DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	1	253

(2) GARLAND CO. LINE - BENTON (SAFETY IMPVTS.) (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

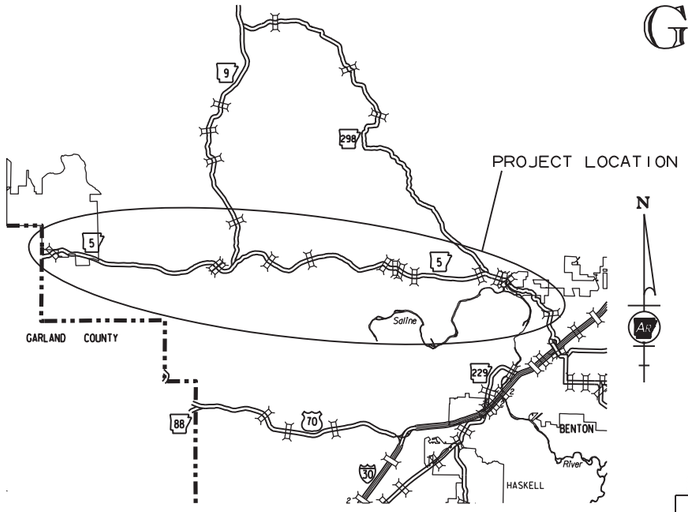
GARLAND CO. LINE - BENTON (SAFETY IMPVTS.) (S)

SALINE COUNTY

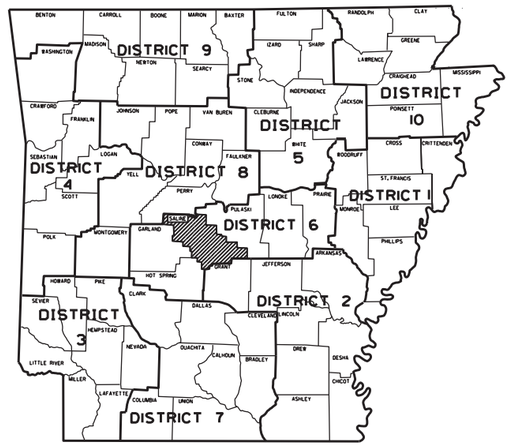
ROUTE 5 SECTION 7

JOB 061442

FED. AID PROJ. HSIP-0062(39)

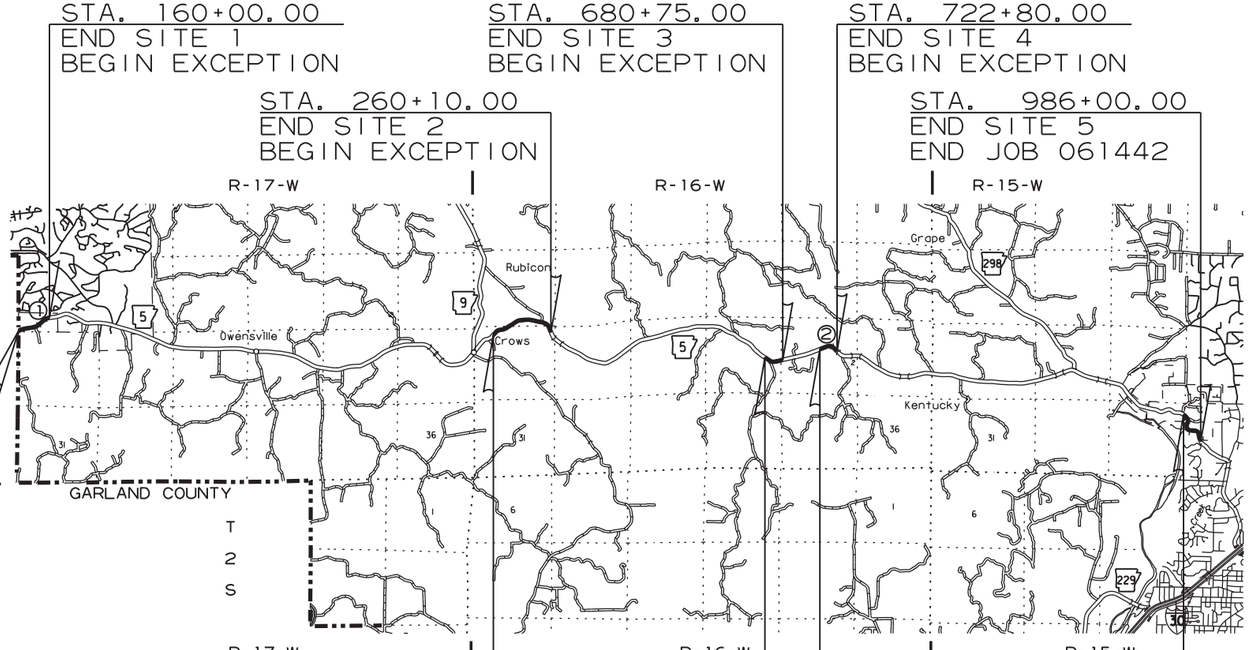


VICINITY MAP



ARK. HWY. DIST. NO. 6

NOT TO SCALE



STRUCTURES OVER 20'-0" SPAN

(1) STA. 122+55 CONSTRUCT
TRP. 12' X 8' X 70' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
ON 30° LT. FWD. SKEW
Q50 = 1550 CFS D.A. = 840 ACRES
SPAN = 38'-11"

(2) STA. 719+05 IN PLACE
TRP. 10' X 8' X 72' R.C. BOX CULVERT
WITH 2:1 WINGS LT. & 3:1 WINGS RT.
ON 30° LT. FWD. SKEW
Q50 = 910 CFS D.A. = 637 ACRES
SPAN = 32'-8"

DESIGN TRAFFIC DATA

DESIGN YEAR	2040
2020 ADT	4000
2040 ADT	5400
2040 DHV	594
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	3%
AVERAGE RUNNING SPEED	55 MPH

APPROVED

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

Banks, Emanuel
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DEPUTY DIRECTOR
AND CHIEF ENGINEER

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°37'13"	N 34°37'05"	N 34°37'01"
LONGITUDE	W 92°45'29"	W 92°43'15"	W 92°42'29"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF	PROJECT	88598.00	FEET	OR	16.780 MILES
NET	ROADWAY	16816.42			3.185 MILES
NET	BRIDGES	71.58			0.014 MILES
NET	PROJECT	16888.00			3.199 MILES

tw:39665 10/22/2019
R061442.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.		061442	2	253

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

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

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INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS AND STANDARD DRAWINGS
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4 - 12	TYPICAL SECTIONS OF IMPROVEMENT
13 - 25	SPECIAL DETAILS
26 - 57	TEMPORARY EROSION CONTROL DETAILS
58 - 81	MAINTENANCE OF TRAFFIC DETAILS
82 - 84	PERMANENT PAVEMENT MARKING DETAILS
85 - 92	QUANTITIES
93	SUMMARY OF QUANTITIES AND REVISIONS
94 - 123	SURVEY CONTROL DETAILS
124 - 145	PLAN AND PROFILE SHEETS
146 - 253	CROSS SECTIONS

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

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
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
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	05-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X30	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	07-15-63
W-X303-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
W-X45	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-15-64
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-130X-1	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	01-24-64
R-145X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	07-10-64

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10/8/2020			
10/20/2020			

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6	ARK.			
JOB NO.		061442	3	253

(2) GOVERNING SPECIFICATIONS & GENERAL NOTES

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

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
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
210-1_____	UNCLASSIFIED EXCAVATION
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
400-7_____	TRACKLESS TACK
404-3_____	DESIGN OF ASPHALT MIXTURES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2_____	INCIDENTAL CONSTRUCTION
603-1_____	LANE CLOSURE NOTIFICATION
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1_____	CONCRETE DITCH PAVING
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TERMINAL (TYPE 2)
620-1_____	MULCH COVER
621-1_____	FILTER SOCKS
634-1_____	CURBING
800-1_____	STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
JOB 061442__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 061442__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061442__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061442__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 061442__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 061442__	CULVERT CLEAN OUT
JOB 061442__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 061442__	DISADVANTAGED BUSINESS ENTERPRSE BIDDER'S RESPONSIBILITIES
JOB 061442__	DRINKING WATER PROTECTION
JOB 061442__	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 061442__	EXTENSION FOR PIPE CULVERTS
JOB 061442__	FLEXIBLE BEGINNING OF WORK
JOB 061442__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061442__	MANDATORY ELECTRONIC CONTRACT
JOB 061442__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 061442__	NESTING SITES OF MIGRATORY BIRDS
JOB 061442__	OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB 061442__	PARTNERING REQUIREMENTS
JOB 061442__	PLASTIC PIPE
JOB 061442__	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 061442__	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 061442__	REMOVING AND REPLACING TOPSOIL
JOB 061442__	SHORING FOR CULVERTS
JOB 061442__	SOIL STABILIZATION
JOB 061442__	STORM WATER POLLUTION PREVENTION PLAN
JOB 061442__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061442__	UTILITY ADJUSTMENTS
JOB 061442__	VALUE ENGINEERING
JOB 061442__	VEGETATED BUFFER ZONE
JOB 061442__	WARM MIX ASPHALT
JOB 061442__	WATER POLLUTION CONTROL

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.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

10/22/2019

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	4	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Oct 20 2020 5:00 PM
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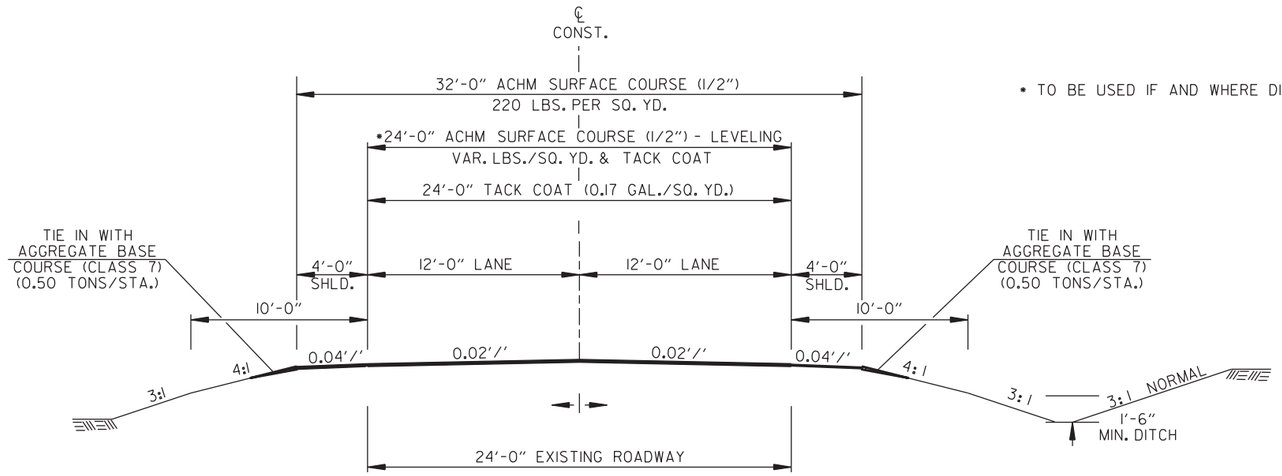


* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITE 1- OVERLAY

STA. 100+02.00 TO STA. 100+02.94
STA. 144+39.46 TO STA. 144+57.19
STA. 151+00.75 TO STA. 151+22.58
STA. 159+99.68 TO STA. 160+00.00

NOTES:

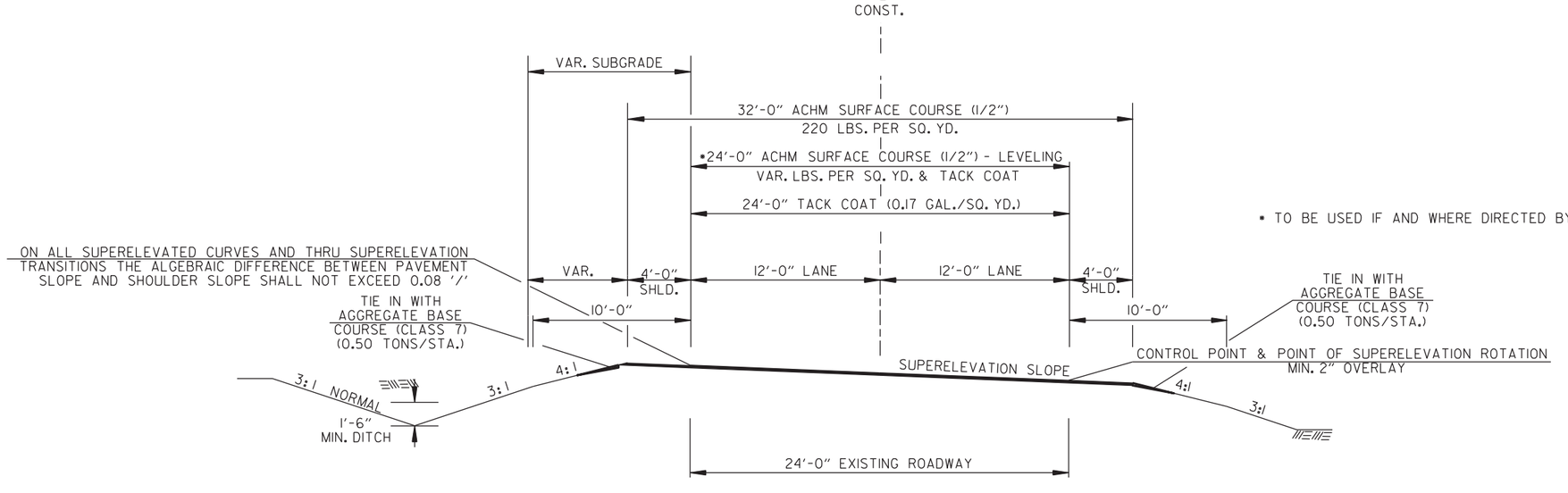
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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.

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND 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.

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



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITE 1- OVERLAY
SUPERELEVATION

STA. 100+02.94 TO STA. 106+50.00
STA. 111+26.00 TO STA. 121+90.00
STA. 123+20.00 TO STA. 144+39.46
STA. 144+57.19 TO STA. 151+00.75
STA. 151+22.58 TO STA. 159+99.68

TYPICAL SECTIONS OF IMPROVEMENT

tw39665 10/22/2019
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	5	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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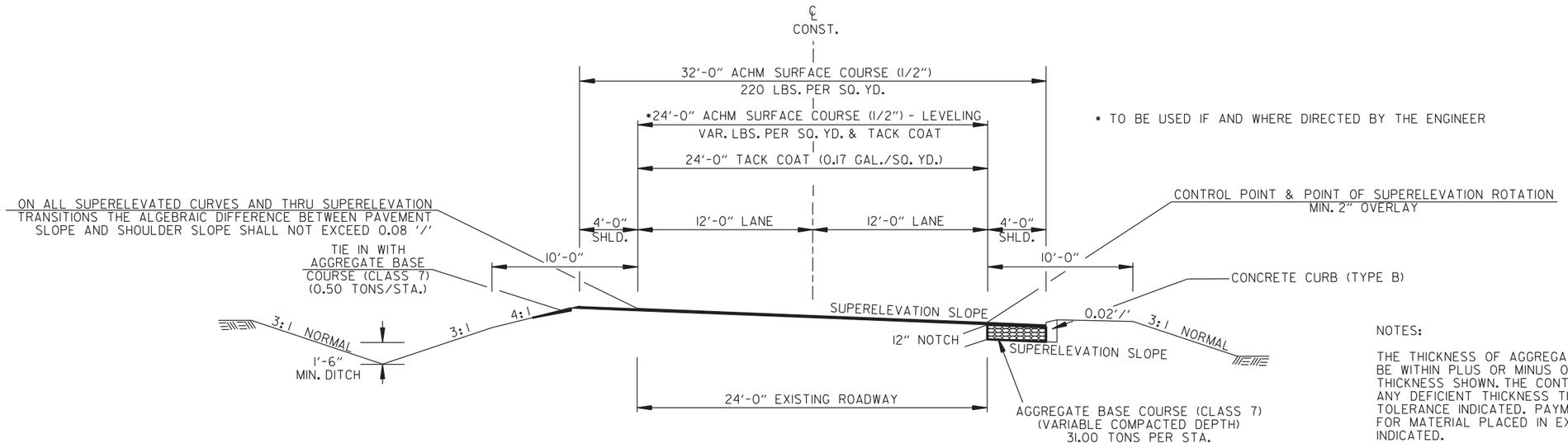
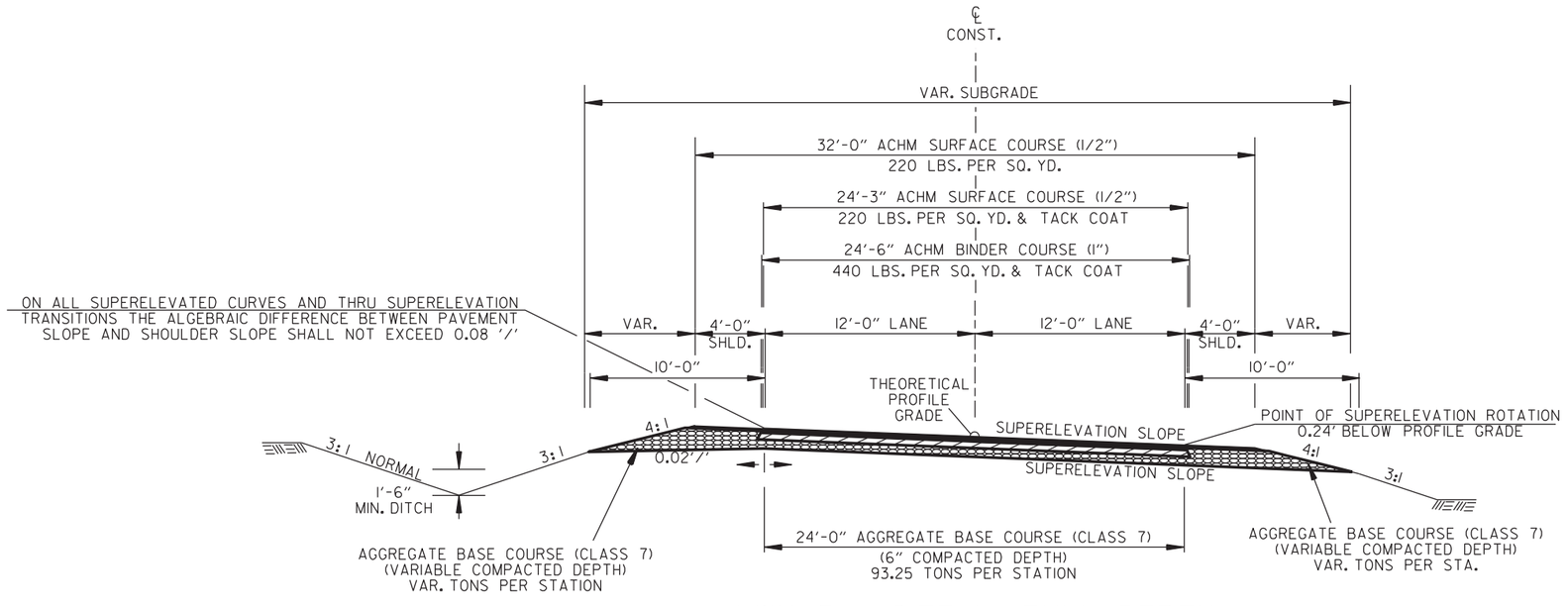


• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITE 1- OVERLAY
SUPERELEVATION - MOUNTABLE CURB

STA. 106+50.00 TO STA. 111+26.00



HWY. 5 - SITE 1- FULL DEPTH SUPERELEVATION

STA. 121+90.00 TO STA. 123+20.00

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.

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND 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.

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

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.

tw39665 10/22/2019
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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.		061442	6	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

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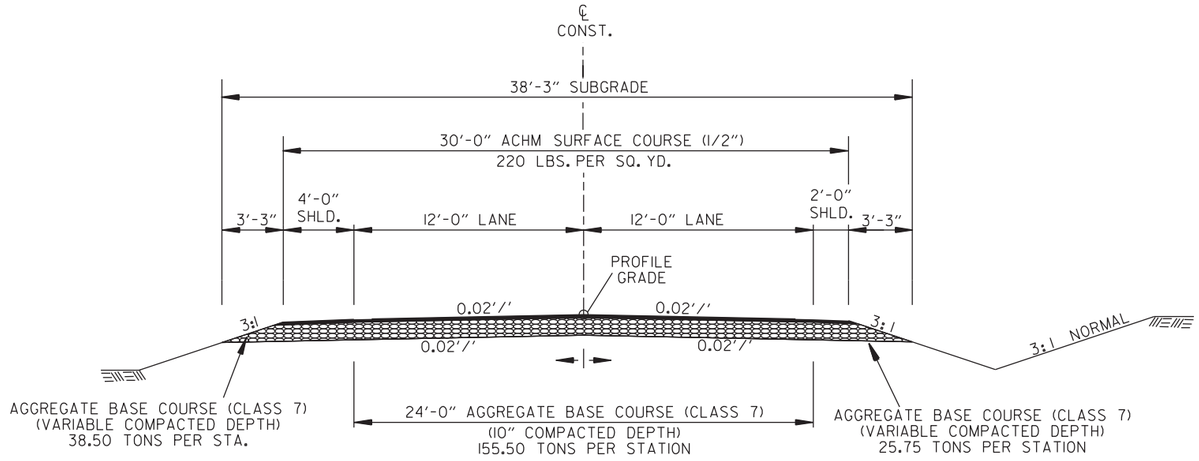


HWY. 5 - SITE 1 DETOUR

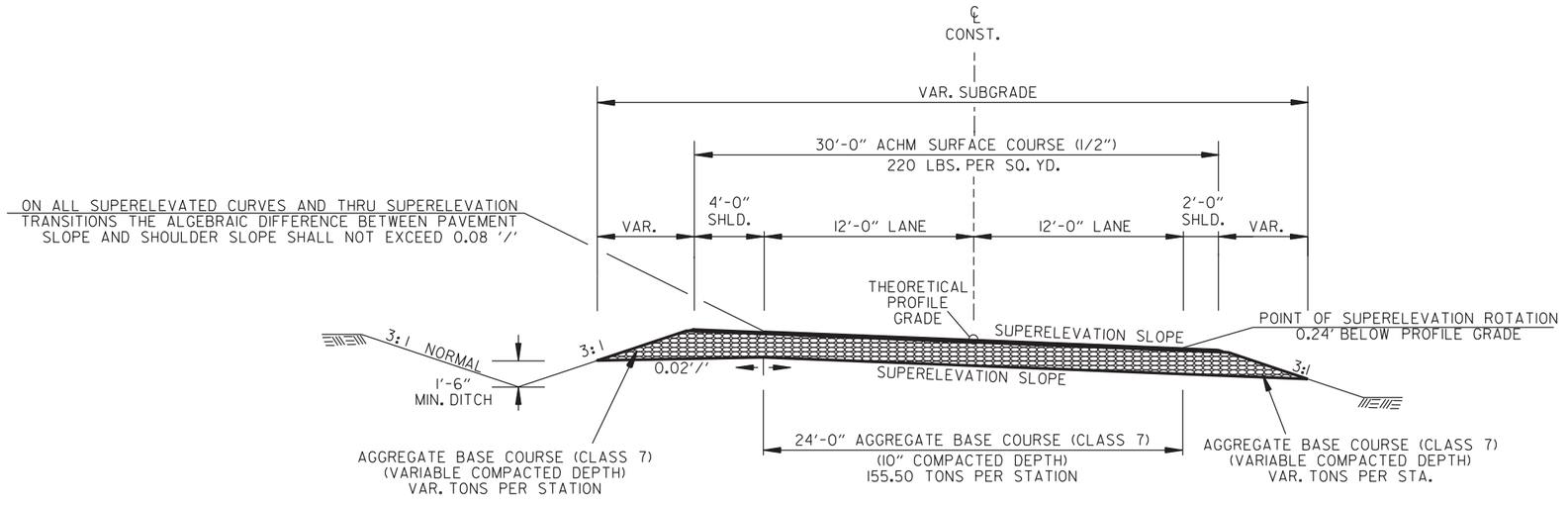
STA. 300+15.00 TO STA. 302+93.33

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.

