DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	1	349
				(2)	HWY. 367 - HWY. 89 (CABOT) (S)			

"A PARTIALLY CONTROLLED ACCESS FACILITY"

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 367 - HWY. 89 (CABOT) (S)

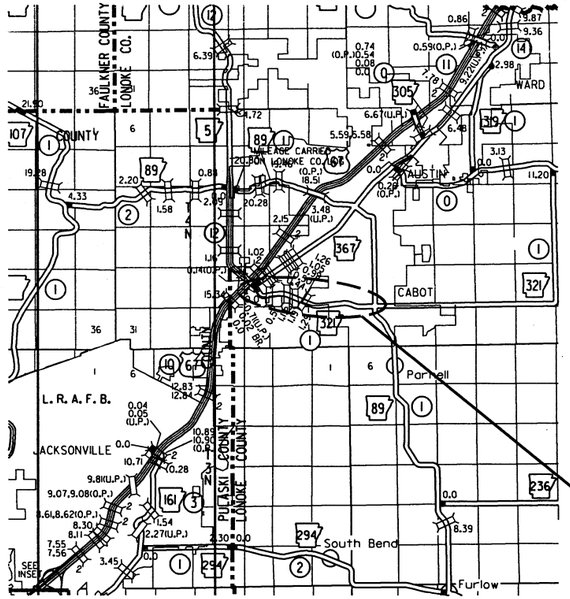
LONOKE COUNTY

ROUTE 321 SECTION 1

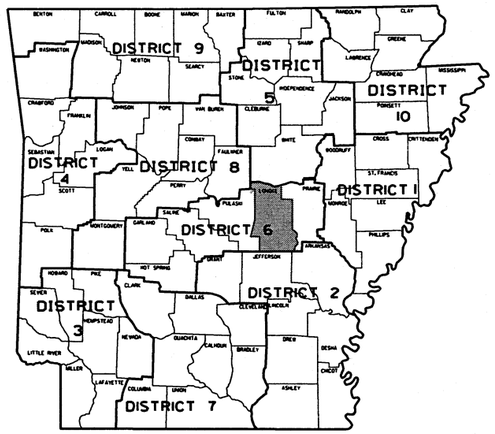
JOB 061509

FEDERAL AID PROJ. CMF-9065(24)

NOT TO SCALE



VICINITY MAP



ARK. HWY. DIST. NO. 6

BRIDGE DATA

(1) STA. 224+53.30 BRIDGE END
IN PLACE BRIDGE NO. 06465
75'-0" 3-25'-0" R.C.D.G. SPANS
58'-0" CLEAR ROADWAY
75'-0" BRIDGE LENGTH
STA. 225+28.30 BRIDGE END
RETAIN AND WIDEN

(2) STA. 260+66.50 BRIDGE END
BRIDGE NO. A6466
75'-0" 3-25'-0" R.C.D.G. SPANS
31' CLEAR ROADWAY
75'-0" BRIDGE LENGTH
STA. 261+41.50 BRIDGE END

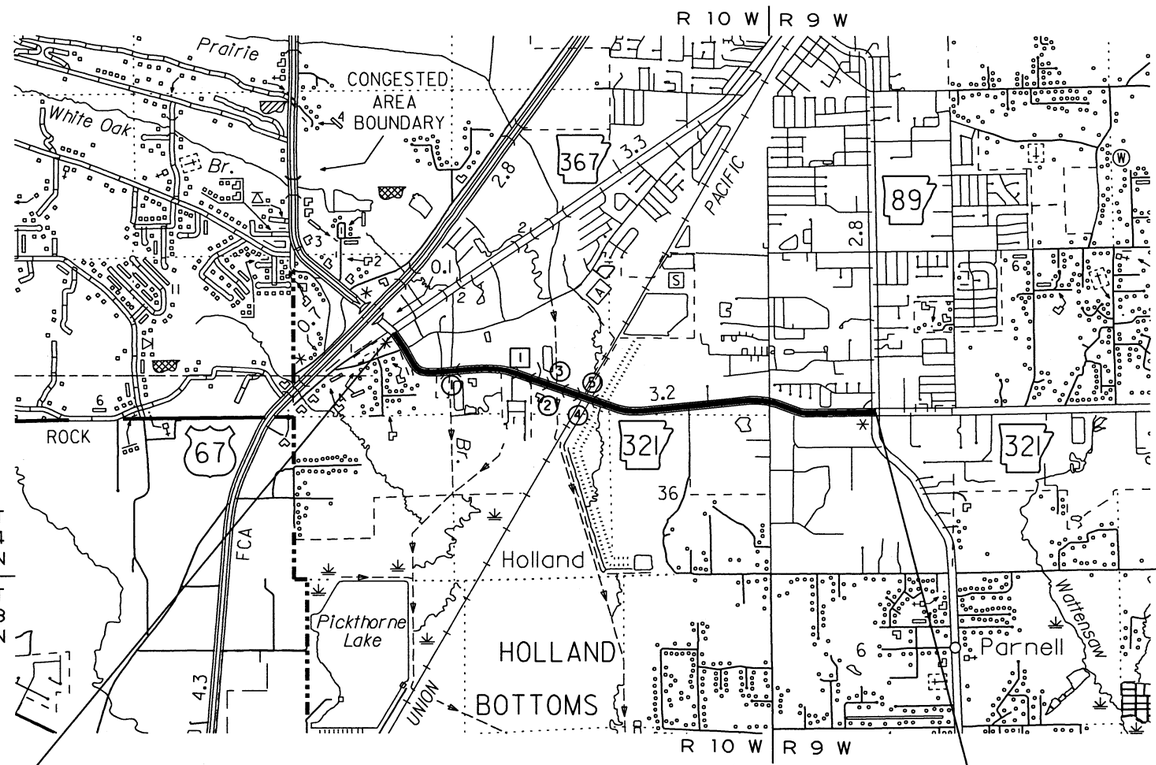
(3) STA. 260+51.46 BRIDGE END
IN PLACE BRIDGE NO. 06466
75'-0" 3-25'-0" R.C.D.G. SPANS
40' CLEAR ROADWAY
75'-0" BRIDGE LENGTH
STA. 261+26.46 BRIDGE END
RETAIN AND MODIFY

(4) STA. 265+90.40 BRIDGE END
BRIDGE NO. A6467
235'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (69'-0", 83'-0", 83'-0")
309'-0" CONTINUOUS COMPOSITE PLATE
GIRDER UNIT (116'-0", 113'-6", 79'-6")
304'-0" CONTINUOUS COMPOSITE W-BEAM
UNIT (69'-0", 83'-0", 83'-0", 69'-0")
31' CLEAR ROADWAY
850'-2½" TOTAL BRIDGE LENGTH
STA. 274+40.60 BRIDGE END

(5) STA. 265+90.20 BRIDGE END
IN PLACE BRIDGE NO. 06467
850'-5½" CONTINUOUS COMPOSITE
W-BEAM UNIT
40' CLEAR ROADWAY
850'-5½" BRIDGE LENGTH
STA. 274+40.61 BRIDGE END
RETAIN AND MODIFY

STRUCTURES OVER 20'-0" SPAN

[1] STA. 257+53 IN PLACE
DBL. 10' X 6' X 60' R.C. BOX CULVERT
WITH 3:1 WINGS LT. AND RT.
REMOVE HEADWALL RT. AND EXTEND 50' RT.
ON 15° RT. FWD. SKEW
WITH 3:1 WINGS RT.
TO A COMPLETED LENGTH OF 110'
Q50 = 25.2 CFS D.A. = 18.5 ACRES
SPAN = 22'-1"



STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

STA. 368+56.71
END JOB 061509

DESIGN TRAFFIC DATA

DESIGN YEAR	2039
2019 ADT	17,500
2039 ADT	23,000
2039 DHV	2,530
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	5%
DESIGN SPEED	45 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°56'50"	N 34°56'21"	N 34°56'18"
LONGITUDE	W 92°03'43"	W 92°02'13"	W 92°00'32"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF	PROJECT	17045.92	FEET	OR	3.228	MILES
NET	"	ROADWAY	16023.64	"		3.034	MILES
NET	"	BRIDGES	1022.28	"		0.194	MILES
NET	"	PROJECT	17045.92	"		3.228	MILES

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
M.E. BANKS

6-20-19

DEPUTY DIRECTOR
AND CHIEF ENGINEER

6/14/2019

R061509.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.		061509	2	349

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

5/13/2019

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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.		061509	3	349

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

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

5/13/2019

R061509.DGN

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				6	ARK.			
				JOB NO.		061509	4	349
				(2)	STANDARD DRAWINGS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-12-19

BRIDGE STANDARD DRAWINGS

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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
55013	STANDARD DETAILS FOR TRANSITION APPROACH RAILING	02-11-16
55014	STANDARD DETAILS FOR TYPE H RAILING	02-11-16
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55022	STANDARD DETAILS FOR CONCRETE PILES	03-24-16
55040C2	STANDARD DETAILS FOR TYPE C2 APPROACH SLAB	02-27-14

ROADWAY STANDARD DRAWINGS

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CG-1	CURBING DETAILS	11-29-07
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
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	08-22-02
FPC-9M	DETAILS OF DROP INLET (TYPE MO)	08-22-02
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
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SD-6	HEAVY DUTY PULL BOX	11-16-17
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SD-8	SIGNAL HEAD PLACEMENT	12-08-16
SD-9	SERVICE POINT	11-16-17
SD-11	STEEL POLE WITH MAST ARM	11-16-17
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
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TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
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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
WR-1	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	11-10-05
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X003-2	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	12-31-62
W-X15	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	06-13-63
W-X153-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X45	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	06-15-64
W-X453-1	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-215X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	08-23-63
R-245X-01	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	07-14-64
R-245X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	08-12-64

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				6	ARK.			
				JOB NO.		061509	5	349

(2) GOVERNING SPECS. AND GENERAL NOTES

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 061509
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
620-1_____ MULCH COVER
621-1_____ FILTER SOCKS
632-1_____ CONCRETE ISLAND
633-1_____ CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
634-1_____ CURBING
700-2_____ TRAFFIC CONTROL FACILITIES
800-1_____ STRUCTURES
802-3_____ CONCRETE FOR STRUCTURES
804-2_____ REINFORCING STEEL FOR STRUCTURES
808-1_____ INSTALLATION OF ELASTOMETRIC BEARINGS
808-2_____ ELASTOMERIC BEARINGS
JOB 061509__ ACTUATED CONTROLLER
JOB 061509__ AIRPORT CLEARANCE REQUIREMENTS
JOB 061509__ ASSESSMENT OF WORKING DAYS - MAINTENANCE OF TRAFFIC
JOB 061509__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 061509__ BRIDGE DECK REPAIR FOR POLYMER OVERLAYS
JOB 061509__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061509__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061509__ CABINET DRAWER ASSEMBLY
JOB 061509__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 061509__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 061509__ CONCRETE WALKS (TYPE SPECIAL)
JOB 061509__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 061509__ CONSTRUCTION PROJECT INFORMATION SIGN
JOB 061509__ CULVERT CLEAN OUT
JOB 061509__ DELAY IN RIGHT OF WAY OCCUPANCY
JOB 061509__ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 061509__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 061509__ EDGE CARD VIDEO PROCESSOR
JOB 061509__ ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 061509__ ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 061509__ FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB 061509__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061509__ HEADED STEEL BARS FOR CONCRETE REINFORCEMENT
JOB 061509__ INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY
JOB 061509__ LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB 061509__ LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB 061509__ LED TRAFFIC SIGNAL HEAD
JOB 061509__ LIGHTWEIGHT AGGREGATE CONCRETE (AE)
JOB 061509__ MAINTENANCE OF TRAFFIC
JOB 061509__ MANDATORY ELECTRONIC CONTRACT
JOB 061509__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL

GOVERNING SPECIFICATIONS - CONTINUED

NUMBER **TITLE**

JOB 061509__ PARTNERING REQUIREMENTS
JOB 061509__ PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB 061509__ PIPE CULVERTS
JOB 061509__ PLASTIC PIPE
JOB 061509__ POLYMER OVERLAY
JOB 061509__ PREFORMED SILICONE JOINT SEAL
JOB 061509__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 061509__ PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB 061509__ REMOVAL AND DISPOSAL OF GUARDRAIL
JOB 061509__ REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB 061509__ RESTRICTIONS ON THE USE OF RECYCLED ASPHALT PAVEMENT MATERIAL
JOB 061509__ RETROREFLECTIVE BACKPLATES
JOB 061509__ SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 061509__ SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 061509__ SHORING
JOB 061509__ SHORING FOR CULVERTS
JOB 061509__ SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB 061509__ SOIL STABILIZATION
JOB 061509__ STORM WATER POLLUTION PREVENTION PLAN
JOB 061509__ STREET NAME SIGN (MAST ARM MOUNTED)
JOB 061509__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061509__ SYSTEM LOCAL CONTROLLER
JOB 061509__ UTILITY ADJUSTMENTS
JOB 061509__ VALUE ENGINEERING
JOB 061509__ VIDEO DETECTOR (COLOR)
JOB 061509__ WARM MIX ASPHALT
JOB 061509__ WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.

2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.

3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.

5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.

6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE 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.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

5/13/2019
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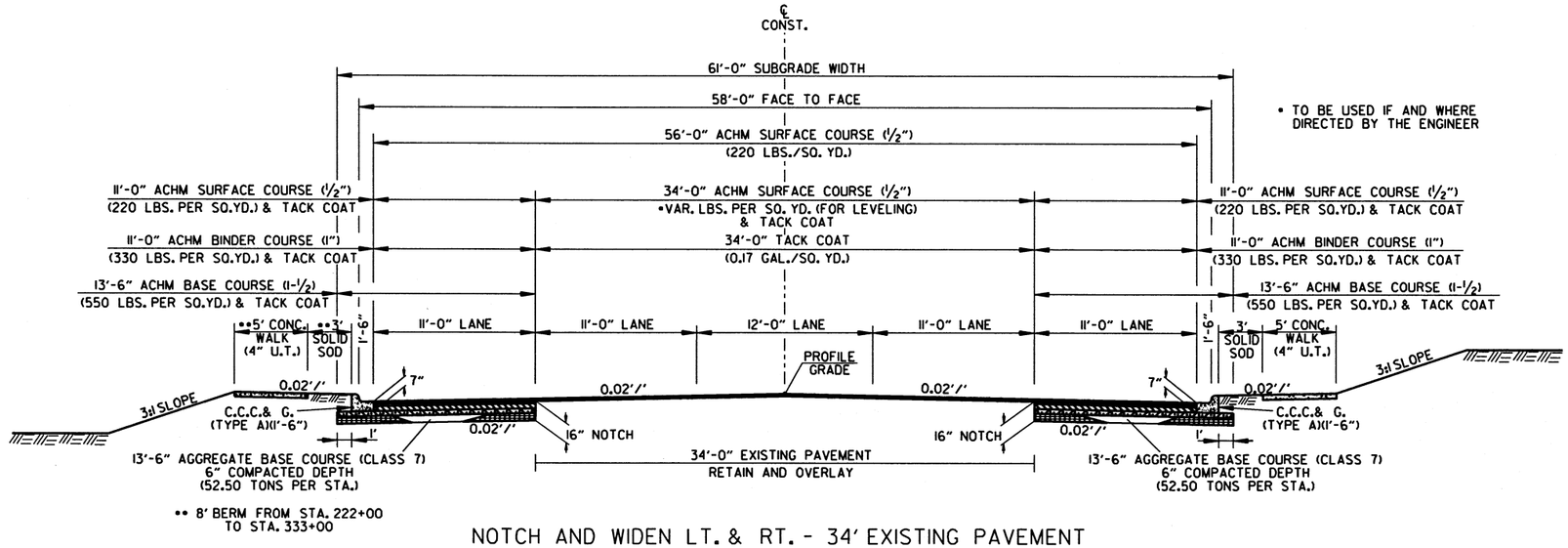
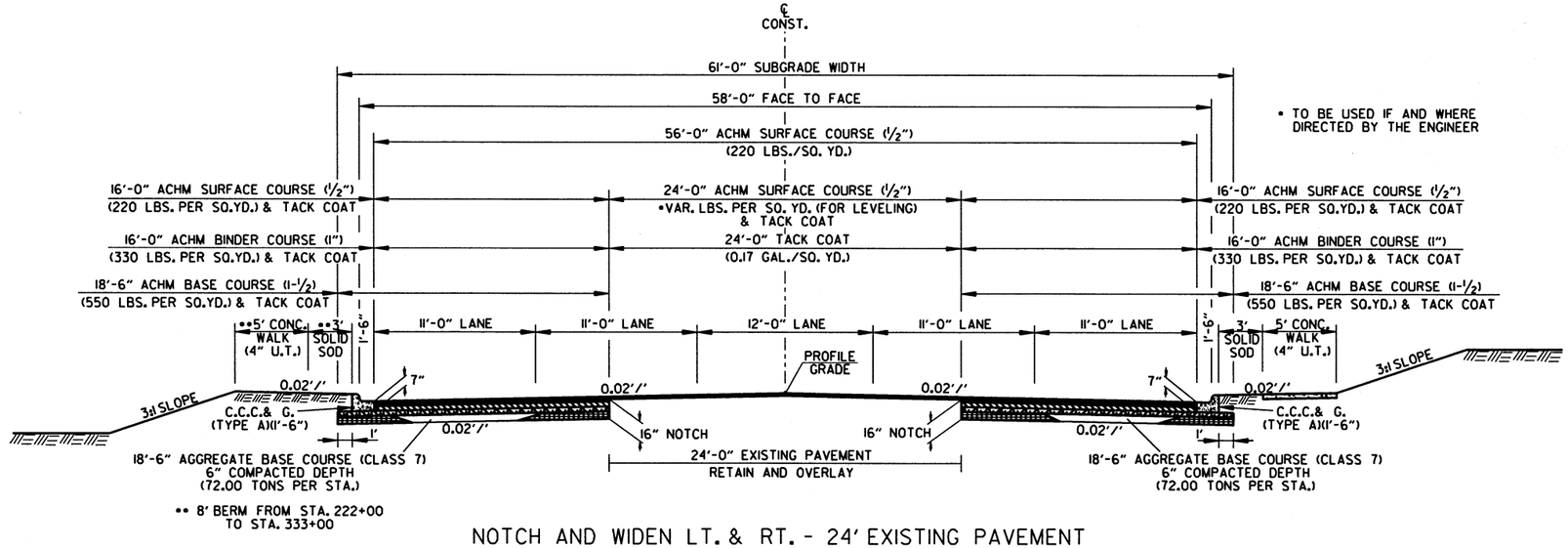
				JOB NO.		061509	6	349

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



NOTCH AND WIDEN LT. & RT. - 34' EXISTING PAVEMENT
STA. 198+10.79 TO STA. 224+00.00



NOTCH AND WIDEN LT. & RT. - 24' EXISTING PAVEMENT
STA. 224+00.00 TO STA. 224+53.30
STA. 225+28.30 TO STA. 243+11.00
STA. 330+00.00 TO STA. 366+00.00

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

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

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

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

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

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

6/12/2019

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TYPICAL SECTIONS OF IMPROVEMENT

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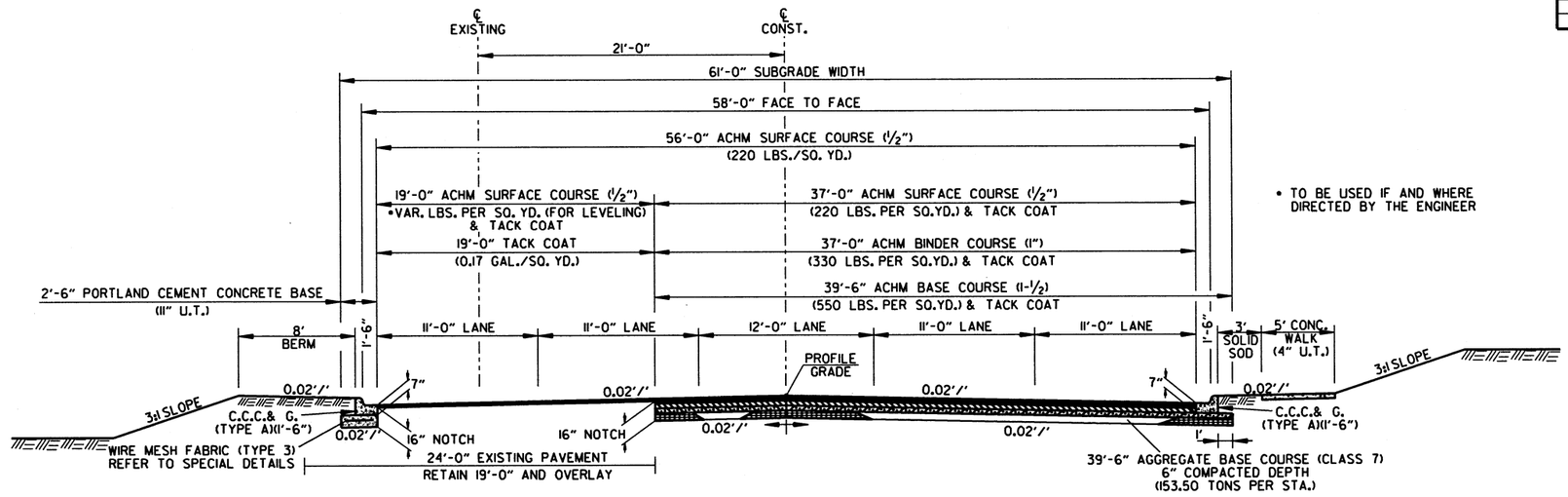
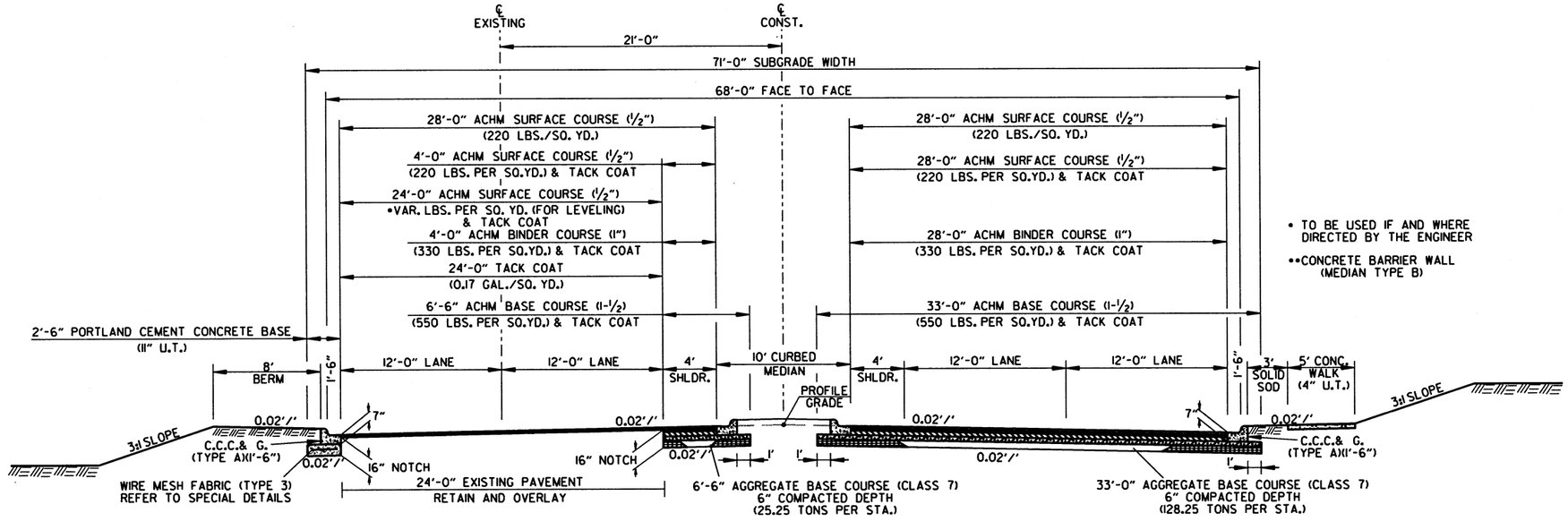
				JOB NO.		061509	7	349

(2) TYPICAL SECTIONS OF IMPROVEMENT



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDEN RT. - 19' EXISTING PAVEMENT
STA. 243+11.00 TO STA. 258+00.00
STA. 278+00.00 TO STA. 290+00.00



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** CONCRETE BARRIER WALL (MEDIAN TYPE B)

NOTCH AND WIDEN RT. - 24' EXISTING PAVEMENT
STA. 258+00.00 TO STA. 260+07.85

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

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

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

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

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

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

6/12/2019

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TYPICAL SECTIONS OF IMPROVEMENT

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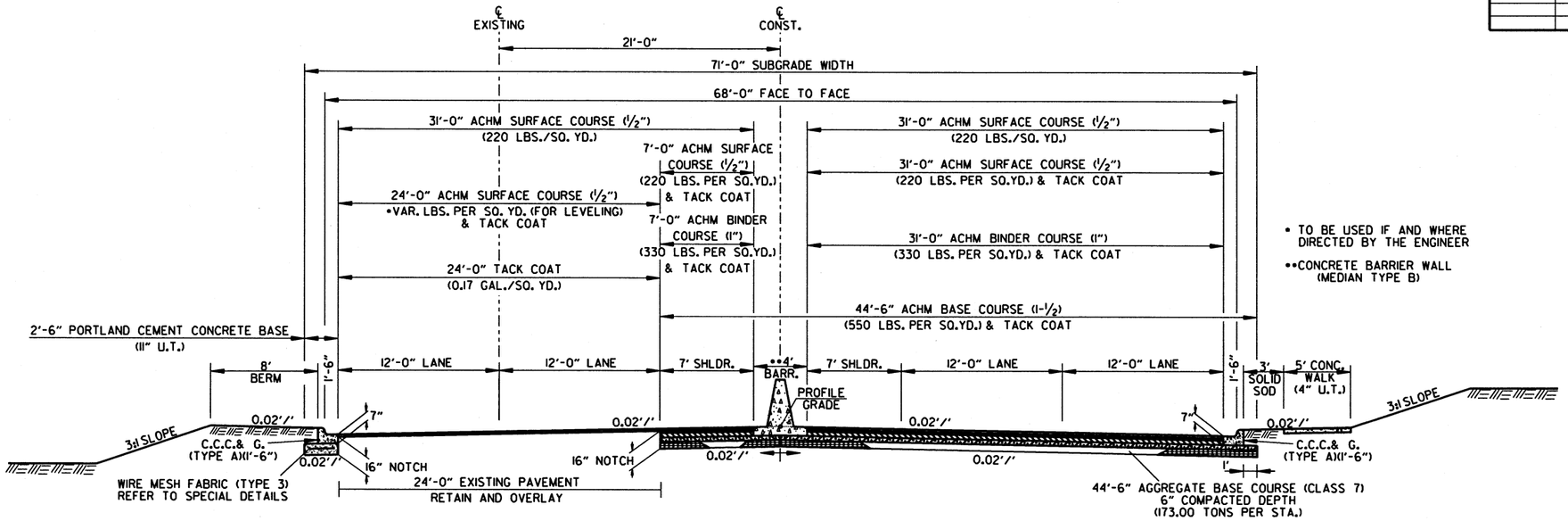
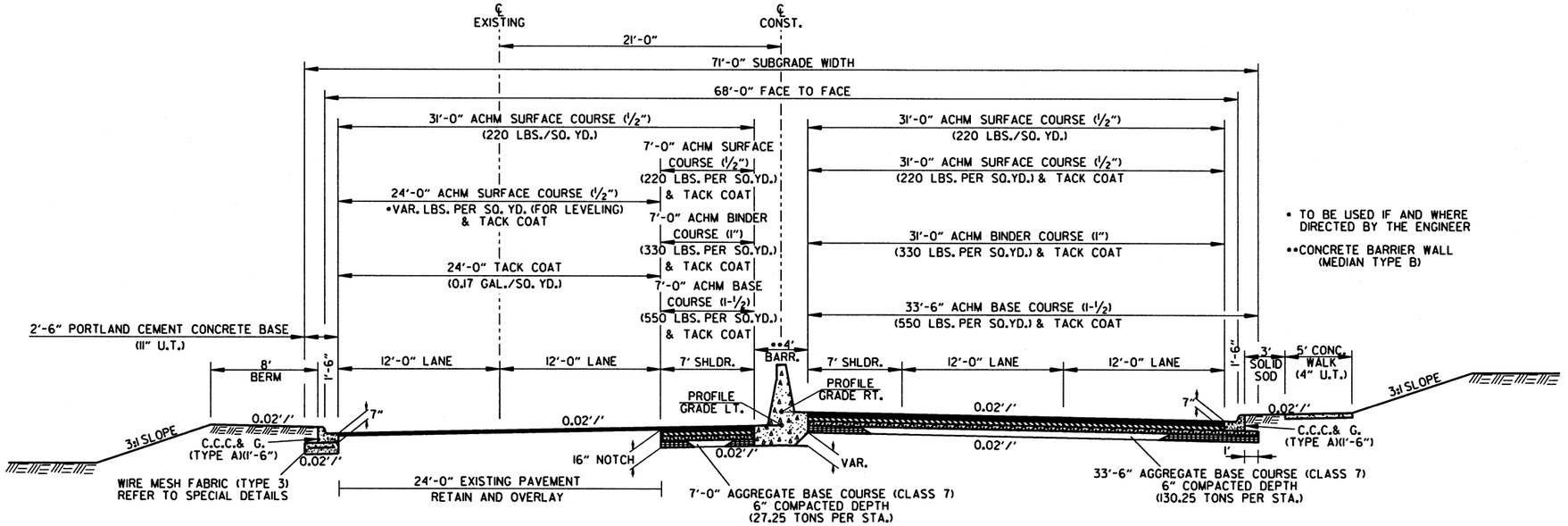
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



NOTCH AND WIDEN RT. - 24' EXISTING PAVEMENT
STA. 260+07.85 TO STA. 260+23.20



NOTCH AND WIDEN RT. - 24' EXISTING PAVEMENT
TWO PROFILE GRADES
STA. 260+23.20 TO STA. 260+66.50
STA. 261+41.50 TO STA. 265+90.20
STA. 274+40.61 TO 274+90.61

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

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

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

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

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

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

6/12/2019

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TYPICAL SECTIONS OF IMPROVEMENT

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				6	ARK.			
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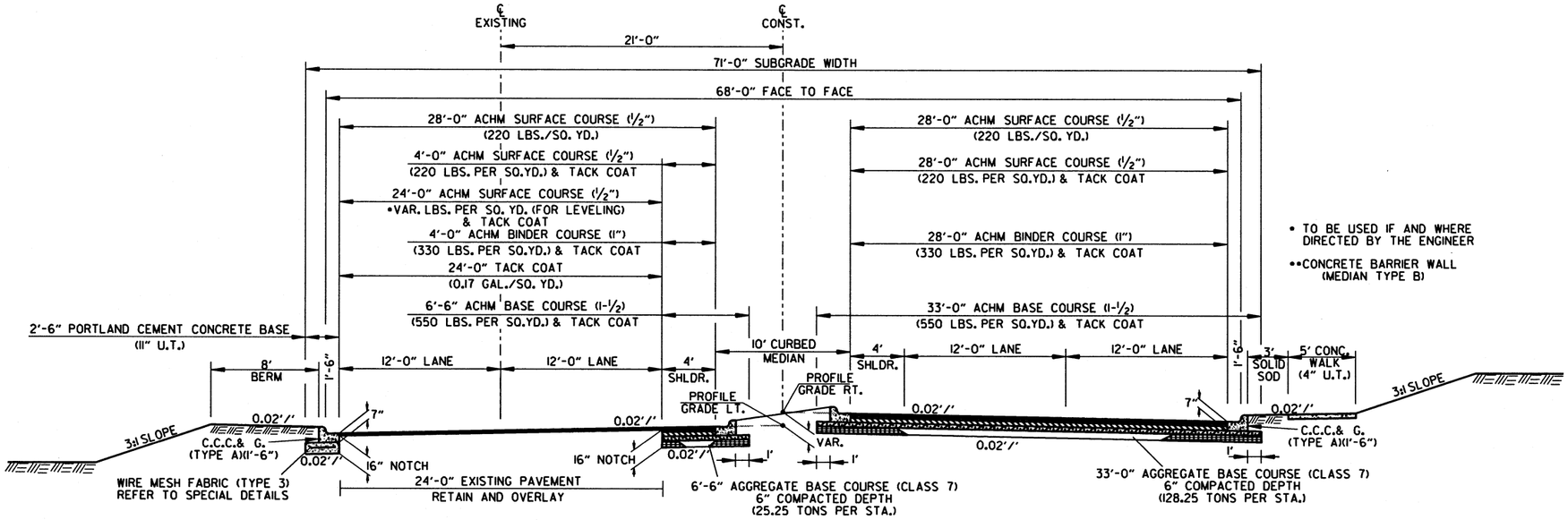
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



NOTCH AND WIDEN RT. - 24' EXISTING PAVEMENT
STA. 274+90.61 TO STA. 278+00.00

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

••CONCRETE BARRIER WALL (MEDIAN TYPE B)

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

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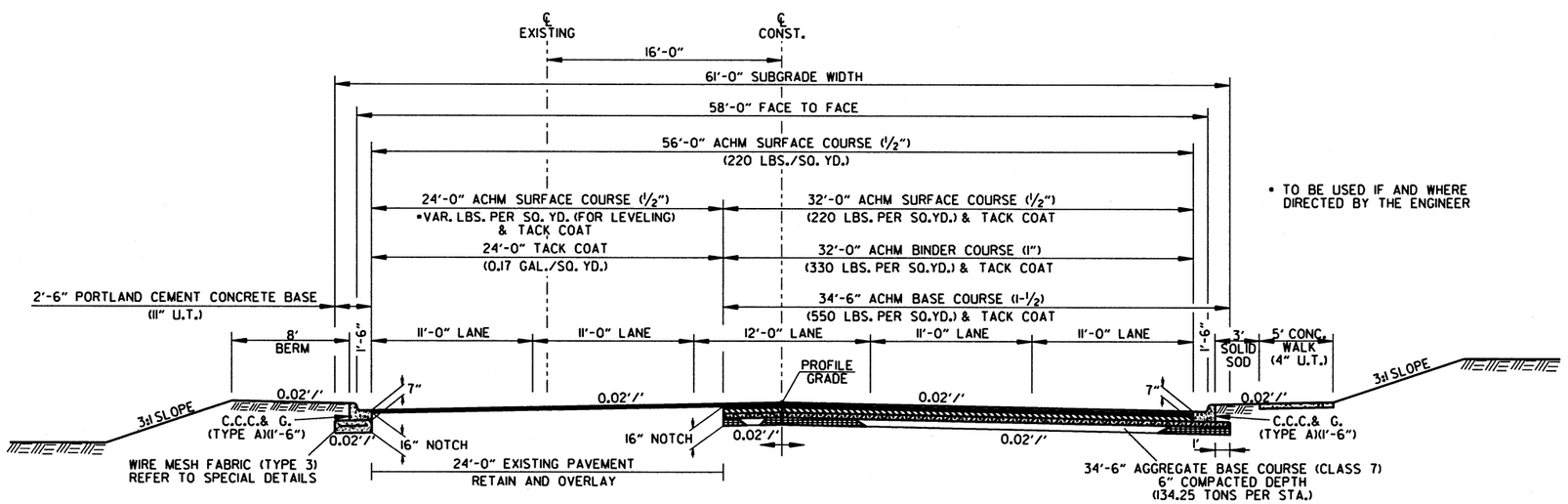
TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDEN RT. - 24' EXISTING PAVEMENT
STA. 290+00.00 TO STA. 325+00.00

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TYPICAL SECTIONS OF IMPROVEMENT

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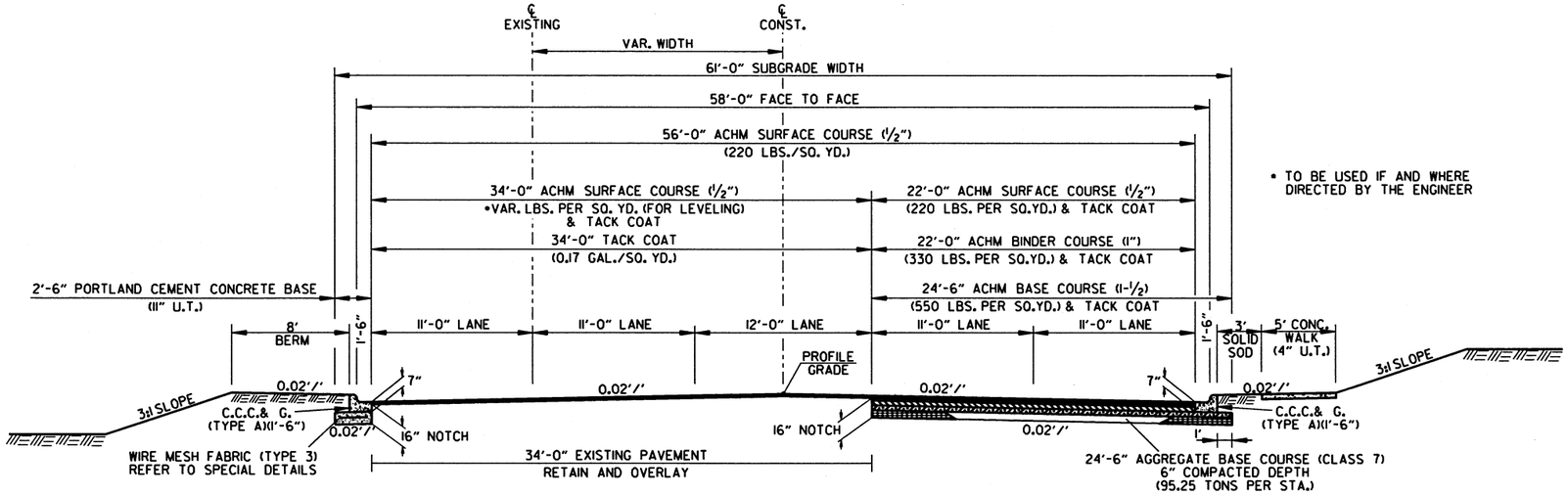
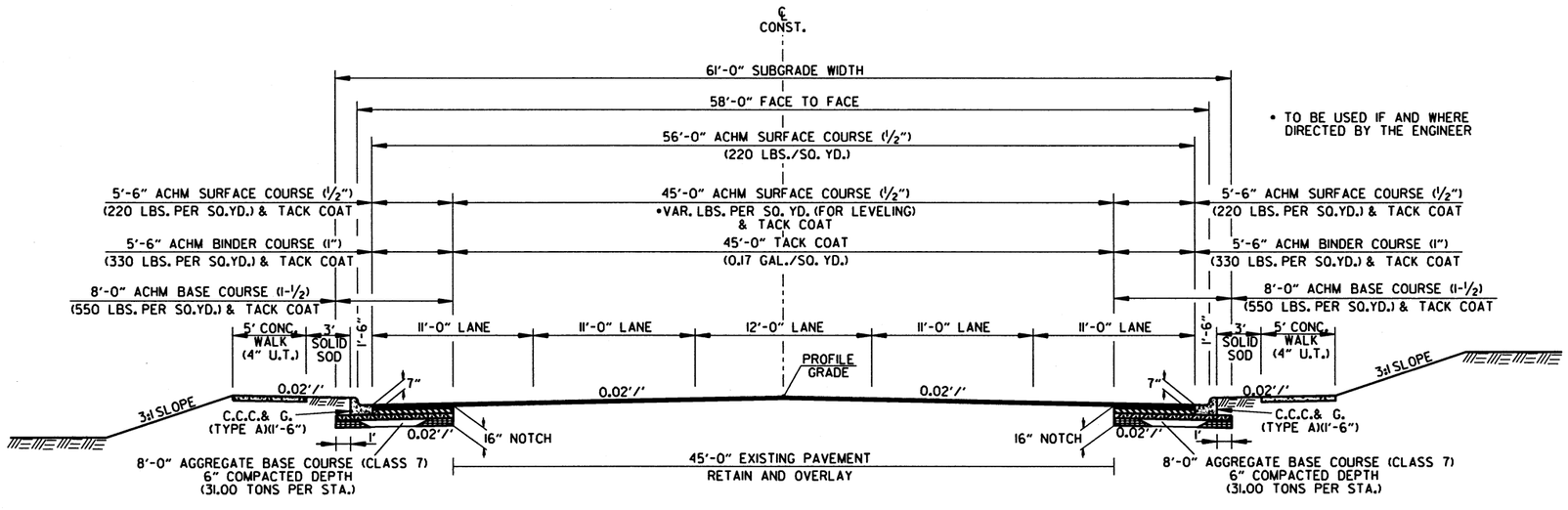
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11425
6-17-19



NOTCH AND WIDEN RT. - 34' EXISTING PAVEMENT
STA. 325+00.00 TO STA. 330+00.00



NOTCH AND WIDEN LT. & RT. - 45' EXISTING PAVEMENT
STA. 366+00.00 TO STA. 368+56.71

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

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

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

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

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

TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

6/12/2019

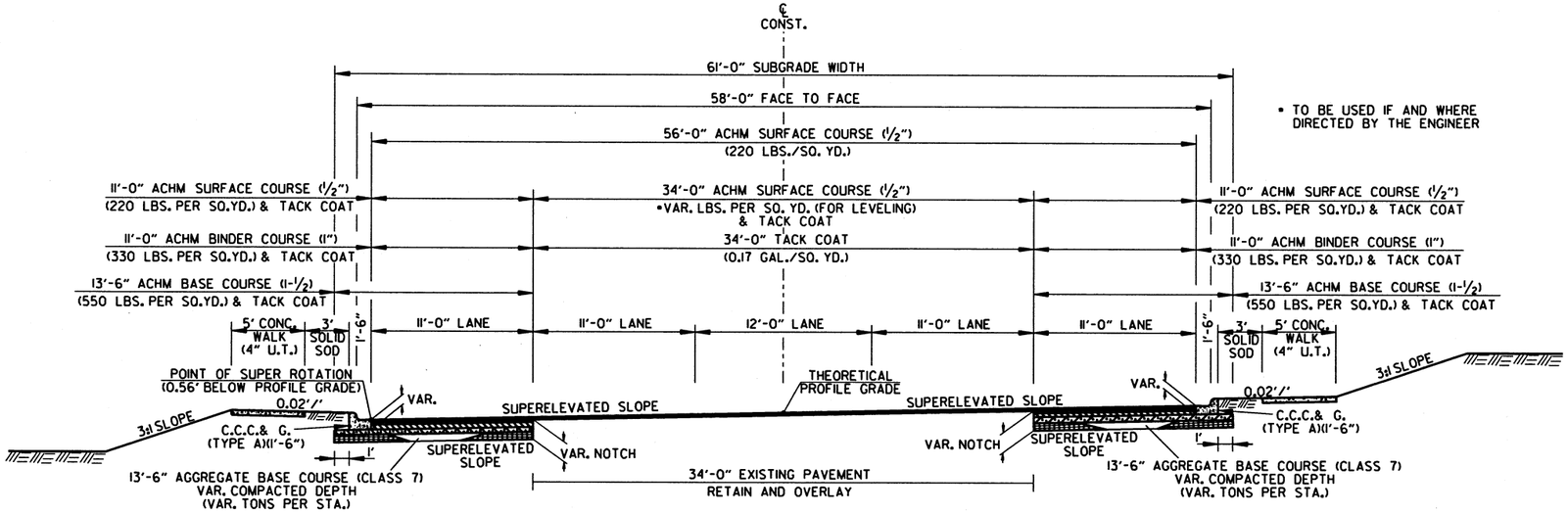
R061509.DGN

TYPICAL SECTIONS OF IMPROVEMENT

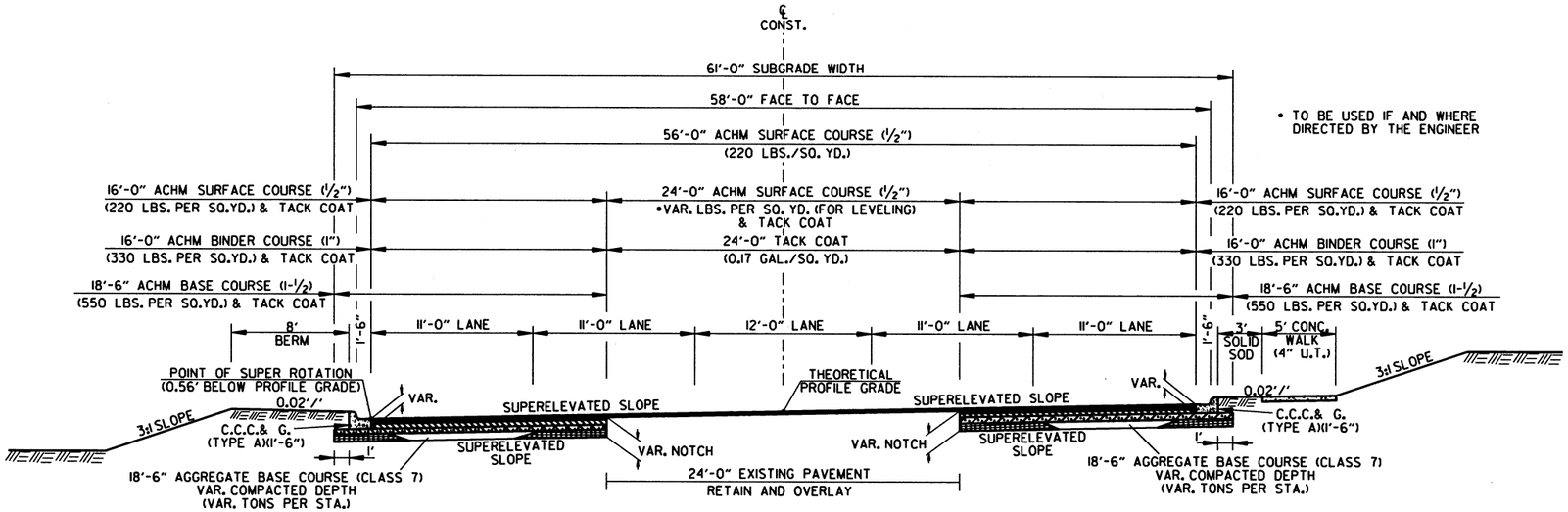
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	11	349

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



NOTCH AND WIDEN LT. & RT. - 34' EXISTING PAVEMENT
SUPERELEVATED



NOTCH AND WIDEN LT. & RT. - 24' EXISTING PAVEMENT
SUPERELEVATED

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

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TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

6/12/2019

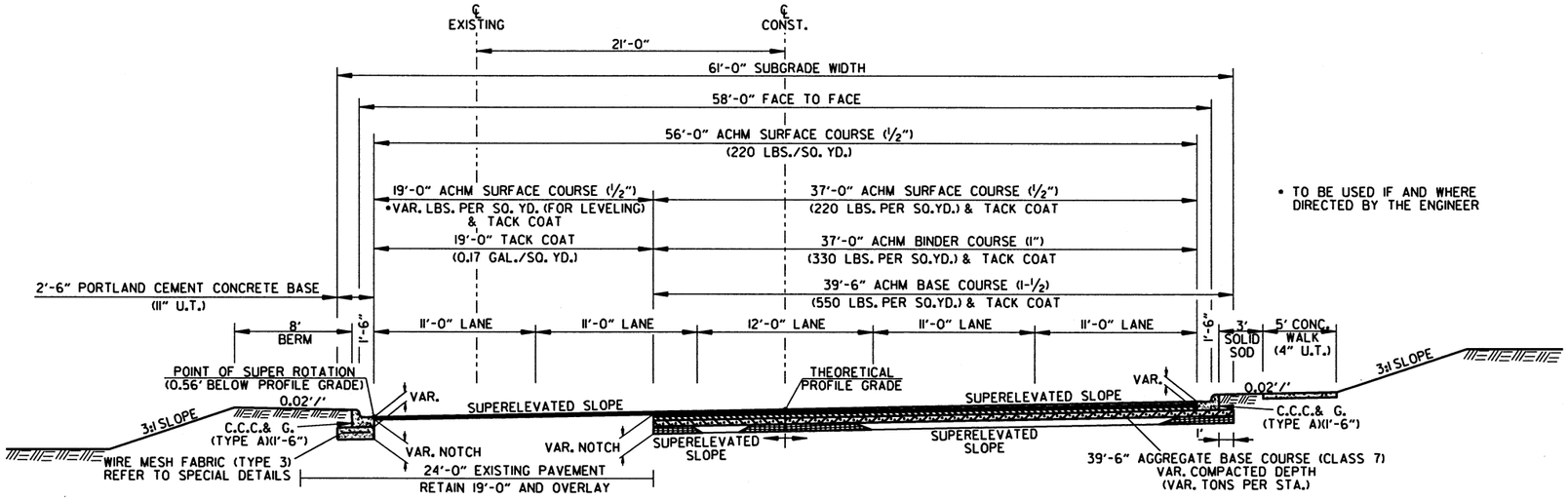
R061509.DGN

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.		061509	12	349

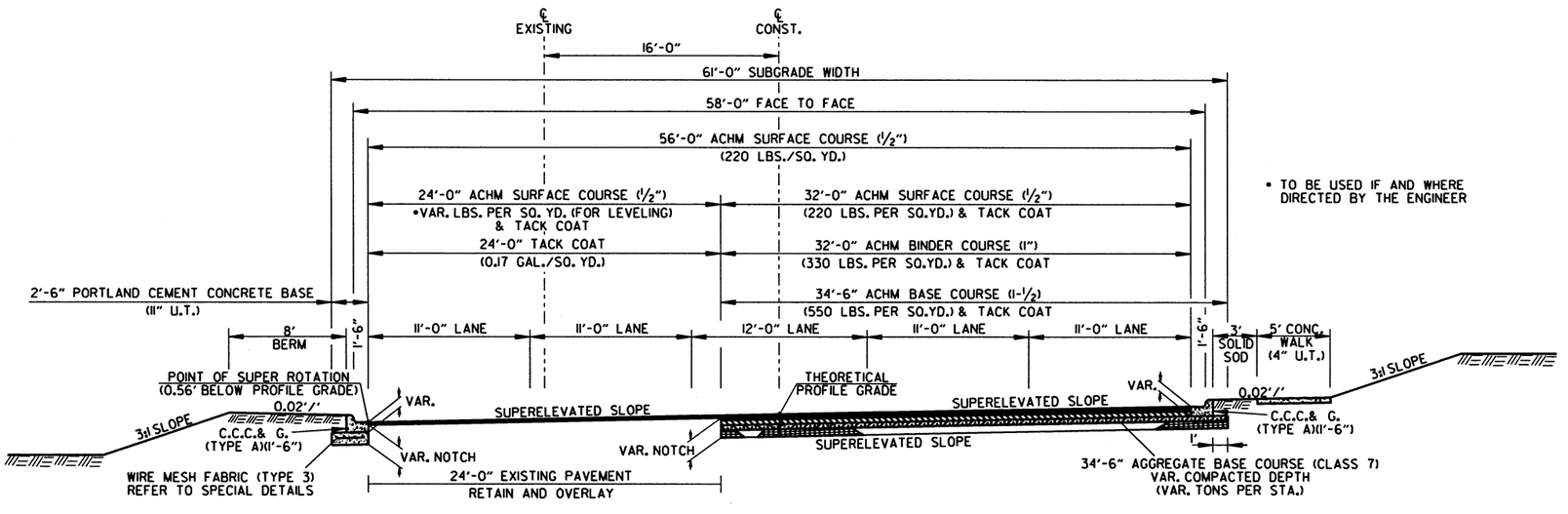
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDEN RT. - 19' EXISTING PAVEMENT
SUPERELEVATED



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDEN RT. - 24' EXISTING PAVEMENT
SUPERELEVATED

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6/12/2019

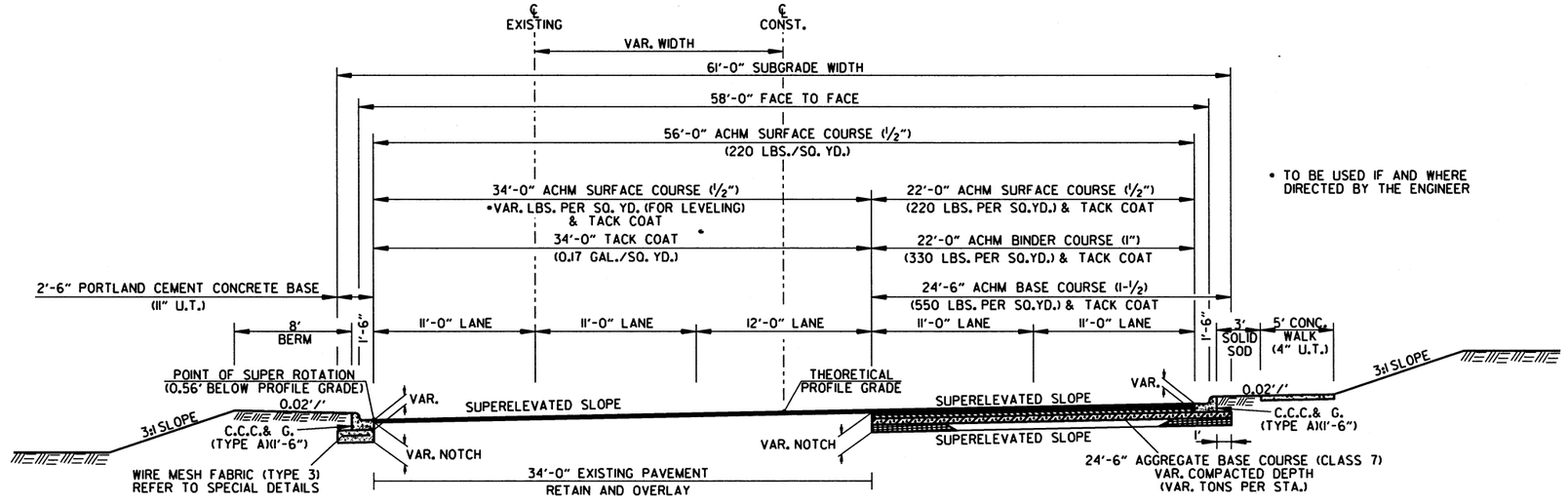
R061509.DGN

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.		061509	13	349

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



NOTCH AND WIDEN RT. - 34' EXISTING PAVEMENT
SUPERELEVATED

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6/12/2019

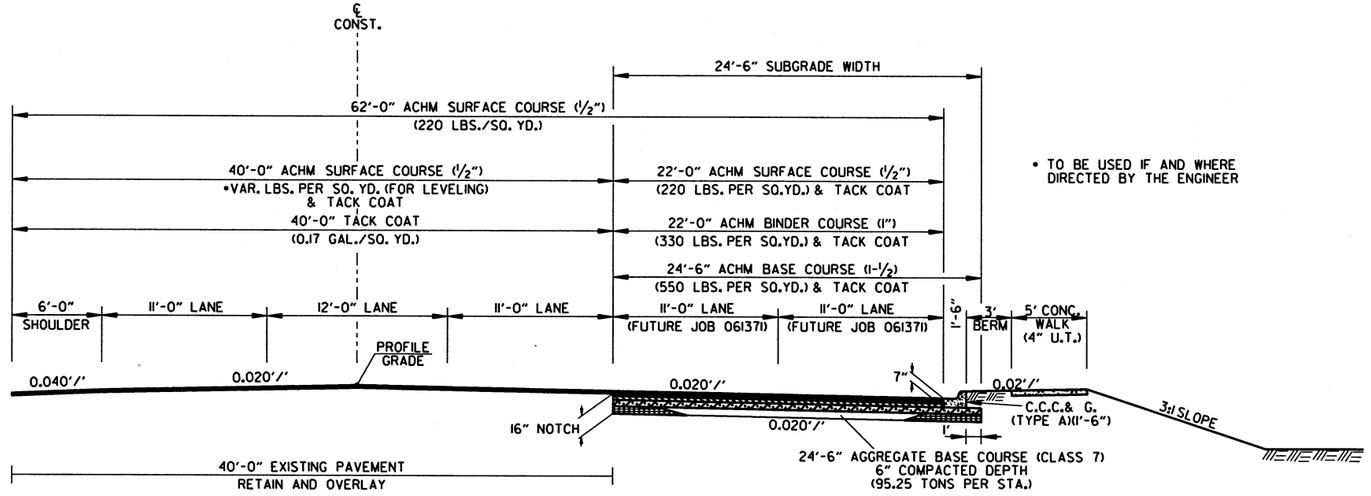
R061509.DGN

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.		061509	14	349

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 367
NOTCH AND WIDEN RT.
STA. 705+40.00 TO STA. 707+00.00

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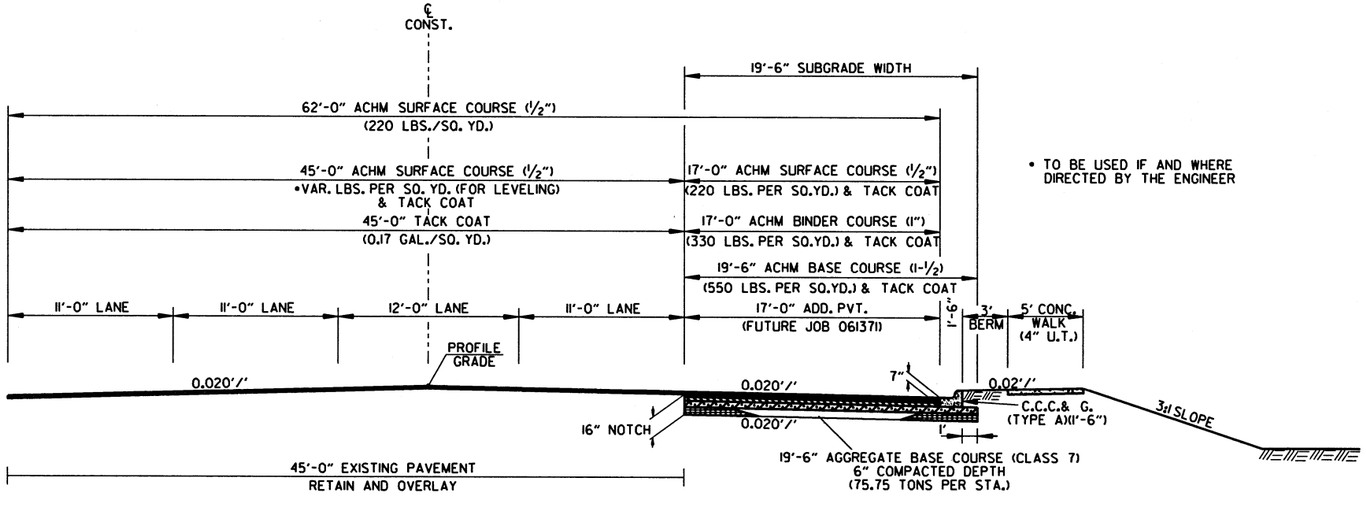


• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 367
NOTCH AND WIDEN RT.
STA. 707+00.00 TO STA. 708+63.00

6/12/2019

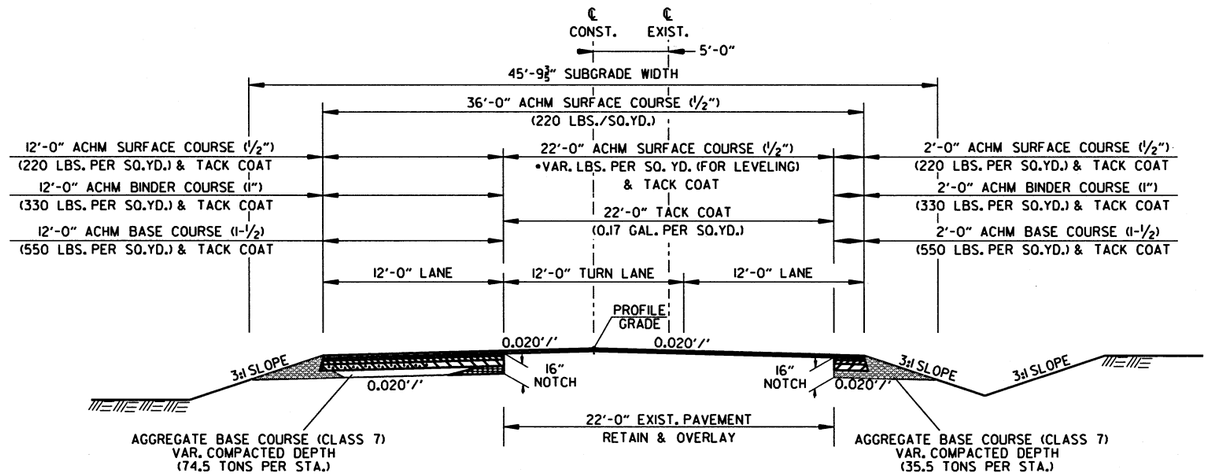
R061509.DGN

HWY. 367
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.		061509	15	349

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



KERR STATION ROAD
NOTCH AND WIDEN LT. & RT.
STA. 1300+47.47 TO STA. 1303+62.28
STA. 1304+19.28 TO STA. 1307+25.20

NOTES:
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AFTER PLACING FINAL 2" OF SURFACE COURSE, THE EXISTING SLOPE SHALL BE REDRESSED AS DIRECTED BY THE ENGINEER PRIOR TO SEEDING IN ORDER TO MAINTAIN A UNIFORM SLOPE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

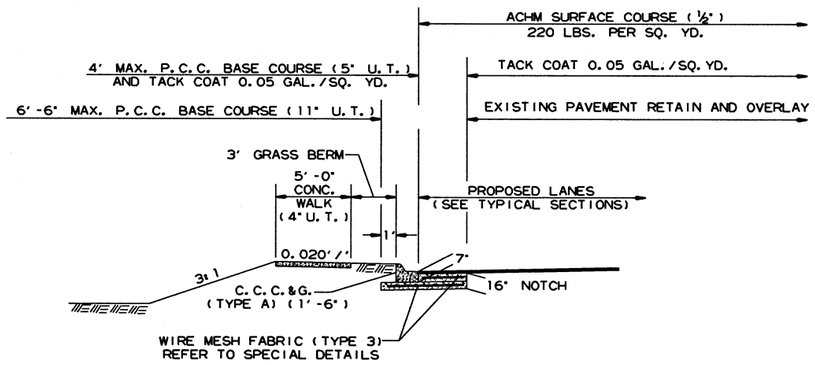
6/12/2019

R061509.DGN

KERR STATION ROAD
TYPICAL SECTIONS OF IMPROVEMENT

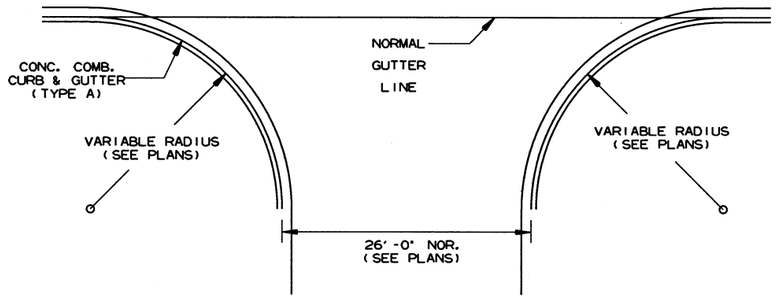
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	16	349

(2) SPECIAL DETAILS



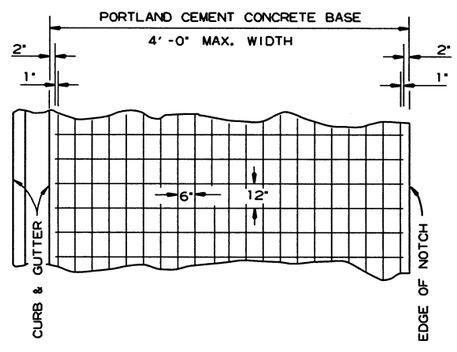
P.C.C. BASE WIDENING DETAIL

P.C.C. BASE WIDENING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS, & COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS, COUNTY ROADS & STATE HIGHWAYS CURB & GUTTER SECTION

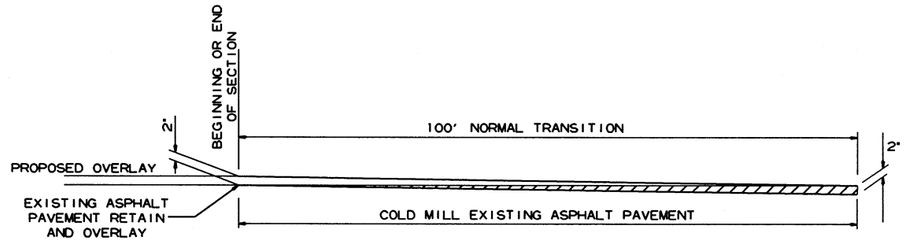


6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ. YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (11" U.T. AND 5" U.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)



DETAIL FOR TRANSITIONS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

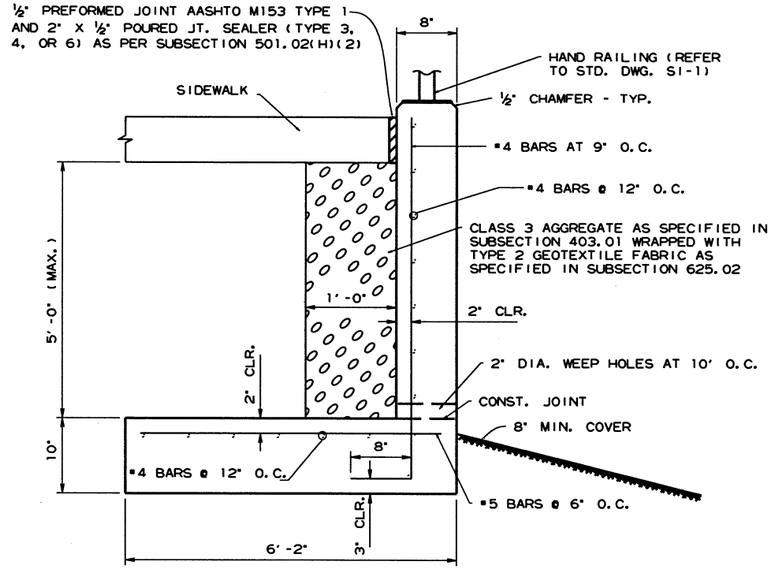
6/12/2019

R061509.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.		061509	17	349

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



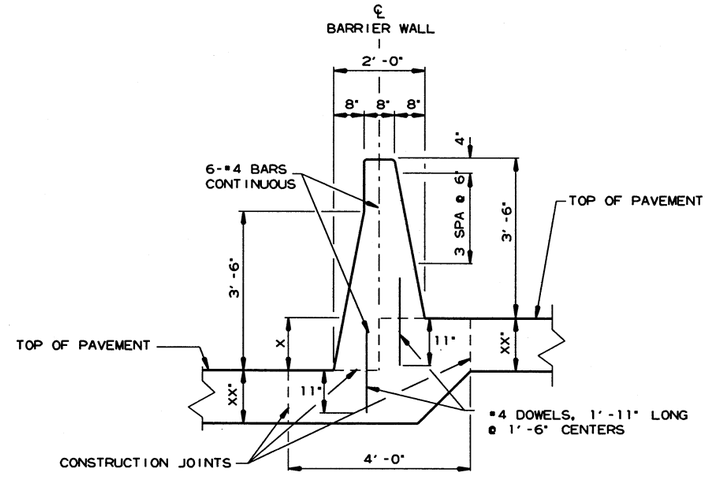
NOTES:
JOINTS IN THE WALL SHALL MATCH THE TYPE AND SPACING OF THE JOINTS IN THE WALK.

ALL CONCRETE SHALL BE CLASS S (F'C=3,500 PSI) AND SHALL BE POURED IN THE DRY.

REINFORCING STEEL SHALL BE AASHTO M31 OR M53, GRADE 60 (FY=60,000 PSI).

PAYMENT FOR THE WEEP HOLES, CLASS 3 AGGREGATE, TYPE 2 GEOTEXTILE FABRIC, PREFORMED JOINT FILLER, POURED JOINT SEALER, REINF. STEEL, AND CONCRETE SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQ. YD. FOR CONCRETE WALKS (TYPE SPECIAL).

CONCRETE WALK (TYPE SPECIAL) DETAIL
MAX HEIGHT 5'-0"



CONCRETE BARRIER WALL
(SIDE TYPE B)
X = 0'-0" TO 1'-0" MAX

GENERAL NOTES FOR CONCRETE BARRIER WALLS

1. ALL BARRIER WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 631 OF THE STANDARD SPECIFICATIONS, 2014 EDITION.
2. CONTRACTION JOINTS REQUIRED @ 15'-0" MAXIMUM SPACING FOR BARRIER TYPES MEDIAN A & B, SIDE A & B. A 30'-0" MAXIMUM SPACING IS REQUIRED FOR TYPES MEDIAN C, SIDE C, D & E.
3. ALL CONTRACTION JOINTS TO BE FORMED IN FRESH CONCRETE ON TOP AND IN SIDES OF BARRIER WALL.
4. DOWEL BARS FOR BARRIER TYPES MEDIAN A & B, SIDE A & B WILL NOT BE REQUIRED IF BARRIER AND MINIMUM 4' WIDE BASE ARE CAST AS A COMPLETE UNIT.
5. ALL EXPOSED EDGES OF CONCRETE BARRIER WALL SHALL HAVE A 3/4" CHAMFER.
6. THE DESIGN OF BARRIER WALL TYPES MEDIAN C, SIDE C, D & E IS BASED ON A MINIMUM FOUNDATION BEARING CAPACITY OF ONE TON PER SQUARE FOOT. UNSTABLE FOUNDATION MATERIAL SHALL BE REMOVED AND REPLACED TO PROVIDE A FIRM FOUNDATION AS DIRECTED BY THE ENGINEER.
7. SPACING BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 400 FT FOR BARRIER TYPES MEDIAN A & B, SIDE A & B OR 120 FT FOR BARRIER TYPES MEDIAN C, SIDE C, D & E. EXPANSION JOINTS SHALL BE FORMED USING 1" PREFORMED JOINT FILLER. CONTINUOUS REINFORCEMENT SHALL BE CUT 2" CLEAR OF EXPANSION JOINTS.
8. DRAINAGE OPENINGS TO BE CONSTRUCTED EVERY 100' O.C. AND AT SAGS. DOWEL BARS SHALL NOT BE PLACED WITHING 3" OF DRAINAGE OPENINGS.

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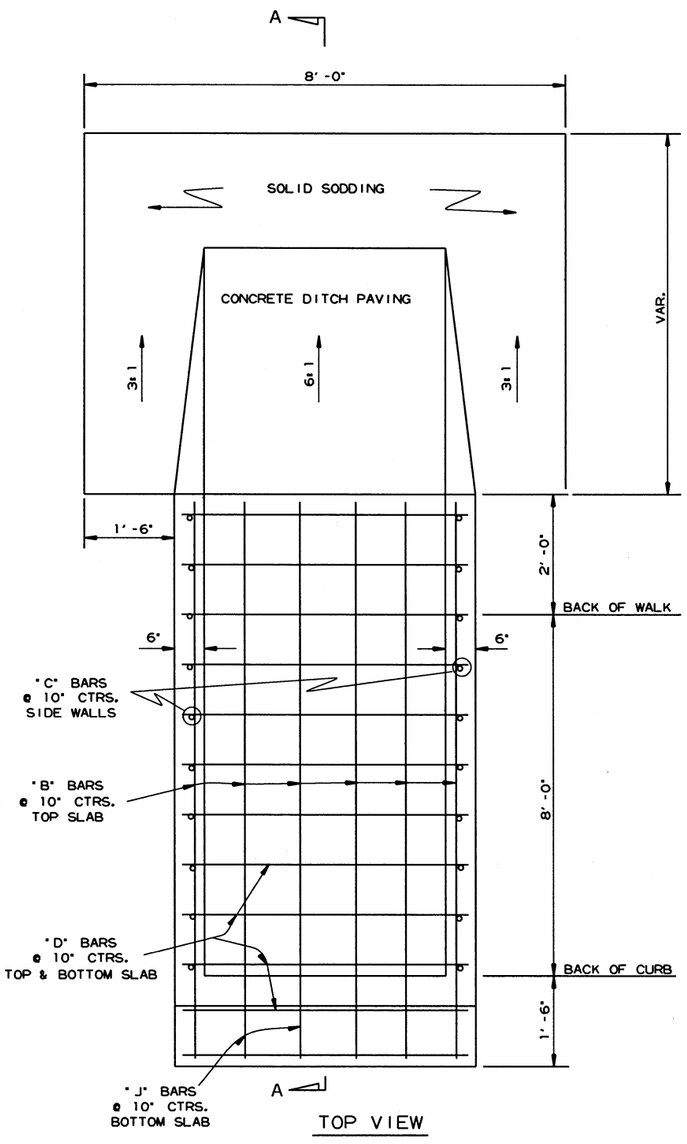
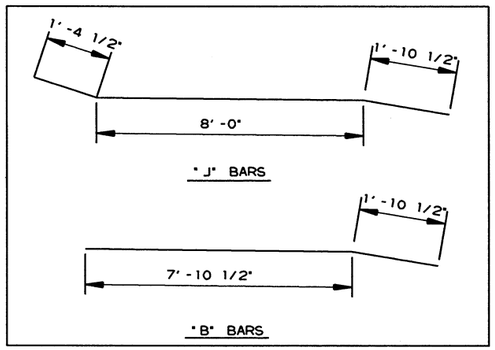
				6	ARK.			
				JOB NO.		061509	18	349

(2) SPECIAL DETAILS

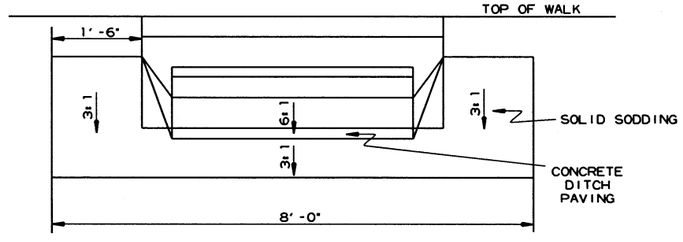


TOP VIEW

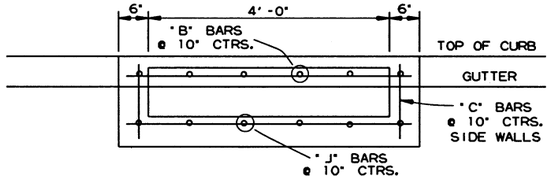


CLASS A CONC.	REINF. STEEL-RDWY. GRADE 60
CU. YDS.	POUND
2.53	207

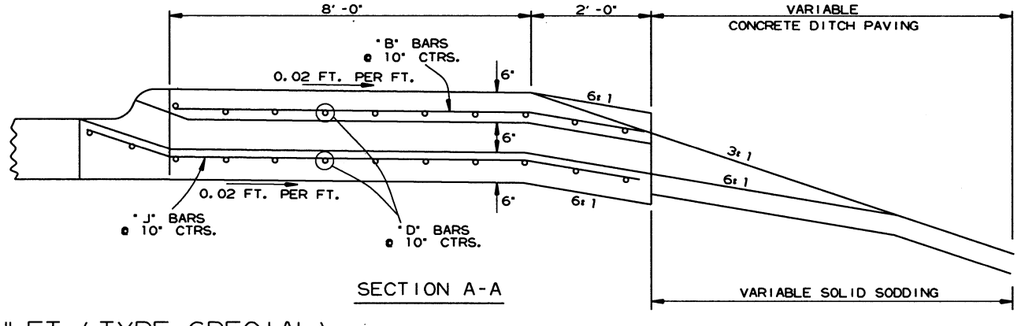
QUANTITIES FOR INFORMATION ONLY
DROP INLET (TYPE SPECIAL)



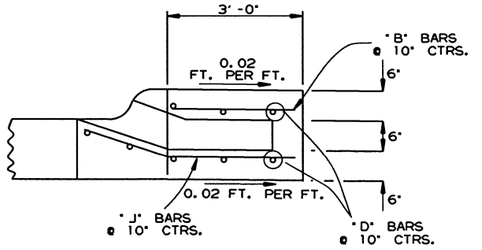
BACK VIEW



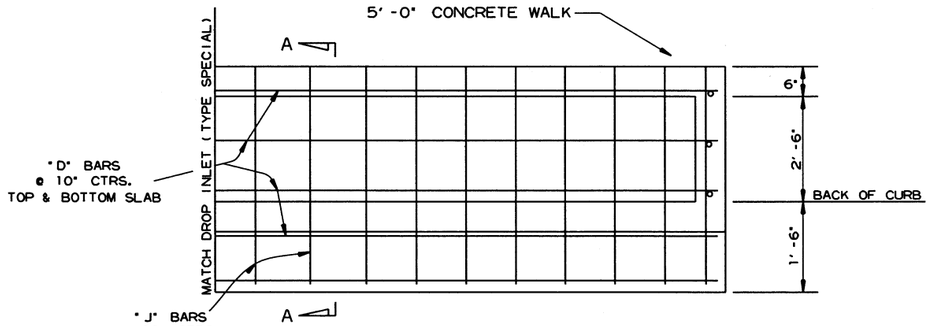
FRONT VIEW



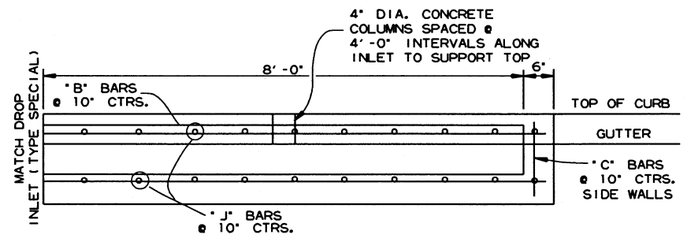
SECTION A-A



SECTION A-A - EXTENSION



TOP VIEW - EXTENSION



FRONT VIEW - EXTENSION

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. ALL REINF. BARS SHALL BE #4 AND HAVE 1 1/2" COVER.
3. DROP INLETS AND EXTENSIONS ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
4. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
5. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
6. CONCRETE DITCH PAVING & SOLID SODDING SHALL BE PAID FOR SEPARATELY.
7. CONSTRUCT EXTENSIONS UPSTREAM OF DROP INLET UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

6/12/2019

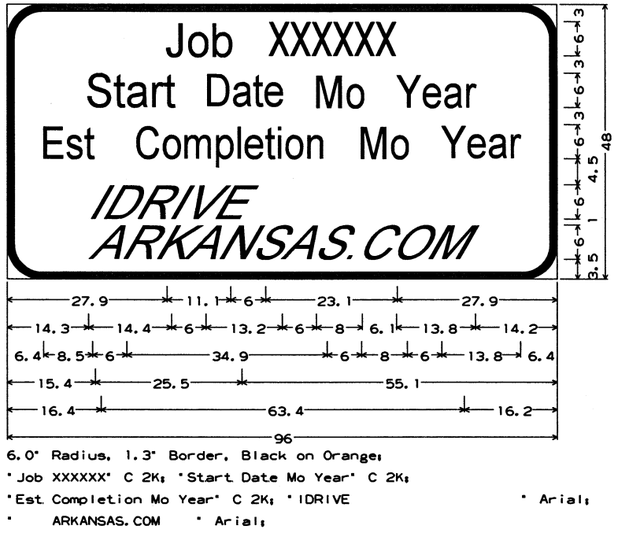
R061509.DGN

DROP INLET (TYPE SPECIAL)

SPECIAL DETAILS

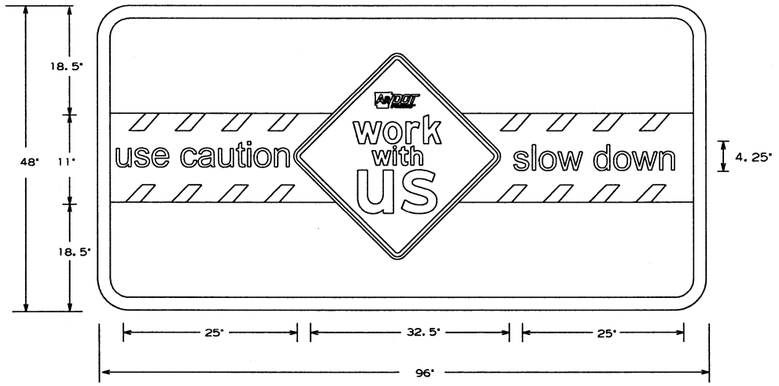
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	19	349

(2) SPECIAL DETAILS



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

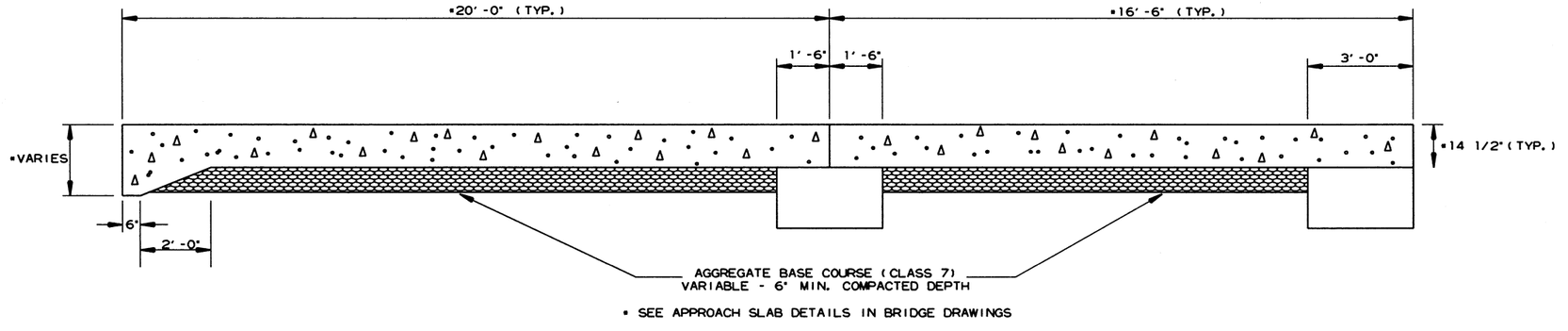
CONSTRUCTION PROJECT INFORMATION SIGN



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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

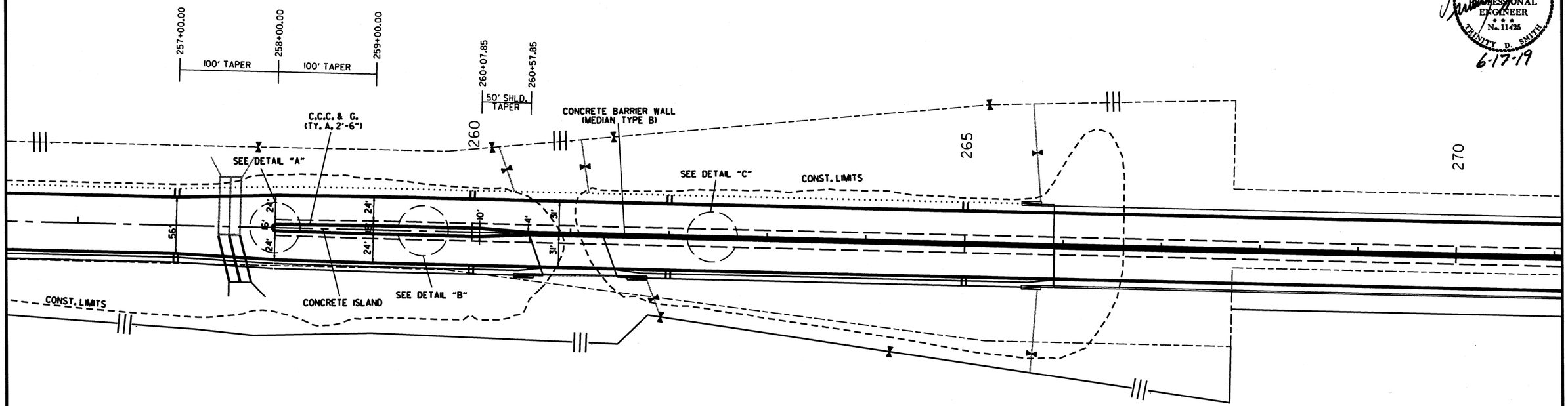
6/12/2019

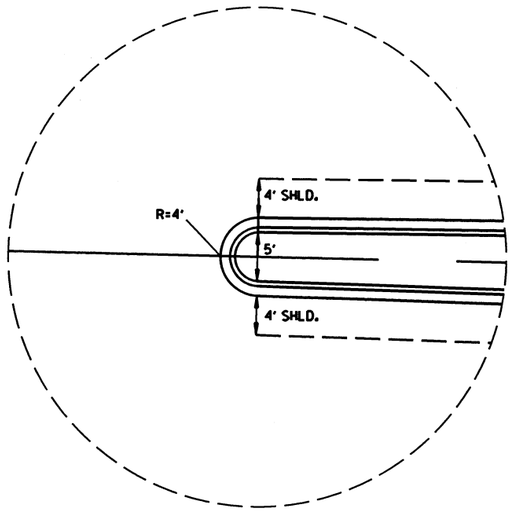
RD61509.DGN

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.		061509	20	349

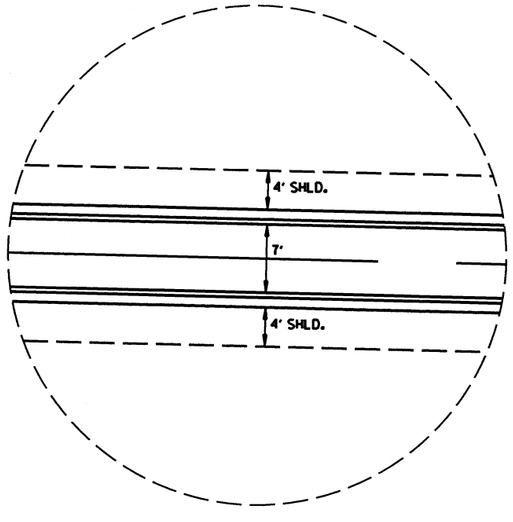
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19





DETAIL "A"



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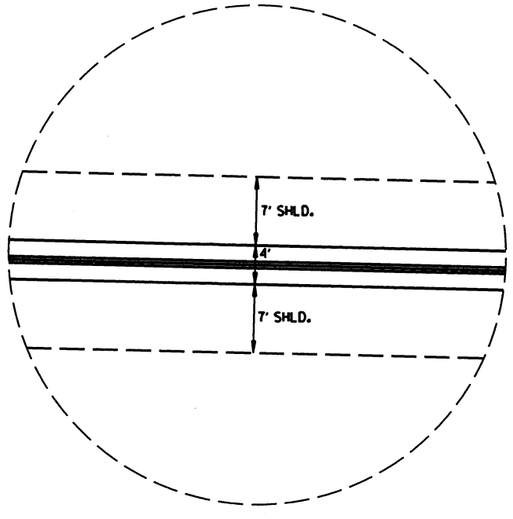


DETAIL "C"

6/12/2019

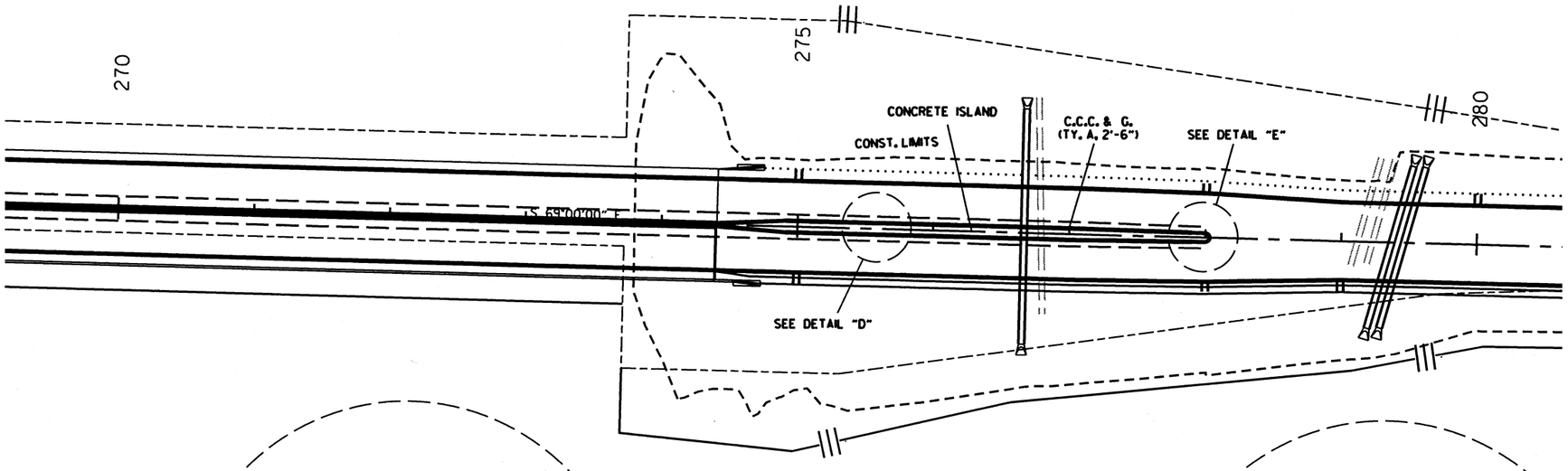
R061509.DGN

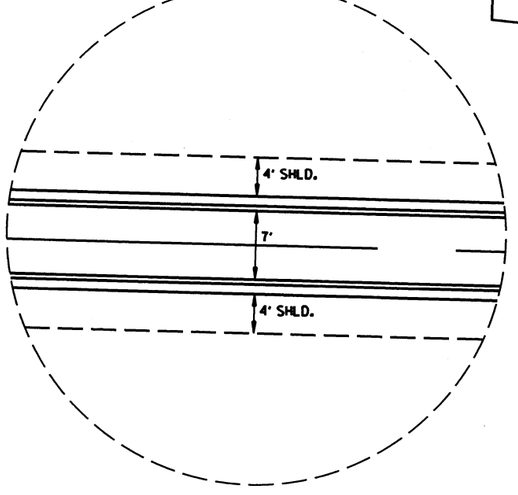
SPECIAL DETAILS

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.		061509	21	349

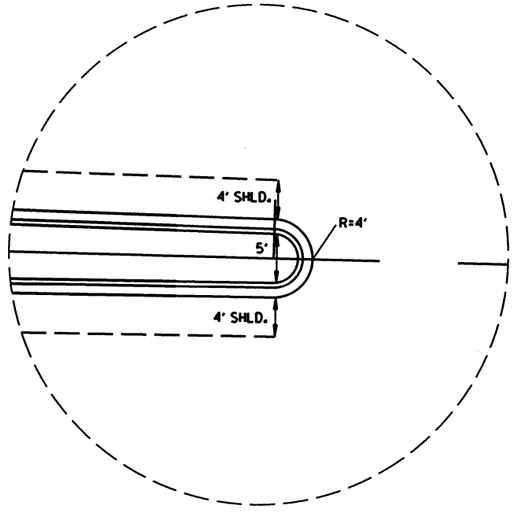
(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19





DETAIL "D"



DETAIL "E"

6/12/2019

R061509.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	22	349

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	INLET	INLET
13'-8"	4'-0"	0'-9"	0'-8"	0	3:1	12'-8"	1'-0"	4'-10"	1'-4"	30	30	2'-2"	2'-5 3/4"	2'-5 3/4"	0'-4 3/8"	0'-4 3/8"	12'-0"	12'-0"	13'-10 5/8"	13'-10 5/8"	CU.YD	LBS.
																					4.83	472

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	12	L	Min	2'-6"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	11'-8"	4	18	8	L	Min	3'-2"	4	6	14'-9"	6	18	8	Min	-	-	-	-	4	2	12'-0"	4	2	13'-4"	6	12	4	L	3'-4"	236
					Max	6'-0"												3'-10"									Max	1'-4"																				
				X	Min	0'-9"				X -				X -				Max								X	Min	1'-4"								Max										X	1'-8"	
					Max	1'-1"												9'-0"									Max	1'-4"																				
				Y	Min	1'-10"				Y -				Y -												Y	Min	1'-11"								Max												
					Max	5'-0"																					Max	5'-0"																				
WING B	4	12	12	L	Min	2'-6"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	11'-8"	4	18	8	L	Min	3'-2"	4	6	14'-9"	6	18	8	Min	-	-	-	-	4	2	12'-0"	4	2	13'-4"	6	12	4	L	3'-4"	236
					Max	6'-0"												3'-10"									Max	1'-4"																				
				X	Min	0'-9"				X -				X -				Max								X	Min	1'-4"								Max										X	1'-8"	
					Max	1'-1"												9'-0"									Max	1'-4"																				
				Y	Min	1'-10"				Y -				Y -												Y	Min	1'-11"								Max												
					Max	5'-0"																					Max	5'-0"																				

MID-SECTION BAR LAP TABLE

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

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

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
5-22-19
CHARLES R. ELLIS

TABULAR DATA BY: DPT DATE: 5/22/2019
CHECKED BY: KST DATE: 5/22/2019

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH

TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D
		Max / Min				Max / Min	

BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
		Max / Min				Max / Min	

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY
			Max / Min

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY
			Max / Min

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH
			LONG / SHORT

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D

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

INLET SLOPE SECTION(S)

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

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D

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

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

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

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

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

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

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.
3"	18

"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D
4	0'-7"	1'-7"	15

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.13	34

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																							
A	5	6	4	8.0	9	6.0	8	13'-8"	5'-5"	104	4	13'-4"	7	13'-6"	6	13'-4"	17	73	4	13'-4"	4	13'-6"	4	13'-4"	13	96	4	8.5	292	5'-1"	4	12	208	5'-1"	4	12	27	4	12	27	4	12	8	4	12	8

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
100.26	13456

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
DOUBLE BARREL BOX CULVERT
Sta. 312+50

SPECIAL DETAILS

Ver. LJ15 b061509_cl.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.		061509	23	349

① SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
5-22-19
CHARLES R. ELLIS

TABULAR DATA BY: DPT DATE: 5/22/2019
CHECKED BY: CRE DATE: 5/22/2019

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
13'-8"	4'-0"	0'-9"	0'-8"	0	3:1	12'-8"	1'-0"	4'-10"	1'-4"	30	30	2'-2"	2'-5 3/4"	2'-5 3/4"	0'-4 3/8"	0'-4 3/8"	12'-0"	12'-0"	13'-10 5/8"	13'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
5.40	472

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

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY		F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS		F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	2	11'-8"	4	18	8	L	Min	3'-2"	4	6	14'-9"	6	18	8	Min		-	-	-	Min		4	2	12'-0"	4	2	13'-4"	6	12	4	L	3'-4"	236
									Max	6'-3"							1'-8"					-													
								X	Min	1'-4"							Max					Max											X	1'-8"	
									Max	1'-4"							2'-0"					-												
								Y	Min	1'-11"																									
									Max	5'-0"																									
WING B	4	18	2	11'-8"	4	18	8	L	Min	3'-2"	4	6	14'-9"	6	18	8	Min		-	-	-	Min		4	2	12'-0"	4	2	13'-4"	6	12	4	L	3'-4"	236
									Max	6'-3"							1'-8"					-												
								X	Min	1'-4"							Max					Max											X	1'-8"	
									Max	1'-4"							2'-0"					-												
								Y	Min	1'-11"																									
									Max	5'-0"																									

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

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

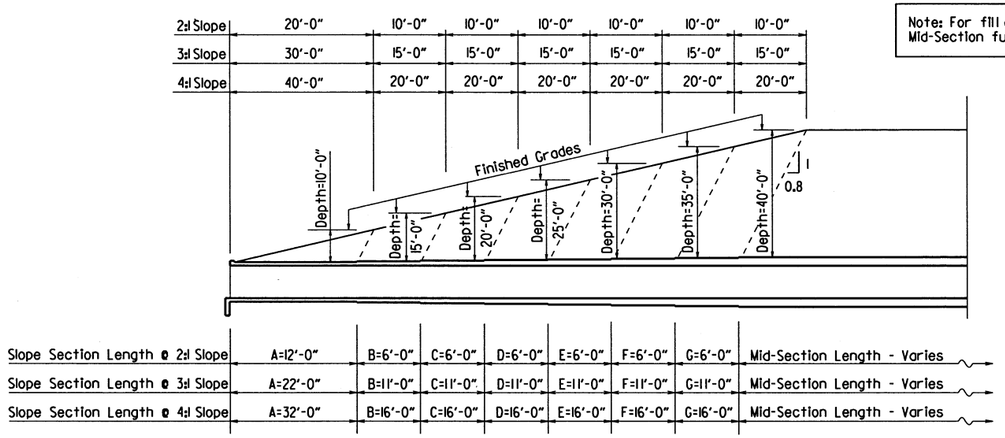
① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	24	349

(1) SPECIAL DETAILS

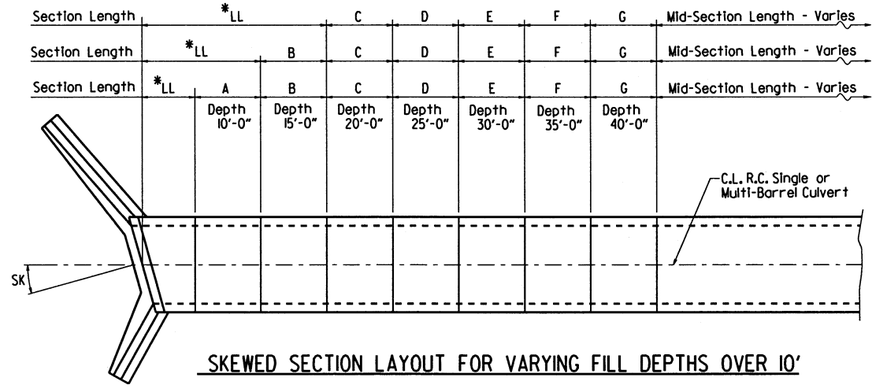


LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

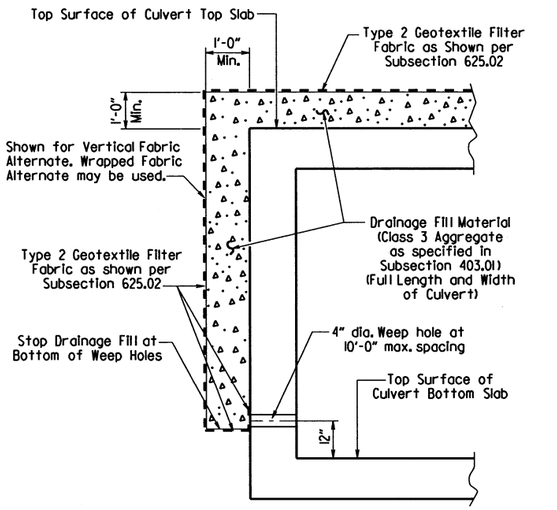
Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

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



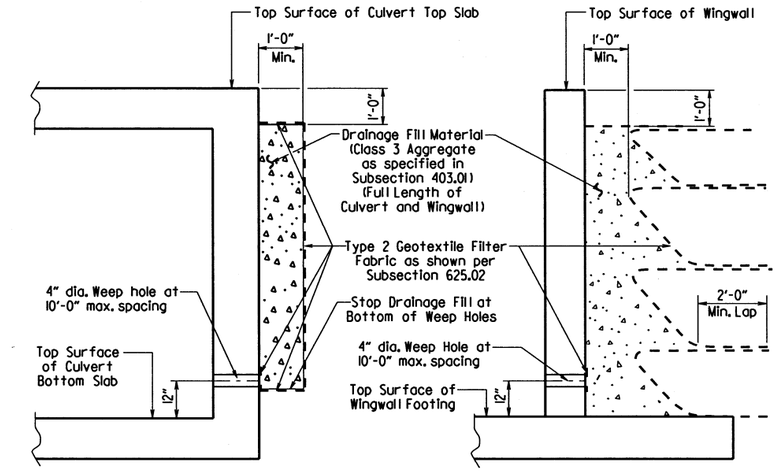
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
5-22-19



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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

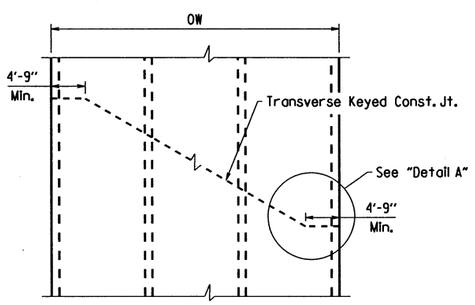


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

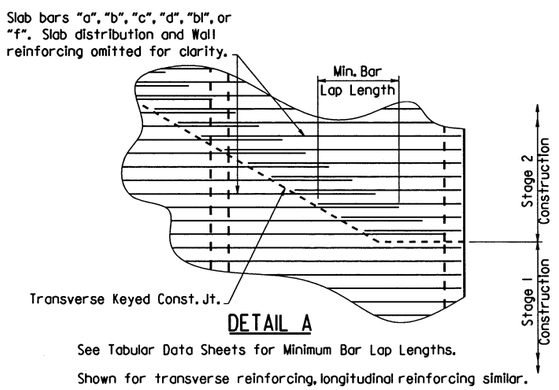
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



SKEWED TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.

GENERAL NOTES:

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

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

LIVE LOADING: HL-93

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

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

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

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

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

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

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

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

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

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

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

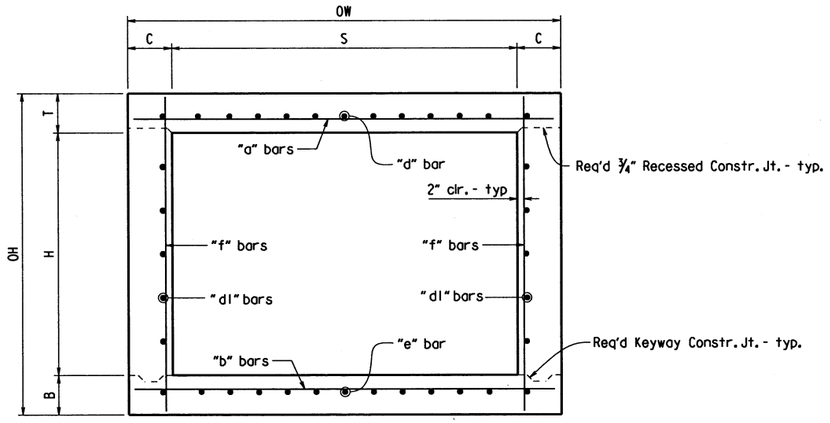
SPECIAL DETAILS

V 1.15 b061509_culvert.dgn

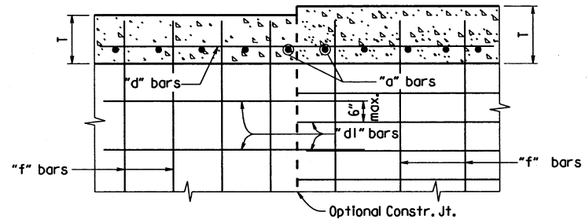
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	25	349

(1) SPECIAL DETAILS

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



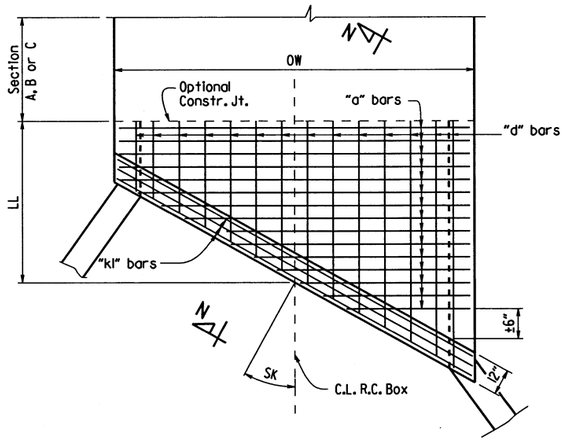
TYPICAL SECTION M-M



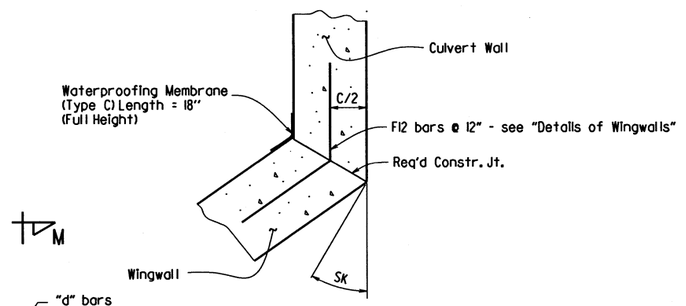
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

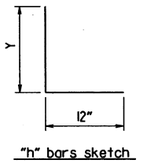


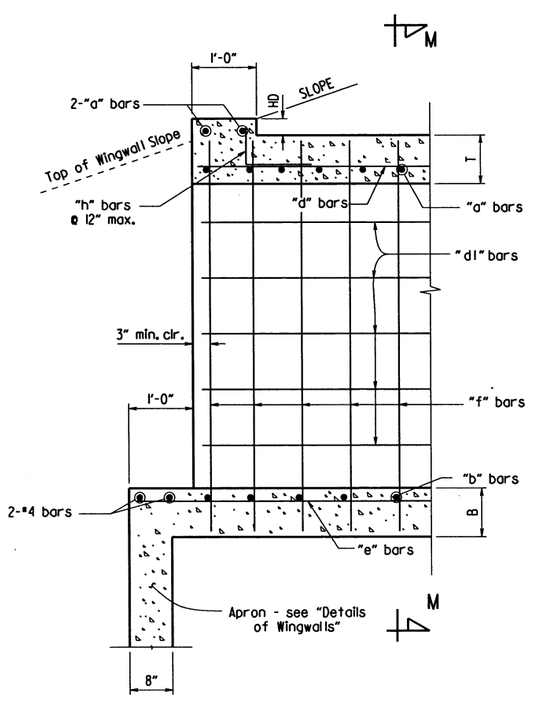
TOP SLAB REINFORCEMENT



WINGWALL ATTACHMENT

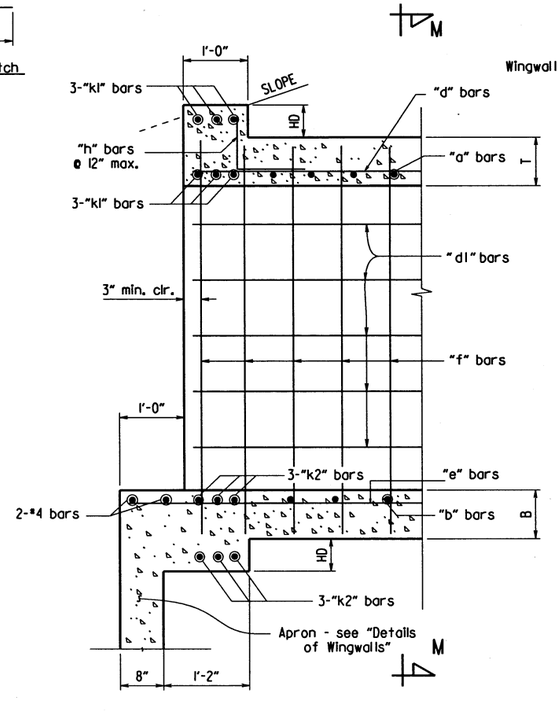
See "Details of Wingwalls" for additional information and wingwall details.





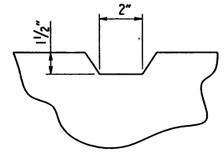
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



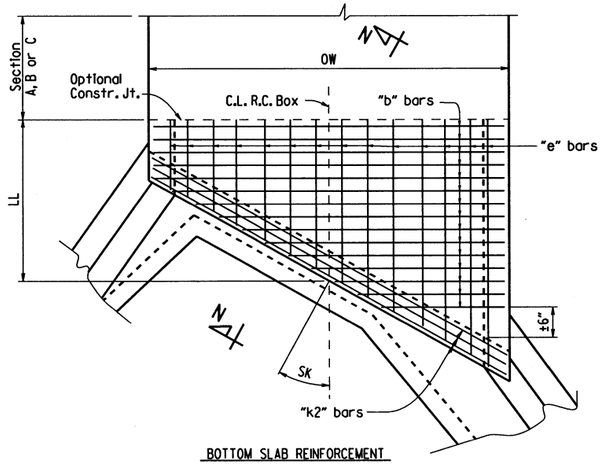
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
5-22-19
CHARLES R. ELLIS

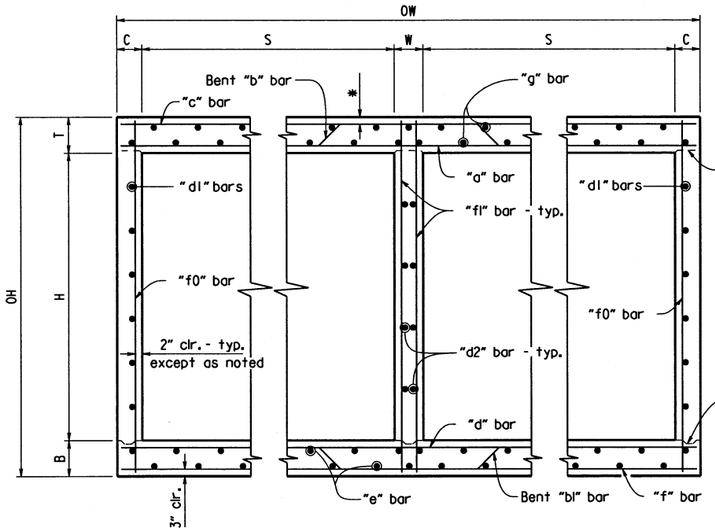
v 1.15 b061509_culvert.dgn

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	26	349

SPECIAL DETAILS

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

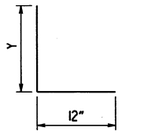
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



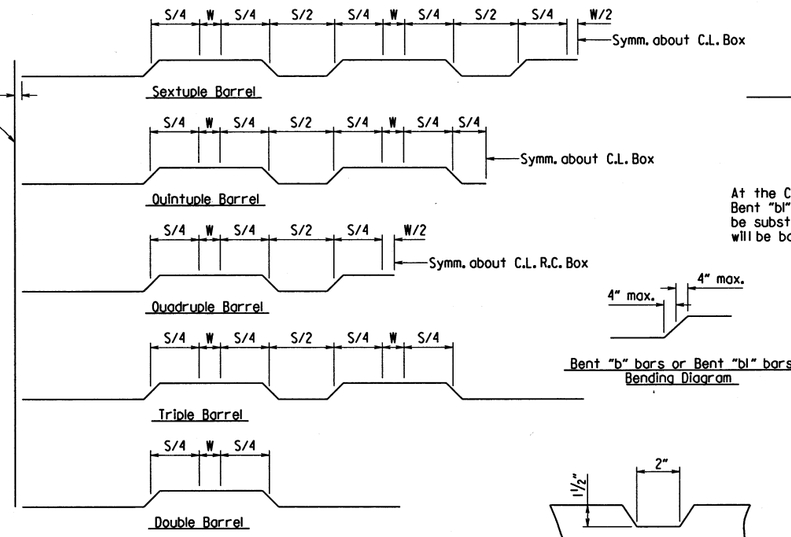
TYPICAL SECTION M-M

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

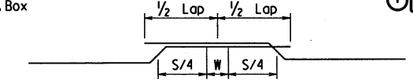
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



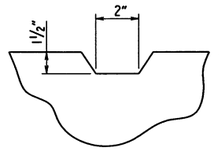
Bent "b" bars or Bent "bl" bars sketch



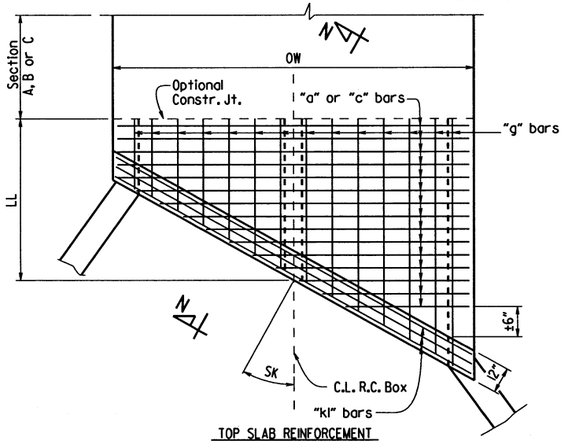
Lap Detail
For Bent "b" bars and Bent "bl" bars

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

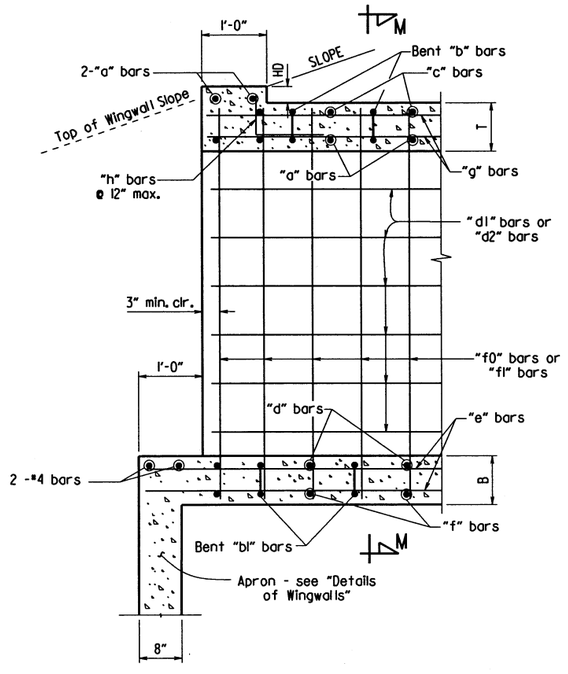
Bent "b" bars or Bent "bl" bars Bending Diagram



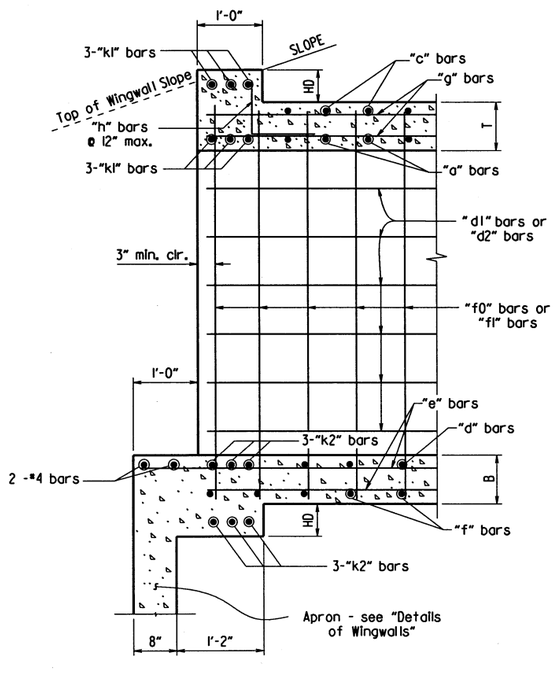
TYPICAL KEYWAY DETAIL
(All Construction Joints)



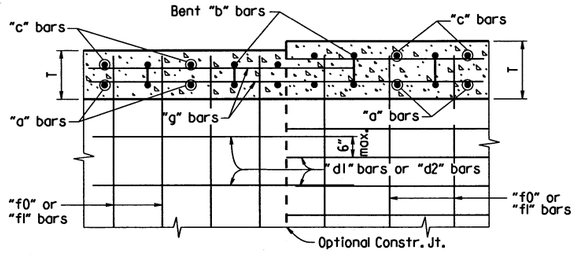
TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



PART LONGITUDINAL SECTION
(Non-Skewed Ends)

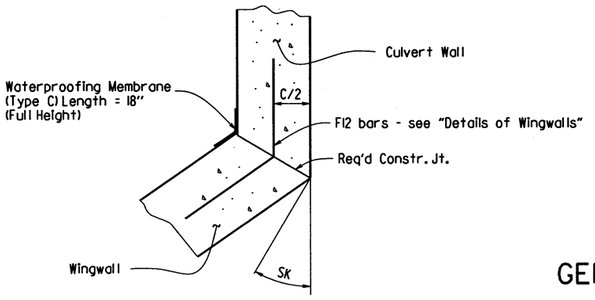


PART LONGITUDINAL SECTION N-N
(Skewed Ends)

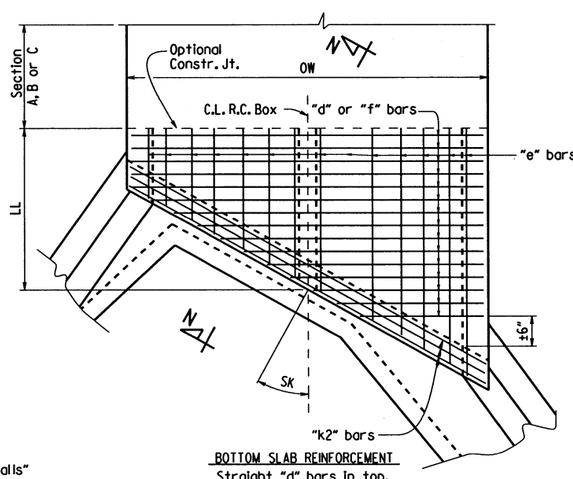


Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

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



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



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

SKEWED END SECTION DETAILS

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

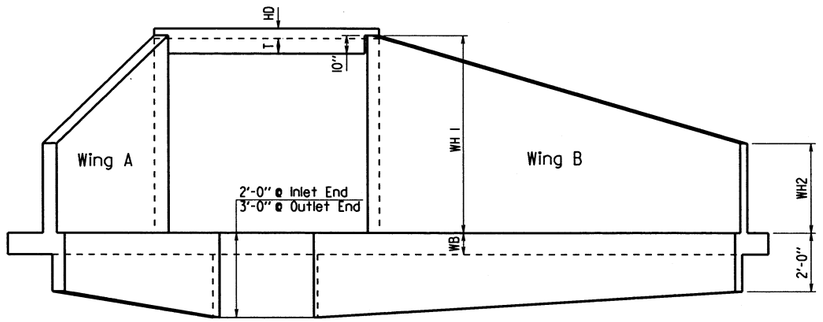
DETAILS OF MULTI-BARREL R.C. BOX CULVERT

SPECIAL DETAILS

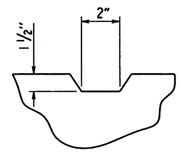
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
5-22-09
CHARLES R. ELLIS

V 11.15 b061509_culvert.dgn

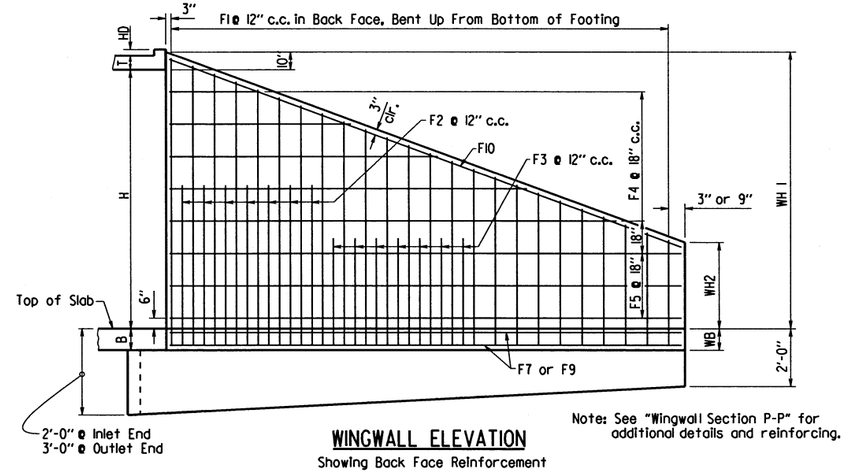
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	27	349
				①		SPECIAL DETAILS		



END ELEVATION
Flared Wingwalls Shown

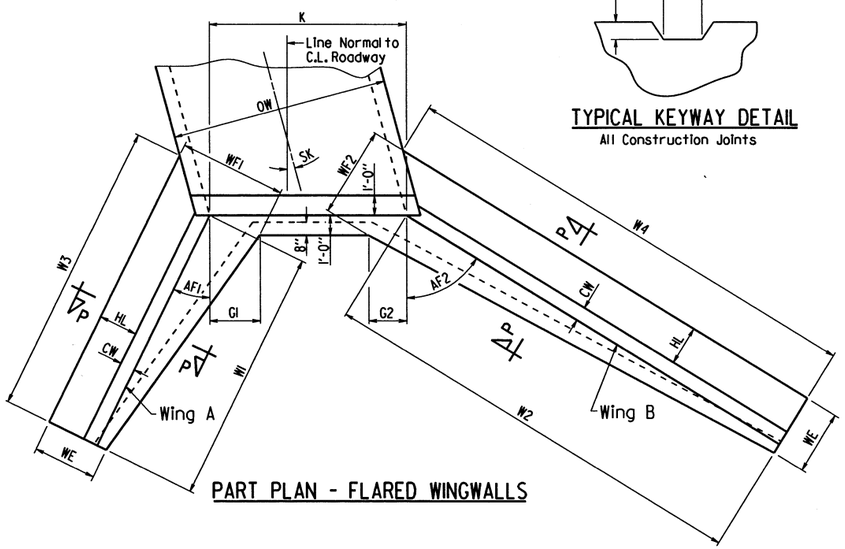


TYPICAL KEYWAY DETAIL
All Construction Joints

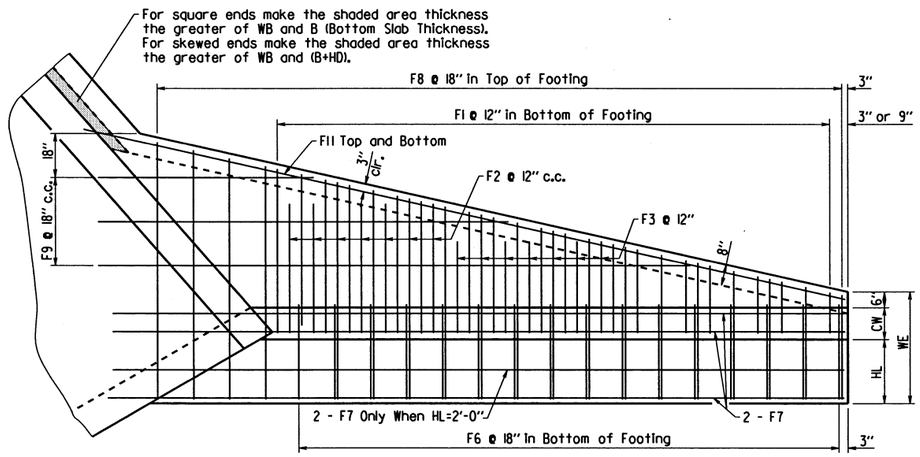


WINGWALL ELEVATION
Showing Back Face Reinforcement

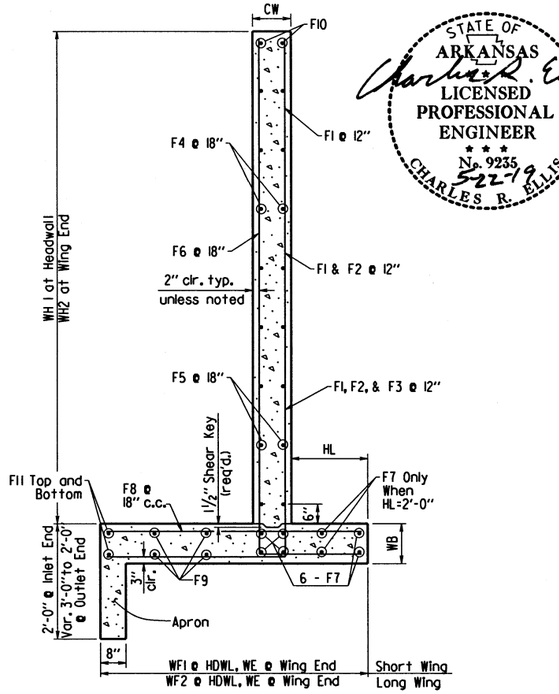
Note: See "Wingwall Section P-P" for additional details and reinforcing.



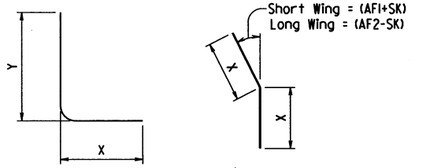
PART PLAN - FLARED WINGWALLS



PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



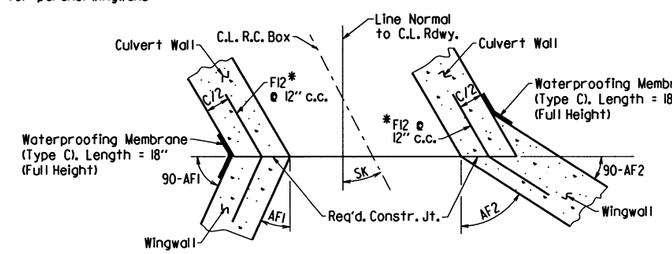
WINGWALL SECTION P-P



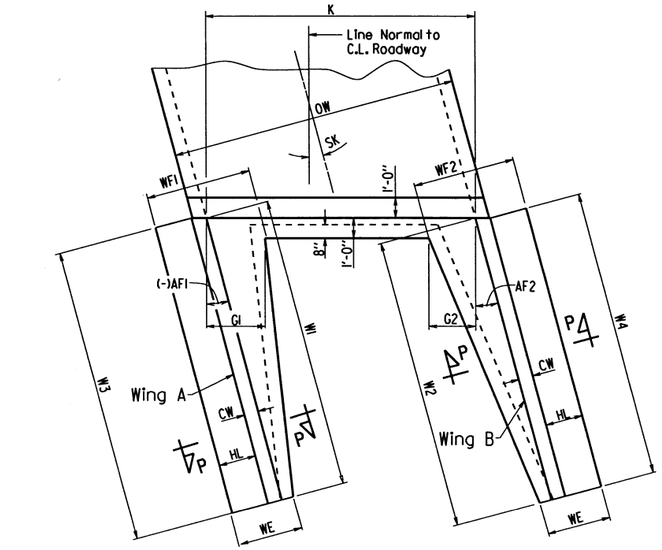
F1, F2, F3, & F6 BARS

*F12 BAR

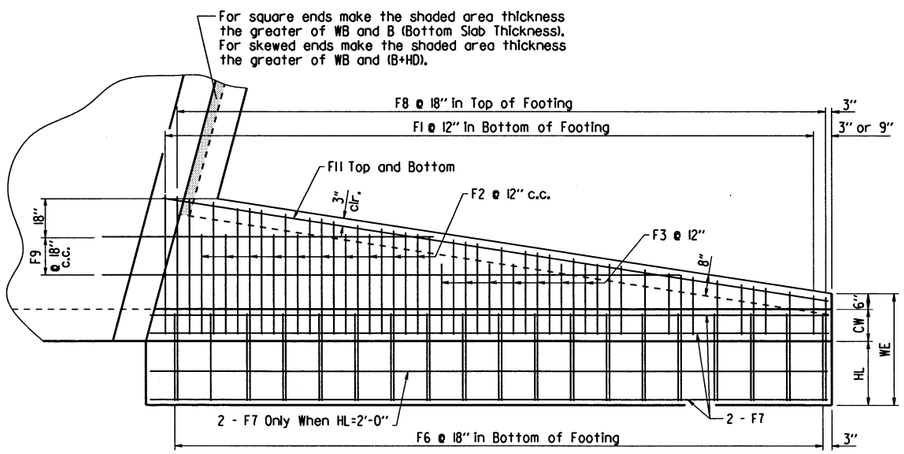
*F12 Is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

V 1.15 061509_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	28	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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.

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

7/2/2019

R061509.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.		061509	29	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

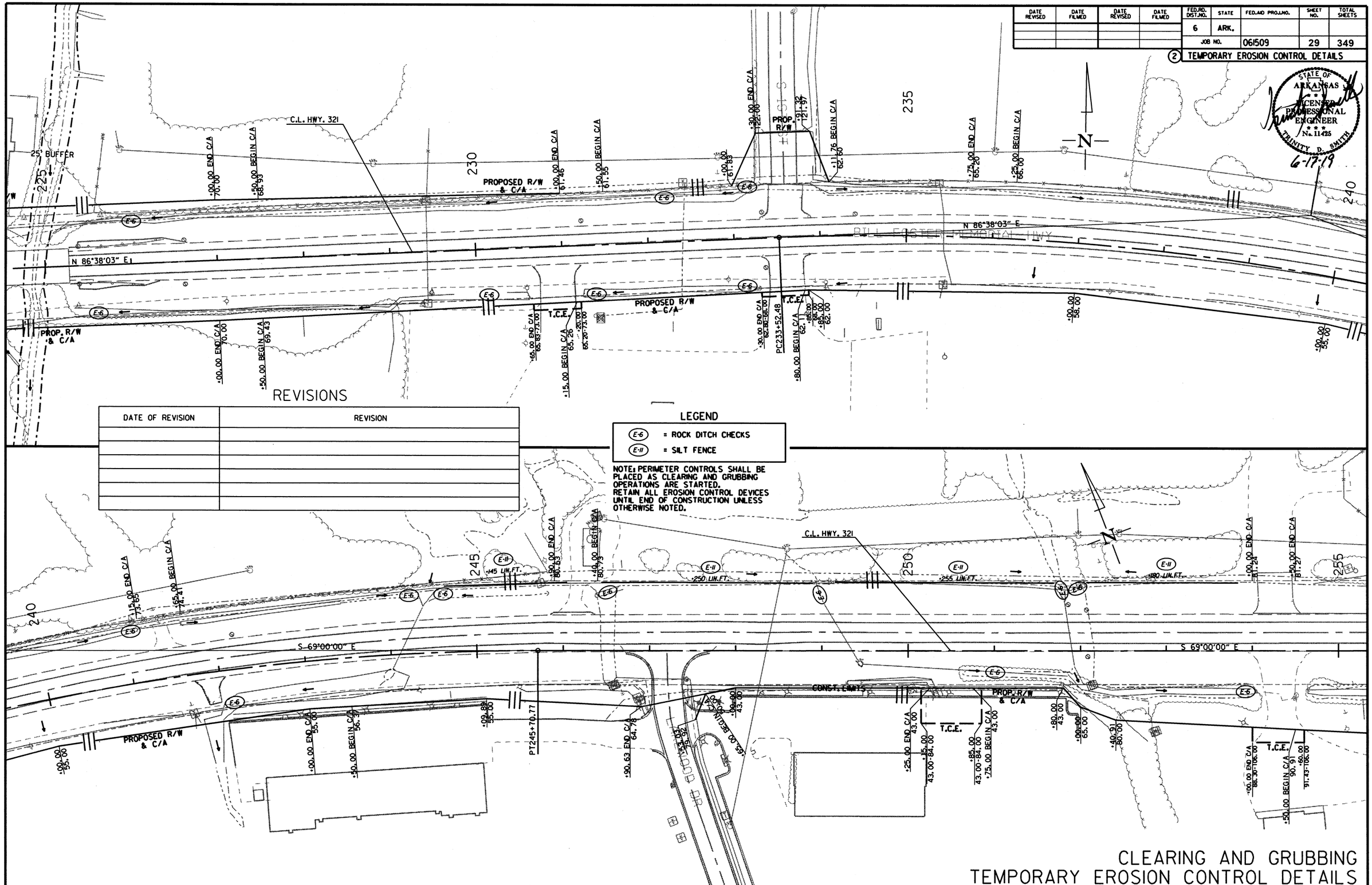
REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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.



CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	30	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

BAYOU TWO PRAIRIE
50' BUFFER
25' BUFFER
C.L. HWY. 321
PROPOSED R/W & C/A
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-11 450 LIN.FT.
E-11 240 LIN.FT.
S 69°00'00" E
PC281+40.52

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.

REVISIONS

DATE OF REVISION	REVISION

6/28/2019

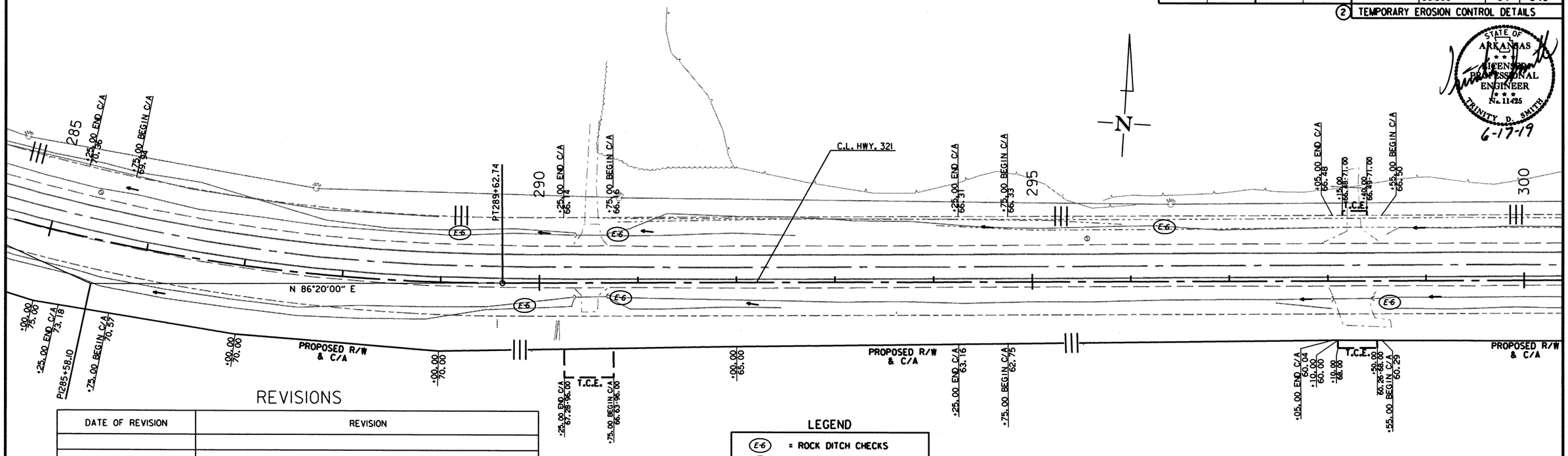
R061509.DGN

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.		061509	31	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



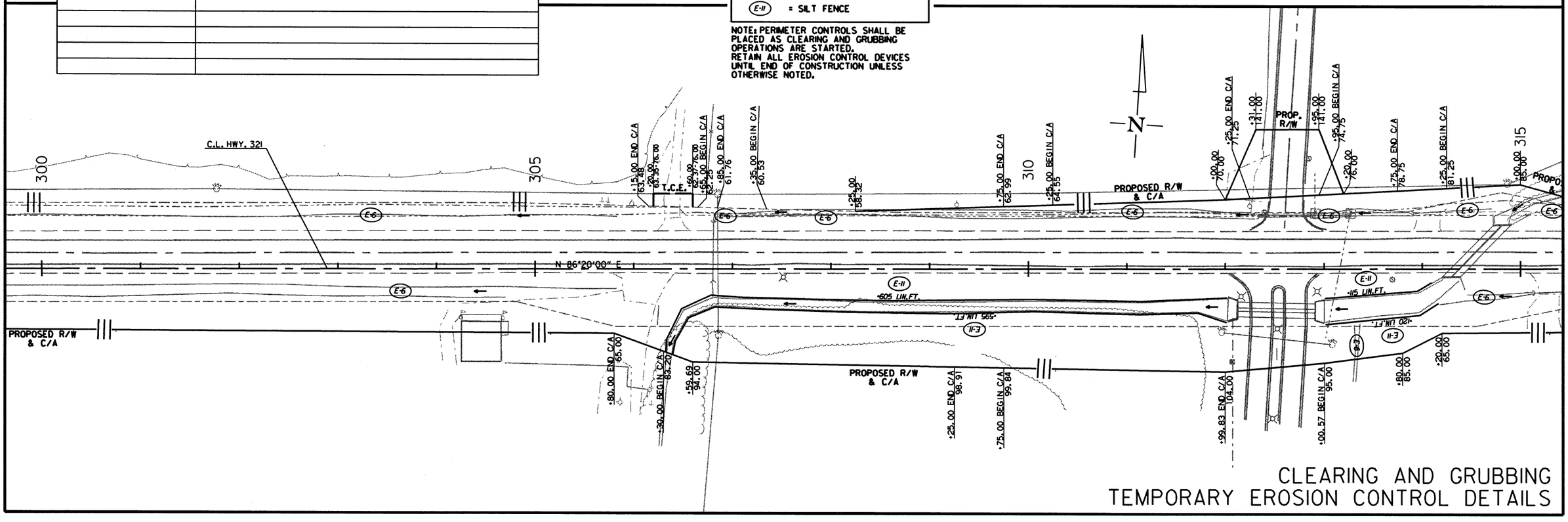
REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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.



6/12/2019

R061509.DGN

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
07-17-19				6	ARK.			
				JOB NO.		061509	32	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

LEGEND

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

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.

REVISIONS

DATE OF REVISION	REVISION

7/16/2019

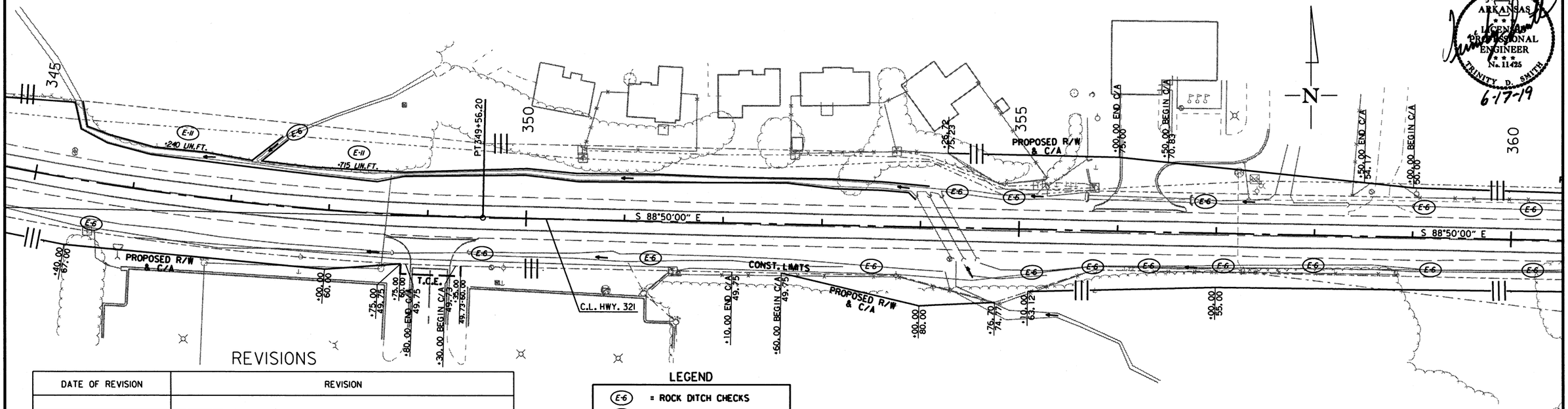
R061509.DGN

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.		061509	33	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



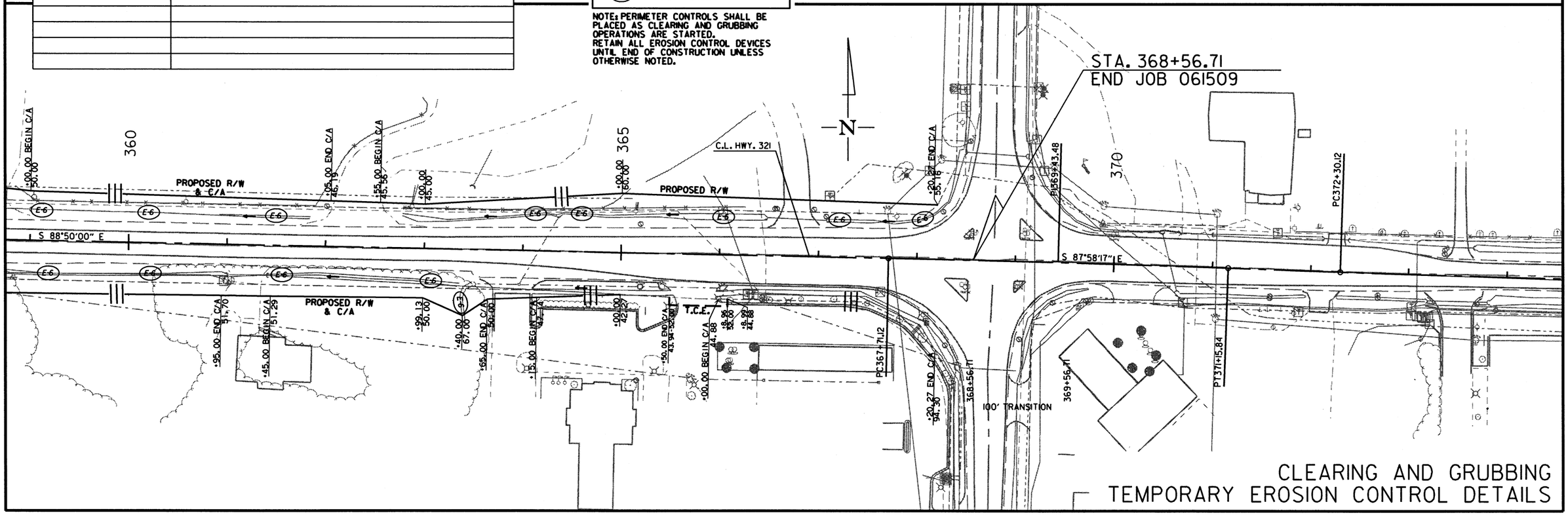
REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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.



6/12/2019

R061509.DGN

CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	34	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 705+20.00
BEGIN CONST.
HWY. 367

STA. 708+63.00
END CONST.
HWY. 367

C.L. HWY. 367

195

700 705 710 711

P.O.B. 700+00.00
N 56°37'42" E
P.I. 704+08.40
P.C. 703+39.51
P.I. 704+77.29
PC196+61.30
N 58°00'22" E
P.C. 709+81.36
P.T. 710+56.55
P.O.E. 711+83.96
N 57°15'15" E
P.I. 710+18.96
PI198+70.97
PT200+75.11

PROP. R/W
PROP. R/W & C/A
PROP. R/W & T.C.E.
100 LINEAR FEET

E-6 ROCK DITCH CHECKS
E-11 SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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.

7/2/2019

R061509.DGN

HWY. 367 CLEARING AND GRUBBING TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-17-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	35	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

STA. 1300+47.47
BEGIN CONST.
KERR STATION RD.

STA. 1307+25.20
END CONST.
KERR STATION RD.

C.L. KERR STATION ROAD

REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

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.

7/16/2019

R061509.DGN

KERR STATION ROAD CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	36	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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.

5/6/2019

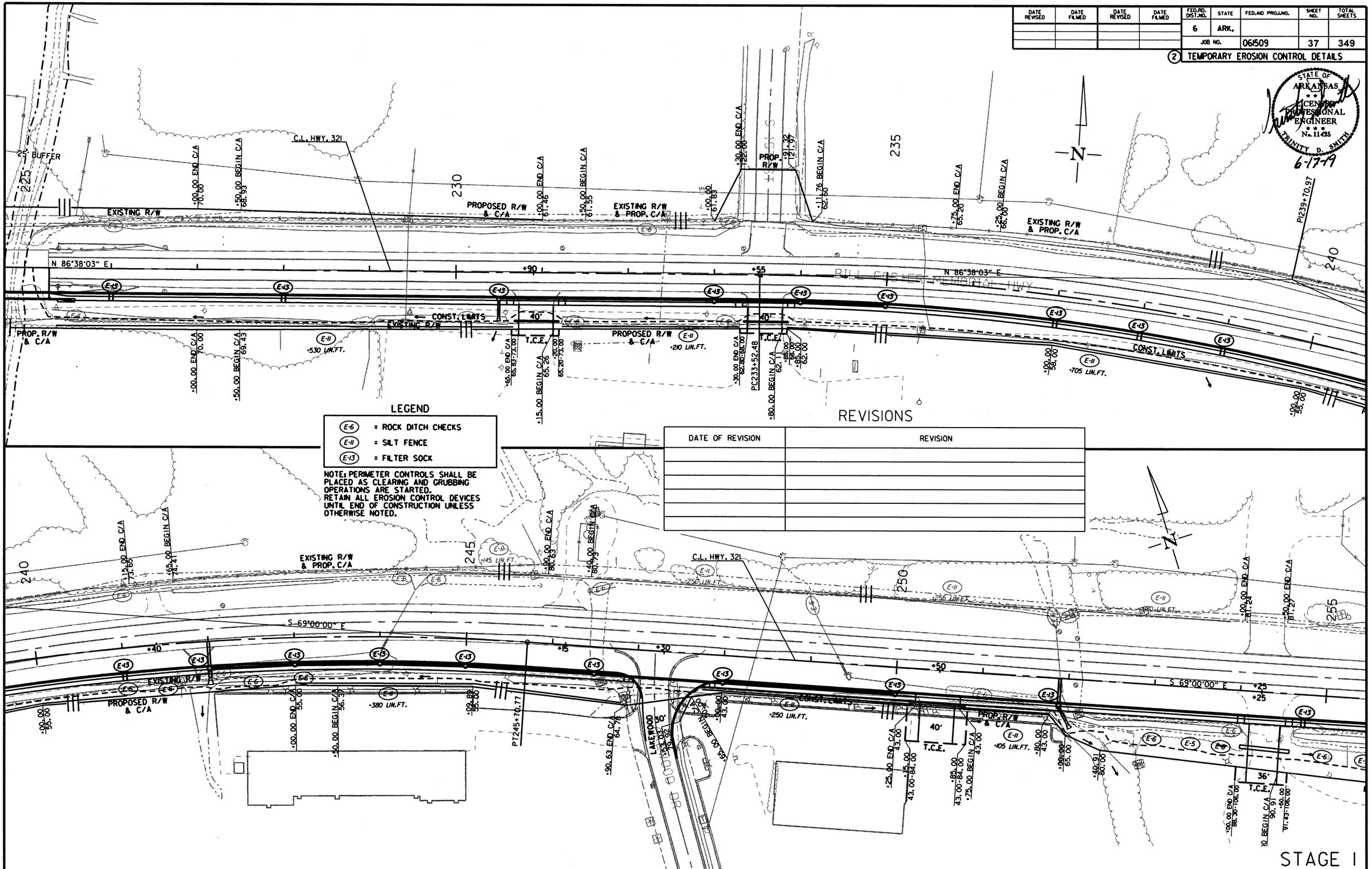
R061509.DGN

STAGE I
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.		061509	37	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



REVISIONS

DATE OF REVISION	REVISION

5/6/2019

R061509.DGN

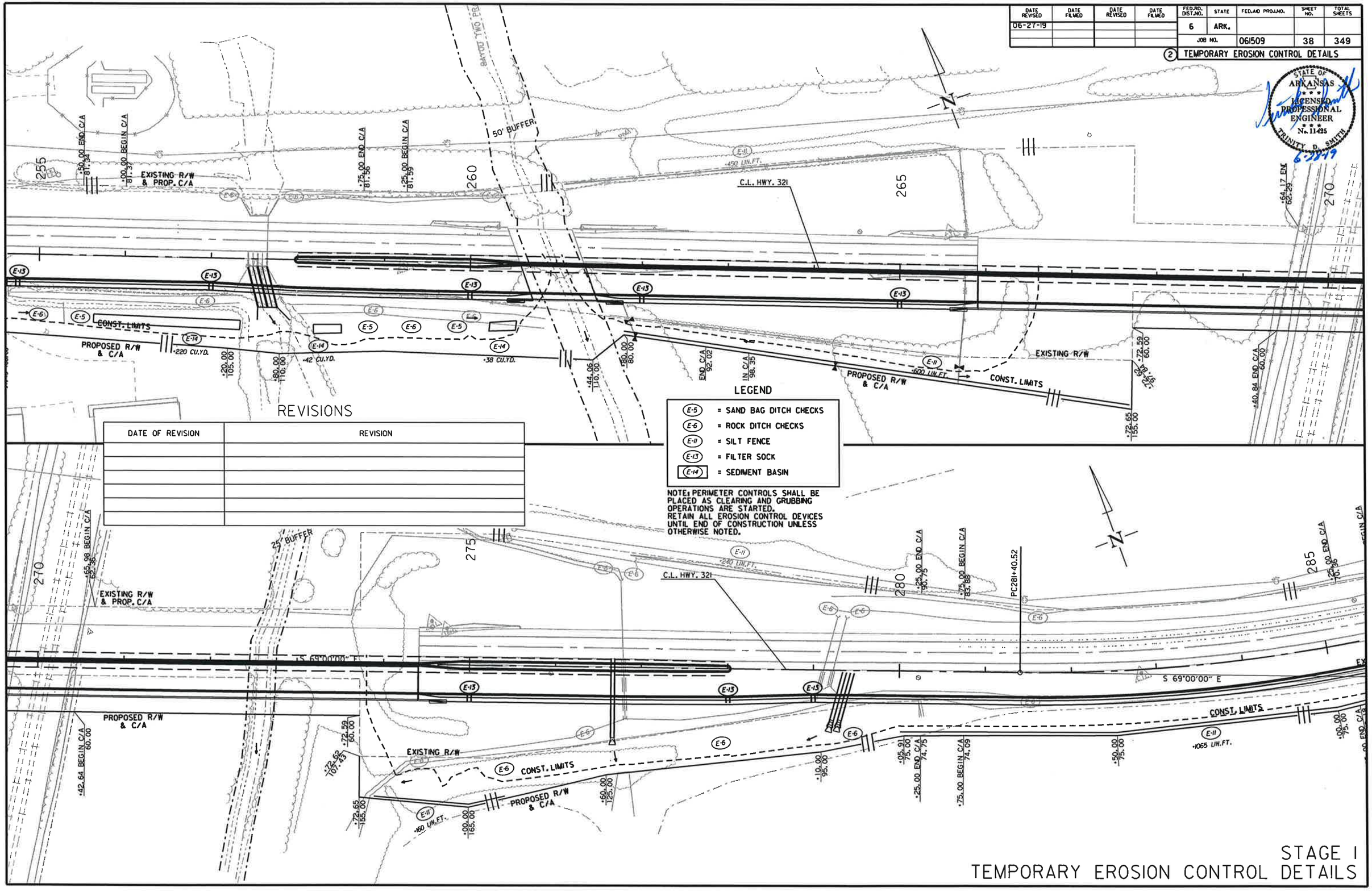
STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	38	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-27-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK
- (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.

5/6/2019

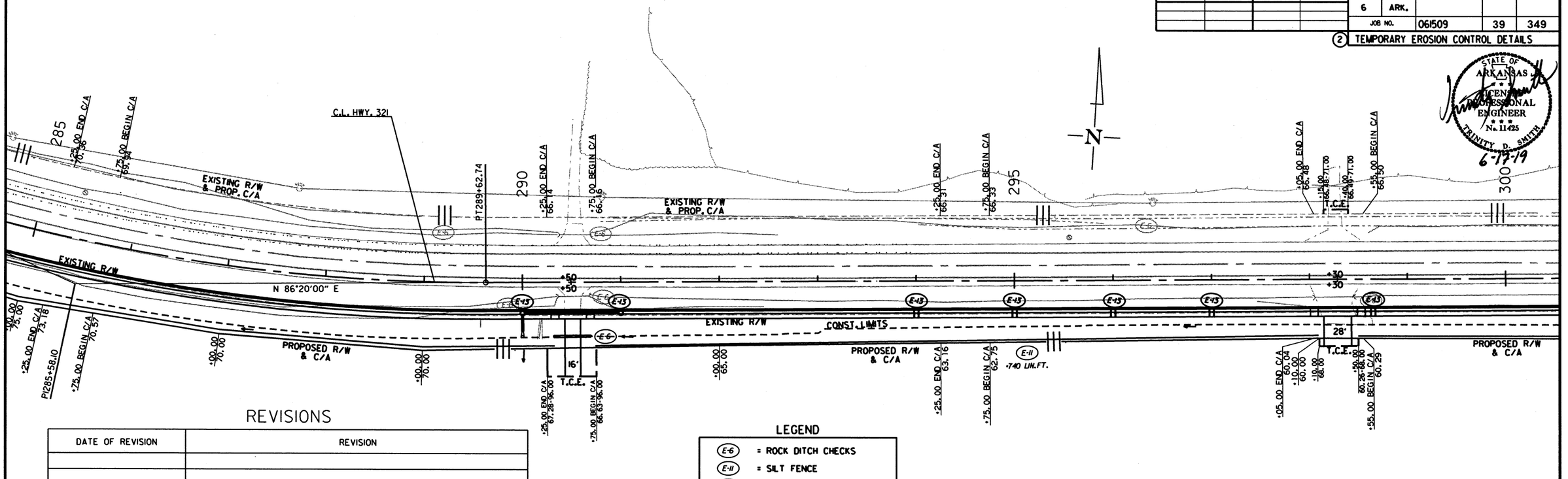
R061509.DGN

STAGE I
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.		061509	39	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



REVISIONS

DATE OF REVISION	REVISION

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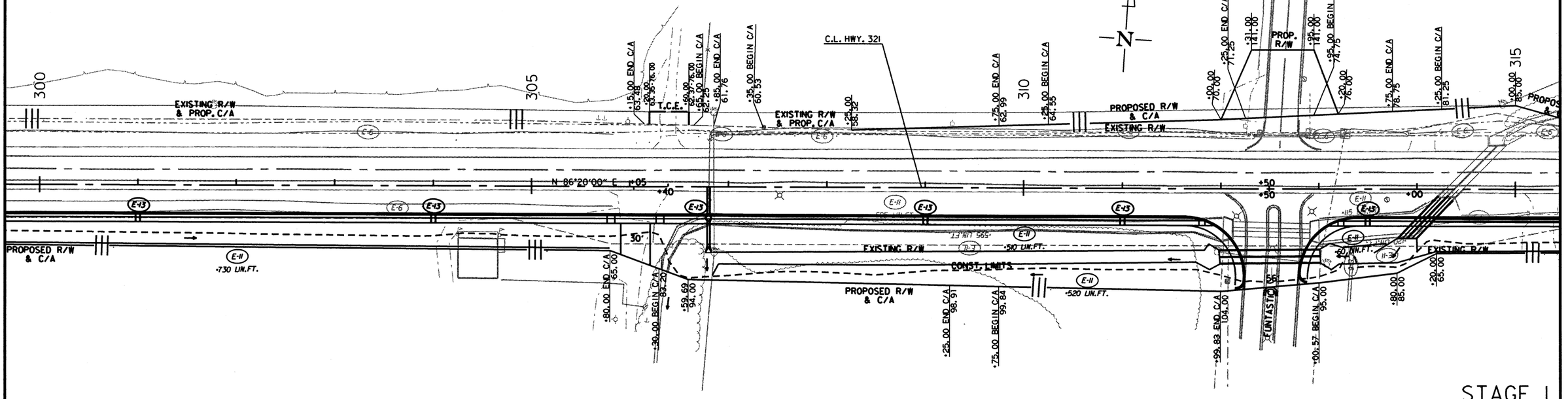


STAGE I
TEMPORARY EROSION CONTROL DETAILS

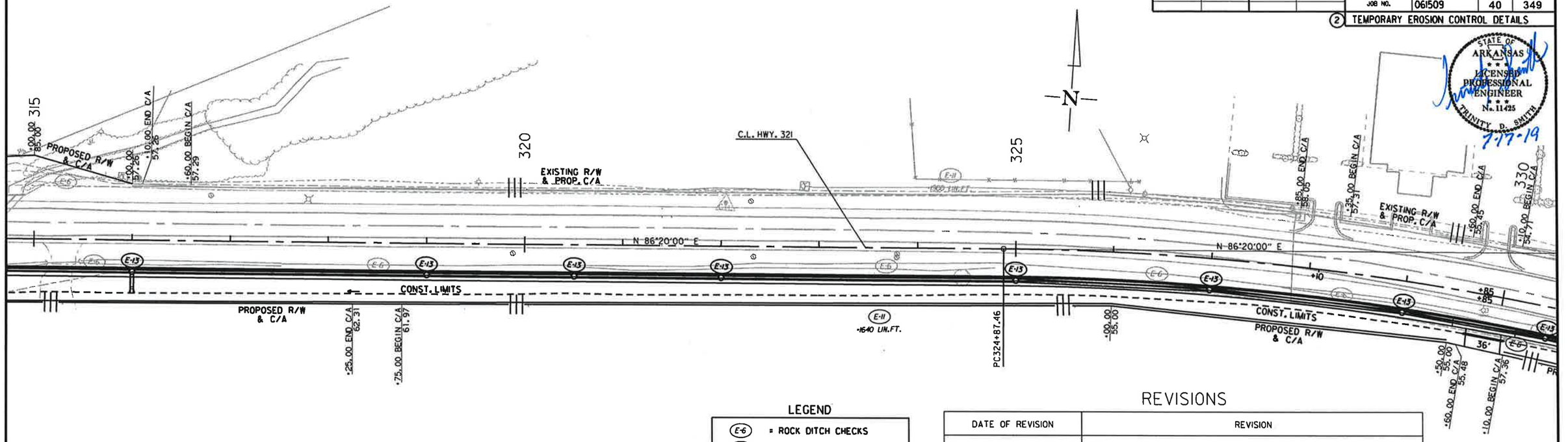
5/6/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	40	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19



LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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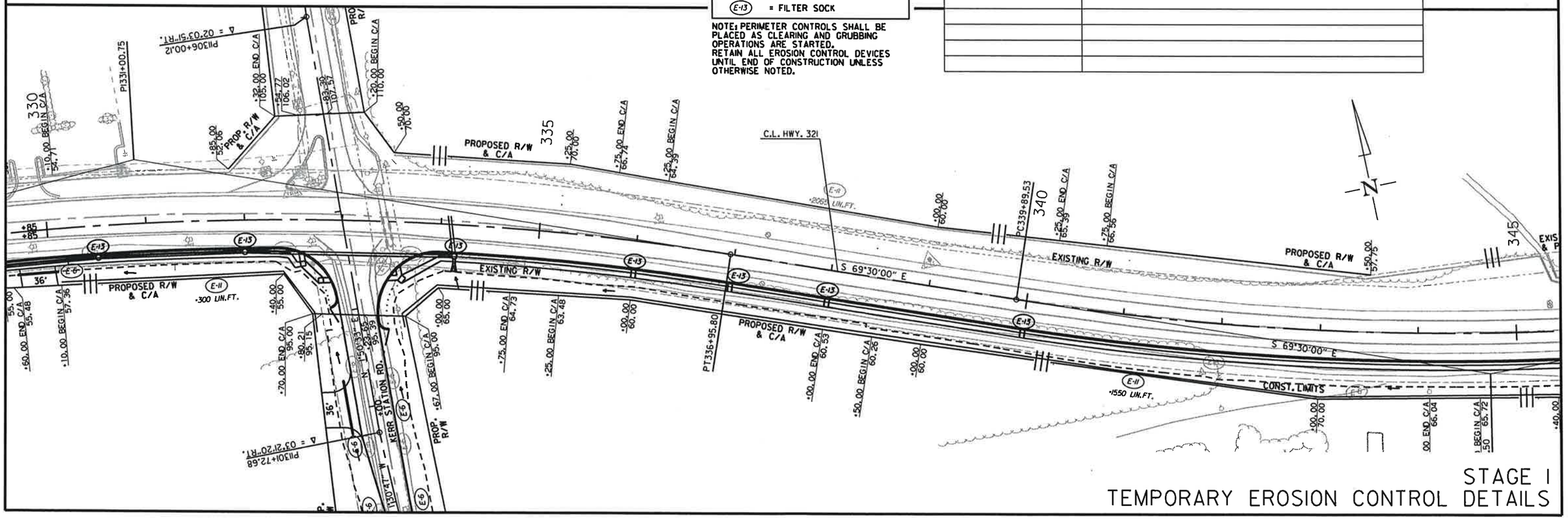
REVISIONS

DATE OF REVISION	REVISION



STAGE I
TEMPORARY EROSION CONTROL DETAILS

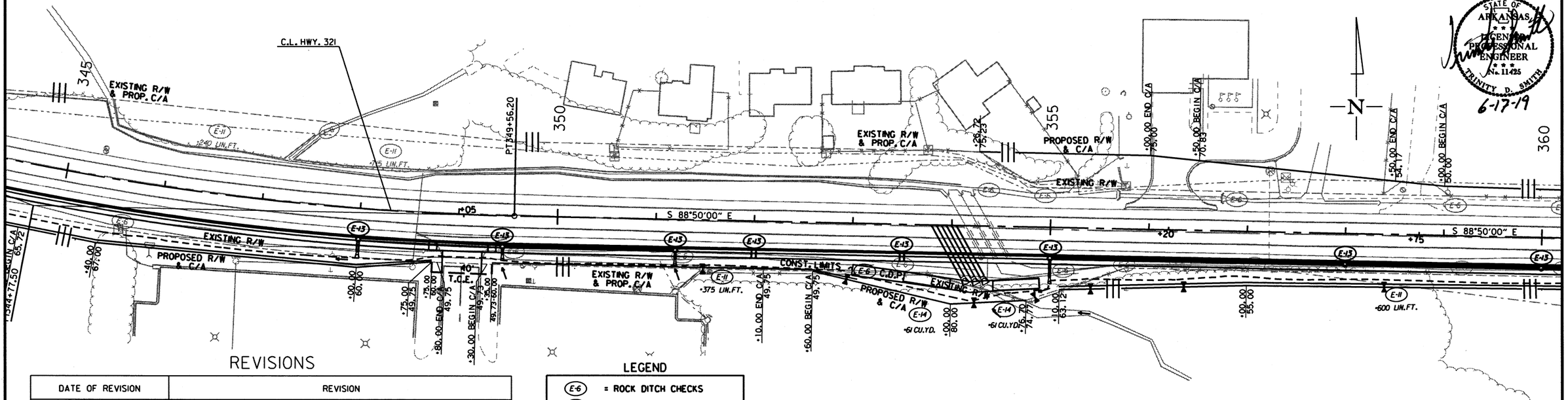
5/6/2019

R061509.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.		061509	41	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



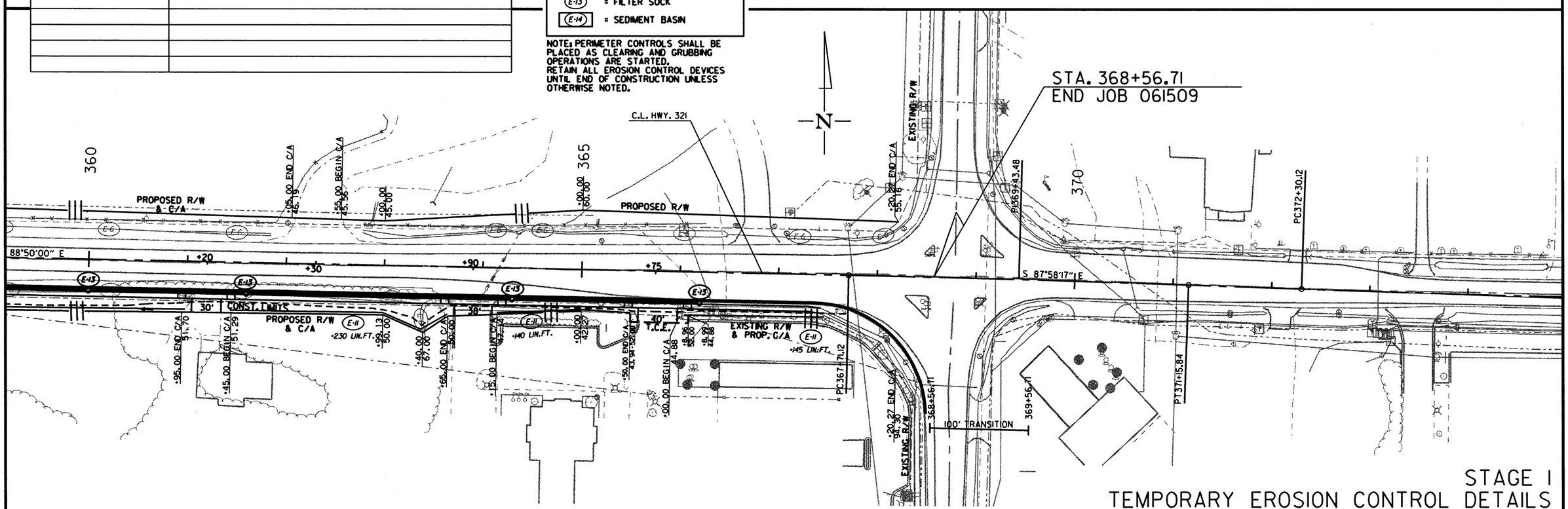
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK
- (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.



5/6/2019

R061509.DGN

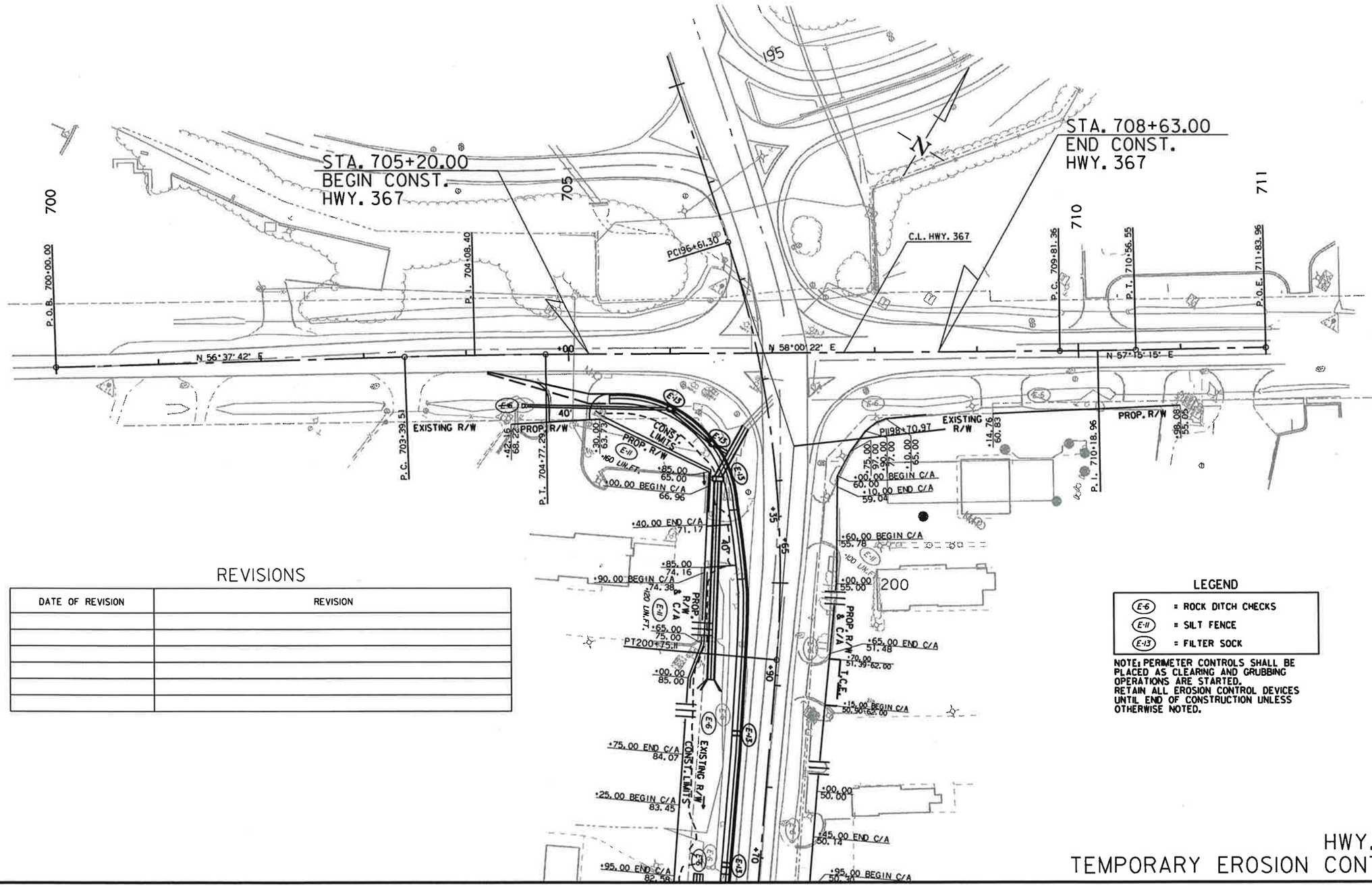
STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	42	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-13	= FILTER SOCK

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HWY. 367 STAGE I
TEMPORARY EROSION CONTROL DETAILS

5/6/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-17-19			

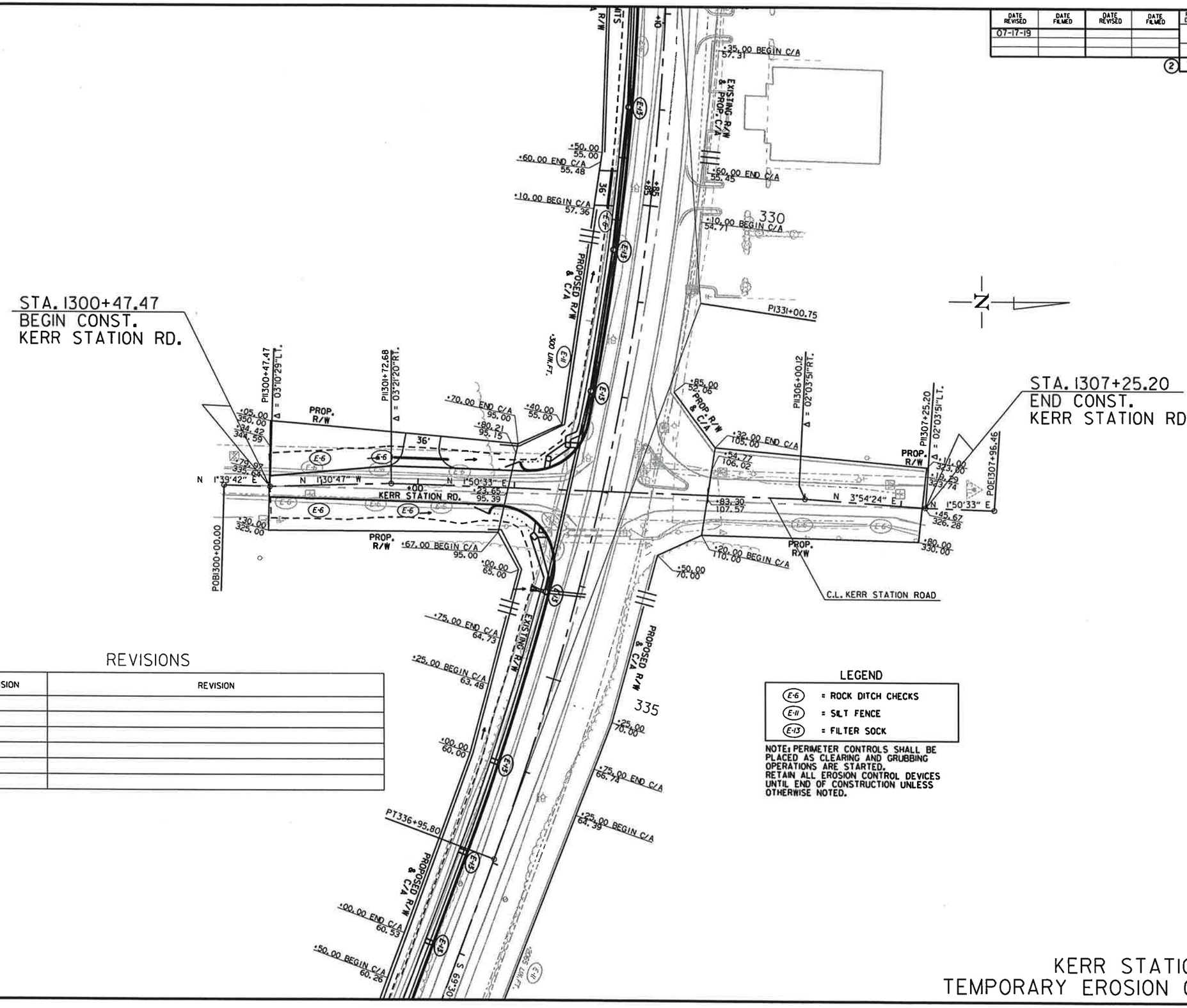
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	43	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

STA. 1300+47.47
BEGIN CONST.
KERR STATION RD.

STA. 1307+25.20
END CONST.
KERR STATION RD.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-13	= FILTER SOCK

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.

5/6/2019

R061509.DGN

KERR STATION ROAD STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	44	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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.

5/6/2019

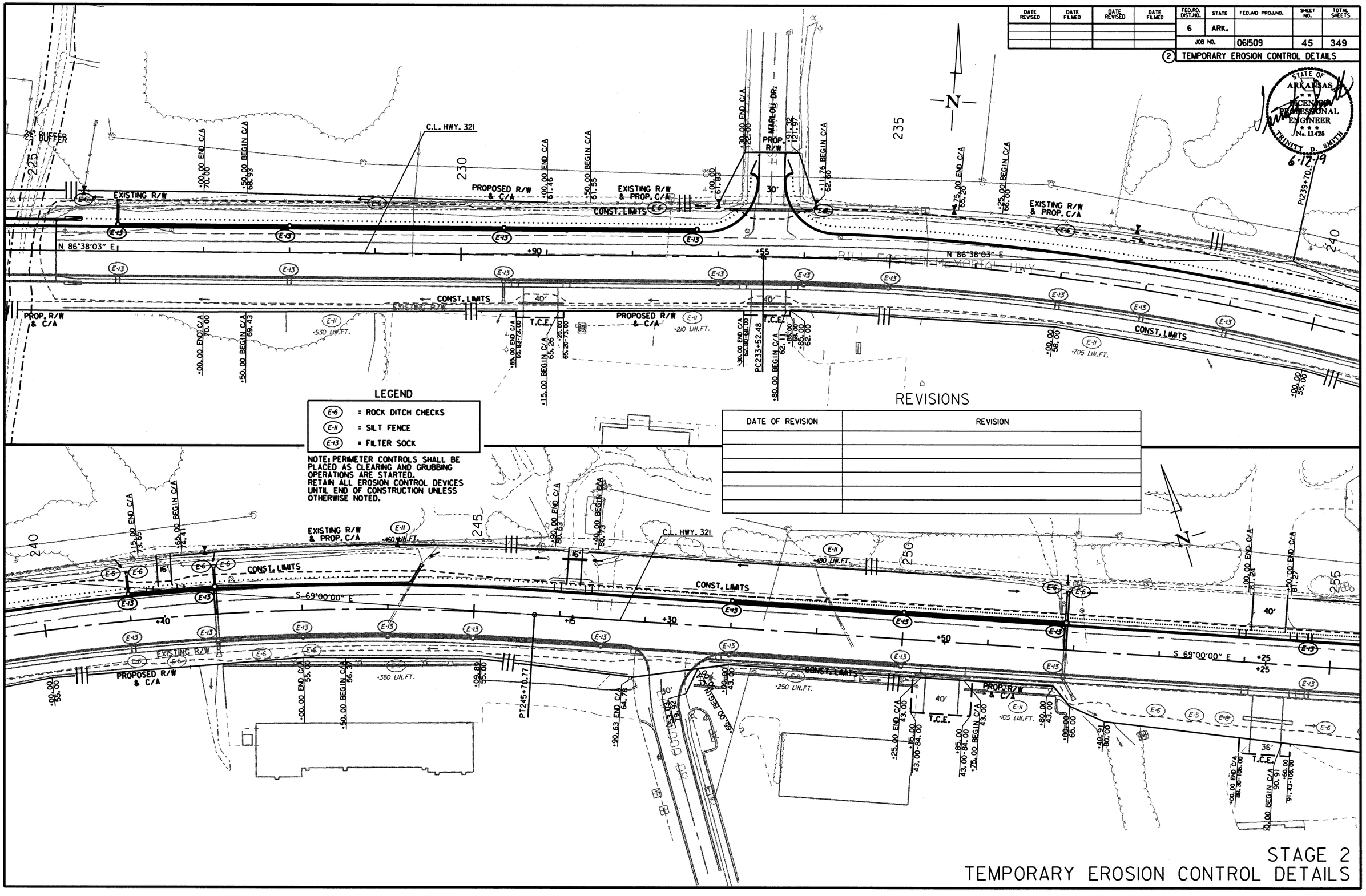
R061509.DGN

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.		061509	45	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
CENTRAL PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-12-19



LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-13	= FILTER SOCK

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.

REVISIONS

DATE OF REVISION	REVISION

5/6/2019

R061509.DGN

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
06-27-19				6	ARK.			
				JOB NO.		061509	46	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

BAYOU TWO

50' BUFFER

EXISTING R/W & PROP. C/A

PROPOSED R/W & C/A

C.L. HWY. 321

CONST. LIMITS

EXISTING R/W

25' BUFFER

S 69°00'00" E

PC 281+40.52

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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.

REVISIONS

DATE OF REVISION	REVISION

5/6/2019

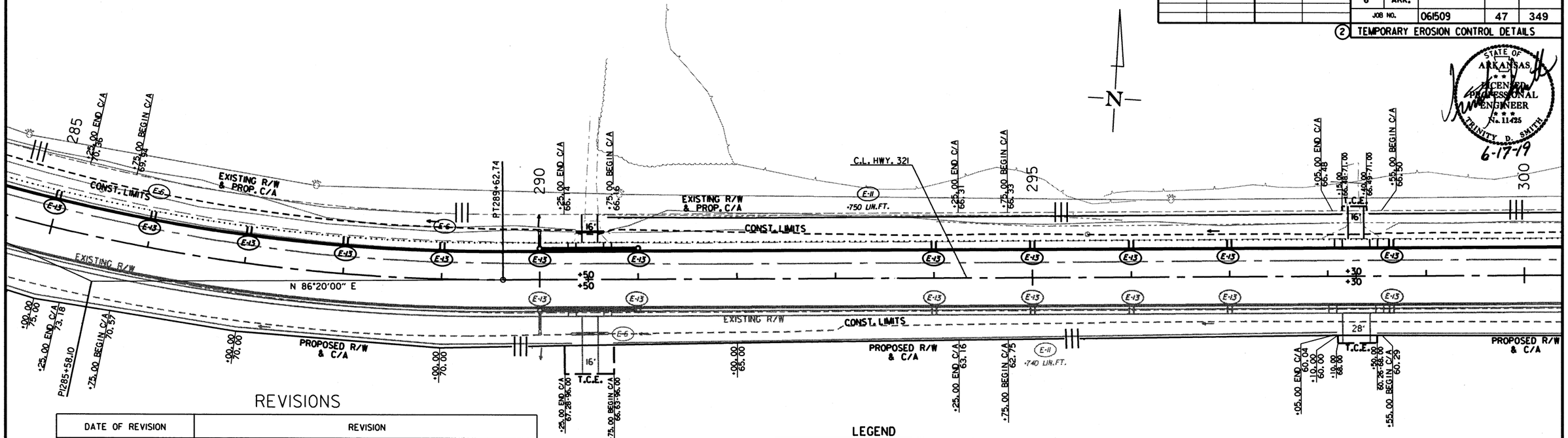
R061509.DGN

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.		061509	47	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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.

5/6/2019

R061509.DGN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-17-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	48	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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.

5/6/2019

R061509.DGN

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.		061509	49	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

345 EXISTING R/W & PROP. C/A CONST. LIMITS E-11 220 LIN.FT. E-13 -140.00 67.00 PROPOSED R/W & C/A -00.00 60.00 -75.00 49.75 -75.00 49.75 -80.00 END C/A 49.75 40' T.C.E. -30.00 BEGIN C/A 49.73 -25.00 60.00 49.73 EXISTING R/W & PROP. C/A E-11 375 LIN.FT. -10.00 49.75 -50.00 BEGIN C/A 49.75 CONST. LIMITS E-6 C.O.P.T. EXISTING R/W PROPOSED R/W & C/A E-14 61 CU.YD. -00.00 80.00 E-14 61 CU.YD. -10.00 63.12 -00.00 55.00 E-11 600 LIN.FT.

350 C.L. HWY. 32 349+56.20 +05 S 88°50'00" E +20 +75 S 88°50'00" E

355 EXISTING R/W & PROP. C/A 26.72 76.23 PROPOSED R/W & C/A CONST. LIMITS E-6 50' E-6 -00.00 END C/A 78.00 -50.00 BEGIN C/A 76.83 38' EXISTING R/W -50.00 END C/A 34.17 24' -00.00 BEGIN C/A 50.00

360

N

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK

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.

STA. 368+56.71
END JOB 061509

360 PROPOSED R/W & C/A -00.00 60.00 -25.00 END C/A 46.19 -55.00 BEGIN C/A 45.56 -00.00 45.00 40' CONST. LIMITS S 88°50'00" E +20 +30 +90 +75

365 C.L. HWY. 321 -00.00 60.00 PROPOSED R/W CONST. LIMITS E-6 -20.27 END C/A 55.16 EXISTING R/W

370 PI369+43.48 PC372+30.12 S 87°58'17" E

30' CONST. LIMITS PROPOSED R/W & C/A E-11 230 LIN.FT. -95.00 END C/A 51.70 -45.00 BEGIN C/A 51.29 -99.13 50.00 -40.00 67.00 -65.00 END C/A 256.00 -15.00 BEGIN C/A 42.22 E-11 140 LIN.FT. -00.00 42.22 -50.00 END C/A 43.94 -50.00 BEGIN C/A 44.88 40' T.C.E. -18.88 32.88 -18.88 44.88 EXISTING R/W & PROP. C/A E-11 145 LIN.FT. PC367+71.12 -20.27 END C/A 94.36 EXISTING R/W 368+56.71 100' TRANSITION 369+56.71 PI371+15.84

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

5/6/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	50	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 705+20.00
BEGIN CONST.
HWY. 367

STA. 708+63.00
END CONST.
HWY. 367

I-49 21°07" E

I-95

C.L. HWY. 367

700 705 710 711

P.O.B. 700+00.00

P.I. 704+08.40

P.C. 709+81.36

P.T. 710+56.55

P.O.E. 711+83.96

PC196+61.30

PT200+75.11

N 56°37' 42" E

N 58°00' 22" E

N 57°15' 15" E

P.C. 703+39.51

P.T. 704+77.29

P.I. 710+18.96

EXISTING R/W

PROP. R/W

CONST. LIMITS

EXISTING R/W

PROP. R/W & C/A

T.C.E.

+25 +35 +55 +90 +70

40' 40' 40' 34' 38'

E-13 E-6 E-11 E-3 E-2 E-1 E-4 E-5 II-3

180 LIN.FT. 115 LIN.FT. 200 LIN.FT.

+85.00 85.00
+100.00 BEGIN C/A 66.96
+40.00 END C/A 71.17
+85.00 74.16
+90.00 BEGIN C/A 74.38
+65.00 75.00
+00.00 85.00
+75.00 END C/A 84.07
+25.00 BEGIN C/A 83.45
+95.00 END C/A

PI198+70.97
+80 LIN.FT.
+00.00 BEGIN C/A 60.00
+10.00 END C/A 59.04
+60.00 BEGIN C/A 55.78
+00.00 55.00
+65.00 END C/A 51.48
+70.00 51.39-62.00
+15.00 BEGIN C/A 50.30-62.00
+00.00 50.00
+45.00 END C/A 50.14
+95.00 BEGIN C/A

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-13	= FILTER SOCK

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.

5/6/2019

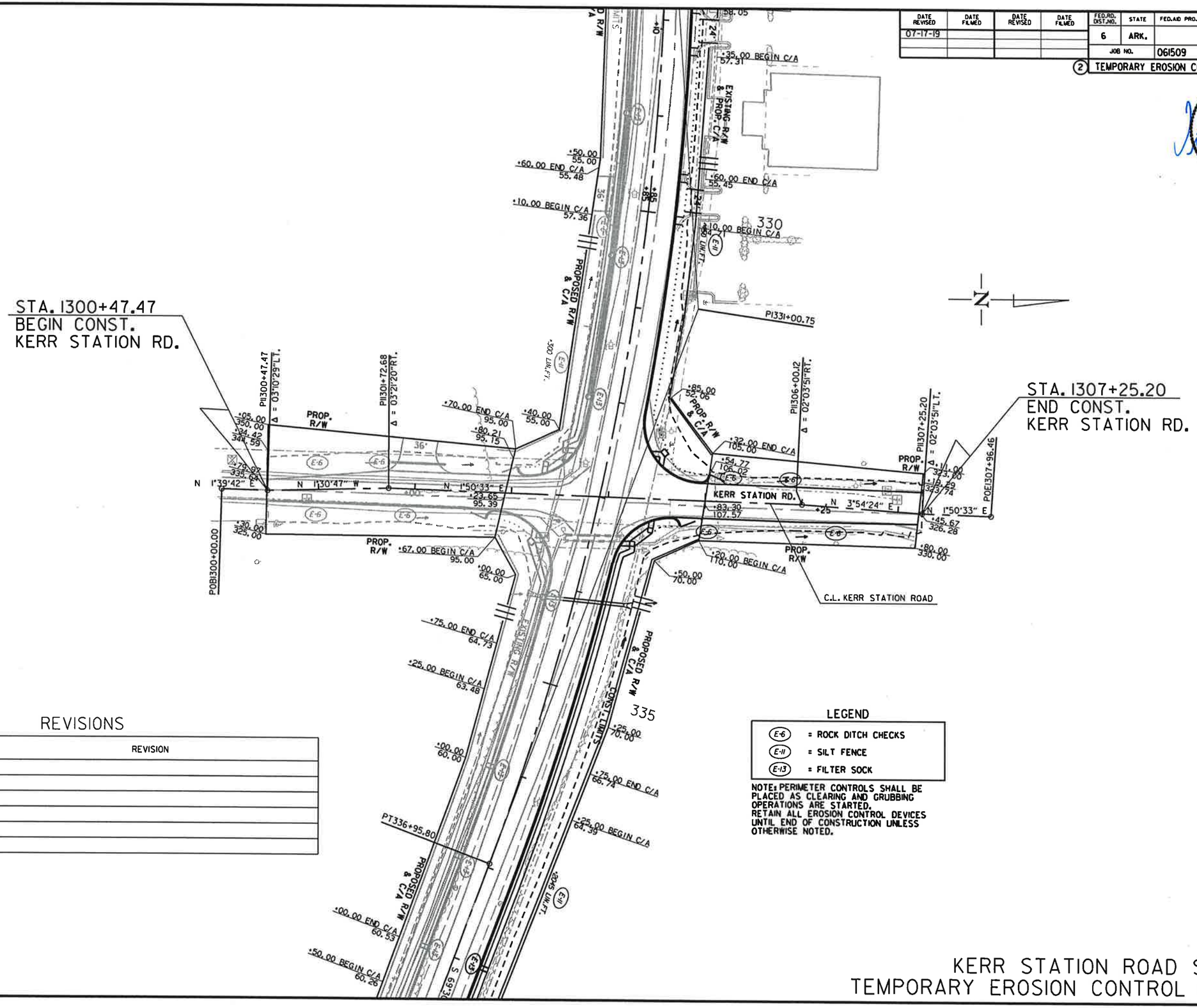
R061509.DGN

HWY. 367 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
07-17-19				6	ARK.			
				JOB NO.		061509	51	349

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19



LEGEND

E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE
E-13	= FILTER SOCK

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.

REVISIONS

DATE OF REVISION	REVISION

5/6/2019

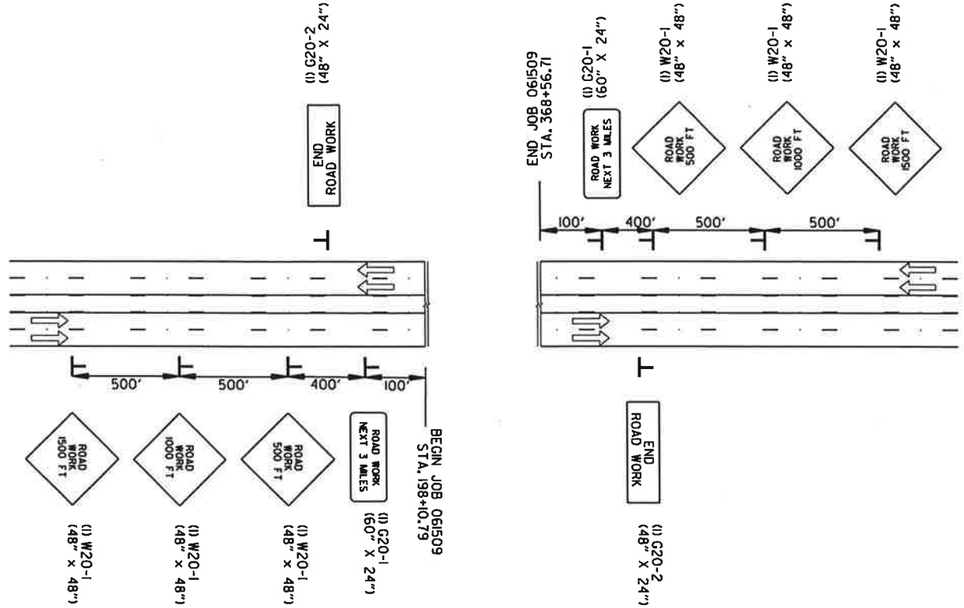
R061509.DGN

KERR STATION ROAD STAGE 2
TEMPORARY EROSION CONTROL DETAILS

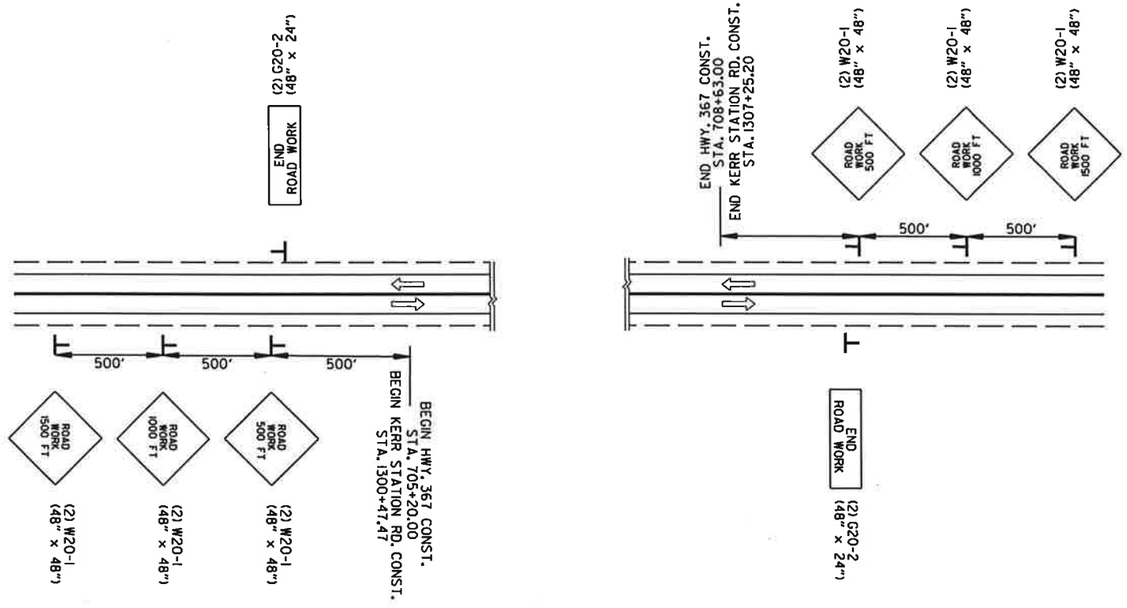
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	52	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19



ADVANCE WARNING HWY. 321
(ALL STAGES)



ADVANCE WARNING
(ALL STAGES)

BUMP	(6) W8-1 (30" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
DO NOT PASS	(26) R4-1 (24" X 30")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
RIGHT SHOULDER CLOSED	(6) W21-5a (36" X 36")	ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

ROAD CLOSED

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

16' BARR. TYP. III LT.

STAGE 1
STA. 199+00 RT.
STA. 246+65 RT
STA. 278+00 RT
STA. 311+75 RT.
STA. 332+50 RT.

STAGE 2
STA. 199+00 RT
STA. 254+70 LT.
STA. 258+00 LT.
STA. 332+60 RT.

ROAD CLOSED

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

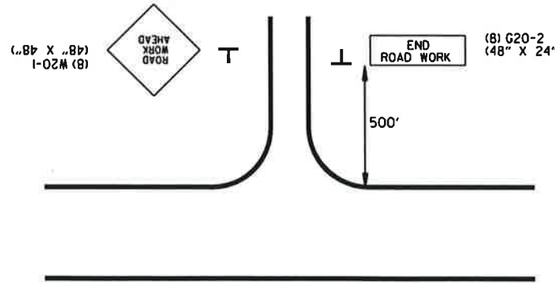
16' BARR. TYP. III RT.

STAGE 1
STA. 247+85 RT.
STA. 255+80 RT.
STA. 313+40 RT.
STA. 333+60 RT.

STAGE 2
STA. 253+70 LT.
STA. 278+00 LT.
STA. 333+60 RT.

STAGE 1-HWY. 367
STA. 705+50 RT.

STAGE 2-HWY. 367
STA. 705+50 RT.



STA. 205+25 LT. AND RT. - S. 1ST ST.
STA. 221+95 LT. - NALLEY RD.
STA. 233+55 LT. - MARLOU DR.
STA. 247+30 RT. - LAKEWOOD DR.
STA. 306+05 RT. - PICKTHORNE RD.
STA. 312+50 LT. AND RT. - FUNTASTIC DR.

ADVANCE WARNING - SIDE ROADS
(ALL STAGES)

6/26/2019

R061509.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.		061509	53	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS. INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS. INSTALL ROAD WORK AHEAD (W20-1) SIGN ON SIDE ROADS AS SHOWN IN THE ADVANCE WARNING DETAILS.

MAINTAIN TRAFFIC IN EXISTING LANES. MAINTAIN EXISTING SIGNALS AT HWY. 367 AND HWY. 89 INTERSECTIONS. INSTALL TEMPORARY SIGNAL AT KERR STATION RD. INTERSECTION.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS. REMOVE CONCRETE ISLAND AT STA. 332+60 LT.

CONSTRUCT RT. OF HWY. 367 FROM STA. 704+20 TO STA. 706+00, RT. OF HWY. 321FOR FULL LENGTH OF JOB, LT. AND RT. OF KERR STATION RD. FROM STA. 1300+47.47 TO STA. 1303+61.09 AS SHOWN IN THE STAGE 1MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT DRAINAGE STRUCTURES AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS. CROSS DRAINS AT STA. 257+53, 279+42, AND 354+26 MAY BE REQUIRED TO BE CONSTRUCTED IN THEIR ENTIRETY DURING STAGE 1TO MAINTAIN POSITIVE DRAINAGE. CONSTRUCT BOX CULVERT EXTENSIONS FROM STA. 198+43 TO STA. 200+95 RT., STA. 257+53 RT., AND STA. 314+37 LT. AND RT.

CONSTRUCT RAISED MEDIAN FROM STA. 257+96.17 TO STA. 260+07.85 AND FROM STA. 274+90.61TO STA. 278+03.98. CONSTRUCT TYPE B CONCRETE MEDIAN BARRIER FROM STA. 260+07.85 TO STA. 274+90.61. WIDEN BRIDGE ON RT. FROM STA. 224+53.30 TO STA. 225+28.30. CONSTRUCT BRIDGES FROM STA. 260+66.50 TO STA. 261+41.50 AND STA. 265+90.40 TO STA. 274+40.60 AS SHOWN ON THE BRIDGE STAGE CONSTRUCTION DETAILS.

STAGE 2:

RETAIN ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS. RETAIN END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS. RETAIN ROAD WORK AHEAD SIGN AS SHOWN ON ADVANCE WARNING DETAILS.

SHIFT TRAFFIC TO STAGE 2 CENTERLINE AS SHOWN. INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC DRUMS AND RELOCATE PRECAST CONCRETE BARRIERS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

CONSTRUCT DRAINAGE STRUCTURES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. WIDEN BRIDGE ON LT. FROM STA. 224+53.30 TO STA. 225+28.30 AS SHOWN ON THE BRIDGE STAGE CONSTRUCTION DETAILS.

CONSTRUCT LT. OF EXISTING LANES ON HWY. 321 AND LT. AND RT. OF KERR STATION RD. FROM STA. 1304+17.29 TO STA. 1307+25.20 AS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

RETAIN ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS. RETAIN END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS. RETAIN ROAD WORK AHEAD SIGN AS SHOWN ON ADVANCE WARNING DETAILS.

SHIFT TRAFFIC TO STAGE 3 CENTERLINE AS SHOWN. INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC DRUMS AND RELOCATE AND INSTALL PRECAST CONCRETE BARRIERS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

APPLY POLYMER OVERLAY RT. OF HWY. 321 CENTERLINE.

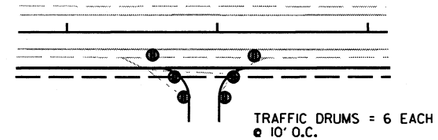
STAGE 4:

RETAIN ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS. RETAIN END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS. RETAIN ROAD WORK AHEAD SIGN AS SHOWN ON ADVANCE WARNING DETAILS.

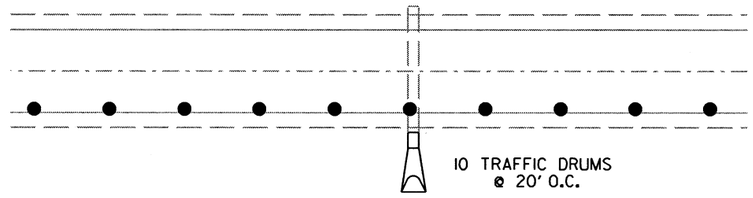
SHIFT TRAFFIC TO STAGE 4 CENTERLINE AS SHOWN. INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC DRUMS AND RELOCATE PRECAST CONCRETE BARRIERS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

APPLY POLYMER OVERLAY LT. OF HWY. 321 CENTERLINE.

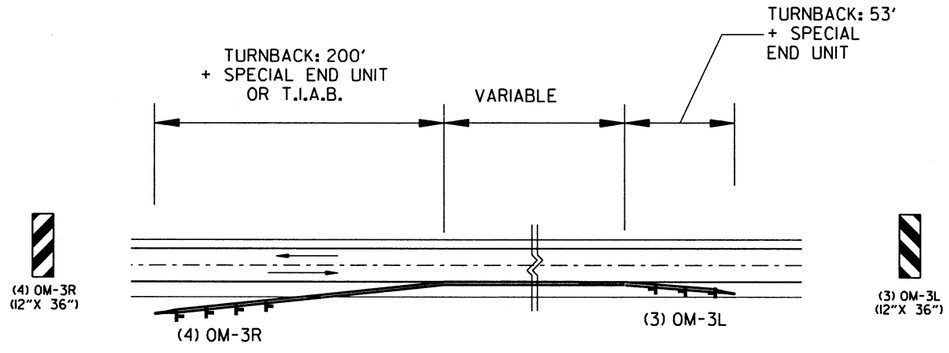
SHIFT TRAFFIC TO CONSTRUCTION CENTERLINE. APPLY FINAL 2" LIFT OF ACHM AND PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.



DRIVEWAY/TRAFFIC DRUM DETAIL



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



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

6/17/2019

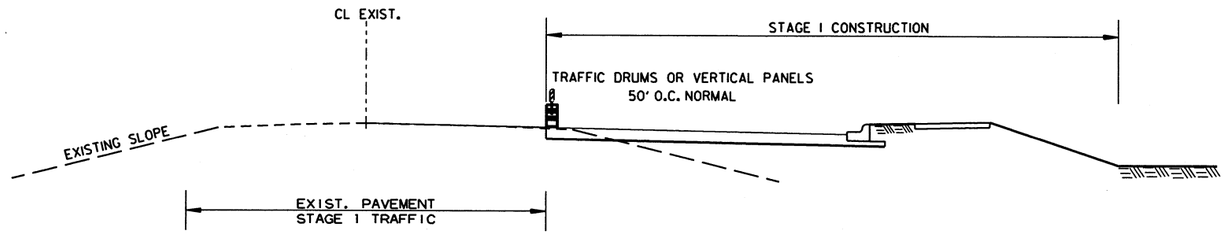
R061509.DGN

ADVANCE WARNING
MAINTENANCE OF TRAFFIC DETAILS

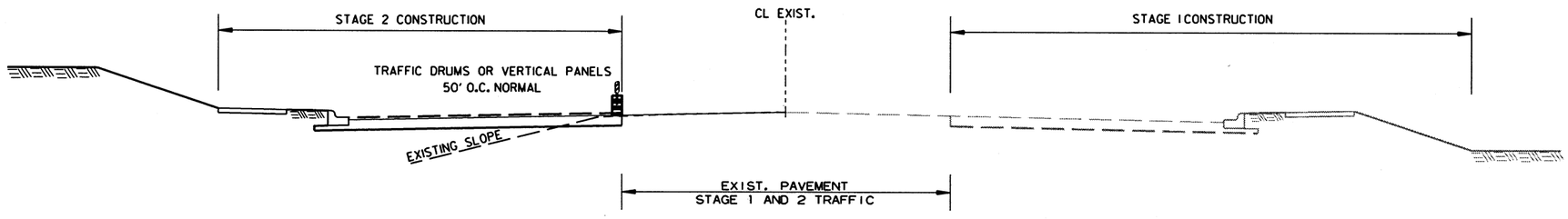
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	54	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



STAGE 1 TRAFFIC



STAGE 2 TRAFFIC

6/12/2019

R061509.DGN

MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			
07-02-19			
07-17-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	55	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7/17/19

LEGEND

= CONSTRUCTION PAVEMENT MARKING (ARROW)

= CONSTRUCTION PAVEMENT MARKING (WORD)

WHITE SOLID CONST. PVMT. MARKING

YELLOW SKIP WITH SOLID YELLOW CONST. PVMT. MARKING

DBL. YELLOW SOLID CONST. PVMT. MARKING

WHITE SOLID CONST. PVMT. MARKING

EXISTING R/W

PROP. R/W & C/A

EXIST. R/W & PROP. C/A

EXISTING R/W & PROP. C/A

CONST. LIMITS

PROPOSED R/W & C/A

T.C.E.

C.L. HWY. 32I

N 58°00'24" E

S 26°35'34" E

N 86°38'03" E

7 TRAFFIC DRUMS @ 50' O.C.

DBL. YELLOW SOLID CONST. PVMT. MARKING

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 93 LIN. FT. INSTALL TIAB

5 TRAFFIC DRUMS @ 50' O.C.

2 TRAFFIC DRUMS @ 50' O.C.

6 TRAFFIC DRUMS

6 TRAFFIC DRUMS @ 50' O.C.

6 TRAFFIC DRUMS

7 TRAFFIC DRUMS @ 50' O.C.

STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

12 TRAFFIC DRUMS @ 50' O.C.

6 TRAFFIC DRUMS

6 TRAFFIC DRUMS

5 TRAFFIC DRUMS @ 50' O.C.

WHITE SOLID REMOVABLE CONST. PVMT. MARKING

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 253 LIN. FT. INSTALL TIAB

DBL. YELLOW SOLID REMOVABLE CONST. PVMT. MARKING

WHITE SOLID CONST. PVMT. MARKING

DBL. YELLOW SOLID CONST. PVMT. MARKING

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

7/17/2019

R061509.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.		061509	56	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
C.L. HWY. 321
EXISTING R/W
PROPOSED R/W & C/A
EXISTING R/W & PROP. C/A
PROP. R/W & C/A
CONST. LIMITS
T.C.E.
N 86°38'03" E
9 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
4 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
12 TRAFFIC DRUMS @ 50' O.C.

WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
EXISTING R/W & PROP. C/A
PROPOSED R/W & C/A
C.L. HWY. 321
LAKEWOOD
CONST. LIMITS
S 69°00'00" E
13 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
11 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS

6/12/2019

R061509.DGN

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	57	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
EXISTING R/W & PROP. C/A
WHITE SOLID REMOVABLE CONST. PVMT. MARKING
DBL. YELLOW SOLID REMOVABLE CONST. PVMT. MARKING
C.L. HWY. 321
DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
WHITE SOLID REMOVABLE CONST. PVMT. MARKING
DBL. YELLOW SOLID REMOVABLE CONST. PVMT. MARKING
N
255
260
265
270
12'
12'
CONST. LIMITS
PROPOSED R/W & C/A
3 TRAFFIC DRUMS @ 50' O.C.
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 153 LIN. FT. INSTALL TIAB
5 TRAFFIC DRUMS @ 50' O.C.
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 193 LIN. FT. INSTALL TIAB
7 TRAFFIC DRUMS @ 50' O.C.
EXISTING R/W
PROPOSED R/W & C/A
CONST. LIMITS
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 973 LIN. FT. INSTALL TIAB
+30.00 END C/A 81.34
+00.00 BEGIN C/A 81.37
+75.00 END C/A 81.56
+25.00 BEGIN C/A 81.59
+80.00 80.00
+44.06 110.00
+75.00 END C/A 92.02
+25.00 BEGIN C/A 98.35
+64.17 E 62.29
+72.59 60.00
+72.65 155.00
+40.84 END C/A 60.00
+20.00 105.00
+80.00 110.00

270
275
280
285
EXISTING R/W & PROP. C/A
+65.98 BEGIN C/A 62.36
62.29
7 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
10 TRAFFIC DRUMS @ 20' O.C.
+25.00 END C/A 90.75
+75.00 BEGIN C/A 83.88
PC281+40.52
C.L. HWY. 321
+25.00 END C/A 76.36
S 69°00'00" E
PROPOSED R/W & C/A
+42.64 BEGIN C/A 60.00
+72.59 60.00
+72.62 107.43
EXISTING R/W
CONST. LIMITS
+72.65 155.00
+100.00 165.00
+50.00 125.00
+10.00 95.00
+05.91 75.00
+25.00 END C/A 74.75
+75.00 BEGIN C/A 74.09
+50.00 75.00
+90.00 75.00
9 TRAFFIC DRUMS @ 50' O.C.

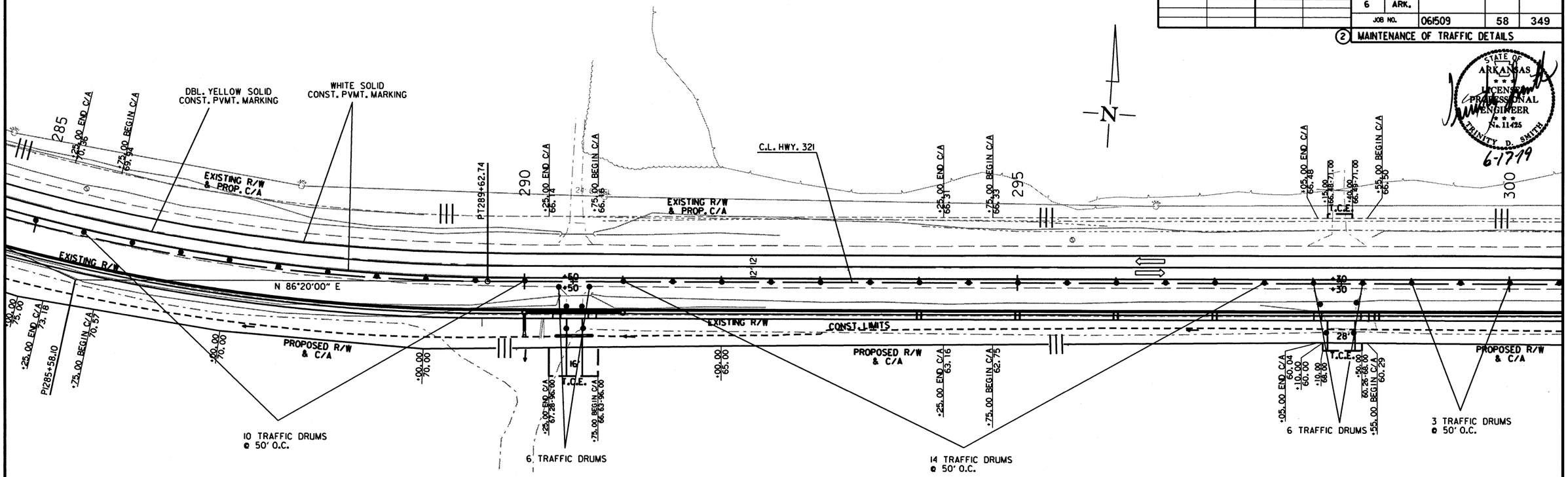
6/28/2019
R061509.DGN

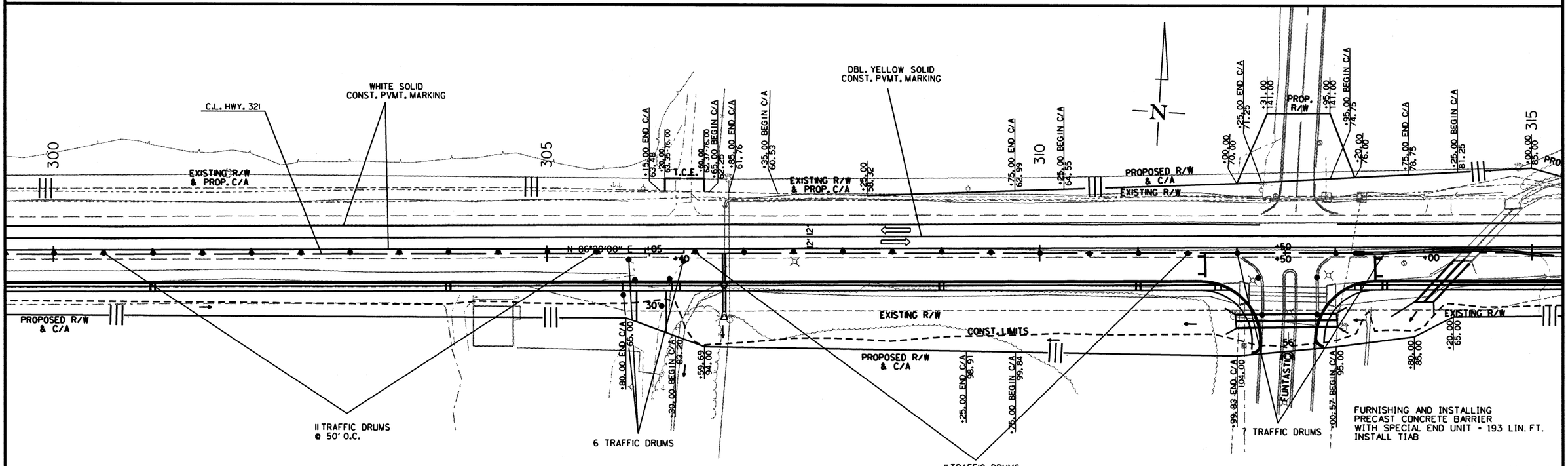
STAGE I
MAINTENANCE OF TRAFFIC DETAILS

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.		061509	58	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19





6/12/2019

R061509.DGN

STAGE I
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
07-17-19				6	ARK.			
				JOB NO.		061509	59	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
EXISTING R/W & PROP. C/A
PROPOSED R/W & C/A
CONST. LIMITS
C.L. HWY. 321
PC324+87.46
N 86°20'00" E
28 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
EXISTING R/W & PROP. C/A
PROPOSED R/W & C/A
CONST. LIMITS
N 86°20'00" E

WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
C.L. HWY. 321
PC339+89.53
PROPOSED R/W & C/A
EXISTING R/W
S 69°30'00" E
PROPOSED R/W & C/A
EXISTING R/W
S 69°30'00" E
CONST. LIMITS
PT336+95.80
PROPOSED R/W & C/A
PROPOSED R/W & C/A
5 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID CONST. PVMT. MARKING
23 TRAFFIC DRUMS @ 50' O.C.
KERR STATION RD.
PROP. R/W

LEGEND
= CONSTRUCTION PAVEMENT MARKING (ARROW)
= CONSTRUCTION PAVEMENT MARKING (WORD)

7/17/2019
R061509.DGN

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-17-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	60	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
7-17-19

WHITE SOLID CONST. PVMT. MARKING
C.L. HWY. 321
DBL. YELLOW SOLID CONST. PVMT. MARKING
EXISTING R/W & PROP. C/A
PROPOSED R/W & C/A
EXISTING R/W
PT 349+56.20
S 88°50'00" E
CONST. LIMITS
T.C.E.
C.B.P.
6 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
7 TRAFFIC DRUMS @ 50' O.C.
10 TRAFFIC DRUMS @ 20' O.C.
10 TRAFFIC DRUMS @ 50' O.C.

LEGEND

= CONSTRUCTION PAVEMENT MARKING (ARROW)

= CONSTRUCTION PAVEMENT MARKING (WORD)

STA. 368+56.71
END JOB 061509

DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
C.L. HWY. 321
PROPOSED R/W & C/A
PROPOSED R/W
EXISTING R/W & PROP. C/A
EXISTING R/W
S 87°58'17" E
PC369+43.48
PC372+30.12
PC367+71.12
PT371+15.84
100' TRANSITION
368+56.71
369+56.71
7 TRAFFIC DRUMS
3 TRAFFIC DRUMS @ 50' O.C.
7 TRAFFIC DRUMS
6 TRAFFIC DRUMS
6 TRAFFIC DRUMS @ 50' O.C.

7/17/2019

R061509.DGN

STAGE I
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
07-17-19				6	ARK.			
				JOB NO.		061509	61	349
				(2) MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

STA. 1300+47.47
BEGIN CONST.
KERR STATION RD.

STA. 1307+25.20
END CONST.
KERR STATION RD.

11 TRAFFIC DRUMS

7 TRAFFIC DRUMS

WHITE SOLID
CONST. PVMT. MARKING

DBL. YELLOW SOLID
CONST. PVMT. MARKING

8 TRAFFIC DRUMS
@ 50' O.C.

WHITE SOLID
CONST. PVMT. MARKING

DBL. YELLOW SOLID
CONST. PVMT. MARKING

LEGEND

= CONSTRUCTION PAVEMENT MARKING (ARROW)

= CONSTRUCTION PAVEMENT MARKING (WORD)

7/16/2019

R061509.DGN

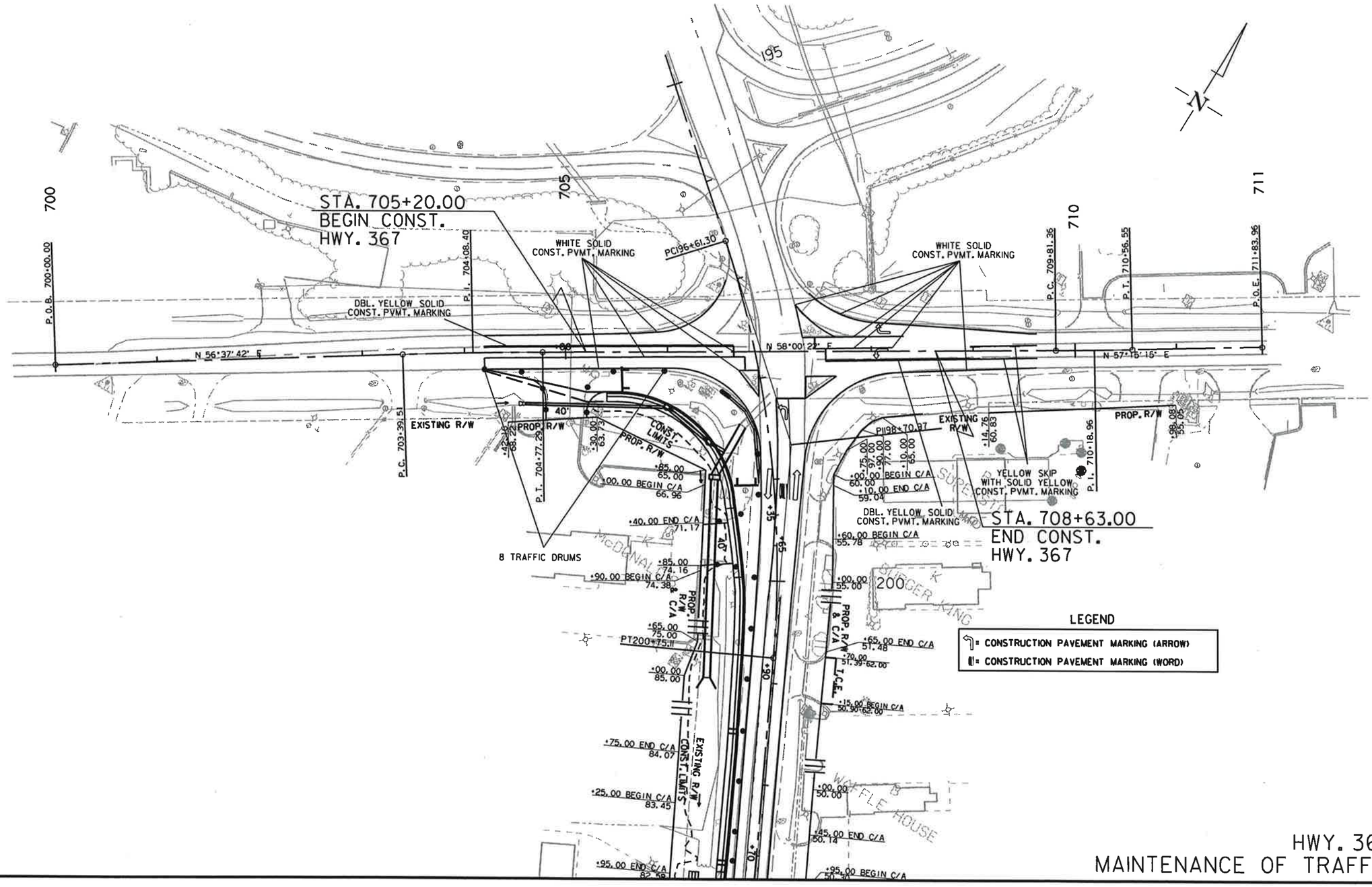
KERR STATION RD. STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	62	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19



HWY. 367 STAGE I
MAINTENANCE OF TRAFFIC DETAILS

7/2/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			
07-02-19			
07-17-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	63	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

LEGEND
= CONSTRUCTION PAVEMENT MARKING (ARROW)
= CONSTRUCTION PAVEMENT MARKING (WORD)

EXISTING R/W
8 TRAFFIC DRUMS
WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
7 TRAFFIC DRUMS
3 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
YELLOW SKIP WITH SOLID YELLOW CONST. PVMT. MARKING
4 TRAFFIC DRUMS @ 50' O.C.
7 TRAFFIC DRUMS
14 TRAFFIC DRUMS
C.L. HWY. 321
6 TRAFFIC DRUMS
3 TRAFFIC DRUMS @ 50' O.C.
5 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID CONST. PVMT. MARKING
EXISTING R/W & PROP. C/A
CONST. LIMITS
PROP. R/W & C/A
PROPOSED R/W & C/A
WHITE SOLID CONST. PVMT. MARKING
P.I. 204+77.29
STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

6 TRAFFIC DRUMS
17 TRAFFIC DRUMS @ 50' O.C.
WHITE SOLID CONST. PVMT. MARKING
6 TRAFFIC DRUMS
NALLEY RD.
RELOCATE PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 253 LIN. FT.
RELOCATE TIAB
DBL. YELLOW SOLID CONST. PVMT. MARKING
3 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID REMOVABLE CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
EXISTING R/W
CONST. LIMITS
PROPOSED R/W & C/A
DBL. YELLOW SOLID CONST. PVMT. MARKING
C.L. HWY. 321
WHITE SOLID CONST. PVMT. MARKING
WHITE SOLID REMOVABLE CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
PROP. R/W & C/A
PI214+67.49

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

7/17/2019
R061509.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.		061509	64	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

14 TRAFFIC DRUMS @ 50' O.C.

STA. 233+13.69 HWY. 321 =STA. 233+13.69 STAGE 2 0.00' OFFSET

8 TRAFFIC DRUMS

MARLOW DR.

14 TRAFFIC DRUMS @ 50' O.C.

WHITE SOLID CONST. PVMT. MARKING

EXISTING R/W & PROP. C/A

C.L. HWY. 321

P.I. 239+32.19

P 239+70.97

EXISTING R/W

CONST. LIMITS

N 86°38'03" E

86°38'03" E

DBL. YELLOW SOLID CONST. PVMT. MARKING

PROPOSED R/W & C/A

T.C.E.

P.C. 233+13.69

PC233+52.48

C.L. STAGE 2

13 TRAFFIC DRUMS @ 50' O.C.

STAGE 2
P.I. = 239+32.19
Δ = 24° 21' 57" RT.
D = 2° 00' 00"
T = 618.50'
L = 1218.30'
P.C. = 233+13.69
P.T. = 245+31.99

7 TRAFFIC DRUMS

8 TRAFFIC DRUMS @ 50' O.C.

6 TRAFFIC DRUMS

15 TRAFFIC DRUMS @ 50' O.C.

8 TRAFFIC DRUMS

S 69°00'00" E

5 TRAFFIC DRUMS @ 50' O.C.

STA. 245+35.05 HWY. 321 =STA. 245+31.99 STAGE 2 16.00' OFFSET

P.T. 245+31.99

PT245+70.77

LAKEWOOD

PROP. R/W & C/A

6/12/2019

R061509.DGN

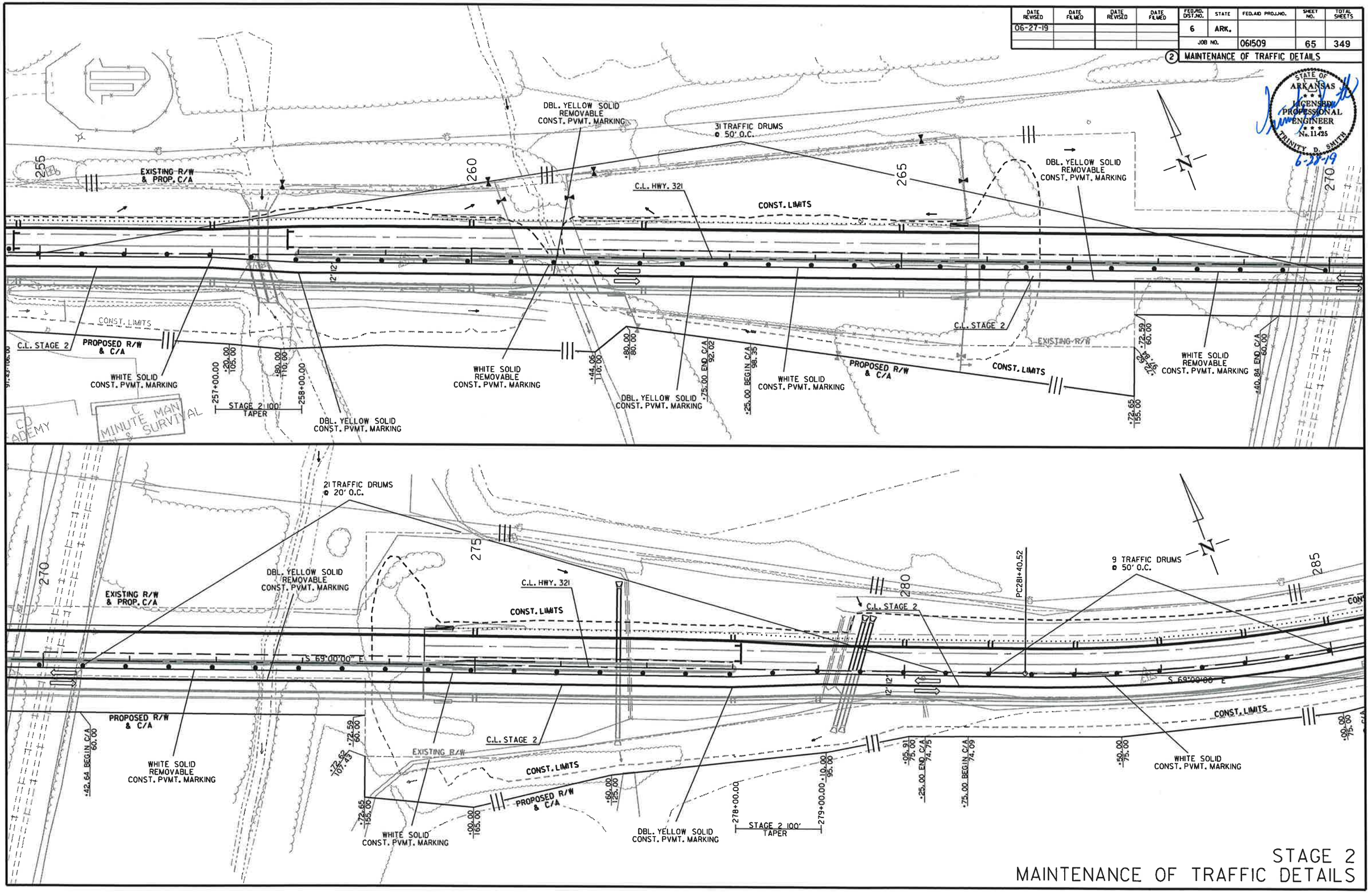
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	65	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19



STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

6/28/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	66	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

WHITE SOLID CONST. PVMT. MARKING
10 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID CONST. PVMT. MARKING
15 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
6 TRAFFIC DRUMS
4 TRAFFIC DRUMS @ 50' O.C.
285
290
295
300
CONST. LIMITS
EXISTING R/W & PROP. C/A
C.L. STAGE 2
EXISTING R/W
N 86°20'00" E
PT289+62.74
12' 12'
15'
T.C.E.
+50
+50
+30
+30
+00 75.00
+25.00 END C/A 73.18
P1285+58.10
+75.00 BEGIN C/A 70.57
+00.00 70.00
C.L. HWY. 321
PROPOSED R/W & C/A
+00.00 70.00
+25.00 END C/A 67.28 96.00
+75.00 BEGIN C/A 66.63 96.00
+00.00 65.00
+25.00 END C/A 63.16
+75.00 BEGIN C/A 62.75
C.L. HWY. 321
+45.00 60.40 68.71.00
+60.00 60.40 68.71.00
+105.00 END C/A 60.04 +10.00 60.00 +10.00 68.00
+50.00 58.00 60.26
+55.00 BEGIN C/A 60.29
PROPOSED R/W & C/A

12 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID CONST. PVMT. MARKING
6 TRAFFIC DRUMS
11 TRAFFIC DRUMS @ 50' O.C.
8 TRAFFIC DRUMS
8 TRAFFIC DRUMS
300
305
310
315
EXISTING R/W & PROP. C/A
C.L. STAGE 2
CONST. LIMITS
EXISTING R/W
N 86°20'00" E
12' 12'
16'
T.C.E.
+05
+10
+50
+50
+00
30'
38'
22'
FUNTASTIC
PROPOSED R/W & C/A
C.L. HWY. 321
WHITE SOLID CONST. PVMT. MARKING
+80.00 END C/A 85.00
+30.00 BEGIN C/A 83.26
+59.69 94.00
+25.00 END C/A 96.91
+75.00 BEGIN C/A 99.84
C.L. HWY. 321
+99.83 END C/A 104.00
+100.57 BEGIN C/A 95.00
+80.00 85.00
+20.00 65.00

6/26/2019
R061509.DGN

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
06-27-19				6	ARK.			
07-17-19				JOB NO.		061509	67	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

26 TRAFFIC DRUMS @ 50' O.C.

STA. 324+00.00 HWY. 321
=STA. 324+00.74 STAGE 2
14.00' OFFSET

C.L. STAGE 2

DBL. YELLOW SOLID CONST. PVMT. MARKING

3 TRAFFIC DRUMS @ 50' O.C.

6 TRAFFIC DRUMS

EXISTING R/W & PROP. C/A

CONST. LIMITS

N 83°31'58" E

N 86°20'00" E

PROPOSED R/W & C/A

STA. 317+85.00 HWY. 321
=STA. 317+85.00 STAGE 2
16.00' OFFSET

P.I. 317+85.00

+10.00 END C/A 57.26

+60.00 BEGIN C/A 57.29

+25.00 END C/A 62.31

+75.00 BEGIN C/A 61.97

WHITE SOLID CONST. PVMT. MARKING

C.L. HWY. 321

P.I. 324+00.74

PC324+87.46

+00.00 55.00

+50.00 55.00 END C/A 55.48

+60.00 END C/A 55.48

+10.00 BEGIN C/A 57.36

WHITE SOLID CONST. PVMT. MARKING

12 TRAFFIC DRUMS @ 50' O.C.

LEGEND

= CONSTRUCTION PAVEMENT MARKING (ARROW)

= CONSTRUCTION PAVEMENT MARKING (WORD)

24 TRAFFIC DRUMS @ 50' O.C.

WHITE SOLID CONST. PVMT. MARKING

4 TRAFFIC DRUMS @ 50' O.C.

C.L. STAGE 2

KERR STATION RD.

PI331+00.75

PI306+00.12 Δ = 02°03'51" RT.

PI301+72.66 Δ = 03°21'20" RT.

PC339+89.53

EXISTING R/W

S 69°30'00" E

PROPOSED R/W & C/A

PT336+95.80

+75.00 END C/A 64.73

+25.00 END C/A 63.48

+00.00 60.00

+00.00 END C/A 60.53

+50.00 BEGIN C/A 60.26

+00.00 60.00

+00.00 70.00

+12.00 END C/A 66.64

+62.00 BEGIN C/A 65.72

PI344+71.50

+40.00 55.00

+80.21 99.15

+70.00 END C/A 95.00

+00.00 85.00

+67.00 BEGIN C/A 95.00

PROP. R/W

DBL. YELLOW SOLID CONST. PVMT. MARKING

C.L. HWY. 321

WHITE SOLID CONST. PVMT. MARKING

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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
07-17-19				6	ARK.			
				JOB NO.		061509	68	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

15 TRAFFIC DRUMS @ 50' O.C.
WHITE SOLID CONST. PVMT. MARKING
EXISTING R/W & PROP. C/A
CONST. LIMITS
C.L. HWY. 321
PT 349+56.20
10 TRAFFIC DRUMS @ 20' O.C.
EXISTING R/W & PROP. C/A
8 TRAFFIC DRUMS
4 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
3 TRAFFIC DRUMS @ 50' O.C.
CONST. LIMITS
EXISTING R/W
38'
24'
12'-12'
S 88°50'00" E
EXISTING R/W
PROPOSED R/W & C/A
T.C.E.
EXISTING R/W & PROP. C/A
CONST. LIMITS
PROPOSED R/W & C/A
DBL. YELLOW SOLID CONST. PVMT. MARKING
345
350
355
360

WHITE SOLID CONST. PVMT. MARKING
3 TRAFFIC DRUMS @ 50' O.C.
14 TRAFFIC DRUMS @ 50' O.C.
6 TRAFFIC DRUMS
DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
EXISTING R/W
STA. 368+56.71
END JOB 061509
360
365
370
40'
CONST. LIMITS
S 88°50'00" E
S 87°58'17" E
30'
CONST. LIMITS
PROPOSED R/W & C/A
C.L. HWY. 321
T.C.E.
EXISTING R/W & PROP. C/A
PC367+71.12
PI369+43.48
PC372+30.12
PT371+15.84
100' TRANSITION
368+56.71
369+56.71

LEGEND
= CONSTRUCTION PAVEMENT MARKING (ARROW)
= CONSTRUCTION PAVEMENT MARKING (WORD)

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

7/17/2019
R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	69	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

STA. 1300+47.47
BEGIN CONST.
KERR STATION RD.

STA. 1307+25.20
END CONST.
KERR STATION RD.

KERR STATION RD.

PROPOSED R/W & C/A

EXISTING R/W & PROP. C/A

PROP. R/W

CONST. LIMITS

PI1300+47.47 Δ = 03°10'29"LT.

PI1301+72.68 Δ = 03°21'20"RT.

PI1306+00.12 Δ = 02°03'51"RT.

PI1307+25.20 Δ = 02°03'51"LT.

PI1331+00.75

POBI1300+00.00

POEI1307+96.46

PT1336+95.80

N 1°39'42" E

N 1°30'47" W

N 1°50'33" E

N 3°54'24" E

WHITE SOLID CONST. PVMT. MARKING

DBL. YELLOW SOLID CONST. PVMT. MARKING

7 TRAFFIC DRUMS @ 50' O.C.

330

335

LEGEND

= CONSTRUCTION PAVEMENT MARKING (ARROW)

= CONSTRUCTION PAVEMENT MARKING (WORD)

7/16/2019

R061509.DGN

KERR STATION STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	70	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 705+20.00
BEGIN CONST.
HWY. 367

700
705
710
711
195
N

P.O.B. 700+00.00
P.I. 704+08.40
P.C. 703+39.51
P.T. 704+77.23
PCI96+61.30
P.C. 709+81.36
P.T. 710+56.55
P.O.E. 711+83.96
PI198+70.97
P.I. 710+18.96
PT200+75.11

S 49°21'07" E
N 56°37'42" E
N 58°00'22" E
N 57°13'15" E

DBL. YELLOW SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
WHITE SOLID CONST. PVMT. MARKING
YELLOW SKIP WITH SOLID YELLOW CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
9 TRAFFIC DRUMS
4 TRAFFIC DRUMS

EXISTING R/W
PROP. R/W
CONST. LIMITS
EXISTING R/W
PROP. R/W
CONST. LIMITS
PROP. R/W
CONST. LIMITS
EXISTING R/W

+30.00 63.72
+42.16 68.22
+65.00 65.00
+00.00 BEGIN C/A 66.96
+40.00 END C/A 71.17
+85.00 74.16
+90.00 BEGIN C/A 74.38
+65.00 75.00
+00.00 85.00
+75.00 END C/A 84.07
+25.00 BEGIN C/A 83.45
+95.00 END C/A 82.58
+70.00 51.39-62.00
+15.00 BEGIN C/A 50.90-62.00
+05.00 50.54-64.00

STA. 708+63.00
END CONST.
HWY. 367

200

LEGEND
= CONSTRUCTION PAVEMENT MARKING (ARROW)
= CONSTRUCTION PAVEMENT MARKING (WORD)

7/2/2019
R061509.DGN

HWY. 367 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
07-17-19				6	ARK.			
				JOB NO.		061509	71	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

RELOCATE PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 253 LIN. FT.
INSTALL PRECAST CONCRETE BARRIER WITH SPECIAL END UNIT - 53 LIN. FT.

STAGE 2 TRAFFIC
PROPOSED R/W & C/A
CONST. LIMITS
EXISTING R/W
WHITE SOLID CONST. PVMT. MARKING
STAGE 3 350' TRANSITION
PROP. R/W
10 TRAFFIC DRUMS @ 50' O.C.
DBL. YELLOW SOLID CONST. PVMT. MARKING
STA. 220+50.00 HWY. 321 = STA. 220+50.00 STAGE 3 0.00' OFFSET
STA. 224+00.00 HWY. 321 = STA. 224+00.00 STAGE 3 17.00' OFFSET
C.L. STAGE 3
PROP. R/W & C/A
T.C.E.
N 86°38'03" E
N 83°50'34" E
N 89°24'53" E

STAGE 3 TRAFFIC
STA. 230+50.00 HWY. 321 = STA. 230+50.00 STAGE 3 0.00' OFFSET
WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
10 TRAFFIC DRUMS @ 50' O.C.

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STAGE 3
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
07-17-19				6	ARK.			
				JOB NO.		061509	72	349

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

RELOCATE PRECAST CONCRETE BARRIER WITH SPECIAL END UNITS - 306 LIN. FT.

STAGE 2 TRAFFIC
PROPOSED R/W & C/A
CONST. LIMITS
EXISTING R/W
12 TRAFFIC DRUMS @ 50' O.C.
STAGE 4 350' TRANSITION
PROP. R/W
STA. 220+50.00 HWY. 321 = STA. 220+50.00 STAGE 4 0.00' OFFSET
WHITE SOLID CONST. PVMT. MARKING
DBL. YELLOW SOLID CONST. PVMT. MARKING
STA. 224+00.00 HWY. 321 = STA. 224+00.00 STAGE 4 17.00' OFFSET
C.L. STAGE 4
P.I. 227+00.00
STAGE 350' TRANS
N 86°38'03" E
N 89°25'31" E
N 83°51'12" E
T.C.E.
EXISTING R/W & PROP. C/A
DBL. YELLOW SOLID CONST. PVMT. MARKING
8 TRAFFIC DRUMS @ 50' O.C.
STAGE 4 350' TRANSITION
STAGE 2 TRAFFIC
WHITE SOLID CONST. PVMT. MARKING
STA. 230+50.00 HWY. 321 = STA. 230+50.00 STAGE 4 0.00' OFFSET
P.C. 233+13.69
PC233+52.48

STAGE 4
MAINTENANCE OF TRAFFIC DETAILS

7/17/2019

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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
06-27-19				6	ARK.			
07-02-19				JOB NO.		061509	73	349
				(2) PERMANENT PAVEMENT MARKING DETAILS				

LEGEND

= THERMOPLASTIC PAVEMENT MARKING (ARROW)

= THERMOPLASTIC PAVEMENT MARKING (WORD)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

12" THERMOPLASTIC WHITE STOP LINE

270' TAPER

6" THERMOPLASTIC WHITE SOLID

6" THERMOPLASTIC WHITE SKIP LINE WITH R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC WHITE DOTTED (3' STRIPE, 9' GAP)

6" THERMOPLASTIC WHITE SOLID

90' TAPER

6" THERMOPLASTIC DBL. YELLOW SOLID

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC WHITE SKIP LINE WITH R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

C.L. HWY. 321

S-1ST-ST

NALLEY RD.

7/2/2019

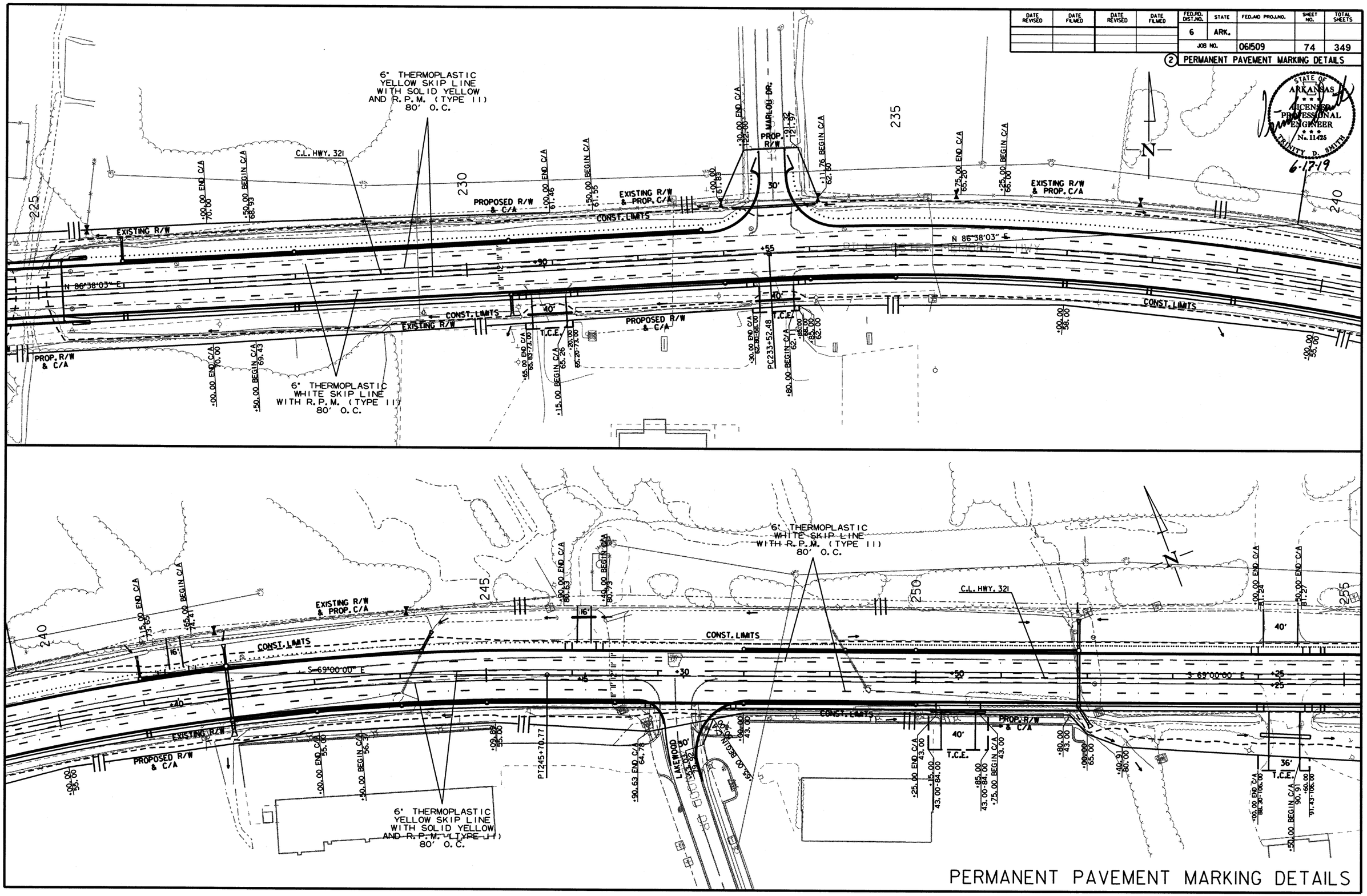
R061509.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	74	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



6/12/2019

R061509.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	75	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

257+00.00 | 100' TAPER | 258+00.00 | 100' TAPER | 259+00.00

260+07.85 | 50' SHLD. TAPER | 260+57.85

6" THERMOPLASTIC YELLOW SOLID

6" THERMOPLASTIC WHITE SKIP LINE WITH R.P.M. (TYPE II) 80' O.C.

C.L. HWY. 321

EXISTING R/W & PROP. C/A

CONST. LIMITS

PROPOSED R/W & C/A

EXISTING R/W

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

10" YELLOW SOLID REFLECTORIZED PAINT ON CURB

6" THERMOPLASTIC YELLOW SOLID

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

274+40.61 | 274+90.61 | 50' SHLD. TAPER

277+00.00 | 100' TAPER | 278+00.00 | 100' TAPER | 279+00.00

PC281+40.52

S 69°00'00" E

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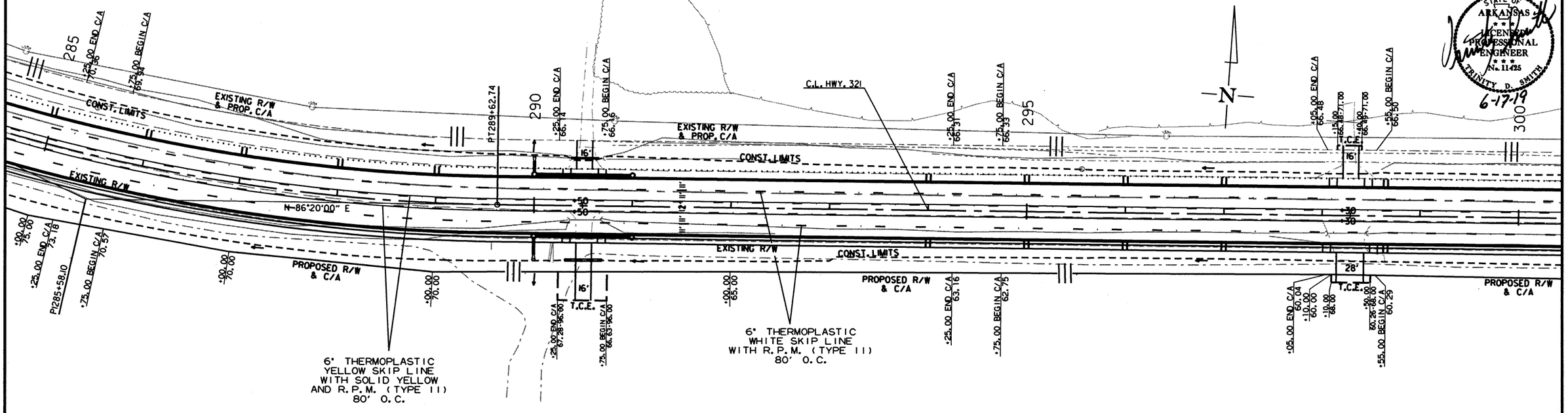
R061509.DGN

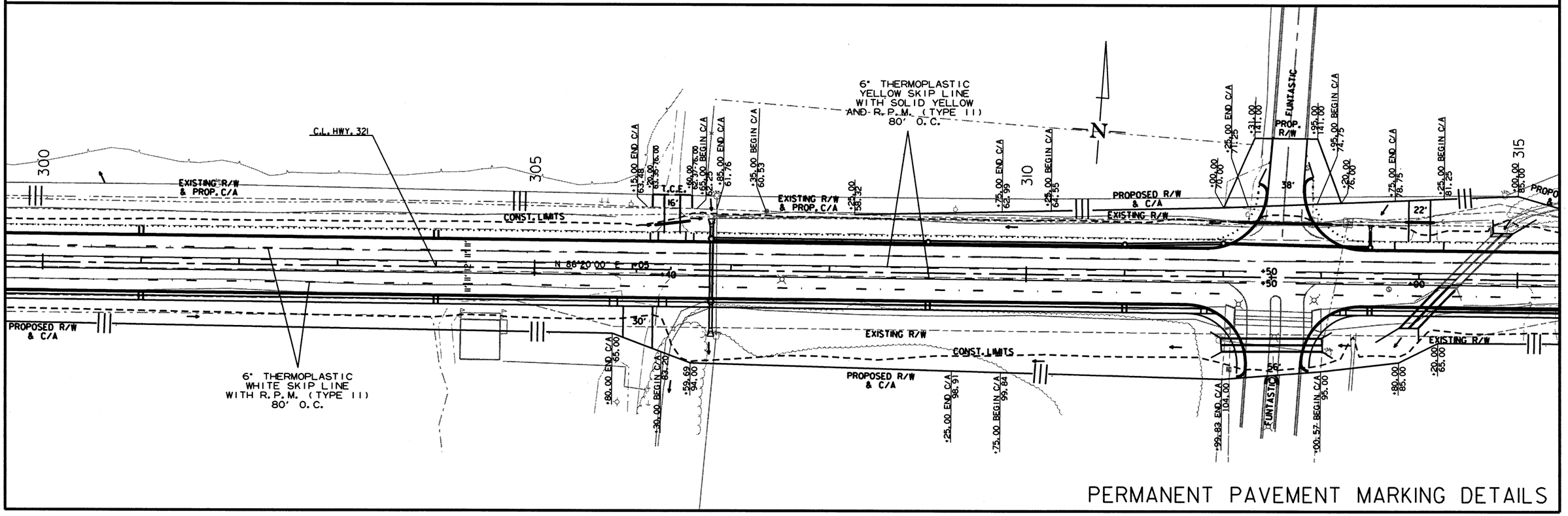
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	76	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19





6/12/2019

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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
07-17-19				6	ARK.			
				JOB NO.		061509	77	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC WHITE SKIP LINE WITH R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC WHITE SOLID

12" THERMOPLASTIC WHITE STOP LINE

12" THERMOPLASTIC WHITE CROSSWALK

6" THERMOPLASTIC DBL. YELLOW SOLID

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC WHITE SKIP LINE WITH R.P.M. (TYPE II) 80' O.C.

LEGEND

= THERMOPLASTIC PAVEMENT MARKING (ARROW)

= THERMOPLASTIC PAVEMENT MARKING (WORD)

7/16/2019

R061509.DGN

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	78	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

6" THERMOPLASTIC WHITE SKIP LINE WITH R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC YELLOW SKIP LINE WITH SOLID YELLOW AND R.P.M. (TYPE II) 80' O.C.

6" THERMOPLASTIC WHITE SOLID

6" THERMOPLASTIC DBL. YELLOW SOLID

12" THERMOPLASTIC WHITE STOP LINE

6" THERMOPLASTIC WHITE DOTTED (3' STRIPE, 9' GAP)

10" YELLOW SOLID REFLECTORIZED PAINT ON CURB

8" THERMOPLASTIC WHITE SOLID PAVEMENT MARKING AROUND ISLAND

100' TRANSITION

STA. 368+56.71
END JOB 061509

LEGEND

= THERMOPLASTIC PAVEMENT MARKING (ARROW)

= THERMOPLASTIC PAVEMENT MARKING (WORD)

6/12/2019

R061509.DGN

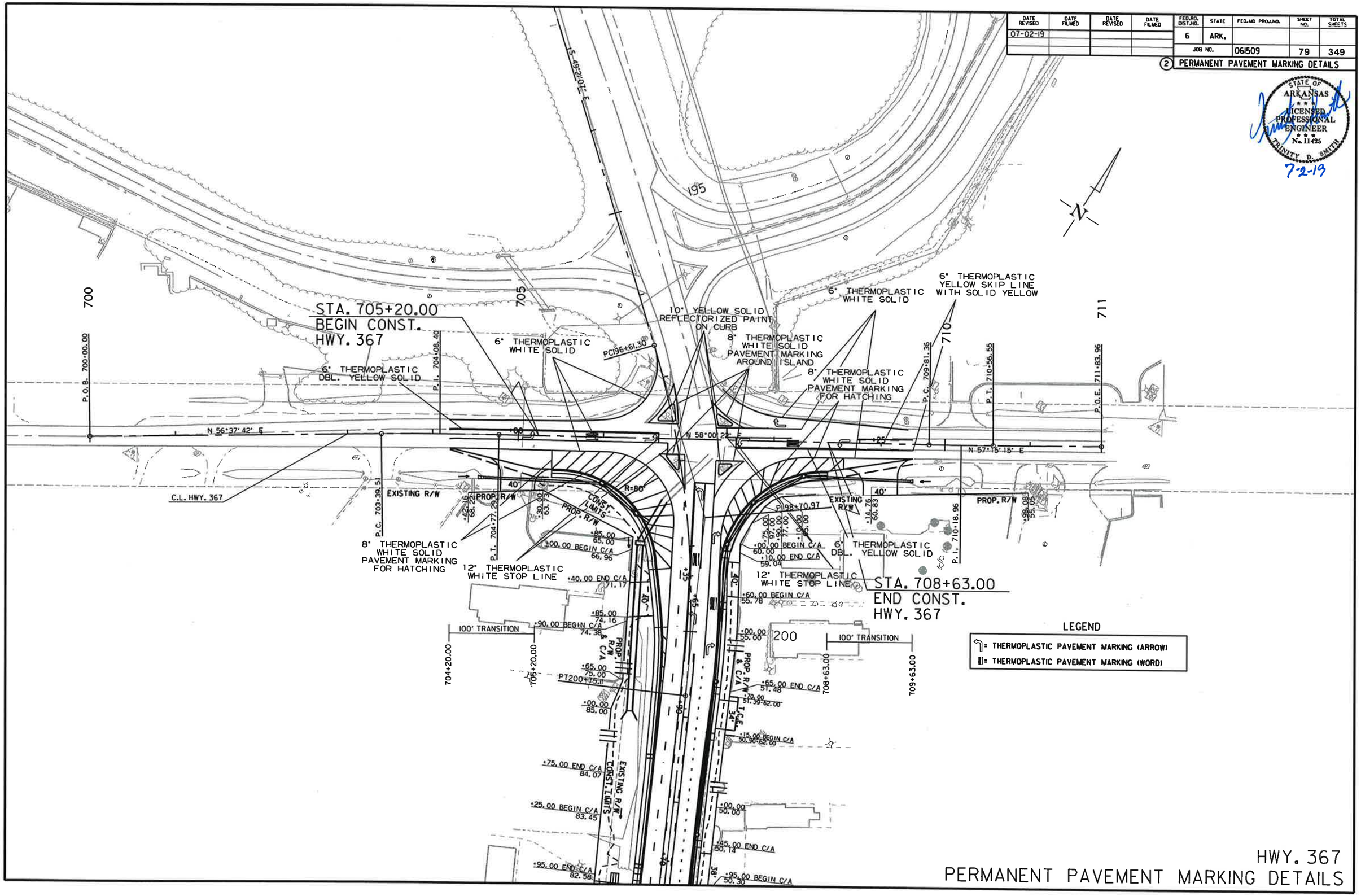
PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	79	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19



7/2/2019

R061509.DGN

HWY. 367
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
07-17-19				6	ARK.			
				JOB NO.		061509	80	349

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

STA. 1300+47.47
BEGIN CONST.
KERR STATION RD.

STA. 1307+25.20
END CONST.
KERR STATION RD.

1300+47.00 — 125' TAPER — 1301+72.00

6" THERMOPLASTIC YELLOW SOLID

6" THERMOPLASTIC DBL. YELLOW SOLID

12" THERMOPLASTIC WHITE CROSSWALK

12" THERMOPLASTIC WHITE STOP LINE

6" THERMOPLASTIC WHITE SOLID

6" THERMOPLASTIC WHITE SOLID

12" THERMOPLASTIC WHITE STOP LINE

12" THERMOPLASTIC WHITE CROSSWALK

6" THERMOPLASTIC YELLOW SOLID

6" THERMOPLASTIC DBL. YELLOW SOLID

LEGEND

= THERMOPLASTIC PAVEMENT MARKING (ARROW)

= THERMOPLASTIC PAVEMENT MARKING (WORD)

KERR STATION RD.

PROPOSED R/W & C/A

EXISTING R/W & PROP. C/A

CONSTRAINTS

330

335

7/16/2019

R061509.DGN

KERR STATION RD.
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
06-27-19				6	ARK.			
07-17-19				JOB NO.		061509	81	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	STAGE 4	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS		REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING						REFLECTORIZED PAINT PAVEMENT MARKING
							WORDS	ARROWS		TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	6" WHITE	6" YELLOW	8" WHITE	12" WHITE	WORDS	ARROWS	10" YELLOW
	LIN. FT. - EACH					LIN. FT.	EACH		LIN. FT.	EACH		LIN. FT.				EACH		LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	72161	71458	4825	4825		153269												
CONSTRUCTION PAVEMENT MARKINGS (WORDS)	6	6					12											
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	9	9						18										
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	4004	3078	325	325					7732									
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)					416					416								
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)					346						346							
THERMOPLASTIC PAVEMENT MARKING WHITE (6")					11969							11969						
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")					42899								42899					
THERMOPLASTIC PAVEMENT MARKING WHITE (8")					1991									1991				
THERMOPLASTIC PAVEMENT MARKING WHITE (12")					1008										1008			
THERMOPLASTIC PAVEMENT MARKING (WORDS)					12											12		
THERMOPLASTIC PAVEMENT MARKING (ARROWS)					25												25	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (10")					1515													1515
TOTALS:						**153269**	**12**	**18**	**7732**	**416**	**346**	**11969**	**42899**	**1991**	**1008**	**12**	**25**	**1515**

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 4	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		EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	6	6	6	6	6	6	96.0										
W20-1	ROAD WORK 1000 FT.	48"x48"	6	6	6	6	6	6	96.0										
W20-1	ROAD WORK 500 FT.	48"x48"	6	6	6	6	6	6	96.0										
W20-1	ROAD WORK AHEAD	48"x48"	8	8	8	8	8	8	128.0										
G20-2	END ROAD WORK	48"x24"	14	14	14	14	14	14	112.0										
G20-1	ROAD WORK NEXT 3 MILES	60"x24"	2	2	2	2	2	2	20.0										
R11-2	ROAD CLOSED	48"x30"	10	8			10	10	100.0										
OM-3L	OBJECT MARKER	12"x36"		7	7		7	7	21.0										
OM-3R	OBJECT MARKER	12"x36"	42			7	42	42	126.0										
R4-1	DO NOT PASS	24"x30"	26	26	26	26	26	26	130.0										
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	6	6			6	6	54.0										
W8-1	BUMP	30"x30"	6	6			6	6	37.5										
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"x48"	2	2	2	2	2	2	64.0										
SPECIAL	WORK WITH US SIGN (USE CAUTION, SLOW DOWN)	96"x48"	2	2	2	2	2	2	64.0										
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE									10									
	VERTICAL PANELS		341	341			341				341								
	TRAFFIC DRUMS		432	548	20	20	548					548							
	TYPE III BARRICADE-RT. (16')		5	4			5						80						
	TYPE III BARRICADE-LT. (16')		5	4			5							80					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1858		53		1911								1911				
	RELOCATING PRECAST CONCRETE BARRIER			253	253	306	812									812			
	TEMPORARY IMPACT ATTENUATION BARRIER		6				6										6		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		6	1			7											7	
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)			1			1												1
TOTALS:									**1144.5**	**10**	**341**	**548**	**80**	**80**	**1911**	**812**	**6**	**7**	**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 THE FULL LENGTH OF THE JOB. 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.

7/17/2019

R061509.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.		061509	82	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

REMOVAL AND DISPOSAL OF ITEMS (BOX 1 OF 3)

STATION	STATION	LOCATION	CURB	CONCRETE PAVEMENT	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	WALKS	SIGN FOUNDATIONS	GUARDRAIL	BUILDINGS	SIGNS	PLANTERS	LUMINAIRE POLE AND FOUNDATION	CONCRETE SLAB	POSTS
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	LIN. FT.	EACH	EACH	EACH	EACH	SQ. YD.	EACH
198+10	198+67	MAIN LANES - RT.		66											
198+44	198+44	MAIN LANES - RT.													
198+50	198+50	MAIN LANES - LT.											1		
198+80	198+80	MAIN LANES - LT.											1		
198+86	198+86	MAIN LANES - LT.						1			1				
198+98	198+98	MAIN LANES - LT.										2			
199+20	199+20	MAIN LANES - LT.											1		
199+22	202+95	MAIN LANES - LT.	440												
199+29	199+29	MAIN LANES - RT.						1			1				
199+35	199+35	MAIN LANES - LT.				58									
199+36	199+80	MAIN LANES - RT.	88												
199+65	199+65	MAIN LANES - RT.				196									
199+78	199+92	MAIN LANES - LT.												14.0	
199+75	199+75	MAIN LANES - RT.						1			1		1		
200+02	200+02	MAIN LANES - LT.						1			1				
200+57	200+62	MAIN LANES - RT.	30												
200+90	200+90	MAIN LANES - LT.				63									
201+30	202+22	MAIN LANES - LT.		101											
201+76	201+76	MAIN LANES - LT.						1			1				
202+25	202+25	MAIN LANES - LT.											1		
203+00	203+00	MAIN LANES - LT.													1
203+01	203+01	MAIN LANES - RT.						1			1				
203+05	203+20	MAIN LANES - LT.					10								
203+06	203+70	MAIN LANES - RT.	190												
203+20	203+20	MAIN LANES - RT.				143									
203+51	203+51	MAIN LANES - RT.						1			1				
203+80	203+80	MAIN LANES - RT.													1
204+25	204+32	MAIN LANES - RT.	32												
204+40	204+40	MAIN LANES - RT.						1			1				
204+55	204+70	MAIN LANES - LT.				10									
205+04	205+32	MAIN LANES - RT.							28						
205+15	205+15	MAIN LANES - LT.						1			1				
205+31	205+59	MAIN LANES - RT.							28						
205+36	205+36	MAIN LANES - RT.						1			1				
205+95	206+53	MAIN LANES - LT.					28								
206+53	209+89	MAIN LANES - LT.	463												
206+58	206+58	MAIN LANES - LT.						1			1	1			
206+80	206+80	MAIN LANES - LT.				164									
207+61	207+61	MAIN LANES - LT.						2			2				
207+87	207+87	MAIN LANES - LT.				132									
208+45	208+45	MAIN LANES - LT.				130									
208+80	208+80	MAIN LANES - LT.						1			1				
208+85	209+45	MAIN LANES - LT.		126											
209+70	209+70	MAIN LANES - LT.				121									
212+74	213+18	MAIN LANES - RT.	105												
212+81	213+18	MAIN LANES - LT.	115												
213+00	213+00	MAIN LANES - LT.				77									
213+00	213+00	MAIN LANES - RT.				382									
221+46	221+46	MAIN LANES - LT.						1			1				
221+73	222+17	MAIN LANES - LT.	34												
221+78	221+78	MAIN LANES - RT.						1			1				
222+20	222+20	MAIN LANES - RT.						1			1	1			
223+43	224+46	MAIN LANES - RT.							103						
223+68	224+47	MAIN LANES - LT.							79						
224+27	224+43	MAIN LANES - LT. AND RT.	34												
224+61	224+61	MAIN LANES - LT.						1			1				
SUBTOTALS (BOX 1 OF 3):			**1531**	**293**		**1476**	**38**	**18**	**238**		**18**	**4**	**5**	**14**	**2**

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.

