DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	1	226
				(2) JOY - SEARCY (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

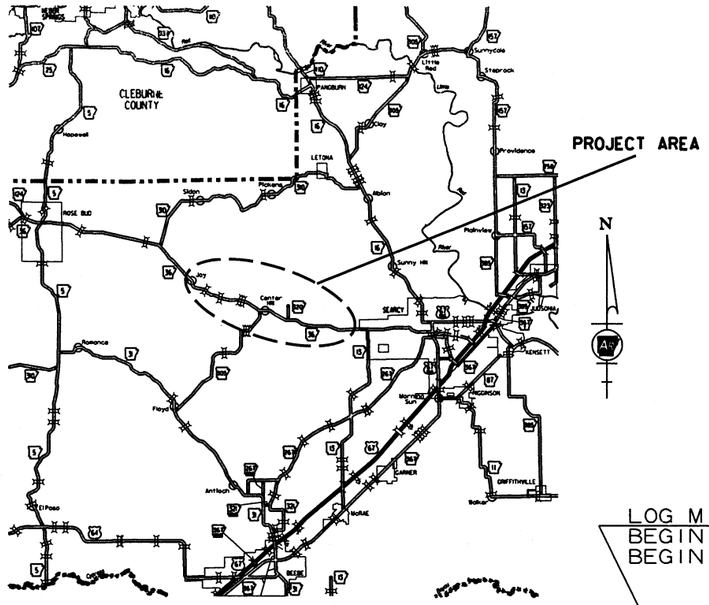
JOY - SEARCY (S)

WHITE COUNTY

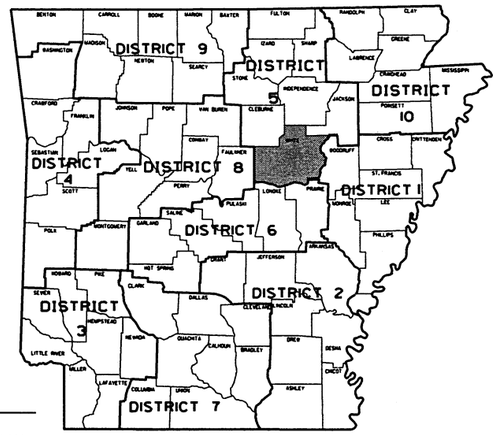
ROUTE 36 SECTION 3

JOB 050280

FEDERAL AID PROJ. NHPP-HSIP-0073(60)



VICINITY MAP



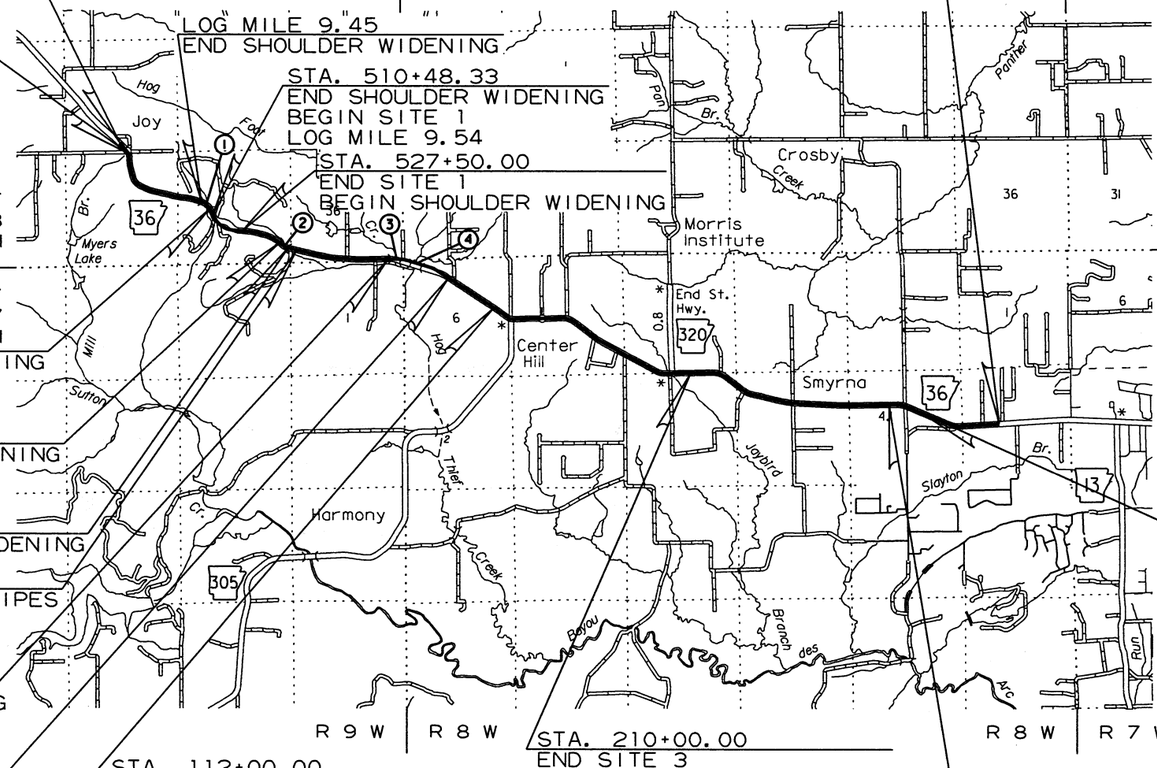
ARK. HWY. DIST. NO. 5

LOG MILE 8.50
BEGIN C.L. RUMBLE STRIPES

LOG MILE 8.40
BEGIN JOB 050280
BEGIN SHOULDER WIDENING

NOT TO SCALE

LOG MILE 17.07
END JOB 050280
END SHOULDER WIDENING



STRUCTURES OVER 20'-0" SPAN
(FOR INFORMATION ONLY)

① LOG MILE 9.45 RETAIN
10' X 4' X 64' DBL. R.C. BOX CULVERT
45° RT. FWD. SKEW
31.23' SPAN WIDTH

② LOG MILE 10.31 RETAIN
8' X 4' X 52' DBL. R.C. BOX CULVERT
45° RT. FWD. SKEW
25.34' SPAN WIDTH

BRIDGE DATA

③ BR. END STA. 809+54.50
BRIDGE NO. 07429
42'-6" CLEAR ROADWAY
101'-0" TOTAL LENGTH
100'-0" CONT. COMP. W-BEAM UNIT (30', 40', 30')
BR. END STA. 810+55.50

④ BR. END STA. 817+19.50
BRIDGE NO. 07430
40'-0" CLEAR ROADWAY
91'-0" TOTAL LENGTH
90'-0" CONT. COMP. W-BEAM UNIT (30', 30', 30')
BR. END STA. 818+10.50

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°17'14"	N 35°15'19"	N 35°14'50"
LONGITUDE	W 91°57'01"	W 91°51'47"	W 91°48'43"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF	PROJECT	45777.60	FEET	OR	8.670	MILES
NET	:	ROADWAY	45585.60	:		8.634	MILES
NET	:	BRIDGES	192.00	:		0.036	MILES
NET	:	PROJECT	45777.60	:		8.670	MILES

DESIGN TRAFFIC DATA

DESIGN YEAR	2039
2019 ADT	6600
2039 ADT	9400
2039 DHV	1034
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	9%
AVERAGE RUNNING SPEED	55 MPH

N

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
13478
JAMES E. BANKS

7-16-19

DEPUTY DIRECTOR
AND CHIEF ENGINEER

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	2	226

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

INDEX OF SHEETS

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

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-15-19
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55030C	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	02-27-14
55040C2	STANDARD DETAILS FOR TYPE C2 APPROACH SLAB	02-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	02-27-14
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-8	GUARD RAIL DETAILS	11-16-17
GR-8A	GUARD RAIL DETAILS	11-16-17
GR-9	GUARD RAIL DETAILS	04-17-08
GR-9A	GUARD RAIL DETAILS	04-17-08
GR-10	GUARD RAIL DETAILS	11-16-17
GR-11	GUARD RAIL DETAILS	11-16-17
GR-12	GUARD RAIL DETAILS	11-16-17
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
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	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	07-25-19
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	02-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-3	CHAIN LINK FENCE	11-17-10
WF-4	WIRE FENCE TYPE C AND D	08-22-02
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X30	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	07-15-63
W-X303-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
R-100X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	02-08-63
R-200X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	02-15-63
R-230X-01	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	02-26-64

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INDEX OF SHEETS AND STANDARD DRAWINGS

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				6	ARK.			
				JOB NO.		050280	3	226

(2) GOVERNING SPECS. AND GENERAL NOTES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

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 050280
FHWA-1273__ SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__ SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____ CONTRACTOR'S LICENSE
100-4_____ DEPARTMENT NAME CHANGE
102-2_____ ISSUANCE OF PROPOSALS
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____ PROTECTION OF WATER QUALITY AND WETLANDS
303-1_____ AGGREGATE BASE COURSE
306-1_____ QUALITY CONTROL AND ACCEPTANCE
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
505-1_____ PORTLAND CEMENT CONCRETE DRIVEWAY
600-2_____ INCIDENTAL CONSTRUCTION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
605-1_____ CONCRETE DITCH PAVING
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
617-1_____ GUARDRAIL TERMINAL (TYPE 2)
620-1_____ MULCH COVER
632-1_____ CONCRETE ISLAND
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
804-2_____ REINFORCING STEEL FOR STRUCTURES
808-1_____ INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____ ELASTOMERIC BEARINGS
JOB 050280__ ASSESSMENT OF WORKING DAYS - MAINTENANCE OF TRAFFIC
JOB 050280__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 050280__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050280__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050280__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 050280__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 050280__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 050280__ CONSTRUCTION PROJECT INFORMATION SIGN
JOB 050280__ CULVERT CLEAN OUT
JOB 050280__ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 050280__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 050280__ DRILLED SHAFT FOUNDATIONS
JOB 050280__ EXTENSION FOR PIPE CULVERTS
JOB 050280__ FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB 050280__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050280__ HEADED STEEL BARS FOR CONCRETE REINFORCEMENT
JOB 050280__ MAINTENANCE OF TRAFFIC
JOB 050280__ MANDATORY ELECTRONIC CONTRACT
JOB 050280__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 050280__ NESTING SITES OF MIGRATORY BIRDS
JOB 050280__ NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 050280__ OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB 050280__ PARTNERING REQUIREMENTS
JOB 050280__ PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB 050280__ PLASTIC PIPE
JOB 050280__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 050280__ PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB 050280__ RUMBLE STRIPS
JOB 050280__ SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 050280__ SHORING
JOB 050280__ SHORING FOR CULVERTS
JOB 050280__ SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB 050280__ SOIL STABILIZATION
JOB 050280__ STORM WATER POLLUTION PREVENTION PLAN
JOB 050280__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050280__ UTILITY ADJUSTMENTS
JOB 050280__ VALUE ENGINEERING
JOB 050280__ WARM MIX ASPHALT

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. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. 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.

7/1/2009
R050280.DGN

GOVERNING SPECIFICATIONS AND GENERAL NOTES

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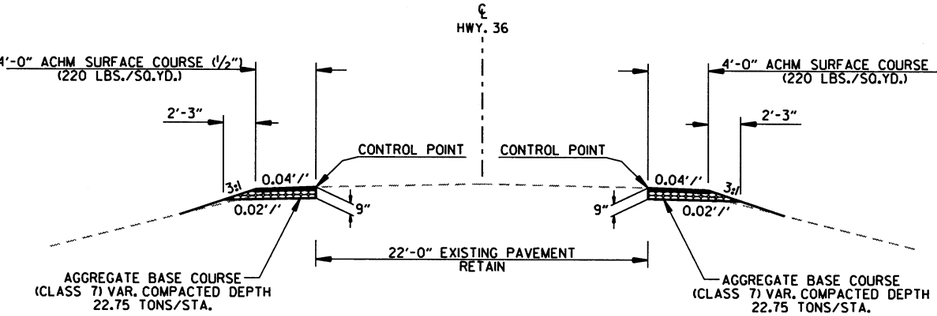
				6	ARK.			
				JOB NO.		050280	4	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



SHOULDER WIDENING SECTION

LOG MILE 8.40 TO LOG MILE 9.45
LOG MILE 9.46 TO LOG MILE 9.54
LOG MILE 9.90 TO LOG MILE 10.31
LOG MILE 10.32 TO LOG MILE 11.20
LOG MILE 11.81 TO LOG MILE 12.24
LOG MILE 14.14 TO LOG MILE 16.06
LOG MILE 16.30 TO LOG MILE 17.07

NOTES:

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

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

7/9/2019

R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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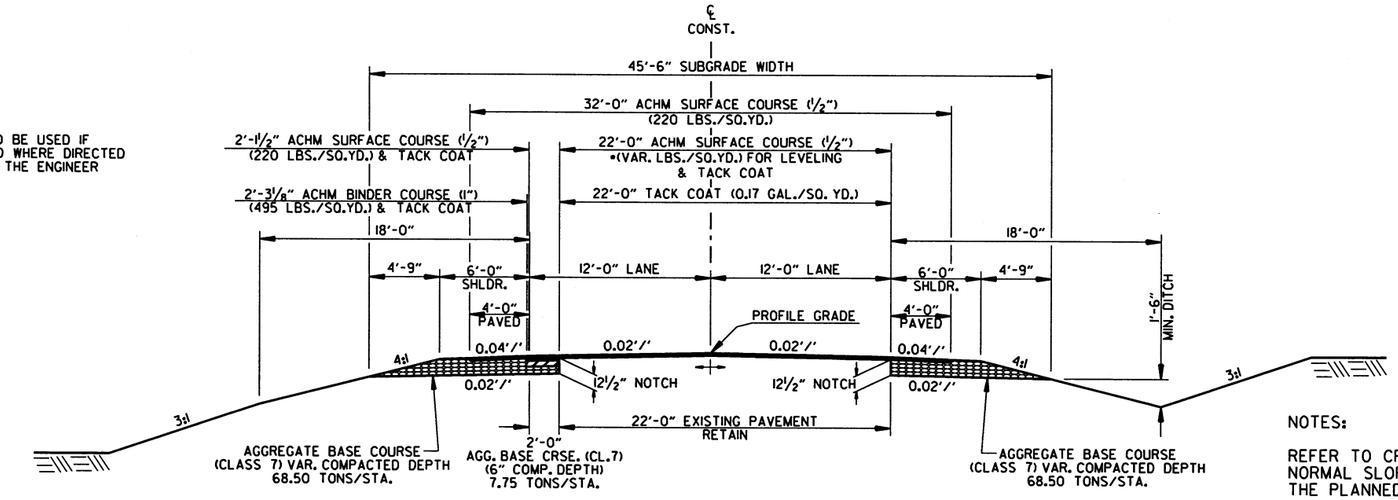
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



SITE 1 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)
STA. 510+48.33 TO STA. 514+20.00

NOTES:

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

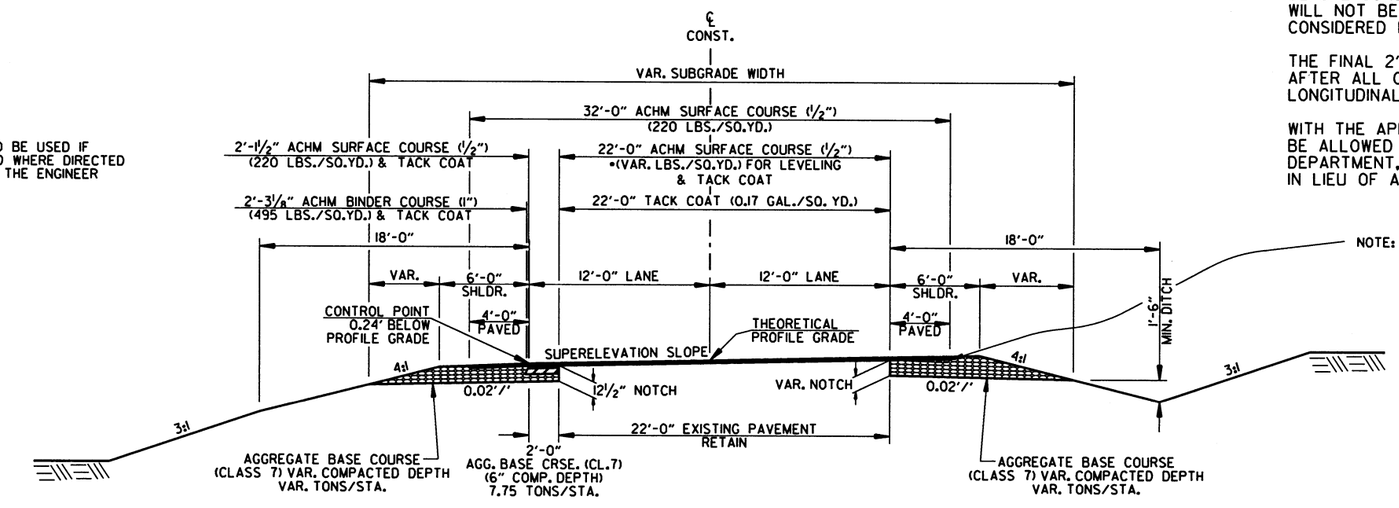
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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.

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 (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



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

SITE 1 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)
SUPERELEVATION

7/9/2019

R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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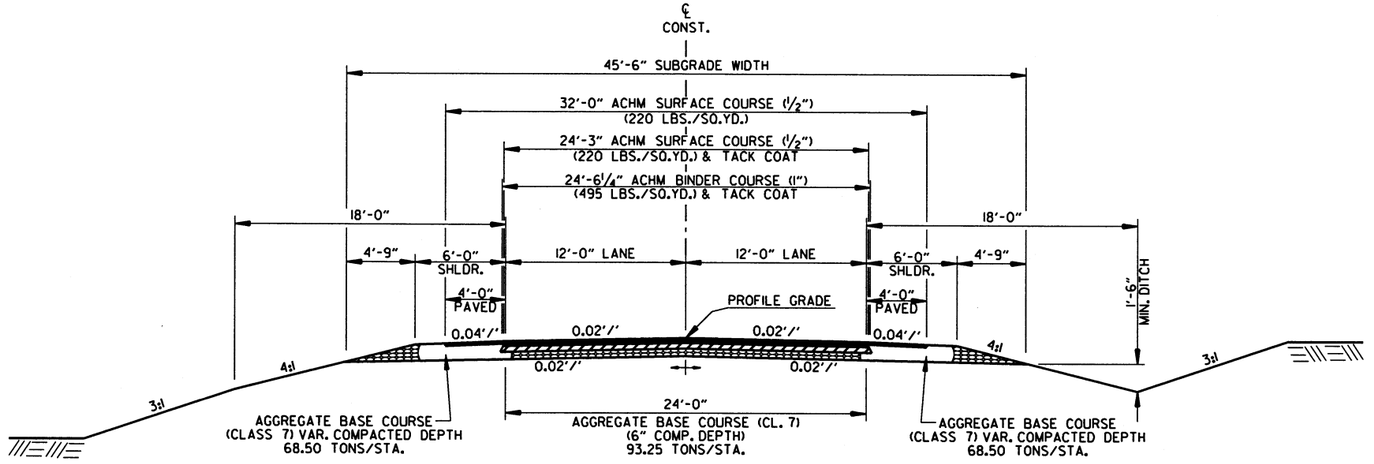
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



SITE I - FULL DEPTH SECTION
STA. 514+20.00 TO STA. 526+80.00

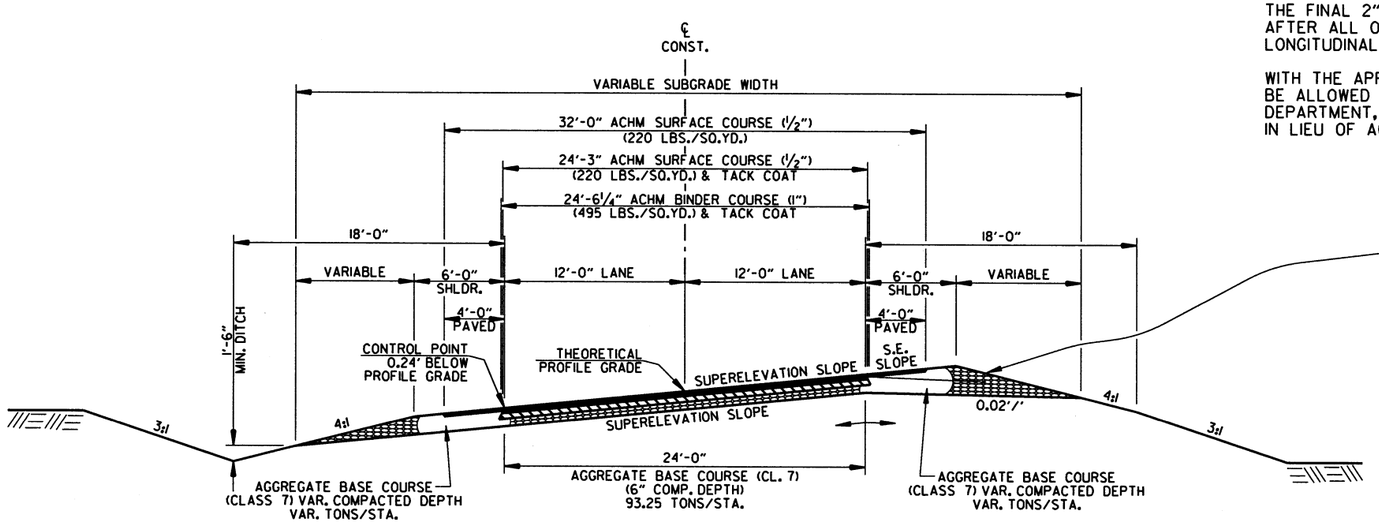
NOTES:

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

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

THE FINAL 2" 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 (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



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

SITE I - FULL DEPTH SECTION
SUPERELEVATION

7/9/2019

R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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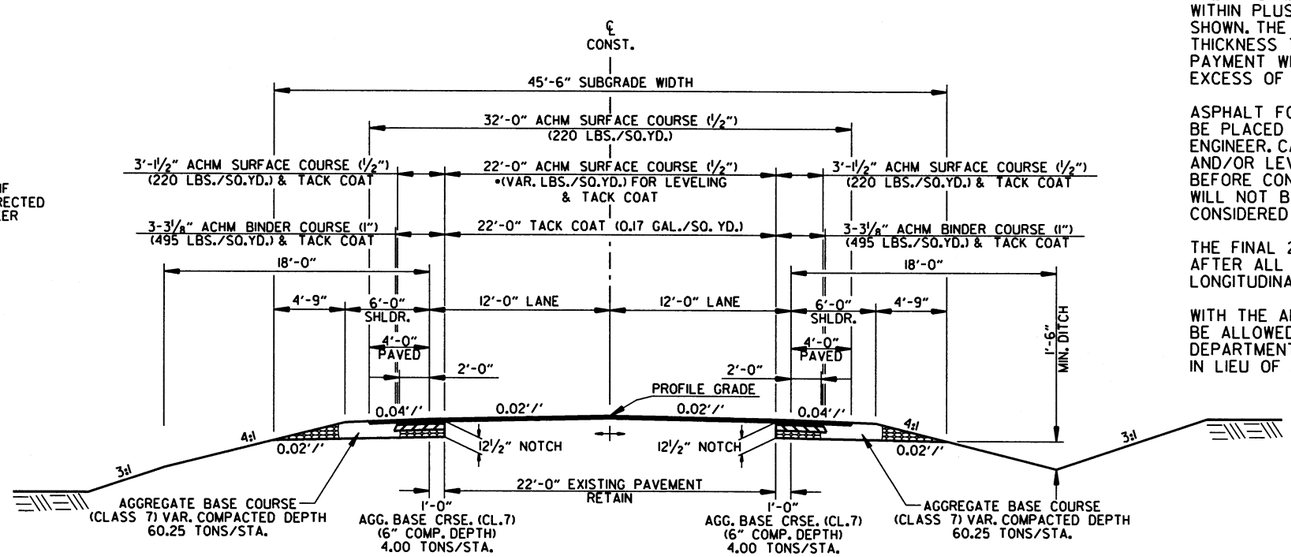
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



SITE 1- NOTCH, WIDEN, AND OVERLAY SECTION

STA. 526+80.00 TO STA. 527+50.00

NOTES:

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

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

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.

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 (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

7/9/2019

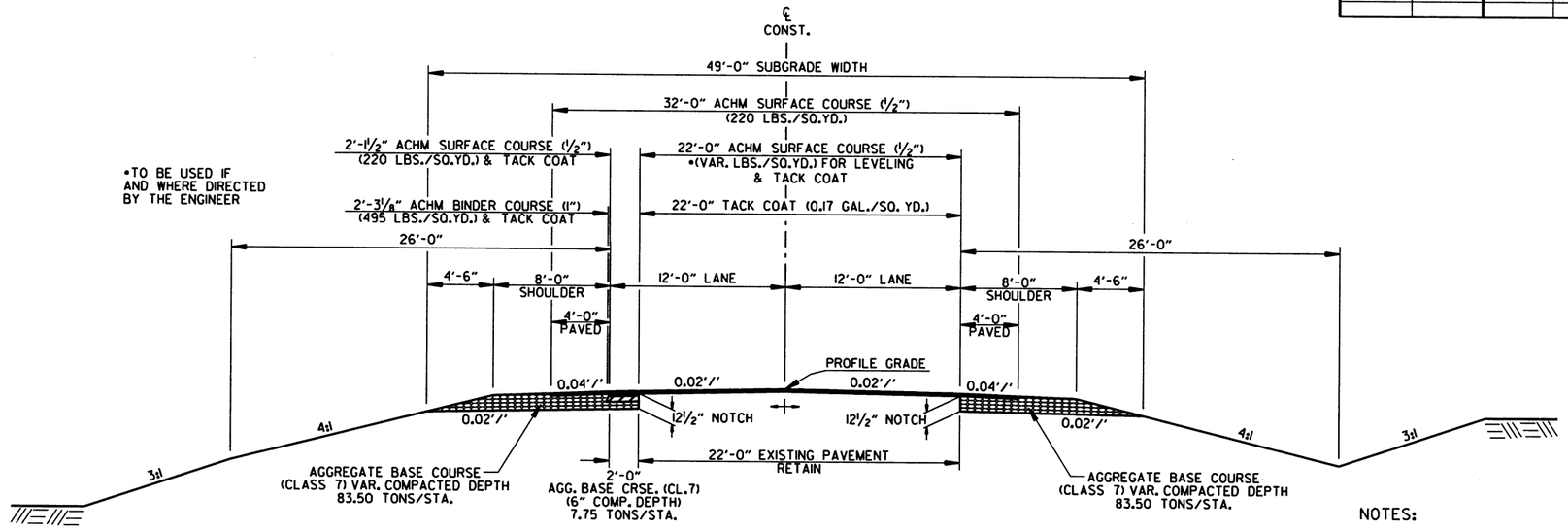
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	8	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)

STA. 804+00.00 TO STA. 807+25.06
STA. 829+73.33 TO STA. 831+80.00

NOTES:

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

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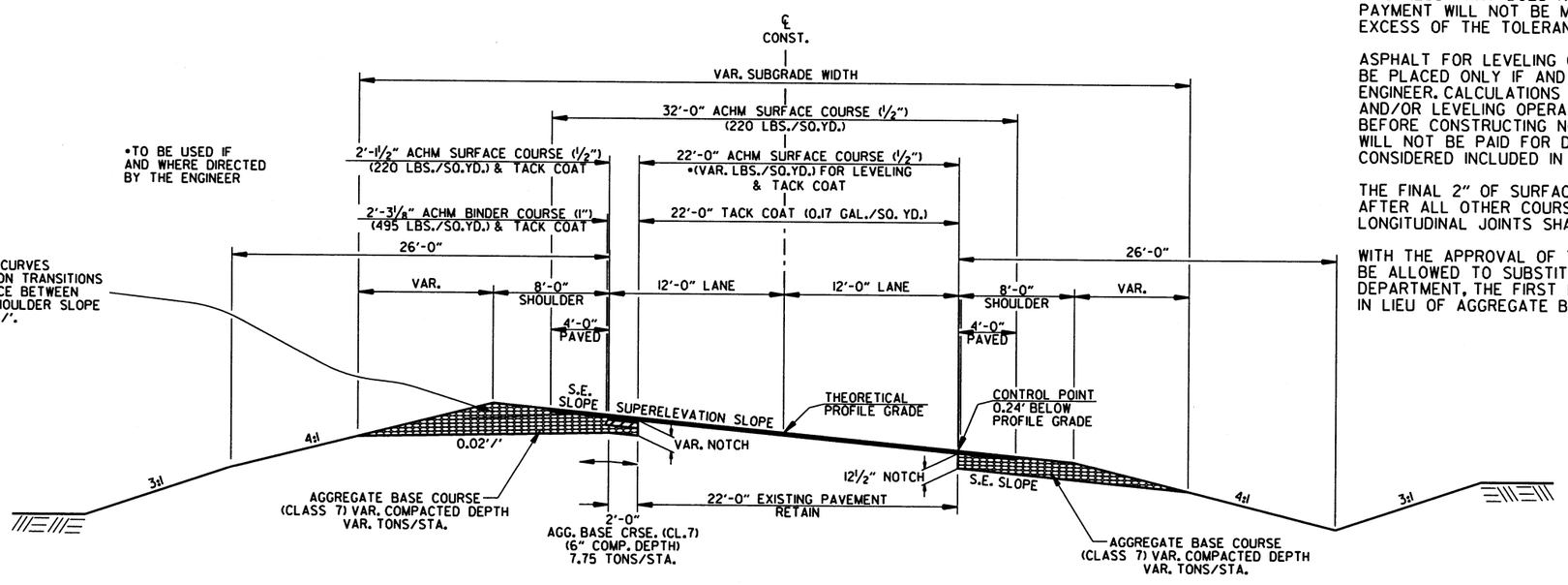


SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)
SUPERELEVATION

7/9/2019

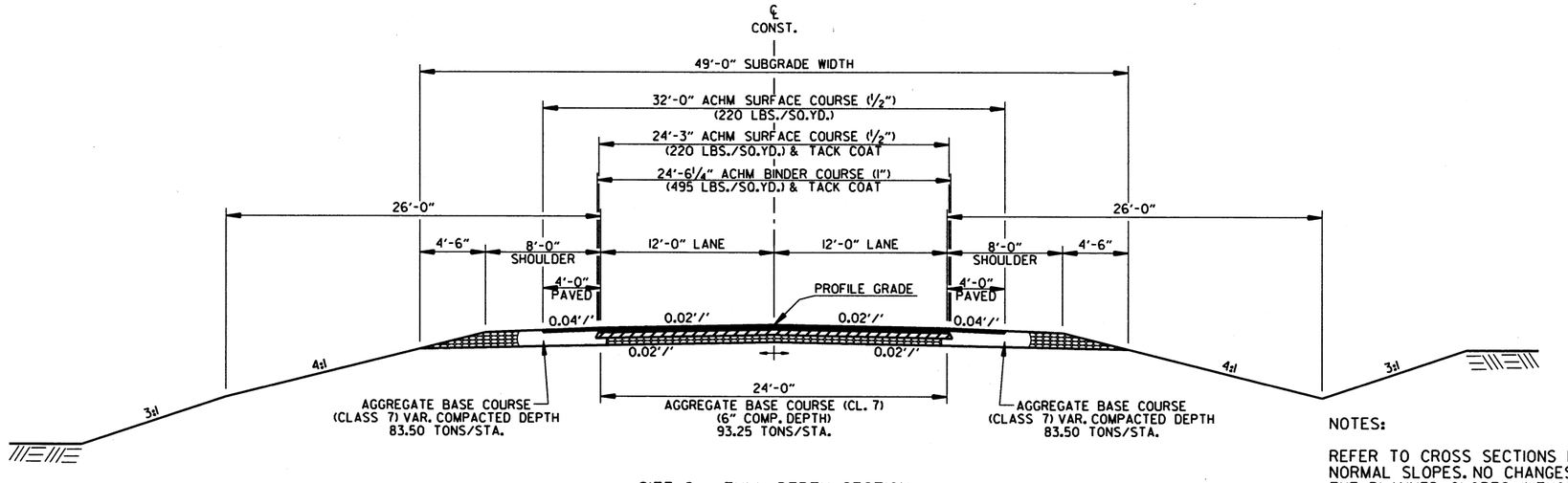
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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.		050280	9	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



SITE 2 - FULL DEPTH SECTION

STA. 807+25.06 TO STA. 809+18.00
STA. 810+92.00 TO STA. 816+83.00
STA. 818+47.00 TO STA. 829+73.33

NOTES:

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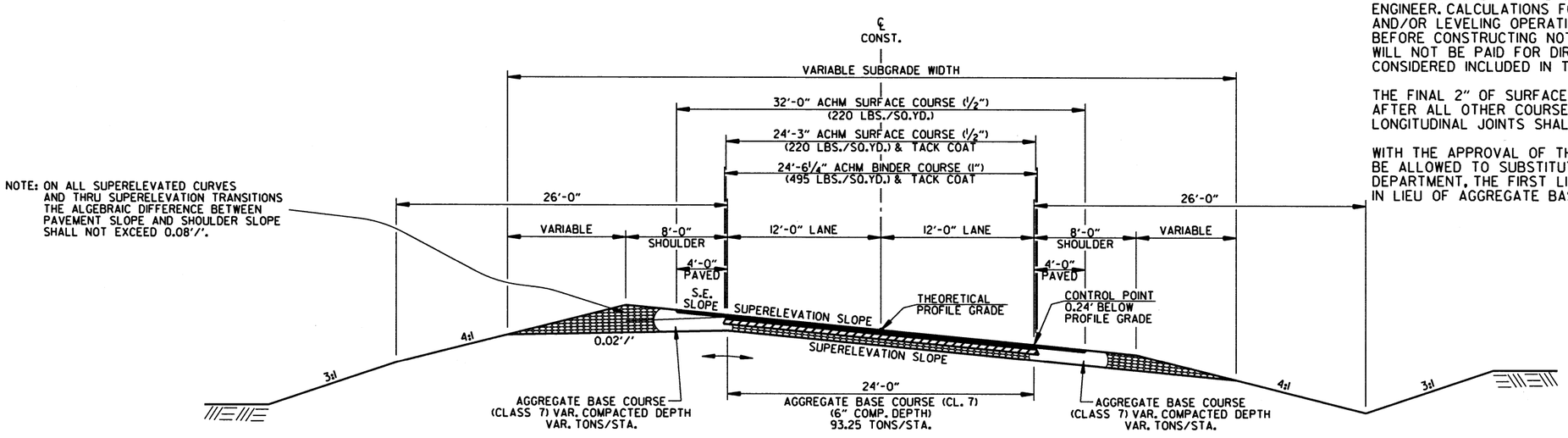


SITE 2 - FULL DEPTH SECTION
SUPERELEVATION

7/9/2019

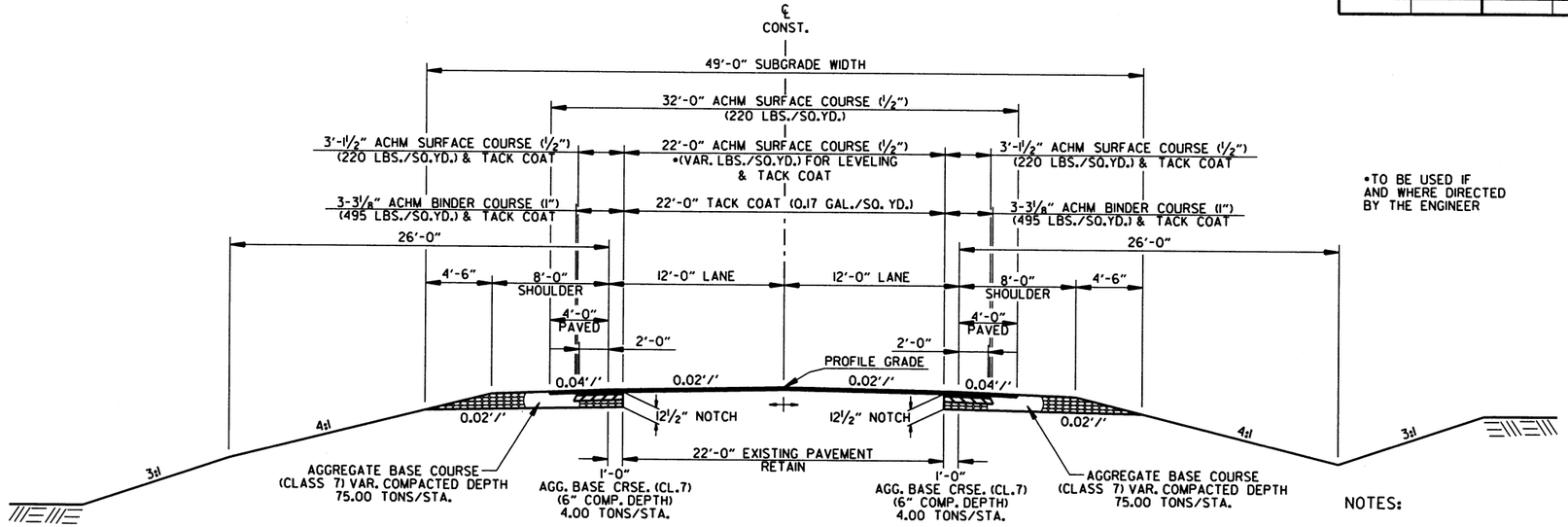
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	10	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION
STA. 831+80.00 TO STA. 834+00.00

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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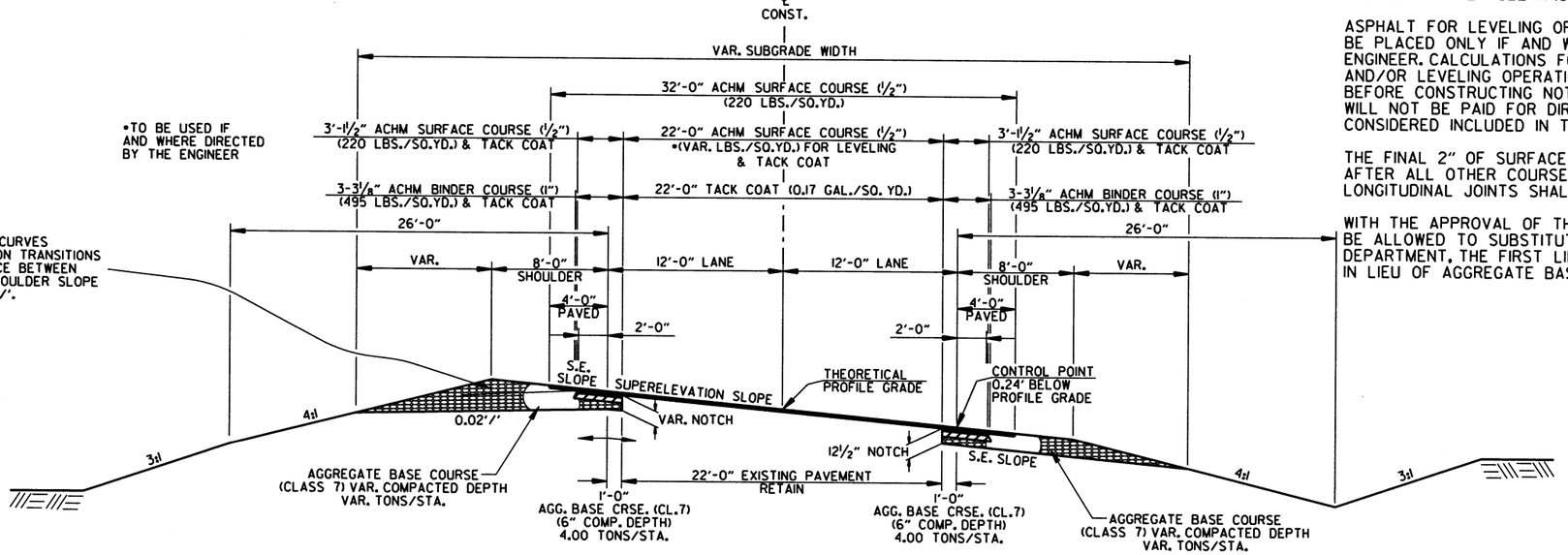


SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION
SUPERELEVATION

7/9/2019

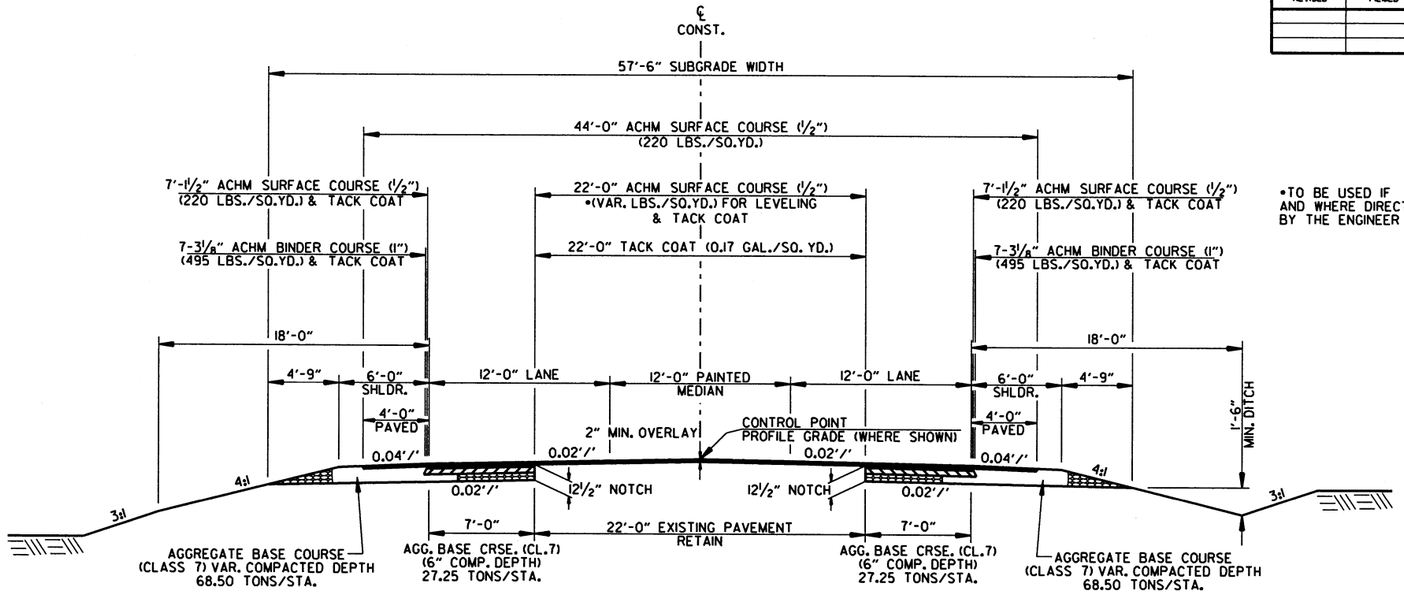
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	11	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



HWY. 36 - NOTCH, WIDEN, AND OVERLAY SECTION

SITE 3 - STA. 112+00.00 TO STA. 210+00.00
SITE 4 - STA. 313+98.00 TO 324+51.00

*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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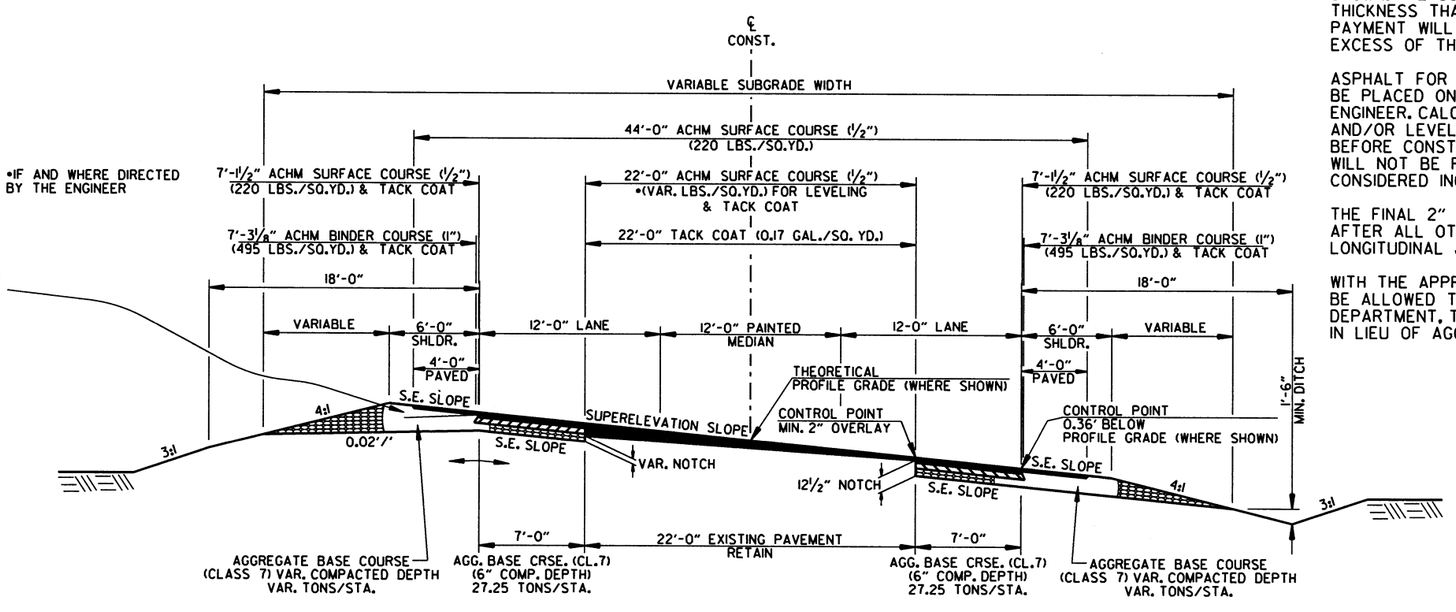


HWY. 36 - NOTCH, WIDEN, AND OVERLAY SECTION
SUPERELEVATION

7/9/2019

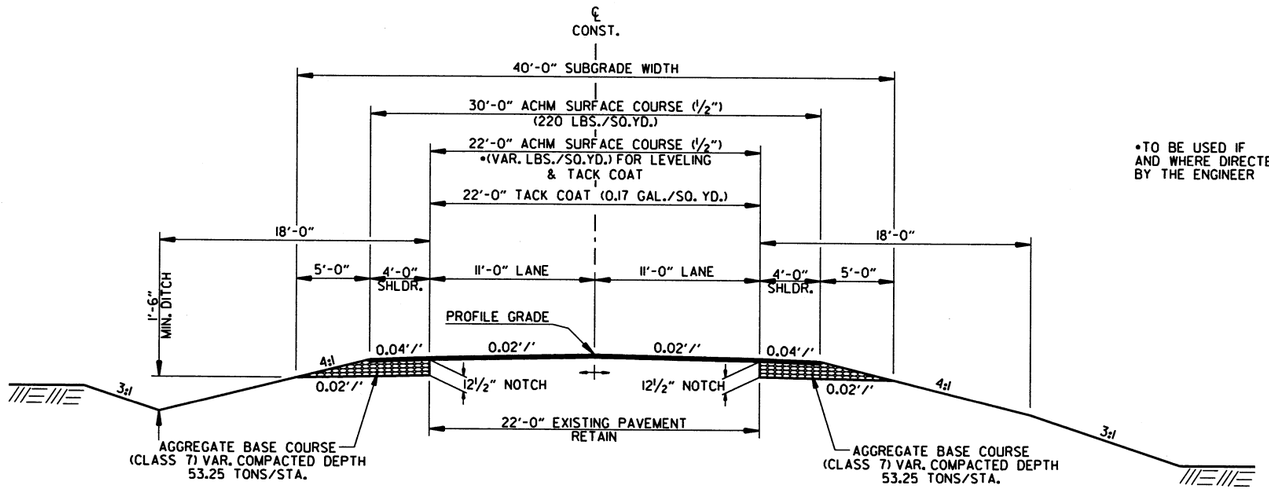
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	12	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



HWY. 305 - NOTCH, WIDEN, OVERLAY SECTION
STA. 401+86.00 TO STA. 403+60.98

*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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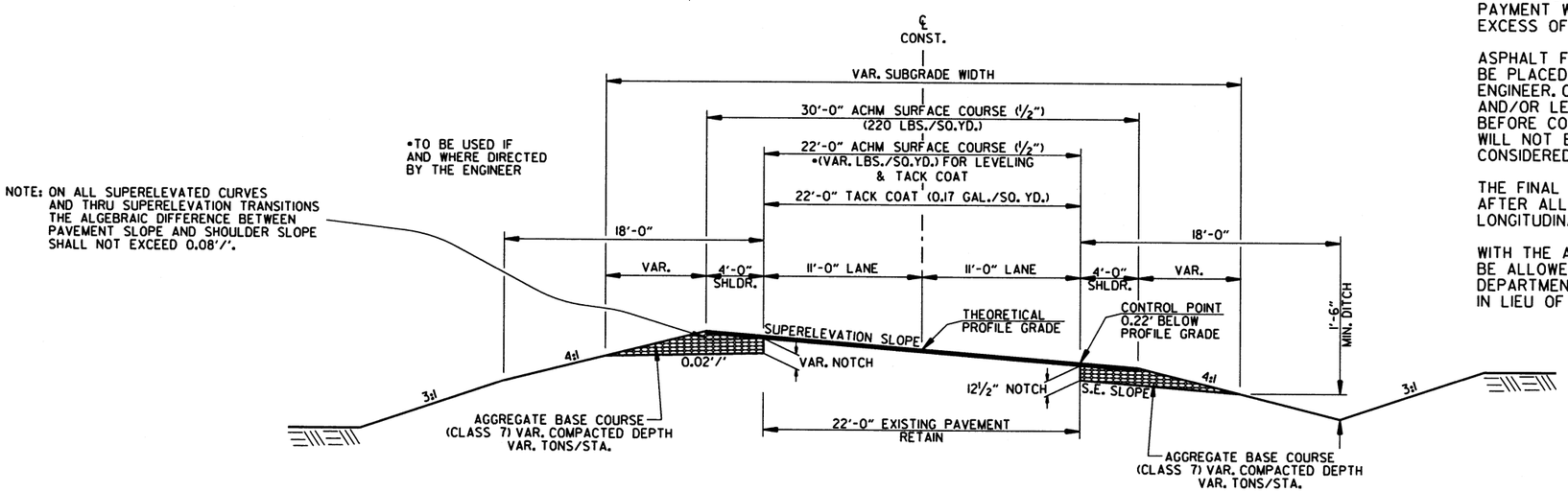


HWY. 305 - NOTCH, WIDEN, OVERLAY SECTION
SUPERELEVATION

7/9/2019

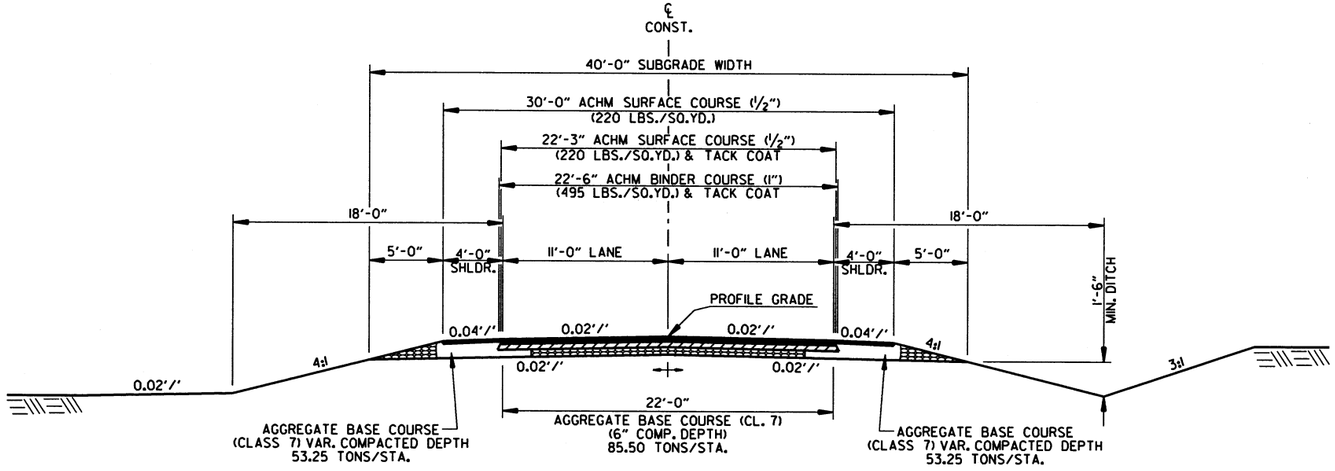
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	13	226

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



HWY. 305 - FULL DEPTH SECTION
STA. 403+60.98 TO STA. 405+76.78

NOTES:

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

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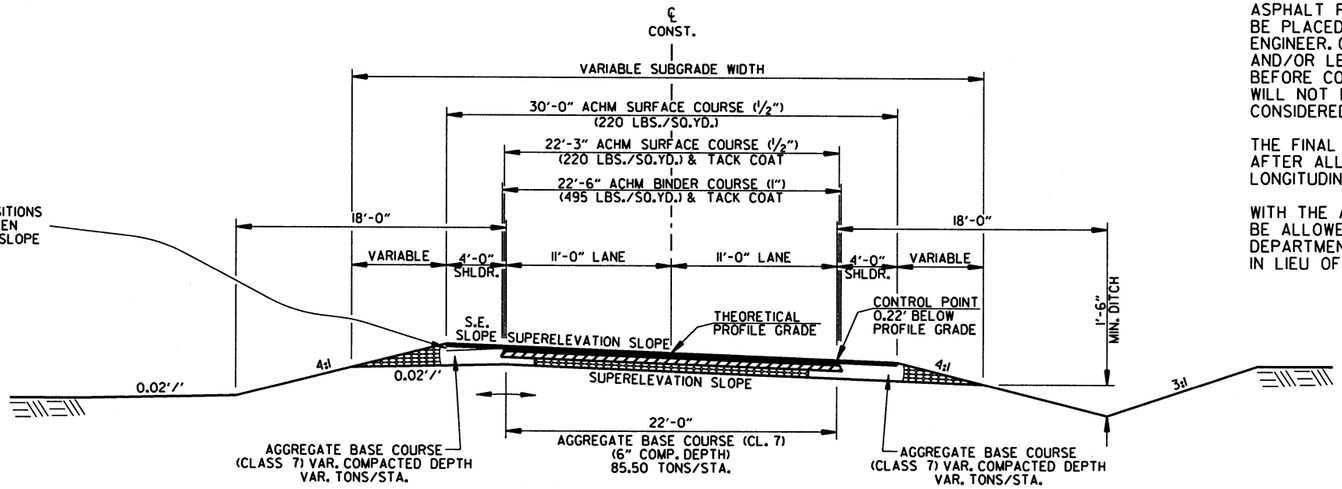
NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



HWY. 305 - FULL DEPTH SECTION
SUPERELEVATION

7/9/2019

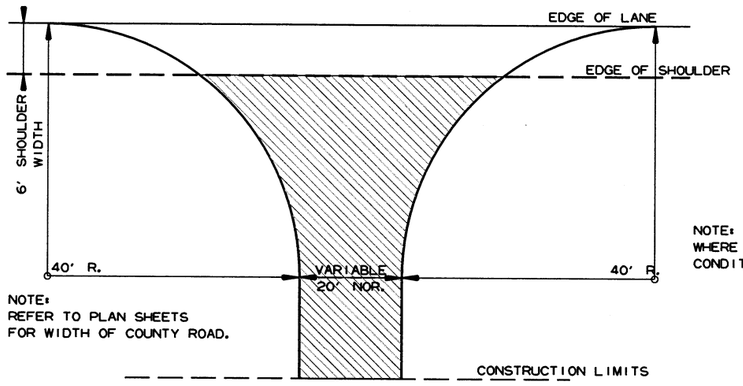
R050280.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	14	226

(2) SPECIAL DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
7-16-19

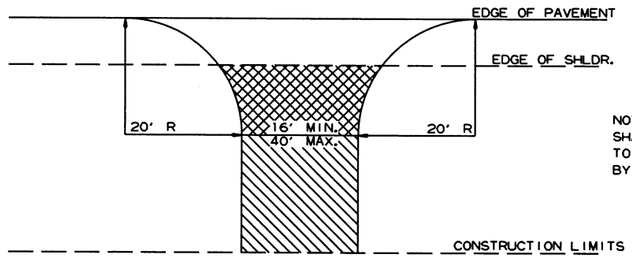


NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

NOTE: TURNOUTS 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

DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION

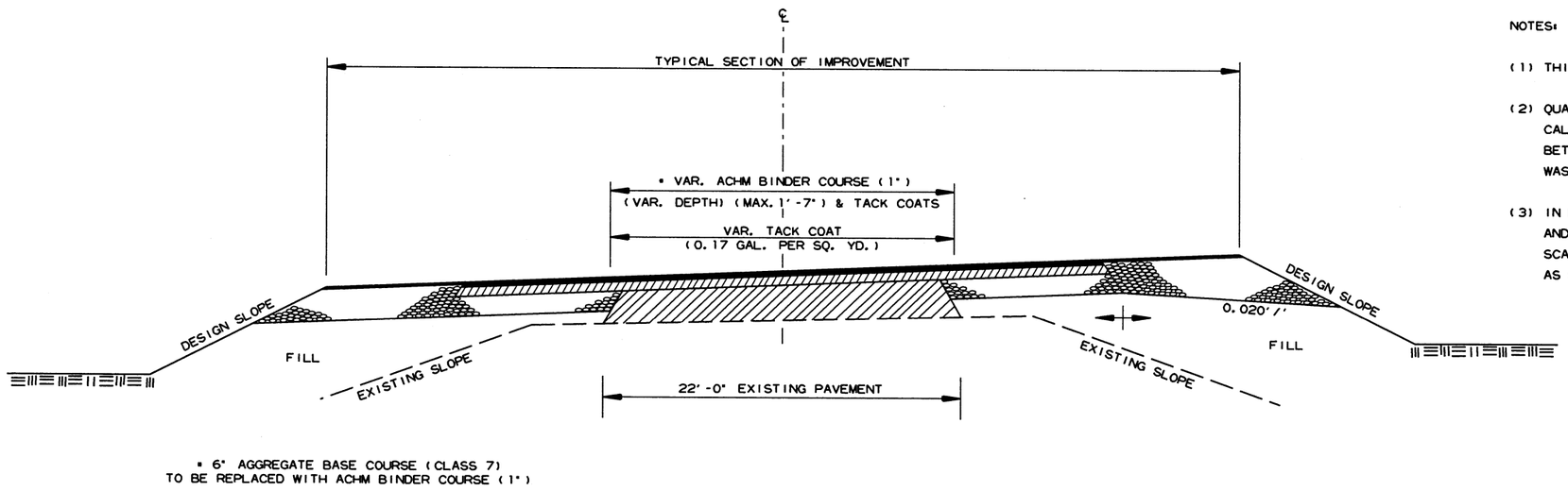


NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.) AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR 6" CONCRETE IF CONCRETE DRIVE EXIST.

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

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)



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

METHOD OF RAISING GRADE

NOTES:

(1) THIS DETAIL TO BE USED ONLY 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.

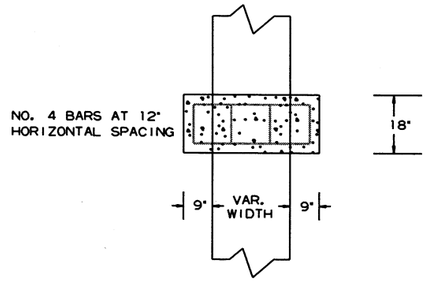
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.

7/9/2019

R050280.DGN

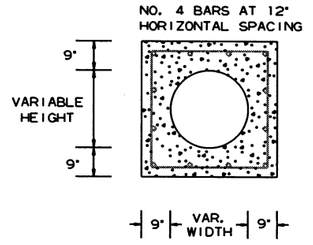
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	15	226

(2) SPECIAL DETAILS

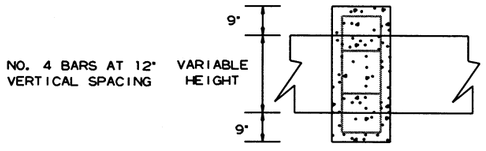


TOP VIEW

MIN 3" COVER

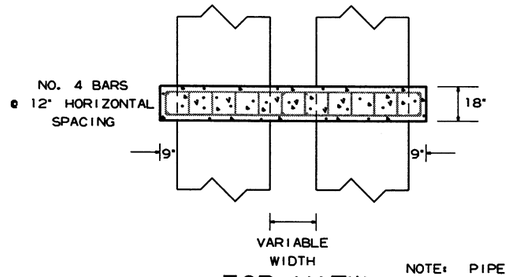


FRONT VIEW



SIDE VIEW

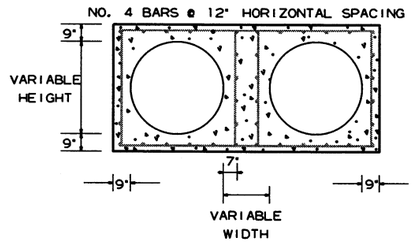
PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



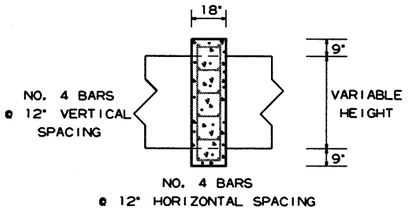
TOP VIEW

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

MIN. 3" COVER

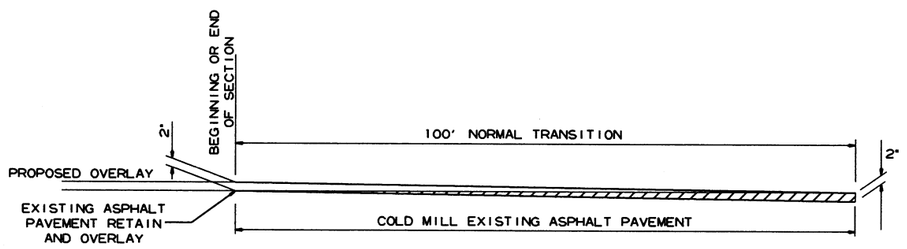


FRONT VIEW

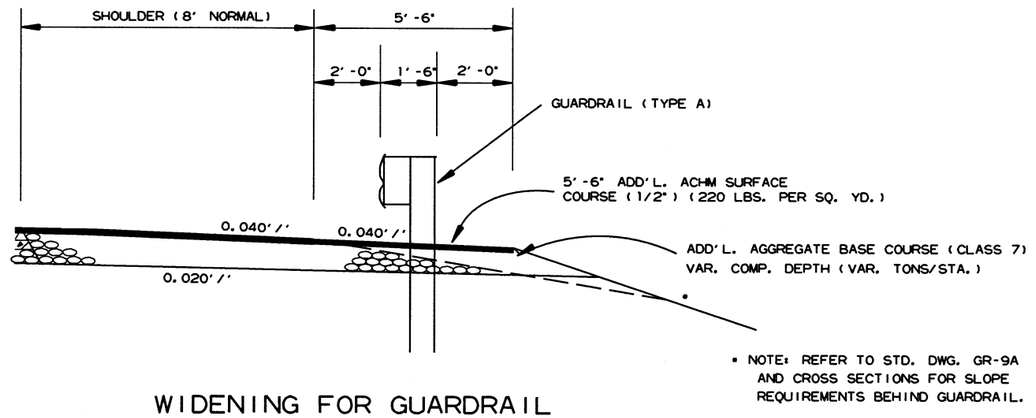


SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



DETAIL FOR TRANSITIONS



WIDENING FOR GUARDRAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

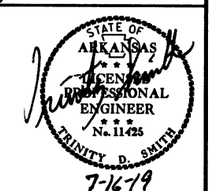
7/9/2019

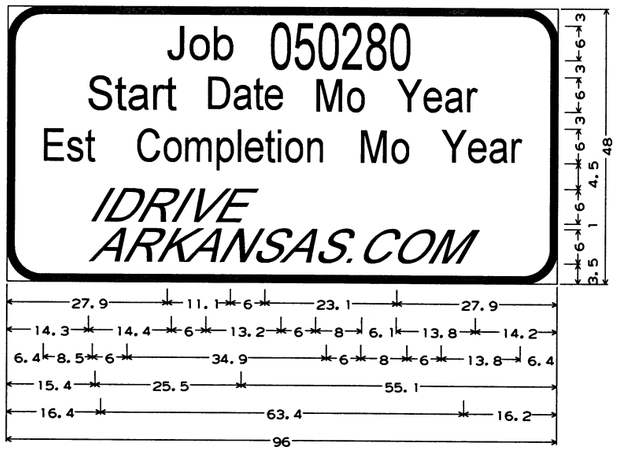
R050280.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	16	226

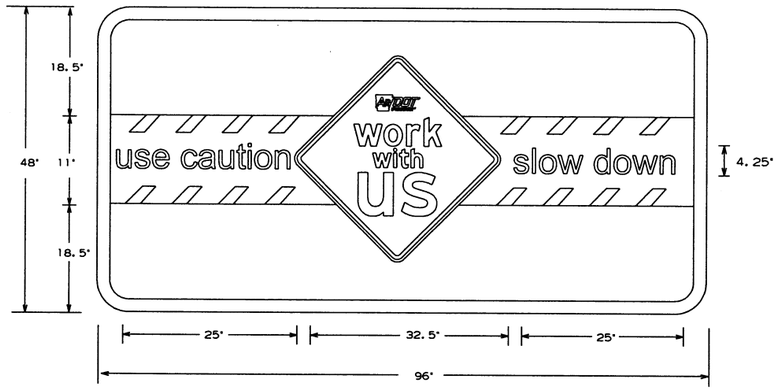
(2) SPECIAL DETAILS





6.0" Radius, 1.3" Border, Black on Orange;
"Job 050280" C 2K; "Start Date Mo Year" C 2K;
"Est Completion Mo Year" C 2K; "IDRIVE ARKANSAS.COM" Arial;
Arial;

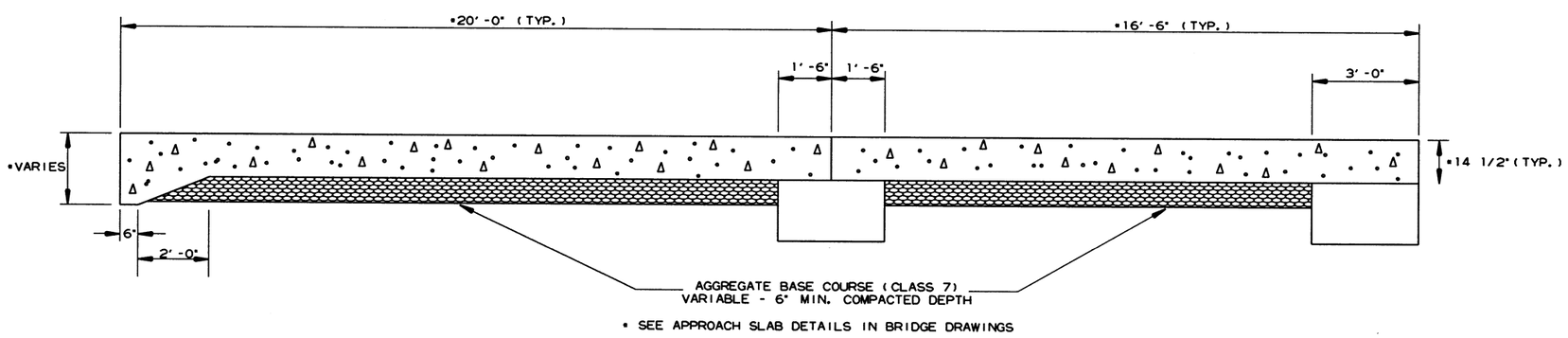
CONSTRUCTION PROJECT INFORMATION SIGN



1.5" WHITE BORDER, 1.5" RADII, GREEN BACKGROUND
"use caution/slow down" 4.25" NIVEAU GROTESK, REGULAR FONT
"work with us" FRUTIGER LT 75 BLACK FONT

NOTE: DIGITAL ART WORK FILE AVAILABLE FROM ARDOT MAINTENANCE DIVISION SIGN SHOP 501-569-2665.
THIS SIGN SHALL BE PLACED 500' PRECEDING THE FIRST ADVANCE WARNING SIGN, IN THE DIRECTION OF TRAFFIC.

WORK WITH US SIGN



* SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB

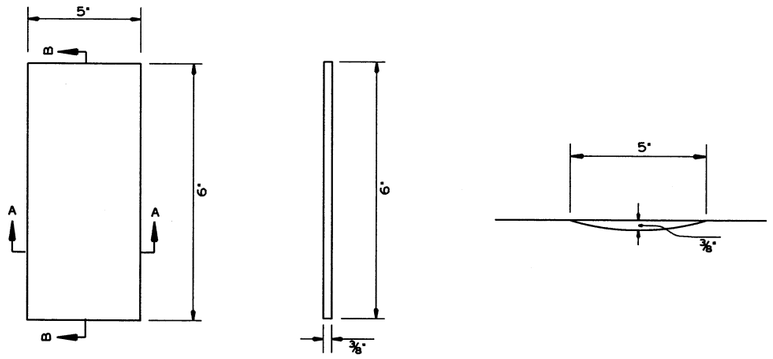
7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	17	226

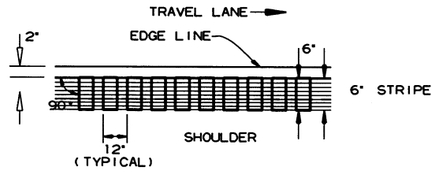
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

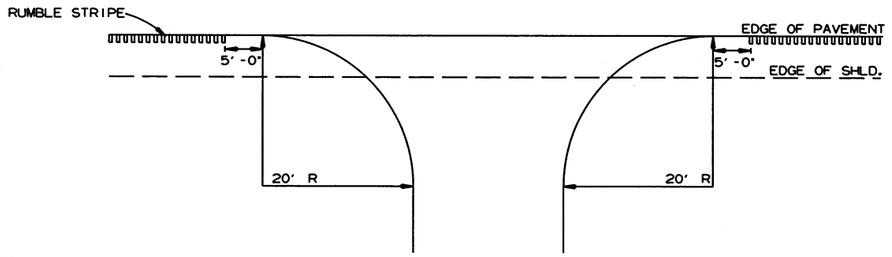


PLAN SECTION B-B SECTION A-A

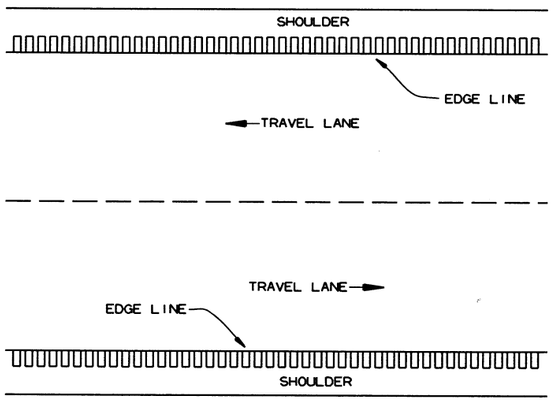
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE
LEFT OR RIGHT SHOULDER



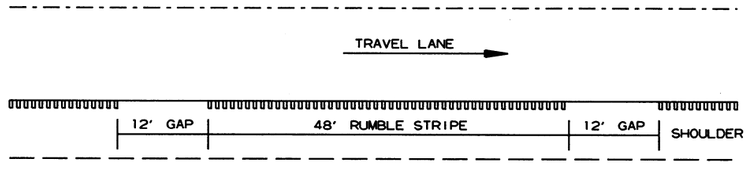
DETAIL FOR RUMBLE STRIPE GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPES SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.
4. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 6" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



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 STRIPE

7/9/2019

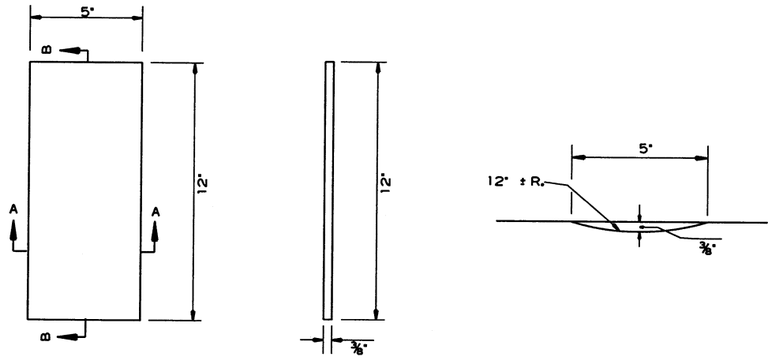
R050280.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	18	226

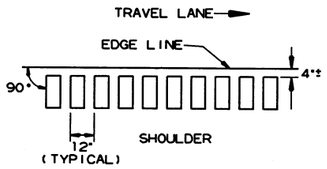
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

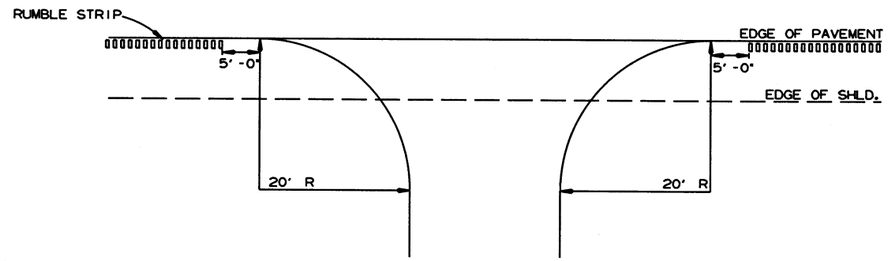


PLAN SECTION B-B SECTION A-A

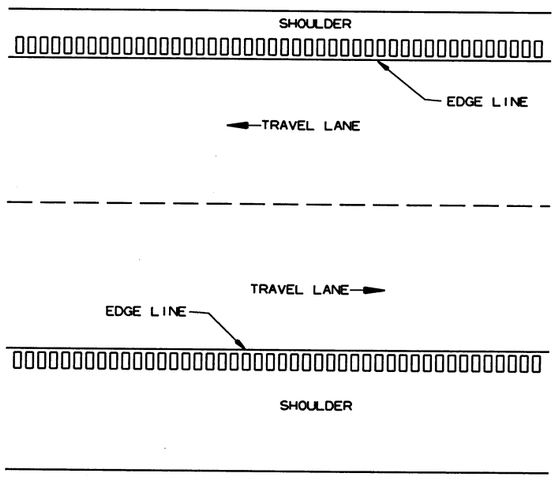
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



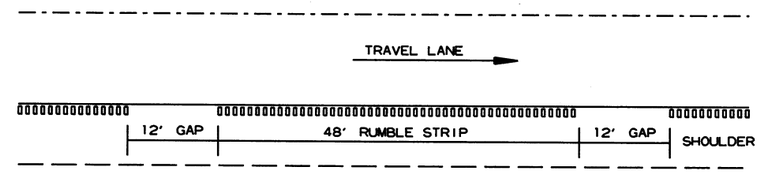
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

7/9/2019

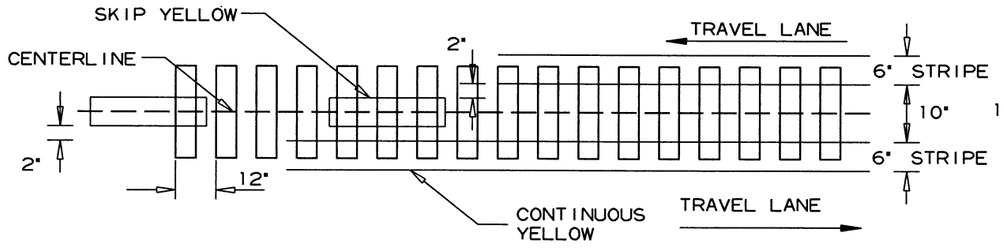
R050280.DGN

SPECIAL DETAILS

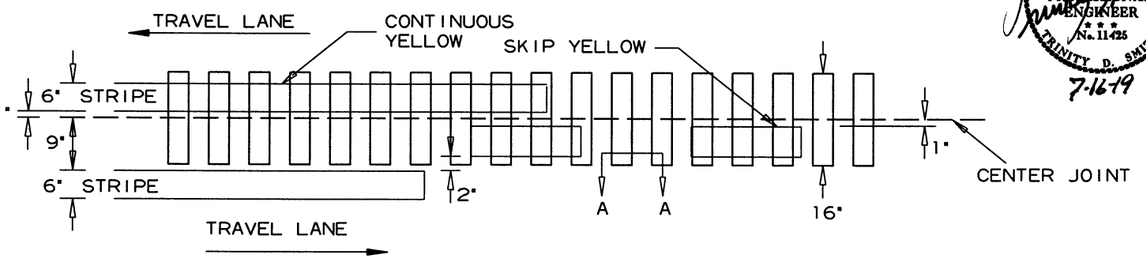
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	19	226

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

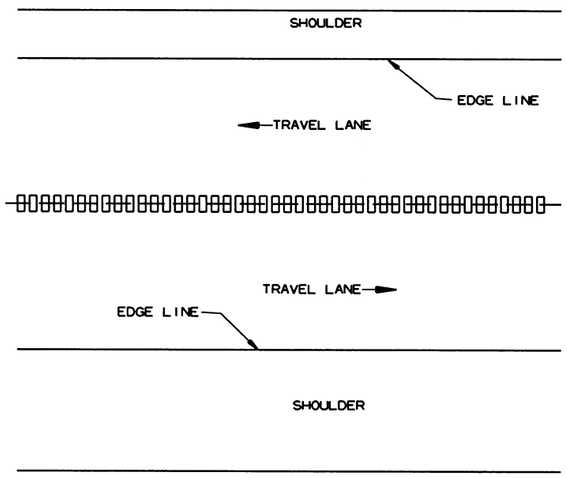


ASPHALT PAVEMENT

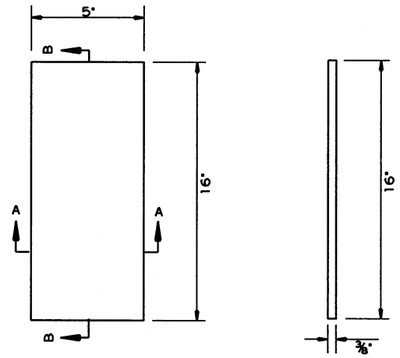


CONCRETE PAVEMENT

LOCATION PLAN OF CENTERLINE RUMBLE STRIPES

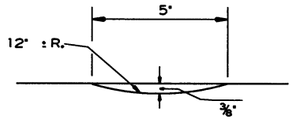


PLAN VIEW



PLAN

SECTION B-B



SECTION A-A

DETAILS OF CENTERLINE RUMBLE STRIPES

GENERAL NOTES

1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE CENTERLINE.
3. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SLOPE BREAKS MAY BE NECESSARY.

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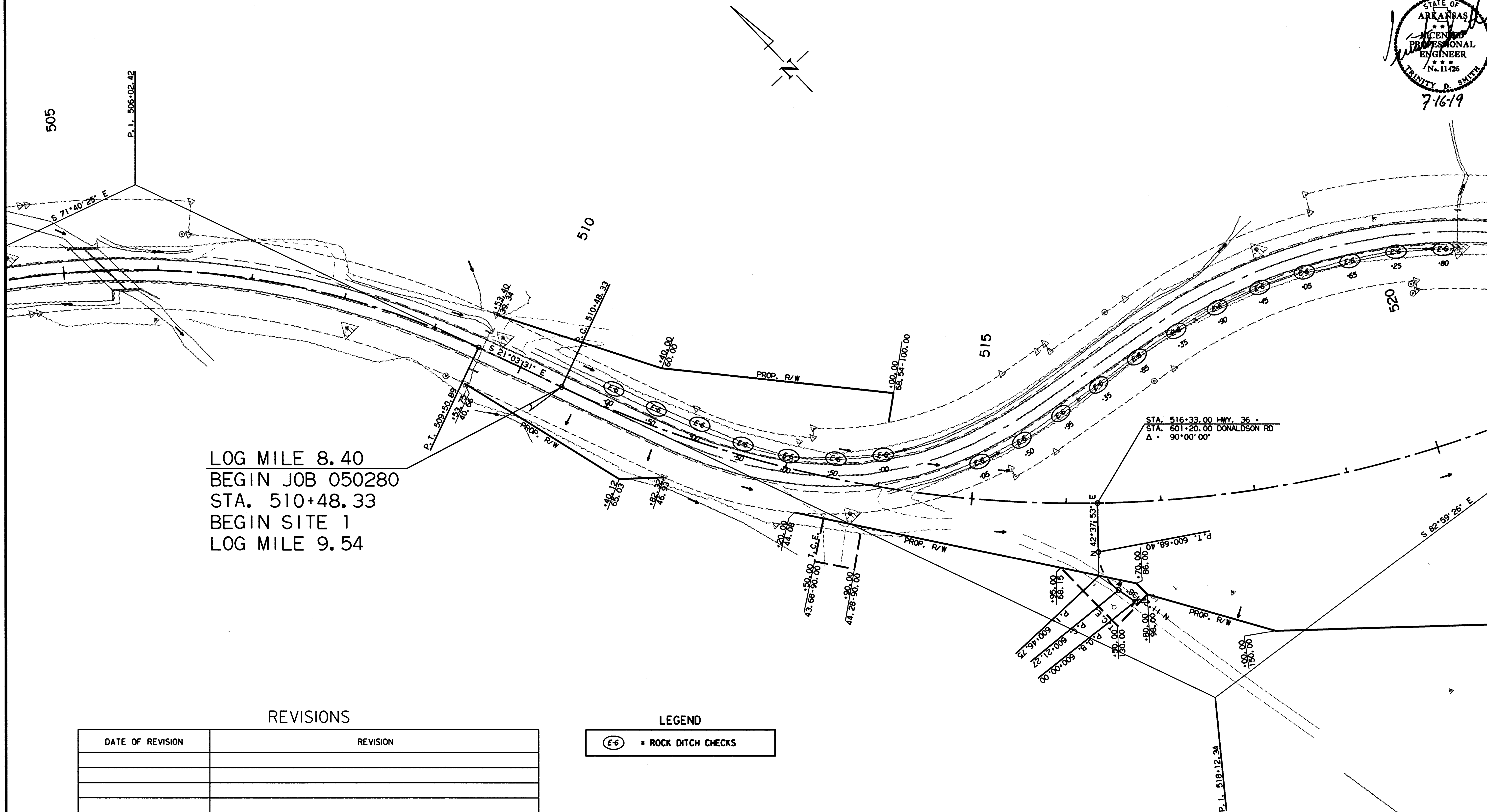
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	20	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

7-16-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

SITE 1 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

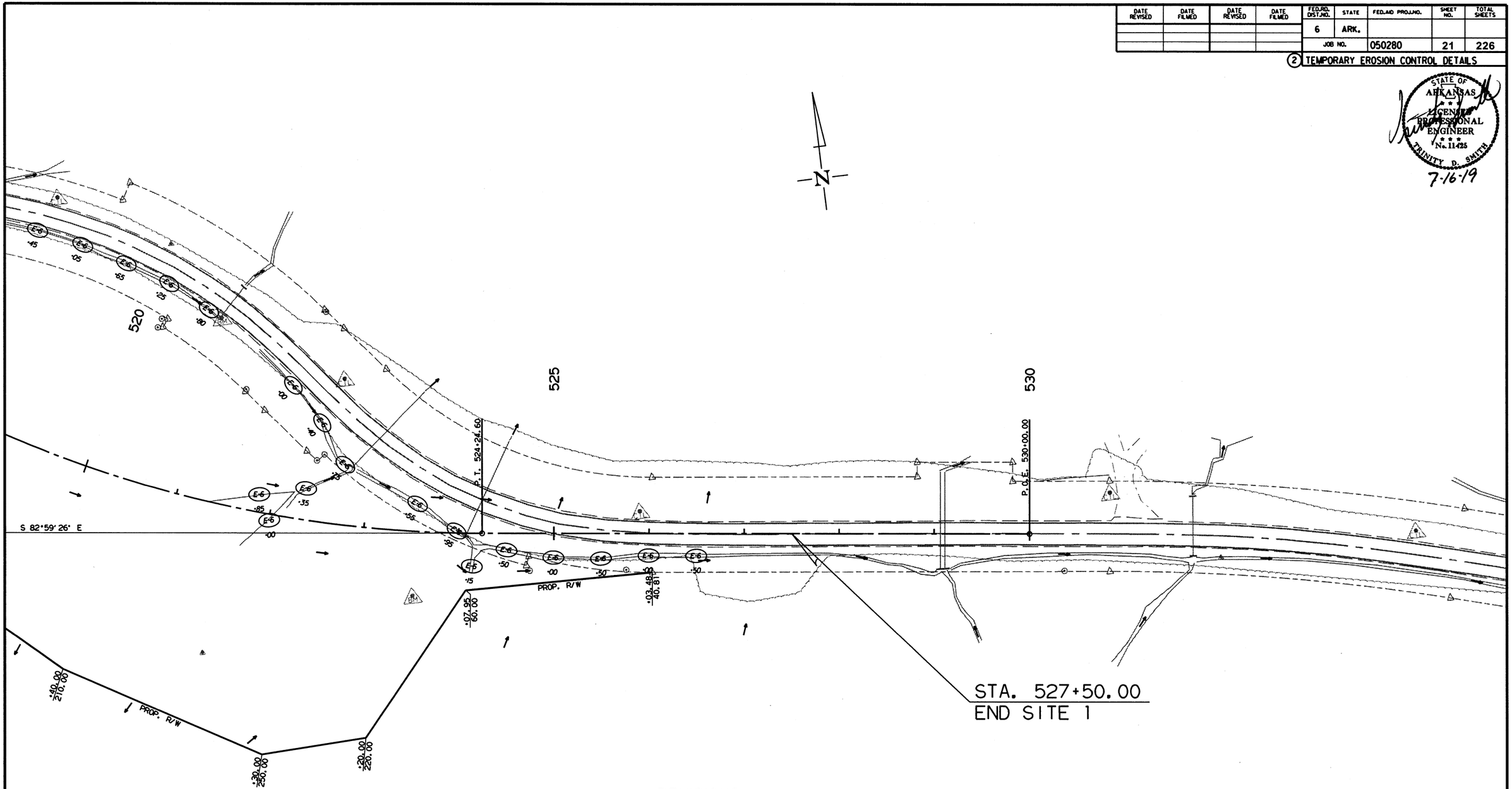
7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	21	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

7/9/2019

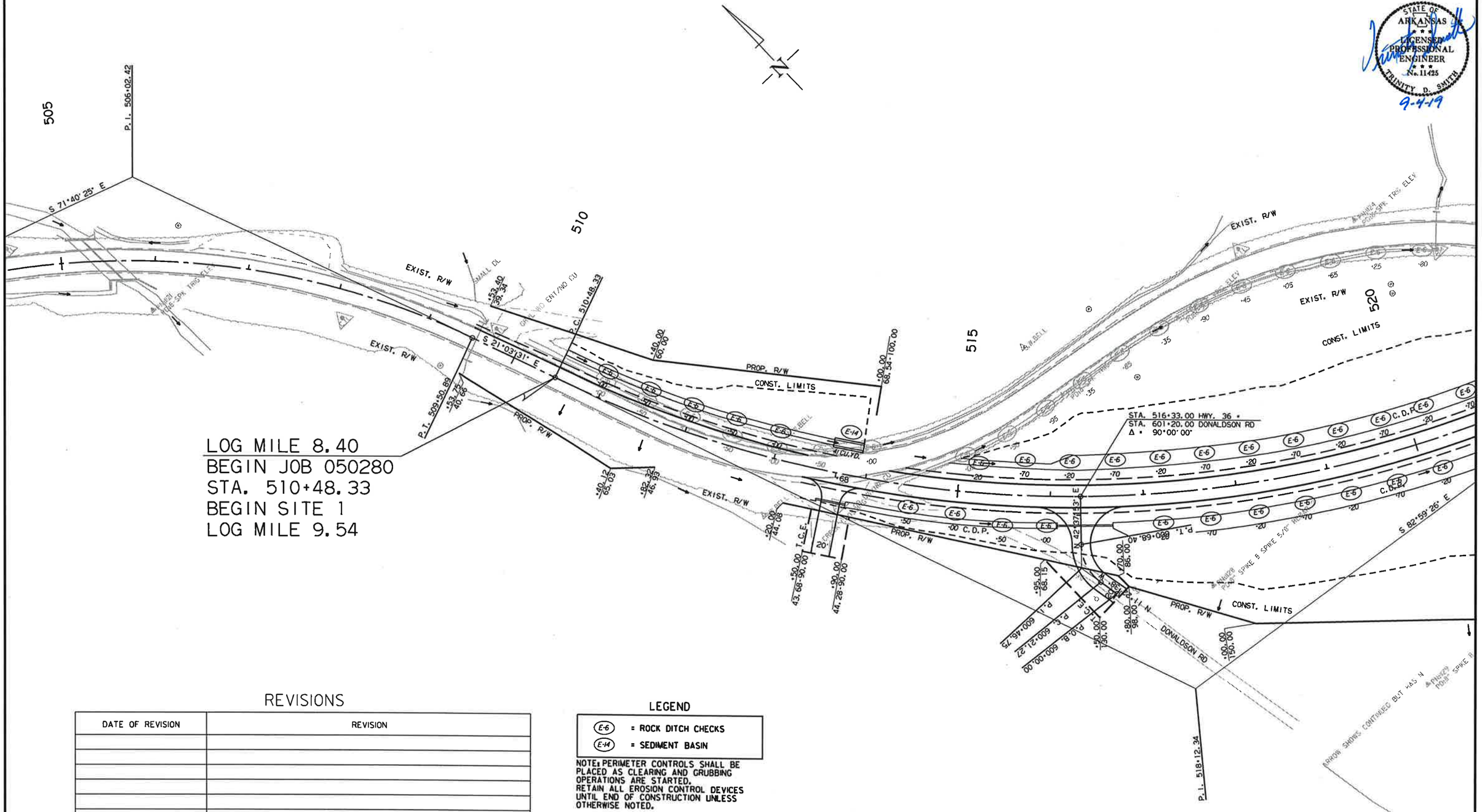
R050280.DGN

SITE 1 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	22	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19



LOG MILE 8.40
BEGIN JOB 050280
STA. 510+48.33
BEGIN SITE 1
LOG MILE 9.54

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS
(E-14) = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

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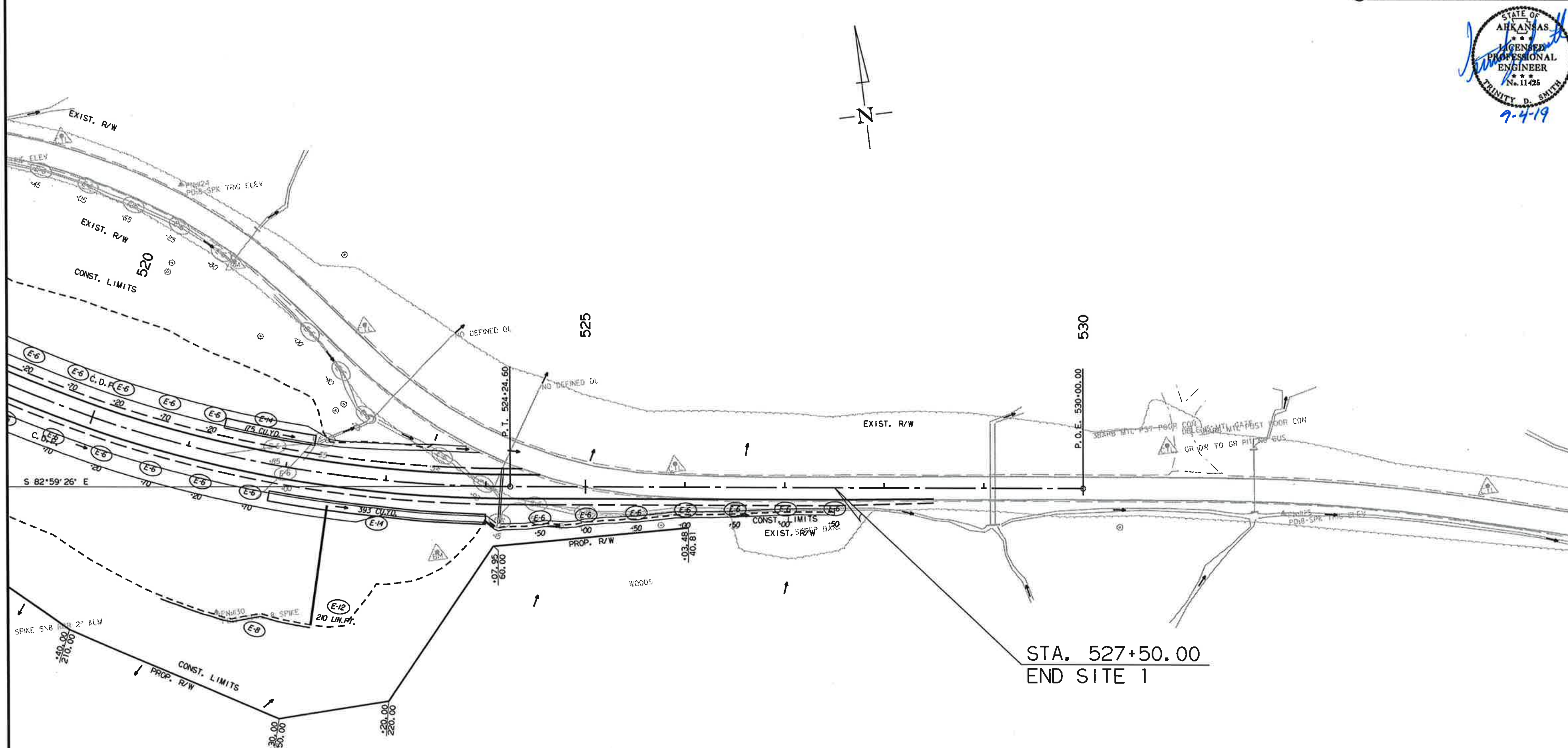
SITE 1 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	23	226

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6)	= ROCK DITCH CHECKS
(E-14)	= SEDIMENT BASIN
(E-12)	= SLOPE DRAIN

SITE 1 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

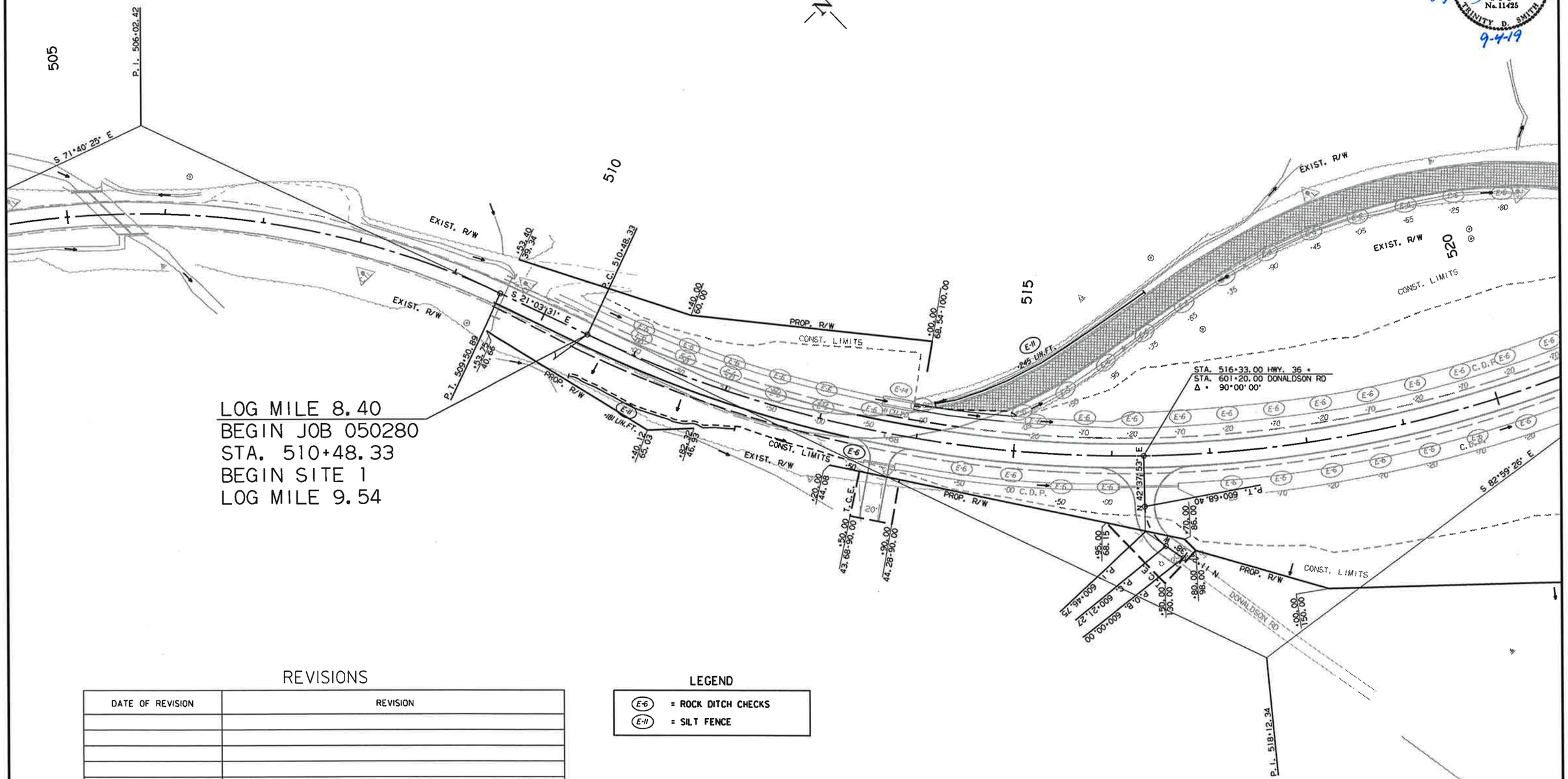
7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	24	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19



LOG MILE 8.40
BEGIN JOB 050280
STA. 510+48.33
BEGIN SITE 1
LOG MILE 9.54

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE

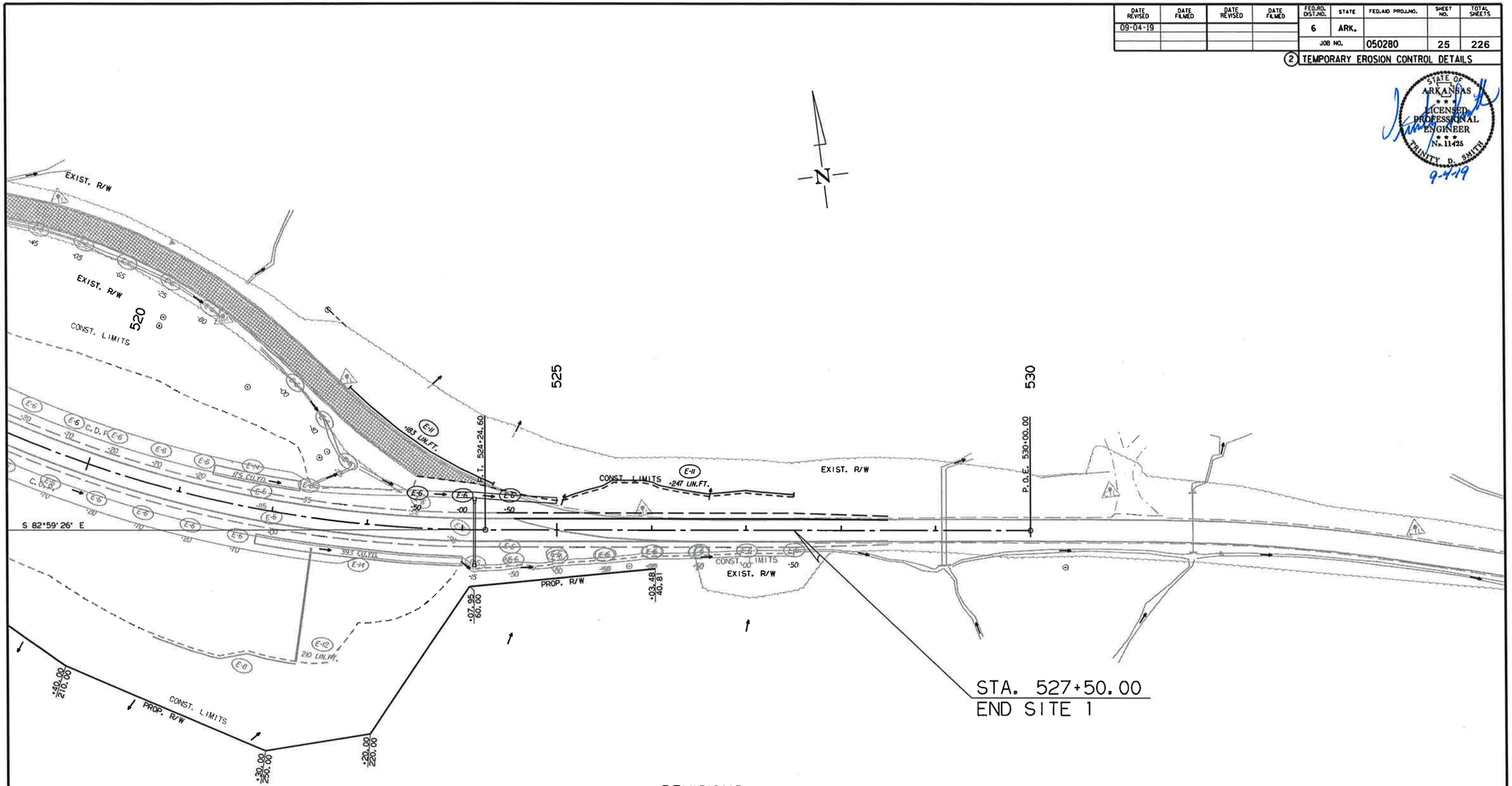
SITE 1 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	25	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE

7/9/2019

R050280.DGN

SITE 1 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	26	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

STA. 804+00.00
BEGIN SITE 2
LOG MILE 11.22

SITE 2 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

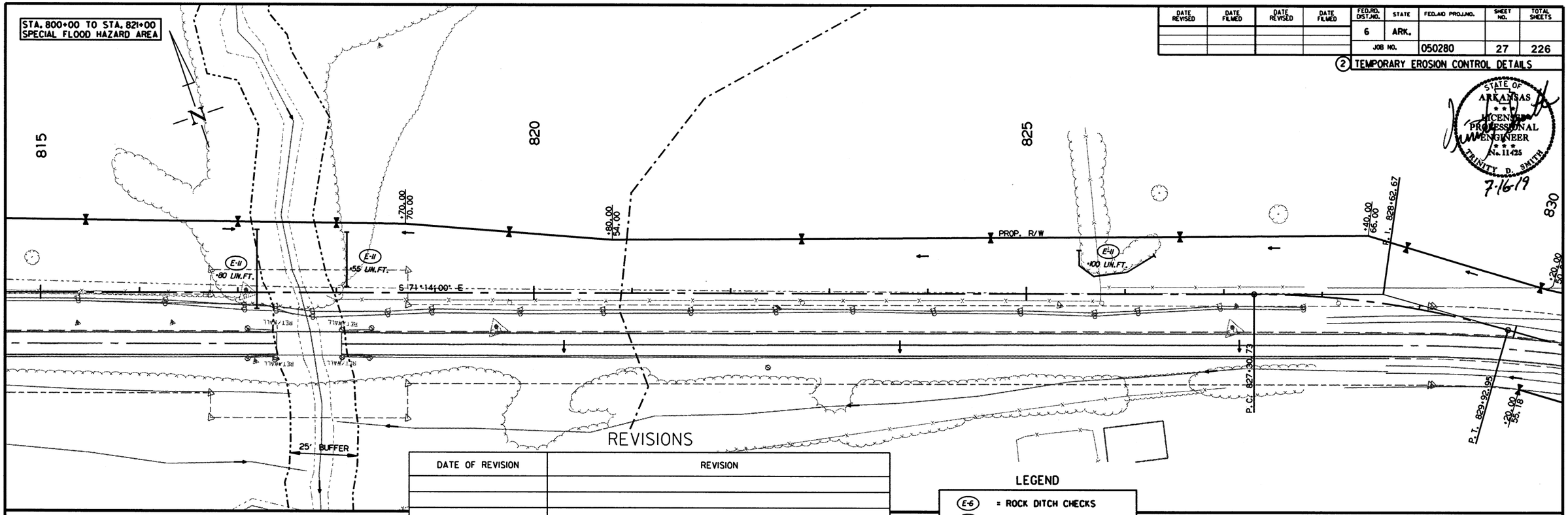
7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	27	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

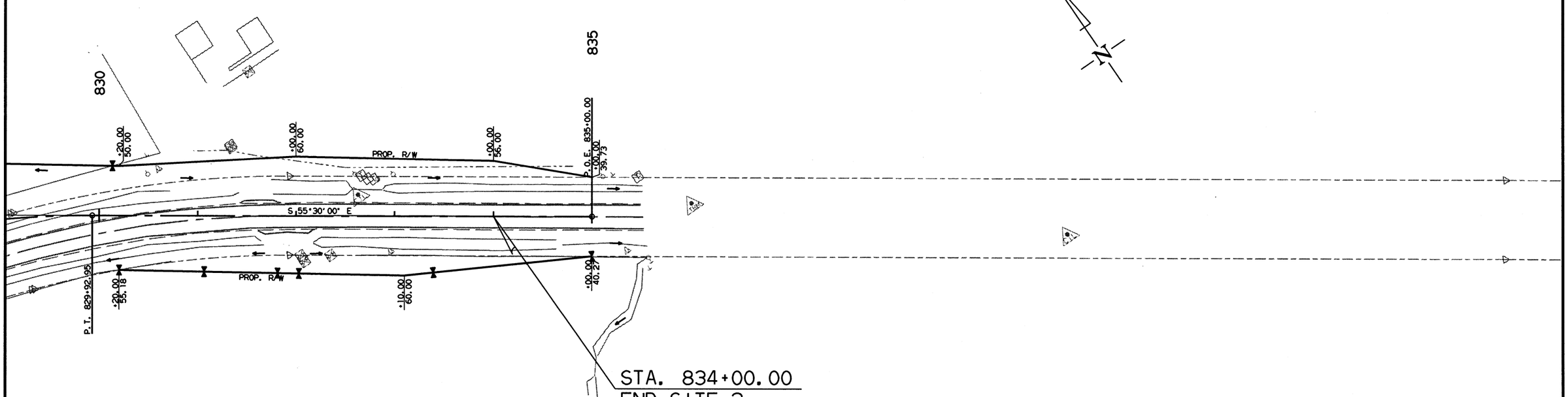


REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS
E-II = SILT FENCE



SITE 2 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

7/9/2019
R050280.DGN

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	28	226

(2) TEMPORARY EROSION CONTROL DETAILS

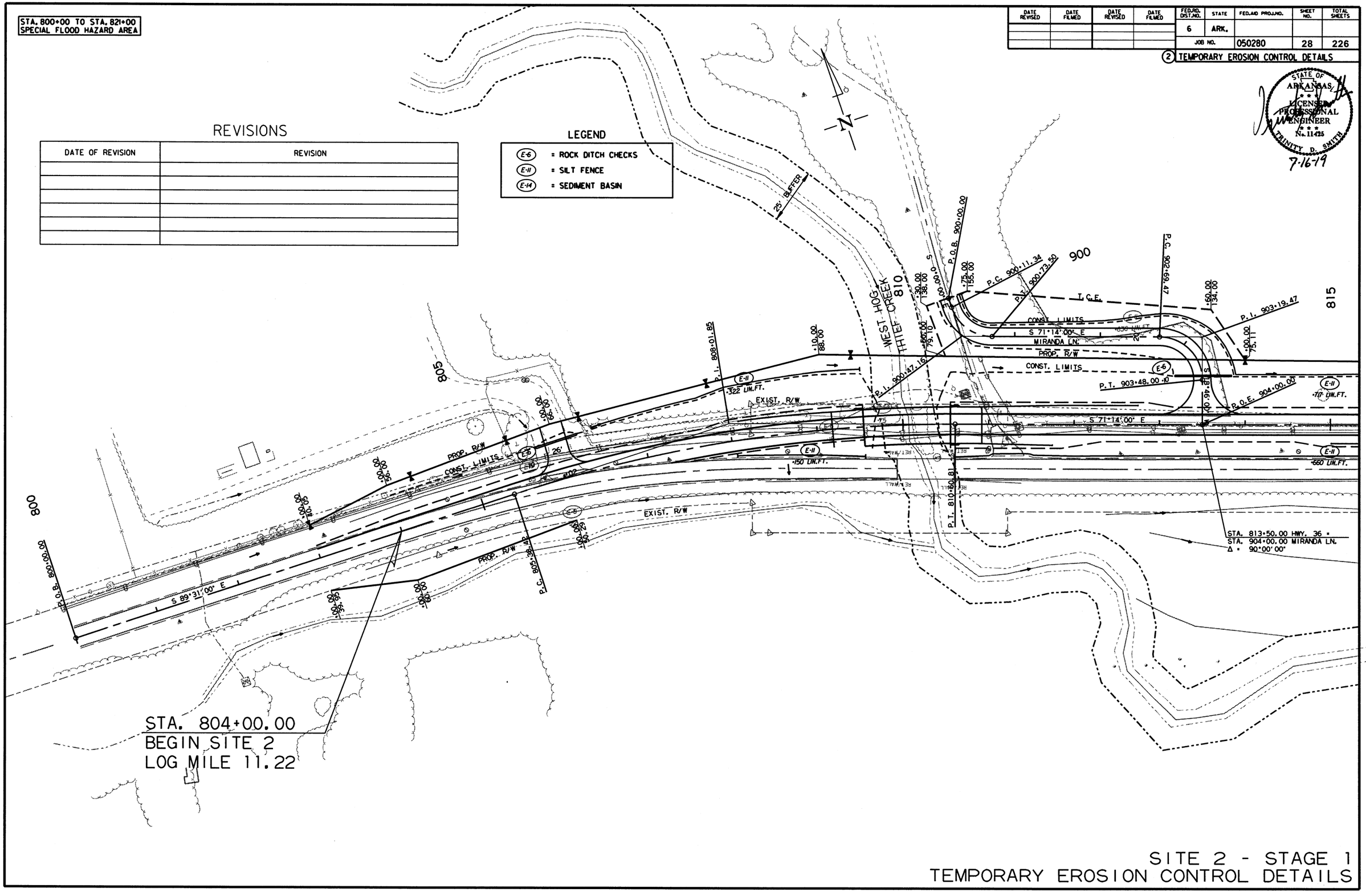
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE
(E-14) = SEDIMENT BASIN



STA. 804+00.00
BEGIN SITE 2
LOG MILE 11.22

SITE 2 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	29	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

EAST HOG THIEF CREEK

815 820 825 830

CONST. LIMITS
EXIST. R/W
PROP. R/W
S 71°14'00" E
25' BUFFER
E-11 -717 LIN.FT.
E-11 -660 LIN.FT.
E-11 -341 LIN.FT.
E-11 -1075 LIN.FT.
E-14 60 CU.YD.
E-6 -00
E-6 -20
E-6 -00
E-6 -700 LIN.FT.
E-6 -10
+70.00 70.00
+80.00 54.00
+40.00 66.00
+20.00 50.00
P.I. 828+62.67
P.C. 827+30.73
P.I. 829+92.95
+20.00 55.18

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

N

830 835

+20.00 50.00
+00.00 60.00
+00.00 56.00
+00.00 39.73
P.O.E. 835+00.00
CONST. LIMITS
PROP. R/W
EXIST. R/W
E-6 16' -20
E-6 28' -50
L r41 S 55°30'00" E r73
P.T. 829+92.95
+20.00 55.18
PROP. R/W
+10.00 60.00
+00.00 40.27
EXIST. R/W

STA. 834+00.00
END SITE 2

7/9/2019

R050280.DGN

SITE 2 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	30	226

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 804+00.00
BEGIN SITE 2
LOG MILE 11.22

STA. 813+50.00 HWY. 36 =
STA. 904+00.00 MIRANDA LN.
Δ = 90°00'00"

SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

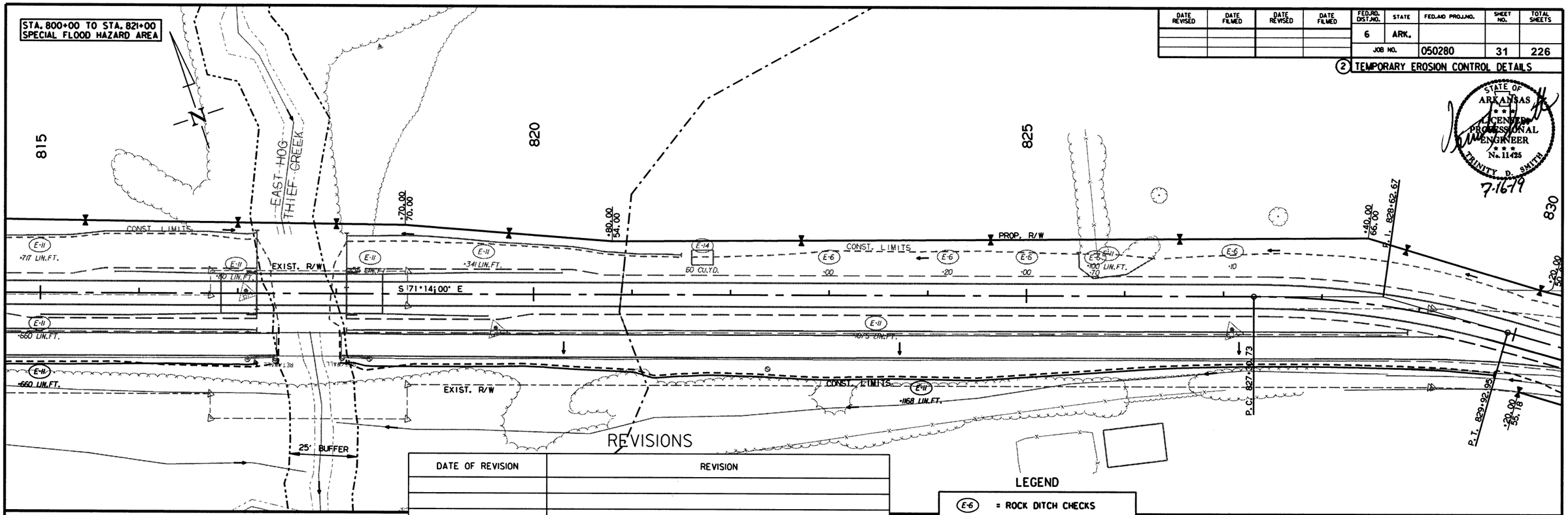
7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	31	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-09

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

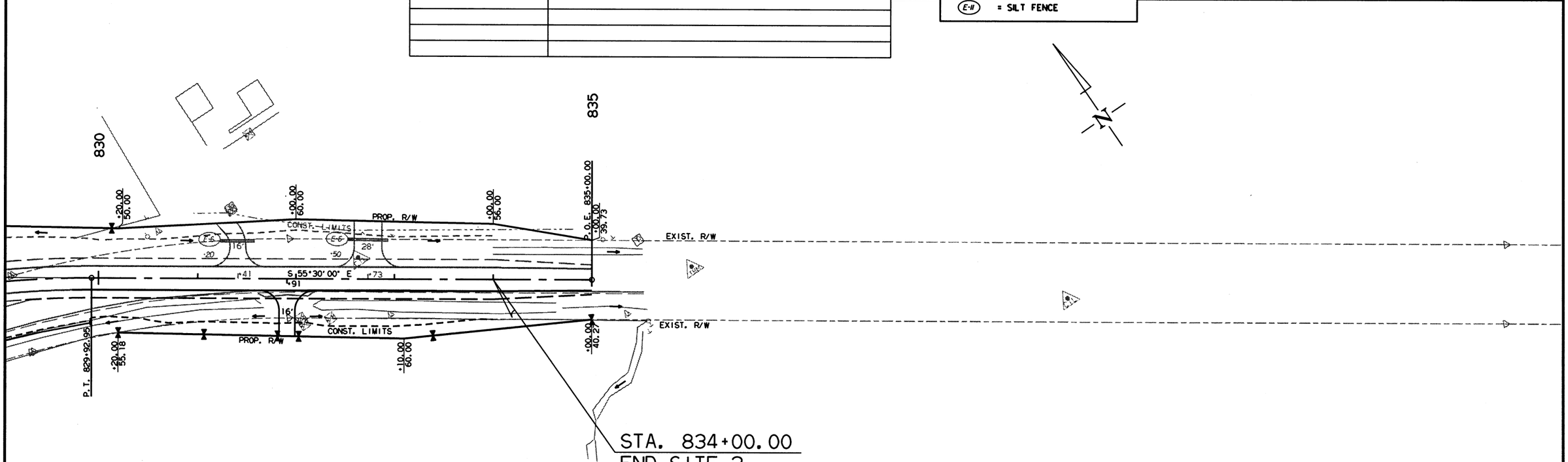


REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE



SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	32	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 112+00.00
BEGIN SITE 3
LOG MILE 12.30

POB 100+03.09

S 54°58'09" E
HWY. 36

P.I. 114+61.45

PROP. R/W

P.C. 112+72.03

P.I. 116+50.74

S 51°10'56" E
HWY. 36

P.C. 120+17.18

STA. 123+35.00 HWY. 36 =
STA. 405+95.04 HWY. 305
Δ = 80°00'00"

P.I. 124+17.30

N 88°48'21" E
HWY. 36

P.C. 128+28.93

P.I. 122+25.78

N 17°02'08" E
HWY. 305

T.C.E.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

SITE 3 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

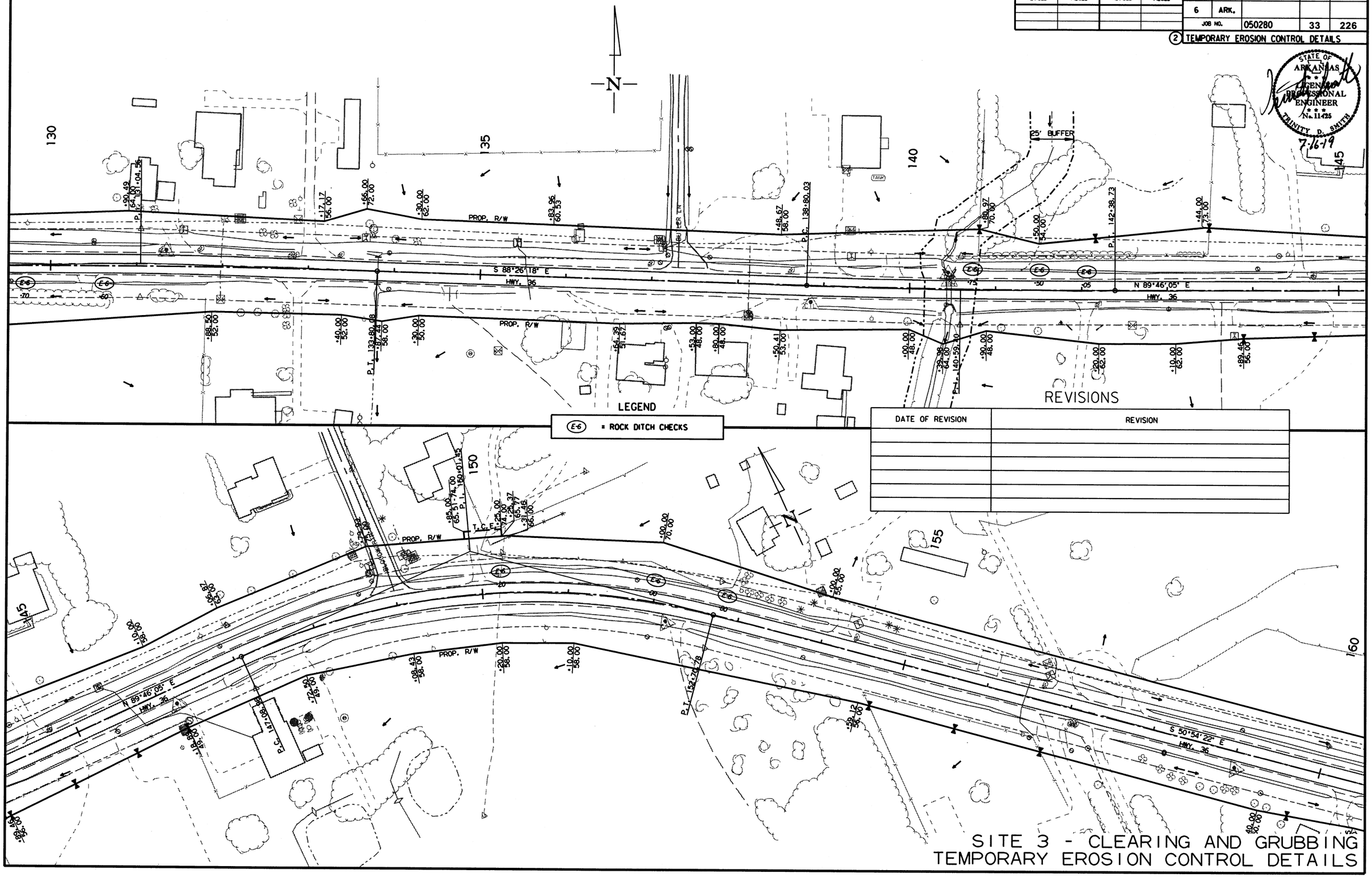
7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	33	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



LEGEND

REVISIONS

DATE OF REVISION	REVISION

7/9/2019

R050280.DGN

SITE 3 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	34	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-09

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

7/9/2009

R050280.DGN

SITE 3 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	35	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

STA. 210+00.00
END SITE 3

SITE 3 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	36	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 401+86.00
BEGIN HWY. 305

POB 400+00.00

N 0°59' 15" E
HWY. 305

N 17°02' 08" E
HWY. 305

PROP. R/W

I.C.E.

T.C.E.

P.I. 402+87.12

P.C. 401+86.16

P.I. 403+86.16

P.I. 122+25.28

P.I. 124+17.30

P.C. 120+17.18

S 51°10' 56" E
HWY. 36

N 88°48' 21" E
HWY. 36

STA. 123+35.00 HWY. 36 =
STA. 405+95.04 HWY. 305
Δ = 80°00' 00"

TANNER RD

400

405

120

125

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECK

7/9/2019

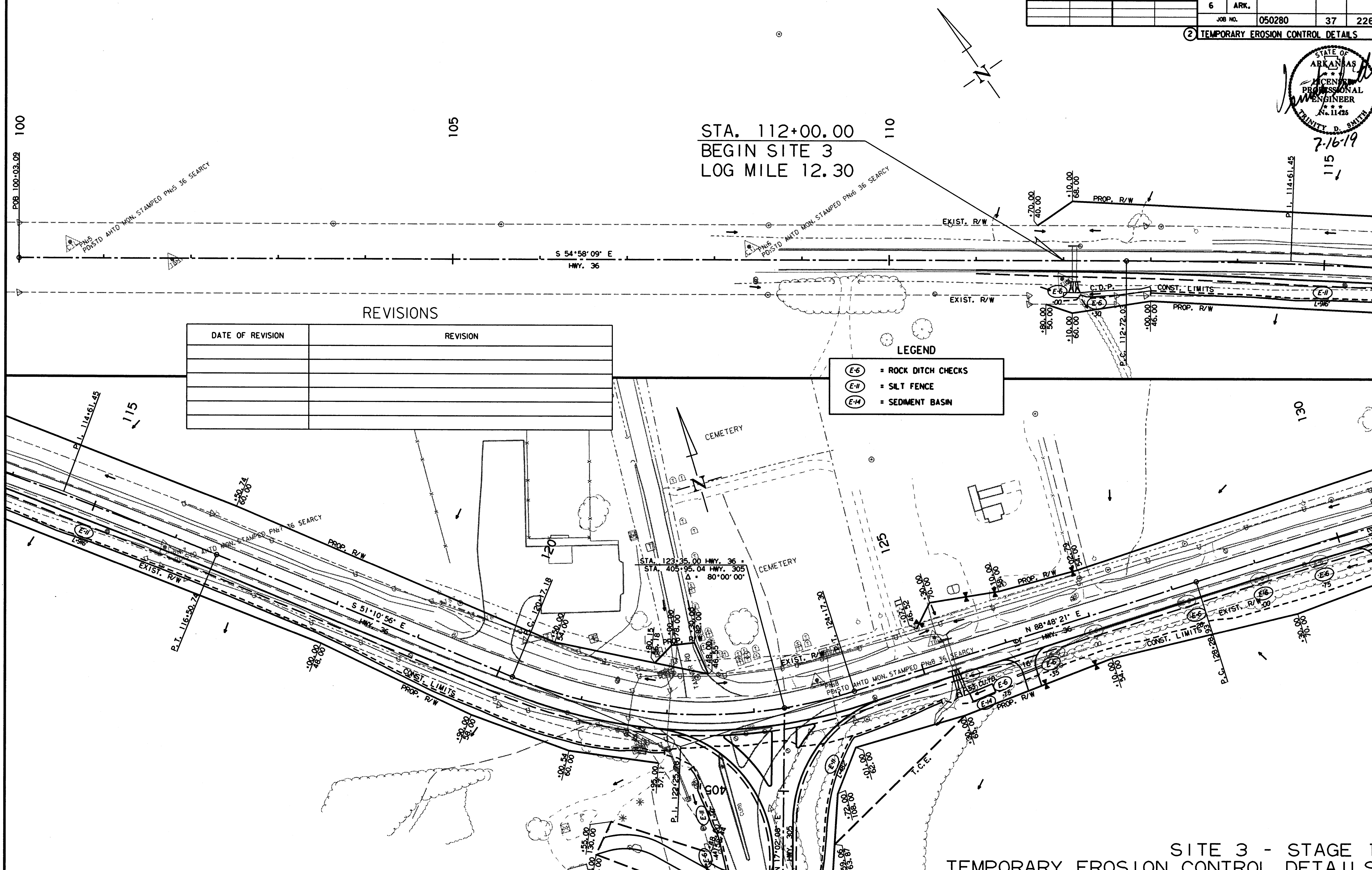
R050280.DGN

SITE 3 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	37	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



STA. 112+00.00
BEGIN SITE 3
LOG MILE 12.30
100
105
110
115
120
125
130
POB 100+03.09
PDSTD AHTD MON. STAMPED PN5 36 SEARCY
PDSTD AHTD MON. STAMPED PN6 36 SEARCY
PDSTD AHTD MON. STAMPED PN7 36 SEARCY
PDSTD AHTD MON. STAMPED PN8 36 SEARCY
S 54°58'09" E
HWY. 36
S 51°10'56" E
HWY. 36
N 88°48'21" E
HWY. 36
EXIST. R/W
PROP. R/W
CONST. LIMITS
C.D.P.
P.I. 114+61.45
P.T. 116+50.74
P.C. 112+72.02
P.C. 128+28.93
STA. 123+35.00 HWY. 36 =
STA. 405+95.04 HWY. 305
Δ = 80°00'00"
CEMETERY
T.C.E.
HWY. 305

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6)	= ROCK DITCH CHECKS
(E-11)	= SILT FENCE
(E-14)	= SEDIMENT BASIN

SITE 3 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	38	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-16-19

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-14	= SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

7/9/2019

R050280.DGN

SITE 3 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	39	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

7/9/2019

R050280.DGN

SITE 3 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	40	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-09

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN

STA. 210+00.00
END SITE 3

7/9/2009

R050280.DGN

SITE 3 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	41	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

STA. 401+86.00
BEGIN HWY. 305

SITE 3 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

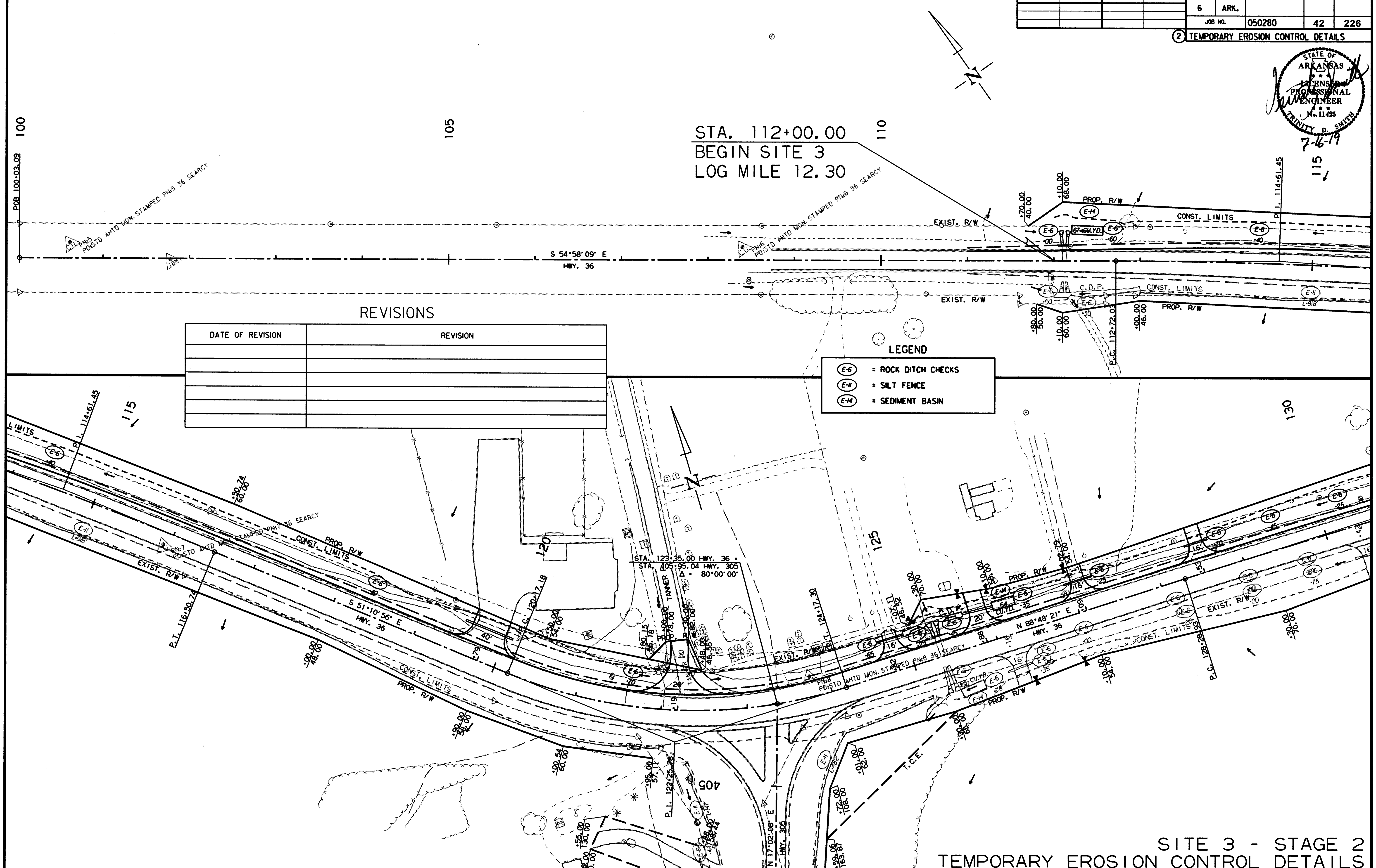
7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	42	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

7-16-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6)	= ROCK DITCH CHECKS
(E-11)	= SILT FENCE
(E-14)	= SEDIMENT BASIN

SITE 3 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	43	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

SITE 3 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	44	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

7/9/2019

R050280.DGN

SITE 3 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	45	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STA. 210+00.00
END SITE 3

SITE 3 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

7/9/2019

R050280.DGN

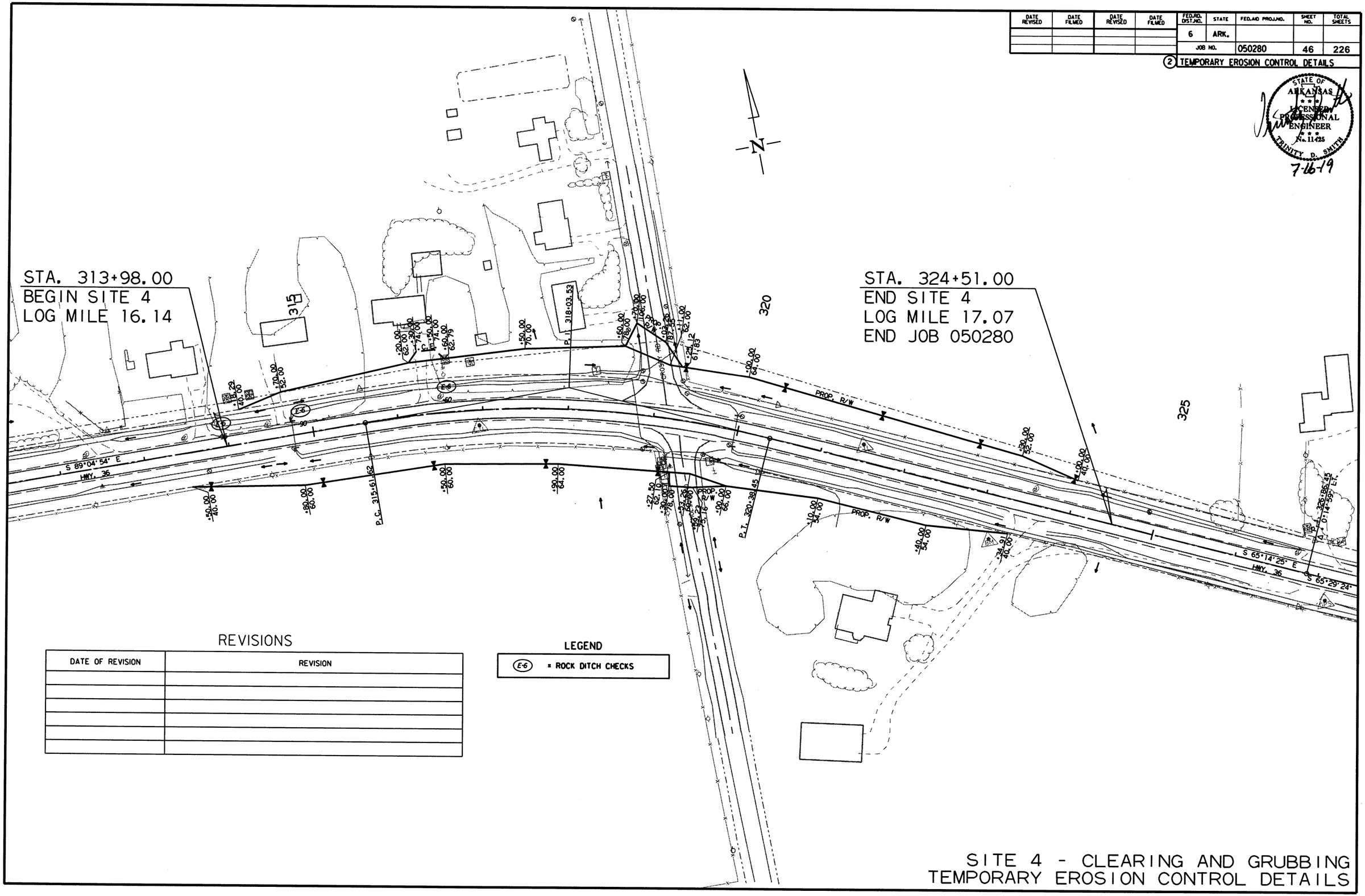
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	46	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 313+98.00
BEGIN SITE 4
LOG MILE 16.14

STA. 324+51.00
END SITE 4
LOG MILE 17.07
END JOB 050280



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-6) = ROCK DITCH CHECKS

7/9/2019

R050280.DGN

SITE 4 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

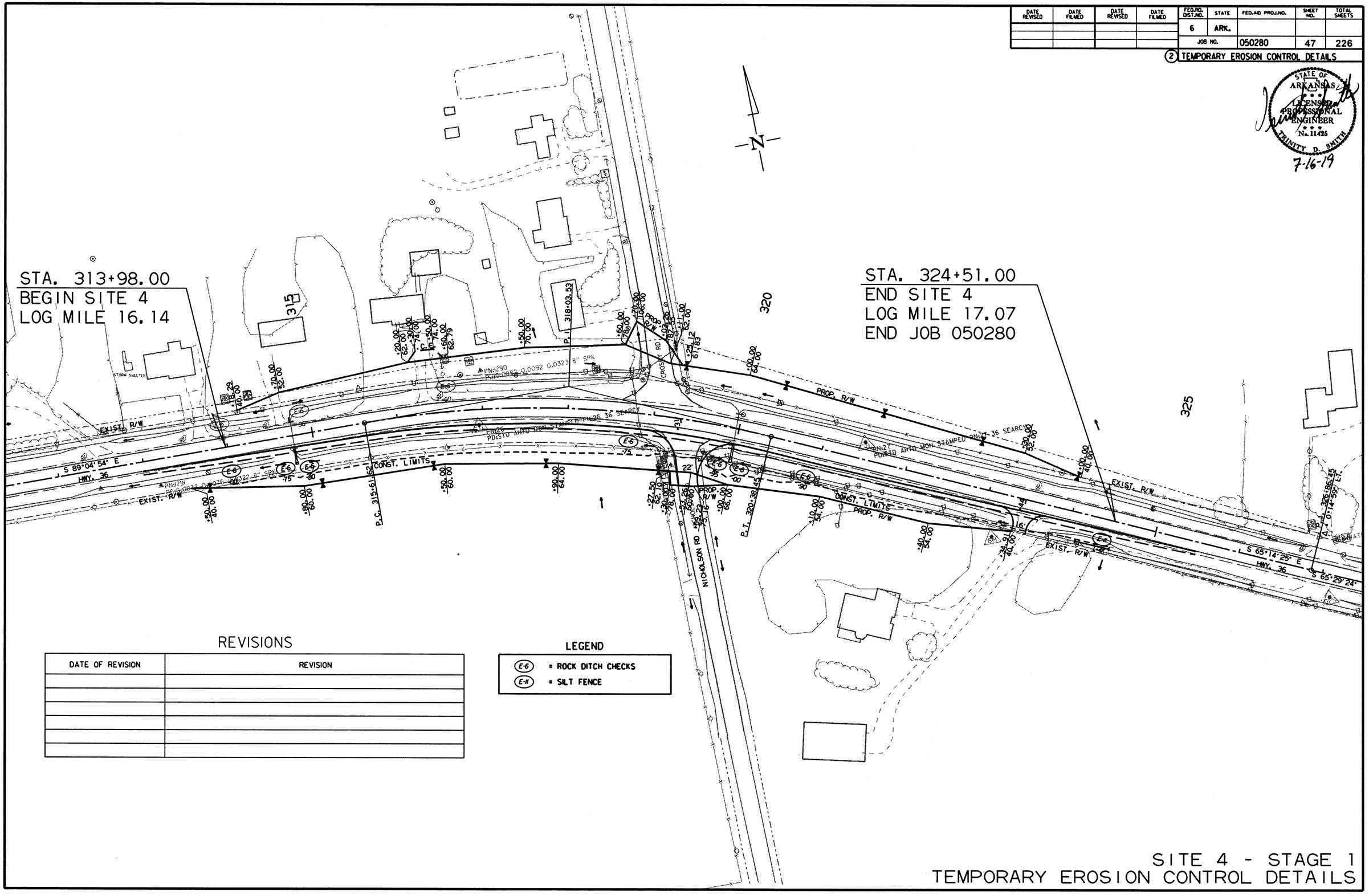
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	47	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 313+98.00
BEGIN SITE 4
LOG MILE 16.14

STA. 324+51.00
END SITE 4
LOG MILE 17.07
END JOB 050280



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE

7/9/2019

R050280.DGN

SITE 4 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

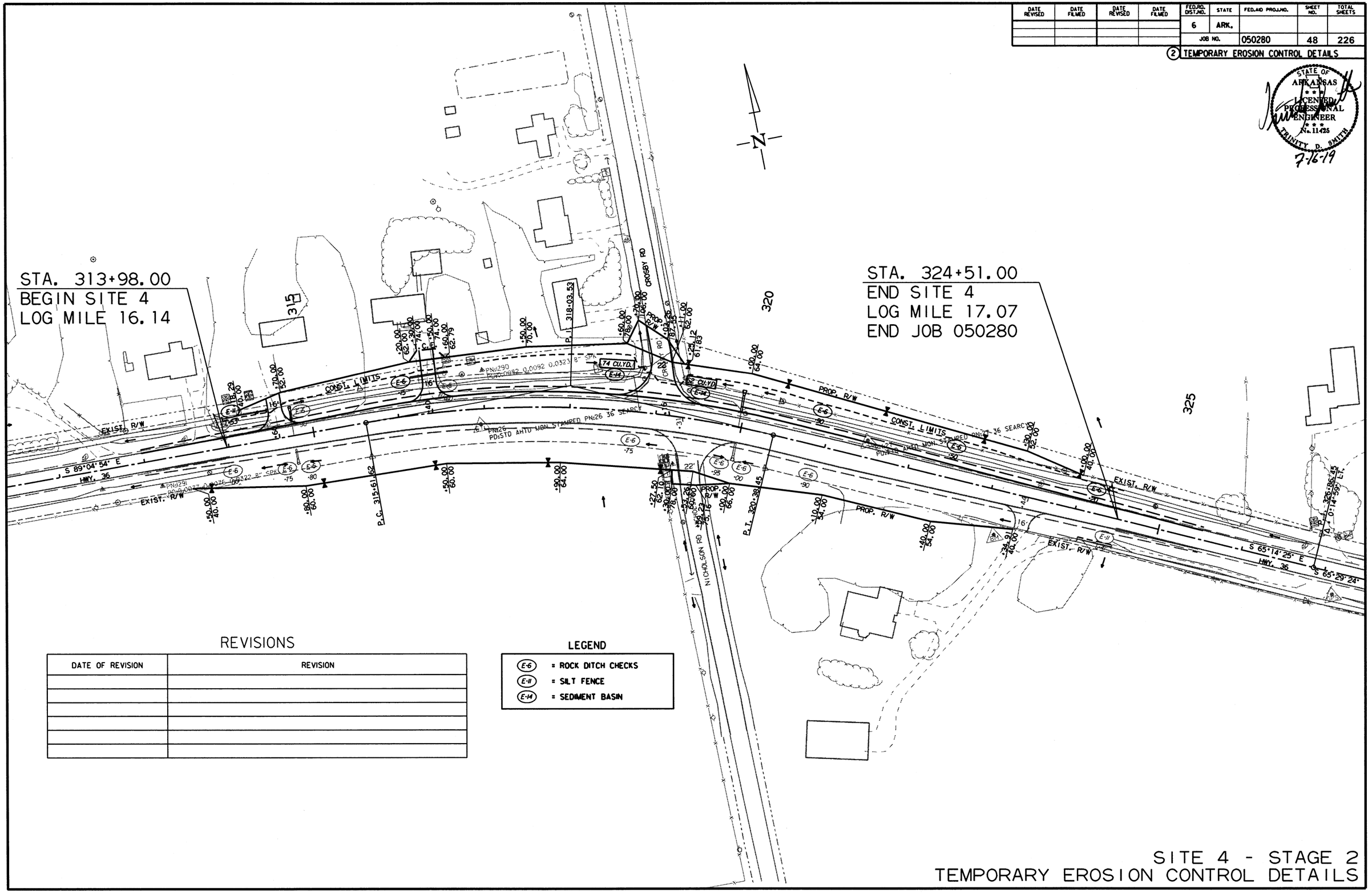
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	48	226

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 313+98.00
BEGIN SITE 4
LOG MILE 16.14

STA. 324+51.00
END SITE 4
LOG MILE 17.07
END JOB 050280



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

7/9/2019

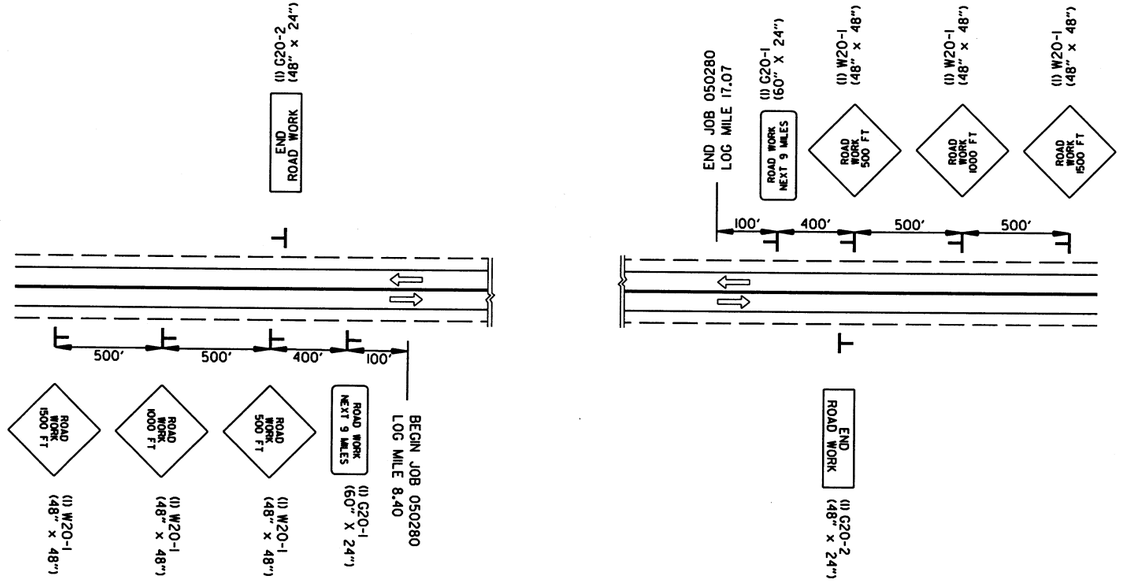
R050280.DGN

SITE 4 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	49	226

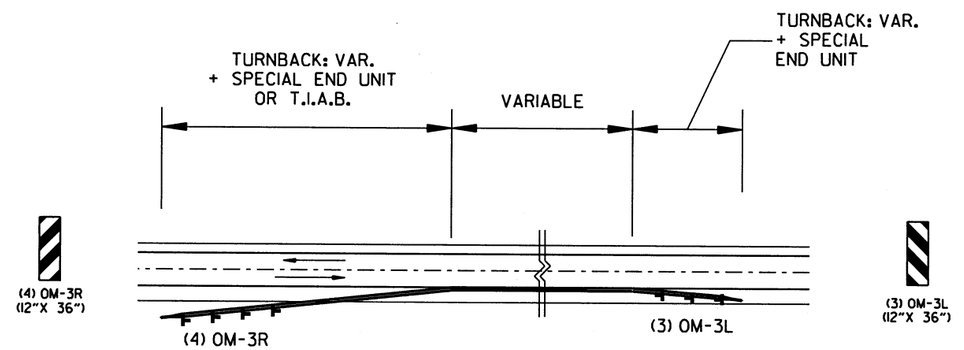
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



ADVANCE WARNING (ALL STAGES)

RIGHT SHOULDER CLOSED	(4) W21-5a (36" x 36")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
DO NOT PASS	(36) R4-1 (24" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
BUMP	(8) W8-1 (30" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



REFER ALSO TO STANDARD DRAWING TC-5 FOR DETAILS OF PLACEMENT OF PCCB TURNBACKS.

NOTE: OM-3L & OM-3R SIGNS SHALL BE EQUALLY SPACED ALONG P.C.C.B. TURNBACK.

DETAIL OF OBJECT MARKERS
AT PRECAST CONCRETE BARRIER TURNBACKS

7/9/2009

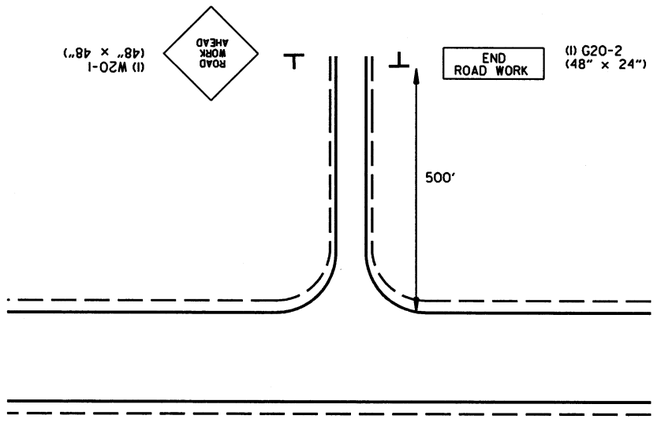
R050280.DGN

ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	50	226

(2) MAINTENANCE OF TRAFFIC DETAILS

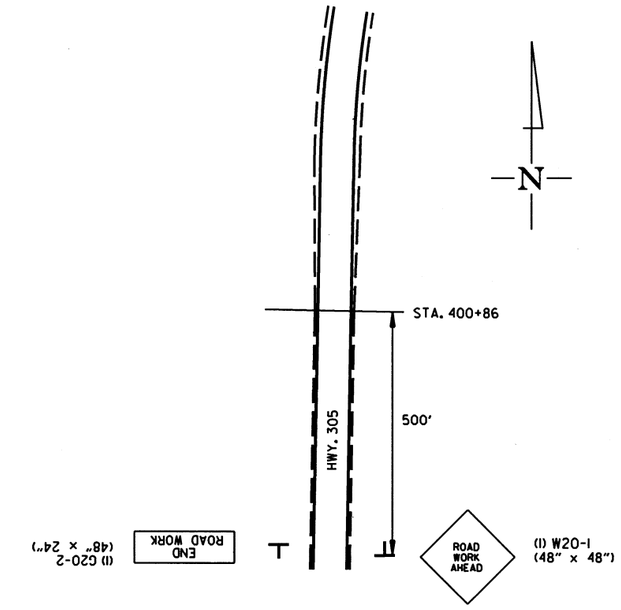
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



ADVANCE WARNING - SIDE ROADS (ALL STAGES)

L.M. 8.49, GRAVEL HILL ROAD
L.M. 8.49, NEWTON HOLLOW LANE
L.M. 8.61, GRANDVIEW LANE
L.M. 8.75, OLDHAM ROAD
STA. 516+33, DONALDSON ROAD
L.M. 10.35, PINE CANYON ROAD
L.M. 10.85, CARMICHAEL ROAD
L.M. 11.11, COLONEL BILES ROAD
STA. 813+50, MIRANDA LANE
L.M. 11.85, TATER HILL ROAD
STA. 122+19, TANNER ROAD
STA. 137+31, BUTLER LANE
STA. 148+92, BLOODWORTH ROAD
STA. 165+05, CENTERVIEW CIRCLE
STA. 177+09, CENTERVIEW CIRCLE
STA. 181+48, YARNELL ROAD
STA. 204+84, HALES LANE
STA. 205+84, HIGHWAY 320
L.M. 14.76, JAYBIRD LANE
L.M. 15.19, N SMYRNA ROAD
L.M. 15.19, S SMYRNA ROAD
STA. 319+16, CROSBY ROAD
STA. 319+31, NICHOLSON ROAD
L.M. 16.64, COFER ROAD

NOTE: ALL STATIONS/LOG MILES BASED OFF HWY. 36.



ADVANCE WARNING - HWY. 305 (ALL STAGES)

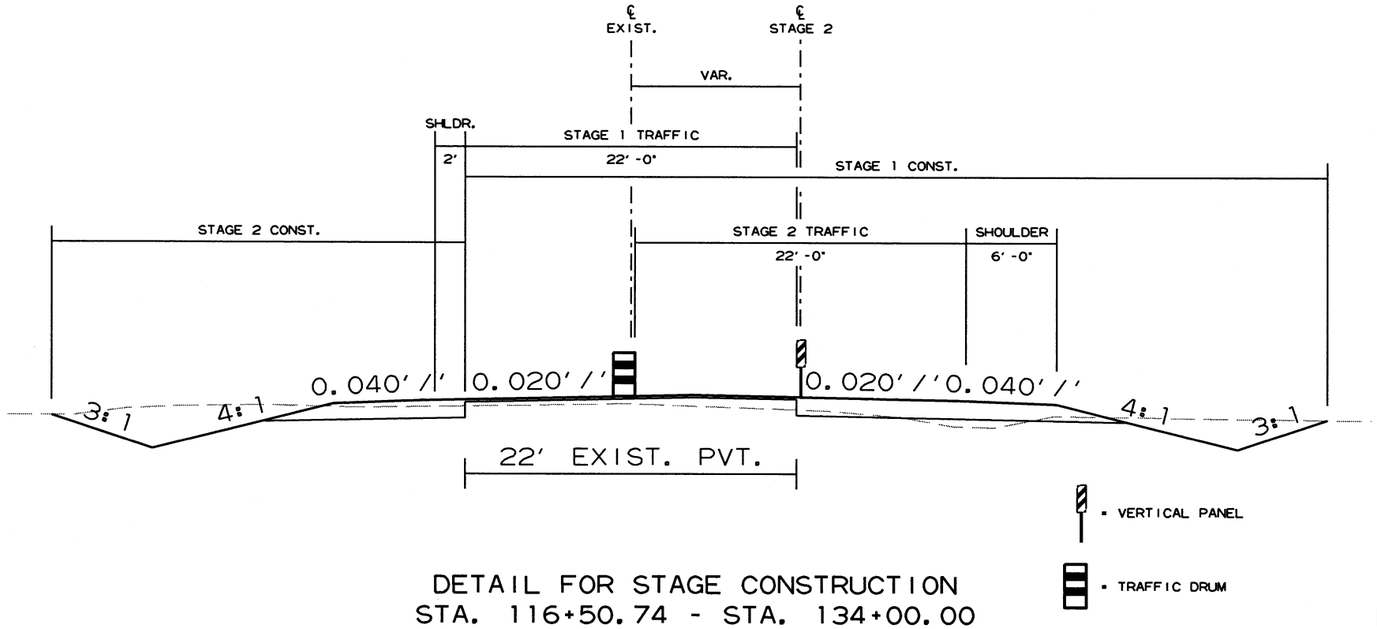
7/9/2019
R050280.DGN

ADVANCE WARNING MAINTENANCE OF TRAFFIC DETAILS

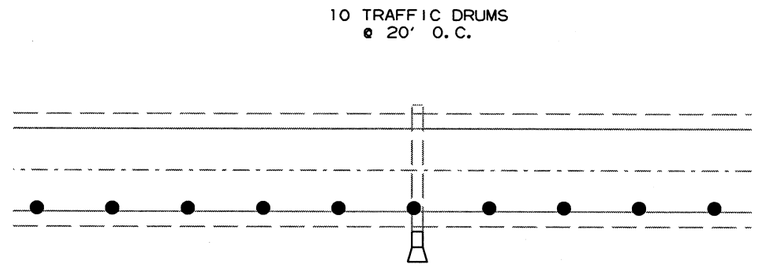
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	51	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

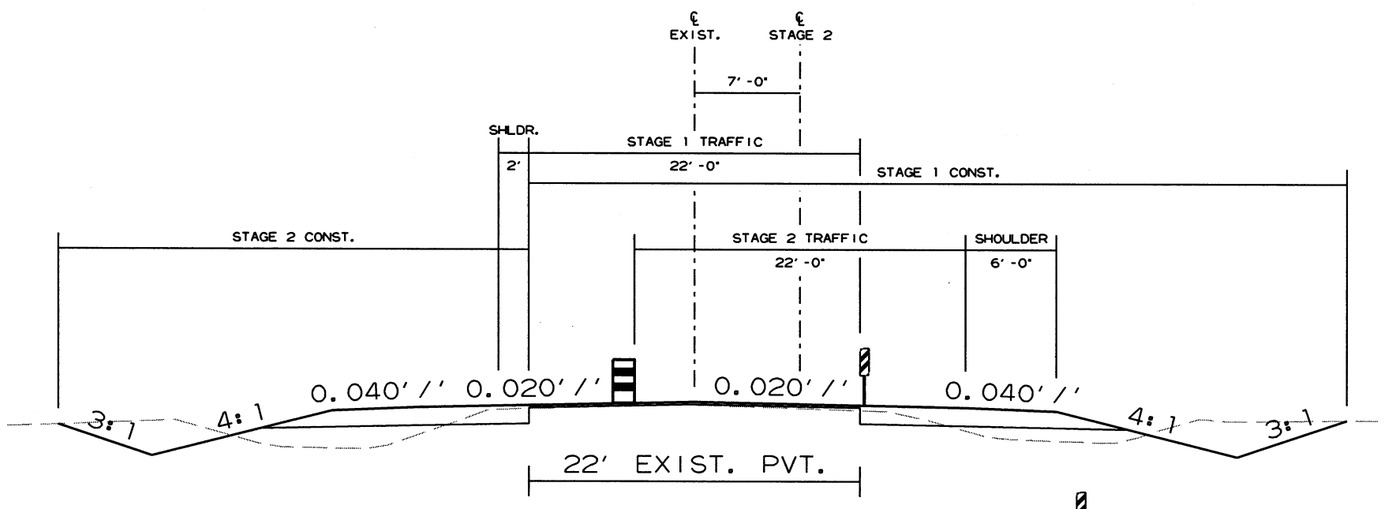


DETAIL FOR STAGE CONSTRUCTION
STA. 116+50.74 - STA. 134+00.00

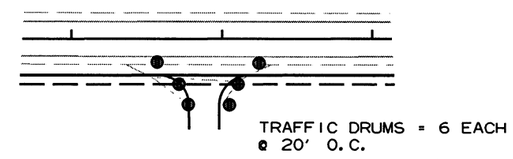


TRAFFIC DRUMS AND SIGNS ON EXISTING SHOULDER
FOR EXTENDING/CONSTRUCTING PIPE CULVERTS LT. AND RT.