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



HWY. 5 - SITE 1 - DETOUR SUPERELEVATION

STA. 302+93.33 TO STA. 309+50.41

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TYPICAL SECTIONS OF IMPROVEMENT

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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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Oct 20 2020 5:01 PM
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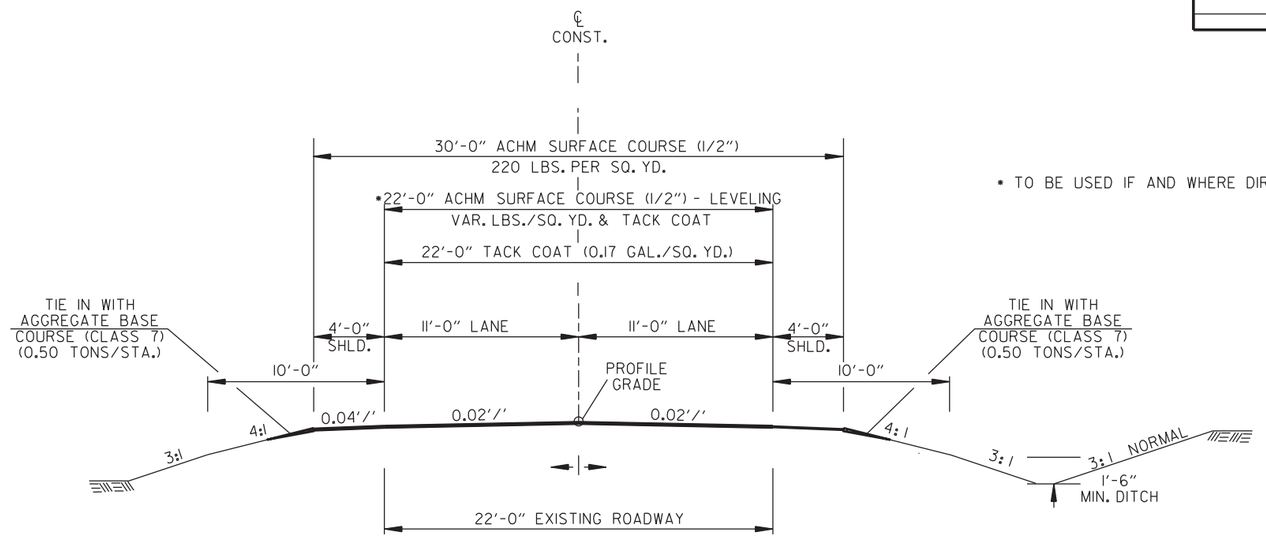

•• TRANSITION SHOULDER FROM 4' TO 6' FROM STA. 228+00 TO STA. 229+00

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITE 2 - OVERLAY

STA. 196+50.00 TO STA. 196+50.93
STA. 201+12.11 TO STA. 201+97.66
STA. 225+12.76 TO STA. 228+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.

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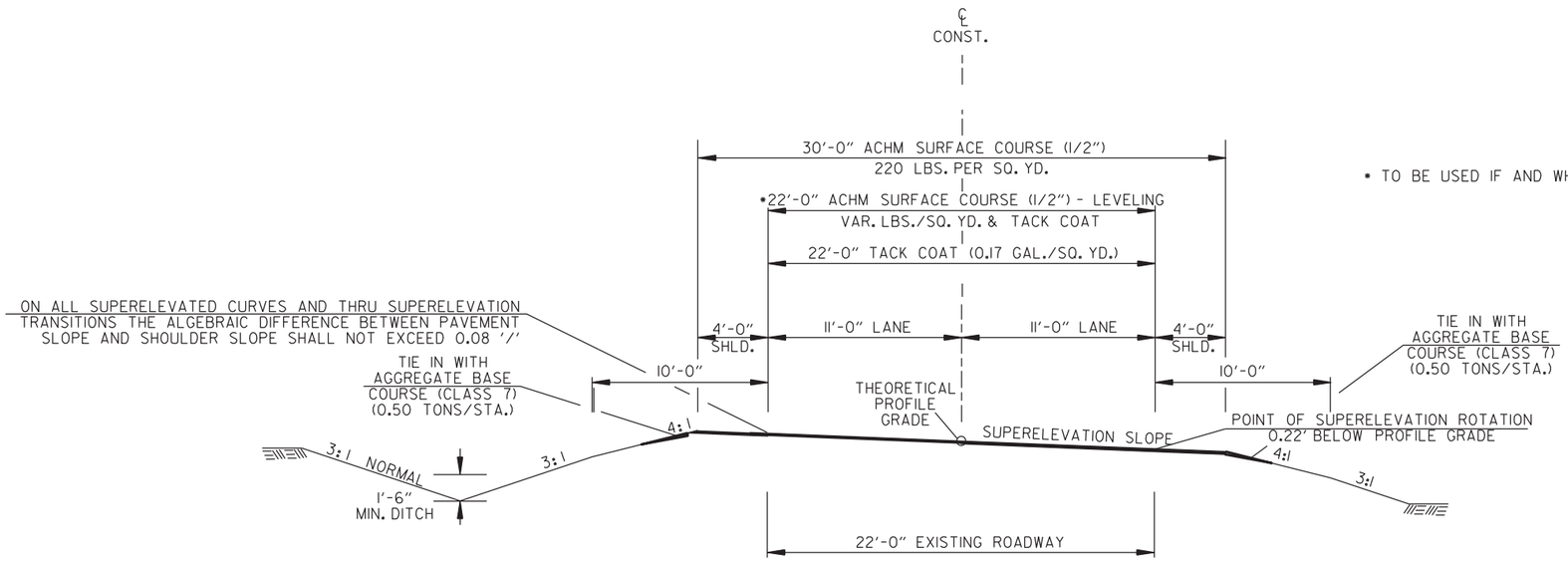

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITE 2 - OVERLAY SUPERELEVATION

STA. 196+50.93 TO STA. 201+12.11
STA. 201+97.66 TO STA. 203+20.00
STA. 209+00.00 TO STA. 215+70.00
STA. 219+20.00 TO STA. 225+12.76

TYPICAL SECTIONS OF IMPROVEMENT

lw39665 10/22/2019
R061442.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	8	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

Oct 20 2020 5:01 PM

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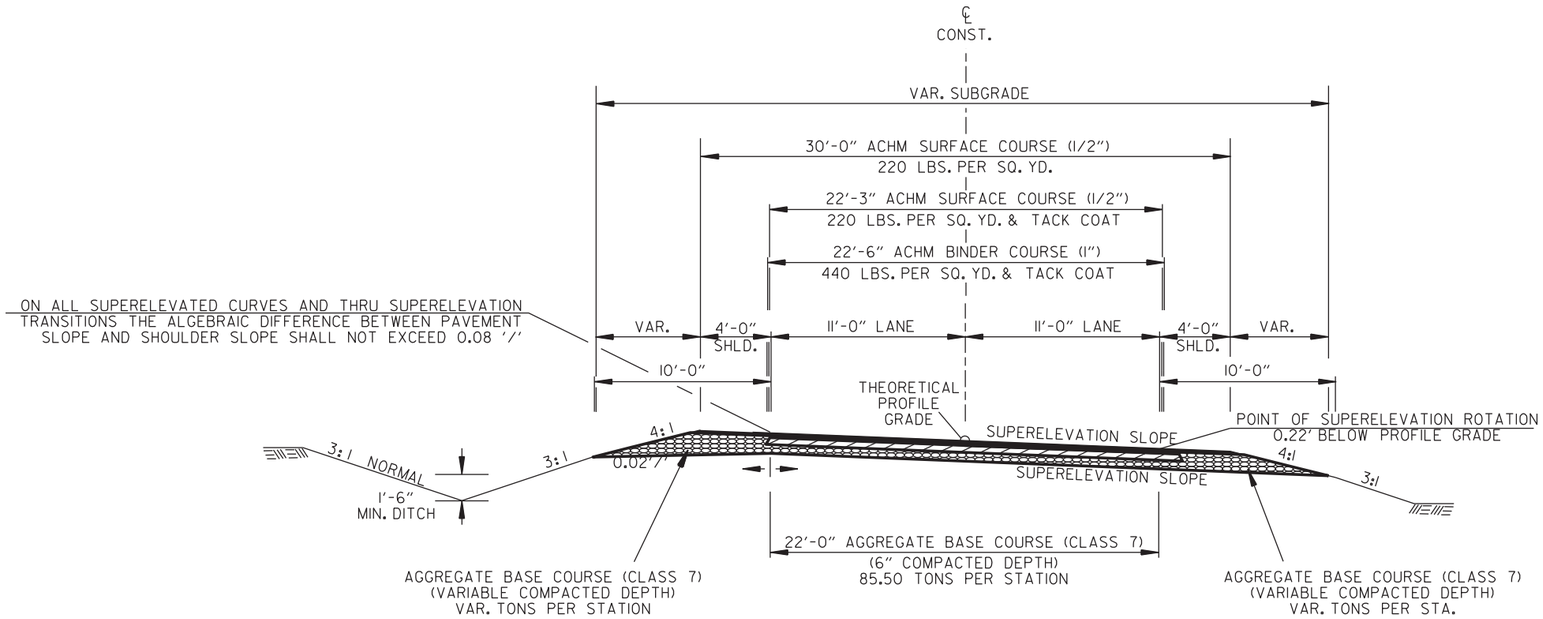
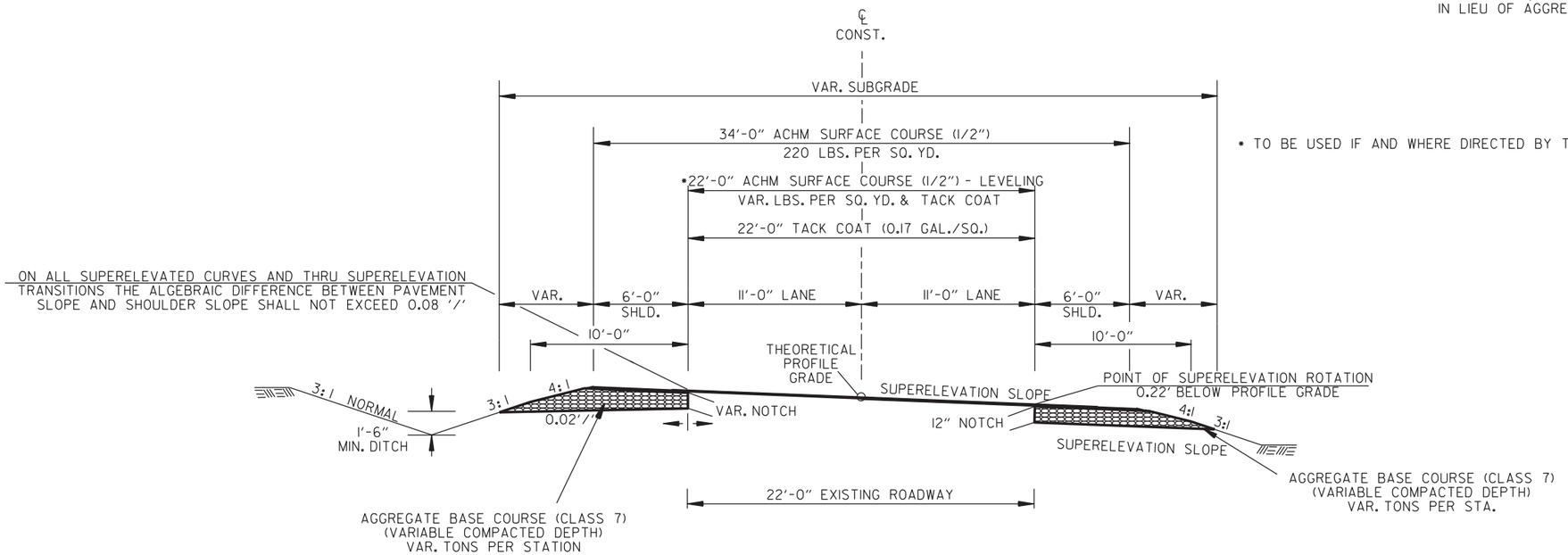


HWY. 5 - SITE 2 - FULL DEPTH SUPERELEVATION

STA. 203+20.00 TO STA. 209+00.00
STA. 215+70.00 TO STA. 219+20.00



HWY. 5 - SITE 2 - NOTCH & WIDEN SUPERELEVATION

STA. 229+00.00 TO STA. 236+88.95
STA. 237+15.20 TO STA. 244+63.41
STA. 246+87.92 TO STA. 251+00.00
STA. 254+79.48 TO STA. 260+05.70

NOTES:

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• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

lw39665 10/22/2019
R061442.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	9	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

Oct 20 2020 5:01 PM

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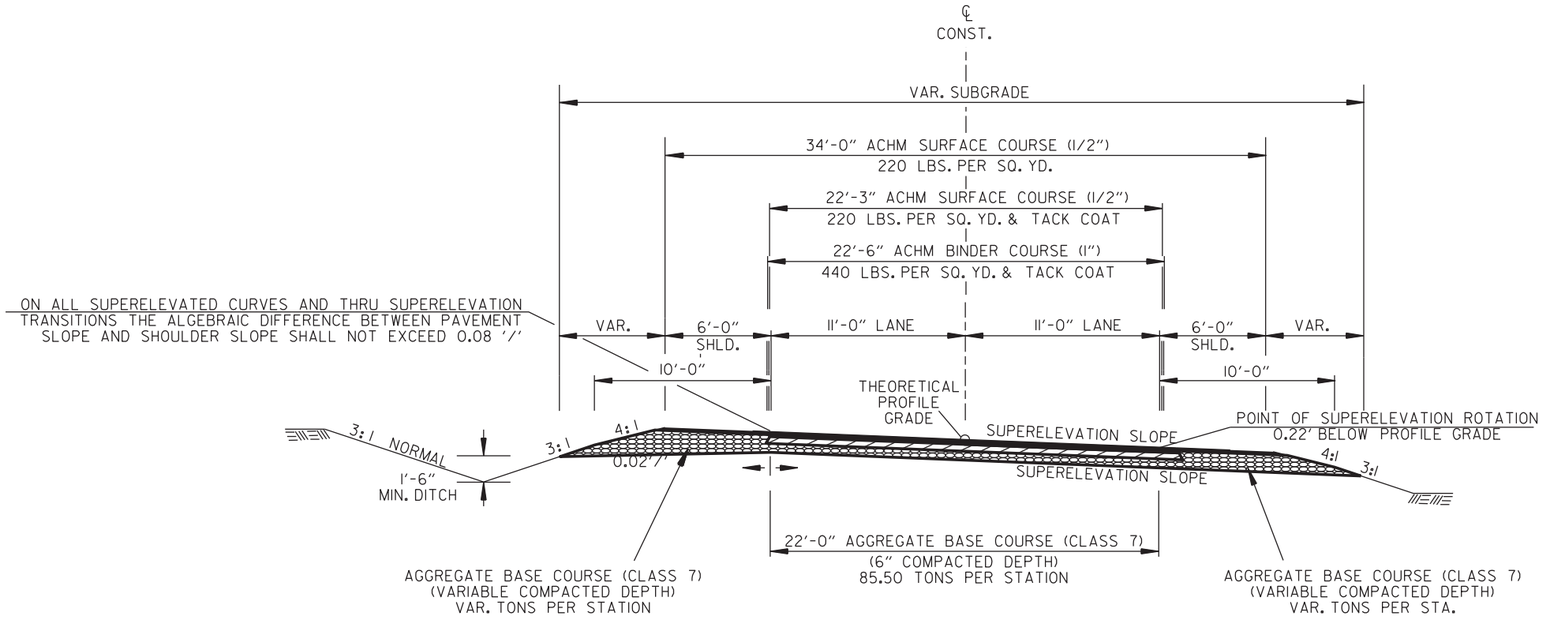

HWY. 5 - SITE 2 - FULL DEPTH SUPERELEVATION

STA. 251+00.00 TO STA. 254+79.48

NOTES:

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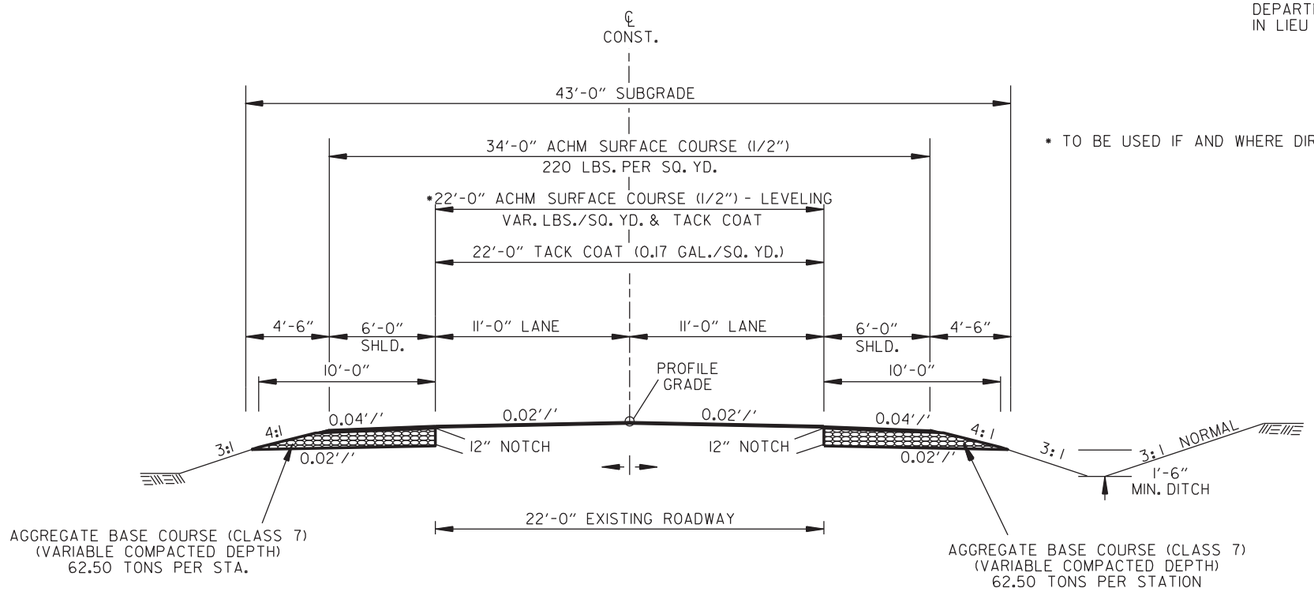

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITE 2 - NOTCH & WIDEN

STA. 236+88.95 TO STA. 237+15.20
STA. 244+63.41 TO STA. 246+87.92
STA. 260+05.70 TO STA. 260+10.00

TYPICAL SECTIONS OF IMPROVEMENT

tw39665 10/22/2019
R061442.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	10	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Oct 20 2020 5:01 PM
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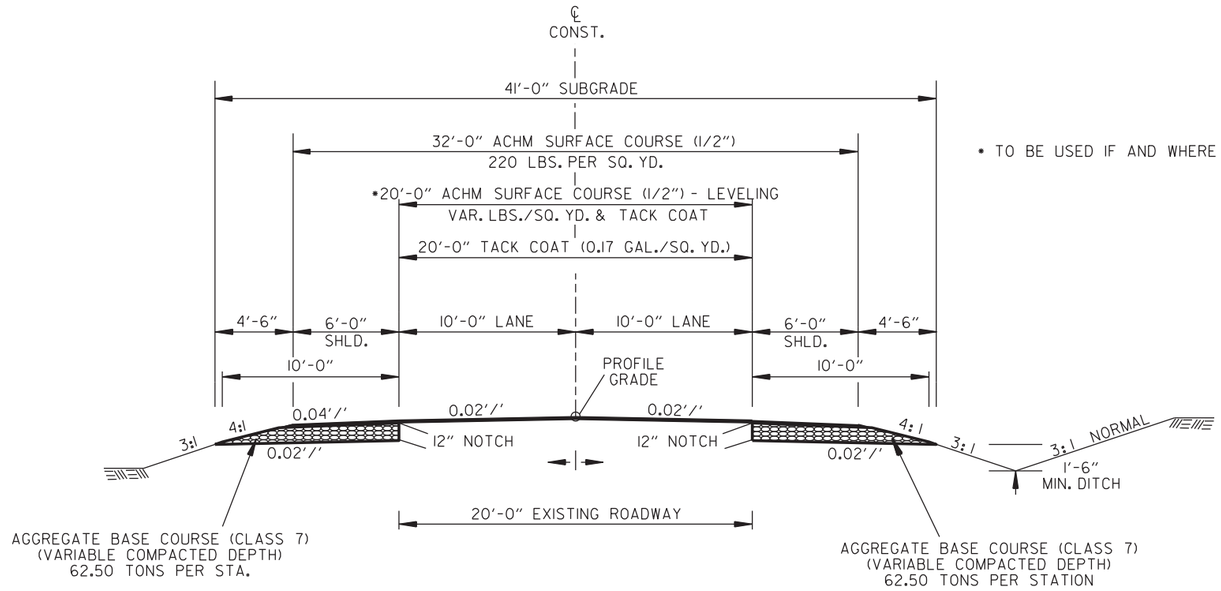

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITES 3 & 4 - OVERLAY

STA. 669+00.00 TO STA. 669+76.13
STA. 680+51.64 TO STA. 680+75.00
STA. 708+75.00 TO STA. 708+77.71

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.