5/13/2019

R061509.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.		061509	83	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

REMOVAL AND DISPOSAL OF ITEMS (BOX 2 OF 3)

STATION	STATION	LOCATION	CURB	CONCRETE PAVEMENT	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	WALKS	SIGN FOUNDATIONS	GUARDRAIL	BUILDINGS	SIGNS	PLANTERS	LUMINAIRE POLE AND FOUNDATION	CONCRETE SLAB	POSTS
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	LIN. FT.	EACH	EACH	EACH	EACH	SQ. YD.	EACH
225+36	226+40	MAIN LANES - LT.							104						
225+36	226+15	MAIN LANES - RT.							79						
225+38	225+55	MAIN LANES - LT. AND RT.	34												
230+73	231+14	MAIN LANES - RT.	75												
230+90	230+90	MAIN LANES - RT.				249									
233+39	233+80	MAIN LANES - RT.	78												
233+41	233+80	MAIN LANES - LT.	53												
233+55	233+55	MAIN LANES - LT.				186									
233+55	233+55	MAIN LANES - RT.				220									
242+09	242+95	MAIN LANES - RT.					29								
244+67	244+67	MAIN LANES - RT.						1			1				
246+86	246+86	MAIN LANES - RT.						1			1				
247+02	247+40	MAIN LANES - RT.	144												
247+37	251+73	MAIN LANES - RT.					135								
250+15	250+85	MAIN LANES - RT.	70												
250+40	250+40	MAIN LANES - RT.						1			1				
251+91	252+11	MAIN LANES - RT.	24												
254+00	254+00	MAIN LANES - RT.													1
254+25	254+25	MAIN LANES - LT.				185									
254+60	254+60	MAIN LANES - RT.													1
255+29	255+29	MAIN LANES - RT.						2			1				
257+53	257+53	MAIN LANES - RT.													
259+46	260+49	MAIN LANES - RT.							103						
259+57	260+33	MAIN LANES - LT.							76						
261+28	262+29	MAIN LANES - LT.							101						
261+43	262+19	MAIN LANES - RT.							76						
264+75	265+76	MAIN LANES - RT.							101						
265+00	265+76	MAIN LANES - LT.							76						
274+56	275+57	MAIN LANES - LT.							101						
274+56	275+29	MAIN LANES - RT.							73						
280+20	280+20	MAIN LANES - RT.						1			2				
289+57	289+57	MAIN LANES - RT.						1			1				
290+20	290+20	MAIN LANES - RT.						1			2				
293+62	293+62	MAIN LANES - RT.						1			1				
298+70	303+00	MAIN LANES - RT.													24
304+25	304+65	MAIN LANES - RT.								1					
306+25	306+25	MAIN LANES - RT.						1			1				
312+24	312+83	MAIN LANES - RT.	371		92										
312+46	312+82	MAIN LANES - LT.	224												
312+52	312+52	MAIN LANES - RT.						1			1				
SUBTOTALS (BOX 2 OF 3):			**1073**		**92**	**840**	**164**	**11**	**890**	**1**	**12**				**26**

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.

5/13/2019

R061509.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.		061509	84	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

REMOVAL AND DISPOSAL OF ITEMS (BOX 3 OF 3)

STATION	STATION	LOCATION	CURB	CONCRETE PAVEMENT	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	WALKS	SIGN FOUNDATIONS	GUARDRAIL	BUILDINGS	SIGNS	PLANTERS	LUMINAIRE POLE AND FOUNDATION	CONCRETE SLAB	POSTS
			LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EACH	LIN. FT.	EACH	EACH	EACH	EACH	SQ. YD.	EACH
314+30	314+30	MAIN LANES - RT.													
314+81	314+81	MAIN LANES - LT.													
327+97	329+98	MAIN LANES - LT.	265												
328+10	328+10	MAIN LANES - LT.				89									
328+25	329+70	MAIN LANES - LT.		74											
329+85	329+85	MAIN LANES - LT.				94									
329+85	329+85	MAIN LANES - RT.				173									
331+28	331+28	MAIN LANES - RT.						1			1				
332+65	332+65	MAIN LANES - LT.			148										
333+50	333+50	MAIN LANES - LT.						1			1				
348+84	349+24	MAIN LANES - RT.	103												
349+05	349+05	MAIN LANES - RT.				186									
355+29	355+29	MAIN LANES - LT.													
355+70	355+70	MAIN LANES - LT.													
356+01	356+39	MAIN LANES - LT.	137												
356+20	356+20	MAIN LANES - LT.				293									
356+44	356+44	MAIN LANES - LT.													
363+70	368+51	MAIN LANES - RT.	535												
363+90	363+90	MAIN LANES - RT.				73									
364+10	365+55	MAIN LANES - RT.					79								
365+75	365+75	MAIN LANES - RT.				119									
365+96	367+44	MAIN LANES - RT.					81								
368+01	368+01	MAIN LANES - RT.						1			1				
704+80	705+18	HWY. 367 - RT.	93												
705+00	705+00	HWY. 367 - RT.				238									
709+03	709+44	HWY. 367 - RT.	65												
709+25	709+25	HWY. 367 - RT.				190									
1300+95	1301+83	KERR STATION ROAD - LT.					49								
1302+00	1302+00	KERR STATION ROAD - LT.				143									
1302+15	1302+51	KERR STATION ROAD - LT.					5								
1303+09	1303+49	KERR STATION ROAD - LT.					19								
SUBTOTALS (BOX 1 OF 3):			1531	293		1476	38	18	238		18	4	5	14	2
SUBTOTALS (BOX 2 OF 3):			1073		92	840	164	11	890	1	12				26
SUBTOTALS (BOX 3 OF 3):			1198	74	148	1598	233	3			3				
TOTALS:			**3802**	**367**	**240**	**3914**	**435**	**32**	**1128**	**1**	**33**	**4**	**5**	**14**	**28**

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.

5/13/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	85	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
200+00	201+00	HWY. 321	1	1
203+00	212+00	HWY. 321	9	9
213+00	222+00	HWY. 321	9	9
224+00	234+00	HWY. 321	10	10
250+00	278+00	HWY. 321	28	28
306+00	312+00	HWY. 322	6	6
314+00	316+00	HWY. 323	2	2
324+00	325+00	HWY. 324	1	1
332+00	364+00	HWY. 325	32	32
366+00	368+00	HWY. 326	2	2
TOTALS:			100	100

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
206+62	207+05	MAIN LANES - LT.		1
216+79	218+91	MAIN LANES - RT.	212	
218+07	219+04	MAIN LANES - LT.	108	
219+67	219+95	MAIN LANES - RT.		1
220+31	220+48	MAIN LANES - RT.	32	
220+48	220+90	MAIN LANES - RT.		1
220+90	224+00	MAIN LANES - RT.	310	
225+38	233+25	MAIN LANES - LT.	787	
234+10	244+12	MAIN LANES - LT.	1002	
257+19	257+27	MAIN LANES - LT.	8	
257+81	260+96	MAIN LANES - RT.	315	
257+81	260+39	MAIN LANES - LT.	258	
261+10	265+78	MAIN LANES - LT.	561	
261+63	265+75	MAIN LANES - RT.	508	
350+58	351+72	MAIN LANES - LT.	114	
351+48	355+76	MAIN LANES - RT.	438	
352+67	353+74	MAIN LANES - LT.	107	
353+74	355+28	MAIN LANES - LT.	193	
356+36	358+88	MAIN LANES - RT.	252	
358+38	358+58	MAIN LANES - LT.	40	
358+84	361+94	MAIN LANES - LT.	316	
362+78	366+26	MAIN LANES - LT.	349	
TOTALS:			5910	3

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES	7487	79487	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	5189	25702	
ENTIRE	PROJECT	APPROACHES	4460	50	
ENTIRE	PROJECT	TEMPORARY APPROACHES		720	
ENTIRE	PROJECT	STAGE 1-HWY. 367	62	792	
ENTIRE	PROJECT	STAGE 2-HWY. 367	26		
ENTIRE	PROJECT	STAGE 1-KERR STATION ROAD	169	628	
ENTIRE	PROJECT	STAGE 2-KERR STATION ROAD	407	414	
224+53.30	225+28.30	BRIDGE EXCAVATION	25		
260+66.50	261+41.50	BRIDGE EXCAVATION	138		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			1000
		DIRECTED BY THE ENGINEER			
TOTALS:			17963	107793	1000

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

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS	JUNCTION BOXES	DROP INLETS
		EACH	EACH	EACH	EACH
199+65	MAIN LANES - RT.	3			
200+90	MAIN LANES - LT.	1			
202+70	MAIN LANES - LT.	1			
203+15	MAIN LANES - LT.	1			
203+20	MAIN LANES - RT.	3			
204+65	MAIN LANES - LT.	1			
204+75	MAIN LANES - LT.			1	
204+90	MAIN LANES - LT.	1			1
205+25	MAIN LANES - RT.	2			
206+80	MAIN LANES - LT.	1			
207+80	MAIN LANES - LT.	1			
208+45	MAIN LANES - RT.	2			
209+10	MAIN LANES - LT.	2		1	
211+10	MAIN LANES - LT.	1			1
212+28	MAIN LANES - LT.	1			1
213+00	MAIN LANES - LT.	1			
213+00	MAIN LANES - RT.	2			
221+95	MAIN LANES - LT.	1			
230+90	MAIN LANES - RT.	1			
233+55	MAIN LANES - LT.	1			
233+55	MAIN LANES - RT.	1			
241+40	MAIN LANES - LT.	1			
246+15	MAIN LANES - LT.	1			
249+45	MAIN LANES - RT.	1			1
251+90	MAIN LANES	1			
254+25	MAIN LANES - RT.	1			
290+50	MAIN LANES - LT.	1			
290+50	MAIN LANES - RT.	1			
298+30	MAIN LANES - RT.	1			
306+80	MAIN LANES	1			
312+50	MAIN LANES - LT.	1			
312+50	MAIN LANES - RT.		1		
314+00	MAIN LANES - LT.	1			
315+30	MAIN LANES - RT.	1			
349+05	MAIN LANES - RT.	1			
351+20	MAIN LANES - RT.	1			1
356+20	MAIN LANES - LT.	2			
358+75	MAIN LANES - LT.	1			
361+20	MAIN LANES - RT.	1			
363+90	MAIN LANES - RT.	1			
364+00	MAIN LANES - RT.				1
365+20	MAIN LANES - RT.				1
365+40	MAIN LANES - RT.				1
365+75	MAIN LANES - RT.	1			
366+00	MAIN LANES - RT.				1
366+75	MAIN LANES - LT.	1			
705+00	HWY. 367 - RT.	1			
709+25	HWY. 367 - RT.	1			
1302+00	KERR STATION RD. - LT.	1			
TOTALS:		52	1	2	9

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

7/17/2019

R061509.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-02-19				6	ARK.			
				JOB NO.		061509	86	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
203+00	34	56	46.80	92	3	41.50	12 RT	0-5	32	16	A-6(14)	BR/GR
203+00	34	56	46.80	92	3	41.50	21 RT	0-5	23	7	A-4(3)	BROWN
203+00	34	56	46.80	92	3	41.60	30 RT	0-5	28	12	A-6(8)	BROWN
211+00	34	56	39.80	92	3	37.10	12 LT	0-5	26	11	A-6(8)	GRAY
211+00	34	56	39.90	92	3	36.80	21 LT	0-5	27	11	A-6(8)	GRAY
219+00	34	56	34.90	92	3	30.20	12 RT	0-5	27	10	A-4(7)	BR/GR
219+00	34	56	34.90	92	3	30.10	21 LT	0-5	23	8	A-4(4)	BR/GR
219+00	34	56	34.90	92	3	30.10	30 RT	0-5	24	8	A-4(4)	BR/GR
230+00	34	56	35.50	92	3	16.90	6 RT	0-5	26	9	A-4(7)	GRAY
230+00	34	56	35.40	92	3	16.90	18 RT	0-5	25	8	A-4(5)	GRAY
230+00	34	56	35.40	92	3	16.90	27 RT	0-5	24	6	A-4(4)	BR/GR
238+00	34	56	35.90	92	3	7.30	6 LT	0-5	25	6	A-4(4)	GRAY
238+00	34	56	36.10	92	3	7.30	18 LT	0-5	25	10	A-4(7)	GRAY
238+00	34	56	36.20	92	3	7.30	27 LT	0-5	26	10	A-4(5)	BROWN
246+00	34	56	34.90	92	2	59.40	6 RT	0-5	27	9	A-4(7)	GRAY
246+00	34	56	34.70	92	2	57.80	18 RT	0-5	27	9	A-4(7)	GRAY
246+00	34	56	34.70	92	2	57.80	27 RT	0-5	26	8	A-4(2)	BR/GR
255+00	34	56	31.70	92	2	48.10	6 LT	0-5	31	14	A-6(12)	BROWN
255+00	34	56	32.00	92	2	47.60	18 LT	0-5	28	11	A-6(8)	BROWN
255+00	34	56	32.00	92	2	47.60	27 LT	0-5	28	10	A-4(8)	BR/GR
261+00	34	56	30.30	92	2	43.60	6 RT	0-5	24	8	A-4(5)	BR/GR
261+00	34	56	29.50	92	2	41.00	18 RT	0-5	24	7	A-4(4)	BROWN
261+00	34	56	29.50	92	2	41.00	27 RT	0-5	25	7	A-4(1)	BROWN
280+00	34	56	25.20	92	2	27.20	6 LT	0-5	40	22	A-6(12)	BROWN
280+00	34	56	23.10	92	2	19.60	18 LT	0-5	38	18	A-6(6)	BROWN
280+00	34	56	23.20	92	2	19.60	27 LT	0-5	39	27	A-6(15)	BROWN
288+00	34	56	21.30	92	2	14.20	6 RT	0-5	39	25	A-6(8)	GRAY
288+00	34	56	20.40	92	2	10.60	18 RT	0-5	42	29	A-7-6(12)	BROWN
288+00	34	56	20.40	92	2	10.70	27 RT	0-5	37	26	A-6(15)	BR/GR
296+00	34	56	20.40	92	2	4.20	6 LT	0-5	27	10	A-4(6)	GRAY
296+00	34	56	20.80	92	2	1.10	18 LT	0-5	26	9	A-4(3)	GRAY
304+00	34	56	20.90	92	1	52.90	6 RT	0-5	26	11	A-6(6)	GRAY
304+00	34	56	21.00	92	1	51.00	18 RT	0-5	23	4	A-4(1)	GRAY
304+00	34	56	21.00	92	1	51.00	27 RT	0-5	21	5	A-4(1)	GRAY
312+00	34	56	21.30	92	1	43.80	12 LT	0-5	26	13	A-6(2)	BROWN
312+00	34	56	21.90	92	1	41.60	21 LT	0-5	ND	ND	ND	BROWN
320+00	34	56	22.00	92	1	32.00	6 RT	0-5	35	22	A-6(14)	GRAY
320+00	34	56	22.00	92	1	31.90	18 RT	0-5	31	18	A-6(10)	GRAY
320+00	34	56	22.00	92	1	32.00	27 RT	0-5	34	20	A-6(12)	BROWN
328+00	34	56	22.20	92	1	28.10	6 LT	0-5	28	15	A-6(7)	BROWN
328+00	34	56	22.80	92	1	22.40	18 LT	0-5	36	23	A-6(10)	BROWN
328+00	34	56	22.90	92	1	22.40	27 LT	0-5	32	19	A-6(11)	BROWN
338+00	34	56	21.90	92	1	16.40	12 RT	0-5	31	16	A-6(8)	BR/GR
338+00	34	56	20.90	92	1	10.60	20 RT	0-5	36	23	A-6(12)	BR/GR
338+00	34	56	20.90	92	1	10.60	27 RT	0-5	25	11	A-6(3)	BR/GR
346+00	34	56	18.80	92	1	2.40	12 LT	0-5	46	33	A-7-6(15)	BROWN
346+00	34	56	18.80	92	1	1.50	18 LT	0-5	28	12	A-6(5)	BROWN
346+00	34	56	18.80	92	1	1.50	27 LT	0-5	39	22	A-6(12)	BR/GR
354+00	34	56	17.70	92	0	52.60	12 RT	0-5	22	7	A-4(1)	BR/GR
354+00	34	56	17.70	92	0	52.50	18 RT	0-5	24	11	A-6(4)	BROWN
362+00	34	56	17.70	92	0	45.10	12 LT	0-5	23	7	A-4(2)	BROWN
362+00	34	56	17.90	92	0	43.00	18 LT	0-5	31	16	A-6(9)	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.
ND - NOT DETERMINABLE

CONCRETE WALKS & HAND RAILING

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS	HAND RAILING	CONCRETE WALKS (TYPE SPECIAL)
			LIN. FT.	SQ.YD.	LIN. FT.	SQ. YD.
197+85	199+31	MAIN LANES - RT.	179	99		
198+32	199+01	MAIN LANES - LT.	165		165	110
199+69	200+59	MAIN LANES - LT.	90	50		
199+99	202+86	MAIN LANES - RT.	287	159		
201+21	202+37	MAIN LANES - LT.	116	64		
203+03	205+18	MAIN LANES - LT.	215	119		
203+54	204+97	MAIN LANES - RT.	143	79		
205+38	208+15	MAIN LANES - RT.	277	154		
205+59	206+48	MAIN LANES - LT.	89	49		
207+12	207+53	MAIN LANES - LT.	41	23		
208+21	209+38	MAIN LANES - LT.	117	65		
208+75	212+66	MAIN LANES - RT.	391	217		
210+02	212+66	MAIN LANES - LT.	264	147		
213+34	221+56	MAIN LANES - LT.	822	457		
213+34	219+63	MAIN LANES - RT.	629	349		
217+50	219+25	MAIN LANES - RT.	175		175	
220+07	220+31	MAIN LANES - RT.	24	13		
220+99	224+53	MAIN LANES - RT.	354	197		
225+28	230+56	MAIN LANES - RT.	528	293		
231+24	233+21	MAIN LANES - RT.	197	109		
233+89	246+98	MAIN LANES - RT.	1309	727		
247+75	250+24	MAIN LANES - RT.	249		249	166
250+76	251+85	MAIN LANES - RT.	109		109	73
251+85	252+00	MAIN LANES - RT.	15		15	
251+85	253+93	MAIN LANES - RT.	208	116		
254+57	260+67	MAIN LANES - RT.	610	339		
261+42	265+90	MAIN LANES - RT.	448	249		
274+41	290+28	MAIN LANES - RT.	1587	882		
290+72	298+02	MAIN LANES - RT.	730	406		
298+58	305+76	MAIN LANES - RT.	718	399		
306+34	311+93	MAIN LANES - RT.	559	311		
313+10	329+53	MAIN LANES - RT.	1643	913		
313+50	314+00	MAIN LANES - RT.	50		50	
330+17	332+90	MAIN LANES - RT.	273	152		
333+13	355+87	MAIN LANES - LT.	2274	1263		
333+60	348+71	MAIN LANES - RT.	1511	839		
349+39	360+91	MAIN LANES - RT.	1152	640		
356+53	358+49	MAIN LANES - LT.	196	109		
359+01	361+96	MAIN LANES - LT.	295	164		
361+49	363+57	MAIN LANES - RT.	208	116		
362+64	368+18	MAIN LANES - LT.	554	308		
364+23	365+41	MAIN LANES - RT.	118	66		
366+09	367+43	MAIN LANES - RT.	134	74		
TOTALS:				10716	763	349

CONCRETE BARRIER WALL

STATION	STATION	LOCATION	MEDIAN TYPE B
			LIN. FT.
260+07	260+58	MAIN LANES	51
261+32	265+91	MAIN LANES	459
274+40	274+91	MAIN LANES	51
TOTAL:			561

CONCRETE ISLAND

STATION	STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
				SQ.YD.
257+96	260+07	MAIN LANES	A	223
274+91	278+04	MAIN LANES	A	335
TOTAL:				558

5/13/2019

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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.		061509	87	349

(2) QUANTITIES

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 2	TYPE 3
		SQ.YD.	
204+84	MAIN LANES - RT.		3.3
205+05	MAIN LANES - LT.		3.3
205+45	MAIN LANES - RT.		3.3
205+66	MAIN LANES - LT.		3.3
221+40	MAIN LANES - LT.		3.3
246+86	MAIN LANES - RT.		3.3
247+86	MAIN LANES - RT.		3.3
311+78	MAIN LANES - RT.		3.3
313+20	MAIN LANES - RT.		3.3
332+43	MAIN LANES - LT.	14.2	
332+56	MAIN LANES - RT.		3.7
332+80	MAIN LANES - RT.		3.3
333+19	MAIN LANES - LT.		3.3
333+38	MAIN LANES - LT.		3.7
333+55	MAIN LANES - RT.	14.3	
368+00	MAIN LANES - LT.		3.3
TOTALS:		28.5	47.0

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			8500	34
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			8500	34

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

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

CULVERT CLEAN OUT

STATION	LOCATION	EACH
198+25	MAIN LANES	1
259+63	MAIN LANES	1
316+43	MAIN LANES	1
TOTAL:		3

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
241+00.00	243+00.00	RT. OF MAIN LANES	200.00	177.78
279+42.00	280+00.00	RT. OF MAIN LANES	58.00	51.56
353+65.00	357+68.00	LT. OF MAIN LANES	403.00	358.22
TOTAL:				587.56

NOTE: AVERAGE WIDTH = 8'-0"

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)	* 16'-0" GATES
			LIN. FT.	EACH
216+79	218+91	MAIN LANES - RT.	212	
218+07	219+04	MAIN LANES - LT.	108	
219+67	219+94	MAIN LANES - RT.		1
225+38	233+25	MAIN LANES - LT.	787	
234+10	244+12	MAIN LANES - LT.	1002	
257+80	260+39	MAIN LANES - LT.	307	
258+40	261+05	MAIN LANES - RT.	265	
261+09	265+78	MAIN LANES - LT.	624	
261+80	265+71	MAIN LANES - RT.	516	
351+48	355+75	MAIN LANES - RT.	434	
356+36	358+88	MAIN LANES - RT.	252	
TOTALS:			4507	1

* DENOTES ALTERNATE BID ITEM.

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	SOLID SODDING	WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	M. GAL.
353+00.00	355+00.00	RT. OF MAIN LANES	200.00	11.33	5.00	251.78	88.89	1.12
TOTALS:						251.78	88.89	1.12

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	8	4	2
TOTALS:	8	4	2

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL: SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY EROSION CONTROL: TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET FILTER SOCK (12") (E-13)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						47.64	47.64	971.9		354		8010			415
ENTIRE	PROJECT	STAGE 1	22.70	45.40	22.70	2315.4	22.70	27.64	27.64	563.9	88	75	1886	12910	422	422	999
ENTIRE	PROJECT	STAGE 2	13.52	27.04	13.52	1379.0	13.52	20.10	20.10	410.0		183	2046	8985			470
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			9.06	18.12	9.06	924.1	9.06	24.00	24.00	489.6	22	153	983	7477	106	106	472
TOTALS:			45.28	90.56	45.28	4618.5	45.28	119.38	119.38	2435.4	110	765	4915	37382	528	528	2356

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
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

5/13/2019

R061509.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	88	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE 1 SPECIAL)	APPROACH GUTTER (TYPE 2 SPECIAL)	APPROACH GUTTER (TYPE 3 SPECIAL)	APPROACH GUTTER (TYPE 4 SPECIAL)	APPROACH GUTTER (TYPE 5 SPECIAL)	APPROACH GUTTER (TYPE 6 SPECIAL)	APPROACH GUTTER (TYPE 7 SPECIAL)	APPROACH GUTTER (TYPE 8 SPECIAL)	APPROACH SLABS (TYPE SPECIAL)	APPROACH SLABS (TYPE C2)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	POUND	TON
224+16.80	224+53.30	WHITE OAK BRANCH									113.35		14372	67.8
225+28.30	225+64.80	WHITE OAK BRANCH									113.35		14372	67.8
260+24.36	260+60.86	BAYOU TWO PRAIRIE - RT. OF 06466	11.83										668	10.8
260+35.64	260+72.14	BAYOU TWO PRAIRIE - LT. OF A6466		9.55									540	8.5
260+35.64	260+72.14	BAYOU TWO PRAIRIE										49.15	5980	27.5
261+35.86	261+72.36	BAYOU TWO PRAIRIE - RT. OF 06466			14.02								799	12.3
261+47.14	261+83.64	BAYOU TWO PRAIRIE - LT. OF A6466				10.89							650	10.7
261+47.14	261+83.64	BAYOU TWO PRAIRIE										49.15	5980	27.5
265+53.90	265+90.40	DRAIN TWO & UPRR - RT. OF 06467					13.47						758	11.4
265+53.90	265+90.40	DRAIN TWO & UPRR - LT. OF A6467						10.99					647	10.5
265+53.90	265+90.40	DRAIN TWO & UPRR										49.15	5980	27.5
274+40.60	274+77.10	DRAIN TWO & UPRR - RT. OF 06467							12.77				710	11.4
274+40.60	274+77.10	DRAIN TWO & UPRR - LT. OF A6467								12.61			519	8.5
274+40.60	274+77.10	DRAIN TWO & UPRR										49.15	5980	27.5
TOTALS:			11.83	9.55	14.02	10.89	13.47	10.99	12.77	12.61	226.70	196.60	57955	329.7

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	1180
ENGINEER	
TOTAL:	1180

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")	CONCRETE CURB (TYPE E)
			LIN. FT.	LIN. FT.
197+85	205+07	MAIN LANES - RT.	787	
198+32	205+27	MAIN LANES - LT.	805	
205+29	247+08	MAIN LANES - RT.	4154	
205+49	221+87	MAIN LANES - LT.	1672	
208+07	208+77	MAIN LANES - LT.		70
222+15	233+46	MAIN LANES - LT.	1153	
247+45	312+25	MAIN LANES - RT.	5649	
233+76	312+46	MAIN LANES - LT.	7040	
312+45	312+60	MAIN LANES - RT.	26	
312+79	332+96	MAIN LANES - RT.	2079	
312+81	332+64	MAIN LANES - LT.	2110	
333+03	368+60	MAIN LANES - LT.	3649	
333+39	368+53	MAIN LANES - RT.	3643	
TOTALS:			32767	70

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
224+55	MAIN LANES - LT.	1
257+50	MAIN LANES - RT.	1
261+00	MAIN LANES - LT.	1
261+00	MAIN LANES - RT.	1
267+00	MAIN LANES - LT.	1
267+00	MAIN LANES - RT.	1
314+90	MAIN LANES - RT.	1
TOTAL:		6

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

SOLID SODDING

STATION	STATION	LOCATION	LENGTH	SOLID SODDING	WATER
			LIN. FT.	SQ. YD.	M. GAL.
197+85	199+31	MAIN LANES - RT.	179	60	0.8
198+32	199+01	MAIN LANES - LT.	157	52	0.7
199+69	200+59	MAIN LANES - LT.	90	30	0.4
199+99	202+86	MAIN LANES - RT.	287	96	1.2
201+21	202+37	MAIN LANES - LT.	116	39	0.5
203+03	205+18	MAIN LANES - LT.	215	72	0.9
203+54	204+97	MAIN LANES - RT.	143	48	0.6
205+38	208+15	MAIN LANES - RT.	277	92	1.2
205+59	206+48	MAIN LANES - LT.	89	30	0.4
207+12	207+53	MAIN LANES - LT.	41	14	0.2
208+21	209+38	MAIN LANES - LT.	117	39	0.5
208+75	212+66	MAIN LANES - RT.	391	130	1.6
210+02	212+66	MAIN LANES - LT.	264	88	1.1
213+34	221+56	MAIN LANES - LT.	822	274	3.5
213+34	219+63	MAIN LANES - RT.	629	210	2.6
220+07	220+31	MAIN LANES - RT.	24	8	0.1
220+99	224+53	MAIN LANES - RT.	354	118	1.5
225+28	230+56	MAIN LANES - RT.	528	176	2.2
231+24	233+21	MAIN LANES - RT.	197	66	0.8
233+89	246+98	MAIN LANES - RT.	1309	436	5.5
247+75	250+24	MAIN LANES - RT.	249	83	1.0
250+76	251+85	MAIN LANES - RT.	109	36	0.5
251+85	253+93	MAIN LANES - RT.	208	69	0.9
254+57	260+67	MAIN LANES - RT.	610	203	2.6
261+42	265+90	MAIN LANES - RT.	448	149	1.9
274+41	290+28	MAIN LANES - RT.	1587	529	6.7
290+72	298+02	MAIN LANES - RT.	730	243	3.1
298+58	305+76	MAIN LANES - RT.	718	239	3.0
306+34	311+93	MAIN LANES - RT.	559	186	2.3
313+10	329+53	MAIN LANES - RT.	1643	548	6.9
330+17	332+90	MAIN LANES - RT.	273	91	1.1
333+13	355+87	MAIN LANES - LT.	2274	758	9.6
333+60	348+71	MAIN LANES - RT.	1511	504	6.4
349+39	360+91	MAIN LANES - RT.	1152	384	4.8
356+53	358+49	MAIN LANES - LT.	196	65	0.8
359+01	361+96	MAIN LANES - LT.	295	98	1.2
361+49	363+57	MAIN LANES - RT.	208	69	0.9
362+64	368+18	MAIN LANES - LT.	554	185	2.3
364+23	365+41	MAIN LANES - RT.	118	39	0.5
366+09	367+43	MAIN LANES - RT.	134	45	0.6
TOTALS:			19805	6601	83.4

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

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE			
				AVG. WID. (5" U.T.)	5" U.T.	AVG. WID. (11" U.T.)	11" U.T.
			FEET	FEET	SQ. YD.	FEET	SQ. YD.
240+35.00	243+11.00	LT. MAIN LANES	276.00	2.00	61.33	4.50	138.00
243+11.00	259+00.00	LT. MAIN LANES	1589.00			2.50	441.39
261+21.23	265+90.40	LT. MAIN LANES	469.17			2.50	130.33
274+40.60	325+00.00	LT. MAIN LANES	5059.40			2.50	1405.39
325+00.00	332+20.00	LT. MAIN LANES	720.00	2.00	160.00	4.50	360.00
365+22.00	366+00.00	RT. MAIN LANES.	78.00	2.00	17.33	4.50	39.00
366+00.00	368+05.00	RT. MAIN LANES.	205.00	1.00	22.78	3.50	79.72
368+15.00	368+56.71	LT. MAIN LANES	41.71	2.00	9.27	4.50	20.86
TOTALS:					270.71		2614.69

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
208+95	MAIN LANES	9.67	24	9.3
219+25	MAIN LANES	9.67	24	9.3
242+00	MAIN LANES	9.08	24	8.7
251+90	MAIN LANES	9.08	19	6.9
279+42	MAIN LANES	19.67	20	15.8
306+80	MAIN LANES	9.08	24	8.7
334+15	MAIN LANES	9.67	34	13.2
353+92	MAIN LANES	28.50	28	32.0
TOTAL:				103.9

AVG. DEPTH = 13"

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
204+75	MAIN LANES	13
205+78	MAIN LANES	7
219+15	MAIN LANES	20
244+10	MAIN LANES	6
249+35	MAIN LANES	9
276+80	MAIN LANES	74
279+20	MAIN LANES	74
333+45	MAIN LANES	14
354+26	MAIN LANES	98
TOTAL:		315

7/17/2019

R061509.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.		061509	89	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

STRUCTURES (BOX 1 OF 3)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	36"	48"	(CLASS V) 48"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	36"	42"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	48"	DROP INLETS TYPE SPECIAL	TYPE MO	EXT. 4'	EXT. 8'	JUNCT. BOXES (TYPE E)	YARD DRAINS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.												EACH					EACH						LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
198+25	EXTEND 6' X 4' X 75' R.C. BOX CULVERT 56' RT. ON 15° LT. FWD SKEW TO JB																							6	4	56	28.13	4017	25			RCB-1, RCB-2, RCB-3, R-100X-0
198+55	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET									54										1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
198+55	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET			24																1												FPC-9E, FPC-9M, PCC-1, PCM-1
198+93	CONSTRUCT JUNCTION BOX ON RT. W/ 6' X 4' X 196' R.C. BOX CULVERT OUTLET																						1		6	4	196	99.04	13809	59	16	0.20	FPC-9, PBC-1, RCB-1, RCB-2, R-100X-0, W-X003-2
199+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET									158										1												FPC-9E, FPC-9M, PCC-1, PCM-1
200+55	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET									178										1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
201+50	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
202+35	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET									76										1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
202+80	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
203+15	CONSTRUCT PIPE OUTLET ON LT. FROM EXISTING DROP INLET		22																													PCC-1
203+15	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET										146									1												FPC-9E, FPC-9M, PCC-1, PCM-1
204+65	CONSTRUCT PIPE OUTLET ON LT. FROM EXISTING DROP INLET	32																														PCC-1
204+65	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET										30									1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
204+65	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
205+00	CONSTRUCT DROP INLET ON LT. W/ PIPE INLET W/FES AND PIPE OUTLET		2								72			1						1										8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
205+75	CONSTRUCT DROP INLET ON LT. W/ EXT. W/PIPE INLET W/ FES AND PIPE OUTLET		4								48			1						1	1									8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
205+75	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
206+27	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	4									118			1						1	1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
206+27	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
206+80	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
207+50	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	8										140		1						1	1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
208+95	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET		10		60										1					1	1									8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
208+95	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET W/ FES				16												1			1										17	0.21	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
210+10	CONSTRUCT DROP INLET ON LT. W/ PIPE INLET W/ FES AND PIPE OUTLET	8											110	1						1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
211+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET											82								1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
212+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	10										92		1						1		1								5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
213+50	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET			12								140					1			1	1									13	0.16	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
215+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET								92											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
216+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								188											1												FPC-9E, FPC-9M, PCC-1, PCM-1
218+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET								120											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
219+25	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET				76												1			1		1								17	0.21	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
219+60	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET								32											1												FPC-9E, FPC-9M, PCC-1, PCM-1
220+30	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET								66											1												FPC-9E, FPC-9M, PCC-1, PCM-1
221+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET									296										1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
222+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
224+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET W/ FES		16											1						1	1									8	0.10	FPC-9E, FPC-9M, PCC-1, FES-1, FES-2
224+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
226+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET W/ FES	18												1						1	1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
226+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
228+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								196											1												FPC-9E, FPC-9M, PCC-1, PCM-1
228+00	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
230+50	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								246											1												FPC-9E, FPC-9M, PCC-1, PCM-1
230+50	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET W/ FES.		16											1						1	1									8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
232+75	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET								222											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
233+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET									246										1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
234+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								96											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
235+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET								96											1												FPC-9E, FPC-9M, PCC-1, PCM-1
237+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1			1										SPECIAL DETAIL
238+00	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
239+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
241+00	CONSTRUCT DROP INLET ON LT. W/ PIPE INLET W/ FES AND PIPE OUTLET	16							98					1						1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
241+00	CONSTRUCT DROP INET ON RT. W/ EXT.																		1			1										SPECIAL DETAIL
242+00	CONSTRUCT DROP INLET ON LT. W/ PIPE INLET W/ FES AND PIPE OUTLET	16									60			1						1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
242+00	CONSTRUCT DROP INLET ON RT. W/ EXT. LT. AND RT. AND PIPE OUTLET W/ FES				8												1			1	2									17	0.21	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
243+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								96											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
244+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								96											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
244+26	CONSTRUCT DROP INLET ON LT. W/ PIPE INLET W/ FES AND PIPE OUTLET		26							224				1						1												FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
245+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								96											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
246+50	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								146											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
248+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								114											1												FPC-9E, FPC-9M, PCC-1, PCM-1
248+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET								146											1												FPC-9E, FPC-9M, PCC-1, PCM-1
249+18	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								78											1												FPC-9E, FPC-9M, PCC-1, PCM-1
250+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								186											1												FPC-9E, FPC-9M, PCC-1, PCM-1
250+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								196											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
251+90	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET			80													1			1	1									13	0.16	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
251+90	CONSTRUCT DROP INLET ON RT. W/ EXT W/ PIPE OUTLET W/ FES			22													1			1		1								13	0.16	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
SUBTOTALS (BOX 1 OF 3):		112	96	138	160				2606	1232	474	454	110	7	6	3	3		14	48	32	5	1					127.17	17826	84	181	2.23	

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.

5/13/2019

R061509.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.		061509	90	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

STRUCTURES (BOX 2 OF 3)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	36"	48"	(CLASS V) 48"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	36"	42"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	48"	DROP INLETS TYPE TYPE SPECIAL	MO	EXT. 4'	8'	JUNCT. BOXES (TYPE E)	YARD DRAINS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.- ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.												EACH												LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
254+75	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
254+75	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
257+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
257+00	CONSTRUCT DROP INLET ON RT.																		1														SPECIAL DETAIL
260+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
260+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
262+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
262+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
265+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1												SPECIAL DETAIL
265+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
275+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
275+00	CONSTRUCT DROP INLET ON RT.																		1														SPECIAL DETAIL
276+65	INSTALL R.C. PIPE CULVERT W/ FES LT. AND RT.						176											2													58	0.73	FES-1, FES-2, PCC-1
278+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
278+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1			1											SPECIAL DETAIL
279+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
279+42	INSTALL DBL. R.C. PIPE CULVERT W/ FES LT. AND RT.					248												4													62	0.78	FES-1, FES-2, PCC-1
280+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
281+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
282+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
283+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
284+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
285+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
286+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
287+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
288+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
289+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1											SPECIAL DETAIL
290+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET W/ FES	10												1						1		1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
290+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET W/ FES	12												1						1											5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
291+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET								96											1													FPC-9E, FPC-9M, PCC-1, PCM-1
291+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET								96											1													FPC-9E, FPC-9M, PCC-1, PCM-1
294+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1												SPECIAL DETAIL
294+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
295+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
295+00	CONSTRUCT DROP INLET ON RT.																		1														SPECIAL DETAIL
296+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
296+00	CONSTRUCT DROP INLET ON RT.																		1														SPECIAL DETAIL
297+00	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
297+00	CONSTRUCT DROP INLET ON RT.																		1														SPECIAL DETAIL
298+65	CONSTRUCT DROP INLET ON LT.																		1														SPECIAL DETAIL
298+65	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1			1											SPECIAL DETAIL
301+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1												SPECIAL DETAIL
301+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
304+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1												SPECIAL DETAIL
304+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
306+80	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET				72												1			1	1										17	0.21	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-2
306+80	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET W/ FES				22												1			1	1										17	0.21	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
309+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET									216										1													FPC-9E, FPC-9M, PCC-1, PCM-1
309+00	CONSTRUCT DROP INLET ON RT.																		1														SPECIAL DETAIL
311+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET									196										1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
311+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1												SPECIAL DETAIL
312+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET									96										1													FPC-9E, FPC-9M, PCC-1, PCM-1
312+50	INSTALL DBL. 6' X 4' X 80' R.C. BOX CULVERT RT. SIDE DRAIN																								6	4	80	110.75	14468	43	18	0.23	PCB-1, RCB-1, RCB-2, SPECIAL DETAILS
313+50	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	12							146					1						1	1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-2
313+50	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1			1											SPECIAL DETAIL
314+37	EXTEND DBL. 6' X 4' X 76' R.C. BOX CULVERT 4' LT. AND 58' RT. ON 45° LT. FWD. SKEW																								6	4	62	72.21	11123	40	26	0.33	RCB-1, RCB-2, RCB-3, R-245X-01. R-245X-1, W-X45, W-X453-1
316+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET W/ FES	10												1						1	1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
316+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET				184															1													FPC-9E, FPC-9M, PCC-1
319+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET								296											1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
319+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET										296									1													FPC-9E, FPC-9M, PCC-1, PCM-1
320+50	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET										146									1													FPC-9E, FPC-9M, PCC-1, PCM-1
322+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET								296											1	1												FPC-9E, FPC-9M, PCC-1, PCM-1
322+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET										146									1													FPC-9E, FPC-9M, PCC-1, PCM-1
SUBTOTALS (BOX 2 OF 3):		44			278	248	176		930	508		588		4			2	6	42	17	21	10						182.96	25591	83	218	2.73	

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.

5/13/2019

R061509.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.		061509	91	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

STRUCTURES (BOX 3 OF 3)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	36"	48"	(CLASS V) 48"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	36"	42"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	36"	48"	DROP INLETS TYPE SPECIAL	TYPE MO	EXT. 4'	EXT. 8'	JUNCT. BOXES (TYPE E)	YARD DRAINS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.- ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.												EACH							EACH					LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
325+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET											296								1												
327+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET											194								1		1										
329+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET											194								1	1											
330+50	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET										144									1	1											
332+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET										146									1	1											
334+35	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET W/FES				86												2			1	1									34	0.43	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
336+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
337+00	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
338+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1											SPECIAL DETAIL
338+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
340+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1											SPECIAL DETAIL
340+00	CONSTRUCT DROP INLET ON RT. W/ EXT.																		1		1											SPECIAL DETAIL
342+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1										SPECIAL DETAIL
344+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1											SPECIAL DETAIL
346+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1			1										SPECIAL DETAIL
348+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1											SPECIAL DETAIL
348+00	CONSTRUCT DROP INLET ON RT. W/ PIPE OUTLET W/ FES		8											1						1										8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
349+00	CONSTRUCT DROP INLET ON LT.																		1													SPECIAL DETAIL
349+45	CONSTRUCT DROP INLET ON RT. W/ PIPE INLET W/ FES AND PIPE OUTLET	4								144				1						1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
350+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1											SPECIAL DETAIL
351+20	CONSTRUCT DROP INLET ON RT. W/ PIPE INLET W/ FES AND PIPE OUTLET	4							172					1						1										5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
352+00	CONSTRUCT DROP INLET ON LT. W/ EXT.																		1		1											SPECIAL DETAIL
352+00	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
353+50	CONSTRUCT DROP INLET ON RT.																		1													SPECIAL DETAIL
353+92	CONSTRUCT TRI. R.C. PIPE CULVERT W/ FES LT. AND RT.					324												6														FES-1, FES-2, PCC-1
355+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET W/ FES			12												1				1	1									66	0.83	FES-1, FES-2, PCC-1
355+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET W/ FES	12												1						1	1									13	0.16	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
356+60	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET										156									1	1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
358+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								296											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
359+10	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	6									246			1						1	1									5	0.06	FPC-9E, FPC-9M, PCC-1, PCM-1
360+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								196											1	1											FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
360+50	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET										136									1												FPC-9E, FPC-9M, PCC-1, PCM-1
361+60	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET										106									1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
361+60	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								156											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
362+70	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET										106									1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
364+00	CONSTRUCT DROP INLET ON LT. W/ PIPE OUTLET										126									1												FPC-9E, FPC-9M, PCC-1, PCM-1
364+30	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								266											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
364+90	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	10								88				1						1	1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
366+00	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE OUTLET								106											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
366+20	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE OUTLET								186											1	1											FPC-9E, FPC-9M, PCC-1, PCM-1
367+15	CONSTRUCT DROP INLET ON LT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET	8							112					1						1	1									5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
706+00	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET		108								50				1					1	1									8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
708+35	CONSTRUCT DROP INLET ON RT. W/ EXT. W/ PIPE INLET W/ FES AND PIPE OUTLET		96							64					1					1		1								8	0.10	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1, PCM-1
ENTIRE PROJECT TO BE USED AS DIRECTED BY THE ENGINEER								1200															12									
SUBTOTALS (BOX 1 OF 3):		112	96	138	160				2606	1232	474	454	110	7	6	3	3		14	48	32	5	1					127.17	17826	84	181	2.23	
SUBTOTALS (BOX 2 OF 3):		44			278	248	176		930	508		588		4			2	6	42	17	21	10						182.96	25591	83	218	2.73	
SUBTOTALS (BOX 3 OF 3):		44	212	12	86	324		1200	1490	296	1216	684		6	3	1	2	6	15	27	28	4		12							167	2.08	
SUBTOTALS:		200	308	150	524	572	176	1200	5026	2036	1690	1726	110	17	9	4	7	12	71	92	81	19	1	12				310.13	43417	167	566	7.04	
STRUCTURES OVER 20' - 0" SPAN																																
257+53	EXTEND DBL. 10' X 6' X 60' R.C. BOX CULVERT 50' RT. ON 15° RT. FWD. SKEW																								10	6	50	103.40	15901	59	28	0.35	RCB-1, RCB-2, RCB-3, R-200X-0, R-215X-0, W-X15, W-X153-1
SUBTOTALS:																												103.40	15901	59	28	0.35	
TOTALS:		200	308	150	524	572	176	1200	5026	2036	1690	1726	110	17	9	4	7	12	71	92	81	19	1	12				413.53	59318	226	594	7.39	

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.

5/13/2019

R061509.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	92	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		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"	48"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.				
199+35	LT	MAIN LANES	40	199+01	199+69	60.44	77.33	8.51	31.58					
199+65	RT	MAIN LANES	40	199+31	199+99	60.44	106.67	11.73	43.56					
200+90	LT	MAIN LANES	34	200+59	201+21	55.11	84.47	9.29	34.49					
202+70	LT	MAIN LANES	38	202+37	203+03	58.67	53.50	5.89	21.85					
203+20	RT	MAIN LANES	40	202+86	203+54	60.44	199.64	21.96	81.52			210		PCC-1, PCM-1, PCP-1, PCP-2
205+25	LT	MAIN LANES - S. 1ST ST.	22			44.44	40.41	4.45	16.50					
205+25	RT	MAIN LANES - S. 1ST ST.	22			44.44	67.47	7.42	27.55			114		PCC-1, PCM-1, PCP-1, PCP-2
206+80	LT	MAIN LANES	36	206+48	207+12	56.89	89.96	9.90	36.73					
207+87	LT	MAIN LANES	40	207+53	208+21	60.44	135.51	14.91	55.33					
208+45	RT	MAIN LANES	32	208+15	208+75	53.33	196.73	21.64	80.33			162		PCC-1, PCM-1, PCP-1, PCP-2
209+70	LT	MAIN LANES	36	209+38	210+02	56.89	141.88	15.61	57.93					
213+00	LT	MAIN LANES	40	212+66	213+34	60.44	144.18	15.86	58.87					
213+00	RT	MAIN LANES	40	212+66	213+34	60.44	252.89	27.82	103.26				152	PCC-1, PCM-1, PCP-1, PCP-2
219+85	RT	MAIN LANES	16	219+63	220+07	39.11	82.33	9.06	33.62					
220+65	RT	MAIN LANES	40	220+31	220+99	60.44	279.42	30.74	114.10					
221+95	LT	MAIN LANES - NALLEY RD.	30			51.56	125.70	13.83	51.33					
230+90	RT	MAIN LANES	40	230+56	231+24	60.44	157.38	17.31	64.26	52				PCC-1, PCM-1, PCP-1, PCP-2
233+55	LT	MAIN LANES - MARLOU DR.	30			51.56	109.00	11.99	44.51		96			PCC-1, PCM-1, PCP-1, PCP-2
233+55	RT	MAIN LANES	40	233+21	233+89	60.44	135.64	14.92	55.39	52				PCC-1, PCM-1, PCP-1, PCP-2
241+40	LT	MAIN LANES	16	241+18	241+62	39.11	64.85	7.13	26.48					
246+15	LT	MAIN LANES	16	245+93	246+37	39.11	76.80	8.45	31.36	28				PCC-1, PCM-1, PCP-1, PCP-2
247+30	RT	MAIN LANES - LAKEWOOD DR.	30			51.56	100.00	11.00	40.83					
250+50	RT	MAIN LANES	40	250+24	250+76	24.89	124.00	13.64	50.63		64			PCC-1, PCM-1, PCP-1, PCP-2
254+25	LT	MAIN LANES	40	253+91	254+59	60.44	194.40	21.38	79.38					
254+25	RT	MAIN LANES	36	253+93	254+57	56.89	274.04	30.14	111.90				58	PCC-1, PCM-1, PCP-1
290+50	LT	MAIN LANES	16	290+28	290+72	39.11	50.93	5.60	20.80	28				PCC-1, PCM-1, PCP-1, PCP-2
290+50	RT	MAIN LANES	16	290+28	290+72	39.11	104.05	11.45	42.49		38			PCC-1, PCM-1, PCP-1, PCP-2
298+30	LT	MAIN LANES	16	298+08	298+52	39.11	59.56	6.55	24.32					
298+30	RT	MAIN LANES	28	298+02	298+58	49.78	96.69	10.64	39.48					
306+05	RT	MAIN LANES	30	305+76	306+34	51.56	103.93	11.43	42.44					
306+40	LT	MAIN LANES	16	306+18	306+62	39.11	68.44	7.53	27.95	36				PCC-1, PCM-1, PCP-1, PCP-2
312+50	LT	MAIN LANES - FUNTASTIC DR.	38			58.67	240.67	26.47	98.27	96				PCC-1, PCM-1, PCP-1, PCP-2
312+50	RT	MAIN LANES - FUNTASTIC DR.	56			74.67	52.89	5.82	21.60					
314+00	LT	MAIN LANES	22	313+75	314+25	44.44	105.11	11.56	42.92	28				PCC-1, PCM-1, PCP-1, PCP-2
328+10	LT	MAIN LANES	24	327+84	328+36	46.22	54.29	5.97	22.17					
329+85	LT	MAIN LANES	24	329+59	330+11	46.22	48.00	5.28	19.60					
329+85	RT	MAIN LANES	36	329+53	330+17	56.89	80.00	8.80	32.67	42				PCC-1, PCM-1, PCP-1, PCP-2
349+05	RT	MAIN LANES	40	348+71	349+39	60.44	99.64	10.96	40.69					
356+20	LT	MAIN LANES	38	355+87	356+53	58.67	147.78	16.26	60.34		120			PCC-1, PCM-1, PCP-1, PCP-2
358+75	LT	MAIN LANES	24	358+49	359+01	46.22	41.81	4.60	17.07					
361+20	RT	MAIN LANES	30	360+91	361+49	51.56	47.10	5.18	19.23					
362+30	LT	MAIN LANES	40	361+96	362+64	60.44	38.22	4.20	15.61					
363+90	RT	MAIN LANES	38	363+57	364+23	58.67	51.13	5.62	20.88					
365+75	RT	MAIN LANES	40	365+41	366+09	60.44	64.44	7.09	26.31					
705+00	RT	HWY. 367	40	704+66	705+34	60.44	217.78	23.96	88.93					
709+25	RT	HWY. 367	40	708+91	709+59	24.89	191.11	21.02	78.04					
1302+00	LT	KERR STATION RD.	36	1301+68	1302+32	24.89	58.00	6.38	23.68	56				PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES									470.00					
TOTALS:						2419.51	5335.77	586.95	2648.78	418	318	486	210	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

** FOR INFORMATION ONLY

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	85
TOTAL:	85

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	85	170
TOTALS:	85	170

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
197+10.79	198+10.79	MAIN LANES - TRANSITION	40.00	444.44
206+00.00	207+00.00	MAIN LANES	24.00	266.67
218+00.00	219+25.00	MAIN LANES	24.00	333.33
260+00.00	260+50.00	MAIN LANES	24.00	133.33
261+41.50	265+00.00	MAIN LANES	24.00	956.00
368+56.71	369+56.71	MAIN LANES - TRANSITION	66.00	733.33
TOTAL:				2867.10

NOTE: AVERAGE MILLING DEPTH 1".

7/17/2019

R061509.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	93	349

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	TOTAL PG 76-22
			FEET			AVG. WID. FEET	SQ.YD.	GALLON	AVG. WIDTH FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	FEET			TON
MAIN LANES																												
198+10.79	199+00.00	NOTCH AND WIDEN LT. AND RT. - HWY. 367 INTERSECTION - MAIN LANES	89.21	330.50	294.84	309.00	3062.88	153.14				153.14	85.00	842.54	550.00	231.70	80.00	792.98	330.00	130.84	80.00	792.98	220.00	87.23	144.00	1427.36	220.00	157.01	244.24
199+00.00	201+70.00	NOTCH AND WIDEN LT. AND RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	270.00	126.25	346.28	126.00	3780.00	189.00				189.00	33.00	990.00	550.00	272.25	28.00	840.00	330.00	138.60	28.00	840.00	220.00	92.40	65.00	1950.00	220.00	214.50	306.90
201+70.00	206+50.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	480.00	105.00	504.00	105.00	5600.00	280.00				280.00	27.00	1440.00	550.00	396.00	22.00	1173.33	330.00	193.60	22.00	1173.33	220.00	129.07	56.00	2986.67	220.00	328.53	457.60
206+50.00	221+60.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	1510.00	144.00	2174.40	125.00	20972.22	1048.61				1048.61	37.00	6207.78	550.00	1707.14	32.00	5368.89	330.00	885.87	32.00	5368.89	220.00	590.58	56.00	9395.56	220.00	1033.51	1624.09
221+60.00	224+00.00	NOTCH AND WIDEN LT. AND RT. - LANE REDUCTION TRANSITION - MAIN LANES	240.00	124.50	298.80	115.00	3066.67	153.33				153.33	32.00	853.33	550.00	234.67	27.00	720.00	330.00	118.80	27.00	720.00	220.00	79.20	56.00	1493.33	220.00	164.27	243.47
224+00.00	224+16.80	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	16.80	144.00	24.19	125.00	233.33	11.67				11.67	37.00	69.07	550.00	18.99	32.00	59.73	330.00	9.85	32.00	59.73	220.00	6.57	56.00	104.53	220.00	11.50	18.07
225+64.80	240+35.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	1470.20	144.00	2117.09	125.00	20419.44	1020.97				1020.97	37.00	6044.16	550.00	1662.14	32.00	5227.38	330.00	862.52	32.00	5227.38	220.00	575.01	56.00	9147.91	220.00	1006.27	1581.28
240+35.00	243+11.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	276.00	126.50	349.14	116.50	3572.67	178.63				178.63	32.50	996.67	550.00	274.08	30.00	920.00	330.00	151.80	30.00	920.00	220.00	101.20	56.00	1717.33	220.00	188.91	290.11
243+11.00	257+00.00	NOTCH AND WIDEN RT. - MAIN LANES	1389.00	153.50	2132.12	132.50	20449.17	1022.46				1022.46	39.50	6096.17	550.00	1676.45	37.00	5710.33	330.00	942.20	37.00	5710.33	220.00	628.14	56.00	8642.67	220.00	950.69	1578.83
257+00.00	258+00.00	NOTCH AND WIDEN RT. - LANE TRANSITION - MAIN LANES	100.00	159.50	159.50	139.00	1544.44	77.22				77.22	41.00	455.56	550.00	125.28	38.50	427.78	330.00	70.58	38.50	427.78	220.00	47.06	62.00	688.89	220.00	75.78	122.84
258+00.00	259+00.00	NOTCH AND WIDEN RT. - MEDIAN TRANSITION - MAIN LANES	100.00	169.25	169.25	149.50	1661.11	83.06				83.06	43.50	483.33	550.00	132.92	41.00	455.56	330.00	75.17	41.00	455.56	220.00	50.11	56.00	622.22	220.00	68.44	118.55
259+00.00	260+35.64	NOTCH AND WIDEN RT. - MAIN LANES	135.64	173.00	234.66	152.50	2298.34	114.92				114.92	44.50	670.66	550.00	184.43	38.00	572.70	330.00	94.50	38.00	572.70	220.00	63.00	62.00	934.41	220.00	102.79	165.79
261+83.64	265+53.90	NOTCH AND WIDEN RT. - MAIN LANES	370.26	173.00	640.55	144.50	5944.73	297.24				297.24	44.50	1830.73	550.00	503.45	38.00	1563.32	330.00	257.95	38.00	1563.32	220.00	171.97	62.00	2550.68	220.00	280.57	452.54
274+77.10	277+00.00	NOTCH AND WIDEN RT. - MAIN LANES	222.90	173.00	385.62	152.50	3776.92	188.85				188.85	44.50	1102.12	550.00	303.08	38.00	941.13	330.00	155.29	38.00	941.13	220.00	103.52	62.00	1535.53	220.00	168.91	272.43
277+00.00	278+00.00	NOTCH AND WIDEN RT. - MEDIAN TRANSITION - MAIN LANES	100.00	169.25	169.25	149.50	1661.11	83.06				83.06	43.50	483.33	550.00	132.92	41.00	455.56	330.00	75.17	41.00	455.56	220.00	50.11	56.00	622.22	220.00	68.44	118.55
278+00.00	279+00.00	NOTCH AND WIDEN RT. - LANE TRANSITION - MAIN LANES	100.00	157.50	157.50	135.50	1505.56	75.28				75.28	40.50	450.00	550.00	123.75	38.00	422.22	330.00	69.67	38.00	422.22	220.00	46.44	60.00	666.67	220.00	73.33	119.77
279+00.00	290+00.00	NOTCH AND WIDEN RT. - MAIN LANES	1100.00	153.50	1688.50	132.50	16194.44	809.72				809.72	39.50	4827.78	550.00	1327.64	37.00	4522.22	330.00	746.17	37.00	4522.22	220.00	497.44	56.00	6844.44	220.00	752.89	1250.33
290+00.00	325+00.00	NOTCH AND WIDEN RT. - MAIN LANES	3500.00	134.25	4698.75	122.50	47638.89	2381.94				2381.94	34.50	13416.67	550.00	3689.58	32.00	12444.44	330.00	2053.33	32.00	12444.44	220.00	1368.89	56.00	21777.78	220.00	2395.56	3764.45
325+00.00	332+20.00	NOTCH AND WIDEN RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	720.00	103.00	741.60	104.50	8360.00	418.00				418.00	26.50	2120.00	550.00	583.00	24.00	1920.00	330.00	316.80	24.00	1920.00	220.00	211.20	56.00	4480.00	220.00	492.80	704.00
332+20.00	338+00.00	NOTCH AND WIDEN LT. AND RT. - LANE REDUCTION TRANSITION - MAIN LANES	580.00	112.75	653.95	109.00	7024.44	351.22				351.22	29.00	1868.89	550.00	513.94	24.00	1546.67	330.00	255.20	24.00	1546.67	220.00	170.13	56.00	3608.89	220.00	396.98	567.11
338+00.00	363+00.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	2500.00	144.00	3600.00	125.00	34722.22	1736.11				1736.11	37.00	10277.78	550.00	2826.39	32.00	8888.89	330.00	1466.67	32.00	8888.89	220.00	977.78	56.00	15555.56	220.00	1711.11	2688.89
363+00.00	365+22.00	NOTCH AND WIDEN LT. AND RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	222.00	105.00	233.10	105.00	2590.00	129.50				129.50	27.00	666.00	550.00	183.15	22.00	542.67	330.00	89.54	22.00	542.67	220.00	59.69	56.00	1381.33	220.00	151.95	211.64
365+22.00	366+00.00	NOTCH AND WIDEN LT. AND RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	78.00	87.50	68.25	96.50	836.33	41.82				41.82	22.50	195.00	550.00	53.63	20.00	173.33	330.00	28.60	20.00	173.33	220.00	19.07	56.00	485.33	220.00	53.39	72.46
366+00.00	368+05.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	205.00	40.75	83.54	75.50	1719.72	85.99				85.99	10.50	239.17	550.00	65.77	8.00	182.22	330.00	30.07	8.00	182.22	220.00	20.04	58.00	1321.11	220.00	145.32	165.36
368+05.00	368+56.71	NOTCH AND WIDEN LT. AND RT. - HWY. 89 INTERSECTION - MAIN LANES	51.71	60.25	31.16	154.50	887.69	44.38				44.38	15.50	89.06	550.00	24.49	13.00	74.69	330.00	12.32	13.00	74.69	220.00	8.22	128.00	735.43	220.00	80.90	89.12
704+20.00	705+40.00	NOTCH AND WIDEN RT. - LANE TRANSITION - HWY. 367	120.00	134.00	160.80	97.00	1293.33	64.67				64.67	19.00	253.33	550.00	69.67	19.00	253.33	330.00	41.80	19.00	253.33	220.00	27.87	59.00	786.67	220.00	86.53	114.40
705+40.00	708+63.00	NOTCH AND WIDEN RT. - HWY. 367	323.00	48.50	156.66	82.50	2960.83	148.04				148.04	12.50	448.61	550.00	123.37	10.00	358.89	330.00	59.22	10.00	358.89	220.00	39.48	60.00	2153.33	220.00	236.87	276.35
708+63.00	709+63.00	NOTCH AND WIDEN RT. - LANE TRANSITION - HWY. 367	100.00	131.25	131.25	64.00	711.11	35.56				35.56	8.00	88.89	550.00	24.44	8.00	88.89	330.00	14.67	8.00	88.89	220.00	9.78	48.00	533.33	220.00	58.67	68.45
1300+47.47	1301+72.68	NOTCH AND WIDEN LT. - LANE TRANSITION - KERR STATION ROAD	125.21	55.00	68.87	43.00	598.23	29.91				29.91	7.00	97.39	550.00	26.78	7.00	97.39	330.00	16.07	7.00	97.39	220.00	10.71	29.00	403.45	220.00	44.38	55.09
1301+72.68	1303+62.28	NOTCH AND WIDEN LT. - KERR STATION ROAD	189.60	128.75	244.11	100.00	2106.67	105.33				105.33	26.00	547.73	550.00	150.63	26.00	547.73	330.00	90.38	26.00	547.73	220.00	60.25	48.00	1011.20	220.00	111.23	171.48
1304+19.28	1306+00.00	NOTCH AND WIDEN LT. - KERR STATION ROAD	180.72	82.25	148.64	75.00	1508.00	75.30				75.30	14.00	281.12	550.00	77.31	14.00	281.12	330.00	46.38	14.00	281.12	220.00	30.92	47.00	943.76	220.00	103.81	134.73
1306+00.00	1307+25.20	NOTCH AND WIDEN - LANE TRANSITION - KERR STATION ROAD	125.20	33.50	41.94	37.50	521.67	26.08				26.08	1.50	20.87	550.00	5.74	1.50	20.87	330.00	3.44	1.50	20.87	220.00	2.30	34.50	479.93	220.00	52.79	55.09
ADDITIONAL FOR LEVELING																												
198+10.79	199+00.00	NOTCH AND WIDEN LT. AND RT. - HWY. 367 INTERSECTION - MAIN LANES	89.21						64.00	634.38	107.84	107.84									64.00	634.38	VAR.	95.04				95.04
199+00.00	201+70.00	NOTCH AND WIDEN LT. AND RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	270.00						37.00	1110.00	188.70	188.70									37.00	1110.00	VAR.	162.36				162.36
201+70.00	221+60.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	1990.00			34.00	7517.78	375.89	34.00	7517.78	1278.02	1653.91					34.00	7517.78	VAR.	1612.40	34.00	7517.78	220.00	826.96				826.96
221+60.00	224+00.00	NOTCH AND WIDEN LT. AND RT. - LANE REDUCTION TRANSITION - MAIN LANES	240.00						29.00	773.33	131.47	131.47									29.00	773.33	VAR.	148.50				148.50
224+00.00	224+16.80	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	16.80			24.00	44.80	2.24	24.00	44.80	7.62	9.86					24.00	44.80	VAR.	16.83	24.00	44.80	220.00	4.93				4.93
225+64.80	240+35.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	1470.20			24.00	3920.53	196.03	24.00	3920.53	666.49	862.52					24.00	3920.53	VAR.	1716.74	24.00	3920.53	220.00	431.26				431.26
240+35.00	243+11.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	276.00			26.00	797.33	39.87	24.00	736.00	125.12	164.99					26.00	797.33	VAR.	240.97	26.00	797.33	220.00	87.71				87.71
243+11.00	257+00.00	NOTCH AND WIDEN RT. - MAIN LANES	1389.00			19.00	2932.33	146.62	20.00	3086.67	524.73	671.35					19.00	2932.33	VAR.	505.08	19.00	2932.33	220.00	322.56				322.56
257+00.00	258+00.00	NOTCH AND WIDEN RT. - LANE TRANSITION - MAIN LANES	100.00						21.00	233.33	39.67	39.67									23.50	261.11	VAR.	37.62				37.62
258+00.00	259+00.00	NOTCH AND WIDEN RT. - MEDIAN TRANSITION - MAIN LANES	100.00						24.00	266.67	45.33	45.33									15.00	166.67	VAR.	17.82				17.82
259+00.00	260+35.64	NOTCH AND WIDEN RT. - MAIN LANES	135.64						24.00	361.71	61.49	61.49									24.00	361.71	VAR.	7.92				7.92
261+83.64	265+53.90	NOTCH AND WIDEN RT. - MAIN LANES	370.26						5.00	205.70	34.97	34.97									24.00	987.36	VAR.	61.38				61.38
274+77.10	277+00.00	NOTCH AND WIDEN RT. - MAIN LANES	222.90						24.00	594.40	101.05	101.05									24.00	594.40	VAR.	132.66				132.66
277+00.00	278+00.00	NOTCH AND WIDEN RT. - MAIN LANES	100.00						24.00	266.67	45.33	45.33									15.00	166.67	VAR.	11.88				11.88
278+00.00	279+00.00	NOTCH AND WIDEN RT. - MEDIAN TRANSITION - MAIN LANES	100.00						24.00	266.67	45.33	45.33									22.00	244.44	VAR.	77.22				77.22
279+00.00	290+00.00	NOTCH AND WIDEN RT. - LANE TRANSITION - MAIN LANES	1100.00			19.00	2322.22	116.11	22.00	2688.89	457.11	573.22					19.00	2322.22	VAR.	677.14	19.00	2322.22	220.00	255.44				255.44
290+00.00	325+00.00	NOTCH AND WIDEN RT. - MAIN LANES	3500.00			24.00	9333.33	466.67	20.00	7777.78	1322.22	1788.89					24.00	9333.33	VAR.	1577.03	24.00	9333.33	220.00	1026.67				1026.67
325+00.00	332+20.00	NOTCH AND WIDEN RT. - MAIN LANES	720.00						24.00	1920.00	326.40	326.40									32.00	2560.00	VAR.	336.60				336.60
332+20.00	338+00.00	NOTCH AND WIDEN RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	580.00						30.00	1933.33	328.67	328.67									32.00	2062.22	VAR.	449.46				449.46
338+00.00	363+00.00	NOTCH AND WIDEN LT. AND RT. - LANE REDUCTION TRANSITION - MAIN LANES	2500.00						32.00	8888.89	1511.11	1511.11									24.00	6666.67	VAR.	1207.80				1207.80
363+00.00	365+22.00	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	222.00						24.00	592.00	100.64	100.64									34.00	838.67	VAR.	43.56				43.56
365+22.00	366+00.00	NOTCH AND WIDEN LT. AND RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	78.00						34.00	294.67	50.09	50.09									36.00	312.00	VAR.	43.56				43.56
366+00.00	368+05.00	NOTCH AND WIDEN LT. AND RT. - ADDITIONAL LANE TRANSITION - MAIN LANES	205.00						34.00	774.44	131.65	131.65									50.00	1138.89	VAR.	199.98				199.98
368+05.00	368+56.71	NOTCH AND WIDEN LT. AND RT. - MAIN LANES	51.71						49.00	281.53	47.86	47.86									115.00	660.74	VAR.	49.50				49.50
705+40.00	708+63.00	NOTCH AND WIDEN RT. - HWY. 367	323.00						10.00	358.89	61.01	61.01									50.00	1794.44	VAR.	192.06				192.06
708+63.00	709+63.00	NOTCH AND WIDEN RT. - LANE TRANSITION - HWY. 367	100.00						39.00	433.33	73.67	73.67									40.00	444.44	VAR.	1.98				1.98
1300+47.47	1301+72.68	NOTCH AND WIDEN LT. - LANE TRANSITION - KERR STATION	125.21						22.00	306.07	52.03	52.03									22.00	306.07	VAR.	13.86				13.86
1301+72.68	1303+62.28	NOTCH AND WIDEN LT. - KERR STATION ROAD	189.60						22.00	463.47	78.79	78.79									22.00	463.47	VAR.	47.52				47.52
1304+19.28	1306+00.00	NOTCH AND WIDEN LT. - KERR STATION ROAD	180.72						33.00	662.64	112.65	112.65									33.00	662.64	VAR.	49.50				49.50
1306+00.00	1307+25.20	NOTCH AND WIDEN - LANE TRANSITION - KERR STATION ROAD	125.20						33.00	459.07	78.04	78.04									33.00	459.07	VAR.	41.58				41.58
TOTALS:					22908.31	3996.00	256086.48	12804.44		47853.64	8135.10	20939.54		64453.74		17724.78		84462.58		15851.27		108131.97		12720.27		106987.52		11768.63	24488.90

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.4% MIN. AGGR.....3.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

7/17/2019

R061509.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.		061509	94	349
				①	SEE TABLE - QUANTITIES - 60767			

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 061509

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	619	619	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	806
		ITEM	7' STEEL CHAIN LINK FENCE	5' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	EPOXY COATED REINFORCING STEEL (GRADE 60)	REINFORCING STEEL - BRIDGE (GRADE 60)	① STEEL PILING (HP12x53)	PILE ENCASEMENT	CONCRETE PILING (18" SQUARE)	TEST PILE (18" SQUARE)	METAL BRIDGE RAILING (TYPE H)
		UNIT	LIN. FT.	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
06465 HIGHWAY 321 OVER WHITE OAK BRANCH	BENT 1				4	8.40			132	1,627	180				
	BENT 2					7.50			256	1,121	180	50			
	BENT 3					7.50			256	1,121	186	50			
	BENT 4				2	8.40			132	1,627	198				
	25'-0" R.C.D.G. (SPAN 1)						58.30	1.4	8,975	8,326					44
	25'-0" R.C.D.G. (SPAN 2)						50.90	1.2	3,424	7,572					50
	25'-0" R.C.D.G. (SPAN 3)						58.30	1.4	8,975	8,326					44
TOTALS FOR BRIDGE NO. 06465					6	31.80	167.50	4.0	22,150	29,720	744	100			138
A6466 HIGHWAY 321 OVER BAYOU TWO PRAIRIE	BENT 1				1	19.30			305	2,190			200	55	
	BENT 2					17.10			421	1,730			250		
	BENT 3					17.10			421	1,730			200	55	
	BENT 4				1	19.30			305	2,190			275		
	25'-0" R.C.D.G. (SPAN 1)						63.35	1.4	13,126						22
	25'-0" R.C.D.G. (SPAN 2)						51.60	1.2	12,226						25
	25'-0" R.C.D.G. (SPAN 3)						63.35	1.4	13,126						22
TOTALS FOR BRIDGE NO. A6466					2	72.80	178.30	4.0	39,930	7,840			925	110	69
06466 HIGHWAY 321 OVER BAYOU TWO PRAIRIE	BENT 1					1.55				155					
	BENT 4					1.55				155					
	25'-0" R.C.D.G. (SPAN 1)						3.40	0.7	1,248						22
	25'-0" R.C.D.G. (SPAN 2)						3.40	0.6	1,234						25
	25'-0" R.C.D.G. (SPAN 3)						3.40	0.7	1,248						22
TOTALS FOR EXISTING BRIDGE NO. 06466						3.10	10.20	2.0	3,730	310					69
A6467 HIGHWAY 321 OVER DRAIN TWO & UPRR	BENT 1					41.27		0.4	190	4,101			400	70	
	BENT 2				45	98.53				29,783			900		
	BENT 3				47	102.73				31,673			850	55	
	BENT 4				52	111.73				33,899			900		
	BENT 5				68	132.88				38,676			1,035	50	
	BENT 6				70	133.58				38,992			1,080		
	BENT 7				45	111.64				33,899			810		
	BENT 8				46	105.52				32,934			810		
	BENT 9				53	104.82				32,619			765	50	
	BENT 10				42	98.54				29,783			810		
	BENT 11					41.46		0.4	190	4,101			400	70	
	235'-0" CONT. COMP. W BEAM UNIT						332.74	7.3	70,220						232
	309'-0" CONT. COMP. PLATE GIRDER UNIT		103	103			437.74	9.6	95,610						206
	304'-0" CONT. COMP. W BEAM UNIT						430.62	9.4	92,300						301
TOTALS FOR BRIDGE NO. A6467			103	103	468	1,082.70	1,201.10	27.1	258,510	310,460			8,760	295	739
06467 HIGHWAY 321 OVER DRAIN TWO & UPRR	BENT 1					2.2		0.2		710					
	BENT 12					2.2		0.2		710					
	304'-0" CONT. COMP. W BEAM UNIT						40.40	7.1	14,551						301
	240'-0" CONT. COMP. W BEAM UNIT		103	103			31.90	5.6	11,338						137
	304'-0" CONT. COMP. W BEAM UNIT						40.40	7.1	14,551						301
TOTALS FOR EXISTING BRIDGE NO. 06467			103	103		4.4	112.70	20.2	40,440	1,420					739
TOTALS FOR JOB NO. 061509			206	206	476	1,194.80	1,669.80	57.3	364,760	349,750	744	100	9,685	405	1,754

① All steel piling to 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 Std. Dwg. No. 55020.

THOMAS GERARD
DESIGN SECTION SUPERVISOR

BRIDGE NUMBERS

06465
06466
A6466
06467
A6467

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
BRIDGE ENGINEER

SHEET 1 OF 2
SCHEDULE OF BRIDGE QUANTITIES
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 4/30/19 FILENAME: b061509_q1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: NO SCALE
DESIGNED BY: — DATE: —
BRIDGE NO. SEE TABLE DRAWING NO. 60767

PRINT DATE: 6/11/2019

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE / ITEM NO. / ITEM / UNIT	806 TRANSITIONAL APPROACH RAILING EACH	SP, SS, & 807 STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W) LB.	SP, SS, & 807 STRUCTURAL STEEL IN PLATE GIRDER SPANS (M 270, GRADE 50W) LB.	SS & 807 ①PAINTING STRUCTURAL STEEL TON	SS & 808 ELASTOMERIC BEARINGS CU. IN.	812 BRIDGE NAME PLATE (TYPE D) EACH	816 FILTER BLANKET SQ. YD.	816 DUMPED RIPRAP CU. YD.	821 MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO.__) LUMP SUM	SP JOB 061509 BRIDGE DECK REPAIR FOR POLYMER OVERLAYS SQ. FT.	SP JOB 061509 POLYMER OVERLAY SQ. YD.	SP JOB 061509 PREFORMED SILCONE JOINT LIN. FT.	SP JOB 061509 LIGHTWEIGHT AGGREGATE CONCRETE (AE) CU.YD
06465	HIGHWAY 321 OVER WHITE OAK BRANCH	BENT 1	2						156	90					
		BENT 2													
		BENT 3													
		BENT 4	2						152	87					
		25'-0" R.C.D.G. (SPAN 1)						1				73	161		
		25'-0" R.C.D.G. (SPAN 2)										73	161		
		25'-0" R.C.D.G. (SPAN 3)										73	161		
TOTALS FOR BRIDGE NO. 06465			4					1	308	177	1	219	483		
A6466	HIGHWAY 321 OVER BAYOU TWO PRAIRIE	BENT 1	1						317	170					
		BENT 2													
		BENT 3													
		BENT 4	1						176	106					
		25'-0" R.C.D.G. (SPAN 1)						1					86		
		25'-0" R.C.D.G. (SPAN 2)											86		
		25'-0" R.C.D.G. (SPAN 3)											86		
TOTALS FOR BRIDGE NO. A6466			2					1	493	276			258		
06466	HIGHWAY 321 OVER BAYOU TWO PRAIRIE	BENT 1	1												
		BENT 4	1												
		25'-0" R.C.D.G. (SPAN 1)										42	93		3.60
		25'-0" R.C.D.G. (SPAN 2)										42	93		3.60
		25'-0" R.C.D.G. (SPAN 3)										42	93		3.60
TOTALS FOR EXISTING BRIDGE NO. 06466			2								1	126	279		10.80
A6467	HIGHWAY 321 OVER DRAIN TWO & UPRR	BENT 1	1				1,389.4	1	385	240					
		BENT 2					1,885.0								
		BENT 3					2,175.0								
		BENT 4					3,635.6								
		BENT 5					2,569.0								
		BENT 6					2,247.5								
		BENT 7					3,577.5								
		BENT 8					1,957.5								
		BENT 9					1,957.5								
		BENT 10					1,957.5								
		BENT 11	1				1,687.5		435	270					
		235'-0" CONT. COMP. W BEAM UNIT		268,305		4.2							813	61	
		309'-0" CONT. COMP. PLATE GIRDER UNIT			345,170	7.5							1,064	41	
		304'-0" CONT. COMP. W BEAM UNIT		324,285		3.8							1,051	61	
TOTALS FOR BRIDGE NO. A6467			2	592,590	345,170	15.5	25,039.0	1	820	510			2,928	163	
06467	HIGHWAY 321 OVER DRAIN TWO & UPRR	BENT 1	1	160											
		BENT 12	1	160											
		304'-0" CONT. COMP. W BEAM UNIT		320								475	1,056		43.45
		240'-0" CONT. COMP. W BEAM UNIT		320								475	1,056		34.30
		304'-0" CONT. COMP. W BEAM UNIT		320								475	1,056		43.45
TOTALS FOR EXISTING BRIDGE NO. 06467			2	1,280							1	1,425	3,168		121.20
TOTALS FOR JOB NO. 061509			12	593,870	345,170	15.5	25,039.0	3	1,621	963	3	1,770	7,116	163	132.00

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.		061509	95	349

① SEE TABLE - QUANTITIES - 60768

① The color of paint shall be Brown equal or close to Federal Std. 595B Color Chip No. 30070 and as approved by the Engineer.

BRIDGE NUMBERS

06465
06466
A6466
06467
A6467

STATE OF ARKANSAS
CHARLES R. ELLIS
No. 9235
LICENSED PROFESSIONAL ENGINEER
6-11-19

BRIDGE ENGINEER

SHEET 2 OF 2
SCHEDULE OF BRIDGE QUANTITIES
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 4/30/2019 FILENAME: b061509_q1.dgn
CHECKED BY: Ditt DATE: 6/6/19 SCALE: NO SCALE
DESIGNED BY: — DATE: —

BRIDGE NO. SEE TABLE DRAWING NO. 60768

PRINT DATE: 6/11/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
07-02-19				JOB NO.		061509	96	349
07-17-19								

(2) SUMMARY OF QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

R061509.DGN 7/17/2019

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	100	STATION
201	GRUBBING	100	STATION
202	REMOVAL AND DISPOSAL OF CURB	3802	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	5910	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	3	EACH
202	REMOVAL AND DISPOSAL OF POSTS	28	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT	367	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS	240	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	3914	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS	435	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE SLABS	14	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	32	EACH
202	REMOVAL AND DISPOSAL OF JUNCTION BOXES	2	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS	9	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	52	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS	1	EACH
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION	5	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS	1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	33	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS	4	EACH
SP & 202	REMOVAL AND DISPOSAL OF GUARDRAIL	1128	LIN. FT.
206	FLOWABLE SELECT MATERIAL	315	CU. YD.
210	UNCLASSIFIED EXCAVATION	17963	CU. YD.
210	COMPACTED EMBANKMENT	107793	CU. YD.
SP & 210	SOIL STABILIZATION	1000	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	25887	TON
309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)	271	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (11" UNIFORM THICKNESS)	2615	SQ. YD.
SS & 401	TACK COAT	21110	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	17087	TON
SP, SS, & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")	638	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	15217	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	634	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	23847	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	29	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")	1200	TON
412	COLD MILLING ASPHALT PAVEMENT	2867	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	85	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	85	TON
504	APPROACH SLABS	423.30	CU. YD.
504	APPROACH GUTTERS	96.13	CU. YD.
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY	2419.51	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SP & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	1145	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	10	EACH
SS & 604	BARRICADES	160	LIN FT.
SS & 604	TRAFFIC DRUMS	548	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1911	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER	812	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	153269	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (WORDS)	12	EACH
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	18	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	7732	LIN FT.
SS & 604	VERTICAL PANELS	341	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE A)	252	SQ. YD.
SP	CULVERT CLEAN OUT	3	EACH
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	200	LIN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	5026	LIN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 2)	5026	LIN. FT.
606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	308	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	2036	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 2)	2036	LIN. FT.
606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	150	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	1690	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 2)	1690	LIN. FT.
606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	524	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	1726	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 2)	1726	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	110	LIN. FT.
606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 2)	110	LIN. FT.
606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	572	LIN. FT.
SP & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	176	LIN. FT.
SS & 606	12" SIDE DRAIN	1200	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	418	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	318	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	486	LIN. FT.
SP, SS, & 606	48" SIDE DRAIN	210	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	17	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	9	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	7	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	12	EACH
606	SELECTED PIPE BEDDING	1180	CU. YD.
SS & 609	DROP INLETS (TYPE MO)	92	EACH
SS & 609	DROP INLETS (TYPE SPECIAL)	71	EACH
SS & 609	JUNCTION BOXES (TYPE E)	1	EACH
SS & 609	DROP INLET EXTENSIONS (4')	81	EACH
SS & 609	DROP INLET EXTENSIONS (8')	19	EACH
SS & 609	YARD DRAINS	12	EACH
SS & 611	4" PIPE UNDERDRAINS	8500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	34	EACH
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	103.9	CU. YD.
619	WIRE FENCE (TYPE C)	4507	LIN. FT.
619	16' STEEL GATES	1 (ALTERNATE NO. 1)	EACH
619	16' ALUMINUM GATES	1 (ALTERNATE NO. 2)	EACH
620	LIME	91	TON
620	SEEDING	45.28	ACRE
SS & 620	MULCH COVER	164.66	ACRE
620	WATER	7145.8	M. GAL.
621	TEMPORARY SEEDING	119.38	ACRE
621	SILT FENCE	37382	LIN FT.
621	SAND BAG DITCH CHECKS	110	BAG
621	SEDIMENT BASIN	528	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	528	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	2356	CU. YD.
SS & 621	FILTER SOCK (12")	765	CU. YD.
623	SECOND SEEDING APPLICATION	4915	LIN. FT.
624	SOLID SODDING	45.28	ACRE
626	EROSION CONTROL MATTING (CLASS 3)	7284	SQ. YD.
631	CONCRETE BARRIER WALL (MEDIAN TYPE B)	588	SQ. YD.
SS & 632	CONCRETE ISLAND	561	LIN. FT.
SS & 633	CONCRETE WALKS	558	SQ. YD.
SP, SS, & 633	CONCRETE WALKS (TYPE SPECIAL)	10716	SQ. YD.
SS & 633	HAND RAILING	349	SQ. YD.
SS & 634	CONCRETE CURB (TYPE E)	763	LIN. FT.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1'6")	70	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	32767	LIN. FT.
637	MAILBOXES	1.00	LUMP SUM
637	MAILBOX SUPPORTS (SINGLE)	8	EACH
637	MAILBOX SUPPORTS (DOUBLE)	4	EACH
641	WHEELCHAIR RAMPS (TYPE 2)	2	EACH
641	WHEELCHAIR RAMPS (TYPE 3)	29	SQ. YD.
SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	47	SQ. YD.
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	EACH
SP	E-NET CABLE (EXTERIOR CAT 5E)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	100	LIN FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	18	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	4	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	8	EACH
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	4356	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	582	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	575	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	686	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	180	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINARES	60	LIN. FT.
		755	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
709	GALVANIZED STEEL CONDUIT (2")	80	LIN. FT.
709	GALVANIZED STEEL CONDUIT (3")	70	LIN. FT.
710	NON-METALLIC CONDUIT (2")	50	LIN. FT.
710	NON-METALLIC CONDUIT (3")	592	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	7	EACH
SS & 713	SPAN WIRE ASSEMBLY	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (52')	3	EACH
SP	LED LUMINAIRE ASSEMBLY	4	EACH
SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
716	TREATED WOOD POLE (CLASS 2, 45')	6	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (10")	1515	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	11969	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")	1991	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	1008	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	42899	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	12	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	25	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	762	EACH
SP	18" STREET NAME SIGN	4	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	6	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	7	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)	1	EACH
SP & 733	VIDEO DETECTOR (CLR)	13	EACH
733	VIDEO CABLE	2328	LIN. FT.
733	VIDEO MONITOR (CLR)	2	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	8	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	2	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	167	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	310.13	CU. YD
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	101372	POUND
SP	NET-SUBSCRIBER RADIO (5.8 GHZ, 32 MBPS)	1	EACH
	STRUCTURES OVER 20' SPAN		
619	5' STEEL CHAIN LINK FENCE	206	LIN. FT.
619	7' STEEL CHAIN LINK FENCE	206	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	476	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	59	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	103.40	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	1194.80	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	1669.80	CU. YD.
SP	LIGHTWEIGHT AGGREGATE CONCRETE (AE)	132.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	57.3	GAL.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	15901	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	349750	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	364760	POUND
SS & 805	STEEL PILING (HP 12X53)	744	LIN. FT.
SS & 805	CONCRETE PILING (18" SQUARE)	9685	LIN. FT.
SS & 805	PILE ENCASEMENT	100	LIN. FT.
SS & 805	TEST PILE (18" SQUARE)	405	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H)	1754	LIN. FT.
806	TRANSITIONAL APPROACH RAILING	12	EACH
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	593870	POUND
SP, SS, & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)	345170	POUND
SS & 807	PAINTING STRUCTURAL STEEL	15.5	TON
SS & 808	ELASTOMERIC BEARINGS	25039.0	CU. IN.
SP	PREFORMED SILICONE JOINT	163	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	3	EACH
816	FILTER BLANKET	1621	SQ. YD.
816	DUMPED RIPRAP	963	CU. YD
821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06465)	1.00	LUMP SUM
821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06466)	1.00	LUMP SUM
821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 06467)	1.00	LUMP SUM
SP	BRIDGE DECK REPAIR FOR POLYMER OVERLAY	1770	SQ. FT.
SP	POLYMER OVERLAY	7116	SQ. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
06-27-19	REVISED SHEETS TO REVISE STAGE 2 MAINTENANCE OF TRAFFIC ALIGNMENT, REVISED PIPE OUTLET AT STA. 219+25 RT, REVISED "SIGNS" AND "BARRICADES" QUANTITIES, REMOVED CONTROL OF ACCESS BREAK AT STA. 259+25 RT. AND ADDED CONTROL OF ACCESS BREAK AT STA. 263+00 RT.	30, 36, 38, 44, 46, 52, 55, 57, 63, 65-67, 73, 75, 81, 96-98, 102-104, 111, 117
07-02-19	REVISED SHEETS TO REDUCE RIGHT OF WAY WITH A TYPE SPECIAL SIDEWALK FROM STA. 198+32 LT. TO STA. 199+01 LT. REVISED "CONCRETE WALKS", "CONCRETE WALKS (TYPE SPECIAL)", AND "HAND RAILING" QUANTITIES.	28, 34, 36, 42, 44, 50, 55, 62, 63, 70, 73, 79, 86, 96, 97, 109, 133
07-17-19	REVISED SHEETS TO REMOVE CONTROL OF ACCESS BREAK AT STA. 321+50 LT, ADD CONTROL OF ACCESS BREAK AND DRIVEWAY AT STA. 329+85 LT., AND TO REMOVE DRIVEWAY OFF OF KERR STATION RD. AT STA. 1306+25 LT. REVISED SHEETS TO CORRECT MAINTENANCE OF TRAFFIC STRIPING FROM STA. 205+50 TO STA. 224+00 AND FROM STA. 335+20 TO STA. 366+00. REVISED "UNCLASSIFIED EXCAVATION", "AGGREGATE BASE COURSE (CLASS 7)", "TACK COAT", "MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")", "ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1 1/2")", "MINERAL AGGREGATE IN ACHM BINDER COURSE (1")", "ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")", "MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")", "ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")", "ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")", "PORTLAND CEMENT CONCRETE DRIVEWAY", "CONSTRUCTION PAVEMENT MARKINGS", "18" SIDE DRAIN", AND "PAVEMENT REPAIR OVER CULVERTS (CONCRETE)" QUANTITIES.	32, 35, 40, 43, 48, 51, 55, 59-61, 63, 67-69, 71, 72, 77, 80, 81, 85, 88, 92, 93, 96, 97, 125, 127, 134, 323, 349

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-27-19			
07-02-19			
07-17-19			

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
JOB NO. 061509	97	349
STATE ARK.		
FED.AID SYS.NO. 6		

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11485 TIMOTHY D. HAINES

7-17-19

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	98	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

SURVEY CONTROL COORDINATES

Project Name: s061509
Date: 4/20/2017
Coordinate System: ARKANSAS STATE PLANE - NORTH/SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	223436.4111	1293689.5539	270.332	CTL	AHTD STD. MON. STAMPED PN: 1
2	223721.2478	1294218.2696	270.495	CTL	AHTD STD. MON. STAMPED PN: 2
3	223039.4319	1293229.9690	269.975	CTL	AHTD STD. MON. STAMPED PN: 3
4	222779.4206	1294137.9446	265.025	CTL	AHTD STD. MON. STAMPED PN: 4
5	222041.7054	1294547.9508	268.083	CTL	AHTD STD. MON. STAMPED PN: 5
6	221997.4335	1295635.1126	264.582	CTL	AHTD STD. MON. STAMPED PN: 6
7	221996.6893	1296522.9308	263.359	CTL	AHTD STD. MON. STAMPED PN: 7
8	221937.7585	1297384.5978	261.782	CTL	AHTD STD. MON. STAMPED PN: 8
9	221721.5739	1298023.3389	262.522	CTL	AHTD STD. MON. STAMPED PN: 9
10	221351.3467	1298994.2142	265.055	CTL	AHTD STD. MON. STAMPED PN: 10
11	221172.5353	1299606.6330	280.697	CTL	AHTD STD. MON. STAMPED PN: 11
12	220852.3280	1300446.0497	280.775	CTL	AHTD STD. MON. STAMPED PN: 12
13	220509.8914	1301199.9862	263.057	CTL	AHTD STD. MON. STAMPED PN: 13
14	220425.7217	1301974.8931	262.008	CTL	AHTD STD. MON. STAMPED PN: 14
15	220484.7792	1302766.3131	263.069	CTL	AHTD STD. MON. STAMPED PN: 15
16	220528.3937	1303545.5250	266.918	CTL	AHTD STD. MON. STAMPED PN: 16
17	220570.0379	1304106.5532	269.171	CTL	AHTD STD. MON. STAMPED PN: 17
18	220688.1986	1305106.1428	271.779	CTL	AHTD STD. MON. STAMPED PN: 18
19	220556.8731	1306223.3860	279.506	CTL	AHTD STD. MON. STAMPED PN: 19
20	220016.9255	1306201.9778	290.018	CTL	AHTD STD. MON. STAMPED PN: 20
21	220983.6983	1306193.7467	276.216	CTL	AHTD STD. MON. STAMPED PN: 21
22	220440.9935	1306774.7050	281.855	CTL	AHTD STD. MON. STAMPED PN: 22
23	220202.7044	1307465.7938	284.822	CTL	AHTD STD. MON. STAMPED PN: 23
24	220164.2210	1308358.5482	289.819	CTL	AHTD STD. MON. STAMPED PN: 24
25	220206.4846	1309130.7790	301.460	CTL	AHTD STD. MON. STAMPED PN: 25
26	220242.5211	1309757.7419	311.228	CTL	AHTD STD. MON. STAMPED PN: 26
27	220798.8980	1309753.5529	309.058	CTL	AHTD STD. MON. STAMPED PN: 27
28	219621.6822	1309694.3191	314.312	CTL	AHTD STD. MON. STAMPED PN: 28
29	220109.1297	1310442.3196	325.362	CTL	AHTD STD. MON. STAMPED PN: 29
30	220106.3065	1310869.6940	329.481	CTL	AHTD STD. MON. STAMPED PN: 30
31	220161.2815	1311623.2386	326.524	CTL	AHTD STD. MON. STAMPED PN: 31
32	220095.0881	1312388.9783	322.900	CTL	AHTD STD. MON. STAMPED PN: 32
33	220080.2404	1312983.3149	337.041	CTL	AHTD STD. MON. STAMPED PN: 33
34	220078.2784	1313756.4897	307.367	CTL	AHTD STD. MON. STAMPED PN: 34
100	223916.7988	1293240.6082	297.287	GPS	AHTD GPS MON 430001
101	231758.1622	1299694.0221	278.375	GPS	AHTD GPS MON 430014A
900	223918.6850	1293232.0960	299.299	TBM	SQ CUT NE CRNR BRIDGE 5 CABOT
901	222808.6986	1294125.9174	264.975	TBM	SQ CUT SW CRNR CONC SLAB 321 CABOT
902	221991.0075	1295614.5843	265.802	TBM	SQ CUT W END OF CB 321 CABOT
903	221890.5147	1297370.1066	261.057	TBM	SQ CUT W END OF CB 321 CABOT
904	221406.5930	1298835.3752	262.984	TBM	SQ CUT CNTR OF HW 321 CABOT
905	220838.2037	1300459.5808	281.555	TBM	SQ CUT E END OF CB 321 CABOT
906	220393.3510	1301931.9875	260.175	TBM	SQ CUT BASE OF BILLBOARD 321 CABOT
907	220539.5914	1304120.8003	268.228	TBM	59' S OF C/L HWY 321 58.3' NW OF 321
908	220640.4858	1306153.6162	281.403	TBM	25' N OF C/L HWY 321 51.5' W OF 321
909	220182.5011	1307701.6818	287.619	TBM	24.0' S OF CL 321 32.5' N OF CN 321
910	220055.1294	1309680.3809	313.276	TBM	SQ CUT BACK CNTR OF CA 321 CABOT
911	220112.7730	1310910.8906	329.845	TBM	
912	220083.4627	1312501.8758	325.175	TBM	SQ CUT W END OF CUS FES 321 CABOT
913	220119.5306	1313931.3549	303.539	TBM	SQ CUT W END RCP 23.5' N OF CL 321

*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).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.99998730 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 s061509gi.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: 430001 - 430014A
CONVERGENCE ANGLE: 00-01-18 LEFT AT LT: 34-56-21 LG: 092-02-14
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 321

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	190+00.53	223906.6315	1293171.0707
8001	PC	196+61.30	223476.1966	1293672.4171
8003	PT	200+75.11	223152.1303	1293925.3536
8004	PC	209+95.48	222329.1233	1294337.3530
8006	PT	218+30.15	221934.7633	1295019.8346
8007	PC	233+52.48	222024.1431	1296539.5368
8009	PT	245+70.77	221838.8070	1297734.3845
8010	PC	281+40.52	220559.5253	1301067.0272
8012	PT	289+62.74	220436.5828	1301873.5984
8013	PC	324+87.46	220661.9951	1305391.1087
8015	PT	336+95.80	220486.4385	1306577.5872
8016	PC	339+89.53	220383.5705	1306852.7203
8018	PT	349+56.20	220202.7435	1307797.6613
8019	PC	367+71.12	220165.7904	1309612.2053
8021	PT	371+15.84	220156.1798	1309956.7909
8022	PC	372+30.12	220152.1346	1310071.0031
8024	PT	379+00.86	220138.2047	1310741.5655
8025	POE	386+50.14	220133.6061	1311490.8388

HWY. 367

POINT NO.	TYPE	STATION	NORTHING	EASTING
8026	POB	700+00.00	223027.1828	1293177.5735
8027	PC	703+39.51	223213.9379	1293461.1065
8029	PT	704+77.29	223288.3346	1293577.0676
8030	PC	709+81.36	223555.4076	1294004.5740
8032	PT	710+56.55	223595.6605	1294068.0761
8033	POE	711+83.96	223664.5764	1294175.2350

KERR STATION RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8034	POB	1300+00.00	220208.5164	1306193.0067
8035	PI	1300+47.47	220255.9638	1306194.3832
8036	PI	1301+72.68	220381.1349	1306191.0771
8037	PI	1306+00.12	220808.3474	1306204.8207
8038	PI	1307+25.20	220933.1379	1306213.3426
8039	POE	1307+96.46	221004.3657	1306215.6341

STAGE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8040	PC	233+13.69	222021.8661	1296500.8217
8042	PT	245+31.99	221836.5300	1297695.6694
8043	POB	317+85.00	220601.0304	1304691.1114
8044	POE	324+00.74	220670.3828	1305302.9286

MOT STAGE 3 1ST TAPER

POINT NO.	TYPE	STATION	NORTHING	EASTING
8046	POB	220+50.00	221947.6714	1295239.3076
8047	POE	223+99.09	221985.1137	1295586.3837
8048	POB	227+00.00	222002.8052	1295887.1882
8049	POE	230+50.41	222006.3840	1296237.5825

MOT STAGE 4 1ST TAPER

POINT NO.	TYPE	STATION	NORTHING	EASTING
8046	POB	220+50.00	221947.6714	1295239.3076
8050	POE	223+99.09	221951.1724	1295588.3800
8051	POB	227+00.00	221968.8639	1295889.1844
8049	POE	230+50.41	222006.3840	1296237.5825

6/26/2019

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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	99	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

190
P.O.B. 190+00.53
8000
SURVEY BASELINE
PNM2 PDAHTD STD. MON. STAMPED PNM2 321CABOT
SURVEY BASELINE S43°03'44"E
657.51'
S 49°21'07" E
660.77'
195
C.L. HWY. 321 STA. 197+73.63 =
C.L. HWY. 367 STA. 706+85.36
Δ = 80°00'00"
8001
PNM PDAHTD STD. MON. STAMPED PNM 321CABOT
N 58°00'22" E
504.07'
P.I. 198+70.97
HWY. 321
PI = 198+70.97
Δ = 22°45'34"RT.
D = 5°30'00"
T = 209.67'
L = 413.81'
PC = 196+61.30
PT = 200+75.11
NO SUPERELEVATION
200
S 49°21'07" E
209.67'
S 26°35'34" E
209.67'
C.L. HWY. 321
8003
SURVEY BASELINE S34°18'48"E
795.42'
205
P.C. 196+61.30
P.T. 200+75.11
705
8029
N 58°00'22" E
68.89'
P.I. 704+77.29
P.I. 704+08.40
STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00
PNM4 PDAHTD STD. MON. STAMPED PNM4 321CABOT
S 26°35'34" E
920.37'
205
210
SURVEY BASELINE
SURVEY BASELINE S29°03'52"E
844.00'
P.C. 209+95.48
8004
C.L. HWY. 321
S 26°35'34" E
472.01'
HWY. 321
PI = 214+67.49
Δ = 66°46'23"LT.
D = 8°00'00"
T = 472.01'
L = 834.67'
PC = 209+95.48
PT = 218+30.15
e = 0.040'/'
Ls = 540
512
SURVEY BASELINE S87°40'05"E
1086.06'
PNM5 PDAHTD STD. MON. STAMPED PNM5 321CABOT
N 86°38'03" E
472.01'
P.I. 214+67.49

SURVEY CONTROL DETAILS

6/12/2019
R061509.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.		061509	100	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-13-19

HWY. 321
PI = 214+67.49
Δ = 66°46'23"LT.
D = 8°00'00"
T = 472.01'
L = 834.67'
PC = 209+95.48
PT = 218+30.15
e = 0.040'/'
Ls = 540

215 220 225

SURVEY BASELINE

PN#5 321CABOT

SURVEY BASELINE S87°40'05"E 1088.06'

P.T. 218+30.15

N 86°38'03" E 472.01'

8006

C.L. STAGE 3

C.L. HWY. 321

C.L. STAGE 4

8046 8046

N 83°50'34" E 349.09' 8047

N 89°25'31" E 349.09' 8050

P.I. 220+50.00 P.I. 220+50.00

P.I. 223+99.09 P.I. 223+99.09

PN#6 PD:AHTD STD. MON. STAMPED PN#6 321CABOT

SURVEY BASELINE S89°57'07"E 887.82'

N 86°38'03" E 1522.33'

8048

N 89°24'53" E 350.41'

8051 N 83°51'12" E 350.41'

C.L. STAGE 3

C.L. STAGE 4

P.I. 227+00.00 P.I. 227+00.00

P.I. 230+50.41 P.I. 230+50.41

230 230 230

235 235

240 240

245 245

STA. 233+13.69 HWY. 321
=STA. 233+13.69 STAGE 2
0.00' OFFSET

C.L. STAGE 3

N 86°38'03" E 1522.33'

8040 8007

8049 8049

SURVEY BASELINE S89°57'07"E 887.82'

C.L. STAGE 4

P.I. 230+50.41 P.I. 230+50.41

P.C. 233+13.69

P.C. 233+52.48

PN#7 PD:AHTD STD. MON. STAMPED PN#7 321CABOT

SURVEY BASELINE

N 86°38'03" E 618.50'

N 86°38'03" E 618.50'

P.I. 239+32.19

P.I. 239+70.97

SURVEY BASELINE S86°05'15"E 863.68'

C.L. HWY. 321

C.L. STAGE 2

S 69°00'00" E 618.50'

S 69°00'00" E 618.50'

PN#8 PD:AHTD STD. MON. STAMPED PN#8 321CABOT

SURVEY BASELINE S71°18'05"E 674.33'

8042

P.I. 245+31.99

P.I. 245+70.77

HWY. 321
PI = 239+70.97
Δ = 24°21'57"RT.
D = 2°00'00"
T = 618.50'
L = 1218.30'
PC = 233+52.48
PT = 245+70.77
e = 0.024'/'
Ls = 450'

STAGE 2
P.I. = 239+32.19
Δ = 24° 21' 57" RT.
D = 2° 00' 00"
T = 618.50'
L = 1218.30'
P.C. = 233+13.69
P.T. = 245+31.99

6/12/2019

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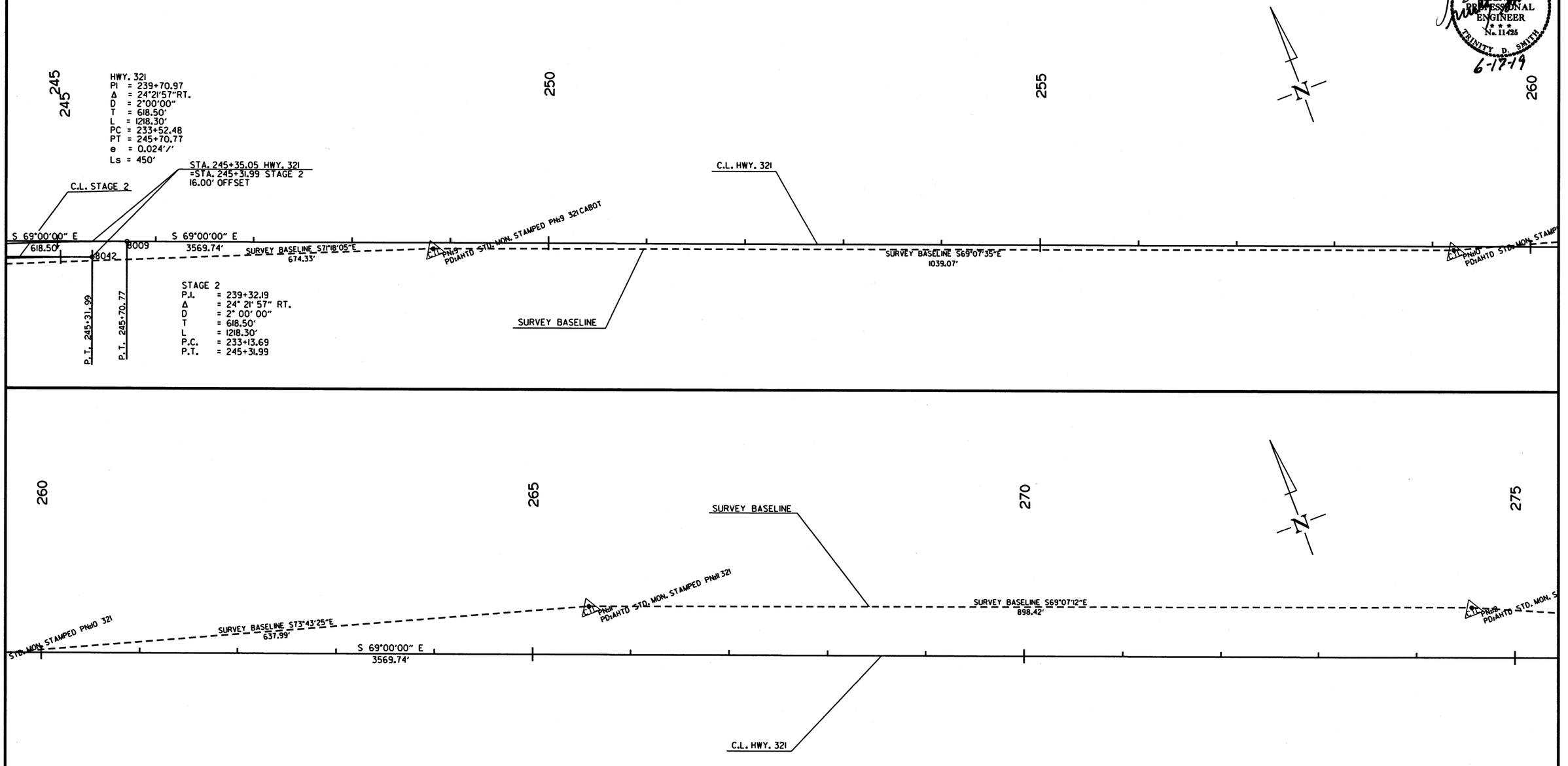
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	101	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19



6/12/2019

R061509.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
06-27-19				6	ARK.			
				JOB NO.		061509	102	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

HWY. 321
PI = 285+58.10
Δ = 24°40'00"LT.
D = 3°00'00"
T = 417.58'
L = 822.22'
PC = 281+40.52
PT = 289+62.74
e = 0.028'/'
Ls = 450'

275 280 285 290

SURVEY BASELINE

P.T. 289+62.74

P.C. 281+40.52

8010

8012

S 69°00'00" E
3569.74'

SURVEY BASELINE S65°34'21"E
828.06'

C.L. HWY. 321

SURVEY BASELINE S83°48'03"E
779.46'

N 86°20'00" E
3924.73'

N 86°20'00" E
417.58'

S 69°00'00" E
417.58'

P.I. 285+58.10

PK nail
PD:AHTD STD. MON. STAMPED PNI2 321

PK nail
PD:AHTD STD. MON. STAMPED PNI3 321

6/26/2019

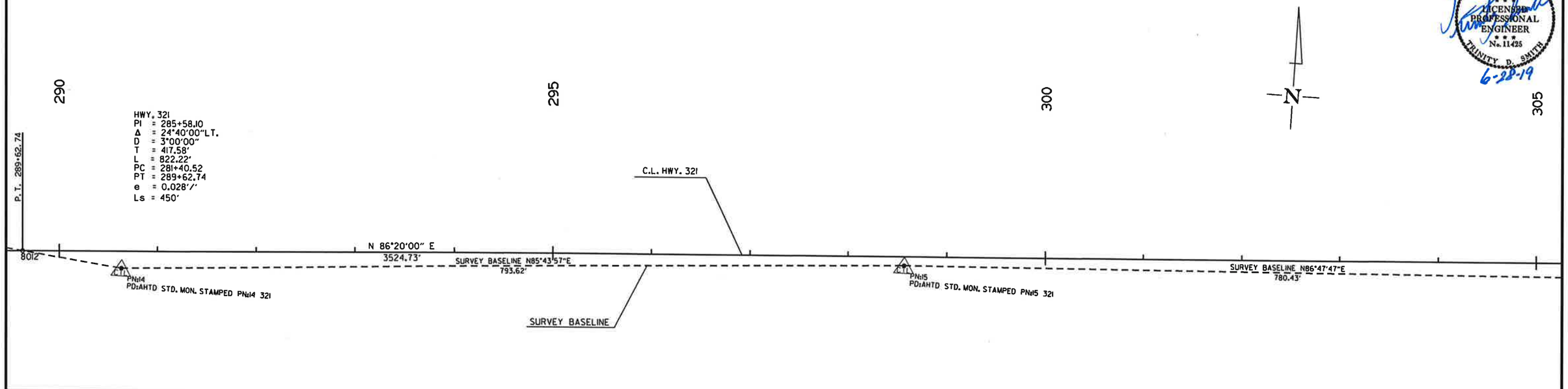
R061509.DGN

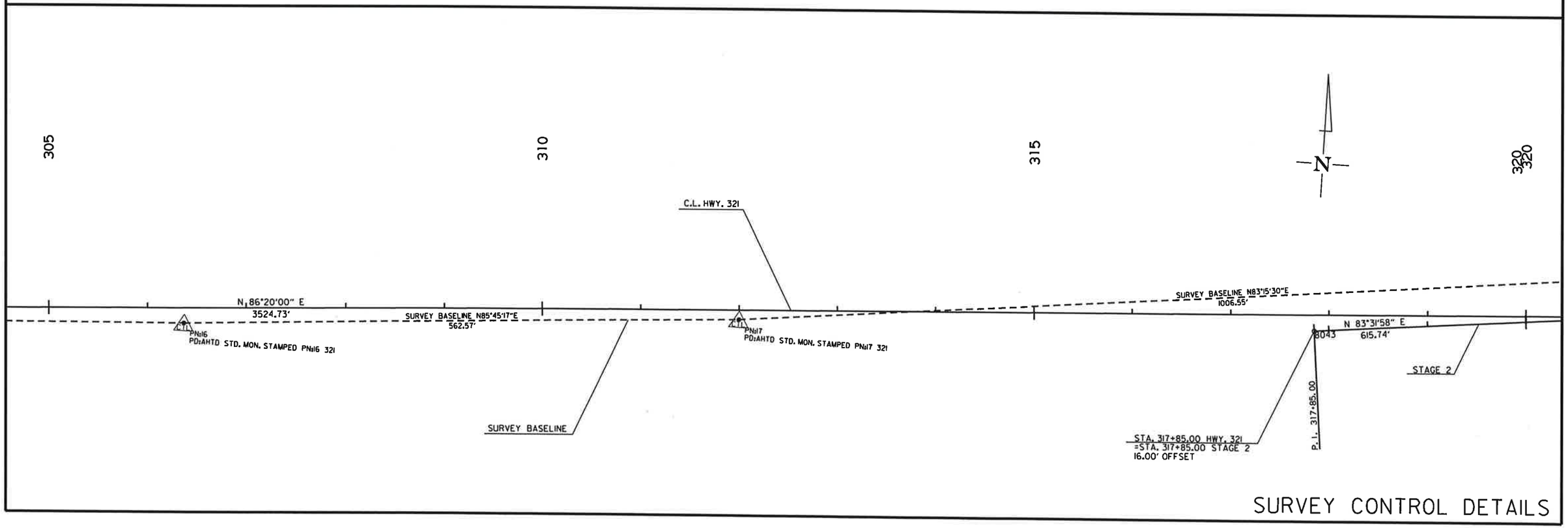
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	103	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19





6/26/2019

R061509.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
06-27-19				6	ARK.			
				JOB NO.		061509	104	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

320 325 330 335

SURVEY BASELINE

SURVEY BASELINE N83°15'30"E
1006.55'

PN18
PDIAHTD STD. MON. STAMPED PN18 321

8044

N 86°20'00" E
3524.73'

STA. 324+00.00 HWY. 321
=STA. 324+00.74 STAGE 2
14.00' OFFSET

STAGE 2

P.I. 324+00.74

8013

P.C. 324+87.46

SURVEY BASELINE S83°17'46"E
1124.94'

HWY. 321
PI = 331+00.75
Δ = 24°10'00"RT.
D = 2°00'00"
T = 613.29'
L = 1208.34'
PC = 324+87.46
PT = 336+95.80
e = 0.024'/'
Ls = 450'

C.L. HWY. 321

N 86°20'00" E
613.29'

P.I. 331+00.75

Δ = 02°03'51"RT.
R = 1306.00'

1305

C.L. HWY. 321 STA. 332+99.60 =
C.L. KERR STATION RD. STA. 1303+90.79
Δ = 80°00'00"

8037

N 3°54'24" E
125.08'

S 69°30'00" E
613.29'

PN19
PDIAHTD STD. MON. STAMPED PN19 321

SURVEY BASELINE S78°07'48"E
563.37'

S 60°33" E
7.43'

335 340 345 350

SURVEY BASELINE

SURVEY BASELINE S78°07'48"E 8015
563.37'

S 69°30'00" E
293.73'

PN22
PDIAHTD STD. MON. STAMPED PN22 321

P.C. 339+89.53

8016

SURVEY BASELINE S70°58'32"E
731.02'

S 69°30'00" E
487.97'

S 88°50'00" E
487.97'

PN23
PDIAHTD STD. MON. STAMPED PN23 321

SURVEY BASELINE S87°31'54"E
893.58'

8018

S 88°50'00" E
1814.92'

P.I. 349+56.20

HWY. 321
PI = 344+77.50
Δ = 19°20'00"LT.
D = 2°00'00"
T = 487.97'
L = 966.67'
PC = 339+89.53
PT = 349+56.20
e = 0.024'/'
Ls = 450'

HWY. 321
PI = 331+00.75
Δ = 24°10'00"RT.
D = 2°00'00"
T = 613.29'
L = 1208.34'
PC = 324+87.46
PT = 336+95.80
e = 0.024'/'
Ls = 450'

P.T. 336+95.80

C.L. HWY. 321

P.I. 344+77.50

6/26/2019

R061509.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.		061509	105	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

350 355 360 365

C.L. HWY. 321

SURVEY BASELINE S87°31'54"E
893.58'

S 88°50'00" E
1814.92'

SURVEY BASELINE N86°52'03"E
773.39'

SURVEY BASELINE N86°42'37"E
628.00'

SURVEY BASELINE

PN:24
PD:AHTD STD. MON. STAMPED PN:24 321

PN:25
PD:AHTD STD. MON. STAMPED PN:25 321

365 370 375 380

SURVEY BASELINE

SURVEY BASELINE N86°42'37"E
628.00'

P.I. 369+43.48

PN:26
PD:AHTD STD. MON. STAMPED PN:26 321

S 88°50'00" E
1814.92'

8019

S 88°50'00" E
172.36'

S 87°58'17" E
172.36'

8021

S 87°58'17" E
114.28'

P.C. 372+30.12

8022

SURVEY BASELINE S78°58'26"E
697.45'

S 87°58'17" E
335.39'

HWY. 321
PI = 375+65.51
Δ = 01°40'37"LT.
D = 0°15'00"
T = 335.39'
L = 670.73'
PC = 372+30.12
PT = 379+00.86
NO SUPERELEVATION

C.L. HWY. 321

P.T. 379+00.86

S 89°38'54" E
335.39'

8024

S 89°38'54" E
335.39'

P.C. 367+71.12

P.T. 371+15.84

P.I. 375+65.51

SURVEY BASELINE S89°37'17"E
427.38'

PN:29
PD:AHTD STD. MON. STAMPED PN:29 321

PN:30
PD:AHTD

STA. 368+56.71
END JOB 061509

6/12/2019

R061509.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.		061509	106	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

HWY. 321
PI = 375+65.51
Δ = 01°40'37"LT.
D = 0°15'00"
T = 335.39'
L = 670.73'
PC = 372+30.12
PT = 379+00.86
NO SUPERELEVATION

380 385 386

C.L. HWY. 321

P.T. 379+00.86

P.O.E. 386+50.14

S 89°38'54" E
335.39'

8024

S 89°38'54" E
749.29'

SURVEY BASELINE N85°49'39"E
755.55'

8025

SURVEY BASELINE S89°37'17"E
427.38'

MON. STAMPED PN:29 321

PN:30
PD:AHTD STD. MON. STAMPED PN:30 321

PN:31
PD:AHTD STD. MON. STAMPED PN:31 321

SURVEY BASELINE S85°03'34"E
768.60'

SURVEY BASELINE

N

6/12/2019

R061509.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.		061509	107	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

SURVEY BASELINE

S 49°21'01" E 660.77'

SURVEY BASELINE S 49°21'44"E 657.51'

195

C.L. HWY. 321

C.L. HWY. 321 STA. 197+73.63 =
C.L. HWY. 367 STA. 706+85.36
Δ = 80°00'00"

C.L. HWY. 367

700

705

710

711

STA. 705+20.00
BEGIN CONST.
HWY. 367

P.O.B. 700+00.00

P.I. 704+08.40

P.C. 196+61.30

8001

3/4" REBAR CAPPED PNI 321 CABOT

P.C. 709+81.36

P.T. 710+56.55

P.O.E. 711+83.96

8026

N 56°37'42" E
339.51'

8027

N 56°37'42" E
68.89'

N 58°00'22" E
68.89'

8029

N 58°00'22" E
504.07'

8030

N 58°00'22" E
37.59'

37.59'

8032

N 57°15'15" E
127.41'

8033

P.C. 703+39.51

P.T. 704+77.29

P.I. 710+18.96

HWY. 367
PI = 704+08.40
Δ = 01°22'40"RT.
D = 1°00'00"
T = 68.89'
L = 137.78'
PC = 703+39.51
PT = 704+77.29
NO SUPERELEVATION

HWY. 367
PI = 710+18.96
Δ = 00°45'07"LT.
D = 1°00'00"
T = 37.59'
L = 75.19'
PC = 709+81.36
PT = 710+56.55
NO SUPERELEVATION

S 49°21'01" E
209.61'

P.I. 198+70.97

S 26°35'34" E
209.67'

STA. 708+63.00
END CONST.
HWY. 367

200

P.T. 200+75.11

8003

SURVEY BASELINE S 34°18'48" E
795.42'

6/12/2019

R061509.DGN

HWY. 367

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.		061509	108	349

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

SURVEY BASELINE

SURVEY BASELINE S83°17'46"E 112.54'

86°20'00" E 613.29'

C.L. HWY. 321

330

STA. 1300+47.47
BEGIN CONST.
KERR STATION RD.

1300

P.O.B. 1300+00.00

P.I. 1300+47.47
Δ = 03°10'29"LT.

P.I. 1301+72.68
Δ = 03°21'20"RT.

C.L. KERR STATION RD.

P.I. 331+00.75

1305

C.L. HWY. 321 STA. 332+99.60 =
C.L. KERR STATION RD. STA. 1303+90.79
Δ = 80°00'00"

1307

P.I. 1306+00.12
Δ = 02°03'51"RT.

P.I. 1307+25.20
Δ = 02°03'51"LT.

P.O.E. 1307+96.46

N 1°39'42" E
8034 47.47' 8035

N 1°30'47" W
125.21'
8036

N 1°50'33" E
427.43'
8037

N 3°54'24" E
125.08'
8038

N 1°50'33" E
71.26'
8039

PNG9 PDAHTD STD. MON. STAMPED PNG9 321

S 69°30'00" E 613.29'

SURVEY BASELINE S 78°07'48" E 563.37'

P.T. 336+95.80

STA. 1307+25.20
END CONST.
KERR STATION RD.

335

KERR STATION RD.
SURVEY CONTROL DETAILS

6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-02-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	109	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-2-19

STA. 198+55 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 54' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 199+00 LT.
DROP INLET H = 5'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS IIIXTYPE 3) = 54 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 54 LIN FT.

STA. 198+32 CONSTRUCT
TYPE SPECIAL SIDEWALK ON LT.
= 110 SQ. YD.

STA. 198+32 INSTALL
HAND RAIL ON LT. = 165 LIN. FT.

TYPE SPECIAL SIDEWALK
AND HAND RAIL

STA. 198+10.79
BEGIN JOB 061509
LOG MILE 0.00

S 49°21'07" E
(FUTURE JOB 061311)

HWY. 321
PI = 198+70.97
Δ = 22°45'34"RT.
D = 5°30'00"
T = 209.67'
L = 413.81'
PC = 196+61.30
PT = 200+75.11
NO SUPERELEVATION

C.L. HWY. 321 STA. 197+73.63 =
C.L. HWY. 367 STA. 706+85.36
Δ = 80°00'00"

STA. 199+00 CONSTRUCT
DROP INLET ON LT.
AND 24" X 158' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 200+55 LT.
DROP INLET H = 5'-7"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS IIIXTYPE 3) = 158 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 158 LIN. FT.

STA. 199+35 CONSTRUCT
APPROACH ON LT. = 20 CU. YD.

STA. 200+55 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 178' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 202+35 LT.
DROP INLET H = 5'-7"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS IIIXTYPE 3) = 178 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 178 LIN. FT.

STA. 200+90 IN PLACE
18" X 40' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 35 CU. YD.

STA. 202+35 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 76' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 203+15 LT.
DROP INLET H = 5'-1"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS IIIXTYPE 3) = 76 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 76 LIN. FT.

STA. 202+70 IN PLACE
18" X 220' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 20 CU. YD.

SPECIAL FLOODPLAIN BOUNDARY

STA. 203+15 CONSTRUCT
DROP INLET ON LT.
AND 30" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 204+65 LT.
DROP INLET H = 4'-10"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS IIIXTYPE 3) = 146 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 203+15 IN PLACE
DROP INLET ON LT.
AND 18" X 52' INLET
AND 18" X 144' OUTLET
REMOVE OUTLET AND INSTALL
24" X 22' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 203+15 LT.
24" R.C. PIPE (CLASS IIIXTYPE 3) = 22 LIN. FT.

STA. 204+65 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 30" X 30' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 205+00 LT.
DROP INLET H = 4'-10"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS IIIXTYPE 3) = 30 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 30 LIN. FT.

STA. 204+65 IN PLACE
DROP INLET ON LT.
AND 18" X 36' OUTLET
REMOVE OUTLET AND INSTALL
18" X 32' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 204+65 LT.
18" R.C. PIPE (CLASS IIIXTYPE 3) = 36 LIN. FT.

STA. 204+75 IN PLACE
JUNCTION BOX ON LT.
AND DBL. 24" X 58' C.M. PIPE OUTLET
REMOVE JUNCTION BOX
AND FILL AND ABANDON PIPE OUTLET

STA. 204+90 IN PLACE
2' X 2' GRATE ON LT.
AND 24" X 10' PIPE OUTLET
REMOVE

STA. 198+25 IN PLACE
6' X 4' X 75' R.C. BOX CULVERT
ON 45° RT. FWD. SKEW
W/3:1 WINGS RT.
REMOVE HEADWALL RT. AND EXTEND 56' RT.
ON 15° LT. FWD. SKEW
TO A COMPLETED LENGTH OF 131'
CONNECT TO JUNCTION BOX @ STA. 198+93 RT.
Q50 = 53.2 CFS D.A. = 62.44 ACRES

STA. 198+55 CONSTRUCT
DROP INLET ON RT.
AND 30" X 24' PIPE OUTLET
CONNECT TO BOX CULVERT @ STA. 198+68 RT.
DROP INLET H = 6'-0"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS IIIXTYPE 3) = 24 LIN. FT.

STA. 198+93 CONSTRUCT
JUNCTION BOX ON RT.
AND 6' X 4' X 196' R.C. BOX CULVERT OUTLET
W/3:1 WINGS
JUNCTION BOX H = 5'-6"
TYPE C = 10' X 4'
Q50 = 53.2 CFS D.A. = 62.44 ACRES

STA. 199+65 IN PLACE
TRI. 36" X 76' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 5 CU. YD.
= 10 CU. YD. UNC. EXC.

STA. 201+50 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 202+80 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 203+20 IN PLACE
TRI. 36" X 82' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
TRI. 36" X 70' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 225 CU. YD.

STA. 204+65 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 204+84 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

STA. 205+45 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

90° TAPER
199+20.53
200+10.53

270' TAPER

100' TRANSITION

PROP. R/W & C/A
EXISTING R/W
CONST. LIMITS
PROPOSED R/W & C/A
T.C.E.

7/2/2019

R061509.DGN

HWY. 321

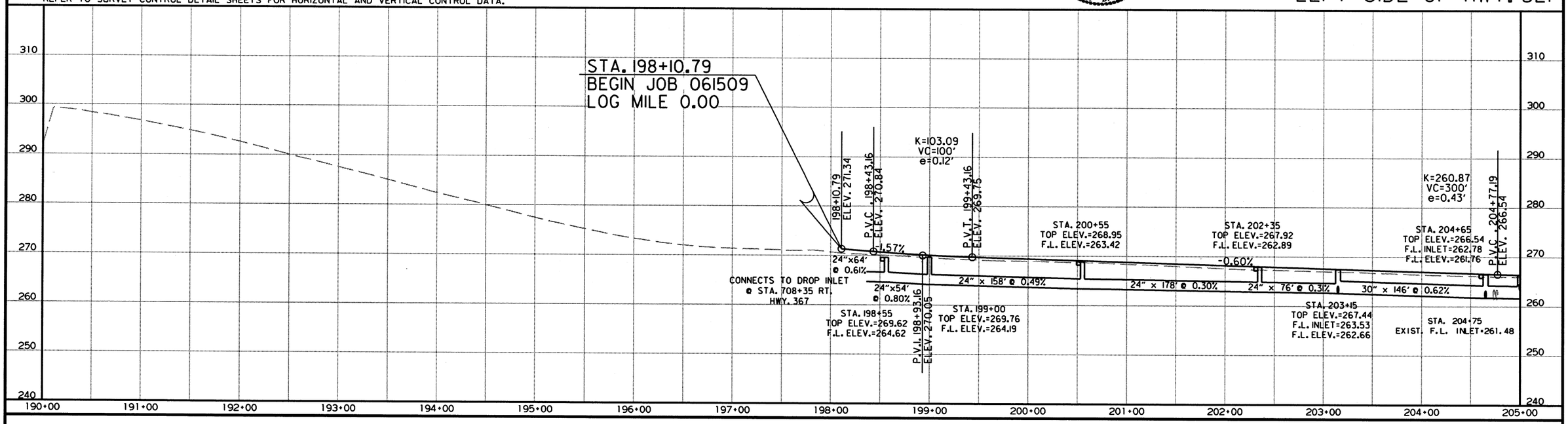
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	110	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 6-17-19 TRINITY D. SMITH

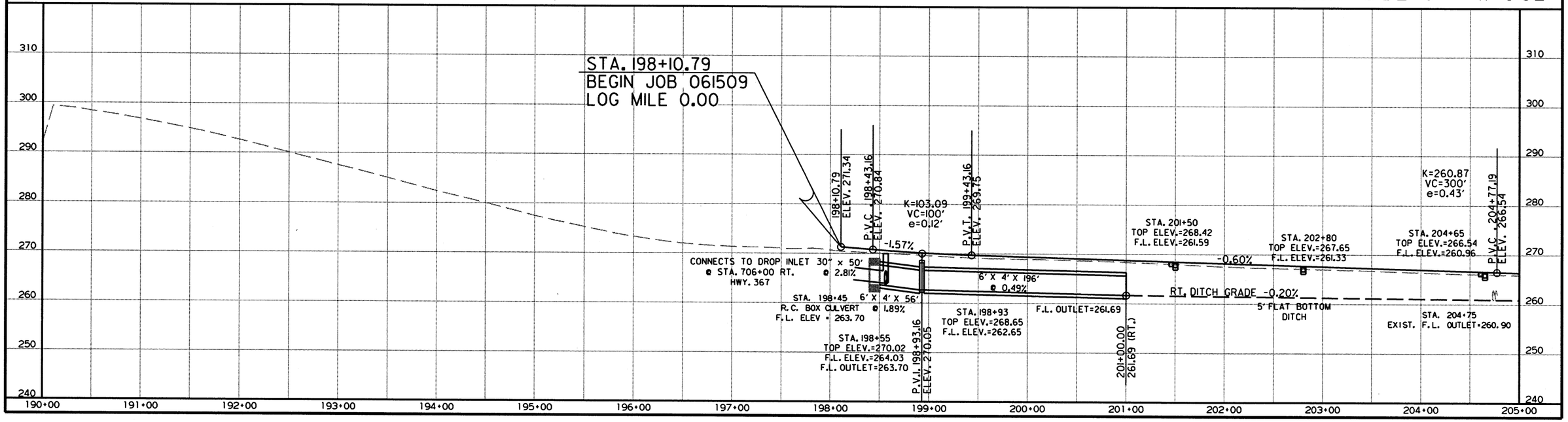
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	111	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

STA. 205+00 CONSTRUCT
DROP INLET ON LT.
AND 24" X 2' PIPE INLET W/F.E.S.
AND 30" X 72' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 205+75 LT.
DROP INLET H = 4'-8"
TYPE C DROP INLET = 4' X 4'
24" R.C. PIPE (CLASS III(TYPE 3) = 2 LIN. FT.
24" F.E.S. = 1EACH
30" R.C. PIPE (CLASS III(TYPE 3) = 72 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 72 LIN. FT.

STA. 205+05 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT.
= 3.3 SQ. YDS.

STA. 205+25 CONSTRUCT
TURNOUT ON LT. = 15 CU. YD.

STA. 205+66 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT.
= 3.3 SQ. YDS.

SPECIAL FLOODPLAIN BOUNDARY

STA. 205+75 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 4' PIPE INLET W/F.E.S.
AND 30" X 48' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 206+27 LT.
DROP INLET H = 4'-8"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
24" R.C. PIPE (CLASS III(TYPE 3) = 4 LIN. FT.
24" F.E.S. = 1EACH
30" R.C. PIPE (CLASS III(TYPE 3) = 48 LIN. FT
30" SLPCCS PIPE (TYPE 2) = 48 LIN. FT.

STA. 205+78 IN PLACE
24" X 60' C.M. PIPE CULVERT
W/METAL F.E.S.
FILL AND ABANDON

STA. 206+27 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 4' PIPE INLET W/F.E.S.
AND 30" X 118' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 207+50 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS II(TYPE 3) = 4' LIN. FT.
18" F.E.S. = 1EACH
30" R.C. PIPE (CLASS III(TYPE 3) = 118 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 118 LIN. FT.

STA. 206+80 IN PLACE
18" X 72' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 20 CU. YD.

STA. 207+50 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 8' PIPE INLET W/F.E.S.
AND 36" X 140' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 208+95 LT.
DROP INLET H = 5'-4"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III(TYPE 3) = 8 LIN. FT.
18" F.E.S. = 1EACH
36" R.C. PIPE (CLASS III(TYPE 3) = 140 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 140 LIN. FT.

STA. 207+80 IN PLACE
18" X 46' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 207+87 CONSTRUCT
APPROACH ON LT. = 30 CU. YD.

STA. 208+95 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 10' PIPE INLET W/F.E.S.
AND 36" X 60' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 208+95 RT.
DROP INLET H = 6'-6"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
24" R.C. PIPE (CLASS III(TYPE 3) = 10 LIN. FT.
24" F.E.S. = 1EACH
36" R.C. PIPE (CLASS III(TYPE 3) = 60 LIN. FT.
050 = 15.5 CFS D.A. = 7.3 ACRES

STA. 209+10 IN PLACE
JUNCTION BOX ON LT.
AND 24" X 64' R.C. PIPE INLET
AND 24" X 109' C.M. PIPE OUTLET
REMOVE

STA. 209+70 CONSTRUCT
APPROACH ON LT. = 95 CU. YD.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.	GATE
206+62	207+05	LT.		1
216+79	218+91	RT.	212	
218+07	219+04	LT.	108	
219+67	219+95	RT.		1

HWY. 321
PI = 214+67.49
Δ = 66°46'23"LT.
D = 8°00'00"
T = 472.01'
L = 834.67'
PC = 209+95.48
PT = 218+30.15
e = 0.040'/'
Ls = 540

STA. 210+10 CONSTRUCT
DROP INLET ON LT.
AND 18" X 8' PIPE INLET W/F.E.S.
AND 42" X 110' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 208+95 LT.
DROP INLET H = 6'-10"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 5' X 4'
18" R.C. PIPE (CLASS III(TYPE 3) = 8 LIN. FT.
18" F.E.S. = 1EACH
42" R.C. PIPE (CLASS III(TYPE 3) = 110 LIN. FT.
42" SLPCCS PIPE (TYPE 2) = 110 LIN. FT.

STA. 211+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 36" X 82' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 210+10 LT.
DROP INLET H = 6'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III(TYPE 3) = 82 LIN. FT
36" SLPCCS (TYPE 2) = 82 LIN. FT.

STA. 211+10 IN PLACE
GRATE ON LT.
AND 24" X 106' R.C. PIPE OUTLET
REMOVE

STA. 212+00 CONSTRUCT
DROP INLET ON LT. W/8' EXTENSION
AND 18" X 10' PIPE INLET W/F.E.S.
AND 36" X 92' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 211+00 LT.
DROP INLET H = 6'-5"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III(TYPE 3) = 10 LIN. FT.
18" F.E.S. = 1EACH
36" R.C. PIPE (CLASS III(TYPE 3) = 92 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 92 LIN. FT.

STA. 212+28 IN PLACE
GRATE ON LT.
AND 24" X 86' C.M. PIPE OUTLET
REMOVE

STA. 213+00 IN PLACE
24" X 86' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 115 CU. YD.

STA. 213+50 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 30" X 12' PIPE INLET W/F.E.S.
AND 36" X 140' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 212+00 LT.
DROP INLET H = 5'-10"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III(TYPE 3) = 12 LIN. FT.
30" F.E.S. = 1EACH
36" R.C. PIPE (CLASS III(TYPE 3) = 140 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 140 LIN. FT.

STA. 215+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 92' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 216+00 LT.
DROP INLET H = 3'-10"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 92 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 92 LIN. FT.

STA. 216+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 188' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 218+00 LT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 188' LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 188 LIN. FT.

STA. 218+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 120' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 219+25 LT.
DROP INLET H = 4'-4"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 120 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 120 LIN. FT.

STA. 219+15 IN PLACE
36" X 76' C.M. PIPE CULVERT
W/METAL F.E.S.
FILL AND ABANDON

SPECIAL FLOODPLAIN BOUNDARY

STA. 219+25 CONSTRUCT
DROP INLET ON LT. W/8' EXTENSION
AND 36" X 16' PIPE INLET W/F.E.S.
AND 36" X 60' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 219+25 RT.
DROP INLET H = 8'-2"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III(TYPE 3) = 76 LIN. FT.
36" F.E.S. = 1EACH
050 = 8.85 CFS D.A. = 4.6 ACRES

STA. 205+25 IN PLACE
DBL. 18" X 36' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
TRI. 36" X 38' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 100 CU. YD.

STA. 205+75 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 206+27 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 206+80 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 208+45 IN PLACE
30" X 86' C.M. PIPE CULVERT
24" X 86' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
TRI. 36" X 54' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 215 CU. YD.

SPECIAL FLOODPLAIN BOUNDARY

STA. 208+95 CONSTRUCT
DROP INLET ON RT.
AND 36" X 16' PIPE OUTLET W/F.E.S.
DROP INLET H = 7'-8"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III(TYPE 3) = 16 LIN. FT.
36" F.E.S. = 1EACH

STA. 213+00 IN PLACE
DBL. 36" X 90' PLASTIC PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 48" X 76' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 520 CU. YD.

STA. 217+50 INSTALL
HAND RAIL ON RT. = 175 LIN. FT.

STA. 219+25 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 36" X 18' PIPE OUTLET W/F.E.S.
DROP INLET H = 9'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
36" R.C. PIPE (CLASS III(TYPE 3) = 18 LIN. FT.
36" F.E.S. = 1EACH

STA. 219+60 CONSTRUCT
DROP INLET ON RT.
AND 18" X 32' OUTLET
CONNECT TO DROP INLET @ STA. 219+25 RT.
DROP INLET H = 6'-9"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 32 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 32 LIN. FT.

STA. 219+85 CONSTRUCT
APPROACH ON RT. = 30 CU. YD.

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16'-0" GATES
216+79	218+91	RT.	C	212	
218+07	219+04	LT.	C	108	
219+67	219+94	RT.			1

HWY. 321

6/26/2019

R061509.DGN

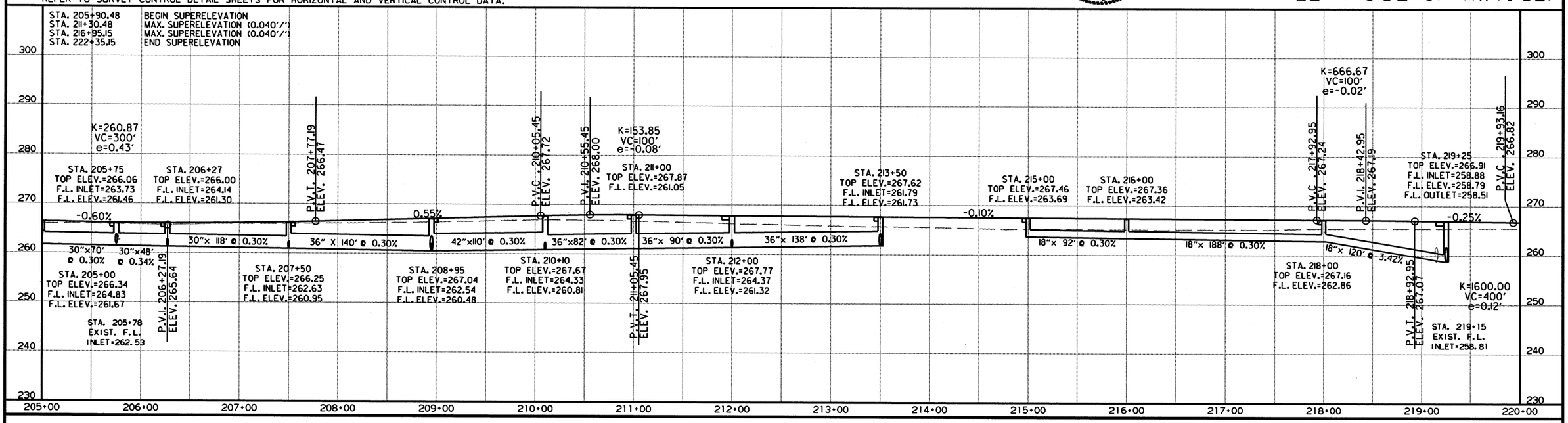
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	112	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11435
6-17-19
TRINITY D. SMITH

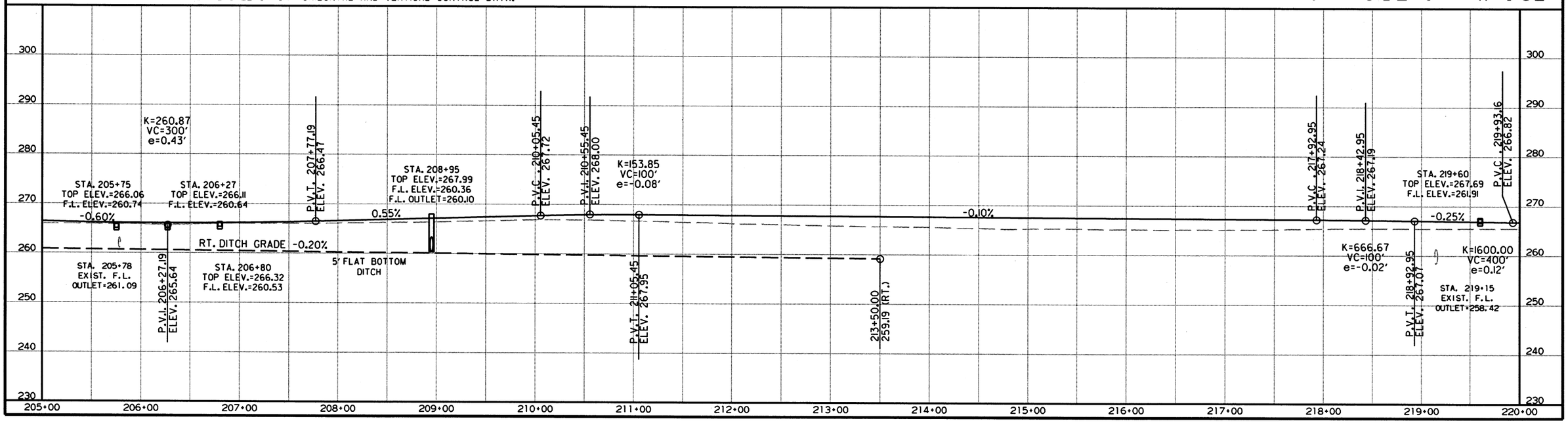
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	113	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
6-17-19

STA. 221+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 224+00 LT.
DROP INLET H = 5'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

STA. 221+40 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT.
= 3.3 SQ. YDS.

STA. 221+95 IN PLACE
24" X 62' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
TURNOUT = 60 CU. YD.

SPECIAL FLOODPLAIN BOUNDARY

STA. 224+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 16' PIPE OUTLET W/F.E.S.
DROP INLET H = 6'-4"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 16 LIN. FT.
24" F.E.S. = 1EACH

STA. 224+53.30 BRIDGE END
IN PLACE BRIDGE NO. 06465
75'-0" 3-25'-0" R.C.D.G. SPANS
58' CLEAR ROADWAY
75'-0" BRIDGE LENGTH
STA. 225+28.30 BRIDGE END
RETAIN AND WIDEN

SPECIAL FLOODPLAIN BOUNDARY

WHITE OAK BRANCH

BRIDGE END
STA. 224+53.30
ELEV. 266.33

BRIDGE END
STA. 225+28.30
ELEV. 266.33

YOUNG'S TIRE & AUTO

N

REMOVAL AND DISPOSAL OF FENCE				
STA.	STA.	SIDE	LIN. FT.	GATE
220+31	220+48	RT.	32	
220+48	220+90	RT.		1
220+90	224+00	RT.	310	
225+38	233+25	LT.	787	
234+10	244+12	LT.	1002	

STA. 226+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 18' PIPE OUTLET W/F.E.S.
DROP INLET H = 5'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 18 LIN. FT.
18" F.E.S. = 1EACH

STA. 228+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 196' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 226+00 LT.
DROP INLET H = 5'-7"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 196 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 196 LIN. FT.

STA. 230+50 CONSTRUCT
DROP INLET ON LT.
AND 18" X 246' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 228+00 LT.
DROP INLET H = 4'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 246 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 246 LIN. FT.

STA. 232+75 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 222' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 230+50 LT.
DROP INLET H = 4'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 222 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 222 LIN. FT.

STA. 233+55 IN PLACE
18" X 58' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 96' R.C. PIPE CULVERT

HWY. 321
PI = 239+70.97
Δ = 24°21'57"RT.
D = 2°00'00"
T = 618.50'
L = 1218.30'
PC = 233+52.48
PT = 245+70.77
e = 0.024'/'
Ls = 450'

NALLEY RD.
MARLOW DR.
PROP. R/W
EXISTING R/W
PROPOSED R/W & C/A
EXISTING R/W & PROP. C/A
CONST. LIMITS
PROP. R/W & C/A
EXISTING R/W
CONST. LIMITS
PROPOSED R/W & C/A
PROP. R/W
BILL FOSTER

N 86°38'03" E

220 225 230 235

+85 +65 +95 +90 +55

56' 56' 40' 30' 40' 30' 16'

T.C.E.

STA. 220+30 CONSTRUCT
DROP INLET ON RT.
AND 18" X 66' OUTLET
CONNECT TO DROP INLET @ STA. 219+60 RT.
DROP INLET H = 5'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 66 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 66 LIN. FT.

C FELLOWSHIP BIBLE CHURCH

STA. 220+65 CONSTRUCT
APPROACH ON RT. = 110 CU. YD.

STA. 222+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

FENCE				
STA.	STA.	SIDE	TYPE	LIN. FT.
225+38	233+25	LT.	C	787
234+10	244+12	LT.	C	1002

STA. 224+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 226+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 228+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

SPECIAL FLOODPLAIN BOUNDARY

STA. 230+50 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 24" X 16' PIPE OUTLET W/F.E.S.
DROP INLET H = 6'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 16 LIN. FT.
24" F.E.S. = 1EACH

STA. 230+90 IN PLACE
15" X 62' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 52' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YD.

STA. 233+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 24" X 246' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 230+50 RT.
DROP INLET H = 4'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 246 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 246 LIN. FT.

B PINNACLE STRUCTURES INC

STA. 233+55 IN PLACE
15" X 60' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 52' R.C. PIPE CULVERT
CONSTRUCT APPROACH = 65 CU. YD.

STA. 234+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 233+00 RT.
DROP INLET H = 4'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 235+00 CONSTRUCT
DROP INLET ON RT.
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 234+00 RT.
DROP INLET H = 3'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

6/12/2019

R061509.DGN

HWY. 321

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

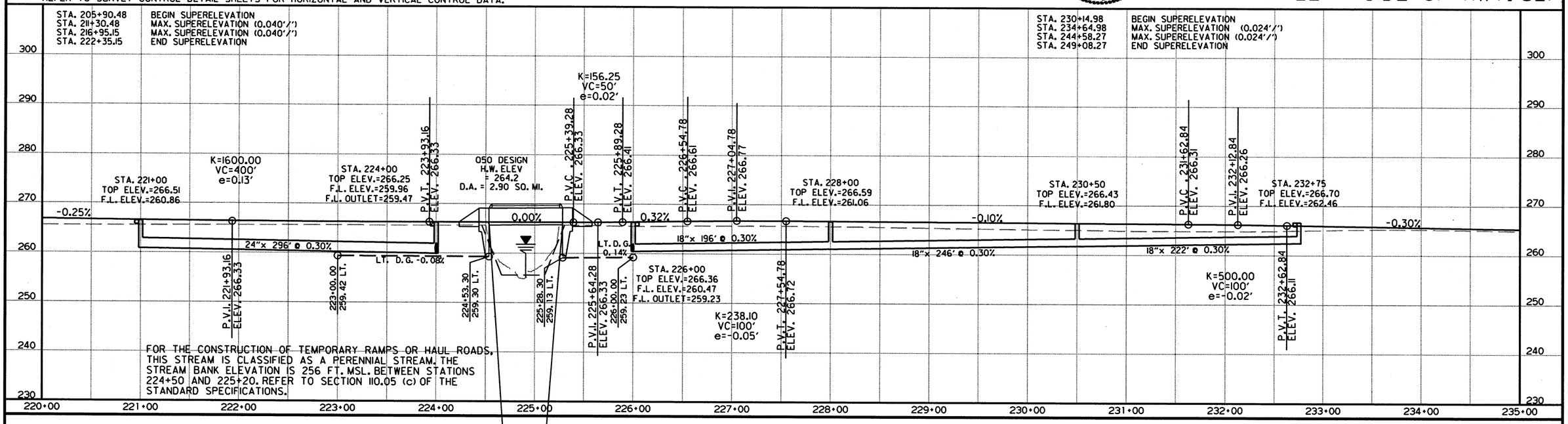
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	061509		114	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11475
TRINITY D. SMITH
6-12-19

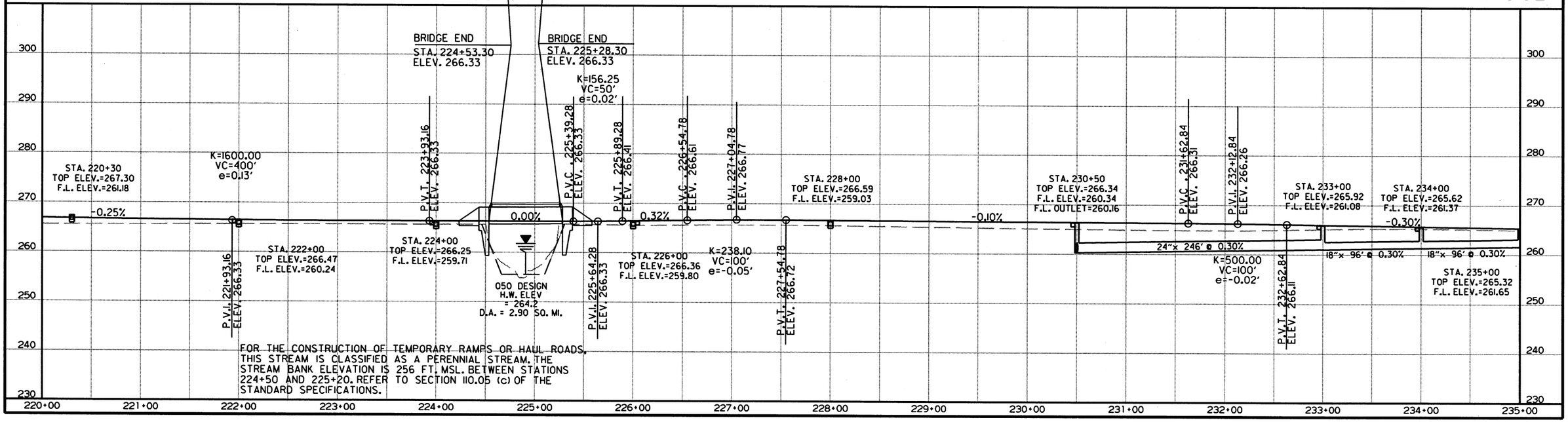
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	115	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

HWY. 321
PI = 239+70.97
Δ = 24°21'57"RT.
D = 2°00'00"
T = 618.49'
L = 1218.29'
PC = 233+52.48
PT = 245+70.77
e = 0.024'/'
Ls = 450'

STA. 241+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 16' PIPE INLET W/F.E.S.
AND 18" X 98' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 242+00 LT.
DROP INLET H = 6'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 16 LIN. FT.
18" F.E.S. = 1 EACH
18" R.C. PIPE (CLASS III(TYPE 3) = 98 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 98 LIN. FT.

STA. 241+40 IN PLACE
18" X 50' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 5 CU. YD.

STA. 242+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 16' PIPE INLET W/F.E.S.
AND 30" X 60' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 242+00 RT.
DROP INLET H = 7'-2"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III(TYPE 3) = 16 LIN. FT.
18" F.E.S. = 1 EACH
30" R.C. PIPE (CLASS III(TYPE 3) = 60 LIN. FT.
Q50 = 11.9 CFS D.A. = 5.2 ACRES

SPECIAL FLOODPLAIN BOUNDARY

STA. 244+10 IN PLACE
24" X 80' C.M. PIPE CULVERT
W/METAL F.E.S. ON 30°LT. FWD. SKEW
REMOVE 30' LT.
FILL AND ABANDON

STA. 244+26 CONSTRUCT
DROP INLET ON LT.
AND 24" X 26' PIPE INLET W/F.E.S.
AND 24" X 224' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 242+00 LT.
DROP INLET H = 6'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III(TYPE 3) = 250 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 224 LIN. FT.
24" F.E.S. = 1 EACH

STA. 246+15 IN PLACE
18" X 54' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' R.C. PIPE CULVERT
CONSTRUCT APPROACH = 5 CU.

STA. 248+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 114' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 249+18 LT.
DROP INLET H = 4'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 114 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 114 LIN. FT.

STA. 249+18 CONSTRUCT
DROP INLET ON LT.
AND 18" X 78' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 250+00 LT.
DROP INLET H = 4'-7"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 78 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 78 LIN. FT.

STA. 249+35 IN PLACE
24" X 78' C.M. PIPE CULVERT
W/METAL F.E.S. ON 45°RT. FWD. SKEW
FILL AND ABANDON

STA. 250+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 186' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 251+90 LT.
DROP INLET H = 5'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 186 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 186 LIN. FT.

STA. 237+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 238+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 239+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 241+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

SPECIAL FLOODPLAIN BOUNDARY

STA. 242+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION LT. AND RT.
AND 36" X 8' PIPE OUTLET W/F.E.S.
DROP INLET H = 6'-0"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III(TYPE 3) = 8 LIN. FT.
36" F.E.S. = 1 EACH

STA. 243+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 242+00 RT.
DROP INLET H = 5'-1"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 244+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 243+00 RT.
DROP INLET H = 4'-4"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 245+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 244+00 RT.
DROP INLET H = 3'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 246+50 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 245+00 RT.
DROP INLET H = 3'-10"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 146 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 246+86 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

STA. 247+30 CONSTRUCT
TURNOUT ON RT. = 25 CU. YD.

STA. 247+86 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

STA. 248+00 CONSTRUCT
DROP INLET ON RT.
AND 18" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 246+50 RT.
DROP INLET H = 3'-9"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 146 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 249+45 IN PLACE
DROP INLET ON RT.
AND 24" X 116' PIPE INLET
REMOVE

STA. 250+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 196' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 248+00 RT.
DROP INLET H = 3'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III(TYPE 3) = 196 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 196 LIN. FT.

TYPE SPECIAL SIDEWALK AND HAND RAIL

STA. 247+76 CONSTRUCT
TYPE SPECIAL SIDEWALK ON RT.
= 239 SQ. YD.

STA. 247+76 INSTALL
HAND RAIL ON RT. = 358 LIN. FT.

B MULTI BUSINESS

EXISTING R/W & PROP. C/A
PROPOSED R/W & C/A
CONST. LIMITS
N 86°38'03" E
S 69°00'00" E
HIGHWAY
LAKEWOOD DR.
235
240
245
250
6/12/2019
R061509.DGN

HWY. 321

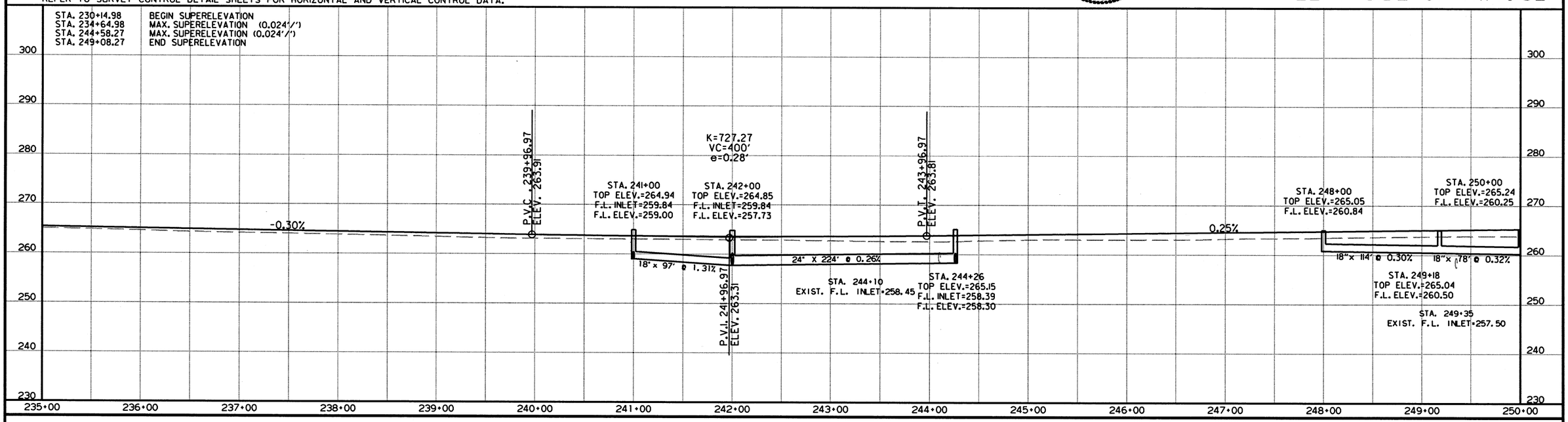
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	116	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
6-7-19
TRINITY D. SMITH

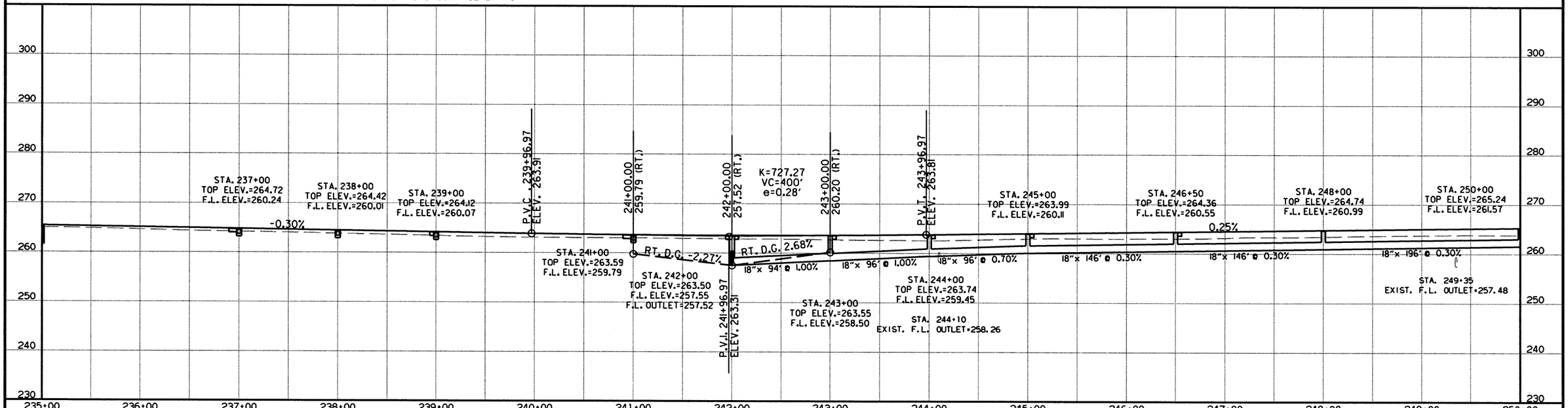
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
06-27-19				6	ARK.			
				JOB NO.		061509	117	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-28-19

FENCE				
STA.	STA.	SIDE	TYPE	LIN. FT.
257+80	260+39	LT.	C	259
258+40	261+05	RT.	C	265
261+09	265+78	LT.	C	469
261+80	265+71	RT.	C	391

STA. 254+25 CONSTRUCT
APPROACH ON LT. = 10 CU. YD.

STA. 254+75 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 251+90 IN PLACE
36" X 74' C.M. PIPE CULVERT
W/METAL F.E.S.
REMOVE AND CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 30" X 20' PIPE INLET W/F.E.S.
AND 30" X 60' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 251+90 RT.
DROP INLET H = 7'-6"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 80 LIN. FT.
30" F.E.S. = 1EACH
Q50 = 8.44 CFS D.A. = 3.6 ACRES

STA. 257+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 257+53 IN PLACE
DBL. 10' X 6' X 60' R.C. BOX CULVERT
W/3:1 WINGS LT. AND RT.
REMOVE HEADWALL RT. AND EXTEND 50' RT.
ON 15° RT. FWD. SKEW
W/3:1 WINGS RT.
TO A COMPLETED LENGTH OF 110'
Q50 = 25.2 CFS D.A. = 18.5 ACRES
SPAN = 22'-1"

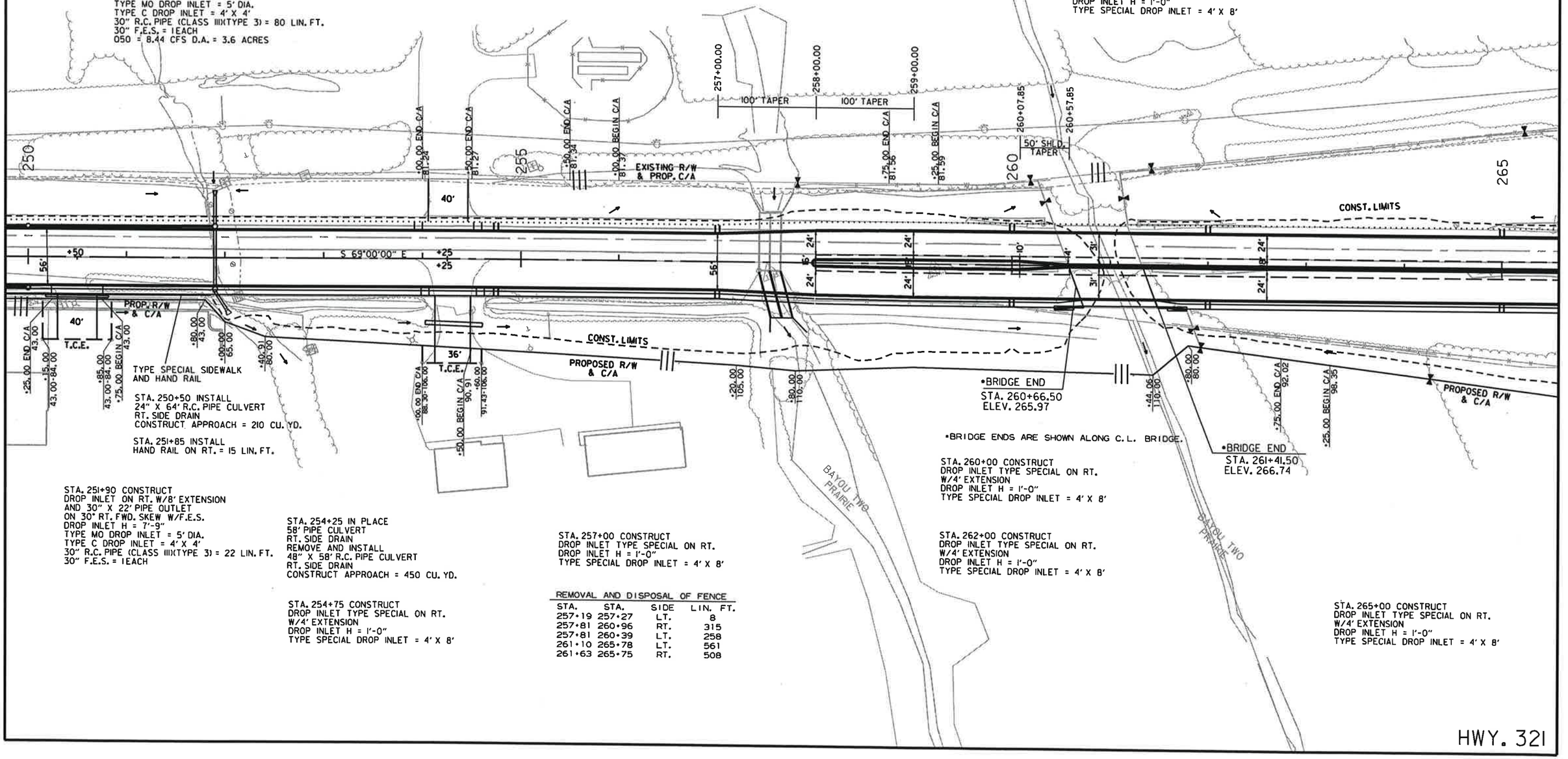
STA. 260+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 260+51.46 BRIDGE END
IN PLACE BRIDGE NO. 06466
75'-0" 3-25'-0" R.C.D.G. SPANS
40' CLEAR ROADWAY
75'-0" BRIDGE LENGTH
STA. 261+26.46 BRIDGE END
RETAIN AND MODIFY

STA. 260+66.50 BRIDGE END
BRIDGE NO. A6466
75'-0" 3-25'-0" R.C.D.G. SPANS
31' CLEAR ROADWAY
75'-0" BRIDGE LENGTH
STA. 261+41.50 BRIDGE END

STA. 262+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 265+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'



STA. 250+50 INSTALL
24" X 64' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 210 CU. YD.

STA. 251+85 INSTALL
HAND RAIL ON RT. = 15 LIN. FT.

STA. 251+90 CONSTRUCT
DROP INLET ON RT. W/8' EXTENSION
AND 30" X 22' PIPE OUTLET
ON 30° RT. FWD. SKEW W/F.E.S.
DROP INLET H = 7'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 22 LIN. FT.
30" F.E.S. = 1EACH

STA. 254+25 IN PLACE
58' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
48" X 58' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 450 CU. YD.

STA. 254+75 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 257+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

REMOVAL AND DISPOSAL OF FENCE			
STA.	STA.	SIDE	LIN. FT.
257+19	257+27	LT.	8
257+81	260+96	RT.	315
257+81	260+39	LT.	258
261+10	265+78	LT.	561
261+63	265+75	RT.	508

•BRIDGE ENDS ARE SHOWN ALONG C.L. BRIDGE.

STA. 260+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 262+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 265+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

6/28/2019

R061509.DGN

HWY. 321

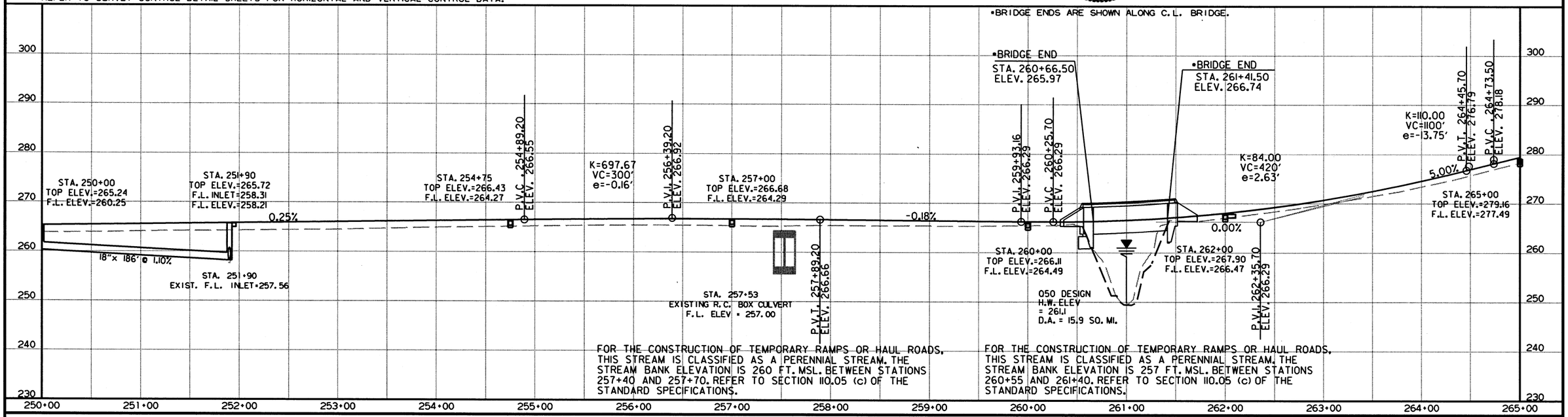
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	118	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 6-7-19

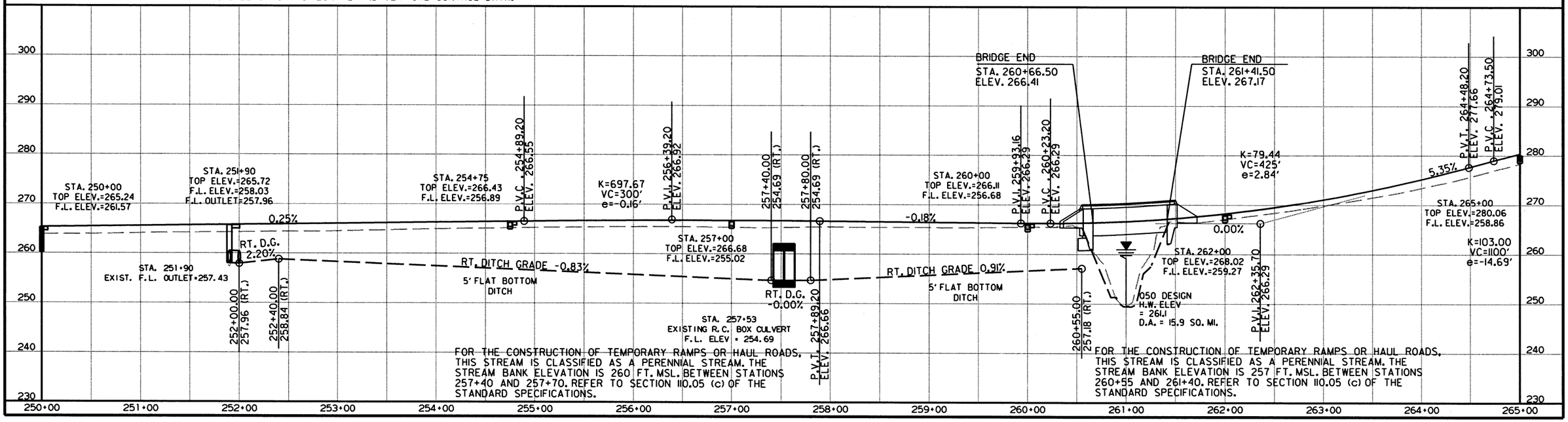
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	119	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

STA. 265+90.20 BRIDGE END
IN PLACE BRIDGE NO. 06467
850'-5½" CONTINUOUS COMPOSITE
W-BEAM UNIT
40' CLEAR ROADWAY
850'-5½" BRIDGE LENGTH
STA. 274+40.61 BRIDGE END
RETAIN AND MODIFY

STA. 265+90.40 BRIDGE END
BRIDGE NO. A6467
850'-2½" CONTINUOUS COMPOSITE
W-BEAM UNIT
31' CLEAR ROADWAY
850'-2½" TOTAL BRIDGE LENGTH
STA. 274+40.60 BRIDGE END

STA. 275+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 276+65 INSTALL
48" X 176' R.C. PIPE CULVERT
W/F.E.S. LT. AND RT.
Q50 = 50.6 CFS D.A. = 33.6 ACRES
48" R.C. PIPE (CLASS V)(TYPE 3) = 176 LIN. FT.
48" F.E.S. = 2 EACH
INSTALL BY METHODS IN SPECIAL PROVISION
"PIPE CULVERTS"

STA. 276+80 IN PLACE
48" X 160' C.M. PIPE CULVERT
FILL AND ABANDON

STA. 278+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 279+20 IN PLACE
DBL. 48" X 80' C.M. PIPE CULVERT
ON 15° LT. FWD. SKEW
W/METAL F.E.S. LT. AND RT.
FILL AND ABANDON

STA. 279+42 INSTALL
DBL. 48" X 110' R.C. PIPE CULVERT
W/F.E.S. LT. AND RT.
Q50 = 122 CFS D.A. = 92.8 ACRES
48" R.C. PIPE (CLASS III)(TYPE 3) = 220 LIN. FT.
48" F.E.S. = 4 EACH

STA. 280+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

•BRIDGE ENDS ARE SHOWN ALONG C.L. BRIDGE.

265 •BRIDGE END STA. 265+90.40 ELEV. 284.16

•64.17 END C/A 62.29

270

•65.98 BEGIN C/A 62.36

EXISTING R/W & PROP. C/A

•BRIDGE END STA. 274+40.60 ELEV. 284.89

274+40.61

274+90.61 275

277+00.00 100' TAPER 278+00.00 100' TAPER 279+00.00

50' SHLD. TAPER

CONST. LIMITS

280

•25.00 END C/A 36.75

S 69°00'00" E

24' 24' 31' 31' 24' 10' 24' 24' 24' 24' 56'

EXISTING R/W

CONST. LIMITS

R/W

•72.59 60.00

•72.65 155.00

•40.84 END C/A 60.00

•42.64 BEGIN C/A 60.00

PROPOSED R/W & C/A

•72.59 60.00

•72.65 165.00

•72.63 107.43

EXISTING R/W

CONST. LIMITS

PROPOSED R/W & C/A

•60.00 125.00

•100.00 165.00

•110.00 95.00

•95.91 75.00

•25.00 END C/A 74.75

STA. 275+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 278+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 279+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

6/14/2019

R061509.DGN

HWY. 321

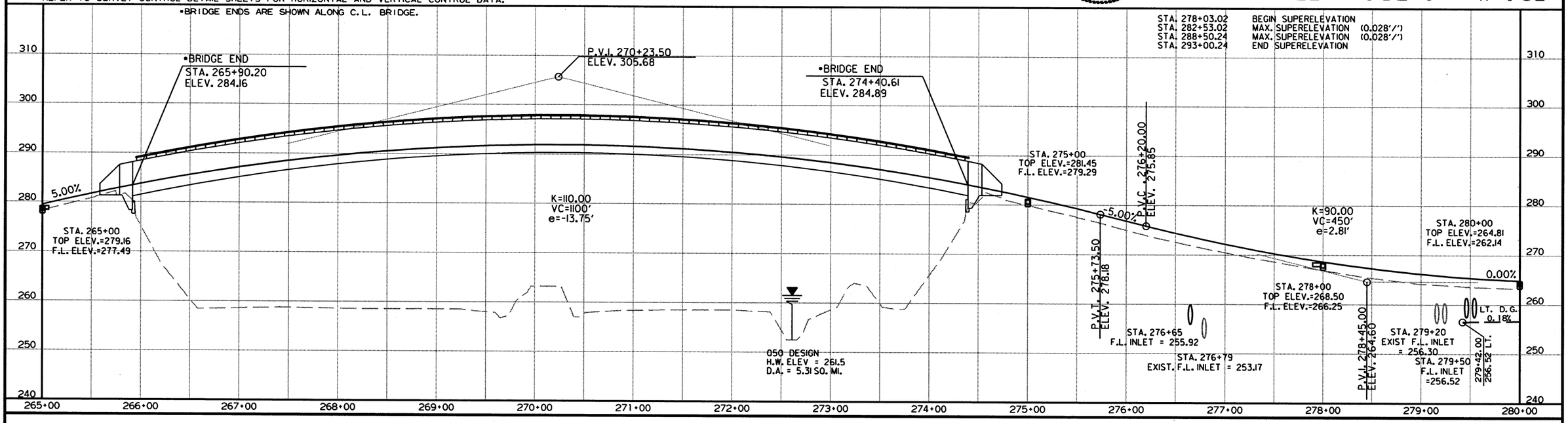
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	120	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
6-12-19
TIMOTHY D. SMITH

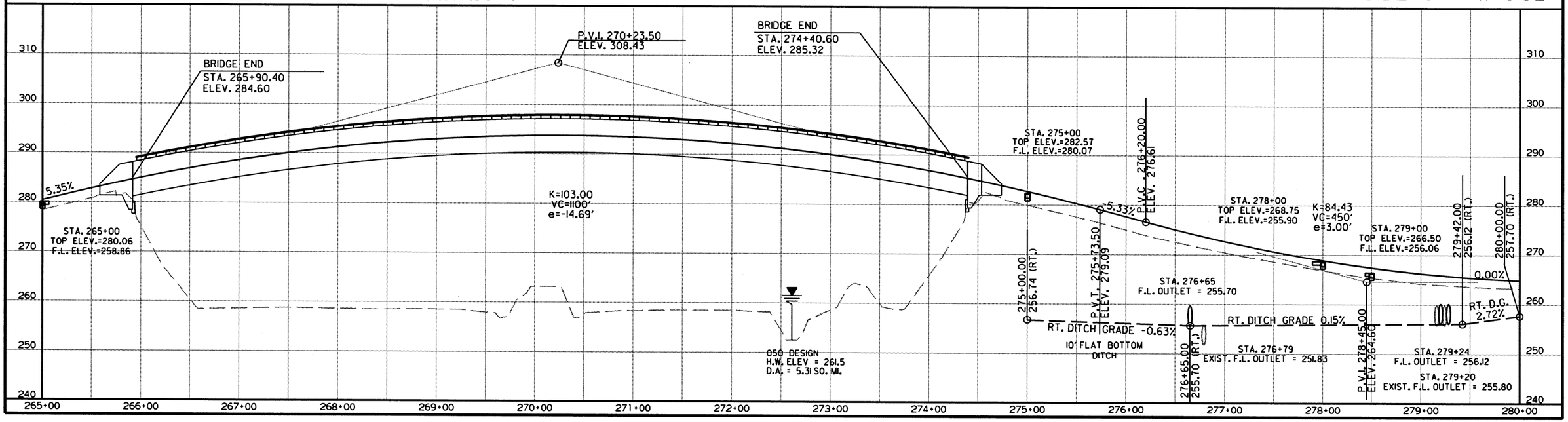
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	121	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

STA. 281+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 282+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 283+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 284+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 285+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 286+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 287+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 288+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

HWY. 321
PI = 285+58.10
Δ = 24°40'00"LT.
D = 3°00'00"
T = 417.58'
L = 822.22'
PC = 281+40.52
PT = 289+62.74
e = 0.028'/'
Ls = 450'

STA. 289+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 290+00 CONSTRUCT
DROP INLET ON LT. W/8' EXTENSION
AND 18" X 10' PIPE OUTLET W/F.E.S.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 10 LIN. FT.
18" F.E.S. = 1EACH

STA. 290+50 IN PLACE
18" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' R.C. PIPE CULVERT
CONSTRUCT APPROACH = 30 CU. YD.

STA. 291+00 CONSTRUCT
DROP INLET ON LT.
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 290+00 LT.
DROP INLET H = 3'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 294+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 295+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 290+00 CONSTRUCT
DROP INLET ON RT.
AND 18" X 12' PIPE OUTLET W/F.E.S.
DROP INLET H = 3'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 12 LIN. FT.
18" F.E.S. = 1EACH

STA. 290+50 IN PLACE
18" X 32' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 38' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 190 CU. YD.

STA. 291+00 CONSTRUCT
DROP INLET ON RT.
AND 18" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 290+00 RT.
DROP INLET H = 3'-7"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 96 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 294+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 295+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

SPECIAL FLOODPLAIN BOUNDARY

SPECIAL FLOODPLAIN BOUNDARY

N

S 69°00'00" E

N 86°20'00" E

CONST. LIMITS

EXISTING R/W

EXISTING R/W & PROP. C/A

PROPOSED R/W & C/A

T.C.E.

PC 281+40.52

PI 285+58.10

PT 289+62.74

6/12/2019

R061509.DGN

HWY. 321

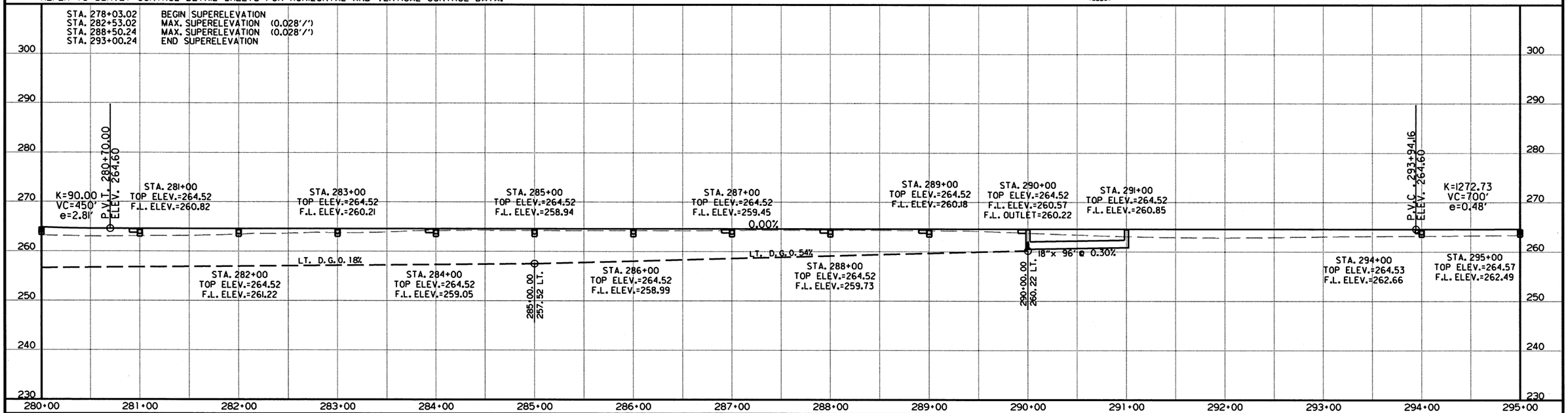
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	122	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
TRINITY D. SMITH
LICENSED PROFESSIONAL ENGINEER
No. 11495
6-17-19

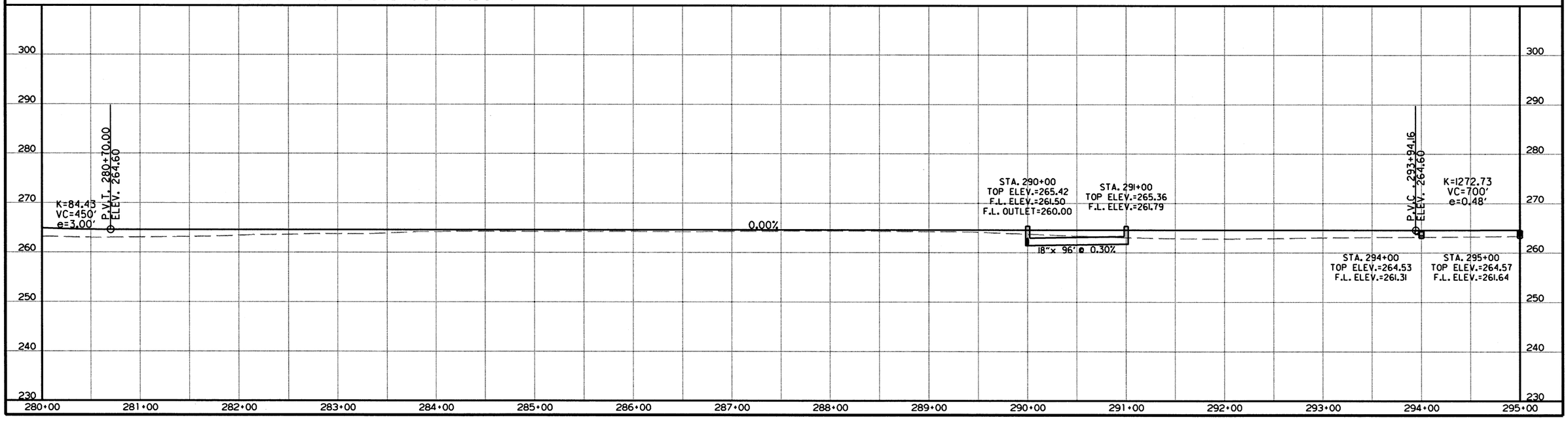
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	123	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

SPECIAL FLOODPLAIN BOUNDARY

STA. 296+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 297+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 298+30 CONSTRUCT
APPROACH ON LT. = 5 CU. YD.

STA. 298+65 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

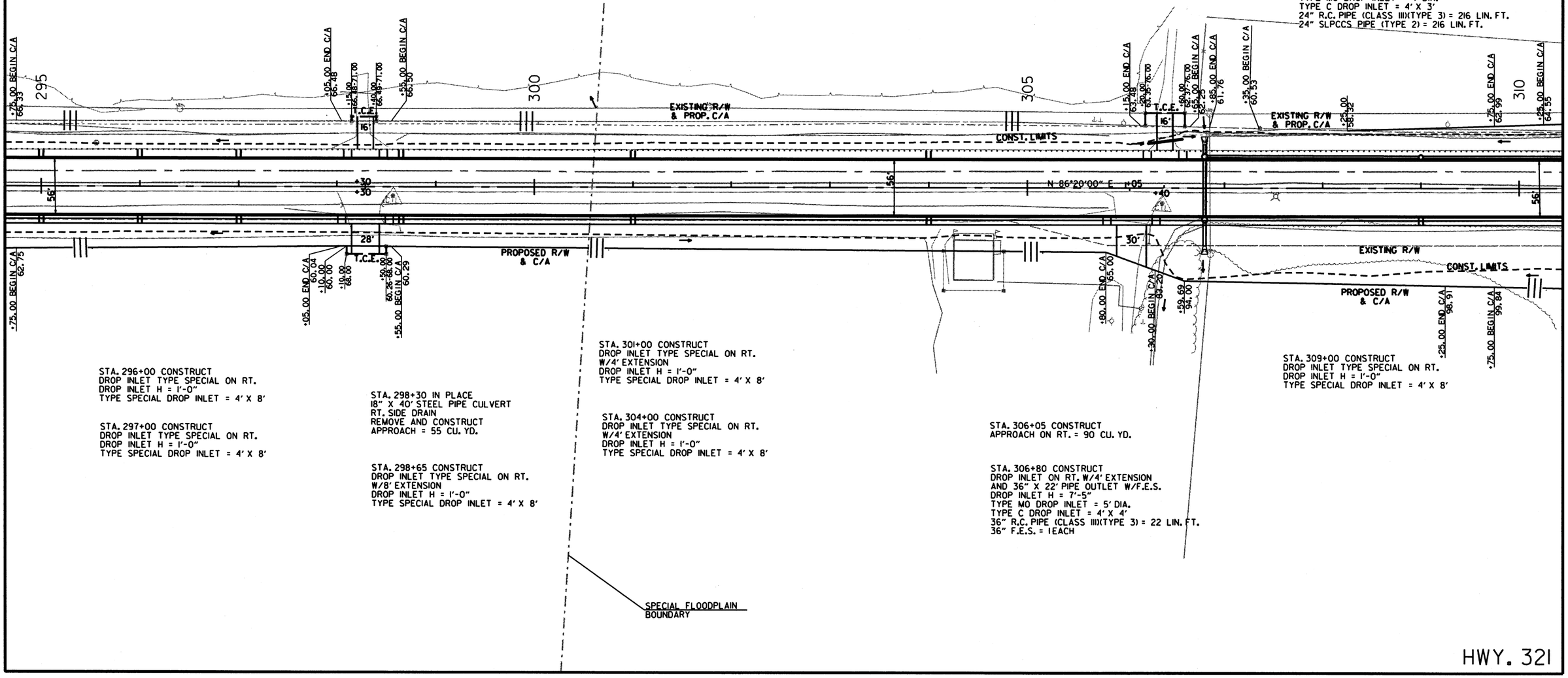
STA. 301+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 304+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 306+40 INSTALL
18" X 36' R.C. PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 60 CU. YD.

STA. 306+80 IN PLACE
36" X 60' C.M. PIPE CULVERT
W/METAL F.E.S.
REMOVE AND CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 36" X 12' PIPE INLET W/F.E.S.
AND 36" X 60' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 306+80 RT.
DROP INLET H = 7'-3"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 72 LIN. FT.
36" F.E.S. = 1EACH
Q50 = 18.3 CFS D.A. = 9.75 ACRES

STA. 309+00 CONSTRUCT
DROP INLET ON LT.
AND 24" X 216' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 306+80 LT.
DROP INLET H = 5'-6"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 216 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 216 LIN. FT.



STA. 296+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 297+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 298+30 IN PLACE
18" X 40' STEEL PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 55 CU. YD.

STA. 298+65 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 301+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 304+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

SPECIAL FLOODPLAIN BOUNDARY

STA. 306+05 CONSTRUCT
APPROACH ON RT. = 90 CU. YD.

STA. 306+80 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 36" X 22' PIPE OUTLET W/F.E.S.
DROP INLET H = 7'-5"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 22 LIN. FT.
36" F.E.S. = 1EACH

STA. 309+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

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HWY. 321

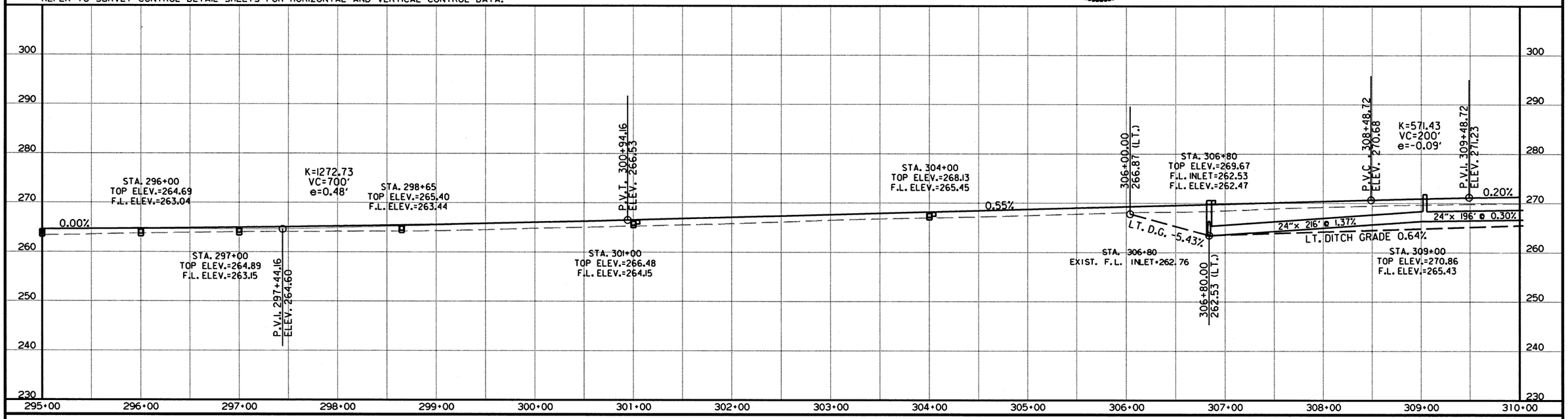
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	124	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11495
6-17-19
TRINETT D. SMITH

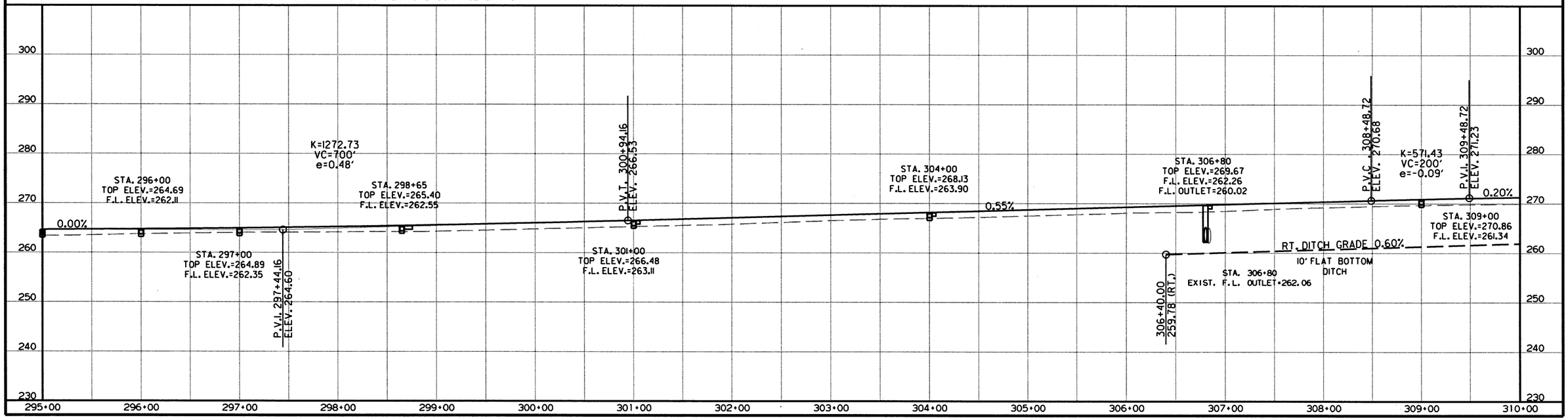
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	125	349

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

STA. 311+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 24" X 196' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 309+00 LT.
DROP INLET H = 5'-6"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 196 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 196 LIN. FT.

STA. 312+50 IN PLACE
18" X 54' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 96' R.C. PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 95 CU. YD.

STA. 312+00 CONSTRUCT
DROP INLET ON LT.
AND 24" X 96' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 311+00 LT.
DROP INLET H = 5'-4"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 96 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 96 LIN. FT.

STA. 313+50 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 12' PIPE INLET W/F.E.S.
AND 18" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 312+00 LT.
DROP INLET H = 5'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 12 LIN. FT.
18" F.E.S. = 1EACH
18" R.C. PIPE (CLASS III)(TYPE 3) = 146 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 314+00 IN PLACE
18" X 30' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' R.C. PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 45 CU. YD.

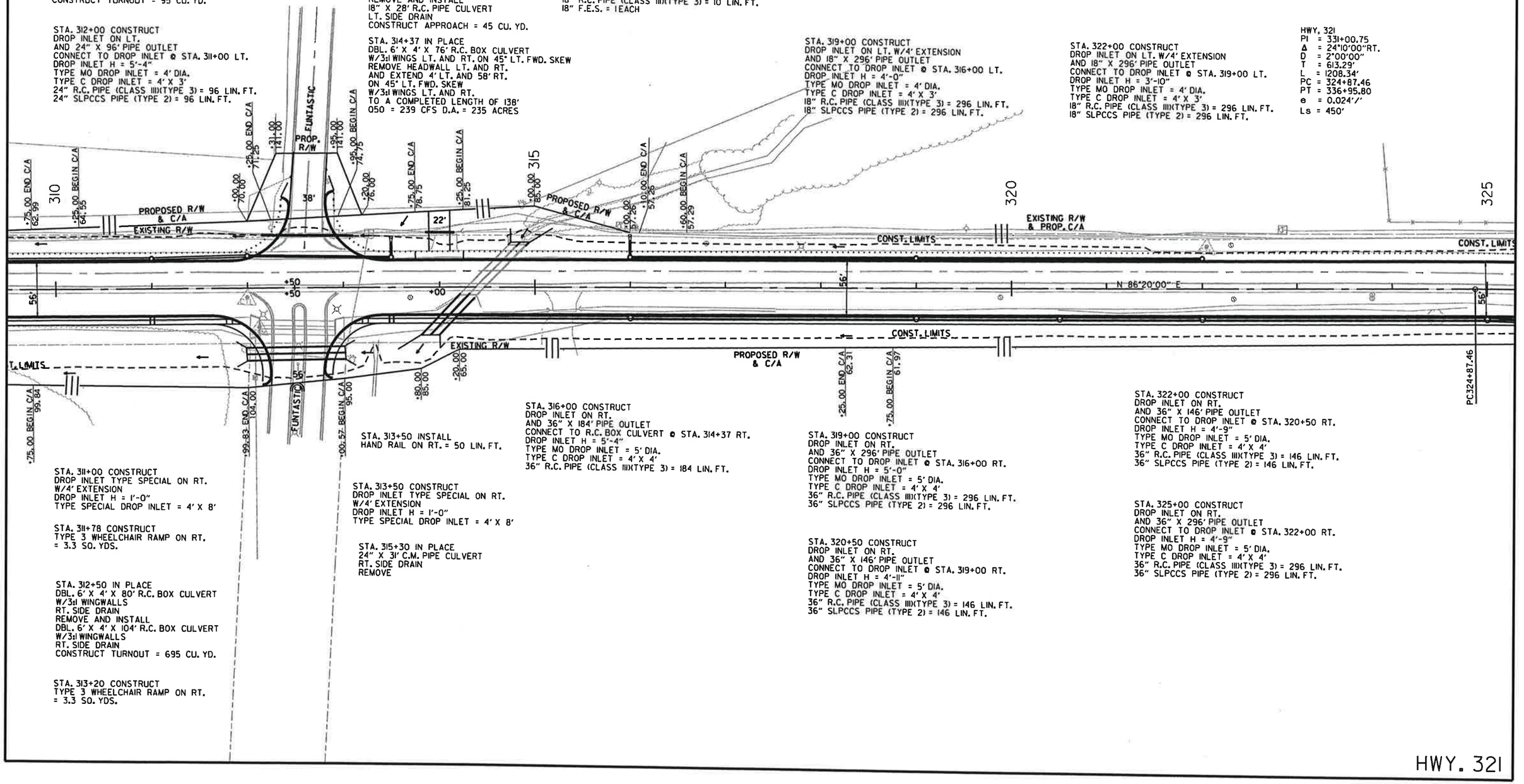
STA. 314+37 IN PLACE
DBL. 6' X 4' X 76' R.C. BOX CULVERT
W/3:1 WINGS LT. AND RT. ON 45° LT. FWD. SKEW
REMOVE HEADWALL LT. AND RT.
AND EXTEND 4' LT. AND 58' RT.
ON 45° LT. FWD. SKEW
W/3:1 WINGS LT. AND RT.
TO A COMPLETED LENGTH OF 138'
Q50 = 239 CFS D.A. = 235 ACRES

STA. 316+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 10' PIPE OUTLET W/F.E.S.
DROP INLET H = 4'-3"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 10 LIN. FT.
18" F.E.S. = 1EACH

STA. 319+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 316+00 LT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

STA. 322+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 319+00 LT.
DROP INLET H = 3'-10"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

HWY. 321
PI = 331+00.75
Δ = 24°10'00" RT.
D = 2°00'00"
T = 613.29'
L = 1208.34'
PC = 324+87.46
PT = 336+95.80
e = 0.024'/'
Ls = 450'



STA. 311+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 311+78 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

STA. 312+50 IN PLACE
DBL. 6' X 4' X 80' R.C. BOX CULVERT
W/3:1 WINGWALLS
RT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 6' X 4' X 104' R.C. BOX CULVERT
W/3:1 WINGWALLS
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 695 CU. YD.

STA. 313+20 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

STA. 313+50 INSTALL
HAND RAIL ON RT. = 50 LIN. FT.

STA. 313+50 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 315+30 IN PLACE
24" X 31' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 316+00 CONSTRUCT
DROP INLET ON RT.
AND 36" X 184' PIPE OUTLET
CONNECT TO R.C. BOX CULVERT @ STA. 314+37 RT.
DROP INLET H = 5'-4"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 184 LIN. FT.

STA. 319+00 CONSTRUCT
DROP INLET ON RT.
AND 36" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 316+00 RT.
DROP INLET H = 5'-0"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

STA. 320+50 CONSTRUCT
DROP INLET ON RT.
AND 36" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 319+00 RT.
DROP INLET H = 4'-11"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 146 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 322+00 CONSTRUCT
DROP INLET ON RT.
AND 36" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 320+50 RT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 146 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 325+00 CONSTRUCT
DROP INLET ON RT.
AND 36" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 322+00 RT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

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HWY. 321

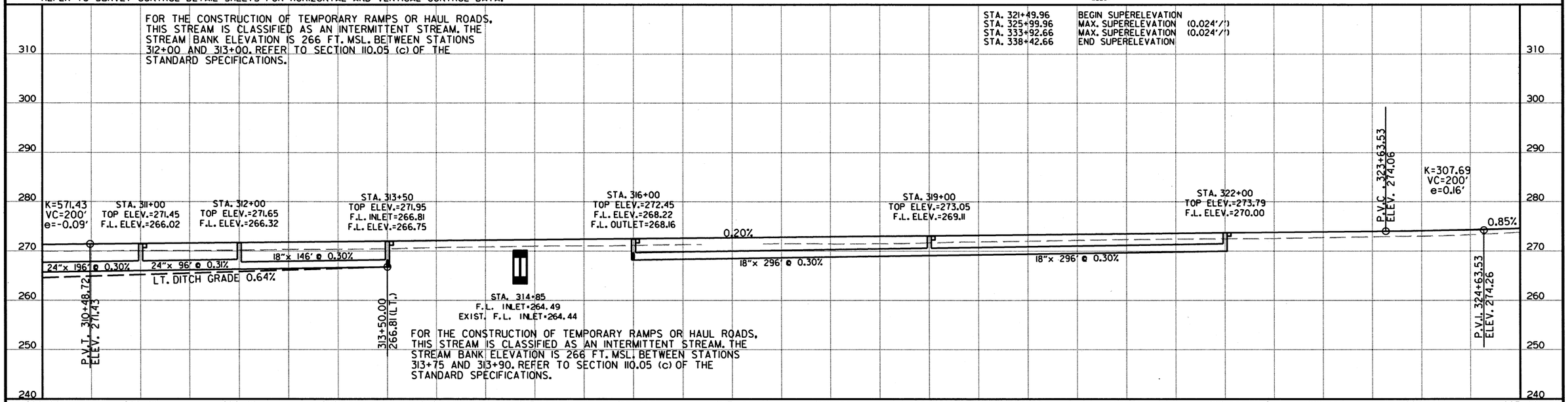
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	126	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11495
6-17-19
TRINITY D. SMITH

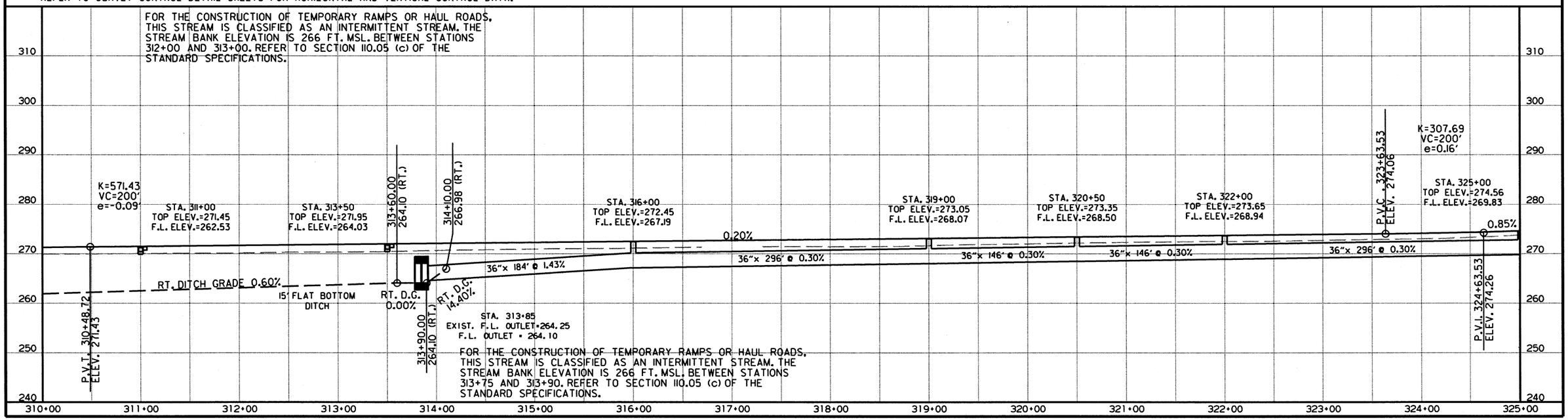
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-17-19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	127	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19

HWY. 321
PI = 331+00.75
Δ = 24°10'00"RT.
D = 2°00'00"
T = 613.29'
L = 1208.34'
PC = 324+87.46
PT = 336+95.80
e = 0.024'/'
Ls = 450'

HWY. 321
PI = 344+77.50
Δ = 19°20'00"LT.
D = 2°00'00"
T = 487.97'
L = 966.67'
PC = 339+89.53
PT = 349+56.20
e = 0.024'/'
Ls = 450'

STA. 328+10 CONSTRUCT
APPROACH ON LT. = 15 CU. YD.

STA. 329+85 CONSTRUCT
APPROACH ON LT. = 10 CU. YD.

STA. 332+43 CONSTRUCT
TYPE 2 WHEELCHAIR RAMP ON LT.
= 14.2 SQ. YDS.

STA. 333+19 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT.
= 3.3 SQ. YDS.

STA. 333+38 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT.
= 3.7 SQ. YDS.

C.L. HWY. 321 STA. 332+99.60 =
C.L. KERR STATION RD. STA. 1303+90.79
Δ = 80°00'00"

STA. 333+45 IN PLACE
DBL. 24" X 62' C.M. PIPE CULVERT
W/METAL F.E.S.
FILL AND ABANDON

STA. 338+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 340+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

SPECIAL FLOODPLAIN BOUNDARY

STA. 327+00 CONSTRUCT
DROP INLET ON RT. W/8' EXTENSION
AND 36" X 194' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 325+00 RT.
DROP INLET H = 5'-3"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 194 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 194 LIN. FT.

STA. 329+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 36" X 194' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 327+00 RT.
DROP INLET H = 5'-0"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 194 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 194 LIN. FT.

STA. 329+85 INSTALL
18" X 42' R.C. PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

STA. 330+50 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 30" X 144' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 329+00 RT.
DROP INLET H = 4'-6"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 144 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 144 LIN. FT.

STA. 332+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 30" X 146' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 330+50 RT.
DROP INLET H = 4'-6"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 146 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 146 LIN. FT.

STA. 332+56 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.7 SQ. YDS.

STA. 332+80 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT.
= 3.3 SQ. YDS.

STA. 333+55 CONSTRUCT
TYPE 2 WHEELCHAIR RAMP ON RT.
= 14.3 SQ. YDS.

STA. 334+15 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 36' X 6' INLET W/F.E.S.
AND 36' X 80' PIPE OUTLET
DROP INLET H = 5'-7"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 86 LIN. FT.
36" F.E.S. = 2 EACH
Q50 = 7.32 D.A. = 5.7 ACRES

STA. 336+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 337+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 338+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 340+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

7/16/2019

R061509.DGN

HWY. 321

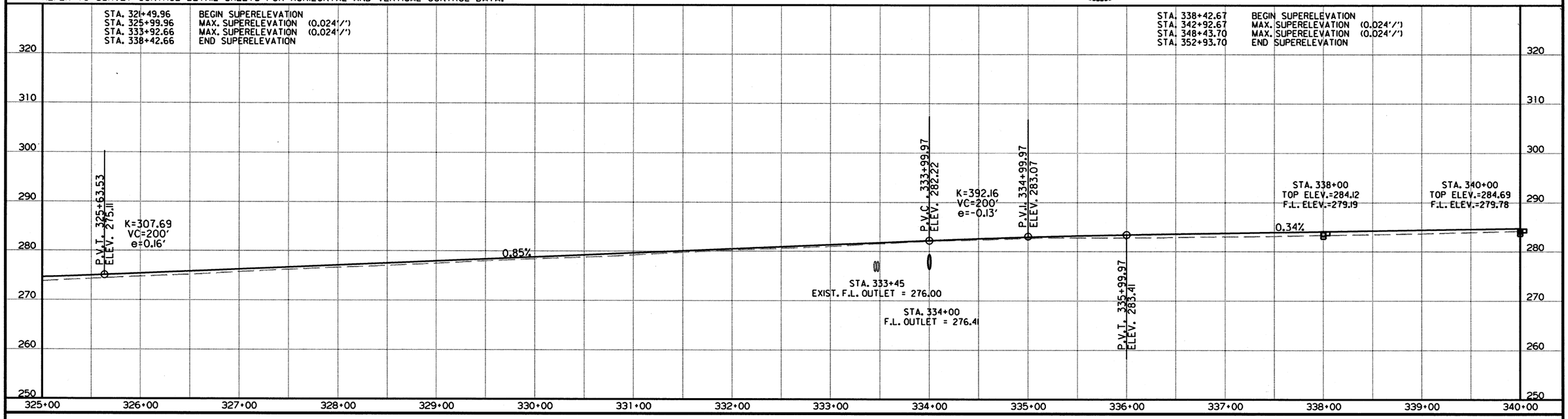
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	128	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
6-17-19
TRINITY D. SMITH

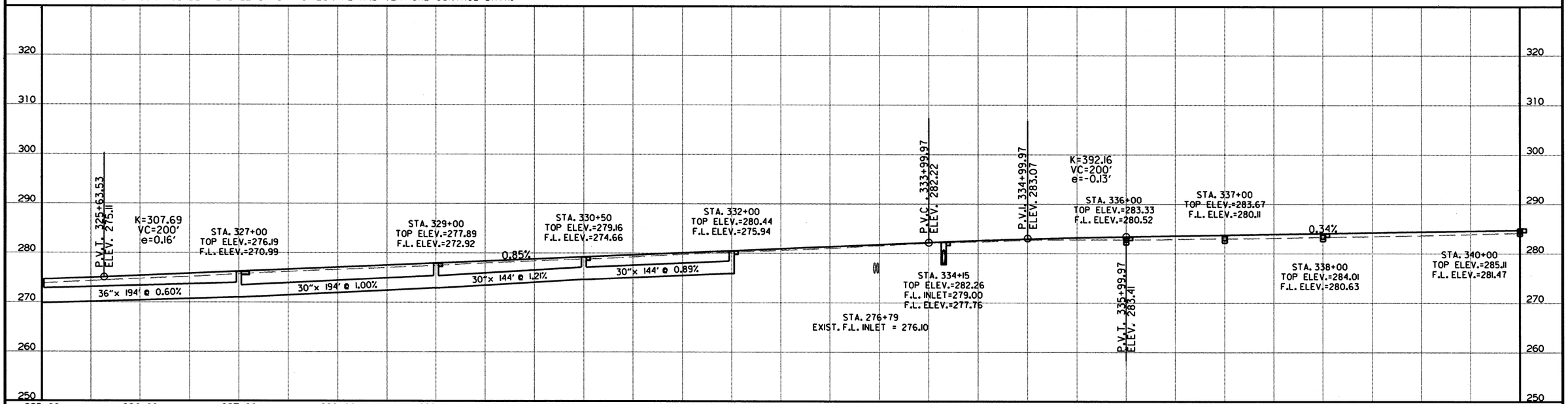
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	129	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

STA. 342+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 344+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

HWY. 321
PI = 344+77.50
Δ = 19°20'00"LT.
D = 2°00'00"
T = 487.97'
L = 966.67'
PC = 339+89.53
PT = 349+56.20
e = 0.024'/'
Ls = 450'

STA. 346+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/8' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 348+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

SPECIAL FLOODPLAIN BOUNDARY

STA. 349+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 350+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
351+48	355+75	RT.	C	434

STA. 352+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON LT.
W/4' EXTENSION
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 353+92 CONSTRUCT
TRI. 48" X 108' R.C. PIPE CULVERT
ON 30° RT. FWD. SKEW
W/F.E.S. LT. AND RT.
Q50 = 92.4 CFS D.A. = 76.8 ACRES
48" R.C. PIPE (CLASS III)(TYPE 3) = 324 LIN. FT.
48" F.E.S. = 6 EACH

STA. 354+26 IN PLACE
TRI. 48" X 70' C.M. PIPE CULVERT W/F.E.S.
ON 30° RT. FWD. SKEW
FILL AND ABANDON

STA. 355+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 30" X 12' PIPE OUTLET W/F.E.S.
DROP INLET H = 5'-2"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 12 LIN. FT.
30" F.E.S. = 1EACH

EXISTING R/W
PROPOSED R/W & C/A
EXISTING R/W & PROP. C/A
CONST. LIMITS
EXISTING R/W
S 69°30'00" E
S 88°50'00" E
PROPOSED R/W & C/A
EXISTING R/W & PROP. C/A
CONST. LIMITS
EXISTING R/W
PROPOSED R/W & C/A
C.D.P.
EXISTING R/W
WATER GAP

STA. 348+00 CONSTRUCT
DROP INLET ON RT.
AND 24" X 8' PIPE OUTLET W/F.E.S.
DROP INLET H = 3'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III)(TYPE 3) = 8 LIN. FT.
24" F.E.S. = 1EACH

SPECIAL FLOODPLAIN BOUNDARY

STA. 349+05 IN PLACE
24" X 74' PLASTIC PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 40 CU. YD.

STA. 349+45 CONSTRUCT
DROP INLET ON RT.
AND 18" X 4' PIPE INLET W/F.E.S.
AND 24" X 144' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 348+00 RT.
DROP INLET H = 3'-6"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 4 LIN. FT.
18" F.E.S. = 1EACH
24" R.C. PIPE (CLASS III)(TYPE 3) = 144 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 144 LIN. FT.

STA. 351+20 IN PLACE
DROP INLET ON RT.
AND 12" PLASTIC PIPE OUTLET
REMOVE AND CONSTRUCT
DROP INLET ON RT.
AND 18" X 4' PIPE INLET W/F.E.S.
AND 18" X 172' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 349+45 RT.
DROP INLET H = 3'-1"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 4 LIN. FT.
18" F.E.S. = 1EACH
18" R.C. PIPE (CLASS III)(TYPE 3) = 172 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 172 LIN. FT.

STA. 352+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 353+00.00 TO STA. 355+00.00 RT. OF C.L.
CONCRETE DITCH PAVING (TYPE A) = 251.78 SQ. YD.

STA. 353+50 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
DROP INLET H = 1'-0"
TYPE SPECIAL DROP INLET = 4' X 8'

STA. 355+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 12' PIPE OUTLET W/F.E.S.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 12 LIN. FT.
18" F.E.S. = 1EACH

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
350+58	351+72	LT.	114
351+48	355+76	RT.	438
352+67	353+74	LT.	107
353+74	355+28	LT.	193

6/12/2019

R061509.DGN

HWY. 321

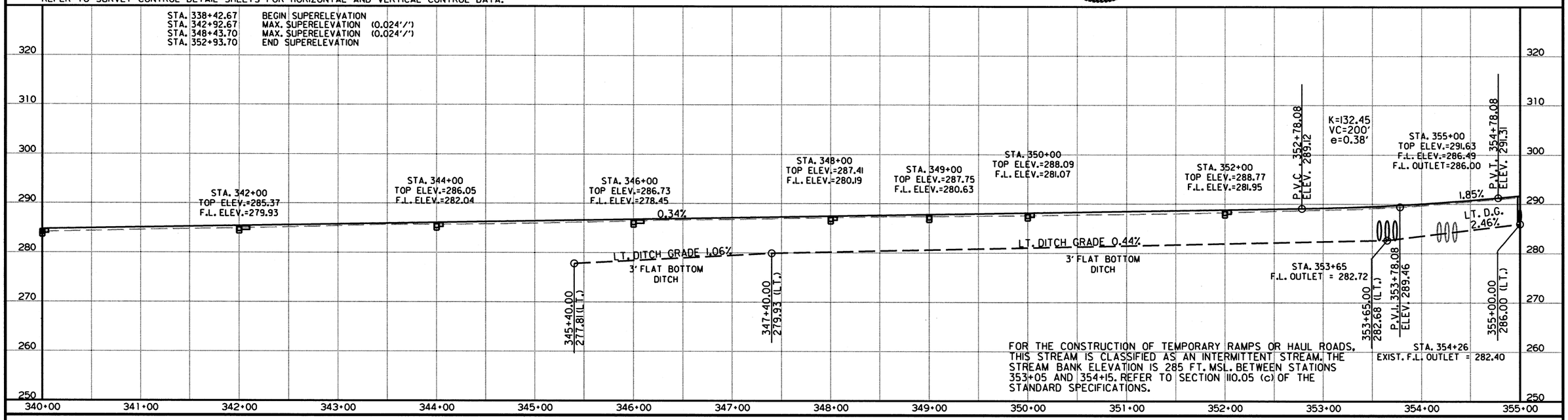
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	130	349

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
6-12-19
J. D. SMITH

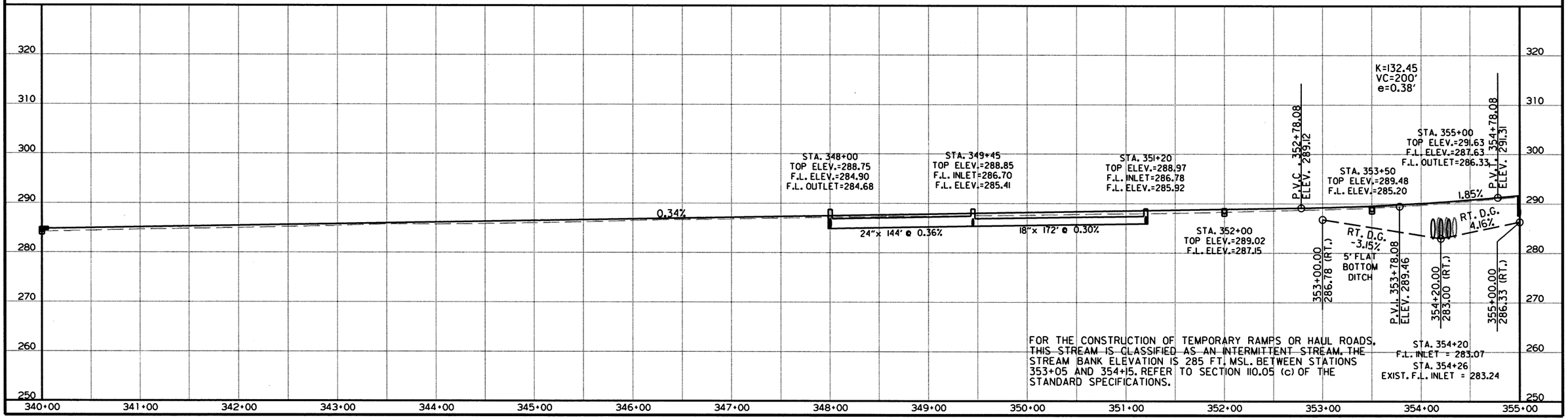
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.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.		061509	131	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
356+36	358+88	RT.	C	252

STA. 356+20 IN PLACE
DBL. 24" X 104' R.C. PIPE CULVERT
W/ HDWLS LT. AND RT.
LT. SIDE DRAIN
REMOVE AND INSTALL
DBL. 24" X 60' R.C. PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 130 CU. YD.

STA. 356+60 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 30" X 156' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 355+00 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 156 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 156 LIN. FT.

STA. 358+75 IN PLACE
18" X 64' R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 10 CU. YD.

STA. 359+10 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 6' PIPE INLET W/F.E.S.
AND 30" X 246' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 356+60 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III)(TYPE 3) = 6 LIN. FT.
18" F.E.S. = 1EACH
30" R.C. PIPE (CLASS III)(TYPE 3) = 246 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 246 LIN. FT.

STA. 360+50 CONSTRUCT
DROP INLET ON LT.
W/OPENING IN BACK
AND 30" X 136' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 359+10 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 136 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 136 LIN. FT.

STA. 361+60 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
W/OPENING IN BACK
AND 30" X 106' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 360+50 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 106 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 106 LIN. FT.

STA. 362+30 CONSTRUCT
APPROACH ON LT. = 5 CU. YD.

STA. 362+70 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
W/OPENING IN BACK
AND 30" X 106' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 361+60 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 106 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 106 LIN. FT.

STA. 364+00 CONSTRUCT
DROP INLET ON LT.
W/OPENING IN BACK
AND 30" X 126' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 362+70 LT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
30" R.C. PIPE (CLASS III)(TYPE 3) = 126 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 126 LIN. FT.

STA. 364+15 IN PLACE
24" X 76' R.C. PIPE CULVERT
ON 45° LT. FWD. SKEW
PLUG AND ABANDON

STA. 364+90 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 10' PIPE INLET W/F.E.S.
AND 24" X 88' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 364+00 LT.
DROP INLET H = 4'-6"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 10 LIN. FT.
18" F.E.S. = 1EACH
24" R.C. PIPE (CLASS III)(TYPE 3) = 88 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 88 LIN. FT.

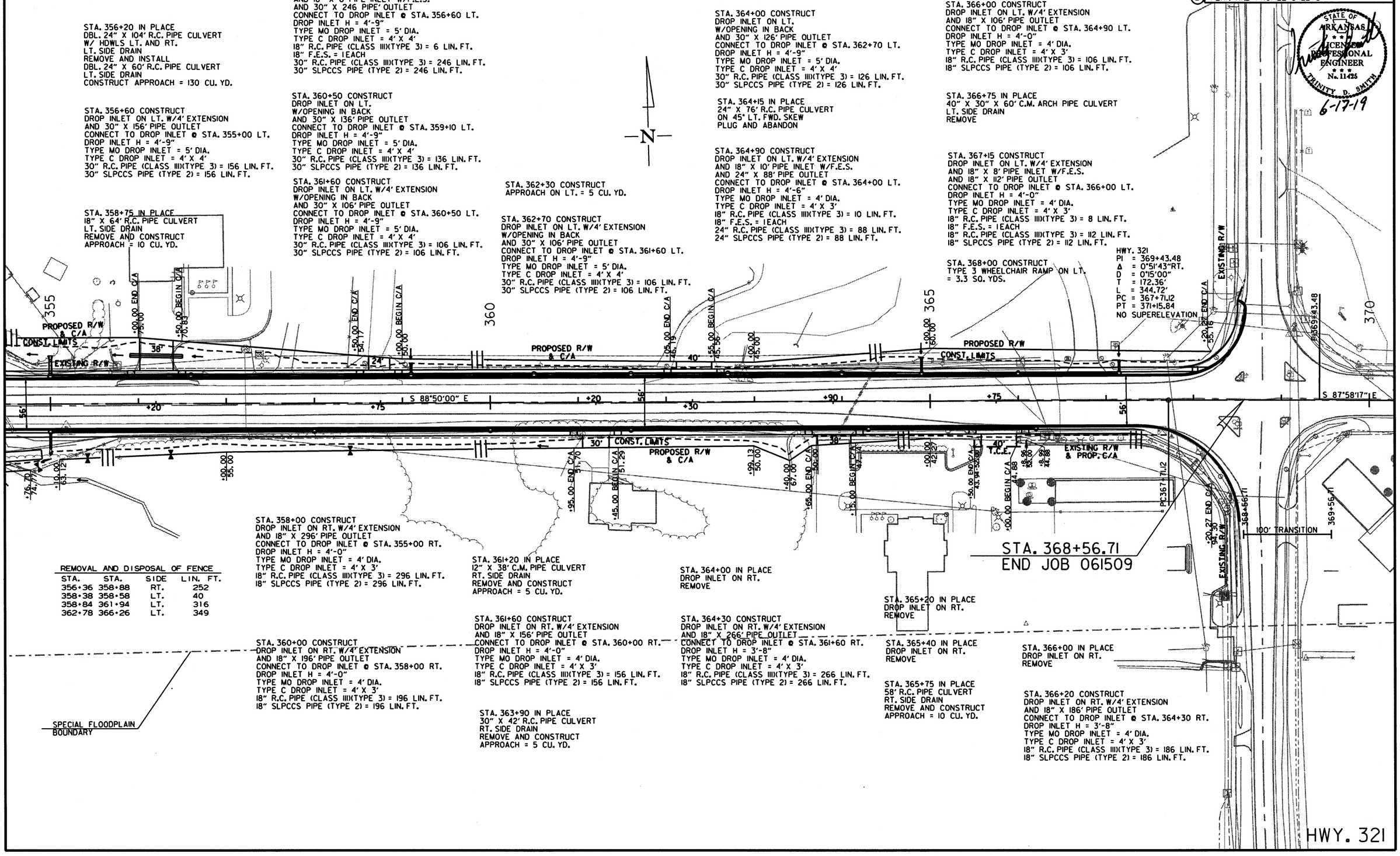
STA. 366+00 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 106' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 364+90 LT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 106 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 106 LIN. FT.

STA. 366+75 IN PLACE
40" X 30" X 60' C.M. ARCH PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 367+15 CONSTRUCT
DROP INLET ON LT. W/4' EXTENSION
AND 18" X 8' PIPE INLET W/F.E.S.
AND 18" X 112' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 366+00 LT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 8 LIN. FT.
18" F.E.S. = 1EACH
18" R.C. PIPE (CLASS III)(TYPE 3) = 112 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 112 LIN. FT.

STA. 368+00 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT.
= 3.3 SQ. YDS.

HWY. 321
PI = 369+43.48
Δ = 0°51'43"RT.
D = 0°15'00"
T = 172.36'
L = 344.72'
PC = 367+71.12
PT = 371+15.84
NO SUPERELEVATION



REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
356+36	358+88	RT.	252
358+38	358+58	LT.	40
358+84	361+94	LT.	316
362+78	366+26	LT.	349

SPECIAL FLOODPLAIN BOUNDARY

STA. 358+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 355+00 RT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

STA. 360+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 196' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 358+00 RT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 196 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 196 LIN. FT.

STA. 361+20 IN PLACE
12" X 38' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 5 CU. YD.

STA. 361+60 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 156' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 360+00 RT.
DROP INLET H = 4'-0"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 156 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 156 LIN. FT.

STA. 363+90 IN PLACE
30" X 42' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 5 CU. YD.

STA. 364+00 IN PLACE
DROP INLET ON RT.
REMOVE

STA. 364+30 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 266' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 361+60 RT.
DROP INLET H = 3'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 266 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 266 LIN. FT.

STA. 365+20 IN PLACE
DROP INLET ON RT.
REMOVE

STA. 365+40 IN PLACE
DROP INLET ON RT.
REMOVE

STA. 365+75 IN PLACE
58' R.C. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH = 10 CU. YD.

STA. 366+00 IN PLACE
DROP INLET ON RT.
REMOVE

STA. 366+20 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 18" X 186' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 364+30 RT.
DROP INLET H = 3'-8"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
18" R.C. PIPE (CLASS III)(TYPE 3) = 186 LIN. FT.
18" SLPCCS PIPE (TYPE 2) = 186 LIN. FT.

6/12/2019

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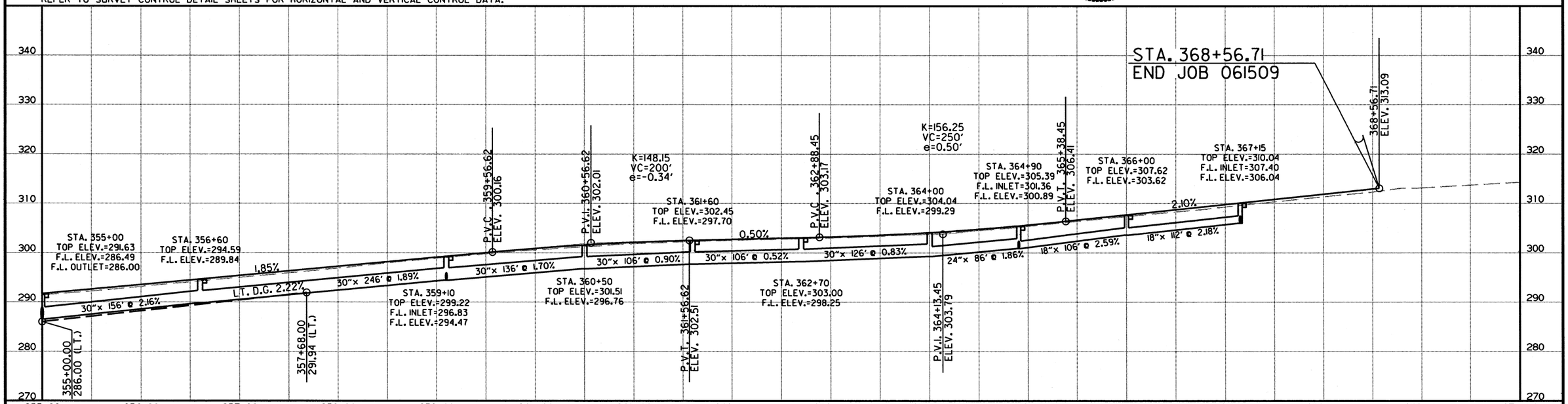
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	132	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-17-19

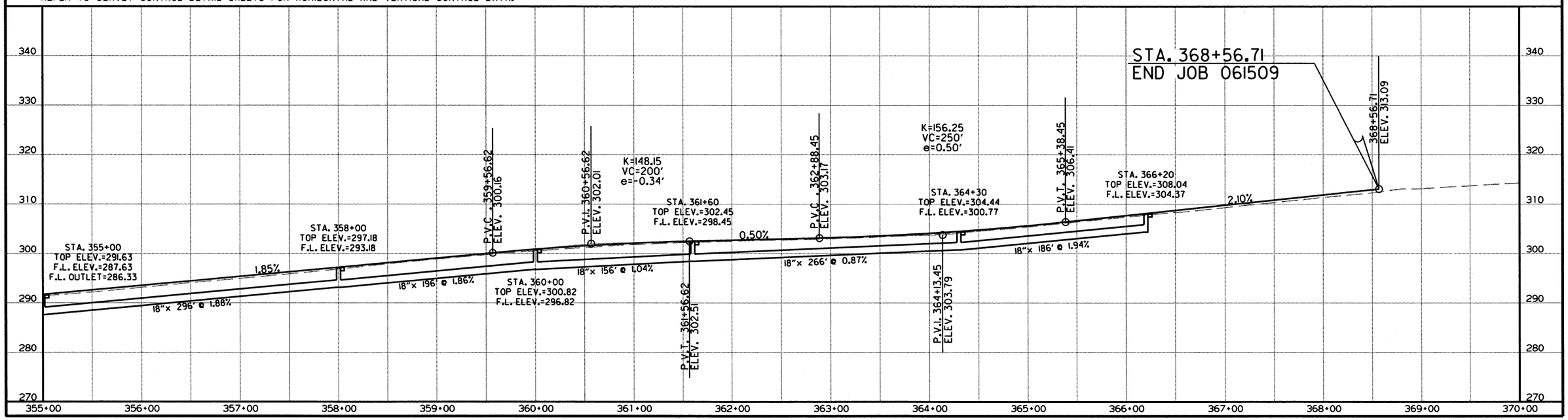
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

LEFT SIDE OF HWY. 321



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

RIGHT SIDE OF HWY. 321



6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-02-19				6	ARK.			
				JOB NO.		061509	133	349

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
7-2-19

C.L. HWY. 321 STA. 197+73.63 =
C.L. HWY. 367 STA. 706+85.36
Δ = 80°00'00" (R)

STA. 705+20.00
BEGIN CONST.
HWY. 367

HWY. 367
PI = 704+08.40
Δ = 01°22'40"RT.
D = 1°00'00"
T = 68.89'
L = 137.78'
PC = 703+39.51
PT = 704+77.29
NO SUPERELEVATION

P.O.B. 700+00.00
P.I. 704+08.40
PC 96+61.30'
N 56°37' 42" E
N 58°00' 22" E
N 57°15' 15" E

STA. 705+00 IN PLACE
24" X 68' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH ON RT.

STA. 706+00 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 24" X 108' INLET W/F.E.S.
AND 30" X 50' OUTLET
CONNECT TO DROP INLET @ STA. 198+55 RT.
DROP INLET H = 5'-1"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III(TYPE 3) = 108 LIN. FT.
24" F.E.S. = 1EACH
30" R.C. PIPE (CLASS III(TYPE 3) = 50 LIN. FT.
30" SLPCCS PIPE (TYPE 2) = 50 LIN. FT.

EXISTING R/W
PROP. R/W
CONST. LIMITS
100' TRANSITION
P.C. 703+39.51
P.T. 704+77.29
P.I. 198+70.97
P.I. 710+18.96
P.C. 709+81.36
P.T. 710+56.55
P.O.E. 711+83.96

STA. 708+63.00
END CONST.
HWY. 367

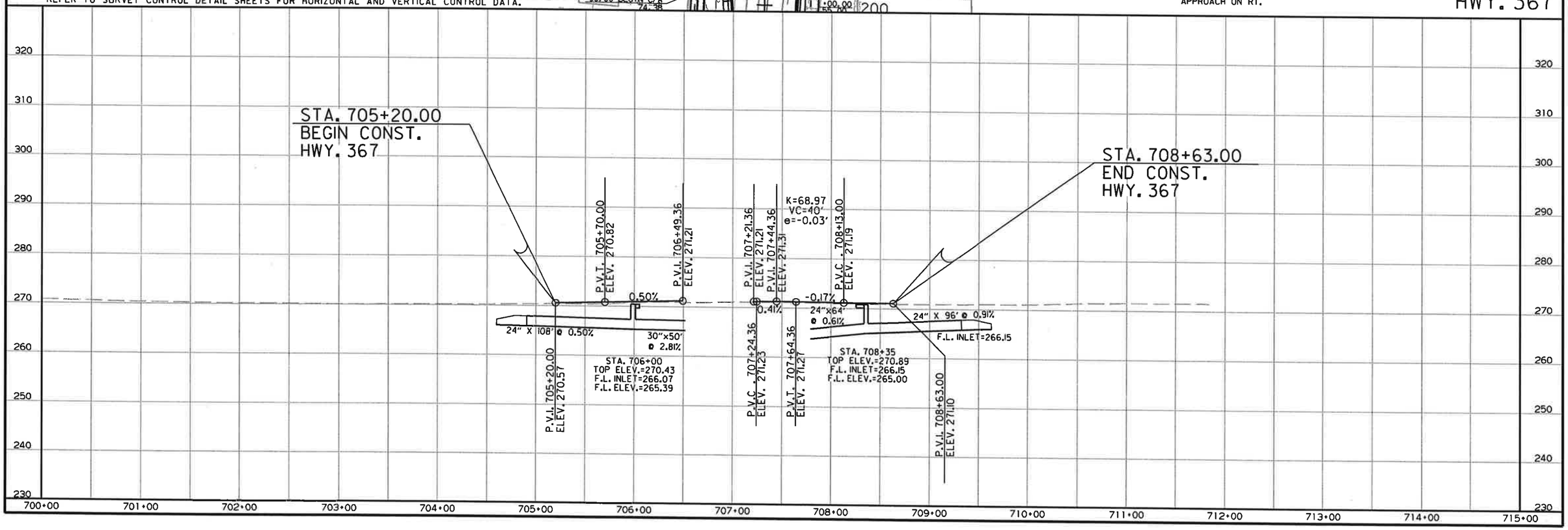
HWY. 367
PI = 710+18.96
Δ = 00°45'07"LT.
D = 1°00'00"
T = 37.59'
L = 75.19'
PC = 709+81.36
PT = 710+56.55
NO SUPERELEVATION

STA. 708+35 CONSTRUCT
DROP INLET ON RT. W/8' EXTENSION
AND 24" X 96' INLET W/F.E.S.
AND 24" X 64' OUTLET
CONNECT TO DROP INLET @ STA. 198+55 LT.
DROP INLET H = 5'-11"
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 3'
24" R.C. PIPE (CLASS III(TYPE 3) = 96 LIN. FT.
24" F.E.S. = 1EACH
24" R.C. PIPE (CLASS III(TYPE 3) = 64 LIN. FT.
24" SLPCCS PIPE (TYPE 2) = 64 LIN. FT.

STA. 709+25 IN PLACE
24" X 56' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
APPROACH ON RT.

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

HWY. 367



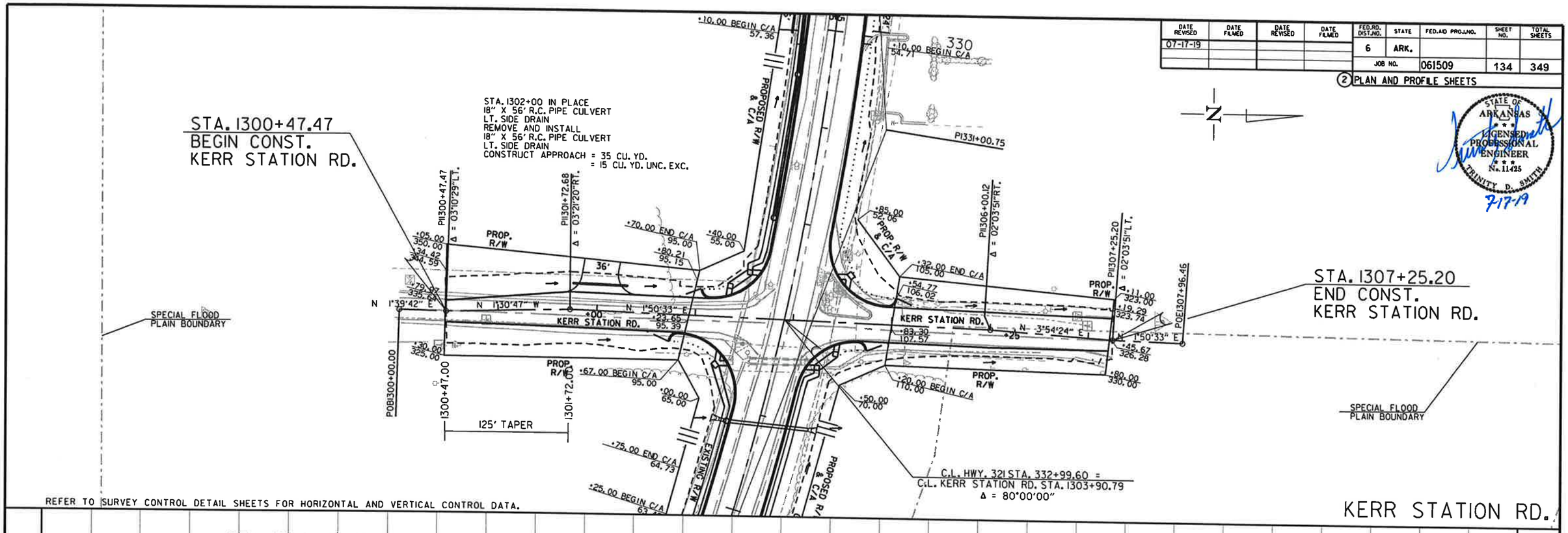
7/2/2019

R061509.DGN

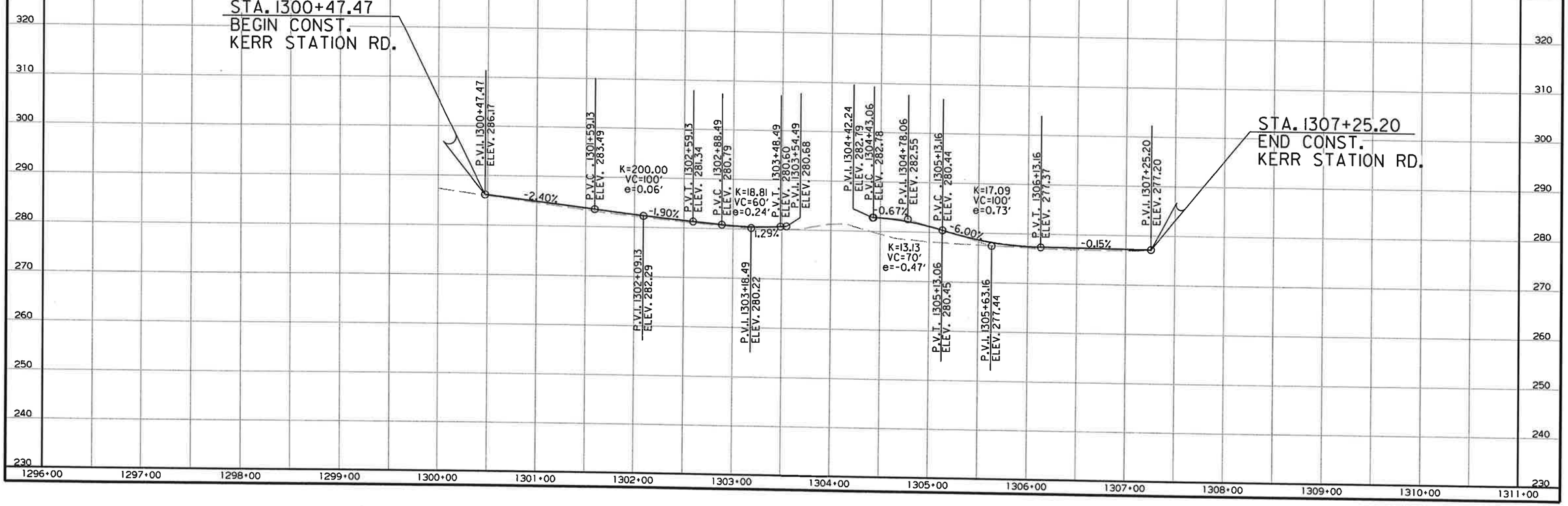
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	134	349

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-17-19



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



7/16/2019

R061509.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.		061509	135	349

(2) SUMMARY OF TRAFFIC SIGNAL QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

	ITEM NUMBER	ITEM	QUANTITY	UNIT
	SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
	SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
	SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	EACH
	SP	E-NET CABLE (EXTERIOR CAT 5E)	100	LIN. FT.
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	18	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
	SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	4356	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	582	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	575	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	686	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	180	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	60	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	755	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (2")	80	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (3")	70	LIN. FT.
	710	NON-METALLIC CONDUIT (2")	50	LIN. FT.
	710	NON-METALLIC CONDUIT (3")	592	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)	7	EACH
	SS & 713	SPAN WIRE ASSEMBLY	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (52')	3	EACH
	SP	LED LUMINAIRE ASSEMBLY	4	EACH
	SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	4	EACH
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
	716	TREATED WOOD POLE (CLASS 2, 45')	6	EACH
	SP	18" STREET NAME SIGN	4	EACH
*	SP & 733	VIDEO DETECTOR (CLR)	13	EACH
	733	VIDEO CABLE	2328	LIN. FT.
	733	VIDEO MONITOR (CLR)	2	EACH
*	SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	8	EACH
	SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	2	EACH
	SP	NET-SUBSCRIBER RADIO (5.8 GHZ, 32 MBPS)	1	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED.

DATE: 06-13-19 FILE NAME: t061509_job.dgn

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	136	349

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2017) NATIONAL ELECTRICAL CODE, NFPA 101 (CURRENT EDITION) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 A.W.G. USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S/ COUNTY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE STANDARD DRAWINGS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PERMANENT PAVEMENT MARKING DETAILS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE (3") INCH DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY/COUNTY.

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17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, THIRTY-EIGHT (38') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF TWENTY-ONE (21') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6') FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS SIX (6') FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

22. ONE VIDEO PROGRAMMNG MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

23. TRAFFIC SIGNAL CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.

25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODFICATION.

26. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.

27. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NON-FERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 1/4" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

28. THE CONTRACTOR SHALL PERFORM ALL WORK POSSIBLE THAT WILL MINIMIZE THE TIME THAT THE TRAFFIC SIGNAL IS OUT OF OPERATION. IF, IN THE OPINION OF THE ENGINEER, TRAFFIC CONDITIONS WARRANT THE CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT TRAFFIC WHILE THE TRAFFIC SIGNAL IS OUT OF OPERATION.

DATE: 06-13-19 FILE NAME: t061509_01.dgn

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	137	349

(2) TRAFFIC SIGNAL QUANTITIES

STAGE 1 AND 2 TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1752	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	438	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	30	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	30	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")	60	LIN. FT.
709	GALVANIZED STEEL CONDUIT (3")	70	LIN. FT.
710	NON-METALLIC CONDUIT (2")	30	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
SS & 713	SPAN WIRE ASSEMBLY	1	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.50	LUMP SUM
716	TREATED WOOD POLE (CLASS 2, 45')	6	EACH
SP & 733	VIDEO DETECTOR (CLR)	6	EACH
733	VIDEO CABLE	1163	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	3	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH

STAGE 1

INSTALL ALL TEMPORARY TRAFFIC SIGNAL EQUIPMENT, ALL ASSOCIATED ITEMS AS SHOWN ON THE STAGE 1 TEMPORARY TRAFFIC SIGNAL PLANS, UTILIZE THIS TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR STAGES 1 AND 2, AND REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

MAINTAIN THIS TRAFFIC SIGNAL CONFIGURATION AS SHOWN ON THE STAGE 1 AND 2 TRAFFIC SIGNAL PLANS.
(REFER TO MAINTENANCE OF TRAFFIC DETIALS.)

TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2, E-NET (8 PHASES)	1	EACH
SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)	1	EACH
SP	E-NET CABLE (EXTERIOR CAT 5E)	100	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	10	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	2604	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	144	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	575	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	656	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	180	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	30	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	755	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	592	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	7	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (52')	3	EACH
SP	LED LUMINAIRE ASSEMBLY	4	EACH
SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	4	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.50	LUMP SUM
SP	18" STREET NAME SIGN	4	EACH
* SP & 733	VIDEO DETECTOR (CLR)	7	EACH
733	VIDEO CABLE	1165	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
* SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH
SP	NET-SUBSCRIBER RADIO (5.8 GHZ, 32 MBPS)	1	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED

PERMANENT TRAFFIC SIGNAL:

THE TEMPORARY TRAFFIC SIGNAL INSTALLATION FOR STAGES 1 AND 2 SHALL REMAIN IN OPERATION UNTIL THE PERMANENT TRAFFIC SIGNAL IS COMPLETED AND OPERATIONAL. REMOVE THE TEMPORARY TRAFFIC SIGNAL COMPONENTS THAT WERE INSTALLED ON THE STAGE 1 TEMPORARY TRAFFIC SIGNAL PLANS.
(REFER TO PERMANENT TRAFFIC SIGNAL PLANS.)

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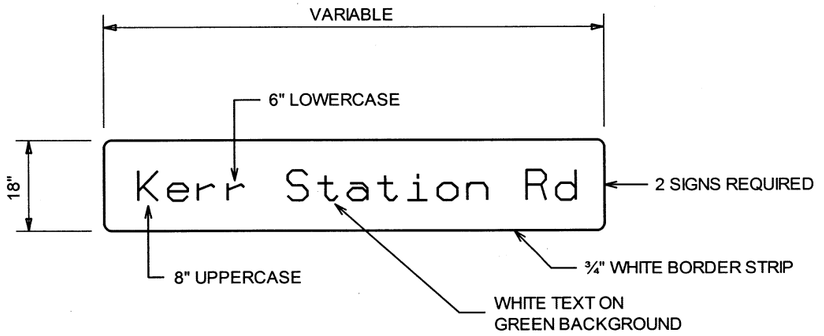
OVERHEAD STREET NAME MARKER STANDARD MAST ARM MOUNTED



HWY 321/Bill Foster Mem HWY

NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.
2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL BE ALSO ALODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY/ COUNTY.
3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM ON THE NEARSIDE LEFT POLE. SEE STANDARD DRAWING SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.
4. THE SERIES C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS.

DATE: 06-13-19 FILE NAME: t061509_01.dgn

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 06 SCALE: N/A DRAWN BY: GWE

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) SIGNALIZATION PLAN SHEET

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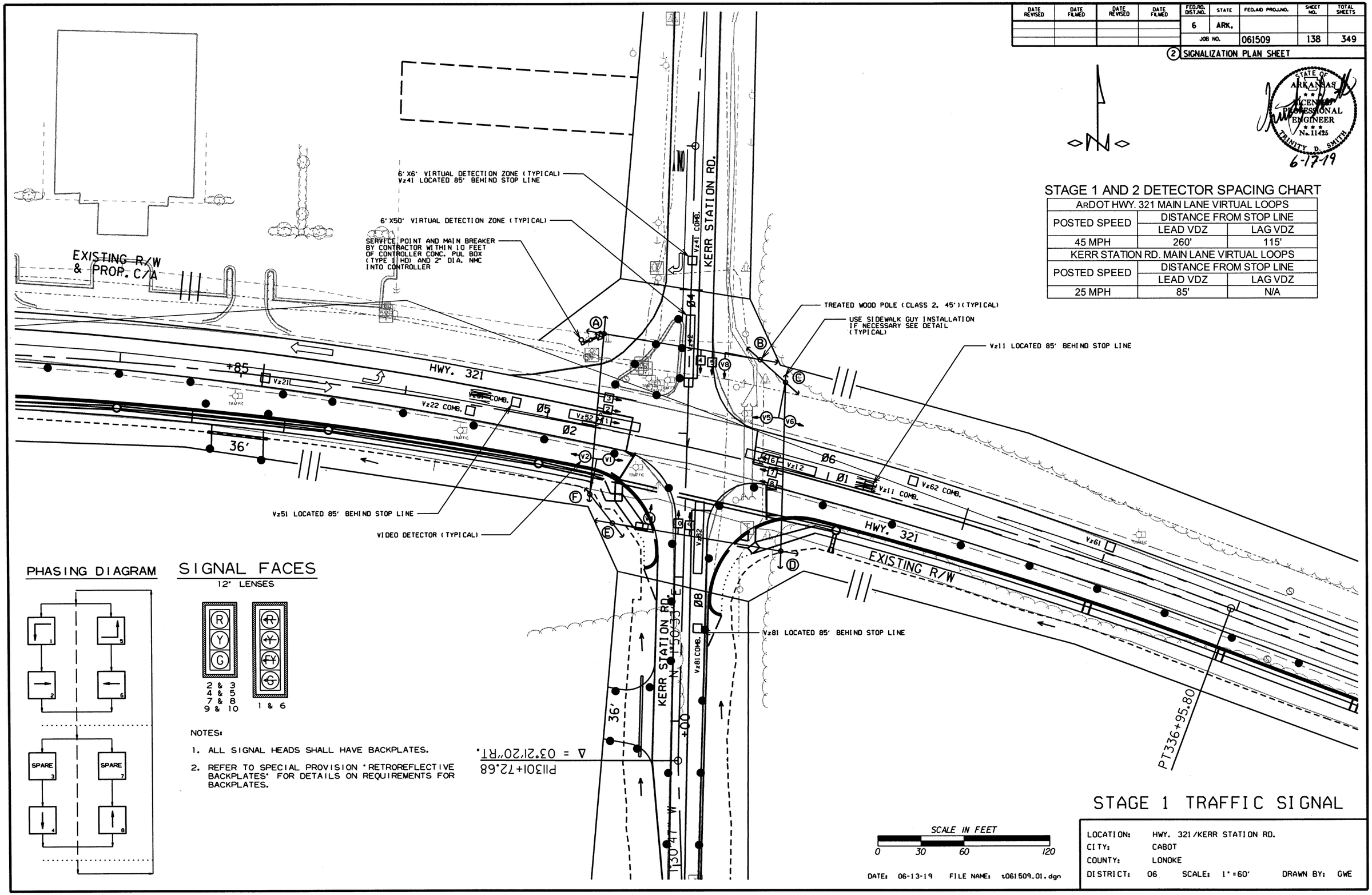
STAGE 1 AND 2 DETECTOR SPACING CHART

ARDOT HWY. 321 MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
45 MPH	260'	115'
KERR STATION RD. MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
25 MPH	85'	N/A



PHASING DIAGRAM

SIGNAL FACES

12" LENSES

NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.

STAGE 1 TRAFFIC SIGNAL

SCALE IN FEET
0 30 60 120

DATE: 06-13-19 FILE NAME: t061509_01.dgn

LOCATION:	HWY. 321/KERR STATION RD.		
CITY:	CABOT		
COUNTY:	LONOKE		
DISTRICT:	06	SCALE:	1"=60'
DRAWN BY:	GWE		

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) SIGNALIZATION PLAN SHEET

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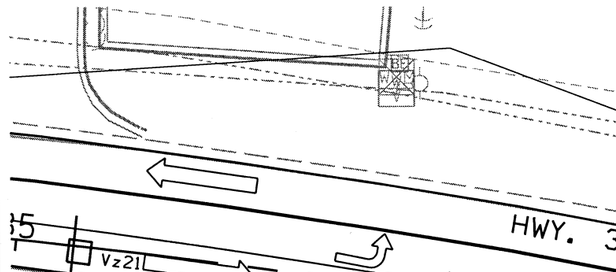
STAGE 1 AND 2 HWY. 321/KERR STATION RD.
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 321 - STA. 332+28.06	65' LT.	1306140.67, 220677.74
B	HWY. 321 - STA. 333+35.87	71' LT.	1306249.64, 220659.59
C	HWY. 321 - STA. 333+56.17	59' LT.	1306267.19, 220643.72
D	HWY. 321 - STA. 333+80.77	56' RT.	1306263.41, 220526.48
E	HWY. 321 - STA. 332+59.33	63' RT.	1306145.89, 220546.06
F	HWY. 321 - STA. 332+39.62	46' RT.	1306130.27, 220566.16



TYPICAL WOOD POLE WITH LUMINAIRE ARM

NOTE TO CONTRACTOR:
LUMINAIRE ARMS (OR APPROVED MOUNTING HARDWARE) SHALL BE USED TO MOUNT VIDEO DETECTORS. LUMINAIRE ARM SHALL NOT INCLUDE LUMINAIRE ASSEMBLIES. THE COST FOR LUMINAIRE ARMS, MOUNTING, AND ALL HARDWARE IS INCLUDED IN PRICE BID FOR ITEM 716 TREATED WOOD POLE.

NOTE TO CONTRACTOR:
TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES.

HWY. 321
KERR STATION RD.
N 1°50'33" E
36'
±00
Vz21
Vz51 COMB.
Vz22 COMB.
Vz52
Vz41 COMB.
Vz42
Vz82
Vz81 COMB.
Vz12
Vz11 COMB.
Vz62 COMB.
Vz61
Ø1
Ø2
Ø4
Ø5
Ø6
Ø8
V1
V2
V3
V4
V5
V6
V8
TRAFFIC
EXISTING R/W

SCALE IN FEET
0 20 40 80

DATE: 06-13-19 FILE NAME: t061509_01.dgn

STAGE 1 TRAFFIC SIGNAL

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 06 SCALE: 1"=40' DRAWN BY: GWE

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) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
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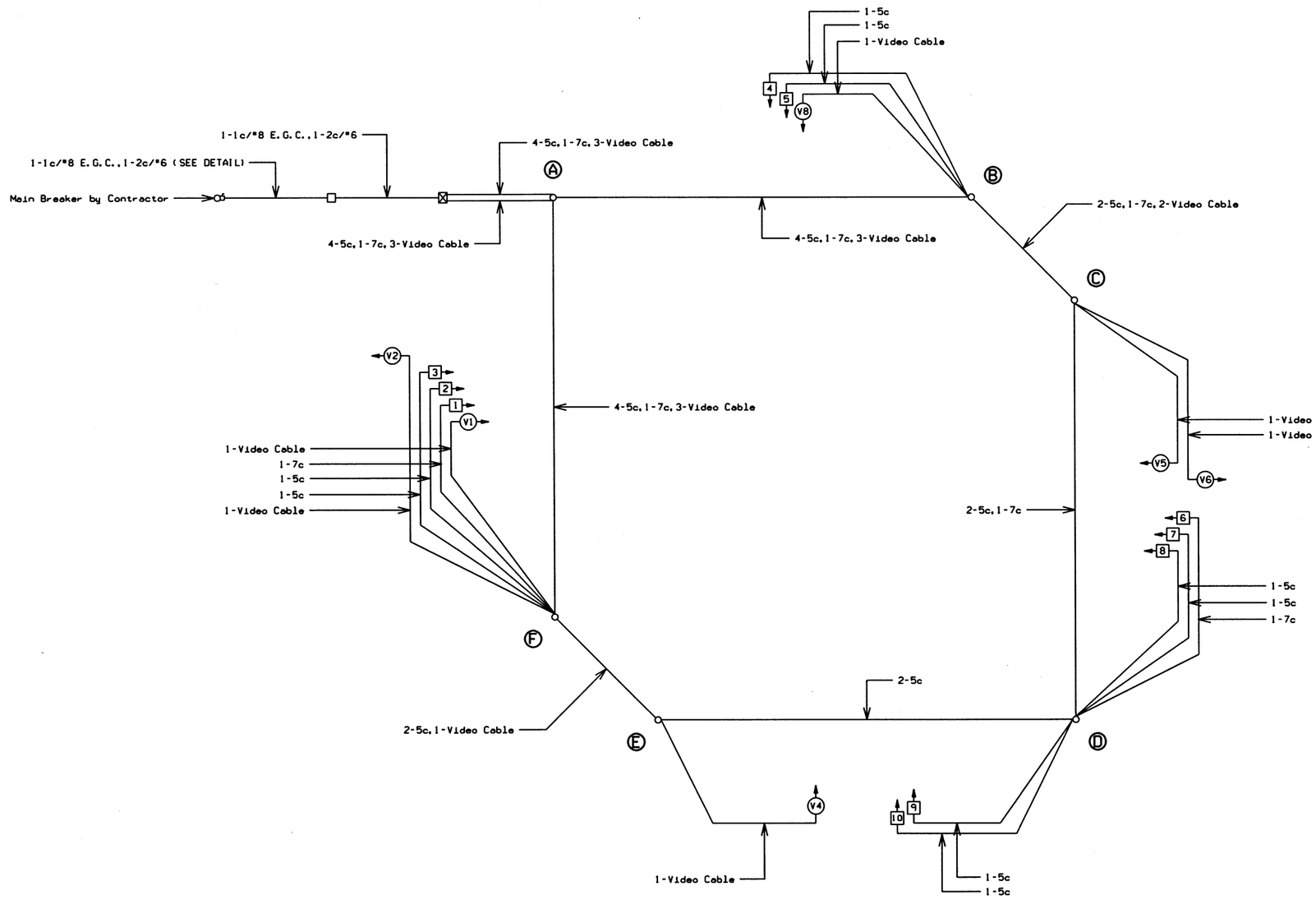

STAGE 1 AND 2 WIRING DIAGRAM

NOTE TO CONTRACTOR:

THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DATE: 06-13-19 FILE NAME: t061509_01.dgn

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CITY: CABOT
COUNTY: LONOKE
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

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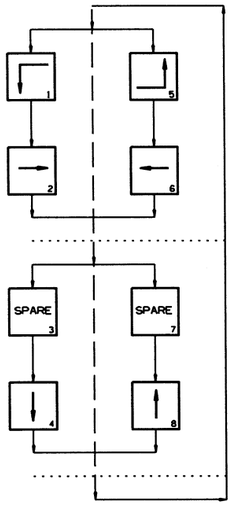
				6	ARK.			
				JOB NO.		061509	141	349

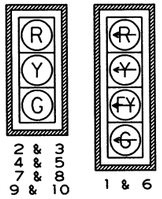
(2) SIGNALIZATION PLAN SHEET

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.

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6-17-19

STAGE 1 AND 2 DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 061509											
HWY. 321/KERR STATION RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			COMMENTS	TUBE LENGTHS
							LOCAL		MASTER SYSTEM		
DET. ID #	LOCATION DIRECTION	TPYE	DET. #	CAB. TRM. #	AMP CHN. #	CON. IMP. #	PHS	SYSTEM DET. #	DETECTOR NUMBERS		
Vz11	WB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23"
Vz12	WB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23"
Vz21	EB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23"
Vz22	EB NEAR	COMB.			6	V10	2	2		CAMERA V5	23"
Vz41	SB LEFT TURN FAR	COMB.			9	V12	4	4		CAMERA V4	23"
Vz42	SB LEFT TURN	LOCAL			10	V4	4			CAMERA V4	23"
Vz51	EB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23"
Vz52	NB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23"
Vz61	WB FAR ADVANCE	LOCAL			3	V6	6			CAMERA V6	23"
Vz62	WB NEAR	COMB.			4	V14	6	6		CAMERA V1	23"
Vz81	NB LEFT TURN FAR	COMB.			11	V16	8	8		CAMERA V8	23"
Vz82	NB LEFT TURN	LOCAL			12	V8	8			CAMERA V8	23"
					SPARE: 13 - 16						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

STAGE 1 AND 2 INTERVAL CHART

SIGNAL FACES	HWY. 321/KERR STATION RD.											FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.		
1	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~		~~R~~
2&3	R	R	G	••	R	R	G	••	R	R		R
4&5	R	R	R	R	R	R	R	R	G	••		R
6	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~		~~R~~
7&8	R	R	R	R	G	••	G	••	R	R		R
9&10	R	R	R	R	R	R	R	R	G	••		R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

DATE: 06-13-19 FILE NAME: t061509_01.dgn

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	142	349

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

6' X6' VIRTUAL DETECTION ZONE (TYPICAL)
Vz41 LOCATED 85' BEHIND STOP LINE

6' X50' VIRTUAL DETECTION ZONE (TYPICAL)

SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER CONC. PUL BOX (TYPE 1 HD) AND 2" DIA. NMC INTO CONTROLLER

TREATED WOOD POLE (CLASS 2, 45')(TYPICAL)

USE SIDEWALK GUY INSTALLATION IF NECESSARY SEE DETAIL (TYPICAL)

Vz11 LOCATED 85' BEHIND STOP LINE

Vz51 LOCATED 85' BEHIND STOP LINE

VIDEO DETECTOR (TYPICAL)

Vz81 LOCATED 85' BEHIND STOP LINE

EXISTING R/W & PROP. C/A

HWY. 321

KERR STATION RD.

CONST. LIMITS

EXISTING R/W

24'

36'

+85

+25

+00

Vz21

Vz22 COMB.

Vz52

Vz41 COMB.

Vz12

Vz11 COMB.

Vz62 COMB.

Vz61

Vz82

Vz81 COMB.

Ø1 Ø2 Ø4 Ø5 Ø6 Ø8

PI 301+72.68
Δ = 03°21'20"RT.

PT 336+95.80

N 1°50'33" E

N 30°47" W

STAGE 2 TRAFFIC SIGNAL

SCALE IN FEET
0 30 60 120

LOCATION:	HWY. 321/KERR STATION RD.		
CITY:	CABOT		
COUNTY:	LONOKE		
DISTRICT:	06	SCALE:	1"=60'
DRAWN BY:	GWE		

DATE: 06-13-19 FILE NAME: t061509_01.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.		061509	143	349

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

6'X6' VIRTUAL DETECTION ZONE (TYPICAL)
Vz41 LOCATED 85' BEHIND STOP LINE

6'X50' VIRTUAL DETECTION ZONE (TYPICAL)

SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER CONC. PUL BOX (TYPE 1 HD) AND 2" DIA. NMC INTO CONTROLLER

TREATED WOOD POLE (CLASS 2, 45')(TYPICAL)

USE SIDEWALK GUY INSTALLATION IF NECESSARY SEE DETAIL (TYPICAL)

Vz11 LOCATED 85' BEHIND STOP LINE

Vz51 LOCATED 85' BEHIND STOP LINE

VIDEO DETECTOR (TYPICAL)

Vz81 LOCATED 85' BEHIND STOP LINE

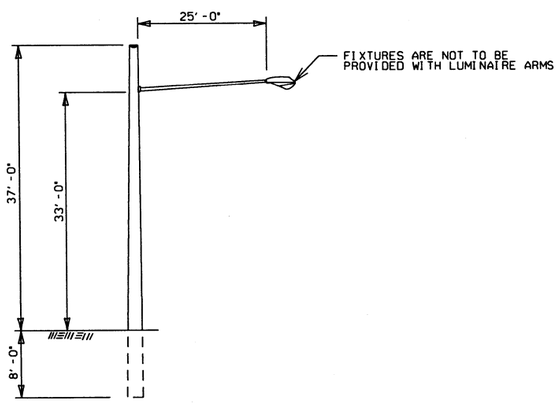
KERR STATION RD.

HWY. 321

CONST. LIMITS

EXISTING R/W

Vz41 COMB.
Vz42
Vz51 COMB.
Vz52
Vz22 COMB.
Vz21
Vz12
Vz62 COMB.
Vz11 COMB.
Vz61
Vz82
Vz81 COMB.
Ø1 Ø2 Ø4 Ø5 Ø6 Ø8
V1 V2 V3 V4 V5 V6 V8
A B C D E F
1 2 3 4 5 6 8
TRAFFIC



TYPICAL WOOD POLE WITH LUMINAIRE ARM

NOTE TO CONTRACTOR:
LUMINAIRE ARMS (OR APPROVED MOUNTING HARDWARE) SHALL BE USED TO MOUNT VIDEO DETECTORS. LUMINAIRE ARM SHALL NOT INCLUDE LUMINAIRE ASSEMBLIES. THE COST FOR LUMINAIRE ARMS, MOUNTING, AND ALL HARDWARE IS INCLUDED IN PRICE BID FOR ITEM 716 TREATED WOOD POLE.

NOTE TO CONTRACTOR:
TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES.