STA. 524+13	STA. 180+67
STA. 122+13	STA. 207+80
STA. 125+35	STA. 314+77
STA. 133+81	STA. 319+97



DETAIL FOR STAGE CONSTRUCTION
STA. 134+00.00 - STA. 206+70.00
STA. 317+50.00 - STA. 321+21.00



DRIVEWAY/TRAFFIC DRUM DETAIL

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

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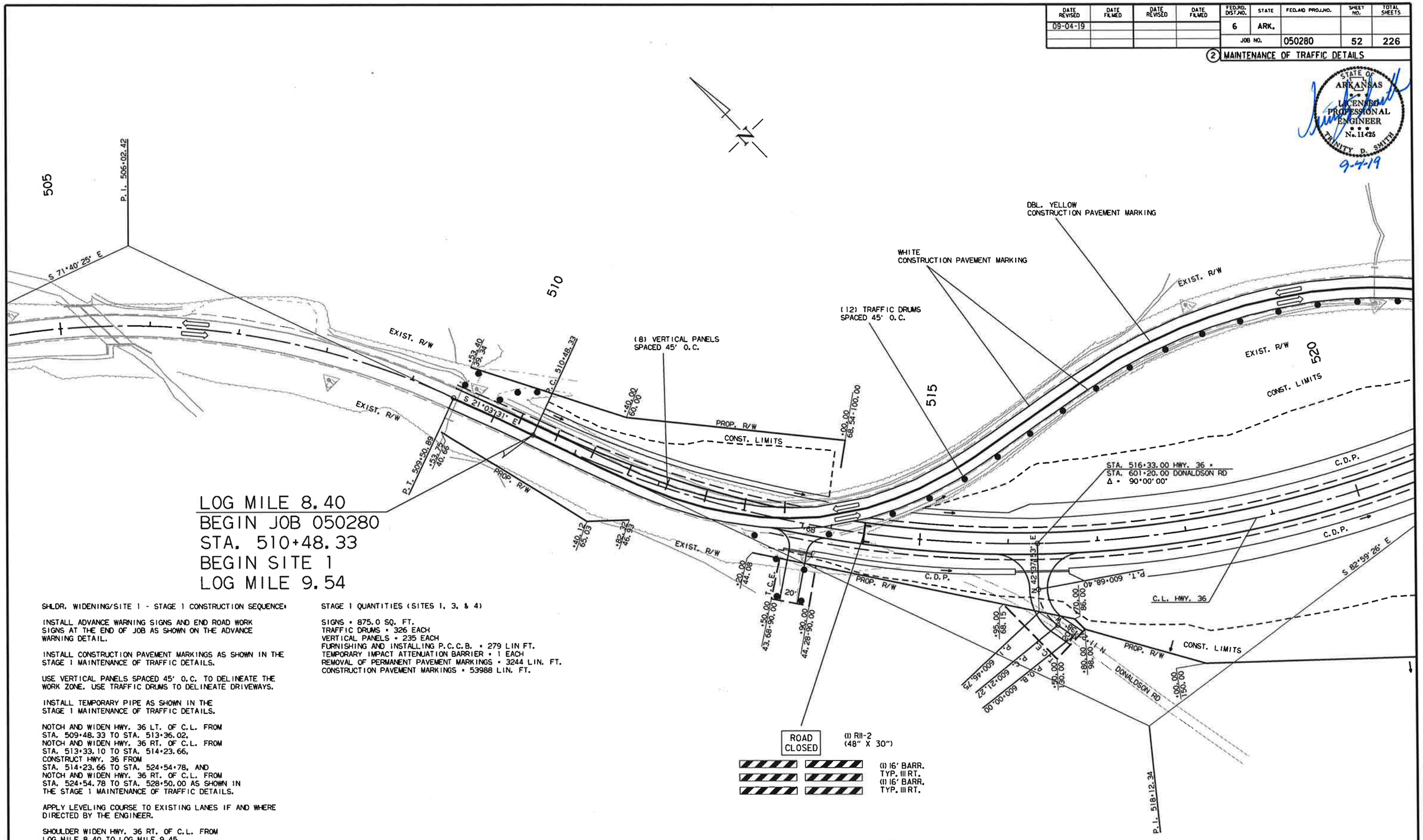
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	52	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY P. SMITH
9-4-19



LOG MILE 8.40
BEGIN JOB 050280
STA. 510+48.33
BEGIN SITE 1
LOG MILE 9.54

SHLDR. WIDENING/SITE 1 - STAGE 1 CONSTRUCTION SEQUENCE:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL.

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

INSTALL TEMPORARY PIPE AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 LT. OF C.L. FROM STA. 509+48.33 TO STA. 513+36.02,
NOTCH AND WIDEN HWY. 36 RT. OF C.L. FROM STA. 513+33.10 TO STA. 514+23.66,
CONSTRUCT HWY. 36 FROM STA. 514+23.66 TO STA. 524+54.78, AND
NOTCH AND WIDEN HWY. 36 RT. OF C.L. FROM STA. 524+54.78 TO STA. 528+50.00 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

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

SHOULDER WIDEN HWY. 36 RT. OF C.L. FROM
LOG MILE 8.40 TO LOG MILE 9.45,
LOG MILE 9.46 TO LOG MILE 10.31,
LOG MILE 10.32 TO LOG MILE 11.37,
LOG MILE 11.38 TO LOG MILE 11.51,
LOG MILE 11.52 TO STA. 111+00.00,
STA. 211+00.00 TO STA. 312+98.00, AND FROM
STA. 325+51.00 TO LOG MILE 17.07 AS SHOWN IN THE TYPICAL SECTIONS OF IMPROVEMENT.

STAGE 1 QUANTITIES (SITES 1, 3, & 4)

SIGNS = 875.0 SQ. FT.
TRAFFIC DRUMS = 326 EACH
VERTICAL PANELS = 235 EACH
FURNISHING AND INSTALLING P.C.C.B. = 279 LIN FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3244 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 53988 LIN. FT.

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SITE 1 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
09-04-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	53	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

WHITE CONSTRUCTION PAVEMENT MARKING

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

(8) TRAFFIC DRUMS SPACED 45' O.C.

EXIST. R/W

EXIST. R/W

520

CONST. LIMITS

C.D.P.

C.D.P.

S 82°59'26" E

C.L. HWY. 36

525

P.T. 524+24.60

530

P.O.E. 530+00.00

EXIST. R/W

DBLE. SWG. MTL. GATE

CONST. LIMITS

EXIST. R/W

PROP. R/W

+03.48
40.81

+07.95
60.00

+40.00
210.00

CONST. LIMITS

PROP. R/W

+30.00
250.00

+20.00
220.00

STA. 524+17 INSTALL
24" X 56' TEMP. PIPE CULVERT

ROAD CLOSED

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

(1) 16' BARR. TYP. III LT.
(1) 16' BARR. TYP. III LT.

(12) VERTICAL PANELS SPACED 45' O.C.

STA. 527+50.00
END SITE 1

N

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SITE 1 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

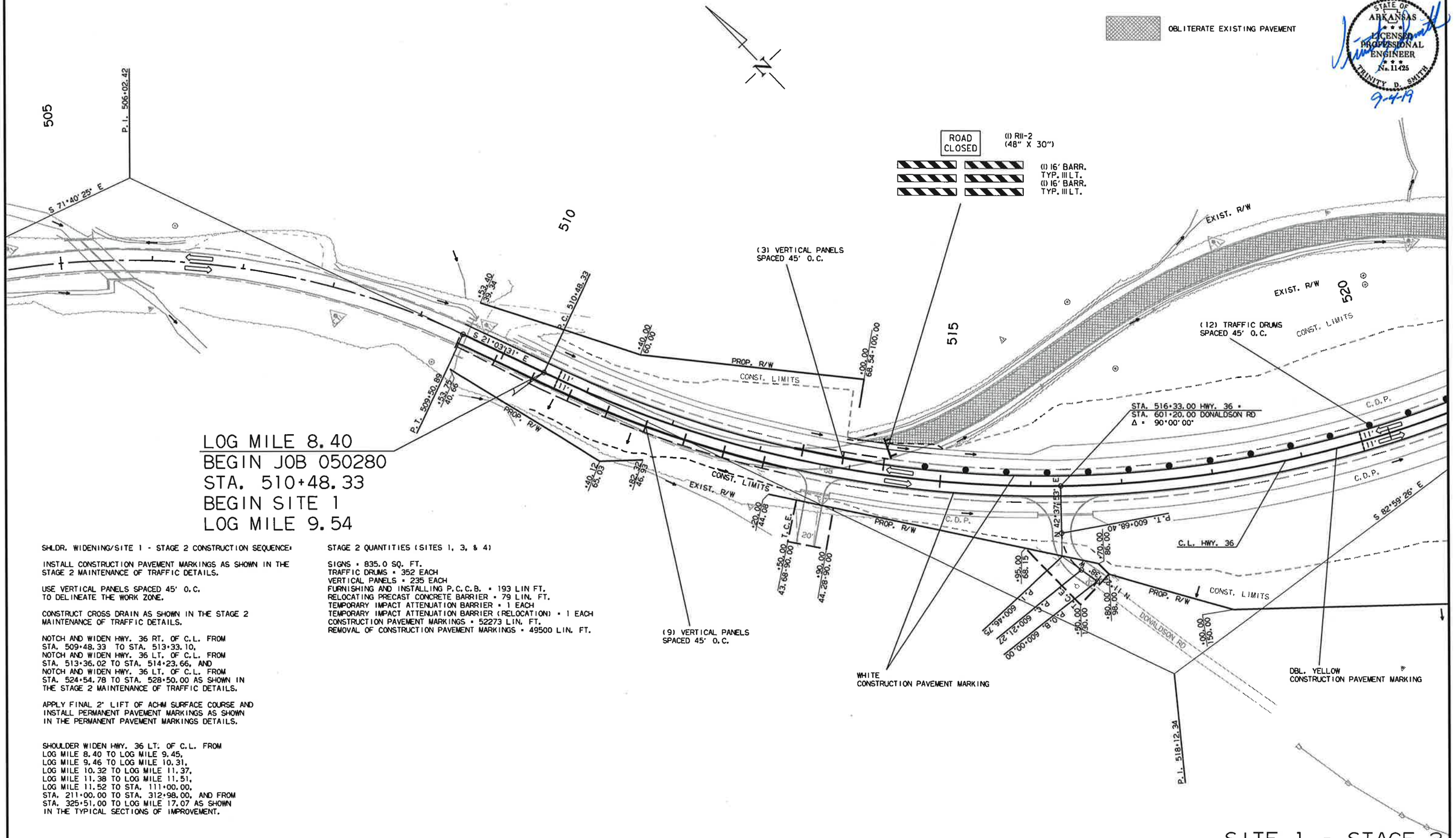
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
09-04-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	54	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

OBLITERATE EXISTING PAVEMENT



LOG MILE 8.40
BEGIN JOB 050280
STA. 510+48.33
BEGIN SITE 1
LOG MILE 9.54

SHLDR. WIDENING/SITE 1 - STAGE 2 CONSTRUCTION SEQUENCE:

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

USE VERTICAL PANELS SPACED 45' O.C. TO DELINEATE THE WORK ZONE.

CONSTRUCT CROSS DRAIN AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 RT. OF C.L. FROM STA. 509+48.33 TO STA. 513+33.10, NOTCH AND WIDEN HWY. 36 LT. OF C.L. FROM STA. 513+36.02 TO STA. 514+23.66, AND NOTCH AND WIDEN HWY. 36 LT. OF C.L. FROM STA. 524+54.78 TO STA. 528+50.00 AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.

SHOULDER WIDEN HWY. 36 LT. OF C.L. FROM LOG MILE 8.40 TO LOG MILE 9.45, LOG MILE 9.46 TO LOG MILE 10.31, LOG MILE 10.32 TO LOG MILE 11.37, LOG MILE 11.38 TO LOG MILE 11.51, LOG MILE 11.52 TO STA. 111+00.00, STA. 211+00.00 TO STA. 312+98.00, AND FROM STA. 325+51.00 TO LOG MILE 17.07 AS SHOWN IN THE TYPICAL SECTIONS OF IMPROVEMENT.

STAGE 2 QUANTITIES (SITES 1, 3, & 4)

SIGNS = 835.0 SQ. FT.
TRAFFIC DRUMS = 352 EACH
VERTICAL PANELS = 235 EACH
FURNISHING AND INSTALLING P.C.C.B. = 193 LIN FT.
RELOCATING PRECAST CONCRETE BARRIER = 79 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH
TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION) = 1 EACH
CONSTRUCTION PAVEMENT MARKINGS = 52273 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 49500 LIN. FT.

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SITE 1 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	55	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

OBLITERATE EXISTING PAVEMENT

ROAD CLOSED

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

(1) 16' BARR. TYP. III RT.
(1) 16' BARR. TYP. III RT.

EXIST. R/W

EXIST. R/W

520

CONST. LIMITS

(9) TRAFFIC DRUMS SPACED 45' O.C.

C.D.P.

C.D.P.

11'
11'

S 82°59'26" E

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

C.L. HWY. 36

WHITE CONSTRUCTION PAVEMENT MARKING

525

P.T. 524+24.60

(10) VERTICAL PANELS SPACED 45' O.C.

CONST. LIMITS

EXIST. R/W

530

P.O.E. 530+00.00

CONST. LIMITS

PROP. R/W

-07.95
60.00

-03.48
40.81

-40.00
210.00

CONST. LIMITS

PROP. R/W

-30.00
250.00

-20.00
220.00

STA. 527+50.00
END SITE 1

SITE 1 - STAGE 2
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.		050280	56	226

(2) MAINTENANCE OF TRAFFIC DETAILS

SITE 2 - STAGE 1 CONSTRUCTION SEQUENCE:

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

NOTCH AND WIDEN HWY. 36 LT. OF C.L. FROM STA. 803+00.00 TO STA. 807+25.06, CONSTRUCT HWY. 36 AND BRIDGES FROM STA. 807+25.06 TO STA. 829+73.33, AND NOTCH AND WIDEN HWY. 36 LT. OF C.L. FROM STA. 829+73.33 TO STA. 835+00.00 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

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

SITE 2 - STAGE 1 QUANTITIES

SIGNS = 44.0 SQ. FT.
TRAFFIC DRUMS = 54 EACH
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 7335 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 12210 LIN. FT.

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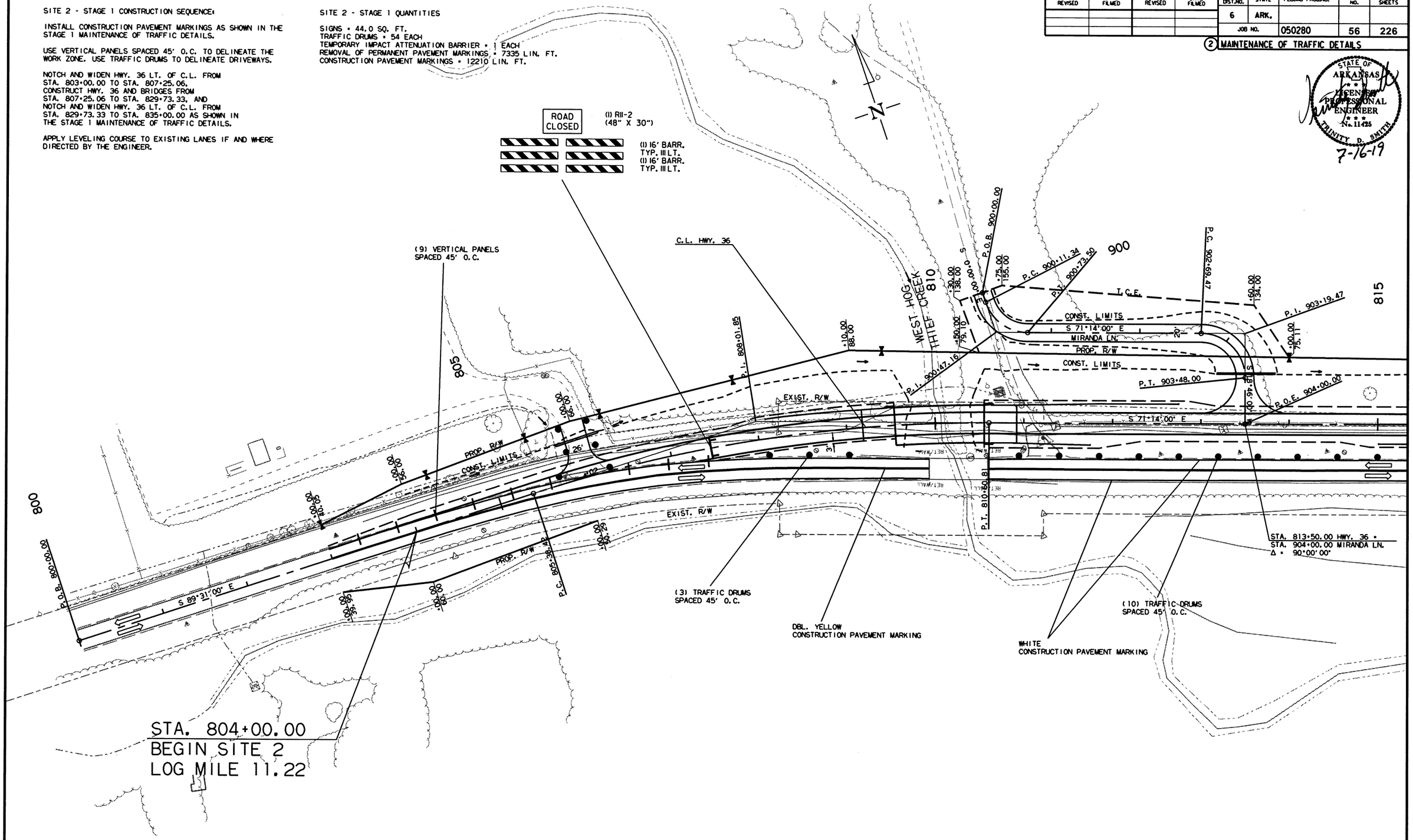
7-16-19



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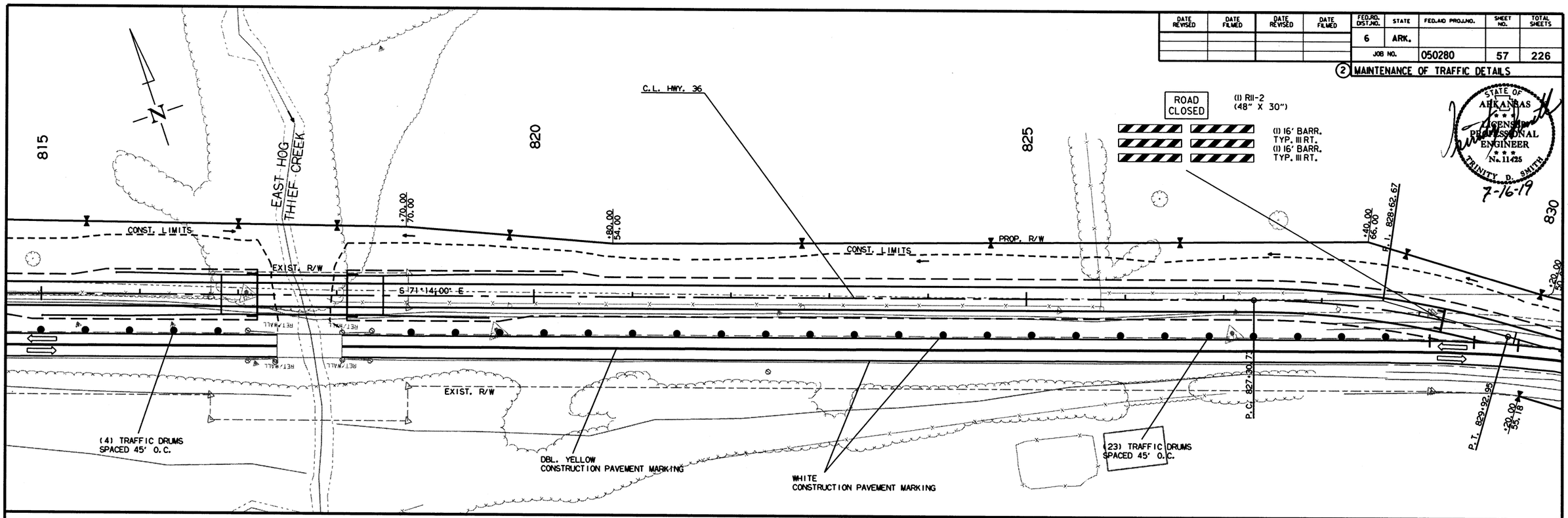
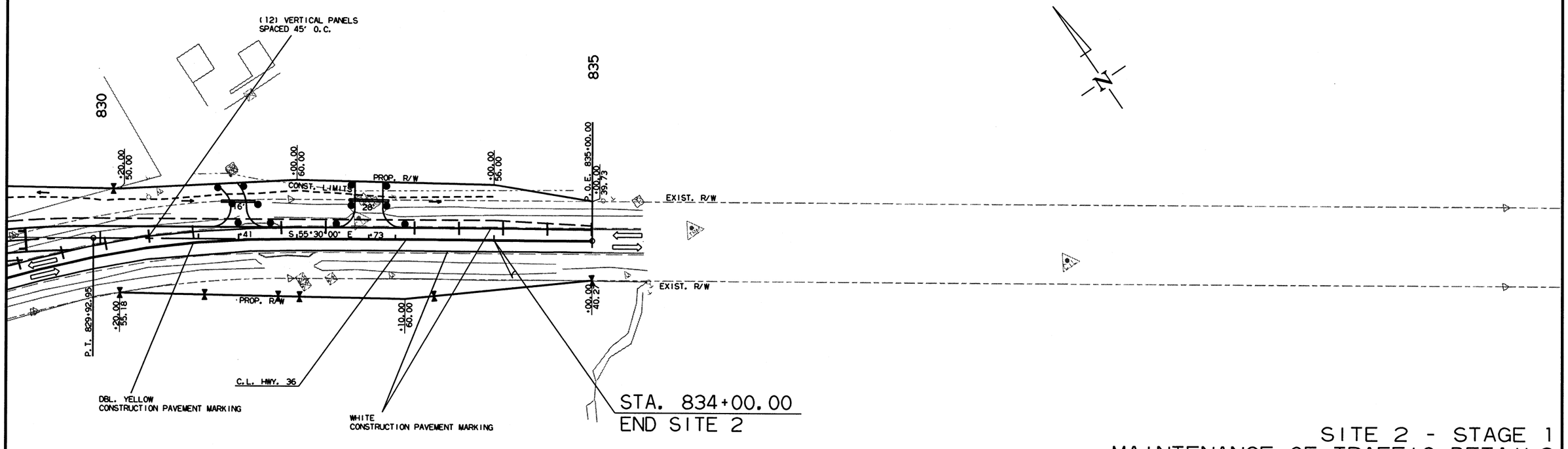
SITE 2 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	57	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19





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SITE 2 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	58	226

(2) MAINTENANCE OF TRAFFIC DETAILS

SITE 2 - STAGE 2 CONSTRUCTION SEQUENCE:

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

FURNISH AND INSTALL P.C.C.B. AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 RT. OF C.L. FROM STA. 803+00.00 TO STA. 809+53.92, AND FROM STA. 829+73.33 TO STA. 835+00.00 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

REMOVE EXISTING BRIDGE STRUCTURES.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.

SITE 2 - STAGE 2 QUANTITIES

SIGNS = 44.0 SQ. FT.
TRAFFIC DRUMS = 40 EACH
CONSTRUCTION PAVEMENT MARKINGS = 12800 LIN. FT.

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TRINITY D. SMITH
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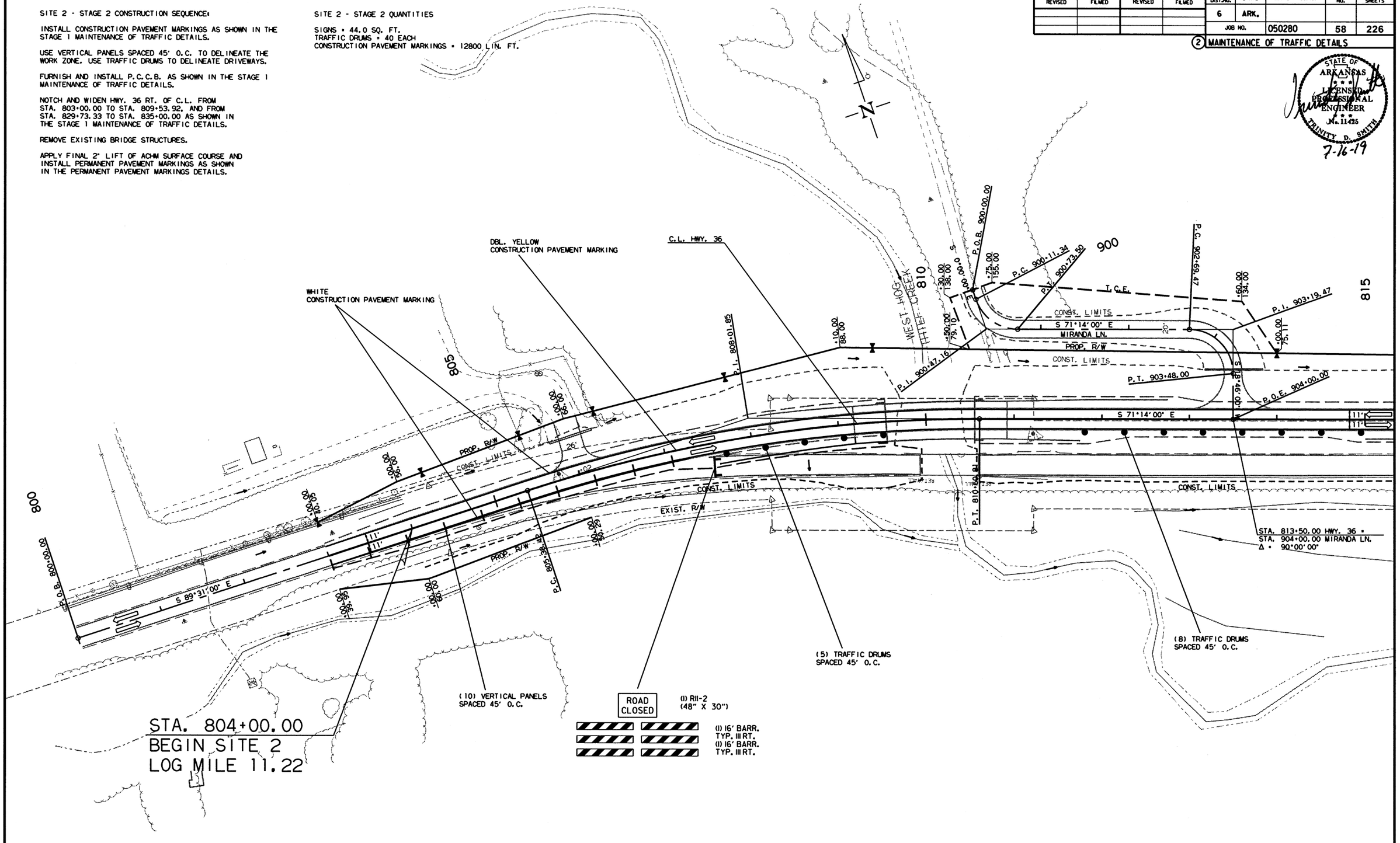

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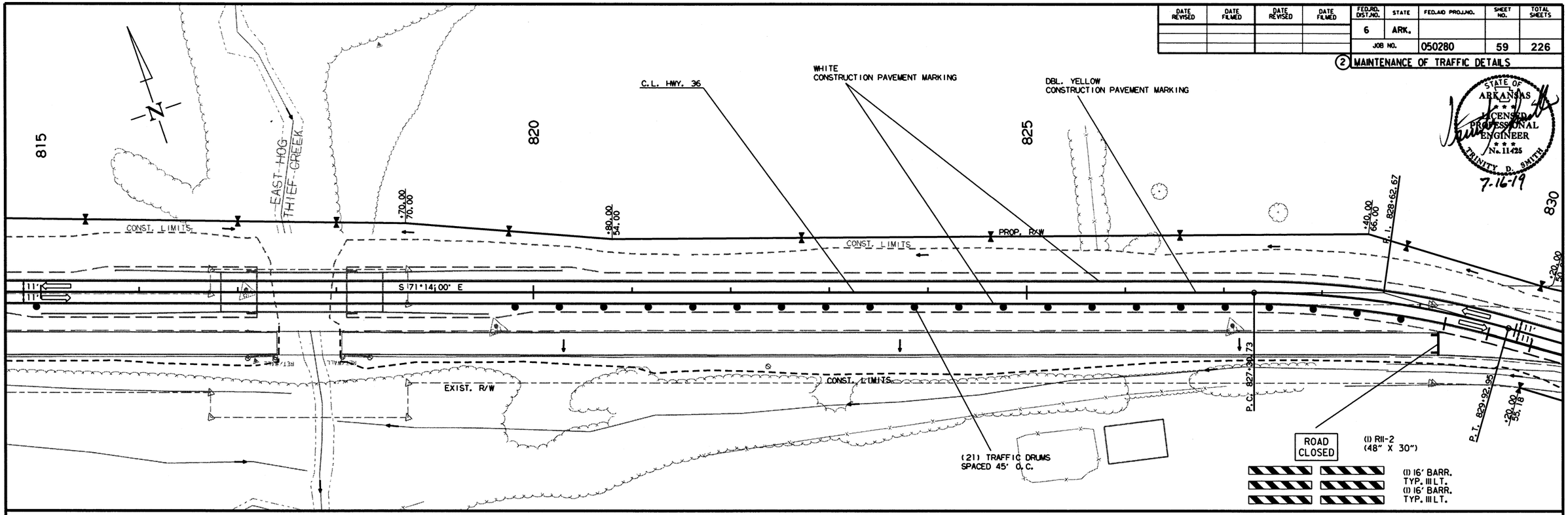
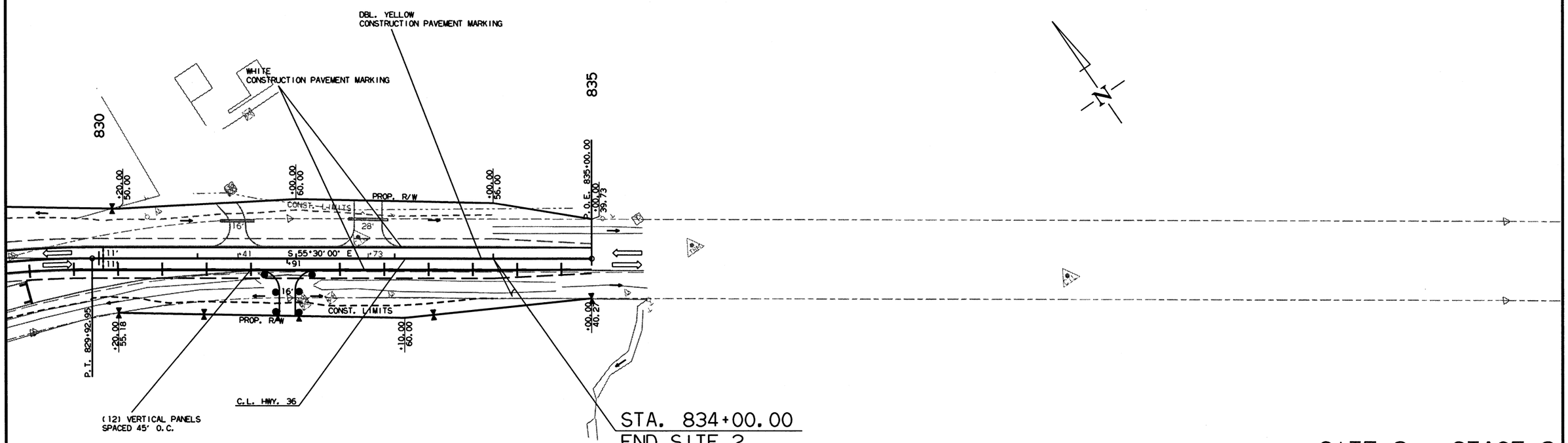
SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	59	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19





SITE 2 - STAGE 2
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.		050280	60	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE 1 CONSTRUCTION SEQUENCE:

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

FURNISH AND INSTALL P.C.C.B. AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

EXTEND AND CONSTRUCT CROSS DRAINS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 RT. OF C.L. FROM STA. 111+00.00 TO STA. 121+70.00 AND FROM STA. 122+92.21 TO STA. 211+00.00 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

REMOVE AND DISPOSE EXISTING CONCRETE ISLAND ON HWY. 305 AND REPLACE WITH ASPHALT PAVEMENT.

CONSTRUCT HWY. 305 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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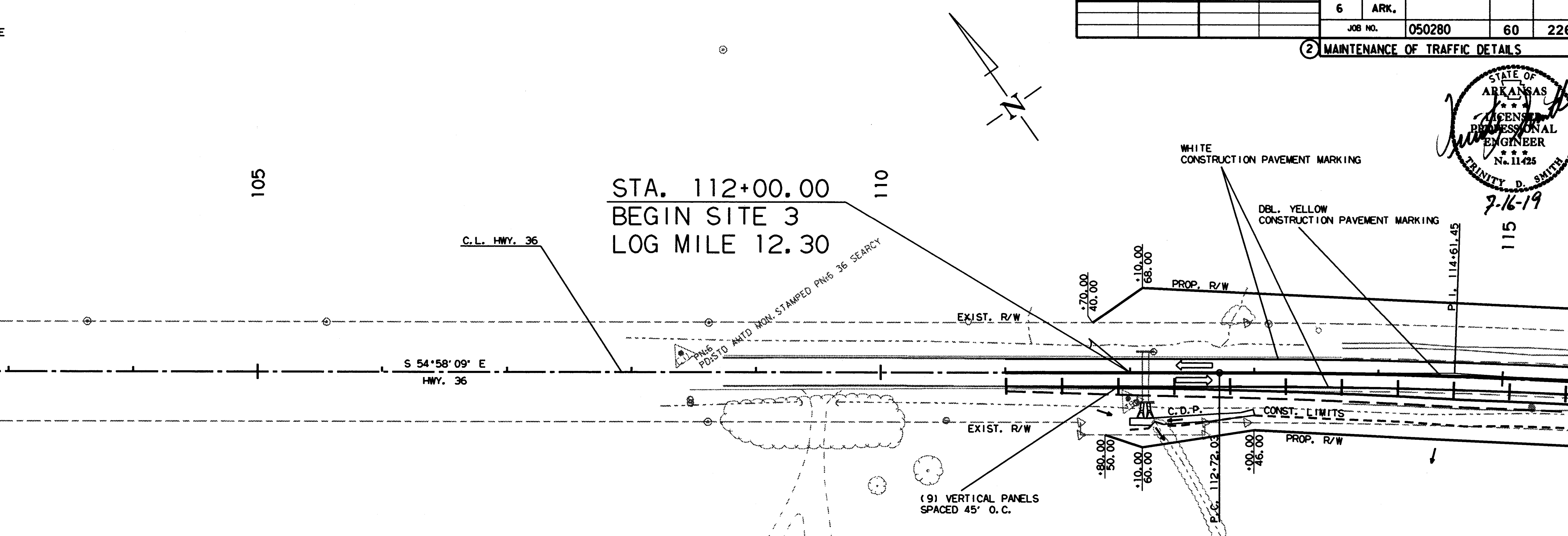

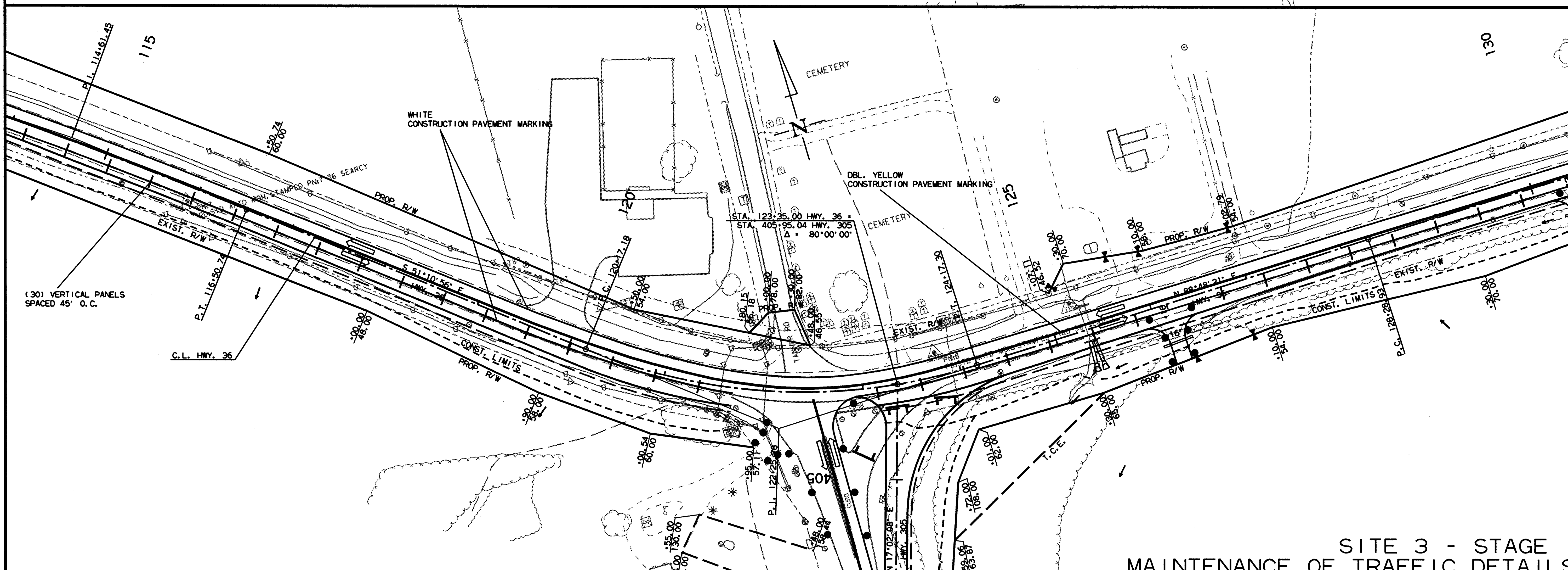

SITE 3 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	61	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

N

WHITE CONSTRUCTION PAVEMENT MARKING

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

PUMP HOUSE

CONC STORM CEL

PROP. R/W

EXIST. R/W

S 88°26'18" E

N 89°46'05" E

HWY. 36

CONST. LIMITS

C.L. HWY. 36

(24) VERTICAL PANELS SPACED 45' O.C.

FURNISH AND INSTALL 140' P.C.C.B. • (2) SPECIAL END UNITS

(27) VERTICAL PANELS SPACED 45' O.C.

POND

S 30°54'22" E

SITE 3 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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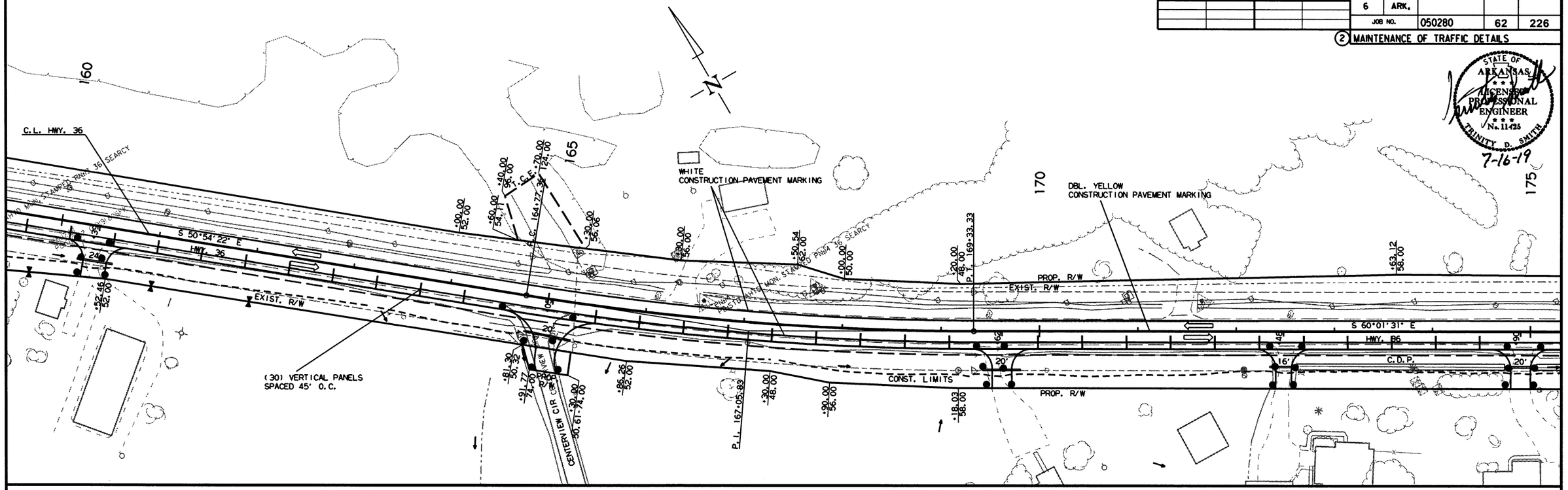
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	62	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



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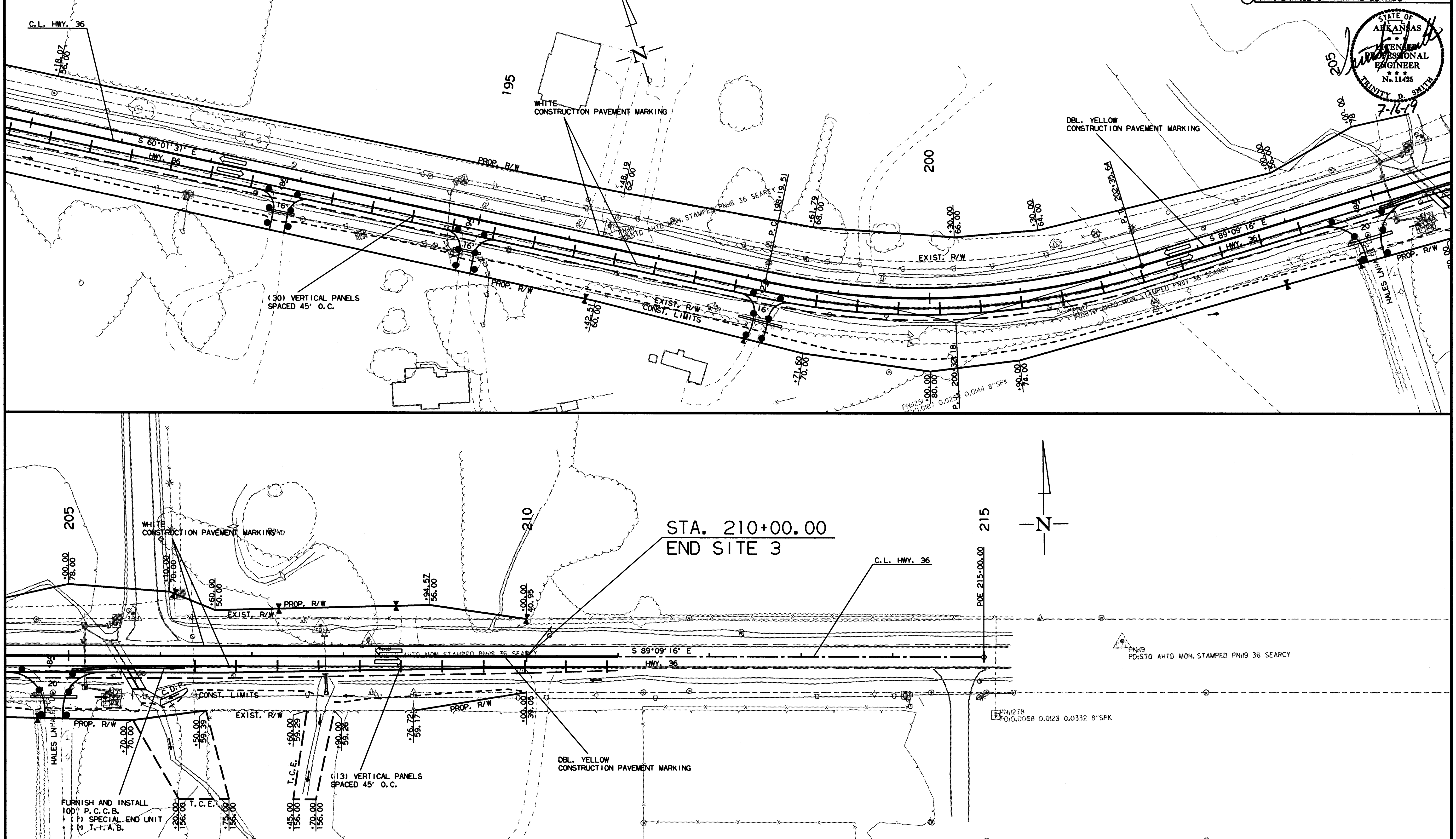
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	63	226

(2) MAINTENANCE OF TRAFFIC DETAILS



STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
7-16-19
C.L. HWY. 36
S 60°01'31" E
HWY. 36
PROP. R/W
EXIST. R/W
CONST. LIMITS
WHITE CONSTRUCTION PAVEMENT MARKING
DBL. YELLOW CONSTRUCTION PAVEMENT MARKING
(30) VERTICAL PANELS SPACED 45' O.C.
S 89°09'16" E
HALES LN
STA. 210+00.00
END SITE 3
(13) VERTICAL PANELS SPACED 45' O.C.
FURNISH AND INSTALL 100' P.C.C.B. + (1) SPECIAL END UNIT + (1) T.I.A.B.
T.C.E.
POE 215+00.00
PD:STD AHTD MON. STAMPED PN:19 36 SEARCY

SITE 3 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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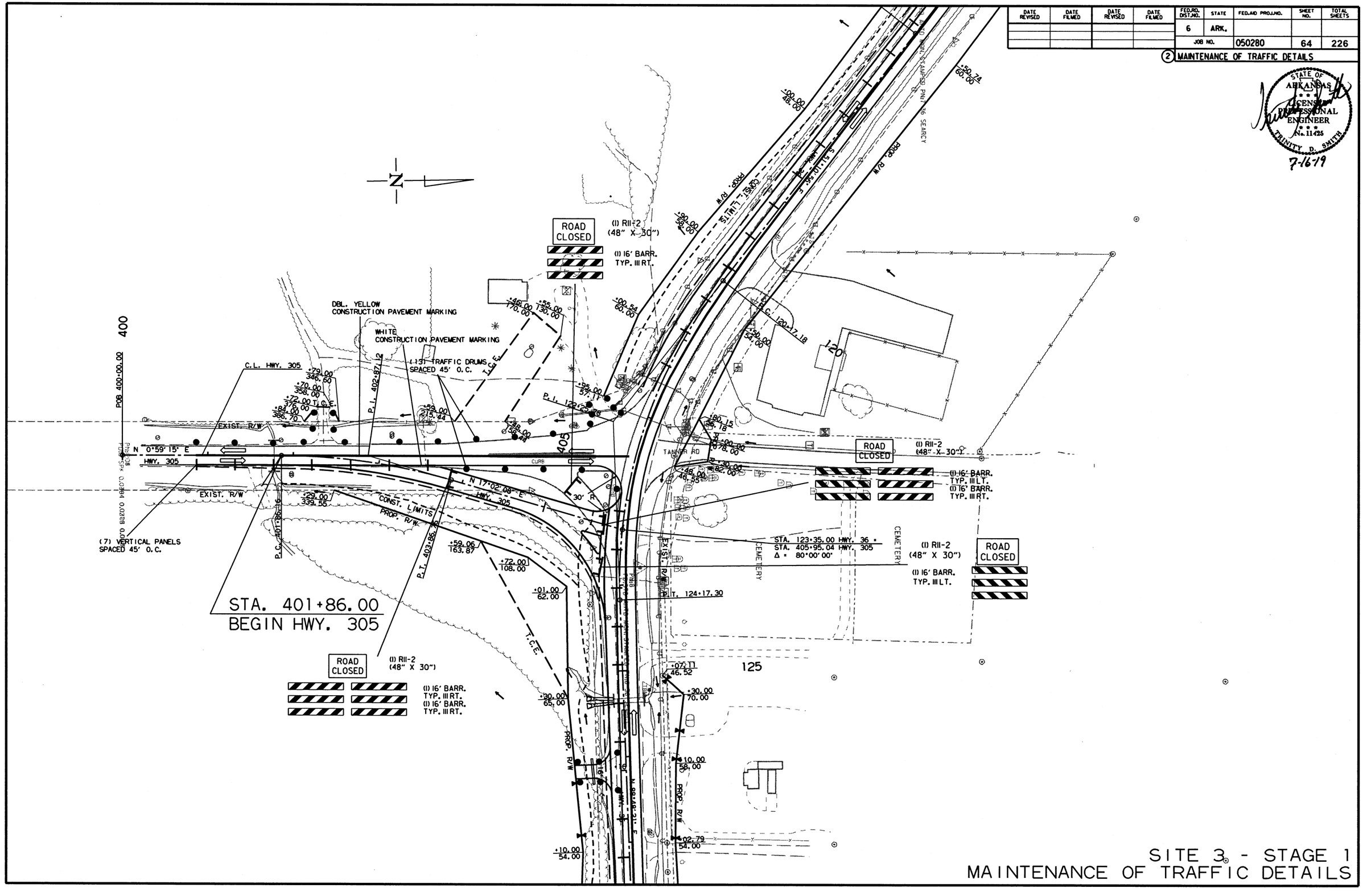
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	64	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



SITE 3 - STAGE 1
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.		050280	65	226

(2) MAINTENANCE OF TRAFFIC DETAILS

SITE 3 - STAGE 1B CONSTRUCTION SEQUENCE:

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1B MAINTENANCE OF TRAFFIC DETAILS.

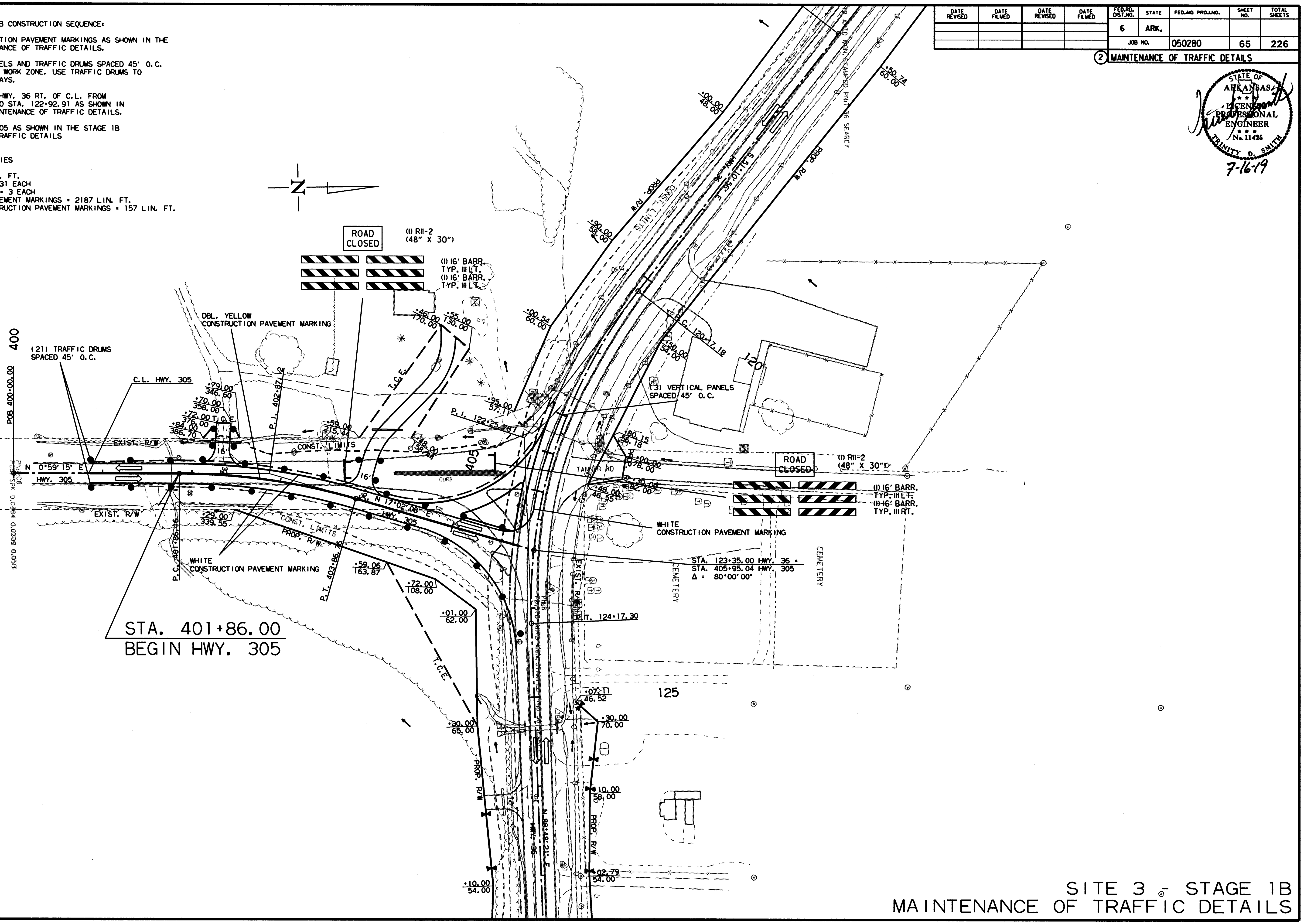
USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

NOTCH AND WIDEN HWY. 36 RT. OF C.L. FROM STA. 121+70.00 TO STA. 122+92.91 AS SHOWN IN THE STAGE 1B MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT HWY. 305 AS SHOWN IN THE STAGE 1B MAINTENANCE OF TRAFFIC DETAILS

STAGE 1B QUANTITIES

SIGNS = 793.0 SQ. FT.
TRAFFIC DRUMS = 31 EACH
VERTICAL PANELS = 3 EACH
CONSTRUCTION PAVEMENT MARKINGS = 2187 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 157 LIN. FT.



7-16-19

SITE 3 - STAGE 1B
MAINTENANCE OF TRAFFIC DETAILS

7/9/2019

R050280.DGN

SITE 3 - STAGE 2 CONSTRUCTION SEQUENCE:

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

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

RELOCATE P.C.C.B. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

EXTEND AND CONSTRUCT CROSS DRAINS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 LT. OF C.L. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

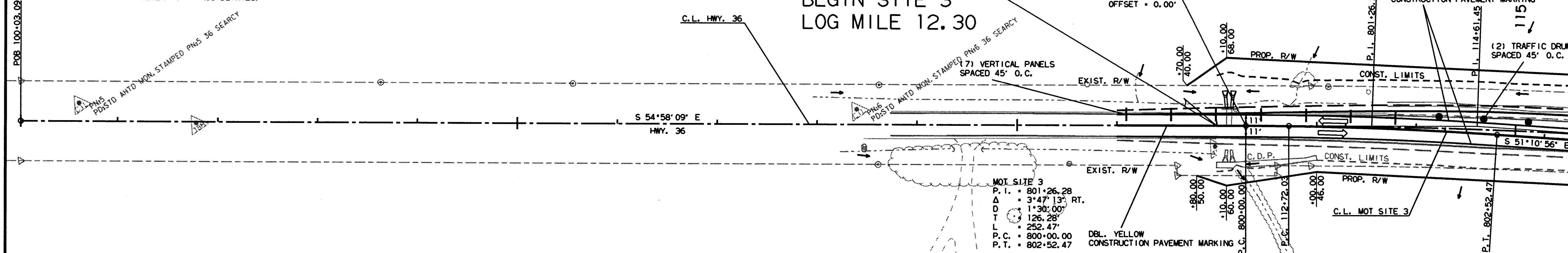
APPLY FINAL 2' LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.

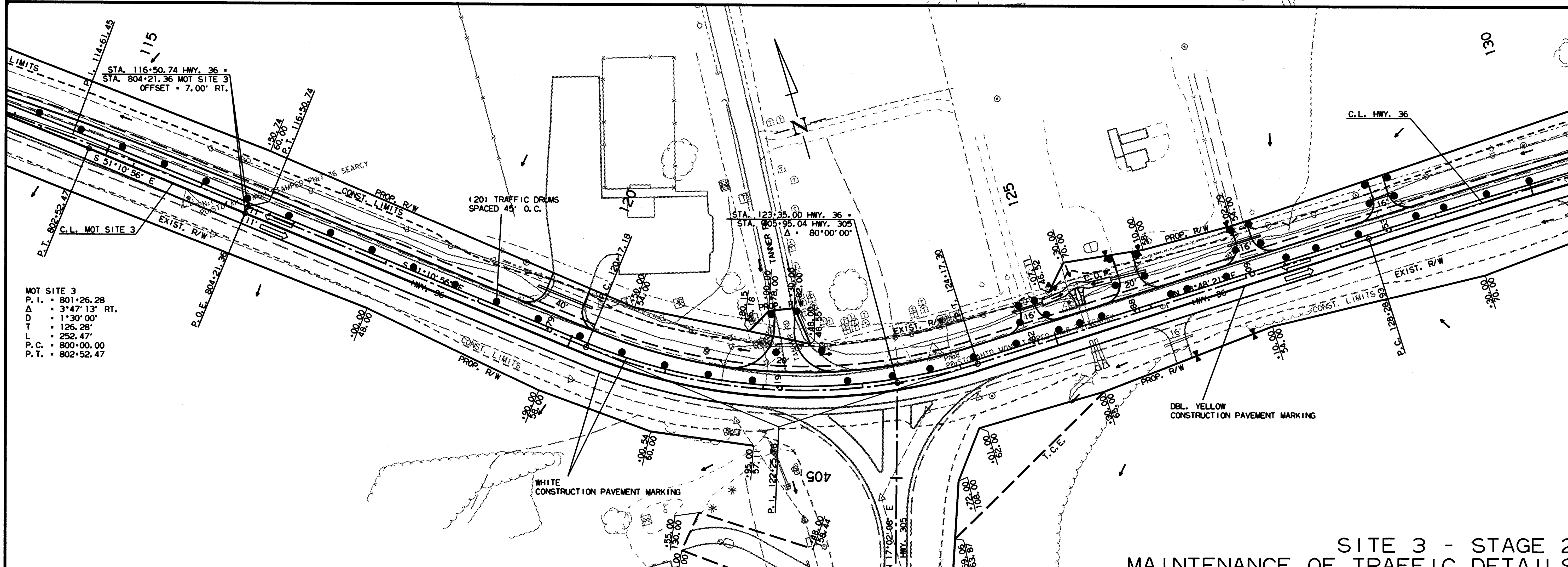
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	66	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

7-16-19





SITE 3 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

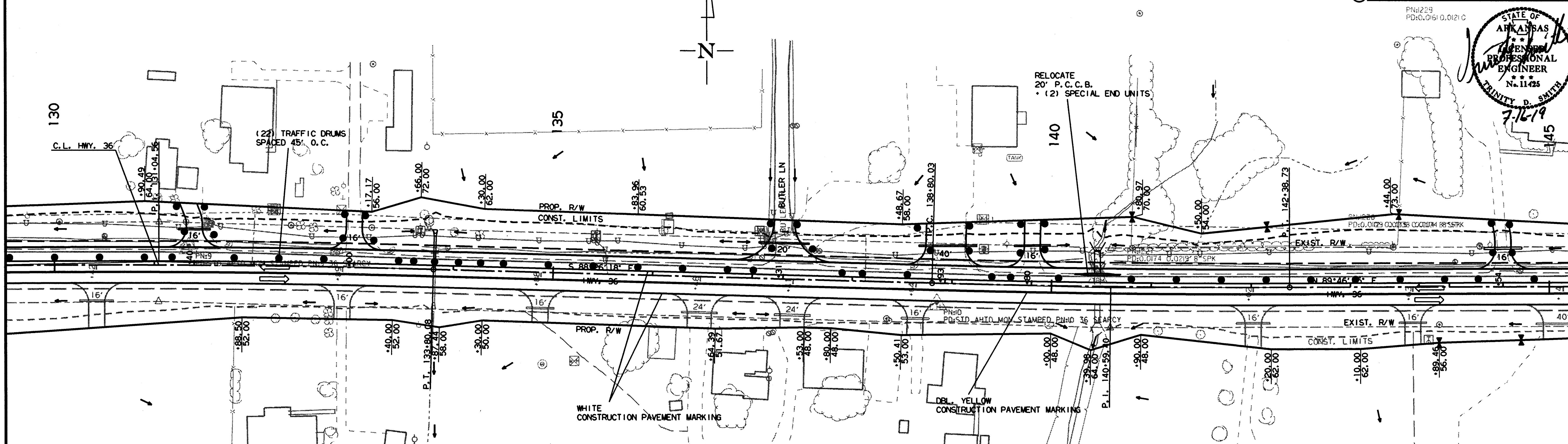
7/9/2019

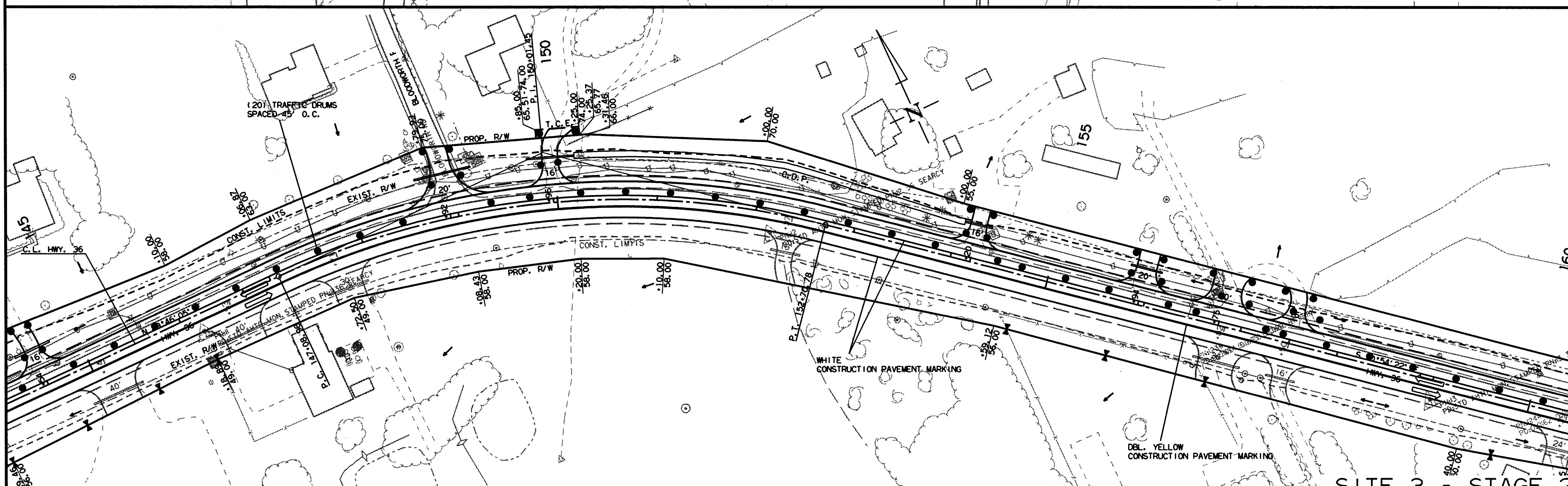
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	67	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 7-16-19





SITE 3 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	68	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

C.L. HWY. 36

(321) TRAFFIC DRUMS SPACED 45' O.C.

S 50°22' E
HWY. 36

EXIST. R/W

CONST. LIMITS

PROP. R/W

C.D.P.

S 60°01' E
HWY. 36

WHITE CONSTRUCTION PAVEMENT MARKING

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

CENTERVIEW CIR

(25) TRAFFIC DRUMS SPACED 45' O.C.

S 60°01' E
HWY. 36

EXIST. R/W

CONST. LIMITS

PROP. R/W

C.D.P.

WHITE CONSTRUCTION PAVEMENT MARKING

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

7/9/2019

R050280.DGN

SITE 3 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	69	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-09

C.L. HWY. 36

(29) TRAFFIC DRUMS SPACED 45' O.C.

CONST. LIMITS

PROP. R/W

EXIST. R/W

WHITE CONSTRUCTION PAVEMENT MARKING

DBL. YELLOW CONSTRUCTION PAVEMENT MARKING

PNI6 PD:STD AHTD MON. STAMPED PNI6 36 SEARCY

PNI7 PD:STD AHTD MON. STAMPED PNI7 36 SEARCY

PNI25 PD:0.0187 0.0227 0.0144 8"SPK

S 89°09'16" E HWY. 36

HALES LN.

RELOCATE 20' P.C.C.B.
• (1) SPECIAL END UNIT
• (1) T.L.A.B.

330' LANE SHIFT

(5) TRAFFIC DRUMS SPACED 45' O.C.

(5) VERTICAL PANELS SPACED 45' O.C.

+00.00 OFFSET = 0.00' RT.

+70.00 OFFSET = 7.00' RT.

STA. 210+00.00
END SITE 3

C.L. HWY. 36

POE 215+00.00

PNI9 PD:STD AHTD MON. STAMPED PNI9 36 SEARCY

PNI278 PD:0.0088 0.0123 0.0332 8"SPK

T.C.E.

C.D.P.

7/9/2009

R050280.DGN

SITE 3 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	70	226

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

7-16-19

SITE 4 - STAGE 1 CONSTRUCTION SEQUENCE:

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

USE VERTICAL PANELS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

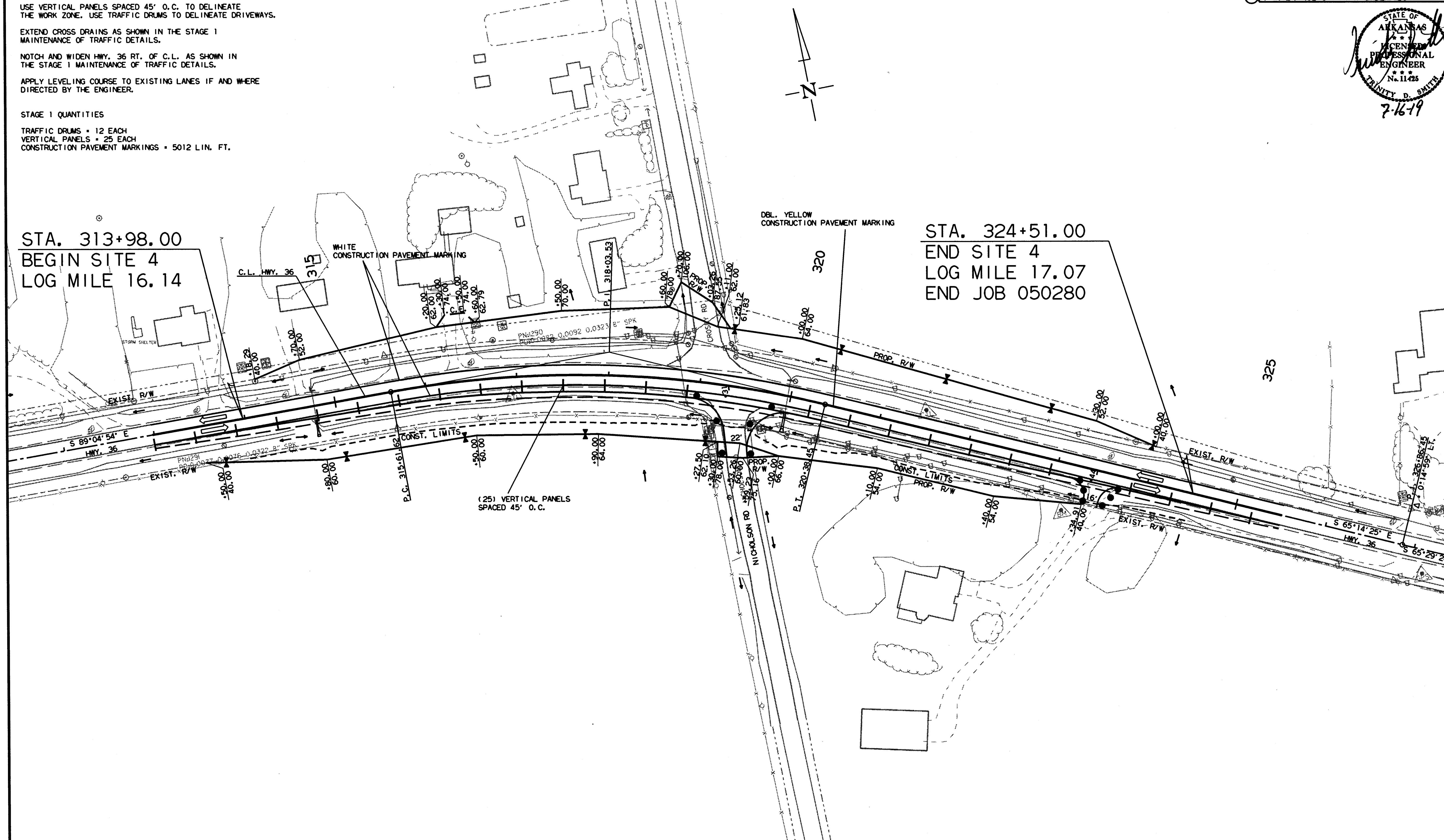
EXTEND CROSS DRAINS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 RT. OF C.L. AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

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

STAGE 1 QUANTITIES

TRAFFIC DRUMS = 12 EACH
VERTICAL PANELS = 25 EACH
CONSTRUCTION PAVEMENT MARKINGS = 5012 LIN. FT.



SITE 4 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	71	226

(2) MAINTENANCE OF TRAFFIC DETAILS

SITE 4 - STAGE 2 CONSTRUCTION SEQUENCE:

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

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

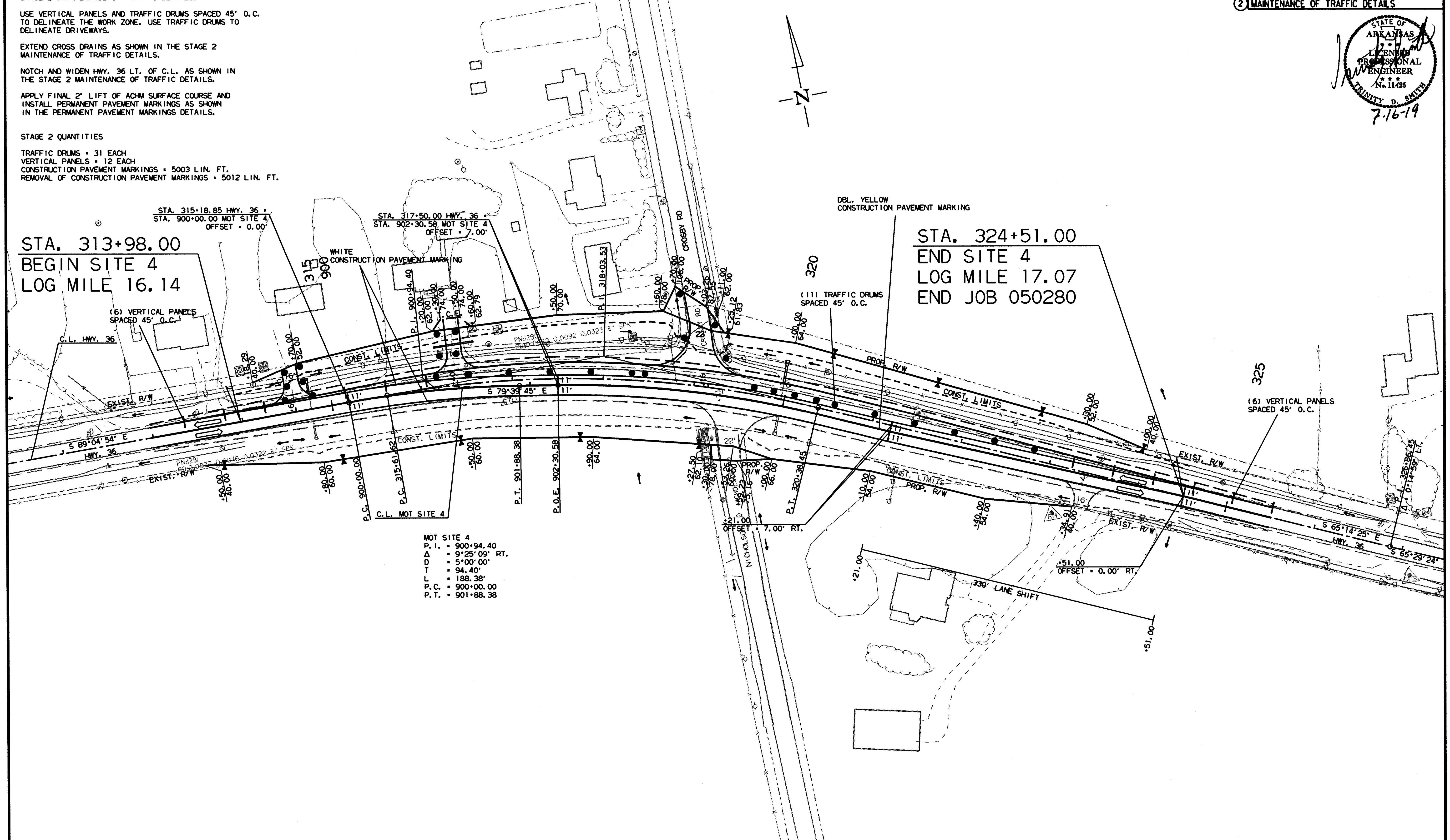
EXTEND CROSS DRAINS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN HWY. 36 LT. OF C.L. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.

STAGE 2 QUANTITIES

TRAFFIC DRUMS = 31 EACH
VERTICAL PANELS = 12 EACH
CONSTRUCTION PAVEMENT MARKINGS = 5003 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 5012 LIN. FT.



SITE 4 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	72	226

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

SITE 1
PERMANENT PAVEMENT MARKINGS

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 24 EACH
THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 3706 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 3803 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 261 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 216 LIN. FT.

SITE 2
PERMANENT PAVEMENT MARKINGS

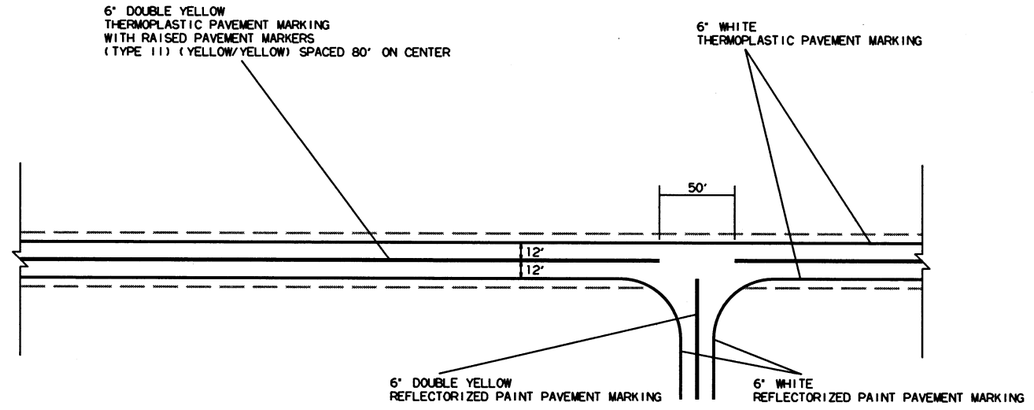
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 40 EACH
THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 6300 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 6400 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 821 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 776 LIN. FT.

SITE 3
PERMANENT PAVEMENT MARKINGS

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 250 EACH
THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 89072 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 94390 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WORDS = 1 EACH
THERMOPLASTIC PAVEMENT MARKING ARROWS = 2 EACH
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 892 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 694 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10") = 550 LIN. FT.

SITE 4
PERMANENT PAVEMENT MARKINGS

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 24 EACH
THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 2301 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 3776 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WORDS = 2 EACH
THERMOPLASTIC PAVEMENT MARKING ARROWS = 4 EACH
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 361 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 277 LIN. FT.



TYPICAL PERMANENT PAVEMENT MARKING LAYOUT
SITES 1 & 2

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

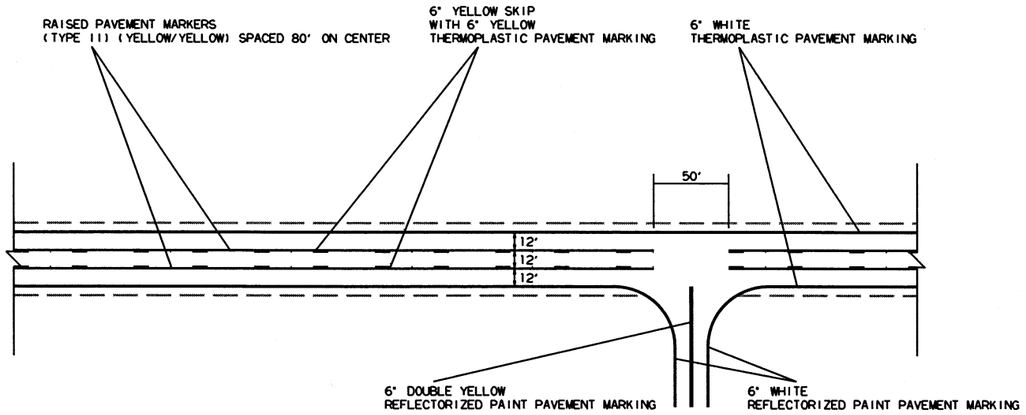
R050280.DGN 7/9/2019

SITES 1 & 2
PERMANENT PAVEMENT MARKING DETAILS

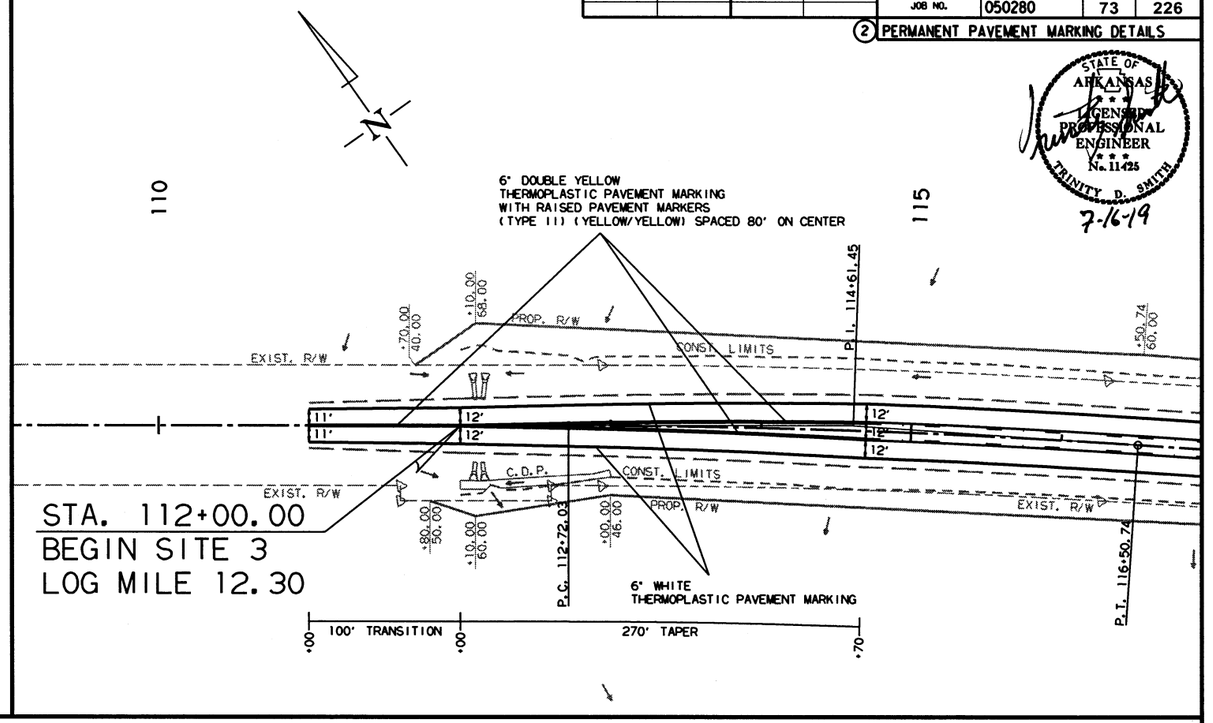
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	73	226

(2) PERMANENT PAVEMENT MARKING DETAILS

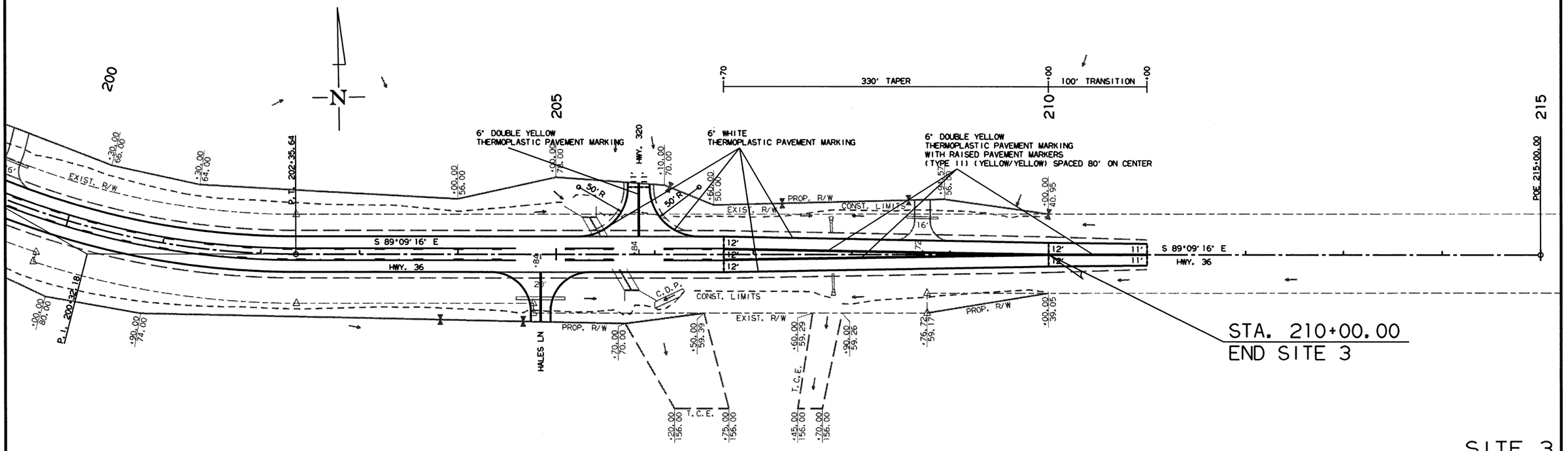
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



TYPICAL PERMANENT PAVEMENT MARKING LAYOUT
SITE 3



STA. 112+00.00
BEGIN SITE 3
LOG MILE 12.30



STA. 210+00.00
END SITE 3

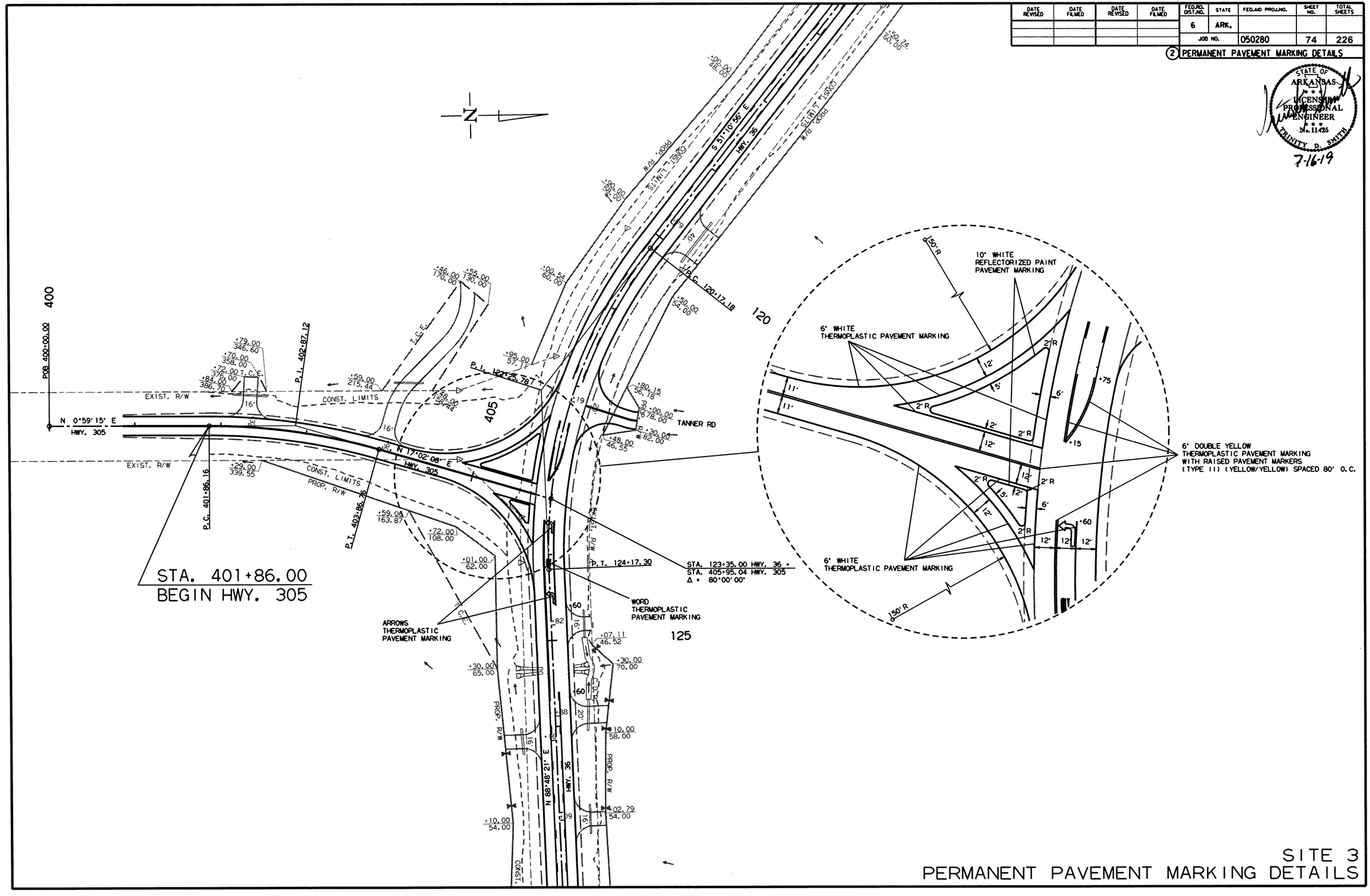
7/9/2019
R050280.DGN

SITE 3
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	74	226

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



7/9/2019

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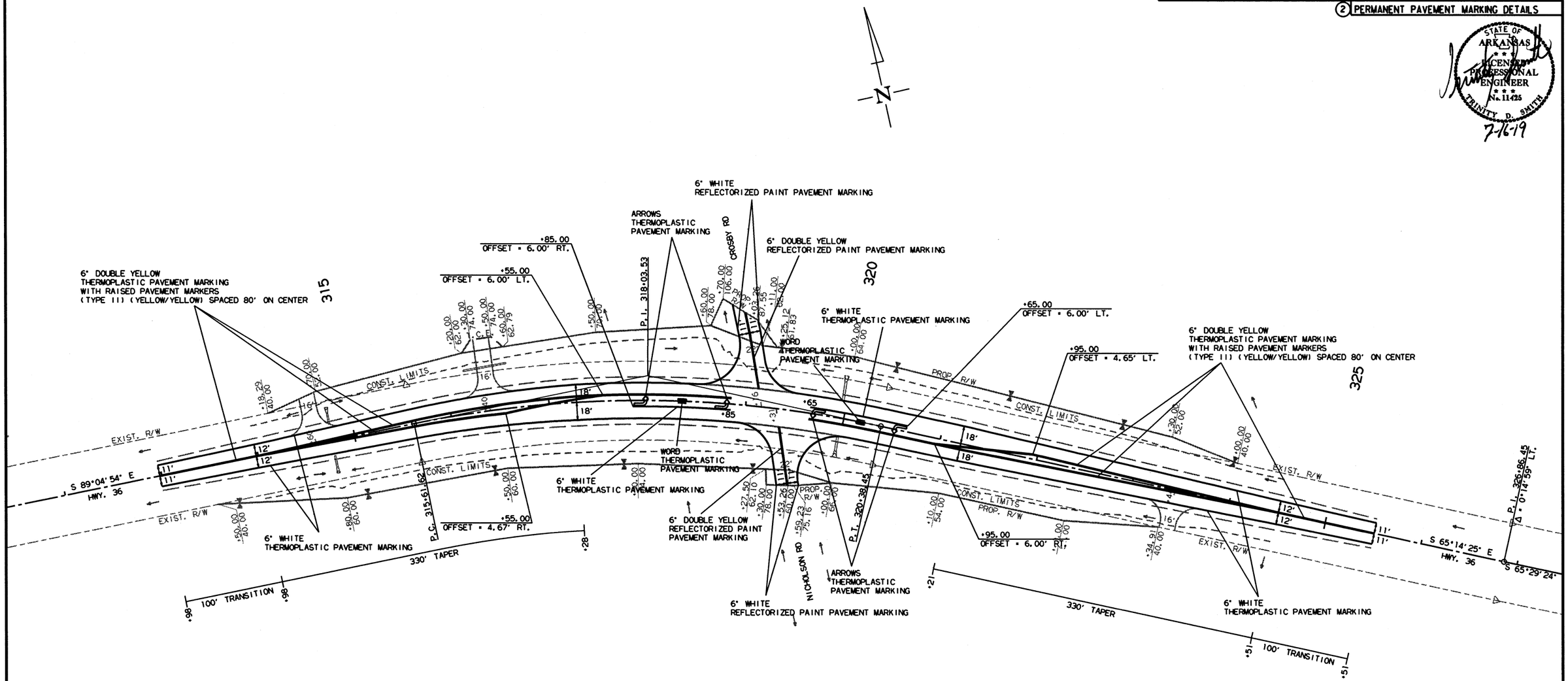
SITE 3
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	75	226

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



7/9/2019

R050280.DGN

SITE 4
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	76	226

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-12-19

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS - HSIP-0073(60)

DESCRIPTION	STAGE 1			STAGE 1B	STAGE 2			END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING				REFLECTORIZED PAINT PAVEMENT MARKING		
	SITE 1	SITE 3	SITE 4		SITE 1	SITE 3	SITE 4			TYPE II	6"		WORDS	ARROWS	6"		10"
	LIN. FT. - EACH								LIN. FT.	(YELLOW/YELLOW) EACH	WHITE	YELLOW	EACH		WHITE	YELLOW	WHITE
											LIN. FT.				LIN. FT.		
CONSTRUCTION PAVEMENT MARKINGS	7580	41391	5012	2187	7607	39645	5003		108425								
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)								298		298							
THERMOPLASTIC PAVEMENT MARKING WHITE (6")								95176			95176						
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")								101969				101969					
THERMOPLASTIC PAVEMENT MARKING (WORDS)								3					3				
THERMOPLASTIC PAVEMENT MARKING (ARROWS)								6						6			
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")								1514							1514		
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")								1187								1187	
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")								550									550
TOTALS:									**108425**	**298**	**95176**	**101969**	**3**	**6**	**1514**	**1187**	**550**

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

SITE 2 - CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS - NHPP-0073(60)

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		REFLECTORIZED PAINT PAVEMENT MARKING	
					TYPE II	6"		6"	
	LIN. FT. - EACH			LIN. FT.	(YELLOW/YELLOW) EACH	WHITE	YELLOW	WHITE	YELLOW
						LIN. FT.		LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	12210	12800		25010					
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)			40		40				
THERMOPLASTIC PAVEMENT MARKING WHITE (6")			6300			6300			
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")			6400				6400		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")			821					821	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")			776						776
TOTALS:				**25010**	**40**	**6300**	**6400**	**821**	**776**

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

7/9/2019

R050280.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	77	226

(2) QUANTITIES

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

7-16-19

ADVANCE WARNING SIGNS AND DEVICES - HSIP-0073(60)

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 1B	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN. BARR. (REPAIR)	TEMP. IMPACT ATTEN. BARR. (RELOCATION)
												RIGHT	LEFT					
			LIN. FT. - EACH				NO.	SQ. FT.	EACH	EACH		LIN. FT.				EACH		
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0										
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0										
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0										
W20-1	ROAD WORK AHEAD	48"x48"	24	24	24	24	24	384.0										
G20-2	END ROAD WORK	48"x24"	24	24	24	24	24	192.0										
G20-1	ROAD WORK NEXT 9 MILES	60"x24"	2	2	2	2	2	20.0										
R11-2	ROAD CLOSED	48"x30"	6	2	2	6	6	60.0										
OM-3L	OBJECT MARKER	12"x36"	6		6	6	6	18.0										
OM-3R	OBJECT MARKER	12"x36"	8		8	8	8	24.0										
R4-1	DO NOT PASS	24"x30"	36	36	36	36	36	180.0										
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	4	4	4	4	4	36.0										
W8-1	BUMP	30"x30"	8	8	8	8	8	50.0										
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"X48"	2	2	2	2	2	64.0										
SPECIAL	WORK WITH US	96"X48"	2	2	2	2	2	64.0										
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE								10									
	VERTICAL PANELS		235	3	235	235				235								
	TRAFFIC DRUMS		326	31	352	352					352							
	TYPE III BARRICADE-RT. (16')		6	1	2	6						96						
	TYPE III BARRICADE-LT. (16')		4	3	2	4							64					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		279			279								279				
	RELOCATING PRECAST CONCRETE BARRIER				79	79									79			
	TEMPORARY IMPACT ATTENUATION BARRIER		1			1										1		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1		1	2											2	
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)				1	1												1
TOTALS:								1188.0	10	235	352	96	64	279	79	1	2	1

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

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 4" 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.

SITE 2 - ADVANCE WARNING SIGNS AND DEVICES - NHPP-0073(60)

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	
									RIGHT	LEFT
			LIN. FT. - EACH			NO.	SQ. FT.	EACH	LIN. FT.	
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	16.0			
G20-2	END ROAD WORK	48"x24"	1	1	1	1	8.0			
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	20.0			
	TRAFFIC DRUMS		54	40	54			54		
	TYPE III BARRICADE-RT. (16')		2	2	2				32	
	TYPE III BARRICADE-LT. (16')		2	2	2					32
TOTALS:							44.0	54	32	32

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

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 4" 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.

7/9/2019

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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
09-04-19				6	ARK.			
				JOB NO.		050280	78	226

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

CLEARING AND GRUBBING - HSIP-0073(60)

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
510+48	526+00	SITE 1 LT. & RT.	16	16
121+00	122+00	SITE 3 RT.	1	1
123+00	132+00	SITE 3 RT.	9	9
132+00	133+00	SITE 3 LT.	1	1
133+50	134+50	SITE 3 LT.	1	1
136+00	137+00	SITE 3 LT.	1	1
140+00	143+00	SITE 3 LT. & RT.	3	3
149+00	155+00	SITE 3 LT.	6	6
158+00	160+00	SITE 3 RT.	2	2
165+00	170+00	SITE 3 LT.	5	5
174+00	175+00	SITE 3 RT.	1	1
178+50	184+50	SITE 3 LT.	6	6
191+00	193+00	SITE 3 LT.	2	2
196+00	206+00	SITE 3 RT.	10	10
197+50	199+50	SITE 3 LT.	2	2
202+00	205+00	SITE 3 LT.	3	3
207+00	208+00	SITE 3 LT.	1	1
209+00	210+00	SITE 3 LT.	1	1
403+00	405+50	HWY. 305 RT.	3	3
314+00	316+00	SITE 4 LT.	2	2
316+50	318+50	SITE 4 LT.	2	2
TOTALS:			78	78

REMOVAL AND DISPOSAL OF ITEMS - HSIP-0073(60)

STATION	STATION	LOCATION	BRICK WALLS	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	SIGN FOUNDATIONS	SIGNS
			LIN. FT.	SQ. YD.	SQ. YD.	EACH	EACH
139+40	139+40	SITE 3 LT.				1	1
122+05	122+05	SITE 3 LT.				2	1
146+20	146+20	SITE 3 RT.				1	
148+85	148+85	SITE 3 LT.				1	1
155+94	155+94	SITE 3 LT.			63		
164+70	164+70	SITE 3 RT.	20				1
165+20	165+20	SITE 3 RT.	20				1
176+85	176+85	SITE 3 RT.	20				1
177+20	177+20	SITE 3 RT.	20				1
184+32	184+32	SITE 3 RT.			68		
189+13	189+13	SITE 3 LT.			59		
404+20	405+42	HWY. 305		68			
319+30	319+30	SITE 4 LT.				4	2
TOTALS:			80	68	190	9	9

SITE 2 - CLEARING AND GRUBBING - NHPP-0073(60)

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
804+00	814+00	SITE 2 LT. & RT.	10	10
816+50	818+50	SITE 2 LT.	2	2
825+50	826+50	SITE 2 LT.	1	1
TOTALS:			13	13

SITE 2 - REMOVAL AND DISPOSAL OF ITEMS - NHPP-0073(60)

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
808+32	809+92	SITE 2 RT.	153
809+13	809+92	SITE 2 RT.	73
810+60	810+88	SITE 2 RT.	28
810+60	811+38	SITE 2 RT.	78
817+10	817+37	SITE 2 RT.	27
817+10	817+37	SITE 2 RT.	27
818+07	818+35	SITE 2 RT.	27
818+07	818+35	SITE 2 RT.	27
TOTAL:			440

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

REMOVAL AND DISPOSAL OF FENCE - HSIP-0073(60)

STATION	STATION	LOCATION	FENCE
			LIN. FT.
125+12	126+97	SITE 3 LT.	192
126+29	126+90	SITE 3 RT.	62
140+81	143+49	SITE 3 LT.	329
143+90	146+19	SITE 3 RT.	156
154+72	156+78	SITE 3 RT.	240
159+75	162+00	SITE 3 RT.	225
177+23	181+02	SITE 3 RT.	389
196+31	198+14	SITE 3 RT.	180
203+82	204+66	SITE 3 RT.	106
206+15	210+00	SITE 3 LT.	410
313+72	319+14	SITE 4 RT.	565
319+30	324+00	SITE 4 LT.	500
TOTAL:			3354

CONCRETE DITCH PAVING - HSIP-0073(60)

STATION	STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GAL.
510+48.33	516+00.00	SITE 1 LT.	551.67	6.32			387.39	245.19	3.09
516+00.00	522+40.00	SITE 1 LT.	640.00	16.32	10.00	1160.53		284.44	3.58
522+40.00	525+00.00	SITE 1 LT.	260.00	6.32			182.58	115.56	1.46
513+83.34	516+08.08	SITE 1 RT.	224.74	6.32			157.82	99.88	1.26
516+66.66	523+00.00	SITE 1 RT.	633.34	16.32	10.00	1148.46		281.48	3.55
523+00.00	527+50.00	SITE 1 RT.	450.00	6.32			316.00	200.00	2.52
112+00.00	113+00.00	SITE 3 RT.	100.00	6.32			70.22	44.44	0.56
124+98.00	125+70.00	SITE 3 LT.	72.00	6.32			50.56	32.00	0.40
150+20.00	154+06.00	SITE 3 LT.	386.00	6.32			271.06	171.56	2.16
172+50.00	177+00.00	SITE 3 LT.	450.00	6.32			316.00	200.00	2.52
172+62.00	174+74.00	SITE 3 RT.	212.00	6.32			148.87	94.22	1.19
175+06.00	176+00.00	SITE 3 RT.	94.00	6.32			66.01	41.78	0.53
206+00.00	206+30.00	SITE 3 RT.	30.00	6.32			21.07	13.33	0.17
TOTALS:						2308.99	1987.58	1823.88	22.99

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

SITE 2 - REMOVAL AND DISPOSAL OF FENCE - NHPP-0073(60)

STATION	STATION	LOCATION	FENCE
			LIN. FT.
803+00	805+48	SITE 2 LT.	251
806+33	809+45	SITE 2 LT.	345
811+53	817+00	SITE 2 LT.	542
817+90	830+14	SITE 2 LT.	1300
830+20	835+00	SITE 2 RT.	497
TOTAL:			2935

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	79	226

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

REMOVAL AND DISPOSAL OF CULVERTS - HSIP-0073(60)

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
521+07	24" X 41' R.C. PIPE CULVERT - SITE 1	1
523+08	24" X 111' R.C. PIPE CULVERT - SITE 1	1
524+13	24" X 110' R.C. PIPE CULVERT - SITE 1	1
119+79	24" x 46' R.C. SIDE DRAIN - SITE 3	1
123+38	18" x 24' C.M. SIDE DRAIN - SITE 3	1
124+82	18" x 24' C.M. SIDE DRAIN - SITE 3	1
125+88	24" x 44' R.C. SIDE DRAIN - SITE 3	1
126+16	24" x 40' R.C. SIDE DRAIN - SITE 3	1
127+09	24" x 24' C.P. SIDE DRAIN - SITE 3	1
128+53	18" x 16' C.M. SIDE DRAIN - SITE 3	1
130+42	12" x 20' C.M. SIDE DRAIN - SITE 3	1
131+40	18" x 51' C.M. SIDE DRAIN - SITE 3	1
133+81	24" x 33' R.C. CROSS DRAIN - SITE 3	1
134+88	18" x 20' C.M. SIDE DRAIN - SITE 3	1
137+31	18" x 48' C.M. SIDE DRAIN - SITE 3	1
138+93	18" x 48' C.M. SIDE DRAIN - SITE 3	1
139+80	18" x 24' C.M. SIDE DRAIN - SITE 3	1
142+02	18" x 24' C.M. SIDE DRAIN - SITE 3	1
143+63	18" x 29' C.P. SIDE DRAIN - SITE 3	1
144+54	24" x 25' C.P. SIDE DRAIN - SITE 3	1
145+14	18" x 49' C.M. SIDE DRAIN - SITE 3	1
146+53	18" x 57' C.P. SIDE DRAIN - SITE 3	1
147+71	18" x 37' C.M. SIDE DRAIN - SITE 3	1
148+92	18" x 39' C.M. SIDE DRAIN - SITE 3	1
149+87	18" x 44' STEEL SIDE DRAIN - SITE 3	1
149+96	18" x 22' C.M. SIDE DRAIN - SITE 3	1
152+37	18" x 23' C.M. SIDE DRAIN - SITE 3	1
154+20	18" x 30' C.M. SIDE DRAIN - SITE 3	1
155+94	18" x 25' R.C. SIDE DRAIN - SITE 3	1
156+82	18" x 45" R.C. SIDE DRAIN - SITE 3	1
160+39	18" x 24' C.M. SIDE DRAIN - SITE 3	1
165+05	18" x 42' C.M. SIDE DRAIN - SITE 3	1
169+62	18" x 19' C.M. SIDE DRAIN - SITE 3	1
172+48	18" x 24' C.M. SIDE DRAIN - SITE 3	1
174+90	18" x 25' C.M. SIDE DRAIN - SITE 3	1
176+14	18" x 24' C.M. SIDE DRAIN - SITE 3	1
177+09	18" x 35' C.M. SIDE DRAIN - SITE 3	1
179+92	18" x 30' C.M. SIDE DRAIN - SITE 3	1
181+42	18" x 24' C.M. SIDE DRAIN - SITE 3	1
182+46	18" x 24' B.P. SIDE DRAIN - SITE 3	1
184+32	18" x 24' C.M. SIDE DRAIN - SITE 3	1
184+78	18" x 25' C.M. SIDE DRAIN - SITE 3	1
187+42	18" x 36' B.P. SIDE DRAIN - SITE 3	1
189+13	18" x 30' B.P. SIDE DRAIN - SITE 3	1
192+86	24" x 24' C.M. SIDE DRAIN - SITE 3	1
194+94	18" x 23' C.M. SIDE DRAIN - SITE 3	1
196+23	18" x 30' B.P. SIDE DRAIN - SITE 3	1
196+75	18" x 25' C.M. SIDE DRAIN - SITE 3	1
198+23	18" x 31' R.C. SIDE DRAIN - SITE 3	1
199+26	24" x 24' R.C. SIDE DRAIN - SITE 3	1
204+84	36" x 42' C.M. SIDE DRAIN - SITE 3	1
208+72	24" x 25' R.C. SIDE DRAIN - SITE 3	1
402+32	18" x 22' C.M. SIDE DRAIN - HWY. 305	1
316+40	18" x 24" B.P. SIDE DRAIN - SITE 4	1
TOTAL:		54

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

SITE 2 - REMOVAL AND DISPOSAL OF CULVERTS - NHPP-0073(60)

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
806+02	24" X 50' C.M. SIDE DRAIN - SITE 2	1
832+73	24" X 29' C.M. SIDE DRAIN - SITE 2	1
TOTAL:		2

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

EARTHWORK - HSIP-0073(60)

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	PRESPLITTING	* SOIL STABILIZATION
				CU. YD.		SQ. YD.	TON
	ENTIRE	PROJECT	SHOULDER WIDENING SECTIONS	5540	1035		
	509+48.33	528+50.00	STAGE 1 - SITE 1	130170	1971	373	
	509+48.33	528+50.00	STAGE 2 - SITE 1	451	461		
	111+00.00	211+00.00	STAGE 1 - SITE 3	7631	8091		
	111+00.00	211+00.00	STAGE 2 - SITE 3	10794	5246		
	400+86.00	405+76.78	STAGE 1A - HWY. 305	27	2676		
	400+86.00	405+76.78	STAGE 1B - HWY. 305	350	365		
	312+98.00	325+51.00	STAGE 1 - SITE 4	1292	265		
	312+98.00	325+51.00	STAGE 2 - SITE 4	622	1442		
	ENTIRE	PROJECT	APPROACHES	70	3200		
			DITCH BLOCK - SITE 1		10		
			PAVEMENT OBLITERATION - SITE 1	900	900		
			CHANNEL CHANGE - SITE 3	40			
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE				200
			DIRECTED BY THE ENGINEER				
	TOTALS:			157887	25662	373	200

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

EARTHWORK - NHPP-0073(60)

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU. YD.		TON
	803+00.00	835+00.00	STAGE 1 - SITE 2	476	34179	
	803+00.00	835+00.00	STAGE 2 - SITE 2	5687	620	
	ENTIRE	PROJECT	APPROACHES		1540	
	809+54.50	810+55.50	BRIDGE ENDS (SITE NO. 1)	120		
	817+19.50	818+10.50	BRIDGE ENDS (SITE NO. 2)	173		
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
			DIRECTED BY THE ENGINEER			
	TOTALS:			6456	36339	100

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

EROSION CONTROL MATTING - HSIP-0073(60)

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
128+00.00	130+50.00	SITE 3 LT. & RT.	500.00	444.44
152+00.00	155+00.00	SITE 3 RT.	300.00	266.67
171+50.00	172+50.00	SITE 3 LT.	100.00	88.89
172+00.00	172+50.00	SITE 3 RT.	50.00	44.44
175+50.00	176+14.00	SITE 3 LT.	64.00	56.89
175+50.00	177+00.00	SITE 3 RT.	150.00	133.33
180+20.00	180+67.00	SITE 3 RT.	47.00	41.78
188+00.00	189+00.00	SITE 3 RT.	100.00	88.89
195+50.00	196+00.00	SITE 3 RT.	50.00	44.44
204+00.00	205+08.00	SITE 3 LT.	108.00	96.00
206+00.00	207+00.00	SITE 3 RT.	100.00	88.89
401+86.00	402+60.00	HWY. 305 LT.	74.00	65.78
319+97.00	321+00.00	SITE 4 RT.	103.00	91.56
TOTAL:				1552.00

NOTE: AVERAGE WIDTH = 8'-0"

CONCRETE ISLAND - HSIP-0073(60)

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
			SQ.YD.
405+40	HWY. 305 LT.	C	183
405+65	HWY. 305 RT.	C	34
TOTAL:			217

BENCH MARKS - HSIP-0073(60)

STATION	LOCATION	BENCH MARKS
		EACH
140+46	SITE 3 - HDWL. OF R.C. BOX CULVERT ON RT.	1
205+76	SITE 3 - HDWL. OF R.C. BOX CULVERT ON RT.	1
TOTAL:		2

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

SITE 2 - BENCH MARKS - NHPP-0073(60)

STATION	LOCATION	BENCH MARKS
		EACH
810+55	SITE 2 - BRIDGE END	1
818+10	SITE 2 - BRIDGE END	1
TOTAL:		2

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

SITE 2 - GUARDRAIL - NHPP-0073(60)

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
807+60.17	809+44.50	SITE 2 - RT.	166	1	1
808+10.17	809+44.50	SITE 2 - LT.	116	1	1
810+65.50	811+74.83	SITE 2 - RT.	91	1	1
810+65.50	812+74.83	SITE 2 - LT.	191	1	1
815+00.75	817+09.50	SITE 2 - RT.	190	1	1
815+75.75	817+09.50	SITE 2 - LT.	115	1	1
818+20.50	819+54.25	SITE 2 - RT.	115	1	1
818+20.50	820+29.25	SITE 2 - LT.	190	1	1
TOTALS:			1174	8	8

CULVERT CLEAN OUT - HSIP-0073(60)

STATION	LOCATION	EACH
180+67	SITE 3	1
TOTAL:		1

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	80	226

(2) QUANTITIES

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
113+00	35	15	51.70	91	53	30.20	6' RT.	0-5	21	5	A-4(1)	BROWN
113+00	35	15	51.60	91	53	30.20	13' RT.	0-5	21	5	A-4(1)	BROWN
113+00	35	15	51.60	91	53	30.30	20' RT.	0-5	25	5	A-4(4)	BROWN
121+00	35	15	46.90	91	53	22.20	6' LT.	0-5	24	8	A-4(4)	BROWN
121+00	35	15	47.00	91	53	22.10	13' LT.	0-5	23	5	A-4(1)	BROWN
121+00	35	15	47.00	91	53	22.10	21' LT.	0-5	29	10	A-4(7)	BROWN
129+00	35	15	46.10	91	53	12.90	6' RT.	0-4.3Z	27	9	A-4(5)	BROWN
129+00	35	15	46.00	91	53	12.90	13' RT.	0-3.5Z	28	11	A-6(7)	BROWN
129+00	35	15	46.00	91	53	12.90	21' RT.	0-1.8Z	28	12	A-6(6)	BROWN
137+00	35	15	46.00	91	53	3.20	6' LT.	0-5	26	8	A-4(5)	BROWN
137+00	35	15	46.10	91	53	3.20	13' LT.	0-5	23	6	A-4(2)	BROWN
145+00	35	15	45.90	91	52	53.70	6' RT.	0-1.25Z	29	12	A-6(9)	BROWN
153+00	35	15	44.00	91	52	44.50	6' LT.	0-5	25	8	A-4(4)	BROWN
153+00	35	15	44.00	91	52	44.40	13' LT.	0-5	ND	NP	A-4(5)	BROWN
153+00	35	15	44.00	91	52	44.40	19' LT.	0-5	22	4	A-4(1)	BROWN
161+00	35	15	38.90	91	52	37.10	6' RT.	0-5	24	8	A-4(4)	BROWN
161+00	35	15	38.80	91	52	37.20	13' RT.	0-5	22	5	A-4(1)	BROWN
161+00	35	15	38.80	91	52	37.20	18' RT.	0-5	25	8	A-4(4)	BROWN
169+00	35	15	34.20	91	52	29.20	6' LT.	0-5	25	7	A-4(3)	BROWN
169+00	35	15	34.20	91	52	29.20	13' LT.	0-5	25	7	A-4(3)	BROWN
169+00	35	15	34.30	91	52	29.20	21' LT.	0-5	25	7	A-4(3)	BROWN
177+00	35	15	30.10	91	52	21.00	6' RT.	0-5	24	7	A-4(4)	BROWN
185+00	35	15	26.30	91	52	12.60	6' LT.	0-5	30	10	A-4(8)	BROWN
185+00	35	15	26.30	91	52	12.50	13' LT.	0-5	26	8	A-4(4)	BROWN
185+00	35	15	26.40	91	52	12.50	18' LT.	0-5	24	7	A-4(2)	BROWN
193+00	35	15	22.20	91	52	4.30	6' RT.	0-5	34	14	A-6(10)	BROWN
201+00	35	15	18.80	91	51	55.70	6' LT.	0-3.0Z	25	8	A-4(5)	BROWN
201+00	35	15	18.90	91	51	55.70	13' LT.	0-5	35	18	A-6(15)	BROWN
201+00	35	15	18.90	91	51	55.70	19' LT.	0-5	27	8	A-4(4)	BROWN
209+00	35	15	18.40	91	51	46.10	6' RT.	0-5	26	8	A-4(5)	BROWN
209+00	35	15	18.40	91	51	46.10	13' RT.	0-5	24	7	A-4(3)	BROWN
209+00	35	15	18.30	91	51	46.10	28' RT.	0-5	26	5	A-4(4)	BROWN
303+00	35	15	0.80	91	49	57.60	6' RT.	0-5	ND	NP	A-4(0)	BROWN
303+00	35	15	0.80	91	49	57.60	13' RT.	0-5	23	5	A-4(1)	BROWN
303+00	35	15	0.70	91	49	57.60	19' RT.	0-5	26	6	A-4(3)	BROWN
311+00	35	15	0.80	91	49	48.00	6' LT.	0-5	26	8	A-4(2)	BROWN
318+00	35	15	0.30	91	49	39.60	6' RT.	0-5	26	7	A-4(4)	BROWN
318+00	35	15	0.30	91	49	39.60	13' RT.	0-5	29	9	A-4(6)	BROWN
318+00	35	15	0.20	91	49	39.60	21' RT.	0-5	26	5	A-4(2)	BROWN
327+00	35	14	57.00	91	49	29.60	6' LT.	0-5	33	12	A-4(7)	BROWN
327+00	35	14	57.00	91	49	29.60	13' LT.	0-5	26	8	A-4(5)	BROWN
807+00	35	16	16.10	91	54	26.60	6' RT.	0-5	ND	NP	A-4(0)	BROWN
807+00	35	16	15.40	91	54	25.50	18' RT.	0-5	ND	NP	A-4(0)	BROWN
815+00	35	16	13.30	91	54	17.20	6' LT.	0-5	27	12	A-6(5)	BROWN
815+00	35	16	13.40	91	54	16.80	18' LT.	0-5	29	13	A-4(5)	BROWN
821+00	35	16	11.50	91	54	11.00	6' RT.	0-5	26	10	A-4(6)	BROWN
821+00	35	16	11.20	91	54	10.20	18' RT.	0-5	33	15	A-6(6)	BROWN
821+00	35	16	11.20	91	54	10.20	24 RT.	0-5	33	13	A-6(6)	BROWN

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.
Z- AUGER REFUSAL
NP - NON-PLASTIC
ND - NOT DETERMINABLE

MAILBOXES - HSIP-0073(60)

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
	EACH		
SITE 3	34	24	5
SITE 4	4	4	
TOTALS:	38	28	5

SITE 2 - MAILBOXES - NHPP-0073(60)

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
	EACH		
SITE 2	5	1	2
TOTALS:	5	1	2

4" PIPE UNDERDRAIN - HSIP-0073(60)

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			6500	26
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			6500	26

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

SITE 2 - 4" PIPE UNDERDRAIN - NHPP-0073(60)

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			1500	6
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			1500	6

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

FENCING - HSIP-0073(60)

STATION	STATION	LOCATION	WIRE FENCE		* 5' CHAIN LINK FENCE	* 16'-0" GATES
			(TYPE D)	(TYPE D-2)		
			LIN. FT.			EACH
125+12	126+97	SITE 3 - LT.	146			1
126+29	126+90	SITE 3 - RT.	62			
140+80	143+49	SITE 3 - LT.	271			
154+62	156+78	SITE 3 - RT.	206			
159+75	162+00	SITE 3 - RT.			209	1
196+31	198+14	SITE 3 - RT.	180			
203+82	204+66	SITE 3 - RT.	85			
206+15	210+00	SITE 3 - LT.		390		
313+72	319+14	SITE 4 - RT.		525		
319+30	323+96	SITE 4 - LT.		474		
TOTALS:			950	1389	209	2

* DENOTES ALTERNATE BID ITEM.

SITE 2 - FENCING - NHPP-0073(60)

STATION	STATION	LOCATION	WIRE FENCE	
			(TYPE D)	(TYPE D-1)
			LIN. FT.	
803+00	805+48	SITE 2 - LT.		250
806+33	809+45	SITE 2 - LT.		327
814+00	817+00	SITE 2 - LT.	300	
818+00	830+14	SITE 2 - LT.		1231
TOTALS:			300	1808

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

7/9/2019
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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	81	226

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

EROSION CONTROL - HSIP-0073(60)

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS	DIVERSION DITCH	SILT FENCE	PIPE FOR SLOPE DRAINS	DUMPED RIPRAP	SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
											(E-6)	(E-8)	(E-11)	SLOPE DRAIN (E-12)		(E-14)	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
510+48	527+50	SITE 1 - CLEARING AND GRUBBING									99						
510+48	527+50	SITE 1 - STAGE 1						6.36	6.36	129.7	117	160		210	5	609	654
510+48	527+50	SITE 1 - STAGE 2	5.18	10.36	5.18	528.4	5.18	0.65	0.65	13.3	12		856				36
112+00	210+00	SITE 3 - CLEARING AND GRUBBING									102						
112+00	210+00	SITE 3 - STAGE 1						7.62	7.62	155.4	192		2104			441	583
112+00	210+00	SITE 3 - STAGE 2	9.45	18.90	9.45	963.9	9.45	7.32	7.32	149.3	219		202			581	661
313+98	324+51	SITE 4 - CLEARING AND GRUBBING									9						
313+98	324+51	SITE 4 - STAGE 1						0.82	0.82	16.7	21		41				9
313+98	324+51	SITE 4 - STAGE 2	1.09	2.18	1.09	111.2	1.09	0.86	0.86	17.5	12		53			136	142
ENTIRE	PROJECT	SHOULDER WIDENING	4.83	9.66	4.83	492.7	4.83										
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			5.14	10.28	5.14	524.3	5.14	5.91	5.91	120.6	171		814			442	472
TOTALS:			25.69	51.38	25.69	2620.5	25.69	29.54	29.54	602.5	954	160	4070	210	5	2209	2557

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
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.

SITE 2 - EROSION CONTROL - NHPP-0073(60)

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL						
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS	SILT FENCE	SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
											(E-6)	(E-11)	(E-14)	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	CU.YD.	CU. YD.
804+00	834+00	SITE 2 - CLEARING AND GRUBBING									12	865		32
804+00	834+00	SITE 2 - STAGE 1						3.48	3.48	71.0	27	3265	60	181
804+00	834+00	SITE 2 - STAGE 2	4.45	8.90	4.45	453.9	4.45	4.12	4.12	84.0	3	2183		81
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.11	2.22	1.11	113.2	1.11	1.90	1.90	38.8	8	1362	15	66
TOTALS:			5.56	11.12	5.56	567.1	5.56	9.50	9.50	193.8	50	7675	75	360

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
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.

SELECTED PIPE BEDDING - HSIP-0073(60)

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
SITES 1, 3, AND 4 TO BE USED IF	
AND WHERE DIRECTED BY THE	170
ENGINEER	
TOTAL:	170

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

SITE 2 - SELECTED PIPE BEDDING - NHPP-0073(60)

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
SITE 2 TO BE USED IF	
AND WHERE DIRECTED BY THE	20
ENGINEER	
TOTAL:	20

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

PAVEMENT REPAIR OVER CULVERTS (ASPHALT) - HSIP-0073(60)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
133+81	SITE 3	8.50	26	18
TOTAL:				18

AVG. DEPTH = 13.58"

9/3/2019

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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
09-04-19				6	ARK.			
				JOB NO.		050280	82	226

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

STRUCTURES - HSIP-0073(60)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	(CLASS IV) 24"	36"	PIPE CULVERT ALTERNATES ALT. 1 (CLASS IV)	ALT. 2, 3, 4, 5, AND 6 (CLASS IV)	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES	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.					24"	24"	EACH				24"		LIN. FT.		CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
524+13	CONST. 24" x 110' R.C. PIPE CULVERT						62	68		2			2							16	0.20	FES-1, FES-2, PCC-1
112+13	EXTEND DBL. 30" x 42' R.C. PIPE CULVERT			56							4									28	0.35	FES-1, FES-2, PCC-1
125+35	EXTEND DBL. 36" x 37' R.C. PIPE CULVERT					84						4								36	0.45	FES-1, FES-2, PCC-1
133+81	CONST. 24" x 68' R.C. PIPE CULVERT						68	74		2			2							16	0.20	FES-1, FES-2, PCC-1
140+46	EXTEND 6' x 3' x 34' R.C. BOX CULVERT													6	3	40	26.53	3233	20	13	0.16	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3
180+67	EXTEND 24" x 33' R.C. PIPE CULVERT				44					2										16	0.20	FES-1, FES-2, PCC-1
205+55	EXTEND DBL. 6' x 4' x 37' R.C. BOX CULVERT													6	4	50	60.82	8950	34	22	0.28	R-200X-0, R-230X-01, W-X30, W-X303-1,RCB-1, RCB-2, RCB-3
207+60	EXTEND 24" x 42' R.C. PIPE CULVERT		36							2										16	0.20	FES-1, FES-2, PCC-1
314+77	EXTEND 18" x 33' R.C. PIPE CULVERT	32							2											10	0.13	FES-1, FES-2, PCC-1
319+97	EXTEND 24" x 36' R.C. PIPE CULVERT				46					2										16	0.20	FES-1, FES-2, PCC-1
TOTALS:		32	36	56	90	84	130	142	2	10	4	4	4				87.35	12183	54	189	2.37	

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.

SITE 2 - APPROACH GUTTERS AND SLABS - NHPP-0073(60)

STATION	STATION	LOCATION	APPROACH GUTTERS	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
809+18.00	809+54.50	LT. SIDE	14.80		810	17.0
809+54.50	809+54.50	APPROACH SLAB		49.15	5980	
809+18.00	809+54.50	RT. SIDE	18.98		1044	17.0
810+55.50	810+92.00	LT. SIDE	14.80		810	17.0
810+55.50	810+55.50	APPROACH SLAB		49.15	5980	
810+55.50	810+92.00	RT. SIDE	18.98		1044	17.0
816+83.00	817+19.50	LT. SIDE	14.80		810	17.0
817+19.50	817+19.50	APPROACH SLAB		49.15	5980	
816+83.00	817+19.50	RT. SIDE	14.80		810	17.0
818+10.50	818+47.00	LT. SIDE	14.80		810	17.0
818+10.50	818+10.50	APPROACH SLAB		49.15	5980	
818+10.50	818+47.00	RT. SIDE	14.80		810	17.0
TOTALS:			126.76	196.60	30868	136.0

NOTE: USE T =14.5" FOR 8' SHOULDER.

SITE 2 - DRIVEWAYS & TURNOUTS - NHPP-0073(60)

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 18"	24"	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	LIN. FT.		
806+02	LT.	SITE 2	26	136.15	14.98	55.59		50	PCC-1, PCM-1, PCP-1, PCP-2
813+50	LT.	SITE 2	20	878.70	96.66	358.80	66		PCC-1, PCM-1, PCP-1, PCP-2
831+41	LT.	SITE 2	16	74.51	8.20	30.42		34	PCC-1, PCM-1, PCP-1, PCP-2
831+91	RT.	SITE 2	16	70.58	7.76	28.82			
832+73	LT.	SITE 2	28	124.17	13.66	50.70		40	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						50.00			
TOTALS:				1284.11	141.26	574.33	66	124	

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.

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.

RUMBLE STRIPES IN ASPHALT SHOULDERS - HSIP-0073(60)

LOG MILE	LOG MILE	LOCATION	* RUMBLE STRIPES IN ASPHALT SHOULDERS
			LIN.FT.
8.40	9.45	HWY. 36	11088
9.46	10.31	HWY. 36	8976
10.32	11.22	HWY. 36	9504
11.79	17.07	HWY. 36	50841
TOTAL:			80409

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

SITE 2 - RUMBLE STRIPS IN ASPHALT SHOULDERS - NHPP-0073(60)

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
804+00	834+00	HWY. 36	6000
TOTAL:			6000

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

9/3/2019

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	83	226

(2) QUANTITIES

DRIVEWAYS & TURNOUTS - HSIP-0073(60)

STATION	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			STANDARD DRAWINGS
								18"	24"	36"	
			FEET	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.			
513+68	RT.	SITE 1	20		165.96	18.26	67.77	32			PCC-1, PCM-1, PCP-1, PCP-2
516+33	RT.	SITE 1	20		269.56	29.65	110.07	60			PCC-1, PCM-1, PCP-1, PCP-2
119+79	LT.	SITE 3	40		146.56	16.12	59.85		58		PCC-1, PCM-1, PCP-1, PCP-2
122+19	LT.	SITE 3 - TANNER DR.	20		162.29	17.85	66.27				
124+82	LT.	SITE 3	16		46.07	5.07	18.81	32			PCC-1, PCM-1, PCP-1, PCP-2
125+88	LT.	SITE 3	20		88.43	9.73	36.11		36		PCC-1, PCM-1, PCP-1, PCP-2
126+16	RT.	SITE 3	16		69.10	7.60	28.22		30		PCC-1, PCM-1, PCP-1, PCP-2
127+09	LT.	SITE 3	16		59.18	6.51	24.17		34		PCC-1, PCM-1, PCP-1, PCP-2
128+53	LT.	SITE 3	16		63.80	7.02	26.05	28			PCC-1, PCM-1, PCP-1, PCP-2
130+42	RT.	SITE 3	16		74.68	8.21	30.49	34			PCC-1, PCM-1, PCP-1, PCP-2
131+40	LT.	SITE 3	16		75.30	8.28	30.75	32			PCC-1, PCM-1, PCP-1, PCP-2
132+89	RT.	SITE 3	16		55.62	6.12	22.71				
133+00	LT.	SITE 3	16		63.30	6.96	25.85				
134+88	RT.	SITE 3	16		52.51	5.78	21.44	28			PCC-1, PCM-1, PCP-1, PCP-2
136+48	RT.	SITE 3	24		79.04	8.69	32.27	36			PCC-1, PCM-1, PCP-1, PCP-2
137+31	LT.	SITE 3 - BUTLER LN.	20		120.07	13.21	49.03	50			PCC-1, PCM-1, PCP-1, PCP-2
137+41	RT.	SITE 3	24		80.80	8.89	32.99	36			PCC-1, PCM-1, PCP-1, PCP-2
138+64	RT.	SITE 3	16		56.21	6.18	22.95	28			PCC-1, PCM-1, PCP-1, PCP-2
138+93	LT.	SITE 3	40		168.07	18.49	68.63	58			PCC-1, PCM-1, PCP-1, PCP-2
139+80	LT.	SITE 3	16		79.00	8.69	32.26	36			PCC-1, PCM-1, PCP-1, PCP-2
142+02	RT.	SITE 3	16		69.56	7.65	28.40	34			PCC-1, PCM-1, PCP-1, PCP-2
143+63	RT.	SITE 3	16		66.00	7.26	26.95	28			PCC-1, PCM-1, PCP-1, PCP-2
144+54	LT.	SITE 3	16		82.43	9.07	33.66		38		PCC-1, PCM-1, PCP-1, PCP-2
145+14	RT.	SITE 3	40		133.32	14.67	54.44	54			PCC-1, PCM-1, PCP-1, PCP-2
146+53	RT.	SITE 3	40		123.45	13.58	50.41	52			PCC-1, PCM-1, PCP-1, PCP-2
147+71	RT.	SITE 3	30		94.61	10.41	38.63	42			PCC-1, PCM-1, PCP-1, PCP-2
148+92	LT.	SITE 3 - BLOODWORTH RD.	20		154.92	17.04	63.26	58			PCC-1, PCM-1, PCP-1, PCP-2
149+96	LT.	SITE 3	16		104.40	11.48	42.63	48			PCC-1, PCM-1, PCP-1, PCP-2
152+37	RT.	SITE 3	16		82.20	9.04	33.57	30			PCC-1, PCM-1, PCP-1, PCP-2
154+20	LT.	SITE 3	16		60.44	6.65	24.68	28			PCC-1, PCM-1, PCP-1, PCP-2
155+94	LT.	SITE 3	20	36.65	36.49	4.01	14.90	32			PCC-1, PCM-1, PCP-1, PCP-2
156+75	LT.	SITE 3	30		107.44	11.82	43.87				
156+82	RT.	SITE 3	36		147.14	16.19	60.08	48			PCC-1, PCM-1, PCP-1, PCP-2
157+50	LT.	SITE 3	16		60.19	6.62	24.58				
157+50	RT.	SITE 3	16		69.84	7.68	28.52	28			PCC-1, PCM-1, PCP-1, PCP-2
160+39	RT.	SITE 3	24		82.77	9.10	33.80	36			PCC-1, PCM-1, PCP-1, PCP-2
165+05	RT.	SITE 3 - CENTERVIEW CIR.	20		154.00	16.94	62.88	46			PCC-1, PCM-1, PCP-1, PCP-2
166+46	LT.	SITE 3	20		78.76	8.66	32.16				
169+62	RT.	SITE 3	20		81.01	8.91	33.08	38			PCC-1, PCM-1, PCP-1, PCP-2
171+45	LT.	SITE 3	16		57.26	6.30	23.38				
172+48	RT.	SITE 3	16		65.95	7.25	26.93	28			PCC-1, PCM-1, PCP-1, PCP-2
174+90	RT.	SITE 3	20		81.07	8.92	33.10	32			PCC-1, PCM-1, PCP-1, PCP-2
176+14	RT.	SITE 3	16		65.99	7.26	26.95	28			PCC-1, PCM-1, PCP-1, PCP-2
177+09	RT.	SITE 3 - CENTERVIEW CIR.	20		117.56	12.93	48.00	44			PCC-1, PCM-1, PCP-1, PCP-2
179+92	RT.	SITE 3	16		59.53	6.55	24.31	28			PCC-1, PCM-1, PCP-1, PCP-2
181+50	LT.	SITE 3	40		128.78	14.17	52.59		52		PCC-1, PCM-1, PCP-1, PCP-2
181+48	RT.	SITE 3 - YARNELL RD.	30		158.33	17.42	64.65				
182+46	LT.	SITE 3	16		62.22	6.84	25.41	32			PCC-1, PCM-1, PCP-1, PCP-2
184+32	RT.	SITE 3	16	61.31				28			PCC-1, PCM-1, PCP-1, PCP-2
184+78	RT.	SITE 3	16		64.40	7.08	26.30	28			PCC-1, PCM-1, PCP-1, PCP-2
187+42	LT.	SITE 3	16		61.26	6.74	25.01	30			PCC-1, PCM-1, PCP-1, PCP-2
189+13	LT.	SITE 3	20	36.65	39.44	4.34	16.10	36			PCC-1, PCM-1, PCP-1, PCP-2
192+86	RT.	SITE 3	16		67.89	7.47	27.72		30		PCC-1, PCM-1, PCP-1, PCP-2
194+94	RT.	SITE 3	16		68.85	7.57	28.11		30		PCC-1, PCM-1, PCP-1, PCP-2
196+23	LT.	SITE 3	16		72.67	7.99	29.67	34			PCC-1, PCM-1, PCP-1, PCP-2
196+75	LT.	SITE 3	16		74.70	8.22	30.50	34			PCC-1, PCM-1, PCP-1, PCP-2
198+23	RT.	SITE 3	16		81.54	8.97	33.30		48		PCC-1, PCM-1, PCP-1, PCP-2
199+26	LT.	SITE 3	16		88.44	9.73	36.11		34		PCC-1, PCM-1, PCP-1, PCP-2
204+84	RT.	SITE 3 - HALES LN.	20		140.32	15.44	57.30			50	PCC-1, PCM-1, PCP-1, PCP-2
205+84	LT.	SITE 3 - HWY. 320	30		206.25	22.69	84.22				
208+72	LT.	SITE 3	16		67.94	7.47	27.74		32		PCC-1, PCM-1, PCP-1, PCP-2
402+32	LT.	HWY. 305	16		86.56	9.52	35.35	40			PCC-1, PCM-1, PCP-1, PCP-2
403+90	LT.	HWY. 305	16		373.92	41.13	152.68	34			PCC-1, PCM-1, PCP-1, PCP-2
314+60	LT.	SITE 4	16		59.85	6.58	24.44				
316+40	LT.	SITE 4	16		97.79	10.76	39.93	44			PCC-1, PCM-1, PCP-1, PCP-2
319+16	LT.	SITE 4 - CROSBY RD.	22		216.75	23.84	88.51				
319+31	RT.	SITE 4 - NICHOLSON RD.	22		166.25	18.29	67.89				
323+44	RT.	SITE 4	16		41.19	4.53	16.82				
* ENTIRE PROJECT TEMPORARY DRIVES							680.00				
TOTALS:				**134.61**	**6637.22**	**730.09**	**3390.21**	**1592**	**422**	**50**	

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.

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.

COLD MILLING ASPHALT PAVEMENT - HSIP-0073(60)

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
509+48.33	510+48.33	SITE 1	22.00	244.44
527+50.00	528+50.00	SITE 1	22.00	244.44
111+00.00	112+00.00	SITE 3	22.00	244.44
210+00.00	211+00.00	SITE 3	22.00	244.44
400+86.00	401+86.00	SITE 3 - HWY. 305	22.00	244.44
312+98.00	313+98.00	SITE 4	22.00	244.44
324+51.00	325+51.00	SITE 4	22.00	244.44
TOTAL:				**1711.08**

NOTE: AVERAGE MILLING DEPTH 1".

SITE 2 - COLD MILLING ASPHALT PAVEMENT - NHPP-0073(60)

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
803+00.00	804+00.00	SITE 2	22.00	244.44
834+00.00	835+00.00	SITE 2	22.00	244.44
TOTAL:				**488.88**

NOTE: AVERAGE MILLING DEPTH 1".

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC - HSIP-0073(60)

LOCATION	TON	TACK COAT
		GALLON
SITES 1, 3, AND 4 - TO BE USED IF AND WHERE	59	118
DIRECTED BY THE ENGINEER		
TOTALS:	**59**	**118**

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE
* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

SITE 2 - ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC - NHPP-0073(60)

LOCATION	TON	TACK COAT
		GALLON
SITE 2 - TO BE USED IF AND WHERE	14	28
DIRECTED BY THE ENGINEER		
TOTALS:	**14**	**28**

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE
* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CENTERLINE RUMBLE STRIPES IN ASPHALT ROADWAYS - HSIP-0073(60)

LOG MILE	LOG MILE	LOCATION	* CENTERLINE RUMBLE STRIPES IN ASPHALT ROADWAYS
			LIN.FT.
8.50	10.38	HWY. 36	9926
TOTAL:			**9926**

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-18-19

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	84	226

(2) QUANTITES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-13

BASE AND SURFACING - HSIP-0073(60)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	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	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
8.40*	9.45*	SHOULDER WIDENING SECTION	5544.00	45.50	2522.52																8.00	4928.00	220.00	542.08	542.08
9.46*	9.54*	SHOULDER WIDENING SECTION	422.40	45.50	192.19																8.00	375.47	220.00	41.30	41.30
509+48.33	510+48.33	SITE 1 - TRANSITION	100.00	121.75	121.75				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
510+48.33	514+20.00	SITE 1 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)	371.67	VAR.	595.19	VAR.	1415.87	70.79				70.79	VAR.	256.47	495.00	63.48	VAR.	250.88	220.00	27.60	32.00	1321.49	220.00	145.36	172.96
514+20.00	526+80.00	SITE 1 - FULL DEPTH SECTION	1260.00	230.25	2901.15	48.77	6827.80	341.39				341.39	24.52	3432.80	495.00	849.62	24.25	3395.00	220.00	373.45	32.00	4480.00	220.00	492.80	866.25
526+80.00	527+50.00	SITE 1 - NOTCH, WIDEN, AND OVERLAY SECTION	70.00	128.50	89.95	12.77	270.43	13.52				13.52	6.52	50.71	495.00	12.55	6.25	48.61	220.00	5.35	32.00	248.89	220.00	27.38	32.73
527+50.00	528+50.00	SITE 1 - TRANSITION	100.00	121.75	121.75				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
9.90*	10.31*	SHOULDER WIDENING SECTION	2164.80	45.50	984.98																8.00	1924.27	220.00	211.67	211.67
10.32*	11.20*	SHOULDER WIDENING SECTION	4646.40	45.50	2114.11																8.00	4130.13	220.00	454.31	454.31
11.81*	12.24*	SHOULDER WIDENING SECTION	2270.40	45.50	1033.03																8.00	2018.13	220.00	221.99	221.99
111+00.00	112+00.00	SITE 3 - TRANSITION	100.00	125.25	125.25				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
112+00.00	114+70.00	SITE 3 - NOTCH, WIDEN, AND OVERLAY SECTION, TAPER	270.00	168.13	453.95	38.77	1163.10	58.16				58.16	8.52	255.60	495.00	63.26	8.25	247.50	220.00	27.23	38.00	1140.00	220.00	125.40	152.63
114+70.00	134+00.00	SITE 3 - NOTCH, WIDEN, AND OVERLAY SECTION	1930.00	191.50	3695.95	50.77	10887.34	544.37				544.37	14.52	3113.73	495.00	770.65	14.25	3055.83	220.00	336.14	44.00	9435.56	220.00	1037.91	1374.05
134+00.00	206+70.00	SITE 3 - NOTCH, WIDEN, AND OVERLAY SECTION	7270.00	191.50	13922.05	50.77	41010.88	2050.54				2050.54	14.52	11728.93	495.00	2902.91	14.25	11510.83	220.00	1266.19	44.00	35542.22	220.00	3909.64	5175.83
206+70.00	210+00.00	SITE 3 - NOTCH, WIDEN, AND OVERLAY SECTION, TAPER	330.00	168.13	554.83	38.77	1421.57	71.08				71.08	8.52	312.40	495.00	77.32	8.25	302.50	220.00	33.28	38.00	1393.33	220.00	153.27	186.55
210+00.00	211+00.00	SITE 3 - TRANSITION	100.00	125.25	125.25				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
400+86.00	401+86.00	HWY. 305 - TRANSITION	100.00	92.00	92.00				22.00	244.44	41.55	41.55									28.00	311.11	220.00	34.22	34.22
401+86.00	403+60.98	HWY. 305 - NOTCH, WIDEN, OVERLAY SECTION	174.98	101.99	178.46	VAR.	722.58	36.13				36.13	VAR.	148.74	495.00	36.81	VAR.	146.11	220.00	16.07	30.00	583.27	220.00	64.16	80.23
403+60.98	405+76.78	HWY. 305 - FULL DEPTH SECTION	215.80	VAR.	687.45	VAR.	2633.50	131.68				131.68	VAR.	1320.00	495.00	326.70	VAR.	1313.50	220.00	144.49	VAR.	1283.22	220.00	141.15	285.64
14.14*	16.06*	SHOULDER WIDENING SECTION	10137.60	45.50	4612.61																8.00	9011.20	220.00	991.23	991.23
312+98.00	313+98.00	SITE 4 - TRANSITION	100.00	125.25	125.25				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
313+98.00	317+28.00	SITE 4 - NOTCH, WIDEN, AND OVERLAY SECTION, TAPER	330.00	168.13	554.83	38.77	1421.57	71.08				71.08	8.52	312.40	495.00	77.32	8.25	302.50	220.00	33.28	38.00	1393.33	220.00	153.27	186.55
317+28.00	321+21.00	SITE 4 - NOTCH, WIDEN, AND OVERLAY SECTION	393.00	191.50	752.60	50.77	2216.96	110.85				110.85	14.52	634.04	495.00	156.92	14.25	622.25	220.00	68.45	44.00	1921.33	220.00	211.35	279.80
321+21.00	324+51.00	SITE 4 - NOTCH, WIDEN, AND OVERLAY SECTION, TAPER	330.00	168.13	554.83	38.77	1421.57	71.08				71.08	8.52	312.40	495.00	77.32	8.25	302.50	220.00	33.28	38.00	1393.33	220.00	153.27	186.55
324+51.00	325+51.00	SITE 4 - TRANSITION	100.00	125.25	125.25				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
16.30*	17.07*	SHOULDER WIDENING SECTION	4065.60	45.50	1849.85																8.00	3613.87	220.00	397.53	397.53
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																									
404+20.00	405+42.00	HWY. 305 - ISLAND	122.00	VAR.	27.79	VAR.	136.10	6.81				6.81	VAR.	68.05	330.00	11.23					VAR.	68.05	220.00	7.49	7.49
ADDITIONAL FOR LEVELING & GRADE RAISE																									
510+48.33	512+25.00	SITE 1 - LEVELING	176.67			22.00	431.86	21.59	22.00	431.86	73.42	95.01					22.00	431.86	VAR.	71.57					71.57
512+25.00	514+10.00	SITE 1 - GRADE RAISE	185.00			66.00	1356.67	67.83	22.00	452.22	76.88	144.71	22.00	452.22	VAR.	230.98	22.00	452.22	220.00	49.74					49.74
514+10.00	515+50.00	SITE 1 - LEVELING	140.00			22.00	342.22	17.11	22.00	342.22	58.18	75.29					22.00	342.22	VAR.	62.11					62.11
522+50.00	524+55.00	SITE 1 - LEVELING	205.00			22.00	501.11	25.06	22.00	501.11	85.19	110.25					22.00	501.11	VAR.	90.95					90.95
524+55.00	526+80.00	SITE 1 - GRADE RAISE	225.00			66.00	1650.00	82.50	22.00	550.00	93.50	176.00	22.00	550.00	VAR.	230.31	22.00	550.00	220.00	60.50					60.50
526+80.00	527+50.00	SITE 1 - LEVELING	70.00			22.00	171.11	8.56	22.00	171.11	29.09	37.65					22.00	171.11	VAR.	34.78					34.78
112+00.00	210+00.00	SITE 3 - LEVELING	9800.00						22.00	23955.56	4072.45	4072.45					22.00	23955.56	VAR.	2887.32					2887.32
401+86.00	403+00.00	HWY. 305 - LEVELING	114.00			22.00	278.67	13.93	22.00	278.67	47.37	61.30					22.00	278.67	VAR.	60.83					60.83
403+00.00	405+76.78	HWY. 305 - GRADE RAISE	276.78			101.19	3111.93	155.60	33.73	1037.31	176.34	331.94	33.73	1037.31	VAR.	483.63	33.73	1037.31	220.00	114.10					114.10
313+98.00	324+51.00	SITE 4 - LEVELING	1053.00						22.00	2574.00	437.58	437.58					22.00	2574.00	VAR.	205.34					205.34
ADDITIONAL FOR SUPERELEVATION																									
510+48.33	513+98.33	SITE 1 - SUPERELEVATION TRANSITION	350.00	36.75	128.63																				
513+98.33	523+37.10	SITE 1 - MAXIMUM SUPERELEVATION	938.77	73.25	687.65																				
523+37.10	526+87.10	SITE 1 - SUPERELEVATION TRANSITION	350.00	36.75	128.63																				
118+33.96	121+63.96	SITE 3 - SUPERELEVATION TRANSITION	330.00	42.00	138.60																				
121+63.96	122+70.52	SITE 3 - MAXIMUM SUPERELEVATION	106.56	84.00	89.51																				
122+70.52	126+00.52	SITE 3 - SUPERELEVATION TRANSITION	330.00	42.00	138.60																				
143+93.98	148+13.98	SITE 3 - SUPERELEVATION TRANSITION	420.00	42.00	176.40																				
148+13.98	151+65.78	SITE 3 - MAXIMUM SUPERELEVATION	351.80	84.00	295.51																				
151+65.78	155+85.78	SITE 3 - SUPERELEVATION TRANSITION	420.00	42.00	176.40																				
162+07.36	165+67.36	SITE 3 - SUPERELEVATION TRANSITION	360.00	23.75	85.50																				
165+67.36	168+43.33	SITE 3 - MAXIMUM SUPERELEVATION	275.97	47.50	131.09																				
168+43.33	172+03.33	SITE 3 - SUPERELEVATION TRANSITION	360.00	23.75	85.50																				
195+04.51	199+24.51	SITE 3 - SUPERELEVATION TRANSITION	420.00	42.00	176.40																				
199+24.51	201+30.64	SITE 3 - MAXIMUM SUPERELEVATION	206.13	84.00	173.15																				
201+30.64	205+50.64	SITE 3 - SUPERELEVATION TRANSITION	420.00	42.00	176.40																				
401+86.16	402+86.46	HWY. 305 - SUPERELEVATION TRANSITION	100.30	21.25	21.31																				
402+86.46	403+86.76	HWY. 305 - SUPERELEVATION TRANSITION	100.30	21.25	21.31																				
313+98.00	318+00.04	SITE 4 - SUPERELEVATION TRANSITION	402.04	36.75	147.75																				
318+00.04	322+02.08	SITE 4 - SUPERELEVATION TRANSITION	402.04	36.75	147.75																				
TOTALS:					42240.91		79392.84	3969.66		32005.14	5440.85	9410.51		23985.80		6371.01		51792.07		6002.05		88582.84		9744.12	15746.17

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.
*DENOTES LOG MILE

7/9/2009

R050280.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	85	226

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

SITE 2 - BASE AND SURFACING - NHPP-0073(60)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	TOTAL PG 64-22 TON
MAIN LANES																									
803+00.00	804+00.00	SITE 2 - TRANSITION	100.00	161.75	161.75				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
804+00.00	807+25.06	SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)	325.06	VAR.	622.65	VAR.	1478.14	73.91				73.91	VAR.	344.22	495.00	85.19	VAR.	339.33	220.00	37.33	32.00	1155.77	220.00	127.13	164.46
807+25.06	809+18.00	SITE 2 - FULL DEPTH SECTION	192.94	260.25	502.13	48.77	1045.52	52.28				52.28	24.52	525.65	495.00	130.10	24.25	519.87	220.00	57.19	32.00	686.01	220.00	75.46	132.65
810+92.00	816+83.00	SITE 2 - FULL DEPTH SECTION	591.00	260.25	1538.08	48.77	3202.56	160.13				160.13	24.52	1610.15	495.00	398.51	24.25	1592.42	220.00	175.17	32.00	2101.33	220.00	231.15	406.32
818+47.00	829+73.33	SITE 2 - FULL DEPTH SECTION	1126.33	260.25	2931.27	48.77	6103.46	305.17				305.17	24.52	3068.62	495.00	759.48	24.25	3034.83	220.00	333.83	32.00	4004.73	220.00	440.52	774.35
829+73.33	831+80.00	SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION (LT.)	206.67	VAR.	391.87	VAR.	916.82	45.84				45.84	VAR.	207.37	495.00	51.32	VAR.	204.26	220.00	22.47	32.00	734.83	220.00	80.83	103.30
831+80.00	834+00.00	SITE 2 - NOTCH, WIDEN, AND OVERLAY SECTION	220.00	158.00	347.60	12.77	312.16	15.61				15.61	6.52	159.38	495.00	39.45	6.25	152.78	220.00	16.81	32.00	782.22	220.00	86.04	102.85
834+00.00	835+00.00	SITE 2 - TRANSITION	100.00	136.75	136.75				22.00	244.44	41.55	41.55									31.00	344.44	220.00	37.89	37.89
ADDITIONAL FOR LEVELING																									
804+00.00	809+50.00	SITE 2 - LEVELING	550.00			22.00	1344.44	67.22	22.00	1344.44	228.55	295.77					22.00	1344.44	VAR.	318.97					318.97
827+40.00	834+00.00	SITE 2 - LEVELING	660.00			22.00	1613.33	80.67	22.00	1613.33	274.27	354.94					22.00	1613.33	VAR.	343.77					343.77
ADDITIONAL FOR GUARDRAIL WIDENING																									
807+02.17	807+50.17	SITE 2 - RT. (TAPER)	48.00	27.50	13.20																				
807+50.17	809+18.00	SITE 2 - RT.	167.83	54.75	91.89																				
807+67.17	808+00.17	SITE 2 - LT. (TAPER)	33.00	19.50	6.44																				
808+00.17	809+18.00	SITE 2 - LT.	117.83	38.75	45.66																				
810+92.00	811+84.83	SITE 2 - RT.	92.83	54.75	50.82																				
810+92.00	812+84.83	SITE 2 - LT.	192.83	38.75	74.72																				
811+84.83	812+32.83	SITE 2 - RT. (TAPER)	48.00	27.50	13.20																				
812+84.83	813+17.83	SITE 2 - LT. (TAPER)	33.00	19.50	6.44																				
814+57.75	814+90.75	SITE 2 - RT. (TAPER)	33.00	19.50	6.44																				
814+90.75	816+83.00	SITE 2 - RT.	192.25	38.75	74.50																				
815+32.75	815+65.75	SITE 2 - LT. (TAPER)	33.00	19.50	6.44																				
815+65.75	816+83.00	SITE 2 - LT.	117.25	38.75	45.43																				
818+47.00	819+64.25	SITE 2 - RT.	117.25	38.75	45.43																				
818+47.00	820+39.25	SITE 2 - LT.	192.25	38.75	74.50																				
819+64.25	819+97.25	SITE 2 - RT. (TAPER)	33.00	19.50	6.44																				
820+39.25	820+72.25	SITE 2 - LT. (TAPER)	33.00	19.50	6.44																				
ADDITIONAL FOR SUPERELEVATION																									
804+00.00	806+21.05	SITE 2 - SUPERELEVATION TRANSITION	221.05	47.75	105.55																				
806+21.05	809+18.00	SITE 2 - MAXIMUM SUPERELEVATION	296.95	95.50	283.59																				
810+92.00	813+56.08	SITE 2 - SUPERELEVATION TRANSITION	264.08	47.75	126.10																				
824+68.23	828+18.23	SITE 2 - SUPERELEVATION TRANSITION	350.00	57.75	202.13																				
828+18.23	829+05.45	SITE 2 - MAXIMUM SUPERELEVATION	87.22	115.50	100.74																				
829+05.45	832+55.45	SITE 2 - SUPERELEVATION TRANSITION	350.00	57.75	202.13																				
TOTALS:					**8220.33**		**16016.43**	**800.83**		**3446.65**	**585.92**	**1386.75**		**5915.39**		**1464.05**		**8801.26**		**1305.54**		**10153.77**		**1116.91**	**2422.45**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

7/9/2009

R050280.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	86	226

① 07429 & 07430 - QUANTITIES - 60389

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 050280

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	SS & 802	SP. SS. & 802	803	SP. SS. & 804	SS & 804	SS & 805	SS & 805	SP. SS. & 807	SS & 808	812	816	816	SP JOB 050280	SP JOB 050280	SP JOB 050280	SP JOB 050280
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL PILING (HP 12X53)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	DRILLED SHAFT (42" DIA.)	PERMANENT STEEL CASING (48" DIA.)	CROSSHOLE SONIC LOGGING (42" DIA.)	CORING DRILLED SHAFT
			UNIT	LUMP SUM	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	CU. YD.	LIN. FT.	LIN. FT.	EACH	LIN. FT.
07429	HIGHWAY 36 OVER WEST HOG THIEF CREEK	BENT 1			13.78			1,378	326	110	100				202	113				
		BENT 2			21.52			3,252					1,355.0				60	39	3	20
		BENT 3			21.52			3,252					1,355.0				60	39	3	20
		BENT 4			13.78			1,378	326	110	100				193	109				
		100'-0" INTEGRAL W-BEAM UNIT				172.80	576.0		36,818			54,320		1						
		SITE NO. 1 (BR. NO. 02803)		1																
		TOTALS FOR BRIDGE NO. 07429			70.60	172.80	576.0	9,260	37,470	220	200	54,320	2,710.0	1	395	222	120	78	6	40
07430	HIGHWAY 36 OVER EAST HOG THIEF CREEK	BENT 1			13.92			1,395	382	120	110				218	121				
		BENT 2			20.68			1,915					1,196.5				60	39	3	20
		BENT 3			20.68			1,915					1,196.5				60	39	3	20
		BENT 4			13.92			1,395	382	105	95				197	111				
		90'-0" INTEGRAL W-BEAM UNIT				144.00	494.2		32,106			44,880		1						
		SITE NO. 2 (BR. NO. 02800)		1																
		TOTALS FOR BRIDGE NO. 07430			69.20	144.00	494.2	6,620	32,870	225	205	44,880	2,393.0	1	415	232	120	78	6	40
		TOTALS FOR JOB NO. 050280			139.80	316.80	1,070.2	15,880	70,340	445	405	99,200	5,103.0	2	810	454	240	156	12	80

JIM POOL
DESIGN SECTION SUPERVISOR

① All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 12x53)". All piles shall conform to Standard Drawing No. 55020.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
7/11/19

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
JOY - SEARCY (S)
WHITE COUNTY

ROUTE 36 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 10/3/2018 FILENAME: b050280_qi.dgn
CHECKED BY: BHS DATE: 7/11/19 SCALE: No Scale
DESIGNED BY: — DATE: —

BRIDGE NO. 07429, 07430 DRAWING NO. 60389

PRINT DATE: 7/11/2019

R050280.DGN 9/4/2019

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		NHPP-0073(60) QUANTITY	HSIP-0073(60) QUANTITY	TOTAL QUANTITY	UNIT
201	CLEARING		13	78	91	STATION
201	GRUBBING		13	78	91	STATION
202	REMOVAL AND DISPOSAL OF FENCE		2935	3354	6289	LIN. FT.
202	REMOVAL AND DISPOSAL OF BRICK WALLS			80	80	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS			68	68	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS			190	190	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS			9	9	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		2	54	56	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		440		440	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS			9	9	EACH
210	UNCLASSIFIED EXCAVATION		6456	157887	164343	CU. YD.
210	PRESPLITTING			373	373	SQ. YD.
210	COMPACTED EMBANKMENT		36339	25662	62001	CU. YD.
SP & 210	SOIL STABILIZATION		100	200	300	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		8931	45631	54562	TON
SS & 401	TACK COAT		1415	9529	10944	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		1401	6097	7498	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		63	274	337	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		2428	15603	18031	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		136	873	1009	TON
412	COLD MILLING ASPHALT PAVEMENT		489	1711	2200	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		14	59	73	TON
504	APPROACH SLABS		196.60		196.60	CU. YD.
504	APPROACH GUTTERS		126.76		126.76	CU. YD.
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY			134.61	134.61	SQ. YD.
601	MOBILIZATION		0.20	0.80	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1		1	EACH
SP & 603	MAINTENANCE OF TRAFFIC		0.20	0.80	1.00	LUMP SUM
SS & 604	SIGNS		44	1188	1232	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE			10	10	EACH
SS & 604	BARRICADES		64	160	224	LIN. FT.
SS & 604	TRAFFIC DRUMS		54	352	406	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			279	279	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER			79	79	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		25010	108425	133435	LIN. FT.
SS & 604	VERTICAL PANELS			235	235	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE A)			2309	2309	SQ. YD.
SS & 605	CONCRETE DITCH PAVING (TYPE B)			1988	1988	SQ. YD.
SP	CULVERT CLEAN OUT			1	1	EACH
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)			32	32	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)			36	36	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)			90	90	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)		130	130	LIN. FT.
* 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)		142	142	LIN. FT.
* 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)		142	142	LIN. FT.
* 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)		142	142	LIN. FT.
* SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)		142	142	LIN. FT.
* SP & 606	24" PVC PIPE	(ALTERNATE NO. 6)		142	142	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)			56	56	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)			84	84	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		66	1592	1658	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		124	422	546	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN			50	50	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			2	2	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			10	10	EACH
* 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)		4	4	EACH
* 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)		4	4	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			4	4	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS			4	4	EACH
606	SELECTED PIPE BEDDING		20	170	190	CU. YD.
SS & 611	4" PIPE UNDERDRAINS		1500	6500	8000	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS		6	26	32	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)			18	18	TON
SS & 617	GUARDRAIL (TYPE A)		1174		1174	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)		8		8	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL		8		8	EACH
619	WIRE FENCE (TYPE D)		300	950	1250	LIN. FT.
619	WIRE FENCE (TYPE D-1)		1808		1808	LIN. FT.
619	WIRE FENCE (TYPE D-2)			1389	1389	LIN. FT.
* 619	5' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)		209	209	LIN. FT.
* 619	5' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)		209	209	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)		2	2	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)		2	2	EACH
620	LIME		11	51	62	TON
620	SEEDING		5.56	25.69	31.25	ACRE
SS & 620	MULCH COVER		15.06	55.23	70.29	ACRE
620	WATER		760.9	3248.4	4009.3	M. GAL.
621	TEMPORARY SEEDING		9.50	29.54	39.04	ACRE
621	SILT FENCE		7675	4070	11745	LIN. FT.
621	DIVERSION DITCH			160	160	LIN. FT.
621	SEDIMENT BASIN		75	2209	2284	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		360	2557	2917	CU. YD.
621	PIPE FOR SLOPE DRAINS			210	210	LIN. FT.
621	ROCK DITCH CHECKS		50	954	1004	CU. YD.
623	SECOND SEEDING APPLICATION		5.56	25.69	31.25	ACRE
624	SOLID SODDING			2013	2013	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)			1552	1552	SQ. YD.
SS & 632	CONCRETE ISLAND			217	217	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		0.20	0.80	1.00	LUMP SUM
637	MAILBOXES		5	38	43	EACH
637	MAILBOX SUPPORTS (SINGLE)		1	28	29	EACH
637	MAILBOX SUPPORTS (DOUBLE)		2	5	7	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		6000		6000	LIN. FT.
SP & 642	RUMBLE STRIPES IN ASPHALT SHOULDERS			80409	80409	LIN. FT.
SP & 642	CENTERLINE RUMBLE STRIPES IN ASPHALT ROADWAYS			9926	9926	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")		821	1514	2335	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")			550	550	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		776	1187	1963	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")		6300	95176	101476	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")		6400	101969	108369	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)			3	3	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)			6	6	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)		40	298	338	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER			1	1	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			2	2	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)			1	1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY			54	54	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY			87.35	87.35	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		30868	12183	43051	POUND
816	DUMPED RIPRAP			5	5	CU. YD.
	STRUCTURES OVER 20' SPAN					
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL		1.00		1.00	LUMP SUM
SS & 802	CLASS S CONCRETE-BRIDGE		139.80		139.80	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE		316.80		316.80	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT		1070.2		1070.2	SQ. YD.
SP, SS, & 804	REINFORCING STEEL-BRIDGE (GRADE 60)		15880		15880	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)		70340		70340	POUND
SS & 805	STEEL PILING (HP 12X53)		445		445	LIN. FT.
SP	CORING DRILLED SHAFT		80		80	LIN. FT.
SP	DRILLED SHAFT (42" DIAMETER)		240		240	LIN. FT.
SP	PERMANENT STEEL CASING (48" DIAMETER)		156		156	LIN. FT.
SS & 805	PREBORING		405		405	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (42" DIAMETER)		12		12	EACH
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		99200		99200	POUND
SS & 808	ELASTOMERIC BEARINGS		5103.0		5103.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)		2		2	EACH
816	FILTER BLANKET		810		810	SQ. YD.
816	DUMPED RIPRAP		454		454	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
09-04-19	REVISED SHEETS TO ADD BENCHING AND PRESPLITTING IN SITE 1. REVISED " UNCLASSIFIED EXCAVATION", "APPROACH SLABS", "CONCRETE DITCH PAVING (TYPE B)", "24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)", "24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV) (ALTERNATE NO. 1)", "24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 2)", "24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 3)", "24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 4)", "24" HIGH DENSITY POLYETHYLENE PIPE (ALTERNATE NO. 5)", "24" PVC PIPE (ALTERNATE NO. 6)", AND "SELECTED PIPE BEDDING" QUANTITIES. ADDED "PRESPLITTING" AND "CONCRETE DITCH PAVING (TYPE A)" QUANTITIES.	22, 23, 24, 25, 52, 53, 54, 55, 78, 79, 81, 82, 87, 98, 100, 145, 146, 147, 148, 149, 150, 151, 152

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
09-04-19			

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		87	226

JOB NO. 050280

TIMOTHY D. HIGGINS
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-4-19

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	88	226

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s050280
Date: 12/12/2016
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	340945.7567	1341325.3747	275.681	CTL	STD AHTD MON. STAMPED PN= 1
2	340706.1570	1342032.5810	285.574	CTL	STD AHTD MON. STAMPED PN= 2
3	340478.5076	1342532.4889	289.169	CTL	STD AHTD MON. STAMPED PN= 3
4	340039.0177	1343103.7497	292.540	CTL	STD AHTD MON. STAMPED PN= 4
5	339631.1916	1343750.3067	301.383	CTL	STD AHTD MON. STAMPED PN= 5
6	339182.0158	1344385.9441	305.744	CTL	STD AHTD MON. STAMPED PN= 6
7	338718.8080	1344979.6331	305.372	CTL	STD AHTD MON. STAMPED PN= 7
8	338362.0411	1345653.0056	309.197	CTL	STD AHTD MON. STAMPED PN= 8
9	338367.8068	1346407.8016	317.819	CTL	STD AHTD MON. STAMPED PN= 9
10	338311.6023	1347157.7324	317.860	CTL	STD AHTD MON. STAMPED PN= 10
11	338310.4899	1347891.1252	325.137	CTL	STD AHTD MON. STAMPED PN= 11
12	338161.8622	1348447.7292	330.100	CTL	STD AHTD MON. STAMPED PN= 12
13	337733.0836	1348979.3308	338.658	CTL	STD AHTD MON. STAMPED PN= 13
14	337289.8532	1349591.4789	333.696	CTL	STD AHTD MON. STAMPED PN= 14
15	336518.9712	1350810.9528	309.471	CTL	STD AHTD MON. STAMPED PN= 15
16	335794.3465	1352169.8795	289.203	CTL	STD AHTD MON. STAMPED PN= 16
17	335561.1999	1352615.8363	284.530	CTL	STD AHTD MON. STAMPED PN= 17
18	335584.4577	1353302.0195	281.236	CTL	STD AHTD MON. STAMPED PN= 18
19	335571.9678	1354125.4424	293.224	CTL	STD AHTD MON. STAMPED PN= 19
20	335527.0032	1354861.7373	293.577	CTL	STD AHTD MON. STAMPED PN= 20
21	333920.5833	1360008.4289	293.527	CTL	STD AHTD MON. STAMPED PN= 21
22	333859.0394	1360756.5176	296.567	CTL	STD AHTD MON. STAMPED PN= 22
23	333790.0308	1361478.4878	293.767	CTL	STD AHTD MON. STAMPED PN= 23
24	333817.5901	1362214.6928	294.530	CTL	STD AHTD MON. STAMPED PN= 24
25	333769.0428	1362983.6746	295.994	CTL	STD AHTD MON. STAMPED PN= 25
26	333750.9242	1363767.7162	298.332	CTL	STD AHTD MON. STAMPED PN= 26
27	333645.7940	1364205.5456	302.419	CTL	STD AHTD MON. STAMPED PN= 27
28	333031.8614	1365540.8900	286.767	CTL	STD AHTD MON. STAMPED PN= 28
29	332715.5325	1366988.3925	290.958	CTL	STD AHTD MON. STAMPED PN= 29
30	332733.6439	1367591.9112	296.646	CTL	STD AHTD MON. STAMPED PN= 30
31	344906.9672	1328665.5827	683.532	CTL	STD AHTD MON. STAMPED PN= 31
32	344706.8591	1329449.3602	668.500	CTL	STD AHTD MON. STAMPED PN= 32
33	344545.1199	1329986.7875	637.826	CTL	STD AHTD MON. STAMPED PN= 33
34	344490.3903	1330640.8774	586.943	CTL	STD AHTD MON. STAMPED PN= 34
35	344381.2883	1330966.3845	564.783	CTL	STD AHTD MON. STAMPED PN= 35
36	344240.3678	1331272.2545	546.604	CTL	STD AHTD MON. STAMPED PN= 36
37	343939.1364	1331481.7019	534.965	CTL	STD AHTD MON. STAMPED PN= 37
38	343818.0886	1331593.7279	533.564	CTL	STD AHTD MON. STAMPED PN= 38
39	343430.9952	1331731.4679	519.059	CTL	STD AHTD MON. STAMPED PN= 39
40	343335.5529	1332235.5571	478.149	CTL	STD AHTD MON. STAMPED PN= 40
41	343109.8901	1332512.2342	448.791	CTL	STD AHTD MON. STAMPED PN= 41
42	342934.2118	1332803.4116	421.265	CTL	STD AHTD MON. STAMPED PN= 42
43	342893.7004	1333296.3577	395.649	CTL	STD AHTD MON. STAMPED PN= 43
44	342815.1208	1333611.6451	379.334	CTL	STD AHTD MON. STAMPED PN= 44
45	342725.9400	1333912.8629	362.738	CTL	STD AHTD MON. STAMPED PN= 45
46	342648.4257	1334167.3668	353.196	CTL	STD AHTD MON. STAMPED PN= 46
47	342452.4994	1334551.1547	346.777	CTL	STD AHTD MON. STAMPED PN= 47
48	342268.6956	1334780.7365	335.683	CTL	STD AHTD MON. STAMPED PN= 48
49	342099.1485	1334992.8009	329.925	CTL	STD AHTD MON. STAMPED PN= 49
50	341950.2266	1335206.9839	328.580	CTL	STD AHTD MON. STAMPED PN= 50
51	341436.4735	1337904.6742	292.972	CTL	PK NAIL SET IN RADIUS OF SIDE ROAD
52	341341.6775	1339203.2122	281.999	CTL	PK NAIL SET IN ASPHALT DRIVE
53	341361.6158	1340009.7591	277.700	CTL	PK NAIL SET IN ASPHALT DRIVE
54	341232.9460	1340535.4085	275.347	CTL	PK NAIL SET IN ASPHALT DRIVE
100	332862.9517	1380896.9718	288.798	GPS	AHTD GPS MON. 730014A
101	332616.2449	1379087.1262	295.390	GPS	AHTD GPS MON. 730014
102	332659.4119	1366236.2422	287.814	GPS	AHTD GPS MON. 730037A
103	333366.7127	1364701.9481	306.652	GPS	AHTD GPS MON. 730037
104	336113.6627	1351464.3899	300.819	GPS	AHTD GPS MON. 730038A
105	337037.4498	1350029.6284	329.978	GPS	AHTD GPS MON. 730038
106	341589.7791	1336846.2961	306.731	GPS	AHTD GPS MON. 730039A
107	341889.3664	1335459.3368	324.905	GPS	AHTD GPS MON. 730039
108	346777.8666	1327736.3307	753.698	GPS	AHTD GPS MON. 730040A
109	346748.9628	1325502.8230	764.739	GPS	AHTD GPS MON. 730040
900	335516.2038	1353045.1602	282.768	TBM	CUT SQ 2FT WEST E END HW
902	332421.7869	1376191.3580	293.126	TBM	CHISLED SQ IN BACK OF DI, 9.2 FT N FH
903	332717.9354	1372789.9816	336.629	TBM	CHISLED SQ IN BACK OF DI, 10 FT NW OF TB
904	333809.1392	1361507.6874	295.553	TBM	CHISLED SQ CENTER HW
905	347219.5188	1327246.1247	758.734	TBM	CHISLED SQ IN CENTER S HW
906	341362.4817	1337945.7625	291.662	TBM	CHISLED SQ IN CONC HW
907	338338.8174	1347319.3204	318.752	TBM	EXPOSED RBR IN CENTR N HW
908	339548.2067	1343835.0264	301.592	TBM	CHISLED SQ IN CONC HW, 27.5FT S OF PP
909	333821.5428	1362862.1008	295.297	TBM	N SIDE OF HWY. 36 8.0'N OF WHITE LINE
910	332839.0751	1365903.6952	285.042	TBM	S SIDE OF HWY. 36 5.4'S OF WHITE LINE
911	332709.6359	1366993.8228	292.453	TBM	N SIDE OF HWY. 36, NW OF TATER HILL RD.
912	340280.1735	1342806.8261	288.228	TBM	NE SIDE OF HWY. 36, 6.1'NE OF WHITE LINE
913	338946.4832	1344659.1333	302.475	TBM	SW SIDE OF HWY. 36
914	338370.4141	1345795.8856	308.665	TBM	N SIDE OF HWY. 36 6.7'N OF WHITE LINE
915	338346.9048	1347317.6523	318.713	TBM	N SIDE OF HWY. 36
916	338353.0322	1348209.1269	330.742	TBM	N SIDE OF HWY. 36
917	337246.7156	1349696.6108	332.676	TBM	NE SIDE OF HWY. 36
918	335600.3109	1353250.0346	279.904	TBM	N SIDE OF HWY. 36 9.8'N OF WHITE LINE
919	335572.1023	1354752.0532	294.001	TBM	N SIDE OF HWY. 36
990	333510.6545	1364328.2264	305.451	BM	NGS BM H 206
991	333905.8045	1358770.4660	290.332	BM	NGS BM J 206
992	335417.4077	1355450.6051	294.200	BM	NGS BM K 206
993	341062.0580	1341097.0179	277.702	BM	NGS BM N 206
994	342874.9429	1332554.9253	462.370	BM	NGS BM P 206
995	344692.7431	1329071.4334	673.860	BM	NGS BM Q 206
996	350049.4194	1324674.9356	737.138	BM	NGS BM R 206

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999944321 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE * GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME. s050280go add.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 730014 - 730014A, 730037 - 730037A, 730038 - 730038A, 730039 - 730039A, & 730040 - 730040A
CONVERGENCE ANGLE: 00-04-47 RIGHT AT LT: 35-15-18.7 LG: 091-51-46.9
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 36 - SITE 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8042	POB	500+00.00	344392.2701	1330852.0137
8043	PC	502+01.04	344329.0561	1331042.8593
8045	PT	509+50.89	343828.2837	1331568.0981
8046	PC	510+48.33	343737.3553	1331603.1088
8048	PT	524+24.60	342931.1344	1332635.9356
8049	POE	530+00.00	342860.9153	1333207.0429

HWY. 36 - SITE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8050	POB	800+00.00	341359.4132	1339431.7544
8051	PC	805+38.42	341354.8713	1339970.1599
8053	PT	810+60.81	341267.8998	1340483.0050
8054	PC	827+30.73	340730.6594	1342064.1529
8056	PT	829+92.95	340613.4796	1342297.8159
8057	POE	835+00.00	340326.2861	1342715.6852

HWY. 36 - SITE 3

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+03.09	339649.7269	1343692.2099
8001	PC	112+72.03	338921.3331	1344731.2747
8003	PT	116+50.74	338693.8622	1345033.9696
8004	PC	120+17.18	338464.1621	1345319.4765
8006	PT	124+17.30	338337.7444	1345690.5739
8007	PC	128+28.93	338346.3229	1346102.1152
8009	PT	133+80.08	338344.5555	1346653.2157
8010	PC	138+80.03	338330.9306	1347152.9800
8012	PT	142+38.73	338326.7683	1347511.6349
8013	PC	147+08.98	338328.6710	1347981.8835
8015	PT	152+70.78	338145.4232	1348501.3441
8016	PC	164+77.36	337384.5562	1349437.7907
8018	PT	169+33.33	337126.3402	1349813.0155
8019	PC	198+19.51	335684.3576	1352313.1579
8021	PT	202+35.64	335574.9682	1352710.0195
8022	POE	215+00.00	335556.3079	1353974.2416

DONALDSON RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8058	POB	600+00.00	343155.5583	1331885.9963
8059	PC	600+21.27	343176.4123	1331881.8001
8061	PT	600+68.40	343220.1395	1331894.0312
8062	POE	601+20.00	343258.1006	1331928.9766

MIRANDA LN.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8063	POB	900+00.00	341409.2490	1340522.8371
8064	PC	900+11.34	341397.9113	1340522.8371
8066	PT	900+73.50	341350.5695	1340556.7514
8067	PC	902+69.47	341287.5248	1340742.2979
8069	PT	903+48.00	341224.0972	1340773.5540
8070	POE	904+00.00	341174.8617	1340756.8248

HWY. 305

POINT NO.	TYPE	STATION	NORTHING	EASTING
8023	POB	400+00.00	337759.1814	1345512.9091
8024	PC	401+86.16	337945.3118	1345516.1170
8026	PT	403+86.76	338142.7906	1345547.4351
8027	POE	405+95.04	338341.9342	1345608.4546

HWY. 36 - SITE 4

POINT NO.	TYPE	STATION	NORTHING	EASTING
8028	POB	307+30.83	333791.6598	1362806.4029
8029	PC	315+61.62	333778.3431	1363637.0851
8031	PT	320+38.45	333673.1482	1364098.6434
8032	PI	326+86.45	333401.7537	1364687.0796
8033	POE	340+00.04	332856.8124	1365882.2967

MOT SITE 3

POINT NO.	TYPE	STATION	NORTHING	EASTING
8034	PC	800+00.00	338945.9247	1344696.1944
8036	PT	802+52.47	338794.2775	1344897.9909
8037	POE	804+21.36	338688.4085	1345029.5814

MOT SITE 4

POINT NO.	TYPE	STATION	NORTHING	EASTING
8038	PC	900+00.00	333779.0287	1363594.3174
8040	PT	901+88.38	333760.5752	1363781.5794
8041	POE	902+30.58	333753.0032	1363823.0910

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-1619

7/9/2009

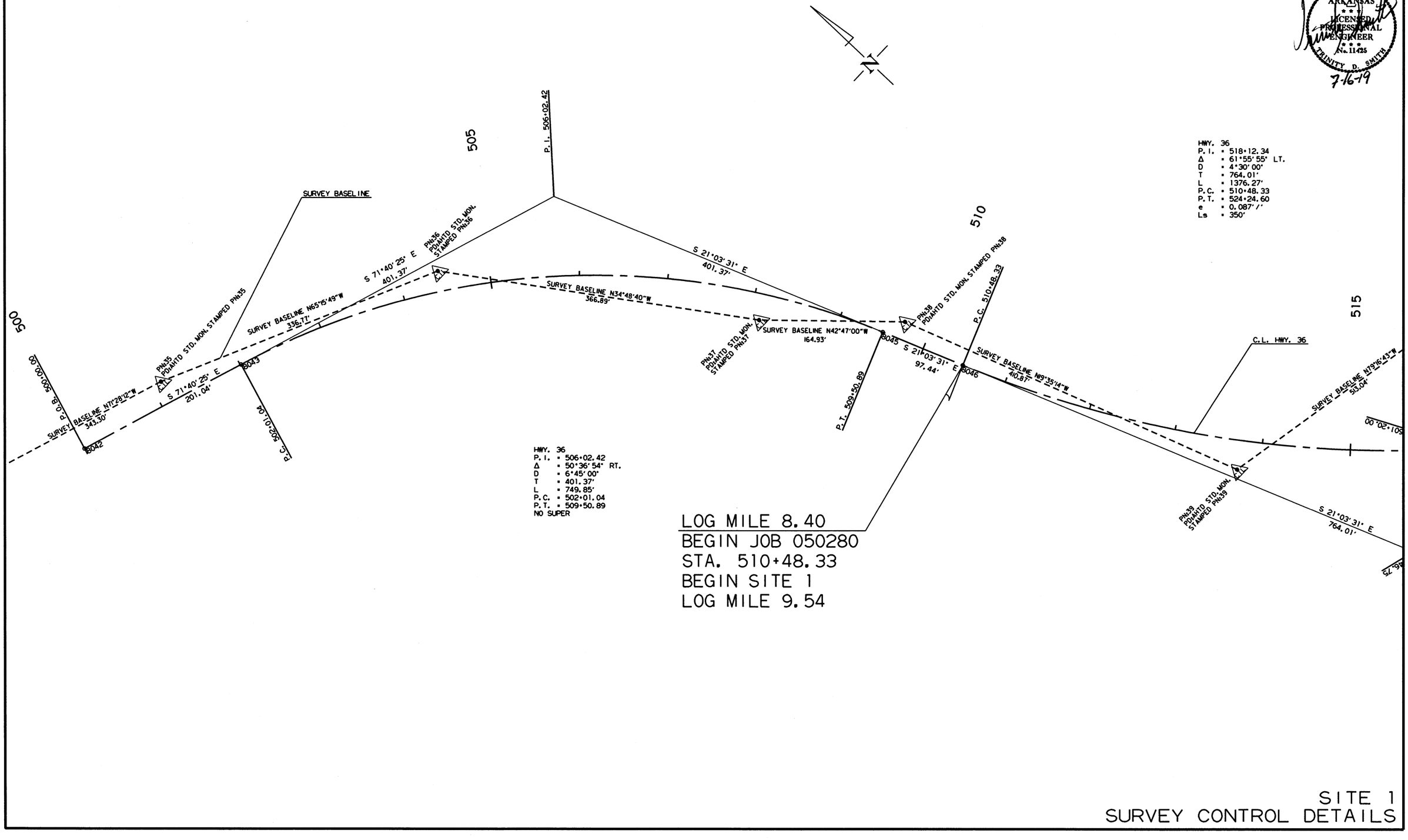
R050280.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	89	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



HWY. 36
P.I. = 506+02.42
Δ = 50°36'54" RT.
D = 6°45'00"
T = 401.37'
L = 749.85'
P.C. = 502+01.04
P.T. = 509+50.89
NO SUPER

HWY. 36
P.I. = 518+12.34
Δ = 61°55'55" LT.
D = 4°30'00"
T = 764.01'
L = 1376.27'
P.C. = 510+48.33
P.T. = 524+24.60
e = 0.087'/'
Ls = 350'

LOG MILE 8.40
BEGIN JOB 050280
STA. 510+48.33
BEGIN SITE 1
LOG MILE 9.54

SITE 1
SURVEY CONTROL DETAILS

7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	90	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

HWY. 36
P.I. = 518+12.34
Δ = 61°55'55" LT.
D = 4°30'00"
T = 764.01'
L = 1376.27'
P.C. = 510+48.33
P.T. = 524+24.60
e = 0.087'/'
Ls = 350'

515

SURVEY BASELINE

PN:40
PDoAHTD STD. MON. STAMPED PN:40

SURVEY BASELINE N79°16'43"W
513.04'

SURVEY BASELINE N50°47'55"W
357.03'

PN:41
PDoAHTD STD. MON. STAMPED PN:41

525

530

P.O.E. 530+00.00

SURVEY BASELINE N85°18'07"W
494.61'

8049

520

SURVEY BASELINE N58°53'45"W
340.07'

PN:42
PDoAHTD STD. MON. STAMPED PN:42

P.T. 524+24.60

8048

S 82°59'26" E
575.41'

STA. 527+50.00
END SITE 1

STA. 516+33.00 HWY. 36 =
STA. 601+20.00 DONALDSON RD.
Δ = 90°00'00"

C.L. HWY. 36

DONALDSON RD.