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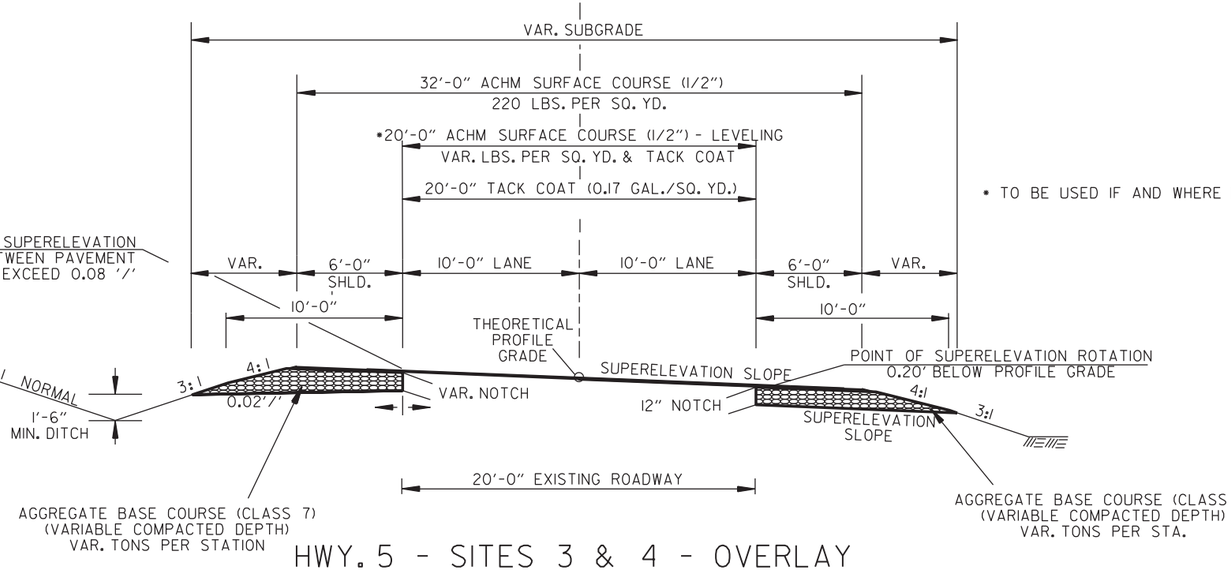

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 5 - SITES 3 & 4 - OVERLAY
SUPERELEVATION

STA. 669+76.13 TO STA. 672+50.00
STA. 676+10.00 TO STA. 680+51.64
STA. 708+77.71 TO STA. 713+32.00
STA. 719+49.00 TO STA. 722+80.00

TYPICAL SECTIONS OF IMPROVEMENT

tw39665 10/22/2019
R061442.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	11	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

Oct 20 2020 5:02 PM

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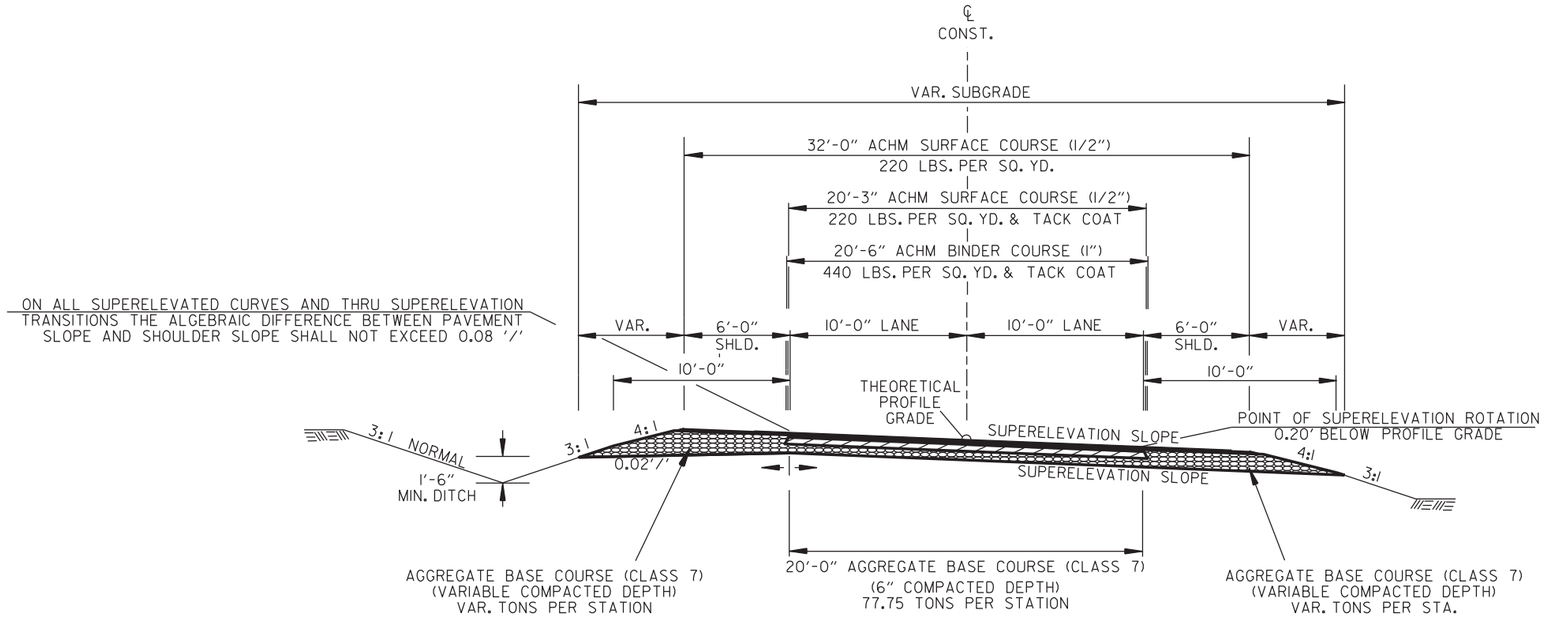
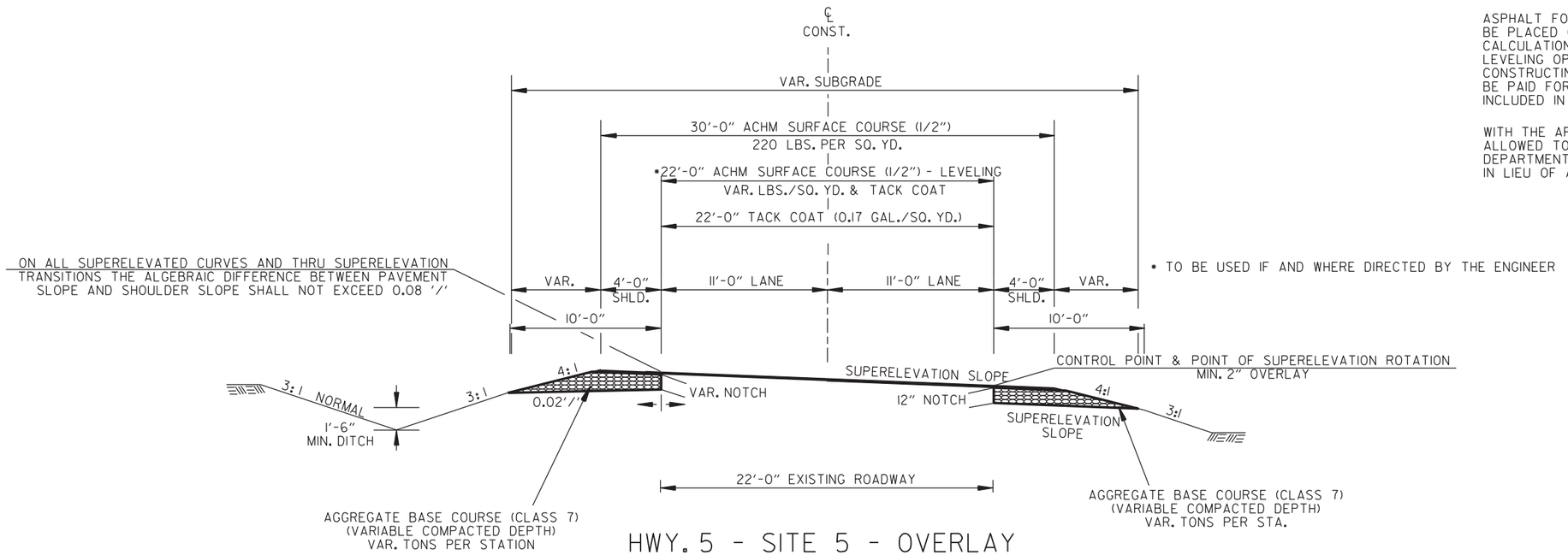


HWY. 5 - SITES 3 & 4 - FULL DEPTH SUPERELEVATION

STA. 672+50.00 TO STA. 676+10.00
STA. 713+32.00 TO STA. 719+49.00



HWY. 5 - SITE 5 - OVERLAY SUPERELEVATION

STA. 966+50.00 TO STA. 985+38.02

NOTES:

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lw39665 10/22/2019
R061442.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	12	253

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

Oct 20 2020 5:02 PM

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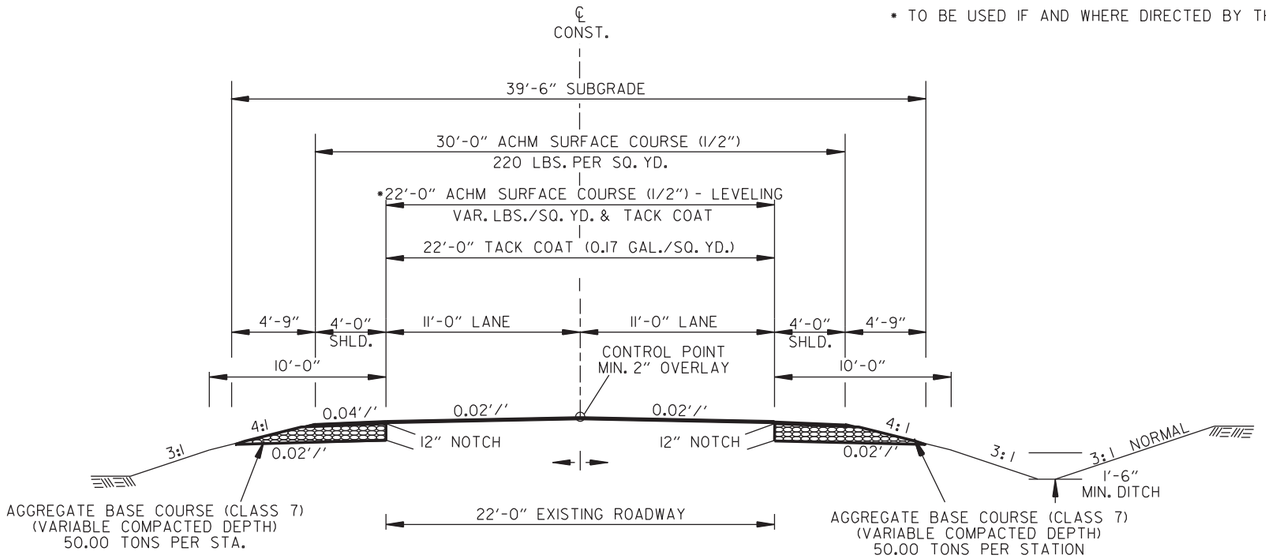

HWY. 5 - SITE 5 - OVERLAY

STA. 985+38.02 TO STA. 986+00.00

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

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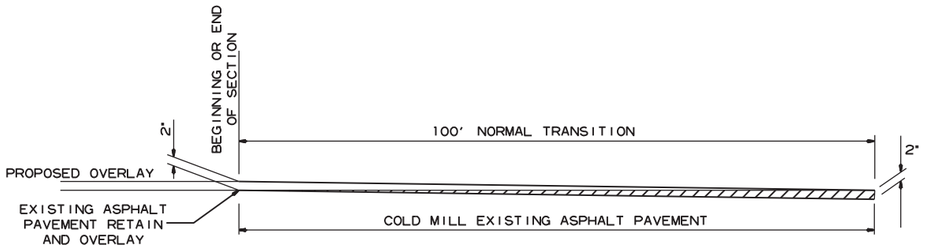
tw39665 10/22/2019
R061442.DGN

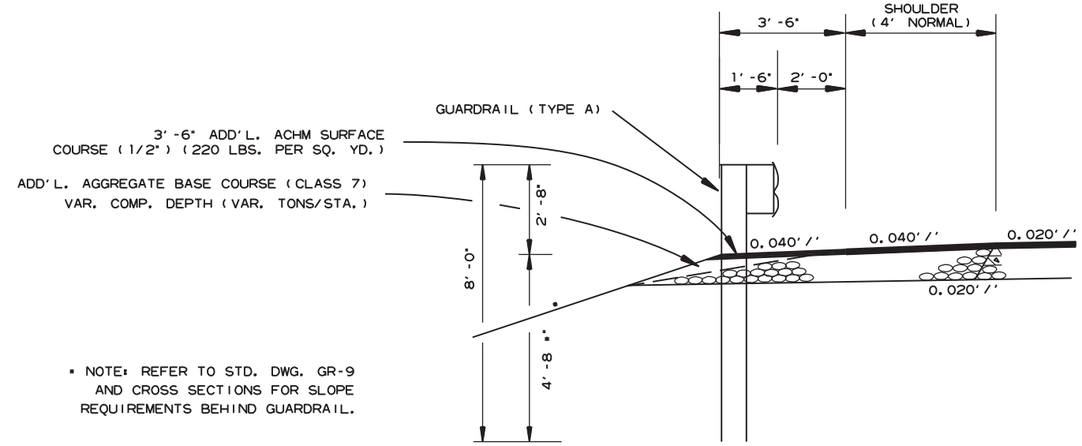
TYPICAL SECTIONS OF IMPROVEMENT

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.		061442	13	253

(2) SPECIAL DETAILS



DETAIL FOR TRANSITIONS



▪ NOTE: REFER TO STD. DWG. GR-9 AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

NOTE: REFER TO STANDARD DRAWINGS GR-8, GR-9, & GR-10 FOR ADDITIONAL INFORMATION.

WIDENING FOR GUARDRAIL

HWY. 5 - SITE 2 LT.
STATIONS: 209+90.00 - 212+60.00

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 10:38 AM
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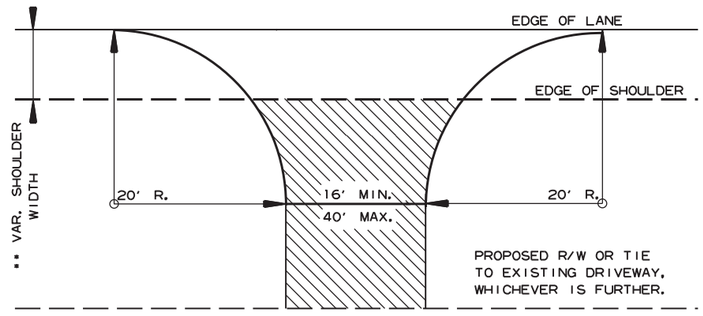
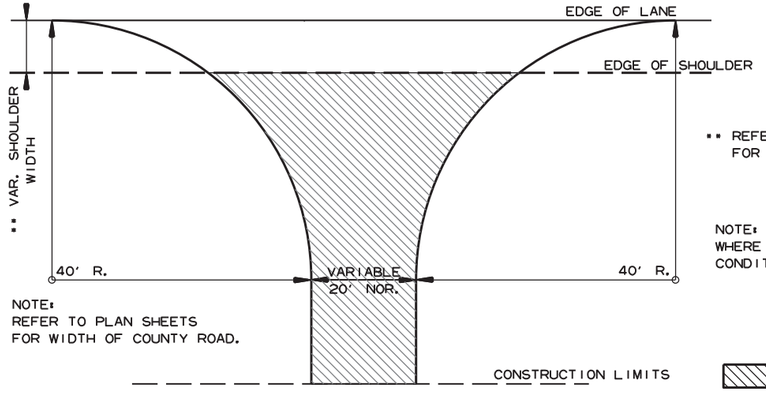


▪▪ REFER TO TYPCIAL SECTION OF IMPROVEMENTS FOR SHOULDER WIDTHS.

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

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

DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)



▪▪ REFER TO TYPICAL SECTION OF IMPROVEMENTS FOR SHOULDER WIDTHS.

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

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

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

DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

10/22/2019

R061442.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.		061442	14	253

(2) SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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Aug 24 2020 10:38 AM

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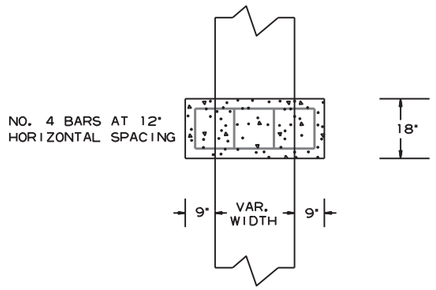
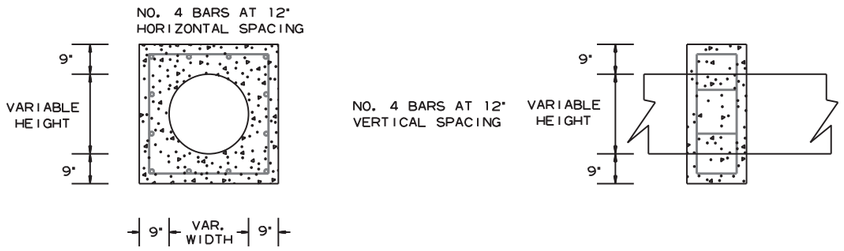


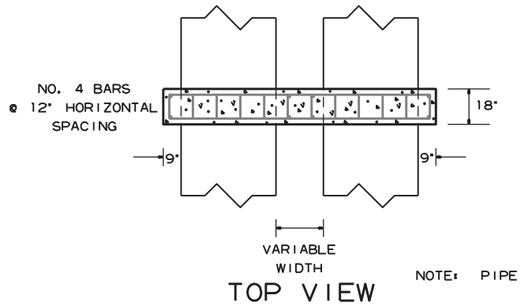
TOP VIEW

MIN 3" COVER



FRONT VIEW SIDE VIEW

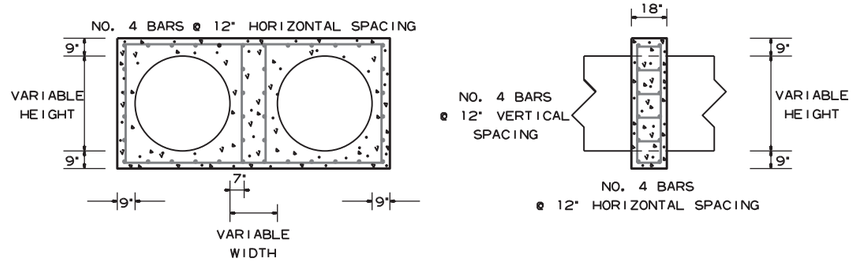
PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