SCALE IN FEET
0 20 40 80

DATE: 06-13-19 FILE NAME: t061509_01.dgn

STAGE 2 TRAFFIC SIGNAL

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 06 SCALE: 1"=40' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	144	349

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TIMITY D. SMITH
6-17-19

ANTENNA ORIENTATION

ANTENNA ORIENTED TO THE MASTER ANTENNA LOCATED AT CABOT CITY HALL
101 N. 2ND. STREET
CABOT, AR 72023

86° 42' 43"

HWY. 321/KERR STATION RD.
POLE DIMENSIONS

POLE	MAST ARM	*MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	*LUM. ANGLE
A	50'	180°	50'	10'	90°
B	N/A	N/A	10'	N/A	N/A
C	N/A	N/A	10'	N/A	N/A
D	52'	180°	35'	10'	90°
E	52'	180°	35'	10'	90°
F	N/A	N/A	10'	N/A	N/A
G	N/A	N/A	10'	N/A	N/A
H	52'	270°	35'	10'	180°

* ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

N

EXISTING R/W & PROP. C/A

HWY. 321

KERR STATION RD.

CONST. LIMITS

EXISTING R/W

Vz41 LOCATED 85' BEHIND STOP LINE

CAT 5E CABLE SHALL BE INSTALLED IN A SEPARATE 2" DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS

SERVICE POINT AND MAIN BREAKER (PROVIDED IN STAGE 1) BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER; NEW 2" DIA. NMC AND CONC. PULL BOX (TYPE 2 HD)

Vz11 LOCATED 85' BEHIND STOP LINE

Vz51 LOCATED 85' BEHIND STOP LINE

VIDEO DETECTOR (TYPICAL)

VIRTUAL 6' X50' PRESENCE DETECTOR (TYPICAL)

VIRTUAL 6' X6' PULSE DETECTOR (TYPICAL) Vz81 LOCATED 85' BEHIND STOP LINE

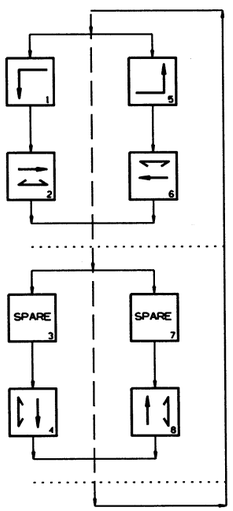
Vz41 COMB.
Vz43
Vz42
Vz51 COMB.
Vz52
Vz228 COMB. Vz22A
Vz218
Vz21A
Vz12
Vz11 COMB.
Vz62A COMB. Vz62B
Vz61A
Vz61B
Vz82
Vz83
Vz81 COMB.

Ø1 Ø2 Ø4 Ø5 Ø6 Ø8

+25 +85 +00

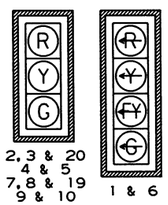
24' 36' 50' 52' 52' 36'

PHASING DIAGRAM



SIGNAL FACES

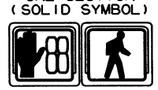
12" LENSES



2, 3 & 20
4 & 5
7, 8 & 19
9 & 10

1 & 6

ONE SECTION (SOLID SYMBOL)



11 & 12
13 & 14
15 & 16
17 & 18

NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEETS A.D.A.S. STANDARD.

DETECTOR SPACING CHART

ARDOT HWY. 321 MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
45 MPH	260'	115'
KERR STATION RD. MAIN LANE VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
25 MPH	85'	N/A

SCALE IN FEET
0 30 60 120

DATE: 06-13-19 FILE NAME: t061509_01.dgn

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 06 SCALE: 1"=60' DRAWN BY: GWE

HWY. 321/KERR STATION RD.
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 321 - STA. 332+39.34	51'LT.	1306149.09, 220661.13
B	HWY. 321 - STA. 332+46.75	59'LT.	1306158.16, 220667.89
C	HWY. 321 - STA. 333+18.47	62'LT.	1306230.45, 220655.67
D	HWY. 321 - STA. 333+43.82	40'LT.	1306250.57, 220628.43
E	HWY. 321 - STA. 333+63.21	52'RT.	1306247.58, 220534.19
F	HWY. 321 - STA. 333+55.98	61'RT.	1306238.62, 220527.39
G	HWY. 321 - STA. 332+81.48	65'RT.	1306166.64, 220539.52
H	HWY. 321 - STA. 332+54.80	41'RT.	1306146.02, 220568.55

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	145	349

(2) SIGNALIZATION PLAN SHEET

NOTE TO CONTRACTOR:
TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES.

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
25 MPH NORTH AND SOUTH APPROACH

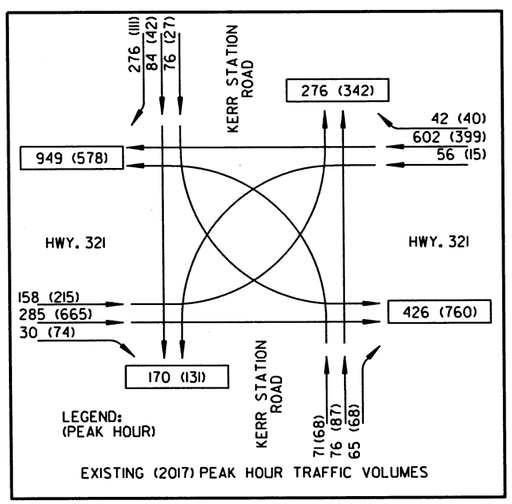
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PERMANENT PAVEMENT MARKING DETAILS (SEE SEPARATE SHEET).

MINIMUM CLEAR ZONE DISTANCE
4 FEET BEHIND CURB

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

TRAFFIC FLOW DIAGRAM



EXISTING (2017) PEAK HOUR TRAFFIC VOLUMES

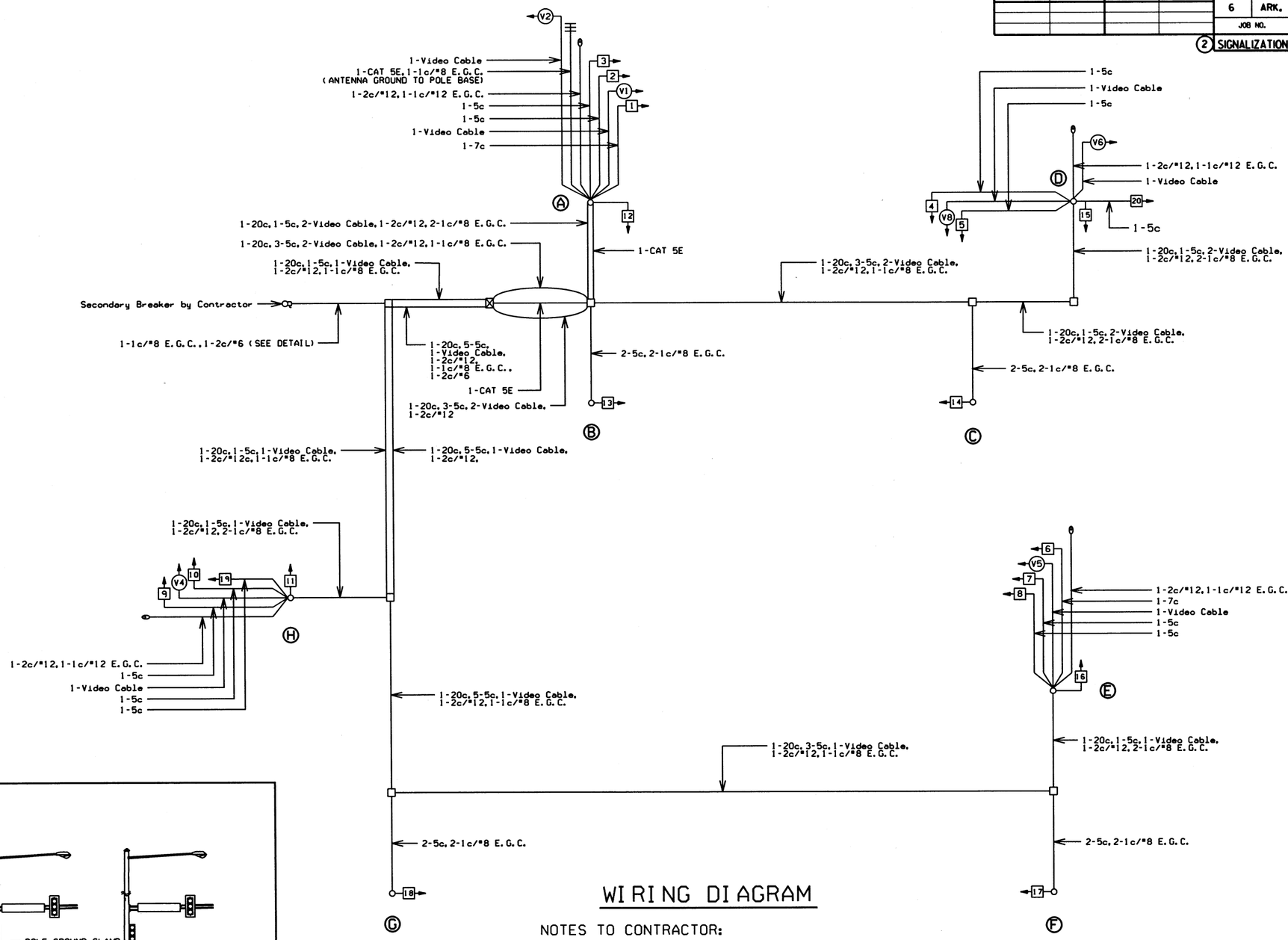
SCALE IN FEET
0 20 40 80

LOCATION:	HWY. 321/KERR STATION RD.
CITY:	CABOT
COUNTY:	LONOKE
DISTRICT:	6
SCALE:	1"=40'
DRAWN BY:	GWE
DATE:	06-13-19
FILE NAME:	t:061509_01.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.		061509	146	349

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
6-17-19

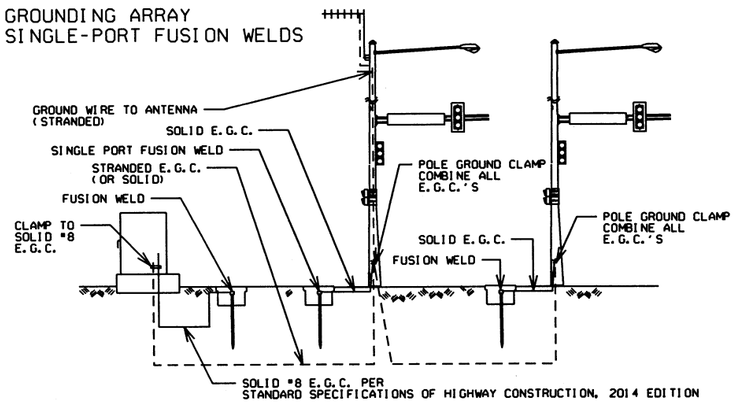


WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

GROUNDING ARRAY
SINGLE-PORT FUSION WELDS



DATE: 06-13-19 FILE NAME: t061509_01.dgn

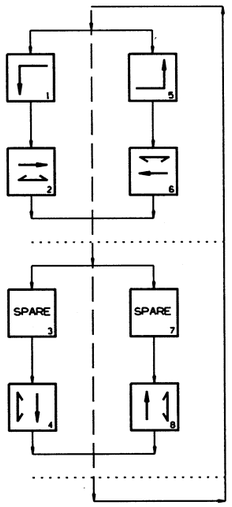
LOCATION:	HWY. 321/KERR STATION RD.		
CITY:	CABOT		
COUNTY:	LONOKE		
DISTRICT:	6	SCALE: N/A	DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	147	349

(2) SIGNALIZATION PLAN SHEET

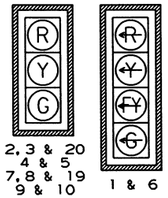
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-17-19

PHASING DIAGRAM



SIGNAL FACES

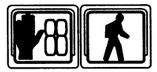
12" LENSES



2, 3 & 20
4 & 5
7, 8 & 19
9 & 10

1 & 6

ONE SECTION (SOLID SYMBOL)



11 & 12
13 & 14
15 & 16
17 & 18

NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEETS A.D.A.S. STANDARD.

DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 061509											
HWY. 321/KERR STATION RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			COMMENTS	TUBE LENGTHS
							LOCAL		MASTER SYSTEM DETECTOR NUMBERS		
DET. ID #	LOCATION DIRECTION	TPYE	DET. #	CAB. TRM. #	AMP CHN. #	CON. IMP. #	PHS	SYSTEM DET. #			
Vz11	WB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	74"
Vz12	WB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	74"
Vz21 A&B	EB ADVANCE	LOCAL			5	V2	2			CAMERA V2	74"
Vz22A&B	EB NEAR	COMB.			6	V10	2	2		CAMERA V5	74"
Vz41	SB LEFT TURN FAR	COMB.			13	V12	4	4		CAMERA V4	74"
Vz42	SB LEFT TURN	LOCAL			14	V4	4			CAMERA V4	74"
Vz43	SB THRU AND RIGHT	LOCAL			15	V15	4			CAMERA V4	74"
Vz51	EB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	74"
Vz52	NB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	74"
Vz61 A&B	WB FAR ADVANCE	LOCAL			3	V6	6			CAMERA V6	23"
Vz62A&B	WB NEAR	COMB.			4	V14	6	6		CAMERA V1	74"
Vz81	NB LEFT TURN FAR	COMB.			9	V16	8	8		CAMERA V8	74"
Vz82	NB LEFT TURN	LOCAL			10	V8	8			CAMERA V8	74"
Vz83	NB THRU AND RIGHT	LOCAL			11	V7	8			CAMERA V8	74"
PB2 A&B	KERR STA. RD. S. LEG	PED.				P2	2				
PB4 A&B	HWY. 321 W. LEG	PED.				P4	4				
PB6 A&B	KERR STA. RD. N. LEG	PED.				P6	6				
PB8 A&B	HWY. 321 E. LEG	PED.				P8	8				
					SPARE: 12 & 16						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

INTERVAL CHART

SIGNAL FACES	HWY. 321/KERR STATION RD.										FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.	
1	⟲	•	⟲	•	↶Y	•••	↶Y	•••	↶	↶	↶
2,3&20	R	R	G	••	R	R	G	••	R	R	R
4&5	R	R	R	R	R	R	R	R	G	••	R
6	⟲	•	↶Y	•••	⟲	•	↶Y	•••	↶	↶	↶
7,8&19	R	R	R	R	G	••	G	••	R	R	R
9&10	R	R	R	R	R	R	R	R	G	••	R
11&12	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
13&14	DW	DW	W	FDW	DW	DW	W	FDW	DW	DW	BLK
15&16	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
17&18	DW	DW	DW	DW	W	FDW	W	FDW	DW	DW	BLK

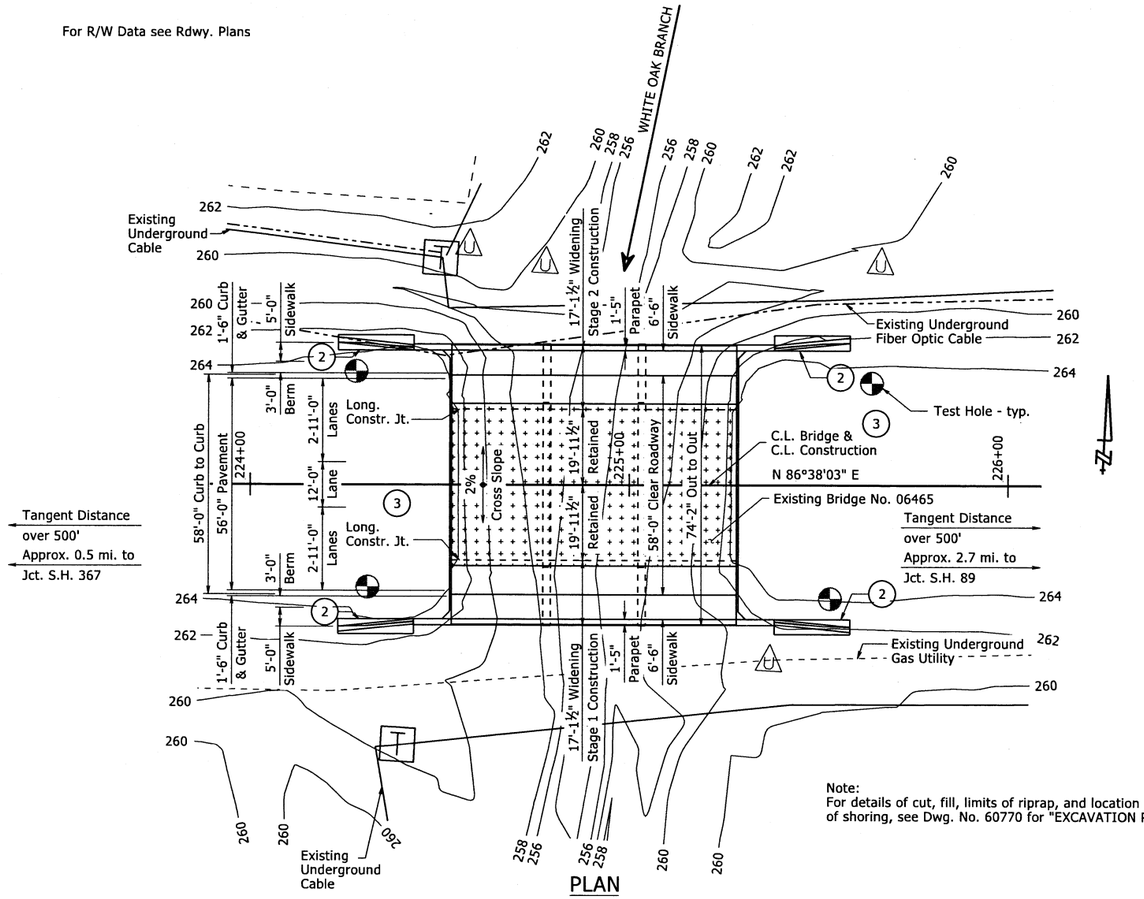
• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

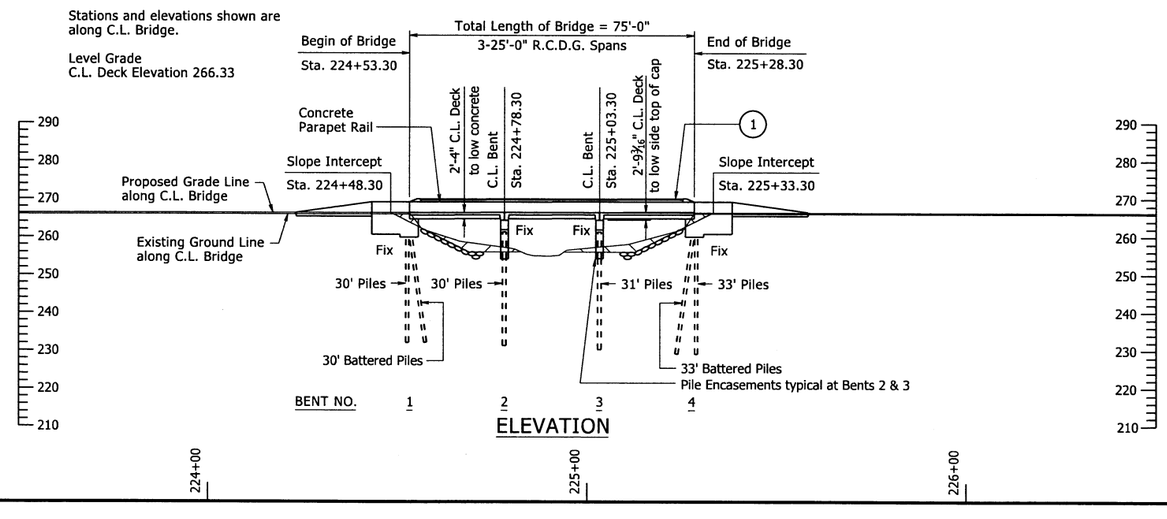
DATE: 06-13-19 FILE NAME: t061509_01.dgn

LOCATION: HWY. 321/KERR STATION RD.
CITY: CABOT
COUNTY: LONOKE
DISTRICT: 6 SCALE: N/A DRAWN BY: GWE

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.		061509	148	349
				(1)		06465 - LAYOUT - 60769		

For R/W Data see Rdwy. Plans





PRINT DATE: 6/11/2019

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. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges 17th Edition (2002) with interim Specifications.

LIVE LOADING: HS20 METHOD OF DESIGN: LOAD FACTOR

SEISMIC PERFORMANCE CATEGORY: A

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

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

STEEL PILING: All piling 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. Piling for Bents 1 & 4 shall be HP 12x53 (Gr. 50) and shall have a minimum penetration of 10' below natural ground. Piling in Bents 2 & 3 shall be HP 12x53 (Gr. 50) and shall have a minimum penetration of 15' below the final ground surface. Piling in Bents 1 & 4 shall be driven after embankment to bottom of cap is in place. Lengths 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 are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PILE ENCASEMENT: Pile encasement for Bents 2 & 3 shall extend from 3' below the final ground surface to the bottom of the cap. See Std. Dwg. No. 55020 for additional information.

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a polymer overlay per SP Job No. 061509 "Polymer Overlay". Sidewalks shall be given a Class 6 Broomed Finish. The concrete bridge deck will not require a Class 5, Tined Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing), and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NO.
Stage Construction	60772-60776
End Bents	60777
Intermediate Bents	60778
R.C.D.G. Spans	60779-60785
Type Special Approach Slab	60786
Transitional Approach Railing	55013
Details for Type H Railing	55014
Steel H Piles and Pile Encasements	55020

SHORING: Shoring may be required to retain existing and/or new embankments to maintain traffic during the widening of Bridge No. 06465. Shoring shall be constructed in accordance with Special Provision Job. No. 061509 "Shoring".

EXISTING BRIDGE: The existing bridge No. 06465 (log mile 0.51) is approximately 42.8' wide (40.0' Roadway) and 75.0' long and the superstructure consists of three 25.0' reinforced concrete deck girders (R.C.D.G.) The substructure consists of reinforced concrete caps all supported by steel H piling. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

THE PROPOSED WORK CONSISTS OF: Widening the existing bridge by modifying the existing substructure, concrete deck, dumped riprap, and joints as shown in the plans.

VERIFICATION: Except as noted, components of the existing bridge are to be retained and joined to the proposed work. Information and dimensions shown are based on the existing bridge plans and available survey data. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing bridge and its relationship to the proposed work described in Subsection 821.02 and make necessary adjustments to fit the proposed work to the existing structure. Payment for this work shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Bridge No. 06465)".

REMOVAL AND SALVAGE: The bridge name plate shall be delivered undamaged to Arkansas Department of Transportation Headquarters Bridge Division. The address is 10324 Interstate 30, Little Rock, AR 72209. All remaining material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

(1) Type "H" Metal Bridge Railing on top of Concrete Parapet Rail, see Std. Dwg. No. 55014.

(2) Transitional Approach Railing, see Std. Dwg. No. 55013.

(3) Use Type Special Approach Slab (typ.), see Dwg. No. 60786.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(4) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	1,800	261.8	264.2
Base	100	2,020	262.0	264.4
Extreme	500	2,590	262.3	265.1
Overtopping	>500	-	-	-

(4) Unconstricted water surface without structure or roadway approaches.

Q100 Backwater Elev. for existing structure = 264.4
Proposed Low Bridge Chord Elevation = 264.00
Existing Low Bridge Chord Elevation = 264.00

Drainage Area = 2.90 square miles.
Historical H.W. Elevation = 263.0

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 321 OVER WHITE OAK BRANCH
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY
ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/05/18 FILENAME: b061509x1_l1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 20'-0"
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06465 DRAWING NO. 60769

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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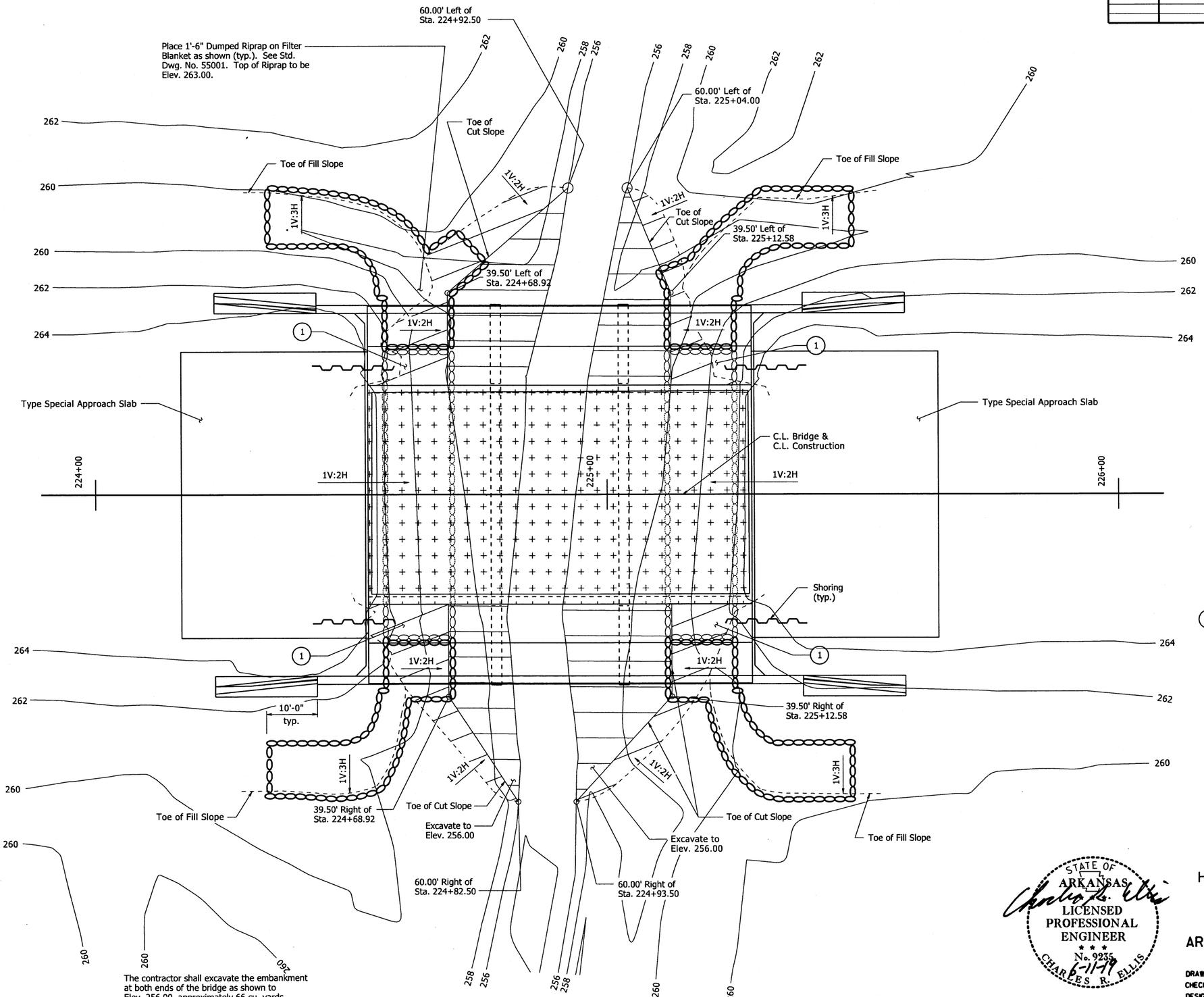
				JOB NO.		061509	149	349
				06465 - LAYOUT - 60770				



EXCAVATION PLAN

(1) Existing dumped riprap to be retained. All other areas of existing dumped riprap (including filter blanket if present) within the limits of the new construction or regrading of the embankments, or as directed by the Engineer, shall be removed. This work will not be paid for directly but shall be considered incidental to the pay item "Modification of Existing Bridge Structure (Bridge No. 06465)".

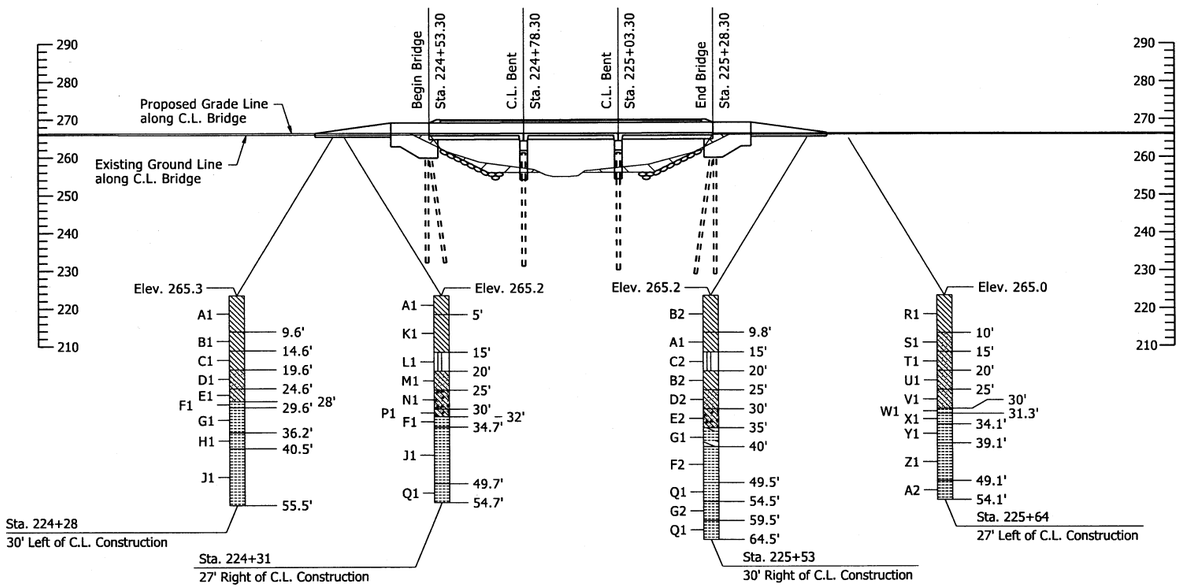
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 321 OVER WHITE OAK BRANCH
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY
ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

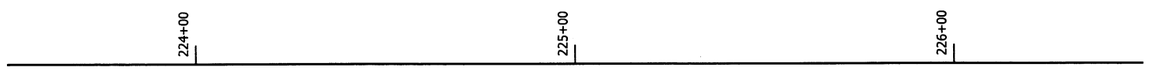
DRAWN BY: CGP DATE: 7/05/18 FILENAME: b061509x1_l1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 10'-0"
DESIGNED BY: DHP DATE: 6/2018
BRIDGE NO. 06465 DRAWING NO. 60770

PRINT DATE: 6/5/2019

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.		061509	150	349
				①		06465 - LAYOUT - 60771		



ELEVATION OF SOIL BORINGS



BORING LEGEND

A1-Moist, Stiff, Brown and Gray Clay
B1-Moist, Very Stiff, Brown Clay
C1-Wet, Soft, Light Brown Clay
D1-Wet, Stiff, Brown and Gray Sandy Clay
E1-Wet, Very Stiff, Brown Sandy Clay with Trace Gravel
F1-SHALE
G1-SHALE - Highly Weathered, Medium Hard, Dark Gray
H1-SHALE - Slightly Weathered, Medium Hard, Dark Gray
J1-SHALE - Unweathered, Medium Hard, Dark Gray
K1-Moist, Very Stiff, Brown and Gray Clay
L1-Moist, Loose, Light Brown Silt
M1-Moist, Stiff, Brown Sandy Clay
N1-Wet, Very Stiff, Brown Sandy Clay with Gravel
P1-Wet, Hard, Brown Sandy Clay with Gravel
Q1-SHALE - Unweathered, Medium Hard, Occasional Fractures, Dark Gray
R1-Moist, Soft, Gray Clay
S1-Moist, Very Stiff, Brown and Gray Sandy Clay
T1-Wet, Medium Stiff, Brown Clay with Sand
U1-Wet, Medium Stiff, Brown Sandy Clay
V1-Wet, Stiff, Brown Sandy Clay
W1-SHALE - Medium Hard, Highly Weathered, Dark Gray
X1-SHALE - Medium Hard, Weathered with Highly Weathered Layers, Dark Gray
Y1-SHALE - Medium Hard, Slightly Weathered, Frequent Fractures, Dark Gray
Z1-SHALE - Medium Hard, Unweathered, Occasional Fractures, Dark Gray
A2-SHALE - Medium Hard, Unweathered, Dark Gray
B2-Wet, Medium Stiff, Gray Clay
C2-Moist, Medium Dense, Light Brown Silt with Trace Gravel
D2-Wet, Stiff, Reddish Brown Sandy Clay with Some Gravel
E2-Wet, Hard, Brown and Gray Sandy Clay with Gravel
F2-SHALE - Slightly Weathered, Hard, Dark Gray
G2-SHALE - Unweathered, Medium Hard, Frequent Fractures, Dark Gray

"N" VALUES

Sta. 224+28 - 30' Left of C.L. Construction

5.1- 6.1,N=9
10.1- 11.1,N=16
15.1- 16.1,N=4
20.1- 21.1,N=11
25.1- 26.1,N=21
30.1- 30.7,N=89(7")

Sta. 224+31 - 27' Right of C.L. Construction

5.5- 6.5,N=13
10.5- 11.5,N=22
15.5- 16.5,N=9
20.5- 21.5,N=11
25.5- 26.5,N=18
30.5- 31.5,N=47
34.7- 34.7,N=10(0")

Sta. 225+64 - 27' Left of C.L. Construction

5.5- 6.5,N=4
10.5- 11.5,N=23
15.5- 16.5,N=5
20.5- 21.5,N=6
25.5- 26.5,N=11
30.5- 30.5,N=10(0")

Sta. 225+53 - 30' Right of C.L. Construction

5.3- 6.3,N=5
10.3- 11.3,N=13
15.5- 16.5,N=18
20.5- 21.5,N=7
25.5- 26.5,N=12
30.5- 31.5,N=36
35.5- 35.7,N=60(2")
40- 40.0,N=20(0")

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 321 OVER WHITE OAK BRANCH
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/05/18 FILENAME: b061509x1_l1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 20'-0"
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06465 DRAWING NO. 60771

PRINT DATE: 6/5/2019

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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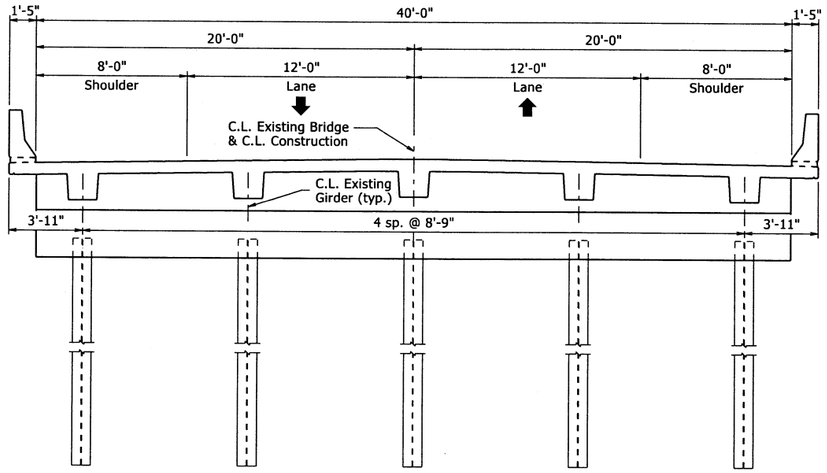
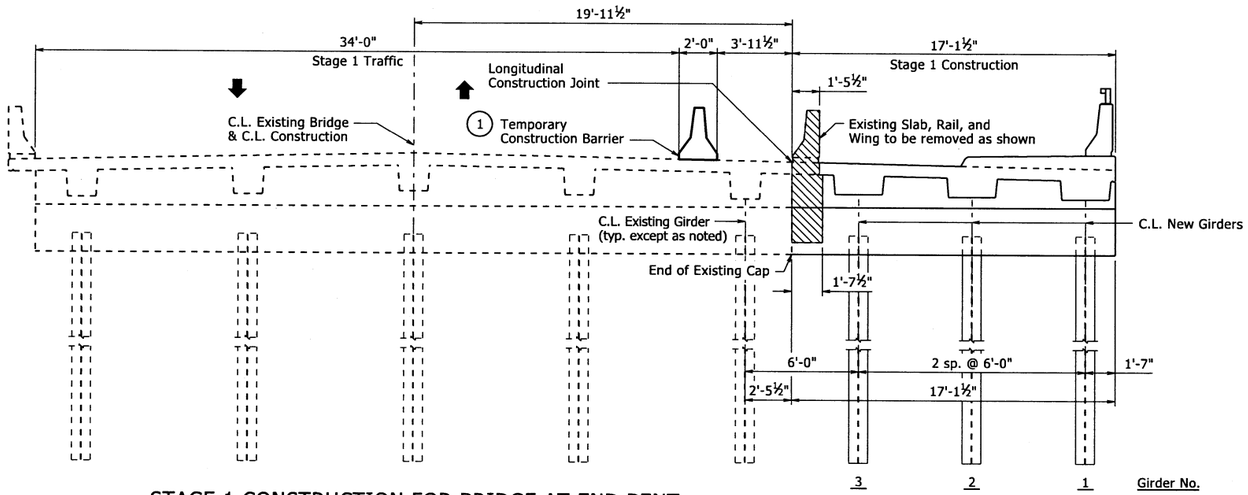


EXISTING CONDITION AT END BENT

LOOKING AHEAD

(1) For details of Temporary Construction Barrier, see Std. Dwgs. TC-4 & TC-5, the Temporary Construction Barrier shall not be attached to the bridge deck.

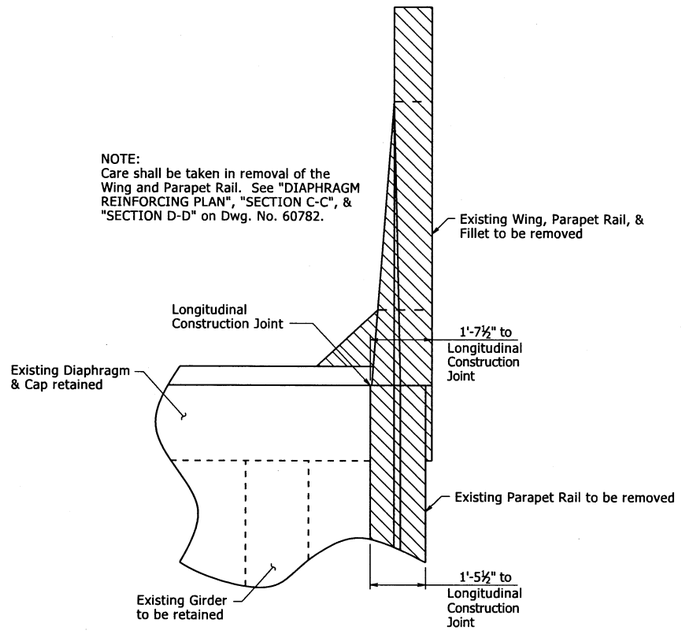
NOTE:
For additional Maintenance of Traffic details, see Roadway Plans.



STAGE 1 CONSTRUCTION FOR BRIDGE AT END BENT

LOOKING AHEAD

NOTE:
Care shall be taken in removal of the Wing and Parapet Rail. See "DIAPHRAGM REINFORCING PLAN", "SECTION C-C", & "SECTION D-D" on Dwg. No. 60782.



STAGE 1 PLAN VIEW

LOOKING AHEAD

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9335
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF STAGE CONSTRUCTION
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06465 DRAWING NO. 60772

PRINT DATE: 6/7/2019

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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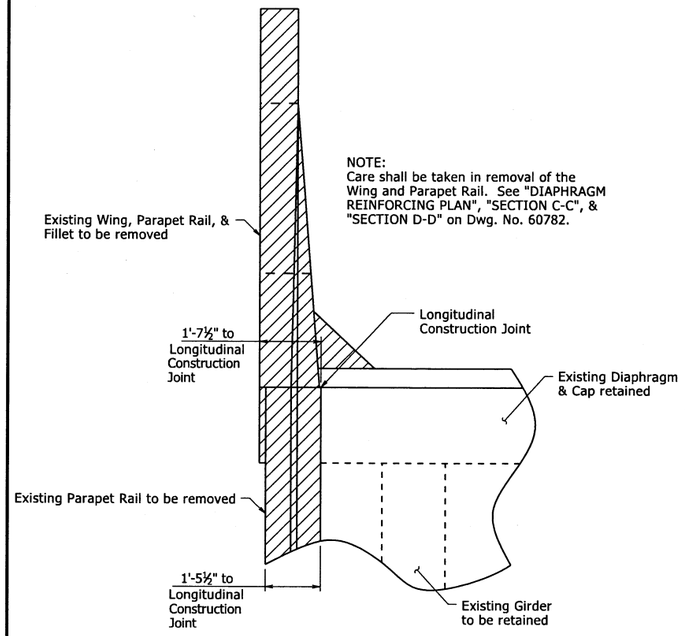
				JOB NO.		061509	152	349
				① 06465 - STAGE CONSTRUCTION - 60773				

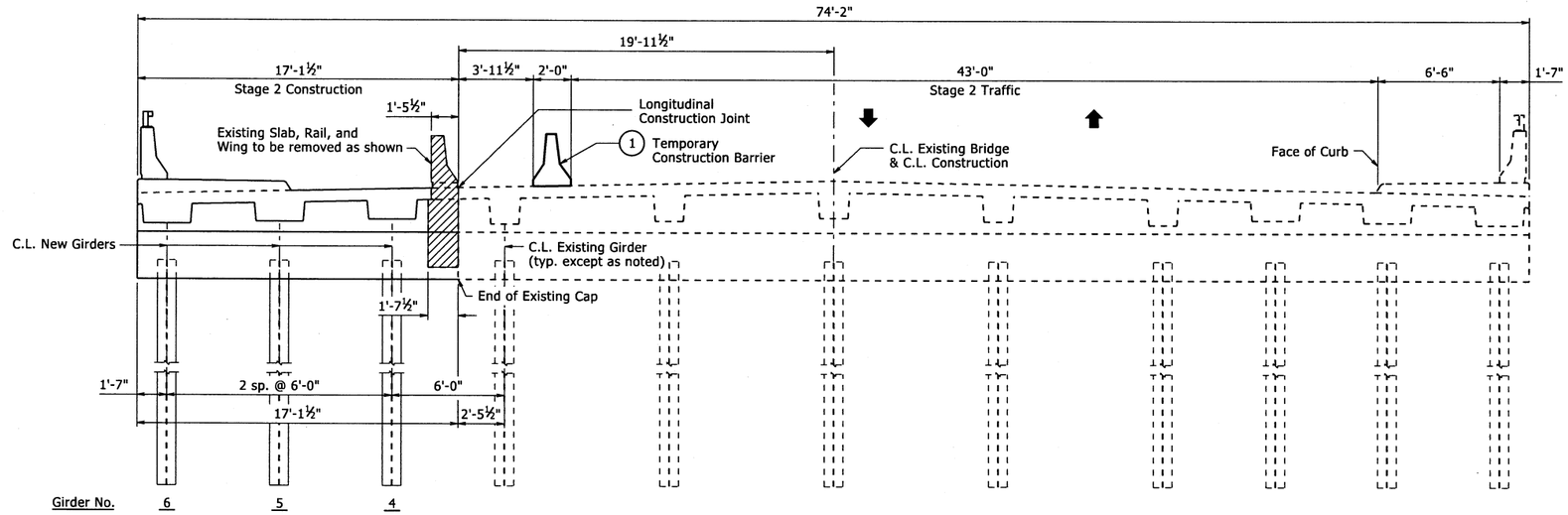


STAGE 2 PLAN VIEW

LOOKING AHEAD

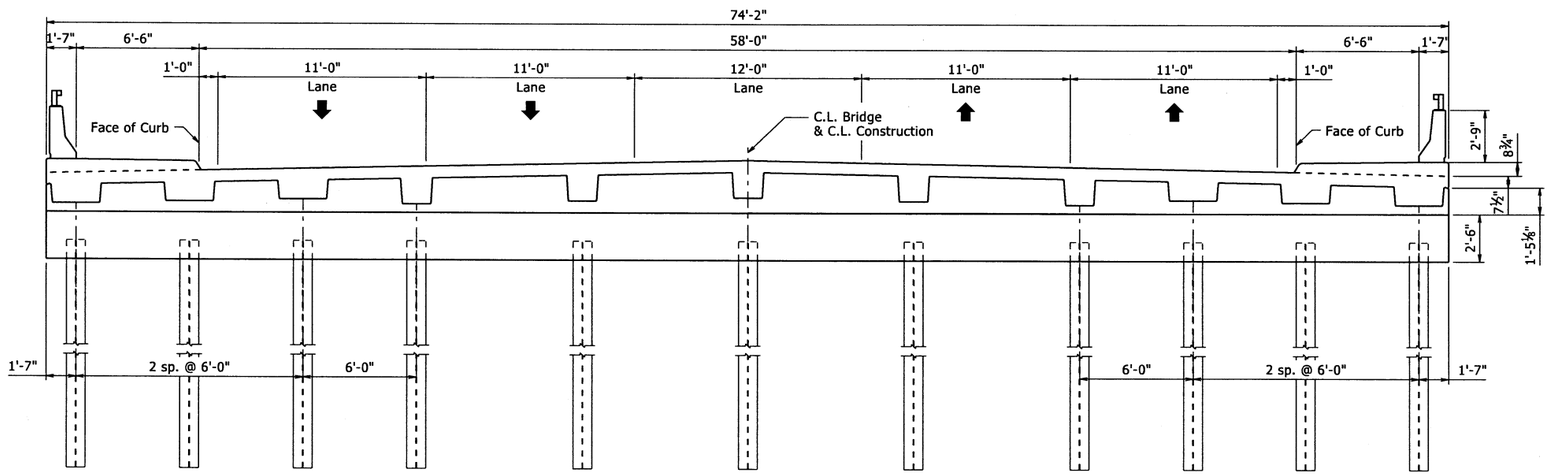
① For details of Temporary Construction Barrier, see Std. Dwgs. TC-4 & TC-5, the Temporary Construction Barrier shall not be attached to the bridge deck.

NOTE:
For additional Maintenance of Traffic details, see Roadway Plans.



STAGE 2 CONSTRUCTION FOR BRIDGE AT END BENT

LOOKING AHEAD



FINAL CONDITION

LOOKING AHEAD

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF STAGE CONSTRUCTION
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/05/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_l1.dgn
SCALE: No Scale

BRIDGE NO. 06465 DRAWING NO. 60773

PRINT DATE: 6/7/2019

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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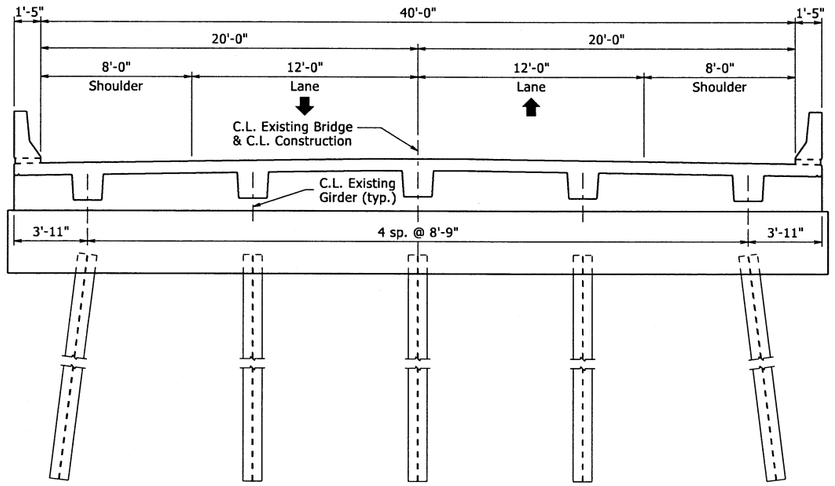
				JOB NO.		061509	153	349
				①	06465 - STAGE CONSTRUCTION - 60774			



EXISTING CONDITION AT INTERMEDIATE BENT

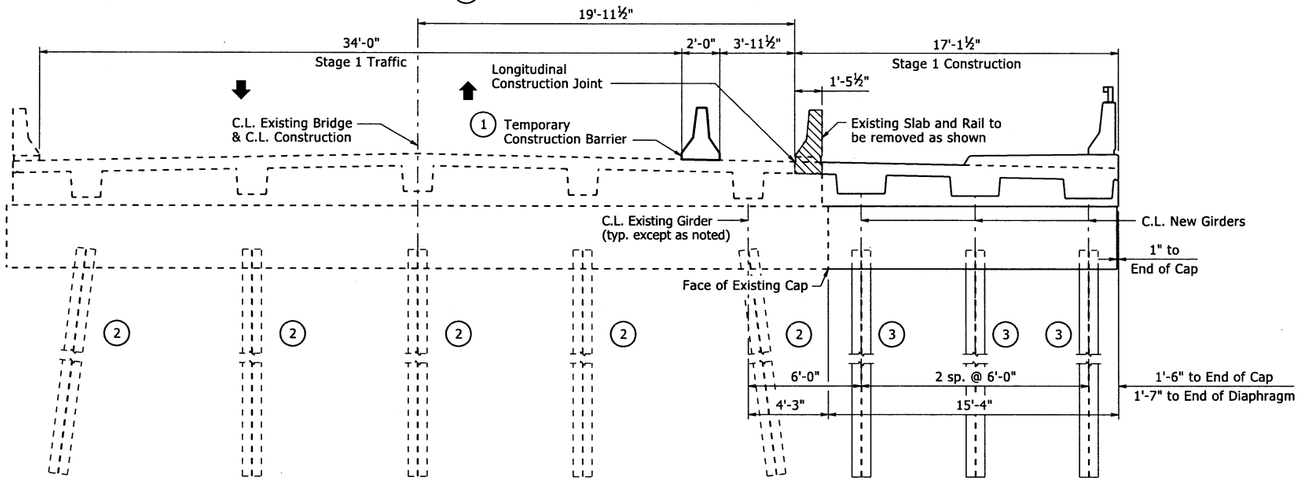
LOOKING AHEAD

(1) For details of Temporary Construction Barrier, see Std. Dwgs. TC-4 & TC-5, the Temporary Construction Barrier shall not be attached to the bridge deck.

(2) Existing Steel Piles are encased in concrete.

(3) New Steel Piles to be encased, see Std. Dwg. No. 55020.

NOTE:
For additional Maintenance of Traffic details, see Roadway Plans.



STAGE 1 CONSTRUCTION FOR BRIDGE AT INTERMEDIATE BENT

LOOKING AHEAD

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9935
CHARLES R. ELLIS
6-17-19
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF STAGE CONSTRUCTION
WHITE OAK BRANCH

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

DRAWN BY: CGP DATE: 7/05/18 FILENAME: b061509x1_l1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06465 DRAWING NO. 60774

PRINT DATE: 6/7/2019

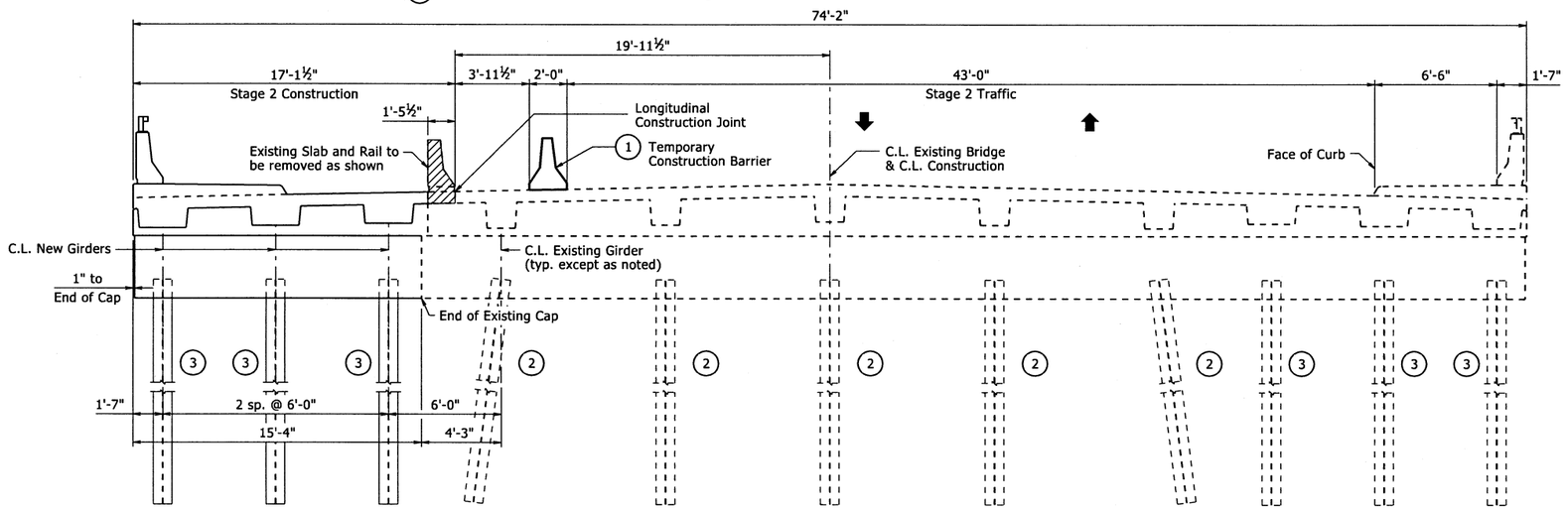
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	154	349
				(1)	06465 - STAGE CONSTRUCTION - 60775			

(1) For details of Temporary Construction Barrier, see Std. Dwgs. TC-4 & TC-5, the Temporary Construction Barrier shall not be attached to the bridge deck.

(2) Existing Steel Piles are encased in concrete.

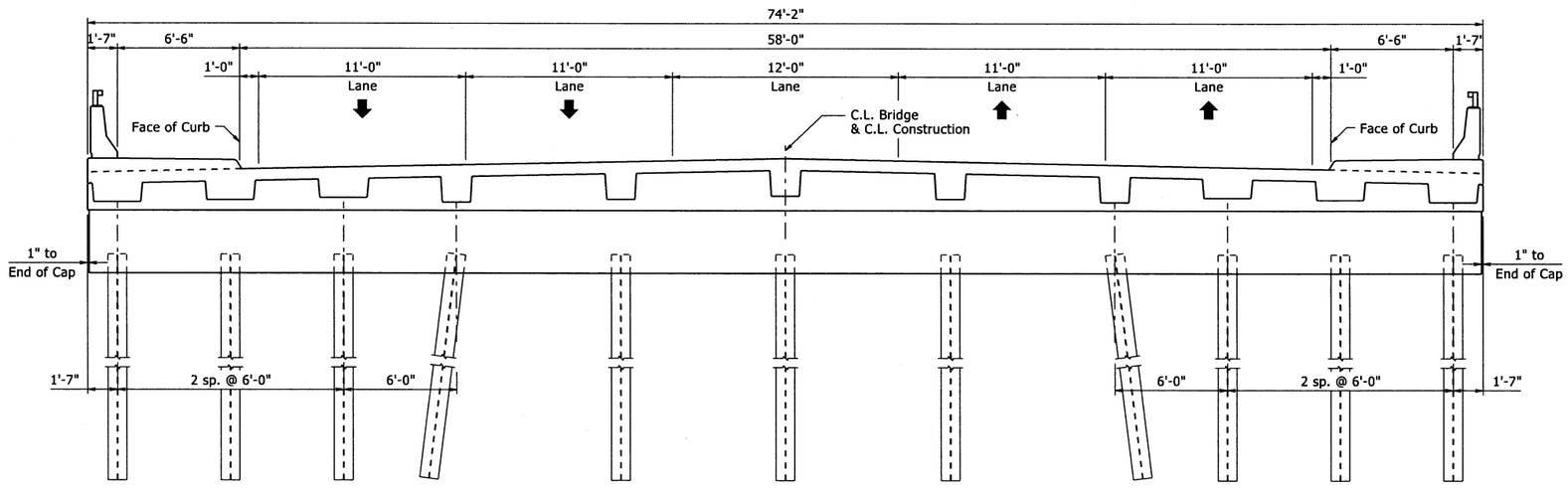
(3) New Steel Piles to be encased, see Std. Dwg. No. 55020.

NOTE:
For additional Maintenance of Traffic details, see Roadway Plans.



STAGE 2 CONSTRUCTION FOR BRIDGE AT INTERMEDIATE BENT

LOOKING AHEAD



FINAL CONDITION

LOOKING AHEAD

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6/11/19

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF STAGE CONSTRUCTION
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 7/05/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_l1.dgn
SCALE: No Scale

BRIDGE NO. 06465 DRAWING NO. 60775

PRINT DATE: 6/7/2019

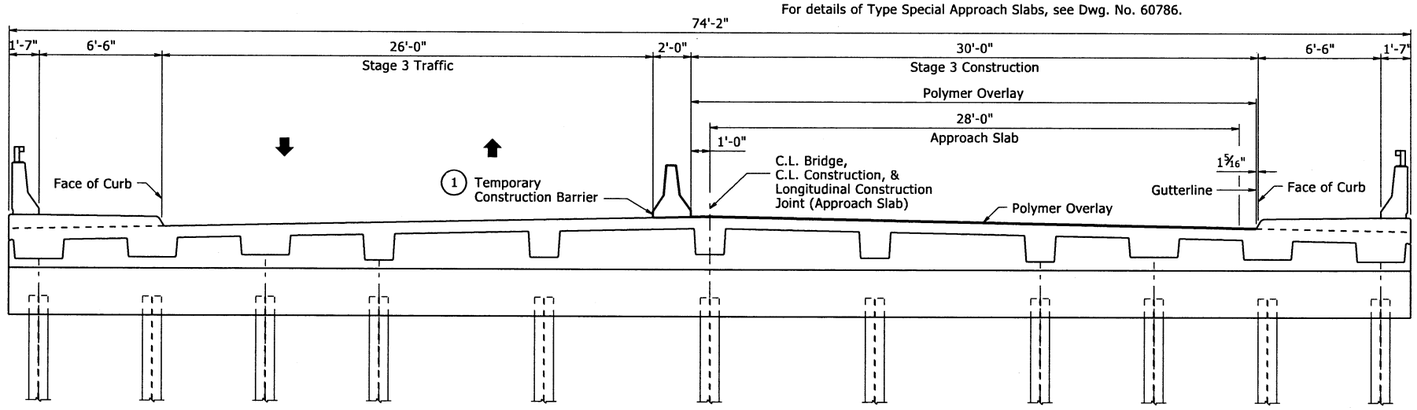
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	155	349
				(1)	06465 - STAGE CONSTRUCTION - 60776			

(1) For details of Temporary Construction Barrier, see Std. Dwgs. TC-4 & TC-5, the Temporary Construction Barrier shall not be attached to the bridge deck.

NOTES:
For additional Maintenance of Traffic details, see Roadway Plans.

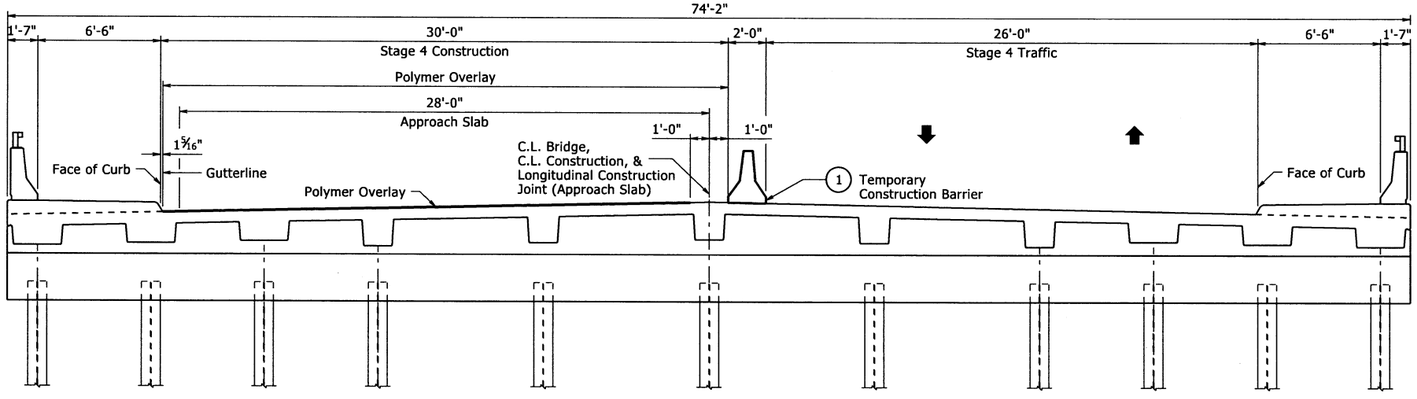
See SP Job No. 061509 "Polymer Overlay" for Polymer Overlay requirements.

For details of Type Special Approach Slabs, see Dwg. No. 60786.



STAGE 3 CONSTRUCTION FOR APPROACH SLAB & POLYMER OVERLAY

LOOKING AHEAD



STAGE 4 CONSTRUCTION FOR APPROACH SLAB & POLYMER OVERLAY

LOOKING AHEAD

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF STAGE CONSTRUCTION
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

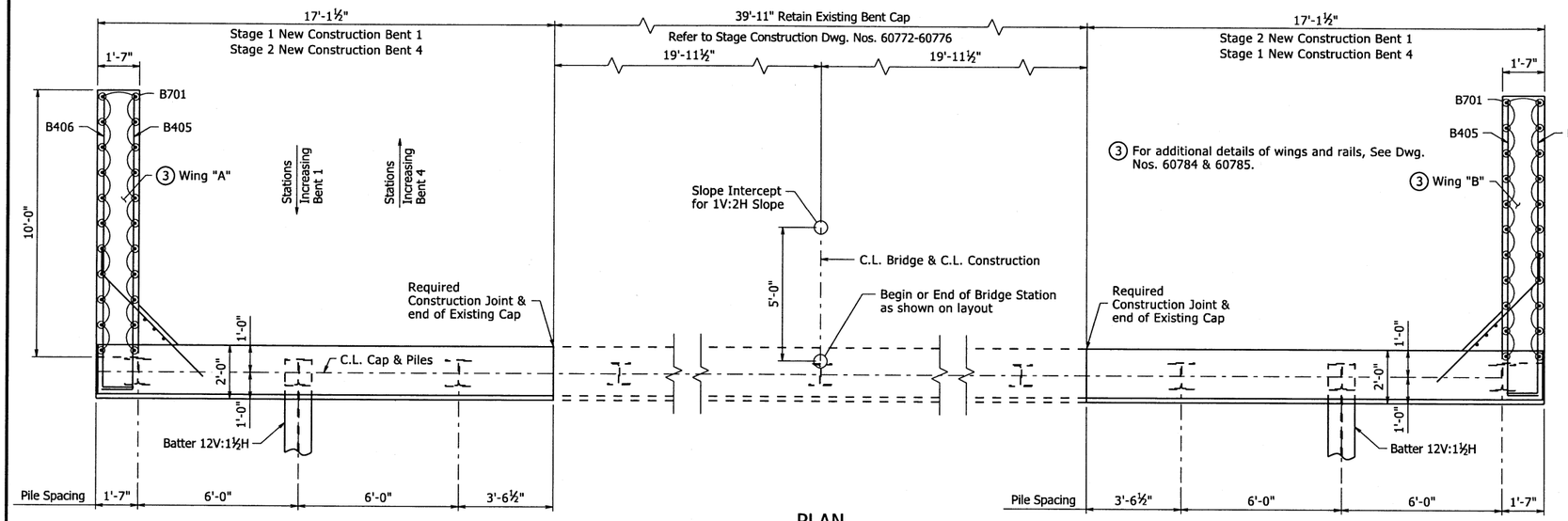
DRAWN BY: CGP DATE: 7/05/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_l1.dgn
SCALE: No Scale

BRIDGE NO. 06465 DRAWING NO. 60776

PRINT DATE: 6/7/2019

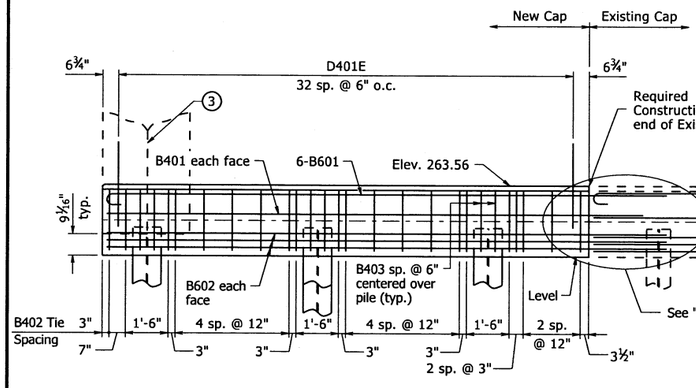
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	156	349

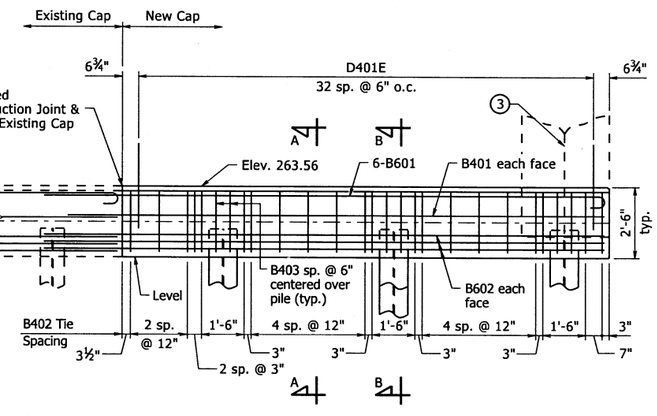
(1) 06465 - END BENTS - 60777



PLAN

⅜"=1'-0"





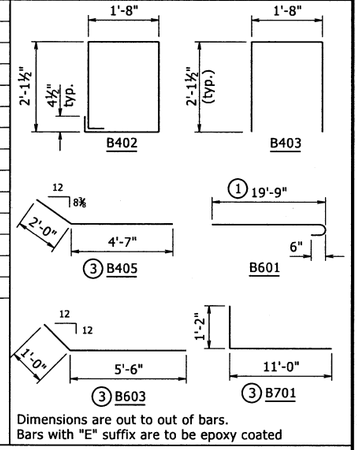
ELEVATION

LOOKING BACK BENT 1
LOOKING AHEAD BENT 4
⅜"=1'-0"

BAR LIST-PER BENT

	MARK	NO. REQ'D	LENGTH	P.D.
(1)	B401	4	18'-11"	Str.
	B402	42	7'-11"	2"
	B403	12	5'-9"	2"
(3)	B404	8	4'-2"	Str.
(3)	B405	22	6'-7"	2"
(3)	B406	22	6'-11"	Str.
(3)	B407	6	2'-7"	Str.
	D401E	66	3'-0"	Str.
(1)	B601	12	20'-5"	4½"
(1)	B602	12	19'-9"	Str.
(3)	B603	6	6'-6"	4½"
(3)	B701	12	12'-0"	5¼"

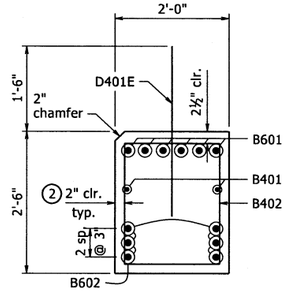
BENDING DIAGRAMS



Dimensions are out to out of bars.
Bars with "E" suffix are to be epoxy coated

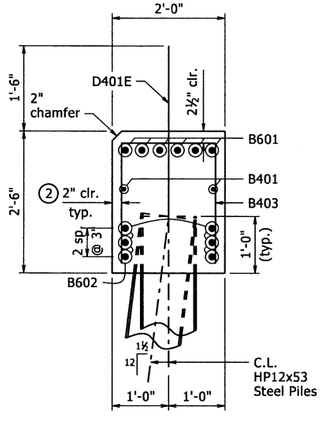
(1) Bar length includes Class C lap splice length plus 2".

(2) Bar clearance except as shown.



SECTION A-A

¾"=1'-0"



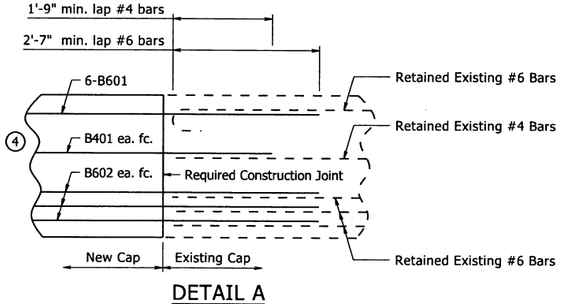
SECTION B-B

¾"=1'-0"

(4) Dowel into Existing Bent Cap using a QPL approved non-shrink grout or a resin anchoring system. Modify the embedment depth shown if required by the Manufacturer's recommendations. Embedment depth (based on a Class C lap splice length plus 2"):

1'-11" for #4 Bars
2'-9" for #6 Bars

Care shall be exercised not to damage existing reinforcing during drilling.



DETAIL A

¾"=1'-0"

GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

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

No heavy construction equipment or backfill shall be allowed directly behind the cap until the deck concrete for the adjacent span has been completed.

For additional information, see Layout.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
BRIDGE ENGINEER

DETAILS OF END BENTS
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 2/07/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_b1.dgn
SCALE: As Noted

BRIDGE NO. 06465 DRAWING NO. 60777

PRINT DATE: 6/11/2019

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.		061509	157	349

① 06465 - INTERMEDIATE BENTS - 60778

GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

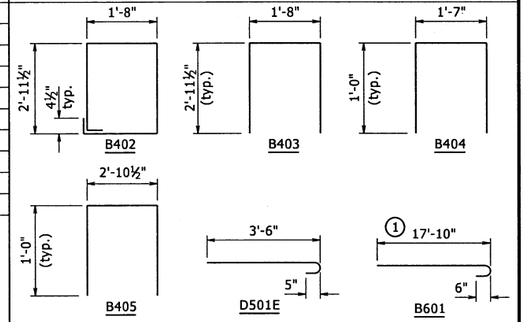
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

For additional information, see Layout.

BAR LIST-PER BENT

	MARK	NO. REQ'D	LENGTH	P.D.
①	B401	12	17'-0"	Str.
	B402	36	9'-7"	2"
	B403	12	7'-5"	2"
	B404	12	3'-5"	2"
	B405	4	4'-9"	2"
	D501E	60	4'-1"	3¾"
①	B601	12	18'-6"	4½"
①	B602	12	17'-10"	Str.

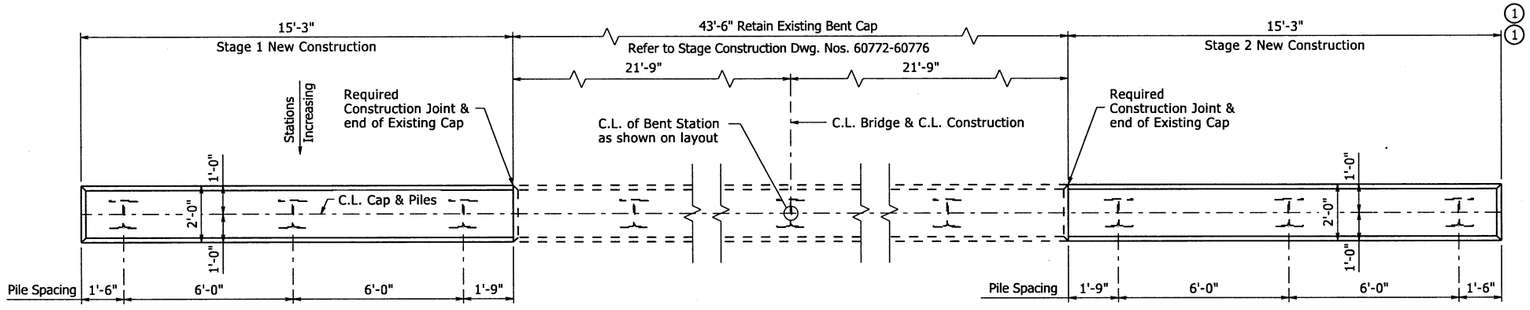
BENDING DIAGRAMS



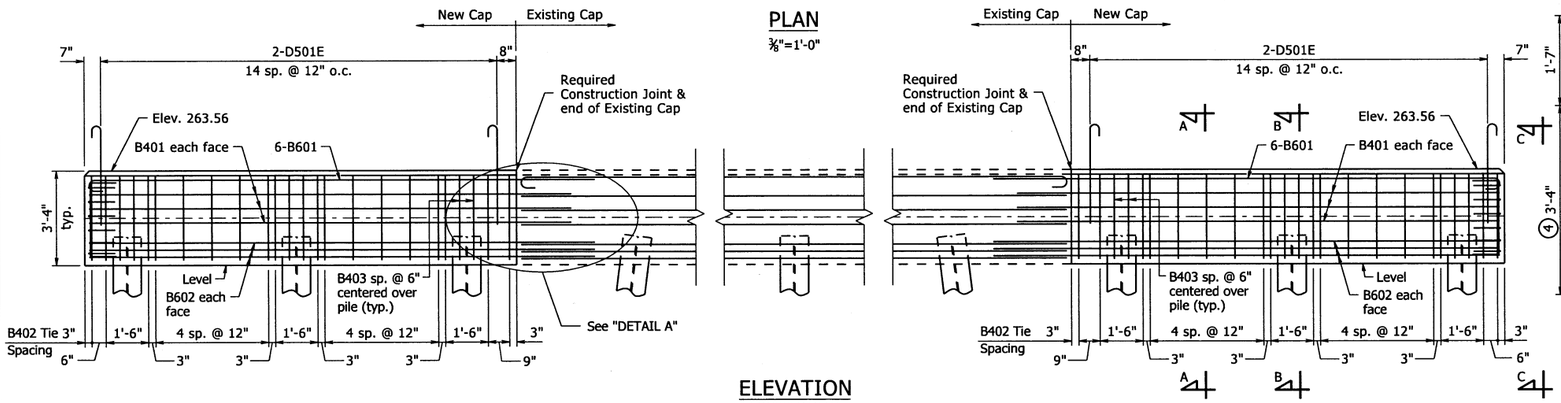
Dimensions are out to out of bars.
Bars with an "E" suffix are to be epoxy coated.

① Bar length includes Class C lap splice length plus 2".

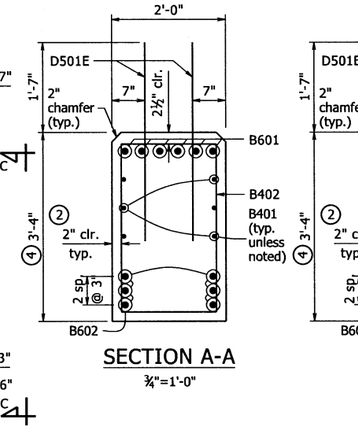
② Bar clearance except as shown.



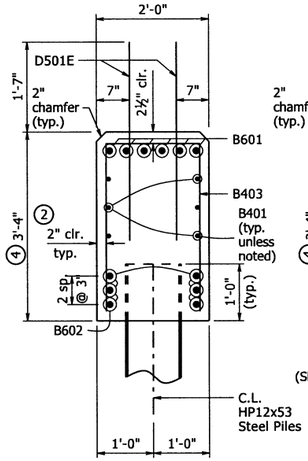
PLAN
⅜"=1'-0"



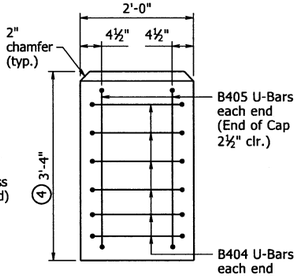
ELEVATION
LOOKING BACK
⅜"=1'-0"



SECTION A-A
¾"=1'-0"



SECTION B-B
¾"=1'-0"



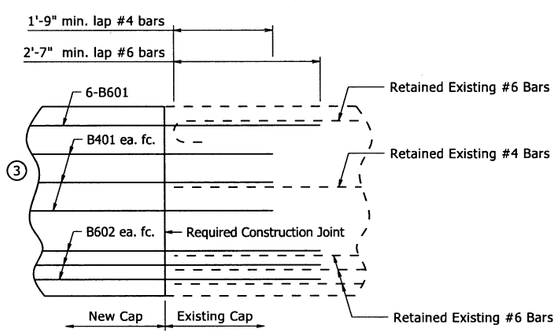
VIEW C-C
(SHOWING END REINFORCING ONLY)
3/4"=1'-0"

④ Dimension obtained from field measurements. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing bridge and its relationship to the proposed work described in Subsection 821.02 and make necessary adjustments to fit the proposed work to the existing structure.

③ Dowel into Existing Bent using a QPL approved non-shrink grout or a resin anchoring system. Modify the embedment depth shown if required by the Manufacturer's recommendations. Embedment depth (based on a Class C lap splice length plus 2"):

1'-11" for #4 Bars
2'-9" for #6 Bars

Care shall be exercised not to damage existing reinforcing during drilling.



DETAIL A
¾"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 02/07/19 FILENAME: b061509x1_b2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06465 DRAWING NO. 60778

PRINT DATE: 6/5/2019

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.		061509	158	349
				(1)		06465 - SPAN DETAILS - 60779		

Slab Reinforcing

Longitudinal: K401E in top of sidewalk
S401E in top of deck slab (place as shown)
S402 in bottom of deck slab (place as shown)

Transverse: K402E @ 12" o.c. in top of sidewalk
K403E @ 12" o.c.
S501E @ 15" o.c. in top — Alternate
S601E @ 15" o.c. in top
S502 @ 15" o.c. in bottom — Alternate
S601 @ 15" o.c. in bottom

(1) Tolerance Minus = ¼":
Plus = to the amount of slab thickness used to meet slab thickness tolerance.

(2) Tolerance +½", -¼"

(3) For additional information see "SIDEWALK DETAIL".

(4) Care shall be exercised during the partial removal of the existing deck concrete to ensure that the existing transverse reinforcing steel is not damaged beyond repair. Any transverse reinforcing steel damaged beyond repair during removal of the deck concrete shall be replaced as directed by the Engineer at the Contractor's expense. Minor straightening of the transverse reinforcing steel after the removal of the deck concrete will be allowed. A QPL approved Epoxy Resin System may be used to replace any damaged transverse reinforcing steel. Epoxy coating on the transverse reinforcing steel damaged during the removal of the deck concrete shall be repaired in accordance with Subsection 804.05.

(5) These bars shall have Epoxy Coated Mechanical Bar Couplers of the threaded type. Couplers shall be listed on the Department's Qualified Products List (QPL) and shall be installed according to the manufacturer's recommendations. They shall develop at least 125% of the specified yield strength of the bar and maintain a minimum of 2" clear from the formwork. Couplers shall be installed during Stage 1 & Stage 2 Construction after deck removal and straightening of transverse reinforcing steel. The cost for the Mechanical Bar Couplers shall be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

(6) See "DETAIL E" and "DETAIL F" on Dwg. No. 60781 for location of bars.

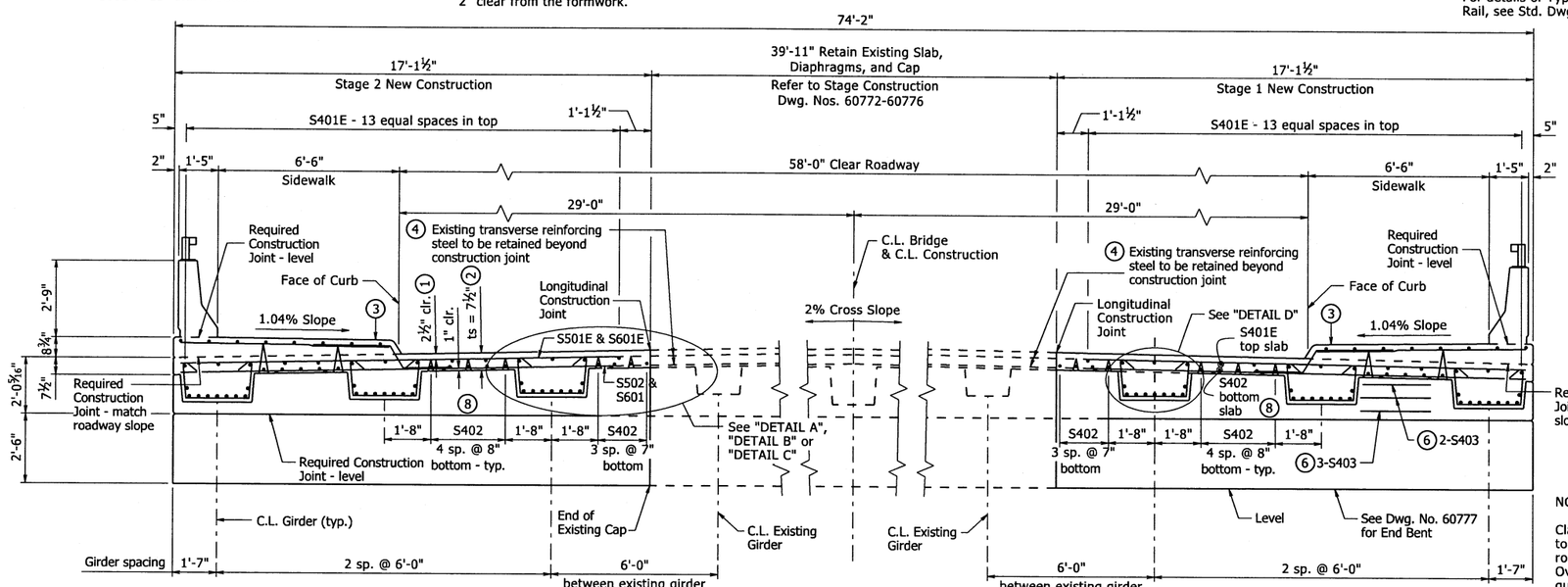
(7) Dowel into existing slab using a QPL approved non-shrink grout or a resin anchoring system. Modify the embedment depth shown if required by the Manufacturer's recommendations. Embedment depth (based on a Class C lap splice length plus 2"):

3'-5" for #5 epoxy bars
4'-0" for #6 epoxy bars
2'-9" for #6 bar

Care shall be exercised not to damage existing reinforcing during drilling.
Hole diameter and installation procedure shall be as recommended by the manufacturer.

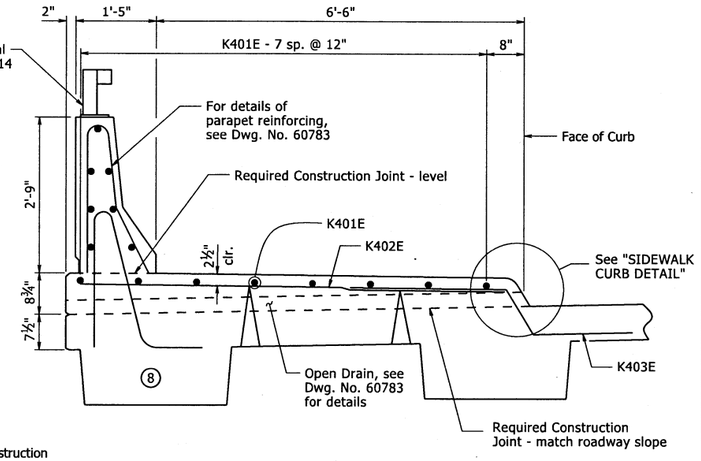
(8) All other reinforcing not shown for clarity.

(9) S502 doweled under existing Truss Bar as shown in "DETAIL B".



TYPICAL ROADWAY SECTION

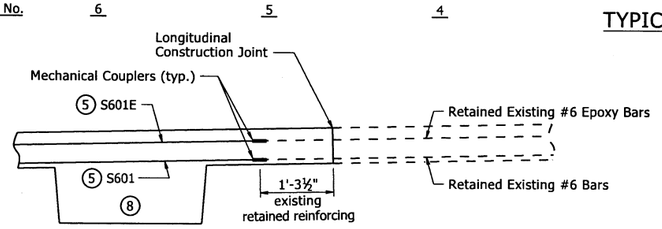
(SHOWN AT END BENT)
LOOKING AHEAD
⅜" = 1'-0"



SIDEWALK DETAIL

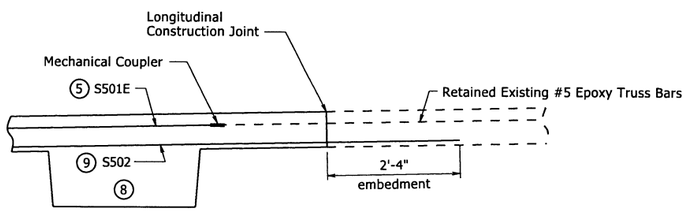
NO SCALE

Girder No. 6 5 4 3 2 1



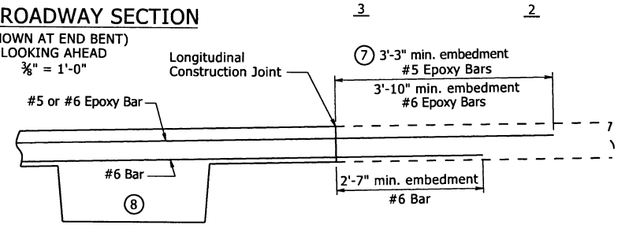
DETAIL A

SHOWING WHEN NO BARS ARE DAMAGED
¾" = 1'-0"



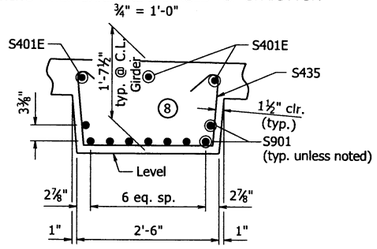
DETAIL B

SHOWING WHEN NO BARS ARE DAMAGED
¾" = 1'-0"



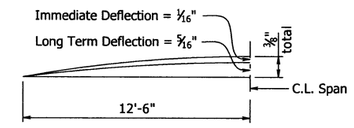
DETAIL C

SHOWING WHEN BARS ARE DAMAGED TOP OR BOTTOM
¾" = 1'-0"



DETAIL D

¾" = 1'-0"



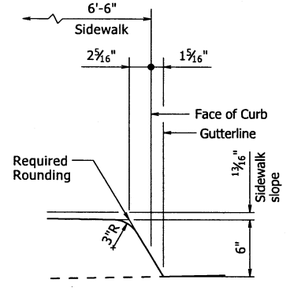
CAMBER DIAGRAM FOR DEAD LOAD DEFLECTION

NO SCALE

NOTE:

Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing), and to the roadway face & top of the concrete parapet rail. Polymer Overlay shall be applied to roadway surface between gutterlines. See SP Job No. 061509 "Polymer Overlay" for Polymer Overlay requirements.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.



SIDEWALK CURB DETAIL

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

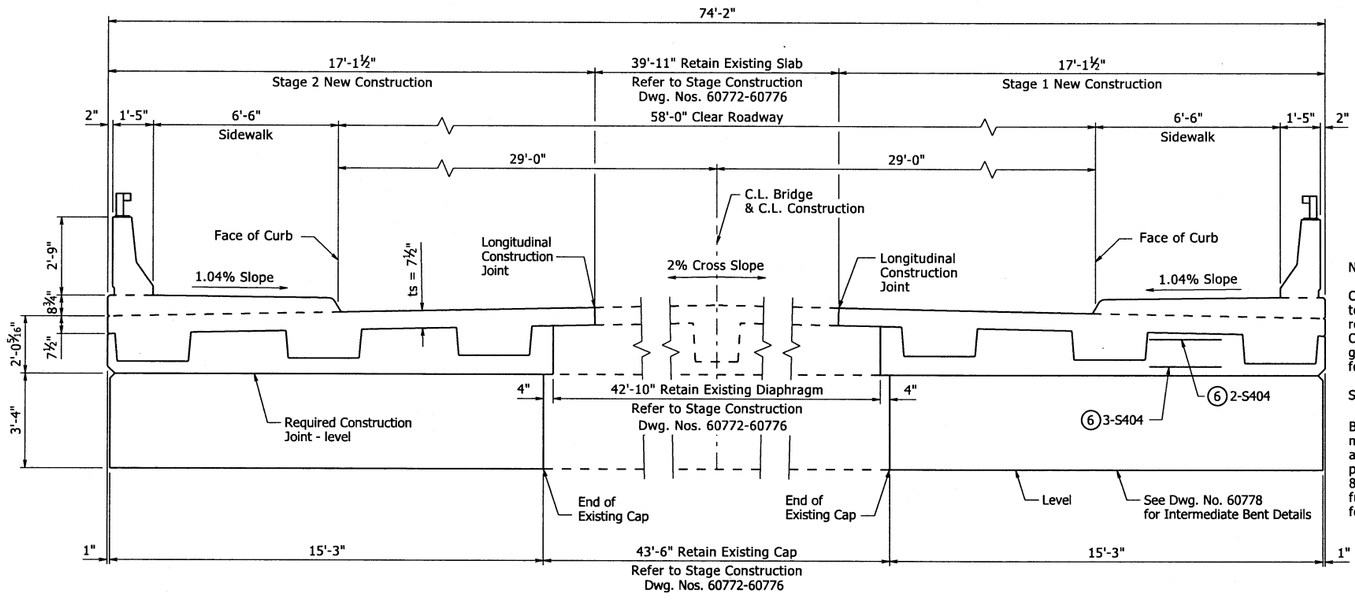
SHEET 1 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

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

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x1_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018
BRIDGE NO. 06465 DRAWING NO. 60779

PRINT DATE: 6/11/2019

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.		061509	159	349
				(1)		06465 - SPAN DETAILS - 60780		



TYPICAL ROADWAY SECTION

(SHOWN AT INTERMEDIATE BENT)
LOOKING AHEAD
⅜" = 1'-0"

NOTE:

Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing), and to the roadway face & top of the concrete parapet rail. Polymer Overlay shall be applied to roadway surface between gutterlines. See SP Job No. 061509 "Polymer Overlay" for Polymer Overlay requirements.

See notes on Dwg. No. 60779.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

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

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x1_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018
BRIDGE NO. 06465 DRAWING NO. 60780

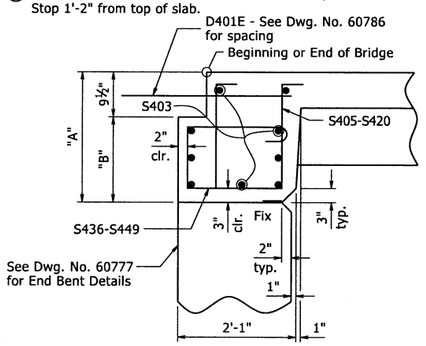
PRINT DATE: 6/11/2019

NOTE:

Any sidewalk or railing pours made before the entire slab unit has been placed must be approved by the Engineer. A minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the sidewalk, and a minimum of 72 hours shall elapse between the completion of the sidewalk and the pouring of the parapet railing. 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.

Refer to Dwg. No. 60784 for "THREE DIMENSIONAL VIEW OF CONSTRUCTION SEQUENCE DETAIL".

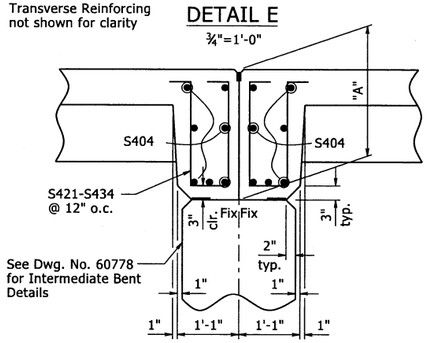
(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.



DETAIL E

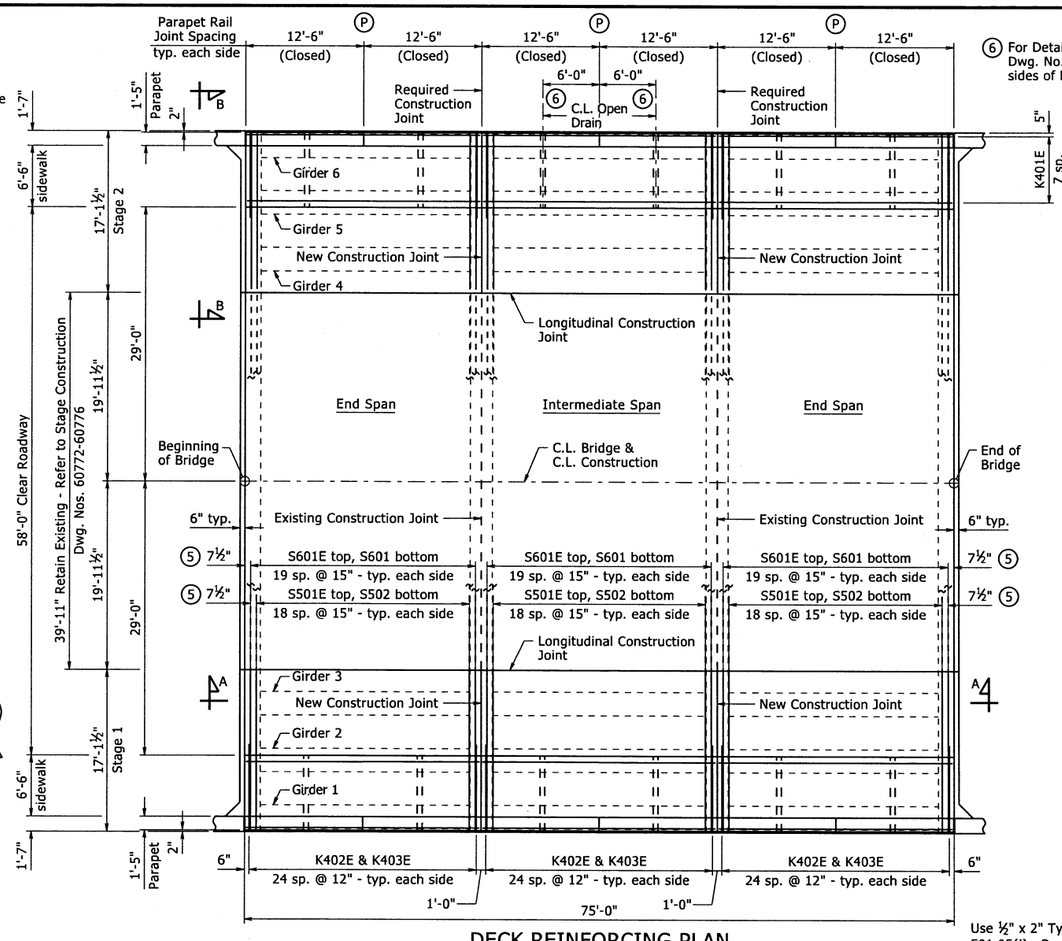
¾"=1'-0"

Transverse Reinforcing not shown for clarity



DETAIL F

¾"=1'-0"



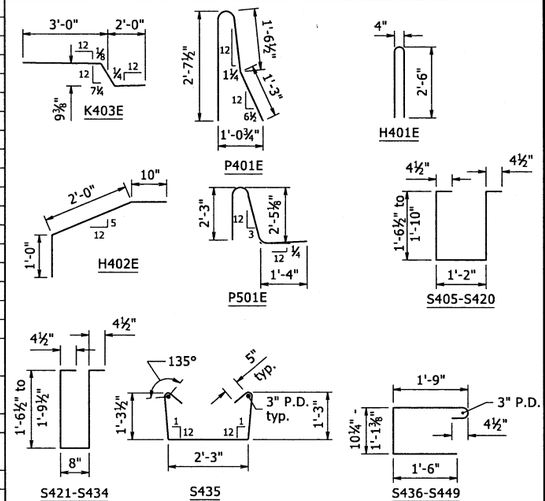
DECK REINFORCING PLAN

⅛" = 1'-0"

BAR LIST - PER SPAN (1)

MARK	NO. REQ'D END	NO. REQ'D INT.	LENGTH	P.D.
D401E	10	–	3'-0"	Str.
H401E	6	–	5'-4"	3"
H402E	2	–	3'-9"	3"
K401E	16	16	24'-8"	Str.
K402E	50	50	7'-6"	Str.
K403E	50	50	5'-5"	2"
P401E	100	50	5'-6"	3"
P402E	28	14	12'-2"	Str.
P403E	8	8	5'-6"	Str.
P501E	100	50	7'-0"	3¾"
S401E	28	28	24'-8"	Str.
S402	28	28	24'-8"	Str.
(4) S403	18	–	18'-11"	Str.
(4) S404	7	14	17'-5"	Str.
S405-S420	2 ea.	–	4'-8"-5'-3"	2"
S421-S434	1 ea.	2 ea.	4'-2"-4'-8"	2"
S435	306	159	5'-11"	2"
S436-S449	2 ea.	–	4'-5"-4'-8"	2"
(1) S501E	38	38	15'-8"	Str.
(2) S502	38	38	19'-4"	Str.
(1) S601	40	40	15'-8"	Str.
(1) S601E	40	40	15'-8"	Str.
S901	54	54	24'-8"	Str.

BENDING DIAGRAMS



Note: Dimensions are out to out of bars.

Note: Bars designated with an "E" suffix to be Epoxy Coated.

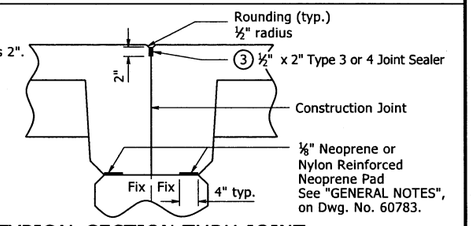
(1) Length based on Mechanical Coupler Splice.

(2) S502 dowel length includes Class C lap splice length plus 2".

(3) Joint sealer shall not be placed under sidewalk. Joint sealer shall extend from Longitudinal Construction Joint across slab and sidewalk to the edge of slab.

(4) Reference "SECTION C-C", "SECTION D-D" & "SECTION E-E" on Dwg. No. 60782

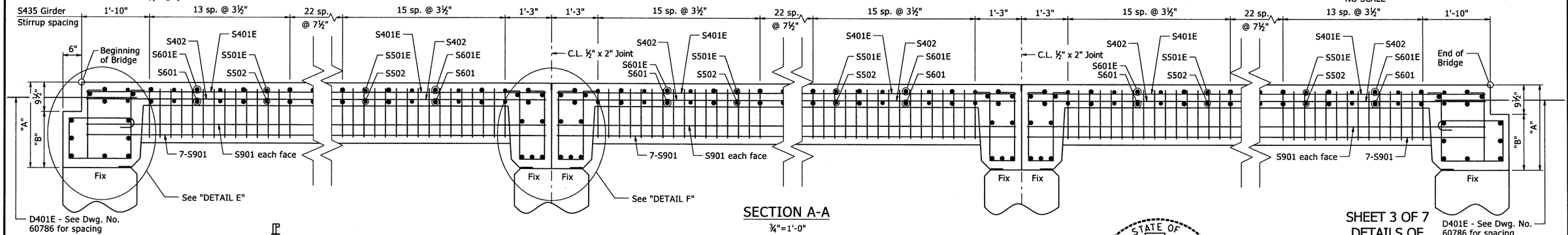
(5) Typical each side of End Span & Intermediate Span.



TYPICAL SECTION THRU JOINT

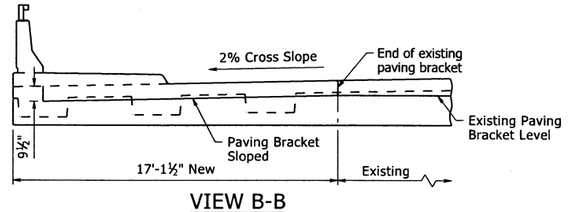
NO SCALE

Use ½" x 2" Type 3 or 4 Joint Sealer. See Subsections 501.02(h)(2) and 501.05(j). Backer Rod is not 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.



SECTION A-A

¾"=1'-0"



VIEW B-B

¼" = 1'-0"

TABLE OF VARIABLES

Girder	"A"	"B"
Girders 1 & 6	2'-0 11/16"	1'-3 3/16"
Girders 2 & 5	2'-2⅛"	1'-4⅝"
Girders 3 & 4	2'-3 9/16"	1'-6 1/16"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

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.		061509	160	349

06465 - SPAN DETAILS - 60781

SHEET 3 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

ROUTE SEC.

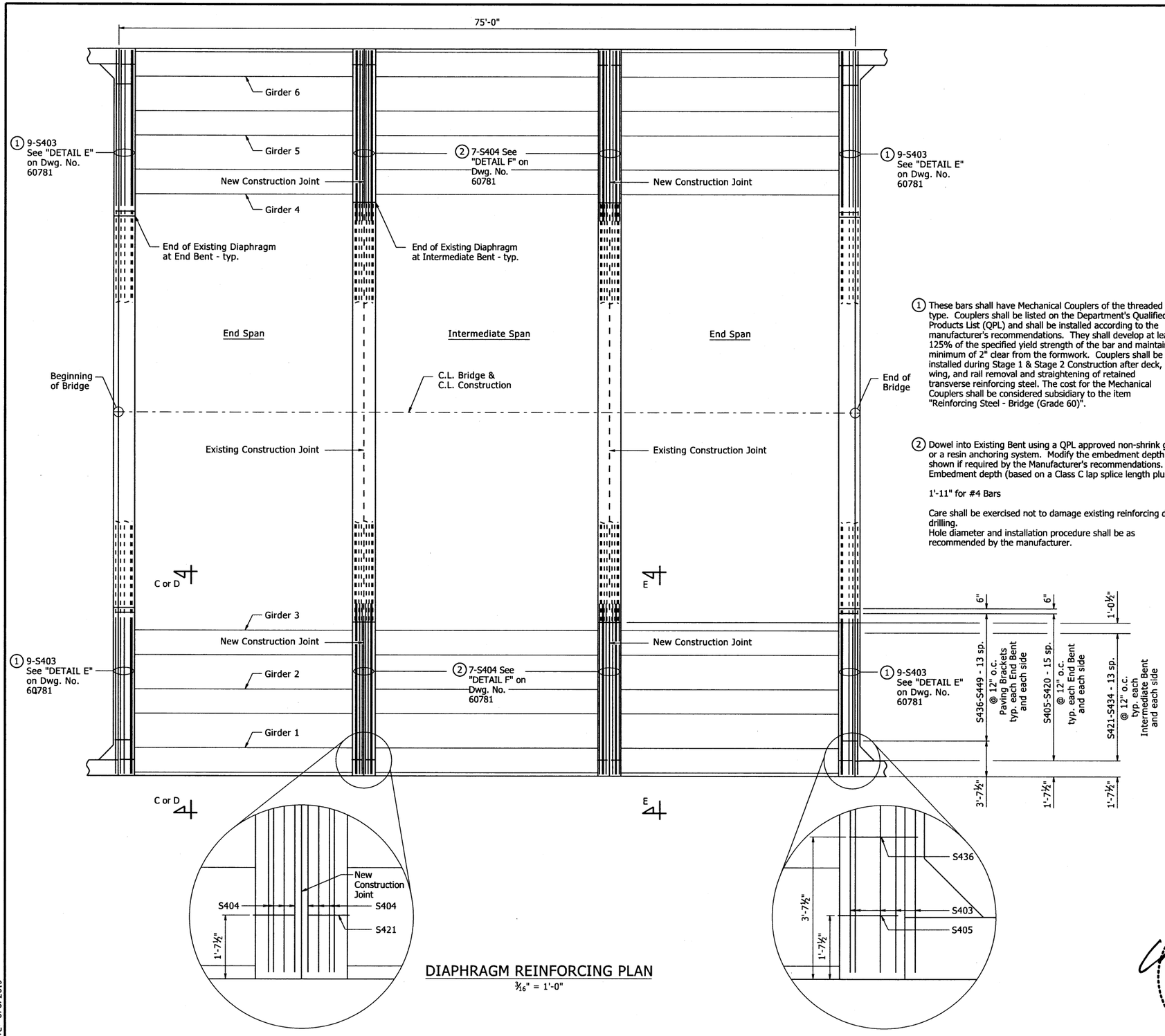
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x1_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06465 DRAWING NO. 60781

PRINT DATE: 6/11/2019

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.		061509	161	349
				①		06465 - SPAN DETAILS - 60782		



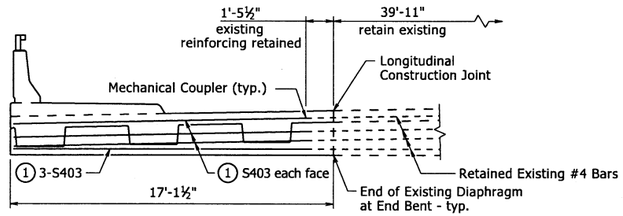
DIAPHRAGM REINFORCING PLAN
3/16" = 1'-0"

① These bars shall have Mechanical Couplers of the threaded type. Couplers shall be listed on the Department's Qualified Products List (QPL) and shall be installed according to the manufacturer's recommendations. They shall develop at least 125% of the specified yield strength of the bar and maintain a minimum of 2" clear from the formwork. Couplers shall be installed during Stage 1 & Stage 2 Construction after deck, wing, and rail removal and straightening of retained transverse reinforcing steel. The cost for the Mechanical Couplers shall be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

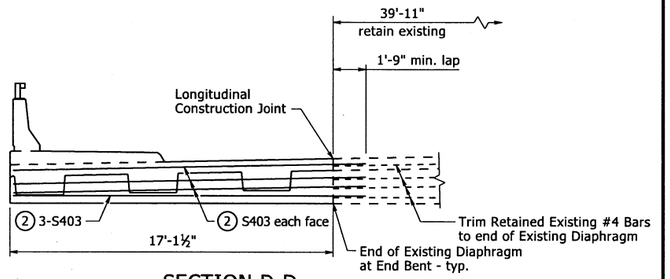
② Dowel into Existing Bent using a QPL approved non-shrink grout or a resin anchoring system. Modify the embedment depth shown if required by the Manufacturer's recommendations. Embedment depth (based on a Class C lap splice length plus 2"):

1'-11" for #4 Bars

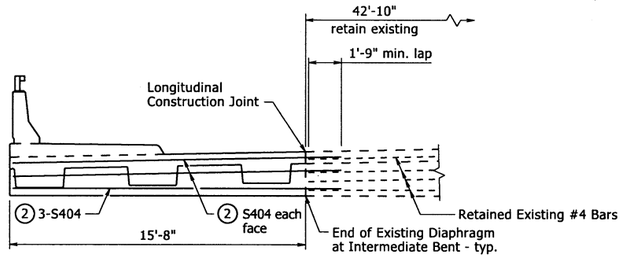
Care shall be exercised not to damage existing reinforcing during drilling.
Hole diameter and installation procedure shall be as recommended by the manufacturer.



SECTION C-C
IF EXISTING BARS PROTRUDE & ARE NOT DAMAGED
¼" = 1'-0"



SECTION D-D
IF EXISTING BARS ARE PRESENT & DAMAGED
¼" = 1'-0"



SECTION E-E
¼" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9335
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

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

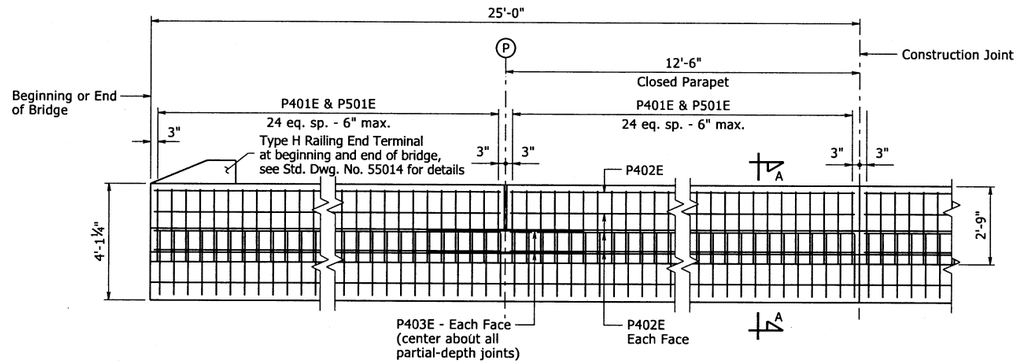
DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_s1.dgn
SCALE: As Noted

BRIDGE NO. 06465 DRAWING NO. 60782

PRINT DATE: 6/6/2019

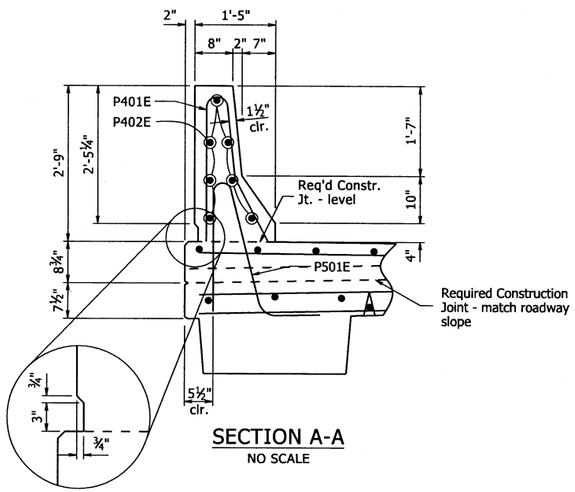
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	162	349
				①		06465 - SPAN DETAILS - 60783		

Ⓟ C.L. Partial-Depth Parapet Joint (¼" to 1" max.)
as shown in "DECK REINFORCING PLAN", Dwg. No. 60781.
Stop 14" from top of sidewalk.



PARAPET RAIL REINFORCING

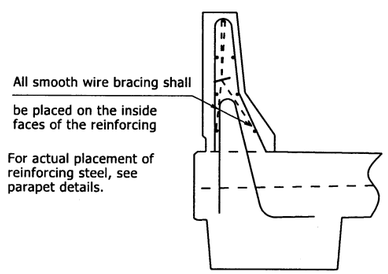
(OPEN DRAIN NOT SHOWN FOR CLARITY)
⅜" = 1'-0"



SECTION A-A

NO SCALE

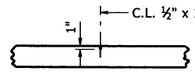
All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.



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 apperance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

NO SCALE



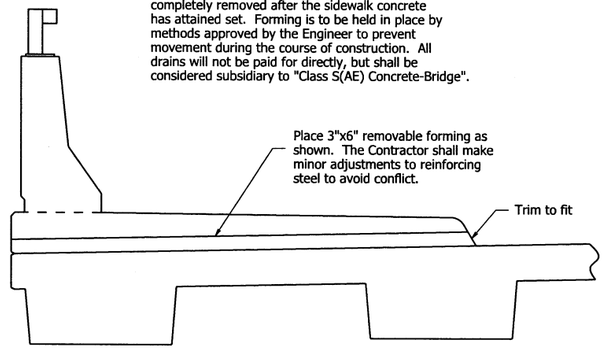
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT

NO SCALE

NOTE:

The material chosen for forming shall be strong enough to prevent displacement during pouring of the sidewalk concrete and capable of being completely removed after the sidewalk concrete has attained set. Forming is to be held in place by methods approved by the Engineer to prevent movement during the course of construction. All drains will not be paid for directly, but shall be considered subsidiary to "Class S(AE) Concrete-Bridge".



SECTION THRU DRAIN

NO SCALE

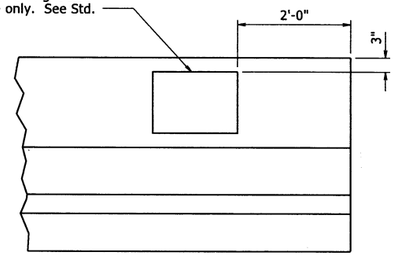
GENERAL NOTES

All concrete to be Class S(AE) with a minimum 28 day compressive strength of f'c = 4000 psi. Exposed corners to be chamfered ¾" unless otherwise noted.

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

Neoprene Pad shall be measured and paid for as Class S(AE) Concrete - Bridge. Neoprene material shall meet the requirements of Subsection 808.02 and shall be in one piece for the full width and length of the bearing and may be 50,60, or 70 durometer elastomer.

Place Type D Bridge Name Plate on front face of span rail approximately 2'-0" from end of rail on right side Beginning of Bridge only. See Std. Dwg. No. 55010.



NAME PLATE DETAIL

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_s1.dgn
SCALE: As Noted

BRIDGE NO. 06465 DRAWING NO. 60783

PRINT DATE: 6/11/2019

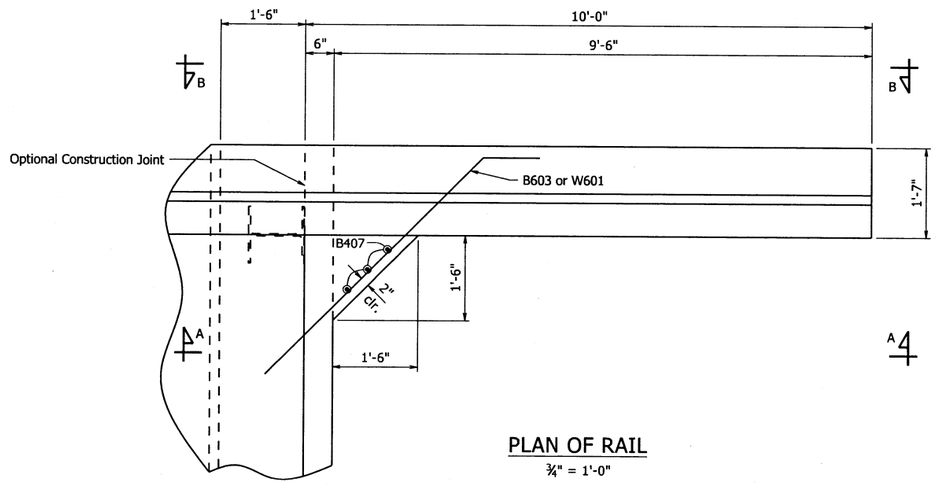
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	163	349
				(1)		06465 - SPAN DETAILS - 60784		

(1) The lower portion of the wing concrete shall be poured with the cap.

(2) The end span concrete of the girders, deck slab, and end diaphragms shall be placed in one continuous pour with the upper portion of the wing concrete. The interior span concrete of the girders, deck slab, and end diaphragms shall be placed in one continuous pour.

(3) The remainder of the wing concrete shall be poured with the end span sidewalk no less than 72 hours after the end span concrete has been placed.

(4) A minimum of 72 hours shall elapse between completion of the sidewalk and the pouring of the bridge railing.

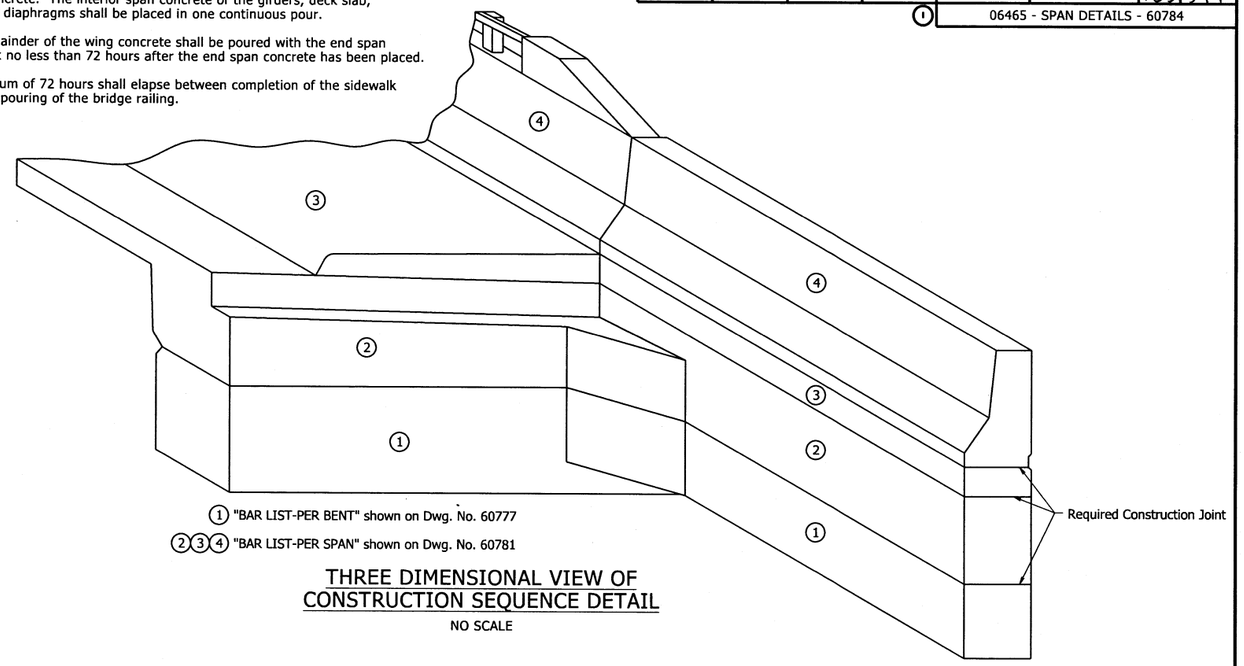


PLAN OF RAIL

¾" = 1'-0"

NOTE:

See Dwg. No. 60785 for "SECTION C-C", "SECTION D-D", and "SECTION E-E"

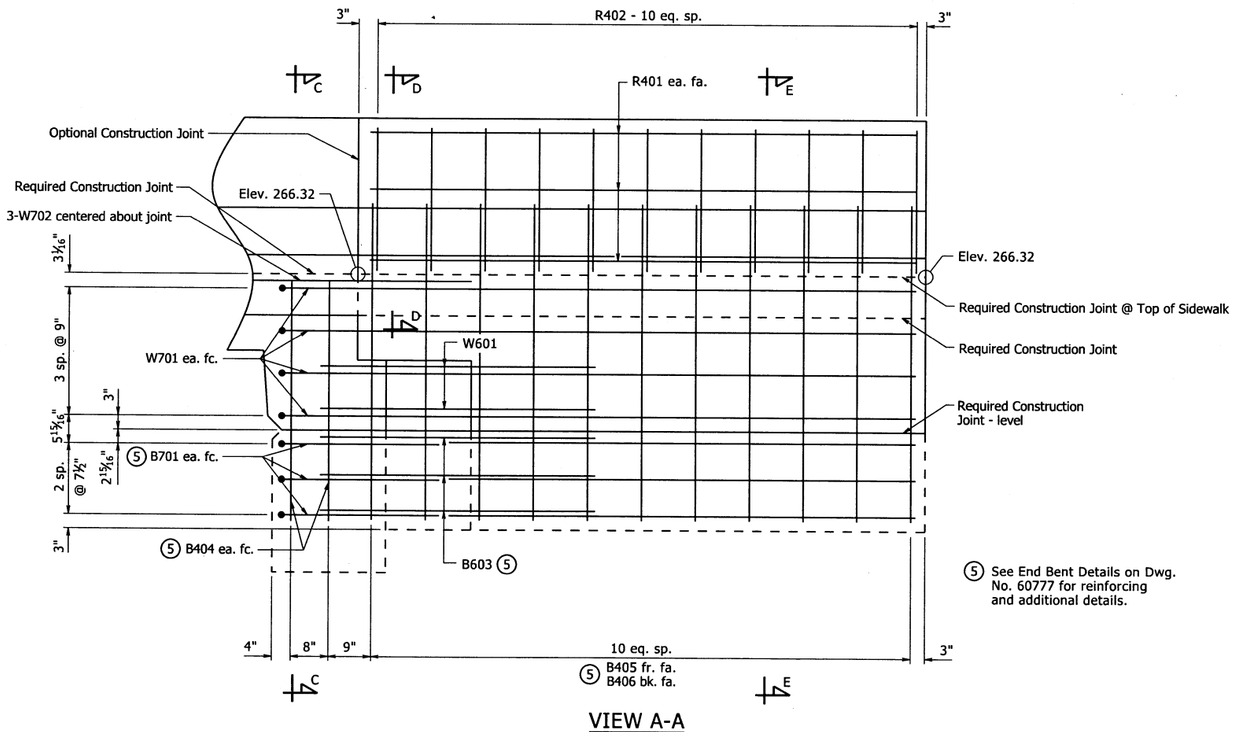


(1) "BAR LIST-PER BENT" shown on Dwg. No. 60777

(2)(3)(4) "BAR LIST-PER SPAN" shown on Dwg. No. 60781

THREE DIMENSIONAL VIEW OF CONSTRUCTION SEQUENCE DETAIL

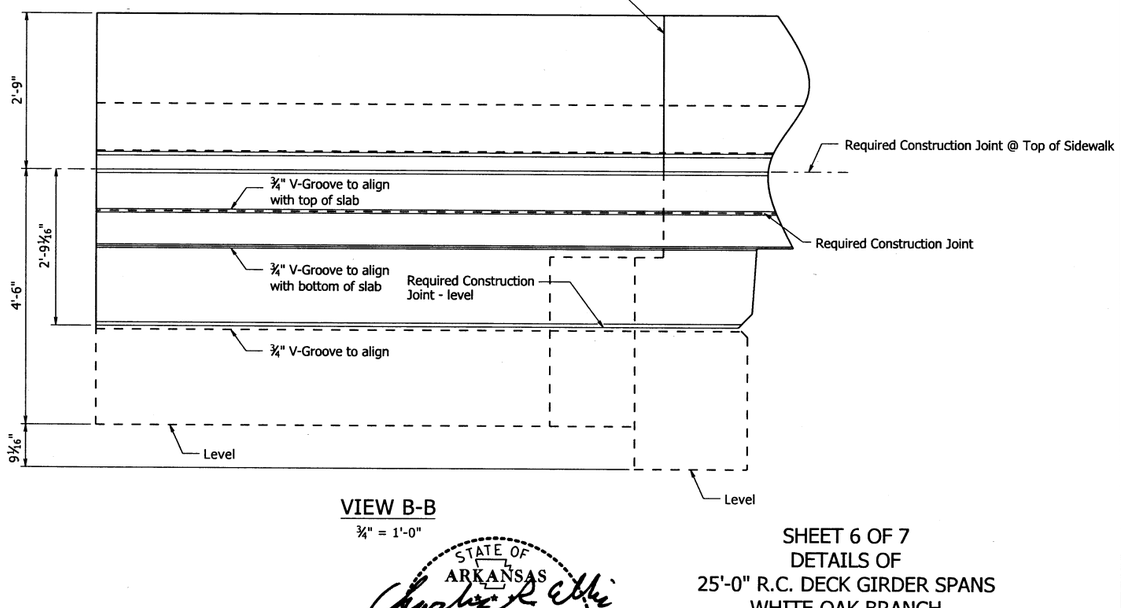
NO SCALE



(5) See End Bent Details on Dwg. No. 60777 for reinforcing and additional details.

VIEW A-A

¾" = 1'-0"



VIEW B-B

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9335
CHARLES R. ELLIS
6/11/19
BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

ROUTE SEC.

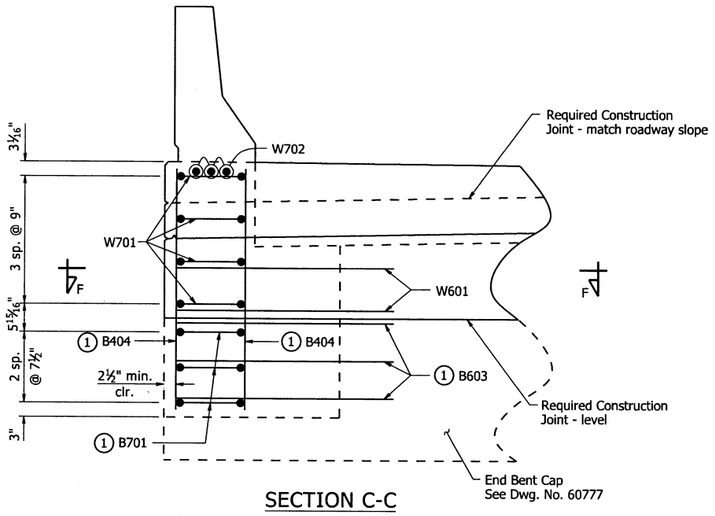
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 2/07/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_s1.dgn
SCALE: As Noted

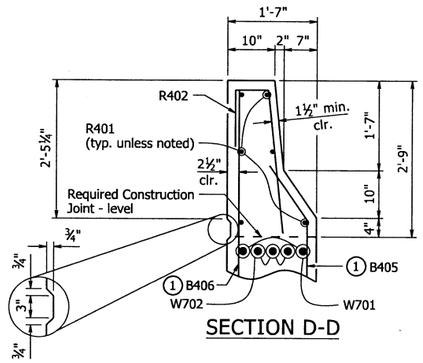
BRIDGE NO. 06465 DRAWING NO. 60784

PRINT DATE: 6/11/2019

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.		061509	164	349
				①		06465 - SPAN DETAILS - 60785		



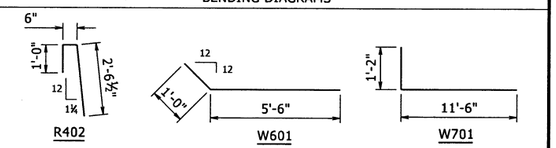
SECTION C-C



SECTION D-D

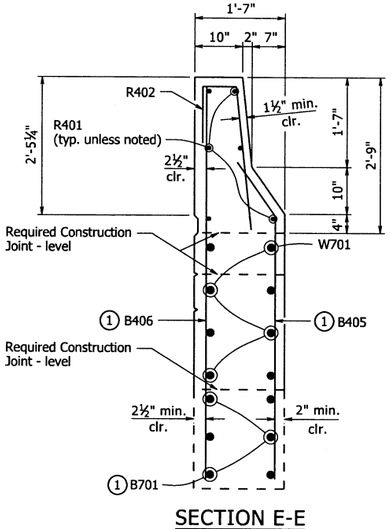
BAR LIST FOR WING & RAIL - PER END OF BRIDGE

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
R401	12	9'-8"	Str.	
R402	22	3'-11"	2"	
W601	4	6'-6"	4½"	
W701	16	12'-6"	5¼"	
W702	6	4'-0"	Str.	

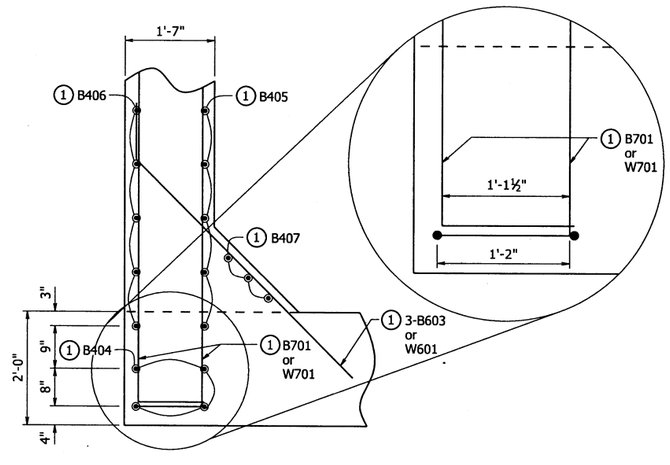


Dimensions are out to out of bars.

① See Dwg. No. 60777 for reinforcing and additional End Bent details.



SECTION E-E



SECTION F-F

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 2/07/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x1_s1.dgn
SCALE: ¾"=1'-0"

BRIDGE NO. 06465 DRAWING NO. 60785

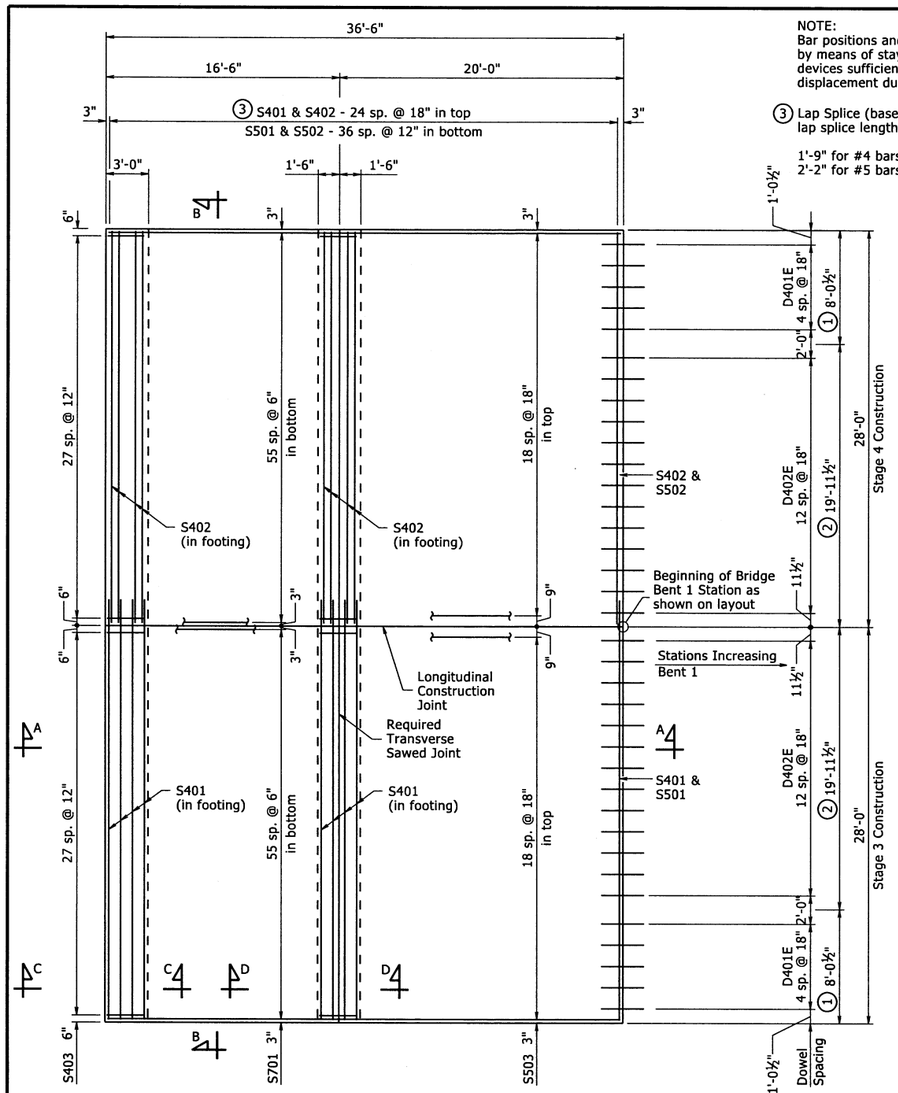
PRINT DATE: 6/11/2019

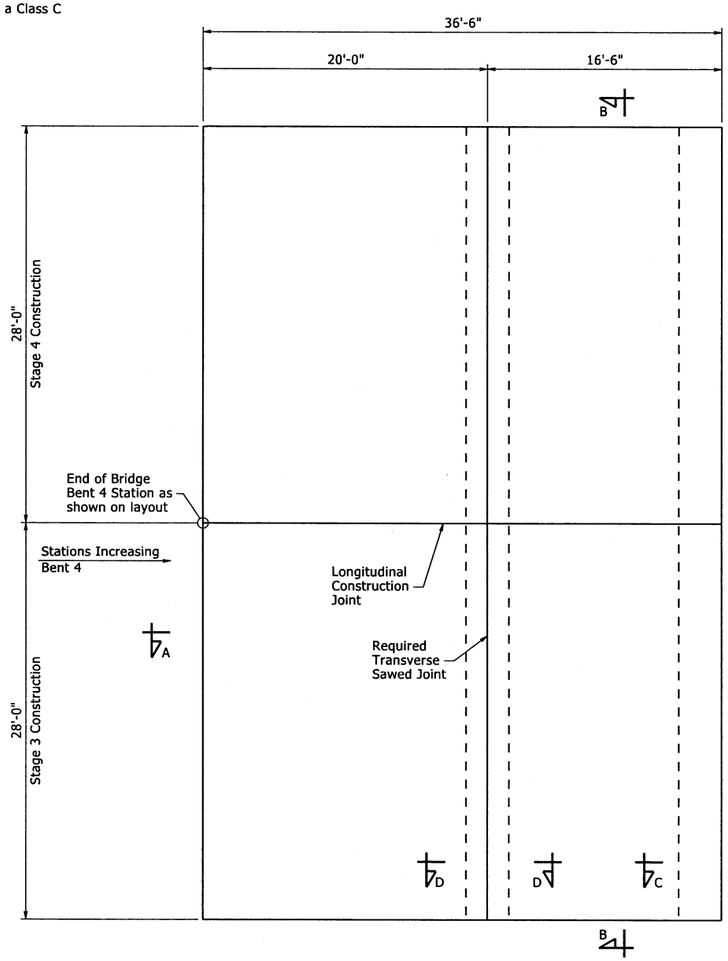
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	165349	
				(1) 06465 - APPROACH SLABS - 60786				

NOTE:
Bar positions and clearances shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06.

(3) Lap Splice (based on a Class C lap splice length):

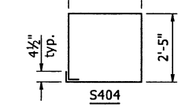
1'-9" for #4 bars
2'-2" for #5 bars

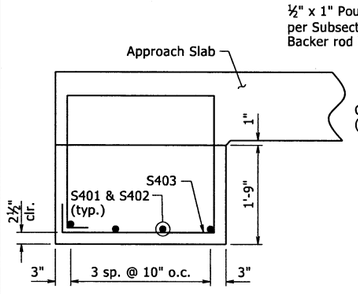




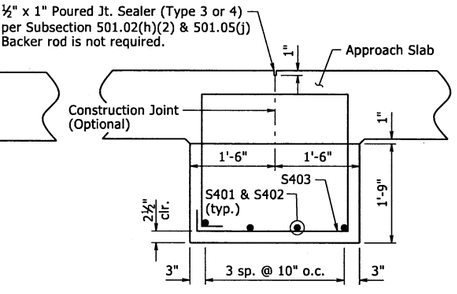
BAR LIST (ONE SLAB)

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
(2) D402E	26	3'-0"	Str.	
S401	33	29'-8"	Str.	
S402	33	27'-8"	Str.	
S403	112	10'-4"	2"	
S501	37	30'-2"	Str.	
S502	37	27'-8"	Str.	
S503	38	36'-2"	Str.	
S701	112	36'-2"	Str.	Dimensions are out to out of bars.





SECTION C-C
¾" = 1'-0"



SECTION D-D
¾" = 1'-0"

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

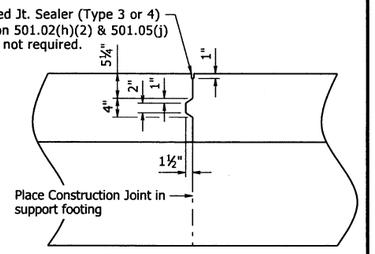
FOR INFORMATION ONLY

Slab Width	Reinforcing Steel (lbs.)	Concrete (cu. yds.)	Epoxy Coated Reinforcing Steel
56'-0"	13,984	113.35	52

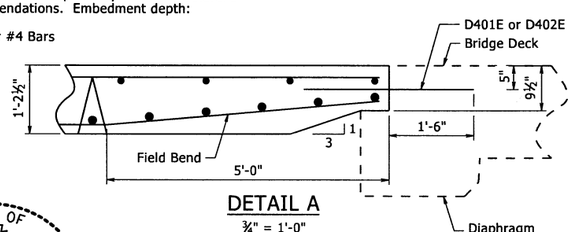
(1) D401E Dowel Bars are cast into diaphragm, see Dwg. No. 60781.

(2) D402E Dowel Bars are drilled and grouted into existing deck. Dowel into Existing Deck using a QPL approved non-shrink grout or a resin anchoring system. Modify the embedment depth shown if required by the Manufacturer's recommendations. Embedment depth:

1'-6" for #4 Bars

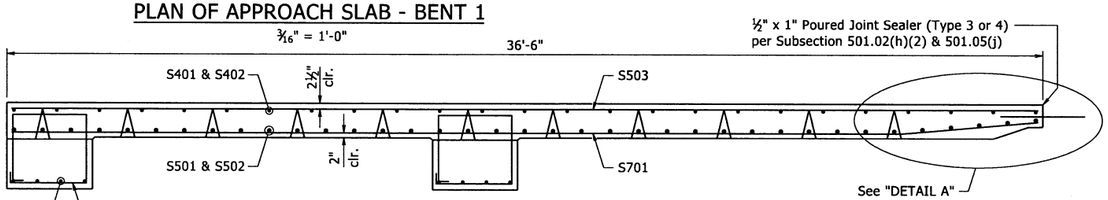


DETAIL OF LONGITUDINAL CONSTRUCTION JOINT
¾" = 1'-0"



DETAIL A
¾" = 1'-0"

PLAN OF APPROACH SLAB - BENT 1
3/16" = 1'-0"



SECTION A-A
⅜" = 1'-0"

PLAN OF APPROACH SLAB - BENT 4
3/16" = 1'-0"

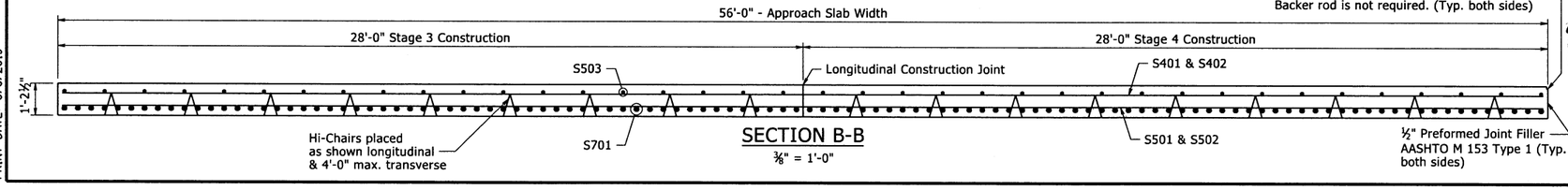
GENERAL NOTES

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.

The concrete approach slabs shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

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.



SECTION B-B
⅜" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

TYPE SPECIAL APPROACH SLABS WHITE OAK BRANCH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	CGP	DATE:	4/29/19
CHECKED BY:	DHP	DATE:	6/6/19
DESIGNED BY:	DHP	DATE:	6/2018

FILENAME: b061509x1_as.dgn
SCALE: As Noted

BRIDGE NO. 06465

DRAWING NO. 60786

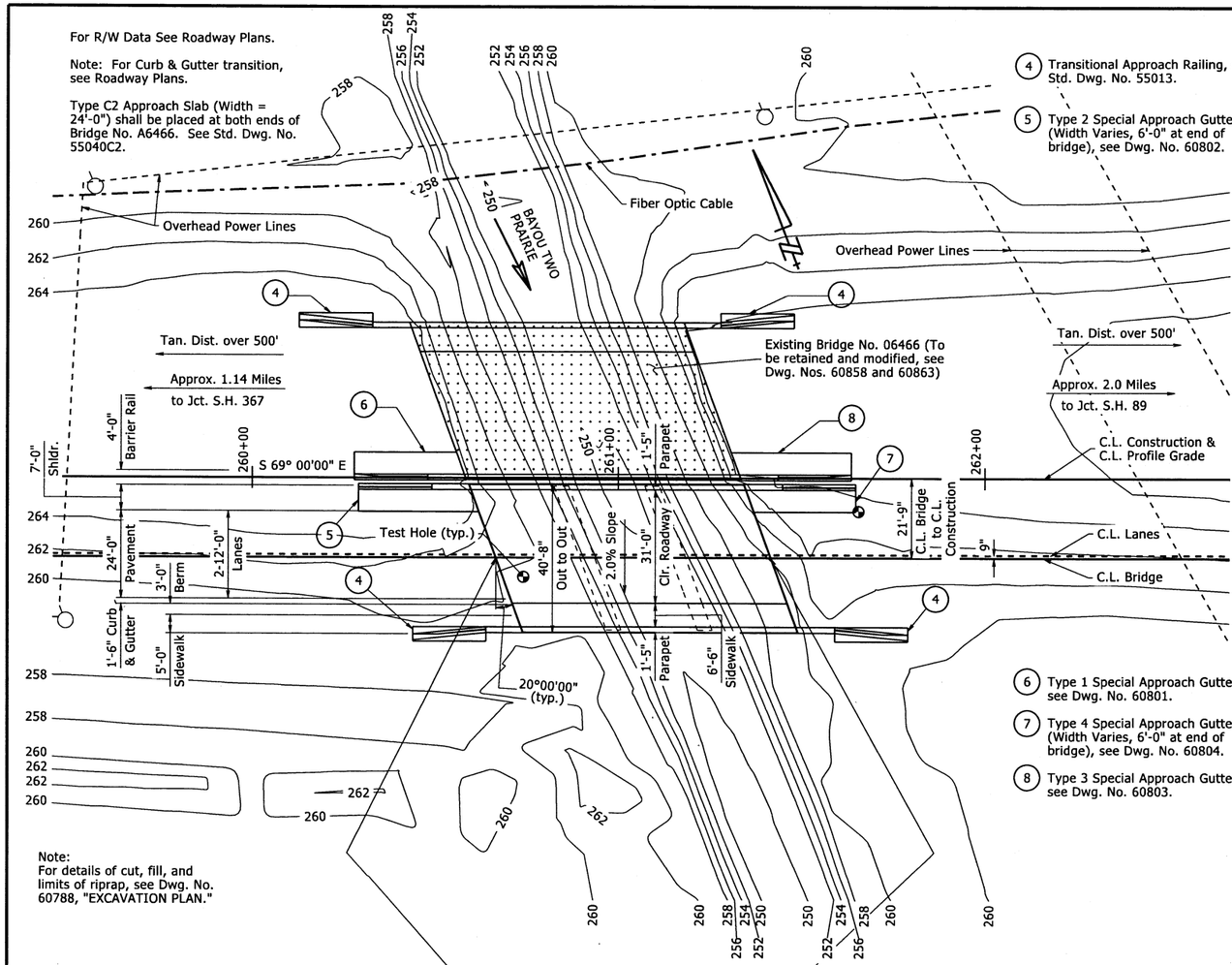
PRINT DATE: 6/6/2019

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.		061509	166	349
				①		A6466 - LAYOUT - 60787		

For R/W Data See Roadway Plans.

Note: For Curb & Gutter transition, see Roadway Plans.

Type C2 Approach Slab (Width = 24'-0") shall be placed at both ends of Bridge No. A6466. See Std. Dwg. No. 55040C2.



4 Transitional Approach Railing, see Std. Dwg. No. 55013.

5 Type 2 Special Approach Gutter (Width Varies, 6'-0" at end of bridge), see Dwg. No. 60802.

6 Type 1 Special Approach Gutter, see Dwg. No. 60801.

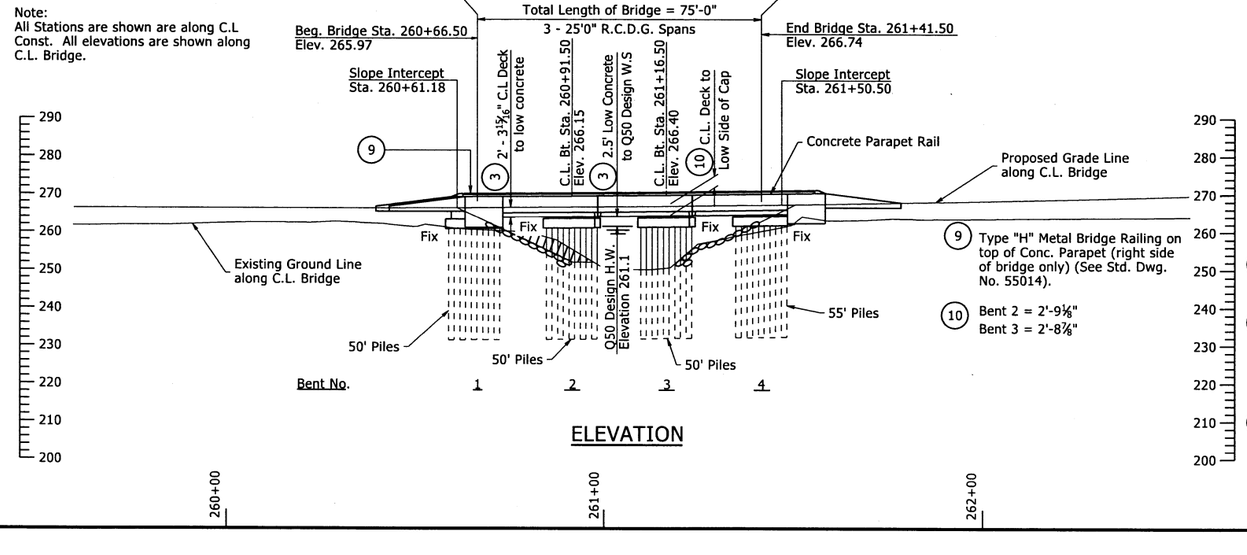
7 Type 4 Special Approach Gutter (Width Varies, 6'-0" at end of bridge), see Dwg. No. 60804.

8 Type 3 Special Approach Gutter, see Dwg. No. 60803.

Note: For details of cut, fill, and limits of riprap, see Dwg. No. 60788, "EXCAVATION PLAN."

PLAN

Note: All Stations are shown are along C.L Const. All elevations are shown along C.L. Bridge.



ELEVATION

9 Type "H" Metal Bridge Railing on top of Conc. Parapet (right side of bridge only) (See Std. Dwg. No. 55014).

10 Bent 2 = 2'-9⅛"
Bent 3 = 2'-8⅞"

GENERAL NOTES:

BENCHMARK: 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. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014) with 2015 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 2 S_{D1} = 0.247 Site Class = D

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

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

CONCRETE PILING: Piling at Bents 1 and 4 shall be 18" square prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 135 tons per pile. Piling in Bents 2 and 3 shall be 18" square prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 135 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer to a tip elevation of 213' or lower at Bent 1, to a tip elevation of 211' or lower at Bents 2 and 3, and to a mimimum tip elevation of 209' or lower at Bent 4. Piling at end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Drive one 55' test pile in Bent 1 and one 55' test pile in Bent 3.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)." It is estimated that the minimum hammer energy required to obtain the ultimate bearing capacity for all piles will be 42,440 foot pounds per blow.

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a polymer overlay per SP Job No. 061509 "Polymer Overlay". Polymer overlay shall be given to both Bridge Nos. 06466 and A6466. Sidewalk shall be given a Class 6 Broomed Finish. Type C2 Approach Slab shall be given a tine finish as specified for final finishing, in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing) and to roadway face and top of the concrete parapet rails on both Bridge Nos. 06466 and A6466.

DETAIL DRAWINGS	DRAWING NOS.
End Bents	60790 - 60791
Intermediate Bents	60792
R.C.D.G. Spans	60793 - 60799
Transitional Approach Railing	55013
Type 1 Special Approach Gutter	60801
Type 2 Special Approach Gutter	60802
Type 3 Special Approach Gutter	60803
Type 4 Special Approach Gutter	60804
Type H Railing	55014
Concrete Piling	55022
Type C2 Approach Slab (Width = 24'-0")	55040C2

EXISTING BRIDGE: Existing Bridge No. 06466 (Log Mile 1.19) is 42.8' wide (40.0' Roadway) and 75.0' long and the superstructure consists of three 25' reinforced concrete deck girder (R.C.D.G) spans supported by concrete pile bents. The substructure consists of reinforced concrete caps all supported by concrete piles. The existing bridge is located immediately upstream of the proposed bridge and will be retained. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	TOTAL ② DISCHARGE	DISCHARGE THIS SITE	NATURAL ① WATER SURFACE ELEVATION	WATER SURFACE ELEVATION WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	3,622	1,381	261.0	261.5
Base	100	4,263	1,541	261.2	261.8
Extreme	500	5,890	1,977	261.8	262.5
Overtopping	>500	-	-	-	-

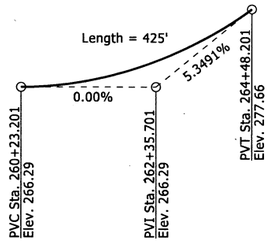
① Unconstricted water surface elevation without structure or roadway approaches.

② The total discharge includes flow at this site and portions of the flows at Br. No. 06467, and a culvert at Sta. 257+53.

Q100 backwater elevation for existing structure = 261.8 feet

③ Proposed Low Bridge Chord Elev. = 263.84 feet (Sta. 260+72.50)

Drainage Area = 15.9 square miles
Historical H.W. Elev. = 263.0 ft.



VERTICAL ALIGNMENT DATA

Along C.L. Constructon & C.L Profile Grade
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 321 OVER BAYOU TWO PRAIRIE
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

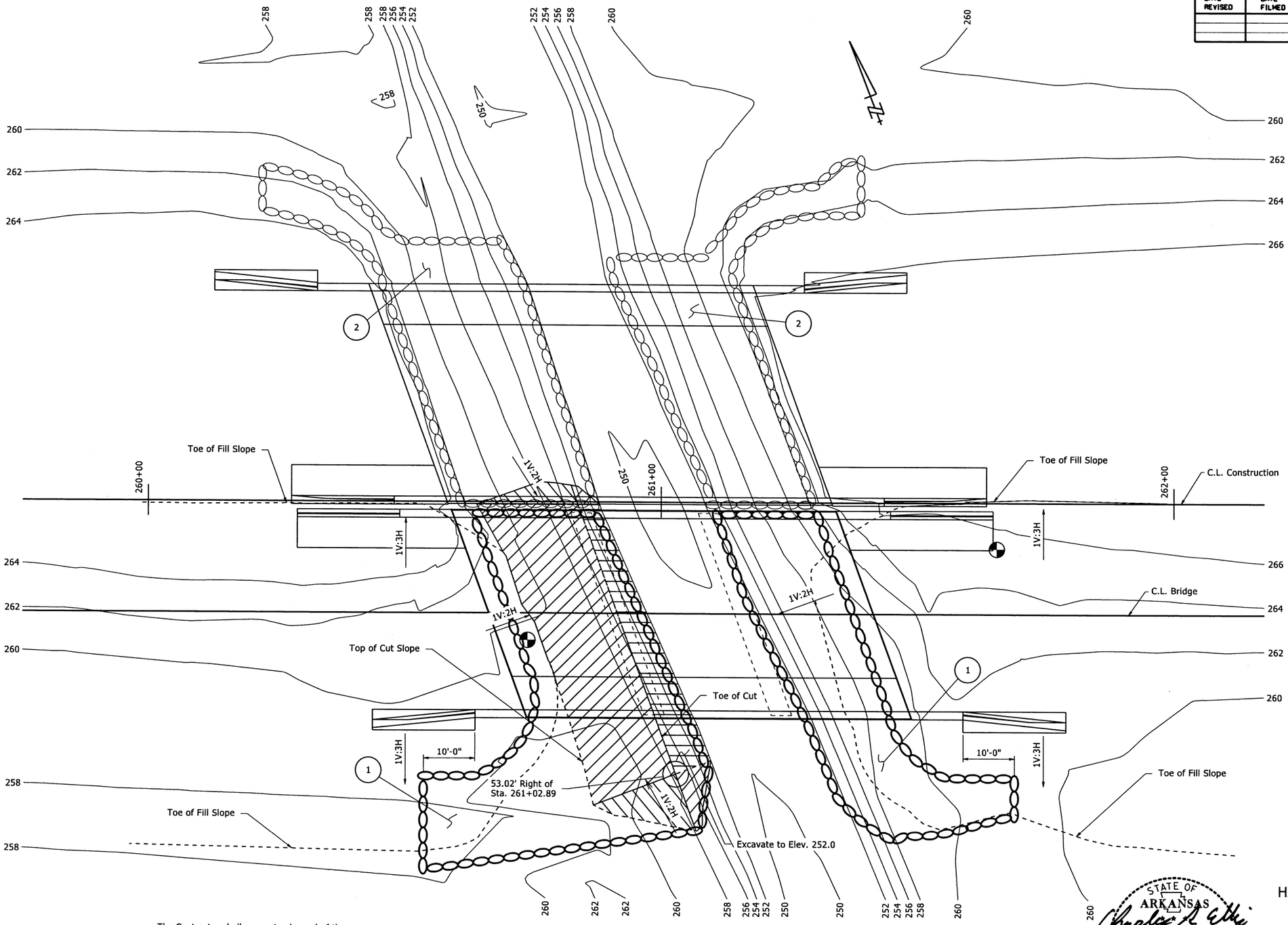
ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 7/13/18
CHECKED BY: KLT DATE: 6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509X2_l1.dgn
SCALE: 1" = 20'-0"

BRIDGE NO. A6466 DRAWING NO. 60787

PRINT DATE: 6/6/2019

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.		061509	167	349
				①		A6466 - LAYOUT - 60788		



EXCAVATION PLAN

(1) Place 1'-6" Dumped Riprap on top of Filter Blanket, See Std. Dwg. No. 55001. Top of Riprap Elev.= 262.00 (typ. both ends of bridge).

(2) Existing dumped riprap to be retained. All other areas of existing dumped riprap (including filter blanket if present) within the limits of the new constrution or regrading of the embankments, or as directed by the Engineer, shall be removed. This work will not be paid for directly but shall be considered incidental to the pay item "Modification of Existing Bridge Structure (Bridge No. 06466)".

The Contractor shall excavate channel of the bridge as shown to Elev. 252.00, approximately 138 cu. yards of excavation.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 321 OVER BAYOU TWO PRAIRIE
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: [illegible] DATE: 6/19
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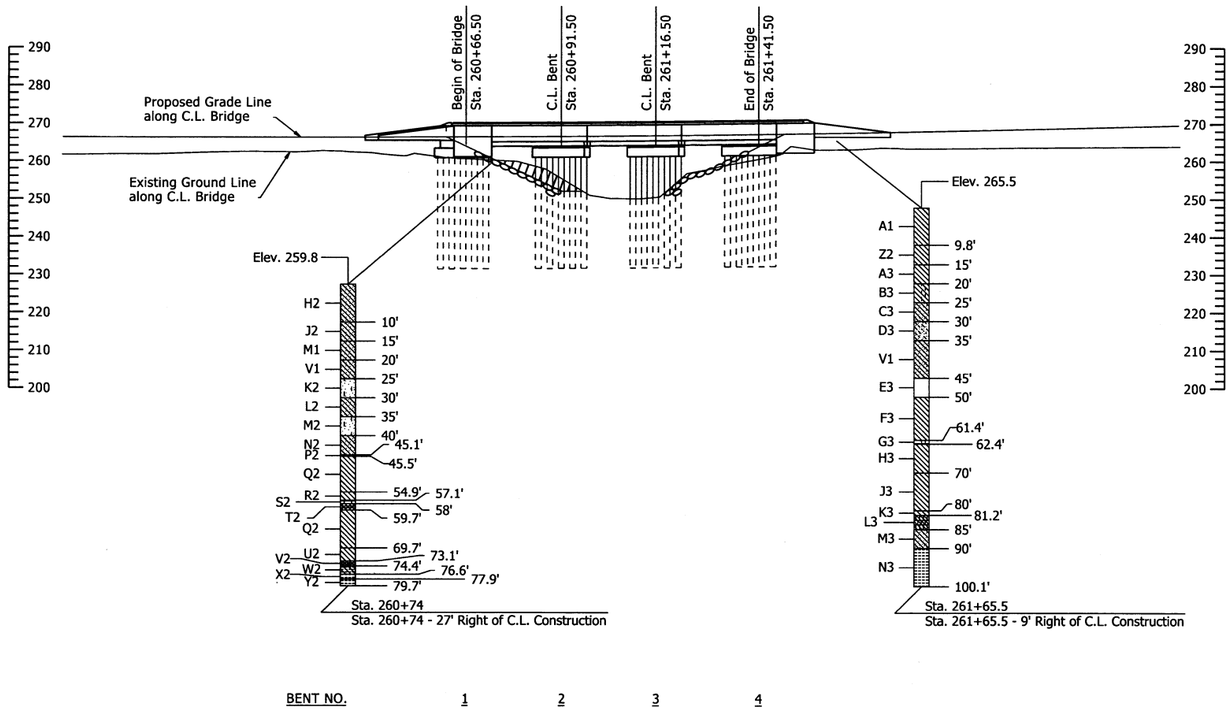
FILENAME: b061509X2_l1.dgn
SCALE: 1" = 10'-0"

BRIDGE NO. A6466
DRAWING NO. 60788

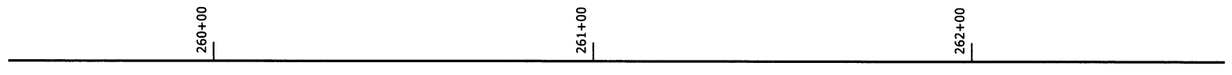
PRINT DATE: 6/6/2019

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.		061509	168	349

A6466 - LAYOUT - 60789



ELEVATION OF SOIL BORINGS



BORING LEGEND

A1-Moist, Stiff, Brown and Gray Clay
M1-Moist, Stiff, Brown Sandy Clay
V1-Wet, Stiff, Brown Sandy Clay
H2-Moist, Stiff, Brown and Gray Sandy Clay
J2-Moist, Very Stiff, Gray Sandy Clay
K2-Wet, Loose, Brown Silty Sand
L2-Wet, Medium Stiff, Brown Sandy Clay
M2-Wet, Very Loose, Brown Silty Sand
N2-Wet, Very Stiff, Brown and Gray Sandy Clay with Some Gravel
P2-LIMESTONE - Unweathered, Moderately Hard, Gray (Arkadelphia Formation)
Q2-Moist, Very Stiff to Hard, Dark Gray Clay
R2-CLAY WITH OCCASIONAL LIMESTONE LAYERS - Unweathered, Medium Hard, Dark Gray
S2-LIMESTONE - Unweathered, Moderately Hard, Gray
T2-CLAY WITH FREQUENT LIMESTONE LAYERS - Unweathered, Medium Hard, Dark Gray
U2-Moist, Very Stiff to Hard, Dark Gray Clay with Occasional Limestone Concretions
V2-LIMESTONE WITH FREQUENT CLAY LAYERS - Unweathered, Moderately Hard, Dark Gray
W2-SANDY CLAY WITH FREQUENT LIMESTONE LAYERS - Unweathered, Soft Layers Interbedded with Moderately Hard Layers, Dark Gray
X2-SHALE - Highly Weathered, Soft, Moderate Dip, Dark Gray (Atoka Formation)
Z2-Moist, Medium Stiff, Brown and Gray Clay
A3-Wet, Soft, Light Gray Clay
B3-Wet, Medium Stiff, Light Gray Silty Clay
C3-Wet, Stiff, Gray Sandy Clay
D3-Wet, Medium Dense, Light Brown Sand with Clay
E3-No Sample Recovered
F3-Moist, Very Stiff, Dark Gray Clay (Arkadelphia Formation)
G3-LIMESTONE
H3-Moist, Very Stiff, Dark Gray Clay
J3-Moist, Hard, Dark Gray Clay
K3-Moist, Very Hard, Dark Gray Clay
L3-LIMESTONE INTERBEDDED WITH CLAY
M3-Moist, Very Hard, Sandy Clay with Some Gravel
N3-SHALE - Weathered to Highly Weathered, Medium Hard, Dark Gray (Atoka Formation)

"N" VALUES

Sta. 260+74 - 27' Right of C.L. Construction

5.5- 6.5,N=14
10.5- 11.5,N=18
15.5- 16.5,N=12
20.5- 21.5,N=10
25.5- 26.5,N=7
30.5- 31.5,N=5
35.5- 36.5,N=4
40.5- 41.5,N=16
45- 45.1,N=18(1")

Sta. 261+65.5 - 9' Right of C.L. Construction

5.3- 6.3,N=11
10.3- 11.3,N=8
15.5- 16.5,N=4
20.5- 21.5,N=7
25.5- 26.5,N=9
30.5- 31.5,N=25
35.5- 36.5,N=10
40.5- 41.5,N=5
45.5- 46.5,N=9
50.5- 51.5,N=22
55.5- 56.5,N=30
60.5- 61.4,N=36(11")
65.5- 66.5,N=30
70.5- 71.5,N=31
75.5- 76.5,N=31
80.5- 81.2,N=102(8")
85- 85.2,N=60(2")
90- 90.3,N=60(4")
95.5- 95.6,N=60(1")
100-100.1,N=20(1")

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 321 OVER BAYOU TWO PRAIRIE
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 7/13/18 FILENAME: b061509X2_l1.dgn
CHECKED BY: KJT DATE: 6/19 SCALE: 1" = 20'-0"
DESIGNED BY: DHP DATE: 6/2018
BRIDGE NO. A6466 DRAWING NO. 60789

PRINT DATE: 6/7/2019

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.		061509	169	349
				①	A6466 -	END BENT - 60790		

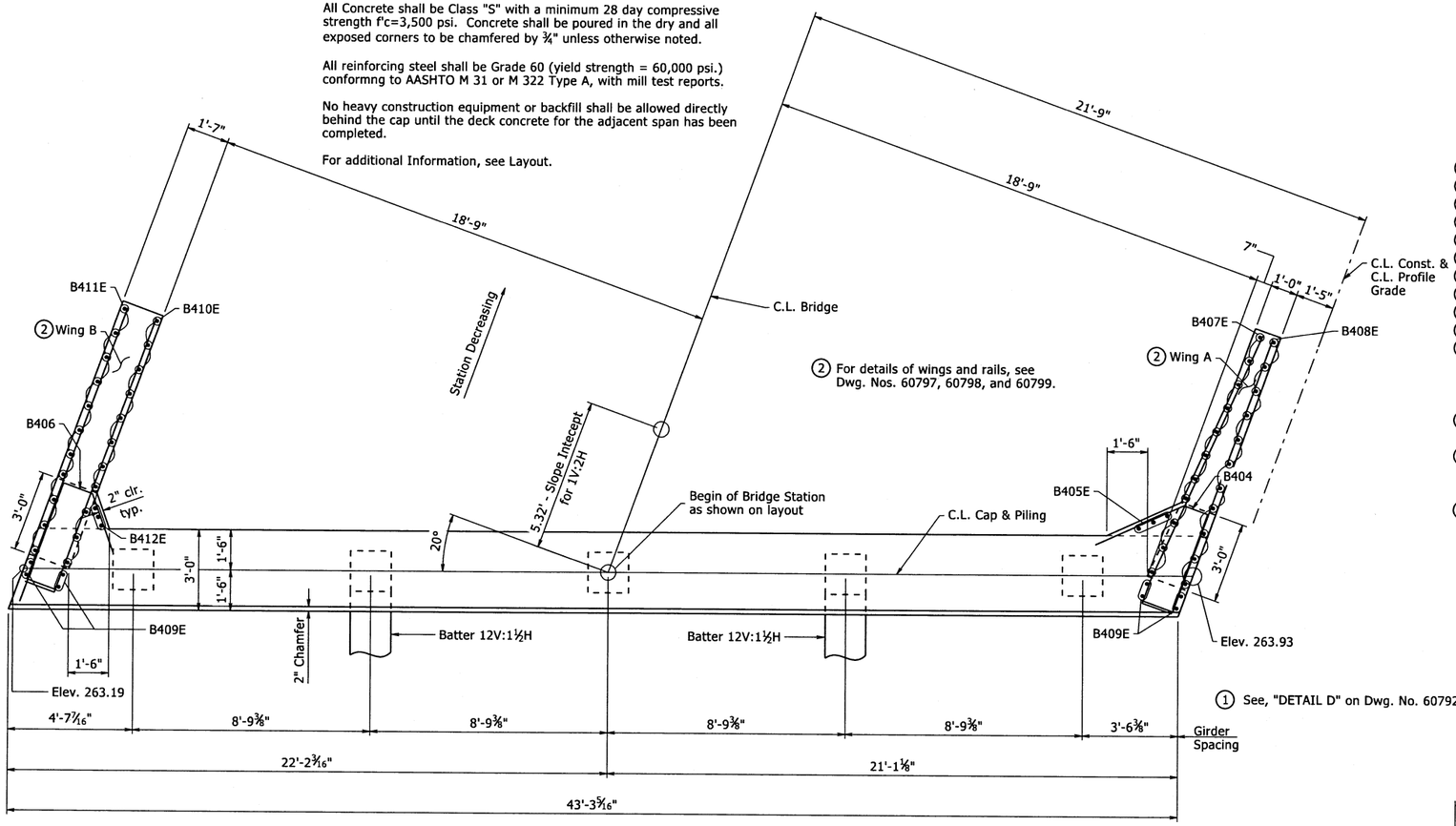
GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28 day compressive strength f'c=3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered by ¾" unless otherwise noted.

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

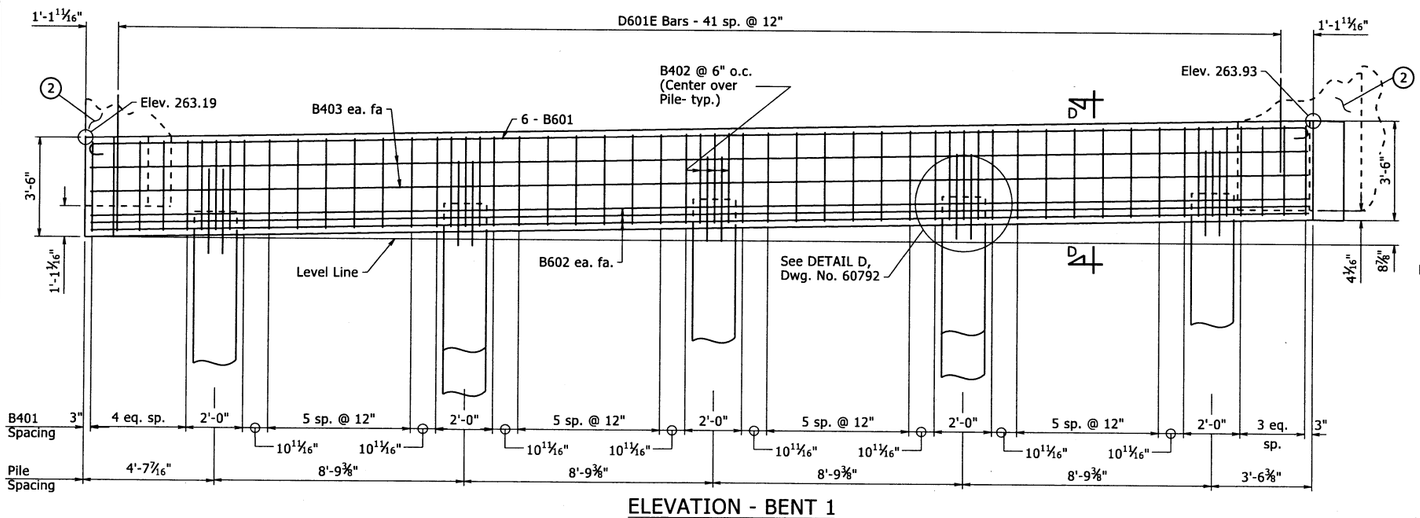
No heavy construction equipment or backfill shall be allowed directly behind the cap until the deck concrete for the adjacent span has been completed.

For additional Information, see Layout.



PLAN - BENT 1

⅜" = 1'-0"



ELEVATION - BENT 1

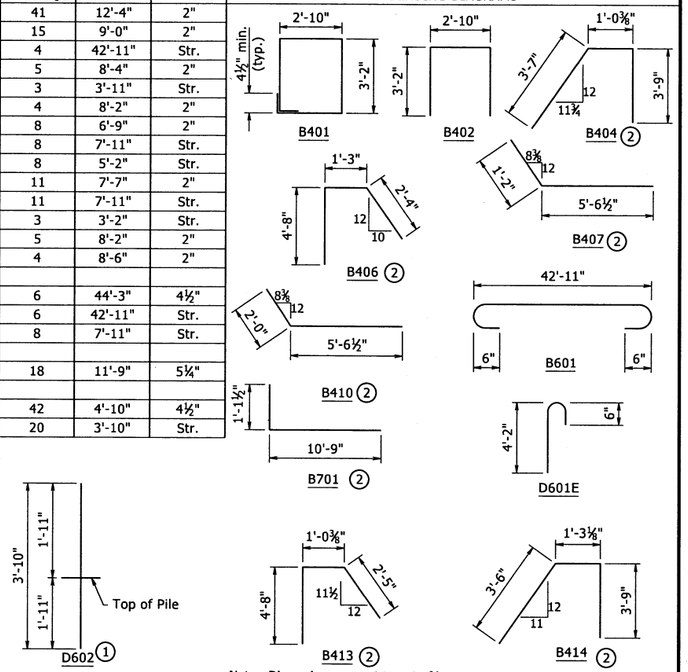
Looking Back

⅜" = 1'-0"

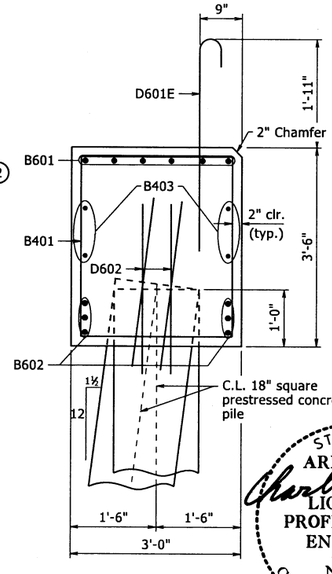
BAR LIST - PER BENT

	MARK	NO. REQ'D	LENGTH	P.D.
	B401	41	12'-4"	2"
	B402	15	9'-0"	2"
	B403	4	42'-11"	Str.
②	B404	5	8'-4"	2"
②	B405E	3	3'-11"	Str.
②	B406	4	8'-2"	2"
②	B407E	8	6'-9"	2"
②	B408E	8	7'-11"	Str.
②	B409E	8	5'-2"	Str.
②	B410E	11	7'-7"	2"
②	B411E	11	7'-11"	Str.
②	B412E	3	3'-2"	Str.
②	B413	5	8'-2"	2"
②	B414	4	8'-6"	2"
	B601	6	44'-3"	4½"
	B602	6	42'-11"	Str.
②	B603E	8	7'-11"	Str.
②	B701	18	11'-9"	5¼"
	D601E	42	4'-10"	4½"
①	D602	20	3'-10"	Str.

BENDING DIAGRAMS



Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.



SECTION D-D

¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF END BENTS
BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 02/06/2019 FILENAME: b061509x2_b1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6466 DRAWING NO. 60790

PRINT DATE: 6/11/2019

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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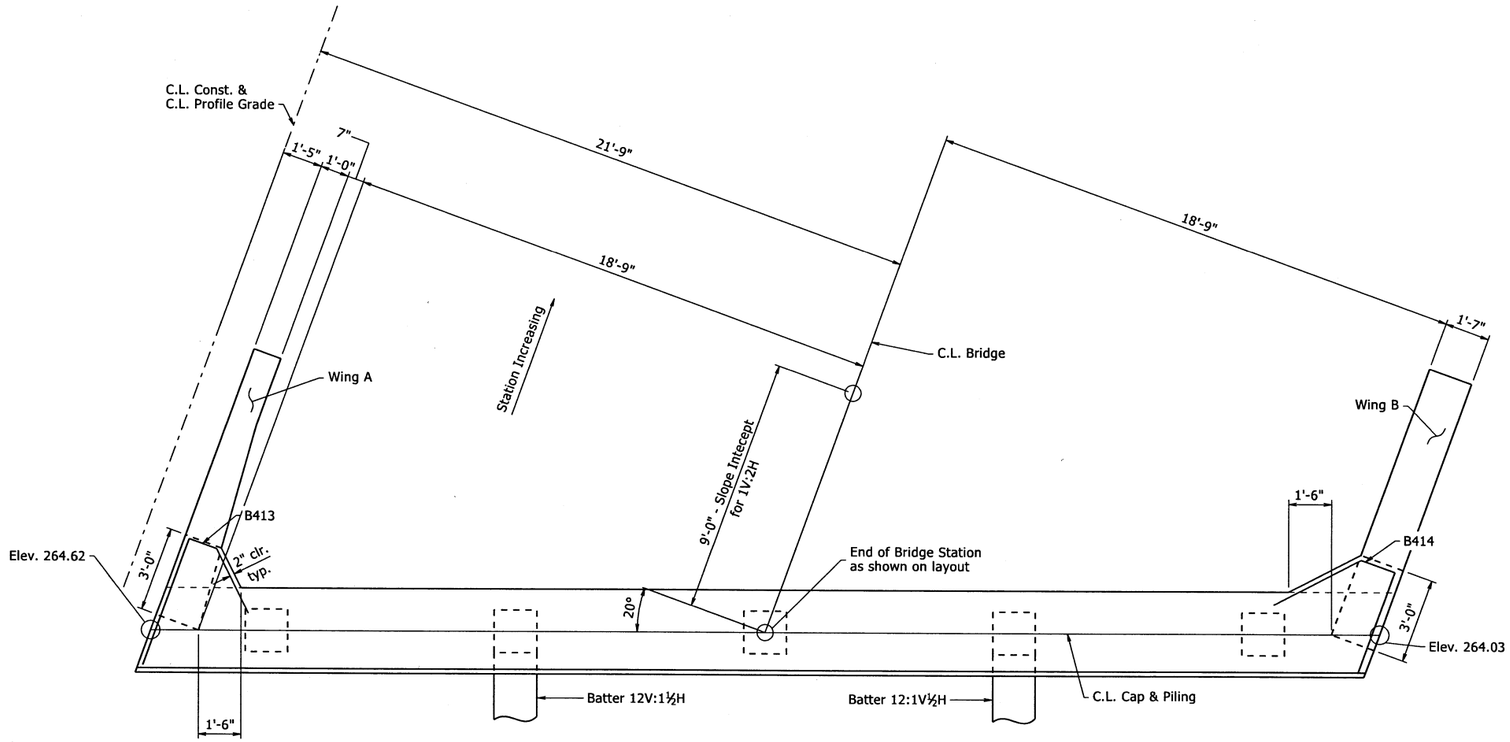
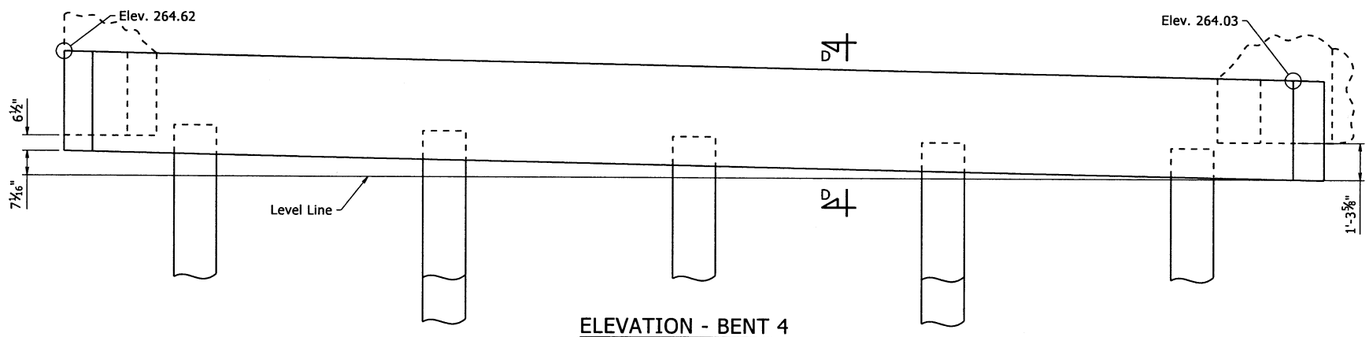
				JOB NO.		061509	170	349
				A6466 - END BENT - 60791				



PLAN - BENT 4

3/8" = 1'-0"

Note:
Reinforcing Steel, details, and dimensions shown for Bent 1, Dwg. No. 60790, are similar for Bent 4 shown on this sheet except as noted.



ELEVATION - BENT 4

Looking Ahead
3/8" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9335
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF END BENTS
BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 02/06/2019 FILENAME: b061509x2_b1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6466 DRAWING NO. 60791

PRINT DATE: 6/6/2019

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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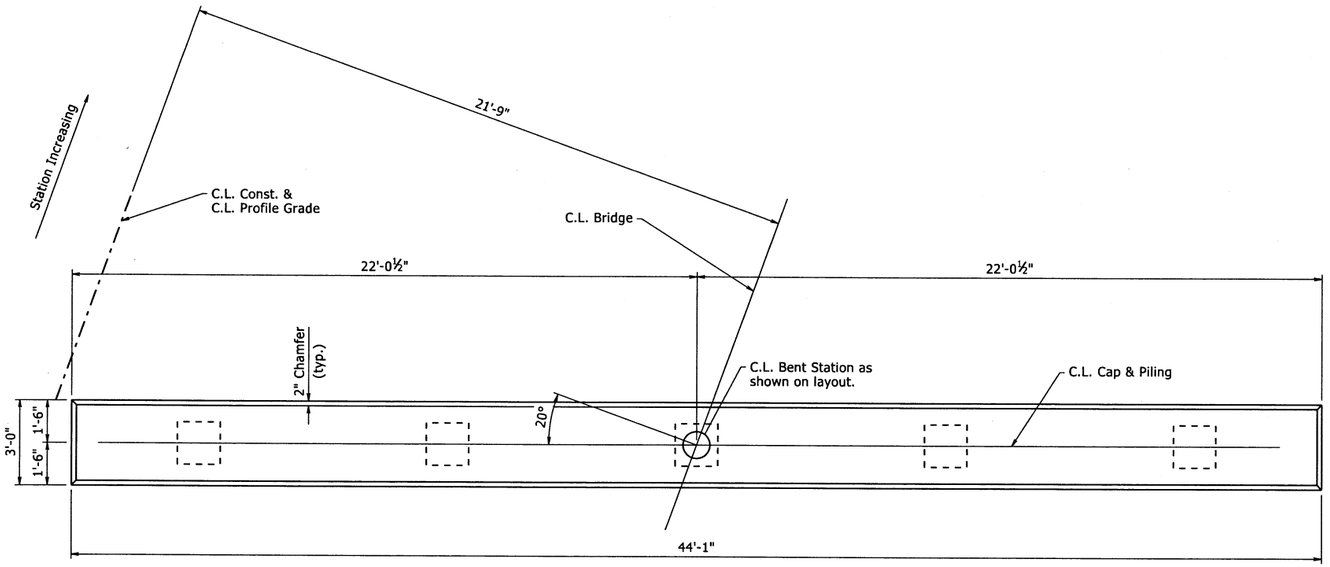
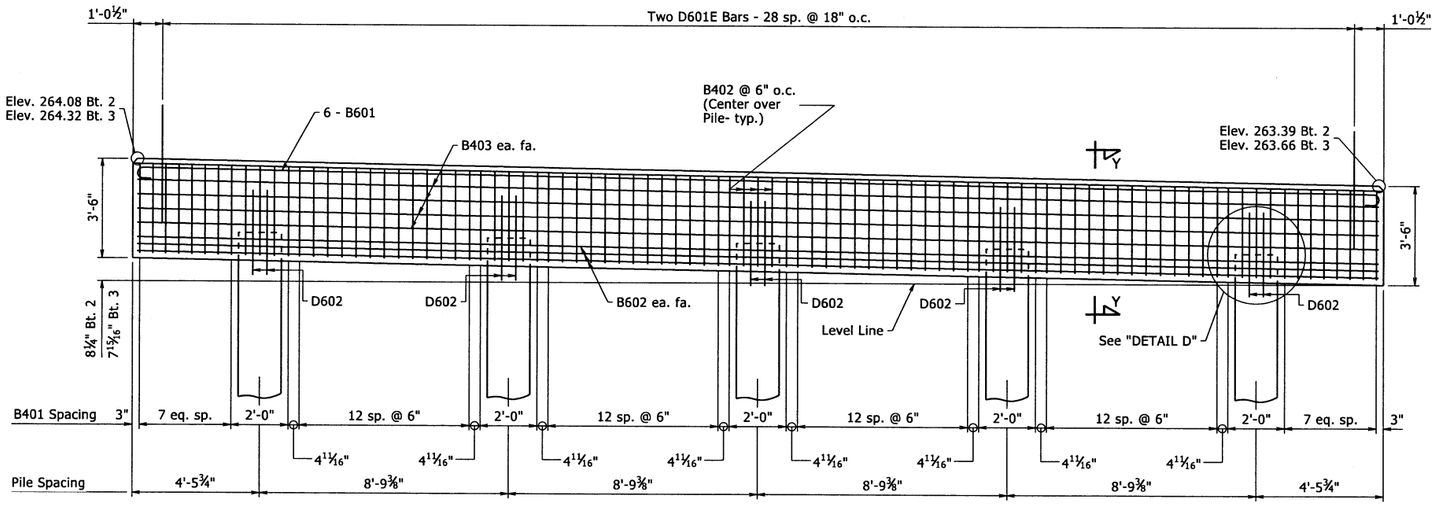
				JOB NO.		061509	171	349
				① A6466 - INT. BENTS - 60792				



PLAN
⅜" = 1'-0"

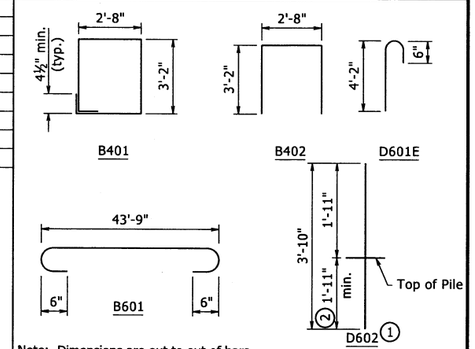


ELEVATION
⅜" = 1'-0"

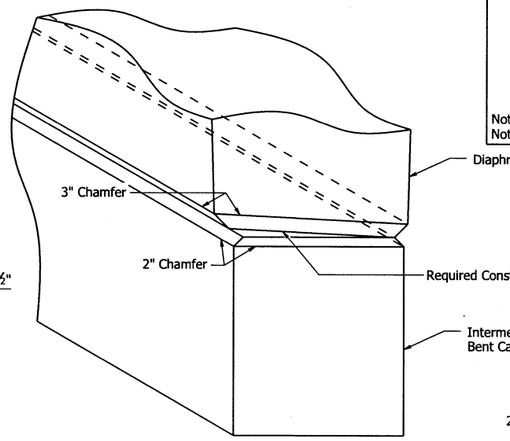
BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	P.D.
B401	76	12'-0"	2"
B402	15	8'-10"	2"
B403	8	43'-9"	Str.
B601	6	45'-1"	4½"
B602	6	43'-9"	Str.
D601E	58	4'-10"	4½"
① D602	20	3'-10"	Str.

BENDING DIAGRAMS



Note: Dimensions are out to out of bars.
Note: Bars designated with an "E" suffix to be Epoxy Coated.

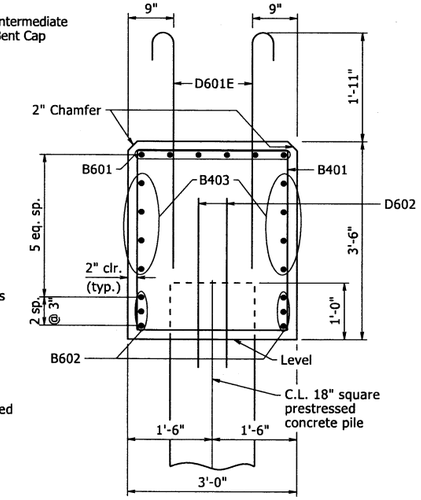


DETAIL OF CHAMFERS AT INTERMEDIATE BENTS
NO SCALE

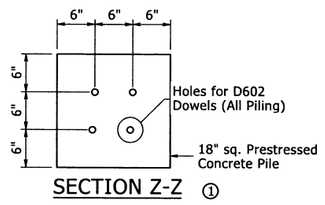
① After driving, drill and grout D602 dowels into piles using an approved non-shrink grout or an epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout Manufacturer.

Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)."

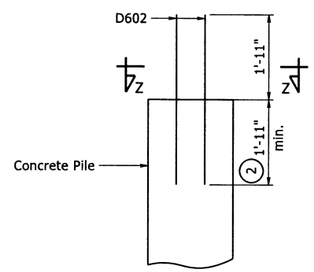
② Increase minimum embedment as per Manufacturer's recommendation if required, but provide no less than value shown.



SECTION Y-Y
¾" = 1'-0"



SECTION Z-Z ①
1" = 1'-0"



DETAIL D
¾" = 1'-0"

GENERAL NOTES

All Concrete shall be Class "S" with a minimum 28 day compressive strength f'c=3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered by ¾" unless otherwise noted.

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

For additional Information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-6-19
CHARLES R. ELLIS
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DETAILS OF INTERMEDIATE BENTS BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 02/04/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x2_b2.dgn
SCALE: As Noted

BRIDGE NO. A6466
DRAWING NO. 60792

PRINT DATE: 6/6/2019

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.		061509	172	349
				①		A6466 - SPAN DETAILS - 60793		

Slab Reinforcing

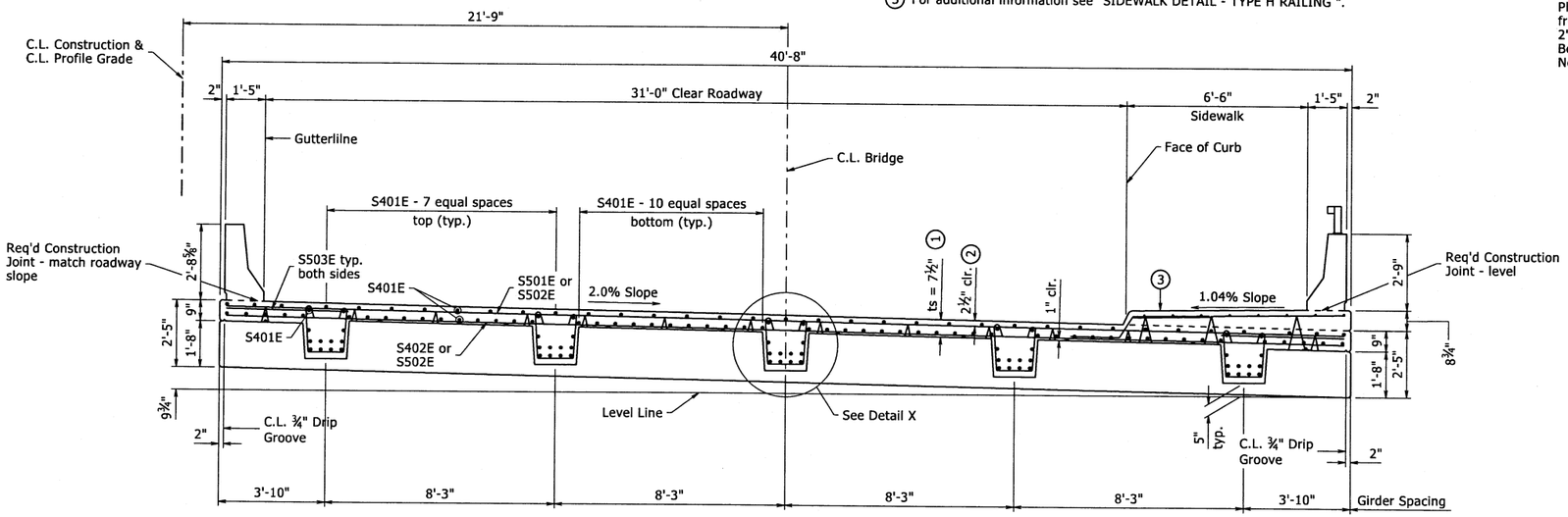
Longitudinal: K401E in top (place as shown)
S401E in top and bottom (place as shown)

Transverse: K402E @ 12" o.c. in top of sidewalk
K403E @ 12" o.c.
S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. in top, S502E @ 12" o.c. in bottom
S503E @ 6" in top of overhangs (bundled with #5 bars) both sides

① Tolerance = +½", -¼"

② Tolerance Minus = ¼":
Plus = to the amount of slab thickness used to meet slab thickness tolerance.

③ For additional information see "SIDEWALK DETAIL - TYPE H RAILING ".



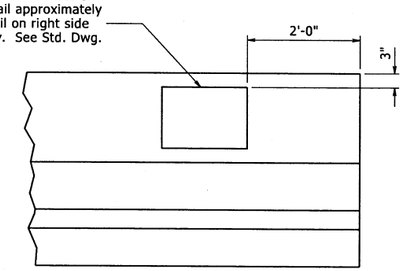
TYPICAL ROADWAY SECTION

LOOKING AHEAD
⅜" = 1'-0"

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

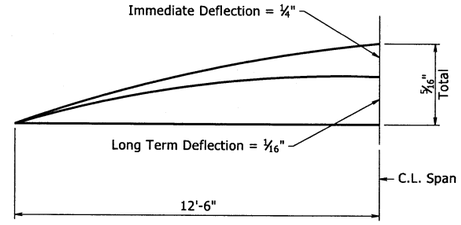
Note: Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing) and to the roadway face and top of the concrete parapet rail. Polymer overlay shall be applied to roadway surface between gutterlines. See SP Job No. 061509 "Polymer Overlay" for Polymer Overlay requirements.

Place Type D Bridge Name Plate on front face of span rail approximately 2'-0" from end of rail on right side Begin of Bridge only. See Std. Dwg. No. 55010.



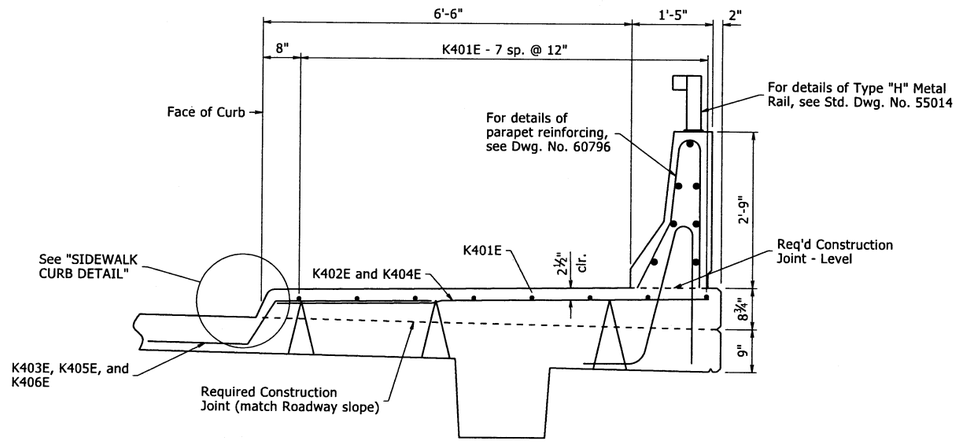
NAME PLATE DETAIL

NO SCALE

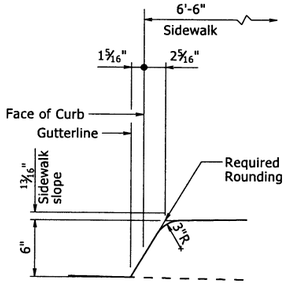


CAMBER DIAGRAM FOR DEAD LOAD DEFLECTION

No Scale

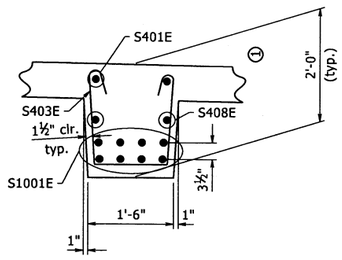


SIDEWALK DETAIL - TYPE "H" RAILING



SIDEWALK CURB DETAIL

NO SCALE



DETAIL X

1" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
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6-11-19
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SHEET 1 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

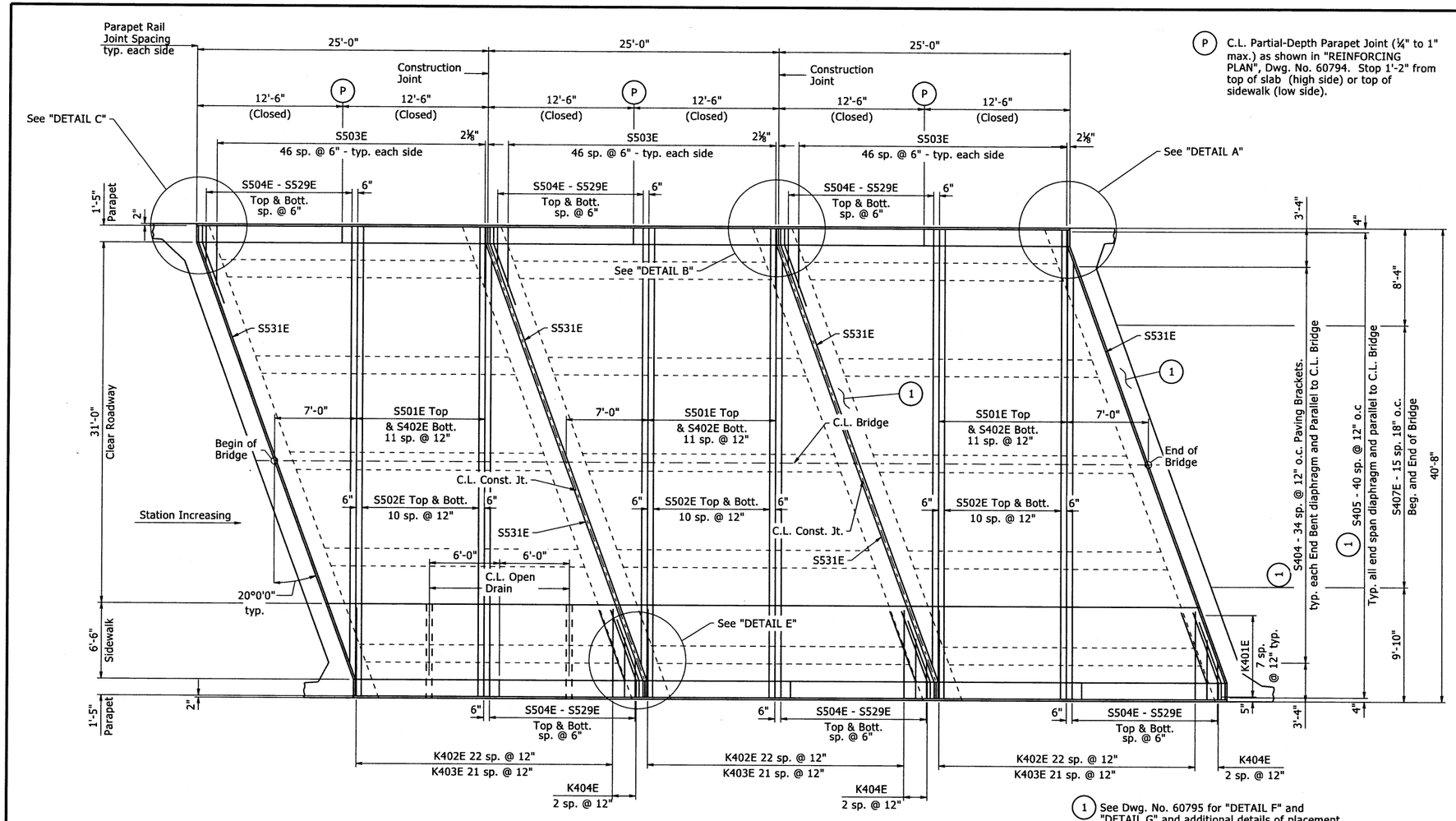
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/30/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x2_s1.dgn
SCALE: As Noted

BRIDGE NO. A6466 DRAWING NO. 60793

PRINT DATE: 6/11/2019

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.		061509	173	349
				(1)	A6466 - SPAN DETAILS - 60794			

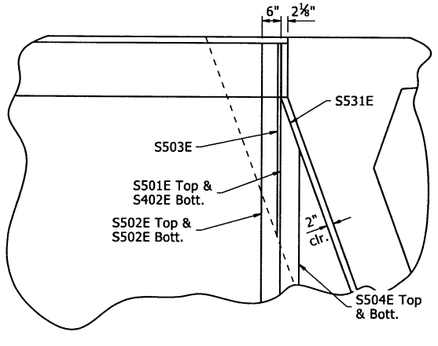


P C.L. Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "REINFORCING PLAN", Dwg. No. 60794. Stop 1'-2" from top of slab (high side) or top of sidewalk (low side).

(1) See Dwg. No. 60795 for "DETAIL F" and "DETAIL G" and additional details of placement of reinforcing

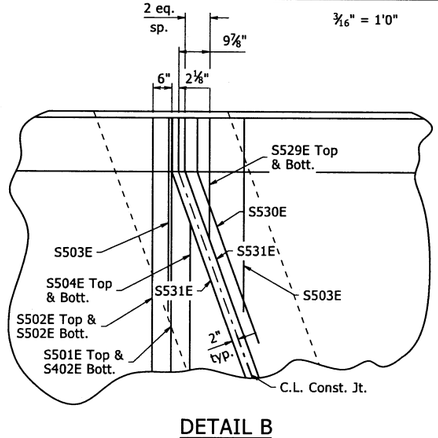
REINFORCING PLAN

3/16" = 1'0"



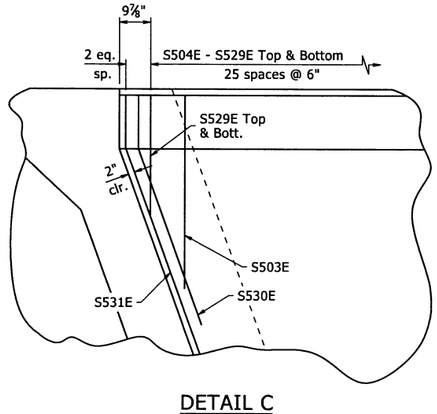
DETAIL A

½" = 1'-0"



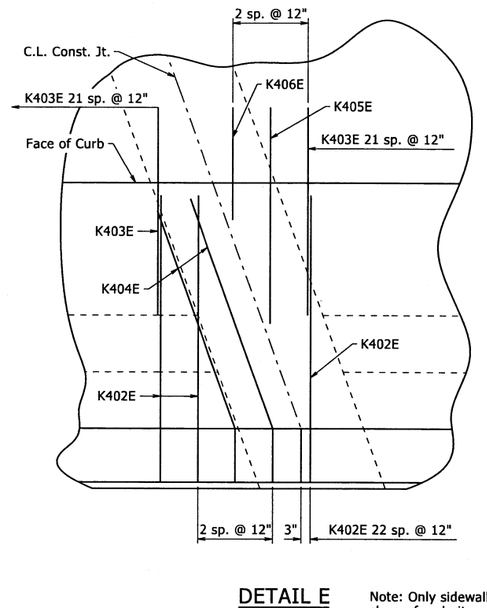
DETAIL B

½" = 1'-0"



DETAIL C

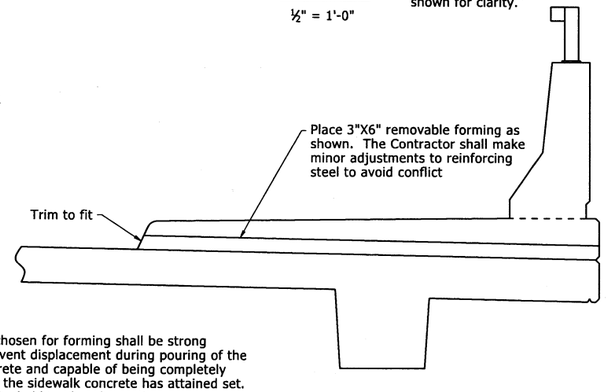
½" = 1'-0"



DETAIL E

½" = 1'-0"

Note: Only sidewalk reinforcing shown for clarity.



The material chosen for forming shall be strong enough to prevent displacement during pouring of the sidewalk concrete and capable of being completely removed after the sidewalk concrete has attained set. Forming is to be held in place by methods approved by the Engineer to prevent movement during the course of construction. All work and material associated with forming these drains will not be paid for directly, but shall be considered subsidiary to "Class S(AE) Concrete-Bridge".

SECTION THRU DRAIN

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

ROUTE SEC.

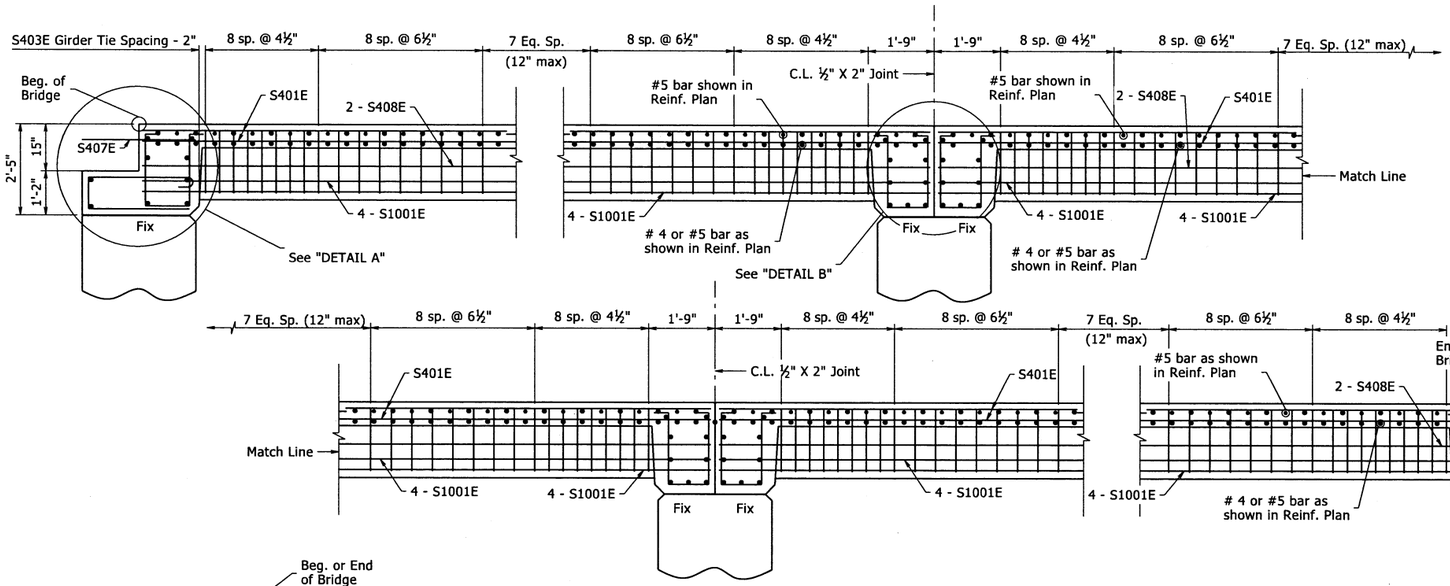
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/31/2019 FILENAME: b061509x2_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018
BRIDGE NO. A6466 DRAWING NO. 60794

PRINT DATE: 6/11/2019

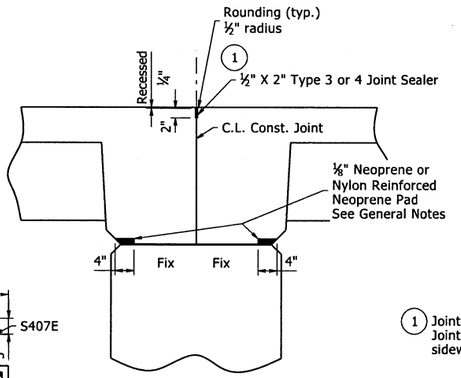
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	174	349

(1) A6466 - SPAN DETAILS - 60795



LONGITUDINAL SECTION ALONG C.L. BRIDGE

½" = 1'-0"

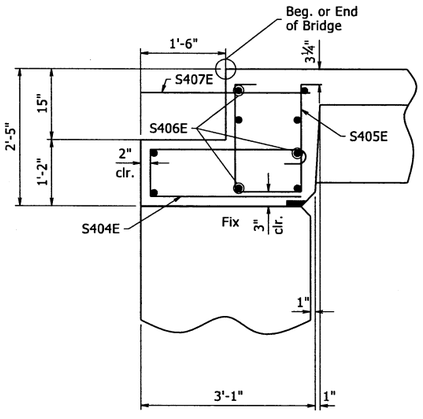


Use ½" X 2" Type 3 or 4 Joint Sealer. See Subsection 501.02(h)(2) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete - Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

(1) Joint sealer shall not be placed under sidewalk. Joint sealer shall extend across top of slab and sidewalk from edge of slab to edge of slab.

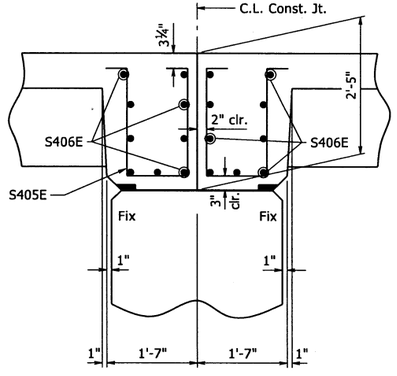
TYPICAL SECTION THRU JOINT

¾" = 1'-0"



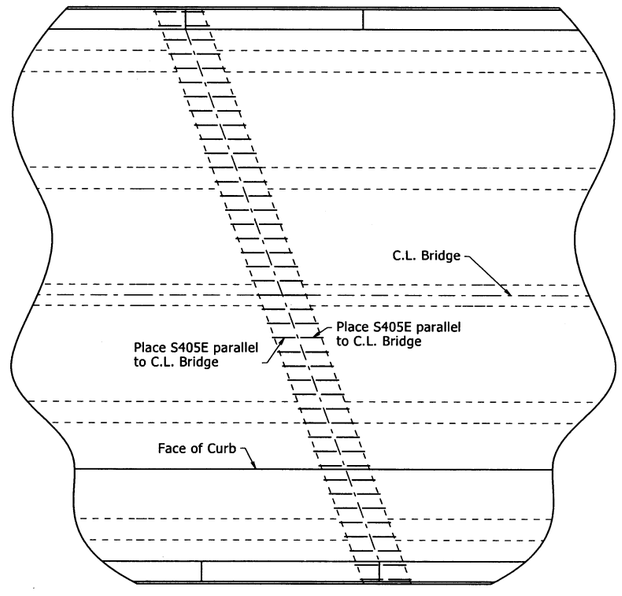
DETAIL A

¾" = 1'-0"



DETAIL B

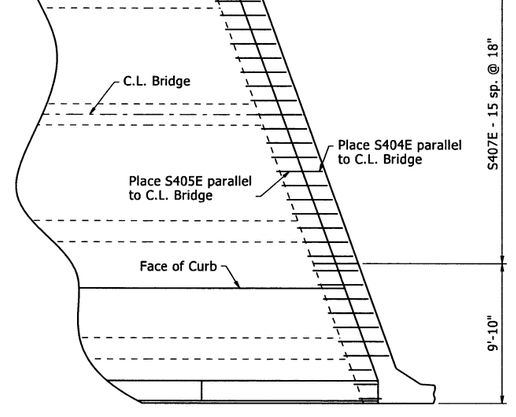
¾" = 1'-0"



DETAIL F

3/16" = 1'-0"

Note: Only S405E reinforcing shown for clarity.



Note: Only S404E, S405E, and S407E reinforcing shown for clarity.

DETAIL G

3/16" = 1'-0"

GENERAL NOTES

All concrete to be Class S(AE) with a minimum 28 day compressive strength of f'c = 4000 psi. Exposed corners to be chamfered ¾" unless otherwise noted.

The interior span concrete of the girders, end diaphragms and deck slab shall be placed in one continuous pour. The end span concrete of the girders, end diaphragms, deck slab and wings shall be placed in one continuous pour.

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.

Neoprene Pad shall be measured and paid for as "Class S(AE) Concrete - Bridge". Neoprene material shall meet the requirements of Subsection 808.02 and shall be in one piece for the full width and length of the bearing and may be 50, 60, or 70 durometer elastomer.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-6-19
BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

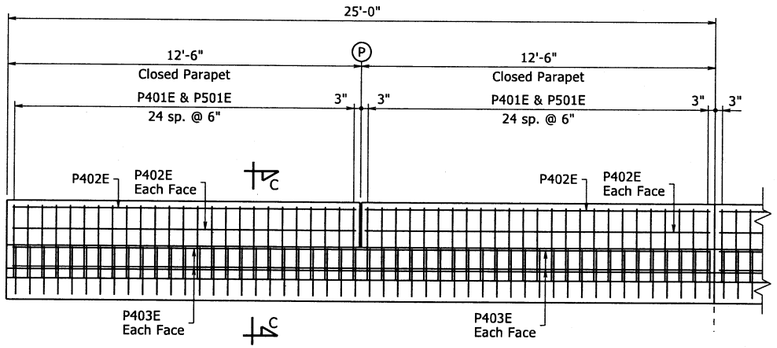
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/31/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x2_s1.dgn
SCALE: As Noted

BRIDGE NO. A6466 DRAWING NO. 60795

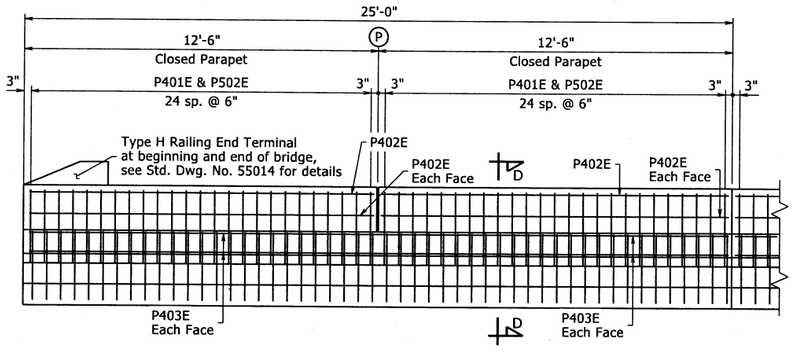
PRINT DATE: 6/7/2019

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.		061509	175	349
				(1)		A6466 - SPAN DETAILS - 60796		



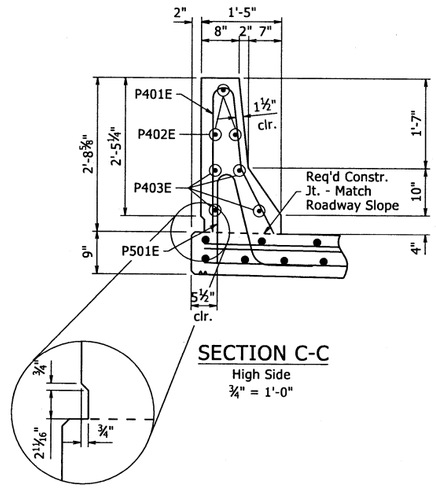
PARAPET RAIL REINFORCING HIGH SIDE

⅜" = 1'-0"



PARAPET RAIL REINFORCING LOW SIDE

⅜" = 1'-0"

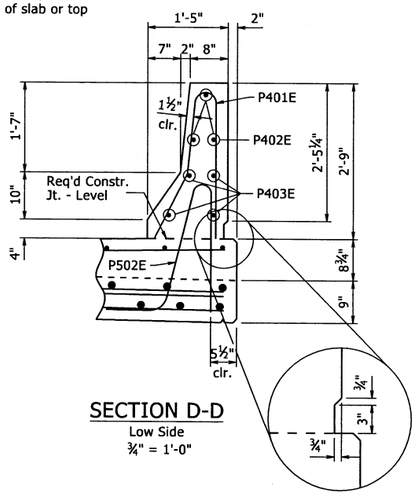


SECTION C-C

High Side

¾" = 1'-0"

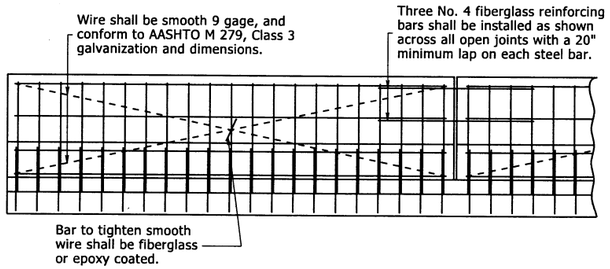
Ⓟ C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab or top of sidewalk

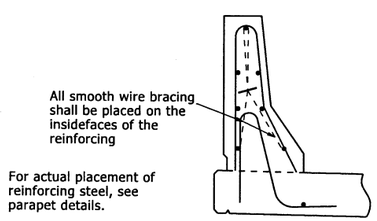


SECTION D-D

Low Side

¾" = 1'-0"





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 ⅛". 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 as 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

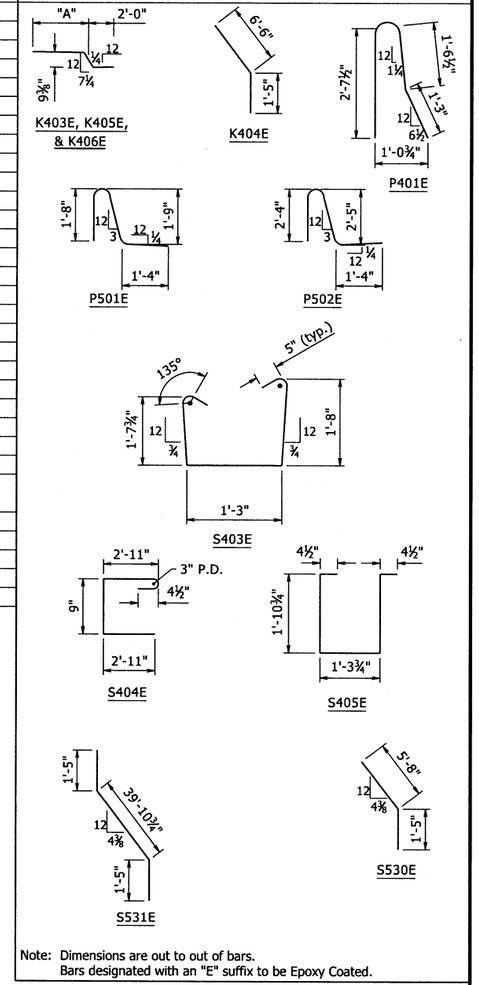
No Scale

Detail shown for high side without sidewalk.
Detail similar for low side with sidewalk.

BAR LIST (PER SPAN)

MARK	NO. REQ'D End	NO. REQ'D Int.	LENGTH	P.D.	"A"
K401E	8	8	24'-8"	Str.	-
K402E	23	23	7'-7"	Str.	-
K403E	22	22	5'-5"	2"	3'-0"
K404E	2	2	7'-11"	3"	-
K405E	1	1	6'-4"	2"	3'-11"
K406E	1	1	3'-7"	2"	1'-2"
P401E	100	100	5'-6"	3"	-
P402E	12	12	12'-2"	Str.	-
P403E	8	8	24'-8"	Str.	-
					-
P501E	50	50	4'-10"	3¾"	-
P502E	50	50	6'-3"	3¾"	-
S401E	99	99	25'-8"	Str.	-
S402E	12	12	40'-4"	Str.	-
S403E	200	200	5'-8"	2"	-
S404E	35	-	6'-11"	2"	-
S405E	82	82	5'-7"	2"	-
S406E	18	18	42'-11"	Str.	-
S407E	16	-	3'-0"	Str.	-
S408E	10	10	25'-8"	Str.	-
S501E	12	12	40'-4"	Str.	-
S502E	22	22	40'-4"	Str.	-
S503E	94	94	5'-2"	Str.	-
S504E - S529E	2 ea.	2 ea.	3'-2" to 37'-6"	Str.	-
S530E	2	2	7'-1"	3¾"	-
S531E	2	2	42'-9"	3¾"	-
S1001E	40	40	24-8"	Str.	-

BENDING DIAGRAMS



Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
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6-11-19
CHARLES R. ELLIS
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SHEET 4 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

ROUTE SEC.

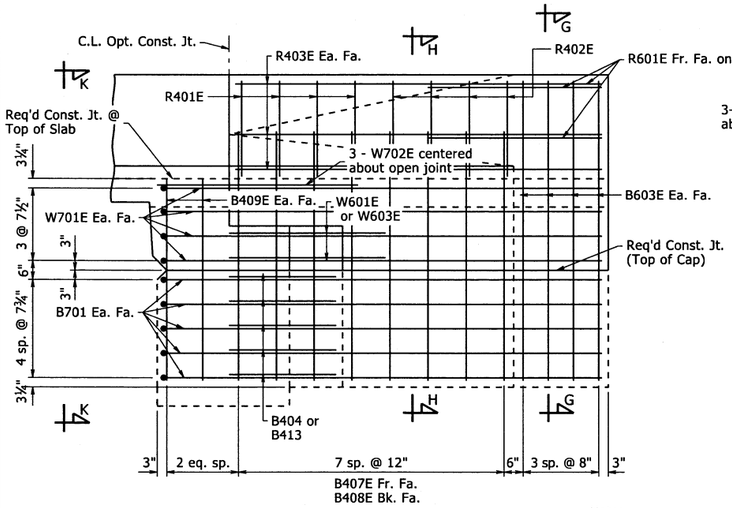
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/31/2019 FILENAME: b061509x2_s1.dgn
CHECKED BY: DHP DATE: 4/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018
BRIDGE NO. A6466 DRAWING NO. 60796

PRINT DATE: 6/11/2019

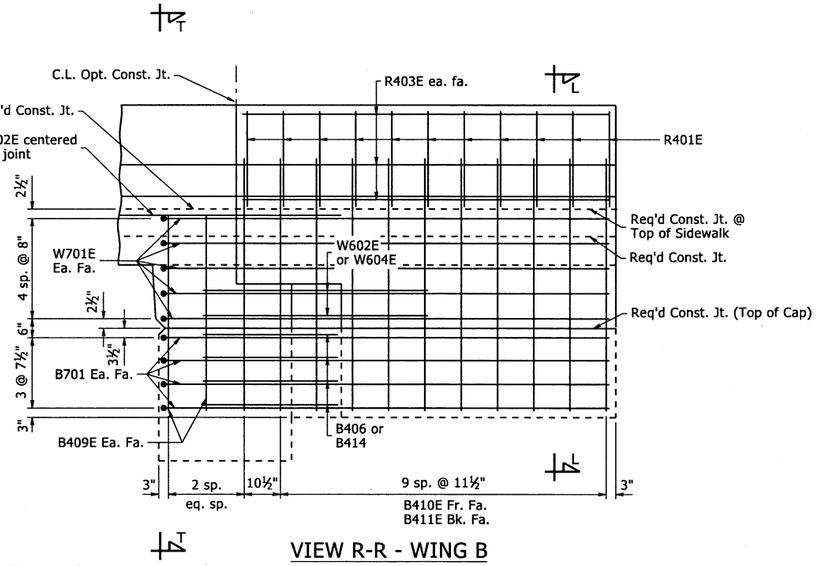
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	176	349

① A6466 - SPAN DETAILS - 60797



VIEW F-F - WING A

½" = 1'-0"

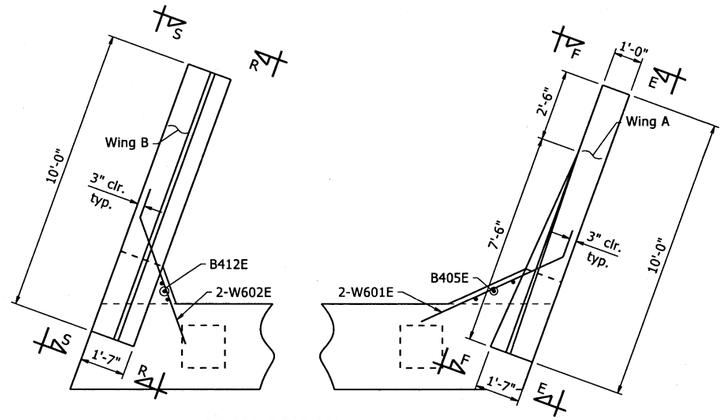


VIEW R-R - WING B

½" = 1'-0"

Note:

See Dwg. No. 60798 for "SECTION G-G", "SECTION H-H", "SECTION K-K", "SECTION L-L", & "SECTION T-T".



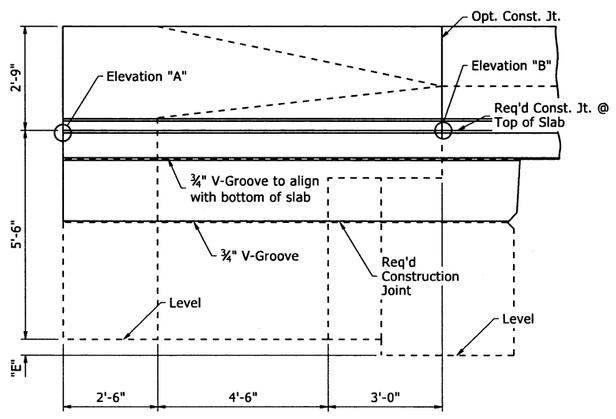
PLAN OF RAIL

Bent 1

⅜" = 1'-0"

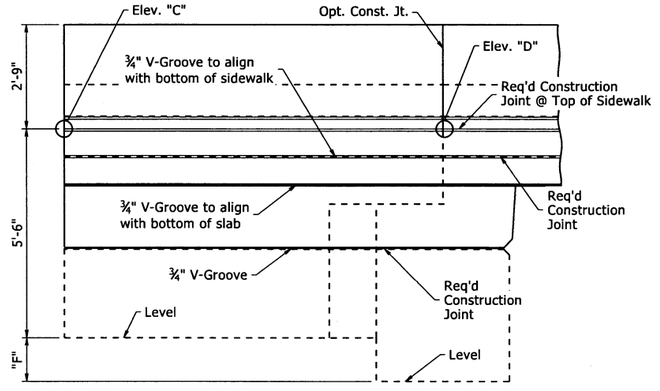
TABLE OF VARIABLES

Bent No.	"A"	"B"	"C"	"D"	"E"	"F"
Bent 1	266.27	266.31	266.28	266.34	4 1/16"	1'-1 1/16"
Bent 4	267.16	267.01	267.33	267.16	6½"	1'-3⅝"



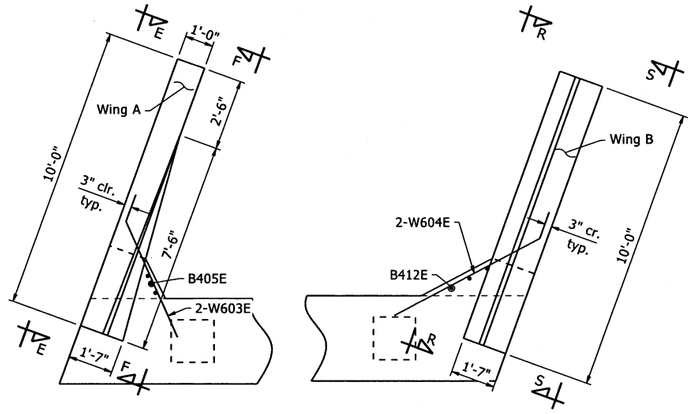
VIEW E-E - WING A

½" = 1'-0"



VIEW S-S - WING B

½" = 1'-0"



PLAN OF RAIL

Bent 4

⅜" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-1-19

BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

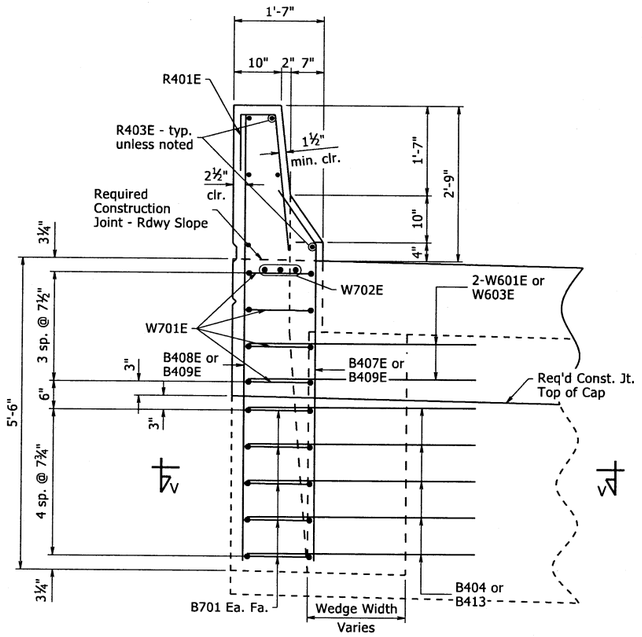
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/31/2019 FILENAME: b061509x2_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6466 DRAWING NO. 60797

PRINT DATE: 6/7/2019

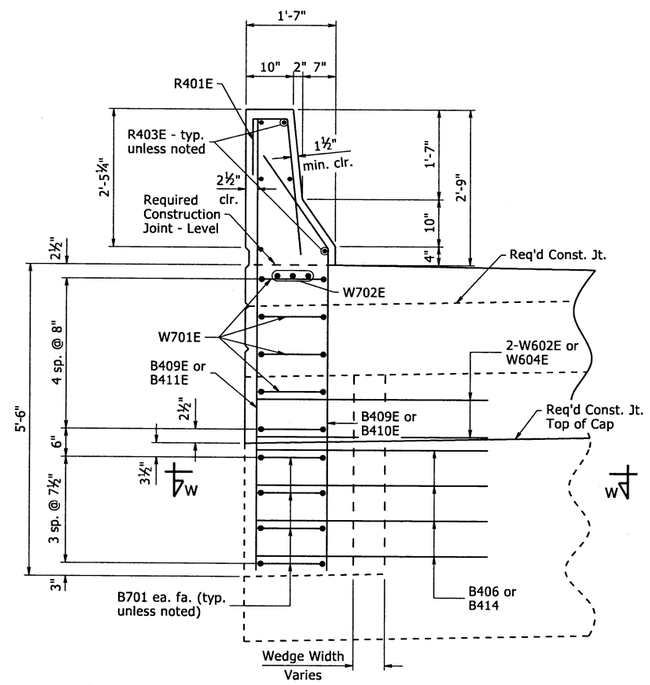
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	177	349
				(1)		A6466 - SPAN DETAILS - 60798		



SECTION K-K

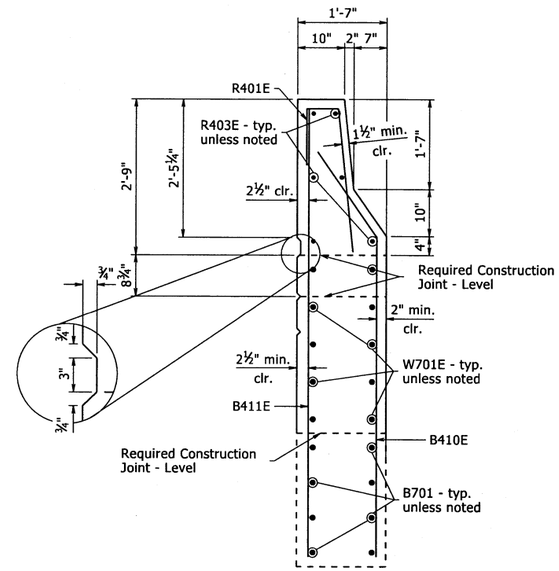
¾" = 1'-0"

For "SECTION V-V and "SECTION W-W," see Dwg. No. 60799.



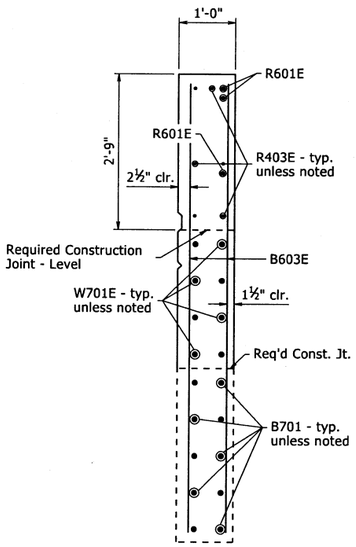
SECTION T-T

¾" = 1'-0"



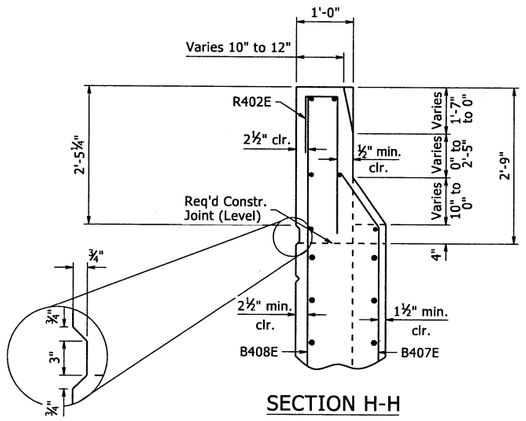
SECTION L-L

¾" = 1'-0"



SECTION G-G

¾" = 1'-0"



SECTION H-H

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 2/8/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018

FILENAME: b061509x2_s1.dgn
SCALE: As Noted

BRIDGE NO. A6466 DRAWING NO. 60798

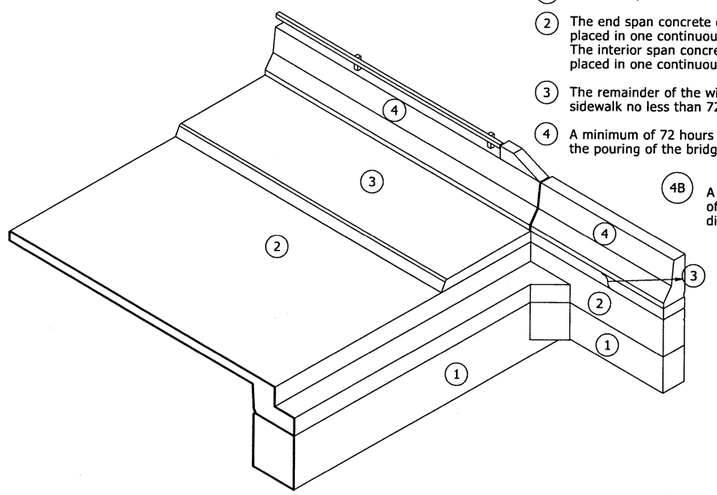
PRINT DATE: 6/11/2019

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.		061509	178	347

① A6466 - SPAN DETAILS - 60799

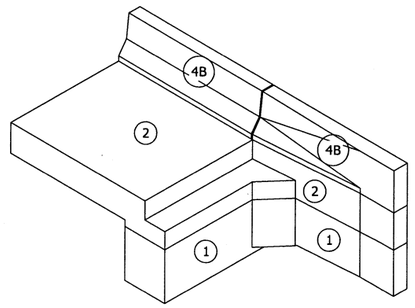
1. The lower portion of the wing concrete shall be poured with the cap.
2. The end span concrete of the girders, deck and end diaphragms shall be placed in one continuous pour with the upper portion of the wing concrete. The interior span concrete of the girders, deck and end diaphragms shall be placed in one continuous pour.
3. The remainder of the wing concrete shall be poured with the end span sidewalk no less than 72 hours after the end span concrete has been placed.
4. A minimum of 72 hours shall elapse between completion of the sidewalk and the pouring of the bridge railing.

4B. A minimun of 72 hours shall elapse between completion of the end span concrete of the girders, deck, and end diaphragms and the pouring of the bridge railing



THREE DIMENSIONAL VIEW CONSTRUCTION SEQUENCE DETAIL - WING B

No Scale



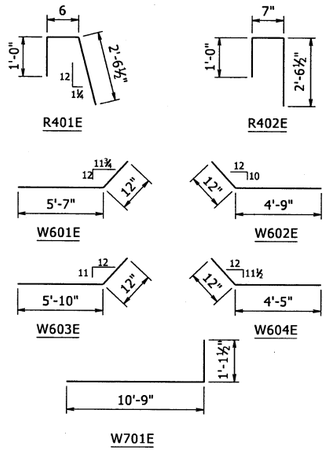
THREE DIMENSIONAL VIEW CONSTRUCTION SEQUENCE DETAIL - WING A

No Scale

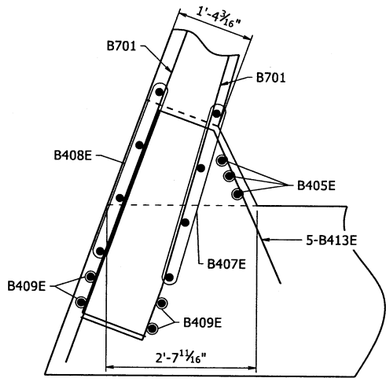
BAR LIST - PER END OF BRIDGE

MARK	NO. REQ'D	LENGTH	P.D.
R401E	15	3'-11"	2"
R402E	4	4'-0"	2"
R403E	12	9'-8"	Str.
R601E	3	5'-1"	Str.
W601E	2	6'-7"	4½"
W602E	2	5'-9"	4½"
W603E	2	6'-10"	4½"
W604E	2	5'-5"	4½"
W701E	18	11'-9"	5¼"
W702E	6	4'-0"	Str.

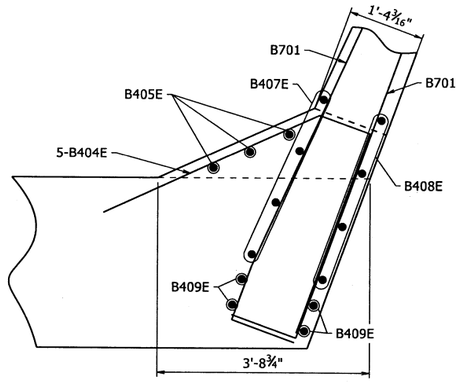
BENDING DIAGRAMS



Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.



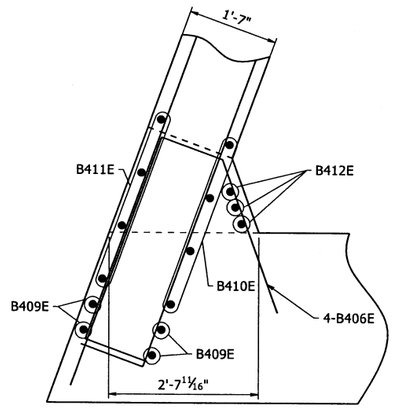
Bent 4



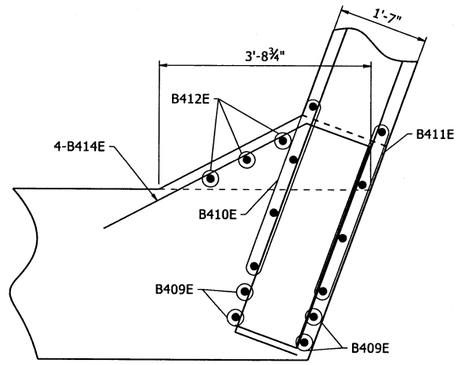
Bent 1

SECTION V-V

¾" = 1'-0"



Bent 1



Bent 4

SECTION W-W

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF
25'-0" R.C. DECK GIRDER SPANS
BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

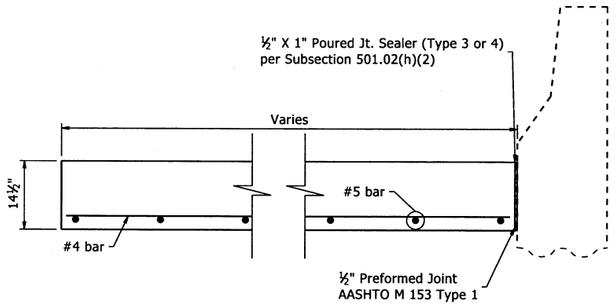
DRAWN BY: DPT DATE: 02/08/2019
CHECKED BY: DHP DATE: 4/16/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x2_s1.dgn
SCALE: As Noted

BRIDGE NO. A6466 DRAWING NO. 60799

PRINT DATE: 6/11/2019

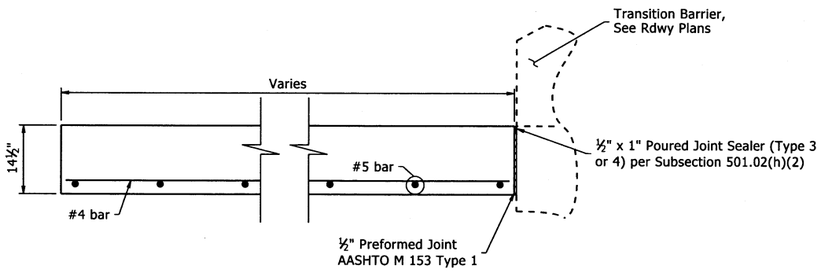
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	179	349

(1) SEE TABLE - SPECIAL APP. GUTTERS - 60800



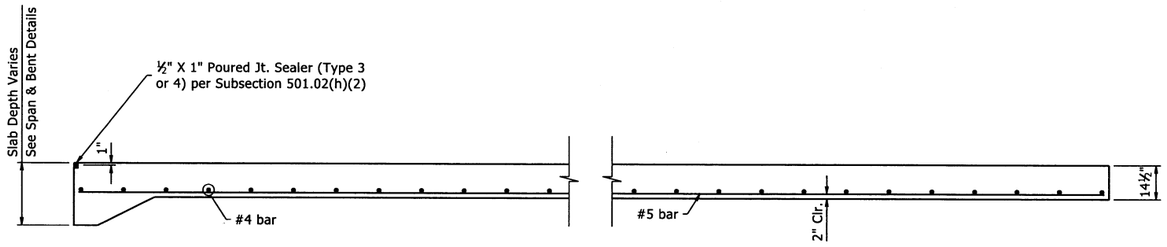
SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"



SECTION A-A

⅜" = 1'-0"

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concete 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.

BRIDGE NUMBERS

BRIDGE NUMBERS
06466
A6466
06467
A6467

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

COMMON DETAILS OF TYPE SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag9.dgn

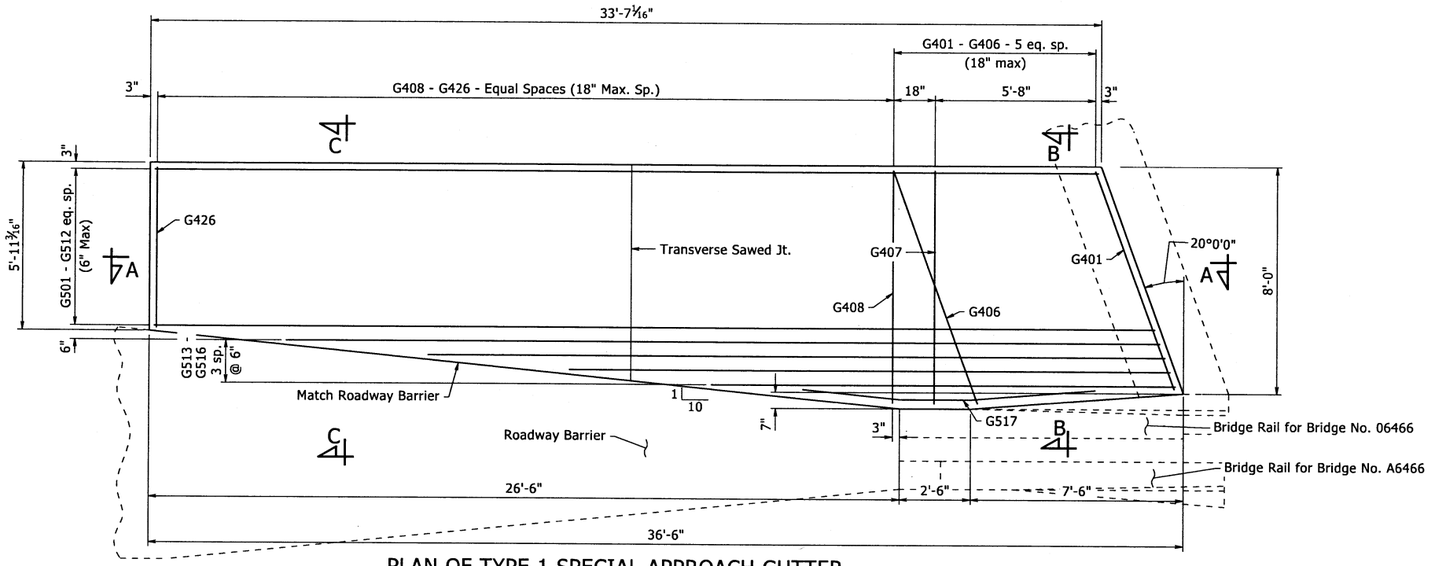
CHECKED BY: TMG DATE: 6/7/19 SCALE: As Noted

DESIGNED BY: — DATE: —

BRIDGE NO. SEE TABLE DRAWING NO. 60800

PRINT DATE: 6/7/2019

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.		061509	180	349
				① 06466 - SPECIAL APP. GUTTERS - 60801				

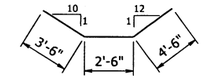


PLAN OF TYPE 1 SPECIAL APPROACH GUTTER

3/8" = 1'-0"

Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	P.D.	BENDING DIAGRAMS
G401-G406	6	Var. 8'-2" to 8'-10"	Str.	
G407	1	8'-3"	Str.	
G408-G426	1 ea.	Var. 8'-3" to 5'-9"	Str.	
G501-G512	1 ea.	Var. 33'-4" to 35'-5"	Str.	
G513-G516	1 ea.	Var. 30'-11" to 16'-5"	Str.	
G517	1	10'-6"	3 3/4"	

G517

Dimensions are out to out of bars

QUANTITIES FOR TYPE 1 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
668	11.83

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/1/19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE 1 SPECIAL APPROACH GUTTERS BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag1.dgn

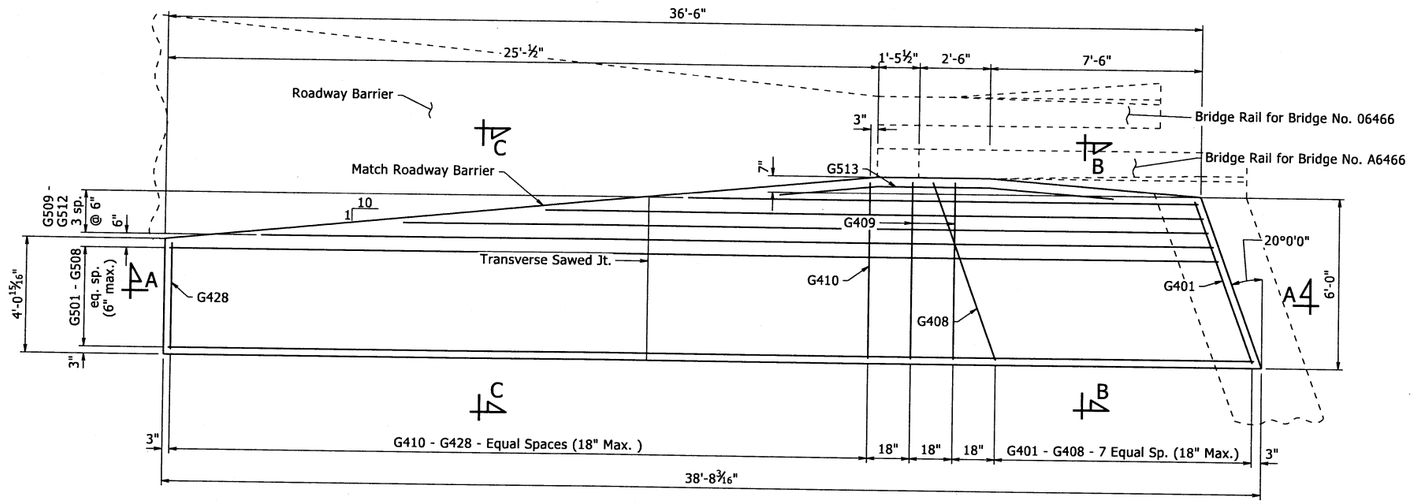
CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted

DESIGNED BY: — DATE: —

BRIDGE NO. 06466 DRAWING NO. 60801

PRINT DATE: 6/5/2019

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.		061509	181	349
				① A6466 - SPECIAL APP. GUTTERS - 60802				



PLAN OF TYPE 2 SPECIAL APPROACH GUTTER

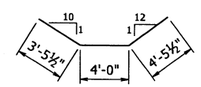
⅜" = 1'-0"

Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	P.D.
G401-G408	8	Var. 6'-1" to 6'-8"	Str.
G409	2	6'-3"	Str.
G410-G428	1 ea.	Var. 6'-3" to 3'-10"	Str.
G501-G508	1 ea.	Var. 38'-4" to 37'-0"	Str.
G509-G512	1 ea.	Var. 33'-7" to 18'-1"	Str.
G513	1	11'-11"	3¾"

BENDING DIAGRAMS



G513

Dimensions are out to out of bars

QUANTITIES FOR TYPE 2 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
540	9.55

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TYPE 2 SPECIAL APPROACH GUTTERS BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

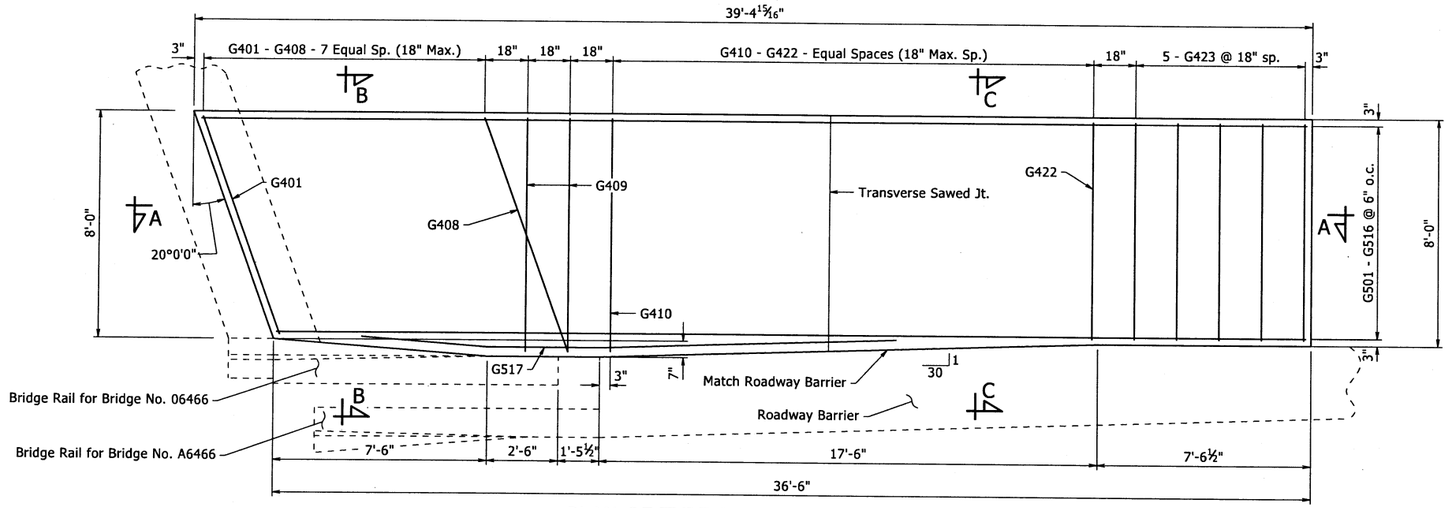
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 01/18/2019 FILENAME: b061509_ag2.dgn
CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted
DESIGNED BY: — DATE: —

BRIDGE NO. A6466 DRAWING NO. 60802

PRINT DATE: 6/5/2019

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.		061509	182	349
				①		06466 - SPECIAL APP. GUTTERS - 60803		

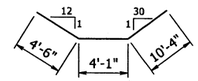


PLAN OF TYPE 3 SPECIAL APPROACH GUTTER

⅜" = 1'-0"

Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	BENDING DIAGRAMS
G401-G408	8	Var. 8'-3" to 8'-10"	
G409	2	8'-3"	
G410-G422	1 ea.	Var. 8'-3" to 7'-9"	
G423	5	7'-8"	
G501-G516	1 ea.	Var. 39-0" to 36'-3"	
G517	1	18'-11"	

G517

Dimensions are out to out of bars

QUANTITIES FOR TYPE 3 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
799	14.02

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

DETAILS OF TYPE 3 SPECIAL APPROACH GUTTERS BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag3.dgn

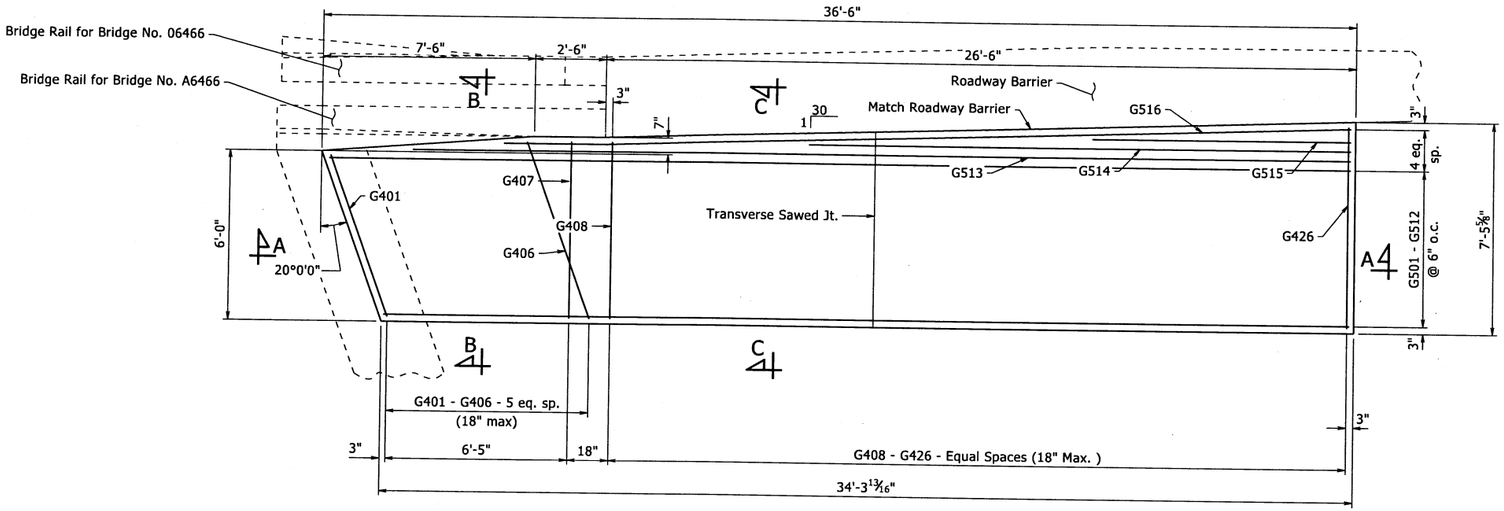
CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted

DESIGNED BY: — DATE: —

BRIDGE NO. 06466 DRAWING NO. 60803

PRINT DATE: 6/5/2019

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.		061509	183	349
				① A6466 - SPECIAL APP. GUTTERS - 60804				



PLAN OF TYPE 4 SPECIAL APPROACH GUTTER

⅜" = 1'-0"

Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	P.D.	BENDING DIAGRAMS
G401-G406	6	Var. 6'-1" to 6'-8"	Str.	
G407	1	6'-3"	Str.	
G408-G426	1 ea.	Var. 6'-4" to 7'-2"	Str.	
G501-G512	1 ea.	Var. 34'-1" to 36'-1"	Str.	
G513	1	32'-2"	Str.	
G514	1	19'-2"	Str.	
G515	1	9'-2"	Str.	
G516	1	30'-0"	3¾"	

30 / 1 — 3'-7" — 26'-5"

G516

Dimensions are out to out of bars

QUANTITIES FOR TYPE 4 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
650	10.89

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

DETAILS OF TYPE 4 SPECIAL APPROACH GUTTERS BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

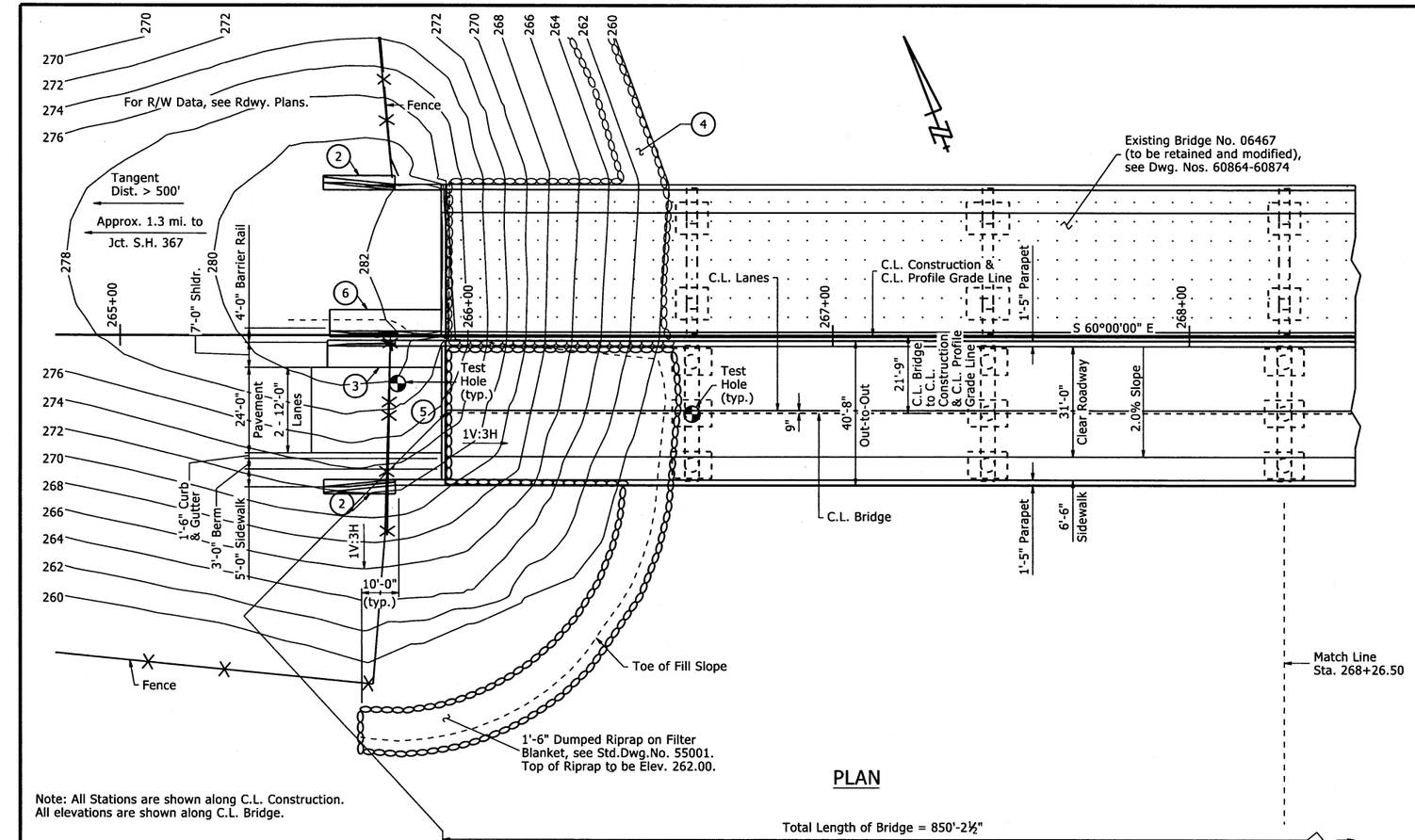
LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 01/18/2019 FILENAME: b061509_ag4.dgn
CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted
DESIGNED BY: — DATE: —

BRIDGE NO. A6466 DRAWING NO. 60804

PRINT DATE: 6/5/2019

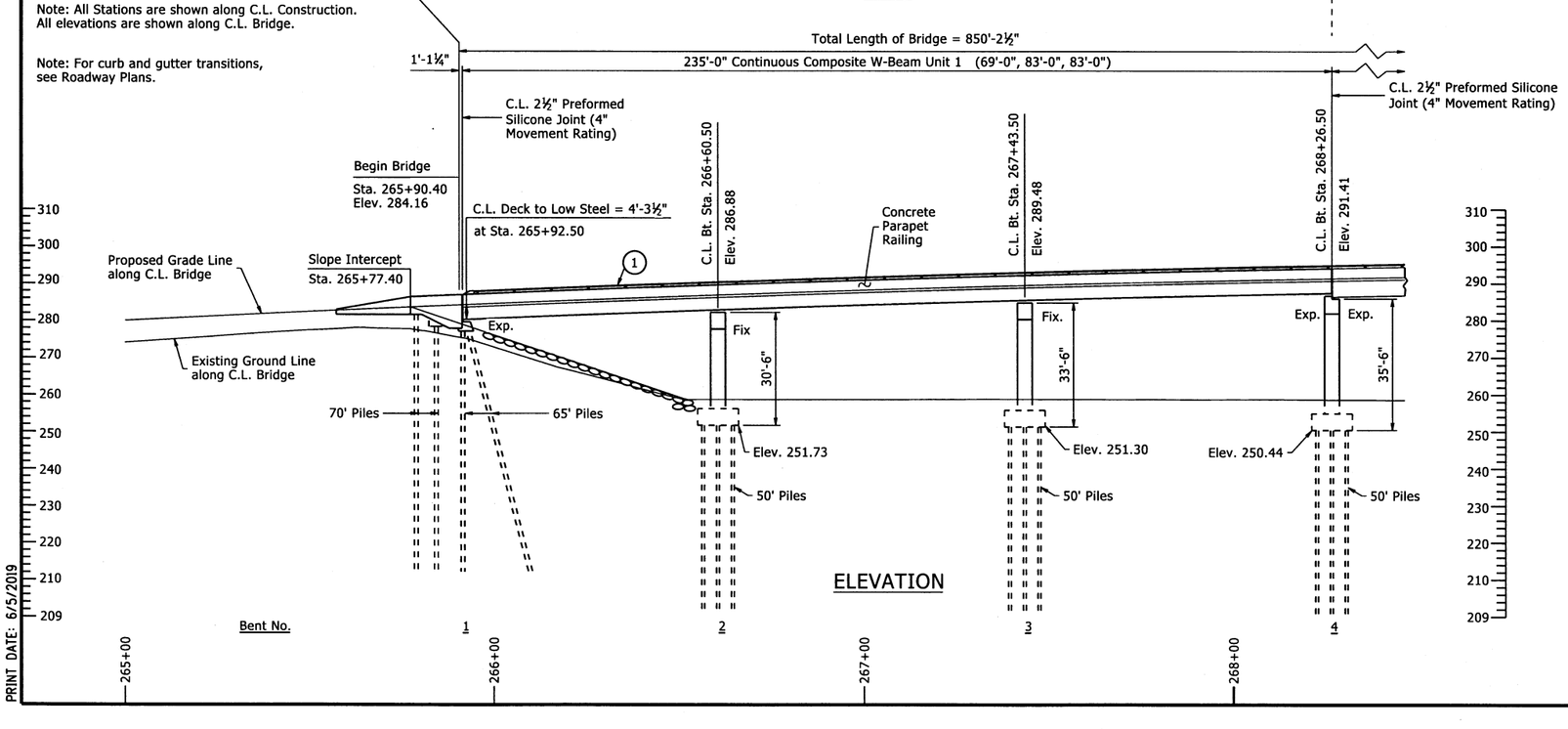
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	184	349
				①		A6467 - LAYOUT - 60805		



PLAN

Note: All Stations are shown along C.L. Construction.
All elevations are shown along C.L. Bridge.

Note: For curb and gutter transitions, see Roadway Plans.



ELEVATION

PRINT DATE: 6/5/2019

① Type "H" Metal Bridge Railing on top of Concrete Parapet, only on the sidewalk side of Bridge, see Std. Dwg. No. 55014.

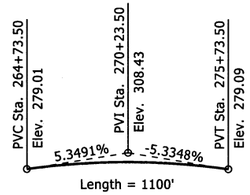
② Transitional Approach Railing, see Std. Dwg. No. 55013.

③ Type 6 Special Approach Gutter, see Dwg. No. 60855.

④ Existing dumped riprap to be retained. All other areas of existing dumped riprap (including filter blanket if present) within the limits of the new construction or regrading of the embankments, or as directed by Engineer, shall be removed. This work will not be paid for directly but shall be considered incidental to the pay item "Modification of Existing Bridge Structure (Bridge No. 06467)".

⑤ Type C2 Approach Slab (W=24'-0") shall be placed at both ends of the new bridge, see Std. Dwg. No. 55040C2.

