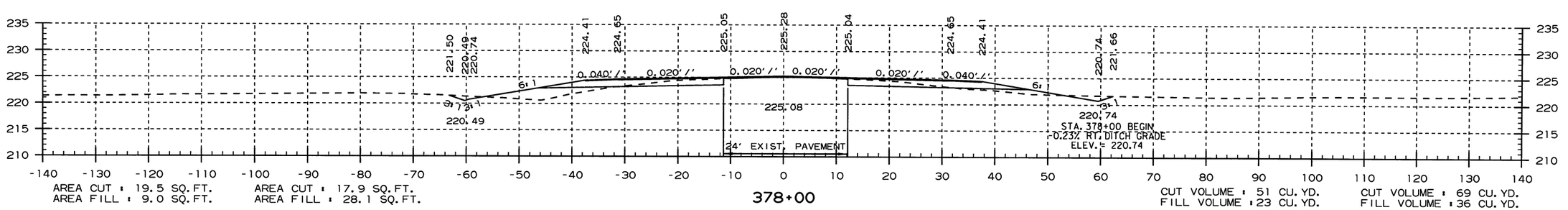
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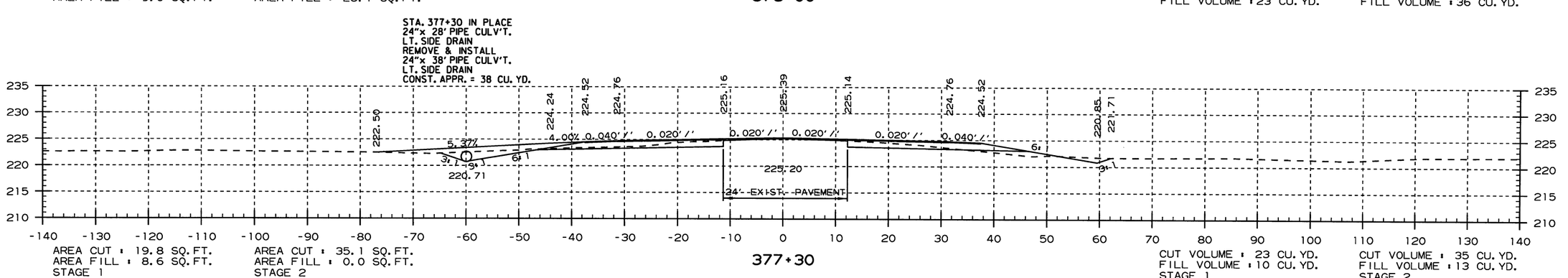
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	177	194

2 CROSS SECTIONS







CROSS SECTION STA. 377+30 TO STA. 379+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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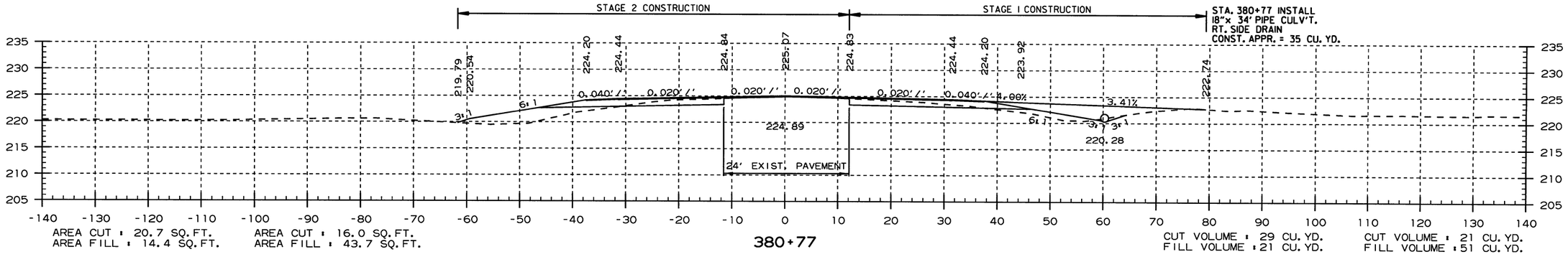
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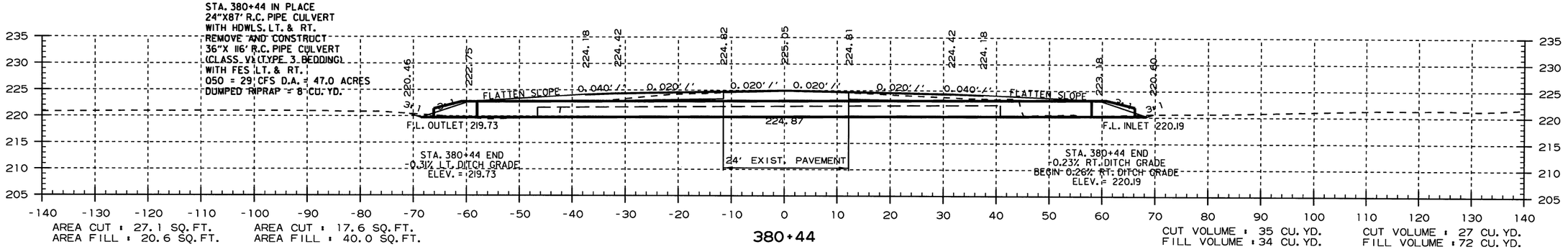
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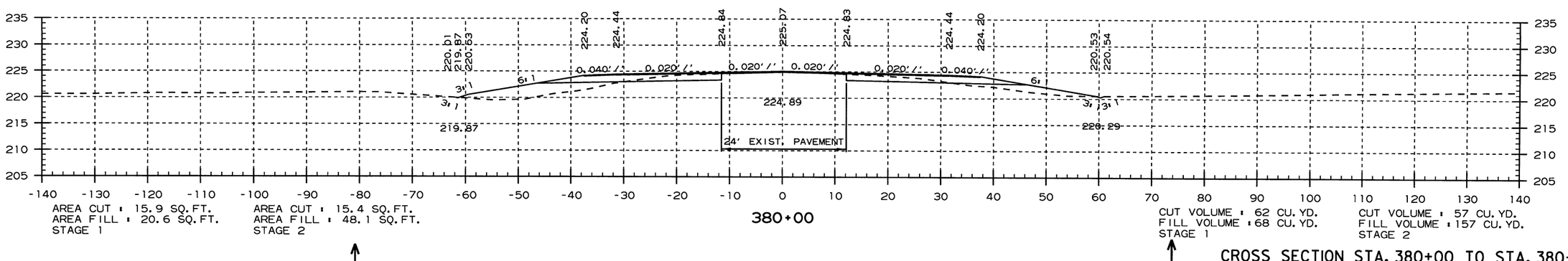
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	178	194

2 CROSS SECTIONS







CROSS SECTION STA. 380+00 TO STA. 380+77

USER: mw519
DESIGN FILE: G:\14109400.HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:16
SCALE: 20:1

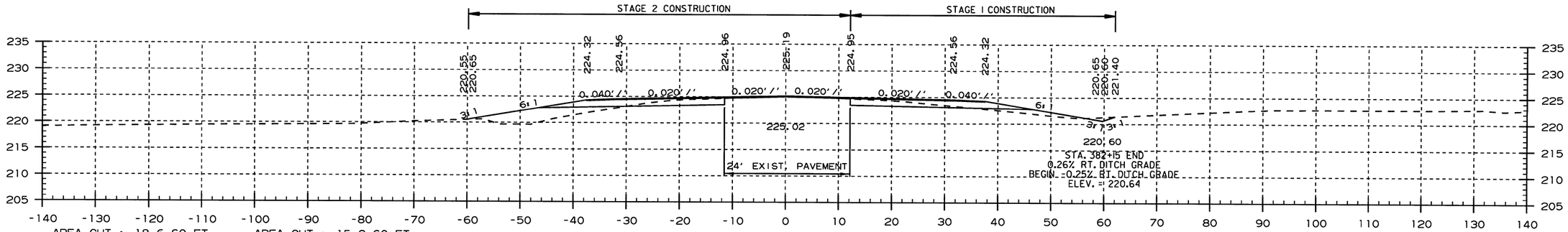
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	179	194

2 CROSS SECTIONS



CROSS SECTION STA. 381+00 TO STA. 382+00

USER: mw5i9
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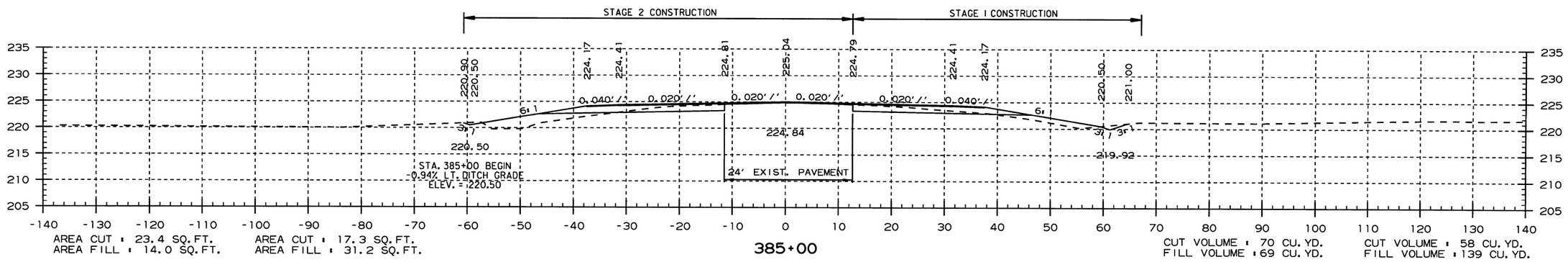
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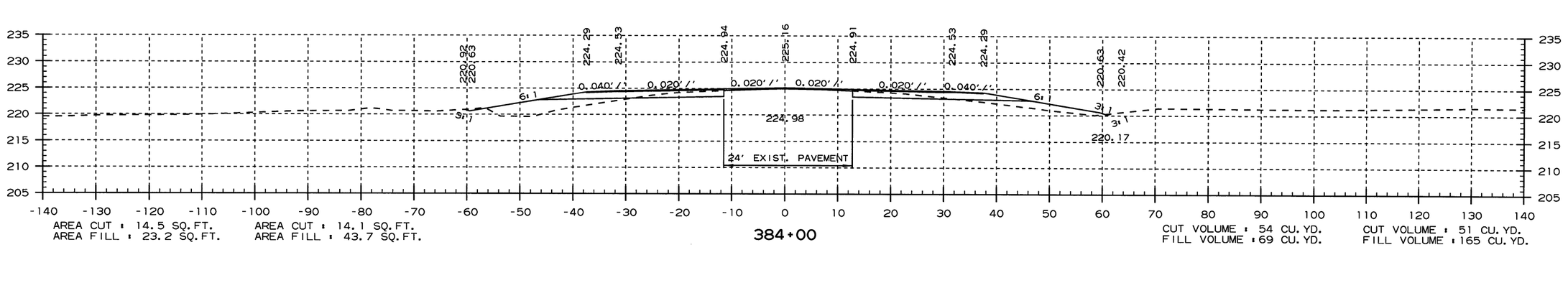
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	180	194

2 CROSS SECTIONS





CROSS SECTION STA. 383+00 TO STA. 385+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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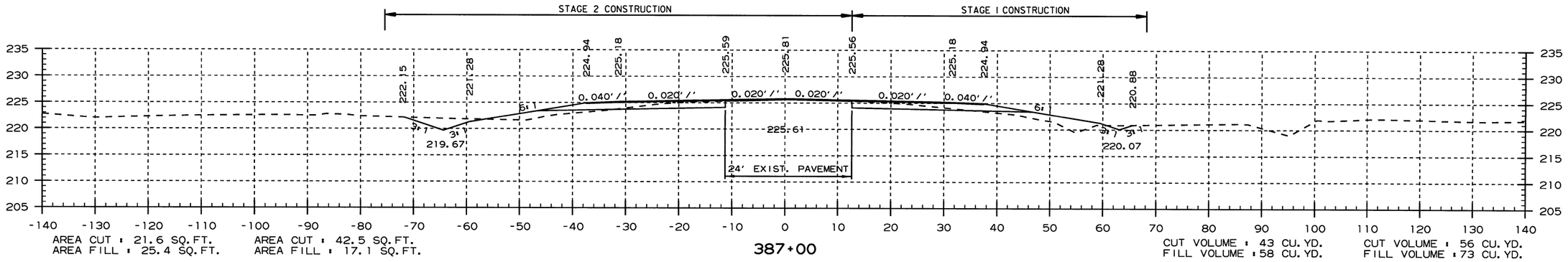
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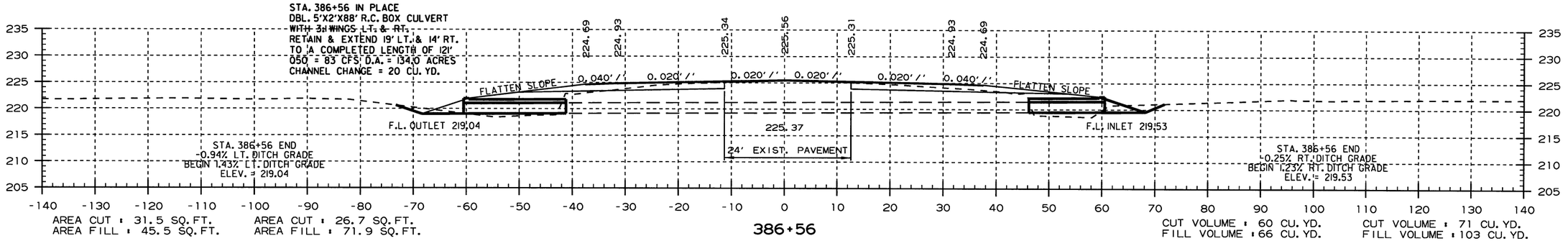
Crafton Tull
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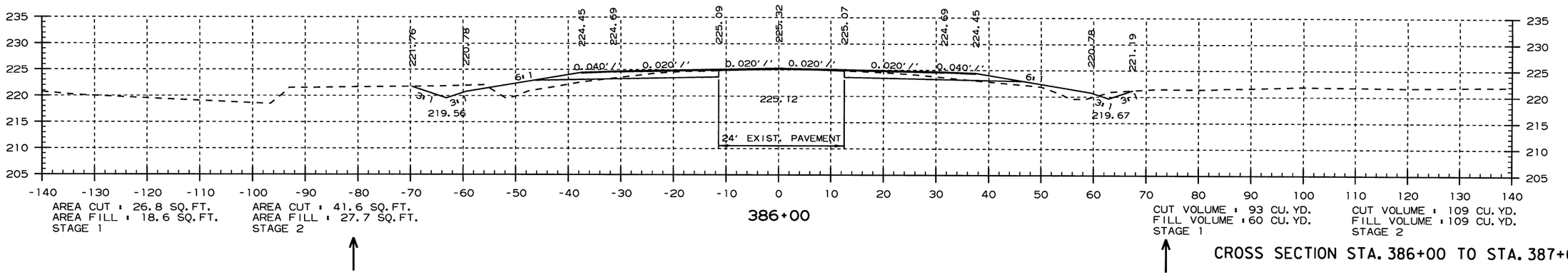
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	181	194

2 CROSS SECTIONS







CROSS SECTION STA. 386+00 TO STA. 387+00

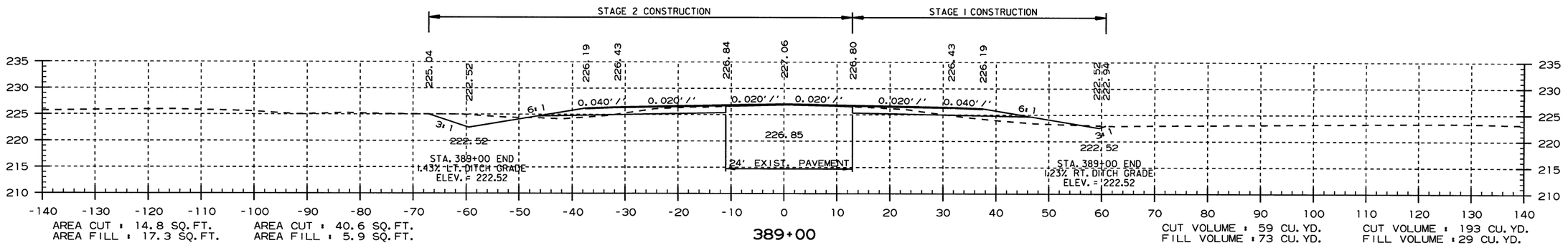
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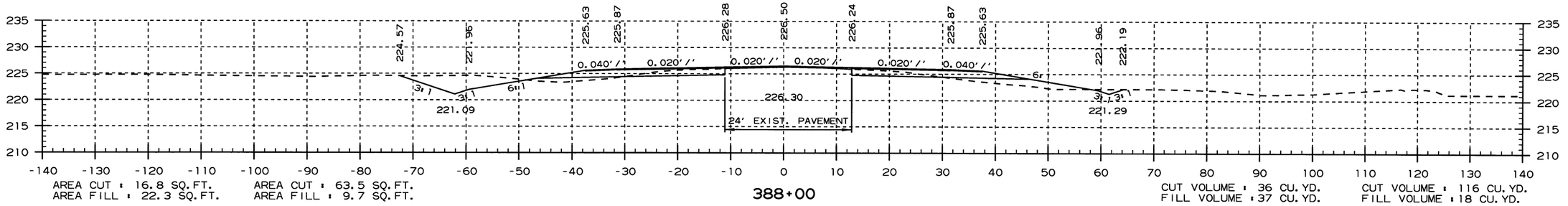
Crafton Tull
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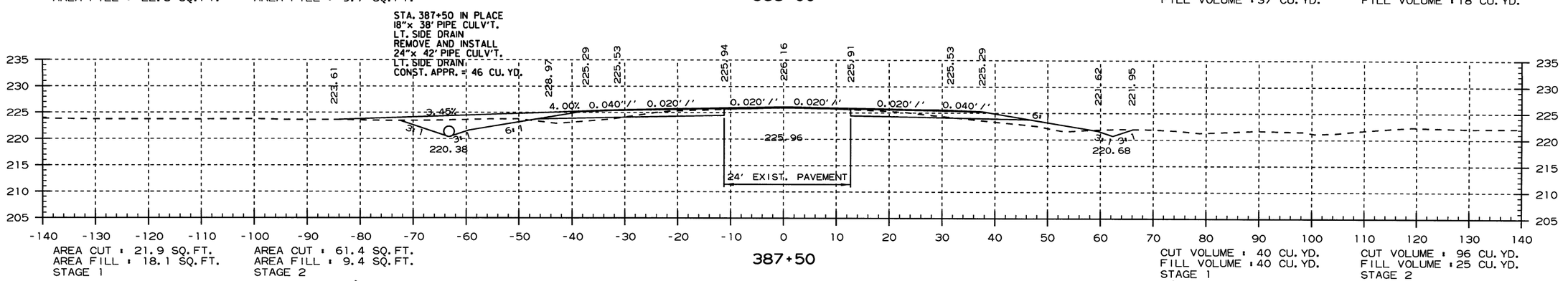
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	182	194

2 CROSS SECTIONS







CROSS SECTION STA. 387+50 TO STA. 389+00

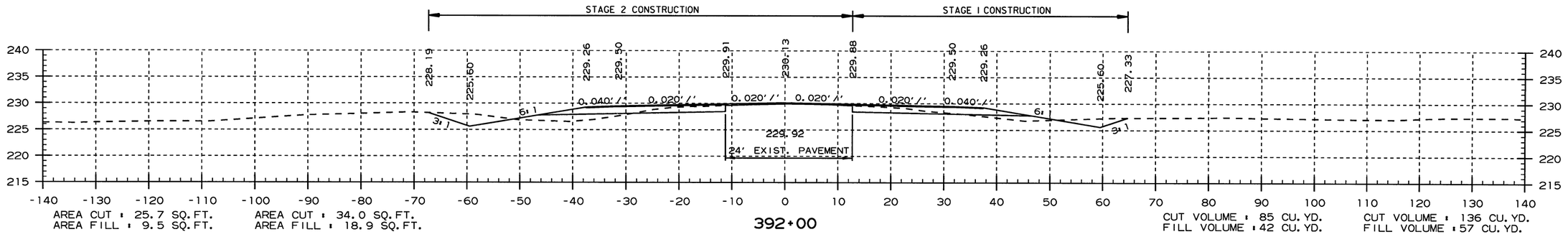
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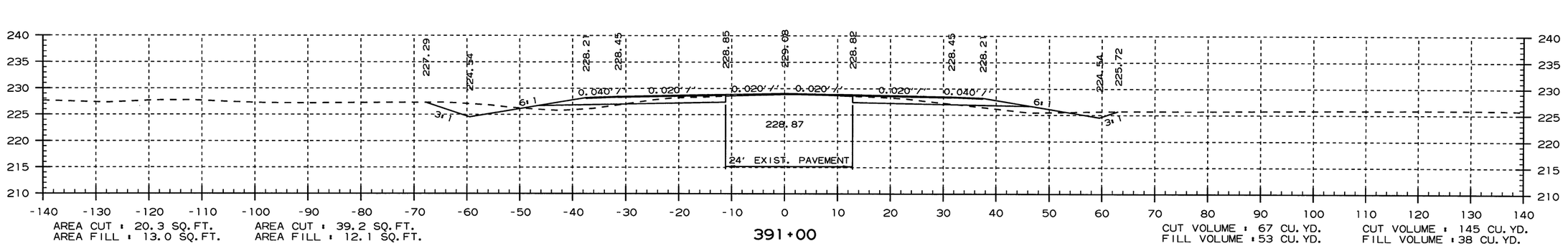
Crafton Tull
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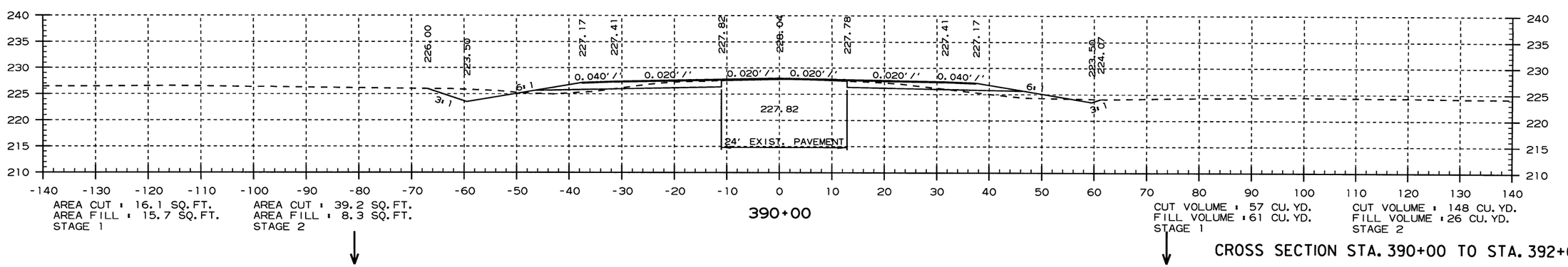
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	183	194

2 CROSS SECTIONS







CROSS SECTION STA. 390+00 TO STA. 392+00

USER: mw519
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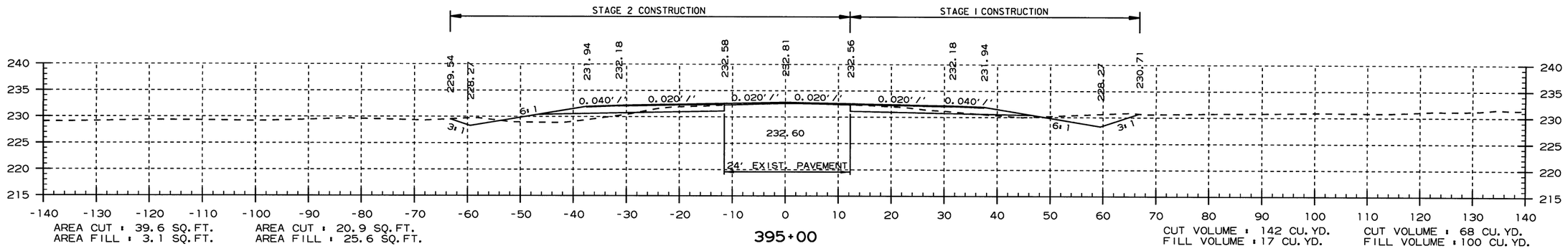
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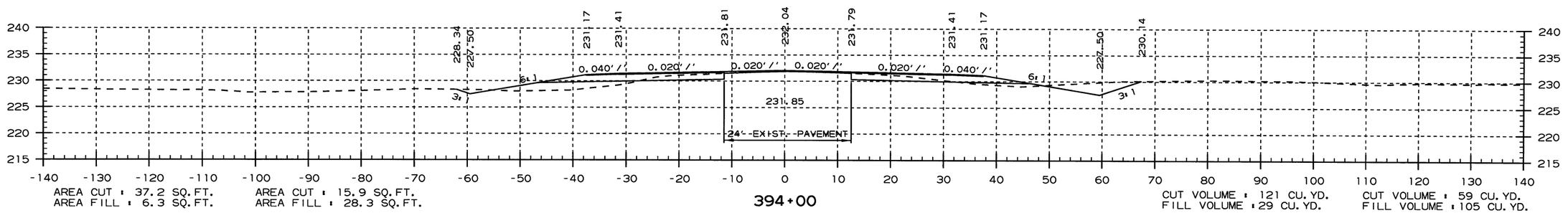
Crafton Tull
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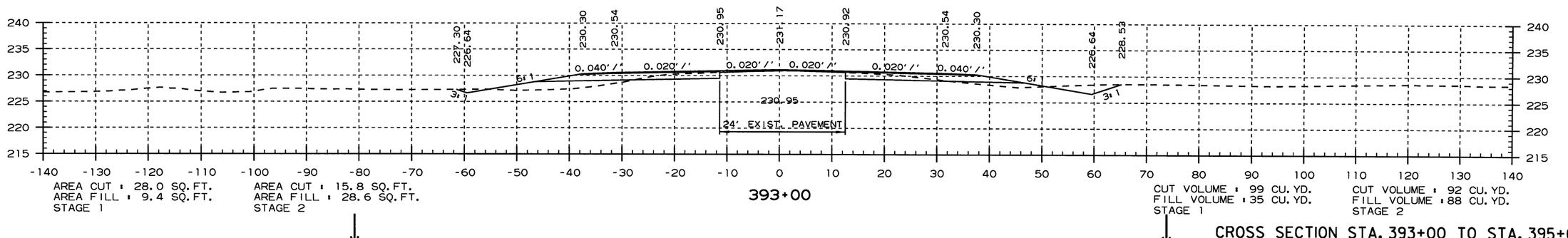
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	184	194

2 CROSS SECTIONS







CROSS SECTION STA. 393+00 TO STA. 395+00

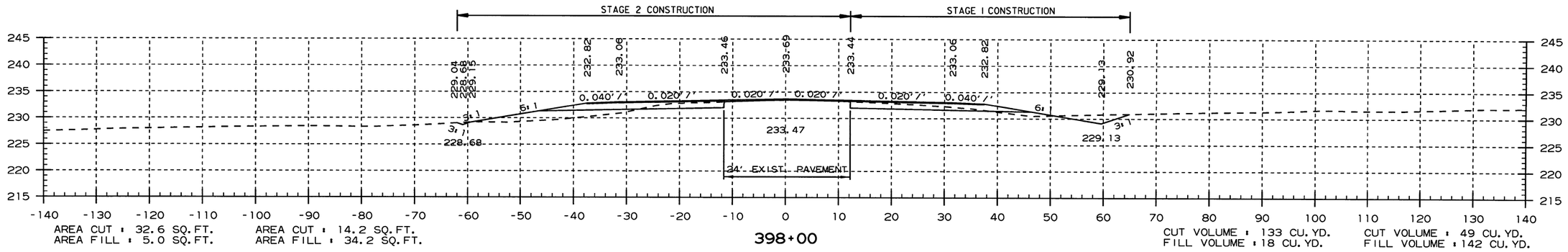
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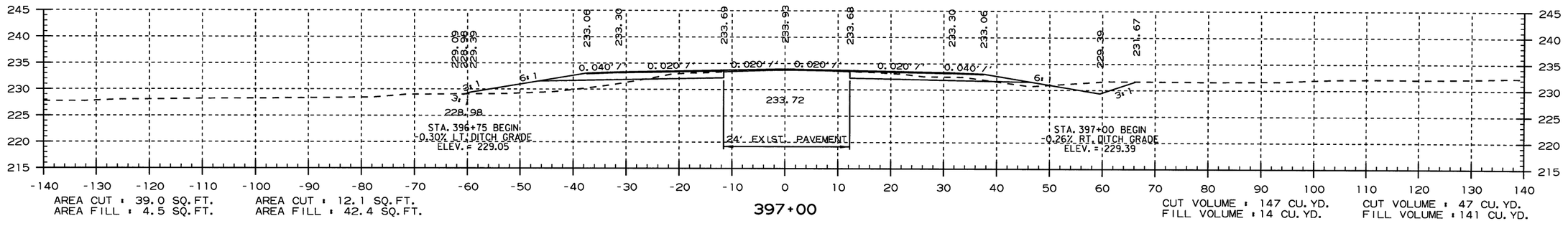
Crafton Tull
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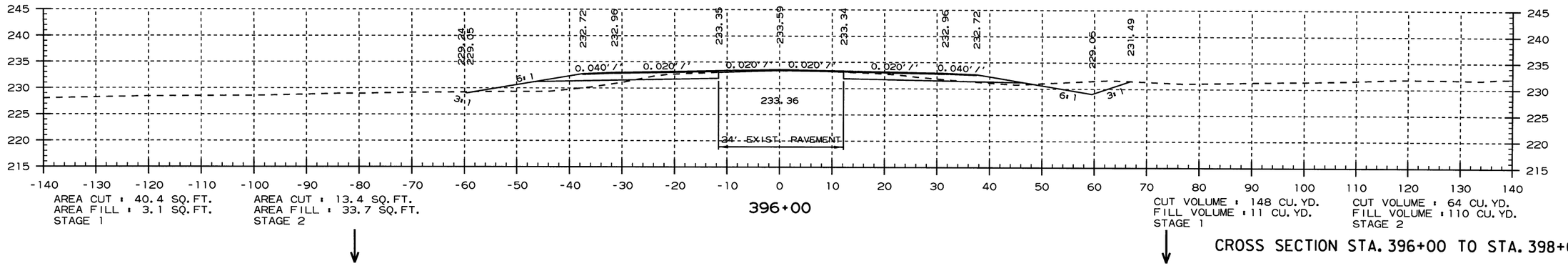
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	185	194