TOP VIEW

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

MIN. 3" COVER



FRONT VIEW SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

10/22/2019

R061442.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.		061442	15	253

(2) SPECIAL DETAILS

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

Aug 24 2020 10:39 AM

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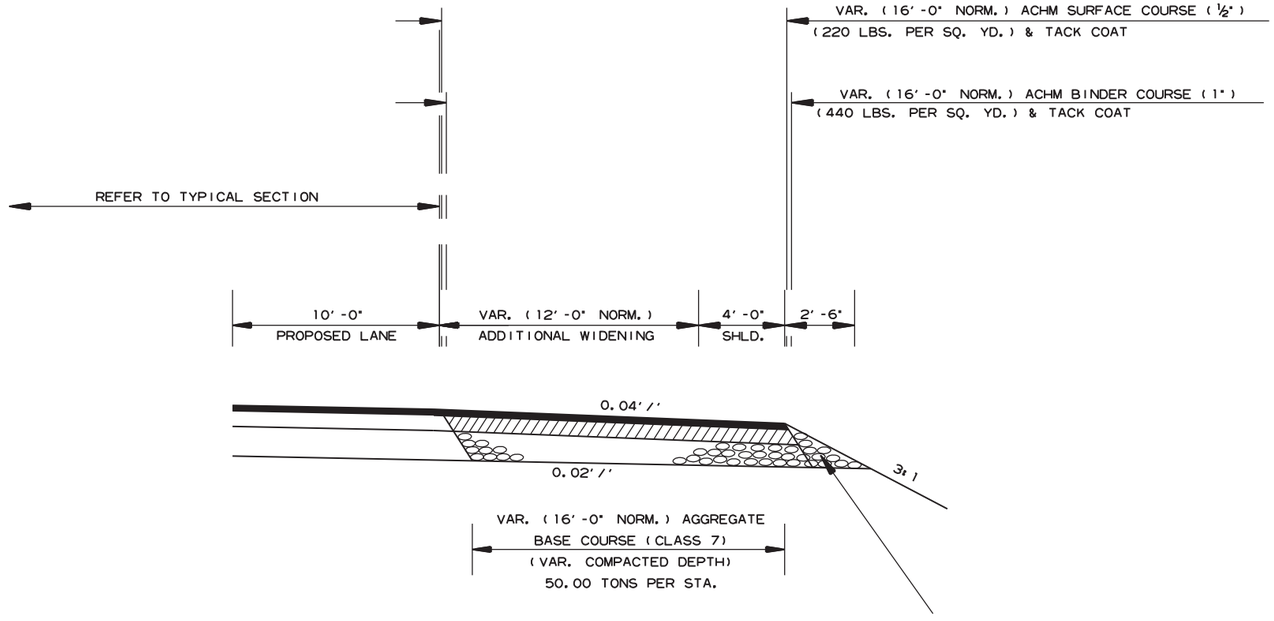
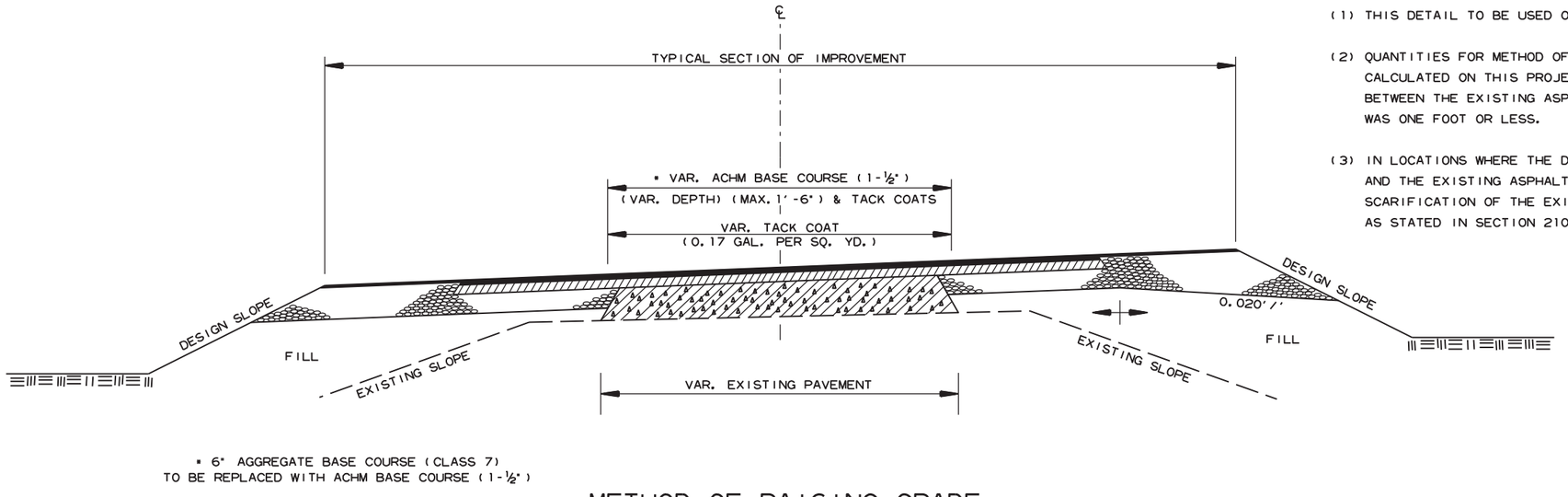


ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC

HWY. 5 - SITE 4 RT.
STATIONS: 718+90.00 - 719+35.00



▪ 6" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BASE COURSE (1-½")

METHOD OF RAISING GRADE

NOTES:

(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.

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

10/22/2019

R061442.DGN

SPECIAL DETAILS

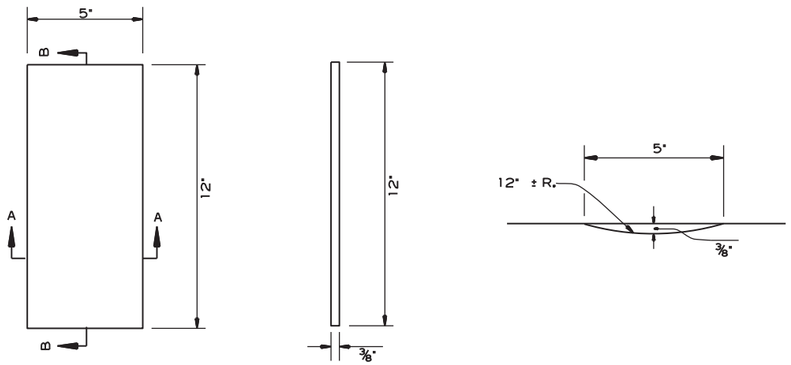
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	16	253

(2) SPECIAL DETAILS

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

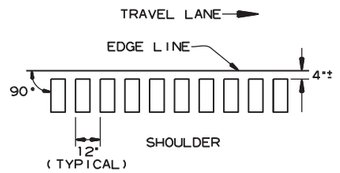
Aug 24 2020 10:39 AM

DocuSign

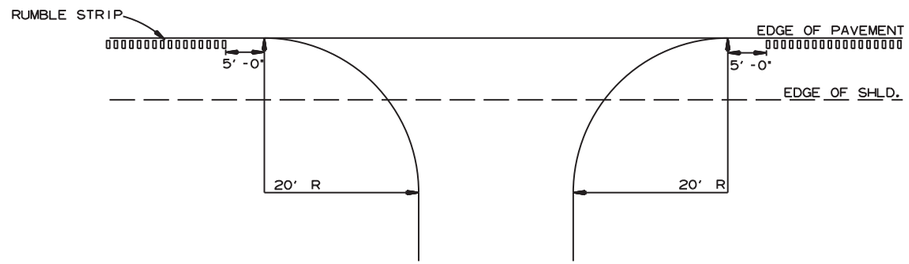


PLAN SECTION B-B SECTION A-A

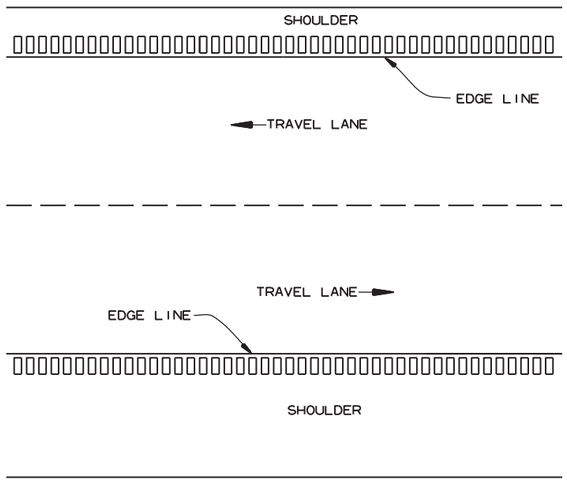
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



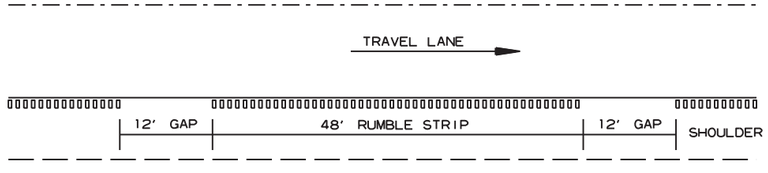
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

10/22/2019

R061442.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.		061442	17	253

(2) SPECIAL DETAILS

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

Aug 24 2020 10:39 AM

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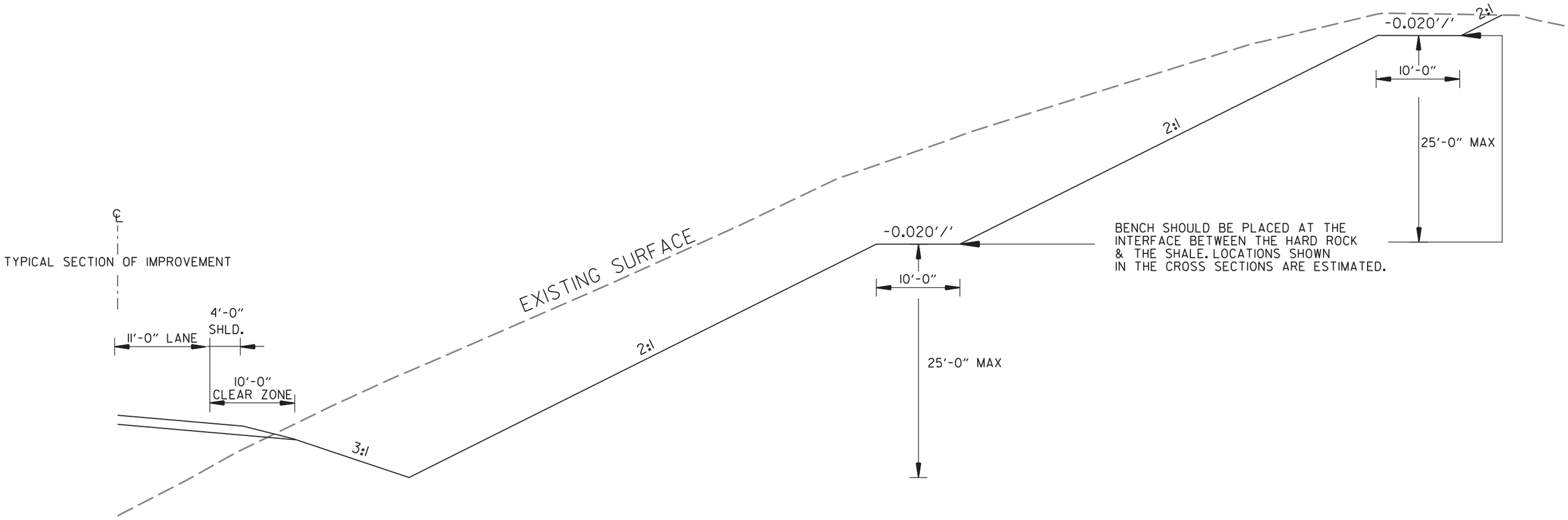


DETAIL FOR BENCH CUT - HWY. 5 - SITE 2

STA. 202+90.00 - STA. 207+25.00
STA. 216+00.00 - STA. 220+00.00

10/22/2019

R061442.DGN

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) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
38'-11"	8'-0"	0'-9"	0'-8"	30	3:1	43'-1 1/4"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/2"	4'-9 7/8"	1'-2 1/2"	2'-7"	18'-6"	37'-0"	21'-6 3/8"	40'-0 3/8"	18.03	1719

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	19	L Min 3'-8" Max 10'-5" X Min 0'-9" Max 1'-6" Y Min 3'-0" Max 9'-0"	4	12	6	L 4'-8" X 1'-3" Y 3'-6"	-	-	-	L - X - Y -	4	18	6	Min 6'-4" Max 15'-4"	4	18	4	18'-2"	4	18	13	L Min 5'-3" Max 11'-3" X Min 2'-4" Max 2'-4" Y Min 3'-0" Max 9'-0"	4	8	22'-4"	6	18	12	Min 2'-8" Max 3'-4"	-	-	-	Min - Max -	4	2	19'-0"	4	2	19'-4"	6	12	8	L 3'-4" X 1'-8"	569
WING B	4	12	37	L Min 3'-8" Max 11'-4" X Min 0'-9" Max 2'-4" Y Min 3'-0" Max 9'-1"	4	12	12	L 5'-3" X 1'-10" Y 3'-6"	-	-	-	L - X - Y -	4	18	8	Min 3'-10" Max 30'-10"	4	18	4	36'-8"	4	18	25	L Min 5'-3" Max 11'-4" X Min 2'-4" Max 2'-4" Y Min 3'-0" Max 9'-1"	4	8	40'-10"	6	18	26	Min 2'-8" Max 4'-3"	4	18	2	Min 37'-9" Max 37'-9"	4	2	37'-0"	4	2	41'-9"	6	12	8	L 3'-4" X 1'-8"	1150

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 CHARLES R. ELLIS 9-24-19

TABULAR DATA BY: KAP DATE: 09/04/2019
CHECKED BY: BHS DATE: 9/24/19

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
30	3:1	5	12	8	13'-3"	11.5	3	11.5	9.5	8	38'-11"	9'-11"

Steel	Mark	SIZE	SPACING	LENGTHS / LENGTH	NO. REQ'D
TOP SLAB REINFORCING STEEL	"a"	5	4.5	LENGTHS VARY: Max 38'-7", Min 3'-4"	55
				38'-7"	6
TOP SLAB REINFORCING STEEL	"c"	7	7	LENGTHS VARY: Max 38'-7", Min 3'-4"	35
				38'-7"	4
BOTTOM SLAB REINFORCING STEEL	"d"	4	4	LENGTHS VARY: Max 38'-7", Min 3'-4"	62
				38'-7"	6
BOTTOM SLAB REINFORCING STEEL	"f"	5	8	LENGTHS VARY: Max 38'-7", Min 3'-4"	31
				38'-7"	3
SIDE WALL REINFORCING STEEL	"f0"	5	7	9'-7"	46
INTERIOR WALL REINFORCING STEEL	"f1"	4	12	9'-7"	56
TOP SLAB DISTRIBUTION REINFORCING STEEL	"g"	4	9	LENGTHS VARY: Max 24'-4", Min 1'-10"	101
BOTTOM SLAB DISTRIBUTION REINFORCING STEEL	"e"	4	9	LENGTHS VARY: Max 24'-4", Min 1'-10"	101
SIDE WALL DISTRIBUTION REINFORCING STEEL	"d1"	4	11	LONG 23'-11"	9
				SHORT 2'-2"	9
INTERIOR WALL DISTRIBUTION REINFORCING STEEL	"d2"	4	12	LONG 16'-9"	16
				SHORT 9'-5"	16

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
48.90	8714

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
5	44'-7"	6	5	44'-7"	6	4	1'-10"	0'-10"	46

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB (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 REINFORCING STEEL "g" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" (LENGTH = SL) SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" (LENGTH = SL) SIZE	SPACING	NO. REQ'D

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

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
A	5	12	8	11.5	11.5	9.5	8	38'-11"	9'-11"	43.5

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
4	38'-7"	8	39'-3"	6	38'-7"	14	37	4	38'-7"	4	39'-2"	4	38'-7"	9	58

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	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
5	7	148	9'-7"	4	12	172	9'-7"	4	9	101	4	9	101	4	11	18	4	12	32	157.77	21758

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 122+55
SPECIAL DETAILS

Ver. LJ15 b061442_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.		061442	19	253

(1) SPECIAL DETAILS

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT 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
38'-11"	8'-0"	0'-9"	0'-8"	30	3:1	43'-1 1/4"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/2"	4'-9 7/8"	1'-2 1/2"	2'-7"	18'-6"	37'-0"	21'-6 3/8"	40'-0 3/8"

CLASS "S" CONCRETE (Includes apron) OUTLET	REINFORCING STEEL (Includes apron and laps if required) OUTLET
CU.YD	LBS.
19.70	1719

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	19	L Min 3'-8" Max 10'-5" X Min 0'-9" Max 1'-6" Y Min 3'-0" Max 9'-0"	4	12	6	L 4'-8" X 1'-3" Y 3'-6"	-	-	-	L - X - Y -	4	18	6	Min 6'-4" Max 15'-4"	4	18	4	18'-2"
WING B	4	12	37	L Min 3'-8" Max 11'-4" X Min 0'-9" Max 2'-4" Y Min 3'-0" Max 9'-1"	4	12	12	L 5'-3" X 1'-10" Y 3'-6"	-	-	-	L - X - Y -	4	18	8	Min 3'-10" Max 30'-10"	4	18	4	36'-8"

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	13	L Min 5'-3" Max 11'-3" X Min 2'-4" Max 2'-4" Y Min 3'-0" Max 9'-0"	4	8	22'-4"	6	18	12	Min 2'-8" Max 3'-4"	-	-	-	Min - Max -	4	2	19'-0"	4	2	19'-4"	6	12	8	L 3'-4" X 1'-8"	569
WING B	4	18	25	L Min 5'-3" Max 11'-4" X Min 2'-4" Max 2'-4" Y Min 3'-0" Max 9'-1"	4	8	40'-10"	6	18	26	Min 2'-8" Max 4'-3"	4	18	2	Min 37'-9" Max 37'-9"	4	2	37'-0"	4	2	41'-9"	6	12	8	L 3'-4" X 1'-8"	1150

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)."

TABULAR DATA BY: KAP DATE: 09/04/2019
CHECKED BY: BHS DATE: 9/24/19

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 9235 CHARLES R. ELLIS 9-24-19

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
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
30	3:1	5	12	8	13'-3"	11.5	3	11.5	9.5	8	38'-11"	9'-11"

Bars	SIZE	SPACING	LENGTHS	NO. REQ'D
TOP SLAB REINFORCING STEEL "a"	5	4.5	Max 38'-7" Min 3'-4" (vary) 38'-7"	55 6
TOP SLAB REINFORCING STEEL "c"	7	7	Max 38'-7" Min 3'-4" (vary) 38'-7"	35 4
BOTTOM SLAB REINFORCING STEEL "d"	4	4	Max 38'-7" Min 3'-4" (vary) 38'-7"	62 6
BOTTOM SLAB REINFORCING STEEL "f"	5	8	Max 38'-7" Min 3'-4" (vary) 38'-7"	31 3
SIDE WALL REINFORCING STEEL "f0"	5	7	9'-7"	46
INTERIOR WALL REINFORCING STEEL "f1"	4	12	9'-7"	56
TOP SLAB DISTRIBUTION REINFORCING STEEL "g"	4	9	Max 24'-4" Min 1'-10" (vary)	101
BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"	4	9	Max 24'-4" Min 1'-10" (vary)	101
SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"	4	11	LONG 23'-11" SHORT 2'-2"	9 9
INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"	4	12	LONG 16'-9" SHORT 9'-5"	16 16

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	(1) REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
48.90	8714

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
5	44'-7"	6	5	44'-7"	6	4	1'-10"	0'-10"	46

OUTLET SLOPE SECTION(S)

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

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

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

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

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

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2

DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
Sta. 122+55

SPECIAL DETAILS

Ver. 1.115 b061442_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.		061442	20	253

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) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
32'-8"	8'-0"	0'-9"	0'-8"	30	3:1	36'-2 1/8"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/2"	4'-9 7/8"	1'-2 1/2"	2'-7"	18'-6"	37'-0"	21'-9 3/8"	40'-3 3/8"	17.66	1707

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	19	L Min 3'-8" / L Max 10'-5"	4	12	6	L 4'-8"	-	-	-	L -	4	18	6	Min 6'-4" / Max 15'-4"	4	18	4	18'-2"	4	18	13	L Min 5'-3" / L Max 11'-3"	4	8	22'-7"	6	18	12	Min 2'-8" / Max 3'-4"	-	-	-	Min - / Max -	4	2	19'-0"	4	2	19'-4"	6	12	8	L 3'-4" / X 1'-8"	563
				X Min 0'-9" / X Max 1'-6"				X 1'-3"				X -												X Min 2'-4" / X Max 2'-4"																							
				Y Min 3'-0" / Y Max 9'-0"				Y 3'-6"				Y -												Y Min 3'-0" / Y Max 9'-0"																							
WING B	4	12	37	L Min 3'-8" / L Max 11'-4"	4	12	12	L 5'-3"	-	-	-	L -	4	18	8	Min 3'-10" / Max 30'-10"	4	18	4	36'-8"	4	18	25	L Min 5'-3" / L Max 11'-4"	4	8	41'-1"	6	18	26	Min 2'-8" / Max 4'-3"	4	18	2	Min 37'-9" / Max 37'-9"	4	2	37'-0"	4	2	41'-9"	6	12	8	L 3'-4" / X 1'-8"	1144
				X Min 0'-9" / X Max 2'-4"				X 1'-10"				X -												X Min 2'-4" / X Max 2'-4"																							
				Y Min 3'-0" / Y Max 9'-1"				Y 3'-6"				Y -												Y Min 3'-0" / Y Max 9'-1"																							

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

Mn. 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
9-24-19
CHARLES R. ELLIS

TABULAR DATA BY: KAP DATE: 09/04/2019
CHECKED BY: BHS DATE: 9/24/19

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

For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE) SK	SLOPE SL	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	SECTION LENGTH LL	TOP SLAB THK. T	HDWL DEPTH HD	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH
30	3:1	10	10	8	11'-5"	9.5	3	10.5	8	8	32'-8"	9'-8"

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
4	4	Max 32'-4" / Min 3'-2"	51	4	4	Max 32'-4" / Min 3'-2"	51
		32'-4"	6			32'-4"	6

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
5	4	Max 32'-4" / Min 3'-2"	51	5	7	Max 32'-4" / Min 3'-2"	29
		32'-4"	6			32'-4"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH
5	5	56	9'-4"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	50	9'-4"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	11	71	Max 20'-8" / Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
4	10	71	Max 20'-8" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	8	LONG 20'-5"
		8	SHORT 2'-1"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	16	LONG 14'-4"
		16	SHORT 8'-2"

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D
4	37'-5"	6

"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D
4	37'-5"	6

"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	1'-8"	0'-8"	39

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
32.84	5915

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

INLET SLOPE SECTION(S)

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

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

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

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

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

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

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

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

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

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

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
A	10	10	8	10.5	11.5	11	8	33'-2"	9'-10"	49

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
4	32'-10"	7	33'-5"	5	32'-10"	14	42

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
4	32'-10"	5	33'-5"	5	32'-10"	10	58

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
6	10	116	9'-6"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	196	9'-6"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	10	77