⑥ Type 5 Special Approach Gutter, see Dwg. No. 60854



VERTICAL CURVE DATA

Along C.L. Construction & C.L. Profile Grade Line
No Scale

Bent No.	C.L. Bridge Deck @ C.L. Bent to Low Seat of Cap
2	4'-7 13/16"
3	4'-8⅛"
4	5'-5⅜"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 5
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

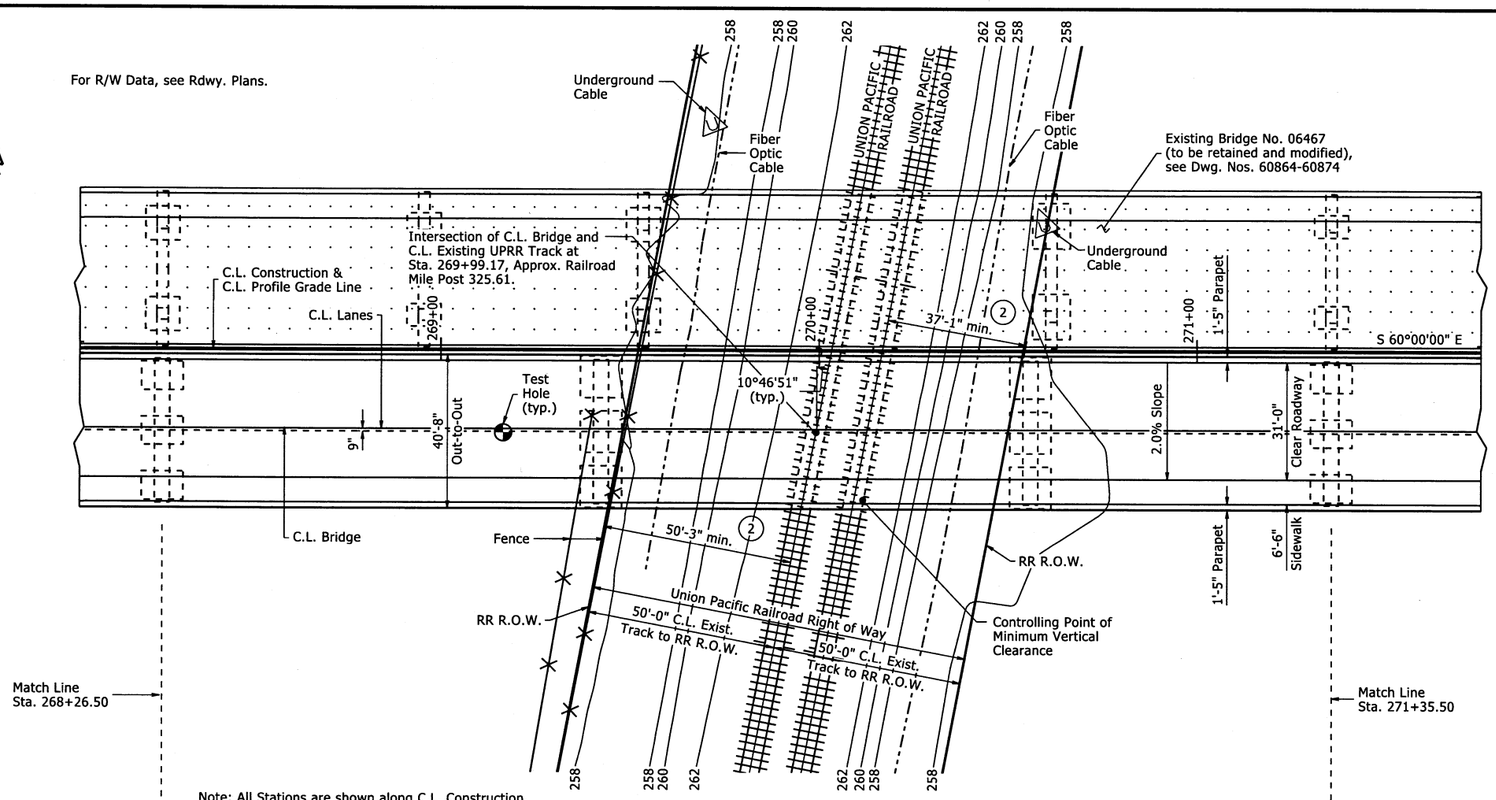
DRAWN BY: KJF DATE: 7/05/2018 FILENAME: b061509x3_L1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 20'-0"
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. A6467 DRAWING NO. 60805

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.		061509	185	349

(1) A6467 - LAYOUT - 60806

For R/W Data, see Rdwy. Plans.



Note: All Stations are shown along C.L. Construction.
All elevations are shown along C.L. Bridge.

PLAN

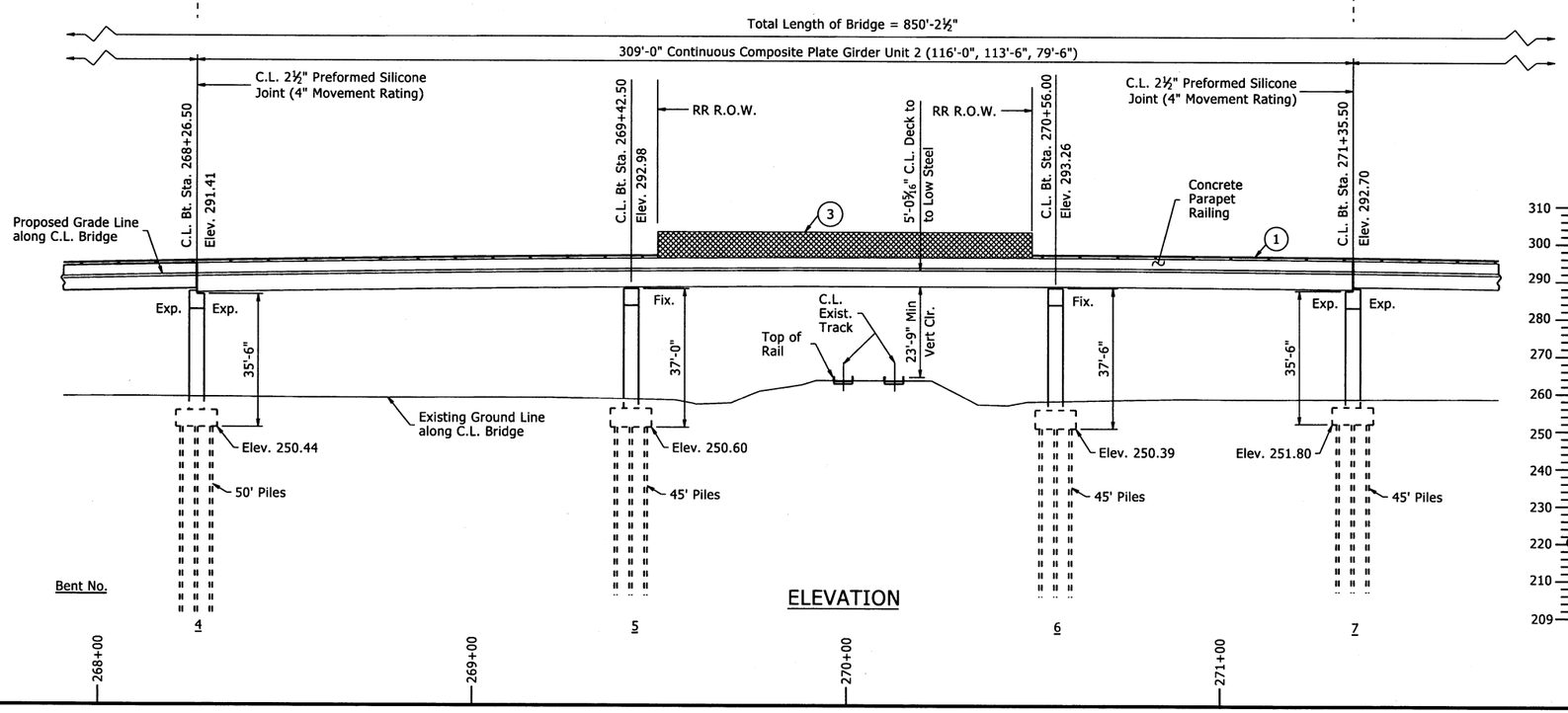
(1) Type "H" Metal Bridge Railing on top of Concrete Parapet Rail, only on the sidewalk side of Bridge, see Std. Dwg. No. 55014.

(2) Minimum horizontal clearance at face of bent.

(3) Chain Link Fence to be placed on both sides of Bridge over railroad right-of-way. See Dwg. Nos. 60811, 60851, and 60852.

(3) Chain Link Fence Location Over RR R.O.W.			
Bridge No.	Station Location	Left of C.L. Bridge	Right of C.L. Bridge
A6467	Start	Sta. 269+51	Sta. 269+44
	End	Sta. 270+54	Sta. 270+47

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap
4	5'-5⅜"
5	5'-4⅜16"
6	5'-4716"
7	5'-4 1316"



ELEVATION

PRINT DATE: 6/6/2019

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
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CHARLES R. ELLIS
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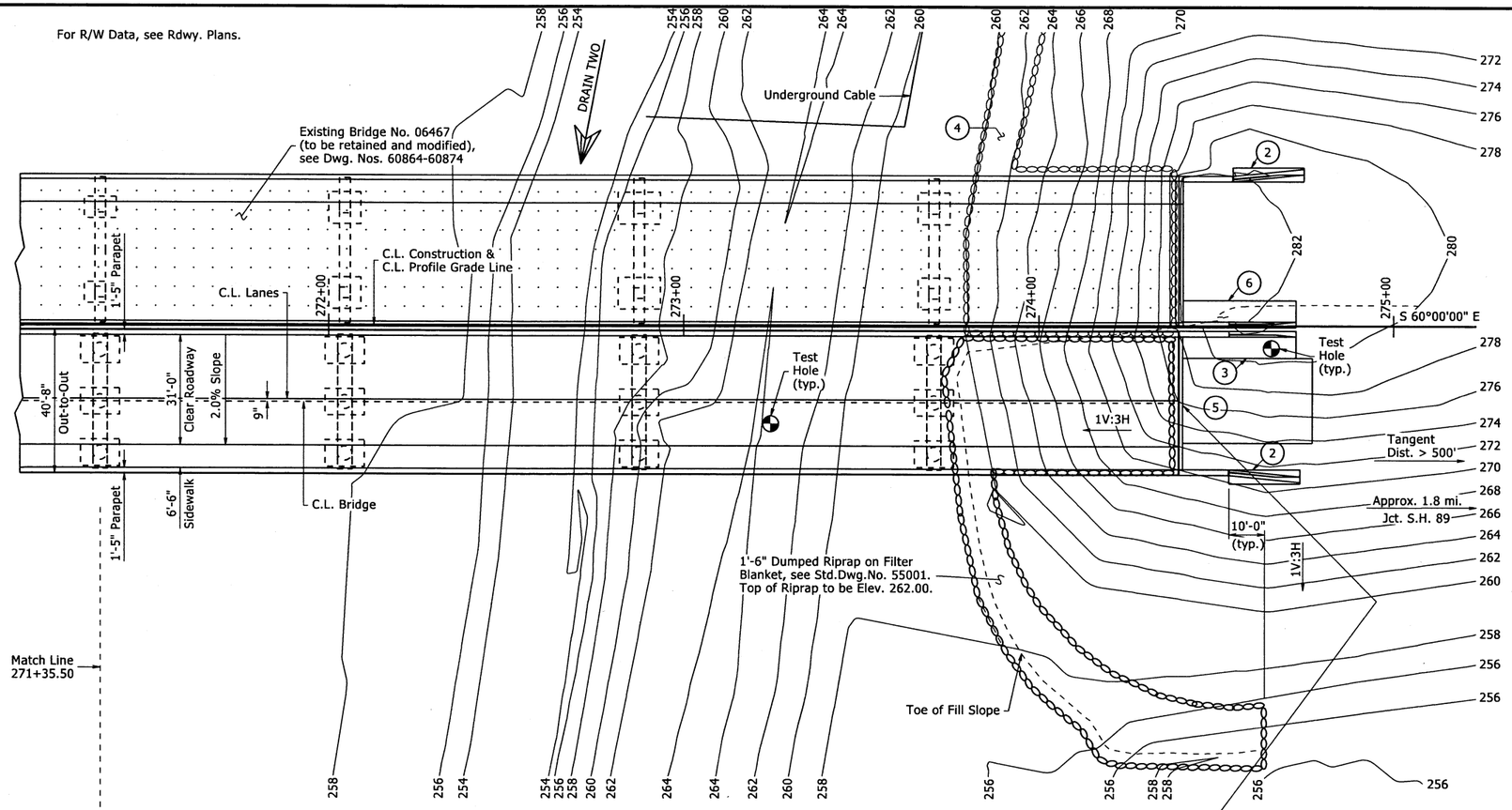
SHEET 2 OF 5
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

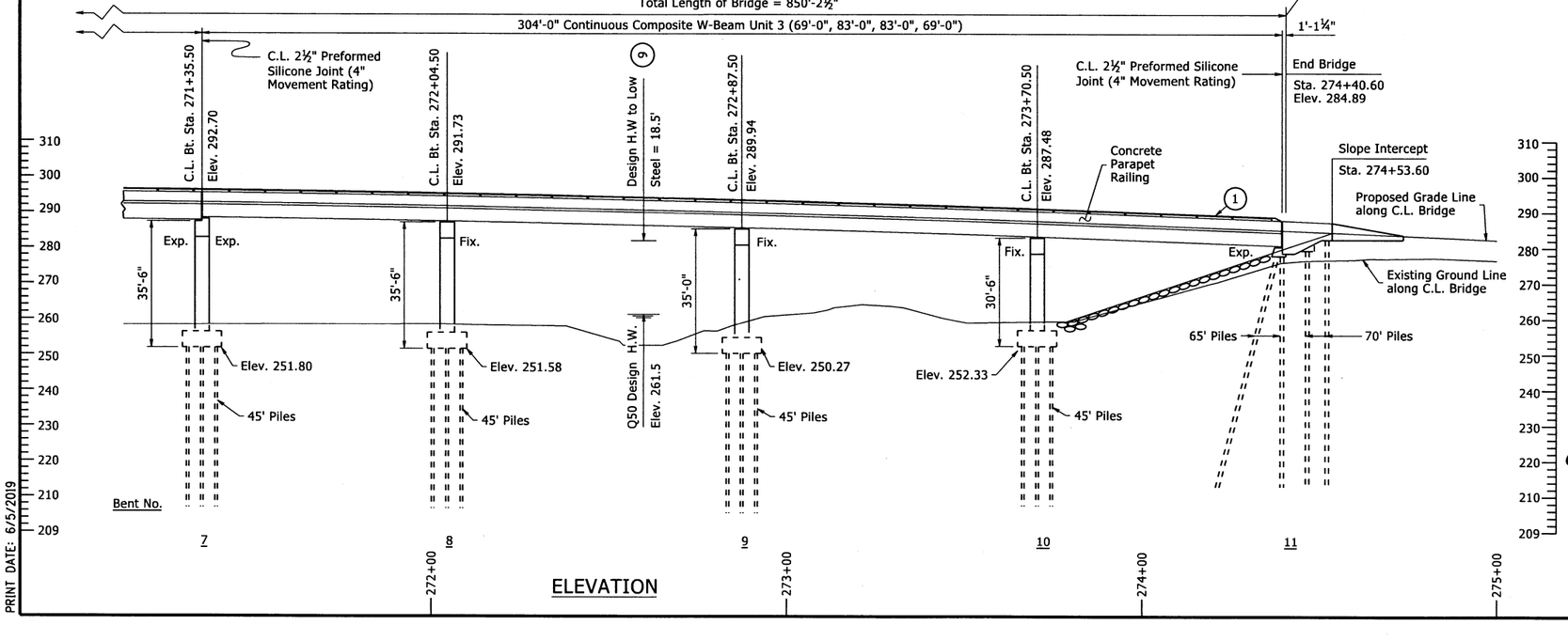
DRAWN BY: KJF DATE: 7/05/2018
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 06/2018
FILENAME: b061509x3_L1.dgn
SCALE: 1" = 20'-0"
BRIDGE NO. A6467
DRAWING NO. 60806

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.		061509	186	349
				①		A6467 - LAYOUT - 60807		

For R/W Data, see Rdwy. Plans.



PLAN



ELEVATION

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	(7) TOTAL DISCHARGE THIS SITE	DISCHARGE AT DRAIN TWO	(8) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	3,744	1,962	261.3	261.5
Base	100	4,528	2,317	261.8	261.9
Extreme	500	6,503	3,224	262.8	263.0
Overtopping	> 500	-	-	-	-

Drainage area = 5.31 square miles.
Historical H.W. Elev. = 263.00 ft.

(7) The discharge includes flow at Drain Two and a portion of flow from Bayou Two Prairie.

(8) Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 261.94 ft.

(9) Proposed Low Bridge Chord elevation = 279.96 ft. at Sta. 265+92.50, see Sheet 1 of 5.

(1) Type "H" Metal Bridge Railing on top of Concrete Parapet Rail, only on the sidewalk side of Bridge, see Std. Dwg. No. 55014.

(2) Transitional Approach Railing, see Std. Dwg. No. 55013.

(3) Type 8 Special Approach Gutter, see Dwg. No. 60857.

(4) Existing dumped riprap to be retained. All other areas of existing dumped riprap (including filter blanket if present) within the limits of the new construction or regrading of the embankments, or as directed by Engineer, shall be removed. This work will not be paid for directly but shall be considered incidental to the pay item "Modification of Existing Bridge Structure (Bridge No. 06467)".

(5) Type C2 Approach Slab (Width=24'-0") shall be placed at both ends of the new bridge, see Std. Dwg. No. 55040C2.

(6) Type 7 Special Approach Gutter, see Dwg. No. 60856.

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap
7	5'-4 13/16"
8	4'-7 13/16"
9	4'-8"
10	4'-7 13/16"

Note: All Stations are shown along C.L. Construction.
All elevations are shown along C.L. Bridge.

STATE OF ARKANSAS
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SHEET 3 OF 5
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 7/05/2018 FILENAME: b061509x3_L1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 20'-0"
DESIGNED BY: DHP DATE: 06/2018
BRIDGE NO. A6467 DRAWING NO. 60807

PRINT DATE: 6/5/2019

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.		061509	187	349

(1) A6467 - LAYOUT - 60808

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. Section and Subsection refer to the Standard Construction Specifications, unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Seventh Edition (2014) with 2015 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 2 S_{D1} =0.247 SITE CLASS = D

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.

CONCRETE PILING: Piling in Bents 1 and 11 shall be 18" square prestressed concrete and shall be driven to an ultimate bearing capacity of 195 tons per pile. Piling in Bents 2 through 10 shall be 18" square prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 195 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer to a minimum tip elevation of 213' or lower at Bents 1 and 11 and to a minimum tip elevation of 201' or lower at Bents 2 thru 4, and to a minimum tip elevation of 206' or lower at Bents 5 thru 10 . Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Drive one 70' test pile in Bent 1 and 11, one 55' test pile in Bent 3, and one 50' test pile in Bent 5 and 9.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Section 805.09(b), "Method B - Wave Equation Analysis (WEAP)". It is estimated that the minimum rated hammer energy required to obtain the ultimate bearing capacity for all piles will be 42,440 foot pounds per blow.

PILE FOOTINGS: The top of the footings at Bents 2, 3, 4, 7, 8, 9 and 10 shall be set a minimum of 2' below natural ground or at the elevations shown on the plans, whichever is lower. The top of footings at Bents 5 and 6 shall be set at a minimum of 6' below base of rail, 2' below natural ground, or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04.

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a polymer overlay per SP Job No. 061509 "Polymer Overlay". Polymer overlay shall be given to both Bridge Nos. 06467 and A6467. Sidewalks on both Bridge Nos. 06467 and A6467 shall be given a Class 6 Broomed Finish. Type C2 Approach Slab shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

PAINTING: All Grade 50W structural steel, except galvanized members and surfaces in contact with concrete, within five feet of bridge deck expansion joints for the W-Beam units and within eight feet of bridge deck expansion joints for the Plate Girder Unit shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing) and to the roadway face and top of the concrete parapet rails on both Bridge Nos. 06467 and A6467.

DETAIL DRAWINGS	DRAWING NO.
End Bents	60814-60820
Bents 2, 3, 8, 9, & 10	60821-60822
Bent 4	60823-60824
Bents 5 & 6	60825-60826
Bent 7	60827-60828
Common Details for Cont. Comp. W-Beam Units	60830-60831
235'-0" Cont. Comp. W-Beam Unit	60832-60835
309'-0" Cont. Comp. Plate Girder Unit	60840-60849
304'-0" Cont. Comp. W-Beam Unit	60836-60839
General Notes for Steel Bridge Structures	55006
Standard Details for Steel Bridge Structures	55007
Preformed Silicone Joints	60853
Elastomeric Bearings	60829
Transitional Approach Railing	55013
Type 5 Special Approach Gutter	60854
Type 6 Special Approach Gutter	60855
Type 7 Special Approach Gutter	60856
Type 8 Special Approach Gutter	60857
Type H Railing	55014
Straight Chain Link Fence	60851
Curved Chain Link Fence	60852
Deck Drains	60850
Concrete Piling	55022
Type C2 Approach Slab (Width=24'-0")	55040C2

EXISTING BRIDGE: Existing Bridge No. 06467 (Log Mile 1.29) is 42.8' wide (40.0' Roadway) and 850.5' long. It consists of three continuous composite w-beam units supported by reinforced concrete bents on a foundation of concrete pile footings. The existing bridge is located immediately upstream of the proposed bridge and will be retained. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

PRINT DATE: 6/5/2019

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-14-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

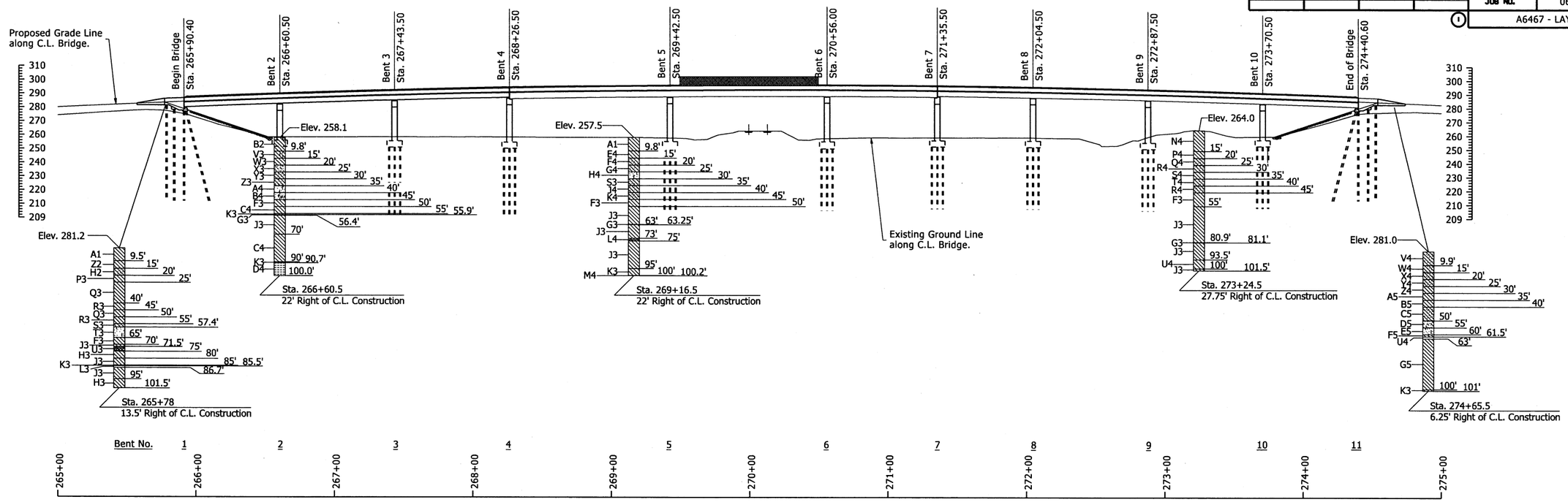
ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 7/05/2018 FILENAME: b061509x3_L1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. A6467 DRAWING NO. 60808

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.		061509	188	349

1 A6467 - LAYOUT - 60809



ELEVATIONS OF SOIL BORINGS

BORING LEGEND

A1-Moist, Stiff, Brown and Gray Clay
B2-Wet, Medium Stiff, Gray Clay
H2-Moist, Stiff, Brown and Gray Sandy Clay
F3-Moist, Very Stiff, Dark Gray Clay (Arkadelphia Formation)
G3-LIMESTONE
H3-Moist, Very Stiff, Dark Gray Clay
J3-Moist, Hard, Dark Gray Clay
K3-Moist, Very Hard, Dark Gray Clay
L3-LIMESTONE INTERBEDDED WITH CLAY
P3-Wet, Medium Stiff, Light Gray Clay
Q3-Wet, Stiff, Brown and Gray Clay
R3-Wet, Medium Stiff, Brown and Gray Clay
S3-Wet, Medium Stiff, Gray Sandy Clay
T3-Wet, Medium Dense, Brown Silty Sand with Trace Gravel
U3-Clay with Frequent Limestone Layers
V3-Wet, Stiff, Brown and Gray Silty Clay
W3-Wet, Stiff, Reddish Brown Clay
X3-Wet, Medium Dense, Lt Brown and Light Gray Clayey Sand
Y3-Wet, Medium Stiff, Lt Brown and Light Gray Clay with Sand
Z3-Wet, Medium Stiff, Reddish Brown Sandy Clay
A4-Wet, Loose, Reddish Brown Silty Sand
B4-Wet, Medium Dense, Reddish Brown Silty Sand with Gravel
C4-Moist, Hard, Dark Gray Clay with Some Sand Seams
D4-SHALE - Weathered, Medium Hard, Dark Gray (Atoka Formation)
E4-Moist, Stiff, Light Gray Clay
F4-Moist, Stiff, Reddish Brown and Gray Sandy Clay
G4-Wet, Stiff, Reddish Brown and Gray Sandy Clay
H4-Wet, Loose, Light Brown Silty Sand
J4-Wet, Stiff, Light Brown and Light Gray Sandy Clay
K4-Wet, Very Stiff, Gray Sandy Clay with Some Gravel
L4-CLAY INTERBEDDED WITH LIMESTONE
M4-SANDSTONE (Atoka Formation)
N4-Wet, Soft, Light Brown Clay with Trace Gravel
P4-Moist, Stiff, Light Brown and Gray Clay
Q4-Moist, Stiff, Light Brown and Gray Clay with Sand
R4-Moist, Stiff, Light Brown and Gray Sandy Clay
S4-Moist, Medium Stiff, Light Brown and Gray Clay
T4-Moist, Medium Stiff, Light Brown and Gray Sandy Clay
U4-CLAY WITH FREQUENT LIMESTONE LAYERS
V4-Moist, Soft, Light Brown Sandy Clay with Some Gravel
W4-Moist, Medium Stiff, Brown Sandy Lean Clay with Trace Gravel
X4-Moist, Medium Stiff, Brown and Gray Fat Clay with Sand and Trace Gravel
Y4-Wet, Medium Stiff, Brown and Gray Sandy Lean Clay with Some Gravel
Z4-Wet, Very Soft, Brown Lean Clay
A5-Wet, Stiff, Brown Lean Clay with Trace Organic Matter
B5-Moist, Stiff, Brown and Gray Lean Clay
C5-Moist, Stiff, Brown and Gray Lean Clay with Sand
D5-Wet, Medium Dense, Light Brown and Gray Clayey Sand
E5-Wet, Medium Dense, Brown and Gray Silty Sand
F5-Moist, Very Stiff, Dark Gray Fat Clay (Arkadelphia Formation)
G5-Moist, Hard, Dark Gray Fat Clay

PRINT DATE: 6/5/2019

"N" VALUES

Sta. 265+78 - 13.5' Right of C.L. Construction

5.5 - 6.5,N=10
10.0 - 11.0,N=8
15.5 - 16.5,N=10
20.5 - 21.5,N=6
25.5 - 26.5,N=13
30.5 - 31.5,N=9
35.5 - 36.5,N=11
40.5 - 41.5,N=7
45.5 - 46.5,N=12
50.5 - 51.5,N=5
55.5 - 56.5,N=8
60.5 - 61.5,N=12
65.5 - 66.5,N=20
70.5 - 71.5,N=33
75.5 - 76.5,N=26
80.5 - 81.5,N=34
85.5 - 85.5,N=60(0")
90.5 - 91.5,N=34
95.5 - 96.5,N=30
100.5 -101.5,N=27

Sta. 266+60.5 - 22' Right of C.L. Construction

5.3 - 6.3,N=5
10.3 - 11.3,N=9
15.5 - 16.5,N=12
20.5 - 21.5,N=11
25.5 - 26.5,N=6
30.5 - 31.5,N=5
35.5 - 36.5,N=6
40.5 - 41.5,N=24
45.5 - 46.5,N=28
50.5 - 51.5,N=34
55.5 - 55.9,N=30(5")
60.5 - 61.5,N=42
65.5 - 66.5,N=34
70.5 - 71.5,N=33
75.5 - 76.5,N=37
80.5 - 81.5,N=33
85.5 - 86.5,N=34
90.5 - 90.7,N=60(2")
95 - 95.2,N=60(2")
100.0 - 100.0,N=10(0")

Sta. 269+16.5 - 22' Right of C.L. Construction

5.3 - 6.3,N=9
10.3 - 11.3,N=9
15.5 - 16.5,N=11
20.5 - 21.5,N=10
25.5 - 26.5,N=5
30.5 - 31.5,N=7
35.5 - 36.5,N=12
40.5 - 41.5,N=16
45.5 - 46.5,N=28
50.5 - 51.5,N=32
55.5 - 56.5,N=36
60.5 - 61.5,N=32
65.5 - 66.5,N=36
70.5 - 71.5,N=35
75.5 - 76.5,N=43
80.5 - 81.5,N=36
85.5 - 86.5,N=35
90.5 - 91.5,N=36
95.5 - 95.5,N=60(0")
100 - 100.2,N=79(2")

Sta. 273+24.5 - 27.75' Right of C.L. Construction

5.6 - 6.6,N=4
9.8 - 10.8,N=2
15.5 - 16.5,N=13
20.5 - 21.5,N=12
25.5 - 26.5,N=11
30.5 - 31.5,N=8
35.5 - 36.5,N=6
40.5 - 41.5,N=10
45.5 - 46.5,N=18
50.5 - 51.5,N=30
55.5 - 56.5,N=33
60.5 - 61.5,N=37
65.5 - 66.5,N=36
70.5 - 71.5,N=37
75.5 - 76.5,N=31
80.5 - 80.9,N=34(5")
85.5 - 86.5,N=38
90.5 - 91.5,N=52
95.5 - 95.9,N=75(5")
100.5 - 101.5,N=35

Sta. 274+65.5 - 6.25' Right of C.L. Construction

5.4 - 6.4,N=2
10.4 - 11.4,N=7
15.5 - 16.5,N=5
20.5 - 21.5,N=6
25.5 - 26.5,N=0
30.5 - 31.5,N=15
35.5 - 36.5,N=15
40.5 - 41.5,N=12
45.5 - 46.5,N=10
50.5 - 51.5,N=13
55.5 - 56.5,N=20
60.5 - 61.5,N=16
65.5 - 66.5,N=31
70.5 - 71.5,N=31
75.5 - 76.5,N=35
80.5 - 81.5,N=34
85.5 - 86.5,N=37
90.5 - 91.5,N=33
95.5 - 96.5,N=37
100.5 - 101.0,N=38(6")

STATE OF ARKANSAS
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6-11-19
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SHEET 5 OF 5
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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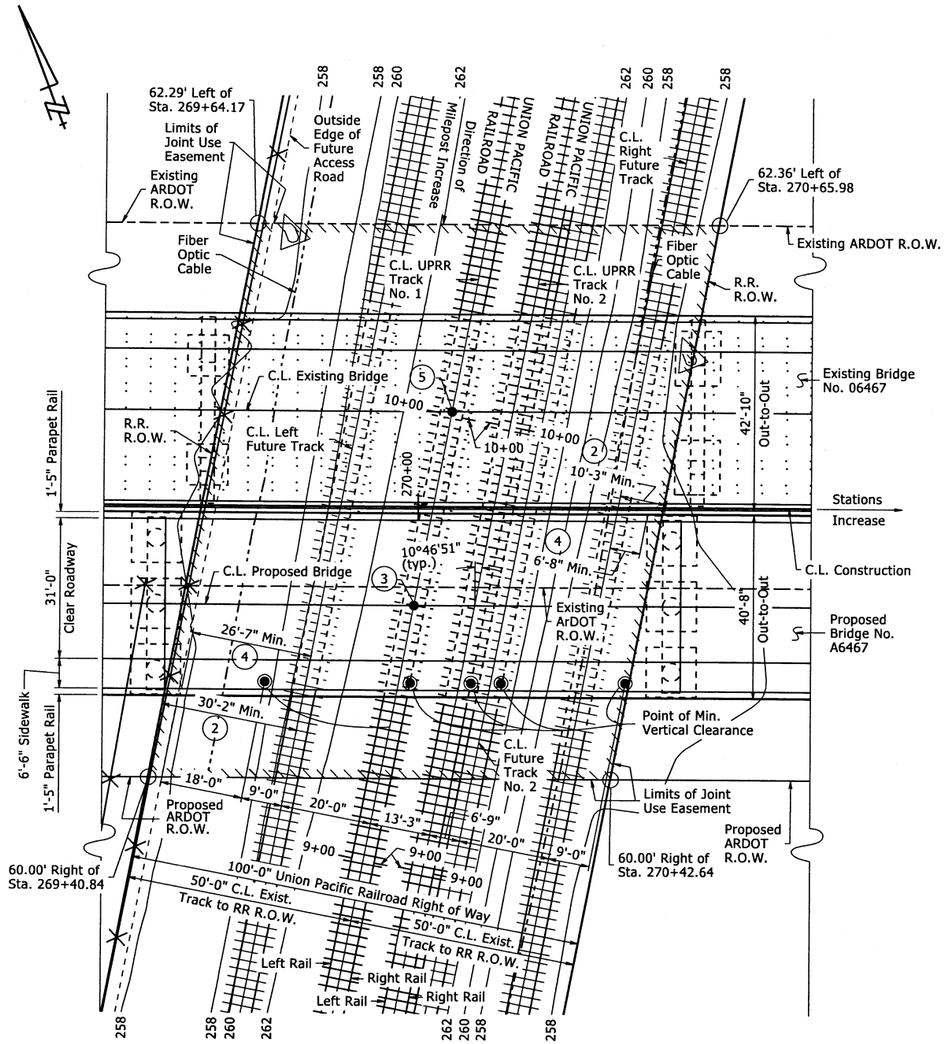
				6	ARK.			
				JOB NO.		061509	189	349
				(1) A6467 - EXHIBIT A - 60810				



LOCATION PLAN

No Scale

GENERAL NOTES:

All shoring systems that impact the Railroad's operations and/or supports the Railroad's embankment shall be designed and constructed per the Railroad temporary shoring requirements.

All demolition within the Railroad right-of-way and/or demolition that may impact the Railroad tracks or operations shall comply with the Railroad demolition requirements.

Erection over the Railroad right-of-way shall be designed to cause no interruption to all Railroad operations. Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site, and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.

The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.

The proposed grade separation project shall not change the quantity and/or characteristics of the flow in the Railroad ditches and/or drainage structures. Existing drainage patterns will be maintained. Closed parapet railing (no deck drains) are typical on both sides of the bridge deck over the Railroad right-of-way.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

Construction shall comply with requirements noted in Special Provision Job No. 061509 "Insurance, Construction, and Flagging, Requirements on Railroad Property (UPRR)".

Temporary construction clearances, including falsework clearances, shall comply with the details shown in "Minimum Construction Clearances".

All permanent clearances shall be verified before project closeout.

Currently there are no known utilities on the Railroad right-of-way other than shown. UPRR "Call Before You Dig" 1-800-533-2891 shall be contacted prior to construction.

"The State shall not plow ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure ". This statement is in the State-Railroad Agreement.

(2) Minimum horizontal clearance at face of bent.

(3) Intersection of C.L. New Bridge and C.L. Existing UPRR Track No.1 at Sta. 269+99.17, Approx. Railroad Mile Post 325.61.

(4) Minimum horizontal clearance at face of footing.

(5) Intersection of C.L. Existing Bridge and C.L. Existing UPRR Track No.1 at Sta. 270+7.33, Approx. Railroad Mile Post 325.61.

(6) C.L. Left Future Track

(7) C.L. UPRR Track No. 1

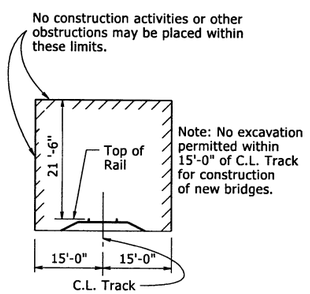
(8) C.L. UPRR Track No. 2

(9) C.L. Future Track No. 2

(10) C.L. Right Future Track. If the Right Future Track is constructed, its embankment will fill in the UPRR ditch. Relocation of this ditch to the east side of Bent 6 will be acceptable as it will not cause any adverse affects to the bridge structure.

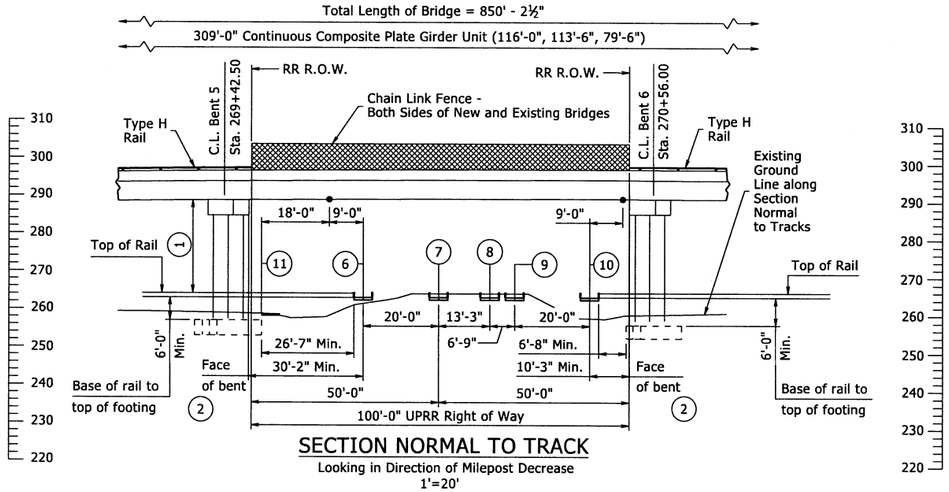
(11) Outside Edge of Future Access Road

Track	Location	(1) Min. Vert. Clear.
UPRR Track No. 1	At Right Rail	24'-1"
	29'-0" Left of C.L. Track	23'-9"
UPRR Track No. 2	At Right Rail	23'-11"
	35'-9" Right of C.L. Track	23'-11"
Future Track No. 2	At Right Rail	23'-11"



MINIMUM CONSTRUCTION CLEARANCES

Normal to Track
No Scale



SECTION NORMAL TO TRACK

Looking in Direction of Milepost Decrease
1"=20'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 4
EXHIBIT A
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY
ROUTE 321 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 08/18 FILENAME: b061509_exA.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018
BRIDGE NO. A6467 DRAWING NO. 60810

PRINT DATE: 6/7/2019

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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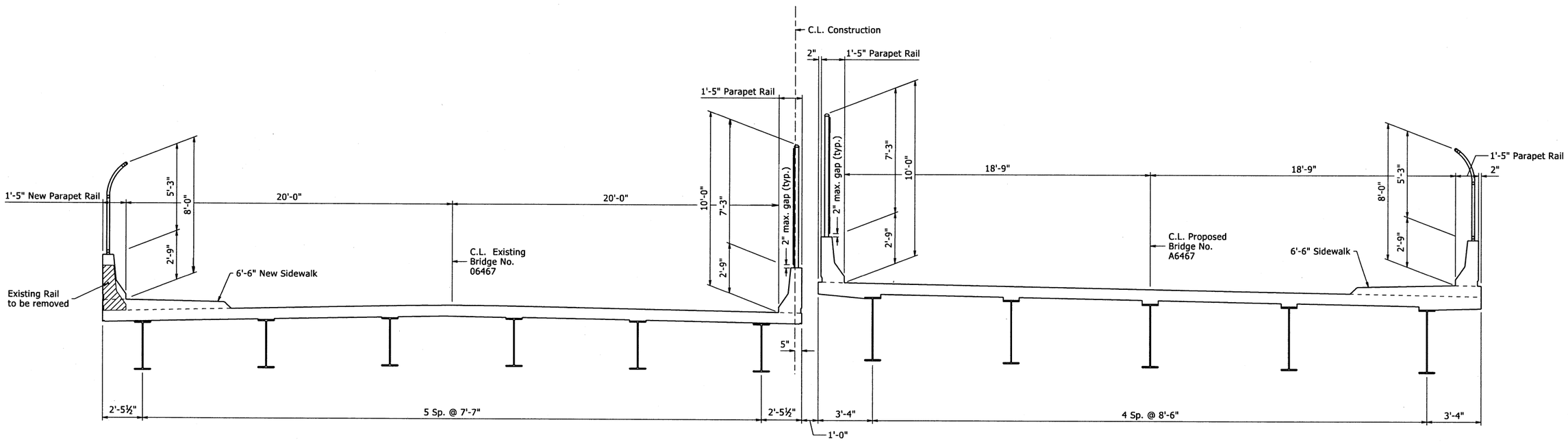
				JOB NO.		061509	190	449
				①	A6467 - EXHIBIT A - 60811			



TYPICAL SECTION
No Scale

NOTE: A Chain Link Fence is required on both sides of each bridge. The Fence shall be mounted on top of the concrete parapet rail and shall extend across the width of the Union Pacific Railroad Right of Way. For details of fence, see Dwg. No. 60851 and Dwg. No. 60852.

PRINT DATE: 6/7/2019

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
EXHIBIT A
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 07/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 06/2018
FILENAME: b061509_exA.dgn
SCALE: As Noted
BRIDGE NO. A6467
DRAWING NO. 60811

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.		061509	191	349
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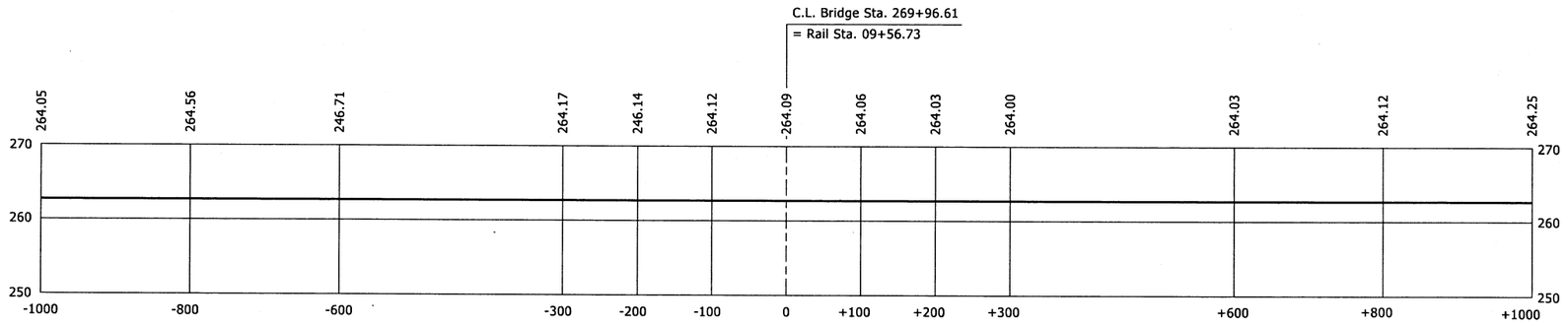
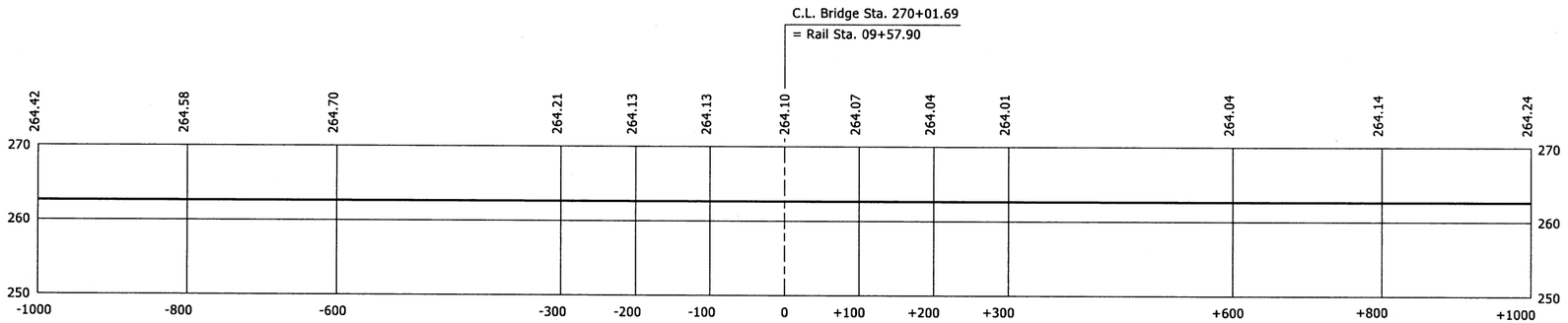


Direction of Milepost Increase

PROFILE ALONG TOP OF LEFT RAIL OF UPRR TRACK NO. 1

No Scale



Direction of Milepost Increase

PROFILE ALONG TOP OF RIGHT RAIL OF UPRR TRACK NO. 1

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 3 OF 4
EXHIBIT A
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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FILENAME: b061509_exA.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60812

PRINT DATE: 6/7/2019

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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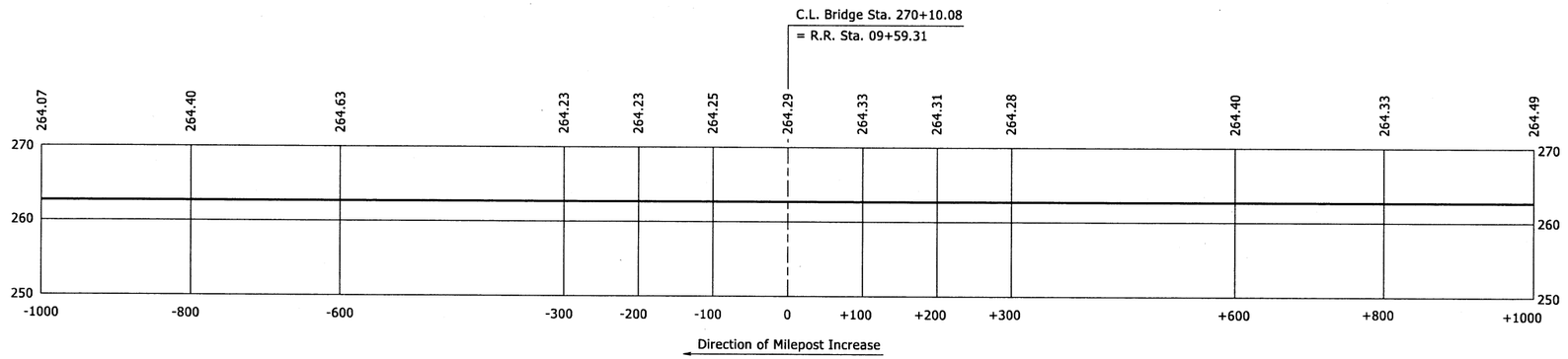
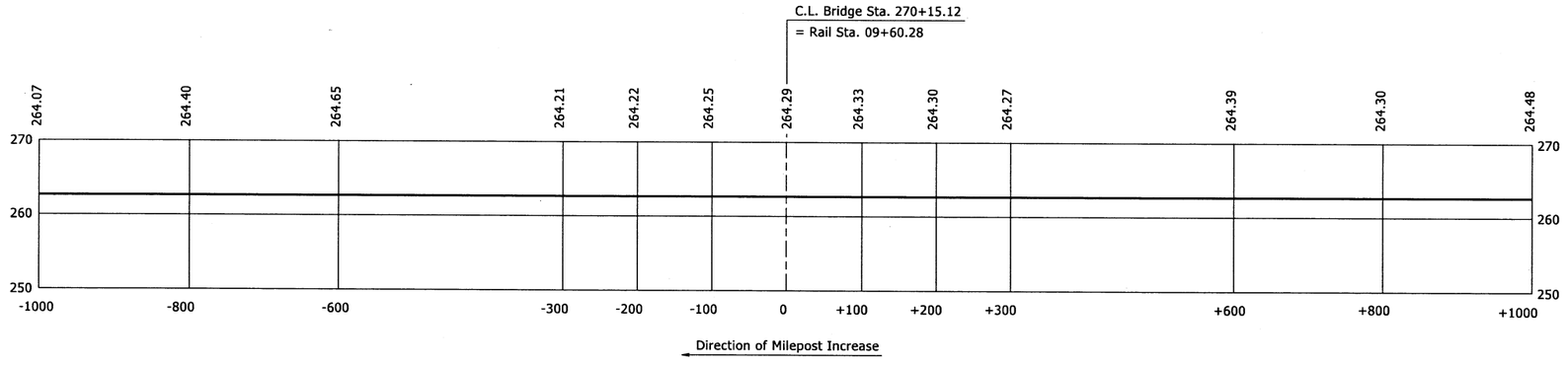
				A6467 - EXHIBIT A - 60813				



PROFILE ALONG TOP OF LEFT RAIL OF UPRR TRACK NO. 2

No Scale



PROFILE ALONG TOP OF RIGHT RAIL OF UPRR TRACK NO. 2

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-17-19

BRIDGE ENGINEER

SHEET 4 OF 4
EXHIBIT A
LAYOUT OF BRIDGE
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 05/2018

FILENAME: b061509_exA.dgn
SCALE: As Noted

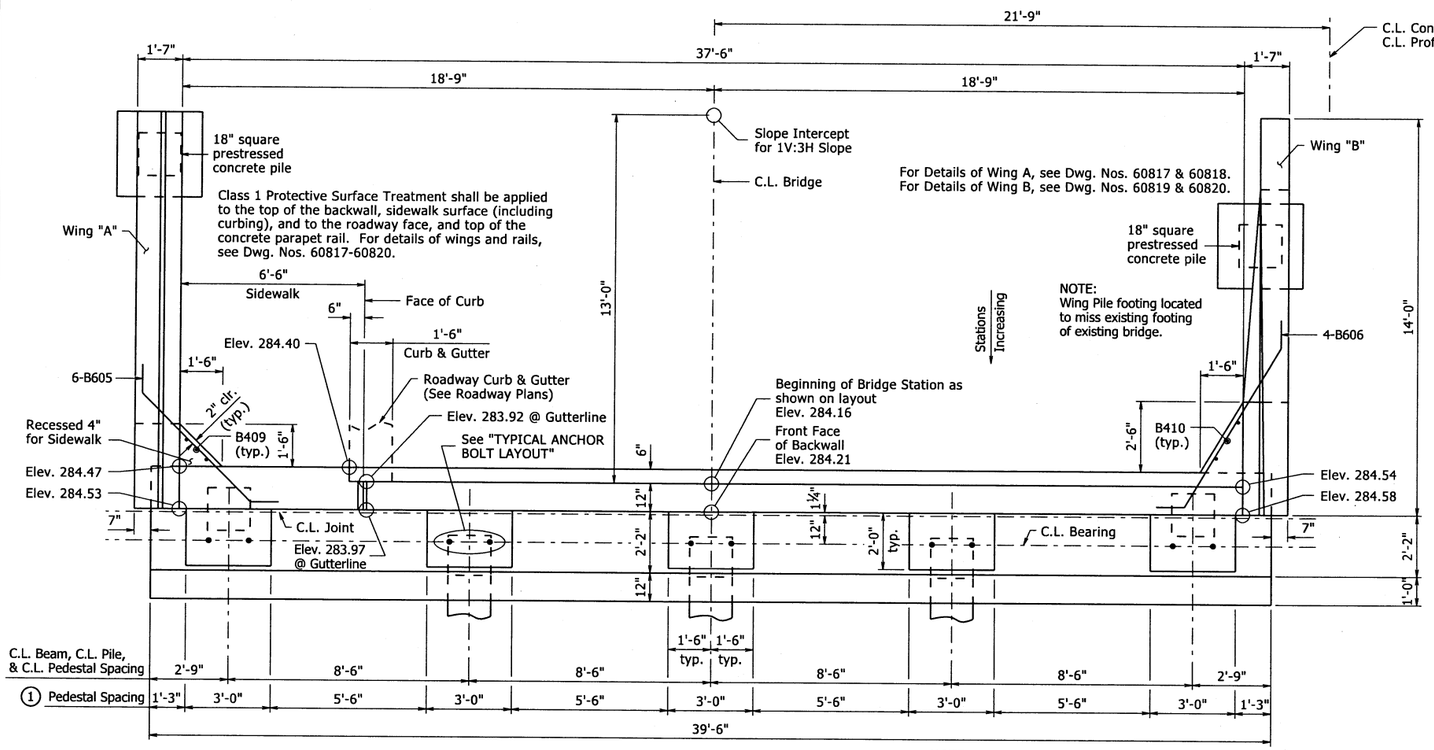
BRIDGE NO. A6467

DRAWING NO. 60813

PRINT DATE: 6/7/2019

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.		061509	193	349

A6467 - END BENTS - 60814



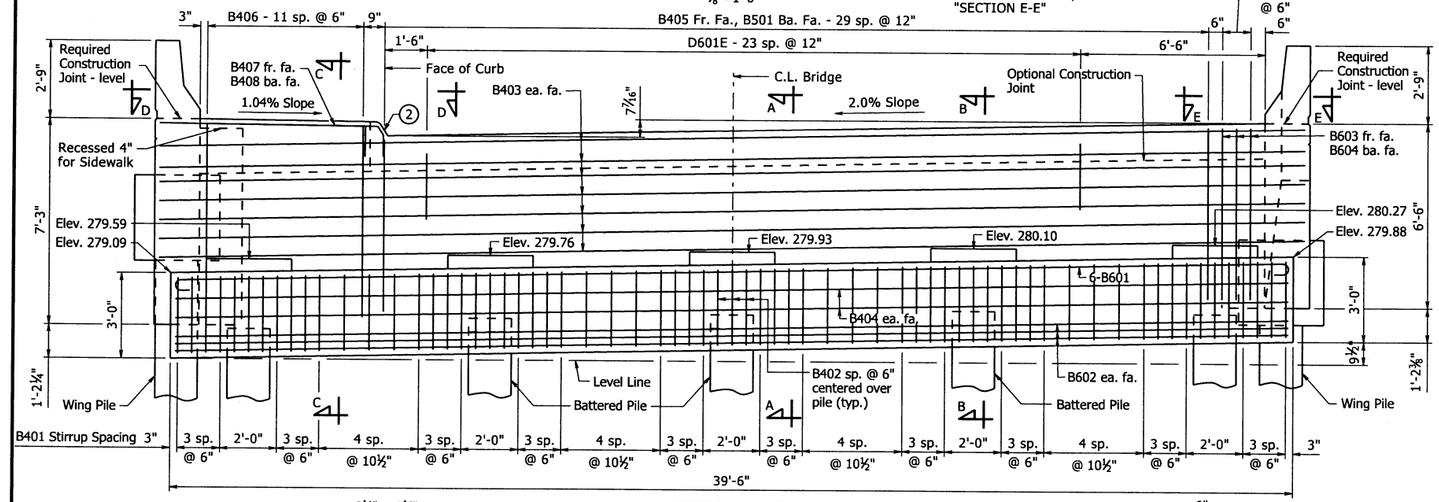
① Pedestals shall be cast level at the elevations shown.

② See "SIDEWALK & CURB DETAIL" on Dwg. No. 60815.

PLAN - BENT 1

⅜"=1'-0"

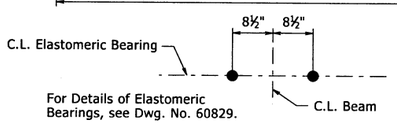
NOTE: See Dwg. No. 60817 for "SECTION D-D", & "SECTION E-E"



ELEVATION - BENT 1

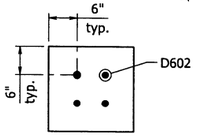
LOOKING BACK

⅜"=1'-0"



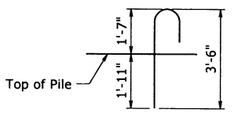
TYPICAL ANCHOR BOLT LAYOUT

NO SCALE



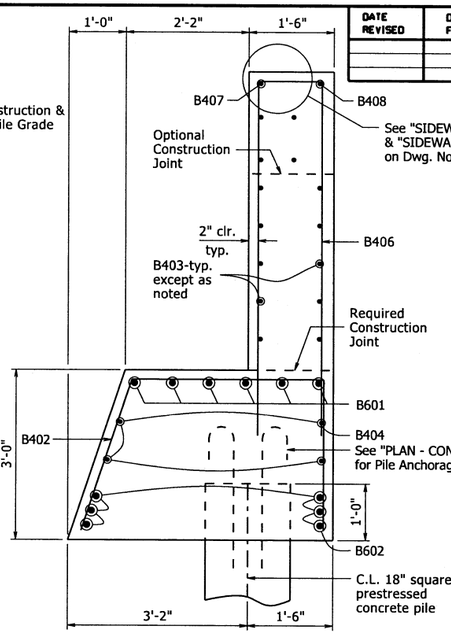
PLAN - CONCRETE PILE

NO SCALE



EMBEDMENT OF D602

NO SCALE



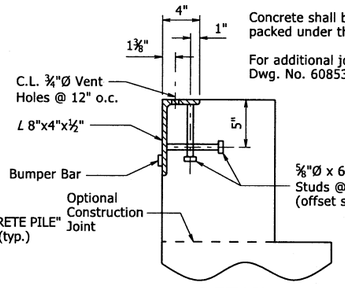
SECTION C-C

¾"=1'-0"

NOTES: Transverse spacing between vertical anchor studs and vent holes shall be 6".

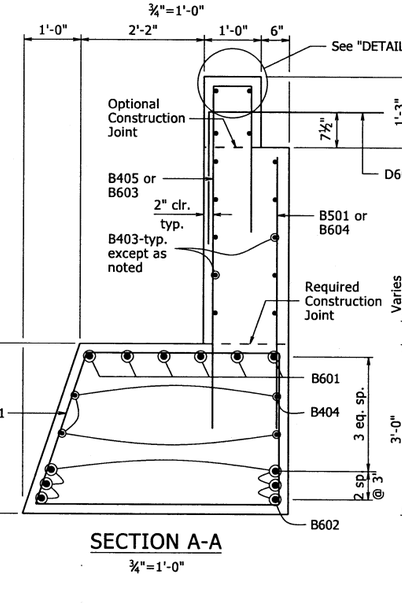
Concrete shall be hand packed under the joint armor.

For additional joint details, see Dwg. No. 60853



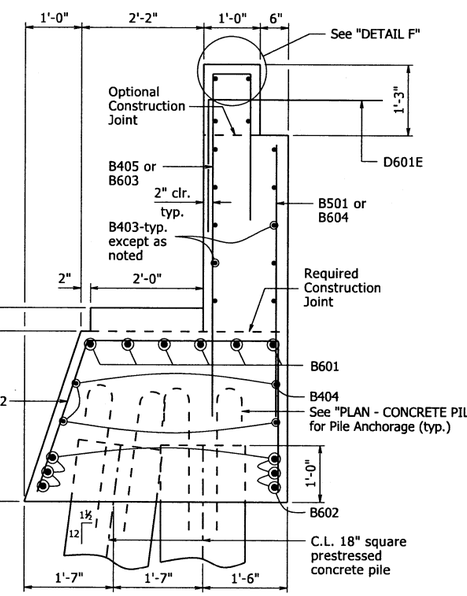
DETAIL F

NO SCALE



SECTION A-A

¾"=1'-0"



SECTION B-B

¾"=1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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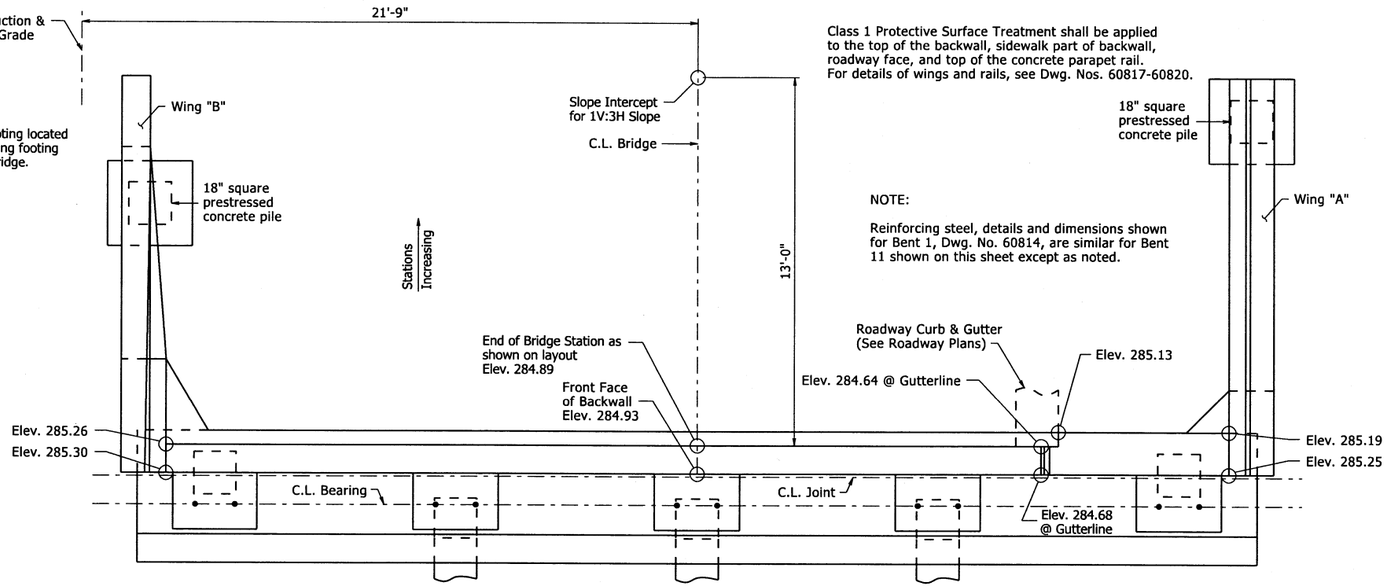
CHECKED BY:	DHP	DATE:	6/6/19	SCALE:	As Noted
DESIGNED BY:	DHP	DATE:	6/2018		

BRIDGE NO. A6467 DRAWING NO. 60814

PRINT DATE: 6/11/2019

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.		061509	194	349

(1) A6467 - END BENTS - 60815



PLAN - BENT 11

$\frac{3}{8}$"=1'-0"

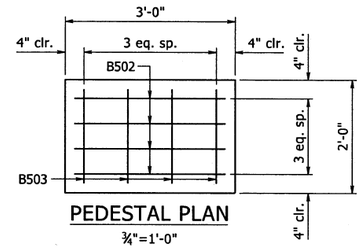
GENERAL NOTES:

For General Notes, see Std. Dwg. No. 55006.

For Joint Details see Dwg. No. 60853.

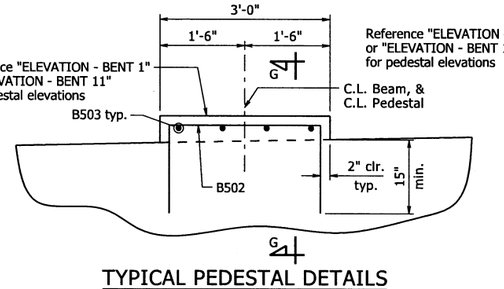
Structural steel in end bents shall be M270, Gr. 50W and shall be paid for as "Structural steel in Beam Spans (M270, Grade 50W)".

For additional information, see Layout.



PEDESTAL PLAN

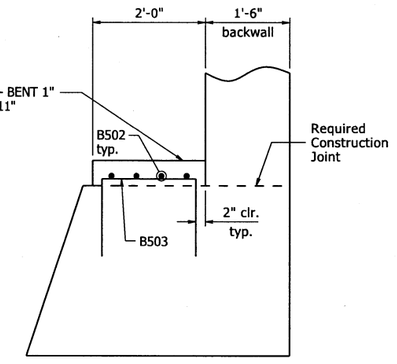
$\frac{3}{4}$"=1'-0"



TYPICAL PEDESTAL DETAILS

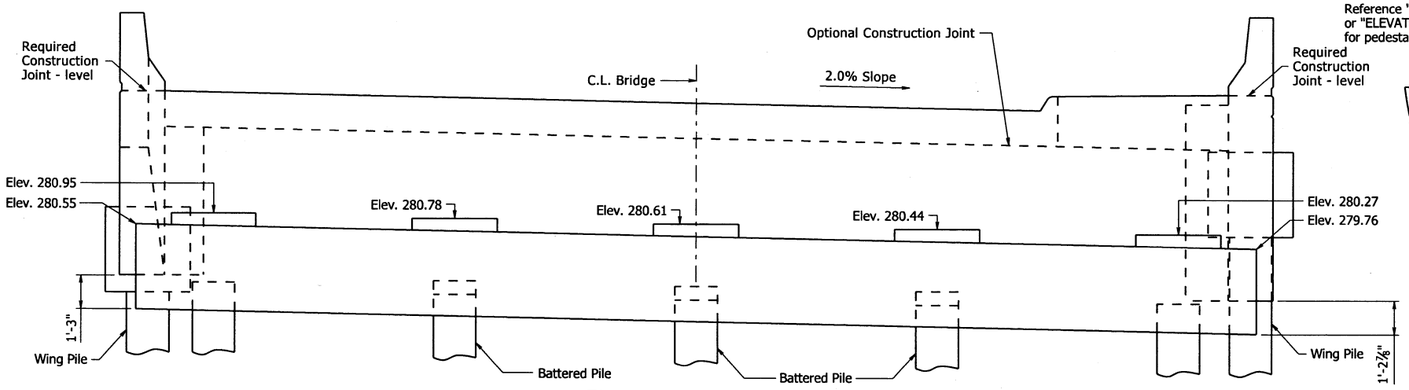
LOOKING BACK

$\frac{3}{4}$"=1'-0"



SECTION G-G

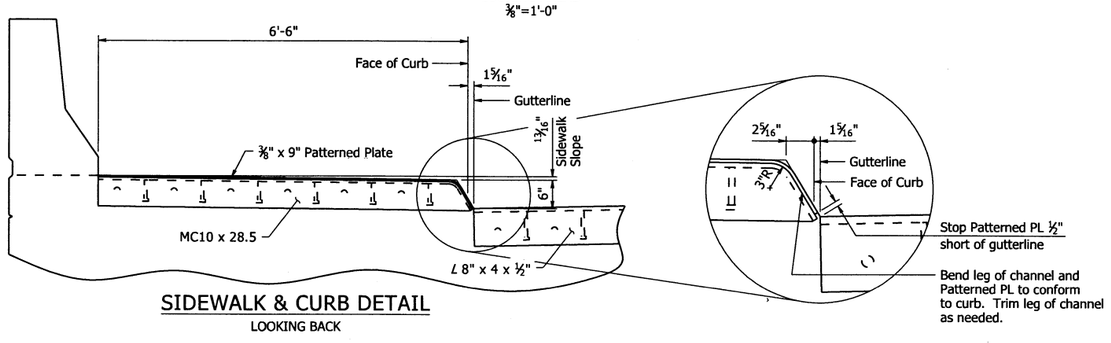
NO SCALE



ELEVATION - BENT 11

LOOKING AHEAD

$\frac{3}{8}$"=1'-0"



SIDEWALK & CURB DETAIL

LOOKING BACK

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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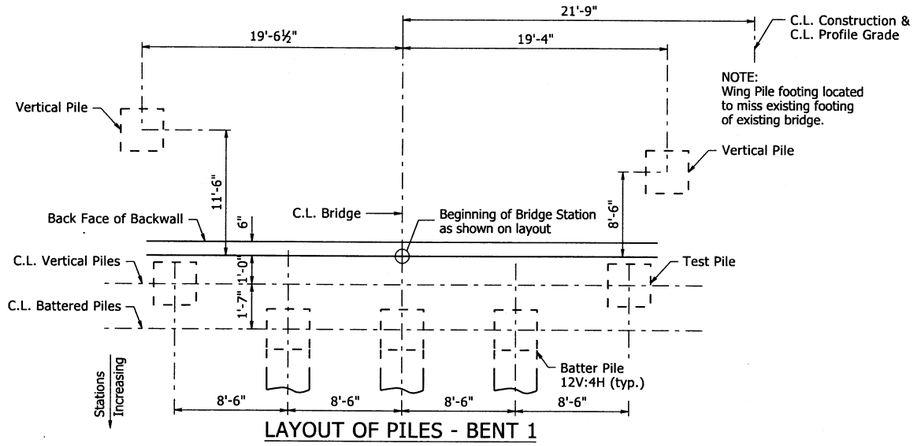
BRIDGE NO. A6467 DRAWING NO. 60815

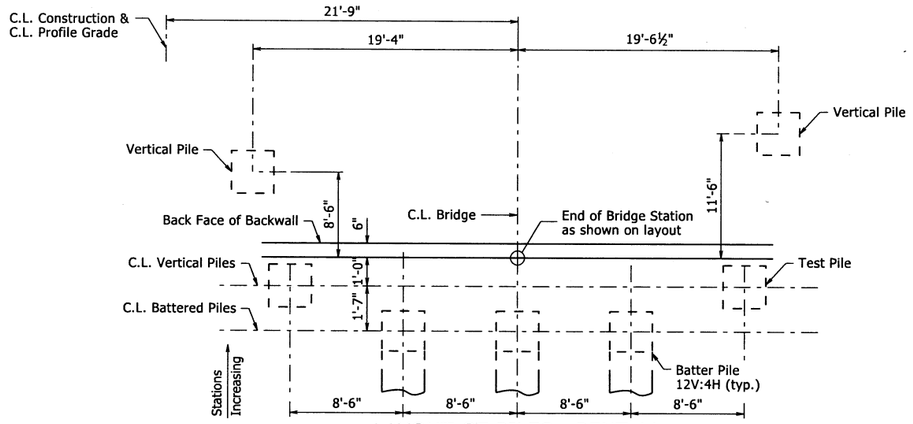
PRINT DATE: 6/11/2019

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.		061509	195	349

1 A6467 - END BENTS - 60816



LAYOUT OF PILES - BENT 1

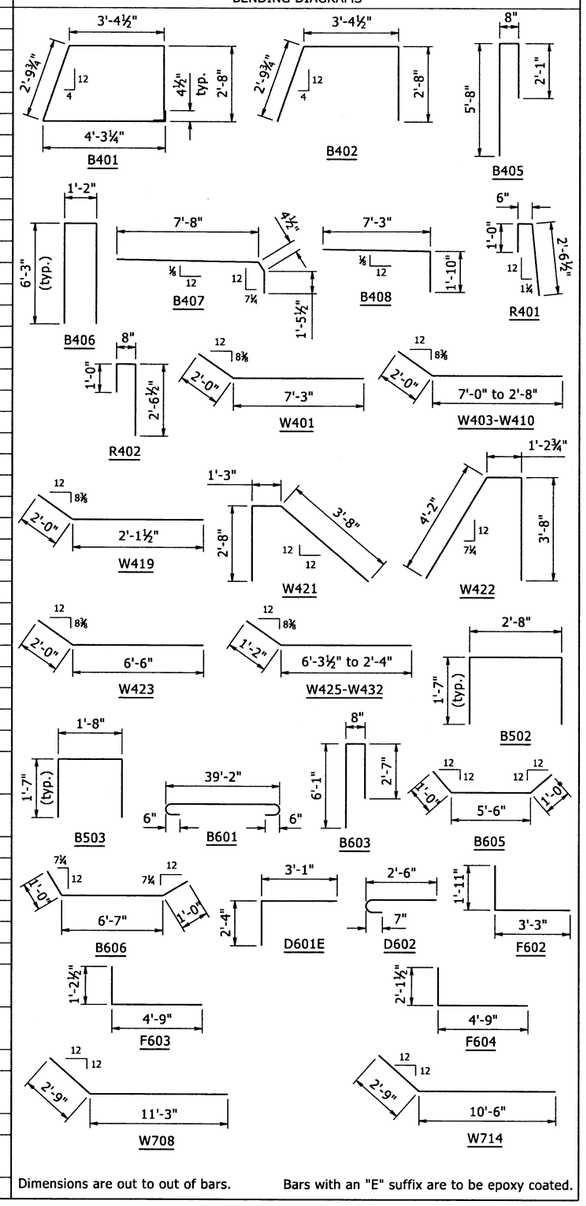


LAYOUT OF PILES - BENT 11

BAR LIST-PER BENT

MARK	NO. REQ'D	LENGTH	P.D.
B401	52	13'-6"	2"
B402	15	8'-10"	2"
B403	14	40'-4"	Str.
B404	4	39'-2"	Str.
B405	30	8'-3"	2"
B406	12	13'-6"	2"
B407	1	9'-5"	2"
B408	1	9'-0"	2"
B409	3	6'-7"	Str.
B410	3	4'-11"	Str.
B501	30	4'-8"	Str.
B502	20	5'-7"	2½"
B503	20	4'-7"	2½"
B601	6	40'-6"	4½"
B602	6	39'-2"	Str.
B603	3	9'-1"	4½"
B604	3	4'-10"	Str.
B605	6	7'-6"	4½"
B606	4	8'-7"	4½"
D601E	24	5'-3"	4½"
D602	40	3'-2"	4½"
F601	12	2'-8"	Str.
F602	8	5'-1"	4½"
F603	4	5'-10"	4½"
F604	4	6'-9"	4½"
R401	23	3'-11"	2"
R402	4	4'-0"	2"
R403	12	13'-8"	Str.
R601	8	4'-5"	Str.
W401	3	9'-3"	2"
W402	3	9'-7"	Str.
W403-W410	1 ea.	9'-0" to 4'-8"	2"
W411-W418	1 ea.	9'-4" to 4'-11"	Str.
W419	4	4'-2"	2"
W420	4	4'-5"	Str.
W421	3	7'-6"	2"
W422	3	9'-0"	2"
W423	4	8'-6"	2"
W424	4	8'-9"	Str.
W425-W432	1 ea.	7'-6" to 3'-6"	2"
W433-W440	1 ea.	8'-7" to 4'-7"	Str.
W701	12	13'-8"	Str.
W702-W707	1 ea.	9'-11" to 3'-11"	Str.
W708	2	14'-0"	5¼"
W709-W713	1 ea.	10'-3" to 4'-11"	Str.
W714	2	13'-3"	5¼"

BENDING DIAGRAMS



Dimensions are out to out of bars.

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6/1/19
BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60816

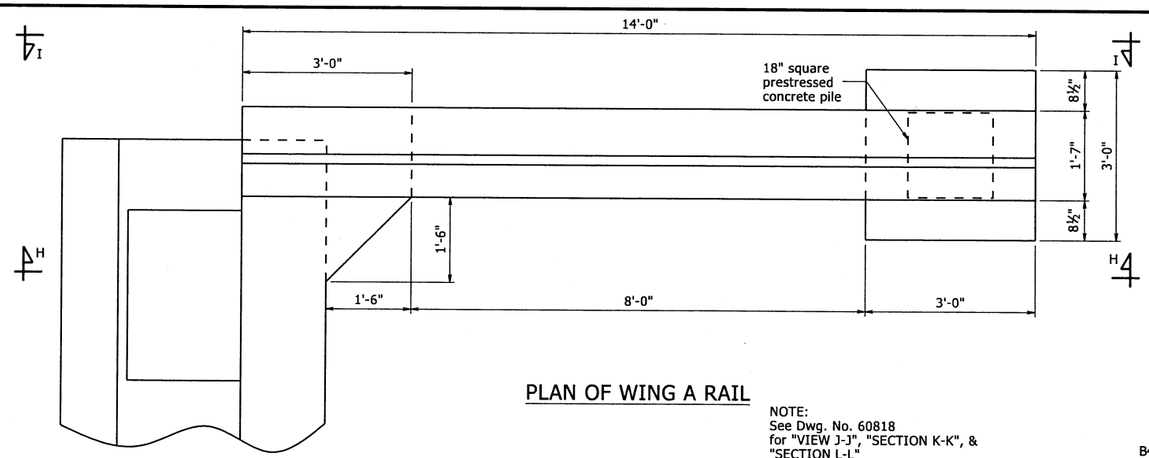
PRINT DATE: 6/6/2019

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.		061509	196	249

(1) A6467 - END BENTS - 60817

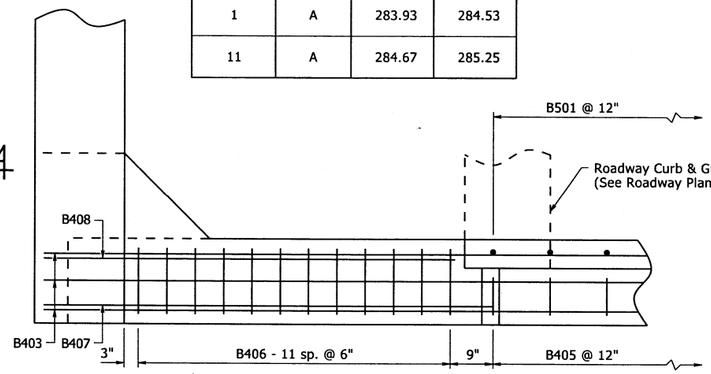
TABLE OF VARIABLES

BENT	WING	ELEV. "R"	ELEV. "S"
1	A	283.93	284.53
11	A	284.67	285.25

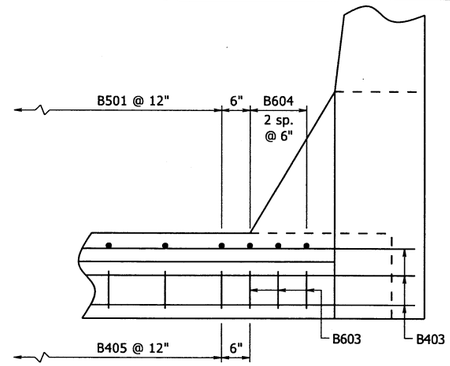


PLAN OF WING A RAIL

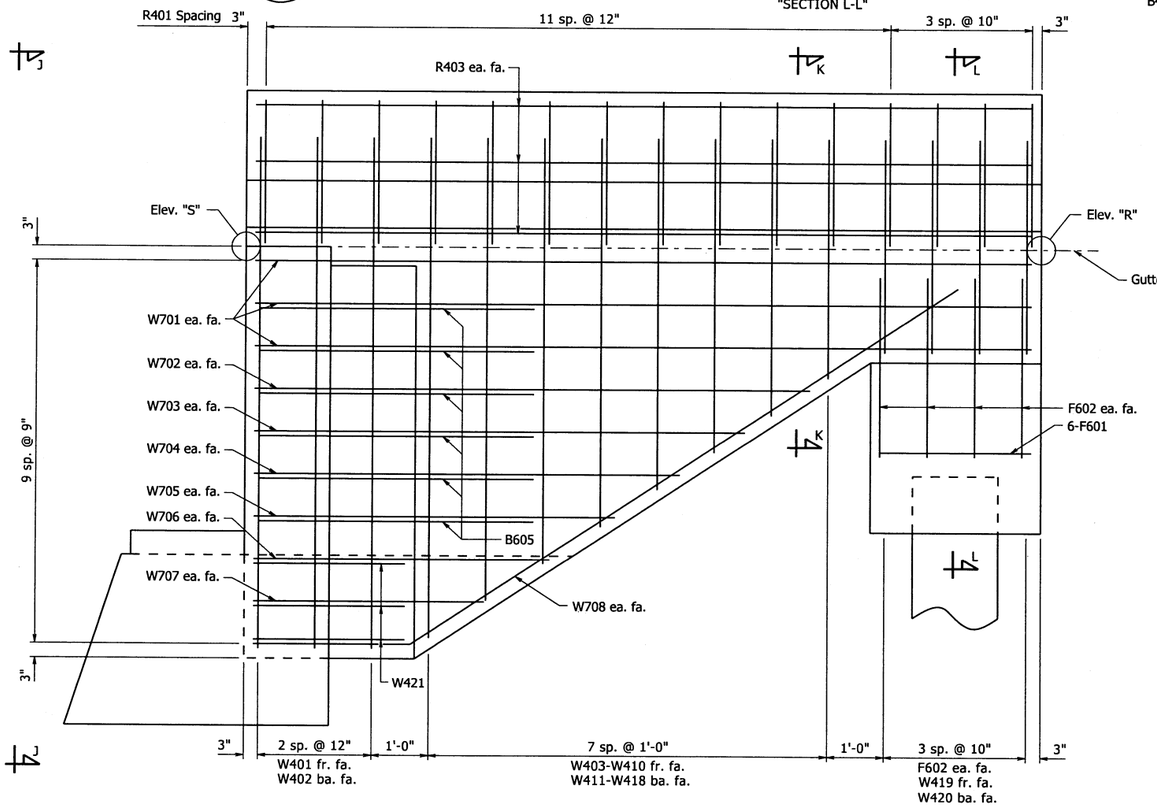
NOTE:
See Dwg. No. 60818
for "VIEW J-J", "SECTION K-K", &
"SECTION L-L"



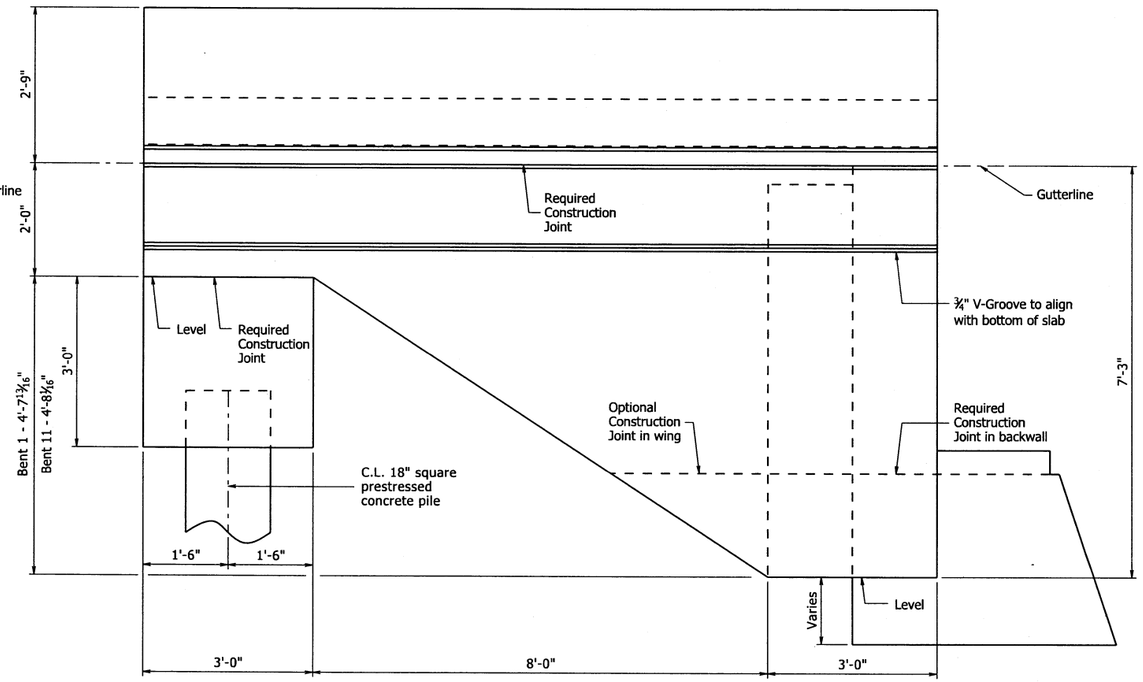
SECTION D-D



SECTION E-E



VIEW H-H



VIEW I-I

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/14/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 3/06/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x3_b1.dgn
SCALE: ¾"=1'-0"

BRIDGE NO. A6467
DRAWING NO. 60817

PRINT DATE: 6/11/2019

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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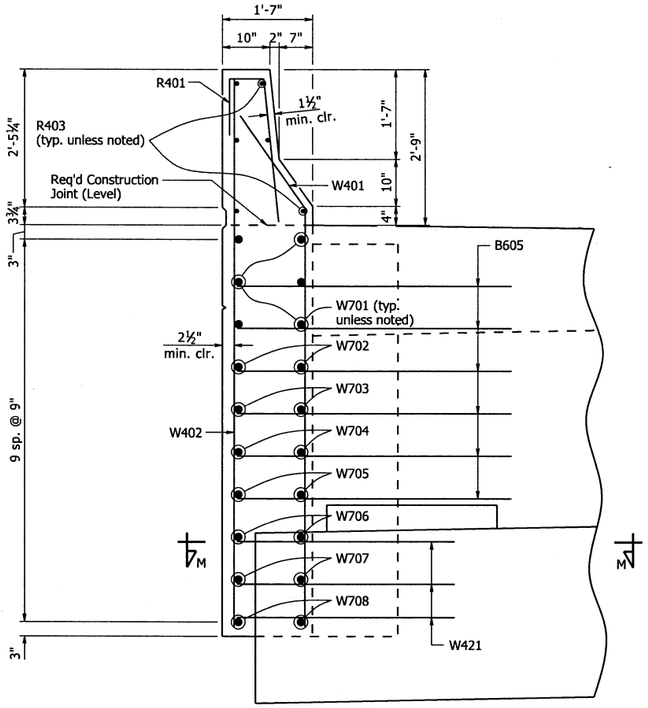
				JOB NO.		061509	197	349
				①		A6467 - END BENTS - 60818		



VIEW J-J

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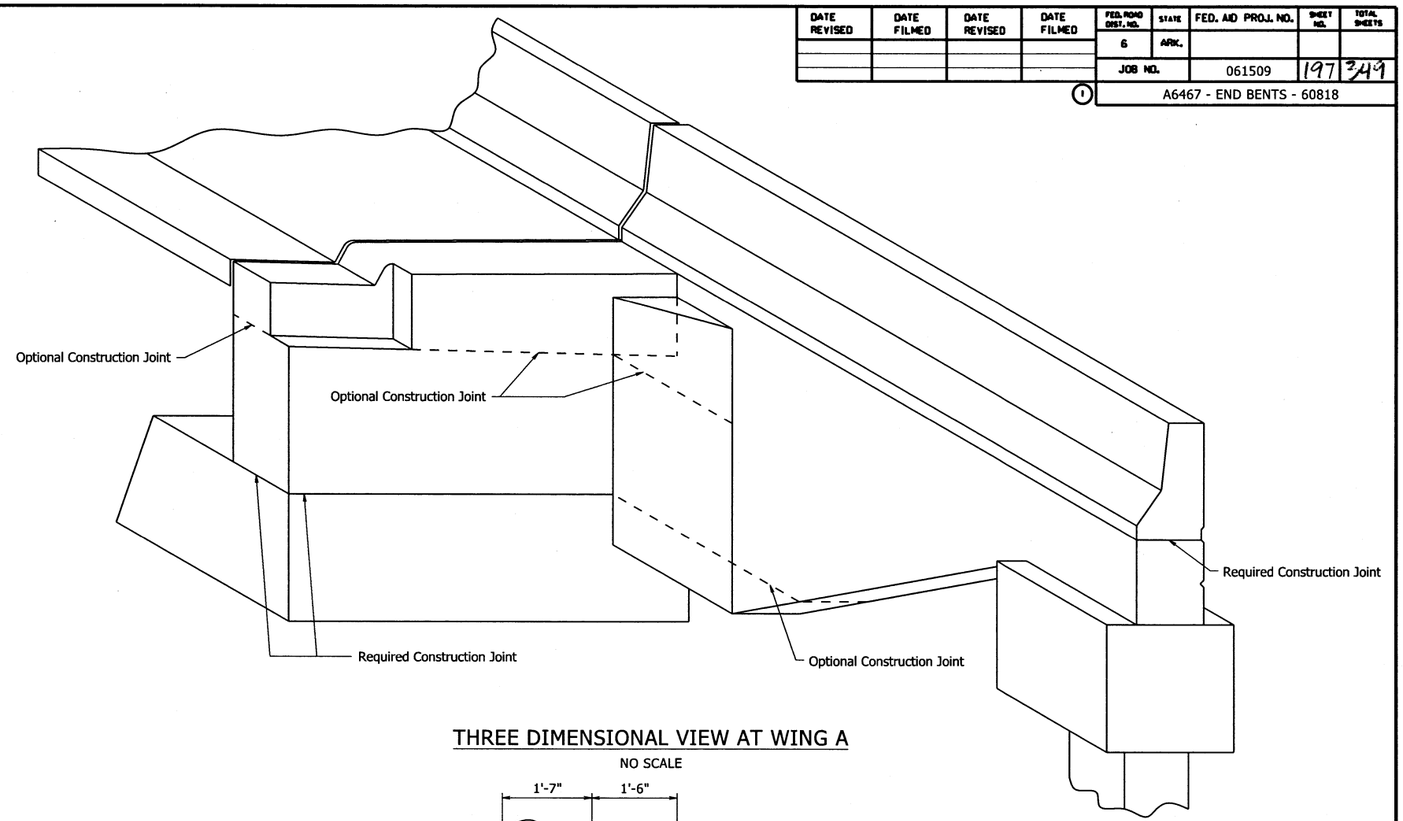
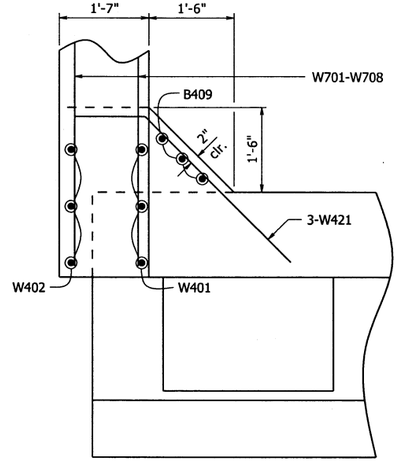


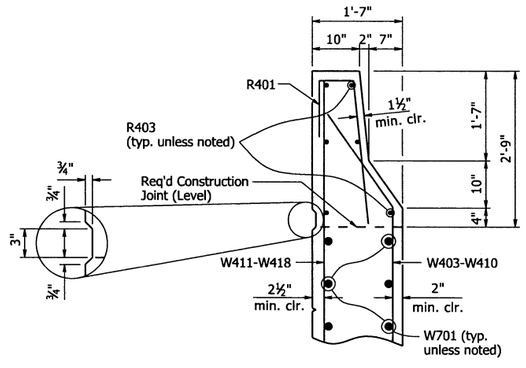
THREE DIMENSIONAL VIEW AT WING A

NO SCALE



SECTION M-M

¾"=1'-0"



SECTION K-K

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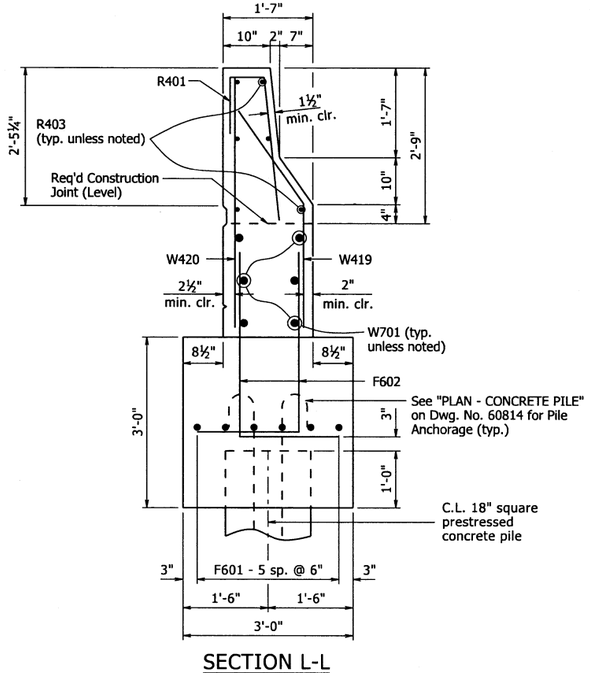


SECTION L-L

¾"=1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

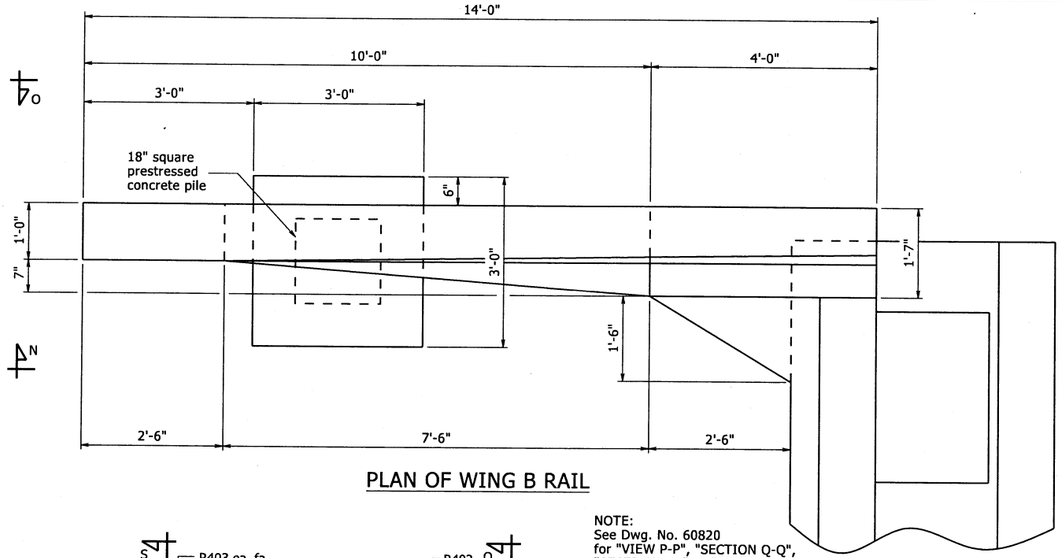
DRAWN BY: CGP DATE: 3/06/19 FILENAME: b061509x3_b1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60818

PRINT DATE: 6/6/2019

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.		061509	198	349

A6467 - END BENTS - 60819

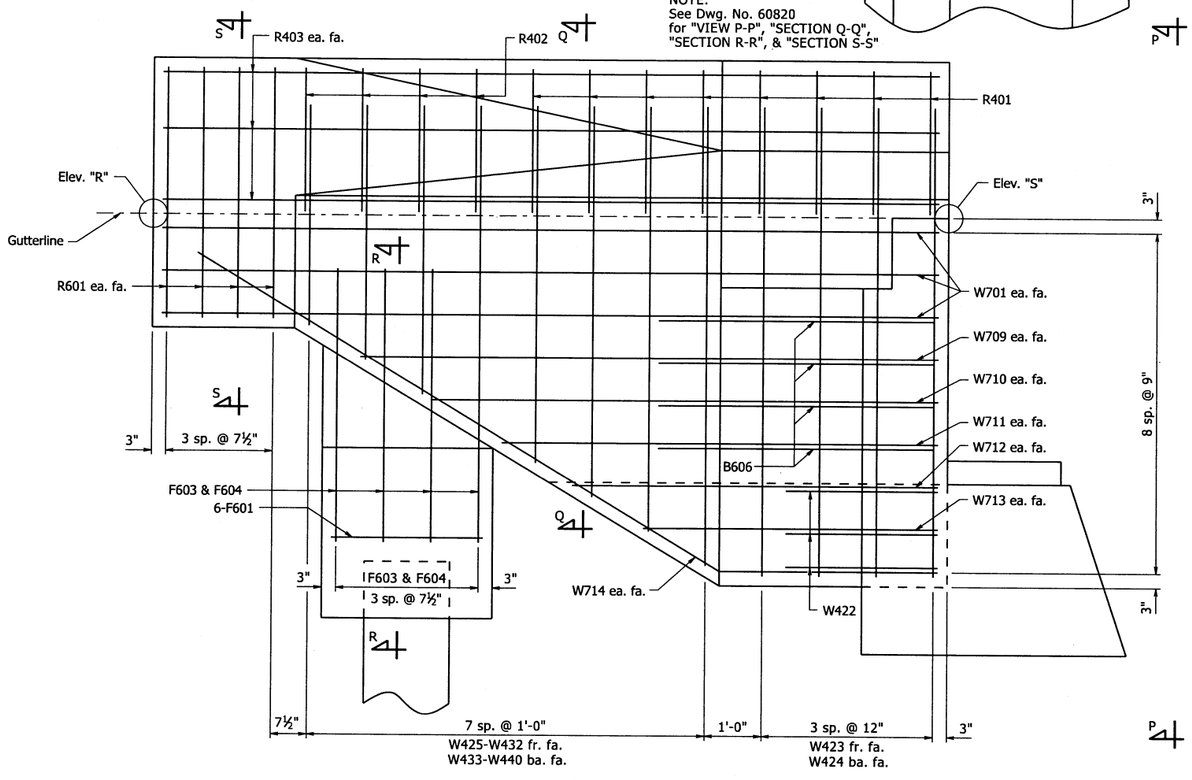


PLAN OF WING B RAIL

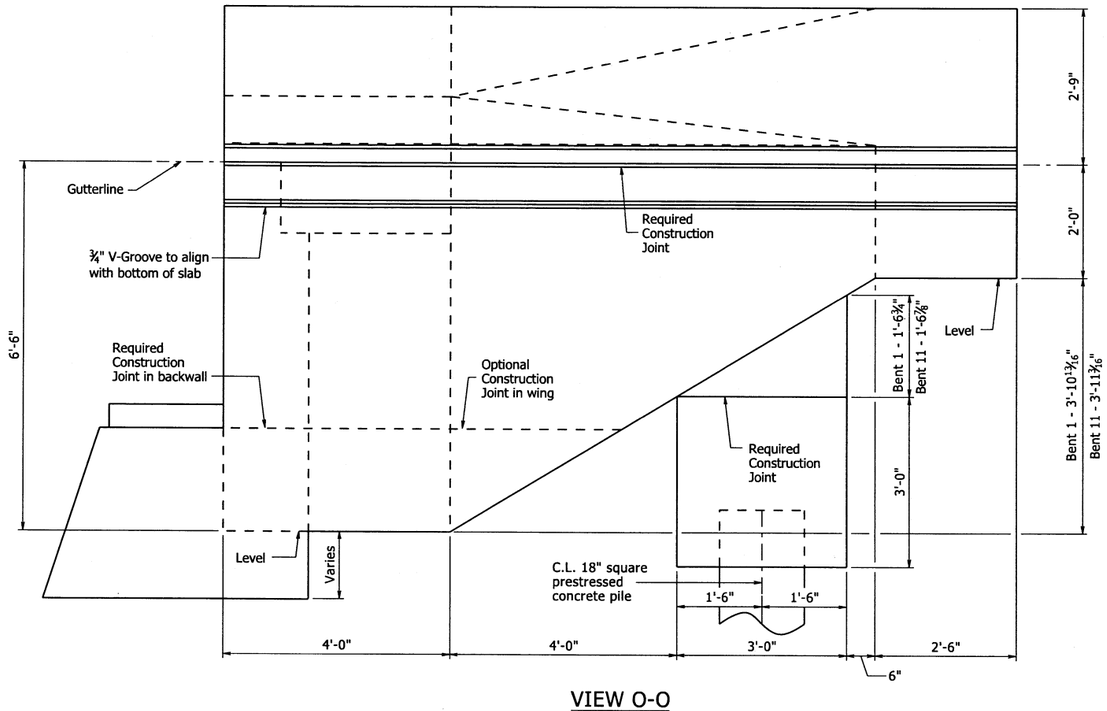
NOTE:
See Dwg. No. 60820
for "VIEW P-P", "SECTION Q-Q",
"SECTION R-R", & "SECTION S-S"

TABLE OF VARIABLES

BENT	WING	ELEV. "R"	ELEV. "S"
1	B	283.98	284.58
11	B	284.73	285.30



VIEW N-N



VIEW O-O

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 3/06/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x3_b1.dgn
SCALE: ¾"=1'-0"

BRIDGE NO. A6467 DRAWING NO. 60819

PRINT DATE: 6/11/2019

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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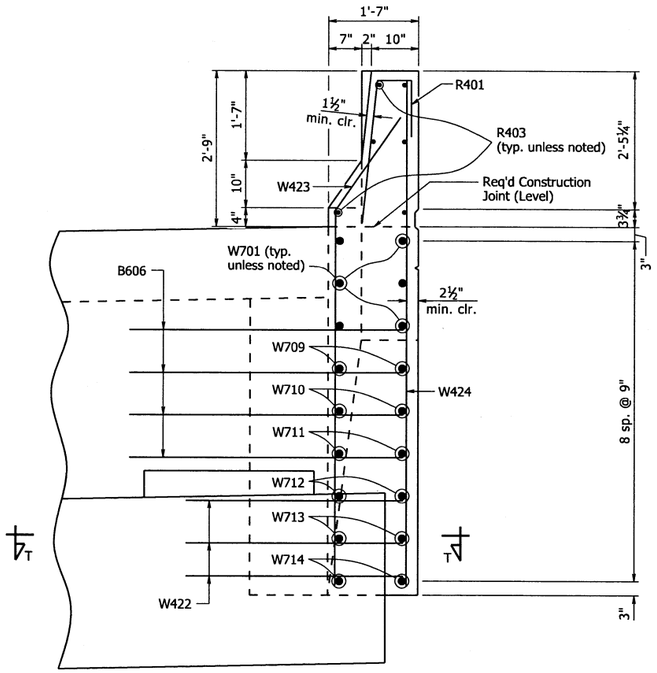
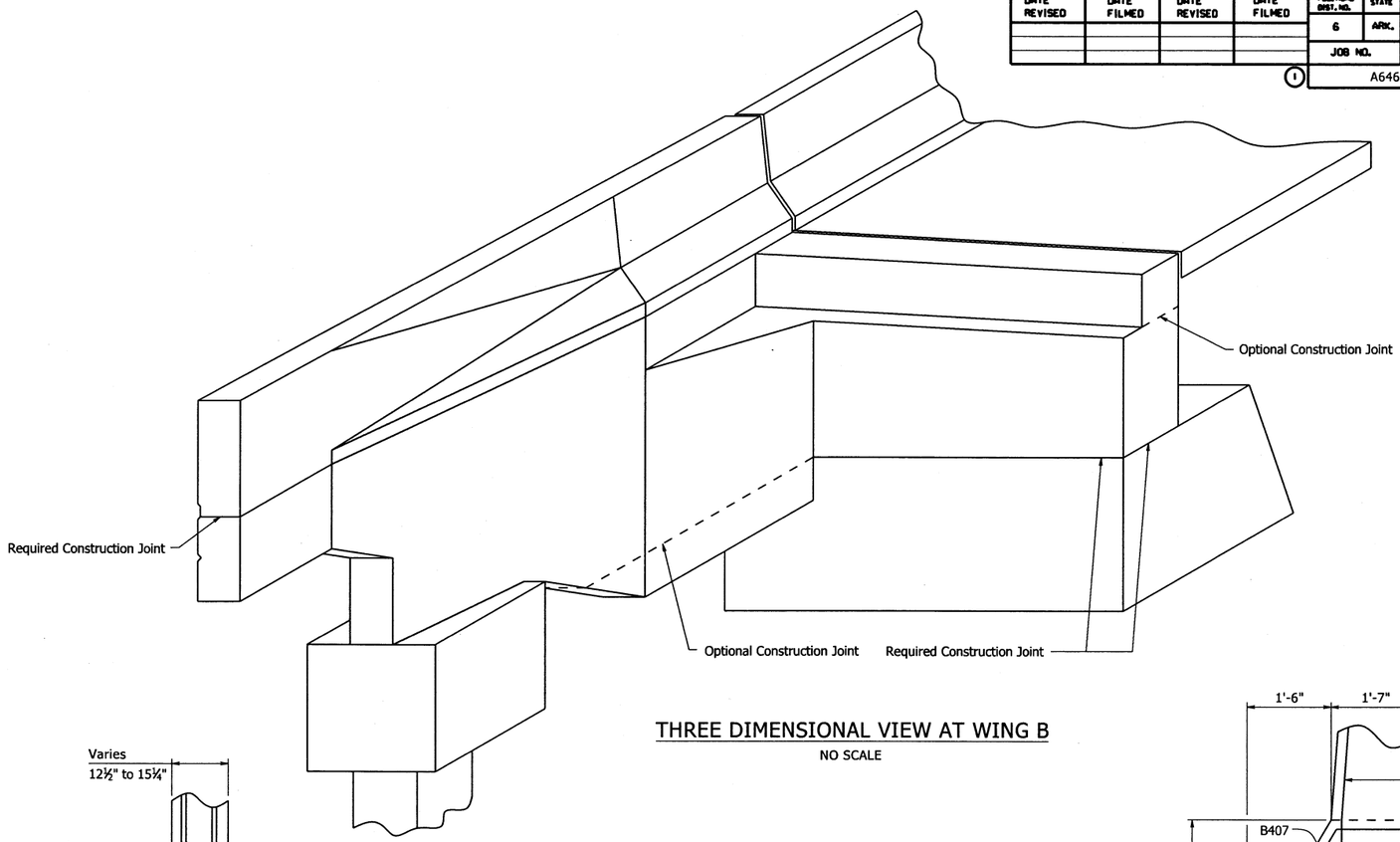
				JOB NO.		061509	199	349
				①	A6467 - END BENTS - 60820			



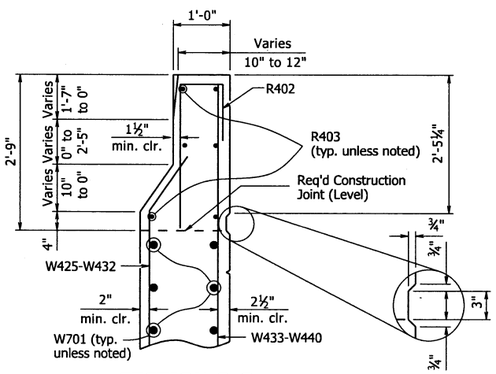
VIEW P-P

¾"=1'-0"



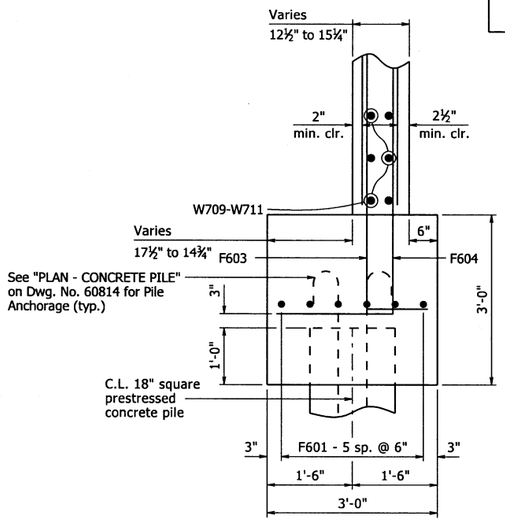
THREE DIMENSIONAL VIEW AT WING B

NO SCALE



SECTION Q-Q

¾"=1'-0"



SECTION R-R

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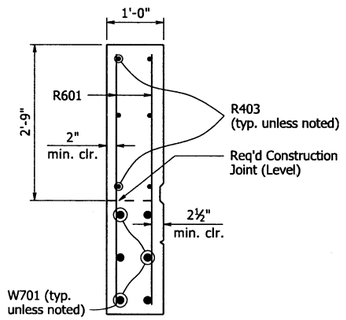

SECTION S-S

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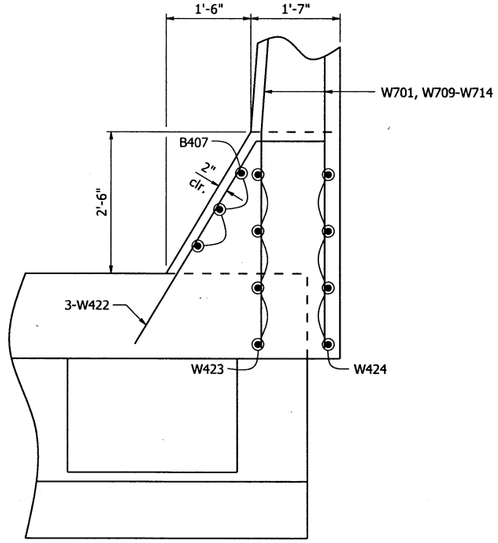


SECTION T-T

¾"=1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF END BENTS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

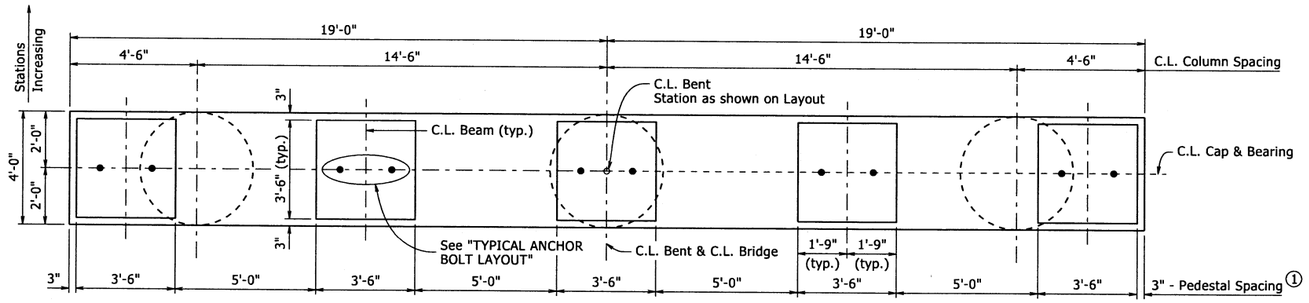
DRAWN BY: CGP DATE: 3/06/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x3_b1.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60820

PRINT DATE: 6/6/2019

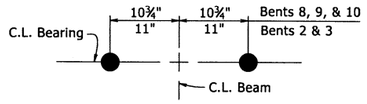
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	200	349
				①		A6467- INT. BENTS - 60821		

① Pedestals shall be cast level at the elevations shown



PLAN

⅜" = 1'-0"



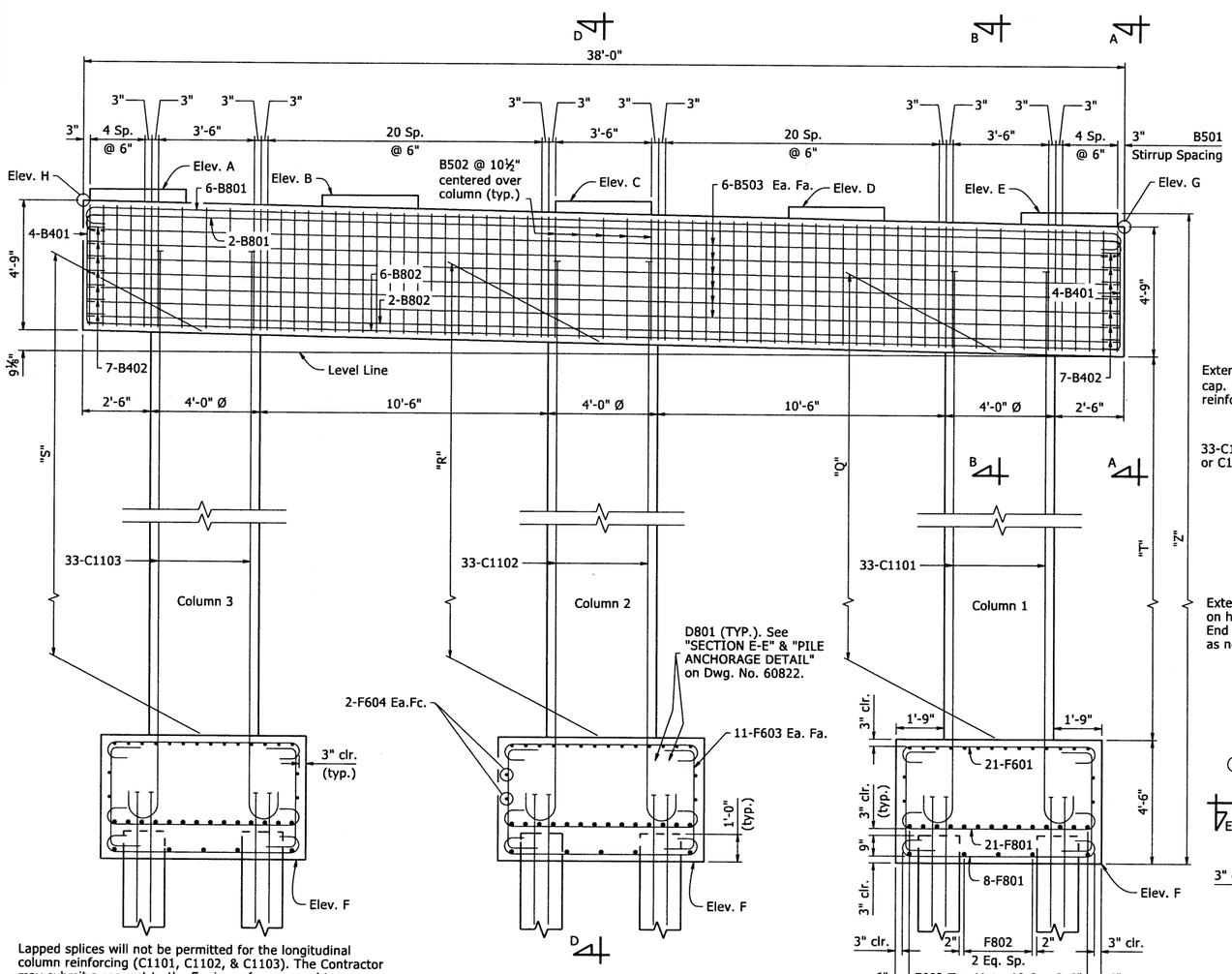
For Details of Elastomeric Bearings, See Dwg. No. 60829.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

Bent	2	3	8	9	10
"Elev. A"	282.91	285.48	287.76	285.95	283.51
"Elev. B"	282.74	285.31	287.59	285.78	283.34
"Elev. C"	282.57	285.14	287.42	285.61	283.17
"Elev. D"	282.40	284.97	287.25	285.44	283.00
"Elev. E"	282.23	284.80	287.08	285.27	282.83
"Elev. F"	251.73	251.30	251.58	250.27	252.33
"Elev. G"	281.74	284.31	286.59	284.78	282.34
"Elev. H"	282.50	285.07	287.35	285.54	283.10
"Q"	20'-10 3/16"	23'-10 3/16"	25'-10 3/16"	25'-4 3/16"	20'-10 3/16"
"R"	21-1 11/16"	24'-1 11/16"	26'-1 11/16"	25'-7 11/16"	21'-1 11/16"
"S"	21'-5 3/16"	24'-5 3/16"	26'-5 3/16"	25'-11 3/16"	21'-5 3/16"
"D1"	70.5	79.5	85.5	84	70.5
"D2"	71.5	80.5	86.5	85	71.5
"D3"	72.5	81.5	87.5	86	72.5
"E1"	818'-9"	918'-8"	985'-3"	968'-7"	818'-9"
"E2"	829'-10"	929'-9"	996-4"	979'-8"	829'-10"
"E3"	840'-11"	940'-10"	1007'-5"	990'-9"	840'-11"
"T"	20'-9⅛"	23'-9⅛"	25'-9⅛"	25'-3⅛"	20'-9⅛"
"Z"	30'-6"	33'-6"	35'-6"	35'-0"	30'-6"



Lapped splices will not be permitted for the longitudinal column reinforcing (C1101, C1102, & C1103). The Contractor may submit a request to the Engineer for approval to use mechanical couplers near the mid-height of the column. All work and materials to use mechanical couplers will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

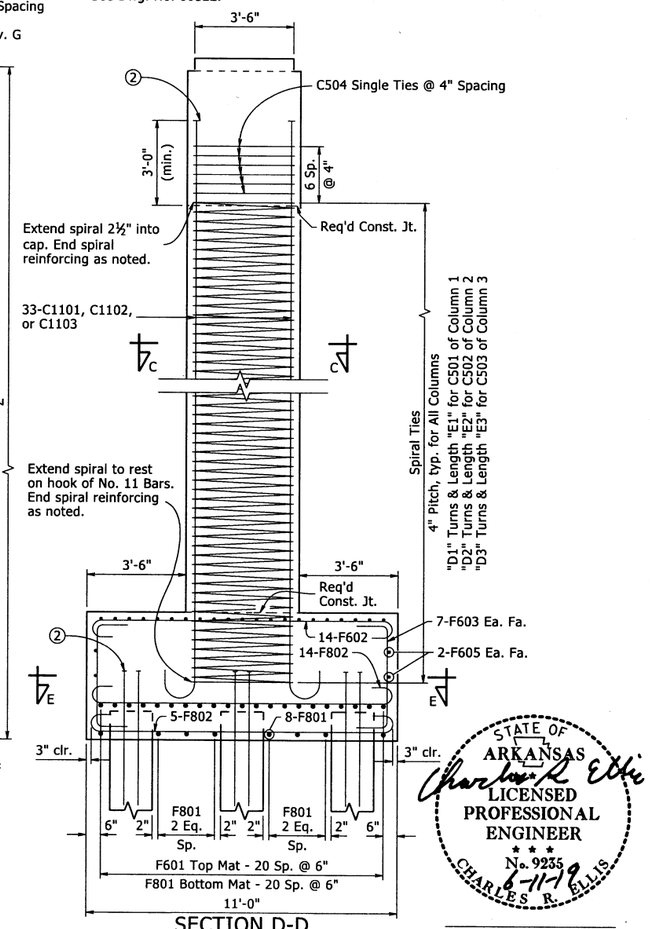
Note: Reinforcing for footings is typical.

ELEVATION

Looking Ahead

⅜" = 1'-0"

For "VIEW A-A", "SECTION B-B", "SECTION C-C", "SECTION E-E", "TYPICAL PEDESTAL", "PILE ANCHORAGE DETAIL", and "PLAN OF FOOTING", See Dwg. No. 60822.



SECTION D-D

⅜" = 1'-0"

GENERAL NOTES

For Standard General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M 31 or M 322, Type A, with mill test reports (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M 32 or M 225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling, or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 5'-0" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a mininum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with an 8" tail around a vertical bar. Hook may be field bent (with 3¾" Pin Dia.). Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with an 8" tail around a vertical bar.

②Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 061509 "Headed Steel Bars for Concrete Reinforcement". Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS 2, 3, 8, 9, & 10
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 5/6/2019 FILENAME: b061509x3_b2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60821

PRINT DATE: 6/11/2019

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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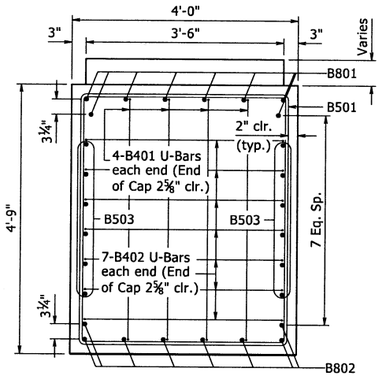
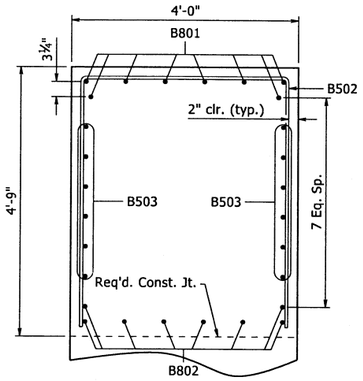
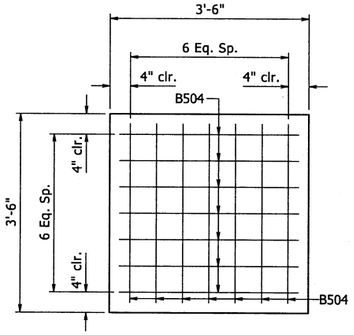
				JOB NO.		061509	201349	
				①		A6467- INT. BENTS - 60822		



VIEW A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"

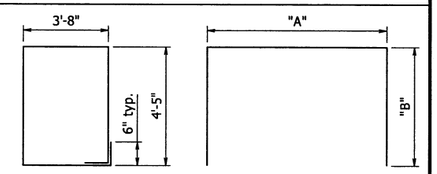


PEDESTAL PLAN
¾" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
B401	8	5'-6"	4'-3¾"	8"	3"
B402	14	4'-9"	3'-6¾"	8"	3"
B501	58	16'-8"			2½"
B502	15	12'-4"	3'-8"	4'-5"	2½"
B503	12	37'-8"			Str.
B504	70	6'-6"	3'-2"	1'-7"	2½"
B801	8	39'-6"	37'-8"	8"	6"
B802	8	37'-8"			Str.
C501	1	③ "E1"			Spiral
C502	1	③ "E2"			Spiral
C503	1	③ "E3"			Spiral
C504	18	12'-8"			3¾"
C1101	33	③"Q" + 7'-7"			11¼"
C1102	33	③"R" + 7'-7"			11¼"
C1103	33	③"S" + 7'-7"			11¼"
F601	63	8'-4"	7'-0"	6"	4½"
F602	42	11'-10"	10'-6"	6"	4½"
F603	108	5'-5"	3'-8½"	1'-0"	4½"
F604	12	12'-3"	10'-6"	1'-0"	4½"
F605	12	8'-9"	7'-0"	1'-0"	4½"
F801	87	8'-10"	7'-0"	8"	6"
F802	57	12'-4"	10'-6"	8"	6"
④ D801	72	6'-6"			Str.

BENDING DIAGRAMS

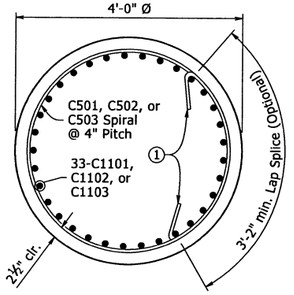


① At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

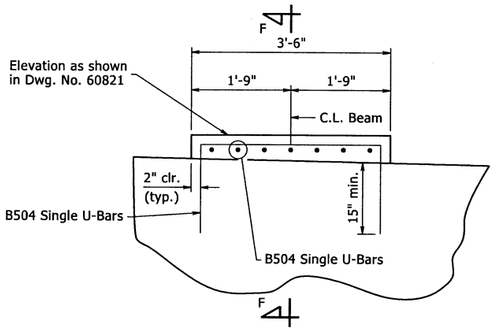
Dimensions are out to out of bars.

② Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

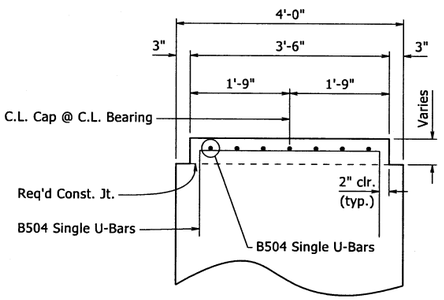
③ See "TABLE OF VARIABLES", Dwg. No. 60821.



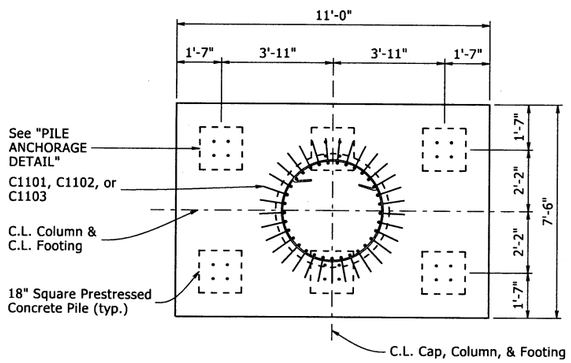
SECTION C-C
¾" = 1'-0"



TYPICAL PEDESTAL
Looking Ahead
¾" = 1'-0"

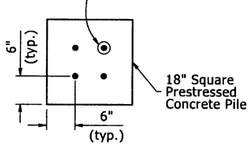


SECTION F-F
¾" = 1'-0"

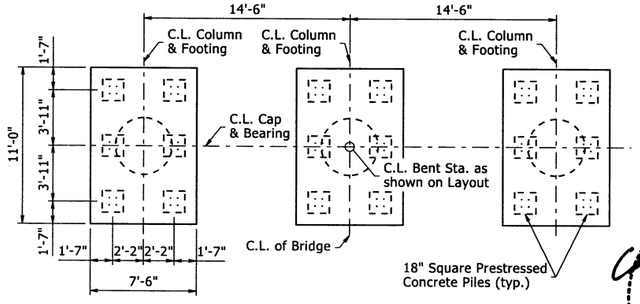


SECTION E-E
⅜" = 1'-0"

④ After driving, drill and grout No. 8 (D801) dowels into piles using an approved non-shrink or epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout Manufacturer. Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".



PILE ANCHORAGE DETAIL
¾" = 1'-0"



PLAN OF FOOTING
3/16" = 1'-0"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS 2, 3, 8, 9, & 10
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

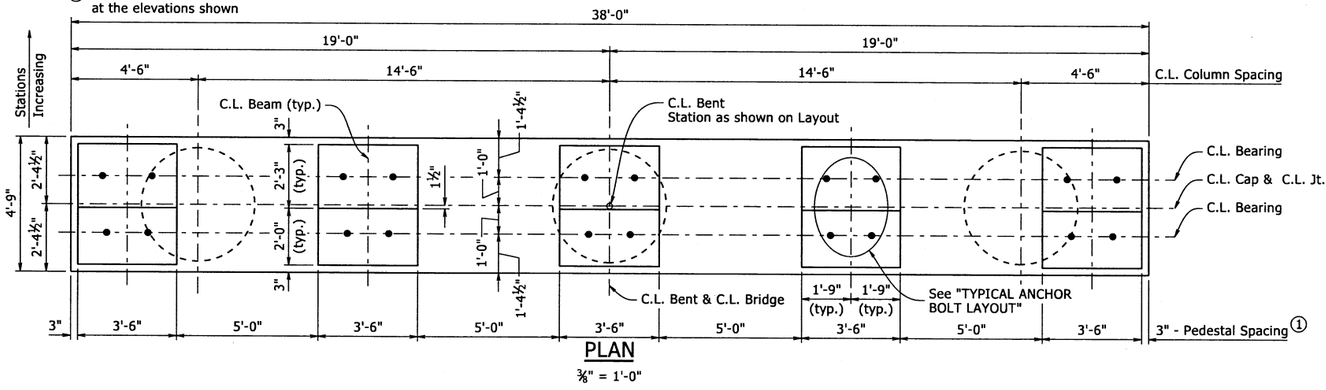
DRAWN BY: JJ DATE: 5/6/2019 FILENAME: b061509x3_b2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60822

PRINT DATE: 6/11/2019

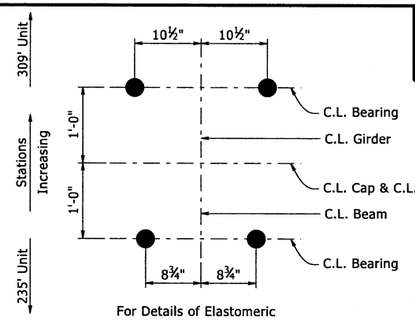
DATE REVISED	DATE FILMED	DATE REVISED	FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	202	349
				①		A6467- INT. BENTS - 60823		

① Pedestals shall be cast level at the elevations shown



PLAN

⅜" = 1'-0"



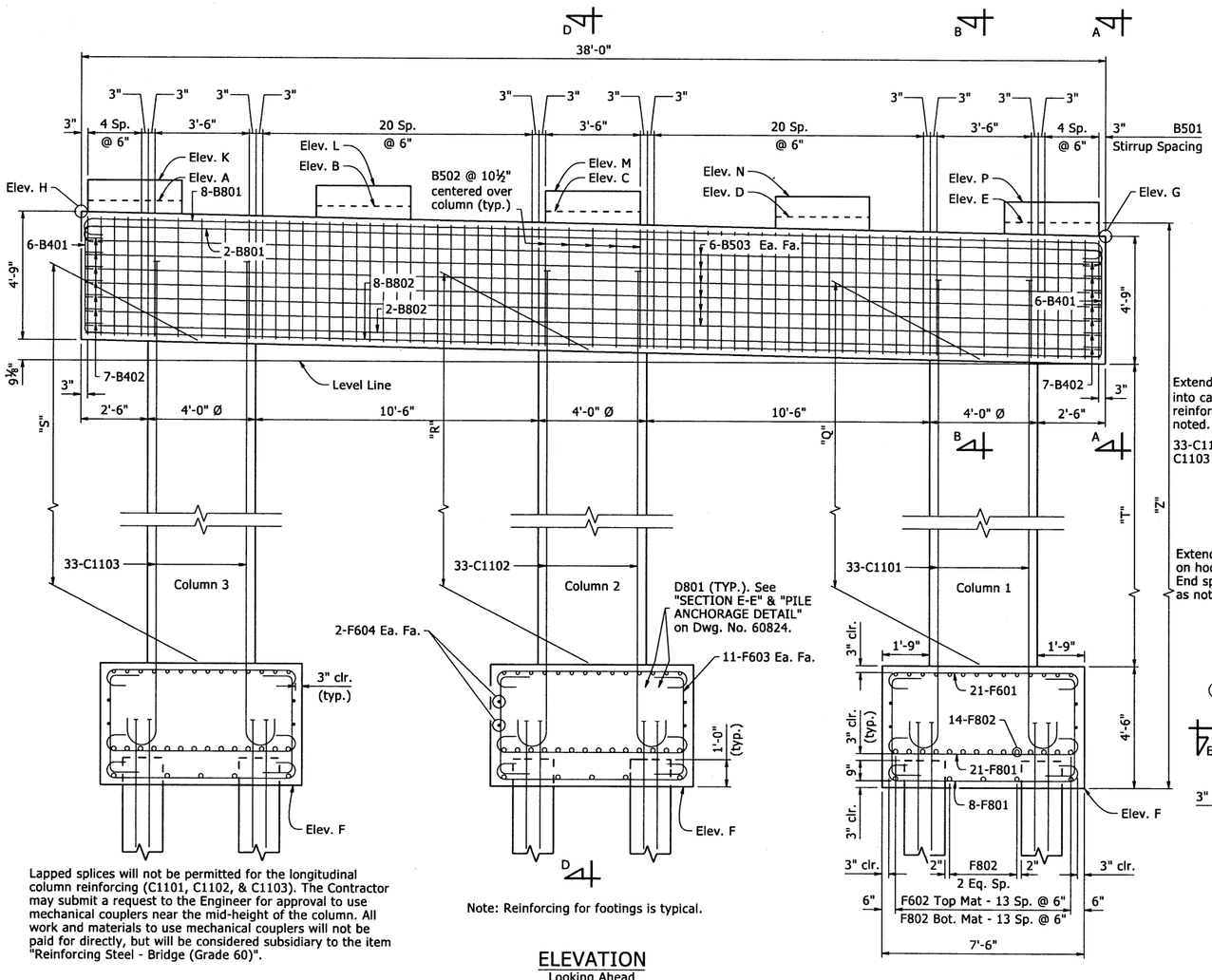
For Details of Elastomeric Bearings, See Dwg. No. 60829.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

Bent	4	Bent	4
"Elev. A"	286.62	"Q"	25'-10 3/16"
"Elev. B"	286.45	"R"	26'-1 1/16"
"Elev. C"	286.28	"S"	26'-5 3/16"
"Elev. D"	286.11	"D1"	85.5
"Elev. E"	285.94	"D2"	86.5
"Elev. F"	250.44	"D3"	87.5
"Elev. G"	285.45	"E1"	985'-3"
"Elev. H"	286.21	"E2"	996'-4"
"Elev. K"	287.38	"E3"	1007'-5"
"Elev. L"	287.21	"T"	25'-9⅛"
"Elev. M"	287.04	"Z"	35'-6"
"Elev. N"	286.87		
"Elev. P"	286.70		



Lapped splices will not be permitted for the longitudinal column reinforcing (C1101, C1102, & C1103). The Contractor may submit a request to the Engineer for approval to use mechanical couplers near the mid-height of the column. All work and materials to use mechanical couplers will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

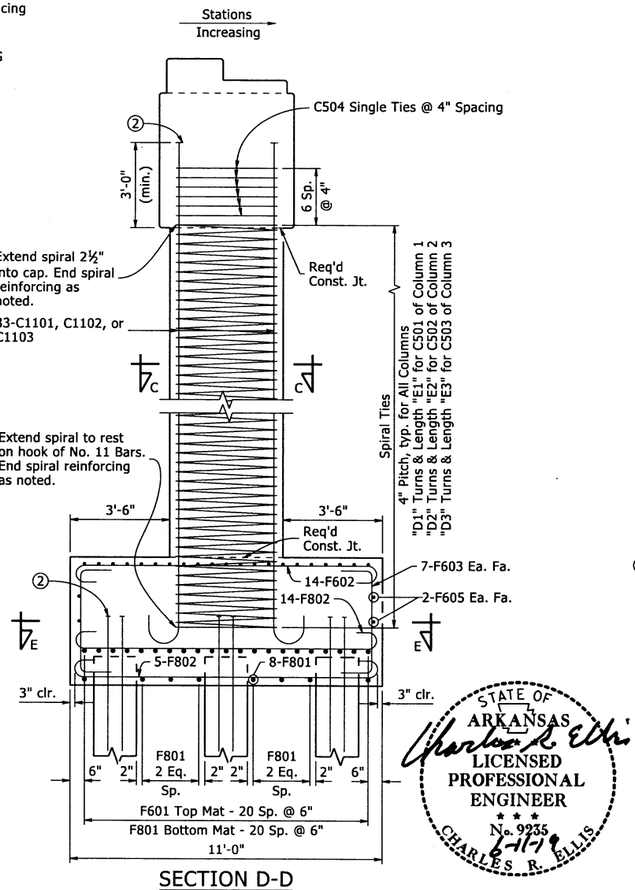
Note: Reinforcing for footings is typical.

ELEVATION

Looking Ahead

⅜" = 1'-0"

For "VIEW A-A", "SECTION B-B", "SECTION C-C", "SECTION E-E", "TYPICAL PEDESTAL", "PILE ANCHORAGE DETAIL", and "PLAN OF FOOTING", See Dwg. No. 60824.



SECTION D-D

⅜" = 1'-0"

GENERAL NOTES

For Standard General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M 31 or M 322, Type A, with mill test reports (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M 32 or M 225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling, or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 5'-0" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a mininum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with an 8" tail around a vertical bar. Hook may be field bent (with 3¾" Pin Dia.). Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with an 8" tail around a vertical bar.

② Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 061509 "Headed Steel Bars for Concrete Reinforcement". Increse minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19

BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF INTERMEDIATE BENT 4

DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 5/6/2019 FILENAME: b061509x3_b4.dgn

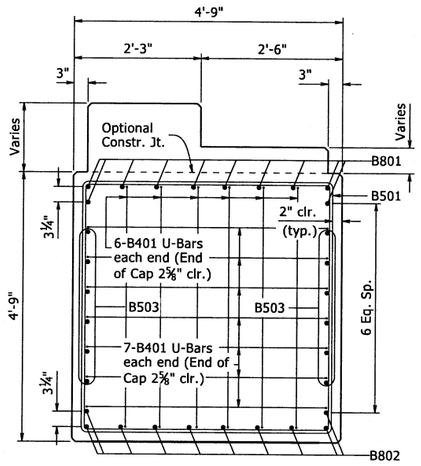
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted

DESIGNED BY: DHP DATE: 6/2018

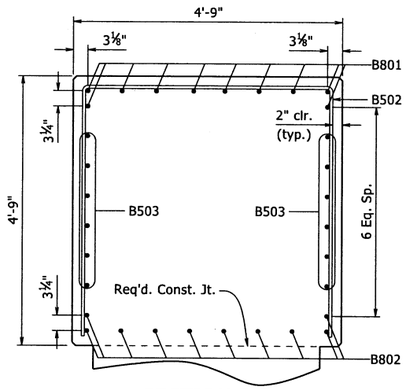
BRIDGE NO. A6467 DRAWING NO. 60823

PRINT DATE: 6/11/2019

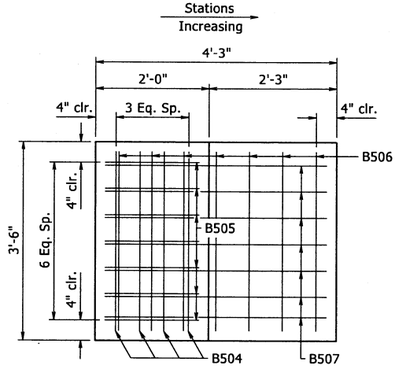
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	203249	
				①		A6467- INT. BENTS - 60824		



VIEW A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"



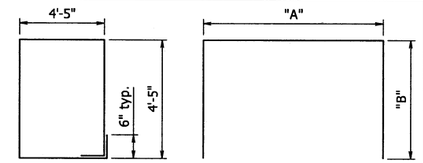
PEDESTAL PLAN
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
B401	26	5'-6"	4'-3¾"	8"	3"
B501	58	18'-2"			2½"
B502	15	13'-1"	4'-5"	4'-5"	2½"
B503	12	37'-8"			Str.
B504	20	7'-8"	3'-2"	2'-4"	2½"
B505	35	6'-2"	1'-8"	2'-4"	2½"
B506	35	6'-2"	3'-2"	1'-7"	2½"
B507	35	6'-11"	3'-11"	1'-7"	2½"
B801	10	39'-6"	37'-8"	8"	6"
B802	10	37'-8"			Str.
C501	1	③ "E1"			Spiral
C502	1	③ "E2",			Spiral
C503	1	③ "E3"			Spiral
C504	18	12'-8"			3¾"
C1101	33	33'-6"			11¼"
C1102	33	33'-9"			11¼"
C1103	33	34'-0"			11¼"
F601	63	8'-4"	7'-0"	6"	4½"
F602	42	11'-10"	10'-6"	6"	4½"
F603	108	5'-7"	3'-10"	1'-0"	4½"
F604	12	12'-3"	10'-6"	1'-0"	4½"
F605	12	8'-9"	7'-0"	1'-0"	4½"
F801	87	8'-10"	7'-0"	8"	6"
F802	57	12'-4"	10'-6"	8"	6"
④ D801	72	6'-6"			Str.

③ See "TABLE OF VARIABLES", Dwg. No. 60823.

BENDING DIAGRAMS



① At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

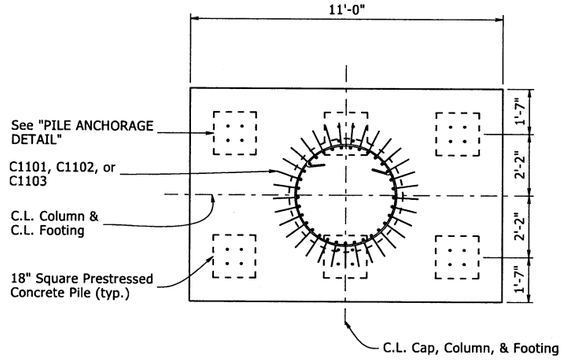
Dimensions are out to out of bars.

② Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

SECTION C-C
¾" = 1'-0"

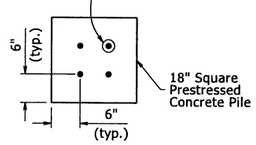
TYPICAL PEDESTAL
Looking Ahead
¾" = 1'-0"

SECTION F-F
¾" = 1'-0"

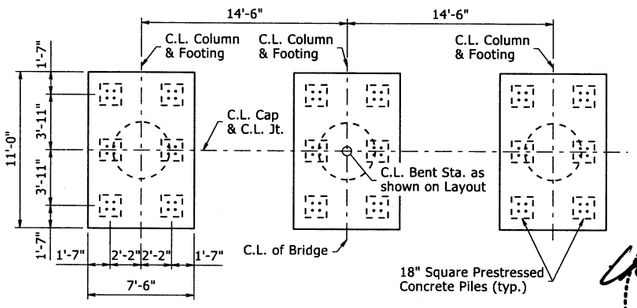


SECTION E-E
⅜" = 1'-0"

④ After driving, drill and grout No. 8 (D801) dowels into piles using an approved non-shrink or epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout Manufacturer. Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".



PILE ANCHORAGE DETAIL
¾" = 1'-0"



PLAN OF FOOTING
3/16" = 1'-0"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT 4
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

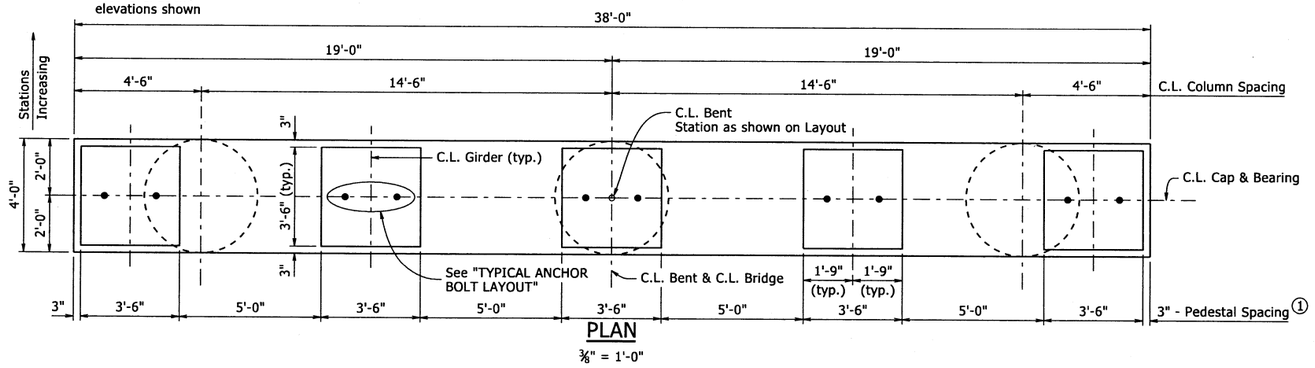
DRAWN BY: JJ DATE: 5/6/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x3_b4.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60824

PRINT DATE: 6/11/2019

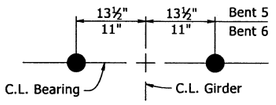
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	204	349
				①		A6467- INT. BENTS - 60825		

① Pedestals shall be cast level at the elevations shown



PLAN

⅜" = 1'-0"



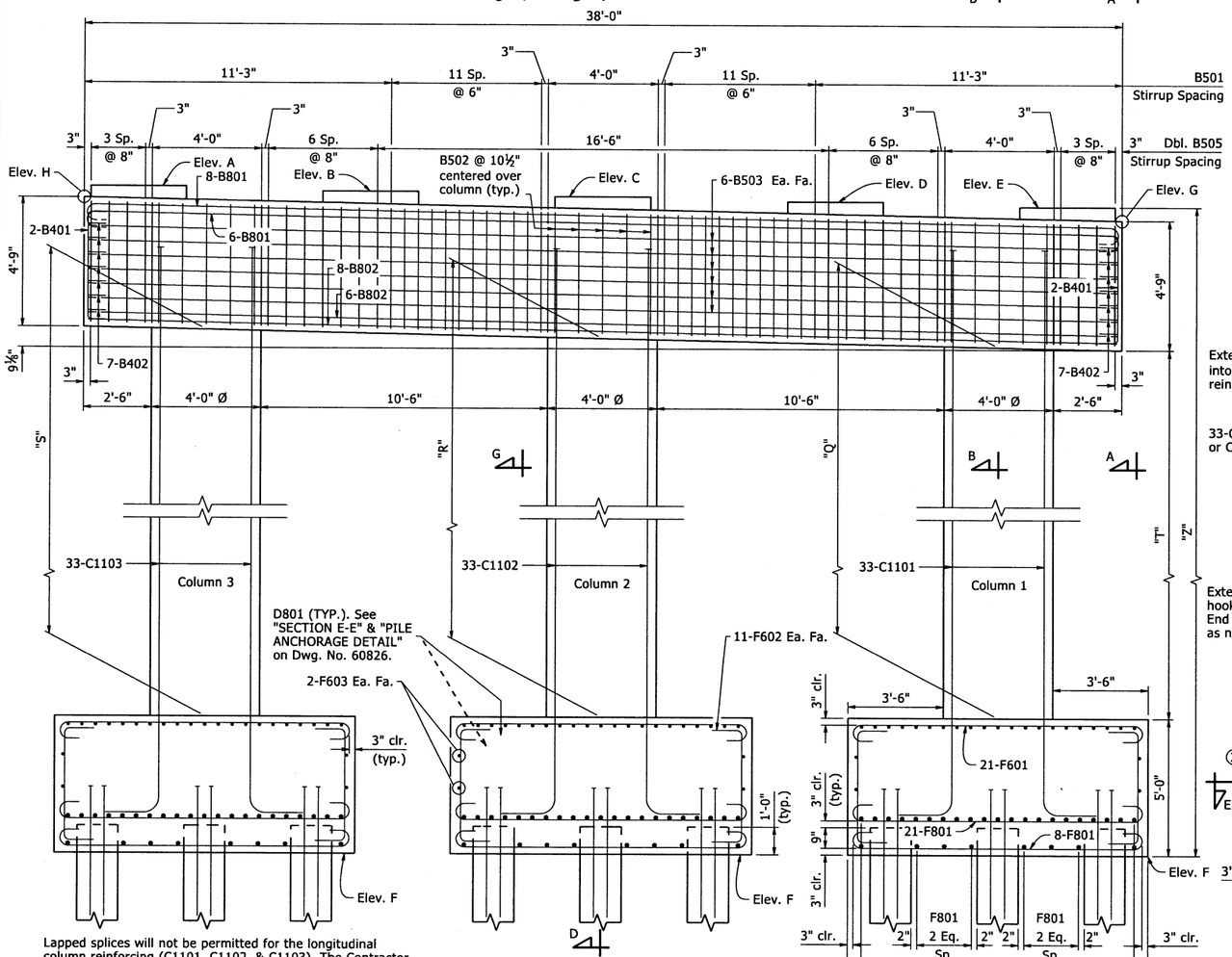
For Details of Elastomeric Bearings, See Dwg. No. 60829.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

Bent	5	6
"Elev. A"	288.28	288.57
"Elev. B"	288.11	288.40
"Elev. C"	287.94	288.23
"Elev. D"	287.77	288.06
"Elev. E"	287.60	287.89
"Elev. F"	250.60	250.39
"Elev. G"	287.11	287.40
"Elev. H"	287.87	288.16
"Q"	26'-10 3/16"	27'-4 3/16"
"R"	27'-1 11/16"	27'-7 11/16"
"S"	27'-5 3/16"	27'-11 3/16"
"D1"	90	91.5
"D2"	91	92.5
"D3"	92	93.5
"E1"	1035'-2"	1051'-10"
"E2"	1046'-3"	1062'-11"
"E3"	1057'-4"	1074'-0"
"T"	26'-9⅛"	27'-3⅛"
"Z"	37'-0"	37'-6"



Lapped splices will not be permitted for the longitudinal column reinforcing (C1101, C1102, & C1103). The Contractor may submit a request to the Engineer for approval to use mechanical couplers near the mid-height of the column. All work and materials to use mechanical couplers will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

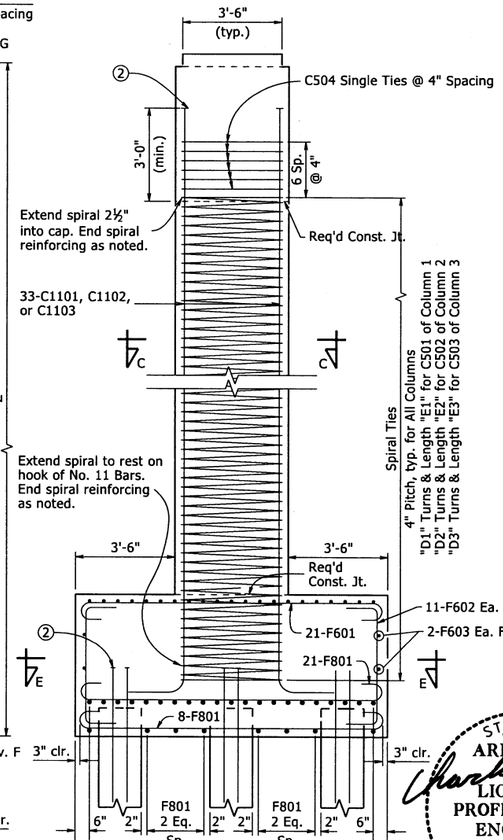
Note: Reinforcing for footings is typical.

ELEVATION

Looking Ahead

⅜" = 1'-0"

For "VIEW A-A", "SECTION B-B", "SECTION C-C", "SECTION E-E", "TYPICAL PEDESTAL", "PILE ANCHORAGE DETAIL", and "PLAN OF FOOTING", See Dwg. No. 60826.



SECTION D-D

⅜" = 1'-0"

GENERAL NOTES

For Standard General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M 31 or M 322, Type A, with mill test reports (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M 32 or M 225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling, or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 5'-0" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a mininum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with an 8" tail around a vertical bar. Hook may be field bent (with 3¾" Pin Dia.). Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with an 8" tail around a vertical bar.

② Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 061509 "Headed Steel Bars for Concrete Reinforcement". Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS 5 & 6
DRAIN TWO & UPRR

ROUTE 321 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 5/6/2019 FILENAME: b061509x3_b5.dgn

CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted

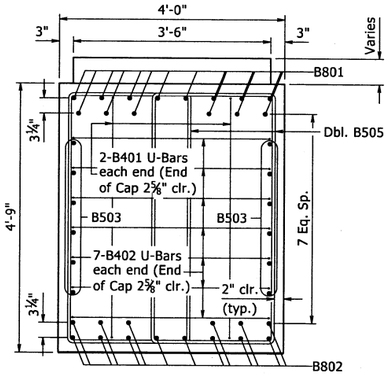
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60825

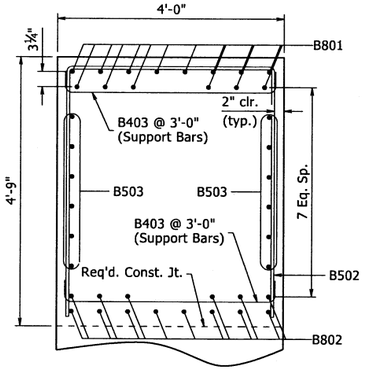
PRINT DATE: 6/11/2019

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.		061509	205	349

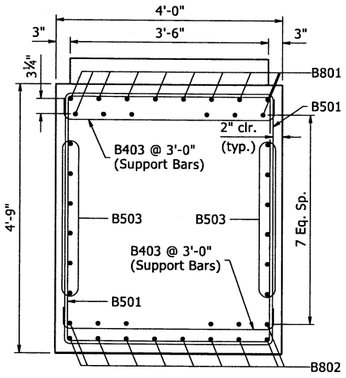
(1) A6467- INT. BENTS - 60826



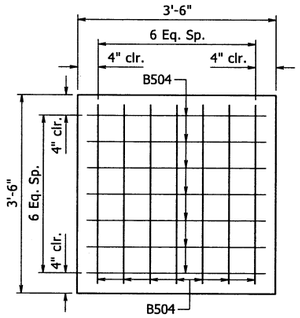
VIEW A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"



SECTION G-G
¾" = 1'-0"



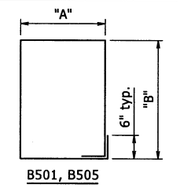
PEDESTAL PLAN
¾" = 1'-0"

BAR LIST - PER BENT

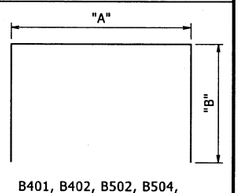
MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
B401	4	5'-6"	4'-3¾"	8"	3"
B402	14	4'-9"	3'-6¾"	8"	3"
B403	13	4'-3"	3'-8"	4½"	2"
B501	26	16'-8"	3'-8"	4'-5"	2½"
B502	15	12'-4"	3'-8"	4'-5"	2½"
B503	12	37'-8"			Str.
B504	70	6'-1"	3'-2"	1'-7"	2½"
B505	52	14'-0"	2'-4"	4'-5"	2½"
B801	14	39'-6"	37'-8"	8"	6"
B802	14	37'-8"			Str.
C501	1	③ "E1"			Spiral
C502	1	③ "E2"			Spiral
C503	1	③ "E3"			Spiral
C504	18	12'-8"			3¾"
C1101	33	③"Q" + 8'-3"			11¼"
C1102	33	③"R" + 8'-3"			11¼"
C1103	33	③"S" + 8'-3"			11¼"
F601	126	11'-10"	10'-6"	6"	4½"
F602	132	5'-11"	4'-2½"	1'-0"	4½"
F603	24	12'-3"	10'-6"	1'-0"	4½"
F801	174	12'-4"	10'-6"	8"	6"
④ D801	96	6'-6"			Str.

③ See "TABLE OF VARIABLES", Dwg. No. 60825.

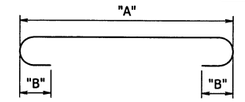
BENDING DIAGRAMS



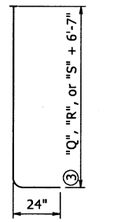
B501, B505



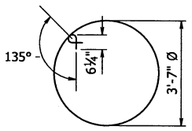
B401, B402, B502, B504, F603 to F606



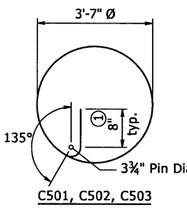
F601, F602, B801, F801, & F802



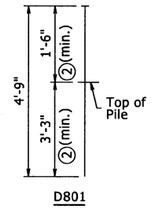
C1101, C1102, & C1103



C504



C501, C502, C503

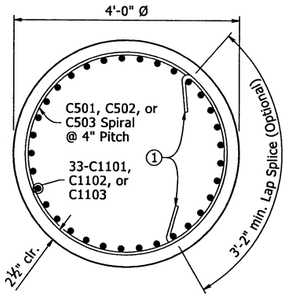


D801

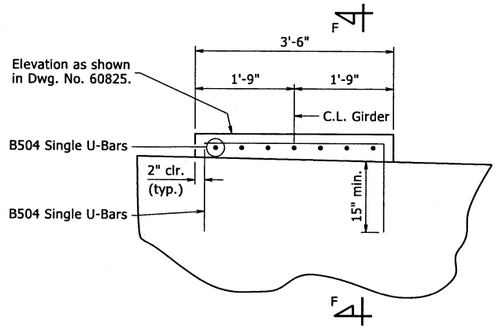
① At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

② Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

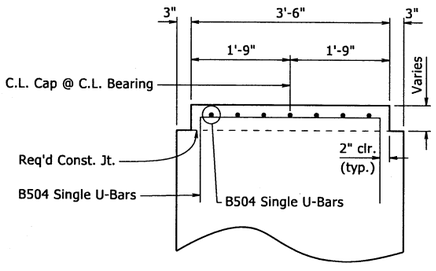
Dimensions are out to out of bars.



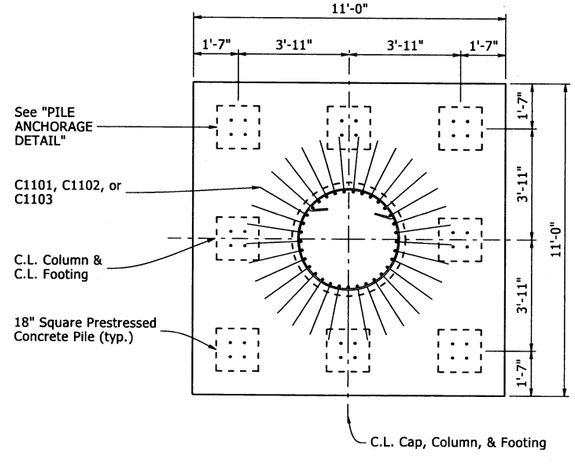
SECTION C-C
¾" = 1'-0"



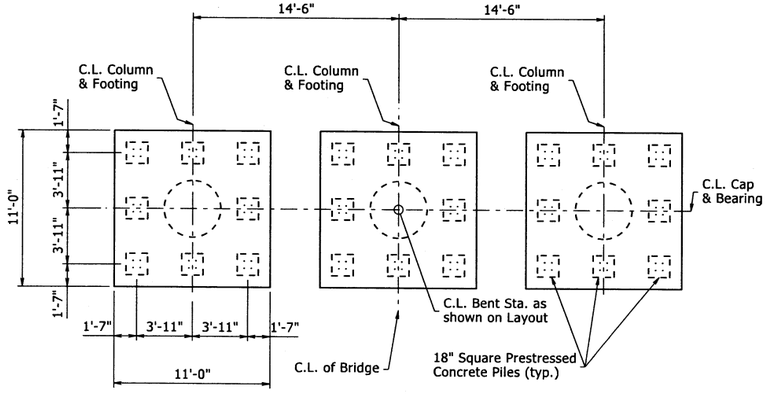
TYPICAL PEDESTAL
Looking Ahead
¾" = 1'-0"



SECTION F-F
¾" = 1'-0"

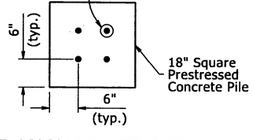


SECTION E-E
⅜" = 1'-0"



PLAN OF FOOTING
3/16" = 1'-0"

④After driving, drill and grout No. 8 (D801) dowels into piles using an approved non-shrink or epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout Manufacturer. Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".



PILE ANCHORAGE DETAIL
¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-6-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS 5 & 6
DRAIN TWO & UPRR

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 5/6/2019 FILENAME: b061509x3_b5.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60826

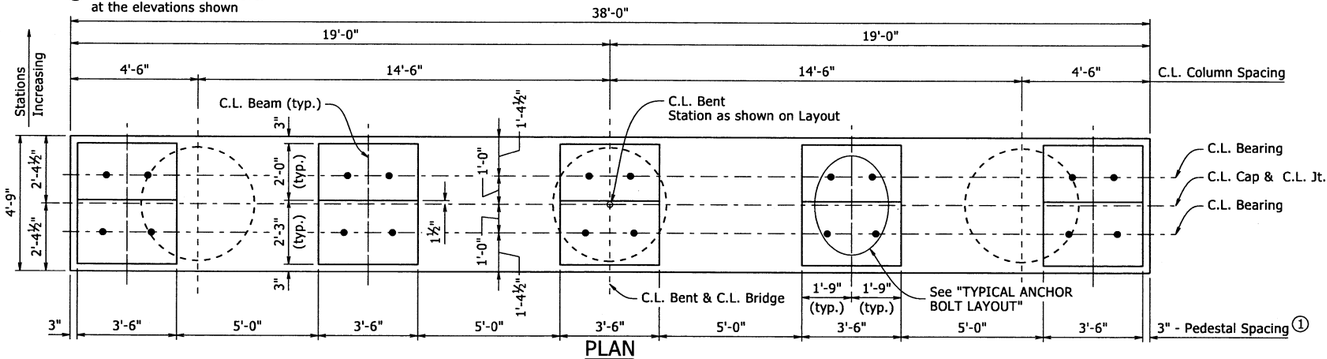
PRINT DATE: 6/11/2019

DATE REVISED	DATE FILMED	DATE REVISED	FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061509	206	349

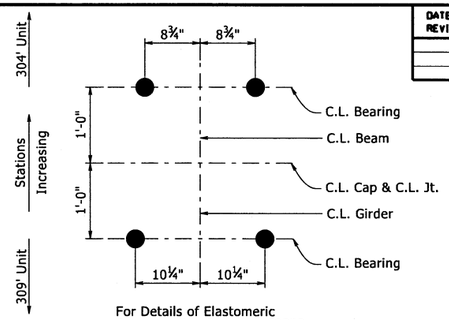
① A6467- INT. BENTS - 60827

① Pedestals shall be cast level at the elevations shown



PLAN

⅜" = 1'-0"



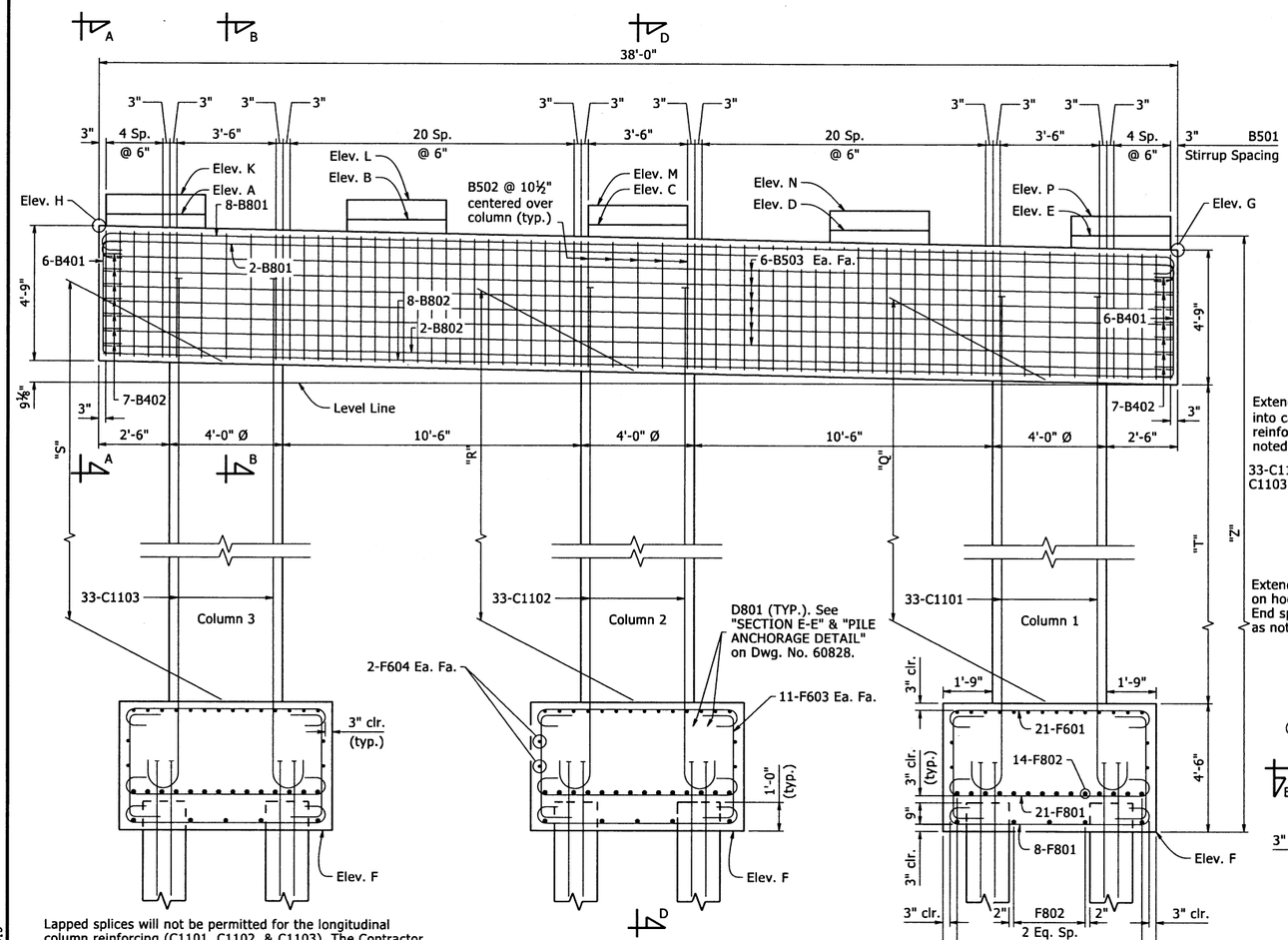
For Details of Elastomeric Bearings, See Dwg. No. 60829.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

Bent	4	Bent	4
"Elev. A"	287.98	"Q"	25'-10 3/16"
"Elev. B"	287.81	"R"	26'-1 1/16"
"Elev. C"	287.64	"S"	26'-5 3/16"
"Elev. D"	287.47	"D1"	85.5
"Elev. E"	287.30	"D2"	86.5
"Elev. F"	251.80	"D3"	87.5
"Elev. G"	286.81	"E1"	985'-3"
"Elev. H"	287.57	"E2"	996'-4"
"Elev. K"	288.67	"E3"	1007'-5"
"Elev. L"	288.50	"T"	25'-9⅛"
"Elev. M"	288.33	"Z"	35'-6"
"Elev. N"	288.16		
"Elev. P"	287.99		



Lapped splices will not be permitted for the longitudinal column reinforcing (C1101, C1102, & C1103). The Contractor may submit a request to the Engineer for approval to use mechanical couplers near the mid-height of the column. All work and materials to use mechanical couplers will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel - Bridge (Grade 60)".

Note: Reinforcing for footings is typical.

ELEVATION

Looking Ahead

⅜" = 1'-0"

For "VIEW A-A", "SECTION B-B", "SECTION C-C", "SECTION E-E", "TYPICAL PEDESTAL", "PILE ANCHORAGE DETAIL", and "PLAN OF FOOTING", See Dwg. No. 60828.

SECTION D-D

⅜" = 1'-0"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19

BRIDGE ENGINEER

GENERAL NOTES

For Standard General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING:

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M 31 or M 322, Type A, with mill test reports (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M 32 or M 225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling, or erecting.

The Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 5'-0" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a mininum of 60 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with an 8" tail around a vertical bar. Hook may be field bent (with 3¾" Pin Dia.). Ends of spirals not lapped shall be terminated with 1½ turns and a 135° hook with an 8" tail around a vertical bar.

② Reinforcement shall have Headed Steel Bars in accordance with Special Provision Job No. 061509 "Headed Steel Bars for Concrete Reinforcement". Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

SHEET 1 OF 2

DETAILS OF INTERMEDIATE BENT 7

DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JJ DATE: 5/6/2019 FILENAME: b061509x3_b7.dgn

CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted

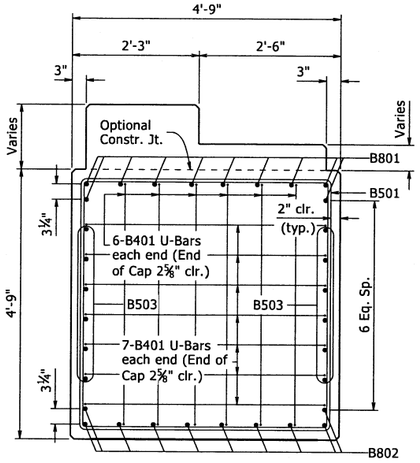
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60827

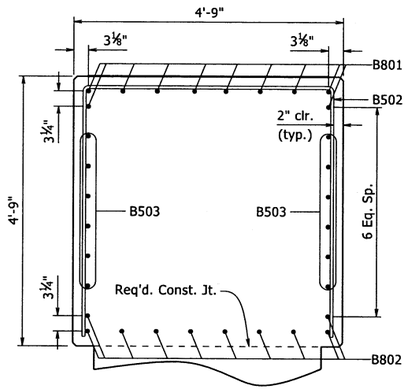
PRINT DATE: 6/11/2019

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.		061509	207	349

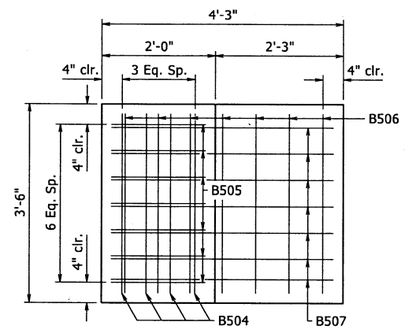
(1) A6467- INT. BENTS - 60828



VIEW A-A
¾" = 1'-0"



SECTION B-B
¾" = 1'-0"



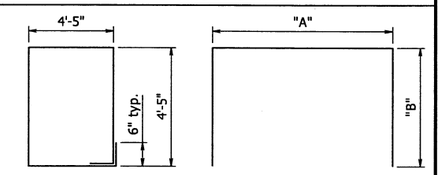
PEDESTAL PLAN
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
B401	26	5'-6"	4'-3¾"	8"	3"
B501	58	18'-2"			2½"
B502	15	13'-1"	4'-5"	4'-5"	2½"
B503	12	37'-8"			Str.
B504	20	7'-8"	3'-2"	2'-4"	2½"
B505	35	6'-2"	1'-8"	2'-4"	2½"
B506	35	6'-2"	3'-2"	1'-7"	2½"
B507	35	6'-11"	3'-11"	1'-7"	2½"
B801	10	39'-6"	37'-8"	8"	6"
B802	10	37'-8"			Str.
C501	1	③ "E1"			Spiral
C502	1	③ "E2"			Spiral
C503	1	③ "E3"			Spiral
C504	18	12'-8"			3¾"
C1101	33	33'-6"			11¼"
C1102	33	33'-9"			11¼"
C1103	33	34'-0"			11¼"
F601	63	8'-4"	7'-0"	6"	4½"
F602	42	11'-10"	10'-6"	6"	4½"
F603	108	5'-7"	3'-10"	1'-0"	4½"
F604	12	12'-3"	10'-6"	1'-0"	4½"
F605	12	8'-9"	7'-0"	1'-0"	4½"
F801	87	8'-10"	7'-0"	8"	6"
F802	57	12'-4"	10'-6"	8"	6"
④ D801	72	6'-6"			Str.

③ See "TABLE OF VARIABLES", Dwg. No. 60827.

BENDING DIAGRAMS

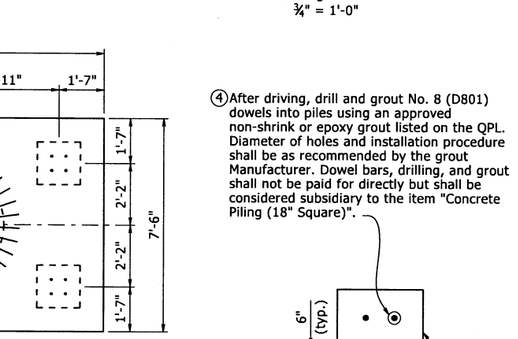


(1) At the lapped splice end of the spiral, the hook may be field bent around a vertical bar.

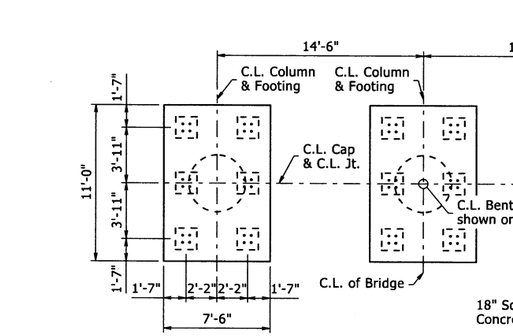
Dimensions are out to out of bars.

(2) Increase minimum embedment as per manufacturer's recommendations if required, but provide no less than what is shown.

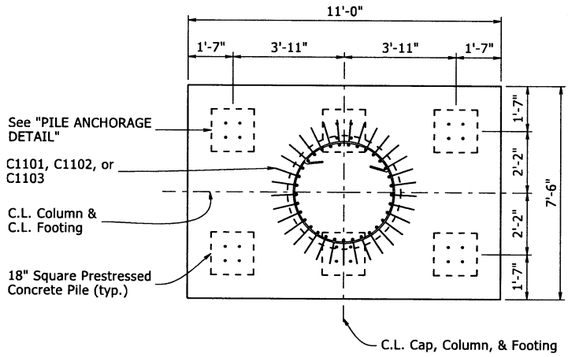
SECTION C-C
¾" = 1'-0"



TYPICAL PEDESTAL
Looking Ahead
¾" = 1'-0"

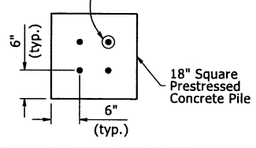


SECTION F-F
¾" = 1'-0"



SECTION E-E
⅜" = 1'-0"

④ After driving, drill and grout No. 8 (D801) dowels into piles using an approved non-shrink or epoxy grout listed on the QPL. Diameter of holes and installation procedure shall be as recommended by the grout Manufacturer. Dowel bars, drilling, and grout shall not be paid for directly but shall be considered subsidiary to the item "Concrete Piling (18" Square)".



PILE ANCHORAGE DETAIL
¾" = 1'-0"

PLAN OF FOOTING
3/16" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT 7
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

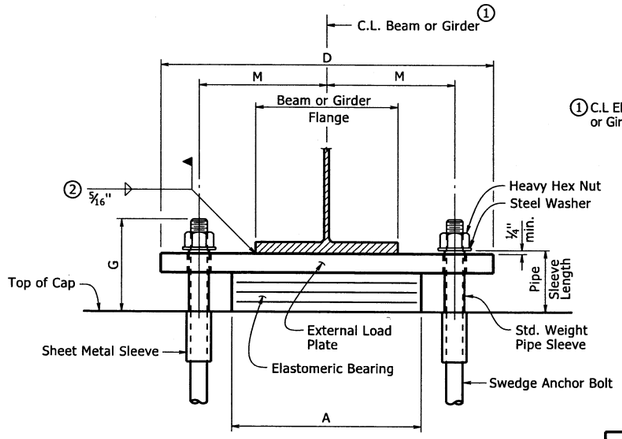
DRAWN BY: JJ DATE: 5/6/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 6/2018
FILENAME: b061509x3_b7.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60828

PRINT DATE: 6/11/2019

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.		061509	208	349

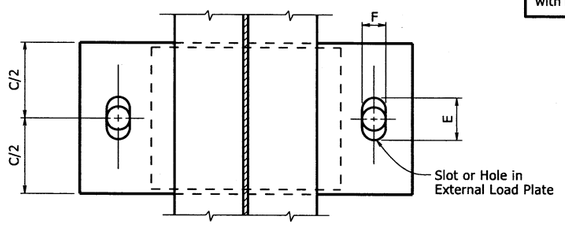
① A6467 - ELASTOMERIC BEARINGS - 60829



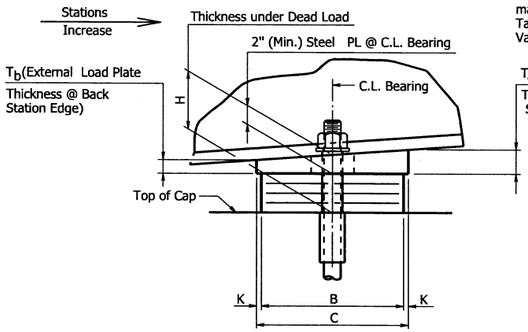
FRONT VIEW

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

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.



PLAN VIEW

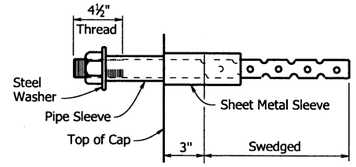


SIDE VIEW

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.

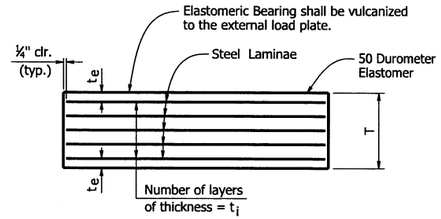
Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



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, Grade 50W)" or "Structural Steel in Plate Girder Spans (M 270, Grade 50W)".



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

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to 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, bolt holes and all shop welding) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Grade 50W)" or "Structural Steel in Plate Girder Spans (M270, Grade 50W)". External load plates will not be measured or 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.

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service 1 Limit State

BRIDGE NO.	UNIT NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_i	t_e	NO. & THICKESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	J	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.)
A6467	1	1	All	Exp.	5	115	7¼"	4⅜"	12"	9½"	3	½"	¼"	4 @ 12 ga.	2⁷⁄₁₆"	10½"	22½"	3⅜"	2¼"	NA	½"	8½"	2.22"	1.78"	1½"Ø x 24"	55	1½"Ø x 4⅝"	3"Ø x 6"	3"
	1	2	All	Fix	5	264	7½"	3¾"	16"	13"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	14"	29"	3¾"	3¾"	NA	½"	11"	2.25"	1.75"	2½"Ø x 34"	55	3"Ø x 4"	4"Ø x 6"	4½"
	1	3	All	Fix	5	303	7¾"	3¹³⁄₁₆"	16"	15"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	16"	29"	3¾"	3¾"	NA	½"	11"	2.22"	1.78"	2½"Ø x 35"	55	3"Ø x 4⅛"	4"Ø x 6"	4½"
	1	4BK	All	Exp.	5	131	7½"	4⅜"	12"	10½"	3	½"	¼"	4 @ 12 ga.	2⁷⁄₁₆"	11½"	23½"	4¾"	2⅝"	NA	½"	8¾"	2.11"	1.89"	1¾"Ø x 27"	55	2"Ø x 4⅝"	4"Ø x 6"	3⅜"
	2	4AH	All	Exp.	5	159	9¼"	4¹⁵⁄₁₆"	14"	10"	4	½"	¼"	5 @ 12 ga.	3"	11"	28"	6½"	3¾"	NA	½"	10½"	2.11"	1.89"	2¾"Ø x 39"	55	3"Ø x 5¼"	5"Ø x 6"	5"
	2	5	All	Fix	5	420	8"	3¾"	21"	13½"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	14½"	34"	3¾"	3¾"	NA	½"	13½"	2.06"	1.94"	2¾"Ø x 39"	55	3"Ø x 4"	5"Ø x 6"	5"
	2	6	All	Fix	5	312	8¼"	3¹³⁄₁₆"	16"	15½"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	16½"	29"	3¾"	3¾"	NA	½"	11"	1.97"	2.03"	2¾"Ø x 39"	55	3"Ø x 4⅛"	5"Ø x 6"	5"
	2	7BK	All	Exp.	5	123	8¾"	4¹⁵⁄₁₆"	14"	9"	4	½"	¼"	5 @ 12 ga.	3"	10"	27½"	6¼"	3¾"	NA	½"	10¼"	1.95"	2.05"	2½"Ø x 36"	55	3"Ø x 5¼"	4"Ø x 6"	4½"
	3	7AH	All	Exp.	5	114	8"	4¹⁵⁄₁₆"	12½"	9"	4	½"	¼"	5 @ 12 ga.	3"	10"	23½"	5⅛"	2⅝"	NA	½"	8¾"	1.95"	2.05"	1¾"Ø x 28"	55	2"Ø x 5¼"	4"Ø x 6"	3⅜"
	3	8	All	Fix	5	270	7¼"	3¾"	16"	13½"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	14½"	28"	3⅜"	3⅜"	NA	½"	10¾"	1.87"	2.13"	2¼"Ø x 32"	55	2½"Ø x 4"	4"Ø x 6"	4"
	3	9	All	Fix	5	271	7¼"	3¾"	16"	13½"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	14½"	28"	3⅜"	3⅜"	NA	½"	10¾"	1.81"	2.19"	2¼"Ø x 32"	55	2½"Ø x 4"	4"Ø x 6"	4"
	3	10	All	Fix	5	270	7¼"	3¾"	16"	13½"	2	½"	¼"	3 @ 12 ga.	1¹³⁄₁₆"	14½"	28"	3⅜"	3⅜"	NA	½"	10¾"	1.76"	2.24"	2¼"Ø x 32"	55	2½"Ø x 4"	4"Ø x 6"	4"
	3	11	All	Exp.	5	114	8"	4¹⁵⁄₁₆"	12½"	9"	4	½"	¼"	5 @ 12 ga.	3"	10"	23½"	5⅛"	2⅝"	NA	½"	8¾"	1.80"	2.20"	1¾"Ø x 28"	55	2"Ø x 5¼"	4"Ø x 6"	3⅜"

PRINT DATE: 6/7/2019

STATE OF ARKANSAS
CHARLES R. ELLIS
No. 9235
LICENSED PROFESSIONAL ENGINEER
6-11-19

BRIDGE ENGINEER

DETAILS OF
ELASTOMERIC BEARINGS
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 4/26/19
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_e1.dgn
SCALE: No Scale

BRIDGE NO. A6467 DRAWING NO. 60829

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.		061509	209	349

A6467 - SPAN DETAILS - 60830

Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing), and to the roadway face & top of the concrete parapet rail. Polymer Overlay shall be applied to roadway surface. See SP Job No. 061509 "Polymer Overlay" for Polymer Overlay requirements.

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Slab Reinforcing

Longitudinal: S401E in top and bottom (place as shown)
S601E & S602E over intermediate supports,
see "REINFORCING PLAN & DECK POURING SEQUENCE"
Dwg. Nos. 60834 & 60838.

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 of overhangs (bundled with #5 bars) both sides

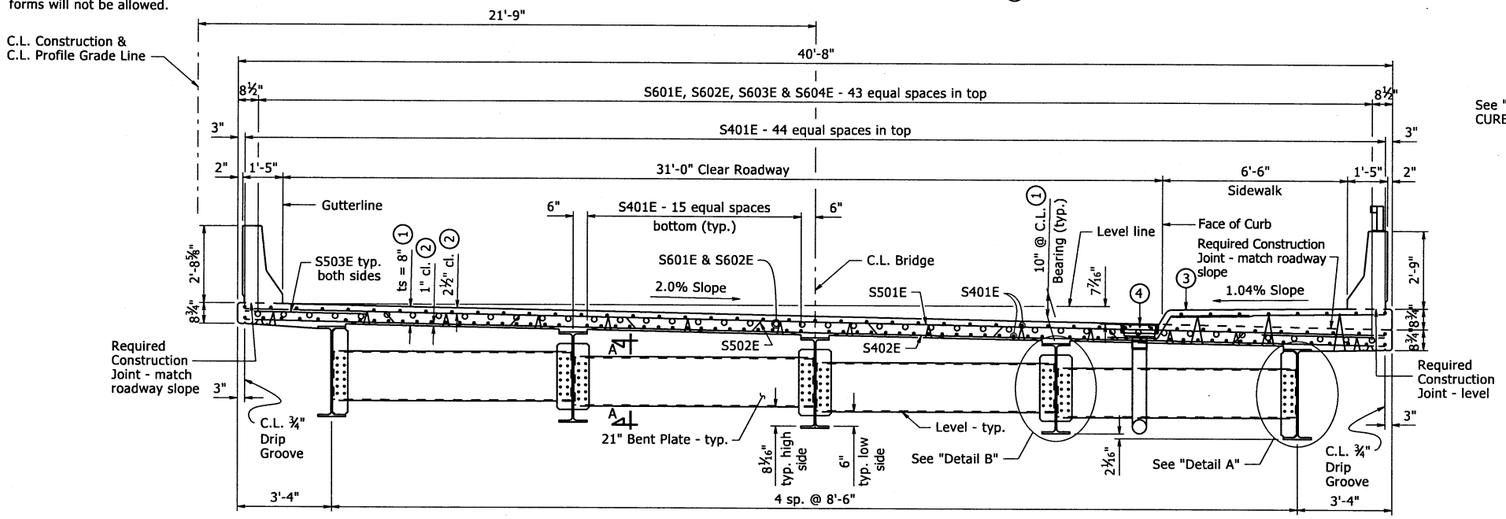
(1) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(2) Tolerance Minus = ¼":
Plus = to the amount of slab thickness used to meet slab thickness tolerance.
See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

(3) For additional information see "SIDEWALK DETAIL".

(4) For details of Deck Drains, see Dwg. No. 60850.

(5) For details of joints, see Dwg. No. 60853.



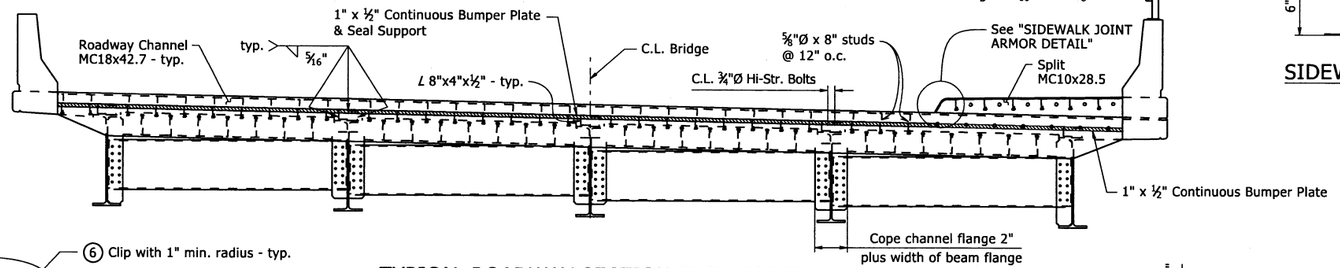
Beam No. 1 2 3 4 5

TYPICAL ROADWAY SECTION

LOOKING AHEAD
⅜" = 1'-0"

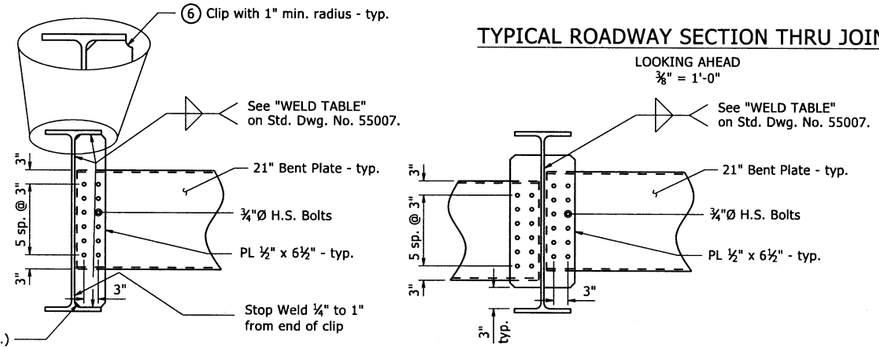
Expansion Device:

Roadway Channel - MC18x42.7
Connection L's 8"x4"x½"
Detail Device ⅛" high & provide ¼" shims using 2 - 1/16" & 1 - ⅛" Plates



TYPICAL ROADWAY SECTION THRU JOINT

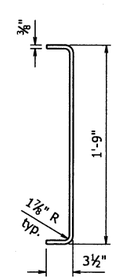
LOOKING AHEAD
⅜" = 1'-0"



DETAIL A
¾" = 1'-0"

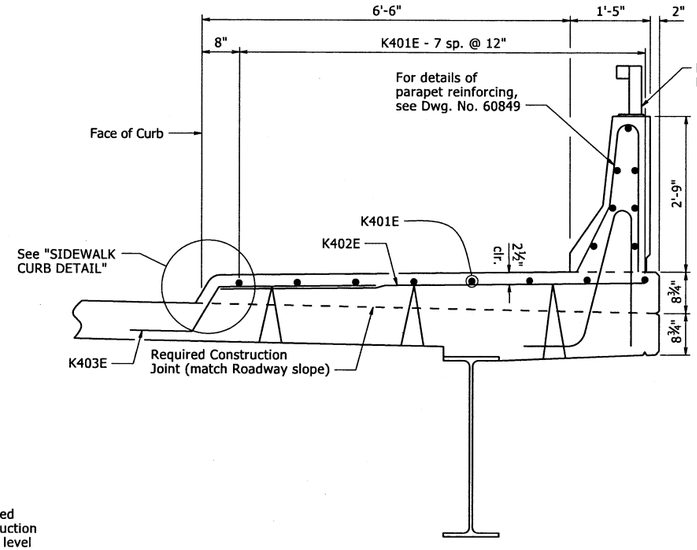
DETAIL B
¾" = 1'-0"

(6) If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accomodate the deck form supports.



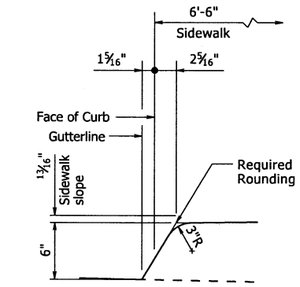
Typical cross-section for all 21" bent plate diaphragms.

SECTION A-A
NO SCALE



SIDEWALK DETAIL

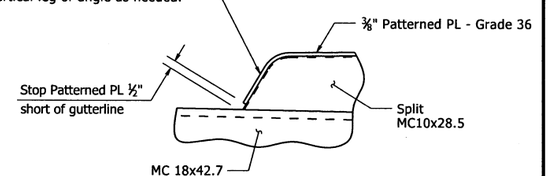
NO SCALE



SIDEWALK CURB DETAIL

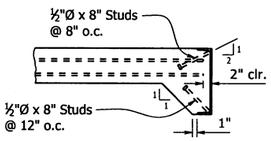
NO SCALE

Bend horizontal leg of channel and patterned plate to conform to curb. Trim vertical leg of angle as needed.



SIDEWALK JOINT ARMOR DETAIL

NO SCALE



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

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
COMMON DETAILS OF CONTINUOUS COMPOSITE W-BEAM UNITS DRAIN TWO & UPRR

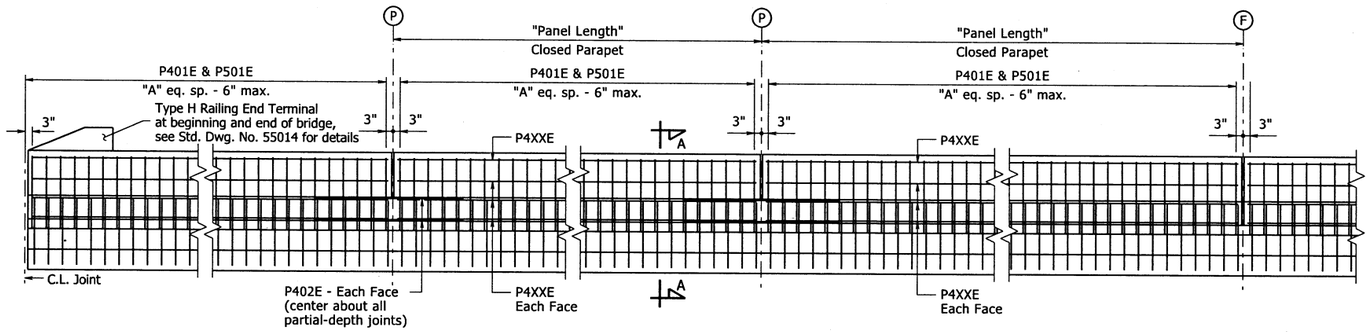
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60830

PRINT DATE: 6/7/2019

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.		061509	210	349
				(1)		A6467 - SPAN DETAILS - 60831		

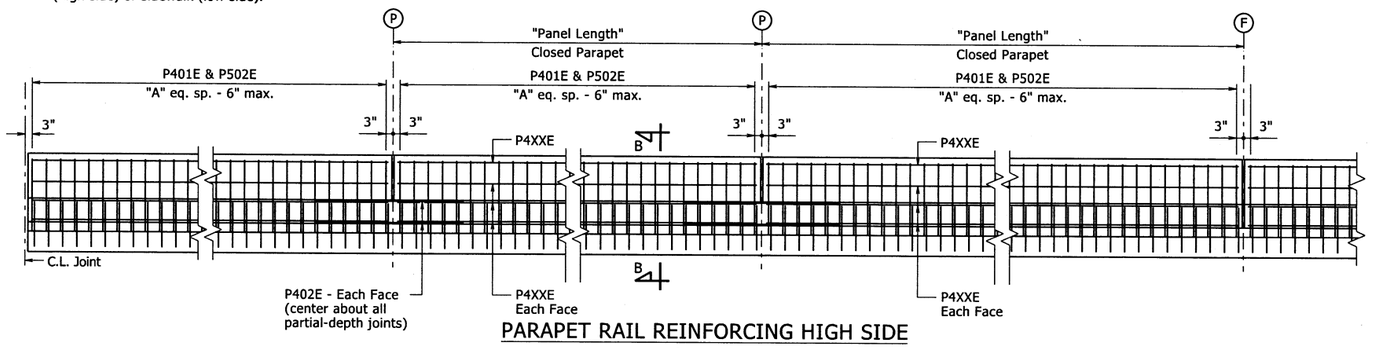


PARAPET RAIL REINFORCING LOW SIDE

3/8" = 1'-0"

(F) C.L. Full-Depth Parapet Joint (¼" to 1" max.) as shown in "REINFORCING PLAN & DECK POURING SEQUENCE", see "TABLE A". Stop 4" from top of slab (high side) or sidewalk (low side).

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "REINFORCING PLAN & DECK POURING SEQUENCE", see "TABLE A". Stop 1'-2" from top of slab (high side) or sidewalk (low side).



PARAPET RAIL REINFORCING HIGH SIDE

3/8" = 1'-0"

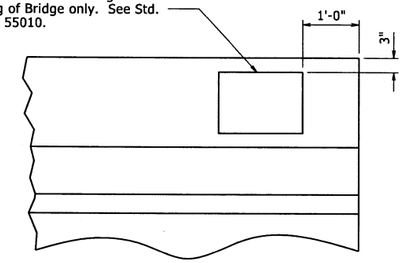
TABLE OF PARAPET RAIL VARIABLES

235'-0" & 304'-0" Units		
Panel Length	"A"	P4XXE Bar
13'-0"	25	P403E
16'-0"	31	P404E
17'-0"	33	P405E
19'-0"	37	P406E

TABLE A

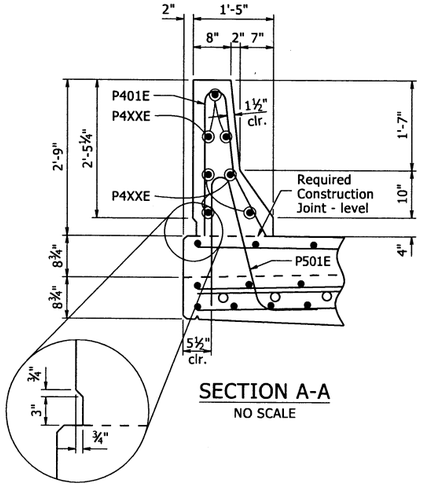
Reinforcing Plan & Deck Pouring Sequence	
Unit	Dwg. No.
235'-0"	60834
304'-0"	60838

Place Type D Bridge Name Plate on front face of span rail approximately 1'-0" from end of rail on right side Beginning of Bridge only. See Std. Dwg. No. 55010.



NAME PLATE DETAIL

NO SCALE



SECTION A-A

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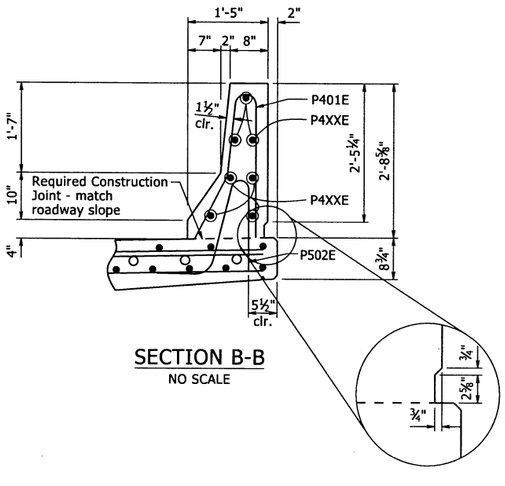
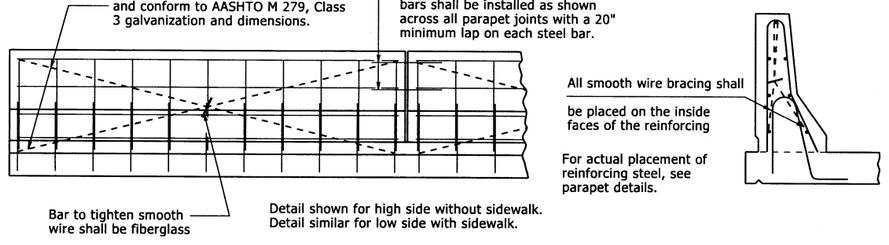


SECTION B-B

NO SCALE



All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ⅛". 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 apperance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 2 OF 2
COMMON DETAILS OF CONTINUOUS COMPOSITE W-BEAM UNITS DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

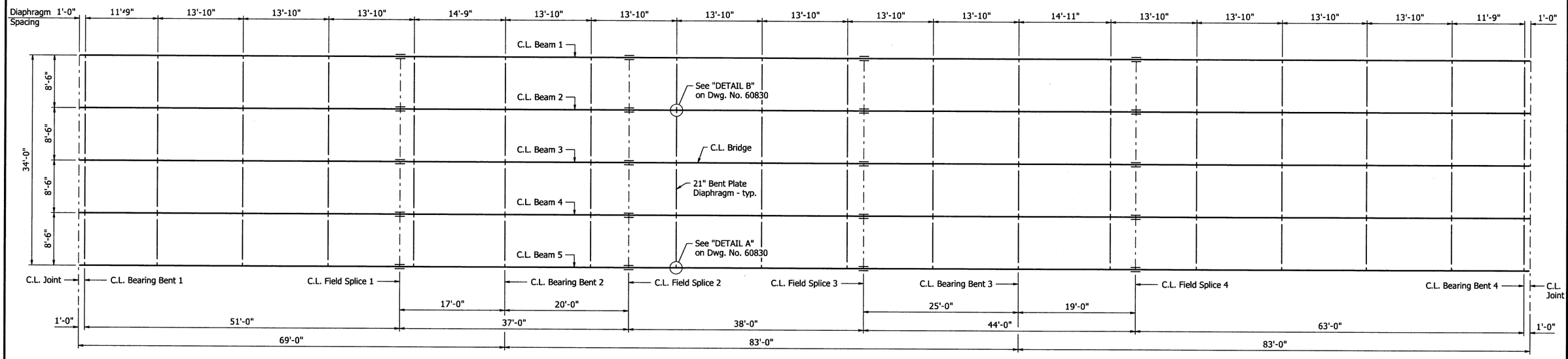
DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DMP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60831

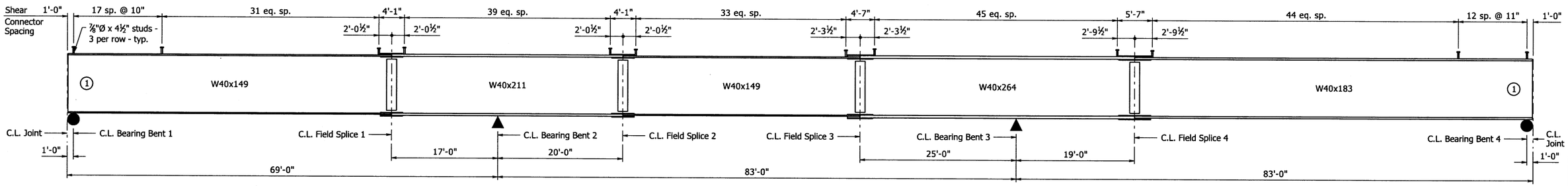
PRINT DATE: 6/7/2019

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.		061509	211	349

(1) A6467 - SPAN DETAILS - 60832



FRAMING PLAN



TYPICAL BEAM ELEVATION

NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

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

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

See Std. Dwg. No. 55007 for additional details.

(1) For painting of Beam Ends, see General Notes on Layout, Dwg. No. 60808.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF 235'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

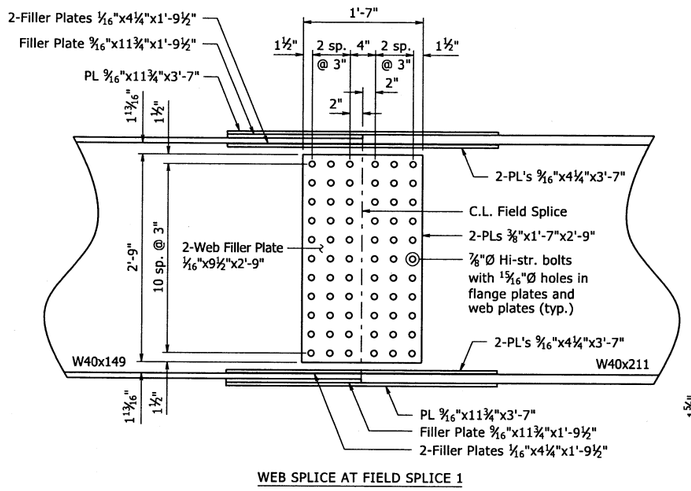
DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1/8" = 1'-0"
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60832

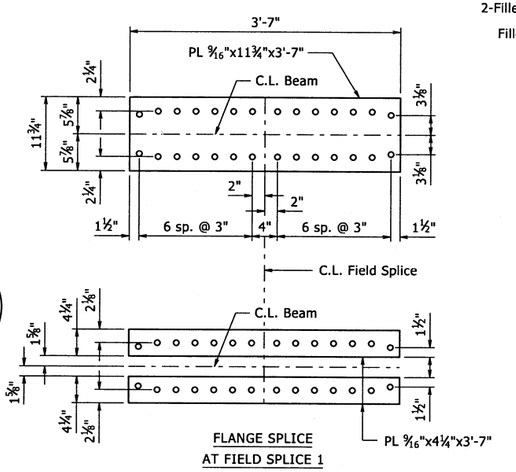
PRINT DATE: 6/7/2019

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.		061509	212	349

(1) A6467 - SPAN DETAILS - 60833



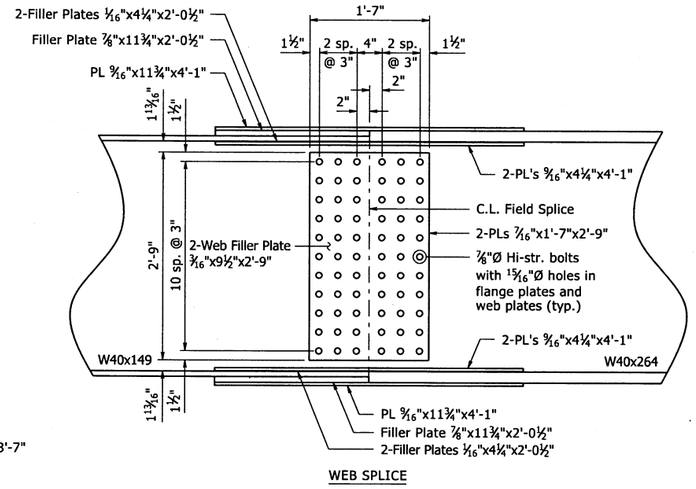
WEB SPLICE AT FIELD SPLICE 1



FLANGE SPLICE AT FIELD SPLICE 1

DETAILS OF FIELD SPLICE 1

FIELD SPLICE 2 SIMILIAR



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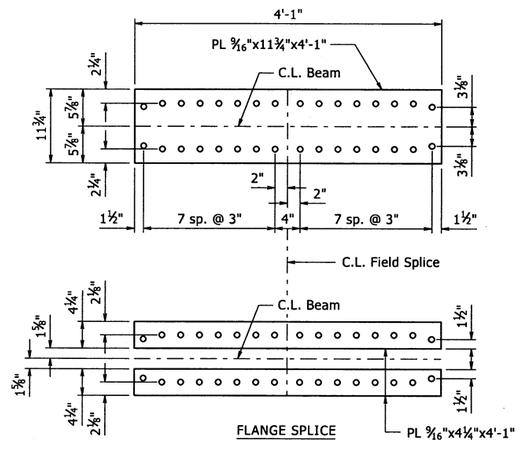
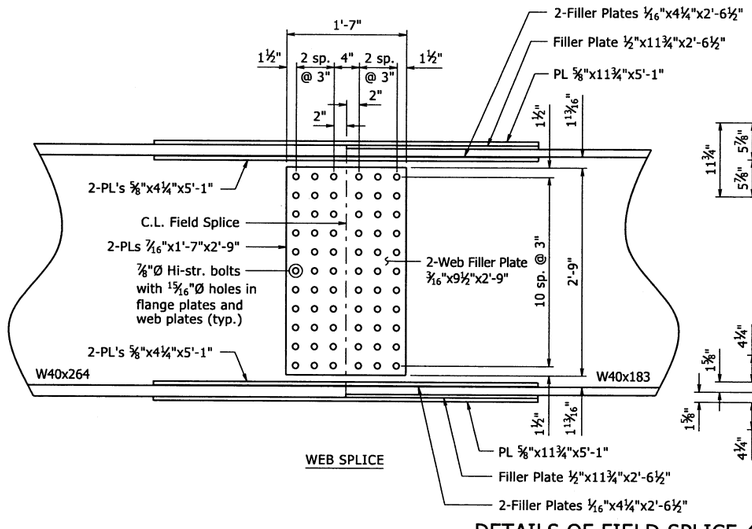


FLANGE SPLICE

DETAILS OF FIELD SPLICE 3



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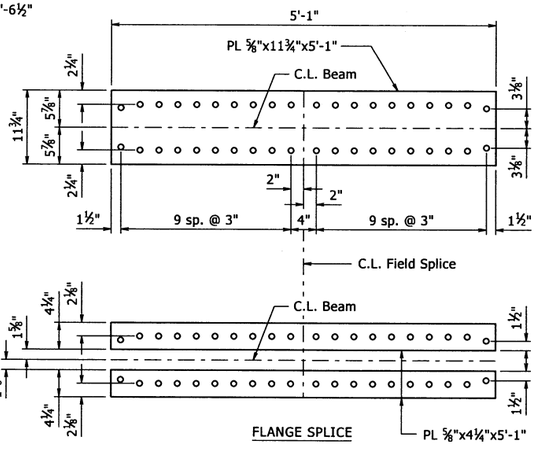


FLANGE SPLICE

DETAILS OF FIELD SPLICE 4

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF 235'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60833

PRINT DATE: 6/7/2019

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.		061509	2/3	349
				(1)		A6467 - SPAN DETAILS - 60834		

NOTES:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2). 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. 72 hours shall elapse between the completion of the bridge deck pour and the start of the sidewalk pour. 72 hours shall elapse between the end of the sidewalk pour and the start of the parapet railing pour. Any sidewalk or railing pours made before the entire slab unit has been placed must be approved by the Engineer.

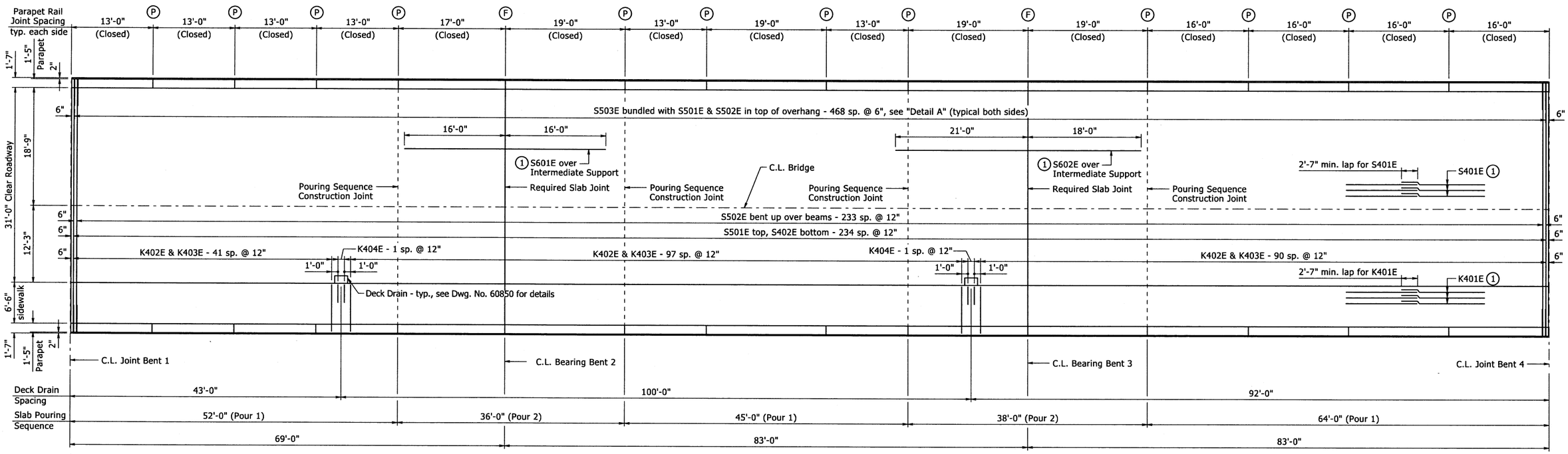
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints.

(F) C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab (high side) or sidewalk (low side).

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab (high side) or sidewalk (low side).

(1) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 60830.



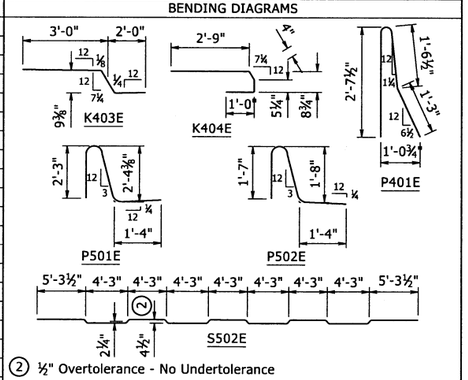
REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

BAR LIST

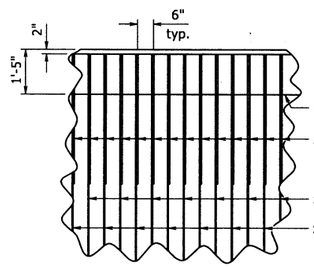
MARK	NO. REQ'D	LENGTH	P.D.
K401E	48	41'-4"	Str.
K402E	231	7'-6"	Str.
K403E	231	5'-5"	2"
K404E	4	4'-6"	2"
P401E	940	5'-6"	3"
P402E	88	5'-6"	Str.
P403E	84	12'-8"	Str.
P404E	56	15'-8"	Str.
P405E	14	16'-8"	Str.
P406E	42	18'-8"	Str.
P501E	470	6'-1"	3¾"
P502E	470	4'-8"	3¾"
S401E	714	41'-4"	Str.
S402E	235	40'-4"	Str.
S501E	235	40'-4"	Str.
S502E	234	41'-2"	3"
S503E	938	5'-3"	Str.
S601E	44	32'-0"	Str.
S602E	44	39'-0"	Str.

BENDING DIAGRAMS



(2) ½" Overtolerance - No Undertolerance

Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.



DETAIL A
NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF 235'-0" CONTINUOUS COMPOSITE W-BEAM UNIT DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: As Noted

BRIDGE NO. A6467
DRAWING NO. 60834

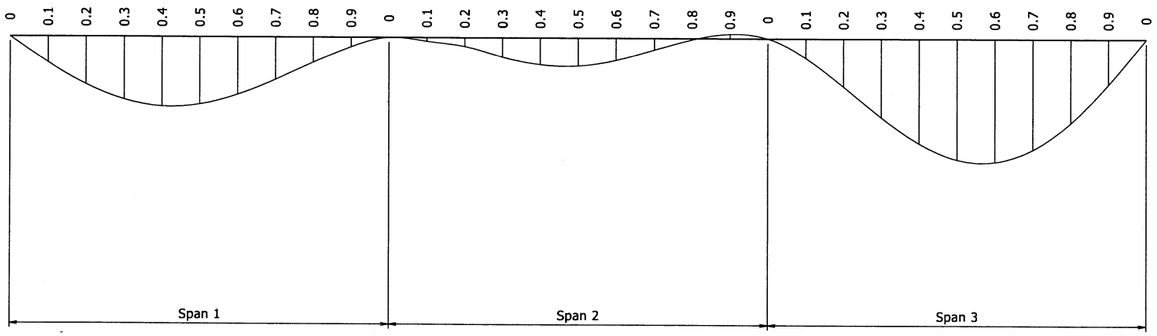
PRINT DATE: 6/7/2019

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.		061509	214	349
				(1)		A6467 - SPAN DETAILS - 60835		

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel				Structural Steel + Slab				Structural Steel + Slab + Sidewalk + Parapet			
		Beam 1	Beams 2 & 3	Beam 4	Beam 5	Beam 1	Beams 2 & 3	Beam 4	Beam 5	Beam 1	Beams 2 & 3	Beam 4	Beam 5
1	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.042	0.045	0.045	0.042	0.268	0.307	0.307	0.268	0.294	0.323	0.371	0.343
	0.2	0.077	0.084	0.084	0.077	0.495	0.567	0.567	0.495	0.542	0.597	0.685	0.633
	0.3	0.101	0.110	0.110	0.101	0.651	0.745	0.745	0.650	0.713	0.785	0.901	0.832
	0.4	0.112	0.121	0.121	0.112	0.719	0.823	0.823	0.719	0.788	0.867	0.996	0.921
	0.5	0.108	0.117	0.117	0.108	0.697	0.798	0.798	0.697	0.764	0.841	0.966	0.893
	0.6	0.092	0.099	0.099	0.092	0.595	0.681	0.681	0.595	0.653	0.718	0.825	0.763
	0.7	0.067	0.072	0.072	0.067	0.437	0.500	0.500	0.437	0.479	0.527	0.606	0.561
	0.8	0.030	0.042	0.042	0.039	0.258	0.296	0.296	0.259	0.283	0.312	0.359	0.332
	0.9	0.014	0.016	0.016	0.014	0.099	0.114	0.114	0.099	0.109	0.120	0.138	0.127
2	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.004	0.004	0.004	0.004	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.004
	0.2	0.021	0.022	0.022	0.021	0.085	0.096	0.096	0.085	0.095	0.103	0.122	0.115
	0.3	0.041	0.043	0.043	0.041	0.191	0.217	0.217	0.191	0.213	0.231	0.271	0.254
	0.4	0.055	0.058	0.058	0.055	0.267	0.304	0.304	0.267	0.296	0.323	0.378	0.353
	0.5	0.057	0.060	0.060	0.057	0.279	0.317	0.317	0.279	0.310	0.337	0.394	0.368
	0.6	0.046	0.049	0.049	0.046	0.220	0.250	0.250	0.220	0.244	0.266	0.311	0.291
	0.7	0.026	0.027	0.027	0.026	0.114	0.129	0.129	0.114	0.127	0.138	0.163	0.153
	0.8	0.005	0.005	0.005	0.005	0.010	0.011	0.011	0.010	0.012	0.012	0.016	0.016
	0.9	-0.008	-0.008	-0.008	-0.008	-0.048	-0.055	-0.055	-0.048	-0.053	-0.058	-0.066	-0.061
3	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.037	0.039	0.039	0.037	0.196	0.223	0.223	0.196	0.216	0.236	0.274	0.256
	0.2	0.092	0.098	0.098	0.092	0.485	0.552	0.552	0.485	0.536	0.585	0.679	0.633
	0.3	0.151	0.161	0.161	0.151	0.795	0.906	0.906	0.795	0.878	0.960	1.114	1.038
	0.4	0.201	0.214	0.214	0.201	1.060	1.208	1.208	1.060	1.170	1.279	1.484	1.382
	0.5	0.232	0.247	0.247	0.232	1.224	1.395	1.395	1.224	1.351	1.477	1.713	1.595
	0.6	0.236	0.252	0.252	0.236	1.250	1.424	1.424	1.249	1.379	1.507	1.747	1.626
	0.7	0.212	0.226	0.226	0.212	1.123	1.279	1.279	1.123	1.239	1.354	1.569	1.461
	0.8	0.161	0.171	0.171	0.161	0.851	0.969	0.969	0.851	0.939	1.025	1.188	1.107
	0.9	0.087	0.092	0.092	0.087	0.459	0.523	0.523	0.460	0.506	0.553	0.641	0.598
	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:
Camber for dead load deflection plus vertical curve +/- ¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



DEAD LOAD DEFLECTION DIAGRAM

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-4-19
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF 235'-0" CONTINUOUS COMPOSITE W-BEAM UNIT DRAIN TWO & UPRR

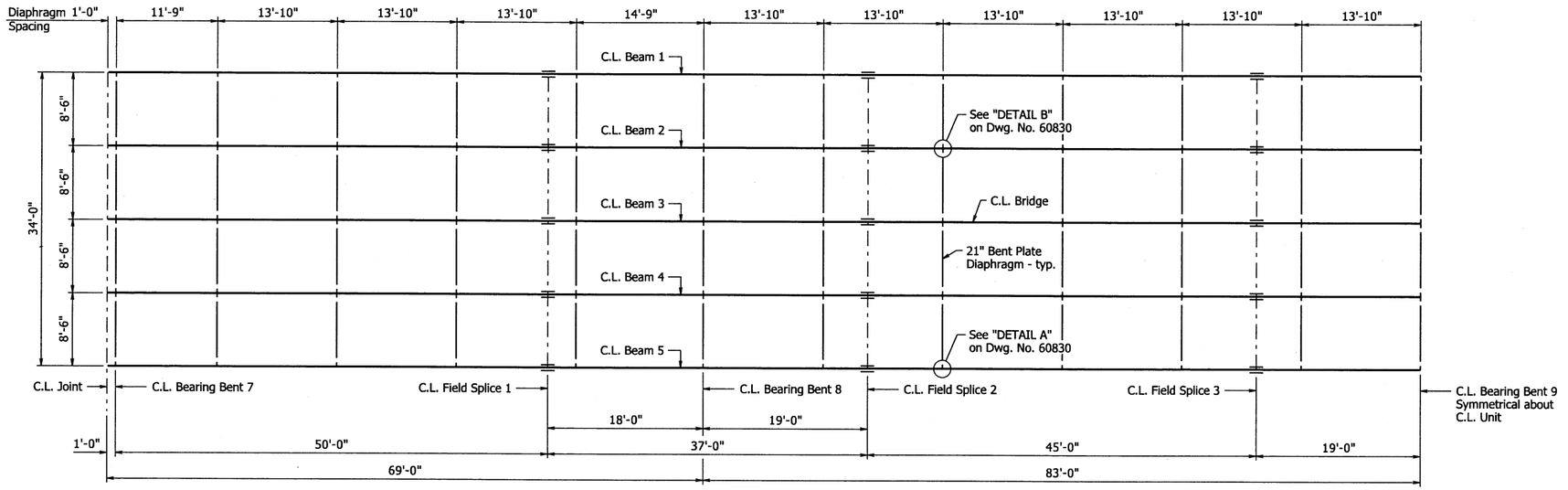
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: No Scale

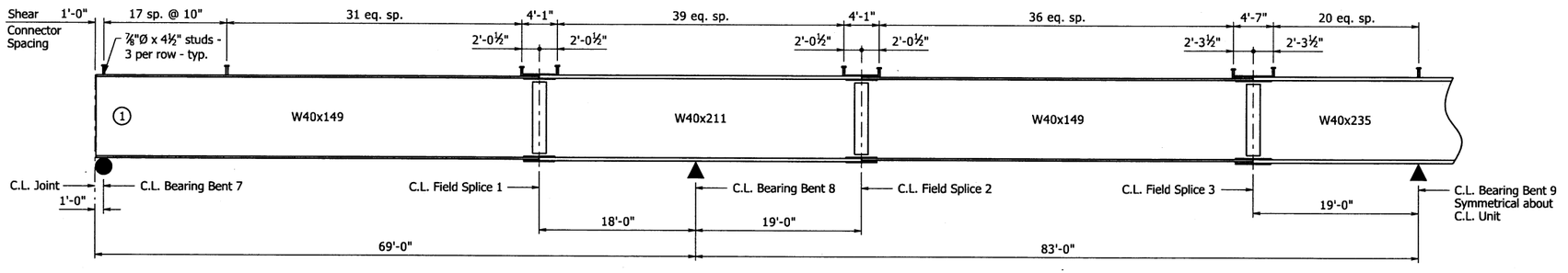
BRIDGE NO. A6467 DRAWING NO. 60835

PRINT DATE: 6/11/2019

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.		061509	215	349
				① A6467 - SPAN DETAILS - 60836				



FRAMING PLAN



TYPICAL BEAM ELEVATION

NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

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

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

See Std. Dwg. No. 55007 for additional details.

① For painting of Beam Ends, see General Notes on Layout, Dwg. No. 60808.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF 304'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

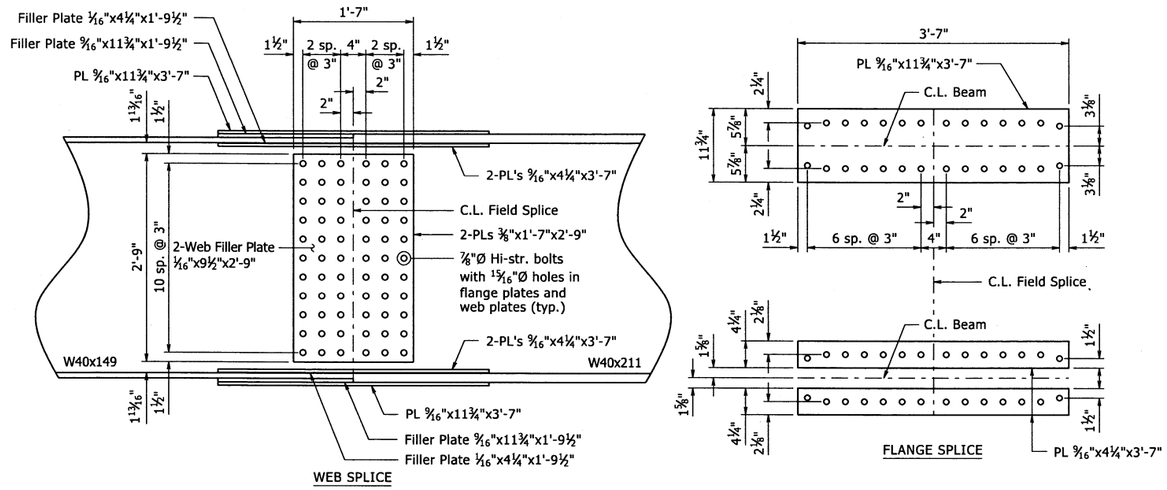
DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: ⅛"=1'-0"
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60836

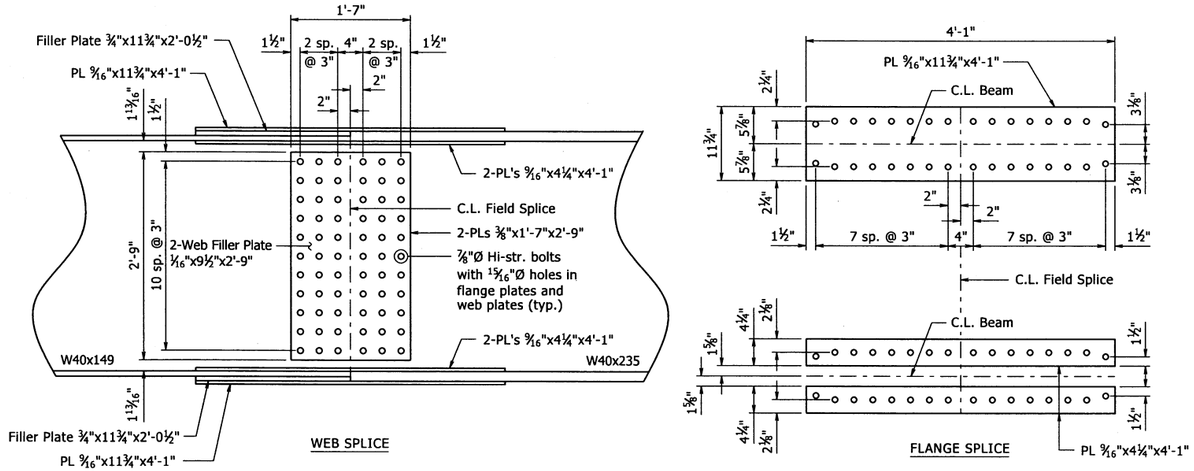
PRINT DATE: 6/7/2019

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.		061509	216	349

(1) A6467 - SPAN DETAILS - 60837



DETAILS OF FIELD SPLICE 1 & 2



DETAILS OF FIELD SPLICES 3

FIELD SPLICE 4 SIMILAR

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF 304'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: No Scale

BRIDGE NO. A6467 DRAWING NO. 60837

PRINT DATE: 6/7/2019

NOTES:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2). 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. 72 hours shall elapse between the completion of the bridge deck pour and the start of the sidewalk pour. 72 hours shall elapse between the end of the sidewalk pour and the start of the parapet railing pour. Any sidewalk or railing pours made before the entire slab unit has been placed must be approved by the Engineer.

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.

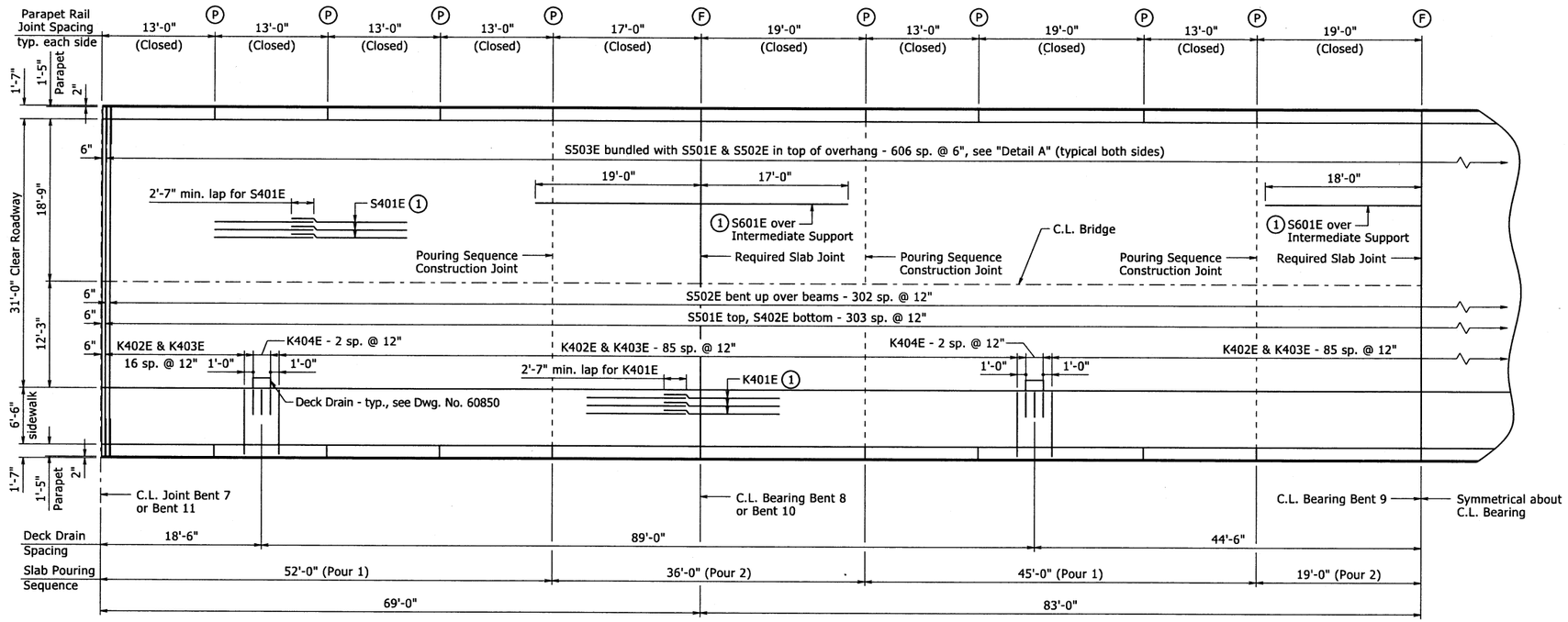
Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints.

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.		061509	217	349
				①		A6467 - SPAN DETAILS - 60838		

Ⓕ C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab (high side) or sidewalk (low side).

Ⓟ C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab (high side) or sidewalk (low side).

① Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 60830.



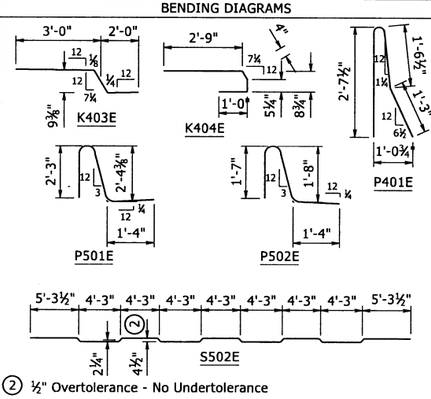
REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

BAR LIST

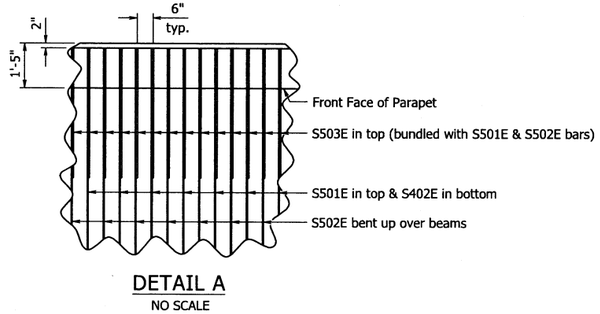
MARK	NO. REQ'D	LENGTH	P.D.
K401E	64	40'-3"	Str.
K402E	292	7'-6"	Str.
K403E	292	5'-5"	2"
K404E	12	4'-6"	2"
P401E	1216	5'-6"	3"
P402E	128	5'-6"	Str.
P403E	168	12'-8"	Str.
P405E	28	16'-8"	Str.
P406E	84	18'-8"	Str.
P501E	608	6'-1"	3¾"
P502E	608	4'-8"	3¾"
S401E	952	40'-3"	Str.
S402E	304	40'-4"	Str.
S501E	304	40'-4"	Str.
S502E	303	41'-2"	3"
S503E	1214	5'-3"	Str.
S601E	132	36'-0"	Str.

BENDING DIAGRAMS



② ½" Overtolerance - No Undertolerance

Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.



DETAIL A

NO SCALE

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-1-19

BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF 304'-0" CONTINUOUS COMPOSITE W-BEAM UNIT DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHJ DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60838

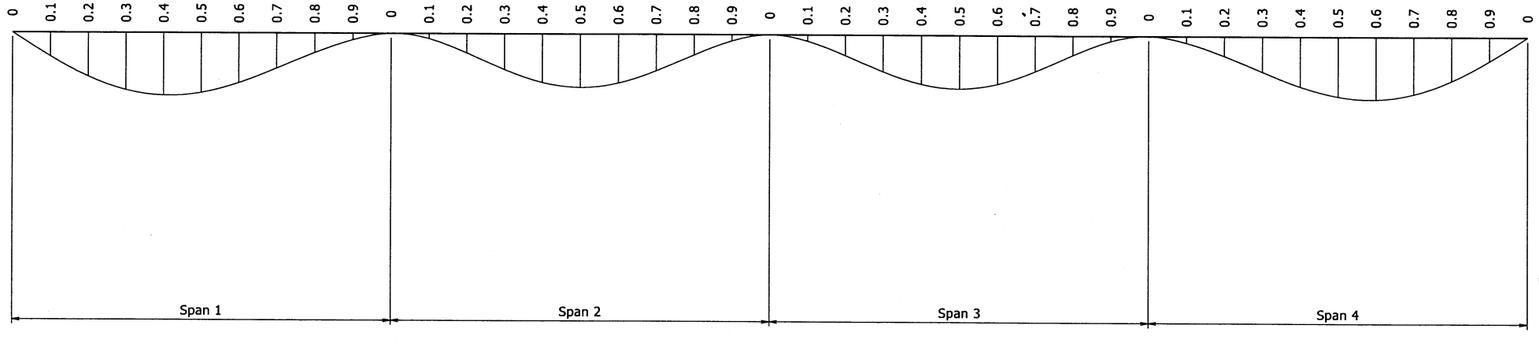
PRINT DATE: 6/7/2019

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.		061509	28	349
				(1)		A6467 - SPAN DETAILS - 60839		

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel				Structural Steel + Slab				Structural Steel + Slab + Sidewalk + Parapet			
		Beam 1	Beams 2 & 3	Beam 4	Beam 5	Beam 1	Beams 2 & 3	Beam 4	Beam 5	Beam 1	Beams 2 & 3	Beam 4	Beam 5
1	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.038	0.041	0.041	0.038	0.246	0.281	0.281	0.246	0.270	0.296	0.340	0.314
	0.2	0.070	0.074	0.074	0.070	0.451	0.516	0.516	0.451	0.494	0.544	0.624	0.578
	0.3	0.091	0.097	0.097	0.091	0.589	0.673	0.673	0.589	0.646	0.710	0.815	0.754
	0.4	0.100	0.106	0.106	0.100	0.643	0.735	0.735	0.643	0.705	0.775	0.891	0.825
	0.5	0.095	0.101	0.101	0.095	0.613	0.701	0.701	0.613	0.673	0.739	0.850	0.787
	0.6	0.079	0.084	0.084	0.079	0.511	0.584	0.584	0.511	0.561	0.616	0.709	0.657
	0.7	0.055	0.059	0.059	0.055	0.361	0.413	0.413	0.361	0.397	0.436	0.502	0.465
	0.8	0.030	0.032	0.032	0.030	0.200	0.229	0.229	0.200	0.220	0.242	0.278	0.258
	0.9	0.010	0.010	0.010	0.010	0.066	0.076	0.076	0.066	0.072	0.080	0.092	0.086
2	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.011	0.011	0.011	0.011	0.052	0.059	0.059	0.052	0.058	0.063	0.074	0.069
	0.2	0.036	0.037	0.037	0.036	0.194	0.221	0.221	0.194	0.215	0.235	0.274	0.256
	0.3	0.064	0.067	0.067	0.064	0.360	0.410	0.410	0.360	0.398	0.435	0.505	0.471
	0.4	0.085	0.090	0.090	0.085	0.490	0.559	0.559	0.490	0.541	0.592	0.687	0.640
	0.5	0.093	0.098	0.098	0.093	0.540	0.616	0.616	0.540	0.596	0.652	0.755	0.704
	0.6	0.085	0.090	0.090	0.085	0.495	0.565	0.565	0.495	0.547	0.598	0.693	0.646
	0.7	0.064	0.068	0.068	0.064	0.370	0.421	0.421	0.370	0.409	0.446	0.519	0.482
	0.8	0.036	0.038	0.038	0.036	0.207	0.236	0.236	0.207	0.229	0.250	0.291	0.271
	0.9	0.011	0.012	0.012	0.011	0.064	0.073	0.073	0.064	0.071	0.077	0.090	0.083
3	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.011	0.012	0.012	0.011	0.064	0.073	0.073	0.064	0.071	0.077	0.090	0.083
	0.2	0.036	0.038	0.038	0.036	0.207	0.236	0.236	0.207	0.229	0.250	0.291	0.271
	0.3	0.064	0.068	0.068	0.064	0.370	0.421	0.421	0.370	0.409	0.446	0.519	0.482
	0.4	0.085	0.090	0.090	0.085	0.495	0.565	0.565	0.495	0.547	0.598	0.693	0.646
	0.5	0.093	0.098	0.098	0.093	0.540	0.616	0.616	0.540	0.596	0.652	0.755	0.704
	0.6	0.085	0.090	0.090	0.085	0.490	0.559	0.559	0.490	0.541	0.592	0.687	0.640
	0.7	0.064	0.067	0.067	0.064	0.360	0.410	0.410	0.360	0.398	0.435	0.505	0.471
	0.8	0.036	0.037	0.037	0.036	0.194	0.221	0.221	0.194	0.215	0.235	0.274	0.256
	0.9	0.011	0.011	0.011	0.011	0.052	0.059	0.059	0.052	0.058	0.063	0.074	0.069
4	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.010	0.010	0.010	0.010	0.066	0.076	0.076	0.066	0.072	0.080	0.092	0.086
	0.2	0.030	0.032	0.032	0.030	0.200	0.229	0.229	0.200	0.220	0.242	0.278	0.258
	0.3	0.055	0.059	0.059	0.055	0.361	0.413	0.413	0.361	0.397	0.436	0.502	0.465
	0.4	0.079	0.084	0.084	0.079	0.511	0.584	0.584	0.511	0.561	0.616	0.709	0.657
	0.5	0.095	0.101	0.101	0.095	0.613	0.701	0.701	0.613	0.673	0.739	0.850	0.787
	0.6	0.100	0.106	0.106	0.100	0.643	0.735	0.735	0.643	0.705	0.775	0.891	0.825
	0.7	0.091	0.097	0.097	0.091	0.589	0.673	0.673	0.589	0.646	0.710	0.815	0.754
	0.8	0.070	0.075	0.075	0.070	0.451	0.516	0.516	0.451	0.494	0.544	0.625	0.578
	0.9	0.038	0.041	0.041	0.038	0.246	0.281	0.281	0.246	0.270	0.296	0.340	0.314
	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:
Camber for dead load deflection plus vertical curve +/- ¼" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



DEAD LOAD DEFLECTION DIAGRAM

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 4 OF 4
DETAILS OF 304'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
DRAIN TWO & UPRR

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

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: No Scale
BRIDGE NO. A6467
DRAWING NO. 60839

PRINT DATE: 6/11/2019

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.		061509	219	349
				(1)		A6467 - SPAN DETAILS - 60840		

Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing), and to the roadway face & top of the concrete parapet rail. Polymer Overlay shall be applied to roadway surface. See SP Job No. 061509 "Polymer Overlay" for Polymer Overlay requirements.

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06. Placement of slab bolsters or hi-chairs with full-length lower runners directly on removable deck forms will not be allowed.

Slab Reinforcing

Longitudinal: S401E in top and bottom (place as shown)
S601E, S602E, S603E & S604E over intermediate supports, see "REINFORCING PLAN & DECK POURING SEQUENCE" Dwg. Nos. 60846 & 60847.

Transverse: S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom
S502E @ 12" o.c. bent up over beams
S503E @ 6" in top of overhangs (bundled with #5 bars) both sides

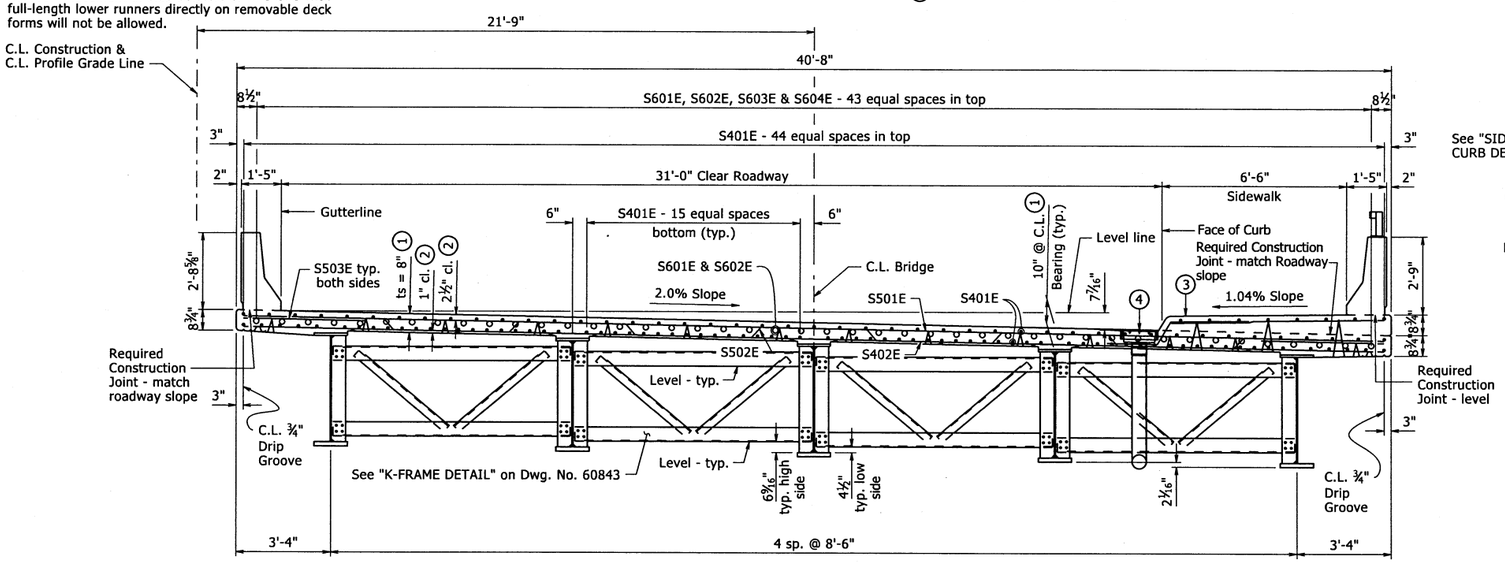
(1) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.

(2) Tolerance Minus = ¼":
Plus = to the amount of slab thickness used to meet slab thickness tolerance.
See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

(3) For additional information see "SIDEWALK DETAIL".

(4) For details of Deck Drains, see Dwg. No. 60850.

(5) For details of joints, see Dwg. No. 60853.

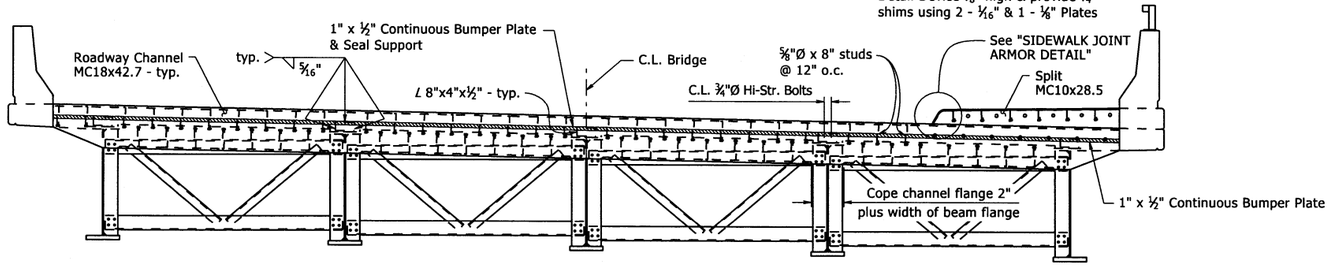


TYPICAL ROADWAY SECTION

LOOKING AHEAD
⅜" = 1'-0"

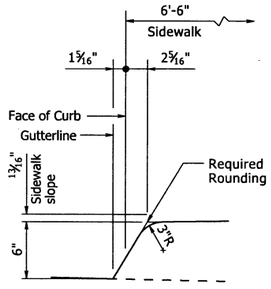
Expansion Device:

Roadway Channel - MC18x42.7
Connection L's 8"x4"x½"
Detail Device ⅛" high & provide ¼" shims using 2 - 1/16" & 1 - ⅛" Plates



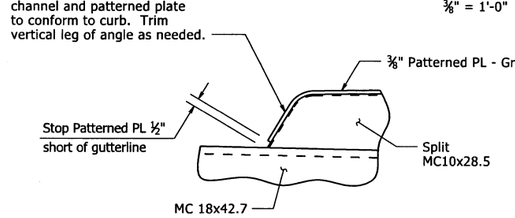
TYPICAL ROADWAY SECTION THRU JOINT

LOOKING AHEAD - BENT 4
⅜" = 1'-0"



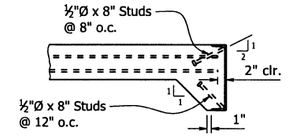
SIDEWALK CURB DETAIL

NO SCALE



SIDEWALK JOINT ARMOR DETAIL

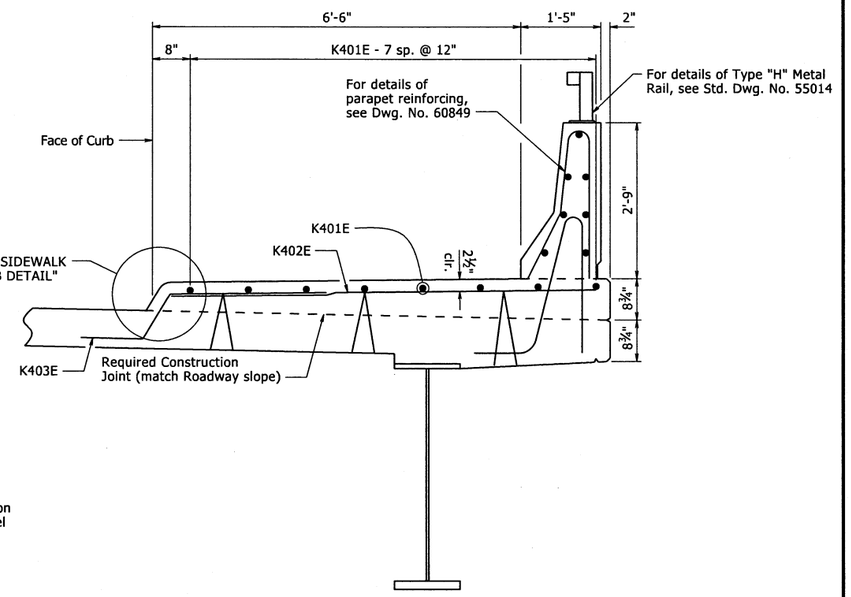
NO SCALE



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

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

NO SCALE



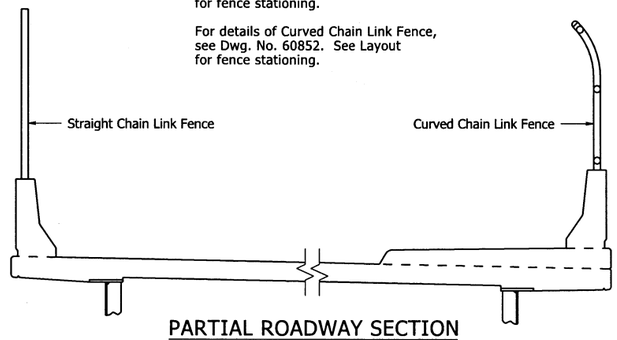
SIDEWALK DETAIL

NO SCALE

NOTES:

For details of Straight Chain Link Fence, see Std. Dwg. No. 60851. See Layout for fence stationing.

For details of Curved Chain Link Fence, see Dwg. No. 60852. See Layout for fence stationing.



PARTIAL ROADWAY SECTION

LOOKING AHEAD
⅜" = 1'-0"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/18/19

BRIDGE ENGINEER

SHEET 1 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

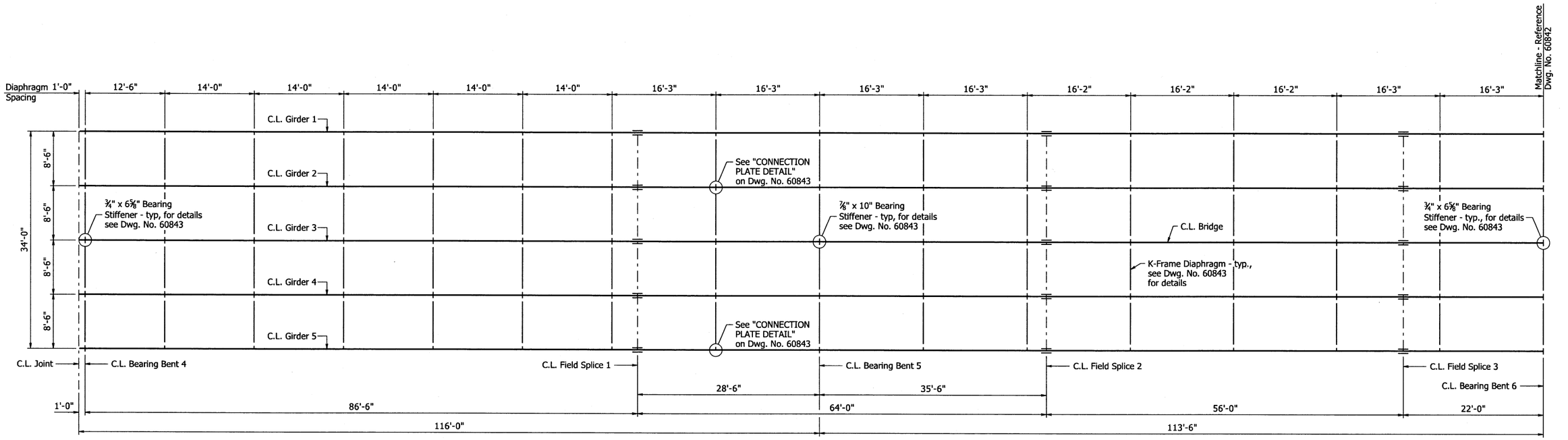
DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHP DATE: 6/18/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60840

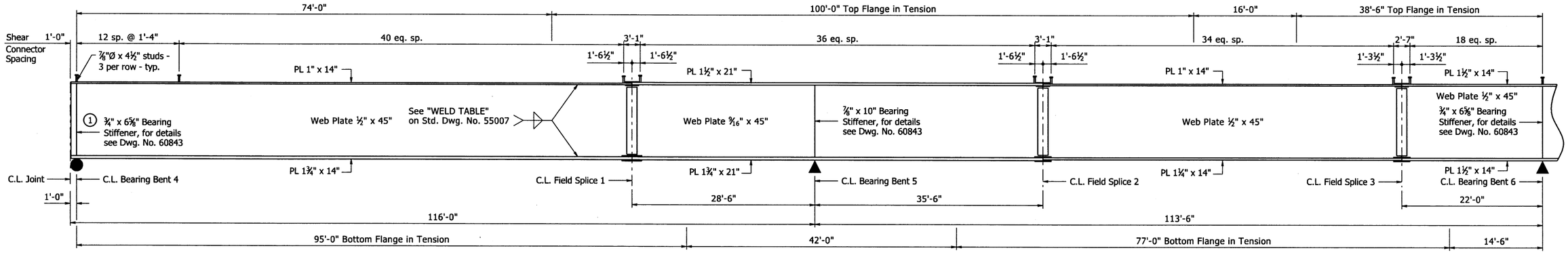
PRINT DATE: 6/18/2019

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.		061509	220	349

(1) A6467 - SPAN DETAILS - 60841



FRAMING PLAN



TYPICAL GIRDER ELEVATION

NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

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

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

See Std. Dwg. No. 55007 for additional details.

(1) For painting of Girder Ends, see General Notes on Layout, Dwg. No. 60808.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6/18/19
BRIDGE ENGINEER

SHEET 2 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
DRAIN TWO & UPRR

ROUTE SEC.

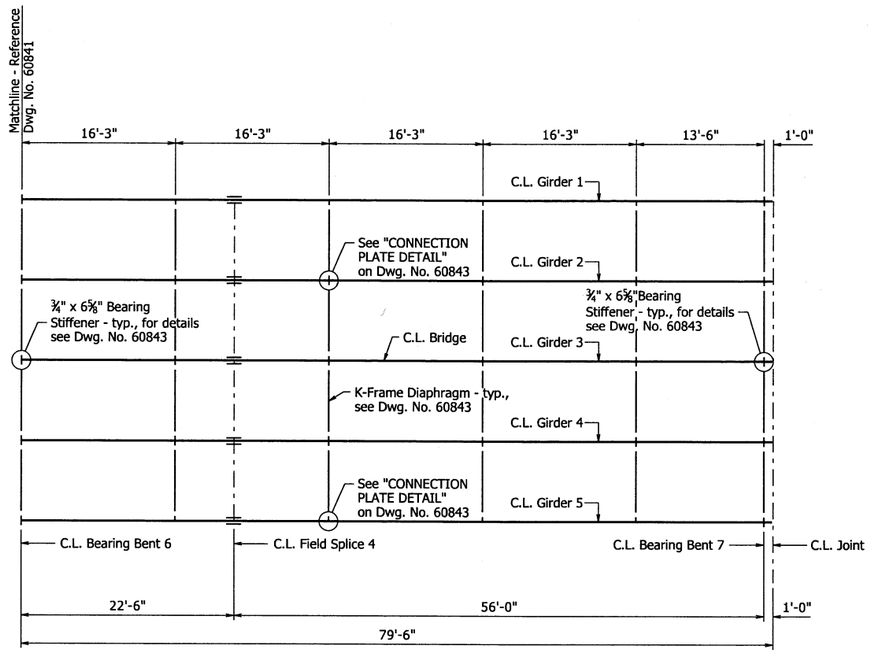
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/18/19 SCALE: ⅛"=1'-0"
DESIGNED BY: KJT DATE: 6/2018

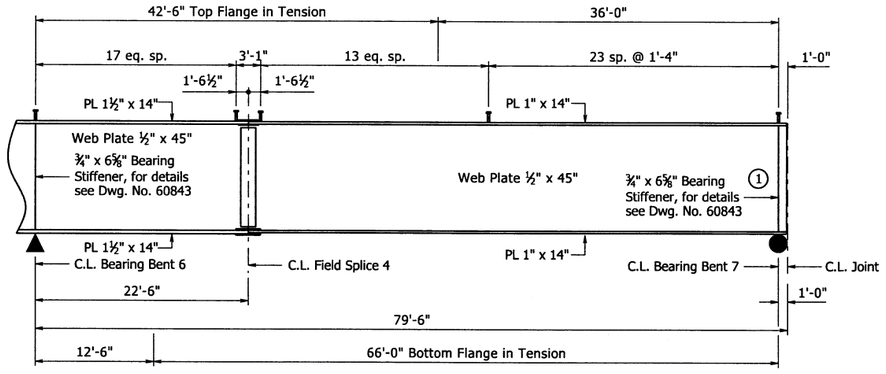
BRIDGE NO. A6467 DRAWING NO. 60841

PRINT DATE: 6/18/2019

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.		061509	221	349
				①	A6467 - SPAN DETAILS - 60842			



FRAMING PLAN



TYPICAL GIRDER ELEVATION

NOTES:

All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

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

For additional information, see Layout.

For General Notes, see Std. Dwg. No. 55006.

See Std. Dwg. No. 55007 for additional details.

① For painting of Girder Ends, see General Notes on Layout, Dwg. No. 60808.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-7-19
BRIDGE ENGINEER

SHEET 3 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
DRAIN TWO & UPRR

ROUTE SEC.

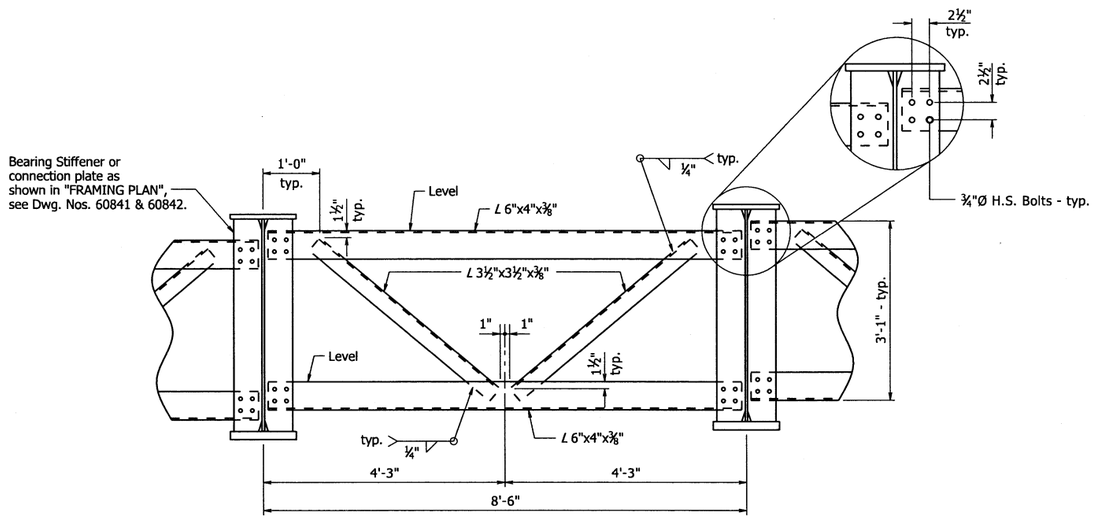
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: ⅛"=1'-0"
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60842

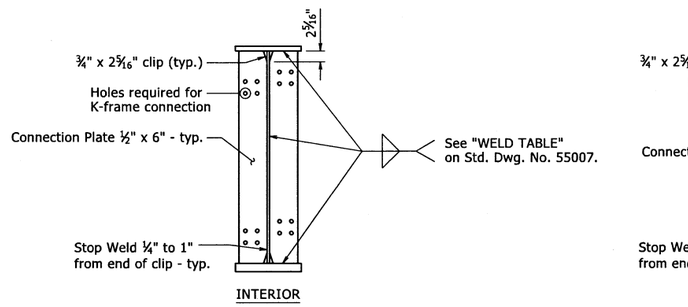
PRINT DATE: 6/7/2019

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.		061509	222	349
				①		A6467 - SPAN DETAILS - 60843		



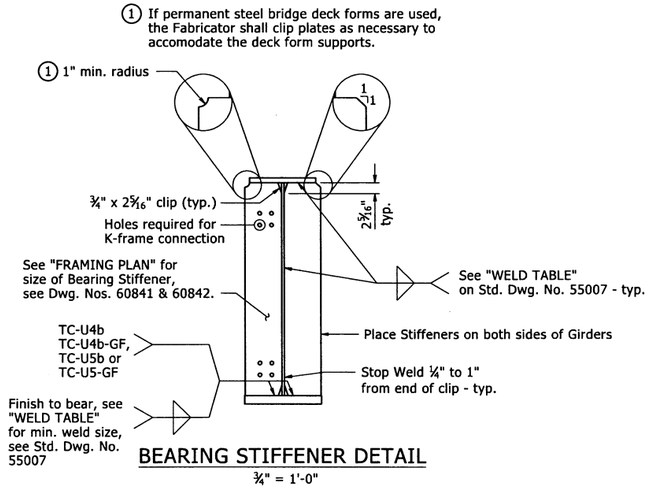
K-FRAME DETAIL

¾" = 1'-0"



CONNECTION PLATE DETAIL

¾" = 1'-0"



BEARING STIFFENER DETAIL

¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/18/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 4 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
DRAIN TWO & UPRR

ROUTE SEC.

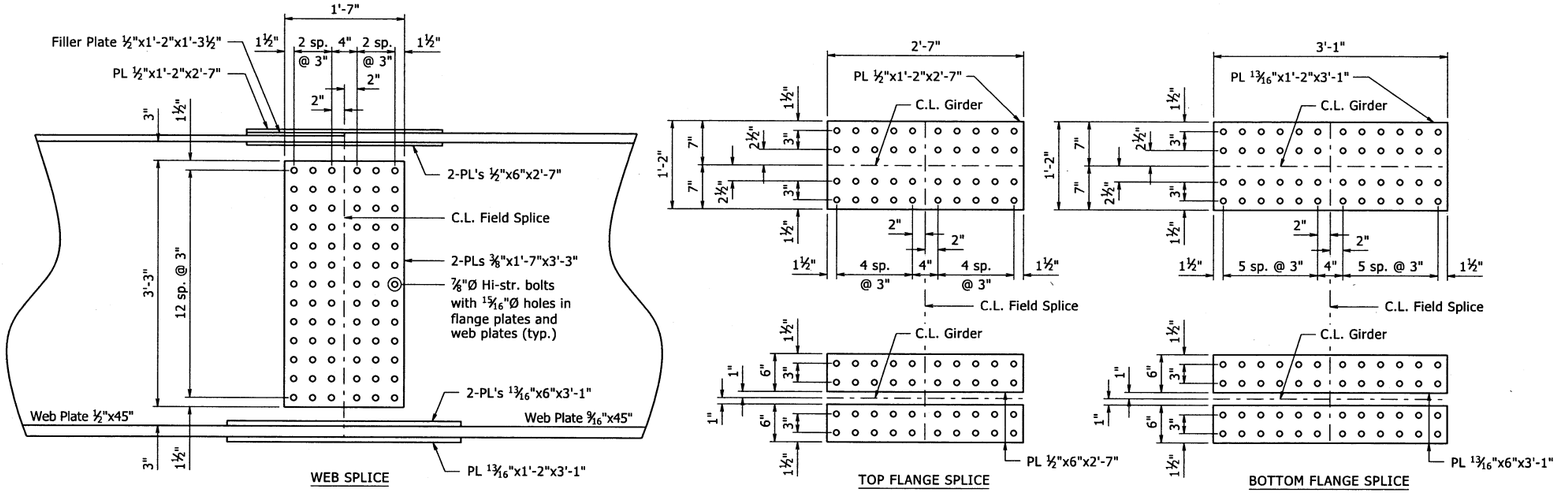
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/18/19 SCALE: ¾"=1'-0"
DESIGNED BY: KJT DATE: 6/2018

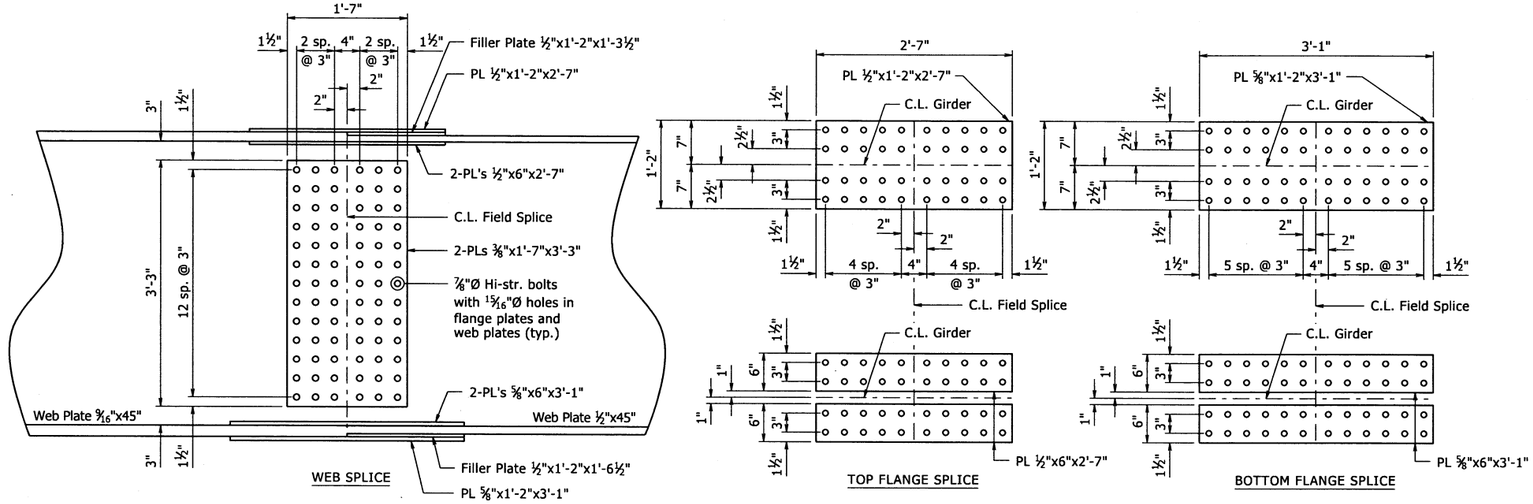
BRIDGE NO. A6467 DRAWING NO. 60843

PRINT DATE: 6/18/2019

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.		061509	223	347
				①	A6467 - SPAN DETAILS - 60844			



DETAILS OF FIELD SPLICE 1



DETAILS OF FIELD SPLICE 2

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 5 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT DRAIN TWO & UPRR

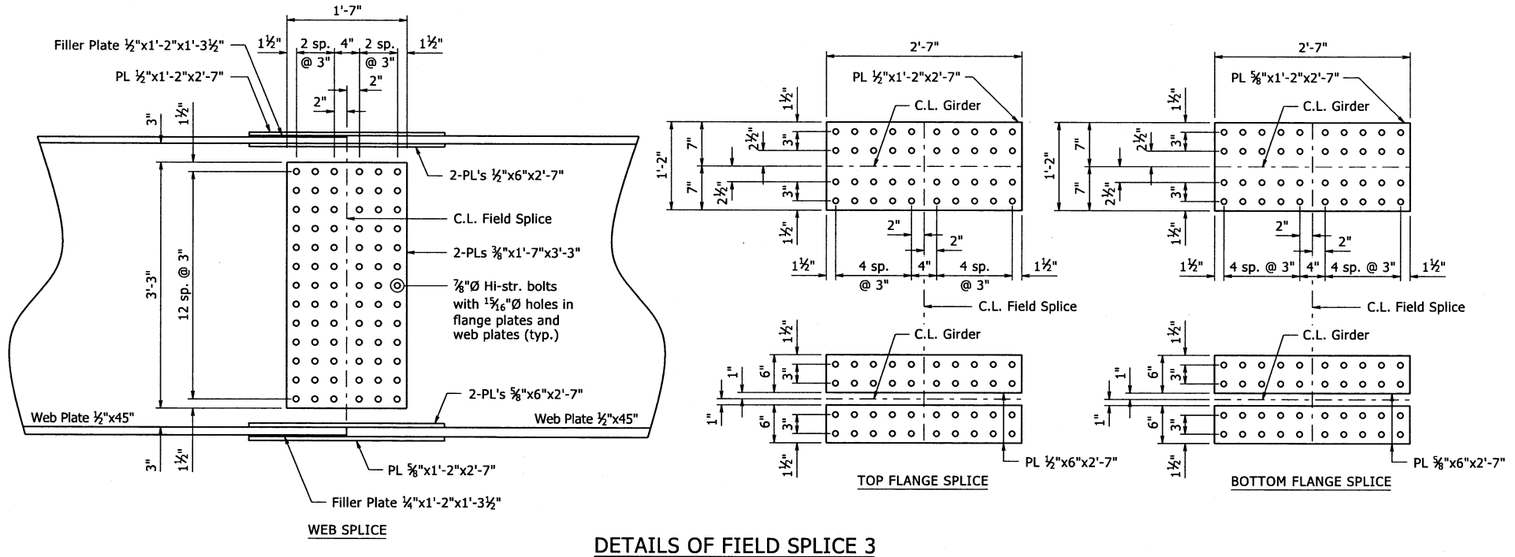
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: KJT DATE: 6/2018

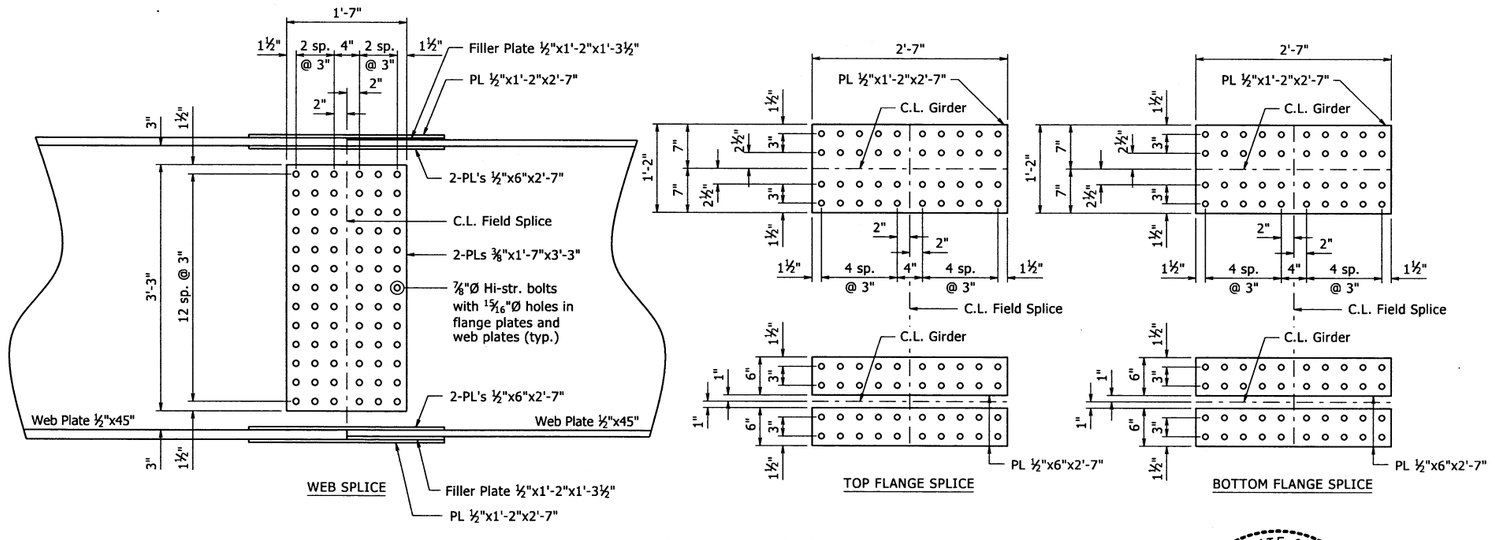
BRIDGE NO. A6467 DRAWING NO. 60844

PRINT DATE: 6/7/2019

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.		061509	224	341
				(1)		A6467 - SPAN DETAILS - 60845		



DETAILS OF FIELD SPLICE 3



DETAILS OF FIELD SPLICE 4

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 6 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60845

PRINT DATE: 6/7/2019

NOTES:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2). 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours. 72 hours shall elapse between the completion of the bridge deck pour and the start of the sidewalk pour. 72 hours shall elapse between the end of the sidewalk pour and the start of the parapet railing pour. Any sidewalk or railing pours made before the entire slab unit has been placed must be approved by the Engineer.