2 CROSS SECTIONS







CROSS SECTION STA. 396+00 TO STA. 398+00

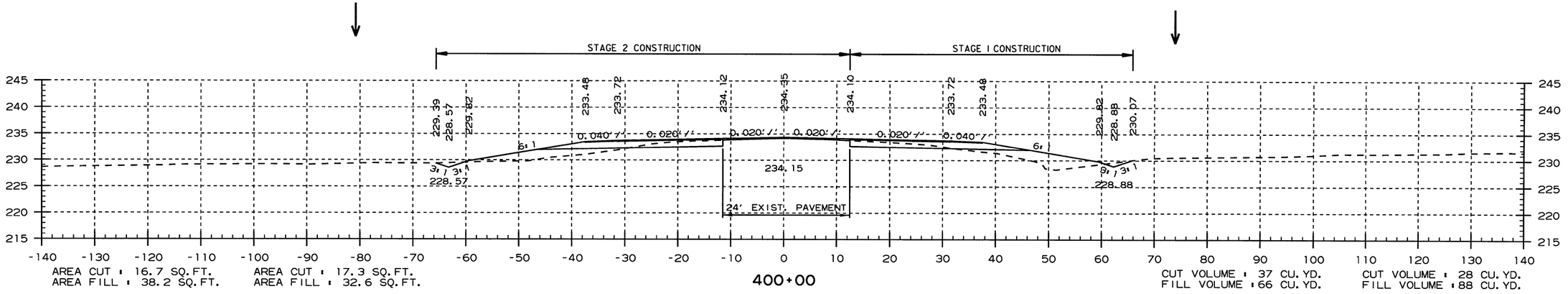
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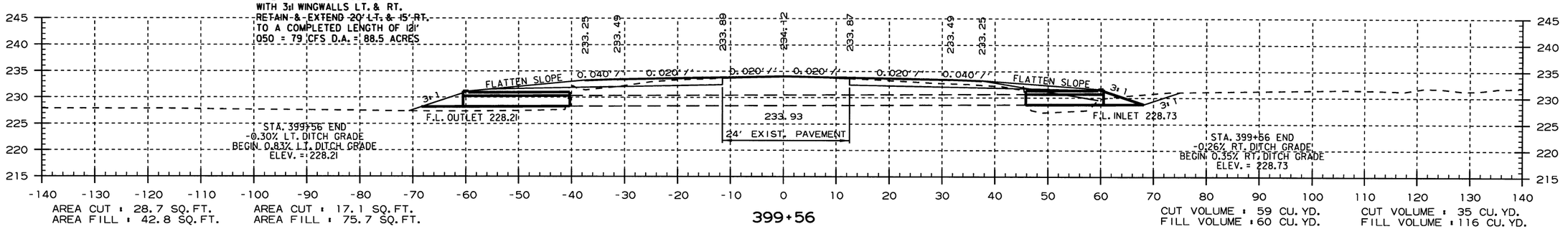
Crafton Tull
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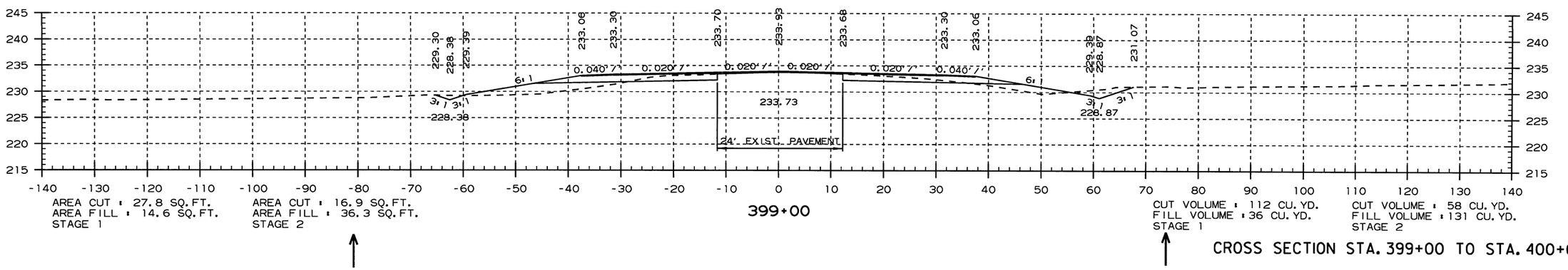
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	186	194

2 CROSS SECTIONS



STA. 399+56 IN PLACE
5'X2'X86' R.C. BOX CULVERT
WITH 3:1 WINGWALLS LT. & RT.
RETAIN & EXTEND 20' LT. & 15' RT.
TO A COMPLETED LENGTH OF 121'
Q50 = 79 CFS D.A. = 88.5 ACRES





CROSS SECTION STA. 399+00 TO STA. 400+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
PLOTTED: 3/17/2017 09:16
SCALE: 20:1

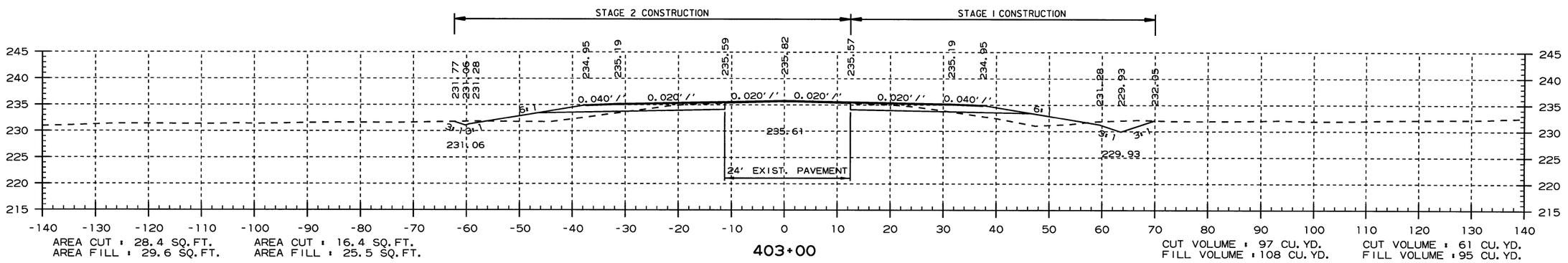
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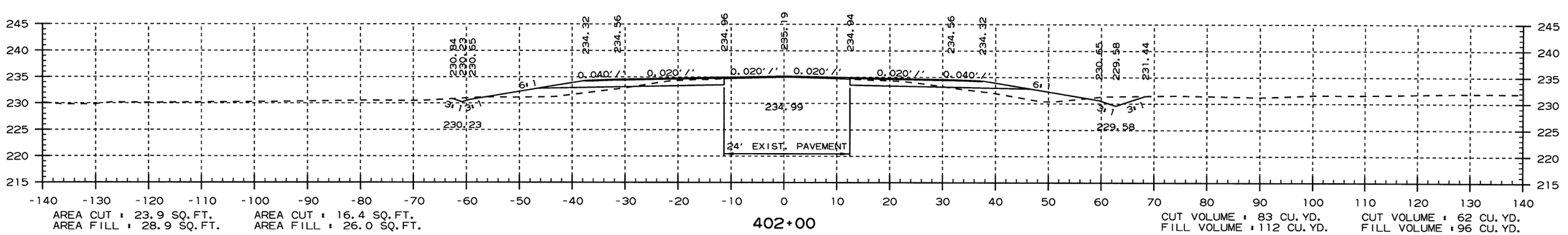
Crafton Tull
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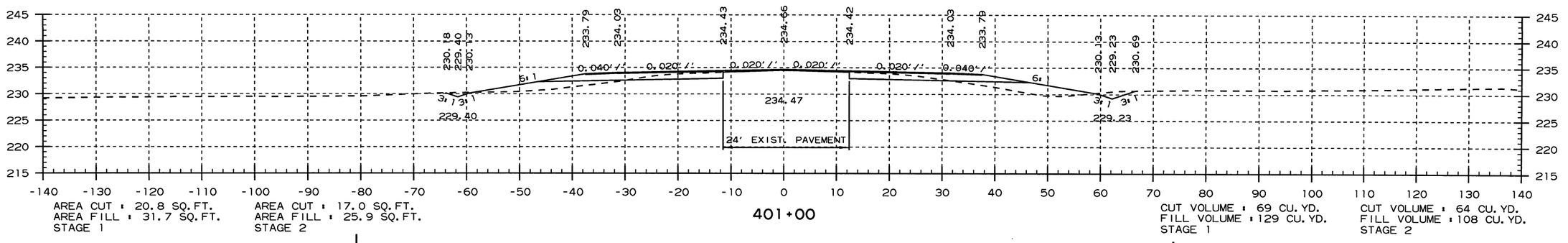
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	187	194

2 CROSS SECTIONS







CROSS SECTION STA. 401+00 TO STA. 403+00

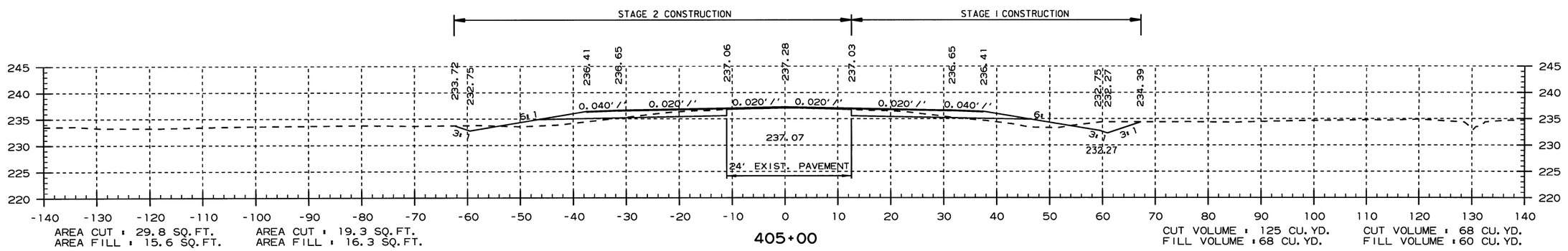
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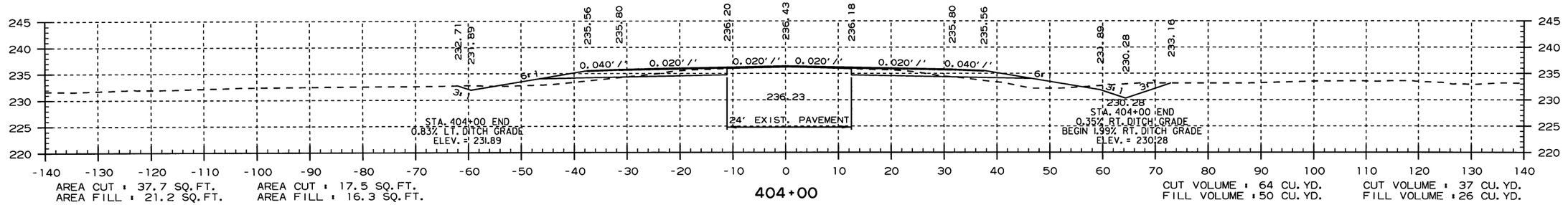
Crafton Tull
architecture | engineering | surveying

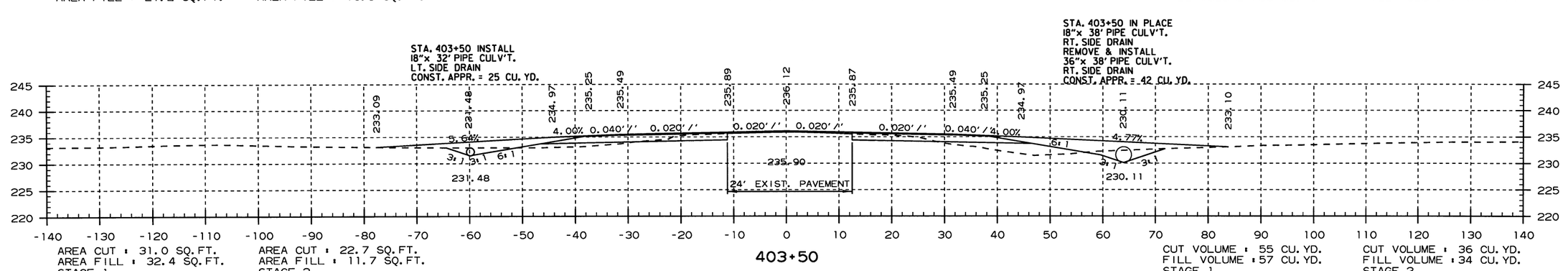
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	188	194

2 CROSS SECTIONS







CROSS SECTION STA. 403+50 TO STA. 405+00

USER: mw519
DESIGN FILE: G:\14109400_HWY_167\TRANSP\dgn\xsect\rCA0702_CX_HWY167_01.dgn
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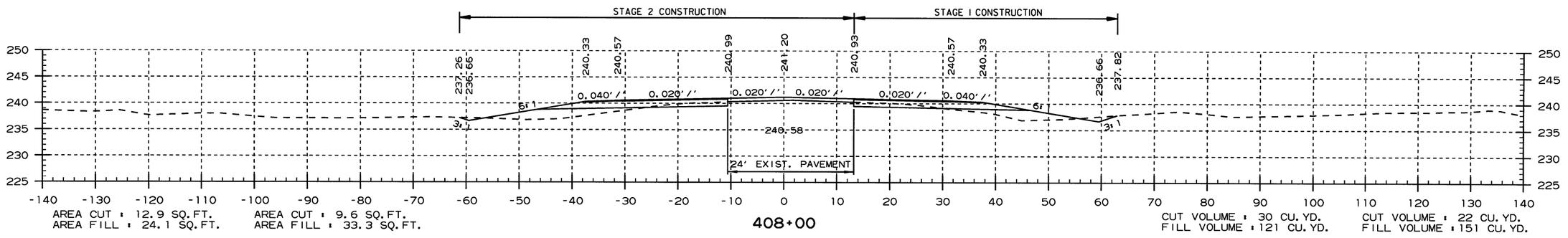
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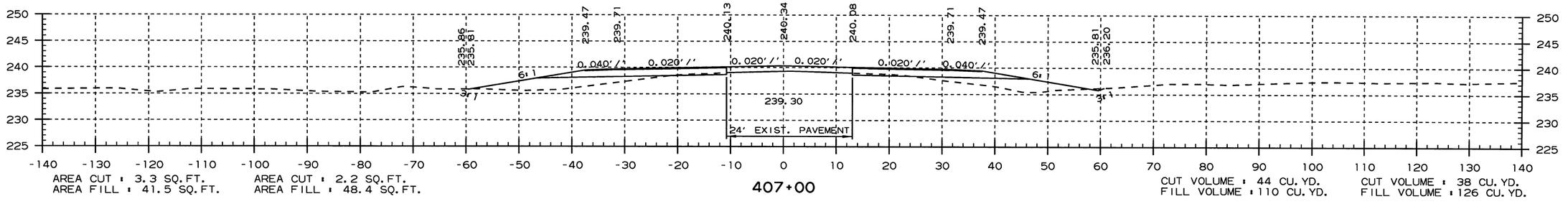
Crafton Tull
architecture | engineering | surveying

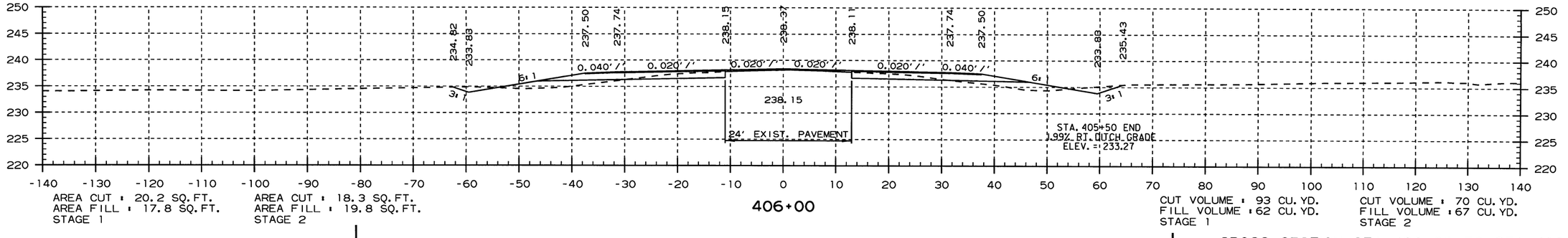
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	189	194

2 CROSS SECTIONS







CROSS SECTION STA. 406+00 TO STA. 408+00

USER: mw519
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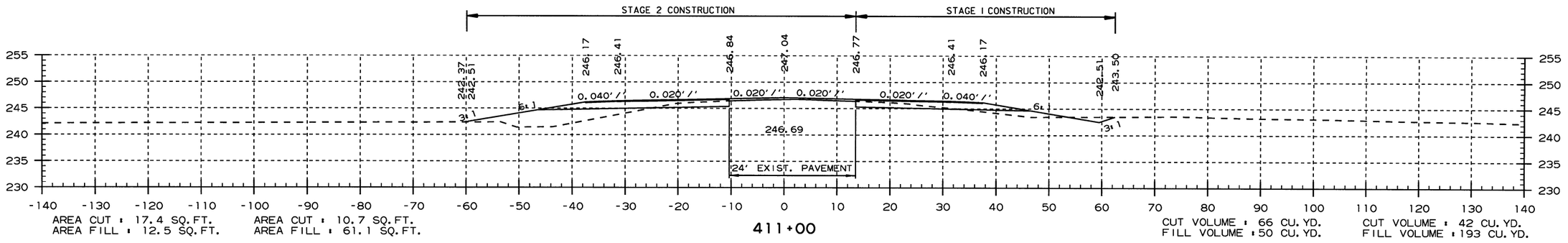
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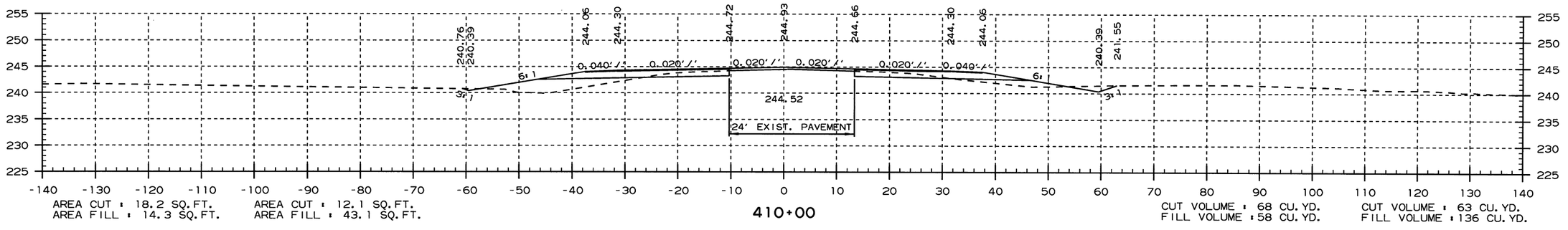
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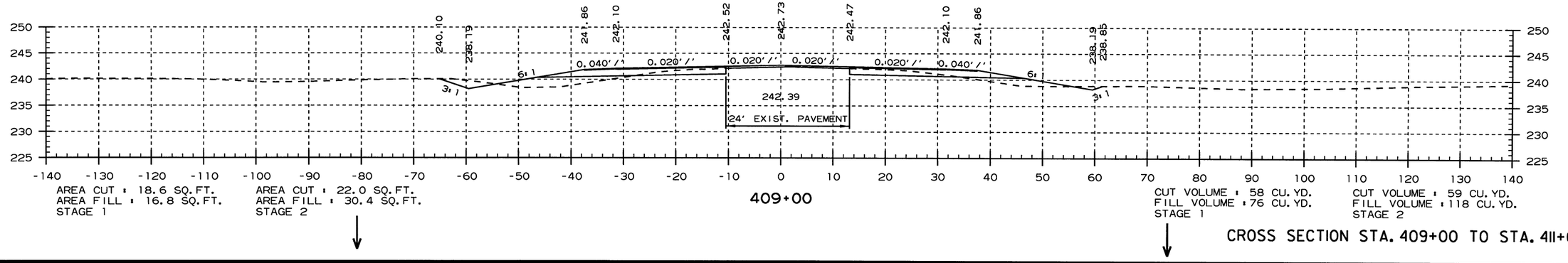
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	190	194

2 CROSS SECTIONS







CROSS SECTION STA. 409+00 TO STA. 411+00

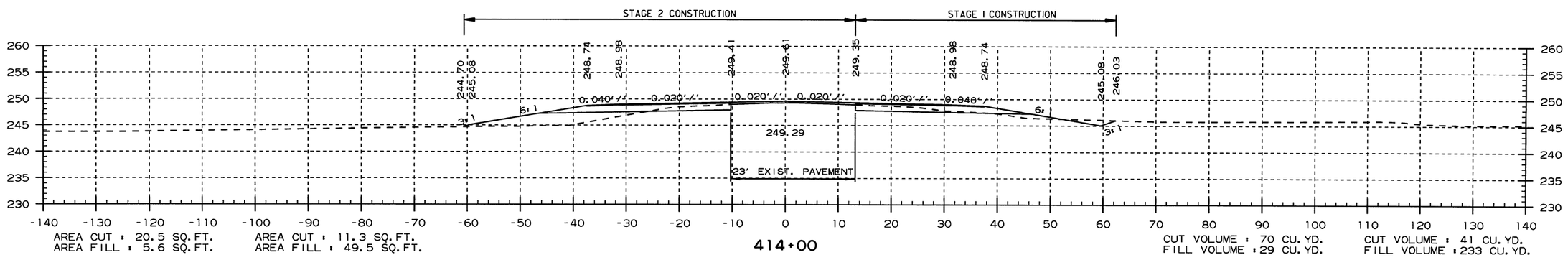
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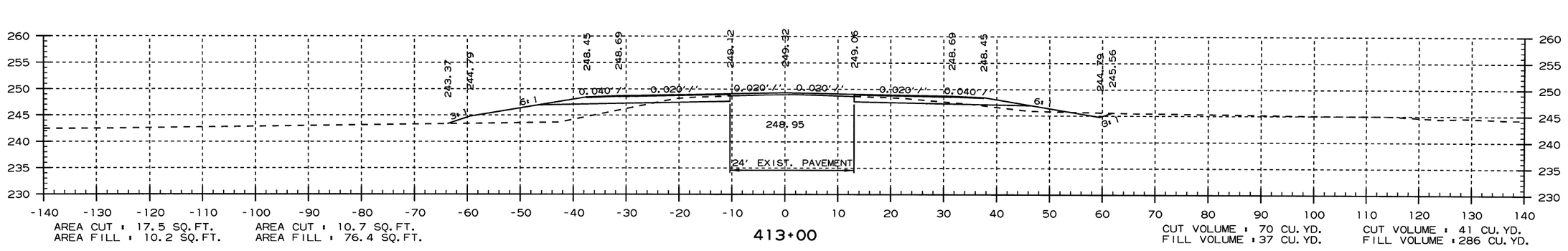
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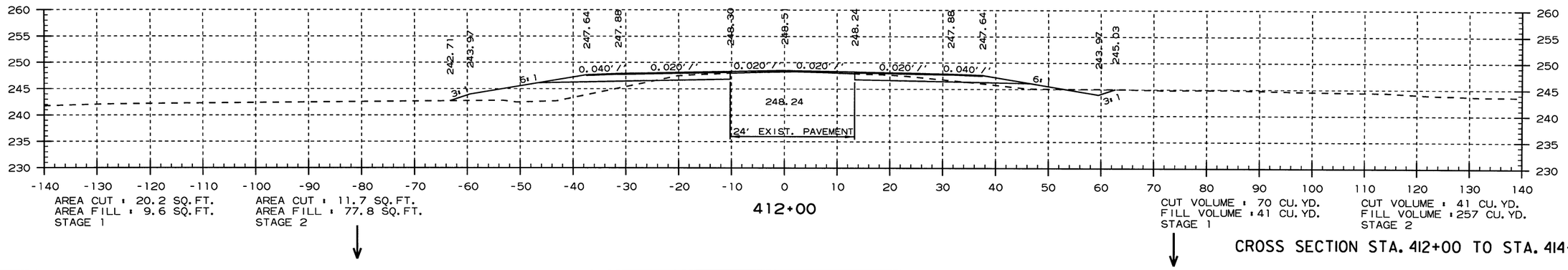
Crafton Tull
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0702	191	194

(2) CROSS SECTIONS







CROSS SECTION STA. 412+00 TO STA. 414+00

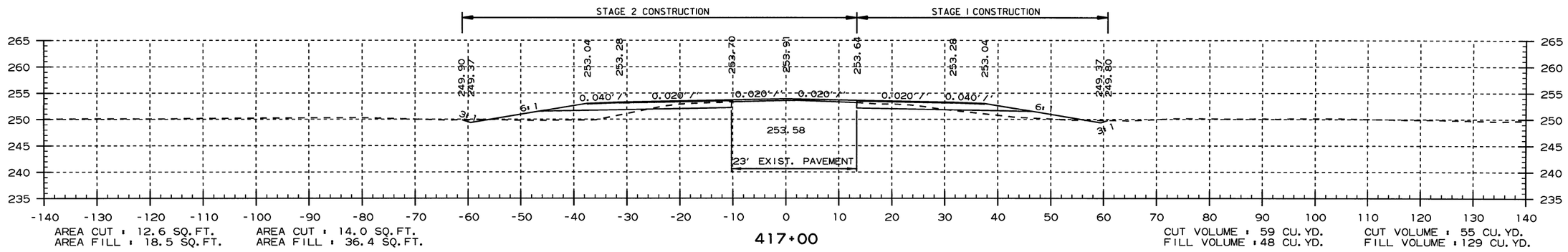
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PLOTTED: 3/17/2017 09:16
SCALE: 20:1

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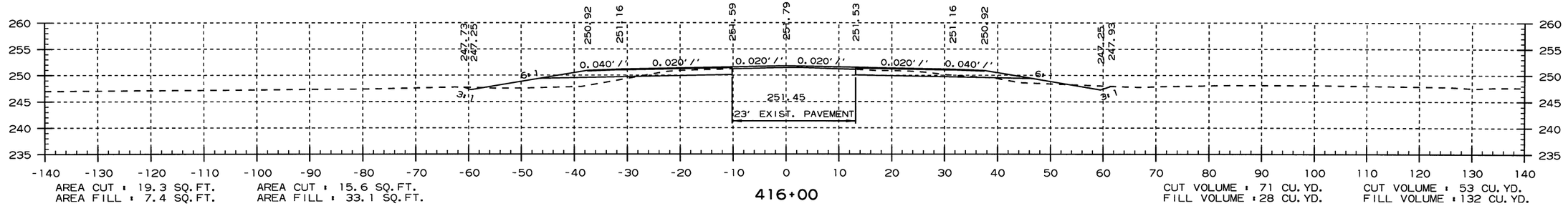
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	192	194