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	9	89

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	10	20

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	32

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
156.33	20893

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 719+05

SPECIAL DETAILS

Ver. 1.15 b061442_c2.dgn

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
9-24-19

TABULAR DATA BY: KAP DATE: 09/04/2019
CHECKED BY: BHS DATE: 9/24/19

OUTLET WINGWALL TABLE

OVER ALL WIDTH OW	CLEAR HEIGHT H	FOOTING THK. WB	WING WALL THK. CW	BOX SKEW (DEG.) SK	SLOPE SL	HDWL LENGTH K	HEEL HL	WALL HEIGHT AT HDWL WH1	WALL HEIGHT AT WING END WH2	WINGWALL ANGLE (DEGREE) WING A AF1	WINGWALL ANGLE (DEGREE) WING B AF2	FOOTING WIDTH AT WALL END WE	WIDTH OF WING FOOTINGS AT HDWL WING A WF1	WIDTH OF WING FOOTINGS AT HDWL WING B WF2	FOOTING DIMENSION PARALLEL WITH HDWL WING A G1	FOOTING DIMENSION PARALLEL WITH HDWL WING B G2	LENGTH OF WINGWALLS WING A W1	LENGTH OF WINGWALLS WING B W2	LENGTH OF FOOTING HEEL WING A W3	LENGTH OF FOOTING HEEL WING B W4
33'-2"	8'-0"	0'-9"	0'-8"	30	2:1	36'-2 1/8"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/4"	5'-7 1/4"	1'-2 1/4"	4'-1 3/4"	12'-0"	24'-6"	14'-9 3/8"	27'-3 3/8"

CLASS "S" CONCRETE (Includes apron) OUTLET CU.YD	REINFORCING STEEL (Includes apron and laps if required) OUTLET LBS.
13.78	1220

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	
WING A	4	12	12	L	Min	4'-0"	4	12	4	L	4'-8"	-	-	-	L	-
					Max	10'-4"										
				X	Min	0'-9"				X	1'-3"				X	-
					Max	1'-6"										
				Y	Min	3'-4"				Y	3'-6"				Y	-
					Max	8'-11"										
WING B	4	12	25	L	Min	3'-8"	4	12	12	L	6'-3"	-	-	-	L	-
					Max	11'-10"										
				X	Min	0'-9"				X	1'-10"				X	-
					Max	2'-11"										
				Y	Min	3'-0"				Y	4'-6"				Y	-
					Max	9'-0"										

WING	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		
WING A	4	18	6	Min	4	18	4	11'-8"	4	18	8	L	Min	5'-10"
				4'-1"									Max	11'-2"
				Max								X	Min	2'-4"
				9'-11"									Max	2'-4"
												Y	Min	3'-7"
													Max	8'-11"
WING B	4	18	8	Min	4	18	4	24'-2"	4	18	17	L	Min	5'-3"
				2'-6"									Max	11'-3"
				Max								X	Min	2'-4"
				20'-4"									Max	2'-4"
												Y	Min	3'-0"
													Max	9'-0"

WING	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	8	15'-7"	6	18	8	Min	-	-	-	Min	4	2	13'-1"	4	2	12'-10"	6	12	8	L	3'-4"	394
							2'-8"				-												
							Max				Max										X	1'-8"	
							3'-4"				-												
WING B	4	8	28'-1"	6	18	19	Min	4	18	2	Min	4	2	24'-9"	4	2	30'-9"	6	12	8	L	3'-4"	826
							2'-8"				19'-8"												
							Max				Max										X	1'-8"	
							5'-1"				19'-8"												

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) SK	SLOPE SL	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	SECTION LENGTH LL	TOP SLAB THK. T	HDWL DEPTH HD	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH
30	2:1	10	10	8	11'-7"	10.5	3	11.5	11	8	33'-2"	9'-10"

TOP SLAB "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
5	6	Max 32'-10" / Min 3'-5"	34	6	7	Max 32'-10" / Min 3'-5"	30	5	5	Max 32'-10" / Min 3'-5"	41	5	7	Max 32'-10" / Min 3'-5"	30
		32'-10"	4			32'-10"	4			32'-10"	5			32'-10"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY
6	10	29	9'-6"	4	12	50	9'-6"	4	10	77	Max 21'-0" / Min 1'-10"	4	9	77	Max 21'-0" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
4	10	10	LONG 20'-7"	4	12	16	LONG 14'-6"
		10	SHORT 2'-3"			16	SHORT 8'-4"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
37.69	6098

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D
4	38'-0"	6	4	38'-0"	6	4	1'-9"	0'-9"	40

OUTLET SLOPE SECTION(S)

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

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 REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

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

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

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

Unless otherwise noted, all dimensions are in inches.

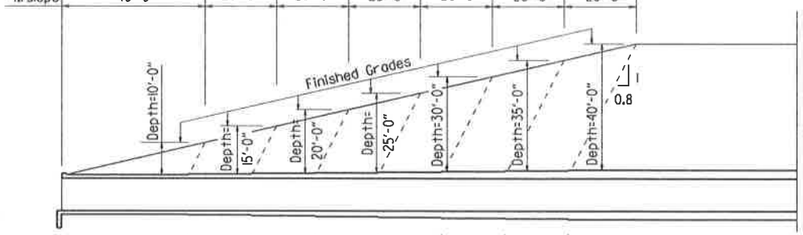
SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 719+05

SPECIAL DETAILS

LRFD

Ver. 1.115 b061442_c2.dgn

2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"



Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

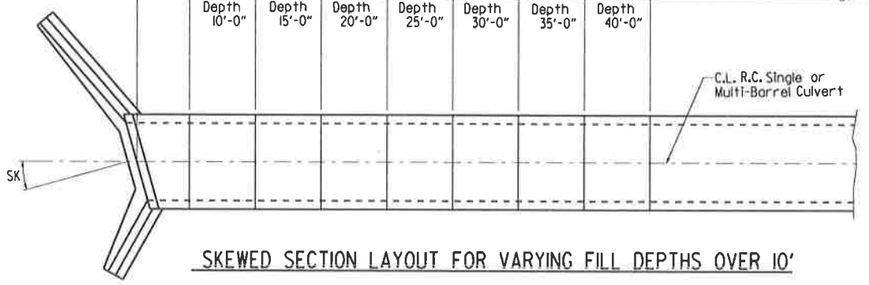
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

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.

Section Length	*LL		C	D	E	F	G	Mid-Section Length - Varies
Section Length	*LL	B	C	D	E	F	G	Mid-Section Length - Varies
Section Length	*LL	A	B	C	D	E	F	G	Mid-Section Length - Varies
		Depth 10'-0"	Depth 15'-0"	Depth 20'-0"	Depth 25'-0"	Depth 30'-0"	Depth 35'-0"	Depth 40'-0"	

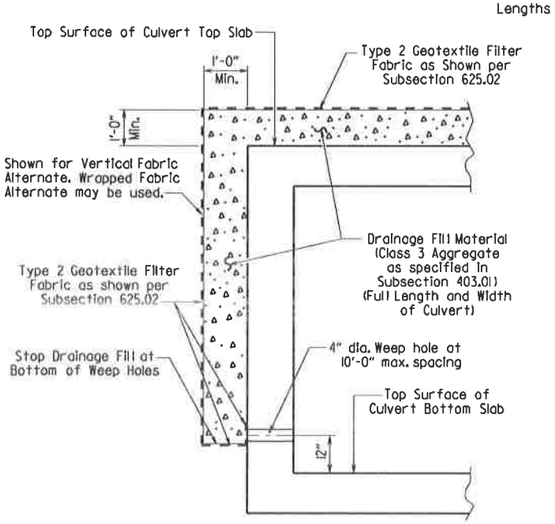


SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

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.		061442	22	253

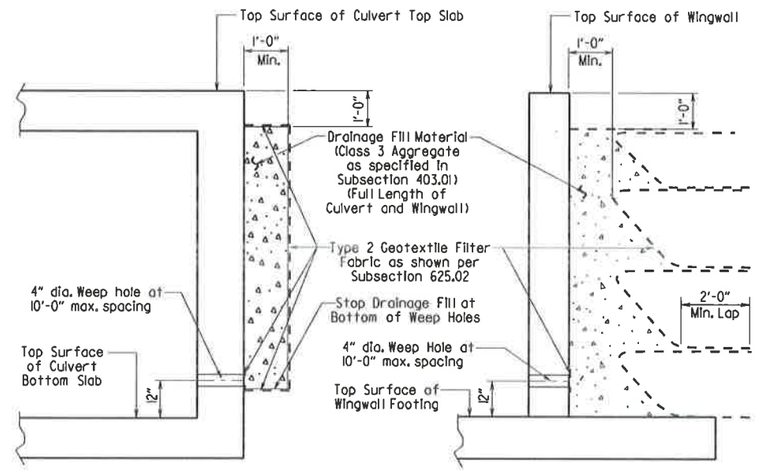
SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-24-19
CHARLES R. ELLIS



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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

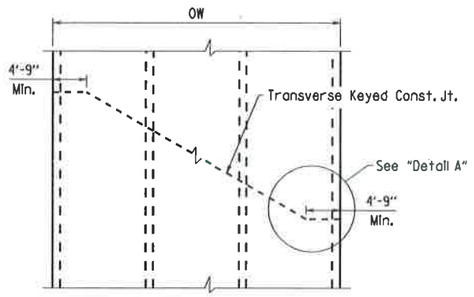


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

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

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

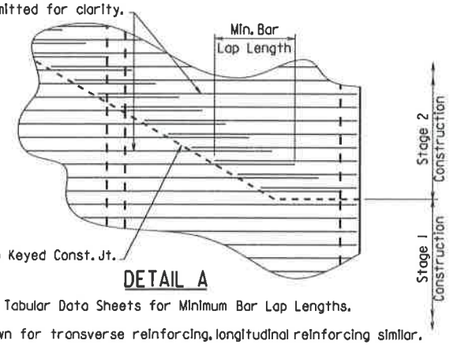
WINGWALL & CULVERT DRAINAGE DETAIL



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.

Slab bars "a", "b", "c", "d", "bl", or "f". Slab distribution and Wall reinforcing omitted for clarity.



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

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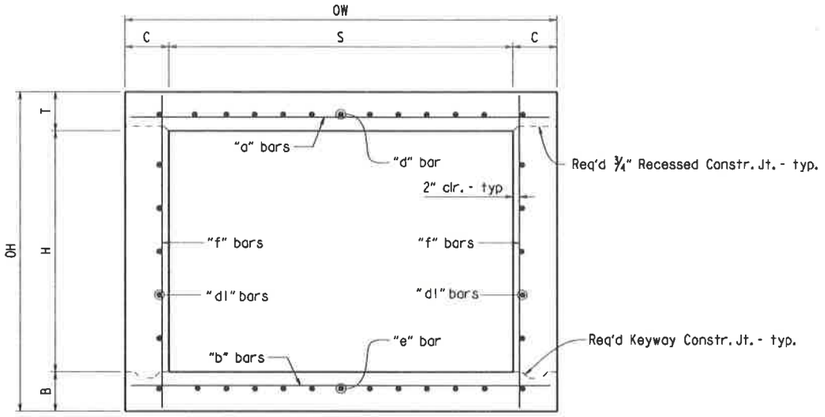
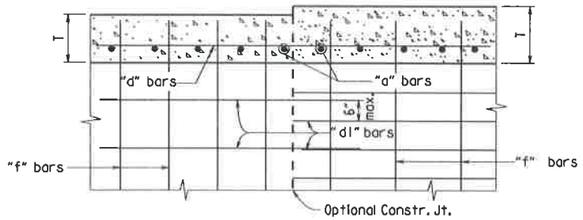
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				8	ARK.			
				JOB NO.		061442	23	253

SPECIAL DETAILS

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



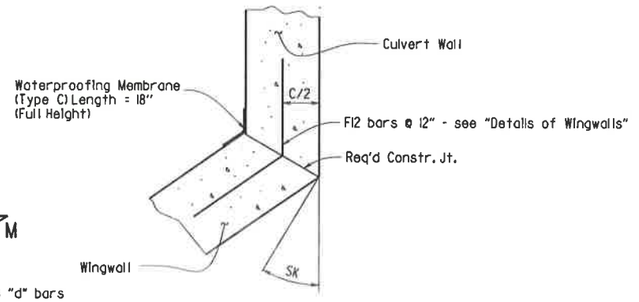
TYPICAL SECTION M-M



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

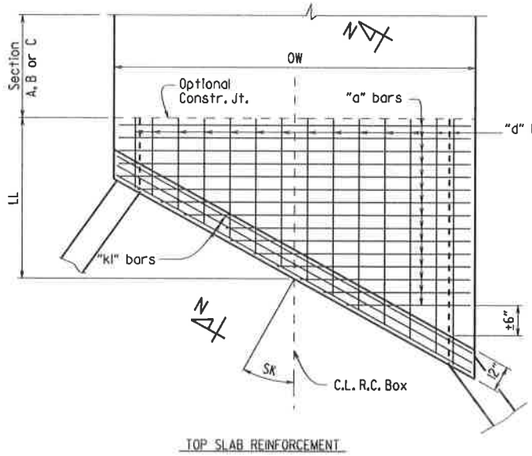
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

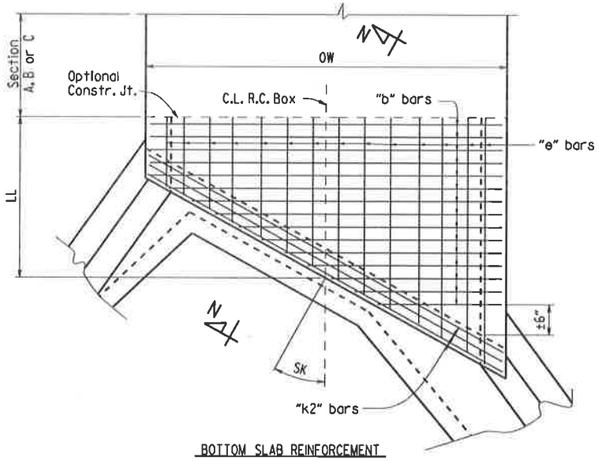


WINGWALL ATTACHMENT

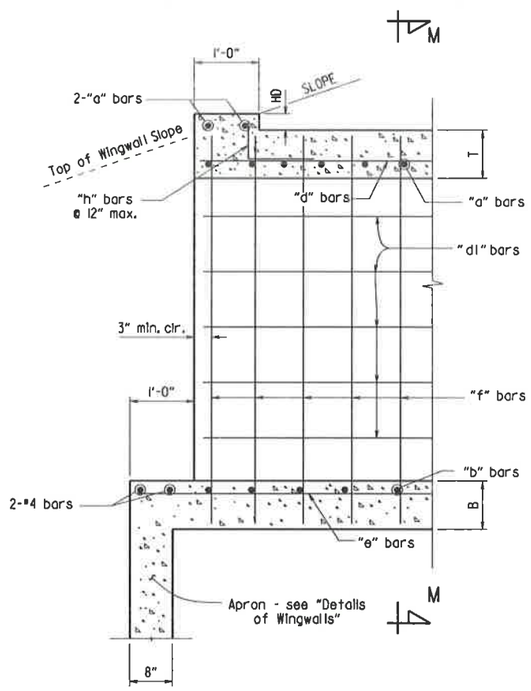
See "Details of Wingwalls" for additional information and wingwall details.



TOP SLAB REINFORCEMENT

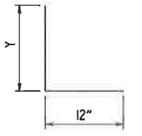


BOTTOM SLAB REINFORCEMENT

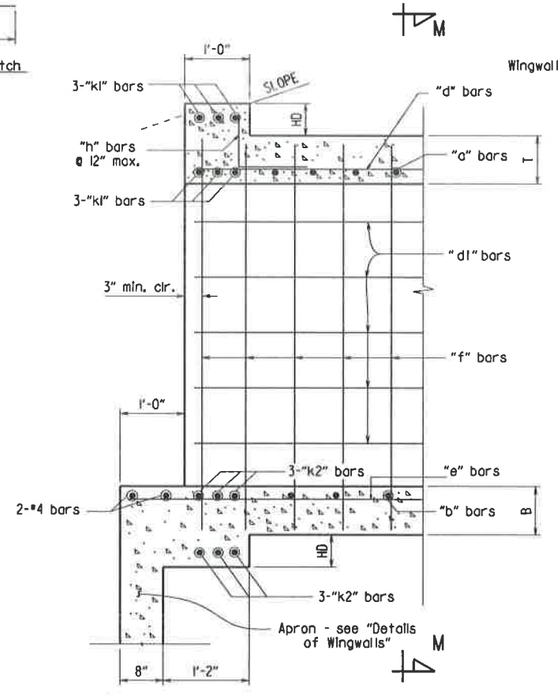


PART LONGITUDINAL SECTION

(Non-Skewed Ends)

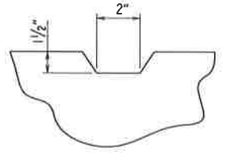


"h" bars sketch



PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)

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
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-24-19
CHARLES R. ELLIS

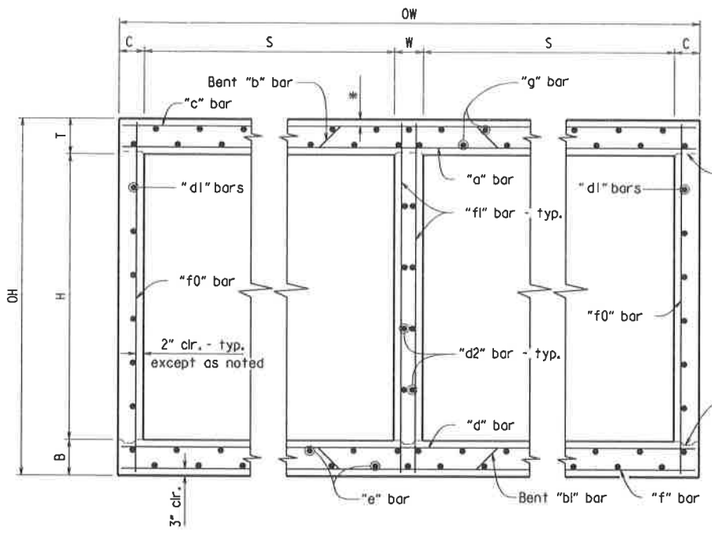
v 1.15 b061442_culvert.dgn

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	24	253

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.

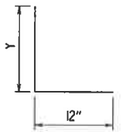
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



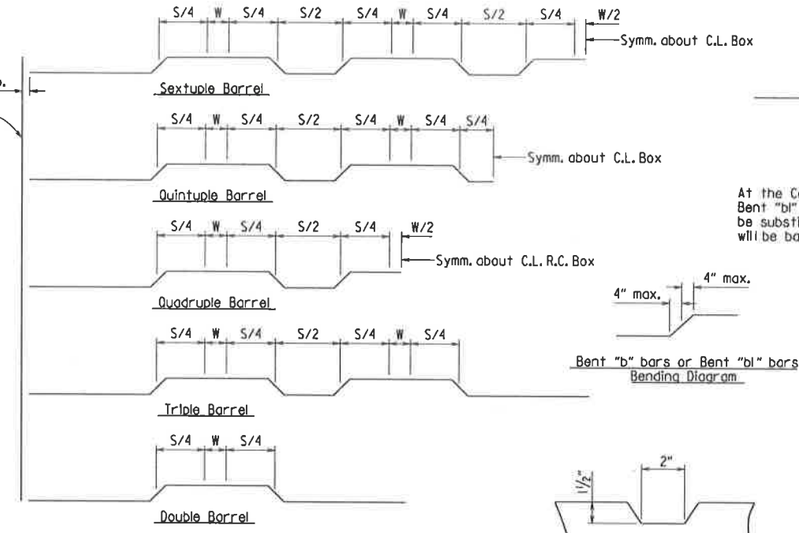
TYPICAL SECTION M-M

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

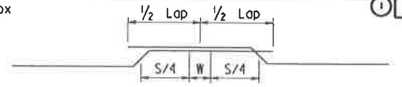
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



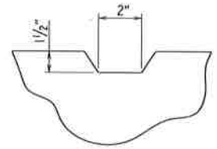
Bent "b" bars or Bent "bl" bars sketch



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

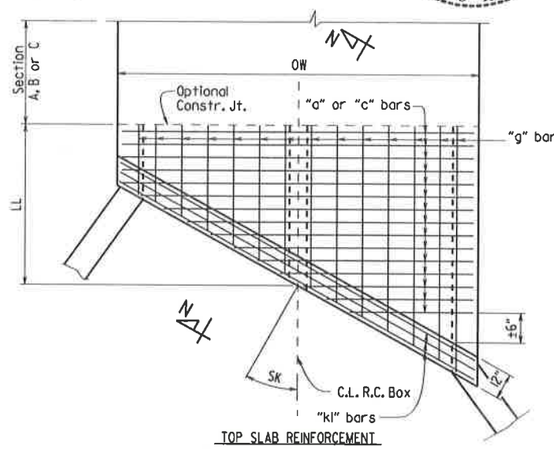
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

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

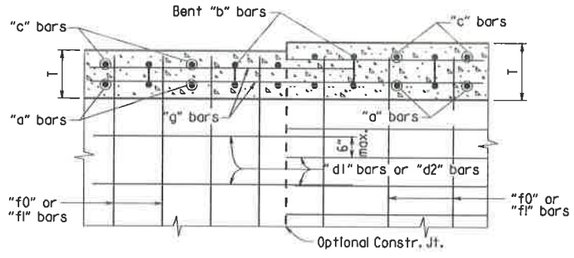


TYPICAL KEYWAY DETAIL

(All Construction Joints)



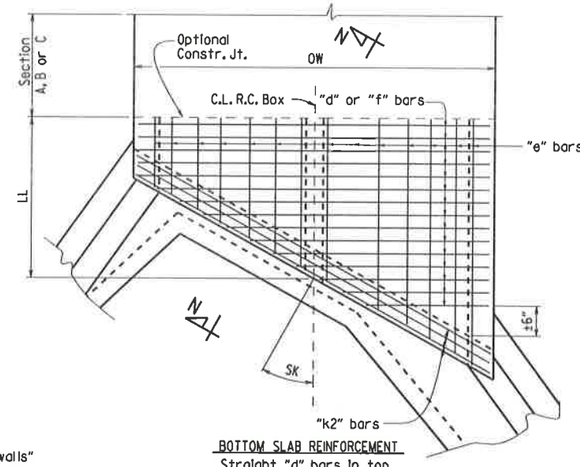
TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