P.O.E. 601+20.00

8062

S 21°02'31" E
764.01'

N 42°37'53" E
51.60'

8061

P.I. 600+68.40

P.C. 600+21.27

25.48'

N 42°37'53" E

8060

P.I. 600+46.75

25.48' N 11°22'38" W

8059

N 11°22'38" W
21.27'

P.C.B. 600+00.00

009

DONALDSON RD.
P.I. = 600+46.75
Δ = 54°00'30" RT.
R = 50'
T = 25.48'
L = 47.13'
P.C. = 600+21.27
P.T. = 600+68.40
NO SUPER

S 82°59'26" E
764.01'

STA. 600+00.00
BEGIN DONALDSON RD.

P.I. 518+12.34

7/9/2019

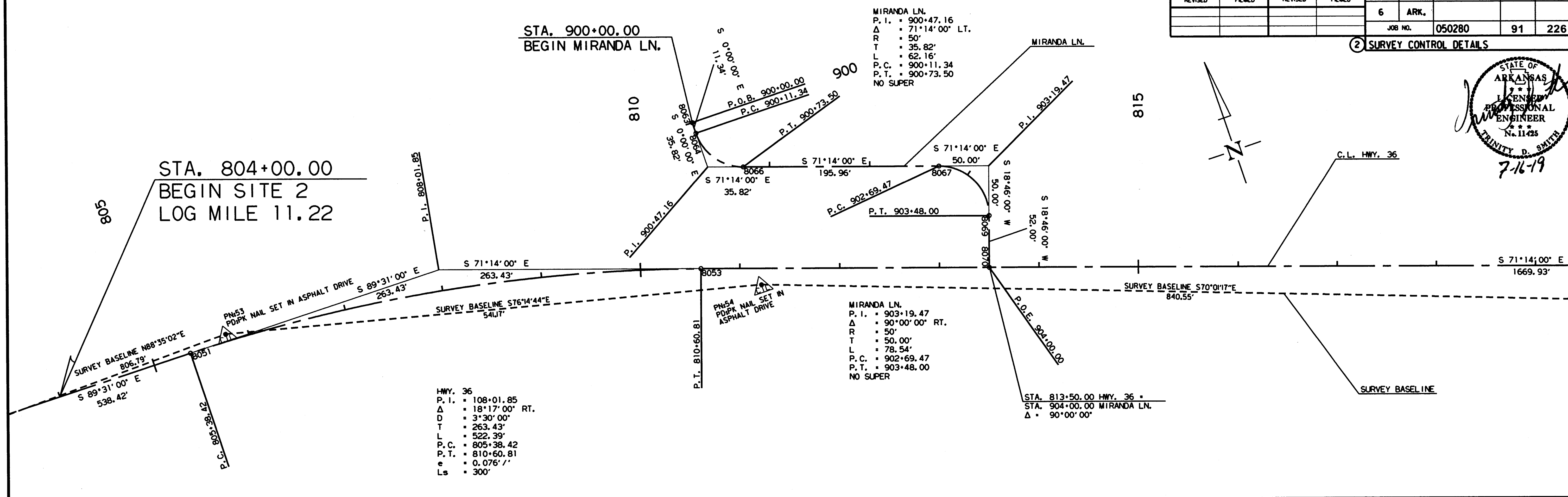
R050280.DGN

SITE 1
SURVEY CONTROL DETAILS

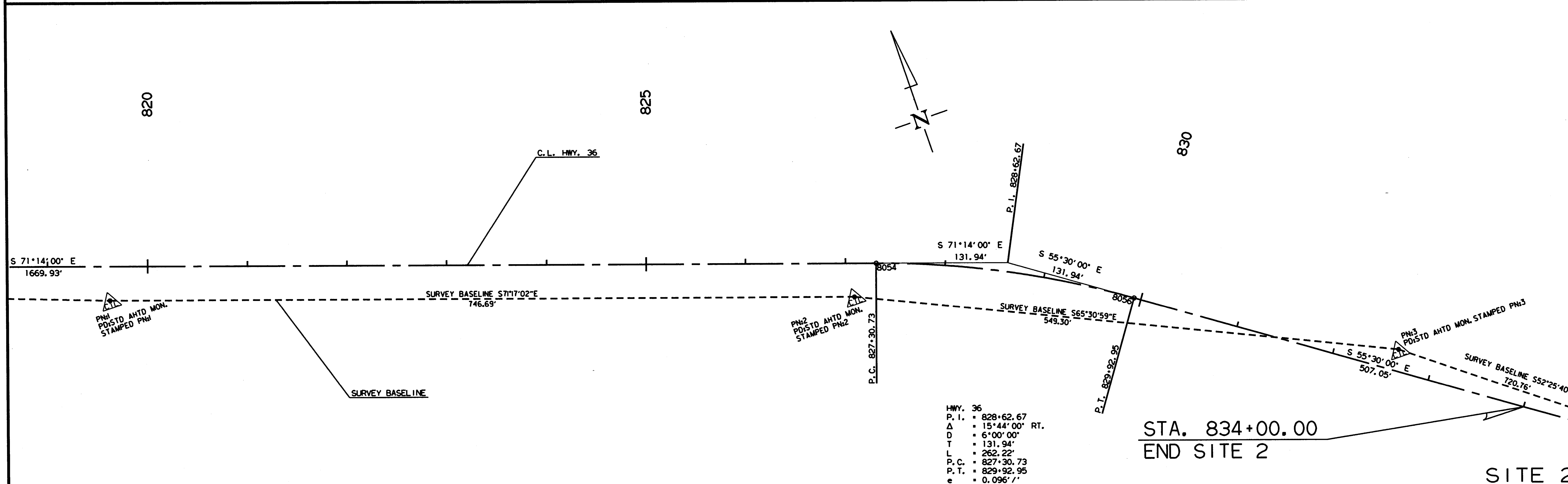
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	91	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
7-16-19



STA. 804+00.00
BEGIN SITE 2
LOG MILE 11.22
805
810
815
900
STA. 900+00.00
BEGIN MIRANDA LN.
MIRANDA LN.
P. I. = 900+47.16
Δ = 71°14'00" LT.
R = 50'
T = 35.82'
L = 62.16'
P.C. = 900+11.34
P.T. = 900+73.50
NO SUPER
S 0°00'00" E 11.34'
P.O.B. 900+00.00
P.C. 900+11.34
P.T. 900+73.50
8063
8064
S 0°00'00" E 35.82'
8066
S 71°14'00" E 35.82'
S 71°14'00" E 195.96'
P.I. 900+47.16
MIRANDA LN.
P.I. 903+19.47
S 71°14'00" E 50.00'
8067
P.C. 902+69.47
P.T. 903+48.00
S 18°46'00" W 50.00'
S 18°46'00" W 52.00'
8069
8070
P.I. 808+01.85
S 71°14'00" E 263.43'
S 89°31'00" E 263.43'
8053
PN53 PD:PK NAIL SET IN ASPHALT DRIVE
PN54 PD:PK NAIL SET IN ASPHALT DRIVE
SURVEY BASELINE S76°14'44"E 541.17'
SURVEY BASELINE N88°35'02"E 806.79'
S 89°31'00" E 538.42'
8051
P.C. 805+38.42
P.T. 810+60.81
P.O.E. 904+00.00
SURVEY BASELINE S70°01'17"E 840.55'
C.L. HWY. 36
S 71°14'00" E 1669.93'
SURVEY BASELINE
HWY. 36
P. I. = 108+01.85
Δ = 18°17'00" RT.
D = 3°30'00"
T = 263.43'
L = 522.39'
P.C. = 805+38.42
P.T. = 810+60.81
e = 0.076'/'
Ls = 300'
MIRANDA LN.
P. I. = 903+19.47
Δ = 90°00'00" RT.
R = 50'
T = 50.00'
L = 78.54'
P.C. = 902+69.47
P.T. = 903+48.00
NO SUPER
STA. 813+50.00 HWY. 36 =
STA. 904+00.00 MIRANDA LN.
Δ = 90°00'00"
N



820
825
830
N
C.L. HWY. 36
S 71°14'00" E 1669.93'
SURVEY BASELINE S71°17'02"E 746.69'
PN1 PD:STD AHTD MON. STAMPED PN1
SURVEY BASELINE
PN2 PD:STD AHTD MON. STAMPED PN2
P.C. 827+30.73
8054
P.I. 828+62.67
S 71°14'00" E 131.94'
S 55°30'00" E 131.94'
8056
SURVEY BASELINE S65°30'59"E 549.30'
P.T. 829+92.95
PN3 PD:STD AHTD MON. STAMPED PN3
S 55°30'00" E 507.05'
SURVEY BASELINE S52°25'40"E 720.76'
HWY. 36
P. I. = 828+62.67
Δ = 15°44'00" RT.
D = 6°00'00"
T = 131.94'
L = 262.22'
P.C. = 827+30.73
P.T. = 829+92.95
e = 0.096'/'
Ls = 350'
STA. 834+00.00
END SITE 2

SITE 2
SURVEY CONTROL DETAILS

7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	92	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

105 110 115 800

P.O.B. 100+03.09

8000

S 54°58'09" E
1268.94'

C.L. HWY. 36

PN6 PDSTD AHTD MON. STAMPED PN6 36 SEARCY

SURVEY BASELINE

C.L. MOT SITE 3

STA. 112+29.19 HWY. 36 =
STA. 800+00.00 MOT SITE 3
OFFSET = 0.00'

P.I. 801+26.28

P.I. 114+61.45

8034

8001 126.28'

S 54°58'09" E

S 51°10'56" E 189.42'

S 54°58'09" E 189.42'

S 51°10'56" E 189.42'

126.28'

SURVEY BASELINE S 52°02'17" E 753.01'

8036

S 51°10'56" E 168.89'

STA. 112+00.00
BEGIN SITE 3
LOG MILE 12.30

MOT SITE 3
P.I. = 801+26.28
Δ = 3°47'14" RT.
D = 1°30'00"
T = 126.28'
L = 252.47'
P.C. = 800+00.00
P.T. = 802+52.47

P.C. 800+00.00

P.C. 112+72.03

HWY. 36
P.I. = 114+61.45
Δ = 3°47'13" RT.
D = 1°00'00"
T = 189.42'
L = 378.71'
P.C. = 112+72.03
P.T. = 116+50.74
e = R.C.
Ls = 270'

P.T. 802+52.47

115 120 125 130

S 51°10'56" E 126.28'

P.I. 114+61.45

S 54°58'09" E 189.42'

S 51°10'56" E 189.42'

SURVEY BASELINE S 52°02'17" E 753.01'

P.T. 802+52.47

S 51°10'56" E 168.89'

8038

8003

P.T. 116+50.74

STA. 116+50.74 HWY. 36 =
STA. 804+21.36 MOT SITE 3
OFFSET = 7.00' RT.

PN7 PDSTD AHTD MON. STAMPED PN7 36 SEARCY

8037

P.O.E. 804+21.36

MOT SITE 3
P.I. = 801+26.28
Δ = 3°47'13" RT.
D = 1°30'00"
T = 126.28'
L = 252.47'
P.C. = 800+00.00
P.T. = 802+52.47

C.L. MOT SITE 3

HWY. 36
P.I. = 114+61.45
Δ = 3°47'13" RT.
D = 1°00'00"
T = 189.42'
L = 378.71'
P.C. = 112+72.03
P.T. = 116+50.74
e = R.C.
Ls = 270'

C.L. HWY. 36

S 51°10'56" E 366.44'

SURVEY BASELINE S 62°05'04" E 762.05'

P.C. 120+17.18

8004

STA. 123+35.00 HWY. 36 =
STA. 405+95.04 HWY. 305
Δ = 80°00'00"

HWY. 36
P.I. = 122+25.78
Δ = 40°00'43" LT.
D = 10°00'00"
T = 208.60'
L = 400.12'
P.C. = 120+17.18
P.T. = 124+17.30
e = 0.100'/'
Ls = 330'

P.T. 124+17.30

SURVEY BASELINE

SURVEY BASELINE N 89°33'44" E 754.82'

N 88°48'21" E 275.63'

8007

P.C. 128+88.93

HWY. 36
P.I. = 131+04.56
Δ = 2°45'21" RT.
D = 0°30'00"
T = 275.63'
L = 551.15'
P.C. = 128+28.93
P.T. = 133+80.08
NO SUPER

PN8 PDSTD AHTD MON. STAMPED PN8 36 SEARCY

8006

S 51°10'56" E 208.61'

N 88°48'21" E 208.61'

8027

405

P.I. 122+25.78

N 17°02'08" E 208.28'

C.L. HWY. 305

SITE 3
SURVEY CONTROL DETAILS

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	93	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

130 135 140 145

SURVEY BASELINE

P.I. 131+04.56

SURVEY BASELINE N 89°33'44" E
754.82'

PN:9
PD:STD AHTD MON. STAMPED PN:9 36 SEARCY

N 88°48'21" E
275.63'

S 88°26'18" E
275.63'

8009

P.T. 133+80.08

SURVEY BASELINE S 85°42'50" E
752.03'

S 88°26'18" E
499.95'

P.C. 138+80.03

8010

S 88°26'18" E
179.36'

PN:10
PD:STD AHTD MON. STAMPED PN:10 36 SEARCY

N 89°46'05" E
179.36'

8012

P.T. 142+38.73

N 89°46'05" E
470.25'

SURVEY BASELINE S 89°54'47" E
733.39'

P.I. 140+59.40

C.L. HWY. 36

HWY. 36
P.I. = 131+04.56
Δ = 2°45'21" RT.
D = 0°30'00"
T = 275.63'
L = 551.15'
P.C. = 128+28.93
P.T. = 133+80.08
NO SUPER

HWY. 36
P.I. = 140+59.40
Δ = 1°47'37" LT.
D = 0°30'00"
T = 179.37'
L = 358.70'
P.C. = 138+80.03
P.T. = 142+38.73
NO SUPER

145 150 155 160

P.I. 150+01.45

N 89°46'05" E
292.47'

S 50°54'22" E
292.47'

C.L. HWY. 36

8013

N 89°46'05" E
470.25'

PN:11
PD:STD AHTD MON. STAMPED PN:11 36 SEARCY

SURVEY BASELINE S 89°54'47" E
733.39'

P.C. 147+08.98

SURVEY BASELINE S 75°02'58" E
576.41'

PN:12
PD:STD AHTD MON. STAMPED PN:12 36 SEARCY

P.I. 152+70.78

8015

SURVEY BASELINE

SURVEY BASELINE S 51°06'40" E
682.97'

S 50°54'22" E
1206.59'

PN:13
PD:STD AHTD MON. STAMPED PN:13 36 SEARCY

SURVEY BASELINE S 54°05'36" E
755.76'

HWY. 36
P.I. = 150+01.45
Δ = 39°19'33" RT.
D = 7°00'00"
T = 292.47'
L = 561.80'
P.C. = 147+08.98
P.T. = 152+70.78
e = 0.100'/'
Ls = 420'

7/9/2019

R050280.DGN

SITE 3
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	94	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

160 165 170 175

HWY. 36
P.I. = 167+05.83
Δ = 9°07'09" LT.
D = 2°00'00"
T = 228.47'
L = 455.97'
P.C. = 164+77.36
P.T. = 169+33.33
e = 0.048'/'
Ls = 360'

P.C. 164+77.36

SURVEY BASELINE S 54°05'36" E
755.76'

S 50°54'22" E
1206.59'

8016

S 50°54'22" E
228.47'

PNi4
PD:STD AHTD MON. STAMPED PNi4 36 SEARCY

C.L. HWY. 36

P.I. 167+05.83

SURVEY BASELINE S 60°03'19" E
505.65'

P.T. 169+33.33

S 60°01'31" E
228.47'

8018

SURVEY BASELINE

PNi05
PD:AHTD GPS MON.730038

SURVEY BASELINE S 56°25'56" E
937.70'

S 60°01'31" E
2886.18'

175 180 185 190

C.L. HWY. 36

S 60°01'31" E
2886.18'

SURVEY BASELINE S 56°25'56" E
937.70'

PNi5
PD:STD AHTD MON. STAMPED PNi5 36 SEARCY

SURVEY BASELINE S 58°11'23" E
768.93'

SURVEY BASELINE S 65°38'52" E
774.39'

PNi04
PD:AHTD GPS MON.730038A

SURVEY BASELINE

7/9/2019

R050280.DGN

SITE 3
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	95	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

190 195 200 205

C.L. HWY. 36

SURVEY BASELINE

SURVEY BASELINE S 65°38'52" E
774.39'

PNt6
PD:STD AHTD MON. STAMPED PNt6 36 SEARCY

P.C. 198+19.51

SURVEY BASELINE S 62°23'58" E
503.22'

S 60°01'31" E
2886.18'

8019

S 60°01'31" E
212.66'

S 89°09'16" E
212.66'

P.I. 200+32.18

HWY. 36
P.I. = 200+32.18
Δ = 29°07'45" LT.
D = 7°00'00"
T = 212.67'
L = 416.13'
P.C. = 198+19.51
P.T. = 202+35.64
e = 0.100'/'
Ls = 420'

P.T. 202+35.64

8021

SURVEY BASELINE N 88°03'31" E
686.58'

PNt7
PD:STD AHTD MON. STAMPED PNt7 36 SEARCY

S 89°09'16" E
1264.36'

205 210 215

STA. 210+00.00
END SITE 3

SURVEY BASELINE

P.O.E. 215+00.00

SURVEY BASELINE N 88°03'31" E
686.58'

PNt8
PD:STD AHTD MON. STAMPED PNt8 36 SEARCY

S 89°09'16" E
1264.36'

SURVEY BASELINE S 89°07'52" E
823.52'

8022

PNt9
PD:STD AHTD MON. STAMPED PNt9 36 SEARCY

SURVEY BASELINE S 86°30'19" E
737.67'

C.L. HWY. 36

7/9/2019

R050280.DGN

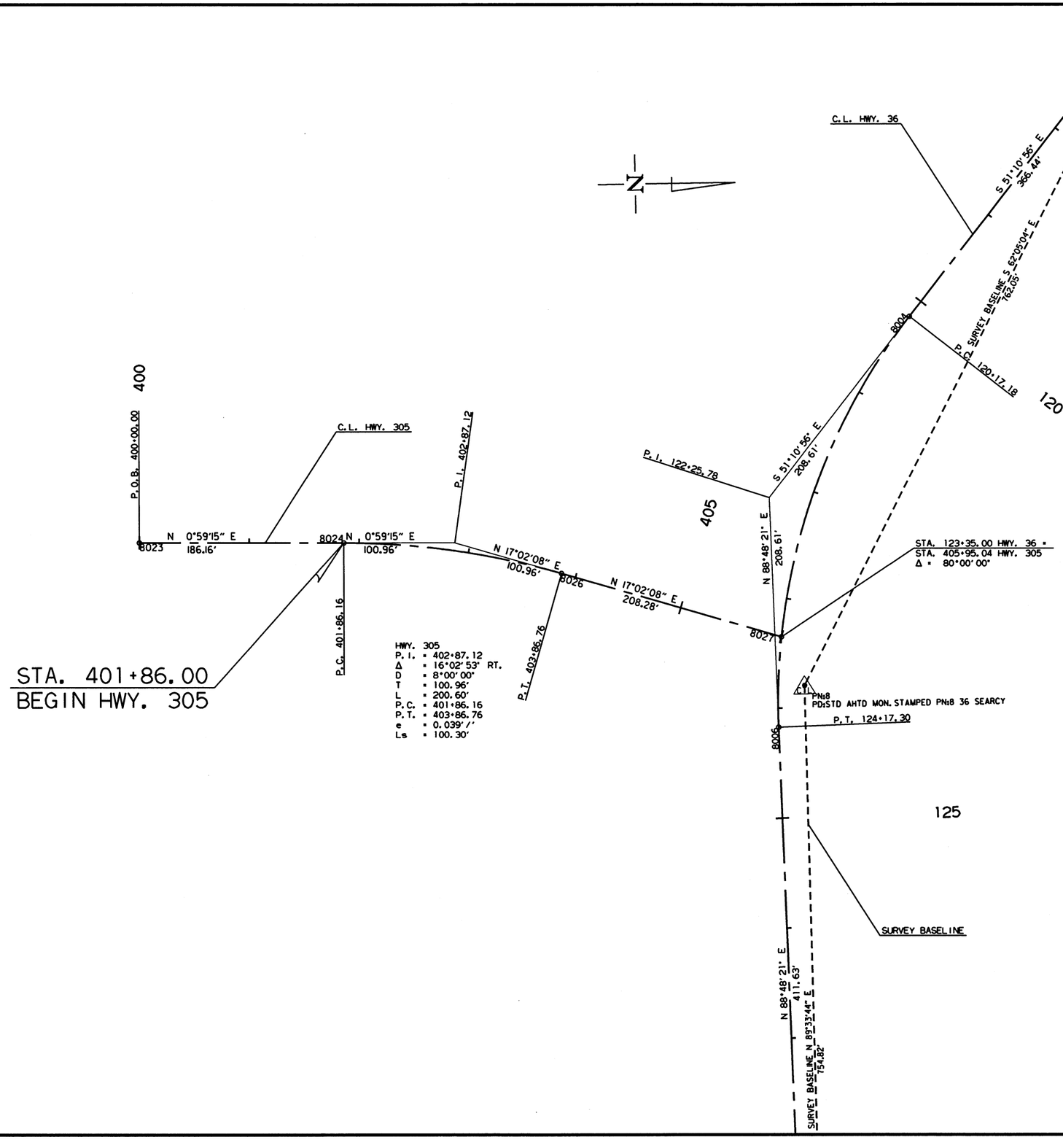
SITE 3
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050280	96	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-09



7/9/2009

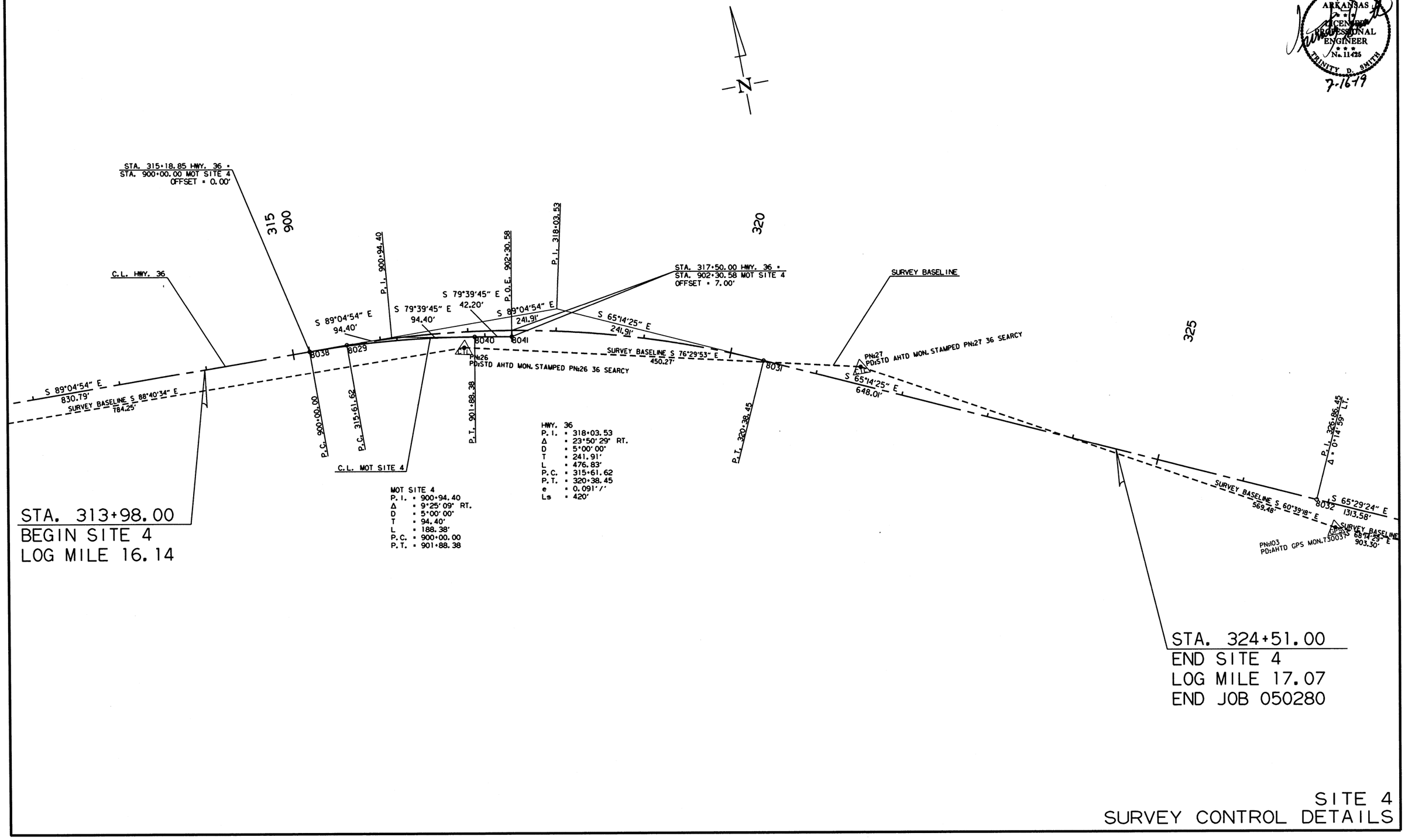
R050280.DGN

SITE 3
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	97	226

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19



7/9/2019

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SITE 4
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	98	226

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-4-19

STA. 510+48.33 TO STA. 525+00.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 1019.39 SQ. YD.

OBLITERATE EXISTING PAVEMENT

505

P.I. 506+02.42

S 71°40'25" E

STA. 509+55 IN PLACE
36" X 46' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
RETAIN

HWY. 36
P.I. = 506+02.42
Δ = 50°36'54" RT.
D = 6°45'00"
T = 401.37'
L = 749.85'
P.C. = 502+01.04
P.T. = 509+50.89
NO SUPER

LOG MILE 8.40
BEGIN JOB 050280
STA. 510+48.33
BEGIN SITE 1
LOG MILE 9.54

510

100' TRANSITION

P.C. 510+48.33

EXIST. R/W

PROP. R/W

CONST. LIMITS

P.T. 509+50.89

S 21°03'31" E

HWY. 36
P.I. = 518+12.34
Δ = 61°55'55" LT.
D = 4°30'00"
T = 764.01'
L = 1376.27'
P.C. = 510+48.33
P.T. = 524+24.60
e = 0.087'/'
Ls = 350'

515

520

EXIST. R/W

CONST. LIMITS

STA. 516+33.00 HWY. 36 =
STA. 601+20.00 DONALDSON RD
Δ = 90°00'00"

C.D.P.

P.I. 600+68.40

N 42°37'53" E

S 82°59'26" E

PROP. R/W

CONST. LIMITS

DONALDSON RD

P.I. 518+12.34

STA. 513+68 INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

STA. 516+33 INSTALL
18" X 60' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 155 CU. YD. COMP. EMB.
= 65 CU. YD. UNCL. EXC.

STA. 513+83.34 TO STA. 516+08.08 ON RT.
CONC. DITCH PAVING (TYPE B) = 157.82 SQ. YD.

STA. 516+66.66 TO STA. 527+50.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 760.75 SQ. YD.

SITE 1

9/3/2019

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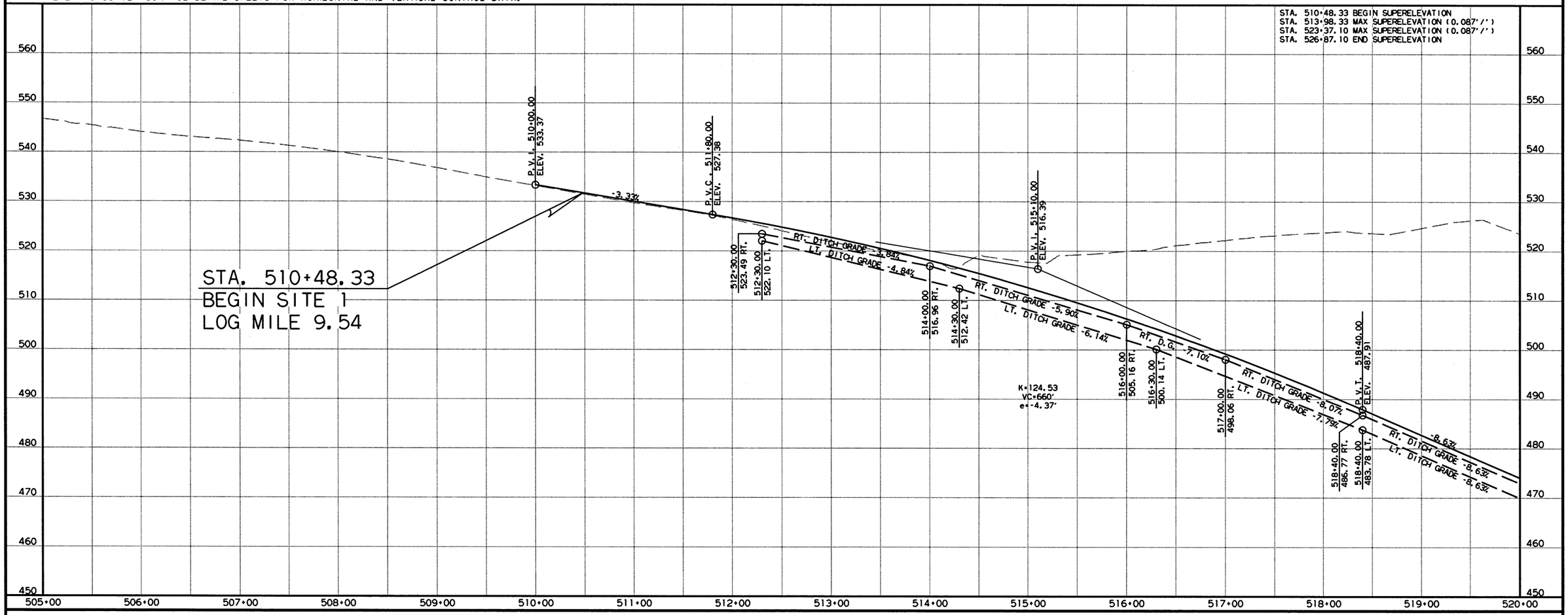
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	99	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

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



7/9/2019

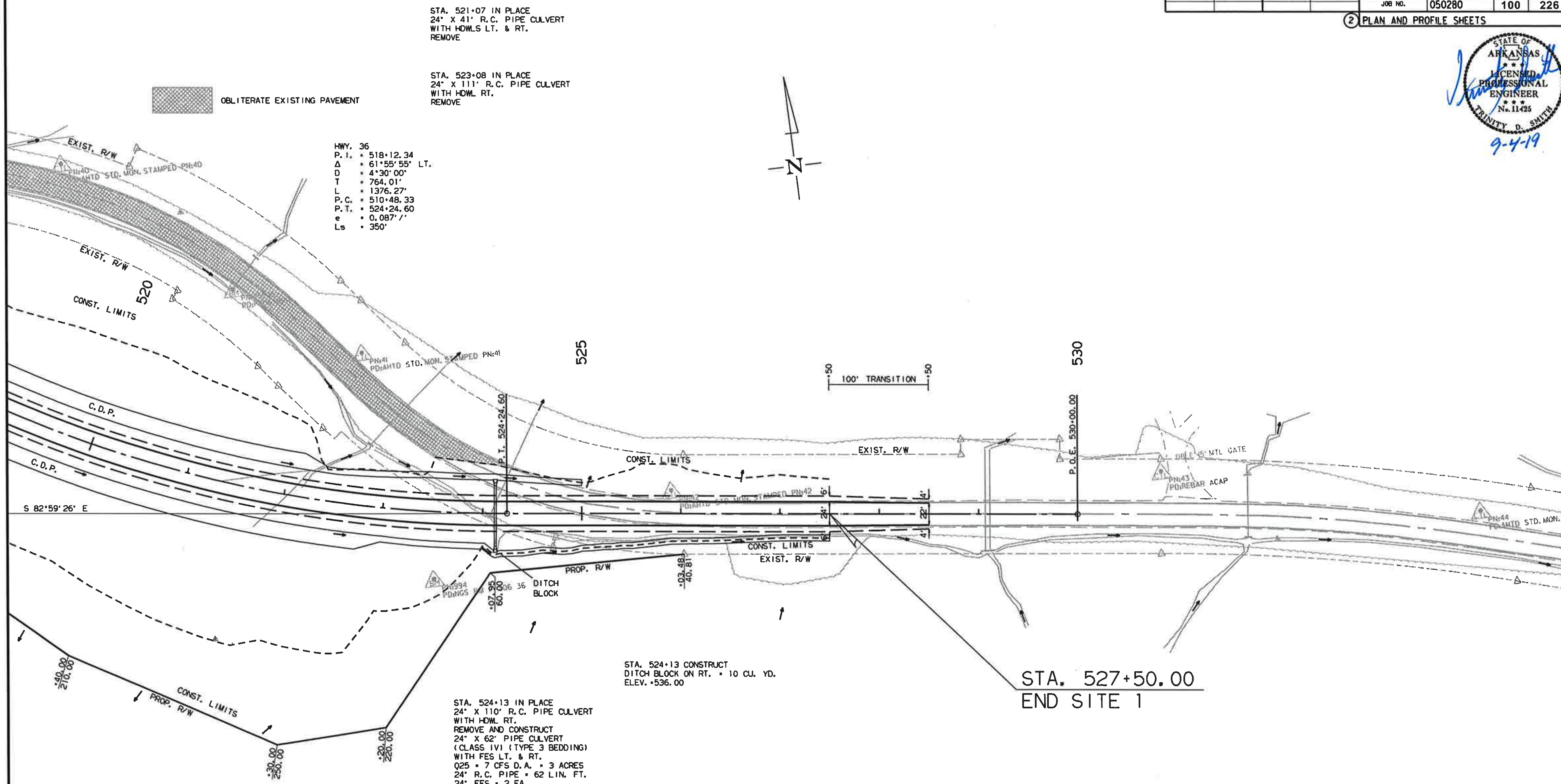
R050280.DGN

SITE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-04-19				6	ARK.			
				JOB NO.		050280	100	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
9-4-19



STA. 521+07 IN PLACE
24" X 41' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE
STA. 523+08 IN PLACE
24" X 111' R.C. PIPE CULVERT
WITH HDWL RT.
REMOVE
OBLITERATE EXISTING PAVEMENT
HWY. 36
P.I. = 518+12.34
Δ = 61°55'55" LT.
D = 4°30'00"
T = 764.01'
L = 1376.27'
P.C. = 510+48.33
P.T. = 524+24.60
e = 0.087'/'
Ls = 350'
N
EXIST. R/W
CONST. LIMITS
C.D.P.
520
525
530
100' TRANSITION
P.T. 524+24.60
P.O.E. 530+00.00
S 82°59'26" E
DITCH BLOCK
PROP. R/W
STA. 524+13 CONSTRUCT
DITCH BLOCK ON RT. = 10 CU. YD.
ELEV. =536.00
STA. 527+50.00
END SITE 1
STA. 524+13 IN PLACE
24" X 110' R.C. PIPE CULVERT
WITH HDWL RT.
REMOVE AND CONSTRUCT
24" X 62' PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 7 CFS D.A. = 3 ACRES
24" R.C. PIPE = 62 LIN. FT.
24" FES = 2 EA.

9/3/2019

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SITE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	101	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

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

STA. 510+48.33 BEGIN SUPERELEVATION
STA. 513+98.33 MAX SUPERELEVATION (0.087'/')
STA. 523+37.10 MAX SUPERELEVATION (0.087'/')
STA. 526+87.10 END SUPERELEVATION

RT. DITCH GRADE -8.63%
LT. DITCH GRADE -8.63%
522+50.00 448.40 LT.
LT. D.G. -10.63%
523+00.00 447.07 RT.
RT. D.G. -9.52%
523+45.00 438.30 LT.
LT. D.G. -8.24%
P.V.C. 523+60.00 ELEV. 443.03
524+00.00 437.50 RT.
•13
524+13.00 432.70 LT.
F.L. INLET RT. 433.56
F.L. OUTLET LT. 432.70
LT. D.G. -5.58%
525+00.00 427.87 LT.
K=128.44
VC=420'
e=1.72'
P.V.I. 525+70.00 ELEV. 424.91
P.V.T. 527+80.00 ELEV. 413.65
-5.36%
P.V.I. 528+50.00 ELEV. 409.90

STA. 527+50.00
END SITE 1

520 510 500 490 480 470 460 450 440 430 420 410 400 390

520+00 521+00 522+00 523+00 524+00 525+00 526+00 527+00 528+00 529+00 530+00 531+00 532+00 533+00 534+00 535+00

7/9/2009

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SITE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	102	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

DONALDSON RD
P. I. = 600+46.75
Δ = 54°00'30" RT.
R = 50'
T = 25.48'
L = 47.13'
P. C. = 600+21.27
P. T. = 600+68.40
NO SUPER

STA. 600+00.00
BEGIN DONALDSON RD.

P. I. 518+12.34

STA. 516+33.00 HWY. 36 •
STA. 601+20.00 DONALDSON RD
Δ = 90°00'00"

515

DONALDSON RD

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

STA. 600+00.00
BEGIN DONALDSON RD.

P.V.C. 600+00.00 ELEV. 516.89
P.V.I. 600+30.00 ELEV. 516.89
P.V.T. 600+60.00 ELEV. 512.39
P.V.I. 600+83.00 ELEV. 508.99
P.V.C. 600+74.50 ELEV. 510.22
P.V.I. 600+91.50 ELEV. 507.82
P.V.T. 601+02.00 ELEV. 506.42

K=4.01 VC=60' e=-1.12'
K=10.14 VC=17' e=0.04'

STA. 516+33.00 HWY. 36 • C.L. DONALDSON RD. 18.00' RT.

DONALDSON RD

535 530 525 520 515 510 505 500 495 490

600+00 601+00 602+00

7/9/2019

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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.		050280	103	226

(2) PLAN AND PROFILE SHEETS

STA. 800+00 TO STA. 821+00
SPECIAL FLOOD HAZARD AREA

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
803+00	805+48	LT.	251
806+33	809+45	LT.	345
811+53	817+00	LT.	542

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
803+00	805+48	LT.	D-1	250
806+33	809+45	LT.	D-1	327

STA. 806+02 IN PLACE
24' X 50' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24' X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 145 CU. YD.

STA. 813+50 INSTALL
18' X 66' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 1260 CU. YD.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 804+00.00
BEGIN SITE 2
LOG MILE 11.22

SITE 2

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
807+60.17	809+44.50	RT.	166	1	1
808+10.17	809+44.50	LT.	116	1	1
810+65.50	811+74.83	RT.	91	1	1
810+65.50	812+74.83	LT.	191	1	1

HWY. 36
P.I. = 808+01.85
Δ = 18°17'00" RT.
D = 3°30'00"
T = 263.43'
L = 522.39'
P.C. = 805+38.42
P.T. = 810+60.81
e = 0.076'/'
Ls = 300'

STA. 809+93.60 - STA. 810+59.53 IN PLACE
66' X 24' BRIDGE NO. 02803
THREE SPAN CONTINUOUS R.C. SLAB UNIT
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1)
= 1.00 LUMP SUM

STA. 813+50.00 HWY. 36 =
STA. 904+00.00 MIRANDA LN.
Δ = 90°00'00"

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

STA. 804+00.00 MATCH SUPERELEVATION (R.C.)
STA. 806+21.05 MAX SUPERELEVATION (0.076'/')
STA. 810+56.08 MAX SUPERELEVATION (0.076'/')
STA. 813+56.08 END SUPERELEVATION

BRIDGE END
STA. 809+54.50
ELEV. 281.50

BRIDGE END
STA. 810+55.50
ELEV. 281.50

P.V.I. 804+00.00 ELEV. 278.74
P.V.C. 804+80.00 ELEV. 278.39
P.V.I. 806+00.00 ELEV. 277.87
P.V.I. 808+30.00 ELEV. 281.50
P.V.R.C. 807+20.00 ELEV. 279.76
P.V.T. 809+40.00 ELEV. 281.50
804+00.00 274.40 LT.
805+40.00 279.55 LT.
K=118.81 VC=240' e=0.60'
K=139.24 VC=220' e=-0.43'
-0.44%
1.58%
0.00%
LT. DITCH GRADE -0.35%
Q25 DESIGN HIGH WATER 276.10

NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION IS 271.00 FT. M.L.S. BETWEEN STA. 810+00 AND STA. 810+20. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS

295 290 285 280 275 270 265 260 255 250

800+00 801+00 802+00 803+00 804+00 805+00 806+00 807+00 808+00 809+00 810+00 811+00 812+00 813+00 814+00 815+00

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	104	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 800+00 TO STA. 821+00 SPECIAL FLOOD HAZARD AREA

STA. 817+39.82 - STA. 818+05.57 IN PLACE
66' X 24' BRIDGE NO. 02800
THREE SPAN CONTINUOUS R.C. SLAB UNIT
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2)
- 1.00 LUMP SUM

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
817+90	830+14	LT.	1300

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
814+00	817+00	LT.	D	300
818+00	830+14	LT.	D-1	1231

815 820 825 830

EAST HOG THIEF CREEK

SPECIAL FLOOD HAZARD AREA

N

-70.00 70.00

-80.00 54.00

-40.00 56.00

P.I. 828+62.67

-20.00

CONST. LIMITS EXIST. R/W PROP. R/W

S 71°14'00" E

S 55°30'00" E

LOW STEEL LOW STEEL

BRUSH

P.C. 827+30.73

P.I. 829+92.95

-20.00 55.18

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
815+00.75	817+09.50	RT.	190	1	1
815+75.75	817+09.50	LT.	115	1	1
818+20.50	819+54.25	RT.	115	1	1
818+20.50	820+29.25	LT.	190	1	1

METAL BARN

HWY. 36
P.I. = 828+62.67
Δ = 15°44'00" RT.
D = 6°00'00"
T = 131.94'
L = 262.22'
P.C. = 827+30.73
P.T. = 829+92.95
e = 0.096'/'
Ls = 350'

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

SITE 2

BRIDGE END
STA. 817+19.50
ELEV. 281.50

BRIDGE END
STA. 818+10.50
ELEV. 281.50

STA. 824+68.23 BEGIN SUPERELEVATION
STA. 826+18.23 MAX SUPERELEVATION (0.096'/')
STA. 829+05.45 MAX SUPERELEVATION (0.096'/')
STA. 832+55.45 END SUPERELEVATION

P.V.C. 819+00.00
ELEV. 281.50

K=243.44
VC=400'
e=0.82'

P.V.I. 821+00.00
ELEV. 281.50

P.V.T. 823+00.00
ELEV. 284.79

P.V.C. 826+50.00
ELEV. 290.54

P.V.I. 828+00.00
ELEV. 293.00

P.V.R.C. 829+50.00
ELEV. 291.57

0.00%

1.64%

-0.95%

K=115.83
VC=300'
e=-0.97'

K=121.35
VC=180'
e=0.33'

Q25 DESIGN HIGH WATER 275.70

NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION IS 268.00 FT. M.L.S. BETWEEN STA. 817+50 AND STA. 817+75. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS

300 295 290 285 280 275 270 265 260 255

815+00 816+00 817+00 818+00 819+00 820+00 821+00 822+00 823+00 824+00 825+00 826+00 827+00 828+00 829+00 830+00

7/9/2009

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				6	ARK.			
				JOB NO.		050280	105	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

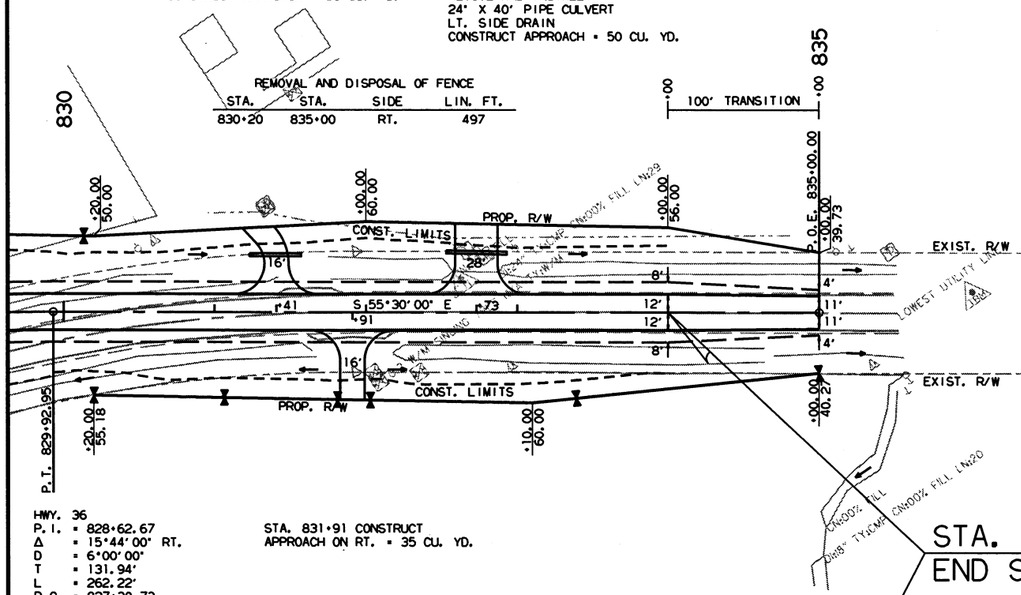
STA. 831+41 INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

STA. 832+73 IN PLACE
24" X 29' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
830+20	835+00	RT.	497

100' TRANSITION



HWY. 36
P.I. = 828+62.67
Δ = 15°44'00" RT.
D = 6°00'00"
T = 131.94'
L = 262.22'
P.C. = 827+30.73
P.T. = 829+92.95
e = 0.096'/'
Ls = 350'

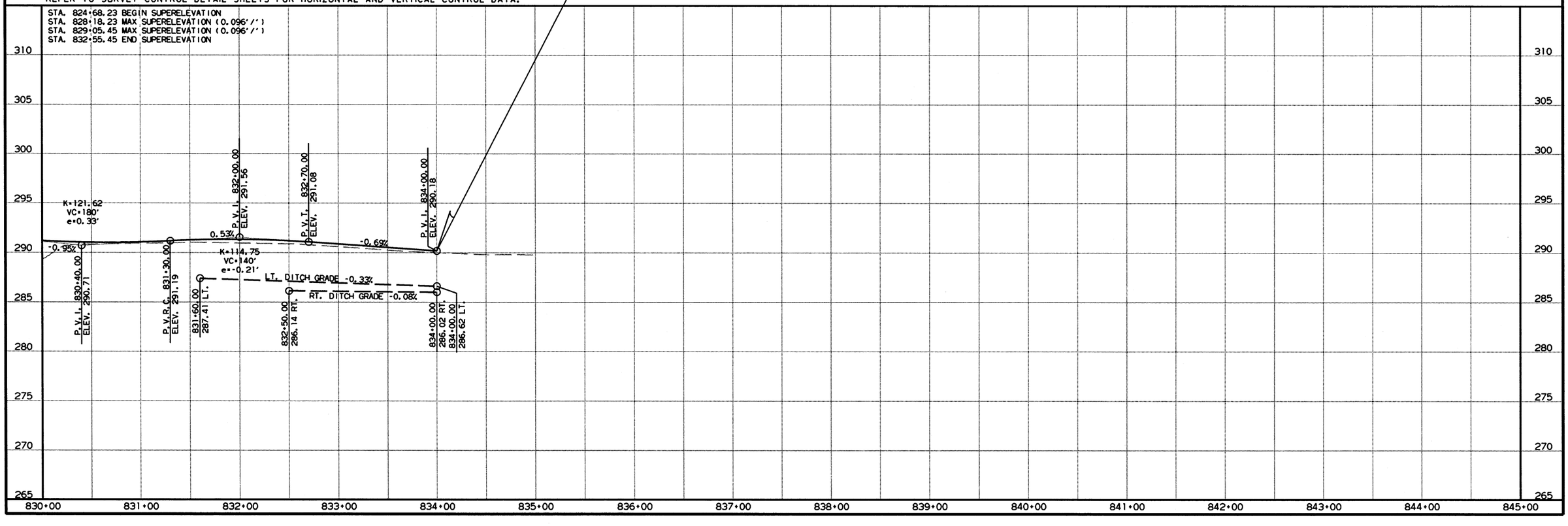
STA. 831+91 CONSTRUCT
APPROACH ON RT. = 35 CU. YD.

STA. 834+00.00
END SITE 2

SITE 2

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

STA. 824+68.23 BEGIN SUPERELEVATION
STA. 828+18.23 MAX SUPERELEVATION (0.096'/')
STA. 829+05.45 MAX SUPERELEVATION (0.096'/')
STA. 832+55.45 END SUPERELEVATION

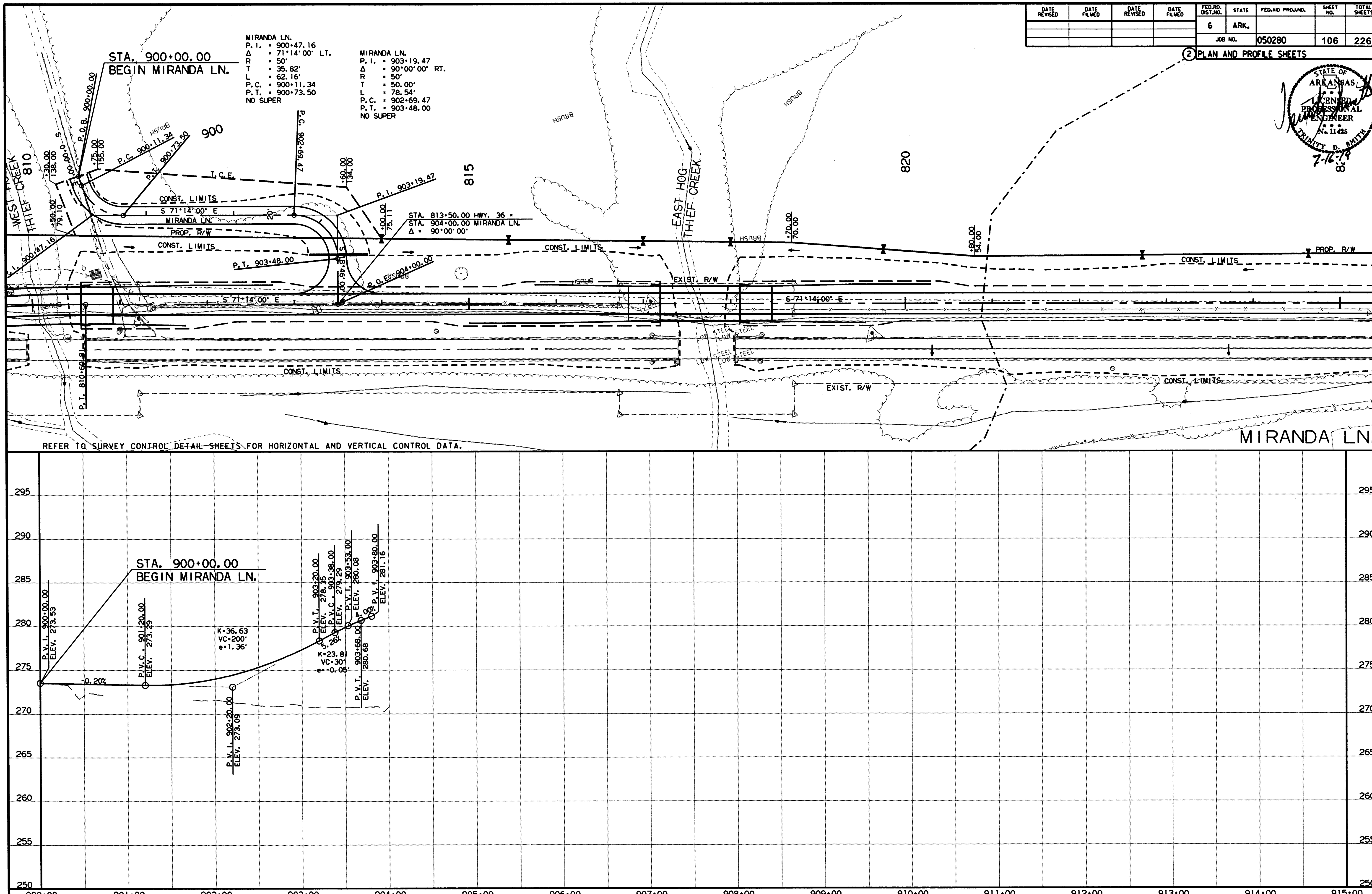


7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	106	226

(2) PLAN AND PROFILE SHEETS



STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
7-16-19
STA. 900+00.00
BEGIN MIRANDA LN.
MIRANDA LN.
P.I. = 900+47.16
Δ = 71°14'00" LT.
R = 50'
T = 35.82'
L = 62.16'
P.C. = 900+11.34
P.T. = 900+73.50
NO SUPER
MIRANDA LN.
P.I. = 903+19.47
Δ = 90°00'00" RT.
R = 50'
T = 50.00'
L = 78.54'
P.C. = 902+69.47
P.T. = 903+48.00
NO SUPER
STA. 813+50.00 HWY. 36 =
STA. 904+00.00 MIRANDA LN.
Δ = 90°00'00"
S 71°14'00" E
MIRANDA LN.
PROP. R/W
CONST. LIMITS
T.C.E.
EXIST. R/W
WEST HOG THIEF CREEK
EAST HOG THIEF CREEK
BRUSH
810
815
820
900
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
MIRANDA LN.
STA. 900+00.00
BEGIN MIRANDA LN.
P.V.I. 900+00.00 ELEV. 273.53
P.V.C. 901+20.00 ELEV. 273.29
P.V.I. 902+20.00 ELEV. 273.09
K=36.63
VC=200'
e=1.36'
-0.20%
P.V.T. 903+20.00 ELEV. 278.35
P.V.C. 903+38.00 ELEV. 279.29
P.V.I. 903+53.00 ELEV. 280.08
P.V.T. 903+68.00 ELEV. 280.68
P.V.I. 903+80.00 ELEV. 281.16
K=23.81
VC=30'
e=-0.05'
5.26%
250
255
260
265
270
275
280
285
290
295
900+00
901+00
902+00
903+00
904+00
905+00
906+00
907+00
908+00
909+00
910+00
911+00
912+00
913+00
914+00
915+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.		050280	107	226

(2) PLAN AND PROFILE SHEETS

STA. 112+13 IN PLACE
DBL. 30" X 42" R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS AND EXTEND
12' LT. AND 8' RT. WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 62'
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 47 CFS D.A. = 25 ACRES
30" R.C. PIPE = 56 LIN. FT.
30" FES = 4 EA.

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
7-6-09

HWY. 36
P.I. = 114+61.45
Δ = 3°47'13" RT.
D = 1°00'00"
T = 189.42'
L = 378.71'
P.C. = 112+72.03
P.T. = 116+50.74
e = R.C.
Ls = 270'

100 105 110 115

POB 100+03.09

S 54°58'09" E
HWY. 36

P.I. 114+61.45

S 51°10'56" E

EXIST. R/W
PROP. R/W
CONST. LIMITS
C.D.P.
EXIST. R/W
CONST. LIMITS
PROP. R/W

-70.00 40.00
-10.00 68.00
-80.00 50.00
-10.00 60.00
-00.00 46.00

STA. 112+00.00
BEGIN SITE 3
LOG MILE 12.30

STA. 112+00.00 TO STA. 113+00.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 70.22 SQ. YD.

100' TRANSITION .00 270' TAPER .70

SITE 3

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

STA. 112+00.00 MATCH SUPERELEVATION (0.001'/')
STA. 113+39.53 MAX SUPERELEVATION (R.C.)
STA. 115+63.96 MAX SUPERELEVATION (R.C.)
STA. 118+33.96 END SUPERELEVATION

BEGIN PROFILE GRADE

P.V.C. 112+00.00 305.31
VC= 100'
e= 0.11'
K= 113.64
P.V.T. 113+00.00 305.45
VC= 100'
e= -0.05'
K= 256.41
P.V.I. 114+00.00 306.03
P.V.R.C. 114+50.00 306.13
VC= 100'
e= 0.07'
K= 181.82

-0.30% 0.58% 0.19%

F.L. INLET LT. 300.58
F.L. EXIST. INLET LT. 300.58
F.L. EXIST. OUTLET RT. 298.72
F.L. OUTLET RT. 298.72

+13

LT. DITCH GRADE 1.04% LT. D.G. 0.49%

112+00.00 LT. 300.58
112+00.00 RT. 298.72
112+15.00 RT. 298.72
112+15.00 LT. 300.58
P.V.I. 112+50.00 305.16
P.V.C. 113+50.00 LT. 305.74
114+00.00 LT. 302.50
P.V.I. 115+00.00 306.22

325 320 315 310 305 300 295 290 285 280

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00

7/9/2009

R050280.DGN

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				6	ARK.			
				JOB NO.		050280	108	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
TRINITY D. SMITH
GENERAL PROFESSIONAL ENGINEER
No. 11425
2.7.19

STA. 119+79 IN PLACE
24" X 46' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 58' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YD.

STA. 122+19 CONSTRUCT
TURNOUT ON LT. = 30 CU. YD. COMP. EMB.
= 5 CU. YD. UNCL. EXC.

STA. 123+38 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 123+35.00 HWY. 36
STA. 405+95.04 HWY. 305
Δ = 80°00'00"

STA. 124+82 IN PLACE
18" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YD.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
125+12	126+97	LT.	225
126+29	126+90	RT.	62

STA. 124+98.00 TO STA. 125+70.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 50.56 SQ. YD.

HWY. 36
P.I. = 122+25.78
Δ = 40°00'43" LT.
D = 10°00'00"
T = 208.60'
L = 400.12'
P.C. = 120+17.18
P.T. = 124+17.30
e = 0.100'/'
Ls = 330'

STA. 125+88 IN PLACE
24" X 30' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YD.

STA. 127+09 IN PLACE
24" X 24' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	GATES
125+12	126+97	LT.	D	146	
126+29	126+90	RT.	D	62	1

STA. 128+53 IN PLACE
18" X 16' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

HWY. 36
P.I. = 114+61.45
Δ = 3°47'13" RT.
D = 1°00'00"
T = 189.42'
L = 378.71'
P.C. = 112+72.03
P.T. = 116+50.74
e = R.C.
Ls = 270'

HWY. 36
P.I. = 131+04.56
Δ = 2°45'21" RT.
D = 0°30'00"
T = 275.63'
L = 551.15'
P.C. = 128+28.93
P.T. = 133+80.08
NO SUPER

STA. 125+35 IN PLACE
DBL. 36" X 37' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS AND EXTEND
10' LT. AND 24' RT. WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 71'
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 94 CFS D.A. = 61 ACRES
36" R.C. PIPE = 84 LIN. FT.
36" FES = 4 EA.
CHANNEL CHANGE = 15 CU. YD. UNCL. EXC.

STA. 126+16 IN PLACE
24" X 40' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YD.

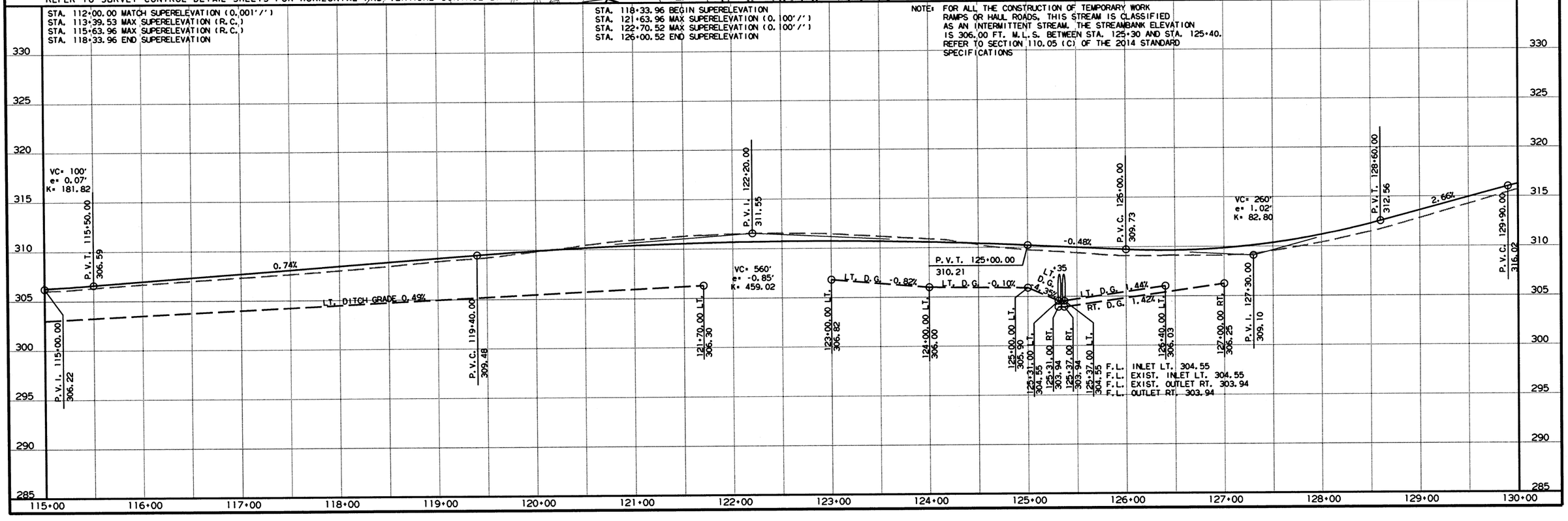
SITE 3

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

STA. 112+00.00 MATCH SUPERELEVATION (0.001'/')
STA. 113+39.53 MAX SUPERELEVATION (R.C.)
STA. 115+63.96 MAX SUPERELEVATION (R.C.)
STA. 118+33.96 END SUPERELEVATION

STA. 118+33.96 BEGIN SUPERELEVATION
STA. 121+63.96 MAX SUPERELEVATION (0.100'/')
STA. 122+70.52 MAX SUPERELEVATION (0.100'/')
STA. 126+00.52 END SUPERELEVATION

NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION IS 306.00 FT. M.L.S. BETWEEN STA. 125+30 AND STA. 125+40. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS



7/9/2019

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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.		050280	109	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 131+40 IN PLACE
18" X 51' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

STA. 133+00 CONSTRUCT
APPROACH ON LT. = 25 CU. YD.

STA. 133+81 IN PLACE
24" X 33' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE AND CONSTRUCT
24" X 68' PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 8 CFS D.A. = 5 ACRES
24" R.C. PIPE = 68 LIN. FT.
24" FES = 2 EA.

STA. 137+31 IN PLACE
15' X 48' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 40 CU. YD.

STA. 138+93 IN PLACE
18" X 48' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 58' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YD.

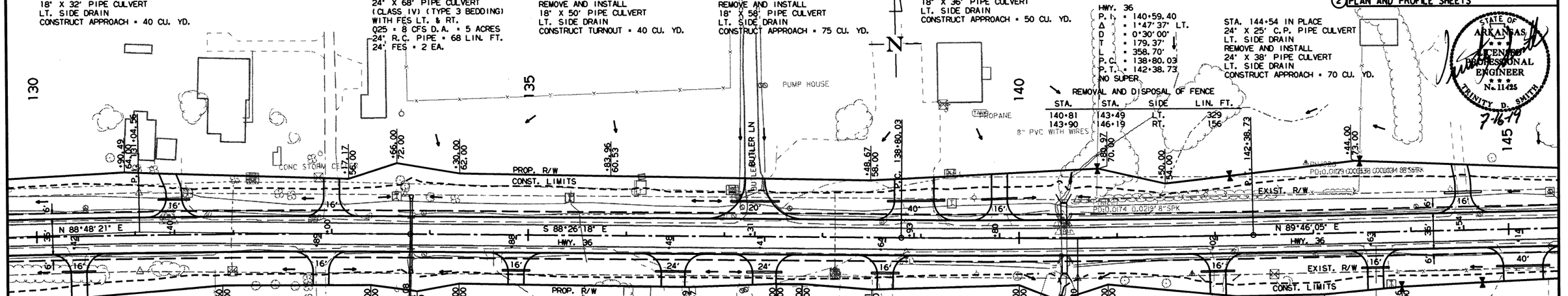
STA. 139+80 IN PLACE
18" X 18' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

HWY. 36
P.I. = 140+59.40
Δ = 1°47'37" LT.
D = 0°30'00"
T = 179.37'
L = 358.70'
P.C. = 138+80.03
P.T. = 142+38.73
NO SUPER

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
140+81	143+49	LT.	329
143+90	146+19	RT.	156

STA. 144+54 IN PLACE
24" X 25' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 70 CU. YD.



HWY. 36
P.I. = 131+04.56
Δ = 2°45'21" RT.
D = 0°30'00"
T = 275.63'
L = 551.15'
P.C. = 128+28.93
P.T. = 133+80.08
NO SUPER

STA. 130+42 IN PLACE
12" X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YD.

STA. 132+89 CONSTRUCT
APPROACH ON LT. = 20 CU. YD.

STA. 134+88 IN PLACE
18" X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

STA. 136+48 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STA. 137+41 CONSTRUCT
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STA. 136+48 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STA. 140+46 IN PLACE
6' X 3' X 34' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 21' LT. AND 19' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH OF 74'
Q25 = 99 CFS D.A. = 65 ACRES

STA. 142+02 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

STA. 143+63 IN PLACE
18" X 29' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

WIRE FENCE

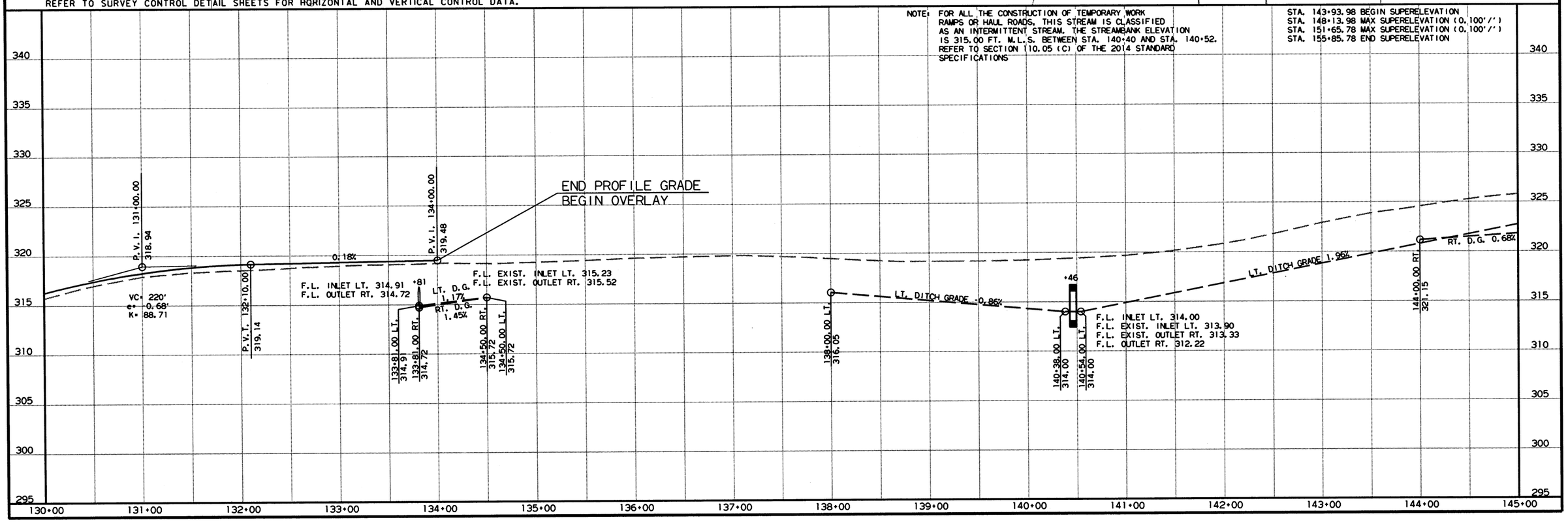
STA.	STA.	SIDE	TYPE	LIN. FT.
140+80	143+49	LT.	D	271

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

SITE 3

NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION IS 315.00 FT. M.L.S. BETWEEN STA. 140+40 AND STA. 140+52. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS

STA. 143+93.98 BEGIN SUPERELEVATION
STA. 148+13.98 MAX SUPERELEVATION (0.100'/')
STA. 151+65.78 MAX SUPERELEVATION (0.100'/')
STA. 155+85.78 END SUPERELEVATION



7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	110	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 148+92 IN PLACE
18" X 39' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 58' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 185 CU. YD.

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
154+62	156+78	RT.	D	206

STA. 149+96 IN PLACE
18" X 22' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YD.

STA. 154+20 IN PLACE
18" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

STA. 150+20.00 TO STA. 154+06.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 130.61 SQ. YD.

STA. 156+75 CONSTRUCT
APPROACH ON LT. = 15 CU. YD.

STA. 155+94 IN PLACE
12" X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STA. 157+50 CONSTRUCT
APPROACH ON LT. = 20 CU. YD.

BLOOMSBURY RD

PROP. R/W

EXIST. R/W

CONST. LIMITS

C.D.P.

HWY. 36
P.I. = 150+01.45
Δ = 39°19'33" RT.
D = 7°00'00"
T = 292.47'
L = 561.80'
P.C. = 147+08.98
P.T. = 152+70.78
e = 0.100'/'
Ls = 420'

P.C. 147+08.98

P.T. 152+70.78

S 89°46'05" E

N 89°46'05" E

HWY. 36

S 50°54'22" E

HWY. 36

DRATED AREA

STA. 145+14 IN PLACE
18" X 49' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 54' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

STA. 146+53 IN PLACE
18" X 57' C.P. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 52' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

STA. 147+71 IN PLACE
18" X 37' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YD.

STA. 149+87 IN PLACE
18" X 44' STEEL PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 152+37 IN PLACE
18" X 23' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
154+72	156+78	RT.	240

STA. 156+82 IN PLACE
18" X 45' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

STA. 157+50 INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

SITE 3

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

STA. 143+93.98 BEGIN SUPERELEVATION
STA. 148+13.98 MAX SUPERELEVATION (0.100'/')
STA. 151+65.78 MAX SUPERELEVATION (0.100'/')
STA. 155+85.78 END SUPERELEVATION

LT. D.G. 1.96%
RT. D.G. 0.68%
LT. DITCH GRADE 0.25%
RT. DITCH GRADE 0.17%
LT. D.G. 1.08%
RT. DITCH GRADE 1.68%
LT. DITCH GRADE 0.22%
LT. DITCH GRADE 3.70%
LT. DITCH GRADE 0.96%

146+00.00 324.70 LT.
146+00.00 322.50 RT.
149+30.00 325.52 LT.
149+00.00 323.00 RT.
150+00.00 324.68 RT.
150+20.00 326.50 LT.
152+20.00 326.94 LT.
154+00.00 333.60 LT.
156+50.00 336.00 LT.

355 350 345 340 335 330 325 320 315 310

145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00

3/20/2019

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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.		050280	111	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-09

STA. 166+46 CONSTRUCT APPROACH ON LT. = 25 CU. YD.

STA. 165+00
CHANNEL CHANGE = 5 CU. YD. UNCL. EXC.

HWY. 36
P.I. = 167+05.83
Δ = 9°07'09" LT.
D = 2°00'00"
T = 228.47'
L = 455.97'
P.C. = 164+77.36
P.T. = 169+33.33
e = 0.048'/'
Ls = 360'

STA. 171+45 CONSTRUCT APPROACH ON LT. = 15 CU. YD.

STA. 172+50.00 TO STA. 177+00.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 316.00 SQ. YD.

S 50°54'22" E
HWY. 36
S 60°01'31" E
HWY. 36
EXIST. R/W
PROP. R/W
CONST. LIMITS
C.D.P.
CENTERVIEW CIR.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
159+75	162+00	RT.	225

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	GATES
159+75	162+00	RT.	5' C.L.	209	1

STA. 160+39 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STA. 165+05 IN PLACE
18" X 42' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 46' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 65 CU. YD.

STA. 169+62 IN PLACE
18" X 19' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

STA. 172+48 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN)
CONSTRUCT APPROACH = 20 CU. YD.

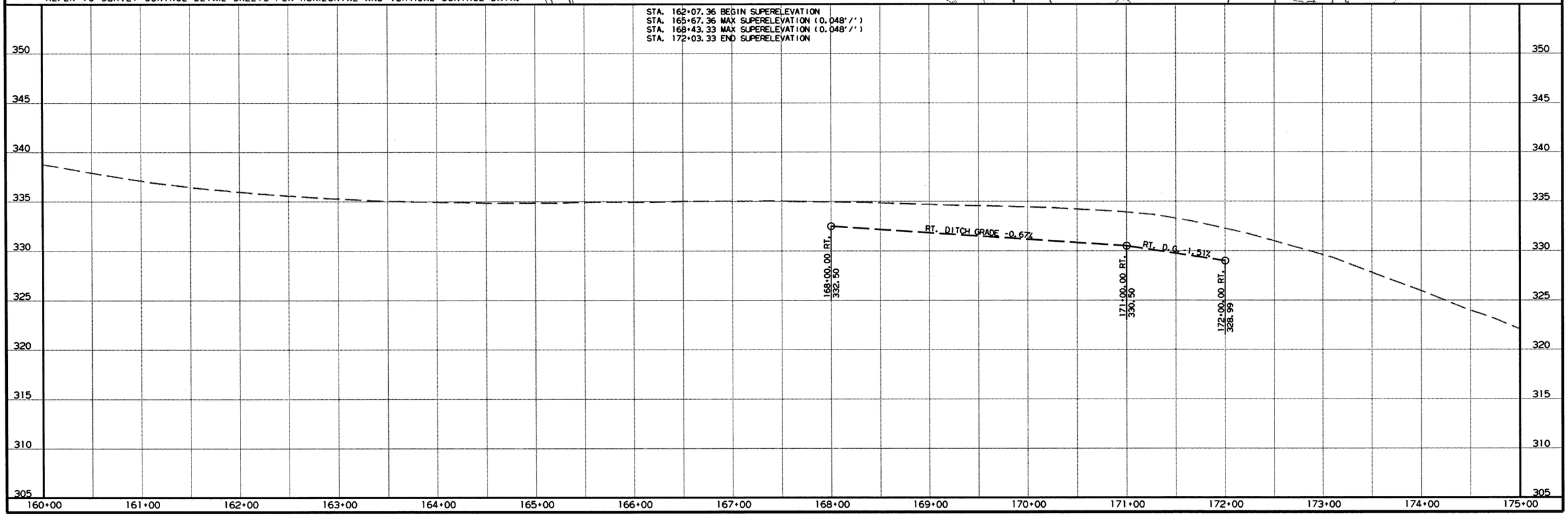
STA. 174+90 IN PLACE
18" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

STA. 172+62.00 TO STA. 174+74.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 148.87 SQ. YD.

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

SITE 3

STA. 162+07.36 BEGIN SUPERELEVATION
STA. 165+67.36 MAX SUPERELEVATION (0.048'/')
STA. 168+43.33 MAX SUPERELEVATION (0.048'/')
STA. 172+03.33 END SUPERELEVATION



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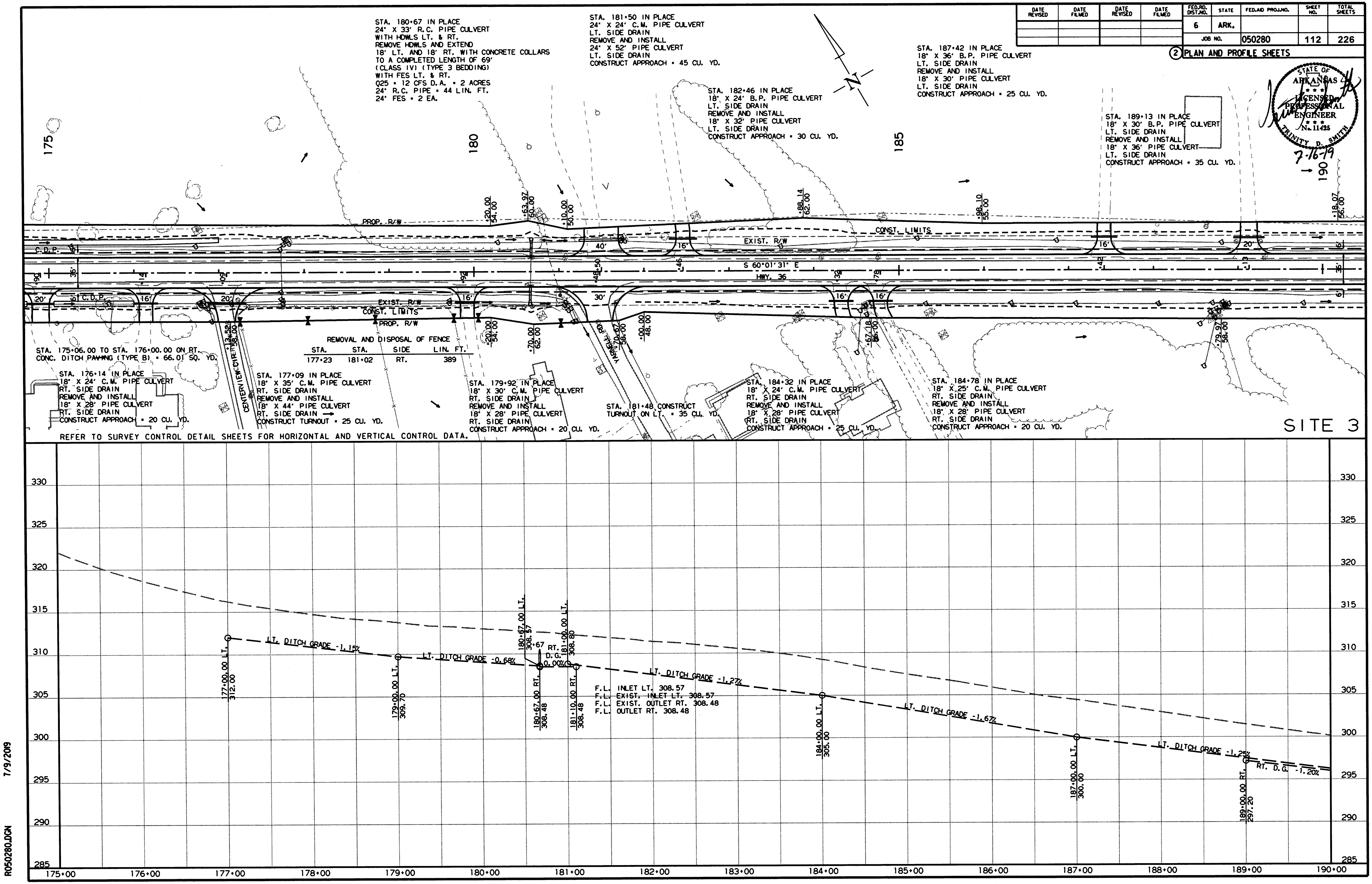
DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED
FED.RD. DIST.NO. 6 | STATE ARK. | FED.AID PROJ.NO. | SHEET NO. 112 | TOTAL SHEETS 226
JOB NO. 050280
2 PLAN AND PROFILE SHEETS
STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
7-16-19
STA. 180+67 IN PLACE
24" X 33' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS AND EXTEND
18' LT. AND 18' RT. WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 69'
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 12 CFS D.A. = 2 ACRES
24" R.C. PIPE = 44 LIN. FT.
24" FES = 2 EA.
STA. 181+50 IN PLACE
24" X 24' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 52' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YD.
STA. 182+46 IN PLACE
18" X 24' B.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YD.
STA. 187+42 IN PLACE
18" X 36' B.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.
STA. 189+13 IN PLACE
18" X 30' B.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YD.
N
175
180
185
190
PROP. R/W
CONST. LIMITS
EXIST. R/W
C.O.P.
S 60°01'31" E
HWY. 36
CENTERVIEW CIRCLE
YARNELL RD.
STA. 175+06.00 TO STA. 176+00.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 66.01 SQ. YD.
REMOVAL AND DISPOSAL OF FENCE
STA. | STA. | SIDE | LIN. FT.
177+23 | 181+02 | RT. | 389
STA. 176+14 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.
STA. 177+09 IN PLACE
18" X 35' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 25 CU. YD.
STA. 179+92 IN PLACE
18" X 30' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.
STA. 181+48 CONSTRUCT
TURNOUT ON LT. = 35 CU. YD.
STA. 184+32 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.
STA. 184+78 IN PLACE
18" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.
SITE 3
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
LT. DITCH GRADE -1.15%
LT. DITCH GRADE -0.68%
RT. D.G. 0.00%
LT. DITCH GRADE -1.27%
LT. DITCH GRADE -1.67%
LT. DITCH GRADE -1.25%
RT. D.G. -1.20%
177+00.00 LT. 312.00
179+00.00 LT. 309.70
180+67.00 LT. 308.57
180+67.00 RT. 308.48
181+00.00 LT. 308.80
181+10.00 RT. 308.48
184+00.00 LT. 305.00
187+00.00 LT. 300.00
189+00.00 RT. 297.20
F.L. INLET LT. 308.57
F.L. EXIST. INLET LT. 308.57
F.L. EXIST. OUTLET RT. 308.48
F.L. OUTLET RT. 308.48
330
325
320
315
310
305
300
295
290
285
175+00
176+00
177+00
178+00
179+00
180+00
181+00
182+00
183+00
184+00
185+00
186+00
187+00
188+00
189+00
190+00
7/9/209
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	113	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 196+23 IN PLACE
18" X 30' B.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YD.

STA. 196+75 IN PLACE
18" X 25' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YD.

STA. 199+26 IN PLACE
24" X 24' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

HWY. 36
P.I. = 200+32.18
Δ = 29°07'45" LT.
D = 7°00'00"
T = 212.67'
L = 416.13'
P.C. = 198+19.51
P.T. = 202+35.64
e = 0.100'/'
Ls = 420'

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
196+31	198+14	RT.	180
203+82	204+66	RT.	106

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
196+31	198+14	RT.	D	180
203+82	204+66	RT.	D	85

STA. 192+86 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YD.

STA. 194+94 IN PLACE
18" X 23' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YD.

STA. 198+23 IN PLACE
24" X 31' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YD.

STA. 204+84 IN PLACE
36" X 42' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
36" X 50' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 115 CU. YD.

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

SITE 3

STA. 195+04.51 BEGIN SUPERELEVATION
STA. 199+24.51 MAX SUPERELEVATION (0.100'/')
STA. 201+30.64 MAX SUPERELEVATION (0.100'/')
STA. 205+50.64 END SUPERELEVATION

RT. DITCH GRADE -1.20%
RT. DITCH GRADE -0.76%
LT. DITCH GRADE -1.25%
RT. DITCH GRADE -1.10%
LT. DITCH GRADE -1.48%
RT. DITCH GRADE -1.80%
LT. DITCH GRADE -1.15%
RT. DITCH GRADE -0.50%
LT. DITCH GRADE -0.75%
RT. DITCH GRADE -1.70%
RT. D.G. -1.43%
LT. D.G. -2.13%

192+00.00 RT. 293.60
194+00.00 RT. 292.09
195+00.00 LT. 290.00
196+00.00 RT. 289.50
198+00.00 RT. 287.30
199+00.00 LT. 284.10
200+00.00 RT. 283.70
201+00.00 LT. 281.80
202+00.00 RT. 282.70
204+00.00 LT. 279.60
204+00.00 RT. 279.30

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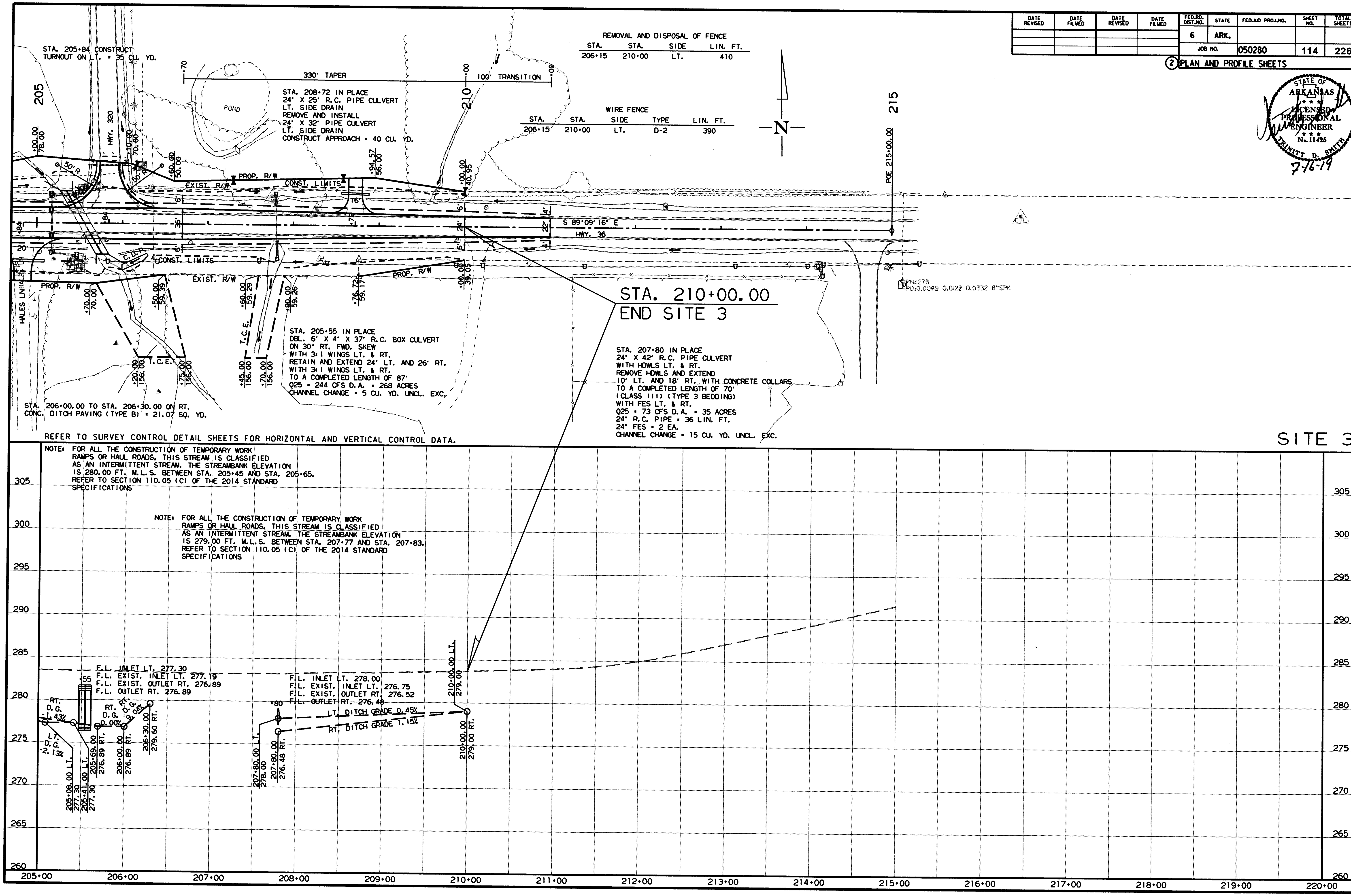
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050280		114	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 7-16-19



STA. 205+84 CONSTRUCT TURNOUT ON LT. = 35 CU. YD.
REMOVAL AND DISPOSAL OF FENCE
STA. 206+15 STA. 210+00 SIDE LT. LIN. FT. 410
WIRE FENCE
STA. 206+15 STA. 210+00 SIDE LT. TYPE D-2 LIN. FT. 390
330' TAPER
100' TRANSITION
POND
STA. 208+72 IN PLACE
24" X 25' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.
HWY. 320
N
POE 215+00.00
EXIST. R/W
PROP. R/W
CONST. LIMITS
S 89°09'16" E
HWY. 36
HALES LN
C.D.P.
T.C.E.
STA. 210+00.00
END SITE 3
STA. 205+55 IN PLACE
DBL. 6' X 4' X 37' R.C. BOX CULVERT
ON 30° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 24' LT. AND 26' RT.
WITH 3:1 WINGS LT. & RT.
TO A COMPLETED LENGTH OF 87'
Q25 = 244 CFS D.A. = 268 ACRES
CHANNEL CHANGE = 5 CU. YD. UNCL. EXC.
STA. 207+80 IN PLACE
24" X 42' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS AND EXTEND
10' LT. AND 18' RT. WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 70'
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 73 CFS D.A. = 35 ACRES
24" R.C. PIPE = 36 LIN. FT.
24" FES = 2 EA.
CHANNEL CHANGE = 15 CU. YD. UNCL. EXC.
STA. 206+00.00 TO STA. 206+30.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 21.07 SQ. YD.
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
SITE 3
NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION IS 280.00 FT. M.L.S. BETWEEN STA. 205+45 AND STA. 205+65. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS
NOTE: FOR ALL THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION IS 279.00 FT. M.L.S. BETWEEN STA. 207+77 AND STA. 207+83. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS
F.L. INLET LT. 277.30
F.L. EXIST. INLET LT. 277.19
F.L. EXIST. OUTLET RT. 276.89
F.L. OUTLET RT. 276.89
F.L. INLET LT. 278.00
F.L. EXIST. INLET LT. 276.75
F.L. EXIST. OUTLET RT. 276.52
F.L. OUTLET RT. 276.48
LT. DITCH GRADE 0.45%
RT. DITCH GRADE 1.15%
RT. D.G. -1.43%
LT. D.G. -2.13%
RT. D.G. 0.00%
RT. D.G. 9.04%
205+08.00 LT. 277.30
205+41.00 LT. 277.30
205+69.00 RT. 276.89
206+00.00 RT. 276.89
206+30.00 RT. 279.60
207+80.00 LT. 278.00
207+80.00 RT. 276.48
210+00.00 LT. 279.00
210+00.00 RT. 279.00
305 300 295 290 285 280 275 270 265 260
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

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	115	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-19

STA. 402+32 IN PLACE
18' X 26' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18' X 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YD.

STA. 403+90 INSTALL
18' X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 150 CU. YD.

100' TRANSITION

POB 400+00.00

N 0°59' 15" E

HWY. 305

EXIST. R/W

CONST. LIMITS

PROP. R/W

T.C.E.

CURB

TANNER RD

CEMETERY

EXIST. R/W

STA. 123+35.00 HWY. 36
STA. 405+95.04 HWY. 305
Δ = 80°00' 00"

STA. 124+17.30

STA. 401+86.00
BEGIN HWY. 305

HWY. 305
P.I. = 402+87.12
Δ = 16°02' 53" RT.
D = 8°00' 00"
T = 100.96'
L = 200.60'
P.C. = 401+86.16
P.T. = 403+86.76
e = 0.039'/'
Ls = 100.30'

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

HWY. 305

STA. 401+86.16 BEGIN SUPERELEVATION
STA. 402+86.46 MAX SUPERELEVATION (0.039'/')
STA. 403+86.76 END SUPERELEVATION

P.V.I. 401+86.00
306.05

P.V.C. 402+80.00
307.82

VC = 140'
e = 0.47'
K = 52.04

P.V.I. 403+50.00
309.13

P.V.C. 404+30.00
312.79

P.V.T. 404+20.00
312.33

P.V.I. 405+00.00
315.99

VC = 140'
e = -1.42'
K = 17.26

P.V.T. 405+70.00
313.51

STA. 405+76.78 C.L. HWY. 305 = STA. 123+31.92-18.00' RT. C.L. HWY. 36
313.27

1.88%
4.57%
-3.54%
-0.14%

LT. D.G. 2.1%

401+86.00 LT.
300.00

402+60.00 LT.
301.60

7/9/2019

R050280.DGN

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

280 285 290 295 300 305 310 315 320 325

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	116	226

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-7-19

STA. 314+77 IN PLACE
18" X 33" R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS AND EXTEND
12' LT. AND 12' RT. WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 57'
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 8 CFS D.A. = 2 ACRES
18" R.C. PIPE = 32 LIN. FT.
18" FES = 2 EA.

STA. 316+40 IN PLACE
18" X 24" B.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 120 CU. YD.

STA. 319+16 CONSTRUCT
TURNOUT ON LT. = 95 CU. YD.

STA. 319+97 IN PLACE
24" X 36' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS AND EXTEND
22' LT. AND 16' RT. WITH CONCRETE COLLARS
TO A COMPLETED LENGTH OF 74'
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q25 = 3 CFS D.A. = 1 ACRES
24" R.C. PIPE = 46 LIN. FT.
24" FES = 2 EA.

STA. 314+60 CONSTRUCT
APPROACH ON LT. = 20 CU. YD.

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
313+72	319+14	RT.	D-2	525
319+30	323+96	LT.	D-2	474

STA. 319+31 CONSTRUCT
TURNOUT ON RT. = 40 CU. YD.

STA. 323+44 CONSTRUCT
APPROACH ON RT. = 15 CU. YD.

STA. 313+98.00
BEGIN SITE 4
LOG MILE 16.14

HWY. 36
P.I. = 318+03.53
Δ = 23°50'29" RT.
D = 5°00'00"
T = 241.91'
L = 476.83'
P.C. = 315+61.62
P.T. = 320+38.45
e = 0.091'/'
Ls = 420'

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
313+72	319+14	RT.	565
319+30	324+00	LT.	500

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

SITE 4

STA. 313+98.00 BEGIN SUPERELEVATION
STA. 318+00.04 MAX SUPERELEVATION (0.087'/')
STA. 322+02.08 END SUPERELEVATION

STA. 324+51.00
END SITE 4
LOG MILE 17.07
END JOB 050280

F.L. INLET RT. 295.40
F.L. EXIST. INLET RT. 295.28
F.L. EXIST. OUTLET LT. 295.07
F.L. OUTLET LT. 295.07

RT. DITCH GRADE 0.19%
LT. DITCH GRADE -0.07%

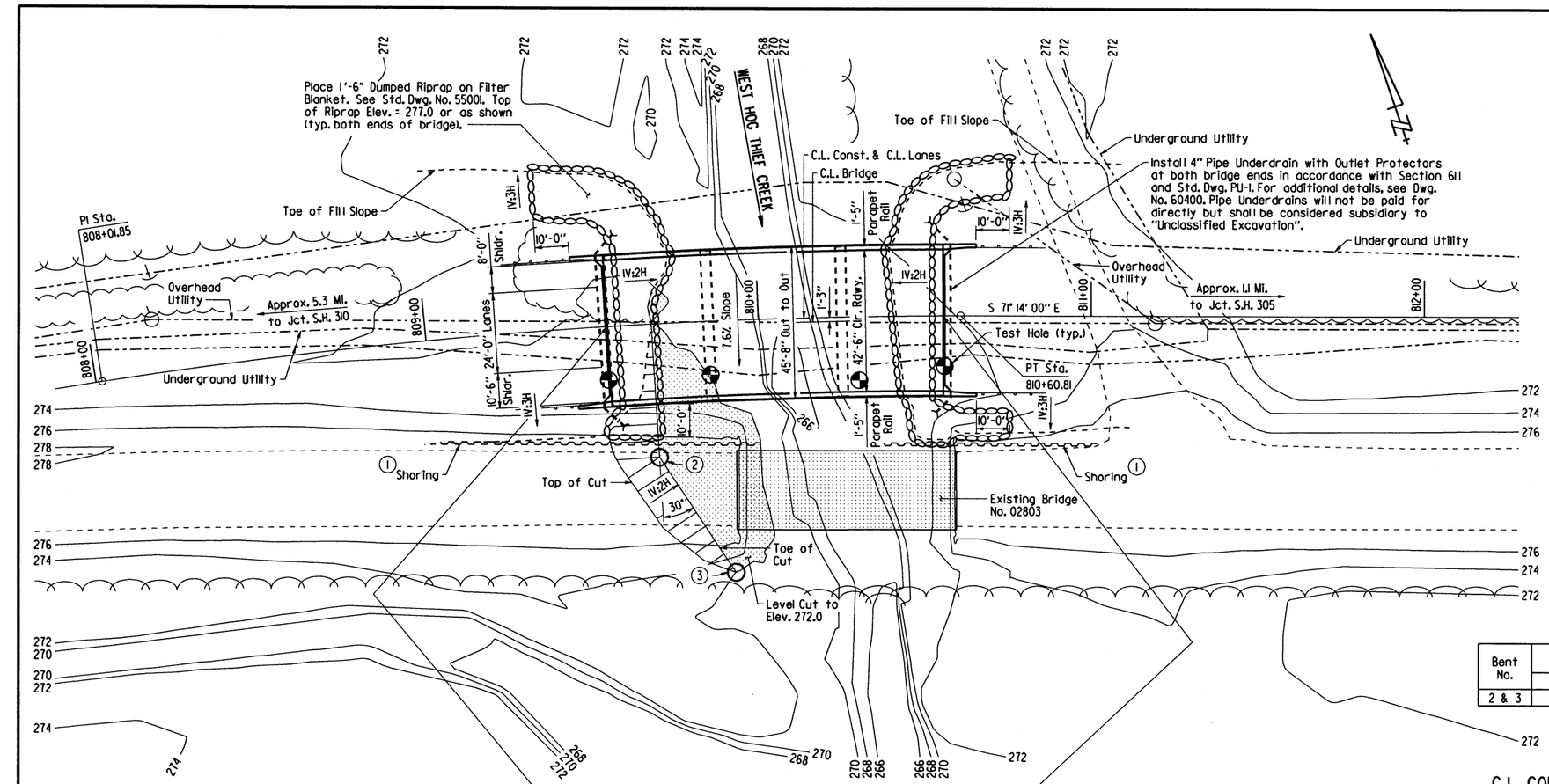
F.L. INLET RT. 298.81
F.L. EXIST. INLET RT. 298.81
F.L. EXIST. OUTLET LT. 298.49
F.L. OUTLET LT. 298.40

RT. D.G. 1.87%
LT. D.G. 0.15%
RT. D.G. 2.23%
LT. DITCH GRADE 1.22%

314+77.00 RT. 295.40
314+77.00 LT. 295.07
318+00.00 RT. 296.00
318+70.00 LT. 294.80
319+00.00 RT. 297.87
319+30.00 LT. 298.30
319+97.00 RT. 298.81
319+97.00 LT. 298.40
321+00.00 RT. 301.11
324+00.00 LT. 303.30

7/9/2019
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	117	226
				① 07429 -		LAYOUT		- 60390

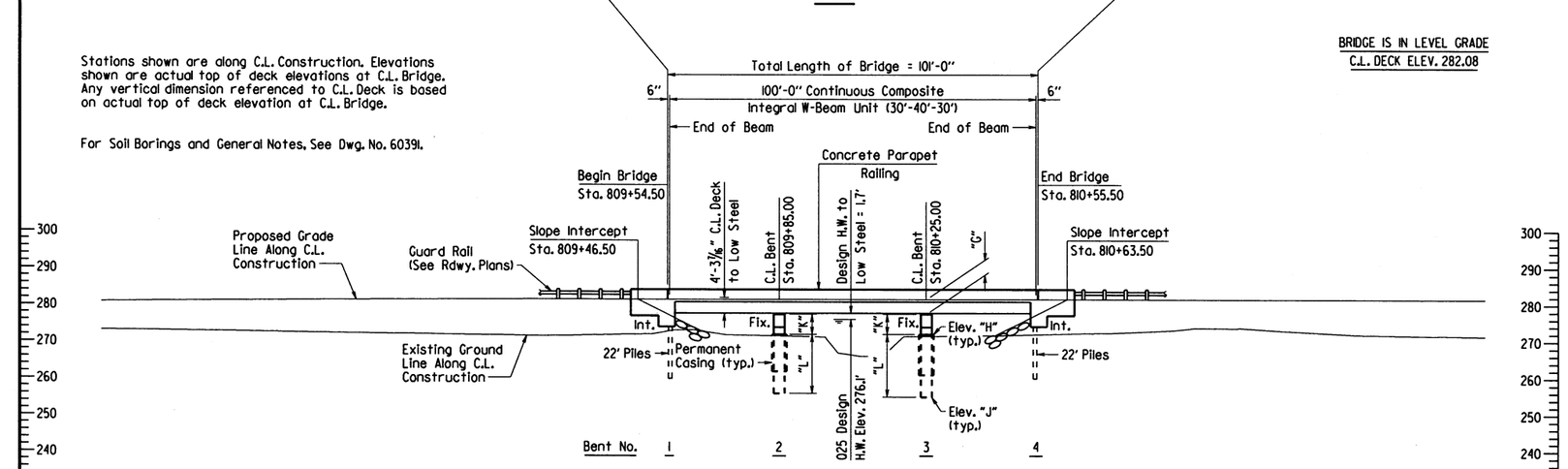


PLAN

Stations shown are along C.L. Construction. Elevations shown are actual top of deck elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on actual top of deck elevation at C.L. Bridge.

For Soil Borings and General Notes, See Dwg. No. 60391.

BRIDGE IS IN LEVEL GRADE
C.L. DECK ELEV. 282.08



ELEVATION

TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap	Top of Shaft Elevation	Bottom of Shaft Elevation	Low Seat of Cap to Top of Shaft	Length of Shaft
	"G"	"H"	"J"	"K"	"L"
2 & 3	4'-6⅝"	272.00	252.00	5'-6"	20'-0"

For R/W Data, See Roadway Plans.

C.L. Construction is on a 3°30' curve right. C.L. beams and the longitudinal lines of both the bridge and approach slabs shall be constructed on curves concentric with C.L. Construction within the limits of the horizontal curve. C.L. Caps & Anchor Bolts of end bents and C.L. Caps & Bearings of intermediate bents shall be constructed on radial lines to C.L. Construction.

Use Type Special Approach Gutters (right side only) and Type C Approach Gutters (left side only, "W" = 8'-0") at both ends of bridge. See Dwg. No. 60402 & Std. Dwg. No. 55030C, respectively.

Use Type C2 Approach Slabs (width = 24'-0") at both ends of bridge. See Std. Dwg. No. 55040C2.

The Contractor shall excavate the existing embankment as shown to elevation 272. Approx. 173 cubic yards of excavation.

For details of superelevation transition, see Dwg. No. 60391.

① Sharing will be required. See Special Provision Job No. 050280 "Sharing".

② Approx. Sta. 809+68, 40'-0" Rt. of C.L. Const.

③ Approx. Sta. 809+90, 75'-8" Rt. of C.L. Const.

C.L. CONSTRUCTION HORIZONTAL CURVE DATA

P.I. Sta. 808+01.85
Delta = 18° 17' 00" Rt.
D = 3° 30' 00"
L = 522.38'
T = 263.43'
R = 1637.02'
P.C. Sta. 805+38.43
P.T. Sta. 810+60.81

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	④ NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	1880	275.1	276.4
Base	100	2590	275.6	277.6
Extreme	500	3450	276.2	278.7
Overtopping	>500	-	-	-

④ Unconstricted water surface without structure or roadway approaches.

0100 Backwater Elevation for Existing Structure = 277.4 ft.
Proposed Low Bridge Chord Elevation = 277.79 ft.
Drainage Area = 3.29 square miles

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 36 OVER WEST HOG THIEF CREEK
JOY - SEARCY (S)
WHITE COUNTY

ROUTE 36 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 4/12/17
CHECKED BY: BHG DATE: 4/18/19
DESIGNED BY: EOR DATE: 4/20/17
FILENAME: b050280xl_ll.dgn
SCALE: 1" = 20'

BRIDGE NO. 07429 DRAWING NO. 60390

PRINT DATE: 4/18/2019

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.		050280	113	226
				(1) 07429 -		LAYOUT		- 60391

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 Interims.

LIVE LOADING: HL-93

SEISMIC PERFORMANCE ZONE: 1 S_{D1}: 0.115 Site Class: B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

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

STEEL PILING: Piling at Bents 1 and 4 shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as Shale on the boring legend. Minimum penetration shall be 15' below bottom of cap. Piling shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths to be determined in the field. The Contractor shall use approved steel H-pile driving points on all piles.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Preboring shall be to a minimum depth of 5' into the material designated as Shale on the boring legend, or to a depth sufficient to provide the specified minimum pile penetration. Prebored holes shall have a diameter 6" greater than the diagonal of the pile for a depth of 10' below the bottom of the cap. The size and depth of the remaining preboring shall be determined in the field by the Engineer. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to within 10' of the bottom of the cap, and the remaining 10' shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling, which may require the use of temporary casings or other methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts at Bents 2 and 3 shall be constructed in accordance with Special Provision Job No. 050280 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 7' into competent rock designated as Shale on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with Special Provision Job No. 050280 "Nondestructive Testing of Drilled Shafts".

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

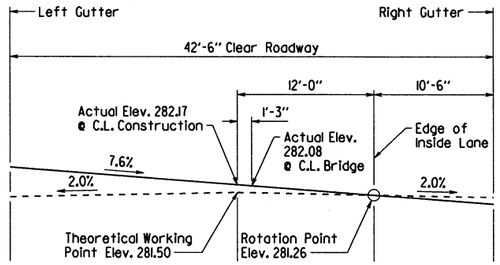
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	60392
Intermediate Bents	60393-60394
Elastomeric Bearings	60395
100'-0" Integral W-Beam Unit	60396-60401
Type Special Approach Gutter	60402
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Steel H-Piling	55020
Type C Approach Gutters	55030C
Type C2 Approach Slab	55040C2

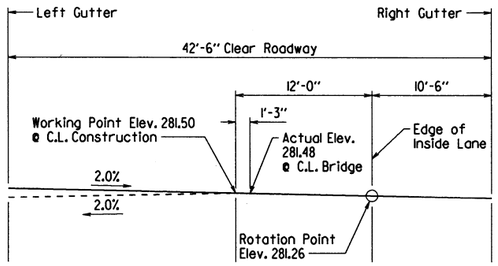
EXISTING BRIDGE: Existing Bridge No. 02803 (Log Mile 11.35') is 26.5' wide (24.0' Roadway) and 66.0' long and consists of R.C. Slab Spans supported by two column reinforced concrete bents with spread footings.

REMOVAL AND SALVAGE: After the new bridge is opened to traffic, existing Bridge No. 02803 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

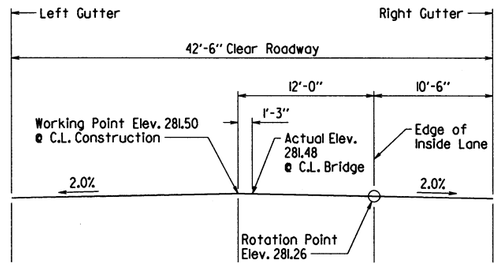
MAINTENANCE OF TRAFFIC: See Roadway Plans.



Sta. 810+56.08
(Superelevation Transition Begins)



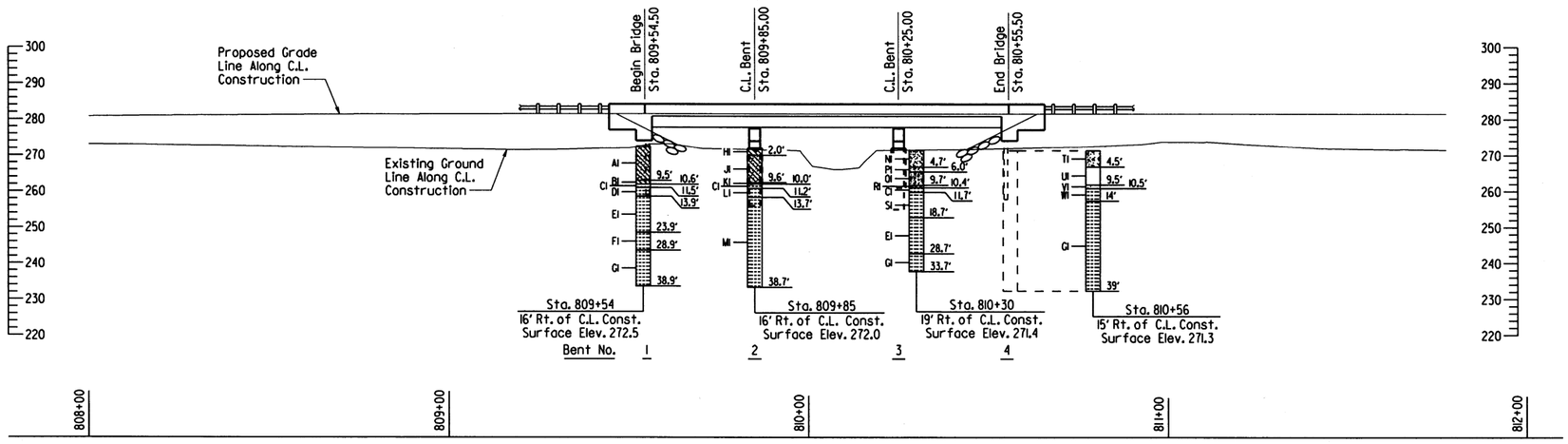
Sta. 812+51.35



Sta. 813+56.08
(End Superelevation, Normal Crown)

SUPERELEVATION TRANSITION

Looking Ahead
No Scale



BORING LEGEND

AI-Moist, Soft, Gray Sandy Clay
BI-Moist, Hard, Brown Clay with Some Sand
CI-SHALE - Highly Weathered, Soft, Gray
DI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Slightly Weathered, Medium Hard, Occasional Fractures, Gray
EI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Unweathered, Medium Hard, Occasional Fractures, Gray
FI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Unweathered, Medium Hard, Frequent Fractures, Gray
GI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Unweathered, Medium Hard, Gray
HI-Moist, Brown Clay with Gravel and Some Sand
JI-Moist, Soft, Brown Sandy Clay
KI-Wet, Very Hard, Brown Sandy Clay
LI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Slightly Weathered, Soft, Frequent Fractures, Gray
MI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Unweathered, Soft, Frequent Fractures, Gray
NI-Brown Clayey Sand
PI-Moist, Medium Dense, Brown and Gray Clayey Sand with Gravel
QI-Wet, Medium Dense, Brown and Gray Clayey Sand with Gravel
RI-Wet, Very Hard, Brown and Gray Sandy Clay with Gravel (Shale Fragments)
SI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Slightly Weathered, Medium Hard, Frequent Fractures, Gray
TI-Gravel
UI-No Sample (Gravel Blocked Off Sampler)
VI-Wet, Very Dense, Brown Sand with Clay
WI-SHALE WITH FREQUENT SANDSTONE PARTINGS - Slightly Weathered, Medium Hard, Gray

ELEVATION OF SOIL BORINGS

1" = 20'

"N" VALUES

Sta. 809+54 - 16' Rt. of C.L. Const.
5.0- 6.0, N=4
10.0- 11.0, N=56

Sta. 809+85 - 16' Rt. of C.L. Const.
5.1- 6.1, N=4
10.1- 10.9, N=82 (9')

Sta. 810+30 - 19' Rt. of C.L. Const.
5.2- 6.2, N=11
10.2- 11.2, N=74 (7')

Sta. 810+56 - 15' Rt. of C.L. Const.
5.0- 6.0, N=12
10.0- 10.5, N=22 (6')

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9935
4-18-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 36 OVER WEST HOG THIEF CREEK
JOY - SEARCY (S)
WHITE COUNTY

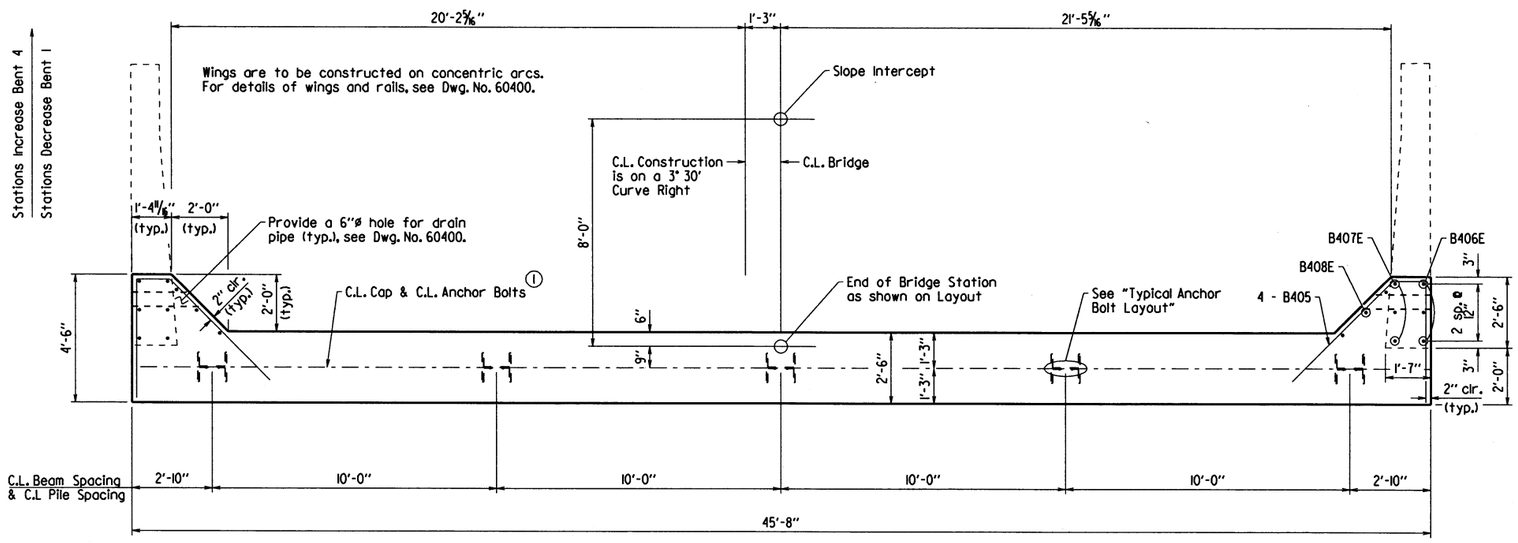
ROUTE 36 SEC. 3
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 4/12/17 FILENAME: b050280xl_lL.dgn
CHECKED BY: BHS DATE: 4/11/19 SCALE: As Noted
DESIGNED BY: EOR DATE: 4/17

BRIDGE NO. 07429 DRAWING NO. 60391

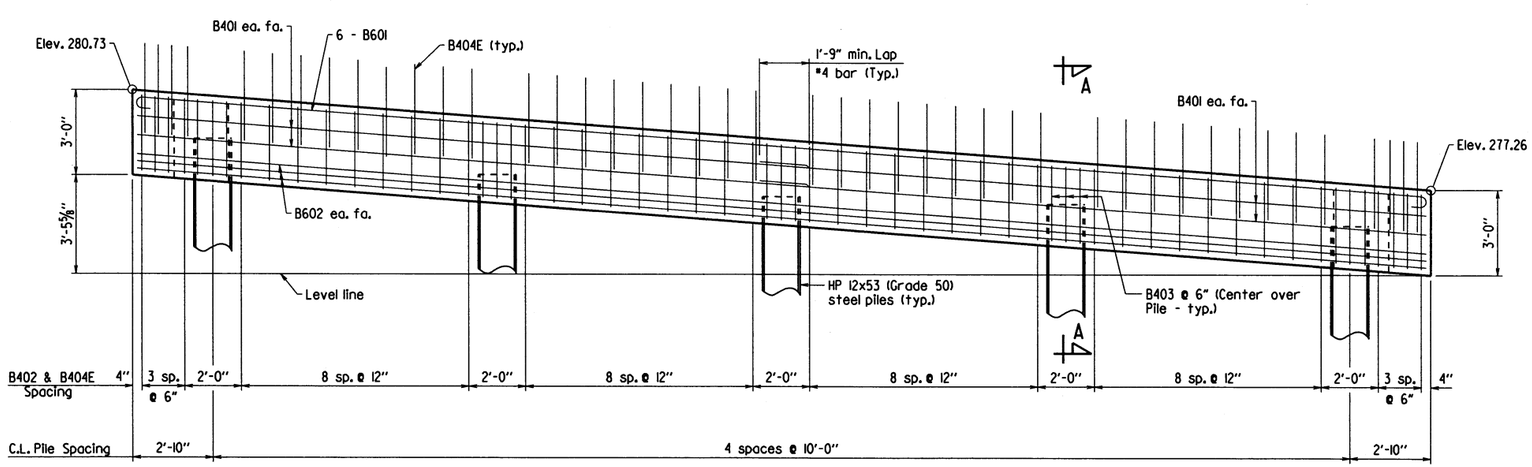
PRINT DATE: 4/11/2019

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.		050280	119	226
				① 07429 -		END BENTS	- 60392	



PLAN

Bent 4 Shown
Bent 1 Similar
⅜" = 1'-0"



ELEVATION

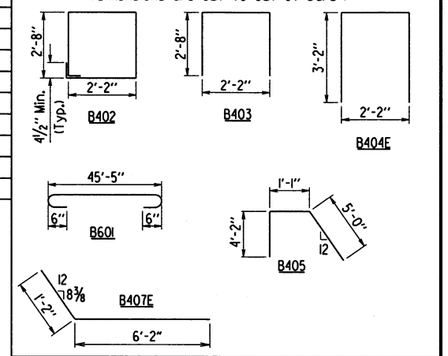
Looking Ahead Bent 4
Bent 1 Similar
⅜" = 1'-0"

BAR LIST - PER BENT

	Mark	No. Req'd.	Length	Pin Dia.
	B401	8	23'-7"	Str.
	B402	44	10'-0"	2"
	B403	15	7'-4"	2"
	B404E	44	8'-4"	2"
②	B405	8	10'-2"	2"
②	B406E	6	8'-5"	Str.
②	B407E	6	7'-4"	2"
②	B408E	6	4'-5"	Str.
	B601	6	46'-9"	4½"
	B602	6	45'-5"	Str.

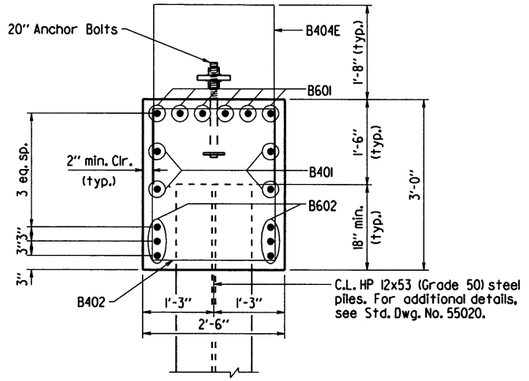
Bending Diagrams

(Dimensions are out to out of bars)



② See Dwg. No. 60400 for addtional details.

Bars designated with an "E" suffix are to be epoxy coated.



SECTION A-A

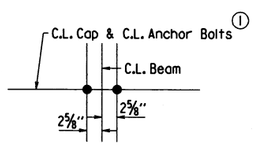
¾" = 1'-0"

Bars B406E, B407E, & B408E shall have a 2'-10" embedment into the end bent cap.

Granular Backfill and Pipe Underdrain required behind Cap. See Dwg. No. 60397.

Bent 4 is shown. Bent 1 is a mirror image of Bent 4 when looking back.

① C.L. Cap & C.L. Anchor Bolts shall be constructed on a radial line to C.L. Construction.



For details of anchor bolts, see Dwg. No. 60397.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS

BRIDGE ENGINEER

See Std. Dwg. No. 55006 for additional notes.

DETAILS OF END BENTS
WEST HOG THIEF CREEK

ROUTE SEC.

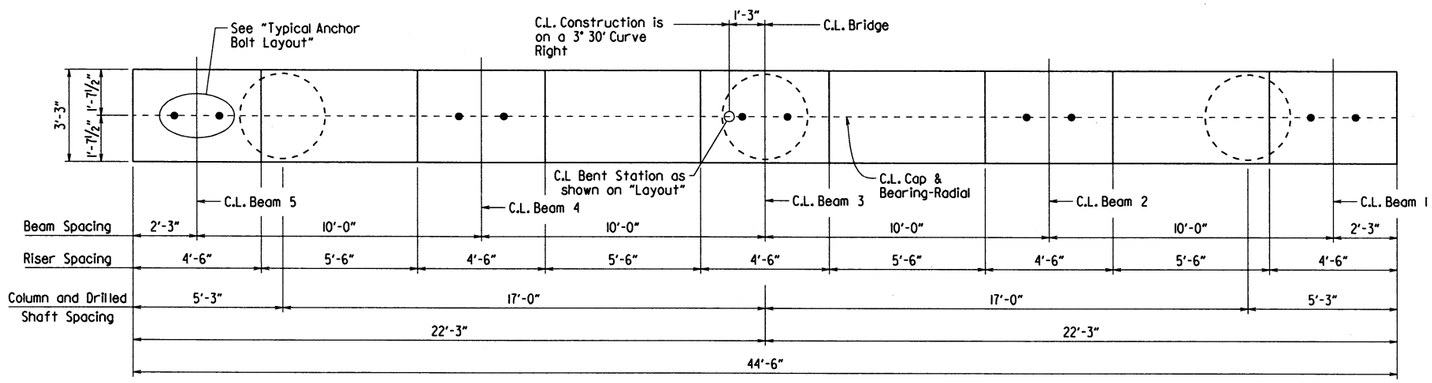
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/15/18
CHECKED BY: BHS DATE: 4/15/19
DESIGNED BY: DKS DATE: 7-2018
FILENAME: b050280xl_bl.dgn
SCALE: As Noted

BRIDGE NO. 07429 DRAWING NO. 60392

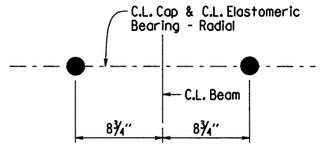
PRINT DATE: 4/15/2019

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.		050280	120	226
				① 07429 -		INT. BENTS	- 60393	



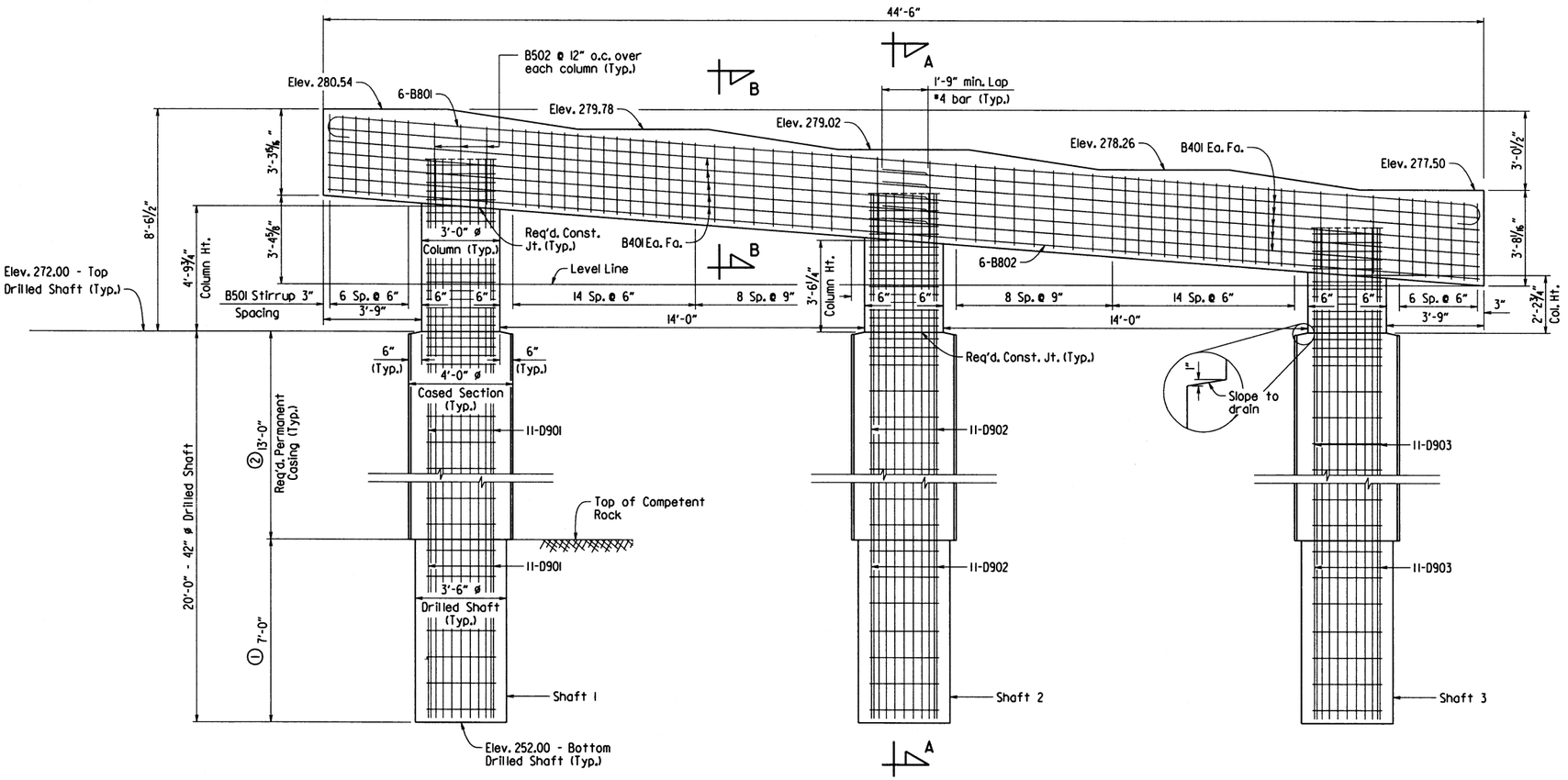
PLAN

For details of Elastomeric Bearings, See Dwg. No. 60395.



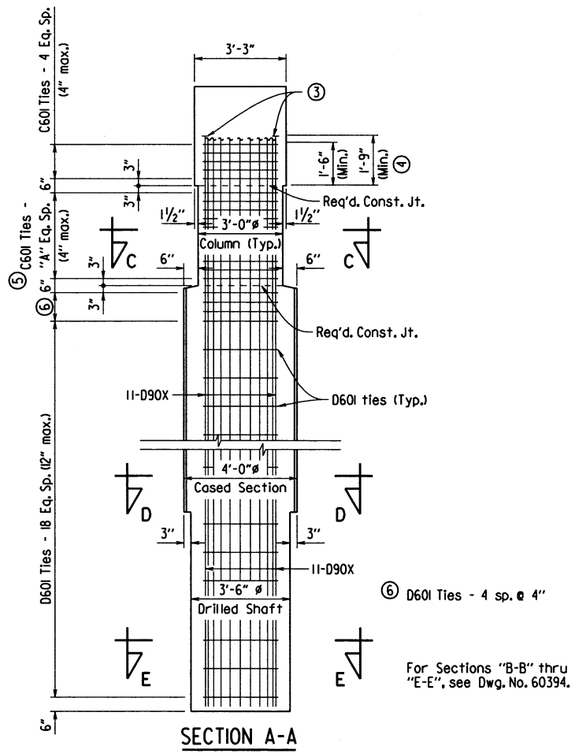
TYPICAL ANCHOR BOLT LAYOUT

No Scale



ELEVATION

Looking Ahead



SECTION A-A

For Sections "B-B" thru "E-E", see Dwg. No. 60394.

① Minimum penetration into competent rock below permanent casing.

② Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 050280 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

③ Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 050280 "Headed Steel Bars for Concrete Reinforcement".

④ Provide minimum as per manufacturer's recommendations but no less than what is shown.

GENERAL NOTES

For additional General Notes, See Std. Dwg. No. 55006.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 050280 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (42" Dia.)" and "Permanent Steel Casing (48" Dia.)".

For additional information, See Layout.

⑤ TABLE OF VARIBLES

SHAFT NO.	"A"
1	13
2	9
3	6

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
4-18-19
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

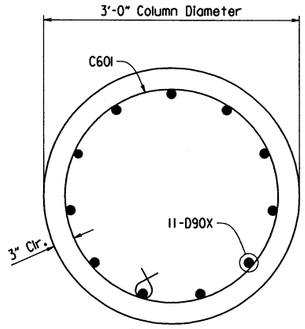
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/01/2018 FILENAME: b050280x1_b2.dgn
CHECKED BY: BHS DATE: 4/11/19 SCALE: ⅜" = 1'-0" or As Noted
DESIGNED BY: DKS DATE: 7-2018

BRIDGE NO. 07429 DRAWING NO. 60393

PRINT DATE: 4/11/2019

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.		050280	121	226
				① 07429 -		INT. BENTS	- 60394	



SECTION C-C
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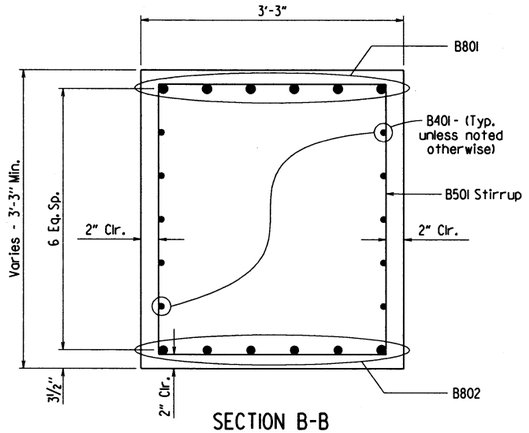
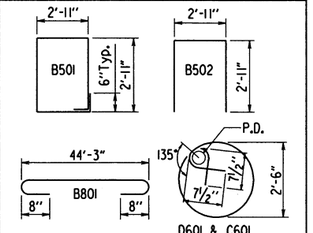


SECTION B-B
No Scale

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	P.D.
	B401	20	23'-0"	Str.
	B501	60	12'-2"	2½"
	B502	9	8'-7"	2½"
	B801	6	46'-1"	6"
	B802	6	44'-3"	Str.
	C601	46	9'-6"	4½"
①	D601	69	9'-6"	4½"
①②	D901	11	26'-6"	Str.
①②	D902	11	25'-3"	Str.
①②	D903	11	23'-11"	Str.

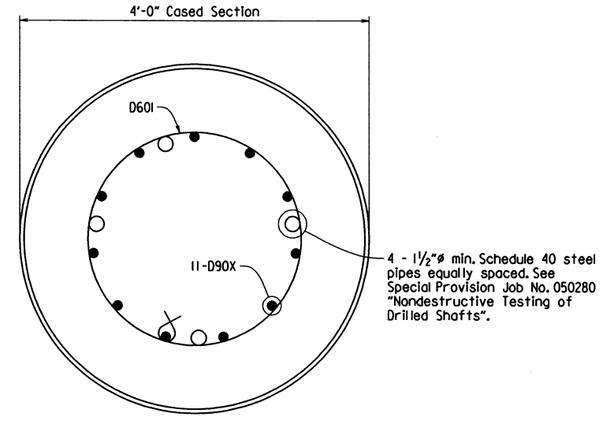
BENDING DIAGRAMS



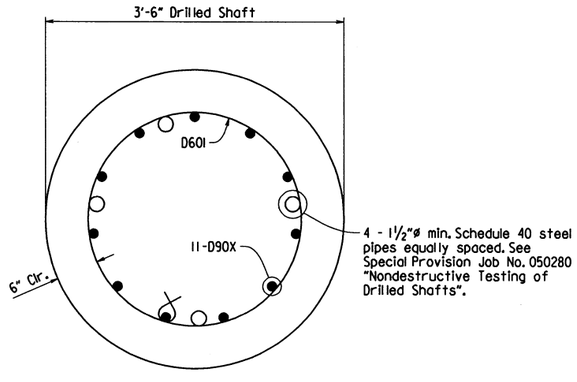
Dimensions are out to out of bars.

① Non-pay item. Subsidiary to Special Provision Job No. 050280 "Drilled Shaft Foundations".

② Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 050280 "Headed Steel Bars for Concrete Reinforcement". Rebar length shown is estimated and may require adjustment.



SECTION D-D
No Scale



SECTION E-E
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

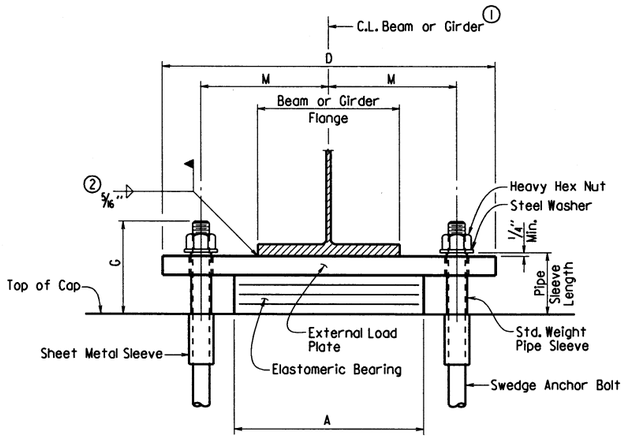
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/01/2018 FILENAME: b050280xl_b2.dgn
CHECKED BY: DWS DATE: 4/11/19 SCALE: As Noted
DESIGNED BY: DWS DATE: 7-2018

BRIDGE NO. 07429 DRAWING NO. 60394

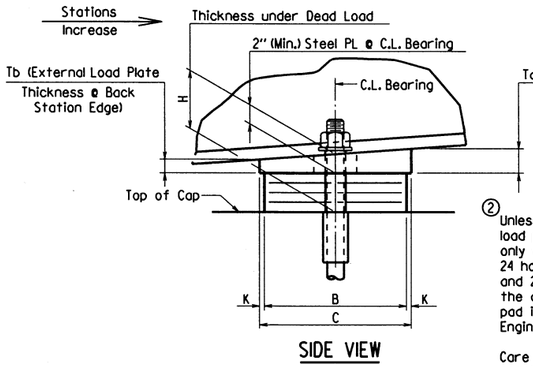
PRINT DATE: 4/11/2019

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.		050280	122	226
				①		07429 - ELASTO BRGS. - 60395		



FRONT VIEW

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

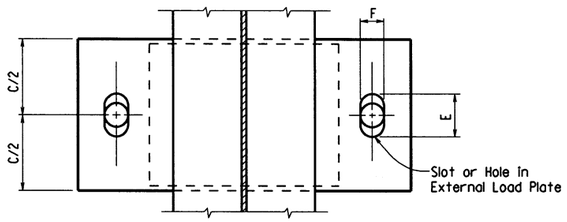


SIDE VIEW

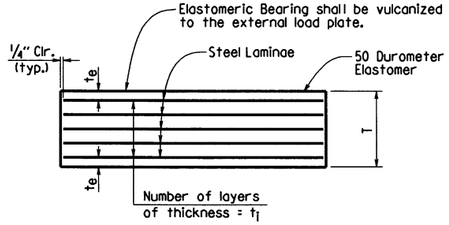
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

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

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



PLAN VIEW



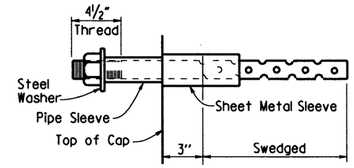
t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.



ANCHOR BOLT DETAIL

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

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

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD						EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO (S).	BEAM OR GIRDER NO.						A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07429	2	All	Fix	5	151	6 5/8"	3 13/16"	13"	11 1/2"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	12 1/2"	23"	2 1/4"	2 1/4"	1/2"	8 3/4"	2.00"	2.00"	1 1/2" x 22"	55	1 1/2" x 4 1/8"	3" x 6"	3"
	3	All	Fix	5	151	6 5/8"	3 13/16"	13"	11 1/2"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	12 1/2"	23"	2 1/4"	2 1/4"	1/2"	8 3/4"	2.00"	2.00"	1 1/2" x 22"	55	1 1/2" x 4 1/8"	3" x 6"	3"

PRINT DATE: 4/11/2019

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

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

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-16-19
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/2017
CHECKED BY: DHS DATE: 4-11-19
DESIGNED BY: EOR DATE: 8/2017
FILENAME: b050280xl_el.dgn
SCALE: None

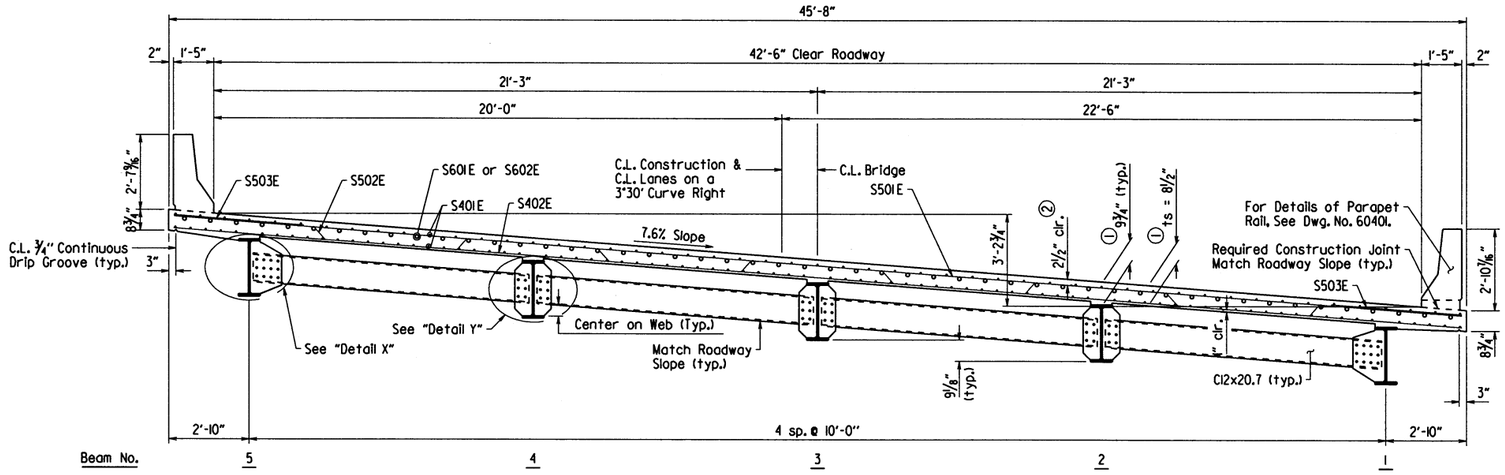
BRIDGE NO. 07429 DRAWING NO. 60395

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.		050280	123	226
				① 07429 - 100'-0" UNIT - 60396				

Slab Reinforcing:

Longitudinal: S401E as shown
S601E and S602E as shown, see "Reinforcing Plan & Pouring Sequence", Dwg. No. 60399.