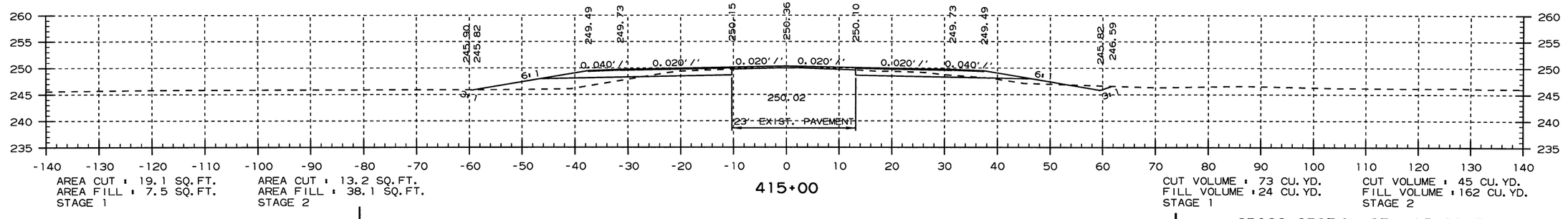
2 CROSS SECTIONS



417+00



416+00



415+00

CROSS SECTION STA. 415+00 TO STA. 417+00

USER: mw519
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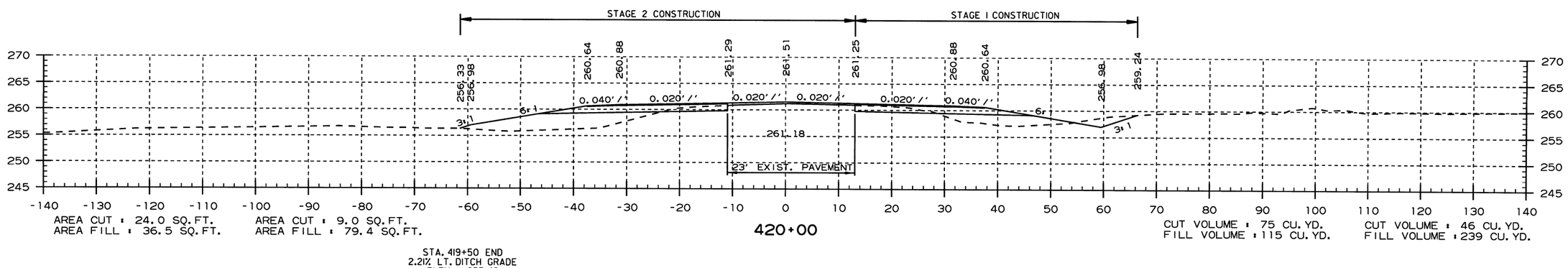
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	193	194

2 CROSS SECTIONS



CROSS SECTION STA. 418+00 TO STA. 420+00

USER: mw919
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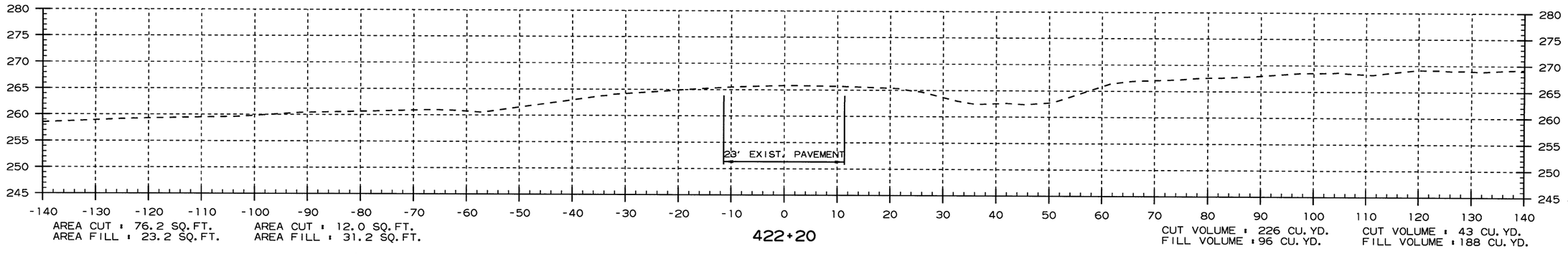
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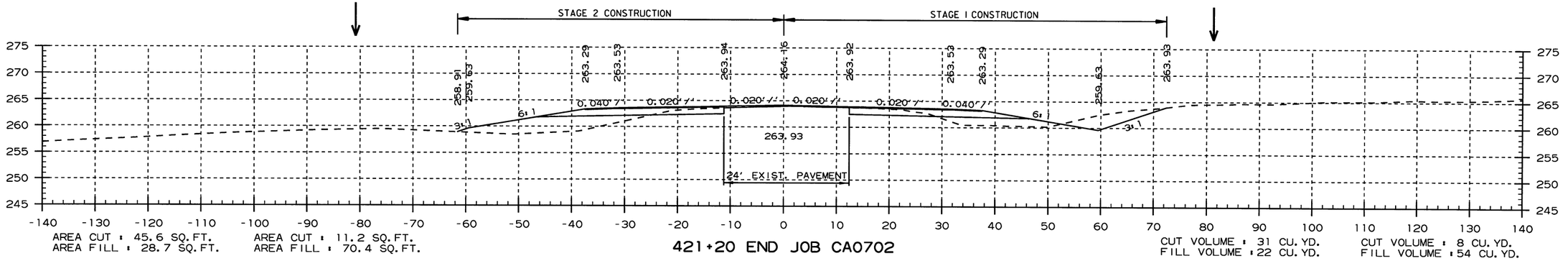
Crafton Tull
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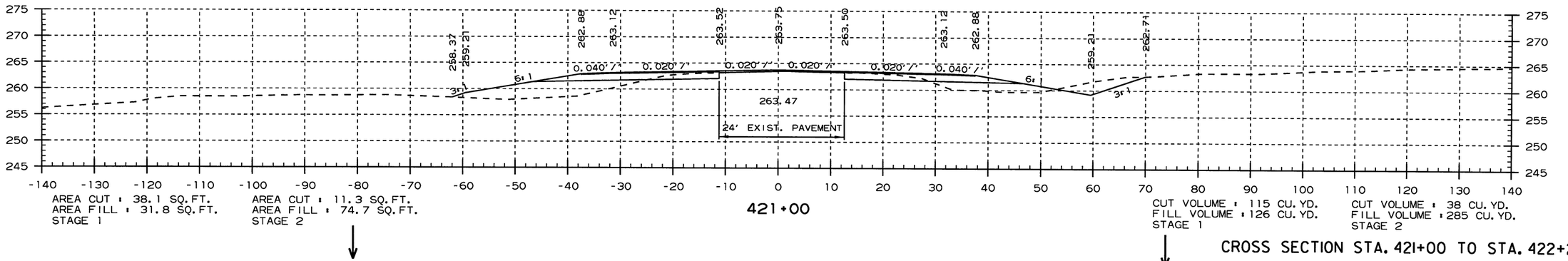
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0702	194	194

2 CROSS SECTIONS



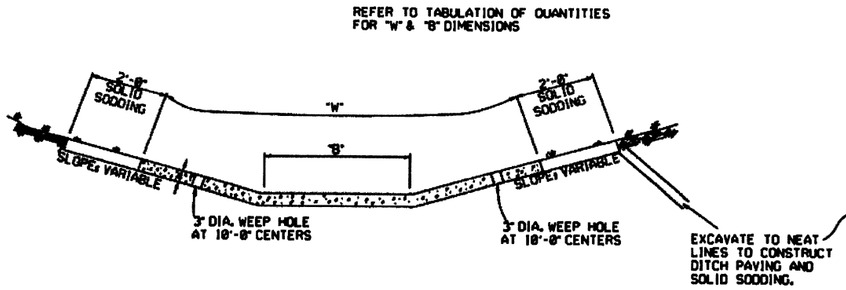




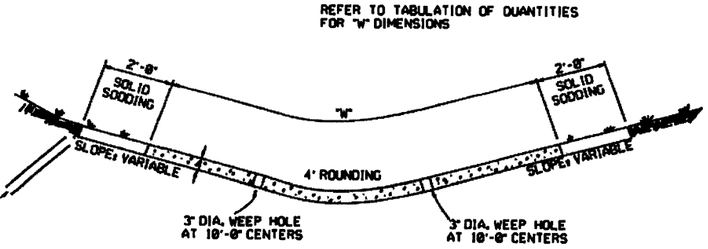
CROSS SECTION STA. 421+00 TO STA. 422+20

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SCALE: 20:1

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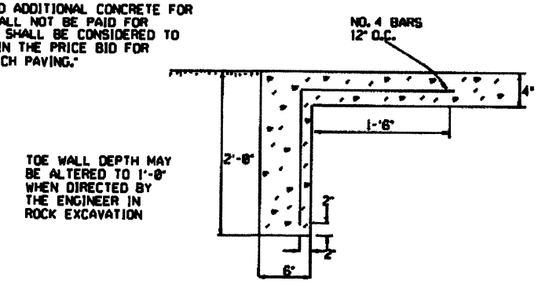


TYPE A

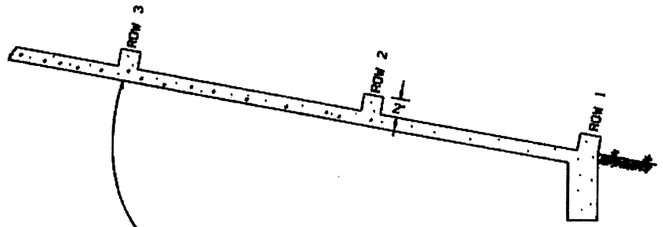


TYPE B

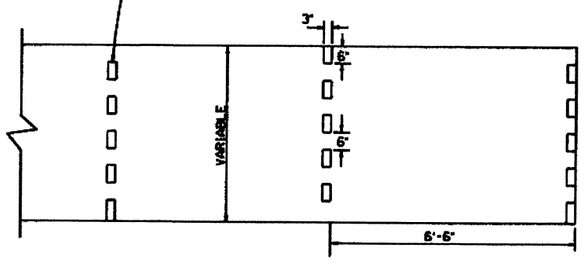
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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)

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.

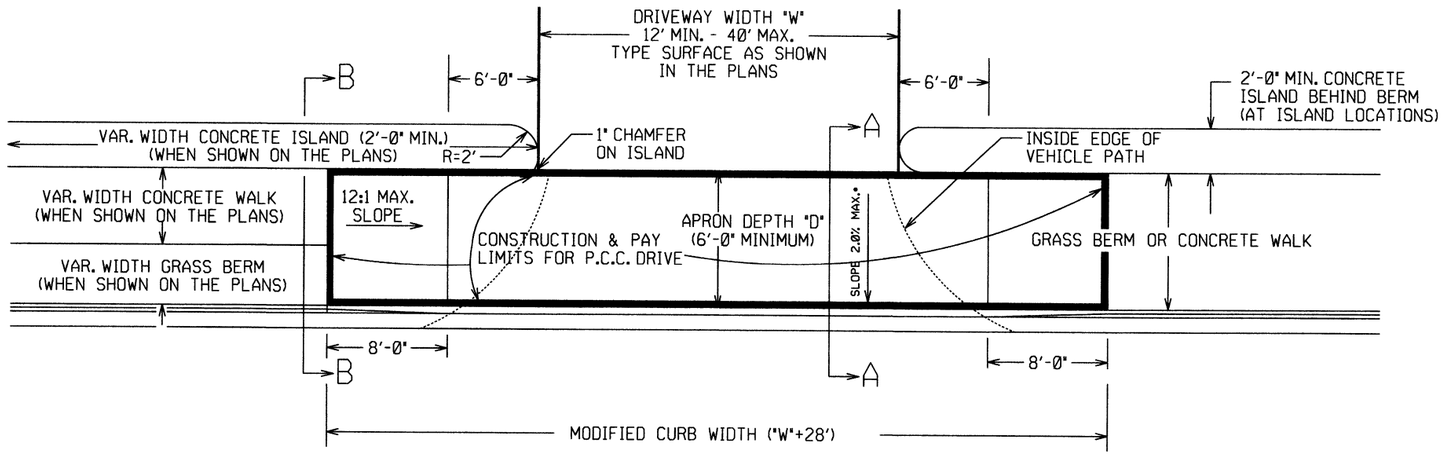
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
3-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-89	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-18-88	REVISED DISSIPATOR NOTE	885-7-18-88
4-3-87	REVISED ENERGY DISSIPATOR	871-4-3-87
1-5-87	MODIFIED NOTE ON ENERGY DISS.	832-1-5-87
11-4-86	ADDED NOTE TO ENERGY DISS.	698-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED	
	TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

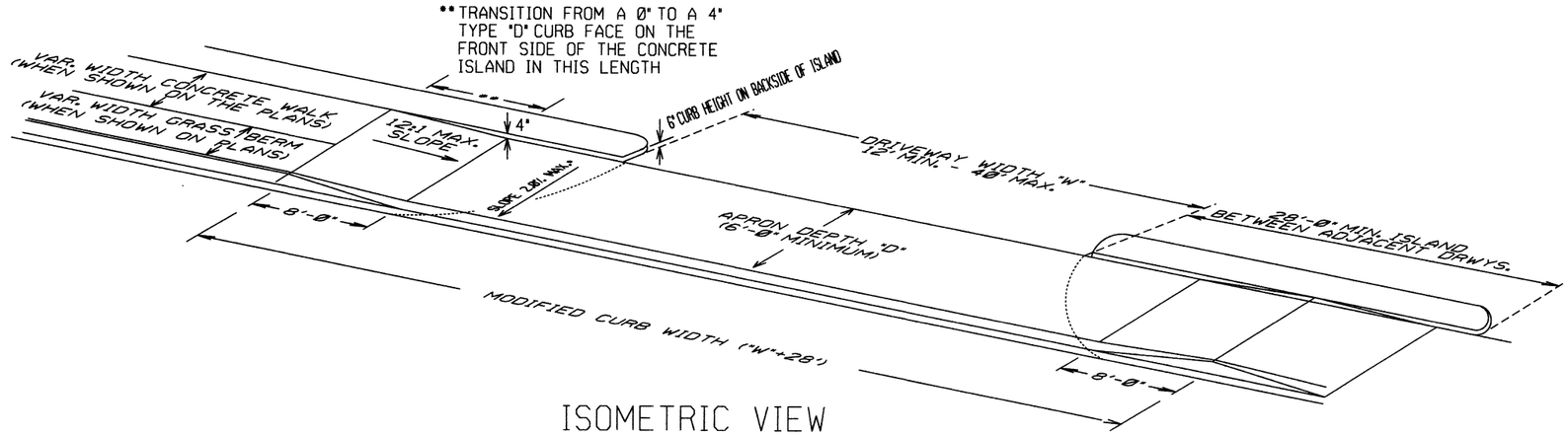
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

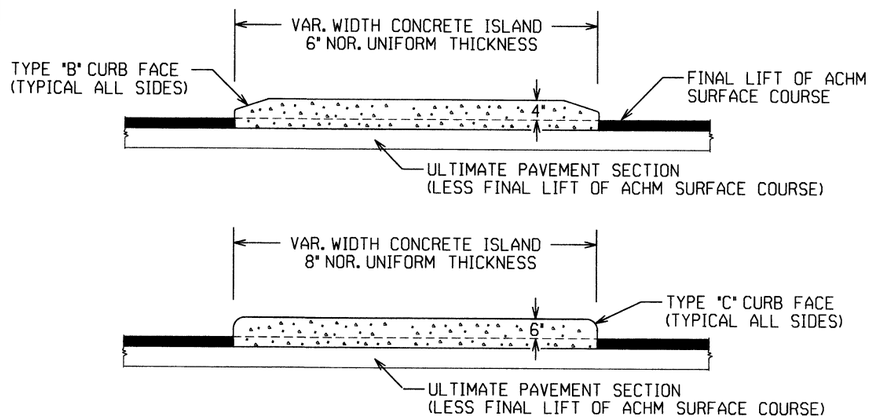
STANDARD DRAWING CDP-1



PLAN VIEW

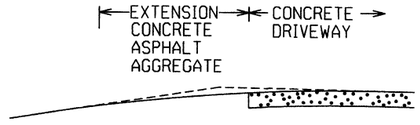


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

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



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

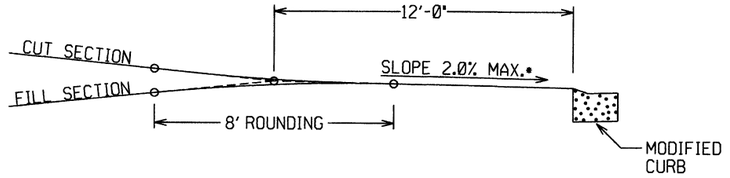
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

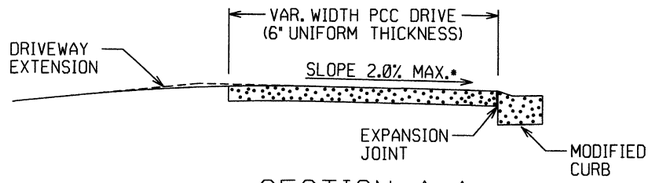
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

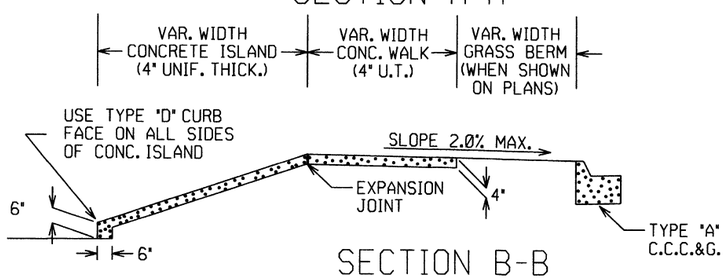


DRIVEWAY VERTICAL ALIGNMENT DETAILS

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



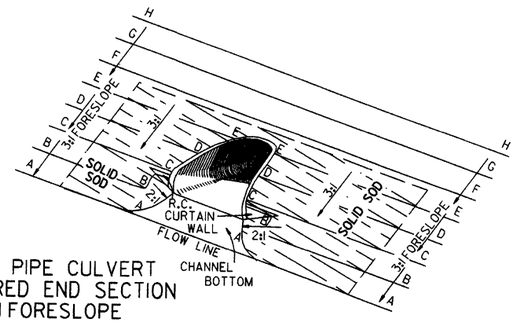
SECTION A-A



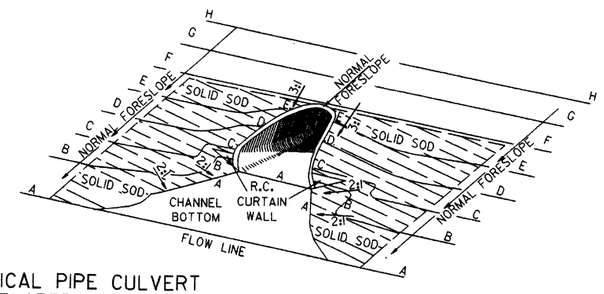
SECTION B-B
CURBED ISLAND BEHIND WALK

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

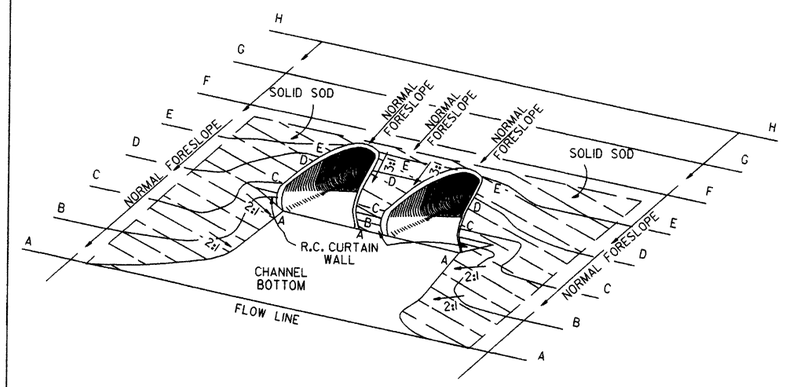
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



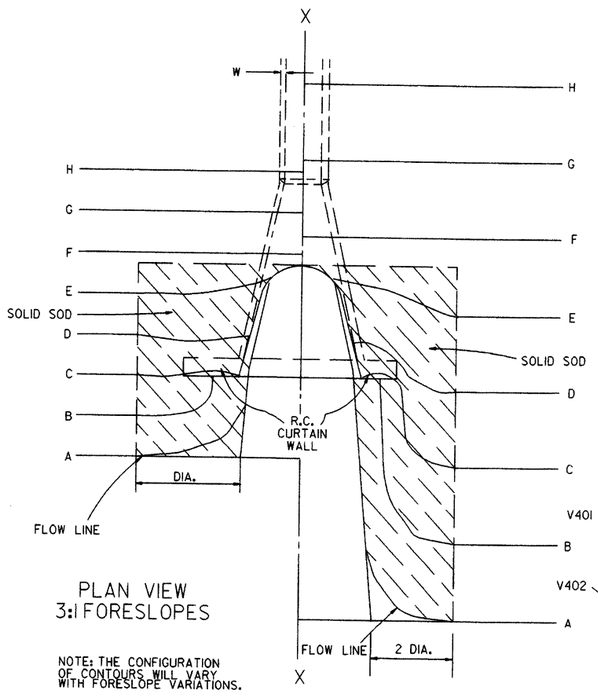
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

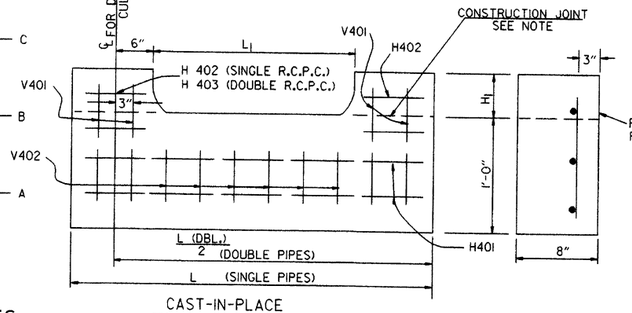
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

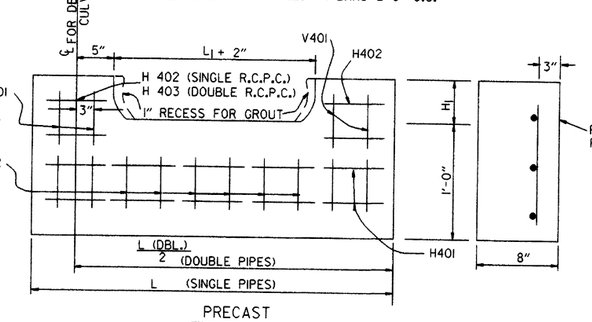
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0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

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



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

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

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

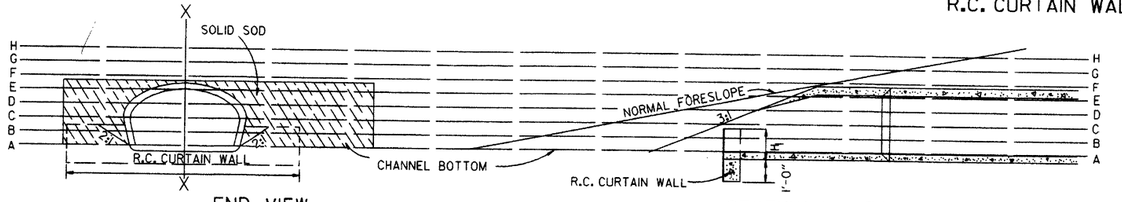
SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 × 3 W/10 × W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

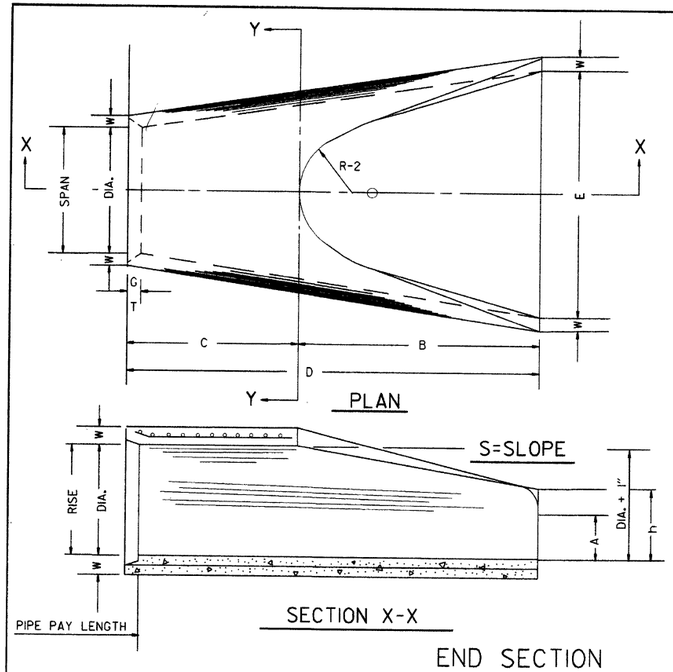
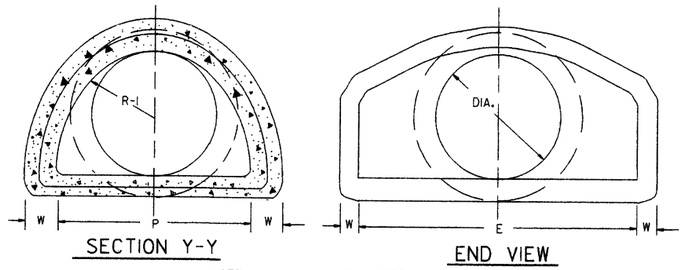


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-11½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38⅝"	24"	5"	13250	4'-6"

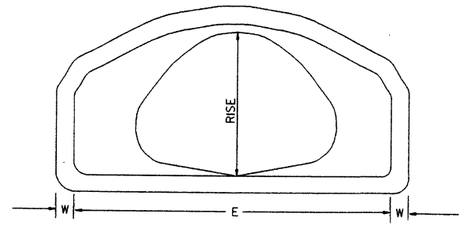


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

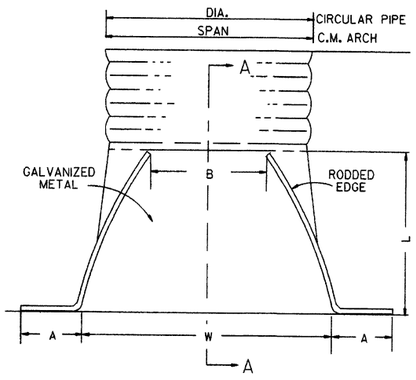
EQUIV. DIA.	* SPAN AASHTO M 206	* SPAN AHD NOMINAL	* RISE AASHTO M 206	* RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅜"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-11½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-11½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

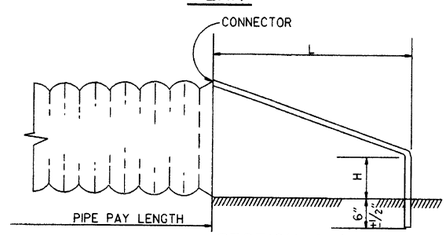
* THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



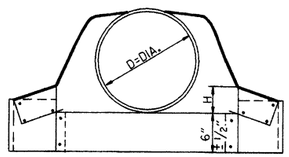
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

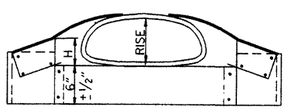




NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.