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

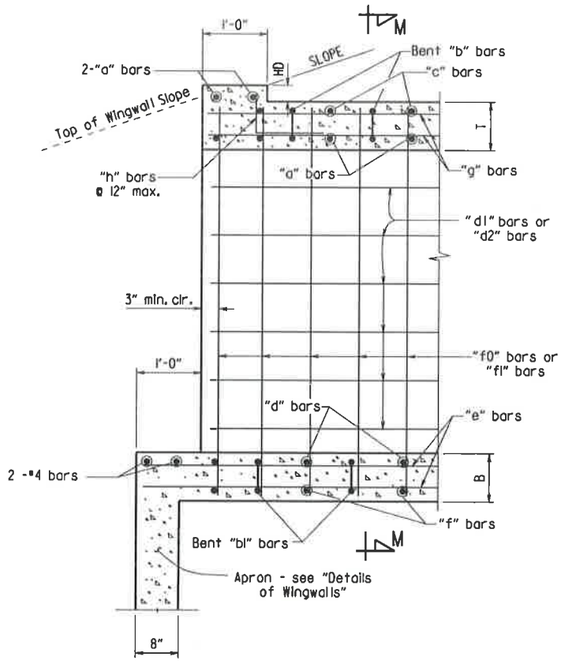
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



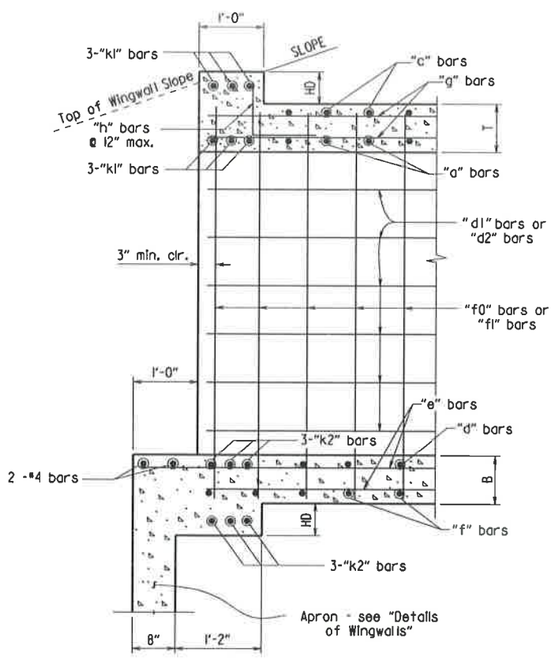
BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS



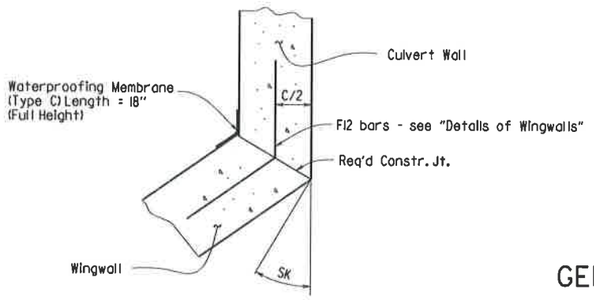
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

(Skewed Ends)



WINGWALL ATTACHMENT

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

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

DETAILS OF MULTI-BARREL R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
92419

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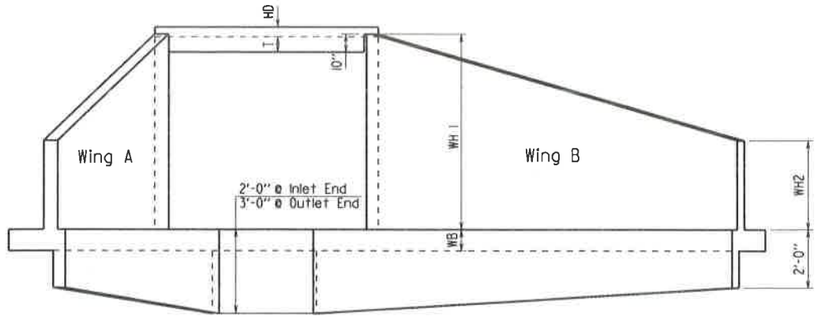
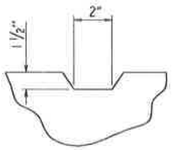
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	25	253

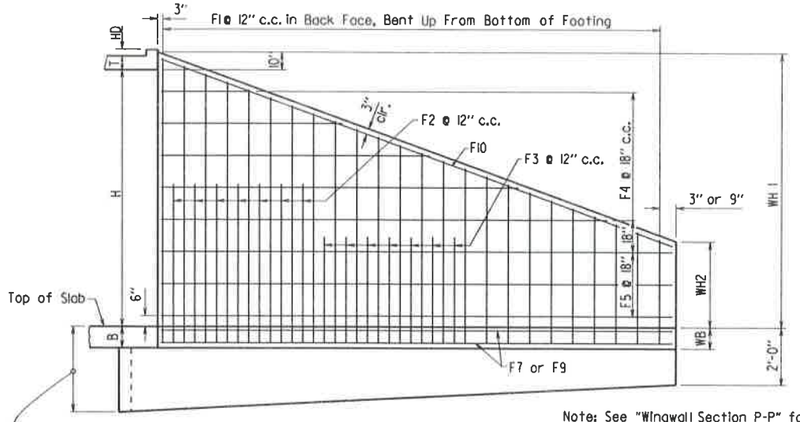
SPECIAL DETAILS



END ELEVATION
Flared Wingwalls Shown

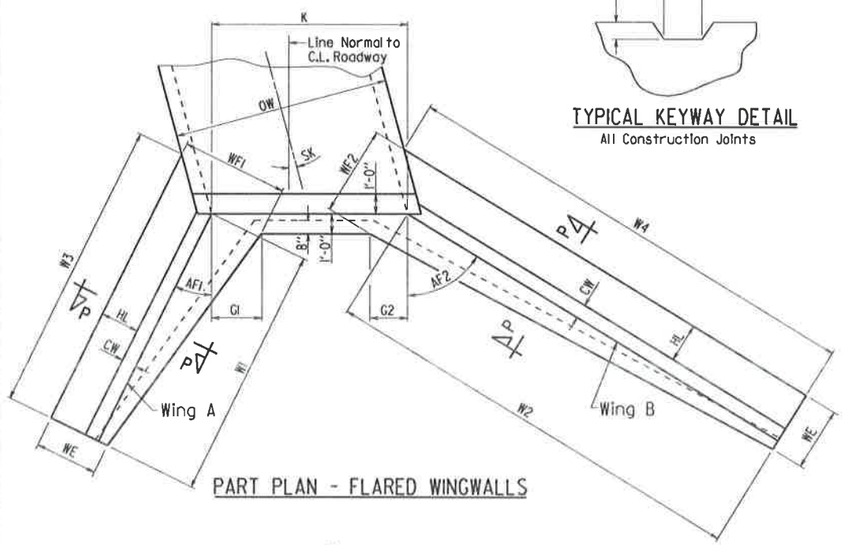


TYPICAL KEYWAY DETAIL
All Construction Joints

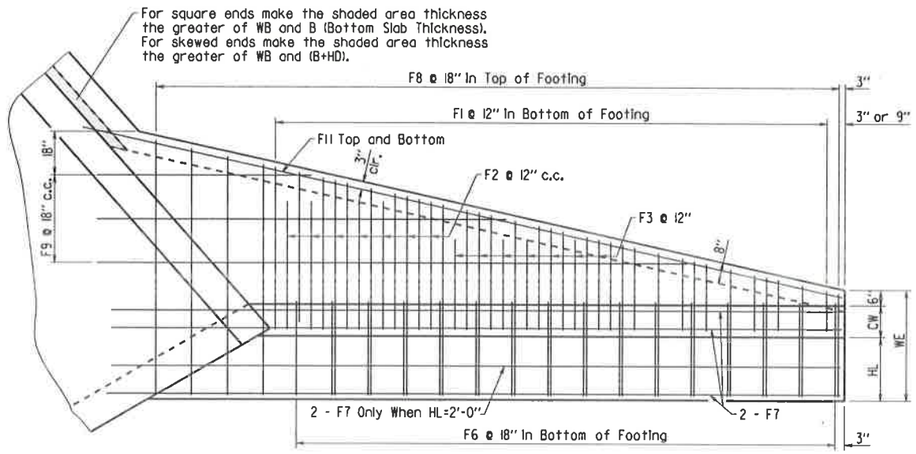


WINGWALL ELEVATION
Showing Back Face Reinforcement

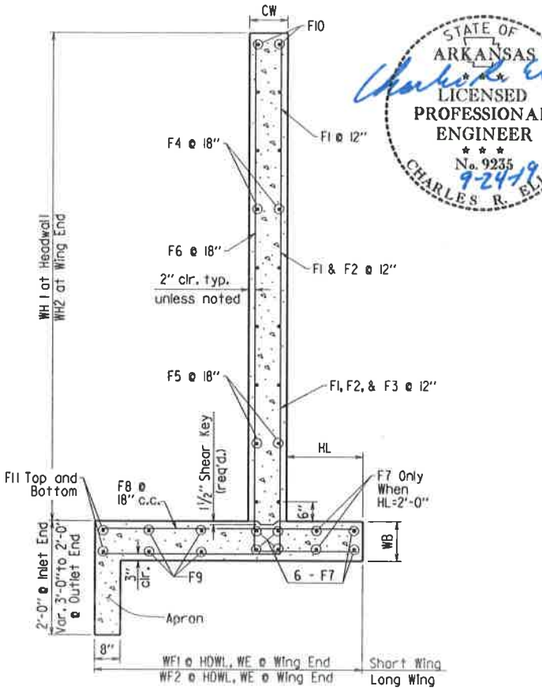
Note: See "Wingwall Section P-P" for additional details and reinforcing.



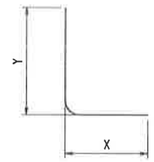
PART PLAN - FLARED WINGWALLS



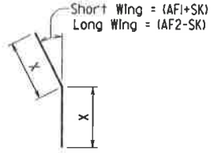
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



WINGWALL SECTION P-P

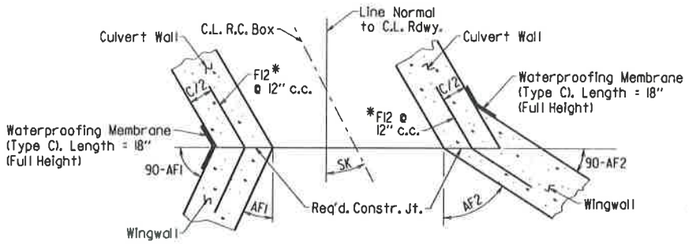


F1, F2, F3, & F6 BARS

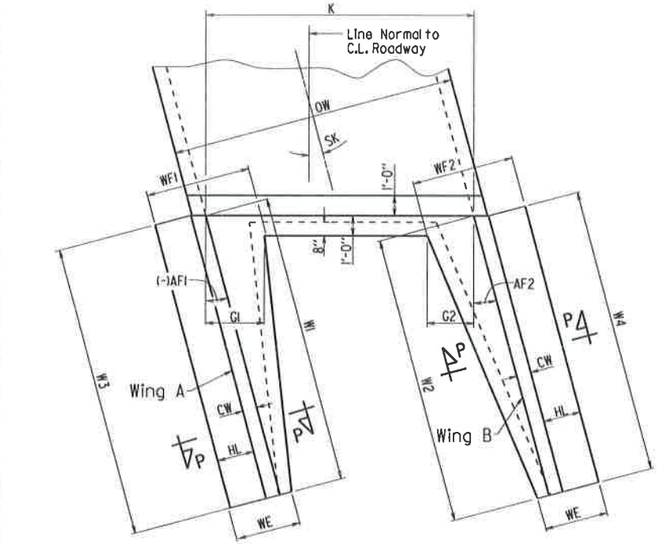


*F12 BAR

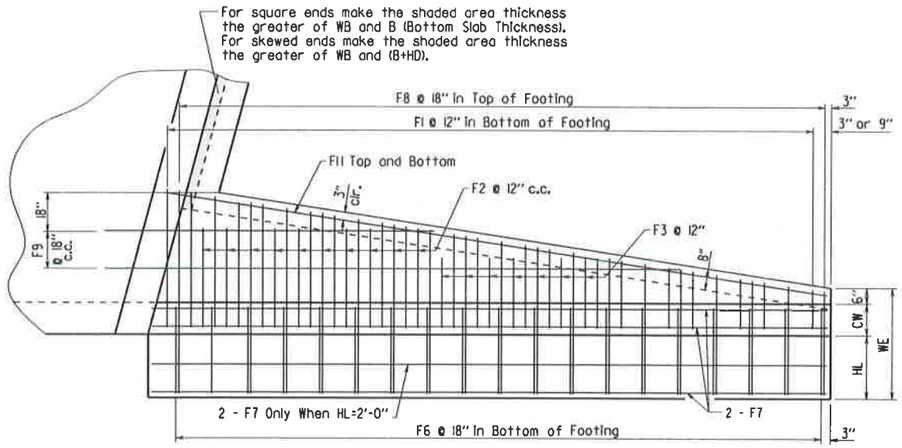
*F12 is a straight bar for parallel wingwalls



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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-24-19
CHARLES R. ELLIS

V 1.15 b061442_culvert.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.		061442	26	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 1: CLEARING & GRUBBING

FILTER SOCK (E-3)
5 LOCATIONS = 660 LIN. FT.

SAND BAG CHECKS (E-5)
25 LOCATIONS = 550 BAG

ROCK DITCH CHECKS (E-6)
25 LOCATIONS = 75 CU. YD.

SILT FENCE (E-11)
8 LOCATIONS = 2920 LIN. FT.

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

STA. 100+02.00
BEGIN JOB 061442
BEGIN SITE 1
SEC. 6 LOG MILE 7.29

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-3) = FILTER SOCK
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 1- CLEARING & 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.		061442	27	253

(2) TEMPORARY EROSION CONTROL DETAILS

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

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REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-3) = FILTER SOCK
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 1 - CLEARING & 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.		061442	28	253

(2) TEMPORARY EROSION CONTROL DETAILS

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

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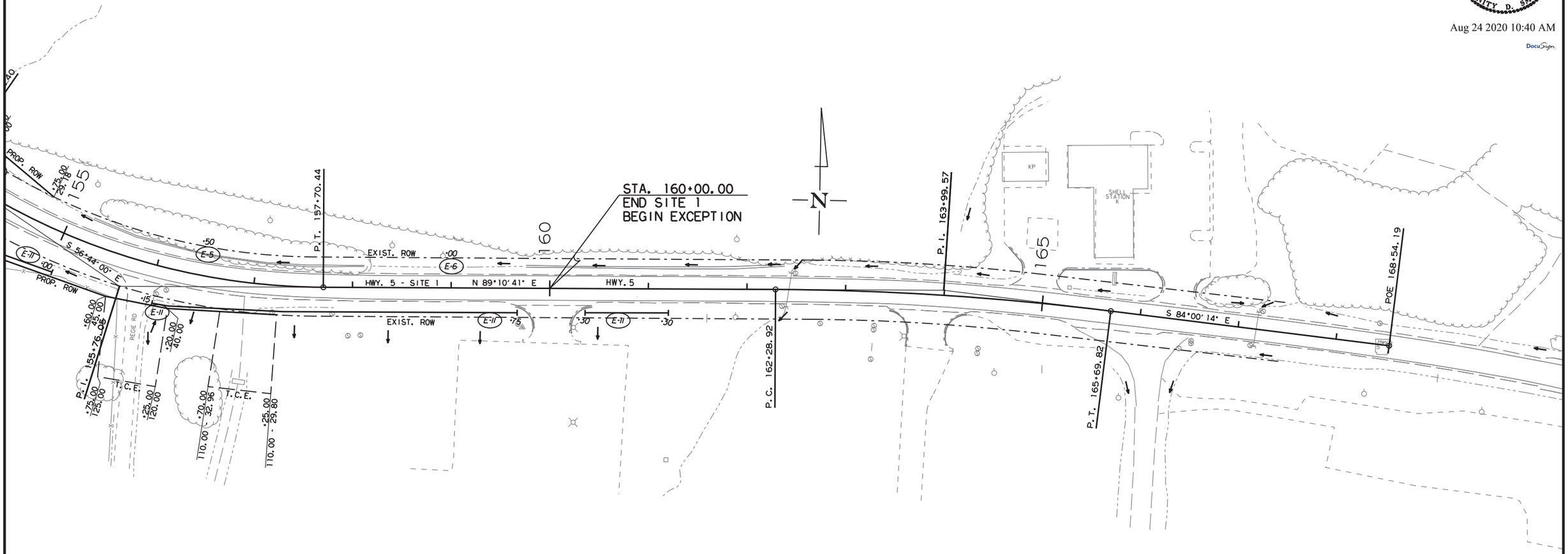

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE I - CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

10/22/2019

R061442.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.		061442	29	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 10:40 AM
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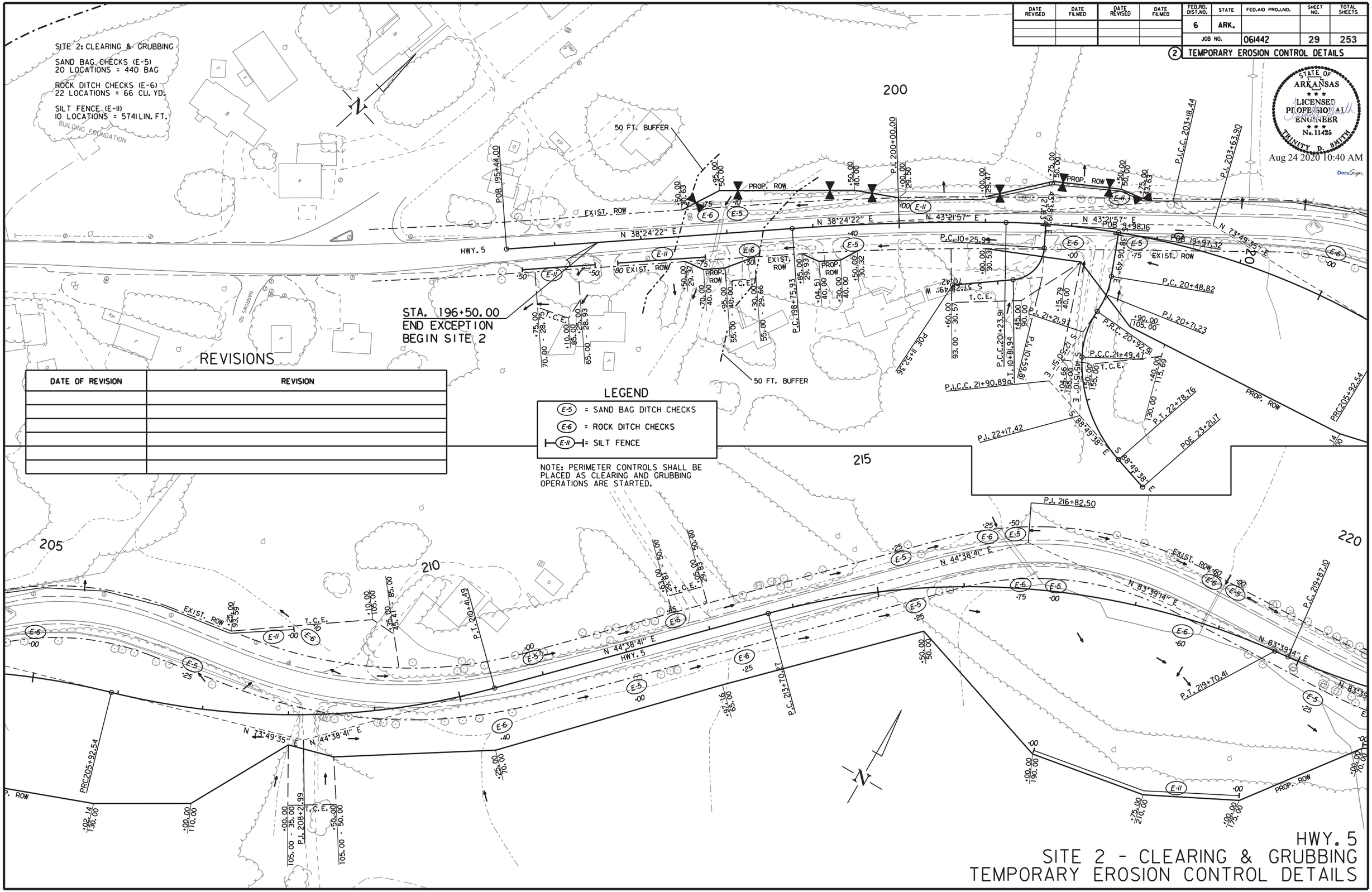
SITE 2: CLEARING & GRUBBING

SAND BAG CHECKS (E-5)
20 LOCATIONS = 440 BAG

ROCK DITCH CHECKS (E-6)
22 LOCATIONS = 66 CU. YD.

SILT FENCE (E-11)
10 LOCATIONS = 5741 LIN. FT.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 2 - CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

10/22/2019

R061442.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.		061442	30	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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220 225 230

P.C. 219+87.10

P.T. 223+65.76

P.I. 232+90.98

P.I. 221+79.39

P.C. 230+77.43

P.T. 234+96.45

N 83°39'14" E

N 59°02'26" E

N 86°16'37" E

EXIST. ROW

PROP. ROW

HWY. 5

T.C.E.