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over beams
S503E @ 6" in top at overhangs (bundled with no. 5 bars)



TYPICAL ROADWAY SECTION
Looking Ahead
⅜" = 1'-0"

Dimensions are out to out of bars.

Bars with an "E" suffix are to be epoxy coated.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters with full length lower runners directly on removable deck form will not be allowed.

①See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

②Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

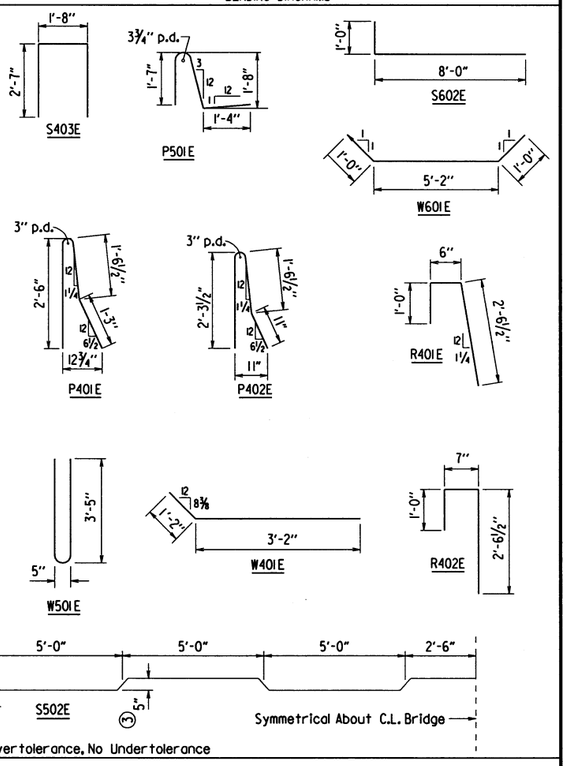
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail.

At the Contractor's option, two straight epoxy coated No. 5 bars, one placed in top and one placed in bottom, may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

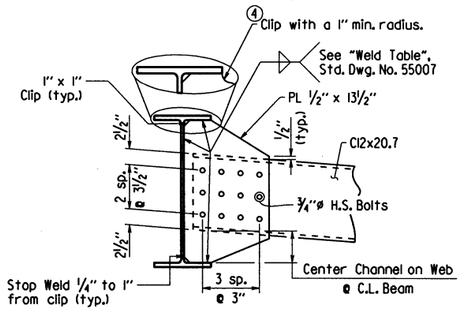
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	399	36'-0"	Str.
S402E	111	45'-4"	Str.
S403E	88	6'-8"	2"
S501E	105	45'-4"	Str.
S502E	96	46'-4"	3"
S503E	402	4'-7"	Str.
S504E	86	4'-8"	Str.
S601E	100	25'-0"	Str.
S602E	100	8'-10"	4½"
P401E	389	5'-5"	2"
P402E	24	4'-10"	2"
P403E	48	5'-7"	Str.
P404E	35	13'-2"	Str.
P405E	35	12'-10"	Str.
P406E	28	8'-1"	Str.
P407E	28	8'-4"	Str.
P501E	389	4'-9"	2½"
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	4'-0"	Str.
R601E	32	5'-5"	Str.
R602E	12	5'-0"	Str.
W401E	20	4'-4"	2"
W402E	20	5'-7"	Str.
W501E	32	7'-1"	3¾"
W601E	12	7'-2"	4½"
W701E	32	12-0"	Str.

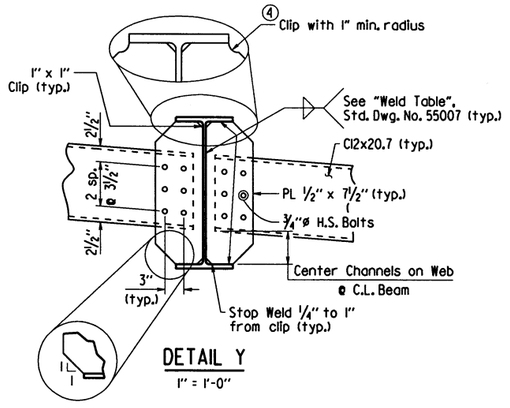
BENDING DIAGRAMS



③½" Overtolerance, No Undertolerance



DETAIL X
1" = 1'-0"



DETAIL Y
1" = 1'-0"

④If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9935
4-18-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT WEST HOG THIEF CREEK

ROUTE SEC.

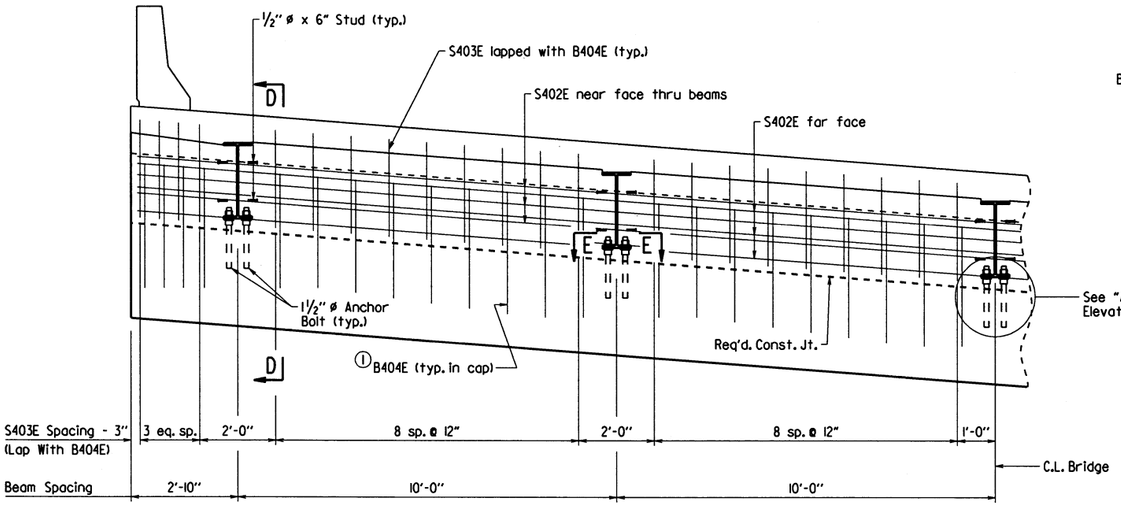
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/2018 FILENAME: b050280x1_sl.dgn
CHECKED BY: BJS DATE: 4/18/19 SCALE: As Noted
DESIGNED BY: BDL DATE: 8/2017

BRIDGE NO. 07429 DRAWING NO. 60396

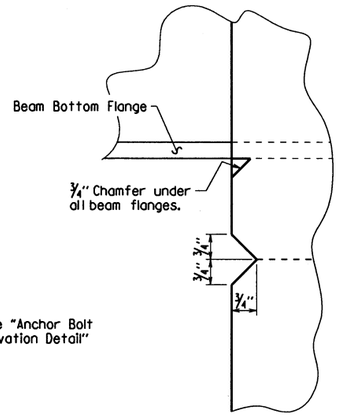
PRINT DATE: 4/18/2019

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.		050280	24	226
				① 07429 - 100'-0" UNIT - 60397				



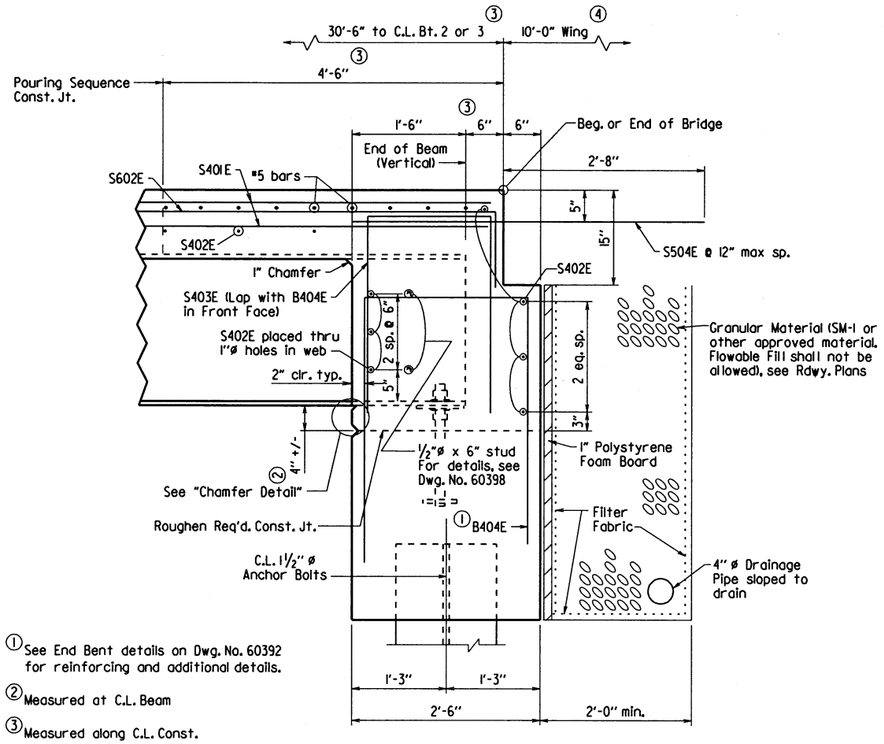
TYPICAL ROADWAY HALF SECTION AT END BENTS

Bent 4 Shown
Bent 1 Similar
½" = 1'-0"



CHAMFER DETAIL

No Scale



① See End Bent details on Dwg. No. 60392 for reinforcing and additional details.

② Measured at C.L. Beam

③ Measured along C.L. Const.

④ Measured along gutterline

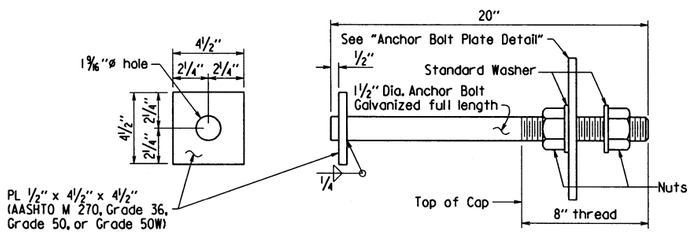
SECTION D-D

1" = 1'-0"

Limits of the concrete end diaphragm shall match plan dimension of End Bent Cap.

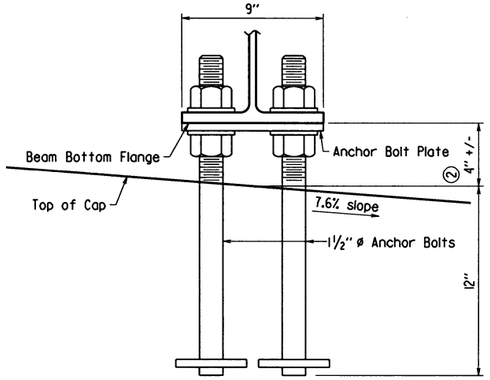
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

1" Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.



ANCHOR BOLT DETAIL

No Scale



ANCHOR BOLT ELEVATION DETAIL

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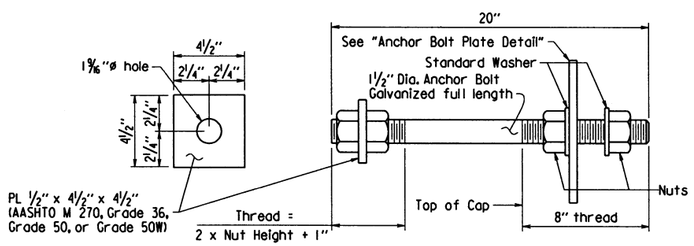
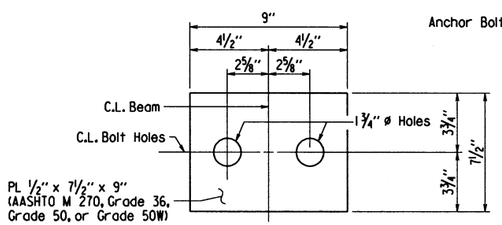


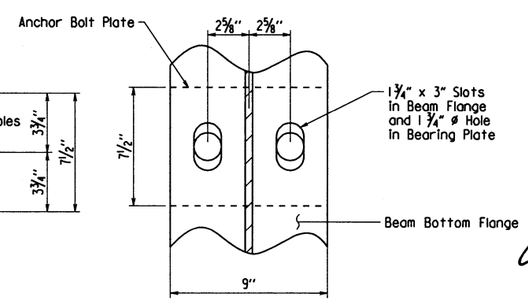
ALTERNATE ANCHOR BOLT DETAIL

No Scale



ANCHOR BOLT PLATE DETAIL

No Scale



VIEW E-E

No Scale

Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Plates, bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)".

STATE OF ARKANSAS
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4-16-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/2018
CHECKED BY: BHS DATE: 4/15/19
DESIGNED BY: EDR DATE: 8/2017

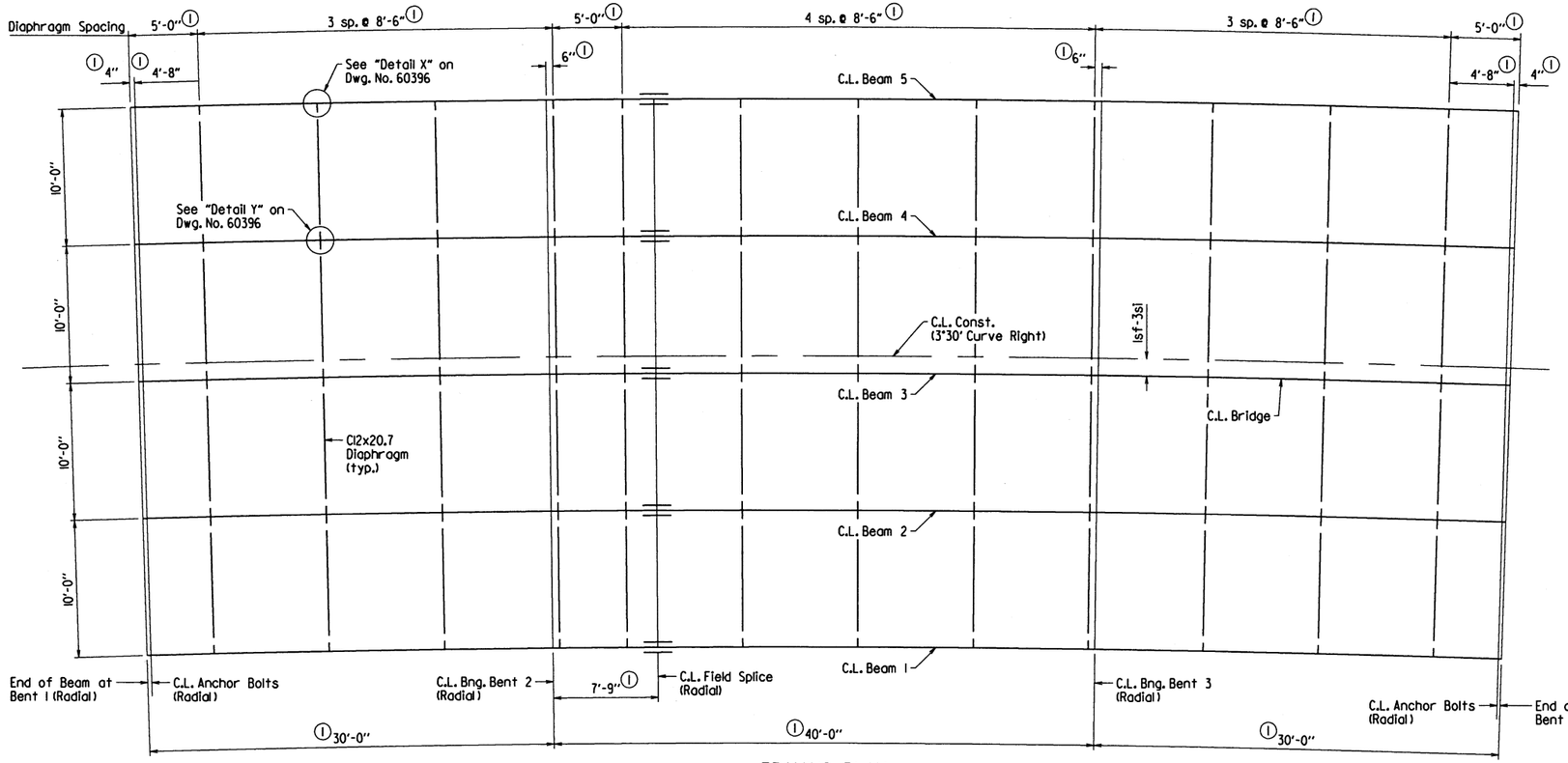
FILENAME: b050280xl_sl.dgn
SCALE: As Noted

BRIDGE NO. 07429

DRAWING NO. 60397

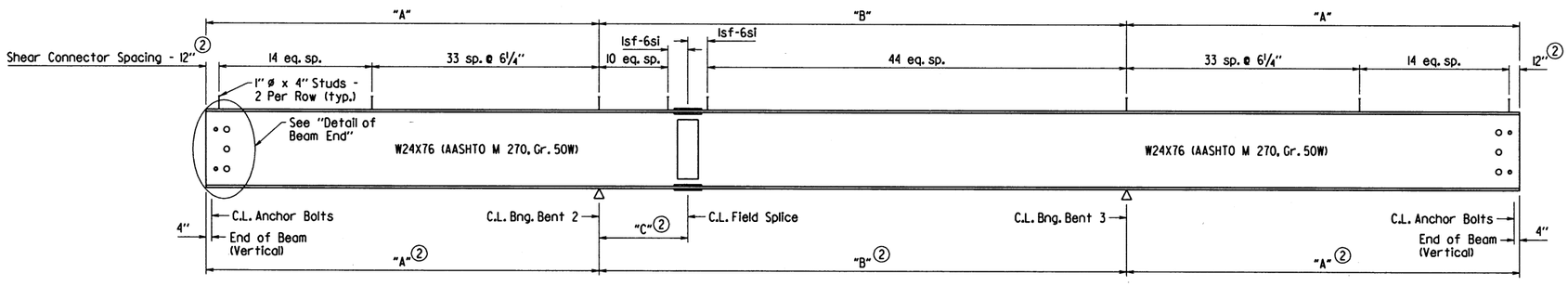
PRINT DATE: 4/15/2019

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.		050280	125	226
				① 07429 - 100'-0" UNIT - 60398				



FRAMING PLAN

3/16" = 1'-0"



TYPICAL BEAM ELEVATION

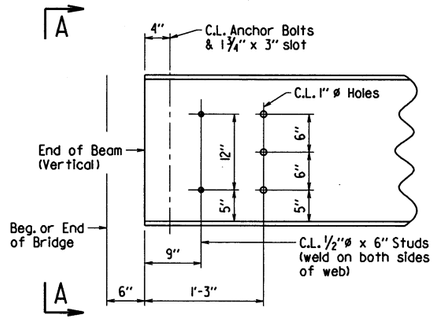
No Scale

All beams are placed concentric to C.L. Bridge.

All diaphragms are placed on radial lines.

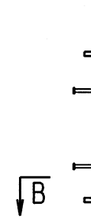
① Dimension measured along C.L. Construction.

② Dimension measured along C.L. Beam.



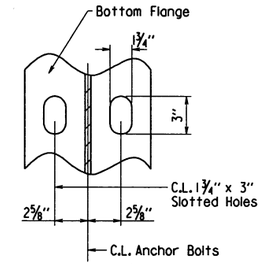
DETAIL OF BEAM END

1" = 1'-0"



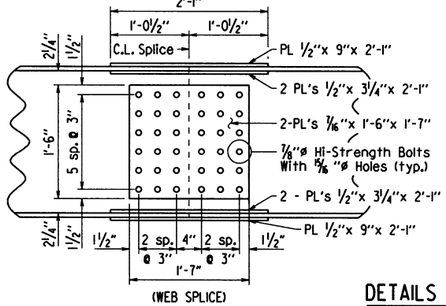
VIEW A-A

1" = 1'-0"

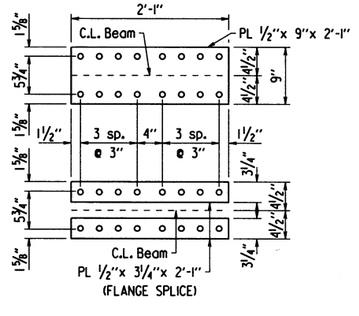


VIEW B-B

2" = 1'-0"



(WEB SPLICE)



(FLANGE SPLICE)

DETAILS OF FIELD SPLICE

1" = 1'-0"

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

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

All field splice bolts shall be ⅞"ø hi-str. bolts. All holes for splice bolts shall be 15/16"ø.

For Shear Connector detail, see Std. Dwg. No. 55007.

TABLE OF VARIABLES

Beam No.	"A"	"B"	"C"
1	29'-7 5/16"	39'- 5¾"	7'-7 15/16"
2	29'-9½"	39'-8 11/16"	7'-8 3/16"
3	29'-11¾"	39'-11 5/16"	7'-8 5/16"
4	30'-1 5/16"	40'-2 11/16"	7'-9½"
5	30'-4⅛"	40'-5½"	7'-10 1/16"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
7-18-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

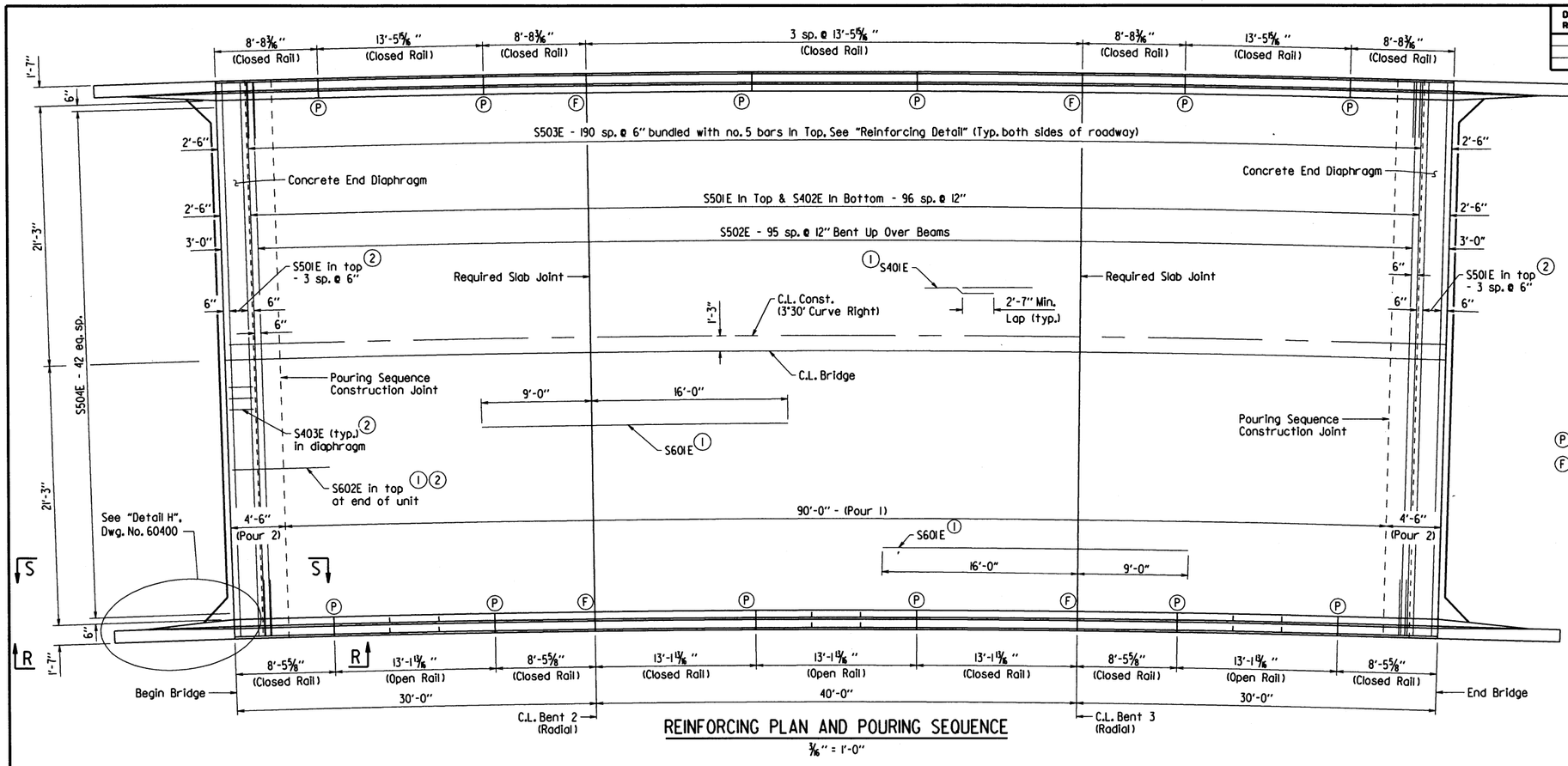
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/2018 FILENAME: b050280xl_sl.dgn
CHECKED BY: DKS DATE: 7/18/19 SCALE: As Noted
DESIGNED BY: EOR DATE: 8/2017

BRIDGE NO. 07429 DRAWING NO. 60398

PRINT DATE: 4/18/2019

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.		050280	126	226
				① 07429 - 100'-0" UNIT - 60399				



REINFORCING PLAN AND POURING SEQUENCE

3/16" = 1'-0"

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

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

Span lengths, Slab Pour Lengths, and transverse reinforcing spacing shown are measured along C.L. Construction.

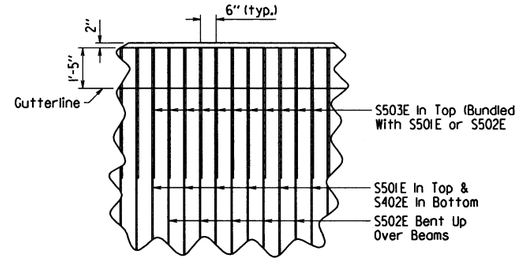
Rail spacings shown are measured along gutterlines.

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

(P) Partial depth parapet joint at this location.

(F) Full depth parapet joint at this location.

For typical roadway section at end bents, see Dwg. No. 60397.



REINFORCING DETAIL

No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel			Structural Steel + Slab			Str. Steel + Slab + Para.		
		Beam 1	Int. Beam	Beam 5	Beam 1	Int. Beam	Beam 5	Beam 1	Int. Beam	Beam 5
1	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.003	0.003	0.003	0.038	0.050	0.051	0.041	0.052	0.054
	0.2	0.006	0.006	0.006	0.069	0.092	0.093	0.074	0.097	0.099
	0.3	0.007	0.008	0.008	0.089	0.120	0.121	0.096	0.125	0.129
	0.4	0.008	0.009	0.009	0.096	0.130	0.131	0.103	0.135	0.140
	0.5	0.007	0.008	0.008	0.089	0.120	0.121	0.096	0.125	0.129
	0.6	0.006	0.006	0.006	0.072	0.096	0.096	0.078	0.100	0.103
	0.7	0.004	0.004	0.004	0.046	0.062	0.062	0.050	0.065	0.067
	0.8	0.002	0.002	0.002	0.020	0.027	0.027	0.022	0.028	0.029
	0.9	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001
2	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.003	0.003	0.003	0.039	0.051	0.051	0.042	0.053	0.054
	1.2	0.008	0.009	0.009	0.105	0.140	0.141	0.113	0.146	0.150
	1.3	0.014	0.015	0.015	0.170	0.225	0.228	0.183	0.235	0.243
	1.4	0.017	0.019	0.019	0.215	0.285	0.288	0.231	0.297	0.307
	1.5	0.019	0.020	0.021	0.233	0.307	0.312	0.251	0.321	0.333

Symmetrical about Half-point of Unit.

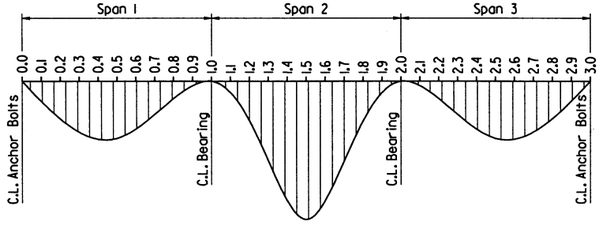
Pouring Sequence Notes:

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

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Concrete diaphragms at end bents shall be poured monolithically with the deck.



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Camber for Dead Load Deflection +/- 1/4" tolerance. Deflections shown are along C.L. Beam from the plane perpendicular to the web extending from C.L. Anchor Bolts to C.L. Bearing, or C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above plane.

① Placed as shown in "Typical Roadway Section", Dwg. No. 60396.

② See Dwg. No. 60397 for more details of reinforcing in concrete end diaphragm.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF
100'-0" INTEGRAL W-BEAM UNIT
WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/2018 FILENAME: b050280x1_sl.dgn

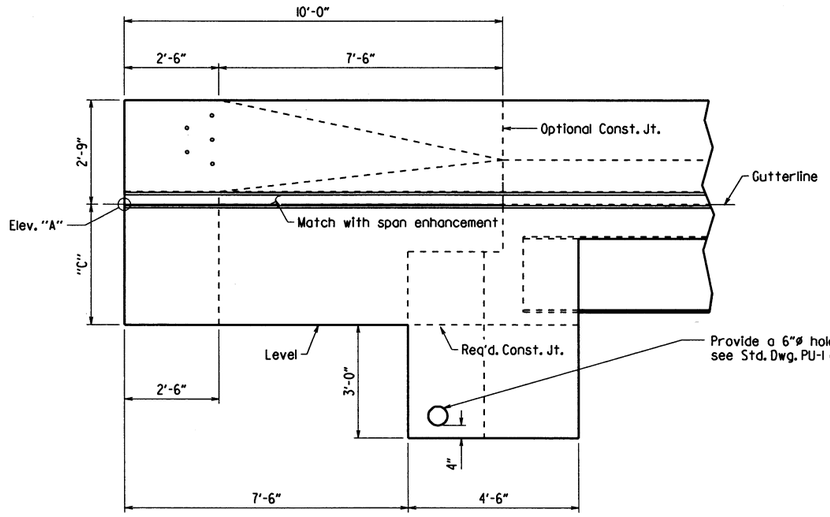
CHECKED BY: BHS DATE: 4/15/19 SCALE: As Noted

DESIGNED BY: EDR DATE: 8/2019

BRIDGE NO. 07429 DRAWING NO. 60399

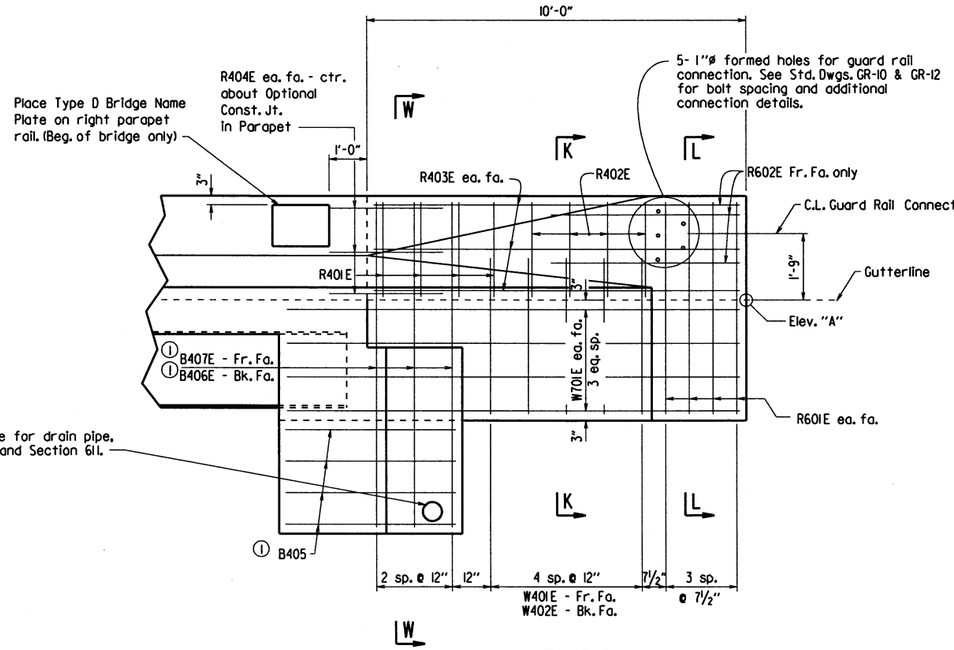
PRINT DATE: 4/15/2019

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.		050280	127	226
				① 07429 - 100'-0" UNIT - 60400				



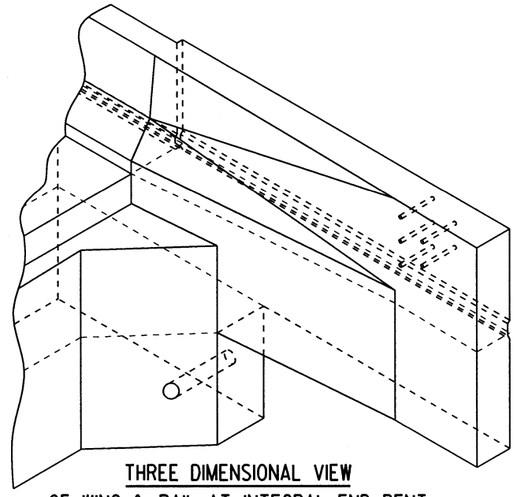
VIEW R-R

½" = 1'-0"



VIEW S-S

½" = 1'-0"



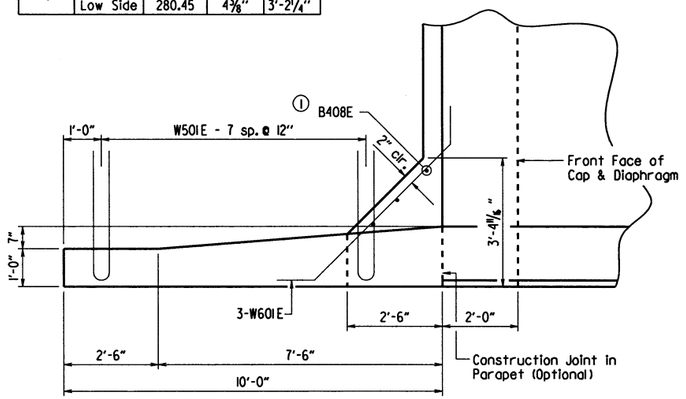
THREE DIMENSIONAL VIEW OF WING & RAIL AT INTEGRAL END BENT

No Scale

① See End Bent Details on Dwg. No. 60392 for reinforcing and additional details.

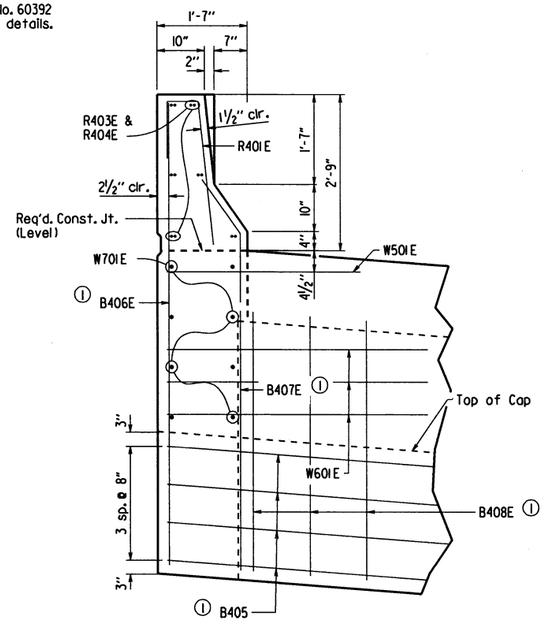
TABLE OF VARIABLES

Bent	Wing	Elev. "A"	"B"	"C"
1	High Side	283.74	1 5/8"	3'-1 3/16"
	Low Side	280.42	4 3/8"	3'-1 5/16"
4	High Side	283.65	1 5/8"	3'-0 1/2"
	Low Side	280.45	4 3/8"	3'-2 1/4"



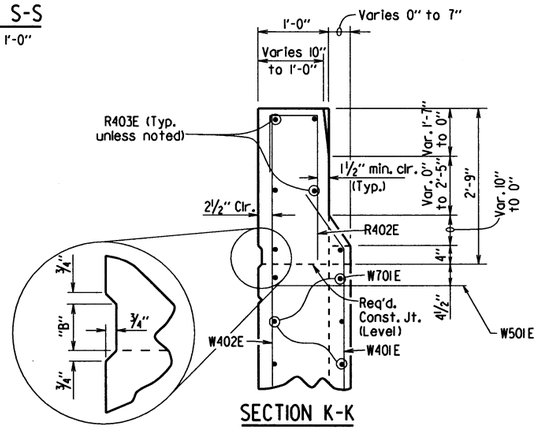
DETAIL H

½" = 1'-0"



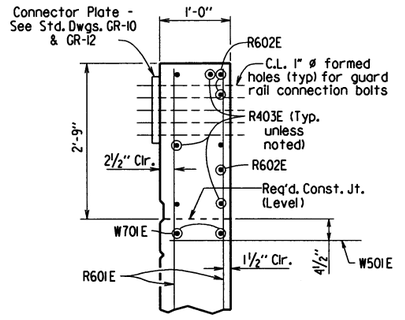
SECTION W-W

¾" = 1'-0"



SECTION K-K

No Scale



SECTION L-L

No Scale

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/2018 FILENAME: b050280x1_sl.dgn

CHECKED BY: BWS DATE: 4/18/19 SCALE: As Noted

DESIGNED BY: EOR DATE: 8/2017

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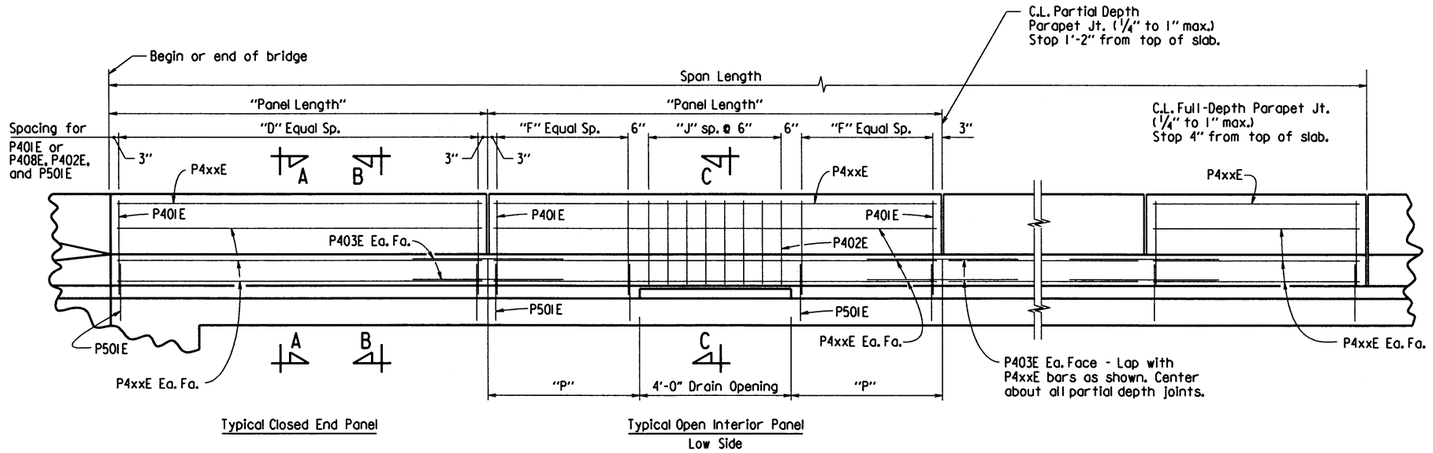
				6	ARK.			
				JOB NO.		050280	128	226
				① 07429 - 100'-0" UNIT - 60401				



Typical Closed End Panel

Typical Open Interior Panel
Low Side

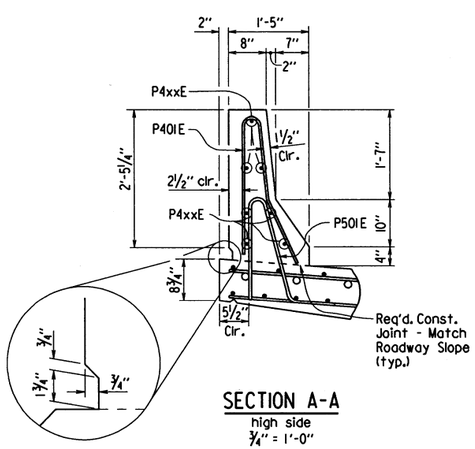
ELEVATION - CONCRETE PARAPET RAIL
No Scale

For location of full and partial depth parapet joints, see Dwg. No. 60399.

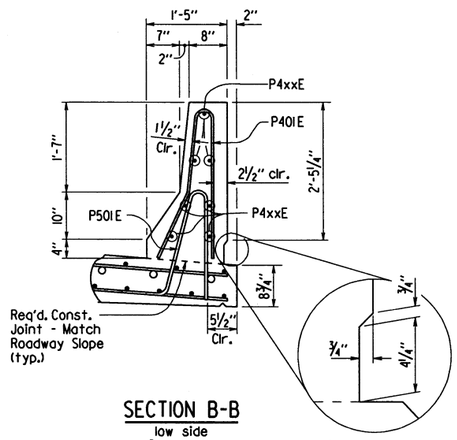
TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels				
Panel Length	"D"	P4xxE Bar	Panel Length	"F"	"J"	"P"	P4xxE Bar
13'-5 15/16"	26	P404E	13'-1 13/16"	9	7	4'-6 5/16"	P405E
13'-1 13/16"	26	P405E					
8'-5 5/16"	16	P406E					
8'-8 3/16"	17	P407E					

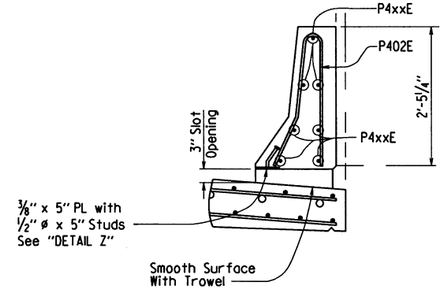
Panel lengths are measured along gutterlines.



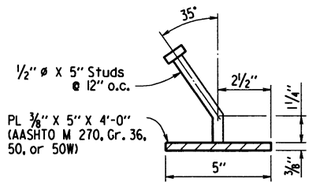
SECTION A-A
high side
¾" = 1'-0"



SECTION B-B
low side
¾" = 1'-0"



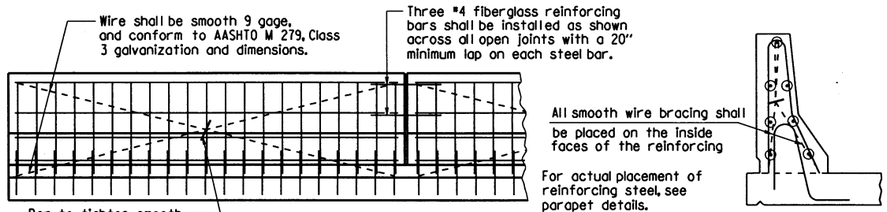
SECTION C-C
Low side only
¾" = 1'-0"



DETAIL Z
No Scale

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

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



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

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

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 100'-0" INTEGRAL W-BEAM UNIT WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 08/2018
CHECKED BY: BHS DATE: 4/18/19
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FILENAME: b050280xl_sl.dgn
SCALE: As Noted

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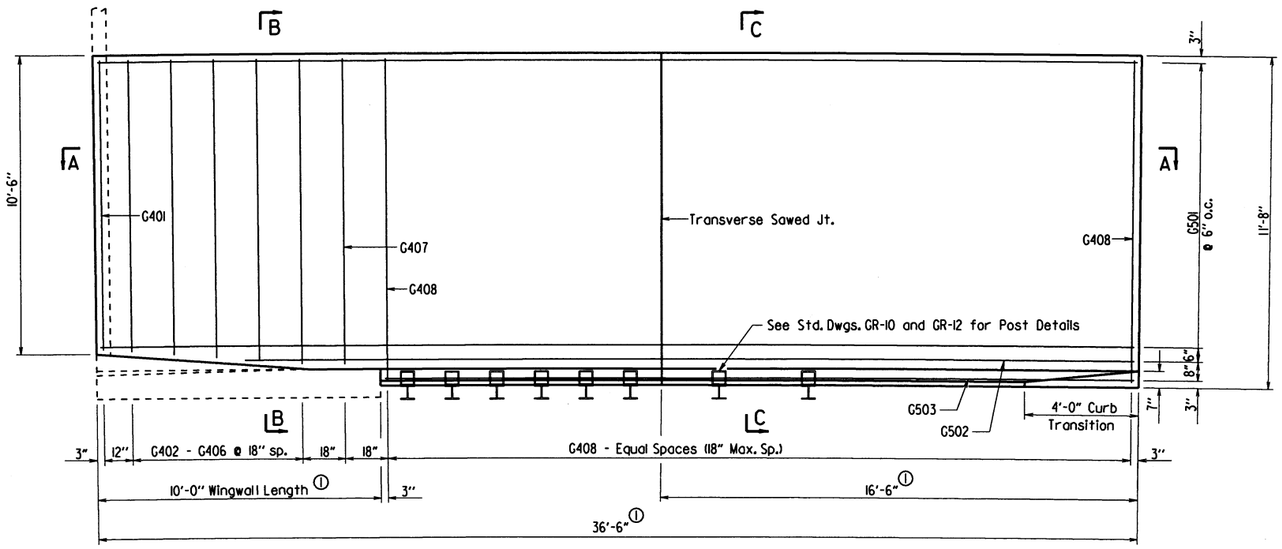
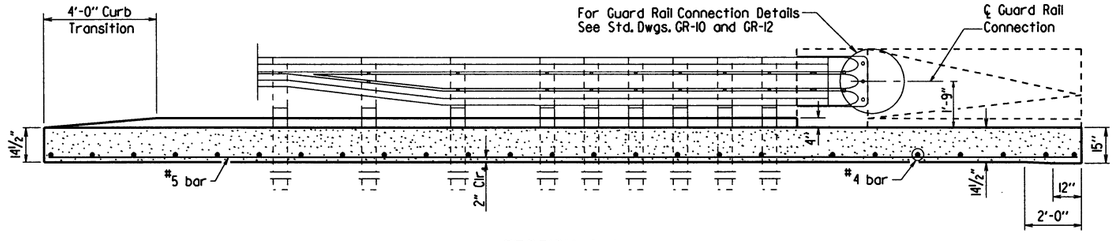
				JOB NO.		050280	129	226
				① 07429 - APPR. GUTTER - 60402				

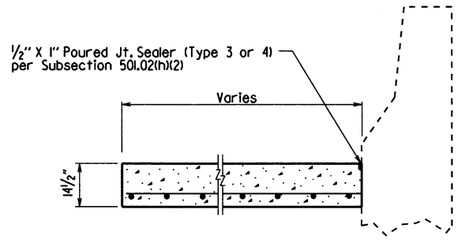


PLAN OF TYPE SPECIAL APPROACH GUTTER

① Measured along gutterline.



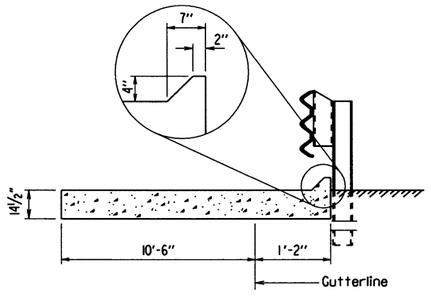
SECTION A-A



SECTION B-B
N.T.S.

BAR LIST FOR ONE TYPE SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	1	10'-2"
G402-G406	1 each	10'-3" to 10'-8"
G407	1	10'-9"
G408	19	11'-4"
G501	21	36'-2"
G502	1	30'-11"
G503	1	26'-2"



SECTION C-C
N.T.S.

QUANTITIES FOR ONE TYPE SPECIAL APPROACH GUTTER

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
1044	18.98

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

GENERAL NOTES

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

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

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

STATE OF ARKANSAS
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DETAILS OF TYPE SPECIAL APPROACH GUTTER WEST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 09/2018 FILENAME: b050280x1_agl.dgn
CHECKED BY: BLS DATE: 4-11-19 SCALE: 3/8" = 1'-0" or As Noted
DESIGNED BY: STD DATE: ——

BRIDGE NO. 07429 DRAWING NO. 60402

PRINT DATE: 4/11/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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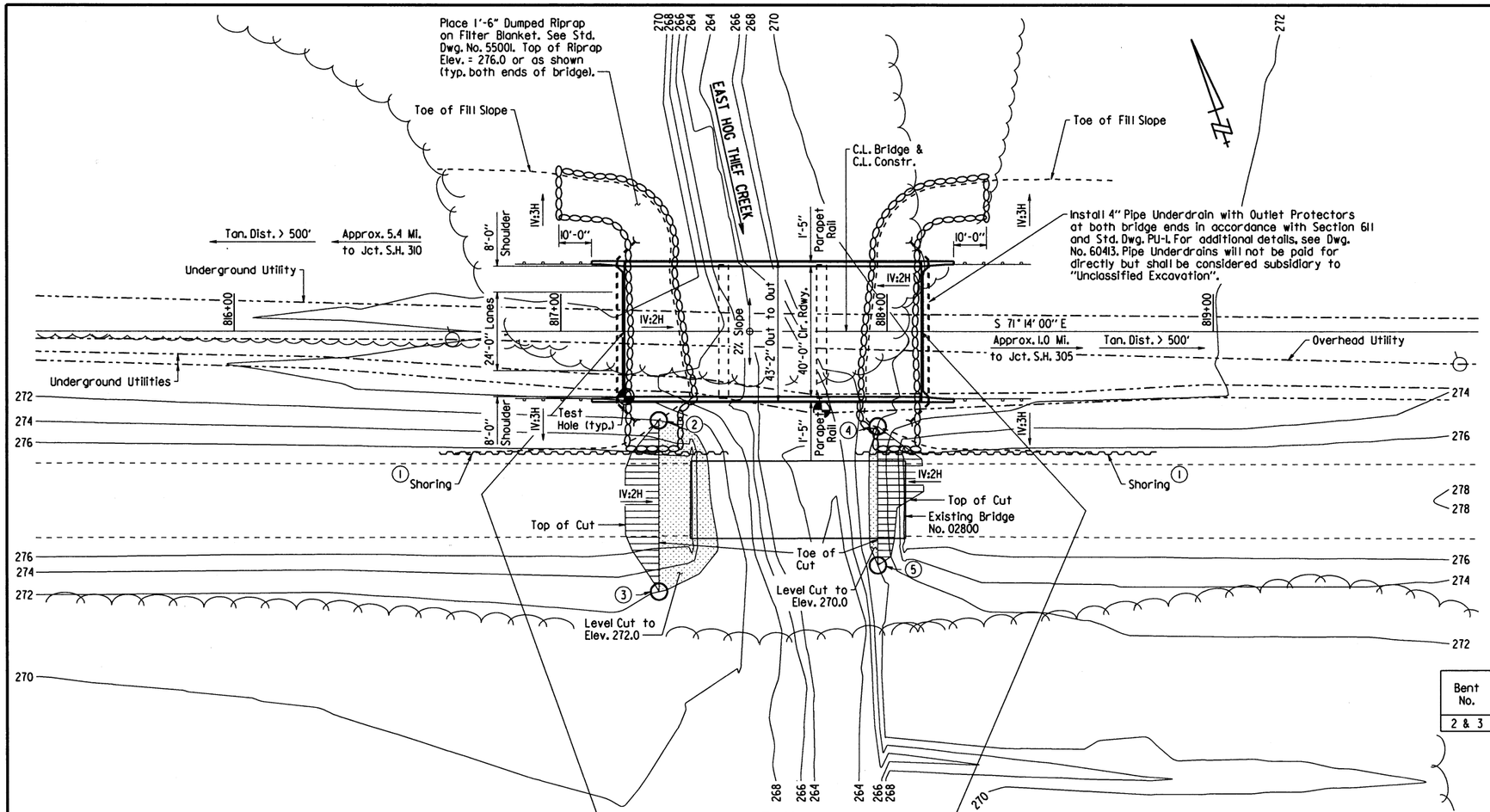


PLAN

For R/W Data, See Roadway Plans.

Use Type C Approach Gutters ("W" = 8'-0") and Type C2 Approach Slabs (width = 24'-0") at both ends of bridge. See Std. Dwg. Nos. 55030C & 55040C2, respectively.

The Contractor shall excavate the existing embankment as shown at both ends of bridge. Approx. 120 cubic yards of excavation.

① Shoring will be required. See Special Provision Job No. 050280 "Shoring".

② Approx. Sta. 817+30.00
27'-0" Rt of C.L. Construction

③ Approx. Sta. 817+30.00
80'-0" Rt of C.L. Construction

④ Approx. Sta. 817+97.00
29'-0" Rt of C.L. Construction

⑤ Approx. Sta. 817+97.00
72'-0" Rt of C.L. Construction

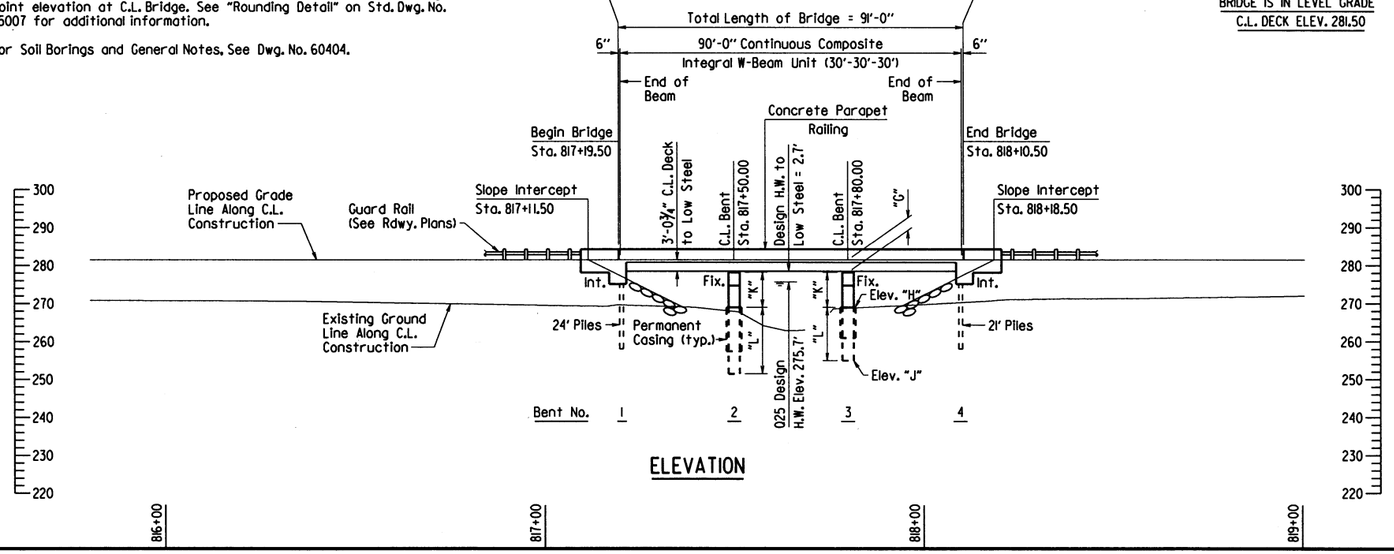
TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap "G"	Top of Shaft Elevation "H"	Bottom of Shaft Elevation "J"	Low Seat of Cap to Top of Shaft "K"	Length of Shaft "L"
2 & 3	3'-4 1/16"	270.00	250.00	8'-1 1/2"	20'-0"

Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "Rounding Detail" on Std. Dwg. No. 55007 for additional information.

For Soil Borings and General Notes, See Dwg. No. 60404.

BRIDGE IS IN LEVEL GRADE
C.L. DECK ELEV. 281.50



ELEVATION

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	⑥ NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	2680	275.1	276.3
Base	100	3700	275.6	277.5
Extreme	500	4950	276.2	278.6
Overtopping	>500	-	-	-

⑥ Unconstricted water surface without structure or roadway approaches.

Q100 Backwater Elevation for Existing Structure = 277.4 ft.
Proposed Low Bridge Chord Elevation = 278.44 ft.
Drainage Area = 5.53 square miles

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 36 OVER EAST HOG THIEF CREEK
JOY - SEARCY (S)
WHITE COUNTY

ROUTE 36 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 3/29/17
CHECKED BY: BMS DATE: 4/18/19
DESIGNED BY: EOR DATE: 3/2017
FILENAME: b050280x2_ll.dgn
SCALE: 1" = 20'

BRIDGE NO. 07430 DRAWING NO. 60403

PRINT DATE: 4/18/2019

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.		050280	131	226
				①	07430 -	LAYOUT	- 60404	

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 Interims.

LIVE LOADING: HL-93

SEISMIC PERFORMANCE ZONE: 1 S_{D1}: 0.115 Site Class: B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

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

STEEL PILING: Piling at Bents 1 and 4 shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as Shale on the boring legend. Minimum penetration shall be 15' below bottom of cap. Piling shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths to be determined in the field. The Contractor shall use approved steel H-pile driving points on all piles.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Preboring shall be to a minimum depth of 5' into the material designated as Shale on the boring legend, or to a depth sufficient to provide the specified minimum pile penetration. Prebored holes shall have a diameter 6" greater than the diagonal of the pile for a depth of 10' below the bottom of the cap. The size and depth of the remaining preboring shall be determined in the field by the Engineer. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to within 10' of the bottom of the cap, and the remaining 10' shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling, which may require the use of temporary casings or other methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts at Bents 2 and 3 shall be constructed in accordance with Special Provision Job No. 050280 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 7' into competent rock designated as Shale on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed in accordance with Special Provision Job No. 050280 "Nondestructive Testing of Drilled Shafts".

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

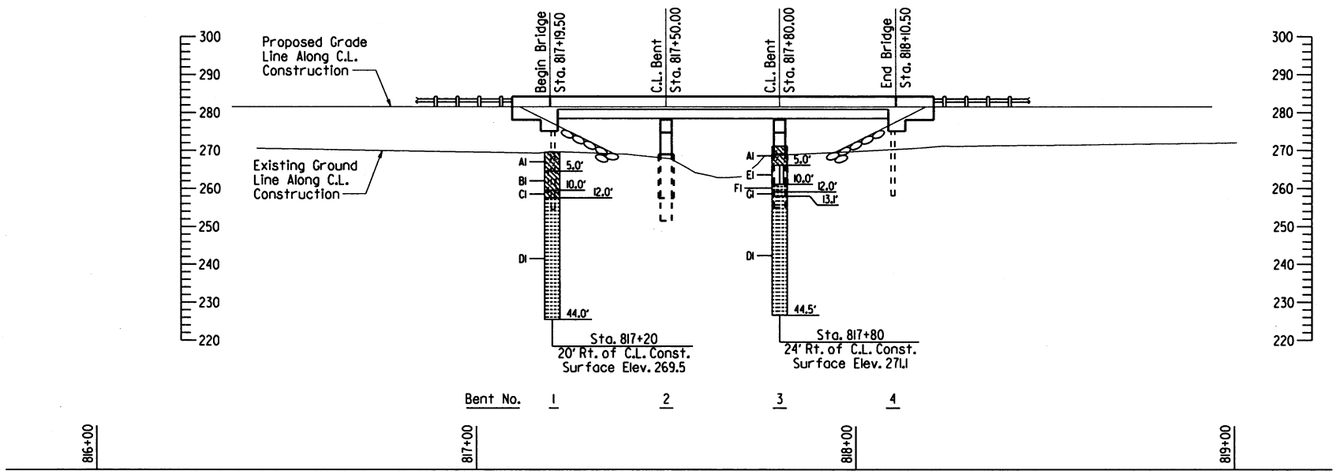
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	60405
Intermediate Bents	60406-60407
Elastomeric Bearings	60408
90'-0" Integral W-Beam Unit	60409-60414
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Steel H-Piling	55020
Type C Approach Gutters	55030C
Type C2 Approach Slab	55040C2

EXISTING BRIDGE: Existing Bridge No. 02800 (Log Mile 11.49') is 26.5' wide (24.0' roadway) and 66.0' long and consists of R.C. Slab Spans supported by two column reinforced concrete bents with spread footings.

REMOVAL AND SALVAGE: After the new bridge is opened to traffic, existing Bridge No. 02800 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Sandy Clay
B1-Wet, Very Soft, Gray Silty Clay
C1-Moist, Very Hard, Clay with Gravel (Shale Fragments)
D1-SHALE WITH FREQUENT SANDSTONE PARTINGS - Unweathered, Medium Hard, Gray
E1-Moist, Medium Dense, Brown Silt
F1-SHALE - Highly Weathered, Medium Hard, Gray
G1-SHALE - Weathered, Medium Hard, Gray

"N" VALUES

Sta. 817+20 - 20' Rt. of C.L. Const.
5.5- 6.5, N=0 (0")
10.5- 10.8, N=60 (3")

Sta. 817+80 - 24' Rt. of C.L. Const.
5.5- 6.5, N=17
10.5- 10.9, N=60 (5")

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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4-18-19
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SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 36 OVER EAST HOG THIEF CREEK
JOY - SEARCY (S)
WHITE COUNTY

ROUTE 36 SEC. 3
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

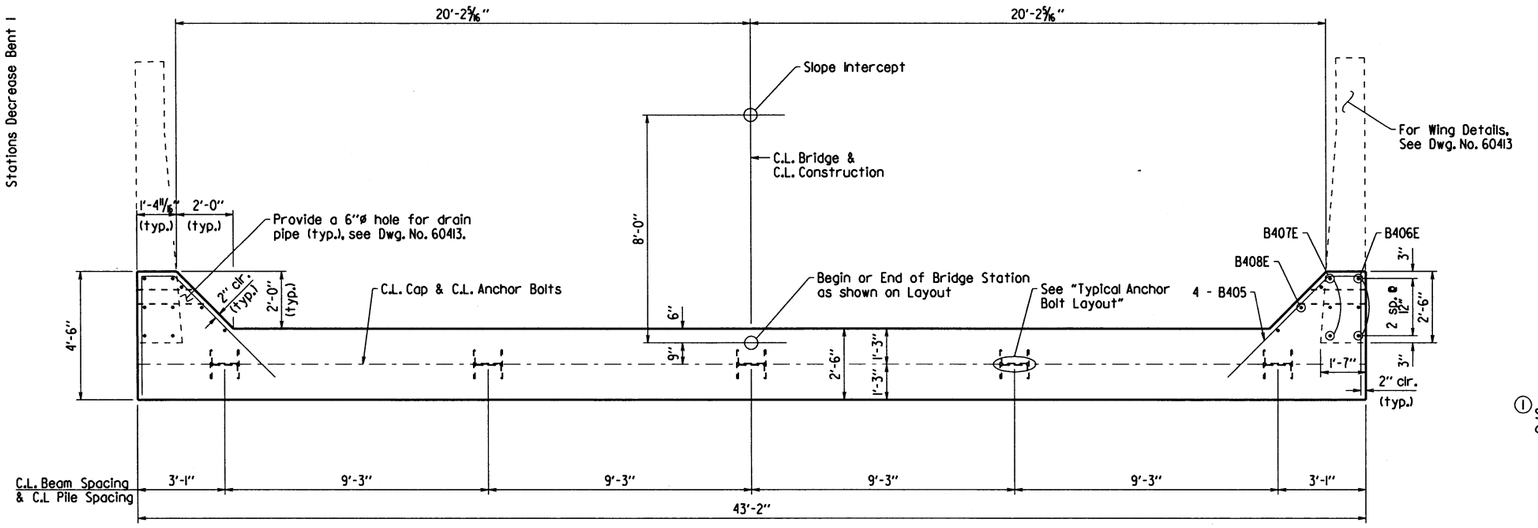
DRAWN BY: EOR DATE: 3/29/17 FILENAME: b050280x2_lLdgn
CHECKED BY: BWS DATE: 4/15/19 SCALE: 1" = 20'
DESIGNED BY: EOR DATE: 3/2017

BRIDGE NO. 07430 DRAWING NO. 60404

PRINT DATE: 4/11/2019

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.		050280	132	226
				① 07430 -		END BENTS		- 60405

Stations Increase Bent 4
Stations Decrease Bent 1



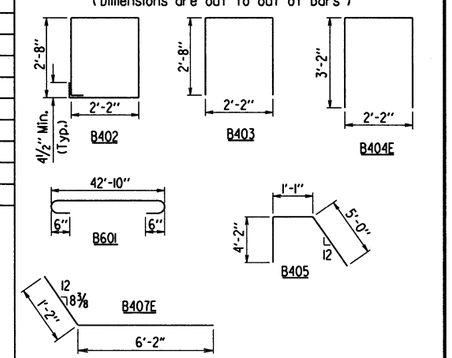
PLAN
⅜" = 1'-0"

BAR LIST - PER BENT

Mark	No. Req'd.	Length	Pin Dia.
B401	8	22'-4"	Str.
B402	54	10'-0"	2"
B403	15	7'-4"	2"
B404E	54	8'-4"	2"
① B405	8	10'-2"	2"
① B406E	6	8'-7"	Str.
① B407E	6	7'-4"	2"
① B408E	6	4'-5"	Str.
B601	6	44'-2"	4½"
B602	6	42'-10"	Str.

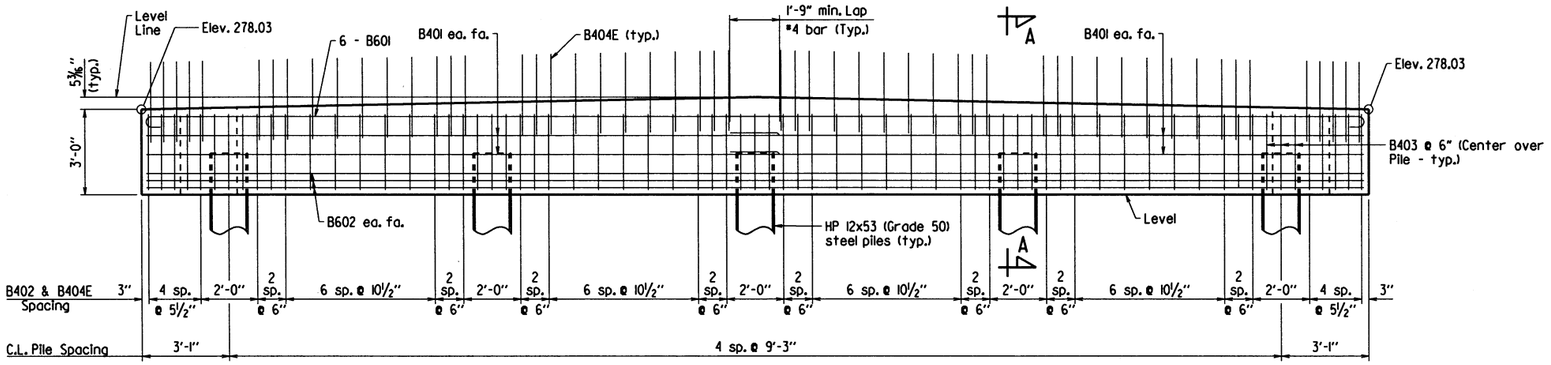
Bending Diagrams

(Dimensions are out to out of bars)

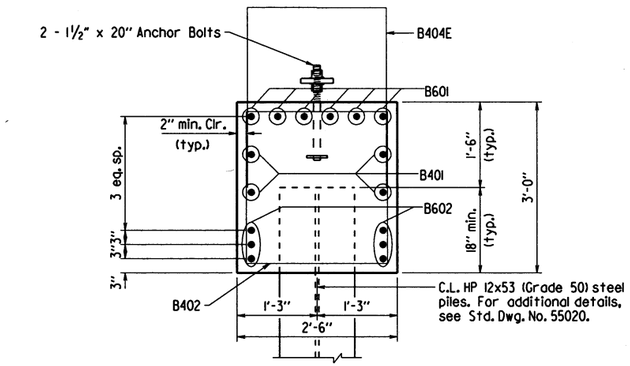


① See Dwg. No. 60413 for additional details.

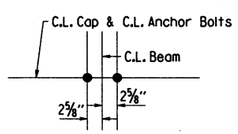
Bars designated with an "E" suffix are to be epoxy coated.



ELEVATION
⅜" = 1'-0"



SECTION A-A
¾" = 1'-0"



For details of anchor bolts, see Dwg. No. 60410.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

Bars B406E, B407E, & B408E shall have a 2'-10" embedment into the end bent cap.

Granular Backfill and Pipe Underdrain required behind Cap. See Dwg. No. 60412.

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See Std. Dwg. No. 55006 for additional notes.

DETAILS OF END BENTS
EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 10/18/2018 FILENAME: b050280x2_bl.dgn
CHECKED BY: BHS DATE: 4/15/19 SCALE: As Noted
DESIGNED BY: DKS DATE: 9-2018

BRIDGE NO. 07430 DRAWING NO. 60405

PRINT DATE: 4/11/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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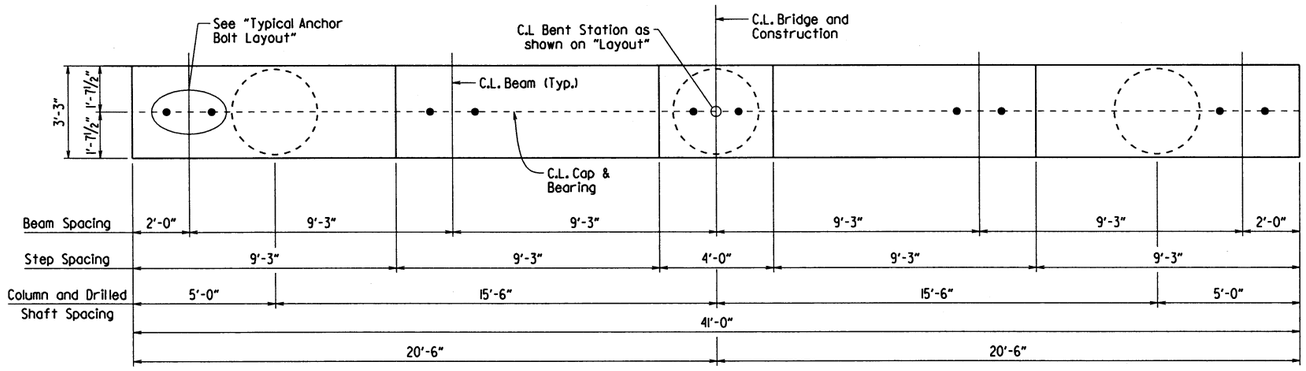
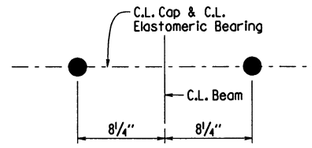
				JOB NO.		050280	133	226
				①	07430 -	INT. BENTS	- 60406	



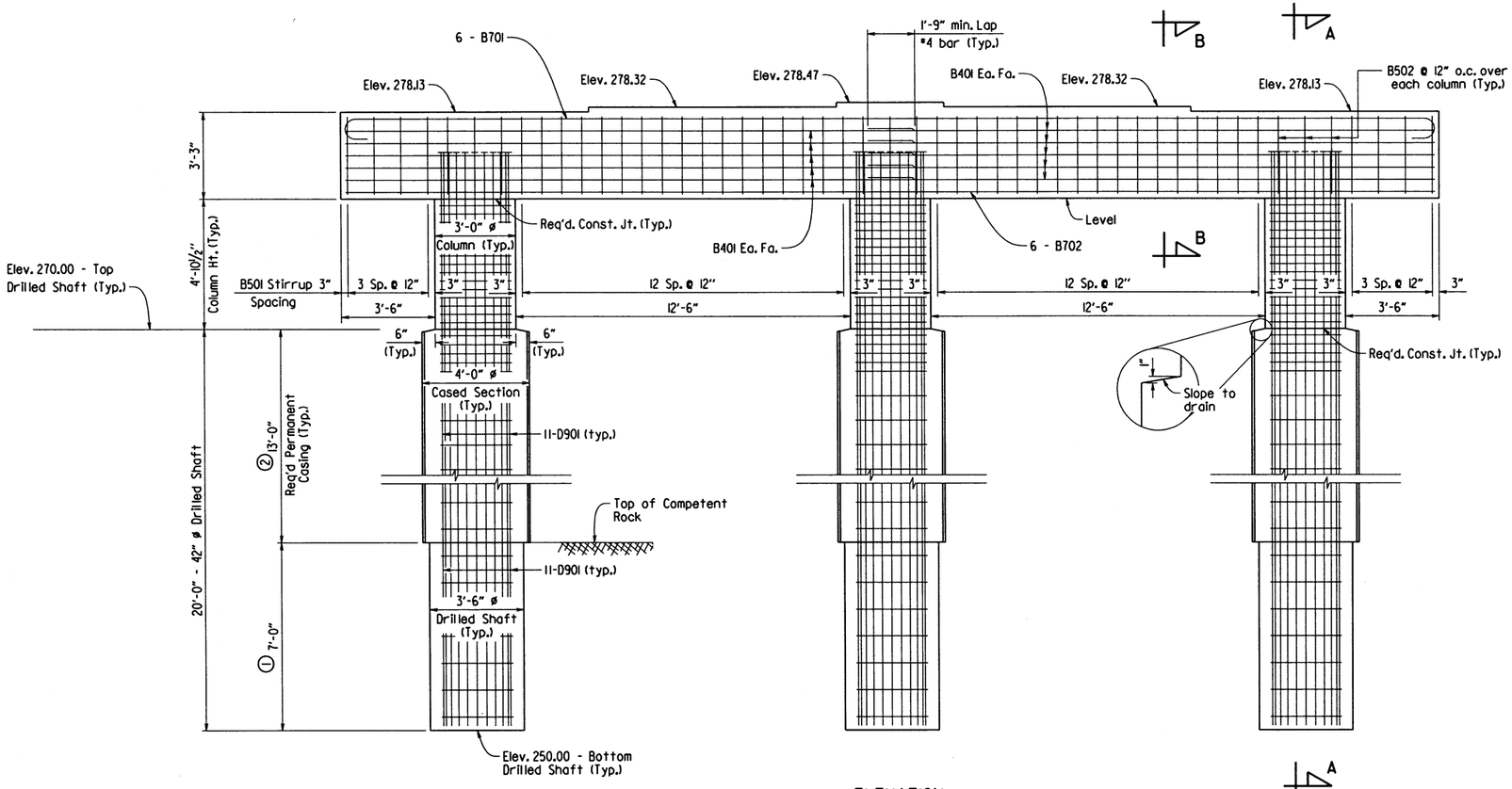
PLAN

For details of Elastomeric Bearings, See Dwg. No. 60408.



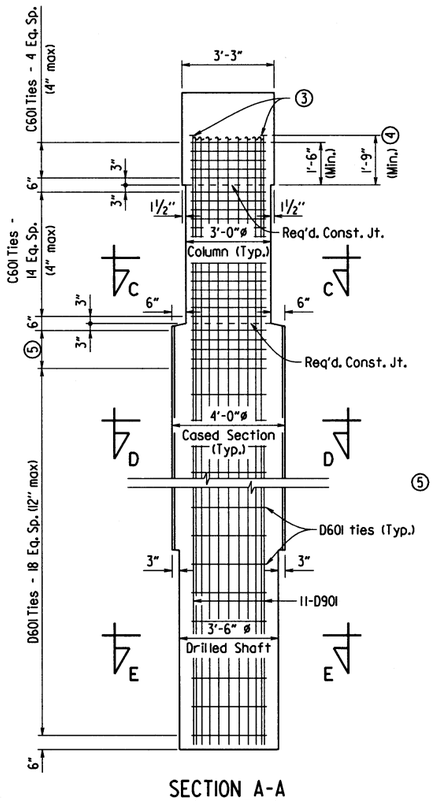
TYPICAL ANCHOR BOLT LAYOUT

No Scale



ELEVATION

Looking Ahead



SECTION A-A

For Sections "B-B" thru "E-E", see Dwg. No. 60407.

⑤ D601 Ties - 4 sp. @ 4"

① Minimum penetration into competent rock below permanent casing.

② Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 050280 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.

③ Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 050280 "Headed Steel Bars for Concrete Reinforcement".

④ Provide minimum as per manufacturer's recommendations but no less than what is shown.

GENERAL NOTES

For additional General Notes, See Std. Dwg. No. 55006.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 050280 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (42" Dia.)" and "Permanent Steel Casing (48" Dia.)".

For additional information, See Layout.

STATE OF ARKANSAS
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4-18-19

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

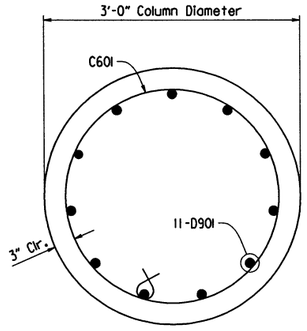
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 10/16/2018 FILENAME: b050280x2_b2.dgn
CHECKED BY: DWS DATE: 4/15/19 SCALE: ⅜" = 1'-0" or As Noted
DESIGNED BY: DWS DATE: 8-2018

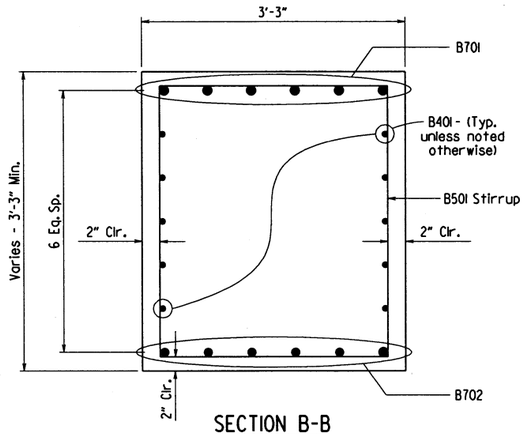
BRIDGE NO. 07430 DRAWING NO. 60406

PRINT DATE: 4/15/2019

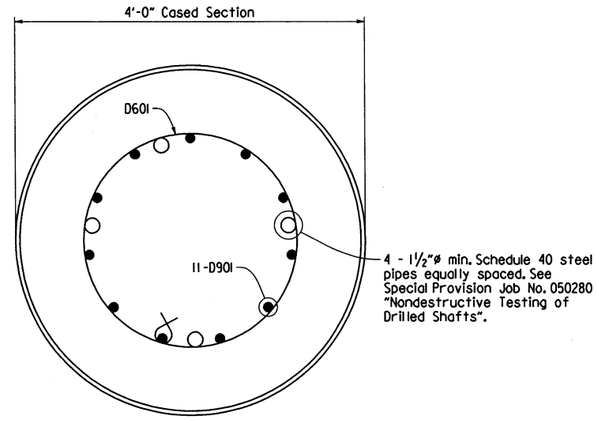
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	134	226
				① 07430 -		INT. BENTS	- 60407	



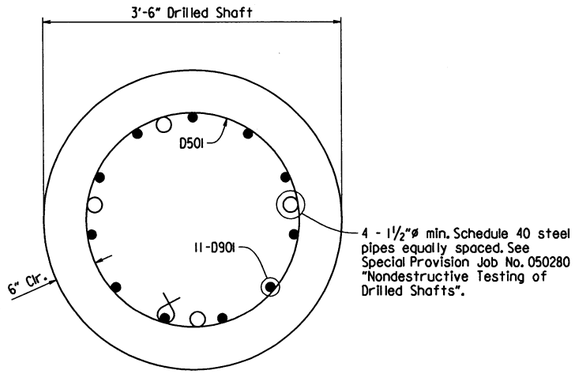
SECTION C-C
No Scale



SECTION B-B
No Scale



SECTION D-D
No Scale



SECTION E-E
No Scale

BAR LIST - PER BENT

	MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
	B401	20	21'-3"	Str.	
	B501	34	12'-2"	2½"	
	B502	9	8'-7"	2½"	
	B701	6	42'-4"	5¼"	
	B702	6	40'-8"	Str.	
	C601	60	9'-6"	4½"	
①	D601	69	9'-6"	4½"	
①②	D901	33	26'-7"	Str.	
					Dimensions are out to out of bars.

① Non-pay item. Subsidiary to Special Provision Job No. 050280 "Drilled Shaft Foundations".

② Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 050280 "Headed Steel Bars for Concrete Reinforcement". Rebar length shown is estimated and may require adjustment.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-18-19
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SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
EAST HOG THIEF CREEK

ROUTE SEC.

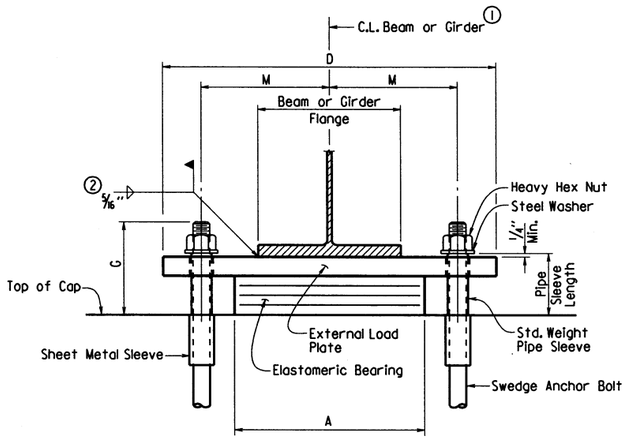
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DKS DATE: 10/16/2018 FILENAME: b050280x2_b2.dgn
CHECKED BY: BHS DATE: 9/15/19 SCALE: As Noted
DESIGNED BY: DHS DATE: 9-2019

BRIDGE NO. 07430 DRAWING NO. 60407

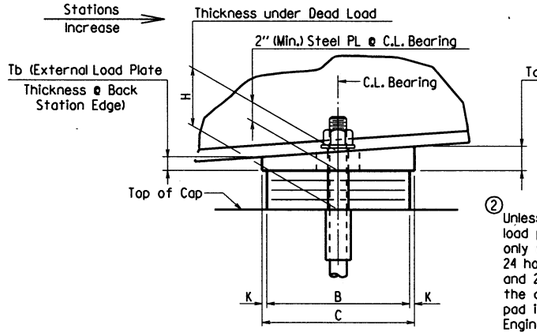
PRINT DATE: 4/15/2019

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.		050280	135	226
				①		07430 - ELASTO BRGS. - 60408		



FRONT VIEW

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

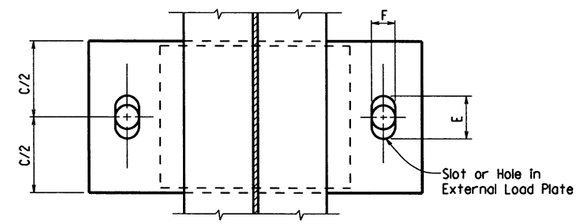


SIDE VIEW

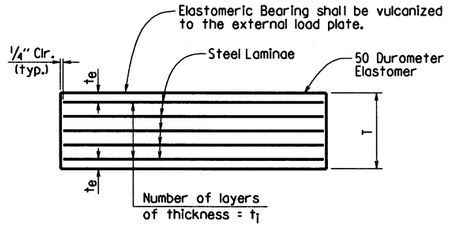
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

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

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



PLAN VIEW



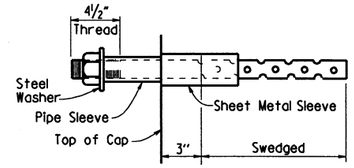
t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.



ANCHOR BOLT DETAIL

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

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

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO (S).	BEAM OR GIRDER NO.						A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07430	2	All	Fix	5	127	6 5/8"	3 13/16"	12"	11"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	12"	22"	2 1/4"	2 1/4"	1/2"	8 1/4"	2.00"	2.00"	1 1/2" x 22"	55	1 1/2" x 4 1/8"	3" x 6"	3"
	3	All	Fix	5	127	6 5/8"	3 13/16"	12"	11"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	12"	22"	2 1/4"	2 1/4"	1/2"	8 1/4"	2.00"	2.00"	1 1/2" x 22"	55	1 1/2" x 4 1/8"	3" x 6"	3"

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS
Charles R. Ellis
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

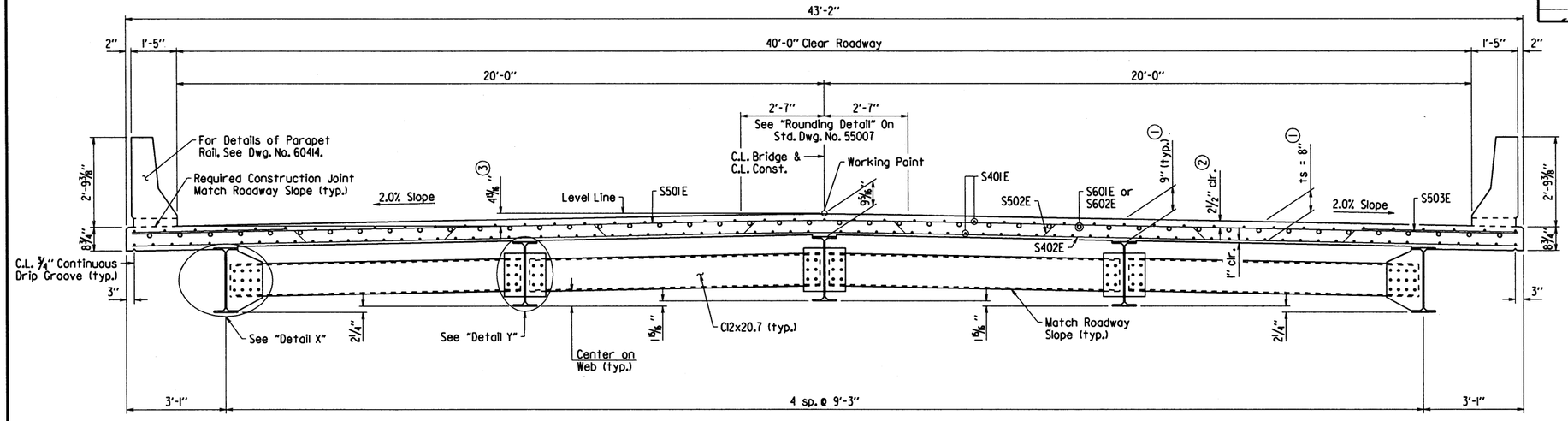
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/2017
CHECKED BY: DKS DATE: 4-11-19
DESIGNED BY: BCB DATE: 8/2017
FILENAME: b050280x2_el.dgn
SCALE: None

BRIDGE NO. 07430 DRAWING NO. 60408

PRINT DATE: 4/11/2019

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.		050280	136	226
				① 07430 - 90'-0" UNIT - 60409				



TYPICAL ROADWAY SECTION

½" = 1'-0"

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers or other approved devices per Subsection 804.06. Placement of slab bolsters with full length lower runners directly on removable deck forms will not be allowed.

At the Contractor's option, two straight epoxy coated no. 5 bars, one placed in top and one placed in bottom, may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bars S502E.

① See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

② Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

③ Working point to gutterline.

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

Slab Reinforcing:

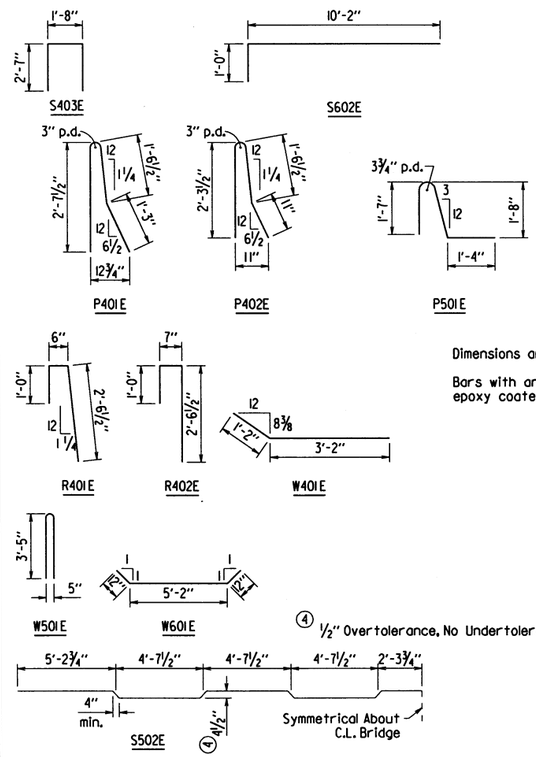
Longitudinal: S401E as shown
S601E or S602E as shown, see "Reinforcing Plan and Pouring Sequence", Dwg. No. 60412.

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over beams
S503E @ 6" in top at overhangs (bundled with no. 5 bars)

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	363	33'-0"	Str.
S402E	103	42'-10"	Str.
S403E	108	6'-8"	2"
S501E	95	42'-10"	Str.
S502E	86	43'-8"	3"
S503E	346	4'-10"	Str.
S504E	80	4'-8"	Str.
S601E	92	21'-9"	Str.
S602E	92	11'-1"	4½"
P401E	320	5'-6"	2"
P402E	48	4'-10"	2"
P403E	48	5'-7"	Str.
P404E	28	8'-2"	Str.
P405E	56	8'-5"	Str.
P406E	42	12'-8"	Str.
P501E	320	4'-9"	3¾"
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	3'-10"	Str.
R601E	32	5'-5"	Str.
R602E	12	5'-0"	Str.
W401E	20	4'-4"	2"
W402E	20	5'-6"	Str.
W501E	32	7'-1"	3¾"
W601E	12	7'-2"	4½"
W701E	32	11'-10"	Str.

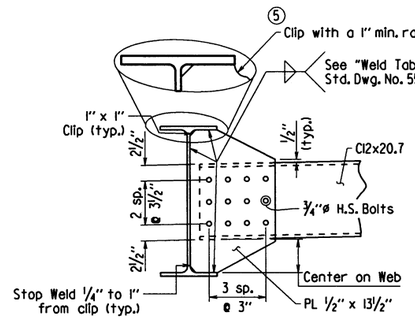
BENDING DIAGRAMS



Dimensions are out to out of bars.

Bars with an "E" suffix are to be epoxy coated.

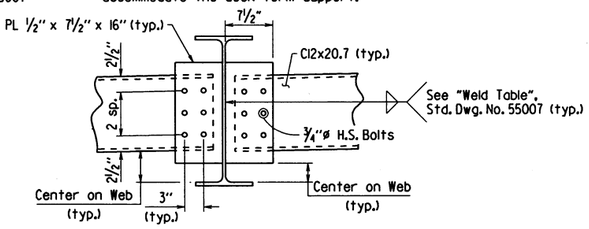
④ ½" Overtolerance, No Undertolerance



DETAIL X

1" = 1'-0"

⑤ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



DETAIL Y

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
4-18-19

BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF
90'-0" INTEGRAL W-BEAM UNIT
EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

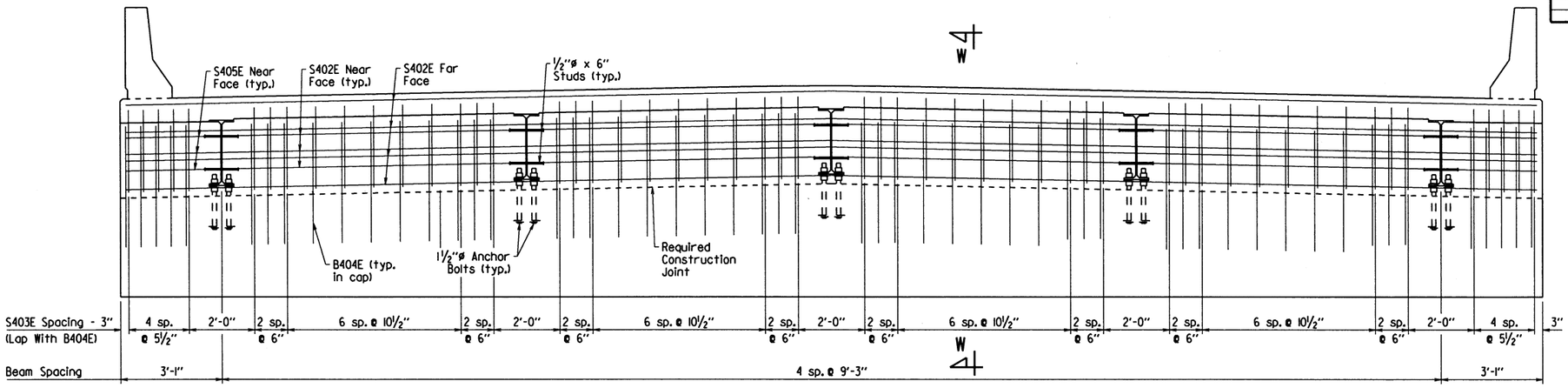
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 10/3/17
CHECKED BY: BHS DATE: 4/18/19
DESIGNED BY: EOR DATE: 8/2017
FILENAME: b050280x2_sl.dgn
SCALE: As Noted

BRIDGE NO. 07430 DRAWING NO. 60409

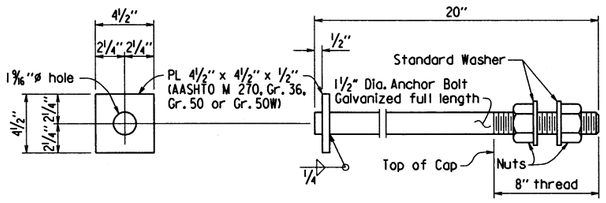
PRINT DATE: 4/18/2019

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.		050280	137	226
				① 07430 - 90'-0" UNIT - 60410				



TYPICAL ROADWAY SECTION AT END BENTS

Looking Ahead - Bent 4
Bent 1 Similar
½" = 1'-0"



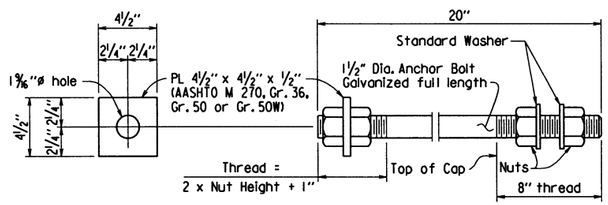
Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)".

ANCHOR BOLT DETAIL

No Scale



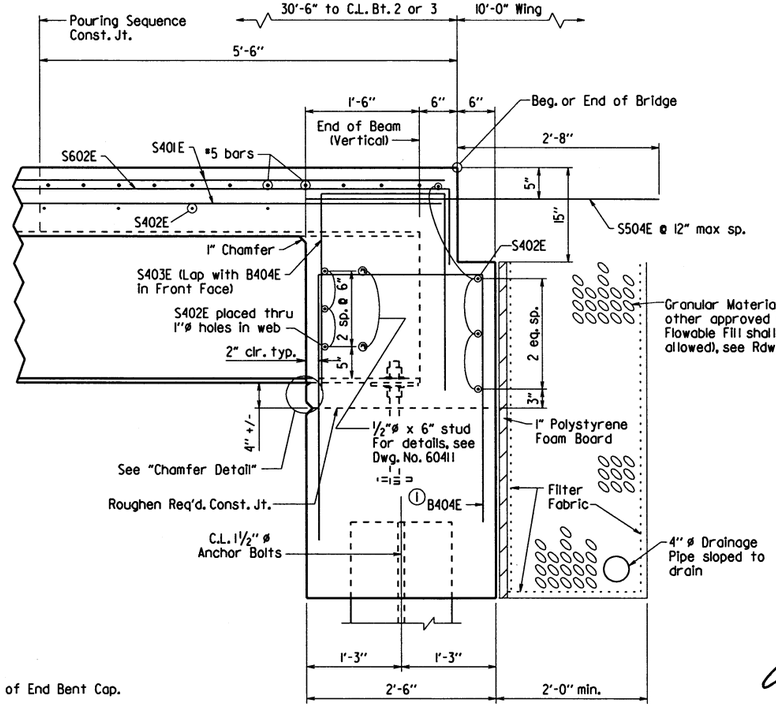
Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)".

ALTERNATE ANCHOR BOLT DETAIL

No Scale



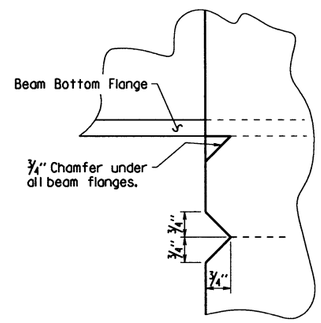
SECTION W-W

No Scale

Limits of the concrete end diaphragm shall match plan dimension of End Bent Cap.

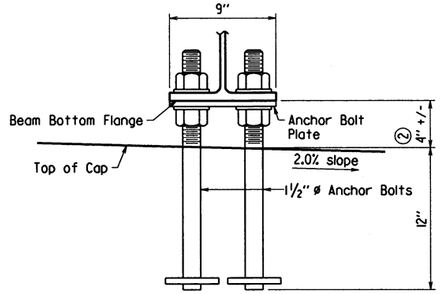
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

1" Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.



CHAMFER DETAIL

No Scale

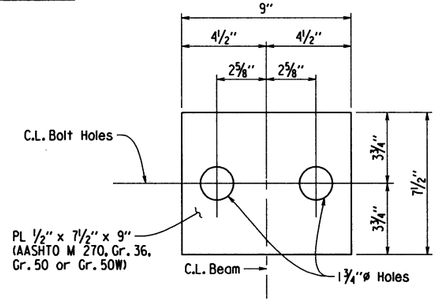


ANCHOR BOLT ELEVATION DETAIL

No Scale

① See End Bent details on Dwg. No. 60405 for reinforcing and additional details.

② Measured at C.L. Beam



Note: See "VIEW B-B" on Dwg. No. 60411 for additional information.

BEARING PLATE DETAIL

3" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
4/18/19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF
90'-0" INTEGRAL W-BEAM UNIT
EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 10/3/17
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FILENAME: b050280x2_sl.dgn
SCALE: As Noted

BRIDGE NO. 07430 DRAWING NO. 60410

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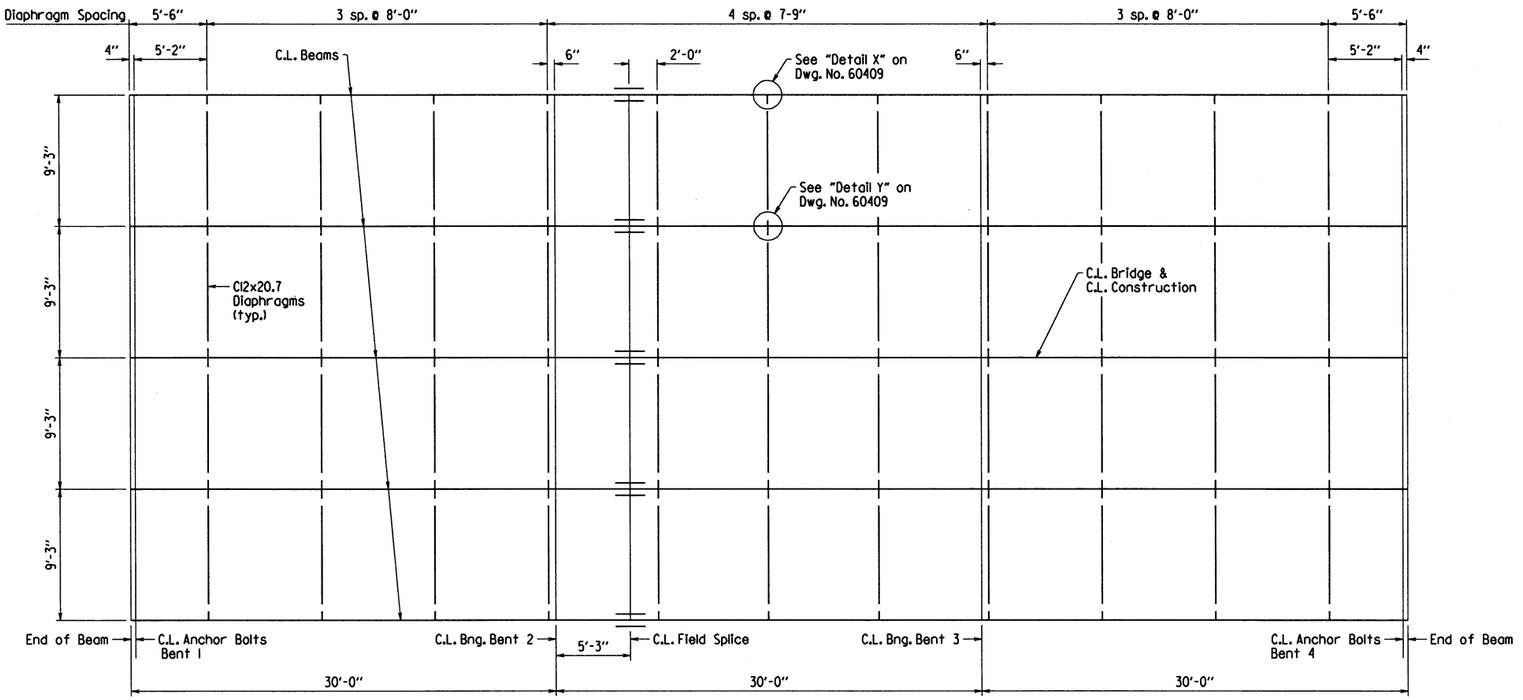
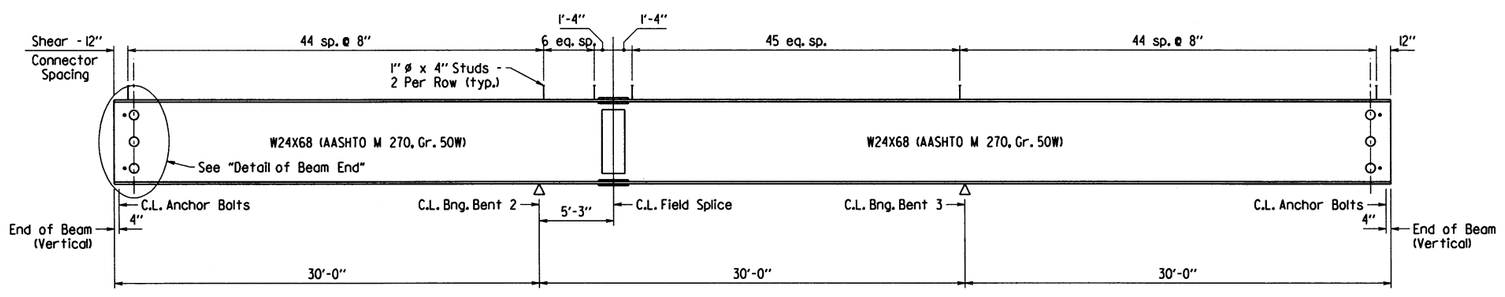
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	138	226
				① 07430 - 90'-0" UNIT - 60411				



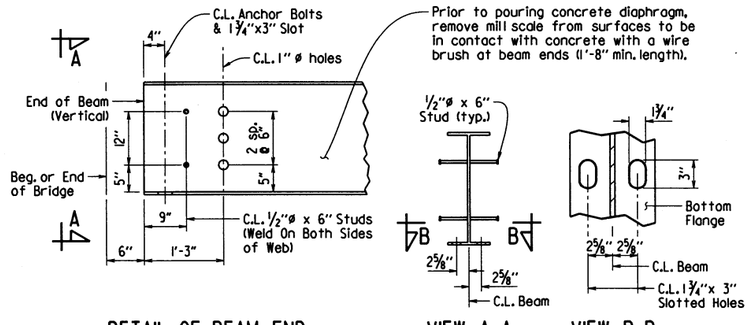
FRAMING PLAN

3/16" = 1'-0"



TYPICAL BEAM ELEVATION

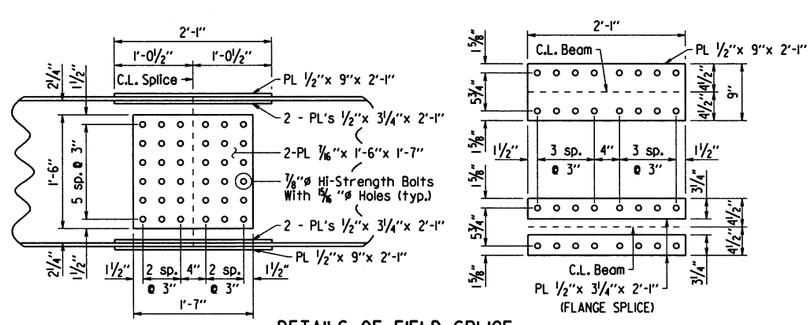
No Scale



DETAIL OF BEAM END — No Scale

VIEW A-A — No Scale

VIEW B-B — No Scale



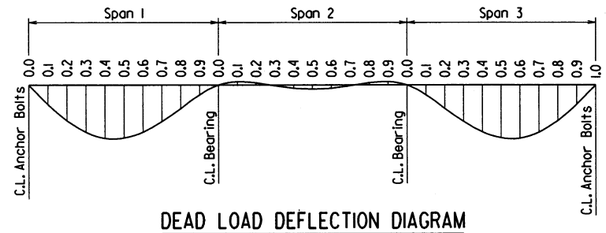
DETAILS OF FIELD SPLICE

1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.006	0.006	0.077	0.063	0.080	0.068
	0.2	0.011	0.010	0.143	0.116	0.148	0.125
	0.3	0.015	0.014	0.190	0.155	0.197	0.166
	0.4	0.017	0.015	0.214	0.174	0.222	0.187
	0.5	0.017	0.015	0.213	0.173	0.221	0.186
	0.6	0.015	0.014	0.189	0.154	0.196	0.165
	0.7	0.012	0.011	0.147	0.119	0.153	0.128
	0.8	0.007	0.007	0.092	0.076	0.095	0.082
	0.9	0.003	0.003	0.039	0.032	0.040	0.034
2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	-0.001	-0.001	-0.013	-0.011	-0.013	-0.012
	0.2	-0.001	-0.001	-0.009	-0.007	-0.009	-0.008
	0.3	0.000	0.000	0.002	0.002	0.002	0.002
	0.4	0.001	0.001	0.012	0.010	0.012	0.011
	0.5	0.001	0.001	0.016	0.013	0.017	0.014

Symmetrical About Half-Point of Unit



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber for Dead Load Deflection +/- ¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Anchor Bolt to C.L. Bearing, or C.L. Bearing to C.L. Bearing. Negative sign (-) indicates upward deflection.

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

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

All field splice bolts shall be ⅞"ø hi-str. bolts. All holes for splice bolts shall be 15/16"ø.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 90'-0" INTEGRAL W-BEAM UNIT EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 10/3/17
CHECKED BY: BHS DATE: 4/18/19
DESIGNED BY: EOK DATE: 8/2017
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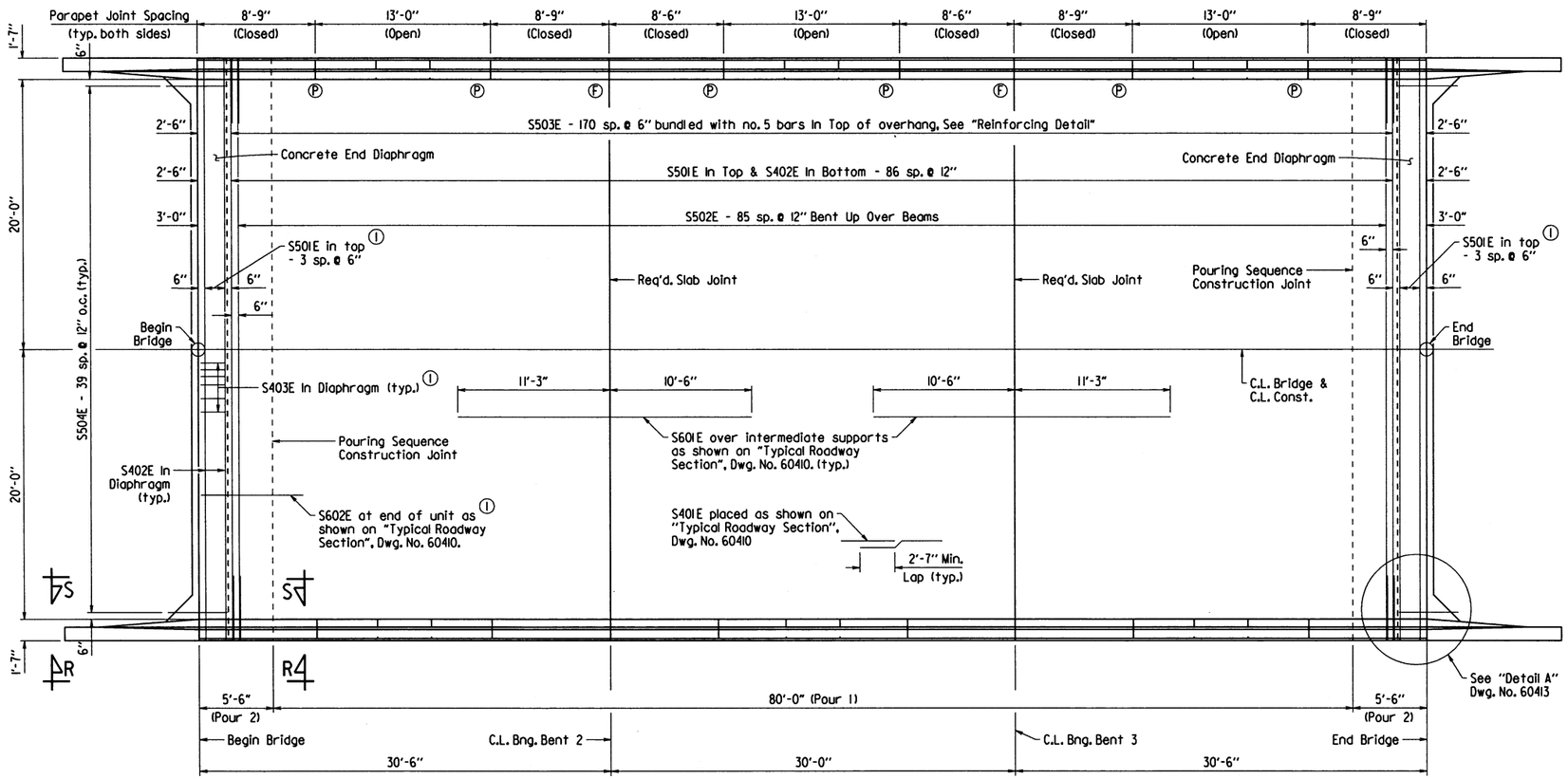
SCALE: As Noted

BRIDGE NO. 07430 DRAWING NO. 60411

PRINT DATE: 4/18/2019

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.		050280	139	226
				①	07430 - 90'-0" UNIT - 60412			



REINFORCING PLAN AND POURING SEQUENCE

3/16" = 1'-0"

Parapet rail spacing and joint depth shown are typical for both sides of roadway. For parapet reinforcing details, see Dwg. No. 60414.

Rails and wings are included in span construction and are included in span quantities.

Required slab joints and pouring sequence joints shall align with parapet open joints (except at end bent closure pour joints) at the gutterline.

For "View R-R" and "Section S-S", see Dwg. No. 60413.

Ⓟ Partial depth parapet joint a this location.

Ⓕ Full depth parapet joint at this location.

① See Dwg. No. 60410 for more details of reinforcing in concrete end diaphragm.

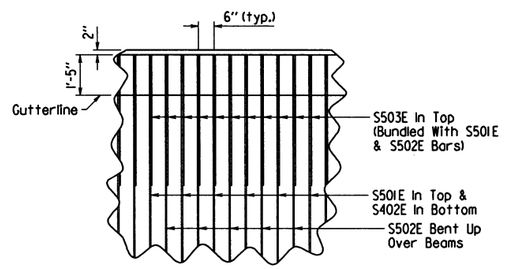
Pouring Sequence Notes:

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

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete diaphragms at ends of unit shall be poured monolithically with the deck. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Concrete diaphragms at end bents shall be poured monolithically with the deck.



REINFORCING DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
4-18-19

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF
90'-0" INTEGRAL W-BEAM UNIT
EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

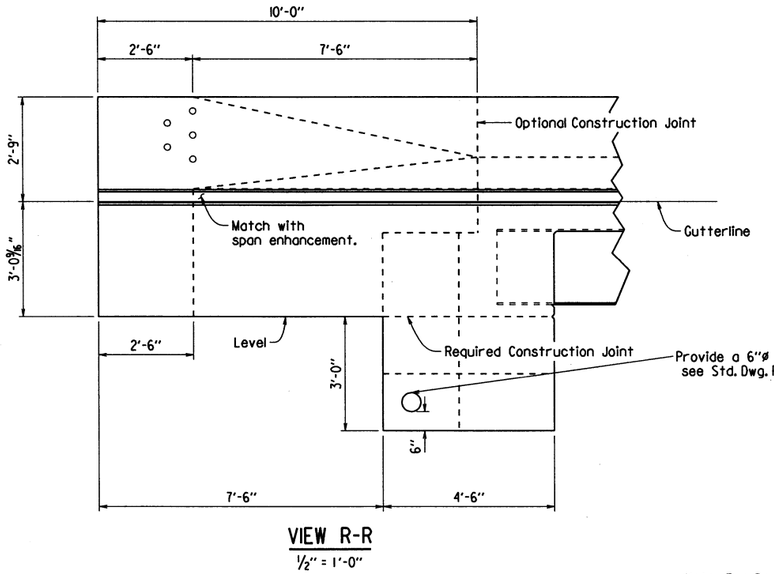
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 10/3/17 FILENAME: b050280x2_sl.dgn
CHECKED BY: [illegible] DATE: 4/13/19 SCALE: As Noted
DESIGNED BY: EOR DATE: 8/2017

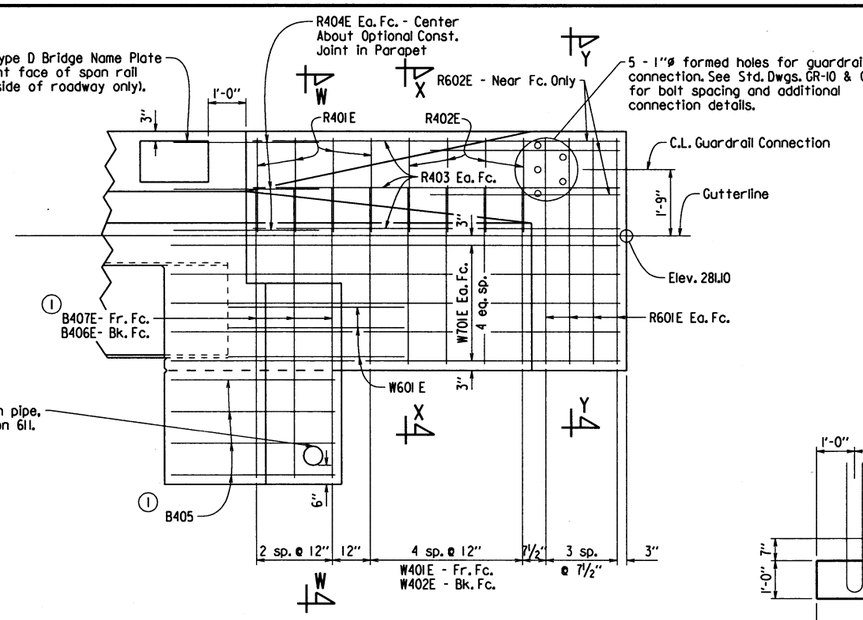
BRIDGE NO. 07430 DRAWING NO. 60412

PRINT DATE: 4/11/2019

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.		050280	140	226
				① 07430	-	90'-0" UNIT	- 60413	



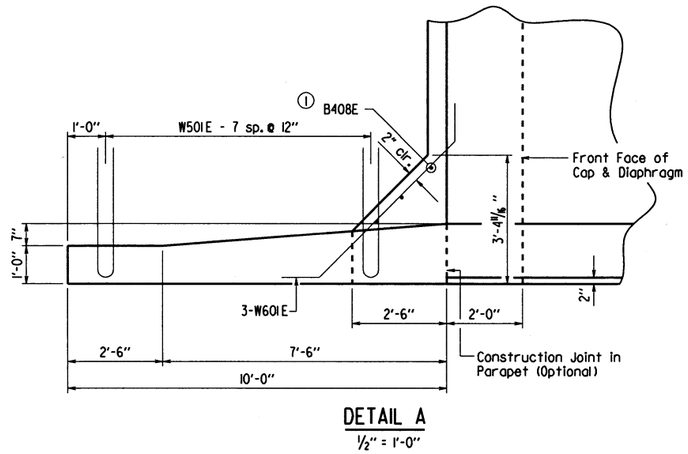
VIEW R-R
½" = 1'-0"



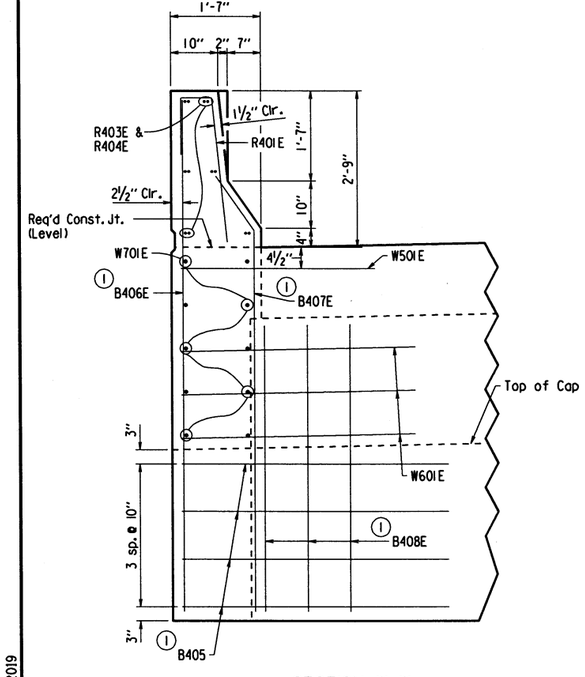
SECTION S-S
½" = 1'-0"

Note: For Bar List. See Dwg. No. 60409.

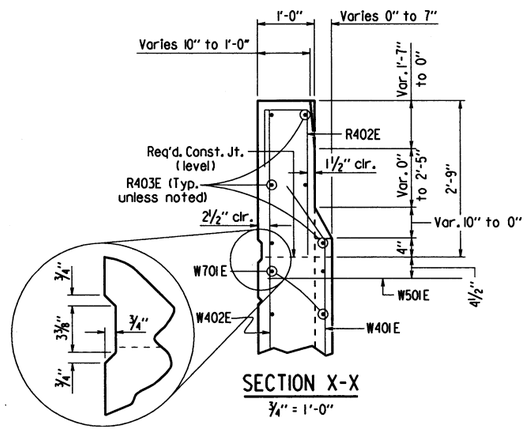
① See End Bent Details on Dwg. No. 60405 for reinforcing and additional details.



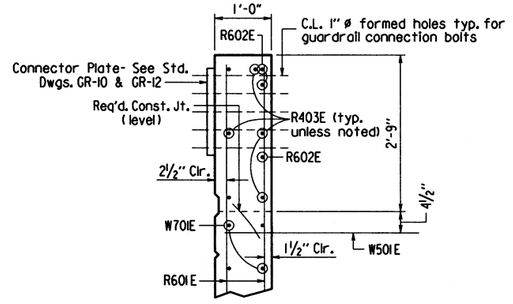
DETAIL A
½" = 1'-0"



SECTION W-W
¾" = 1'-0"



SECTION X-X
¾" = 1'-0"



SECTION Y-Y
¾" = 1'-0"

PRINT DATE: 4/11/2019

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 90'-0" INTEGRAL W-BEAM UNIT EAST HOG THIEF CREEK

ROUTE SEC.

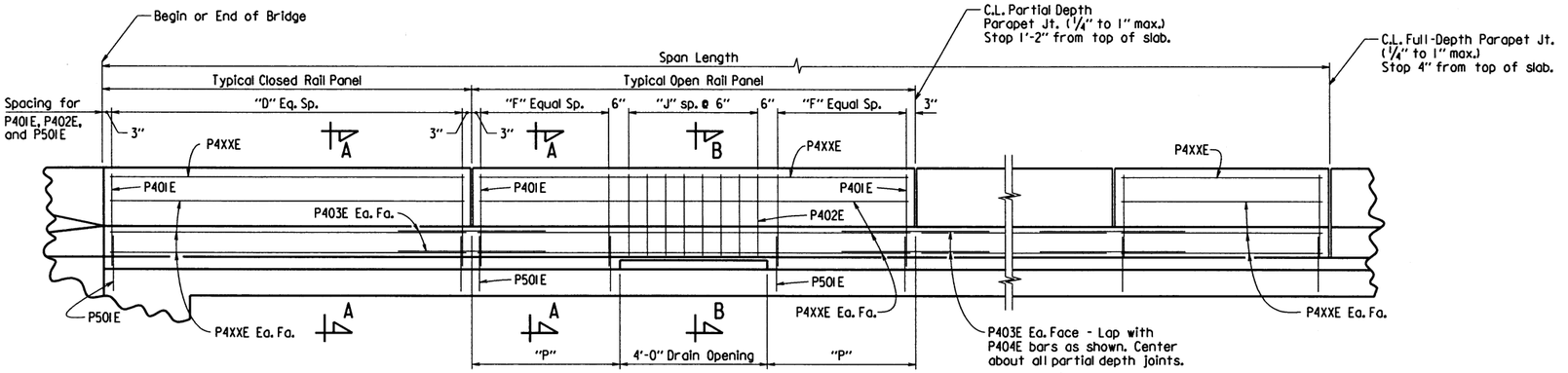
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 10/3/17
CHECKED BY: BHS DATE: 4/13/17
DESIGNED BY: EOR DATE: 4/12017

FILENAME: b050280x2_sl.dgn
SCALE: As Noted

BRIDGE NO. 07430 DRAWING NO. 60413

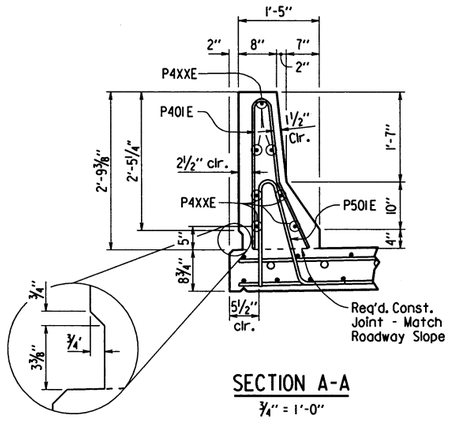
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	141	226
				(1) 07430 - 90'-0" UNIT - 60414				



ELEVATION - CONCRETE PARAPET RAIL

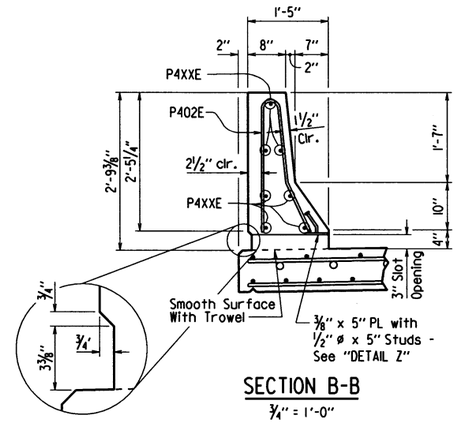
No Scale

Note:
For location of full and partial depth parapet joints, see Dwg. No. 60412.



SECTION A-A

3/4" = 1'-0"

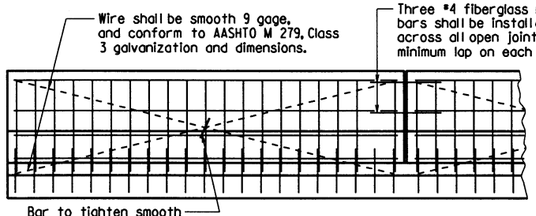


SECTION B-B

3/4" = 1'-0"

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels				
Panel Length	"D"	P4XXE Bar	Panel Length	"F"	"J"	"P"	P4XXE Bar
8'-6"	16	P404E	13'-0"	8	7	4'-6"	P406E
8'-9"	17	P405E					

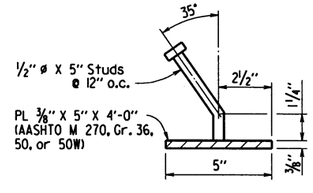


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

No Scale



DETAIL Z

No Scale

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

The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly but will be considered subsidiary to "Structural Steel in Beam Spans (M 270, Gr. 50W)".

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
4-18-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 90'-0" INTEGRAL W-BEAM UNIT EAST HOG THIEF CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: EOR DATE: 10/3/17
CHECKED BY: BWS DATE: 4/18/19
DESIGNED BY: EOR DATE: 3/2017

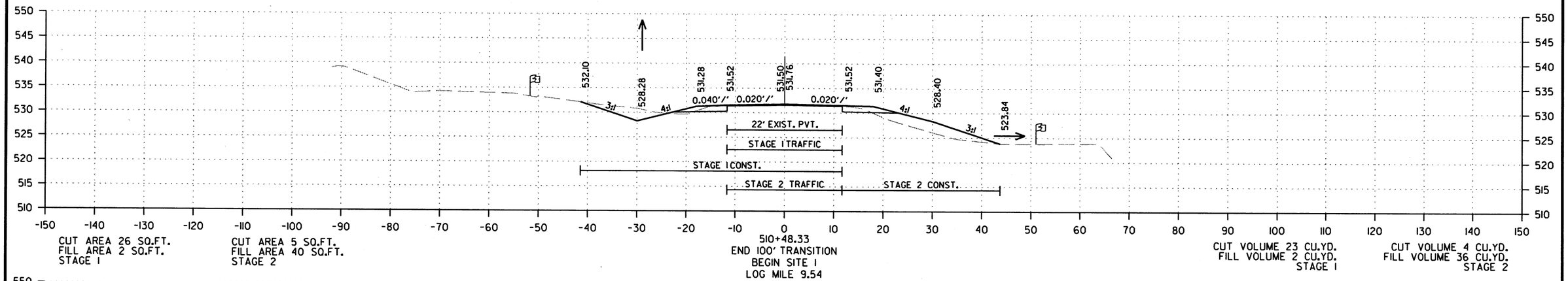
FILENAME: b050280x2_sl.dgn
SCALE: As Noted

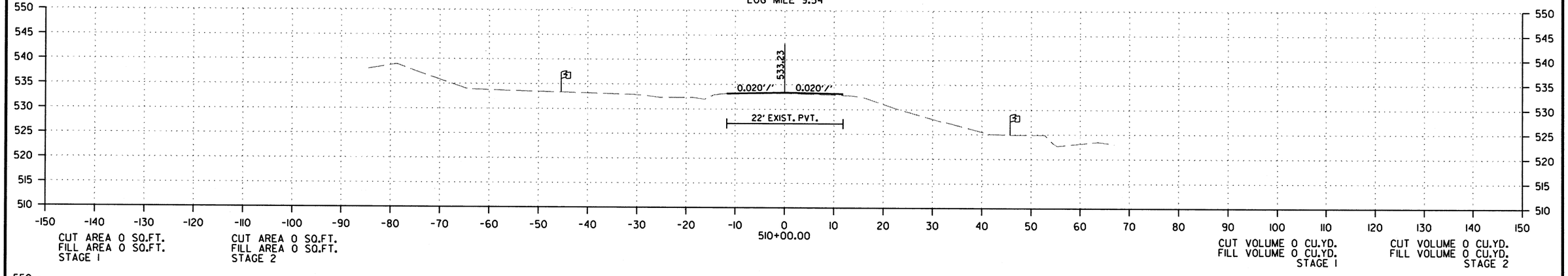
BRIDGE NO. 07430 DRAWING NO. 60414

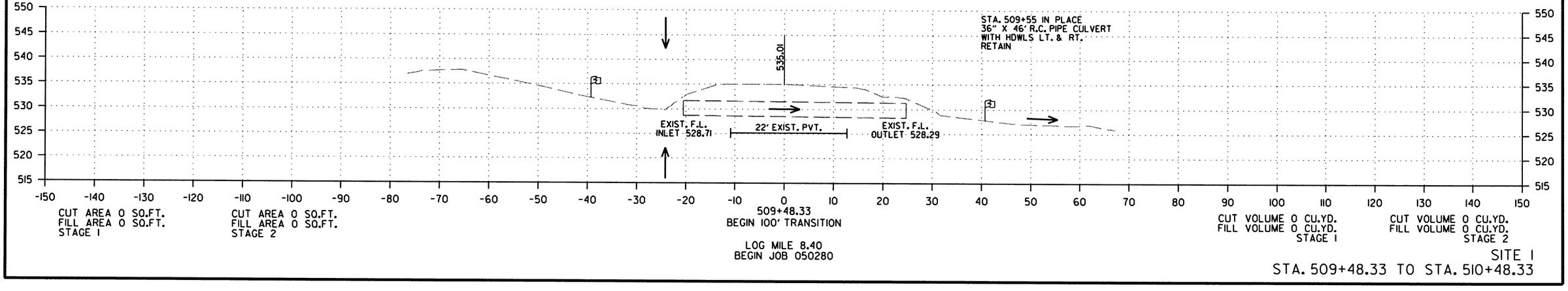
PRINT DATE: 4/18/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	142	226

(2) CROSS SECTIONS







SITE I
STA. 509+48.33 TO STA. 510+48.33

7/9/2009

R050280.DGN

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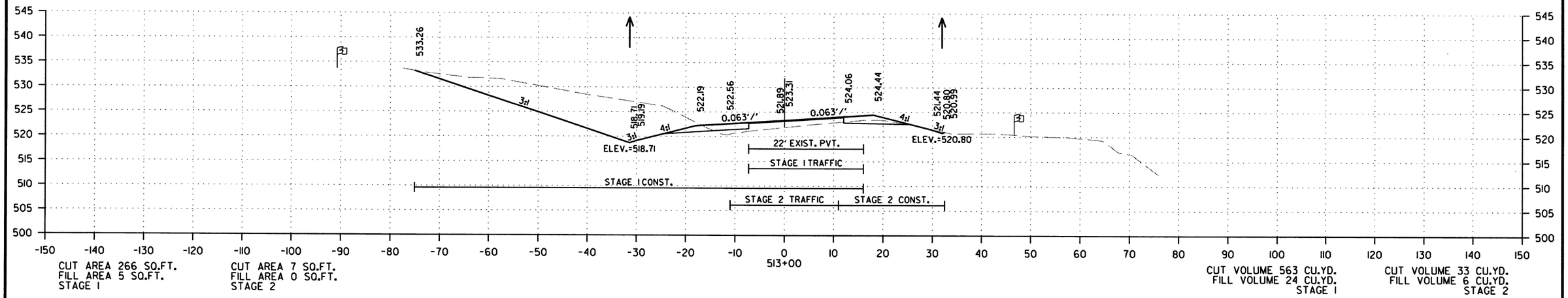
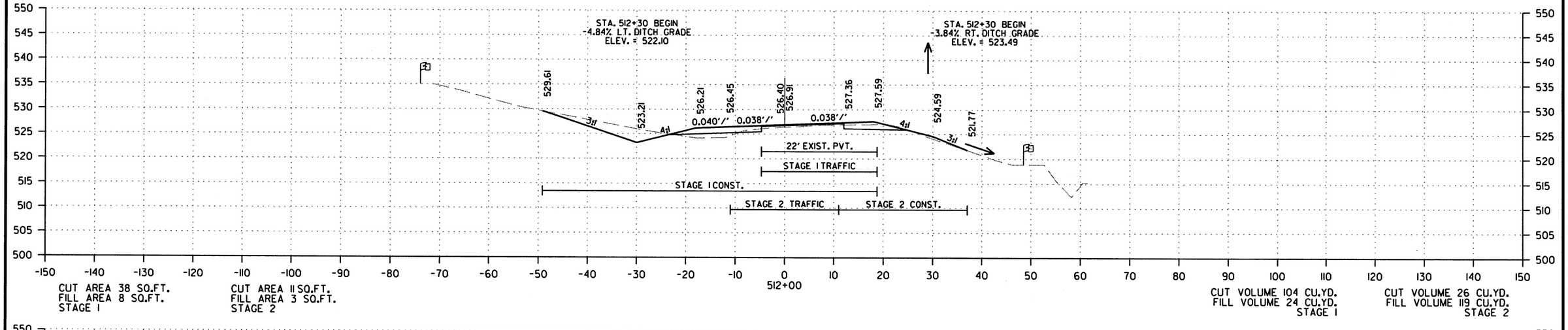
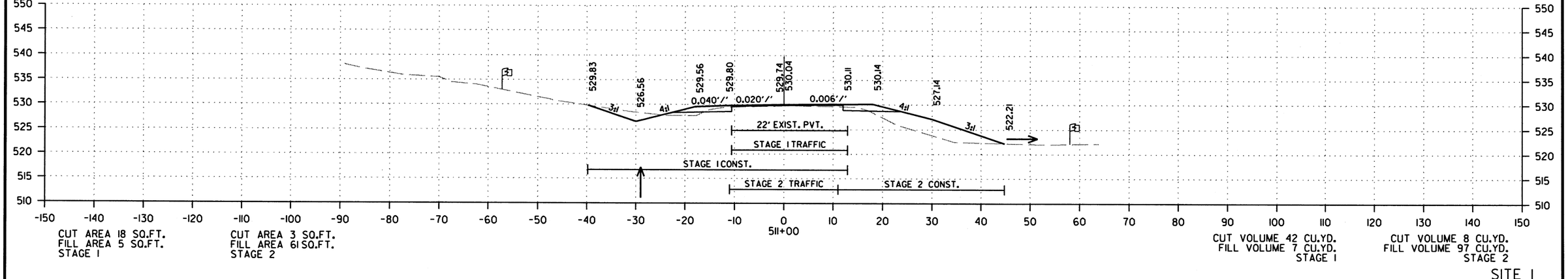
(2) CROSS SECTIONS







SITE 1
STA. 511+00 TO STA. 513+00

7/9/2009

R050280.DGN

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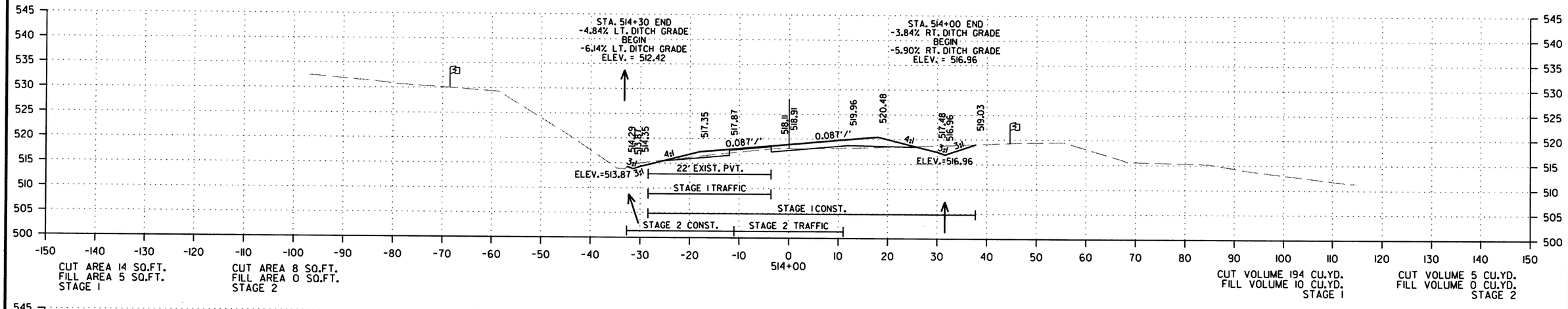
(2) CROSS SECTIONS



SITE 1
STA. 513+68 TO STA. 514+00

7/9/2009

R050280.DGN

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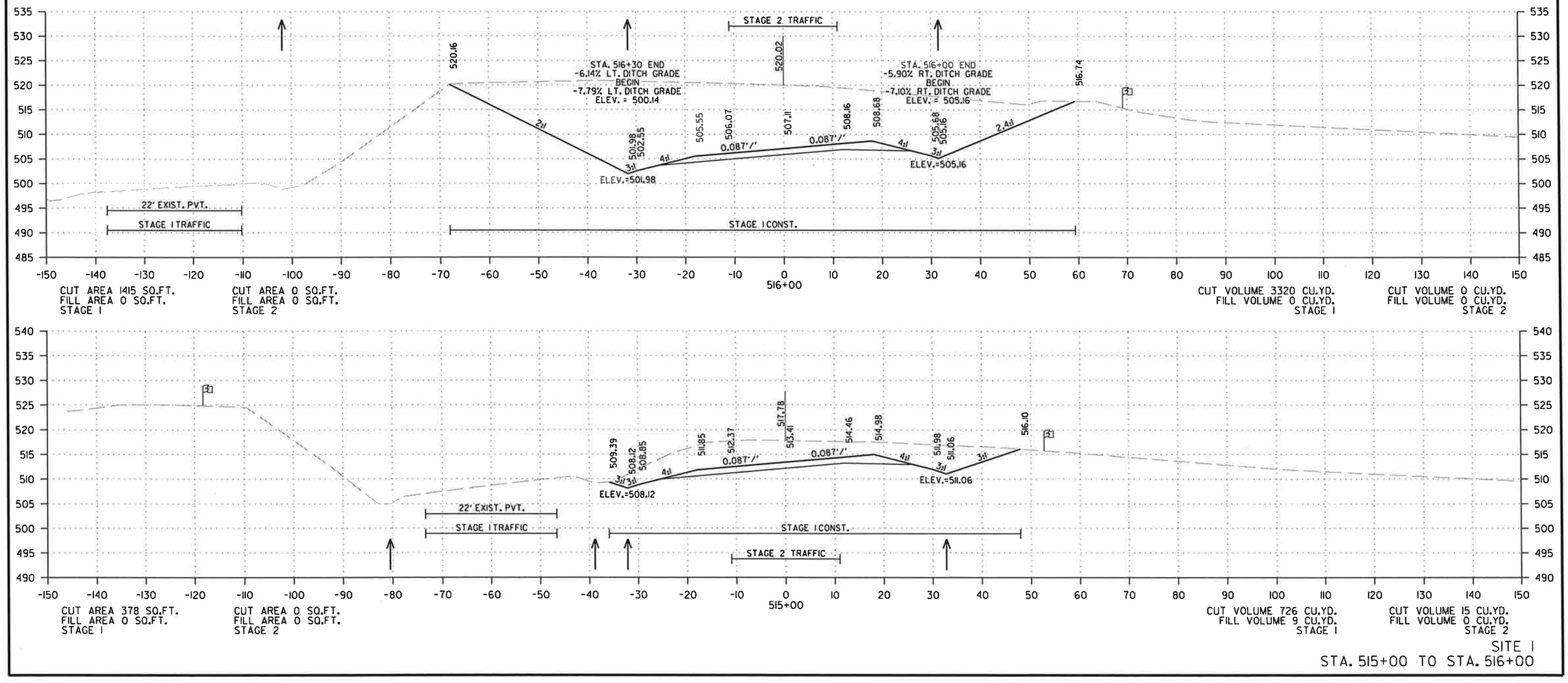
(2) CROSS SECTIONS



SITE 1
STA. 515+00 TO STA. 516+00

7/9/2019

R050280.DGN

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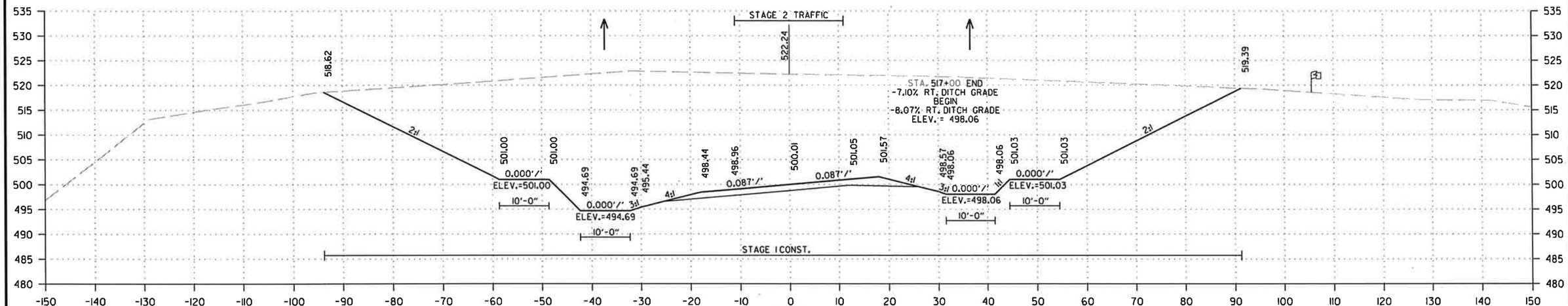

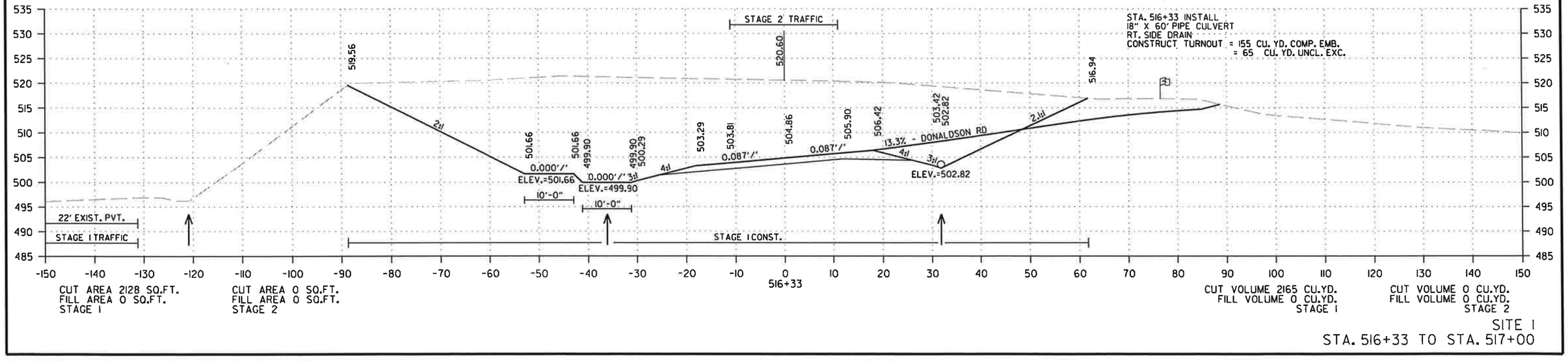

SITE 1
STA. 516+33 TO STA. 517+00

7/9/2019

R050280.DGN

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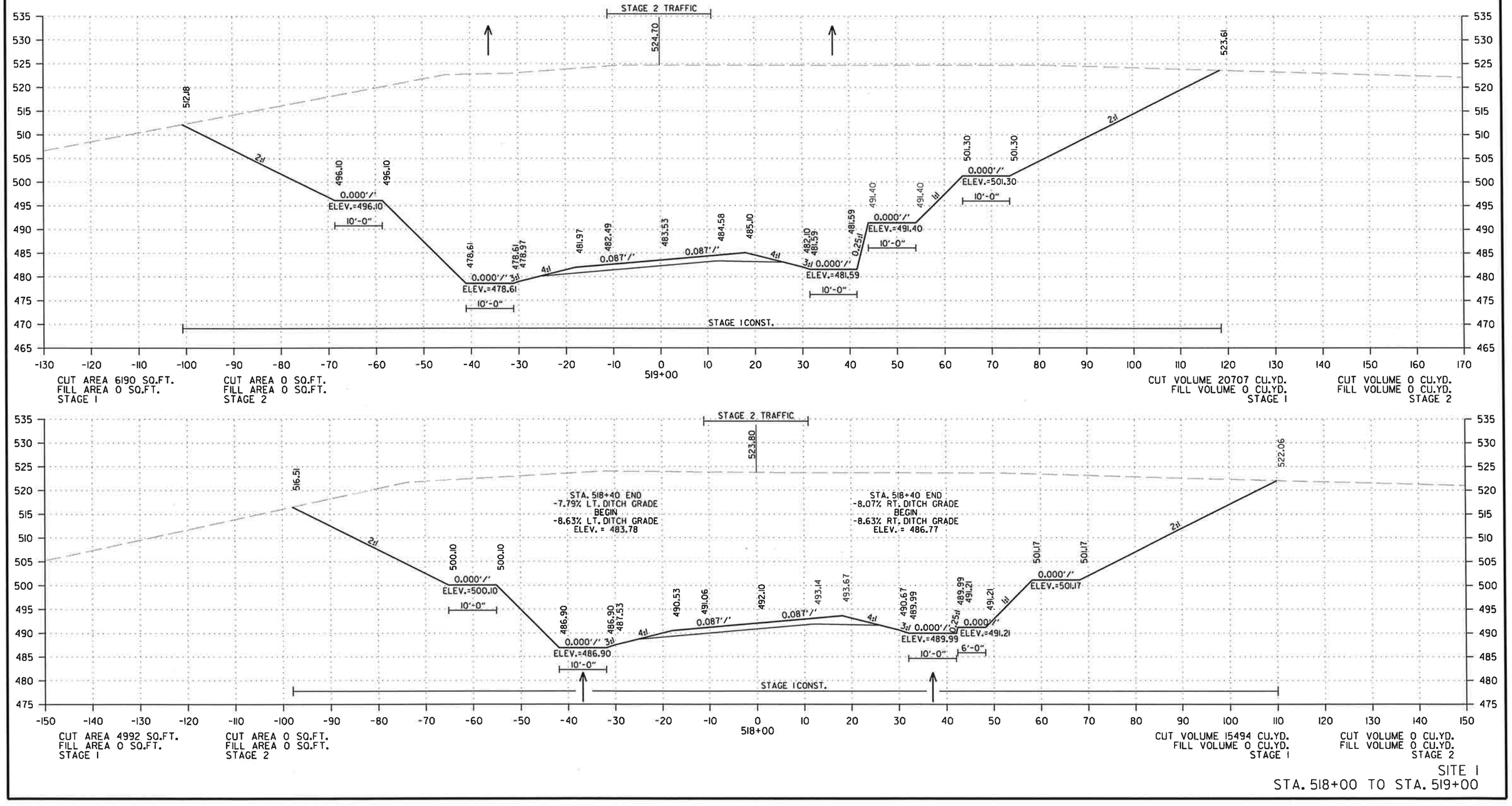

SITE 1
STA. 518+00 TO STA. 519+00

7/9/2019

R050280.DGN

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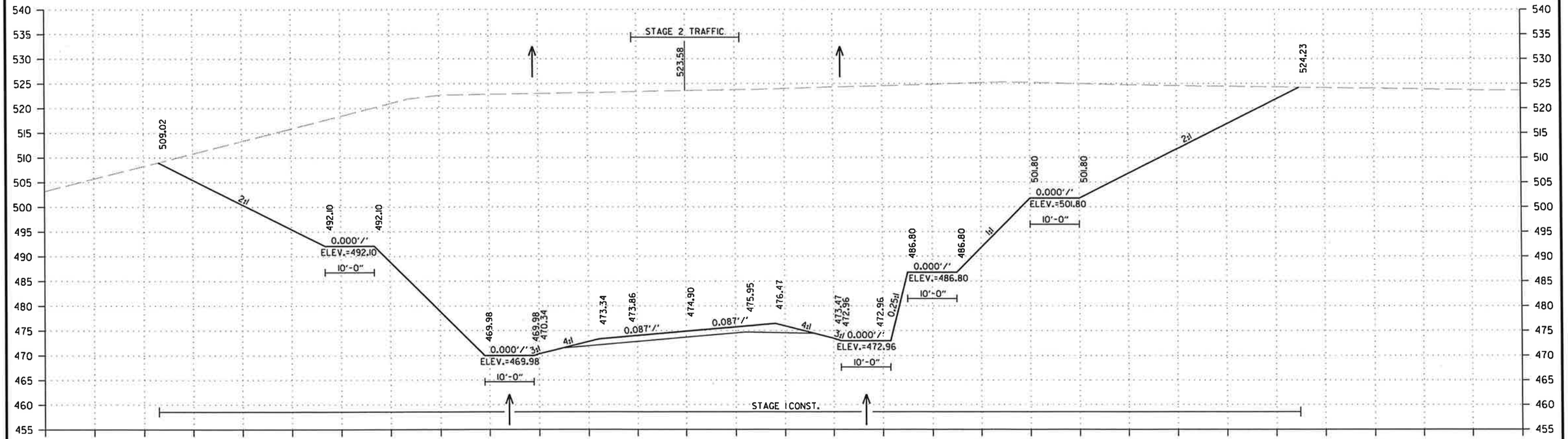
(2) CROSS SECTIONS



SITE 1
STA. 520+00 TO STA. 520+00

7/9/2019

R050280.DGN

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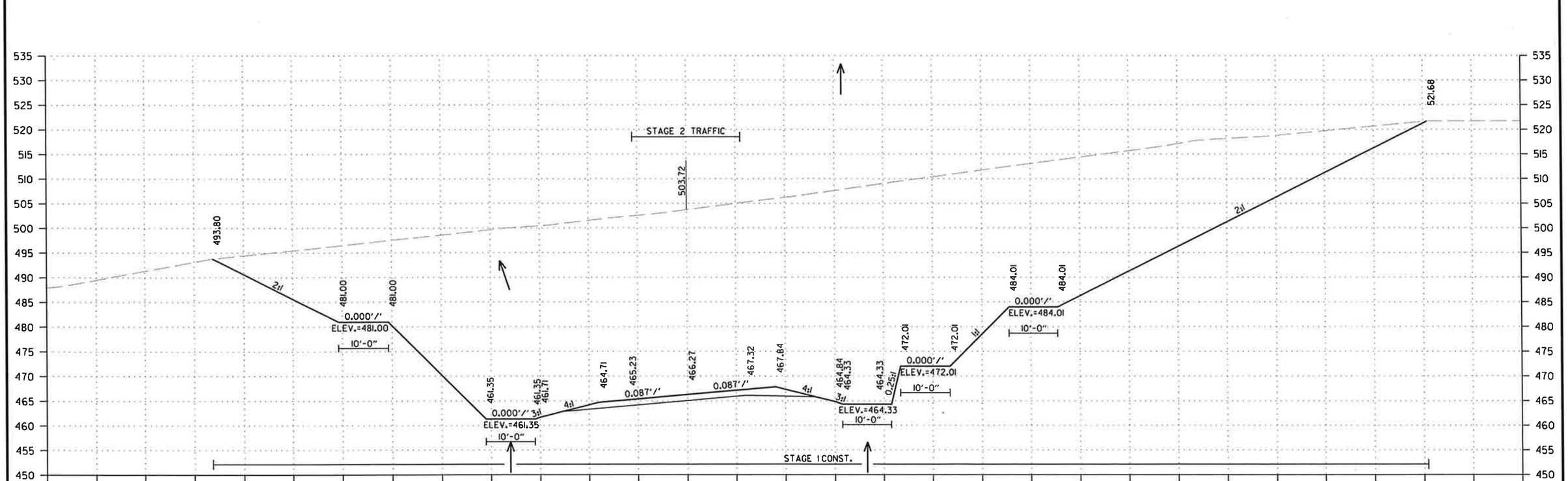

SITE 1
STA. 521+00 TO STA. 521+00

7/9/2019

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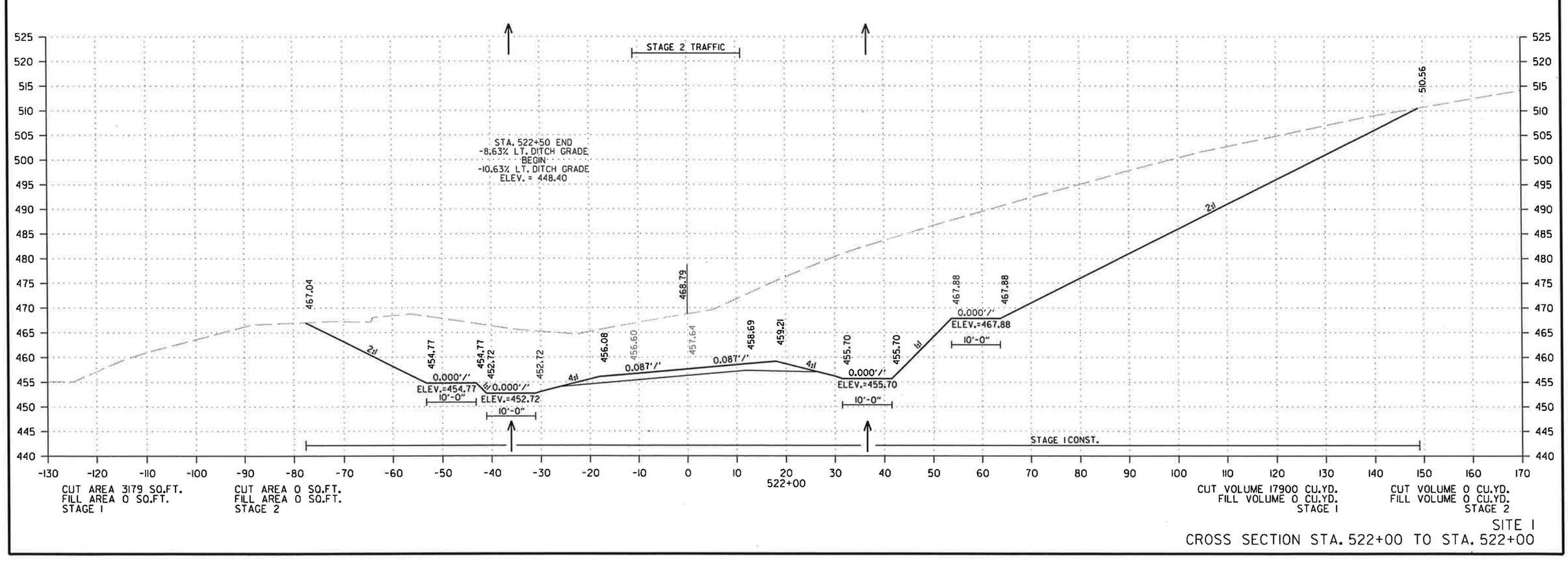

SITE 1
CROSS SECTION STA. 522+00 TO STA. 522+00

9/3/2019

R050280.DGN

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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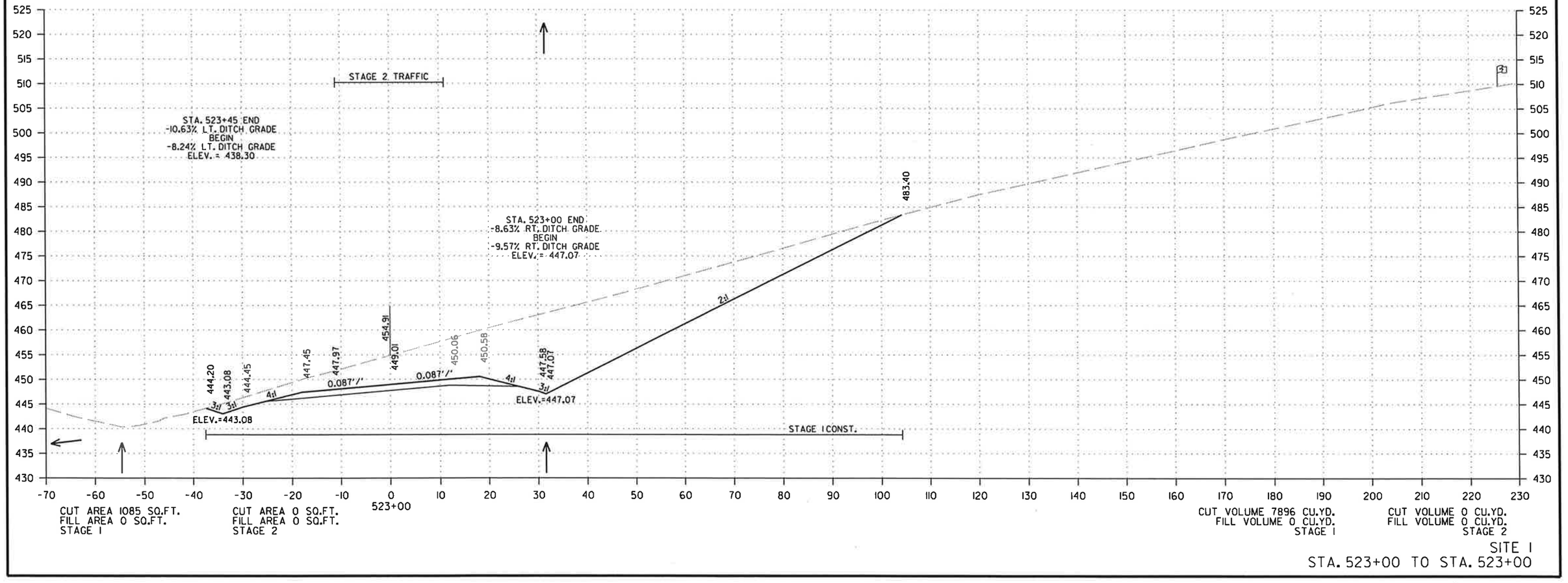