CIRCULAR PIPE



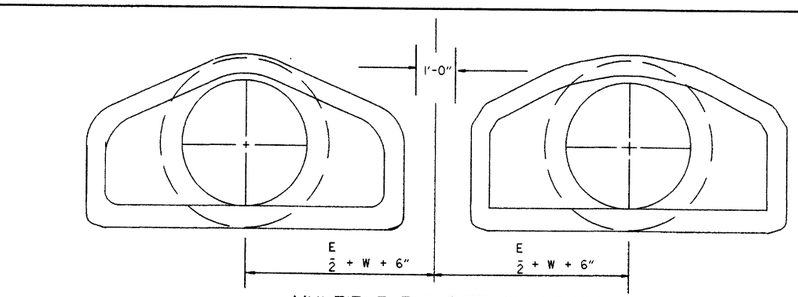
C.M. ARCH PIPE

CIRCULAR PIPE

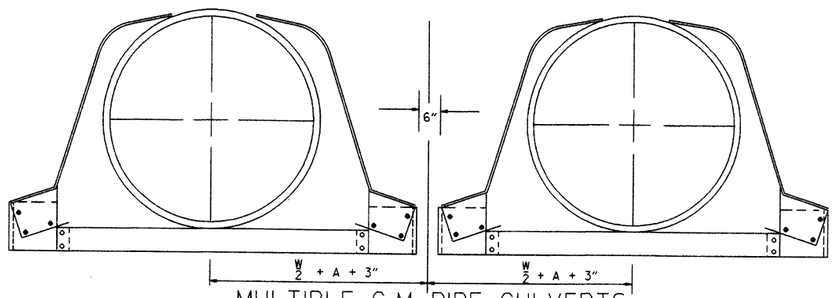
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

C.M. ARCH PIPE

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



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

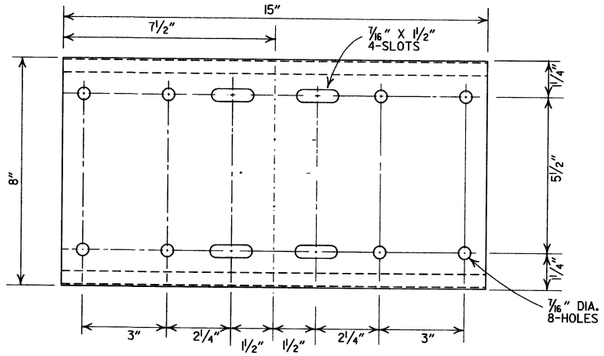
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74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

ARKANSAS STATE HIGHWAY COMMISION

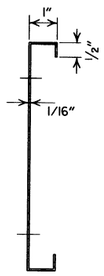
FLARED END SECTION

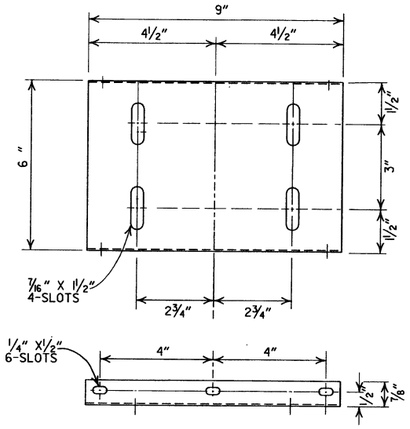
STANDARD DRAWING FES-2

stdfes2.dgn

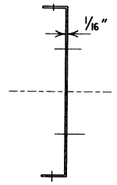


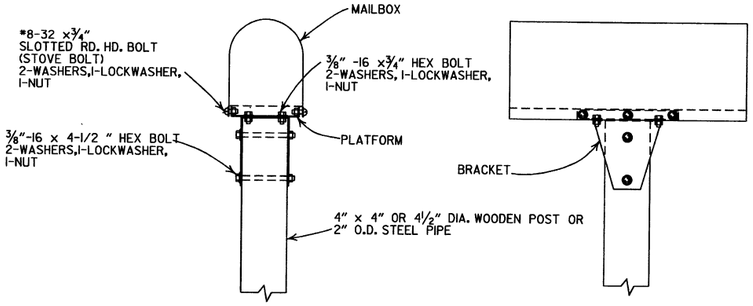
SHELF



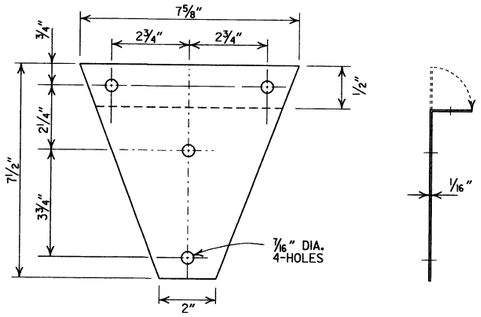


PLATFORM





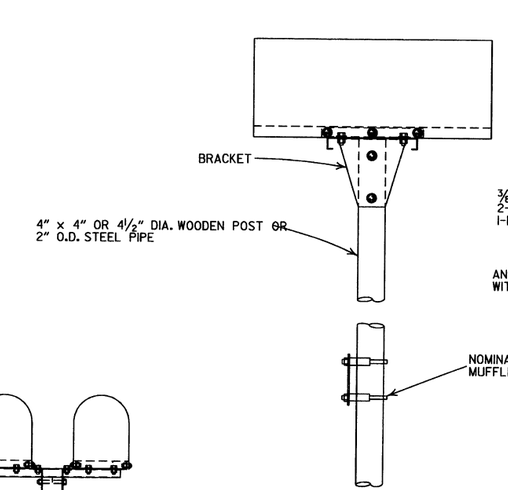
SINGLE INSTALLATION



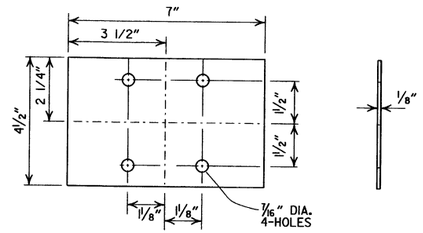
BRACKET

GENERAL NOTES

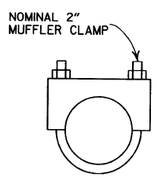
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" 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.



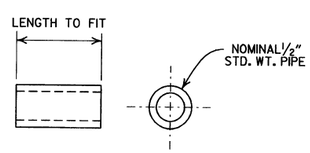
DOUBLE INSTALLATION



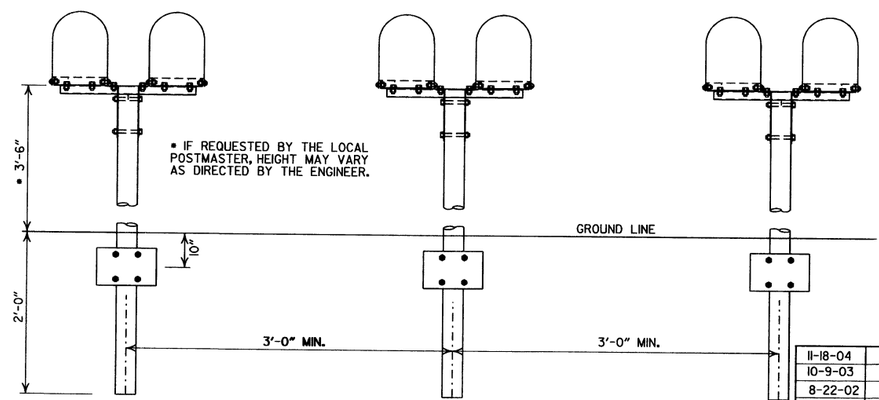
ANTI-TWIST PLATE



CLAMP



SPACER



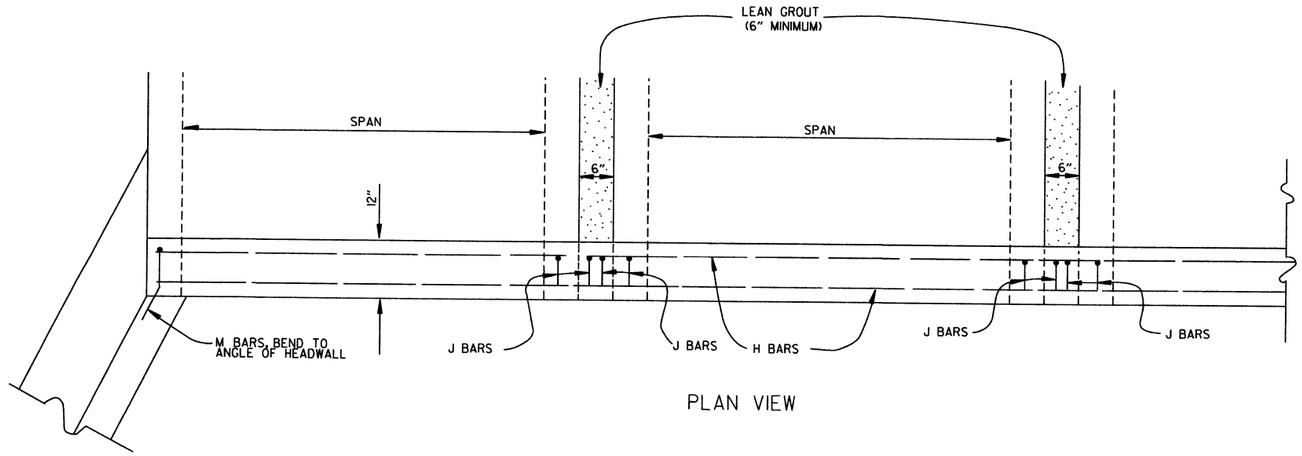
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

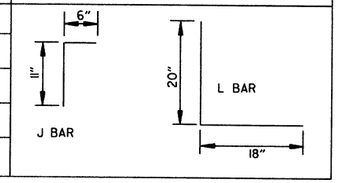
STANDARD DRAWING MB-1



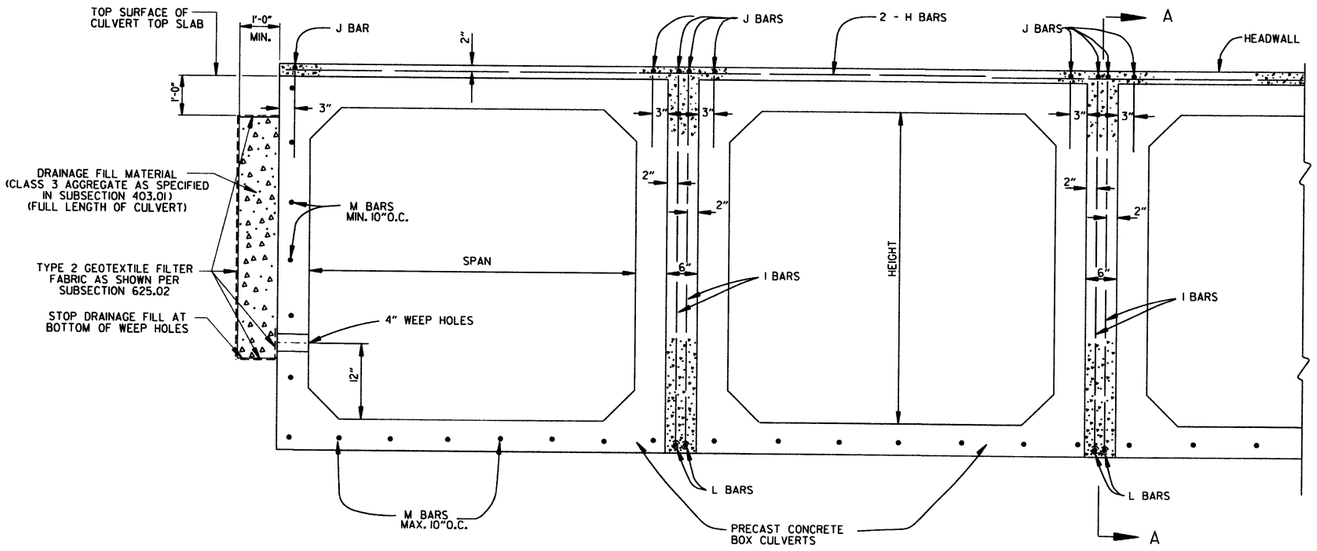
PLAN VIEW

BAR LIST

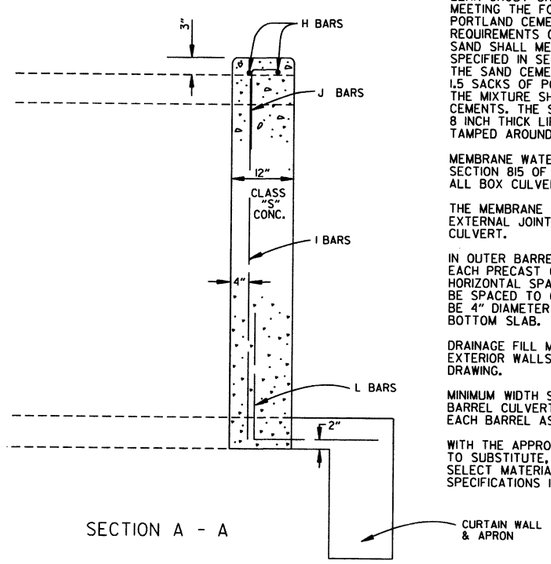
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT



END VIEW



SECTION A - A

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT 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.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

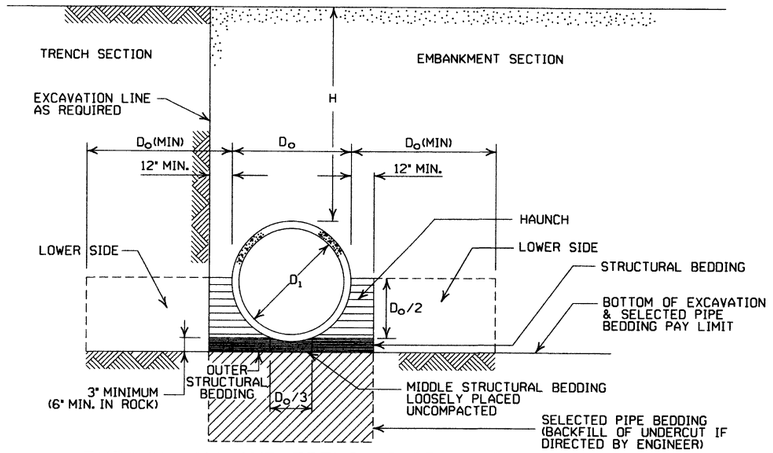
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION		INSTALLATION		INSTALLATION		INSTALLATION
				TYPE 1		TYPE 1		TYPE 1		TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2		15	0.060	2		15
18	21x15	3	0.064	2		15	0.060	2		15
21	24x18	3	0.064	2.25		15	0.060	2.25		15
24	28x20	3	0.064	2.5		15	0.075	2.5		15
30	35x24	3	0.079	3		12	0.075	3		12
36	42x29	3½	0.079	3		12	0.105	3		12
42	49x33	4	0.079	3		12	0.105	3		12
48	57x38	5	0.109	3		13	0.135	3		13
54	64x43	6	0.109	3		14	0.135	3		14
60	71x47	7	0.138	3		15	0.164	3		15
66	77x52	8	0.168	3		15				
72	83x57	9	0.168	3		15				
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

CONSTRUCTION SEQUENCE

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

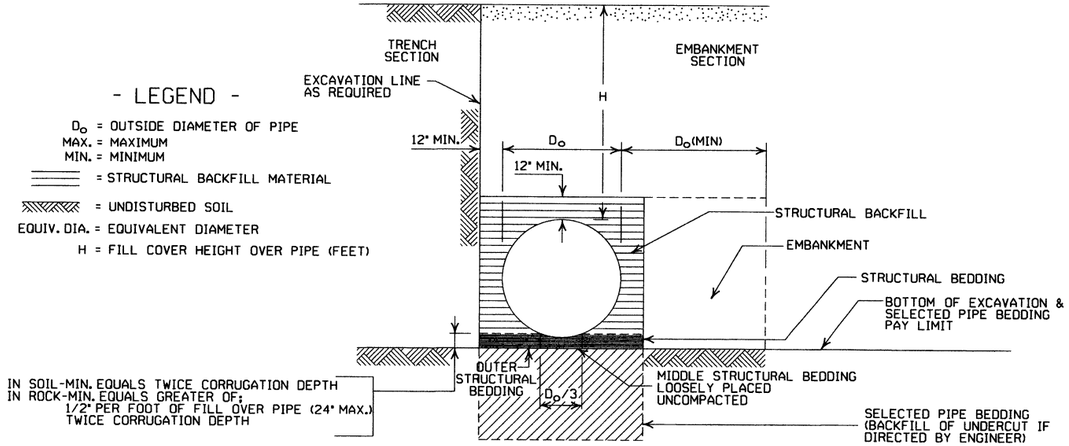
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL		ALUMINUM	
ZINC COATED	UNCOATED		
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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

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

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

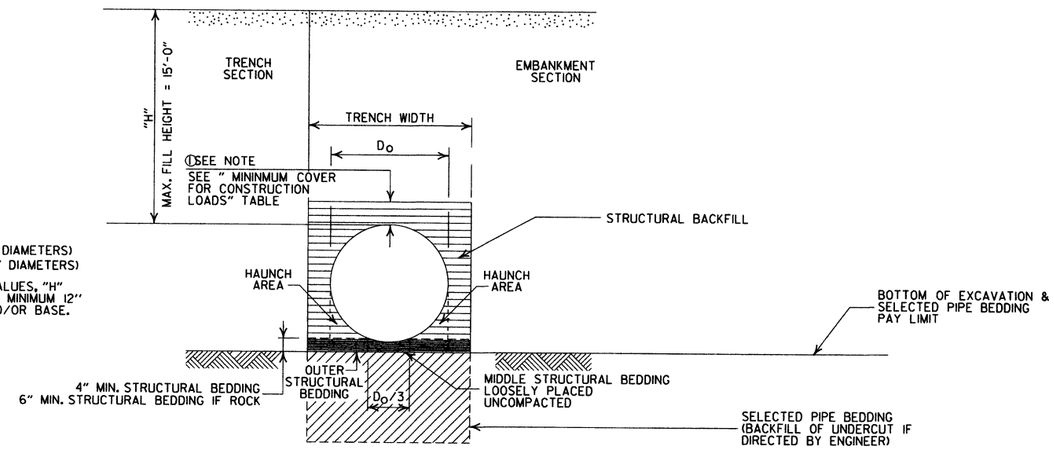
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

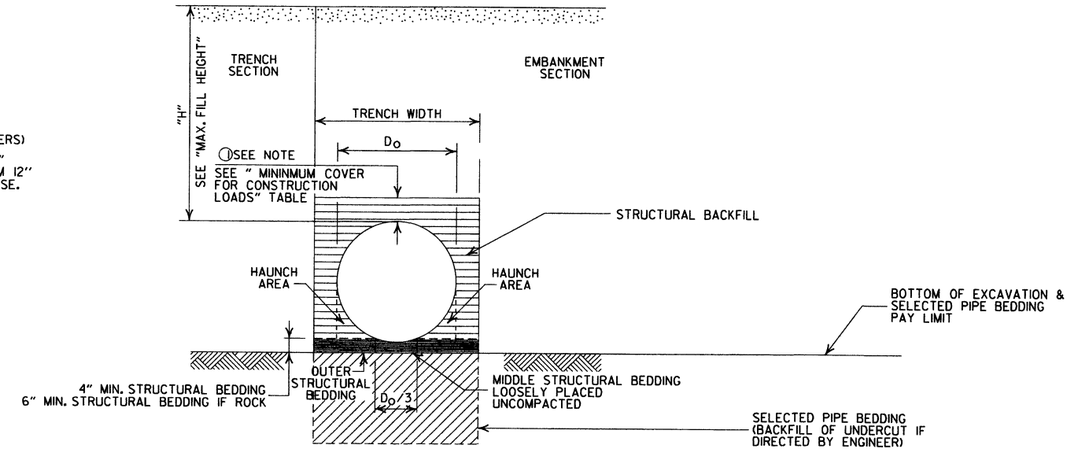
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

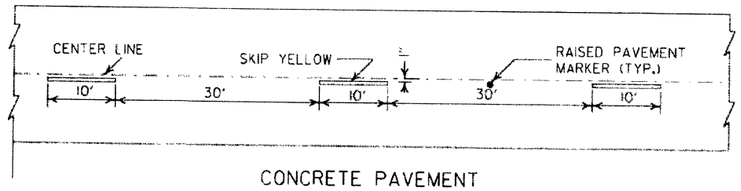
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

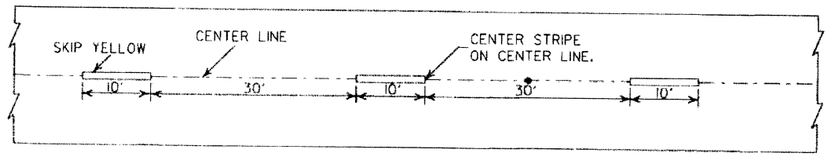
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2



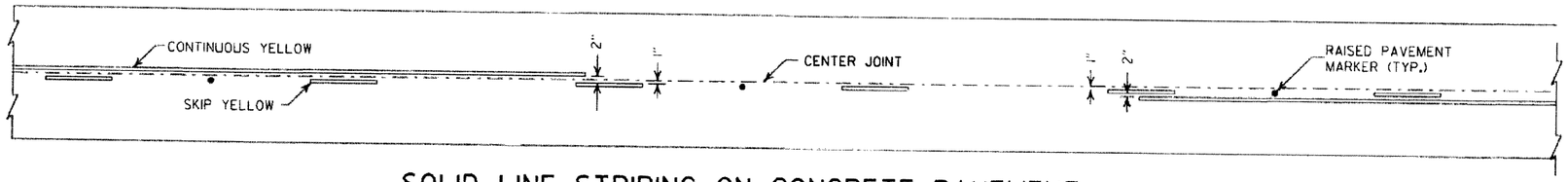
CONCRETE PAVEMENT



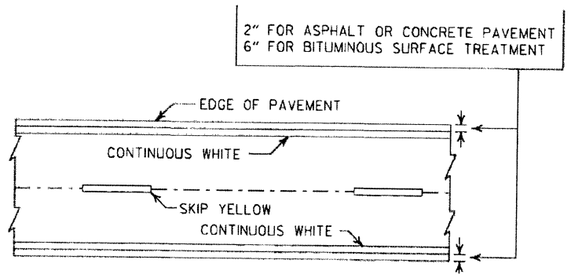
ASPHALT PAVEMENT

BROKEN LINE STRIPING

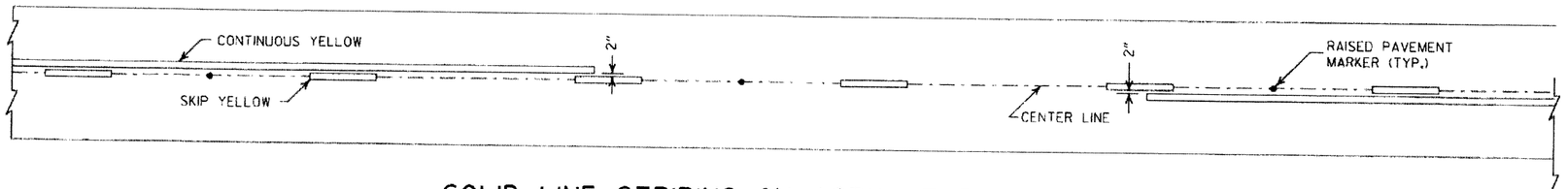
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



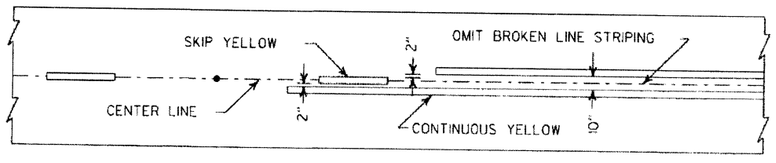
SOLID LINE STRIPING ON CONCRETE PAVEMENT



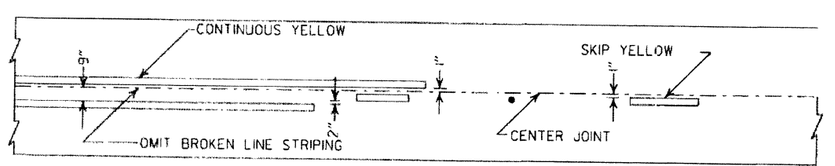
PAVEMENT EDGE LINE MARKING



SOLID LINE STRIPING ON ASPHALT PAVEMENT

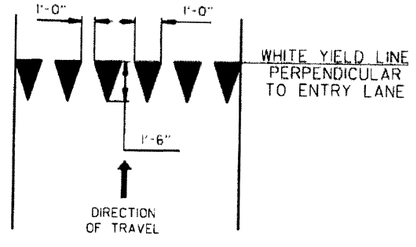


ASPHALT PAVEMENT

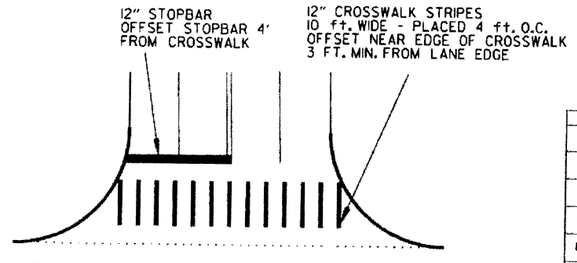


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

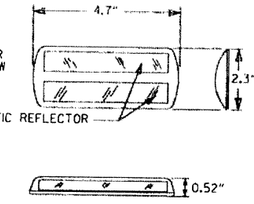


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

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



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.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

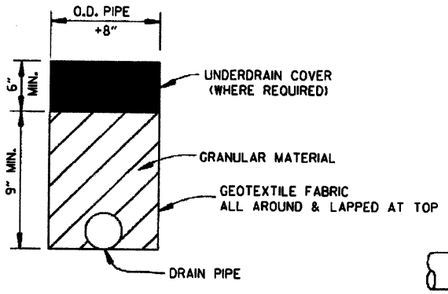
PAVEMENT MARKING DETAILS

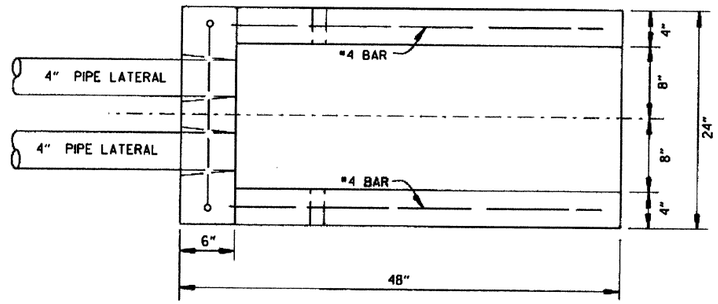
STANDARD DRAWING PM-1

NOTE:

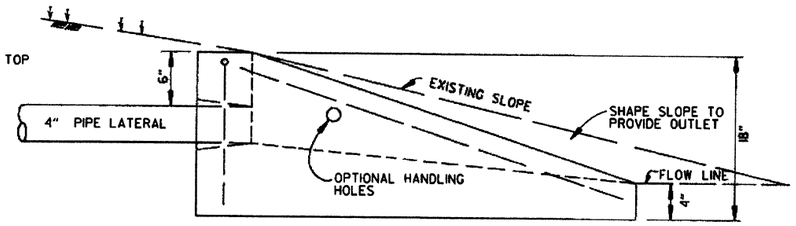
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

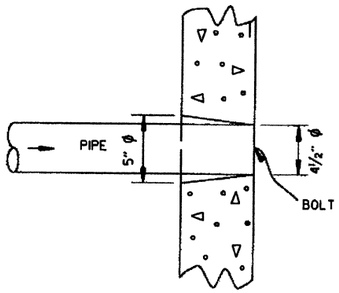




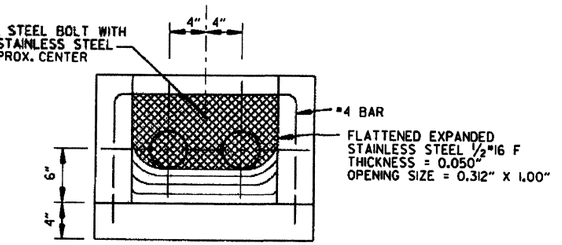
PLAN VIEW



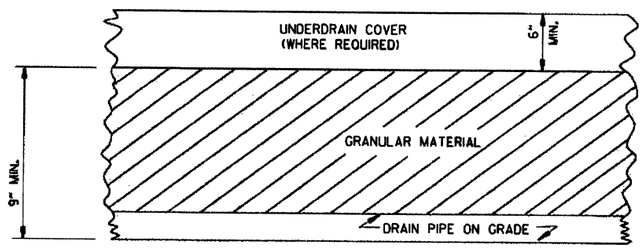
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

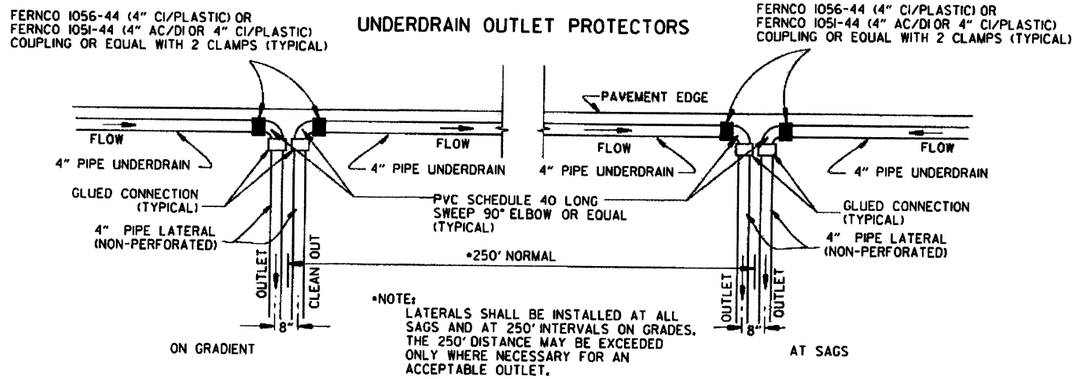
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS; 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

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.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

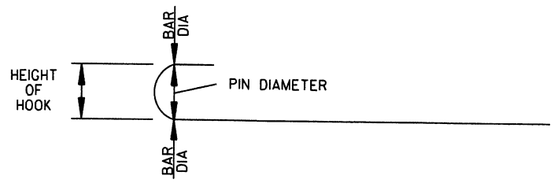
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	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 2¾ 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

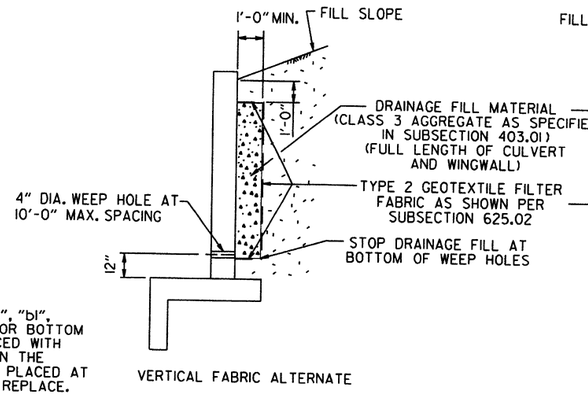
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

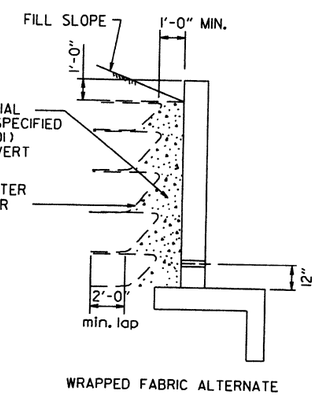
REPLACEMENT BAR LENGTHS TABLE

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



VERTICAL FABRIC ALTERNATE



WRAPPED FABRIC ALTERNATE

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.