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.

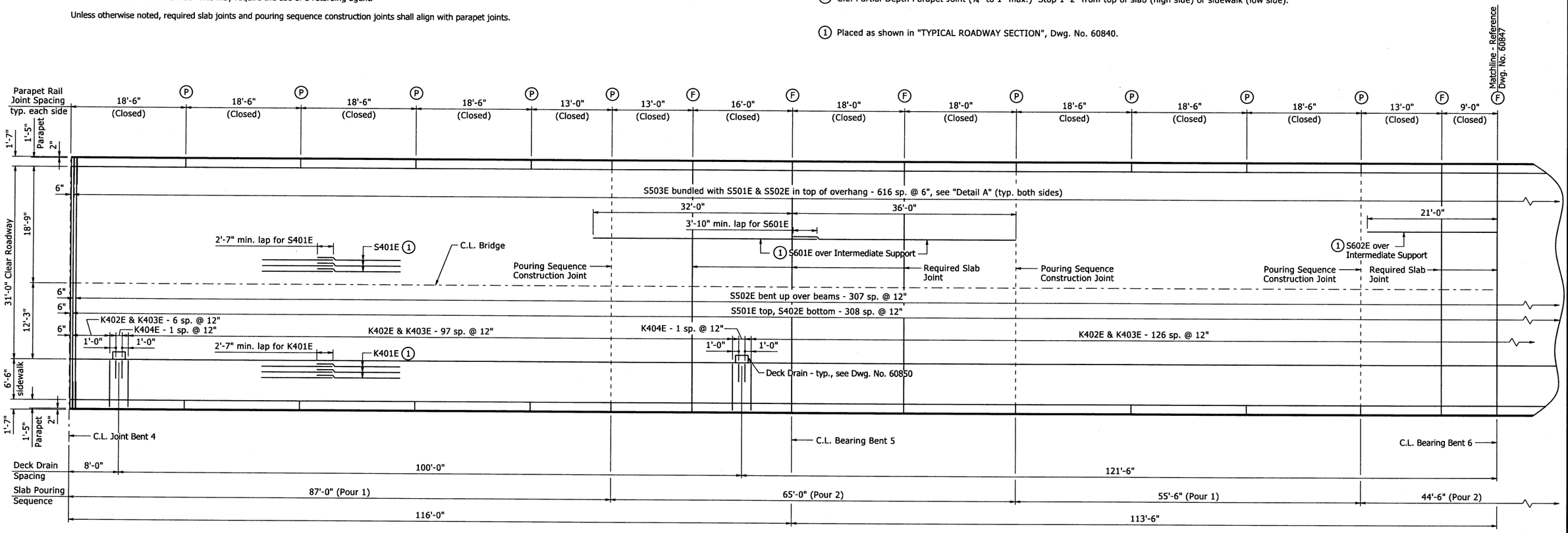
Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints.

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.		061509	225	349
				(1)		A6467 - SPAN DETAILS - 60846		

(F) C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab (high side) or sidewalk (low side).

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab (high side) or sidewalk (low side).

(1) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 60840.



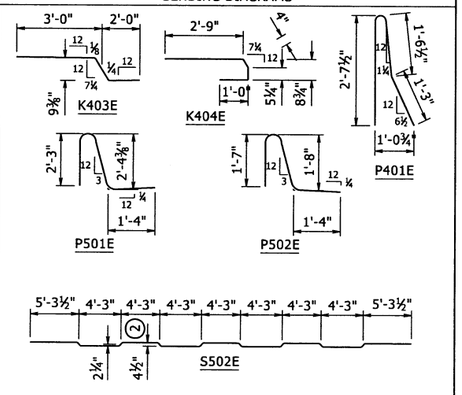
REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

BAR LIST

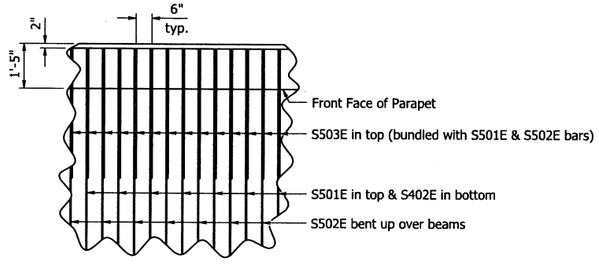
MARK	NO. REQ'D	LENGTH	P.D.
K401E	64	40'-10"	Str.
K402E	302	7'-6"	Str.
K403E	302	5'-5"	2"
K404E	7	4'-6"	2"
P401E	1236	5'-6"	3"
P402E	112	5'-6"	Str.
P403E	14	8'-8"	Str.
P404E	14	9'-2"	Str.
P405E	56	12'-8"	Str.
P406E	14	15'-8"	Str.
P407E	28	17'-8"	Str.
P408E	98	18'-2"	Str.
P409E	42	18'-8"	Str.
P501E	618	6'-1"	3¾"
P502E	618	4'-8"	3¾"
S401E	952	40'-10"	Str.
S402E	309	40'-4"	Str.
S501E	309	40'-4"	Str.
S502E	308	41'-2"	3"
S503E	1234	5'-3"	Str.
S601E	88	36'-0"	Str.
S602E	44	51'-0"	Str.

BENDING DIAGRAMS



(2) ½" Overtolerance - No Undertolerance

Note: Dimensions are out to out of bars.
Bars designated with an "E" suffix to be Epoxy Coated.



DETAIL A
NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/6/19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 7 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT DRAIN TWO & UPRR

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

DRAWN BY: CGP DATE: 11/14/18
CHECKED BY: DHH DATE: 6/6/19
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60846

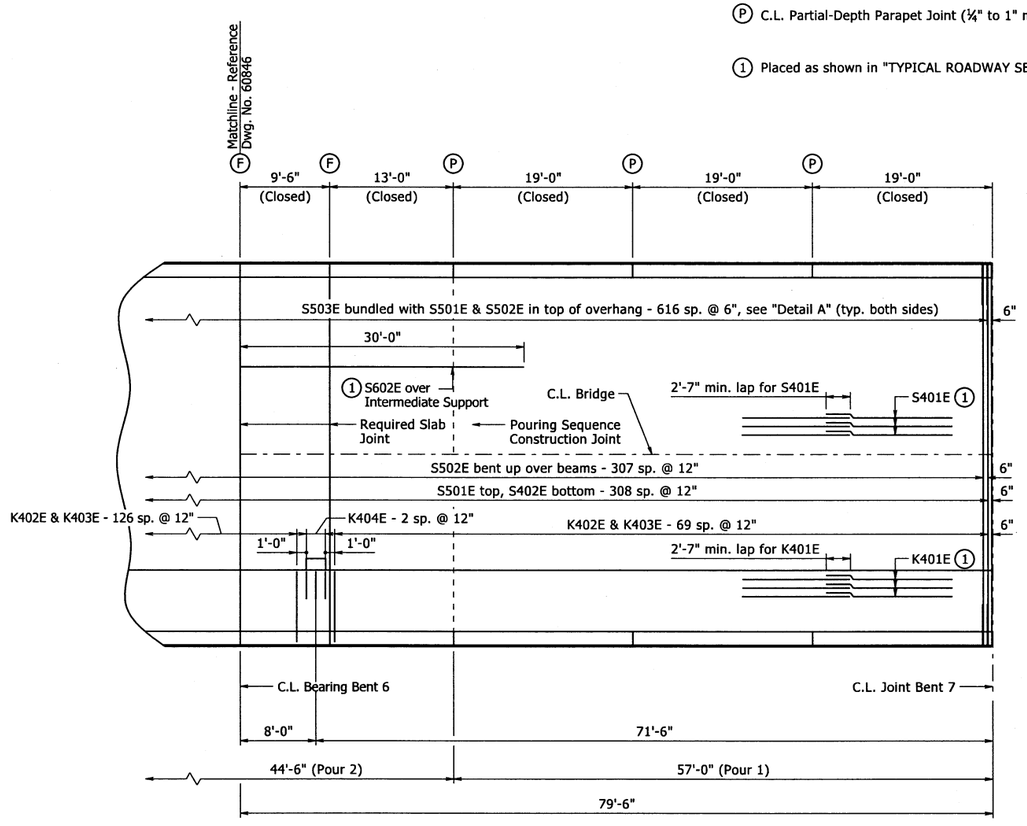
PRINT DATE: 6/7/2019

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.		061509	226	349
				(1)	A6467 - SPAN DETAILS - 60847			

(F) C.L. Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab (high side) or sidewalk (low side).

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab (high side) or sidewalk (low side).

(1) Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 60840.



REINFORCING PLAN & DECK POURING SEQUENCE

⅛" = 1'-0"

NOTE:

See Dwg. No. 60846 for "BAR LIST" & "DETAIL A".

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 8 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: ⅛"=1'-0"
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60847

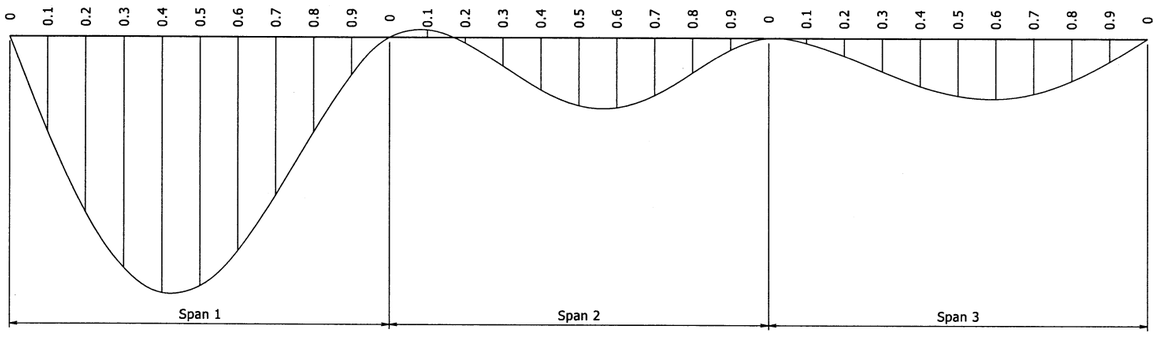
PRINT DATE: 6/7/2019

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.		061509	227	349
				(1)		A6467 - SPAN DETAILS - 60848		

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel				Structural Steel + Slab				Structural Steel + Slab + Sidewalk+ Parapet			
		Beam 1	Beams 2 & 3	Beam 4	Beam 5	Beam 1	Beams 2 & 3	Beam 4	Beam 5	Beam 1	Beams 2 & 3	Beam 4	Beam 5
1	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.200	0.212	0.212	0.200	0.971	1.105	1.105	0.971	1.068	1.168	1.349	1.256
	0.2	0.369	0.391	0.391	0.369	1.792	2.038	2.038	1.792	1.972	2.154	2.489	2.319
	0.3	0.486	0.515	0.515	0.486	2.357	2.681	2.681	2.357	2.595	2.834	3.276	3.052
	0.4	0.538	0.570	0.570	0.538	2.607	2.966	2.966	2.607	2.871	3.136	3.627	3.380
	0.5	0.523	0.554	0.554	0.523	2.532	2.880	2.880	2.532	2.791	3.047	3.527	3.287
	0.6	0.449	0.475	0.475	0.449	2.169	2.467	2.467	2.169	2.392	2.611	3.026	2.822
	0.7	0.332	0.351	0.351	0.332	1.602	1.822	1.822	1.603	1.769	1.929	2.239	2.090
	0.8	0.199	0.211	0.211	0.199	0.962	1.095	1.095	0.962	1.063	1.160	1.347	1.256
	0.9	0.078	0.083	0.083	0.078	0.383	0.436	0.436	0.383	0.423	0.462	0.536	0.499
2	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	-0.012	-0.013	-0.013	-0.012	-0.082	-0.094	-0.094	-0.082	-0.089	-0.098	-0.110	-0.101
	0.2	0.019	0.020	0.020	0.019	0.045	0.050	0.050	0.045	0.055	0.057	0.075	0.074
	0.3	0.070	0.073	0.073	0.070	0.271	0.306	0.306	0.271	0.307	0.330	0.398	0.377
	0.4	0.120	0.126	0.126	0.120	0.509	0.577	0.577	0.509	0.572	0.618	0.735	0.692
	0.5	0.152	0.160	0.160	0.152	0.670	0.760	0.760	0.670	0.749	0.811	0.959	0.901
	0.6	0.154	0.163	0.163	0.154	0.693	0.787	0.787	0.692	0.773	0.839	0.989	0.926
	0.7	0.127	0.134	0.134	0.127	0.571	0.648	0.648	0.571	0.637	0.691	0.813	0.763
	0.8	0.079	0.083	0.083	0.079	0.348	0.394	0.394	0.348	0.388	0.420	0.496	0.466
	0.9	0.029	0.030	0.030	0.029	0.116	0.131	0.131	0.116	0.130	0.140	0.166	0.157
3	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.005	0.006	0.006	0.005	0.052	0.060	0.060	0.052	0.057	0.063	0.072	0.066
	0.2	0.026	0.028	0.028	0.026	0.182	0.208	0.208	0.182	0.200	0.219	0.252	0.234
	0.3	0.052	0.057	0.057	0.052	0.340	0.390	0.390	0.340	0.374	0.412	0.475	0.439
	0.4	0.078	0.084	0.084	0.078	0.487	0.558	0.558	0.488	0.536	0.590	0.681	0.632
	0.5	0.096	0.103	0.103	0.096	0.588	0.673	0.673	0.588	0.648	0.711	0.822	0.762
	0.6	0.102	0.110	0.110	0.102	0.618	0.707	0.707	0.618	0.681	0.748	0.864	0.802
	0.7	0.094	0.101	0.101	0.094	0.566	0.647	0.647	0.566	0.624	0.684	0.791	0.735
	0.8	0.072	0.078	0.078	0.072	0.434	0.497	0.497	0.433	0.478	0.526	0.608	0.562
	0.9	0.040	0.043	0.043	0.040	0.236	0.271	0.271	0.237	0.260	0.287	0.331	0.308
	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:
Camber for dead load deflection plus vertical curve +/- ¼" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



DEAD LOAD DEFLECTION DIAGRAM

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6/11/19
BRIDGE ENGINEER

SHEET 9 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
DRAIN TWO & UPRR

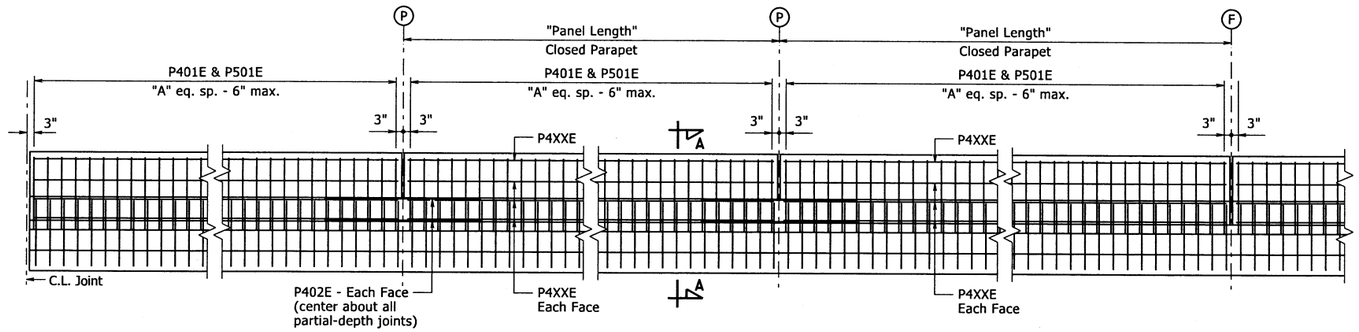
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: KJT DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60848

PRINT DATE: 6/11/2019

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.		061509	228	349
				(1)		A6467 - SPAN DETAILS - 60849		



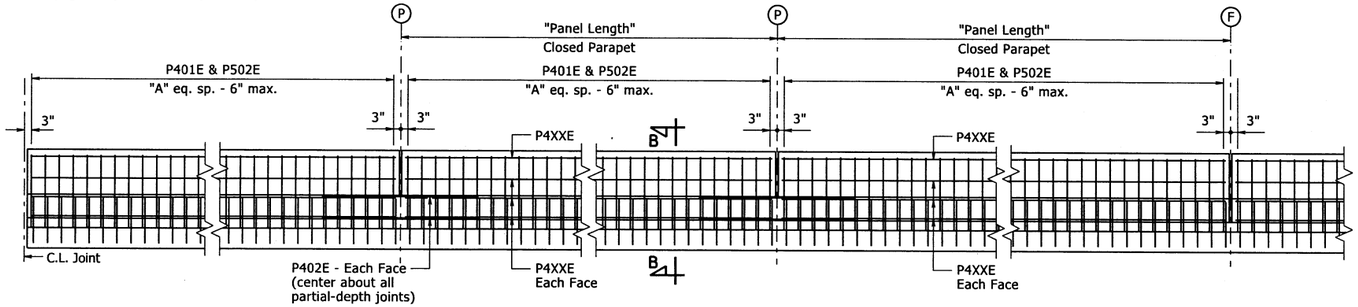
PARAPET RAIL REINFORCING LOW SIDE

3/8" = 1'-0"

(F) C.L. Full-Depth Parapet Joint (¼" to 1" max.) as shown in "REINFORCING PLAN & DECK POURING SEQUENCE", see "TABLE A". Stop 4" from top of slab (high side) or sidewalk (low side).

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "REINFORCING PLAN & DECK POURING SEQUENCE", see "TABLE A". Stop 1'-2" from top of slab (high side) or sidewalk (low side).

Note:
Reference the Layout for the stationing of the chain link fence on top of the parapet rail. See Dwg. No. 60806.

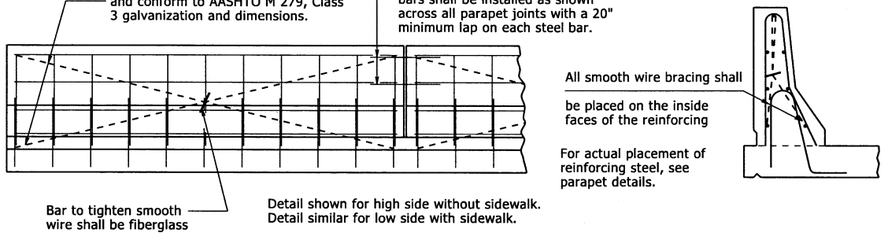


PARAPET RAIL REINFORCING HIGH SIDE

3/8" = 1'-0"

TABLE OF PARAPET RAIL VARIABLES

309'-0" Unit		
Panel Length	"A"	P4XXE Bar
9'-0"	17	P403E
9'-6"	18	P404E
13'-0"	25	P405E
16'-0"	31	P406E
18'-0"	35	P407E
18'-6"	36	P408E
19'-0"	37	P409E

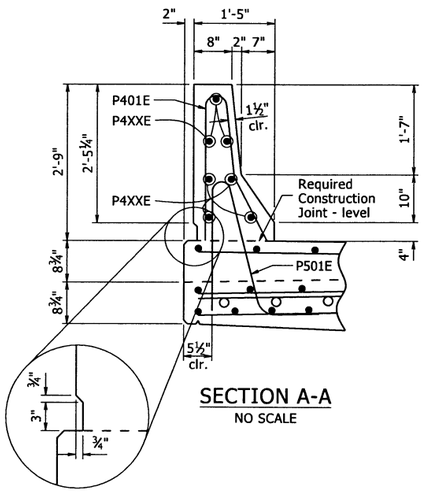


All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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 apperance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

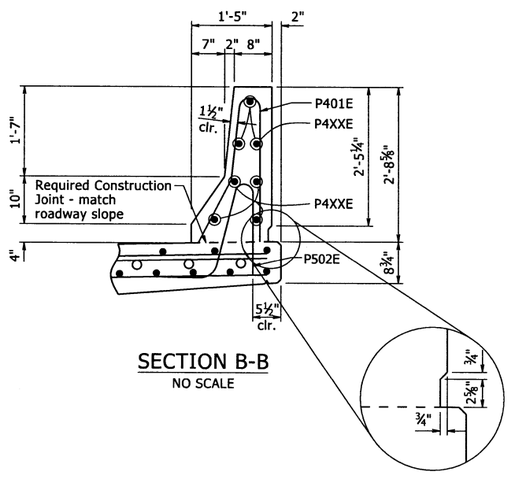
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

NO SCALE



SECTION A-A

NO SCALE



SECTION B-B

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 10 OF 10
DETAILS OF 309'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18
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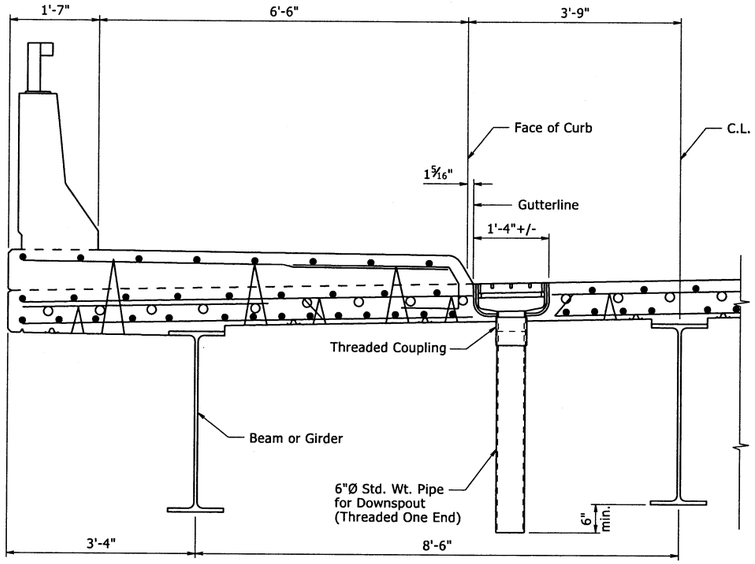
DESIGNED BY: KJT DATE: 6/2018
FILENAME: b061509x3_s1.dgn
SCALE: As Noted

BRIDGE NO. A6467 DRAWING NO. 60849

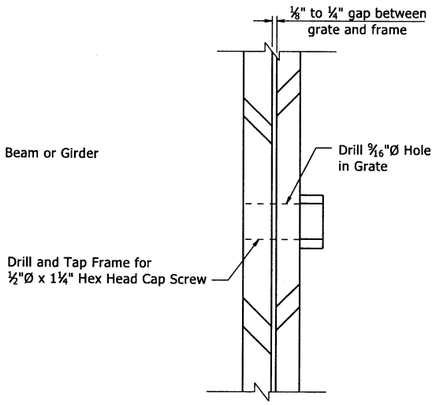
PRINT DATE: 6/7/2019

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.		061509	229	349

(1) A6467 - DECK DRAINS - 60850

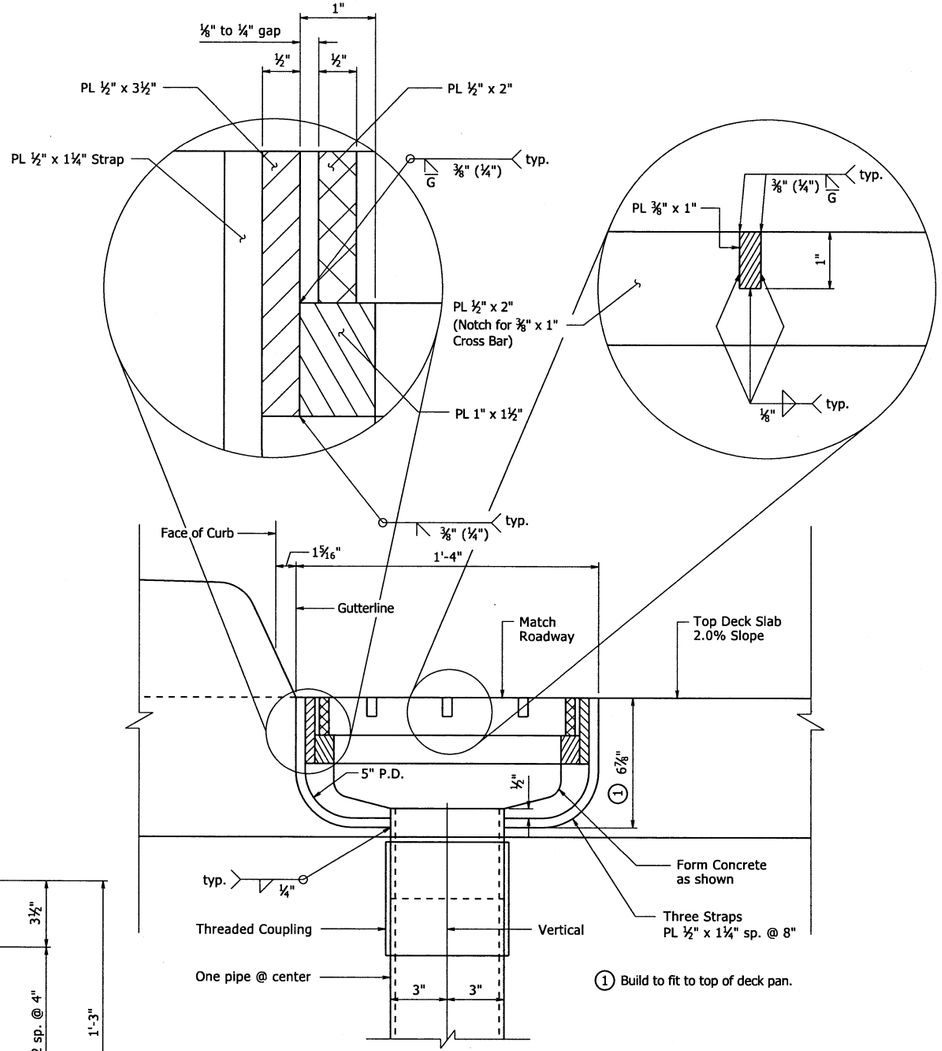


SECTION AT DECK DRAIN



DETAIL A

NOTE:
A Pre-Manufactured Grate or Grate and Frame may be submitted for approval of the Engineer in place of the steel fabrication shown in the Plans. Grate shall have an AASHTO-AGC-ARTBA Type 5 or 6 Configuration and shall be designed for a 16,000 lb. wheel load.



SECTION A-A

GENERAL NOTES:

For Location of Deck Drains, see Superstructure Dwg. Nos. 60834, 60838, & 60846.

Drain location may be adjusted to clear diaphragm connections.

Standard Weight Pipe for Deck Drains shall conform to ASTM A500 or A501. All other structural steel shall be AASHTO M 270, Grade 36. After fabrication, all structural steel in drains shall be Galvanized in accordance with AASHTO M 111. Steel Fasteners shall be Galvanized in accordance with AASHTO M 232, Class C, or ASTM B695, Class 50.

Structural Steel in Deck Drains shall not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Grade 50W)" or "Structural Steel in Plate Girder Spans (M 270, Grade 50W)".

Reinforcing steel in the slab shall be cut as shown to install the deck drains. Two additional No. 4 x 5'-6" straight bars shall be placed as shown.

Repair all cut or damaged epoxy bars in accordance with the Standard Specifications.

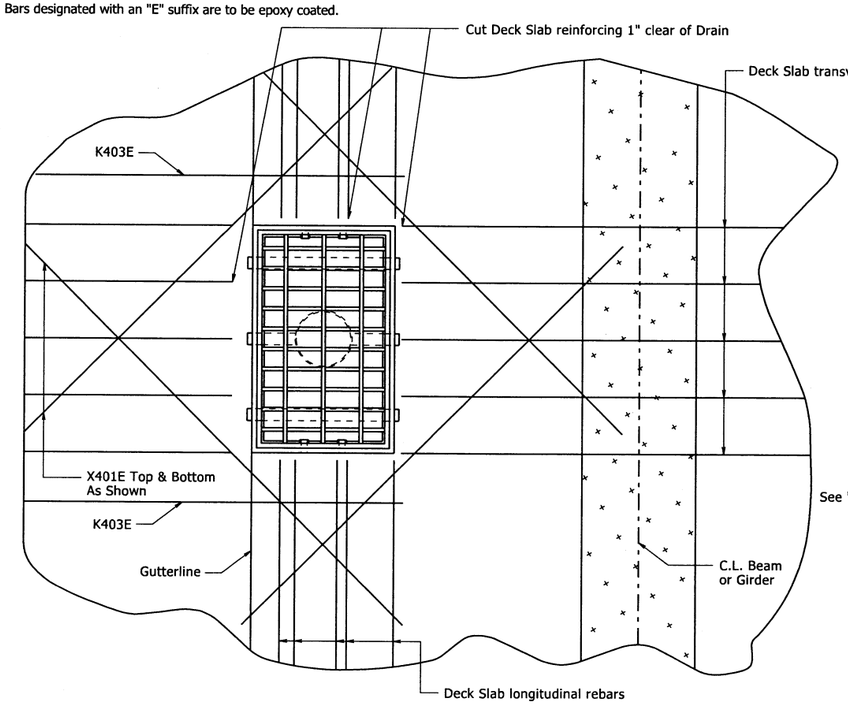
All additional Reinforcing Steel placed around deck drains shall be epoxy-coated and shall be paid for at the unit price bid for "Epoxy Coated Reinforcing Steel (Grade 60)".

BAR LIST FOR ONE DRAIN

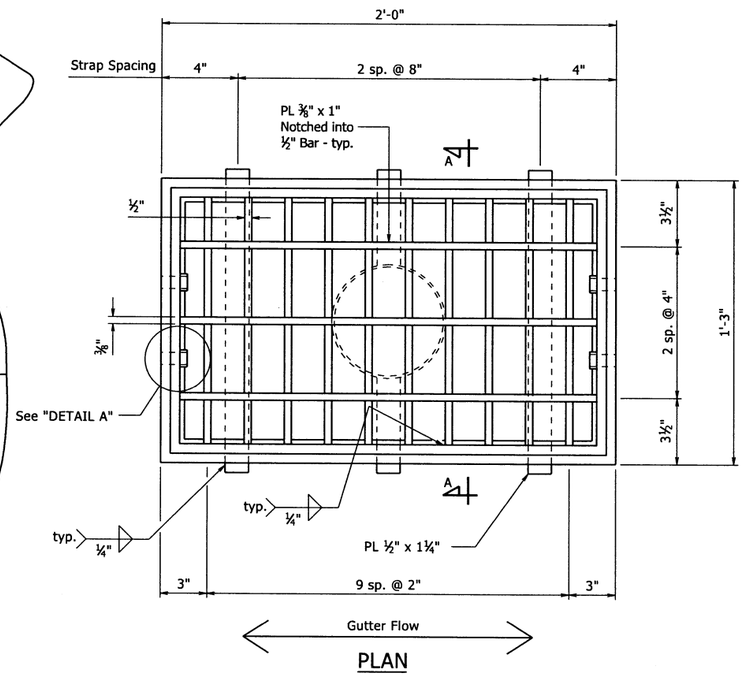
(FOR INFORMATION ONLY)

Mark	No. Req'd	Length
X401E	8	5'-6"

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



PLAN OF REINFORCING AT DECK DRAINS



PLAN

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF DECK DRAINS DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

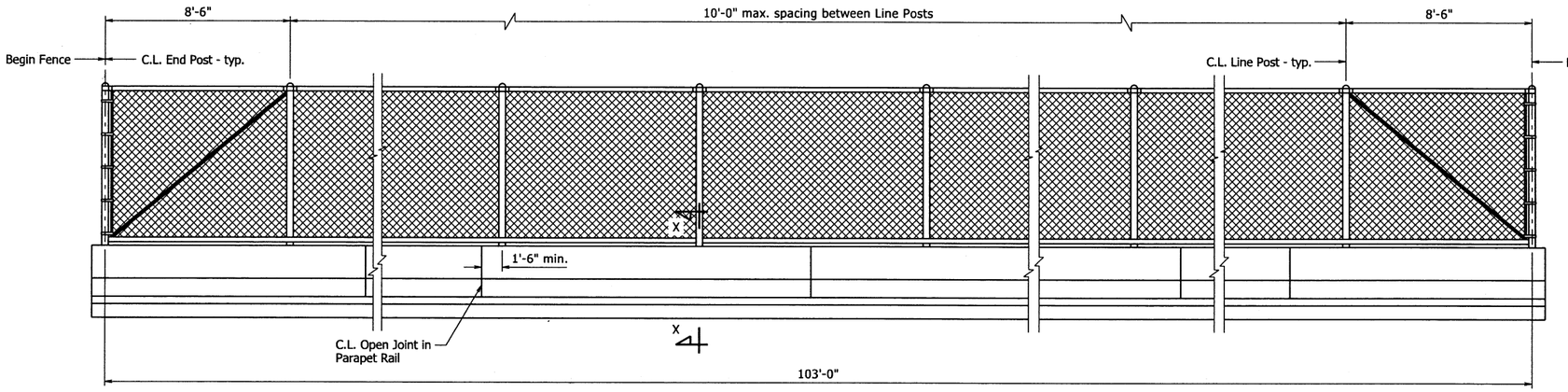
DRAWN BY: CGP DATE: 5/14/19 FILENAME: b061509x3_dd.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60850

PRINT DATE: 6/7/2019

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.		061509	230	349

(1) 06467 & A6467 - CHAIN LINK FENCE - 60851



NOTES:
The fence location, total length and parapet panel spacing shall be as specified in the plans.

LONGITUDINAL VIEW OF CHAIN LINK FENCE

GENERAL NOTES

Fence layout shall conform to the vertical and horizontal bridge alignments. Fence posts shall be set plumb (true vertical position). Parapet rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 Grade B8 with minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to ASTM F3125 and galvanized in accordance with AASHTO M 232, or ASTM B695.

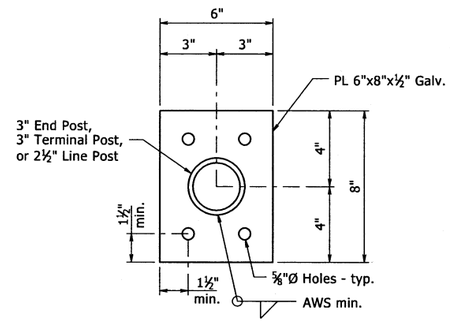
Nuts: Nuts shall be stainless steel and conform to the requirements of AASHTO M 292, Gr. 8A, or shall be high strength steel galvanized in accordance with AASHTO M 232 or ASTM B695 and ASTM A563.

Washers: Washers shall be stainless steel and conform to the requirements of ASTM A709, Gr. 36, or high strength steel conforming to ASTM F436 and galvanized in accordance with AASHTO M 232 or ASTM B695, Class 40 or 50.

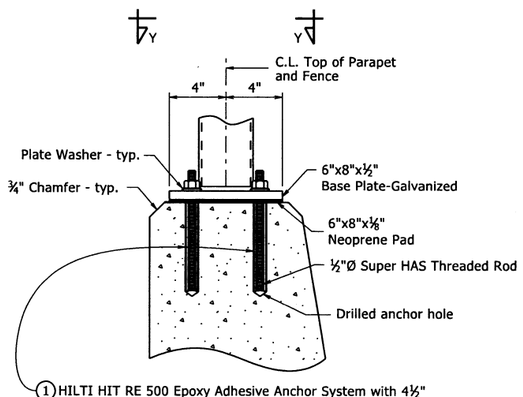
Base plates shall be galvanized and shall not be placed upon areas that are improperly finished, deformed, or irregular. Plate Washers shall be stainless steel and conform to the requirements of ASTM A276-Type 302 or ASTM A709, Gr. 36, or galvanized in accordance with AASHTO M 232 or ASTM B695, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME b18.22.1, Type A plain washer (Wide Series).

Chain Link Fence attached to bridge shall be paid for as "7' Steel Chain Link Fence". Material for chain link fence shall comply with AASHTO M181 Type I, Class D; Type II; or Type III. Steel members for posts, rails, expansion sleeves, and gate frames may be either Grade 1 or Grade 2. Hardware and fittings shall comply with ASTM F 626. Any miscellaneous hardware or fittings not mentioned shall be galvanized according to AASHTO M 111 or M 232. For additional details of Chain Link Fence, see Standard Drawing WF-3 and Section 619. Neoprene pad, template plates, and anchor systems shall not be paid for directly, but shall be considered incidental to the unit price bid for item "Steel Chain Link Fence".

Mixing of stainless steel and galvanized assembly components will not be permitted.



VIEW Y-Y

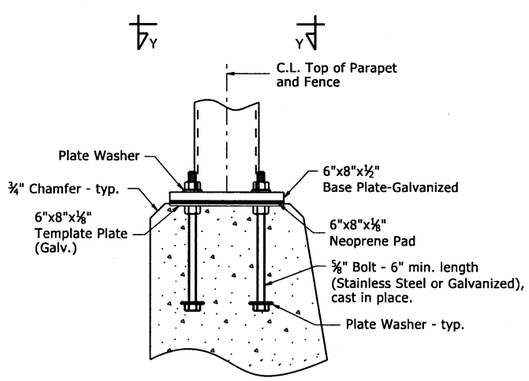


(1) HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

(1) The HILTI Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

SECTION X-X

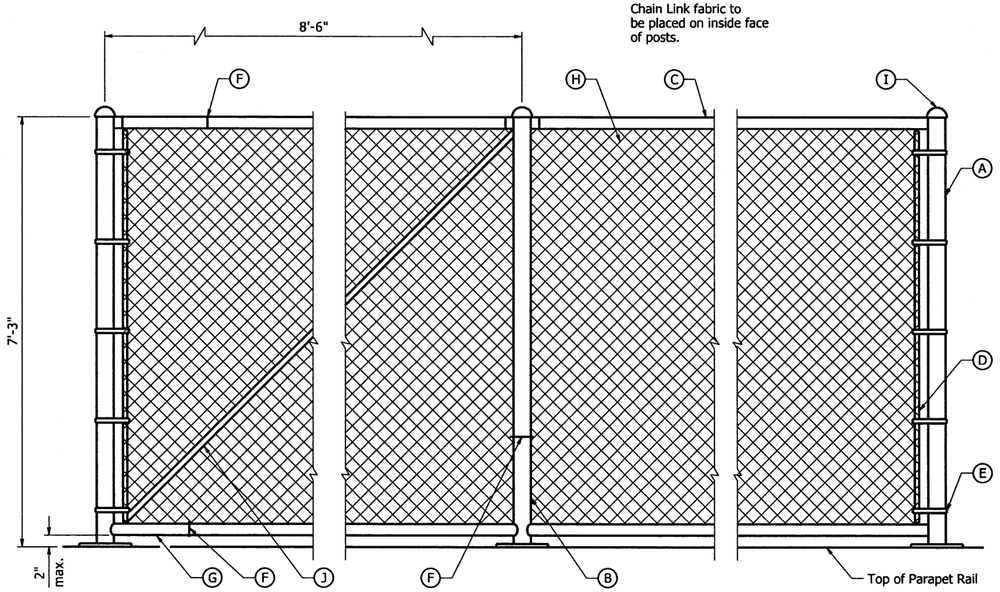
DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)



SECTION X-X

DETAILS OF POST ANCHOR SYSTEM

NOTE:
Chain Link fabric to be placed on inside face of posts.



(A) END POST: 3" O.D.
(B) LINE POST: 2½" O.D.
(C) TOP RAIL: 1⅝" O.D.
(D) TENSION BAR: ⅜" x ¾" Bar
(E) TENSION BAR BAND: ¾" x 0.074 w/⅝"Ø x 1¼" Bolt (1 Band Top and Bottom w/15" max. spaces)
(F) TIE WIRE: 9 Ga. Aluminum
(G) BOTTOM RAIL: 1⅝" O.D.
(H) FABRIC: 9 Ga. 2" Mesh w/Knocklug or Twisting Selvage
(I) CAPS: All post shall be capped and shall conform to ASTM F 626
(J) TRUSS ROD: Min. of ⅝" round with Tighteners and Fittings

DETAILS OF CHAIN LINK FENCE

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF STRAIGHT CHAIN LINK FENCE DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 5/09/19
CHECKED BY: DHP DATE: 6/6/19
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FILENAME: b061509x3_sf.dgn
SCALE: No Scale

BRIDGE NO. 06467 & A6467 DRAWING NO. 60851

PRINT DATE: 6/11/2019

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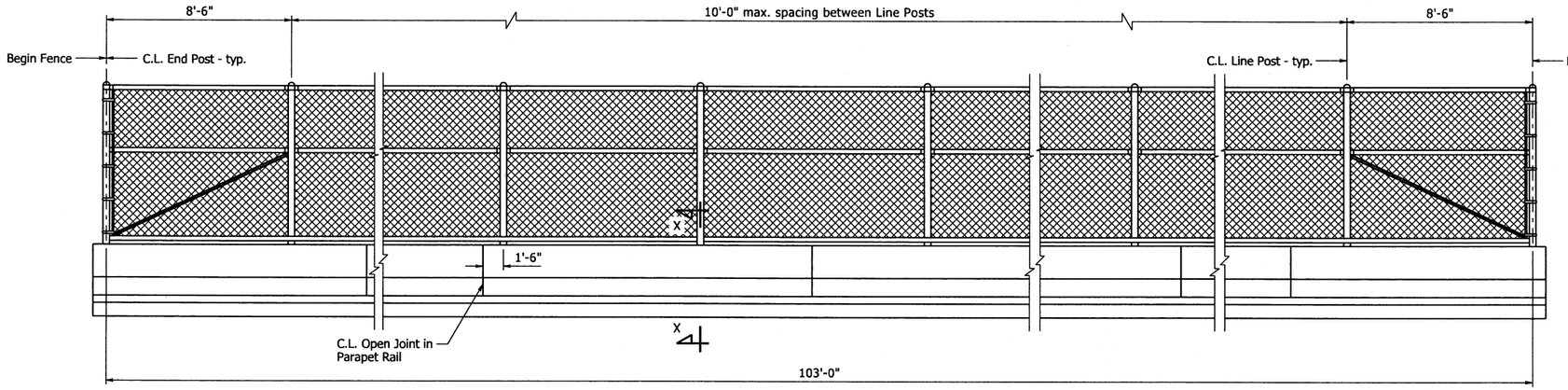
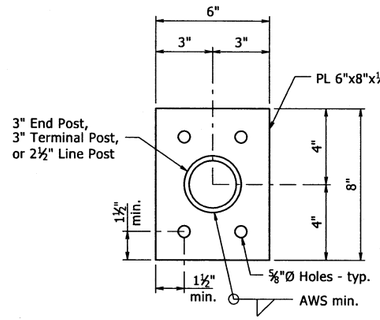
				6	ARK.			
				JOB NO.		061509	231	349

(1) 06467 & A6467 - CHAIN LINK FENCE - 60852

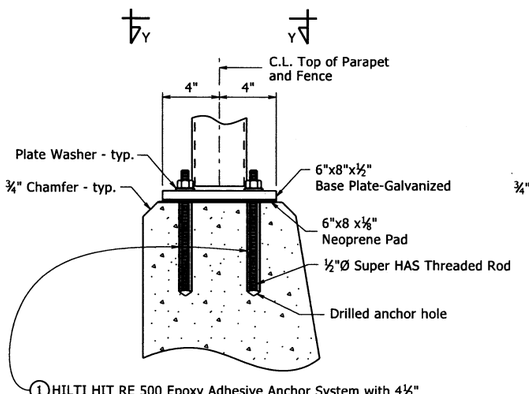


NOTES:
The fence location, total length and parapet panel spacing shall be as specified in the plans.

LONGITUDINAL VIEW OF CHAIN LINK FENCE



VIEW Y-Y



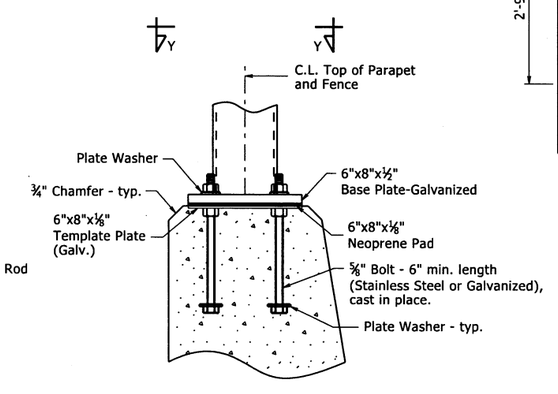
(1) HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

(1) The HILTI Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

SECTION X-X

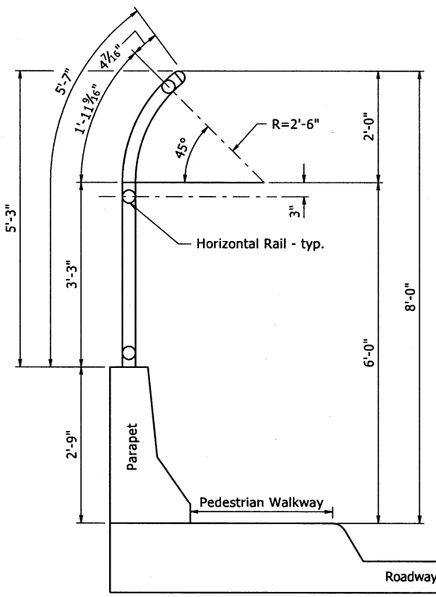
DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(EPOXY ADHESIVE ANCHORS)



SECTION X-X

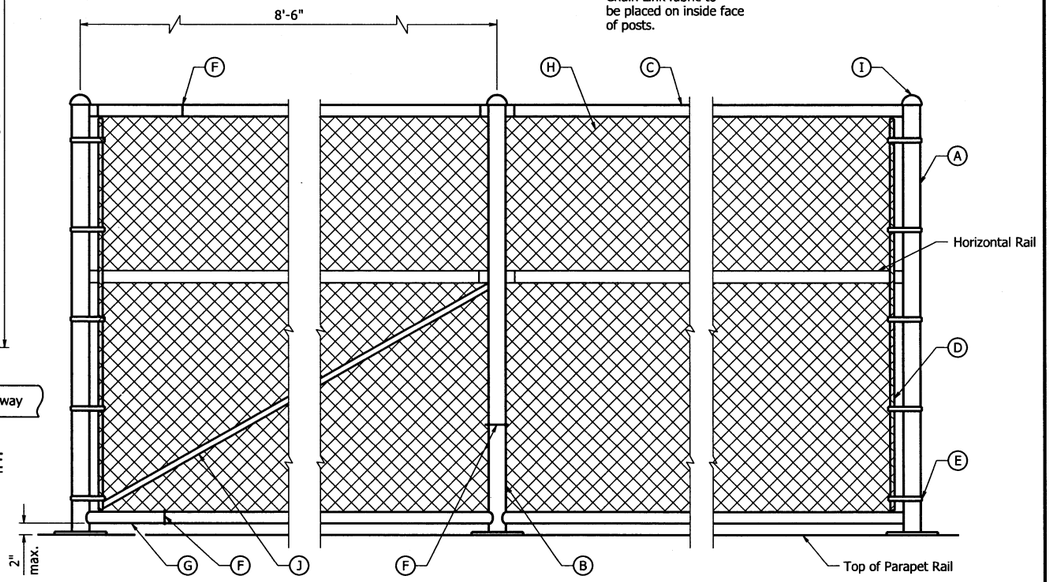
DETAILS OF POST ANCHOR SYSTEM



CURVED CHAIN LINK FENCE

- (A) END POST: 3" O.D.
- (B) LINE POST: 2½" O.D.
- (C) HORIZONTAL TOP RAIL: 1⅝" O.D.
- (D) TENSION BAR: 3/16" x ¾" Bar
- (E) TENSION BAR BAND: ¾" x 0.074 w/⅝"Ø x 1¼" Bolt (1 Band Top and Bottom w/15" max. spaces)
- (F) TIE WIRE: 9 Ga. Aluminum
- (G) HORIZONTAL BOTTOM RAIL: 1⅝" O.D.
- (H) FABRIC: 9 Ga. 2" Mesh w/Knocklug or Twisting Selvage
- (I) CAPS: All post shall be capped and shall conform to ASTM F 626
- (J) TRUSS ROD: Min. of 5/16" round with Tighteners and Fittings

NOTE:
Chain Link fabric to be placed on inside face of posts.



DETAILS OF CHAIN LINK FENCE

GENERAL NOTES

Fence layout shall conform to the vertical and horizontal bridge alignments. Fence posts shall be set plumb (true vertical position). Parapet rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 Grade B8 with minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to ASTM F3125 and galvanized in accordance with AASHTO M 232, or ASTM B695.

Nuts: Nuts shall be stainless steel and conform to the requirements of AASHTO M 292, Gr. 8A, or shall be high strength steel galvanized in accordance with AASHTO M 232 or ASTM B695 and ASTM A563.

Washers: Washers shall be stainless steel and conform to the requirements of ASTM A709, Gr. 36, or high strength steel conforming to ASTM F436 and galvanized in accordance with AASHTO M 232 or ASTM B695, Class 40 or 50.

Base plates shall be galvanized and shall not be placed upon areas that are improperly finished, deformed, or irregular. Plate Washers shall be stainless steel and conform to the requirements of ASTM A276-Type 302 or ASTM A709, Gr. 36, or galvanized in accordance with AASHTO M 232 or ASTM B695, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME b18.22.1, Type A plain washer (Wide Series).

Chain Link Fence attached to bridge shall be paid for as "5' Steel Chain Link Fence". Material for chain link fence shall comply with AASHTO M181 Type I, Class D; Type II; or Type III. Steel members for posts, rails, expansion sleeves, and gate frames may be either Grade 1 or Grade 2. Hardware and fittings shall comply with ASTM F 626. Any miscellaneous hardware or fittings not mentioned shall be galvanized according to AASHTO M 111 or M 232. For additional details of Chain Link Fence, see Standard Drawing WF-3 and Section 619. Neoprene pad, template plates, and anchor systems shall not be paid for directly, but shall be considered incidental to the unit price bid for item "Steel Chain Link Fence".

Mixing of stainless steel and galvanized assembly components will not be permitted.

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LICENSED PROFESSIONAL ENGINEER
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CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

DETAILS OF CURVED CHAIN LINK FENCE DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

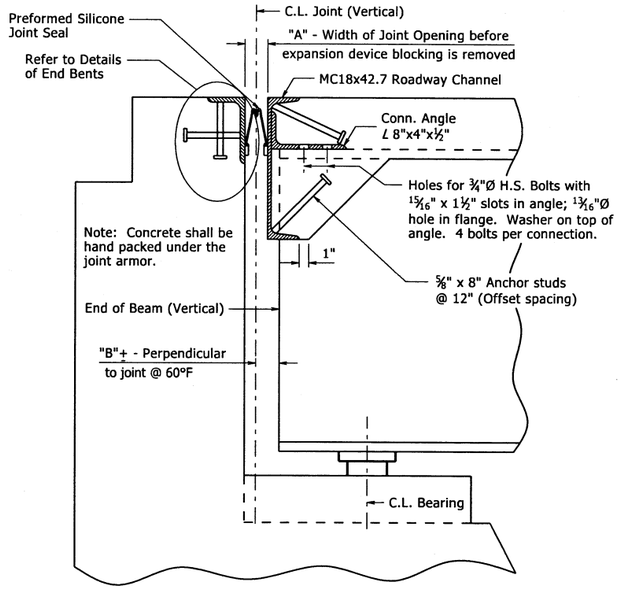
DRAWN BY: CGP DATE: 5/09/19 FILENAME: b061509x3_cf.dgn
CHECKED BY: DATE: 6/11/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. 06467 & A6467 DRAWING NO. 60852

PRINT DATE: 6/11/2019

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.		061509	232	349

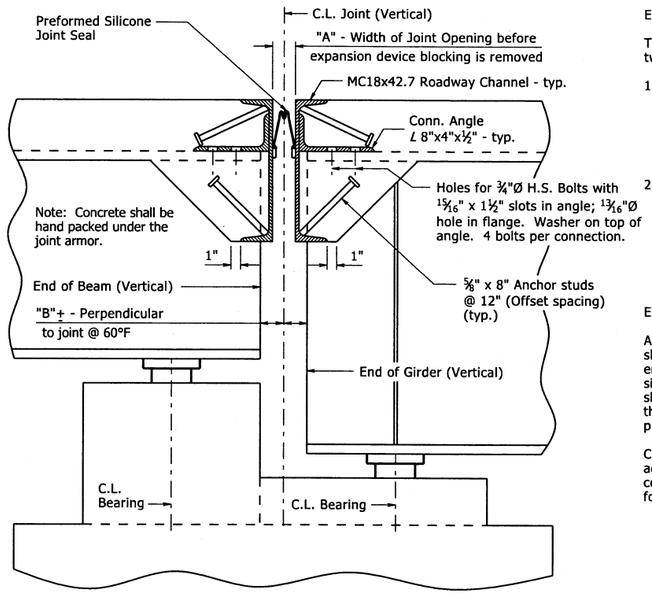
(1) A6467 - JOINT DETAILS - 60853



NOTE: Section taken perpendicular to C.L. Joint.

SECTION THRU JOINT AT END BENT

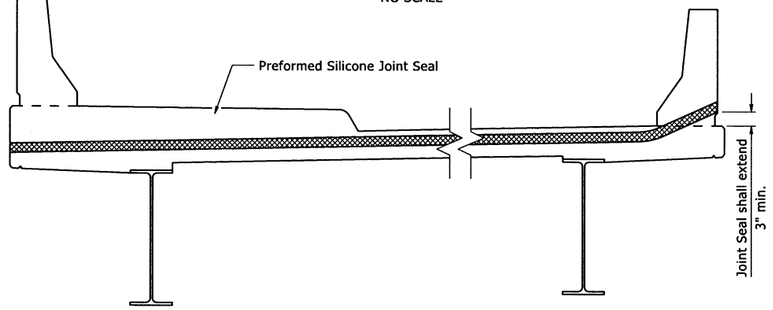
NO SCALE



NOTE: Section taken perpendicular to C.L. Joint.

SECTION THRU JOINT AT INTERMEDIATE BENT

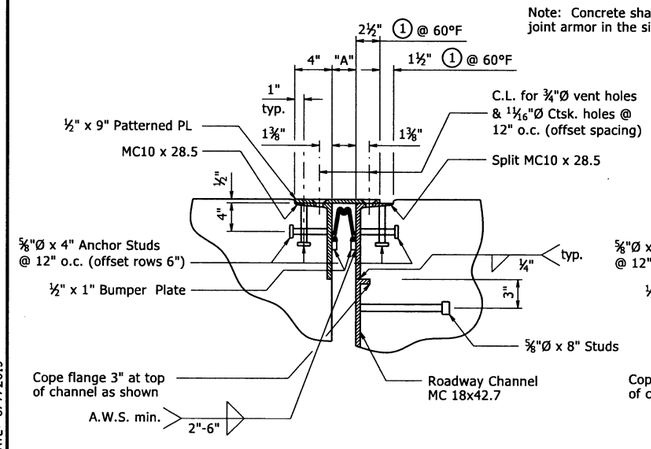
NO SCALE



JOINT SEAL PLACEMENT AT CURB AND SIDEWALK

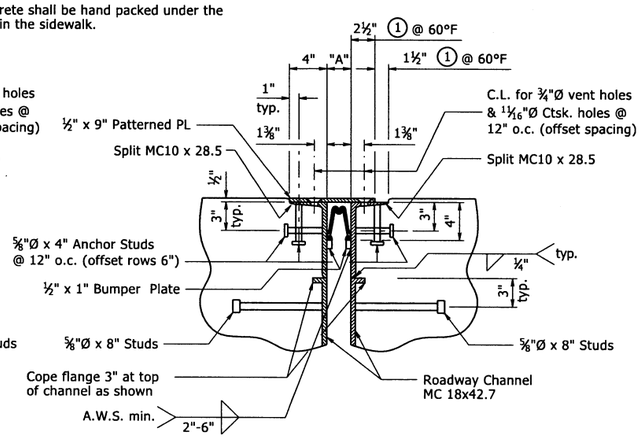
NO SCALE

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



SIDEWALK SECTION THRU JOINT AT END BENT

NO SCALE



SIDEWALK SECTION THRU JOINT AT INTERMEDIATE BENT

NO SCALE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The contractor may elect to install the expansion device using one of the following two alternatives:

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

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.
No backfill may be placed behind the backwall until the deck concrete on the adjacent spans has been placed.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

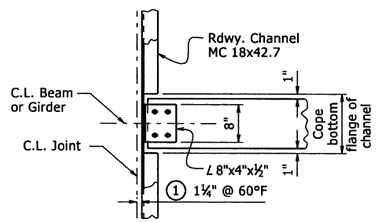
Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

PREFORMED SILICONE JOINT SEAL DATA

Bent Number	Movement Rating	"A" Width Perpendicular to Joint at 24 Hour Average Temperature (1) Of:			"B" Perpendicular to Joint at 60°F
		40°F	60°F	80°F	
1 & 11	4"	2¾"	2½"	2¼"	± 2½"
4 & 7	4"	3"	2½"	2"	± 2½"

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

The temperature limitations recommended by the joint seal Manufacturer shall be observed. The seal shall be installed only when the ambient air temperature is a minimum of 40°F and rising.



CHANNEL CONNECTION DETAIL

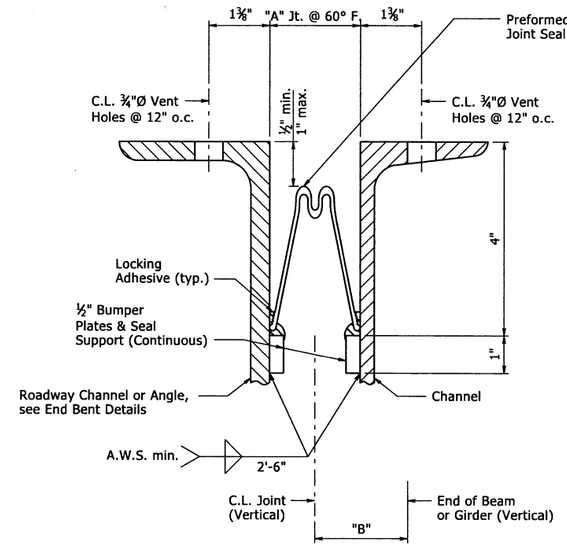
NO SCALE

GENERAL NOTES FOR PREFORMED SILICONE JOINTS:

The joint seal shall provide for the movement rating(s) shown in the "PREFORMED SILICONE JOINT SEAL DATA" table. The joint seal shall be capable of sealing the deck surface and barrier rail to prevent moisture and other contaminants from descending through the joint.

Patterned Plate shall be AASHTO M 270, Gr. 36, 50 or 50W. Surfaces of the structural steel in the roadway and sidewalk joint armor not completely embedded in concrete and the patterned plate shall be cleaned in accordance with subsection 807.84(b) and shop painted with a QPL approved inorganic zinc-rick primer with a concrete gray color. No finish system shall be applied. The Contractor shall repair any damage to the primer at his expense and to the satisfaction of the Engineer prior to installation of the joint seal. Painting will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Grade 50W)" or "Structural Steel in Beam Spans (M 270, Grade 50W)".

The preformed silicone joint seal shall be paid for in accordance with Special Provision Job 061509 "Preformed Silicone Joint Seal".



DETAIL OF PREFORMED SILICONE JOINT SEAL

NO SCALE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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6/7/19
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF PREFORMED SILICONE JOINT DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

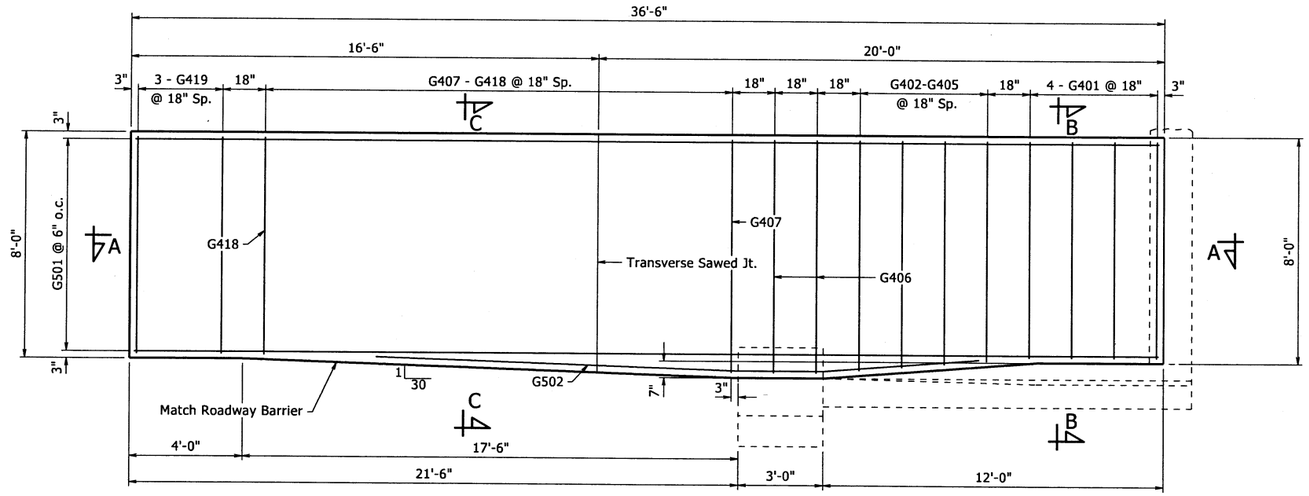
LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 11/14/18 FILENAME: b061509x3_s1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: No Scale
DESIGNED BY: DHP DATE: 6/2018

BRIDGE NO. A6467 DRAWING NO. 60853

PRINT DATE: 6/7/2019

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.		061509	233	349
				① 06467 - SPECIAL APP. GUTTERS - 60854				

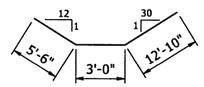


PLAN OF TYPE 5 SPECIAL APPROACH GUTTER

3/8" = 1'-0"

Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	P.D.	BENDING DIAGRAMS
G401	4	7'-8"	Str.	
G402-G405	1 ea.	7'-10" to 8'-2"	Str.	
G406	2	8'-3"	Str.	
G407-G418	1 ea.	8'-3" to 7'-9"	Str.	
G419	3	7'-8"	Str.	Dimensions are out to out of bars
G501	16	36'-2"	Str.	
G502	1	21'-4"	3¾"	

G502

QUANTITIES FOR TYPE 5 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
758	13.47

STATE OF ARKANSAS
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DETAILS OF TYPE 5 SPECIAL APPROACH GUTTERS DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag5.dgn

CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted

DESIGNED BY: — DATE: —

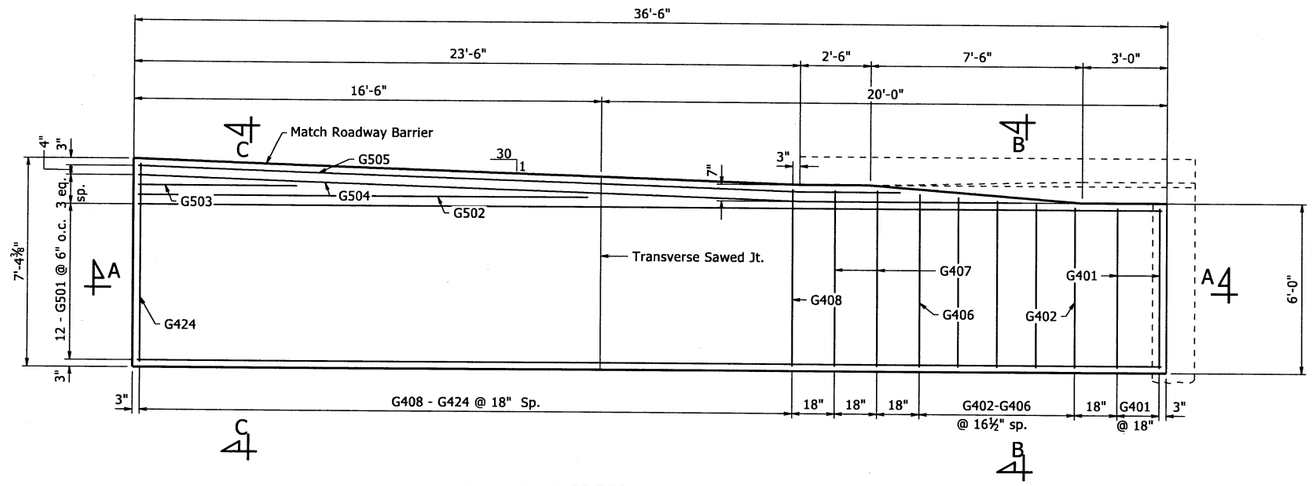
BRIDGE NO. 06467 DRAWING NO. 60854

PRINT DATE: 6/5/2019

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.		061509	234	349

① A6467 - SPECIAL APP. GUTTERS - 60855



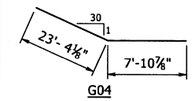
PLAN OF TYPE 6 SPECIAL APPROACH GUTTER

⅜" = 1'-0"

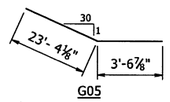
Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	P.D.	BENDING DIAGRAMS
G401	2	5'-8"	Str.	
G402-G406	1 ea.	Var. 5'-9" to 6'-2"	Str.	
G407	2	6'-3"	Str.	
G408-G424	1 ea.	Var. 6'-4" to 7'-1"	Str.	
G501	12	36'-2"	Str.	
G502	1	15'-11"	Str.	
G503	1	5'-8"	Str.	
G504	1	31'-3"	3¾"	
G505	1	26'-11"	3¾"	



G04



G05

Dimensions are out to out of bars

QUANTITIES FOR TYPE 6 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
647	10.99

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DETAILS OF TYPE 6 SPECIAL APPROACH GUTTERS DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag6.dgn

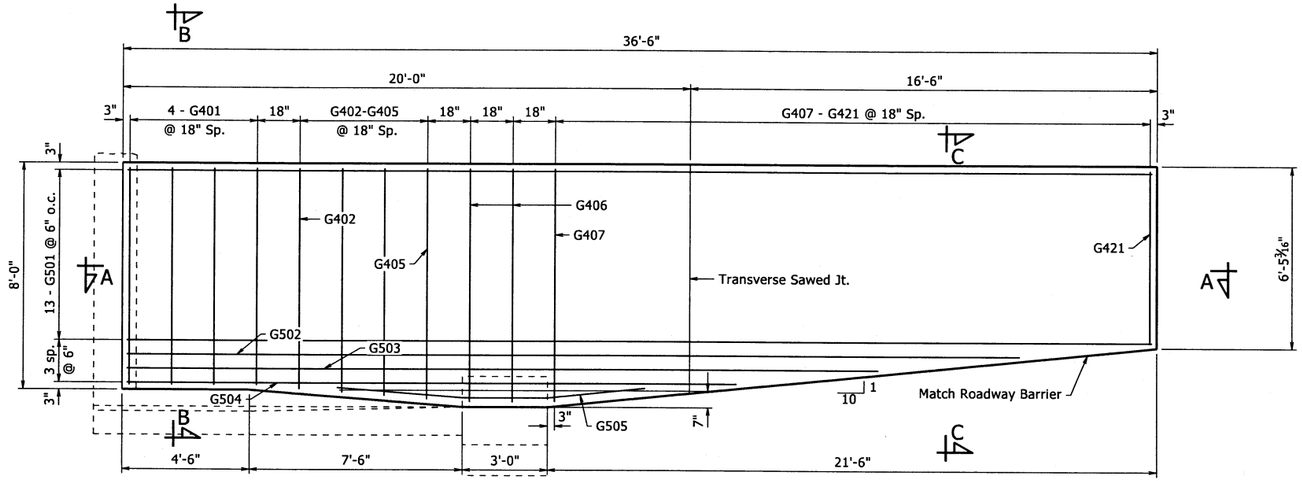
CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted

DESIGNED BY: — DATE: —

BRIDGE NO. A6467 DRAWING NO. 60855

PRINT DATE: 6/5/2019

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.		061509	235	349
				①		06467 - SPECIAL APP. GUTTERS - 60856		



PLAN OF TYPE 7 SPECIAL APPROACH GUTTER

⅜" = 1'-0"

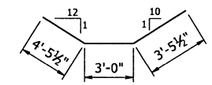
Note: for "Secion A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

QUANTITIES FOR TYPE 7 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
710	12.77

BAR LIST

Mark	No. Req'd	Length	P.D.	BENDING DIAGRAMS
G401	4	7'-8"	Str.	
G402-G405	1 ea.	Var. 7'-10" to 8'-2"	Str.	
G406	2	8'-3"	Str.	
G407-G421	1 ea.	Var. 8'-3" to 6'-2"	Str.	
G501	13	36'-2"	Str.	Dimensions are out to out of bars
G502	1	31'-6"	Str.	
G503	1	26'-6"	3¾"	
G504	1	21'-6"	Str.	
G505	1	10'-11"	3¾"	

G505

Dimensions are out to out of bars

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TYPE 7 SPECIAL APPROACH GUTTERS DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag7.dgn

CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted

DESIGNED BY: — DATE: —

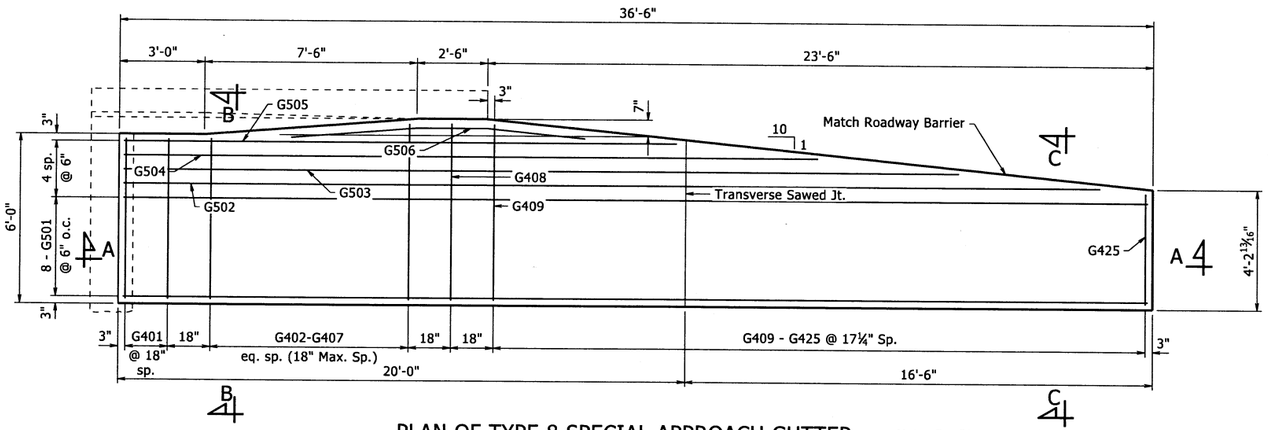
BRIDGE NO. 06467 DRAWING NO. 60856

PRINT DATE: 6/5/2019

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.		061509	236	349

1 A6467 - SPECIAL APP. GUTTERS - 60857

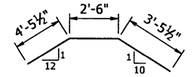


PLAN OF TYPE 8 SPECIAL APPROACH GUTTER

⅜" = 1-0"

Note: For "Section A-A", "Section B-B", "Section C-C", and General Notes, see Dwg. No. 60800.

BAR LIST

Mark	No. Req'd	Length	P.D.	BENDING DIAGRAMS
G401	2	5'-8"	Str.	
G402-G407	1 ea.	Var. 5'-9" to 6'-3"	Str.	
G408	1	6'-3"	Str.	
G409-G425	1 ea.	Var. 6'-3" to 4'-0"	Str.	
G501	8	36'-2"	Str.	Dimensions are out to out of bars
G502	1	34'-6"	Str.	
G503	1	29'-6"	Str.	
G504	1	24'-6"	Str.	
G505	1	19'-6"	Str.	
G506	1	10'-5"	3¾"	

G506

QUANTITIES FOR TYPE 8 SPECIAL APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (lbs.)	Concrete (Cu. yds.)
519	12.61

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

DETAILS OF TYPE 8 SPECIAL APPROACH GUTTERS DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DPT DATE: 1/11/2019 FILENAME: b061509_ag8.dgn

CHECKED BY: TMG DATE: 6/5/19 SCALE: As Noted

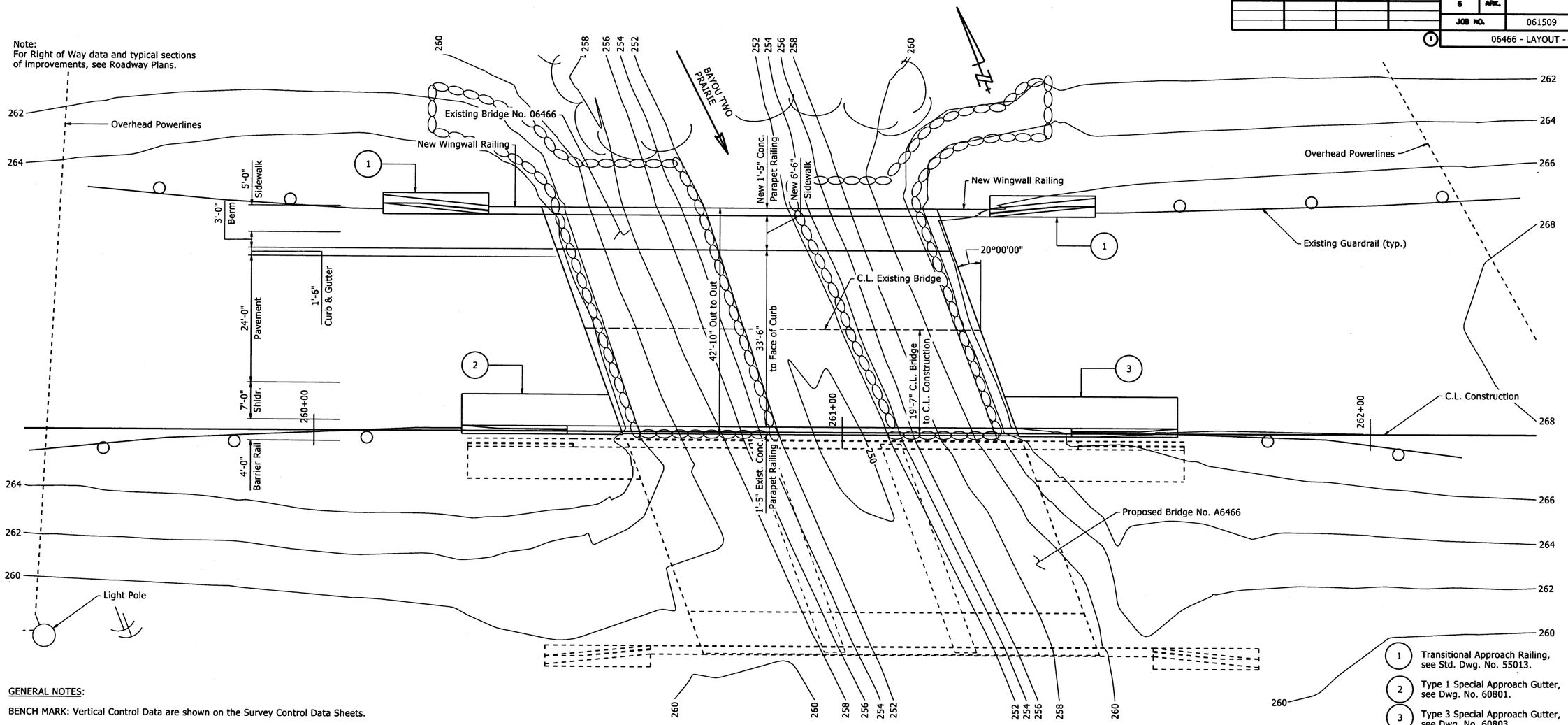
DESIGNED BY: — DATE: —

BRIDGE NO. A6467 DRAWING NO. 60857

PRINT DATE: 6/5/2019

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.		061509	227	349
				①		06466 - LAYOUT - 60858		

Note:
For Right of Way data and typical sections of improvements, see Roadway Plans.



PLAN

1 Transitional Approach Railing, see Std. Dwg. No. 55013.

2 Type 1 Special Approach Gutter, see Dwg. No. 60801.

3 Type 3 Special Approach Gutter, see Dwg. No. 60803.

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. Section and Subsection refer to the Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridge 17th Edition (2002) with interim Specifications.

LIVE LOADING: HS20 METHOD OF DESIGN: LOAD FACTOR

SEISMIC PERFORMANCE CATEGORY: A

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c=4,000 psi
Class S Concrete (substructure)	f'c=3,500 psi
Lightweight Aggregate Concrete (AE)	f'c=3,000 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy=60,000 psi

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a polymer overlay per SP Job No. 061509 "Polymer Overlay". Sidewalk shall be given a broom finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish.

DETAIL DRAWINGS:	DRAWING NOS.
End Bent Modifications	60866 - 60867
Superstructure Modifications	60868 - 60870
Transitional Approach Railing	55013
Type 1 Special Approach Gutter	60801
Type 3 Special Approach Gutter	60803
Type H Railing	55014

EXISTING BRIDGE: Existing Bridge No. 06466 (Log Mile 1.19) is 42.8' wide (40.0' Roadway) and 75.0' long and the superstructure consists of three 25' reinforced concrete deck girder (R.C.D.G) spans. The substructure consists of reinforced concrete caps all supported by concrete piles. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

THE PROPOSED WORK CONSISTS OF: Remove the existing bridge rail and end bent wing railings and add a sidewalk and new railing to the bridge deck and end bents on the north side of the existing bridge. For additional requirements in conducting the work, see Section 821.

VERIFICATION: Except as noted, components of the existing bridge are to be retained. Information and dimensions shown are based on the existing bridge plans. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing bridge and its relationship to the proposed work described in Subsection 821.02 and make necessary adjustments to fit the proposed work to the existing structure. Payment for this work shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Bridge No. 06466)".

REMOVAL AND SALVAGE: All material removed from the existing bridge under Item 821 shall be disposed of according to Section 205. All material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6/11/19
BRIDGE ENGINEER

LAYOUT OF EXISTING BRIDGE MODIFICATION
HWY. 321 OVER BAYOU TWO PRAIRIE
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

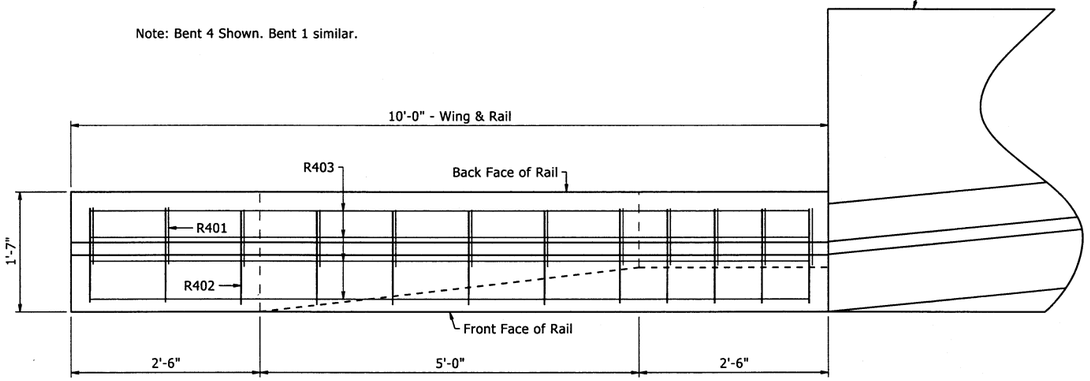
DRAWN BY: DPT DATE: 10/29/2018 FILENAME: b061509X2_M1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 10'-0"
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. 06466 DRAWING NO. 60858

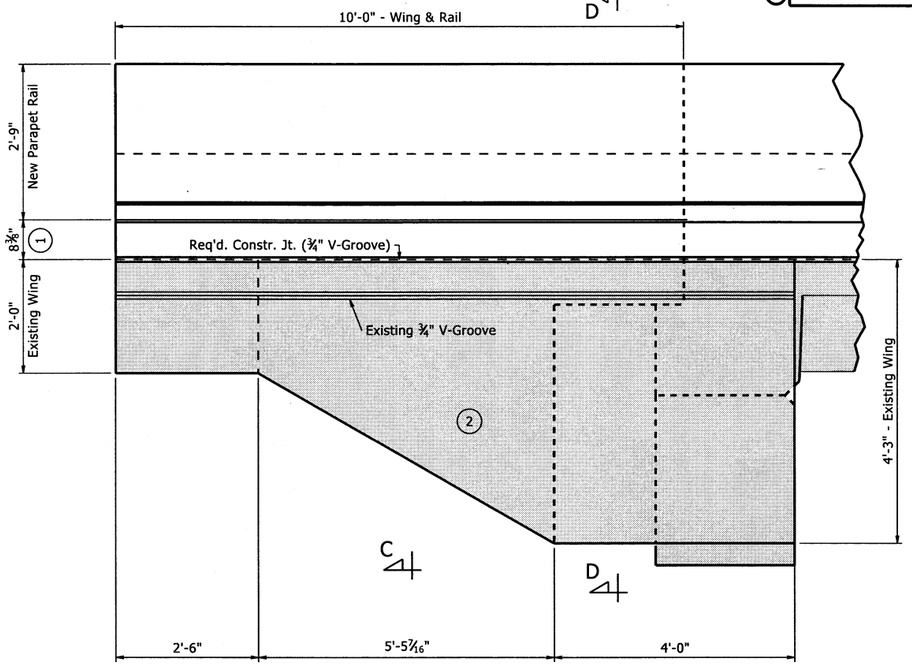
PRINT DATE: 6/7/2019

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.		061509	238	249
				① 06466 - END BENT MOD. - 60859				

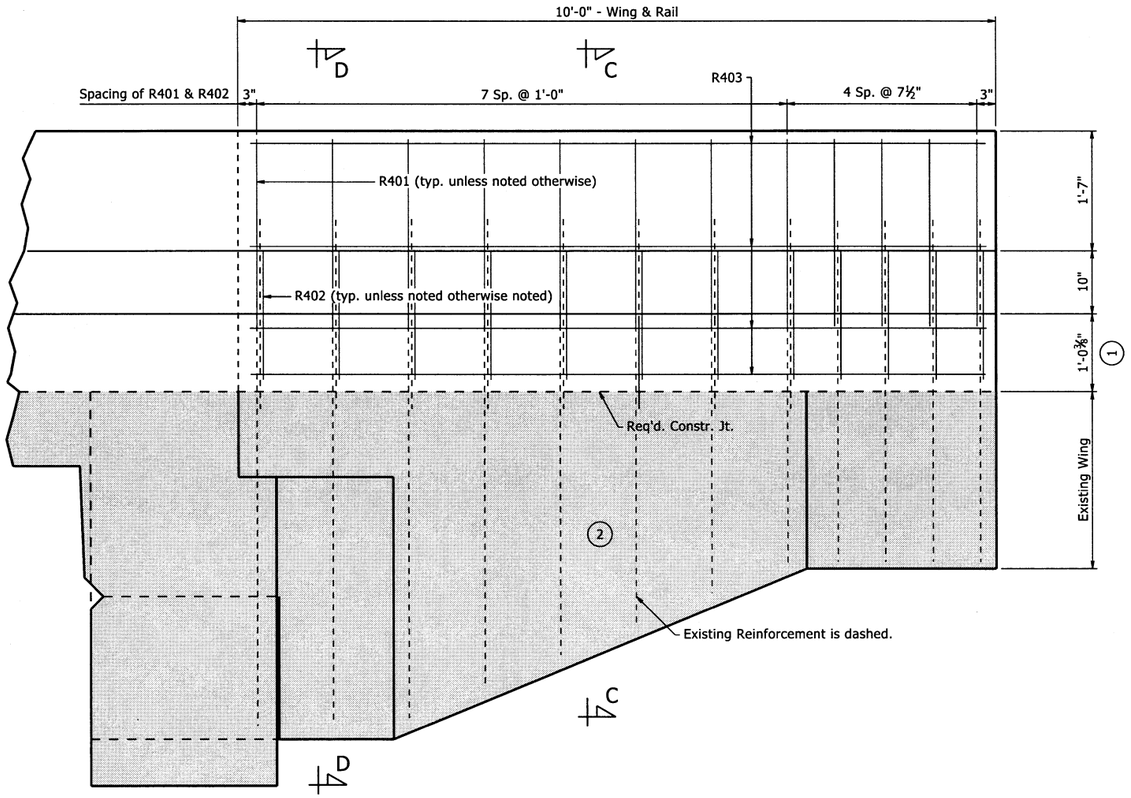
Note: Bent 4 Shown. Bent 1 similar.



PLAN OF WING & RAIL
Scale: 1" = 1'-0"



VIEW B-B
No Scale



VIEW A-A
No Scale

① Adjust dimension as needed so wing parapet rail lines up with span parapet rail.
② Existing areas that are shaded will be retained.

Note: See Dwg. No. 60860 for "SECTION C-C" & "SECTION D-D".

STATE OF ARKANSAS
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6-11-19
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SHEET 1 OF 2
DETAILS OF EXISTING BRIDGE END BENT MODIFICATIONS FOR BAYOU TWO PRAIRIE

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

DRAWN BY: KJT DATE: 03/2019 FILENAME: b061509x2_M3.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. 06466 DRAWING NO. 60859

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.		061509	239	349
				①		06466 - END BENT MOD. - 60860		

GENERAL NOTES

CONCRETE: All concrete shall be Class S or S(AE) with a minimum 28 day compressive strength f'c = 3,500 psi, and shall be paid for as "Class S(AE) Concrete-Bridge". Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. Work required to remove and dispose portions of the existing bridge and any required doweling or couplers will not be paid for directly, but will be considered subsidiary to the item "Modification of Existing Bridge Structures" (Bridge No. 06466)."

REINFORCING STEEL: All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. These wire supports will not be paid directly but will be considered subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)."

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the roadway face and top of the concrete parapet rail.

(1) Adjust dimension as needed so wing parapet rail lines up with span parapet rail.

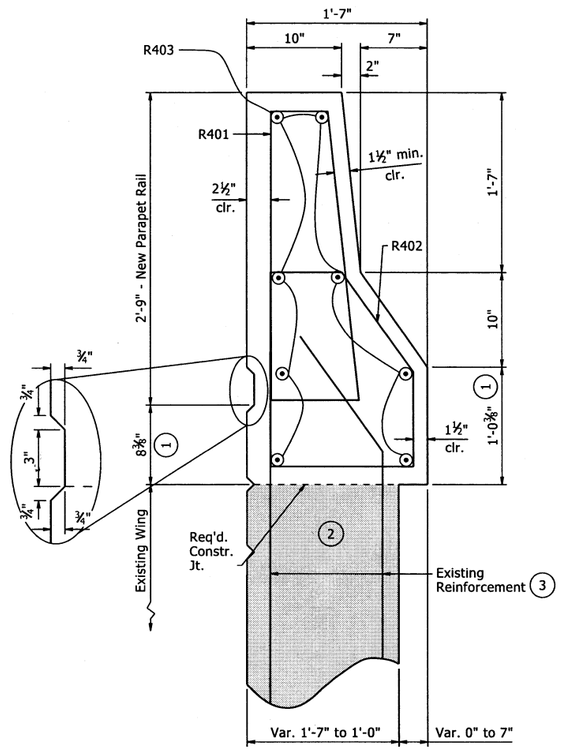
(2) Existing areas that are shaded will be retained.

(3) Existing reinforcement to be cleaned and retained. Care shall be exercised during the removal of the existing concrete parapet rail to ensure that the existing transverse reinforcing steel protruding is not damaged beyond repair. Any retained existing reinforcing steel damaged beyond repair during removal of the rail concrete from wing shall be replaced as directed by the Engineer at the Contractor's expense. Minor straightening of the transverse reinforcing steel after the removal of the rail concrete from wing will be allowed. QPL approved ¾" Ø threaded inserts or couplers of equal number shall be used to replace damaged bars.

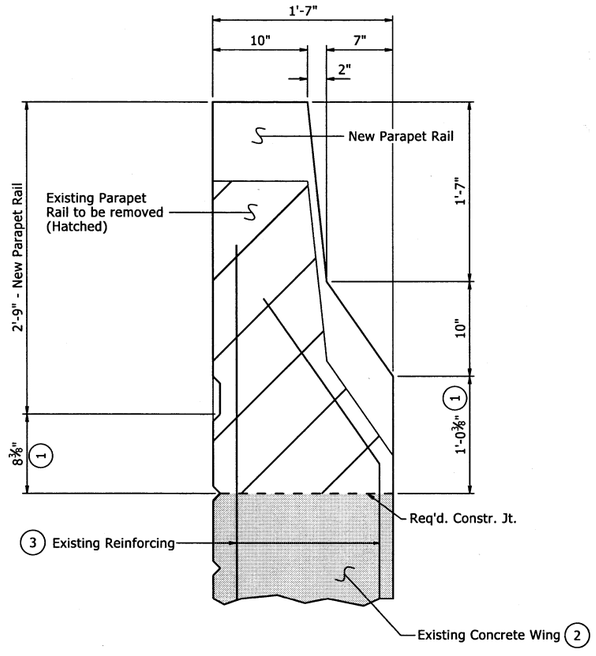
Replaced or repaired broken bars shall provide minimum development length.

1'-0" for No. 4 bars

1'-6" for No. 6 bars



SECTION C-C
Scale: 1½" = 1'-0"



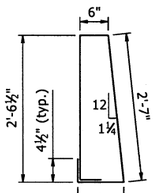
SECTION D-D
Scale: 1½" = 1'-0"

BAR LIST (ONE RAIL)

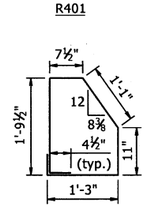
MARK	NO. REQ'D	LENGTH	P.D.
R401	12	6'-10"	2"
R402	12	5'-8"	2"
R403	8	9'-8"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



R401



R402

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
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BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF EXISTING BRIDGE END BENT MODIFICATIONS FOR BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 03/2019 FILENAME: b061509x2_M3.dgn
CHECKED BY: DHP DATE: 6/10/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2019

BRIDGE NO. 06466 DRAWING NO. 60860

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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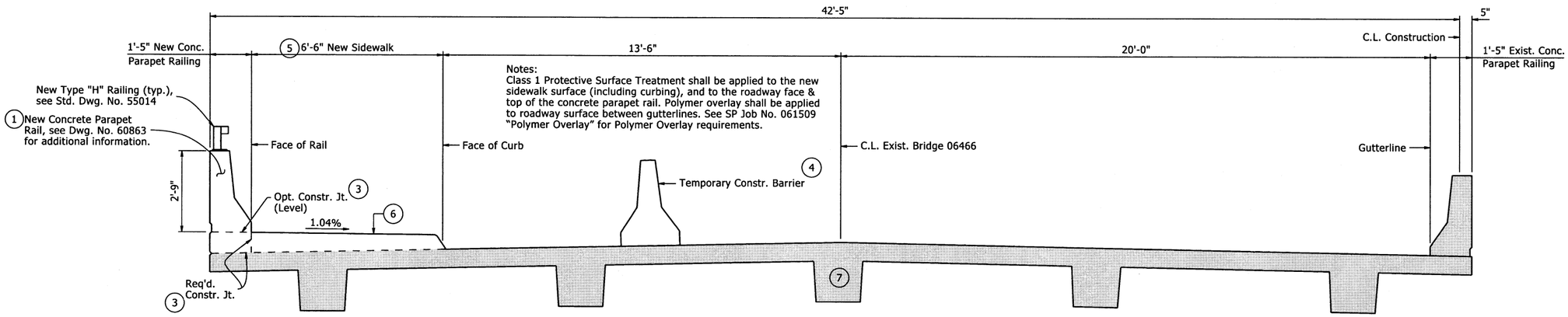
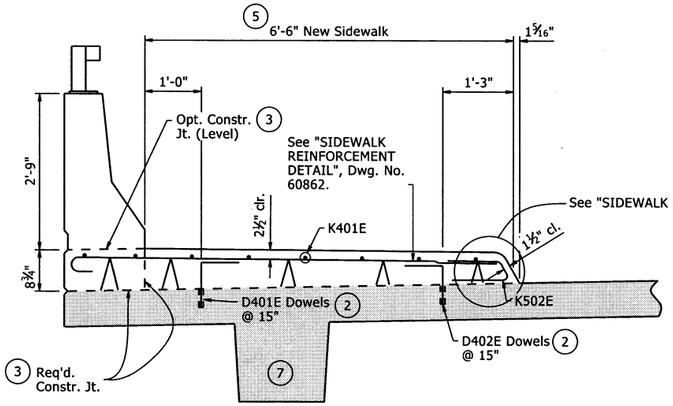
				JOB NO.		061509	240	349
				06466 - SUPERSTRUCTURE - 60861				



TYPICAL ROADWAY SECTION

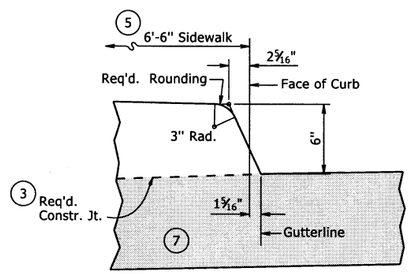
Looking Ahead
Scale: ½" = 1'-0"



SIDEWALK DETAIL

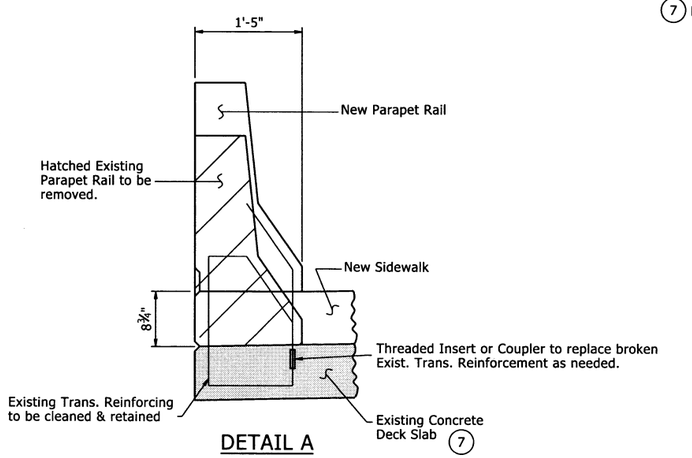
Scale: ¾" = 1'-0"

NOTE: Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06.



SIDEWALK CURB DETAIL

Perpendicular to Existing Curb
No Scale



DETAIL A

No Scale

1. See "DETAIL A". Care shall be exercised during the removal of the existing concrete parapet rail to ensure that the existing transverse reinforcing steel protruding from deck slab is not damaged beyond repair. Any transverse reinforcing steel damaged beyond repair during removal of the rail concrete shall be replaced as directed by the Engineer at the Contractor's expense. Minor straightening of the transverse reinforcing steel after the removal of the rail concrete will be allowed. QPL approved ¾" Ø threaded inserts or couplers of equal number shall be used to replace damaged bars. Epoxy coating on the transverse reinforcing steel damaged during the removal of the rail concrete shall be repaired in accordance with Subsection 804.05.
2. Dowel into existing concrete deck slab using a QPL approved non-shrink grout or a resin anchoring system.The dowels shall have a minimum ultimate load capacity of 12,000 lbs. in tension. Modify the embedment depth shown if required by the Manufacturer's recommendations:

   3" min. for D401E and D402E Dowels Bars

   Care shall be exercised not to damage existing reinforcing steel during drilling. Hole diameter and installation procedure shall be as recommended by the Grout Manufacturer. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".
3. Roughen existing concrete surfaces in accordance with Subsection 802.12(b).
4. Temporary Construction Barrier, do not connect to existing bridge deck, see Std. Dwgs. TC-4 and TC-5 for additional information. See Roadway Plans for placement.
5. Lightweight concrete, see Special Provision Job No. 061509 "Lightweight Aggregate Concrete (AE)".
6. For additional information, see "SIDEWALK DETAIL".
7. Existing areas that are shaded will be retained.

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/11/19

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF EXISTING BRIDGE SUPERSTRUCTURE MODIFICATIONS FOR BAYOU TWO PRAIRIE

ROUTE SEC.

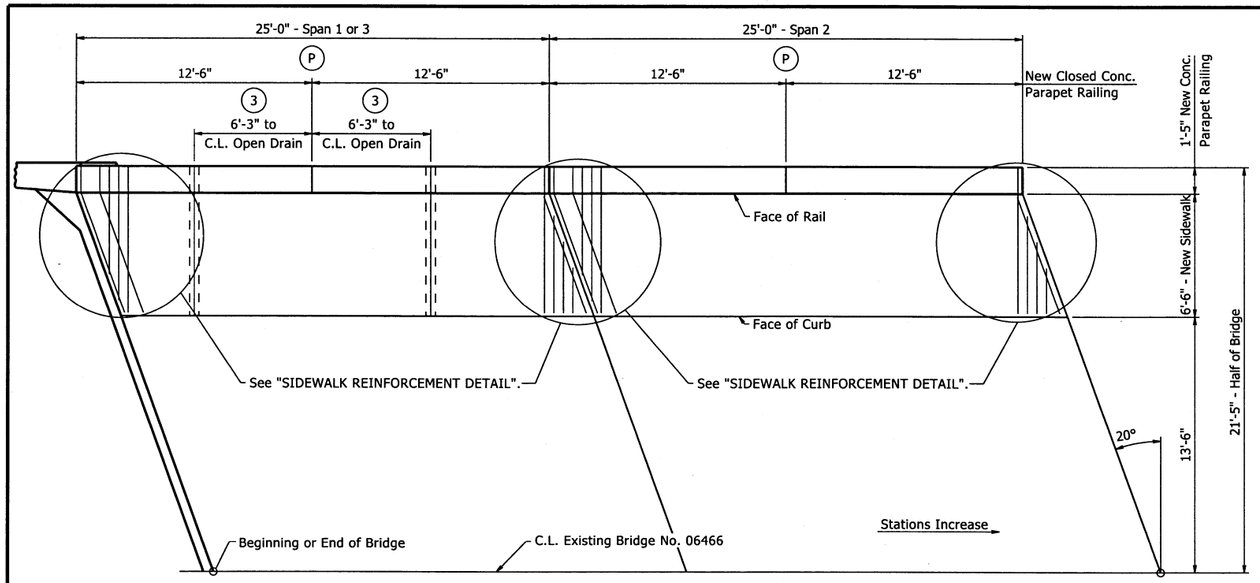
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 01/2019 FILENAME: b061509x2_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. 06466 DRAWING NO. 60861

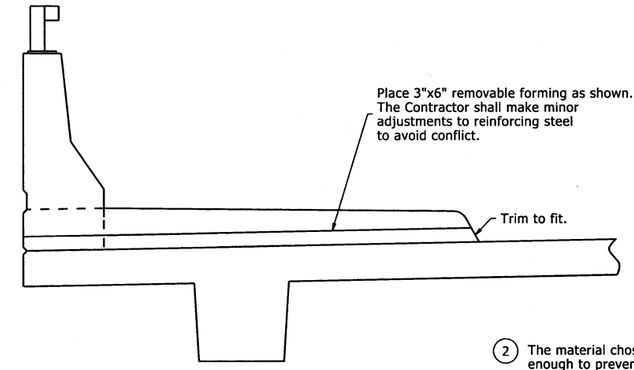
PRINT DATE: 6/11/2019

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.		061509	241	249
				(1)	06466 - SUPERSTRUCTURE - 60862			



REINFORCING PLAN

Scale: ¼" = 1'-0"



SECTION THRU DRAIN

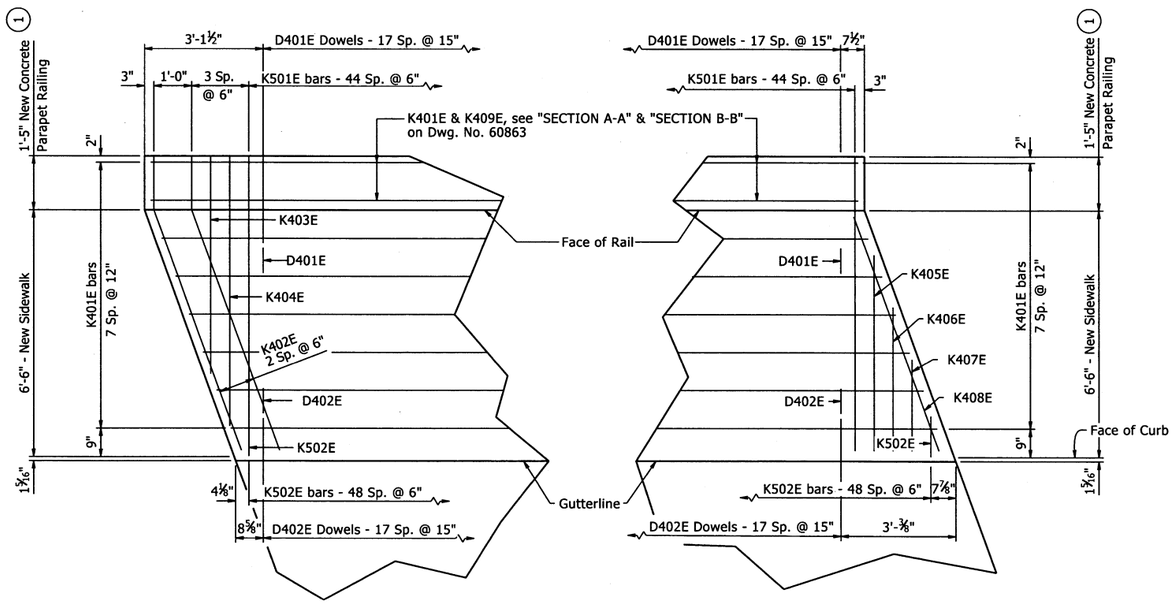
No Scale

(P) C.L. Partial Depth Parapet Joint (¼" to 1" Max.) Stop 1'-2" from top of sidewalk.

(1) See "DETAIL X" on Std. Dwg. No. 55014.

(2) The material chosen for forming shall be strong enough to prevent displacement during pouring of the sidewalk concrete and capable of being completely removed after the sidewalk concrete has attained set. Forming is to be held in place by methods approved by the Engineer to prevent movement during the course of construction. All work and material associated with forming these drains will not be paid for directly, but shall be considered subsidiary to "Lightweight Aggregate Concrete (AE)".

(3) Span 1 only.



SIDEWALK REINFORCEMENT DETAIL

Scale: ⅜" = 1'-0"

GENERAL NOTES

CONCRETE: Parapet Rail concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Sidewalk concrete shall be Lightweight Aggregate Concrete (AE) with a minimum 28 day compressive strength f'c = 3,000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. Concrete 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.

Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish.

A minimum of 72 hours shall elapse between pouring of the parapet railing and the completion of the sidewalk.

Work required to remove and dispose portions of the existing bridge and any required doweling or couplers will not be paid for directly, but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Bridge No. 06466)."

REINFORCING STEEL: All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. These wire supports will not be paid for directly but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6/11/19
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF EXISTING BRIDGE
SUPERSTRUCTURE MODIFICATIONS
FOR BAYOU TWO PRAIRIE

ROUTE SEC.

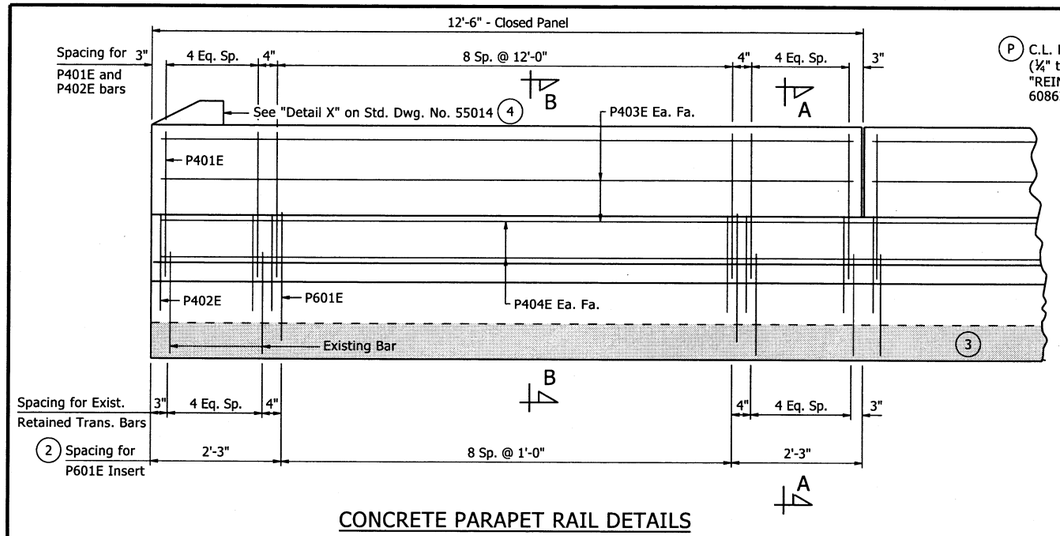
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 01/2019 FILENAME: b061509x2_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018
BRIDGE NO. 06466 DRAWING NO. 60862

PRINT DATE: 6/11/2019

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.		061509	242	349

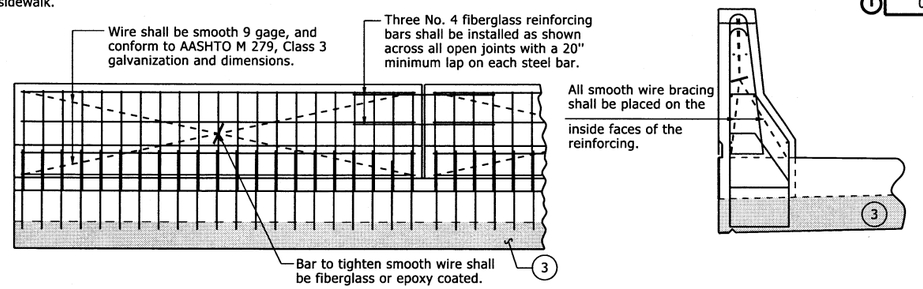
(1) 06466 - SUPERSTRUCTURE - 60863



CONCRETE PARAPET RAIL DETAILS

Scale: ¾" = 1'-0"

(P) C.L. Partial -Depth Parapet Joint (¼" to 1" max.) as shown in "REINFORCING PLAN", Dwg. No. 60862. Stop 1'-2" from top of sidewalk.



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 control led so it will follow the grooved joint.

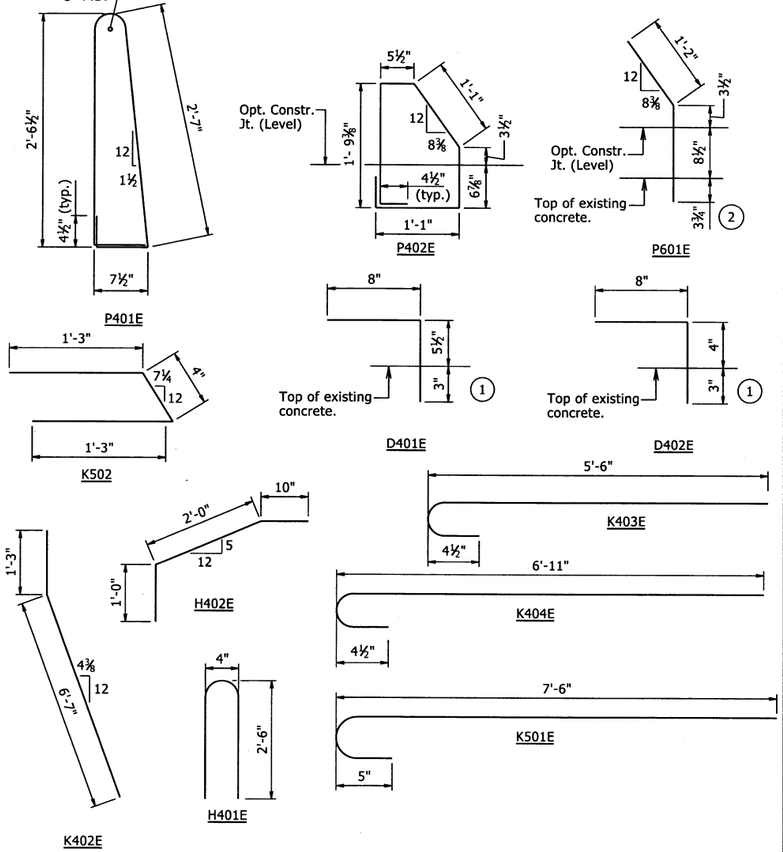
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed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

BAR LIST (PER SPAN)

	MARK	NO. REQ'D. End Span	NO. REQ'D. Int. Span	LENGTH	P.D.
(1)	D401E	18	18	1'-4"	3"
(1)	D402E	18	18	1'-2"	3"
	K401E	8	8	24'-8"	Str.
	K402E	3	3	7'-10"	3"
	K403E	1	1	6'-0"	3"
	K404E	1	1	7'-5"	3"
	K405E	1	1	5'-2"	Str.
	K406E	1	1	3'-10"	Str.
	K407E	1	1	2'-5"	Str.
	K408E	1	1	6'-7"	Str.
	K409E	2	2	24'-8"	Str.
	K501E	45	45	8'-1"	3¾"
	K502E	49	49	2'-8"	2½"
	P401E	38	38	6'-4"	2"
	P402E	38	38	5'-8"	2"
	P403E	6	6	12'-2"	Str.
	P404E	4	4	24'-8"	Str.
(2)	P601E	18	18	2'-6"	4½"
	H401E	3		5'-4"	3"
	H402E	1		3'-9"	3"

BENDING DIAGRAMS

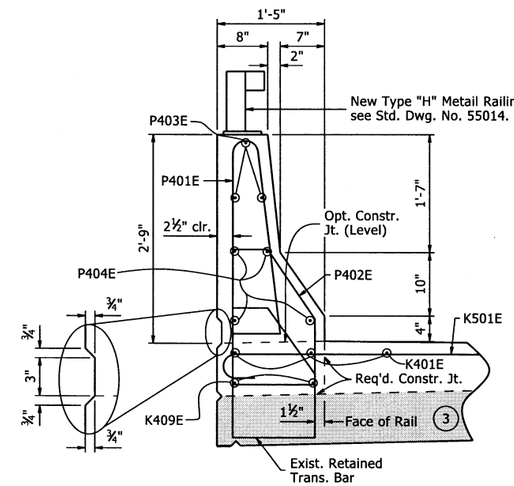
Dimensions are out to out of bars.



All bars with an "E" suffix shall be epoxy coated.

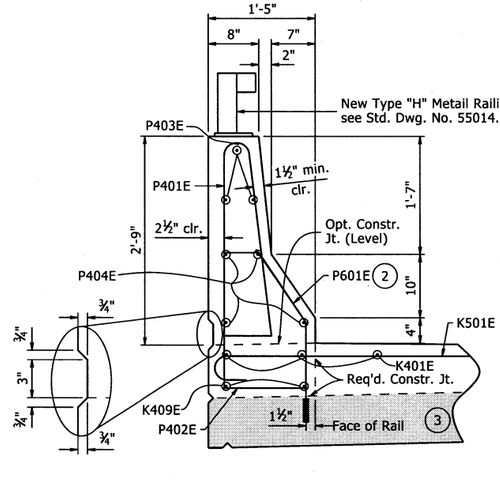
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



SECTION A-A

No Scale



SECTION B-B

No Scale

(1) Dowel into existing concrete deck slab using a QPL approved non-shrink grout or a resin anchoring system. The dowels shall have a minimum ultimate load capacity of 12,000 lbs. in tension. Modify the embedment depth shown if required by the Manufacturer's recommendations:

3" min. for D401E and D402E dowel bars

Care shall be exercised not to damage existing reinforcing during drilling. Hole diameter and installation procedure shall be as recommended by the Grout Manufacturer. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

(2) The QPL approved threaded insert shall be installed into the existing bridge deck as shown, Inserts shall have a minimum ultimate load capacity of 15,000 lbs in tension. Payment for threaded ¾" Ø inserts and placement shall be considered subsidiary to "Modification of Existing Bridge Structure (Bridge No. 06466)". Modify the embedment depth shown if required by the Manufacturer's recommendations:

3¾" min. for P601E bars

(3) Existing areas that are shaded will be retained.

(4) Each end of bridge.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF EXISTING BRIDGE SUPERSTRUCTURE MODIFICATIONS FOR BAYOU TWO PRAIRIE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

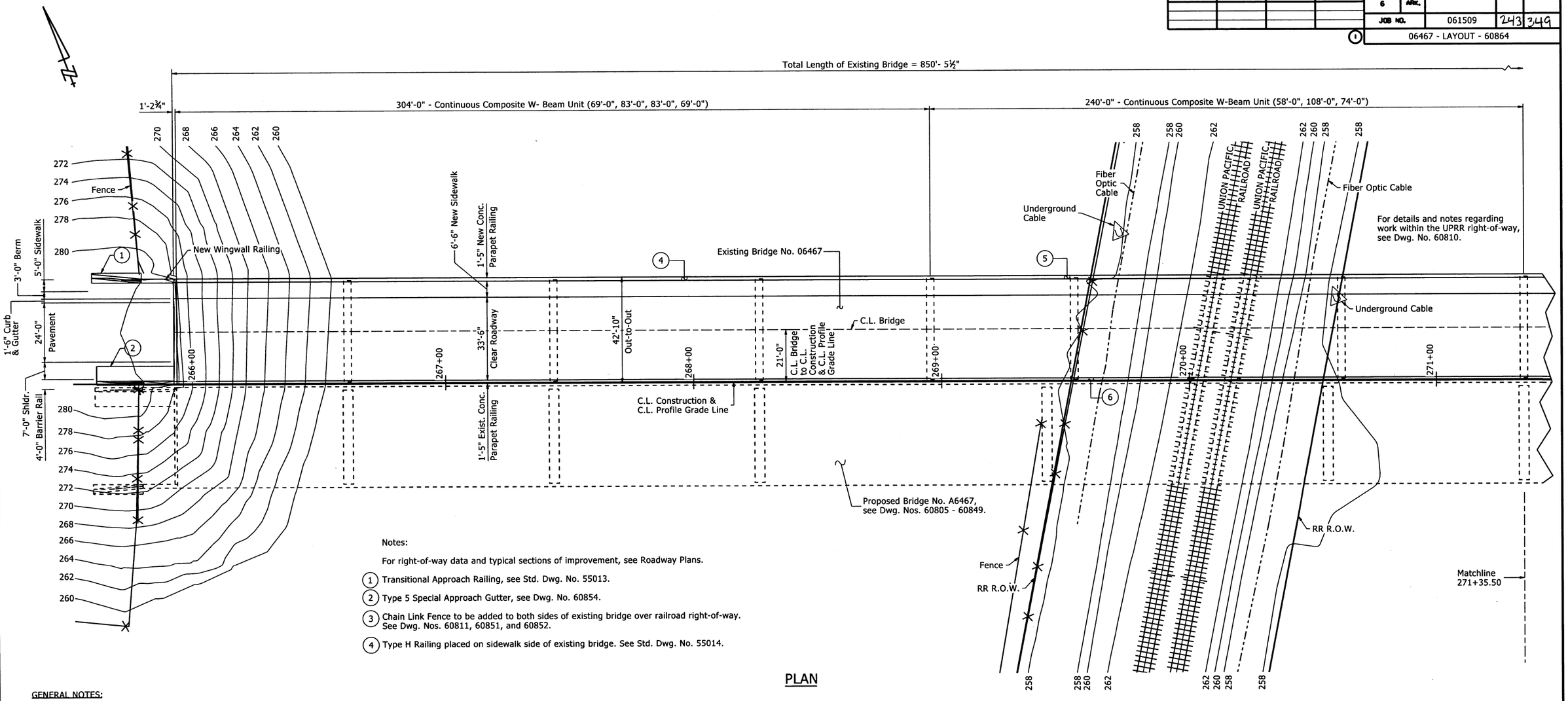
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 01/2019 FILENAME: b061509x2_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. 06466 DRAWING NO. 60863

6/11/2019

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.		061509	243	349
				①	06467 - LAYOUT - 60864			



Notes:

For right-of-way data and typical sections of improvement, see Roadway Plans.

(1) Transitional Approach Railing, see Std. Dwg. No. 55013.

(2) Type 5 Special Approach Gutter, see Dwg. No. 60854.

(3) Chain Link Fence to be added to both sides of existing bridge over railroad right-of-way. See Dwg. Nos. 60811, 60851, and 60852.

(4) Type H Railing placed on sidewalk side of existing bridge. See Std. Dwg. No. 55014.

PLAN

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. Section and Subsection refer to the Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges 17th Edition (2002) with interim Specifications.

LIVE LOADING: HS20 METHOD OF DESIGN: LOAD FACTOR

SEISMIC PERFORMANCE CATEGORY: A

MATERIALS AND STRENGTHS:

Class S (AE) Concrete	f'c = 4,000 psi
Class S Concrete	f'c = 3,500 psi
Lightweight Aggregate Concrete (AE)	f'c = 3,000 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, Grade 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Grade 50)	Fy = 50,000 psi
Structural Steel (AASHTO M270, Grade 50W)	Fy = 50,000 psi

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a polymer overlay per SP Job No. 061509 "Polymer Overlay". Sidewalk shall be given a broom finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish.

DETAIL DRAWINGS:	DRAWING NUMBER
End Bent Modifications	60866-60867
Transitional Approach Railing	55013
Type 5 Special Approach Gutter	60854
Type 7 Special Approach Gutter	60856
Superstructure Modifications	60868-60874
Type H Railing	55014
Straight Chain Link Fence	60851
Curved Chain Link Fence	60852

EXISTING BRIDGE: Existing Bridge No. 06467 (Log Mile 1.29) is 42.8' wide (40.0' Roadway) and 850.5' long. It consists of three continuous composite w-beam units supported by reinforced concrete bents on a foundation of concrete pile footings. Plans of existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

THE PROPOSED WORK CONSISTS OF: Removing the existing bridge railing and end bent wing railing and adding a sidewalk and new railing to the bridge deck and the end bent on the north side of the existing bridge. A Chain Link fence will be added to both sides of the existing bridge over the railroad right-of-way. For additional requirements in conducting the work, see Section 821.

VERIFICATION: Except as noted, components of the existing bridge are to be retained. Information and dimensions shown are based on the existing bridge plans. The Contractor is to adhere strictly to the requirements for verification of the geometry of the existing bridge and its relationship to the proposed work described in Subsection 821.02 and make necessary adjustments to fit the proposed work to the existing structure. Payment for this work shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Bridge No. 06467)".

REMOVAL AND SALVAGE: All material removed from the existing bridge under Item 821 shall be disposed of according to Section 205. All material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans

(3) Chain Link Fence Location Over RR R.O.W.			
Bridge No.	Station Location	(5) Left of C.L. Bridge	(6) Right of C.L. Bridge
06467	Start	Sta. 269+60	Sta. 269+52
	End	Sta. 270+63	Sta. 270+55

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF EXISTING BRIDGE MODIFICATION
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 12/2018 FILENAME: b061509x3_M1.dgn
CHECKED BY: CRE DATE: 6/6/19 SCALE: 1" = 20'
DESIGNED BY: DHP DATE: 06/2018

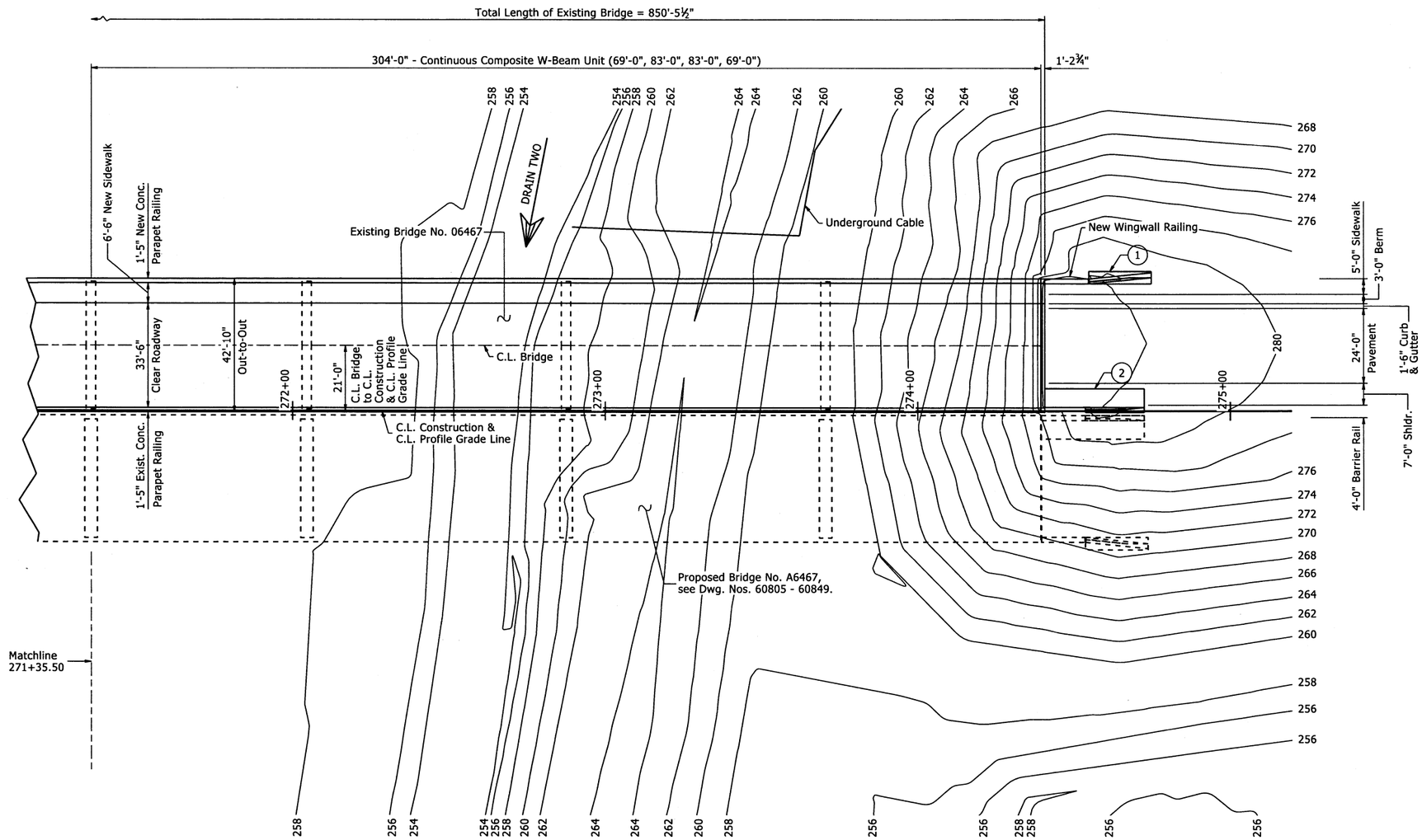
BRIDGE NO. 06467 DRAWING NO. 60864

PRINT DATE: 6/7/2019

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.		061509	244	349

① 06467 - LAYOUT - 60865



PLAN

Notes:
For right-of-way data and typical sections of improvement, see Roadway Plans.

① Transitional Approach Railing, see Std. Dwg. No. 55013.

② Type 7 Special Approach Gutter, see Dwg. No. 60856.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF EXISTING BRIDGE MODIFICATION
HIGHWAY 321 OVER DRAIN TWO & UPRR
HWY. 367 - HWY. 89 (CABOT) (S)
LONOKE COUNTY

ROUTE 321 SEC. 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

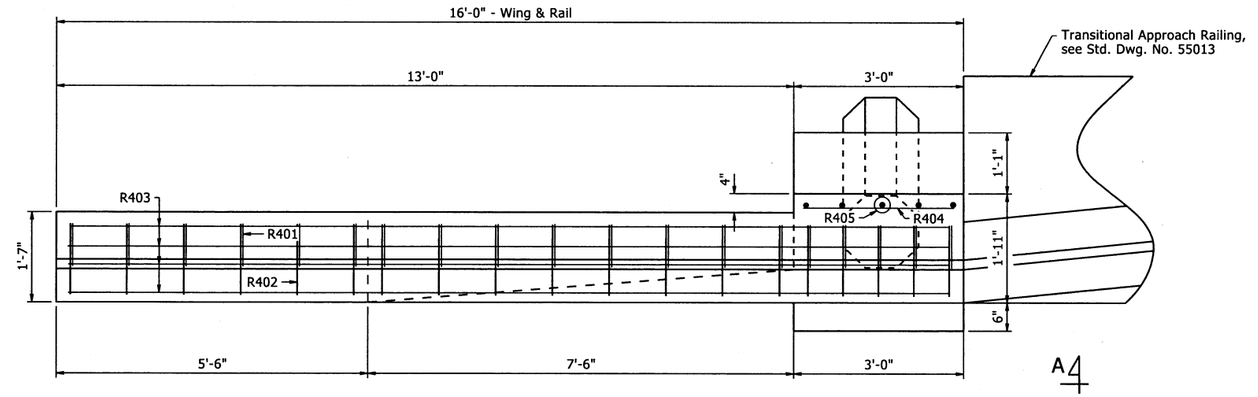
DRAWN BY: KJF DATE: 12/2018 FILENAME: b061509x3_M1.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: 1" = 20'
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. 06467 DRAWING NO. 60865

PRINT DATE: 6/7/2019

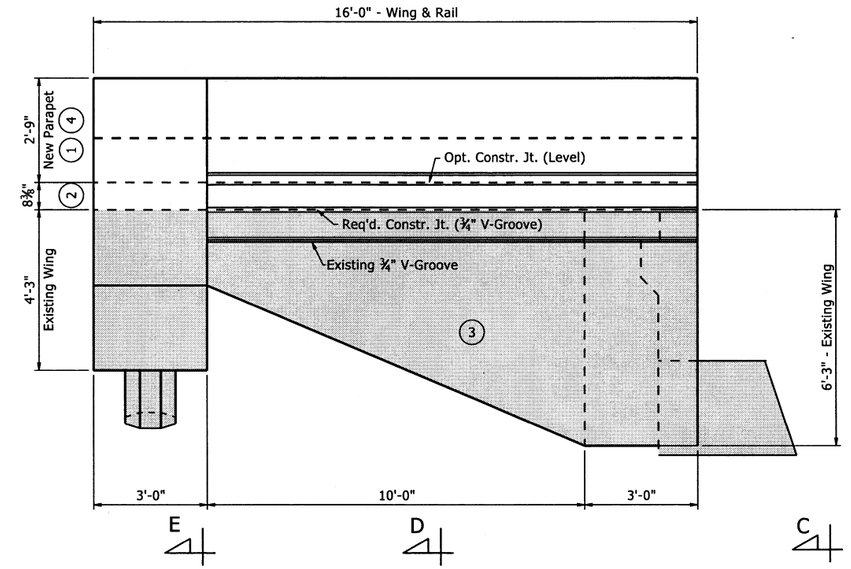
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	245	349
				①		06467 - END BENT MOD. - 60866		

Note: Bent 12 shown. Bent 1 similar.



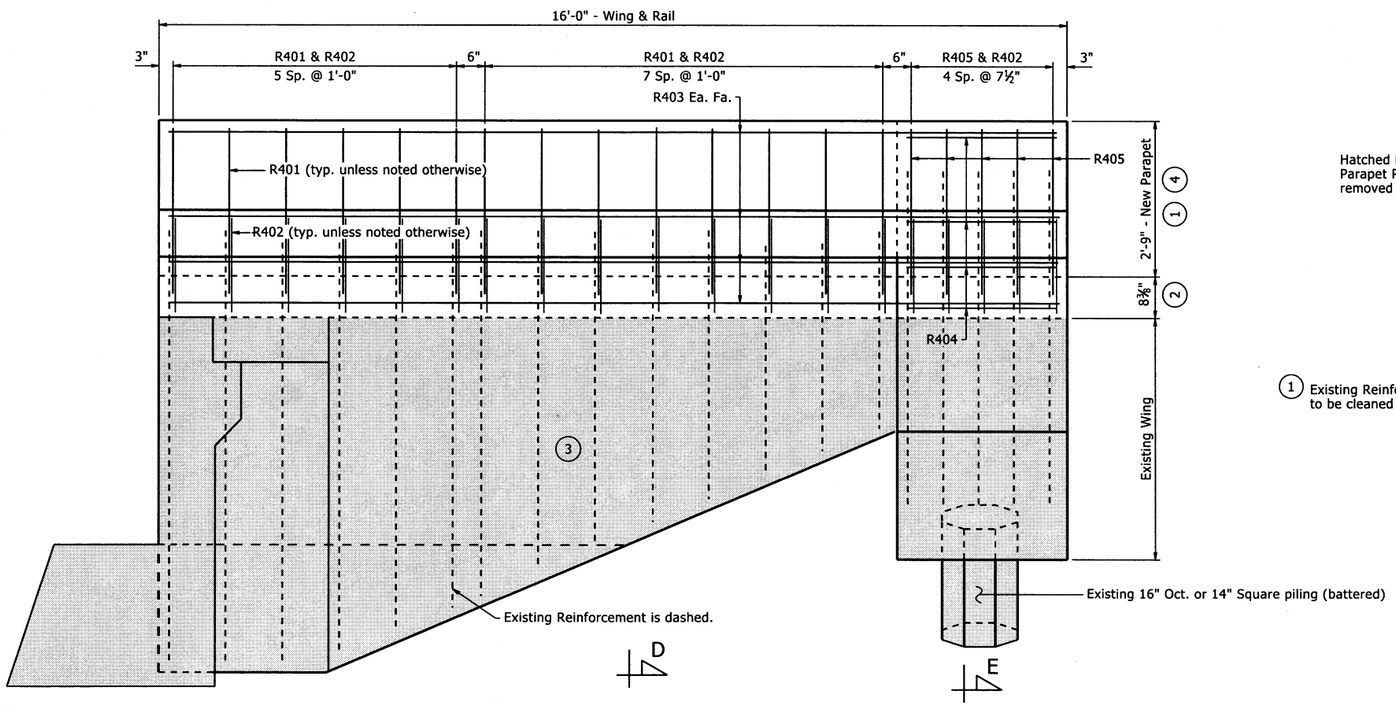
PLAN OF WING & RAIL

Scale: ¾" = 1'-0"



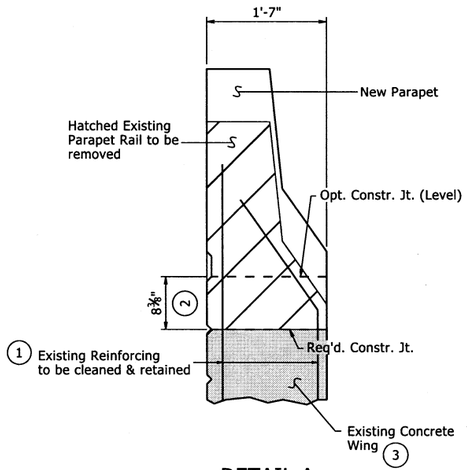
VIEW B-B

No Scale



VIEW A-A

No Scale



DETAIL A

No Scale

1. See "VIEW C-C" on Dwg. No. 60867. Care shall be exercised during the removal of the existing concrete parapet rail to ensure that the existing transverse reinforcing steel protruding is not damaged beyond repair. Any transverse reinforcing steel damaged beyond repair during removal of the rail concrete from wing shall be replaced as directed by the Engineer at the Contractor's expense. Minor straightening of the transverse reinforcing steel after the removal of the rail concrete from wing will be allowed. QPL approved ¾" Ø threaded inserts or couplers of equal number shall be used to replace damaged bars.
2. Adjust dimension as needed so wing parapet rail lines up with span parapet rail.
3. Existing areas that are shaded will be retained.
4. See "DETAIL A".

For "VIEW C-C", "SECTION D-D", & "SECTION E-E", see Dwg. No. 60867.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF EXISTING BRIDGE
END BENT MODIFICATIONS
FOR DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 03/2019 FILENAME: b061509x3_M3.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018
BRIDGE NO. 06467 DRAWING NO. 60866

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.		061509	246	349
				(1)		06467 - END BENT MOD. - 60867		

GENERAL NOTES

CONCRETE: All concrete shall be Class S or S(AE) with a minimum 28 day compressive strength f'c = 3,500 psi, and shall be paid for as "Class S(AE) Concrete-Bridge". Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. Work required to remove and dispose portions of the existing bridge and any required doweling or couplers will note be paid for directly, but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Bridge No. 06467)."

REINFORCING STEEL: All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. These wire supports will not be paid directly but will be considered subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)."

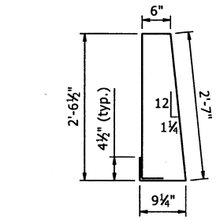
PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the sidewalk surface (including curbing) and to the roadway face, top and face of the concrete parapet rail.

BAR LIST (ONE RAIL)

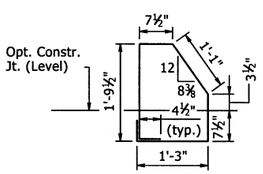
MARK	NO. REQ'D	LENGTH	P.D.
D401	30	1'-2"	3"
D402	30	1'-3"	3"
K401	6	15'-8"	Str.
K501	30	8'-1"	3¾"
K502	30	2'-8"	3¾"
R401	19	6'-10"	2"
R402	19	5'-8"	2"
R403	8	15'-8"	Str.
R404	4	2'-8"	Str.
R405	5	3'-2"	Str.

BENDING DIAGRAMS

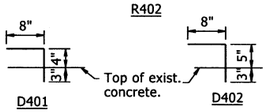
Dimensions are out to out of bars.



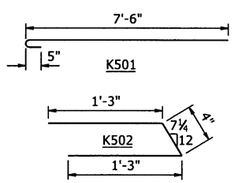
R401

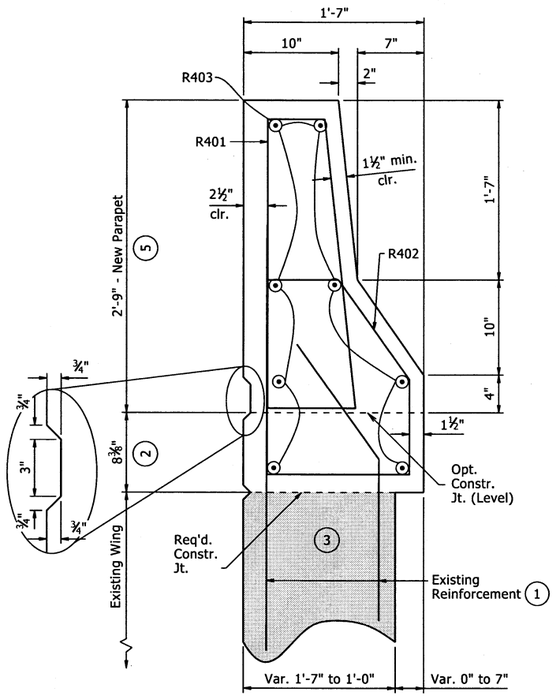


R402



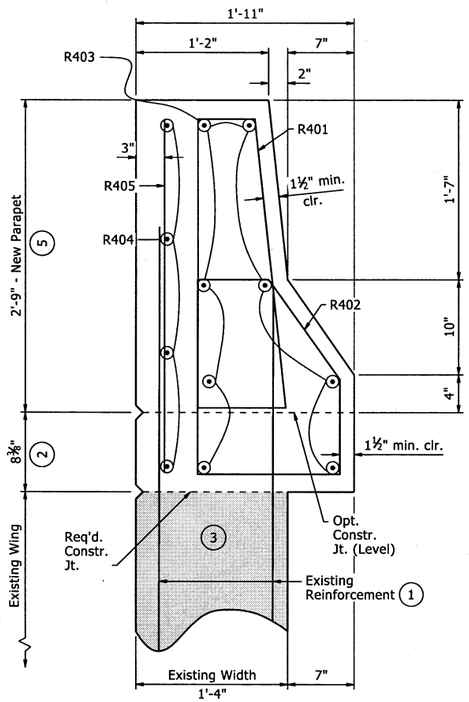
D401 D402





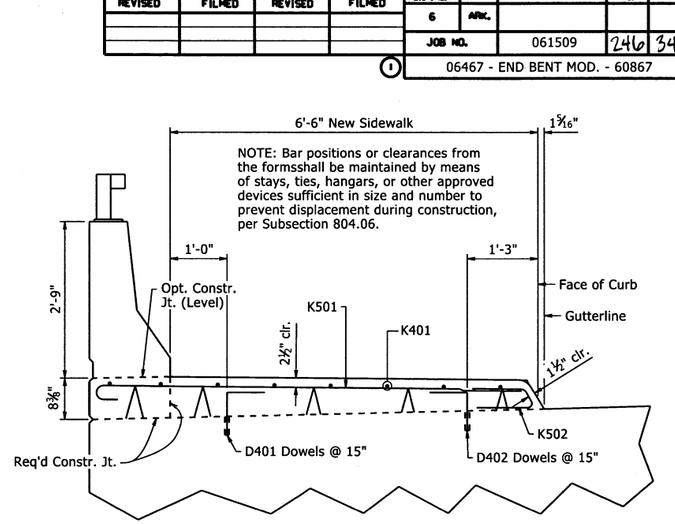
SECTION D-D

Scale: 1½" = 1'-0"



SECTION E-E

Scale: 1½" = 1'-0"



SIDEWALK DETAIL

No Scale

(1) Existing reinforcement to be retained. If bars are broken, use a coupler to provide minimum development length.

1'-0" for No. 4 bars

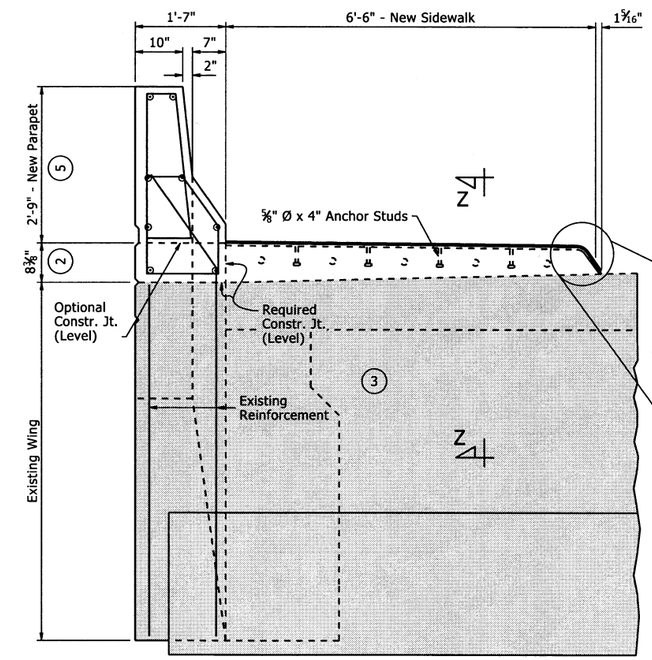
1'-6" for No. 6 bars

(2) Adjust dimension as needed so wing parapet rail lines up with span parapet rail.

(3) Existing areas that are shaded will be retained.

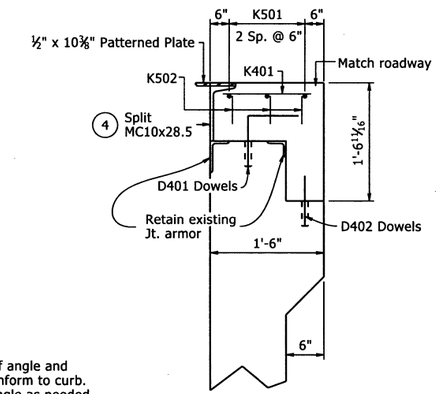
(4) Trim new MC10X28.5 as necessary. Adjust for skew effects as required. Set Channel normal to grade. All structural steel shall be AASHTO M 270, Gr.50W unless otherwise noted. For additional information, see "Section A-A" on Dwg. No. 60869.

(5) See "VIEW C-C". Care shall be exercised during the removal of the existing concrete parapet rail to ensure that the existing transverse reinforcing steel protruding is not damaged beyond repair. Any transverse reinforcing steel damaged beyond repair during removal of the rail concrete from wing shall be replaced as directed by the Engineer at the Contractor's expense. Minor straightening of the transverse reinforcing steel after the removal of the rail concrete from wing will be allowed. QPL approved ¾" Ø threaded inserts or couplers of equal number shall be used to replace damaged bars.



VIEW C-C

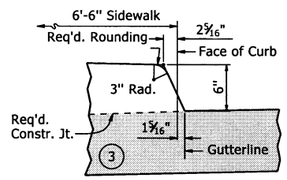
Scale: ¾" = 1'-0"



Note: For additional information, see "SECTION A-A" on Dwg. No. 60869

SECTION Z-Z

No Scale



SIDEWALK CURB DETAIL

Perpendicular or Radial to Existing Curb
No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-4-19
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF EXISTING BRIDGE
END BENT MODIFICATIONS
FOR DRAIN TWO & UPRR

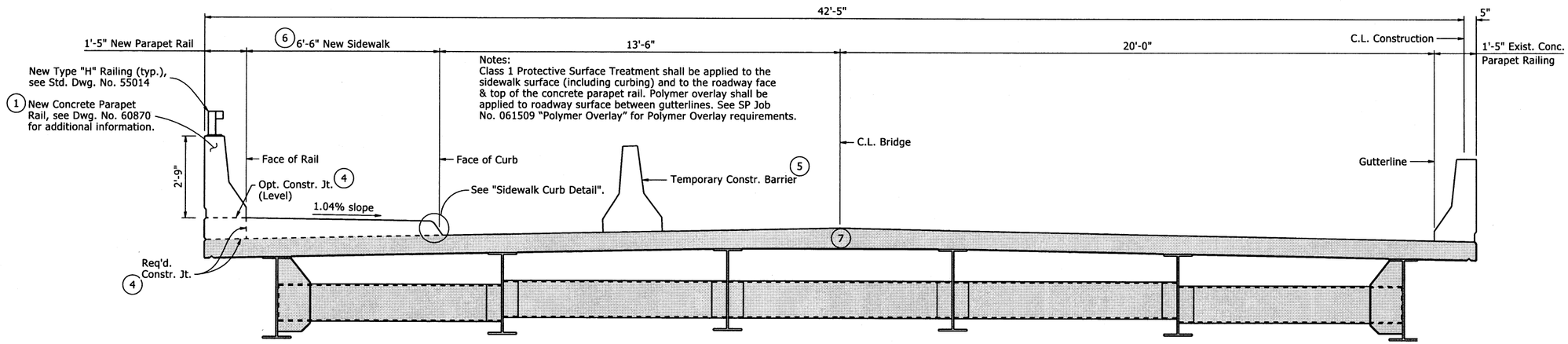
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJT DATE: 03/2019
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 06/2018
FILENAME: b061509x3_M3.dgn
SCALE: As Noted

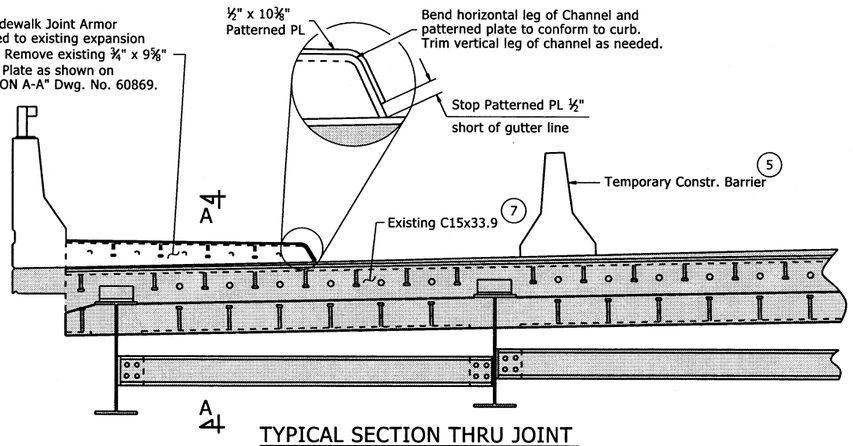
BRIDGE NO. 06467 DRAWING NO. 60867

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.		061509	247	349
				(1)		06467 - SUPERSTRUCTURE - 60868		



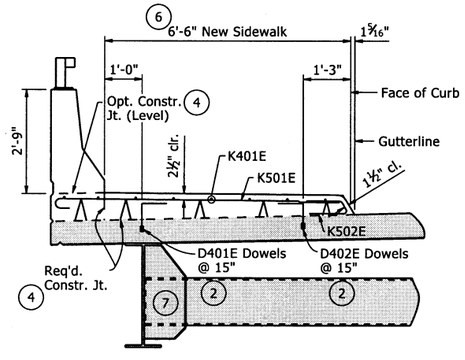
TYPICAL ROADWAY SECTION

Looking Ahead
½" = 1'-0"



TYPICAL SECTION THRU JOINT

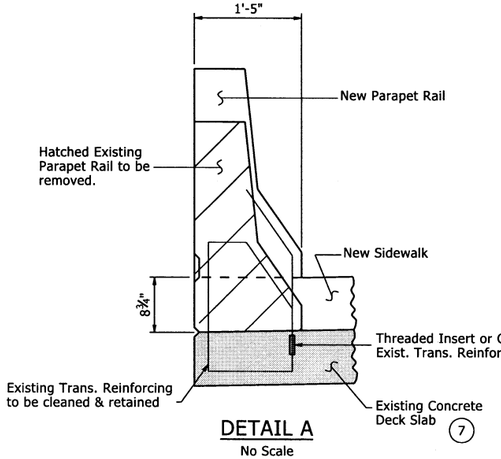
Looking Ahead
½" = 1'-0"



SIDEWALK DETAIL

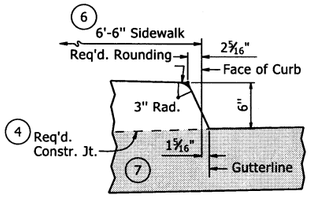
No Scale

NOTE: Bar positions and clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices sufficient in size and number to prevent displacement during construction, per Subsection 804.06.



DETAIL A

No Scale



SIDEWALK CURB DETAIL

Perpendicular or Radial to Existing Curb
No Scale

1 See "DETAIL A". Care shall be exercised during the removal of the existing concrete parapet rail to ensure that the existing transverse reinforcing steel protruding from deck slab is not damaged beyond repair. Any transverse reinforcing steel damaged beyond repair during removal of the rail concrete shall be replaced as directed by the Engineer at the Contractor's expense. Minor straightening of the transverse reinforcing steel after the removal of the rail concrete will be allowed. QPL approved ¾" Ø threaded inserts of equal number shall be used to replace damaged bars as shown in "DETAIL A". Epoxy coating on the transverse reinforcing steel damaged during the removal of the deck concrete shall be repaired in accordance with Subsection 804.05.

2 Dowel into existing concrete deck slab using a QPL approved non-shrink grout or a resin anchoring system. The dowels shall have a minimum ultimate load capacity of 12,000 lbs. in tension. Modify the embedment depth shown if required by the Manufacturer's recommendations:

3" min. for D401E and D402E Dowels Bars

Care shall be exercised not to damage existing reinforcing steel during drilling. Hole diameter and installation procedure shall be as recommended by the Grout Manufacturer. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

3 Trim new MC10x28.5 as necessary. Set channel normal to grade. All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted.

4 Roughen existing concrete surfaces in accordance with Subsection 802.12(b).

5 Temporary Construction Barrier, do not connect to existing bridge deck, see Std. Dwgs. TC-4 and TC-5 for additional information. See Roadway Plans for placement.

6 Lightweight concrete, see Special Provision Job No. 061509 "Lightweight Aggregate Concrete (AE)".

7 Existing areas that are shaded will be retained.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
COMMON DETAILS OF EXISTING BRIDGE SUPERSTRUCTURE MODIFICATIONS FOR DRAIN TWO & UPRR

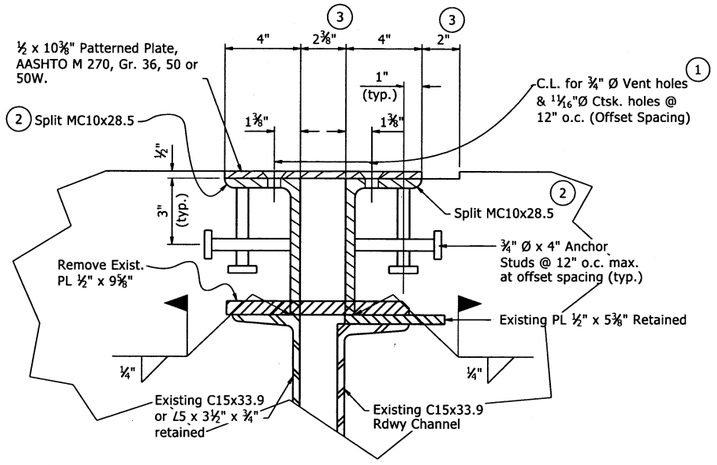
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 11/2018
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 06/2018
FILENAME: b061509x3_M2.dgn
SCALE: As Noted

BRIDGE NO. 06467 DRAWING NO. 60868

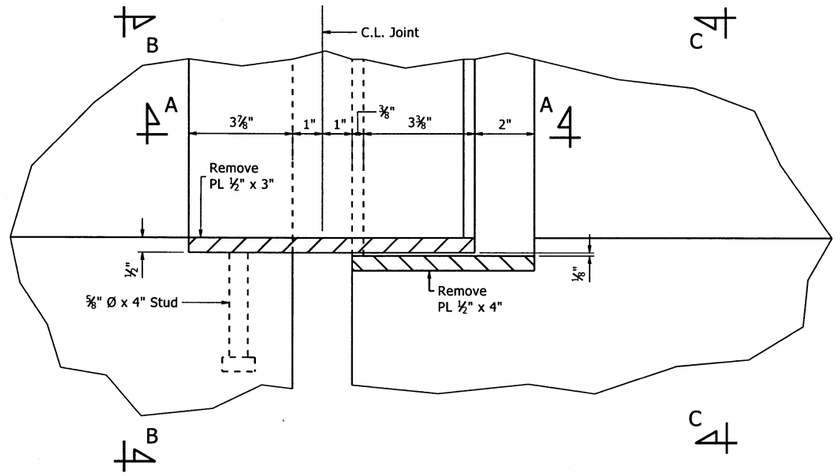
PRINT DATE: 6/11/2019

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.		061509	248	349
				①	06467 - SUPERSTRUCTURE - 60869			

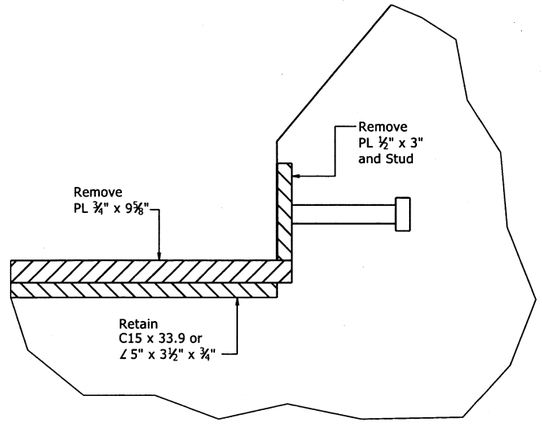


Note: Concrete shall be hand packed under joint armor in sidewalk.

SECTION A-A
No Scale



EXISTING PLAN OF JOINT AT PARAPET RAIL
No Scale



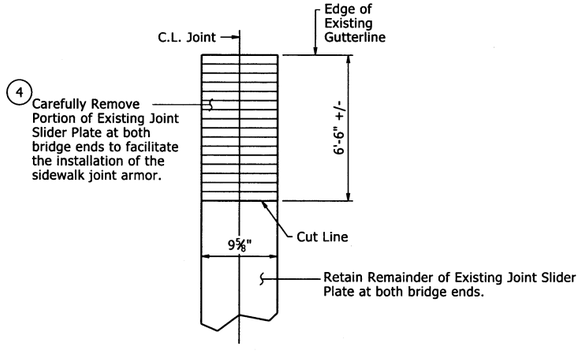
VIEW B-B
No Scale

① Countersink 1 1/16"Ø holes in patterned plate. Tap 4" leg of angles for ASTM A449 ⅝"Ø screw @ 12" o.c. Install screws in the shop and ship as a unit. At Bents 1 & 11, remove screws on span side. The screws on the backwall side to remain in place after erection. At Bents 4 & 7, remove screws on one side. See "Expansion Device Installation" note.

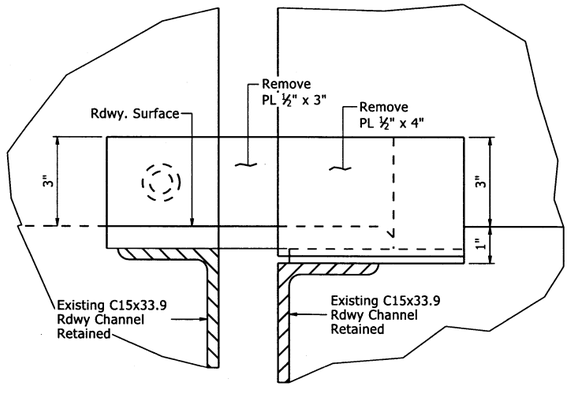
② Trim new MC10x28.5 as necessary. Set channel normal to grade. All structural steel shall be AASHTO M270, Gr.50W unless otherwise noted.

③ Dimensions shown @ 60° F.

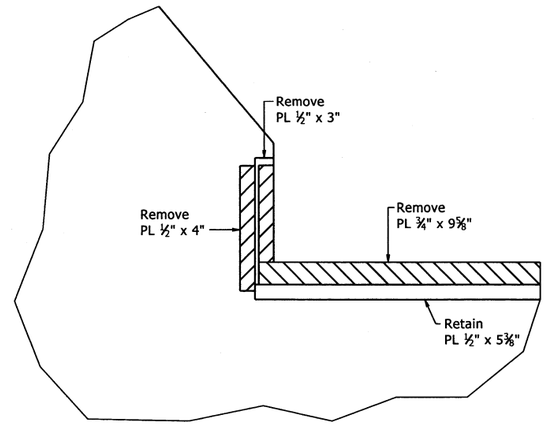
④ Partial removal to facilitate installation of sidewalk expansion device, see "SECTION A-A". Payment for this work shall be considered included in the item "Modification of Existing Bridge Structure (Br. No. 06467)".



MODIFICATION TO EXISTING SLIDER PLATES
No Scale



VIEW A-A
No Scale



VIEW C-C
No Scale

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
COMMON DETAILS OF EXISTING BRIDGE SUPERSTRUCTURE MODIFICATIONS FOR DRAIN TWO & UPRR

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

DRAWN BY: KJF DATE: 11/2018 FILENAME: b061509x3_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018
BRIDGE NO. 06467 DRAWING NO. 60869

PRINT DATE: 6/11/2019

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.		061509	249	349

(1) 06467 - SUPERSTRUCTURE - 60870

GENERAL NOTES

CONCRETE: Parapet Rail concrete and concrete under parapet rail shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Sidewalk concrete shall be Lightweight Aggregate Concrete (AE) with a minimum 28 day compressive strength f'c = 3,000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. Concrete 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.

Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish.

The parapet railing and concrete under parapet railing shall be poured before the sidewalk concrete. A minimum of 72 hours shall elapse between pouring of the parapet railing and the completion of the sidewalk.

Work required to remove and dispose portions of the existing bridge and any required doweling or coupling system will not be paid for directly,but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Bridge No. 06467)."

REINFORCING STEEL: All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. These wire supports will not be paid for directly but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60).

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

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

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

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. All welding shall conform to Subsection 807.26.

PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the new sidewalk surface (including curbing) and to the front face and top of the concrete parapet rail.

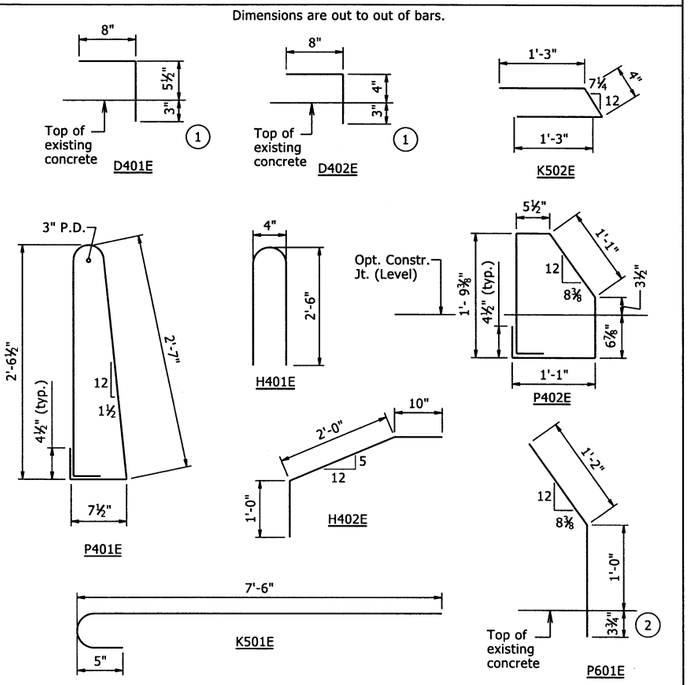
PAINTING: The top surface of the ½" patterned plate shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but shall be considered subsidiary to "Structural Steel in Beam Spans (M 270, Gr. 50W)".

BAR LIST (PER UNIT)

	MARK	NO. REQ'D. 240' Unit	NO. REQ'D. 304' Unit	LENGTH	P.D.
	D401E	191	243	1'-5"	3"
	D402E	191	243	1'-4"	3"
	K401E	56	72	36'-6"	Str.
	K402E	14	18	36'-6"	Str.
	K501E	479	607	8'-1"	3¾"
	K502E	479	607	2'-8"	2"
	P401E	283	428	6'-4"	2"
	P402E	283	428	5'-8"	2"
	P403E	14	56	13'-2"	Str.
	P404E		98	13'-8"	Str.
	P405E	7		10'-8"	Str.
	P406E	56		11'-5"	Str.
	P407E	28		16'-8"	Str.
	P408E	28		9'-8"	Str.
	P409E	48	48	5'-6"	Str.
(2)	P601E	72	160	2'-6"	4½"
	H401E		3	2'-6"	4½"
	H402E		1	2'-6"	4½"

BENDING DIAGRAMS

Dimensions are out to out of bars.



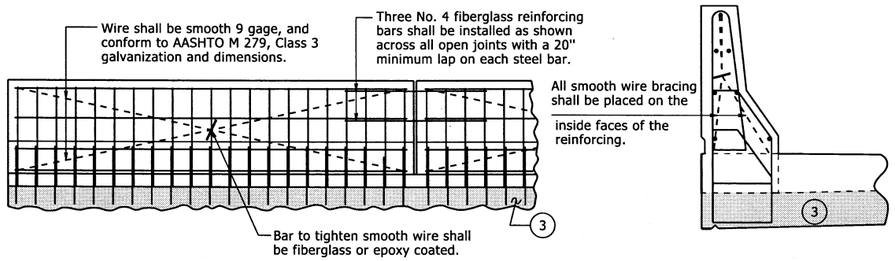
All bars with an "E" suffix shall be epoxy coated.

Wire shall be smooth 9 gage, and conform to AASHTO M 279, Class 3 galvanization and dimensions.

Three No. 4 fiberglass reinforcing bars shall be installed as shown across all open joints with a 20" minimum lap on each steel bar.

All smooth wire bracing shall be placed on the inside faces of the reinforcing.

Bar to tighten smooth wire shall be fiberglass or epoxy coated.



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. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

(1) Dowel into existing concrete curb using a QPL approved non-shrink grout or a resin anchoring system. The dowels shall have a minimum ultimate load capacity of 12,000 lbs. in tension. Modify the embedment depth shown if required by the Manufacturer's recommendations:

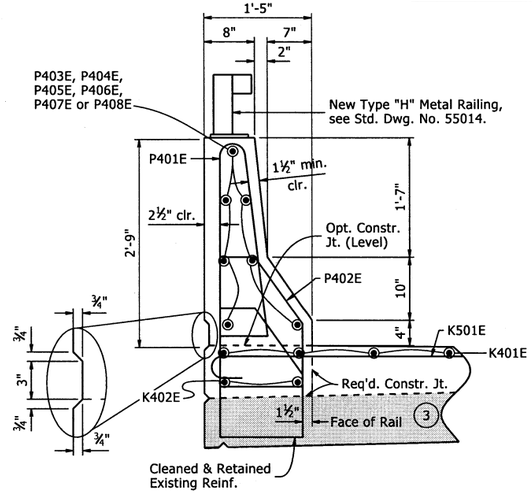
3" min. for D401E and D402E dowel bars

Care shall be exercised not to damage existing reinforcing during drilling. Hole diameter and installation procedure shall be as recommended by the Grout Manufacturer. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

(2) The QPL approved threaded insert shall be installed into the existing bridge deck as shown, Inserts shall have a minimum ultimate load capacity of 15,000 lbs in tension. Payment for threaded ¾" Ø rebar, inserts, and placement shall be considered subsidiary to "Modification of Existing Bridge Structure (Bridge No. 06467)". Modify the embedment depth shown if required by the Manufacturer's recommendations:

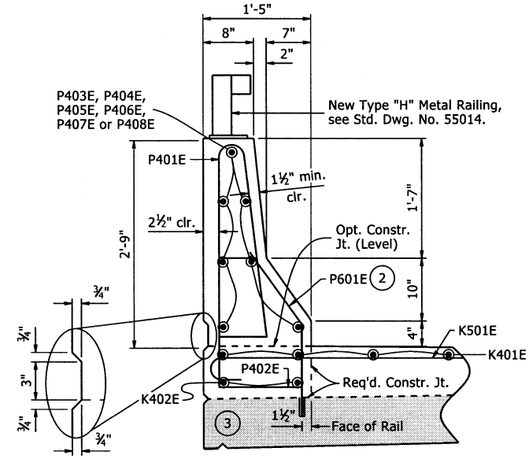
3¾" min. for P601E bars

(3) Existing areas that are shaded will be retained.



SECTION A-A

No Scale



SECTION B-B

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 3 OF 3
COMMON DETAILS OF EXISTING BRIDGE SUPERSTRUCTURE MODIFICATIONS FOR DRAIN TWO & UPRR

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

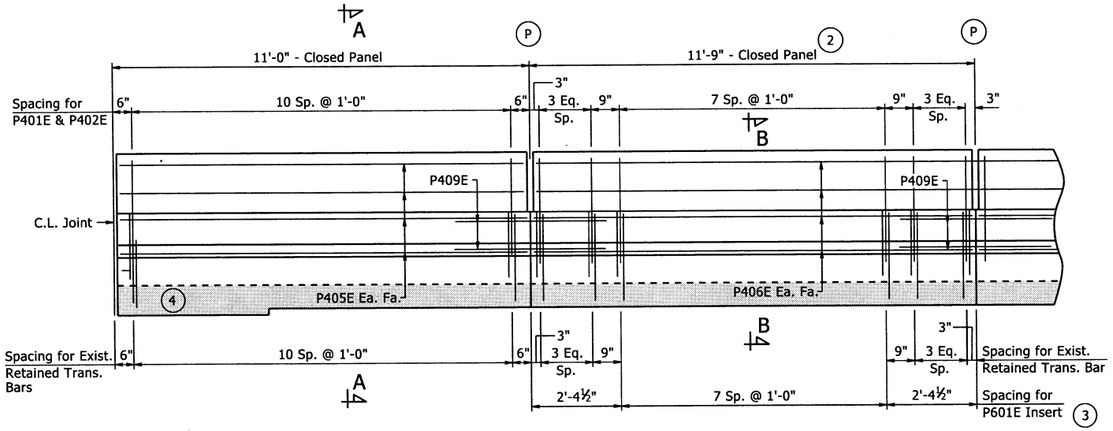
DRAWN BY: KJF DATE: 11/2018
CHECKED BY: DHP DATE: 6/6/19
DESIGNED BY: DHP DATE: 06/2018
FILENAME: b061509x3_M2.dgn
SCALE: As Noted

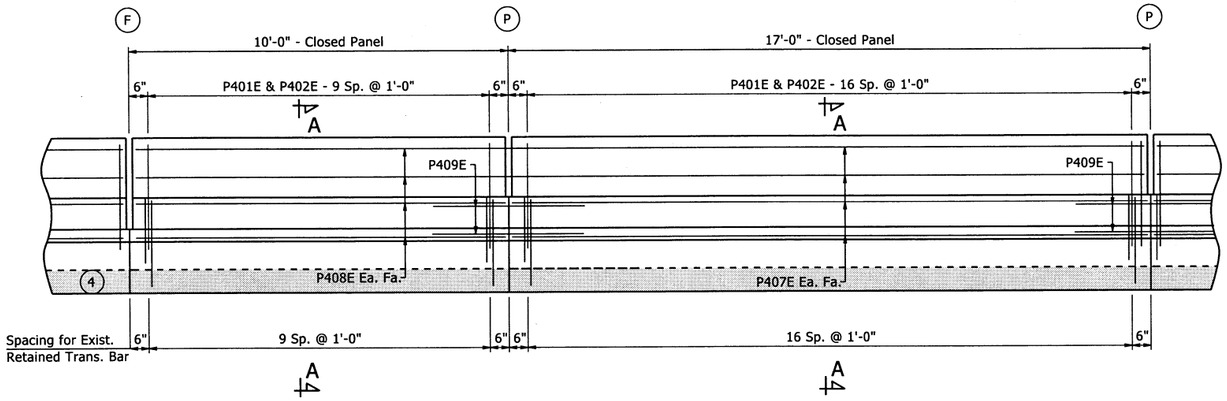
BRIDGE NO. 06467 DRAWING NO. 60870

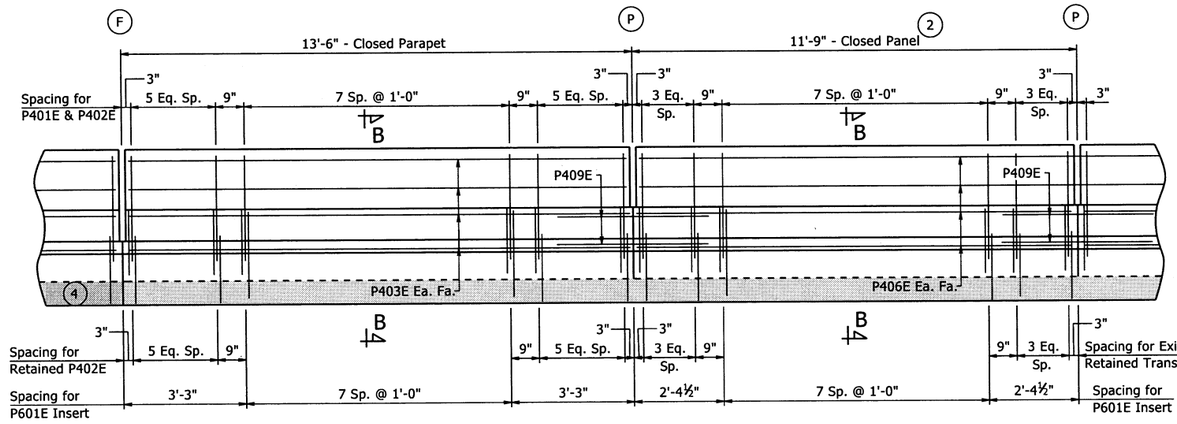
PRINT DATE:

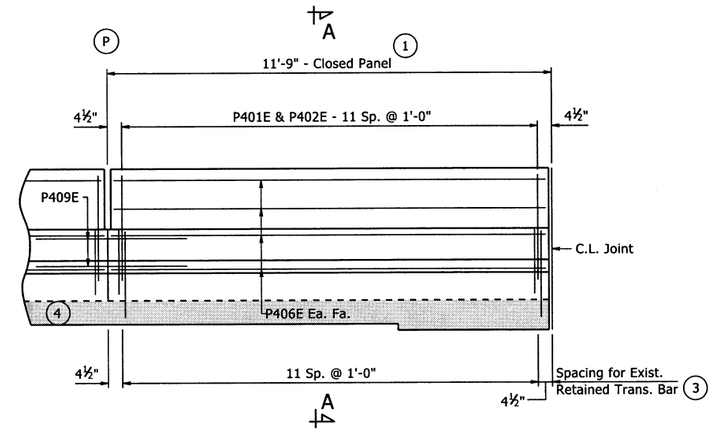
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	250	349

(1) 06467 - SUPERSTRUCTURE - 60872









(P) C.L. Partial Depth
Parapet Jt. (¼" to 1" max.)
Stop 1'-2" from top of sidewalk.

(F) C.L. Full-Depth
Parapet Jt. (¼" to 1" max.)
Stop 4" from top of sidewalk.

CONCRETE PARAPET RAIL DETAILS

Scale: ½" = 1'-0"

Note: See "SECTION A-A" and "SECTION B-B" on Dwg. No. 60870.

(1) The existing parapet was a closed panel and the new panel will also be a closed panel.

(2) The existing parapet was an open panel and the new panel will now be a closed panel.

(3) ¾" Ø QPL approved Threaded Insert. Care shall be exercised not to damage existing reinforcement during the drilling of hole diameters. Installation shall be as recommended by Insert Manufacturer.

(4) Existing areas that are shaded will be retained.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF 240'-0" UNIT
OF EXISTING BRIDGE
SUPERSTRUCTURE MODIFICATIONS

ROUTE SEC.

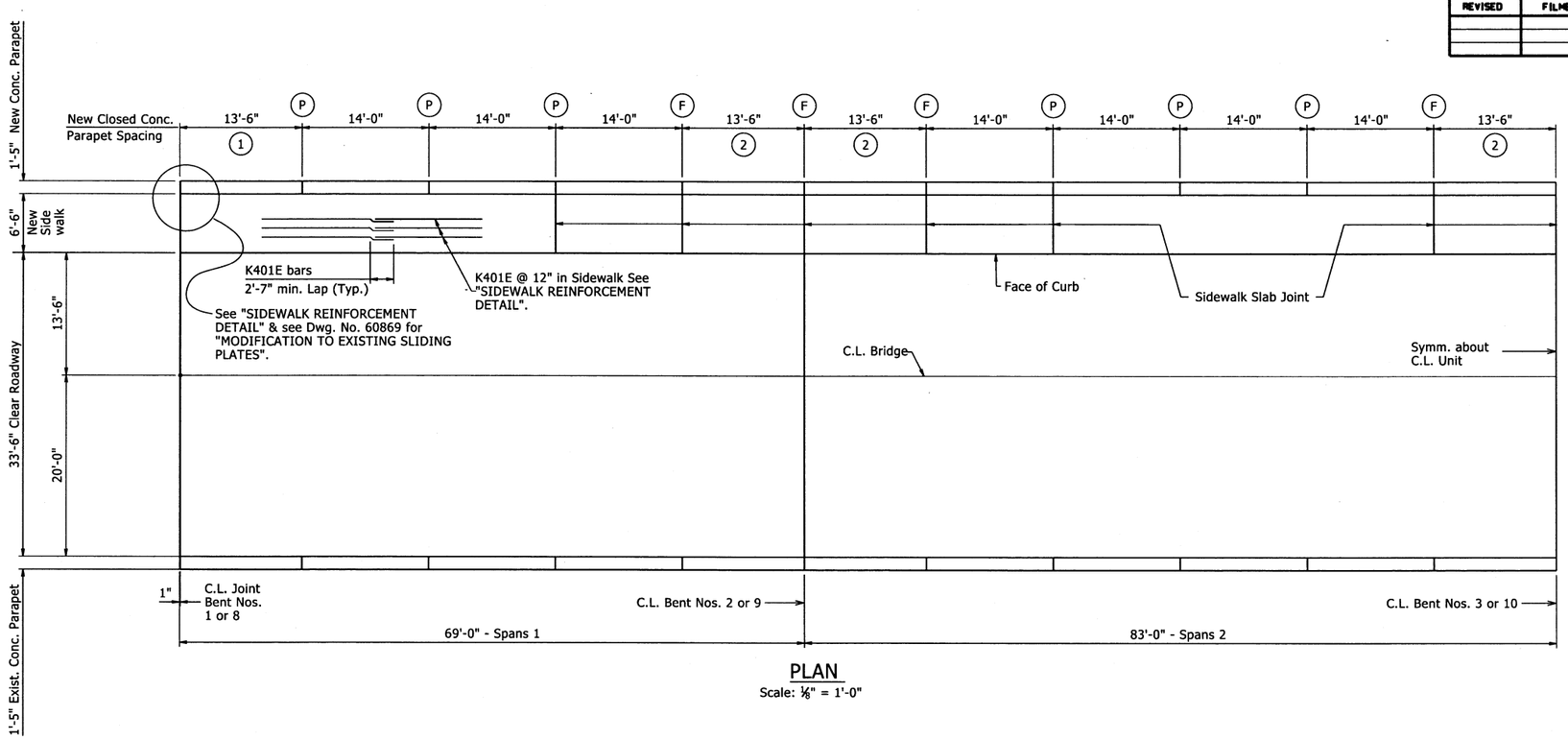
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 11/2018 FILENAME: b061509x3_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018

BRIDGE NO. 06467 DRAWING NO. 60872

PRINT DATE: 6/7/2019

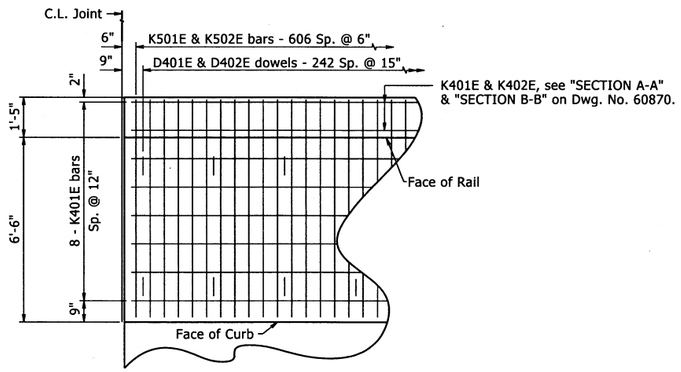
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	251	349
				(1)		06467 - SUPERSTRUCTURE - 60873		



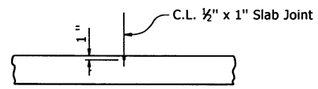
PLAN
Scale: ⅛" = 1'-0"

(1) The existing parapet was a closed panel and the new panel will also be a closed panel. See "CONCRETE PARAPET RAIL DETAILS" on Dwg No. 60874.

(2) The existing parapet was an open panel and the new panel will now be a closed panel. See "CONCRETE PARAPET RAIL DETAILS" on Dwg No. 60874.



SIDEWALK REINFORCEMENT DETAIL
Scale: ⅜" = 1'-0"



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. Sidewalk Slab Joints and Joint Sealer to be placed in sidewalk as shown. If Sidewalk 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. Sidewalk Slab Joints shall align with parapet open joints at the front face of the parapet.

SLAB JOINT DETAIL
No Scale

(F) C.L. Full-Depth
Parapet Joint (¼" to 1" Max.)
Stop 4" from top of sidewalk.

(P) C.L. Partial-Depth
Parapet Joint (¼" to 1" Max.)
Stop 1'-2" from top of sidewalk.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
6-11-19
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF 304'-0" UNITS
OF EXISTING BRIDGE
SUPERSTRUCTURE MODIFICATIONS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

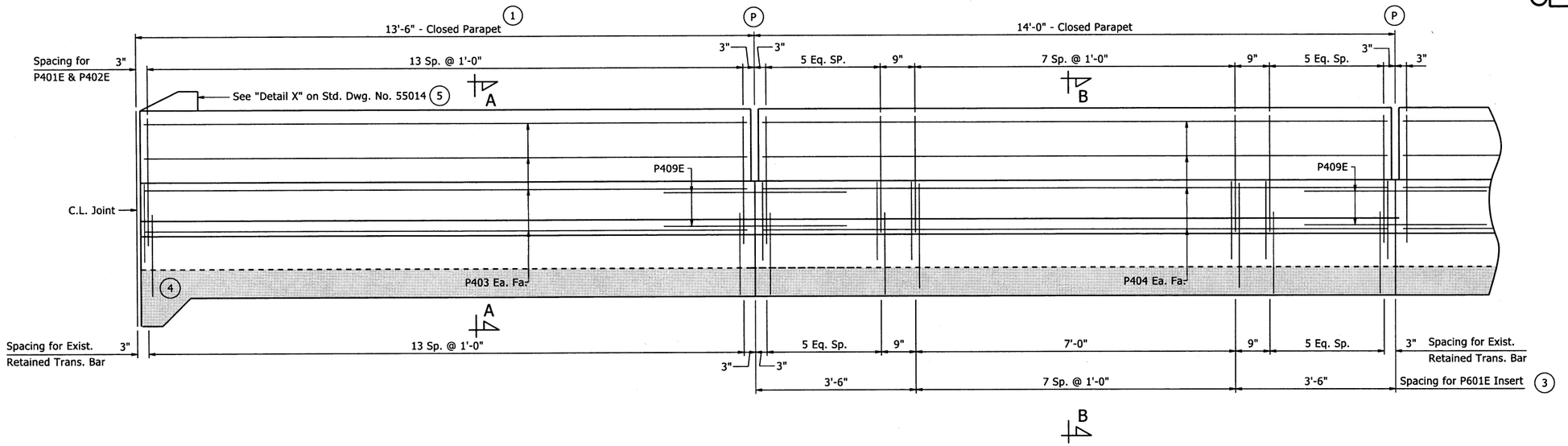
DRAWN BY: KJF DATE: 11/2018 FILENAME: b061509x3_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018

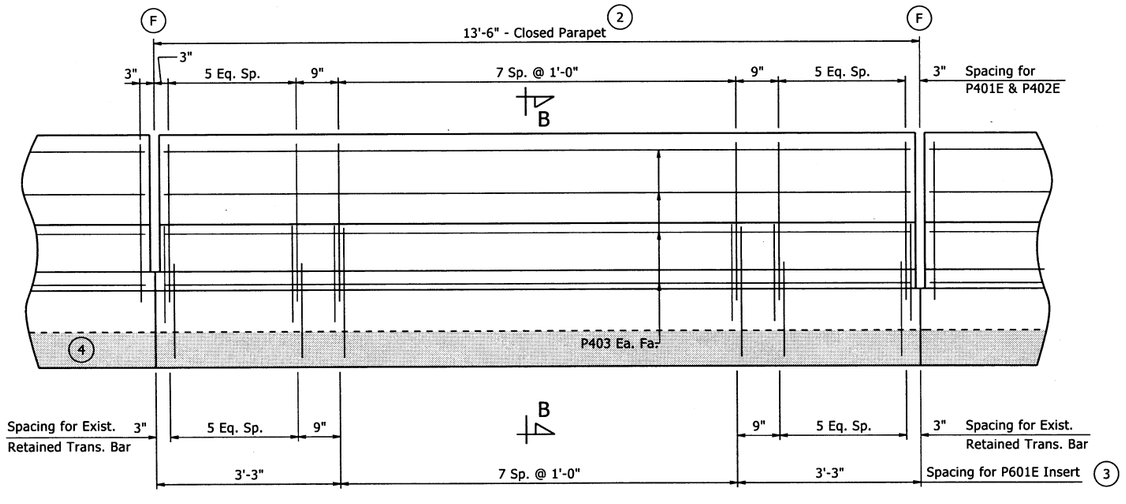
BRIDGE NO. 06467 DRAWING NO. 60873

PRINT DATE: 6/11/2019

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.		061509	252	349

(1) 06467 - SUPERSTRUCTURE - 60874





(F) C.L. Full-Depth Parapet Jt. (¼" to 1" max.) Stop 4" from top of sidewalk.

(P) C.L. Partial Depth Parapet Jt. (¼" to 1" max.) Stop 1'-2" from top of sidewalk.

(1) The existing parapet was a closed panel and the new panel will also be a closed panel.

(2) The existing parapet was an open panel and the new panel will now be a closed panel.

(3) ¾" Ø QPL approved Threaded Insert. Care shall be exercised not to damage existing reinforcement during the drilling of hole diameters. Installation shall be as recommended by Insert Manufacturer.

(4) Existing areas that are shaded will be retained.

(5) Each end of bridge.

CONCRETE PARAPET RAIL DETAILS

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6/11/19
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF 304'-0" UNITS
OF EXISTING BRIDGE
SUPERSTRUCTURE MODIFICATIONS

ROUTE SEC.

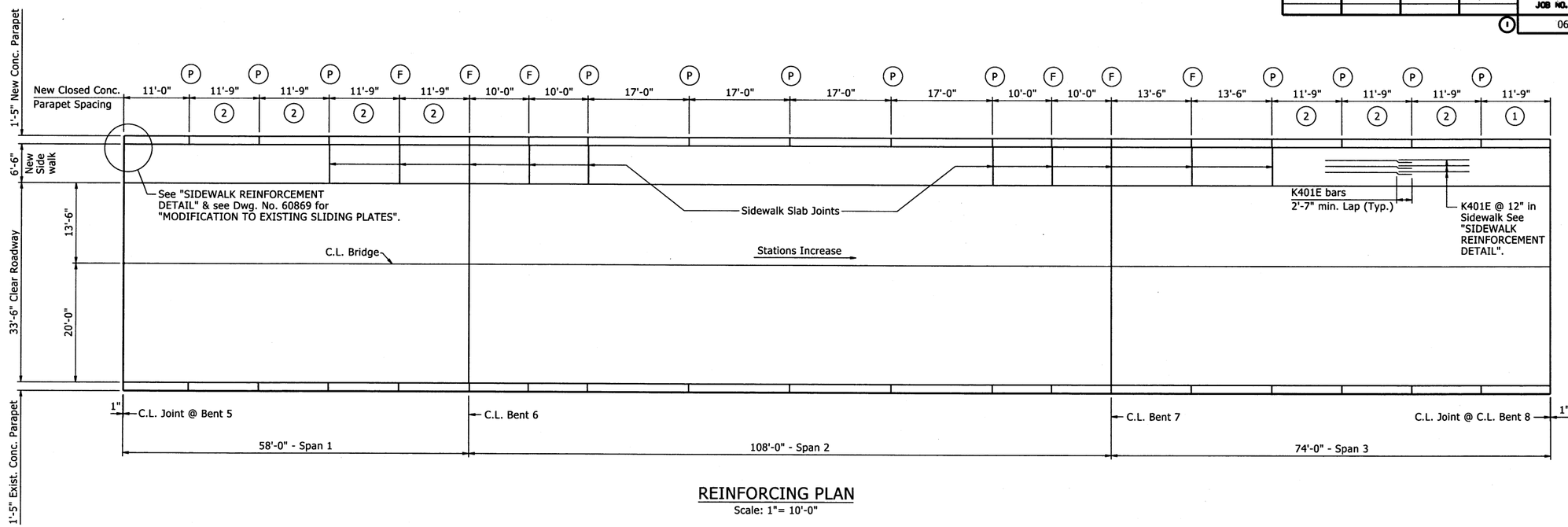
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 11/2018 FILENAME: b061509x3_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018

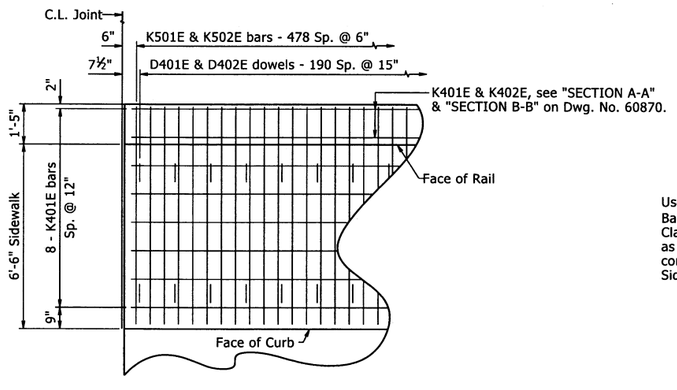
BRIDGE NO. 06467 DRAWING NO. 60874

PRINT DATE: 6/7/2019

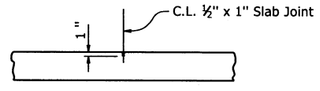
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	253	349
				1	06467 - SUPERSTRUCTURE - 60871			



REINFORCING PLAN
Scale: 1"= 10'-0"



SIDEWALK REINFORCEMENT DETAIL
Scale: ⅜" = 1'-0"



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. Sidewalk Slab Joints and Joint Sealer to be placed in sidewalk as shown. If Sidewalk 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. Sidewalk Slab Joints shall align with parapet open joints at the front face of the parapet.

SLAB JOINT DETAIL
No Scale

(1) The existing parapet was a closed panel and the new panel will also be a closed panel. See "CONCRETE PARAPET RAIL DETAILS" on Dwg No. 60872.

(2) The existing parapet was an open panel and the new panel will now be a closed panel. See "CONCRETE PARAPET RAIL DETAILS" on Dwg No. 60872.

(F) C.L. Full-Depth Parapet Joint (¼" to 1" Max.) Stop 4" from top of sidewalk.

(P) C.L. Partial-Depth Parapet Joint (¼" to 1" Max.) Stop 1'-2" from top of sidewalk.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
6-11-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF 240'-0" UNIT
OF EXISTING BRIDGE
SUPERSTRUCTURE MODIFICATIONS

ROUTE SEC.

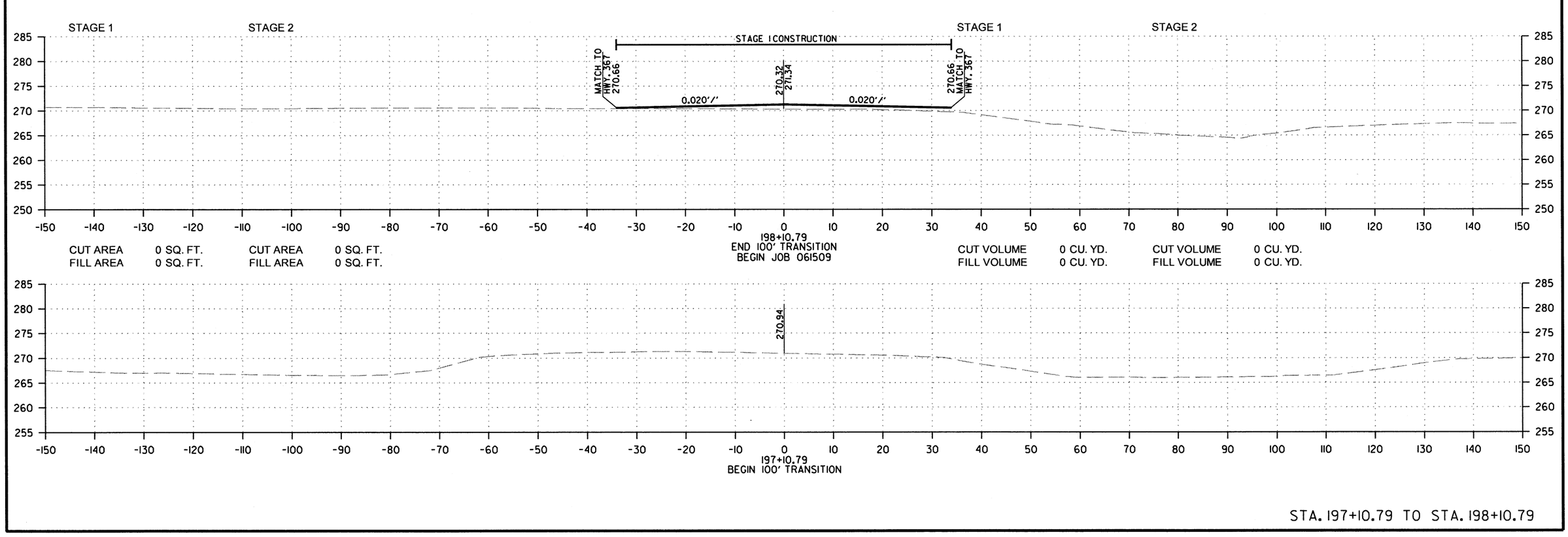
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KJF DATE: 11/2018 FILENAME: b061509x3_M2.dgn
CHECKED BY: DHP DATE: 6/6/19 SCALE: As Noted
DESIGNED BY: DHP DATE: 06/2018
BRIDGE NO. 06467 DRAWING NO. 60871

PRINT DATE: 6/11/2019

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.		061509	254	349

(2) CROSS SECTIONS



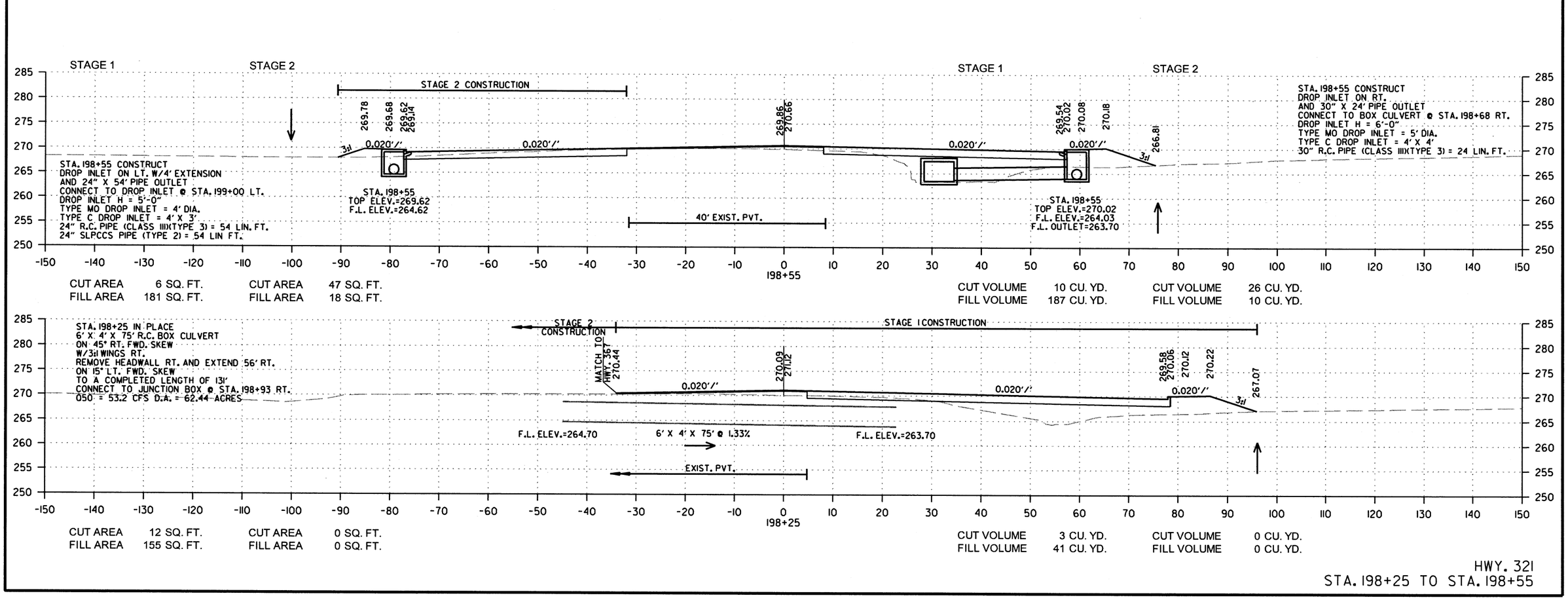
STA. 197+10.79 TO STA. 198+10.79

6/12/2019

R061509.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.		061509	255	349

(2) CROSS SECTIONS



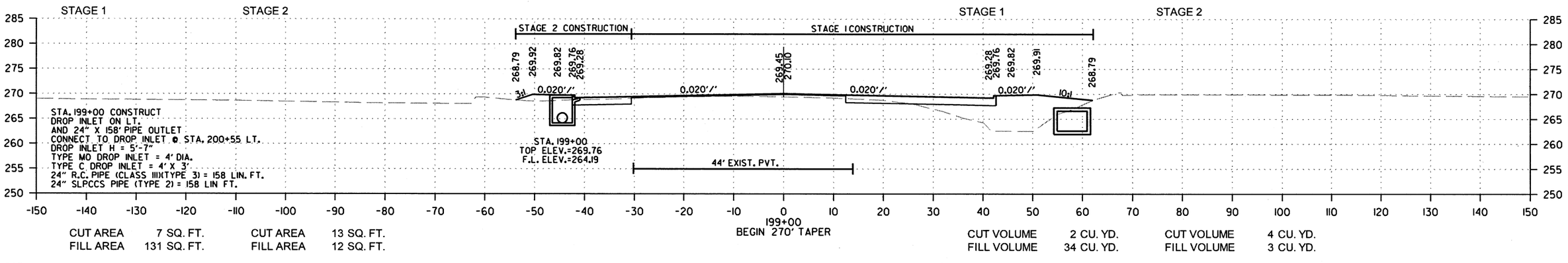
6/12/2019

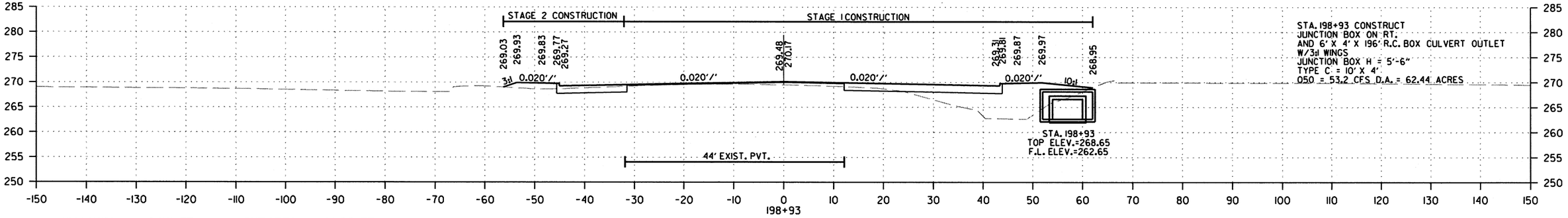
R061509.DGN

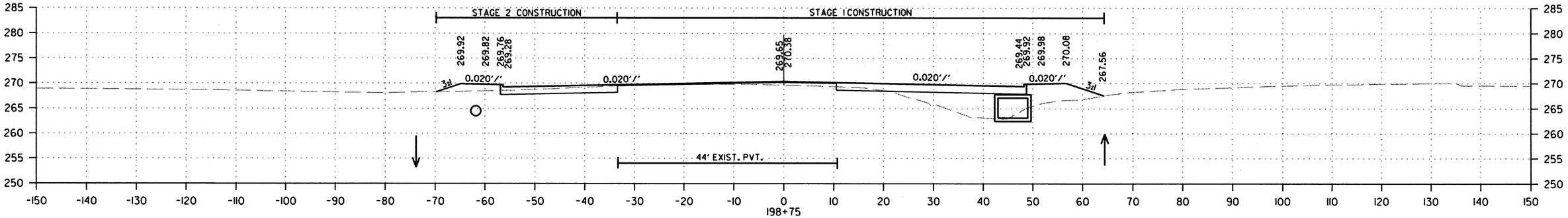
HWY. 321
STA. 198+25 TO STA. 198+55

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	256	349

(2) CROSS SECTIONS







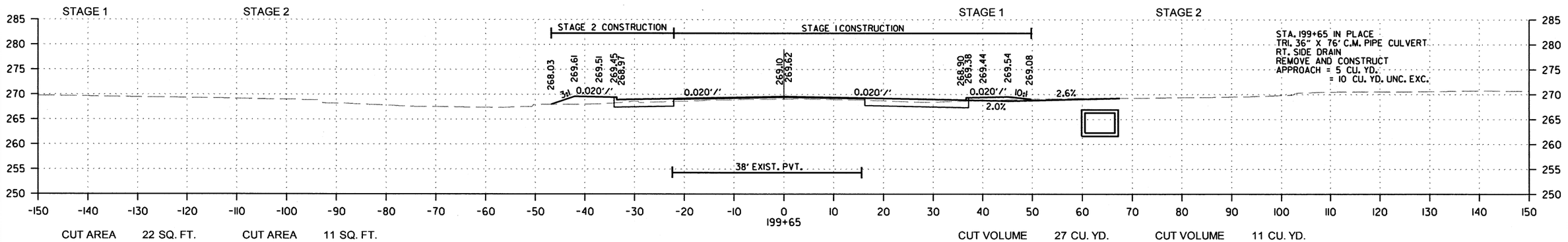
HWY. 321
STA. 198+75 TO STA. 199+00

6/12/2019

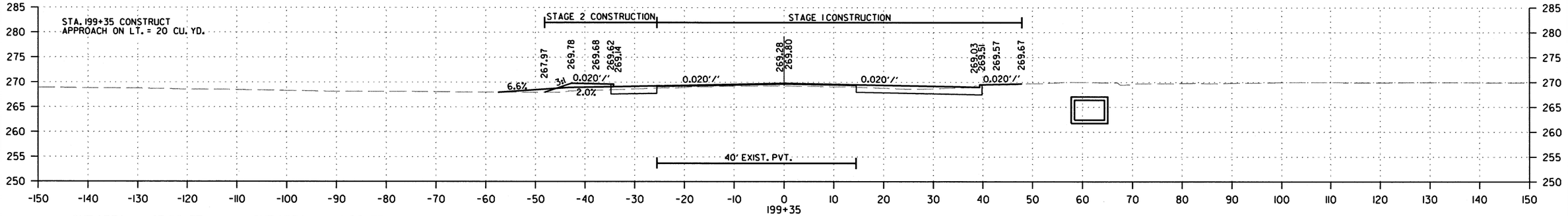
R061509.DGN

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.		061509	257	349

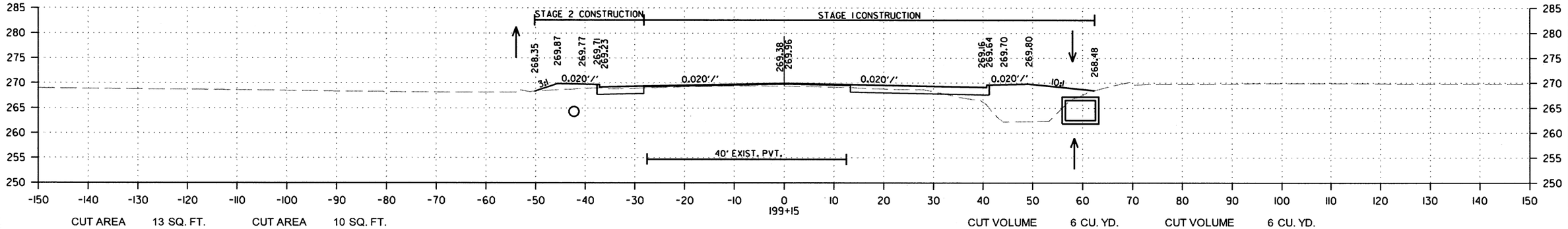
(2) CROSS SECTIONS



CUT AREA	22 SQ. FT.	CUT AREA	11 SQ. FT.	CUT VOLUME	27 CU. YD.	CUT VOLUME	11 CU. YD.
FILL AREA	7 SQ. FT.	FILL AREA	15 SQ. FT.	FILL VOLUME	4 CU. YD.	FILL VOLUME	13 CU. YD.



CUT AREA	27 SQ. FT.	CUT AREA	9 SQ. FT.	CUT VOLUME	15 CU. YD.	CUT VOLUME	7 CU. YD.
FILL AREA	1 SQ. FT.	FILL AREA	9 SQ. FT.	FILL VOLUME	44 CU. YD.	FILL VOLUME	7 CU. YD.



CUT AREA	13 SQ. FT.	CUT AREA	10 SQ. FT.	CUT VOLUME	6 CU. YD.	CUT VOLUME	6 CU. YD.
FILL AREA	119 SQ. FT.	FILL AREA	11 SQ. FT.	FILL VOLUME	69 CU. YD.	FILL VOLUME	6 CU. YD.

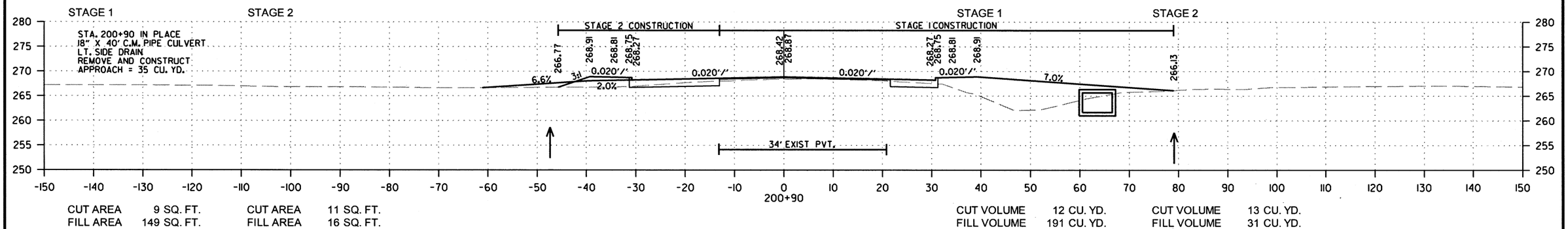
HWY. 321
STA. 199+15 TO STA. 199+65

6/12/2019

R061509.DGN

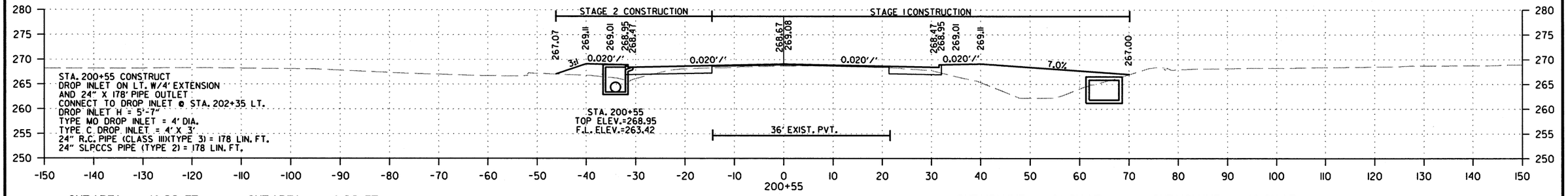
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	258	349

(2) CROSS SECTIONS



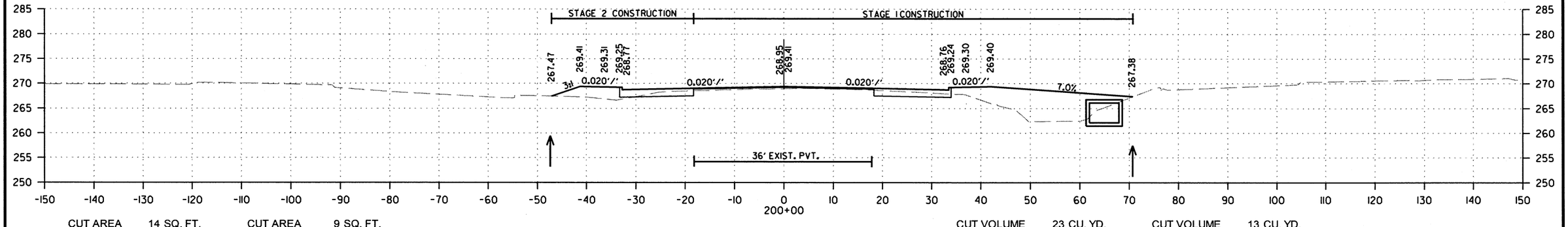
CUT AREA 9 SQ. FT. CUT AREA 11 SQ. FT.
FILL AREA 149 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 191 CU. YD. FILL VOLUME 31 CU. YD.



CUT AREA 10 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 146 SQ. FT. FILL AREA 32 SQ. FT.

CUT VOLUME 24 CU. YD. CUT VOLUME 18 CU. YD.
FILL VOLUME 293 CU. YD. FILL VOLUME 59 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 142 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 23 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 97 CU. YD. FILL VOLUME 27 CU. YD.

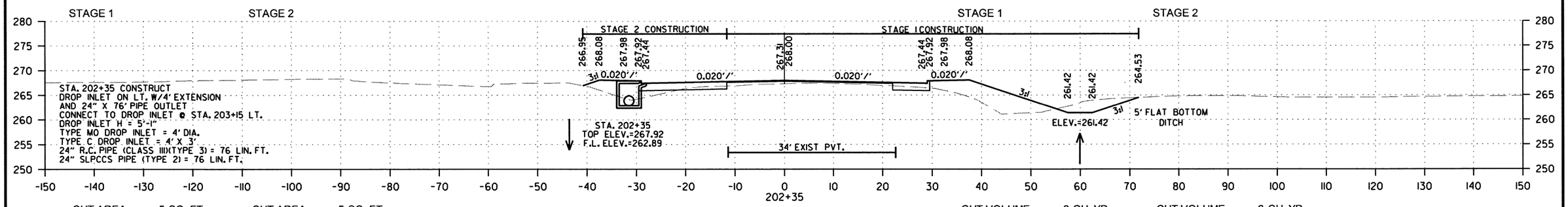
HWY. 321
STA. 200+00 TO STA. 200+90

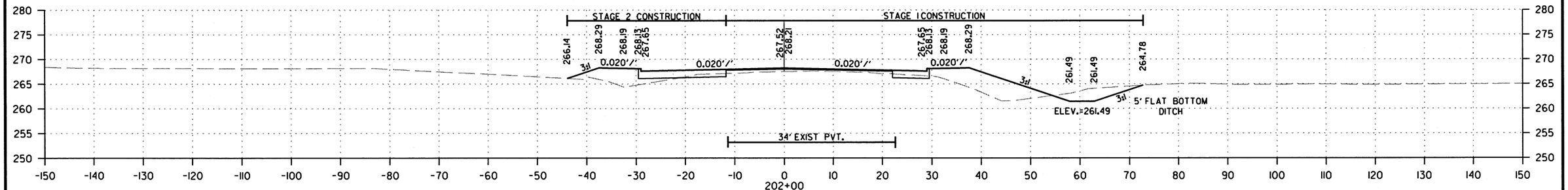
6/12/2019

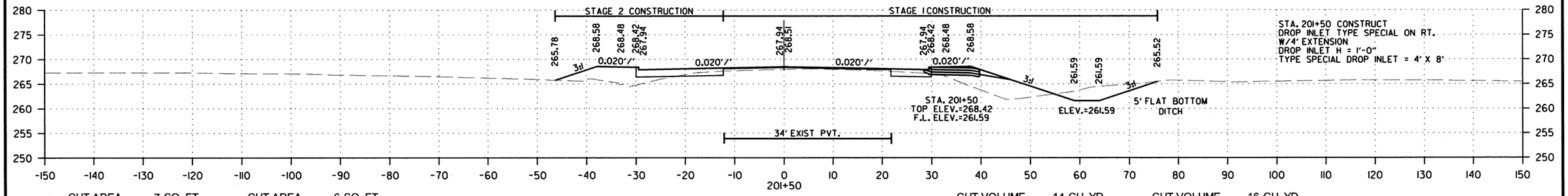
R061509.DGN

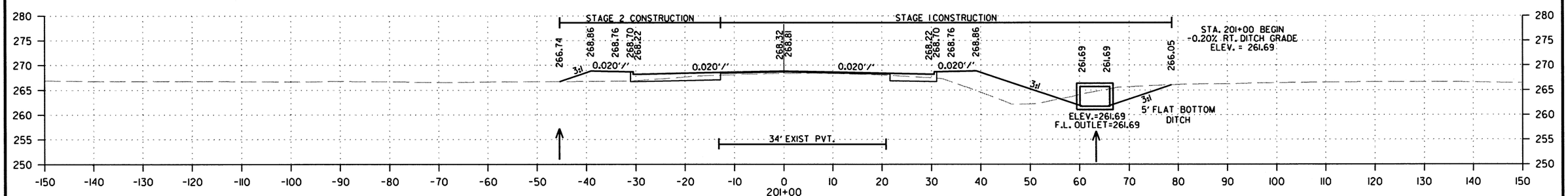
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	259	349

(2) CROSS SECTIONS









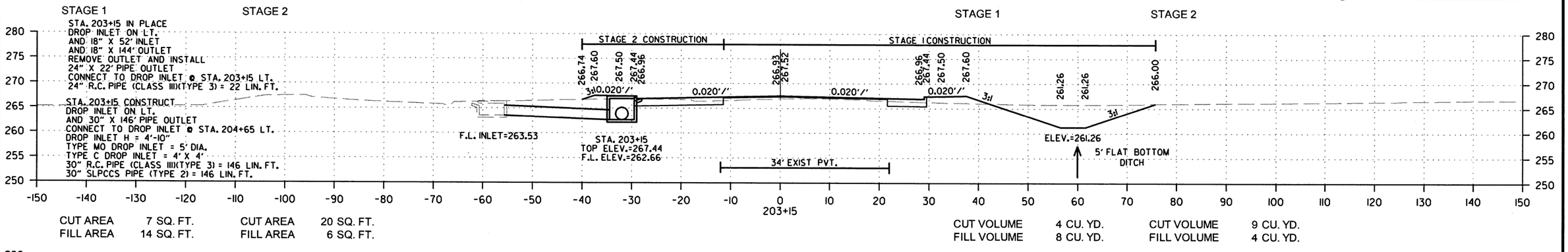
HWY. 321
STA. 201+00 TO STA. 202+35

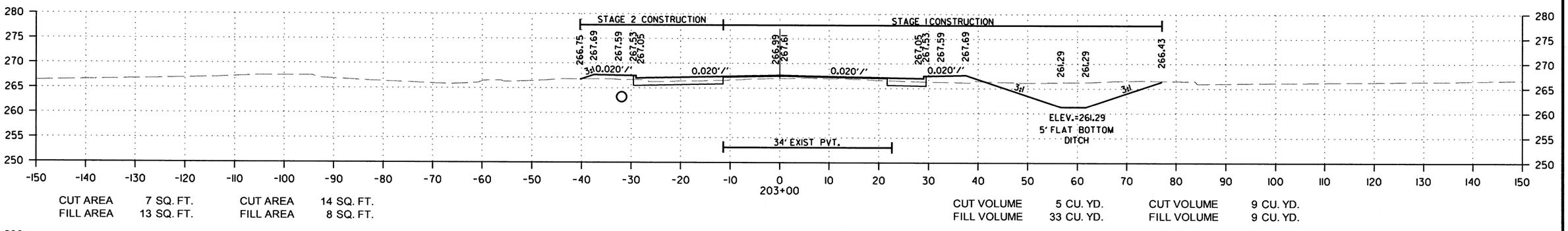
6/12/2019

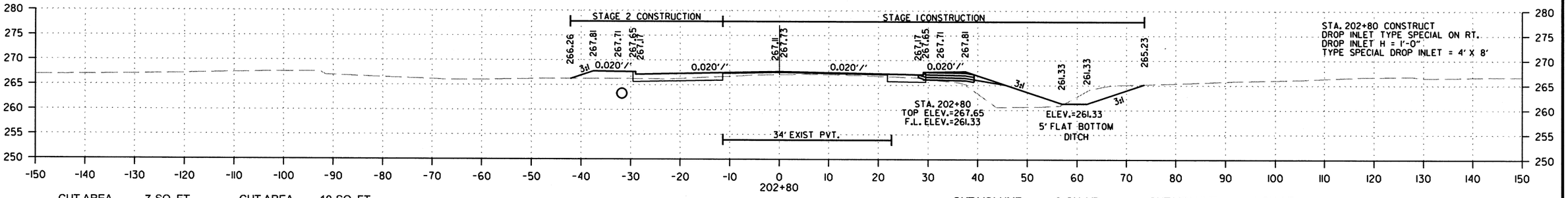
R061509.DGN

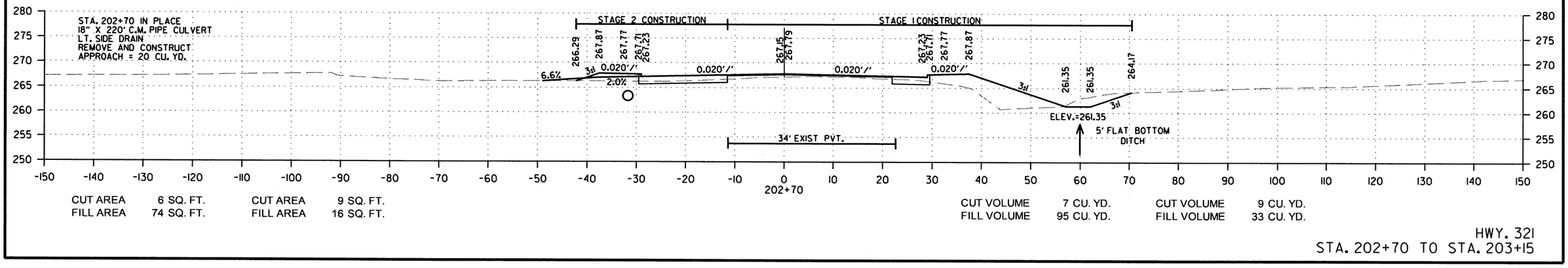
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	260	349

(2) CROSS SECTIONS









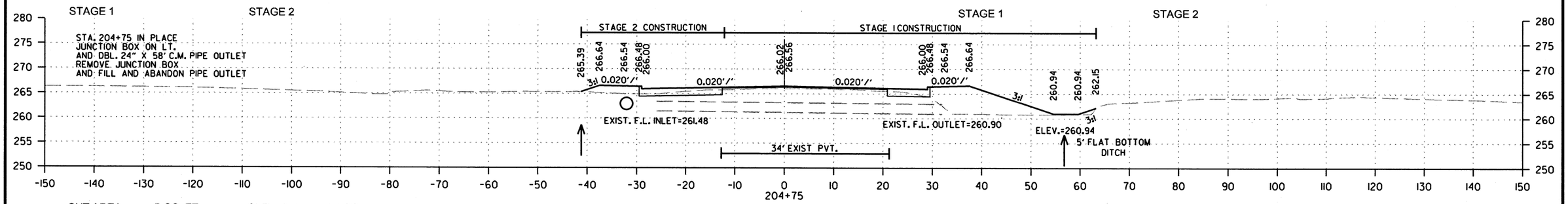
6/12/2019

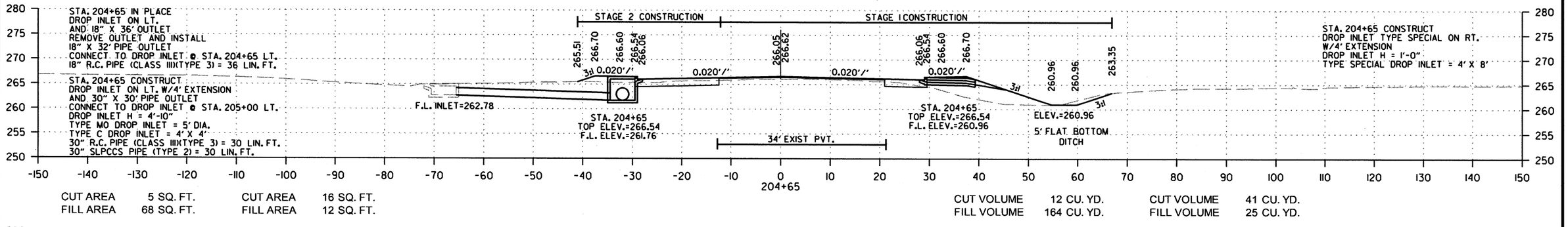
R061509.DGN

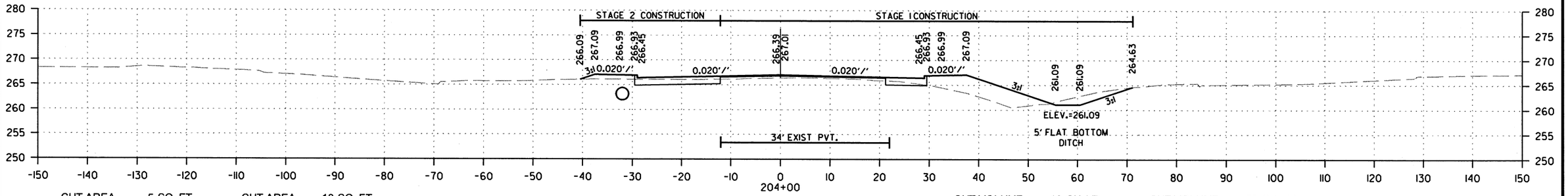
HWY. 321
STA. 202+70 TO STA. 203+15

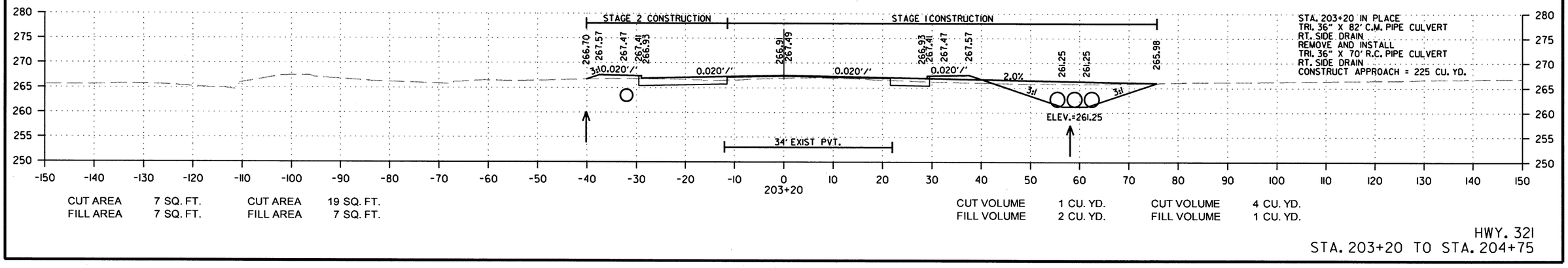
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	261	349

(2) CROSS SECTIONS









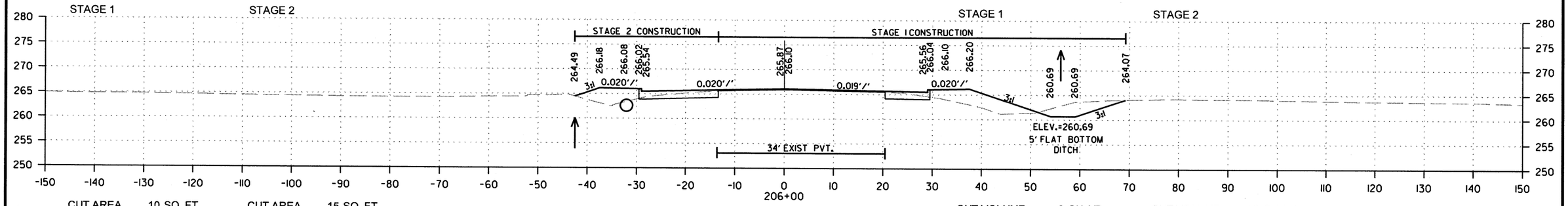
6/12/2019

R061509.DGN

HWY. 321
STA. 203+20 TO STA. 204+75

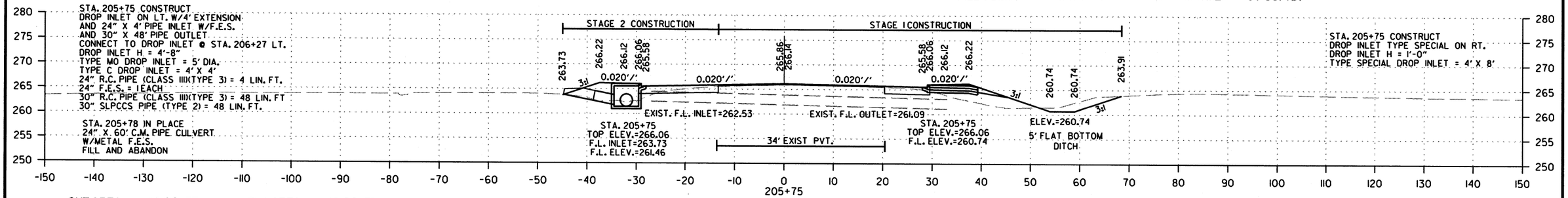
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	262	349

(2) CROSS SECTIONS



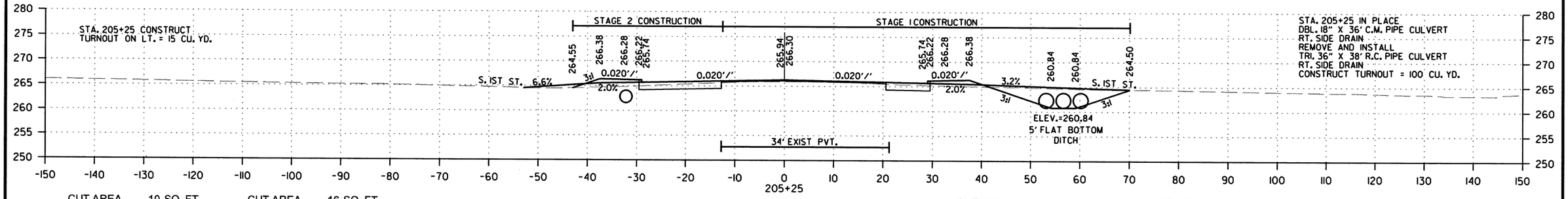
CUT AREA 10 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 49 SQ. FT. FILL AREA 31 SQ. FT.

CUT VOLUME 9 CU. YD. CUT VOLUME 12 CU. YD.
FILL VOLUME 46 CU. YD. FILL VOLUME 34 CU. YD.



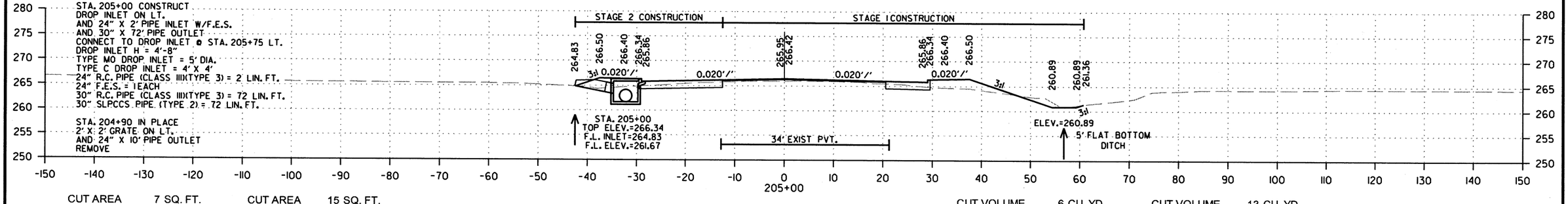
CUT AREA 10 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 50 SQ. FT. FILL AREA 43 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 24 CU. YD.
FILL VOLUME 57 CU. YD. FILL VOLUME 55 CU. YD.



CUT AREA 10 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 12 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 8 CU. YD. CUT VOLUME 14 CU. YD.
FILL VOLUME 17 CU. YD. FILL VOLUME 16 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 24 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 52 CU. YD. FILL VOLUME 16 CU. YD.

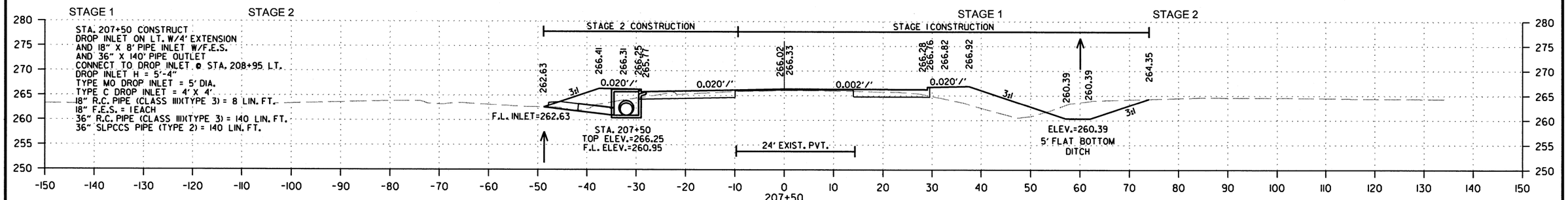
6/12/2019

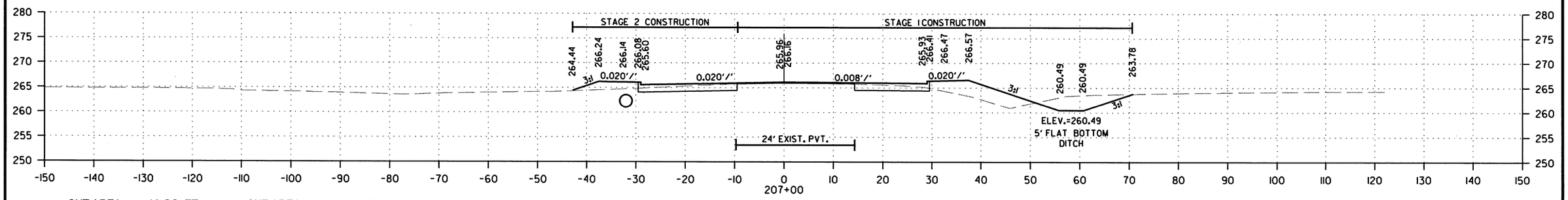
R061509.DGN

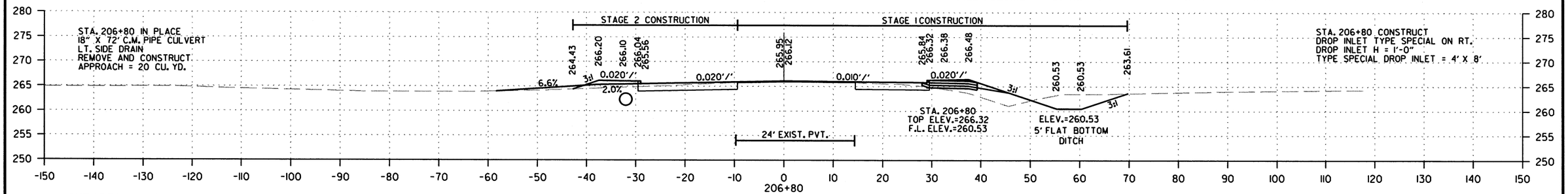
HWY. 321
STA. 205+00 TO STA. 206+00

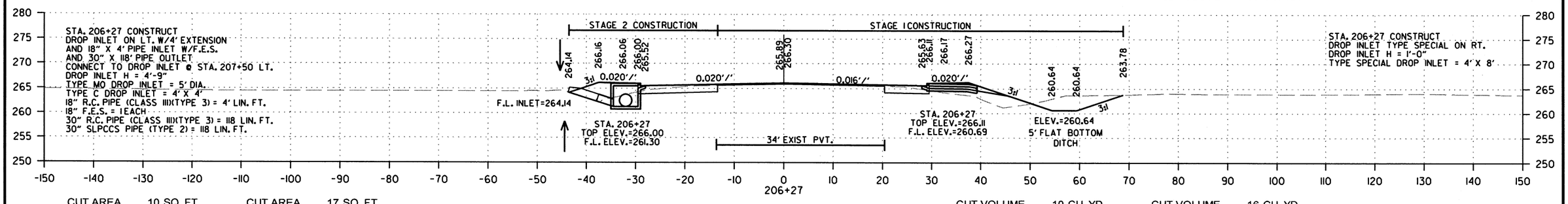
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	263	349

(2) CROSS SECTIONS









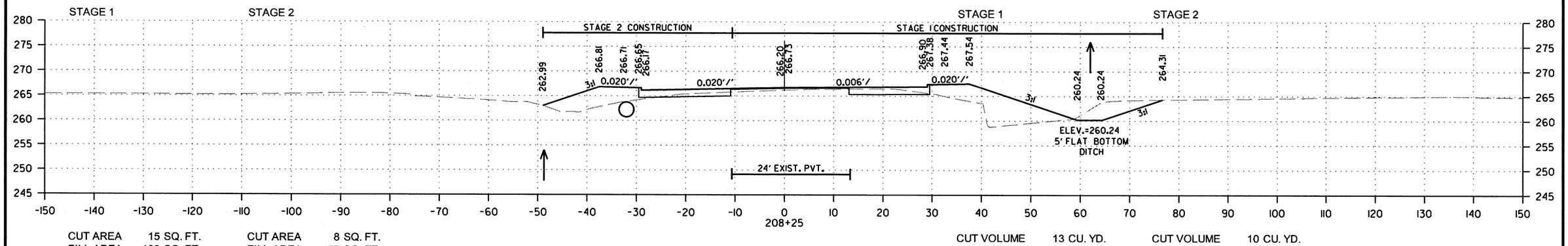
HWY. 321
STA. 206+27 TO STA. 207+50

6/12/2019

R061509.DGN

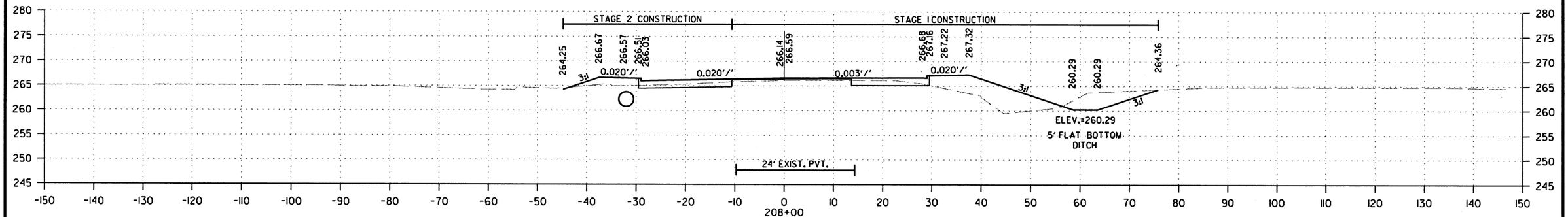
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	264	349

(2) CROSS SECTIONS



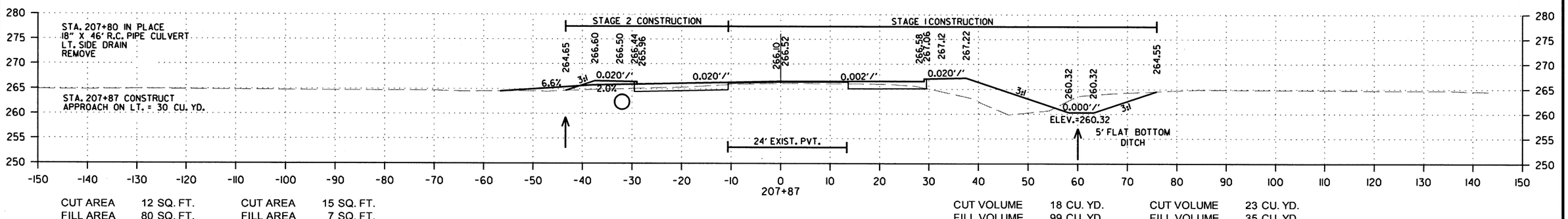
CUT AREA 15 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 103 SQ. FT. FILL AREA 57 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 10 CU. YD.
FILL VOLUME 88 CU. YD. FILL VOLUME 34 CU. YD.



CUT AREA 13 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 88 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 40 CU. YD. FILL VOLUME 6 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 80 SQ. FT. FILL AREA 7 SQ. FT.

CUT VOLUME 18 CU. YD. CUT VOLUME 23 CU. YD.
FILL VOLUME 99 CU. YD. FILL VOLUME 35 CU. YD.

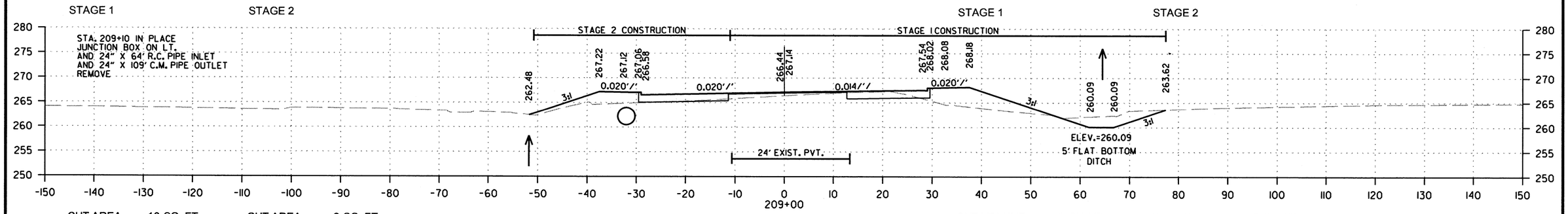
6/12/2019

R061509.DGN

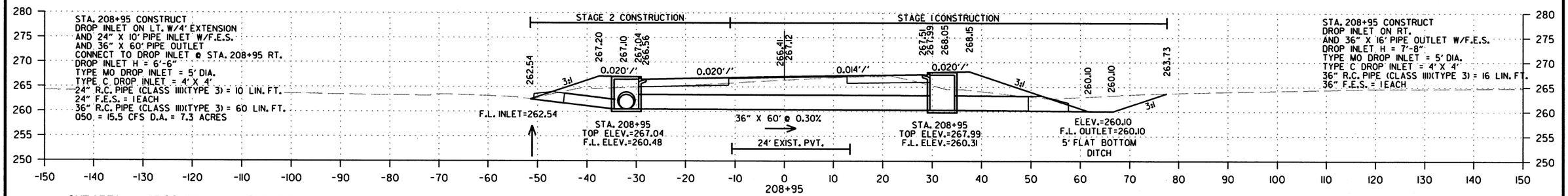
HWY. 321
STA. 207+87 TO STA. 208+25

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	265	349

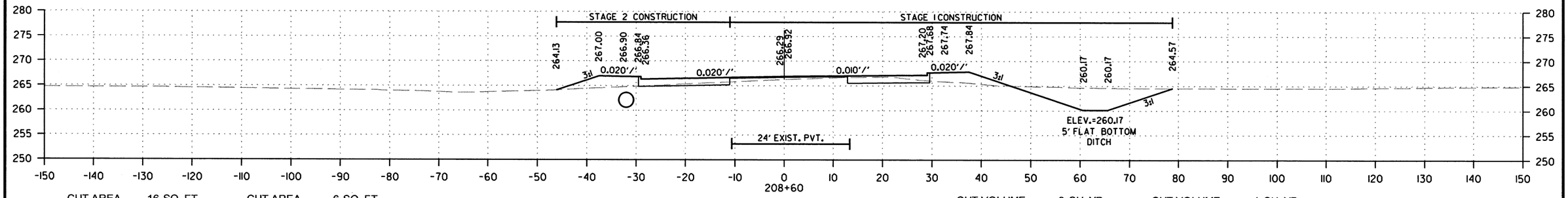
(2) CROSS SECTIONS



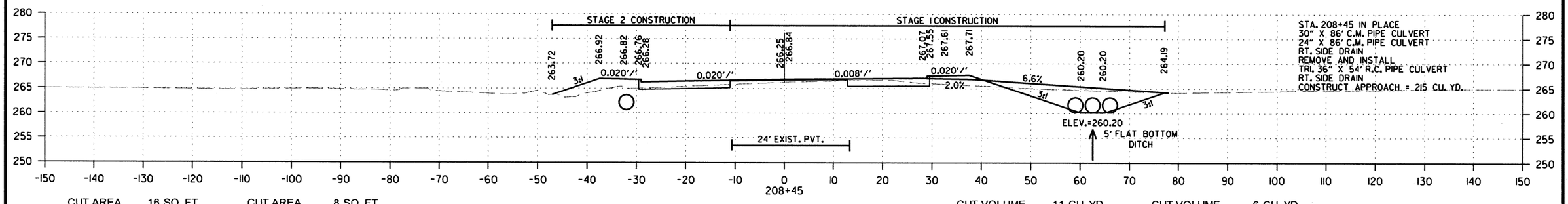
CUT AREA	16 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	63 SQ. FT.	FILL AREA	34 SQ. FT.
CUT VOLUME	3 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	11 CU. YD.	FILL VOLUME	6 CU. YD.



CUT AREA	15 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	59 SQ. FT.	FILL AREA	31 SQ. FT.
CUT VOLUME	20 CU. YD.	CUT VOLUME	5 CU. YD.
FILL VOLUME	54 CU. YD.	FILL VOLUME	38 CU. YD.



CUT AREA	16 SQ. FT.	CUT AREA	6 SQ. FT.
FILL AREA	25 SQ. FT.	FILL AREA	28 SQ. FT.
CUT VOLUME	9 CU. YD.	CUT VOLUME	4 CU. YD.
FILL VOLUME	9 CU. YD.	FILL VOLUME	16 CU. YD.



CUT AREA	16 SQ. FT.	CUT AREA	8 SQ. FT.
FILL AREA	7 SQ. FT.	FILL AREA	30 SQ. FT.
CUT VOLUME	11 CU. YD.	CUT VOLUME	6 CU. YD.
FILL VOLUME	41 CU. YD.	FILL VOLUME	32 CU. YD.

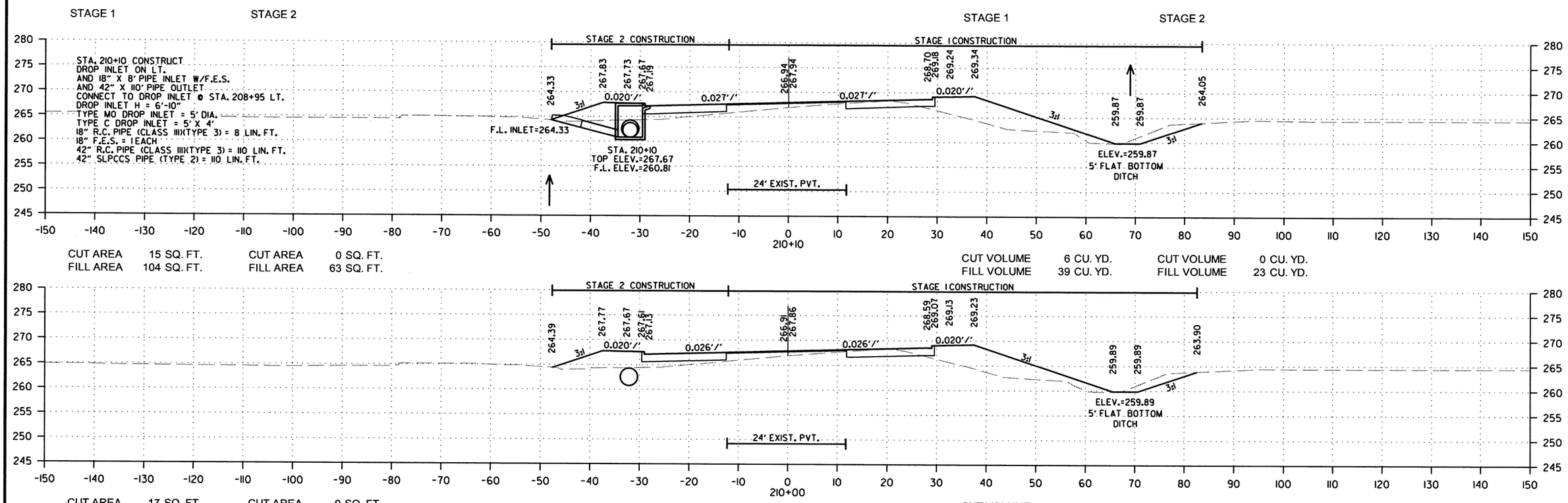
HWY. 321
STA. 208+45 TO STA. 209+00

6/12/2019

R061509.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.		061509	266	349

(2) CROSS SECTIONS



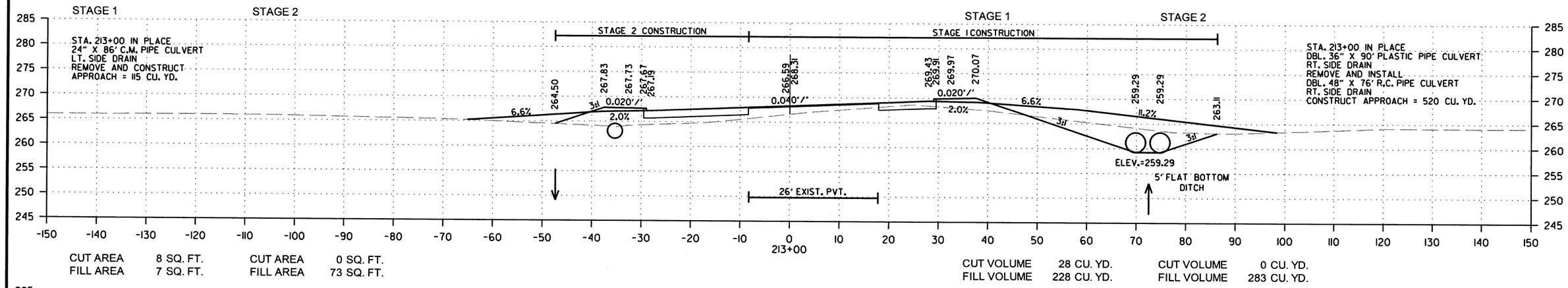
6/12/2019

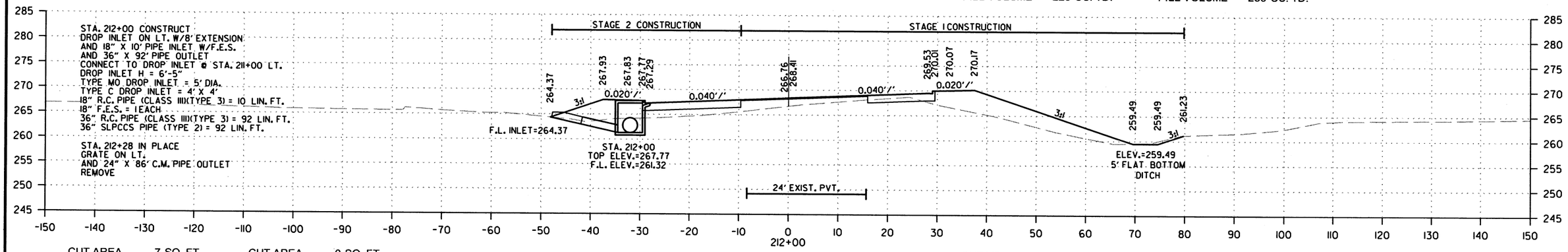
R061509.DGN

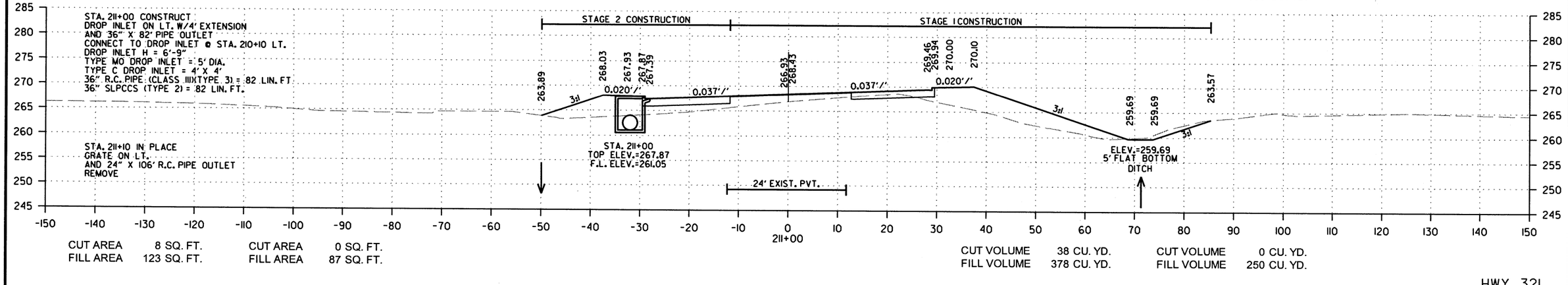
HWY. 321
STA. 209+70 TO STA. 210+10

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	267	349

(2) CROSS SECTIONS







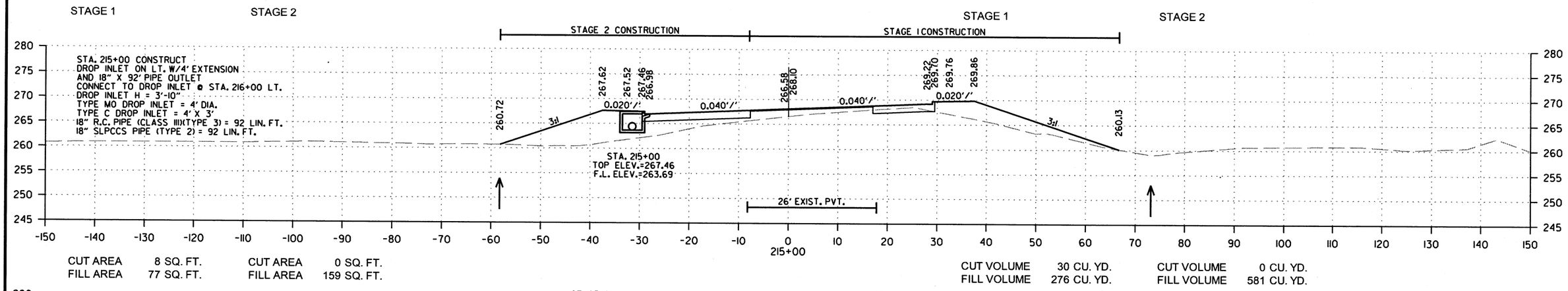
6/12/2019

R061509.DGN

HWY. 321
STA. 211+00 TO STA. 213+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.		061509	268	349

(2) CROSS SECTIONS



6/12/2019

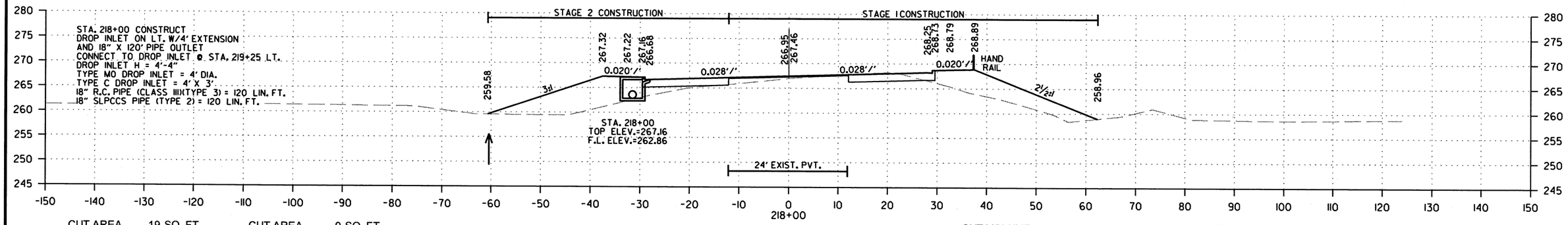
R061509.DGN

HWY. 321
STA. 213+50 TO STA. 215+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.		061509	269	349

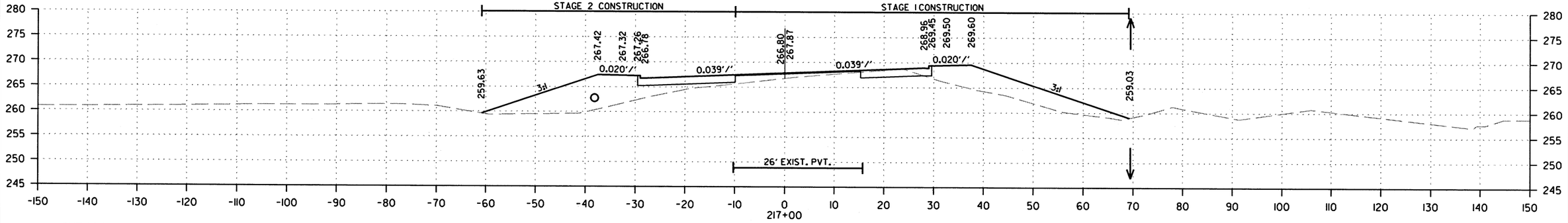
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



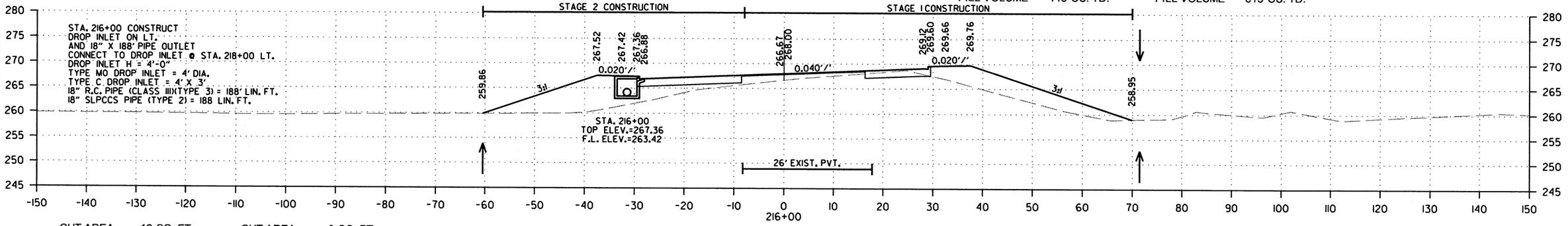
CUT AREA 19 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 106 SQ. FT. FILL AREA 140 SQ. FT.

CUT VOLUME 61 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 428 CU. YD. FILL VOLUME 561 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 125 SQ. FT. FILL AREA 163 SQ. FT.

CUT VOLUME 48 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 443 CU. YD. FILL VOLUME 613 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 114 SQ. FT. FILL AREA 168 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 354 CU. YD. FILL VOLUME 606 CU. YD.

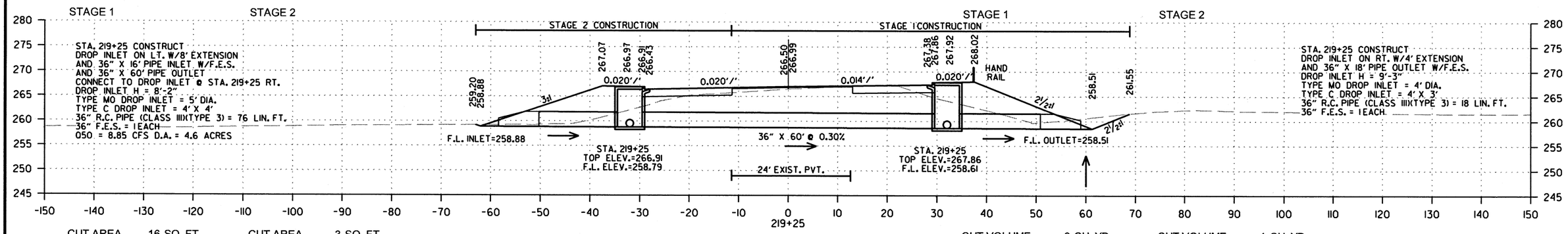
HWY. 321
STA. 216+00 TO STA. 218+00

6/12/2019

R061509.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.		061509	270	349

(2) CROSS SECTIONS



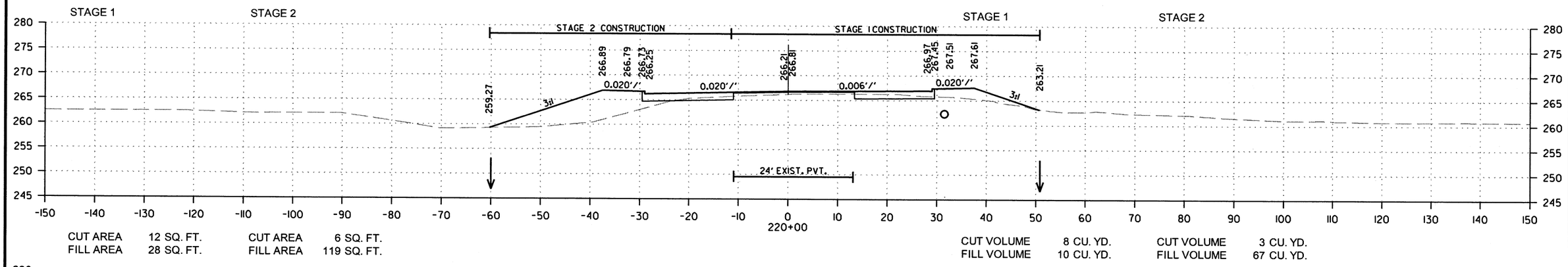
6/12/2019

R061509.DGN

HWY. 321
STA. 219+00 TO STA. 219+25

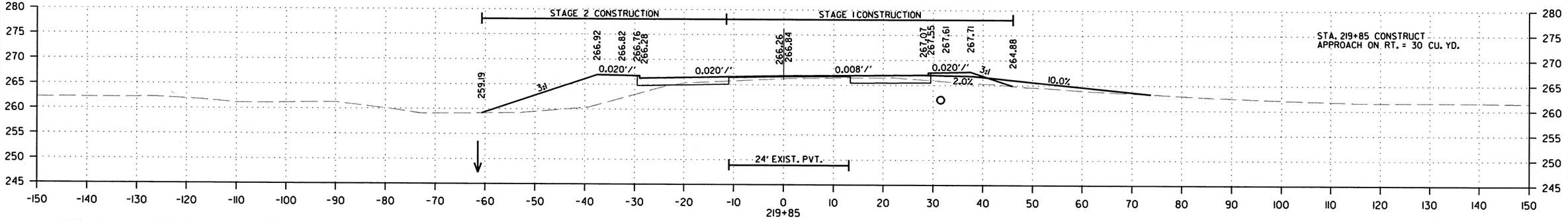
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	271	349

(2) CROSS SECTIONS



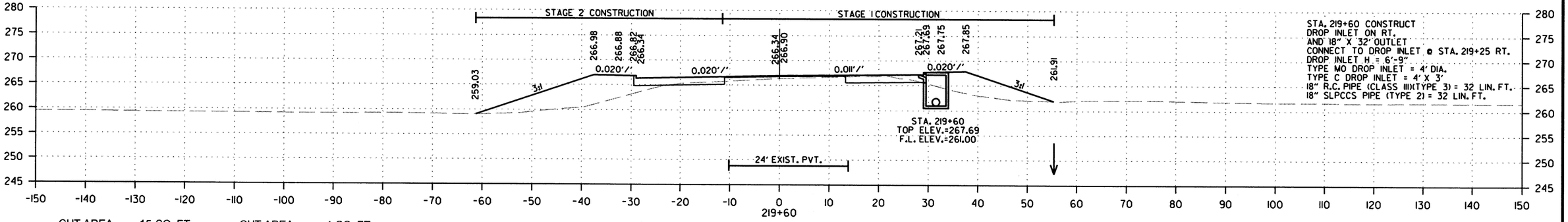
CUT AREA 12 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 28 SQ. FT. FILL AREA 119 SQ. FT.

CUT VOLUME 8 CU. YD. CUT VOLUME 3 CU. YD.
FILL VOLUME 10 CU. YD. FILL VOLUME 67 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 7 SQ. FT. FILL AREA 122 SQ. FT.

CUT VOLUME 14 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 36 CU. YD. FILL VOLUME 113 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 71 SQ. FT. FILL AREA 121 SQ. FT.

CUT VOLUME 20 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 111 CU. YD. FILL VOLUME 166 CU. YD.