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STA. 523+00 TO STA. 523+00

7/9/2019

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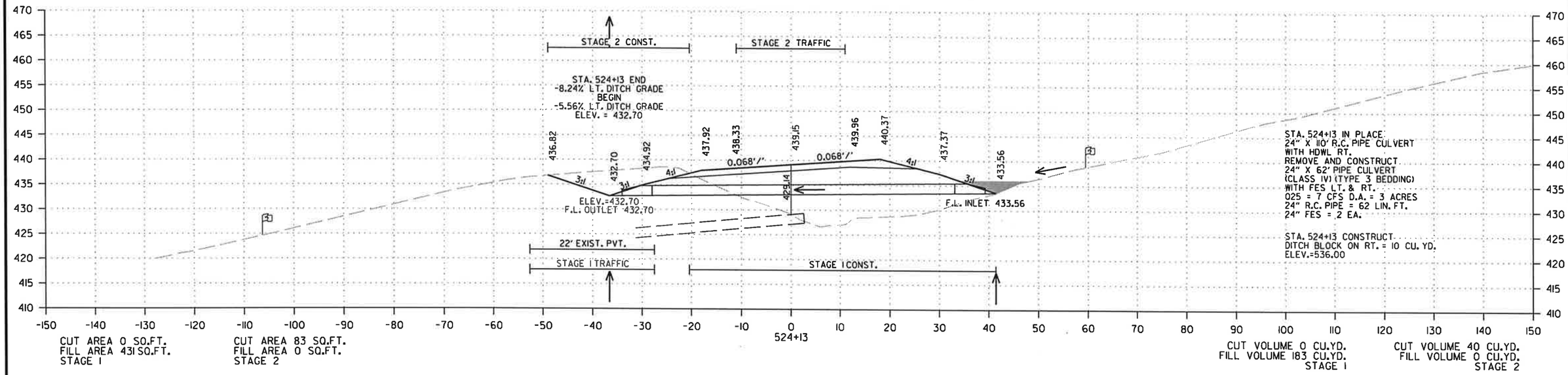

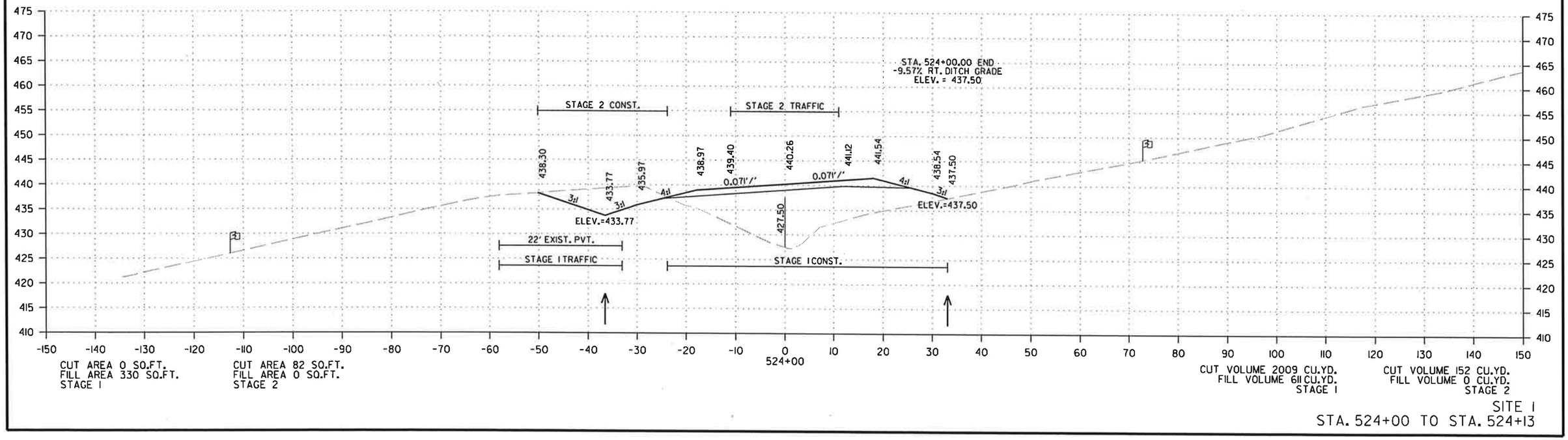

SITE 1
STA. 524+00 TO STA. 524+13

7/9/2019

R050280.DGN

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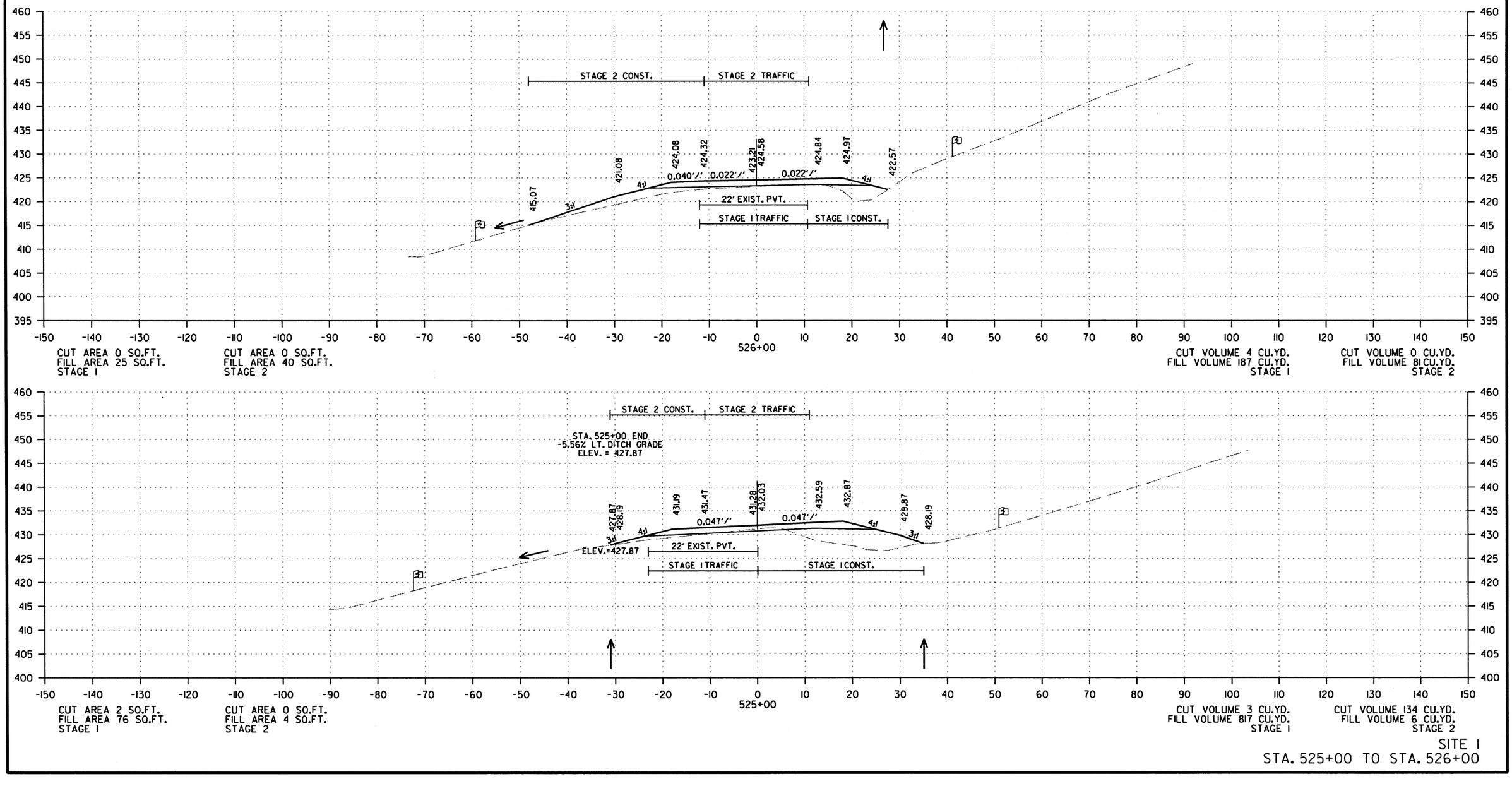

SITE 1
STA. 525+00 TO STA. 526+00

7/9/2009

R050280.DGN

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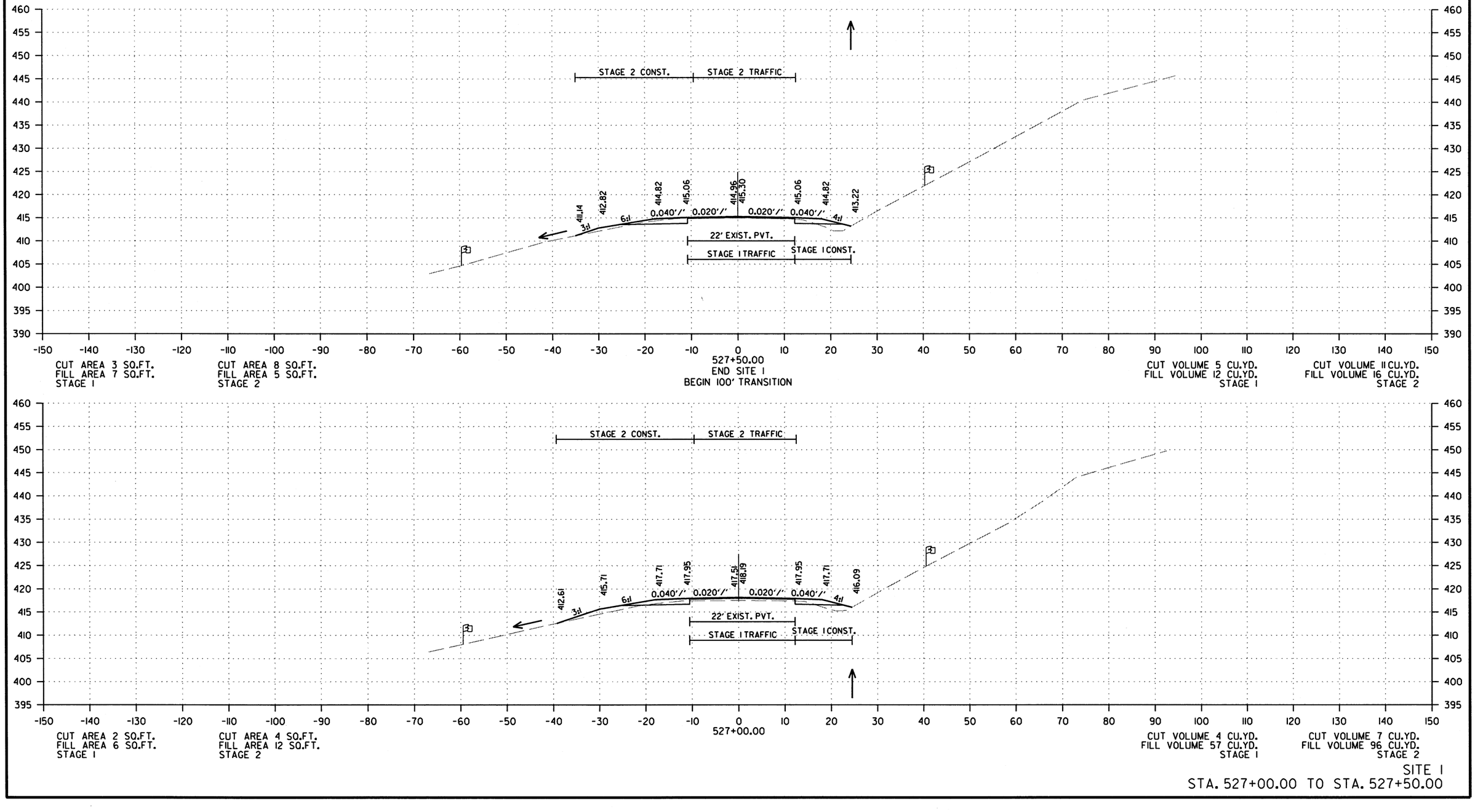

SITE 1
STA. 527+00.00 TO STA. 527+50.00

7/9/2019

R050280.DGN

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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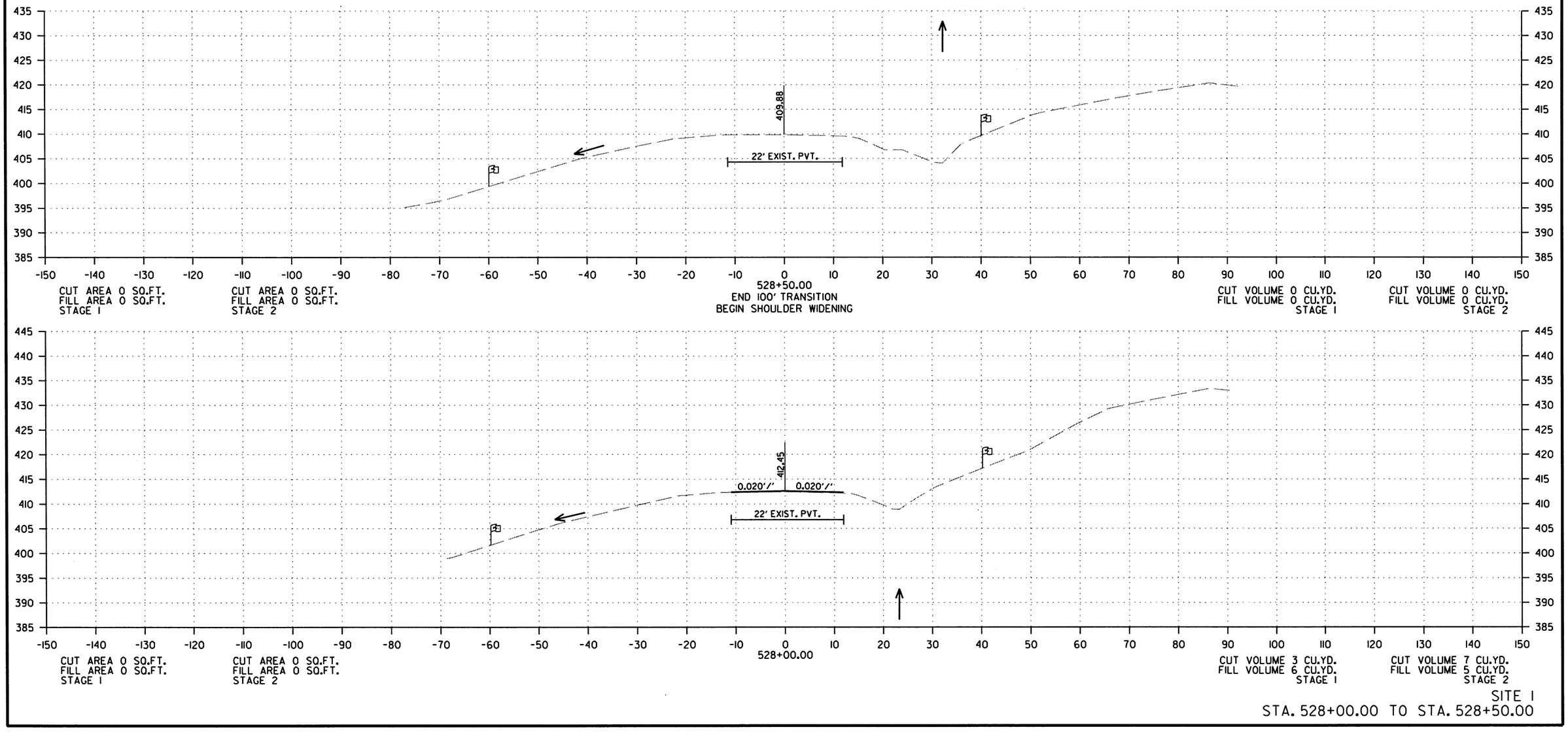

SITE 1
STA. 528+00.00 TO STA. 528+50.00

7/9/2019

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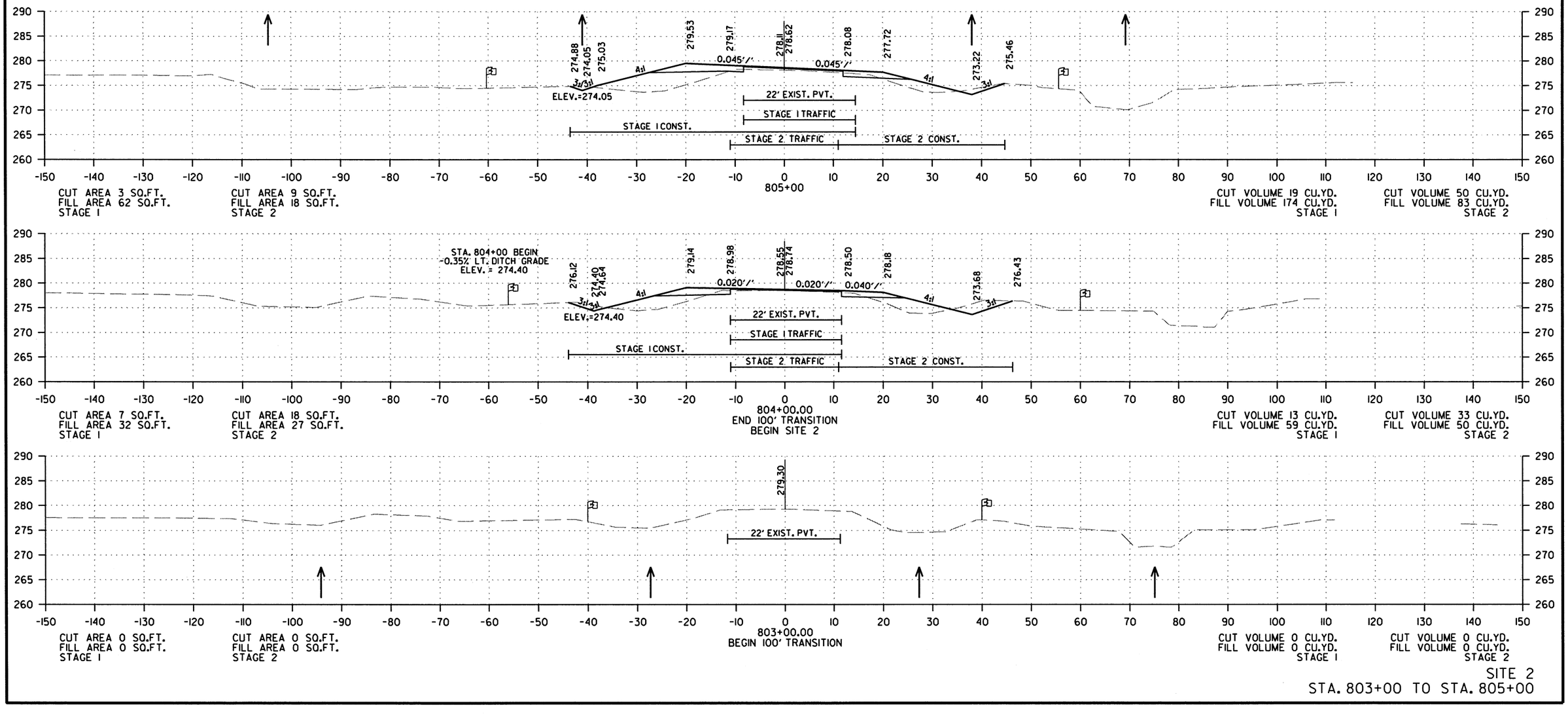
(2) CROSS SECTIONS



SITE 2
STA. 803+00 TO STA. 805+00

7/9/2009

R050280.DGN

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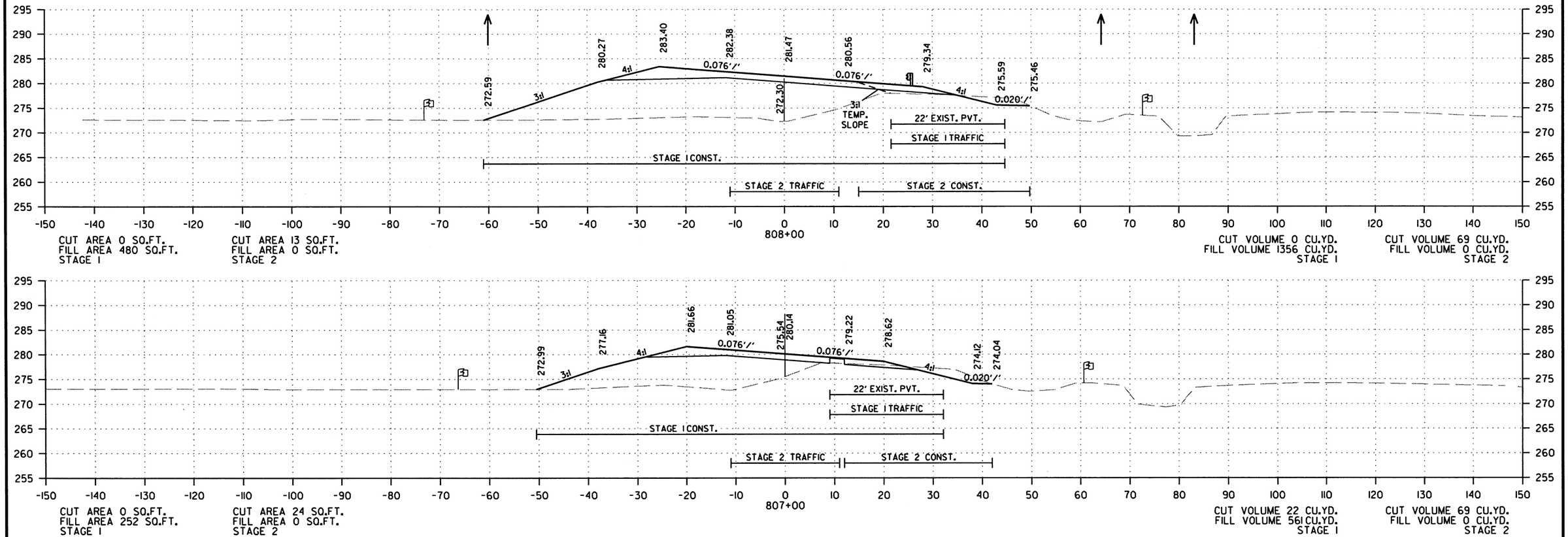
(2) CROSS SECTIONS



SITE 2
STA. 806+00 TO STA. 808+00

7/9/2009

R050280.DGN

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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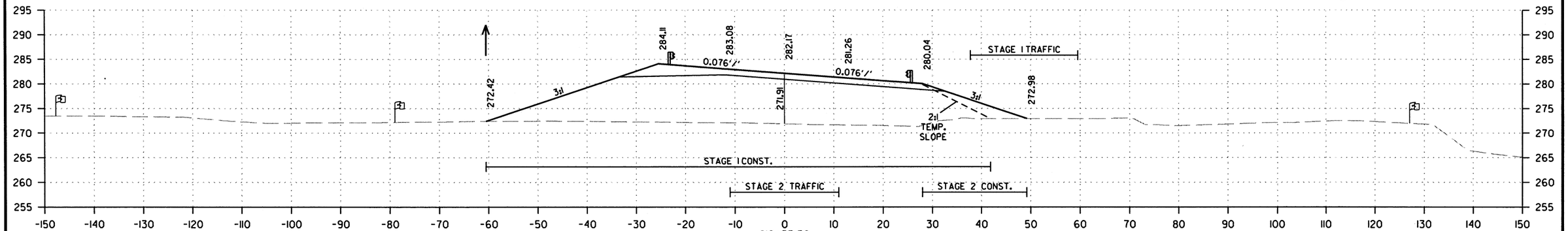


CUT AREA 0 SQ.FT.
FILL AREA 719 SQ.FT.
STAGE 1

CUT AREA 0 SQ.FT.
FILL AREA 26 SQ.FT.
STAGE 2

810+55.50
BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 156 CU.YD.
STAGE 1

CUT VOLUME 0 CU.YD.
FILL VOLUME 6 CU.YD.
STAGE 2

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

810+43.79
SLOPE INTERCEPT

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

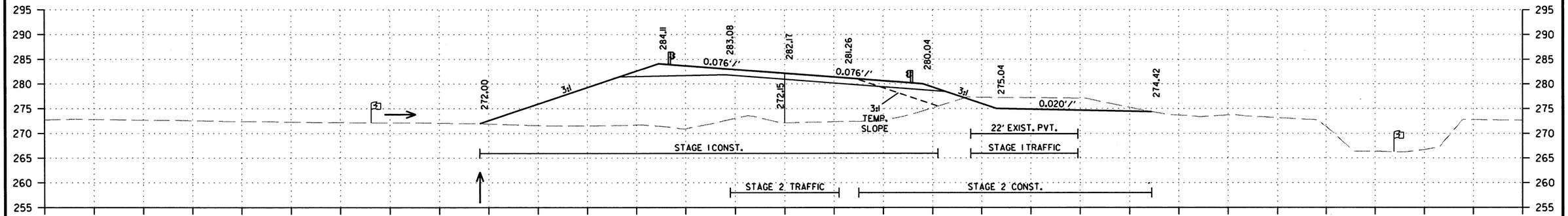
CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

809+64.96
SLOPE INTERCEPT

CUT VOLUME 0 CU.YD.
FILL VOLUME 127 CU.YD.
STAGE 1

CUT VOLUME 13 CU.YD.
FILL VOLUME 5 CU.YD.
STAGE 2



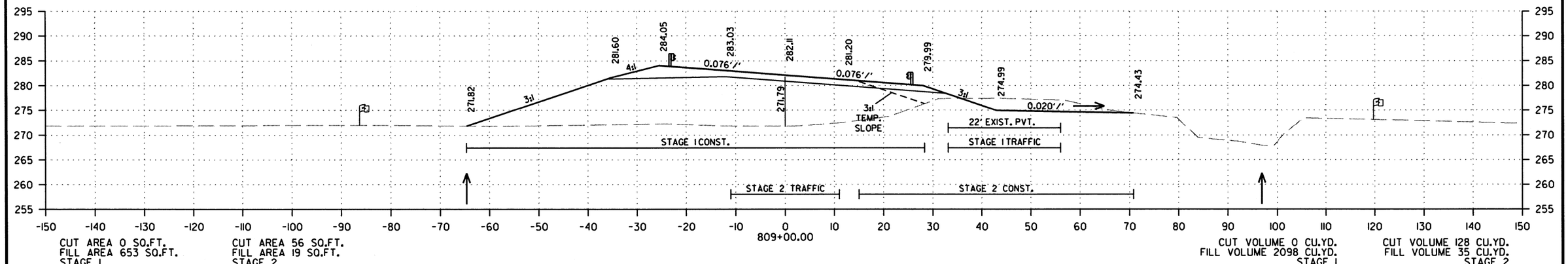
CUT AREA 0 SQ.FT.
FILL AREA 656 SQ.FT.
STAGE 1

CUT AREA 66 SQ.FT.
FILL AREA 28 SQ.FT.
STAGE 2

809+54.50
BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 1321 CU.YD.
STAGE 1

CUT VOLUME 123 CU.YD.
FILL VOLUME 47 CU.YD.
STAGE 2



CUT AREA 0 SQ.FT.
FILL AREA 653 SQ.FT.
STAGE 1

CUT AREA 56 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 2

809+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2098 CU.YD.
STAGE 1

CUT VOLUME 128 CU.YD.
FILL VOLUME 35 CU.YD.
STAGE 2

SITE 2
STA. 809+00.00 TO STA. 810+55.50

7/9/2009

R050280.DGN

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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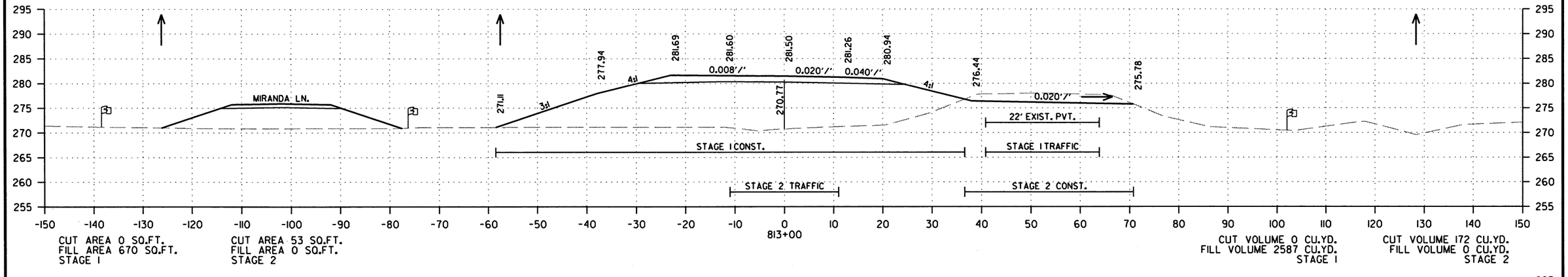

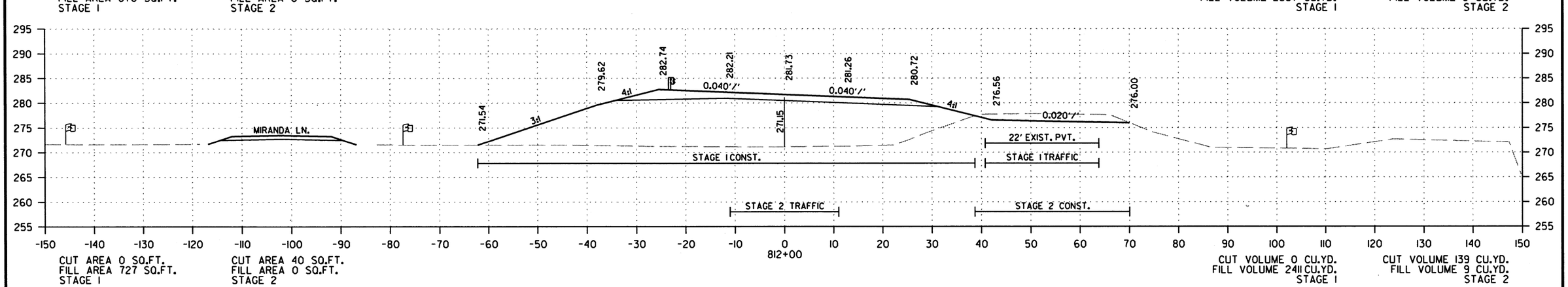

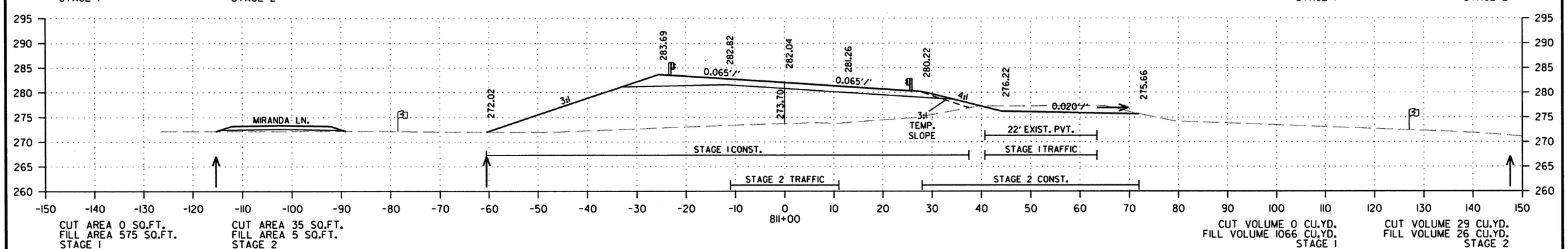

SITE 2
STA. 811+00 TO STA. 813+00

7/9/2019

R050280.DGN

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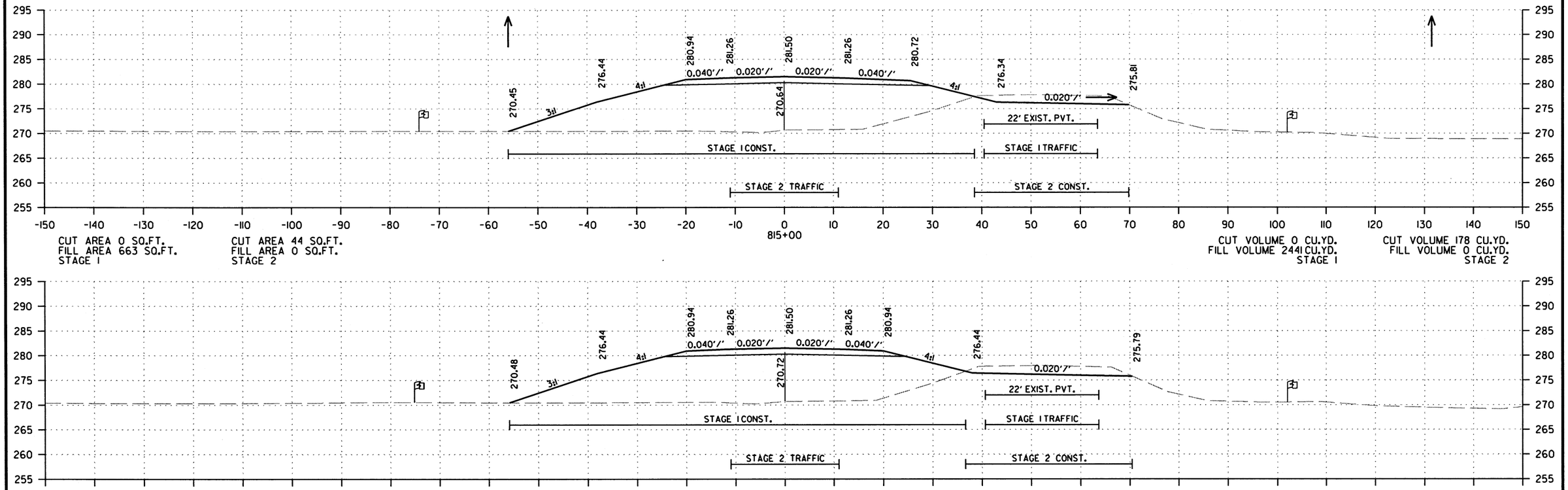
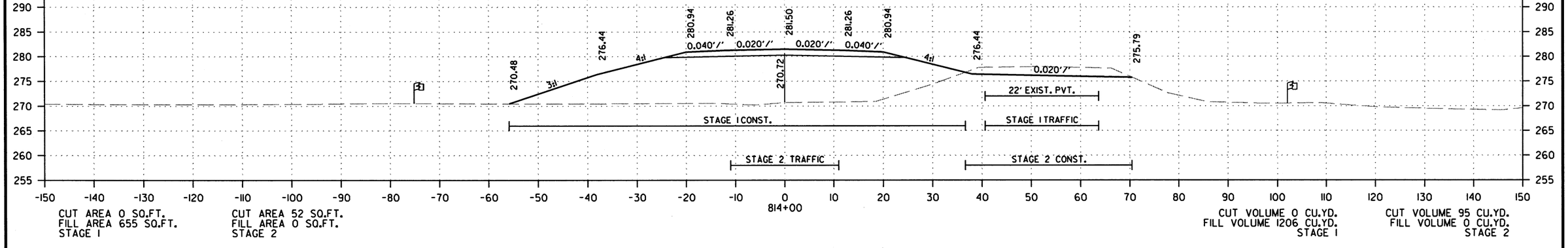
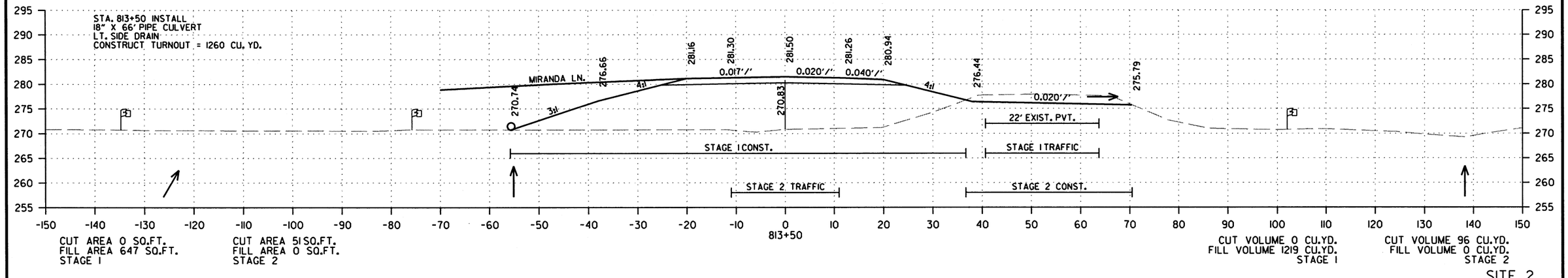
(2) CROSS SECTIONS







SITE 2
STA. 813+50 TO STA. 815+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	161	226

(2) CROSS SECTIONS

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

817+94.41
SLOPE INTERCEPT

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

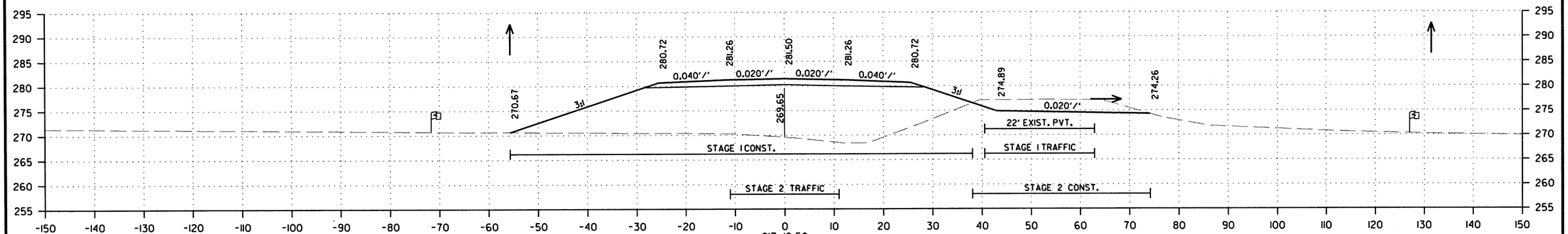
CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

817+36.58
SLOPE INTERCEPT

CUT VOLUME 0 CU.YD.
FILL VOLUME 232 CU.YD.
STAGE 1

CUT VOLUME 23 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2



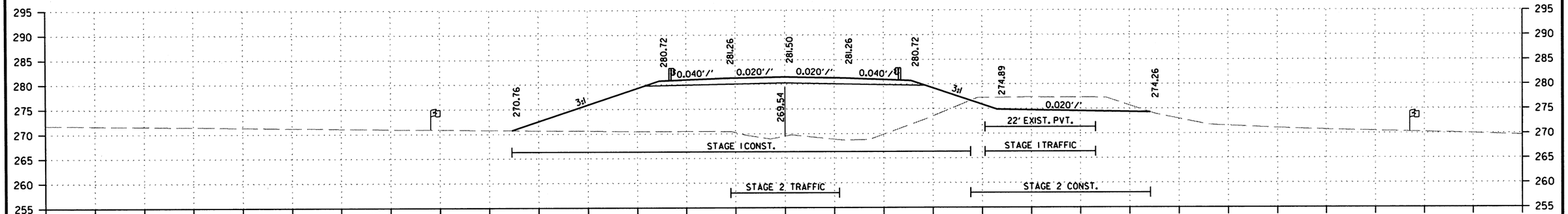
CUT AREA 0 SQ.FT.
FILL AREA 734 SQ.FT.
STAGE 1

CUT AREA 73 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

817+19.50
BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 528 CU.YD.
STAGE 1

CUT VOLUME 55 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2



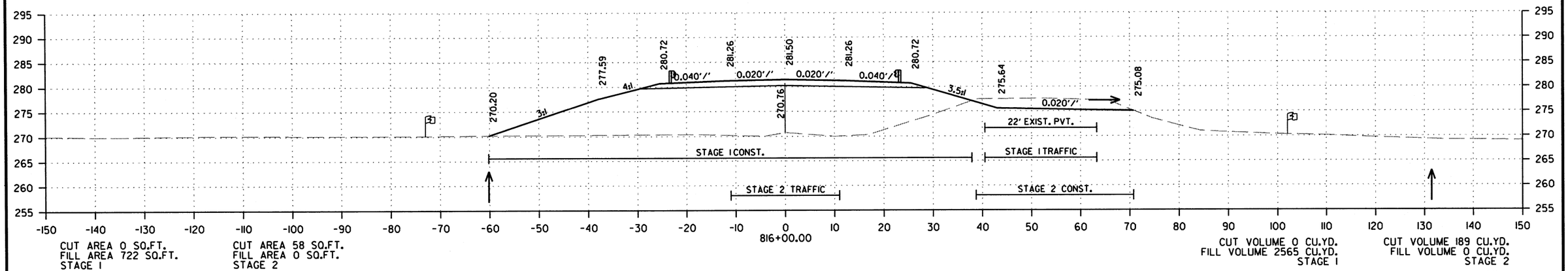
CUT AREA 0 SQ.FT.
FILL AREA 727 SQ.FT.
STAGE 1

CUT AREA 79 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

817+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2683 CU.YD.
STAGE 1

CUT VOLUME 254 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2



CUT AREA 0 SQ.FT.
FILL AREA 722 SQ.FT.
STAGE 1

CUT AREA 58 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

816+00.00

CUT VOLUME 0 CU.YD.
FILL VOLUME 2565 CU.YD.
STAGE 1

CUT VOLUME 189 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

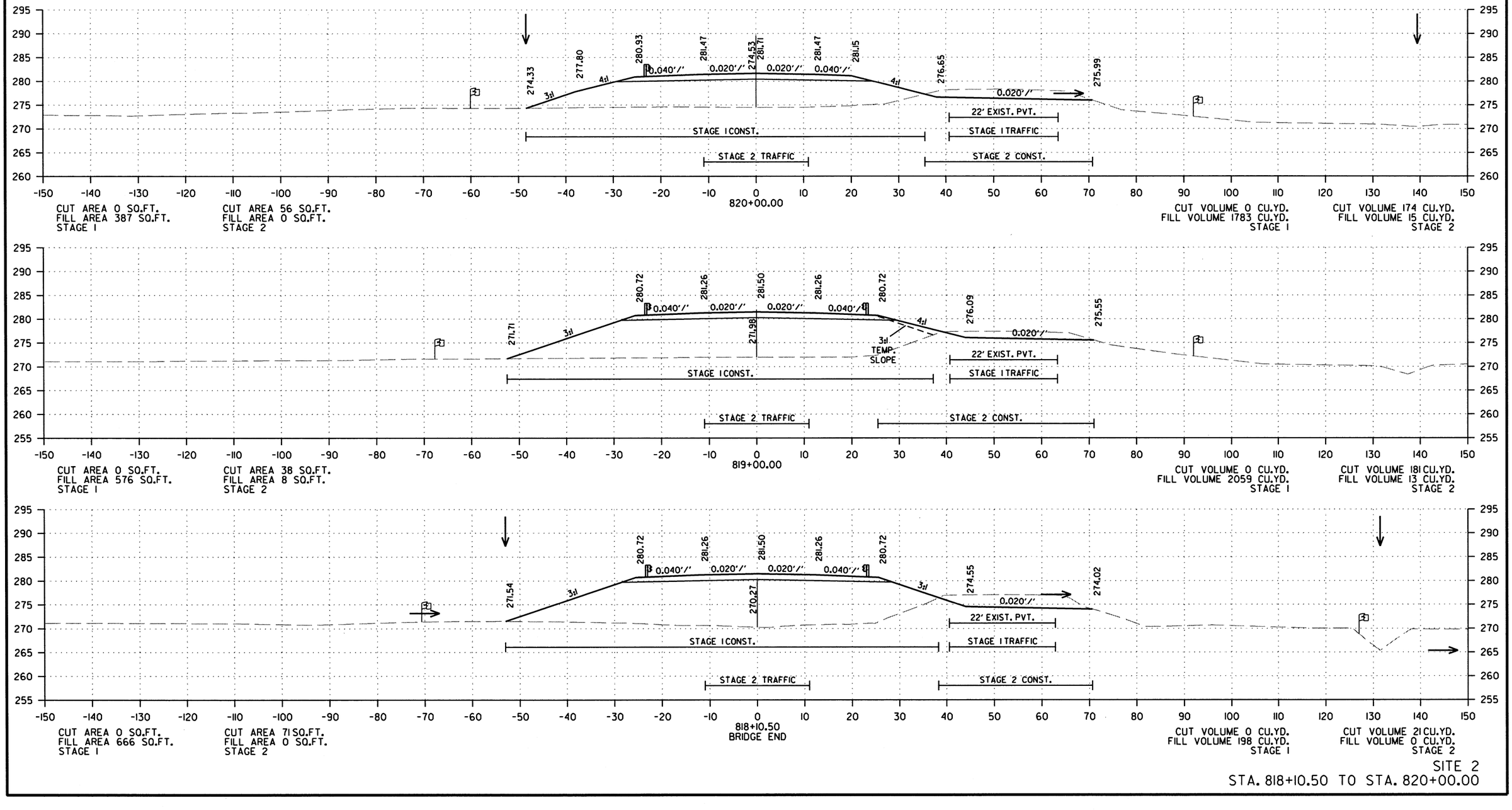
SITE 2
STA. 816+00.00 TO STA. 817+19.50

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	162	226

(2) CROSS SECTIONS



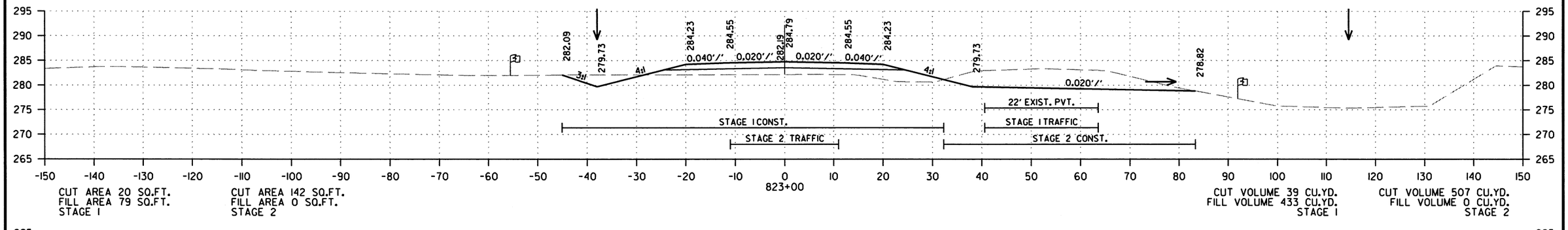
SITE 2
STA. 818+10.50 TO STA. 820+00.00

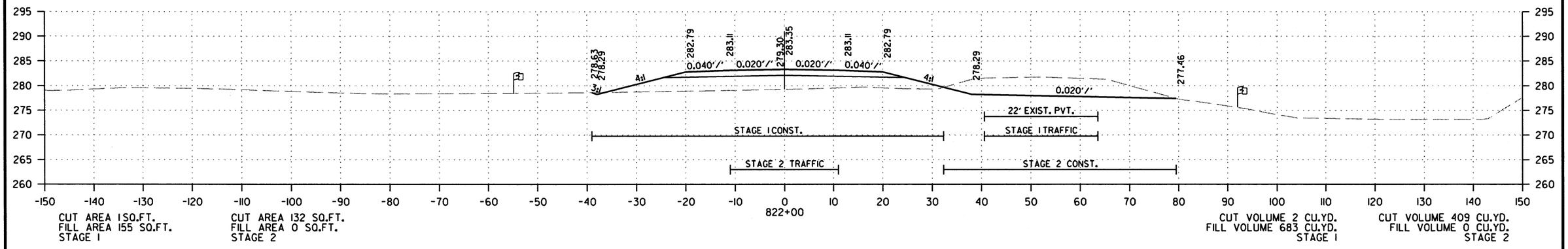
7/9/2009

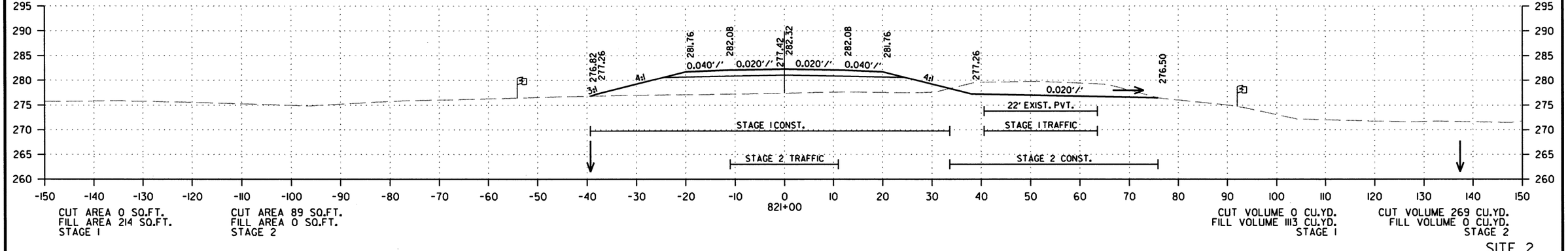
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	163	226

(2) CROSS SECTIONS







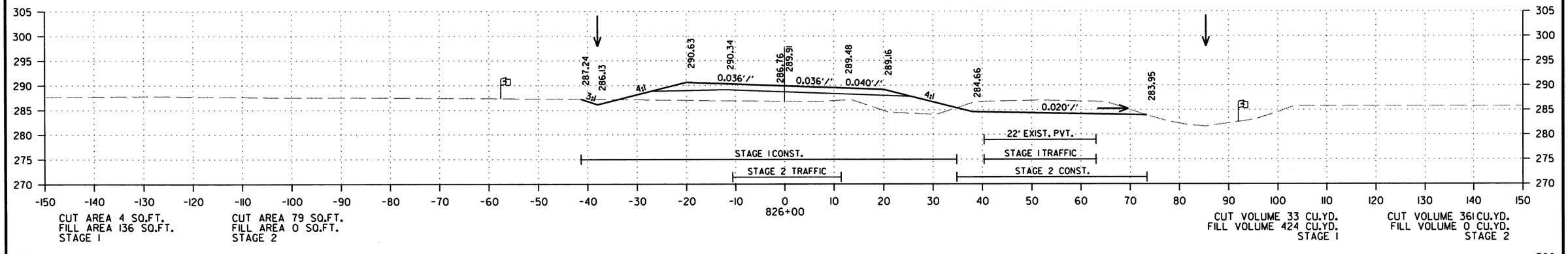
SITE 2
STA. 821+00 TO STA. 823+00

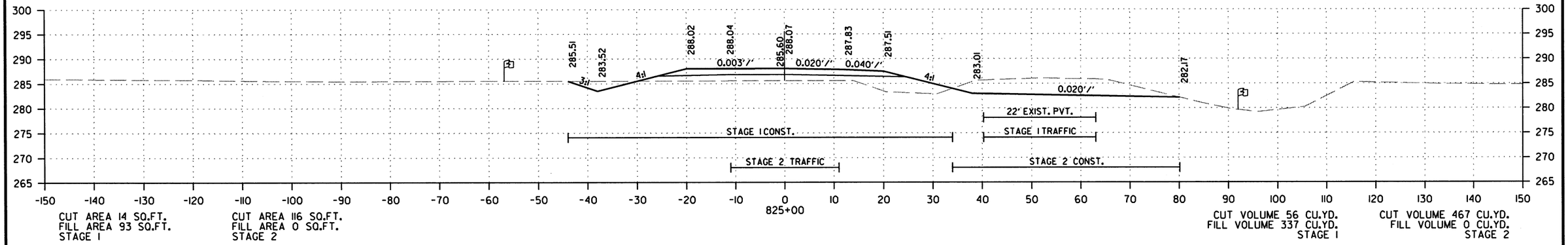
7/9/2019

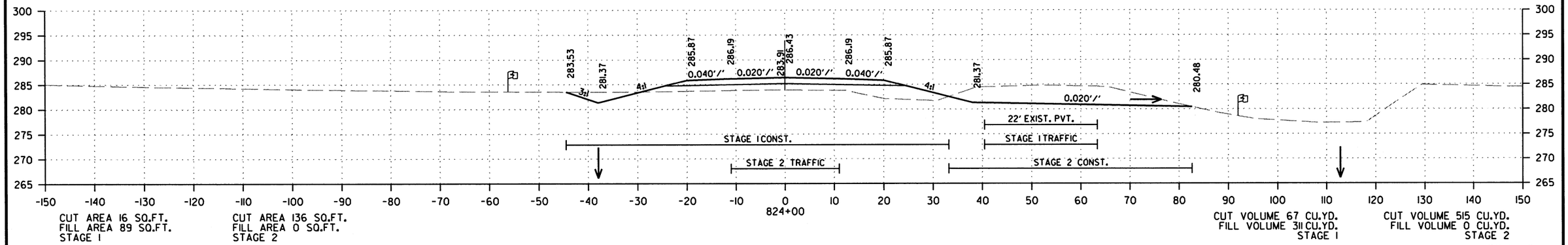
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	164	226

(2) CROSS SECTIONS







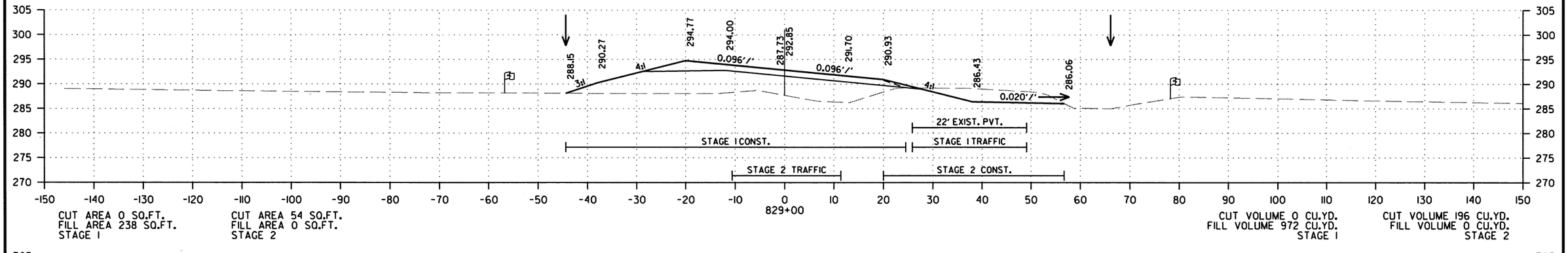
SITE 2
STA. 824+00 TO STA. 826+00

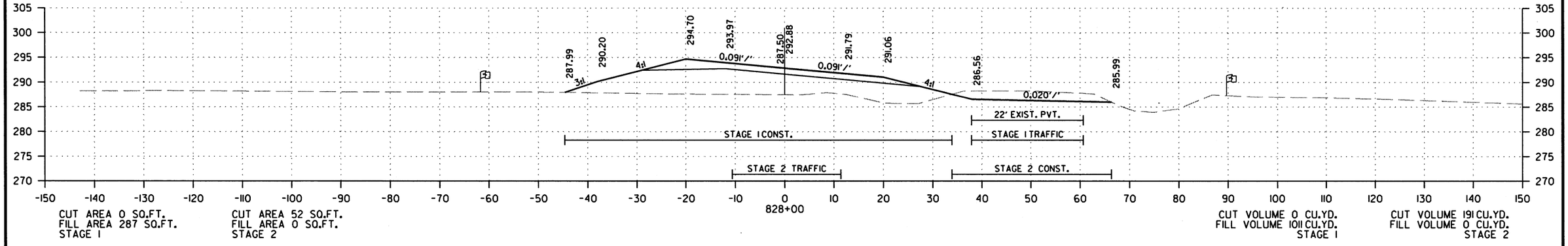
7/9/2009

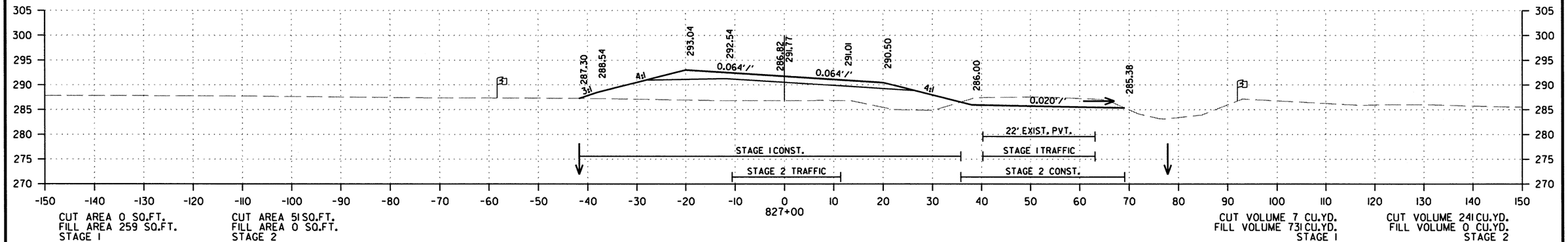
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	165	226

(2) CROSS SECTIONS







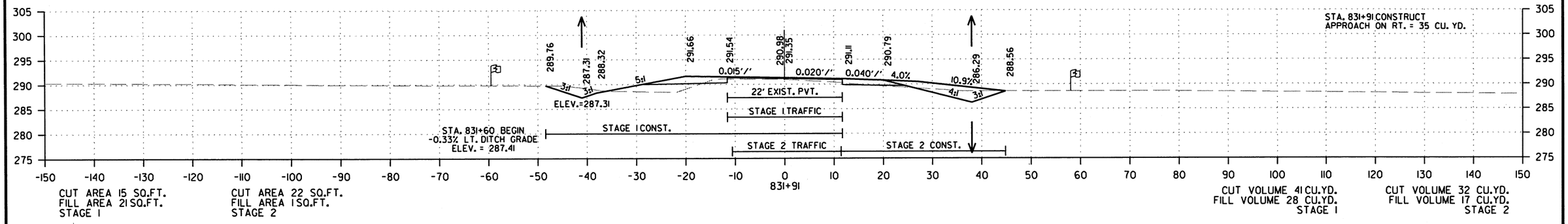
SITE 2
STA. 827+00 TO STA. 829+00

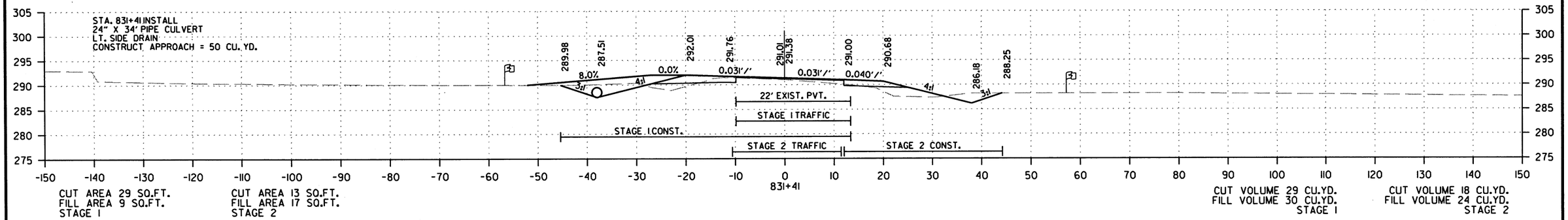
7/9/2019

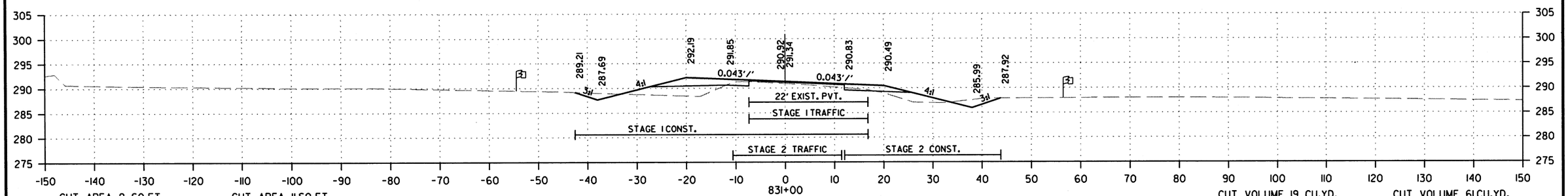
R050280.DGN

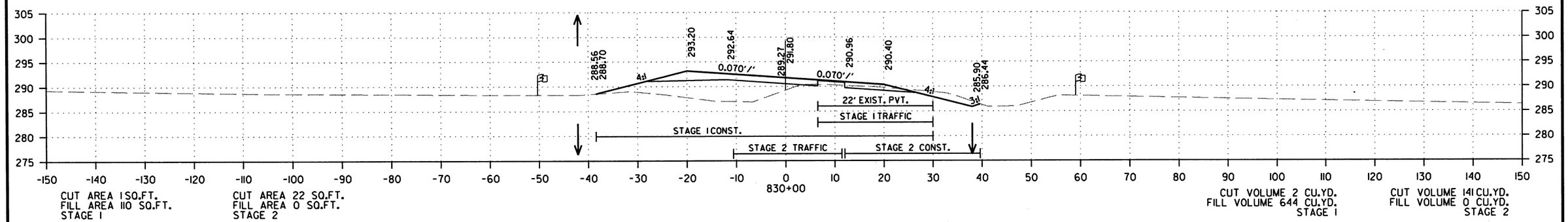
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	166	226

(2) CROSS SECTIONS









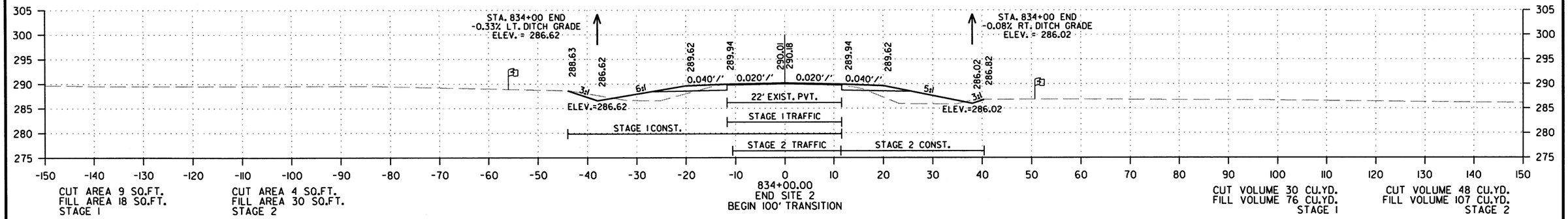
SITE 2
STA. 830+00 TO STA. 831+91

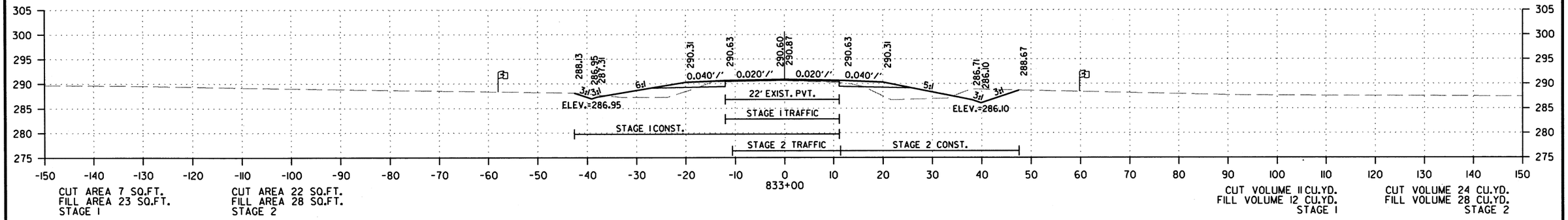
7/9/2019

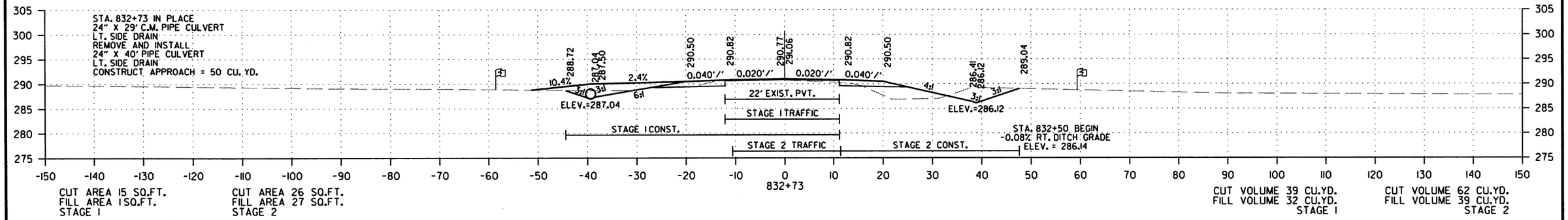
R050280.DGN

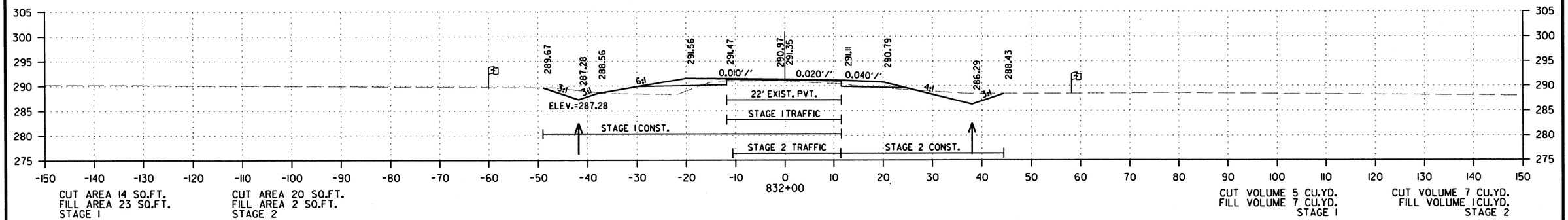
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	167	226

(2) CROSS SECTIONS









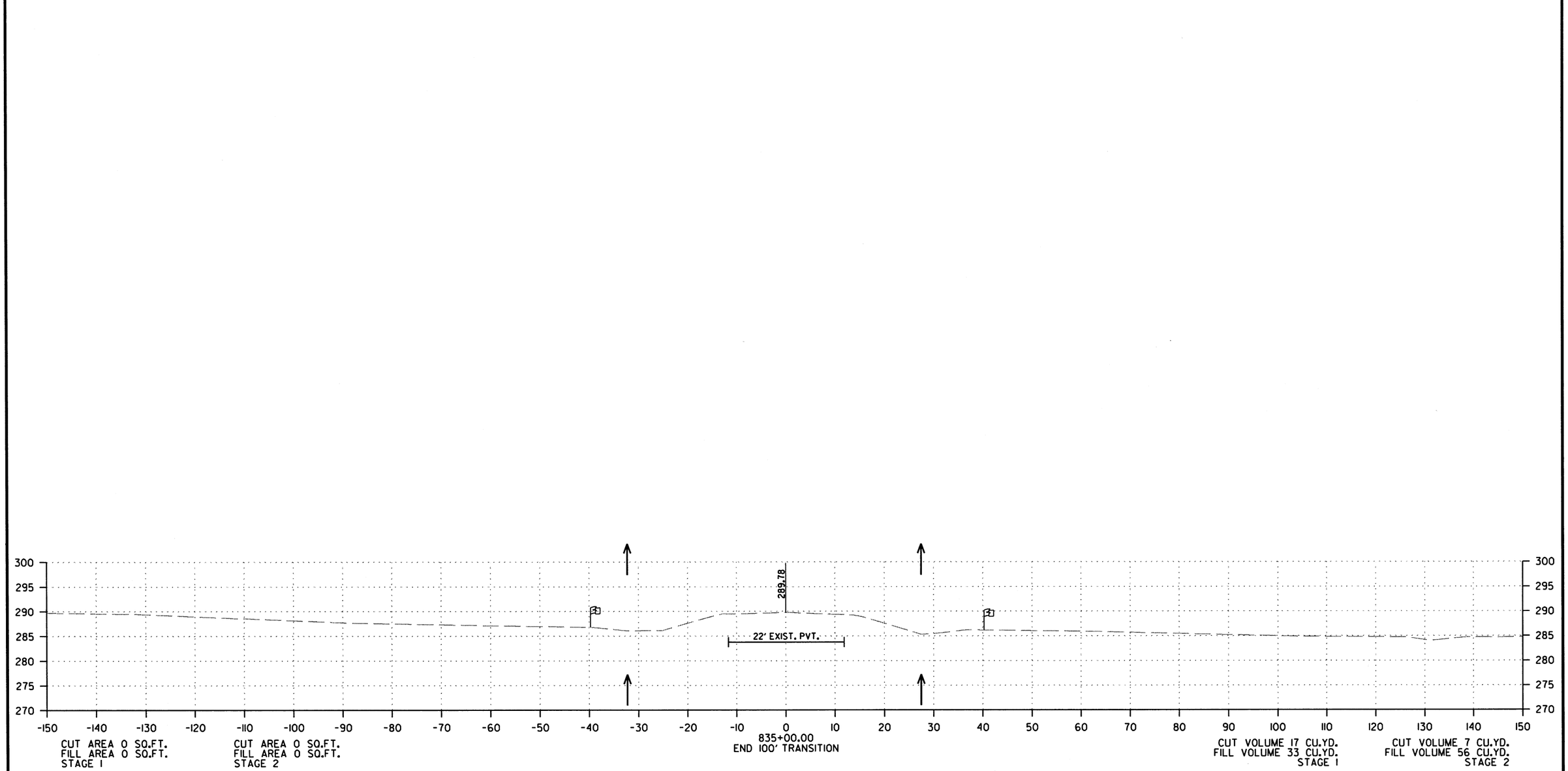
SITE 2
STA. 832+00 TO STA. 834+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	168	226

(2) CROSS SECTIONS



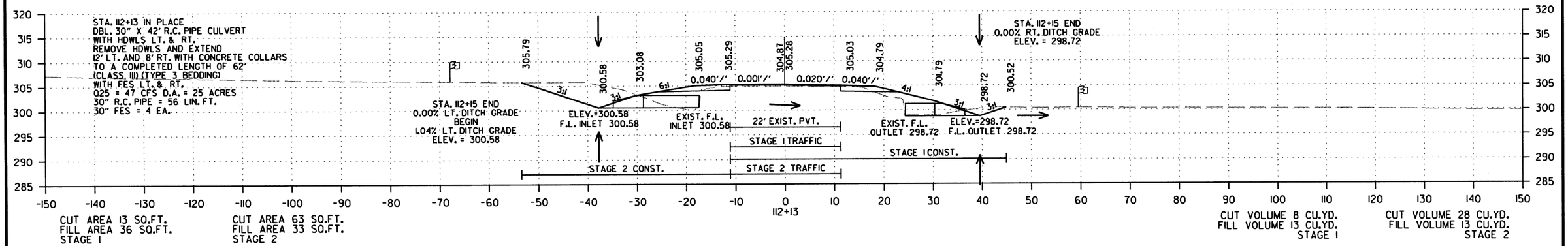
SITE 2
STA. 835+00 TO STA. 835+00

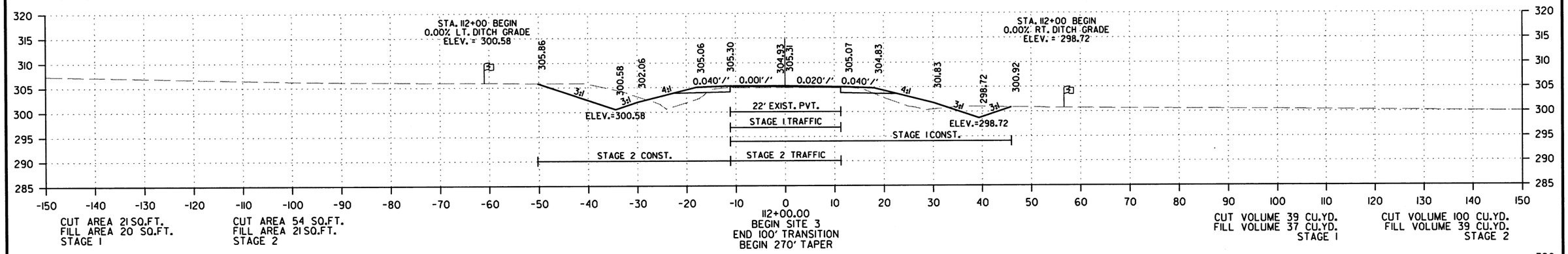
7/9/2009

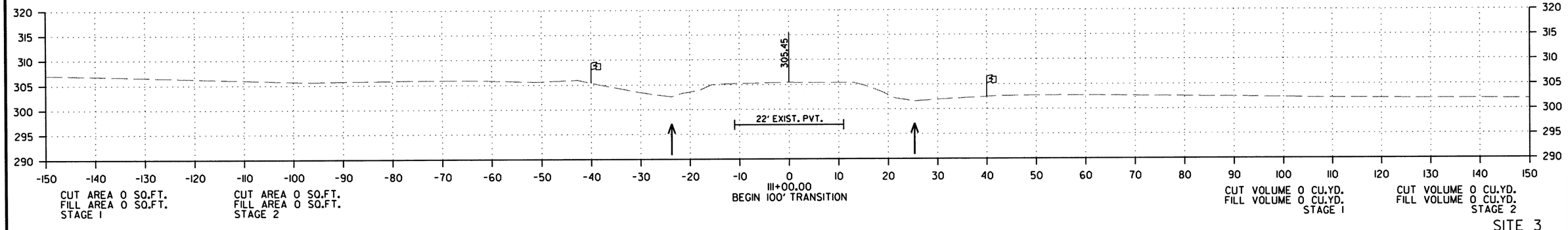
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	169	226

(2) CROSS SECTIONS







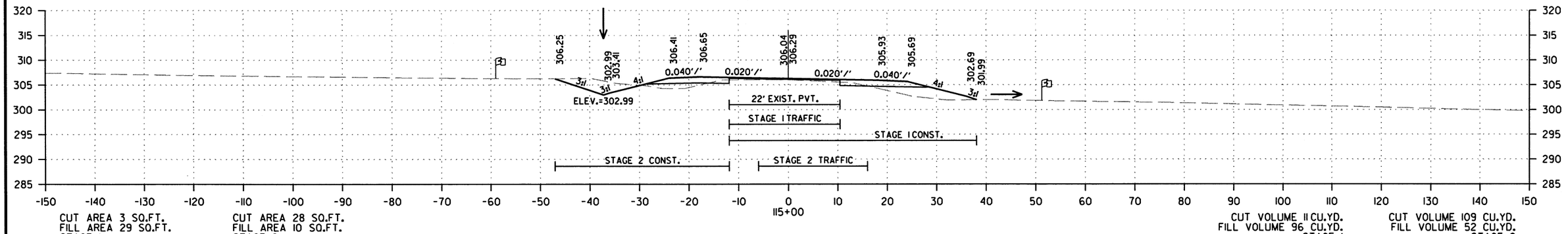
SITE 3
STA. 111+00 TO STA. 112+13

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	170	226

(2) CROSS SECTIONS

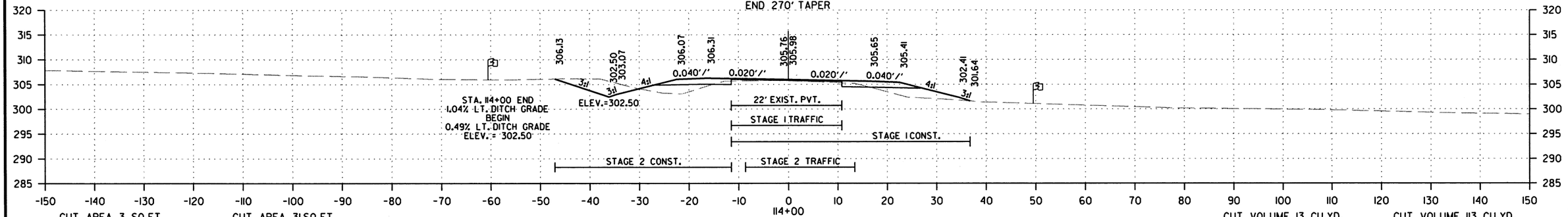


CUT AREA 3 SQ.FT.
FILL AREA 29 SQ.FT.
STAGE I

CUT AREA 28 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 2

CUT VOLUME 11 CU.YD.
FILL VOLUME 96 CU.YD.
STAGE I

CUT VOLUME 109 CU.YD.
FILL VOLUME 52 CU.YD.
STAGE 2



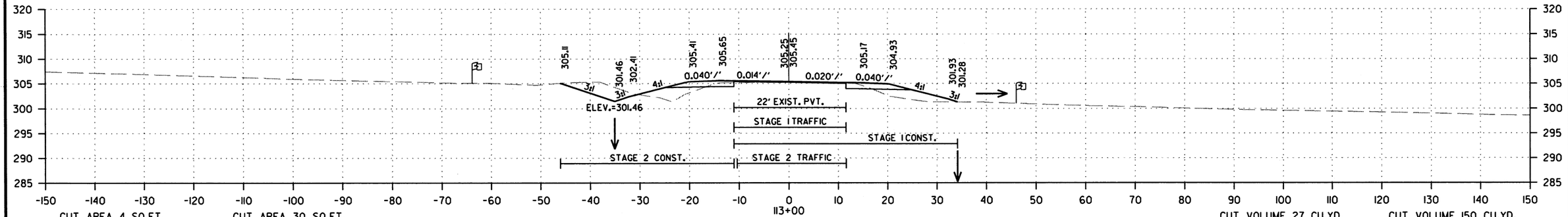
114+70
END 270' TAPER

CUT AREA 3 SQ.FT.
FILL AREA 23 SQ.FT.
STAGE I

CUT AREA 31 SQ.FT.
FILL AREA 18 SQ.FT.
STAGE 2

CUT VOLUME 13 CU.YD.
FILL VOLUME 81 CU.YD.
STAGE I

CUT VOLUME 113 CU.YD.
FILL VOLUME 69 CU.YD.
STAGE 2



CUT AREA 4 SQ.FT.
FILL AREA 21 SQ.FT.
STAGE I

CUT AREA 30 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 2

CUT VOLUME 27 CU.YD.
FILL VOLUME 92 CU.YD.
STAGE I

CUT VOLUME 150 CU.YD.
FILL VOLUME 84 CU.YD.
STAGE 2

SITE 3
STA. 113+00 TO STA. 115+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	171	226

(2) CROSS SECTIONS

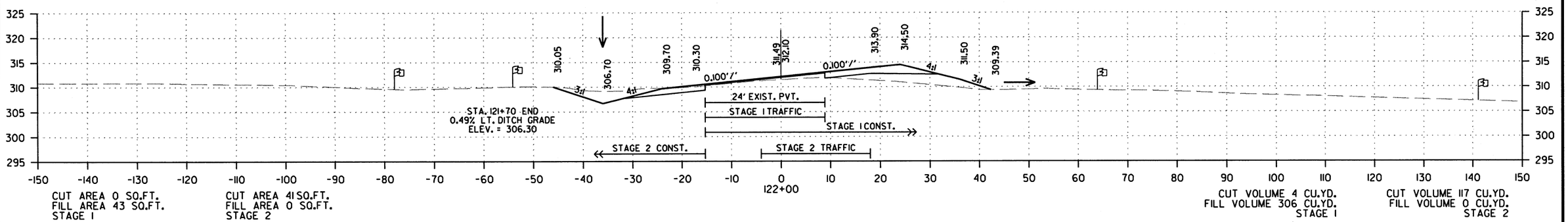
SITE 3
STA. 116+00 TO STA. 119+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	172	226

(2) CROSS SECTIONS

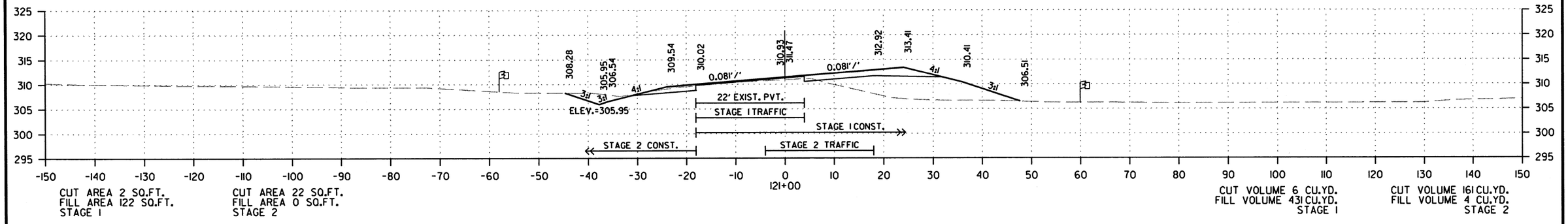


CUT AREA 0 SQ.FT.
FILL AREA 43 SQ.FT.
STAGE 1

CUT AREA 41 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 4 CU.YD.
FILL VOLUME 306 CU.YD.
STAGE 1

CUT VOLUME 117 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

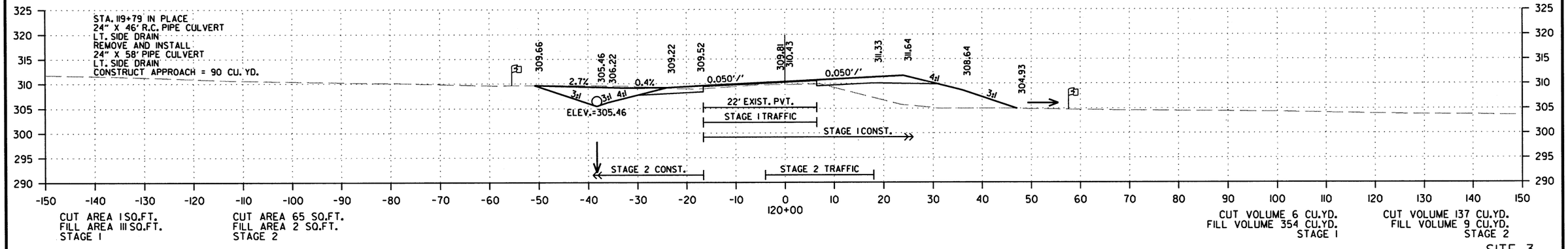


CUT AREA 2 SQ.FT.
FILL AREA 122 SQ.FT.
STAGE 1

CUT AREA 22 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 6 CU.YD.
FILL VOLUME 431 CU.YD.
STAGE 1

CUT VOLUME 161 CU.YD.
FILL VOLUME 4 CU.YD.
STAGE 2



CUT AREA 1 SQ.FT.
FILL AREA 111 SQ.FT.
STAGE 1

CUT AREA 65 SQ.FT.
FILL AREA 2 SQ.FT.
STAGE 2

CUT VOLUME 6 CU.YD.
FILL VOLUME 354 CU.YD.
STAGE 1

CUT VOLUME 137 CU.YD.
FILL VOLUME 9 CU.YD.
STAGE 2

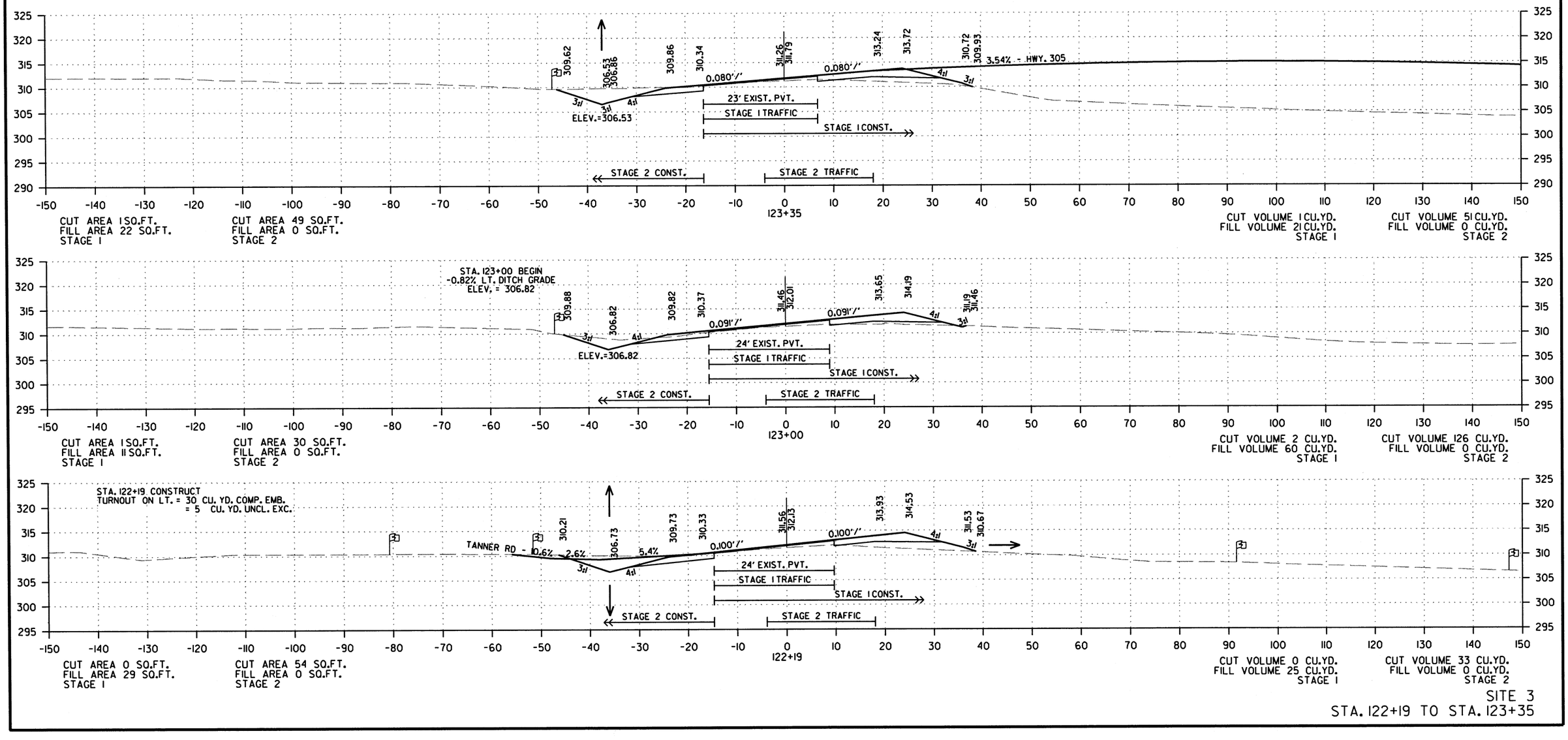
SITE 3
STA. 120+00 TO STA. 122+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	173	226

(2) CROSS SECTIONS



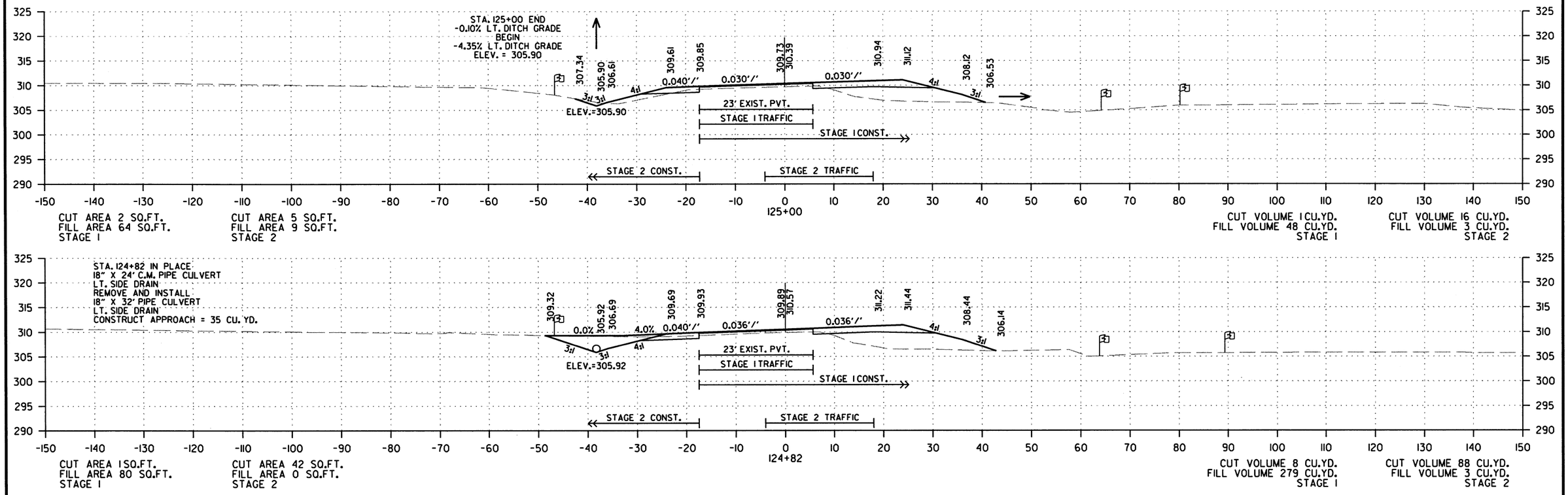
SITE 3
STA. 122+19 TO STA. 123+35

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	174	226

(2) CROSS SECTIONS



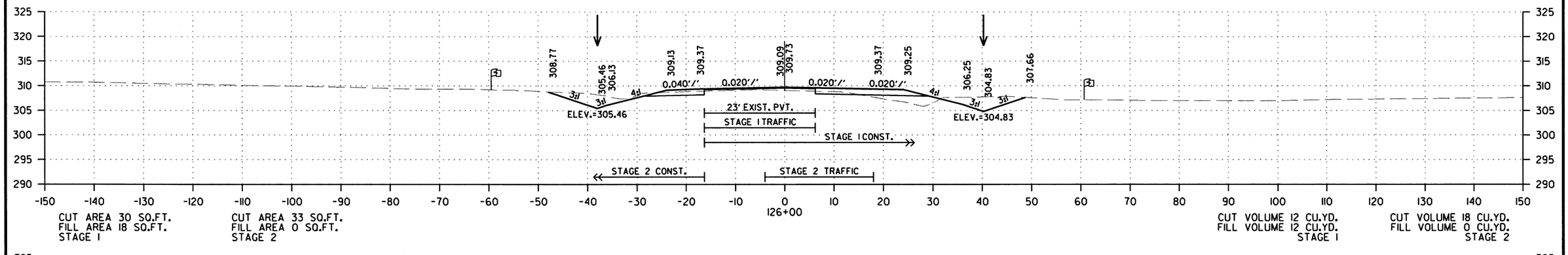
SITE 3
STA. 124+00 TO STA. 125+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	175	226

(2) CROSS SECTIONS

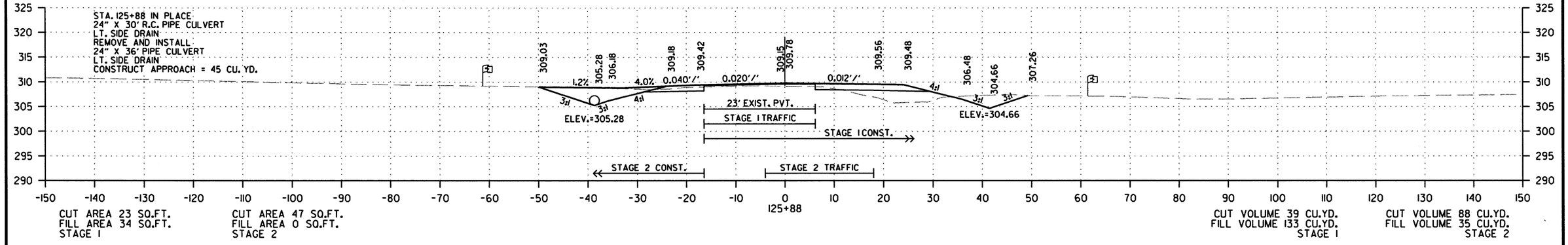


CUT AREA 30 SQ.FT.
FILL AREA 18 SQ.FT.
STAGE 1

CUT AREA 33 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 12 CU.YD.
FILL VOLUME 12 CU.YD.
STAGE 1

CUT VOLUME 18 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

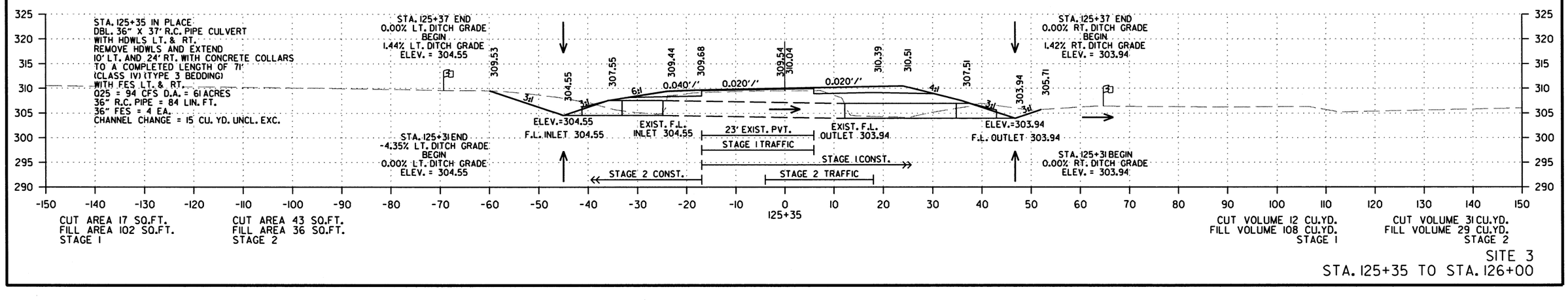


CUT AREA 23 SQ.FT.
FILL AREA 34 SQ.FT.
STAGE 1

CUT AREA 47 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 39 CU.YD.
FILL VOLUME 133 CU.YD.
STAGE 1

CUT VOLUME 88 CU.YD.
FILL VOLUME 35 CU.YD.
STAGE 2



CUT AREA 17 SQ.FT.
FILL AREA 102 SQ.FT.
STAGE 1

CUT AREA 43 SQ.FT.
FILL AREA 36 SQ.FT.
STAGE 2

CUT VOLUME 12 CU.YD.
FILL VOLUME 108 CU.YD.
STAGE 1

CUT VOLUME 31 CU.YD.
FILL VOLUME 29 CU.YD.
STAGE 2

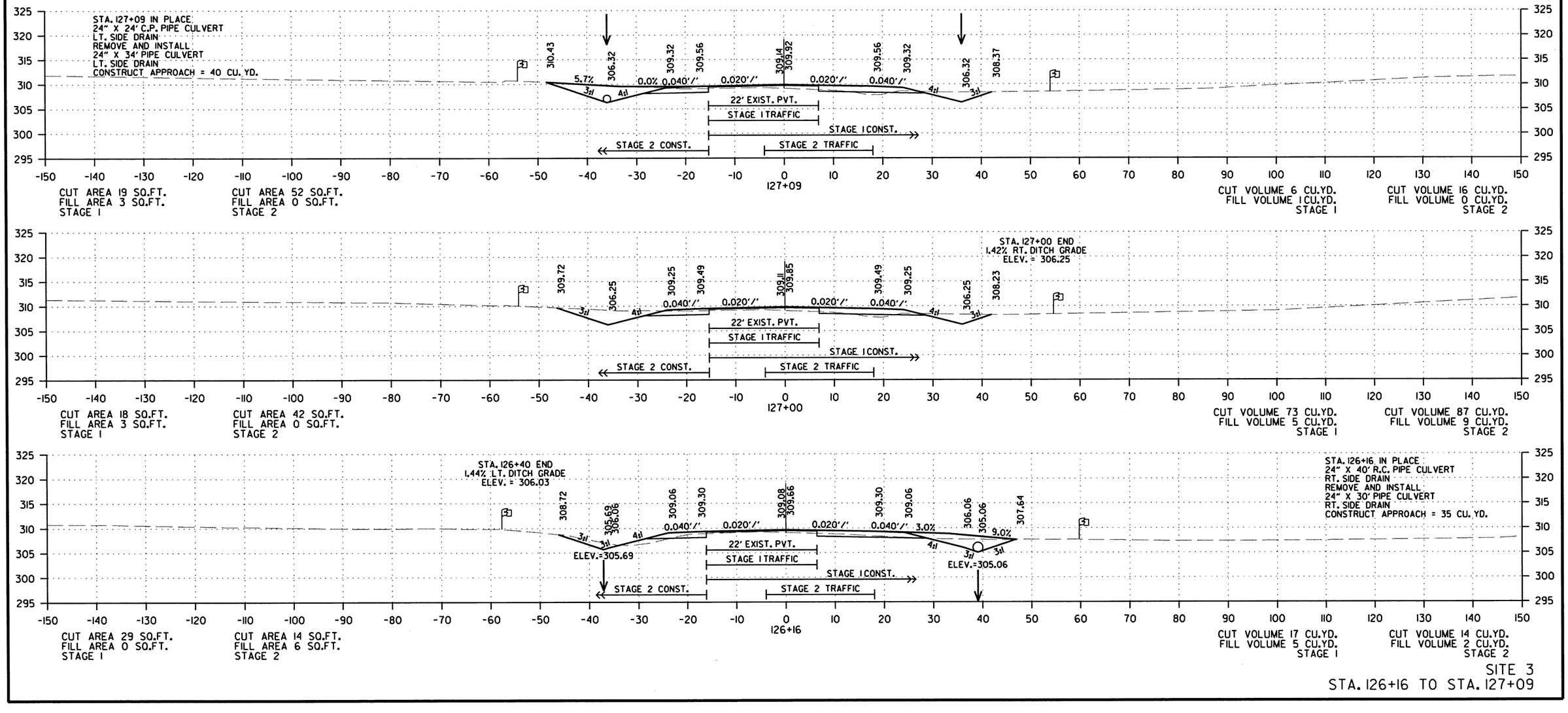
SITE 3
STA. 125+35 TO STA. 126+00

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	176	226

(2) CROSS SECTIONS



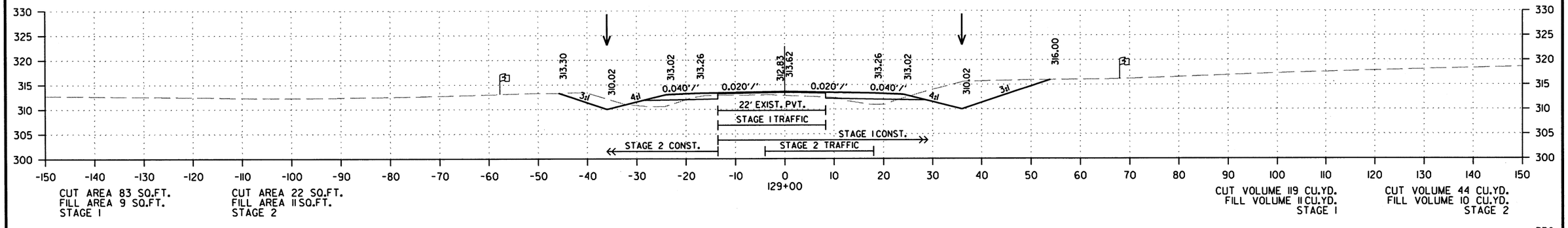
SITE 3
STA. 126+16 TO STA. 127+09

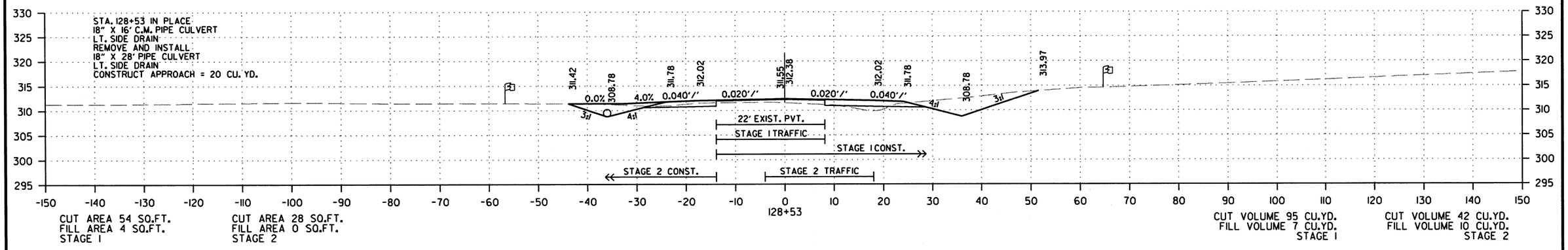
7/9/2009

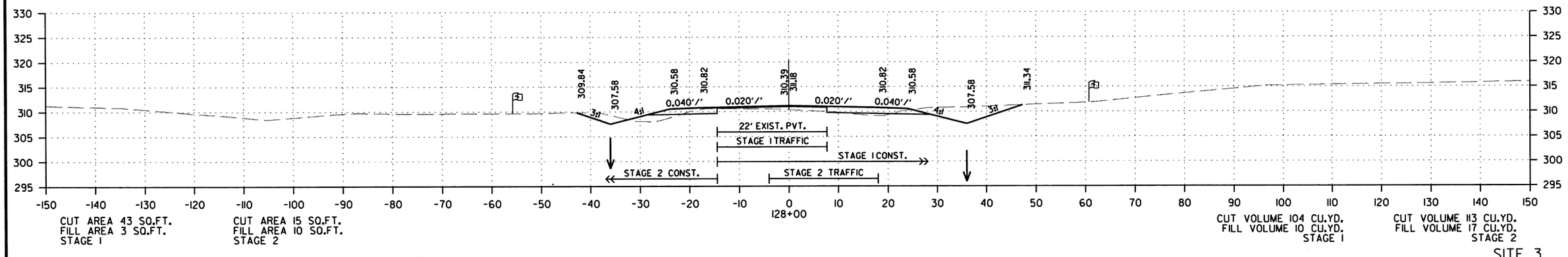
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	177	226

(2) CROSS SECTIONS







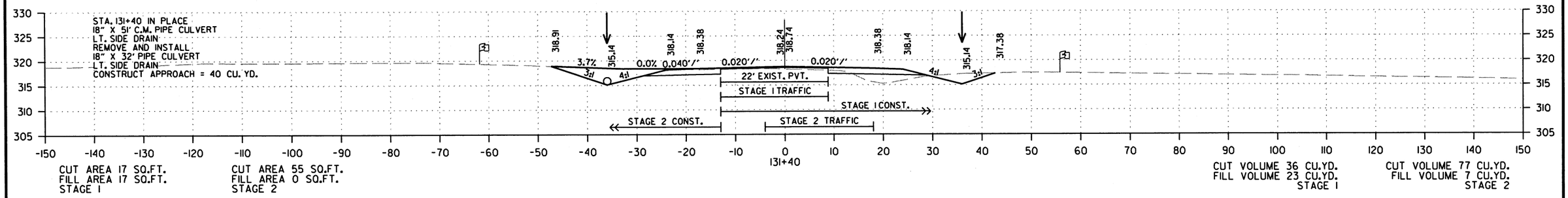
SITE 3
STA. 128+00 TO STA. 129+00

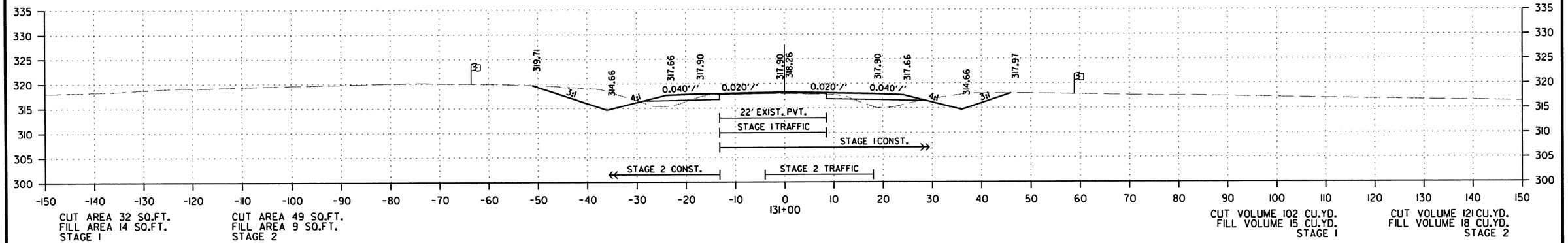
7/9/2009

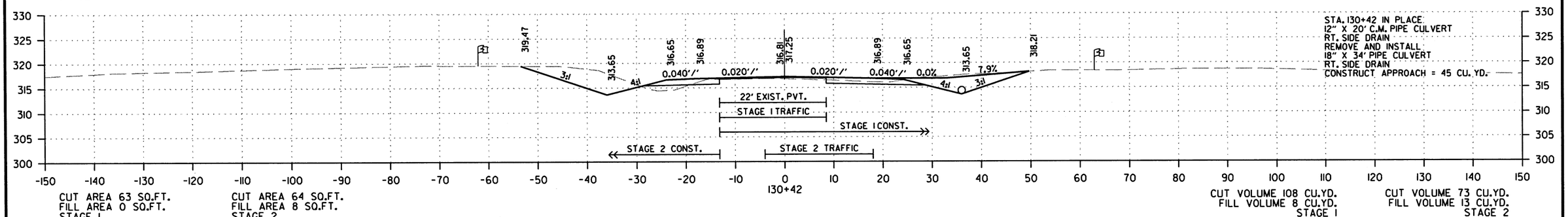
R050280.DGN

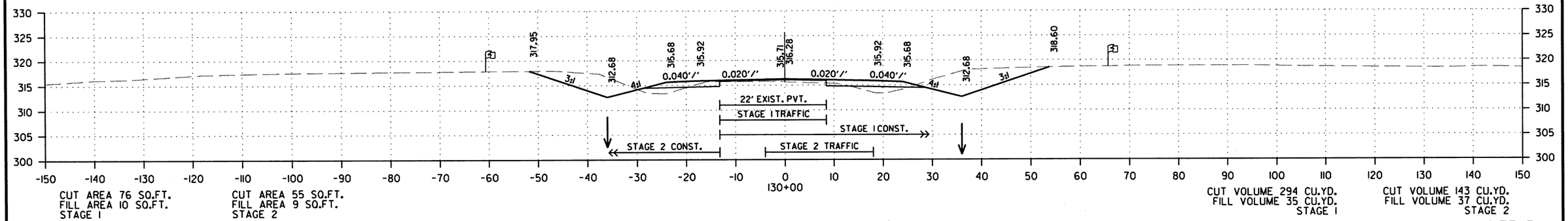
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	178	226

(2) CROSS SECTIONS









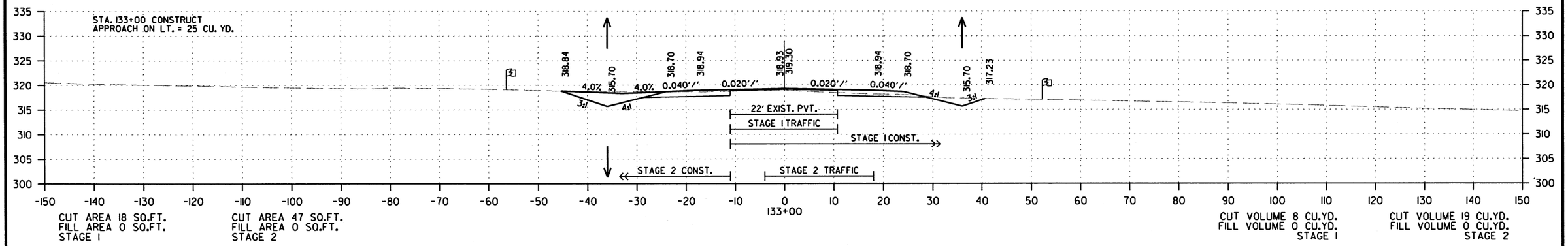
SITE 3
STA. 130+00 TO STA. 131+40

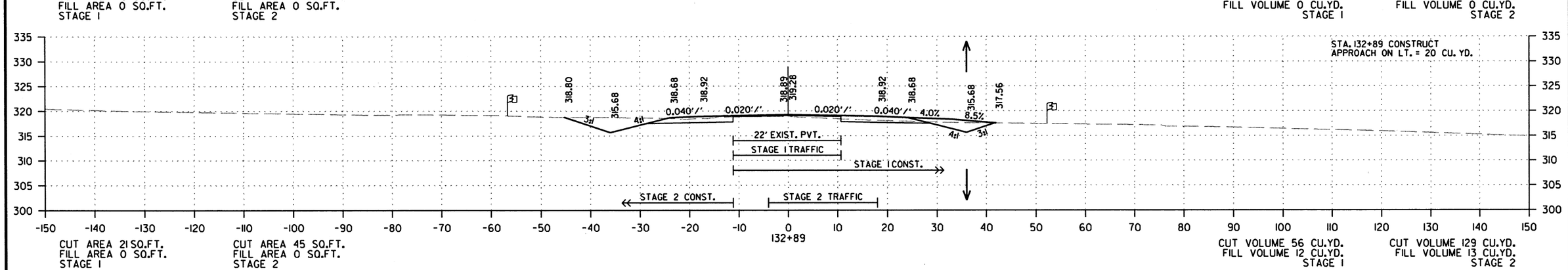
7/9/2019

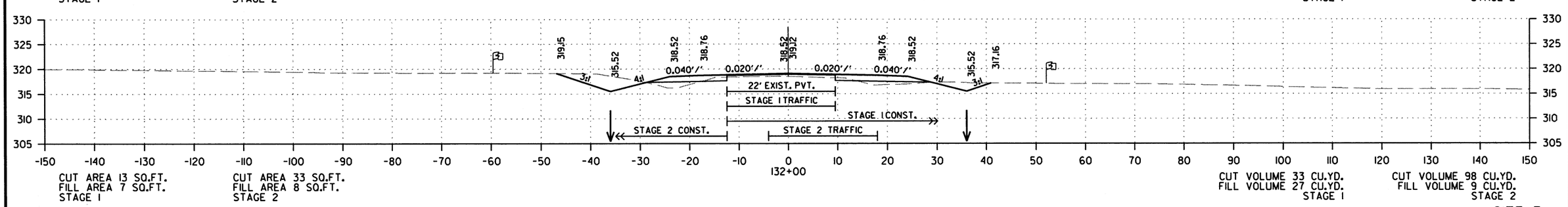
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	179	226

(2) CROSS SECTIONS







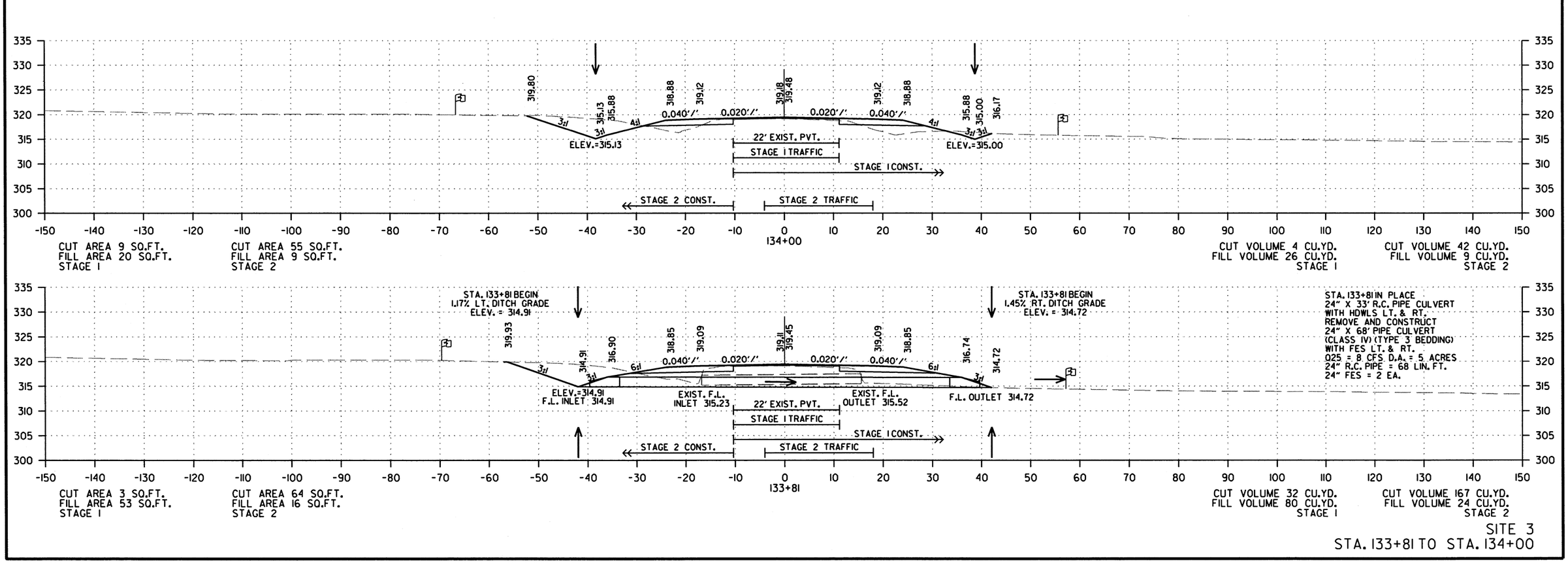
SITE 3
STA. 132+00 TO STA. 133+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	180	226

(2) CROSS SECTIONS



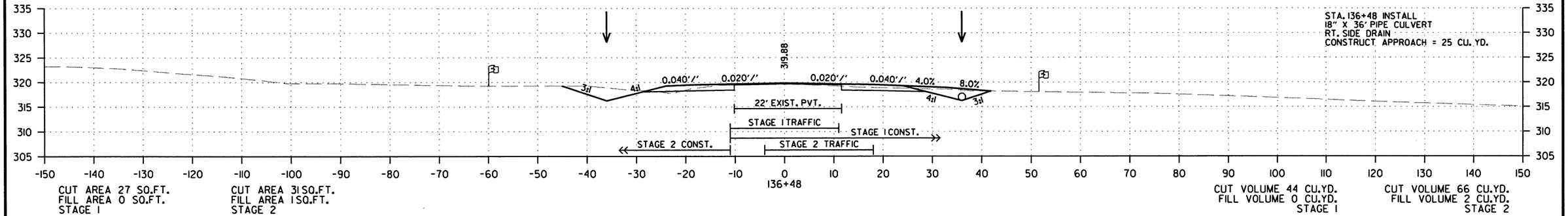
SITE 3
STA. 133+81 TO STA. 134+00

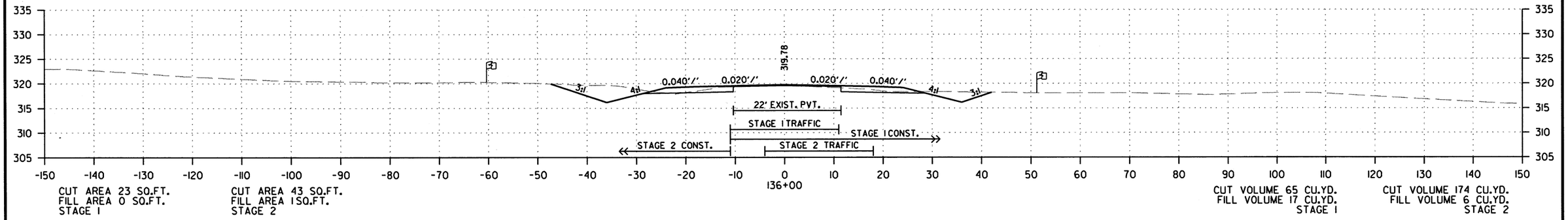
7/9/2019

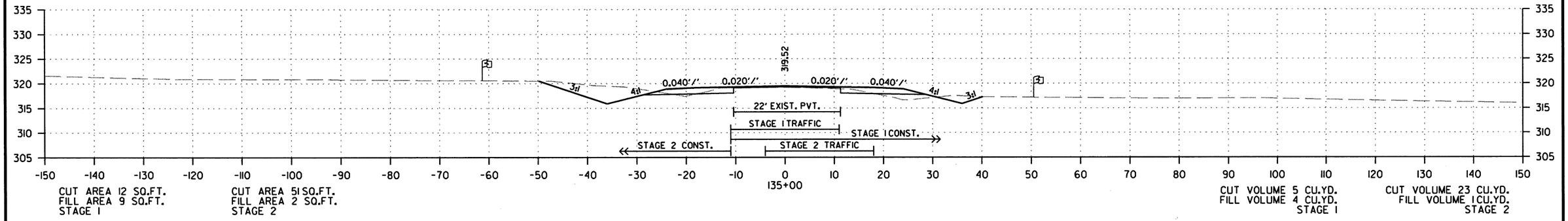
R050280.DGN

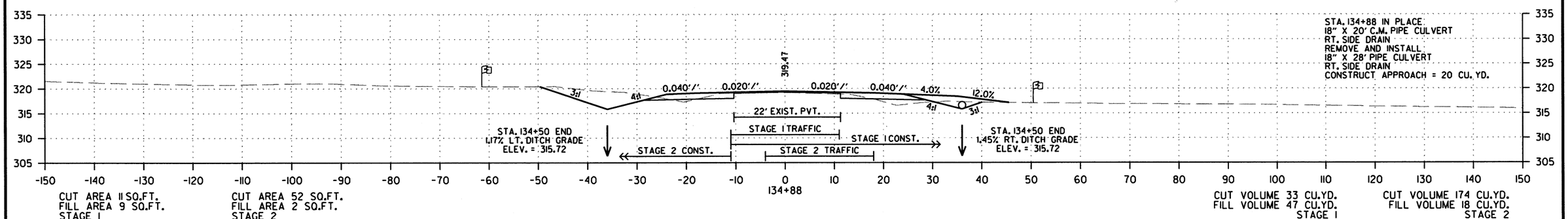
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	181	226

(2) CROSS SECTIONS









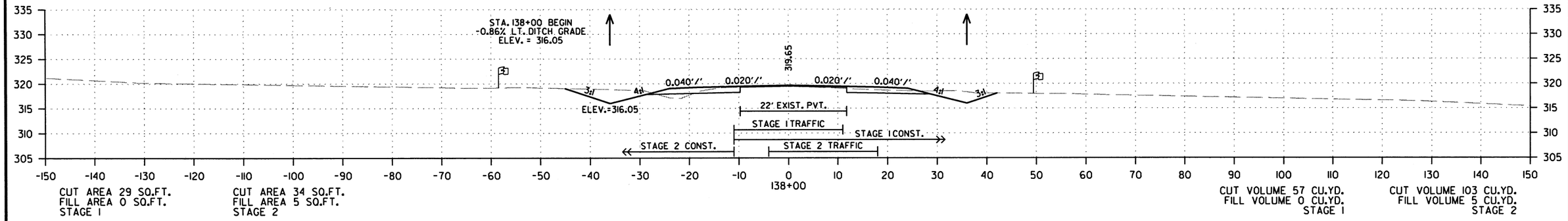
SITE 3
STA. 134+88 TO STA. 136+48

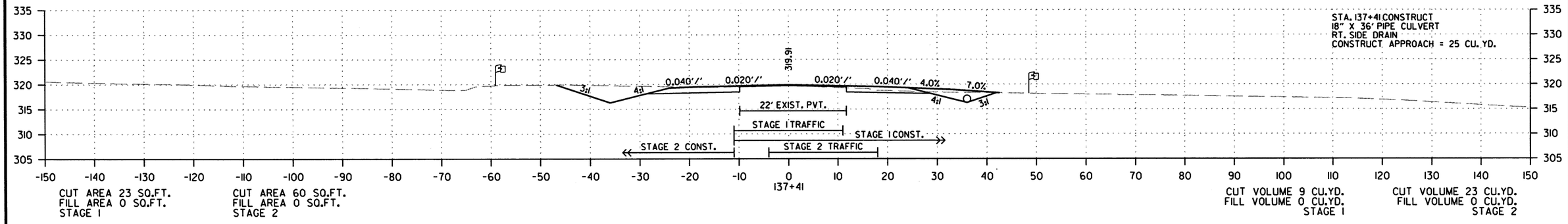
7/9/2009

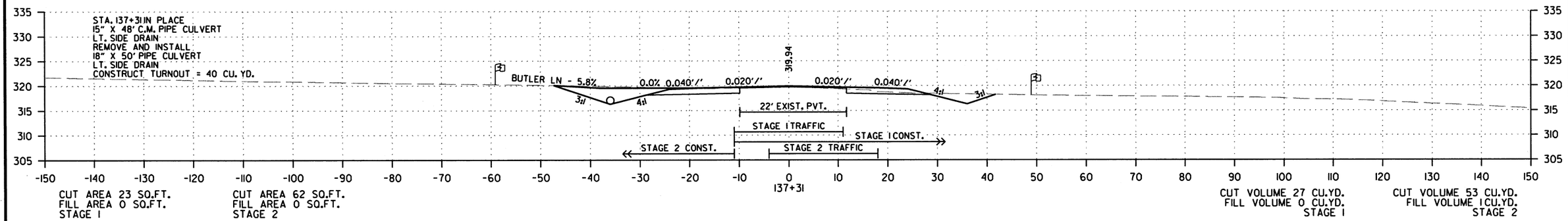
R050280.DGN

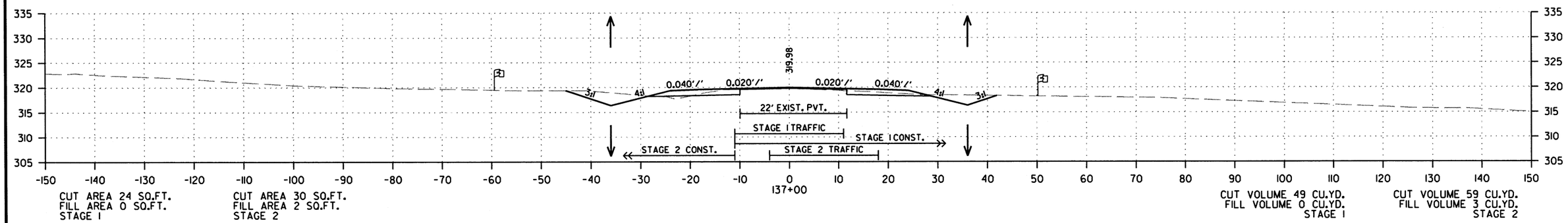
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	182	226

(2) CROSS SECTIONS









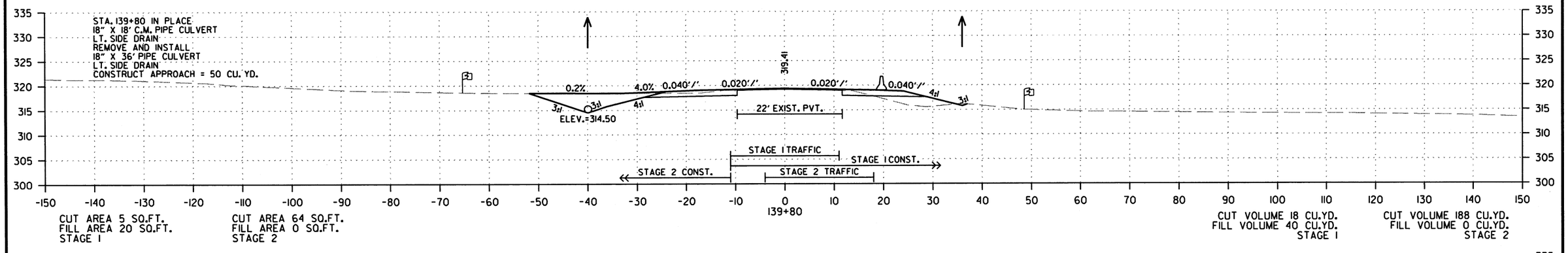
SITE 3
STA. 137+00 TO STA. 138+00

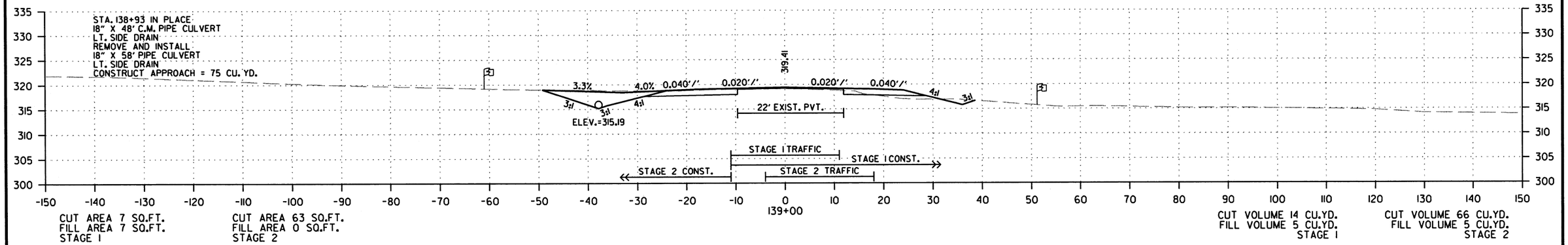
7/9/2009

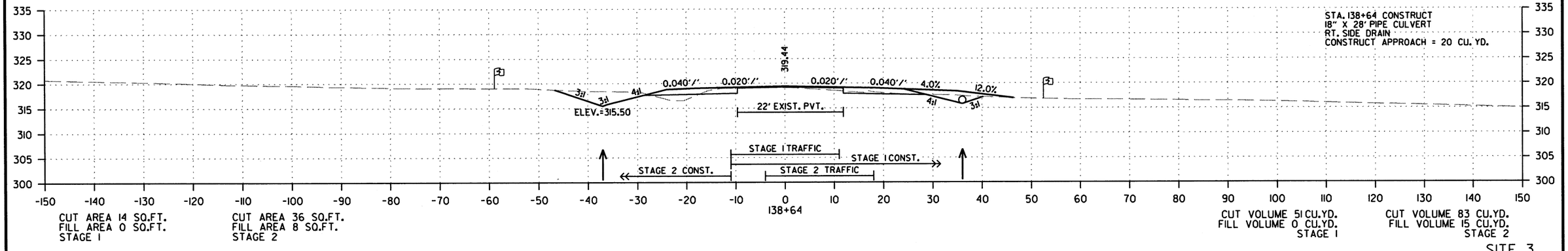
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	183	226

(2) CROSS SECTIONS







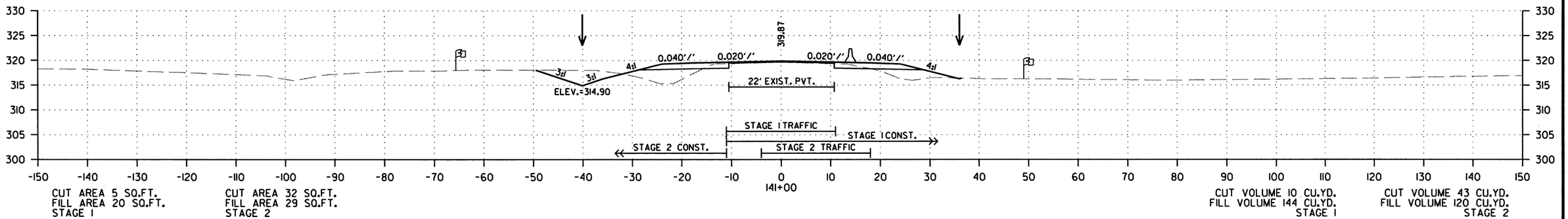
SITE 3
STA. 138+64 TO STA. 139+80

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	184	226

(2) CROSS SECTIONS

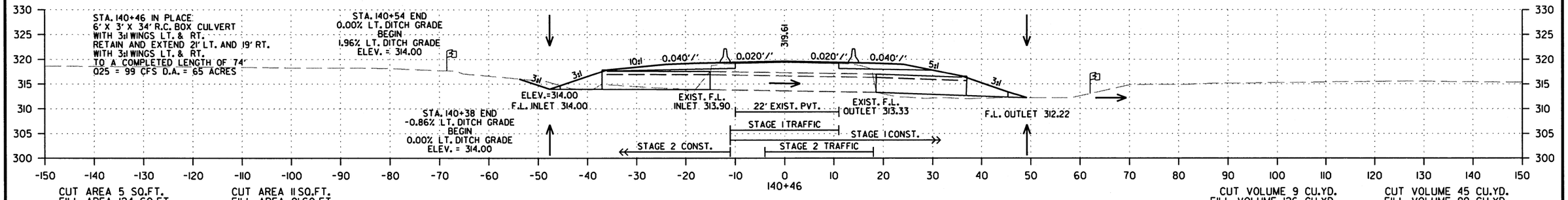


CUT AREA 5 SQ.FT.
FILL AREA 20 SQ.FT.
STAGE 1

CUT AREA 32 SQ.FT.
FILL AREA 29 SQ.FT.
STAGE 2

CUT VOLUME 10 CU.YD.
FILL VOLUME 144 CU.YD.
STAGE 1

CUT VOLUME 43 CU.YD.
FILL VOLUME 120 CU.YD.
STAGE 2

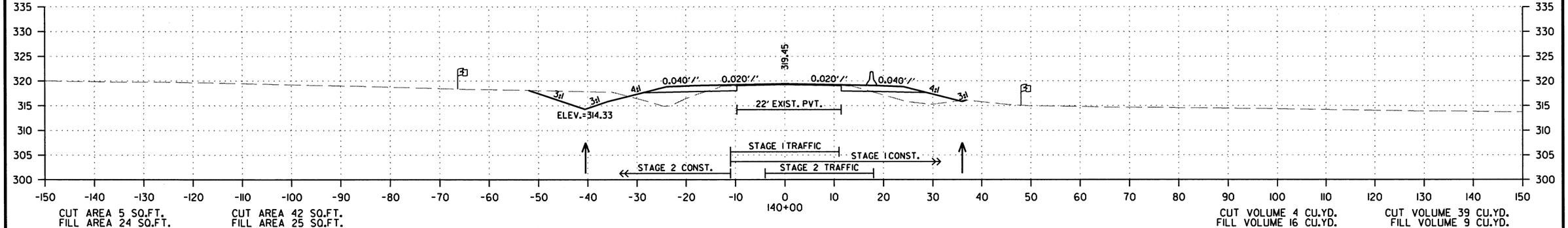


CUT AREA 5 SQ.FT.
FILL AREA 124 SQ.FT.
STAGE 1

CUT AREA 11 SQ.FT.
FILL AREA 91 SQ.FT.
STAGE 2

CUT VOLUME 9 CU.YD.
FILL VOLUME 126 CU.YD.
STAGE 1

CUT VOLUME 45 CU.YD.
FILL VOLUME 99 CU.YD.
STAGE 2



CUT AREA 5 SQ.FT.
FILL AREA 24 SQ.FT.
STAGE 1

CUT AREA 42 SQ.FT.
FILL AREA 25 SQ.FT.
STAGE 2

CUT VOLUME 4 CU.YD.
FILL VOLUME 16 CU.YD.
STAGE 1

CUT VOLUME 39 CU.YD.
FILL VOLUME 9 CU.YD.
STAGE 2

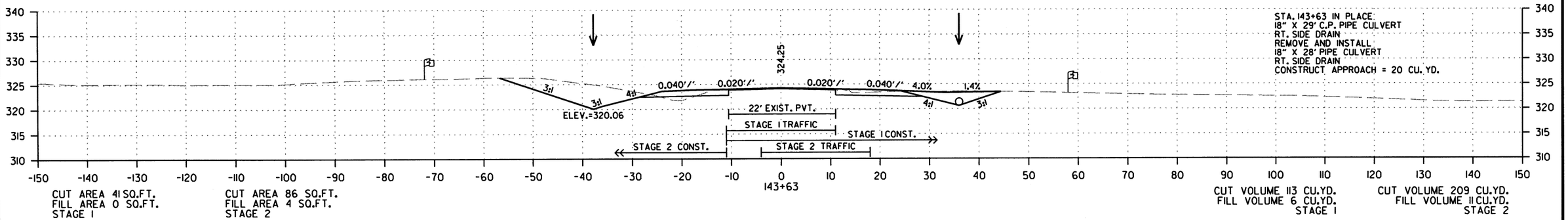
SITE 3
STA. 140+00 TO STA. 141+00

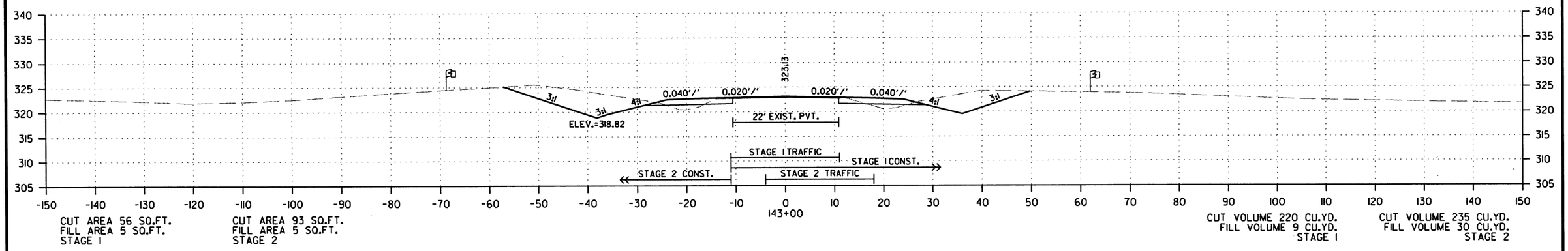
7/9/2009

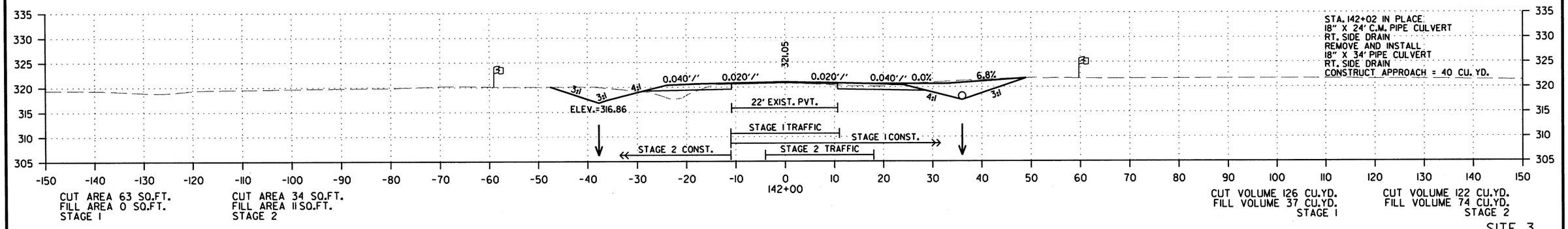
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	185	226

(2) CROSS SECTIONS







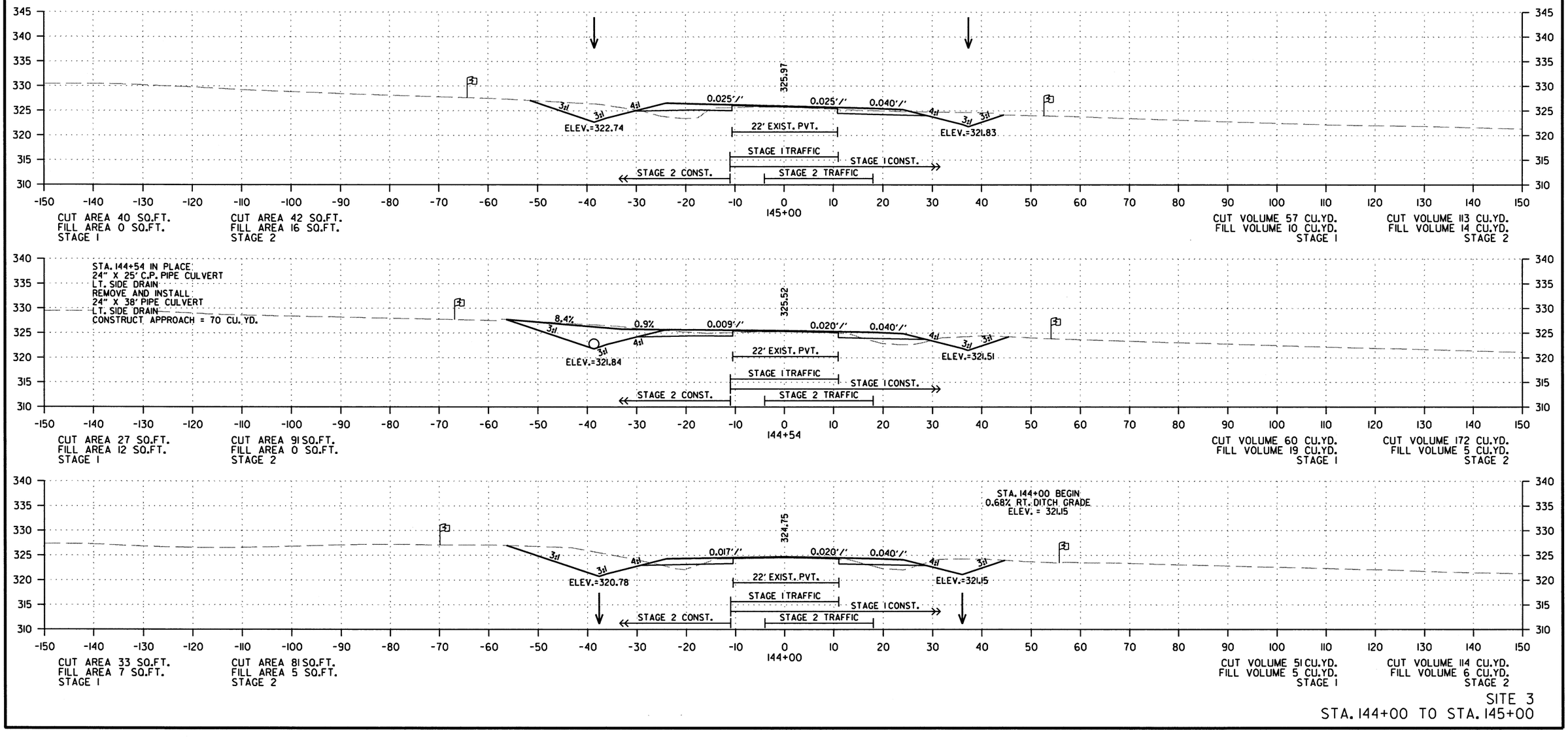
SITE 3
STA. 142+00 TO STA. 143+63

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	186	226

(2) CROSS SECTIONS



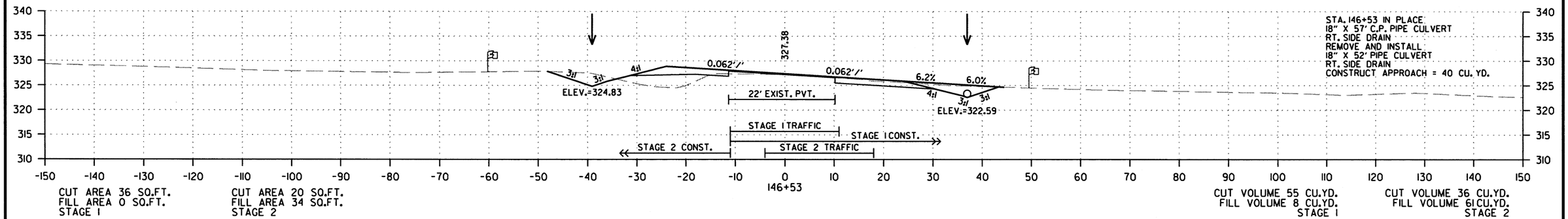
SITE 3
STA. 144+00 TO STA. 145+00

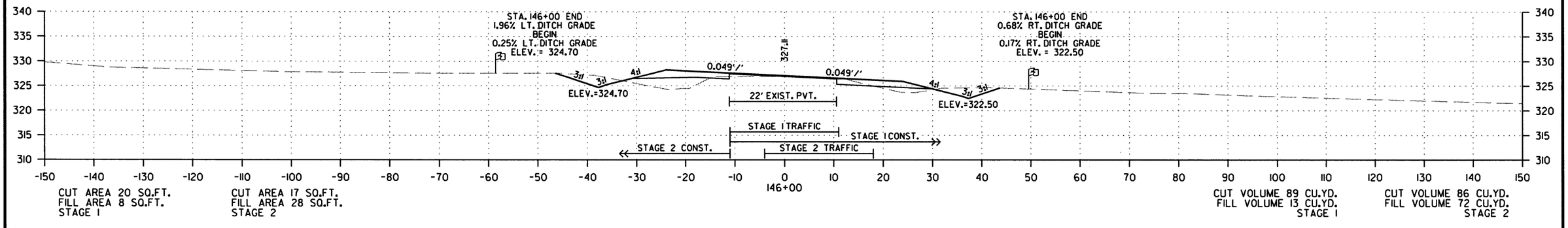
7/9/2009

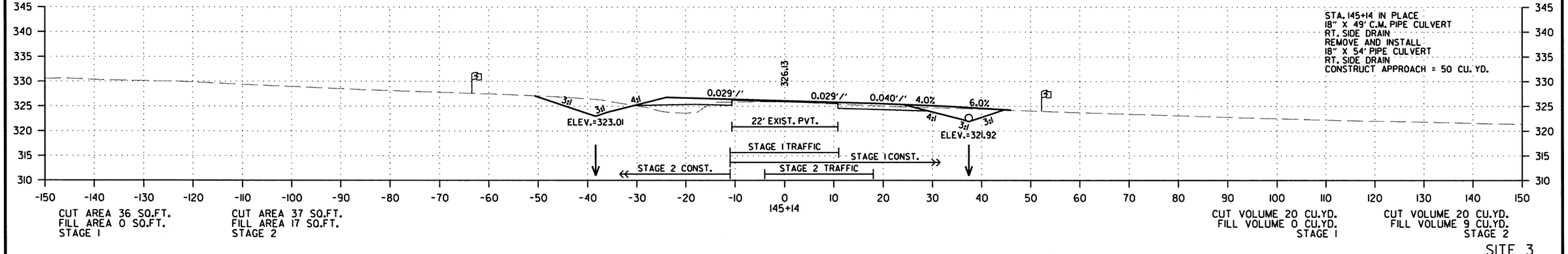
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	187	226

(2) CROSS SECTIONS







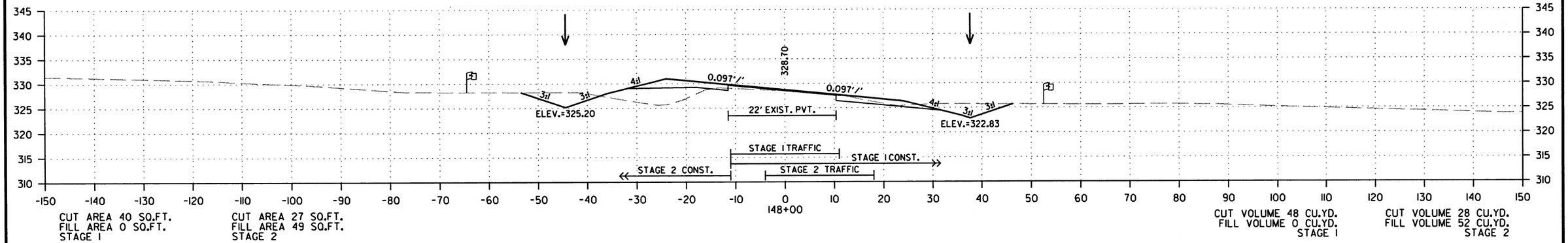
SITE 3
STA. 145+14 TO STA. 146+53

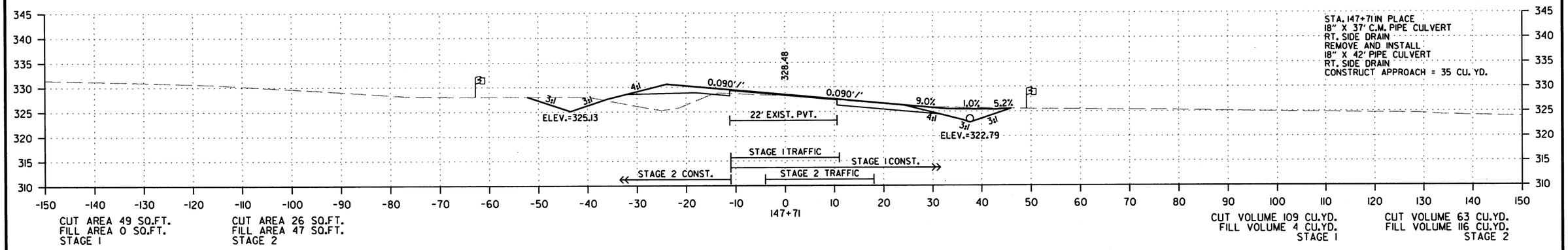
7/9/2009

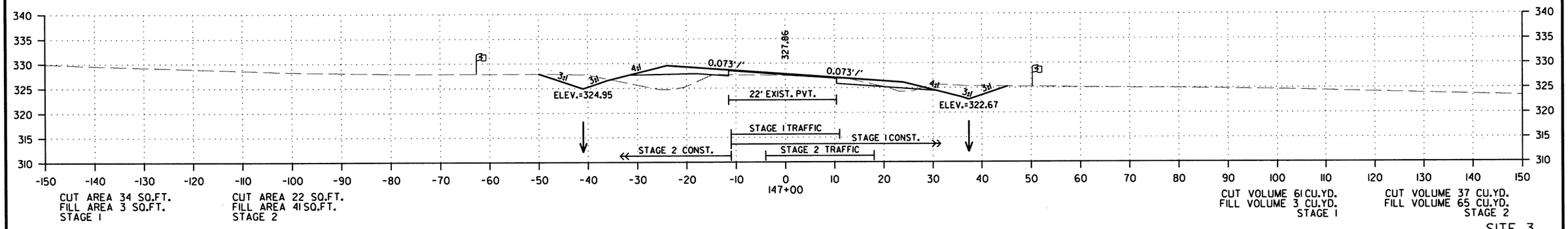
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	188	226

(2) CROSS SECTIONS







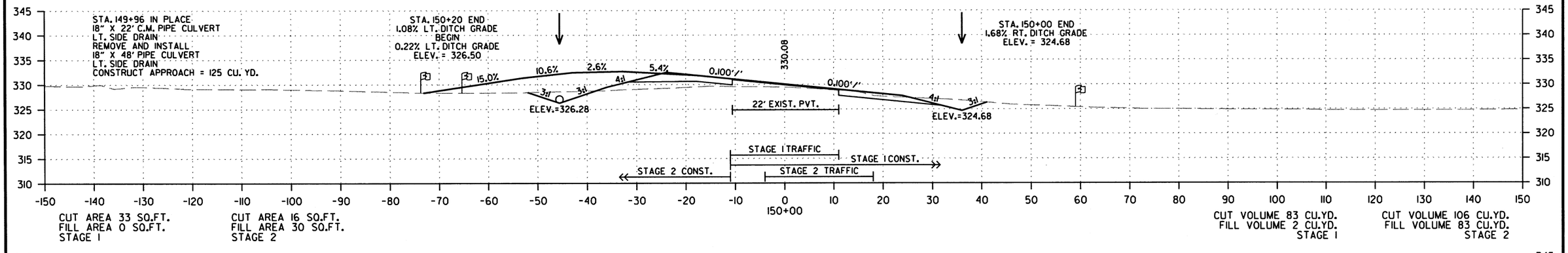
SITE 3
STA. 147+00 TO STA. 148+00

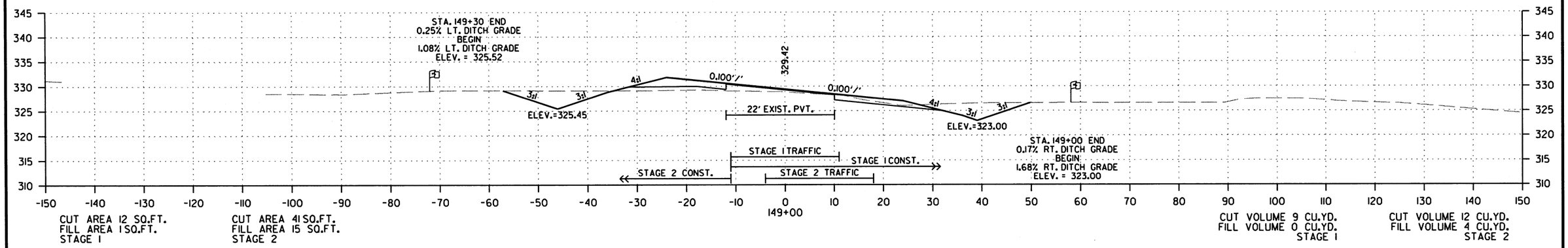
7/9/2009

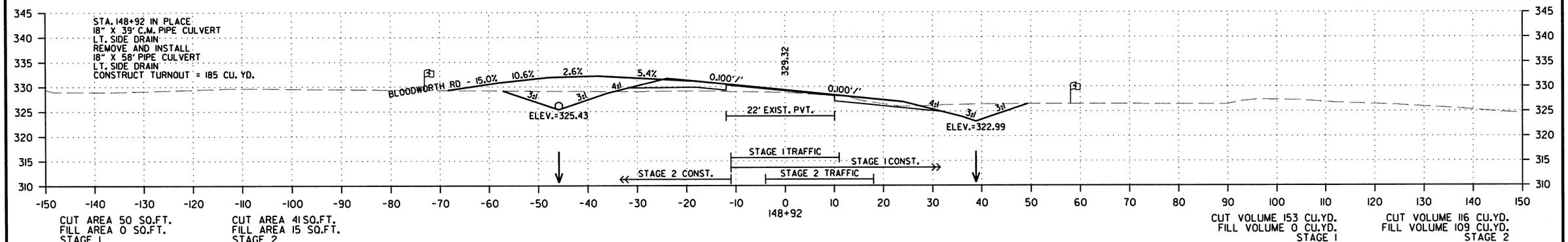
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	189	226

(2) CROSS SECTIONS







SITE 3
STA. 148+92 TO STA. 150+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	190	226

(2) CROSS SECTIONS

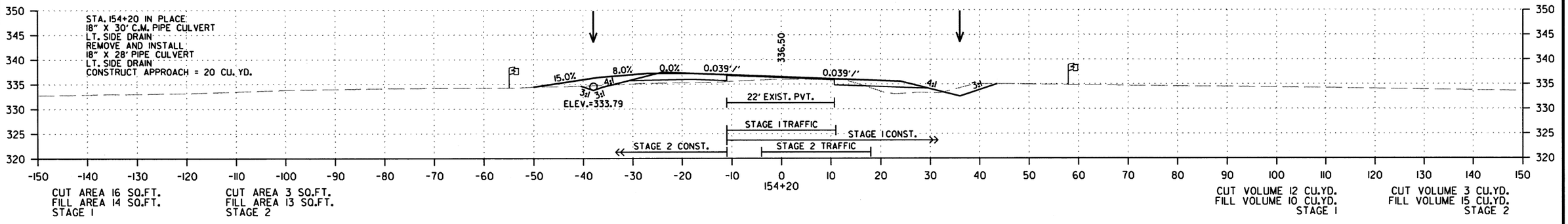
SITE 3
STA. 151+00 TO STA. 152+37

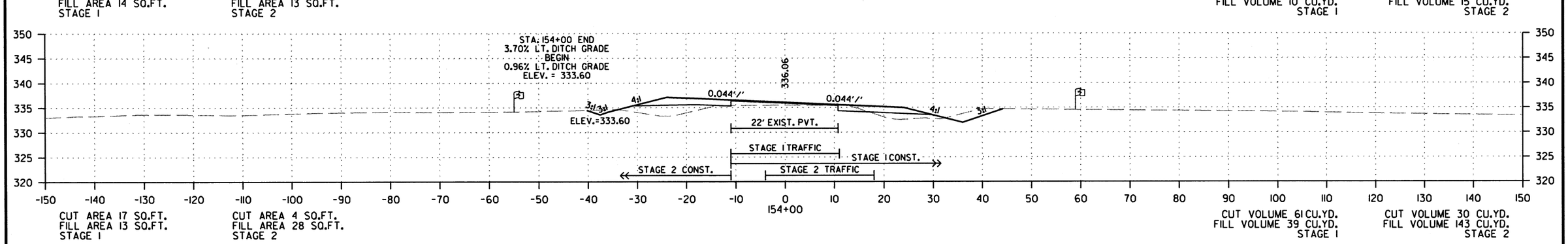
7/9/2019

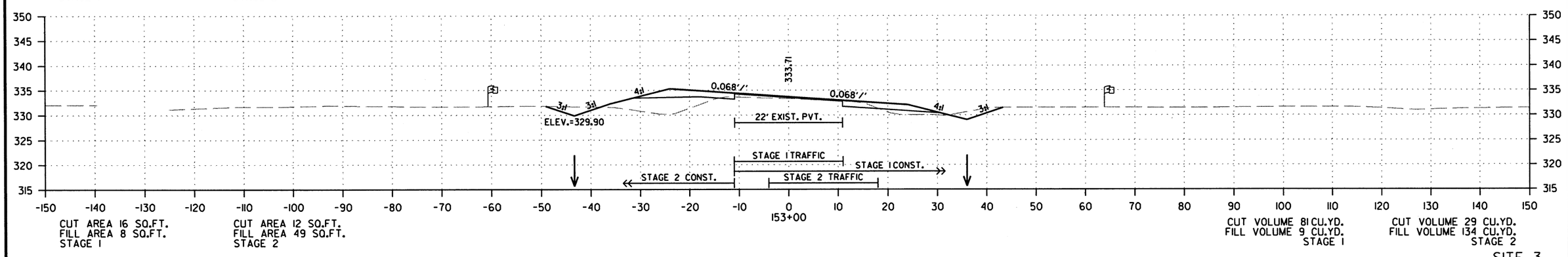
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	191	226

(2) CROSS SECTIONS







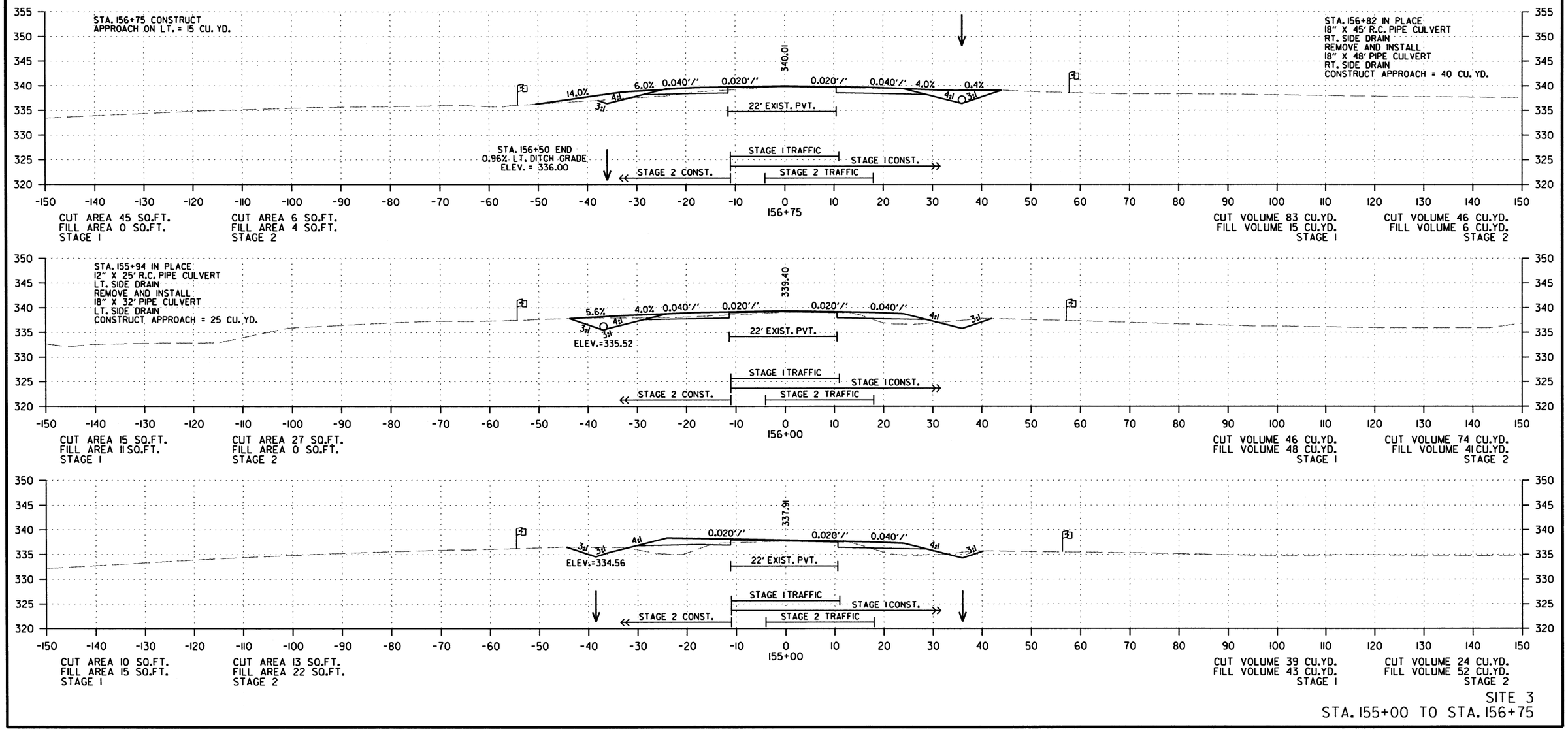
SITE 3
STA. 153+00 TO STA. 154+20

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	192	226

(2) CROSS SECTIONS



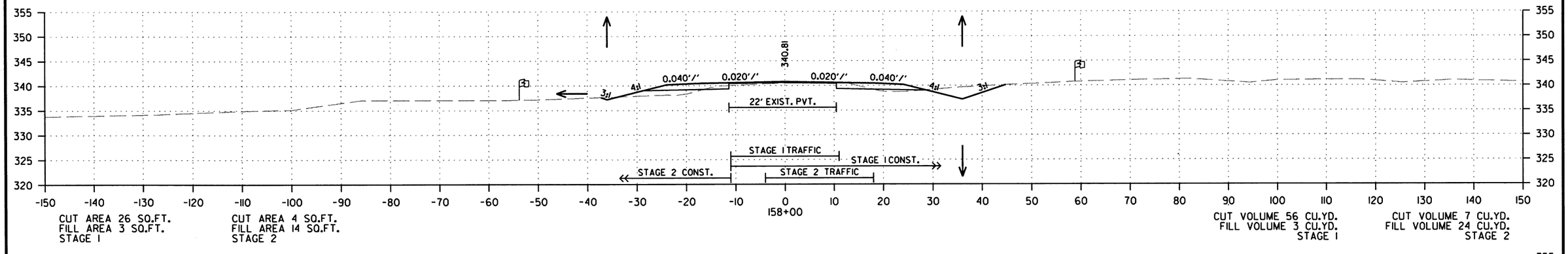
SITE 3
STA. 155+00 TO STA. 156+75

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	193	226

(2) CROSS SECTIONS



CUT AREA 26 SQ.FT.
FILL AREA 3 SQ.FT.
STAGE 1

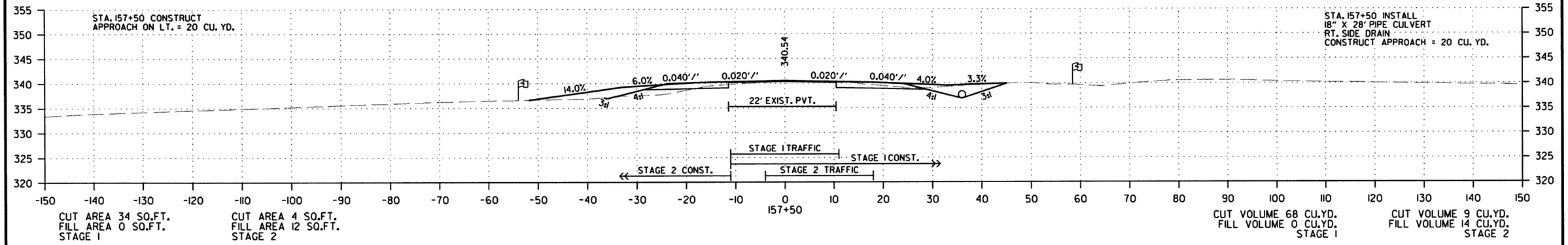
CUT AREA 4 SQ.FT.
FILL AREA 14 SQ.FT.
STAGE 2

CUT VOLUME 56 CU.YD.
FILL VOLUME 3 CU.YD.
STAGE 1

CUT VOLUME 7 CU.YD.
FILL VOLUME 24 CU.YD.
STAGE 2

STA. 157+50 CONSTRUCT
APPROACH ON LT. = 20 CU. YD.