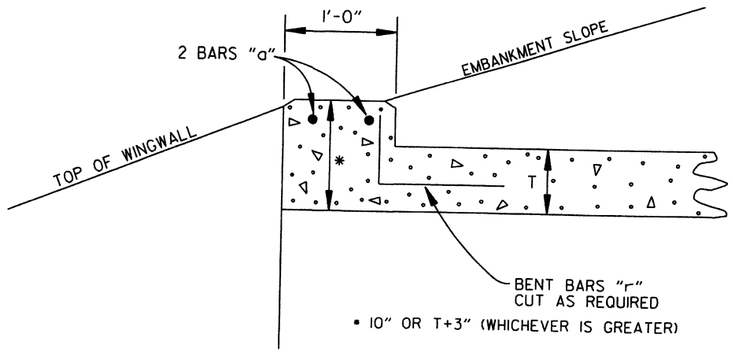
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 ½ 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.

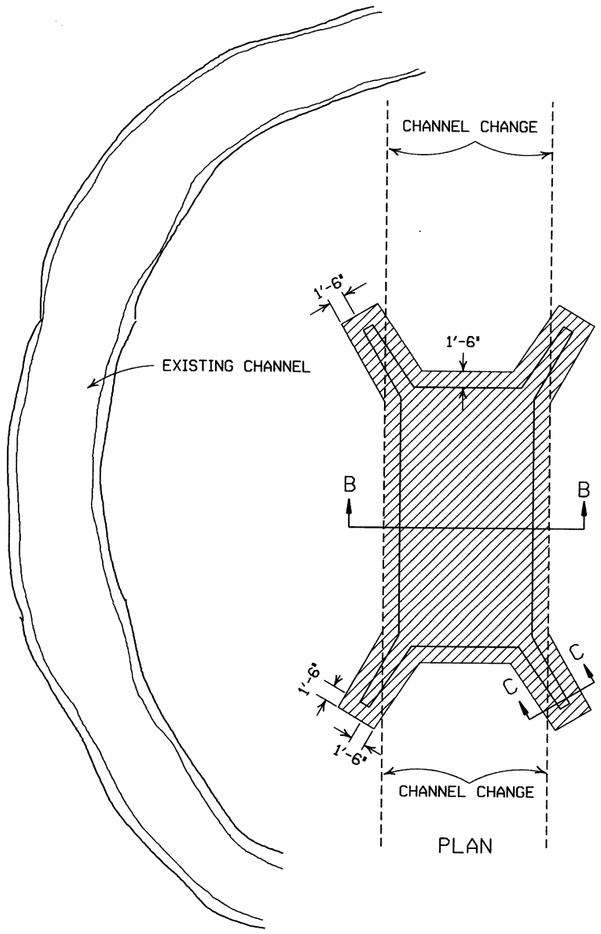
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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	

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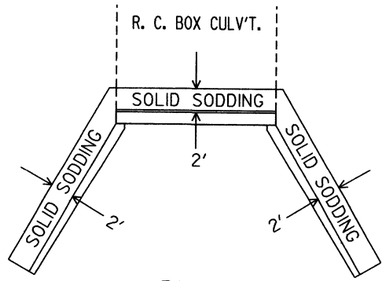
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

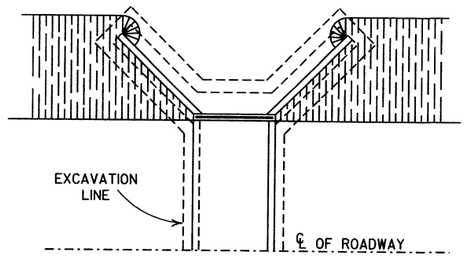
SOLID SODDING



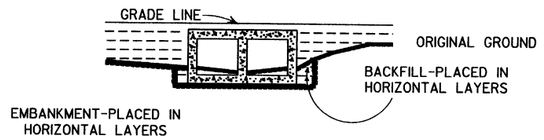
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

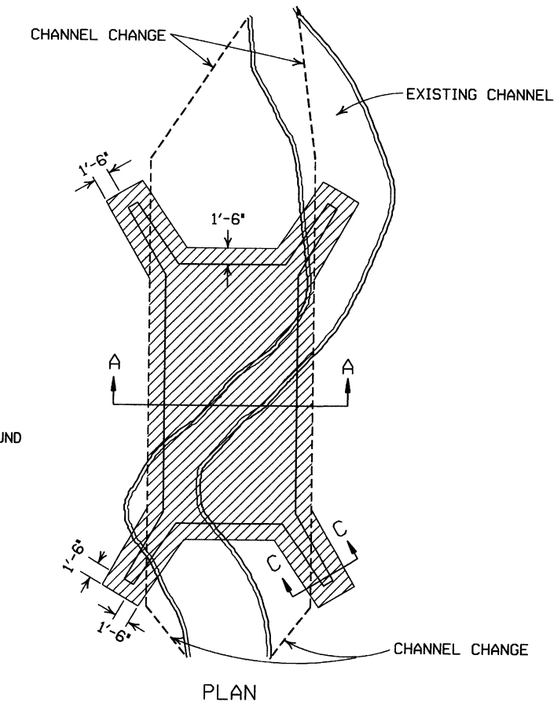


PLAN

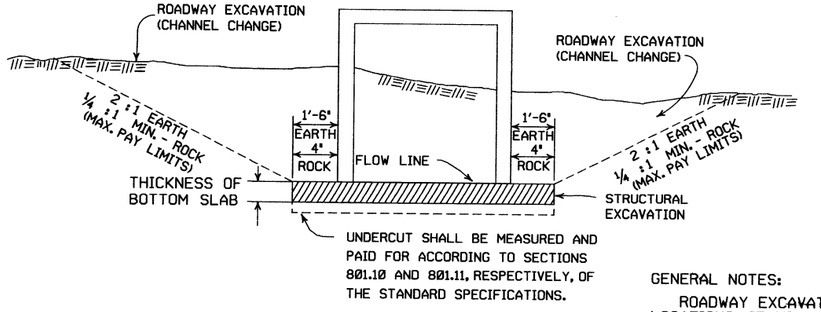


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

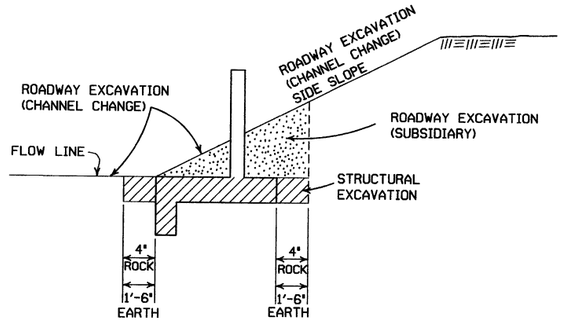


PLAN

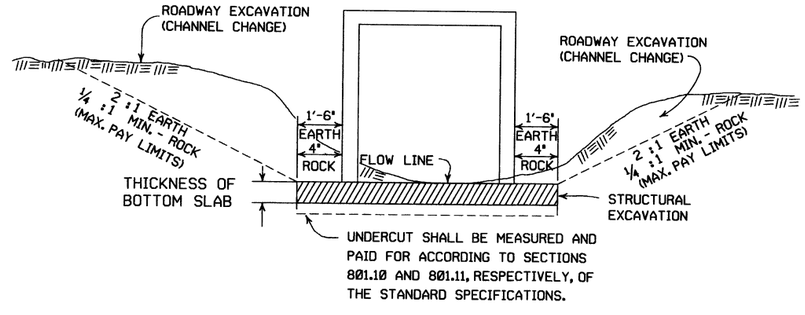


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

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.

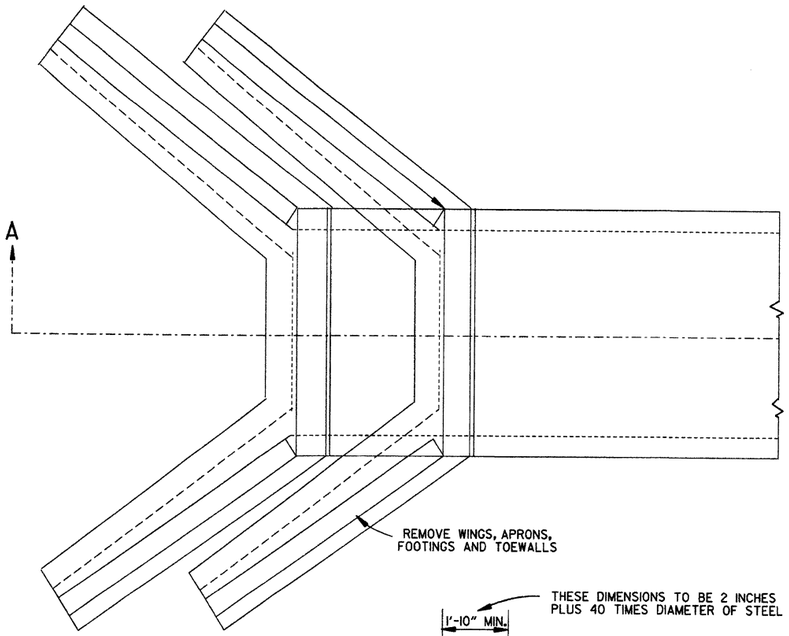
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
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	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

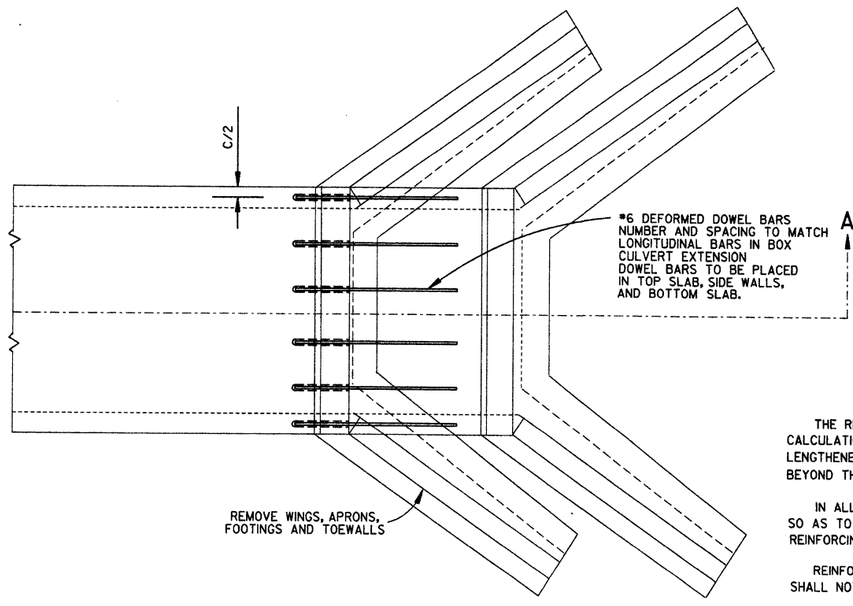
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

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

	USE FOR METHOD
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
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.	1&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.	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.	1&2

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

FILE STDrcb3.dgn

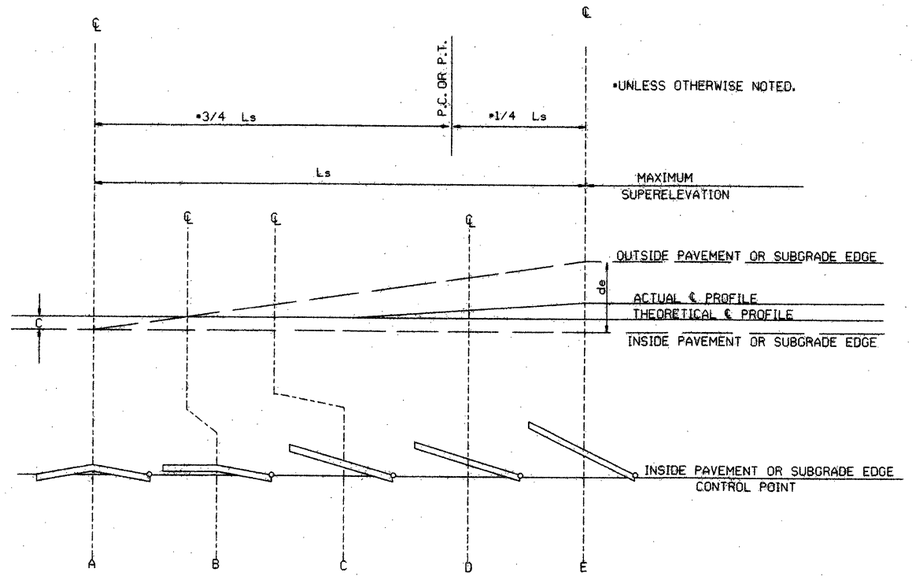
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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

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

ABBREVIATIONS

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



*UNLESS OTHERWISE NOTED.

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

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

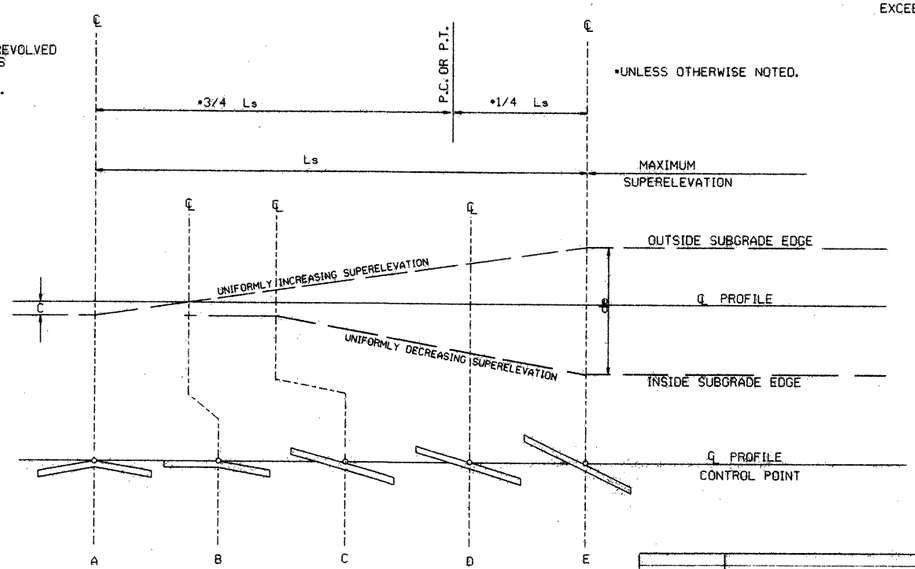
GENERAL NOTES

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

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

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

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



*UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

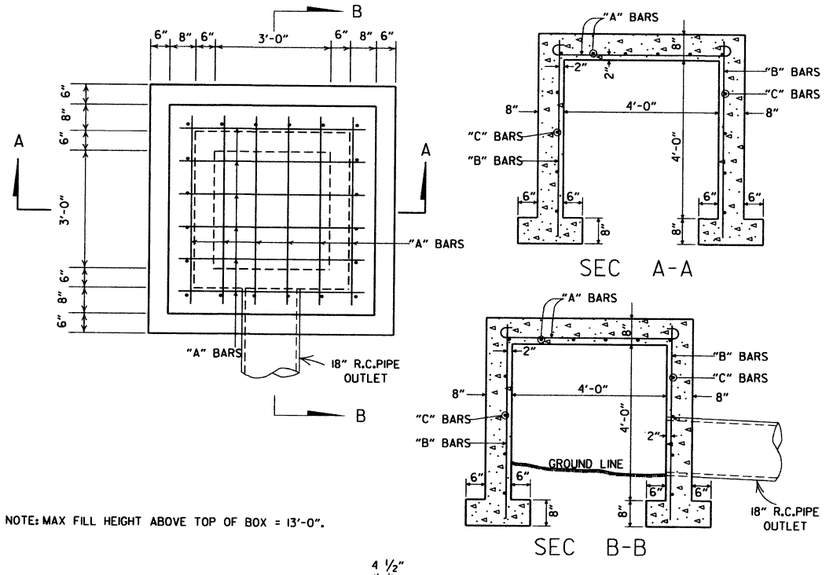
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

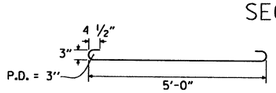


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



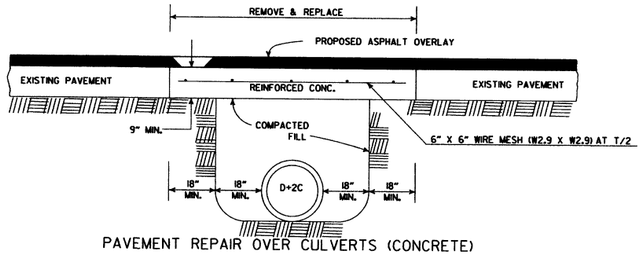
"A" BARS

QUANTITIES

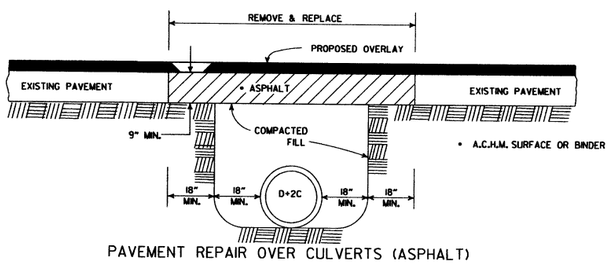
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



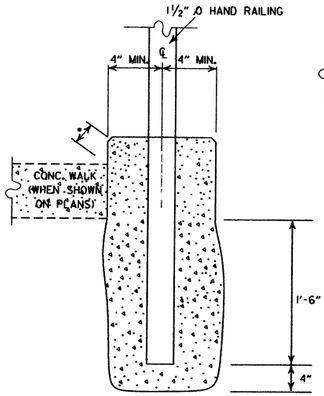
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



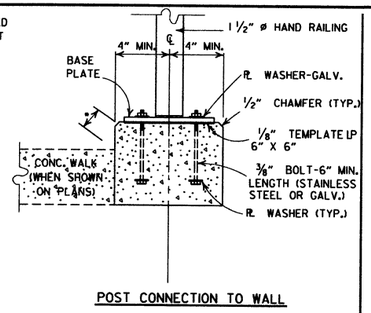
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

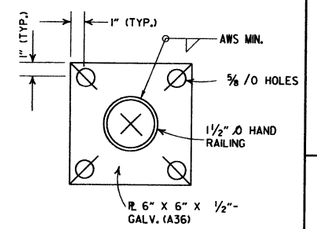
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

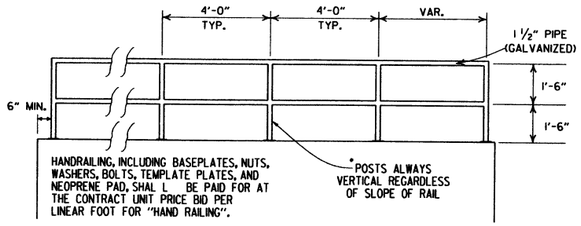


POST CONNECTION TO WALL

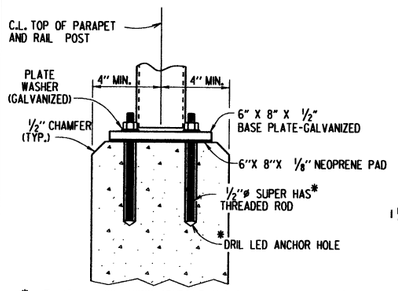


BASE PLATE

POST CONNECTION DETAILS



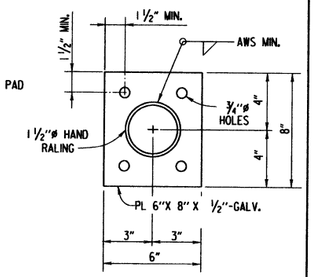
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

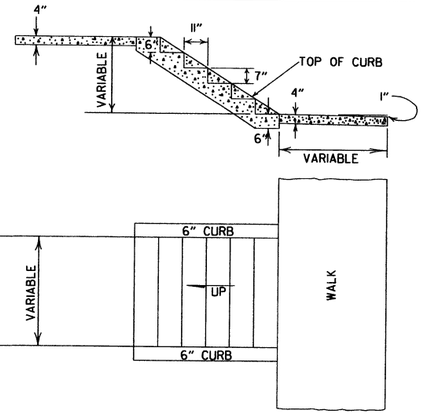
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45° INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLES;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72
DATE	REVISION	DATE FILMED

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DETAILS OF SPECIAL ITEMS

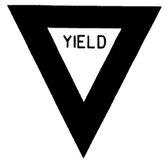
STANDARD DRAWING SI-1

R1-1



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

R1-2



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

R2-1



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

W3-5



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

W3-5a



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

R4-1



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

R4-2



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

R5-1



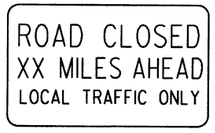
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



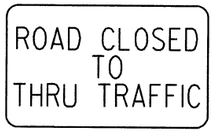
48"X30"

RII-3A



60"X30"

RII-4



60"X30"

W21-5a



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

W1-1



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

W1-2



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

W1-3



STD. 48"X48"

W1-4



STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



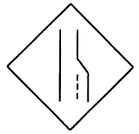
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1



STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7



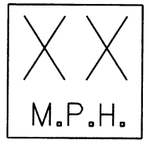
EXPWY. 36"X36"
FWY. 48"X48"

W9-2



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

W13-1



STD. 24"X24"

W20-1



STD. 48"X48"

W20-2



STD. 48"X48"

W20-3



STD. 48"X48"

W20-4



STD. 48"X48"

W20-5



STD. 48"X48"

W20-7a



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

W21-2



STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



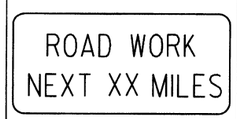
STD. 36"X36"
FWY. 48"X48"

W8-9



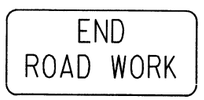
STD. 36"X36"
FWY. 48"X48"

G20-1



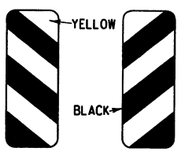
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

M4-9



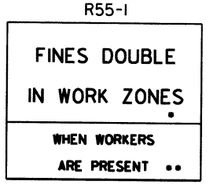
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10



48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

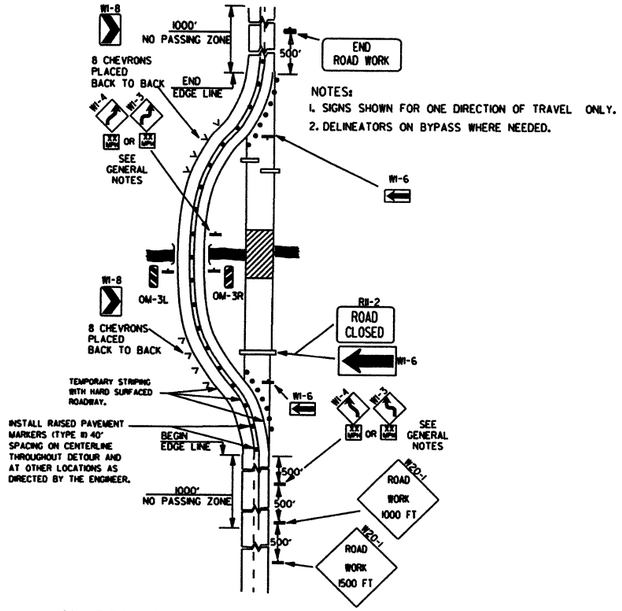
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	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	

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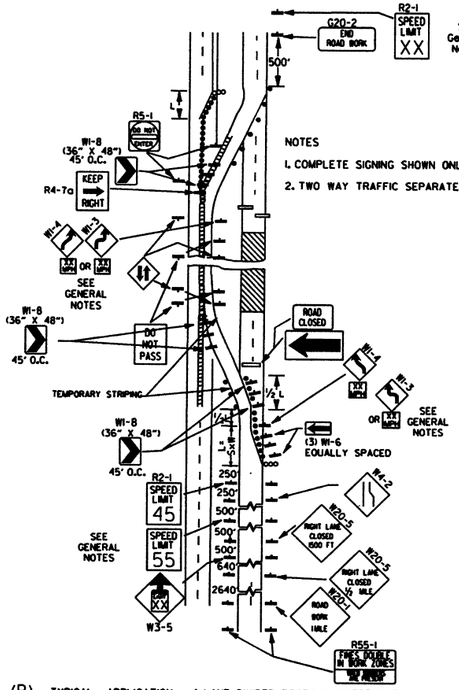
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



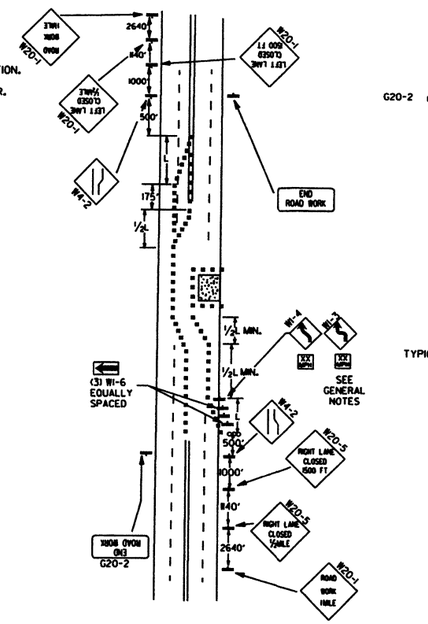
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

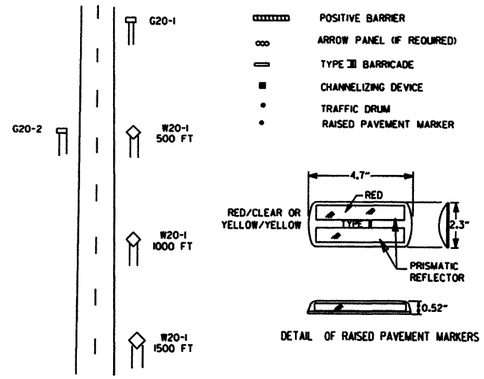


(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

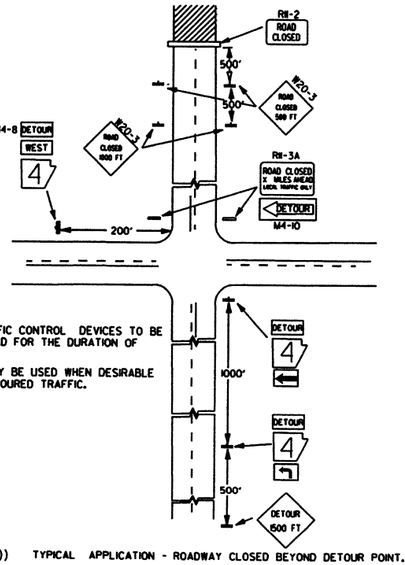
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