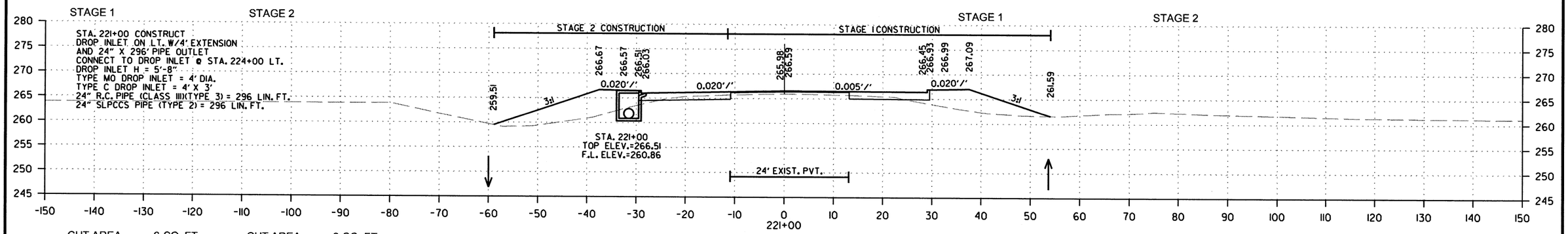
6/12/2019

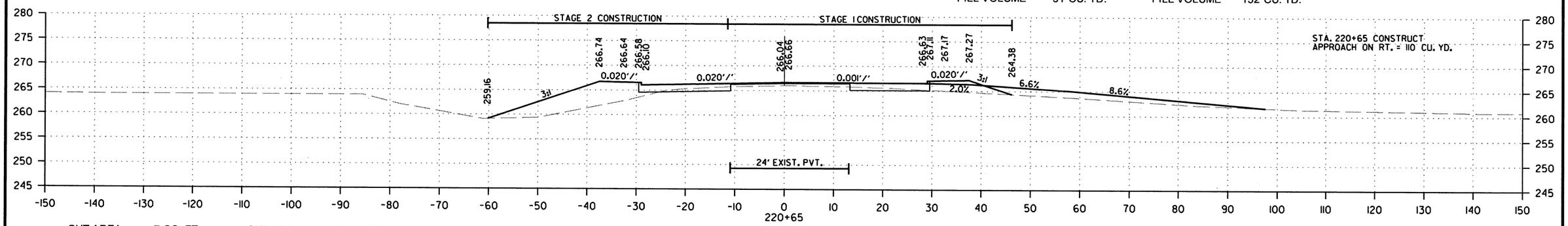
R061509.DGN

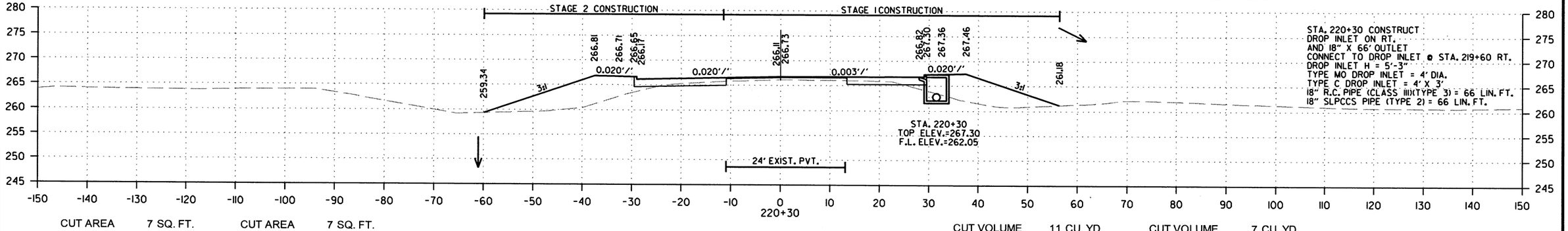
HWY. 321
STA. 219+60 TO STA. 220+00

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.		061509	272	349

(2) CROSS SECTIONS







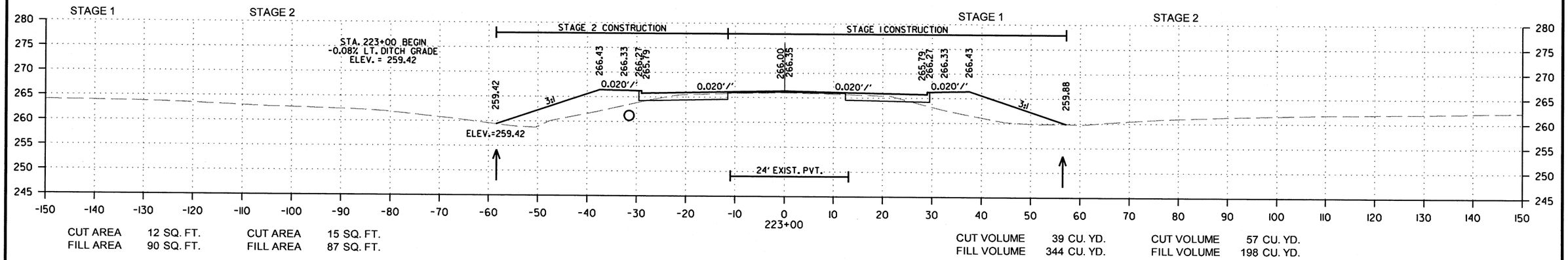
6/12/2019

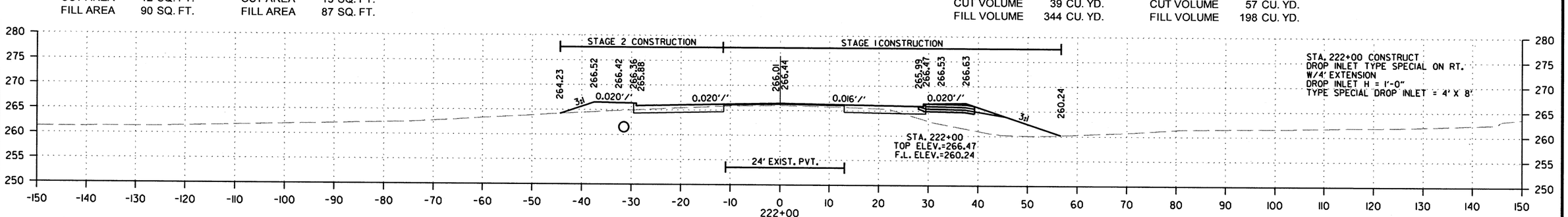
R061509.DGN

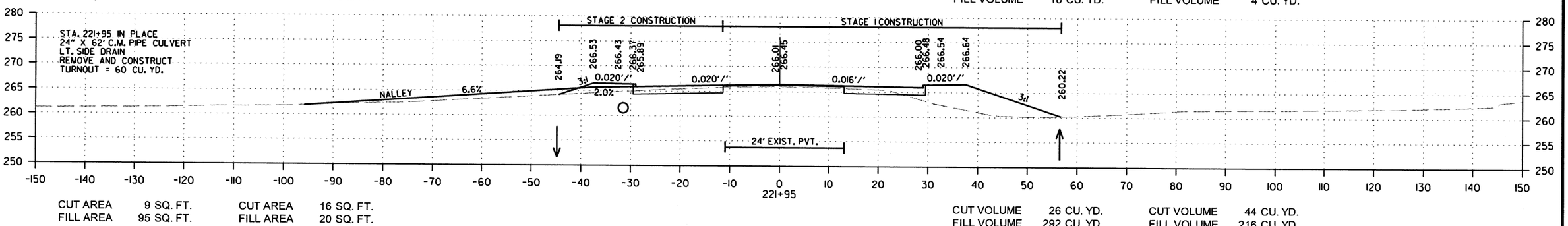
HWY. 321
STA. 220+30 TO STA. 221+00

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.		061509	273	349

(2) CROSS SECTIONS







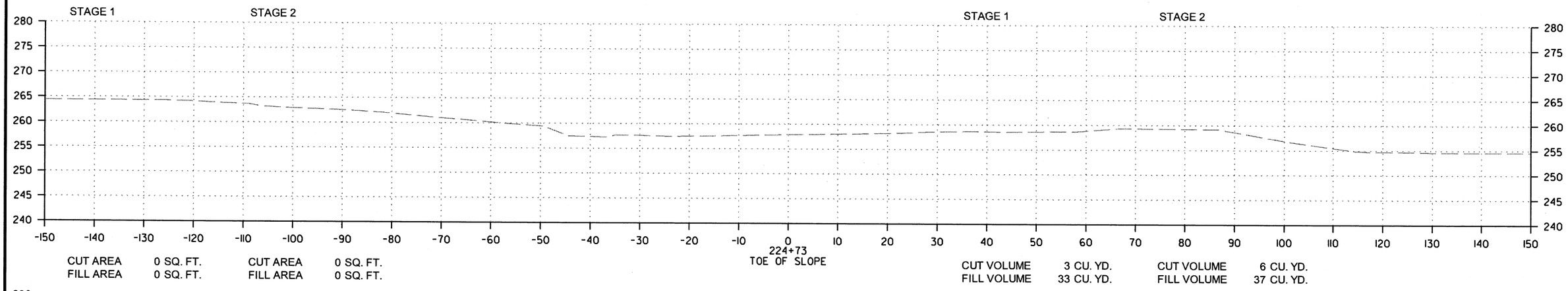
HWY. 321
STA. 221+95 TO STA. 223+00

6/12/2019

R061509.DGN

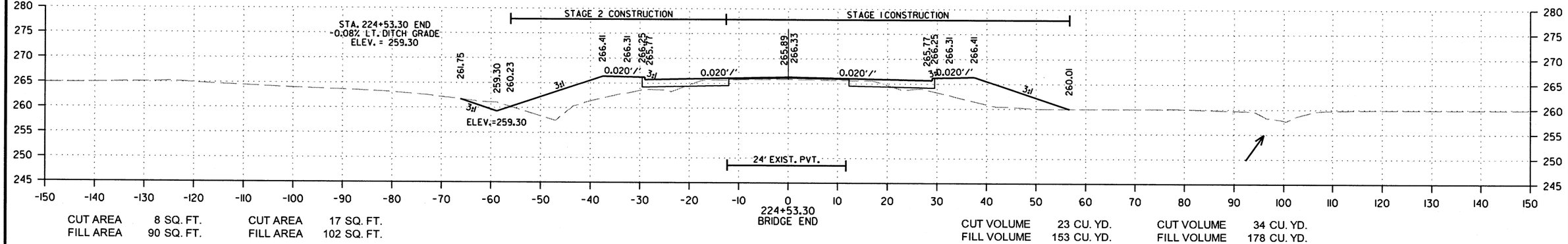
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	274	349

(2) CROSS SECTIONS



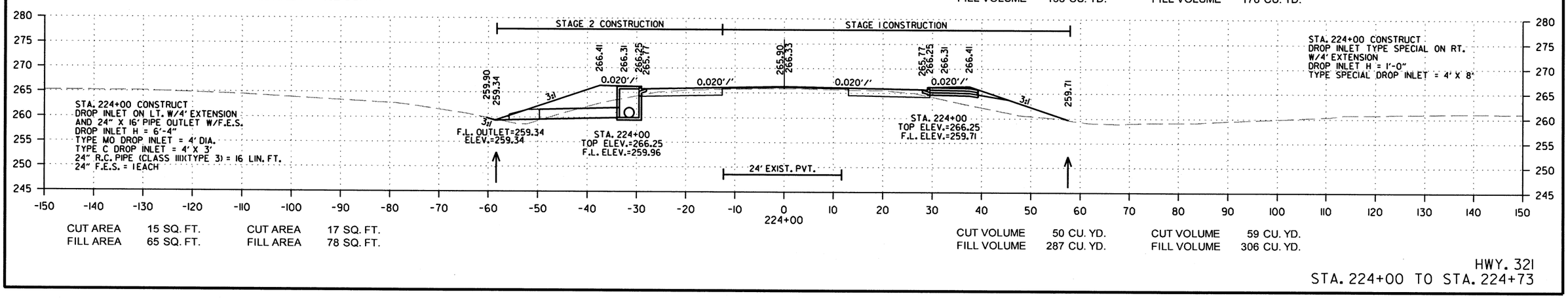
CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 6 CU. YD.
FILL VOLUME 33 CU. YD. FILL VOLUME 37 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 90 SQ. FT. FILL AREA 102 SQ. FT.

CUT VOLUME 23 CU. YD. CUT VOLUME 34 CU. YD.
FILL VOLUME 153 CU. YD. FILL VOLUME 178 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 17 SQ. FT.
FILL AREA 65 SQ. FT. FILL AREA 78 SQ. FT.

CUT VOLUME 50 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 287 CU. YD. FILL VOLUME 306 CU. YD.

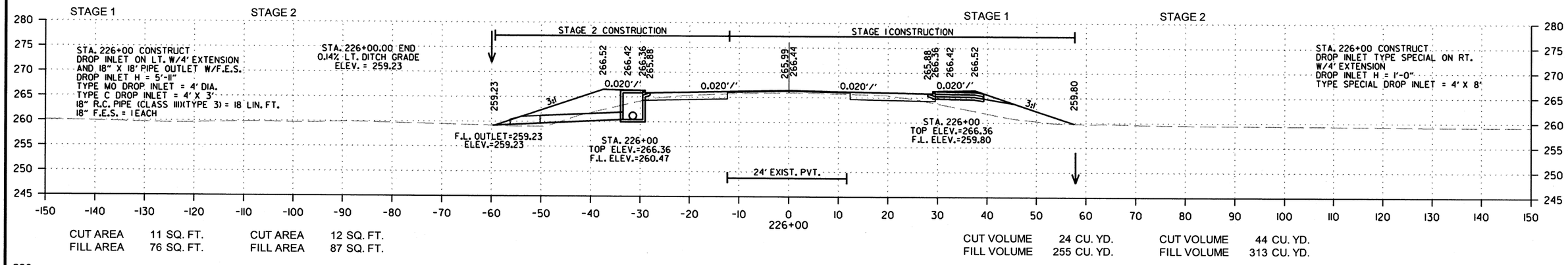
6/12/2019

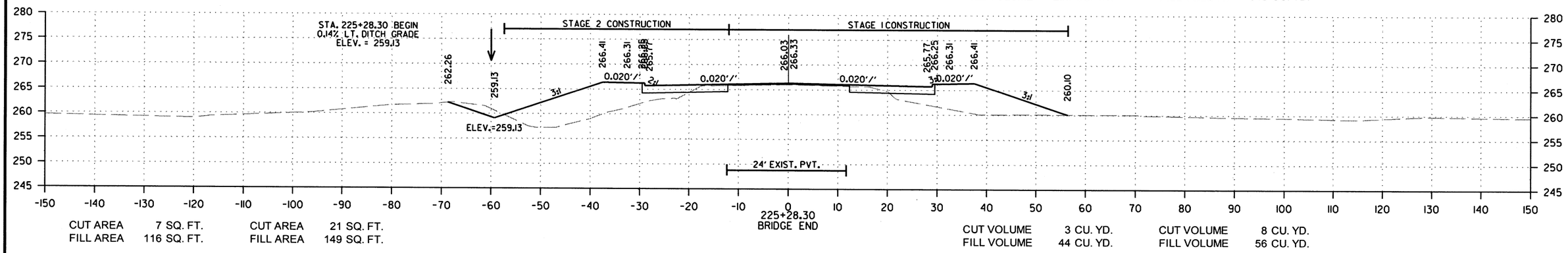
R061509.DGN

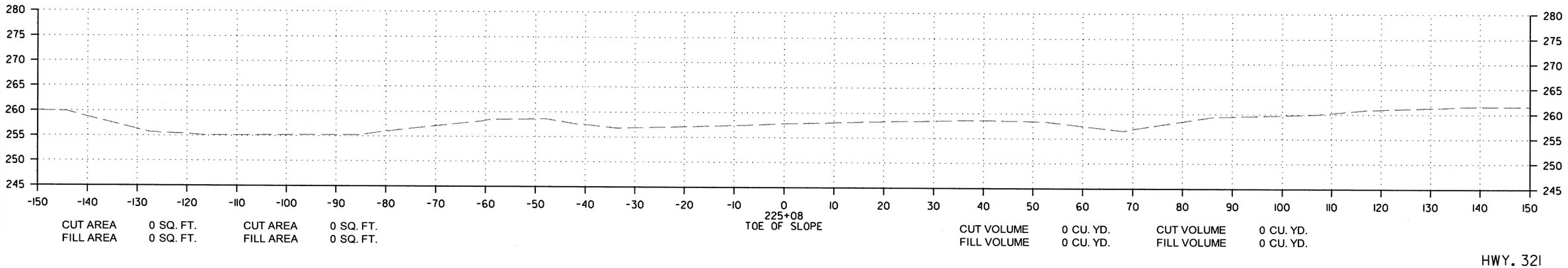
HWY. 321
STA. 224+00 TO STA. 224+73

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	275	349

(2) CROSS SECTIONS







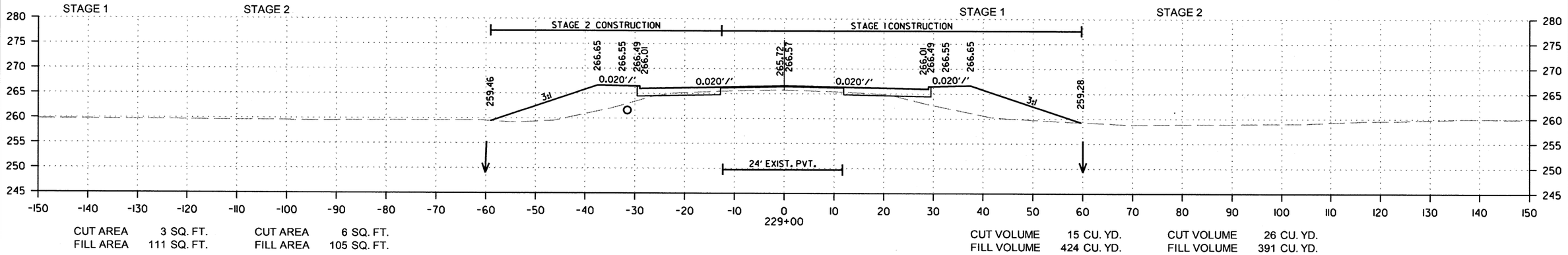
6/12/2019

R061509.DGN

HWY. 321
STA. 225+08 TO STA. 226+00

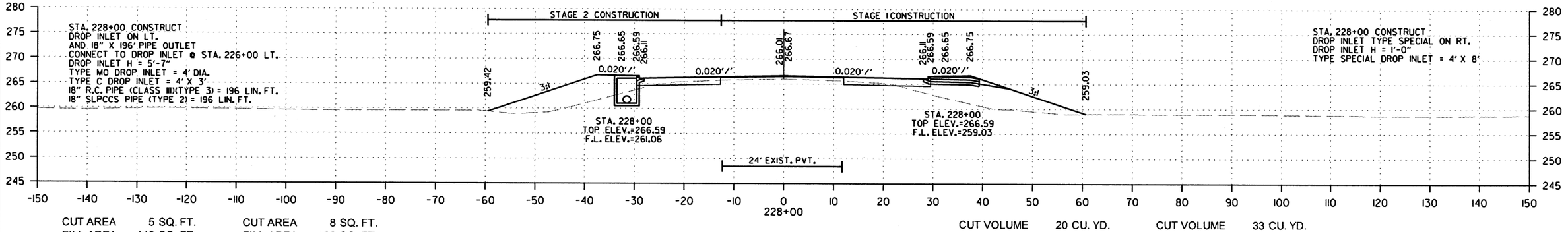
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	276	349

(2) CROSS SECTIONS



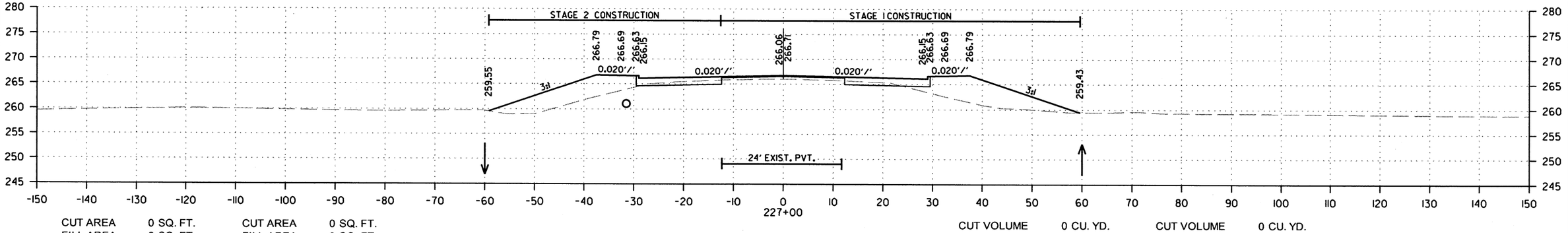
CUT AREA 3 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 111 SQ. FT. FILL AREA 105 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 424 CU. YD. FILL VOLUME 391 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 118 SQ. FT. FILL AREA 106 SQ. FT.

CUT VOLUME 20 CU. YD. CUT VOLUME 33 CU. YD.
FILL VOLUME 413 CU. YD. FILL VOLUME 370 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

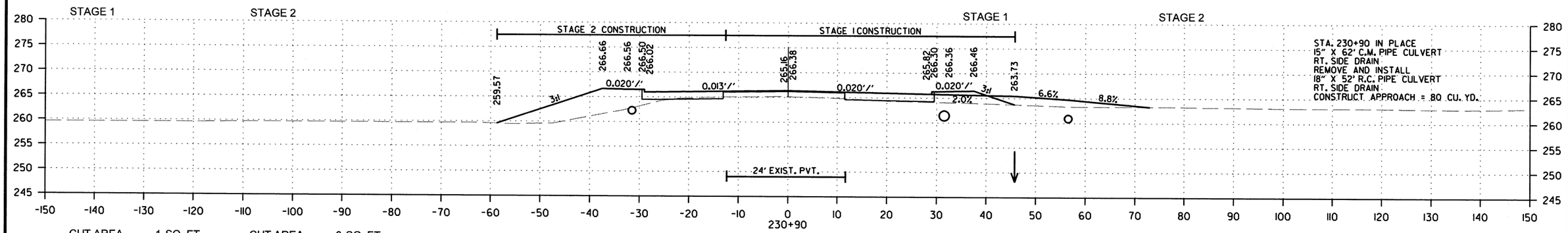
HWY. 321
STA. 227+00 TO STA. 229+00

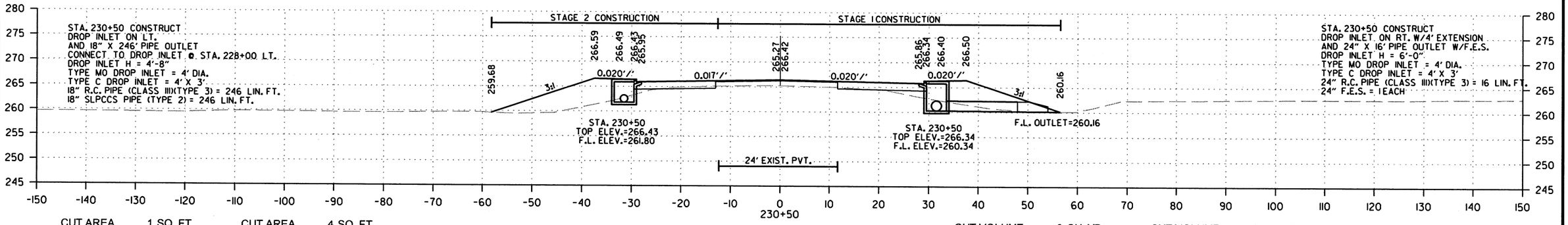
6/12/2019

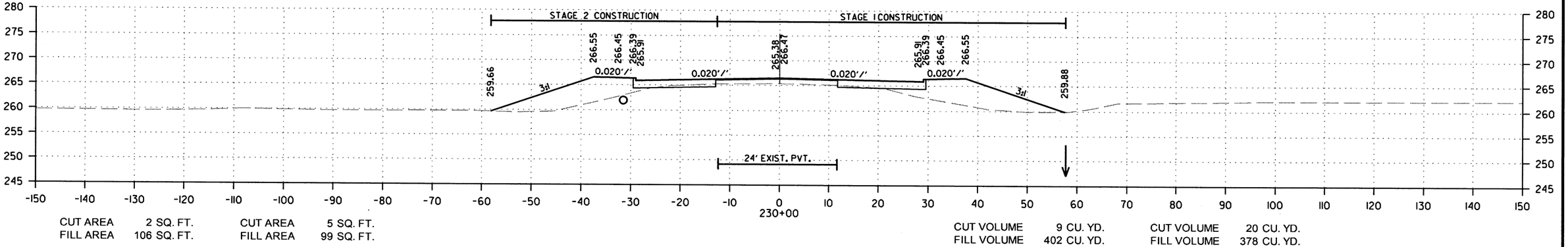
R061509.DGN

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.		061509	277	349

(2) CROSS SECTIONS







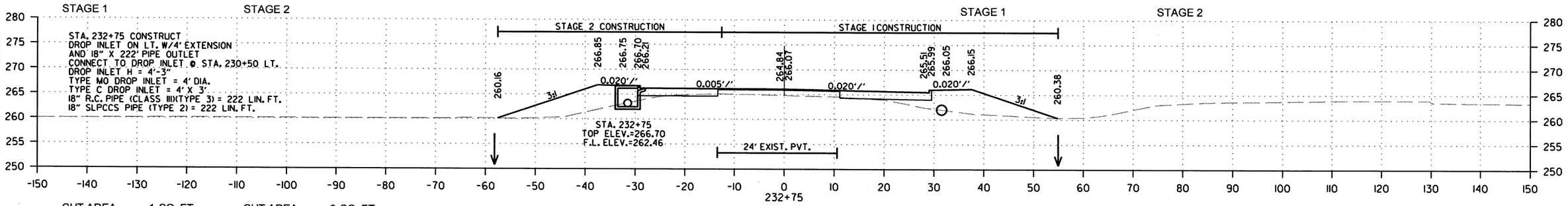
6/12/2019

R061509.DGN

HWY. 321
STA. 230+00 TO STA. 230+90

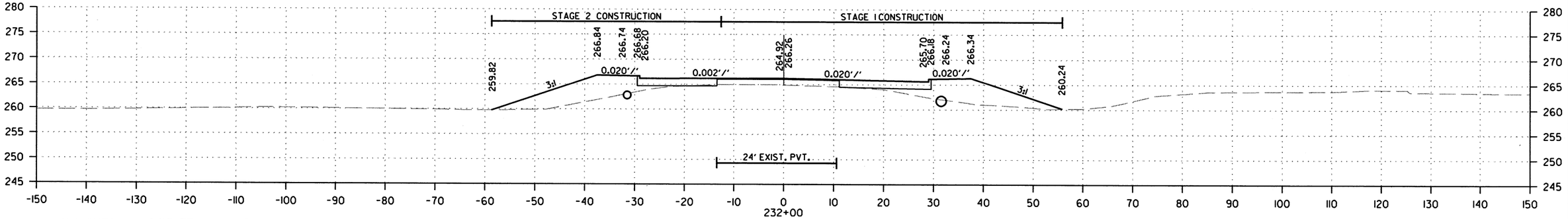
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	278	349

(2) CROSS SECTIONS



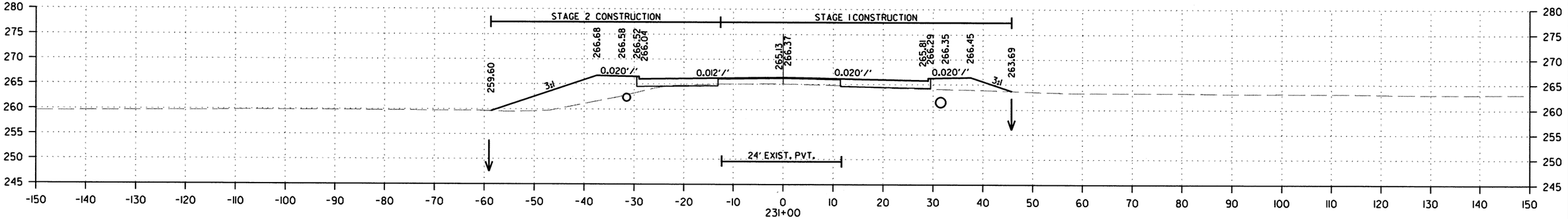
CUT AREA	1 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	88 SQ. FT.	FILL AREA	94 SQ. FT.

CUT VOLUME	1 CU. YD.	CUT VOLUME	6 CU. YD.
FILL VOLUME	254 CU. YD.	FILL VOLUME	268 CU. YD.



CUT AREA	0 SQ. FT.	CUT AREA	1 SQ. FT.
FILL AREA	95 SQ. FT.	FILL AREA	99 SQ. FT.

CUT VOLUME	2 CU. YD.	CUT VOLUME	6 CU. YD.
FILL VOLUME	233 CU. YD.	FILL VOLUME	372 CU. YD.



CUT AREA	1 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	31 SQ. FT.	FILL AREA	102 SQ. FT.

CUT VOLUME	0 CU. YD.	CUT VOLUME	1 CU. YD.
FILL VOLUME	11 CU. YD.	FILL VOLUME	38 CU. YD.

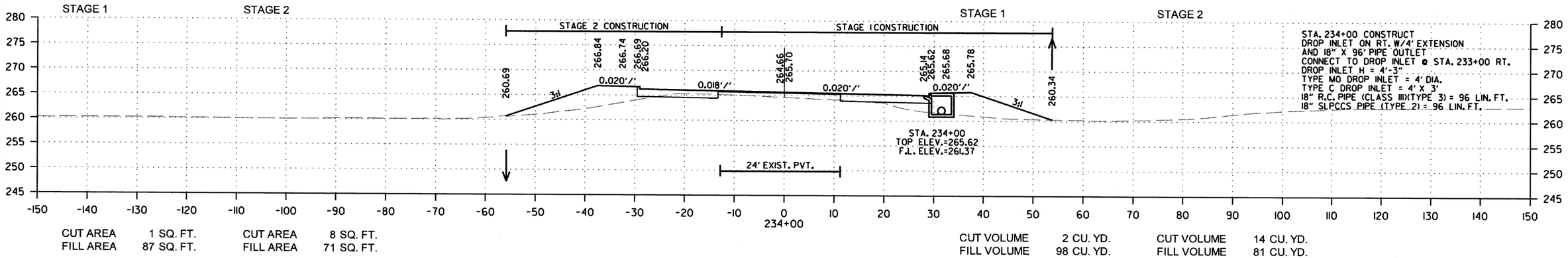
HWY. 321
STA. 231+00 TO STA. 232+75

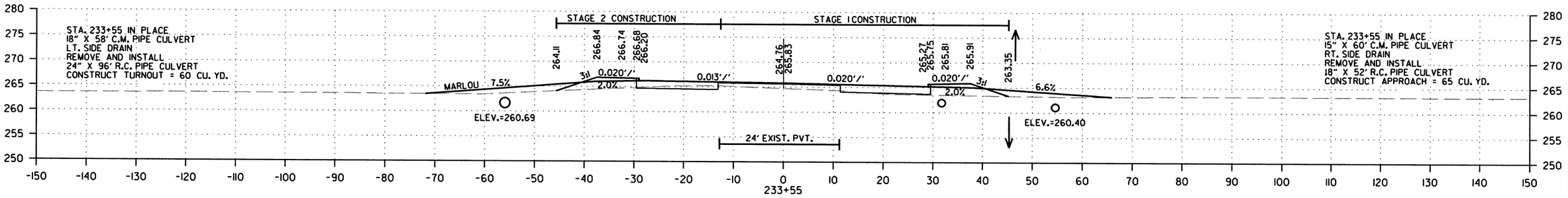
6/12/2019

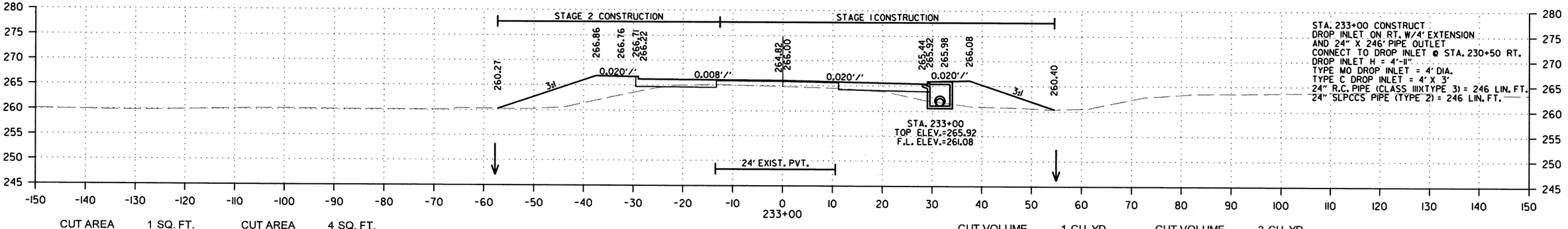
R061509.DGN

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.		061509	279	349

(2) CROSS SECTIONS







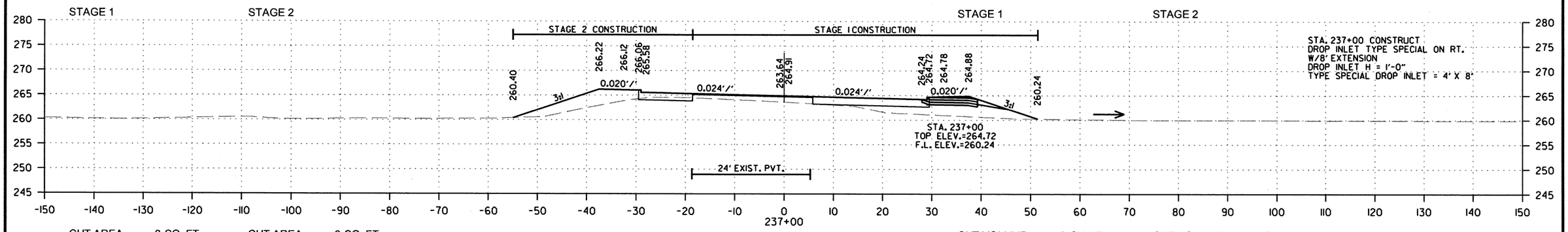
6/12/2019

R061509.DGN

HWY. 321
STA. 233+00 TO STA. 234+00

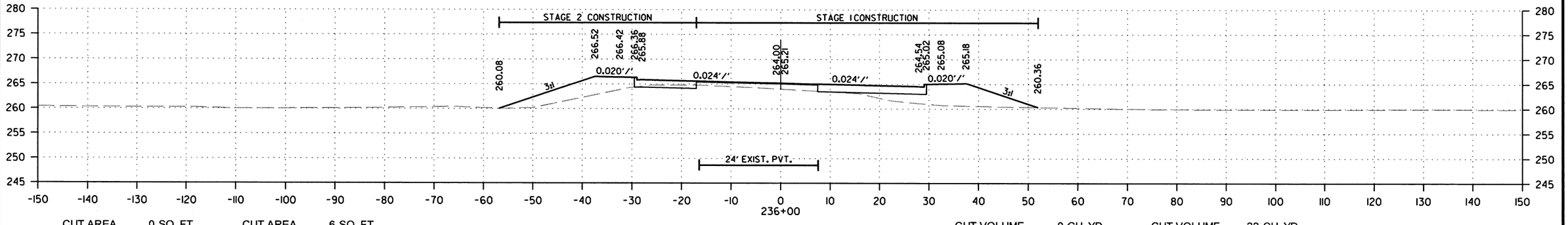
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	280	349

(2) CROSS SECTIONS



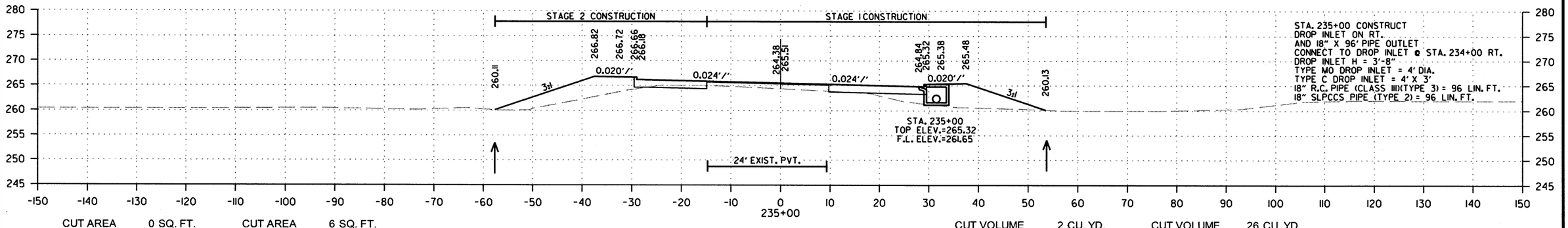
CUT AREA 0 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 81 SQ. FT. FILL AREA 55 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 22 CU. YD.
FILL VOLUME 311 CU. YD. FILL VOLUME 224 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 87 SQ. FT. FILL AREA 66 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 22 CU. YD.
FILL VOLUME 326 CU. YD. FILL VOLUME 263 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 89 SQ. FT. FILL AREA 76 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 326 CU. YD. FILL VOLUME 272 CU. YD.

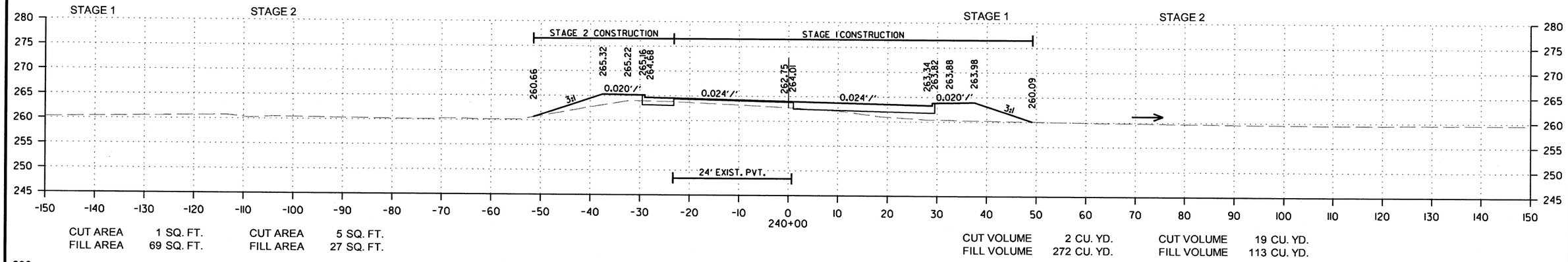
HWY. 321
STA. 235+00 TO STA. 237+00

6/12/2019

R061509.DGN

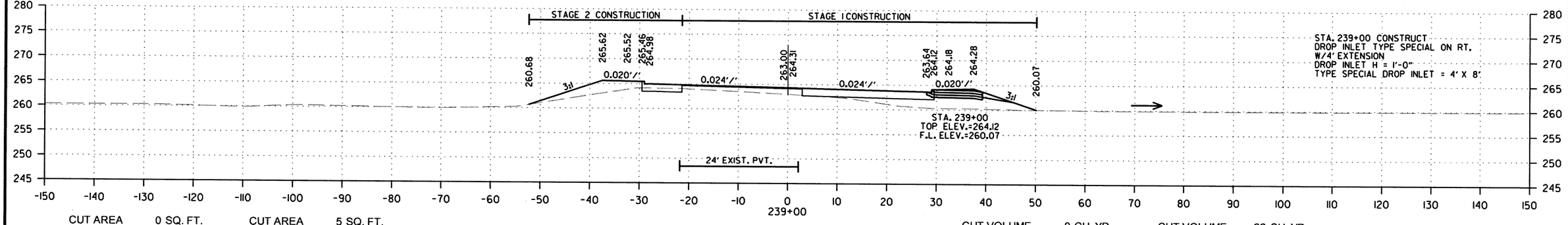
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	281	349

(2) CROSS SECTIONS



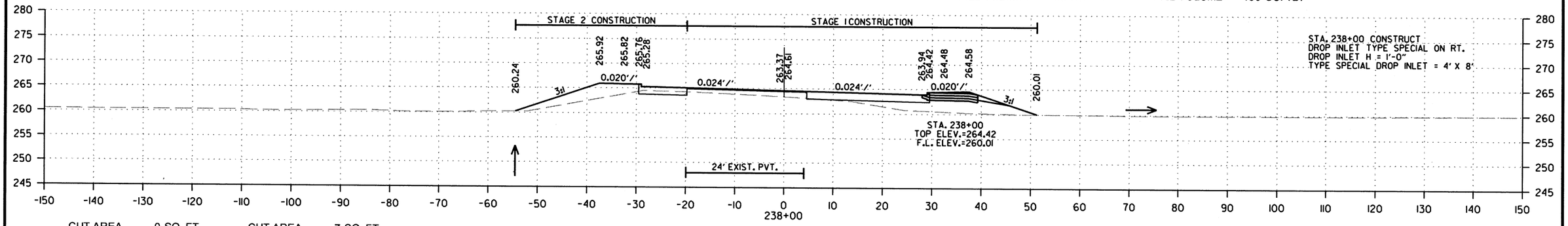
CUT AREA 1 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 69 SQ. FT. FILL AREA 27 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 19 CU. YD.
FILL VOLUME 272 CU. YD. FILL VOLUME 113 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 78 SQ. FT. FILL AREA 34 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 22 CU. YD.
FILL VOLUME 298 CU. YD. FILL VOLUME 150 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 7 SQ. FT.
FILL AREA 83 SQ. FT. FILL AREA 47 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 24 CU. YD.
FILL VOLUME 304 CU. YD. FILL VOLUME 189 CU. YD.

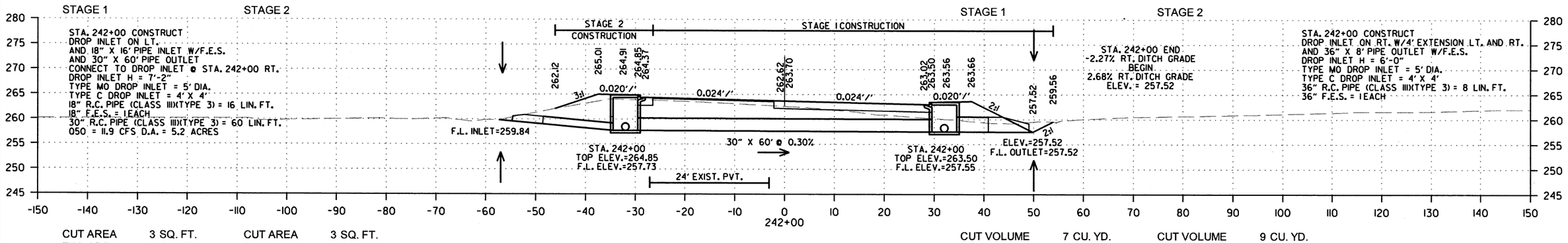
HWY. 321
STA. 238+00 TO STA. 240+00

6/12/2019

R061509.DGN

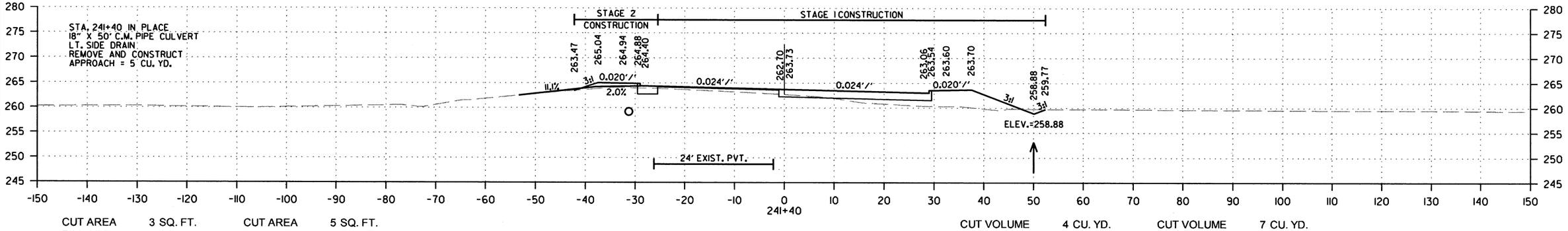
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	282	349

(2) CROSS SECTIONS



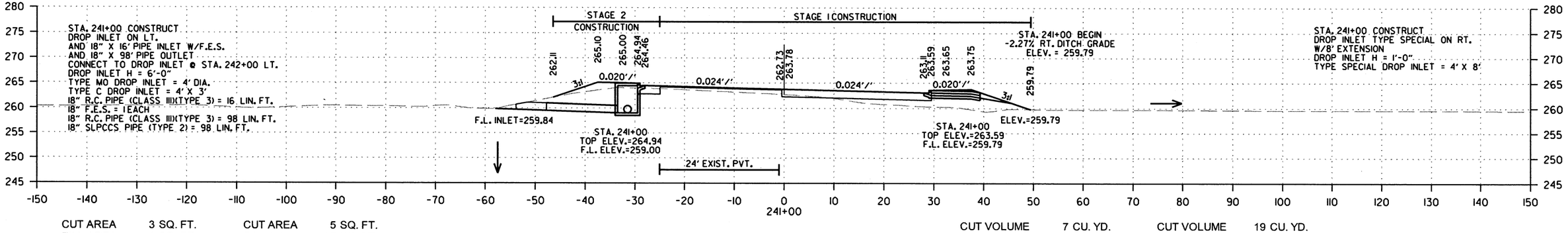
CUT AREA	3 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	62 SQ. FT.	FILL AREA	14 SQ. FT.

CUT VOLUME	7 CU. YD.	CUT VOLUME	9 CU. YD.
FILL VOLUME	139 CU. YD.	FILL VOLUME	27 CU. YD.



CUT AREA	3 SQ. FT.	CUT AREA	5 SQ. FT.
FILL AREA	63 SQ. FT.	FILL AREA	10 SQ. FT.

CUT VOLUME	4 CU. YD.	CUT VOLUME	7 CU. YD.
FILL VOLUME	99 CU. YD.	FILL VOLUME	19 CU. YD.



CUT AREA	3 SQ. FT.	CUT AREA	5 SQ. FT.
FILL AREA	71 SQ. FT.	FILL AREA	15 SQ. FT.

CUT VOLUME	7 CU. YD.	CUT VOLUME	19 CU. YD.
FILL VOLUME	259 CU. YD.	FILL VOLUME	78 CU. YD.

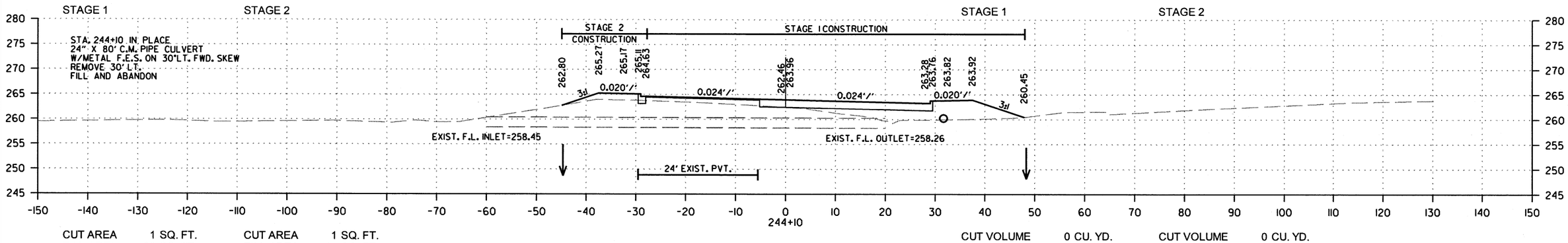
HWY. 321
STA. 241+00 TO STA. 242+00

6/12/2019

R061509.DGN

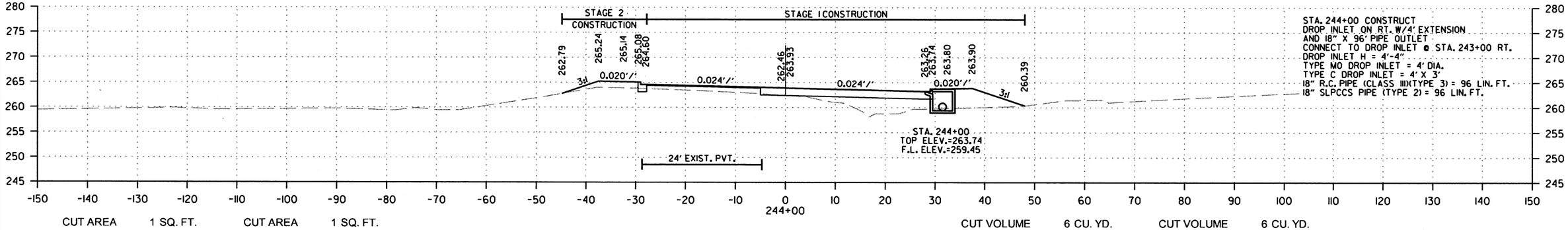
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	283	349

(2) CROSS SECTIONS



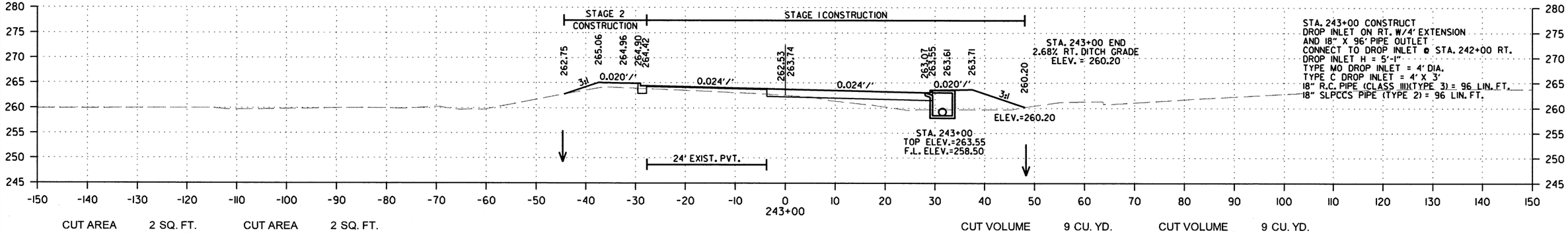
CUT AREA 1 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 90 SQ. FT. FILL AREA 15 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 36 CU. YD. FILL VOLUME 5 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 105 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 6 CU. YD.
FILL VOLUME 350 CU. YD. FILL VOLUME 46 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 84 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 9 CU. YD. CUT VOLUME 9 CU. YD.
FILL VOLUME 270 CU. YD. FILL VOLUME 46 CU. YD.

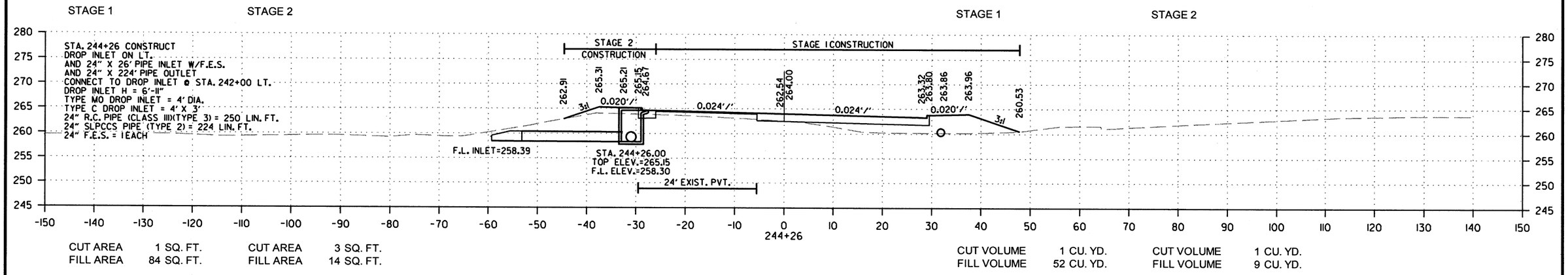
HWY. 321
STA. 243+00 TO STA. 244+10

6/12/2019

R061509.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.		061509	284	349

(2) CROSS SECTIONS



CUT AREA 1 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 84 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 1 CU. YD. CUT VOLUME 1 CU. YD.
FILL VOLUME 52 CU. YD. FILL VOLUME 9 CU. YD.

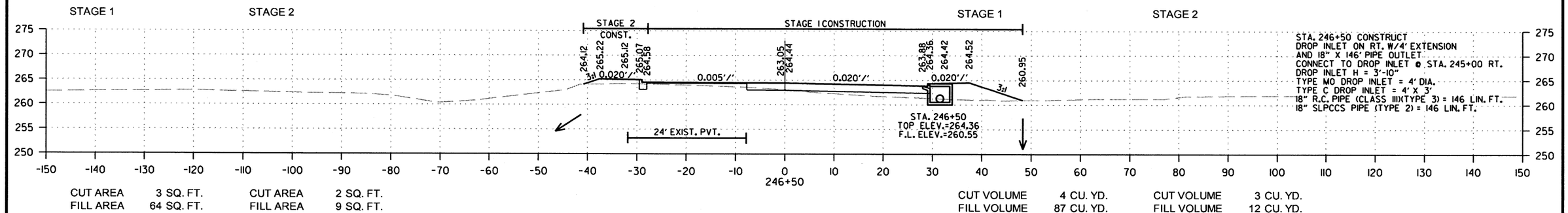
STA. 244+26 TO STA. 244+26

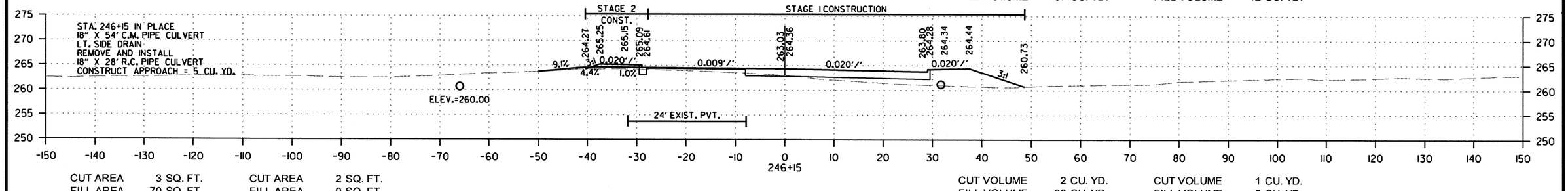
6/12/2019

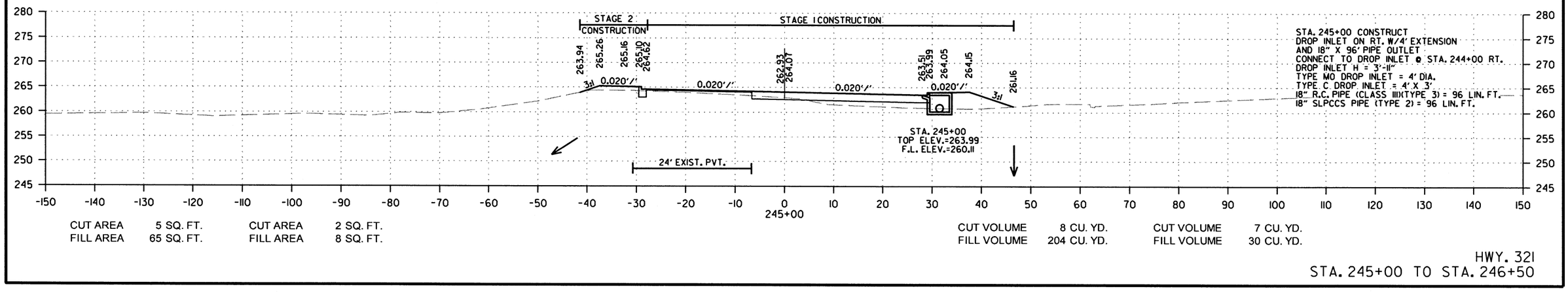
R061509.DGN

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.		061509	285	349

(2) CROSS SECTIONS







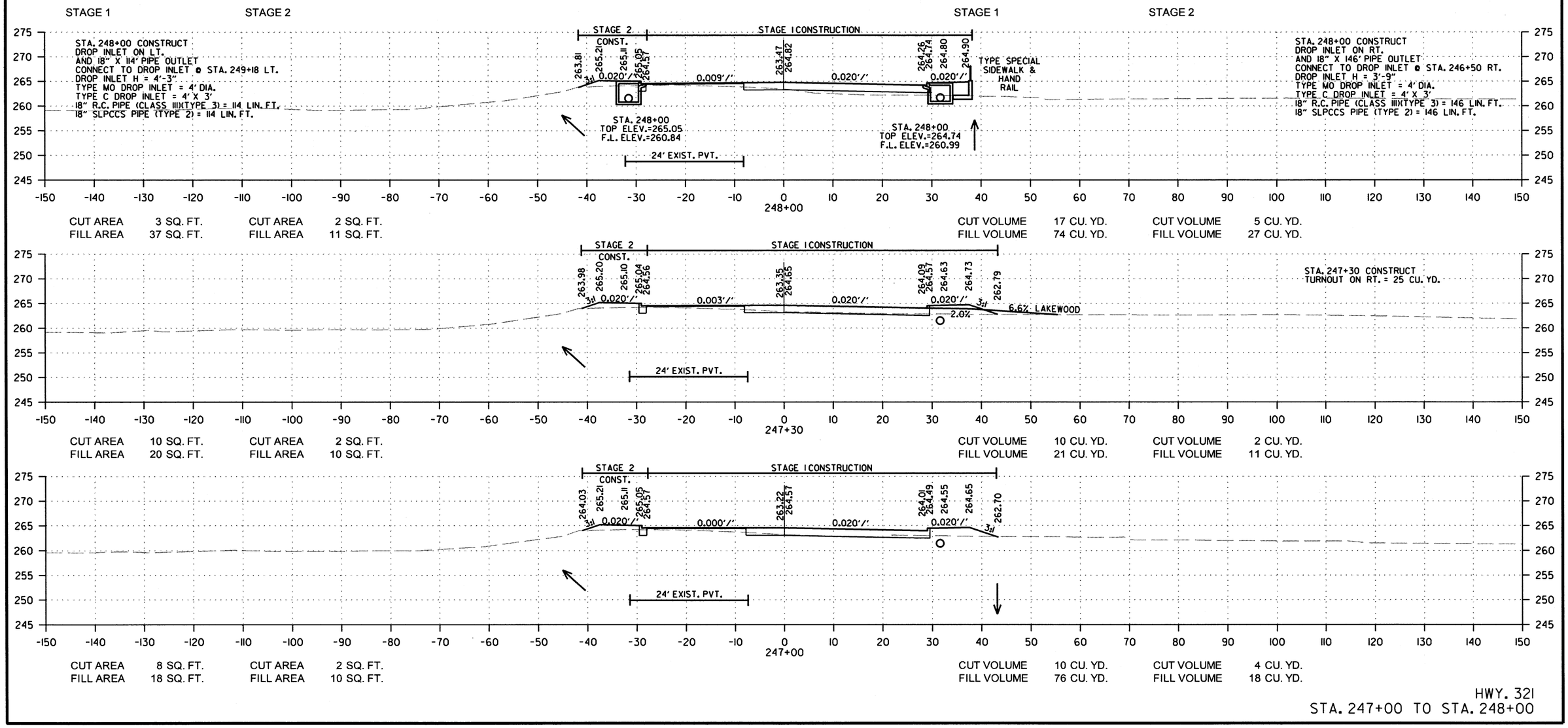
HWY. 321
STA. 245+00 TO STA. 246+50

6/12/2019

R061509.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.		061509	286	349

(2) CROSS SECTIONS



CUT AREA 3 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 37 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 17 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 74 CU. YD. FILL VOLUME 27 CU. YD.

CUT AREA 10 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 20 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 21 CU. YD. FILL VOLUME 11 CU. YD.

CUT AREA 8 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 18 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 76 CU. YD. FILL VOLUME 18 CU. YD.

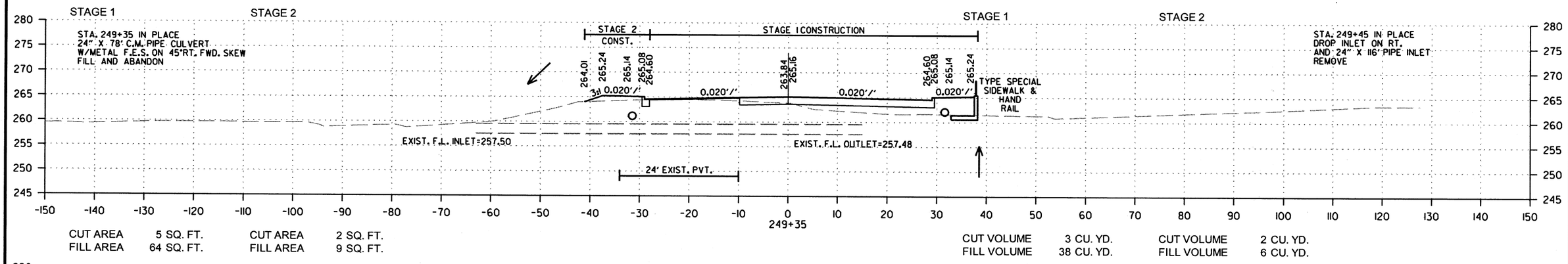
HWY. 321
STA. 247+00 TO STA. 248+00

6/12/2019

R061509.DGN

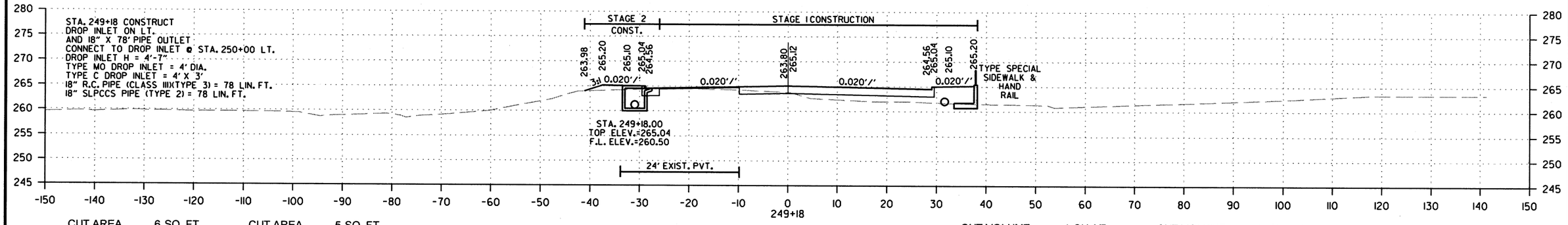
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	287	349

(2) CROSS SECTIONS



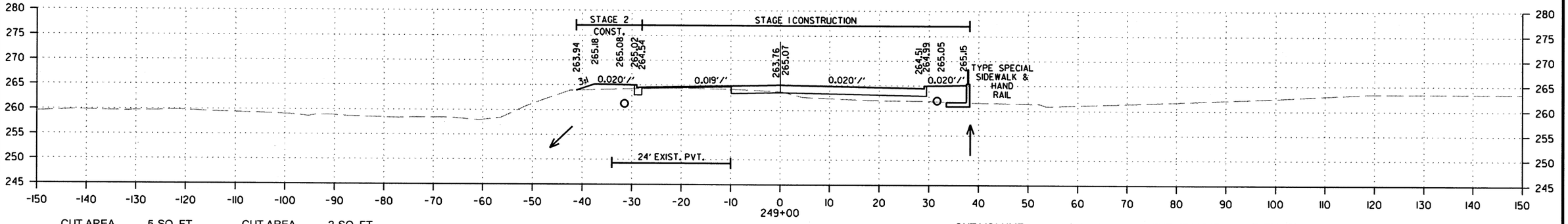
CUT AREA 5 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 64 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 38 CU. YD. FILL VOLUME 6 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 57 SQ. FT. FILL AREA 9 SQ. FT.

CUT VOLUME 4 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 37 CU. YD. FILL VOLUME 6 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 54 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 169 CU. YD. FILL VOLUME 39 CU. YD.

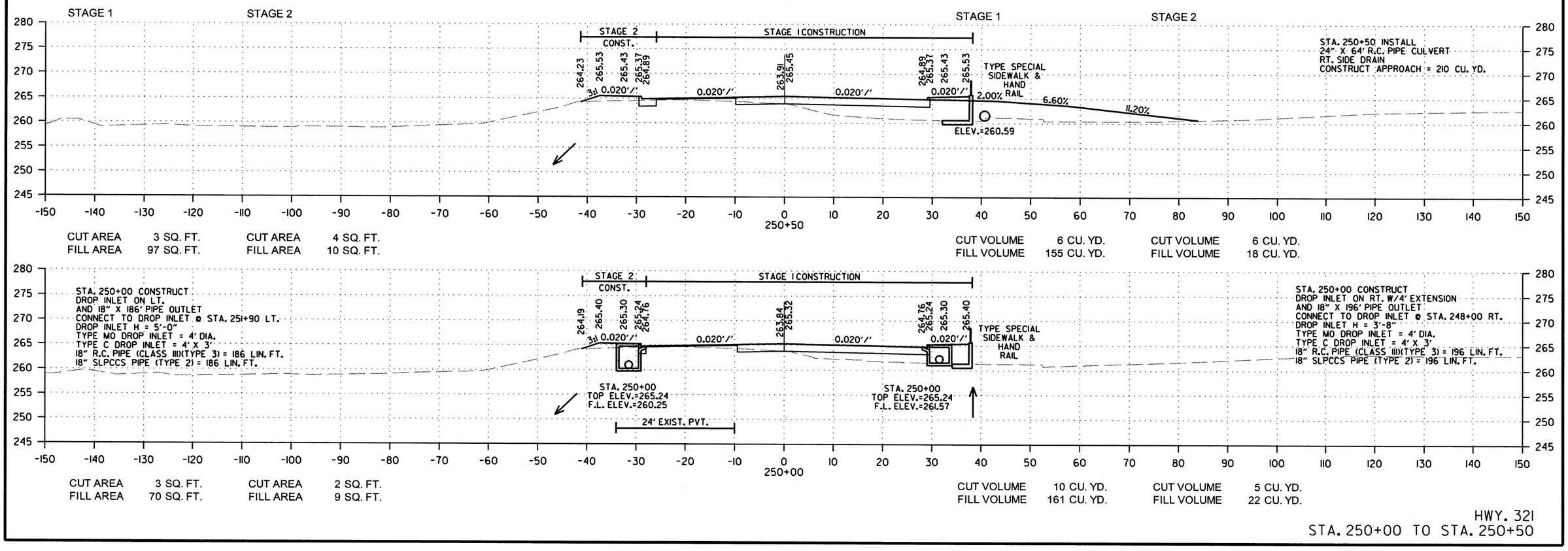
6/12/2019

R061509.DGN

HWY. 321
STA. 249+00 TO STA. 249+35

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	288	349

(2) CROSS SECTIONS



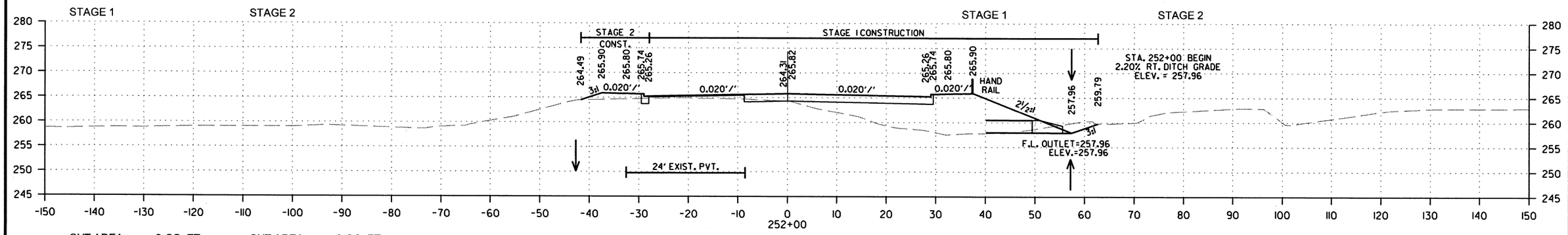
HWY. 321
STA. 250+00 TO STA. 250+50

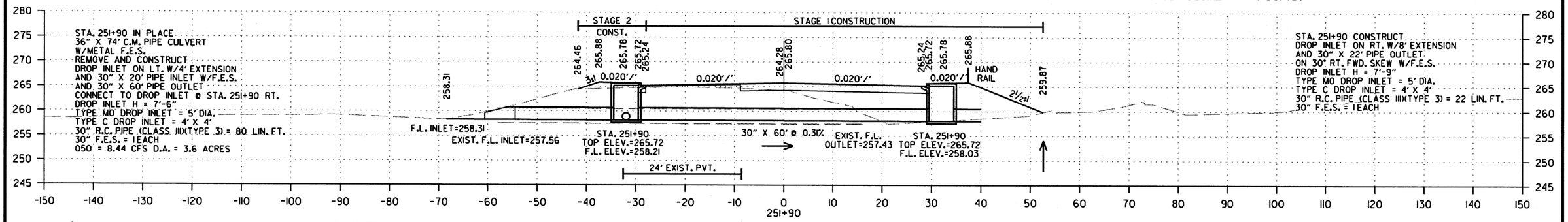
6/12/2019

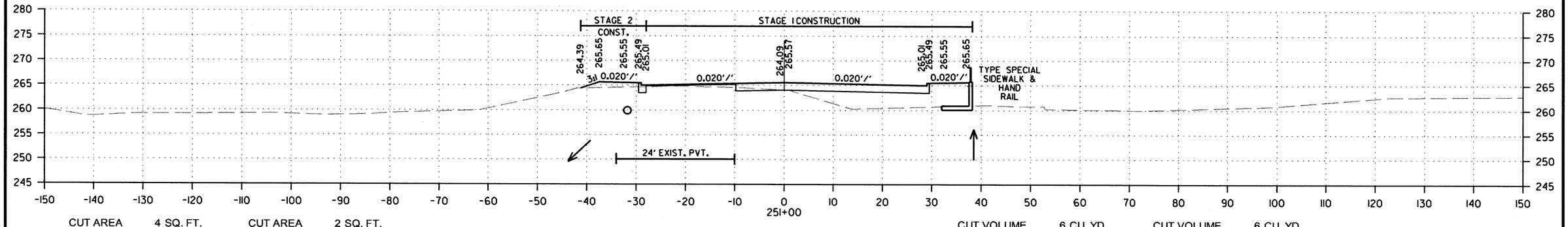
R061509.DGN

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.		061509	289	349

(2) CROSS SECTIONS







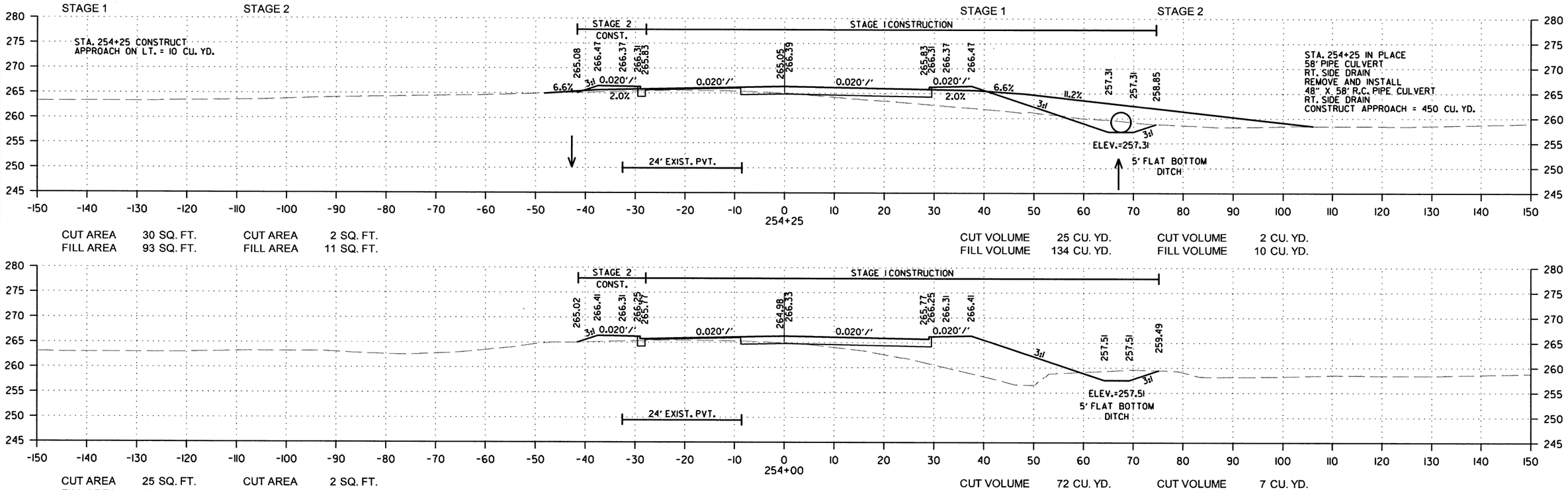
6/12/2019

R061509.DGN

HWY. 321
STA. 251+00 TO STA. 252+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.		061509	290	349

(2) CROSS SECTIONS



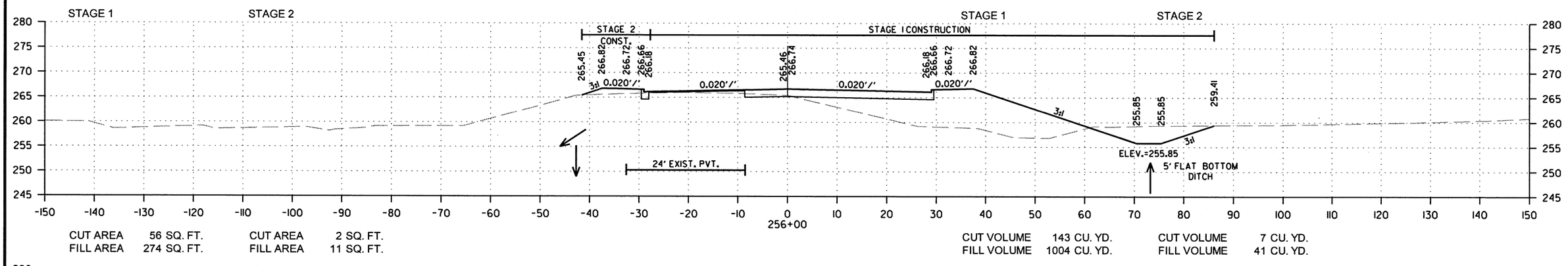
6/12/2019

R061509.DGN

HWY. 321
STA. 253+00 TO STA. 254+25

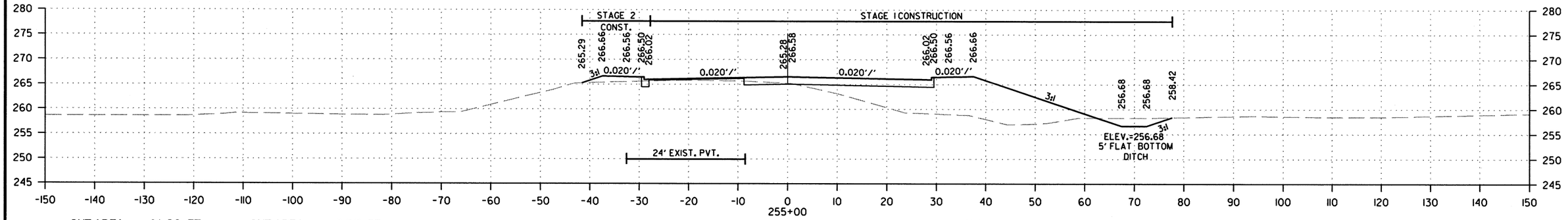
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	291	349

(2) CROSS SECTIONS



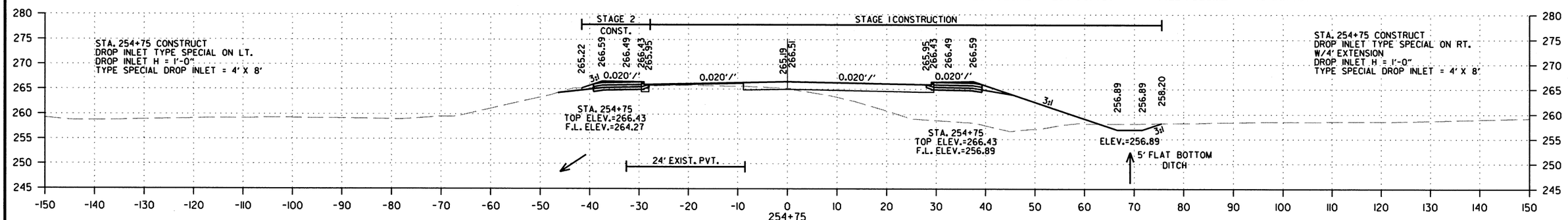
CUT AREA 56 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 274 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 143 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 1004 CU. YD. FILL VOLUME 41 CU. YD.



CUT AREA 21 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 268 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 17 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 234 CU. YD. FILL VOLUME 10 CU. YD.



CUT AREA 15 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 237 SQ. FT. FILL AREA 11 SQ. FT.

CUT VOLUME 42 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 306 CU. YD. FILL VOLUME 20 CU. YD.

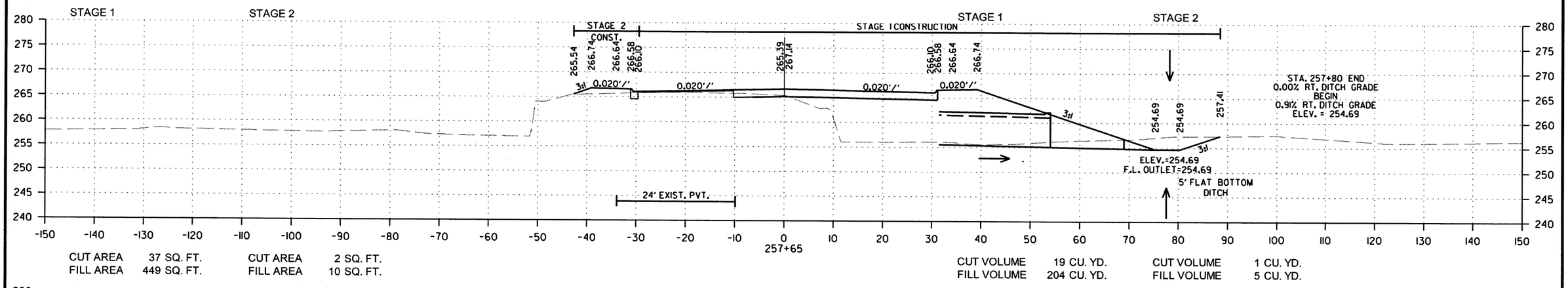
HWY. 321
STA. 254+75 TO STA. 256+00

6/12/2019

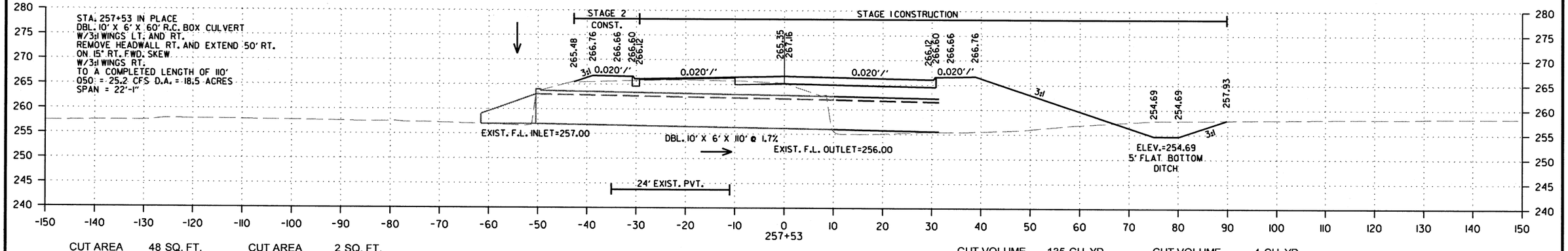
R061509.DGN

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.		061509	292	349

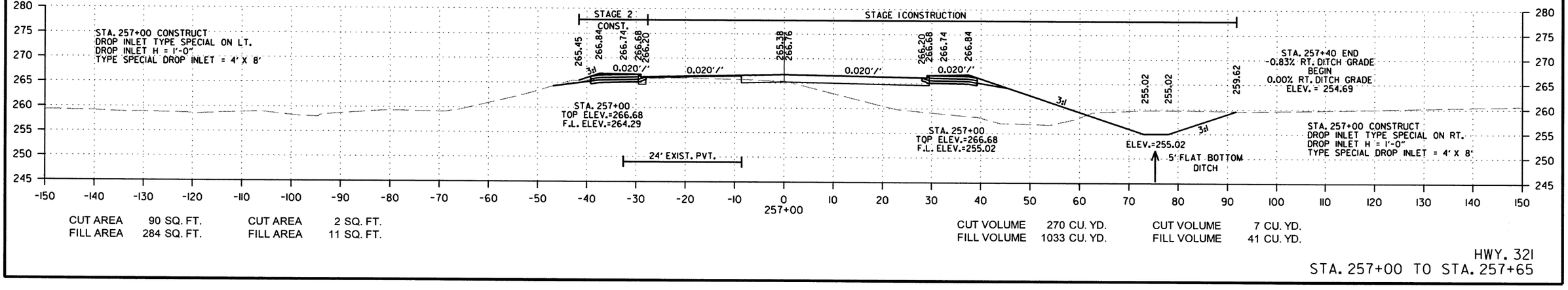
(2) CROSS SECTIONS



CUT AREA	37 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	449 SQ. FT.	FILL AREA	10 SQ. FT.
CUT VOLUME	19 CU. YD.	CUT VOLUME	1 CU. YD.
FILL VOLUME	204 CU. YD.	FILL VOLUME	5 CU. YD.



CUT AREA	48 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	470 SQ. FT.	FILL AREA	11 SQ. FT.
CUT VOLUME	135 CU. YD.	CUT VOLUME	4 CU. YD.
FILL VOLUME	740 CU. YD.	FILL VOLUME	22 CU. YD.



CUT AREA	90 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	284 SQ. FT.	FILL AREA	11 SQ. FT.
CUT VOLUME	270 CU. YD.	CUT VOLUME	7 CU. YD.
FILL VOLUME	1033 CU. YD.	FILL VOLUME	41 CU. YD.

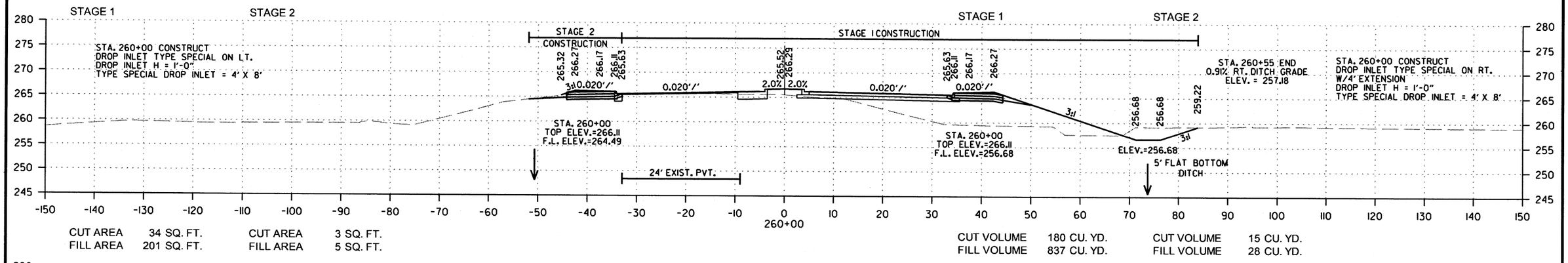
HWY. 321
STA. 257+00 TO STA. 257+65

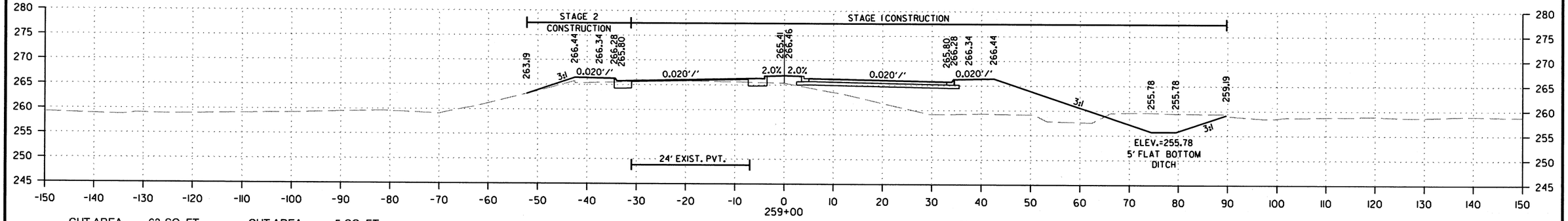
6/12/2019

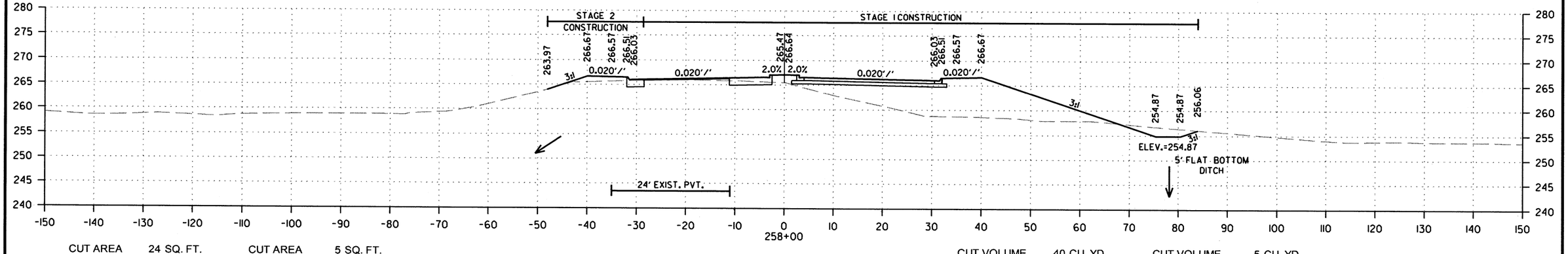
R061509.DGN

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.		061509	293	349

(2) CROSS SECTIONS







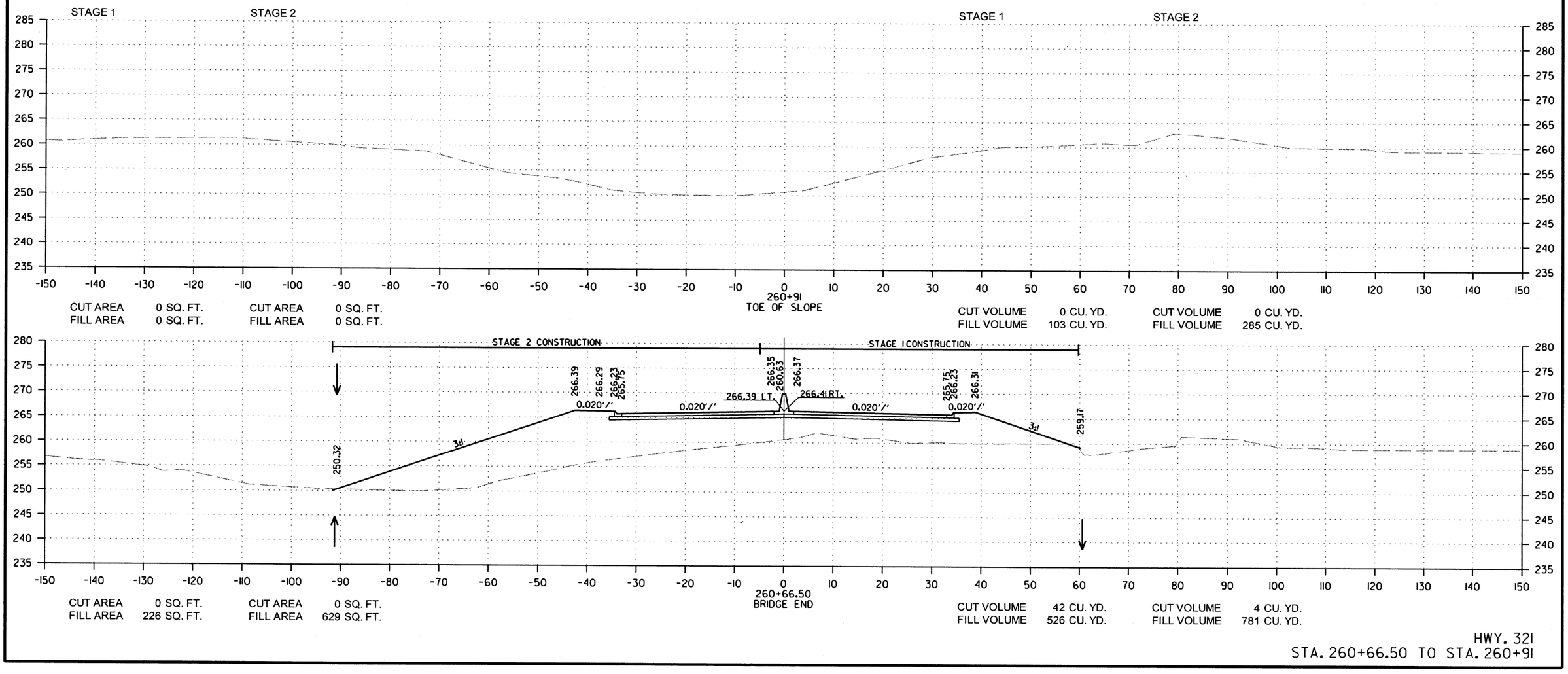
HWY. 321
STA. 258+00 TO STA. 260+00

6/12/2019

R061509.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.		061509	294	349

(2) CROSS SECTIONS



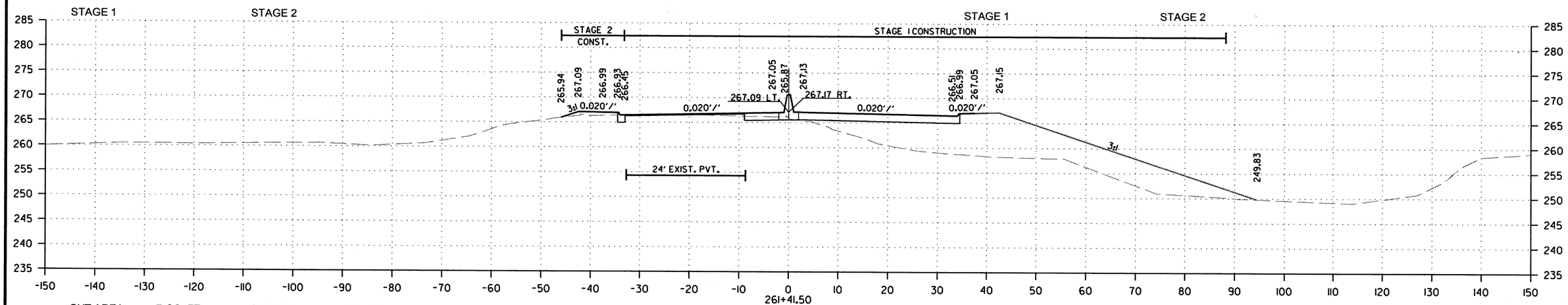
HWY. 321
STA. 260+66.50 TO STA. 260+91

6/12/2019

R061509.DGN

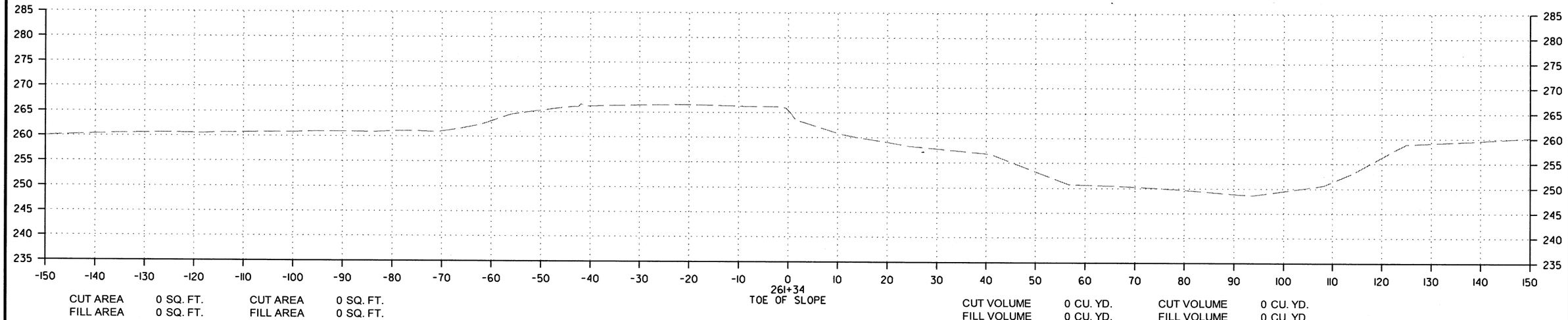
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	295	349

(2) CROSS SECTIONS



CUT AREA	7 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	439 SQ. FT.	FILL AREA	7 SQ. FT.

CUT VOLUME	1 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	61 CU. YD.	FILL VOLUME	1 CU. YD.



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL VOLUME	0 CU. YD.	FILL VOLUME	0 CU. YD.

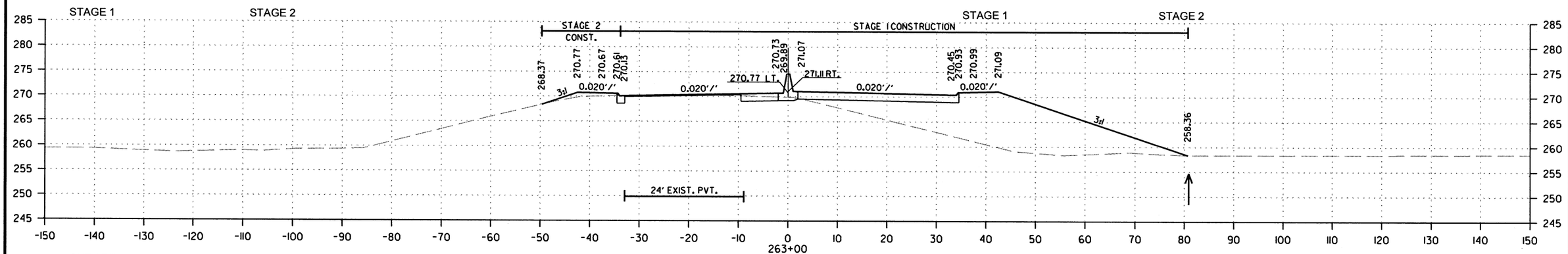
HWY. 321
STA. 261+34 TO STA. 261+41.50

6/12/2019

R061509.DGN

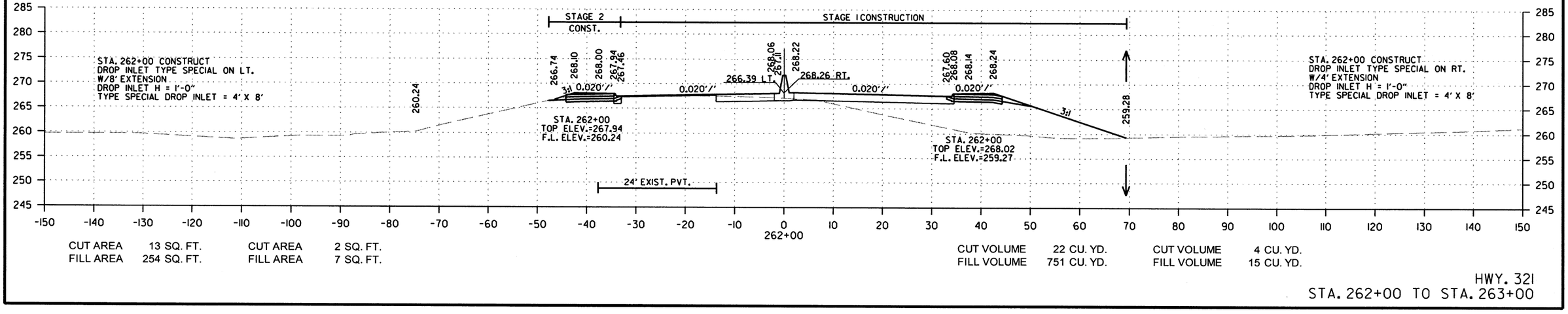
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	296	349

(2) CROSS SECTIONS



CUT AREA	9 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	423 SQ. FT.	FILL AREA	8 SQ. FT.

CUT VOLUME	41 CU. YD.	CUT VOLUME	9 CU. YD.
FILL VOLUME	1254 CU. YD.	FILL VOLUME	28 CU. YD.



CUT AREA	13 SQ. FT.	CUT AREA	2 SQ. FT.
FILL AREA	254 SQ. FT.	FILL AREA	7 SQ. FT.

CUT VOLUME	22 CU. YD.	CUT VOLUME	4 CU. YD.
FILL VOLUME	751 CU. YD.	FILL VOLUME	15 CU. YD.

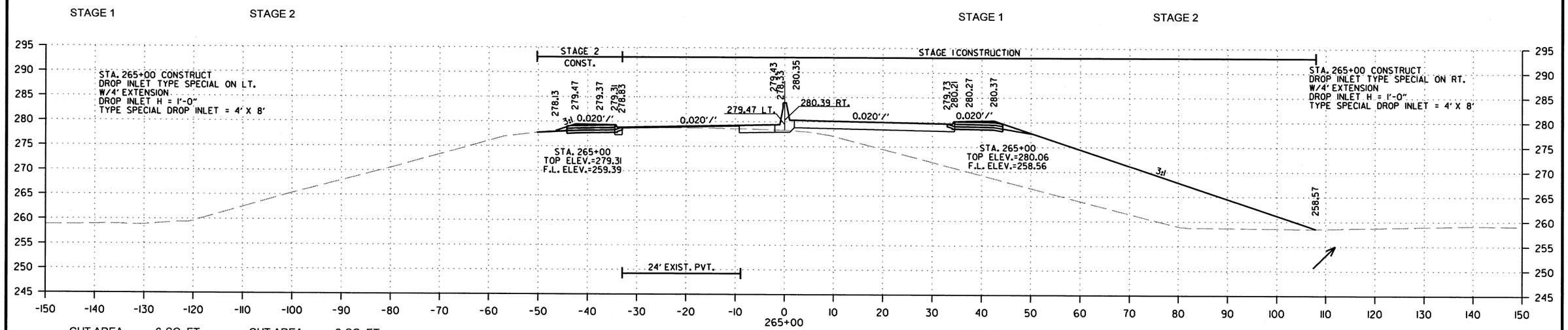
HWY. 321
STA. 262+00 TO STA. 263+00

6/12/2019

R061509.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.		061509	297	349

(2) CROSS SECTIONS



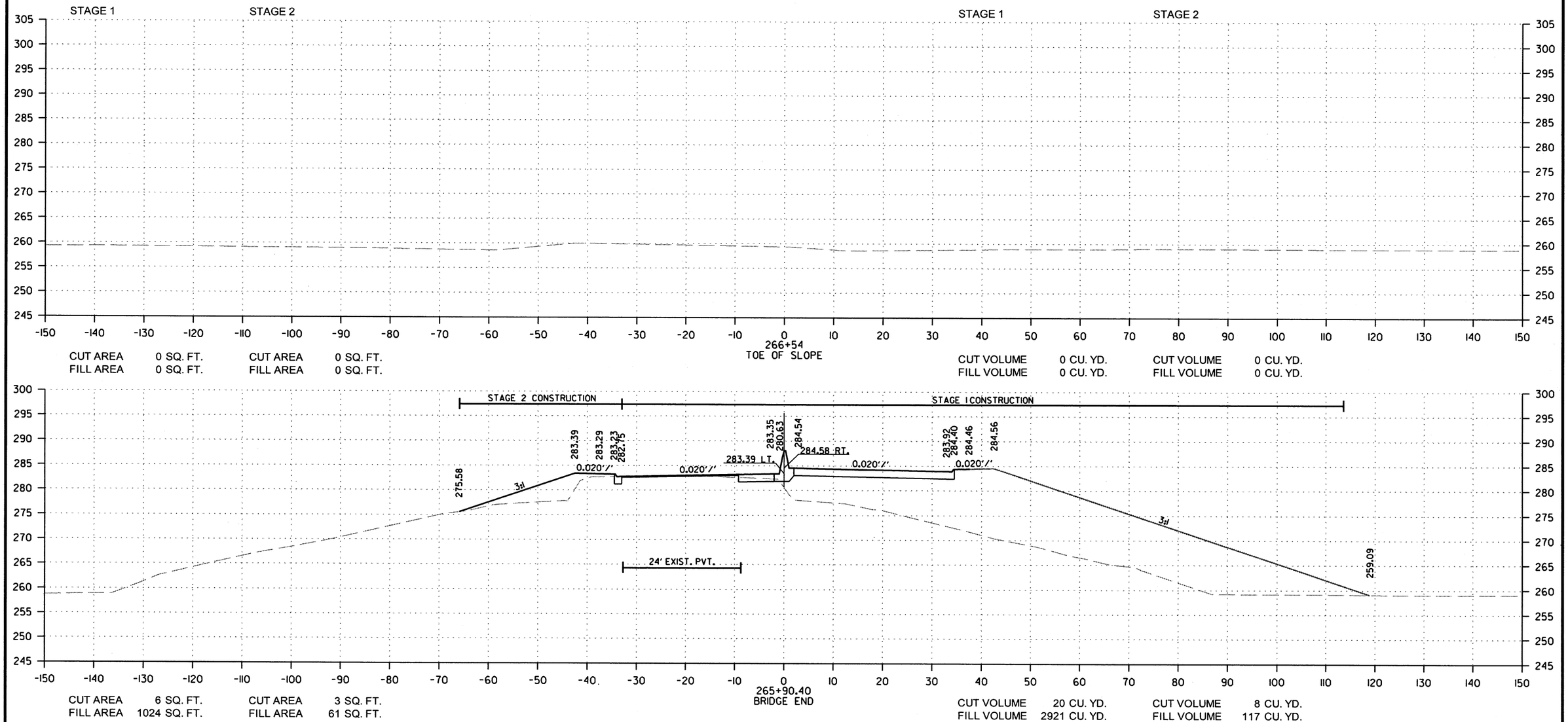
HWY. 321
STA. 264+00 TO STA. 265+00

6/12/2019

R061509.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.		061509	298	349

(2) CROSS SECTIONS



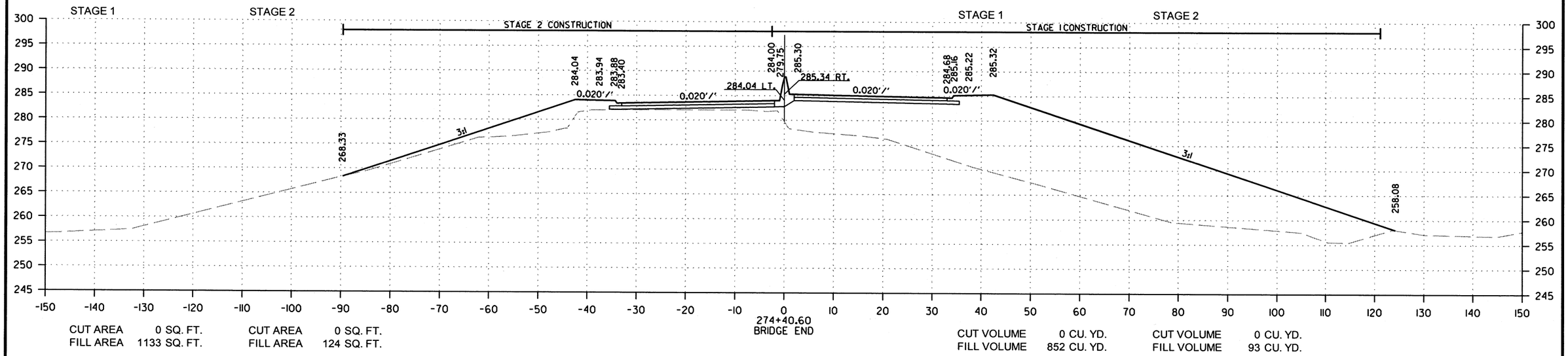
HWY. 321
STA. 265+90.40 TO STA. 266+54

6/12/2019

R061509.DGN

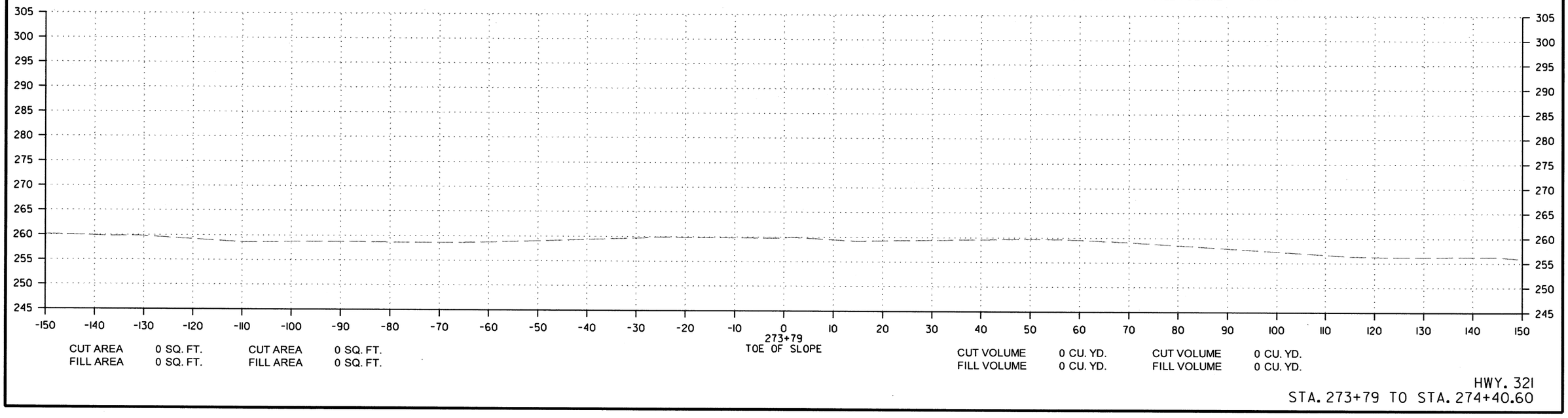
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	299	349

(2) CROSS SECTIONS



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 1133 SQ. FT. FILL AREA 124 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 852 CU. YD. FILL VOLUME 93 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

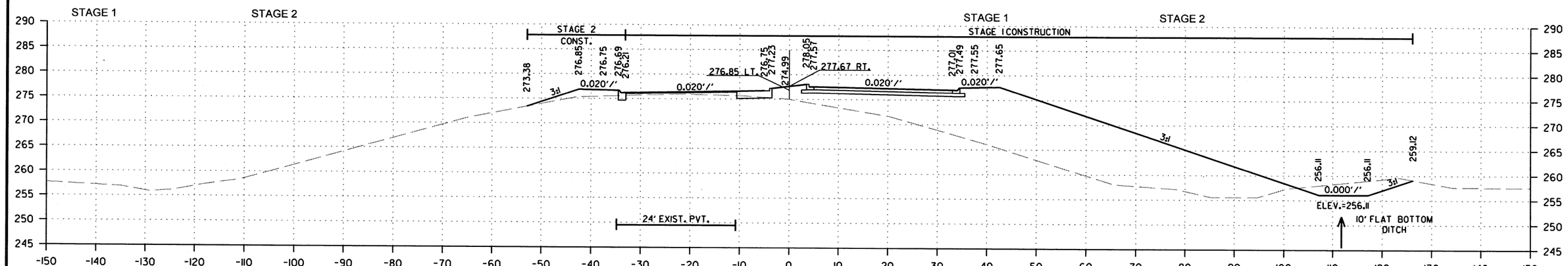
HWY. 321
STA. 273+79 TO STA. 274+40.60

6/12/2019

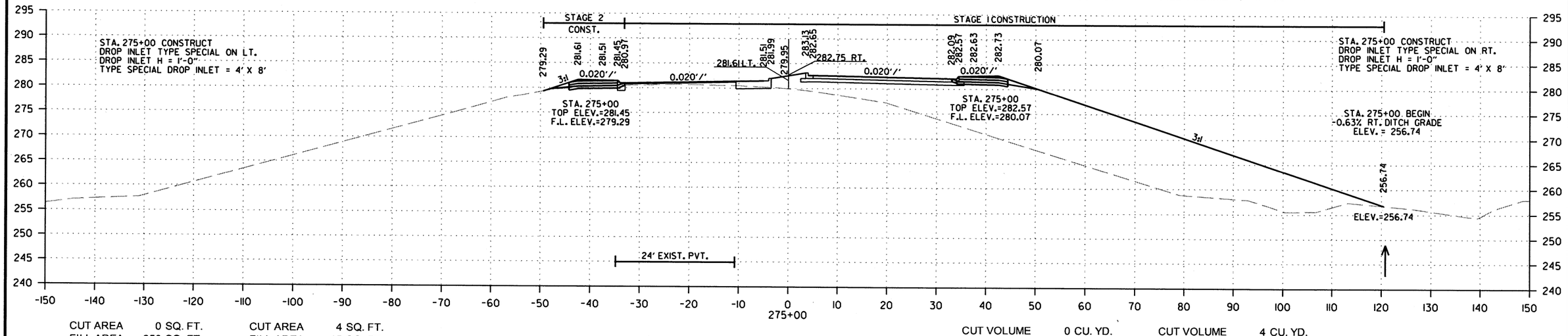
R061509.DGN

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.		061509	300	349

(2) CROSS SECTIONS



CUT AREA	43 SQ. FT.	CUT AREA	4 SQ. FT.	CUT VOLUME	80 CU. YD.	CUT VOLUME	15 CU. YD.
FILL AREA	784 SQ. FT.	FILL AREA	18 SQ. FT.	FILL VOLUME	3211 CU. YD.	FILL VOLUME	61 CU. YD.



CUT AREA	0 SQ. FT.	CUT AREA	4 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	4 CU. YD.
FILL AREA	950 SQ. FT.	FILL AREA	15 SQ. FT.	FILL VOLUME	2291 CU. YD.	FILL VOLUME	153 CU. YD.

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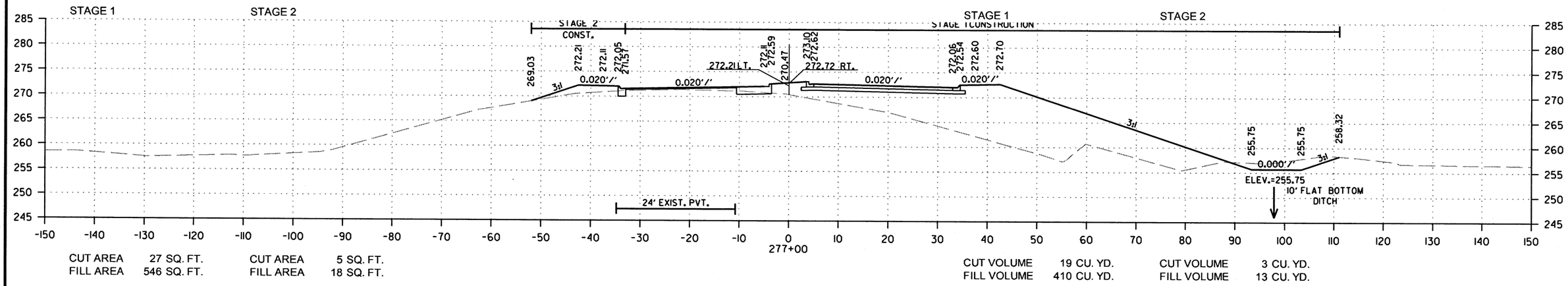
R061509.DGN

HWY. 321
STA. 275+00 TO STA. 276+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.		061509	301	349

(2) CROSS SECTIONS

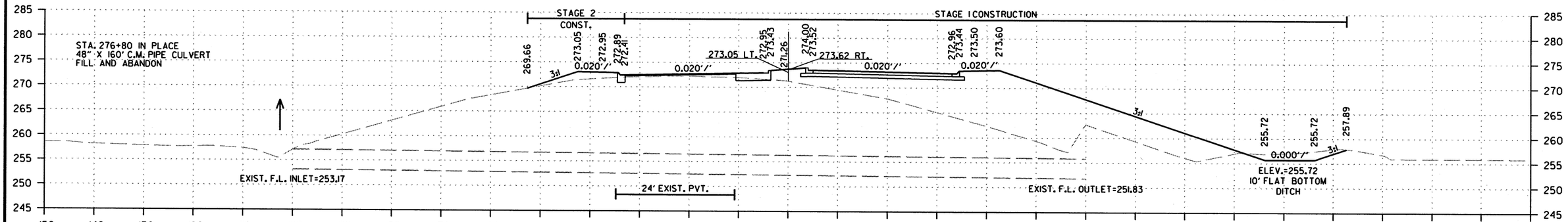


CUT AREA 27 SQ. FT. FILL AREA 546 SQ. FT.

CUT AREA 5 SQ. FT. FILL AREA 18 SQ. FT.

CUT VOLUME 19 CU. YD. FILL VOLUME 410 CU. YD.

CUT VOLUME 3 CU. YD. FILL VOLUME 13 CU. YD.

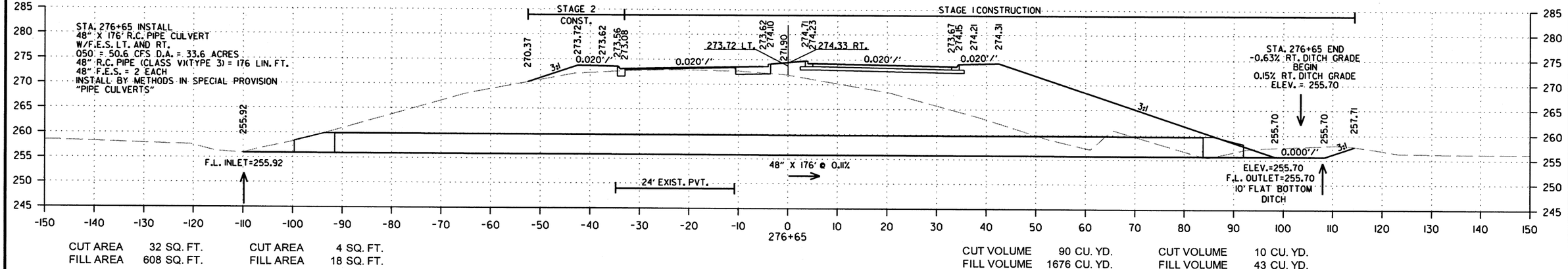


CUT AREA 23 SQ. FT. FILL AREA 560 SQ. FT.

CUT AREA 4 SQ. FT. FILL AREA 18 SQ. FT.

CUT VOLUME 15 CU. YD. FILL VOLUME 324 CU. YD.

CUT VOLUME 2 CU. YD. FILL VOLUME 10 CU. YD.



CUT AREA 32 SQ. FT. FILL AREA 608 SQ. FT.

CUT AREA 4 SQ. FT. FILL AREA 18 SQ. FT.

CUT VOLUME 90 CU. YD. FILL VOLUME 1676 CU. YD.

CUT VOLUME 10 CU. YD. FILL VOLUME 43 CU. YD.

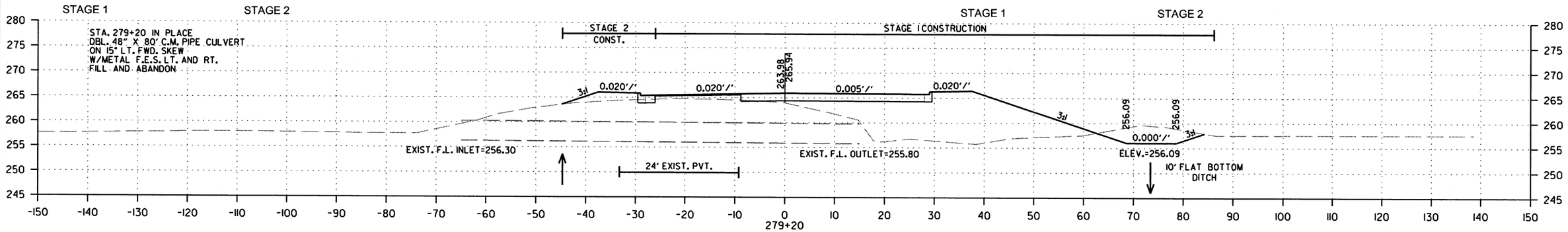
HWY. 321
STA. 276+65 TO STA. 277+00

6/12/2019

R061509.DGN

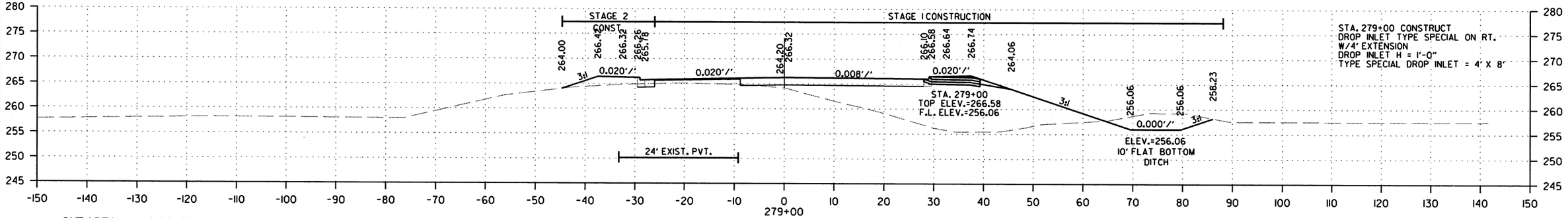
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	302	349

(2) CROSS SECTIONS



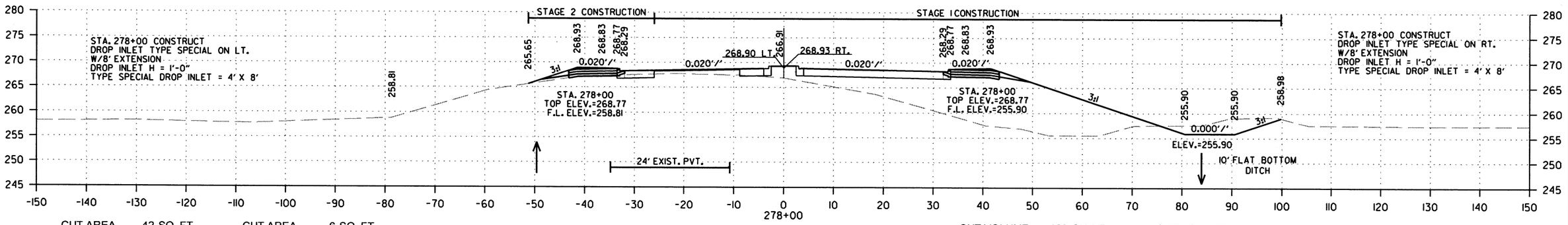
CUT AREA 51 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 356 SQ. FT. FILL AREA 20 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 268 CU. YD. FILL VOLUME 14 CU. YD.



CUT AREA 49 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 368 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 169 CU. YD. CUT VOLUME 17 CU. YD.
FILL VOLUME 1493 CU. YD. FILL VOLUME 76 CU. YD.



CUT AREA 42 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 438 SQ. FT. FILL AREA 22 SQ. FT.

CUT VOLUME 128 CU. YD. CUT VOLUME 20 CU. YD.
FILL VOLUME 1822 CU. YD. FILL VOLUME 74 CU. YD.

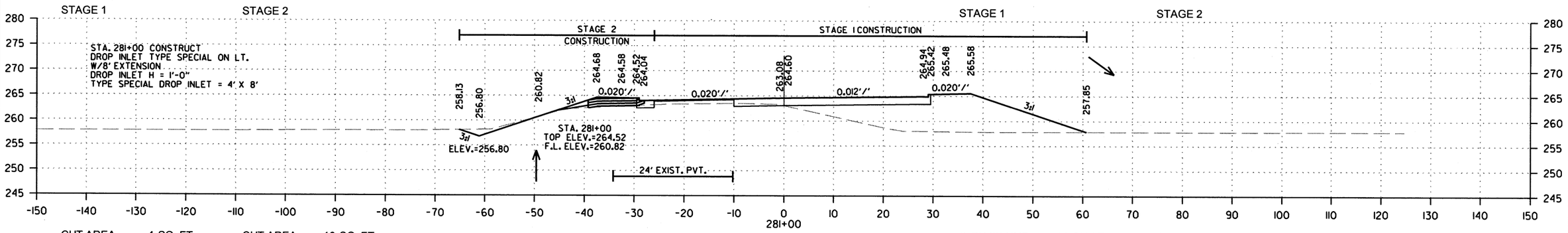
HWY. 321
STA. 278+00 TO STA. 279+20

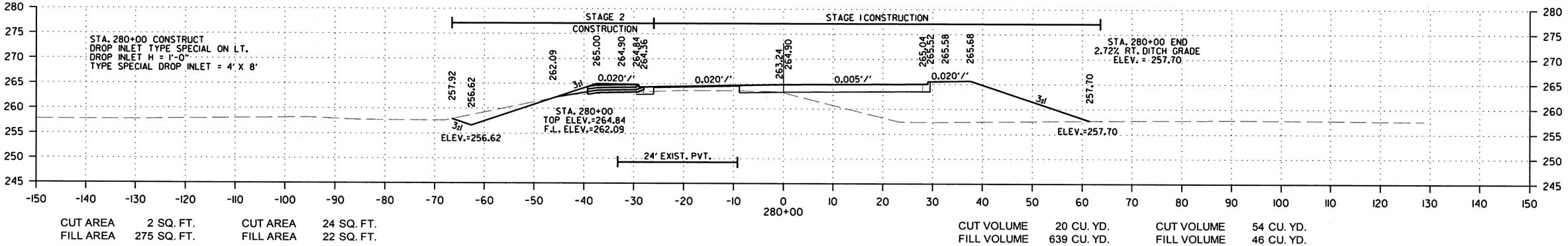
6/12/2019

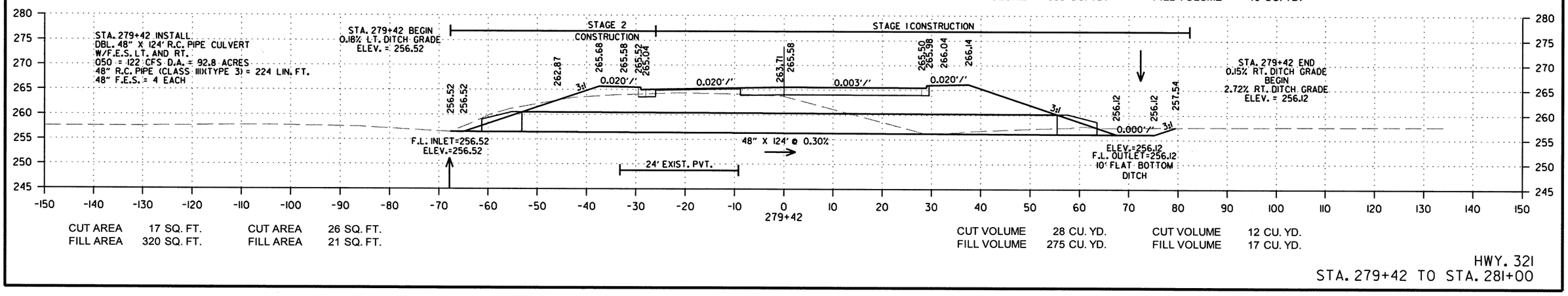
R061509.DGN

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.		061509	303	349

(2) CROSS SECTIONS







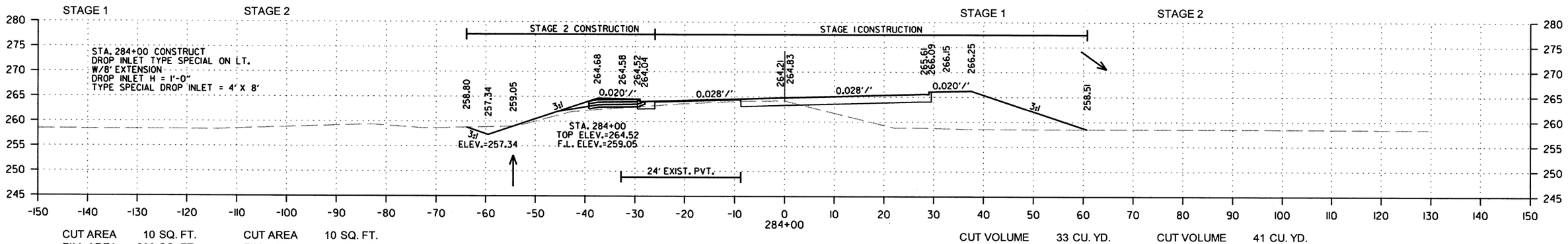
6/12/2019

R061509.DGN

HWY. 321
STA. 279+42 TO STA. 281+00

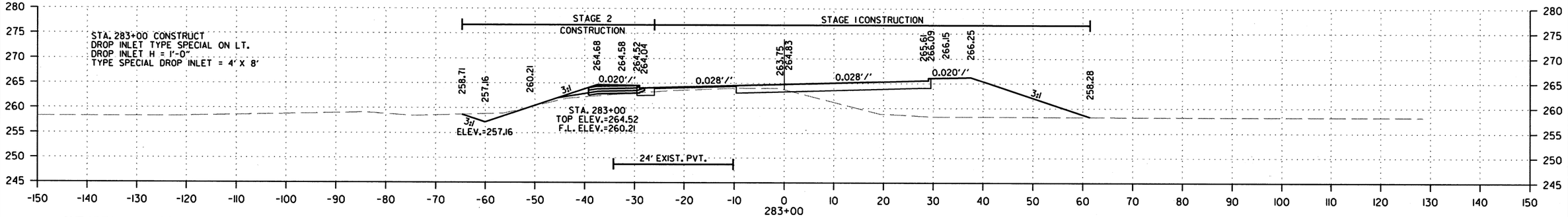
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	304	349

(2) CROSS SECTIONS



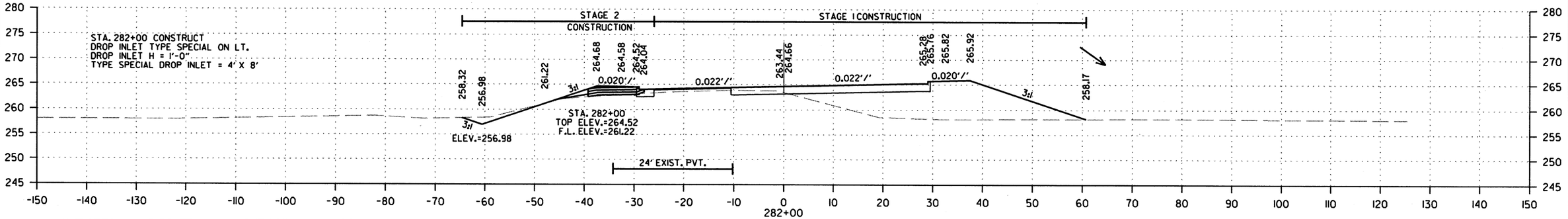
CUT AREA 10 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 238 SQ. FT. FILL AREA 31 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 41 CU. YD.
FILL VOLUME 917 CU. YD. FILL VOLUME 106 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 257 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 44 CU. YD.
FILL VOLUME 944 CU. YD. FILL VOLUME 89 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 253 SQ. FT. FILL AREA 22 SQ. FT.

CUT VOLUME 22 CU. YD. CUT VOLUME 41 CU. YD.
FILL VOLUME 928 CU. YD. FILL VOLUME 81 CU. YD.

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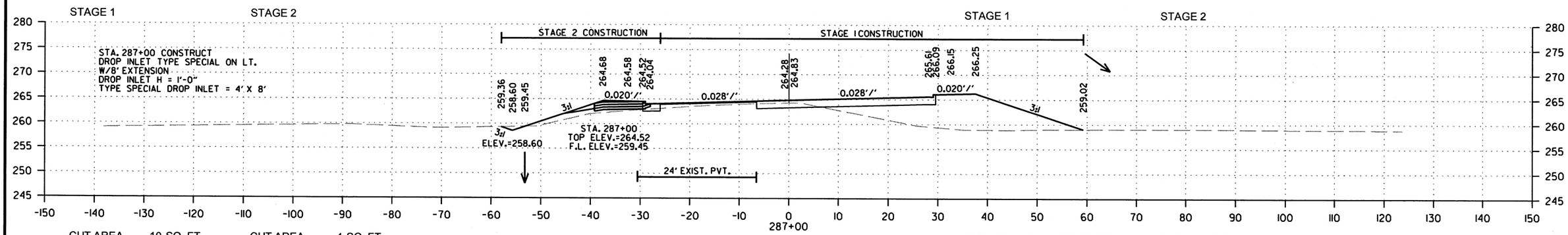
R061509.DGN

HWY. 321
STA. 282+00 TO STA. 284+00

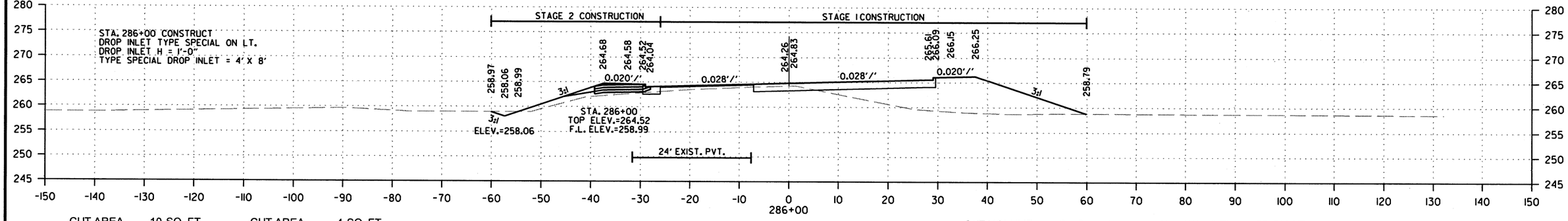
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	305	349

(2) CROSS SECTIONS



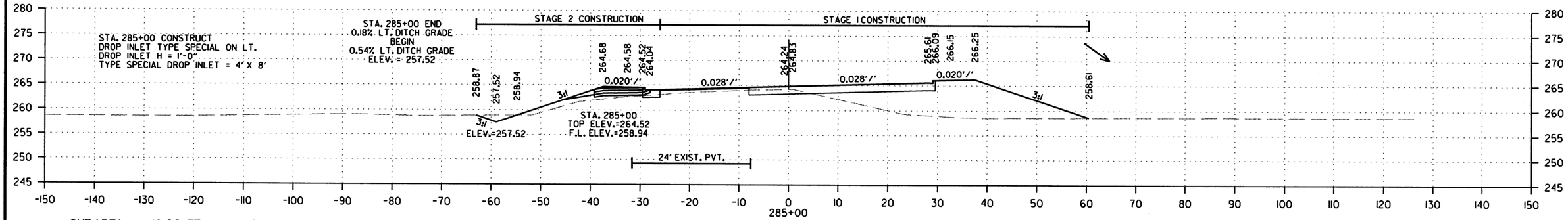
CUT AREA 10 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 196 SQ. FT. FILL AREA 36 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 739 CU. YD. FILL VOLUME 137 CU. YD.



CUT AREA 10 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 203 SQ. FT. FILL AREA 38 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 22 CU. YD.
FILL VOLUME 789 CU. YD. FILL VOLUME 143 CU. YD.



CUT AREA 10 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 223 SQ. FT. FILL AREA 39 SQ. FT.

CUT VOLUME 37 CU. YD. CUT VOLUME 33 CU. YD.
FILL VOLUME 854 CU. YD. FILL VOLUME 130 CU. YD.

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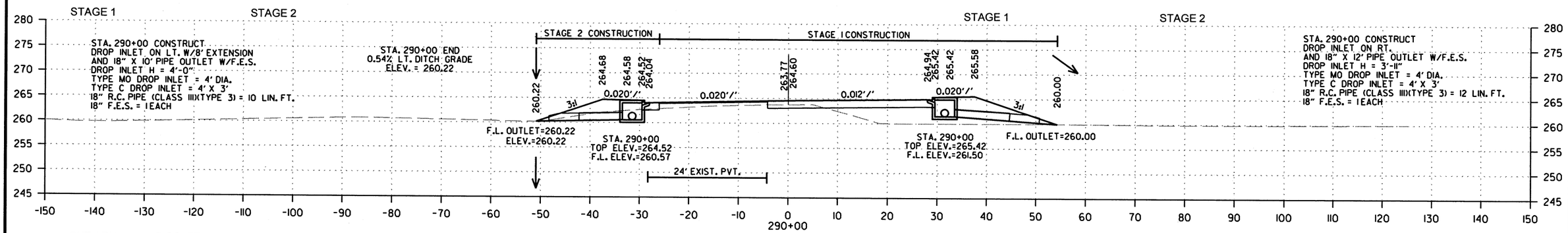
R061509.DGN

HWY. 321
STA. 285+00 TO STA. 287+00

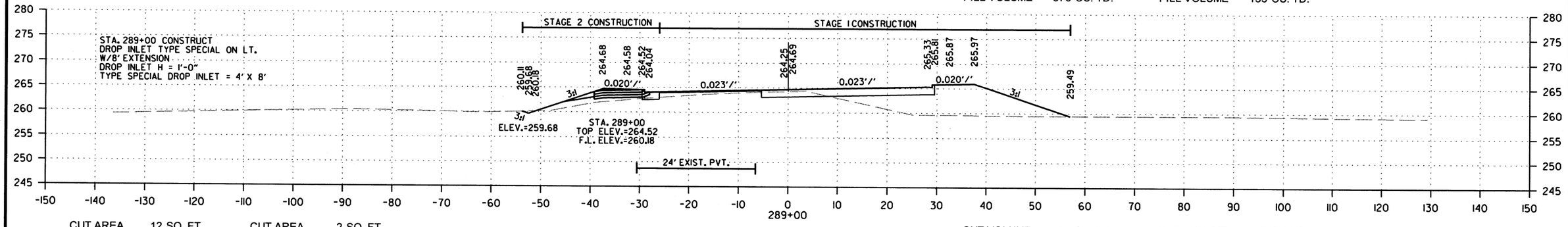
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	306	349

(2) CROSS SECTIONS



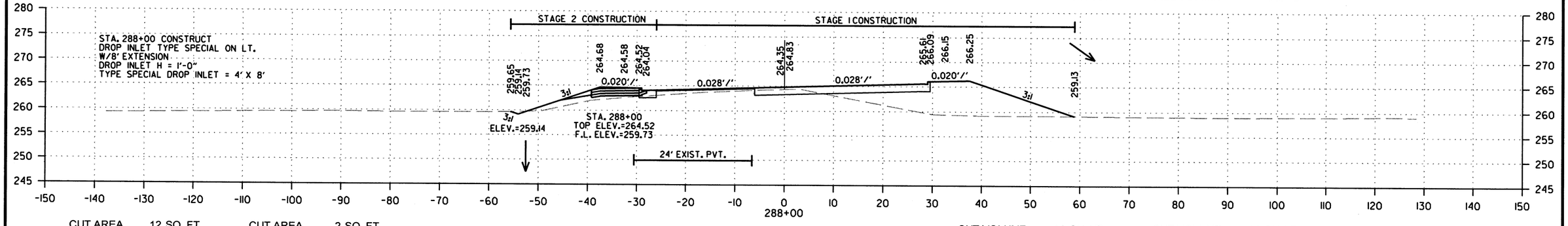
CUT AREA 7 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 145 SQ. FT. FILL AREA 36 SQ. FT.

CUT VOLUME 35 CU. YD. CUT VOLUME 6 CU. YD.
FILL VOLUME 576 CU. YD. FILL VOLUME 135 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 166 SQ. FT. FILL AREA 37 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 641 CU. YD. FILL VOLUME 137 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 180 SQ. FT. FILL AREA 37 SQ. FT.

CUT VOLUME 41 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 696 CU. YD. FILL VOLUME 135 CU. YD.

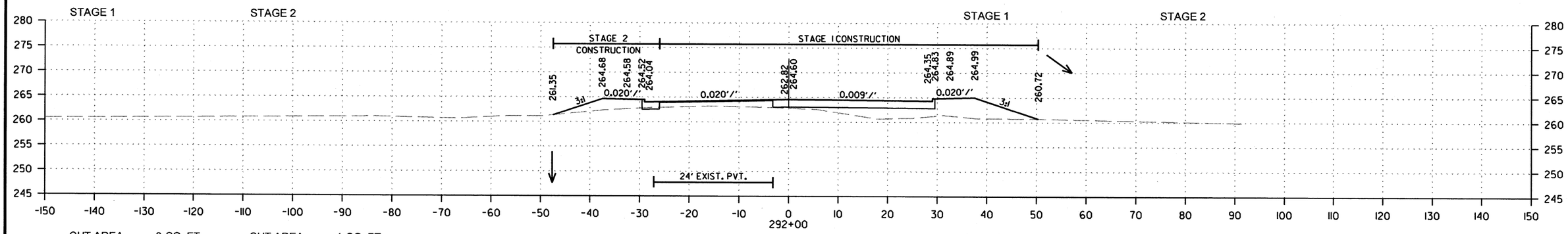
HWY. 321
STA. 288+00 TO STA. 290+00

6/12/2019

R061509.DGN

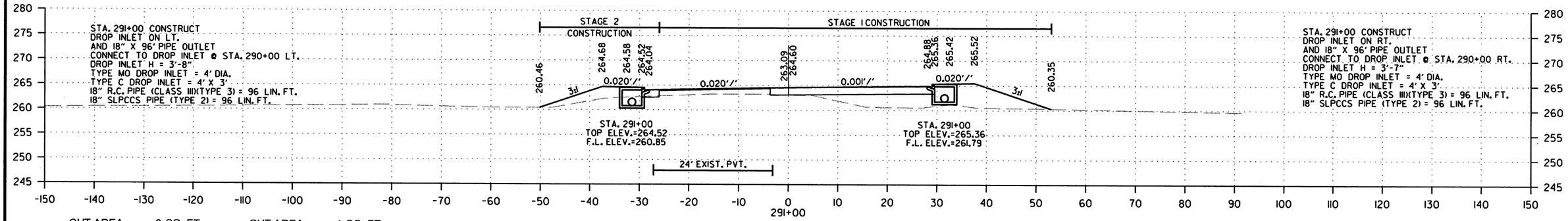
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	307	349

(2) CROSS SECTIONS



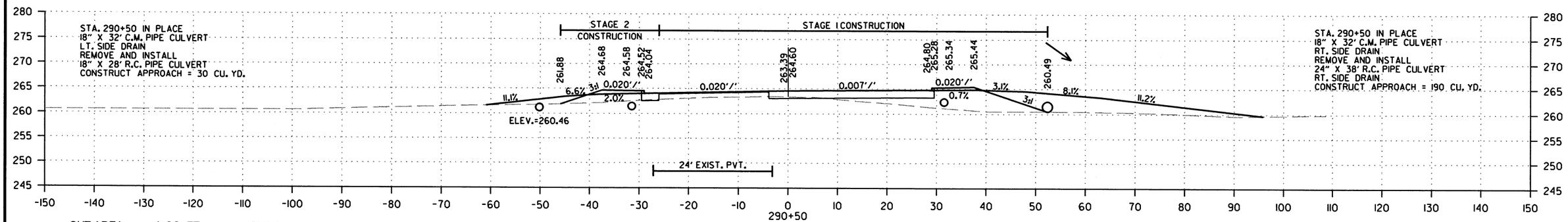
CUT AREA 0 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 99 SQ. FT. FILL AREA 28 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 419 CU. YD. FILL VOLUME 115 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 127 SQ. FT. FILL AREA 34 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 205 CU. YD. FILL VOLUME 57 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 94 SQ. FT. FILL AREA 28 SQ. FT.

CUT VOLUME 9 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 221 CU. YD. FILL VOLUME 59 CU. YD.

6/12/2019

R061509.DGN

HWY. 321
STA. 290+50 TO STA. 292+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.		061509	308	349

(2) CROSS SECTIONS

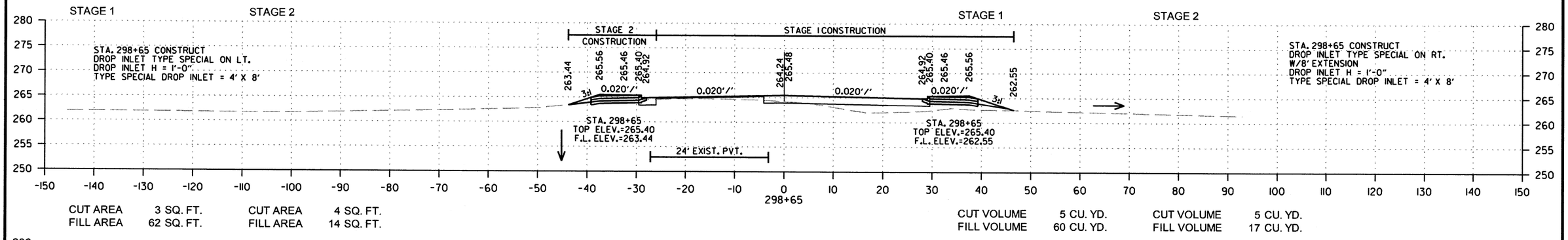
6/12/2019

R061509.DGN

HWY. 321
STA. 293+00 TO STA. 296+00

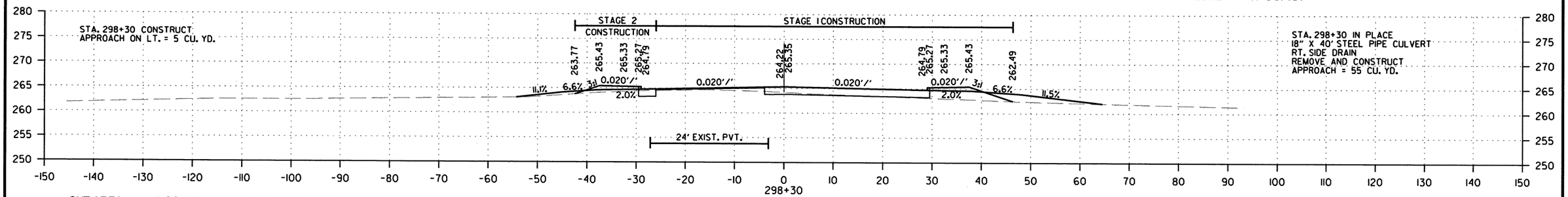
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	309	349

(2) CROSS SECTIONS



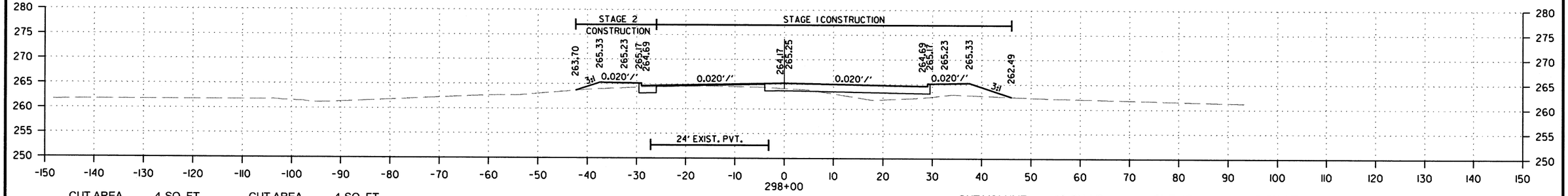
CUT AREA 3 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 62 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 5 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 60 CU. YD. FILL VOLUME 17 CU. YD.



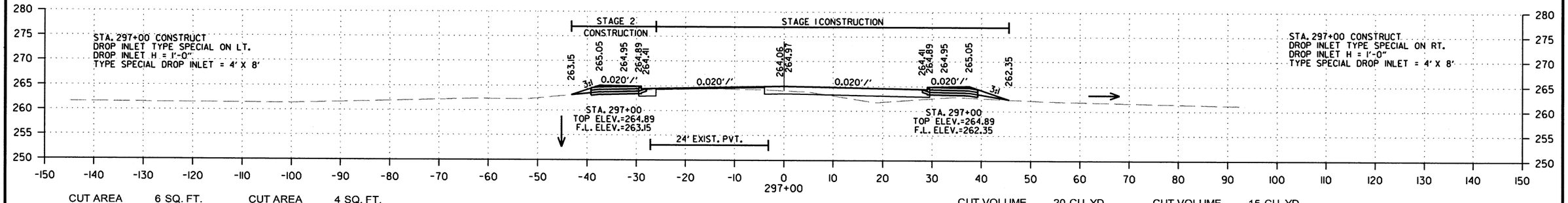
CUT AREA 5 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 31 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 5 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 47 CU. YD. FILL VOLUME 13 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 53 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 180 CU. YD. FILL VOLUME 44 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 44 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 20 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 163 CU. YD. FILL VOLUME 44 CU. YD.

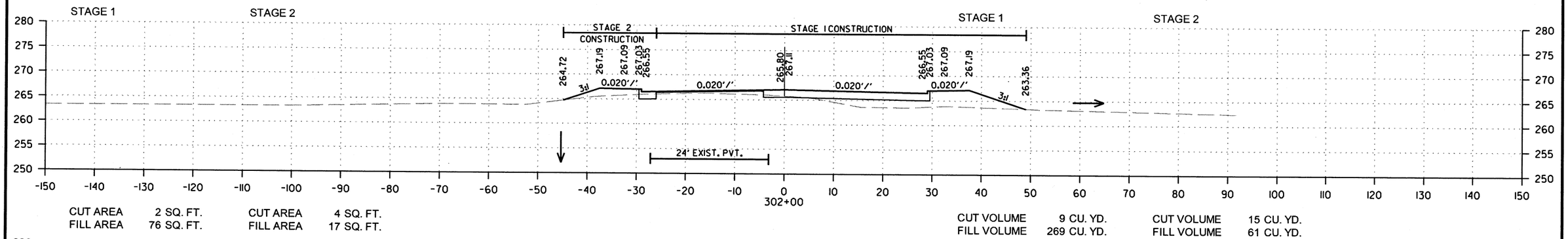
6/12/2019

R061509.DGN

HWY. 321
STA. 297+00 TO STA. 298+65

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	310	349

(2) CROSS SECTIONS

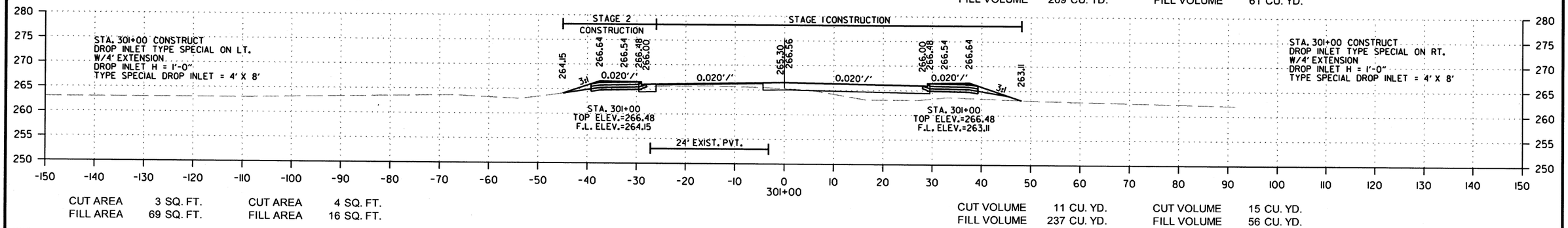


CUT AREA 2 SQ. FT. FILL AREA 76 SQ. FT.

CUT AREA 4 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 9 CU. YD. FILL VOLUME 269 CU. YD.

CUT VOLUME 15 CU. YD. FILL VOLUME 61 CU. YD.

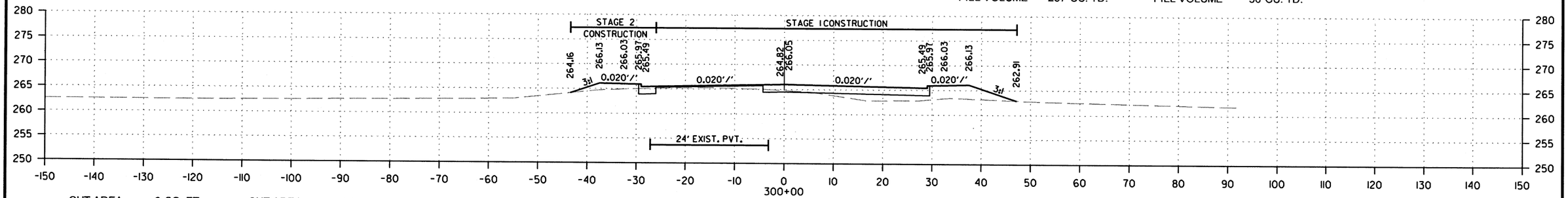


CUT AREA 3 SQ. FT. FILL AREA 69 SQ. FT.

CUT AREA 4 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 11 CU. YD. FILL VOLUME 237 CU. YD.

CUT VOLUME 15 CU. YD. FILL VOLUME 56 CU. YD.

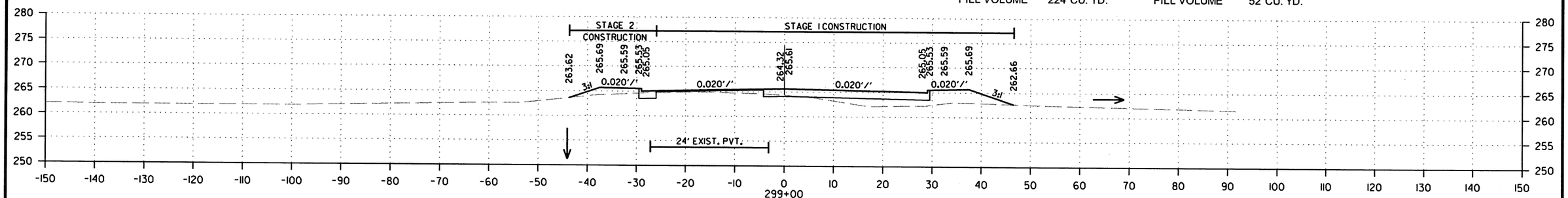


CUT AREA 3 SQ. FT. FILL AREA 59 SQ. FT.

CUT AREA 4 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 9 CU. YD. FILL VOLUME 224 CU. YD.

CUT VOLUME 15 CU. YD. FILL VOLUME 52 CU. YD.



CUT AREA 2 SQ. FT. FILL AREA 62 SQ. FT.

CUT AREA 4 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 3 CU. YD. FILL VOLUME 80 CU. YD.

CUT VOLUME 5 CU. YD. FILL VOLUME 18 CU. YD.

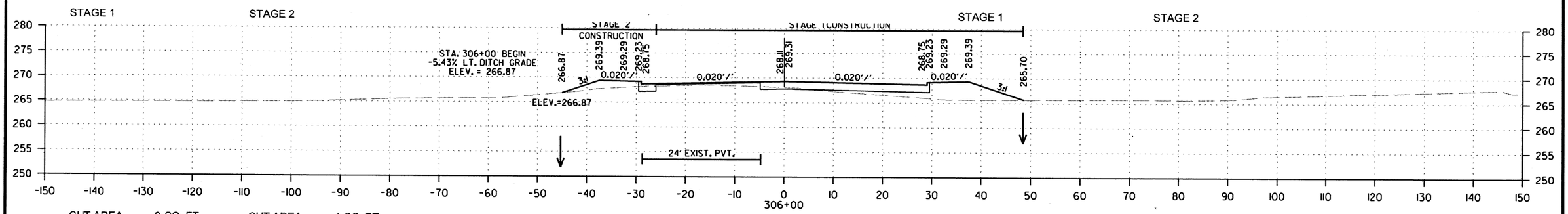
HWY. 321
STA. 299+00 TO STA. 302+00

6/12/2019

R061509.DGN

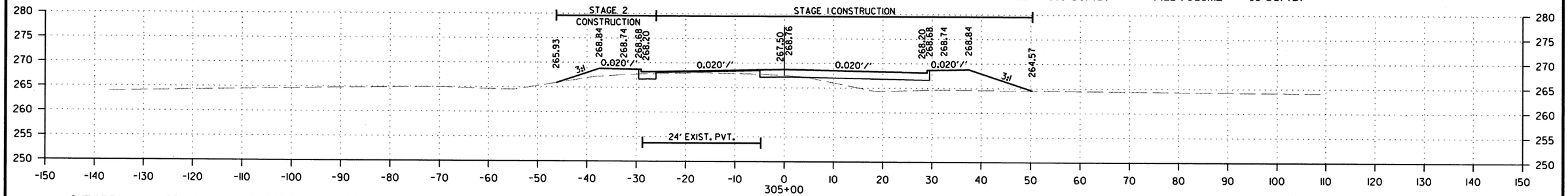
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	311	349

(2) CROSS SECTIONS



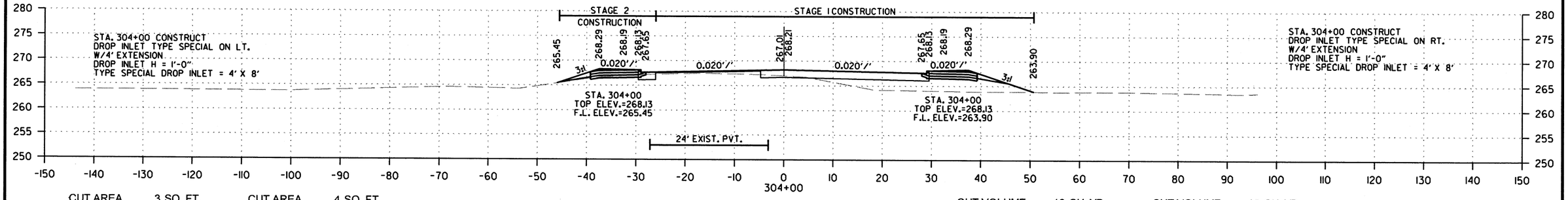
CUT AREA 3 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 65 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 309 CU. YD. FILL VOLUME 63 CU. YD.



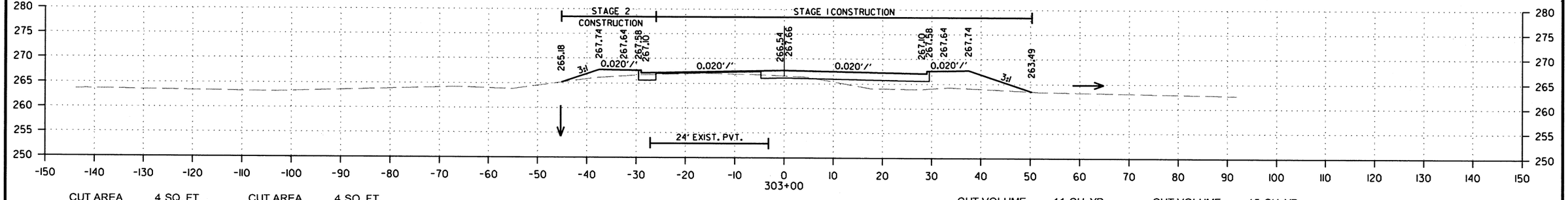
CUT AREA 3 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 102 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 374 CU. YD. FILL VOLUME 63 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 100 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 335 CU. YD. FILL VOLUME 61 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 81 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 291 CU. YD. FILL VOLUME 61 CU. YD.

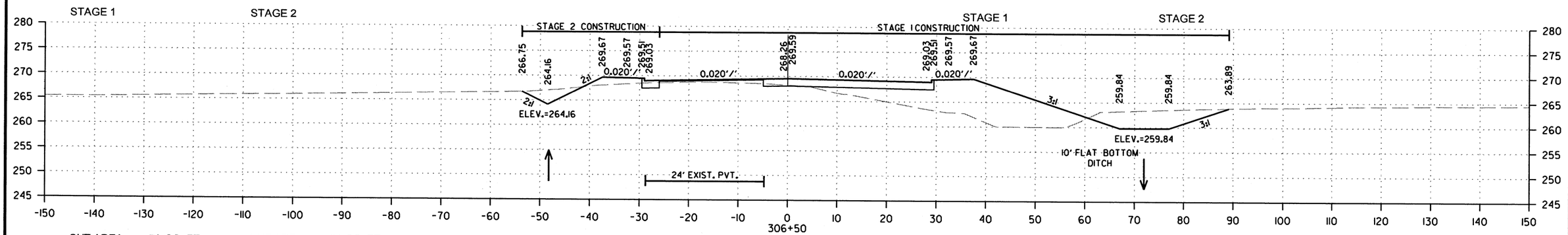
HWY. 321
STA. 303+00 TO STA. 306+00

6/12/2019

R061509.DGN

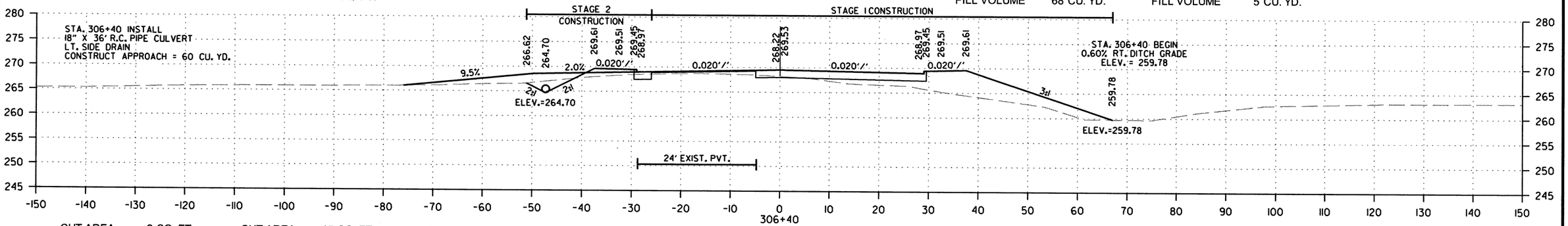
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	312	349

(2) CROSS SECTIONS



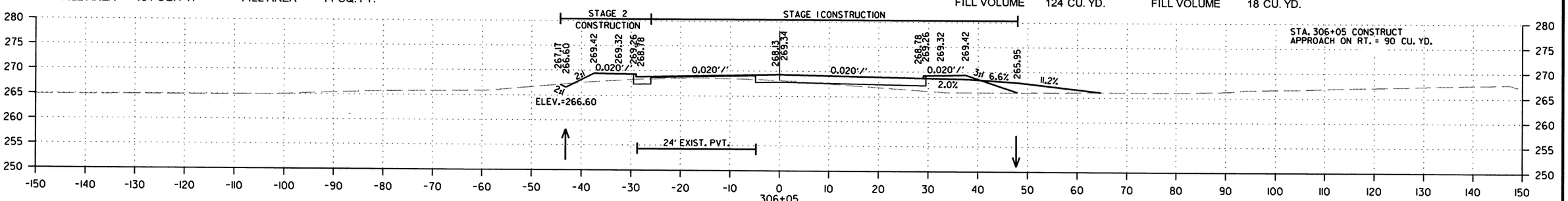
CUT AREA 73 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 235 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 14 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 68 CU. YD. FILL VOLUME 5 CU. YD.



CUT AREA 2 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 134 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 124 CU. YD. FILL VOLUME 18 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 57 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 1 CU. YD. CUT VOLUME 1 CU. YD.
FILL VOLUME 11 CU. YD. FILL VOLUME 3 CU. YD.

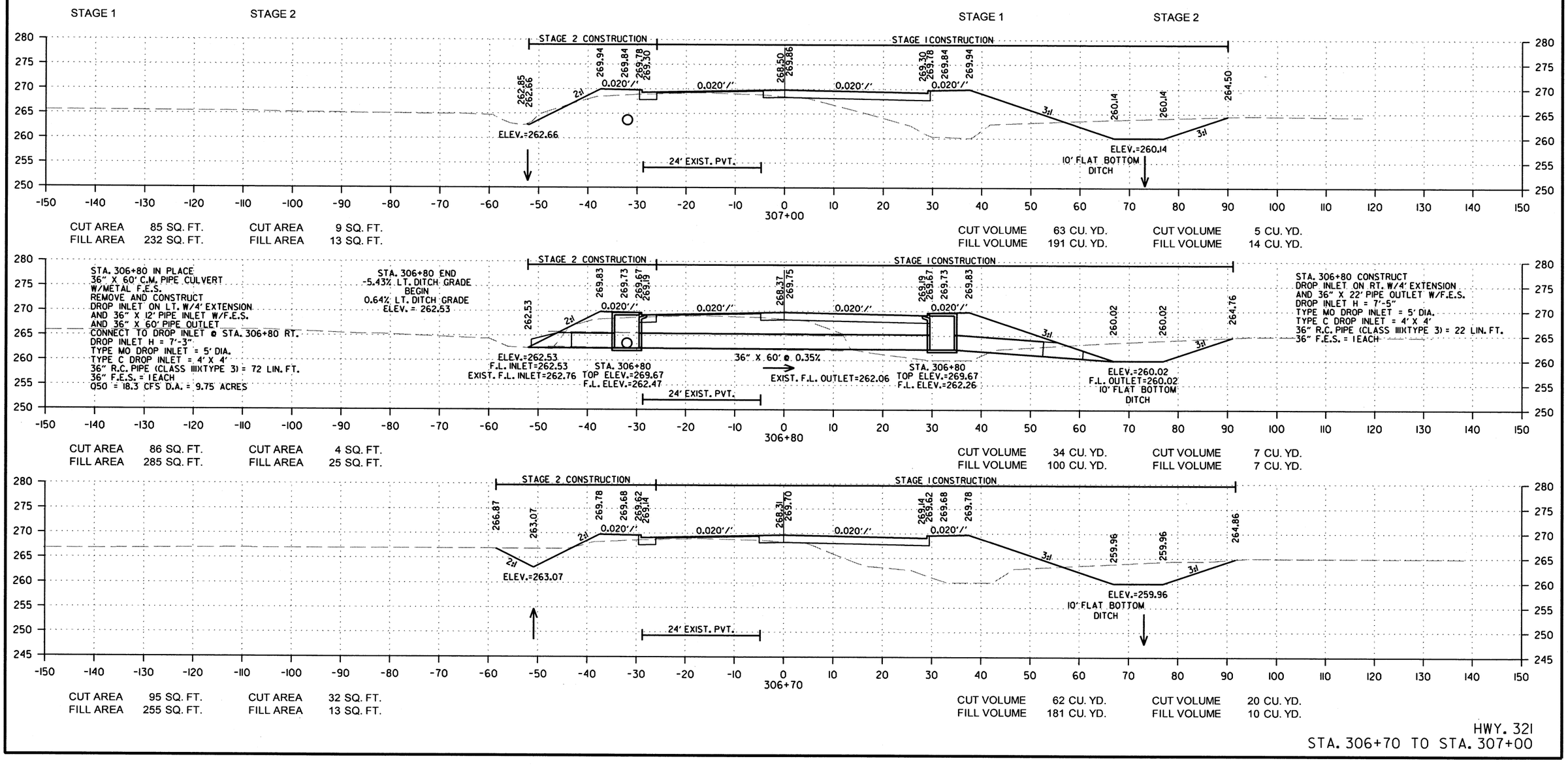
HWY. 321
STA. 306+05 TO STA. 306+50

6/12/2019

R061509.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.		061509	313	349

(2) CROSS SECTIONS



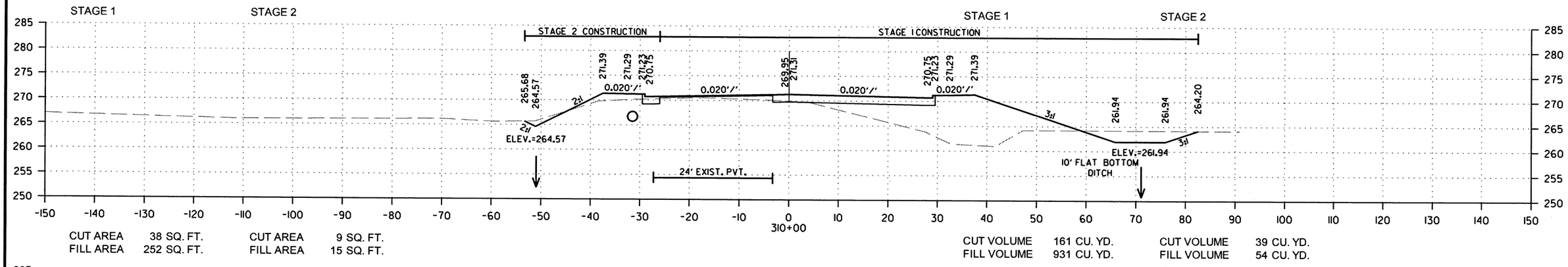
6/12/2019

R061509.DGN

HWY. 321
STA. 306+70 TO STA. 307+00

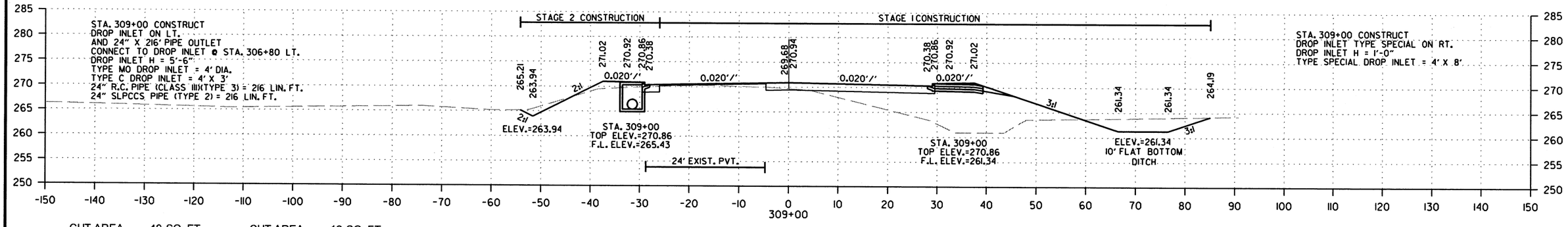
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	314	349

(2) CROSS SECTIONS



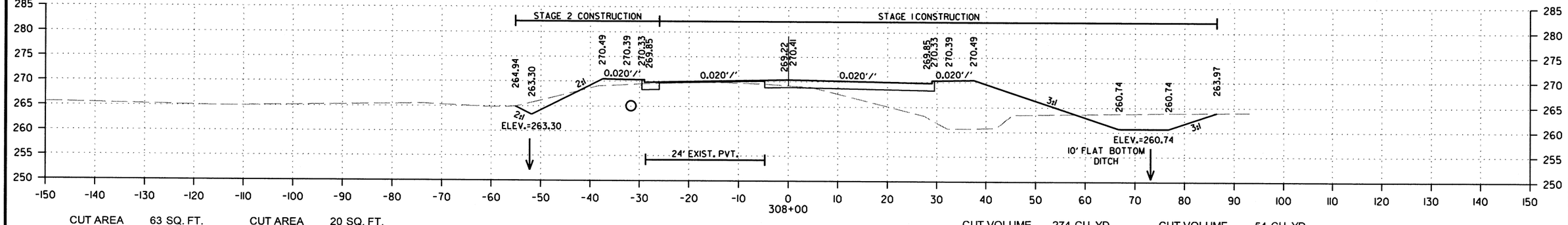
CUT AREA 38 SQ. FT. CUT AREA 9 SQ. FT.
FILL AREA 252 SQ. FT. FILL AREA 15 SQ. FT.

CUT VOLUME 161 CU. YD. CUT VOLUME 39 CU. YD.
FILL VOLUME 931 CU. YD. FILL VOLUME 54 CU. YD.



CUT AREA 49 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 251 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 207 CU. YD. CUT VOLUME 59 CU. YD.
FILL VOLUME 898 CU. YD. FILL VOLUME 48 CU. YD.



CUT AREA 63 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 234 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 274 CU. YD. CUT VOLUME 54 CU. YD.
FILL VOLUME 863 CU. YD. FILL VOLUME 46 CU. YD.

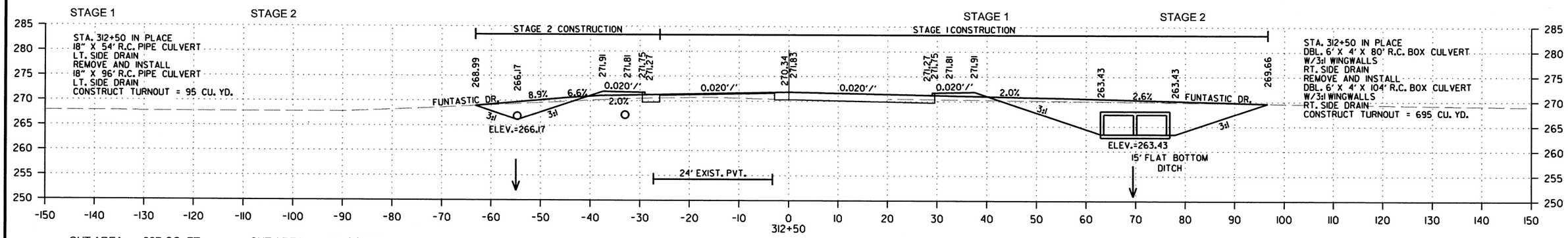
6/12/2019

R061509.DGN

HWY. 321
STA. 308+00 TO STA. 310+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.		061509	315	349

(2) CROSS SECTIONS



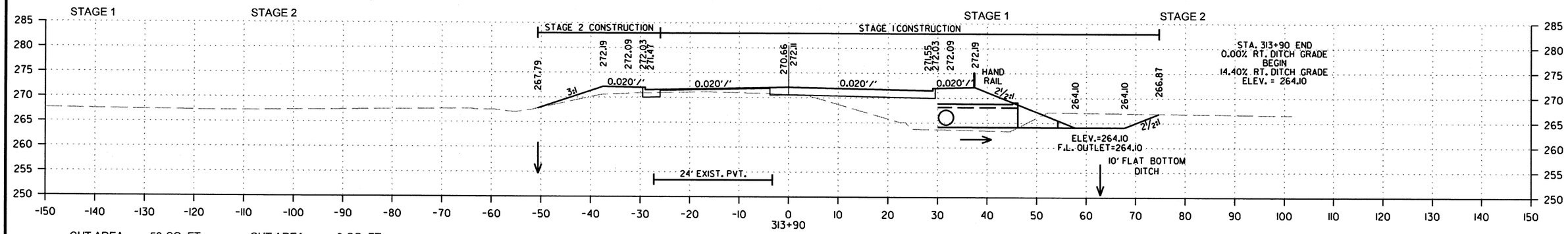
6/12/2019

R061509.DGN

HWY. 321
STA. 311+00 TO STA. 312+50

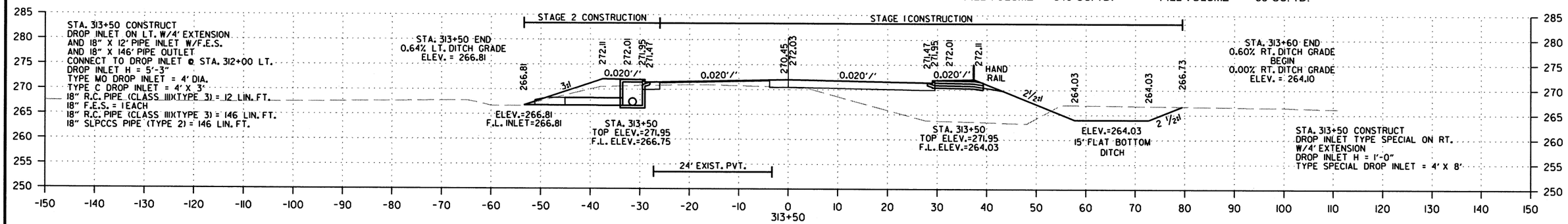
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	316	349

(2) CROSS SECTIONS



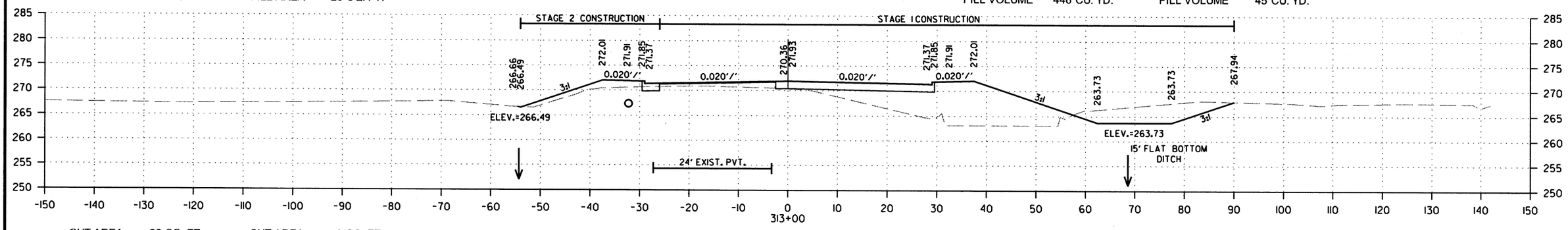
CUT AREA 50 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 232 SQ. FT. FILL AREA 21 SQ. FT.

CUT VOLUME 82 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 346 CU. YD. FILL VOLUME 33 CU. YD.



CUT AREA 61 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 235 SQ. FT. FILL AREA 23 SQ. FT.

CUT VOLUME 132 CU. YD. CUT VOLUME 6 CU. YD.
FILL VOLUME 446 CU. YD. FILL VOLUME 45 CU. YD.



CUT AREA 82 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 247 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 286 CU. YD. CUT VOLUME 35 CU. YD.
FILL VOLUME 244 CU. YD. FILL VOLUME 39 CU. YD.

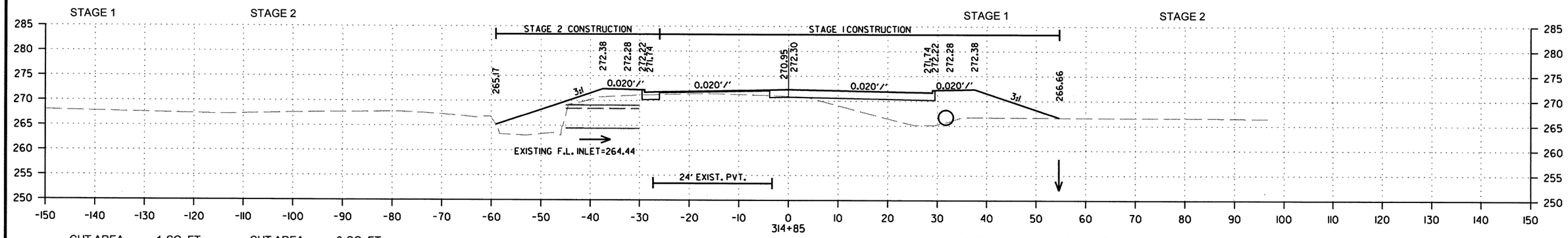
HWY. 321
STA. 313+00 TO STA. 313+90

6/12/2019

R061509.DGN

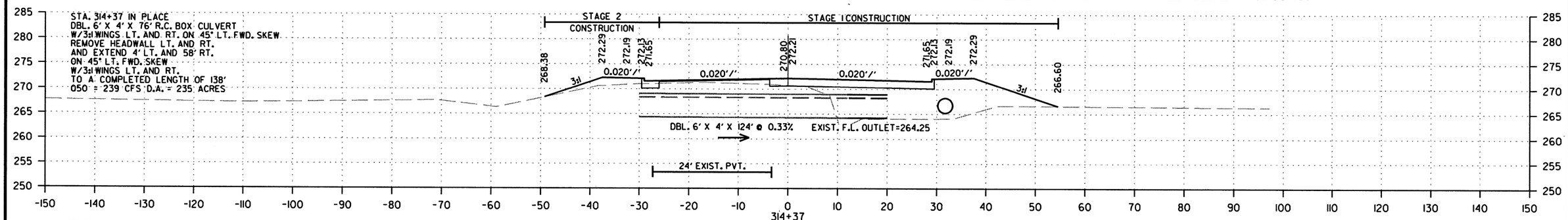
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	317	349

(2) CROSS SECTIONS



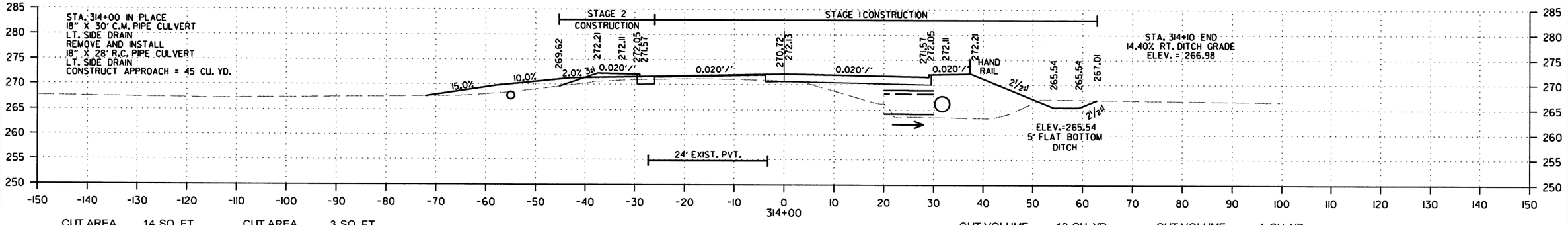
CUT AREA 1 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 176 SQ. FT. FILL AREA 78 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 380 CU. YD. FILL VOLUME 86 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 252 SQ. FT. FILL AREA 19 SQ. FT.

CUT VOLUME 10 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 332 CU. YD. FILL VOLUME 25 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 232 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 1 CU. YD.
FILL VOLUME 86 CU. YD. FILL VOLUME 7 CU. YD.

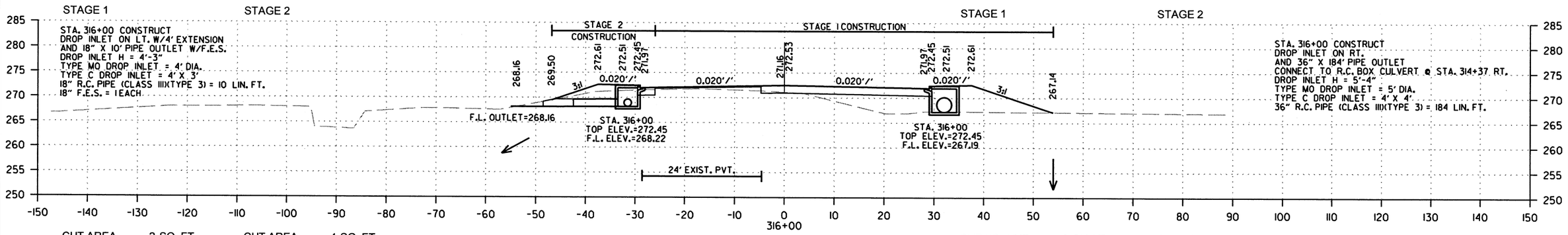
6/12/2019

R061509.DGN

HWY. 321
STA. 314+00 TO STA. 314+85

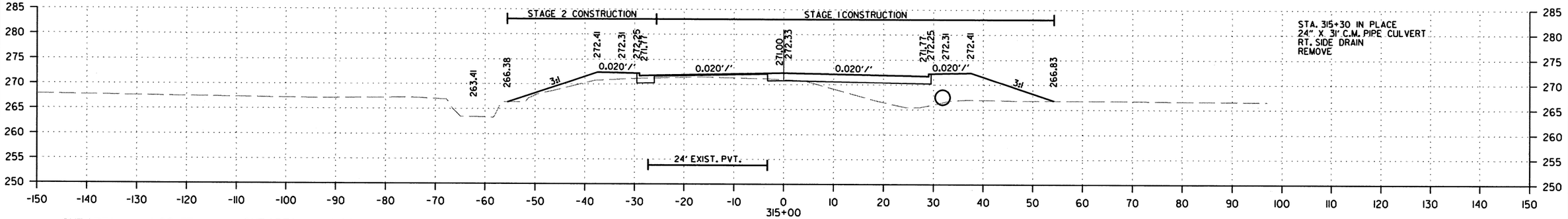
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	318	349

(2) CROSS SECTIONS



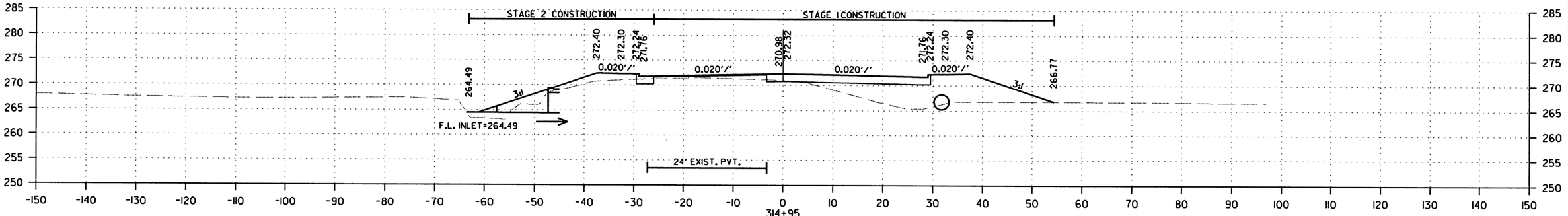
CUT AREA 2 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 150 SQ. FT. FILL AREA 16 SQ. FT.

CUT VOLUME 6 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 587 CU. YD. FILL VOLUME 78 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 167 SQ. FT. FILL AREA 26 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 1 CU. YD.
FILL VOLUME 31 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 171 SQ. FT. FILL AREA 51 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 1 CU. YD.
FILL VOLUME 64 CU. YD. FILL VOLUME 24 CU. YD.

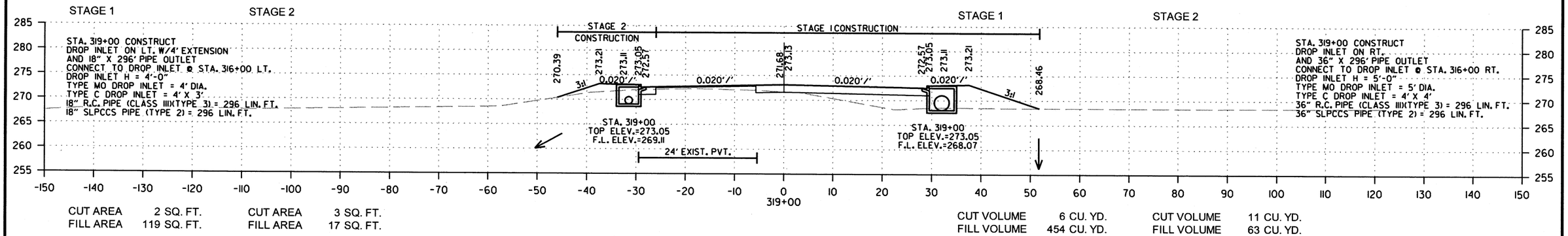
HWY. 321
STA. 314+95 TO STA. 316+00

6/12/2019

R061509.DGN

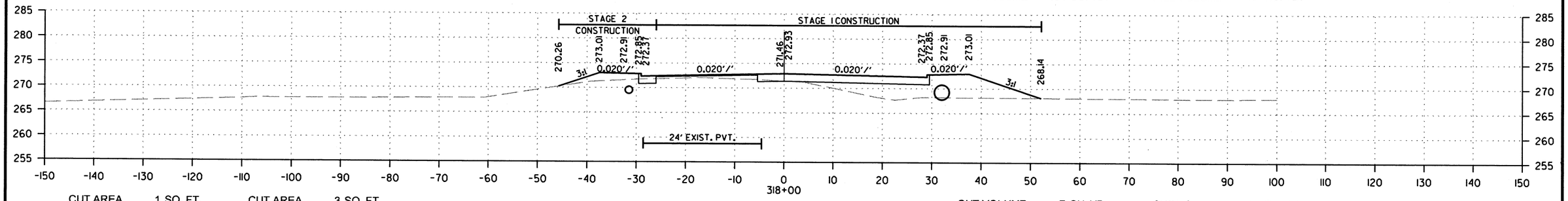
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	319	349

(2) CROSS SECTIONS



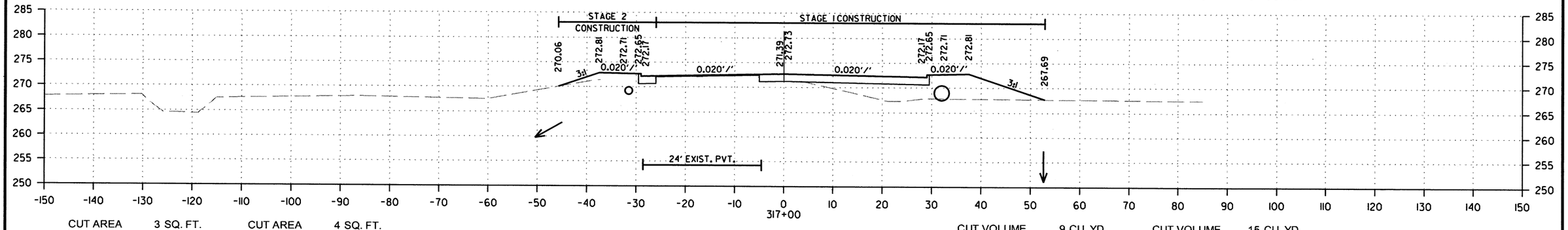
CUT AREA	2 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	119 SQ. FT.	FILL AREA	17 SQ. FT.

CUT VOLUME	6 CU. YD.	CUT VOLUME	11 CU. YD.
FILL VOLUME	454 CU. YD.	FILL VOLUME	63 CU. YD.



CUT AREA	1 SQ. FT.	CUT AREA	3 SQ. FT.
FILL AREA	126 SQ. FT.	FILL AREA	17 SQ. FT.

CUT VOLUME	7 CU. YD.	CUT VOLUME	13 CU. YD.
FILL VOLUME	483 CU. YD.	FILL VOLUME	57 CU. YD.



CUT AREA	3 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	135 SQ. FT.	FILL AREA	14 SQ. FT.

CUT VOLUME	9 CU. YD.	CUT VOLUME	15 CU. YD.
FILL VOLUME	528 CU. YD.	FILL VOLUME	56 CU. YD.

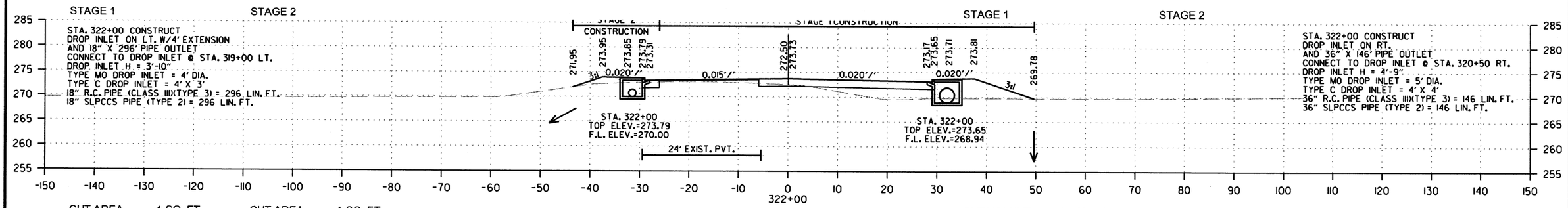
HWY. 321
STA. 317+00 TO STA. 319+00

6/12/2019

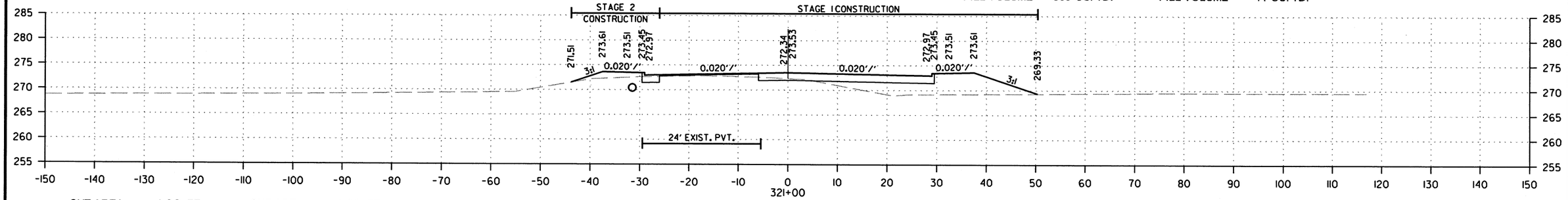
R061509.DGN

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.		061509	320	349

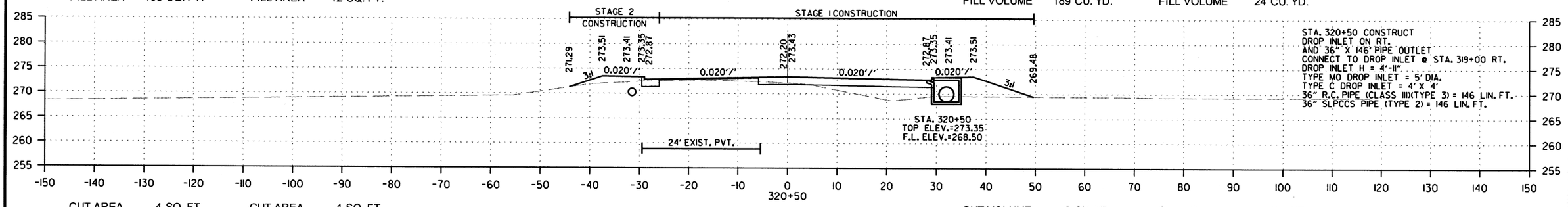
(2) CROSS SECTIONS



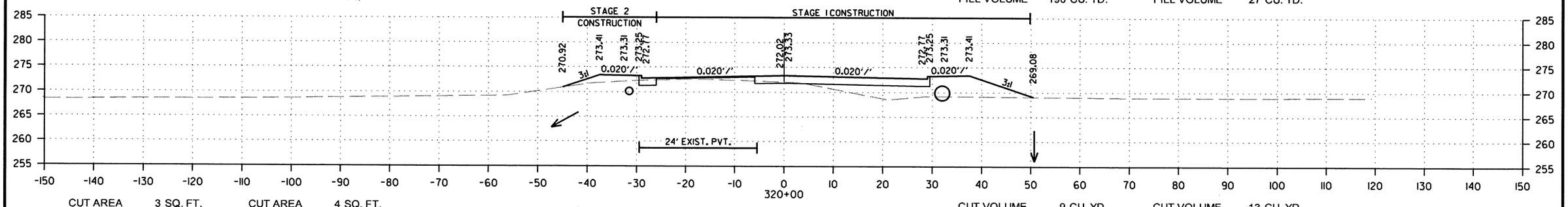
CUT AREA	4 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	94 SQ. FT.	FILL AREA	12 SQ. FT.
CUT VOLUME	15 CU. YD.	CUT VOLUME	15 CU. YD.
FILL VOLUME	369 CU. YD.	FILL VOLUME	44 CU. YD.



CUT AREA	4 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	105 SQ. FT.	FILL AREA	12 SQ. FT.
CUT VOLUME	7 CU. YD.	CUT VOLUME	7 CU. YD.
FILL VOLUME	189 CU. YD.	FILL VOLUME	24 CU. YD.



CUT AREA	4 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	99 SQ. FT.	FILL AREA	14 SQ. FT.
CUT VOLUME	6 CU. YD.	CUT VOLUME	7 CU. YD.
FILL VOLUME	190 CU. YD.	FILL VOLUME	27 CU. YD.



CUT AREA	3 SQ. FT.	CUT AREA	4 SQ. FT.
FILL AREA	106 SQ. FT.	FILL AREA	15 SQ. FT.
CUT VOLUME	9 CU. YD.	CUT VOLUME	13 CU. YD.
FILL VOLUME	417 CU. YD.	FILL VOLUME	59 CU. YD.

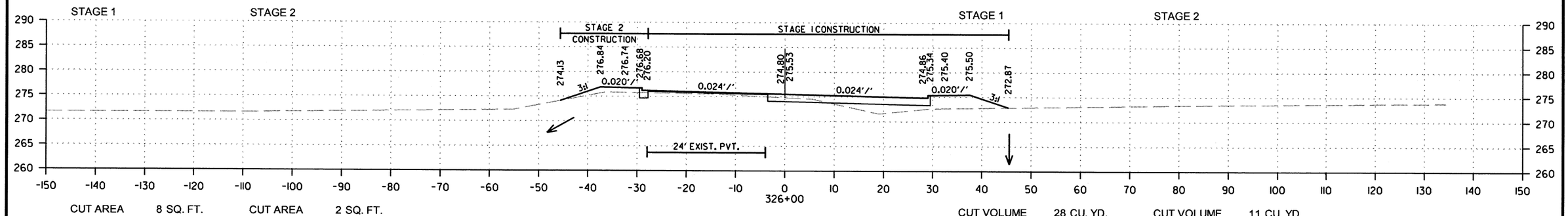
HWY. 321
STA. 320+00 TO STA. 322+00

6/12/2019

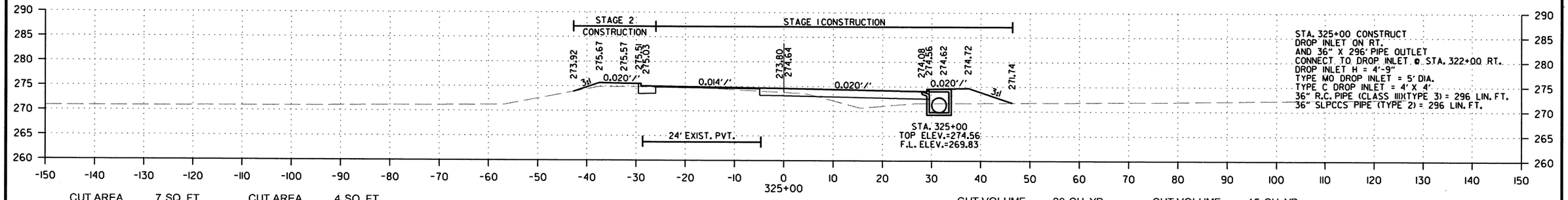
R061509.DGN

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.		061509	321	349

(2) CROSS SECTIONS

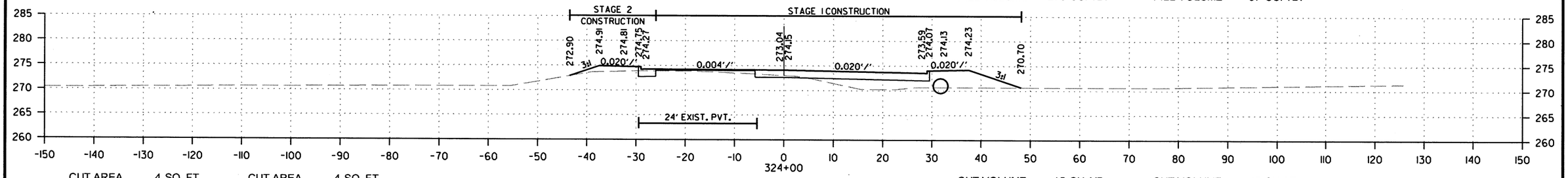


CUT AREA 8 SQ. FT. FILL AREA 57 SQ. FT.
CUT AREA 2 SQ. FT. FILL AREA 13 SQ. FT.
CUT VOLUME 28 CU. YD. FILL VOLUME 230 CU. YD.
CUT VOLUME 11 CU. YD. FILL VOLUME 39 CU. YD.

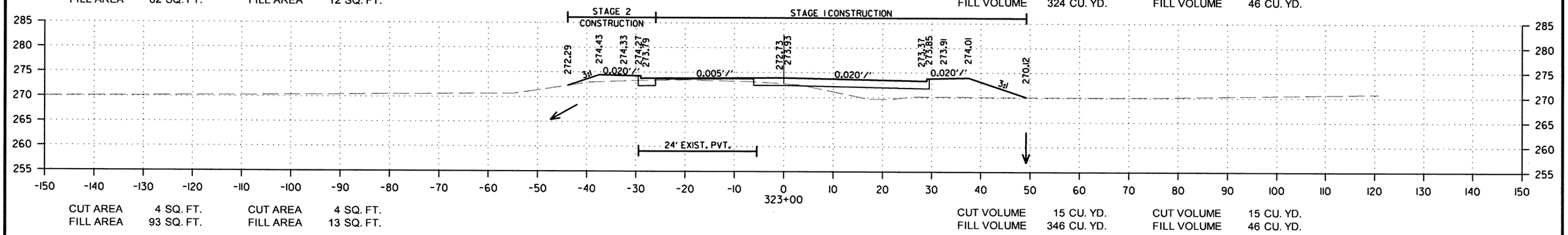


STA. 325+00 CONSTRUCT
DROP INLET ON RT.
AND 36" X 296' PIPE OUTLET
CONNECT TO DROP INLET @ STA. 322+00 RT.
DROP INLET H = 4'-9"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 296 LIN. FT.
36" SLPCCS PIPE (TYPE 2) = 296 LIN. FT.

CUT AREA 7 SQ. FT. FILL AREA 67 SQ. FT.
CUT AREA 4 SQ. FT. FILL AREA 8 SQ. FT.
CUT VOLUME 20 CU. YD. FILL VOLUME 276 CU. YD.
CUT VOLUME 15 CU. YD. FILL VOLUME 37 CU. YD.



CUT AREA 4 SQ. FT. FILL AREA 82 SQ. FT.
CUT AREA 4 SQ. FT. FILL AREA 12 SQ. FT.
CUT VOLUME 15 CU. YD. FILL VOLUME 324 CU. YD.
CUT VOLUME 15 CU. YD. FILL VOLUME 46 CU. YD.



CUT AREA 4 SQ. FT. FILL AREA 93 SQ. FT.
CUT AREA 4 SQ. FT. FILL AREA 13 SQ. FT.
CUT VOLUME 15 CU. YD. FILL VOLUME 346 CU. YD.
CUT VOLUME 15 CU. YD. FILL VOLUME 46 CU. YD.

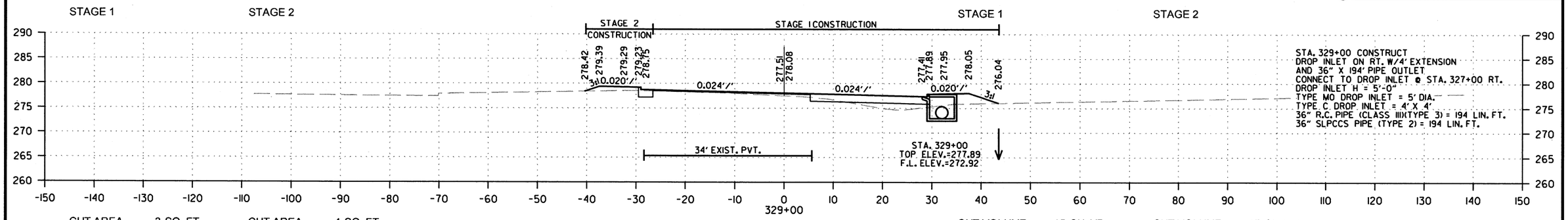
HWY. 321
STA. 323+00 TO STA. 326+00

6/12/2019

R061509.DGN

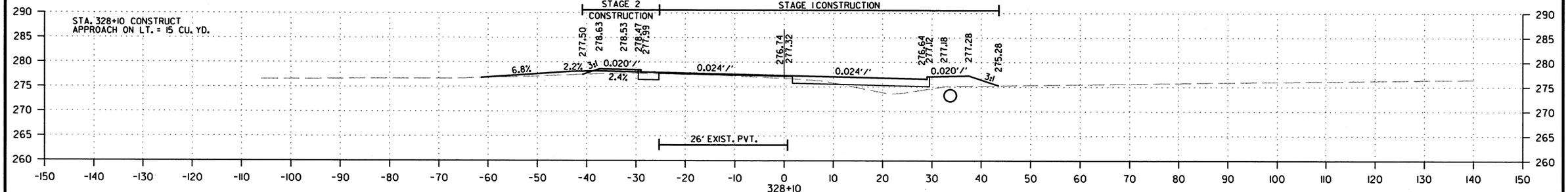
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	322	349

(2) CROSS SECTIONS



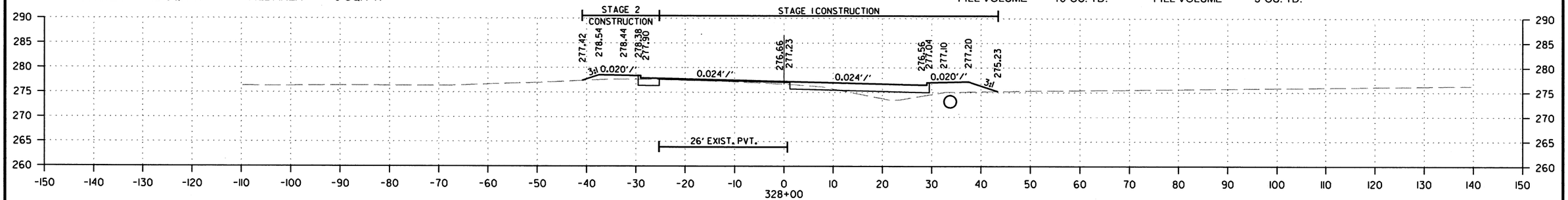
CUT AREA 3 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 40 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 15 CU. YD. CUT VOLUME 15 CU. YD.
FILL VOLUME 137 CU. YD. FILL VOLUME 27 CU. YD.



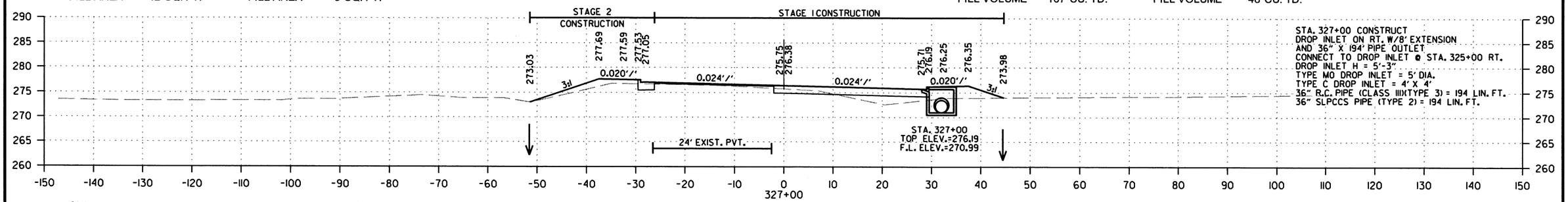
CUT AREA 6 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 16 CU. YD. FILL VOLUME 3 CU. YD.



CUT AREA 6 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 8 SQ. FT.

CUT VOLUME 26 CU. YD. CUT VOLUME 17 CU. YD.
FILL VOLUME 167 CU. YD. FILL VOLUME 48 CU. YD.



CUT AREA 8 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 48 SQ. FT. FILL AREA 18 SQ. FT.

CUT VOLUME 30 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 194 CU. YD. FILL VOLUME 57 CU. YD.

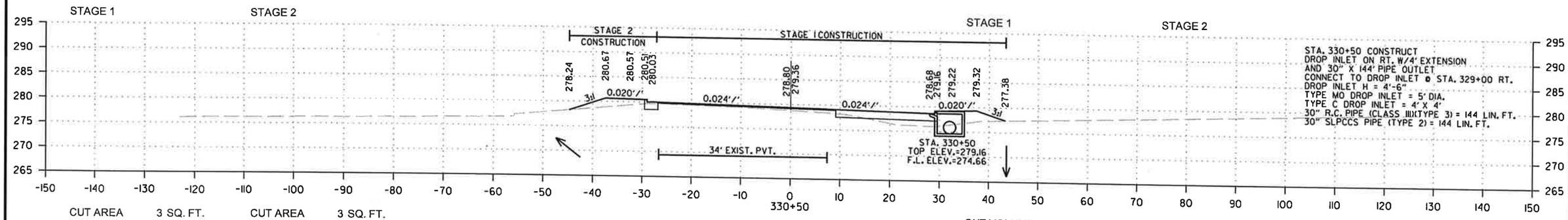
HWY. 321
STA. 327+00 TO STA. 329+00

6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	323	349

(2) CROSS SECTIONS

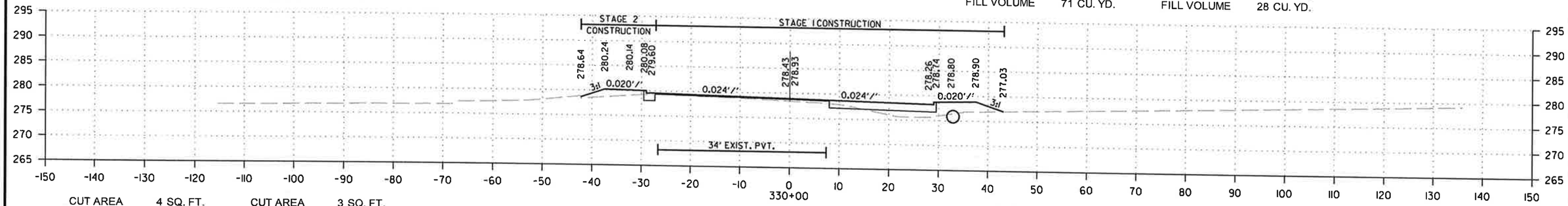


CUT AREA 3 SQ. FT. FILL AREA 40 SQ. FT.

CUT AREA 3 SQ. FT. FILL AREA 17 SQ. FT.

CUT VOLUME 6 CU. YD. FILL VOLUME 71 CU. YD.

CUT VOLUME 6 CU. YD. FILL VOLUME 28 CU. YD.

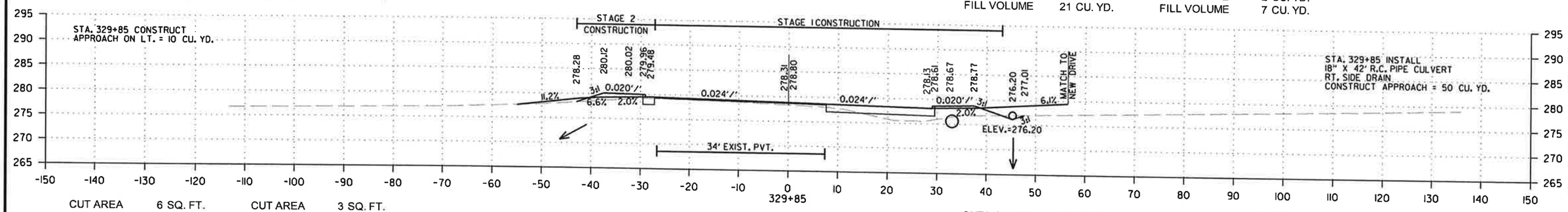


CUT AREA 4 SQ. FT. FILL AREA 37 SQ. FT.

CUT AREA 3 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 3 CU. YD. FILL VOLUME 21 CU. YD.

CUT VOLUME 2 CU. YD. FILL VOLUME 7 CU. YD.



CUT AREA 6 SQ. FT. FILL AREA 37 SQ. FT.

CUT AREA 3 SQ. FT. FILL AREA 13 SQ. FT.

CUT VOLUME 14 CU. YD. FILL VOLUME 121 CU. YD.

CUT VOLUME 11 CU. YD. FILL VOLUME 33 CU. YD.

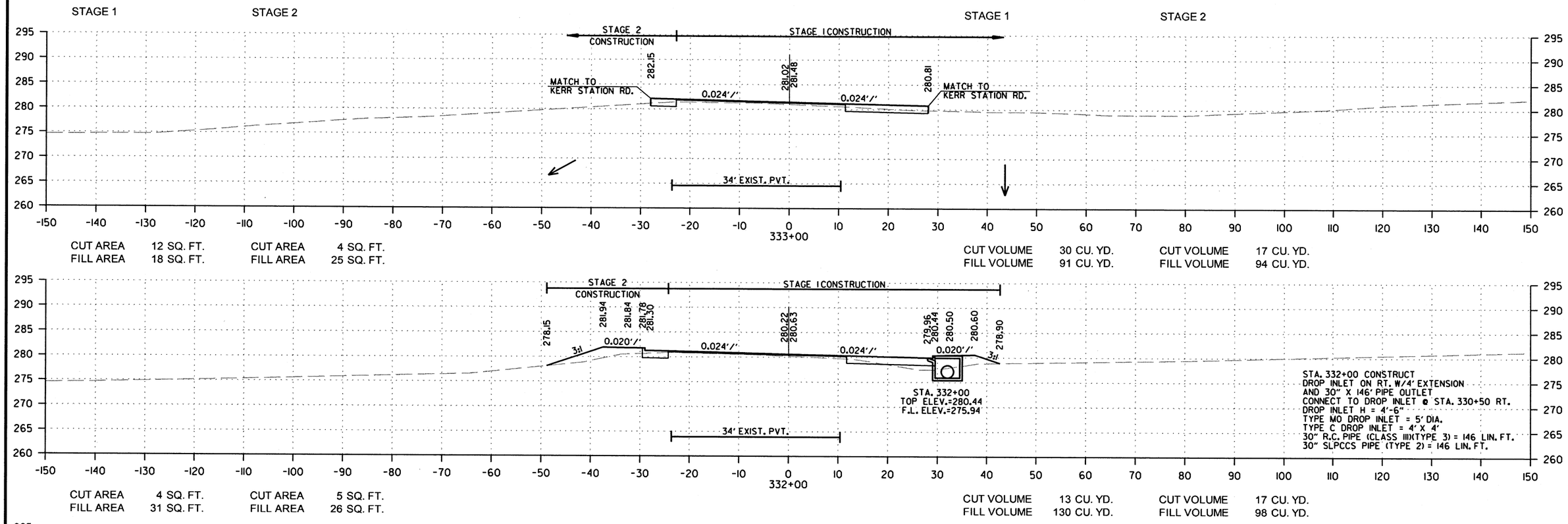
HWY. 321
STA. 329+85 TO STA. 330+50

7/16/2019

R061509.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.		061509	324	349

(2) CROSS SECTIONS



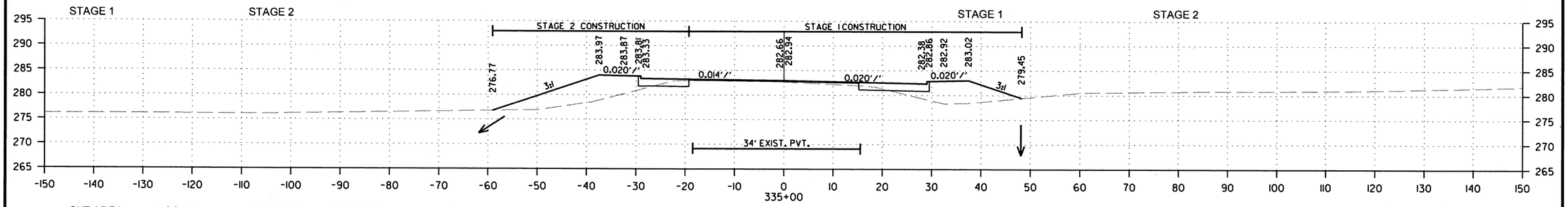
HWY. 321
STA. 331+00 TO STA. 333+00

6/12/2019

R061509.DGN

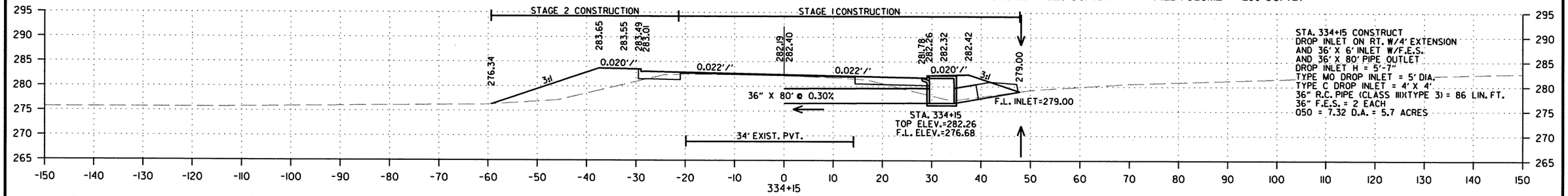
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	325	349

(2) CROSS SECTIONS



CUT AREA 3 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 68 SQ. FT. FILL AREA 97 SQ. FT.

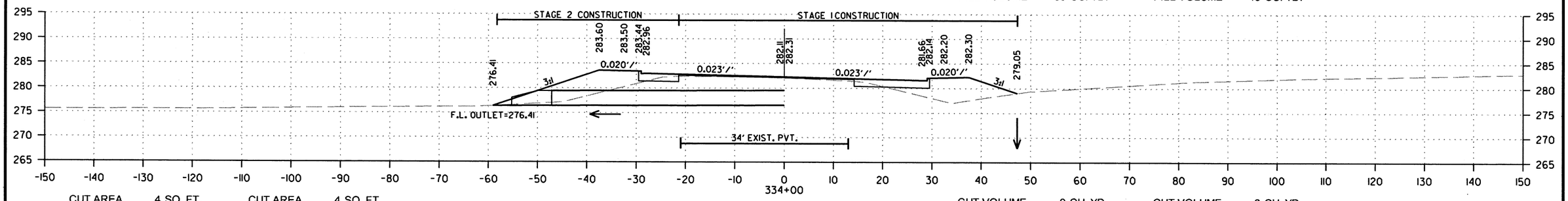
CUT VOLUME 11 CU. YD. CUT VOLUME 17 CU. YD.
FILL VOLUME 220 CU. YD. FILL VOLUME 290 CU. YD.



STA. 334+15 CONSTRUCT
DROP INLET ON RT. W/4' EXTENSION
AND 36' X 6' INLET W/F.E.S.
AND 36' X 80' PIPE OUTLET
DROP INLET H = 5'-7"
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 4' X 4'
36" R.C. PIPE (CLASS III)(TYPE 3) = 86 LIN. FT.
36" F.E.S. = 2 EACH
050 = 7.32 D.A. = 5.7 ACRES

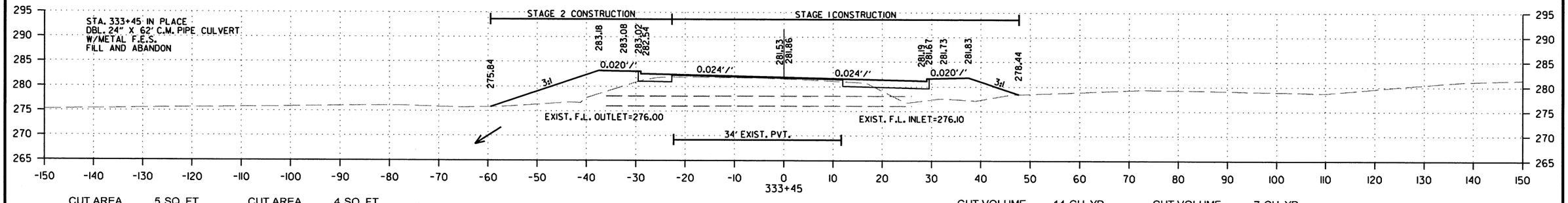
CUT AREA 4 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 72 SQ. FT. FILL AREA 87 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 3 CU. YD.
FILL VOLUME 39 CU. YD. FILL VOLUME 49 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 70 SQ. FT. FILL AREA 88 SQ. FT.

CUT VOLUME 9 CU. YD. CUT VOLUME 8 CU. YD.
FILL VOLUME 154 CU. YD. FILL VOLUME 182 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 4 SQ. FT.
FILL AREA 81 SQ. FT. FILL AREA 91 SQ. FT.

CUT VOLUME 14 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 83 CU. YD. FILL VOLUME 97 CU. YD.

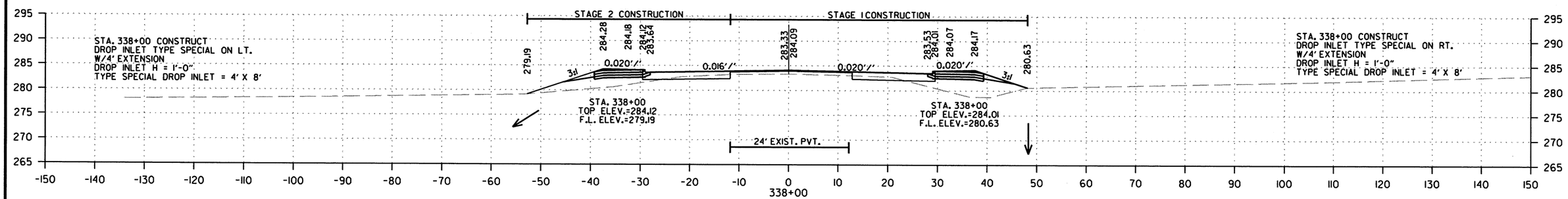
HWY. 321
STA. 333+45 TO STA. 335+00

6/12/2019
R061509.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.		061509	326	349

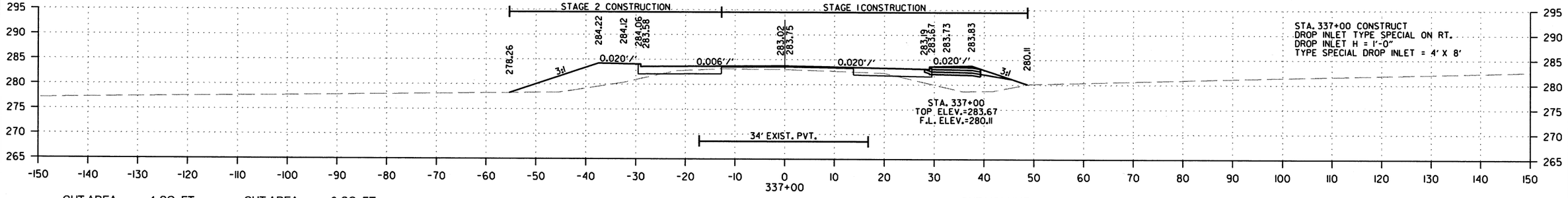
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 1 STAGE 2



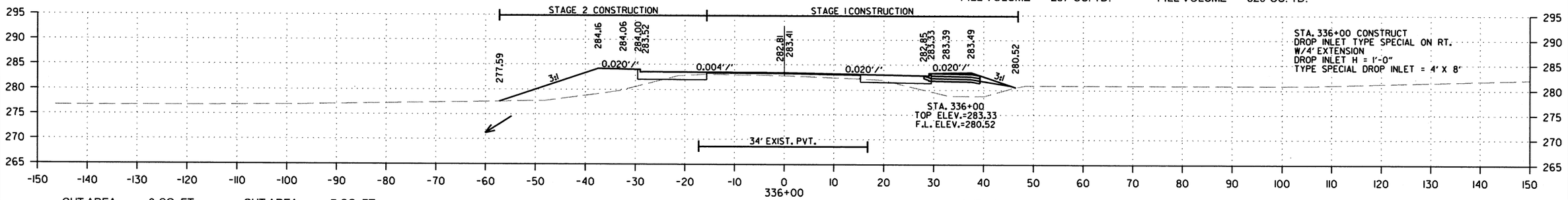
CUT AREA 6 SQ. FT. CUT AREA 7 SQ. FT.
FILL AREA 72 SQ. FT. FILL AREA 56 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 28 CU. YD.
FILL VOLUME 269 CU. YD. FILL VOLUME 252 CU. YD.



CUT AREA 4 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 73 SQ. FT. FILL AREA 80 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 28 CU. YD.
FILL VOLUME 257 CU. YD. FILL VOLUME 320 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 7 SQ. FT.
FILL AREA 66 SQ. FT. FILL AREA 93 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 24 CU. YD.
FILL VOLUME 248 CU. YD. FILL VOLUME 352 CU. YD.

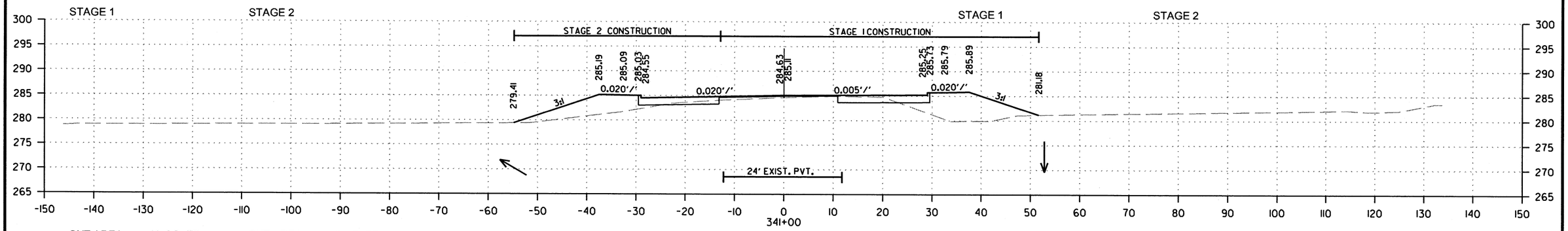
HWY. 321
STA. 336+00 TO STA. 338+00

6/12/2019

R061509.DGN

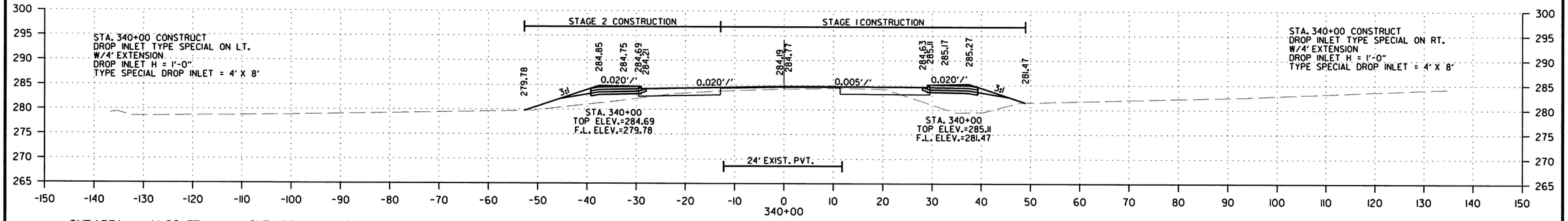
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	327	349

(2) CROSS SECTIONS



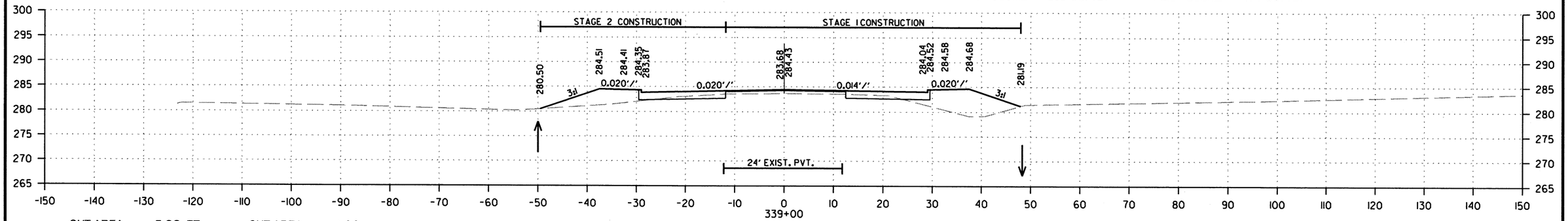
CUT AREA 13 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 94 SQ. FT. FILL AREA 68 SQ. FT.

CUT VOLUME 44 CU. YD. CUT VOLUME 22 CU. YD.
FILL VOLUME 326 CU. YD. FILL VOLUME 222 CU. YD.



CUT AREA 11 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 82 SQ. FT. FILL AREA 52 SQ. FT.

CUT VOLUME 33 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 285 CU. YD. FILL VOLUME 174 CU. YD.



CUT AREA 7 SQ. FT. CUT AREA 8 SQ. FT.
FILL AREA 72 SQ. FT. FILL AREA 42 SQ. FT.

CUT VOLUME 24 CU. YD. CUT VOLUME 28 CU. YD.
FILL VOLUME 267 CU. YD. FILL VOLUME 181 CU. YD.

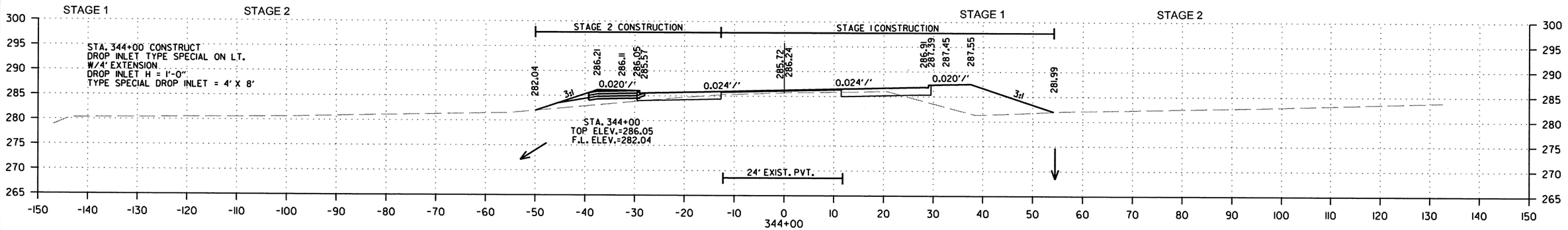
HWY. 321
STA. 339+00 TO STA. 341+00

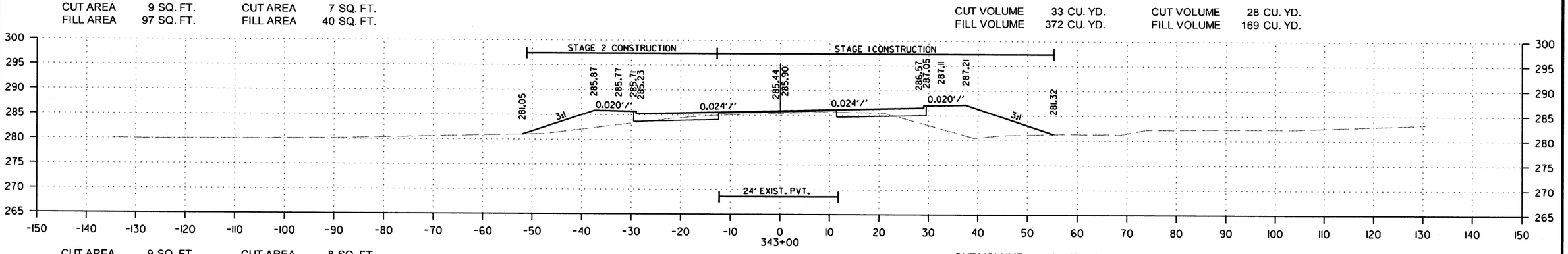
6/12/2019

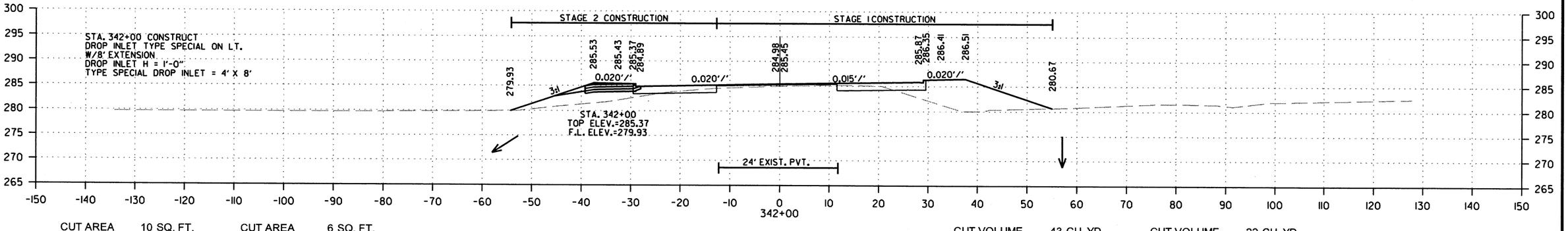
R061509.DGN

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.		061509	328	349

(2) CROSS SECTIONS







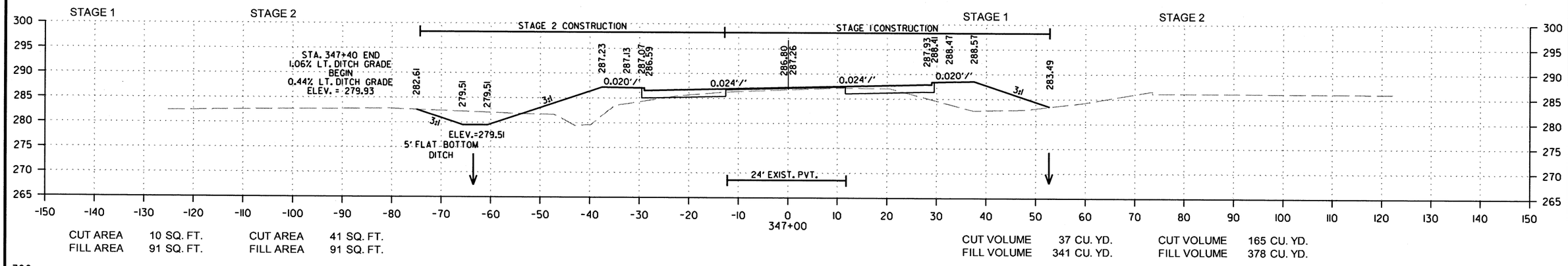
HWY. 321
STA. 342+00 TO STA. 344+00

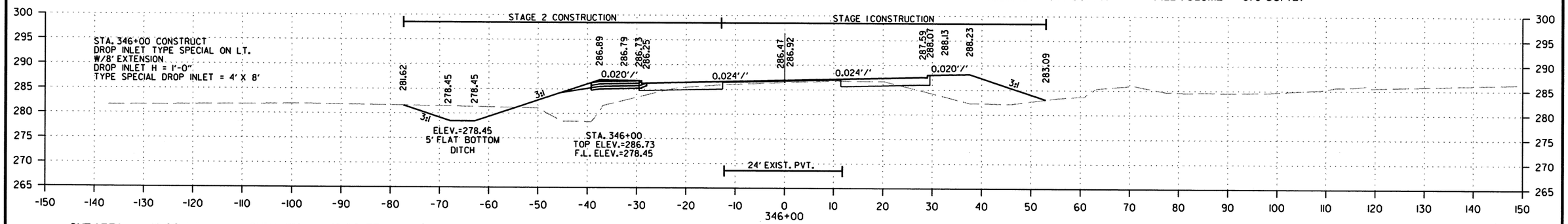
6/12/2019

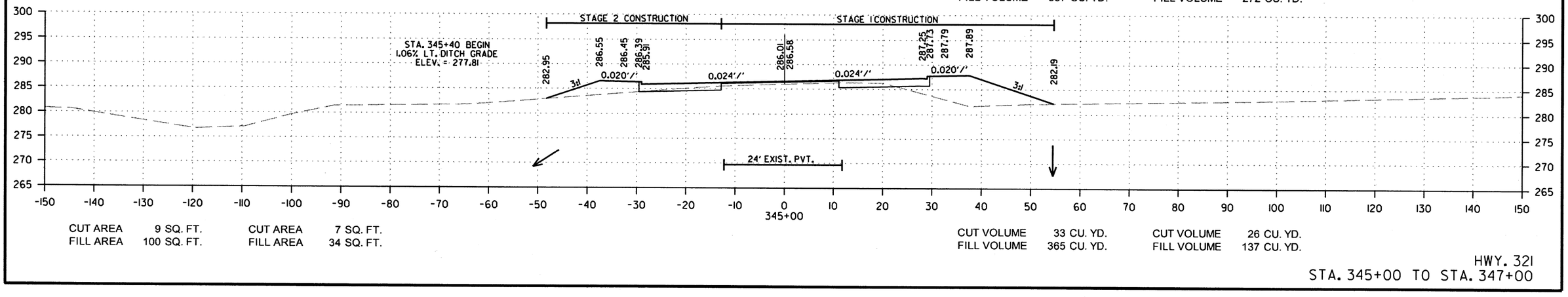
R061509.DGN

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.		061509	329	349

(2) CROSS SECTIONS







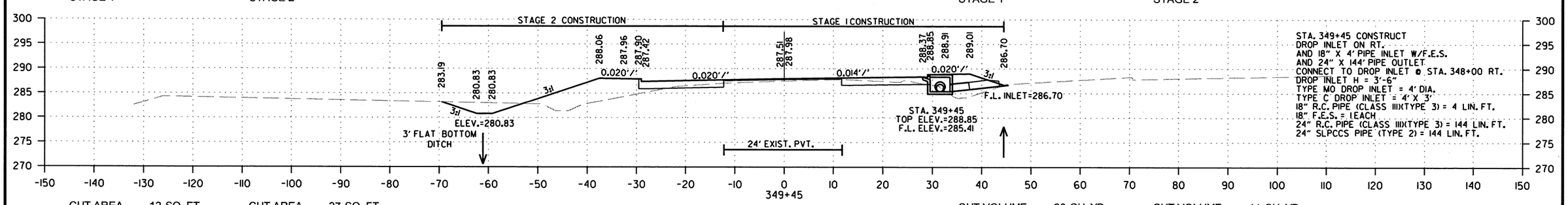
6/12/2019

R061509.DGN

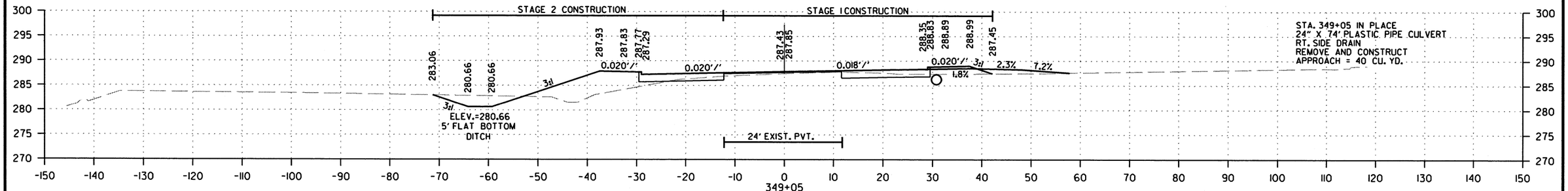
HWY. 321
STA. 345+00 TO STA. 347+00

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.		061509	330	349

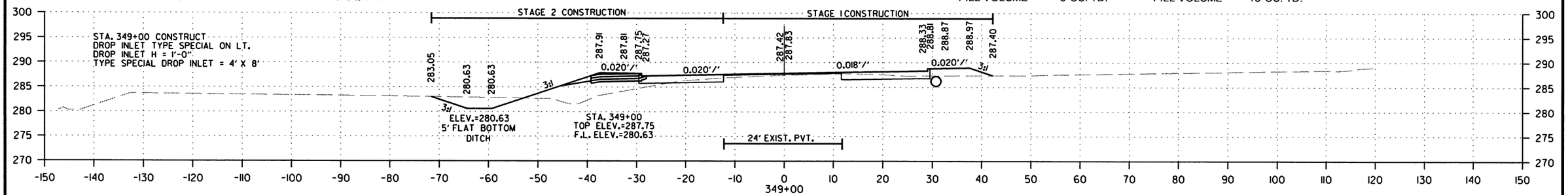
(2) CROSS SECTIONS



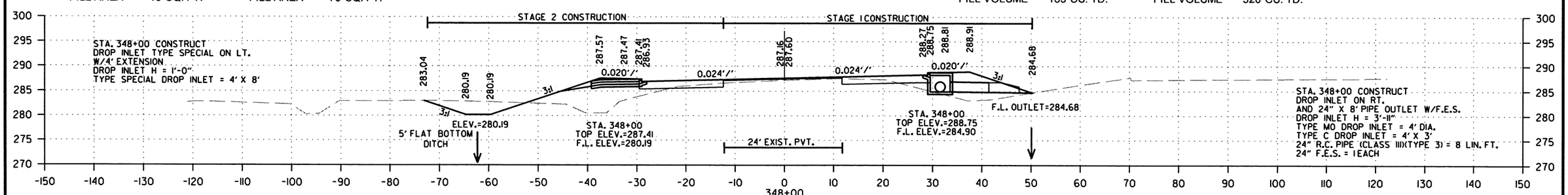
CUT AREA	12 SQ. FT.	CUT AREA	27 SQ. FT.	CUT VOLUME	20 CU. YD.	CUT VOLUME	44 CU. YD.
FILL AREA	46 SQ. FT.	FILL AREA	82 SQ. FT.	FILL VOLUME	46 CU. YD.	FILL VOLUME	119 CU. YD.



CUT AREA	15 SQ. FT.	CUT AREA	32 SQ. FT.	CUT VOLUME	3 CU. YD.	CUT VOLUME	6 CU. YD.
FILL AREA	16 SQ. FT.	FILL AREA	79 SQ. FT.	FILL VOLUME	3 CU. YD.	FILL VOLUME	15 CU. YD.



CUT AREA	15 SQ. FT.	CUT AREA	32 SQ. FT.	CUT VOLUME	44 CU. YD.	CUT VOLUME	133 CU. YD.
FILL AREA	16 SQ. FT.	FILL AREA	79 SQ. FT.	FILL VOLUME	183 CU. YD.	FILL VOLUME	320 CU. YD.



CUT AREA	9 SQ. FT.	CUT AREA	40 SQ. FT.	CUT VOLUME	35 CU. YD.	CUT VOLUME	150 CU. YD.
FILL AREA	83 SQ. FT.	FILL AREA	94 SQ. FT.	FILL VOLUME	322 CU. YD.	FILL VOLUME	343 CU. YD.

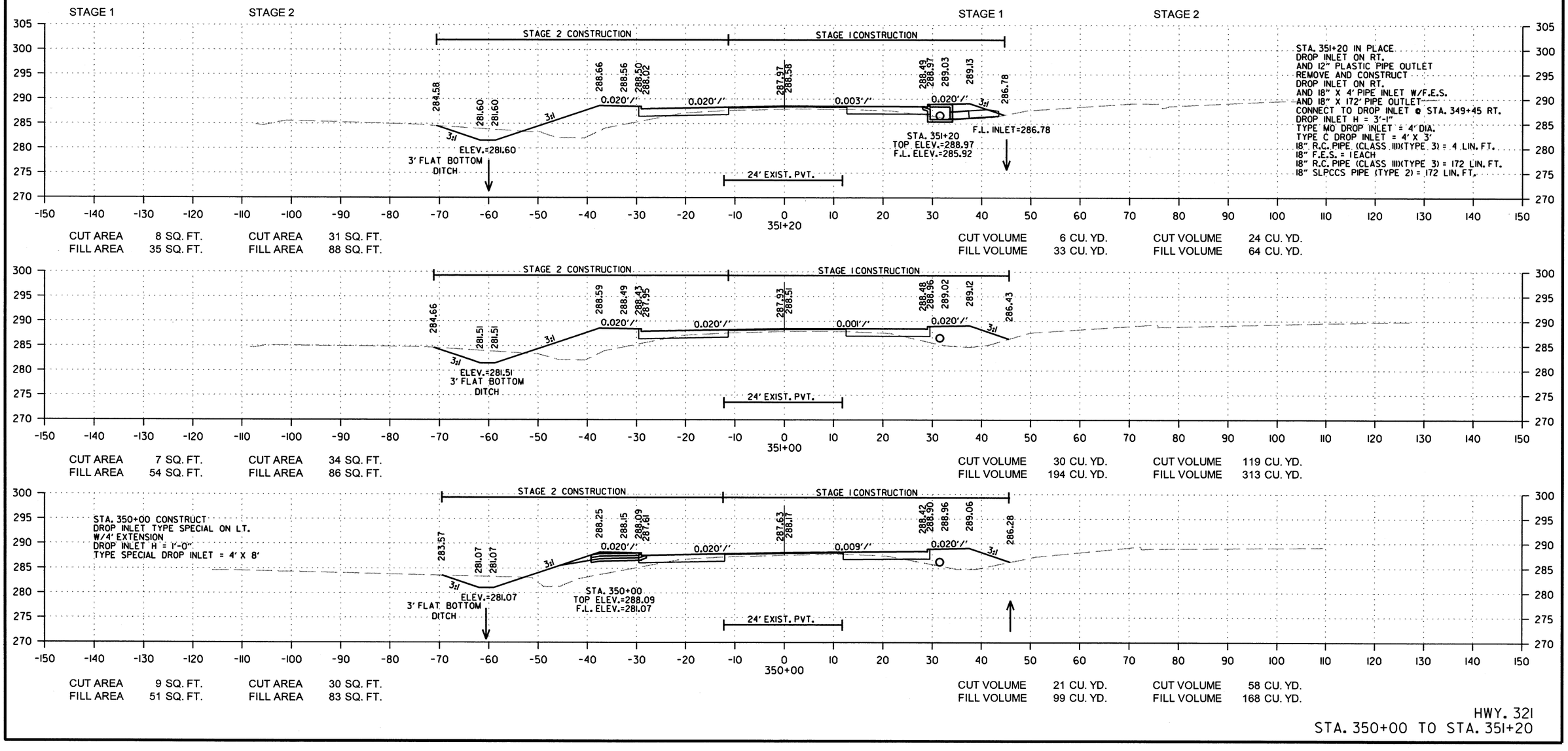
HWY. 321
STA. 348+00 TO STA. 349+45

6/12/2019

R061509.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	331	349

(2) CROSS SECTIONS



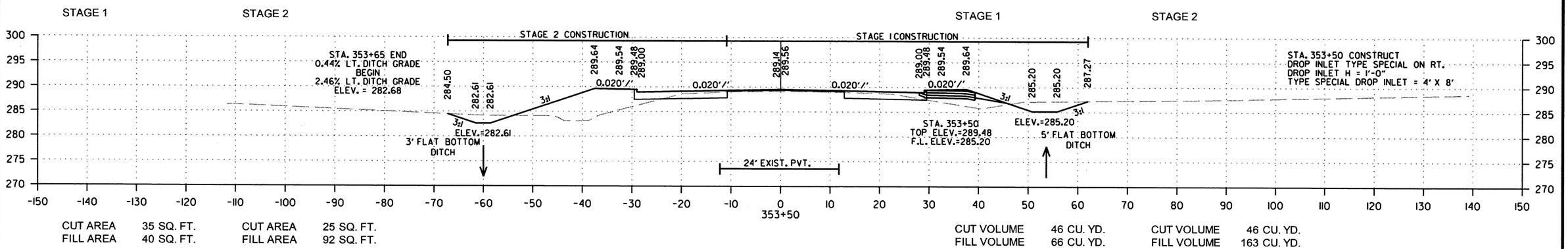
HWY. 321
STA. 350+00 TO STA. 351+20

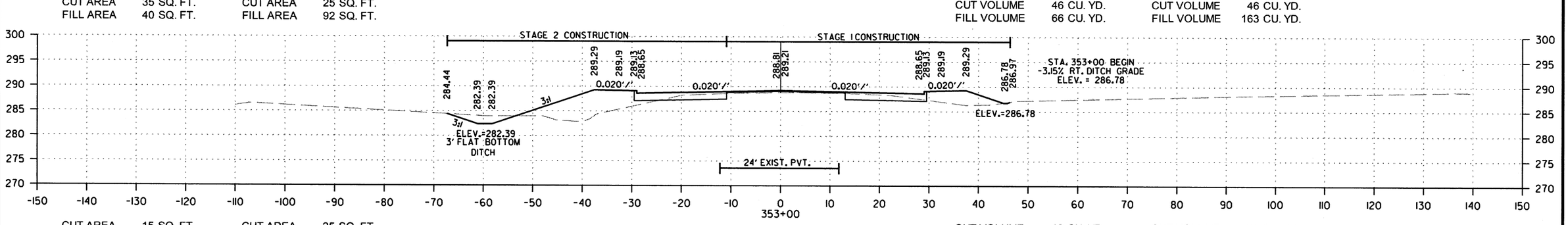
6/12/2019

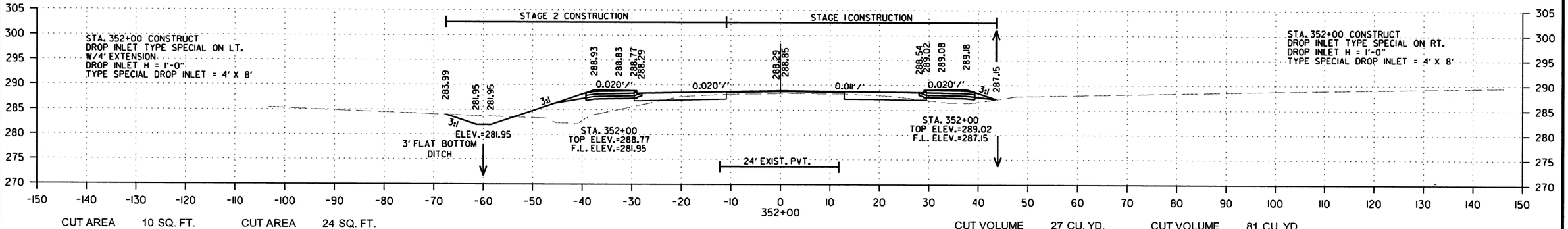
R061509.DGN

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.		061509	332	349

(2) CROSS SECTIONS







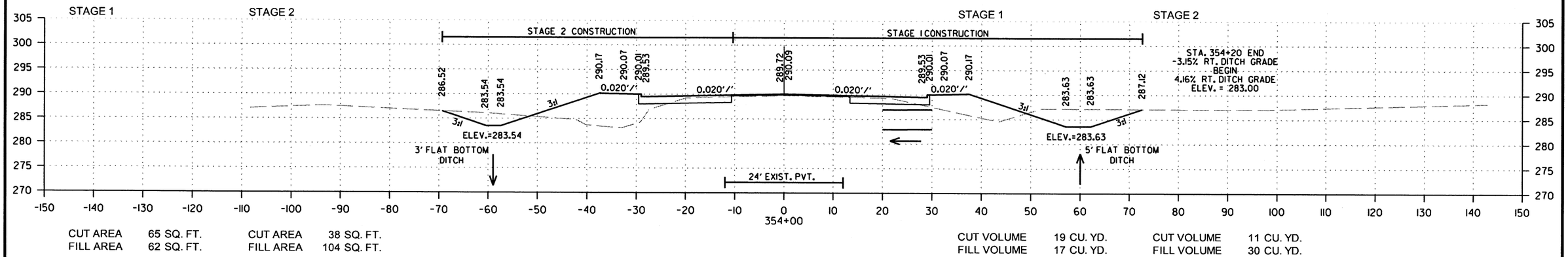
6/12/2019

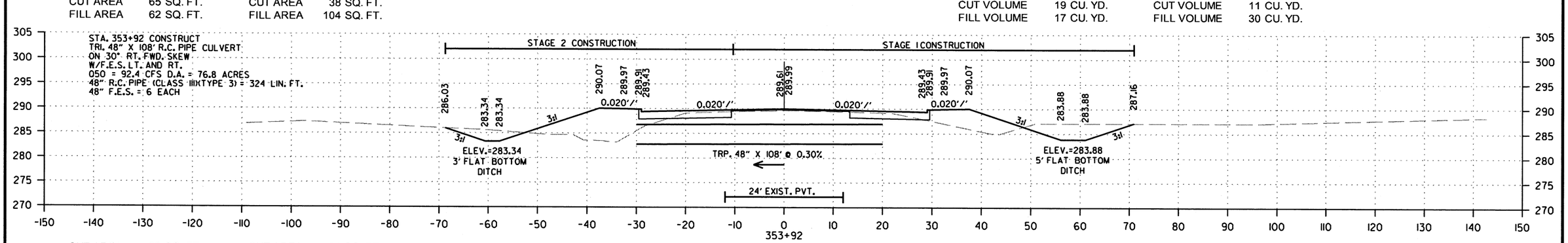
R061509.DGN

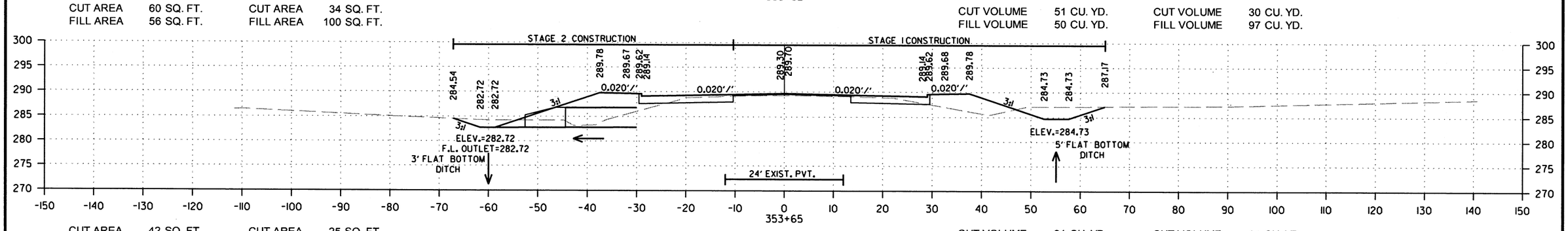
HWY. 321
STA. 352+00 TO STA. 353+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	333	349

(2) CROSS SECTIONS







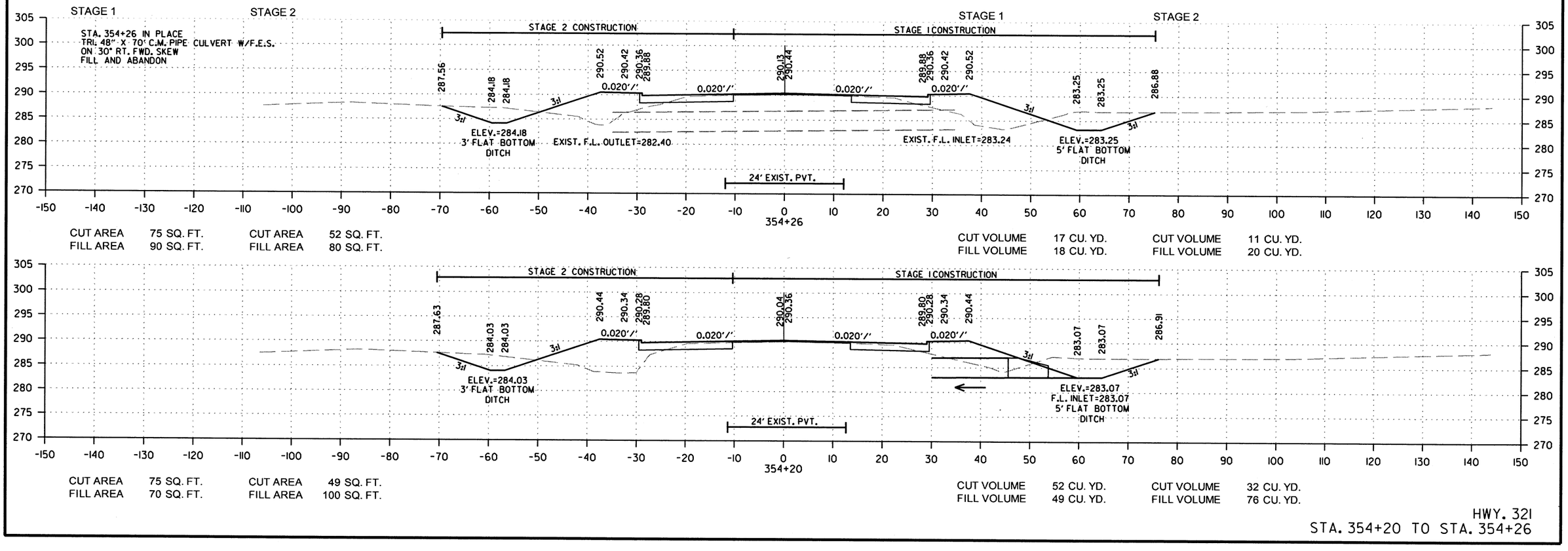
HWY. 321
STA. 353+65 TO STA. 354+00

6/12/2019

R061509.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.		061509	334	349

(2) CROSS SECTIONS



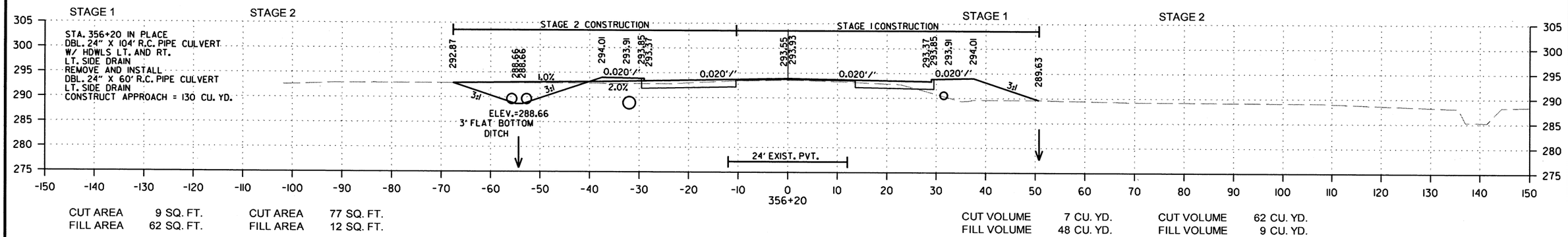
HWY. 321
STA. 354+20 TO STA. 354+26

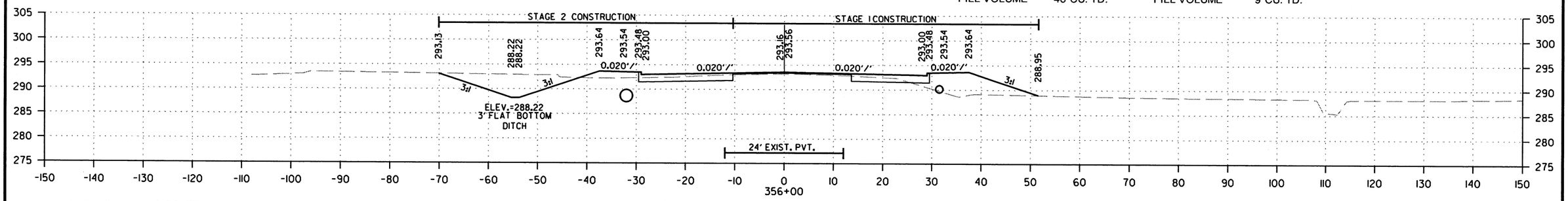
6/12/2019

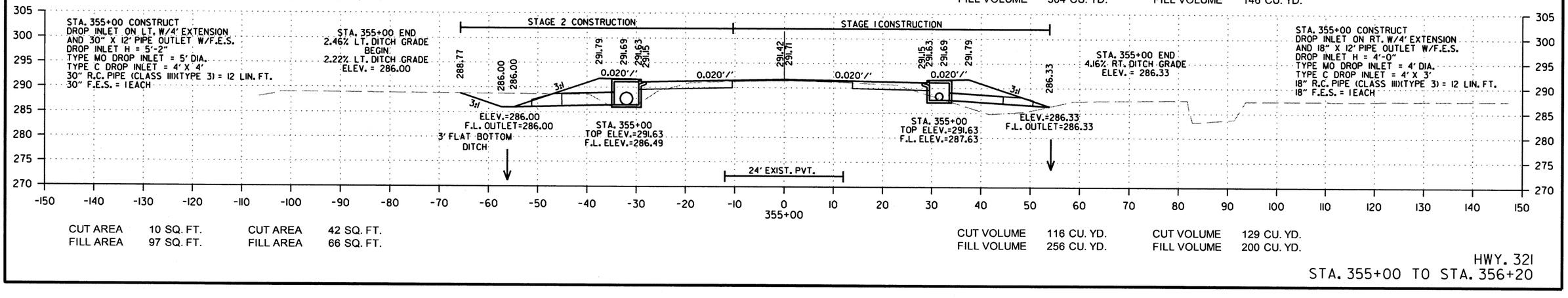
R061509.DGN

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.		061509	335	349

(2) CROSS SECTIONS







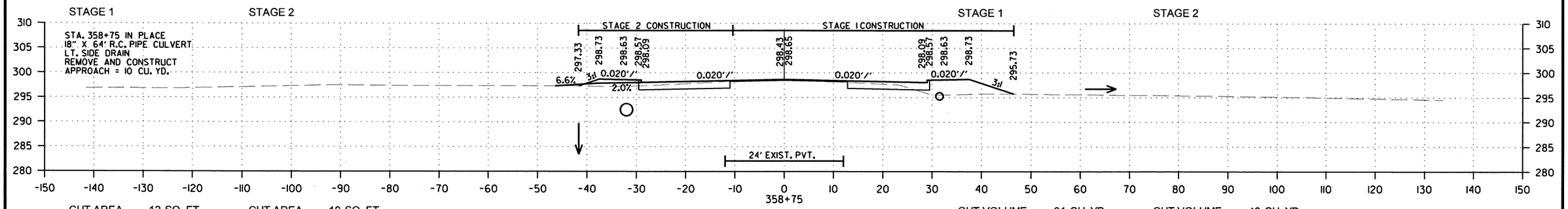
6/12/2019

R061509.DGN

HWY. 321
STA. 355+00 TO STA. 356+20

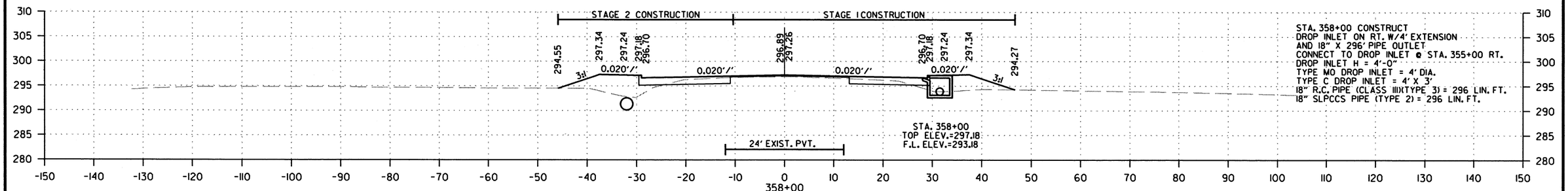
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	336	349

(2) CROSS SECTIONS



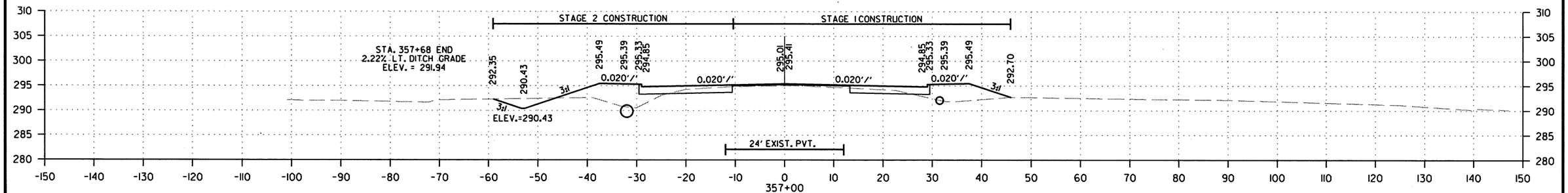
CUT AREA 12 SQ. FT. CUT AREA 19 SQ. FT.
FILL AREA 39 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 31 CU. YD. CUT VOLUME 43 CU. YD.
FILL VOLUME 113 CU. YD. FILL VOLUME 88 CU. YD.



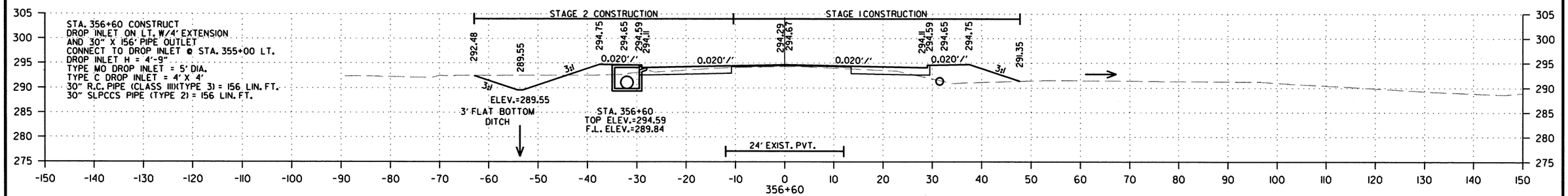
CUT AREA 10 SQ. FT. CUT AREA 12 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 49 SQ. FT.

CUT VOLUME 35 CU. YD. CUT VOLUME 67 CU. YD.
FILL VOLUME 157 CU. YD. FILL VOLUME 189 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 24 SQ. FT.
FILL AREA 43 SQ. FT. FILL AREA 53 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 51 CU. YD.
FILL VOLUME 67 CU. YD. FILL VOLUME 56 CU. YD.



CUT AREA 9 SQ. FT. CUT AREA 45 SQ. FT.
FILL AREA 48 SQ. FT. FILL AREA 23 SQ. FT.

CUT VOLUME 13 CU. YD. CUT VOLUME 90 CU. YD.
FILL VOLUME 81 CU. YD. FILL VOLUME 26 CU. YD.