STA. 157+50 INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

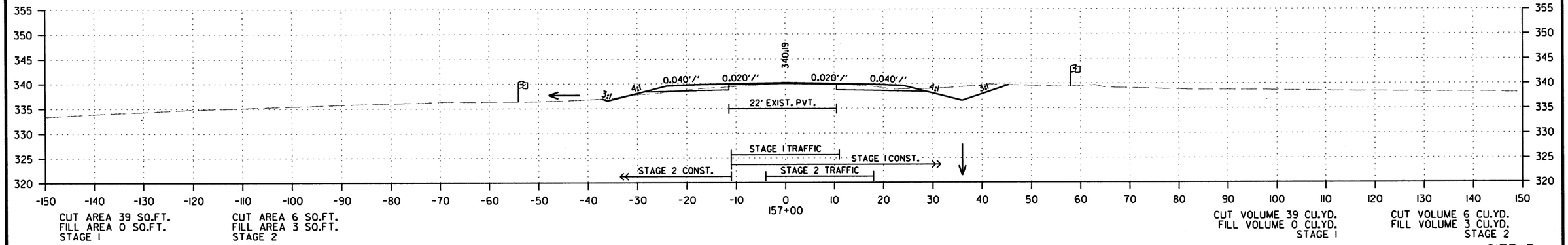


CUT AREA 34 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 4 SQ.FT.
FILL AREA 12 SQ.FT.
STAGE 2

CUT VOLUME 68 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 9 CU.YD.
FILL VOLUME 14 CU.YD.
STAGE 2



CUT AREA 39 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 6 SQ.FT.
FILL AREA 3 SQ.FT.
STAGE 2

CUT VOLUME 39 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 6 CU.YD.
FILL VOLUME 3 CU.YD.
STAGE 2

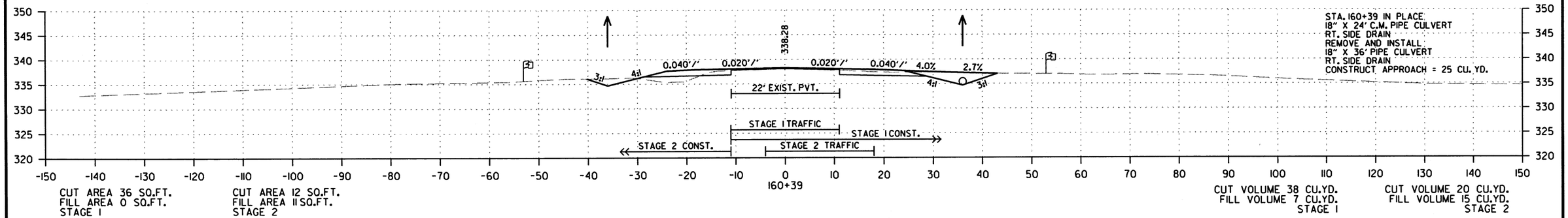
SITE 3
STA. 157+00 TO STA. 158+00

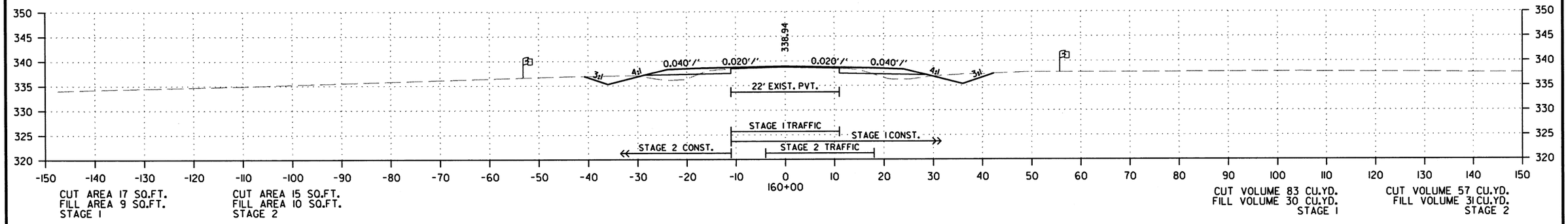
7/9/2009

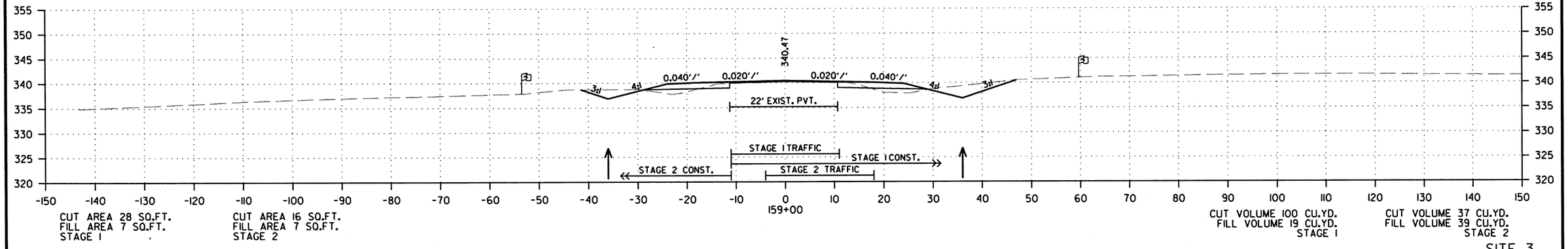
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	194	226

(2) CROSS SECTIONS







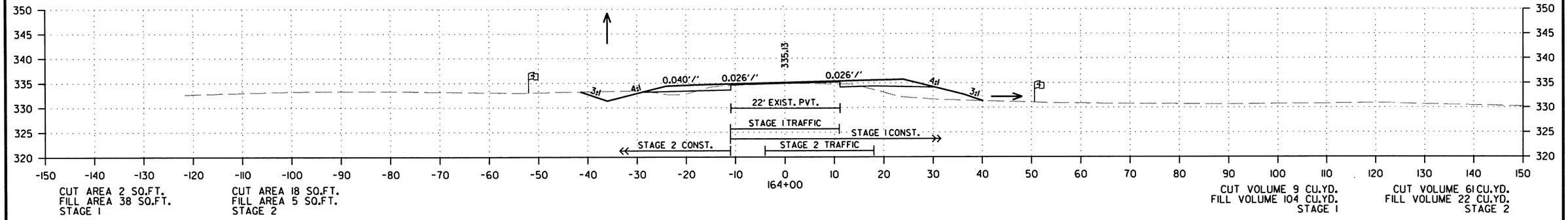
SITE 3
STA. 159+00 TO STA. 160+39

1/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	195	226

(2) CROSS SECTIONS

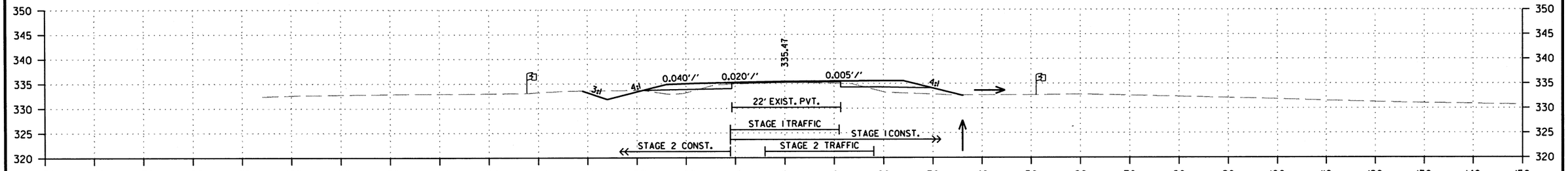


CUT AREA 2 SQ.FT.
FILL AREA 38 SQ.FT.
STAGE 1

CUT AREA 18 SQ.FT.
FILL AREA 5 SQ.FT.
STAGE 2

CUT VOLUME 9 CU.YD.
FILL VOLUME 104 CU.YD.
STAGE 1

CUT VOLUME 61 CU.YD.
FILL VOLUME 22 CU.YD.
STAGE 2

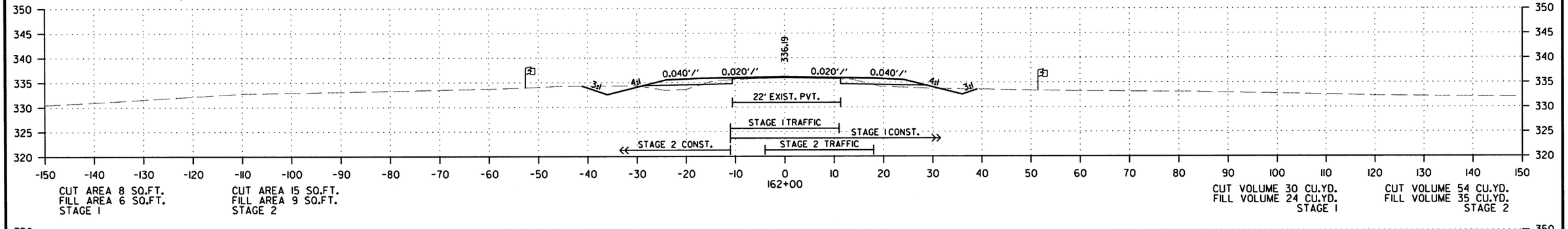


CUT AREA 3 SQ.FT.
FILL AREA 18 SQ.FT.
STAGE 1

CUT AREA 15 SQ.FT.
FILL AREA 7 SQ.FT.
STAGE 2

CUT VOLUME 20 CU.YD.
FILL VOLUME 44 CU.YD.
STAGE 1

CUT VOLUME 56 CU.YD.
FILL VOLUME 30 CU.YD.
STAGE 2

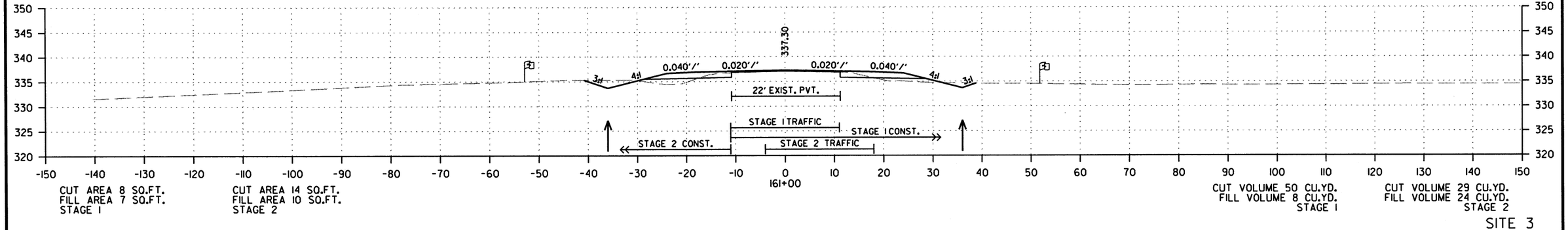


CUT AREA 8 SQ.FT.
FILL AREA 6 SQ.FT.
STAGE 1

CUT AREA 15 SQ.FT.
FILL AREA 9 SQ.FT.
STAGE 2

CUT VOLUME 30 CU.YD.
FILL VOLUME 24 CU.YD.
STAGE 1

CUT VOLUME 54 CU.YD.
FILL VOLUME 35 CU.YD.
STAGE 2



CUT AREA 8 SQ.FT.
FILL AREA 7 SQ.FT.
STAGE 1

CUT AREA 14 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 2

CUT VOLUME 50 CU.YD.
FILL VOLUME 8 CU.YD.
STAGE 1

CUT VOLUME 29 CU.YD.
FILL VOLUME 24 CU.YD.
STAGE 2

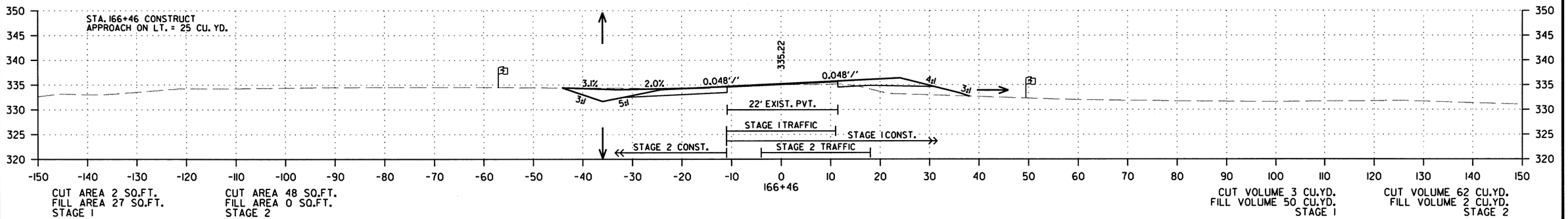
SITE 3
STA. 161+00 TO STA. 164+00

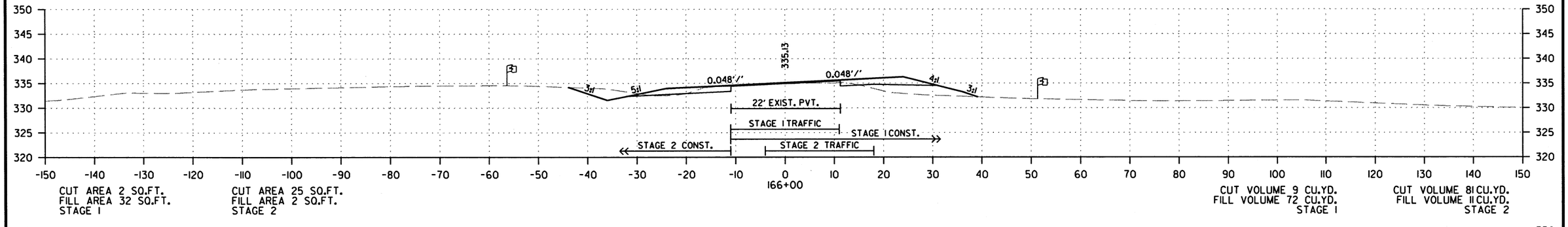
7/9/2009

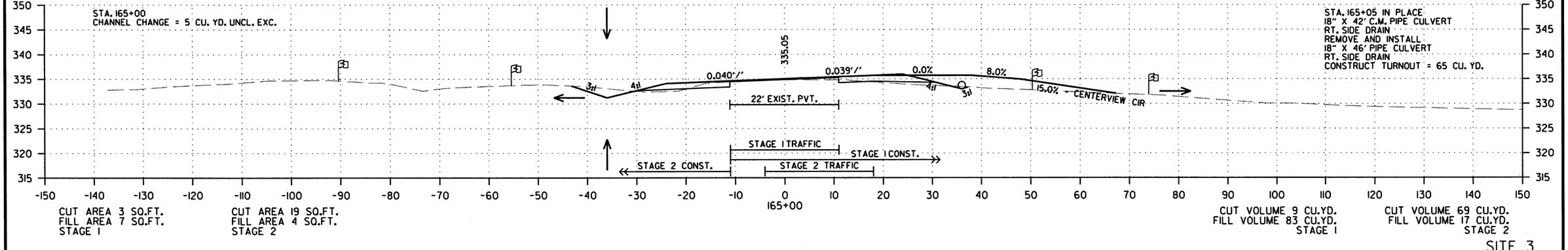
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	196	226

(2) CROSS SECTIONS







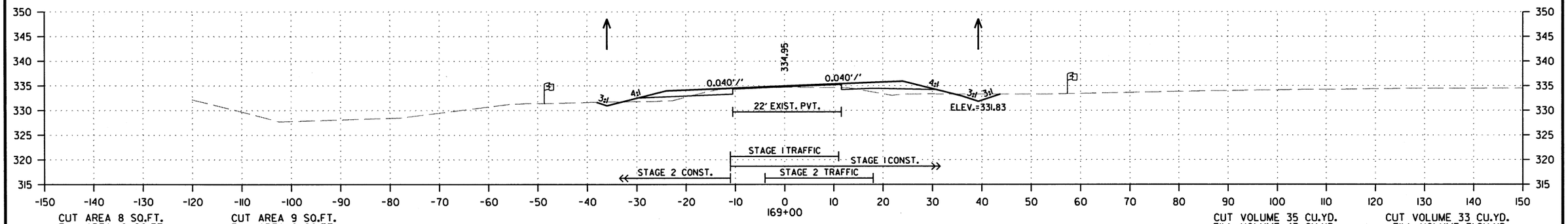
SITE 3
STA. 165+00 TO STA. 166+46

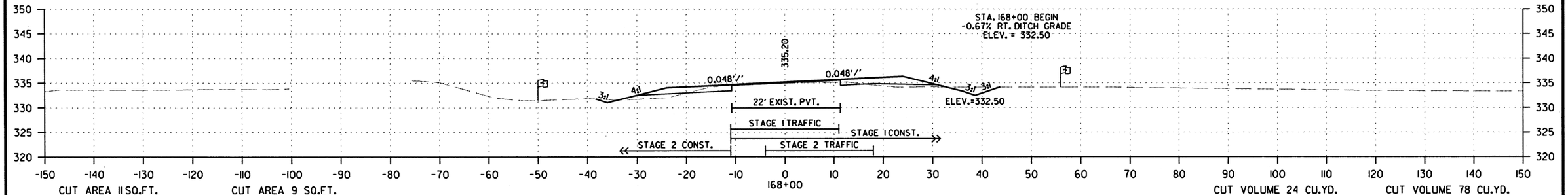
7/9/2019

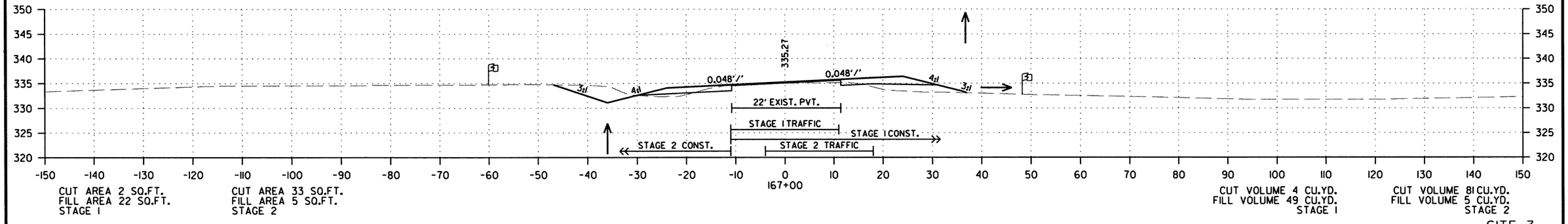
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	197	226

(2) CROSS SECTIONS







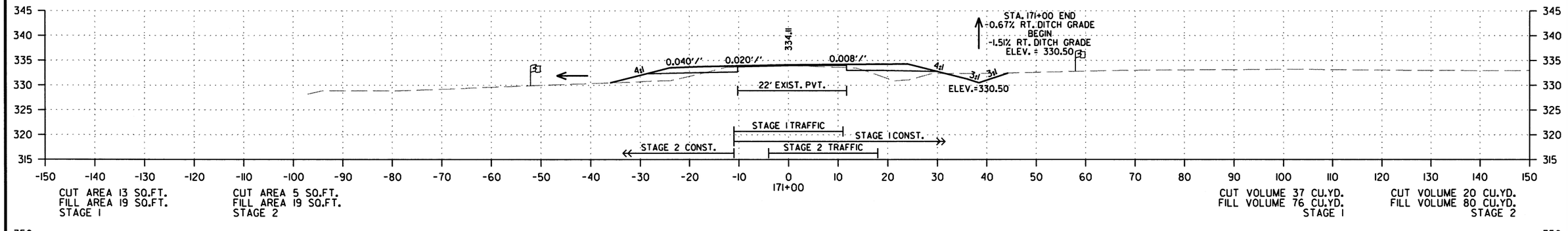
SITE 3
STA. 167+00 TO STA. 169+00

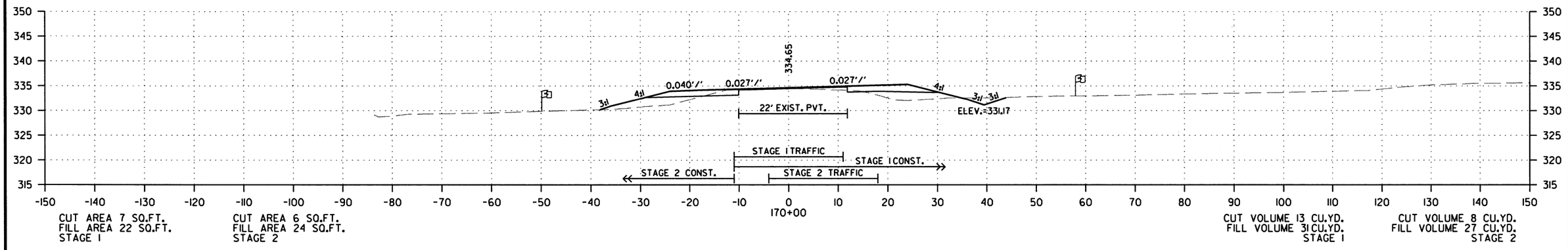
7/9/2009

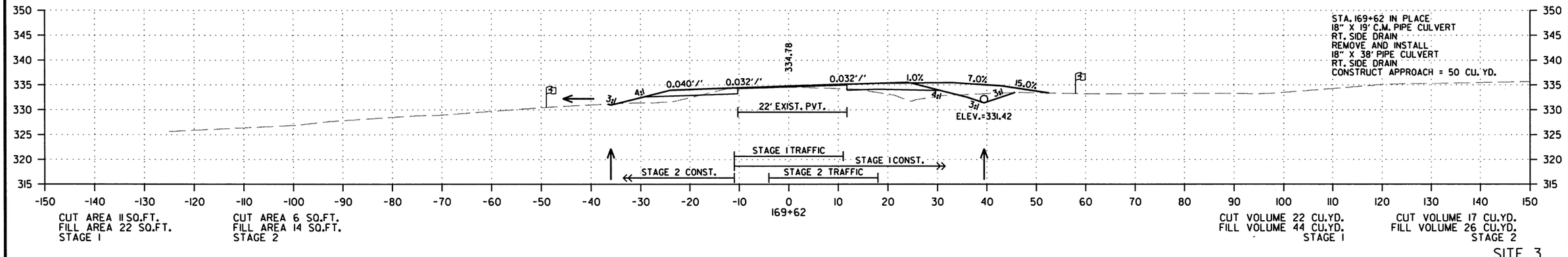
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	198	226

(2) CROSS SECTIONS







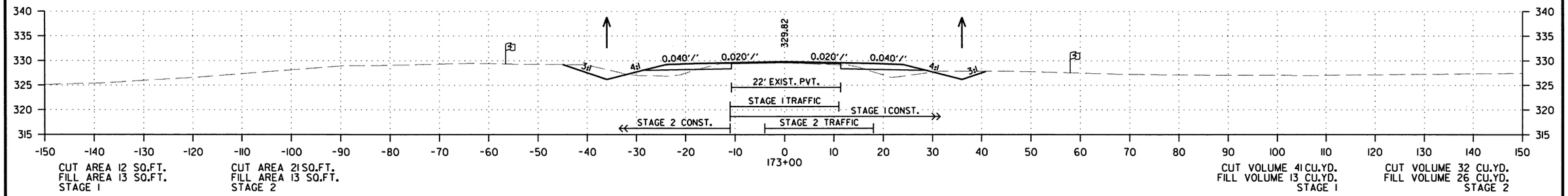
SITE 3
STA. 169+62 TO STA. 171+00

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	199	226

(2) CROSS SECTIONS

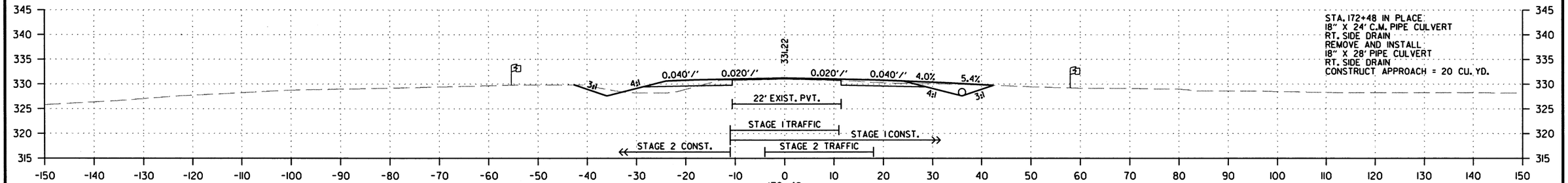


CUT AREA 12 SQ.FT.
FILL AREA 13 SQ.FT.
STAGE 1

CUT AREA 21 SQ.FT.
FILL AREA 13 SQ.FT.
STAGE 2

CUT VOLUME 41 CU.YD.
FILL VOLUME 13 CU.YD.
STAGE 1

CUT VOLUME 32 CU.YD.
FILL VOLUME 26 CU.YD.
STAGE 2



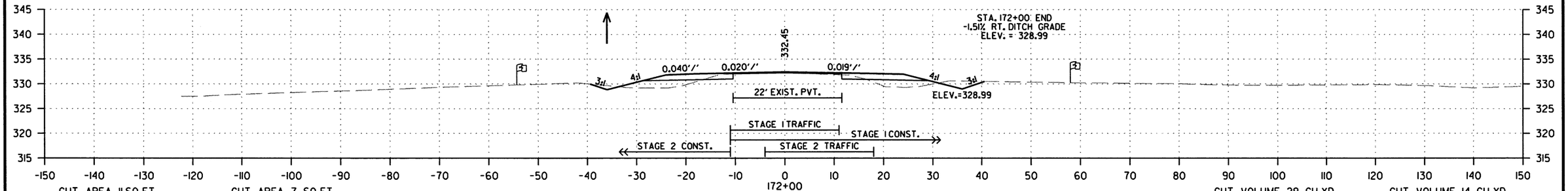
STA. 172+48 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

CUT AREA 31 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 12 SQ.FT.
FILL AREA 14 SQ.FT.
STAGE 2

CUT VOLUME 37 CU.YD.
FILL VOLUME 13 CU.YD.
STAGE 1

CUT VOLUME 17 CU.YD.
FILL VOLUME 29 CU.YD.
STAGE 2



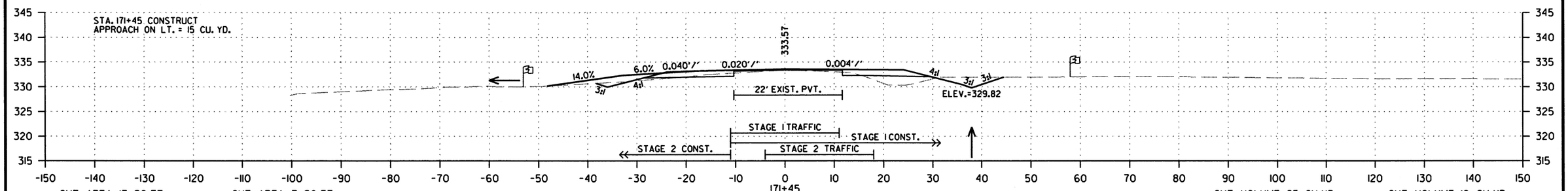
STA. 172+00 END
-1.51% RT. DITCH GRADE
ELEV. = 328.99

CUT AREA 11 SQ.FT.
FILL AREA 15 SQ.FT.
STAGE 1

CUT AREA 7 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 2

CUT VOLUME 29 CU.YD.
FILL VOLUME 34 CU.YD.
STAGE 1

CUT VOLUME 14 CU.YD.
FILL VOLUME 22 CU.YD.
STAGE 2



STA. 171+45 CONSTRUCT
APPROACH ON LT. = 15 CU. YD.

CUT AREA 17 SQ.FT.
FILL AREA 18 SQ.FT.
STAGE 1

CUT AREA 7 SQ.FT.
FILL AREA 3 SQ.FT.
STAGE 2

CUT VOLUME 25 CU.YD.
FILL VOLUME 31 CU.YD.
STAGE 1

CUT VOLUME 10 CU.YD.
FILL VOLUME 18 CU.YD.
STAGE 2

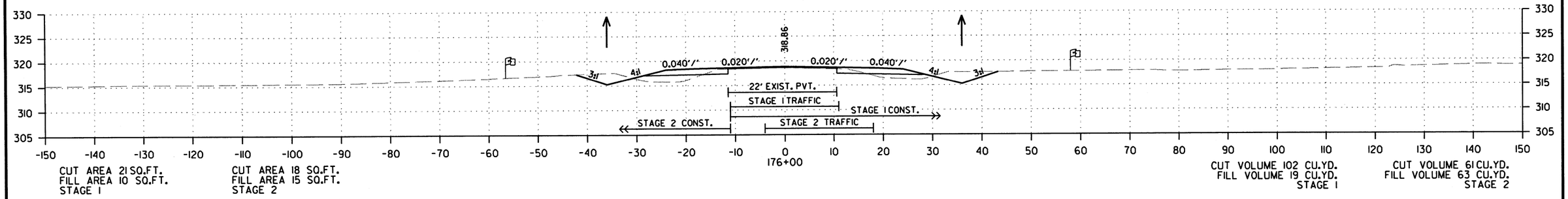
SITE 3
STA. 171+45 TO STA. 173+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	200	226

(2) CROSS SECTIONS

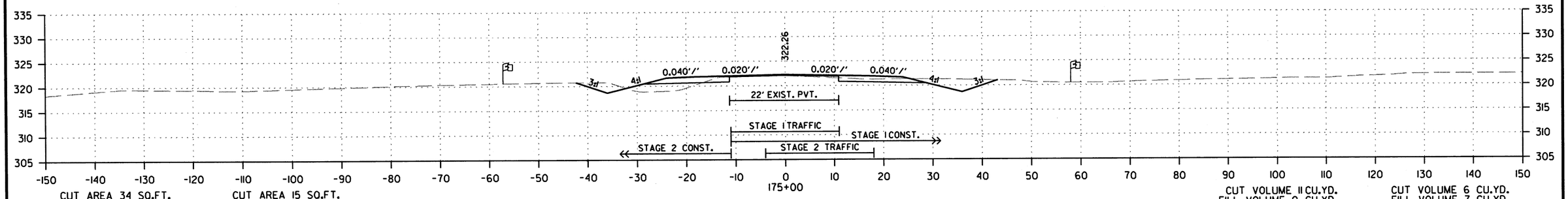


CUT AREA 21 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 1

CUT AREA 18 SQ.FT.
FILL AREA 15 SQ.FT.
STAGE 2

CUT VOLUME 102 CU.YD.
FILL VOLUME 19 CU.YD.
STAGE 1

CUT VOLUME 61 CU.YD.
FILL VOLUME 63 CU.YD.
STAGE 2

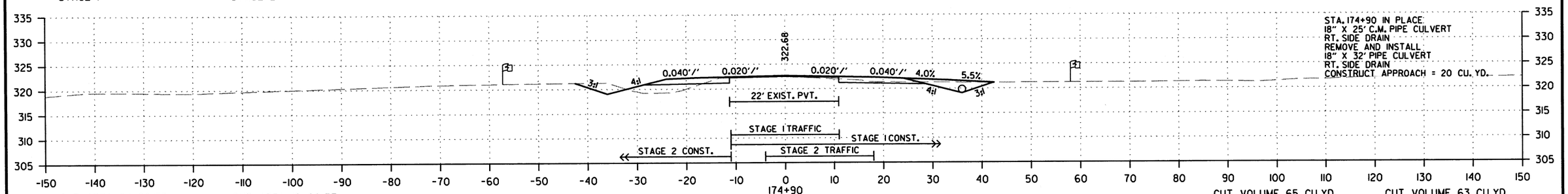


CUT AREA 34 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 15 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 2

CUT VOLUME 11 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 6 CU.YD.
FILL VOLUME 7 CU.YD.
STAGE 2



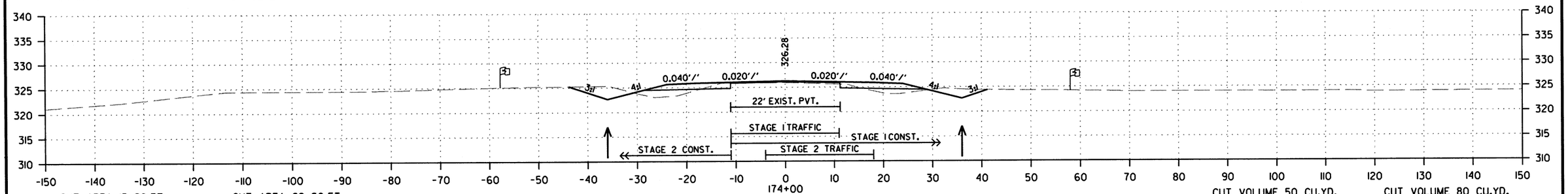
STA. 174+90 IN PLACE
18" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

CUT AREA 24 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 16 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 2

CUT VOLUME 65 CU.YD.
FILL VOLUME 15 CU.YD.
STAGE 1

CUT VOLUME 63 CU.YD.
FILL VOLUME 55 CU.YD.
STAGE 2



CUT AREA 15 SQ.FT.
FILL AREA 9 SQ.FT.
STAGE 1

CUT AREA 22 SQ.FT.
FILL AREA 14 SQ.FT.
STAGE 2

CUT VOLUME 50 CU.YD.
FILL VOLUME 41 CU.YD.
STAGE 1

CUT VOLUME 80 CU.YD.
FILL VOLUME 50 CU.YD.
STAGE 2

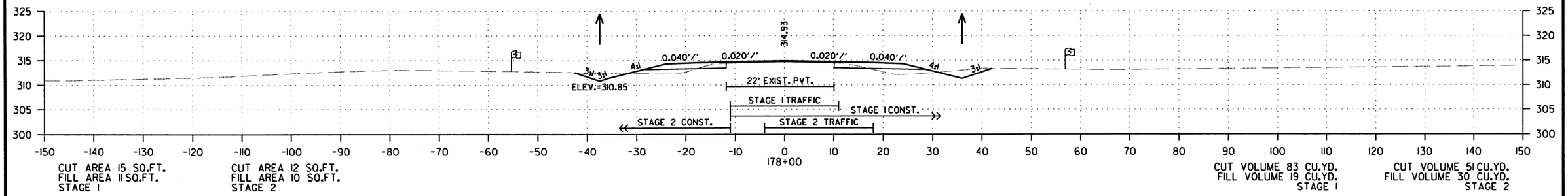
SITE 3
STA. 174+00 TO STA. 176+00

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	201	226

(2) CROSS SECTIONS

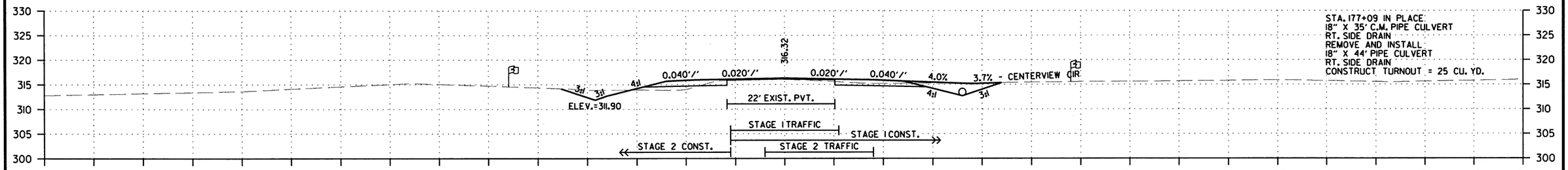


CUT AREA 15 SQ.FT.
FILL AREA 11 SQ.FT.
STAGE 1

CUT AREA 12 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 2

CUT VOLUME 83 CU.YD.
FILL VOLUME 19 CU.YD.
STAGE 1

CUT VOLUME 51 CU.YD.
FILL VOLUME 30 CU.YD.
STAGE 2



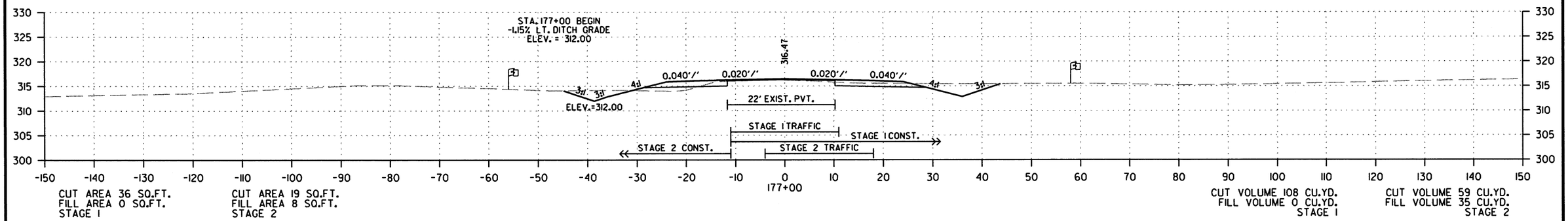
STA. 177+09 IN PLACE
18" X 35' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 25 CU. YD.

CUT AREA 34 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 18 SQ.FT.
FILL AREA 8 SQ.FT.
STAGE 2

CUT VOLUME 12 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 6 CU.YD.
FILL VOLUME 3 CU.YD.
STAGE 2

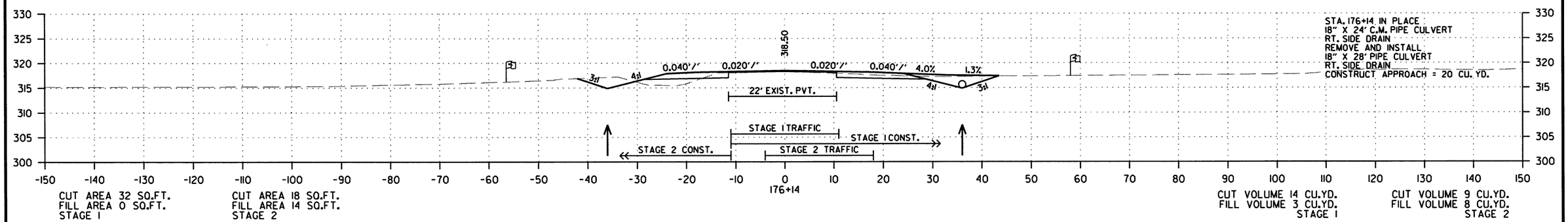


CUT AREA 36 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 19 SQ.FT.
FILL AREA 8 SQ.FT.
STAGE 2

CUT VOLUME 108 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

CUT VOLUME 59 CU.YD.
FILL VOLUME 35 CU.YD.
STAGE 2



STA. 176+14 IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YD.

CUT AREA 32 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 18 SQ.FT.
FILL AREA 14 SQ.FT.
STAGE 2

CUT VOLUME 14 CU.YD.
FILL VOLUME 3 CU.YD.
STAGE 1

CUT VOLUME 9 CU.YD.
FILL VOLUME 8 CU.YD.
STAGE 2

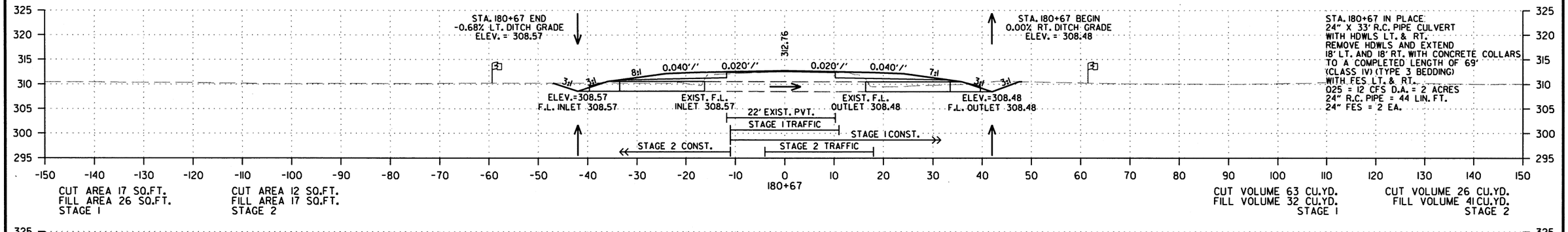
SITE 3
STA. 176+14 TO STA. 178+00

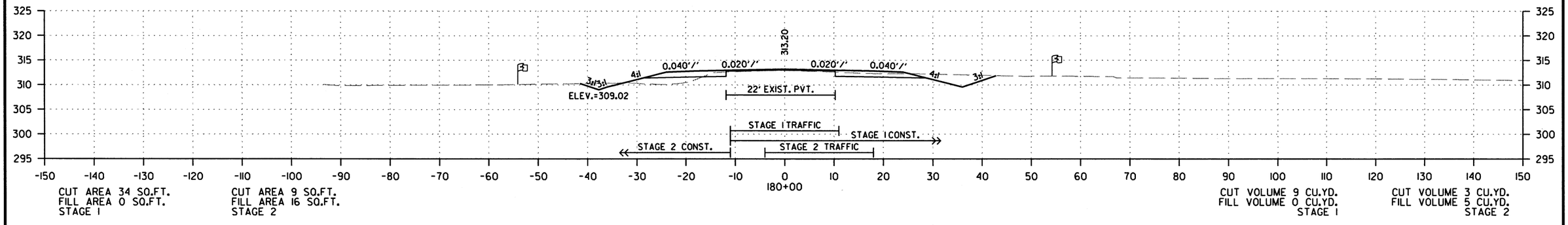
7/9/2009

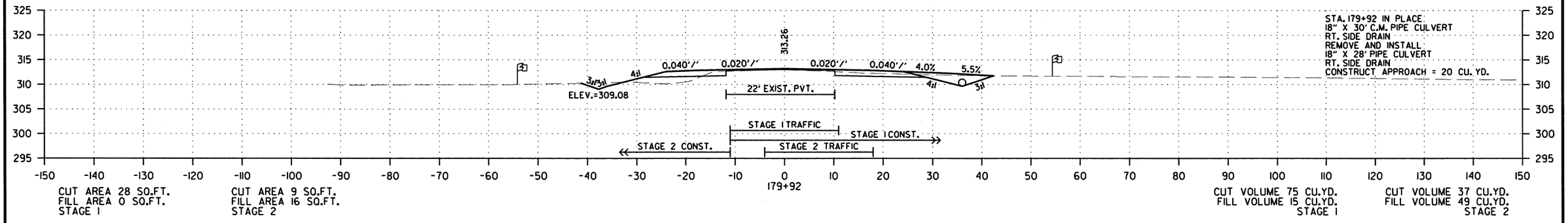
R050280.DGN

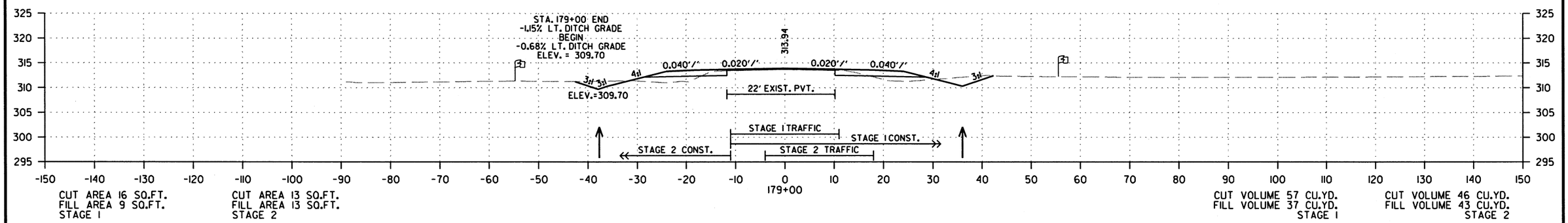
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	202	226

(2) CROSS SECTIONS









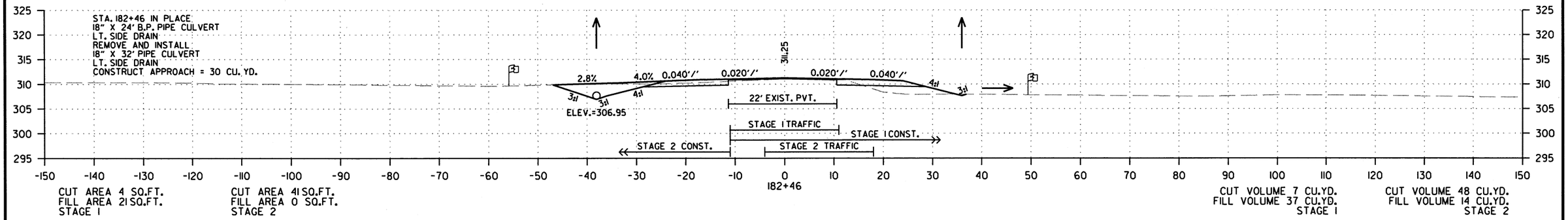
SITE 3
STA. 179+00 TO STA. 180+67

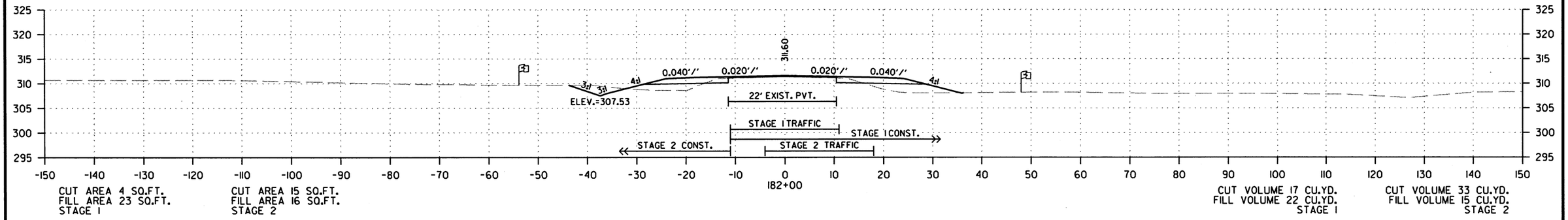
7/9/2019

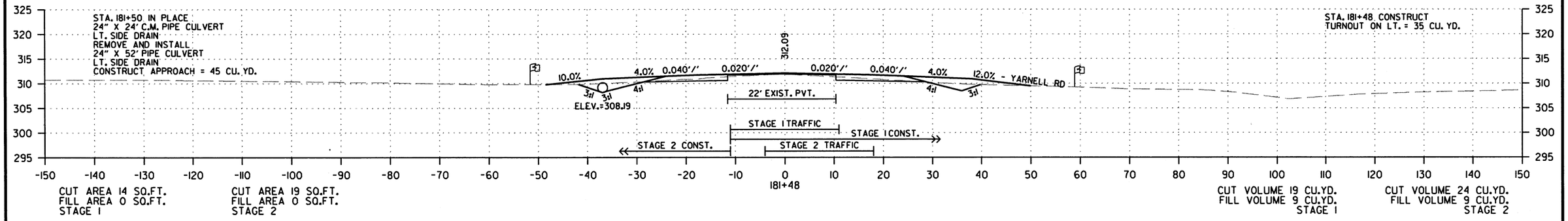
R050280.DGN

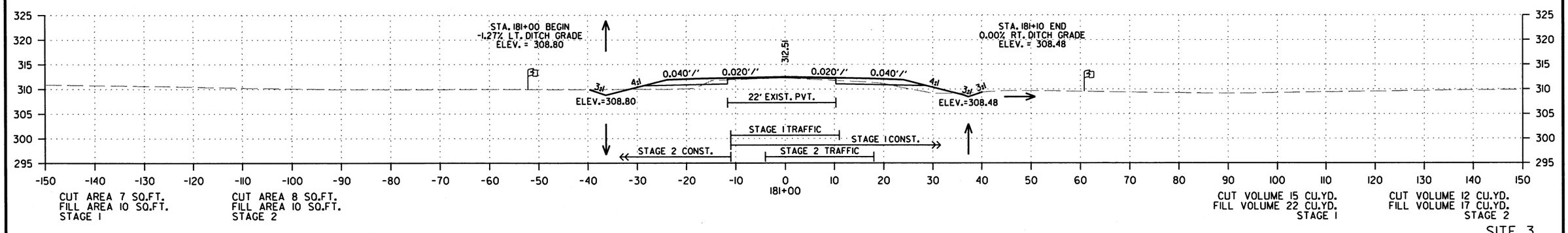
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	203	226

(2) CROSS SECTIONS









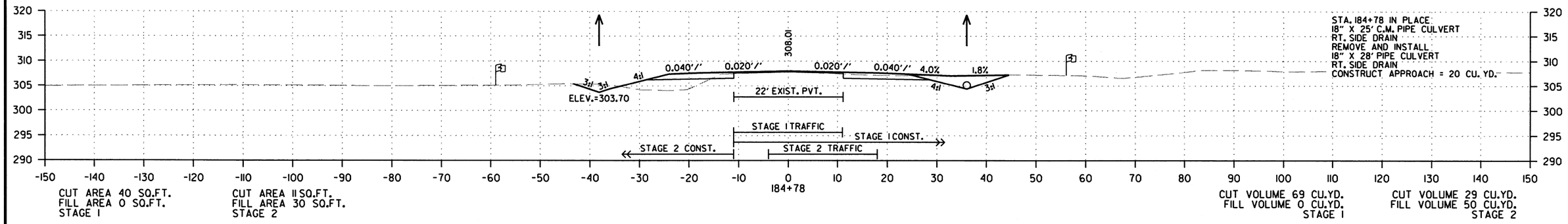
SITE 3
STA. 181+00 TO STA. 182+46

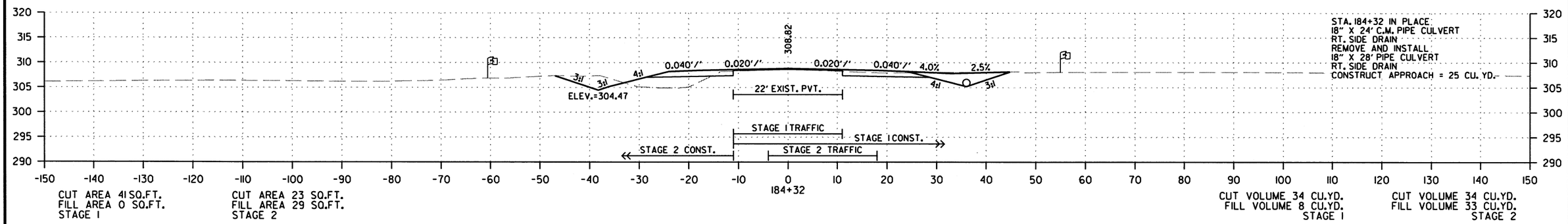
7/9/2009

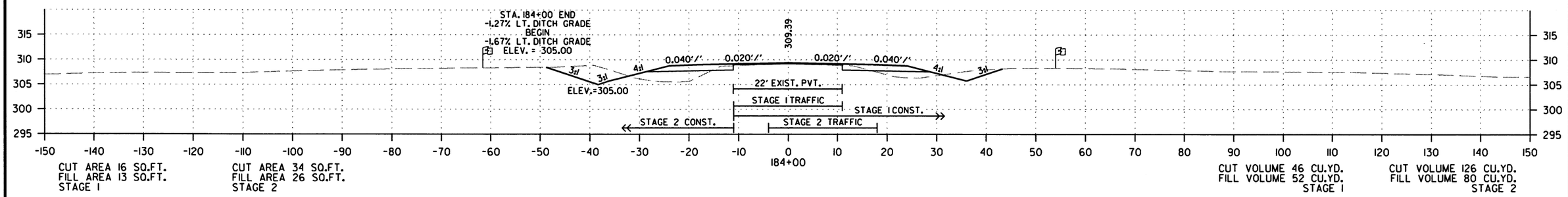
R050280.DGN

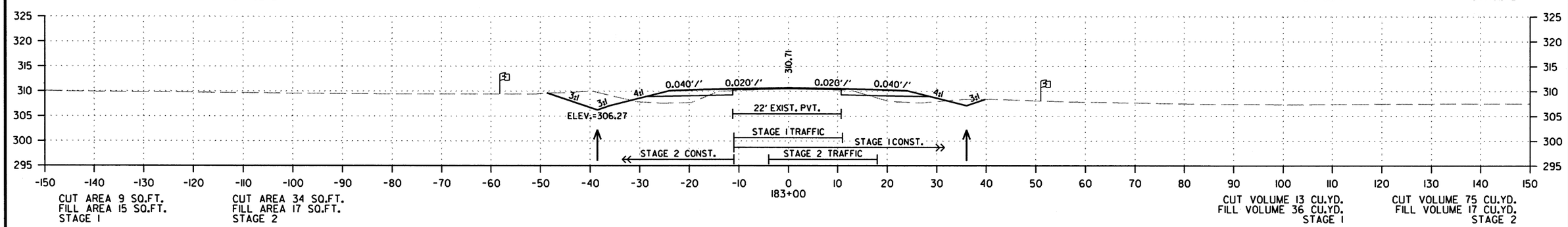
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	204	226

(2) CROSS SECTIONS









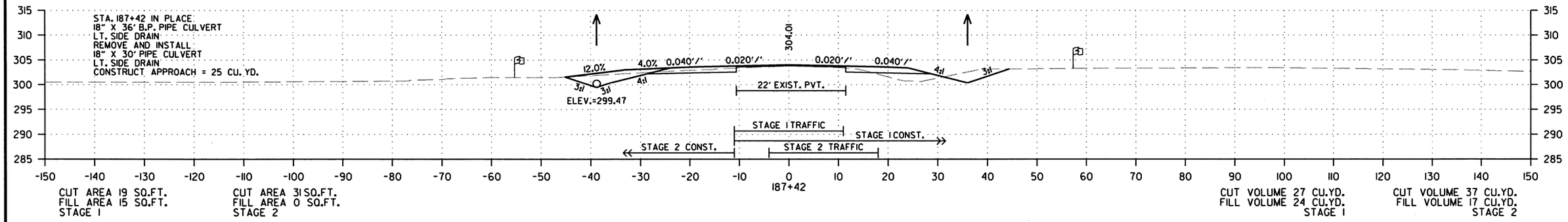
SITE 3
STA. 183+00 TO STA. 184+78

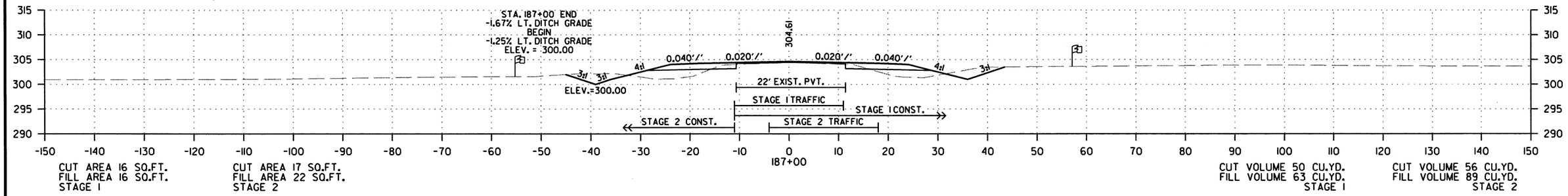
7/9/2019

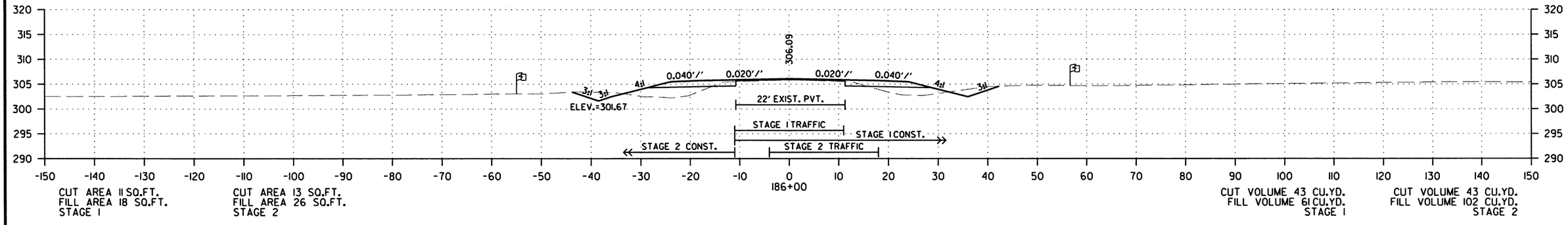
R050280.DGN

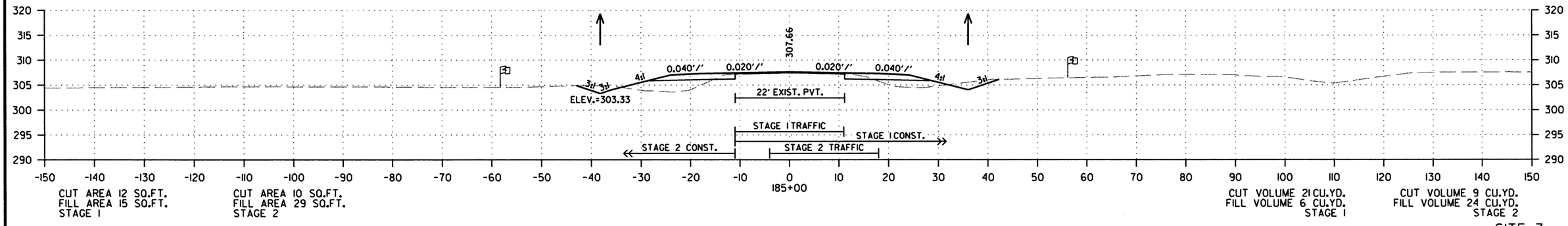
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	205	226

(2) CROSS SECTIONS









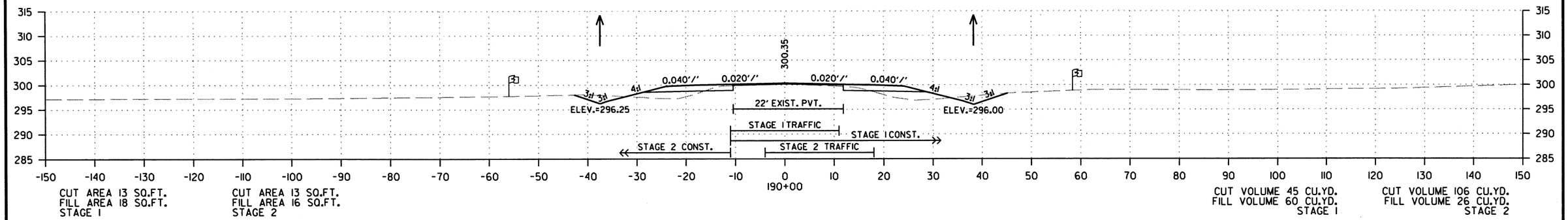
SITE 3
STA. 185+00 TO STA. 187+42

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	206	226

(2) CROSS SECTIONS

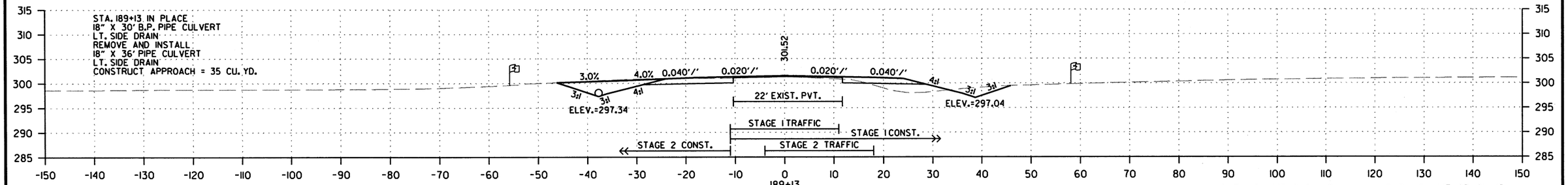


CUT AREA 13 SQ.FT.
FILL AREA 18 SQ.FT.
STAGE 1

CUT AREA 13 SQ.FT.
FILL AREA 16 SQ.FT.
STAGE 2

CUT VOLUME 45 CU.YD.
FILL VOLUME 60 CU.YD.
STAGE 1

CUT VOLUME 106 CU.YD.
FILL VOLUME 26 CU.YD.
STAGE 2

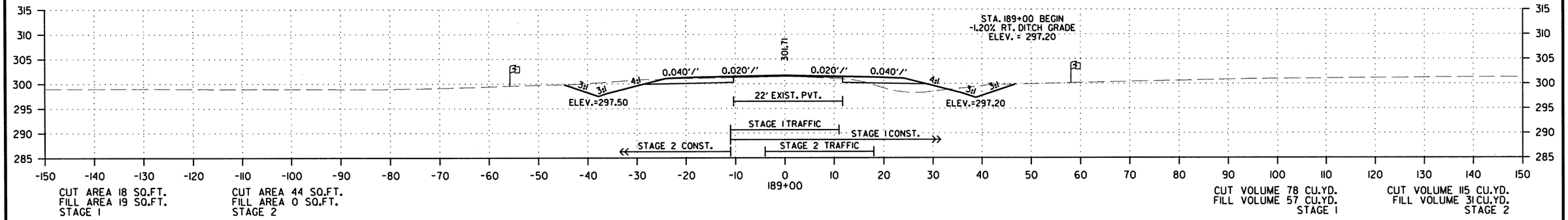


CUT AREA 15 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 1

CUT AREA 53 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 8 CU.YD.
FILL VOLUME 9 CU.YD.
STAGE 1

CUT VOLUME 23 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

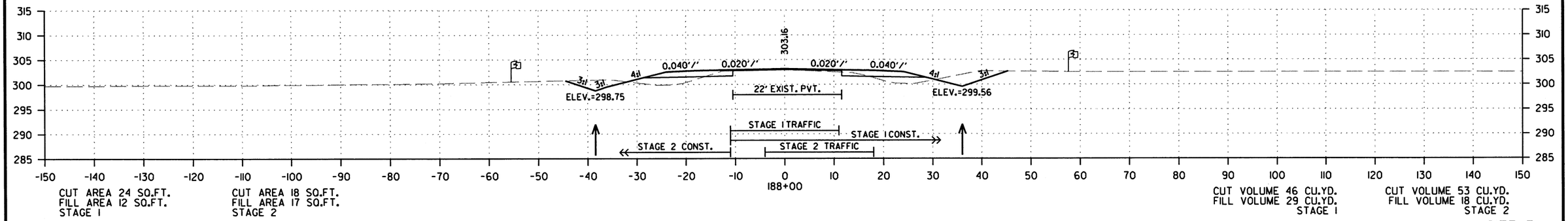


CUT AREA 18 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 1

CUT AREA 44 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 78 CU.YD.
FILL VOLUME 57 CU.YD.
STAGE 1

CUT VOLUME 115 CU.YD.
FILL VOLUME 31 CU.YD.
STAGE 2



CUT AREA 24 SQ.FT.
FILL AREA 12 SQ.FT.
STAGE 1

CUT AREA 18 SQ.FT.
FILL AREA 17 SQ.FT.
STAGE 2

CUT VOLUME 46 CU.YD.
FILL VOLUME 29 CU.YD.
STAGE 1

CUT VOLUME 53 CU.YD.
FILL VOLUME 18 CU.YD.
STAGE 2

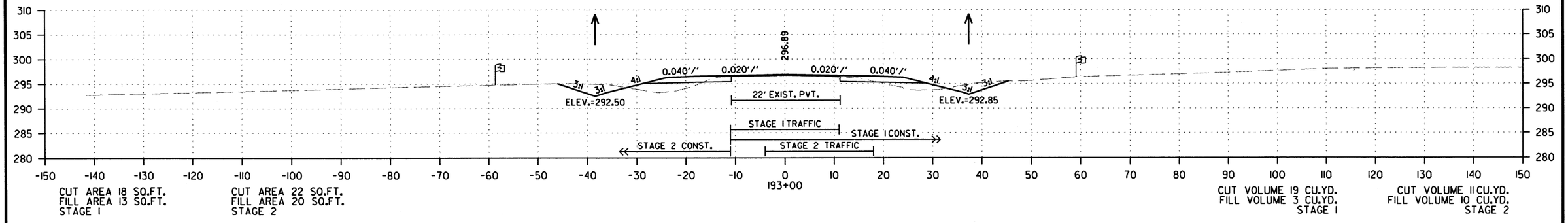
SITE 3
STA. 188+00 TO STA. 190+00

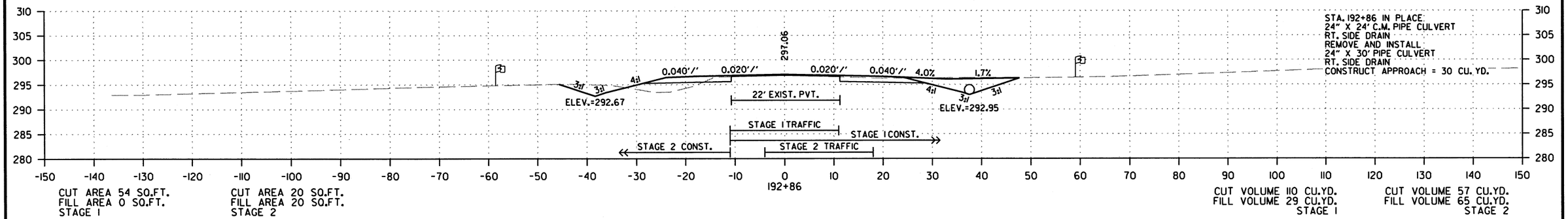
7/9/2009

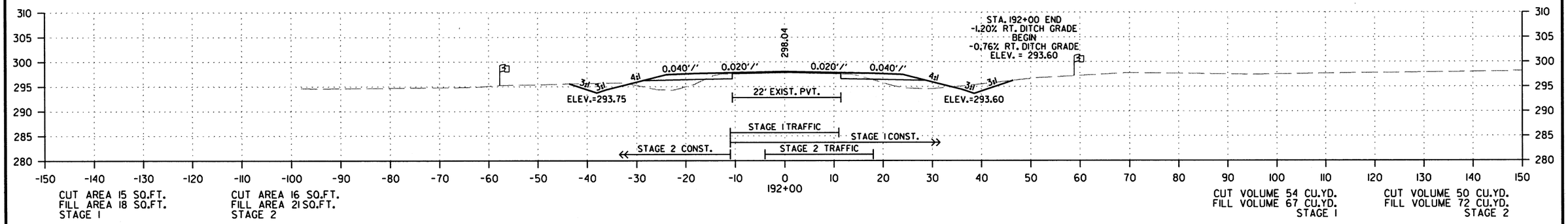
R050280.DGN

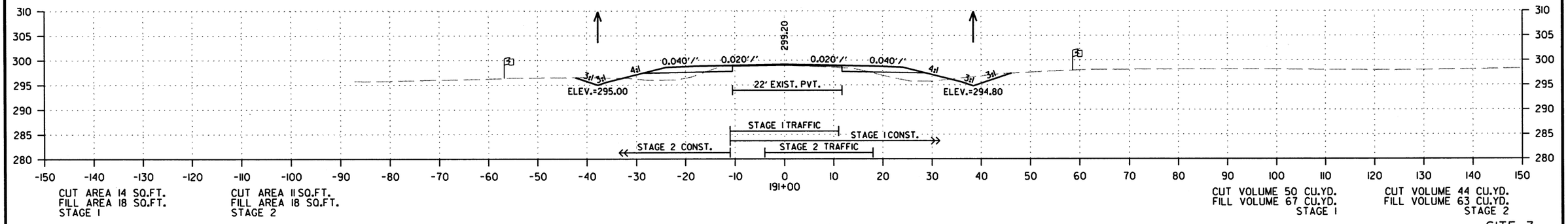
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	207	226

(2) CROSS SECTIONS









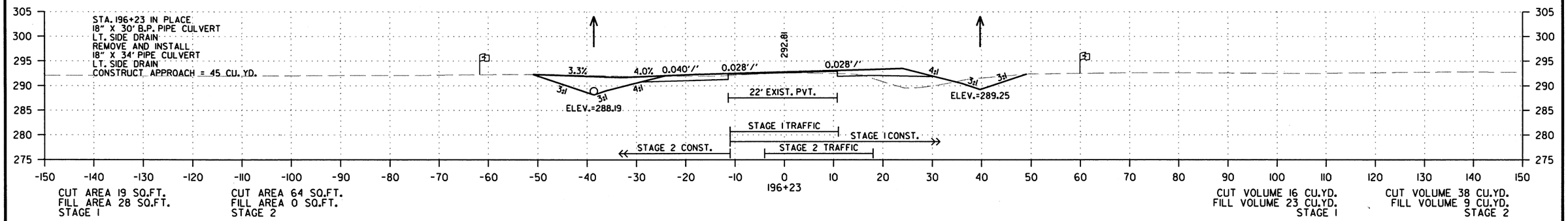
SITE 3
STA. 191+00 TO STA. 193+00

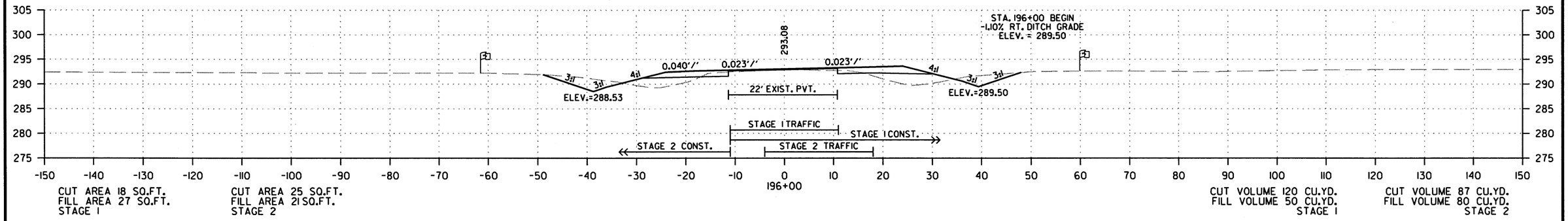
7/9/2019

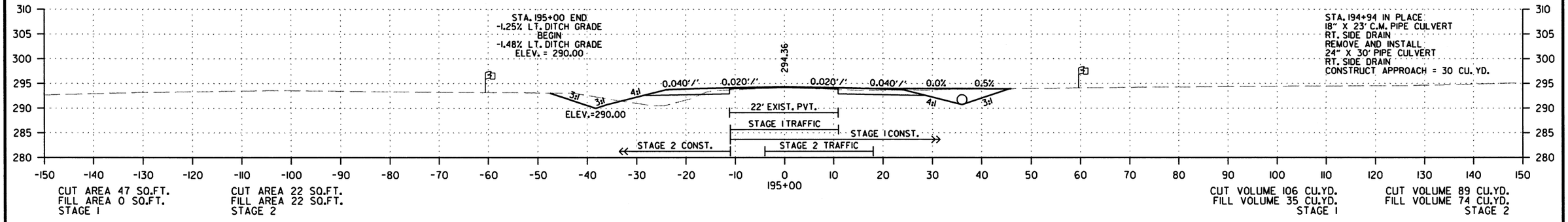
R050280.DGN

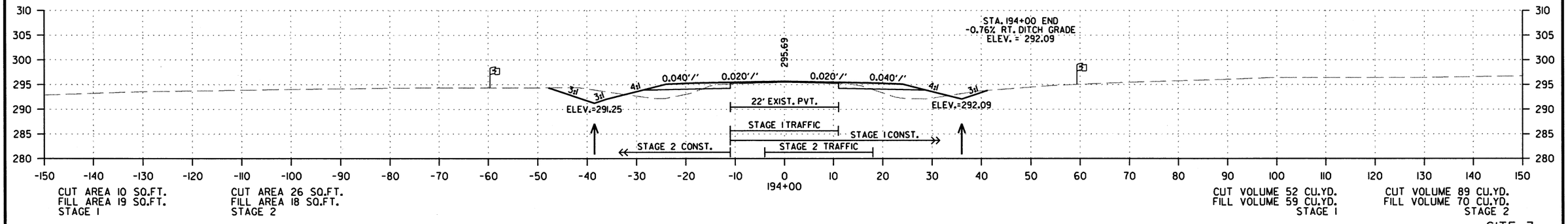
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	208	226

(2) CROSS SECTIONS









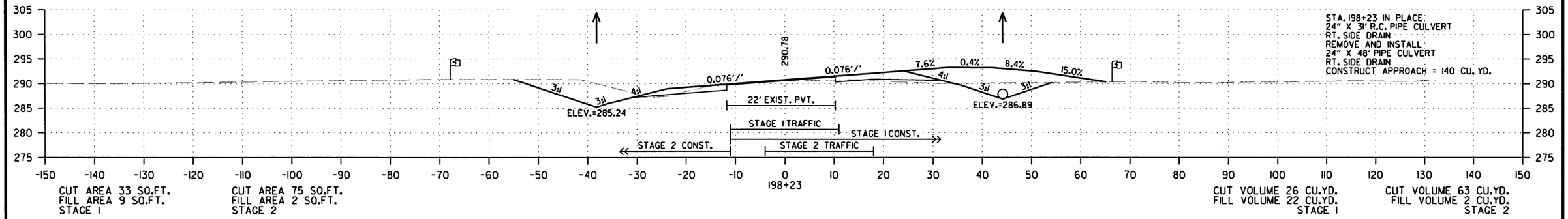
SITE 3
STA. 194+00 TO STA. 196+23

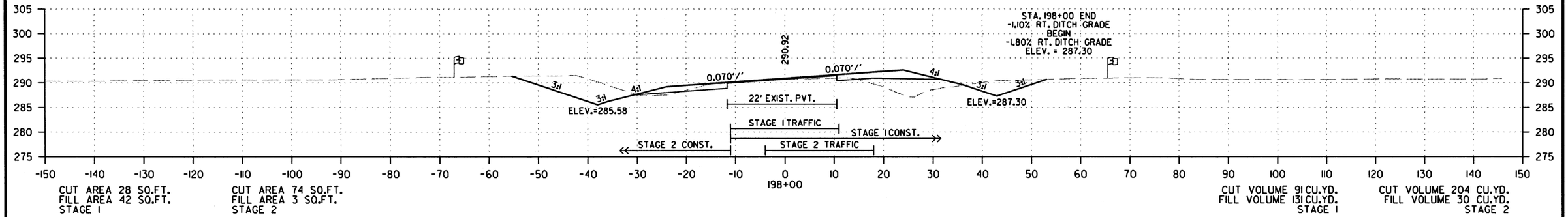
7/9/2009

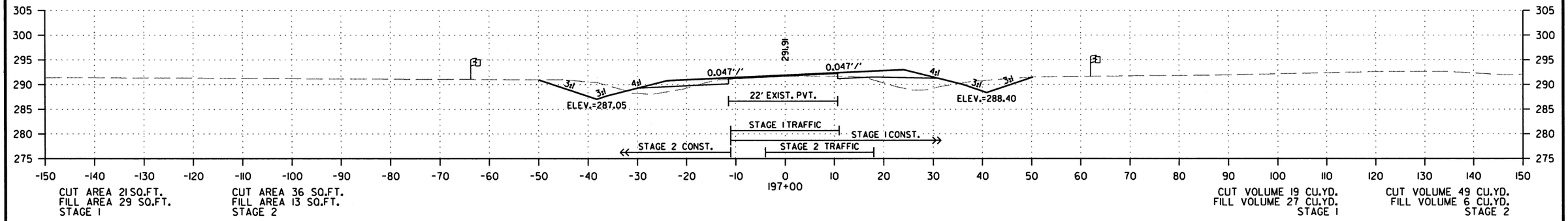
R050280.DGN

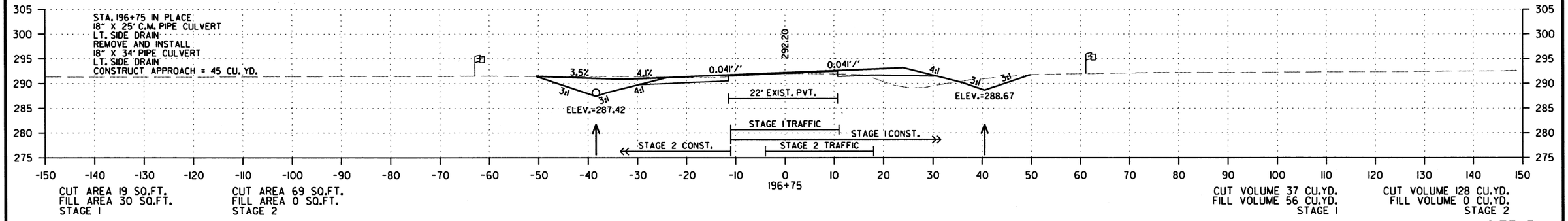
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	209	226

(2) CROSS SECTIONS









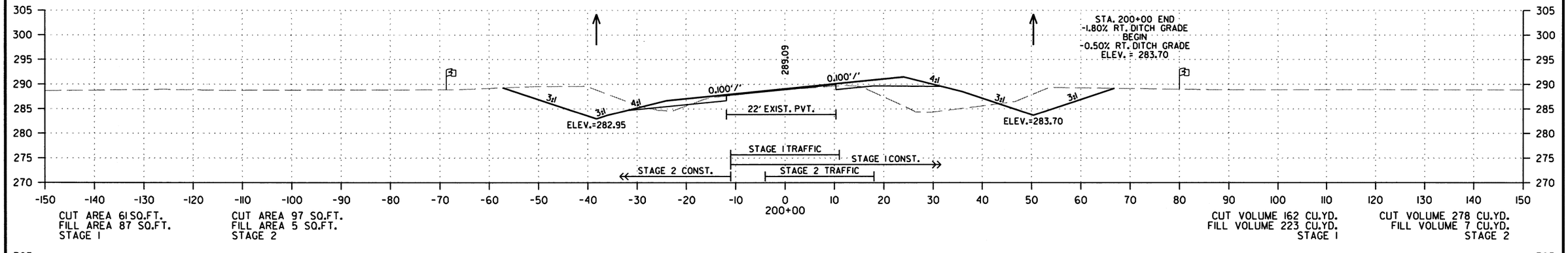
SITE 3
STA. 196+75 TO STA. 198+23

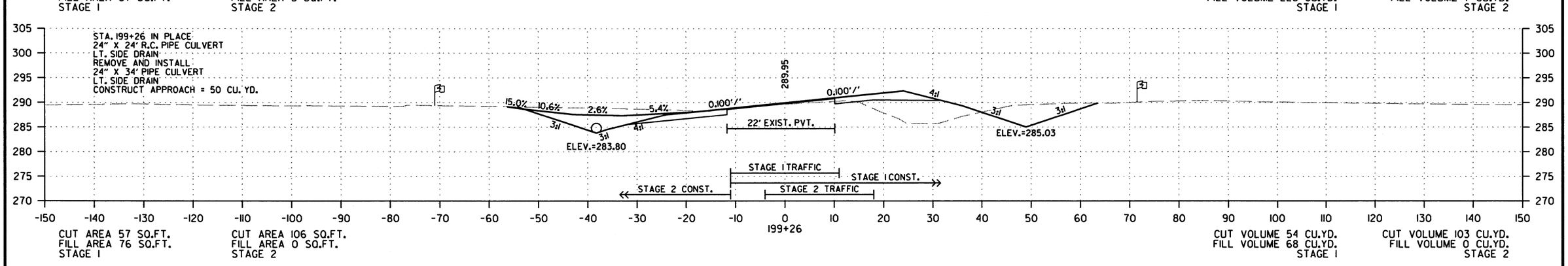
7/9/2009

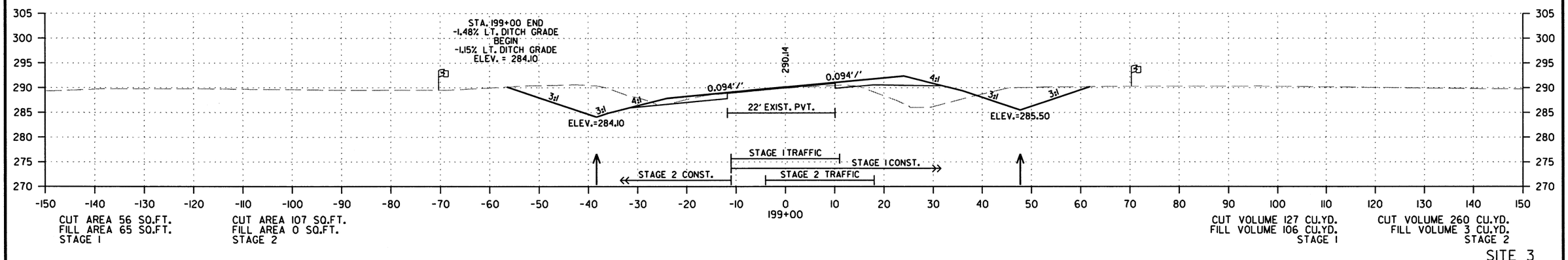
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	210	226

(2) CROSS SECTIONS







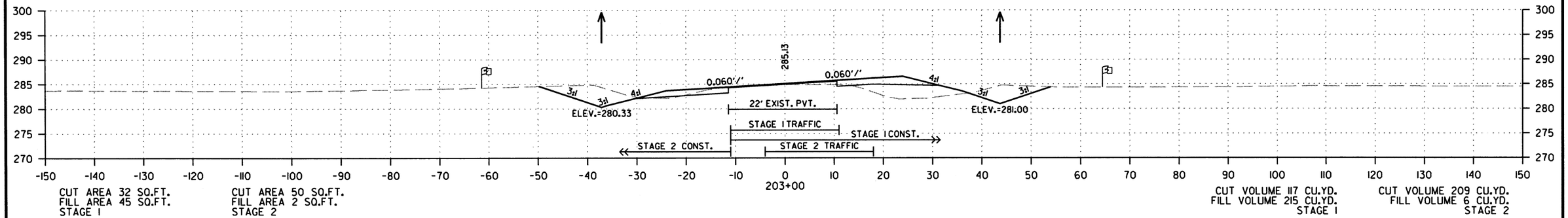
7/9/2009

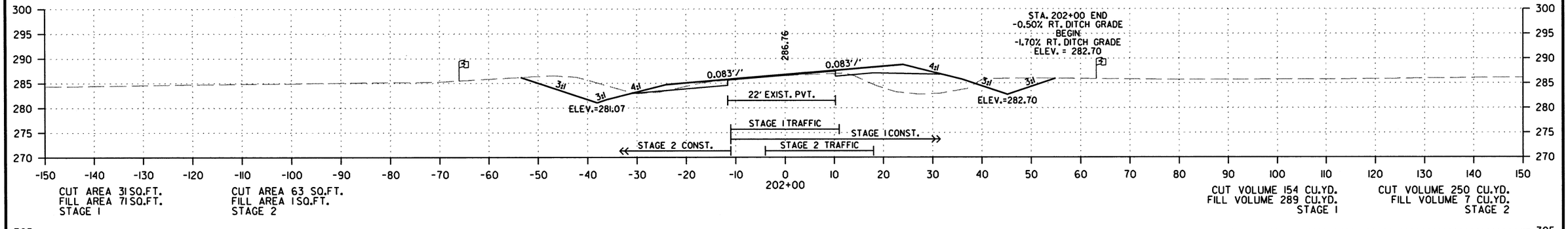
R050280.DGN

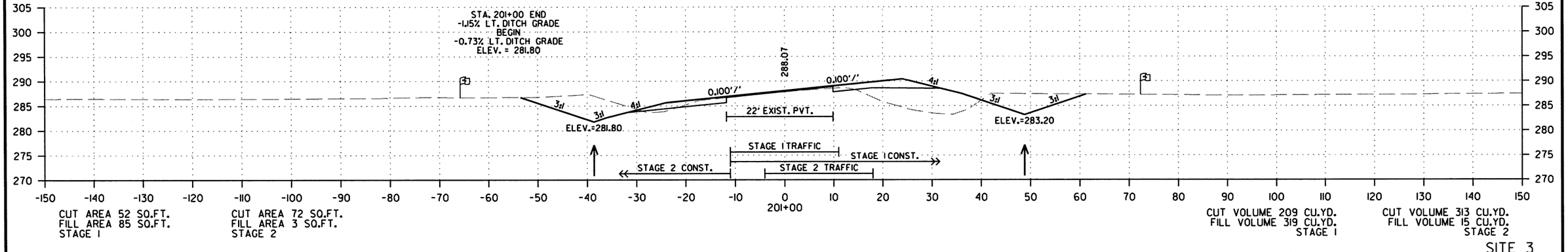
SITE 3
STA. 199+00 TO STA. 200+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	211	226

(2) CROSS SECTIONS







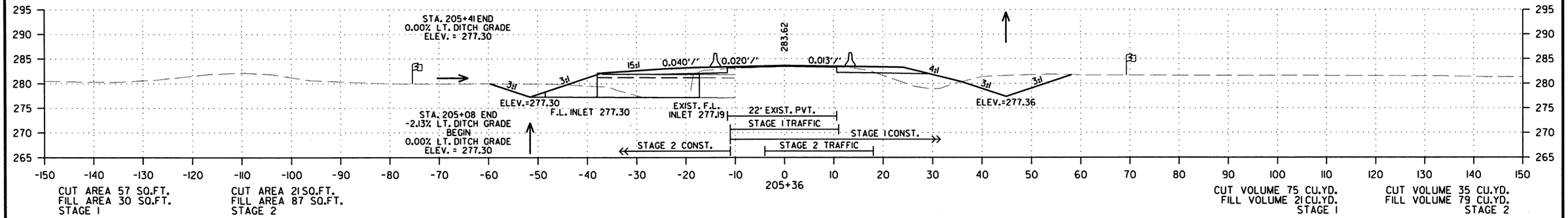
SITE 3
STA. 201+00 TO STA. 203+00

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	212	226

(2) CROSS SECTIONS

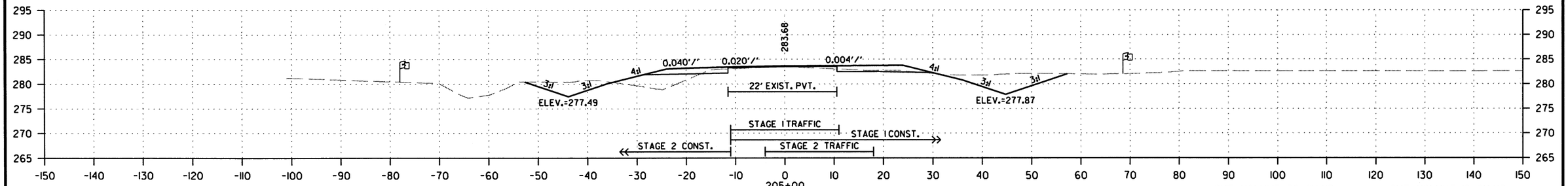


CUT AREA 57 SQ.FT.
FILL AREA 30 SQ.FT.
STAGE 1

CUT AREA 21 SQ.FT.
FILL AREA 87 SQ.FT.
STAGE 2

CUT VOLUME 75 CU.YD.
FILL VOLUME 21 CU.YD.
STAGE 1

CUT VOLUME 35 CU.YD.
FILL VOLUME 79 CU.YD.
STAGE 2

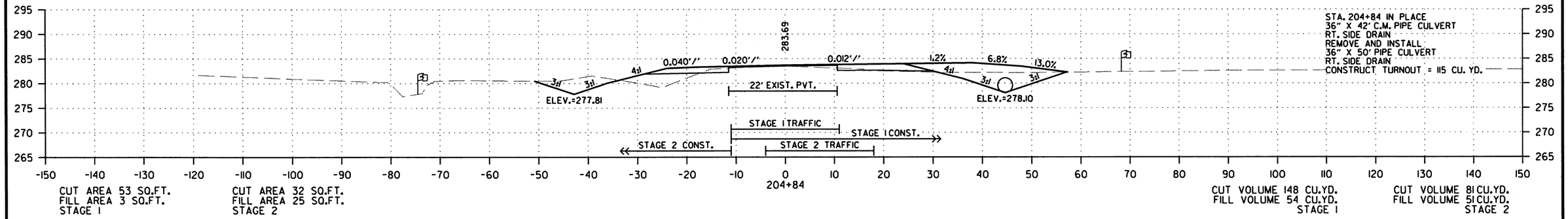


CUT AREA 56 SQ.FT.
FILL AREA 1 SQ.FT.
STAGE 1

CUT AREA 32 SQ.FT.
FILL AREA 31 SQ.FT.
STAGE 2

CUT VOLUME 32 CU.YD.
FILL VOLUME 1 CU.YD.
STAGE 1

CUT VOLUME 19 CU.YD.
FILL VOLUME 17 CU.YD.
STAGE 2

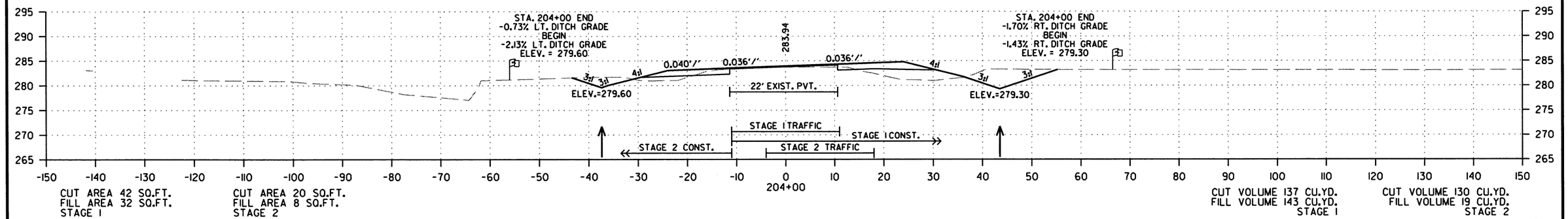


CUT AREA 53 SQ.FT.
FILL AREA 3 SQ.FT.
STAGE 1

CUT AREA 32 SQ.FT.
FILL AREA 25 SQ.FT.
STAGE 2

CUT VOLUME 148 CU.YD.
FILL VOLUME 54 CU.YD.
STAGE 1

CUT VOLUME 81 CU.YD.
FILL VOLUME 51 CU.YD.
STAGE 2



CUT AREA 42 SQ.FT.
FILL AREA 32 SQ.FT.
STAGE 1

CUT AREA 20 SQ.FT.
FILL AREA 8 SQ.FT.
STAGE 2

CUT VOLUME 137 CU.YD.
FILL VOLUME 143 CU.YD.
STAGE 1

CUT VOLUME 130 CU.YD.
FILL VOLUME 19 CU.YD.
STAGE 2

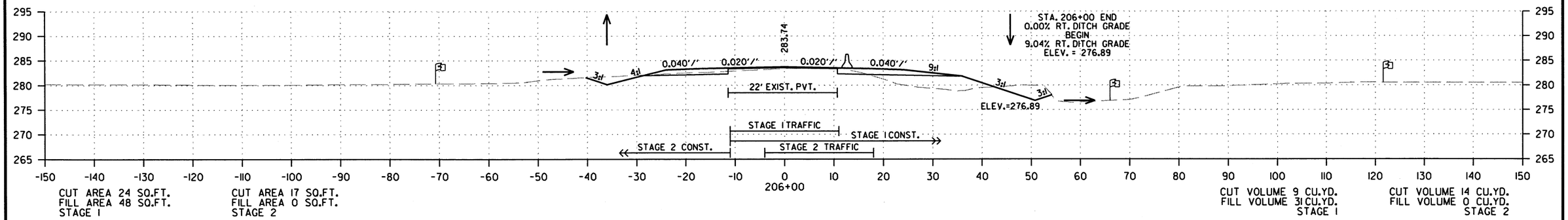
SITE 3
STA. 204+00 TO STA. 205+36

7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	213	226

(2) CROSS SECTIONS

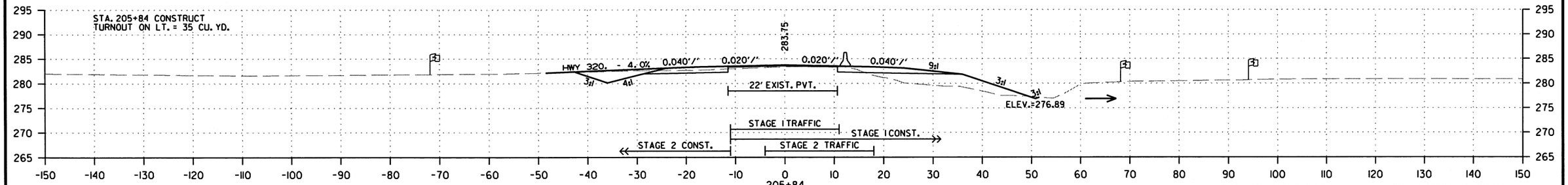


CUT AREA 24 SQ.FT.
FILL AREA 48 SQ.FT.
STAGE 1

CUT AREA 17 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 9 CU.YD.
FILL VOLUME 31 CU.YD.
STAGE 1

CUT VOLUME 14 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

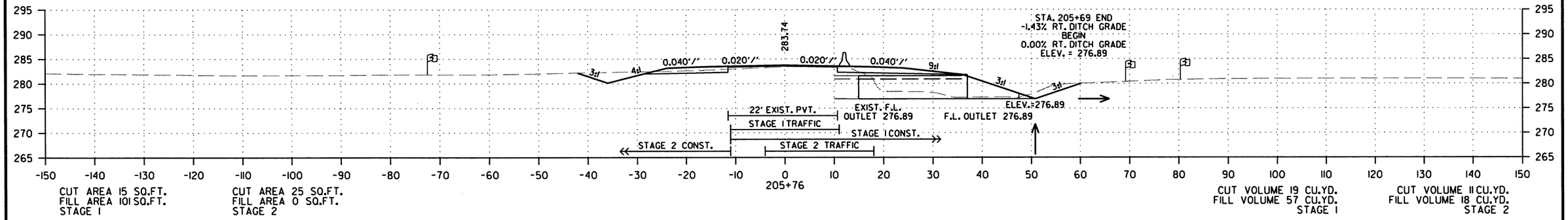


CUT AREA 5 SQ.FT.
FILL AREA 56 SQ.FT.
STAGE 1

CUT AREA 29 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 3 CU.YD.
FILL VOLUME 23 CU.YD.
STAGE 1

CUT VOLUME 8 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

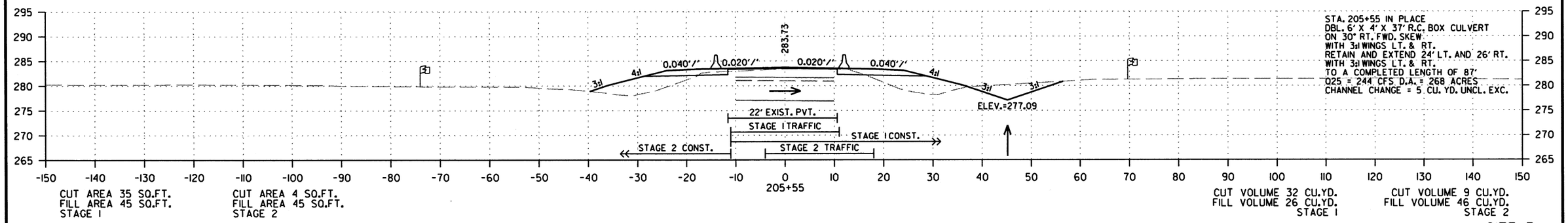


CUT AREA 15 SQ.FT.
FILL AREA 101 SQ.FT.
STAGE 1

CUT AREA 25 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 19 CU.YD.
FILL VOLUME 57 CU.YD.
STAGE 1

CUT VOLUME 11 CU.YD.
FILL VOLUME 18 CU.YD.
STAGE 2



CUT AREA 35 SQ.FT.
FILL AREA 45 SQ.FT.
STAGE 1

CUT AREA 4 SQ.FT.
FILL AREA 45 SQ.FT.
STAGE 2

CUT VOLUME 32 CU.YD.
FILL VOLUME 26 CU.YD.
STAGE 1

CUT VOLUME 9 CU.YD.
FILL VOLUME 46 CU.YD.
STAGE 2

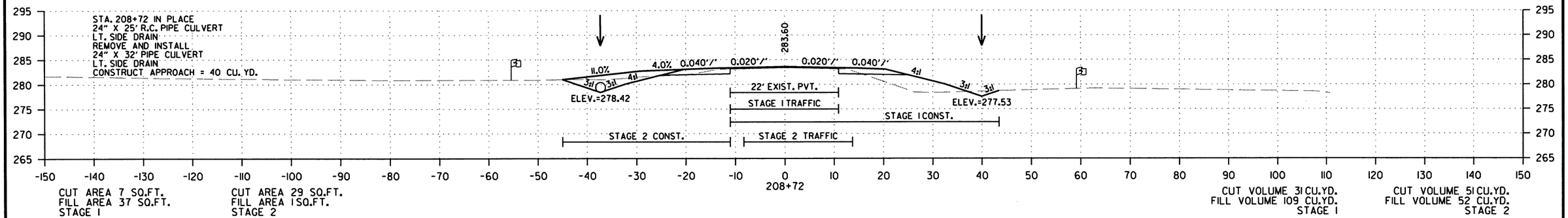
7/9/2009

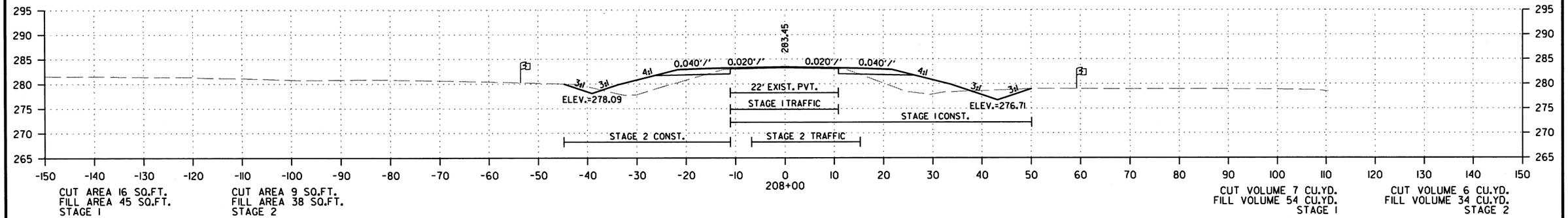
R050280.DGN

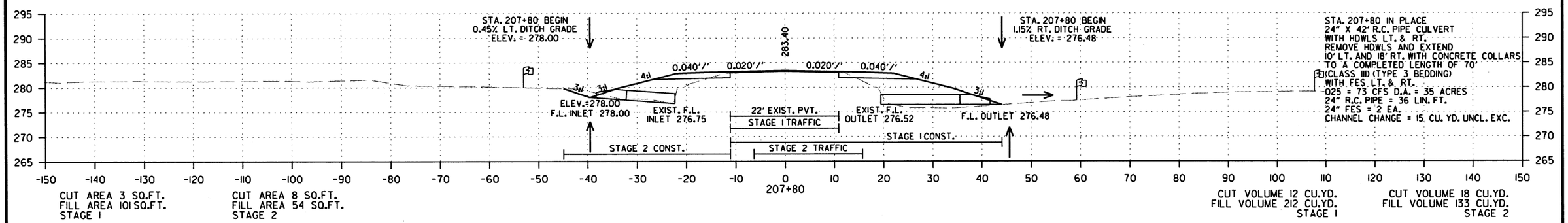
SITE 3
STA. 205+55 TO STA. 206+00

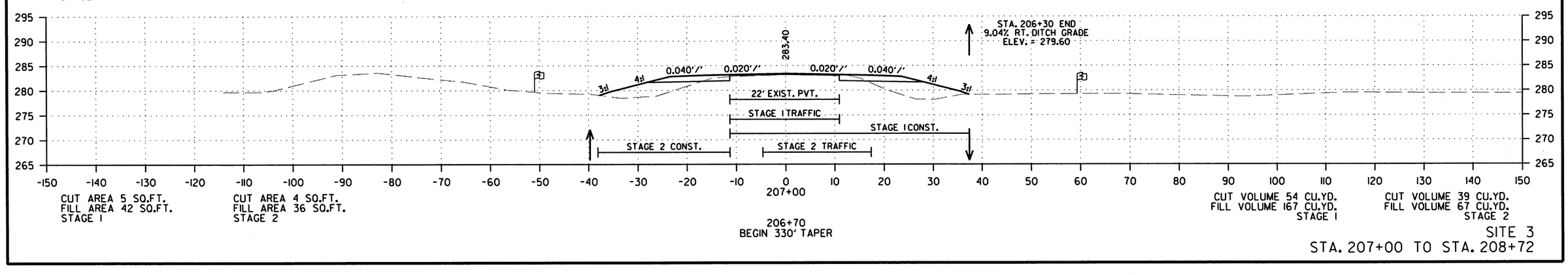
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	214	226

(2) CROSS SECTIONS









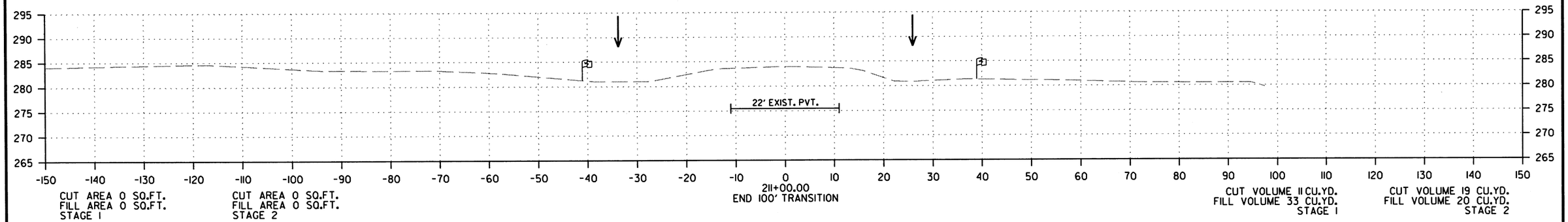
SITE 3
STA. 207+00 TO STA. 208+72

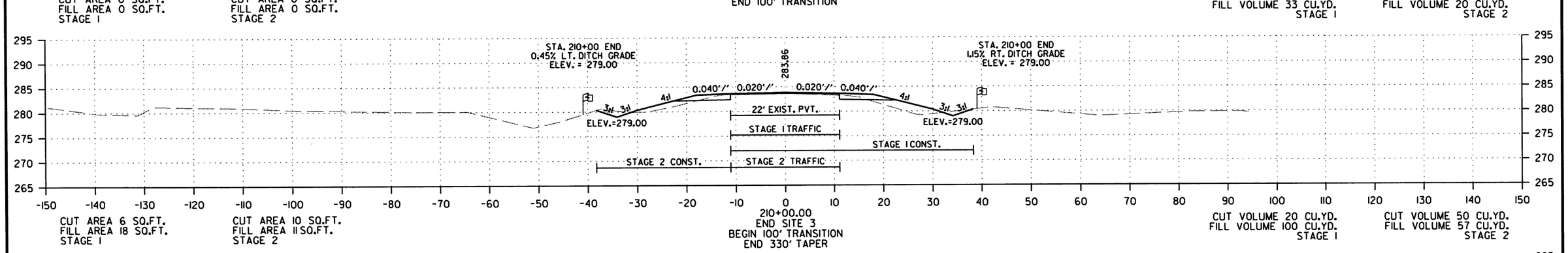
7/9/2009

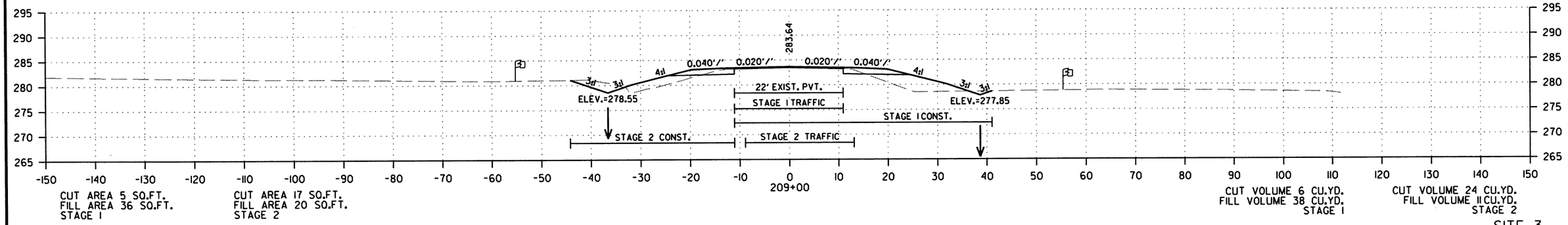
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	215	226

(2) CROSS SECTIONS







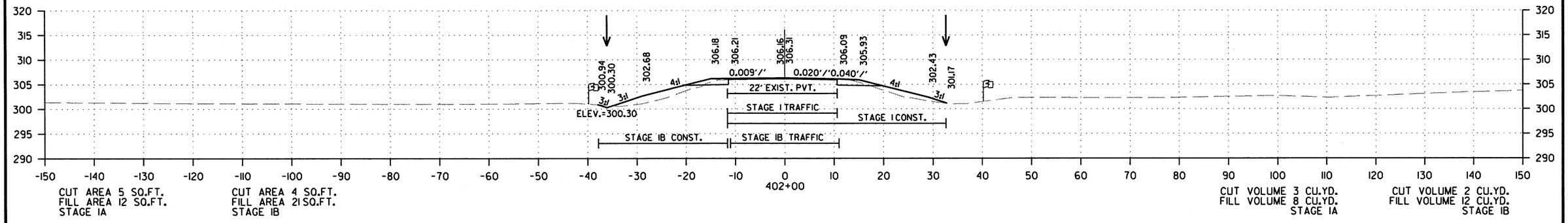
SITE 3
STA. 209+00 TO STA. 211+00

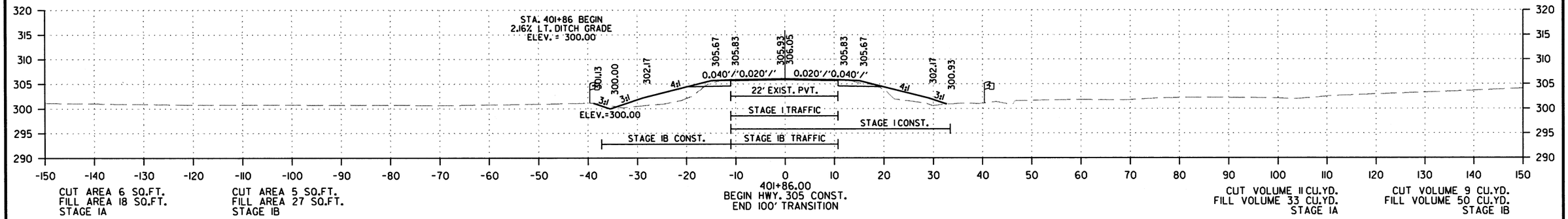
7/9/2009

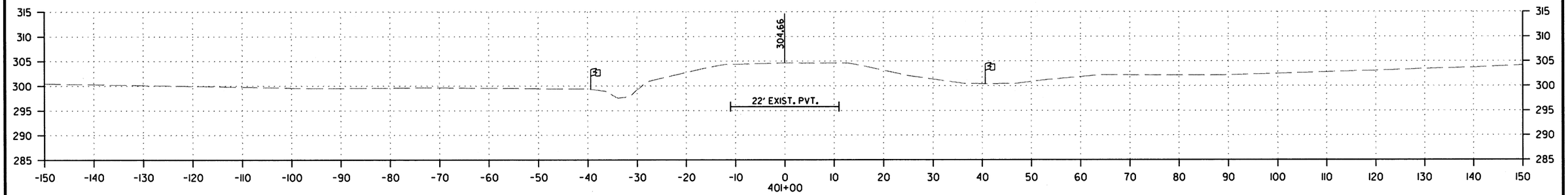
R050280.DGN

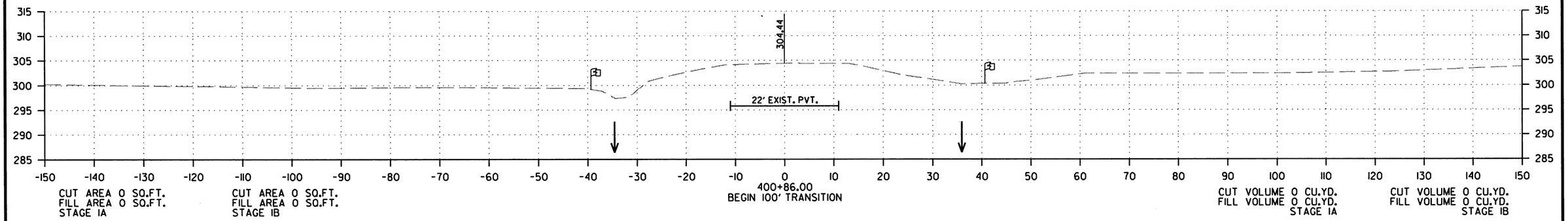
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	216	226

(2) CROSS SECTIONS









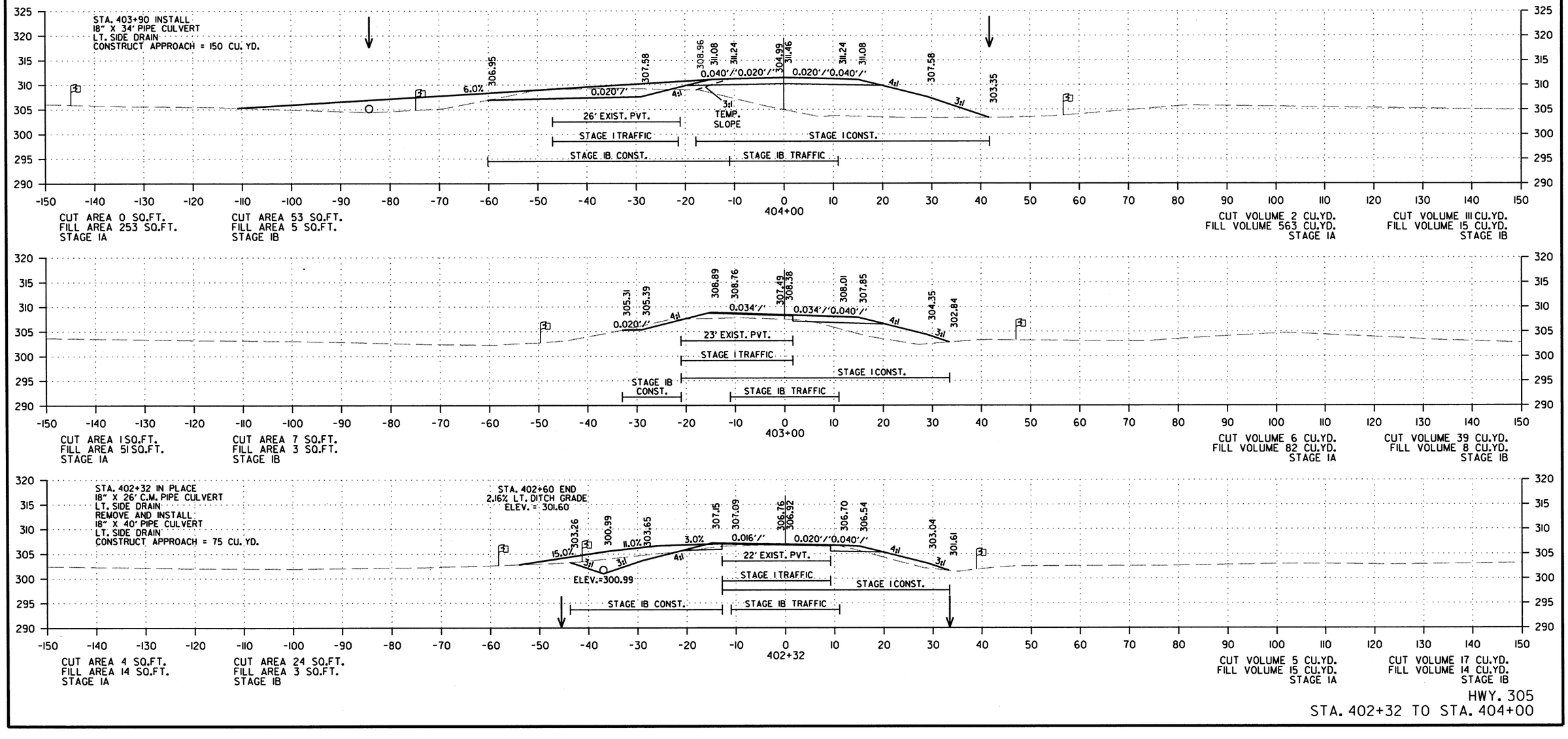
HWY. 305
STA. 400+86 TO STA. 402+00

7/9/2019

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	217	226

(2) CROSS SECTIONS



7/9/2009

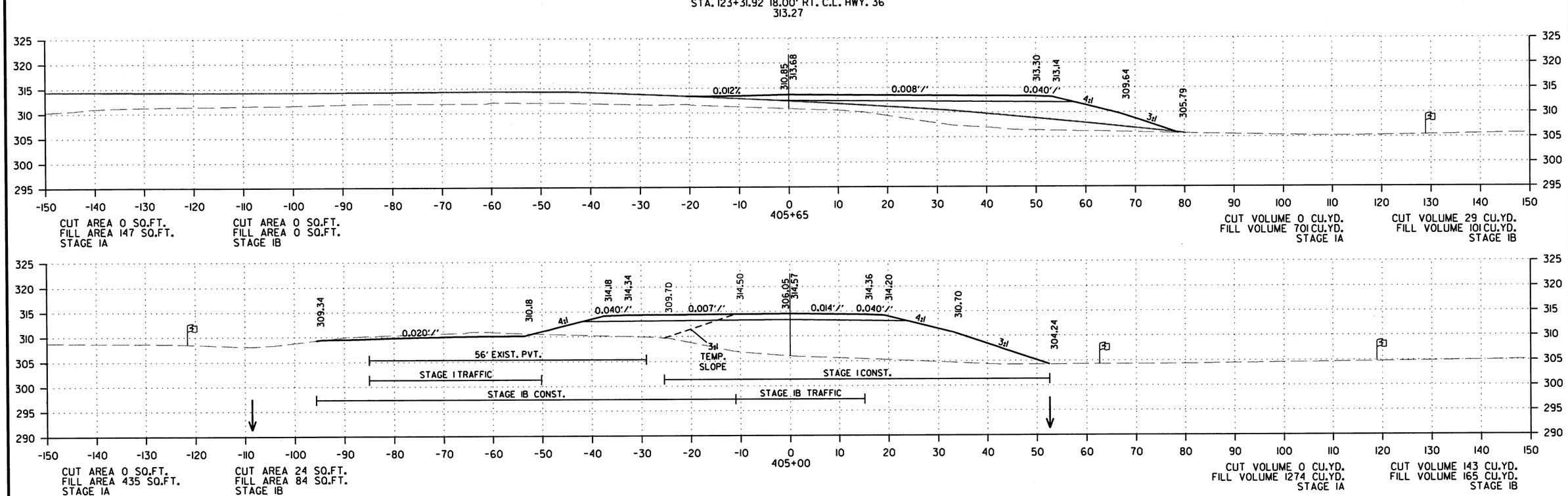
R050280.DGN

HWY. 305
STA. 402+32 TO STA. 404+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	218	226

(2) CROSS SECTIONS

STA. 405+76.78 C.L. HWY. 305 =
STA. 123+31.92 18.00' RT. C.L. HWY. 36
313.27



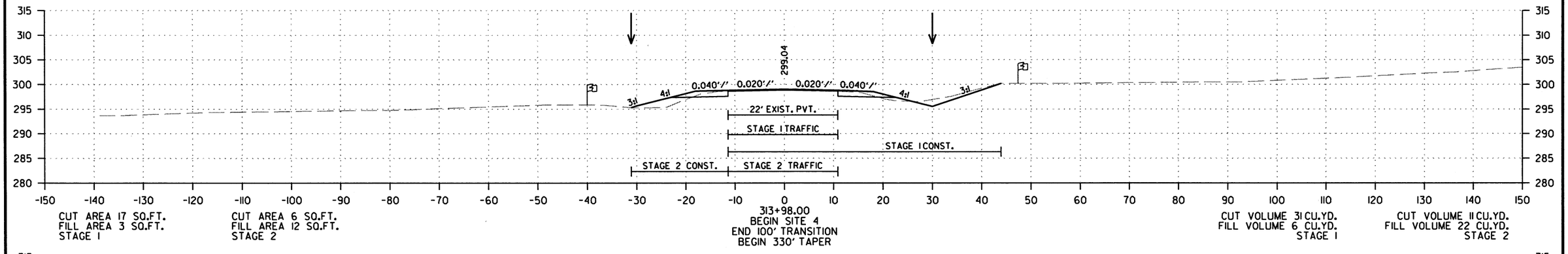
HWY. 305
STA. 405+00 TO STA. 405+65

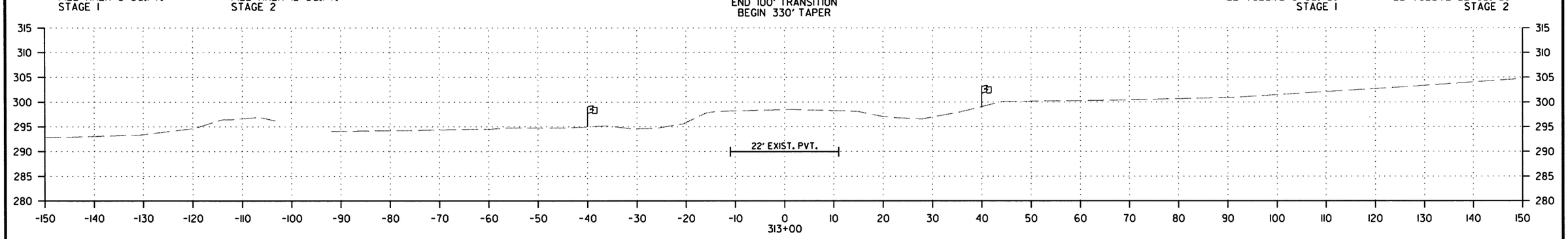
7/9/2009

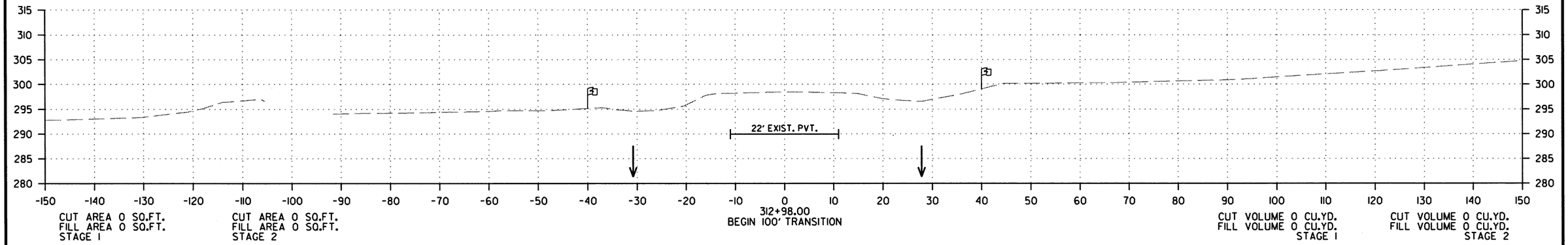
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	219	226

(2) CROSS SECTIONS







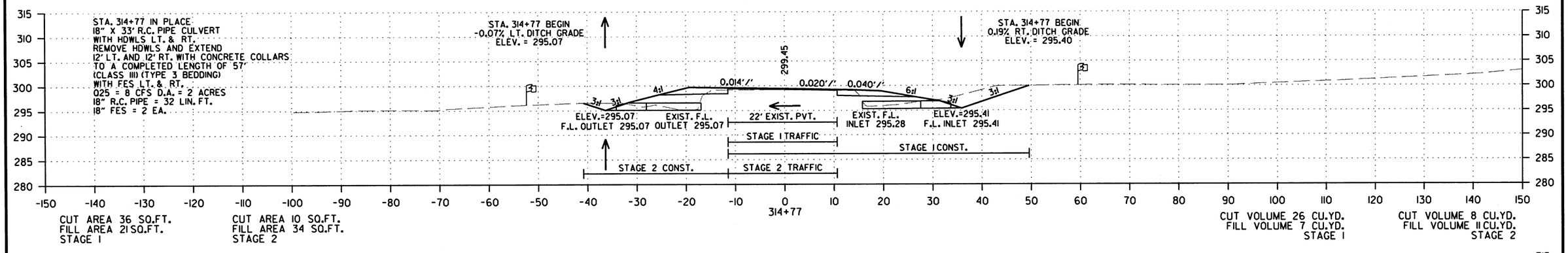
SITE 4
STA. 312+98 TO STA. 313+98

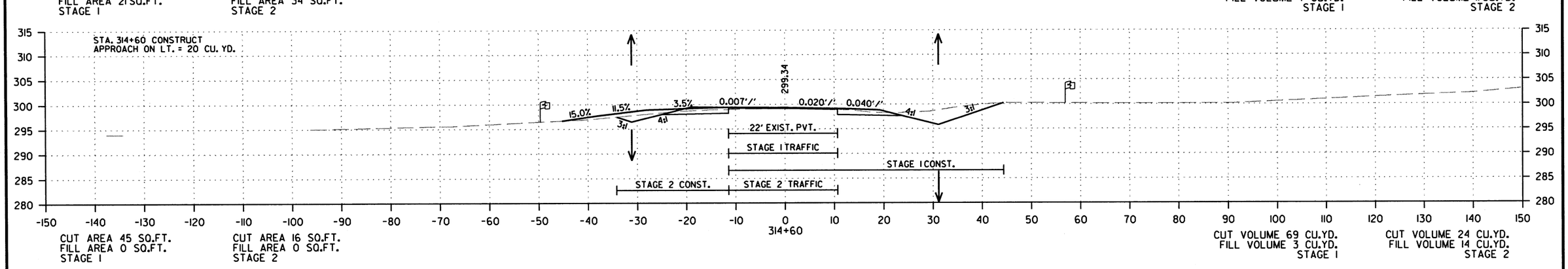
7/9/2019

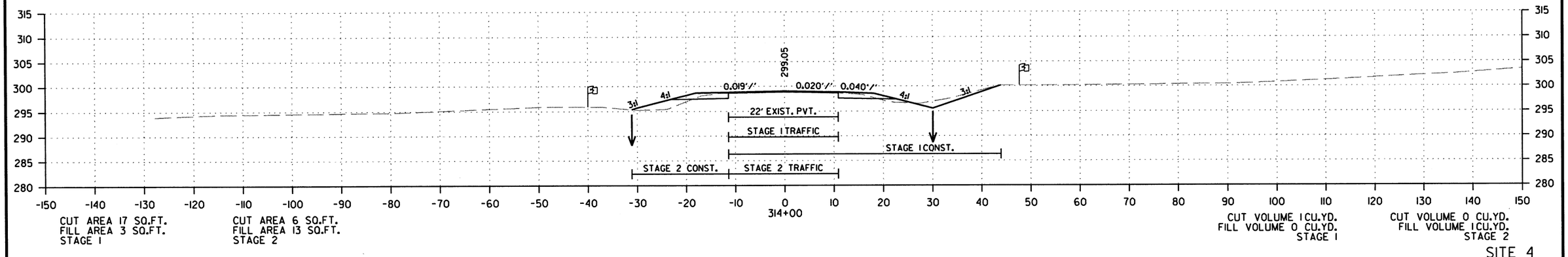
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	220	226

(2) CROSS SECTIONS







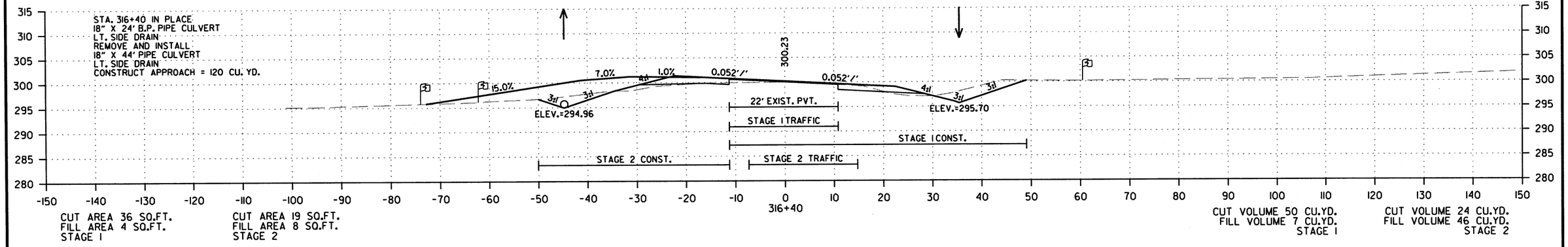
SITE 4
STA. 314+00 TO STA. 314+77

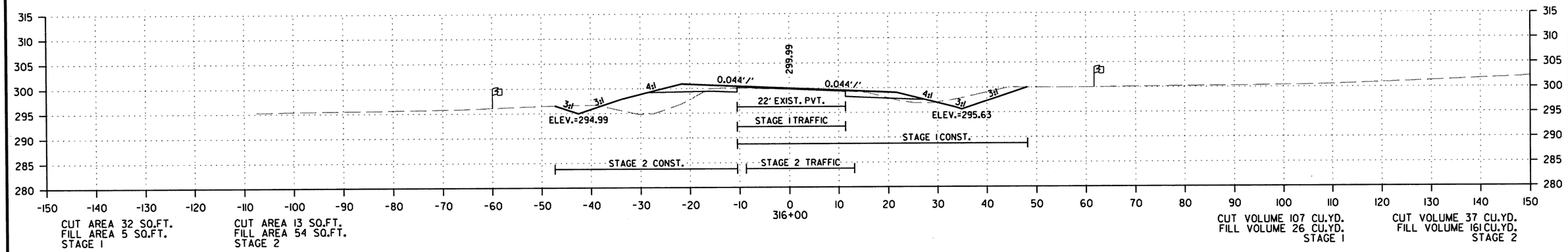
7/9/2009

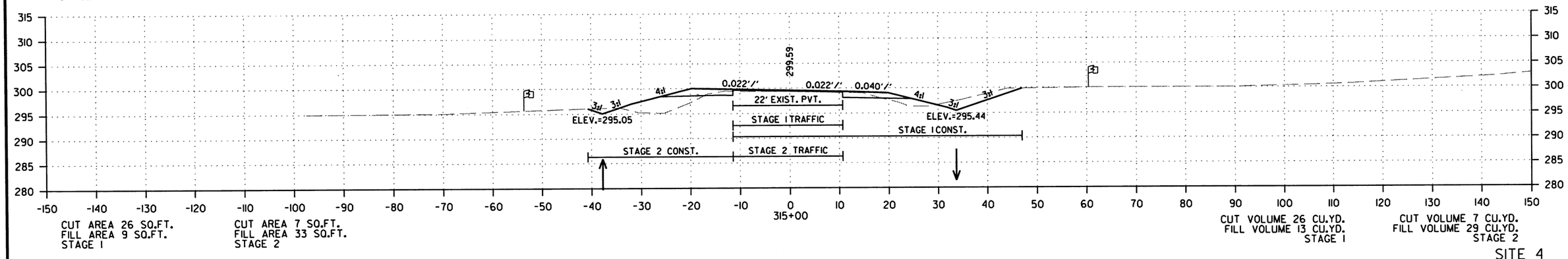
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	221	226

(2) CROSS SECTIONS







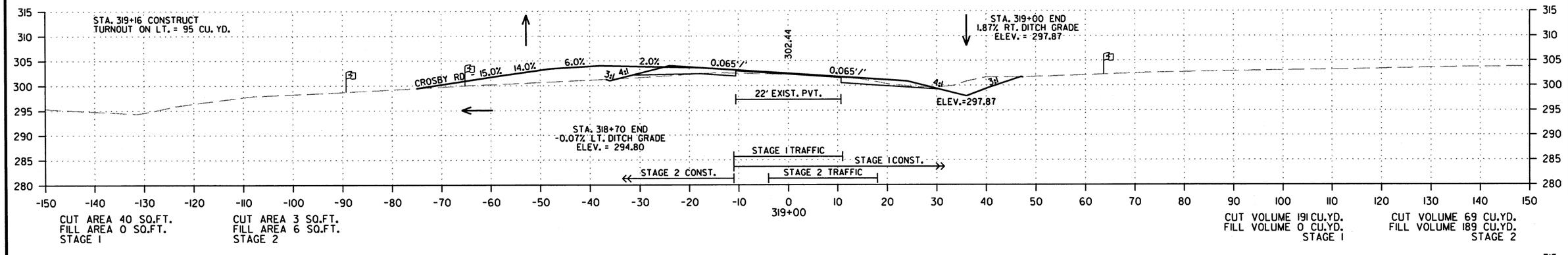
SITE 4
STA. 315+00 TO STA. 316+40

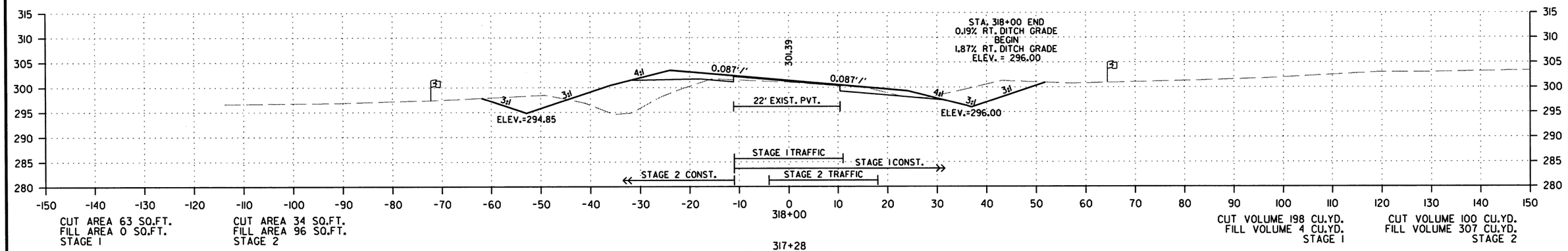
7/9/2009

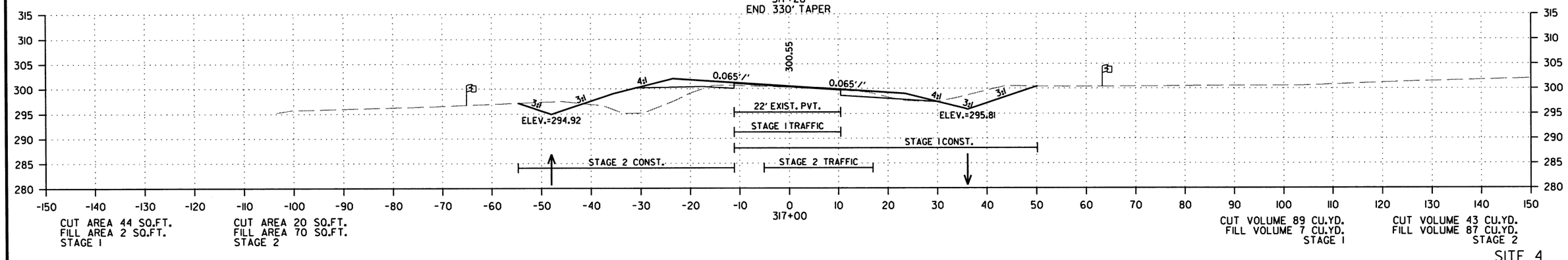
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	222	226

(2) CROSS SECTIONS







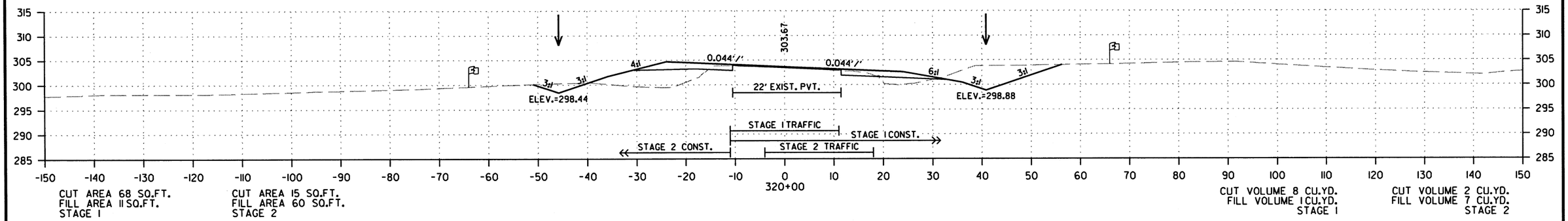
SITE 4
STA. 317+00 TO STA. 319+00

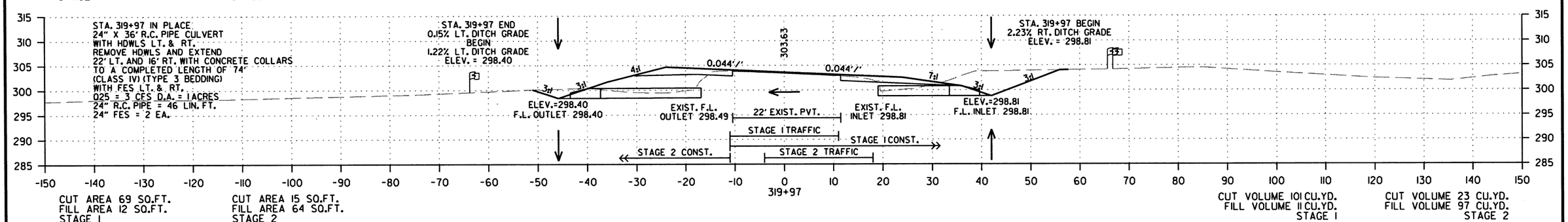
7/9/2009

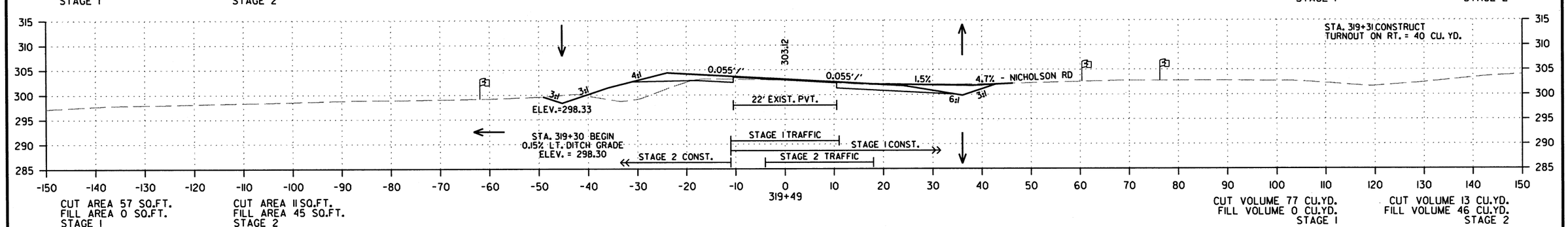
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	223	226

(2) CROSS SECTIONS







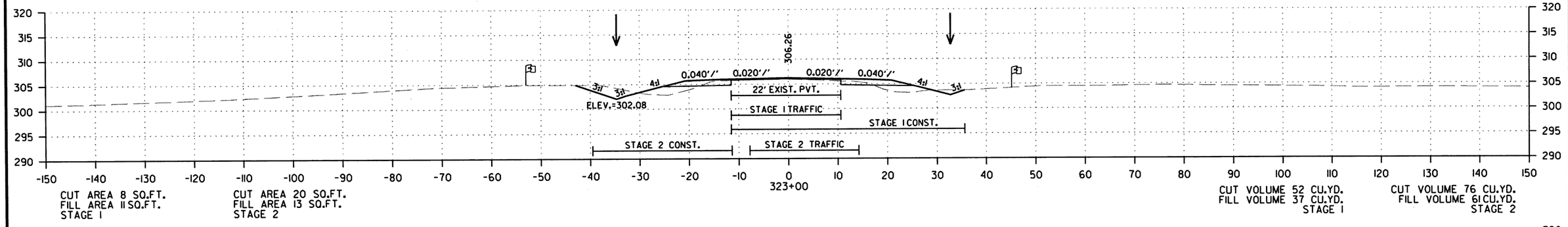
SITE 4
STA. 319+49 TO STA. 320+00

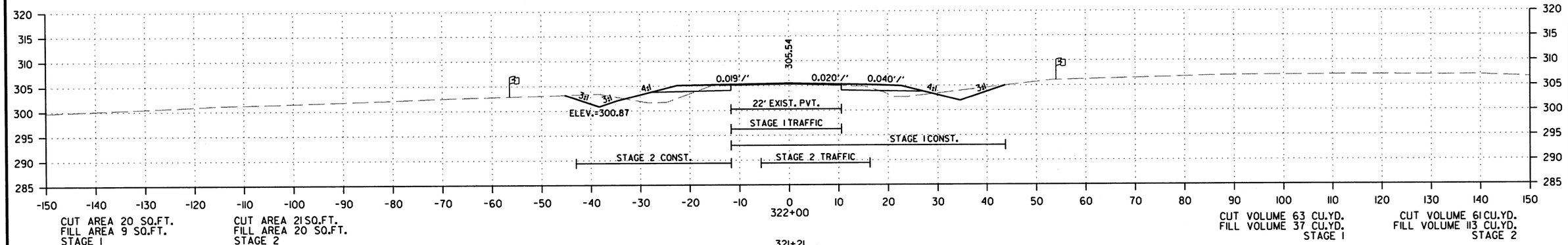
7/9/2009

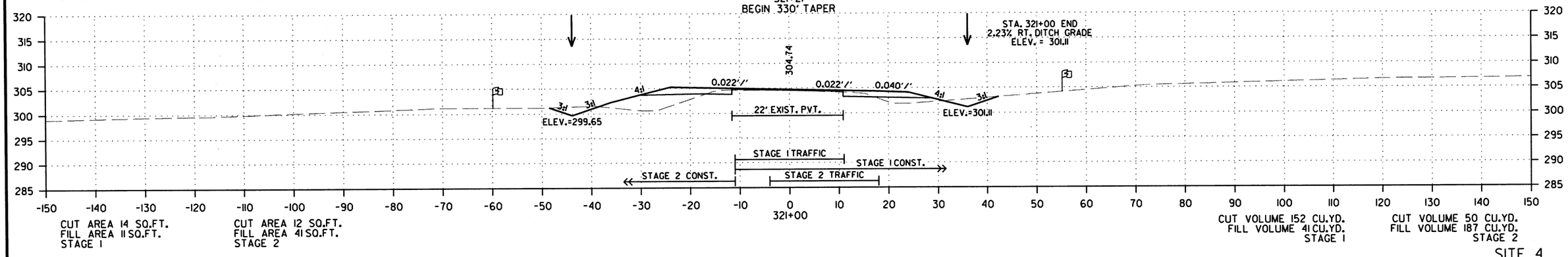
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	224	226

(2) CROSS SECTIONS







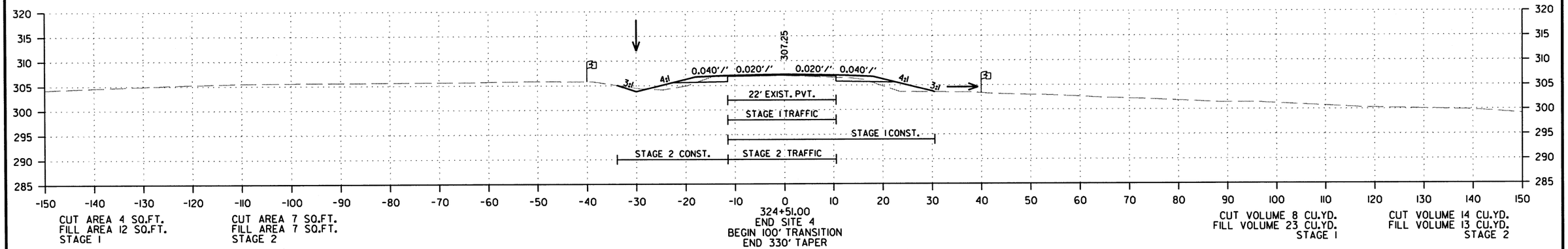
SITE 4
STA. 321+00 TO STA. 323+00

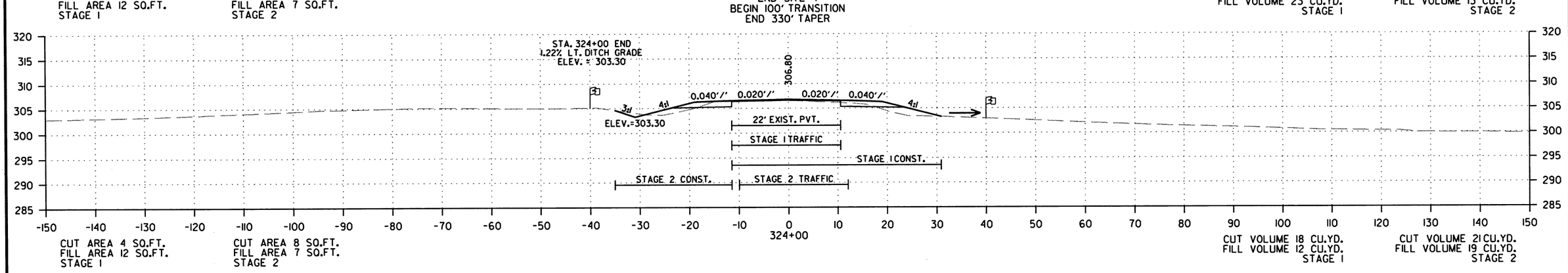
7/9/2019

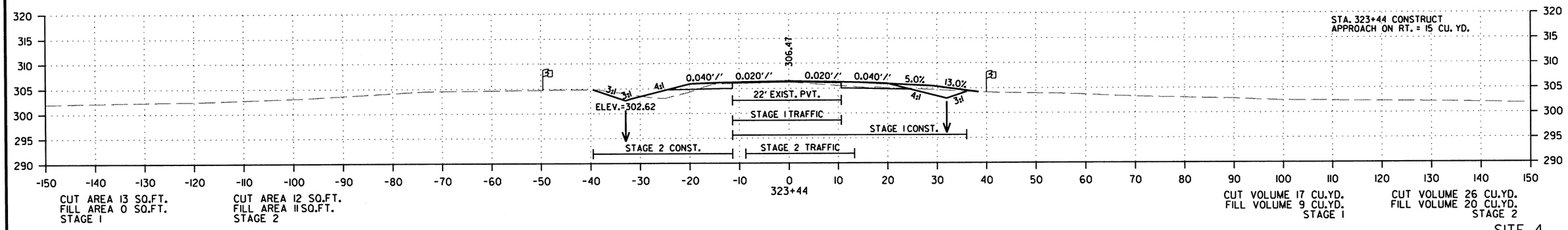
R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	225	226

(2) CROSS SECTIONS







SITE 4
STA. 323+44 TO STA. 324+51

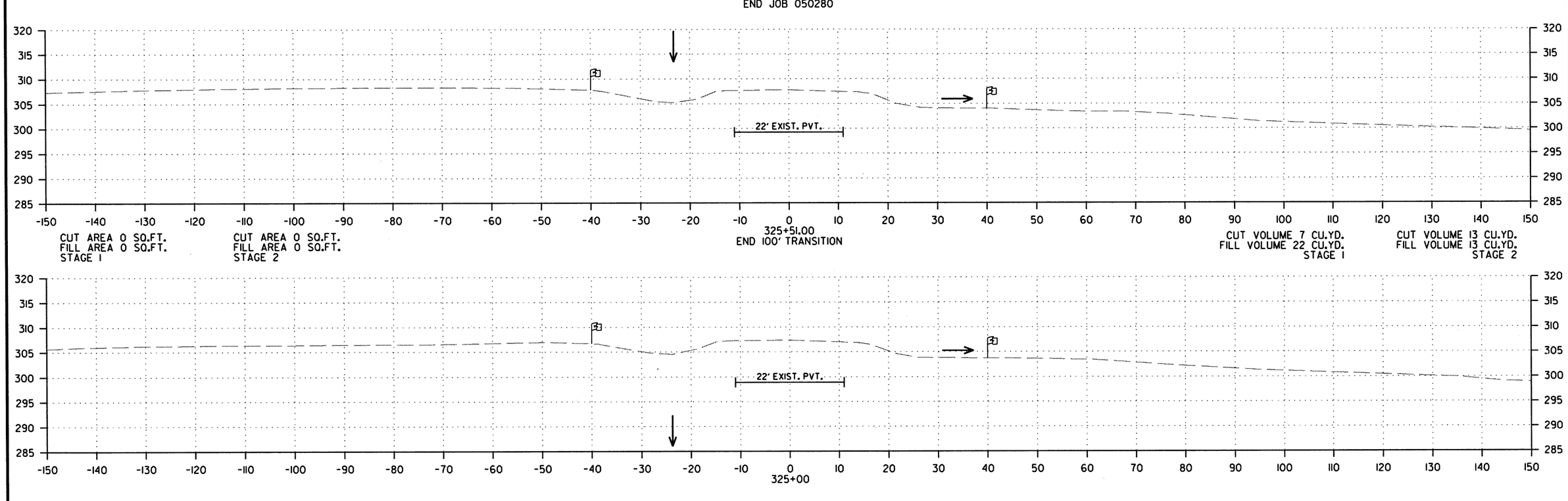
7/9/2009

R050280.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050280	226	226

(2) CROSS SECTIONS

LOG MILE 17.07
END JOB 050280



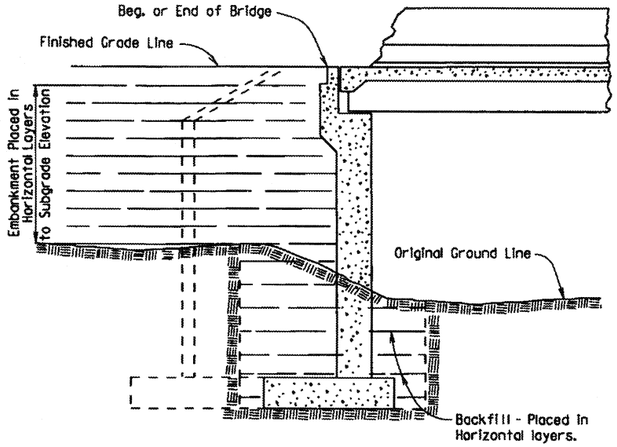
SITE 4
STA. 325+00 TO STA. 325+51

7/9/2009

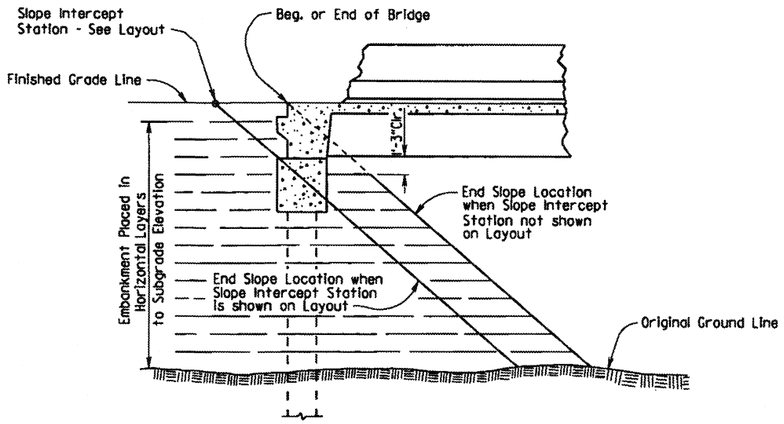
R050280.DGN

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

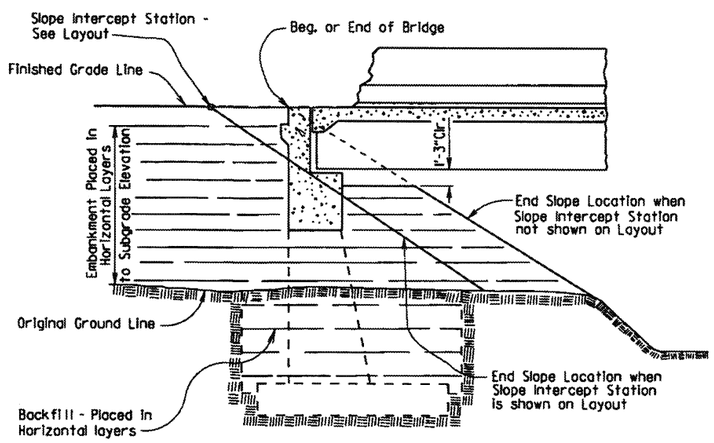
① EMBANKMENT & BACKFILL 55000



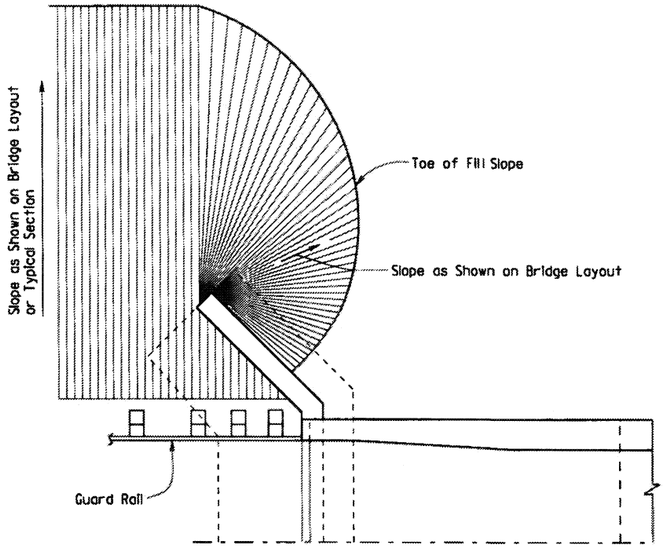
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



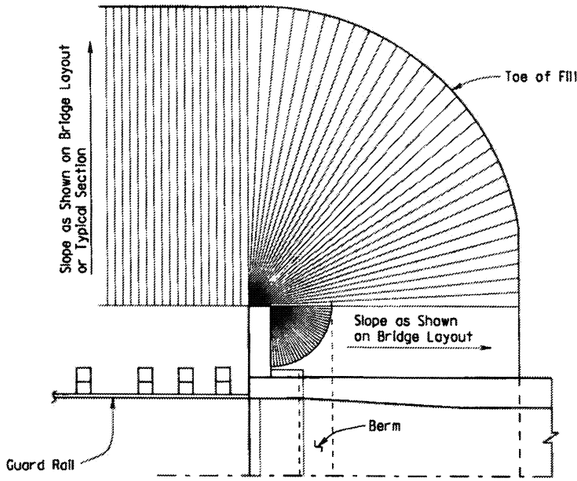
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



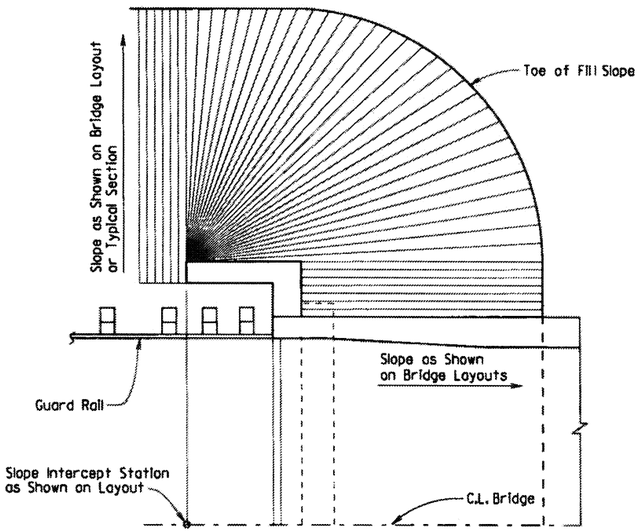
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING

SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

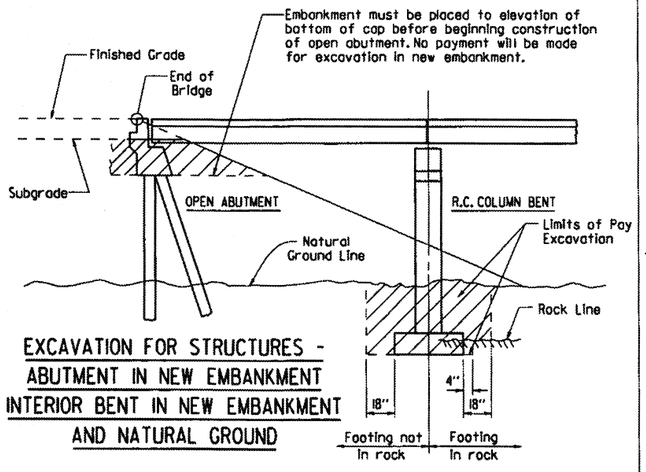
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

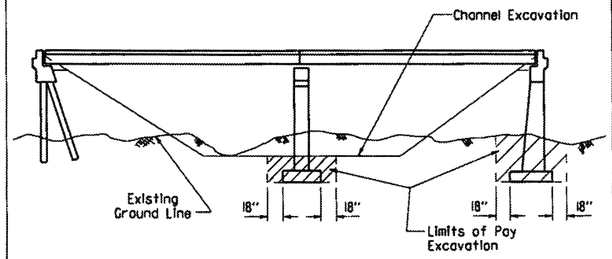
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

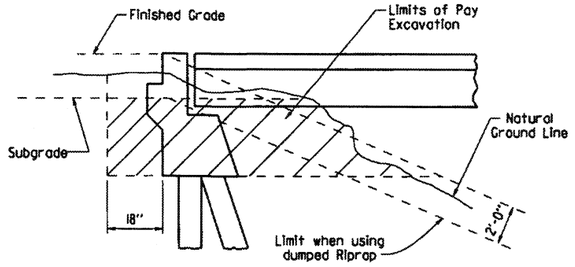
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				(1) RIPRAP & EXCAV. 55001				



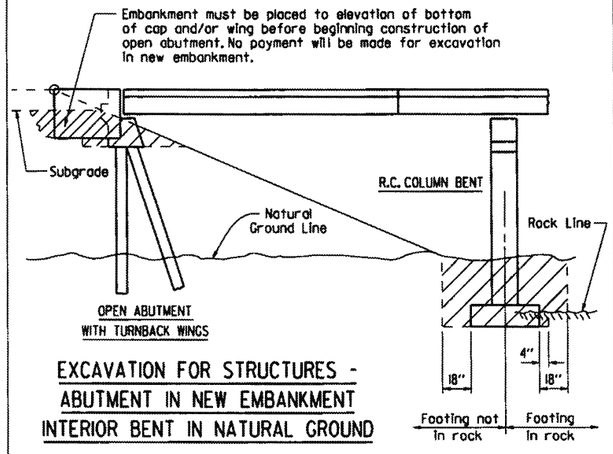
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



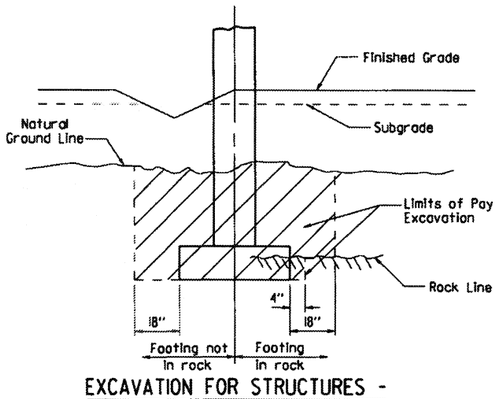
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



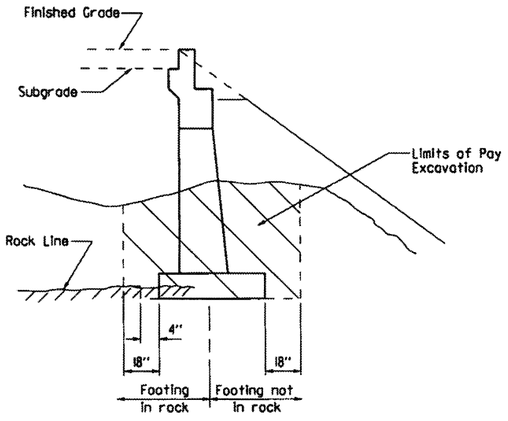
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



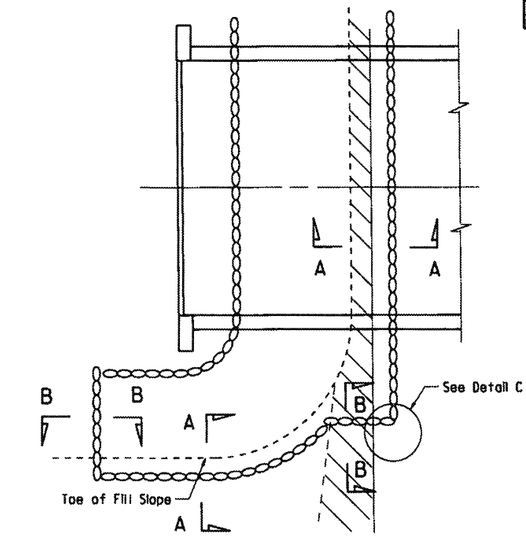
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



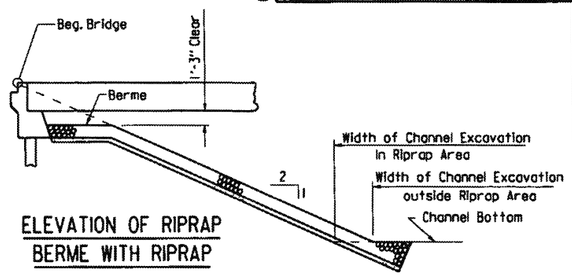
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



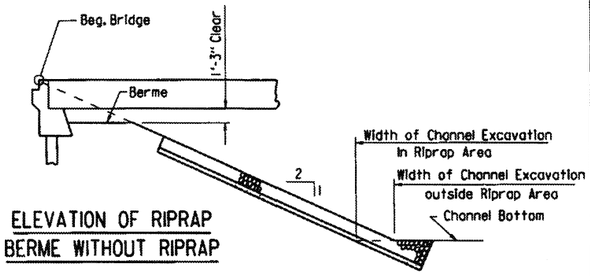
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



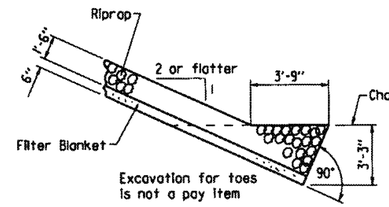
PLAN OF DUMPED RIPRAP



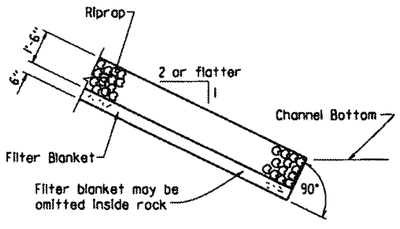
ELEVATION OF RIPRAP BERME WITH RIPRAP



ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION A-A
(Toe Excavation in Soil)

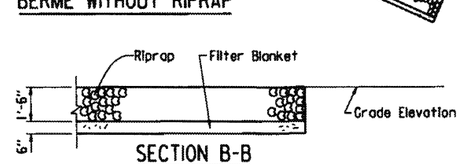


SECTION A-A
(Toe Excavation in Rock)

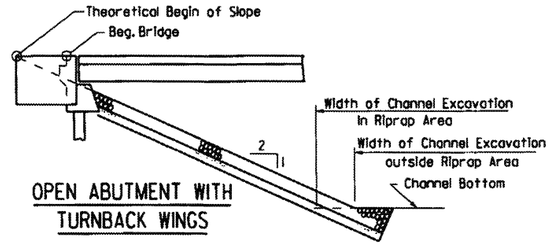
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

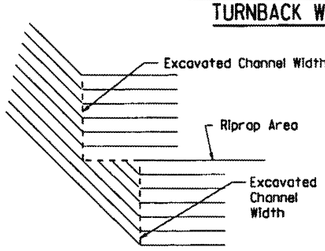
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

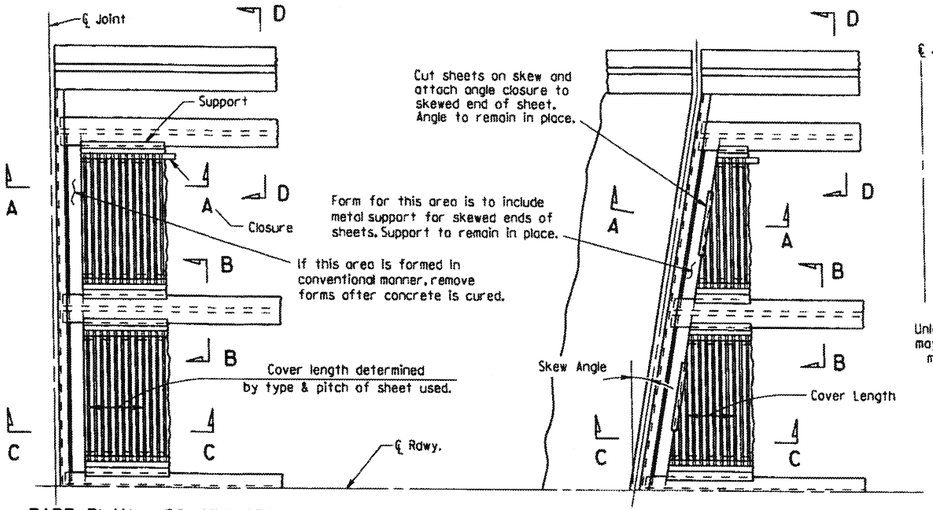
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				

① BRIDGE DECK FORMS 55005

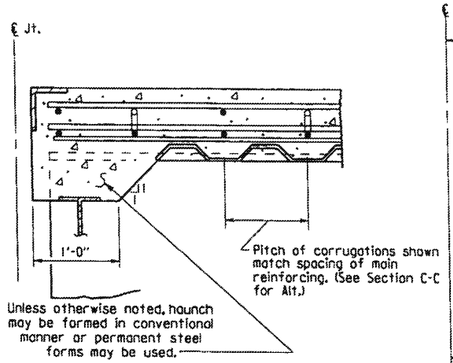


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

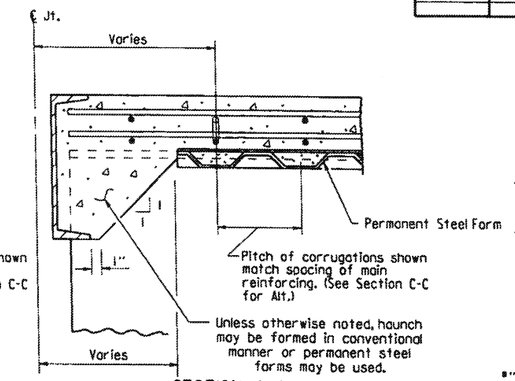
3/8" = 1'-0"



SECTION A-A

N.T.S.