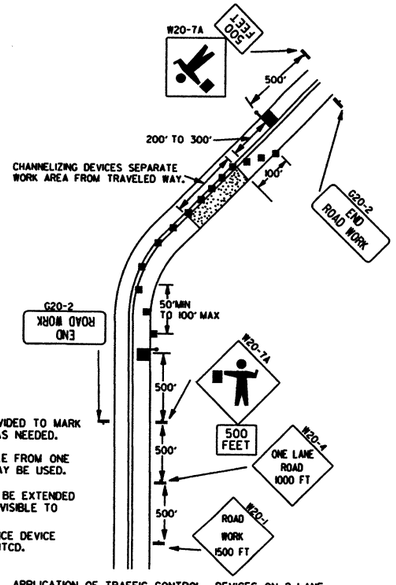
GENERAL NOTES:

1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-K45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



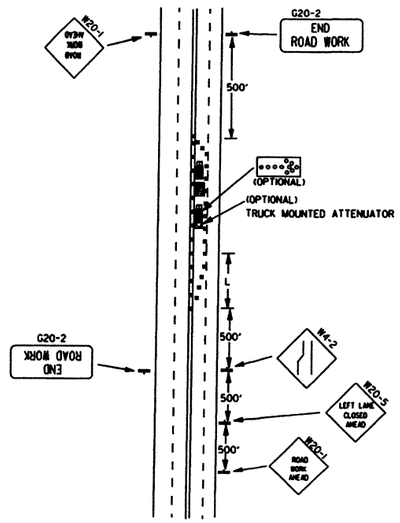
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



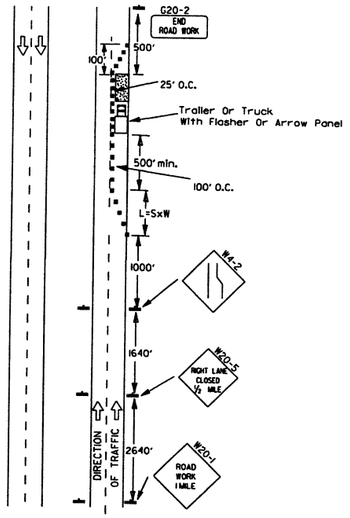
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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

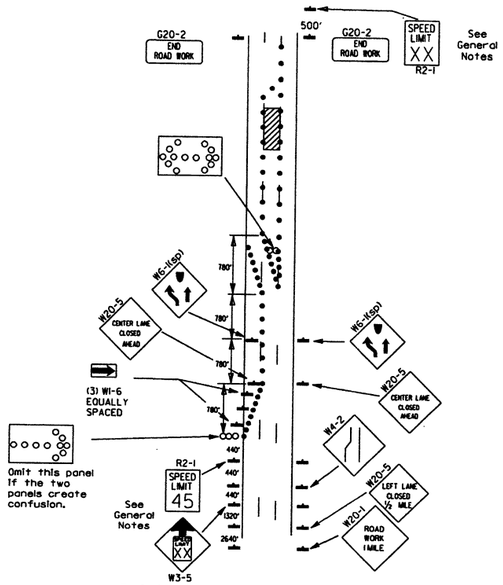
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

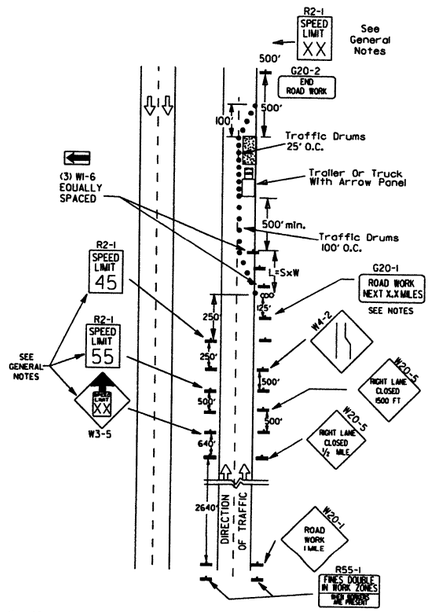
STANDARD DRAWING TC-2



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



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



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

KEY:

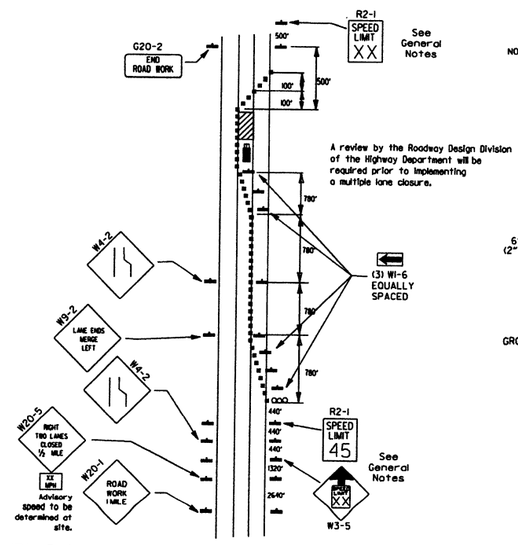
ooo Arrow Panel (If Required)

■ Channelizing Device

● Traffic drum

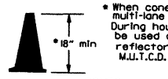
GENERAL NOTES:

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



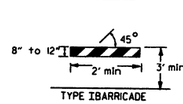
(D) Typical application - closing multiple lanes of a multilane highway.

Channelizing devices



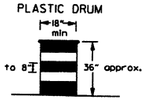
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

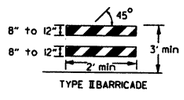
CONES



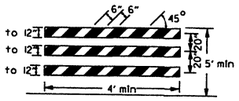
TYPE I BARRICADE

PLASTIC DRUM



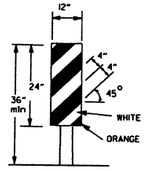


TYPE II BARRICADE



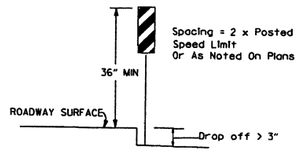
TYPE III BARRICADE

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



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



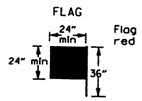
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

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

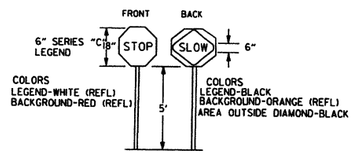
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

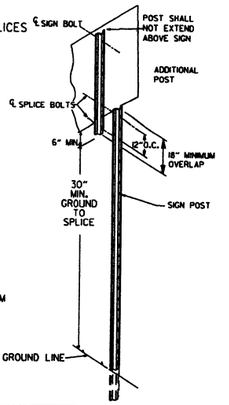


Flag shall be of good grade red material

STOP SLOW PADDLE



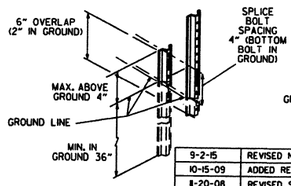
DETAIL OF SPLICES



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

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

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



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

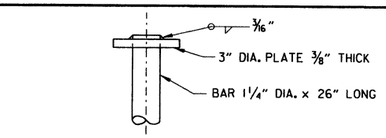
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

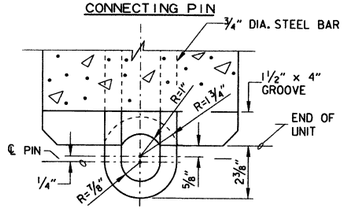
STANDARD DRAWING TC-3

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)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR, 1'-6", 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8"

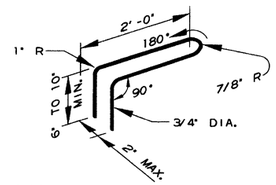


CONNECTING PIN

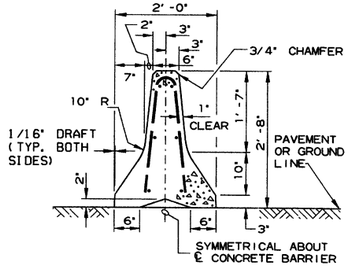


SECTION E-E

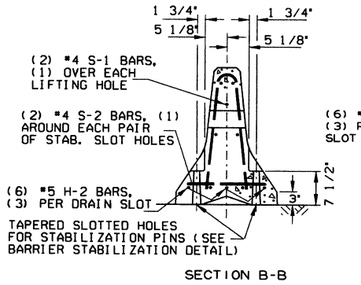
CONNECTION DETAILS



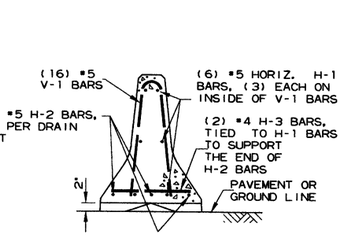
CONNECTION LOOP



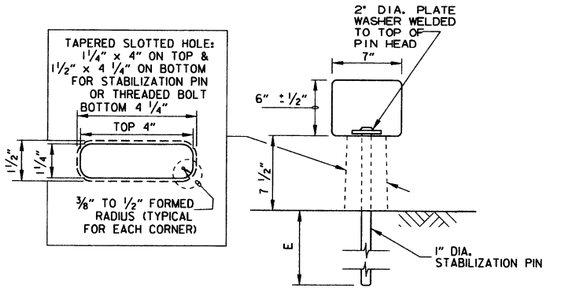
SECTION A-A



SECTION B-B



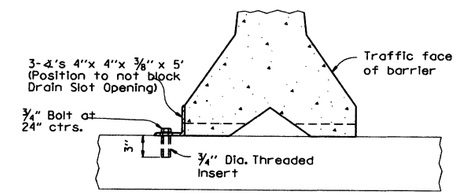
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

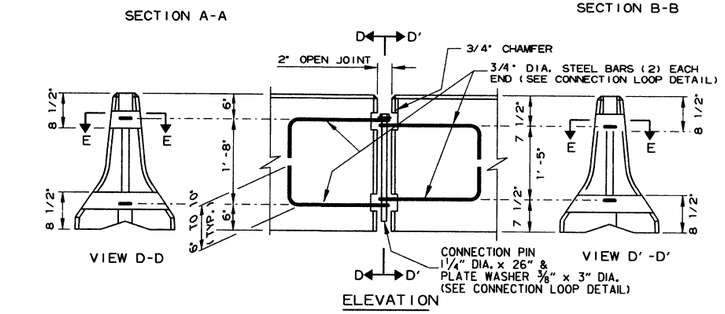
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



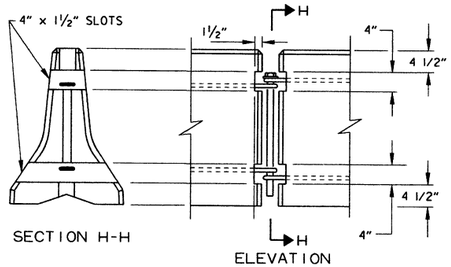
NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

BRIDGE DECKS



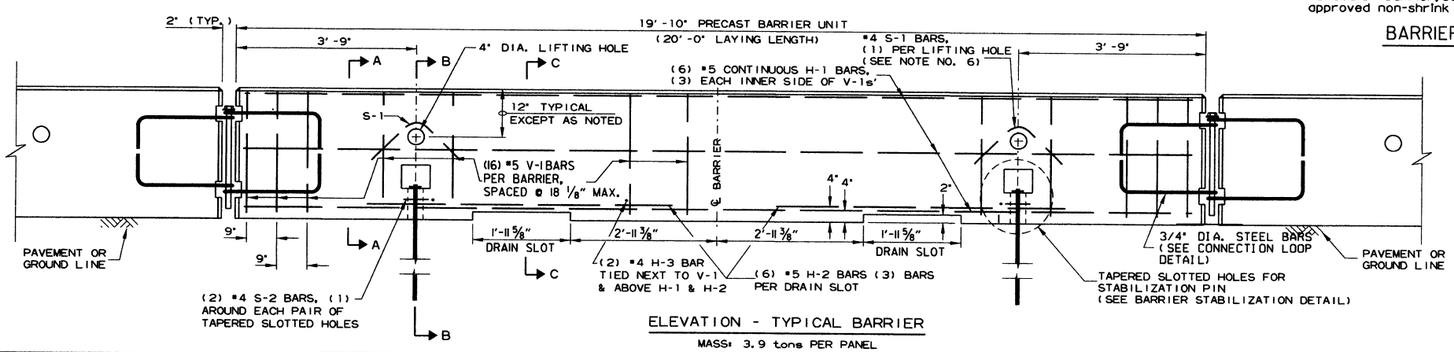
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. 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.

2. 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 wall is 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 on 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.

3. 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.

4. 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.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

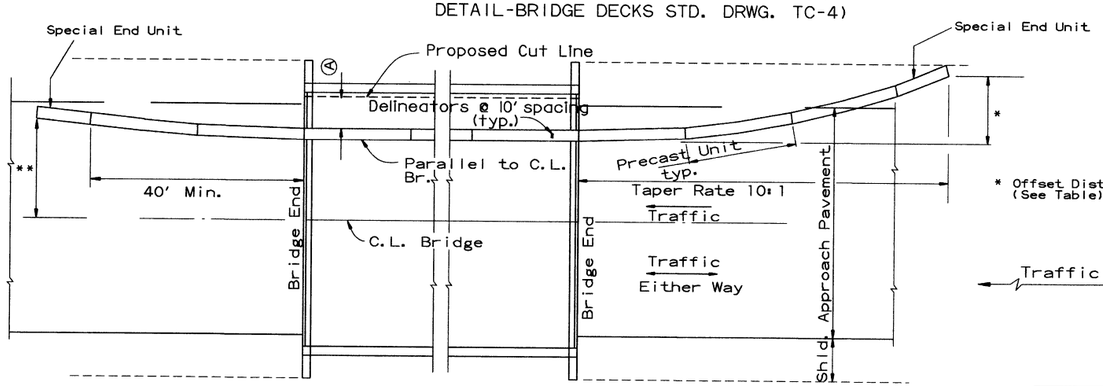
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

Ⓐ 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)

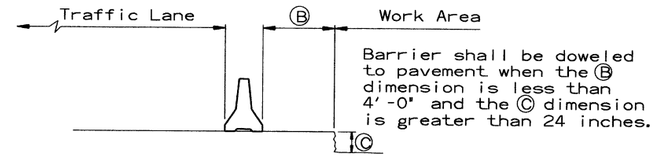


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

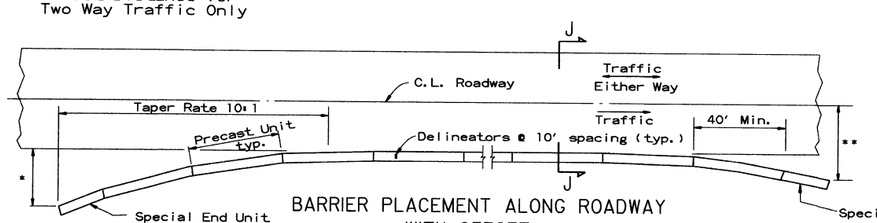
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

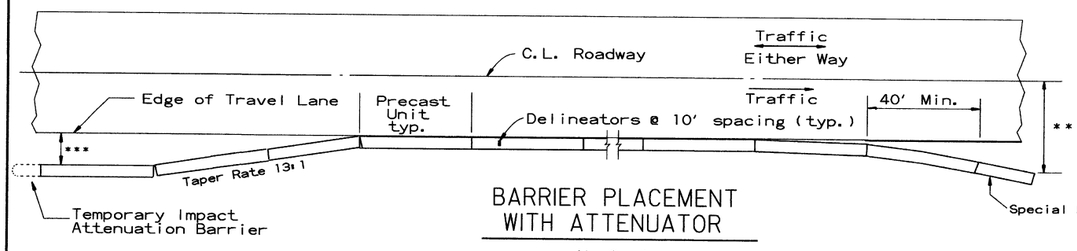
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

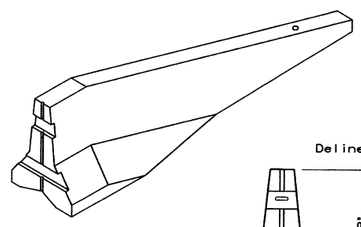


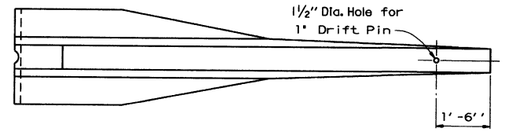
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

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

** Offset Distance For Two Way Traffic Only





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.'

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

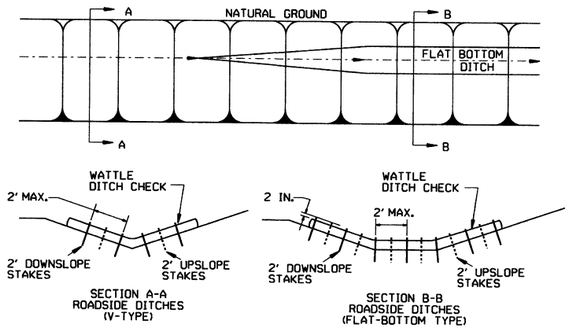
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

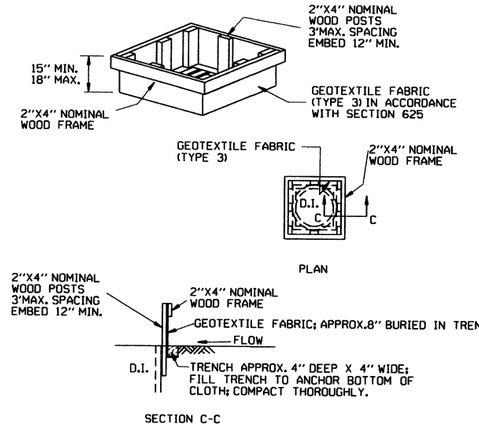
STANDARD DRAWING TC-5

GENERAL NOTES

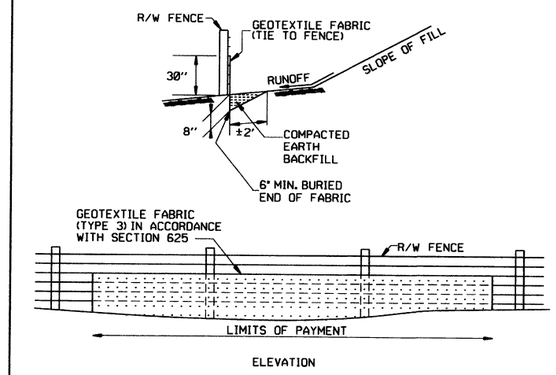
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



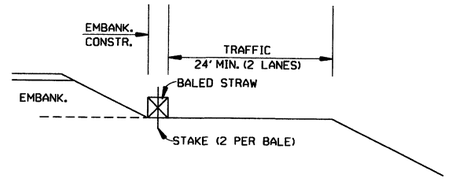
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

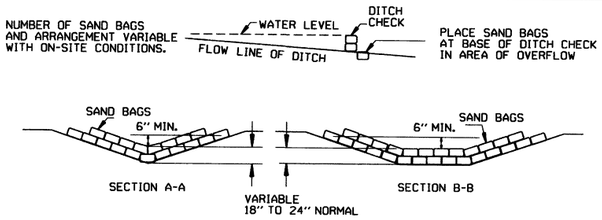
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

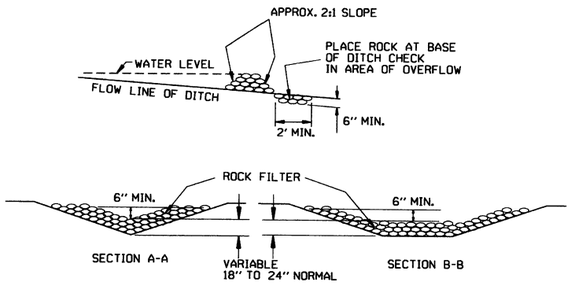
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



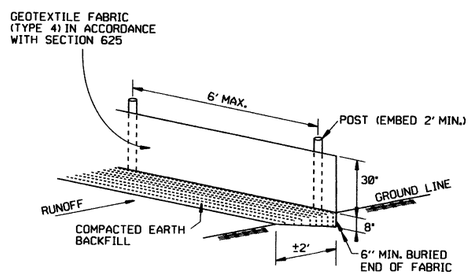
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

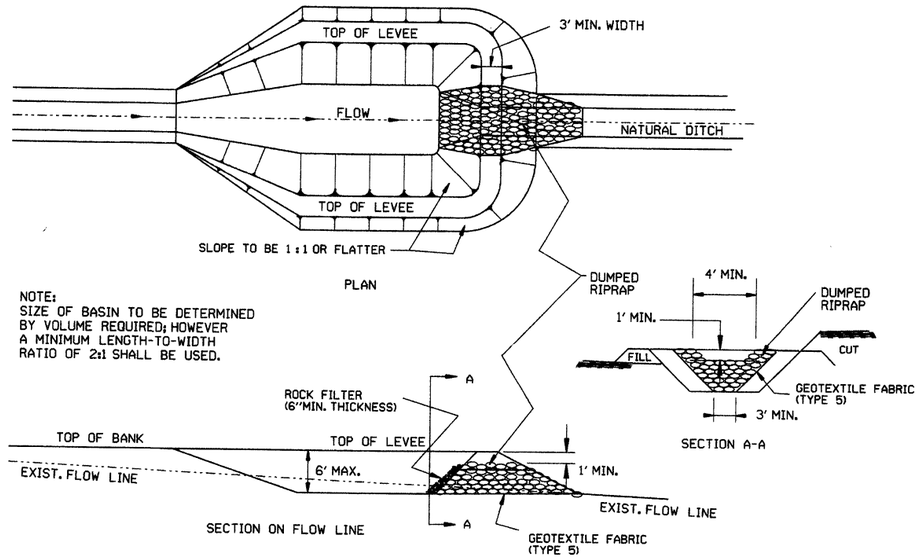
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

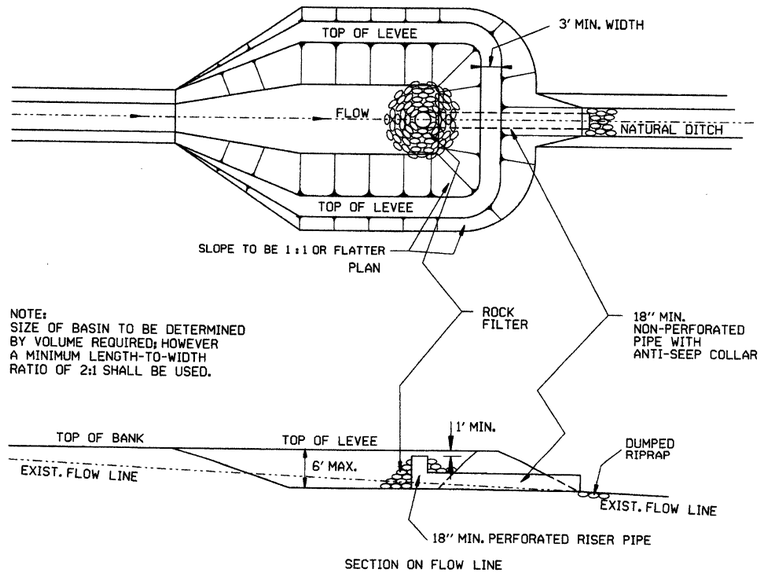
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

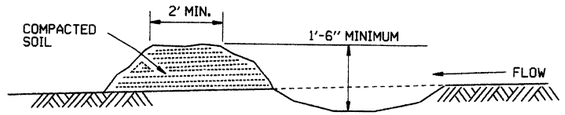
STANDARD DRAWING TEC-1



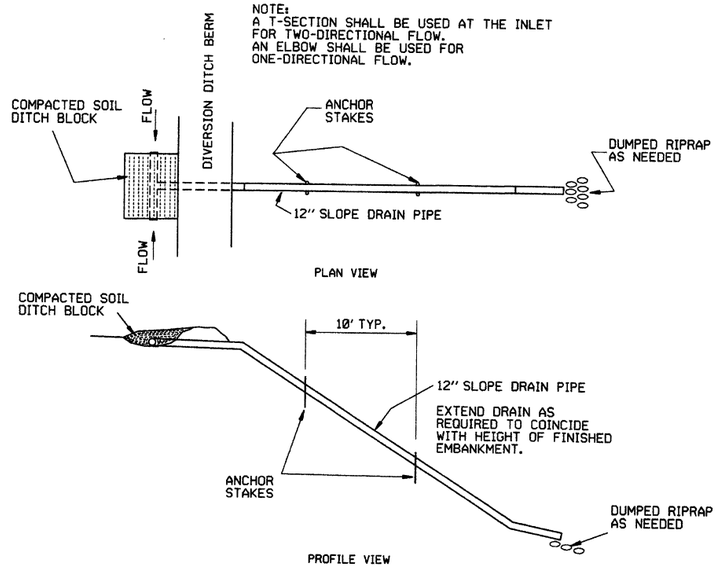
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



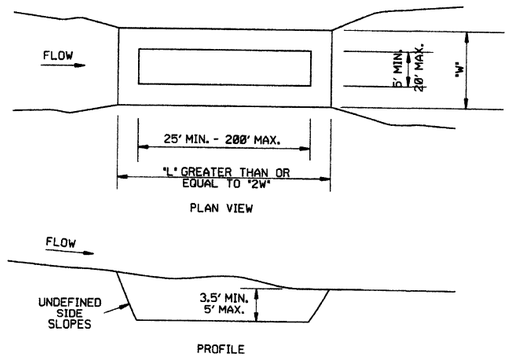
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

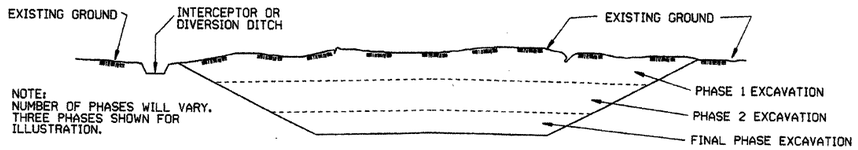
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



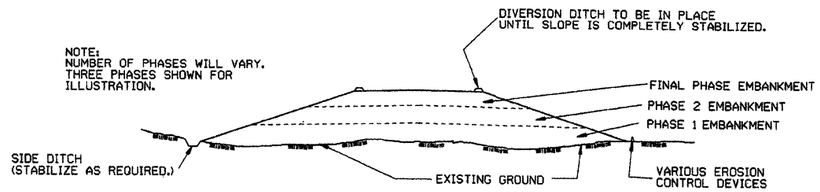
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

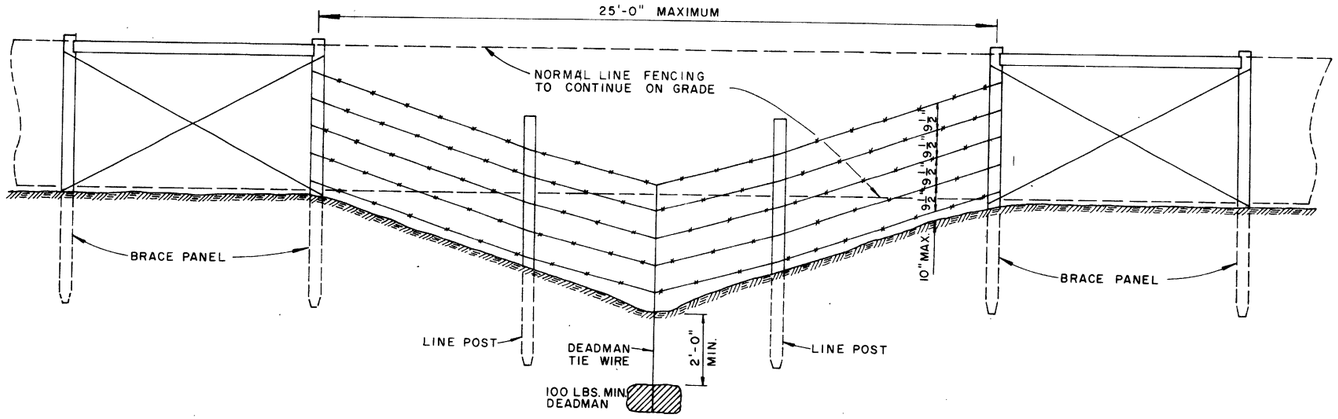
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

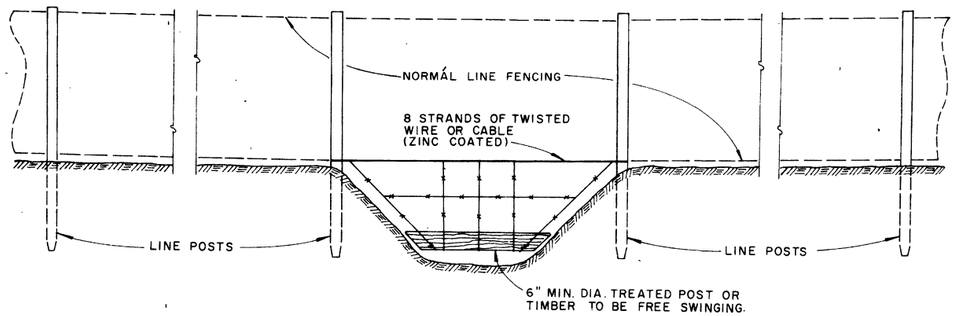
ARKANSAS STATE HIGHWAY COMMISSION

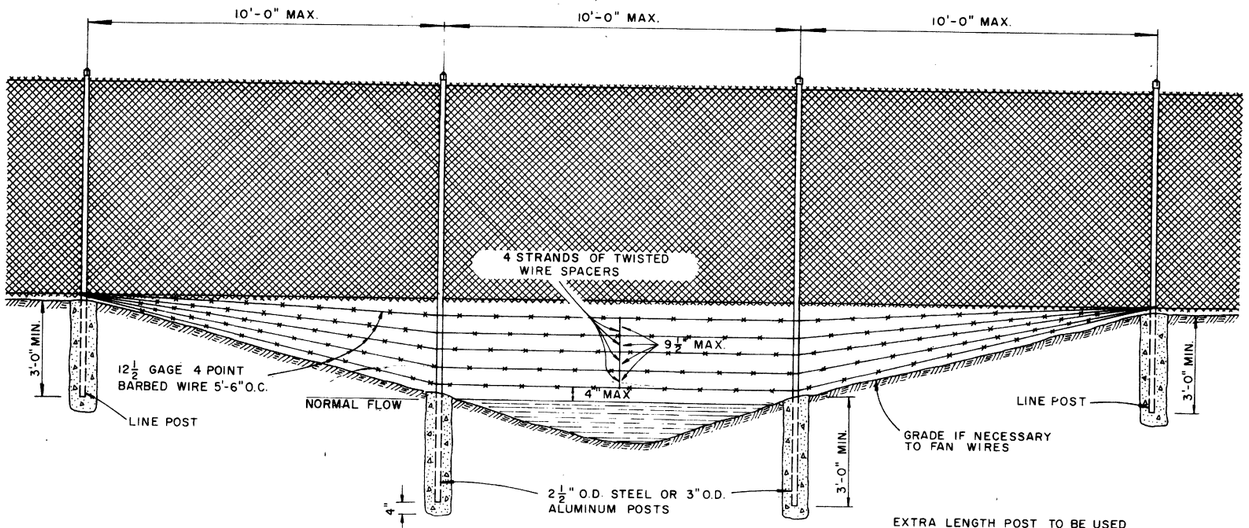
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

stdtec3.dgn







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.