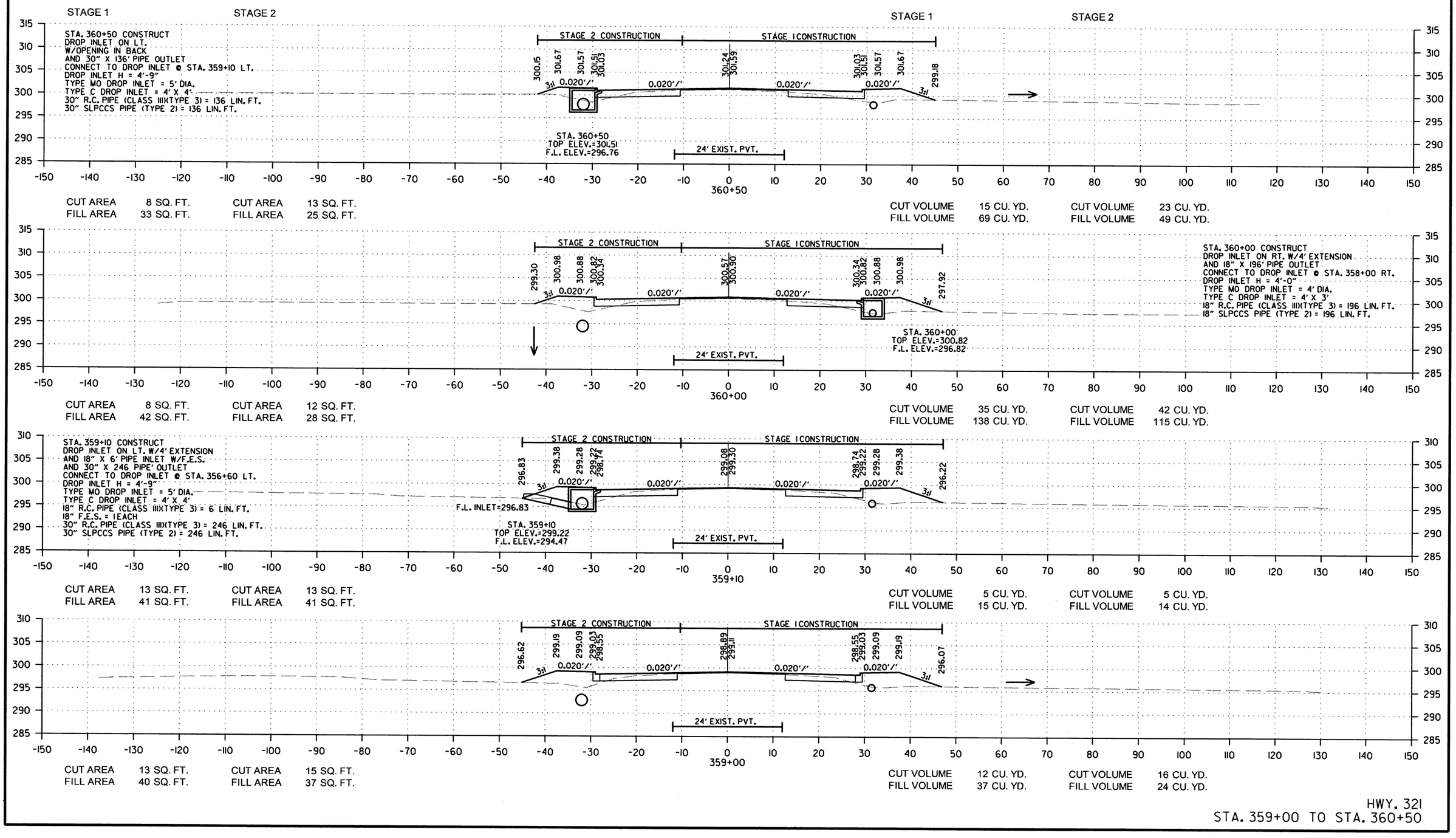
HWY. 321
STA. 356+60 TO STA. 358+75

6/12/2019

R061509.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.		061509	337	349

(2) CROSS SECTIONS



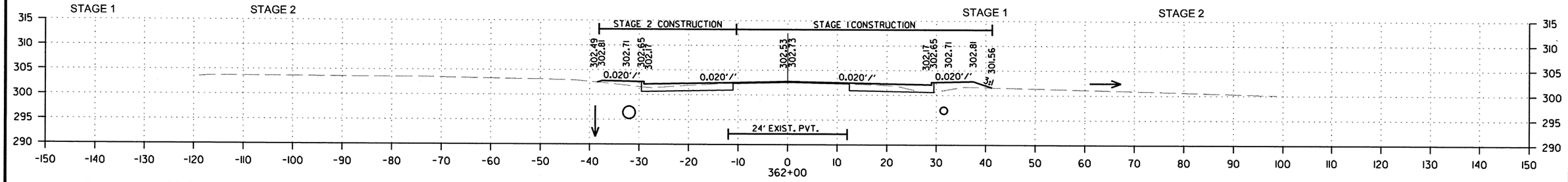
HWY. 321
STA. 359+00 TO STA. 360+50

6/12/2019

R061509.DGN

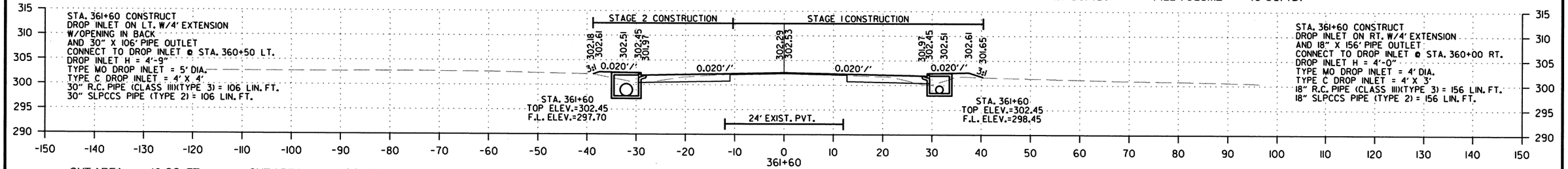
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	338	349

(2) CROSS SECTIONS



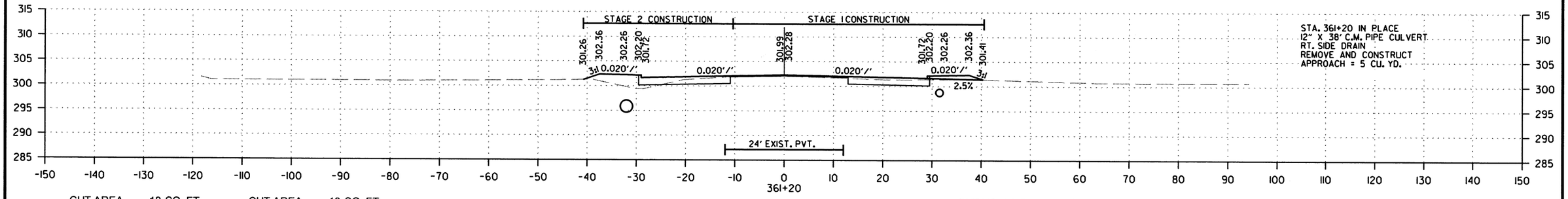
CUT AREA 14 SQ. FT. CUT AREA 20 SQ. FT.
FILL AREA 14 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 20 CU. YD. CUT VOLUME 26 CU. YD.
FILL VOLUME 20 CU. YD. FILL VOLUME 13 CU. YD.



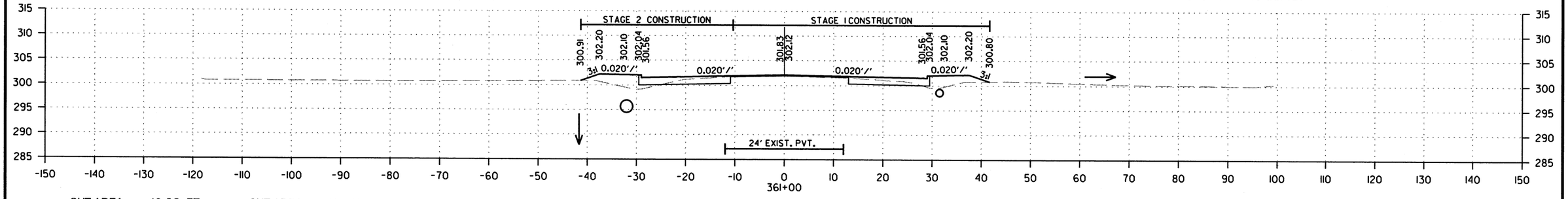
CUT AREA 13 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 13 SQ. FT. FILL AREA 12 SQ. FT.

CUT VOLUME 23 CU. YD. CUT VOLUME 21 CU. YD.
FILL VOLUME 16 CU. YD. FILL VOLUME 24 CU. YD.



CUT AREA 18 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 8 SQ. FT. FILL AREA 21 SQ. FT.

CUT VOLUME 11 CU. YD. CUT VOLUME 10 CU. YD.
FILL VOLUME 10 CU. YD. FILL VOLUME 16 CU. YD.



CUT AREA 12 SQ. FT. CUT AREA 13 SQ. FT.
FILL AREA 20 SQ. FT. FILL AREA 23 SQ. FT.

CUT VOLUME 19 CU. YD. CUT VOLUME 24 CU. YD.
FILL VOLUME 49 CU. YD. FILL VOLUME 44 CU. YD.

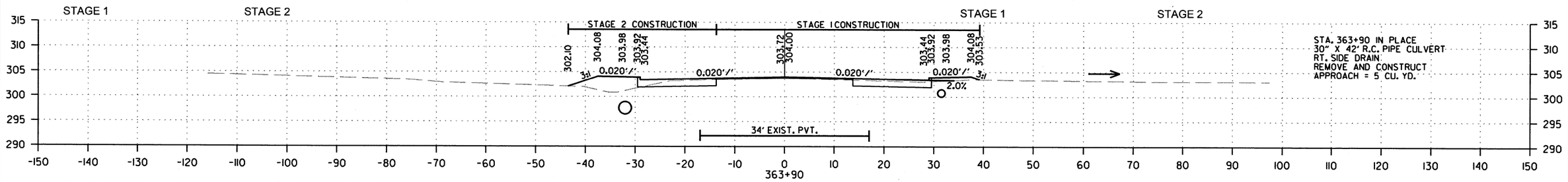
HWY. 321
STA. 361+00 TO STA. 362+00

6/12/2019

R061509.DGN

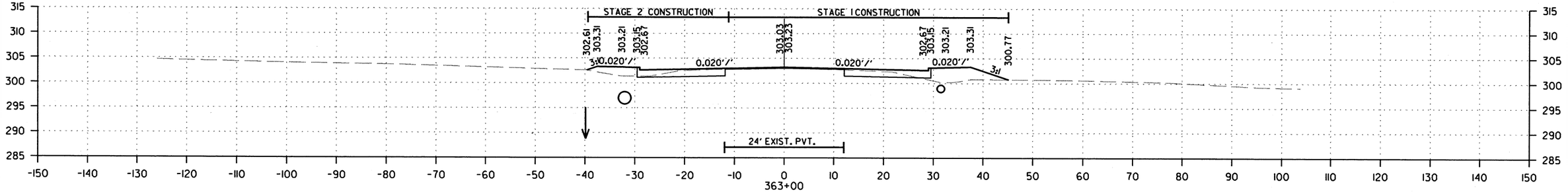
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	339	349

(2) CROSS SECTIONS



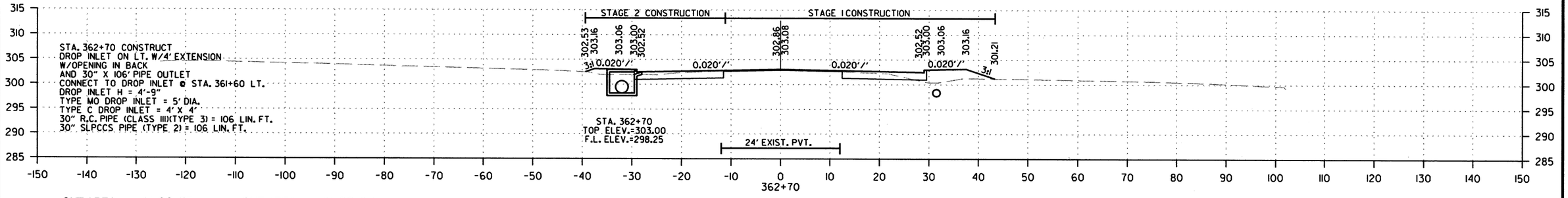
CUT AREA 17 SQ. FT. CUT AREA 15 SQ. FT.
FILL AREA 6 SQ. FT. FILL AREA 30 SQ. FT.

CUT VOLUME 52 CU. YD. CUT VOLUME 52 CU. YD.
FILL VOLUME 65 CU. YD. FILL VOLUME 73 CU. YD.



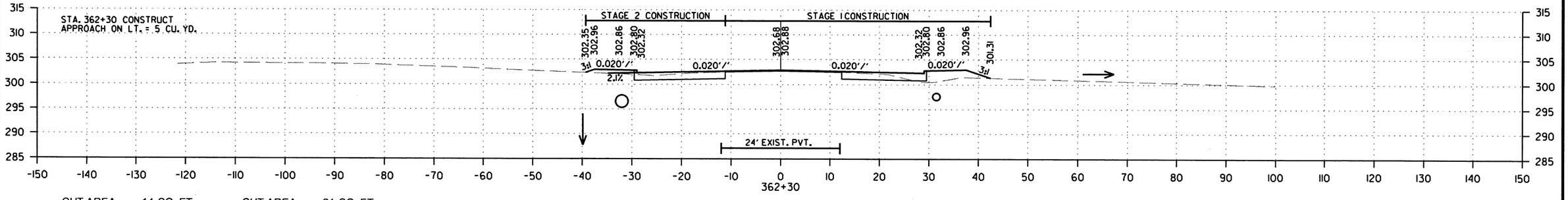
CUT AREA 14 SQ. FT. CUT AREA 16 SQ. FT.
FILL AREA 33 SQ. FT. FILL AREA 14 SQ. FT.

CUT VOLUME 16 CU. YD. CUT VOLUME 21 CU. YD.
FILL VOLUME 32 CU. YD. FILL VOLUME 13 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 25 SQ. FT. FILL AREA 10 SQ. FT.

CUT VOLUME 21 CU. YD. CUT VOLUME 31 CU. YD.
FILL VOLUME 33 CU. YD. FILL VOLUME 12 CU. YD.



CUT AREA 14 SQ. FT. CUT AREA 21 SQ. FT.
FILL AREA 20 SQ. FT. FILL AREA 6 SQ. FT.

CUT VOLUME 16 CU. YD. CUT VOLUME 23 CU. YD.
FILL VOLUME 19 CU. YD. FILL VOLUME 7 CU. YD.

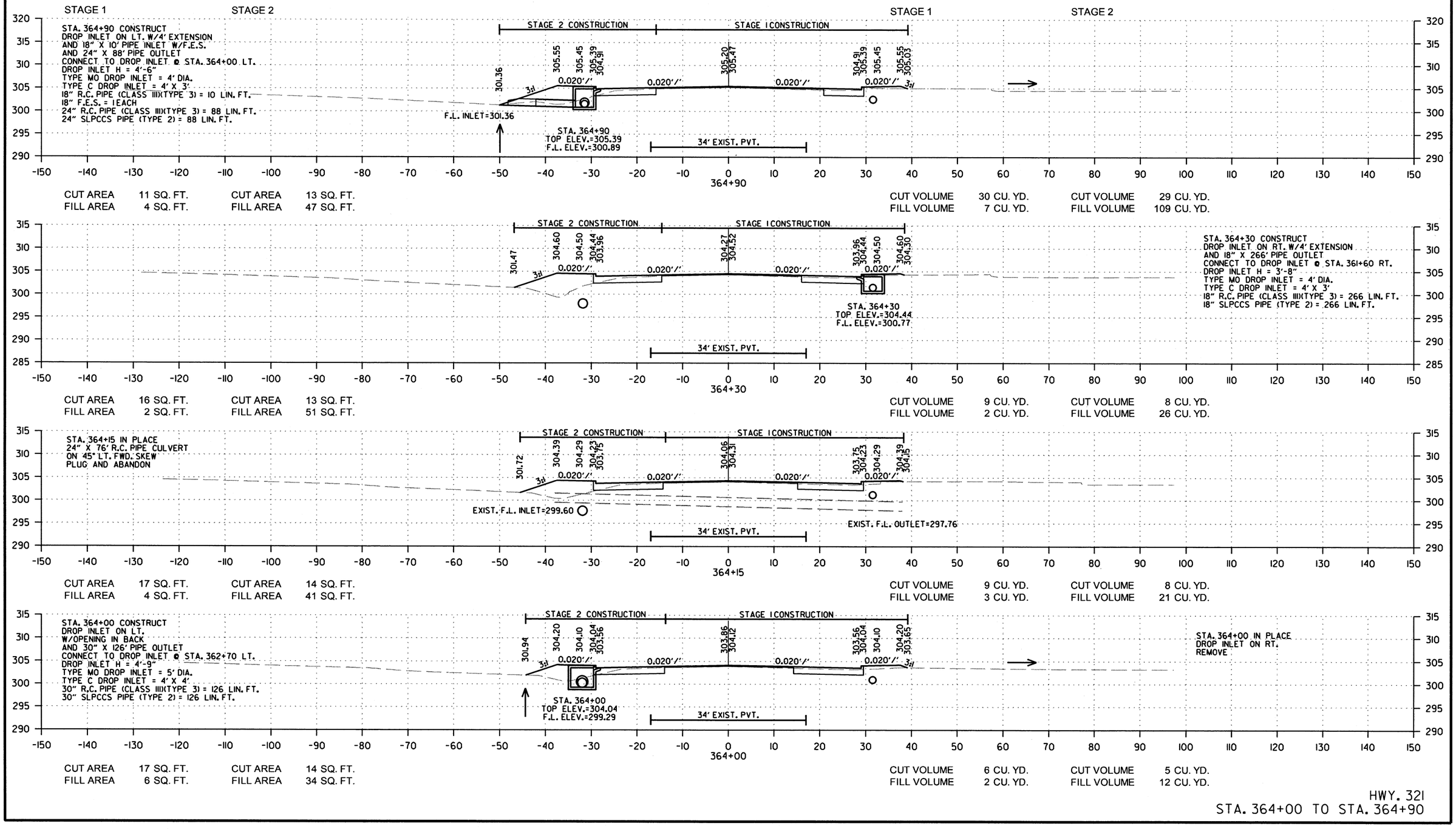
HWY. 321
STA. 362+30 TO STA. 363+90

6/12/2019

R061509.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.		061509	340	349

(2) CROSS SECTIONS



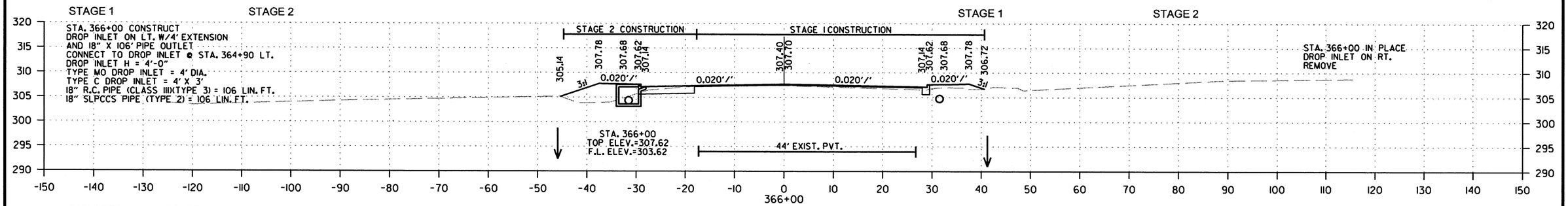
6/12/2019

R061509.DGN

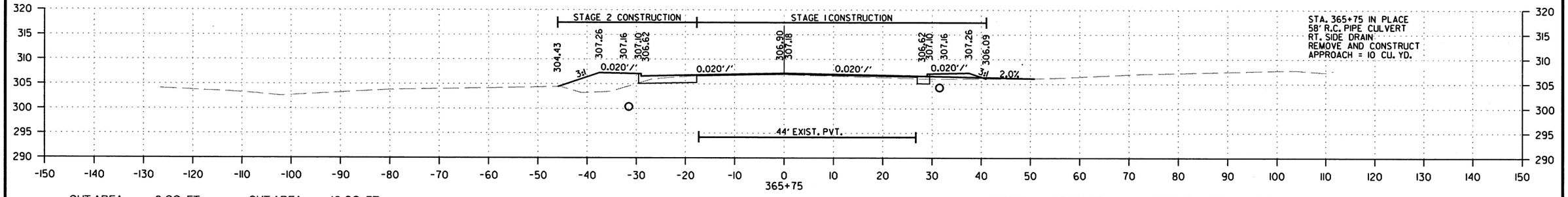
HWY. 321
STA. 364+00 TO STA. 364+90

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	341	349

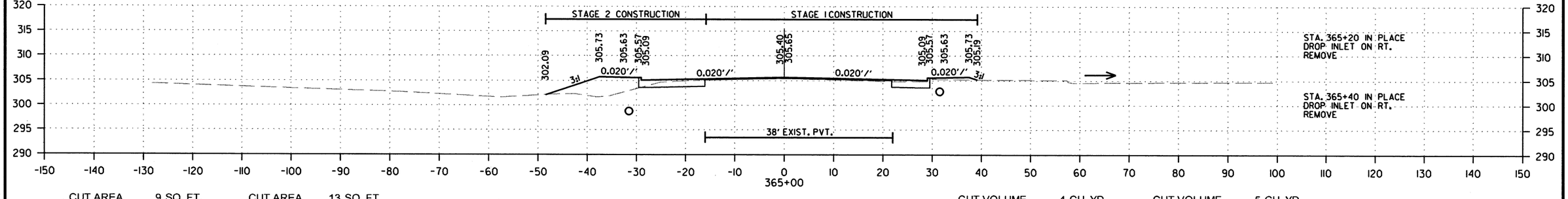
(2) CROSS SECTIONS



CUT AREA	2 SQ. FT.	CUT AREA	12 SQ. FT.
FILL AREA	8 SQ. FT.	FILL AREA	43 SQ. FT.
CUT VOLUME	2 CU. YD.	CUT VOLUME	11 CU. YD.
FILL VOLUME	9 CU. YD.	FILL VOLUME	40 CU. YD.



CUT AREA	2 SQ. FT.	CUT AREA	12 SQ. FT.
FILL AREA	11 SQ. FT.	FILL AREA	44 SQ. FT.
CUT VOLUME	15 CU. YD.	CUT VOLUME	35 CU. YD.
FILL VOLUME	21 CU. YD.	FILL VOLUME	124 CU. YD.



CUT AREA	9 SQ. FT.	CUT AREA	13 SQ. FT.
FILL AREA	4 SQ. FT.	FILL AREA	45 SQ. FT.
CUT VOLUME	4 CU. YD.	CUT VOLUME	5 CU. YD.
FILL VOLUME	1 CU. YD.	FILL VOLUME	17 CU. YD.

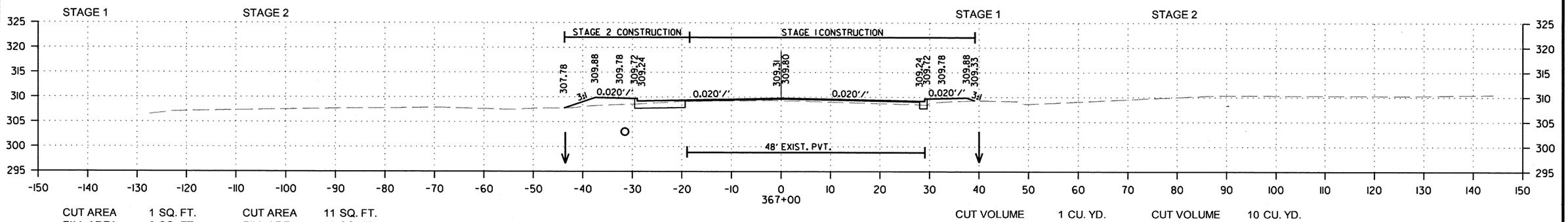
HWY. 321
STA. 365+00 TO STA. 366+00

6/12/2019

R061509.DGN

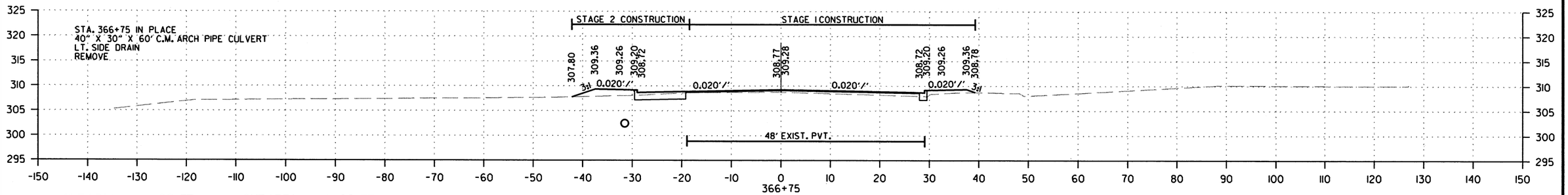
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	342	349

(2) CROSS SECTIONS



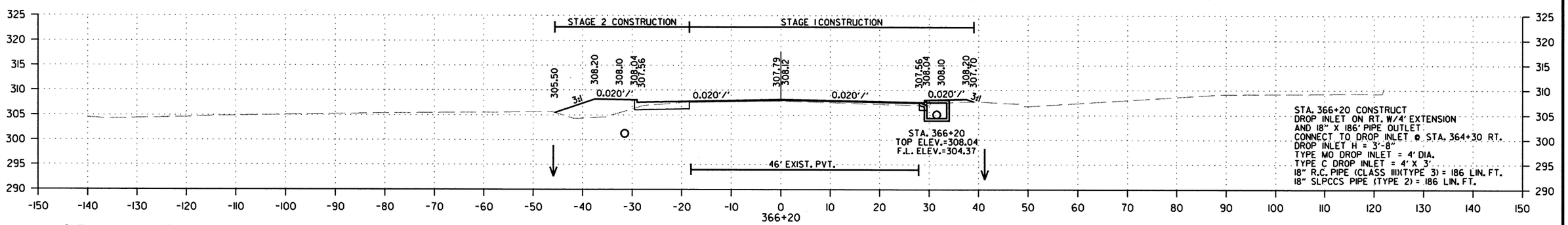
CUT AREA	1 SQ. FT.	CUT AREA	11 SQ. FT.
FILL AREA	6 SQ. FT.	FILL AREA	16 SQ. FT.

CUT VOLUME	1 CU. YD.	CUT VOLUME	10 CU. YD.
FILL VOLUME	6 CU. YD.	FILL VOLUME	13 CU. YD.



CUT AREA	1 SQ. FT.	CUT AREA	11 SQ. FT.
FILL AREA	7 SQ. FT.	FILL AREA	13 SQ. FT.

CUT VOLUME	3 CU. YD.	CUT VOLUME	22 CU. YD.
FILL VOLUME	13 CU. YD.	FILL VOLUME	55 CU. YD.



CUT AREA	2 SQ. FT.	CUT AREA	11 SQ. FT.
FILL AREA	6 SQ. FT.	FILL AREA	41 SQ. FT.

CUT VOLUME	1 CU. YD.	CUT VOLUME	9 CU. YD.
FILL VOLUME	5 CU. YD.	FILL VOLUME	31 CU. YD.

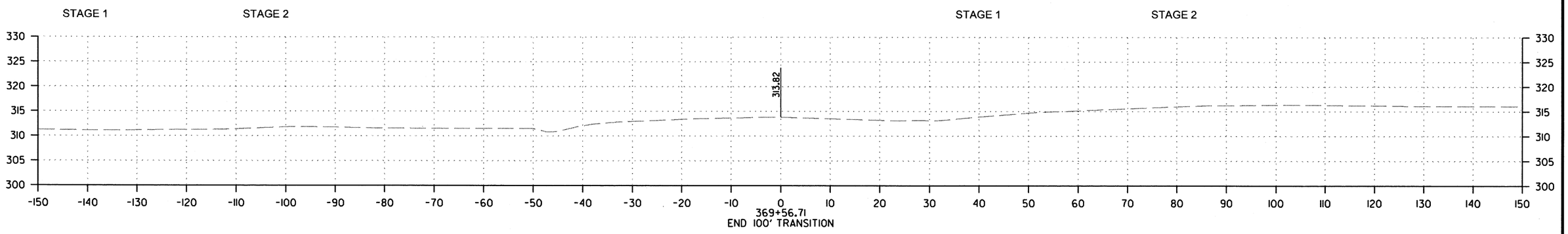
6/12/2019

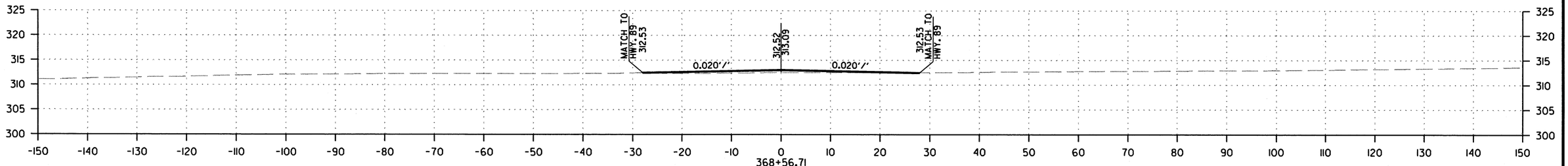
R061509.DGN

HWY. 321
STA. 366+20 TO STA. 367+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.		061509	343	349

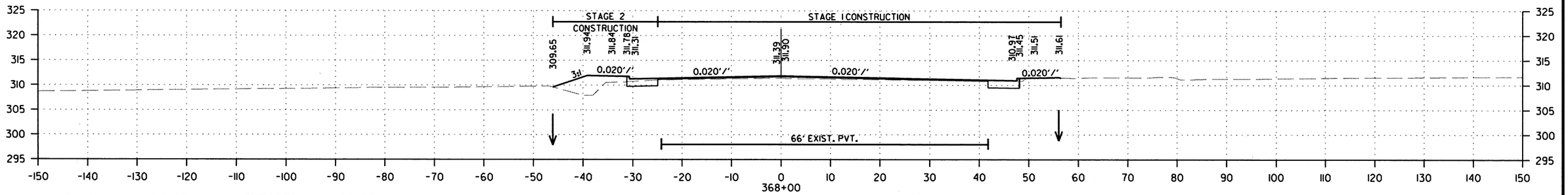
(2) CROSS SECTIONS





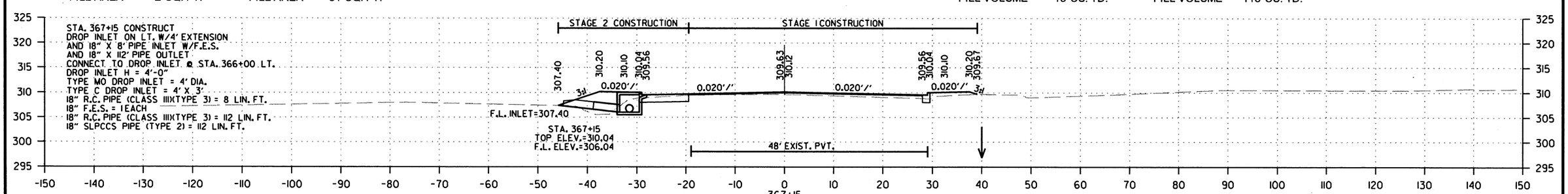
CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.
FILL AREA	0 SQ. FT.	FILL AREA	0 SQ. FT.

CUT VOLUME	10 CU. YD.	CUT VOLUME	7 CU. YD.
FILL VOLUME	2 CU. YD.	FILL VOLUME	33 CU. YD.



CUT AREA	9 SQ. FT.	CUT AREA	7 SQ. FT.
FILL AREA	2 SQ. FT.	FILL AREA	31 SQ. FT.

CUT VOLUME	16 CU. YD.	CUT VOLUME	28 CU. YD.
FILL VOLUME	13 CU. YD.	FILL VOLUME	113 CU. YD.



CUT AREA	1 SQ. FT.	CUT AREA	11 SQ. FT.
FILL AREA	6 SQ. FT.	FILL AREA	41 SQ. FT.

CUT VOLUME	1 CU. YD.	CUT VOLUME	6 CU. YD.
FILL VOLUME	3 CU. YD.	FILL VOLUME	16 CU. YD.

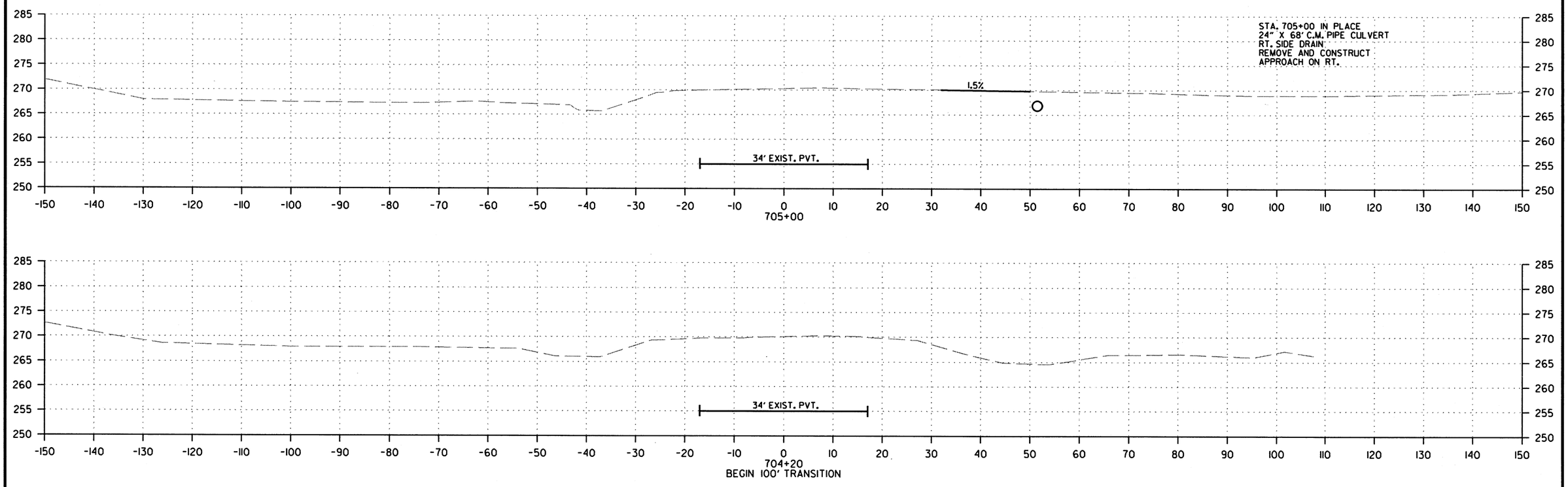
HWY. 321
STA. 367+15 TO STA. 368+56.71

6/12/2019

R061509.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.		061509	344	349

(2) CROSS SECTIONS



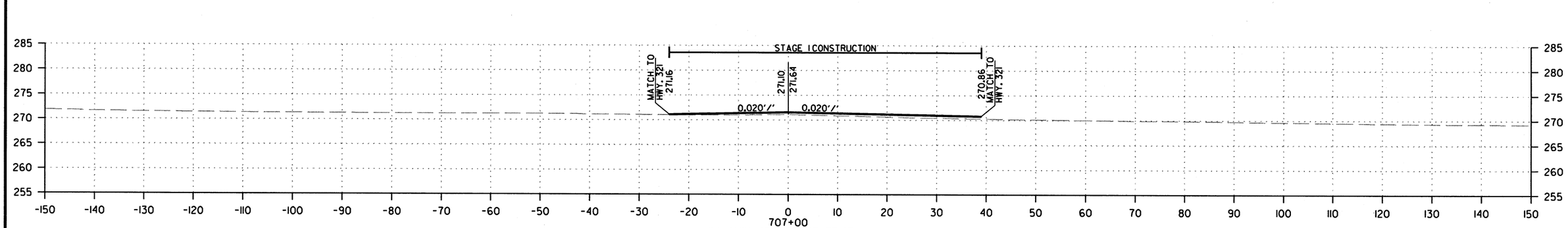
6/12/2019

R061509.DGN

HWY. 367
STA. 704+20 TO STA. 705+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.		061509	345	349

(2) CROSS SECTIONS



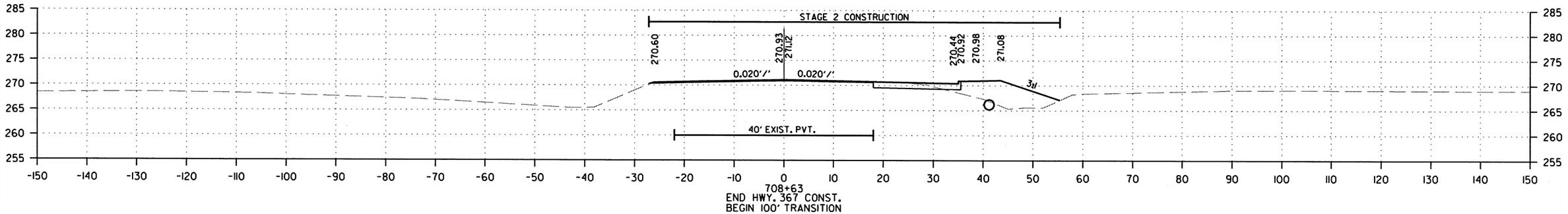
HWY. 367
STA. 706+00 TO STA. 707+00

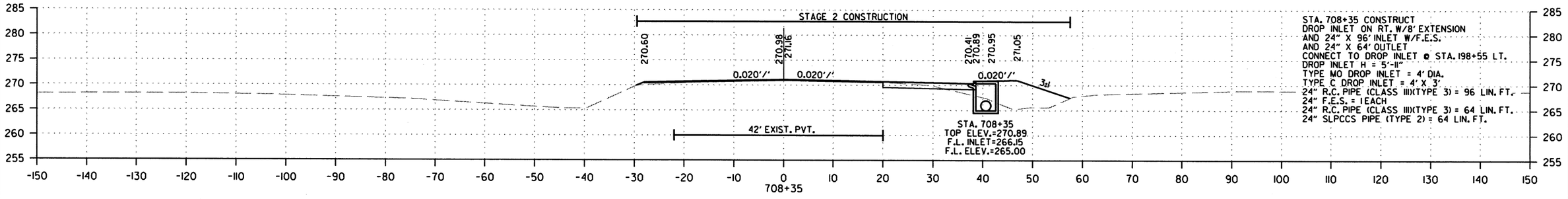
6/12/2019

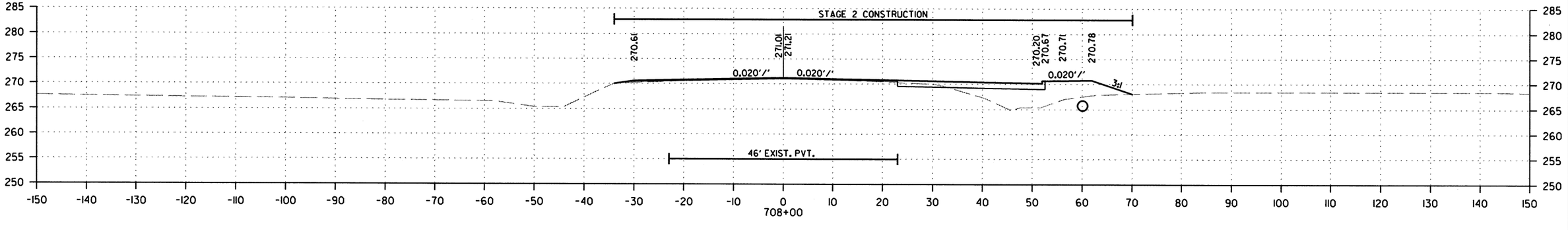
R061509.DGN

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.		061509	346	349

(2) CROSS SECTIONS







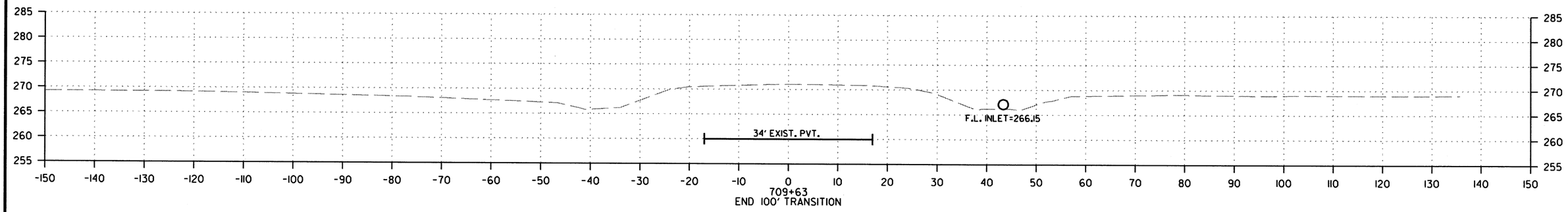
6/12/2019

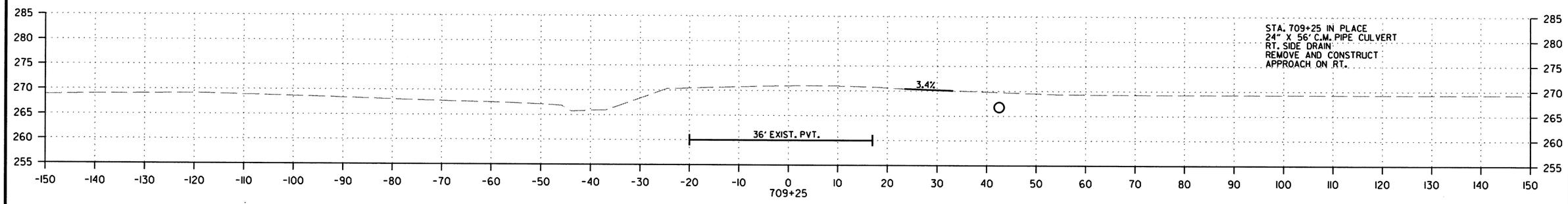
R061509.DGN

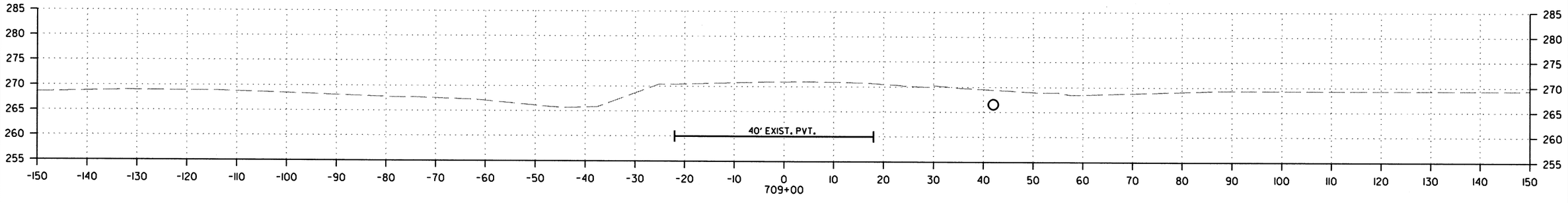
HWY. 367
STA. 708+00 TO STA. 708+63

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	347	349

(2) CROSS SECTIONS







6/12/2019

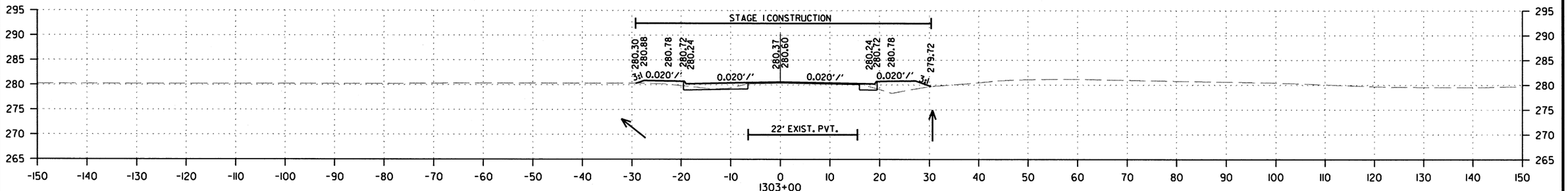
R061509.DGN

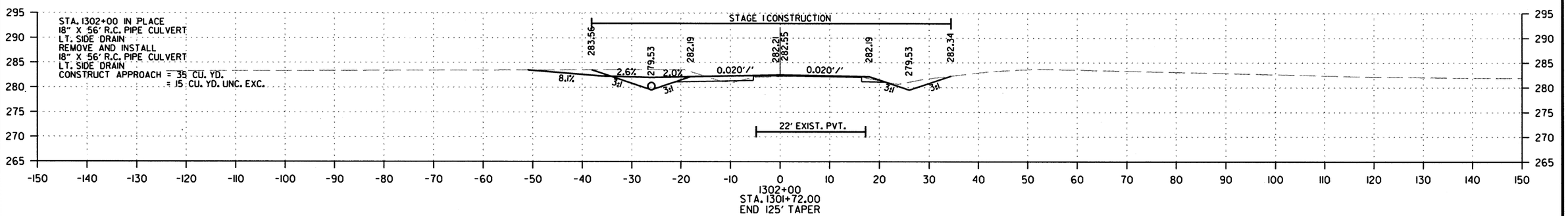
HWY. 367
STA. 709+00 TO STA. 709+63

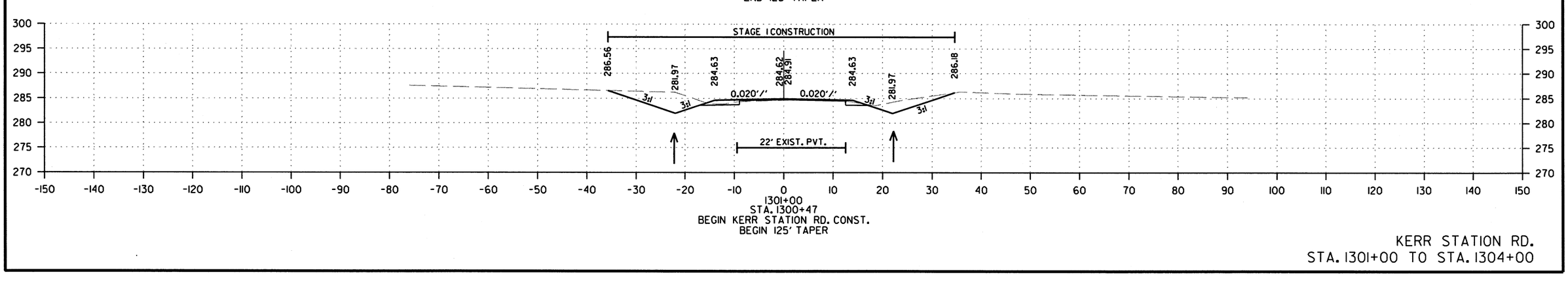
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061509	348	349

(2) CROSS SECTIONS

C.L. HWY. 321 STA. 332+99.60 =
C.L. KERR STATION RD. STA. 1303+90.79
Δ = 80°00'00"







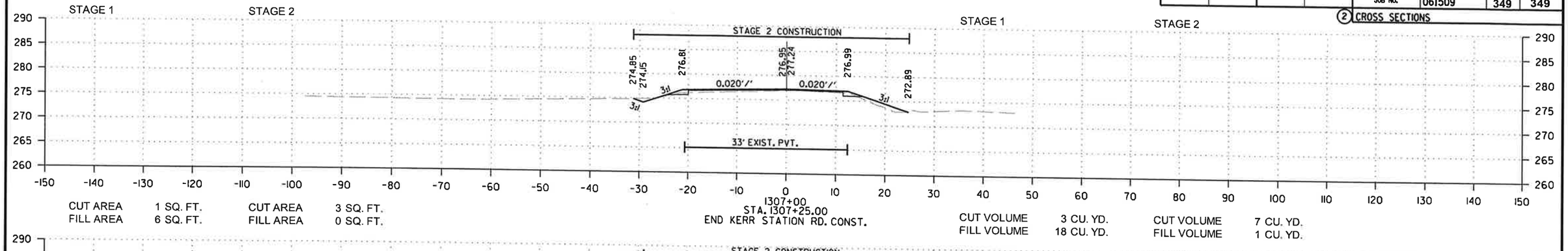
KERR STATION RD.
STA. 1301+00 TO STA. 1304+00

6/12/2019

R061509.DGN

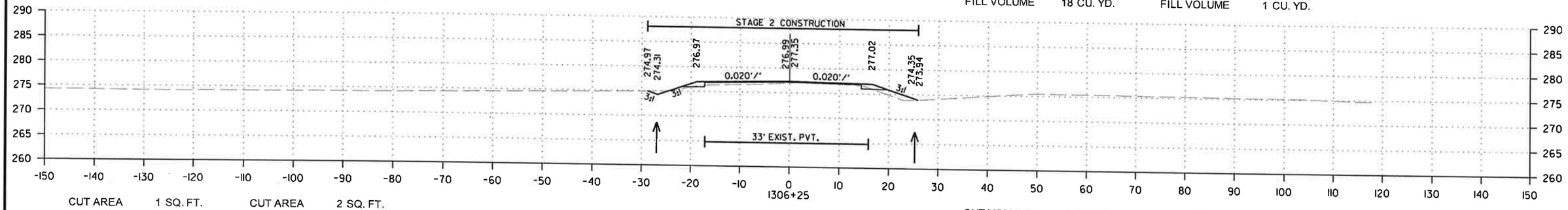
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-17-19				6	ARK.			
				JOB NO.		061509	349	349

(2) CROSS SECTIONS



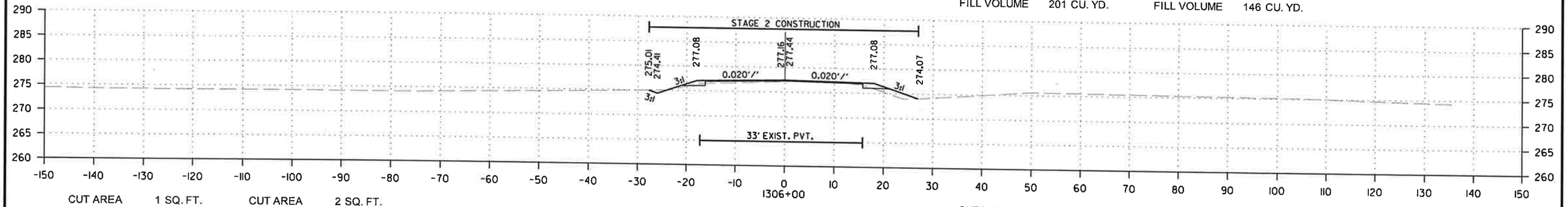
CUT AREA 1 SQ. FT. CUT AREA 3 SQ. FT.
FILL AREA 6 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 3 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 18 CU. YD. FILL VOLUME 1 CU. YD.



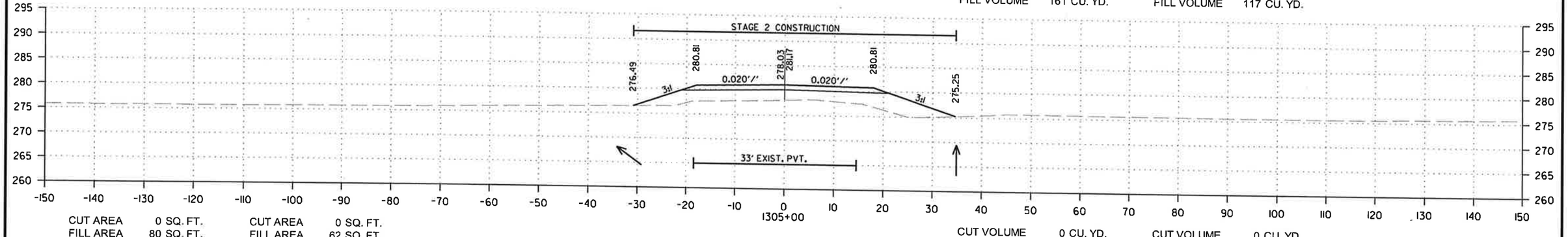
CUT AREA 1 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 7 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 201 CU. YD. FILL VOLUME 146 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 7 SQ. FT. FILL AREA 1 SQ. FT.

CUT VOLUME 2 CU. YD. CUT VOLUME 4 CU. YD.
FILL VOLUME 161 CU. YD. FILL VOLUME 117 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 80 SQ. FT. FILL AREA 62 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 148 CU. YD. FILL VOLUME 115 CU. YD.

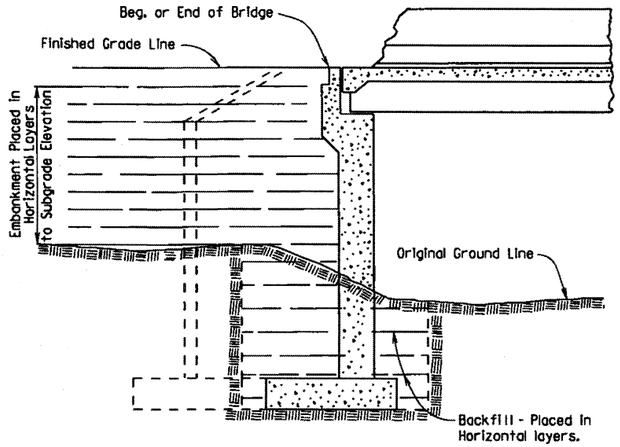
KERR STATION RD.
STA. 1305+00 TO STA. 1307+00

7/16/2019

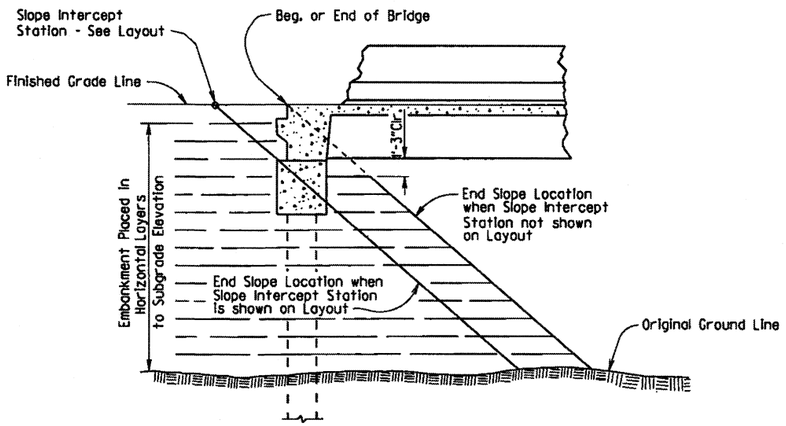
R061509.DGN

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.				

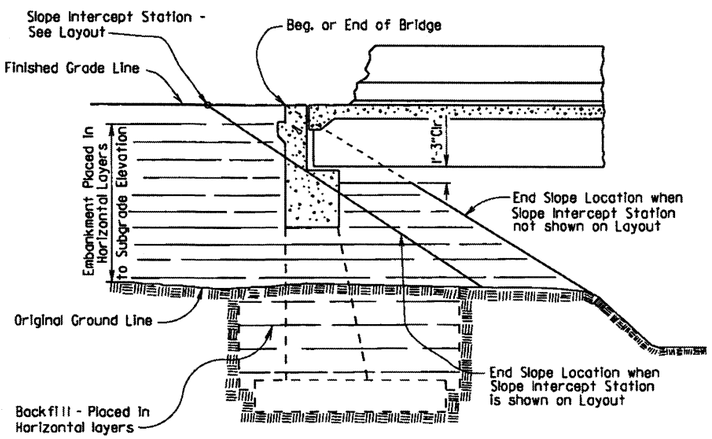
① EMBANKMENT & BACKFILL 55000



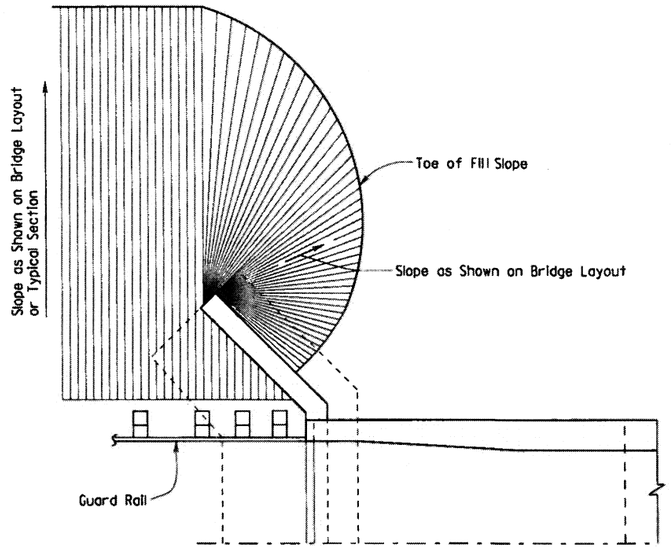
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



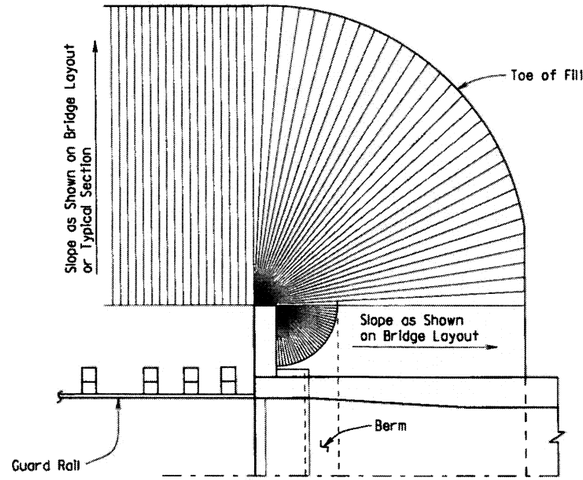
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



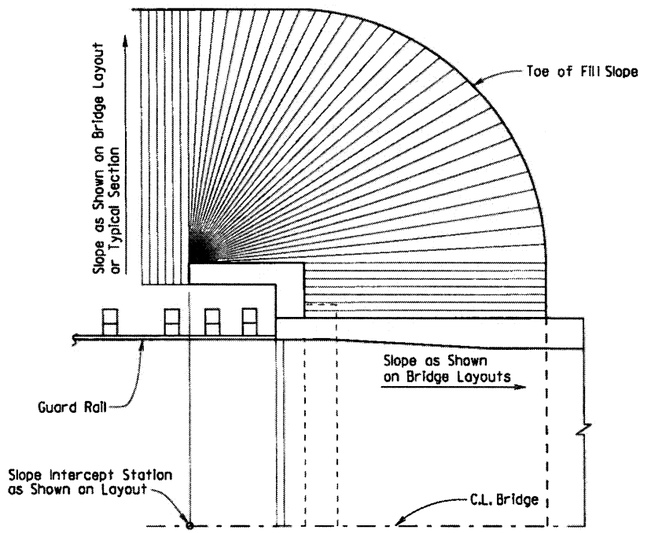
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



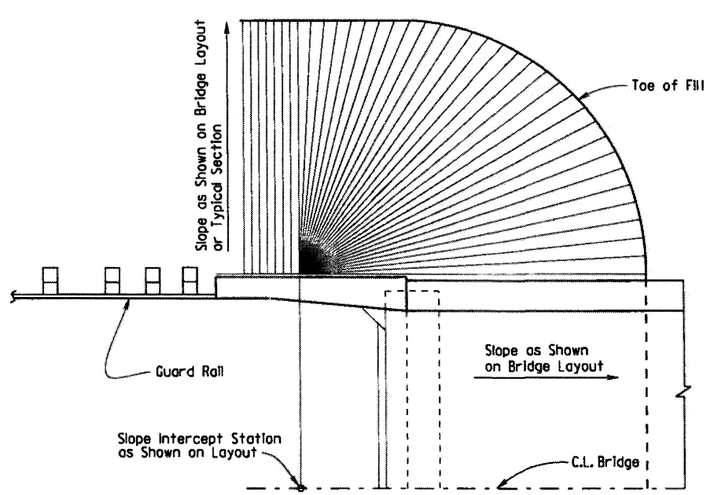
VERTICAL WALL ABUTMENTS



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

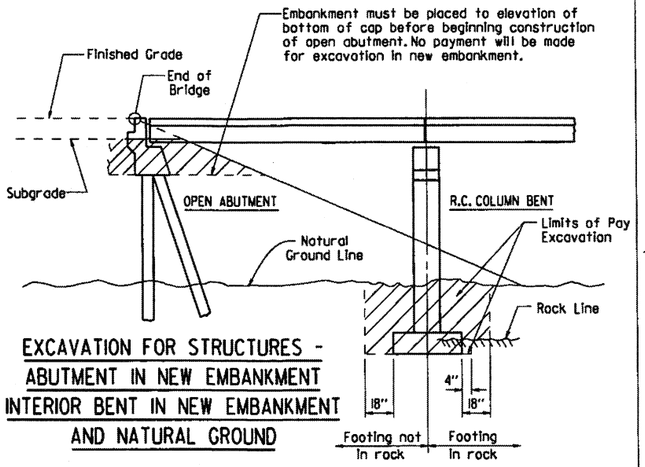
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

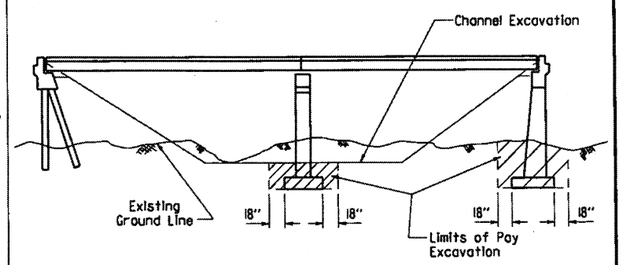
DRAWING NO. 55000

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.				

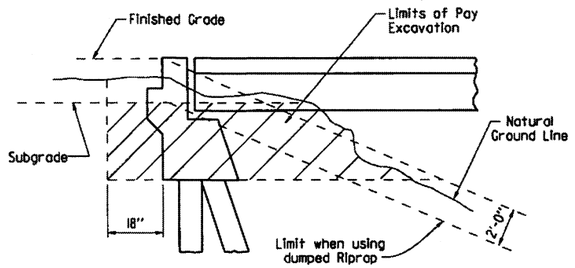
① RIPRAP & EXCAV. 55001



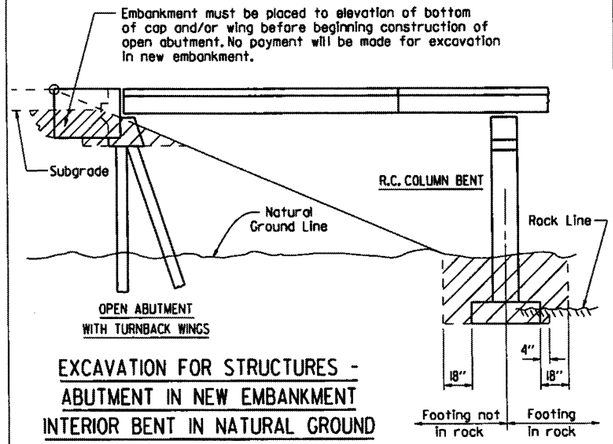
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



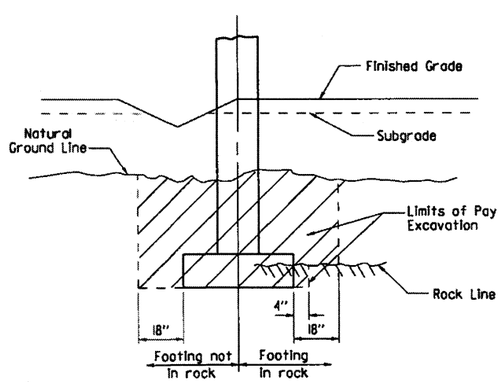
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



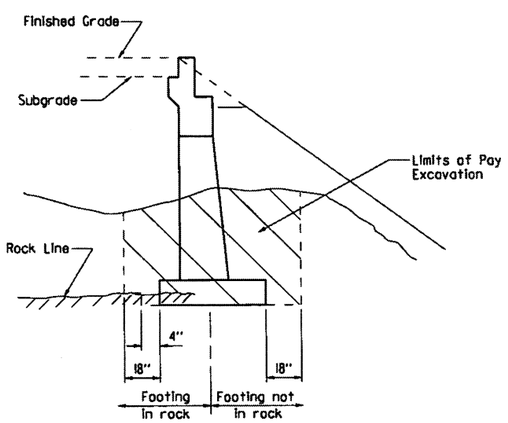
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



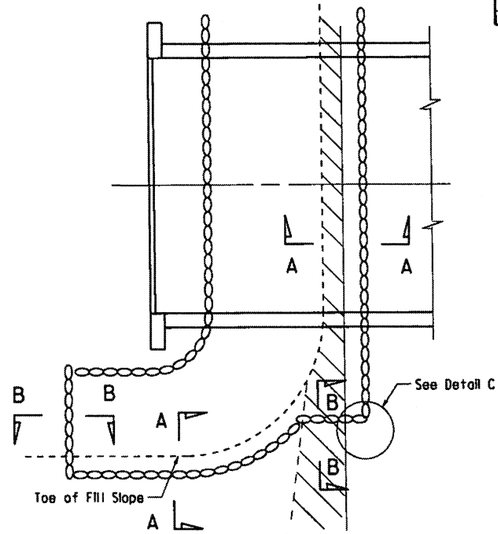
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



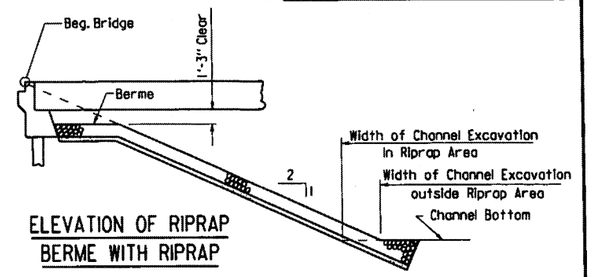
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



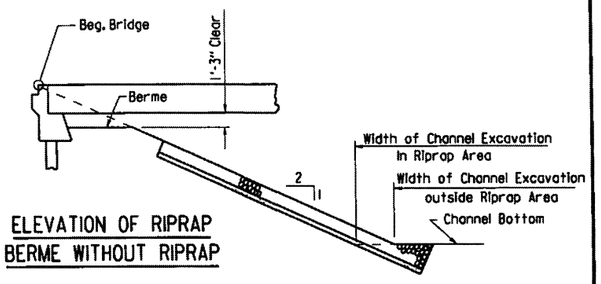
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



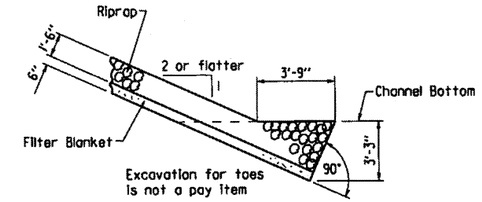
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP

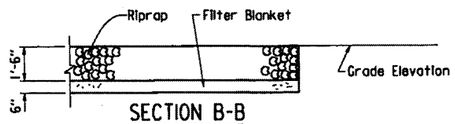


ELEVATION OF RIPRAP BERME WITHOUT RIPRAP

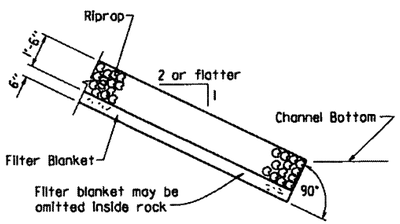


SECTION A-A

(Toe Excavation in Soil)



SECTION B-B



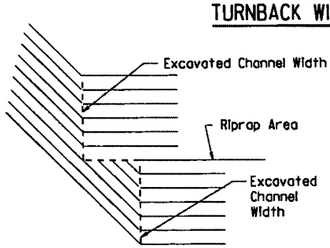
SECTION A-A

(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.



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: b5500l.dgn

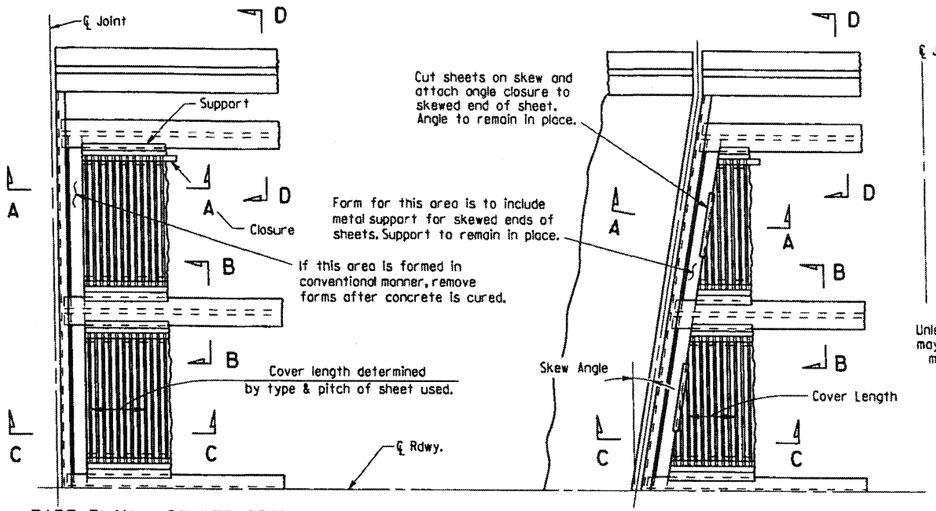
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

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

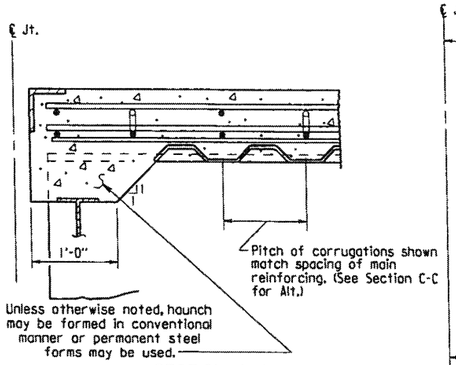


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

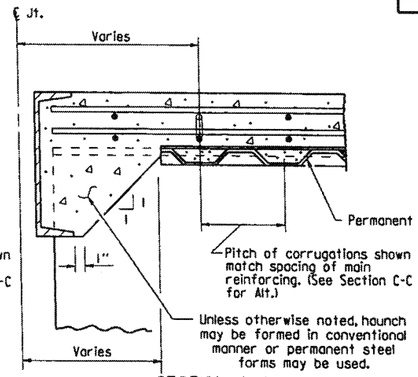
3/8" = 1'-0"



SECTION A-A

N.T.S.

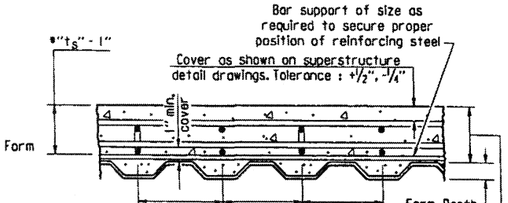
(Angle at end of span)



SECTION A-A

N.T.S.

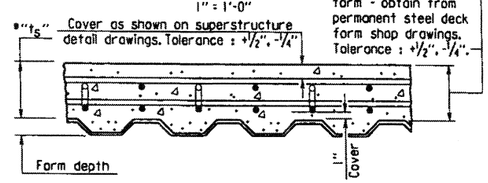
(Channel at end of span)



SECTION C-C

1" = 1'-0"

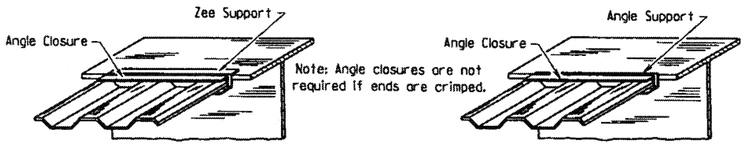
Top of slab to top of permanent steel deck form - obtain from permanent steel deck form shop drawings. Tolerance : +1/2", -1/4".



SECTION C-C - ALTERNATE

1" = 1'-0"

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

$^{a}t_s$ = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

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

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

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

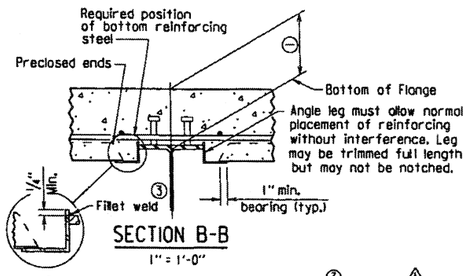
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

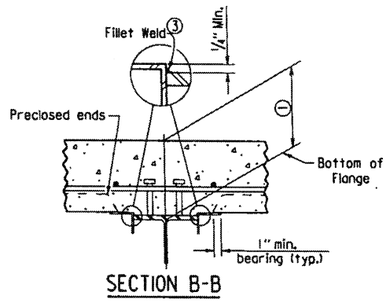


SECTION B-B

1" = 1'-0"

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

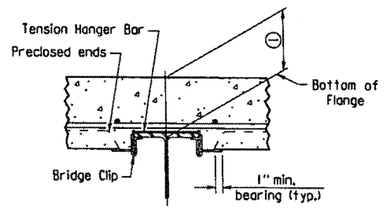
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

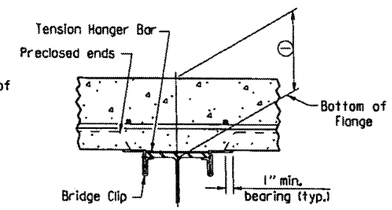
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

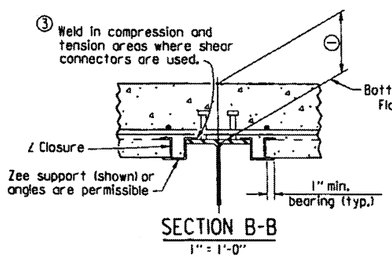
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

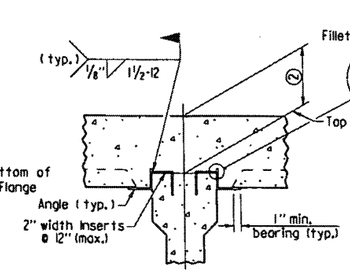
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

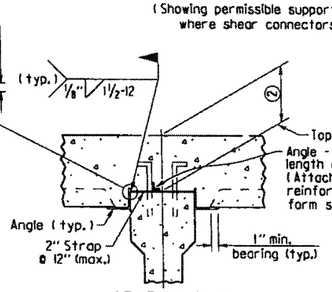


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)



SECTION B-B

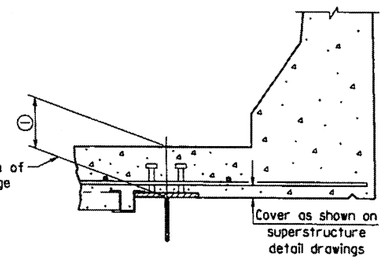
(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)

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.



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

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.

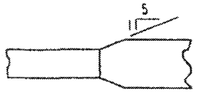
STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

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:

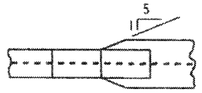
DRAWING NO. 55006

PRINT DATE: 9/21/2015

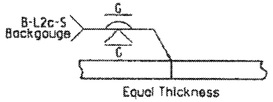


Plan-Unequal Width (Fig.)

FLANGE SPLICE

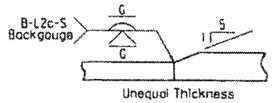


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

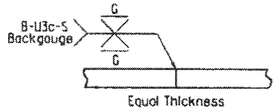
WEB & FLANGE SPLICE



Unequal Thickness

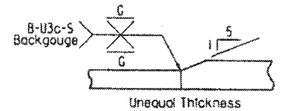
FLANGE SPLICE

(Use when Base Metal Thickness is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

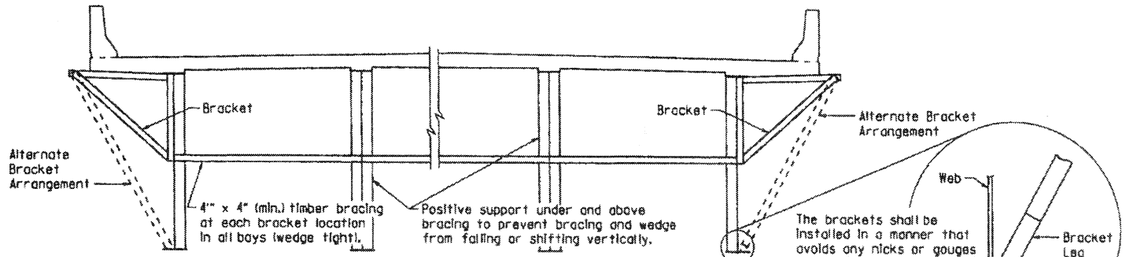


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness is Greater than 2")

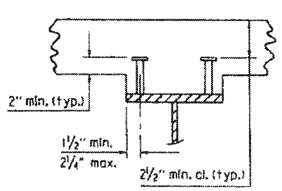
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



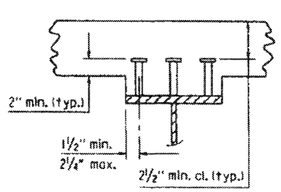
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the 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

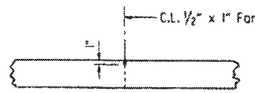
Stud Shear Connectors shall be automatically and welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

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.

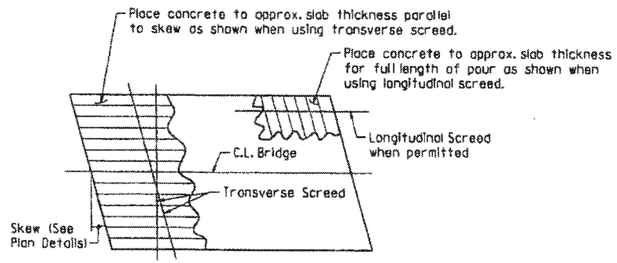
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and ocrosss 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



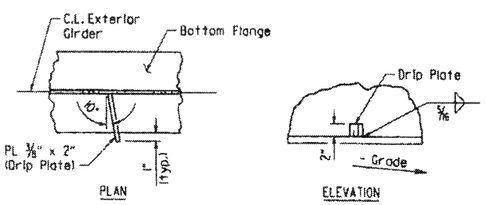
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

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.

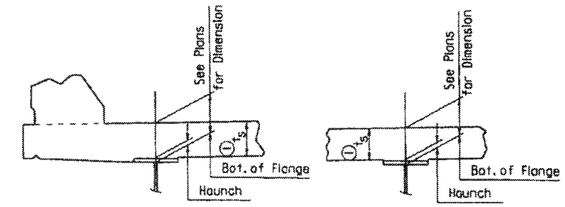
Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

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			

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER

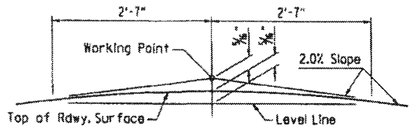
INTERIOR BEAM OR GIRDER

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"	5/16"	

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

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: AMS DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

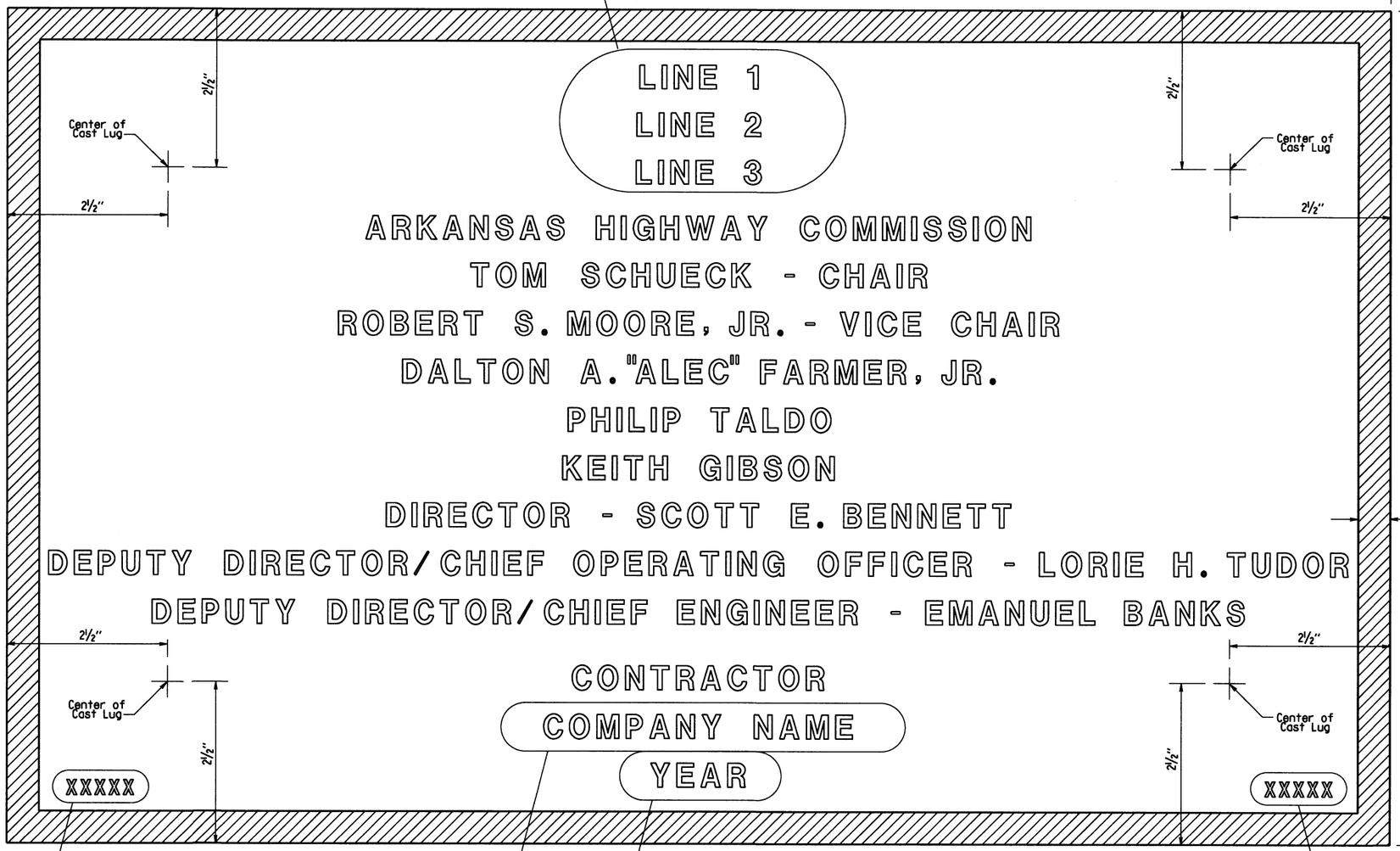
DRAWING NO. 55007

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								

① TYPE D NAME PLATE 55010

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

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



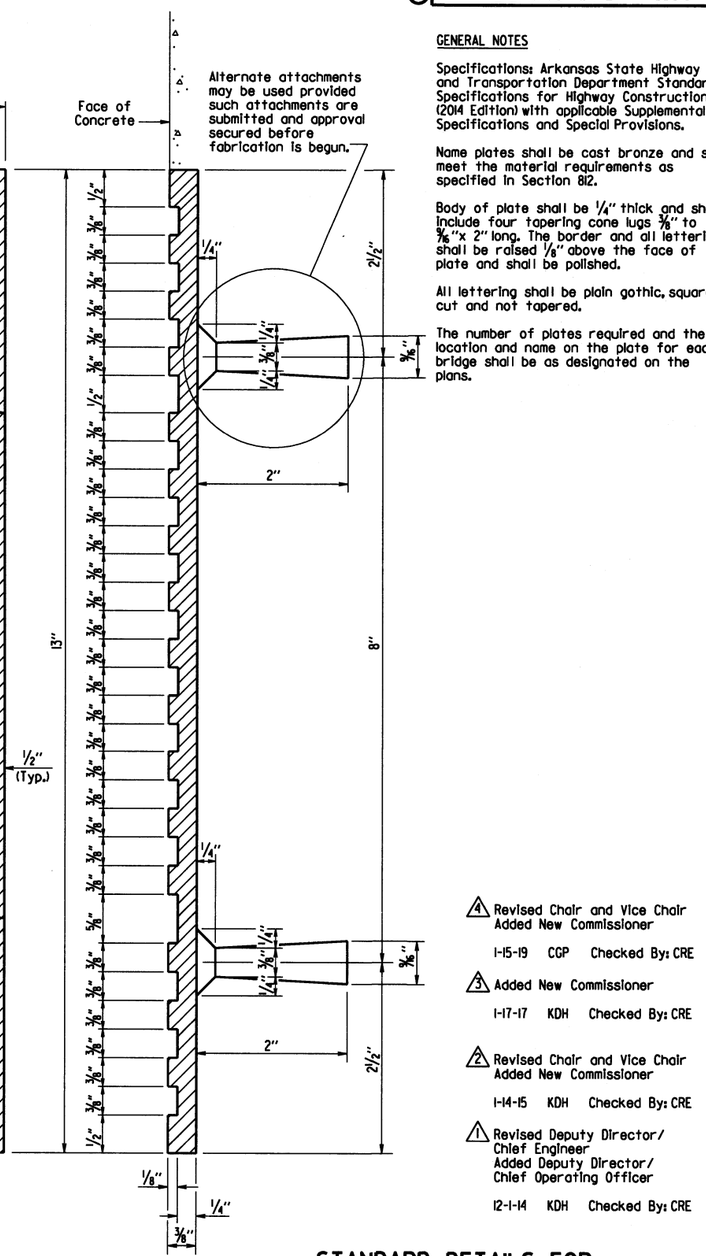
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

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



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 3/16"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

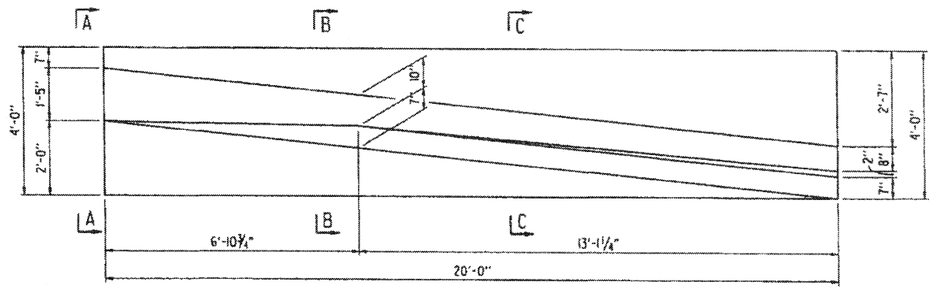
STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TRANSITIONAL RAIL		55013	



PLAN OF TRANSITIONAL APPROACH RAILING

(RAILINGS ON EACH SIDE OF ROADWAY ARE OPPOSITE HAND TO EACH OTHER)

½" = 1'-0"

GENERAL NOTES

Transitional Approach Railing shall be placed at locations shown in the plans.

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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

Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and the surface finish type and areas of application shall match that used on the adjacent bridge railing or concrete barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating Finish or Subsections 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Payment for surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Transitional Approach Railing".

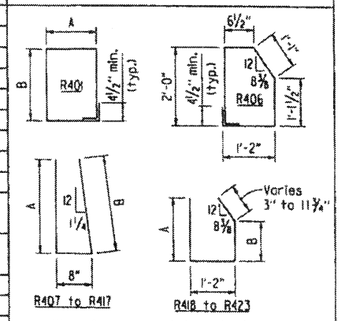
When alternate surface and/or architectural finishes are specified in the plans, no direct payment will be made, and the alternate finish shall be considered incidental to the unit price bid for "Transitional Approach Railing". See plan details for additional information when architectural finishes are specified.

Transitional Approach Railing shall be paid for at the contract unit price bid for "Transitional Approach Railing". See Section 806 for additional information.

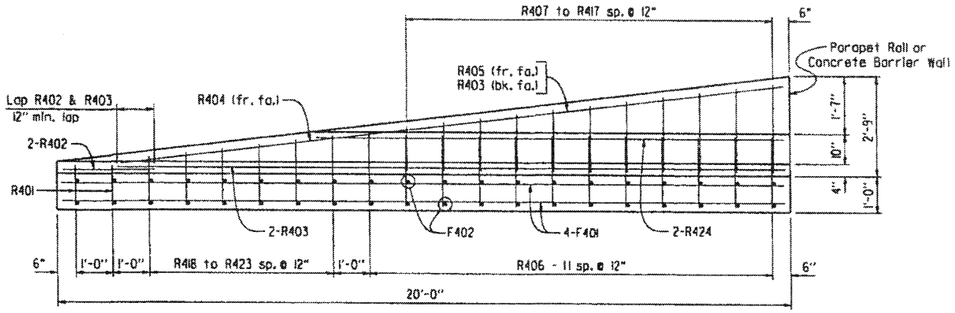
BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd	Length	A	B	Pin Dia.
F401	8	19'-8"			Str.
F402	40	3'-8"			Str.
R401	2	4'-10"	1'-2"	1'-1"	2"
R402	2	3'-0"			Str.
R403	3	17'-9"			Str.
R404	1	5'-0"			Str.
R405	1	12'-9"			Str.
R406	12	6'-3"			2"
R407 to R417	1 ea.	3'-0" to 5'-5"	1'-3" to 2'-5½"	1'-3" to 2'-5½"	2"
R418 to R423	1 ea.	3'-9" to 5'-1"	1'-4" to 1'-11¼"	1'-1½"	2"
R424	2	12'-0"			Str.

Bending Diagrams



Dimensions are out to out of bars.



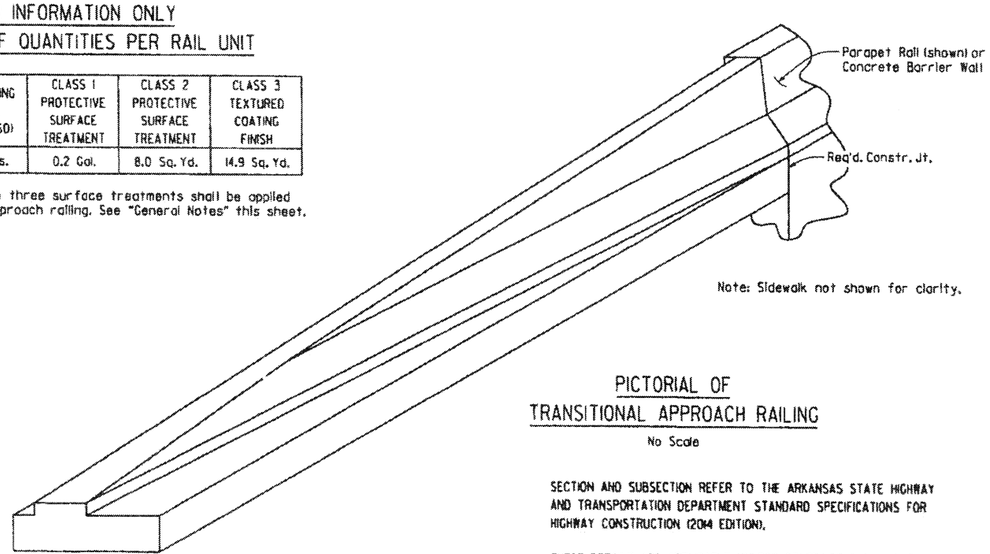
ELEVATION OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"

FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS 1 PROTECTIVE SURFACE TREATMENT	CLASS 2 PROTECTIVE SURFACE TREATMENT	CLASS 3 TEXTURED COATING FINISH
4.20 Cu. Yds.	376 Lbs.	0.2 Gal.	8.0 Sq. Yd.	14.9 Sq. Yd.

Only one of the above three surface treatments shall be applied to the transitional approach railing. See "General Notes" this sheet.

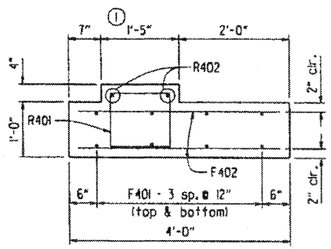


Note: Sidewalk not shown for clarity.

PICTORIAL OF TRANSITIONAL APPROACH RAILING

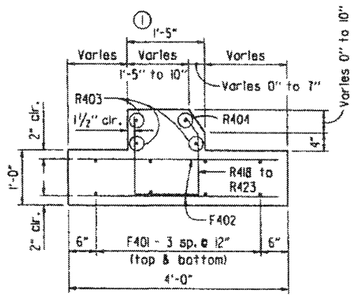
No Scale

① Dimension shall be increased to maintain 1½" clearance if architectural finish is specified.



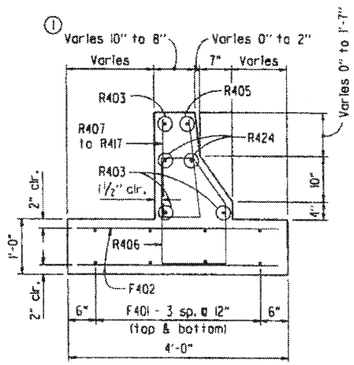
VIEW A-A

¾" = 1'-0"



SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"

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 TRANSITIONAL APPROACH RAILING

ARKANSAS STATE HIGHWAY COMMISSION

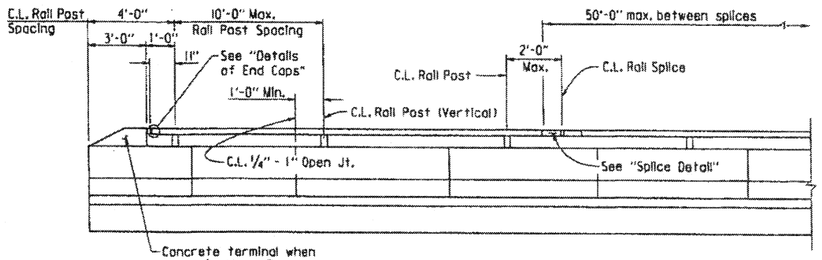
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55013.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: As Noted

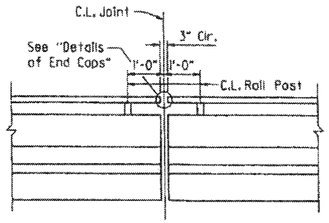
DESIGNED BY: STD. DATE: —

DRAWING NO. 55013

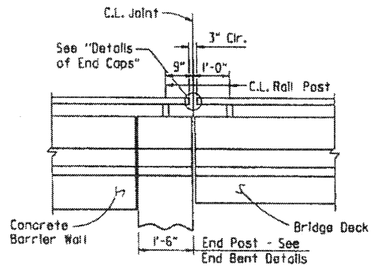


RAIL POST SPACING DETAIL

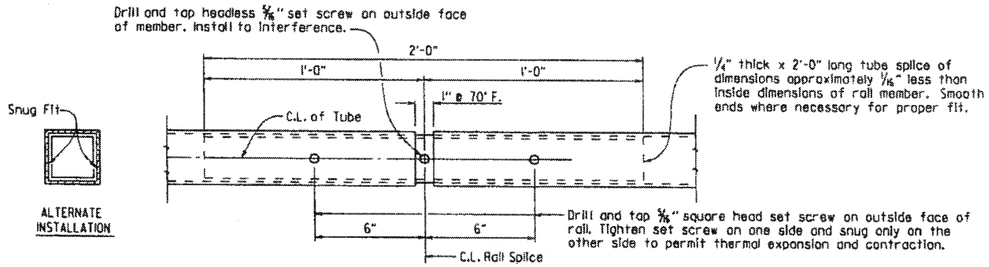
(Horizontal dimensions are along face of rail)



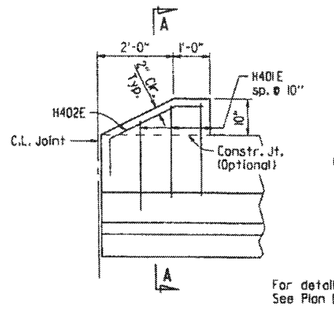
RAIL POST SPACING AT EXPANSION JOINTS



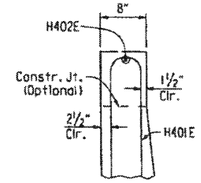
RAIL POST SPACING AT BRIDGE ENDS WITH CONCRETE BARRIER WALL



SPLICE DETAIL

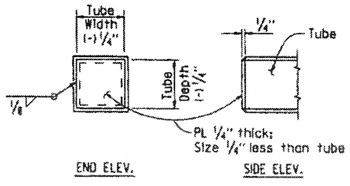


DETAIL X

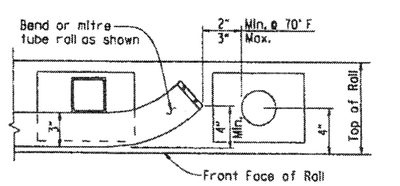


SECTION A-A

For details of reinforcing steel, See Plan Details.

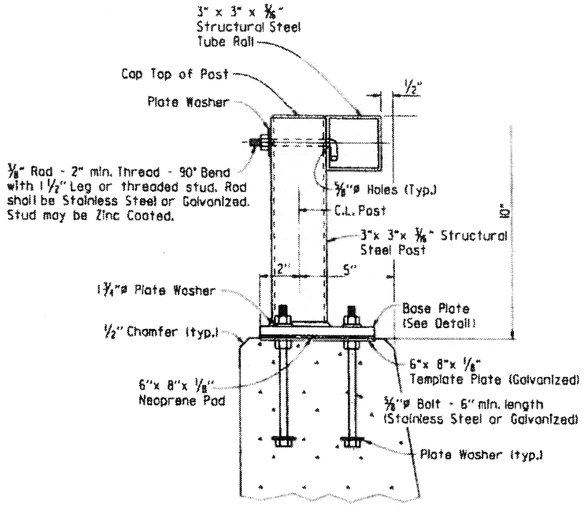


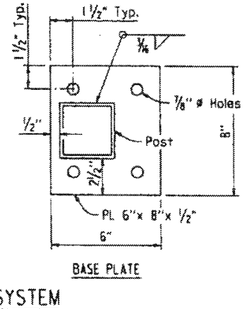
DETAILS OF END CAPS



DETAILS OF RAIL TERMINUS AT FENCE POST

(When Chain Link Fence is required)

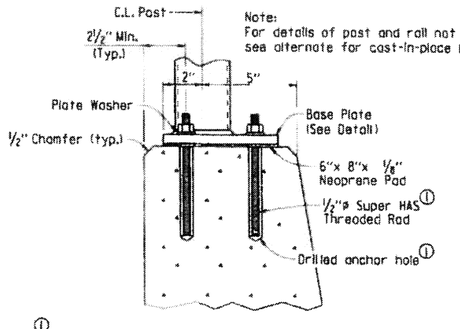


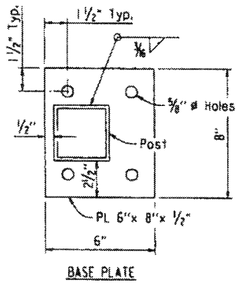


BASE PLATE

DETAILS OF POST ANCHOR SYSTEM

(CAST-IN-PLACE BOLTS)





BASE PLATE

① HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal.

The HILTI Epoxy Adhesive Anchor System (or approved equal) shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(EPOXY ADHESIVE ANCHORS)

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 H RAILING		55014	

MATERIALS:

Rail tubing, posts, end caps, and base plates shall conform to AASHTO M 270, Gr. 36 or ASTM A 500-Grade B, and shall be galvanized after fabrication in accordance with Subsection 806.02(c). When required elsewhere in the plans, steel rail members shall receive a powder coating process after galvanizing. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the manufacturer's recommendations prior to application of the powder coating process.

The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 to 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 to 4 mils. The color shall be as shown in the plans. Coated galvanized framework shall have a salt spray resistance of 3000 hours using ASTM B 117 without loss of adhesion. The powder coating process shall be in accordance with manufacturer's recommendations. Any damage to the powder coated finish shal l be repaired with a compatible touch-up system in accordance with manufacturer's recommendations and to the satisfaction of the Engineer at the Contractor's expense.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized fasteners and stainless steel will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to AASHTO M 270, Gr. 36.
Splice Set Screws shall conform to AASHTO M 270, Grade 36.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi.
Nuts shall conform to AASHTO M 292, Grade 8 or ASTM A563.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193 or A320-Grade B8.

Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series). Neoprene pads shall conform to the requirements of Subsection 807.15(b).

GENERAL NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge. All posts shall be vertical.

Maximum post spacing = 10'-0". Minimum distance from centerline post to centerline open or contraction joints in parapet rail = 1'-0".

Splices in rail tubing shall be at 50' maximum spacing. The centerline of splices shall be located a maximum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including posts, template and base plates, fasteners, and neoprene pads shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)". When required elsewhere in the plans, powdered coating finish and repair of powdered coating finish shall be considered subsidiary to the item "Metal Bridge Railing (Type H)".

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

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 TYPE H RAILING

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55014.dgn
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STO. DATE: —

BRIDGE NO. DRAWING NO. 55014

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

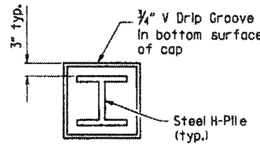
GENERAL NOTES FOR STEEL H-PILES:

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

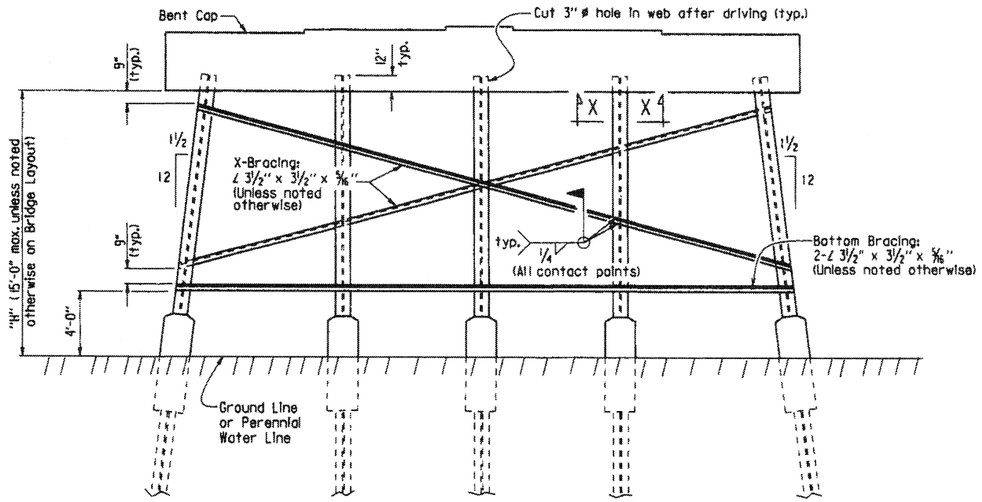
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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.

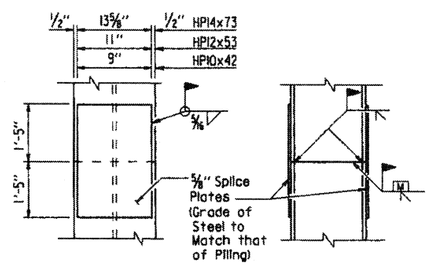
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)



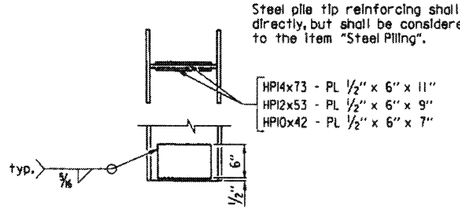
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

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 5/16" 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:

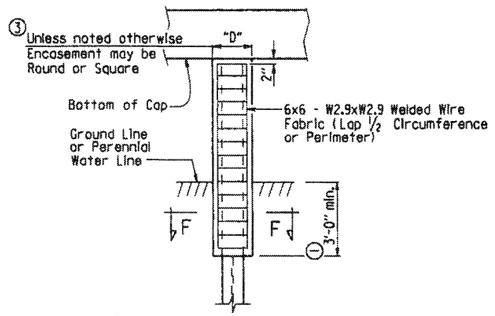
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

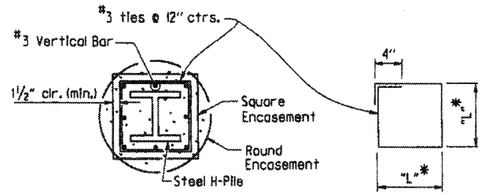
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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)

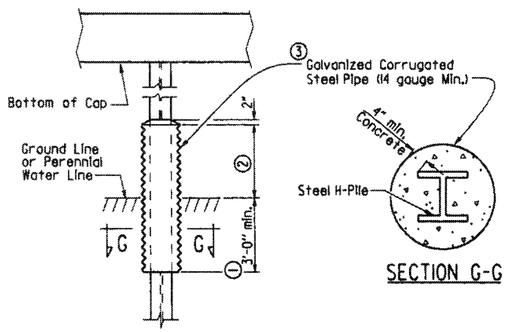


SECTION F-F

*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

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

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

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

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

⚠ 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

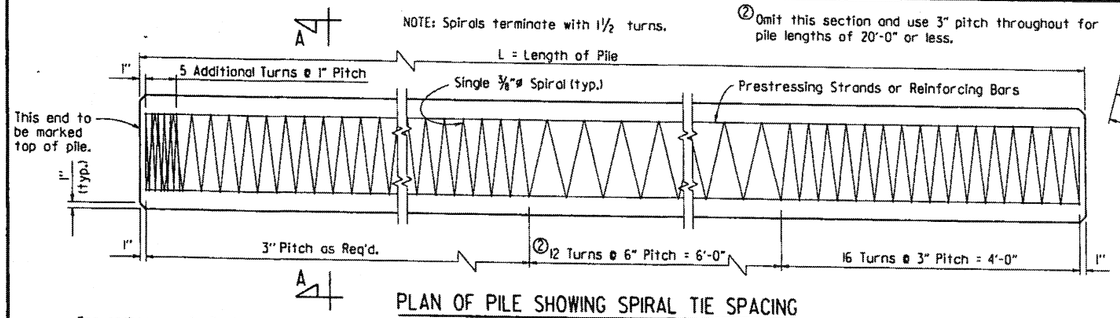
ARKANSAS STATE HIGHWAY COMMISSION

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

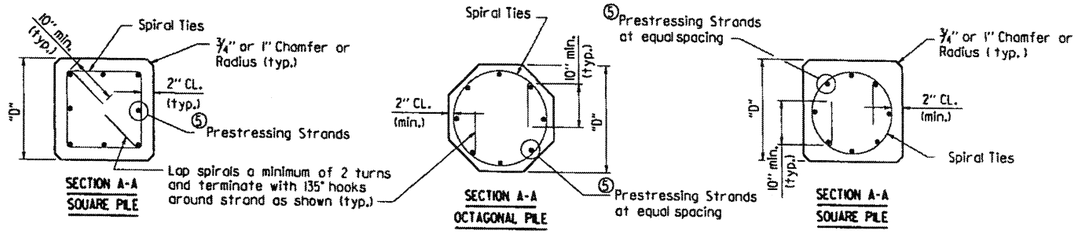
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				CONC. PILES		55022		



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

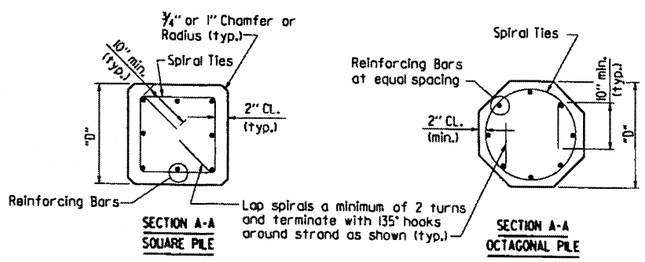
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	①Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	⅜"	11	13	10	13	16	20	28	27,000	18,900
		½"	8	10	8	10	12	15	21	36,000	25,200
	270	⅜"	9	11	8	12	14	17	24	31,000	21,700
		½"	7	9	6	8	10	13	18	41,300	28,900
Low Relaxation	250	⅜"	9	11	8	11	14	17	24	27,000	20,200
		½"	7	9	6	8	10	13	18	36,000	27,000
	270	⅜"	8	10	7	9	12	15	21	31,000	23,300
		½"	6	8	6	7	9	11	16	41,300	31,000



NON-PRESTRESSED CONCRETE PILES

NON-PRESTRESSED PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	#7
18" Oct.	8	#7
④ 14" Sq.	8	#7
16" Sq.	8	#7
18" Sq.	8	#8

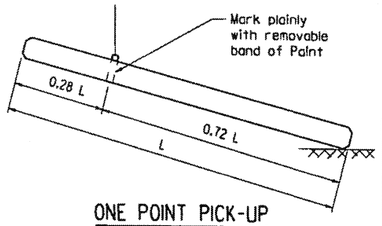
④ 14" sq. piles to be used in Seismic Performance Zone 1 only.

⚠ Revised to accommodate 20" and 24" square prestressed piles by KWY, Ck'd. by BEF, 3/24/16.

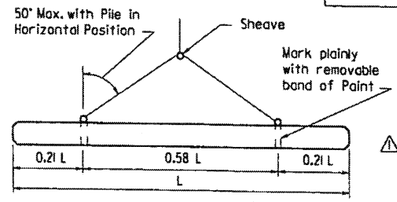
⚠ PILE BUILD-UP FOR 20" & 24" PRESTRESSED PILES

Pile Size	No. Req'd.	Bar Size
20" Sq.	8	#9
24" Sq.	12	#9

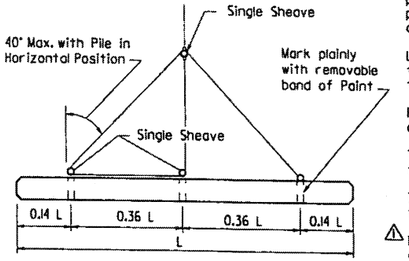
NOTE: Reinforcing bars shall meet the requirements for Grade 60, AASHTO M 31 or M 322, Type A.



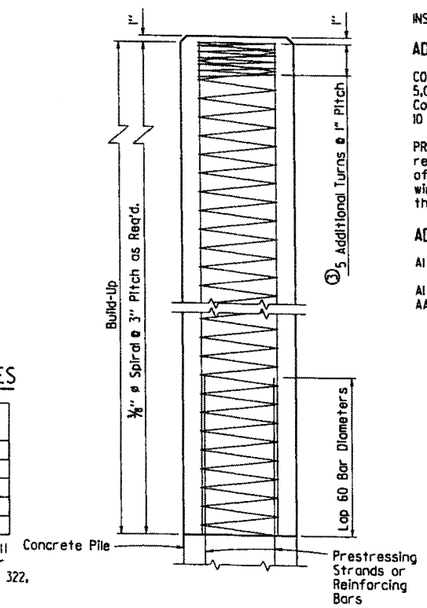
ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP



BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

MAXIMUM PICKUP LENGTHS "L"

① CONC. PILES 55022

Type of Pick-Up	Prestressed 16" Oct.	18" Oct.	Non-Prestressed 16" or 18" Oct.	Prestressed ④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Non-Prestressed ④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	66'	71'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	95'	102'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	132'	143'	104'	103'	111'

GENERAL NOTES:

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, current Edition with interim Specifications.

SEISMIC PERFORMANCE ZONES: 1 & 2

⚠ Unless otherwise noted in the plans, the Contractor may use prestressed or non-prestressed piles for 14", 16" and 18" piles. The Contractor shall use prestressed piles for 20" and 24" piles. Prestressed and non-prestressed piling shall be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

⚠ BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, the concrete in the pile shall be cut back to provide a 60 bar diameter lap splice. For piles equal to or less than 18", the reinforcing for build-up shall be the reinforcing shown for non-prestressed piles. Otherwise, the reinforcing for build-up shall be as shown in the table "Pile Build-Up for 20" & 24" Prestressed Piles" and the 60 bar diameter splice length shall be based on the bar sizes shown.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling".

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

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 CONCRETE PILES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55022.dgn

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

DESIGNED BY: STD. DATE: —

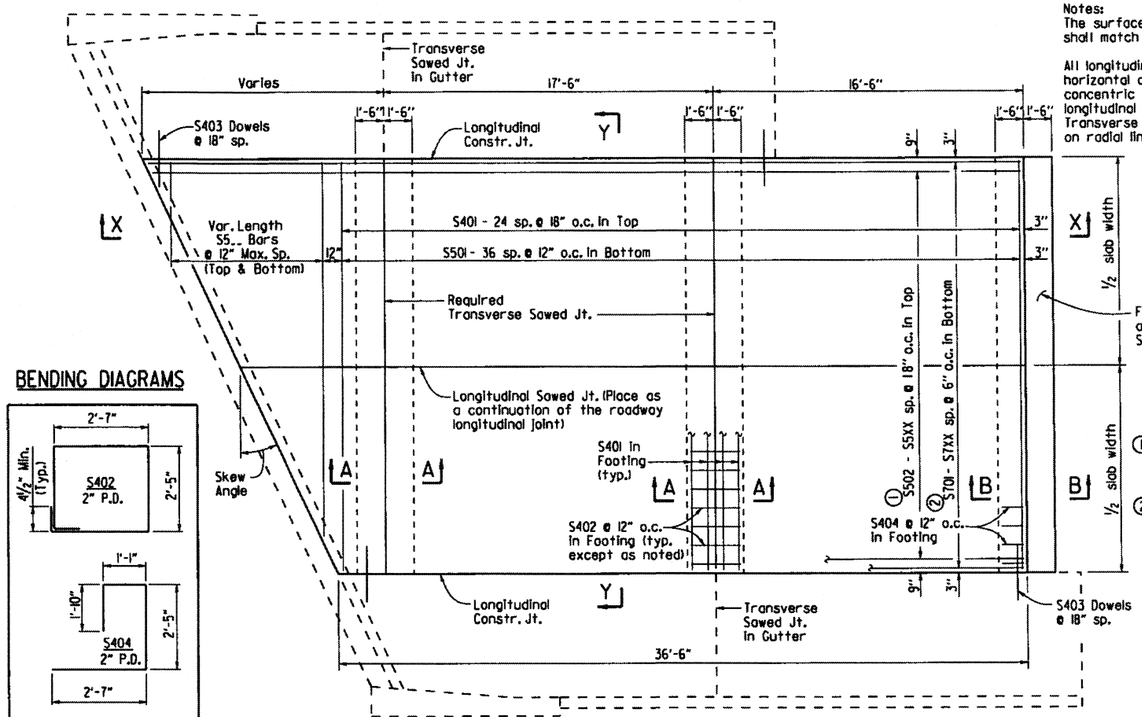
DRAWING NO. 55022

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.

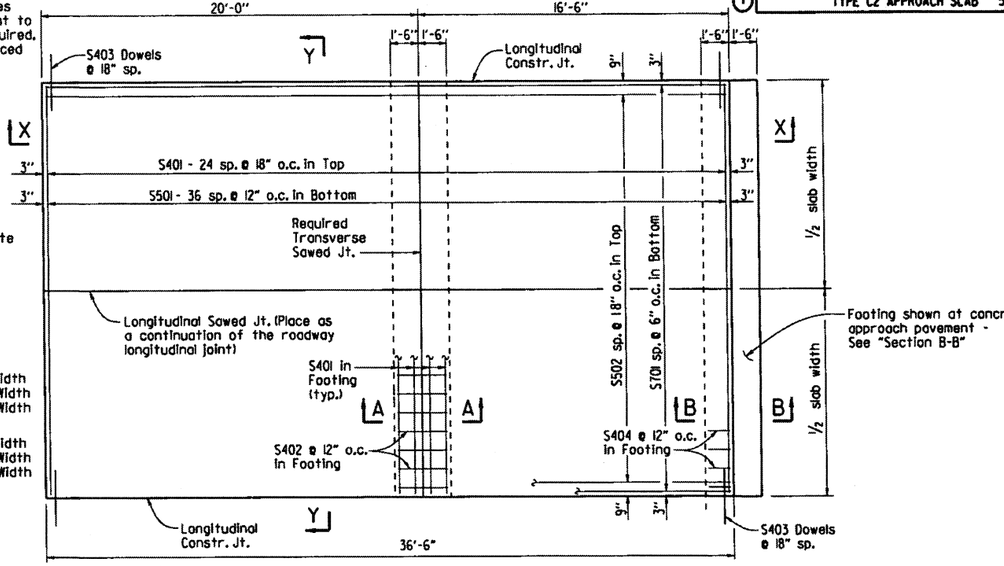


PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 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

1/4" = 1'-0"

BENDING DIAGRAMS

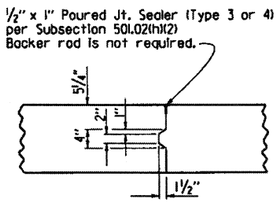
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

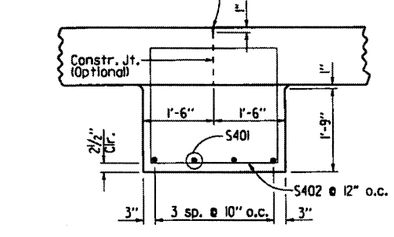
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	15	10'-4"	30	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	15	7'-8"	15	7'-8"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan 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



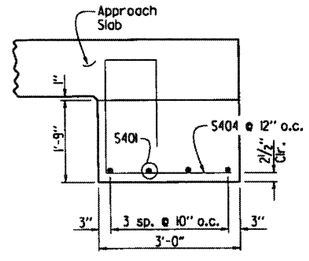
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"



SECTION A-A

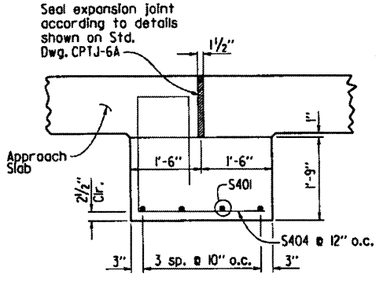
N.T.S.



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

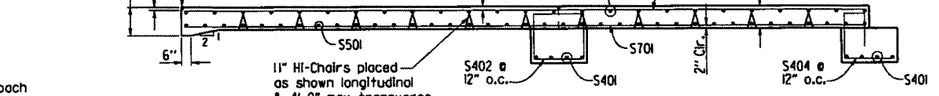
N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

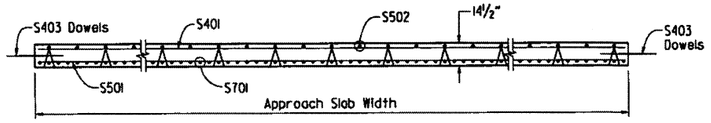
N.T.S.



SECTION X-X

SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"



SECTION Y-Y

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.

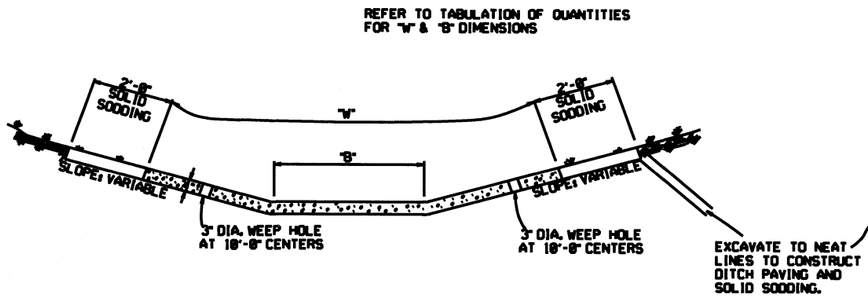
STANDARD DETAILS FOR TYPE C2 APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

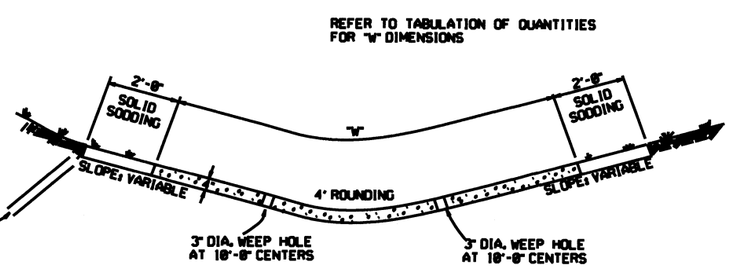
LITTLE ROCK, ARK.

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

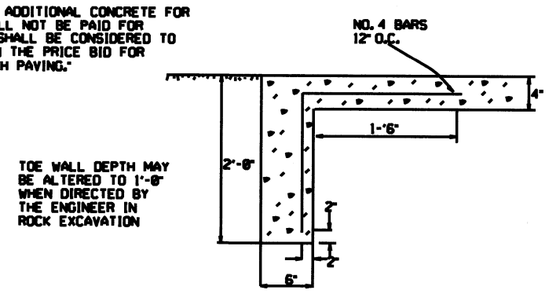


TYPE A

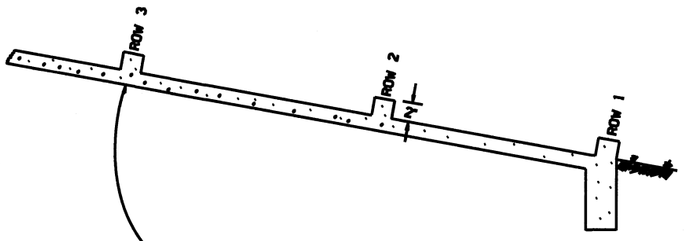


TYPE B

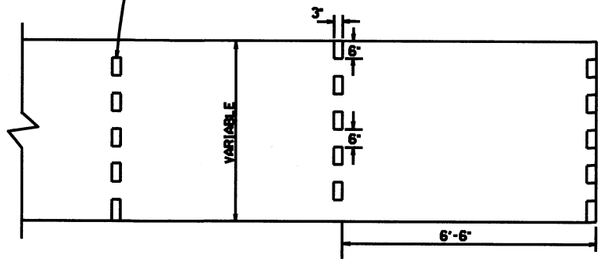
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

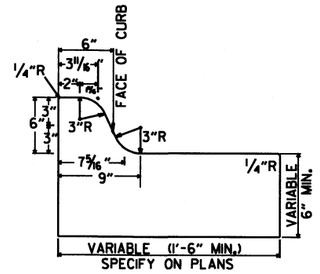
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
10-30-8	ELIMINATED MIN. NOS. OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	843-7-15-88
4-5-87	REVISED ENERGY DISSIPATOR	671-4-5-87
1-6-87	MODIFIED NOTE ON ENERGY DISS.	642-1-6-87
11-4-86	ADDED NOTE TO ENERGY DISS.	598-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED ONLY TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

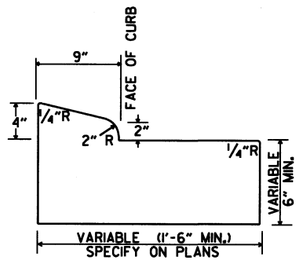
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

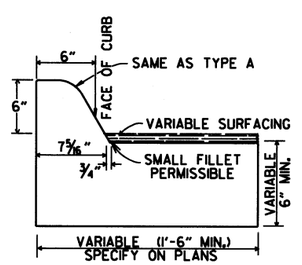
STANDARD DRAWING CDP-1



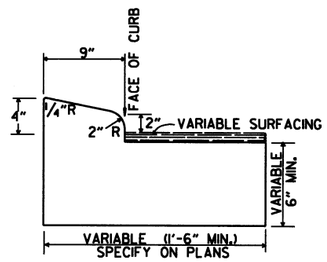
TYPE A



TYPE B-1



TYPE C



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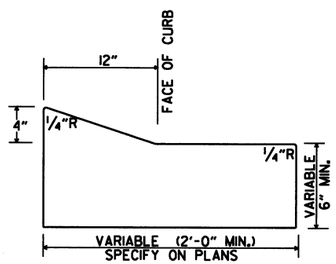
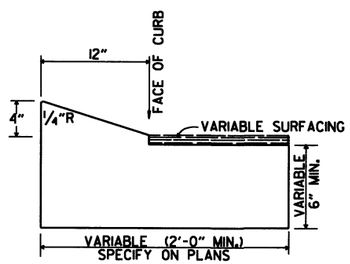
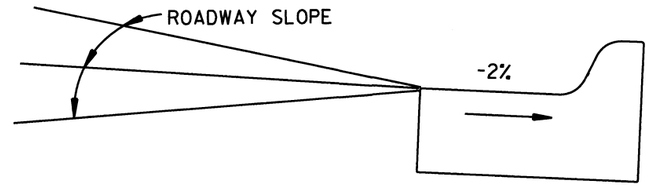


TYPE E-1



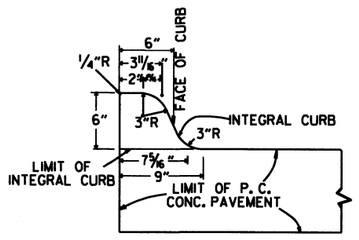
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

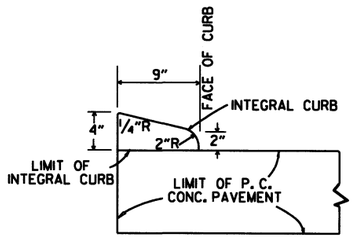


DETAIL OF GUTTER SLOPE

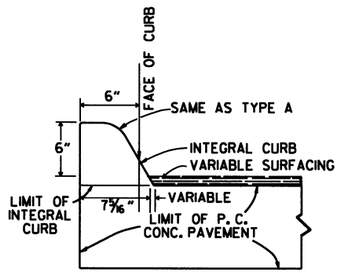
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

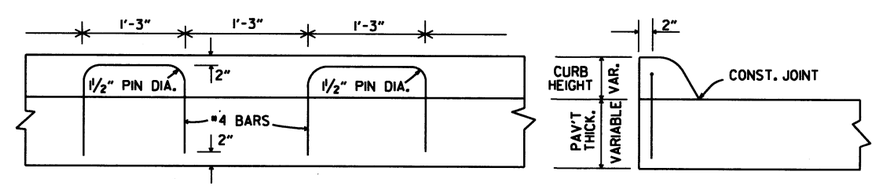


TYPE B



TYPE C

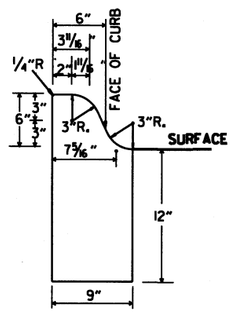
INTEGRAL CURB



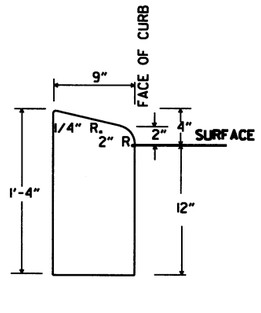
LONGITUDINAL SECTION

ELEVATION

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



TYPE A



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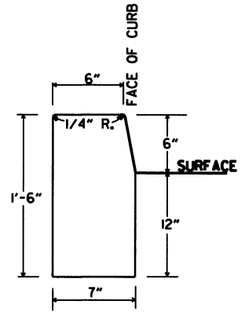
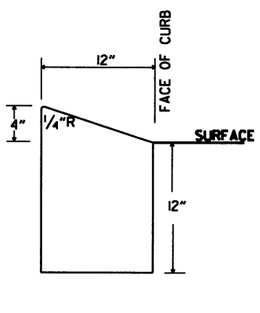
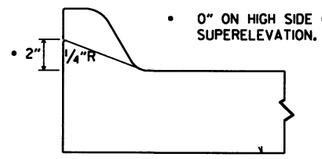


TYPE D



TYPE E

CONCRETE CURB



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

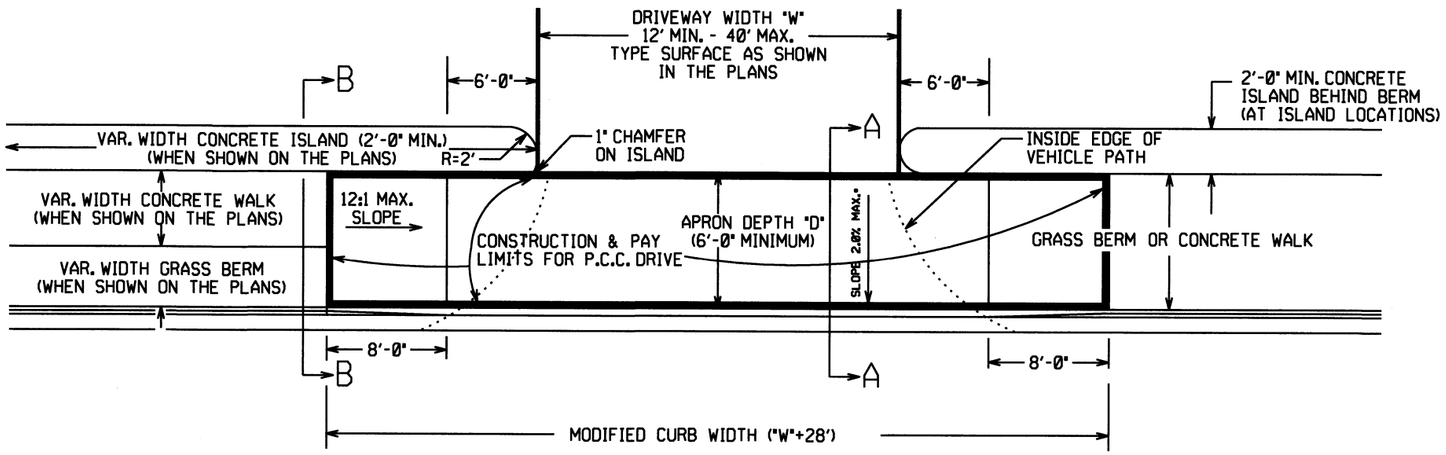
DETAILS OF MODIFIED CURB

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

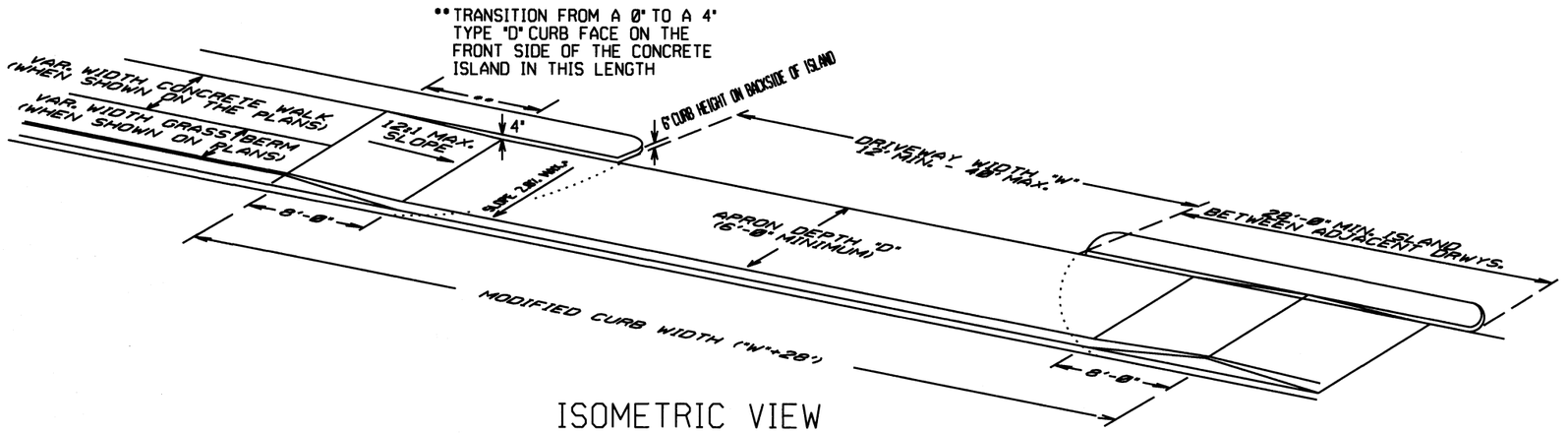
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

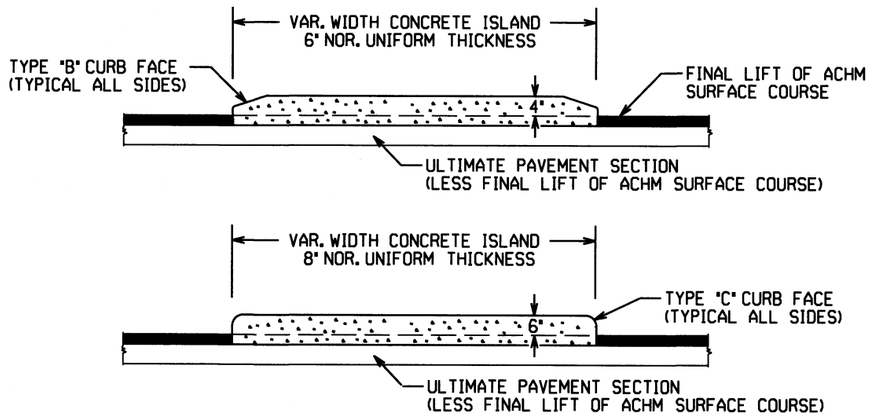
STANDARD DRAWING CG-1



PLAN VIEW

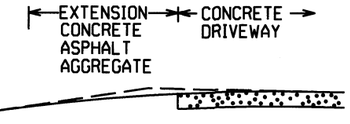


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

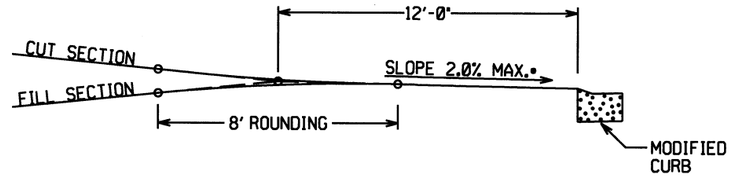
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

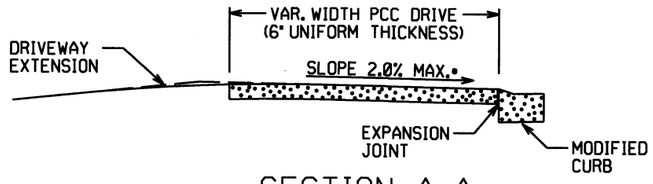
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

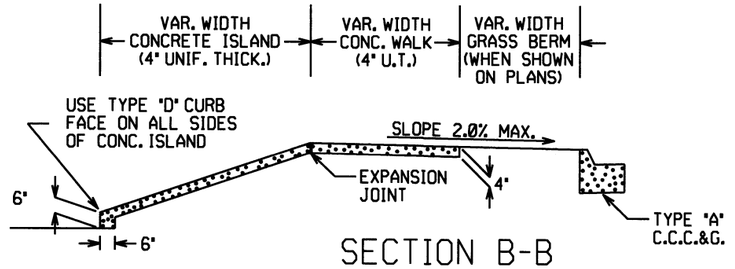


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A



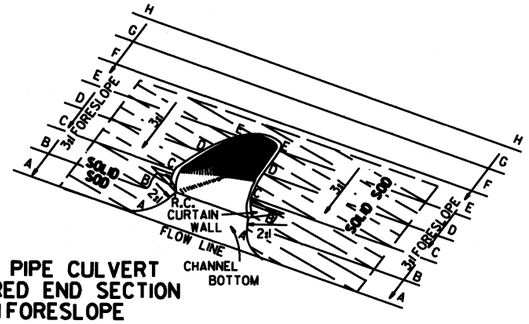
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

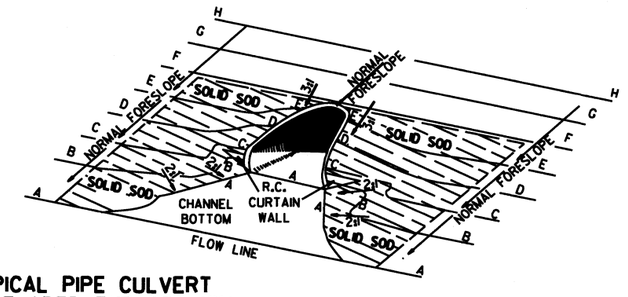
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

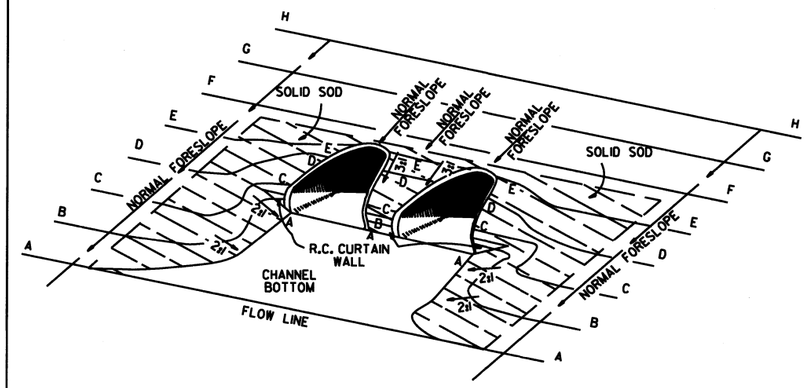
STANDARD DRAWING DR-1



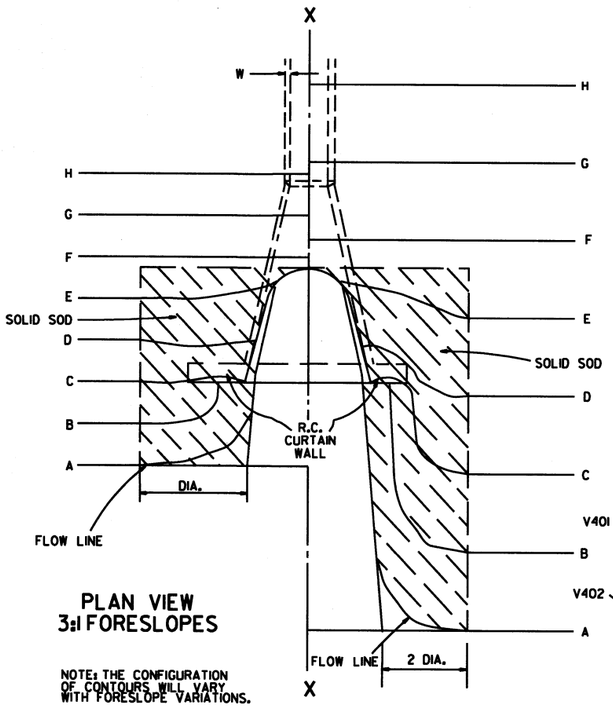
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

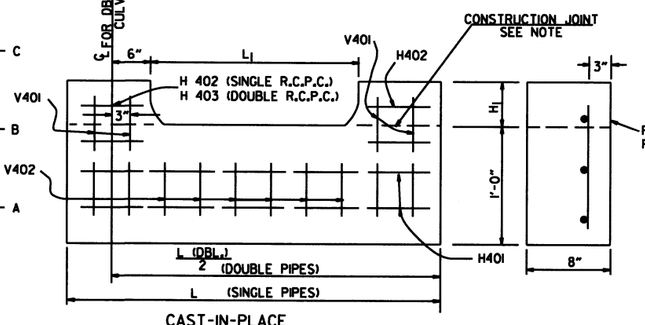
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

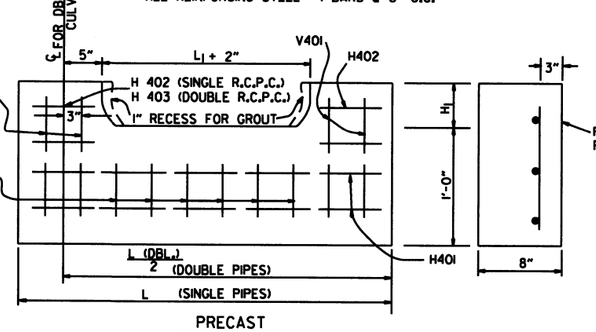
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0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

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



CAST-IN-PLACE

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



PRECAST

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

REINFORCING STEEL SCHEDULE

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

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

SOLID SODDING

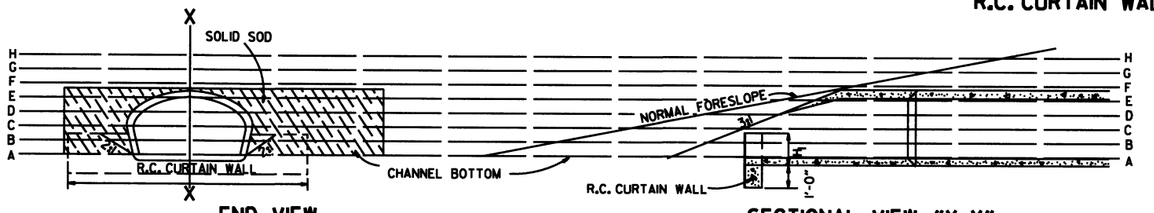
PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

R.C. CURTAIN WALL DETAILS



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.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

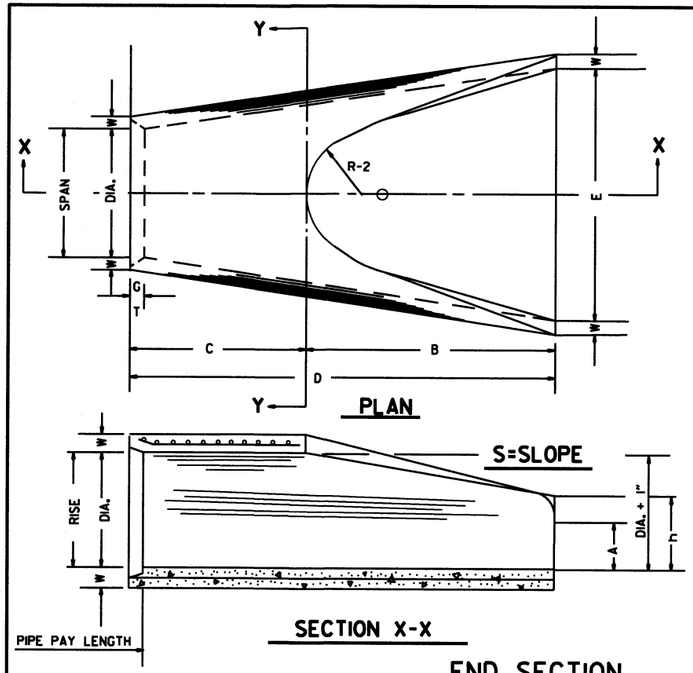
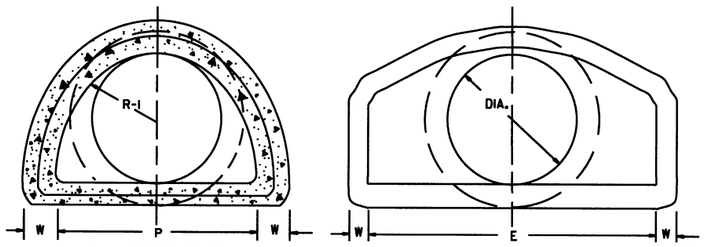


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3st	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3st	25"	33⅜"	16¾"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3st	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¼"	8'-1¾"	6'-0"	3st	37"	47⅝"	24⅛"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3st	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3st	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3st	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3st	61"	72½"	36⅝"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3st	73"	77⅞"	38⅝"	24"	5"	13250	4'-6"

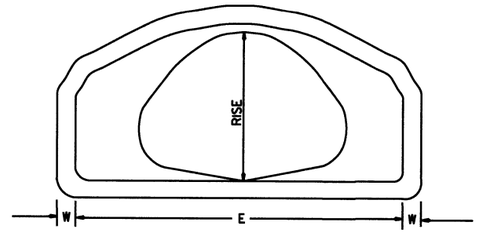


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

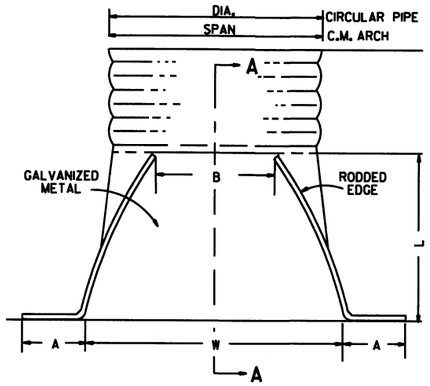
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½st
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½st
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½st
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅝"	15"	2½"	2½st
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅝"	20"	3"	2½st
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½st
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½st
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½st
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼st
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅝"	24"	5"	2¼st

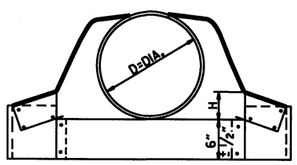
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



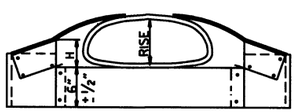
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

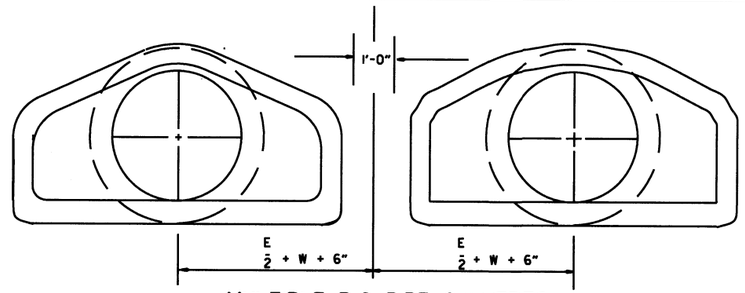
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½st
15	16	7	8	6	26	30	2½st
18	16	8	10	6	31	36	2½st
21	16	9	12	6	36	42	2½st
24	16	10	13	6	41	48	2½st
30	14	12	16	8	51	60	2½st
36	14	14	19	9	60	72	2½st
42	12	16	22	11	69	84	2½st
48	12	18	27	12	78	90	2½st
54	12	18	30	12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

C.M. ARCH PIPE

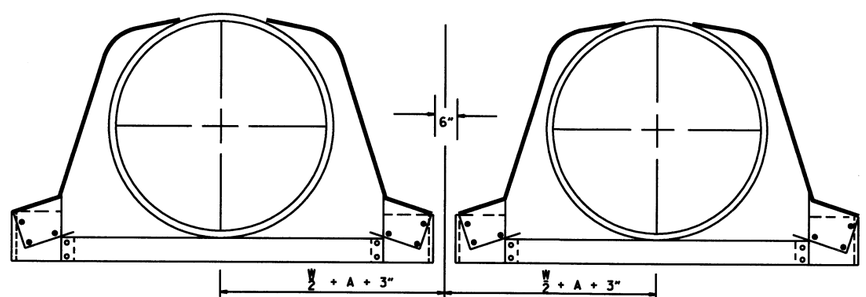
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½st	16
18"	21	15	7	10	6	23	36	2½st	16
21"	24	18	8	12	6	28	42	2½st	16
24"	28	20	9	14	6	32	48	2½st	16
30"	35	24	10	16	6	39	60	2½st	14
36"	42	29	12	18	8	46	75	2½st	14
42"	49	33	13	21	9	53	85	2½st	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



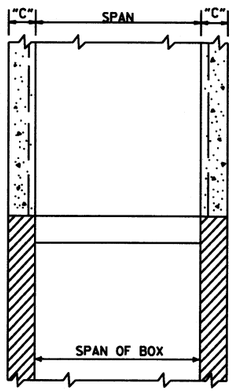
MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
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

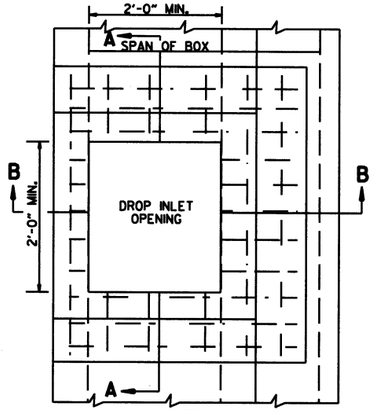
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

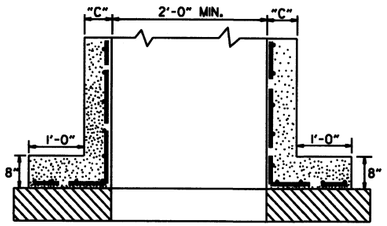
STANDARD DRAWING FES-2



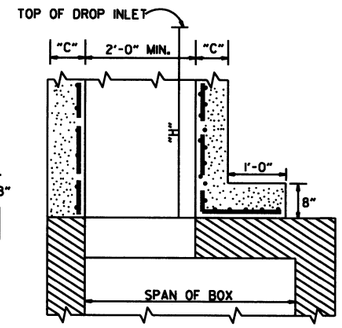
SECTION B-B



PLAN

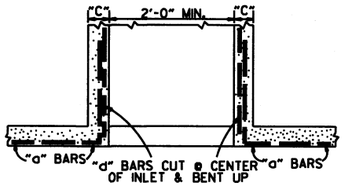


SECTION A-A

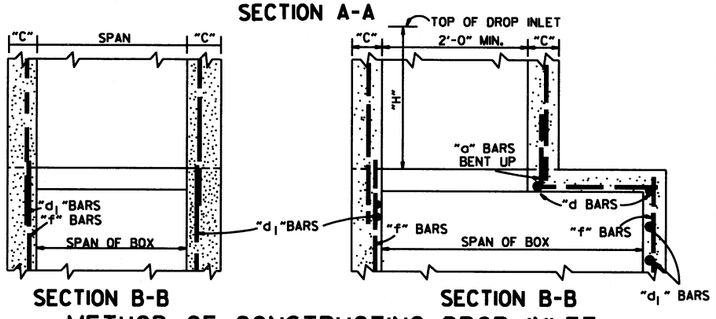


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



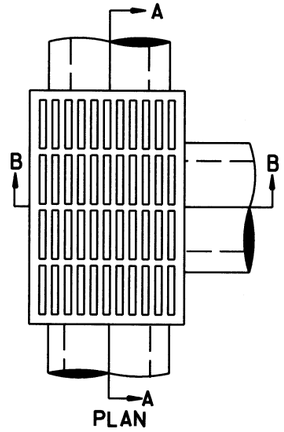
SECTION A-A



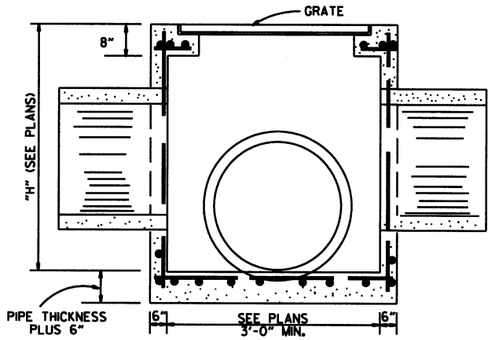
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

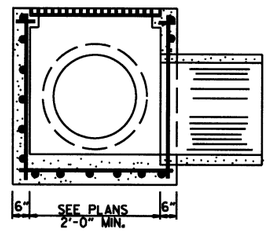


PLAN



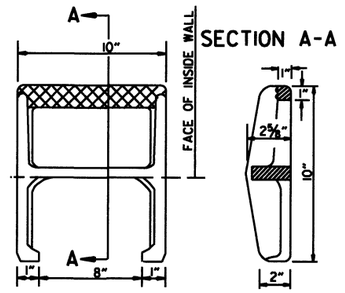
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

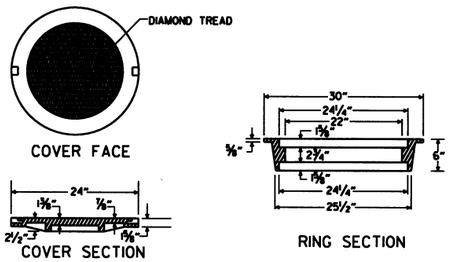


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

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

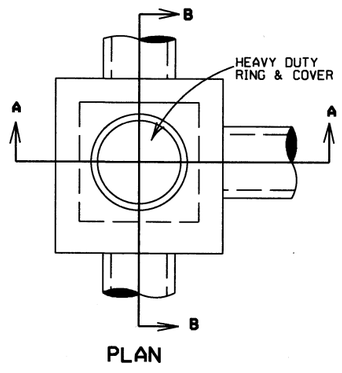
DETAIL OF STEP FOR DROP INLET



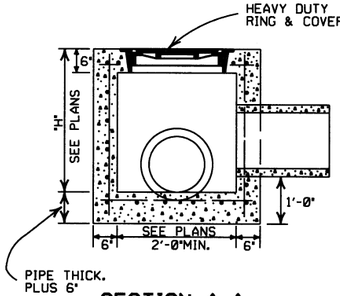
COVER SECTION RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

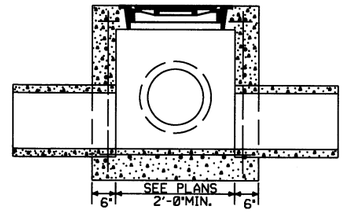


PLAN



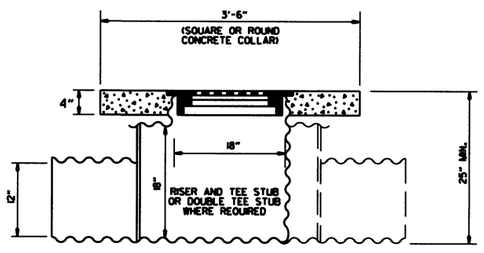
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

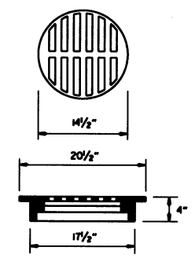


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".

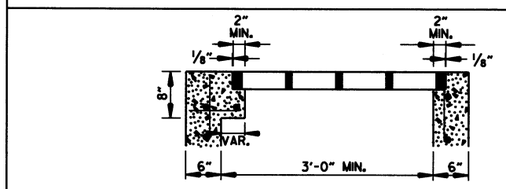


USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

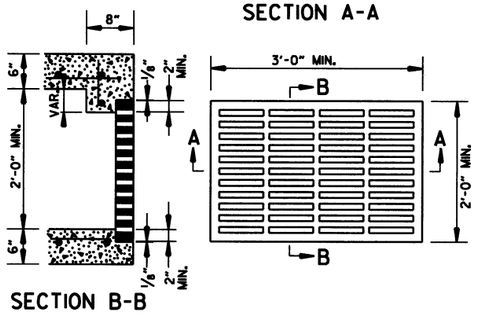
DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



SECTION A-A



SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

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

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

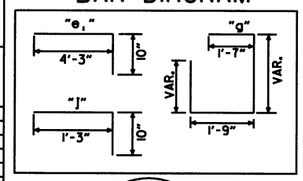
DROP INLET EXTENSION

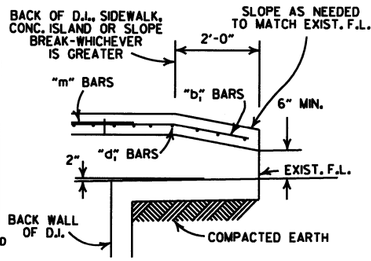
4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

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

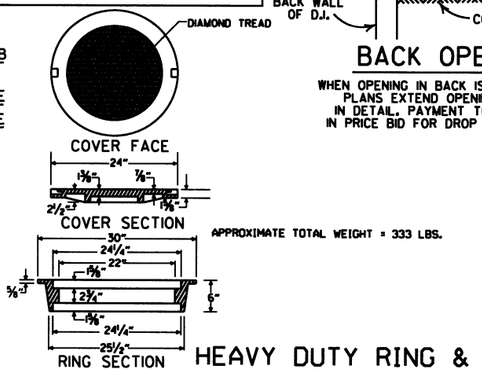
BAR DIAMETER





BACK OPENING

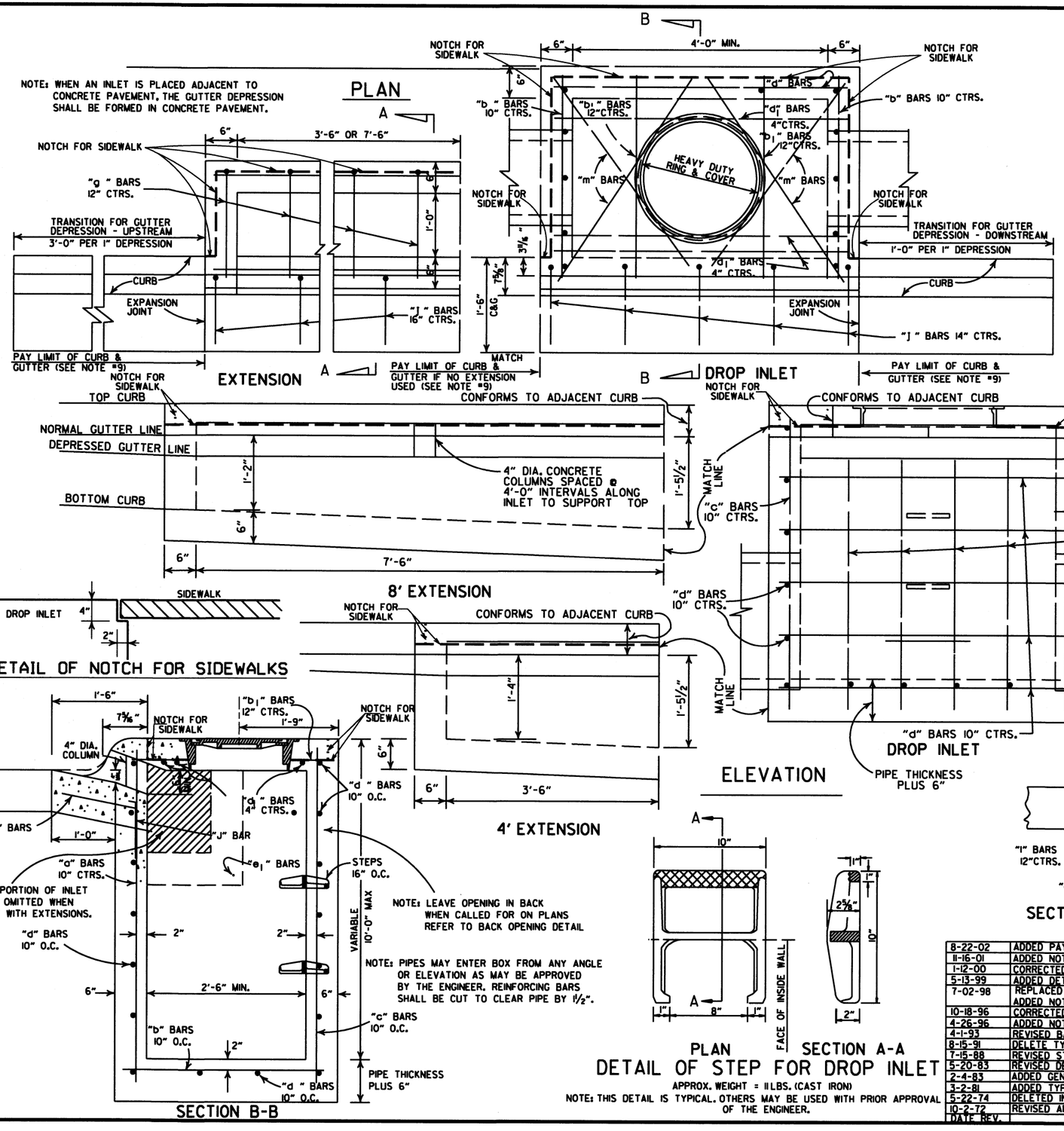
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

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



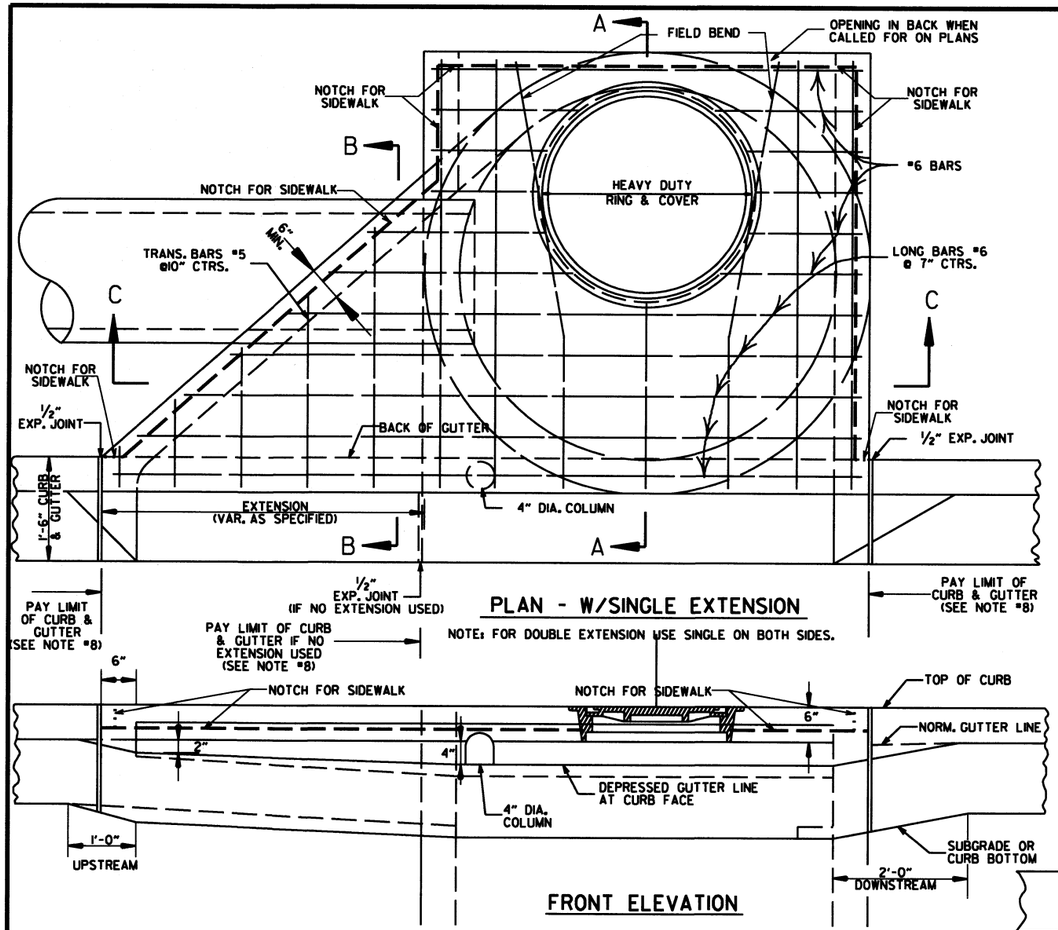
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13, REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4'X8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

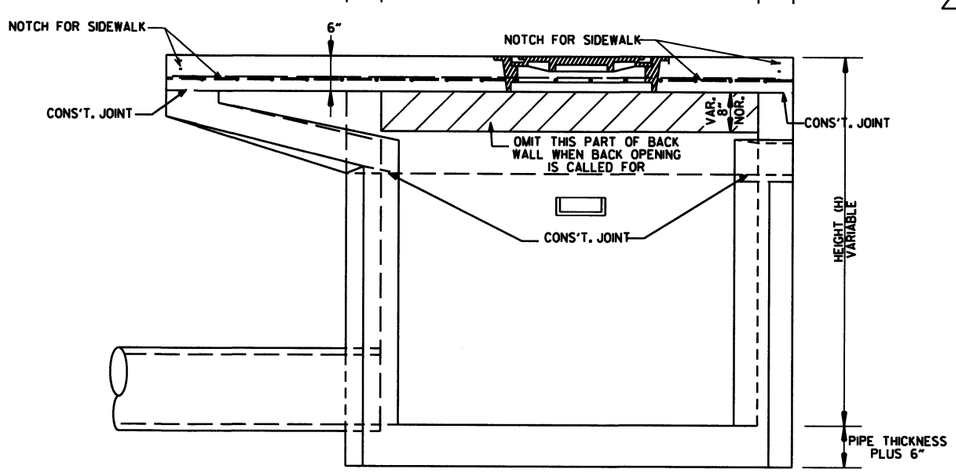
STANDARD DRAWING FPC-9E



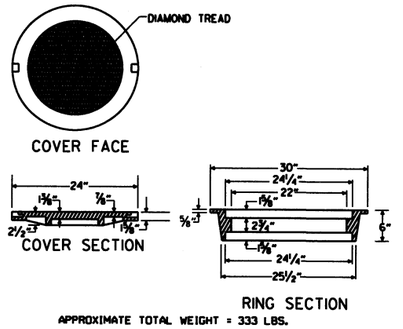
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



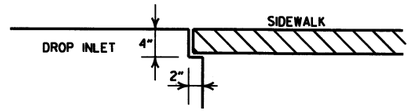
SECTION C-C



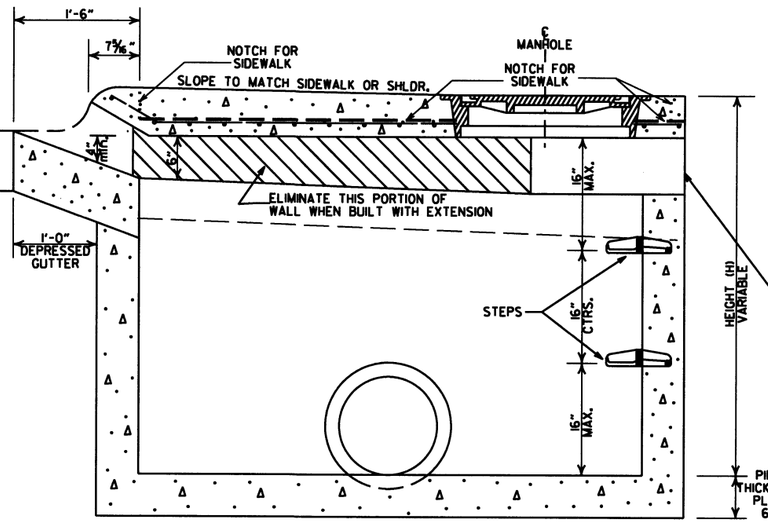
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

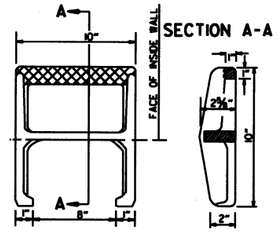
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON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



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A

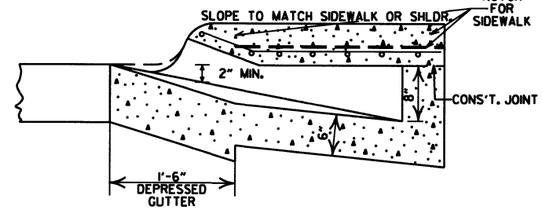


APPROX. WEIGHT = 11 LBS. (CAST IRON)

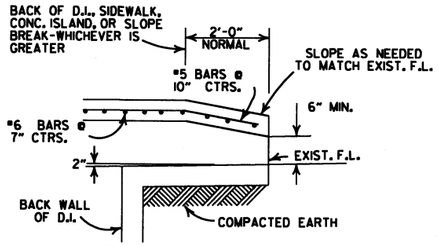
PLAN

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

DETAIL OF STEP FOR DROP INLET



SECTION B-B



BACK OPENING

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

GENERAL NOTES:

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

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

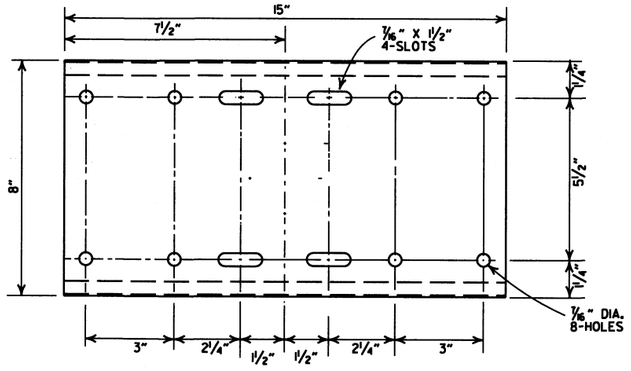
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
8-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 AND OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
7-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-6-93	REV. BACK OPEN DETAIL & NOTE	4-6-93
8-25-92	REVISED NOTES NO2 & ADDED BK OPEN DETAIL	8-25-92
11-10-89	ADDED NOTE NO. 12	11-30-89
4-24-89	ADDED NOTE 9, MINIMUM WALL THICKNESS	5-4-89
12-6-88	ADDED EXTEND NOTE TO SECTION A-A	12-6-88
1-14-87	REVISED WALL THICKNESS	7-31-87
6-12-87	ISSUED	6-12-87

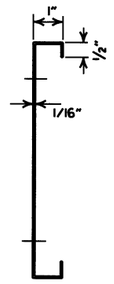
ARKANSAS STATE HIGHWAY COMMISSION

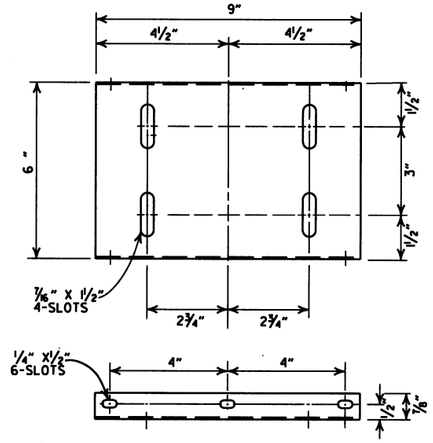
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

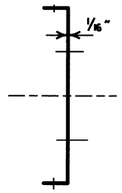


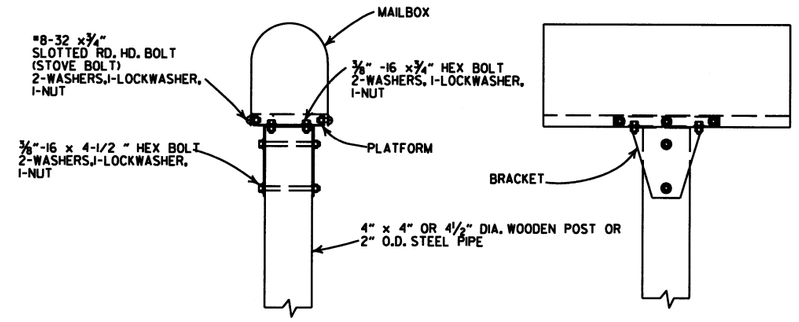
SHELF



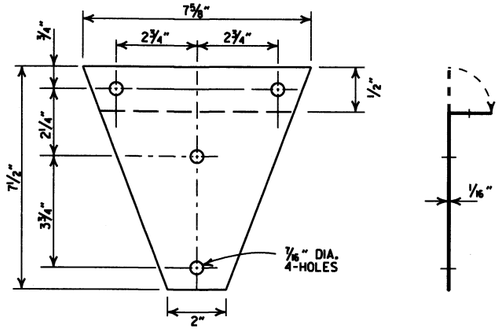


PLATFORM





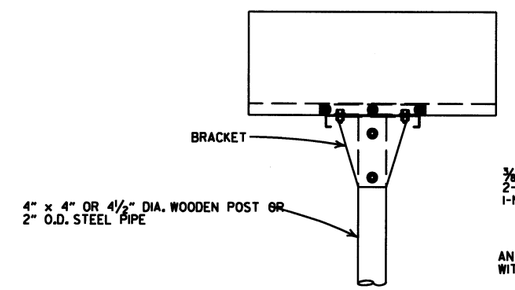
SINGLE INSTALLATION

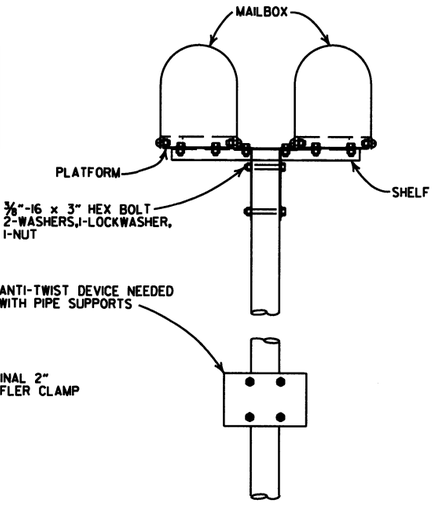


BRACKET

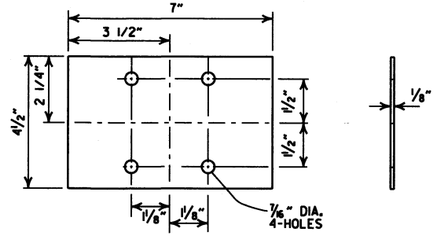
GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.

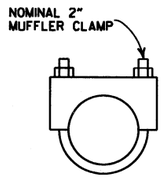




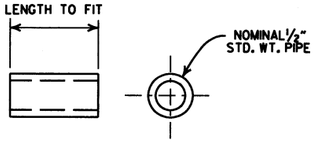
DOUBLE INSTALLATION



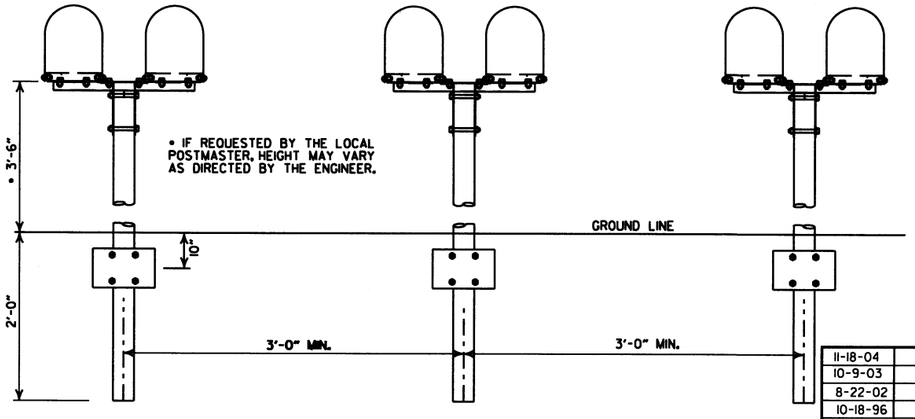
ANTI-TWIST PLATE



CLAMP



SPACER



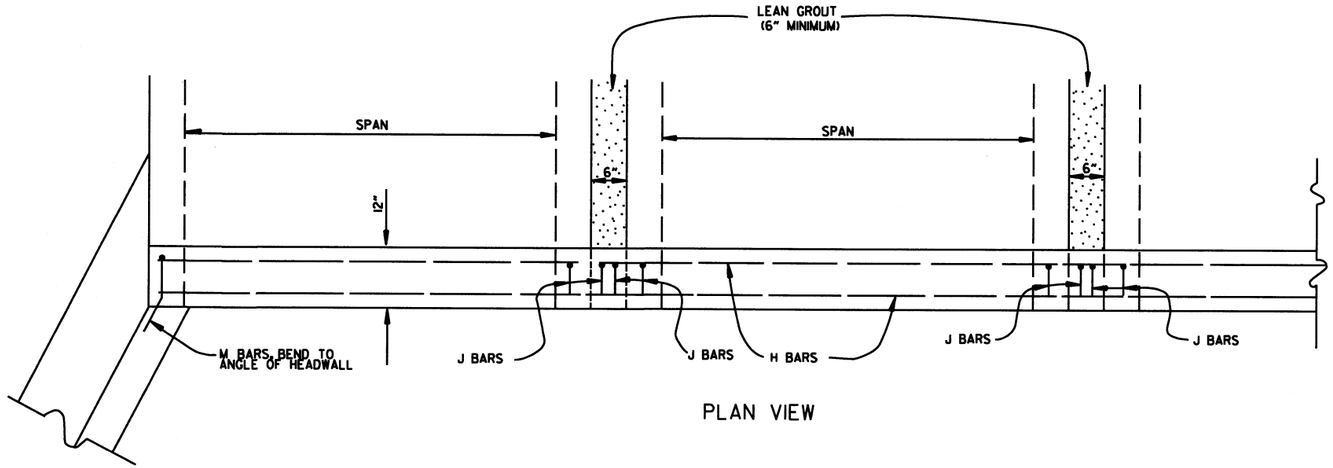
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

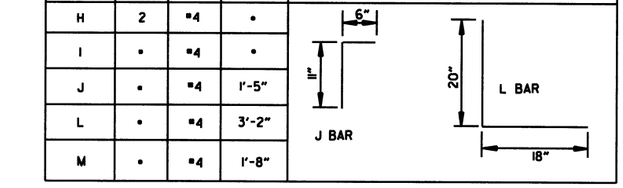
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

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.

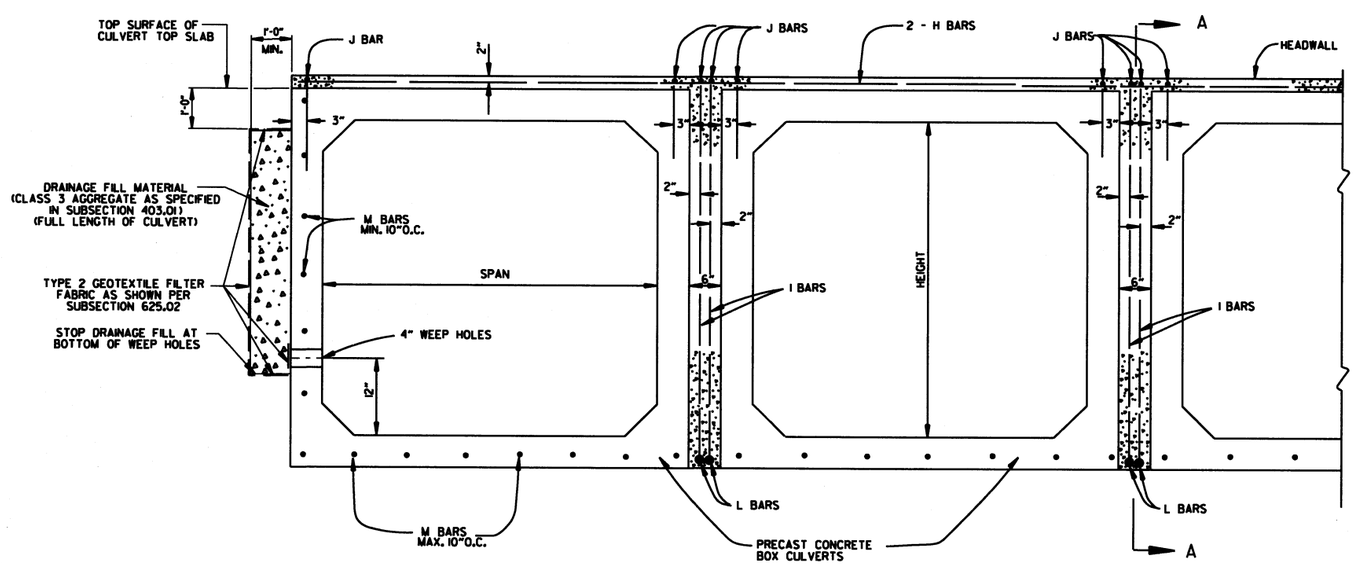
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

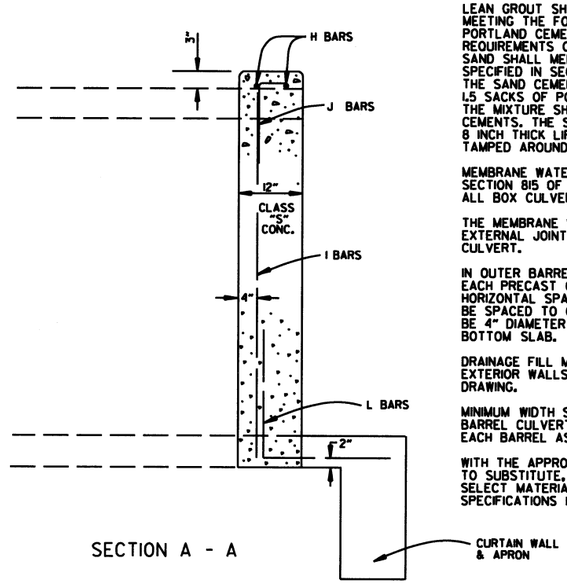
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT. SEE DETAILS ON THIS DRAWING.

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	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

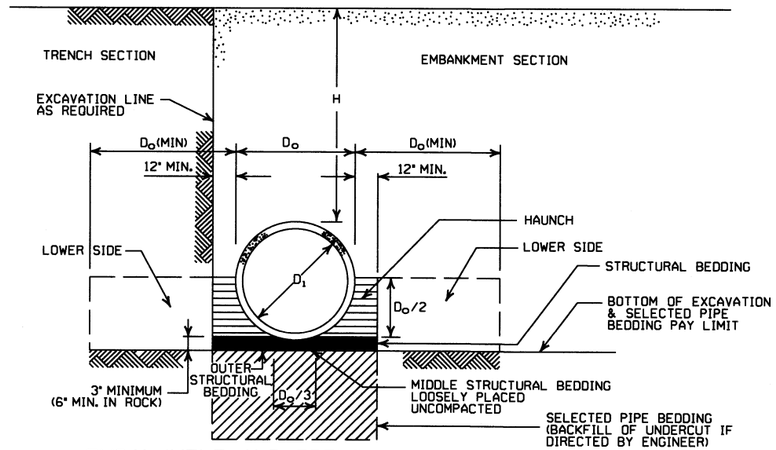
- LEGEND -

D_i = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

**MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

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

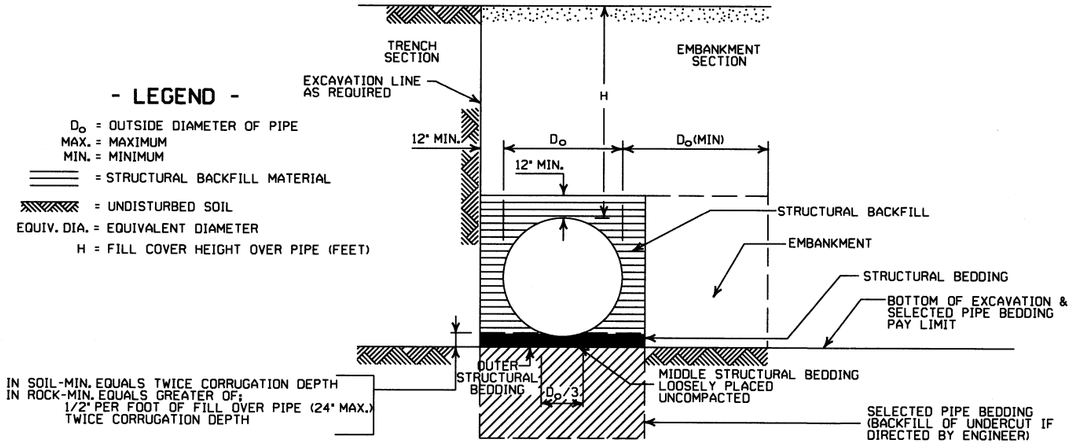
METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

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"

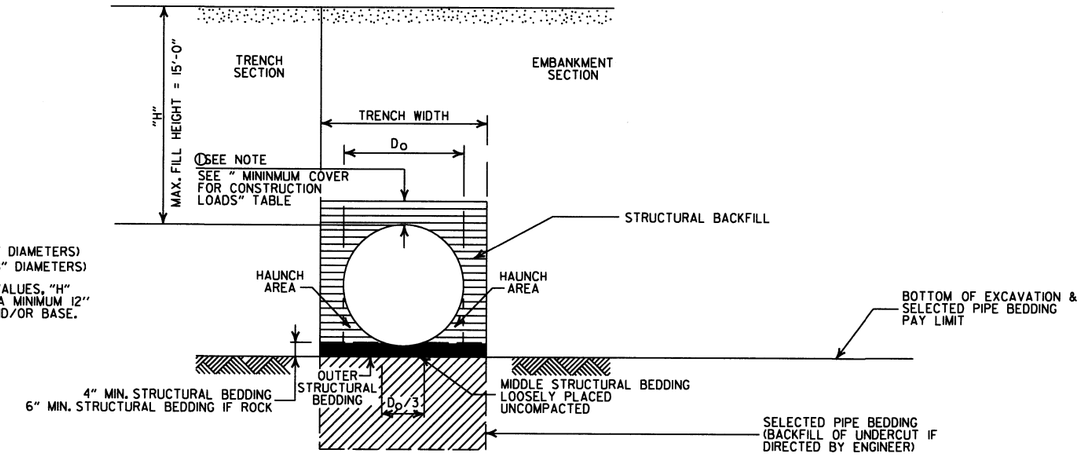
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

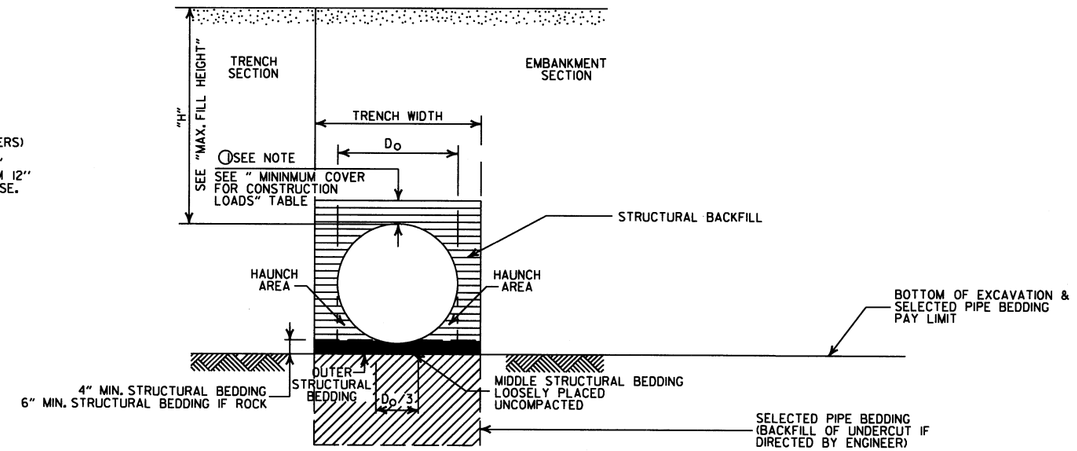
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

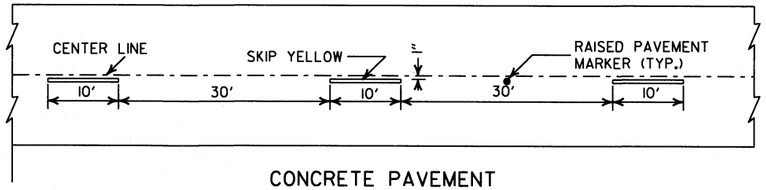
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

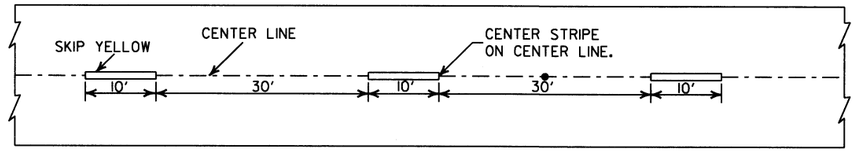
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. 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.

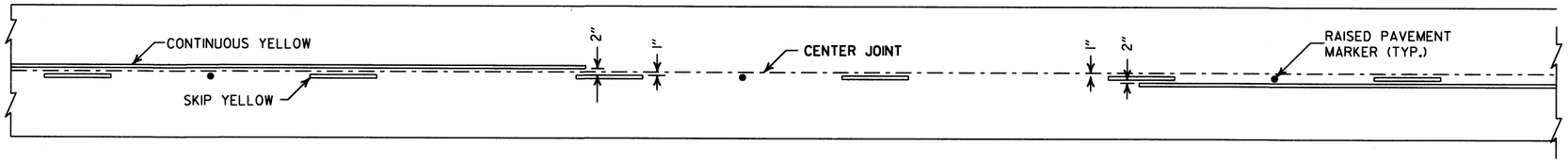


CONCRETE PAVEMENT

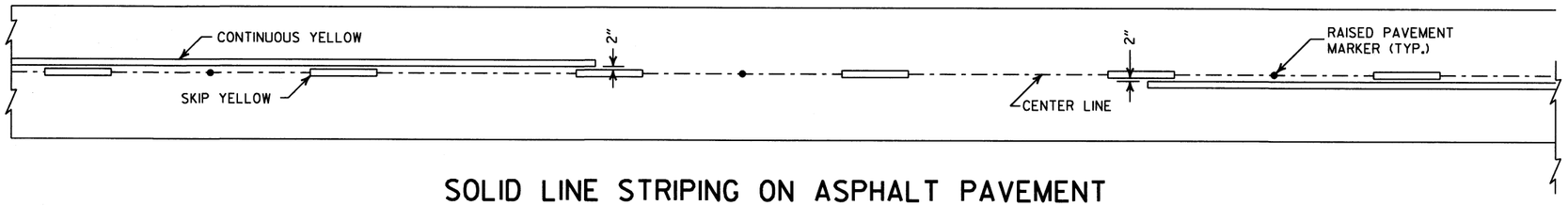


ASPHALT PAVEMENT

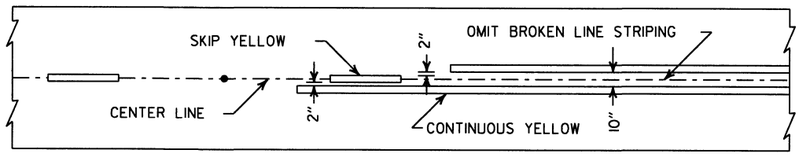
BROKEN LINE STRIPING



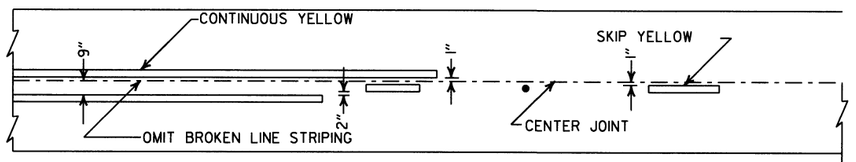
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

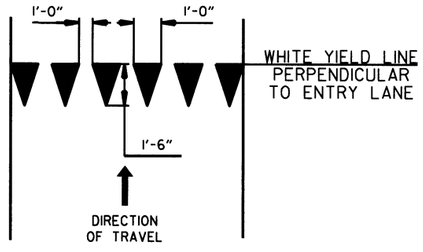


ASPHALT PAVEMENT

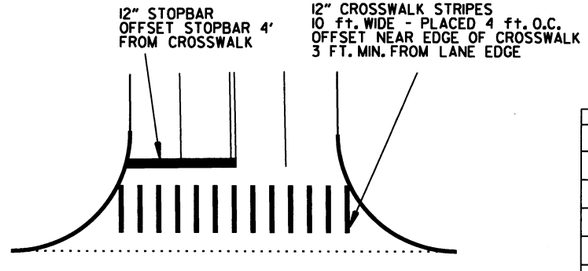


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

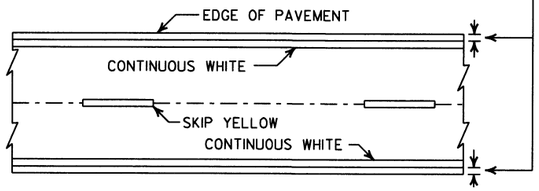


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

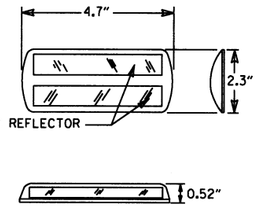
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



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

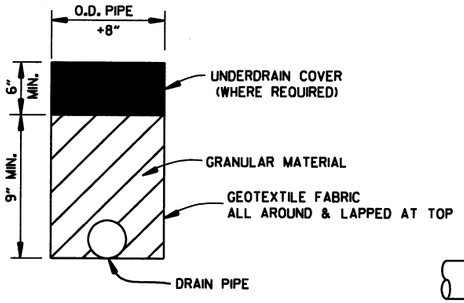
PAVEMENT MARKING DETAILS

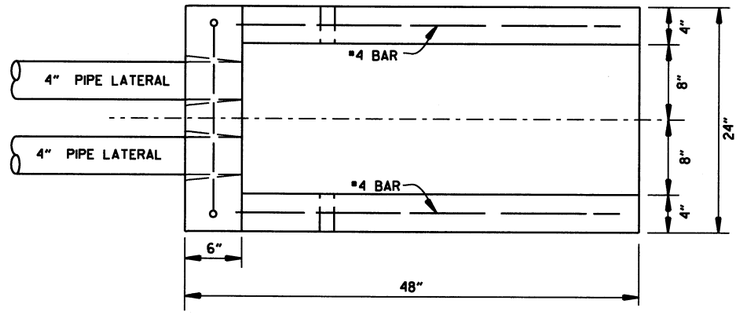
STANDARD DRAWING PM-1

NOTE:

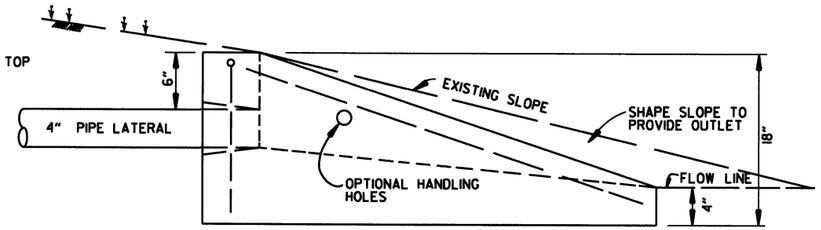
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

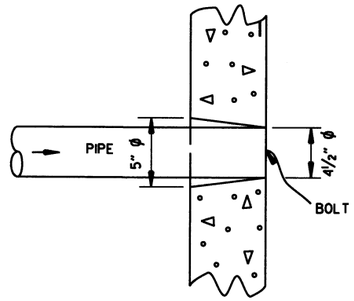




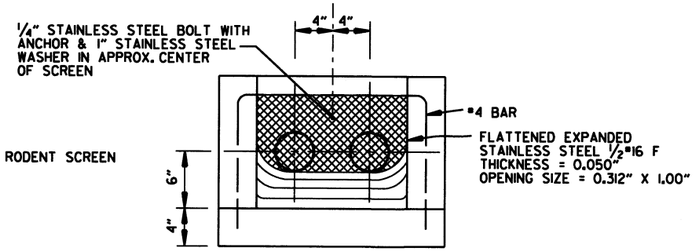
PLAN VIEW



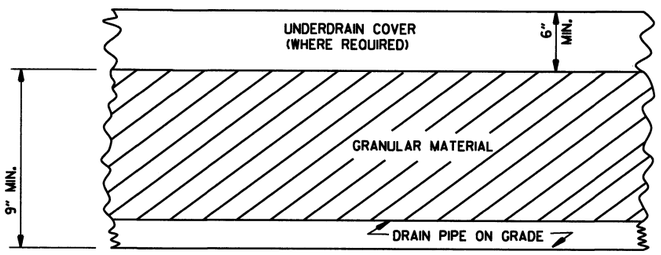
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

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."

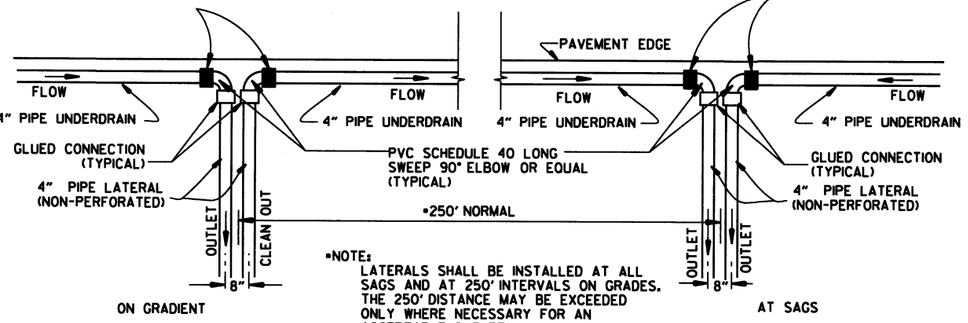
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE 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.

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

UNDERDRAIN OUTLET PROTECTORS

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



ON GRADIENT

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

AT SAGS

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

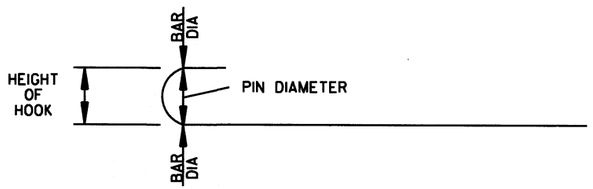
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

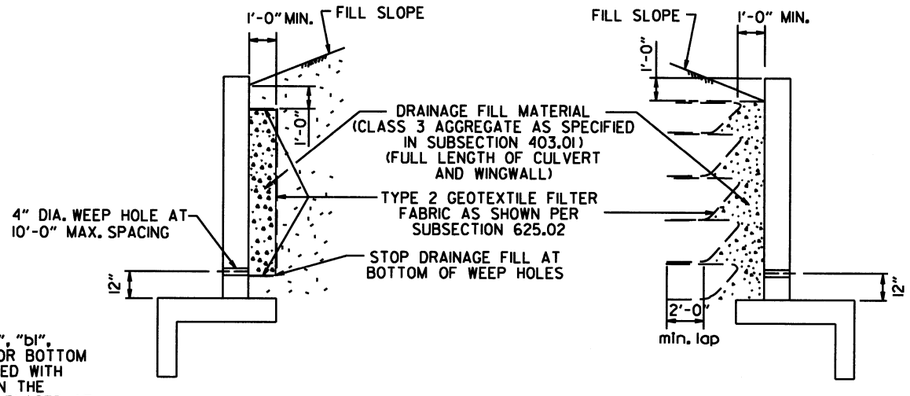
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

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

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

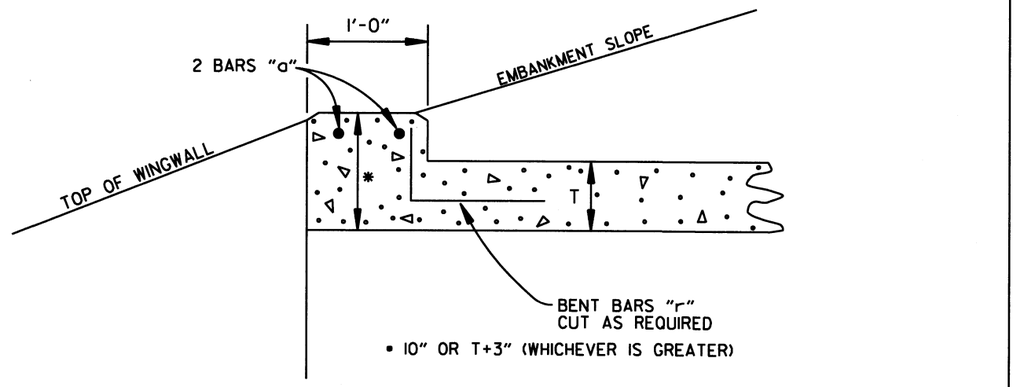
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

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

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

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



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

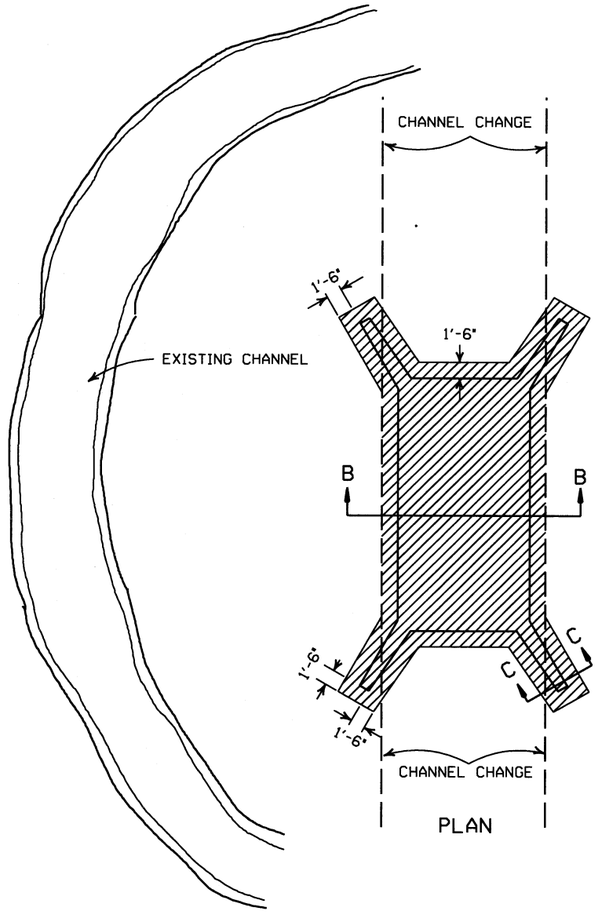
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

ARKANSAS STATE HIGHWAY COMMISSION

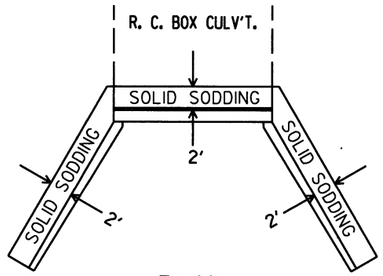
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

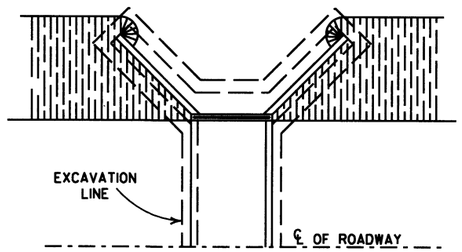
SOLID SODDING



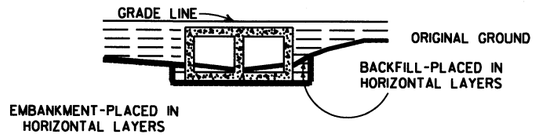
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

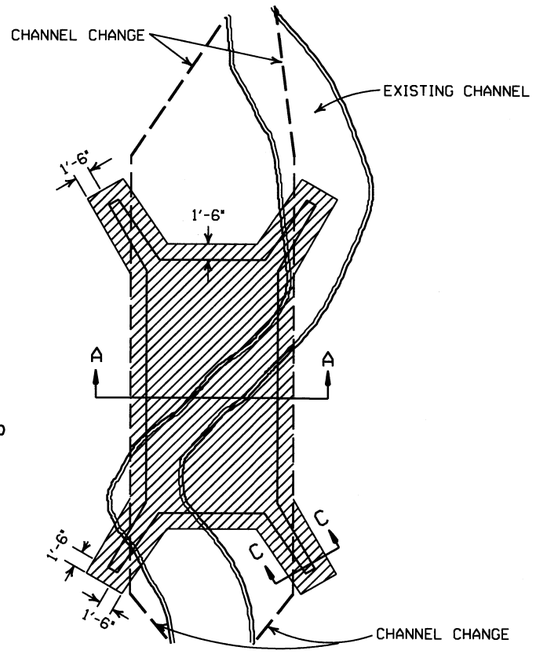


PLAN

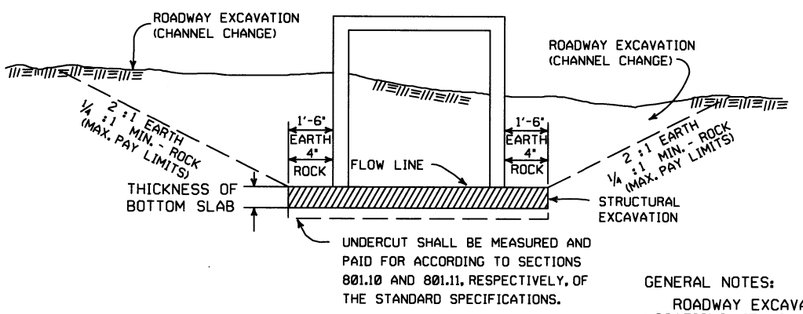


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

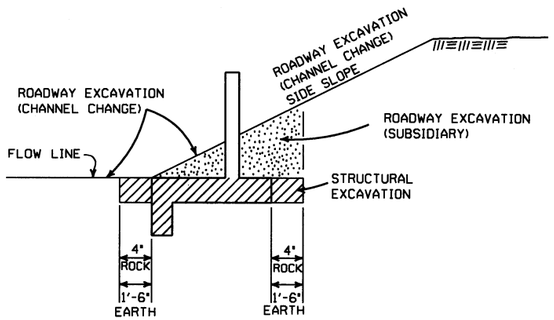


PLAN

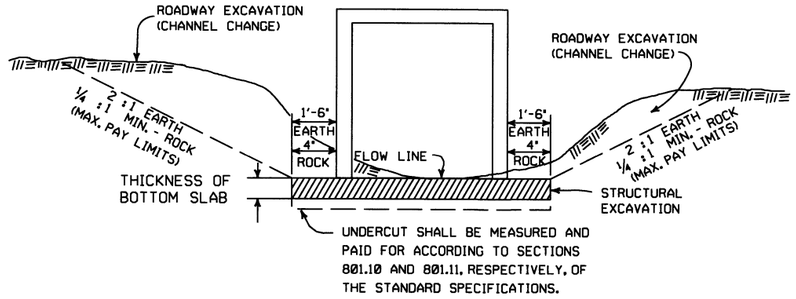


SECTION B-B

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.

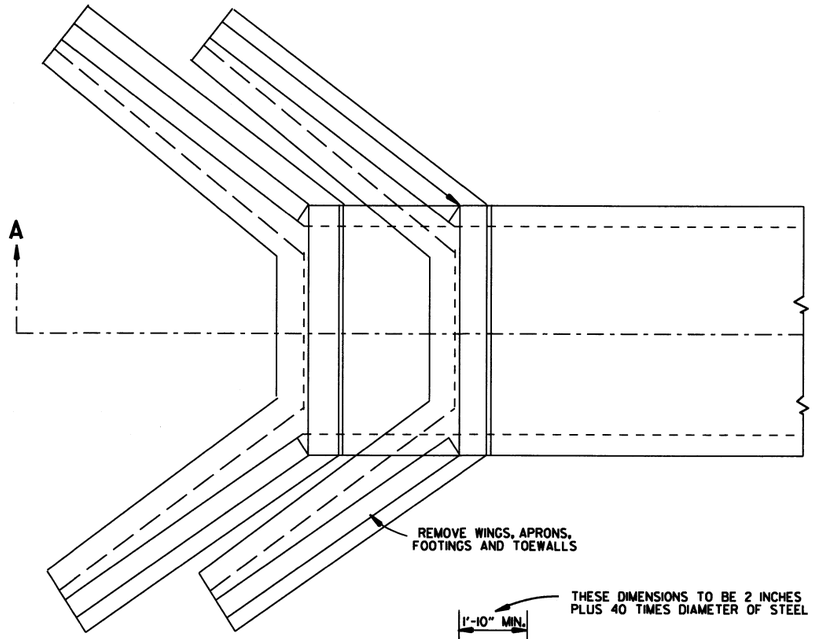
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

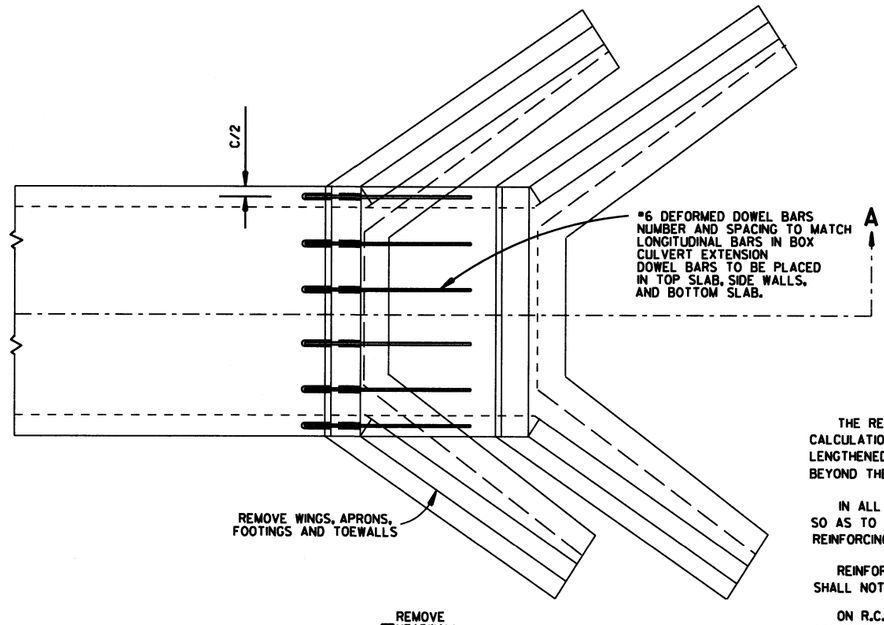
STANDARD DRAWING RCB-2



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.

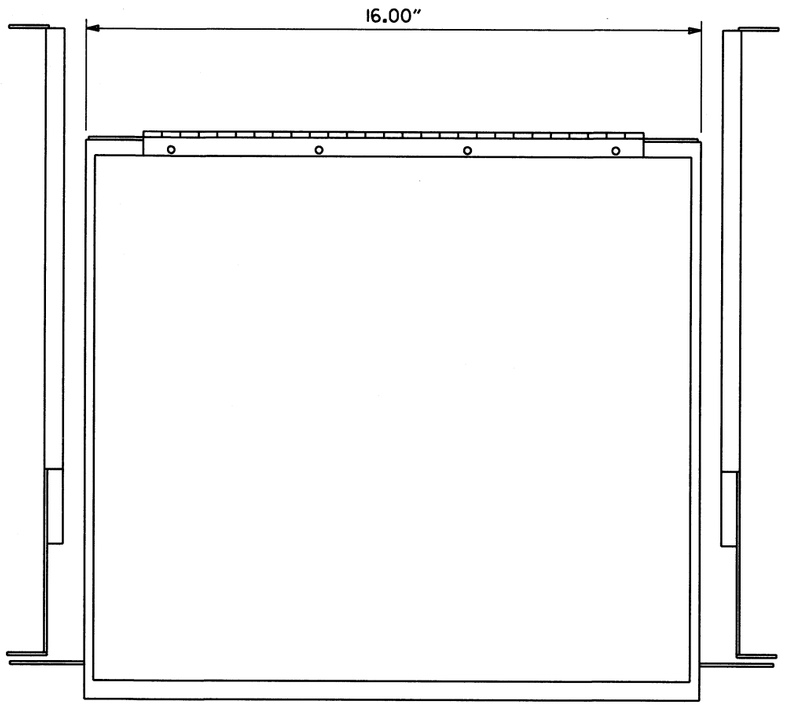
DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

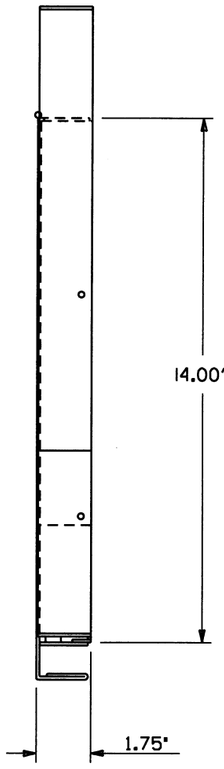
ARKANSAS STATE HIGHWAY COMMISSION

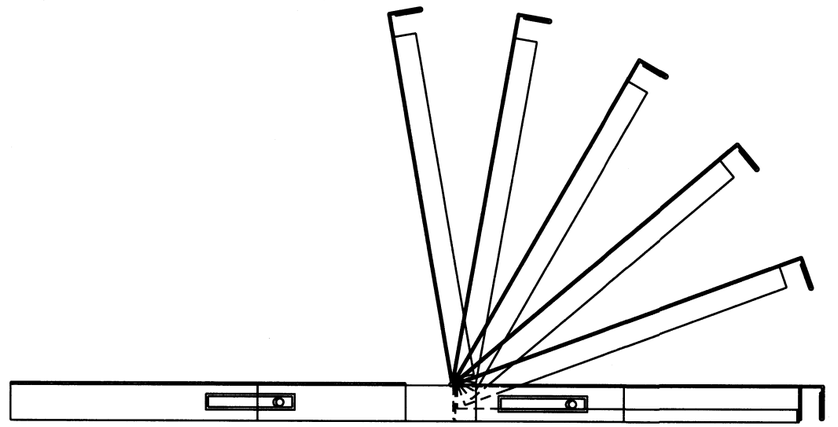
METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

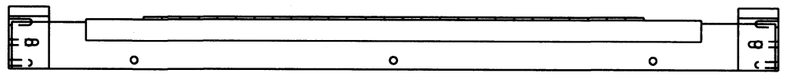
DRAWER PLAN VIEW



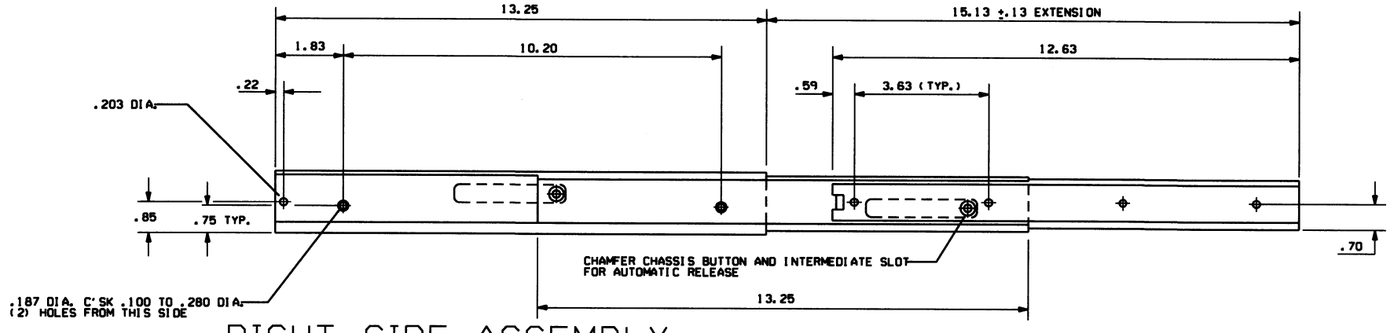




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

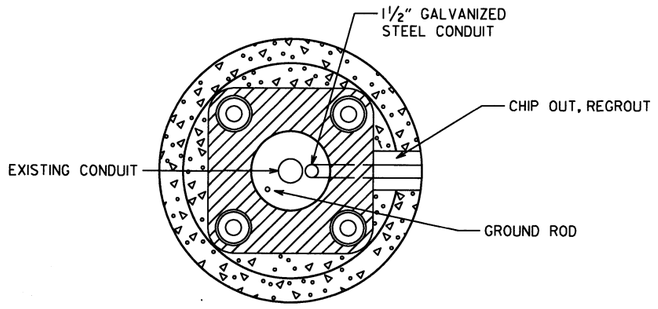
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

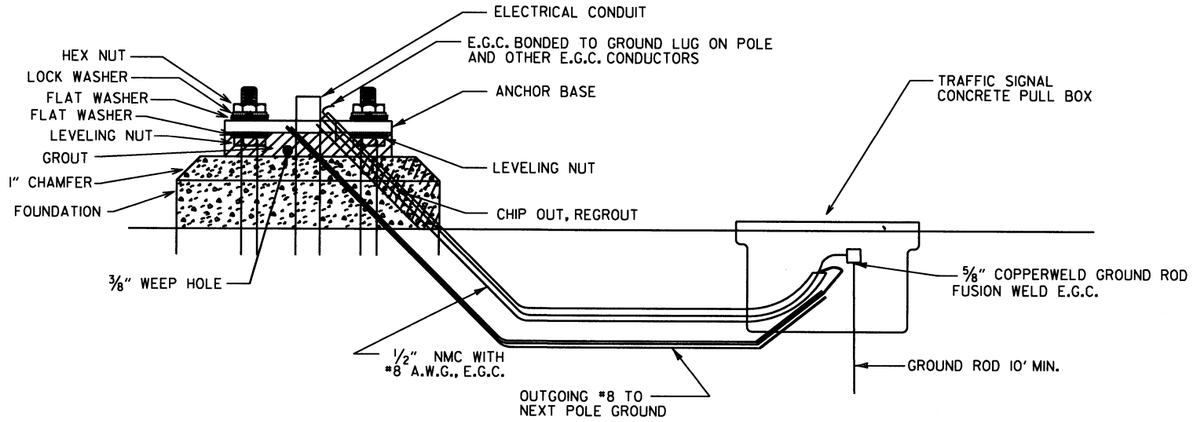
CONTROLLER CABINET UTILITY DRAWER

STANDARD DRAWING SD-5

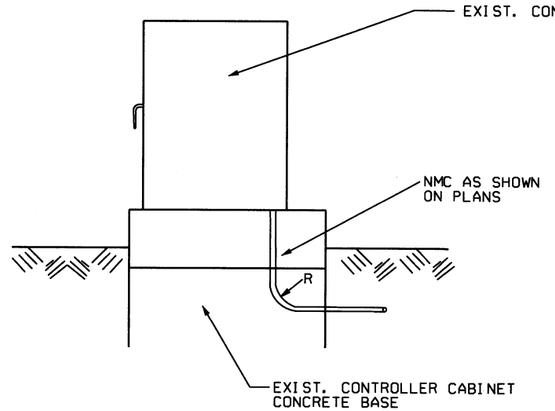
CONDUIT ENTRY TO EXISTING POLE BASE



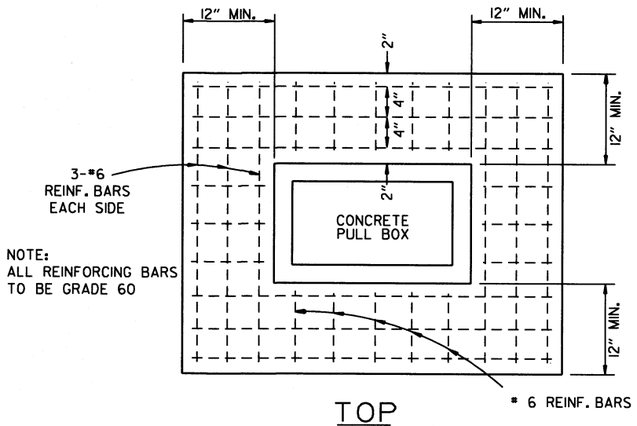
ANCHOR BASE



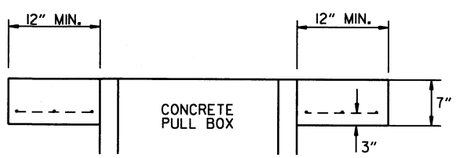
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

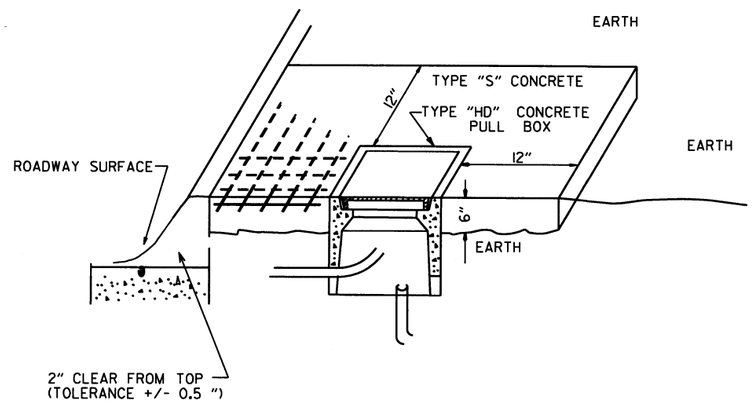


TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



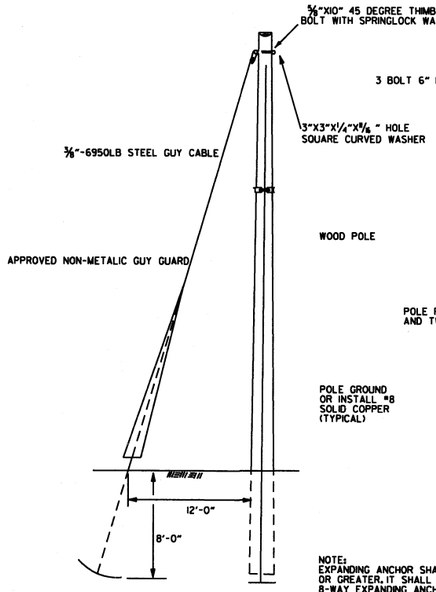
NOTE:
ALL TYPE I AND TYPE 2 HD CONCRETE PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" WIDE AND 7" IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD CONCRETE PULL BOX. THE CONCRETE PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S". THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE CONCRETE PULL BOX IS REQUIRED IN CONCRETE.

DATE	REVISION	FILMED
11-16-17	REVISED NOTES	
09-02-15	REVISED PULL BOX DEPTH	
09-12-13	ISSUED AS STANDARD DRAWING	
05-21-09	REVISED GROUNDING	
07-31-08	ADDED & REVISED CONDUIT ENTRY	
06-23-04	REVISED CLEARANCE AT CURB ENTRY	
01-04-02	ADDED REINFORCING TO BOX APRON	
07-02-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

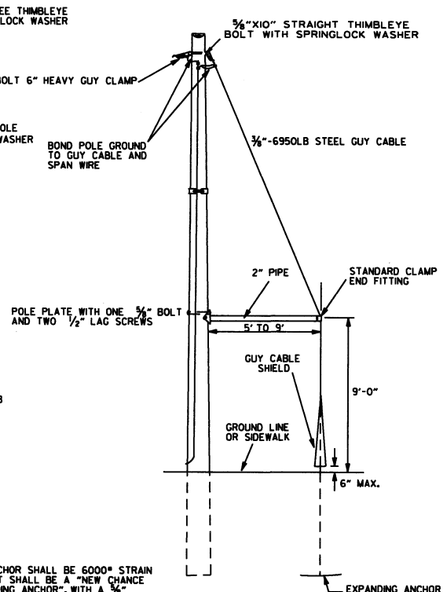
ARKANSAS STATE HIGHWAY COMMISSION

HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6



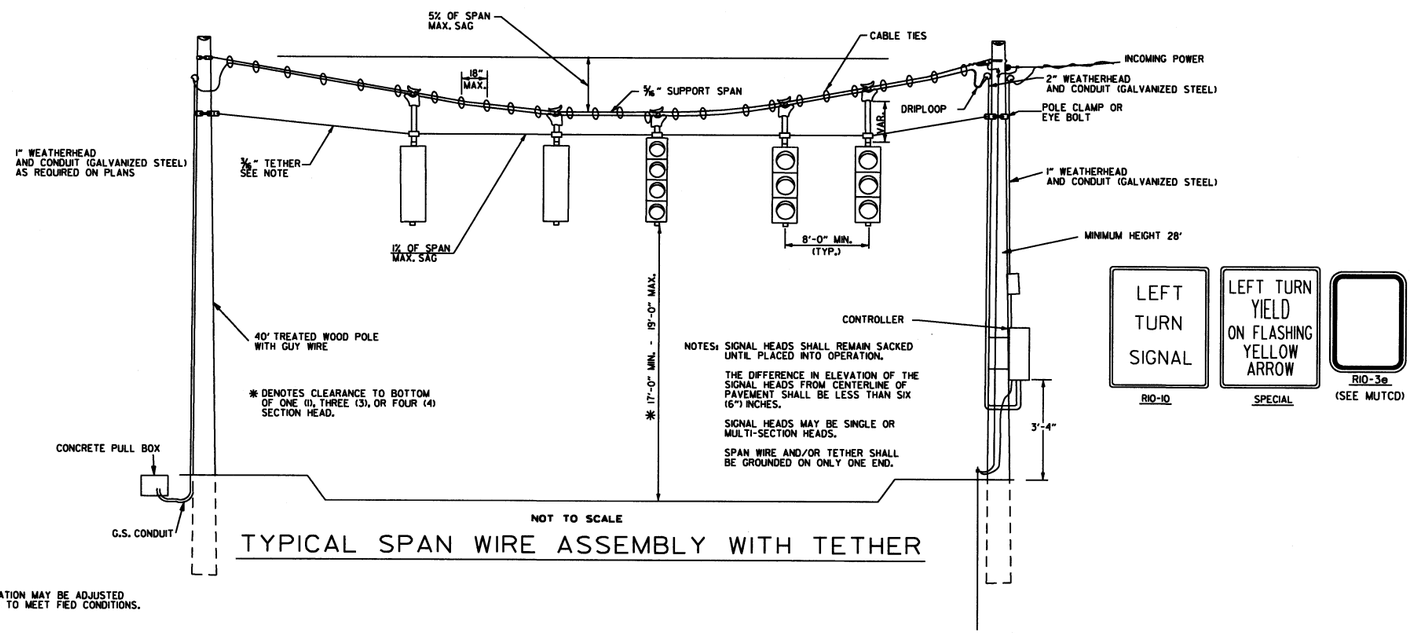
STANDARD GUY INSTALLATION



NOTE:
EXPANDING ANCHOR SHALL BE 6000# STRAIN OR GREATER. IT SHALL BE A "NEW CHANCE 8-WAY EXPANDING ANCHOR", WITH A ⅝" MINIMUM GUY ROD.

SIDEWALK GUY INSTALLATION

NOTE:
CONDUIT INSTALLATION MAY BE ADJUSTED BY THE ENGINEER TO MEET FIED CONDITIONS.



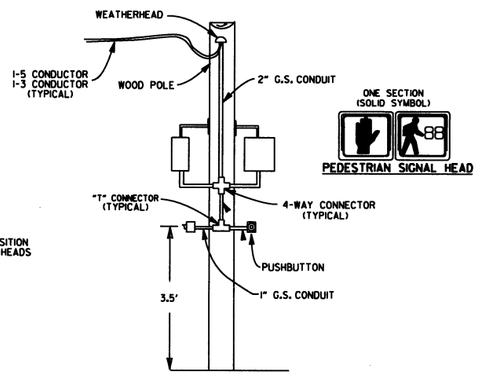
TYPICAL SPAN WIRE ASSEMBLY WITH TETHER

NOTES:
SPAN WIRE POLES SHALL BE MOUNTED A MINIMUM OF FOUR (4') FEET BEHIND CURB OR SHOULDER.

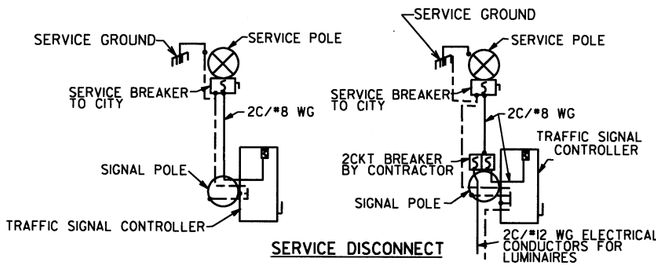
SPAN WIRE ASSEMBLIES WILL REQUIRE TETHER UNLESS OTHERWISE NOTED ON PLAN SHEETS.

CABLE TIES SHALL BE SUITABLE FOR OUTSIDE USE (BLACK).

THE CONTROLLER POWER SUPPLY GROUND BUSS SHALL BE BONDED TO THE FOUNDATION GROUND ROD WITH A #8 A.W.G. SOLID COPPER WIRE. ON EXISTING FOUNDATIONS WITH NO GROUND ROD, CONTRACTOR SHALL INSTALL A 10' X ⅝" COPPERWELD GROUND ROD.



WOODEN POLE INSTALLATION OF PED HEADS



NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES

NOTES:

EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)", TO BE USED AS A LEFT TURN INDICATION ONLY, SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

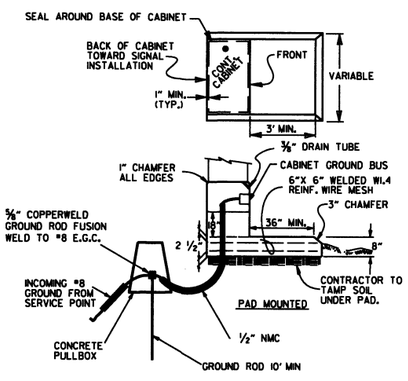
ALL SIGN BLANK SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH A THICKNESS OF 0.100 INCH.

ALL SIGN FACE SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

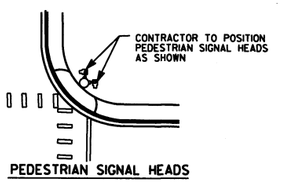
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME THE INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.



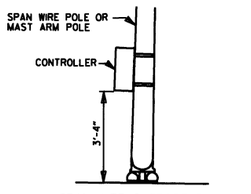
CONCRETE BASE MOUNTED CABINET DETAILS

CABINET NOTE:

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.



PEDESTRIAN SIGNAL HEADS



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED

MINIMUM STRUCTURAL REQUIREMENTS:

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

CONSTRUCTION SPECIFICATIONS: STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH

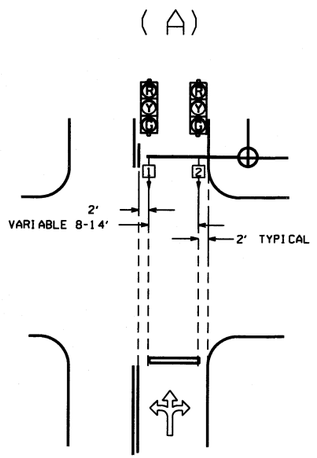
STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

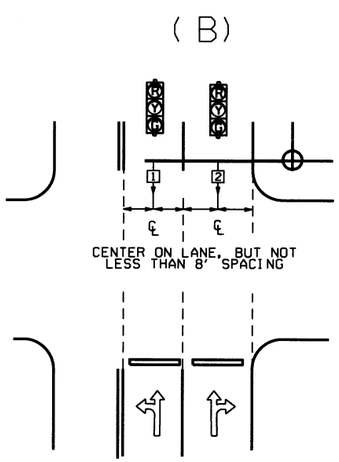
DATE	REVISION	FILMED
11-16-17	REVISED NOTES, ADDED SPAN WIRE SUPPORT POLE DETAIL, ADDED PEDESTRIAN SIGNAL HEAD DETAIL	
02-27-14	REVISED NOTES.	
09-12-13	ISSUED AS STANDARD DRAWING	
07-20-11	REVISED PEDESTRIAN SIGN & GROUNDING	
04-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REV. CABINET ORIENTATION & SIGNAL OPERATION	
05-22-02	REV. TYP. SPAN WIRE ASSEMBLY	
12-27-99	REVISED	
11-18-98	REVISION TO NOTES	
11-21-95	ISSUED	

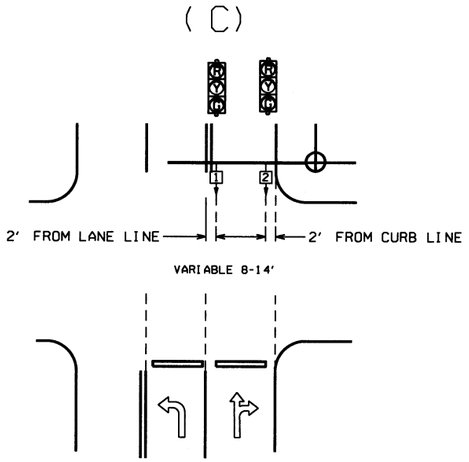
ARKANSAS STATE HIGHWAY COMMISSION

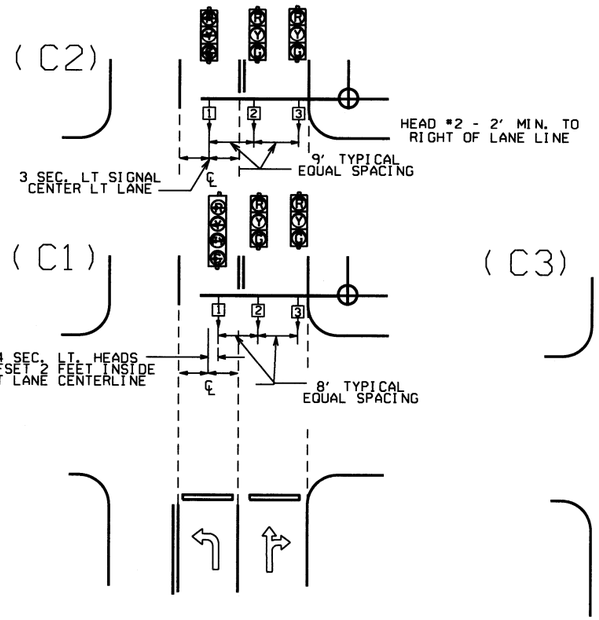
SPAN WIRE ASSEMBLY WOOD POLE

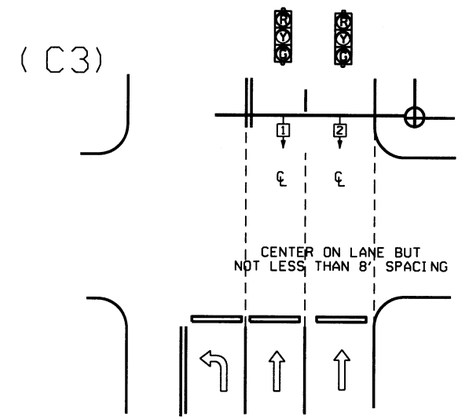
STANDARD DRAWING SD-7

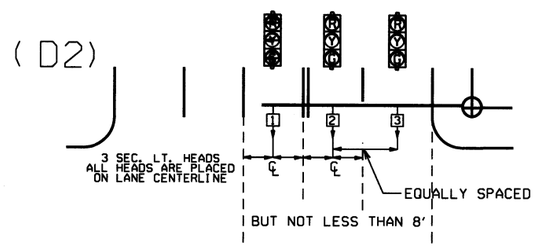


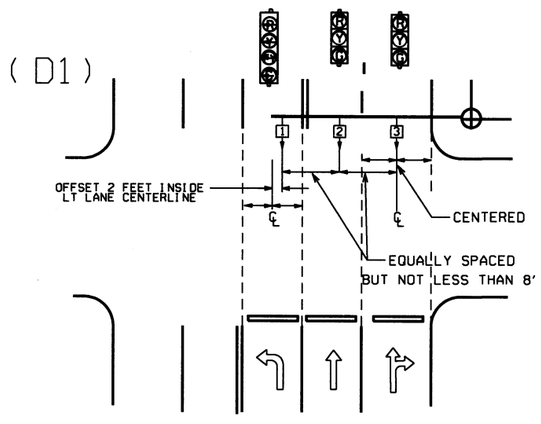




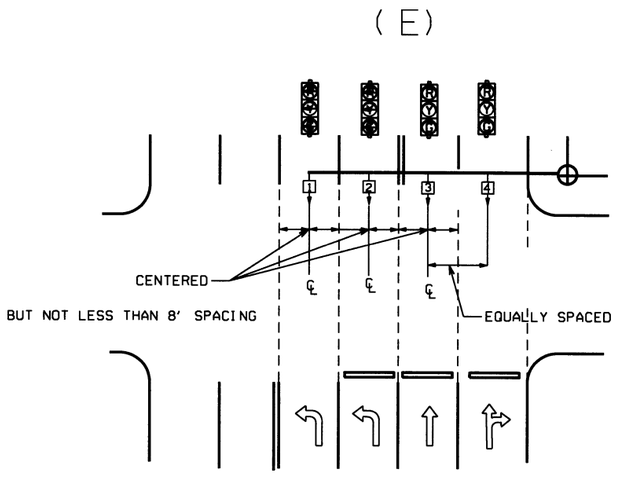








NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-5 OF 2009 MUTCD.

12-8-16	REVISED NOTE 6	
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

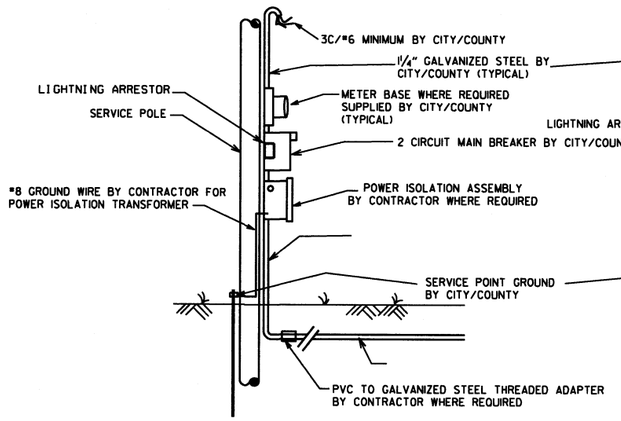
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

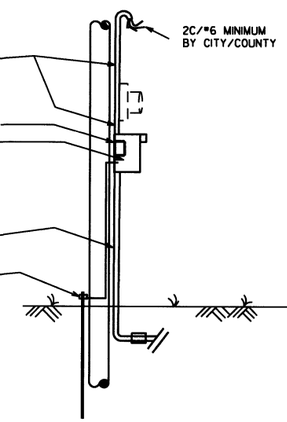
STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY



WITHOUT POWER ISOLATION ASSEMBLY



NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY):

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES:
MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S/COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

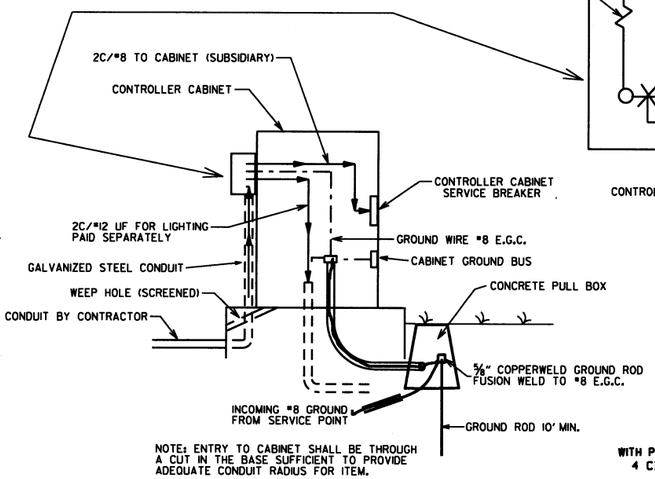
ALL SITUATIONS:
ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY COMPANY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION STREET LIGHTING CIRCUIT (2C/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

MAIN BREAKER NOT NEAR CONTROLLER CABINET:
THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT. WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

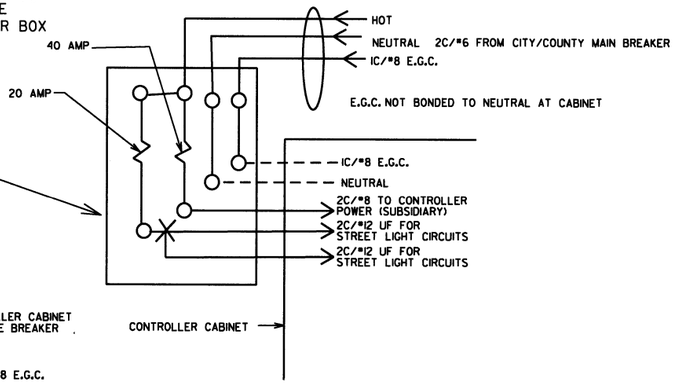
MAIN BREAKER NEAR CONTROLLER CABINET:
ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 701. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



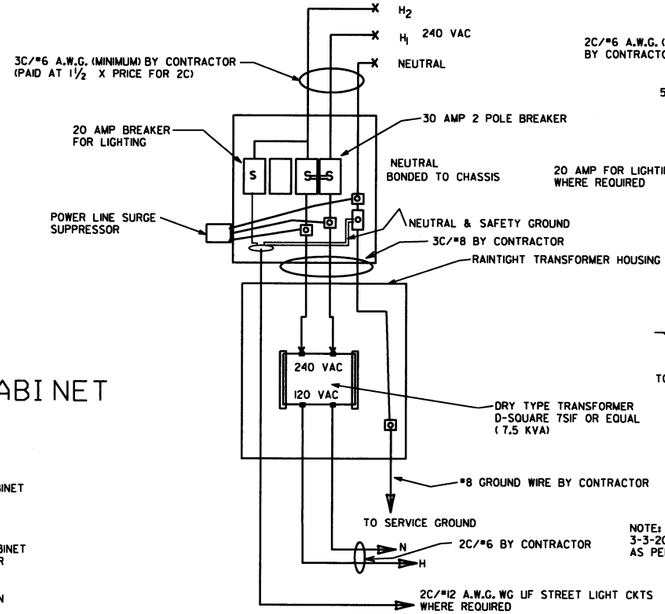
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



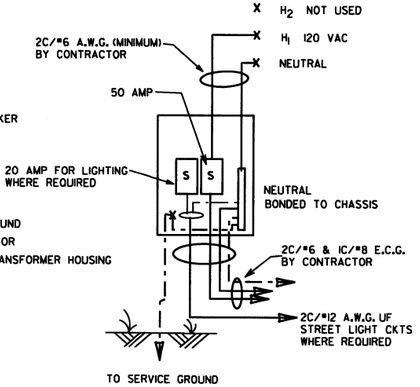
MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

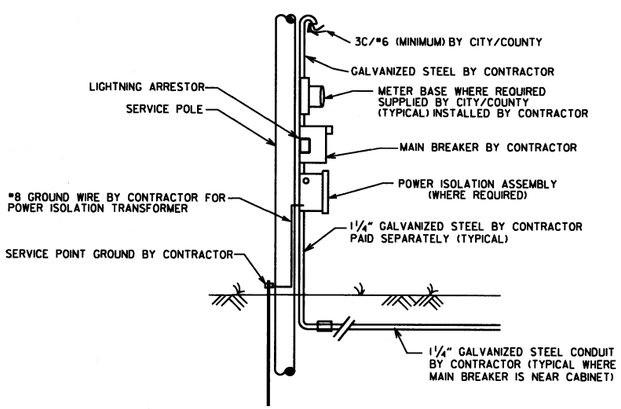


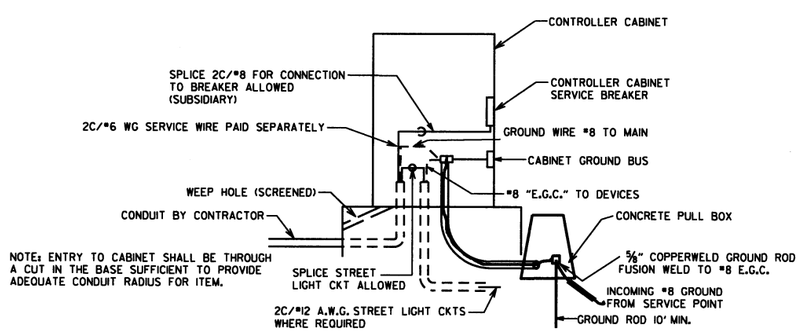
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (E.C.G.) ADDED 3-3-2003, CONSISTING OF A IC/#8 A.W.G. CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

DATE	REVISION	FILMED
11-16-17	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
04-18-13	ADDED LIGHTNING ARRESTOR	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
03-03-03	ADDED EGC NOTE	
09-26-01	REVISED	
12-27-99	REVISED	
07-28-99	REVISED	
02-05-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES:
PEDESTRIAN AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 723 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF FOUR (4') FEET BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE THE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN MAST ARM OF 60' OR LONGER.

USE FATIGUE CATEGORY II FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH MAST ARMS LESS THAN 60' AND ON ROUTES WHERE THE SPEED LIMITS OF 45 MPH AND LESS WITH AN MAST ARM OF 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE THE SPEED LIMIT IS 45 MPH AND LESS AND MAST ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS:
STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, TWELVE (12") INCH AND HAVE FIVE (5") INCH BACK PLATES:

SIGNAL HEADS AT THE END OF MAST ARM - ONE 4 SEC., 85 LB., 14.5 SQ. FT., ONE SIGN MOUNTED 3 FEET FROM SIGNAL HEAD (2'-0" X 2'-6"; 20 LB.) REMAINING SIGNAL HEADS SPACED AT 8 FT. (3 SEC., 56 LB., 8.3 SQ. FT.):
DESIGN TO ACCOMMODATE:
2 SIGNAL HEADS FOR MAST ARMS 10 FT. TO 16 FT.
3 SIGNAL HEADS FOR MAST ARMS 18 FT. TO 24 FT.
4 SIGNAL HEADS FOR MAST ARMS OVER 26 FT.

STREET NAME SIGN - 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAT 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT.
ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) - VARIABLE ARM LENGTH (MAX. WT. 75 LB., 3.3 SQ. FT.)
PEDESTRIAN SIGNALS - TWO 1 SEC., 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

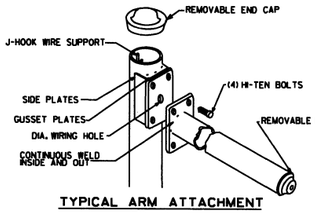
4. POLE/MAST ARM CAP - POLE AND MAST ARM CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE - HAND HOLES SHALL BE 4 IN. X 6 IN. FOR STANDARD, AND 3 IN. X 5 IN. FOR PED POLES. MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACCUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDED A HAND HOLE WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

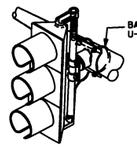
6. POLE/MAST ARM TAPER SLOPE - AVERAGE TAPER OF SIGNAL MAST ARMS AND POLE SHAFT SHALL BE 0.125 TO 0.15 INCHES PER FOOT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE MAST ARM SHALL MAINTAIN A POSITIVE SLOPE AFTER IT IS PLACED UNDER LOAD.

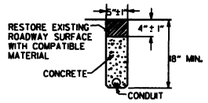
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



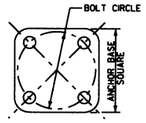
TYPICAL ARM ATTACHMENT



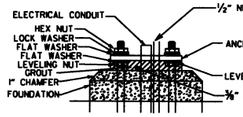
NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.

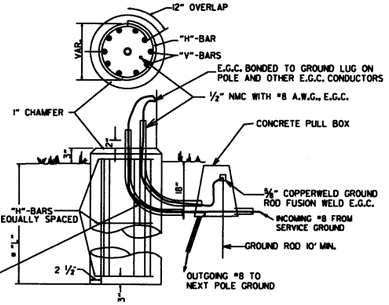


TRENCHING DETAIL
(FOR SAW CUT TRENCH IN ROADWAY)



ANCHOR BASE





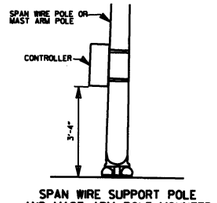
THE SWEEPING "L" IN THE FOUNDATION SHALL BE THE SAME SIZE AS THE CONDUIT FROM THE FOUNDATION TO THE PULL BOX AS SHOWN ON THE PLANS.

THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE GROUND ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

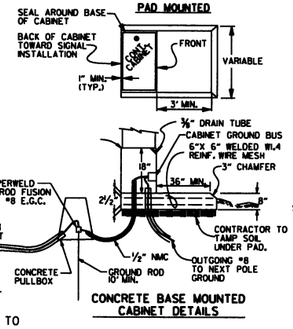
TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FOUNDATION DIAMETER	DEPTH "L"*	STEEL		
			VERTICAL	HORIZONTAL	O.C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' TO 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
OVER 12' TO 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
OVER 20' TO 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
OVER 35' TO 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
OVER 50' TO 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
TWINS TO 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
TWINS OVER 20' TO 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
TWINS OVER 44' TO 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
TWINS OVER 50' TO 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONCRETE BASE MOUNTED CABINET DETAILS

CONTROLLER CABINET MOUNTING DETAILS

NOTE:
UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID SEPERATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A ¼" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PEDESTRIAN PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM 707 PEDESTRIAN SIGNAL HEAD.

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANIFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60" X 16" X 0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH THE HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OF SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

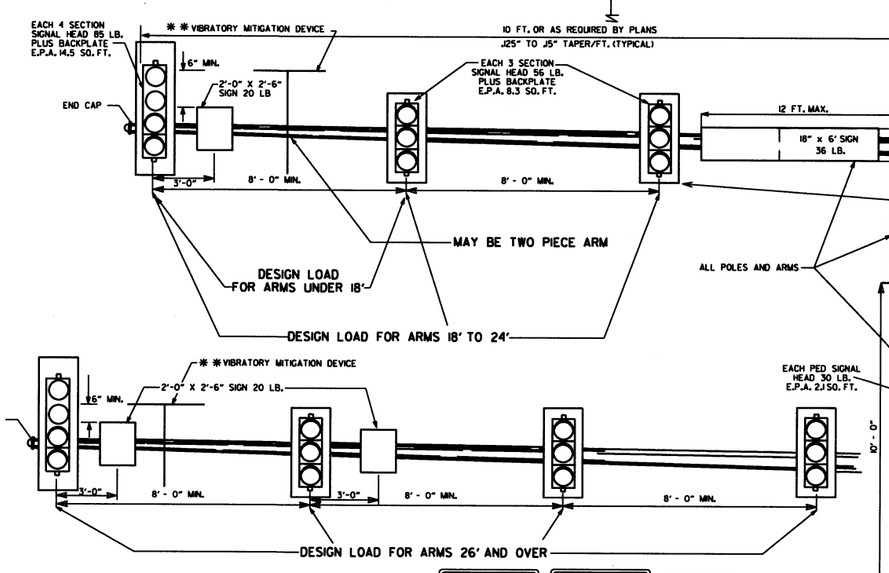
TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

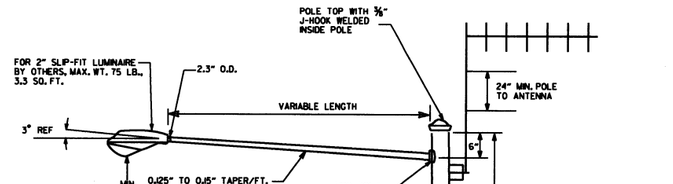
SIGNAL OPERATION NOTES:

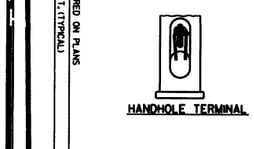
FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

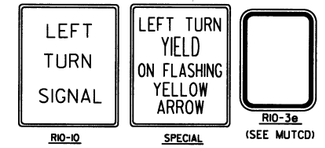
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME THE INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATION IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

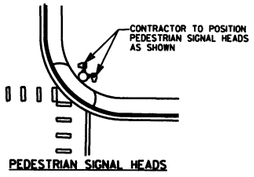




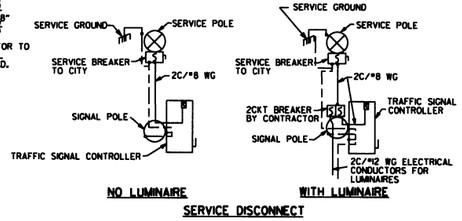




R10-10 SPECIAL



PEDESTRIAN SIGNAL HEADS



SERVICE DISCONNECT

NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES

DATE	REVISION	FILMED
11-16-17	REVISED NOTES, ADDED PEDESTRIAN SIGNAL HEAD DETAIL, ADDED HANDHOLE TERMINAL DETAIL, ADDED TRENCHING DETAIL.	
02-27-14	REVISED NOTES.	
09-12-13	ISSUED AS STANDARD DRAWING	
12-08-16	REVISED NOTES	
02-27-14	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
07-21-11	REVISED VMD, SIGNAL HEADS	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
04-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
04-18-08	REVISED AASHTO NOTES	
04-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
06-23-04	REVISED	
05-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
06-11-01	REV. NOTES & POLE MAST ARM SLOPE	
04-11-01	REVISED POLE TAPERS	
04-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

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			N.C.			N.C.		
1° 00'	N.C.			N.C.			0.021			0.026			0.023			0.028		
1° 15'	N.C.			R.C.			0.026			0.032			0.030			0.037		
1° 30'	N.C.			0.021			0.031	200		0.037	225		0.037	250		0.046	275	300
1° 45'	N.C.			0.025	175		0.036			0.043		300	0.043		300	0.054		
2° 00'	R.C.			0.028			0.040			0.048			0.049			0.062		
2° 15'	R.C.			0.031			0.045		250	0.053			0.055			0.070		
2° 30'	0.021			0.034			0.049			0.058			0.061			0.078	300	350
2° 45'	0.023			0.037			0.053			0.063			0.067			0.085	315	
3° 00'	0.025			0.040		200	0.057			0.067	230		0.072	260		0.091	335	
3° 15'	0.027	150		0.043			0.061			0.072	245		0.077	275		0.096	350	400
3° 30'	0.029			0.046			0.065	205		0.076	255		0.082	285		0.098	360	
3° 45'	0.031		200	0.049			0.069	215		0.080	265		0.086	295		0.100	360	
4° 00'	0.033			0.051			0.072	225		0.083	270		0.090	295	350			
4° 30'	0.037			0.056			0.078	240		0.087	280		0.093	305				
5° 00'	0.040			0.061			0.083	250		0.091	295	350	0.096	315				
5° 30'	0.043			0.066	185		0.088	260		0.094	300		0.098	320				
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'

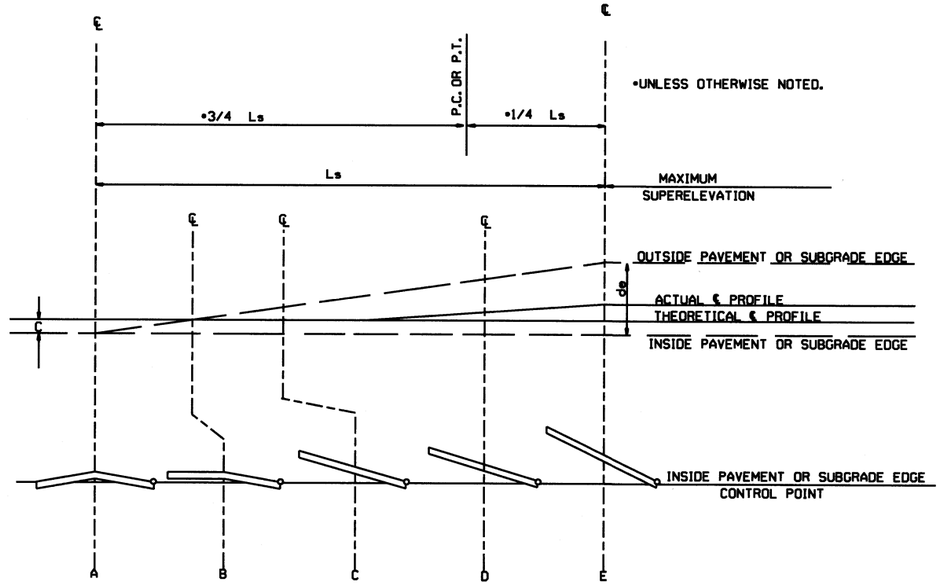
D MAX = 6° 30'

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 = $\frac{Lde}{Ls}$

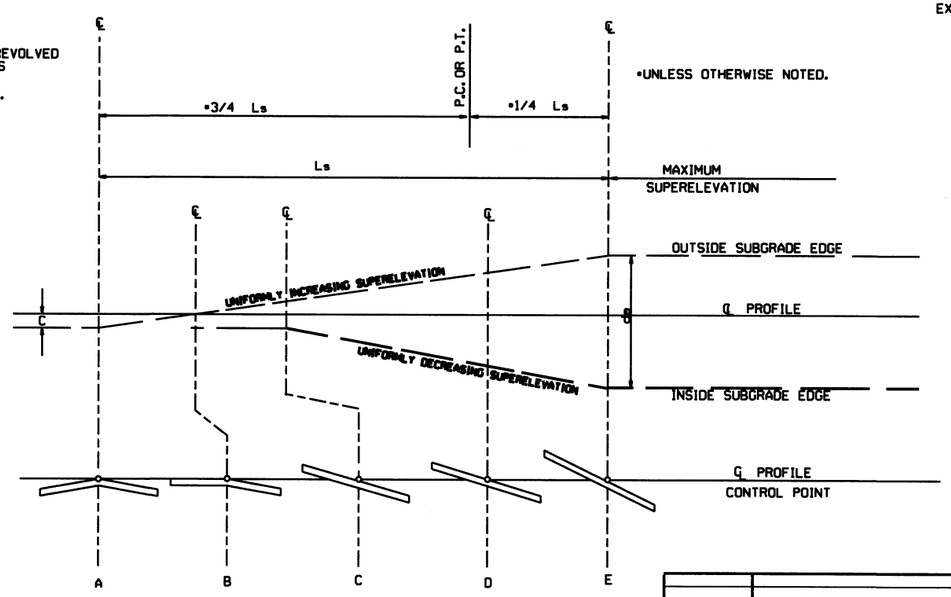
GENERAL NOTES

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.



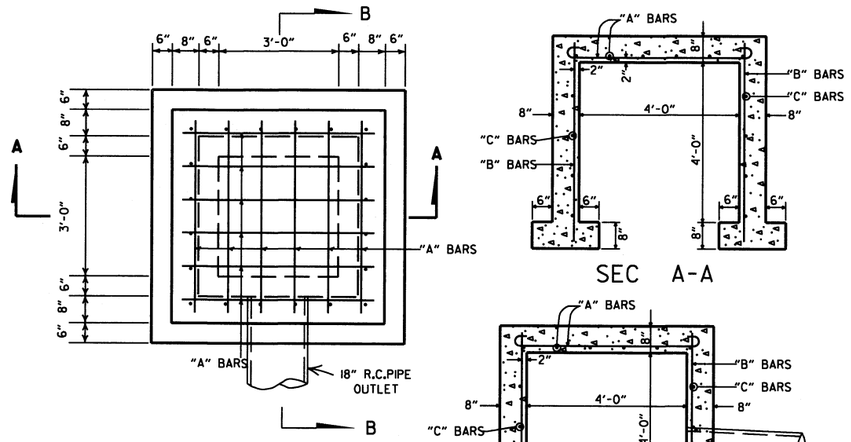
STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

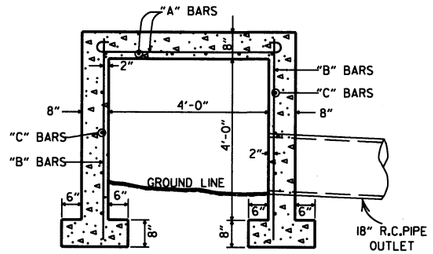
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A



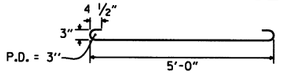
SEC B-B

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

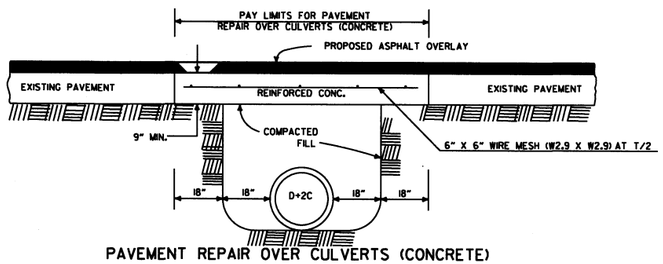
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

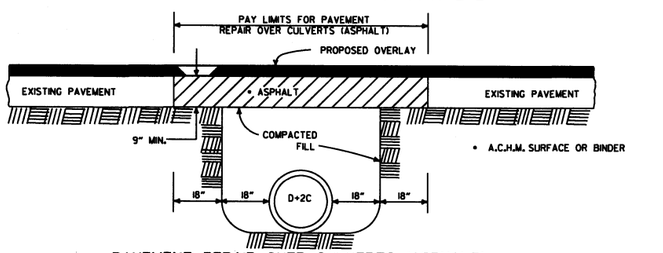
GENERAL NOTE:

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



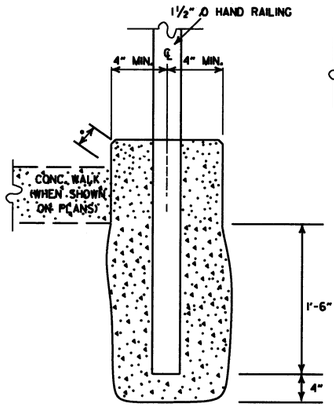
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



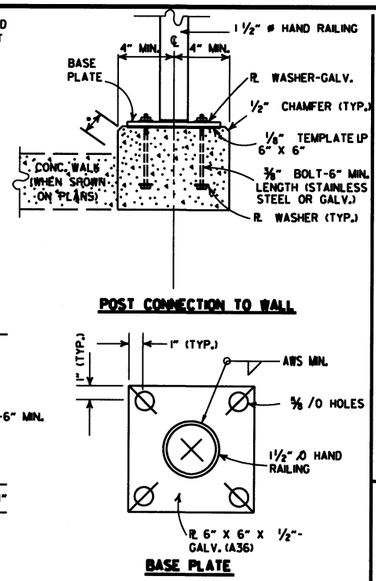
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

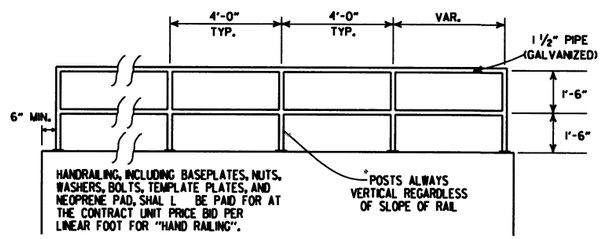
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



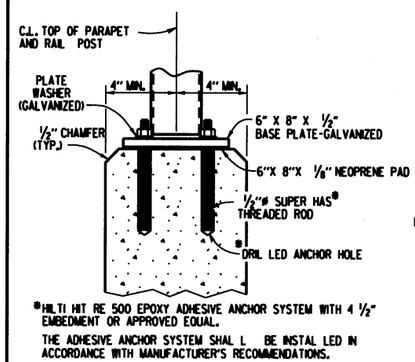
DETAIL OF HAND RAILING SET IN CONCRETE



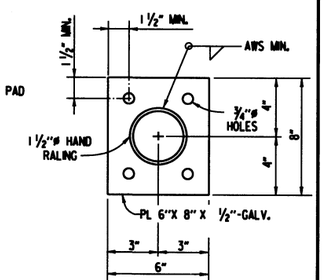
POST CONNECTION DETAILS



HAND RAILING SHALL CONFORM TO SECTION 633.