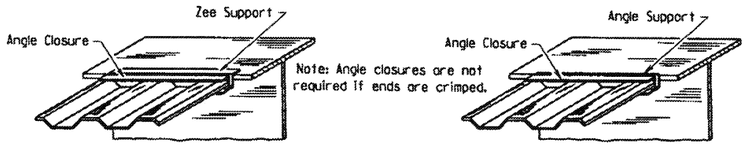
(Angle at end of span)



SECTION A-A

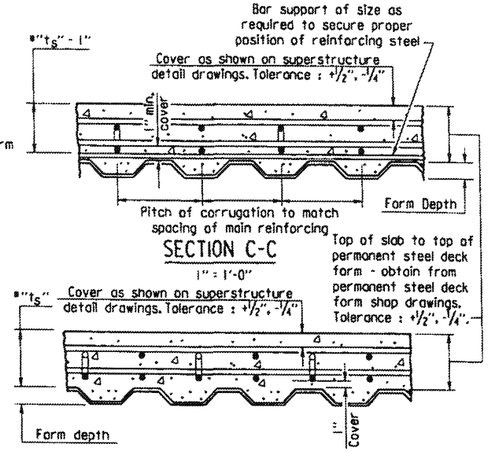
N.T.S.

(Channel at end of span)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.



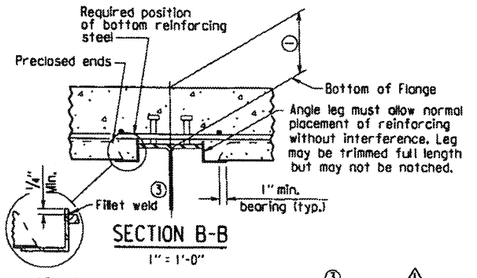
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

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

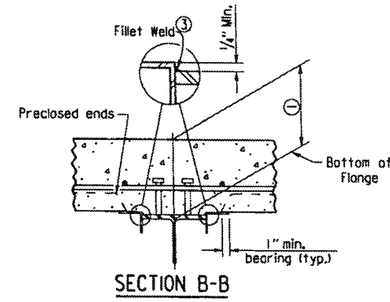


SECTION B-B

1" = 1'-0"

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

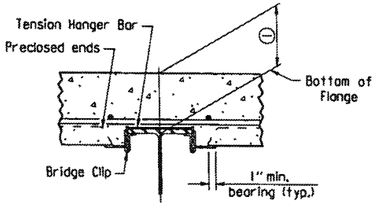
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

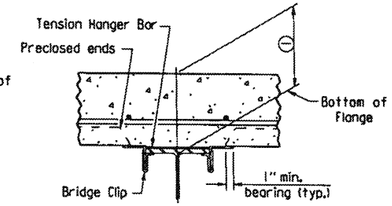
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

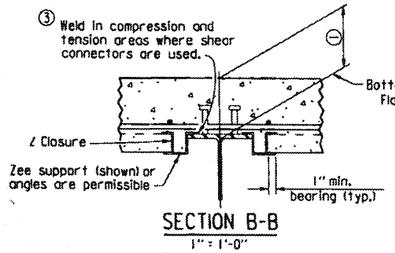
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

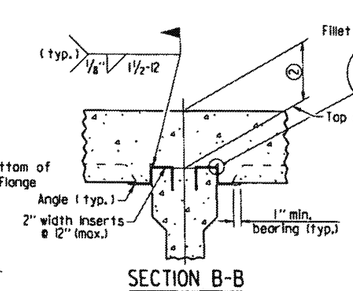
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

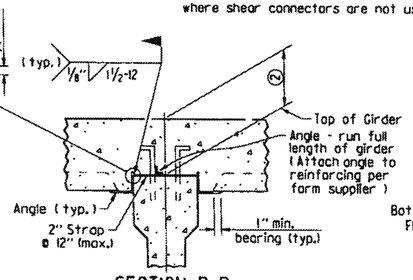


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

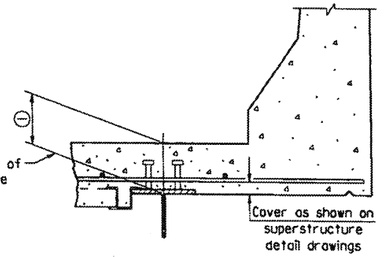


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

⚠ Revised weld dimension by KWY. Ck'd. by BEF, 3/24/16.

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	GENERAL NOTES		55006	

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy =	70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

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

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

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

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

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

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

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 15/16" ø open holes. Holes for ¾" ø high-strength bolts may be 15/16" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

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

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

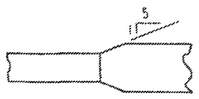
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

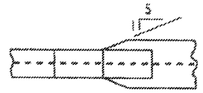
PRINT DATE: 9/21/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			

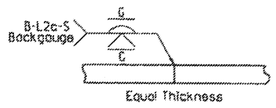


Plan-Unequal Width (Fig.)

FLANGE SPLICE

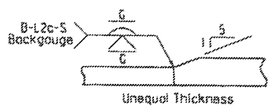


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

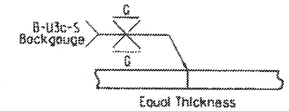
WEB & FLANGE SPLICE



Unequal Thickness

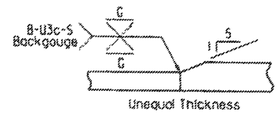
FLANGE SPLICE

(Use when Base Metal Thickness is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

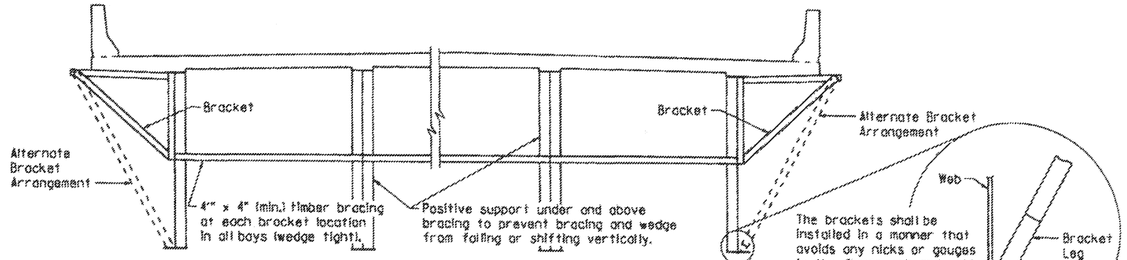


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness is Greater than 2")

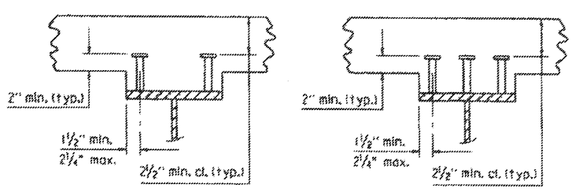
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (____)".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)

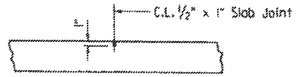


2 STUDS PER ROW

3 STUDS PER ROW

Stud Shear Connectors shall be automatically and welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

SHEAR CONNECTOR DETAIL



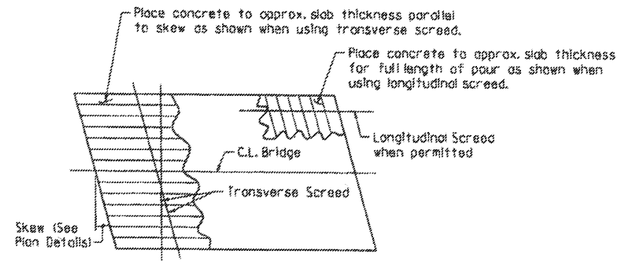
Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of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

ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL

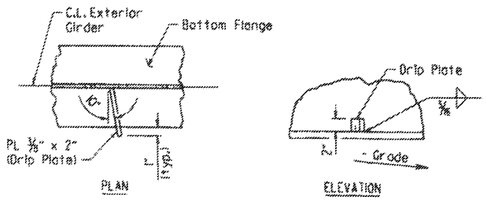
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



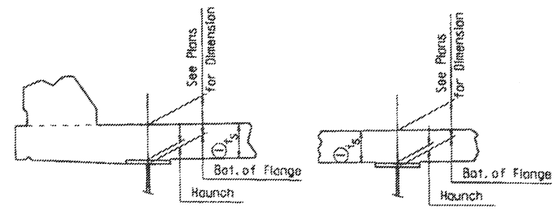
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER

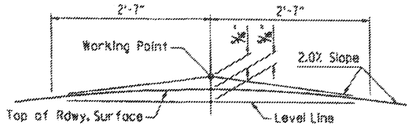
INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅜"	

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

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AWS DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14		1-15-19		6	ARK.			
1-14-15				JOB NO.				
1-17-17				TYPE D NAME PLATE		55010		

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

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

21½"

LINE 1
LINE 2
LINE 3

Center of Cast Lug

2½"

ARKANSAS HIGHWAY COMMISSION
TOM SCHUECK - CHAIR
ROBERT S. MOORE, JR. - VICE CHAIR
DALTON A. "ALEC" FARMER, JR.
PHILIP TALDO
KEITH GIBSON
DIRECTOR - SCOTT E. BENNETT
DEPUTY DIRECTOR/CHIEF OPERATING OFFICER - LORIE H. TUDOR
DEPUTY DIRECTOR/CHIEF ENGINEER - EMANUEL BANKS

CONTRACTOR
COMPANY NAME
YEAR

XXXXX

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE

Face of Concrete

Alternate attachments may be used provided such attachments are submitted and approval secured before fabrication is begun.

1/2" (Typ.)

13"

8"

1/4"

3/16"

2"

1/8"

3/8"

GENERAL NOTES

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

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 5/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

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

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

4 Revised Chair and Vice Chair
Added New Commissioner
1-15-19 CGP Checked By: CRE

3 Added New Commissioner
1-17-17 KDH Checked By: CRE

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

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

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014
CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE: —

FILENAME: b55010.dgn
SCALE: NO SCALE

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

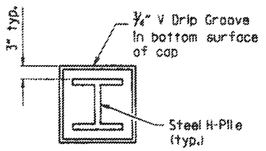
GENERAL NOTES FOR STEEL H-PILES:

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

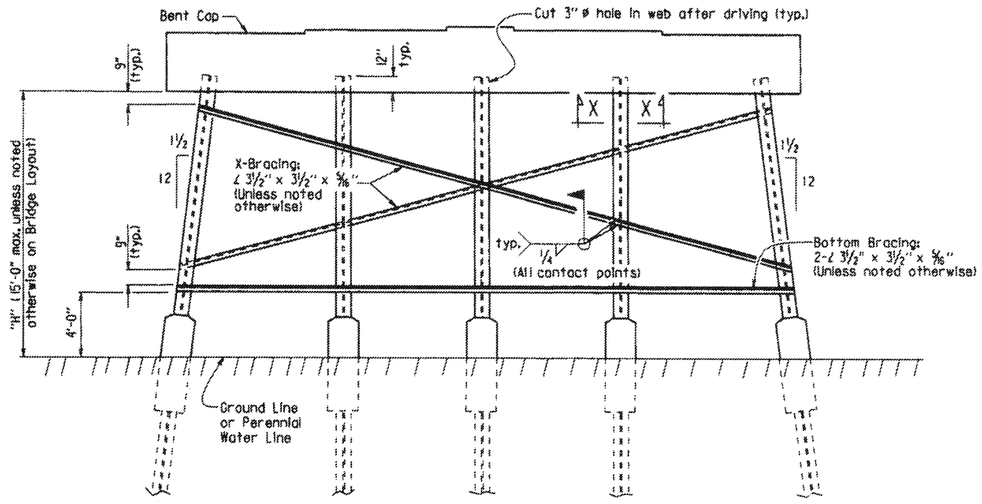
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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



VIEW X-X



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

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

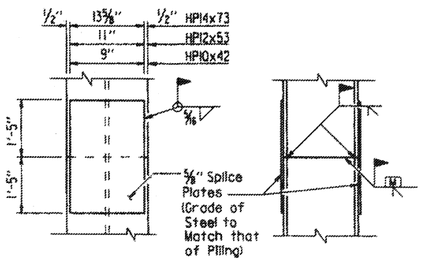
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



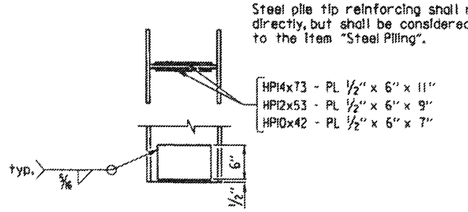
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a ⅝" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifcations for Highway Construction (2014 Edition).

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

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



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

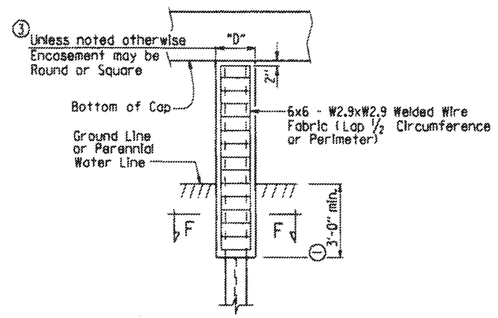
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

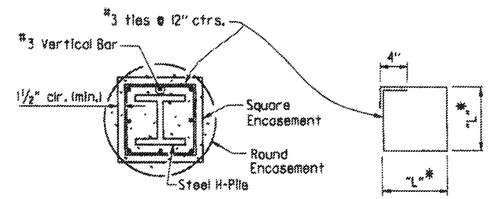
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

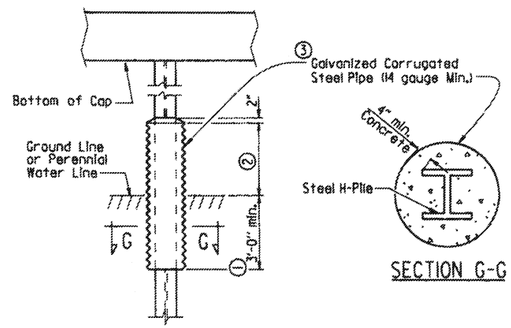


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

① Unless otherwise noted on Bridge Layout.

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

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

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

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

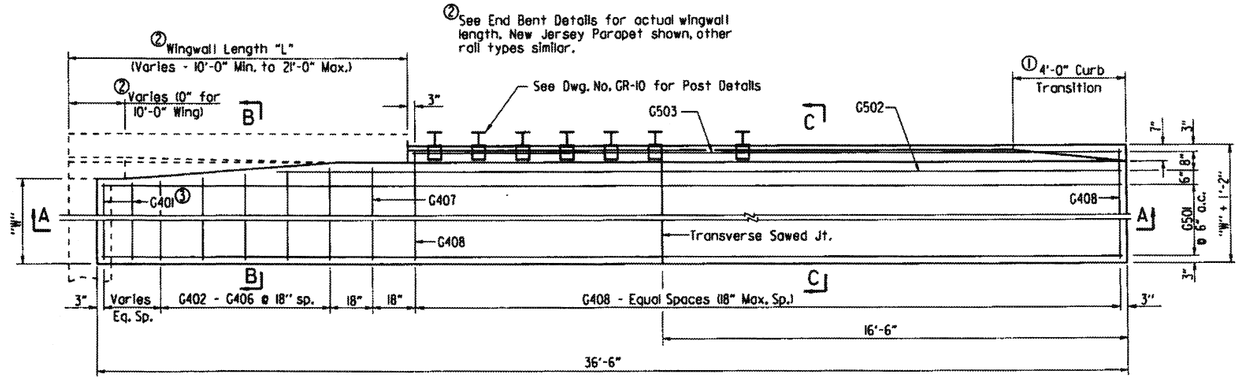
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55020

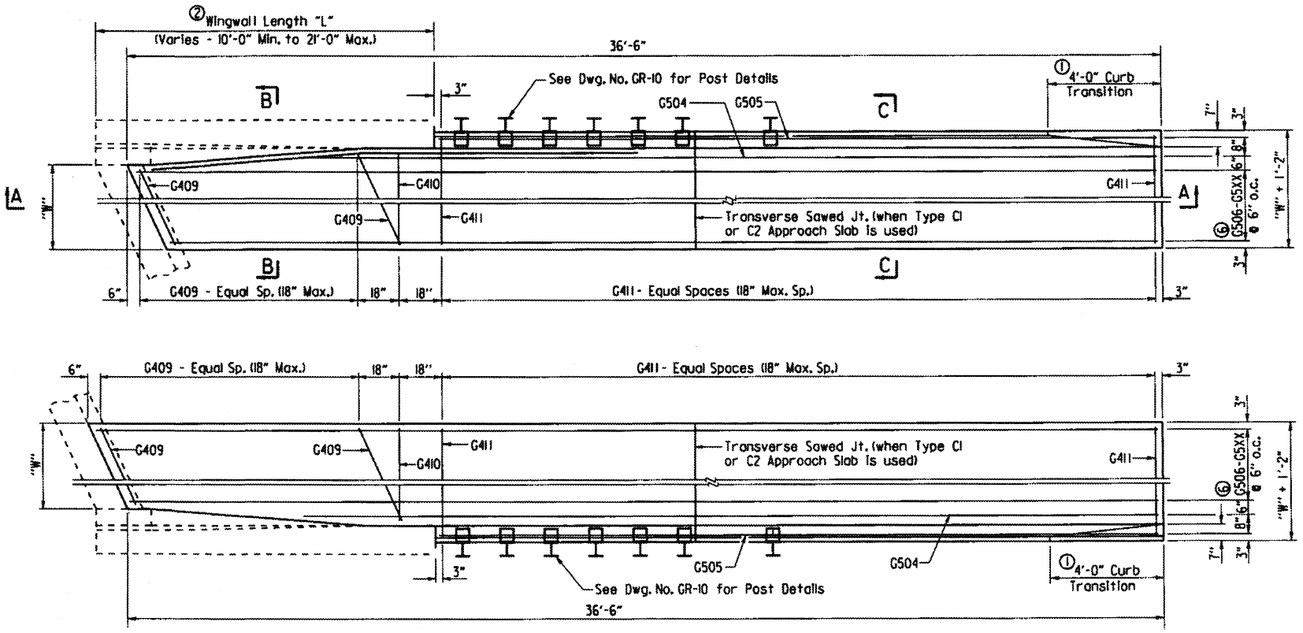
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE C GUTTERS		55030C	



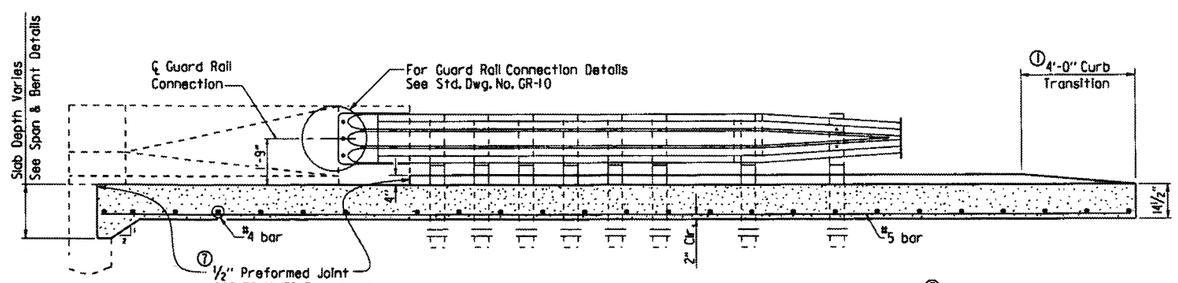
② See End Bent Details for actual wingwall length. New Jersey Parapet shown, other rail types similar.

③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



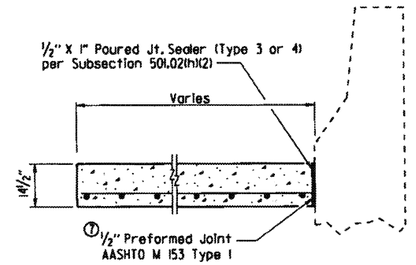
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION A-A

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

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



SECTION B-B
N.T.S.

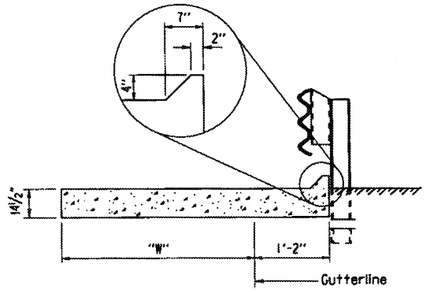
BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W" - 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④ No. Req'd. varies with Skew and Wingwall Length.

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'



SECTION C-C
N.T.S.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER
(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

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

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

⑦ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

GENERAL NOTES

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

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

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

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ¾" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

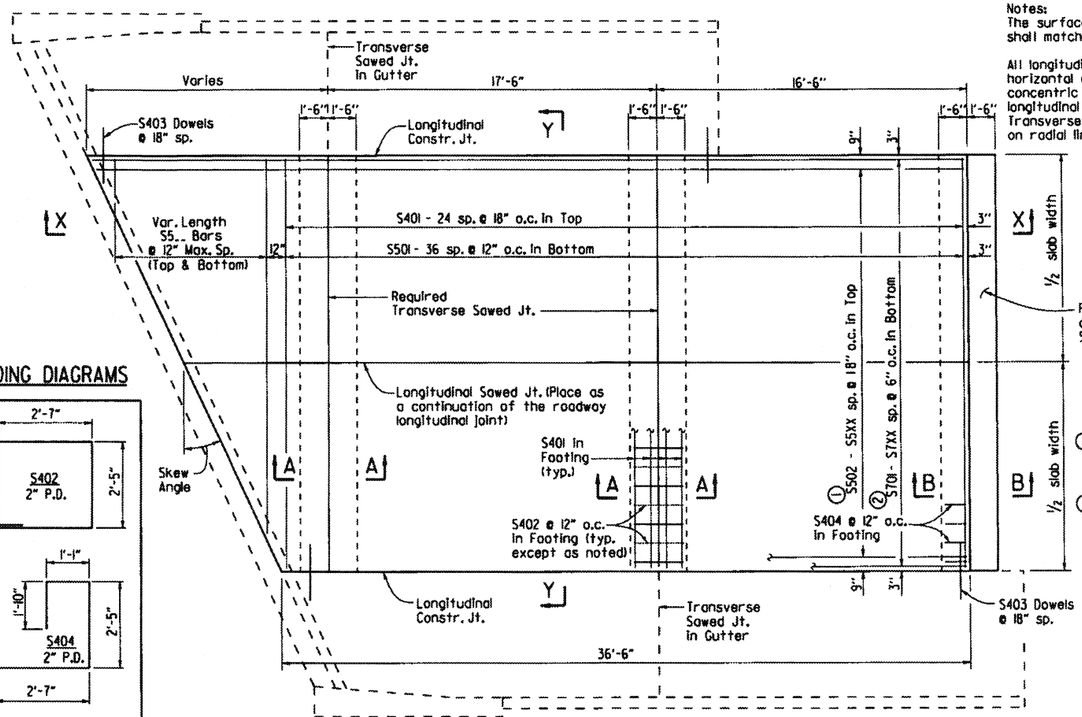
DRAWING NO. 55030C

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.				

TYPE C2 APPROACH SLAB 55040C2

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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

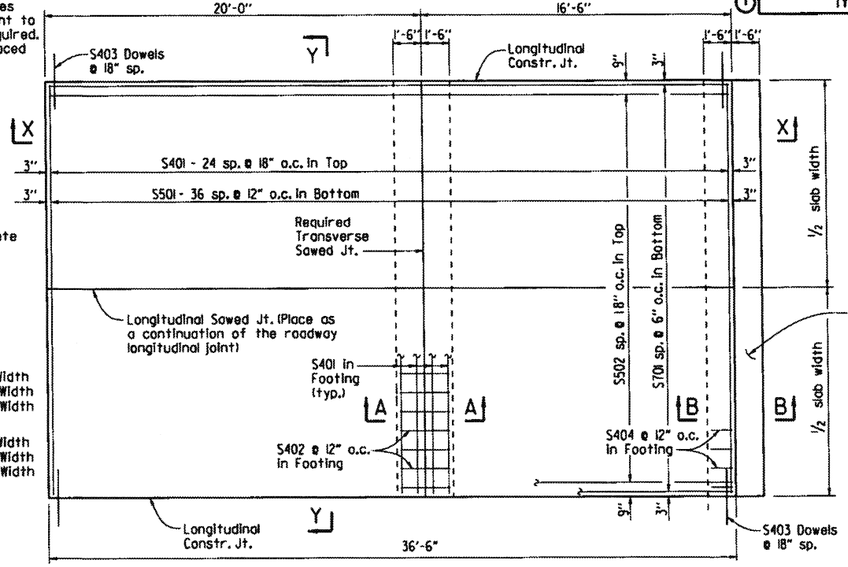


PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"

① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

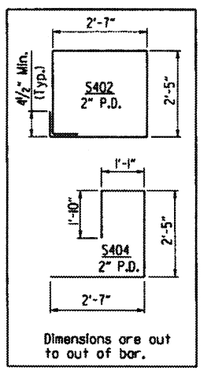
② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width



PLAN - SQUARE APPROACH SLAB

¼" = 1'-0"

BENDING DIAGRAMS



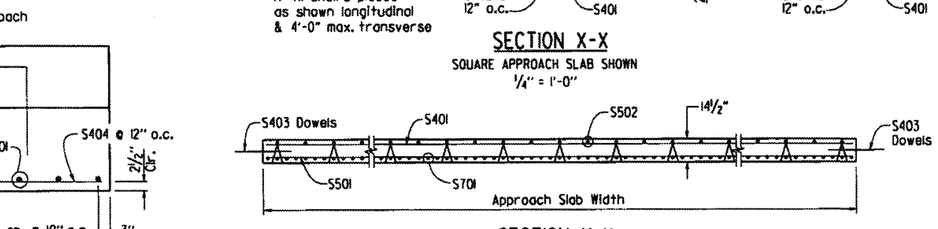
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	15	10'-4"	30	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	15	7'-8"	15	7'-8"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan skew angle)
	S5..	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 14.75'(tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	24	10'-4"	48	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	24	7'-8"	24	7'-8"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 23.25'(tan skew angle)
	S5..	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	36	10'-4"	72	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	36	7'-8"	36	7'-8"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 35.25'(tan skew angle)
	S5..	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 35.75'(tan skew angle)

*Varies with skew angle



SECTION X-X

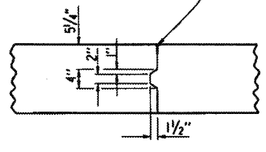
SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"

SECTION Y-Y

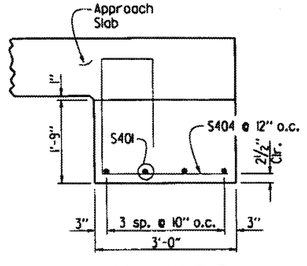
N.T.S.

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"

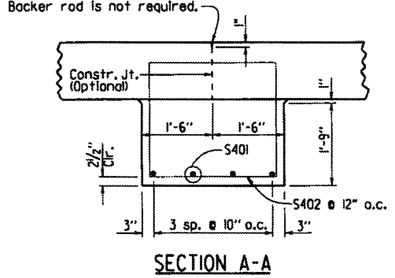


SECTION B-B

AT ASPHALT APPROACH PAVEMENT

N.T.S.

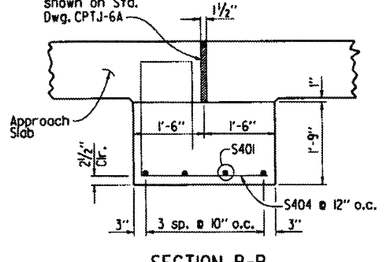
½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION A-A

N.T.S.

Seal expansion joint according to details shown on Std. Dwg. CPTJ-6A



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3765	30.75
24'-0"	5980	49.15
36'-0"	8925	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

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

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

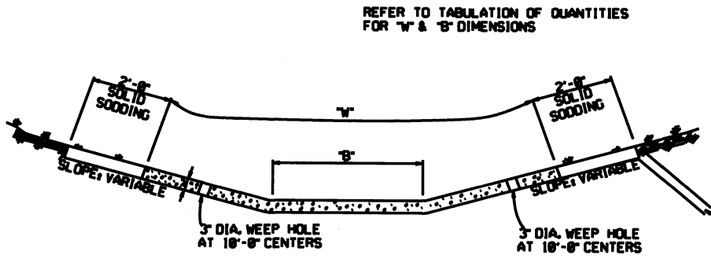
STANDARD DETAILS FOR TYPE C2 APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

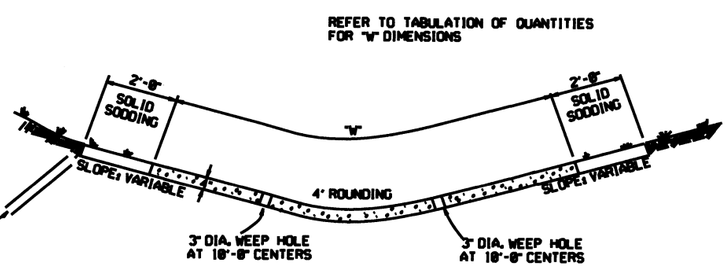
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040c2.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040C2



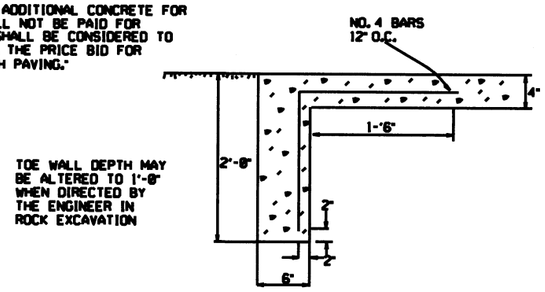
TYPE A



TYPE B

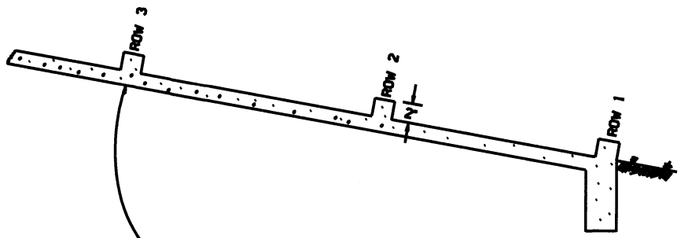
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

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 DEPTH MAY BE ALTERED TO 1'-6" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

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.

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.

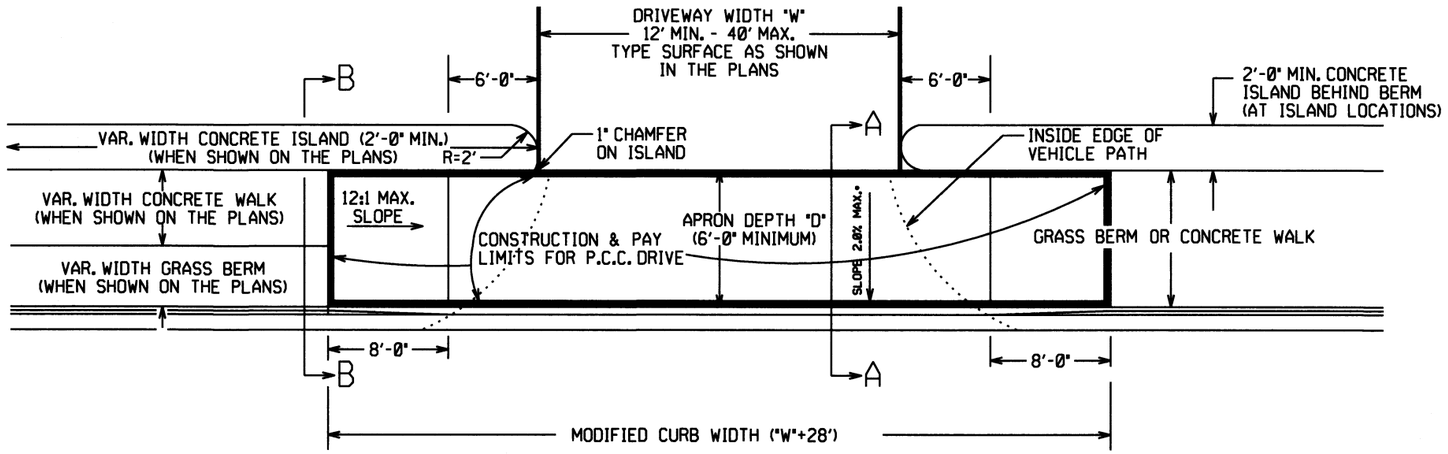
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-89	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	883-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	871-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	832-1-9-87
1-3-86	ADDED NOTE TO ENERGY DISS.	799-1-3-86
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

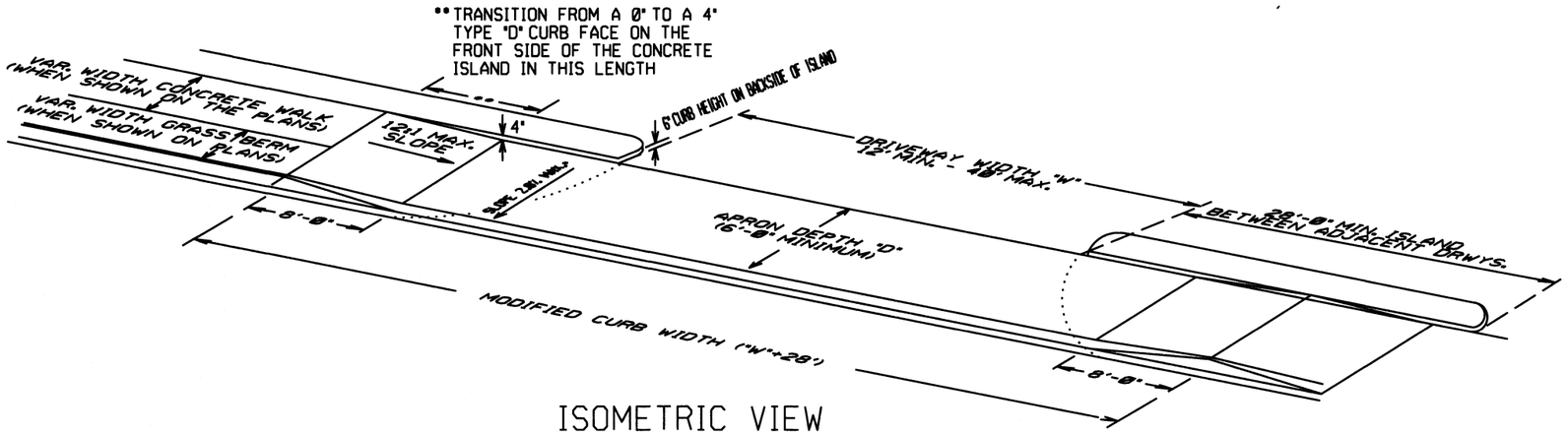
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

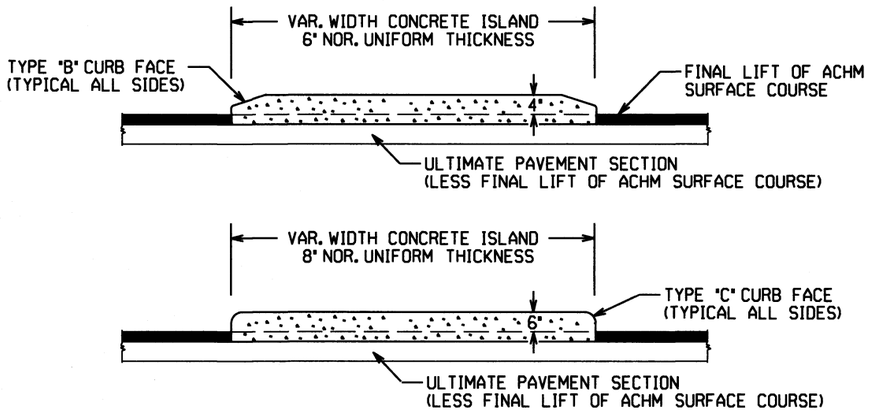
STANDARD DRAWING CDP-1



PLAN VIEW

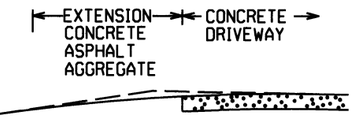


ISOMETRIC VIEW



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

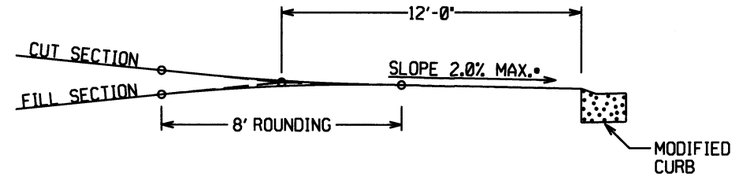
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

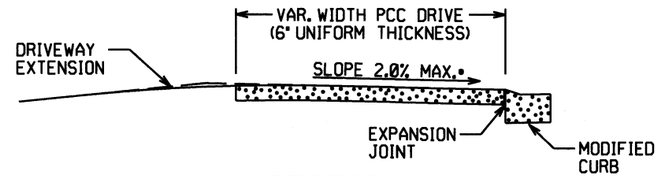
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

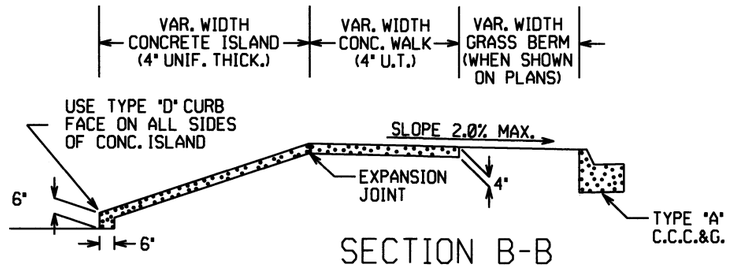


DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A



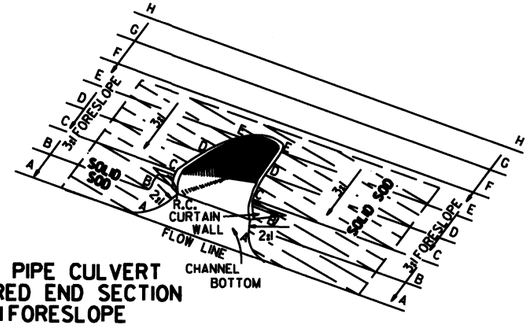
SECTION B-B
CURBED ISLAND BEHIND WALK

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

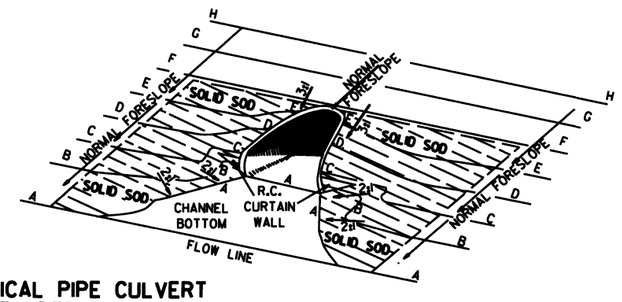
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

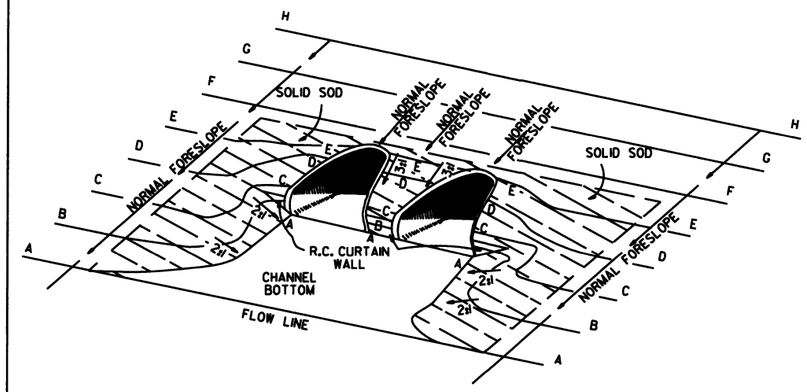
STANDARD DRAWING DR-1



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

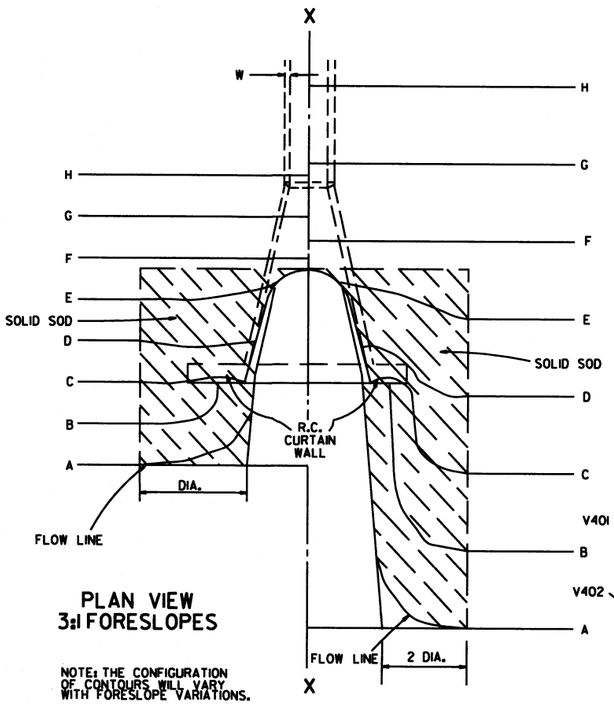
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"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

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

REINFORCING STEEL SCHEDULE

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

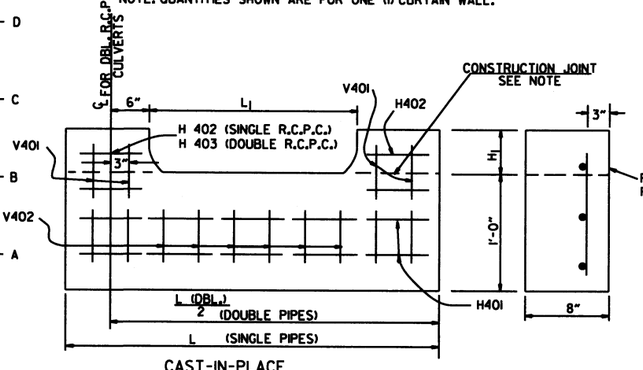
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

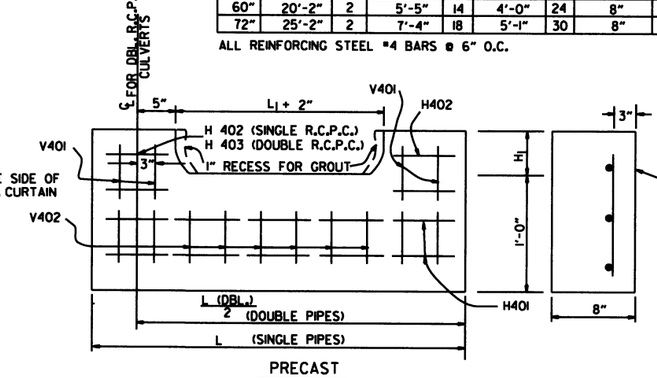
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

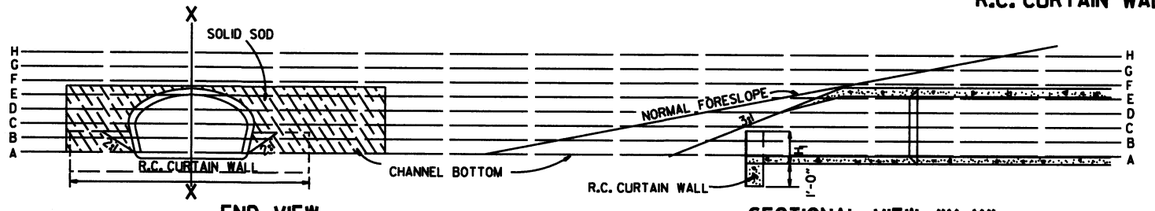
SOLID SODDING

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

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

GENERAL NOTES

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



END VIEW

SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	CORRECTED SPELLING	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
5-2-80	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

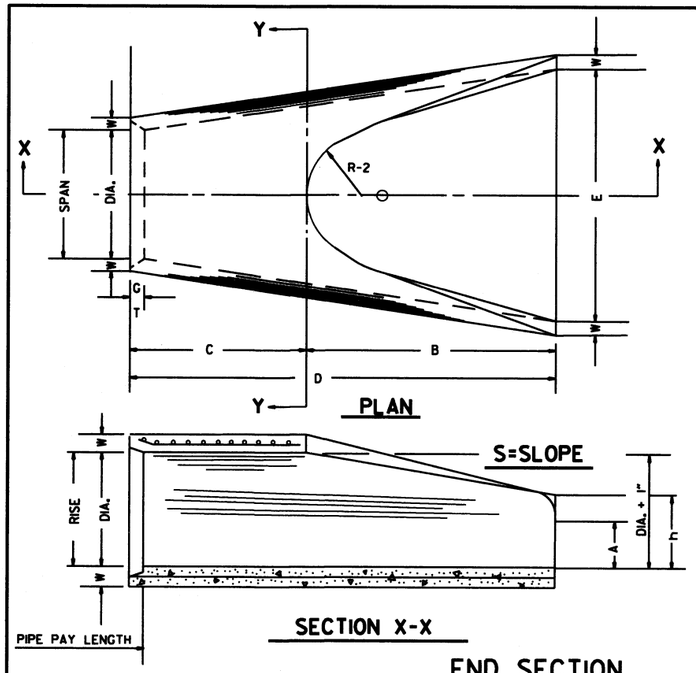


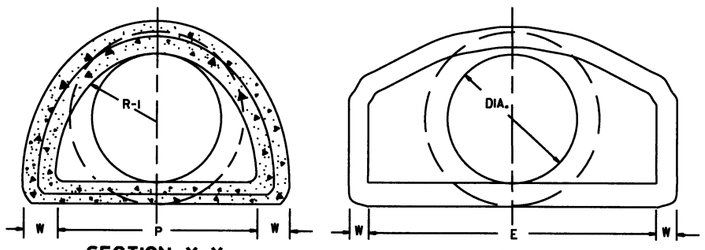
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + I"	P	R-I	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3±I	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3±I	25"	33⅜"	16⅝"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7⅜"	6'-1¾"	5'-0"	3±I	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3±I	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3±I	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3±I	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3±I	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3±I	61"	72½"	36⅝"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3±I	73"	77⅝"	38⅝"	24"	5"	13250	4'-6"

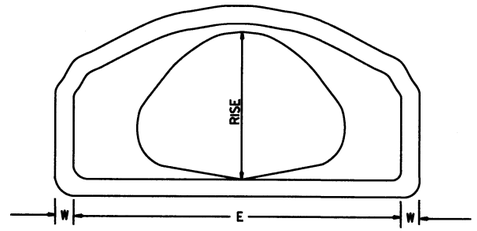
ARCH PIPE

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±I
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½±I
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½±I
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅝"	15"	2½"	2½±I
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅝"	20"	3"	2½±I
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½±I
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½±I
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½±I
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2½±I
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅝"	24"	5"	2½±I

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

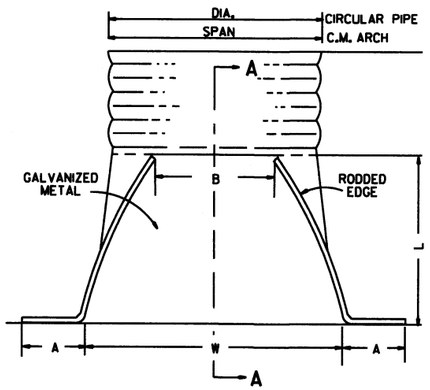


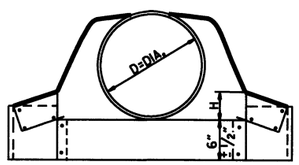
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION



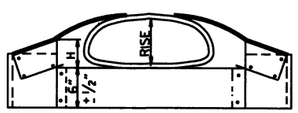
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

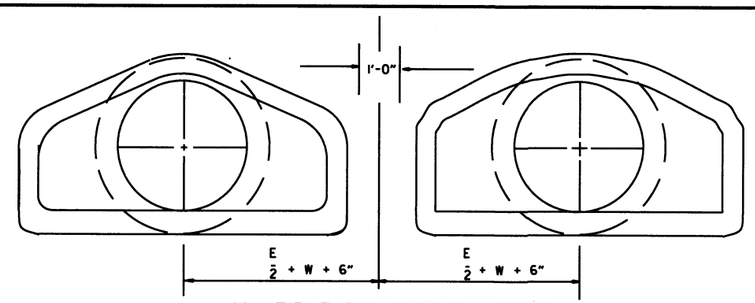
D. DIA.	GAUGE	A I" ±	B. MAX.	H I" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½±I
15	16	7	8	6	26	30	2½±I
18	16	8	10	6	31	36	2½±I
21	16	9	12	6	36	42	2½±I
24	16	10	13	6	41	48	2½±I
30	14	12	16	8	51	60	2½±I
36	14	14	19	9	60	72	2½±I
42	12	16	22	11	69	84	2½±I
48	12	18	27	12	78	90	2½±I
54	12	18	30	12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

C.M. ARCH PIPE

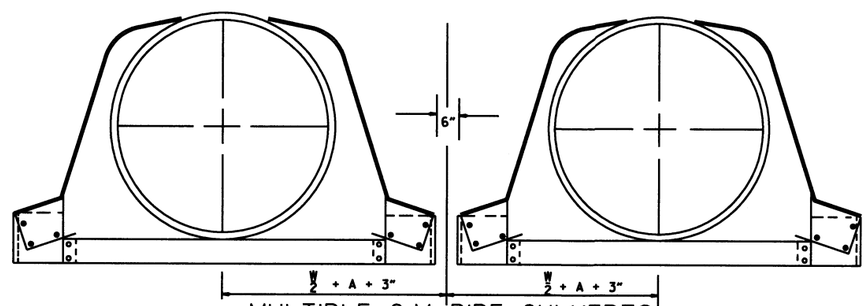
EQUIV. DIA.	SPAN	RISE	A I" ±	B MAX.	H I" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½±I	16
18"	21	15	7	10	6	23	36	2½±I	16
21"	24	18	8	12	6	28	42	2½±I	16
24"	28	20	9	14	6	32	48	2½±I	16
30"	35	24	10	16	6	39	60	2½±I	14
36"	42	29	12	18	8	46	75	2½±I	14
42"	49	33	13	21	9	53	85	2½±I	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



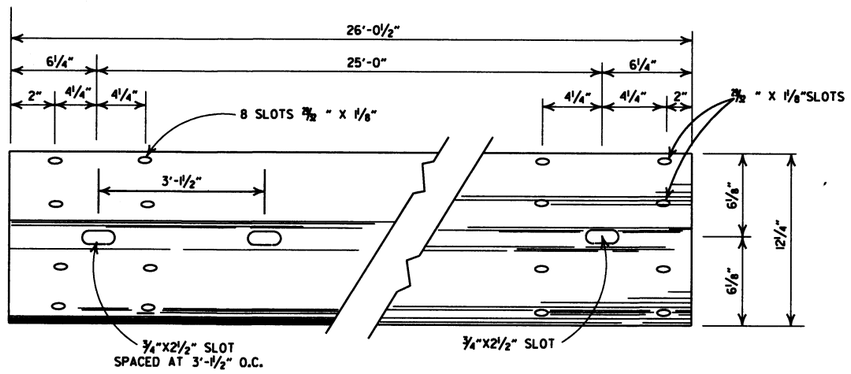
MULTIPLE C.M. PIPE CULVERTS

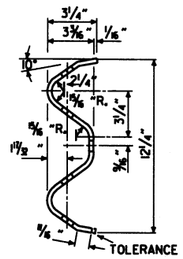
DATE	REVISION	BY/MED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

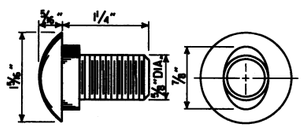
STANDARD DRAWING FES-2



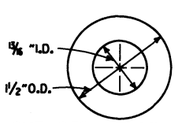


DETAILS OF W-BEAM GUARD RAIL

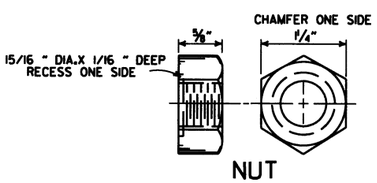
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



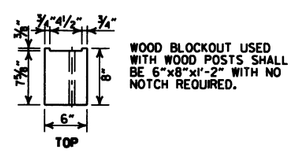
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



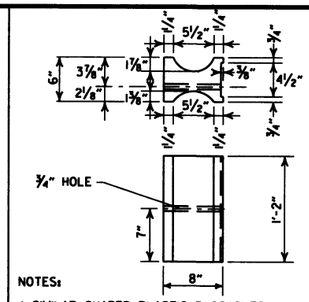
CUT STEEL WASHER



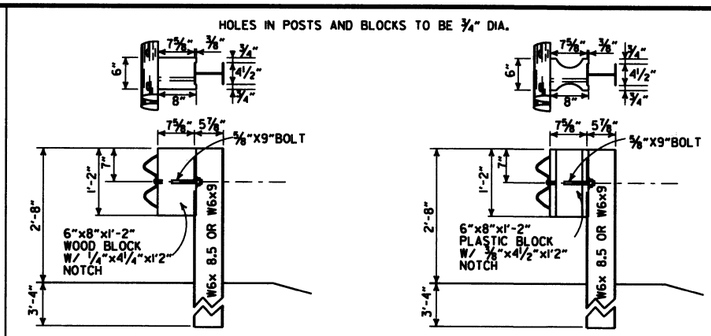
NUT



WOOD BLOCKOUT (W-BEAM)



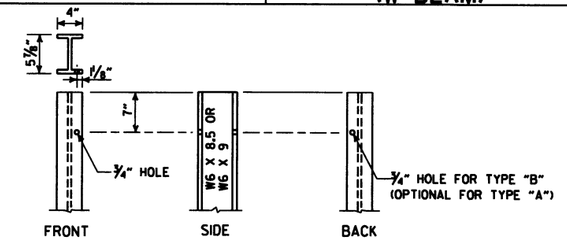
PLASTIC BLOCKOUT (W-BEAM)



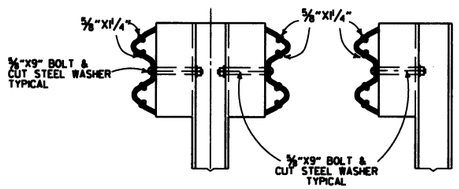
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

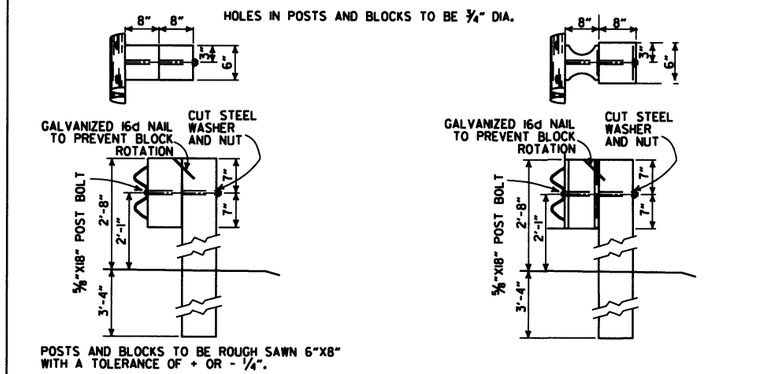
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

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

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

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

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



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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

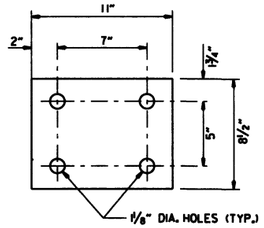
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	FILMED
11-16-17	REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST ,ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87

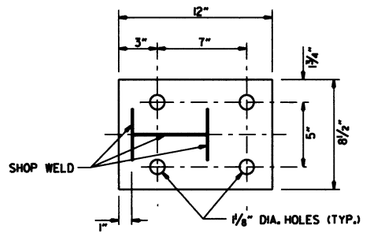
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

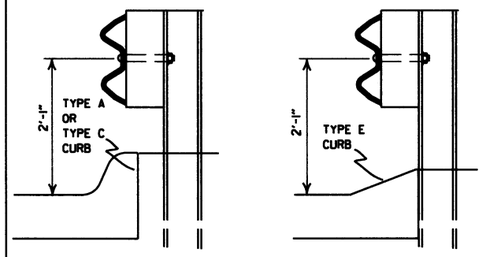


WASHER PLATE



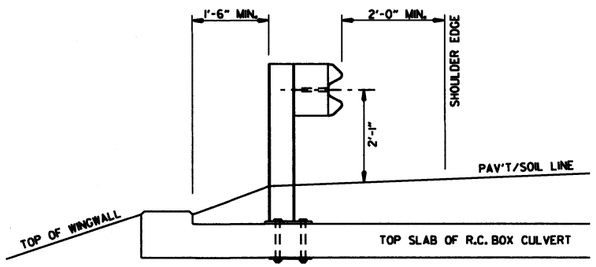
BASE PLATE

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

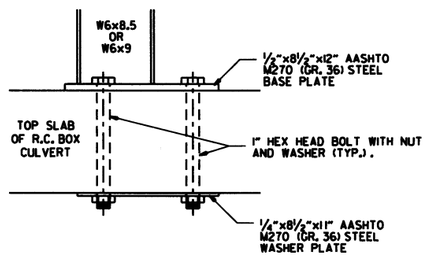


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

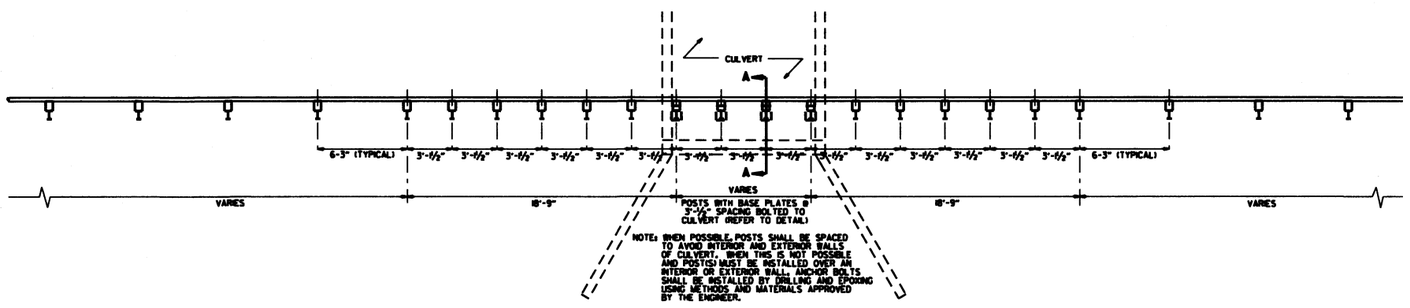
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



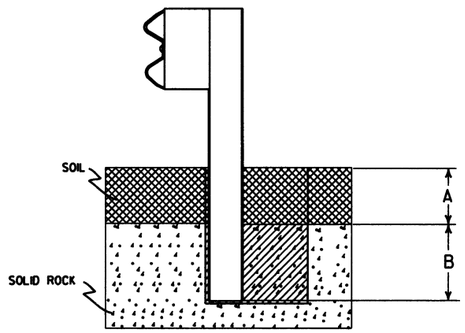
DETAIL OF CONNECTION



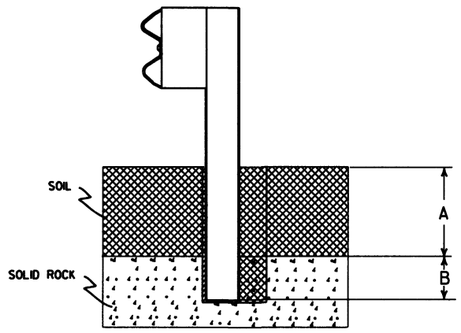
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

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

Case 1

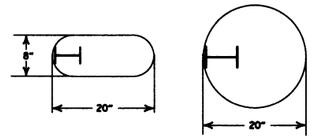


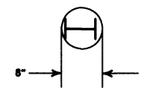
Case 2



Plan View Steel Posts

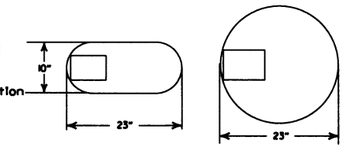
Either hole configuration acceptable

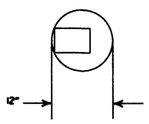




Plan View Wood Posts

Either hole configuration acceptable





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

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

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

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

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

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

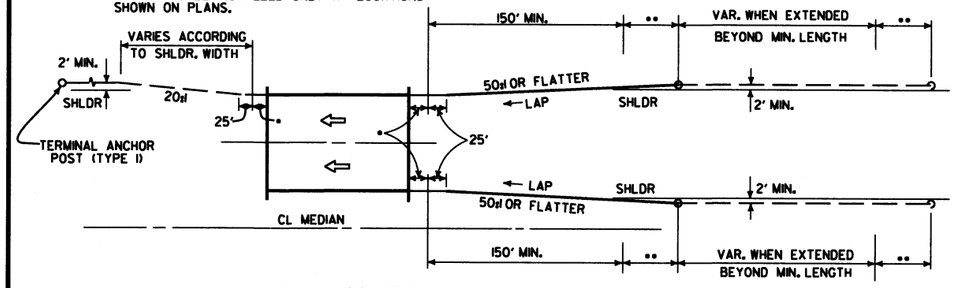
DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
04-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

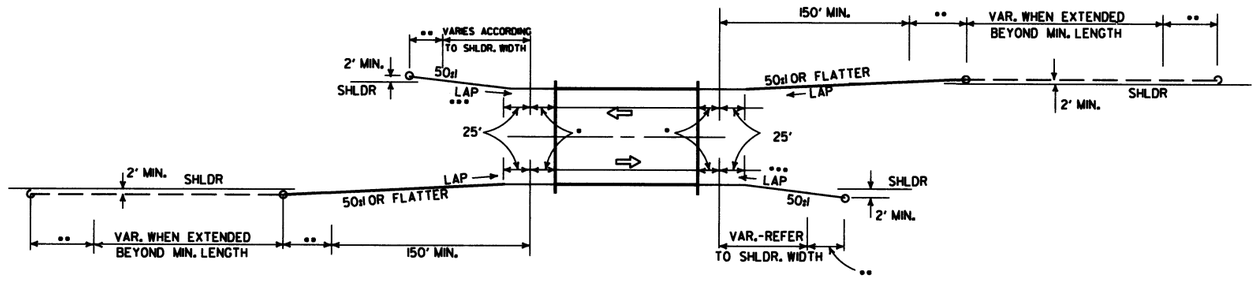
STANDARD DRAWING GR-8A

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



ONE-WAY TRAFFIC

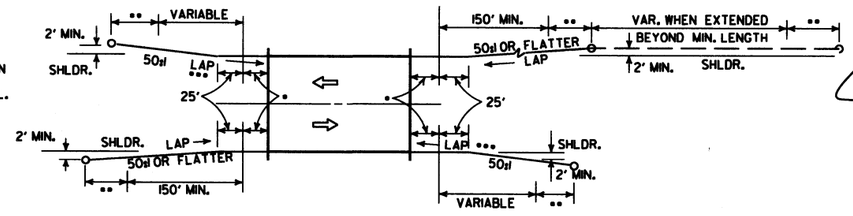
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

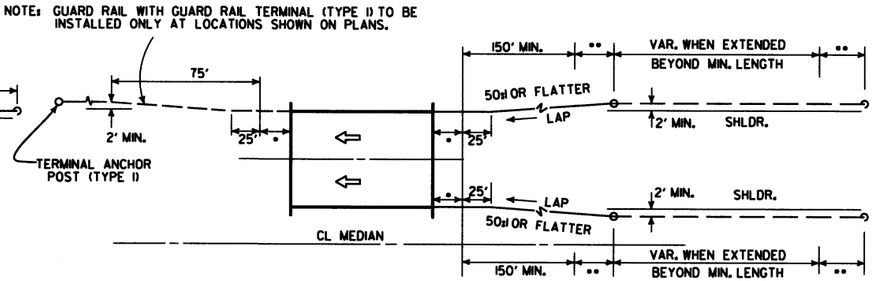
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

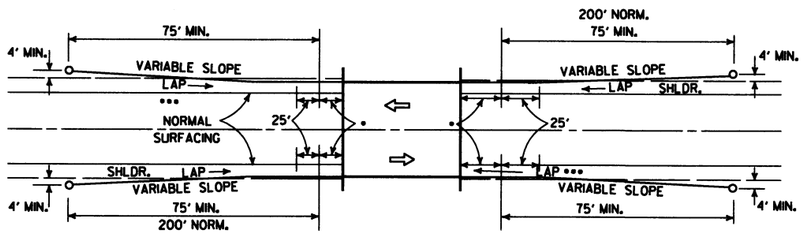
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



LEGEND

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

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

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

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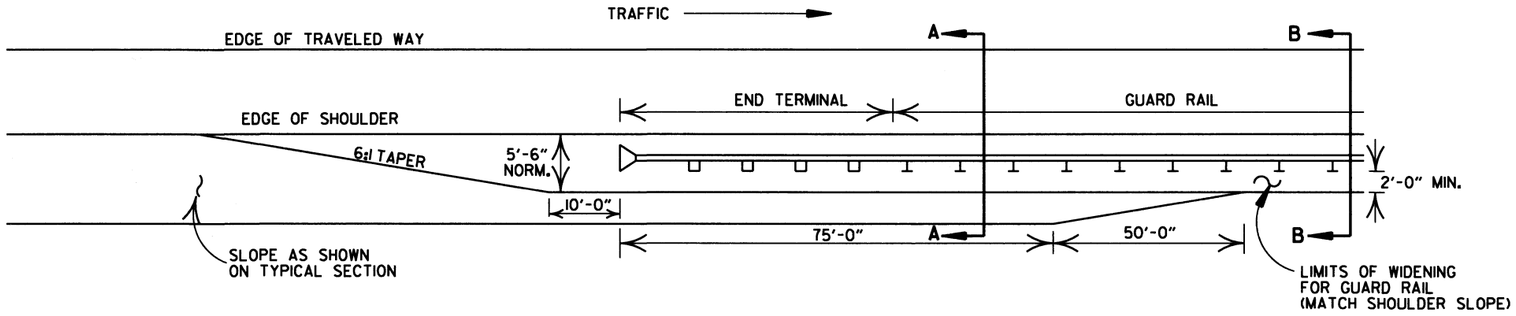
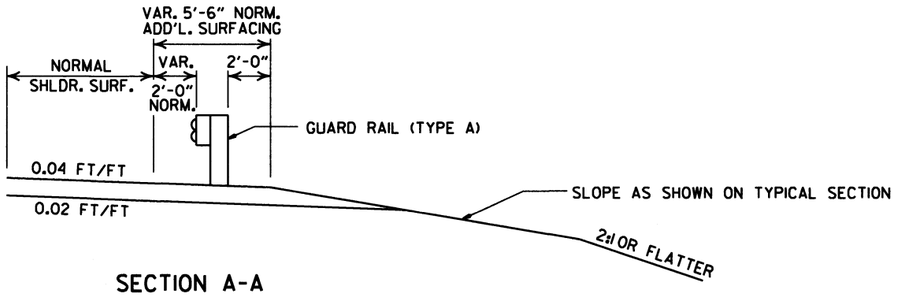
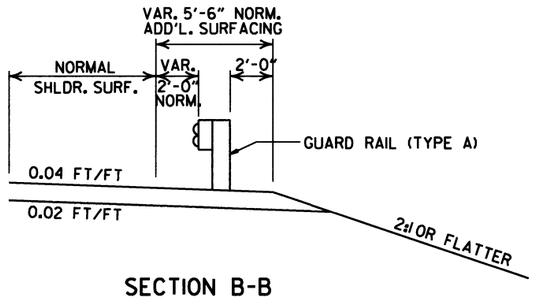
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





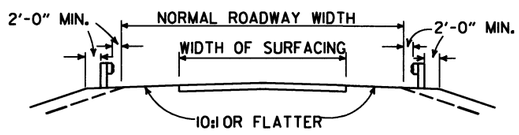
SECTION A-A



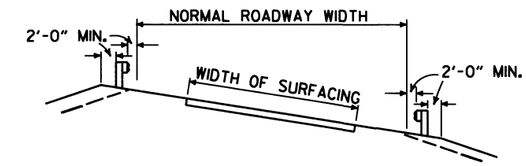
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

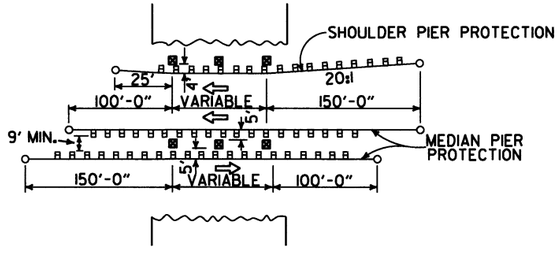


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



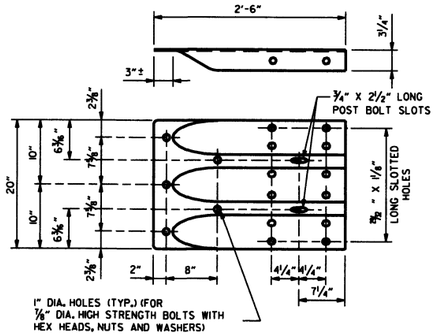
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

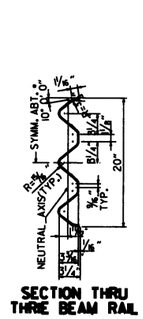
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

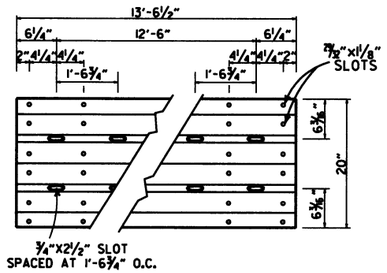
STANDARD DRAWING GR-9A



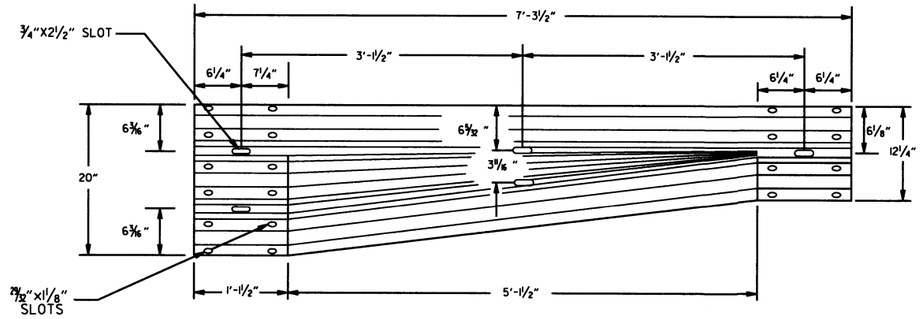
SPECIAL END SHOE



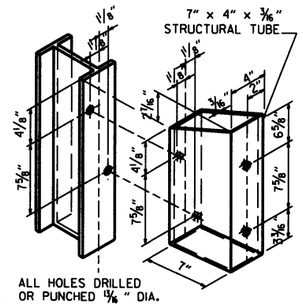
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL



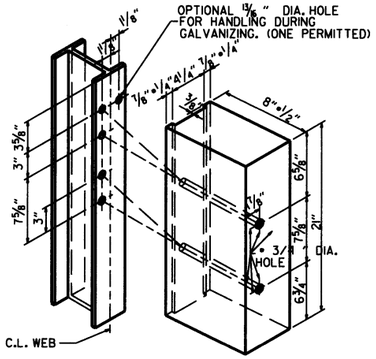
TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING 5/8" DIA. HEX HEAD BOLTS WITH 1 1/2" O.D. CUT STEEL WASHERS AND NUT.

ALL HOLES DRILLED OR PUNCHED 13/16" DIA.

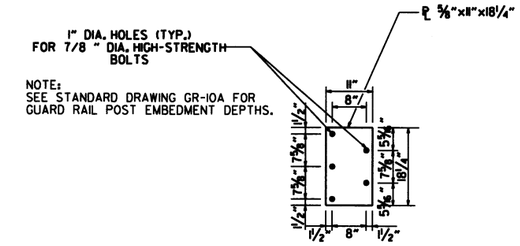
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

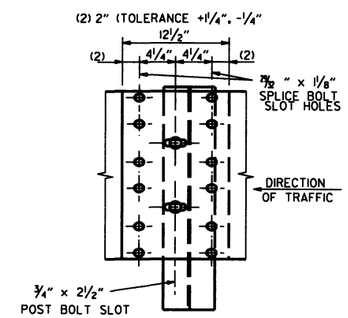
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



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

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 7/8" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

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

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

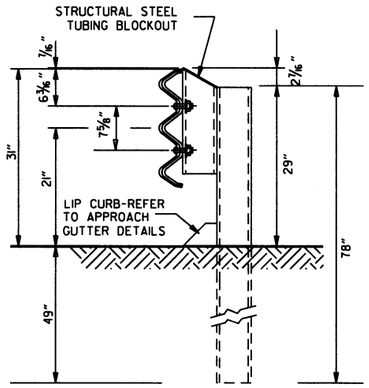
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

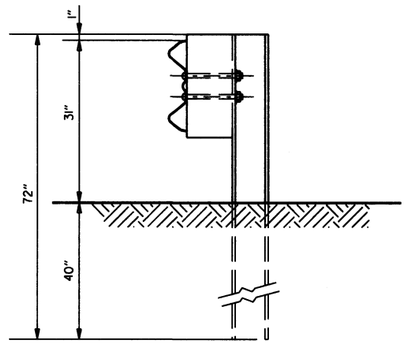
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

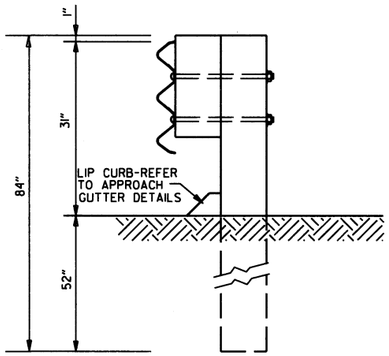
STANDARD DRAWING GR-10



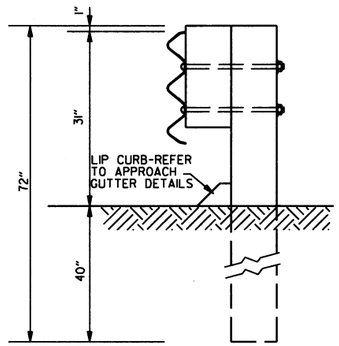
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



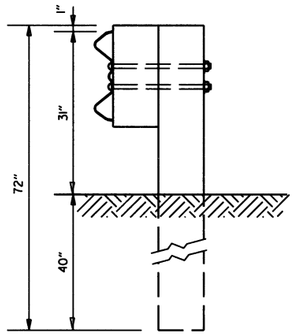
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

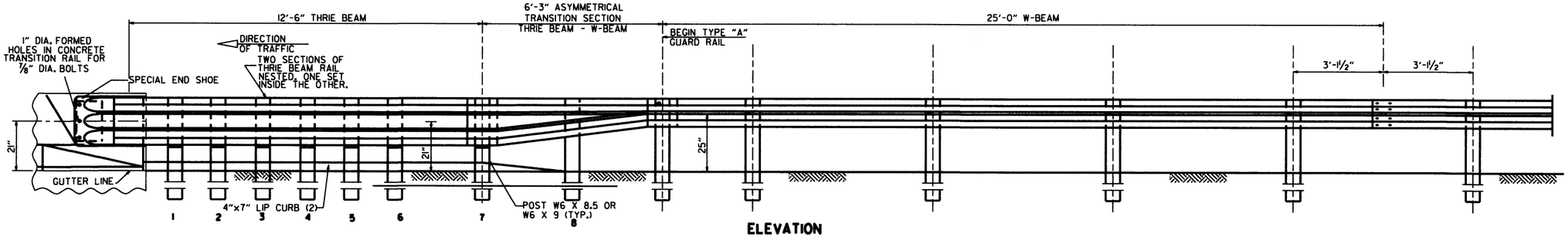
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11	
07-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
08-22-02	REVISED LIP CURB NOTE	
03-30-00	DRAWN & ISSUED	

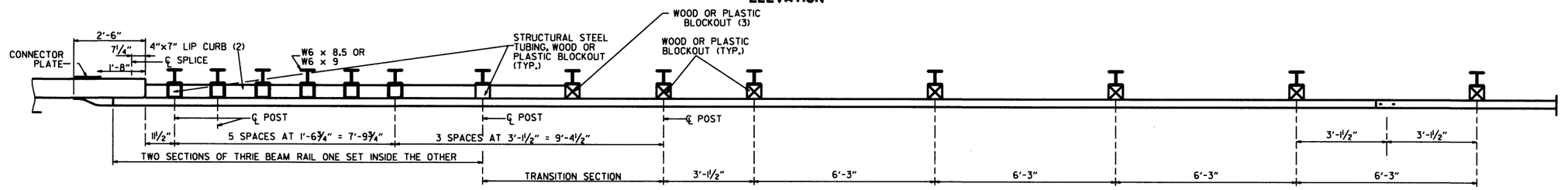
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

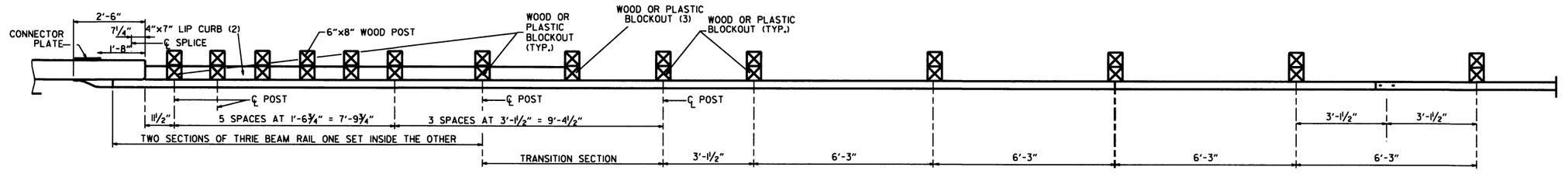
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 1.

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

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

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

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

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

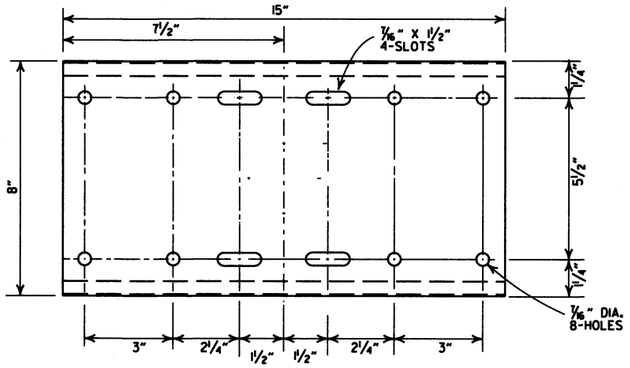
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

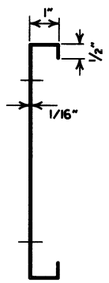
ARKANSAS STATE HIGHWAY COMMISSION

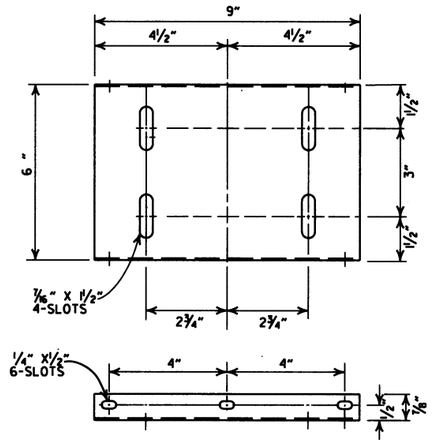
GUARD RAIL DETAILS

STANDARD DRAWING GR-12

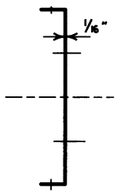


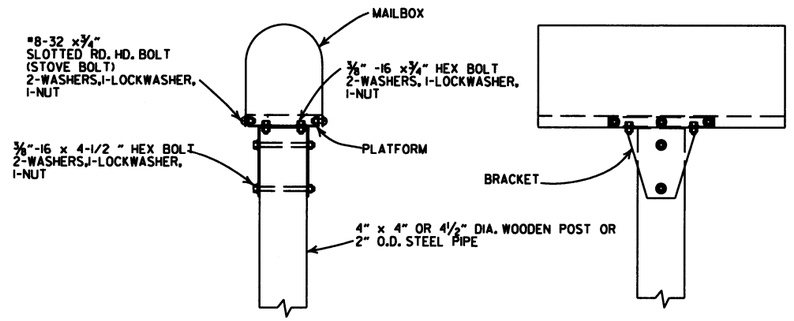
SHELF



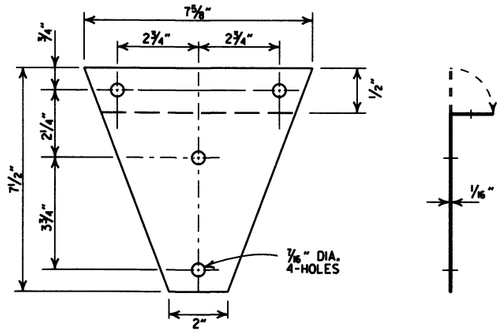


PLATFORM





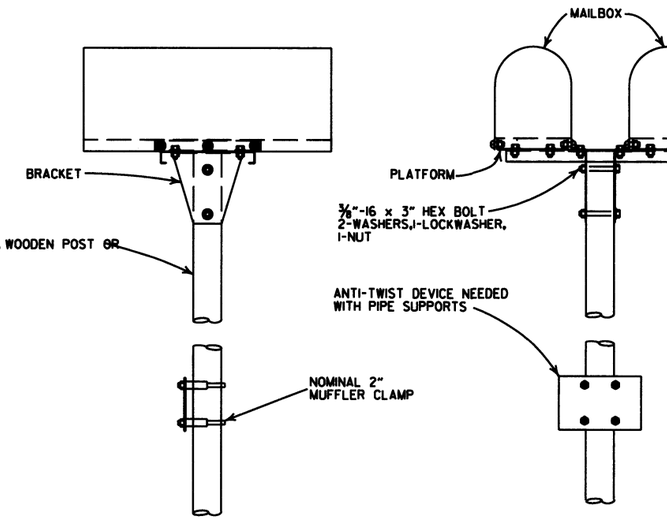
SINGLE INSTALLATION



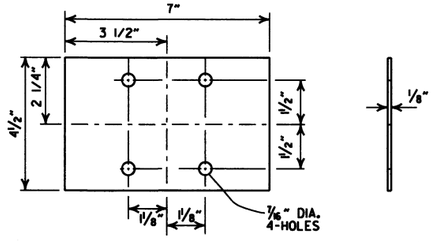
BRACKET

GENERAL NOTES

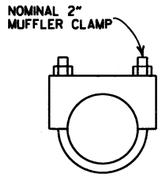
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED 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 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



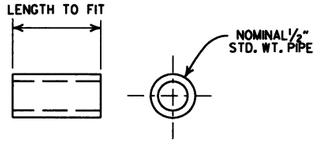
DOUBLE INSTALLATION



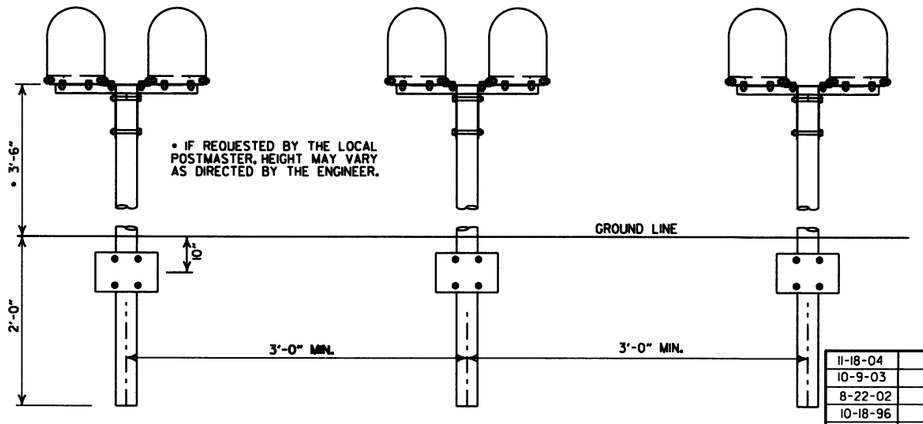
ANTI-TWIST PLATE



CLAMP



SPACER



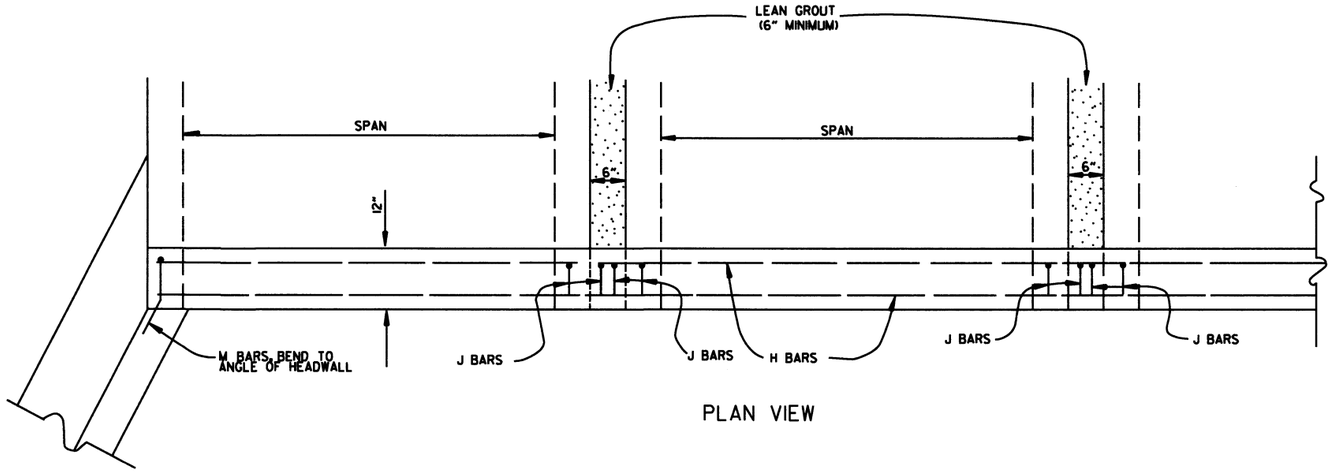
SPACING FOR MULTIPLE POST INSTALLATION

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

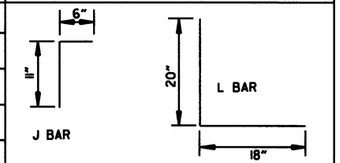
STANDARD DRAWING MB-1



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

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.

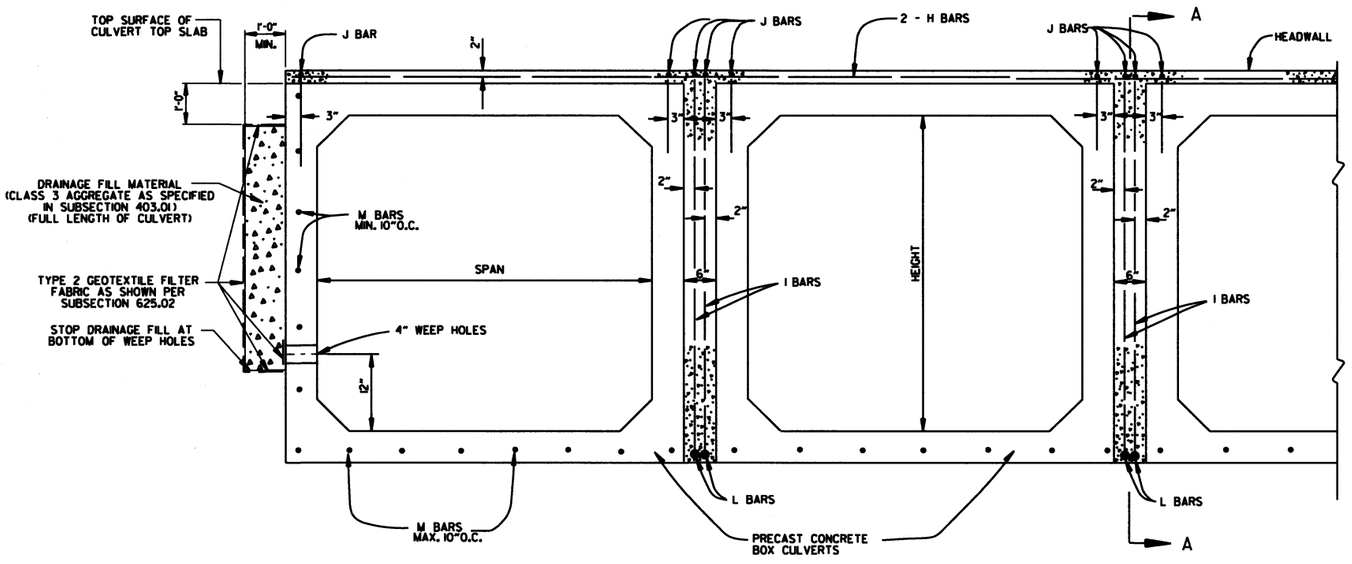
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

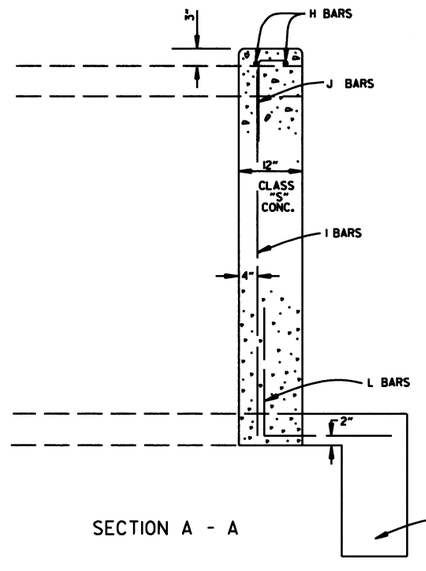
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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.



END VIEW



SECTION A - A

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	31⅞	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

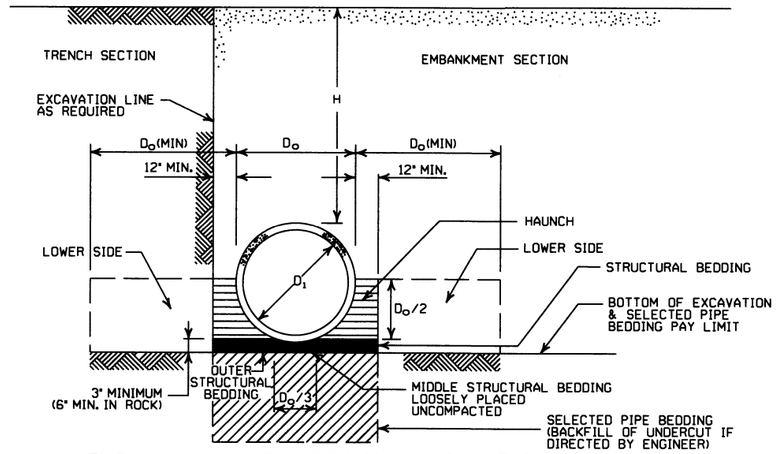
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

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.

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."

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
		2⅔ 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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

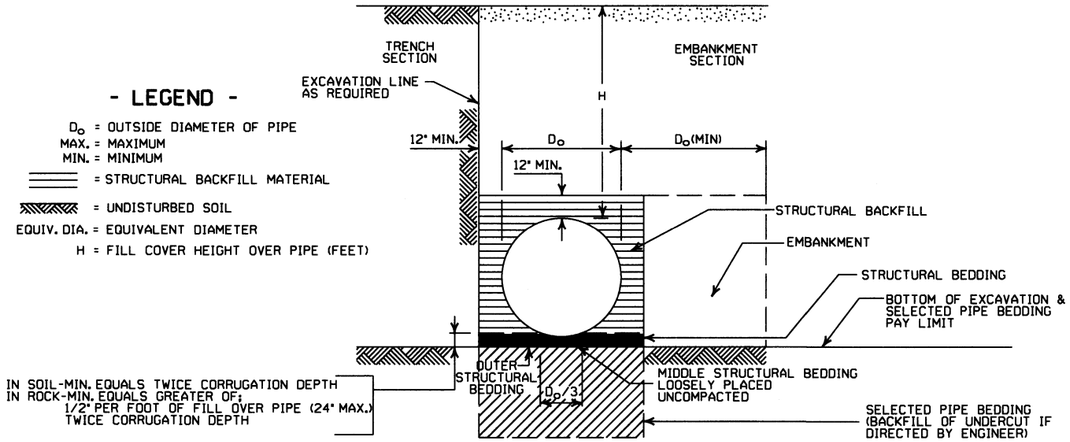
METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

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			

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.



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."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

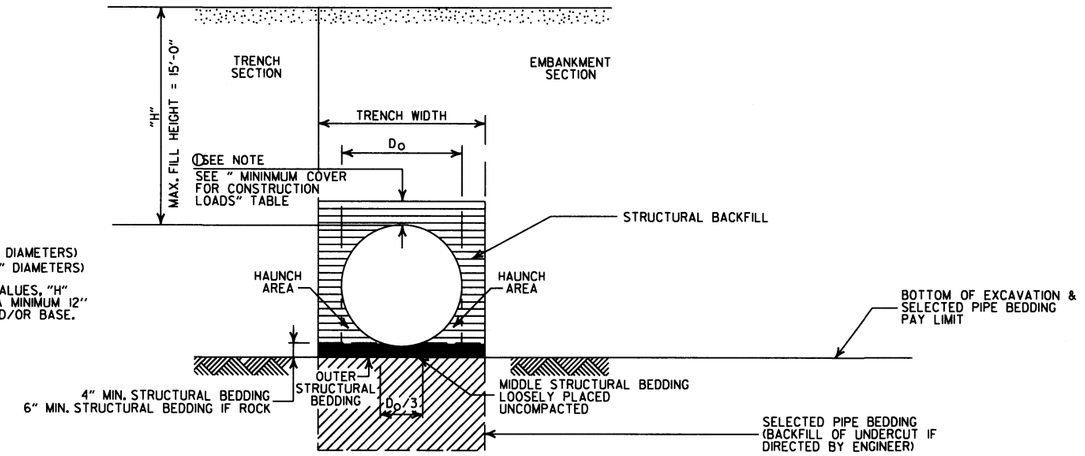
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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.)
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	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

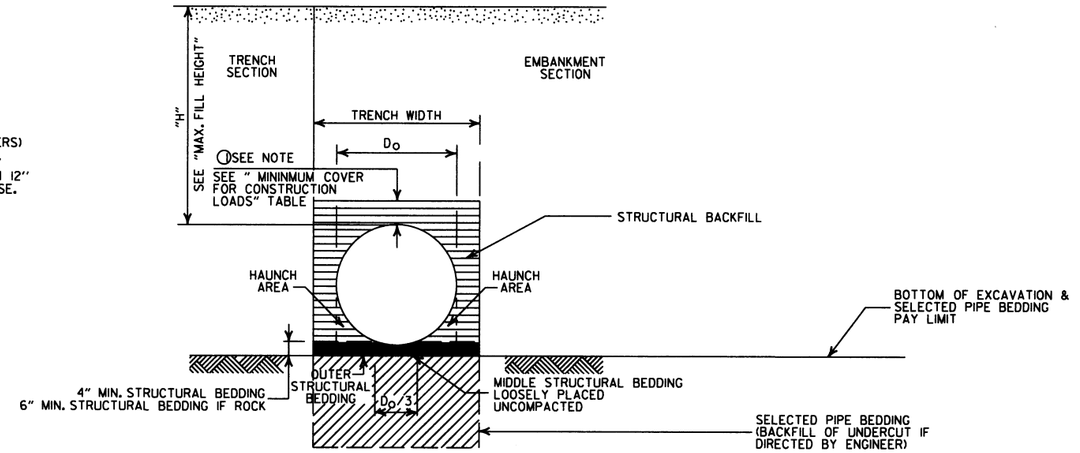
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

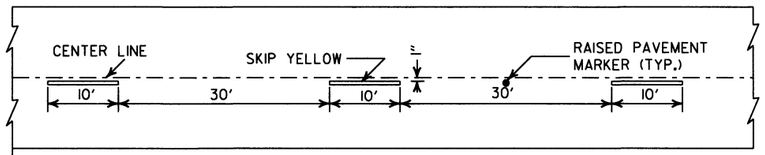
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

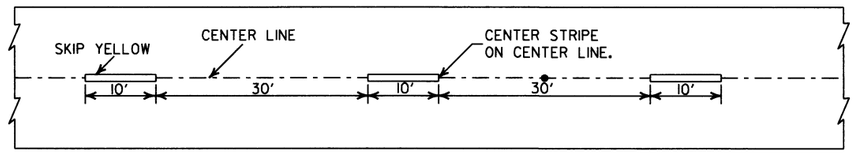
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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.

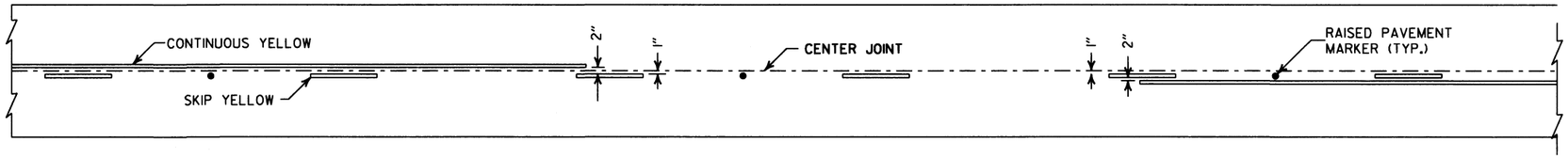


CONCRETE PAVEMENT

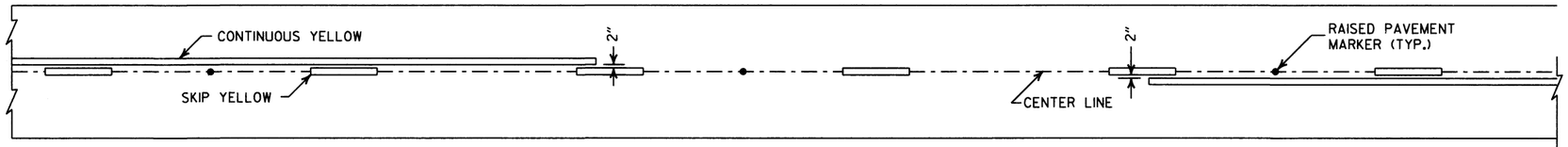


ASPHALT PAVEMENT

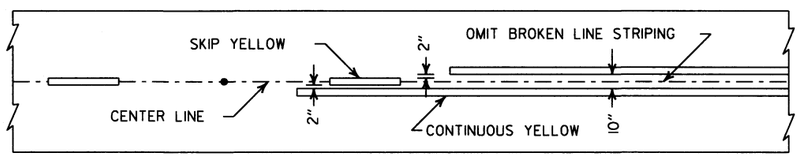
BROKEN LINE STRIPING



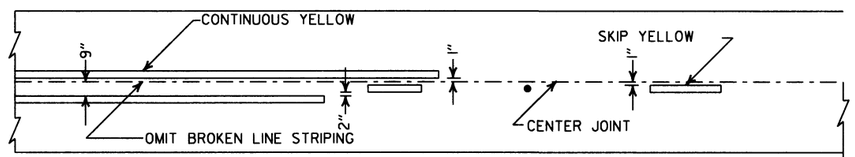
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

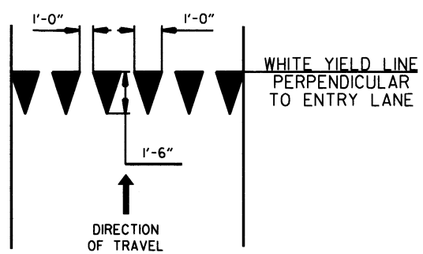


ASPHALT PAVEMENT

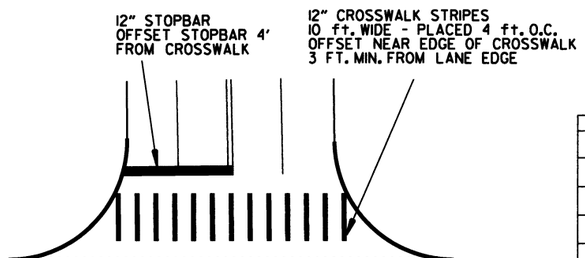


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

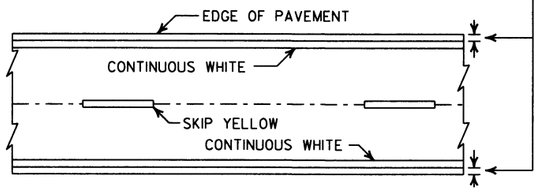


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

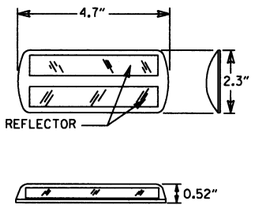
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

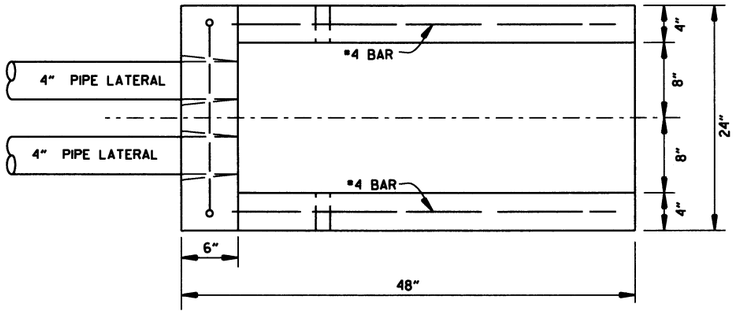
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

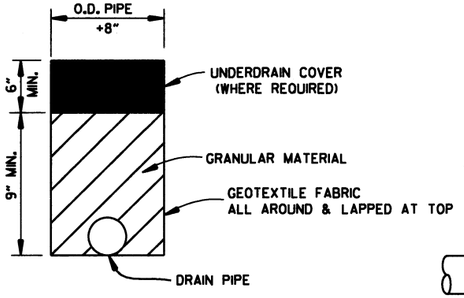
NOTE:

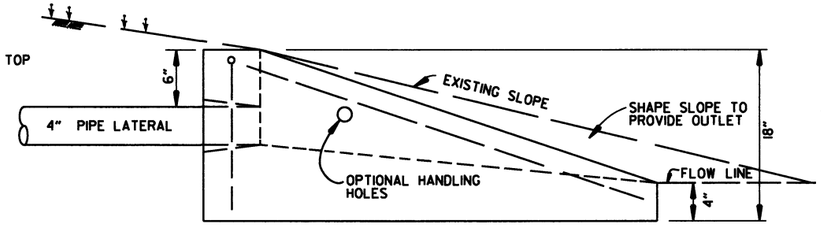
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

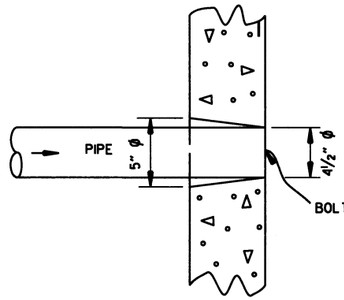


PLAN VIEW

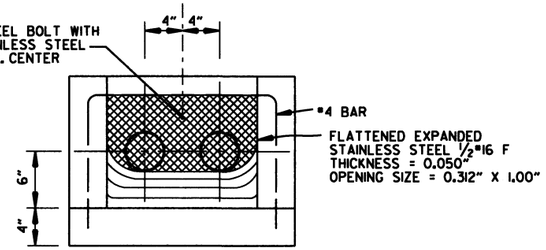




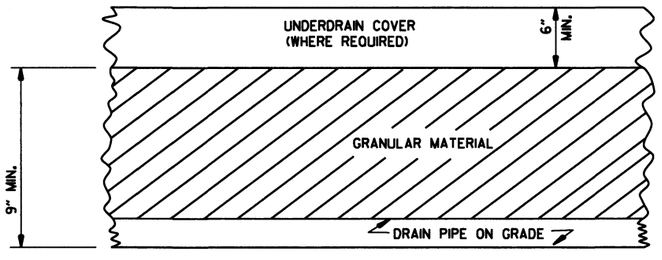
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

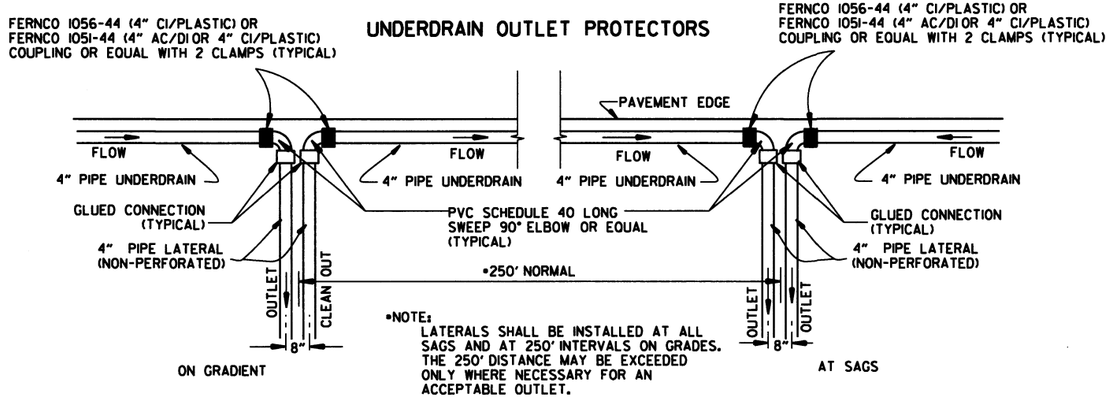


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

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.

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

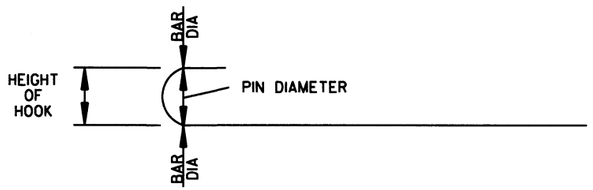
DETAILS OF PIPE UNDERDRAIN

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

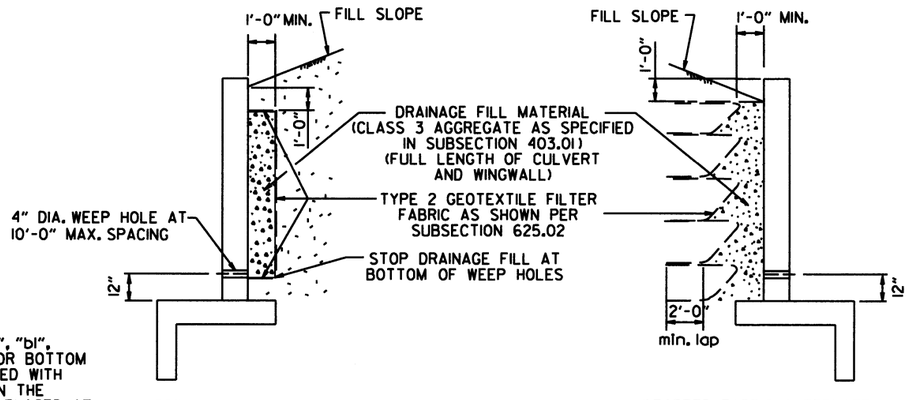
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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



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.

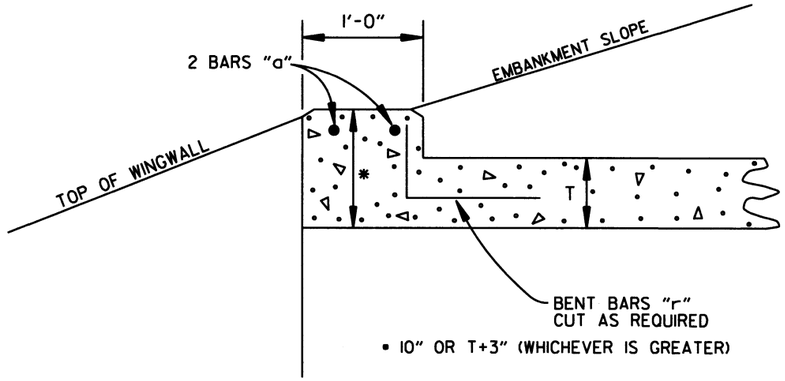
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.



* 10" OR T+3" (WHICHEVER IS GREATER)

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

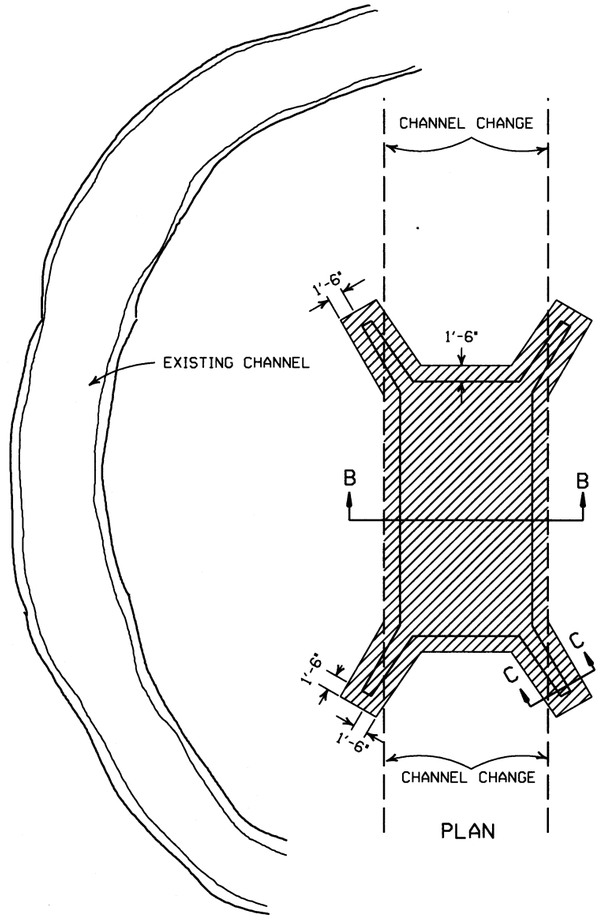
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

ARKANSAS STATE HIGHWAY COMMISSION

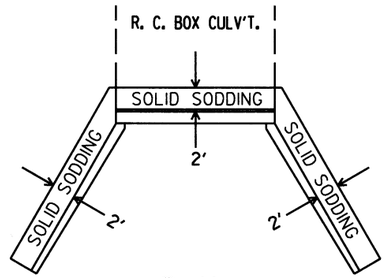
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

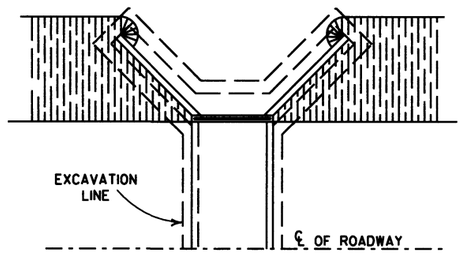
SOLID SODDING



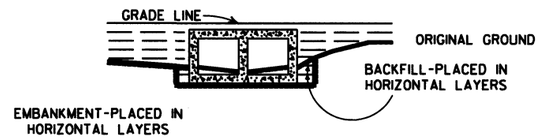
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

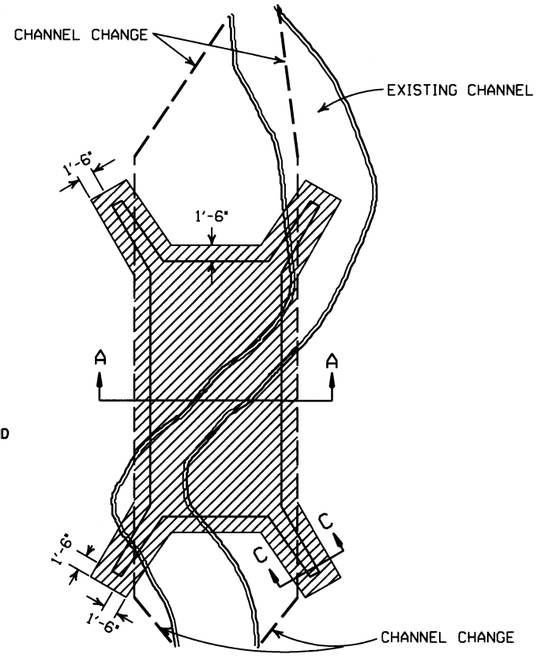


PLAN

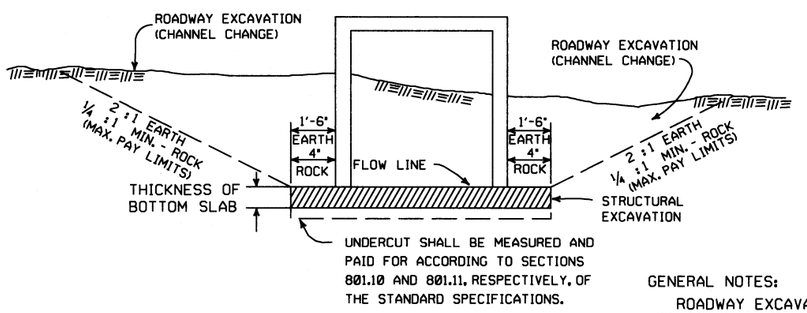


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

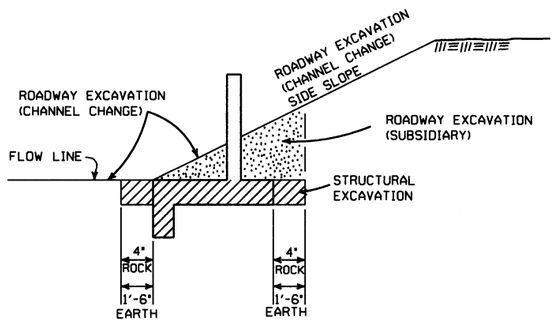


PLAN

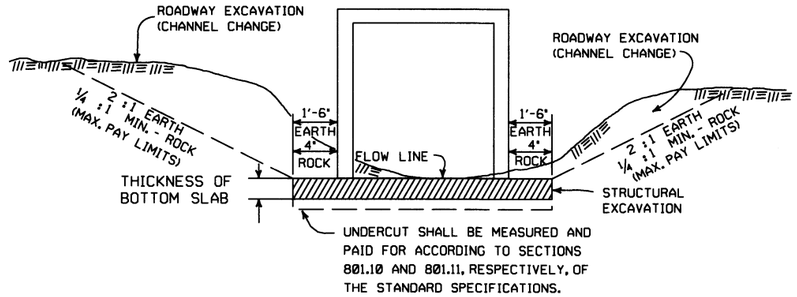


SECTION B-B

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.

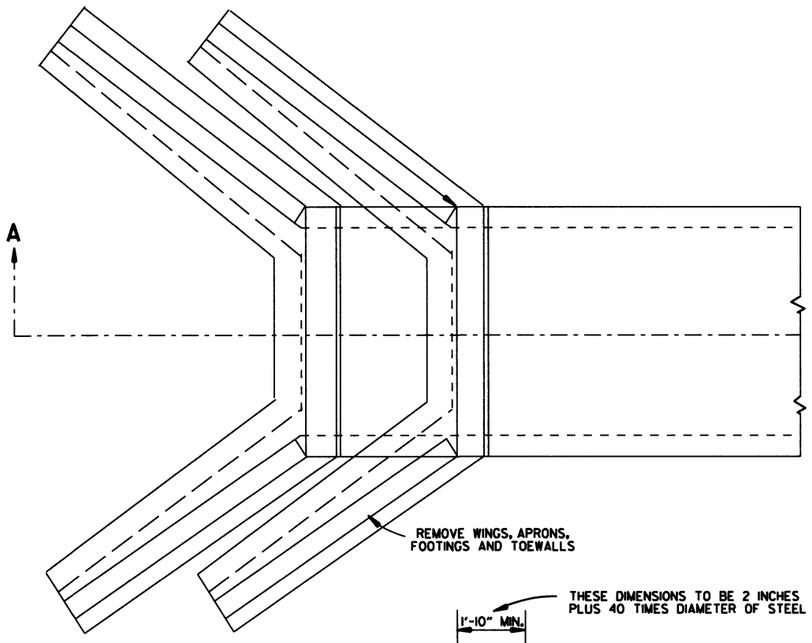
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

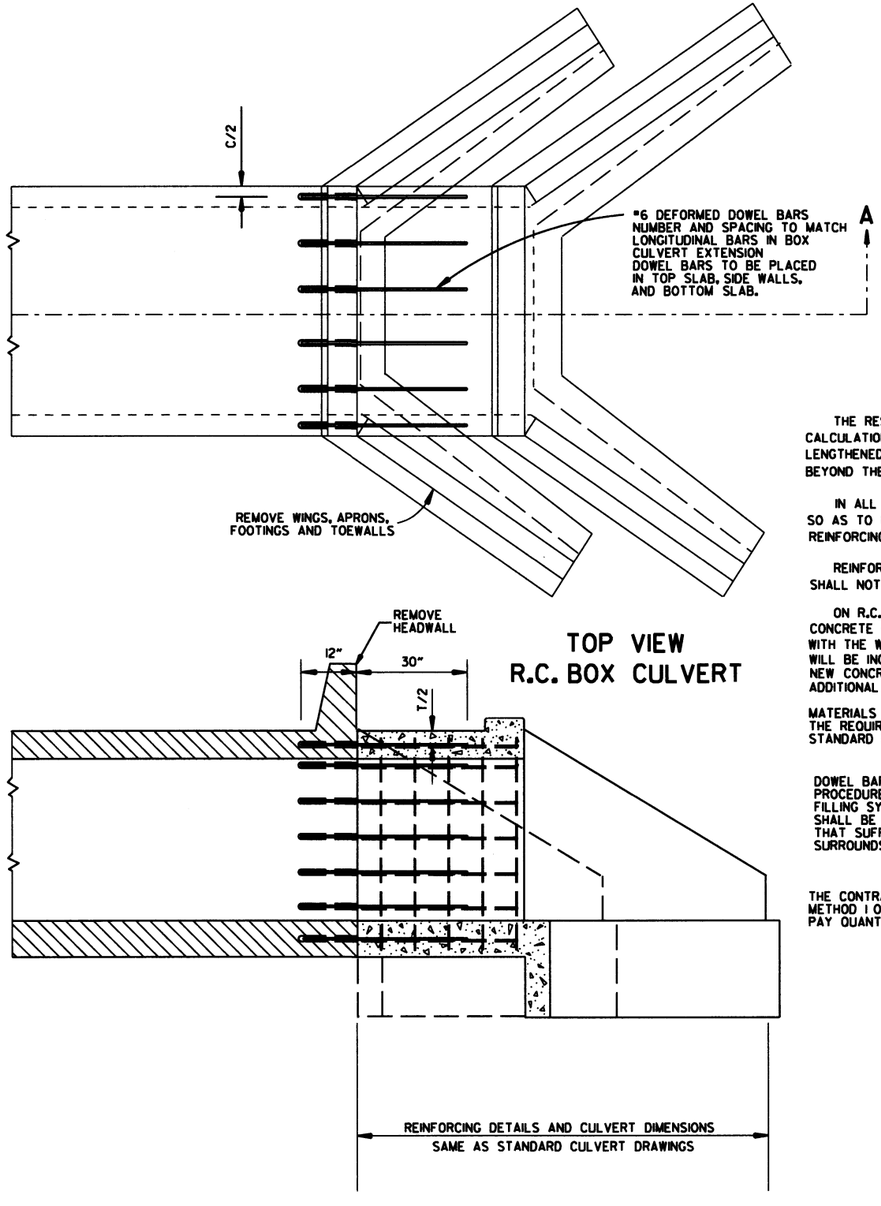
STANDARD DRAWING RCB-2



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	
8-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

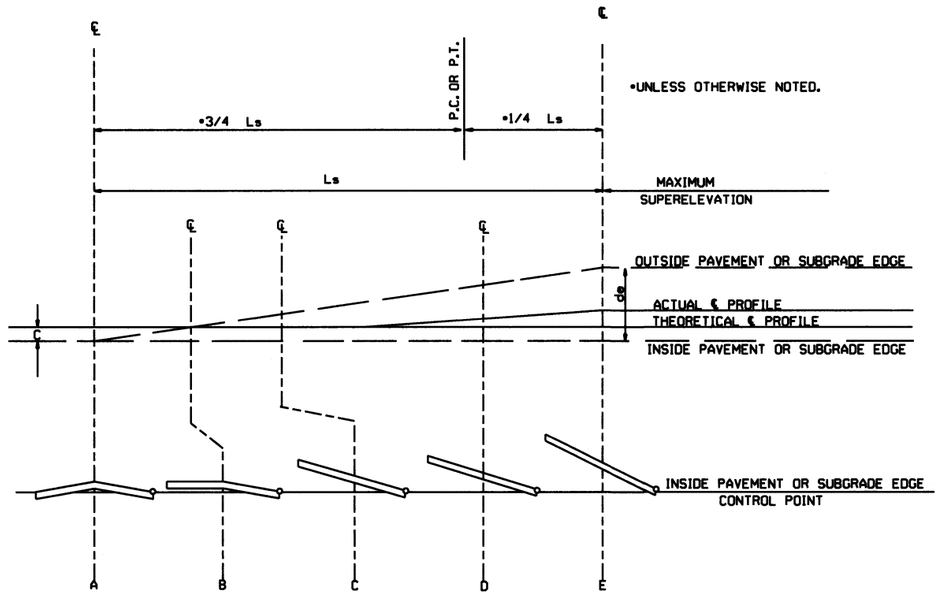
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH 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		
1° 15'	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30'	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054	275	
1° 45'	N.C.			0.025	175		0.036			0.043			0.049			0.062		300
2° 00'	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15'	R.C.			0.031			0.045			0.053			0.061			0.078	300	
2° 30'	0.021			0.034			0.049			0.058			0.067			0.085	315	350
2° 45'	0.023			0.037			0.053		250	0.063			0.072			0.091	335	
3° 00'	0.025			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	150		0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45'	0.031		200	0.049			0.069	215		0.080	265		0.090	295				
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	350	0.098	320				
5° 30'	0.043			0.066	185		0.088	260		0.094	300							
6° 00'	0.046			0.070	190		0.092	270		0.096	305							
6° 30'	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00'	0.053			0.078	210		0.098	285										
7° 30'	0.056			0.081	215		0.099	290										
8° 00'	0.058			0.084	220		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.)



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

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

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

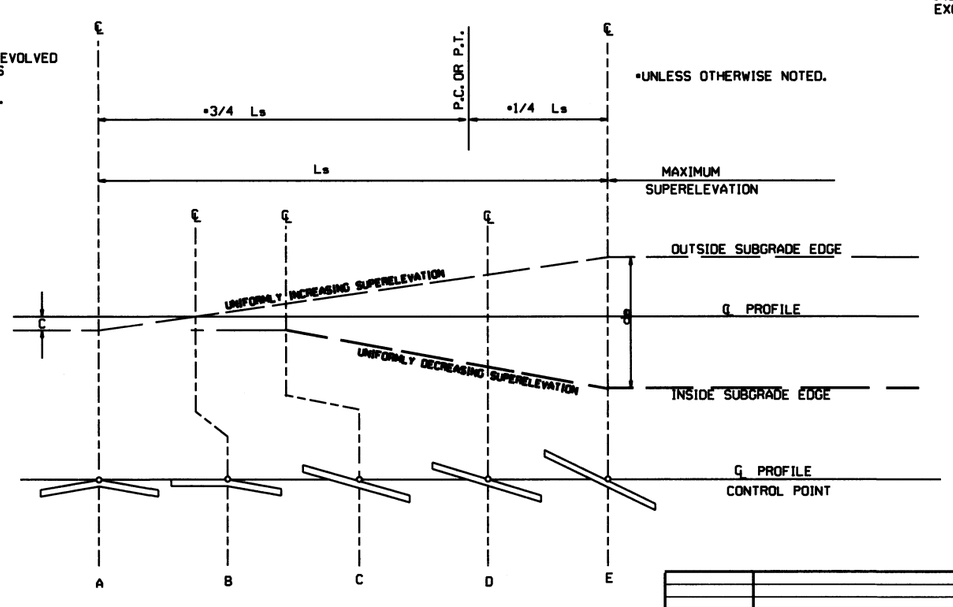
GENERAL NOTES

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

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

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

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



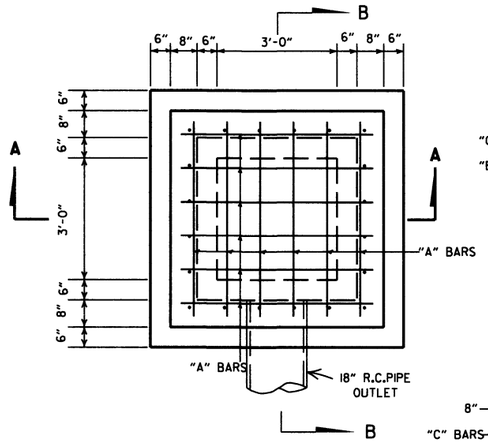
STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

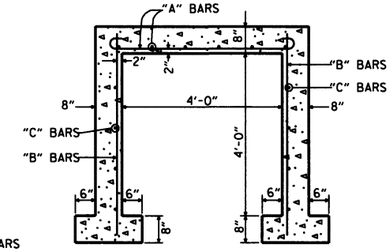
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

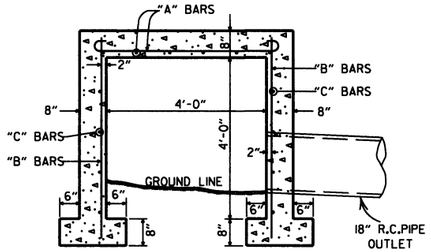
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2





SEC A-A



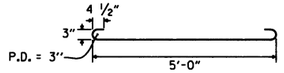
SEC B-B

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

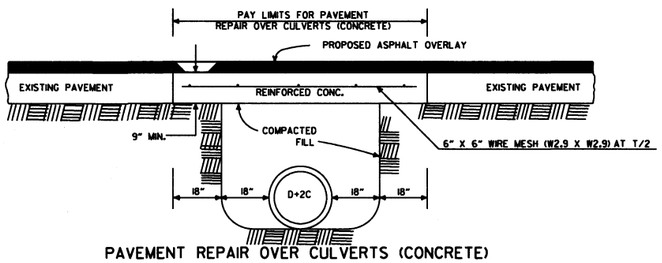
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

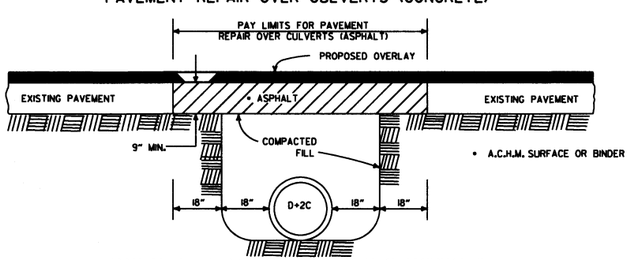
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



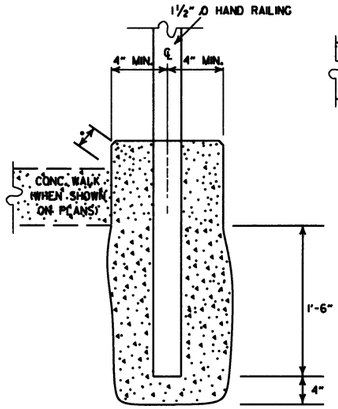
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



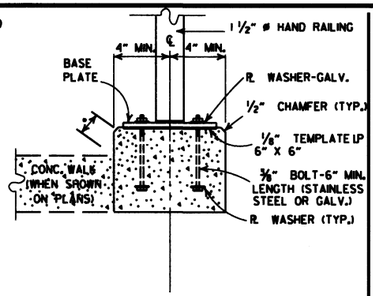
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

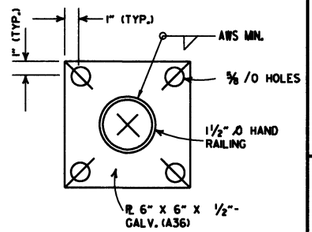
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

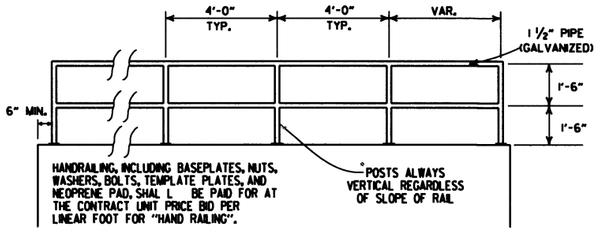


POST CONNECTION TO WALL

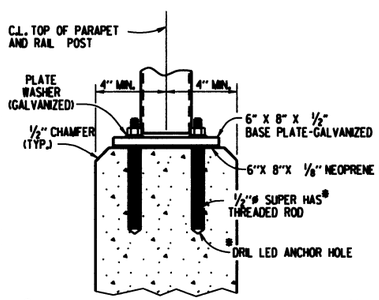


BASE PLATE

POST CONNECTION DETAILS



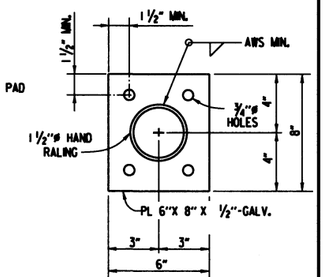
HAND RAILING SHALL CONFORM TO SECTION 633.



*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.

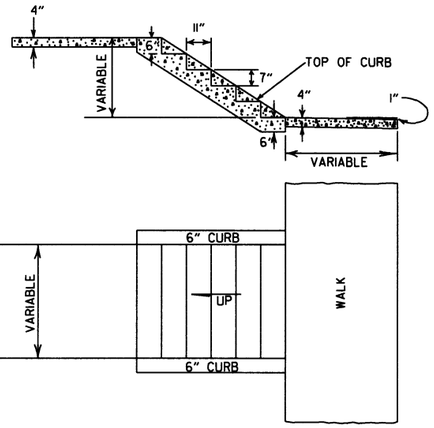
POST CONNECTION TO WALL



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

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
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 HOLE; 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

ARKANSAS STATE HIGHWAY COMMISSION

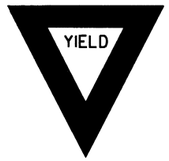
DETAILS OF SPECIAL ITEMS

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"

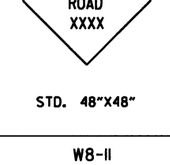
R4-1

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

R4-2

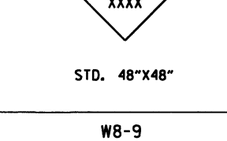
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



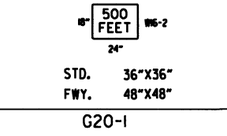
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



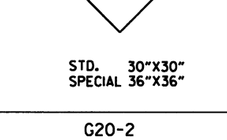
48"X30"

R11-3A



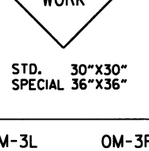
60"X30"

R11-4



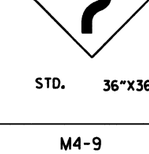
60"X30"

W21-5a



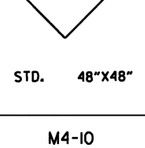
STD. 36"X36"
FWY. 48"X48"

W1-1



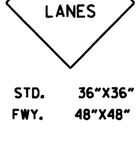
STD. 36"X36"
FWY. 48"X48"

W1-2



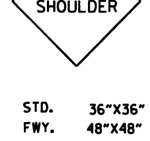
STD. 36"X36"
FWY. 48"X48"

W1-3



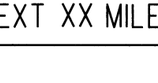
STD. 48"X48"

W1-4



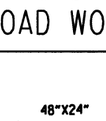
STD. 48"X48"

W1-6



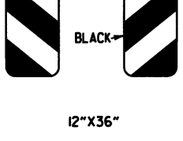
STD. 48"X24"
SPECIAL 60"X30"

W1-8



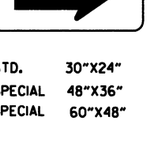
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

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"

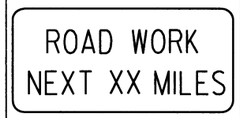
W8-11

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

W8-9

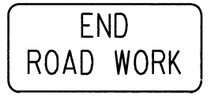
STD. 36"X36"
FWY. 48"X48"

G20-1



60"X24"

G20-2



48"X24"

OM-3L OM-3R

12"X36"

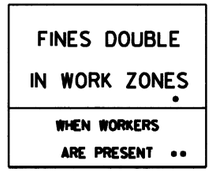
M4-9

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.

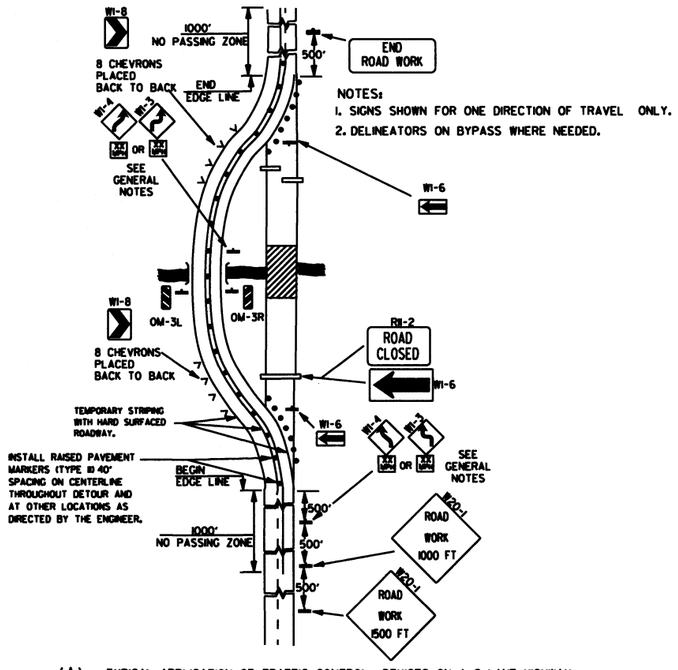
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

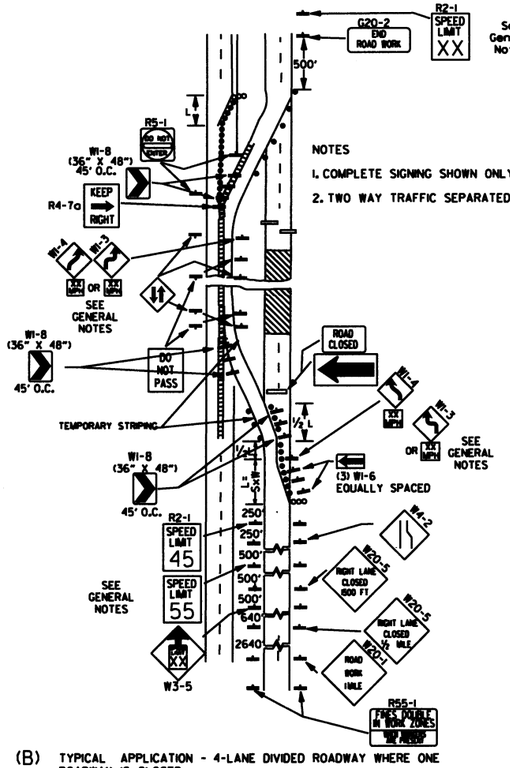
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



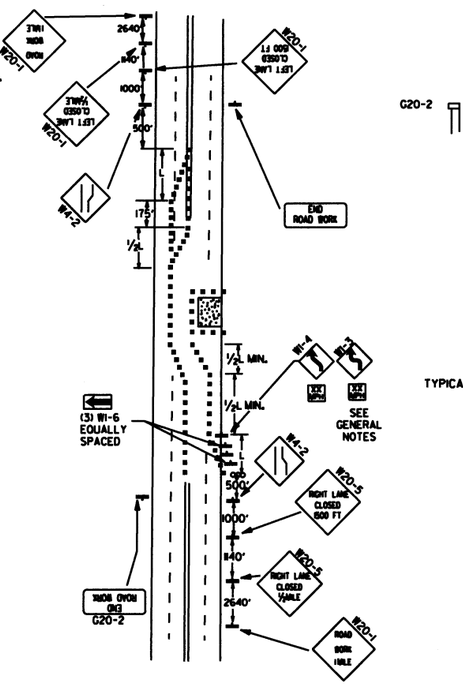
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

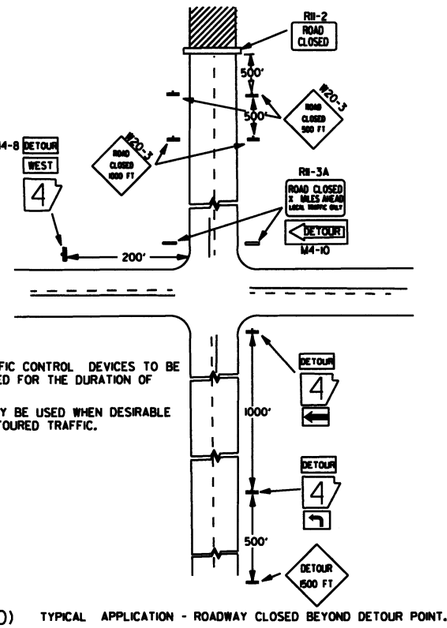


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

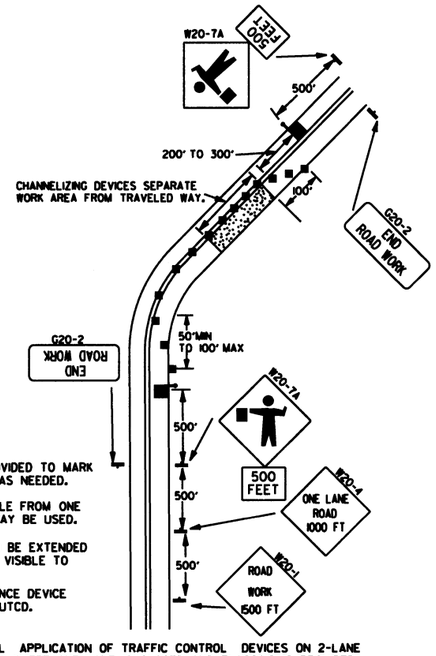


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



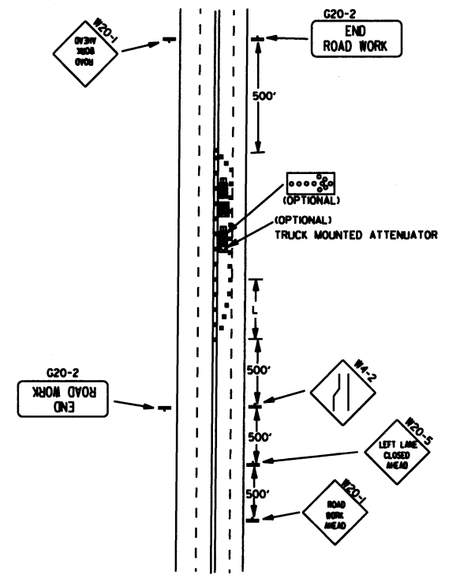
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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

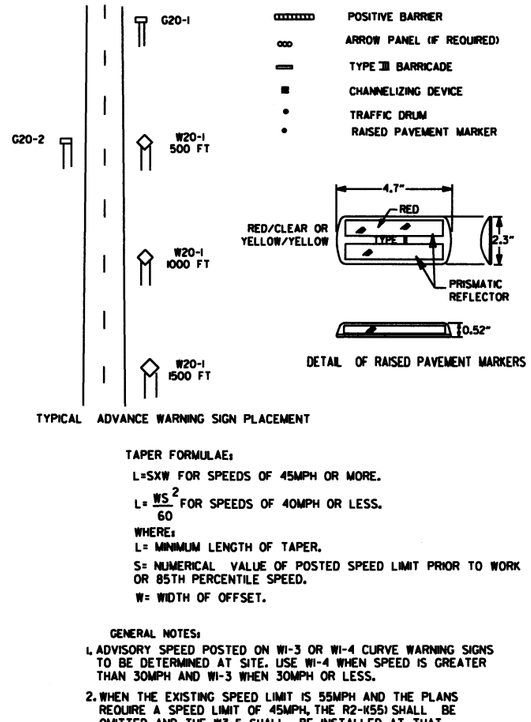


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE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

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

GENERAL NOTES:

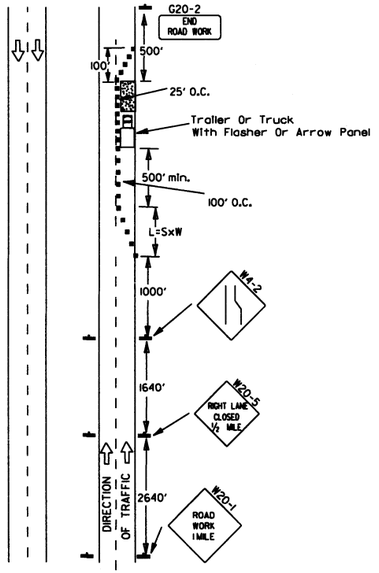
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED 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.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

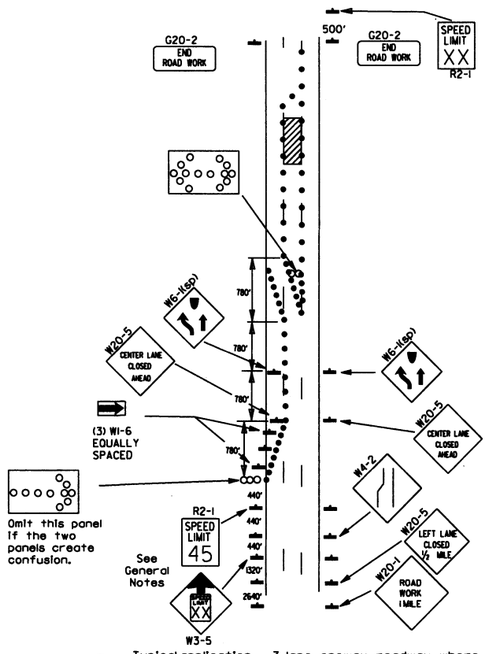
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2

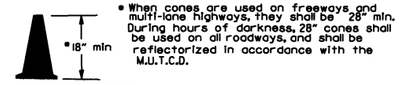


(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



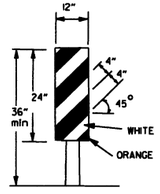
(B) Typical application - 3-lane oneway roadway where center lane is closed.

Channelizing devices

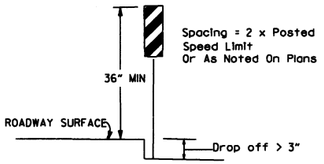


- When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

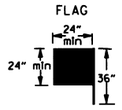
NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL PLACEMENT



FLAG



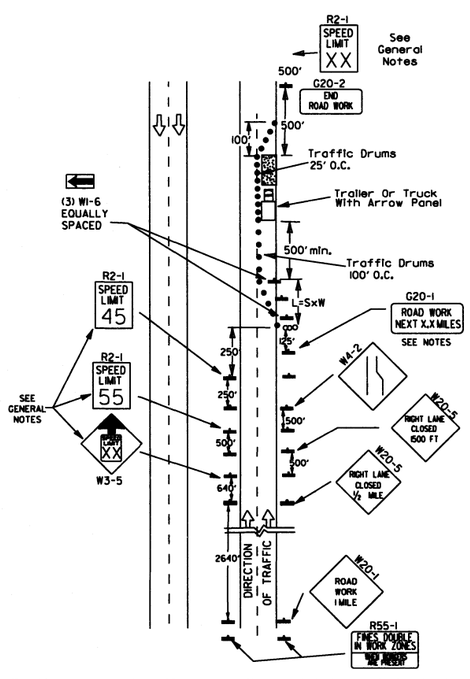
Flag shall be of good grade red material

KEY:

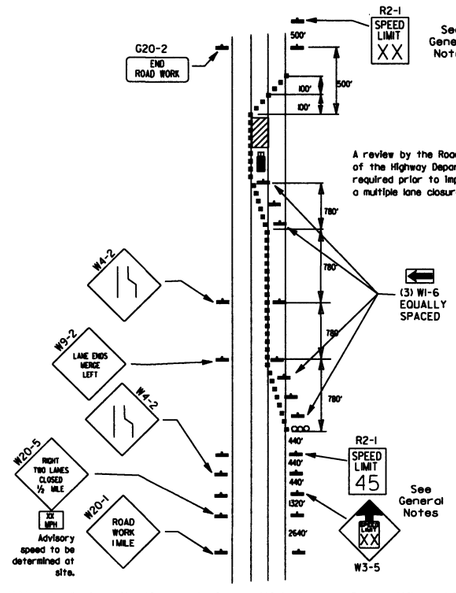
- ooo Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

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.



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



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

TRAFFIC CONTROL DEVICES

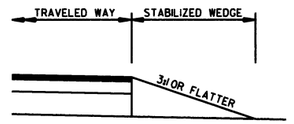
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 12"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 12" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	PRECAST CONCRETE BARRIER(3) & EDGE LINES
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(3) & EDGE LINES	PRECAST CONCRETE BARRIER(3) & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

GENERAL NOTES:

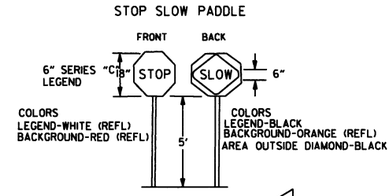
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL. IF AND WHERE DIRECTED BY THE ENGINEER.
4. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



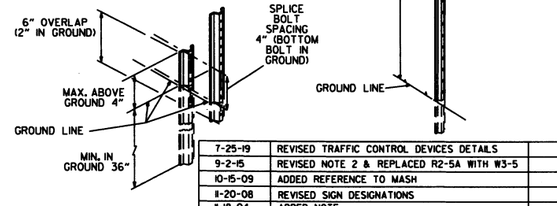
STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

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
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

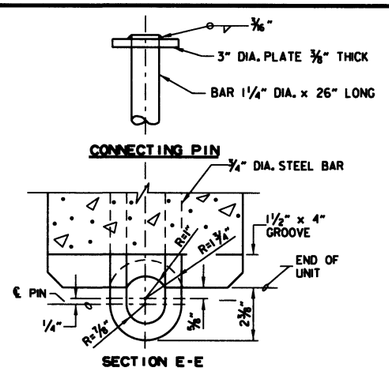
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

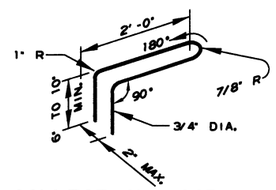
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

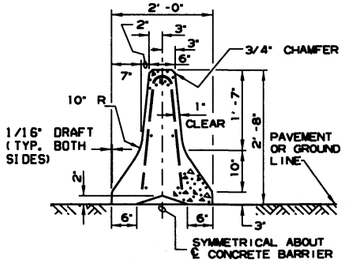
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2. TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP; 1'-6"
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R; 12"; 2'-1 3/8"; 4 3/8"; 1 1/2"; 9"



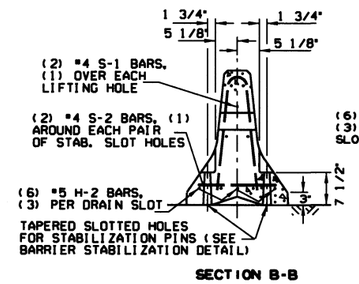
CONNECTION DETAILS



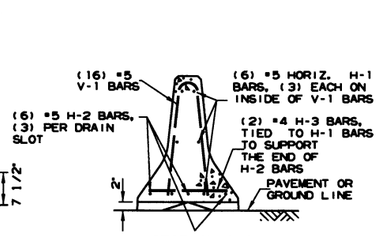
CONNECTION LOOP



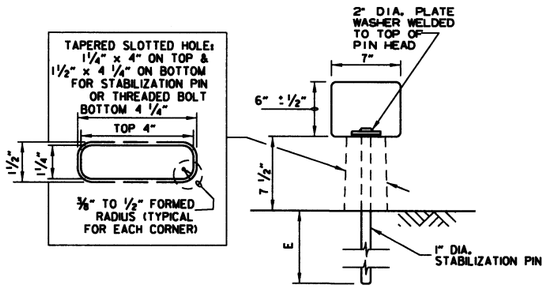
SECTION A-A



SECTION B-B



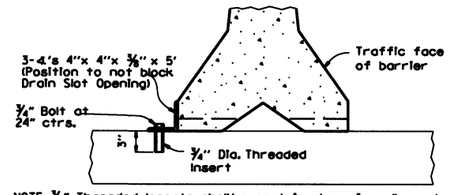
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

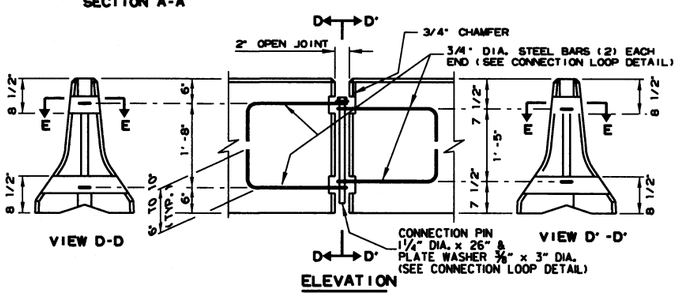
Ⓔ 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas

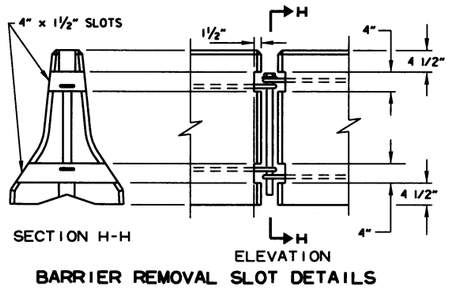


NOTE: 3/4" Threaded inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

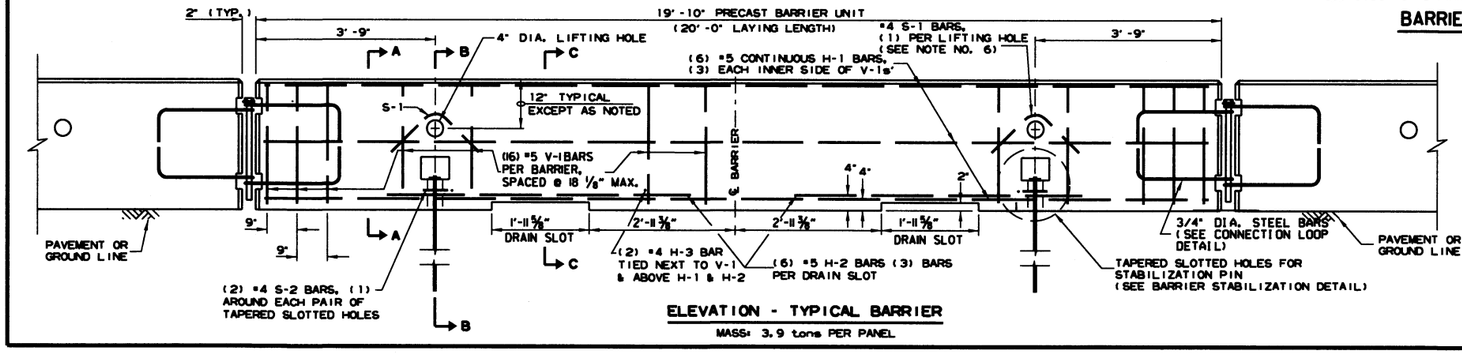
BARRIER STABILIZATION DETAIL

BRIDGE DECKS





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 walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual 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.