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

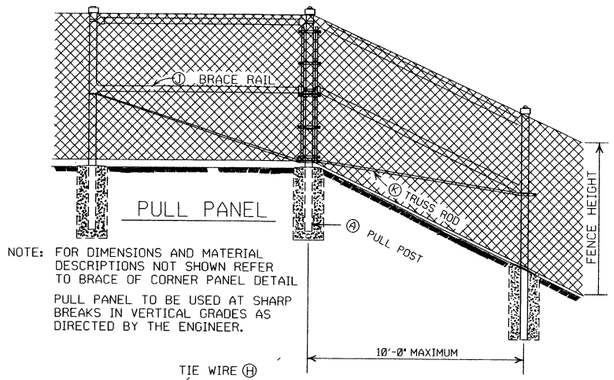
ARKANSAS STATE HIGHWAY COMMISSION

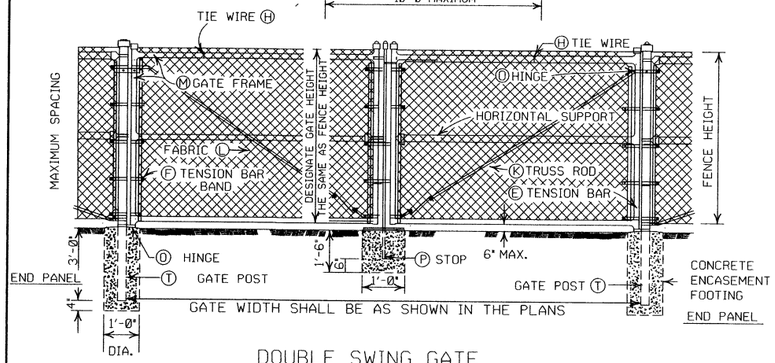
WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

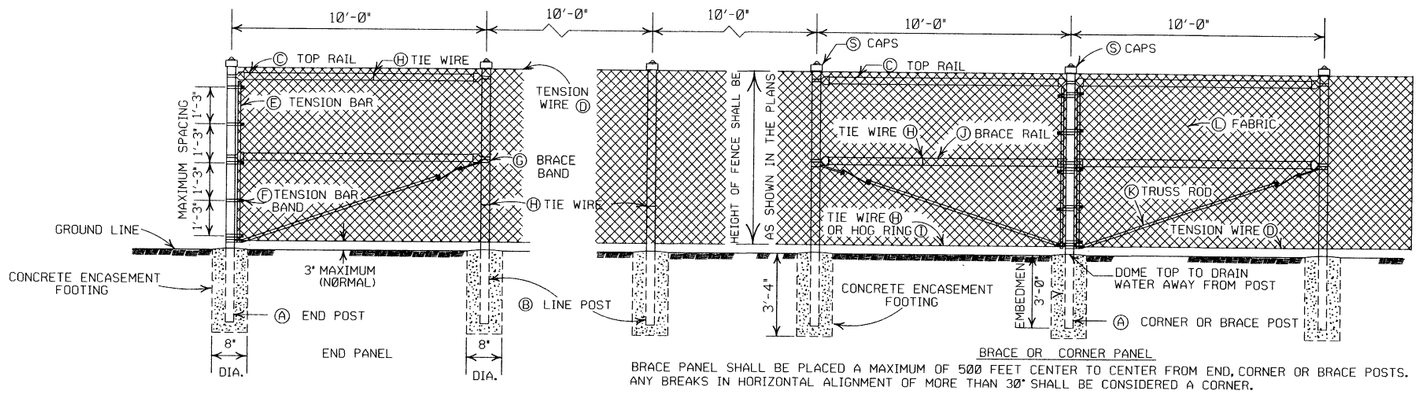
1M—11-71—67001—PPABCo



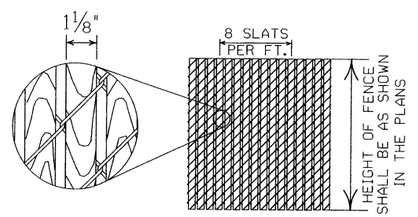


DOUBLE SWING GATE

POST SPACING DETAIL



BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

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 HALFWAY 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 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.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2' LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	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.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" 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 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" 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.

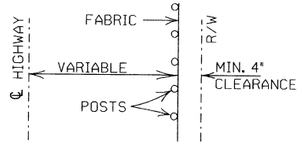
OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

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 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	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
2½	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
3½	3.500	0.216	7.58	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



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

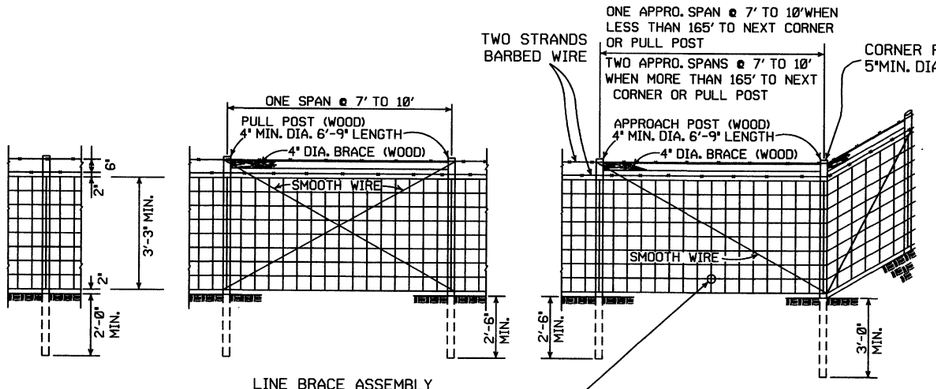
TYPICAL INSTALLATION DIAGRAM

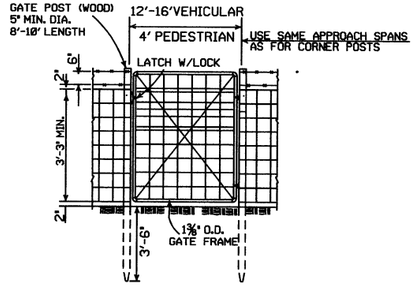
DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 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

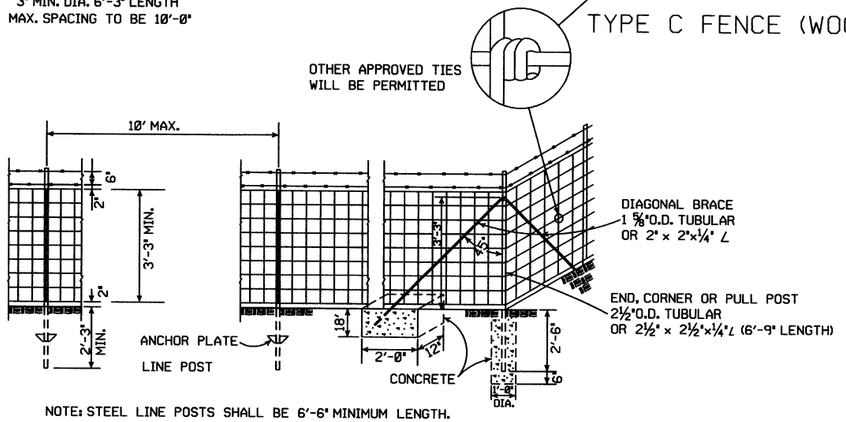
CHAIN LINK FENCE

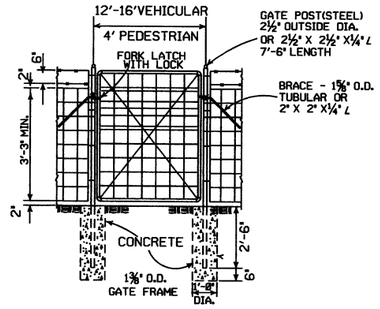
STANDARD DRAWING WF-3

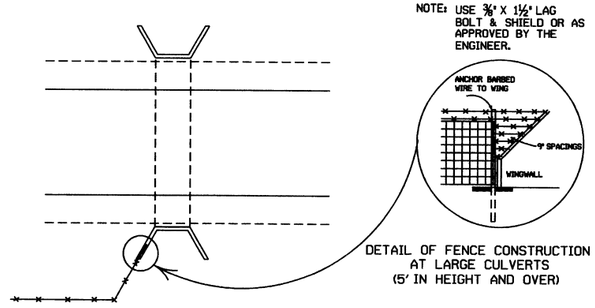




TYPE C FENCE (WOOD POSTS)







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

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

GENERAL NOTES:

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

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

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

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

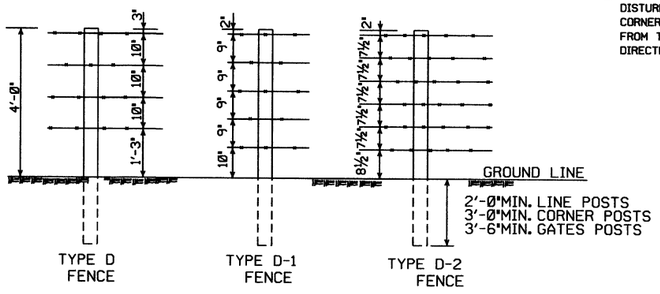
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS:
THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

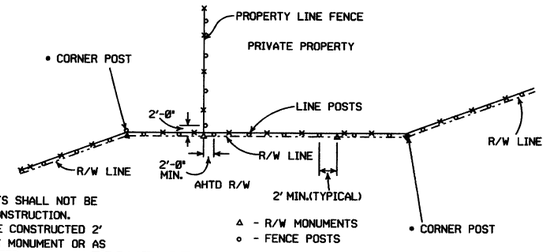
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

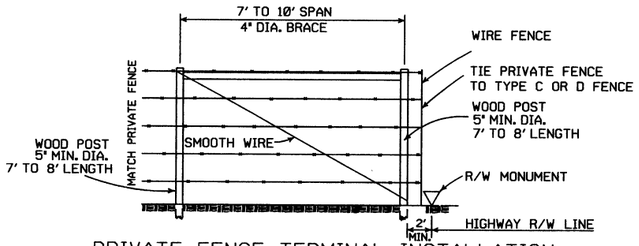


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



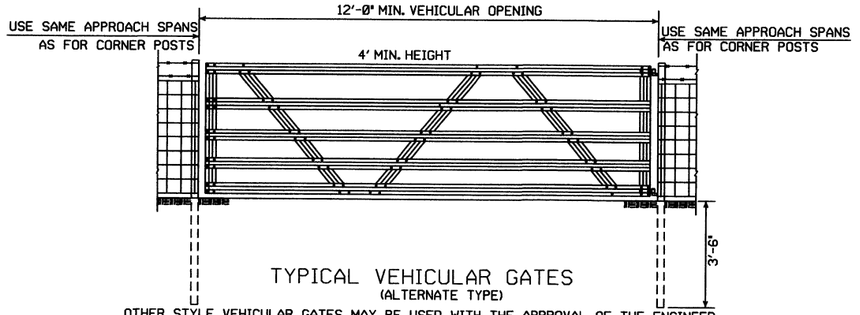
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

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

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4

RESHOT 3-4-93

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

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

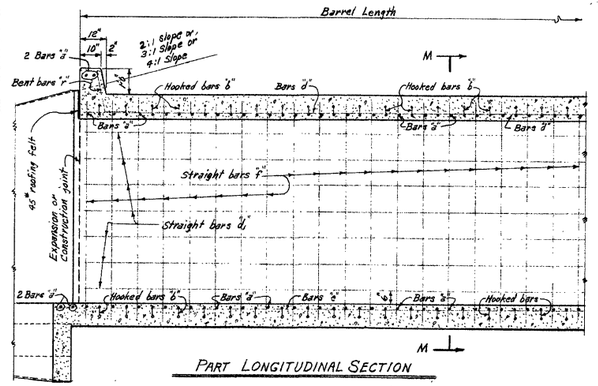
DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	'a' bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall- Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	'b' bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with 'a' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	'g' bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	'd' bars STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	No. REQ'D	LENGTH	'e' bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	'f' bars STRAIGHT Verticals in Side walls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
D	S	H																												
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'			120	120	4'-9"			110	110	5'-10"	4'-8"			6		4										120	120	2'-11"
		3'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"	#5	10½"	6	#4	12"	6					#4	12"	5		120	120	3'-11"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			8							5		120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			10							5		120	120	5'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			6			12							5		120	120	6'-11"
	1 @ 5'	3'			120	120	5'-9"			110	110	6'-10"	5'-8"			6			6									120	120	4'-0"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			7			8							6		120	120	5'-0"
		5'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	7	#4	12"	10					#4	12"	6		120	120	6'-0"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			7			12							6		120	120	7'-0"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			7			14							6		120	120	8'-0"
		3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			6							7		120	120	4'-1"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			8							7		120	120	5'-1"
	1 @ 6'	5'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8	#4	12"	10					#4	12"	7		120	120	6'-1"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"			8			12							7		120	120	7'-1"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			8			14							7		120	120	8'-1"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			8			16							7		120	120	9'-1"
		4'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			8							8		120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			10							8		120	120	6'-2"
	1 @ 7'	6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-0"	7'-10"	#5	10½"	9	#4	12"	12					#4	12"	8		120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9			14							8		120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9			16							8		120	120	9'-2"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			9			18							8		120	120	10'-2"
		4'			128	128	8'-9"			118	118	9'-10"	8'-8"			11			8							9		120	120	5'-6"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			11			10							9		120	120	6'-6"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			11			12							9		120	120	7'-6"
	1 @ 8'	7'	#7	12"	128	128	9'-0"	#6	12"	118	118	10'-1"	8'-11"	#5	10"	11	#4	12"	14					#4	12"	9		120	120	8'-6"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			11			16							9		120	120	9'-6"
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		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12			12							10		120	120	7'-5"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			12			14							10		120	120	8'-5"
	1 @ 9'	8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	12	#4	12"	16					#4	12"	10		120	120	9'-5"
		9'			140	140	10'-3"			130	130	11'-9"	10'-2"			12			18							10		120	120	10'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			12			20							10		120	120	11'-5"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			12			22							10		120	120	12'-5"
		5'			128	128	10'-11"			118	118	12'-2"	10'-10"			13			10							11		120	120	6'-6"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13			12							11		120	120	7'-6"
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13			14							11		120	120	8'-6"
	1 @ 10'	8'	#7	12"	128	128	11'-1"	#7	12"	118	118	12'-4"	11'-0"	#5	10"	13	#4	12"	16					#4	12"	11		120	120	9'-6"
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"			13			18							11		120	120	10'-6"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			13			20							11		120	120	11'-6"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			13			22							11		120	120	12'-6"
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		6'			140	140	12'-1"			130	130	13'-6"	12'-0"			15			12							12		120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-6"	12'-0"			15			14							12		120	120	8'-7"
	1 @ 11'	8'	#7	11"	140	140	12'-1"	#7	11"	130	130	13'-6"	12'-0"	#5	9½"	15	#4	12"	16					#4	12"	12		120	120	9'-7"
		9'			140	140	12'-3"			130	130	13'-6"	12'-2"			15			18							12		120	120	10'-7"
		10'			140	140	12'-5"			130	130	13'-9"	12'-4"			15			20							12		120	120	11'-7"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15			22							12		120	120	12'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15			24							12		120	120	13'-7"
		6'			128	128	13'-1"			118	118	14'-2"	13'-0"			16			12							13		120	120	7'-9"
		7'			128	128	13'-1"			118	118	14'-2"	13'-0"			16			14							13		120	120	8'-9"
	1 @ 12'	8'	#7	12"	128	128	13'-1"	#7	12"	118	118	14'-2"	13'-0"	#5	9½"	16	#4	12"	16					#4	12"	13		120	120	9'-9"
		9'			128	128	13'-3"			118	118	14'-2"	13'-2"			16			18							13		120	120	10'-9"
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16			20							13		120	120	11'-9"
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16			22							13		120	120	12'-9"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16			24							13		120	120	13'-9"

Designed By:- W.C.H. 1-23-63. Checked By:- [illegible] 5-24-63
Drawn By:- W.C.H. 2-8-63. Checked By:- [illegible] 5-24-63
Quantities By:- W.C.H. 2-12-63. Checked By:- [illegible] 5-24-63

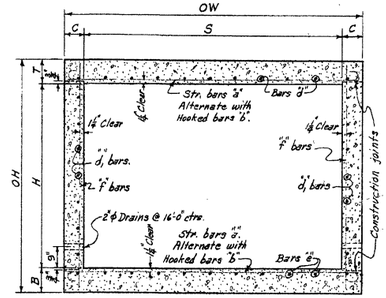
DIMENSIONS AND QUANTITIES

MAX. DESIGN DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	Sq. Ft. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	CLASS S CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL PER LIN. FT. OF BARREL	REINFORCING STEEL ADDITIONAL PER LAP	REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS
			BARREL DIMENSIONS						UNIT QUANTITIES			
D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	0.282	41.93	17.95	66.35
		3'	12	5'-0"		6"		4'-1½"	0.319	44.16	18.62	66.35
		4'	16	5'-0"		6"		5'-1½"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1½"	0.396	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1½"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7½"	6"	7"	4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		6'-2½"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2½"	0.535	64.93	27.20	103.27
		7'	35	6'-3"		7½"		8'-2½"	0.609	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	0.446	66.23	24.76	118.96
		4'	24	7'-0"		6"		5'-3½"	0.483	68.96	26.93	118.96
		5'	30	7'-0"		6"		6'-3½"	0.520	71.68	28.10	118.96
		6'	36	7'-2"		7"		7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	88.47	33.11	122.97
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.74	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.996	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"	9½"	6"	9½"	5'-7"	0.676	95.26	38.32	194.07
		5'	40	9'-2"		7"		6'-7"	0.758	99.12	39.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"		7½"		8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-4"		8"		9'-7"	0.942	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.184	126.67	43.34	204.97
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	0.844	114.72	37.56	213.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.58	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.198	135.80	44.24	225.06
		10'	90	10'-8"		10"		11'-8"	1.274	142.68	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.416	150.40	47.58	230.51
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"	0.957	130.69	40.13	292.69
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	294.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	294.00
		8'	80	11'-4"		8"		9'-9½"	1.147	142.55	45.14	295.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	46.81	298.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	48.98	299.81
		11'	110	11'-10"		11"		12'-9½"	1.532	164.71	50.15	253.59
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.24
	1 @ 11'	6'	66	12'-9"	11½"	8"	11½"	7'-10½"	1.159	156.16	46.12	268.62
		7'	77	12'-9"		8"		8'-10½"	1.202	157.88	47.79	268.62
		8'	88	12'-9"		8"		9'-10½"	1.252	162.06	49.46	268.62
		9'	99	12'-6"		9"		10'-10½"	1.368	172.60	51.13	271.39
		10'	110	12'-8"		10"		11'-10½"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10½"	1.638	187.67	54.97	276.79
		12'	132	13'-0"		12"		13'-10½"	1.792	199.79	56.14	278.52
	1 @ 12'	6'	72	13'-9"	11½"	8"	12½"	8'-0"	1.284	172.20	48.69	357.62
		7'	84	13'-9"		8"		9'-0"	1.333	174.87	50.36	357.62
		8'	96	13'-9"		8"		10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	183.85	53.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.95	58.71	371.86

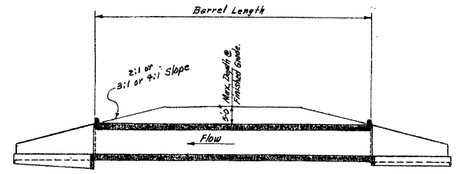
W-X002-1, W-X002-2 or W-X004-1 or W-X004-2



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars 'b'.
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3½"	5⅝"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Bars 'r' Dowel bars in Headwalls.
4'	#4	11¾	12	2'-6"	1'-3"	r, ½, X
5'	#4	11¾	14	2'-7"	1'-3⅝"	
6'	#4	11¾	16	2'-8"	1'-4"	
7'	#4	11¾	18	2'-9"	1'-4⅝"	
8'	#4	11⅝	20	2'-11"	1'-5⅝"	
9'	#4	11⅝	22	3'-0"	1'-6"	
10'	#4	11⅝	24	3'-1"	1'-6⅝"	
11'	#4	12¼	26	3'-2"	1'-7"	
12'	#4	12¼	28	3'-3"	1'-7⅝"	

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" 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'-6". 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 24,000 Lb. Axles @ 9'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

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 Nos. 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

RESHOT 3-5-93

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

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

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall.- Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	128	128	9'-5"
		3'			128	128	9'-5"
		4'			128	128	9'-5"
		5'			128	128	9'-5"
		6'			128	128	9'-8"
	2 @ 5'	3'			128	128	11'-5"
		4'			128	128	11'-5"
		5'			128	128	11'-5"
		6'			128	128	11'-8"
		7'			128	128	11'-10"
	2 @ 6'	3'			140	140	13'-5"
		4'			140	140	13'-5"
		5'	#6	11"	140	140	13'-5"
		6'			140	140	13'-8"
		7'			140	140	13'-10"
		8'			140	140	13'-11"
	2 @ 7'	4'			128	128	15'-5"
		5'			128	128	15'-5"
		6'	#6	12"	128	128	15'-8"
		7'			128	128	15'-10"
		8'			128	128	15'-11"
		9'			128	128	16'-2"
	2 @ 8'	4'			140	140	17'-5"
		5'			140	140	17'-8"
		6'			140	140	17'-8"
		7'	#6	11"	140	140	17'-10"
		8'			140	140	17'-11"
		9'			140	140	18'-2"
		10'			140	140	18'-5"
	2 @ 9'	5'			140	140	19'-8"
		6'			140	140	19'-10"
		7'			140	140	19'-11"
		8'	#6	11"	140	140	19'-11"
		9'			140	140	20'-2"
		10'			140	140	20'-5"
		11'			140	140	20'-7"
	2 @ 10'	5'			128	128	21'-8"
		6'			128	128	21'-8"
		7'			128	128	21'-10"
		8'			128	128	21'-11"
		9'	#7	12"	128	128	23'-5"
		10'			128	128	23'-8"
		11'			128	128	23'-7"
		12'			128	128	23'-9"
	2 @ 11'	6'			128	128	23'-11"
		7'			128	128	23'-11"
		8'			128	128	23'-11"
		9'	#7	12"	128	128	24'-2"
		10'			128	128	24'-5"
		11'			128	128	24'-7"
		12'			128	128	24'-9"
	2 @ 12'	6'			140	140	25'-11"
		7'			140	140	25'-11"
		8'			140	140	25'-11"
		9'	#7	11"	140	140	26'-2"
		10'			140	140	26'-5"
		11'			140	140	26'-7"
		12'			140	140	26'-9"

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"b" bars STRAIGHT In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		3'			59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		4'			59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		5'			59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		6'			59	59	10'-9"	0'-3"	2'-3½"	3'-5"
	2 @ 5'	3'			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"
		4'			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"
		5'	#5	12"	59	59	12'-7"	0'-3½"	2'-7½"	4'-1"
		6'			59	59	12'-10"	0'-3½"	2'-8½"	4'-2"
		7'			59	59	13'-0"	0'-3½"	2'-8½"	4'-2"
	2 @ 6'	3'			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		4'			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		5'	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		6'			65	65	14'-10"	0'-4"	3'-1½"	4'-11"
		7'			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"
		8'			65	65	15'-1"	0'-4"	3'-2½"	5'-0"
	2 @ 7'	4'			59	59	16'-9"	0'-4½"	3'-5"	5'-7"
		5'			59	59	16'-9"	0'-4½"	3'-5"	5'-7"
		6'	#6	12"	59	59	17'-0"	0'-4½"	3'-6"	5'-8"
		7'			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"
		8'			59	59	17'-3"	0'-4½"	3'-7"	5'-9"
		9'			59	59	17'-6"	0'-4½"	3'-8"	5'-10"
	2 @ 8'	4'			65	65	18'-10"	0'-5"	3'-10"	6'-4"
		5'			65	65	19'-1"	0'-5"	3'-11"	6'-5"
		6'			65	65	19'-1"	0'-5"	3'-11"	6'-5"
		7'	#6	11"	65	65	19'-3"	0'-5"	4'-0"	6'-5½"
		8'			65	65	19'-6"	0'-5"	4'-0"	6'-6"
		9'			65	65	19'-7"	0'-5"	4'-1"	6'-7"
		10'			65	65	19'-10"	0'-5"	4'-2"	6'-8"
	2 @ 9'	5'			65	65	21'-1"	0'-5½"	4'-4½"	7'-2"
		6'			65	65	21'-3"	0'-5½"	4'-5½"	7'-2½"
		7'			65	65	21'-3"	0'-5½"	4'-5½"	7'-3"
		8'	#6	11"	65	65	21'-6"	0'-5½"	4'-6"	7'-3½"
		9'			65	65	21'-7"	0'-5½"	4'-6½"	7'-4"
		10'			65	65	21'-10"	0'-5½"	4'-7"	7'-5"
		11'			65	65	22'-0"	0'-5½"	4'-7½"	7'-6"
	2 @ 10'	5'			59	59	23'-2"	0'-6"	4'-9"	7'-11"
		6'			59	59	23'-4"	0'-6"	4'-10"	7'-11½"
		7'			59	59	23'-4"	0'-6"	4'-10"	7'-11½"
		8'			59	59	23'-5"	0'-6"	4'-10"	8'-0"
		9'	#7	12"	59	59	23'-8"	0'-6½"	4'-11"	8'-1"
		10'			59	59	23'-11"	0'-6"	5'-0"	8'-2"
		11'			59	59	24'-1"	0'-6"	5'-0"	8'-3"
		12'			59	59	24'-3"	0'-6"	5'-0"	8'-4"
	2 @ 11'	6'			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
		7'			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
		8'			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
		9'	#7	12"	59	59	25'-8"	0'-6½"	5'-4"	8'-10"
		10'			59	59	25'-11"	0'-6½"	5'-5"	8'-11"
		11'			59	59	26'-1"	0'-6½"	5'-5"	9'-0"
		12'			59	59	26'-3"	0'-6½"	5'-5"	9'-1"
	2 @ 12'	6'			65	65	27'-5"	0'-7"	5'-8"	9'-6"
		7'			65	65	27'-5"	0'-7"	5'-8"	9'-6"
		8'			65	65	27'-5"	0'-7"	5'-8"	9'-6"
		9'	#7	11"	65	65	27'-8"	0'-7"	5'-9"	9'-7"
		10'			65	65	27'-11"	0'-7"	5'-10"	9'-8"
		11'			65	65	28'-1"	0'-7"	5'-10"	9'-9"
		12'			65	65	28'-3"	0'-7"	5'-10"	9'-10"