FLOODPLAIN BOUNDARY

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

240 245 250 235

P.I. 240+53.09

P.C. 239+03.23

P.T. 242+00.91

P.C. 249+50.42

S 77°21'02" E

BAILEY CUTOFF RD

10/22/2019

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HWY. 5
SITE 2 - CLEARING & 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.		061442	31	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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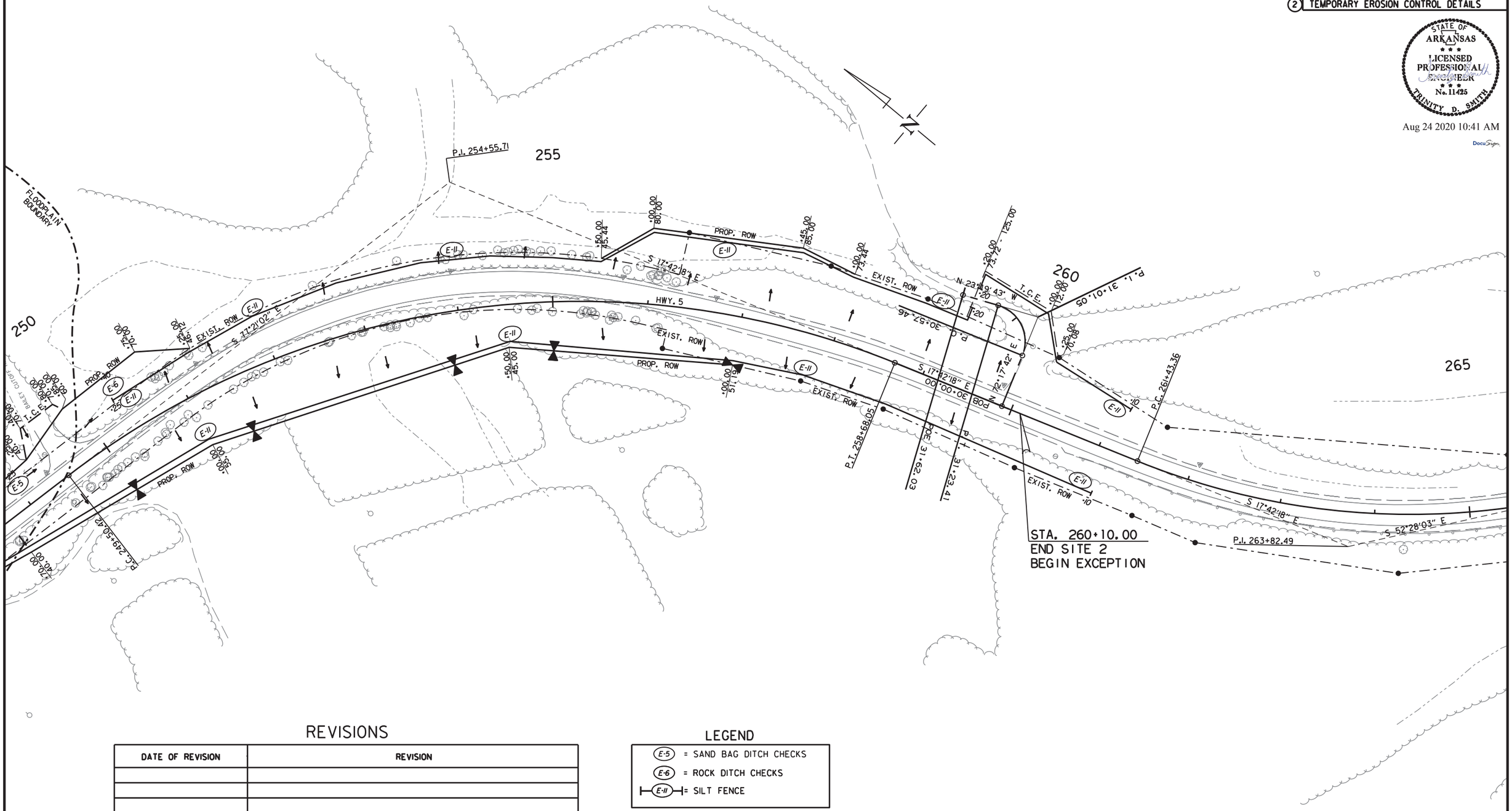

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

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HWY. 5
SITE 2 - CLEARING & 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.		061442	32	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 3: CLEARING & GRUBBING

SAND BAG CHECKS (E-5)
3 LOCATIONS = 66 BAG

ROCK DITCH CHECKS (E-6)
5 LOCATIONS = 15 CU. YD.

SILT FENCE (E-11)
3 LOCATIONS = 760 LIN. FT.

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LICENSED PROFESSIONAL ENGINEER
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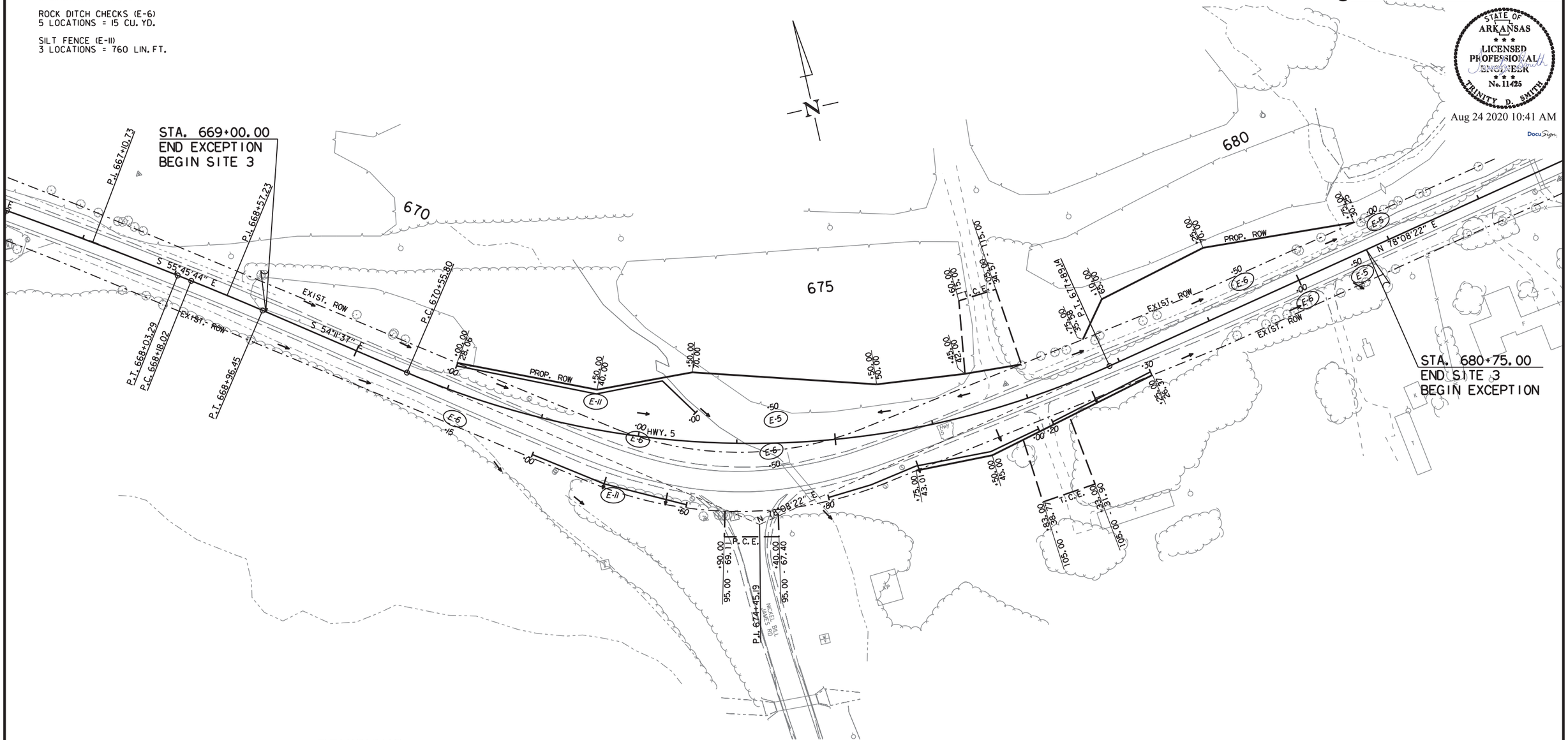

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

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HWY. 5
SITE 3 - CLEARING & 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.		061442	33	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 4: CLEARING & GRUBBING

FILTER SOCK (E-3)
5 LOCATIONS = 825 LIN. FT.

SAND BAG CHECKS (E-5)
6 LOCATIONS = 132 BAG

ROCK DITCH CHECKS (E-6)
7 LOCATIONS = 21 CU. YD.

SILT FENCE (E-11)
1 LOCATION = 535 LIN. FT.

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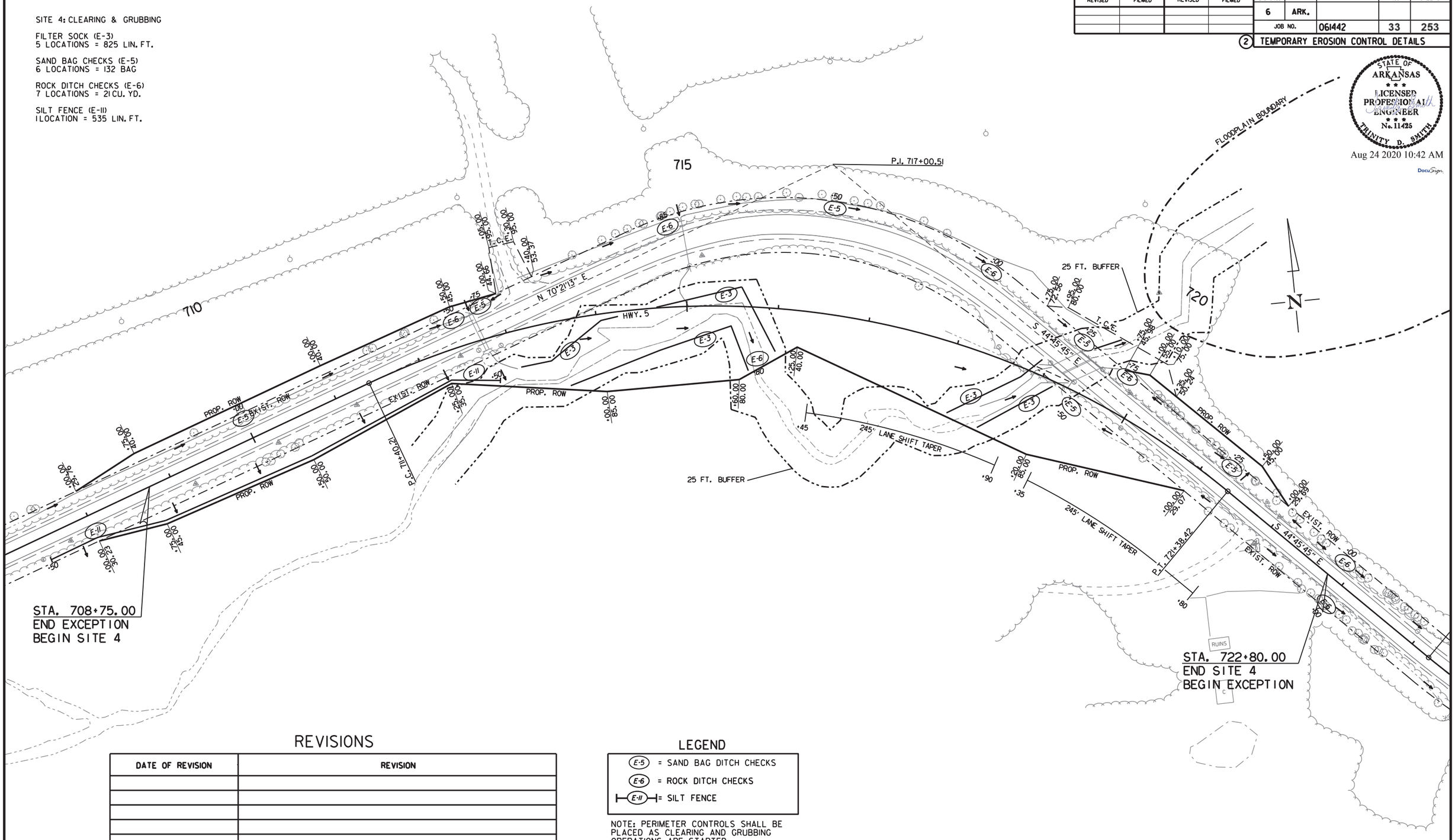

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

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HWY. 5
SITE 4 - CLEARING & 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.		061442	34	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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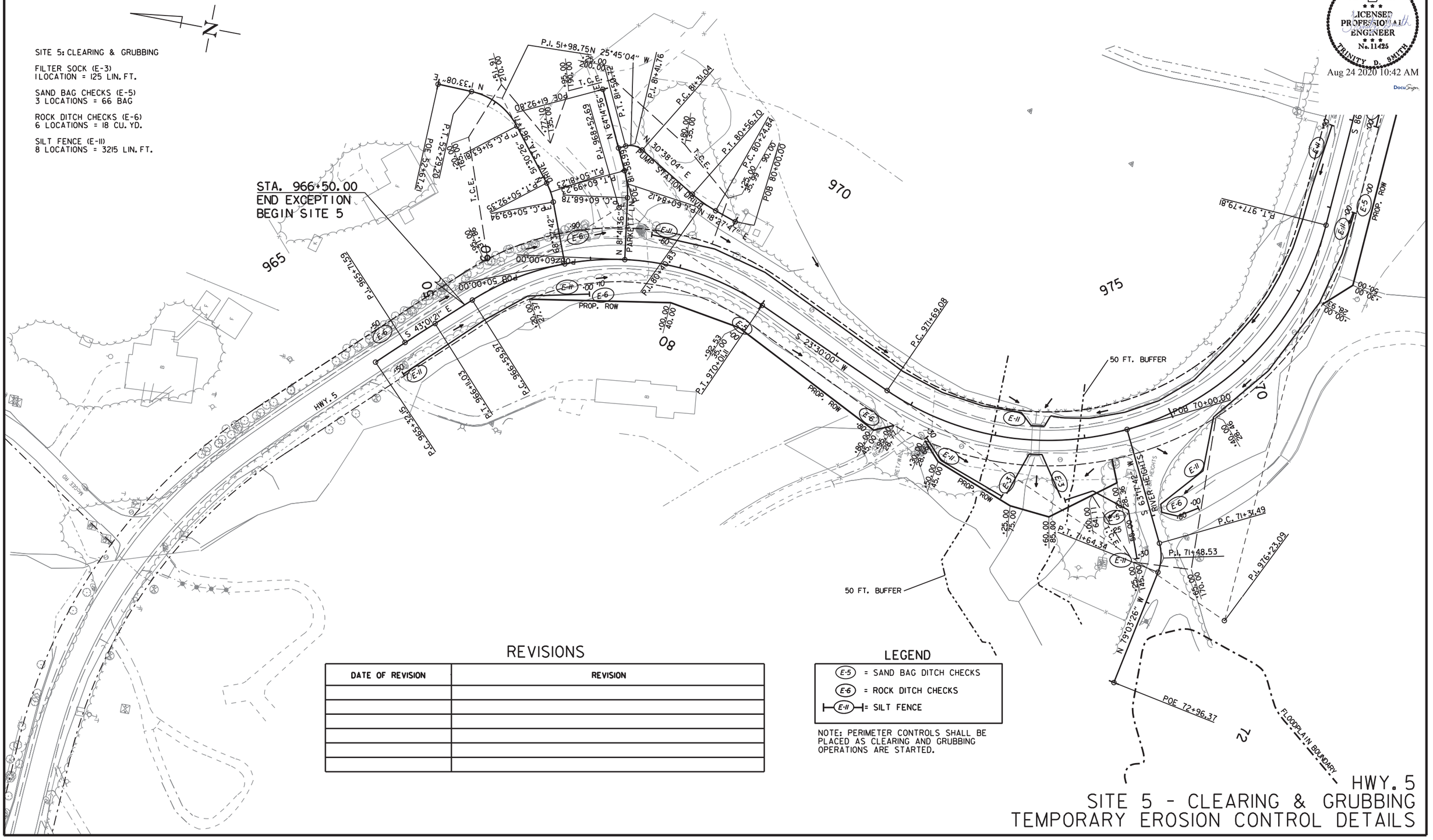
SITE 5: CLEARING & GRUBBING

FILTER SOCK (E-3)
1LOCATION = 125 LIN. FT.

SAND BAG CHECKS (E-5)
3 LOCATIONS = 66 BAG

ROCK DITCH CHECKS (E-6)
6 LOCATIONS = 18 CU. YD.

SILT FENCE (E-11)
8 LOCATIONS = 3215 LIN. FT.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 5 - CLEARING & 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.		061442	35	253

(2) TEMPORARY EROSION CONTROL DETAILS

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

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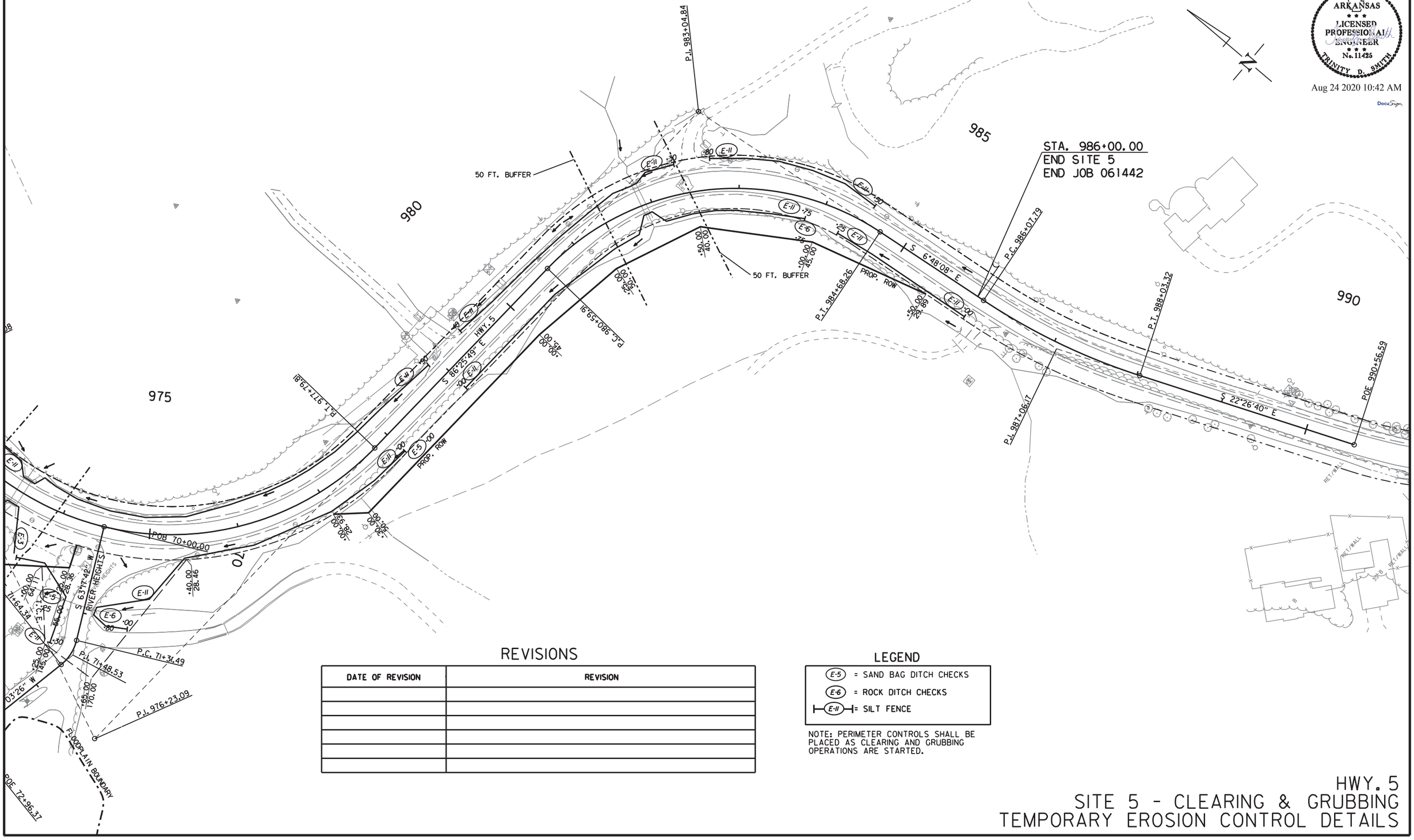

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 5 - CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

10/22/2019

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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.		061442	36	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 1: STAGE 1

SAND BAG CHECKS (E-5)
10 LOCATIONS = 222 BAG

ROCK DITCH CHECKS (E-6)
10 LOCATIONS = 30 CU. YD.

SILT FENCE (E-11)
1 LOCATION = 35 LIN. FT.