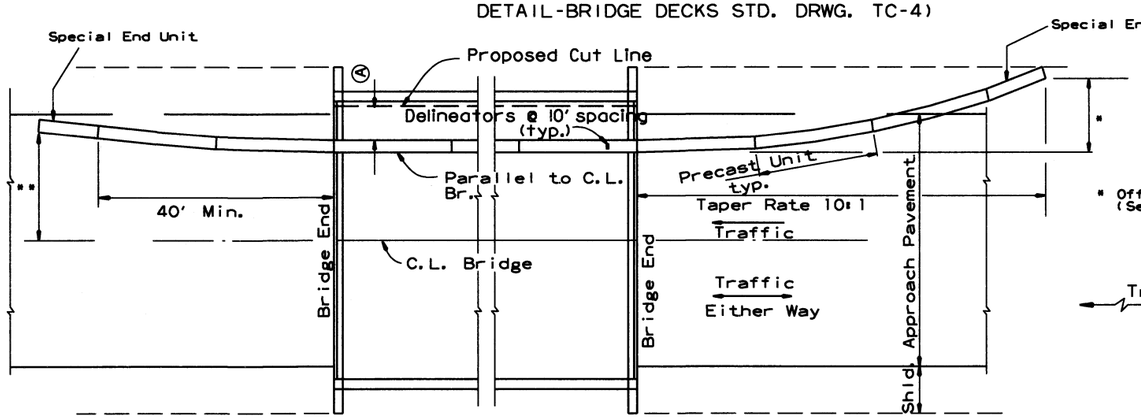
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-5-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
8-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED 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)

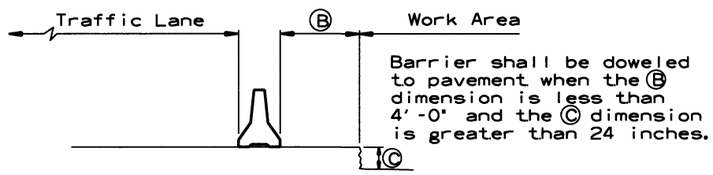


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only

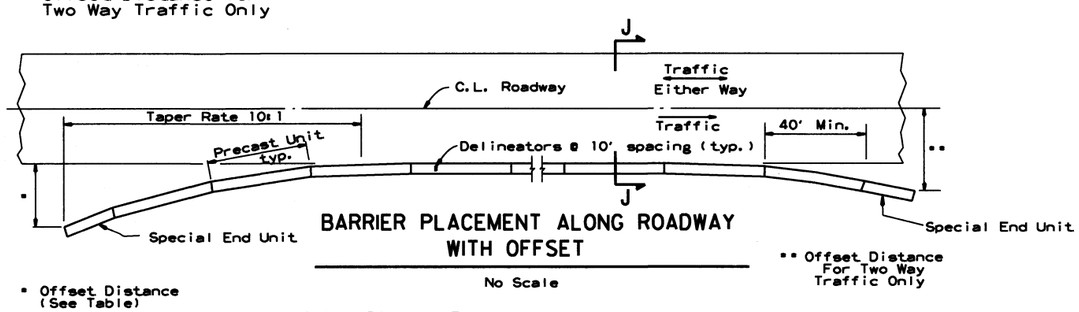
* Offset Distance (See Table)



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

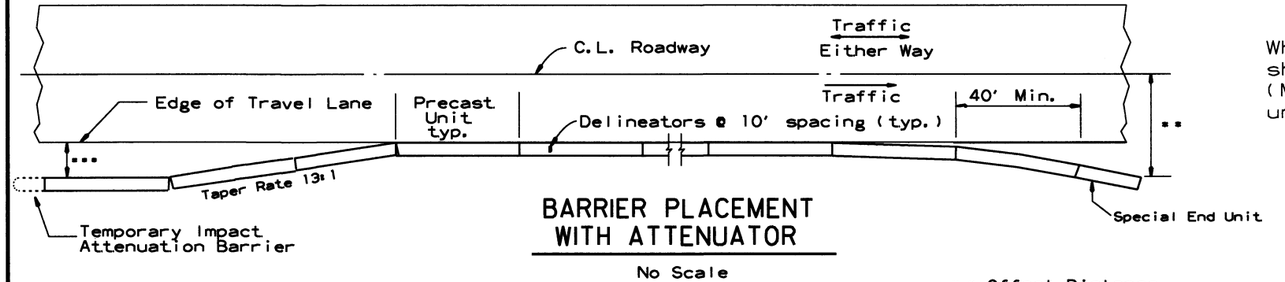
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

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.

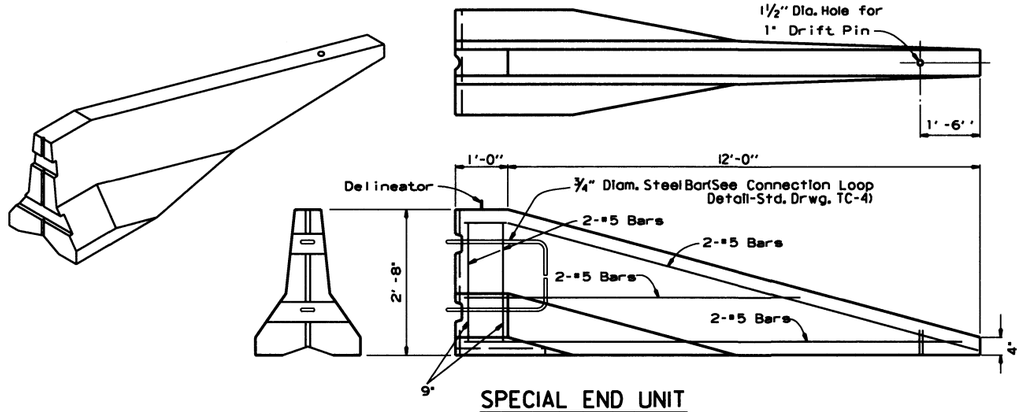


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



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	

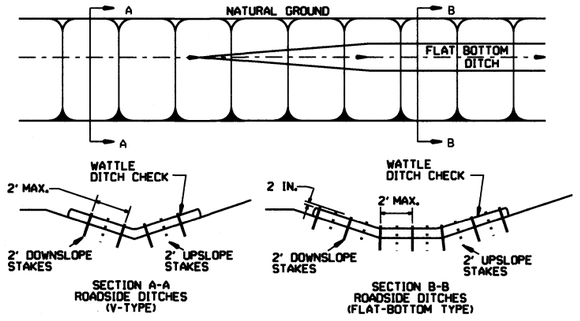
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

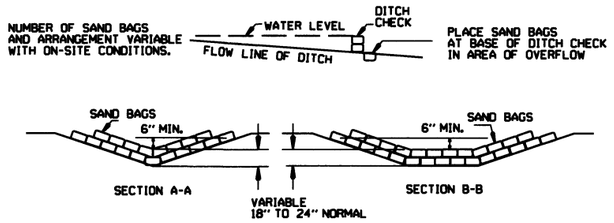
STANDARD DRAWING TC-5

GENERAL NOTES

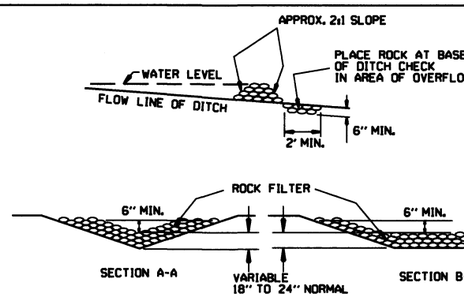
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

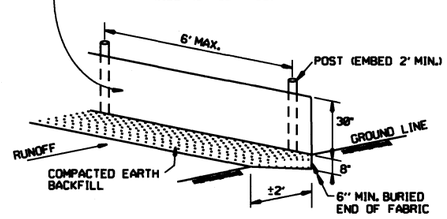


ROCK DITCH CHECK (E-6)

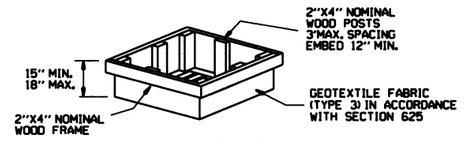
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

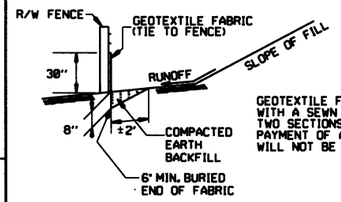
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

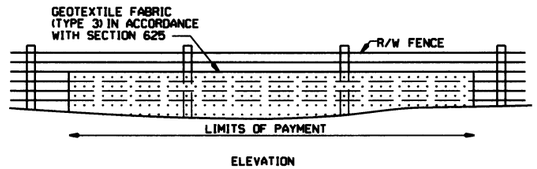


DROP INLET SILT FENCE (E-7)



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.



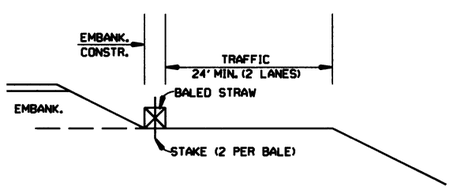
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

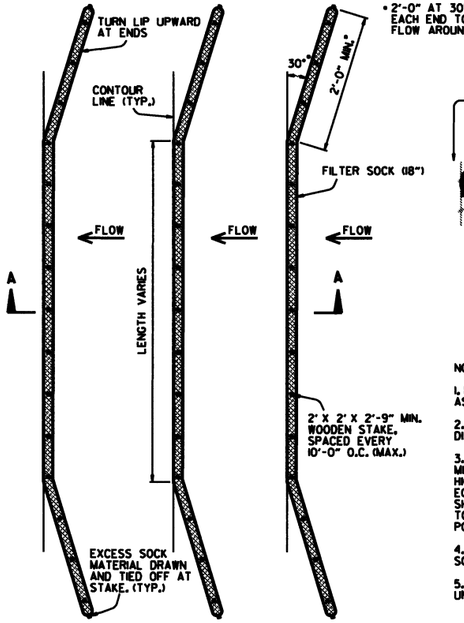
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

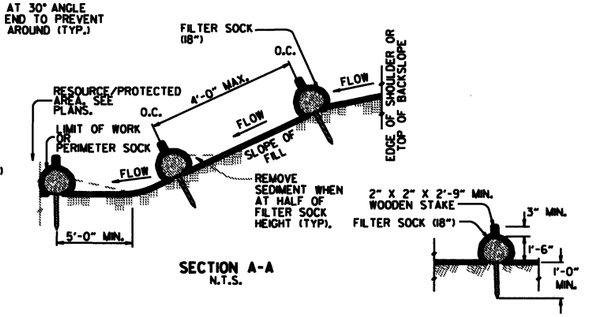
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

STAKING DETAIL
N.T.S.

NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

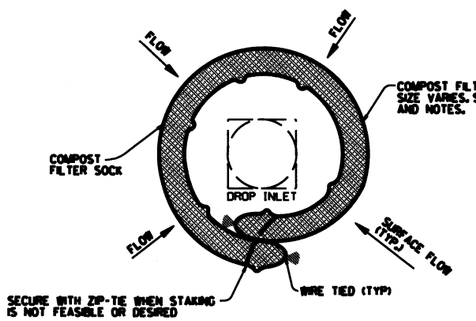
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

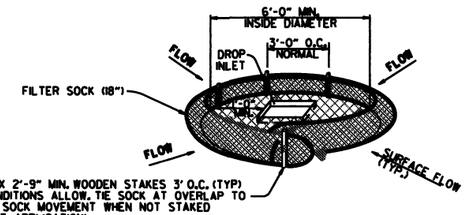
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

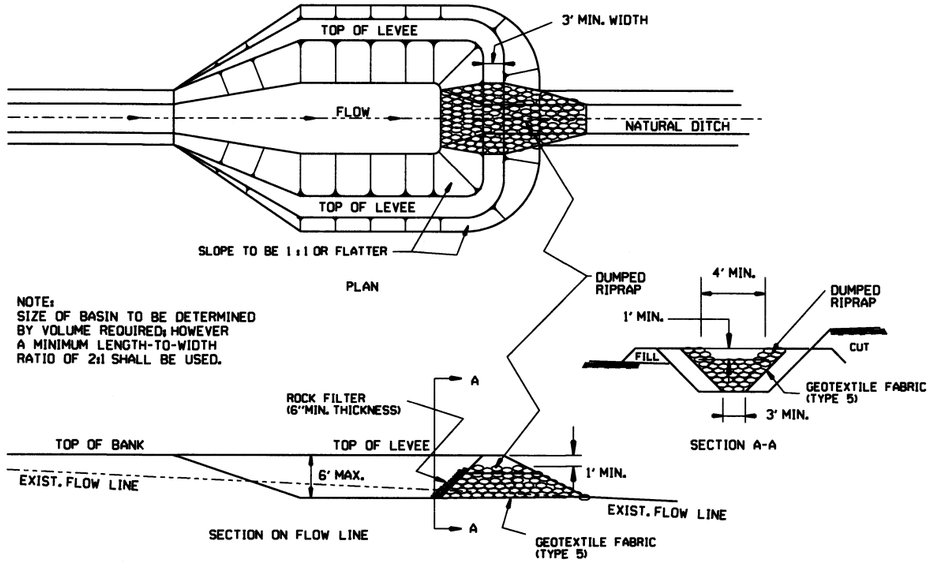
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
8-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 15" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

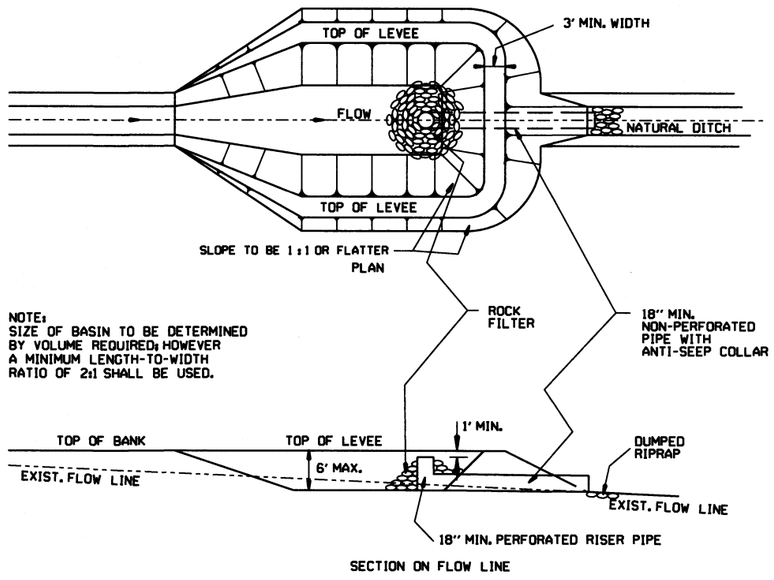
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

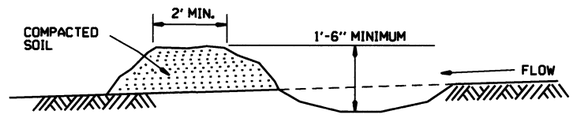
STANDARD DRAWING TEC-1



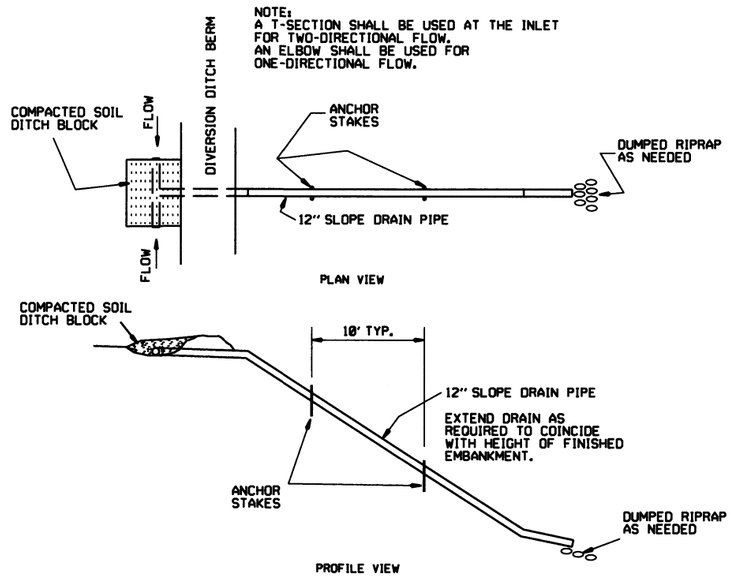
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



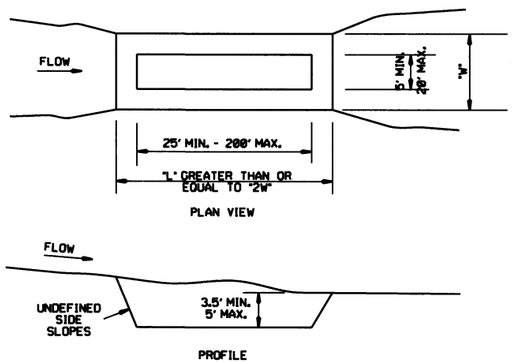
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

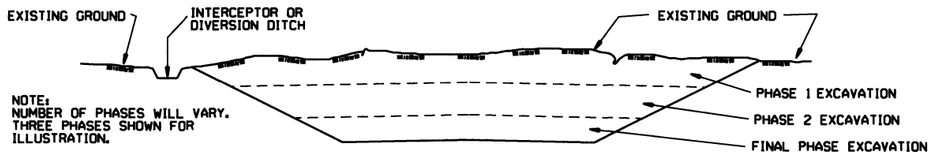
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



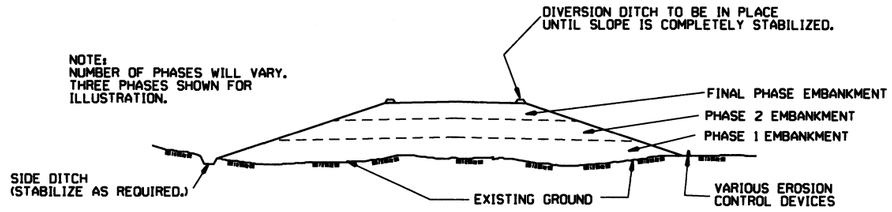
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

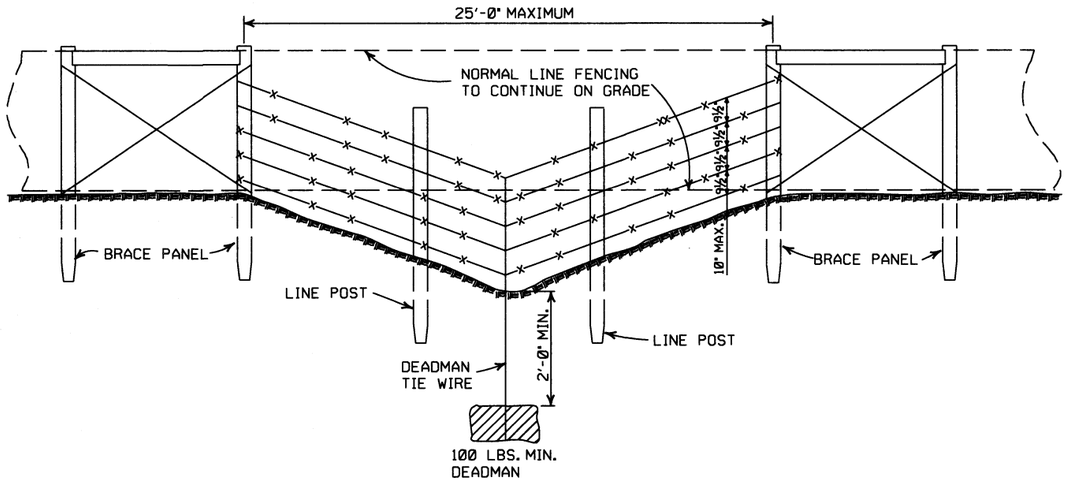
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

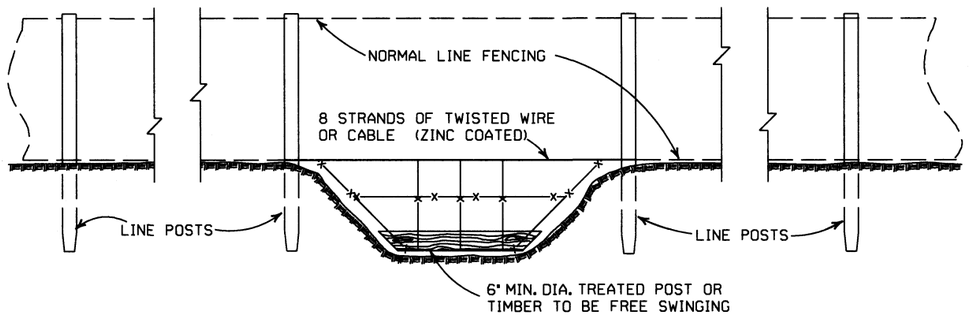
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

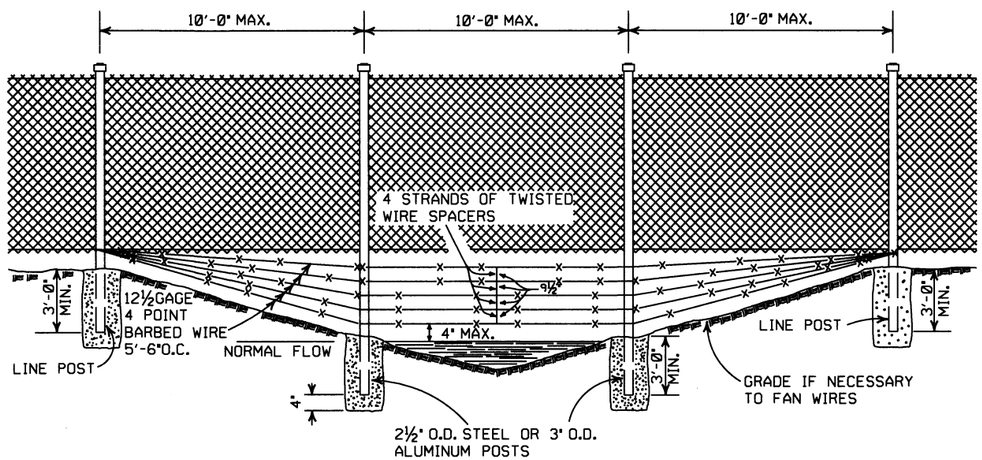
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3







GENERAL NOTES:

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

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

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

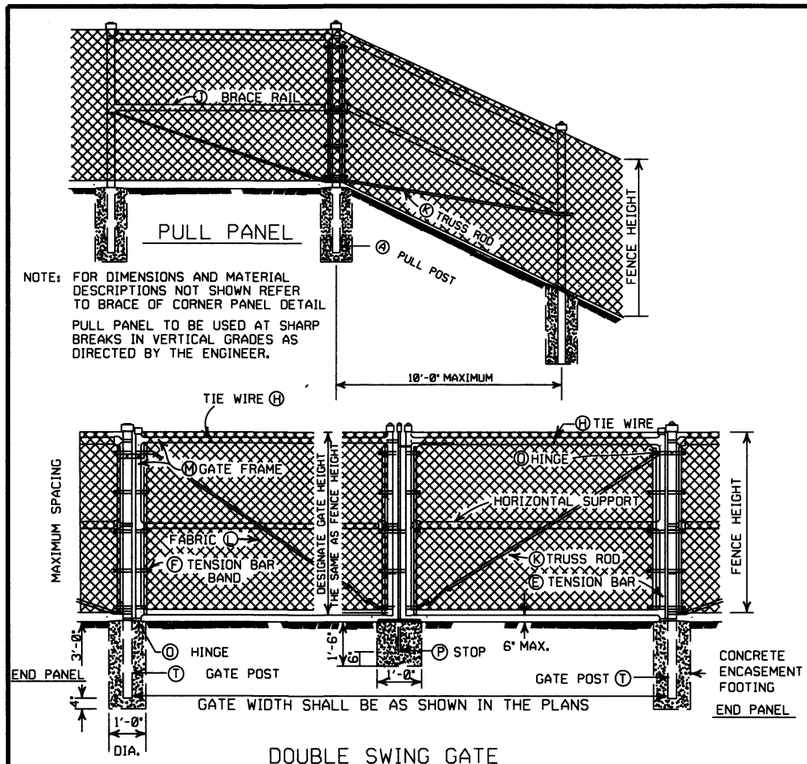
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	FILMED
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED AND REDRAWN	529-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

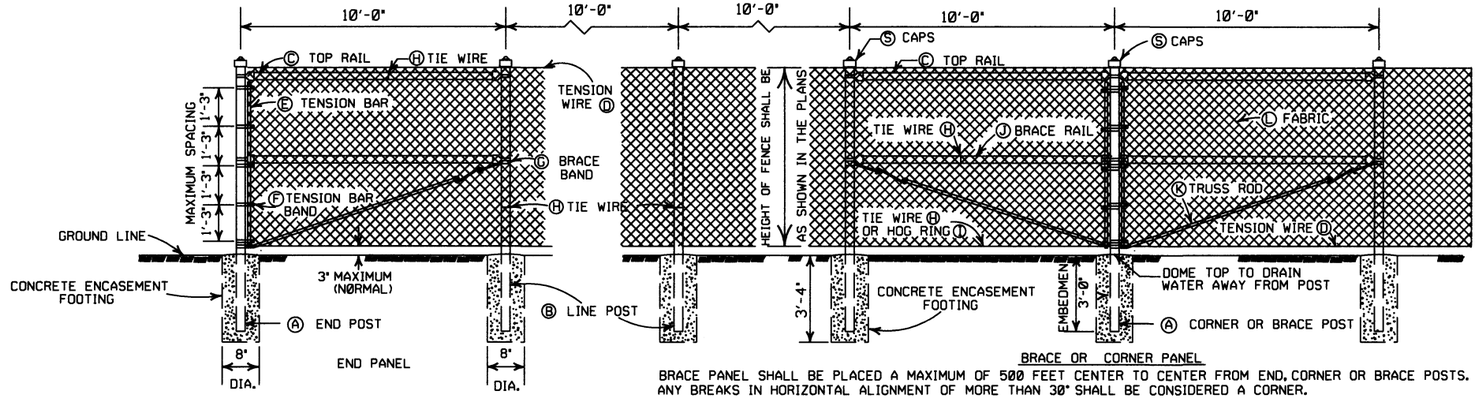
WIRE FENCE WATER GAPS

STANDARD DRAWING WF-2



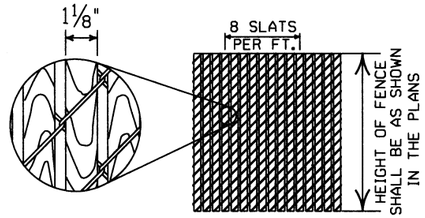
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

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

(WHERE APPLICABLE)

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.

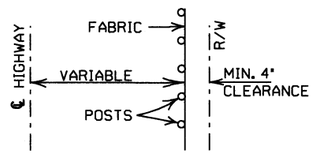
OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

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

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.

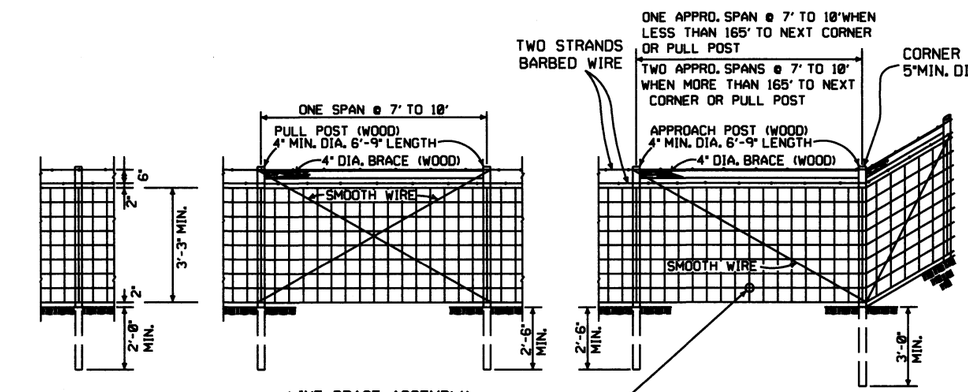
EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

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

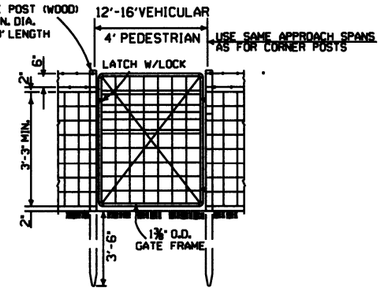
CHAIN LINK FENCE

STANDARD DRAWING WF-3



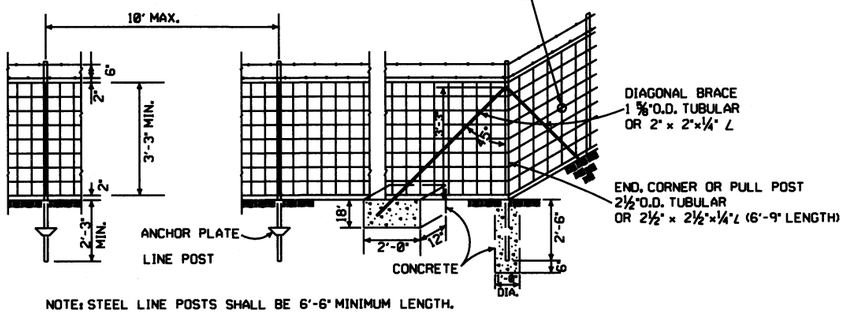
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

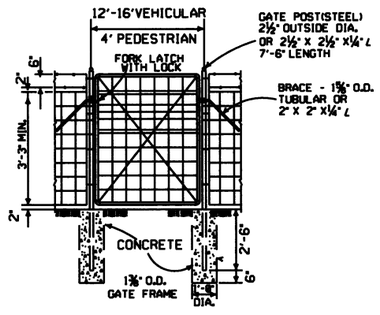


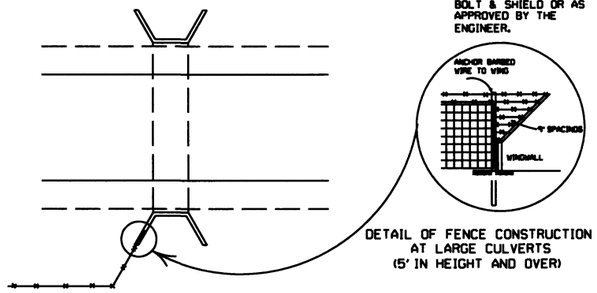
TYPE C FENCE (WOOD POSTS)

OTHER APPROVED TIES WILL BE PERMITTED



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

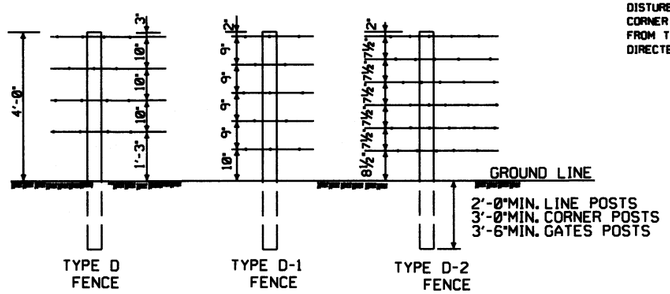




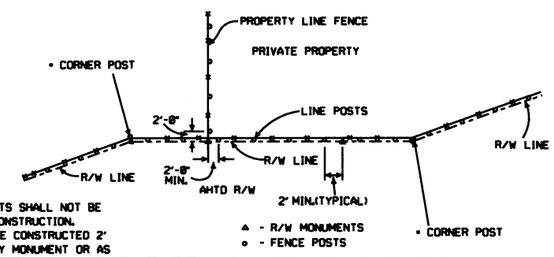
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

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

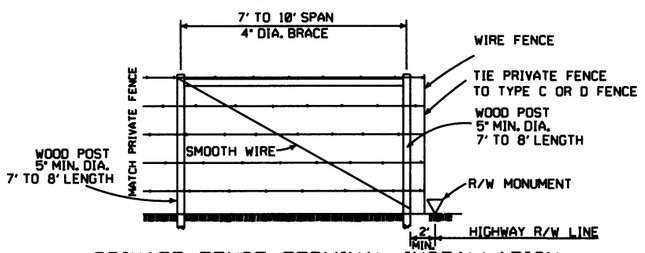


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

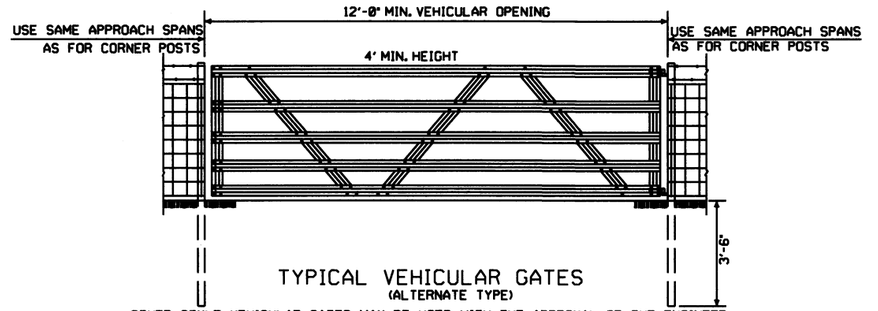


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

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.

GENERAL NOTES:

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

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

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

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

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

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

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

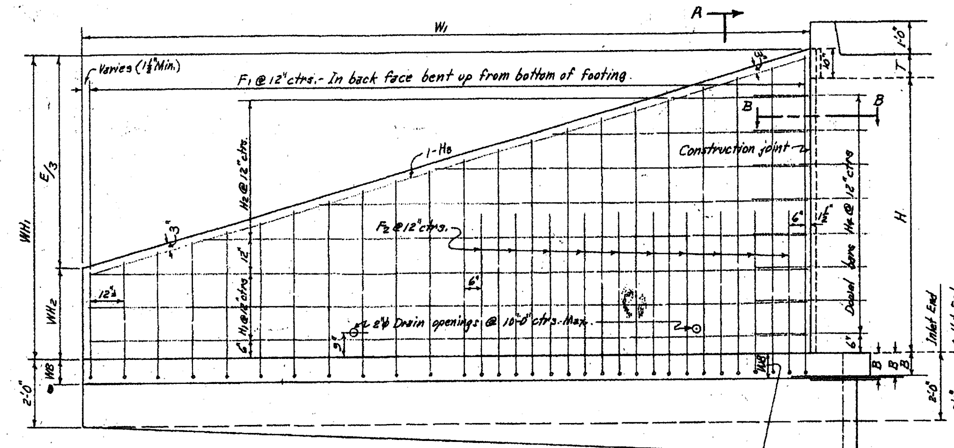
DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

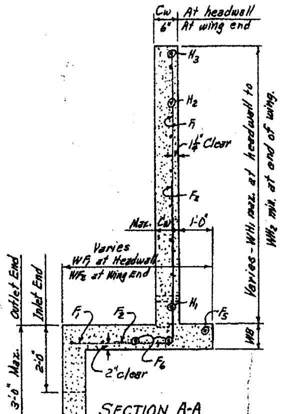
STANDARD DRAWING WF-4

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

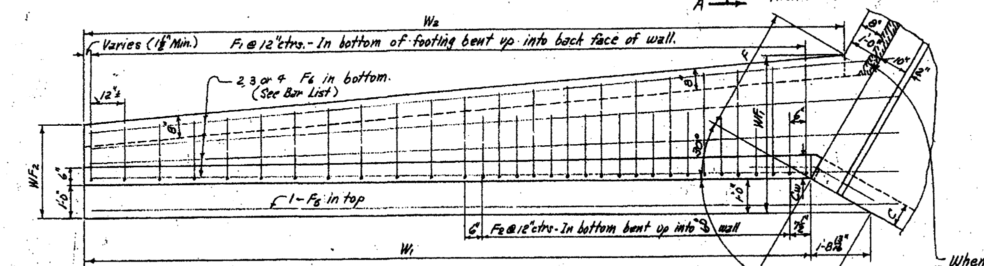


REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

WB may be more, equal to, or less than the bottom slab thickness B.

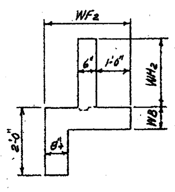


SECTION A-A

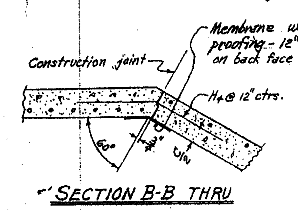


PLAN OF WING - SHOWING FOOTING REINF.

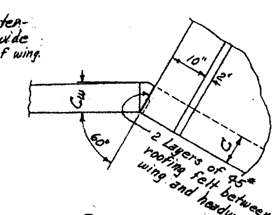
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



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.

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS: AT HEADWALL	WINGWALL HEIGHTS: AT END OF WING	WIDTHS OF WING FOOTINGS: AT HEADWALL	WIDTHS OF WING FOOTINGS: AT END OF WING	PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE: 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'-4"	2'-0"	0'-11¾"	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'-9¾"	9'-7⅛"	1.338	1.466
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1½"	12'-1½"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5¼"	14'-7½"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5¼"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6¼"	14'-6"	16'-9"	17'-1½"	3.440	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6¼"	14'-6"	16'-9"	17'-1½"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6¼"	14'-6"	16'-9"	17'-1½"	3.588	3.803
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1¼"	16'-6"	19'-0½"	19'-8¾"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1¼"	16'-6"	19'-0½"	19'-8¾"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4¼"	22'-4"	5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.

APRON DIMENSION W_3

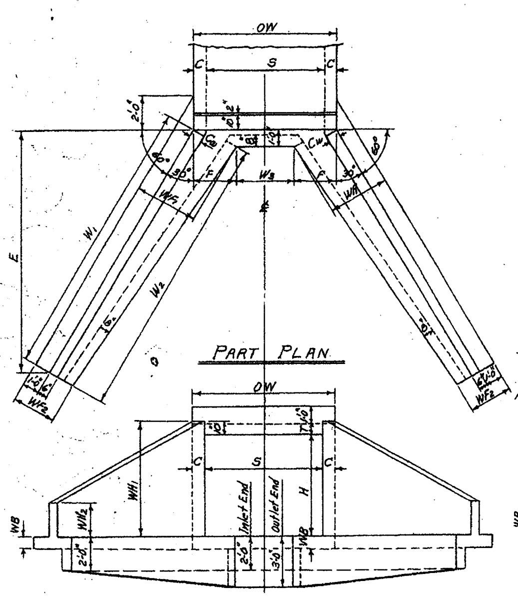
$W_3 = (OW - 2F)$

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W_3	OW	W_3	OW	W_3	OW	W_3	OW	W_3
4'	2'	1'-11½"	5'-0"	3'-0½"	9'-8"	7'-8½"	14'-4"	12'-4½"	19'-0"	17'-0½"	23'-8"	21'-8½"
	3'	2'-8¾"	5'-0"	2'-3¼"	9'-8"	6'-11¼"	14'-4"	11'-7¼"	19'-0"	16'-3¼"	23'-8"	20'-11¼"
	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'-3¼"	5'-0"	0'-8¾"	9'-8"	5'-4¾"	14'-4"	10'-0¾"	19'-0"	14'-8¾"	23'-8"	19'-4¾"
	6'	5'-0½"	5'-2"	0'-1½"	9'-11"	4'-10½"	14'-8"	9'-7½"	19'-5"	14'-4½"	24'-2"	19'-1½"
5'	3'	2'-8¾"	6'-0"	3'-3¼"	11'-8"	8'-11¼"	17'-4"	14'-7¼"	23'-0"	20'-3¼"	28'-8"	25'-11¼"
	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'-3¼"	6'-0"	1'-8¾"	11'-8"	7'-4¾"	17'-4"	13'-0¾"	23'-0"	18'-8¾"	28'-8"	24'-4¾"
	6'	5'-0½"	6'-2"	1'-1½"	11'-11"	6'-10½"	17'-8"	12'-7½"	23'-5"	18'-4½"	29'-2"	24'-1½"
	7'	6'-2½"	6'-3"	0'-0½"	12'-1"	5'-10½"	17'-11"	11'-8½"	23'-9"	17'-6½"	29'-7"	23'-4½"
6'	3'	2'-8¾"	7'-0"	4'-3¼"	13'-8"	10'-11¼"	20'-4"	17'-7¼"	27'-0"	24'-3¼"	33'-8"	30'-11¼"
	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'-3¼"	7'-0"	2'-8¾"	13'-8"	9'-4¾"	20'-4"	16'-0¾"	27'-0"	22'-8¾"	33'-8"	29'-4¾"
	6'	5'-0½"	7'-2"	2'-1½"	13'-11"	8'-10½"	20'-8"	15'-7½"	27'-5"	22'-4½"	34'-2"	29'-1½"
	7'	6'-2½"	7'-3"	1'-0½"	14'-1"	7'-10½"	20'-11"	14'-8½"	27'-9"	21'-6½"	34'-7"	28'-4½"
	8'	7'-4"	7'-4"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-4"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-2"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3¼"	8'-0"	3'-8¾"	15'-8"	11'-4¾"	23'-4"	19'-0¾"	31'-0"	26'-8¾"	38'-8"	34'-4¾"
	6'	5'-0½"	8'-2"	3'-1½"	15'-11"	10'-10½"	23'-8"	18'-7½"	31'-5"	26'-4½"	39'-2"	34'-1½"
	7'	6'-2½"	8'-3"	2'-0½"	16'-1"	9'-10½"	23'-11"	17'-8½"	31'-9"	25'-6½"	39'-7"	33'-4½"
	8'	7'-4"	8'-4"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-2"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3¼"	9'-2"	4'-10¾"	17'-11"	13'-7¾"	26'-8"	22'-4¾"	35'-5"	31'-1¾"	44'-2"	39'-10¾"
	6'	5'-0½"	9'-2"	4'-1½"	17'-11"	12'-10½"	26'-8"	21'-7½"	35'-5"	30'-4½"	44'-2"	39'-1½"
	7'	6'-2½"	9'-3"	3'-0½"	18'-1"	11'-10½"	26'-11"	20'-8½"	35'-9"	29'-6½"	44'-7"	38'-4½"
	8'	7'-4"	9'-4"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-4"
9'	5'	4'-3¼"	10'-2"	5'-10¾"	19'-11"	15'-7¾"	29'-8"	25'-4¾"	39'-5"	35'-1¾"	49'-2"	44'-10¾"
	6'	5'-0½"	10'-3"	5'-2½"	20'-1"	15'-0½"	29'-11"	24'-10½"	39'-9"	34'-8½"	49'-7"	44'-6½"
	7'	6'-2½"	10'-3"	4'-0½"	20'-1"	13'-10½"	29'-11"	23'-8½"	39'-9"	33'-6½"	49'-7"	43'-4½"
	8'	7'-4"	10'-4"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-4"
10'	5'	4'-3¼"	11'-2"	6'-10¾"	21'-11"	17'-7¾"	32'-8"	28'-4¾"	43'-5"	39'-1¾"	54'-2"	49'-10¾"
	6'	5'-0½"	11'-3"	6'-2½"	22'-1"	17'-0½"	32'-11"	27'-10½"	43'-9"	38'-8½"	54'-7"	49'-6½"
	7'	6'-2½"	11'-3"	5'-0½"	22'-1"	15'-10½"	32'-11"	26'-8½"	43'-9"	37'-6½"	54'-7"	48'-4½"
	8'	7'-4"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0½"	12'-4"	7'-3½"	24'-2"	19'-1½"	36'-0"	30'-11½"	47'-10"	42'-9½"		
	7'	6'-2½"	12'-4"	6'-1½"	24'-2"	17'-11½"	36'-0"	29'-9½"	47'-10"	41'-7½"		
	8'	7'-4"	12'-4"	5'-0"	24'-2"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0½"	13'-4"	8'-3½"	26'-2"	21'-1½"	39'-0"	33'-11½"	51'-10"	46'-9½"		
	7'	6'-2½"	13'-4"	7'-1½"	26'-2"	19'-11½"	39'-0"	32'-9½"	51'-10"	45'-7½"		
	8'	7'-4"	13'-4"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	⊗ 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	4.50	5.46	6.42	7.38	8.34
	3'	6"	7"	164.4	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	254.6	8.33	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"	164.4	6.47	7.63	8.79	9.96	11.12
	4'	6"	7"	254.6	8.54	9.70	10.87	10.03	13.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	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"	254.6	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"	254.6	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"	254.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.36
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7½"	8½"	1134.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1425.6	24.54	26.41	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.34	16.87	18.45	20.47
	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	20.04	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	20.64	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	

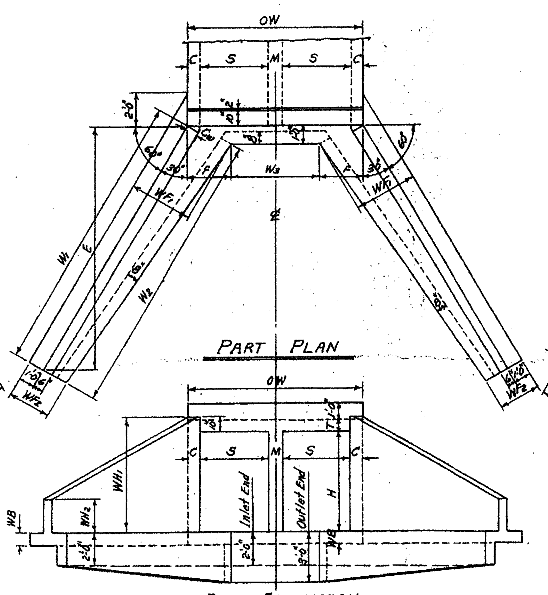
⊗ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

SINGLE BARREL CULVERT

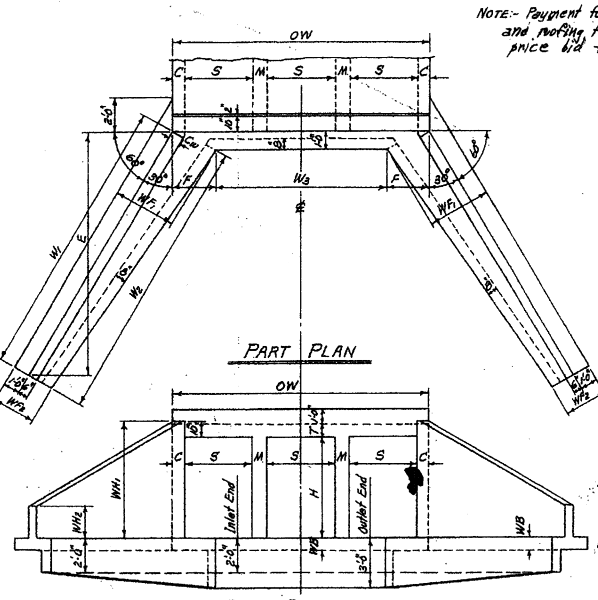


PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

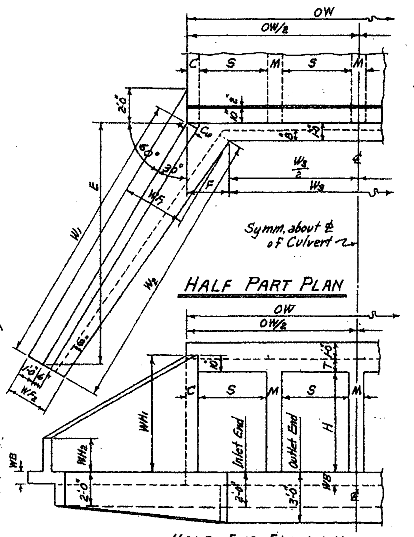
NOTE:- Plans and Elevations are not to scale.



PART PLAN

END ELEVATION

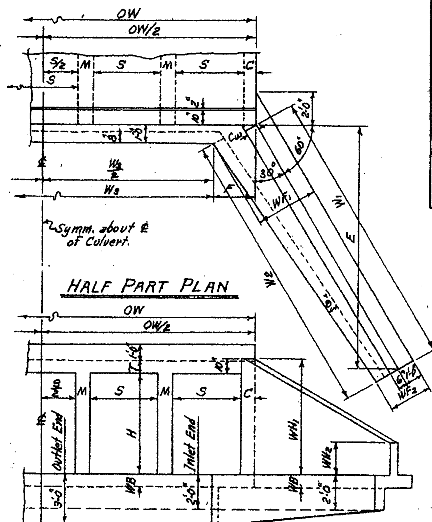
TRIPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

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		

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.

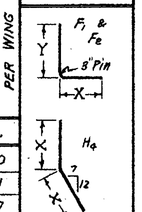
BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F_1 BENT: In bottom of footing, bent up into back face of wing. One bar of each length. SIZE	SPACING	No. REQ'D	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	F_2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars. SIZE	SPACING	No. REQ'D	LENGTH	X	Y
H															
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—
4'	#3	12"	13	2'-4"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—
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"
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"
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"
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"

CLEAR HEIGHT	F_5 STRAIGHT: Longitudinal in top of wing footing heel. SIZE	No. REQ'D	LENGTH	F_6 STRAIGHT: Longitudinal in bottom of wing footing toe. SIZE	No. REQ'D	LENGTH	H_1 STRAIGHT: Horizontal in back face of wing. SIZE	SPACING	No. REQ'D	LENGTH	H_2 STRAIGHT: Horizontal in back face of wing. One bar of each length. SIZE	SPACING	No. REQ'D	LENGTHS VARY MAX.	LENGTHS VARY MIN.
H															
2'	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	—	4'-0"
3'	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-0"
4'	#3	1	14'-4"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"
5'	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"
6'	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-4"	4'-0"
7'	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"
8'	#4	1	23'-8"	#4	4	23'-9"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"

CLEAR HEIGHT	H_3 STRAIGHT: In back face of wing at top - on slope. SIZE	No. REQ'D	LENGTH	H_4 BENT: Dowels thru construction joint at headwall. SIZE	SPACING	No. REQ'D	LENGTH	X	QUANTITY REINFORCING STEEL PER WING (LB.)
H									
2'	#3	1	7'-4"	#3	12"	2	2'-8"	1'-4"	27.0
3'	#3	1	9'-9"	#3	12"	3	2'-8"	1'-4"	41.1
4'	#3	1	12'-2"	#3	12"	4	2'-8"	1'-4"	63.7
5'	#3	1	14'-7"	#3	12"	5	2'-8"	1'-4"	89.5
6'	#3	1	17'-0"	#3	12"	6	2'-8"	1'-4"	145.8
7'	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

Designed By:- W.C.H. 8-20-62. Checked By:- RHS. 1-9-63
Drawn By:- W.C.H. 12-4-62. Checked By:- RHS. 1-31-63
Quantities By:- W.C.H. 12-14-62. Checked By:- RHS. Rechecked By:- RHS 3-29-63

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

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

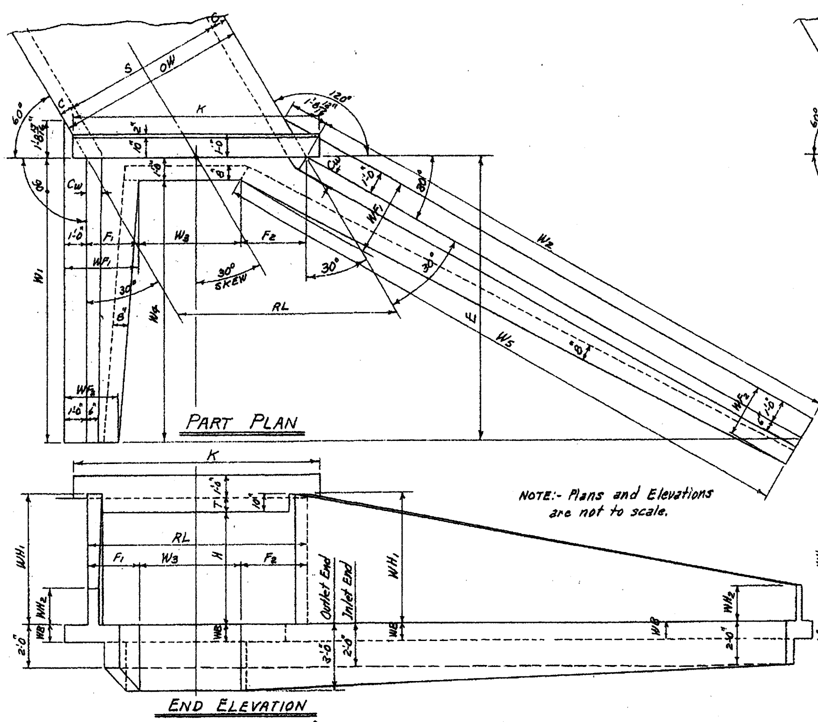
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

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

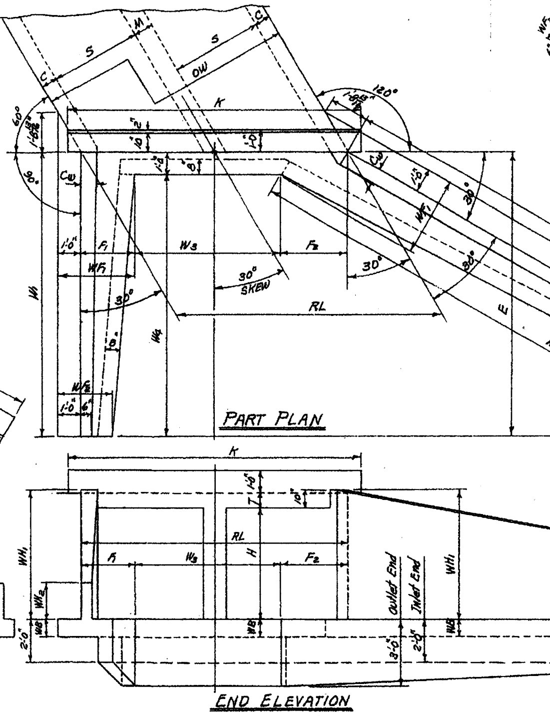
STANDARD DRAWING NO. W-X003-1

MYLAR.



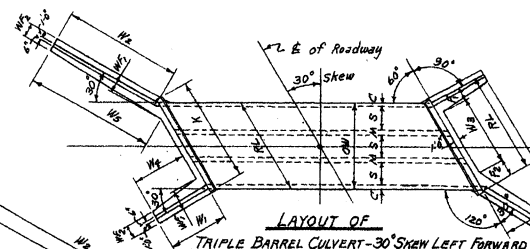
SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Layout below.

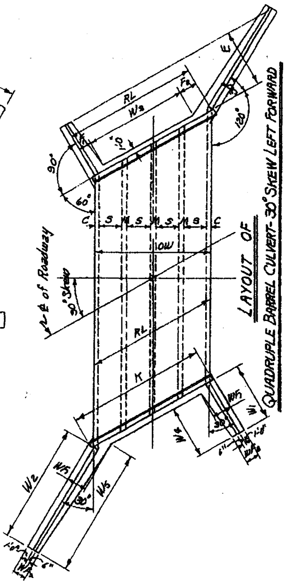


DOUBLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Layout below.

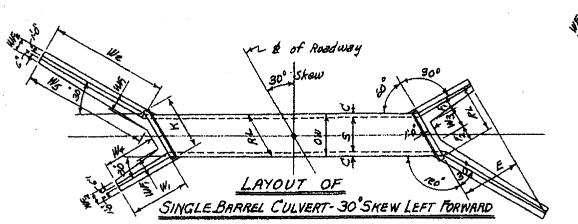


LAYOUT OF TRIPLE BARREL CULVERT - 30° SKEW LEFT FORWARD

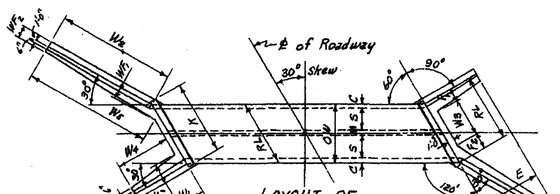


LAYOUT OF QUADRUPLE BARREL CULVERT - 30° SKEW LEFT FORWARD

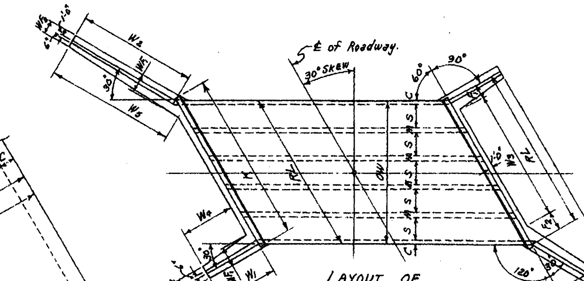
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.



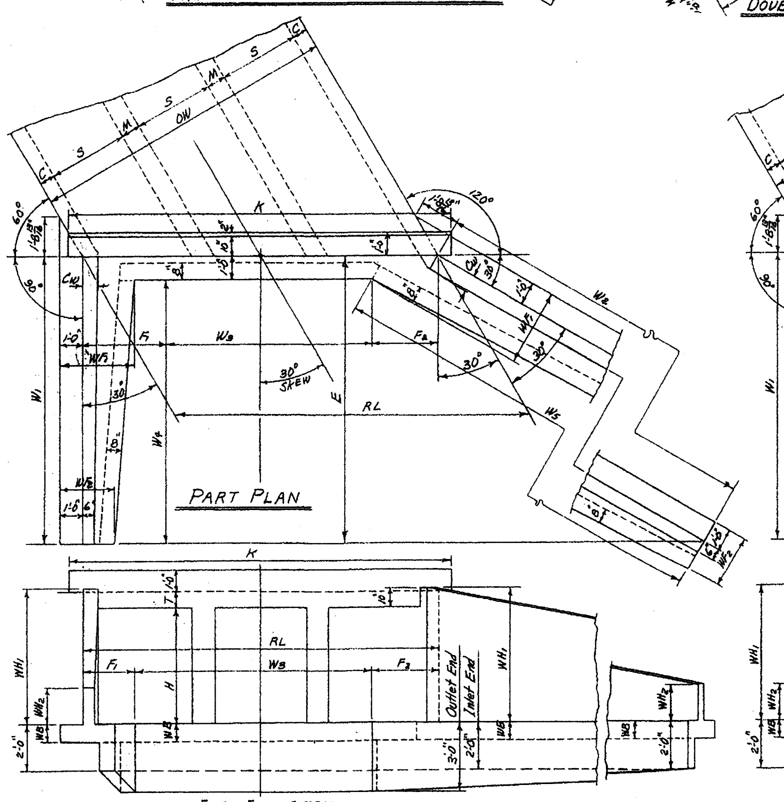
LAYOUT OF SINGLE BARREL CULVERT - 30° SKEW LEFT FORWARD



LAYOUT OF DOUBLE BARREL CULVERT - 30° SKEW LEFT FORWARD

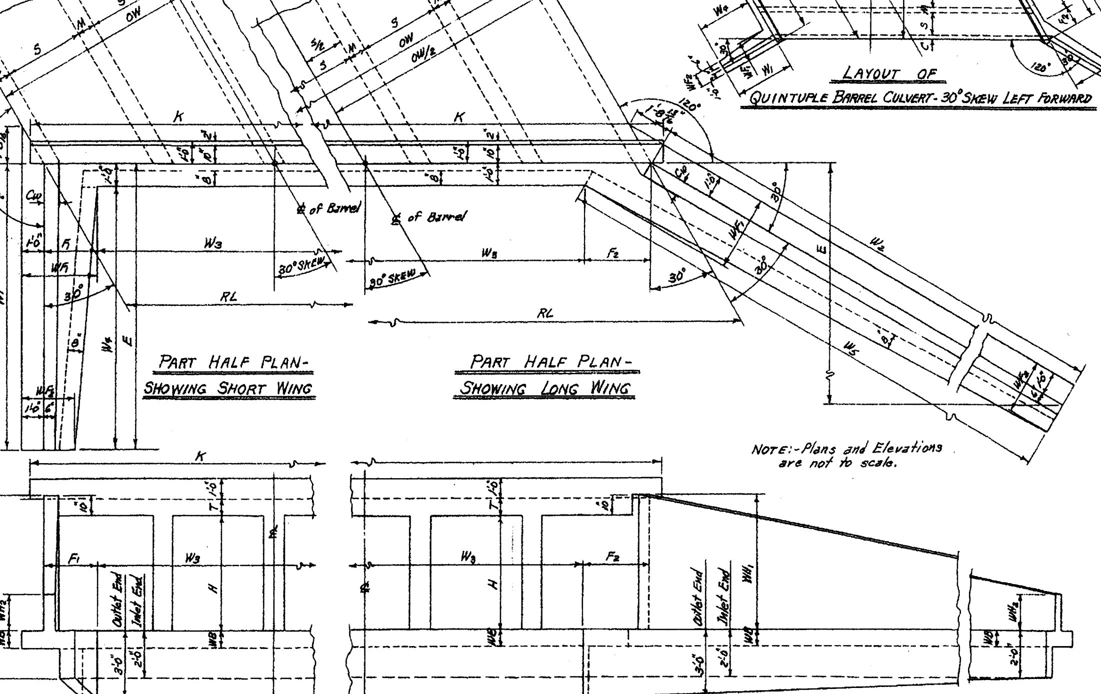


LAYOUT OF QUINTUPLE BARREL CULVERT - 30° SKEW LEFT FORWARD



TRIPLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Layout at top center of sheet.



QUADRUPLE BARREL CULVERT - 30° SKEW RT. FWD.

Details of Culvert with 30° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 30° SKEW RT. FWD.

Details of Culvert with 30° Skew Left Forward is reversed, see Layout above.

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

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

$RL = OW \times 1.1547$; $K = RL + (1'\text{-}1\tfrac{7}{8}")$; $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING No.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF FOOTING DIMENSIONS F1 & F2	SINGLE BARREL CULVERT OW	RL	K	W3	DOUBLE BARREL CULVERT OW	RL	K	W3	TRIPLE BARREL CULVERT OW	RL	K	W3	QUADRUPLE BARREL CULVERT OW	RL	K	W3	QUINTUPLE BARREL CULVERT OW	RL	K	W3
W-X302-1, W-X303-1 or W-X304-1 (FOR H = 8'-0" OR LESS)	4'	2'	2'-3¼"	5'-0"	5'-9¼"	6'-11⅛"	3'-6"	9'-8"	11'-2"	12'-3¾"	8'-10¾"	14'-4"	16'-6⅝"	17'-8½"	14'-3⅜"	19'-0"	21'-11¼"	23'-1"	19'-8"	23'-8"	27'-4"	28'-5¾"	25'-0¾"
		3'	3'-3¼"	5'-0"	"	"	2'-6"	9'-8"	"	"	7'-10¾"	14'-4"	"	"	13'-3⅜"	19'-0"	"	"	18'-8"	23'-8"	"	"	24'-0¾"
		4'	4'-3¼"	5'-0"	"	"	1'-6"	9'-8"	"	"	6'-10¾"	14'-4"	"	"	12'-3⅜"	19'-0"	"	"	17'-8"	23'-8"	"	"	23'-0¾"
		5'	5'-3¼"	5'-0"	5'-9¼"	6'-11⅛"	0'-6"	9'-8"	11'-2"	12'-3¾"	5'-10¾"	14'-4"	16'-6⅝"	17'-8½"	11'-3⅜"	19'-0"	21'-11¼"	23'-1"	16'-8"	23'-8"	27'-4"	28'-5¾"	22'-0¾"
		6'	6'-3¼"	5'-2"	5'-11⅝"	7'-1½"	Ⓐ 0"	9'-11"	11'-5½"	12'-7¼"	5'-2¼"	14'-8"	16'-11¼"	18'-1"	10'-8"	19'-5"	22'-5"	23'-7"	16'-1¾"	24'-2"	27'-10⅞"	29'-0⅝"	21'-7¾"
	5'	3'	3'-3¼"	6'-0"	6'-11⅛"	8'-1"	3'-7⅞"	11'-8"	13'-5¾"	14'-7½"	10'-2½"	17'-4"	20'-0¼"	21'-2"	16'-9"	23'-0"	26'-6¾"	27'-8½"	23'-3½"	28'-8"	33'-1¼"	34'-3"	29'-10"
		4'	4'-3¼"	6'-0"	"	"	2'-7⅞"	11'-8"	"	"	9'-2½"	17'-4"	"	"	15'-9"	23'-0"	"	"	22'-3½"	28'-8"	"	"	28'-10"
		5'	5'-3¼"	6'-0"	6'-11⅛"	8'-1"	1'-7⅞"	11'-8"	13'-5¾"	14'-7½"	8'-2½"	17'-4"	20'-0¼"	21'-2"	14'-9"	23'-0"	26'-6¾"	27'-8½"	21'-3½"	28'-8"	33'-1¼"	34'-3"	27'-10"
		6'	6'-3¼"	6'-2"	7'-1½"	8'-3¼"	0'-10¼"	11'-11"	13'-9⅛"	14'-11"	7'-5⅝"	17'-8"	20'-4¾"	21'-6¾"	14'-1½"	23'-5"	27'-0¼"	28'-2¼"	20'-9¼"	29'-2"	33'-8¾"	34'-10"	27'-5"
		7'	7'-9¼"	6'-3"	7'-2⅝"	8'-4⅜"	Ⓐ 0"	12'-1"	13'-11⅛"	15'-1¼"	6'-2¼"	17'-11"	20'-8¼"	21'-10"	12'-11"	23'-9"	27'-5¼"	28'-7"	19'-8"	29'-7"	34'-2"	35'-3¾"	26'-4¾"
	6'	3'	3'-3¼"	7'-0"	8'-1"	9'-2⅞"	4'-9¾"	13'-8"	15'-9⅜"	16'-11¼"	12'-6⅛"	20'-4"	23'-5¾"	24'-7½"	20'-2½"	27'-0"	31'-2⅛"	32'-4"	27'-11"	33'-8"	38'-10½"	40'-0¼"	35'-7¼"
		4'	4'-3¼"	7'-0"	"	"	3'-9¾"	13'-8"	"	"	11'-6⅛"	20'-4"	"	"	19'-2½"	27'-0"	"	"	26'-11"	33'-8"	"	"	34'-7¼"
		5'	5'-3¼"	7'-0"	8'-1"	9'-2⅞"	2'-9¾"	13'-8"	15'-9⅜"	16'-11¼"	10'-6⅛"	20'-4"	23'-5¾"	24'-7½"	18'-2½"	27'-0"	31'-2⅛"	32'-4"	25'-11"	33'-8"	38'-10½"	40'-0¼"	33'-7¼"
		6'	6'-3¼"	7'-2"	8'-3¾"	9'-5⅛"	2'-0"	13'-11"	16'-0⅞"	17'-2⅝"	9'-9⅝"	20'-8"	23'-10⅜"	25'-0⅛"	17'-7¼"	27'-5"	31'-7⅞"	32'-9⅝"	25'-4⅜"	34'-2"	39'-5½"	40'-7¼"	33'-2¼"
		7'	7'-9¼"	7'-3"	8'-4¼"	9'-6⅜"	0'-7¼"	14'-1"	16'-3⅛"	17'-5"	8'-6"	20'-11"	24'-1⅞"	25'-3⅝"	16'-4½"	27'-9"	32'-0½"	33'-2¼"	24'-3⅝"	34'-7"	39'-11½"	41'-1"	32'-2"
		8'	9'-3¼"	7'-4"	8'-5⅜"	9'-7½"	Ⓐ 0"	14'-2"	16'-4⅝"	17'-6¼"	7'-1"	21'-0"	24'-3"	25'-4⅞"	14'-11¾"	27'-10"	32'-1⅞"	33'-3½"	22'-10½"	34'-8"	40'-0⅜"	41'-2¼"	30'-9⅛"
	7'	4'	4'-3¼"	8'-0"	9'-2⅞"	10'-4¾"	4'-11⅝"	15'-8"	18'-1⅛"	19'-3"	13'-9¾"	23'-4"	26'-11⅞"	28'-1¼"	22'-8"	31'-0"	35'-9½"	36'-11¼"	31'-6¼"	38'-8"	44'-7¾"	45'-9¾"	40'-4½"
		5'	5'-3¼"	8'-0"	9'-2⅞"	10'-4¾"	3'-11⅝"	15'-8"	18'-1⅛"	19'-3"	12'-9¾"	23'-4"	26'-11⅞"	28'-1¼"	21'-8"	31'-0"	35'-9½"	36'-11¼"	30'-6¼"	38'-8"	44'-7¾"	45'-9¾"	39'-4½"
		6'	6'-3¼"	8'-2"	9'-5¼"	10'-7"	3'-2"	15'-11"	18'-4½"	19'-6½"	12'-1¼"	23'-8"	27'-4"	28'-5¾"	21'-0¾"	31'-5"	36'-3⅜"	37'-5¼"	30'-0"	39'-2"	45'-2¾"	46'-4½"	38'-11½"
		7'	7'-9¼"	8'-3"	9'-6¼"	10'-8⅛"	1'-9"	16'-1"	18'-6⅞"	19'-8¾"	10'-9¾"	23'-11"	27'-7⅜"	28'-9¼"	19'-10¼"	31'-9"	36'-8"	37'-9¾"	28'-10⅞"	39'-7"	45'-8¼"	46'-10⅛"	37'-11⅛"
		8'	9'-3¼"	8'-4"	9'-7½"	10'-9⅜"	0'-4¼"	16'-2"	18'-8"	19'-9¾"	9'-4¾"	24'-0"	27'-8¼"	28'-10¼"	18'-5¼"	31'-10"	36'-9¼"	37'-11"	27'-6"	39'-8"	45'-9⅝"	46'-11½"	36'-6½"
	8'	4'	4'-3¼"	9'-0"	10'-4¾"	11'-6½"	6'-1½"	17'-8"	20'-4⅜"	21'-6¾"	16'-1½"	26'-4"	30'-4⅞"	31'-6¾"	26'-1¾"	35'-0"	40'-5"	41'-6¾"	36'-1¾"	43'-8"	50'-5⅜"	51'-7"	46'-1¾"
		5'	5'-3¼"	9'-2"	10'-7"	11'-8⅞"	5'-3¾"	17'-11"	20'-8¼"	21'-10"	15'-5"	26'-8"	30'-9½"	31'-11¼"	25'-6⅜"	35'-5"	40'-10¾"	42'-0½"	35'-7½"	44'-2"	51'-0"	52'-1¾"	45'-8¾"
		6'	6'-3¼"	9'-2"	10'-7"	11'-8⅞"	4'-3¾"	17'-11"	20'-8¼"	21'-10"	14'-5"	26'-8"	30'-9½"	31'-11¼"	24'-6⅜"	35'-5"	40'-10¾"	42'-0½"	34'-7½"	44'-2"	51'-0"	52'-1¾"	44'-8¾"
		7'	7'-9¼"	9'-3"	10'-8¼"	11'-10"	2'-11"	18'-1"	20'-10⅝"	22'-0½"	13'-1½"	26'-11"	31'-1"	32'-2¾"	23'-3⅞"	35'-9"	41'-3⅜"	42'-5⅛"	33'-6¼"	44'-7"	51'-5¾"	52'-7½"	43'-8½"
		8'	9'-3¼"	9'-4"	10'-9⅜"	11'-11¼"	1'-6⅛"	18'-2"	20'-11¾"	22'-1½"	11'-8½"	27'-0"	31'-2⅛"	32'-4"	21'-11"	35'-10"	41'-4½"	42'-6½"	32'-1¼"	44'-8"	51'-7"	52'-8⅞"	42'-3¾"
	9'	5'	5'-3¼"	10'-2"	11'-8⅞"	12'-10¾"	6'-5⅜"	19'-11"	23'-0"	24'-1¾"	17'-8¾"	29'-8"	34'-3⅛"	35'-5"	28'-11¾"	39'-5"	45'-6⅛"	46'-8"	40'-3"	49'-2"	56'-9¼"	57'-11¼"	51'-6"
		6'	6'-3¼"	10'-3"	11'-10"	13'-0"	5'-6¾"	20'-1"	23'-2¼"	24'-4¼"	16'-11"	29'-11"	34'-6½"	35'-8½"	28'-3¼"	39'-9"	45'-10⅜"	47'-0⅜"	39'-7⅝"	49'-7"	57'-3"	58'-5"	50'-11¾"
		7'	7'-9¼"	10'-3"	11'-10"	13'-0"	4'-0¾"	20'-1"	23'-2¼"	24'-4¼"	15'-5"	29'-11"	34'-6½"	35'-8½"	26'-9¼"	39'-9"	45'-10⅜"	47'-0⅜"	38'-1½"	49'-7"	57'-3"	58'-5"	49'-5¾"
		8'	9'-3¼"	10'-4"	11'-11⅛"	13'-1"	2'-8"	20'-2"	23'-3½"	24'-5¼"	14'-0¼"	30'-0"	34'-7¾"	35'-9½"	25'-4½"	39'-10"	46'-0"	47'-1¾"	36'-8¾"	49'-8"	57'-4⅛"	58'-6"	48'-1"
	10'	5'	5'-3¼"	11'-2"	12'-10¾"	14'-0½"	7'-7½"	21'-11"	25'-3¾"	26'-5½"	20'-0½"	32'-8"	37'-8⅝"	38'-10½"	32'-5½"	43'-5"	50'-1⅝"	51'-3½"	44'-10½"	54'-2"	62'-6½"	63'-8½"	57'-3¾"
		6'	6'-3¼"	11'-3"	12'-11⅞"	14'-1¾"	6'-8⅝"	22'-1"	25'-6"	26'-7¾"	19'-2¾"	32'-11"	38'-0⅛"	39'-2"	31'-9"	43'-9"	50'-6¼"	51'-8"	44'-3"	54'-7"	63'-0⅜"	64'-2¼"	56'-9"
		7'	7'-9¼"	11'-3"	12'-11⅞"	14'-1¾"	5'-2⅝"	22'-1"	25'-6"	26'-7¾"	17'-8¾"	32'-11"	38'-0⅛"	39'-2"	30'-3"	43'-9"	50'-6¼"	51'-8"	42'-9"	54'-7"	63'-0⅜"	64'-2¼"	55'-3"
		8'	9'-3¼"	11'-4"	13'-1"	14'-3"	3'-9¾"	22'-2"	25'-7⅛"	26'-9"	16'-4"	33'-0"	38'-1¼"	39'-3"	28'-10"	43'-10"	50'-7⅜"	51'-9¼"	41'-4¼"	54'-8"	63'-1½"	64'-3¼"	53'-10¼"
	11'	6'	6'-3¼"	12'-4"	14'-2⅞"	15'-4⅝"	7'-11⅝"	24'-2"	27'-10⅞"	29'-0⅝"	21'-7⅝"	36'-0"	41'-6⅞"	42'-8⅝"	35'-3½"	47'-10"	55'-2⅜"	56'-4⅜"	48'-11⅜"	—	—	—	—
		7'	7'-9¼"	12'-4"	"	"	6'-5⅝"	24'-2"	"	"	20'-1⅝"	36'-0"	"	"	33'-9½"	47'-10"	"	"	47'-5⅜"	—	—	—	—
		8'	9'-3¼"	12'-4"	"	"	4'-11⅝"	24'-2"	"	"	18'-7⅝"	36'-0"	"	"	32'-3½"	47'-10"	"	"	45'-11⅜"	—	—	—	—
	12'	6'	6'-3¼"	13'-4"	15'-4¾"	16'-6½"	9'-1½"	26'-2"	30'-2⅝"	31'-4½"	23'-11½"	39'-0"	45'-0⅜"	46'-2¼"	38'-9¼"	51'-10"	59'-10¼"	61'-0"	53'-7"	—	—	—	—
		7'	7'-9¼"	13'-4"	"	"	7'-7½"	26'-2"	"	"	22'-5½"	39'-0"	"	"	37'-3¼"	51'-10"	"	"	52'-1"	—	—	—	—
		8'	9'-3¼"	13'-4"	"	"	6'-1½"	26'-2"	"	"	20'-11½"	39'-0"	"	"	35'-9¼"	51'-10"	"	"	50'-7"	—	—	—	—
W-X302-2, W-X303-2 or W-X304-2 (FOR H = 9'-0" & OVER)	7'	9'	10'-9¼"	8'-6"	9'-9¾"	10'-11⅝"	Ⓐ 0"	16'-5"	18'-11½"	20'-1¼"	8'-2¼"	24'-4"	28'-1¼"	29'-3"	17'-4"	32'-3"	37'-2⅞"	38'-4⅝"	26'-5¾"	40'-2"	46'-4⅞"	47'-6½"	35'-7¼"
	8'	9'	10'-9¼"	9'-6"	10'-11⅝"	12'-1½"	0'-2⅜"	18'-5"	21'-3¼"	22'-5"	10'-6"	27'-4"	31'-6⅞"	32'-8½"	20'-9½"	36'-3"	41'-10¼"	43'-0¼"	31'-1"	45'-2"	52'-1⅞"	53'-3¾"	41'-4¾"
		10'	12'-3¼"	9'-8"	11'-2"	12'-3¾"	Ⓐ 0"	18'-8"	21'-6¾"	22'-8½"	9'-3½"	27'-8"	31'-11⅜"	33'-1¼"	19'-8¼"	36'-8"	42'-4⅛"	43'-6"	30'-0¾"	45'-8"	52'-8¾"	53'-10¾"	40'-5½"
	9'	9'	10'-9¼"	10'-6"	12'-1½"	13'-3¼"	1'-4¼"	20'-5"	23'-6⅞"	24'-8¾"	12'-9¾"	30'-4"	35'-0¼"	36'-2¼"	24'-3"	40'-3"	46'-5⅞"	47'-7½"	35'-8½"	50'-2"	57'-11⅛"	59'-1"	47'-2"
		10'	12'-3¼"	10'-8"	12'-3⅞"	13'-5¾"	0'-0⅝"	20'-8"	23'-10⅜"	25'-0¼"	11'-7¼"	30'-8"	35'-4⅞"	36'-6⅝"	23'-1⅜"	40'-8"	46'-11½"	48'-1¼"	34'-8¼"	50'-8"	58'-6"	59'-8"	46'-2¾"
		11'	13'-9¼"	10'-10"	12'-6⅛"	13'-8"	Ⓐ 0"	20'-10"	24'-0⅞"	25'-2½"	10'-3½"	30'-10"	35'-7¼"	36'-9"	21'-10"	40'-10"	47'-1⅜"	48'-3⅜"	33'-4½"	50'-10"	58'-8⅞"	59'-10½"	44'-11¼"
	10'	9'	10'-9¼"	11'-6"	13'-3⅜"	14'-5¼"	2'-6⅛"	22'-5"	25'-10⅝"	27'-0½"	15'-3½"	33'-4"	38'-5⅞"	39'-7¾"	27'-8¾"	44'-3"	51'-1⅛"	52'-3"	40'-4"	55'-2"	63'-8⅜"	64'-10¼"	52'-11¼"
		10'	12'-3¼"	11'-8"	13'-5⅝"	14'-7½"	1'-2⅛"	22'-8"	26'-2⅛"	27'-4"	13'-10¾"	33'-8"	38'-10½"	40'-0¼"	26'-7¼"	44'-8"	51'-7"	52'-8¾"	39'-3¾"	55'-8"	64'-3⅜"	65'-5¼"	52'-0"
		11'	13'-9¼"	11'-10"	13'-8"	14'-9¾"	Ⓐ 0"	22'-10"	26'-4⅜"	27'-6¼"	12'-7¼"	33'-10"	39'-0⅞"	40'-2⅝"	25'-3½"	44'-10"	51'-9¼"	52'-11"	38'-0"	55'-10"	64'-5⅝"	65'-7½"	50'-8½"
		12'	15'-3¼"	12'-0"	13'-10½"	15'-0¼"	Ⓐ 0"	23'-0"	26'-6¾"	27'-8½"	11'-3½"	34'-0"	39'-3⅜"	40'-5"	24'-0"	45'-0"	51'-11½"	53'-1¼"	36'-8¼"	56'-0"	64'-8"	65'-9¾"	49'-4¾"
	11'	9'	10'-9¼"	12'-6"	14'-5¼"	15'-7"	3'-8"	24'-5"	28'-2⅜"	29'-4¼"	17'-5"	36'-4"	41'-11¼"	43'-1¼"	31'-2¼"	48'-3"	55'-8⅝"	56'-10½"	44'-11¼"	—	—	—	—
		10'	12'-3¼"	12'-8"	14'-7½"	15'-9¼"	2'-4¼"	24'-8"	28'-5⅞"	29'-7¾"	16'-2¼"	36'-8"	42'-4⅛"	43'-6"	30'-0¾"	48'-8"	56'-2⅜"	57'-4½"	43'-11¼"	—	—	—	—
		11'	13'-9¼"	12'-10"	14'-9⅞"	15'-11⅜"	1'-0⅝"	24'-10"	28'-8⅛"	29'-10"	14'-11"	36'-10"	42'-6⅜"	43'-8¼"	28'-9¼"	48'-10"	56'-4⅝"	57'-6⅝"	42'-7¼"	—	—	—	—
		12'	15'-3¼"	13'-0"	15'-0⅛"	16'-2"	Ⓐ 0"	25'-0"	28'-10⅜"	30'-0¼"	13'-7¼"	37'-0"	42'-8¾"	43'-10½"	27'-5½"	49'-0"	56'-7"	57'-8¾"	41'-3¾"	—	—	—	—
	12'	9'	10'-9¼"	13'-6"	15'-7⅛"	16'-9"	4'-9⅜"	26'-5"	30'-6"	31'-8"	19'-8¾"	39'-4"	45'-5"	46'-7"	34'-7⅜"	52'-3"	60'-4"	61'-5¾"	49'-6¾"	—	—	—	—
		10'	12'-3¼"	13'-8"	15'-9⅜"	16'-11¼"	3'-6⅛"	26'-8"	30'-9½"	31'-11¼"	18'-6¼"	39'-8"	45'-9⅝"	46'-11½"	33'-6½"	52'-8"	60'-9⅜"	61'-11⅜"	48'-6½"	—	—	—	—
		11'	13'-9¼"	13'-10"	15'-11⅝"	17'-1½"	2'-2¼"	26'-10"	30'-11⅞"	32'-1⅜"	17'-2¼"	39'-10"	46'-0"	47'-1¾"	32'-2¾"	52'-10"	61'-0⅜"	62'-2"	47'-2¾"	—	—	—	—
		12'	15'-3¼"	14'-0"	16'-2"	17'-3¾"	0'-10¾"	27'-0"	31'-2⅛"	32'-4"	15'-11"	40'-0"	46'-2¼"	47'-4"	30'-11"	53'-0"	61'-2⅜"	62'-4⅛"	45'-11¼"	—	—	—	—

Ⓐ Special case for these boxes, See Detail "A" and Table "A" for revised values of F_1, F_2, W_4 and W_5, when apron width is more than 1'-0" and $W_3 = 0$". For Details "A" and Tables "A" for each slope, see Drawing Nos. W-X302-1, W-X302-2, or W-X303-1, W-X303-2, or W-X304-1, W-X304-2.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 30° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X302-1 or W-X302-2	W-X303-1 or W-X303-2	W-X304-1 or W-X304-2.

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

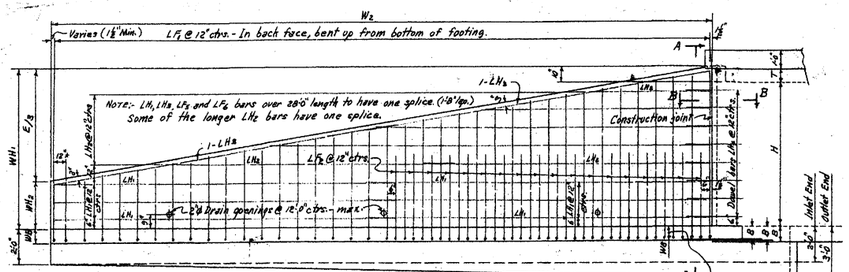
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER

H = 2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'

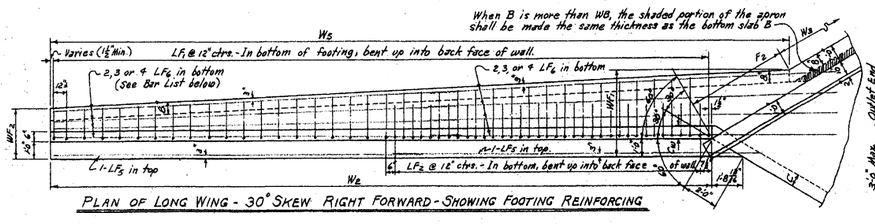
STANDARD DRAWING NO. W-X30

Designed by:- W.C.H. 5-16-63 — Checked by:-
Drawn by:- W.C.H. 7-15-63 — Checked by:- RHS 8-21-63
Quantities by:- — Checked by:-

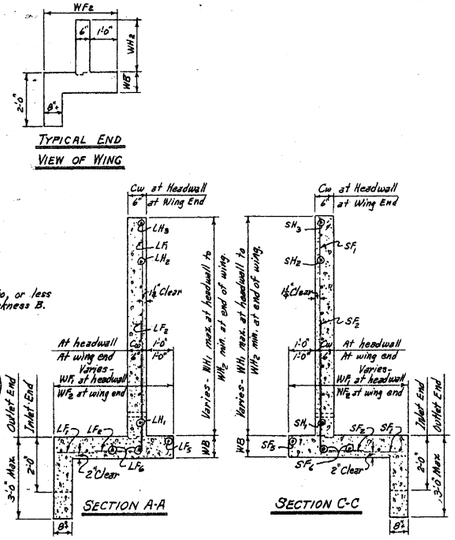
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

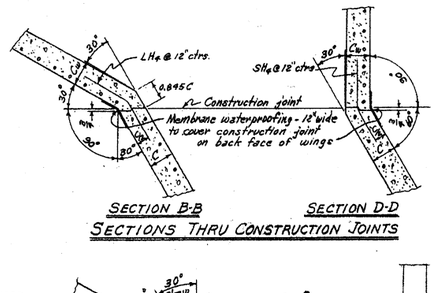


REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



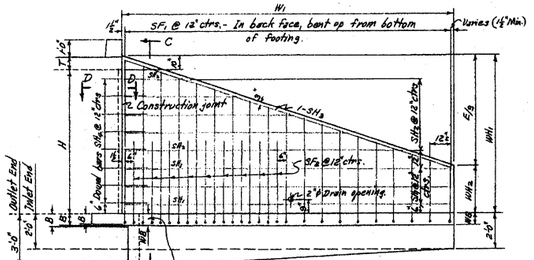
PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



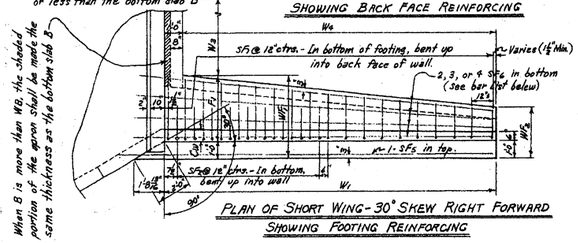


Sections Thru Construction Joints

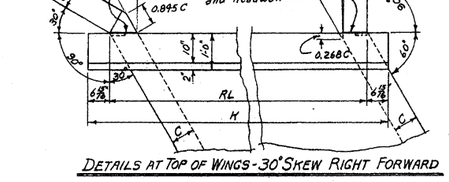
NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING BACK FACE REINFORCING



PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

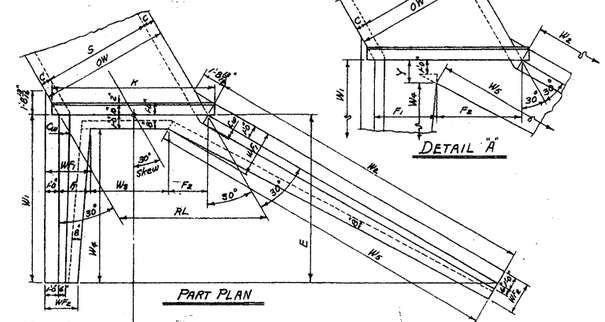
REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEAD & C	WINGWALL HEIGHTS: AT HEADWALL	WINGWALL HEIGHTS: AT END OF WING	WIDTHS OF WING FOOTINGS: AT HEAD WALL	WIDTHS OF WING FOOTINGS: AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL		PERPENDICULAR DIST. FROM END OF WING	LENGTHS OF WINGWALLS		INSIDE FOOTING DIMENSION		* QUANTITY PER WING: CLASS S CONCRETE: INLET END		OUTLET END	
														SHORT WING	LONG WING	SHORT WING	LONG WING
H	WB	Cw	WH1	WH2	Wf1	Wf2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-6"	2'-0"	1'-4"	0'-11½"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3⅜"	0.752	1.599	0.836	1.717
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1⅝"	1'-8"	1'-7⅛"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10⅝"	1.130	2.360	1.239	2.565
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3⅛"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5⅛"	1.577	3.270	1.711	3.552
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.098	4.341	2.252	4.680
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-9"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.179	4.524	2.337	4.862
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-1½"	2.908	6.024	3.092	6.419
		7⅞"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-1½"	2.966	6.147	3.150	6.598
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-1⅝"	3.025	6.272	3.208	6.667
7'	8⅛"	7⅛"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.811	7.895	4.019	8.350
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7⅛"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.887	8.057	4.095	8.512
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-7⅛"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4⅛"	4.874	10.097	5.107	10.612

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W5.
● See Table 'A' for special values of F1 & F2 and W4 & W5 for Single 4'6", 5'x7' and 6'x8' Box Culverts.

TABLE 'A' - DIMENSIONS FOR DETAIL 'A'

S	H	F1	F2	W3	Y	W4	W5
4'	6'	2'-7⅞"	3'-2⅝"	0"	1'-1⅜"	13'-4⅛"	31'-3½"
5'	7'	3'-1⅞"	4'-1"	0"	1'-3⅜"	15'-2⅜"	35'-10⅝"
6'	8'	3'-7⅝"	4'-10⅛"	0"	1'-6⅜"	17'-1⅛"	40'-6"



SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X30.

TYPICAL WING DETAILS

NOTE:- For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X30. For values of RL, K and W5 for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mopings 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 of wings.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	● 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	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	141	5.80	6.90	8.01	9.12	10.23
	3'	6"	7"	213	8.08	9.18	10.29	11.40	12.51
	4'	6"	7"	327	10.78	11.88	12.99	14.10	15.21
	5'	6"	7"	460	13.90	15.00	16.11	17.22	18.32
	6'	7"	8"	762	18.85	19.99	21.13	22.27	23.41
5'	3'	6"	7"	213	8.33	9.47	11.01	12.36	13.70
	4'	6"	7"	327	11.08	12.34	13.71	15.06	16.40
	5'	6"	7"	460	14.14	15.49	16.83	18.17	19.52
	6'	7"	8"	762	19.11	20.98	21.86	23.24	24.62
	7'	7⅞"	8½"	1474	24.51	25.96	27.35	28.75	30.16
6'	3'	6"	7"	213	8.57	10.17	11.73	13.33	14.92
	4'	6"	7"	327	11.27	12.86	14.43	16.03	17.62
	5'	6"	7"	460	14.38	15.98	17.55	19.15	20.73
	6'	7"	8"	762	19.35	20.98	22.59	24.21	25.83
	7'	7⅞"	8½"	1474	24.79	26.44	28.08	29.73	31.38
	8'	8"	9"	1870	31.15	32.87	34.51	36.17	37.83
7'	4'	6"	7"	327	11.52	13.37	15.19	17.05	18.85
	5'	6"	7"	460	14.68	16.49	18.31	20.16	21.97
	6'	7"	8"	762	19.61	21.98	23.32	25.20	27.04
	7'	7⅞"	8½"	1474	25.05	26.94	28.82	30.71	32.59
	8'	8"	9"	1870	31.47	33.37	35.25	37.16	39.05
8'	4'	6"	7"	327	11.77	13.89	15.97	18.09	20.12
	5'	7"	7"	460	15.46	17.60	19.70	21.83	23.89
	6'	7"	8"	762	19.86	21.98	24.05	26.17	28.20
	7'	7⅞"	8½"	1474	25.80	27.96	29.98	31.78	33.81
	8'	8"	9"	1870	31.72	33.88	36.00	38.16	40.27
9'	5'	7"	7"	460	15.72	18.13	20.47	22.87	25.15
	6'	7⅞"	8"	762	20.50	22.93	25.29	27.71	30.01
	7'	7⅞"	8½"	1474	25.55	27.98	30.34	32.76	35.07
	8'	8"	9"	1870	31.97	34.39	36.76	39.18	41.49
10'	5'	7"	7"	460	15.98	18.65	21.25	23.80	26.92
	6'	7⅞"	8"	762	20.76	23.45	26.07	28.69	31.28
	7'	7⅞"	8½"	1474	25.81	28.50	31.12	33.70	36.34
	8'	8"	9"	1870	32.22	34.91	37.56	40.12	42.74
11'	6'	8"	8"	762	21.39	24.38	27.25	30.11	——
	7'	8"	8½"	1474	26.55	29.53	32.41	35.27	——
	8'	8"	9"	1870	32.47	35.45	38.33	41.19	——
12'	6'	8"	8"	762	21.66	24.93	28.05	31.20	——
	7'	8"	8½"	1474	26.81	30.08	33.21	36.36	——
	8'	8"	9"	1870	32.78	35.99	39.13	42.28	——

● For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

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.:-

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT H	WING LOCATION: SHORT OR LONG	SF1 & LF1 BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length: SIZE	SPACING	NO. REQ'D	LENGTHS VARY X MIN.	X MAX.	Y MIN.	Y MAX.	SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars: SIZE	SPACING	NO. REQ'D	LENGTH	SF3 & LF3 STRAIGHT: Longitudinal in top of wing footing toe: SIZE	NO. REQ'D	LENGTH	SF4 & LF4 STRAIGHT: Longitudinal in bottom of wing footing toe: SIZE	NO. REQ'D	LENGTH
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	—	—	—	—	#3	1	9'-0"	#3	2	8'-6"
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	0'-10"	—	—	—	—	#3	1	15'-6"	#3	2	15'-6"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	—	—	—	—	#3	1	11'-8"	#3	2	10'-6"
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-2"	—	—	—	—	#3	1	19'-4"	#3	2	20'-2"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	—	—	—	—	#3	1	15'-0"	#3	3	12'-0"
	Long	#3	12"	22	2'-4"	6'-6"	0'-11"	1'-7"	—	—	—	—	#3	1	23'-6"	#3	3	24'-10"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-1"	#3	3	2'-6"
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"	#3	12"	6	8'-6"	1'-11"	#3	6	18'-9"
6'	Short	#4	12"	15	3'-4"	9'-4"	1'-2"	2'-5"	2'-5"	7'-1"	#3	12"	3	4'-6"	1'-4"	#3	3	3'-3"
	Long	#4	12"	30	3'-2"	9'-3"	1'-2"	2'-3"	2'-3"	7'-1"	#3	12"	6	9'-6"	1'-9"	#3	6	18'-0"
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-8"	2'-10"	2'-9"	8'-1"	#4	12"	6	5'-6"	1'-7"	#4	6	18'-0"
	Long	#4	12"	34	3'-9"	10'-8"	1'-8"	2'-8"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	#4	12	37'-6"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-4"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	#4	9	20'-6"
	Long	#4	12"	38	4'-6"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	#4	18	42'-9"

SH4 & LH4 BENT: Dowels thru construction joint at headwall: SIZE	SPACING	NO. REQ'D	LENGTH	X
#3	12"	2	2'-8"	1'-4"
#3	12"	3	4'-0"	1'-9"
#3	12"	4	5'-4"	2'-2"
#3	12"	5	6'-8"	2'-7"
#3	12"	6	8'-0"	3'-0"
#4	12"	5	8'-0"	3'-0"
#4	12"	6	9'-6"	3'-6"
#4	12"	7	11'-0"	4'-0"
#4	12"	8	12'-6"	4'-6"

BAR BENDING DIAGRAM: SF1 & SF2, LF1 & LF2; 3" Pin; SH4 & LH4; Dimensions are to bar centers.

QUANTITY: REINFORCING STEEL PER WING - LBS.	SHORT WING	LONG WING
	29.7	45.6
	37.0	69.5
	56.2	107.2
	78.0	152.2
	127.8	253.1
	267.0	489.8
	312.9	622.3

NOTE:- Bars for short wing shall be marked with prefix letter 'S', while those for long wing shall be marked with letter 'L'.

* Length without splice. Bars over 28'-0" length may be spliced. (1'-8" lap.)

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

Designed By:- W.C.H. 5-13-63 Checked By:- BWS 8-19-63
Drawn By:- W.C.H. 7-26-63 Checked By:- DMT 7-15-64
Quantities By:- W.C.H. 1-7-64

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

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-X303-1

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.					"b" bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars.					"d" bars STRAIGHT. Longitudinal in Top Slab of Barrel			"d'" bars STRAIGHT. Longitudinal in Sidewalls			"e" bars. Longitudinal in Bottom Slab of Barrel			"f" bars STRAIGHT. Verticals in Side walls			
					NUMBER REQ'D					NUMBER REQ'D					NUMBER REQ'D					NUMBER REQ'D					NUMBER REQ'D	
D	S	H	SIZE	SPACING	3:1	4:1	LENGTH	SIZE	SPACING	3:1	4:1	LENGTH	X	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	3:1	4:1	LENGTH
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'	#5	13"	120	120	4'-9"	#6	15"	110	110	5'-10"	4'-8"	#5	10½"	6		#4	12"	4		#4	12"	5		#4	12"	120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				6				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'	8'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				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		#4	12"	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"
	1 @ 6'	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"
		5'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				10				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"
	1 @ 7'	9'			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"
		6'			140	140	7'-11"			130	130	9'-0"	7'-10"			9				12				8				120	120	7'-2"
		7'	#6	11"	140	140	8'-0"	#6	11"	130	130	9'-1"	7'-11"	#5	10½"	9		#4	12"	14		#4	12"	8		#4	12"	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'-3"	8'-2"			9				18				8				120	120	10'-2"
		10'			140	140	8'-5"			130	130	9'-5"	8'-3"			9				20				8				120	120	11'-2"
	1 @ 8'	4'			128	128	8'-9"			118	118	9'-10"	8'-8"			11				8				9				120	120	5'-3"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				10				9				120	120	6'-3"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				12				9				120	120	7'-3"
		7'	#7	12"	128	128	9'-0"	#6	12"	118	118	10'-1"	8'-11"	#5	10"	11		#4	12"	14		#4	12"	9		#4	12"	120	120	8'-3"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			11				16				9				120	120	9'-3"
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"			11				18				9				120	120	10'-3"
		10'			128	128	9'-5"			118	118	10'-6"	9'-4"			11				20				9				120	120	11'-3"
	1 @ 9'	5'			140	140	9'-11"			130	130	11'-0"	9'-10"			12				10				10				120	120	6'-4"
		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"
		8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	12		#4	12"	16		#4	12"	10		#5	10"	144	144	9'-5"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			12				18				10				12"	120	10'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			12				20				10				11"	132	11'-5"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			12				22				10				10"	144	12'-5"
	1 @ 10'	6'			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"
		8'			128	128	11'-1"			118	118	12'-4"	11'-0"			13				16				11				120	120	9'-6"
		9'	#7	12"	128	128	11'-3"	#7	12"	118	118	12'-6"	11'-2"	#5	10"	13		#4	12"	18		#4	12"	11		#5	10"	144	144	10'-6"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			13				20				11				11"	132	11'-6"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			13				22				11				10"	144	12'-6"
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"			13				24				11				#6 12"	120	13'-6"
	1 @ 11'	6'			140	140	12'-1"			130	130	13'-1"	12'-0"			15				12				12				120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-2"	12'-0"			15				14				12				120	120	8'-7"
		8'			140	140	12'-1"			130	130	13'-3"	12'-0"			15				16				12				10"	144	9'-7"
		9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-4"	12'-2"	#5	9½"	15		#4	12"	18		#4	12"	12		#5	11"	132	132	11'-7"
		10'			140	140	12'-5"			130	130	13'-5"	12'-4"			15				20				12				10"	144	12'-7"
		11'			140	140	12'-7"			130	130	13'-6"	12'-6"			15				22				12				#6 12"	120	13'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15				24				12				12"	120	7'-9"
	1 @ 12'	6'			128	128	13'-1"			118	118	14'-2"	13'-0"			16				12				13				120	120	8'-7"
		7'			128	128	13'-1"			118	118	14'-2"	13'-0"			16				14				13				10"	144	9'-7"
		8'			128	128	13'-1"			118	118	14'-2"	13'-0"			16				16				13				12"	120	10'-5"
		9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-4"	13'-2"	#5	9½"	16		#4	12"	18		#4	12"	13		#5	11"	132	132	11'-7"
		10'			128	128	13'-5"			118	118	14'-6"	13'-4"			16				20				13				10"	144	12'-7"
		11'			128	128	13'-7"			118	118	14'-8"	13'-6"			16				22				13				#6 12"	120	13'-7"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16				24				13						

2 @ 30'-6" for 60'-0 Length Barrel. (1'-8" Lap) | 2 @ 30'-6" for 60'-0 Length Barrel. (1'-3" Lap) | 2 @ 31'-6" for 60'-0 Length Barrel. (1'-3" Lap)

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 "f" Dowel bars in Headwalls.
4'	#4	11½"	12	2'-6"	1'-3"	X, 12
5'	#4	11½"	14	2'-7"	1'-3⅜"	
6'	#4	11½"	16	2'-8"	1'-4"	
7'	#4	11½"	18	2'-9"	1'-4⅜"	
8'	#4	11⅜"	20	2'-11"	1'-5⅜"	
9'	#4	11⅜"	22	3'-0"	1'-6"	
10'	#4	11⅜"	24	3'-1"	1'-6⅜"	
11'	#4	12"	26	3'-2"	1'-7"	
12'	#4	12"	28	3'-3"	1'-7⅜"	

DIMENSIONS — BARREL DIMENSIONS

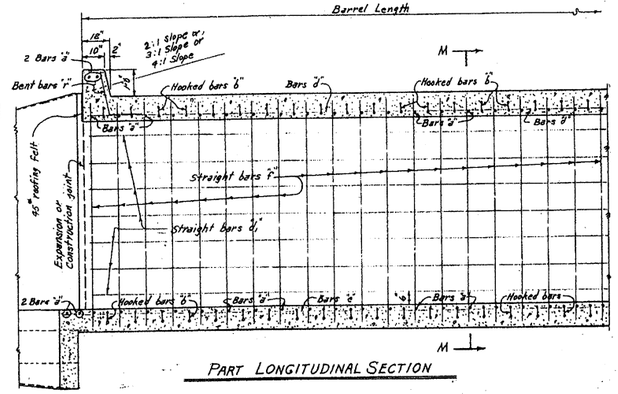
MAX. DESIGN DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	30° Ft. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT
D	S	H	A	OW	T	C	B	OH
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"
		3'	12	5'-0"		6"		4'-1½"
		4'	16	5'-0"		6"		5'-1½"
		5'	20	5'-0"		6"		6'-1½"
		6'	24	5'-2"		7"		7'-1½"
	1 @ 5'	3'	15	6'-0"	7½"	6"	7"	4'-2½"
		4'	20	6'-0"		6"		5'-2½"
		5'	25	6'-0"		6"		6'-2½"
		6'	30	6'-2"		7"		7'-2½"
		7'	35	6'-3"		7½"		8'-2½"
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"
		4'	24	7'-0"		6"		5'-3½"
		5'	30	7'-0"		6"		6'-3½"
		6'	36	7'-2"		7"		7'-3½"
		7'	42	7'-3"		7½"		8'-3½"
		8'	48	7'-4"		8"		9'-3½"
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-3"
		5'	35	8'-0"		6"		6'-3"
		6'	42	8'-2"		7"		7'-3"
		7'	49	8'-3"		7½"		8'-3"
		8'	56	8'-6"		8"		9'-3"
		9'	63	8'-6"		9"		10'-3"
	1 @ 8'	4'	32	9'-0"	9"	6"	9½"	5'-7"
		5'	40	9'-2"		7"		6'-7"
		6'	48	9'-2"		7"		7'-7"
		7'	56	9'-3"		7½"		8'-7"
		8'	64	9'-6"		8"		9'-7"
		9'	72	9'-6"		9"		10'-7"
		10'	80	9'-8"		10"		11'-7"
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"
		6'	54	10'-3"		7½"		7'-8"
		7'	63	10'-3"		7½"		8'-8"
		8'	72	10'-4"		8"		9'-8"
		9'	81	10'-6"		9"		10'-8"
		10'	90	10'-8"		10"		11'-8"
		11'	99	10'-10"		11"		12'-8"
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"
		6'	60	11'-3"		7½"		7'-9½"
		7'	70	11'-3"		7½"		8'-9½"
		8'	80	11'-4"		8"		9'-9½"
		9'	90	11'-6"		9"		10'-9½"
		10'	100	11'-8"		10"		11'-9½"
		11'	110	11'-10"		11"		12'-9½"
		12'	120	12'-0"		12"		13'-9½"
	1 @ 11'	6'	66	12'-9"	11"	8"	11½"	7'-10½"
		7'	77	12'-9"		8"		8'-10½"
		8'	88	12'-9"		8"		9'-10½"
		9'	99	12'-6"		9"		10'-10½"
		10'	110	12'-8"		10"		11'-10½"
		11'	121	12'-10"		11"		12'-10½"
		12'	132	13'-0"		12"		13'-10½"
	1 @ 12'	6'	72	13'-9"	12"	8"	12½"	8'-0"
		7'	84	13'-9"		8"		9'-0"
		8'	96	13'-9"		8"		10'-0"
		9'	108	13'-6"		9"		11'-0"
		10'	120	13'-8"		10"		12'-0"
		11'	132	13'-10"		11"		13'-0"
		12'	144	14'-0"		12"		14'-0"

QUANTITIES — UNIT QUANTITIES

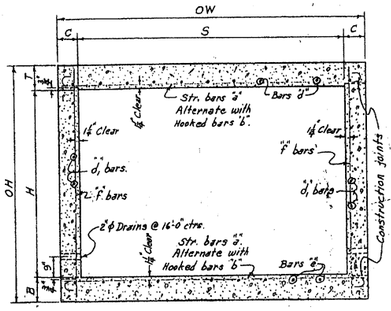
CLASS 'S' CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL PER LIN. FT. OF BARREL	REINFORCING STEEL ADDITIONAL PER LAP	REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS
CU.YD.	LB.	LB.	LB.
0.282	41.99	17.95	66.35
0.319	44.16	19.62	66.35
0.356	46.83	21.29	66.35
0.396	49.50	22.96	66.35
0.974	52.96	24.63	67.75
0.380	55.55	22.19	101.27
0.417	58.23	23.86	101.27
0.454	60.90	25.53	101.27
0.535	64.99	27.20	103.27
0.609	67.63	28.87	104.27
0.446	66.23	29.76	118.96
0.483	68.96	26.93	118.96
0.520	71.64	28.10	118.96
0.602	75.31	29.77	120.96
0.671	78.98	31.44	121.97
0.746	88.97	33.11	122.97
0.568	81.32	29.01	136.88
0.605	84.00	30.68	136.88
0.688	87.76	32.35	138.88
0.757	90.98	34.02	139.88
0.832	96.45	35.69	140.88
0.946	105.59	37.36	142.89
0.676	95.26	33.32	199.07
0.754	99.12	34.99	196.80
0.797	101.79	36.66	196.80
0.867	105.05	38.33	198.16
0.992	110.81	40.00	199.52
1.057	119.92	41.67	202.25
1.184	126.67	43.34	204.97
0.844	119.72	37.56	219.61
0.910	118.04	39.23	220.97
0.957	120.71	40.90	220.97
1.033	126.54	42.57	222.33
1.198	135.80	44.24	225.08
1.276	142.66	45.91	227.78
1.416	150.90	47.58	230.51
0.957	130.64	40.13	242.64
1.024	133.99	41.80	244.00
1.071	136.66	43.47	244.00
1.147	142.55	45.14	245.36
1.263	151.92	46.81	248.09
1.391	158.89	48.98	250.81
1.532	164.71	50.15	253.54
1.685	170.67	51.82	256.26
1.153	156.16	46.12	268.62
1.202	158.88	47.79	268.62
1.252	163.06	49.46	268.62
1.368	172.60	51.18	271.34
1.497	179.70	52.80	274.07
1.638	182.67	54.97	276.79
1.792	193.79	56.14	279.52
1.284	172.20	48.69	357.62
1.333	179.87	50.86	357.62
1.383	180.15	52.031	357.62
1.500	189.85	58.70	361.18
1.630	197.07	55.37	364.74
1.772	205.16	57.04	368.30
1.926	217.95	58.71	371.86

W-X002-1, W-X003-2, W-X004-2. or W-X002-1, W-X003-1 or W-X004-1. and

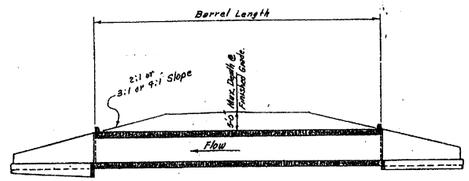
Note- For details of wings and bar bars, see Drawing Nos.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

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'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20000 #/□"

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

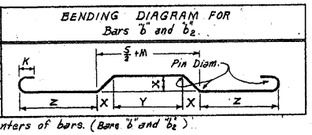
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4',5',6',7',8',9',10',11' & 12' SPANS SINGLES
3:1 OR 4:1 SLOPES UNDER 5'-0" COVER

STANDARD DRAWING NO. R-100X-0

Designed By:- W.C.H. 1-23-63. Checked By:- JBS-5-24-63
Drawn By:- W.C.H. 2-8-63. Checked By:- JBS-5-24-63
Quantities By:- W.C.H. 2-12-63. Checked By:- JBS-5-24-63



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					"b" bars								"b2" bars							
			STRAIGHT					BENT - See Diagram below.								BENT - See Diagram below.							
			In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall.- Each.					In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.								In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.							
			SIZE	SPACING	NUMBER REQ'D		LENGTH	SIZE	SPACING	NUMBER REQ'D		LENGTH	X	Y	Z	SIZE	SPACING	NUMBER REQ'D		LENGTH	X	Y	Z
D	S	H			3:1	4:1				3:1	4:1							3:1	4:1				
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	128	128	9'-5"	#5	12"	59	59	10'-6"	0'-3"	2'-2½"	3'-4"	#5	12"	59	59	10'-6"	0'-2½"	2'-3½"	3'-4"
		3'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"
		4'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"
		5'			128	128	9'-5"			59	59	10'-6"	0'-3"	2'-2½"	3'-4"			59	59	10'-6"	0'-2½"	2'-3½"	3'-4"
		6'			128	128	9'-8"			59	59	10'-9"	0'-3"	2'-3½"	3'-5"			59	59	10'-9"	0'-2½"	2'-4½"	3'-5"
	2 @ 5'	3'	#6	12"	128	128	11'-5"	#5	12"	59	59	12'-7"	0'-3½"	2'-7½"	4'-1"	#5	12"	59	59	12'-6"	0'-3"	2'-8½"	4'-1"
		4'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"
		5'			128	128	11'-5"			59	59	12'-7"	0'-3½"	2'-7½"	4'-1"			59	59	12'-6"	0'-3"	2'-8½"	4'-1"
		6'			128	128	11'-8"			59	59	12'-10"	0'-3½"	2'-8½"	4'-2"			59	59	12'-9"	0'-3"	2'-9½"	4'-2"
		7'			128	128	11'-10"			59	59	13'-0"	0'-3½"	2'-9½"	4'-2½"			59	59	12'-11"	0'-3"	2'-10½"	4'-2½"
	2 @ 6'	3'	#6	11"	140	140	13'-5"	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"	#5	11"	65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		4'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		5'			140	140	13'-5"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
		6'			140	140	13'-8"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"			65	65	14'-10"	0'-4"	3'-1½"	4'-11"
		7'			140	140	13'-10"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"
		8'			140	140	13'-11"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"			65	65	15'-1"	0'-4"	3'-2½"	5'-0"
	2 @ 7'	4'	#6	12"	128	128	15'-5"	#6	12"	59	59	16'-9"	0'-4½"	3'-5"	5'-7"	#6	12"	59	59	16'-9"	0'-4½"	3'-5"	5'-7"
		5'			128	128	15'-5"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"			59	59	16'-9"	0'-4½"	3'-5"	5'-7"
		6'			128	128	15'-8"			59	59	17'-0"	0'-4½"	3'-6"	5'-8"			59	59	17'-0"	0'-4½"	3'-6"	5'-8"
		7'			128	128	15'-10"			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"
		8'			128	128	15'-11"			59	59	17'-3"	0'-4½"	3'-7"	5'-9"			59	59	17'-3"	0'-4½"	3'-7"	5'-9"
		9'			128	128	16'-2"			59	59	17'-6"	0'-4½"	3'-8"	5'-10"			59	59	17'-6"	0'-4½"	3'-8"	5'-10"
	2 @ 8'	4'	#6	11"	140	140	17'-5"	#6	11"	65	65	18'-10"	0'-5"	3'-10"	6'-4"	#6	11"	65	65	18'-10"	0'-5"	3'-10"	6'-4"
		5'			140	140	17'-8"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"
		6'			140	140	17'-8"			65	65	19'-1"	0'-5"	3'-11"	6'-5"			65	65	19'-1"	0'-5"	3'-11"	6'-5"
		7'			140	140	17'-10"			65	65	19'-3"	0'-5"	4'-0"	6'-5½"			65	65	19'-3"	0'-5"	4'-0"	6'-5½"
		8'			140	140	17'-11"			65	65	19'-4"	0'-5"	4'-0"	6'-6"			65	65	19'-4"	0'-5"	4'-0"	6'-6"
		9'			140	140	18'-2"			65	65	19'-7"	0'-5"	4'-1"	6'-7"			65	65	19'-7"	0'-5"	4'-1"	6'-7"
		10'			140	140	18'-5"			65	65	19'-10"	0'-5"	4'-2"	6'-8"			65	65	19'-10"	0'-5"	4'-2"	6'-8"
	2 @ 9'	5'	#6	11"	140	140	19'-8"	#6	11"	65	65	21'-1"	0'-5½"	4'-4"	7'-2"	#6	11"	65	65	21'-1"	0'-5½"	4'-3½"	7'-2"
		6'			140	140	19'-10"			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"			65	65	21'-3"	0'-5¾"	4'-4½"	7'-2½"
		7'			140	140	19'-10"			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"			65	65	21'-3"	0'-5¾"	4'-4½"	7'-2½"
		8'			140	140	19'-11"			65	65	21'-4"	0'-5½"	4'-5"	7'-3"			65	65	21'-4"	0'-5¾"	4'-4½"	7'-3"
		9'			140	140	20'-2"			65	65	21'-7"	0'-5½"	4'-6"	7'-4"			65	65	21'-7"	0'-5¾"	4'-5½"	7'-4"
		10'			140	140	20'-5"			65	65	21'-10"	0'-5½"	4'-7"	7'-5"			65	65	21'-10"	0'-5¾"	4'-6½"	7'-5"
		11'			140	140	20'-7"			65	65	22'-0"	0'-5½"	4'-7"	7'-6"			65	65	22'-0"	0'-5¾"	4'-6½"	7'-6"
	2 @ 10'	5'	#7	12"	128	128	21'-8"	#6	12"	59	59	23'-2"	0'-6"	4'-9"	7'-11"	#6	12"	59	59	23'-2"	0'-6½"	4'-8"	7'-11"
		6'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-10"	7'-11½"			59	59	23'-4"	0'-6½"	4'-9"	7'-11½"
		7'			128	128	21'-10"			59	59	23'-4"	0'-6"	4'-10"	7'-11½"			59	59	23'-4"	0'-6½"	4'-9"	7'-11½"
		8'			128	128	21'-11"			59	59	23'-5"	0'-6"	4'-10"	8'-0"			59	59	23'-5"	0'-6½"	4'-9"	8'-0"
		9'			128	128	22'-2"			59	59	23'-8"	0'-6"	4'-11"	8'-1"			59	59	23'-8"	0'-6½"	4'-10"	8'-1"
		10'			128	128	22'-5"			59	59	23'-11"	0'-6"	5'-0"	8'-2"			59	59	23'-11"	0'-6½"	4'-11"	8'-2"
		11'			128	128	22'-7"			59	59	24'-1"	0'-6"	5'-0"	8'-3"			59	59	24'-1"	0'-6½"	4'-11"	8'-3"
		12'			128	128	22'-9"			59	59	24'-3"	0'-6"	5'-0"	8'-4"			59	59	24'-3"	0'-6½"	4'-11"	8'-4"
	2 @ 11'	6'	#7	12"	128	128	23'-11"	#6	12"	59	59	25'-5"	0'-6½"	5'-3"	8'-9"	#6	12"	59	59	25'-6"	0'-7½"	5'-1"	8'-9"
		7'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-9"			59	59	25'-6"	0'-7½"	5'-1"	8'-9"
		8'			128	128	23'-11"			59	59	25'-5"	0'-6½"	5'-3"	8'-9"			59	59	25'-6"	0'-7½"	5'-1"	8'-9"
		9'			128	128	24'-2"			59	59	25'-8"	0'-6½"	5'-4"	8'-10"			59	59	25'-9"	0'-7½"	5'-2"	8'-10"
		10'			128	128	24'-5"			59	59	25'-11"	0'-6½"	5'-5"	8'-11"			59	59	26'-0"	0'-7½"	5'-3"	8'-11"
		11'			128	128	24'-7"			59	59	26'-1"	0'-6½"	5'-5"	9'-0"			59	59	26'-2"	0'-7½"	5'-3"	9'-0"
		12'			128	128	24'-9"			59	59	26'-3"	0'-6½"	5'-5"	9'-1"			59	59	26'-4"	0'-7½"	5'-3"	9'-1"
	2 @ 12'	6'	#7	11"	140	140	25'-11"	#6	11"	65	65	27'-5"	0'-7"	5'-8"	9'-6"	#6	11"	65	65	27'-7"	0'-8½"	5'-5"	9'-6"
		7'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"
		8'			140	140	25'-11"			65	65	27'-5"	0'-7"	5'-8"	9'-6"			65	65	27'-7"	0'-8½"	5'-5"	9'-6"
		9'			140	140	26'-2"			65	65	27'-8"	0'-7"	5'-9"	9'-7"			65	65	27'-10"	0'-8½"	5'-6"	9'-7"
		10'			140	140	26'-5"			65	65	27'-11"	0'-7"	5'-10"	9'-8"			65	65	28'-1"	0'-8½"	5'-7"	9'-8"
		11'			140	140	26'-7"			65	65	28'-1"	0'-7"	5'-10"	9'-9"			65	65	28'-3"	0'-8½"	5'-7"	9'-9"
		12			140	140	26'-9"			65	65	28'-3"	0'-7"	5'-10"	9'-10"			65	65	28'-5"	0'-8½"	5'-7"	9'-10"

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"c" bars					"d" bars				"d1" bars				"e" bars				"f" bars				
			STRAIGHT					STRAIGHT												STRAIGHT				
			In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars.					Longitudinal in Top Slab of Barrel.				Longitudinal in Sidewalls and Division Walls.				Longitudinal in Bottom Slab of Barrel.				Vertical in Sidewalls and Division Walls.				
			SIZE	SPACING	NUMBER REQ'D		LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D		LENGTH
D	S	H			3:1	4:1																3:1	4:1	
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'	2'	#5	12"	120	120	4'-8"	#5	12"	14	2 @ 30'-8" for 60'-0" Length Barrel (1'-8" Lap)	#4	12"	8	2 @ 30'-6" for 60'-0" Length Barrel (1'-3" Lap)	#4	12"	14	2 @ 31'-6" for 60'-0" Length Barrel (1'-3" Lap)	#4	12"	240	240	2'-10"
		3'			120	120	4'-8"			14				12				14				240	240	3'-10"
		4'			120	120	4'-8"			14				16				14				240	240	4'-10"
		5'			120	120	4'-8"			14				20				14				240	240	5'-10"
		6'			120	120	4'-9"			14				24				14				240	240	6'-10"
	2 @ 5'	3'	#6	12"	120	120	5'-8"	#5	11½"	16		#4	12"	12		#4	12"	16		#4	12"	240	240	3'-11"
		4'			120	120	5'-8"			16				16				16				240	240	4'-11"
		5'			120	120	5'-8"			16				20				16				240	240	5'-11"
		6'			120	120	5'-9"			16				24				16				240	240	6'-11"
		7'			120	120	5'-10"			16				28				16				240	240	7'-11"
	2 @ 6'	3'	#6	11"	132	132	6'-8"	#5	11½"	18		#4	12"	12		#4	12"	18		#4	12"	240	240	4'-0"
		4'			132	132	6'-8"			18				16				18				240	240	5'-0"
		5'			132	132	6'-8"			18				20				18				240	240	6'-0"
		6'			132	132	6'-9"			18				24				18				240	240	7'-0"
		7'			132	132	6'-10"			18				28				18				240	240	8'-0"
		8'			132	132	6'-10"			18				32				18			10"	288	288	9'-0"
	2 @ 7'	4'	#6	12"	120	120	7'-8"	#5	11½"	20		#4	12"	16		#4	12"	20		#4	12"	240	240	5'-1"
		5'			120	120	7'-8"			20				20				20				240	240	6'-1"
		6'			120	120	7'-9"			20				24				20				240	240	7'-1"
		7'			120	120	7'-10"			20				28				20				240	240	8'-1"
		8'			120	120	7'-10"			20				32				20			10"	288	288	9'-1"
		9'			120	120	7'-11"			20				36				20		#5	12"	240	240	10'-1"
	2 @ 8'	4'	#6	11"	132	132	8'-8"	#5	11½"	23		#4	12"	16		#4	12"	22		#4	12"	240	240	5'-2"
		5'			132	132	8'-9"			23				20				22				240	240	6'-2"
		6'			132	132	8'-9"			23				24				22				240	240	7'-2"
		7'			132	132	8'-10"			23				28				22				240	240	8'-2"
		8'			132	132	8'-10"			23				32				22			10"	288	288	9'-2"
		9'			132	132	8'-11"			23				36				22		#5	12"	240	240	10'-2"
		10'			132	132	9'-0"			23				40				22			11"	264	264	11'-2"
	2 @ 9'	5'	#6	11"	132	132	9'-9"	#5	11½"	26		#4	12"	20		#4	12"	25		#4	12"	240	240	6'-3"
		6'			132	132	9'-10"			26				24				25				240	240	7'-3"
		7'			132	132	9'-10"			26				28				25				240	240	8'-3"
		8'			132	132	9'-10"			26				32				25			10"	288	288	9'-3"
		9'			132	132	9'-11"			26				36				25		#5	12"	240	240	10'-3"
		10'			132	132	10'-0"			26				40				25			11"	264	264	11'-3"
		11'			132	132	10'-0"			26				44				25			10"	288	288	12'-3"
	2 @ 10'	5'	#7	12"	120	120	10'-9"	#5	11½"	28		#4	12"	20		#4	12"	27		#4	12"	240	240	6'-4"
		6'			120	120	10'-10"			28				24				27				240	240	7'-4"
		7'			120	120	10'-10"			28				28				27				240	240	8'-4"
		8'			120	120	10'-10"			28				32				27			10"	288	288	9'-4"
		9'			120	120	10'-11"			28				36				27		#5	12"	240	240	10'-4"
		10'			120	120	11'-0"			28				40				27			11"	264	264	11'-4"
		11'			120	120	11'-0"			28				44				27			10"	288	288	12'-4"
		12'			120	120	11'-0"			28				48				27		#6	12"	240	240	13'-4"
	2 @ 11'	6'	#7	12"	120	120	11'-10"	#5	11½"	30		#4	12"	24		#4	12"	29		#4	12"	240	240	7'-6"
		7'			120	120	11'-10"			30				28				29				240	240	8'-6"
		8'			120	120	11'-10"			30				32				29			10"	288	288	9'-6"
		9'			120	120	11'-11"			30				36				29		#5	12"	240	240	10'-6"
		10'			120	120	12'-0"			30				40				29			11"	264	264	11'-6"
		11'			120	120	12'-0"			30				44				29			10"	288	288	12'-6"
		12'			120	120	12'-0"			30				48				29		#6	12"	240	240	13'-6"
	2 @ 12'	6'	#7	11"	132	132	12'-10"	#5	11½"	32		#4	12"	24		#4	12"	31		#4	12"	240	240	7'-7"
		7'			132	132	12'-10"			32				28				31				240	240	8'-7"
		8'			132	132	12'-10"			32				32				31			10"	288	288	9'-7"
		9'			132	132	12'-11"			32				36				31		#5	12"	240	240	10'-7"
		10'			132	132	13'-0"			32				40				31			11"	264	264	11'-7"
		11'			132	132	13'-0"			32				44				31			10"	288	288	12'-7"
		12			132	132	13'-0"			32				48				31		#6	12"	240	240	13'-7"

DIMENSIONS | QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS									UNIT QUANTITIES			
										CLASS S CONC. PER LIN. FT. OF BARREL	REINFORCING STEEL		
											PER LIN. FT. OF BARREL	ADDITIONAL	
	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT			PER LAP	TWO HEADWALLS & APRONS
D	S	H	A	OW	T	C	M	B	OH	CU.YD.	LB.	LB.	LB.
5'-0"	2 @ 4'	2'	16	9'-8"	6½"	6"	8"	6"	3'-0½"	0.496	88.15	42.71	129.56
		3'	24	9'-8"		6"	8"		4'-0½"	0.558	93.49	46.05	129.56
		4'	32	9'-8"		6"	8"		5'-0½"	0.620	98.84	49.39	129.56
		5'	40	9'-8"		6"	8"		6'-0½"	0.682	104.18	52.73	129.56
		6'	48	9'-11"		7"	9"		7'-0½"	0.809	110.74	56.07	131.65
	2 @ 5'	3'	30	11'-8"	7"	6"	8"	6½"	4'-1½"	0.671	123.34	51.19	198.64
		4'	40	11'-8"		6"	8"		5'-1½"	0.733	128.68	54.53	198.64
		5'	50	11'-8"		6"	8"		6'-1½"	0.795	134.03	57.87	198.64
		6'	60	11'-11"		7"	9"		7'-1½"	0.922	140.89	61.21	201.64
		7'	70	12'-1"		7½"	10"		8'-1½"	1.044	147.34	64.55	203.65
	2 @ 6'	3'	36	13'-8"	7½"	6"	8"	7½"	4'-3"	0.818	148.50	56.34	233.58
		4'	48	13'-8"		6"	8"		5'-3"	0.880	153.85	59.68	233.58
		5'	60	13'-8"		6"	8"		6'-3"	0.941	159.19	63.02	233.58
		6'	72	13'-11"		7"	9"		7'-3"	1.070	166.20	66.36	236.59
		7'	84	14'-1"		7½"	10"		8'-3"	1.192	172.74	69.70	238.59
		8'	96	14'-2"		8"	10"		9'-3"	1.298	183.36	73.04	239.59
	2 @ 7'	4'	56	15'-8"	8"	6"	8"	8"	5'-4"	1.021	178.15	64.83	268.97
		5'	70	15'-8"		6"	8"		6'-4"	1.082	183.49	68.17	268.97
		6'	84	15'-11"		7"	9"		7'-4"	1.212	190.59	71.51	271.97
		7'	98	16'-1"		7½"	10"		8'-4"	1.334	197.19	74.85	273.98
		8'	112	16'-2"		8"	10"		9'-4"	1.440	207.89	78.19	274.98
		9'	126	16'-5"		9"	11"		10'-4"	1.616	225.25	81.53	277.98
	2 @ 8'	4'	64	17'-8"	8½"	6"	8"	8½"	5'-5"	1.174	210.37	71.71	304.80
		5'	80	17'-11"		7"	9"		6'-5"	1.295	217.63	75.05	307.81
		6'	96	17'-11"		7"	9"		7'-5"	1.366	222.97	78.39	307.81
		7'	112	18'-1"		7½"	10"		8'-5"	1.489	229.68	81.73	309.81
		8'	128	18'-2"		8"	10"		9'-5"	1.595	240.97	85.07	310.81
		9'	144	18'-5"		9"	11"		10'-5"	1.772	258.08	88.41	313.82
		10'	160	18'-8"		10"	12"		11'-5"	1.967	271.07	91.75	316.82
	2 @ 9'	5'	90	19'-11"	9"	7"	9"	9¼"	6'-6¼"	1.477	239.37	82.77	345.92
		6'	108	20'-1"		7½"	10"		7'-6¼"	1.594	246.08	86.11	347.43
		7'	126	20'-1"		7½"	10"		8'-6¼"	1.671	251.43	89.45	347.43
		8'	144	20'-2"		8"	10"		9'-6¼"	1.778	262.26	92.79	348.43
		9'	162	20'-5"		9"	11"		10'-6¼"	1.956	279.95	96.13	351.43
		10'	180	20'-8"		10"	12"		11'-6¼"	2.152	292.97	99.47	354.43
		11'	198	20'-10"		11"	12"		12'-6¼"	2.328	306.86	102.81	356.44
	2 @ 10'	5'	100	21'-11"	9½"	7"	9"	10"	6'-7½"	1.674	279.64	87.92	479.99
		6'	120	22'-1"		7½"	10"		7'-7½"	1.792	286.50	91.26	482.71
		7'	140	22'-1"		7½"	10"		8'-7½"	1.869	291.85	94.60	482.71
		8'	160	22'-2"		8"	10"		9'-7½"	1.976	302.77	97.94	484.08
		9'	180	22'-5"		9"	11"		10'-7½"	2.155	320.74	101.28	488.16
		10'	200	22'-8"		10"	12"		11'-7½"	2.352	333.99	104.62	492.25
		11'	220	22'-10"		11"	12"		12'-7½"	2.529	348.01	107.96	494.98
		12'	240	23'-0"		12"	12"		13'-7½"	2.718	370.23	111.30	497.70
	2 @ 11'	6'	132	24'-2"	10"	8"	10"	11"	7'-9"	2.048	309.36	96.41	530.03
		7'	154	24'-2"		8"	10"		8'-9"	2.128	314.70	99.75	530.03
		8'	176	24'-2"		8"	10"		9'-9"	2.208	325.12	103.09	530.03
		9'	198	24'-5"		9"	11"		10'-9"	2.388	343.25	106.43	534.12
		10'	220	24'-8"		10"	12"		11'-9"	2.586	356.57	109.77	538.21
		11'	242	24'-10"		11"	12"		12'-9"	2.764	370.67	113.11	540.93
		12'	264	25'-0"		12"	12"		13'-9"	2.954	393.05	116.45	543.66
	2 @ 12'	6'	144	26'-2"	10½"	8"	10"	12"	7'-10½"	2.299	353.31	101.55	576.93
		7'	168	26'-2"		8"	10"		8'-10½"	2.379	358.65	104.89	576.93
		8'	192	26'-2"		8"	10"		9'-10½"	2.459	369.12	108.23	576.93
		9'	216	26'-5"		9"	11"		10'-10½"	2.640	387.52	111.57	580.52
		10'	240	26'-8"		10"	12"		11'-10½"	2.840	401.07	114.91	584.60
		11'	264	26'-10"		11"	12"		12'-10½"	3.018	415.31	118.25	587.33
		12'	288	27'-0"		12"	12"		13'-10½"	3.208	437.88	121.59	590.05

TYPICAL SECTION M-M

NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2, W-X003-1 or W-X003-2, and W-X004-1 or W-X004-2.

PART LONGITUDINAL SECTION

LONGITUDINAL SECTION

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR Bars "b" and "b2".
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	

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	Bars "r" Dowel bars in Headwalls.
4'	#4	12"±	20	2'-5"	1'-2½"	
5'	#4	12"±	24	2'-6"	1'-3"	
6'	#4	12"±	28	2'-7"	1'-3½"	
7'	#4	12"±	32	2'-8"	1'-4"	
8'	#4	12"±	36	2'-9"	1'-4½"	
9'	#4	12"±	40	2'-10"	1'-5"	
10'	#4	12"±	46	2'-11"	1'-5½"	
11'	#4	12"±	50	3'-0"	1'-6"	
12'	#4	12"±	54	3'-1"	1'-6½"	

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:- RHS 5-14-63
Checked by:- RHS 5-24-63
Checked by:- RHS 5-24-63

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'-0". Lap longitudinal bars 30 diameters.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division walls and slabs shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Wing 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
DOUBLES
3:1 OR 4:1 SLOPES
UNDER 5'-0" COVER
STANDARD DRAWING NO. R-200X-0.

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOT SHE
6	ARK.				
JOB No.					

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X302-1 or W-X302-2; W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

TOP SLAB REINFORCING

PART PLAN AT END OF CULVERT

BOTTOM SLAB REINFORCING

PART PLAN AT END OF CULVERT

NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-9" min. into SECTION B.

SECTION N-N

TYPICAL SECTION M-M

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

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

PART PLAN

NOTE:- For Details and Bar Lists for SECTIONS B thru G, see Barrel Drawing Nos. R-200X-X1, R-200X-X2, or R-200X-X3.

LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B,C,D E&F	A	B,C,D E&F	A	B,C,D E&F
LENGTHS	13'-10¼"	6'-11⅛"	25'-4¾"	12'-8⅜"	36'-11¼"	18'-5¾"

NOTE:- Minimum ℄ Length of SECTION "A" on 30° Skew = (0.288675 OW+2").

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS											* QUANTITIES - ONE SECTION "A"					
												CLASS S CONCRETE			REINFORCING STEEL		
												BARREL ONLY			BARREL, APRON AND HEADWALL.		
	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	2:1	3:1	4:1	2:1	3:1	4:1
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
SECTION "A" = 10'-0"	2 @ 4'	2'	16	9'-8"	6"	6"	8"	6"	3'-0"	11'-2"	12'-3⅜"	6.66	12.22	17.77	1063	1803	2580
		3'	24	9'-8"		6"	8"		4'-0"	"	"	7.52	13.79	20.06	1142	1943	2786
		4'	32	9'-8"		6"	8"		5'-0"	"	"	8.38	15.36	22.35	1221	2084	2991
		5'	40	9'-8"		6"	8"		6'-0"	"	"	9.24	16.94	24.64	1300	2224	3197
		6'	48	9'-11"		7"	9"		7'-0"	11'-5½"	12'-7¼"	10.99	20.14	29.29	1393	2391	3438
	2 @ 5'	3'	30	11'-8"	6½"	6"	8"	6½"	4'-1"	13'-5¾"	14'-7½"	9.05	16.58	24.12	1539	2635	3821
		4'	40	11'-8"		6"	8"		5'-1"	"	"	9.91	18.16	26.41	1618	2776	4027
		5'	50	11'-8"		6"	8"		6'-1"	"	"	10.76	19.73	28.70	1697	2916	4232
		6'	60	11'-11"		7"	9"		7'-1"	13'-9⅛"	14'-11"	12.52	22.96	33.39	1796	3090	4484
		7'	70	12'-1"		7½"	10"		8'-1"	13'-11½"	15'-1¼"	14.20	26.03	37.86	2053	3552	5157
	2 @ 6'	3'	36	13'-8"	7¼"	6"	8"	7¾"	4'-3"	15'-9⅜"	16'-11¼"	11.33	20.77	30.21	1755	3039	4356
		4'	48	13'-8"		6"	8"		5'-3"	"	"	12.19	22.35	32.50	1834	3180	4562
		5'	60	13'-8"		6"	8"		6'-3"	"	"	13.04	23.90	34.76	1913	3320	4767
		6'	72	13'-11"		7"	9"		7'-3"	16'-0⅞"	17'-2¾"	14.82	27.17	39.52	2012	3494	5018
		7'	84	14'-1"		7½"	10"		8'-3"	16'-3⅛"	17'-5"	16.51	30.27	44.03	2273	3965	5702
		8'	96	14'-2"		8"	10"		9'-3"	16'-4¼"	17'-6¼"	17.98	32.96	47.94	2445	4256	6116
	2 @ 7'	4'	56	15'-8"	8¼"	6"	8"	8¾"	5'-5"	18'-1⅛"	19'-3"	14.81	27.15	39.49	2352	4046	5782
		5'	70	15'-8"		6"	8"		6'-5"	"	"	15.67	28.72	41.78	2430	4186	5987
		6'	84	15'-11"		7"	9"		7'-5"	18'-4½"	19'-6½"	17.47	32.02	46.58	2544	4378	6259
		7'	98	16'-1"		7½"	10"		8'-5"	18'-6⅞"	19'-8¾"	19.17	35.15	51.12	2813	4860	6958
		8'	112	16'-2"		8"	10"		9'-5"	18'-8"	19'-9¾"	20.64	37.84	55.04	2979	5147	7370
		9'	126	16'-5"		9"	11"		10'-5"	18'-11½"	20'-1¼"	23.10	42.33	61.57	3175	5505	7872
	2 @ 8'	4'	64	17'-8"	9¼"	6"	8"	9¾"	5'-7"	20'-4⅜"	21'-6¾"	17.77	32.58	47.39	2765	4822	6874
		5'	80	17'-11"		7"	9"		6'-7"	20'-8⅝"	21'-10"	19.48	35.71	51.93	2874	5010	7144
		6'	96	17'-11"		7"	9"		7'-7"	"	"	20.46	37.51	54.56	2953	5151	7350
		7'	112	18'-1"		7½"	10"		8'-7"	20'-10⅝"	22'-0½"	22.18	40.66	59.14	3148	5424	7807
		8'	128	18'-2"		8"	10"		9'-7"	20'-11¾"	22'-1½"	23.65	43.35	63.05	3341	5783	8348
		9'	144	18'-5"		9"	11"		10'-7"	21'-3½"	22'-5"	26.13	47.90	69.66	3595	6116	8824
		10'	160	18'-8"		10"	12"		11'-7"	21'-6¾"	22'-8½"	28.84	52.87	76.90	3893	6766	9770

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an additional lap for 4:1 slopes.

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

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

OR ALT.

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS						MID-SECTION AND BAR GROUP
	A	B	C	D	E	F	
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	2@C					D
25.0' to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0' to 40.0'	A	B	2@D		2@F		G

BAR LIST FOR SECTION "A" ON 30° SKEW - ONE END ONLY.

Section & Bar Group: SECTION "A" & BAR GROUP "A"
Length of Section: 2:1 = 13'-10¼" 3:1 = 25'-4¾" 4:1 = 36'-11¼"
Depth of Cover (D): 0'-0" TO 10'-0" MAXIMUM.

CLEAR SPAN	CLEAR HEIGHT	"a" bars – STRAIGHT – In Top and Bottom Slab of Barrel.						"a1" bars – STRAIGHT – In Top and Bottom Slab of Barrel - (Two of each Length)					"b" bars – BENT - See Diagrams below. – In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.								
S	H	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH MAX.	MIN.	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	X	Y	Z
2 @ 4'	2'	#4	13"	23	43	65	9'-5"	#4	13"	6	7'-6"	3'-8"	#4	13"	10	21	31	10'-5"	0'-2¾"	2'-1"	3'-5"
	3'			23	43	65	"			6	"	"			10	21	31	"	"	"	"
	4'			23	43	65	"			6	"	"			10	21	31	"	"	"	"
	5'			23	43	65	"			6	"	"			10	21	31	"	"	"	"
	6'			23	43	65	9'-8"			6	7'-9"	3'-11"			10	21	31	10'-8"	0'-2¾"	2'-2"	3'-6"
2 @ 5'	3'	#4	11"	25	49	75	11'-5"	#4	11"	10	9'-10"	3'-6"	#5	11"	11	23	36	12'-6"	0'-3"	2'-6½"	4'-2"
	4'			25	49	75	"			10	"	"			11	23	36	"	"	"	"
	5'			25	49	75	"			10	"	"			11	23	36	"	"	"	"
	6'			25	49	75	11'-8"			10	10'-1"	3'-9"			11	23	36	12'-9"	"	2'-7½"	4'-3"
	7'			25	49	75	11'-10"			10	10'-3"	3'-11"			11	23	36	12'-11"	0'-3"	2'-8½"	4'-3½"
2 @ 6'	3'	#4	12"	21	45	67	13'-5"	#4	12"	12	11'-8"	2'-11"	#5	12"	10	21	33	14'-7"	0'-3¾"	2'-11"	4'-11"
	4'			21	45	67	"			12	"	"			10	21	33	"	"	"	"
	5'			21	45	67	"			12	"	"			10	21	33	"	"	"	"
	6'			21	45	67	13'-8"			12	11'-11"	3'-2"			10	21	33	14'-10"	"	3'-0"	5'-0"
	7'			21	45	67	13'-10"			12	12'-1"	3'-4"			10	21	33	15'-0"	"	3'-1"	5'-0½"
	8'			21	45	67	13'-11"			12	12'-2"	3'-5"			10	21	33	15'-1"	0'-3¾"	3'-1"	5'-1"
2 @ 7'	4'	#4	12"	21	43	67	15'-5"	#4	12"	14	13'-8"	3'-2"	#6	12"	9	21	32	16'-10"	0'-4¾"	3'-4½"	5'-7"
	5'			21	43	67	"			14	"	"			9	21	32	"	"	"	"
	6'			21	43	67	15'-8"			14	13'-11"	3'-5"			9	21	32	17'-1"	"	3'-5½"	5'-8"
	7'			21	43	67	15'-10"			14	14'-1"	3'-7"			9	21	32	17'-3"	"	3'-6½"	5'-8½"
	8'			21	43	67	15'-11"			14	14'-2"	3'-8"			9	21	32	17'-4"	"	3'-6½"	5'-9"
	9'			21	43	67	16'-2"			14	14'-5"	3'-11"			9	21	32	17'-7"	0'-4¾"	3'-7½"	5'-10"
2 @ 8'	4'	#5	13"	17	39	61	17'-5"	#5	13"	14	15'-6"	4'-0"	#6	13"	8	19	29	18'-10"	0'-5¾"	3'-7"	6'-5"
	5'			17	39	61	17'-8"			14	15'-9"	4'-3"			8	19	29	19'-1"	"	3'-8"	6'-6"
	6'			17	39	61	"			14	"	"			8	19	29	"	"	"	"
	7'			17	39	61	17'-10"			16	15'-11"	2'-6"			8	18	29	19'-3"	"	3'-9"	6'-6½"
	8'			17	39	61	17'-11"			16	16'-0"	2'-7"			8	18	29	19'-4"	"	3'-9"	6'-7"
	9'			17	39	61	18'-2"			16	16'-2"	2'-9"			8	18	29	19'-7"	"	3'-10"	6'-8"
	10'			17	39	61	18'-5"			16	16'-6"	3'-1"			8	18	29	19'-10"	0'-5¾"	3'-11"	6'-9"

CLEAR SPAN	CLEAR HEIGHT	"b1" bars – BENT - See Diagrams below. – In Bottom of Top Slab - some are bent up over Division Walls - one end hooked. Alternate with "a1" and "c" or "c1" bars							"b2" bars – BENT - See Diagrams below. – In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.								
S	H	SIZE	SPACING	No. REQ'D	LENGTH MAX.	MIN.	L MAX.	MIN.	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	X	Y	Z
2 @ 4'	2'	#4	13"	4	9'-0"	3'-1"	8'-5"	2'-8"	#4	13"	11	22	32	10'-5"	0'-2¾"	2'-1"	3'-5"
	3'			4	"	"	"	"			11	22	32	"	"	"	"
	4'			4	"	"	"	"			11	22	32	"	"	"	"
	5'			4	"	"	"	"			11	22	32	"	"	"	"
	6'			4	9'-3"	3'-4"	8'-8"	2'-11"			11	22	32	10'-8"	0'-2¾"	2'-2"	3'-6"
2 @ 5'	3'	#5	11"	6	11'-3"	3'-2"	10'-7"	2'-8"	#5	11"	12	24	37	12'-6"	0'-3"	2'-6½"	4'-2"
	4'			6	"	"	"	"			12	24	37	"	"	"	"
	5'			6	"	"	"	"			12	24	37	"	"	"	"
	6'			6	11'-6"	3'-5"	10'-10"	2'-11"			12	24	37	12'-9"	"	2'-7½"	4'-3"
	7'			6	11'-8"	3'-7"	11'-0"	3'-1"			12	24	37	12'-11"	0'-3"	2'-8½"	4'-3½"
2 @ 6'	3'	#5	12"	6	13'-3"	4'-3"	12'-6"	3'-9"	#5	12"	11	22	34	14'-7"	0'-4½"	2'-10"	4'-11"
	4'			6	"	"	"	"			11	22	34	"	"	"	"
	5'			6	"	"	"	"			11	22	34	"	"	"	"
	6'			6	13'-6"	4'-6"	12'-9"	4'-0"			11	22	34	14'-10"	"	2'-11"	5'-0"
	7'			6	13'-8"	4'-8"	12'-11"	4'-2"			11	22	34	15'-0"	"	3'-0"	5'-0½"
	8'			6	13'-9"	4'-9"	13'-0"	4'-3"			11	22	34	15'-1"	0'-4½"	3'-0"	5'-1"
2 @ 7'	4'	#6	12"	7	15'-5"	4'-7"	14'-6"	4'-0"	#6	12"	10	22	33	16'-10"	0'-5½"	3'-3½"	5'-7"
	5'			7	"	"	"	"			10	22	33	"	"	"	"
	6'			8	15'-8"	3'-1"	14'-9"	2'-6"			10	22	33	17'-1"	"	3'-4½"	5'-8"
	7'			8	15'-10"	3'-3"	14'-11"	2'-8"			10	22	33	17'-3"	"	3'-5½"	5'-8½"
	8'			8	15'-11"	3'-4"	15'-0"	2'-9"			10	22	33	17'-4"	"	3'-5½"	5'-9"
	9'			8	16'-2"	3'-7"	15'-3"	3'-0"			10	22	33	17'-7"	0'-5½"	3'-6½"	5'-10"
2 @ 8'	4'	#6	13"	8	17'-4"	3'-7"	16'-5"	3'-0"	#6	13"	9	20	30	18'-11"	0'-6½"	3'-6"	6'-5"
	5'			8	17'-7"	3'-10"	16'-8"	3'-3"			9	20	30	19'-2"	"	3'-7"	6'-6"
	6'			8	"	"	"	"			9	20	30	"	"	"	"
	7'			8	17'-9"	4'-0"	16'-10"	3'-5"			9	19	30	19'-4"	"	3'-8"	6'-6½"
	8'			8	17'-10"	4'-1"	16'-11"	3'-6"			9	19	30	19'-5"	"	3'-8"	6'-7"
	9'			8	18'-1"	4'-4"	17'-2"	3'-9"			9	19	30	19'-8"	"	3'-9"	6'-8"
	10'			8	18'-4"	4'-7"	17'-5"	4'-0"			9	19	30	19'-11"	0'-6½"	3'-10"	6'-9"

CLEAR SPAN	CLEAR HEIGHT	"b3" bars – BENT - See Diagrams below. – In Top of Bottom Slab - some are bent down under Division Walls - one end hooked. Alternate with "a1" and "c" or "c1" bars.							"c" bars – STRAIGHT – In Top and Bottom Slab of Barrel; Alternate with "b" and "b2" bars.						"c1" bars – STRAIGHT – In Top and Bottom Slab of Barrel. Alt. with "b1" & "b3" bars. (Two of each Length)				
S	H	SIZE	SPACING	No. REQ'D	LENGTH MAX.	MIN.	L MAX.	MIN.	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH MAX.	MIN.
2 @ 4'	2'	#4	13"	4	9'-0"	3'-1"	8'-5"	2'-8"	#5	13"	25	45	67	4'-8"	#5	13"	2	3'-3"	—
	3'			4	"	"	"	"			25	45	67	"			2	"	—
	4'			4	"	"	"	"			25	45	67	"			2	"	—
	5'			4	"	"	"	"			25	45	67	"			2	"	—
	6'			4	9'-3"	3'-4"	8'-8"	2'-11"			25	46	67	4'-9"			2	3'-6"	—
2 @ 5'	3'	#5	11"	6	11'-3"	3'-2"	10'-7"	2'-8"	#5	11"	27	51	77	5'-8"	#5	11"	4	5'-5"	3'-10"
	4'			6	"	"	"	"			27	51	77	"			4	"	"
	5'			6	"	"	"	"			27	51	77	"			4	"	"
	6'			6	11'-6"	3'-5"	10'-10"	2'-11"			27	51	77	5'-9"			4	5'-7"	4'-0"
	7'			6	11'-8"	3'-7"	11'-0"	3'-1"			27	51	77	5'-10"			4	5'-8"	4'-1"
2 @ 6'	3'	#5	12"	6	13'-3"	4'-3"	12'-6"	3'-9"	#6	12"	23	47	69	6'-8"	#6	12"	6	6'-7"	3'-1"
	4'			6	"	"	"	"			23	47	69	"			6	"	"
	5'			6	"	"	"	"			23	47	69	"			6	"	"
	6'			6	13'-6"	4'-6"	12'-9"	4'-0"			23	47	69	6'-9"			6	6'-9"	3'-3"
	7'			6	13'-8"	4'-8"	12'-11"	4'-2"			23	47	69	6'-10"			6	6'-10"	3'-4"
	8'			6	13'-9"	4'-9"	13'-0"	4'-3"			23	47	69	6'-10"			6	6'-11"	3'-5"
2 @ 7'	4'	#6	12"	7	15'-5"	4'-7"	14'-6"	4'-0"	#6	12"	25	47	71	7'-8"	#6	12"	6	6'-4"	2'-10"
	5'			7	"	"	"	"			25	47	71	"			6	"	"
	6'			8	15'-8"	3'-1"	14'-9"	2'-6"			25	47	71	7'-9"			6	6'-6"	3'-0"
	7'			8	15'-10"	3'-3"	14'-11"	2'-8"			25	47	71	7'-10"			6	6'-7"	3'-1"
	8'			8	15'-10"	3'-4"	15'-0"	2'-9"			25	47	71	7'-10"			6	6'-8"	3'-2"
	9'			8	16'-2"	3'-7"	15'-3"	3'-0"			25	47	71	7'-11"			6	6'-10"	3'-4"
2 @ 8'	4'	#6	13"	8	17'-5"	3'-7"	16'-5"	3'-0"	#7	13"	21	43	65	8'-8"	#7	13"	8	8'-0"	3'-3"
	5'			8	17'-8"	3'-10"	16'-8"	3'-3"			21	43	65	8'-9"			8	8'-2"	3'-5"
	6'			8	"	"	"	"			21	43	65	"			8	"	"
	7'			8	17'-10"	4'-0"	16'-10"	3'-5"			21	43	65	8'-10"			8	8'-3"	3'-6"
	8'			8	17'-11"	4'-1"	16'-11"	3'-6"			21	43	65	8'-10"			8	8'-4"	3'-7"
	9'			8	18'-2"	4'-4"	17'-2"	3'-9"			21	43	65	8'-11"			8	8'-6"	3'-9"
	10'			8	18'-5"	4'-7"	17'-5"	4'-0"			21	43	65	9'-0"			8	8'-8"	3'-11"

CLEAR SPAN	CLEAR HEIGHT	"d" bars – STRAIGHT – Longitudinal in Top Slab of Barrel.				"d1" bars – STRAIGHT – Longitudinal in Sidewalls and Division Wall.				"e" bars – STRAIGHT – Longitudinal in Bottom Slab of Barrel.				"f" bars – STRAIGHT – Verticals in Sidewalls and Division Wall.						"k1" bars – STRAIGHT – In Bottom of Headwall.			"k2" bars. – STRAIGHT – In Top of Headwall and Apron. (2 Each)		
S	H	SIZE	SPACING	No. REQ'D	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH	SIZE	SPACING	NUMBER REQ'D 2:1	3:1	4:1	LENGTH	SIZE	No. REQ'D	LENGTH	SIZE	No. REQ'D	LENGTH
2 @ 4'	2'	#4	12"	14	Lengths Vary - Ave. Lengths; 2:1 = 15'-6", 3:1 = 27'-1", ⊙4:1 = 38'-8"	#4	12"	8	Lengths Vary - Ave. Lengths; 2:1 = 15'-6", 3:1 = 27'-1", ⊙4:1 = 38'-8"	#4	12"	14	Lengths Vary - Ave. Lengths; 2:1 = 16'-8", 3:1 = 28'-3", ⊙4:1 = 39'-10"	#4	12"	56	102	148	2'-9"	#5	3	10'-11"	#5	4	12'-0"
	3'			14				12				14				56	102	148	3'-9"		3	"		4	"
	4'			14				16				14				56	102	148	4'-9"		3	"		4	"
	5'			14				20				14				56	102	148	5'-9"		3	"		4	"
	6'			14				24				14				56	102	148	6'-9"		3	11'-2"		4	12'-4"
2 @ 5'	3'	#4	12"	16		#4	12"	12		#4	12"	16		#4	12"	56	102	148	3'-10"	#5	3	13'-2"	#5	4	14'-4"
	4'			16				16				16				56	102	148	4'-10"		3	"		4	"
	5'			16				20				16				56	102	148	5'-10"		3	"		4	"
	6'			16				24				16				56	102	148	6'-10"		3	13'-6"		4	14'-8"
	7'			16				28				16		#5	12"	56	102	148	7'-10"		3	13'-8"		4	14'-10"
2 @ 6'	3'	#4	12"	18		#4	12"	12		#4	12"	18		#4	12"	56	102	148	4'-0"	#5	3	15'-6"	#5	4	16'-8"
	4'			18				16				18				56	102	148	5'-0"		3	"		4	"
	5'			18				20				18				56	102	148	6'-0"		3	"		4	"
	6'			18				24				18				56	102	148	7'-0"		3	15'-9"		4	16'-11"
	7'			18				28				18		#5	12"	56	102	148	8'-0"		3	16'-0"		4	17'-2"
	8'			18				32				18			11"	62	112	162	9'-0"		3	16'-1"		4	17'-3"
2 @ 7'	4'	#4	12"	21		#4	12"	16		#4	12"	21		#4	12"	56	102	148	5'-2"	#6	3	17'-10"	#6	4	19'-0"
	5'			21				20				21				56	102	148	6'-2"		3	"		4	"
	6'			21				24				21				56	102	148	7'-2"		3	18'-1"		4	19'-3"
	7'			21				28				21		#5	12"	56	102	148	8'-2"		3	18'-3"		4	19'-5"
	8'			21				32				21			11"	62	112	162	9'-2"		3	18'-5"		4	19'-6"
	9'			21				36				21			10"	68	124	178	10'-2"		3	18'-8"		4	19'-10"
2 @ 8'	4'	#4	12"	23		#4	12"	16		#4	12"	23		#4	12"	56	102	148	5'-4"	#6	3	20'-1"	#6	4	21'-3"
	5'			23				20				23				56	102	148	6'-4"		3	20'-5"		4	21'-7"
	6'			23				24				23				56	102	148	7'-4"		3	"		4	"
	7'			23				28				23			10"	68	124	178	8'-4"		3	20'-7"		4	21'-9"
	8'			23				32				23		#5	12"	56	102	148	9'-4"		3	20'-8"		4	21'-10"
	9'			23				36				23			11"	62	112	162	10'-4"		3	21'-0"		4	22'-2"
	10'			23				40				23		#6	12"	56	102	148	11'-4"		3	21'-3"		4	22'-5"

The "a1", "b1", "b3", "c1", "k1" and "k2" bars are marked ◤.

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b" AND "b2"
#4	2"	4"	0'-10½"	K, Pin diam., X, Y, Z
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b1" AND "b3"
#4	2"	4"	0'-5¼"	K, Pin diameter, X, Y, Z, L, Less than Z, Min 1.6X, 3X Max.
#5	2½"	4¼"	0'-5¾"	
#6	3"	5"	0'-7"	

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Dowel bars "r" in One Headwall.
4'	#4	12"±	12	2'-4"	1'-2"	X, 2, 12, X
5'	#4	12"±	14	2'-5"	1'-2½"	
6'	#4	12"±	16	2'-6"	1'-3"	
7'	#4	12"±	18	2'-8"	1'-4"	
8'	#4	12"±	21	2'-10"	1'-5"	

NOTE:- Dimensions are to centers of bars (b, b1, b2, & b3). The X, Y & Z values for "b1" bars are same as for "b" bars and for "b3" bars same as for "b2" bars.

◤ These bars are in the skewed portion of barrel only. The length of "a1" and "c1" bars and overall length L of "b1" and "b3" bars vary by 1'-11" for 13" spacing, 1'-9" for 12" spacing, and 1'-7" for 11" spacing.

⊙ To Longitudinal bars of 4:1 slopes add one splice for each "d", "d1" and "e" bar. (1'-3" lap).

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.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall 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 @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

For Barrels of 4', 5' & 6' Spans, see Drawing No. R-200X-X1, of 7' Spans Drawing No. R-200X-X3, and of 8' Spans Drawing No. R-200X-X2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
30° SKEW ~ SECTIONS "A" ONLY

4', 5', 6', 7' AND 8' SPANS   2:1, 3:1 OR 4:1 SLOPES
DOUBLES   OVER 5'-0" COVER

STANDARD DRAWING NO. R-230X-1

Designed by:- W.C.H. 9-17-62. Checked by:- R.H.S. 11-12-62
Drawn by:- W.C.H. 1-28-64 Checked by:-
Quantities by:- W.C.H. 4-23-64 Checked by:-