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"b2" bars STRAIGHT In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		3'			59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		4'			59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		5'			59	59	10'-6"	0'-3"	2'-2½"	3'-6"
		6'			59	59	10'-9"	0'-3"	2'-3½"	3'-5"
	2 @ 5'	3'			59	59	12'-6"	0'-3½"	2'-8½"	4'-1"
		4'			59	59	12'-6"	0'-3½"	2'-8½"	4'-1"
		5'	#5	12"	59	59	12'-6"	0'-3½"	2'-8½"	4'-1"
		6'			59	59	12'-9"	0'-3½"	2'-9½"	4'-2"
		7'			59	59	13'-1"	0'-3½"	2'-9½"	4'-2½"
	2 @ 6'	3'			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		4'			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		5'	#5	11½"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		6'			65	65	14'-10"	0'-4"	3'-1½"	4'-11"
		7'			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"
		8'			65	65	15'-1"	0'-4"	3'-2½"	5'-0"
	2 @ 7'	4'			59	59	16'-9"	0'-4½"	3'-5"	5'-7"
		5'			59	59	16'-9"	0'-4½"	3'-5"	5'-7"
		6'	#6	12"	59	59	17'-0"	0'-4½"	3'-6"	5'-8"
		7'			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"
		8'			59	59	17'-3"	0'-4½"	3'-7"	5'-9"
		9'			59	59	17'-6"	0'-4½"	3'-8"	5'-10"
	2 @ 8'	4'			65	65	18'-10"	0'-5"	3'-10"	6'-4"
		5'			65	65	19'-1"	0'-5"	3'-11"	6'-5"
		6'			65	65	19'-1"	0'-5"	3'-11"	6'-5"
		7'	#6	11"	65	65	19'-3"	0'-5"	4'-0"	6'-5½"
		8'			65	65	19'-6"	0'-5"	4'-0"	6'-6"
		9'			65	65	19'-7"	0'-5"	4'-1"	6'-7"
		10'			65	65	19'-10"	0'-5"	4'-2"	6'-8"
	2 @ 9'	5'			65	65	21'-1"	0'-5½"	4'-4½"	7'-2"
		6'			65	65	21'-3"	0'-5½"	4'-5½"	7'-2½"
		7'			65	65	21'-3"	0'-5½"	4'-5½"	7'-3"
		8'	#6	11"	65	65	21'-6"	0'-5½"	4'-6"	7'-3½"
		9'			65	65	21'-7"	0'-5½"	4'-6½"	7'-4"
		10'			65	65	21'-10"	0'-5½"	4'-7"	7'-5"
		11'			65	65	22'-0"	0'-5½"	4'-7½"	7'-6"
	2 @ 10'	5'			59	59	23'-2"	0'-6"	4'-9"	7'-11"
		6'			59	59	23'-4"	0'-6"	4'-10"	7'-11½"
		7'			59	59	23'-4"	0'-6"	4'-10"	7'-11½"
		8'			59	59	23'-5"	0'-6½"	4'-10"	8'-0"
		9'	#7	12"	59	59	23'-8"	0'-6½"	4'-11"	8'-1"
		10'			59	59	23'-11"	0'-6"	5'-0"	8'-2"
		11'			59	59	24'-1"	0'-6"	5'-0"	8'-3"
		12'			59	59	24'-3"	0'-6"	5'-0"	8'-4"
	2 @ 11'	6'			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
		7'			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
		8'			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
		9'	#7	12"	59	59	25'-8"	0'-6½"	5'-4"	8'-10"
		10'			59	59	25'-11"	0'-6½"	5'-5"	8'-11"
		11'			59	59	26'-1"	0'-6½"	5'-5"	9'-0"
		12'			59	59	26'-3"	0'-6½"	5'-5"	9'-1"
	2 @ 12'	6'			65	65	27'-5"	0'-7"	5'-8"	9'-6"
		7'			65	65	27'-5"	0'-7"	5'-8"	9'-6"
		8'			65	65	27'-5"	0'-7"	5'-8"	9'-6"
		9'	#7	11"	65	65	27'-8"	0'-7"	5'-9"	9'-7"
		10'			65	65	27'-11"	0'-7"	5'-10"	9'-8"
		11'			65	65	28'-1"	0'-7"	5'-10"	9'-9"
		12'			65	65	28'-3"	0'-7"	5'-10"	9'-10"

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	120	120	4'-8"
		3'			120	120	4'-8"
		4'			120	120	4'-8"
		5'			120	120	4'-8"
		6'			120	120	4'-9"
	2 @ 5'	3'			120	120	5'-8"
		4'			120	120	5'-8"
		5'	#5	12"	120	120	5'-8"
		6'			120	120	5'-9"
		7'			120	120	5'-10"
	2 @ 6'	3'			132	132	6'-6"
		4'			132	132	6'-6"
		5'	#5	11½"	132	132	6'-6"
		6'			132	132	6'-6"
		7'			132	132	6'-6"
		8'			132	132	6'-10"
	2 @ 7'	4'			120	120	7'-5"
		5'			120	120	7'-5"
		6'	#5	11½"	120	120	7'-5"
		7'			120	120	7'-5"
		8'			120	120	7'-10"
	2 @ 8'	4'			132	132	8'-6"
		5'			132	132	8'-6"
		6'	#5	11½"	132	132	8'-6"
		7'			132	132	8'-6"
		8'			132	132	8'-10"
	2 @ 9'	5'			132	132	9'-5"
		6'			132	132	9'-5"
		7'			132	132	9'-10"
		8'	#5	11½"	132	132	9'-10"
		9'			132	132	9'-10"
		10'			132	132	10'-3"
	2 @ 10'	5'			120	120	10'-9"
		6'			120	120	10'-10"
		7'			120	120	10'-10"
		8'	#5	11½"	120	120	11'-0"
		9'			120	120	11'-0"
		10'			120	120	11'-0"
	2 @ 11'	6'			120	120	11'-10"
		7'			120	120	11'-10"
		8'			120	120	11'-10"
		9'	#5	11½"	120	120	11'-11"
		10'			120	120	12'-0"
		11'			120	120	12'-0"
		12'			120	120	12'-0"
	2 @ 12'	6'			132	132	12'-10"
		7'			132	132	12'-10"
		8'			132	132	12'-10"
		9'	#5	11½"	132	132	12'-11"
		10'			132	132	13'-0"
		11'			132	132	13'-0"
		12'			132	132	13'-0"

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"d" bars Longitudinal in Top Slab of Barrel. SIZE	SPACING	NUMBER REQ'D	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#4	12"	8	14'
		3'			12	14'
		4'			16	14'
		5'			20	14'
		6'			24	14'
	2 @ 5'	3'			12	16'
		4'			16	16'
		5'	#5	12"	20	16'
		6'			24	16'
		7'			28	16'
	2 @ 6'	3'			12	18'
		4'			16	18'
		5'	#5	11½"	20	18'
		6'			24	18'
		7'			28	18'
		8'			32	18'
	2 @ 7'	4'			16	20'
		5'			20	20'
		6'	#5	11½"	24	20'
		7'			28	20'
		8'			32	20'
	2 @ 8'	4'			16	22'
		5'			20	22'
		6'	#5	11½"	24	22'
		7'			28	22'
		8'			32	22'
	2 @ 9'	5'			20	24'
		6'			24	24'
		7'			28	24'
		8'	#5	11½"	32	24'
		9'			36	24'
		10'			40	24'
	2 @ 10'	5'			20	26'
		6'			24	26'
		7'			28	26'
		8'	#5	11½"	32	26'
		9'			36	26'
		10'			40	26'
	2 @ 11'	6'			28	28'
		7'			28	28'
		8'			28	28'
		9'	#5	11½"	30	28'
		10'			30	28'
		11'			30	28'
		12'			30	28'
	2 @ 12'	6'			24	30'
		7'			28	30'
		8'			28	30'
		9'	#5	11½"	30	30'
		10'			30	30'
		11'			30	30'
		12'			30	30'

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"d1" bars Longitudinal in Sidewalls and Division Walls. SIZE	SPACING	NUMBER REQ'D	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#4	12"	8	12'
		3'			12	12'
		4'			16	12'
		5'			20	12'
		6'			24	12'
	2 @ 5'	3'			12	14'
		4'			16	14'
		5'	#5	12"	20	14'
		6'			24	14'
		7'			28	14'
	2 @ 6'	3'			12	16'
		4'			16	16'
		5'	#5	11½"	20	16'
		6'			24	16'
		7'			28	16'
		8'			32	16'
	2 @ 7'	4'			16	18'
		5'			20	18'
		6'	#5	11½"	24	18'
		7'			28	18'
		8'			32	18'
	2 @ 8'	4'			16	20'
		5'			20	20'
		6'	#5	11½"	24	20'
		7'			28	20'
		8'			32	20'
	2 @ 9'	5'			20	22'
		6'			24	22'
		7'			28	22'
		8'	#5	11½"	32	22'
		9'			36	22'
		10'			40	22'
	2 @ 10'	5'			20	24'
		6'			24	24'
		7'			28	24'
		8'	#5	11½"	32	24'
		9'			36	24'
		10'			40	24'
	2 @ 11'	6'			28	26'
		7'			28	26'
		8'			28	26'
		9'	#5	11½"	30	26'
		10'			30	26'
		11'			30	26'
		12'			30	26'
	2 @ 12'	6'			24	28'
		7'			28	28'
		8'			28	28'
		9'	#5	11½"	30	28'
		10'			30	28'
		11'			30	28'
		12'			30	28'

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"e" bars Longitudinal in Bottom Slab of Barrel. SIZE	SPACING	NUMBER REQ'D	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#4	12"	14	8'
		3'			14	8'
		4'			14	8'
		5'			14	8'
		6'			14	8'
	2 @ 5'	3'			14	10'
		4'			14	10'
		5'	#5	12"	14	10'
		6'			14	10'
		7'			14	10'
	2 @ 6'	3'			14	12'
		4'			14	12'
		5'	#5	11½"	14	12'
		6'			14	12'
		7'			14	12'
		8'			14	12'
	2 @ 7'	4'			14	14'
		5'			14	14'
		6'	#5	11½"	14	14'
		7'			14	14'
		8'			14	14'
	2 @ 8'	4'			14	16'
		5'			14	16'
		6'	#5	11½"	14	16'
		7'			14	16'
		8'			14	16'
	2 @ 9'	5'			14	18'
		6'			14	18'
		7'			14	18'
		8'	#5	11½"	14	18'
		9'			14	18'
		10'			14	18'
	2 @ 10'	5'			14	20'
		6'			14	20'
		7'			14	20'
		8'	#5	11½"	14	20'
		9'			14	20'
		10'			14	20'
	2 @ 11'	6'			14	22'
		7'			14	22'
		8'			14	22'
		9'	#5	11½"	14	22'
		10'			14	22'
		11'			14	22'
		12'			14	22'
	2 @ 12'	6'			14	24'
		7'			14	24'
		8'			14	24'
		9'	#5	11½"	14	24'
		10'			14	24'
		11'			14	24'
		12'			14	24'

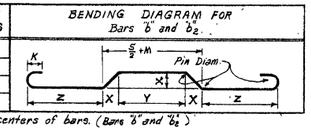
DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"f" bars STRAIGHT Vertical in Sidewalls and Division Walls. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#4	12"	240	240	2'-10"
		3'			240	240	3'-10"
		4'			240	240	4'-10"
		5'			240	240	5'-10"
		6'			240	240	6'-10"
	2 @ 5'	3'			240	240	3'-11"
		4'			240	240	4'-11"
		5'	#4	12"	240	240	5'-11"
		6'			240	240	6'-11"
		7'			240	240	7'-11"
	2 @ 6'	3'			240	240	4'-0"
		4'			240	240	5'-0"
		5'	#4	12"	240	240	6'-0"
		6'			240	240	7'-0"
		7'			240	240	8'-0"
		8'			240	240	9'-0"
	2 @ 7'	4'			240	240	5'-1"
		5'			240	240	6'-1"
		6'	#4	12"	240	240	7'-1"
		7'			240	240	8'-1"
		8'			240	240	9'-1"
		9'			240	240	10'-1"
	2 @ 8'	4'			240	240	5'-2"
		5'			240	240	6'-2"
		6'			240	240	7'-2"
		7'	#4	12"	240	240	8'-2"
		8'			240	240	9'-2"
		9'			240	240	10'-2"
		10'			240	240	11'-2"
	2 @ 9'	5'			240	240	6'-3"
		6'			240	240	7'-3"
		7'			240	240	8'-3"
		8'	#4	12"	240	240	9'-3"
		9'			240	240	10'-3"
		10'			240	240	11'-3"
		11'			240	240	12'-3"
	2 @ 10'	5'			240	240	6'-4"
		6'			240	240	7'-4"
		7'			240	240	8'-4"
		8'	#4	12"	240	240	9'-4"
		9'			240	240	10'-4"
		10'			240	240	11'-4"
		11'			240	240	12'-4"
		12'			240	240	13'-4"
	2 @ 11'	6'			240	240	7'-5"
		7'			240	240	8'-5"
		8'			240	240	9'-5"
		9'	#4	12"	240	240	10'-5"
		10'			240	240	11'-5"
		11'			240	240	12'-5"
		12'			240	240	13'-5"
	2 @ 12'	6'			240	240	7'-6"
		7'			240	240	8'-6"
		8'			240	240	9'-6"
		9'	#4	12"	240	240	10'-6"
		10'			240	240	11'-6"
		11'			240	240	12'-6"
		12'			240	240	13'-6"

Designed by:- W.C.H. 1-17-63.
Drawn by:- W.C.H. 2-15-63.
Quantities by:- W.C.H. 2-19-63.

Checked by:- JWS - 5-14-63
Checked by:- JWS - 5-24-63
Checked by:- JWS - 5-24-63

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#5	2½"	4½"	0'-11½"
#6	3"	5"	1'-2"

BENDING DIAGRAM FOR Bars "b" and "b2"

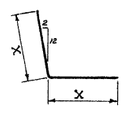


NOTE:- Dimensions are to centers of bars. (Bars "b" and "b2")

DOWEL BARS FOR TWO HEADWALLS

2 SPANS @	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	12"s	20	2'-5"	1'-2½"
5'	#4	12"s	24	2'-6"	1'-3"
6'	#4	12"s	28	2'-7"	1'-3½"
7'	#4	12"s	32	2'-8"	1'-4"
8'	#4	12"s	36	2'-9"	1'-4½"
9'	#4	12"s	40	2'-10"	1'-5"
10'	#4	12"s	46	2'-11"	1'-5½"
11'	#4	12"s	50	3'-0"	1'-6"
12'	#4	12"s	54	3'-1"	1'-6½"

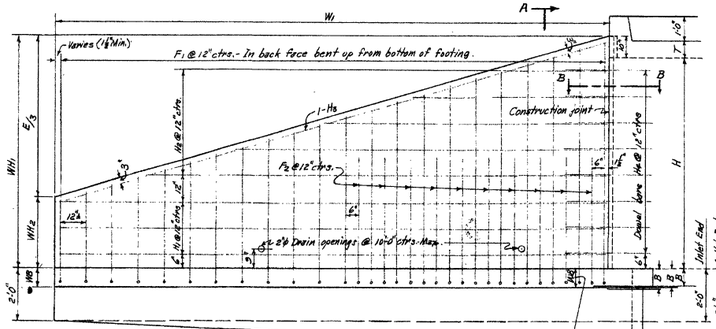
Bars "i" Dowel bars in Headwalls.



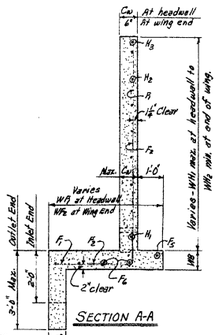
DIMENSIONS — BARREL DIMENSIONS

MAX. DESIGN DEPTH OF COVER D	CLEAR SPANS S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF DIVISION WALL M	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH
5'-0"	2 @ 4'	2'	16	9'-8"	6"	8"	6"	6"	3'-0½"
		3'	24

FED. ROAD NO.	STATE	FED. AID PROJECT	SHEET NO.	TOTAL SHEETS
8	ARK.			
JOB NO.				



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



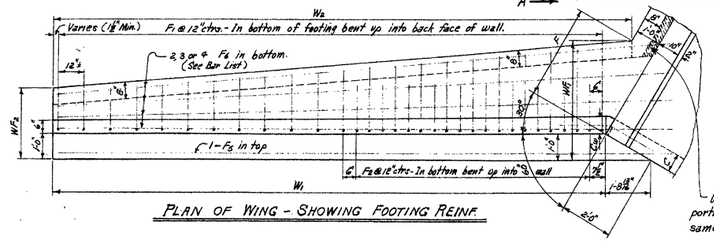
SECTION A-A

WB may be more, equal to, or less than the bottom slab thickness B.

WING DIMENSIONS

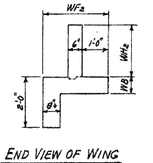
CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HEWL TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	C_W	WH_1	WH_2	WF_1	WF_2	F	E	W_1	W_2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-4⅜"	8'-6"	9'-3⅜"	9'-7½"	1.338	1.466
4'	7"	6"	4'-10"	1'-8"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1⅝"	12'-1½"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7½"	2.978	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4⅝"	14'-6"	16'-9"	17'-1⅝"	3.940	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4⅝"	14'-6"	16'-9"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-4⅝"	14'-6"	16'-9"	17'-1⅝"	3.582	3.808
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-0⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-0⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-5"	18'-6"	21'-4⅝"	22'-0"	5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or facewall for the length W_3.

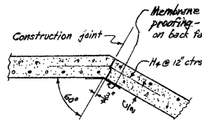


PLAN OF WING - SHOWING FOOTING REINF.

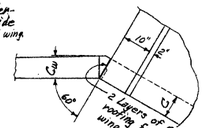
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



END VIEW OF WING



SECTION B-B THRU CONSTRUCTION JOINT



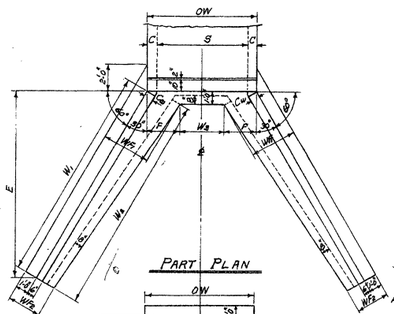
DETAIL AT TOP OF WING

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

APRON DIMENSION W_3

$W_3 = (OW - 2F)$

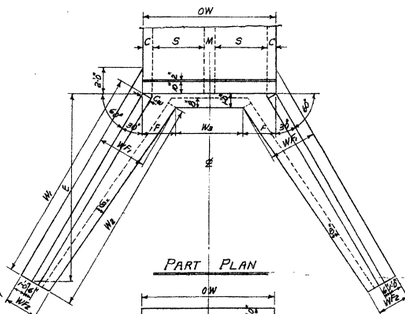
CLEAR SPAN	CLEAR HEIGHT	FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
			OW	W_3	OW	W_3	OW	W_3	OW	W_3	OW	W_3
S	H	2F										
4'	2'	1'-11⅞"	5'-0"	3'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅜"	5'-0"	2'-3⅜"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅜"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-8⅜"
	6'	5'-0⅞"	5'-2"	0'-1⅜"	9'-11"	4'-10⅜"	14'-8"	9'-7⅜"	19'-5"	14'-3⅜"	24'-2"	19'-1⅜"
5'	3'	2'-8⅜"	6'-0"	3'-3⅜"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	26'-1⅛"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅜"	11'-8"	7'-4⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-4⅜"
	6'	5'-0⅞"	6'-2"	1'-1⅜"	11'-11"	6'-10⅜"	17'-8"	12'-7⅜"	23'-5"	18'-0⅜"	29'-2"	24'-1⅜"
	7'	6'-2⅝"	6'-3"	0'-0"	12'-1"	5'-10⅝"	17'-11"	11'-8⅝"	23'-9"	17'-0⅝"	29'-7"	23'-4⅝"
6'	3'	2'-8⅜"	7'-0"	4'-3⅜"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅜"	13'-8"	9'-4⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-4⅜"
	6'	5'-0⅞"	7'-2"	2'-1⅜"	13'-11"	8'-10⅜"	20'-8"	15'-7⅜"	27'-5"	22'-2⅜"	34'-2"	29'-1⅜"
	7'	6'-2⅝"	7'-3"	1'-0⅝"	14'-1"	7'-10⅝"	20'-11"	14'-8⅝"	27'-8"	21'-3⅝"	34'-7"	28'-4⅝"
	8'	7'-1⅝"	7'-5"	0'-1⅝"	14'-2"	6'-11⅝"	21'-0"	13'-8⅝"	27'-10"	20'-4⅝"	34'-10"	27'-6"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-2"	23'-3"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅜"	8'-0"	3'-8⅜"	15'-8"	11'-4⅜"	23'-3"	19'-0⅜"	31'-0"	26'-8⅜"	38'-8"	34'-4⅜"
	6'	5'-0⅞"	8'-2"	3'-1⅜"	15'-11"	10'-6⅜"	23'-8"	18'-7⅜"	31'-5"	26'-2⅜"	39'-2"	34'-1⅜"
	7'	6'-2⅝"	8'-3"	2'-0⅝"	16'-1"	9'-6⅝"	23'-11"	17'-8⅝"	31'-8"	25'-3⅝"	39'-7"	33'-4⅝"
	8'	7'-1⅝"	8'-5"	1'-0"	16'-2"	8'-7"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-6"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-2"	26'-1"	22'-10"	35'-8"	31'-6"	45'-8"	40'-8"
	5'	4'-3⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-6"	22'-0⅜"	35'-5"	31'-1⅜"	44'-12"	39'-10⅜"
	6'	5'-0⅞"	9'-2"	4'-1⅜"	17'-11"	12'-10⅜"	26'-6"	21'-1⅜"	35'-5"	30'-1⅜"	44'-12"	39'-1⅜"
	7'	6'-2⅝"	9'-3"	3'-0⅝"	18'-1"	11'-10⅝"	26'-11"	20'-2⅝"	35'-9"	29'-4⅝"	44'-7"	38'-4⅝"
	8'	7'-1⅝"	9'-4"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-4"
9'	5'	4'-3⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0⅞"	10'-3"	5'-2⅜"	20'-1"	15'-0⅜"	29'-11"	24'-11⅜"	39'-9"	34'-6⅜"	49'-7"	44'-1⅜"
	7'	6'-2⅝"	10'-3"	4'-0⅝"	20'-1"	13'-10⅝"	29'-11"	23'-9⅝"	39'-9"	33'-1⅝"	49'-7"	43'-1⅝"
	8'	7'-1⅝"	10'-5"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-0"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅞"	11'-3"	6'-2⅜"	22'-1"	17'-0⅜"	32'-11"	27'-10⅜"	43'-9"	38'-6⅜"	54'-7"	49'-1⅜"
	7'	6'-2⅝"	11'-3"	5'-0⅝"	22'-1"	15'-10⅝"	32'-11"	26'-8⅝"	43'-9"	37'-1⅝"	54'-7"	48'-1⅝"
	8'	7'-1⅝"	11'-4"	4'-0"	22'-2"	14'-11"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-0"
11'	6'	5'-0⅞"	12'-4"	7'-3⅜"	24'-2"	19'-1⅜"	36'-0"	30'-11⅜"	47'-10"	42'-9⅜"		
	7'	6'-2⅝"	12'-4"	6'-1⅝"	24'-2"	17'-11⅝"	36'-0"	29'-9⅝"	47'-10"	41'-5⅝"		
	8'	7'-1⅝"	12'-5"	5'-0"	24'-3"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0⅞"	13'-4"	8'-3⅜"	26'-2"	21'-1⅜"	39'-0"	33'-11⅜"	51'-10"	46'-9⅜"		
	7'	6'-2⅝"	13'-4"	7'-1⅝"	26'-2"	19'-11⅝"	39'-0"	32'-9⅝"	51'-10"	45'-7⅝"		
	8'	7'-1⅝"	13'-5"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		



PART PLAN

END ELEVATION

SINGLE BARREL CULVERT

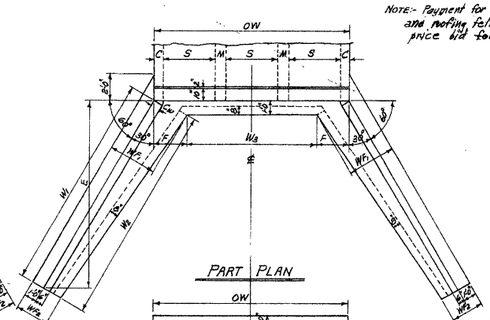


PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

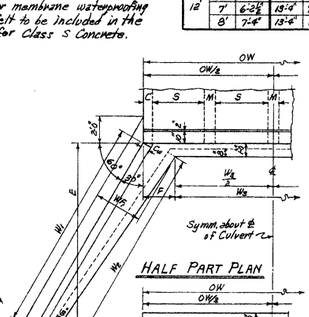
NOTE:- Plans and Elevations are not to scale.



PART PLAN

END ELEVATION

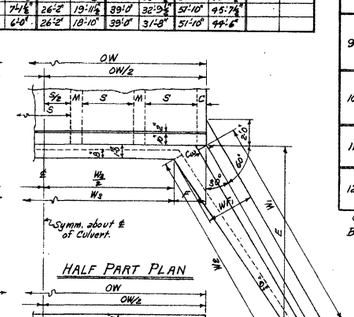
TRIPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings 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.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F_1 BENT: In bottom of footing, bent up into back face of wing. One bar of each length.							F_2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars.						F_3 STRAIGHT: Longitudinal in top of wing footing heel.			F_4 STRAIGHT: Longitudinal in bottom of wing footing toe.			H_1 STRAIGHT: Horizontal in back face of wing.				H_2 STRAIGHT: Horizontal in back face of wing. One bar of each length.				H_3 STRAIGHT: In back face of wing at top-on-slope.			H_4 BENT: Dowels thru construction joint at headwall.				QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
H	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X	Y	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X	LB.	
2'	#3	18"	8	1'-6"	3'-10"	0'-8"	1'-0"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	6'-6"	#3	12"	1	7'-2"	#3	12"	1	9'-0"	—	#8	1	7'-4"	#3	12"	2	2'-8"	1'-9"	27.0	Y, F_1 & F_2, 5" Pin, X
3'	#3	18"	10	2'-2"	5'-2"	0'-8"	1'-3"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-4"	#3	12"	2	7'-6"	9'-0"	#8	1	9'-9"	#8	12"	3	2'-8"	1'-9"	41.1	
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	—	—	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	9'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-9"	63.7	
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	9'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5	
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-3"	7'-1"	#3	12"	4	4'-6"	1'-6"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-4"	#3	12"	4	14'-4"	9'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-9"	145.8	
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-6"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	9'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7	
8'	#4	12"	22	4'-4"	12'-3"	1'-6"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-6"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	9'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4	

NOTE:- Dimensions are to bar centers.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING AT APRONS	REINFORCING STEEL ⊛ FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS: HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	C_W	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	5.50	5.96	6.42	7.38	8.34
	3'	6"	7"	164.0	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	259.6	8.38	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.0	6.97	7.63	8.29	9.96	11.12
	4'	6"	7"	259.6	8.56	9.70	10.87	10.03	12.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.98	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7½"	8½"	1134.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.4	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	259.6	8.75	10.14	11.49	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7½"	8½"	1134.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9'	1425.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	259.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.54	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7½"	8½"	1134.6	19.38	21.02	22.64	24.28	25.92
	8'	8"	9'	1425.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.34
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7½"	8½"	1134.6	19.59	21.96	23.30	25.16	26.99
	8'	8"	9'	1425.6	24.54	26.94	28.29	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.30	16.87	18.93	20.97
	6'	7½"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7½"	8½"	1134.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9'	1425.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.05	19.26	21.52
	6'	7½"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7½"	8½"	1134.6	20.09	22.37	24.64	26.87	29.15
	8'	8"	9'	1425.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8½"	1134.6	20.69	23.22	25.71	28.18	
	8'	8"	9'	1425.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8½"	1134.6	20.87	23.69	26.40	29.13	
	8'	8"	9'	1425.6	25.42	28.25	30.96	33.69	

⊛ 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 ¾ 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#/□"

Reinforcing Steel 20,000#/□"

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-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

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, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

Designed By:- W.C.H. 8-20-62. Checked By:- RWS - 1-3-63
Drawn By:- W.C.H. 12-4-62. Checked By:- RWS - 1-31-63
Quantities By:- W.C.H. 12-14-62. Rechecked By:- RWS - 2-22-63

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

M.V.L.R. (3)