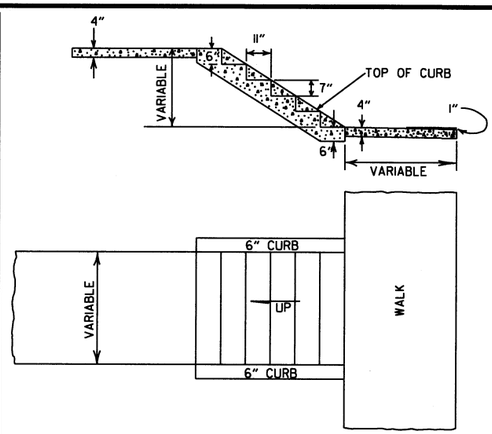
POST CONNECTION TO WALL



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

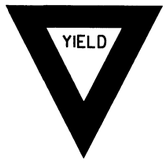
DETAILS OF SPECIAL ITEMS

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"

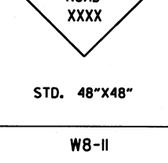
R4-1

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

R4-2

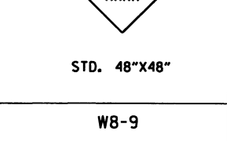
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



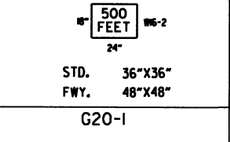
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



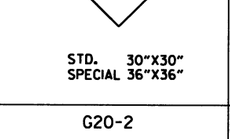
48"X30"

RII-3A



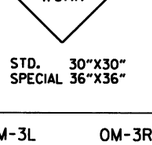
60"X30"

RII-4



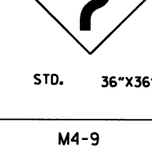
60"X30"

W21-5a



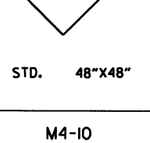
STD. 36"X36"
FWY. 48"X48"

WI-1



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

WI-2

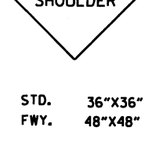


STD. 36"X36"
FWY. 48"X48"

WI-3

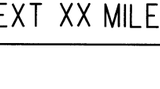
STD. 48"X48"

WI-4



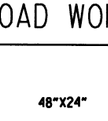
STD. 48"X48"

WI-6



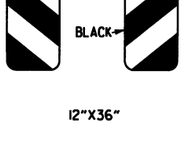
STD. 48"X24"
SPECIAL 60"X30"

WI-8



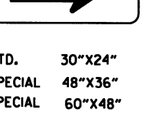
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2

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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD.48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

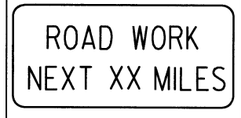
W8-11

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

W8-9

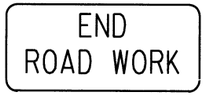
STD. 36"X36"
FWY. 48"X48"

G20-1



60"X24"

G20-2



48"X24"

OM-3L OM-3R

12"X36"

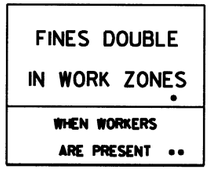
M4-9

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

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

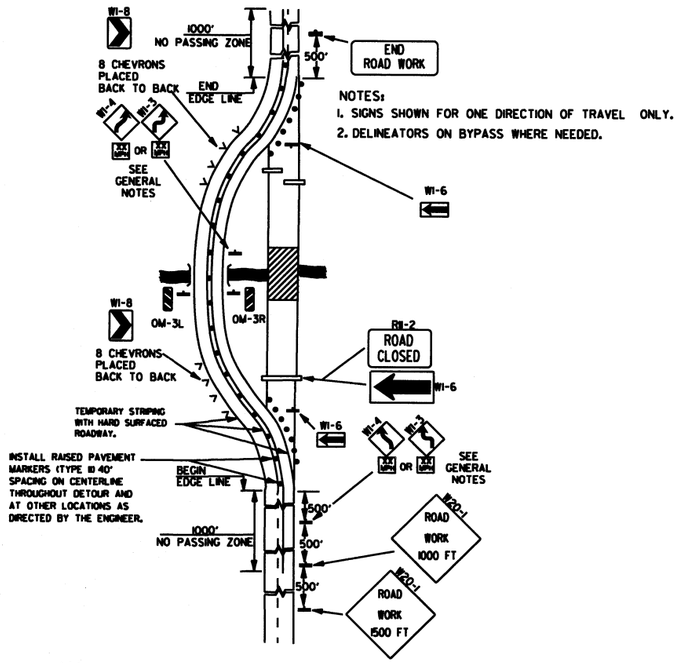
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
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	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

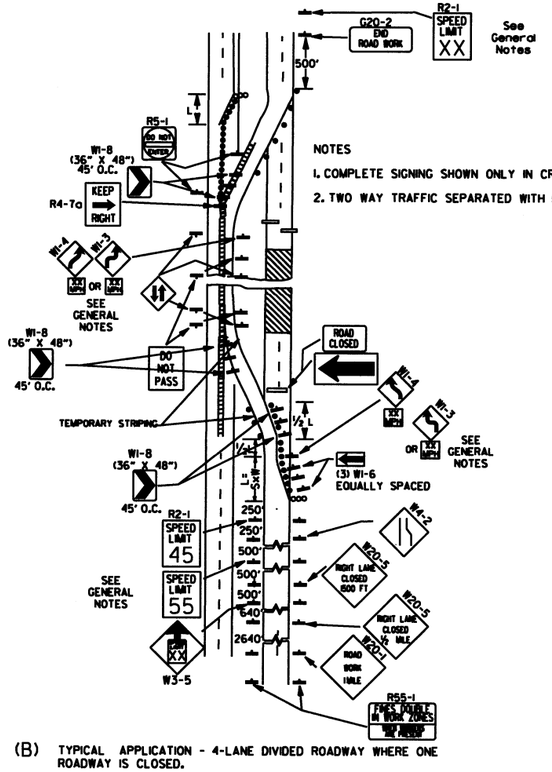
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



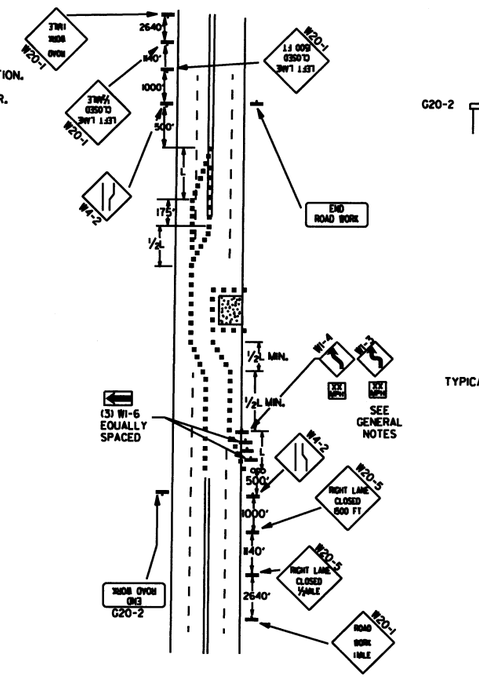
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

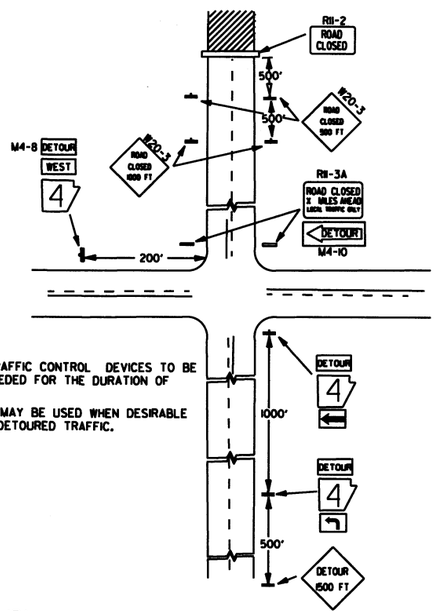


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

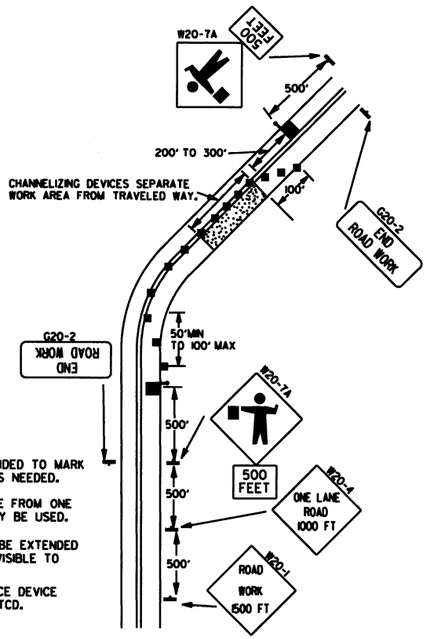


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



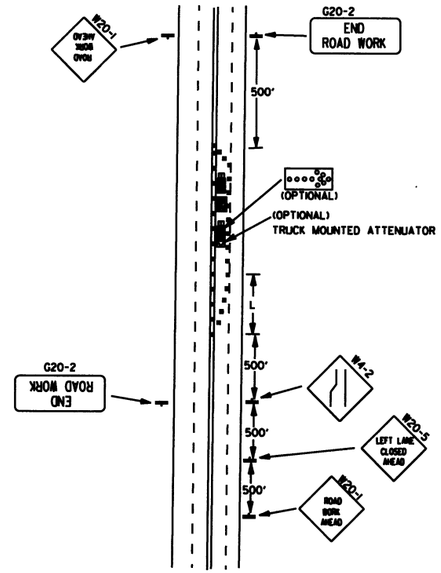
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



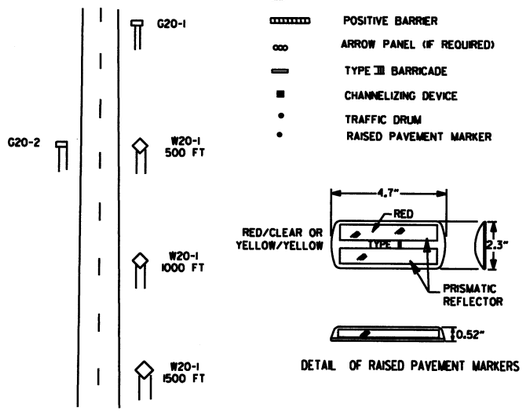
NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE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

KEY:
- FLAGGER
- POSITIVE BARRIER
- ARROW PANEL (IF REQUIRED)
- TYPE III BARRICADE
- CHANNELIZING DEVICE
- TRAFFIC DRUM
- RAISED PAVEMENT MARKER



TYPICAL ADVANCE WARNING SIGN PLACEMENT

DETAIL OF RAISED PAVEMENT MARKERS

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

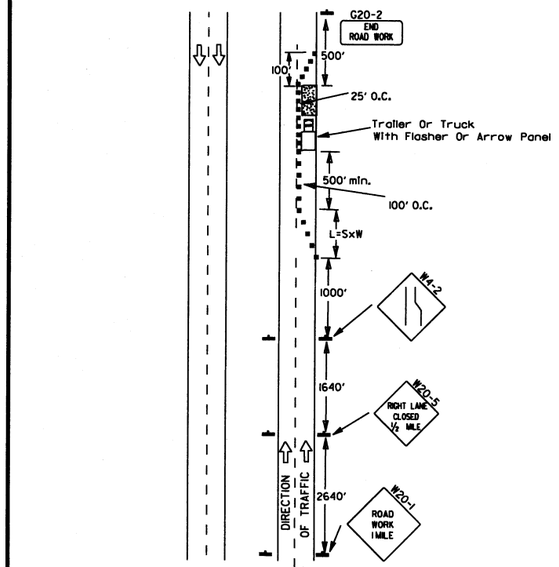
GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

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	

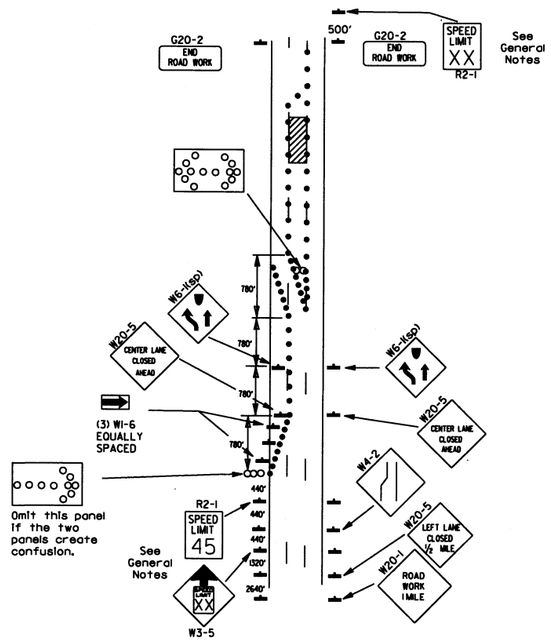
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

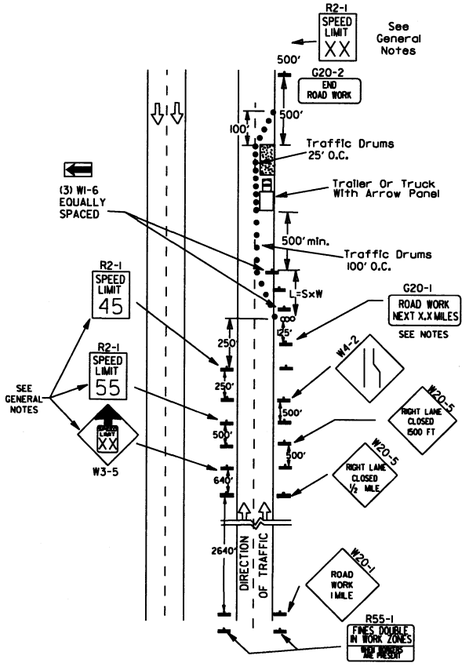
STANDARD DRAWING TC-2



(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.



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

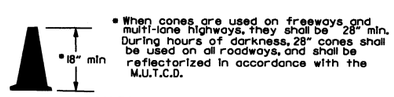
KEY:

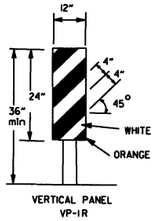
- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices





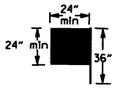
NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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

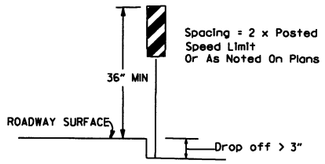
• When shown on the plans concrete barrier will be used.
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

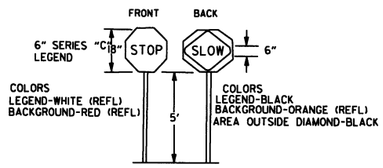


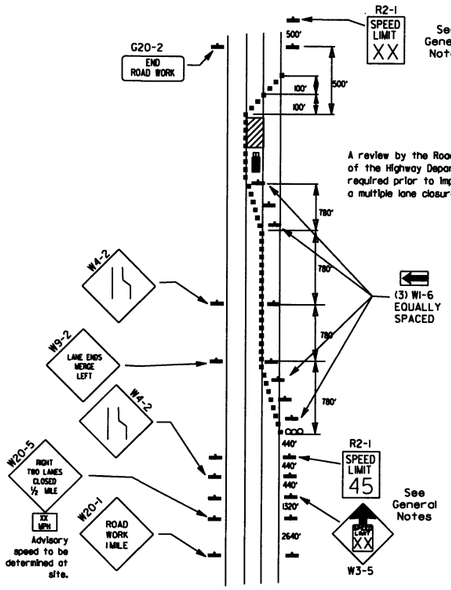
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE





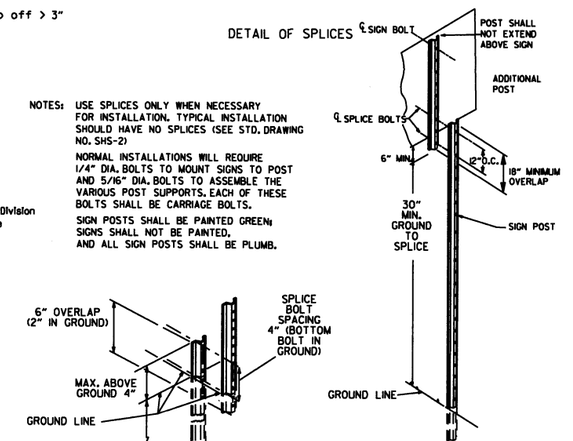
(D) Typical application - closing multiple lanes of a multilane highway.

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.

DETAIL OF SPLICES



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

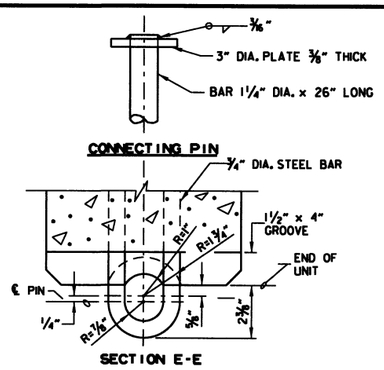
ARKANSAS STATE HIGHWAY COMMISSION

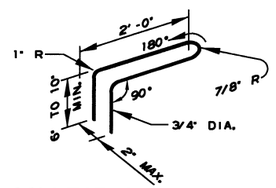
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

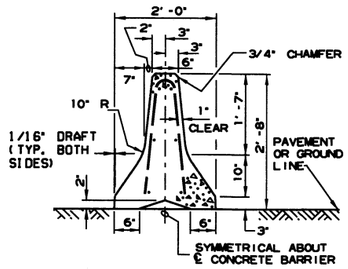
STANDARD DRAWING TC-3

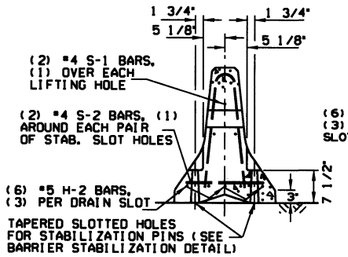
REINFORCING BAR TABLE PER BARRIER UNIT

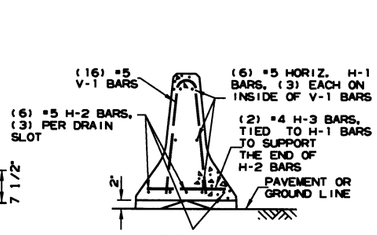
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8"

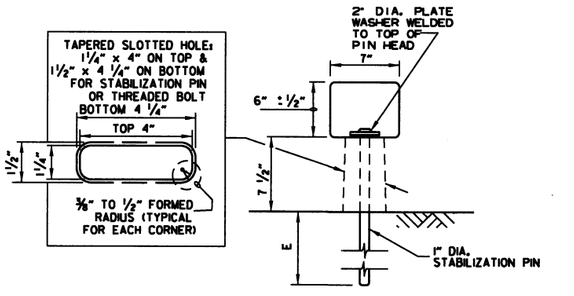




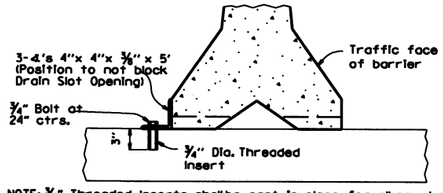






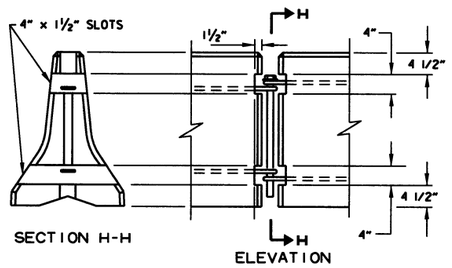


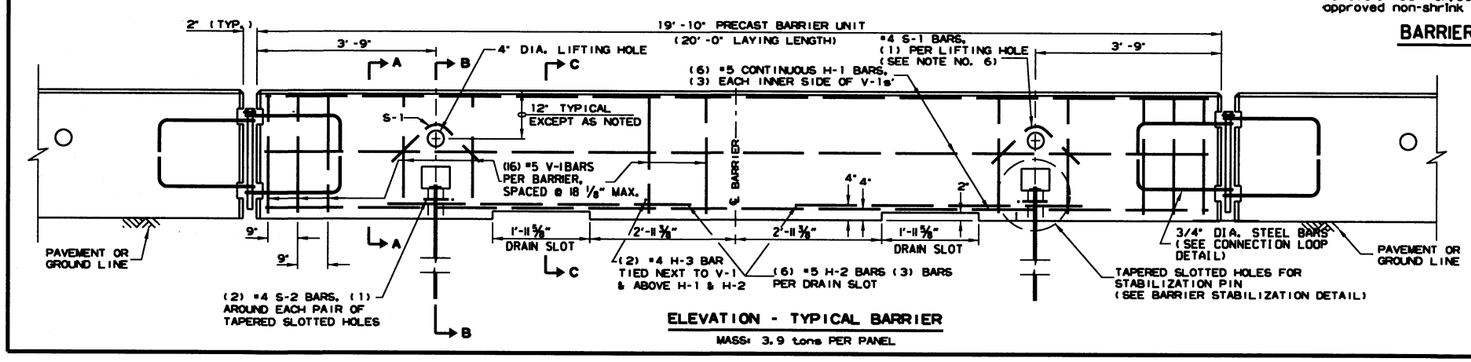
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL
BRIDGE DECKS





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.

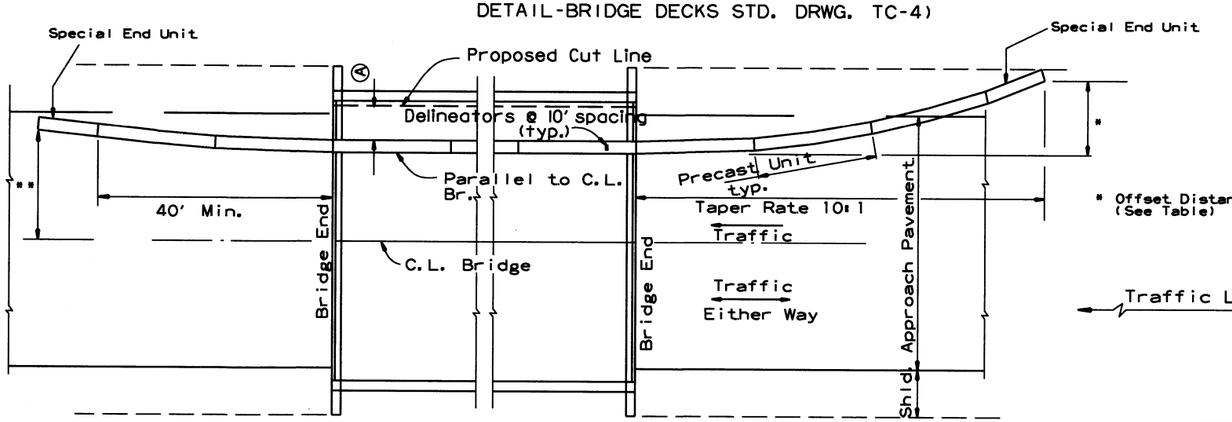
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

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

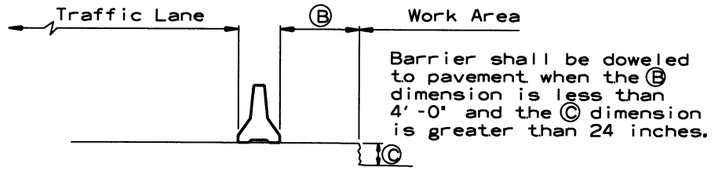


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only

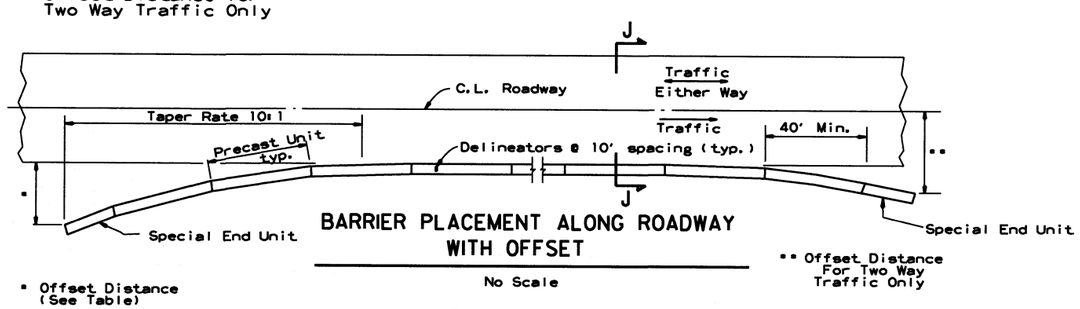
* Offset Distance (See Table)



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

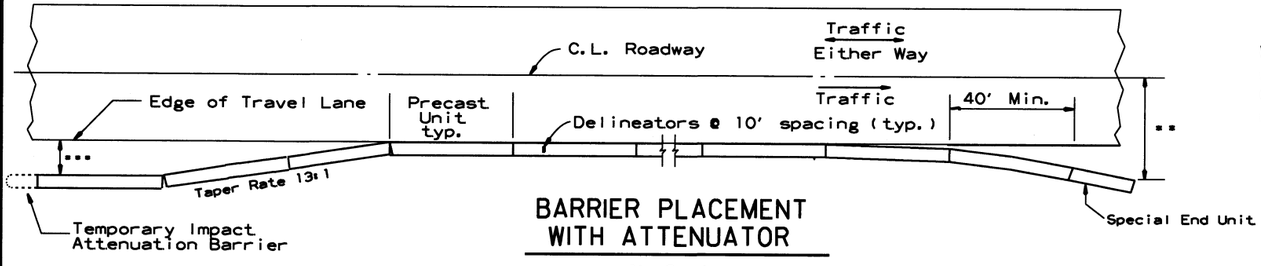
** Offset Distance For Two Way Traffic Only

* 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.

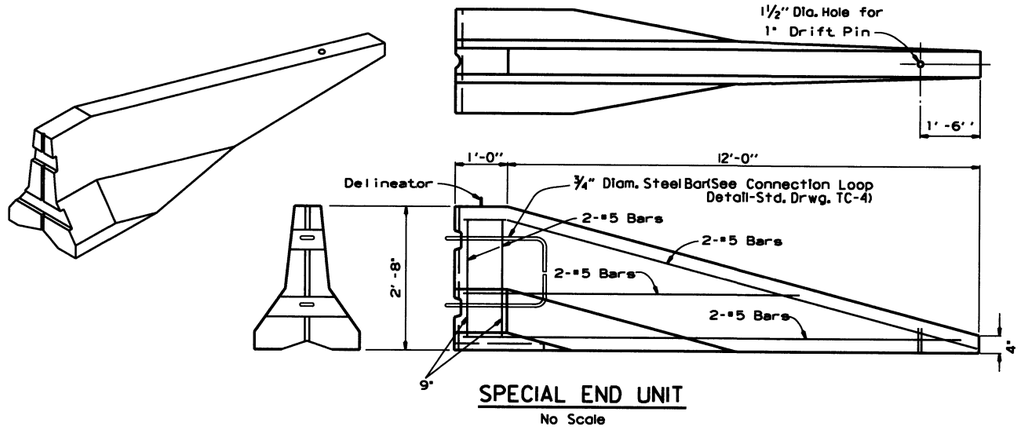


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

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

** Offset Distance For Two Way Traffic Only



SPECIAL END UNIT

No Scale

General Notes

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

DATE	REVISION	FILMED
10-5-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

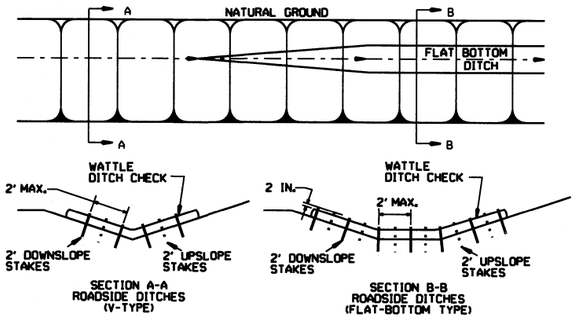
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

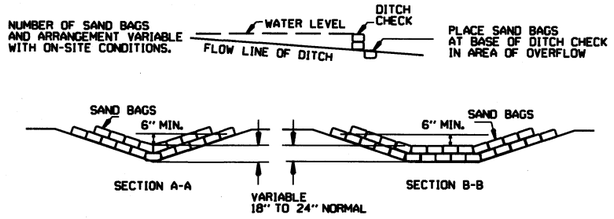
STANDARD DRAWING TC-5

GENERAL NOTES

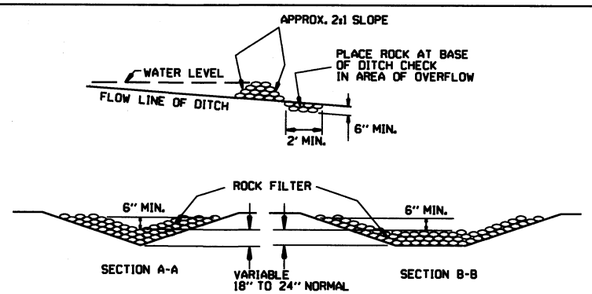
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

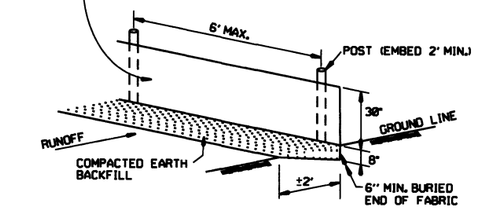


ROCK DITCH CHECK (E-6)

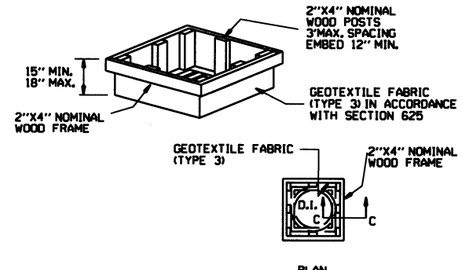
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

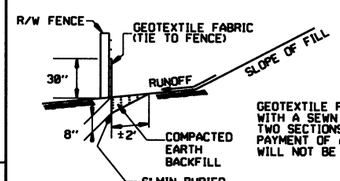
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

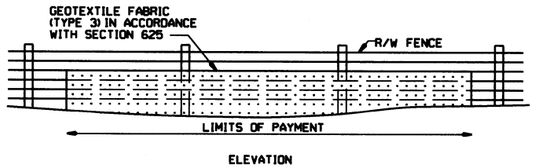


DROP INLET SILT FENCE (E-7)



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.



ELEVATION

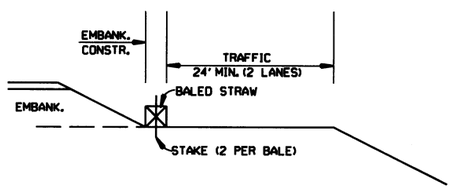
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

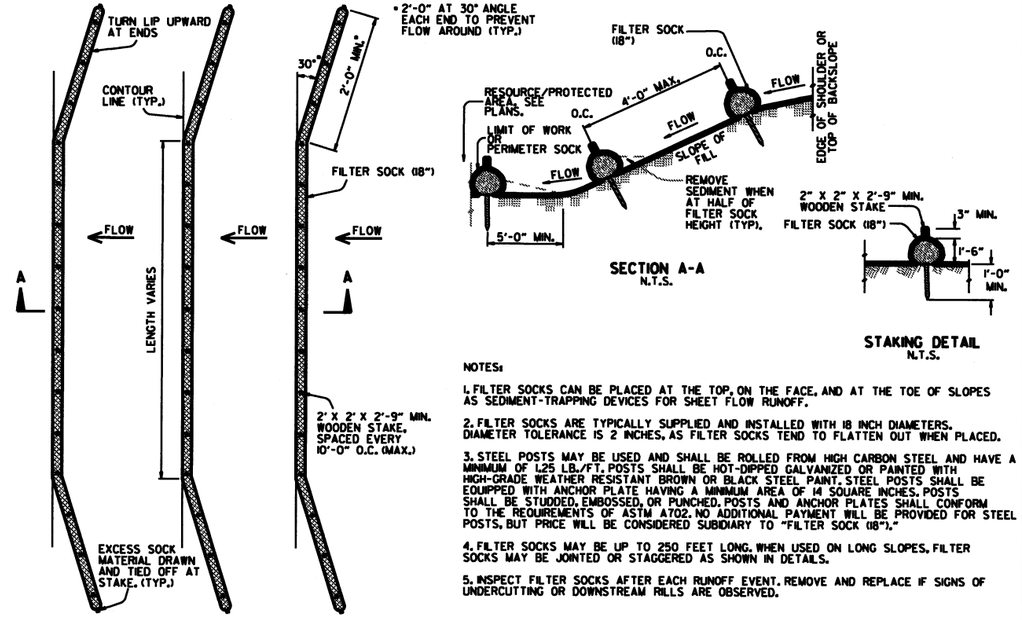
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

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)



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.

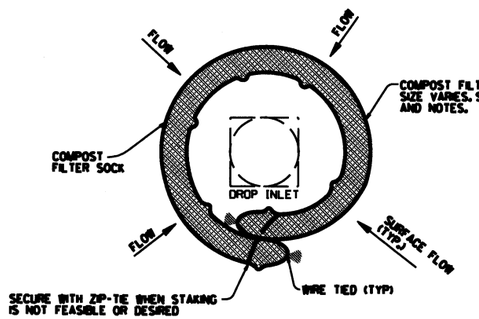
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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")."

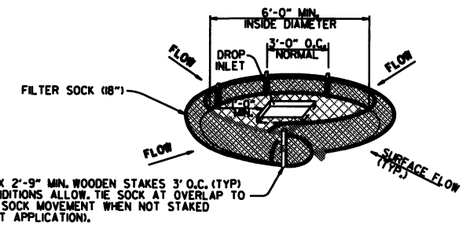
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

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.

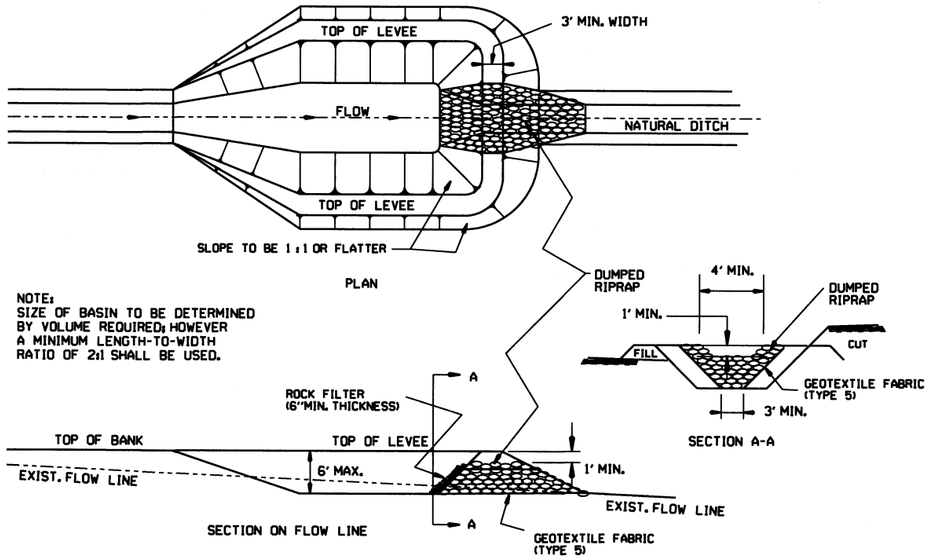
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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	
11-18-98	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. 13" 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

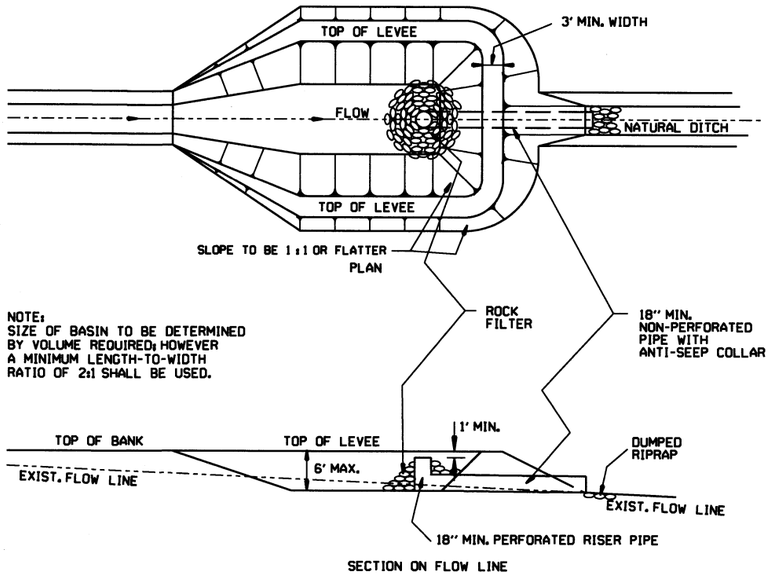
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

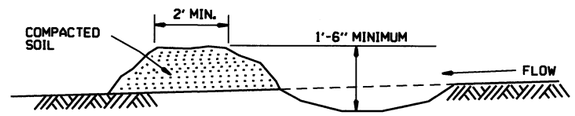
STANDARD DRAWING TEC-1



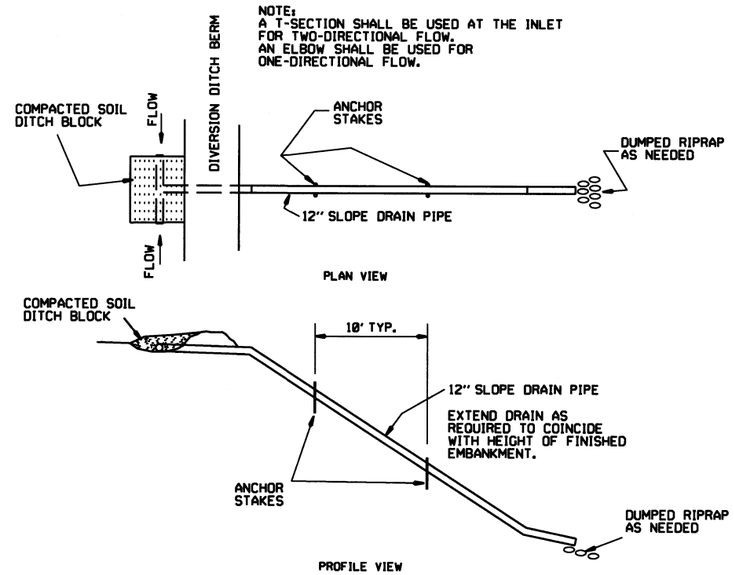
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



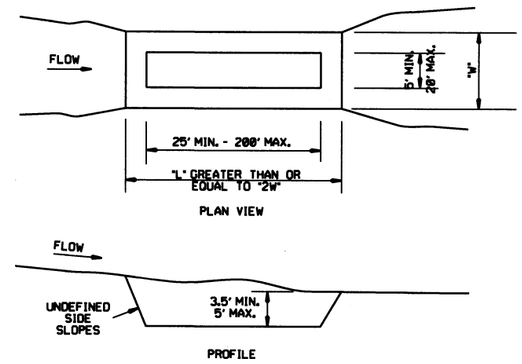
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

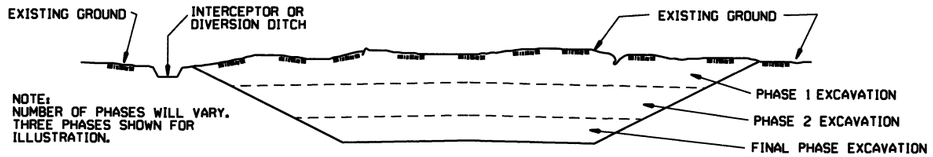
STANDARD DRAWING TEC-2

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



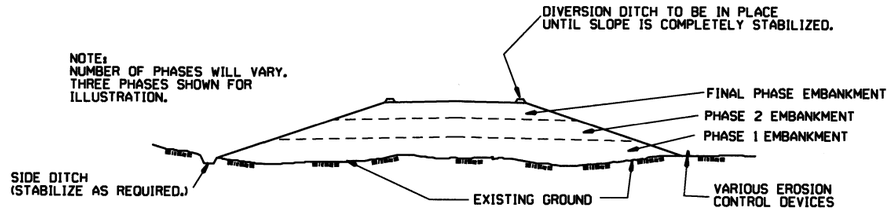
GENERAL NOTE

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

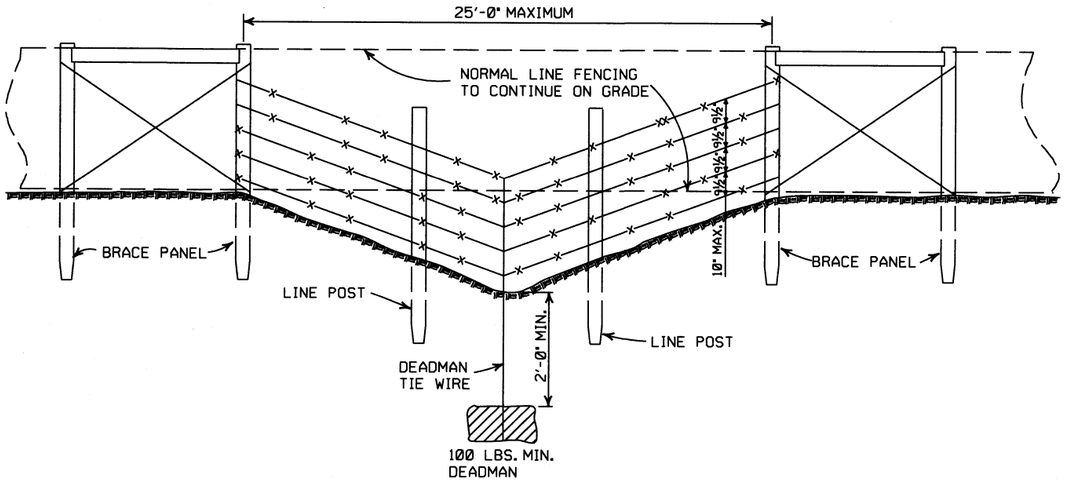
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

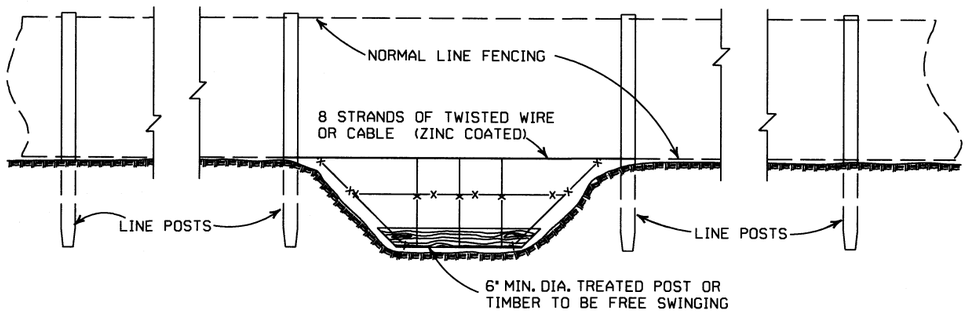
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

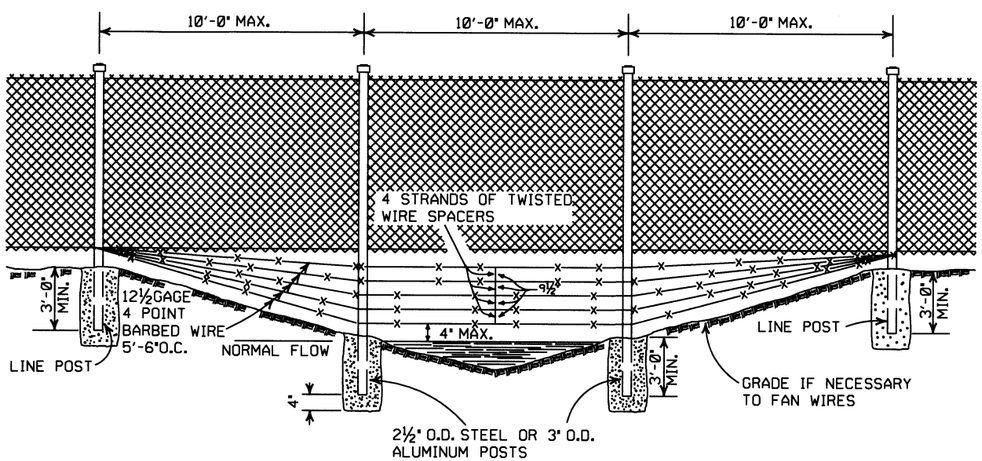
ARKANSAS STATE HIGHWAY COMMISSION

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.

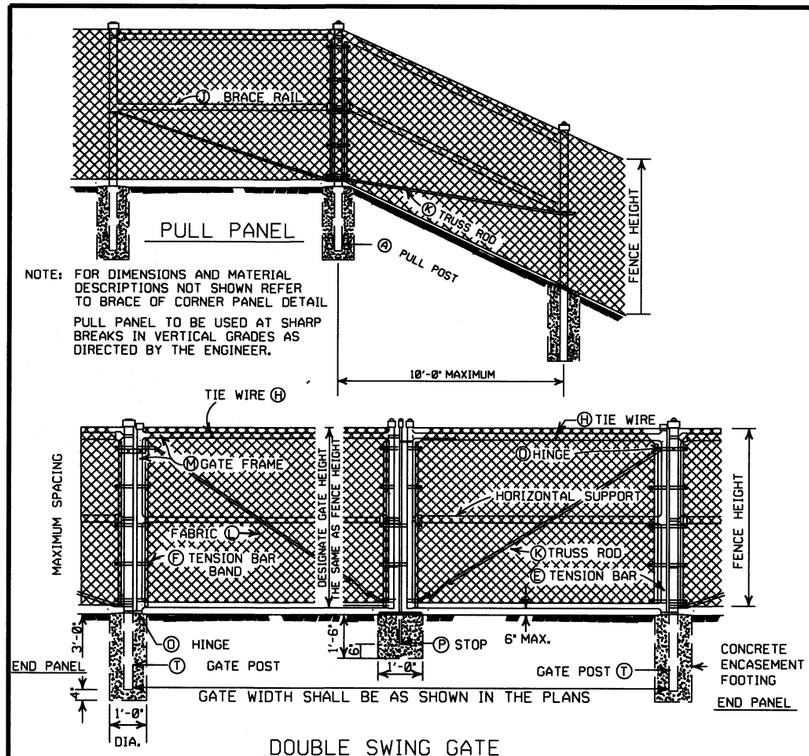
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

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

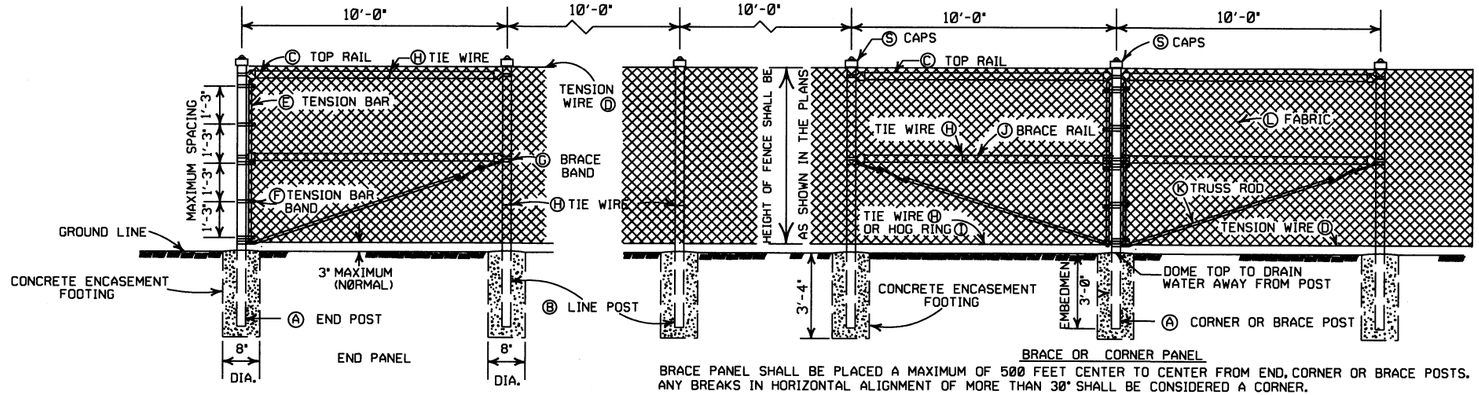


NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

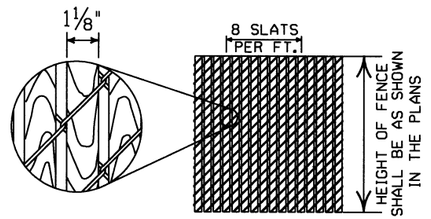
DOUBLE SWING GATE

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		(C) TOP RAIL			(D) TENSION WIRE		(E) TENSION BAR		(F) TENSION BAR BAND			(G) BRACE BAND	
		SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE	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 3/16" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	5/16" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	5/16" 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" ⅞ 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.

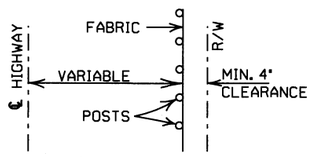
OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

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.

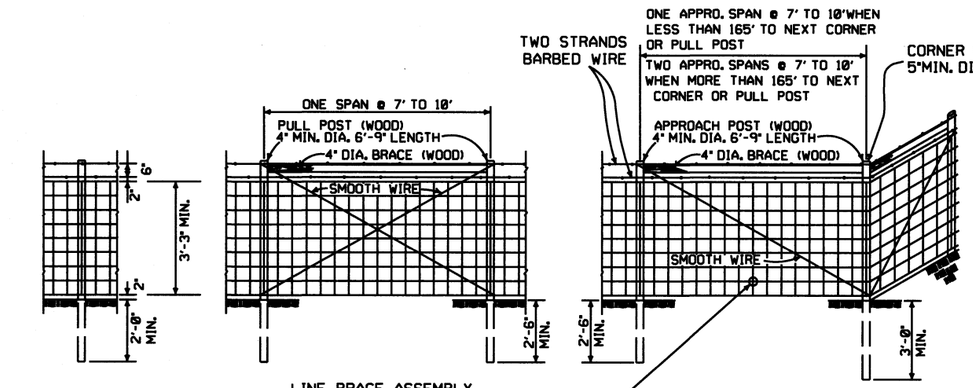
EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

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
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

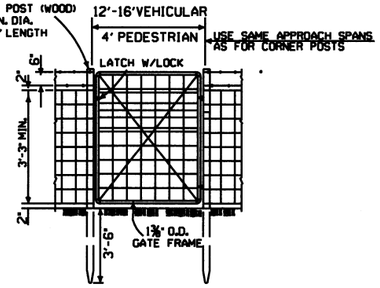
CHAIN LINK FENCE

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)

GENERAL NOTES:

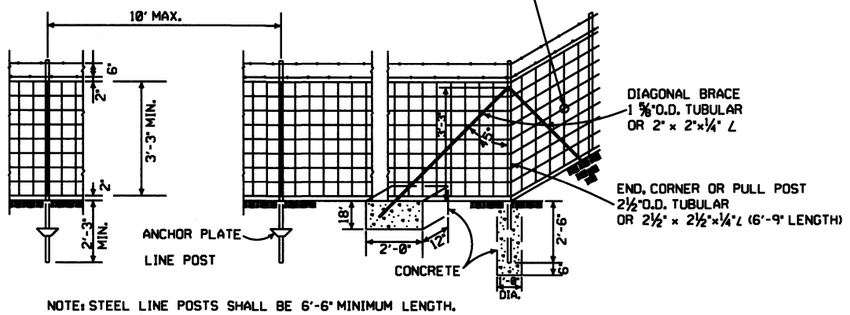
STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO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

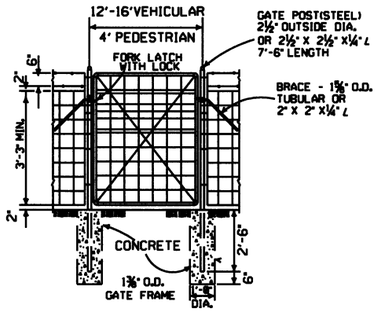
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

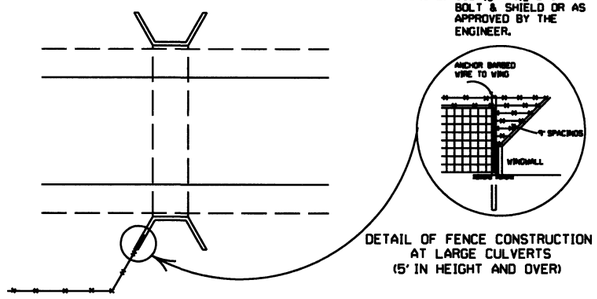
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED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

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)

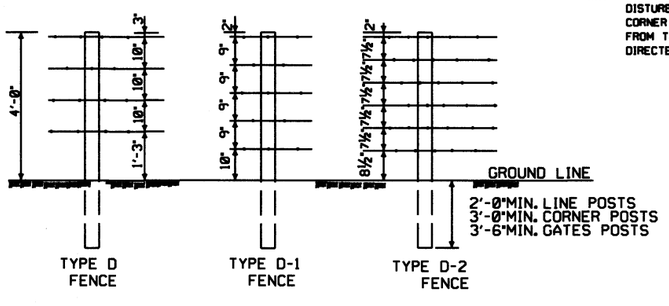
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

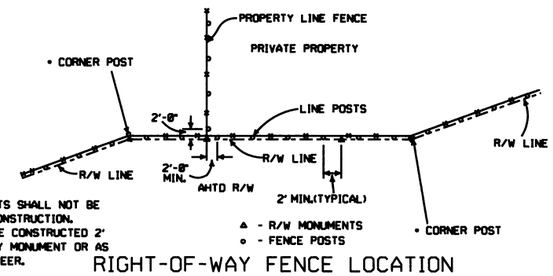
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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



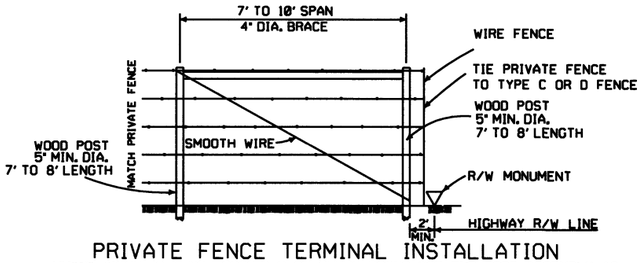
NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



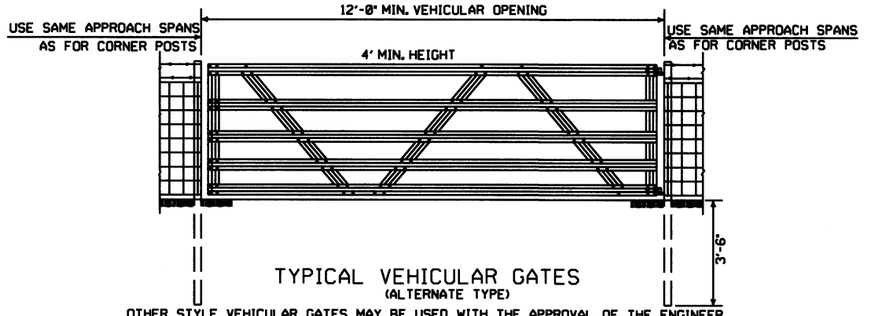
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

▲ - R/W MONUMENTS
o - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

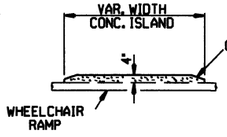
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

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

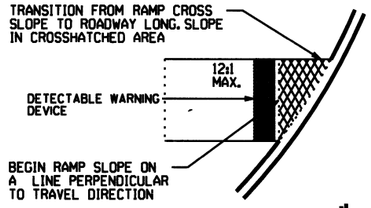
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4



CONCRETE ISLAND DETAIL



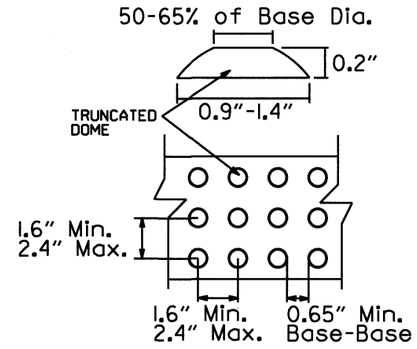
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

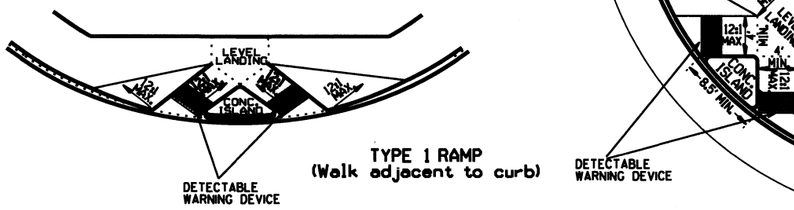
RADIUS "R" FEET	DISTANCE "X" FEET	DISTANCE "Y" FEET	LENGTH "L" FEET	RAMP AREA "A" SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

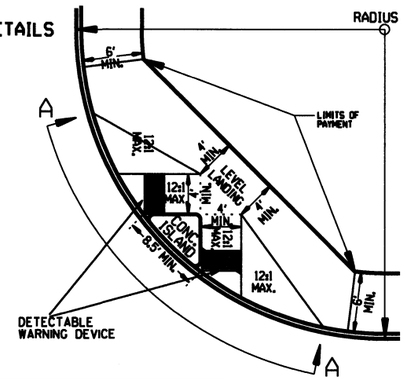
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).

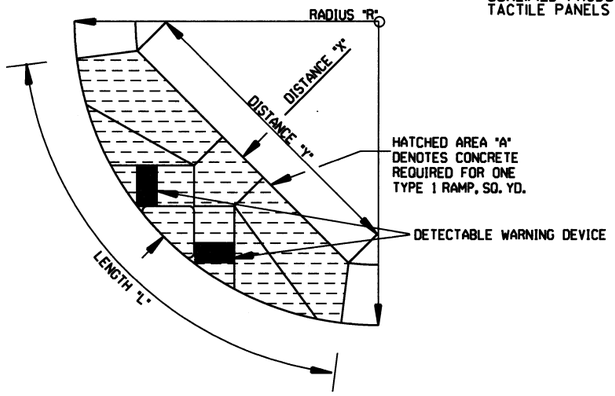


DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)



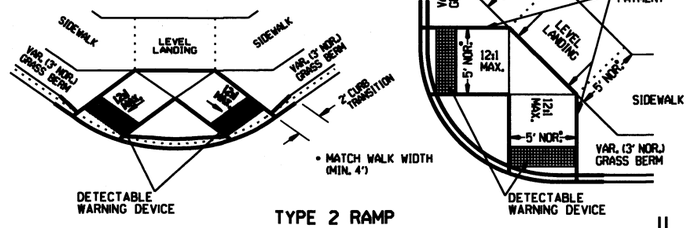


SECTION A-A

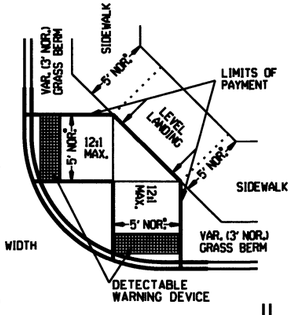
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

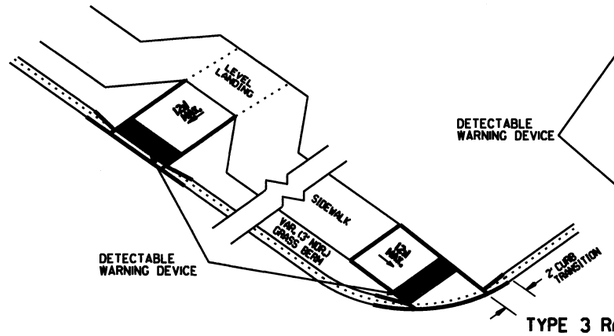
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

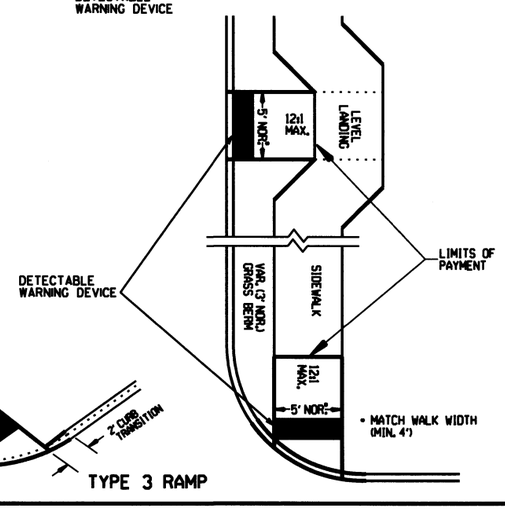


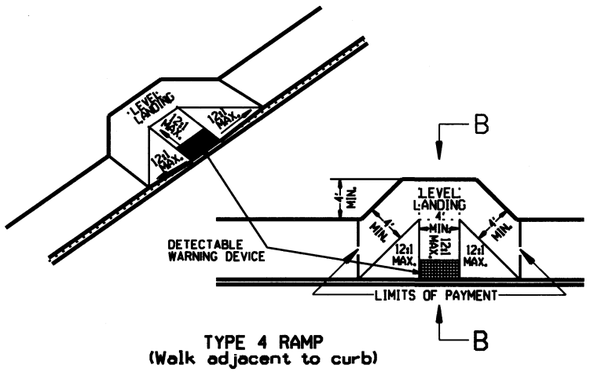
TYPE 2 RAMP



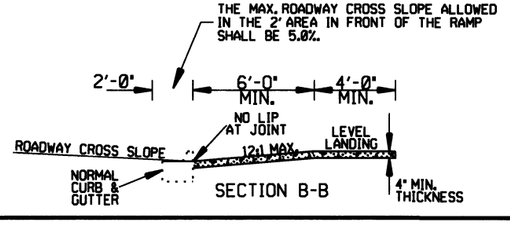


TYPE 3 RAMP





TYPE 4 RAMP
(Walk adjacent to curb)



SECTION B-B

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
8-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD.SLOPE TRANS. & REV. ISL. DIMS.	
8-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM@TOC@MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	------
6-02-76	ISSUED-P.J.U.	299-7-28-76

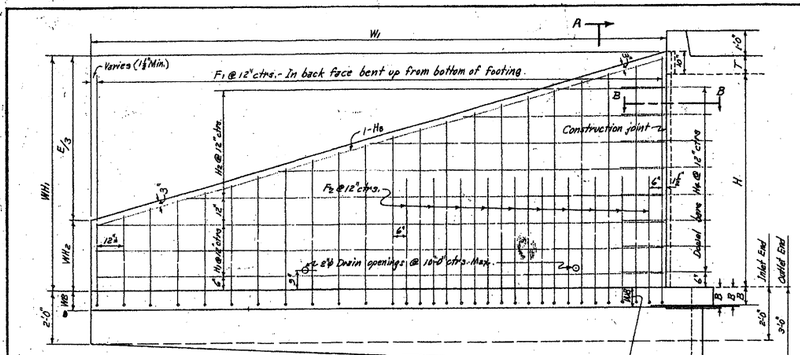
ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS

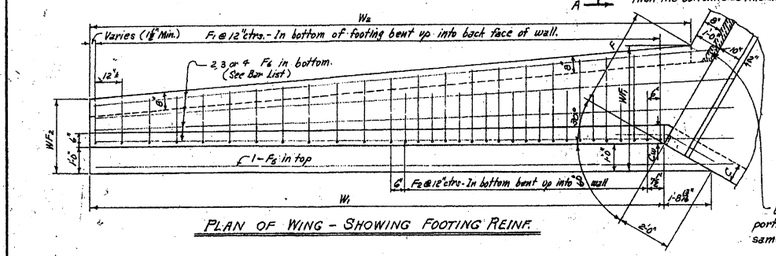
STANDARD DRAWING WR-1

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

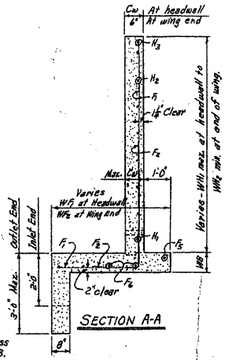
JOB No.



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

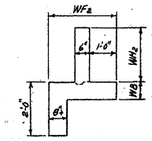


PLAN OF WING - SHOWING FOOTING REINF.

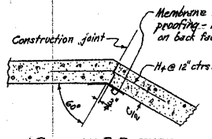


SECTION A-A

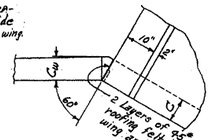
When B is more than W8, the shaded portion of the apron shall be made the same thickness as the barrel base B.



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 FROM WALL TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE INLET END	* QUANTITY PER WING CLASS S CONCRETE OUTLET END
H	WB	Cw	WH1	WH2	WF3	WF5	F	E	W1	W2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-9"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1⅝"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-3⅜"	8'-6"	9'-3⅜"	9'-2⅝"	1.338	1.466
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1⅝"	12'-1⅛"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-10⅝"	14'-7⅛"	2.470	2.668
		7"	5'-10"	1'-8"	3'-3"	2'-4½"	2'-1⅝"	12'-6"	14'-5⅝"	14'-7⅛"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1⅝"	3.490	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1½"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅜"	14'-6"	16'-9"	17'-1½"	3.588	3.803
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-5"	18'-6"	21'-4⅝"	22'-2⅝"	5.761	6.049

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

APRON DIMENSION W3

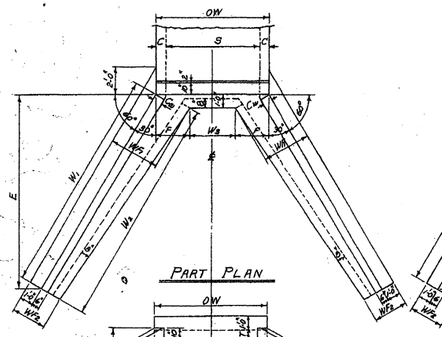
W3 = (OW - 2F)

CLEAR SPAN S	CLEAR HEIGHT H	FOOTING DIMENSION 2F	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT W3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT W3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT W3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT W3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT W3
4'	2'	1'-11⅛"	5'-0"	5'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅜"	5'-0"	5'-3⅜"	9'-8"	8'-1⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-6"	5'-0"	5'-6"	9'-8"	8'-6"	14'-4"	10'-10"	19'-0"	15'-4"	23'-8"	20'-2"
	5'	4'-3⅛"	5'-0"	5'-9⅛"	9'-8"	8'-9⅛"	14'-4"	10'-10⅜"	19'-0"	14'-9⅛"	23'-8"	19'-7⅛"
	6'	5'-0⅝"	5'-2"	6'-1⅛"	9'-11"	9'-1⅛"	14'-8"	9'-7⅛"	19'-5"	14'-1⅛"	24'-2"	19'-1⅛"
5'	3'	2'-8⅜"	6'-0"	5'-3⅜"	11'-8"	8'-1⅛"	17'-4"	11'-7⅛"	23'-0"	20'-3⅛"	28'-8"	25'-11⅛"
	4'	3'-6"	6'-0"	5'-6"	11'-8"	8'-6"	17'-4"	10'-10"	23'-0"	19'-4"	28'-8"	25'-2"
	5'	4'-3⅛"	6'-0"	5'-9⅛"	11'-8"	8'-9⅛"	17'-4"	10'-10⅜"	23'-0"	18'-9⅛"	28'-8"	24'-7⅛"
	6'	5'-0⅝"	6'-2"	6'-1⅛"	11'-11"	9'-1⅛"	17'-8"	9'-7⅛"	23'-5"	18'-1⅛"	29'-2"	24'-1⅛"
	7'	6'-2⅜"	6'-3"	6'-10⅜"	12'-1"	9'-5⅝"	17'-11"	9'-1⅝"	23'-8"	17'-6⅜"	29'-5"	23'-6⅝"
6'	3'	2'-8⅜"	7'-0"	6'-3⅜"	13'-8"	9'-1⅛"	20'-4"	12'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-6"	7'-0"	6'-6"	13'-8"	9'-6"	20'-4"	12'-0"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅛"	7'-0"	6'-9⅛"	13'-8"	9'-9⅛"	20'-4"	11'-7⅛"	27'-0"	22'-11⅛"	33'-8"	29'-7⅛"
	6'	5'-0⅝"	7'-2"	7'-1⅛"	13'-11"	10'-1⅛"	20'-8"	11'-7⅝"	27'-5"	22'-4⅛"	34'-2"	29'-1⅛"
	7'	6'-2⅜"	7'-3"	7'-10⅜"	14'-1"	10'-10⅜"	20'-11"	10'-10⅜"	27'-9"	21'-6⅜"	34'-7"	28'-6⅜"
	8'	7'-1⅝"	7'-4"	8'-0"	14'-2"	11'-0"	21'-0"	10'-10⅝"	27'-10"	20'-6"	34'-8"	27'-9"
7'	3'	2'-8⅜"	8'-0"	6'-3⅜"	15'-8"	10'-2⅛"	23'-8"	13'-7⅛"	31'-0"	27'-6"	38'-8"	35'-2"
	4'	3'-6"	8'-0"	6'-6"	15'-8"	10'-6"	23'-8"	13'-0⅛"	31'-0"	26'-8⅛"	38'-8"	34'-2"
	5'	4'-3⅛"	8'-0"	6'-9⅛"	15'-8"	10'-9⅛"	23'-8"	12'-6⅛"	31'-0"	26'-1⅛"	38'-8"	33'-7⅛"
	6'	5'-0⅝"	8'-2"	7'-1⅛"	15'-11"	10'-10⅝"	23'-8"	12'-1⅝"	31'-5"	25'-6⅛"	39'-2"	34'-1⅛"
	7'	6'-2⅜"	8'-3"	7'-10⅜"	16'-1"	11'-10⅜"	23'-11"	11'-10⅜"	31'-9"	24'-8⅜"	39'-7"	33'-3⅜"
	8'	7'-1⅝"	8'-5"	8'-0"	16'-2"	12'-0"	24'-0"	11'-10⅝"	31'-10"	23'-8"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	6'-6"	17'-8"	10'-6"	26'-8"	13'-0"	35'-0"	31'-4"	43'-8"	40'-2"
	5'	4'-3⅛"	9'-2"	6'-9⅛"	17'-11"	10'-9⅛"	26'-8"	12'-6⅛"	35'-5"	30'-9⅛"	44'-2"	39'-7⅛"
	6'	5'-0⅝"	9'-3"	7'-1⅛"	17'-11"	10'-10⅝"	26'-8"	12'-1⅝"	35'-5"	30'-1⅛"	44'-2"	39'-1⅛"
	7'	6'-2⅜"	9'-3"	7'-10⅜"	18'-1"	11'-10⅜"	26'-11"	11'-10⅜"	35'-9"	29'-3⅜"	44'-7"	38'-3⅜"
	8'	7'-1⅝"	9'-5"	8'-0"	18'-2"	12'-0"	27'-0"	11'-10⅝"	35'-10"	28'-4"	44'-8"	37'-9"
9'	5'	4'-3⅛"	10'-2"	7'-0⅜"	19'-11"	11'-7⅛"	29'-8"	13'-7⅛"	39'-5"	35'-1⅛"	49'-2"	44'-10⅛"
	6'	5'-0⅝"	10'-3"	7'-1⅝"	20'-1"	11'-10⅝"	29'-11"	13'-0⅝"	39'-9"	34'-5⅛"	49'-7"	44'-1⅛"
	7'	6'-2⅜"	10'-3"	8'-0⅜"	20'-1"	12'-10⅜"	29'-11"	12'-10⅜"	39'-9"	33'-7⅜"	49'-7"	43'-3⅜"
	8'	7'-1⅝"	10'-5"	8'-1"	20'-2"	13'-0"	30'-0"	12'-10⅝"	39'-10"	32'-8"	49'-8"	42'-9"
10'	5'	4'-3⅛"	11'-2"	7'-0⅜"	21'-11"	11'-7⅛"	32'-8"	13'-7⅛"	43'-5"	39'-1⅛"	54'-2"	49'-10⅛"
	6'	5'-0⅝"	11'-3"	7'-1⅝"	22'-1"	11'-10⅝"	32'-11"	13'-0⅝"	43'-9"	38'-5⅛"	54'-7"	49'-1⅛"
	7'	6'-2⅜"	11'-3"	8'-0⅜"	22'-1"	12'-10⅜"	32'-11"	12'-10⅜"	43'-9"	37'-7⅜"	54'-7"	48'-3⅜"
	8'	7'-1⅝"	11'-5"	8'-1"	22'-2"	13'-0"	33'-0"	12'-10⅝"	43'-10"	36'-8"	54'-8"	47'-9"
11'	6'	5'-0⅝"	12'-4"	7'-1⅝"	24'-2"	11'-10⅝"	35'-11"	13'-0⅝"	47'-10"	42'-5⅛"		
	7'	6'-2⅜"	12'-4"	8'-0⅜"	24'-2"	12'-10⅜"	35'-11"	12'-10⅜"	47'-10"	41'-7⅜"		
	8'	7'-1⅝"	12'-5"	8'-1"	24'-2"	13'-0"	36'-0"	12'-10⅝"	47'-11"	40'-8"		
12'	6'	5'-0⅝"	13'-4"	8'-1⅝"	26'-2"	11'-10⅝"	38'-11"	13'-0⅝"	51'-10"	46'-5⅛"		
	7'	6'-2⅜"	13'-4"	9'-0⅜"	26'-2"	12'-10⅜"	38'-11"	12'-10⅜"	51'-10"	45'-7⅜"		
	8'	7'-1⅝"	13'-6"	9'-1"	26'-2"	13'-0"	39'-0"	12'-10⅝"	51'-11"	44'-8"		

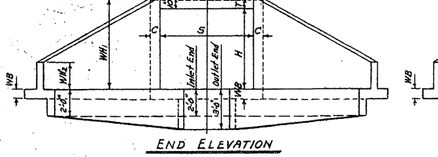
QUANTITIES

CLEAR SPAN S	CLEAR HEIGHT H	THICKNESS OF WING AT HEADWALL Cw	THICKNESS OF WING FOOTING WB	⊛ REINFORCING STEEL - FOR 4 WINGS LB.	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS SINGLE BARREL CULVERT CU.YD.	DOUBLE BARREL CULVERT CU.YD.	TRIPLE BARREL CULVERT CU.YD.	QUADRUPLE BARREL CULVERT CU.YD.	QUINTUPLE BARREL CULVERT CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.42	7.38	8.34
	3'	6"	7"	164.9	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	259.6	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"	164.9	6.97	7.69	8.79	9.96	11.12
	4'	6"	7"	259.6	8.56	9.70	10.87	10.03	13.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.93	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7½"	8½"	1136.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.9	6.68	8.06	9.92	10.80	12.18
	4'	6"	7"	259.6	8.75	10.18	11.99	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"	1136.6	19.16	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	259.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.58	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.64
	7'	7½"	8½"	1136.6	19.38	21.02	22.69	24.28	25.92
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.36
	6'	7"	8"	583.1	15.92	17.87	19.09	20.93	22.75
	7'	7½"	8½"	1136.6	19.59	21.66	23.30	25.16	26.99
	8'	8"	9"	1925.6	24.54	26.91	28.29	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.47
	6'	7½"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7½"	8½"	1136.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.99	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"	1136.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	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"	1136.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.95	25.18	
	7'	8"	8½"	1136.6	20.87	23.69	26.90	29.18	
	8'	8"	9"	1925.6	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.

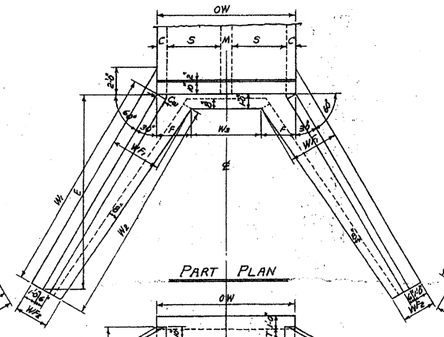


PART PLAN

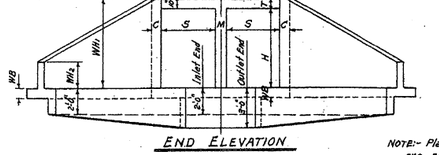


END ELEVATION

SINGLE BARREL CULVERT



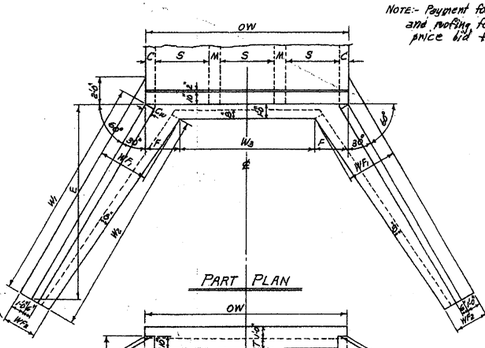
PART PLAN



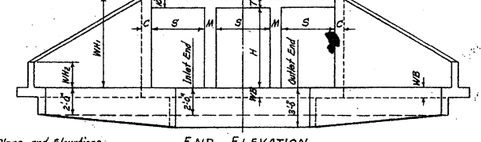
END ELEVATION

DOUBLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.

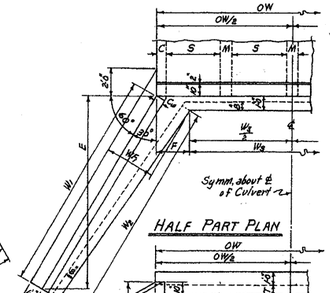


PART PLAN

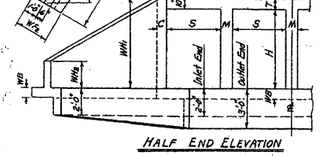


END ELEVATION

TRIPLE BARREL CULVERT

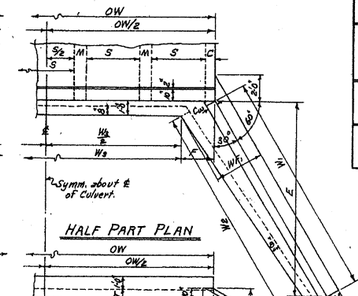


HALF PART PLAN

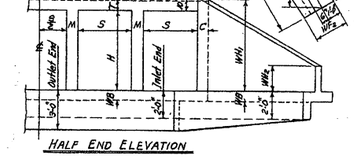


HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN



HALF END ELEVATION

QUINTUPLE BARREL CULVERT

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 in wings.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"

Reinforcing Steel 20,000#/□"

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

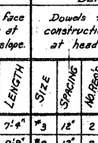
SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT H	F1 BENT In bottom of footing, bent up into back face of wing. One bar of each length. SIZE	SPACING	NO. REQD	LENGTHS VARY MIN. X	LENGTHS VARY MAX. X	LENGTHS VARY MIN. Y	LENGTHS VARY MAX. Y	F2 BENT In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE	SPACING	NO. REQD	LENGTH X	LENGTH Y	F3 STRAIGHT Longitudinal in top of wing footing heel. SIZE	NO. REQD	LENGTH	F4 STRAIGHT Longitudinal in bottom of wing footing toe. SIZE	NO. REQD	LENGTH	H1 STRAIGHT Horizontal in back face of wing. SIZE	SPACING	NO. REQD	LENGTH	H2 STRAIGHT Horizontal in back face of wing. One bar of each length. SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	H3 STRAIGHT In back face of wing at top - on slope. SIZE	NO. REQD	LENGTH	H4 BENT Dowels thru construction joint at headwall. SIZE	SPACING	NO. REQD	LENGTH	X	QUANTITY REINFORCING STEEL PER WING LB.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	#3	12"	1	7'-2"	0'-11"	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	9'-6"	4'-0"	#3	1	7'-9"	#3	12"	2	2'-8"	1'-9"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	#3	12"	1	12'-0"	0'-11"	#3	2	11'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-0"	#3	1	9'-3"	#3	12"	3	2'-8"	1'-9"	41.1
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	#3	12"	1	14'-6"	0'-11"	#3	3	13'-6"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-9"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	#3	12"	4	3'-6"	1'-1"	#3	3	16'-6"	#3	3	16'-6"	#8	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	#3	12"	4	4'-6"	1'-9"	#3	3	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-6"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-9"	145.8
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	#3	12"	7	5'-6"	1'-7"	#4	4	21'-8"	#4	4	21'-8"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	#3	12"	10	6'-6"	1'-10"	#4	4	23'-8"	#4	4	23'-8"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

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

Designed By:- W.C.H. 8-20-62.
Drawn By:- W.C.H. 12-4-62.
Quantities By:- W.C.H. 12-14-62.
Checked By:- R.M.S. 1-9-63
Checked By:- R.M.S. 1-31-63
Rechecked By:- R.M.S. 3-29-63

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

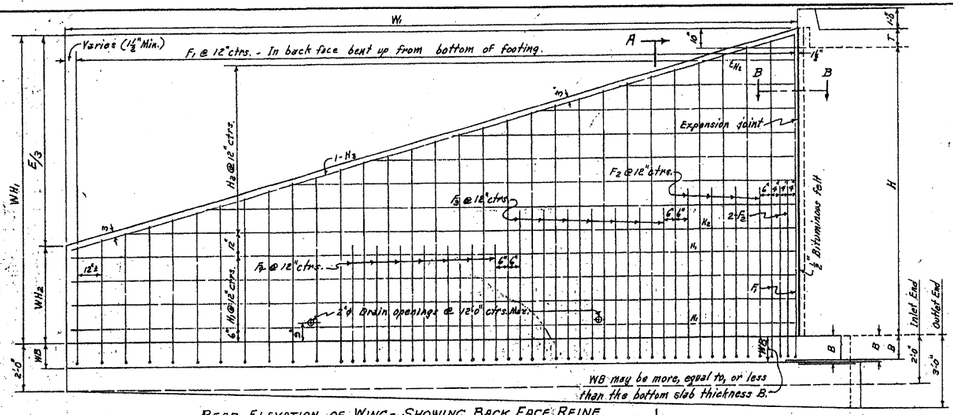
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

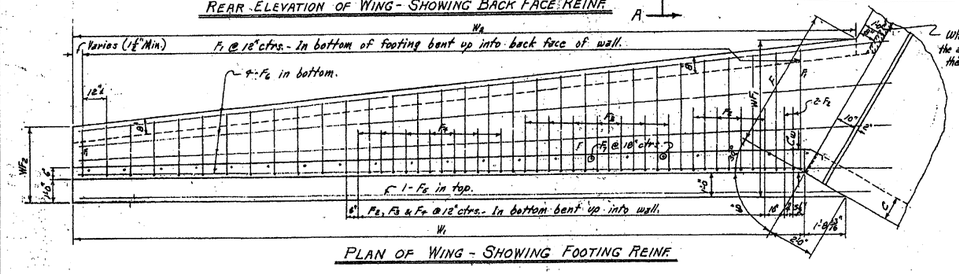
STANDARD DRAWING NO. W-X003-1

MYLAR

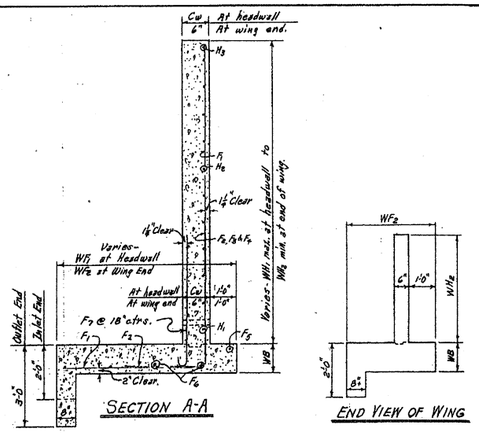
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



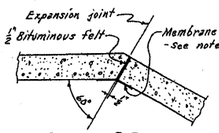
PLAN OF WING - SHOWING FOOTING REINF.



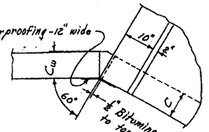
SECTION A-A

END VIEW OF WING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



SECTION B-B THRU EXPANSION JOINT



DETAIL AT TOP OF WING

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = Cw	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING — CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	Cu.Yd.	Cu.Yd.
9'	10"	9"	9'-10"	3'-0"	5'-12"	21-0⅝"	4'-5"	20'-6"	23'-8"	24'-11"	7.492	7.810
10'	11"	10'	10'-10"	3'-9"	5'-8"	9'-0"	4'-10"	22'-6"	25'-11⅝"	27'-6"	9.556	9.905
11'	12"	11"	11'-10"	3'-8"	6'-3"	3'-1⅝"	5'-5"	24'-6"	28'-3⅝"	30'-1⅝"	11.977	12.361
12'	13"	12"	12'-10"	4'-0"	6'-8"	3'-3"	6'-0"	26'-6"	30'-7⅝"	32'-8⅝"	14.791	15.206

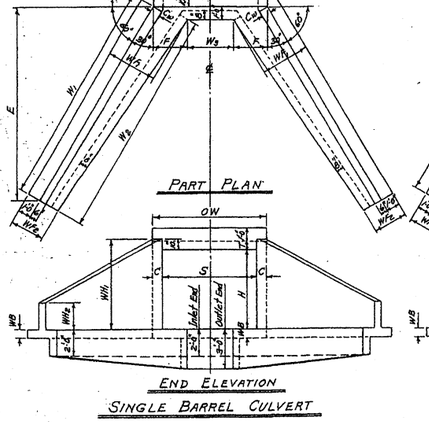
* Quantity per wing does not include headwall or that portion of apron or footwall for the length Ws.

CLEAR SPAN	CLEAR HEIGHT	2 F FOOTING DIMENSION	Ws = (OW - 2F) — SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	Ws	OW	Ws	OW	Ws	OW	Ws	OW	Ws
7'												
	9'	6'-6"	8'-6"	0'-0"	16'-5"	7'-11"	24'-6"	15'-10"	32'-5"	23'-9"	40'-5"	31'-8"
8'	9'	6'-6"	9'-6"	1'-0"	18'-5"	9'-11"	27'-6"	18'-10"	36'-5"	27'-9"	45'-5"	36'-8"
	10'	9'-8"	9'-8"	0'-0"	18'-8"	9'-0"	27'-8"	18'-0"	36'-8"	27'-0"	45'-8"	36'-0"
9'	9'	8'-6"	10'-6"	2'-0"	20'-5"	11'-11"	30'-6"	21'-10"	40'-5"	31'-8"	50'-5"	41'-8"
	10'	9'-8"	10'-8"	1'-0"	20'-8"	11'-0"	30'-8"	21'-0"	40'-8"	31'-0"	50'-8"	41'-0"
	11'	10'-10"	10'-10"	0'-0"	20'-10"	10'-0"	30'-10"	20'-0"	40'-10"	30'-0"	50'-10"	40'-0"
10'	9'	8'-6"	11'-6"	3'-0"	22'-5"	13'-11"	33'-6"	24'-10"	44'-5"	35'-9"	55'-5"	46'-8"
	10'	9'-8"	11'-8"	2'-0"	22'-8"	13'-0"	33'-8"	24'-0"	44'-8"	35'-0"	55'-8"	46'-0"
	11'	10'-10"	11'-10"	1'-0"	22'-10"	12'-0"	33'-10"	23'-0"	44'-10"	34'-0"	55'-10"	45'-0"
	12'	12'-0"	12'-0"	0'-0"	23'-0"	11'-0"	34'-0"	22'-0"	45'-0"	33'-0"	56'-0"	44'-0"
11'	9'	8'-6"	12'-6"	4'-0"	24'-5"	15'-11"	36'-6"	27'-10"	48'-5"	39'-9"		
	10'	9'-8"	12'-8"	3'-0"	24'-8"	15'-0"	36'-8"	27'-0"	48'-8"	39'-0"		
	11'	10'-10"	12'-10"	2'-0"	24'-10"	14'-0"	36'-10"	26'-0"	48'-10"	38'-0"		
	12'	12'-0"	13'-0"	1'-0"	25'-0"	13'-0"	37'-0"	25'-0"	49'-0"	37'-0"		
12'	9'	8'-6"	13'-6"	5'-0"	26'-5"	17'-11"	39'-6"	30'-10"	52'-5"	43'-9"		
	10'	9'-8"	13'-8"	4'-0"	26'-8"	17'-0"	39'-8"	30'-0"	52'-8"	43'-0"		
	11'	10'-10"	13'-10"	3'-0"	26'-10"	16'-0"	39'-10"	29'-0"	52'-10"	42'-0"		
	12'	12'-0"	14'-0"	2'-0"	27'-0"	15'-0"	40'-0"	28'-0"	53'-0"	41'-0"		

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	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	
7'										
	9'	9"	10"	2133.2	31.16	32.84	34.51	36.19	37.87	
8'	9'	9"	10"	2133.2	31.39	33.28	35.16	37.05	38.94	
	10'	10"	11"	2651.5	39.56	41.98	43.90	45.33	47.25	
9'	9'	9"	10"	2133.2	31.61	33.73	35.81	37.91	40.01	
	10'	10"	11"	2651.6	39.78	41.93	44.05	46.20	48.33	
	11'	11"	12"	3243.1	49.39	51.55	53.70	55.87	58.02	
10'	9'	9"	10"	2133.2	31.83	34.17	36.47	38.73	41.12	
	10'	10"	11"	2651.5	40.01	42.37	44.70	47.05	49.41	
	11'	11"	12"	3243.1	49.62	52.00	54.36	56.73	59.11	
	12'	12"	13"	4049.2	60.79	63.19	65.57	67.97	70.37	
11'	9'	9"	10"	2133.2	32.06	34.64	37.15	39.68		
	10'	10"	11"	2651.5	40.22	42.83	45.37	47.99		
	11'	11"	12"	3243.1	49.84	52.45	55.02	57.61		
	12'	12"	13"	4049.2	61.01	63.64	66.24	68.85		
12'	9'	9"	10"	2133.2	32.27	35.11	37.84	40.69		
	10'	10"	11"	2651.5	40.44	43.30	46.06	48.92		
	11'	11"	12"	3243.1	50.06	52.92	55.68	58.98		
	12'	12"	13"	4049.2	61.24	64.10	66.90	69.73		

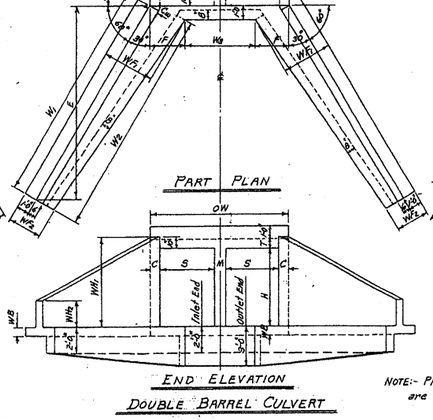
* For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections For R.C. Box Culverts for the desired Span and Height.



PART PLAN

END ELEVATION

SINGLE BARREL CULVERT

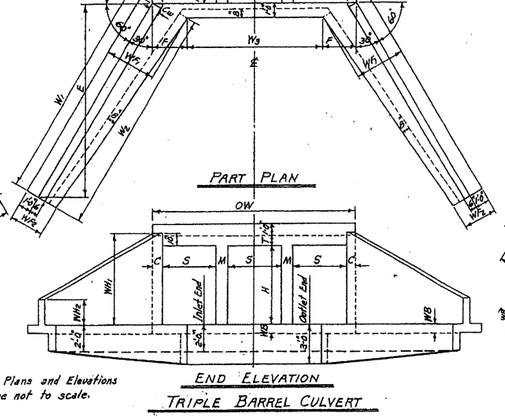


PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

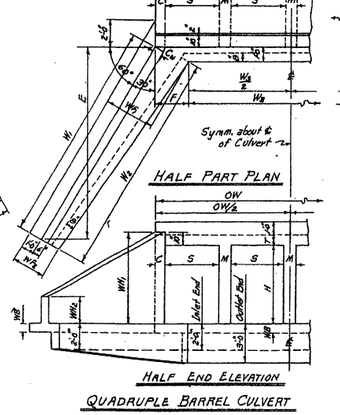
NOTE:- Plans and Elevations are not to scale.



PART PLAN

END ELEVATION

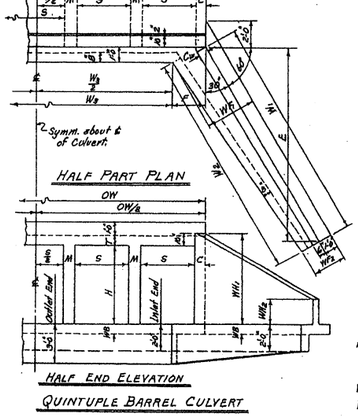
TRIPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

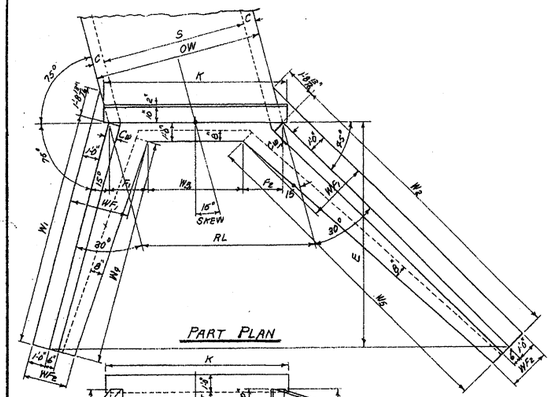
HALF END ELEVATION

QUINTUPLE BARREL CULVERT

BAR LIST FOR ONE WING - 4 REQUIRED

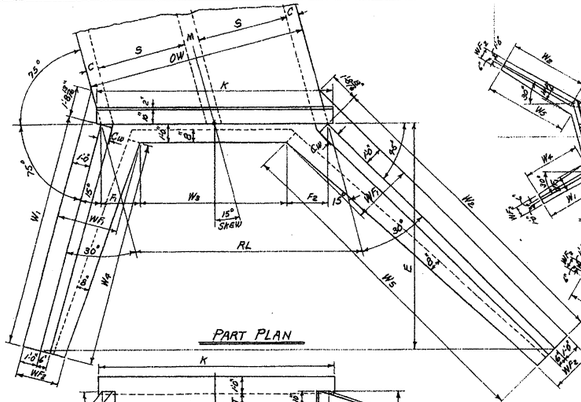
| CLEAR HEIGHT | F1 Bent — In bottom of footing, bent up into back face of wing. One bar of each length. Size | Spacing | No. Reqd | Lengths Vary Min. | Lengths Vary Max. | X | Y | F2 Bent — In bottom of footing, bent up into back face of wing. Alt. with F1 bars. Size | Spacing | No. Reqd | Length | X | Y | F3 Bent — In bottom of footing, bent up into back face of wing. Alt. with F1 bars. Size | Spacing | No. Reqd | Length | X | Y | F4 — In bottom of footing, bent up into back face of wing. Alt. with F1 bars. Size | Spacing | No. Reqd | Length | X | Y | F5 Straight — Longitudinal in top of wing footing heel. Size | No. Reqd | Length | Longitudinal in bottom of wing footing toe. No. Reqd | Length | H1 Straight — Horizontal in back face of wing. Size | Spacing | No. Reqd | Length | H2 Straight — Horizontal in back face of wing. One bar of each length. Size | Spacing | No. Reqd | Lengths Vary Max. | Lengths Vary Min. | H3 — In back face of wing at top-on slope. Size | No. Reqd | Length | F7 Bent — Footing dowels extending up into front face of wing. Size | Spacing | No. Reqd | Length | X | Quantity Reinforcing Steel per Wing LB. | Bar Bending Diagrams |
|---|---|---|---|---|---|---|---|---|---|---|---|---

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



SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

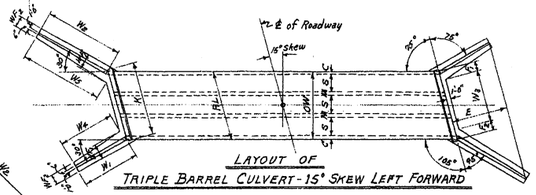
Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.



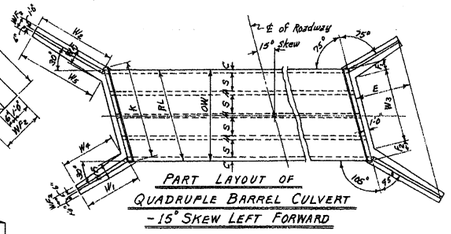
DOUBLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.

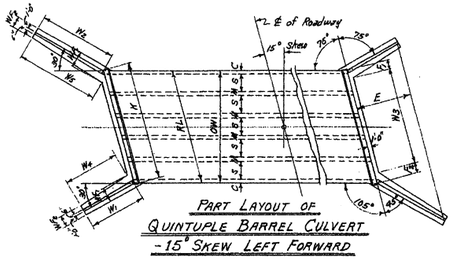
NOTE:- Plans and Elevations are not to scale.



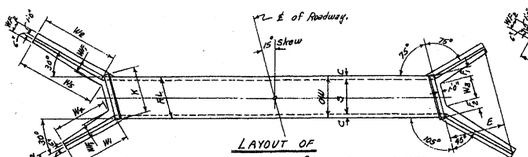
LAYOUT OF TRIPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



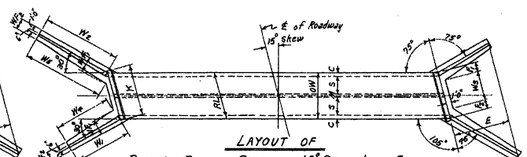
PART LAYOUT OF QUADRUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD



PART LAYOUT OF QUINTUPLE BARREL CULVERT - 15° SKEW LEFT FORWARD

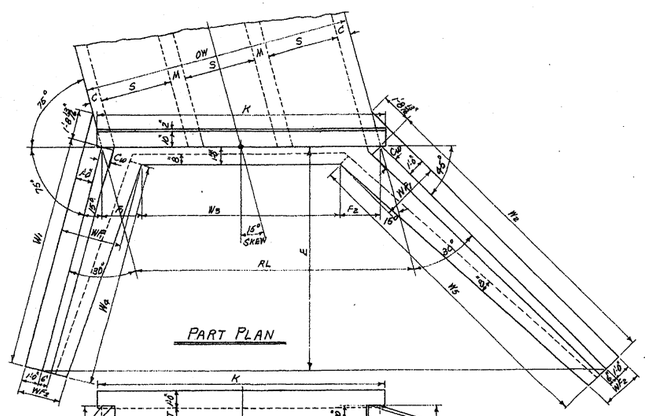


LAYOUT OF SINGLE BARREL CULVERT - 15° SKEW LEFT FORWARD



LAYOUT OF DOUBLE BARREL CULVERT - 15° SKEW LEFT FORWARD

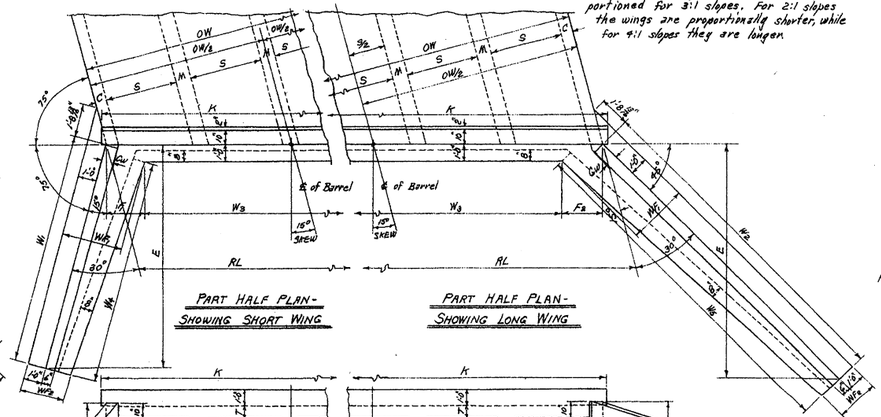
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.



TRIPLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at top center of sheet.

NOTE:- Plans and Elevations are not to scale.



QUADRUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

RL = OW x 1.035276 — K = RL + (6½") — $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING No.	CLEAR SPAN	CLEAR HEIGHT	SUM OF FOOTING DIMENSIONS	SINGLE BARREL CULVERT				DOUBLE BARREL CULVERT				TRIPLE BARREL CULVERT				QUADRUPLE BARREL CULVERT				QUINTUPLE BARREL CULVERT			
	S	H	F_1 & F_2	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3
W-X152-1, W-X153-1 or W-X154-1 (FOR H=8'0" OR LESS)	4'	2'	2'-0"	5'-0"	5'-2⅜"	5'-8⅜"	3'-2⅜"	9'-8"	10'-0"	10'-6⅜"	6'-0"	14'-4"	14'-10"	15'-4½"	12'-10"	19'-0"	19'-8"	20'-2½"	17'-8"	23'-8"	24'-6"	25'-0⅛"	22'-6"
		3'	2'-9⅜"	5'-0"	"	"	2'-7⅜"	9'-8"	"	"	7'-2⅜"	14'-4"	"	"	12'-0⅜"	19'-0"	"	"	16'-10⅜"	23'-8"	"	"	21'-8⅜"
		4'	3'-7⅜"	5'-0"	"	"	1'-6⅜"	9'-8"	"	"	6'-6⅜"	14'-4"	"	"	11'-2⅜"	19'-0"	"	"	16'-0⅜"	23'-8"	"	"	20'-10⅜"
		5'	4'-5⅜"	5'-0"	"	"	0'-8⅜"	9'-8"	"	"	5'-6⅜"	14'-4"	"	"	10'-1⅜"	19'-0"	"	"	15'-2⅜"	23'-8"	"	"	20'-0⅜"
		6'	5'-3⅜"	5'-2"	5'-7⅜"	5'-11⅜"	0'-1"	9'-11"	10'-3½"	10'-9⅜"	5'-0"	14'-8"	15'-2⅛"	16'-8⅜"	9'-11"	19'-5"	20'-1⅛"	20'-7½"	14'-10"	24'-2"	25'-0⅛"	25'-6⅜"	19'-9"
	5'	3'	2'-9⅜"	6'-0"	6'-2⅜"	6'-9"	3'-4⅜"	11'-8"	12'-1"	12'-7⅜"	9'-3⅜"	17'-4"	17'-11⅜"	18'-5⅜"	15'-1½"	23'-0"	23'-8½"	24'-1⅜"	21'-0"	28'-8"	29'-6⅛"	30'-0½"	26'-10⅜"
		4'	3'-7⅜"	6'-0"	"	"	2'-7"	11'-8"	"	"	8'-5⅜"	17'-4"	"	"	14'-3⅜"	23'-0"	"	"	20'-2⅜"	28'-8"	"	"	26'-0⅜"
		5'	4'-5⅜"	6'-0"	"	"	1'-9⅜"	11'-8"	"	"	7'-7⅜"	17'-4"	"	"	13'-4"	23'-0"	"	"	19'-4⅜"	28'-8"	"	"	25'-2⅜"
		6'	5'-3⅜"	6'-2"	6'-7⅜"	6'-11⅜"	1'-1½"	11'-11"	12'-5"	12'-10⅜"	7'-10⅜"	17'-8"	18'-3½"	18'-10"	13'-10⅜"	23'-5"	24'-2⅜"	24'-9⅛"	18'-11⅜"	28'-2"	29'-0⅜"	30'-0⅜"	24'-11⅜"
		7'	6'-3⅜"	6'-3"	6'-8⅜"	7'-0⅜"	Ⓐ 0"	12'-1"	12'-6⅜"	13'-0⅛"	6'-0⅜"	17'-11"	18'-6⅜"	19'-1"	12'-0⅜"	23'-9"	24'-7"	25'-1½"	18'-1½"	29'-7"	30'-7⅜"	31'-2"	24'-1⅜"
	6'	3'	2'-9⅜"	7'-0"	7'-5"	7'-9⅜"	4'-5⅜"	13'-8"	14'-1⅜"	14'-8⅜"	11'-0"	20'-0"	21'-0⅜"	21'-7"	18'-2⅜"	27'-0"	27'-11⅜"	28'-5⅜"	25'-1⅜"	33'-8"	34'-10⅜"	35'-4⅜"	33'-0⅜"
		4'	3'-7⅜"	7'-0"	"	"	3'-7⅜"	13'-8"	"	"	10'-6⅜"	20'-0"	"	"	17'-5"	27'-0"	"	"	24'-5⅜"	33'-8"	"	"	31'-2⅜"
		5'	4'-5⅜"	7'-0"	"	"	2'-9⅜"	13'-8"	"	"	9'-8⅜"	20'-0"	"	"	16'-7⅜"	27'-0"	"	"	23'-6"	33'-8"	"	"	30'-1⅜"
		6'	5'-3⅜"	7'-8"	7'-1½"	7'-11⅜"	2'-1⅜"	13'-11"	14'-5"	14'-11⅜"	9'-1⅜"	20'-8"	21'-2⅜"	21'-11⅜"	16'-11⅜"	27'-5"	28'-1⅛"	28'-11"	23'-1⅛"	34'-4"	35'-1"	35'-7½"	30'-7⅛"
		7'	6'-3⅜"	7'-8"	7'-1½"	8'-0⅜"	1'-0⅜"	14'-1"	14'-7"	15'-1⅜"	8'-1⅜"	20'-11"	21'-7⅜"	22'-2⅜"	15'-8"	27'-9"	28'-5⅜"	29'-3⅜"	22'-1"	34'-10"	35'-7⅜"	36'-1"	29'-3⅜"
		8'	7'-2⅜"	7'-8"	7'-7⅜"	8'-1⅜"	Ⓐ 0"	14'-2"	14'-8"	15'-2⅜"	6'-11⅜"	21'-0"	21'-8⅜"	22'-3⅜"	14'-10⅜"	27'-10"	28'-3⅜"	29'-1⅜"	21'-1⅛"	34'-8"	35'-5½"	36'-5"	28'-2"
	7'	4'	3'-7⅜"	8'-0"	8'-3⅜"	8'-9⅜"	4'-7⅜"	15'-9"	16'-2⅜"	16'-9"	12'-7"	23'-4"	24'-1⅜"	24'-10⅜"	20'-6⅛"	31'-0"	32'-1½"	32'-7⅜"	28'-5½"	38'-8"	40'-0⅜"	40'-6⅜"	36'-9⅜"
		5'	4'-5⅜"	8'-0"	"	"	3'-1⅜"	15'-8"	"	"	11'-3⅜"	23'-4"	"	"	19'-0⅜"	31'-0"	"	"	27'-1⅜"	38'-8"	"	"	35'-7⅜"
		6'	5'-3⅜"	8'-2"	8'-5⅜"	9'-0"	3'-2⅜"	15'-11"	16'-5⅜"	17'-0⅛"	11'-2⅜"	23'-8"	24'-5"	25'-0⅜"	19'-2⅜"	31'-5"	32'-4⅜"	33'-0⅛"	27'-3"	39'-2"	40'-5⅛"	41'-1"	35'-3⅜"
		7'	6'-3⅜"	8'-3"	8'-6⅜"	9'-1"	2'-0⅜"	16'-1"	16'-7⅜"	17'-2⅜"	10'-2"	23'-11"	24'-8⅜"	25'-3⅜"	18'-5⅜"	31'-9"	32'-8"	33'-5"	26'-4½"	39'-7"	40'-10⅜"	41'-6⅜"	39'-6"
		8'	7'-2⅜"	8'-3"	8'-7½"	9'-2"	0'-11"	16'-2"	16'-8⅜"	17'-3⅜"	9'-0⅜"	24'-2"	24'-10"	25'-5½"	17'-11⅜"	31'-10"	32'-11½"	33'-8"	25'-5"	39'-8"	41'-0⅜"	41'-7½"	33'-4½"
	8'	4'	3'-7⅜"	9'-0"	9'-3⅜"	9'-10⅜"	5'-8⅜"	17'-8"	18'-2⅜"	18'-10"	14'-8"	26'-4"	27'-1⅜"	27'-9½"	23'-7½"	35'-0"	36'-0⅜"	36'-8⅜"	32'-2⅜"	44'-0"	45'-2⅝"	45'-9"	41'-7"
		5'	4'-5⅜"	9'-2"	9'-5⅜"	10'-0⅜"	5'-0⅜"	17'-11"	18'-5⅝"	19'-4"	14'-11⅜"	26'-8"	27'-5⅜"	28'-1⅜"	23'-8"	35'-5"	36'-5⅜"	37'-0⅜"	32'-3⅝"	44'-6"	45'-9⅜"	46'-3⅜"	41'-7⅜"
		6'	5'-3⅜"	9'-2"	"	"	4'-2⅜"	17'-11"	"	"	13'-3⅜"	26'-8"	"	"	22'-2"	35'-5"	"	"	31'-0⅜"	44'-6"	"	"	40'-5⅝"
		7'	6'-3⅜"	9'-3"	9'-6⅜"	10'-1⅛"	3'-1"	18'-1"	18'-8⅜"	19'-3⅜"	12'-2⅜"	26'-11"	27'-8⅜"	28'-4⅜"	21'-4⅛"	35'-9"	36'-8⅜"	37'-4⅛"	30'-6⅛"	44'-11"	46'-1⅜"	46'-8⅛"	39'-8"
		8'	7'-2⅜"	9'-3"	9'-8"	10'-2⅝"	2'-11⅛"	18'-2"	18'-9⅛"	19'-4⅝"	11'-1⅜"	27'-0"	27'-9⅜"	28'-5⅝"	20'-2⅝"	35'-10"	37'-1⅛"	37'-7⅝"	29'-4"	44'-11"	46'-2⅜"	46'-9½"	38'-6½"
	9'	5'	4'-5⅜"	10'-2"	10'-6"	11'-0⅜"	6'-1"	19'-11"	20'-7½"	21'-2"	16'-4"	29'-8"	30'-6⅜"	31'-3"	26'-3⅜"	39'-6"	40'-8⅜"	41'-4½"	36'-7½"	49'-3"	50'-8⅜"	51'-5⅜"	46'-5⅜"
		6'	5'-3⅜"	10'-3"	10'-7⅜"	11'-1⅜"	5'-10⅜"	20'-1"	20'-9"	21'-4"	15'-6⅜"	29'-11"	30'-9⅛"	31'-6"	25'-10⅜"	39'-9"	41'-0⅛"	41'-8⅜"	36'-10⅛"	49'-7"	51'-1"	51'-10½"	46'-10⅜"
		7'	6'-3⅜"	10'-3"	"	"	4'-1⅝"	20'-1"	"	"	14'-9⅜"	29'-11"	"	"	24'-1⅜"	39'-9"	"	"	34'-1⅜"	49'-7"	"	"	45'-3⅜"
		8'	7'-2⅜"	10'-4"	10'-8⅜"	11'-2⅝"	2'-11⅜"	20'-2"	20'-10⅛"	21'-5"	13'-8"	30'-0"	31'-0⅜"	31'-7⅝"	23'-6⅝"	39'-10"	41'-2⅜"	41'-9⅛"	33'-6⅝"	49'-8"	51'-3"	51'-11⅝"	43'-8½"
	10'	5'	4'-5⅜"	11'-2"	11'-6⅜"	12'-1⅛"	7'-1⅜"	21'-10"	22'-6⅛"	23'-2⅜"	18'-0"	32'-8"	33'-7⅛"	34'-4⅜"	29'-1⅜"	43'-5"	44'-11⅛"	45'-7⅛"	40'-6"	54'-2"	56'-1"	56'-10⅝"	51'-7⅜"
		6'	5'-3⅜"	11'-3"	11'-7⅜"	12'-2⅝"	6'-6⅜"	22'-1"	22'-10⅛"	23'-6⅜"	17'-7⅜"	32'-11"	33'-9⅞"	34'-7"	28'-3⅜"	43'-9"	45'-3⅛"	45'-10"	40'-0⅜"	54'-7"	56'-6"	57'-2⅛"	51'-7⅜"
		7'	6'-3⅜"	11'-3"	"	"	5'-1⅜"	22'-1"	"	"	16'-4⅜"	32'-11"	"	"	27'-5"	43'-9"	"	"	38'-3⅜"	54'-7"	"	"	50'-0⅜"
		8'	7'-2⅜"	11'-4"	11'-8⅜"	12'-3⅝"	4'-0⅜"	22'-2"	22'-11⅛"	23'-6⅝"	15'-2⅜"	33'-0"	33'-10⅜"	34'-8⅝"	26'-5⅜"	43'-10"	45'-4⅜"	46'-0⅛"	37'-8"	54'-8"	56'-7⅜"	57'-3⅛"	48'-10⅜"
	11'	6'	5'-3⅜"	12'-4"	12'-8⅜"	13'-3⅝"	7'-6"	24'-2"	25'-0⅛"	25'-8⅜"	19'-3"	36'-0"	37'-3⅛"	38'-2"	32'-0"	49'-10"	51'-6⅛"	52'-3⅛"	46'-3"	—	—	—	—
		7'	6'-3⅜"	12'-4"	"	"	6'-3⅜"	24'-2"	"	"	18'-4⅜"	36'-0"	"	"	30'-3⅜"	49'-10"	"	"	42'-3⅜"	—	—	—	—
		8'	7'-2⅜"	12'-4"	"	"	5'-0⅜"	24'-2"	"	"	17'-5⅜"	36'-0"	"	"	29'-4⅜"	49'-10"	"	"	41'-3⅜"	—	—	—	—
	12'	6'	5'-3⅜"	13'-5"	13'-9⅜"	14'-4⅝"	8'-6⅜"	26'-3"	27'-1"	27'-7⅜"	21'-1"	39'-1"	40'-4⅜"	41'-1"	35'-1⅜"	54'-1"	55'-8⅜"	56'-5⅛"	50'-0⅜"	—	—	—	—
		7'	6'-3⅜"	13'-5"	"	"	7'-3⅜"	26'-3"	"	"	20'-7⅜"	39'-1"	"	"	33'-10⅜"	54'-1"	"	"	47'-3⅜"	—	—	—	—
		8'	7'-2⅜"	13'-5"	"	"	6'-1"	26'-3"	"	"	19'-8⅜"	39'-1"	"	"	32'-8"	54'-1"	"	"	46'-1⅜"	—	—	—	—

Ⓐ 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-X152-1, W-X.152-2, or W-X153-1, W-X153-2, or W-X154-1, W-X154-2.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 15° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X152-1 or W-X152-2	W-X153-1 or W-X153-2	W-X154-1 or W-X154-2.

This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 15° SKEW

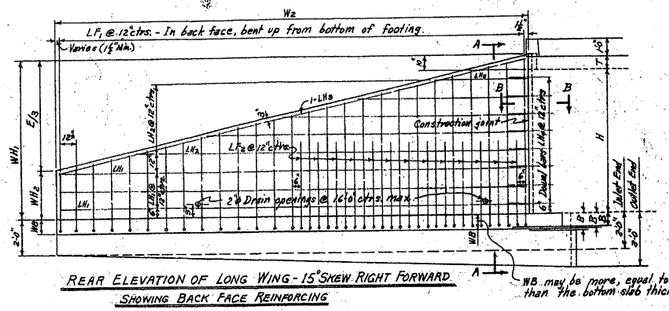
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'.

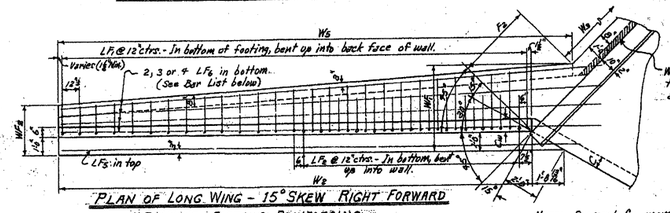
STANDARD DRAWING NO. W-X15

Designed by:- W.C.H. 5-22-63 — Checked by:- J.E.M. 6-20-63
Traced by:- W.C.H. 6-13-63 — Checked by:-
Quantities by:- — Checked by:-

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

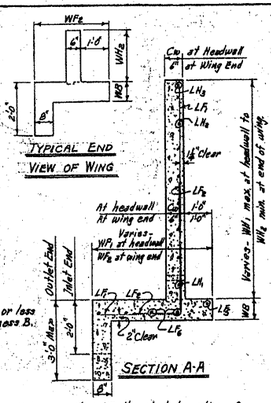


REAR ELEVATION OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING



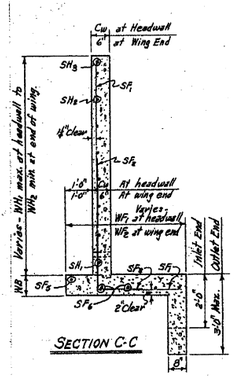
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.

PLAN OF LONG WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING

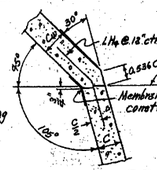


TYPICAL END VIEW OF WING

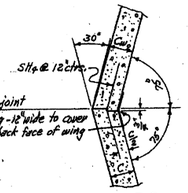
SECTION A-A



SECTION C-C



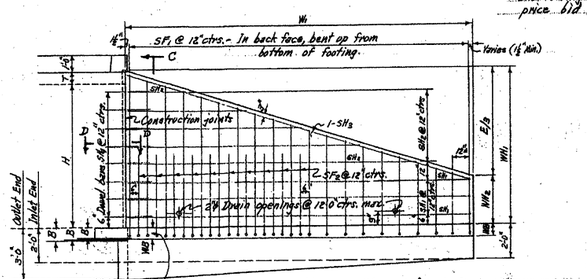
SECTION B-B



SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

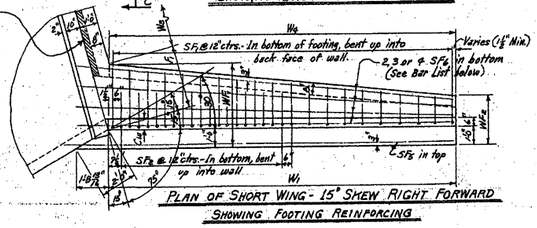
Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



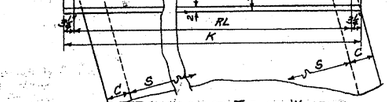
REAR ELEVATION OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING BACK FACE REINFORCING

WB may be more, equal to, or less than the bottom slab B.

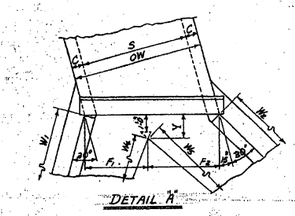
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.



PLAN OF SHORT WING - 15° SKEW RIGHT FORWARD
SHOWING FOOTING REINFORCING



DETAILS AT TOP OF WINGS
15° SKEW RIGHT FORWARD



DETAIL "A"

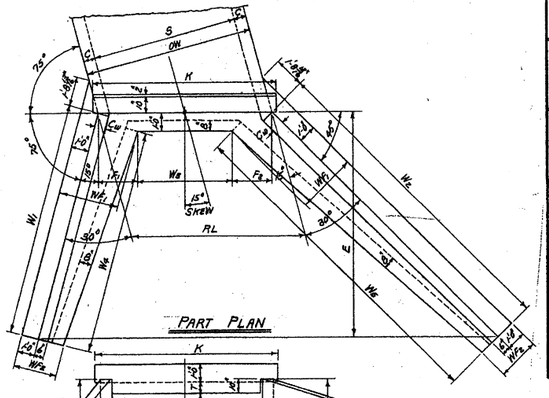
TABLE "A" - DIMENSIONS FOR DETAIL "A"

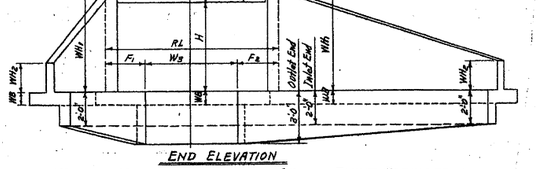
S	H	F1	F2	W4	W5	W3	Y
5'	7'	3'-0"	3'-5 3/8"	16'-10 1/8"	25'-0 3/8"	0"	1'-0 1/8"
6'	8'	3'-6"	4'-1 7/8"	19'-0 1/8"	28'-3 3/8"	0"	1'-1"

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADW'L & 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	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM WING TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSIONS SHORT WING	INSIDE FOOTING DIMENSIONS LONG WING	* QUANTITY PER WING CLASS S CONCRETE IN LET END SHORT WING	IN LET END LONG WING	OUTLET END SHORT WING	OUTLET END 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'-4"	2'-0"	1'-1 3/8"	0'-10 5/8"	6'-6"	6'-0 3/8"	9'-2 1/8"	6'-0 1/8"	9'-1 5/8"	0.789	1.084	0.876	1.212
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1 5/8"	1'-5 1/8"	1'-4 5/8"	8'-6"	8'-9 1/2"	12'-0 1/8"	8'-2 1/8"	12'-3 5/8"	1.186	1.650	1.300	1.808
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9 5/8"	1'-10"	10'-6"	11'-0 5/8"	14'-10 1/8"	10'-1 5/8"	15'-5 1/8"	1.656	2.305	1.797	2.502
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4 1/2"	2'-1 3/8"	2'-3 3/8"	12'-6"	13'-1 1/8"	17'-8 1/2"	12'-1 5/8"	18'-7 1/2"	2.196	3.059	2.363	3.295
		7"	5'-10"	1'-8"	3'-4"	2'-4 5/8"	2'-1 3/8"	2'-3 3/8"	12'-6"	13'-1 1/8"	17'-8 1/2"	12'-1 5/8"	18'-7 1/2"	2.287	3.188	2.455	3.429
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5 3/8"	2'-3 3/8"	14'-6"	15'-0 1/8"	20'-6"	14'-0 1/8"	21'-5"	3.052	4.242	3.246	4.517
		7 1/2"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5 3/8"	2'-3 3/8"	14'-6"	15'-0 1/8"	20'-6"	14'-0 1/8"	21'-5"	3.114	4.329	3.309	4.605
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5 3/8"	2'-3 3/8"	14'-6"	15'-0 1/8"	20'-6"	14'-0 1/8"	21'-5"	3.177	4.417	3.371	4.693
* 7'	8 1/2"	7 1/2"	7'-10"	2'-4"	4'-2"	2'-7 1/2"	3'-0 1/8"	3'-0 1/8"	16'-6"	17'-1"	23'-4"	16'-10 1/8"	25'-1"	3.998	5.560	4.220	5.877
		8"	7'-10"	2'-4"	4'-2"	2'-7 1/2"	3'-0 1/8"	3'-0 1/8"	16'-6"	17'-1"	23'-4"	16'-10 1/8"	25'-1"	4.079	5.675	4.301	5.991
* 8'	9"	8"	8'-10"	2'-8"	4'-6"	2'-9"	3'-4 3/8"	4'-2 5/8"	18'-6"	19'-1 3/8"	26'-2"	19'-1 1/8"	28'-5"	5.111	7.111	5.360	7.370

* Quantity per wing does not include headwall on that portion of apron or footwall for the length W9.
* See Table "A" for special values of F1 & F2 and W4 & W5 for Single 5'x5' and 6'x6' Box Culverts.





SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD
Details of Culvert with 15° Skew Left Forward is reversed, see Drwg. No. W-X.15

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-X.15. For values of H, K, and W5 for each box, see the above Std. also.

Memrane:- A membrane waterproofing 18" 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.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - LBS. PER 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"	117	4.79	5.78	6.77	7.77	8.76
	3'	6"	7"	176	6.63	7.64	8.63	9.63	10.62
	4'	6"	7"	267	8.85	9.84	10.84	11.83	12.82
	5'	6"	7"	379	11.90	12.38	13.38	14.37	15.36
	6'	7"	8"	626	15.95	16.96	17.98	18.51	19.53
5'	3'	6"	7"	176	6.87	8.07	9.28	10.48	11.69
	4'	6"	7"	267	9.08	10.28	11.48	12.69	13.90
	5'	6"	7"	379	11.41	12.81	14.02	15.23	16.44
	6'	7"	8"	626	15.67	16.90	18.14	19.38	20.61
	7'	7 1/2"	8 1/2"	1210	20.11	21.36	22.62	23.88	25.14
6'	3'	6"	7"	176	7.09	8.52	9.92	11.36	12.78
	4'	6"	7"	267	9.29	10.73	12.13	13.56	14.98
	5'	6"	7"	379	11.83	13.26	14.67	16.10	17.53
	6'	7"	8"	626	15.89	17.35	18.79	20.25	21.70
	7'	7 1/2"	8 1/2"	1210	20.33	21.81	23.28	24.76	26.24
	8'	8"	9"	1533	25.56	27.05	28.53	30.02	31.50
7'	4'	6"	7"	267	9.52	11.18	12.81	14.47	16.09
	5'	6"	7"	379	12.05	13.72	15.35	17.01	18.63
	6'	7"	8"	626	16.12	17.80	19.45	21.13	22.78
	7'	7 1/2"	8 1/2"	1210	20.56	22.24	23.94	25.62	27.33
	8'	8"	9"	1533	25.80	27.50	29.20	30.90	32.60
8'	4'	6"	7"	267	9.75	11.65	13.51	15.41	17.23
	5'	7"	7"	379	12.74	14.68	16.55	18.47	20.31
	6'	7"	8"	626	16.39	18.26	20.14	22.06	23.90
	7'	7 1/2"	8 1/2"	1210	20.78	22.72	24.62	26.55	28.42
	8'	8"	9"	1533	26.03	27.96	29.86	31.80	33.71
9'	5'	7"	7"	379	12.99	15.15	17.25	19.40	21.45
	6'	7 1/2"	8"	626	16.89	19.07	21.19	23.34	25.42
	7'	7 1/2"	8 1/2"	1210	21.01	23.19	25.31	27.48	29.54
	8'	8"	9"	1533	26.25	28.42	30.55	32.72	34.76
10'	5'	7"	7"	379	18.23	16.42	17.95	20.24	22.59
	6'	7 1/2"	8"	626	17.13	19.54	21.89	24.20	26.54
	7'	7 1/2"	8 1/2"	1210	21.44	23.66	26.01	28.32	30.68
	8'	8"	9"	1533	26.48	28.89	31.25	33.56	35.92
11'	6'	8"	8"	626	17.67	20.34	22.92	25.48	—
	7'	8"	8 1/2"	1210	21.88	24.65	27.13	29.69	—
	8'	8"	9"	1533	26.70	29.37	31.94	34.52	—
12'	6'	8"	8"	626	17.91	20.66	23.34	26.96	—
	7'	8"	8 1/2"	1210	22.11	25.04	27.85	30.67	—
	8'	8"	9"	1533	26.93	29.86	32.67	35.49	—

* For reinforcing steel in Headwalls and Aprons, see Drawings listed below.

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 3/4" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
UNIT STRESSES:-
Class S Concrete (n=10) 1200#/sq.in.
Reinforcing Steel 20,000#/sq.in.

NOTE:-
This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION:	SF1 & LF1 BENT. In bottom of footing, bent up into back face of wing. One bar of each length.						SF2 & LF3 BENT. In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						SF3 & LF4 STRAIGHT. Longitudinal in top of wing footing heel.			SF4 & LF5 STRAIGHT. Longitudinal in bottom of wing footing toe.			SH1 & LH1 STRAIGHT. Horizontal in back face of wing.			SH2 & LH2 STRAIGHT. Horizontal in back face of wing. One bar of each length.				SH3 & LH6 STRAIGHT. In back face of wing at top - on slope.			SH4 & LH4 BENT. Dowels thru construction joint at headwall.				BAR BENDING DIAGRAM	QUANTITY
H	SHORT / LONG	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X		REINFORCING STEEL PER WING - LBS. SHORT WING	REINFORCING STEEL PER WING - LBS. LONG WING
2'	Short	#3	12"	7	1'-7"	3'-11"	6'-8"	1'-0"	1'-0"	3'-0"	#3	1	9'-2"	#3	2	7'-10"	#3	2	7'-10"	#3	1	6'-5"	#3	12"	1	6'-10"	#3	12"	2	6'-8"	1'-4"										
	Long	#3	12"	10	1'-7"	3'-11"	8'-8"	1'-0"	0'-10"	3'-0"	#3	1	11'-8"	#3	2	10'-10"	#3	2	10'-10"	#3	1	8'-6"	#3	12"	1	9'-1"	#3	12"	2	6'-7"	3'-6"										
3'	Short	#3	12"	9	2'-3"	5'-8"	0'-10"	1'-4"	1'-5"	4'-0"	#3	1	11'-8"	#3	2	10'-10"	#3	2	10'-10"	#3	1	8'-6"	#3	12"	2	8'-11"	#3	12"	3	9'-0"	4'-8"										
	Long	#3	12"	13	1'-11"	5'-8"	0'-10"	1'-3"	1'-8"	4'-0"	#3	1	14'-6"	#3	2	14'-0"	#3	2	14'-0"	#3	1	11'-9"	#3	12"	2	11'-11"	#3	12"	3	12'-0"	4'-8"										
4'	Short	#3	12"	11	2'-7"	6'-7"	0'-10"	1'-8"	1'-9"	5'-0"	#3	1	13'-10"	#3	3	12'-8"	#3	3	12'-8"	#3	1	10'-5"	#3	12"	3	11'-2"	#3	12"	4	11'-2"	5'-8"										
	Long	#3	12"	15	2'-6"	6'-7"	0'-11"	1'-7"	1'-8"	5'-0"	#3	1	17'-1"	#3	3	17'-3"	#3	3	17'-3"	#3	1	14'-5"	#3	12"	3	13'-10"	#3	12"	4	14'-1"	5'-8"										
5'	Short	#3	12"	13	3'-1"	7'-11"	1'-1"	2'-0"	2'-1"	6'-0"	#3	1	16'-5"	#3	3	14'-8"	#3	2	12'-8"	#3	2	10'-5"	#3	12"	3	13'-4"	#3	12"	5	13'-4"	6'-8"										
	Long	#3	12"	18	3'-10"	7'-10"	1'-1"	1'-11"	2'-0"	6'-0"	#3	1	20'-8"	#3	3	20'-6"	#3	2	17'-3"	#3	2	14'-5"	#3	12"	3	15'-10"	#3	12"	5	15'-10"	6'-8"										
6'	Short	#4	12"	16	3'-6"	9'-4"	1'-2"	2'-0"	2'-5"	7'-1"	#3	1	17'-6"	#3	3	16'-2"	#3	2	14'-0"	#3	2	11'-9"	#3	12"	4	17'-5"	#3	12"	6	17'-5"	8'-4"										
	Long	#4	12"	21	3'-5"	9'-3"	1'-2"	2'-0"	2'-4"	7'-1"	#3	1	23'-0"	#3	3	23'-0"	#3	2	20'-2"	#3	2	16'-10"	#3	12"	4	19'-9"	#3	12"	6	19'-9"	8'-4"										
7'	Short	#4	12"	18	3'-9"	10'-10"	1'-3"	2'-10"	2'-7"	8'-1"	#4	1	19'-7"	#4	4	19'-3"	#4	2	16'-10"	#4	2	14'-0"	#4	12"	5	21'-8"	#4	12"	7	21'-8"	9'-8"										
	Long	#4	12"	24	3'-10"	10'-8"	1'-3"	2'-8"	2'-8"	8'-1"	#4	1	25'-10"	#4	4	25'-10"	#4	2	23'-1"	#4	2	19'-1"	#4	12"	5	24'-2"	#4	12"	7	24'-2"	9'-8"										
8'	Short	#4	12"	20	4'-2"	12'-5"	1'-5"	3'-4"	3'-0"	9'-2"	#4	1	21'-8"	#4	4	21'-4"	#4	2	18'-11"	#4	2	16'-1"	#4	12"	5	26'-7"	#4	12"	8	26'-7"	11'-0"										
	Long	#4	12"	27	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	1	28'-5"	#4	4	30'-3"	#4	2	25'-10"	#4	2	21'-8"	#4	12"	5	21'-8"	#4	12"	8	31'-6"	11'-9"										

Note:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

BAR BENDING DIAGRAM	QUANTITY
	REINFORCING STEEL PER WING - LBS.
	SHORT WING	LONG WING
SF3 & SF4 LF3 & LF4	24.9	33.4
SF2 & LF2	37.7	50.3
SH1 & LH1	57.3	76.4
SH2 & LH2	81.1	108.4
SH3 & LH6	134.8	178.1
SH4 & LH4	259.5	345.2
Note:- Dimensions are to bar centers.	328.0	438.3

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

CLASS S CONCRETE

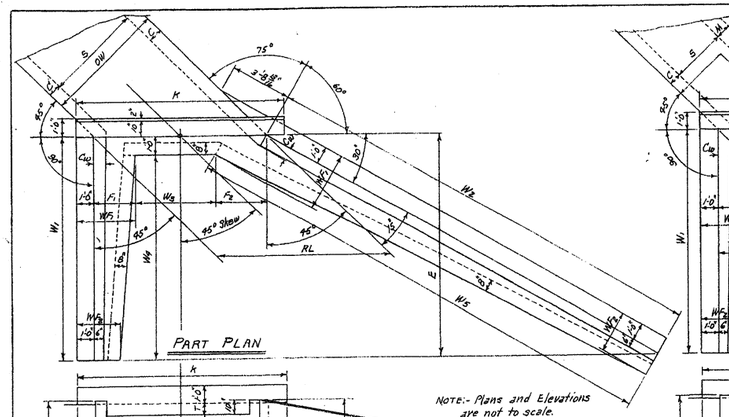
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS
15° SKEW

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-X153-1

Designed By- W.C.H. 5-15-63 Checked By- ____
Drawn By- W.C.H. 6-20-63 Checked By- ____
Quantities By- W.C.H. 9-25-63 Checked By- ____

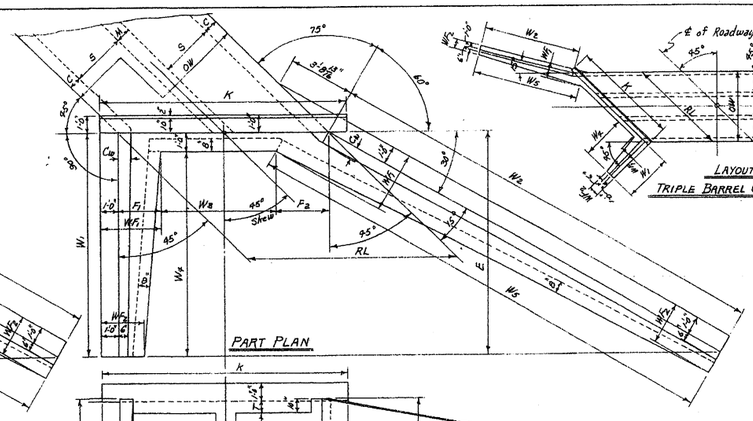
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

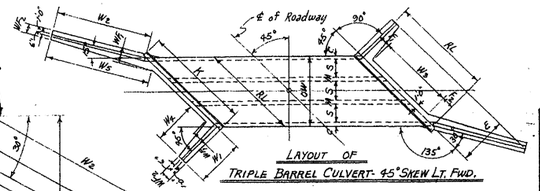
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.

NOTE:- Plans and Elevations are not to scale.

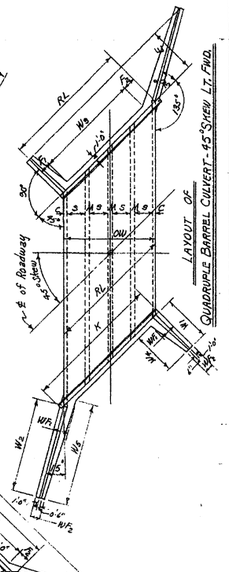


DOUBLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

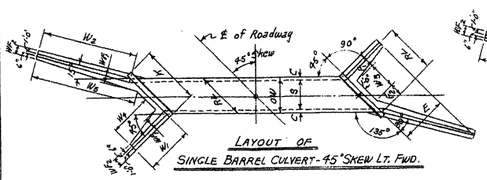
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.



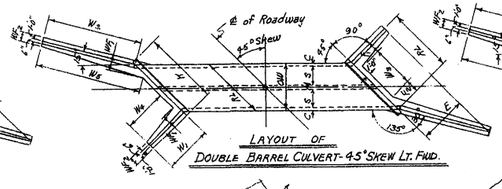
LAYOUT OF TRIPLE BARREL CULVERT - 45° SKEW LT. FWD.



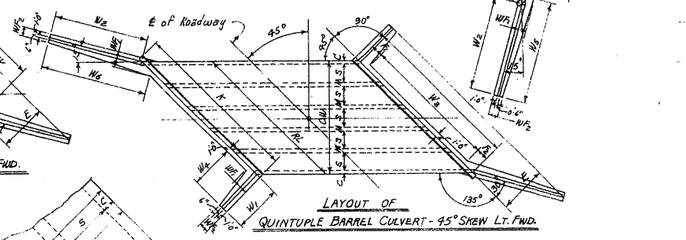
LAYOUT OF QUADRUPLE BARREL CULVERT - 45° SKEW LT. FWD.



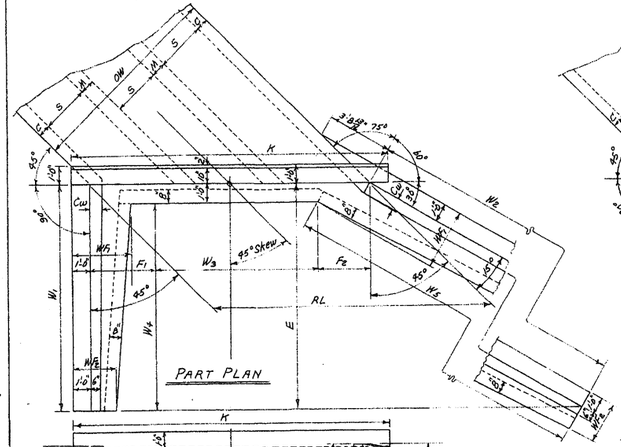
LAYOUT OF SINGLE BARREL CULVERT - 45° SKEW LT. FWD.



LAYOUT OF DOUBLE BARREL CULVERT - 45° SKEW LT. FWD.

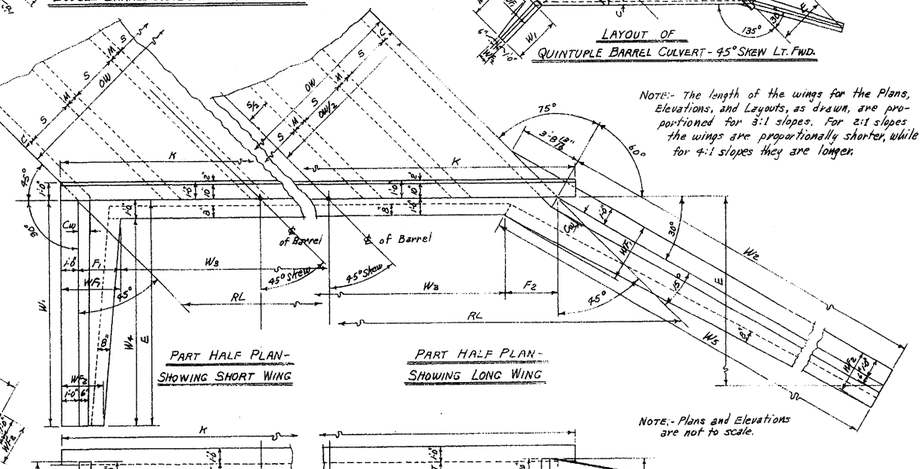


LAYOUT OF QUINTUPLE BARREL CULVERT - 45° SKEW LT. FWD.



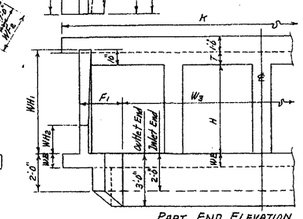
TRIPLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at top center of sheet.



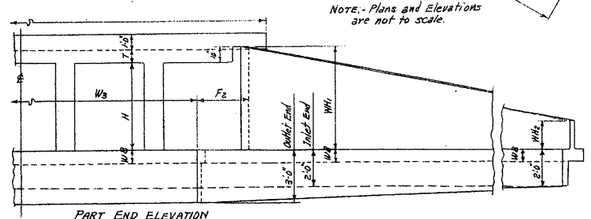
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.

NOTE.- Plans and Elevations are not to scale.



QUADRUPLE BARREL CULVERT - 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at above center.



QUINTUPLE BARREL CULVERT - 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL = OW × 1.41421 — HEADWALL LENGTH K = RL + (2'-0") — APRON DIMENSION $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING NO.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF FOOTING DIMENSIONS $F_1 \& F_2$	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W_3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W_3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W_2	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W_3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W_3
W-X452-1, W-X453-1 OR W-X454-1. (FOR H=8'-0" OR LESS)	4'	2'	2'-3¼"	5'-0"	7'-0 11/16"	9'-0 7/8"	4'-9 5/8"	9'-8"	13'-8"	15'-8"	11'-4 5/8"	14'-4"	20'-3 3/4"	22'-3 3/4"	18'-0"	19'-0"	26'-10 1/2"	28'-10 1/2"	24'-7 3/4"	23'-8"	33'-5 1/2"	35'-5 1/2"	31'-2 1/2"
		3'	3'-3¼"	5'-0"	"	"	3'-9 5/8"	9'-8"	"	"	10'-4 5/8"	14'-4"	"	"	19'-0"	"	"	"	23'-7 5/8"	23'-8"	"	"	30'-2 5/8"
		4'	4'-3¼"	5'-0"	"	"	2'-9 5/8"	9'-8"	"	"	9'-4 5/8"	14'-4"	"	"	16'-0"	19'-0"	"	"	22'-7 5/8"	23'-8"	"	"	29'-2 5/8"
		5'	5'-3¼"	5'-0"	7'-0 5/8"	9'-0 3/8"	11'-9 5/8"	9'-8"	13'-8"	15'-8"	8'-4 5/8"	14'-4"	20'-3 3/4"	22'-3 3/4"	15'-0"	19'-0"	26'-10 1/2"	28'-10 1/2"	21'-7 5/8"	23'-8"	33'-5 1/2"	35'-5 1/2"	28'-2 5/8"
		6'	6'-3¼"	5'-12"	7'-3 5/8"	9'-3 3/8"	11'-0 5/8"	9'-11"	14'-0 1/8"	16'-0 1/8"	7'-10 5/8"	14'-8"	20'-8"	22'-9"	14'-5 3/8"	19'-5"	27'-5 1/2"	29'-5 1/2"	21'-2 5/8"	24'-2"	34'-2 1/2"	36'-2 1/2"	27'-10 3/8"
	5'	3'	3'-3¼"	6'-0"	8'-5 3/8"	10'-3 7/8"	5'-2 5/8"	11'-8"	16'-6"	18'-6"	13'-2 5/8"	17'-4"	24'-1 1/2"	26'-1 1/2"	21'-3"	23'-0"	32'-6 1/2"	34'-6 1/2"	29'-3"	28'-8"	40'-6 1/2"	42'-6 1/2"	37'-3 1/2"
		4'	4'-3¼"	6'-0"	"	"	4'-2 5/8"	11'-8"	"	"	12'-2 5/8"	17'-4"	"	"	20'-3"	23'-0"	"	"	28'-3"	28'-8"	"	"	36'-3 1/2"
		5'	5'-3¼"	6'-0"	8'-5 3/8"	10'-3 7/8"	5'-2 5/8"	11'-8"	16'-6"	18'-6"	11'-2 5/8"	17'-4"	24'-1 1/2"	26'-1 1/2"	19'-3"	23'-0"	32'-6 1/2"	34'-6 1/2"	27'-3"	28'-8"	40'-6 1/2"	42'-6 1/2"	35'-3 1/2"
		6'	6'-3¼"	6'-12"	8'-8 3/8"	10'-8 3/8"	5'-7 5/8"	11'-11"	16'-10 1/2"	18'-10 1/2"	10'-7"	17'-8"	24'-5 1/2"	26'-5 1/2"	18'-8 1/2"	23'-5"	33'-1 1/2"	35'-1 1/2"	26'-10 1/2"	29'-2"	41'-3"	43'-3"	34'-11 1/2"
		7'	7'-3¼"	6'-3"	8'-10 3/8"	10'-10 3/8"	5'-12 5/8"	12'-1"	17'-1"	19'-1"	9'-3 1/2"	17'-11"	25'-1 1/2"	27'-1 1/2"	17'-4 1/2"	23'-8"	33'-7"	35'-7"	26'-2 1/2"	29'-7"	41'-10"	43'-10"	34'-6 1/2"
	6'	3'	3'-3¼"	7'-0"	9'-10 3/8"	11'-10 3/8"	6'-7 5/8"	13'-8"	19'-3 3/8"	21'-4"	14'-0 1/8"	20'-4"	28'-9 1/2"	30'-9"	25'-5 3/8"	27'-0"	38'-1 1/2"	40'-1 1/2"	33'-11"	33'-8"	47'-7 1/2"	49'-7 1/2"	42'-4"
		4'	4'-3¼"	7'-0"	"	"	5'-7 5/8"	13'-8"	"	"	15'-0 1/8"	20'-4"	"	"	29'-0 5/8"	27'-0"	"	"	33'-11"	33'-8"	"	"	42'-4"
		5'	5'-3¼"	7'-0"	9'-10 3/8"	11'-10 3/8"	6'-7 5/8"	13'-8"	19'-3 3/8"	21'-4"	14'-0 1/8"	20'-4"	28'-9 1/2"	30'-9"	25'-5 3/8"	27'-0"	38'-1 1/2"	40'-1 1/2"	32'-11"	33'-8"	47'-7 1/2"	49'-7 1/2"	42'-4"
		6'	6'-3¼"	7'-12"	10'-1 3/8"	12'-1 3/8"	7'-10 5/8"	13'-11"	19'-8 5/8"	21'-8 1/8"	13'-5"	20'-8"	29'-2 3/8"	31'-2 3/8"	22'-11 1/2"	27'-5"	38'-9 1/2"	40'-9 1/2"	32'-6"	34'-2"	48'-3 1/2"	50'-3 1/2"	42'-0 1/2"
		7'	7'-3¼"	7'-8"	10'-3"	12'-3"	8'-1 5/8"	14'-1"	19'-11"	21'-11"	12'-3 1/2"	20'-11"	29'-7"	31'-7"	21'-9 1/2"	27'-9"	39'-3"	41'-3"	31'-5 5/8"	34'-7"	48'-10 1/2"	50'-11"	41'-7 1/2"
		8'	8'-3¼"	7'-8"	10'-3"	12'-3"	8'-1 5/8"	14'-1"	19'-11"	21'-11"	12'-3 1/2"	20'-11"	29'-7"	31'-7"	21'-9 1/2"	27'-9"	39'-3"	41'-3"	31'-5 5/8"	34'-7"	48'-10 1/2"	50'-11"	41'-7 1/2"
	7'	4'	4'-3¼"	8'-0"	11'-3 3/8"	13'-3 3/8"	7'-10 5/8"	15'-8"	22'-1 1/8"	24'-1 1/8"	17'-10 1/2"	23'-1"	32'-5 1/2"	34'-5 1/2"	28'-0 3/8"	31'-0"	43'-10 1/2"	45'-10 1/2"	39'-6 3/8"	38'-8"	54'-8 1/2"	56'-8 1/2"	50'-5"
		5'	5'-3¼"	8'-0"	11'-3 3/8"	13'-3 3/8"	8'-1 5/8"	15'-9"	22'-1 1/8"	24'-1 1/8"	16'-10 1/2"	23'-1"	32'-5 1/2"	34'-5 1/2"	27'-10 3/8"	31'-0"	43'-10 1/2"	45'-10"	38'-6 3/8"	38'-8"	54'-8 1/2"	56'-8 1/2"	49'-5"
		6'	6'-3¼"	8'-12"	11'-6 3/8"	13'-6 3/8"	8'-5 3/8"	15'-11"	22'-4 5/8"	24'-4"	16'-2 5/8"	23'-1"	32'-5 1/2"	34'-5 1/2"	27'-2 3/8"	31'-5"	44'-1 1/2"	46'-1 1/2"	38'-1"	39'-2"	55'-4 1/2"	57'-4 1/2"	49'-11 1/8"
		7'	7'-3¼"	8'-13"	11'-8"	13'-8"	8'-10 3/8"	16'-1"	22'-7"	24'-7"	16'-3 1/2"	23'-11"	33'-7 1/2"	35'-7"	26'-10 3/8"	31'-10"	44'-7 1/2"	46'-7 1/2"	37'-7 5/8"	39'-7"	55'-10 1/2"	57'-10 1/2"	48'-10 1/2"
		8'	8'-3¼"	8'-14"	11'-9 3/8"	13'-9"	9'-1 5/8"	16'-2"	22'-10 1/8"	24'-10"	16'-7"	24'-0"	33'-11"	35'-11"	26'-5 3/8"	31'-10"	45'-0"	47'-0 1/2"	35'-10"	39'-8"	56'-0 1/2"	58'-0 1/2"	49'-4"
	8'	4'	4'-3¼"	9'-0"	12'-8 3/8"	14'-8 3/8"	8'-5 5/8"	17'-8"	24'-11 1/8"	26'-11 1/8"	20'-8 1/2"	26'-9"	37'-10 1/2"	39'-9"	32'-11 3/8"	35'-0"	49'-6"	51'-6"	43'-10 1/2"	43'-9"	61'-11"	63'-9"	57'-5 5/8"
		5'	5'-3¼"	9'-2"	12'-11 3/8"	14'-11 3/8"	7'-8 3/8"	17'-11"	25'-4"	27'-4"	20'-0 3/8"	26'-11"	38'-0 1/2"	39'-11"	32'-5 3/8"	35'-5"	50'-1"	52'-1"	44'-9 3/8"	44'-2"	62'-5 1/2"	64'-5 1/2"	57'-12 5/8"
		6'	6'-3¼"	9'-12"	13'-1 3/8"	15'-1 3/8"	8'-10 3/8"	18'-1"	25'-6 5/8"	27'-6"	19'-10 1/2"	27'-1"	38'-3 1/2"	40'-2"	32'-10 3/8"	35'-10"	50'-8"	52'-8"	45'-2 5/8"	44'-7"	62'-10 1/2"	64'-10 1/2"	58'-5 5/8"
		7'	7'-3¼"	9'-13"	13'-1"	15'-1"	8'-10 3/8"	18'-1"	25'-6 5/8"	27'-7"	19'-3 3/8"	27'-2"	38'-4 1/2"	40'-3"	32'-11 3/8"	35'-10"	50'-8"	52'-8"	45'-2 5/8"	44'-7"	63'-0 1/2"	65'-0 1/2"	58'-5 5/8"
		8'	8'-3¼"	9'-14"	13'-2 3/8"	15'-2"	8'-11 3/8"	18'-2"	25'-8 1/8"	27'-8"	19'-4 1/2"	27'-3"	38'-5 1/2"	40'-4"	33'-0 3/8"	35'-10"	50'-8"	52'-8"	45'-2 5/8"	44'-8"	63'-0 1/2"	65'-0 1/2"	58'-5 5/8"
	9'	5'	5'-3¼"	10'-2"	14'-4 5/8"	16'-4 5/8"	9'-1 3/8"	19'-11"	28'-2"	30'-2"	22'-10 1/2"	29'-8"	41'-10 1/2"	43'-10 1/2"	36'-0 3/8"	39'-5"	55'-10 1/2"	57'-10"	50'-5 1/2"	49'-2"	69'-6 1/2"	71'-6 1/2"	64'-3 1/2"
		6'	6'-3¼"	10'-3"	14'-6"	16'-6"	8'-12 3/8"	20'-1"	28'-4 1/2"	30'-4 1/2"	22'-1 1/2"	29'-11"	42'-3 1/2"	44'-3 1/2"	36'-4 3/8"	39'-9"	56'-2 1/2"	58'-2 1/2"	49'-11 1/2"	49'-7"	70'-1 1/2"	72'-1 1/2"	63'-10 1/2"
		7'	7'-3¼"	10'-3"	14'-6"	16'-6"	8'-8 3/8"	20'-1"	28'-4 1/2"	30'-4 1/2"	20'-7 1/2"	29'-11"	42'-3 1/2"	44'-3 1/2"	34'-7 3/8"	39'-9"	56'-2 1/2"	58'-2 1/2"	48'-5 1/2"	49'-7"	70'-1 1/2"	72'-1 1/2"	62'-5 1/2"
		8'	8'-3¼"	10'-4"	14'-7 3/8"	16'-7"	8'-5 5/8"	20'-2"	28'-5 5/8"	30'-6"	19'-3"	30'-0"	42'-5 1/2"	44'-5"	33'-2"	39'-10"	56'-5"	58'-5"	47'-0 1/2"	49'-8"	70'-5 1/2"	72'-5"	60'-11 1/2"
	10'	5'	5'-3¼"	11'-2"	15'-9 5/8"	17'-9 5/8"	10'-1 3/8"	21'-11"	31'-0"	33'-0"	25'-5 1/2"	32'-8"	46'-2 3/8"	48'-2 3/8"	39'-11"	43'-5"	61'-4 1/2"	63'-4 1/2"	55'-0 1/2"	54'-2"	76'-7 1/2"	78'-7 1/2"	71'-4"
		6'	6'-3¼"	11'-3"	15'-10"	17'-11"	10'-1 3/8"	22'-1"	31'-2 3/8"	33'-2 3/8"	25'-11 1/2"	32'-11"	46'-6 3/8"	48'-6 3/8"	40'-2 3/8"	43'-9"	61'-10 1/2"	63'-10 1/2"	55'-5 1/2"	54'-7"	77'-1 1/2"	79'-1 1/2"	70'-10"
		7'	7'-3¼"	11'-3"	15'-11"	17'-11"	10'-1 3/8"	22'-1"	31'-2 3/8"	33'-2 3/8"	25'-6 1/2"	32'-11"	46'-6 3/8"	48'-6 3/8"	39'-10 3/8"	43'-9"	61'-10 1/2"	63'-10 1/2"	55'-0 1/2"	54'-7"	77'-1 1/2"	79'-1 1/2"	70'-5"
		8'	8'-3¼"	11'-4"	16'-0"	18'-0"	10'-2 5/8"	22'-2"	31'-3 3/8"	33'-3 3/8"	25'-7"	33'-0"	46'-7 7/8"	48'-7 7/8"	39'-11 3/8"	43'-10"	62'-0"	64'-0"	55'-1 1/2"	54'-8"	77'-3 1/2"	79'-3 1/2"	70'-6"
	11'	6'	6'-3¼"	12'-0"	17'-0 5/8"	19'-0 5/8"	11'-2 3/8"	23'-2"	32'-3 7/8"	34'-3"	27'-1"	34'-10"	49'-3 1/2"	51'-3 1/2"	42'-6 3/8"	46'-0"	65'-0 1/2"	67'-0 1/2"	58'-5 1/2"	57'-9"	81'-7 1/2"	83'-7 1/2"	74'-10"
		7'	7'-3¼"	12'-0"	"	"	9'-8 3/8"	23'-2"	"	"	26'-1 5/8"	34'-10"	"	"	41'-7 3/8"	46'-0"	"	"	53'-10 1/2"	57'-9"	"	"	74'-10 1/2"
		8'	8'-3¼"	12'-0"	"	"	8'-2 5/8"	23'-2"	"	"	24'-11"	34'-10"	"	"	41'-7 3/8"	47'-8"	"	"	58'-6 1/2"	"	"	"	75'-6 1/2"
	12'	6'	6'-3¼"	13'-4"	18'-10 5/8"	20'-10 5/8"	12'-2 3/8"	24'-2"	33'-7 7/8"	35'-7"	28'-1"	36'-0"	50'-11"	52'-11"	44'-2 3/8"	47'-10"	67'-7 1/2"	69'-7 1/2"	60'-10 1/2"	—	—	—	—
		7'	7'-3¼"	13'-4"	"	"	11'-1 5/8"	24'-2"	"	"	29'-1 5/8"	36'-0"	"	"	47'-6 3/8"	47'-10"	"	"	59'-10 1/2"	—	—	—	—
		8'	8'-3¼"	13'-4"	"	"	9'-7 5/8"	24'-2"	"	"	27'-10 3/8"	36'-0"	"	"	45'-10 3/8"	47'-10"	"	"	60'-0 1/2"	—	—	—	—
(FOR H=9'-0 & OVER) W-X452-2, W-X453-2 OR W-X454-2.	7'	9'	10'-3 5/8"	8'-6"	12'-0 5/8"	14'-0 5/8"	11'-3"	16'-5"	23'-2 5/8"	25'-2 5/8"	12'-5 3/8"	24'-4"	34'-5"	36'-5"	23'-7 3/8"	32'-3"	45'-7 1/2"	47'-7 1/2"	34'-10"	40'-2"	56'-9 3/8"	58'-9 3/8"	46'-0 1/2"
	8'	9'	10'-3 5/8"	9'-6"	13'-5 3/8"	15'-5 3/8"	12'-8"	18'-5"	26'-0 1/2"	28'-0 1/2"	15'-8 1/8"	27'-4"	38'-7 7/8"	40'-8"	27'-10 3/8"	36'-8"	51'-9 1/2"	53'-9 1/2"	40'-6"	45'-2"	63'-10 1/2"	65'-10 1/2"	53'-1 1/2"
		10'	12'-3 5/8"	9'-8"	13'-8"	15'-8"	11'-8 1/2"	18'-8"	26'-4 1/2"	28'-4 1/2"	14'-1 1/2"	27'-8"	39'-1 1/2"	41'-1 1/2"	28'-10 3/8"	36'-8"	51'-10 1/2"	53'-10 1/2"	38'-7"	45'-8"	64'-7"	66'-7"	52'-3 1/2"
	9'	9'	10'-3 5/8"	10'-6"	14'-10 1/2"	16'-10 1/2"	9'-1"	20'-5"	28'-10 1/2"	30'-10 1/2"	18'-1 1/2"	30'-4"	42'-10 1/2"	44'-10 1/2"	32'-1 1/2"	40'-3"	56'-11 1/2"	58'-11"	46'-1 1/2"	50'-2"	70'-11 1/2"	72'-11 1/2"	60'-2 1/2"
		10'	12'-3 5/8"	10'-8"	15'-1"	17'-1"	11'-1 1/2"	20'-8"	29'-2 3/8"	31'-2 3/8"	21'-11 1/2"	30'-8"	43'-2 3/8"	45'-1 3/8"	34'-2 3/8"	40'-3"	57'-1 1/2"	59'-1 1/2"	46'-3"	50'-8"	71'-5 1/2"	73'-5 1/2"	59'-10 1/2"
		11'	13'-3 5/8"	10'-10"	15'-3 3/8"	17'-3 3/8"	11'-6 3/8"	20'-10"	29'-5"	31'-5"	21'-10 1/2"	31'-0"	43'-5 1/2"	45'-5 1/2"	34'-5 3/8"	40'-3"	57'-3"	59'-3"	46'-5 1/2"	50'-10"	71'-10 1/2"	73'-10 1/2"	60'-5 1/2"
	10'	9'	10'-3 5/8"	11'-6"	16'-3 3/8"	18'-3 3/8"	11'-4"	22'-5"	31'-8 3/8"	33'-8"	20'-11 1/2"	33'-4"	47'-1 1/2"	49'-1 1/2"	35'-4"	44'-3"	62'-7"	64'-7"	51'-3 1/2"	55'-2"	78'-1 1/2"	80'-1 1/2"	65'-2 1/2"
		10'	12'-3 5/8"	11'-8"	16'-6"	18'-6"	11'-9 1/2"	22'-8"	32'-0 1/2"	34'-0 1/2"	21'-9 1/2"	33'-8"	47'-7 1/2"	49'-7 1/2"	35'-11 1/2"	44'-8"	63'-2"	65'-2"	51'-10 1/2"	55'-8"	78'-8 1/2"	80'-8 1/2"	66'-1 1/2"
		11'	13'-3 5/8"	11'-10"	16'-8 3/8"	18'-8 3/8"	12'-1 5/8"	22'-10"	32'-3 1/2"	34'-3 1/2"	22'-3 1/2"	33'-10"	47'-10 1/2"	49'-10 1/2"	36'-5"	44'-11"	63'-6 1/2"	65'-6 1/2"	52'-3 1/2"	55'-11"	79'-2 1/2"	81'-2 1/2"	66'-5 1/2"
		12'	14'-3 5/8"	12'-0"	16'-11"	18'-11"	12'-5"	23'-1"	32'-6 1/2"	34'-6 1/2"	22'-8"	34'-2"	48'-1 1/2"	50'-1 1/2"	36'-10 1/2"	45'-2"	63'-10 1/2"	65'-10 1/2"	52'-8 1/2"	56'-2"	79'-5 1/2"	81'-5 1/2"	66'-10 1/2"
	11'	9'	10'-3 5/8"	12'-6"	17'-7 3/8"	19'-7 3/8"	12'-10 1/2"	24'-1"	33'-6 7/8"	35'-6 7/8"	23'-4 1/2"	35'-0"	49'-5 1/2"	51'-5 1/2"	37'-7 3/8"	46'-6"	65'-7 1/2"	67'-7 1/2"	54'-2 1/2"	57'-5"	80'-10 1/2"	82'-10 1/2"	67'-9 1/2"
		10'	12'-3 5/8"	12'-8"	17'-9"	19'-9"	13'-2 3/8"	24'-3"	33'-8 7/8"	35'-8 7/8"	23'-7 1/2"	35'-4"	49'-7 1/2"	51'-7 1/2"	37'-10 3/8"	46'-8"	65'-9 1/2"	67'-9 1/2"	54'-4 1/2"	57'-8"	81'-1 1/2"	83'-1 1/2"	68'-0 1/2"
		11'	13'-3 5/8"	12'-10"	17'-11"	19'-11"	13'-3 3/8"	24'-5"	33'-10 7/8"	35'-10 7/8"	23'-8 1/2"	35'-8"	49'-9 1/2"	51'-9 1/2"	38'-1 3/8"	46'-10"	65'-11 1/2"	67'-11 1/2"	54'-6 1/2"	57'-11"	81'-4 1/2"	83'-4 1/2"	68'-3 1/2"
		12'	14'-3 5/8"	13'-0"	18'-1"	20'-1"	13'-5"	25'-0"	34'-1"	36'-1"	23'-9 1/2"	36'-0"	50'-1 1/2"	52'-1 1/2"	38'-4"	47'-0"	66'-1 1/2"	68'-1 1/2"	54'-8 1/2"	58'-2"	81'-7 1/2"	83'-7 1/2"	68'-6 1/2"
	12'	9'	10'-3 5/8"	13'-6"	18'-11"	20'-11"	13'-9 3/8"	26'-5"	35'-10 3/8"	37'-10 3/8"	24'-7"	35'-10"	50'-3 1/2"	52'-3 1/2"	38'-7 3/8"	47'-2"	66'-3 1/2"	68'-3 1/2"	54'-10 1/2"	58'-5"	81'-10 1/2"	83'-10 1/2"	68'-9 1/2"
		10'	12'-3 5/8"	13'-8"	19'-1"	21'-1"	14'-1"	26'-8"	36'-1 3/8"	38'-1 3/8"	25'-3 1/2"	36'-4"	50'-7 1/2"	52'-7 1/2"	39'-1"	47'-6"	66'-7 1/2"	68'-7 1/2"	55'-2 1/2"	58'-8"	82'-1 1/2"	84'-1 1/2"	69'-0 1/2"
		11'	13'-3 5/8"	13'-10"	19'-3"	21'-3"	14'-4 1/2"	26'-10"	36'-4 3/8"	38'-4 3/8"	25'-10 1/2"	36'-8"	50'-11 1/2"	52'-11 1/2"	39'-4 3/8"	47'-10"	66'-11 1/2"	68'-11 1/2"	55'-6 1/2"	58'-11"	82'-4 1/2"	84'-4 1/2"	69'-3 1/2"
		12'	14'-3 5/8"	14'-0"	19'-4 7/8"	21'-4 7/8"	14'-6"	27'-0"	36'-6 7/8"	38'-6 7/8"	26'-1"	36'-11"	51'-2 1/2"	53'-2 1/2"	39'-7 3/8"	48'-2"	67'-3 1/2"	69'-3 1/2"	55'-10 1/2"	59'-2"	82'-7 1/2"	84'-7 1/2"	69'-6 1/2"

Designed by:- W.C.H. 5-16-63 Checked by:-
Drawn by:- W.C.H. 6-15-64 Checked by:- JEM. 6-23-64
Quantities by:- Checked by:-

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 45° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X452-1 or W-X452-2	W-X453-1 or W-X453-2	W-X454-1 or W-X454-2.

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

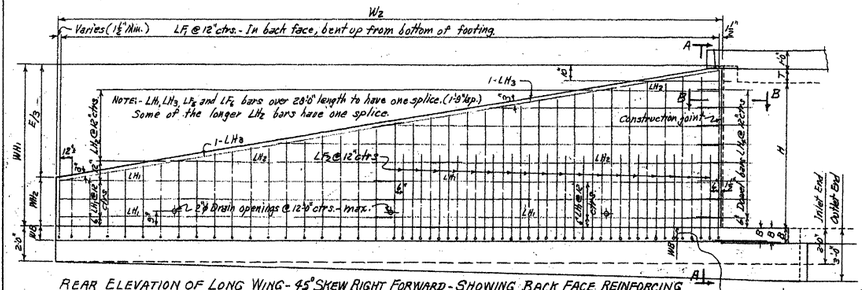
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

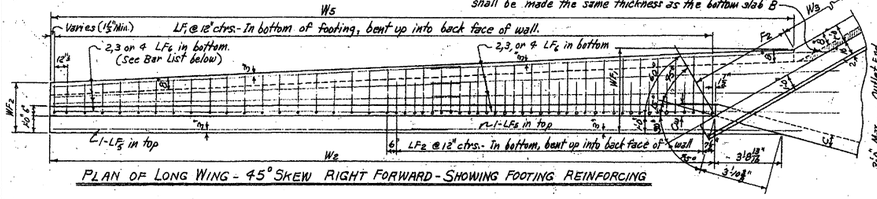
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER. H= 2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'

STANDARD DRAWING No. W-X45

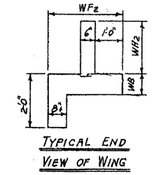
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



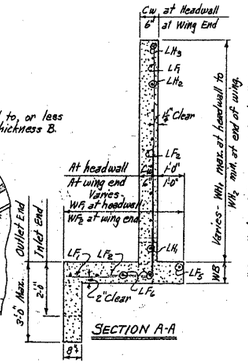
REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



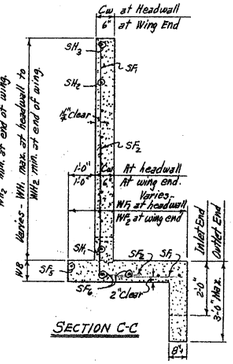
PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



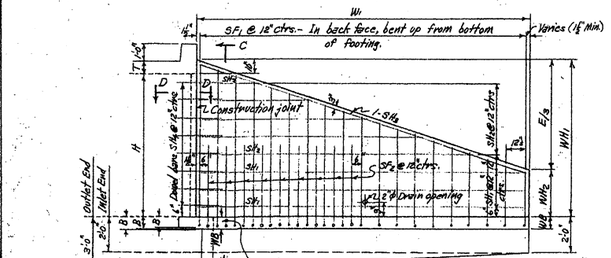
TYPICAL END VIEW OF WING



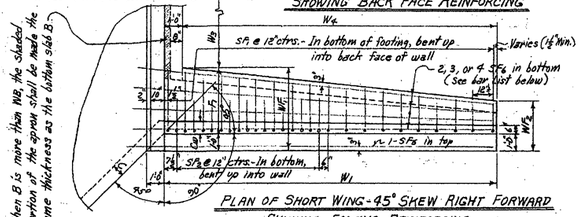
SECTION A-A



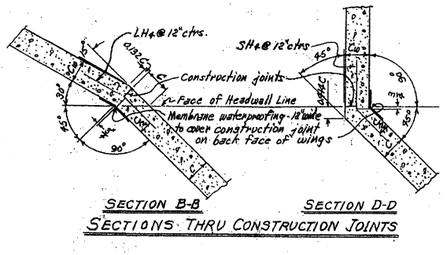
SECTION C-C



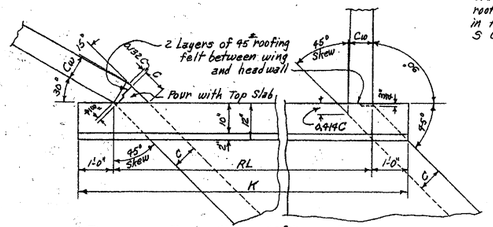
REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



SECTIONS THRU CONSTRUCTION JOINTS



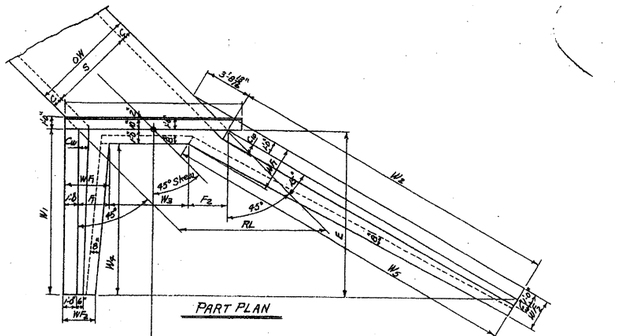
DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

NOTE:- Payment for the membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

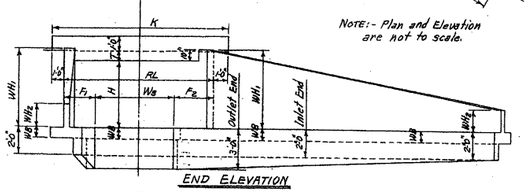
REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT H&C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT END OF WING	WIDTHS OF WING FOOTINGS FT. HEADWALL	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	PERPENDICULAR DISTANCE TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSION SHORT WING	INSIDE FOOTING DIMENSION LONG WING	* QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	INLET END LONG WING	OUTLET END SHORT WING	OUTLET END 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'-8"	0'-11"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3 3/8"	0.743	1.572	0.829	1.791
3'	7"	6"	3'10"	1'-0"	2'6"	2'-1½"	1'-8"	1'-7"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10 3/4"	1.120	2.349	1.229	2.590
4'	7"	6"	4'10"	1'-4"	3'-0"	2'3"	2'0"	2'-3 5/8"	10'-6"	10'-6"	21'-0"	9'6"	22'-5 5/8"	1.567	3.295	1.700	3.577
5'	7"	6"	5'10"	1'8"	3'-4"	2'-4½"	2'-0"	2'-11 5/8"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0 5/8"	2.088	4.367	2.241	4.705
		7"	5'10"	1'-0"	3'-4"	2'-4½"	2'-4"	2'-11 5/8"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0 5/8"	2.166	4.551	2.325	4.889
6'	8"	7"	6'10"	2'0"	3'-8"	2'-6"	2'-8"	3'-7 3/4"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7 1/4"	2.899	6.055	3.078	6.450
		7 1/4"	6'10"	2'0"	3'-8"	2'-6"	2'-8"	3'-7 3/4"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7 1/4"	2.952	6.180	3.135	6.875
		8"	6'10"	2'0"	3'-8"	2'-6"	2'-8"	3'-7 3/4"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7 1/4"	3.009	6.306	3.192	6.700
7'	8 1/2"	7 1/4"	7'10"	2'0"	4'-2"	2'-7 1/2"	3'-0"	4'-3 7/8"	16'-6"	16'-6"	33'0"	15'-6"	36'-5 3/8"	3.794	7.930	4.003	8.385
		8"	7'10"	2'0"	4'-2"	2'-7 1/2"	3'-0"	4'-3 7/8"	16'-6"	16'-6"	33'0"	15'-6"	36'-5 3/8"	3.800	8.093	4.078	8.598
8'	9"	8"	8'10"	2'0"	4'-8"	2'-9"	3'-3"	5'-7 1/8"	18'-6"	18'-6"	37'0"	17'-6"	41'-8 1/8"	4.855	10.136	5.088	10.651

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W4.



PART PLAN



END ELEVATION

Note:- Plan and Elevation are not to scale.

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.

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-X45.
For values of RL, K and W3 for each box, see above Std. also.

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 SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION	SF1 & LF1 BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length.						SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars						SF3 & LF3 STRAIGHT: Longitudinal in top of wing footing heel.			SF4 & LF4 STRAIGHT: Longitudinal in bottom of wing footing toe.		
H	SHORT OR LONG	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	MAX.	X MIN.	MAX.	Y MIN.	MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH
2'	Short	#3	12"	7	1'-7"	3'-1"	0'-8"	1'-0"	1'-0"	3'-0"	—	—	—	—	—	—	#3	1	6'-1"	#3	2	6'-0"
	Long	#3	12"	16	1'-5"	3'-1"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—	#3	1	17'-6"	#3	2	16'-6"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-6"	1'-0"	5'-0"	—	—	—	—	—	—	#3	1	10'-6"	#3	2	10'-0"
	Long	#3	12"	18	1'-11"	5'-3"	0'-9"	1'-6"	1'-2"	5'-0"	—	—	—	—	—	—	#3	1	21'-6"	#3	2	20'-6"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-9"	1'-3"	5'-6"	—	—	—	—	—	—	#3	1	12'-6"	#3	3	12'-0"
	Long	#3	12"	22	2'-3"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	25'-6"	#3	3	24'-6"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-7"	2'-6"	#3	1	14'-6"	#3	3	14'-0"
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"	#3	12"	6	3'-6"	1'-7"	2'-6"	#3	2	15'-6"	#3	6	15'-0"
6'	Short	#4	12"	15	3'-6"	9'-4"	1'-2"	2'-6"	2'-6"	7'-1"	#3	12"	3	4'-6"	1'-9"	3'-3"	#3	1	16'-6"	#3	3	16'-0"
	Long	#4	12"	30	3'-4"	9'-3"	1'-2"	2'-5"	2'-3"	7'-1"	#3	12"	6	4'-6"	1'-9"	3'-3"	#3	2	17'-6"	#3	6	18'-0"
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-3"	2'-10"	2'-9"	8'-1"	#4	12"	6	5'-6"	1'-7"	4'-0"	#4	1	18'-6"	#4	4	18'-0"
	Long	#4	12"	34	3'-9"	10'-9"	1'-3"	2'-8"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	19'-6"	#4	8	20'-0"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-6"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	1	20'-6"	#4	4	20'0"
	Long	#4	12"	38	4'-4"	12'-3"	1'-5"	3'-5"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	21'-6"	#4	8	22'-0"

CLEAR HEIGHT	WING LOCATION	SH1 & LH1 STRAIGHT: Horizontal in back face of wing.				SH2 & LH2 STRAIGHT: Horizontal in back face of wing. One bar of each length. *					SH3 & LH3 STRAIGHT: In back face of wing at top - on slope			SH4 & LH4 BENT: Dowels thru construction joint at headwall.			
H	SHORT OR LONG	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X
2'	Short	#3	12"	1	6'-9"	#3	12"	1	—	3'-9"	#3	1	4'-7"	#3	12"	2	2'-8"	1'-9"
	Long	#3	12"	1	17'-6"	#3	12"	1	—	6'-1"	#3	1	12'-11"	#3	12"	2	"	"
3'	Short	#3	12"	1	10'-6"	#3	12"	2	6'-9"	3'-9"	#3	1	8'-8"	#3	12"	3	"	"
	Long	#3	12"	1	21'-6"	#3	12"	2	18'-6"	6'-6"	#3	1	14'-10"	#3	12"	3	"	"
4'	Short	#3	12"	1	12'-6"	#3	12"	2	9'-9"	3'-9"	#3	1	10'-9"	#3	12"	4	"	"
	Long	#3	12"	1	25'-6"	#3	12"	2	24'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"
5'	Short	#3	12"	1	14'-6"	#3	12"	2	12'9"	3'-9"	#3	1	12'-11"	#3	12"	5	"	"
	Long	#3	12"	1	30'-6"	#3	12"	2	30'-6"	6'-6"	#3	1	25'-1"	#3	12"	5	"	"
6'	Short	#3	12"	2	16'-6"	#3	12"	2	12'-3"	3'-9"	#3	1	15'-0"	#3	12"	6	"	"
	Long	#3	12"	2	33'-0"	#3	12"	2	36'-6"	6'-6"	#3	1	29'-3"	#3	12"	6	"	"
7'	Short	#3	12"	2	18'-6"	#3	12"	2	15'-3"	3'-9"	#3	1	17'-1"	#4	12"	7	3'-6"	1'-9"
	Long	#3	12"	2	37'-0"	#3	12"	2	42'-6"	6'-6"	#3	1	33'-5"	#4	12"	7	"	"
8'	Short	#3	12"	2	20'-6"	#3	12"	2	18'-0"	3'-9"	#3	1	19'-3"	#4	12"	8	"	"
	Long	#3	12"	2	41'-0"	#3	12"	2	48'-6"	6'-6"	#3	1	37'-7"	#4	12"	8	"	"

BAR BENDING DIAGRAM	QUANTITY: REINFORCING STEEL PER WING - LBS. SHORT WING	LONG WING
SF4 & SF5 LF3 & LF5 @ 3" Pin	24.4	46.3
SH4	36.8	70.3
LH4	55.9	107.9
	72.7	153.7
	127.6	253.9
	296.5	491.1
	312.5	623.6

NOTE:- Dimensions are to bar centers.

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:- J.C.M. 7-21-64
Drawn By:- W.C.H. 4-5-64 Checked By:- J.E.M. 7-21-64
Quantities By:- W.C.H. 7-2-64

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING AT H&C	REINFORCING STEEL - LBS. PER 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"	142	6.15	7.50	8.86	10.22	11.58
	3'	6"	7"	214	8.94	9.79	11.14	12.50	13.84
	4'	6"	7"	328	11.13	12.98	14.84	15.20	14.56
	5'	6"	7"	468	14.25	15.60	16.96	18.32	19.68
	6'	7"	8"	763	19.23	20.62	22.02	23.41	24.81
5'	3'	6"	7"	214	8.74	10.38	12.03	13.67	15.32
	4'	6"	7"	328	11.48	13.07	14.72	16.37	18.02
	5'	6"	7"	468	14.15	16.19	17.84	19.49	21.14
	6'	7"	8"	763	19.53	21.21	22.90	24.59	26.28
	7'	7½"	8½"	1075	24.98	26.69	28.51	30.14	31.86
6'	3'	6"	7"	214	9.03	10.99	12.91	14.86	16.79
	4'	6"	7"	328	11.78	13.49	15.60	17.54	19.48
	5'	6"	7"	463	14.85	16.80	18.72	20.68	22.60
	6'	7"	8"	763	19.83	21.82	23.79	25.78	27.76
	7'	7½"	8½"	1075	25.28	27.30	29.31	31.33	33.35
	8'	8"	9"	1872	31.70	33.74	35.75	37.79	39.81
7'	4'	6"	7"	328	12.06	14.31	16.54	18.81	21.02
	5'	6"	7"	463	15.15	17.93	19.65	21.93	24.13
	6'	7"	8"	763	20.14	22.64	24.69	26.99	29.26
	7'	7½"	8½"	1075	25.59	27.91	30.21	32.58	34.83
	8'	8"	9"	1872	32.02	34.35	36.66	38.99	41.31
8'	4'	6"	7"	328	12.35	14.95	17.49	20.08	22.57
	5'	7"	7"	463	16.06	18.47	21.24	23.86	26.37
	6'	7"	8"	768	20.95	23.07	25.69	28.26	30.77
	7'	7½"	8½"	1075	25.90	28.34	31.13	33.78	36.32
	8'	8"	9"	1872	32.33	34.97	37.56	40.21	42.80
9'	5'	7"	7"	463	16.37	19.32	22.18	25.02	27.91
	6'	7½"	8"	768	21.16	24.13	27.02	29.89	32.81
	7'	7½"	8½"	1075	26.21	29.18	32.08	34.94	37.86
	8'	8"	9"	1872	32.63	35.61	38.51	41.37	44.29
10'	5'	7"	7"	463	16.69	19.84	23.14	26.27	29.47
	6'	7½"	8"	768	21.68	24.77	27.99	31.13	34.36
	7'	7½"	8½"	1075	26.93	29.82	33.09	36.19	39.42
	8'	8"	9"	1872	32.95	36.25	39.54	42.62	45.85
11'	6'	8"	8"	763	22.16	25.83	29.35	32.84	———
	7'	8"	8½"	1075	27.85	30.99	34.61	38.01	———
	8'	8"	9"	1872	33.86	36.91	40.43	43.93	———
12'	6'	8"	8"	763	22.50	26.51	30.85	34.19	———
	7'	8"	8½"	1075	27.66	31.66	35.49	39.35	———
	8'	8"	9"	1872	33.58	37.58	41.41	45.27	———

⊕ 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-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° 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-X453-1

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.						"c" 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		
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	4'	2'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				4				5				120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				6				5				120	120	3'-11"
		4'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"	#5	10½"	6		#4	12"	8		#4	12"	5		#4	12"	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"
		8'			120	120	5'-9"			110	110	6'-10"	5'-8"			6				6				6				120	120	8'-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'-10"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			7				12				6				120	120	7'-10"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			7				14				6				120	120	8'-0"
		3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				6				7				120	120	4'-1"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				8				7				120	120	5'-1"
		5'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8		#4	12"	10		#4	12"	7		#4	12"	120	120	6'-1"
		6'			128	128	6'-11"			118	118	8'-1"	6'-11"			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		#5	12"	120	120	9'-1"
		4'			140	140	7'-9"			130	130	8'-10"	7'-8"			8				6				8				120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				8				8				120	120	6'-2"
		6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-1"	7'-10"	#5	10½"	9	(1'-8" Lap)	#4	12"	10	(1'-3" Lap)	#4	12"	8	(1'-3" Lap)	#4	12"	120	120	6'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9				12				8				120	120	7'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9				14				8				120	120	8'-2"
		9'			140	140	8'-3"			130	130	9'-2"	8'-2"			9				16				8				120	120	9'-2"
		4'			128	128	8'-9"			118	118	9'-10"	8'-8"			8				8				9				120	120	5'-9"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			9				10				9				120	120	6'-9"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				12				9				120	120	7'-9"
		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'-9"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			11				16				9						
		9'			128	128	9'-2"			118	118	10'-3"	9'-1"			11				18				9						
		10'			128	128	9'-5"			118	118	10'-4"	9'-2"			11				20				9						
		5'			140	140	9'-11"			130	130	11'-0"	9'-10"			12				10				10						
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				12				10						
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				14				10						
		8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10"	12		#4	12"	16		#4	12"	10		#4	12"			
		9'			140	140	10'-3"			130	130	11'-3"	10'-2"			12				18				10						
		10'			140	140	10'-5"			130	130	11'-4"	10'-3"			12				20				10						
		11'			140	140	10'-7"			130	130	11'-5"	10'-4"			12				22				10						
		5'			128	128	10'-11"			118	118	12'-2"	10'-10"			13				10				11						
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				12				11						
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				14				11						
		8'	#7	12"	128	128	11'-1"	#7	12"	118	118	12'-4"	11'-0"	#5	10"	13		#4	12"	16		#4	12"	11		#4	12"			
		9'			128	128	11'-3"			118	118	12'-5"	11'-1"			13				18				11						
		10'			128	128	11'-5"			118	118	12'-6"	11'-2"			13				20				11						
		11'			128	128	11'-7"			118	118	12'-10"	11'-4"			13				22				11						
		12'			128	128	11'-9"			118	118	13'-0"	11'-5"			13				24				11						
		6'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				12				12						
		7'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				14				12						
		8'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				16				12						
	@	9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-6"	12'-2"	#5	9½"	15		#4	12"	18		#4	12"	12		#5	9½"			
	11'	10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15				20				12						
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15				22				12						
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15				24				12						
		6'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				12				13						
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				14				13						
		8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				16				13						
	@	9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-6"	13'-2"	#5	9½"	16		#4	12"	18		#4	12"	13		#5	9½"			
	12'	10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16				20				13						
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16				22				13						
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16				24				13						

2 @ 30'-8" for 60'-0 Length Barrel.

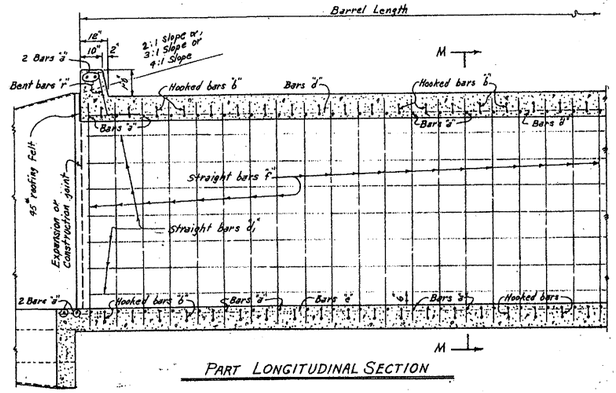
2 @ 30'-4" for 60'-0" Length Barrel.

2 @ 31'-4" for 60'-0 Length Barrel.

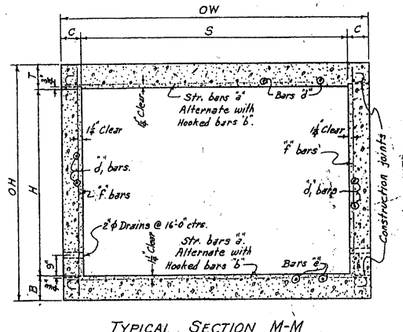
DIMENSIONS — QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS CLEAR SPAN	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	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
D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	0.282	41.49	17.95	66.35
		3'	12	5'-0"		6"		4'-1½"	0.319	44.16	19.62	66.35
		4'	16	5'-0"		6"		5'-1½"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1½"	0.394	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1½"	0.479	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7⅞"	6"	7"	4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		6'-2½"	0.456	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2½"	0.535	64.99	27.20	103.27
		7'	35	6'-3"		7½"		8'-2½"	0.609	67.63	28.87	106.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	0.446	66.29	29.76	118.94
		4'	24	7'-0"		6"		5'-3½"	0.483	68.96	26.43	118.94
		5'	30	7'-0"		6"		6'-3½"	0.520	71.64	28.10	118.96
		6'	36	7'-2"		7"		7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	88.47	33.11	122.97
	1 @ 7'	4'	28	8'-0"	8⅝"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-6"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.946	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"	9⅛"	6"	9½"	5'-7"	0.676	95.26	33.32	199.07
		5'	40	9'-2"		7"		6'-7"	0.759	99.12	34.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"		7½"		8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-6"		8"		9'-7"	0.992	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.166	126.67	43.36	204.97
	1 @ 9'	5'	45	10'-2"	9⅝"	7"	10"	6'-8"	0.844	119.72	37.56	218.41
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.56	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.148	135.80	44.28	225.08
		10'	90	10'-8"		10"		11'-8"	1.276	142.68	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.416	150.90	47.58	230.51
	1 @ 10'	5'	50	11'-2"	10"	7"	10"	6'-9"	0.957	130.64	40.13	242.64
		6'	60	11'-3"		7½"		7'-9"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9"	1.071	136.66	43.47	244.00
		8'	80	11'-4"		8"		9'-9"	1.147	142.55	95.14	245.36
		9'	90	11'-6"		9"		10'-9"	1.263	151.92	96.81	248.09
		10'	100	11'-8"		10"		11'-9"	1.391	158.89	98.98	250.81
		11'	110	11'-10"		11"		12'-9"	1.532	164.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9"	1.685	170.67	51.82	256.26
	1 @ 11'	6'	66	12'-9"	11"	8"	11⅛"	7'-10"	1.153	156.16	96.12	268.62
		7'	77	12'-8"		8"		8'-10"	1.202	157.83	97.79	268.62
		8'	88	12'-8"		8"		9'-10"	1.252	163.06	99.46	268.62
		9'	99	12'-8"		9"		10'-10"	1.368	172.60	51.18	271.34
		10'	110	12'-8"		10"		11'-10"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10"	1.638	187.67	54.97	276.79
		12'	132	13'-0"		12"		13'-10"	1.792	193.79	56.14	279.52
	1 @ 12'	6'	72	13'-9"	11⅝"	8"	12"	8'-0"	1.284	172.20	98.69	357.62
		7'	84	13'-8"		8"		9'-0"	1.333	174.87	50.86	357.62
		8'	96	13'-9"		8"		10'-0"	1.383	180.15	52.031	357.62
		9'	108	13'-8"		9"		11'-0"	1.500	189.85	58.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.45	58.71	371.86

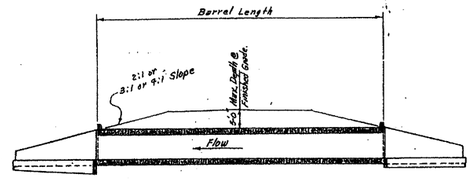
W-X002-1, W-X003-2, W-X003-1 or W-X004-2 and W-X004-1 or W-X004-2.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

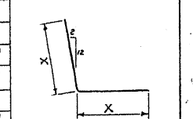
BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b"
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3½"	5⅝"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	11½	12	2'-6"	1'-3"
5'	#4	11½	14	2'-7"	1'-3⅝"
6'	#4	11½	16	2'-8"	1'-4"
7'	#4	11½	18	2'-9"	1'-4⅝"
8'	#4	11⅝	20	2'-11"	1'-5⅝"
9'	#4	11⅝	22	3'-0"	1'-6"
10'	#4	11⅝	24	3'-1"	1'-6⅝"
11'	#4	12½	26	3'-2"	1'-7"
12'	#4	12½	28	3'-3"	1'-7⅝"

Bars "r" Dowel bars in Headwalls.



Designed By:- W.C.H. 1-23-63. Checked By:- [illegible] 5-24-63
Drawn By:- W.C.H. 2-8-63. Checked By:- [illegible] 5-24-63
Quantities By:- W.C.H. 2-12-63. Checked By:- [illegible] 5-24-63

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 24,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Not. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4, 5, 6, 7, 8, 9, 10, 11 & 12' SPANS — 3:1 OR 4:1 SLOPES

SINGLES — UNDER 5'-0" COVER

STANDARD DRAWING NO. R-100X-0

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

BAR LIST FOR BARREL SECTION 60'0" IN LENGTH

DEPTH OF COVER D	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall. - Each. S	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars SIZE	"a" bars SPACING	"a" bars NUMBER REQ'D 3:1	"a" bars NUMBER REQ'D 4:1	"a" bars LENGTH
0'-0" TO 5'-0" MAXIMUM.	2 @ 4'		2'			128	128	9'-5"
			3'			128	128	9'-5"
			4'			128	128	9'-5"
			5'			128	128	9'-5"
			6'			128	128	9'-8"
	2 @ 5'		3'			128	128	11'-5"
			4'			128	128	11'-5"
			5'			128	128	11'-5"
			6'			128	128	11'-9"
			7'			128	128	11'-10"
	2 @ 6'		3'			140	140	13'-5"
			4'			140	140	13'-5"
			5'			140	140	13'-6"
			6'			140	140	13'-8"
			7'			140	140	13'-10"
			8'			140	140	13'-11"
	2 @ 7'		4'			128	128	15'-5"
			5'			128	128	15'-5"
			6'	#6	12"	128	128	15'-8"
			7'			128	128	15'-10"
			8'			128	128	16'-1"
			9'			128	128	16'-2"
	2 @ 8'		4'			140	140	17'-5"
			5'			140	140	17'-8"
			6'			140	140	17'-8"
			7'	#6	11"	140	140	17'-10"
			8'			140	140	17'-11"
			9'			140	140	18'-2"
			10'			140	140	18'-5"
	2 @ 9'		5'			140	140	19'-8"
			6'			140	140	19'-10"
			7'			140	140	19'-10"
			8'	#6	11"	140	140	19'-11"
			9'			140	140	20'-2"
			10'			140	140	20'-5"
			11'			140	140	20'-7"
	2 @ 10'		5'			128	128	21'-8"
			6'			128	128	21'-10"
			7'			128	128	21'-10"
			8'	#6	12"	128	128	21'-11"
			9'			128	128	22'-2"
			10'			128	128	22'-5"
			11'			128	128	22'-7"
			12'			128	128	22'-9"
	2 @ 11'		6'			128	128	23'-11"
			7'			128	128	23'-11"
			8'			128	128	23'-11"
			9'	#7	12"	128	128	24'-2"
			10'			128	128	24'-7"
			11'			128	128	24'-9"
			12'			128	128	24'-9"
	2 @ 12'		6'			140	140	25'-11"
			7'			140	140	25'-11"
			8'			140	140	25'-11"
			9'	#7	11"	140	140	26'-2"
			10'			140	140	26'-5"
			11'			140	140	26'-7"
			12'			140	140	26'-9"

DEPTH OF COVER D	"b" bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	"b" bars SPACING	"b" bars NUMBER REQ'D 3:1	"b" bars NUMBER REQ'D 4:1	"b" bars LENGTH	"b" bars X	"b" bars Y	"b" bars Z
0'-0" TO 5'-0" MAXIMUM.			59	59	10'-6"	0'-3"	2'-2½"	3'-9"
			59	59	10'-6"	0'-3"	2'-2½"	3'-9"
			59	59	10'-6"	0'-3"	2'-2½"	3'-9"
			59	59	10'-6"	0'-3"	2'-2½"	3'-9"
			59	59	10'-9"	0'-3"	2'-3½"	3'-10"
			59	59	12'-1"	0'-3½"	2'-5½"	4'-1"
			59	59	12'-1"	0'-3½"	2'-7½"	4'-1"
			59	59	12'-1"	0'-3½"	2'-7½"	4'-1"
			59	59	12'-10"	0'-3½"	2'-10½"	4'-2"
			59	59	13'-0"	0'-3½"	2'-10½"	4'-2"
			59	59	13'-11"	0'-3½"	2'-10½"	4'-2"
			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
			65	65	14'-10"	0'-4"	3'-1½"	4'-11"
			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"
			65	65	15'-1"	0'-4"	3'-2½"	5'-0"
			59	59	16'-3"	0'-4½"	3'-5"	5'-7"
			59	59	16'-3"	0'-4½"	3'-5"	5'-7"
			59	59	17'-0"	0'-4½"	3'-6"	5'-8"
			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"
			59	59	17'-3"	0'-4½"	3'-7"	5'-9"
			59	59	17'-6"	0'-4½"	3'-8"	5'-10"
			65	65	18'-10"	0'-5"	3'-10"	6'-4"
			65	65	19'-1"	0'-5"	3'-11"	6'-4½"
			65	65	19'-1"	0'-5"	3'-11"	6'-5"
			65	65	19'-3"	0'-5"	4'-0"	6'-5½"
			65	65	19'-9"	0'-5"	4'-0"	6'-6"
			65	65	19'-7"	0'-5"	4'-0½"	6'-7"
			65	65	19'-10"	0'-5"	4'-1"	6'-8"
			65	65	21'-1"	0'-5½"	4'-4½"	7'-2"
			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"
			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"
			65	65	21'-8"	0'-5½"	4'-5½"	7'-3"
			65	65	21'-7"	0'-5½"	4'-6½"	7'-4"
			65	65	21'-10"	0'-5½"	4'-6½"	7'-5"
			65	65	22'-0"	0'-5½"	4'-7"	7'-6"
			59	59	23'-2"	0'-6"	4'-9"	7'-11"
			59	59	23'-6"	0'-6"	4'-10"	7'-11½"
			59	59	23'-6"	0'-6"	4'-10"	8'-0"
			59	59	23'-5"	0'-6"	4'-10"	8'-0"
			59	59	23'-10"	0'-6"	4'-11"	8'-0"
			59	59	24'-1"	0'-6"	5'-0"	8'-0"
			59	59	24'-3"	0'-6"	5'-0"	8'-0"
			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
			59	59	25'-8"	0'-6½"	5'-4"	8'-10"
			59	59	25'-11"	0'-6½"	5'-5"	8'-11"
			59	59	26'-1"	0'-6½"	5'-5"	9'-0"
			59	59	26'-3"	0'-6½"	5'-5"	9'-1"
			65	65	27'-5"	0'-7"	5'-8"	9'-5"
			65	65	27'-5"	0'-7"	5'-8"	9'-6"
			65	65	27'-5"	0'-7"	5'-8"	9'-6"
			65	65	27'-11"	0'-7"	5'-9"	9'-7"
			65	65	27'-11"	0'-7"	5'-10"	9'-8"
			65	65	28'-1"	0'-7"	5'-10"	9'-9"
			65	65	28'-3"	0'-7"	5'-10"	9'-10"

DEPTH OF COVER D	"b2" bars BENT - See Diagram below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "b" and "c" bars. SIZE	"b2" bars SPACING	"b2" bars NUMBER REQ'D 3:1	"b2" bars NUMBER REQ'D 4:1	"b2" bars LENGTH	"b2" bars X	"b2" bars Y	"b2" bars Z
0'-0" TO 5'-0" MAXIMUM.			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"
			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"
			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"
			59	59	10'-6"	0'-2½"	2'-3½"	3'-6"
			59	59	10'-9"	0'-2½"	2'-4½"	3'-5"
			59	59	12'-4"	0'-3"	2'-6½"	4'-1"
			59	59	12'-6"	0'-3"	2'-8½"	4'-1"
			59	59	12'-6"	0'-3"	2'-8½"	4'-1"
			59	59	12'-9"	0'-3"	2'-9½"	4'-2"
			59	59	12'-11"	0'-3"	2'-10½"	4'-2½"
			59	59	14'-4"	0'-4"	3'-0½"	4'-10"
			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
			65	65	14'-7"	0'-4"	3'-0½"	4'-10"
			65	65	14'-10"	0'-4"	3'-1½"	4'-11"
			65	65	15'-0"	0'-4"	3'-2½"	4'-11½"
			65	65	15'-1"	0'-4"	3'-2½"	5'-0"
			59	59	16'-3"	0'-4½"	3'-5"	5'-7"
			59	59	16'-3"	0'-4½"	3'-5"	5'-7"
			59	59	17'-0"	0'-4½"	3'-6"	5'-8"
			59	59	17'-2"	0'-4½"	3'-7"	5'-8½"
			59	59	17'-3"	0'-4½"	3'-7"	5'-9"
			59	59	17'-6"	0'-4½"	3'-8"	5'-10"
			65	65	18'-10"	0'-5"	3'-10"	6'-4"
			65	65	19'-1"	0'-5"	3'-11"	6'-4½"
			65	65	19'-1"	0'-5"	3'-11"	6'-5"
			65	65	19'-3"	0'-5"	4'-0"	6'-5½"
			65	65	19'-9"	0'-5"	4'-0"	6'-6"
			65	65	19'-7"	0'-5"	4'-0½"	6'-7"
			65	65	19'-10"	0'-5"	4'-1"	6'-8"
			65	65	21'-1"	0'-5½"	4'-4½"	7'-2"
			65	65	21'-3"	0'-5½"	4'-4½"	7'-2½"
			65	65	21'-3"	0'-5½"	4'-5"	7'-2½"
			65	65	21'-8"	0'-5½"	4'-5½"	7'-3"
			65	65	21'-7"	0'-5½"	4'-6½"	7'-4"
			65	65	21'-10"	0'-5½"	4'-6½"	7'-5"
			65	65	22'-0"	0'-5½"	4'-7"	7'-6"
			59	59	23'-2"	0'-6"	4'-9"	7'-11"
			59	59	23'-6"	0'-6"	4'-10"	7'-11½"
			59	59	23'-6"	0'-6"	4'-10"	8'-0"
			59	59	23'-5"	0'-6"	4'-10"	8'-0"
			59	59	23'-10"	0'-6"	4'-11"	8'-0"
			59	59	24'-1"	0'-6"	5'-0"	8'-0"
			59	59	24'-3"	0'-6"	5'-0"	8'-0"
			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
			59	59	25'-5"	0'-6½"	5'-3"	8'-9"
			59	59	25'-8"	0'-6½"	5'-4"	8'-10"
			59	59	25'-11"	0'-6½"	5'-5"	8'-11"
			59	59	26'-1"	0'-6½"	5'-5"	9'-0"
			59	59	26'-3"	0'-6½"	5'-5"	9'-1"
			65	65	27'-5"	0'-7½"	5'-8"	9'-5"
			65	65	27'-5"	0'-7½"	5'-8"	9'-6"
			65	65	27'-5"	0'-7½"	5'-8"	9'-6"
			65	65	27'-11"	0'-7½"	5'-9"	9'-7"
			65	65	27'-11"	0'-7½"	5'-10"	9'-8"
			65	65	28'-1"	0'-7½"	5'-10"	9'-9"
			65	65	28'-3"	0'-7½"	5'-10"	9'-10"

DEPTH OF COVER D	"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. SIZE	"c" bars SPACING	"c" bars NUMBER REQ'D 3:1	"c" bars NUMBER REQ'D 4:1	"c" bars LENGTH
0'-0" TO 5'-0" MAXIMUM.			120	120	4'-8"
			120	120	4'-8"
			120	120	4'-8"
			120	120	4'-8"
			120	120	4'-9"
			120	120	5'-8"
			120	120	5'-8"
			120	120	5'-8"
			120	120	5'-9"
			120	120	5'-10"
			120	120	5'-8"
			132	132	6'-6"
			132	132	6'-6"
			132	132	6'-6"
			132	132	6'-6"
			132	132	6'-7"
			132	132	6'-10"
			120	120	7'-6"
			120	120	7'-6"
			120	120	7'-6"
			120	120	7'-7"
			120	120	7'-8"
			120	120	7'-8"
			132	132	8'-6"
			132	132	8'-6"
			132	132	8'-6"
			132	132	8'-6"
			132	132	8'-7"
			132	132	8'-10"
			120	120	8'-6"
			120	120	8'-6"
			120	120	8'-6"
			120	120	8'-7"
			120	120	8'-8"
			120	120	8'-8"
			132	132	9'-6"
			132	132	9'-6"
			132	132	9'-6"
			132	132	9'-7"
			132	132	9'-8"
			132	132	9'-8"
			120	120	10'-6"
			120	120	10'-6"
			120	120	10'-6"
			120	120	10'-7"
			120	120	10'-8"
			120	120	10'-8"
			132	132	11'-6"
			132	132	11'-6"
			132	132	11'-6"
			132	132	11'-7"
			132	132	11'-8"
			132	132	11'-8"
			120	120	11'-10"
			120	120	11'-10"
			120	120	11'-10"
			120	120	11'-11"
			120	120	12'-0"
			120	120	12'-0"
			132	132	12'-10"
			132	132	12'-10"
			132	132	12'-10"
			132	132	12'-11"
			132	132	13'-0"
			132	132	13'-0"

DEPTH OF COVER D	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE	"d" bars SPACING	"d" bars NO. REQD	"d" bars LENGTH
0'-0" TO 5'-0" MAXIMUM.				

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 Slab of Barrel.			"b" bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars.							"b2" bars BENT - See Diagram below In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars.							"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b" and "b2" bars.			"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			"k" bars STRAIGHT 2 in Top of Headwalls and Aprons - Each.		
			SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	Z	SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	Z	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	NO. REQ'D	LENGTH
D	S	H																																						
0'-0" TO 5'-0" MAXIMUM	2 @ 4'	2'	#5	12"	120	9'-9"	#5	12"	59	10'-10"	0'-3"	2'-3⅝"	3'-5⅝"	#5	12"	59	10'-10"	0'-2⅝"	2'-4⅝"	3'-5⅝"	#5	12"	120	9'-10"																		
		3'			120	9'-9"			59	10'-10"	"	2'-3⅝"	3'-5⅝"			59	10'-10"	"	2'-4⅝"	3'-5⅝"			120	9'-10"																		
		4'			120	9'-9"			59	10'-10"	"	2'-3⅝"	3'-5⅝"			59	10'-10"	"	2'-4⅝"	3'-5⅝"			120	9'-10"																		
		5'			120	9'-9"			59	10'-10"	"	2'-3⅝"	3'-5⅝"			59	10'-10"	"	2'-4⅝"	3'-5⅝"			120	9'-10"																		
		6'			120	10'-0"			59	11'-1"	0'-3"	2'-4⅝"	3'-6⅝"			59	11'-1"	0'-2⅝"	2'-5⅝"	3'-6⅝"			120	9'-10"																		
	2 @ 5'	3'			120	11'-10"			59	12'-11"	0'-3⅝"	2'-8"	4'-3"			59	12'-11"	0'-3⅝"	2'-8"	4'-3"			120	5'-10"																		
		4'			120	11'-10"			59	12'-11"	"	2'-8"	4'-3"			59	12'-11"	"	2'-9"	4'-3"			120	5'-10"																		
		5'			120	11'-10"			59	12'-11"	"	2'-8"	4'-3"			59	12'-11"	"	2'-9"	4'-3"			120	5'-10"																		
		6'			120	12'-1"			59	13'-2"	"	2'-8"	4'-9"			59	13'-2"	"	2'-8"	4'-9"			120	6'-11"																		
		7'			120	12'-5"			59	13'-6"	0'-3⅝"	2'-10"	5'-1"			59	13'-6"	0'-3⅝"	2'-11"	5'-1"			120	6'-0"																		
	2 @ 6'	3'			132	13'-11"			65	15'-0"	0'-4"	3'-2"	5'-0"			65	15'-0"	0'-4"	3'-2"	5'-0"			132	6'-11"																		
		4'			132	13'-11"			65	15'-0"	"	3'-2"	5'-0"			65	15'-0"	"	3'-3"	5'-0"			132	6'-11"																		
		5'			132	13'-11"			65	15'-0"	"	3'-2"	5'-0"			65	15'-0"	"	3'-3"	5'-0"			132	6'-11"																		
		6'			132	14'-2"			65	15'-3"	"	3'-3"	5'-1"			65	15'-3"	"	3'-3"	5'-1"			132	7'-0"																		
		7'			132	14'-4"			65	15'-5"	"	3'-4"	5'-1½"			65	15'-5"	"	3'-4"	5'-1½"			132	7'-1"																		
		8'			132	14'-5"			65	15'-6"	0'-4"	3'-4"	5'-2"			65	15'-6"	0'-4"	3'-4"	5'-2"			132	7'-1"																		
	2 @ 7'	4'			120	15'-11"			59	17'-3"	0'-4⅝"	3'-7"	5'-9"			59	17'-3"	0'-4⅝"	3'-7"	5'-9"			120	7'-11"																		
		5'			120	15'-11"			59	17'-3"	"	3'-7"	5'-9"			59	17'-3"	"	3'-8"	5'-9"			120	7'-11"																		
		6'			120	16'-2"			59	17'-6"	"	3'-8"	5'-10"			59	17'-6"	"	3'-8"	5'-10"			120	8'-0"																		
		7'			120	16'-4"			59	17'-8"	"	3'-9"	5'-10½"			59	17'-8"	"	3'-9"	5'-10½"			120	8'-1"																		
		8'			120	16'-5"			59	17'-9"	"	3'-9"	5'-11"			59	17'-9"	"	3'-9"	5'-11"			120	8'-1"																		
		9'			120	16'-8"			59	18'-0"	0'-4⅝"	3'-10"	6'-0"			59	18'-0"	0'-4⅝"	3'-10"	6'-0"			120	8'-2"																		
	2 @ 8'	5'			132	18'-0"			65	19'-5"	0'-5"	4'-0"	6'-6⅝"			65	19'-5"	0'-5"	4'-0"	6'-6⅝"			132	9'-0"																		
		6'			132	18'-3"			65	19'-8"	"	4'-1"	6'-7⅛"			65	19'-8"	"	4'-1"	6'-7⅛"			132	9'-0"																		
		7'			132	18'-5"			65	19'-10"	"	4'-2"	6'-8"			65	19'-10"	"	4'-2"	6'-8"			132	9'-2"																		
		8'			132	18'-6"			65	19'-11"	"	4'-2"	6'-8½"			65	19'-11"	"	4'-3"	6'-8½"			132	9'-2"																		
		9'			132	18'-9"			65	20'-2"	"	4'-3"	6'-9½"			65	20'-2"	"	4'-3"	6'-9½"			132	9'-3"																		
		10'			132	19'-0"			65	20'-5"	0'-5"	4'-4"	6'-10½"			65	20'-5"	0'-5"	4'-4"	6'-10½"			132	9'-3"																		
	2 @ 9'	5'			132	20'-4"			65	21'-9"	0'-5⅝"	4'-5⅝"	7'-5"			65	21'-9"	0'-5⅝"	4'-5⅝"	7'-5"			132	10'-1"																		
		6'			132	20'-6"			65	21'-11"	"	4'-7"	7'-5⅝"			65	21'-11"	"	4'-6⅝"	7'-5⅝"			132	10'-2"																		
		7'			132	20'-8"			65	21'-11"	"	4'-7"	7'-6"			65	21'-11"	"	4'-7"	7'-6"			132	10'-2"																		
		8'			132	20'-7"			65	22'-0"	"	4'-7"	7'-6"			65	22'-0"	"	4'-7"	7'-6"			132	10'-3"																		
		9'			132	20'-10"			65	22'-3"	"	4'-8"	7'-7"			65	22'-3"	"	4'-8"	7'-7"			132	10'-3"																		
		10'			132	21'-1"			65	22'-6"	"	4'-9"	7'-8"			65	22'-6"	"	4'-9"	7'-8"			132	10'-4"																		
		11'			132	21'-3"			65	22'-8"	0'-5⅛"	4'-9"	7'-9"			65	22'-8"	0'-5⅛"	4'-9"	7'-9"			132	10'-5"																		
	2 @ 10'	5'			120	22'-5"			59	23'-11"	0'-6"	5'-0"	8'-2"			59	23'-11"	0'-6"	5'-0"	8'-2"			120	11'-2"																		
		6'			120	22'-7"			59	24'-0"	"	5'-0"	8'-2⅛"			59	24'-0"	"	5'-0"	8'-2⅛"			120	11'-3"																		
		7'			120	22'-7"			59	24'-1"	"	5'-0"	8'-2⅛"			59	24'-1"	"	5'-0"	8'-2⅛"			120	11'-3"																		
		8'			120	22'-8"			59	24'-2"	"	5'-0"	8'-3"			59	24'-2"	"	5'-0"	8'-3"			120	11'-3"																		
		9'			120	22'-8"			59	24'-3"	"	5'-0"	8'-3"			59	24'-3"	"	5'-0"	8'-3"			120	11'-4"																		
		10'			120	23'-1"			59	24'-5"	"	5'-1"	8'-3½"			59	24'-5"	"	5'-1"	8'-3½"			120	11'-4"																		
		11'			120	23'-1"			59	24'-6"	"	5'-1"	8'-4"			59	24'-6"	"	5'-1"	8'-4"			120	11'-5"																		
		12'			120	23'-2"			59	24'-8"	"	5'-1"	8'-4"			59	24'-8"	"	5'-1"	8'-4"			120	11'-5"																		
	2 @ 11'	6'			120	23'-9"			59	25'-0"	0'-6"	5'-2"	8'-5"			59	25'-0"	0'-6"	5'-2"	8'-5"			120	11'-5"																		
		7'			120	23'-9"			59	25'-1"	"	5'-2"	8'-5"			59	25'-1"	"	5'-2"	8'-5"			120	11'-6"																		
		8'			120	23'-10"			59	25'-2"	"	5'-2"	8'-6"			59	25'-2"	"	5'-2"	8'-6"			120	11'-6"																		
		9'			120	23'-10"			59	25'-3"	"	5'-2"	8'-6"			59	25'-3"	"	5'-2"	8'-6"			120	11'-7"																		
		10'			120	24'-1"			59	25'-5"	"	5'-2"	8'-6½"			59	25'-5"	"	5'-2"	8'-6½"			120	11'-7"																		
		11'			120	24'-1"			59	25'-6"	"	5'-2"	8'-7"			59	25'-6"	"	5'-2"	8'-7"			120	11'-8"																		
		12'			120	24'-2"			59	25'-8"	"	5'-2"	8'-7"			59	25'-8"	"	5'-2"	8'-7"			120	11'-8"																		
	2 @ 12'	6'			120	24'-9"			59	26'-3"	0'-6⅝"	5'-3"	9'-1"			59	26'-3"	0'-6⅝"	5'-3"	9'-1"			120	12'-3"																		
		7'			120	24'-9"			59	26'-3"	"	5'-3"	9'-1"			59	26'-4"	"	5'-3"	9'-1"			120	12'-3"																		
		8'			120	25'-0"			59	26'-6"	"	5'-4"	9'-2"			59	26'-7"	"	5'-4"	9'-2"			120	12'-4"																		
		9'			120	25'-3"			59	26'-9"	"	5'-4"	9'-3"			59	26'-10"	"	5'-5"	9'-3"			120	12'-5"																		
		10'			120	25'-5"			59	26'-11"	"	5'-5"	9'-3"			59	27'-0"	"	5'-5"	9'-4"			120	12'-5"																		
		11'			120	25'-7"			59	27'-1"	0'-6⅝"	5'-5"	9'-5"			59	27'-2"	0'-7⅛"	5'-5"	9'-5"			120	12'-5"																		
		12'			132	26'-10"			65	28'-4"	0'-7"	5'-11"	9'-10"			65	28'-4"	0'-8⅛"	5'-8"	9'-10"			132	13'-3"																		
		6'			132	26'-10"			65	28'-6"	"	5'-11"	9'-10"			65	28'-6"	"	5'-8"	9'-10"			132	13'-3"																		
		7'			132	27'-1"			65	28'-8"	"	5'-11"	9'-11"			65	28'-8"	"	5'-8"	9'-11"			132	13'-4"																		
	2 @ 12'	8'			132	27'-1"			65	28'-9"	"	6'-0"	9'-11"			65	28'-9"	"	5'-9"	9'-11"			132	13'-4"																		
		9'			132	27'-4"			65	28'-10"	"	6'-1"	10'-0"			65	29'-0"	"	5'-10"	10'-0"			132	13'-4"																		
		10'			132	27'-6"			65	29'-0"	"	6'-1"	10'-0"			65	29'-2"	"	5'-10"	10'-1"			132	13'-5"																		
		11'			132	27'-6"			65	29'-2"	"	6'-1"	10'-1"			65	29'-3"	"	5'-10"	10'-1"			132	13'-5"																		
		12'			132	27'-8"			65	29'-3"	0'-7"	6'-1"	10'-2"			65	29'-5"	0'-8⅛"	5'-10"	10'-2"			132	13'-6"																		

NOTE:- The "a", "b", "b2", and "c" bars are to be placed parallel with the headwalls, spacing to be parallel with barrel.

DIMENSIONS

BARREL DIMENSIONS

MAX. DESIGN DEPTH of COVER	CLEAR SPAN	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	
D	S	H	A	OW	T	C	M	B	OH	RL	K	
0'-0" TO 5'-0" MAXIMUM	2 @ 4'	2'	16	9'-8"	6½"	6"	8"	6"	3'-0⅝"	10'-0"	10'-6½"	
		3'	24	9'-8"		6"	8"		4'-0⅝"	"	"	
		4'	32	9'-8"		6"	8"		5'-0⅝"	"	"	
		5'	40	9'-8"		6"	8"		6'-0⅝"	"	"	
		6'	48	9'-11"		7"	9"		7'-0⅛"	10'-3⅝"	10'-9⅝"	
	2 @ 5'	3'	30	11'-8"		6"	8"		4'-1¼"	12'-1"	12'-7¼"	
		4'	40	11'-8"		6"	8"		5'-1⅝"	"	"	
		5'	50	11'-8"	7"	6"	8"	6½"	6'-1⅝"	"	"	
		6'	60	11'-11"		7"	9"		7'-1⅝"	12'-4"	12'-10⅝"	
		7'	70	12'-1"		7½"	10"		8'-1⅝"	12'-6⅝"	13'-0⅝"	
	2 @ 6'	3'	36	13'-8"		6"	8"		4'-3"	14'-1⅝"	14'-8⅝"	
		4'	48	13'-8"		6"	8"		5'-3"	"	"	
		5'	60	13'-8"		6"	8"		6'-3"	"	"	
		6'	72	13'-11"	7½"	7"	9"	7½"	7'-3"	14'-5"	14'-11⅝"	
		7'	84	14'-1"		7½"	10"		8'-3"	14'-7"	15'-1⅝"	
		8'	96	14'-2"		8"	10"		9'-3"	14'-8"	15'-2⅝"	
	2 @ 7'	4'	56	15'-8"		6"	8"		5'-4"	16'-2⅝"	16'-9"	
		5'	70	15'-8"		6"	8"		6'-3"	"	"	
		6'	84	15'-11"	8"	7"	9"	8"	7'-4"	16'-5⅛"	17'-0⅛"	
		7'	98	16'-1"		7"	9"		8'-4"	16'-7⅛"	17'-2⅛"	
		8'	112	16'-5"		8"	10"		9'-4"	16'-8⅛"	17'-3⅛"	
		9'	126	16'-5"		9"	11"		10'-4"	17'-0"	17'-6"	
	2 @ 8'	4'	64	17'-8"		6"	8"		5'-5"	18'-3⅛"	18'-10"	
		5'	80	17'-11"		7"	9"		6'-5"	18'-6⅛"	19'-1"	
		6'	96	17'-11"		7"	9"		7'-5"	"	"	
		7'	112	18'-1"	8½"	7½"	10"	8½"	8'-5"	18'-8⅛"	19'-3"	
		8'	128	18'-2"		8"	10"		9'-5"	18'-9⅛"	19'-4⅛"	
		9'	144	18'-5"		9"	11"		10'-5"	19'-0⅛"	19'-10"	
		10'	160	18'-8"		10"	12"		11'-5"	19'-3⅛"	19'-10½"	
	2 @ 9'	5'	90	19'-11"	9"	7"	9"	9½"	6'-6⅝"	20'-7⅛"	21'-2"	
		6'	108	20'-1"		7½"	10"		7'-6⅝"	20'-9⅛"	21'-4"	
		7'	126	20'-1"		7½"	10"		8'-6⅝"	"	"	
		8'	144	20'-2"		9"	11"		9'-6⅝"	20'-10⅝"	21'-5"	
		9'	162	20'-5"		9"	11"		10'-6⅝"	21'-1⅝"	21'-8⅛"	
		10'	180	20'-8"		10"	12"		11'-6⅝"	21'-4⅝"	22'-1⅛"	
		11'	198	20'-10"		11"	12"		12'-6⅝"	21'-6⅝"	22'-1⅛"	
	2 @ 10'	5'	100	21'-11"	9½"	7"	9"	10"	6'-7⅛"	22'-8⅛"	23'-2⅝"	
		6'	120	22'-1"		7½"	10"		7'-7⅛"	22'-10⅛"	23'-4⅝"	
		7'	140	22'-1"		7½"	10"		8'-7⅛"	"	"	
		8'	160	22'-2"		8"	10"	10"	9'-7⅛"	22'-11⅛"	23'-5⅝"	
		9'	180	22'-5"		9"	11"		10'-7⅛"	23'-2⅛"	23'-9"	
		10'	200	22'-8"		10"	12"		11'-7⅛"	23'-5⅛"	24'-0"	
		11'	220	22'-10"		11"	12"		12'-7⅛"	23'-7⅛"	24'-2⅝"	
		12'	240	23'-0"		12"	12"		13'-7⅛"	23'-9⅛"	24'-4⅝"	
	2 @ 11'	6'	132	24'-2"	10"	8"	10"	11"	7'-7⅝"	25'-0⅝"	25'-6⅝"	
		7'	154	24'-2"		8"	10"		8'-7⅝"	"	"	
		8'	176	24'-2"		8"	10"		9'-7⅝"	"	"	
		9'	198	24'-5"		9"	11"		10'-7⅝"	25'-3⅝"	25'-9⅝"	
		10'	220	24'-8"		10"	12"		11'-7⅝"	25'-6⅝"	26'-1"	
		11'	242	24'-11"		11"	12"		12'-7⅝"	25'-9⅝"	26'-4"	
		12'	264	25'-0"		12"	12"		13'-7⅝"	25'-9⅝"	26'-5"	
	2 @ 12'	6'	144	25'-5"	10½"	8"	10"	12"	7'-8"	26'-3⅛"	26'-9⅛"	
		7'	168	25'-5"		8"	10"		8'-8"	"	"	
		8'	192	25'-8"		8"	10"		9'-8"	26'-4⅛"	26'-10⅛"	
		9'	216	26'-0"		9"	11"		10'-8"	26'-7⅛"	27'-0⅛"	
		10'	240	26'-3"		10"	12"		11'-8"	26'-10⅛"	27'-3⅛"	
		11'	264	26'-6"		11"	12"		12'-8"	27'-1⅛"	27'-6⅛"	
		12'	288	26'-9"		12"	12"		13'-8"	27'-4⅛"	27'-9⅛"	

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.
0.996	89.89	42.71	136.52
0.558	95.23	44.05	136.52
0.620	100.58	49.39	136.52
0.682	105.92	52.73	186.52
0.809	112.98	56.07	138.60
0.671	125.07	51.19	208.65
0.733	131.22	54.53	209.65
0.795	136.56	57.87	209.65
0.922	149.93	61.21	212.66
1.044	149.87	64.55	214.66
0.818	151.91	56.34	245.60
0.880	157.25	59.68	245.60
0.941	162.60	63.02	245.60
1.070	163.60	66.36	249.60
1.192	176.15	69.70	250.61
1.298	186.76	73.04	251.61
1.021	181.91	64.83	281.98
1.082	187.25	68.17	281.99
1.218	194.35	71.51	284.99
1.334	200.94	74.85	286.99
1.440	211.64	78.19	288.00
1.616	229.01	81.53	291.00
1.174	215.29	71.71	322.50
1.295	222.27	75.05	325.50
1.366	227.62	78.39	325.50
1.989	239.60	81.73	327.50
1.595	245.39	85.07	328.50
1.772	268.00	88.91	331.51
1.967	276.99	91.75	339.51
1.977	269.88	82.77	366.23
1.599	251.96	86.11	366.23
1.671	256.89	89.95	366.23
1.778	262.72	92.79	367.23
1.856	285.41	96.13	370.24
2.152	298.89	99.97	372.24
2.928	312.32	102.81	375.24
1.674	284.66	87.92	500.49
1.792	299.52	91.26	502.15
1.863	298.87	94.60	503.15
1.976	309.79	97.94	504.52
2.155	327.76	101.28	504.97
2.352	391.02	104.62	514.06
2.529	355.04	107.96	514.78
2.718	377.25	111.30	519.51
2.954	400.46	116.95	566.82
2.098	316.97	96.41	551.83
2.379	347.60	109.89	599.59
2.459	378.07	108.23	599.59
2.690	339.67	111.57	602.68
2.890	440.39	114.91	602.77
3.018	426.63	118.25	614.49
3.208	447.20	121.59	614.58

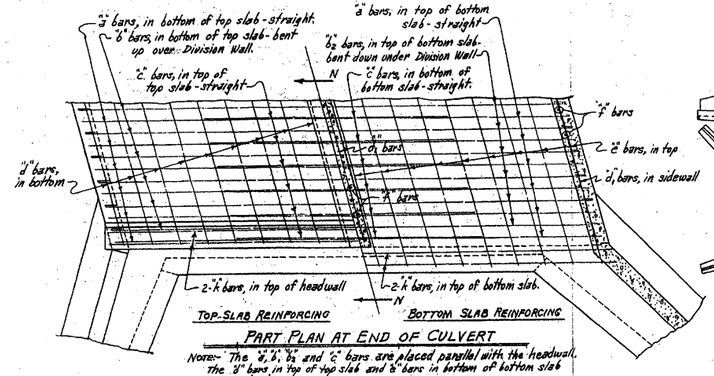
NOTE:- Dimensions are to centers of bars.

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#5	2½"	4½"	0'-11⅝"
#6	3"	5"	1'-2"

BENDING DIAGRAM FOR BARS "b" and "b2"

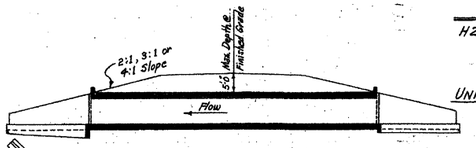
DOWEL BARS FOR TWO HEADWALLS

Spans @	Size	Spacing	No. Req'd	Length	X	Bars "k" 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'-3⅝"	
7'	#4	12"	32	2'-8"	1'-4"	
8'	#4	12"	38	2'-9"	1'-4½"	
9'	#4	12"	42	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"	

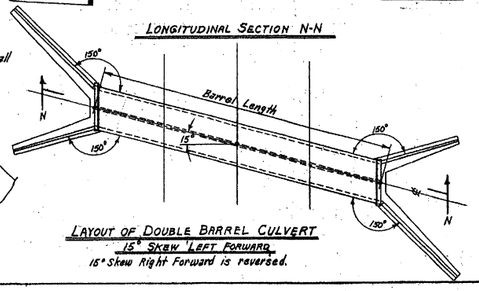


PART PLAN AT END OF CULVERT

NOTE:- The "a", "b", "b2" and "c" bars are placed parallel with the headwall. The "a" bars in top of top slab and "a" bars in bottom of bottom slab are not shown.



LONGITUDINAL SECTION N-N



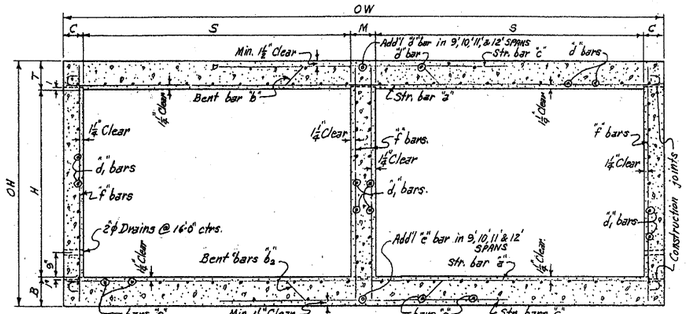
LAYOUT OF DOUBLE BARREL CULVERT
15° SKEW LEFT FORWARD
15° Skew Right Forward is reversed.

DESIGN LIVE LOAD

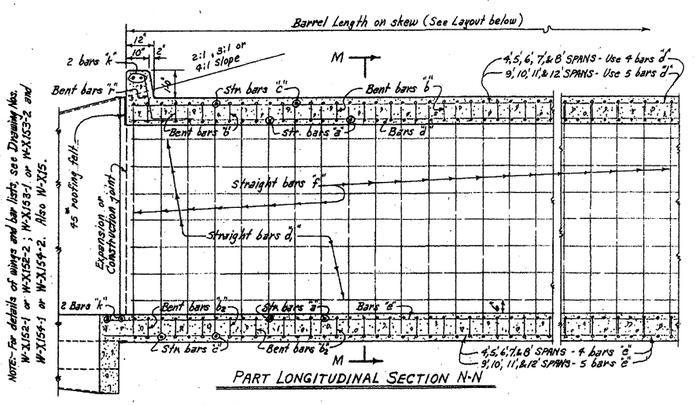
H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"



TYPICAL SECTION M-M



PART LONGITUDINAL SECTION N-N

NOTE:- For details of wings and bar lists, see Drawing Nos. W-X152-1 or W-X152-2; W-X153-1 or W-X153-2 and W-X154-1 or W-X154-2. Also W-X15.

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, side walls, 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.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X152-1 or W-X152-2, W-X153-1 or W-X153-2, and W-X154-1 or W-X154-2. Also W-X15.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 15° SKEW

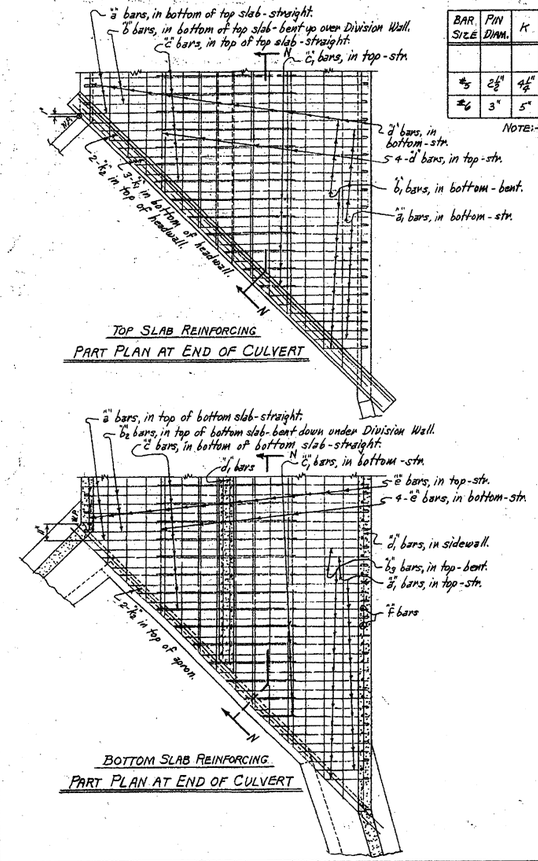
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1

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

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 45° SKEWED ENDS

DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. SIZE	SPACING	NO. REQ'D	LENGTH	"a1" bars STRAIGHT In Top and Bottom Slab of Barrel. (Four of each Length) SIZE	SPACING	NO. REQ'D	LENGTH	"b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	Z	"b1" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - one end hooked. (2 of Each Length) Alternate with "a1" and "c1" bars. SIZE	SPACING	NO. REQ'D	LENGTH MAX.	LENGTH MIN.	L MAX.	L MIN.
D	S	H																					
0'-0 TO 5'-0" MAXIMUM	2 @ 4'-0	2'	#5	12"	104	9'-5"	#5	12"	28	8'-5"	2'-5"	#5	12"	50	10'-6"	0'-3"	2'-3½"	3'-1"	#5	12"	14	9'-6"	3'-1"	8'-10"	2'-10"
		3'			104	9'-5"			28	"	"			50	10'-6"	"	"	"			14	"	"	"	"
		4'			104	9'-5"			28	"	"			50	10'-6"	"	"	"			14	"	"	"	"
		5'			104	9'-5"			28	"	"			50	10'-6"	"	"	"			14	"	"	"	"
		6'			104	9'-8"			28	8'-11"	2'-8"			50	10'-9"	0'-3"	2'-3½"	3'-5"			14	9'-9"	3'-7"	9'-1"	3'-1"
	2 @ 5'-0	3'			100	11'-5"			36	10'-5"	2'-5"			48	12'-7"	0'-3½"	2'-7½"	4'-1"			18	11'-6"	3'-4"	10'-10"	2'-10"
		4'	#6	12"	100	11'-5"	#6	12"	36	"	"	#5	12"	48	12'-7"	"	"	"	#5	12"	18	"	"	"	"
		5'			100	11'-5"			36	"	"			48	12'-7"	"	"	"			18	"	"	"	"
		6'			100	11'-8"			36	10'-8"	2'-8"			48	12'-10"	0'-3½"	2'-9½"	4'-2"			18	11'-9"	3'-7"	11'-1"	3'-1"
		7'			100	11'-10"			36	10'-10"	2'-10"			48	13'-0"	0'-3½"	2'-9½"	4'-3½"			18	11'-11"	3'-9"	11'-3"	3'-3"
	2 @ 6'-0	3'			106	12'-5"			48	12'-6"	2'-5"			50	14'-7"	0'-4"	3'-0½"	4'-10"			24	13'-8"	3'-4"	12'-11"	2'-10"
		4'			106	13'-5"			48	"	"			50	14'-7"	"	"	"			24	"	"	"	"
		5'	#6	11"	106	13'-5"	#6	11"	48	"	"	#5	11"	50	14'-10"	"	3'-1½"	4'-1"	#5	11"	24	13'-11"	3'-7"	13'-2"	3'-1"
		6'			106	13'-8"			48	12'-9"	2'-8"			50	15'-0"	"	3'-2½"	4'-1½"			24	14'-1"	2'-10"	13'-4"	2'-9"
		7'			104	13'-10"			48	12'-11"	2'-10"			50	15'-3"	"	3'-2½"	4'-1½"			24	14'-2"	2'-11"	13'-5"	2'-9"
		8'			104	13'-11"			48	13'-0"	2'-11"			50	15'-5"	0'-3½"	"	5'-0"			24	14'-3"	2'-11"	13'-6"	2'-9"
	2 @ 7'-0	4'			92	15'-5"			52	14'-5"	2'-5"			44	16'-9"	0'-4½"	3'-5"	5'-2"			26	15'-8"	3'-5"	14'-10"	2'-10"
		5'			92	15'-5"			52	"	"			44	"	"	"	"			26	"	"	"	"
		6'	#6	12"	92	15'-8"	#6	12"	52	14'-8"	2'-8"	#5	12"	44	17'-0"	"	3'-6"	5'-5"	#5	12"	26	15'-11"	3'-6"	15'-1"	3'-0"
		7'			92	16'-10"			52	14'-10"	2'-10"			44	17'-2"	"	3'-7"	5'-6½"			26	16'-1"	3'-10"	15'-3"	3'-3"
		8'			92	15'-11"			52	14'-11"	2'-11"			44	17'-3"	"	"	5'-7"			26	16'-2"	3'-11"	15'-4"	3'-3"
		9'			92	16'-2"			52	15'-2"	3'-0"			43	17'-6"	0'-4½"	3'-8"	5'-10"			28	16'-5"	3'-2"	15'-7"	2'-9"
	2 @ 8'-0	4'			96	17'-5"			64	16'-6"	2'-9"			46	18'-10"	0'-5"	3'-10"	6'-4"			32	17'-10"	3'-9"	16'-11"	3'-2"
		5'			96	17'-8"			64	16'-9"	3'-0"			46	19'-1"	"	3'-11"	6'-5"			32	18'-1"	3'-11"	17'-2"	2'-11"
		6'	#6	11"	96	17'-8"	#6	11"	64	"	"	#5	11"	46	19'-1"	"	"	"	#5	11"	32	18'-2"	3'-9"	17'-3"	2'-11"
		7'			96	17'-10"			64	16'-11"	3'-1"			45	19'-3"	"	4'-0"	6'-5½"			34	18'-3"	3'-9"	17'-4"	2'-11"
		8'			96	17'-11"			64	17'-0"	3'-2"			45	19'-5"	"	"	6'-6"			34	18'-4"	3'-10"	17'-5"	2'-11"
		9'			96	18'-0"			64	17'-3"	3'-3"			45	19'-7"	"	"	6'-6½"			34	18'-5"	3'-11"	17'-6"	2'-11"
		10'			96	18'-5"			64	17'-6"	3'-4"			45	19'-10"	0'-5½"	4'-2"	6'-8"			34	18'-6"	3'-11"	17'-8"	3'-0"

DEPTH OF COVER	CLEAR SPANS	"b2" bars BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	Z	"b3" bars BENT - See Diagrams below. In Top of Bottom Slab - one bend under Division Wall - one end hooked. (2 of Each Length) Alternate with "a1" and "c1" bars. SIZE	SPACING	NO. REQ'D	LENGTH MAX.	LENGTH MIN.	L MAX.	L MIN.	"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "a" and "b2" bars. SIZE	SPACING	NO. REQ'D	LENGTH	"c1" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b" & "b3" bars (Four of each Length) SIZE	SPACING	NO. REQ'D	LENGTH MAX.	LENGTH MIN.	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NO. REQ'D	LENGTH	"d1" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE	SPACING	NO. REQ'D	LENGTH	"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE	SPACING	NO. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls and Division Wall. SIZE	SPACING	NO. REQ'D	LENGTH	"h" bars STRAIGHT In Bottom of Headwalls SIZE	NO. REQ'D	LENGTH	"h1" bars STRAIGHT In Top of Headwalls and Aprons (2 Each) SIZE	NO. REQ'D	LENGTH
D	S																																										
0'-0 TO 5'-0" MAXIMUM	2 @ 4'-0	#5	12"	52	10'-6"	0'-3"	2'-3½"	3'-1"	#5	12"	14	9'-6"	3'-1"	8'-10"	2'-10"	#5	12"	112	4'-8"	#5	12"	8	4'-1"	3'-1"	#5	12"	8			#5	12"	14	#5	12"	240	2'-10"	#6	6	13'-3"	#6	8	16'-5"
				52	10'-6"	"	"	"			14	"	"	"	"			112	4'-8"			8	"	"			8					14			240	3'-10"		6	"		8	"
				52	10'-6"	"	"	"			14	"	"	"	"			112	4'-8"			8	"	"			8					14			240	4'-10"		6	"		8	"
				52	10'-6"	"	"	"			14	"	"	"	"			112	4'-8"			8	"	"			8					14			240	5'-10"		6	"		8	"
				52	10'-9"	0'-3"	2'-3½"	3'-5"			14	9'-9"	3'-7"	9'-1"	3'-1"			112	4'-9"			8	4'-3"	3'-3"			8					14			240	6'-10"		6	13'-7"		8	16'-9"
	2 @ 5'-0			50	12'-4"	0'-3"	2'-6½"	4'-1"			18	11'-6"	3'-4"	10'-10"	2'-10"			112	5'-8"			12	4'-7"	2'-7"			16					16			240	3'-11"		6	16'-1"		8	18'-5"
		#5	12"	50	12'-5"	"	"	"	#5	12"	18	"	"	"	"	#6	12"	112	5'-8"	#5	12"	12	"	"	#5	11½"	16	#4	12"	16	16	#4	12"	240	4'-11"	#6	6	"	#6	8	"
				50	12'-6"	"	"	"			18	"	"	"	"			112	5'-8"			12	"	"			16					16			240	5'-10"		6	"		8	"
				50	12'-9"	0'-3½"	2'-9½"	4'-2"			18	11'-9"	3'-7"	11'-1"	3'-1"			112	5'-9"			12	4'-9"	2'-9"			16					16			240	6'-11"		6	16'-5"		8	18'-1"
				50	12'-11"	0'-3½"	2'-9½"	4'-2½"			18	11'-11"	3'-9"	11'-3"	3'-3"			112	5'-10"			12	4'-10"	2'-10"			16					16			240	7'-11"		6	16'-8"		8	18'-10"
	2 @ 6'-0			52	14'-7"	0'-4"	3'-0½"	4'-10"			24	13'-8"	3'-4"	12'-11"	2'-10"			118	6'-8"			16	6'-5"	2'-9"			18					12			290	4'-8"		6	18'-11"		8	21'-1"
				52	14'-10"	"	"	"			24	"	"	"	"			118	6'-8"			16	"	"			18					16			290	5'-0"		6	"		8	"
		#5	11"	52	14'-9"	"	3'-1½"	4'-1"	#5	11"	24	13'-11"	3'-7"	13'-2"	3'-1"	#6	12"	118	6'-8"	#5	11½"	16	6'-6"	2'-10"	#4	12"	18	#4	12"	18	18	#4	12"	290	7'-10"	#6	6	19'-5"	#6	8	21'-5"
				52	15'-0"	"	3'-2½"	4'-1½"			24	14'-1"	2'-10"	13'-4"	2'-9"			118	6'-10"			16	6'-8"	2'-11"			18					12			290	8'-10"		6	19'-8"		8	21'-9"
				52	15'-1"	0'-4"	"	5'-0"			24	14'-2"	2'-11"	13'-5"	2'-9"			118	6'-10"			16	6'-9"	3'-0"			18					16			290	9'-10"		6	19'-11"		8	21'-11"
	2 @ 7'-0			44	16'-9"	0'-4½"	3'-5"	5'-2"			26	15'-8"	3'-5"	14'-10"	2'-10"			108	7'-8"			20	6'-7"	2'-7"			20					14			240	5'-4"		6	21'-9"		8	23'-10"
				44	"	"	"	"			26	"	"	"	"			108	7'-8"			20	"	"			20					16			240	6'-1"		6	"		8	"
		#5	12"	44	17'-0"	"	3'-6"	5'-5"	#5	12"	26	15'-11"	3'-6"	15'-1"	3'-0"	#6	12"	108	7'-8"	#5	11½"	20	6'-9"	2'-9"	#4	12"	20	#4	12"	20	20	#4	12"	240	7'-1"	#7	6	22'-1"	#7	8	24'-3"
				44	17'-2"	"	3'-7"	5'-6½"			26	16'-1"	3'-10"	15'-3"	3'-3"			108	7'-10"			20	6'-10"	2'-10"			20					20			240	8'-1"		6	22'-2"		8	24'-4"
				44	17'-3"	"	"	5'-7"			26	16'-2"	3'-11"	15'-4"	3'-3"			108	7'-10"			20	6'-11"	2'-11"			20					20			240	9'-1"		6	22'-3"		8	24'-5"
				43	17'-6"	0'-4½"	3'-8"	5'-10"			28	16'-5"	3'-2"	15'-7"	2'-9"			108	7'-11"			20	7'-1"	3'-1"			20					20			240	10'-1"		6	22'-5"		8	24'-7"
	2 @ 8'-0			64	18'-10"	0'-5"	3'-10"	6'-4"			32	17'-10"	3'-9"	16'-11"	3'-2"			112	8'-6"			28	8'-6"	3'-7"			22					16			240	5'-7"		6	25'-7"		8	26'-9"
				64	19'-1"	"	3'-11"	6'-5"			34	18'-1"	3'-11"	17'-2"	2'-11"			112	8'-9"			28	8'-8"	3'-8"			22					20			240	6'-7"		6	25'-9"		8	27'-1"
				64	19'-1"	"	"	6'-6"			34	18'-2"	3'-9"	17'-3"	2'-11"			112	8'-9"			28	"	"			22					20			240	7'-8"		6	25'-10"		8	27'-3"
				64	19'-3"	"	4'-0"	6'-6½"			34	18'-3"	3'-9"	17'-4"	2'-11"			112	8'-10"			28	"	"			22					20			240	8'-8"		6	25'-11"		8	27'-5"
				64	19'-5"	"	"	6'-7"			34	18'-4"	3'-10"	17'-5"	2'-11"			112	8'-11"			28	7'-10"	2'-10"			22					20			240	9'-8"		6	25'-11"		8	27'-6"
				64	19'-7"	"	"	6'-7½"			34	18'-5"	3'-11"	17'-6"	2'-11"			112	8'-11"			28	7'-11"	2'-11"			22					20			240	10'-8"		6	25'-11"		8	27'-7"
				64	19'-10"	0'-5½"	4'-0"	6'-8"			34	18'-6"	3'-11"	17'-8"	3'-0"			114	9'-0"			28	8'-0"	2'-11"			22					20			240	11'-8"		6	25'-11"		8	27'-8"
	2 @ 9'-0			68	20'-6"	0'-5½"	4'-1"	6'-10"			36	19'-5"	4'-0"	18'-4"	3'-1"			116	9'-2"			28	8'-1"	3'-0"			22					22			240	12'-8"		6	25'-11"		8	27'-9"
				68	20'-8"	"	"	6'-10½"			36	19'-6"	4'-0"	18'-5"	3'-1"			116	9'-3"			28	8'-2"	3'-1"			22					22			240	13'-8"		6	25'-11"		8	27'-10"
				68	20'-8"	"	"	6'-11"			36	19'-7"	4'-0"	18'-6"	3'-1"			116	9'-4"			28	8'-3"	3'-2"			22					22			240	14'-8"		6	25'-11"		8	27'-11"
				68	20'-8"	"	"	7'-0"			36	19'-8"	4'-0"	18'-7"	3'-1"			116	9'-5"			28	8'-4"	3'-2"			22					22			240	15'-8"		6	25'-11"		8	28'-0"
				68	20'-8"	"	"	7'-0½"			36	19'-9"	4'-0"	18'-8"	3'-1"			116	9'-6"			28	8'-5"	3'-3"			22					22			240	16'-8"		6	25'-11"		8	28'-1"



BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#5	2½"	4½"	0'-11½"
#6	3"	5"	1'-2"

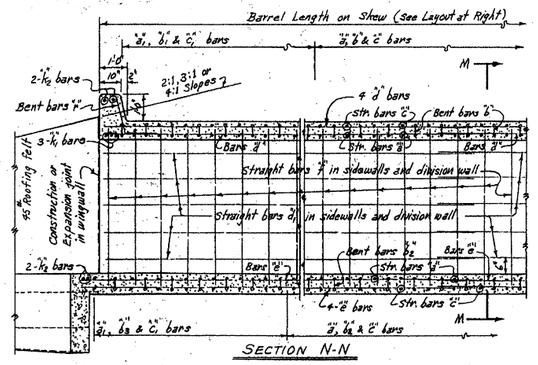
BENDING DIAGRAM FOR BARS "b" AND "b2"

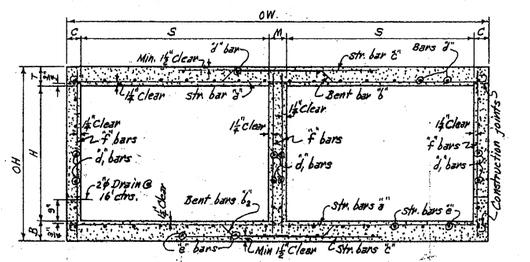
BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK
#5	2½"	4½"	0'-5½"
#6	3"	5"	0'-7"

BENDING DIAGRAM FOR BARS "b1" AND "b3"

NOTE:- Dimensions are to centers of bars ("b", "b1", "b2", & "b3"). The X, Y & Z values for "b" bars are same as for "b2" bars and for "b1" bars same as for "b3" bars.

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X452-1 or W-X452-2; W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.



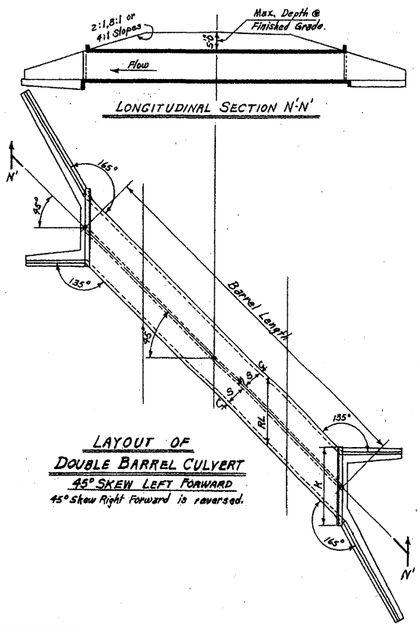


SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#5	12"	28	2'-8"	1'-0½"
5'	#6	12"	34	2'-8"	1'-3"
6'	#6	12"	40	2'-7"	1'-3½"
7'	#6	12"	46	2'-8"	1'-4"
8'	#6	12"	52	2'-9"	1'-4½"

Dowel bars "h" in Two Headwalls

These bars are in the skewed portion of barrel only. The length of "a1" and "c1" bars and overall length "L" of "b" and "b3" bars vary by 1'-0" for 12" spacing and 0'-11" for 11" spacing.

In the regular portion of the barrel begin and end with a set of "a" and "c" bars. If the spacing is such that the last set of bars would be "b" & "b2" bars, use a set of "a" & "c" bars instead.



LAYOUT OF DOUBLE BARREL CULVERT
45° SKEW LEFT FORWARD
45° Skew Right Forward is reversed.

BARREL DIMENSIONS MAX. DESIGN DEPTH OF COVER	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	* QUANTITIES REINFORCING STEEL CLASS 'S' CONC. PER LIN. FT. OF BARREL	TOTAL FOR LENGTH OF BARREL	PER LIN. FT. BARREL	ADDITIONAL PER LAP
D	S	H	A	OW	T	C	M	B	OH	RL	K	CU.YD.	LB.	LB.	LB.
0'-0 TO 5'-0"	2 @ 4'-0	2'	16	9'-8"	6½"	6"	8"	6"	3'-0½"	13'-8"	15'-8"	0.996	5,587	88.15	92.71
		3'	24	9'-8"		6"	8"		4'-0½"	"	"	0.558	5,910	93.99	94.05
		4'	32	9'-8"		6"	8"		5'-0½"	"	"	0.620	6,234	98.84	99.39
		5'	40	9'-8"		6"	8"		6'-0½"	"	"	0.682	6,557	104.18	52.73
		6'	48	9'-11"		7"	9"		7'-0½"	14'-0½"	16'-0½"	0.805	6,965	110.74	56.07
	2 @ 5'-0	3'	30	11'-8"	7"	6"	8"	6½"	4'-1½"	16'-6"	18'-6"	0.671	7,882	123.39	51.19
		4'	40	11'-8"		6"	8"		5'-1½"	"	"	0.733	8,205	128.68	54.53
		5'	50	11'-8"		6"	8"		6'-1½"	"	"	0.795	8,529	134.03	57.87
		6'	60	11'-11"		7"	9"		7'-1½"	16'-10½"	18'-10½"	0.922	8,962	140.89	61.21
		7'	70	12'-1"		7½"	10"		8'-1½"	17'-1"	19'-1"	1.044	9,363	147.34	64.55
	2 @ 6'-0	3'	36	13'-8"	7½"	6"	8"	7½"	4'-3"	19'-3½"	21'-4"	0.810	9,988	149.50	56.34
		4'	48	13'-8"		6"	8"		5'-3"	"	"	0.880	9,806	153.85	59.68
		5'	60	13'-8"		6"	8"		6'-3"	"	"	0.941	10,129	159.19	63.02
		6'	72	13'-11"		7"	9"		7'-3"	19'-8½"	21'-8½"	1.070	10,532	166.20	66.36
		7'	84	14'-1"		7½"	10"		8'-3"	19'-4"	21'-4"	1.192	10,956	172.74	69.70
		8'	96	14'-2"		8"	10"		9'-3"	20'-0"	22'-0"	1.298	11,376	183.36	73.04
	2 @ 7'-0	4'	56	15'-8"	8"	6"	8"	8"	5'-4"	22'-1½"	24'-1½"	1.021	11,514	178.15	69.83
		5'	70	15'-8"		6"	8"		6'-4"	"	"	1.082	11,887	183.93	68.17
		6'	84	15'-11"		7"	9"		7'-4"	22'-6½"	24'-6"	1.212	12,297	190.59	71.51
		7'	98	16'-1"		7½"	10"		8'-4"	22'-9"	24'-9"	1.334	12,716	197.13	74.85
		8'	112	16'-2"		8"	10"		9'-4"	22'-10½"	24'-10½"	1.440	13,389	207.89	78.19
		9'	126	16'-5"		9"	11"		10'-4"	23'-2½"	25'-2½"	1.616	14,416	225.25	81.53
	2 @ 8'-0	4'	64	17'-8"	8½"	6"	8"	8½"	5'-5"	24'-11½"	26'-11½"	1.179	13,555	210.37	71.71
		5'	80	17'-8"		6"	8"		6'-5"	25'-0"	27'-0"	1.245	14,047	217.63	75.05
		6'	96	17'-11"		7"	9"		7'-5"	"	"	1.366	14,371	222.97	78.39
		7'	112	18'-1"		7½"	10"		8'-5"	25'-6½"	27'-5"	1.489	14,756	229.68	81.73
		8'	128	18'-2"		8"	10"		9'-5"	25'-8½"	27'-10½"	1.586	15,494	240.47	85.07
		9'	144	18'-5"		9"	11"		10'-5"	26'-0½"	28'-0½"	1.772	16,932	258.08	88.41
		10'	160	18'-8"		10"	12"		11'-5"	26'-4½"	28'-4½"	1.967	17,276	271.07	91.75

* For quantities in wings see Standard Wing Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars.

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 add'l 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diam. min.
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 24000 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-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

45° SKEW

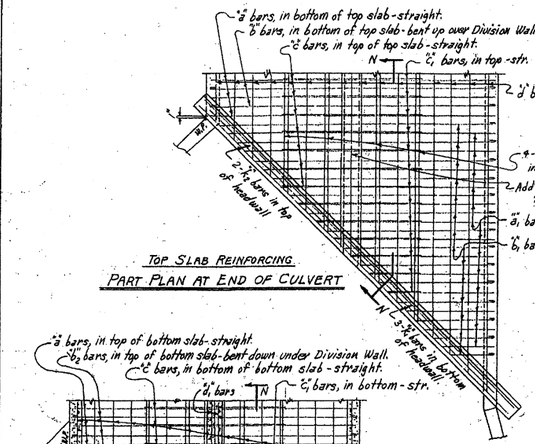
4', 5', 6', 7' AND 8' SPANS — 2:1, 3:1 OR 4:1 SLOPES
DOUBLES — UNDER 5'-0" COVER

STANDARD DRAWING No. R-245X-01

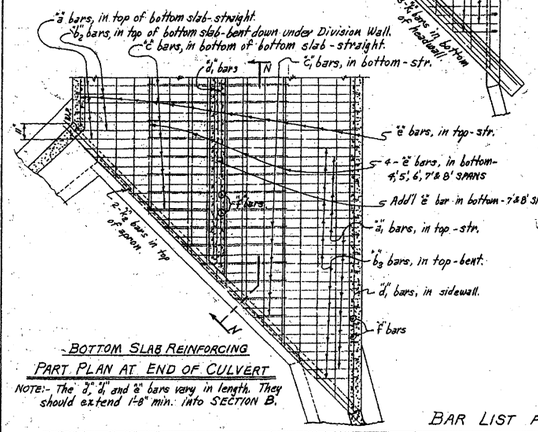
Designed by:- W.C.H. 1-17-63. Checked by:- R.H.S. 5-14-63
Drawn by:- W.C.H. 7-14-63. Checked by:-
Quantities by:- W.C.H. 10-1-63. Checked by:-

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

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X452-1 or W-X452-2; W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.

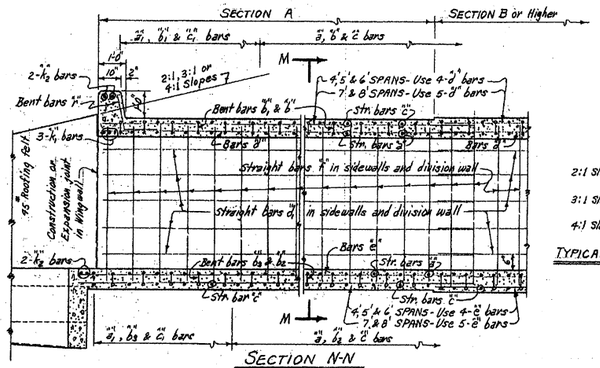


TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

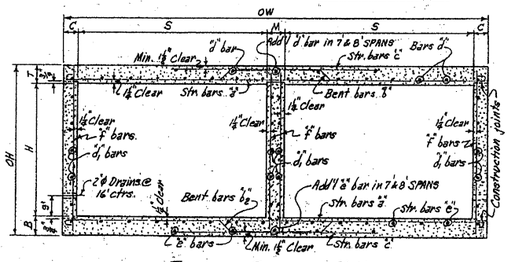


BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

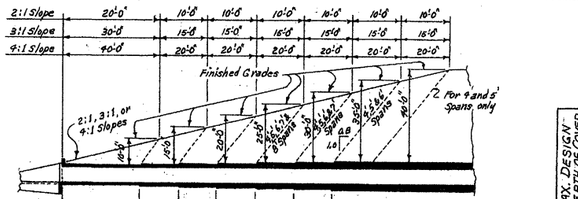
NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-8" min. into SECTION B.



SECTION N-N



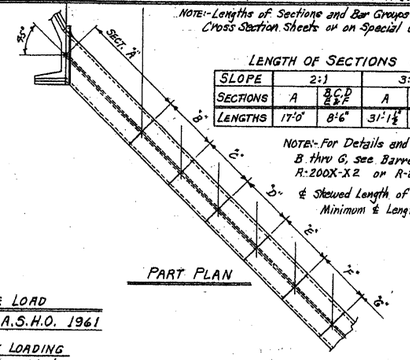
TYPICAL SECTION M-M



2:1 Slope =	SECTIONS	A=12'-0"	B=6'-6"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	MID-SECTION G-Varies	These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.
	Bar Group	A	B	C	D	E	F	G	
3:1 Slope =	SECTIONS	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	MID-SECTION G-Varies	
	Bar Group	A	B	C	D	E	F	G	
4:1 Slope =	SECTIONS	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	MID-SECTION G-Varies	
	Bar Group	A	B	C	D	E	F	G	

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

LENGTH OF SECTIONS ON 45° 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	17'-0"	8'-6"	31'-1 1/2"	15'-6 3/4"	45'-3"	22'-7 1/2"

NOTE:- For Details and Bar Lists for SECTION B thru G, see Barrel Drawing Nos. R-200X-X1, R-200X-X2 or R-200X-X3.

℄ Skewed Length of A = 1.41421 A. Minimum ℄ Length on skews (0.5 OW + 1').

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 #/in²
Reinforcing Steel 20,000 #/in²

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	BARREL DIMENSIONS: CLEAR HEIGHT H	CLEAR OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF DIVISION WALL M	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	ROADWAY LENGTH RL	LENGTH OF HEADWALL K	* QUANTITIES - ONE SECTION "A": CLASS S CONCRETE, BARREL ONLY 2:1	3:1	4:1	REINFORCING STEEL, BARREL, APRON AND HEADWALL 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"	4@12'	2'	16	9'-8"	6"	6"	8"	6"	3'-0"	13'-8"	15'-8"	8.18	14.97	21.77	1288	2203	3197
		3'	24	9'-8"		6"	8"		4'-0"	"	"	9.23	16.90	26.57	1384	2374	3337
		4'	32	9'-8"		6"	8"		5'-0"	"	"	10.28	18.83	23.38	1479	2545	3697
		5'	40	9'-8"		6"	8"		6'-0"	"	"	11.34	20.76	30.18	1575	2716	3897
		6'	48	9'-11"		7"	9"		7'-0"	14'-0"	16'-0" ℄	13.98	24.68	35.88	1689	2916	4187
	2@6'	3'	30	11'-8"		6"	8"		4'-1"	14'-6"	16'-6"	11.10	20.33	29.55	1935	3292	4712
		4'	40	11'-8"		6"	8"		5'-1"	"	"	12.16	22.25	32.35	2030	3463	4962
		5'	50	11'-8"	6½"	6"	8"	6½"	6'-1"	"	"	13.21	24.18	35.16	2126	3634	5212
		6'	60	11'-11"		7"	9"		7'-1"	14'-10½"	16'-10½"	15.37	28.14	40.91	2229	3855	5528
		7'	70	12'-1"		7½"	10"		8'-1"	17'-1"	19'-1"	17.92	31.30	46.38	2547	4408	6339
	2@7'	3'	36	13'-8"		6"	8"		4'-3"	19'-3½"	21'-4" ℄	13.91	25.96	37.01	2216	3777	5378
		4'	48	13'-8"		6"	8"		5'-3"	"	"	14.96	27.39	39.82	2312	3948	5628
		5'	60	13'-8"		6"	8"		6'-3"	"	"	16.00	29.29	42.58	2407	4119	5878
		6'	72	13'-11"	7½"	7"	9"	7½"	7'-3"	19'-10½"	21'-10½"	18.19	33.50	48.92	2494	4337	6192
		7'	84	14'-1"		7½"	10"		8'-3"	19'-11"	21'-11"	20.26	37.10	53.94	2821	4899	7033
		8'	96	14'-2"		8"	10"		9'-3"	20'-0½"	22'-0½"	22.07	40.90	58.78	3019	5232	7536
	2@8'	4'	56	15'-8"		6"	8"		5'-5"	22'-1½"	24'-1½"	18.17	33.87	48.87	2952	5018	7123
		5'	70	15'-8"		6"	8"		6'-5"	"	"	19.23	35.20	51.18	3098	5184	7373
		6'	84	15'-11"	8½"	7"	9"	8½"	7'-5"	22'-6½"	24'-6"	21.49	39.25	57.06	3125	5909	7694
		7'	98	16'-1"		7½"	10"		8'-5"	22'-9"	24'-9"	23.59	43.08	62.63	3447	5957	8555
		8'	112	16'-2"		8"	10"		9'-5"	22'-10½"	24'-10½"	25.33	46.38	67.92	3666	6296	9066
		9'	126	16'-5"		9"	11"		10'-5"	23'-2½"	25'-2½"	28.89	51.88	75.93	3914	6748	9632
	2@9'	4'	64	17'-8"		6"	8"		5'-7"	24'-3½"	26'-11½"	21.81	38.93	58.04	3915	5871	8461
		5'	80	17'-11"		7"	9"		6'-7"	25'-4"	27'-4"	23.90	42.76	63.62	3586	6237	8945
		6'	96	17'-11"	9½"	7"	9"	9¾"	7'-7"	"	"	25.11	44.97	66.83	3680	6408	9095
		7'	112	18'-1"		7½"	10"		8'-7"	25'-6½"	27'-5"	27.22	49.88	72.44	3882	6667	9505
		8'	128	18'-2"		8"	10"		9'-7"	25'-8"	27'-8"	29.02	53.13	77.24	4084	7149	10,215
		9'	144	18'-5"		9"	11"		10'-7"	26'-0½"	28'-0½"	32.06	58.70	85.94	4961	7857	10,819
		10'	160	18'-8"		10"	12"		11'-7"	26'-4½"	28'-4½"	35.39	64.80	94.21	4849	8368	11,913

* For remainder of quantities see Std. Wing and Barrel Drawings listed below.

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

| SECTION & BAR GROUP | LENGTH OF SECTION | DEPTH OF COVER | CLEAR SPAN | CLEAR HEIGHT | "a" bars: STRAIGHT, In Top and Bottom Slab of Barrel. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH MAX. | MIN. | "a1" bars: In Top and Bottom Slab of Barrel (Two of each Length) SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | "b" bars: BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | X | Y | Z | "b1" bars: In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alternate with "a1" and "c1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | L MAX. | MIN. | "b2" bars: BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | X | Y | Z | "b2a" bars: In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alternate with "a1" and "c1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | L MAX. | MIN. | "c" bars: STRAIGHT, In Top and Bottom Slabs of Barrel. Alternate with "a" and "b2" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "c1" bars: STRAIGHT, In Top and Bottom Slab of Barrel. Alt. with "a1" & "b2a" bars. (Two of each Length) SIZE | SPACING | NO. REQ'D | LENGTH | "d" bars: STRAIGHT, Longitudinal in Top Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "d1" bars: STRAIGHT, Longitudinal in Sidewalls and Division Wall. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "e" bars: STRAIGHT, Longitudinal in Bottom Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "f" bars: STRAIGHT, Verticals in Sidewalls and Division Wall. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "k" bars: STRAIGHT, In Bottom of Headwall. SIZE | NO. REQ'D | LENGTH | "h" bars: STRAIGHT, In Top of Headwall and Apron. (2 Each) SIZE | NO. REQ'D | LENGTH |
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