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LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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STA. 100+02.00
BEGIN JOB 061442
BEGIN SITE 1
SEC. 6 LOG MILE 7.29

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-3) = FILTER SOCK
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

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HWY. 5
SITE 1- STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	37	253

(2) TEMPORARY EROSION CONTROL DETAILS

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

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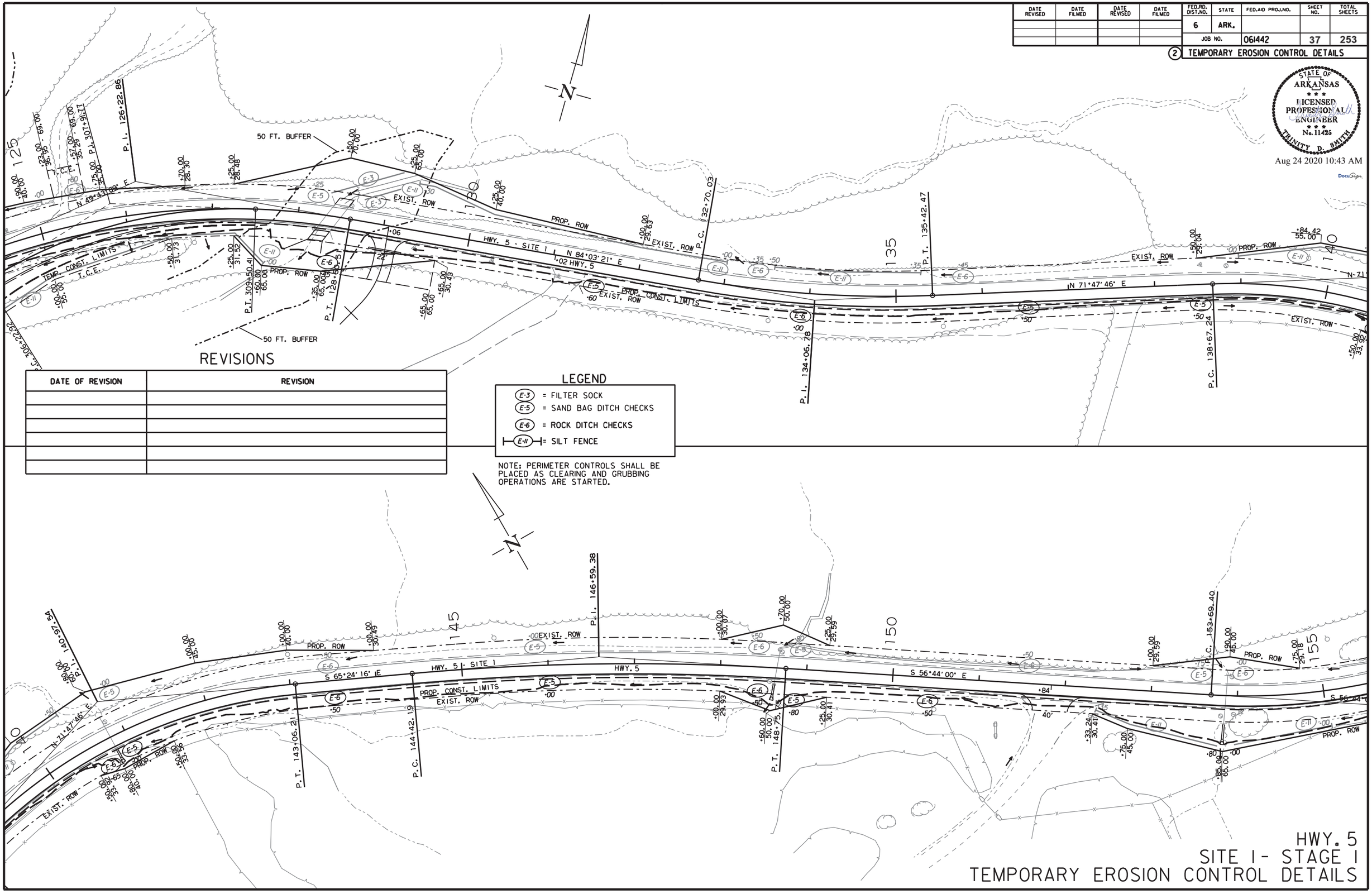

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-3) = FILTER SOCK
- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 1- STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	38	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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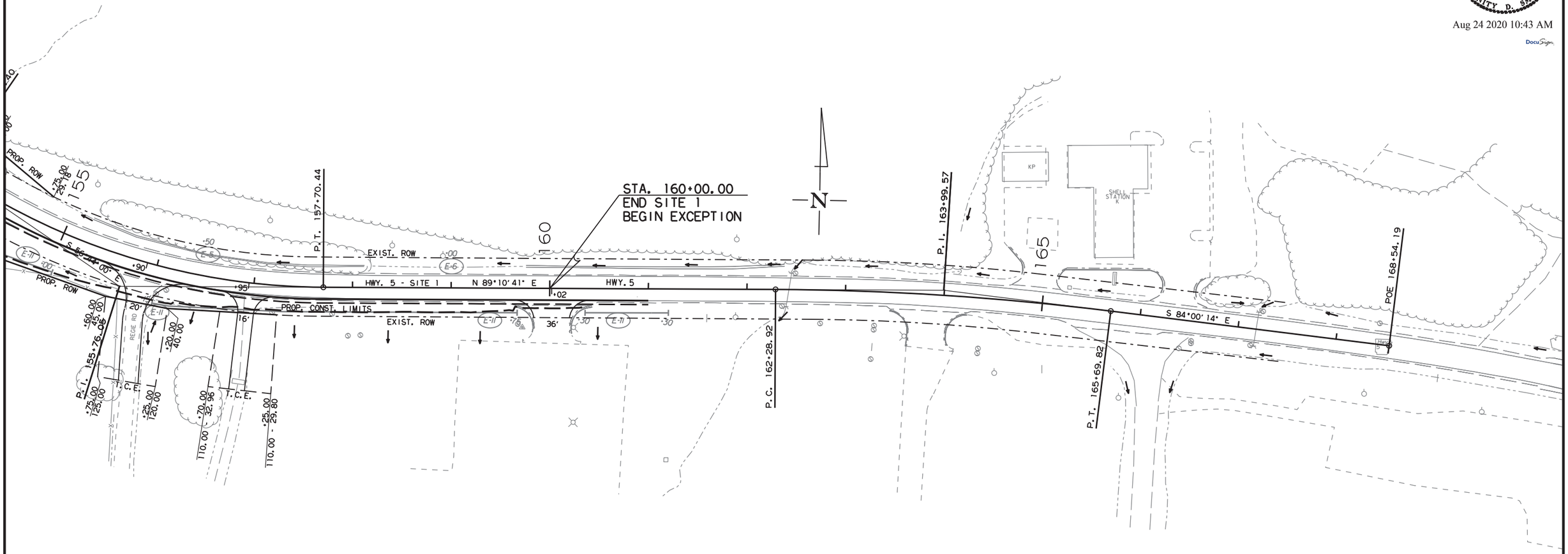

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 1- STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	39	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 2: STAGE I

SAND BAG CHECKS (E-5)
8 LOCATIONS = 176 BAG

ROCK DITCH CHECKS (E-6)
9 LOCATIONS = 27 CU. YD.

SILT FENCE (E-11)
2 LOCATIONS = 55 LIN. FT.

SLOPE DRAIN (E-12)
4 LOCATIONS = 420 LIN. FT.

TRIANGULAR SILT DIKE
2 LOCATIONS = 525 LIN. FT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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STA. 196+50.00
END EXCEPTION
BEGIN SITE 2

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-12 = SLOPE DRAIN
- △△△△△△ = TRIANGULAR SILT DIKE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 2 - 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.		061442	40	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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220 225 230

P.C. 219+87.10
P.T. 223+65.76
P.I. 232+90.98
P.I. 221+79.39
P.C. 230+77.43
P.T. 234+96.45
N 83°39'47" E
N 59°02'26" E
N 86°16'37" E
EXIST. ROW
PROP. CONST. LIMITS
PROP. ROW
HWY. 5
T.C.E.
FLOODPLAIN BOUNDARY

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

240 245 250 235

P.I. 240+53.09
P.T. 242+00.91
P.C. 239+03.23
P.T. 234+96.45
P.C. 249+50.42
S 77°21'02" E
N 86°16'37" E
EXIST. ROW
PROP. CONST. LIMITS
PROP. ROW
HWY. 5
T.C.E.
BAILEY CUTOFF RD
FLOODPLAIN BOUNDARY

10/22/2019

R061442.DGN

HWY. 5
SITE 2 - 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.		061442	41	253

(2) TEMPORARY EROSION CONTROL DETAILS

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

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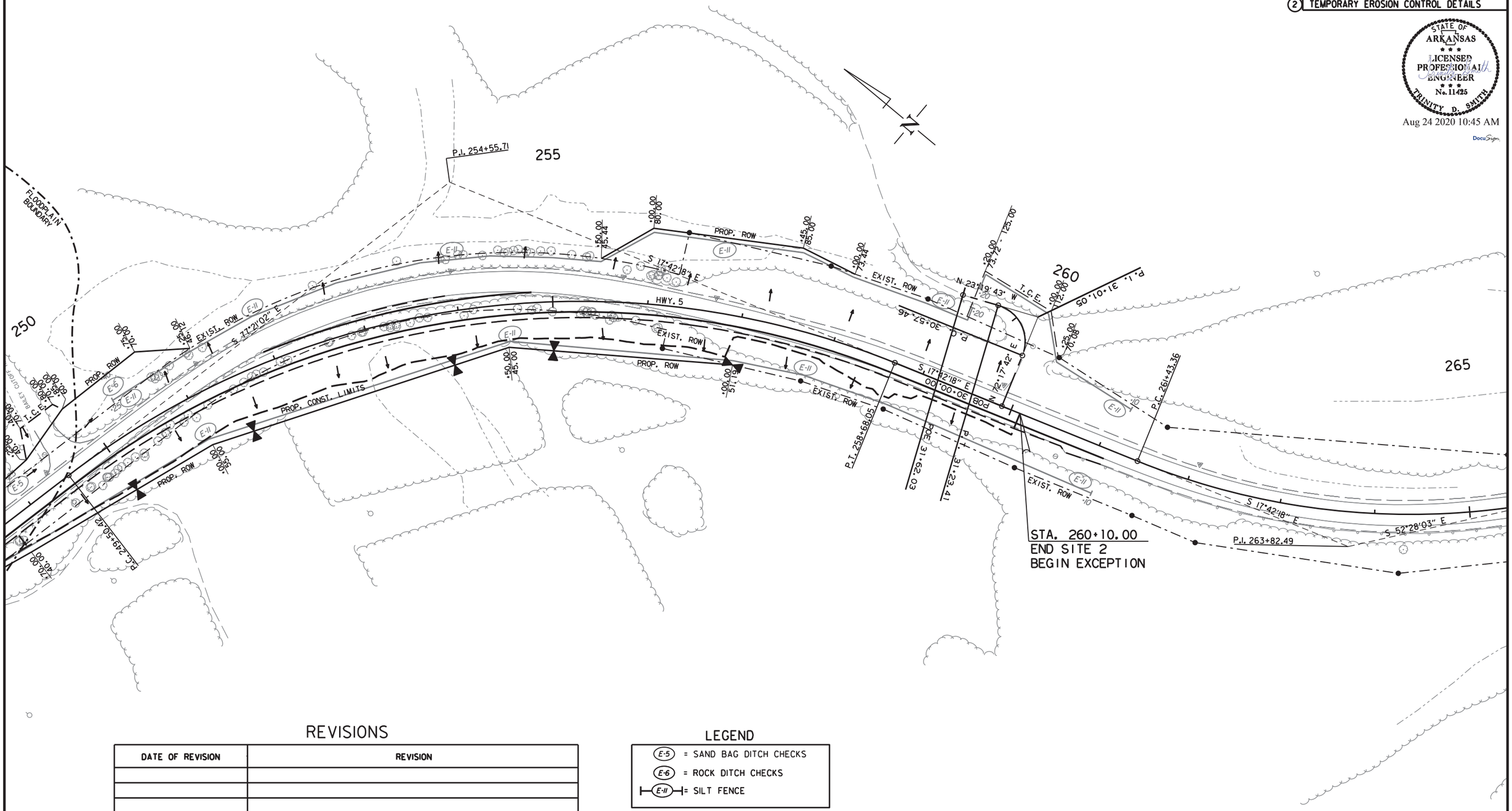

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

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HWY. 5
SITE 2 - 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.		061442	42	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 3: STAGE I

SAND BAG CHECKS (E-5)
2 LOCATION = 44 BAG

ROCK DITCH CHECKS (E-6)
2 LOCATION = 6 CU. YD.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 3 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

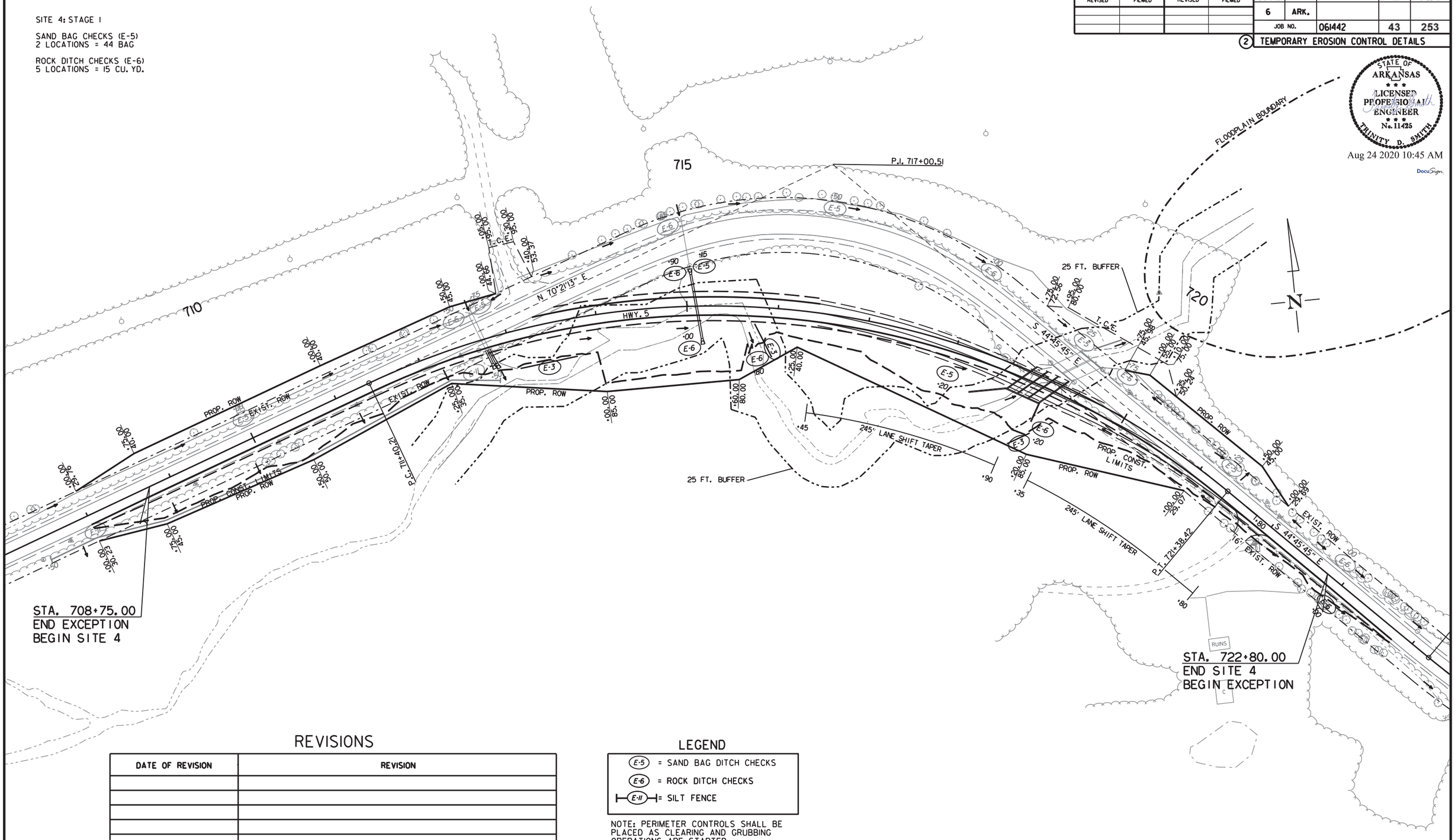
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	43	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 4: STAGE I

SAND BAG CHECKS (E-5)
2 LOCATIONS = 44 BAG

ROCK DITCH CHECKS (E-6)
5 LOCATIONS = 15 CU. YD.



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

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 4 - 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.		061442	44	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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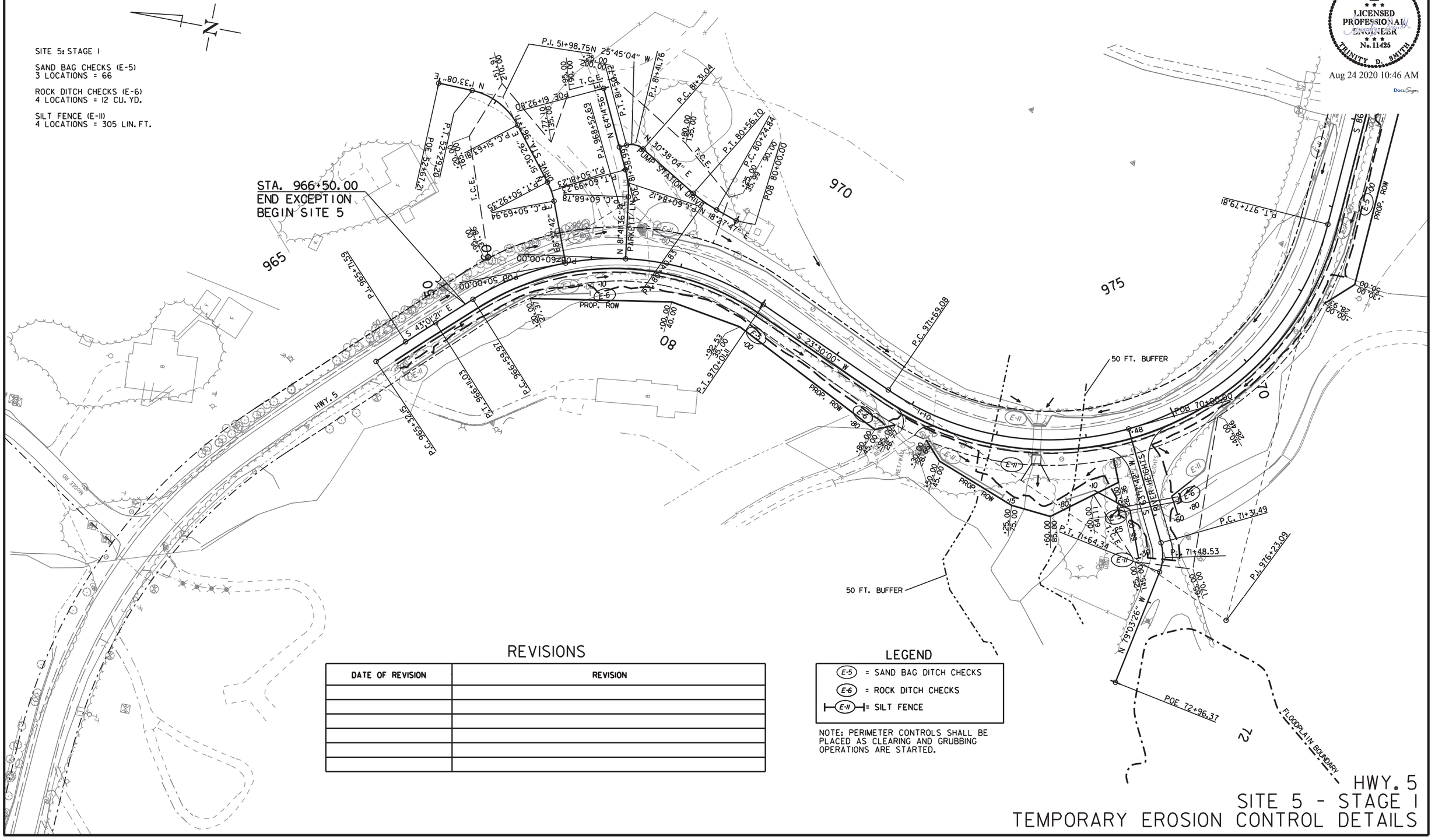
SITE 5: STAGE 1

SAND BAG CHECKS (E-5)
3 LOCATIONS = 66

ROCK DITCH CHECKS (E-6)
4 LOCATIONS = 12 CU. YD.

SILT FENCE (E-11)
4 LOCATIONS = 305 LIN. FT.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 5 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	45	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
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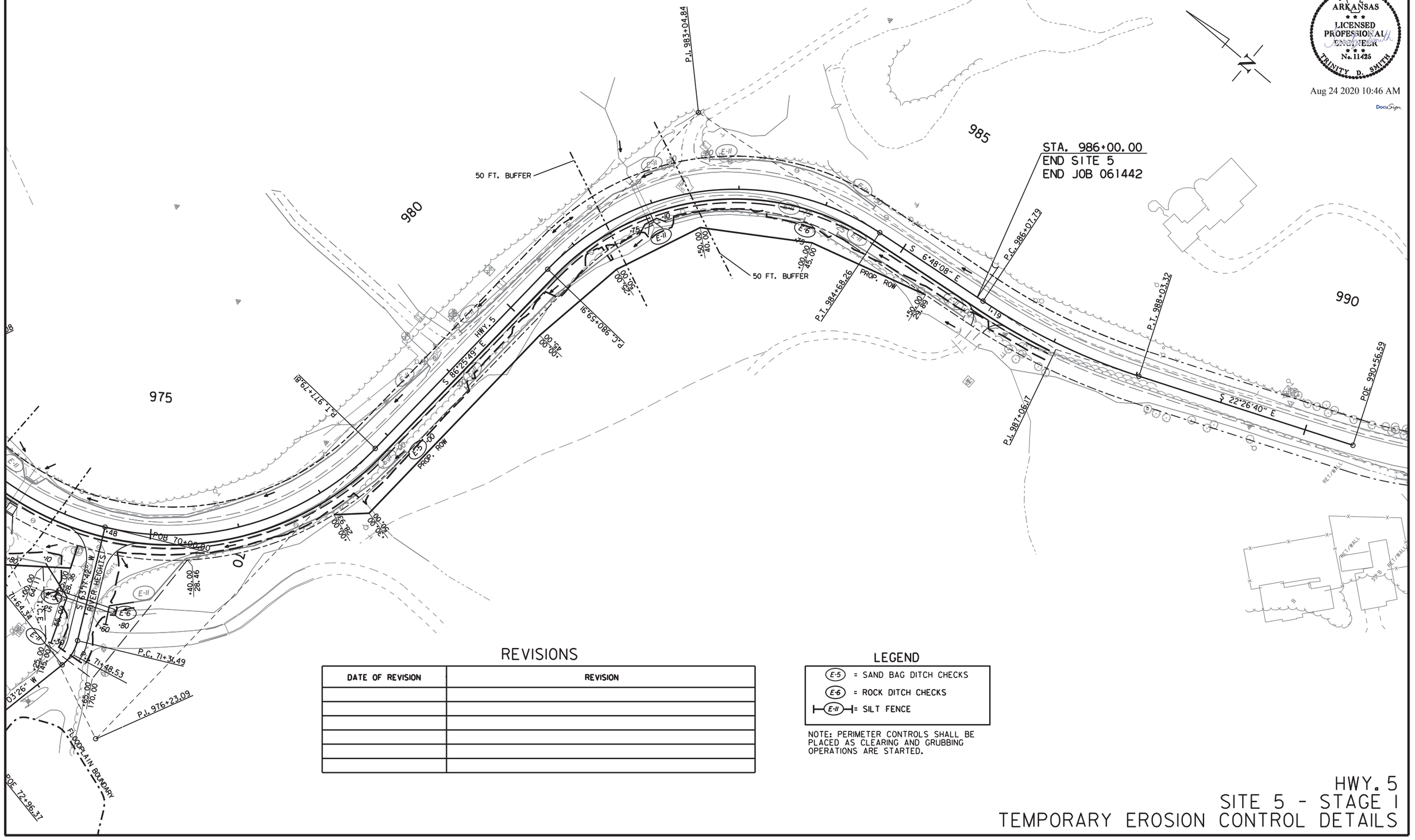

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 5 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

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R061442.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.		061442	46	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 1: STAGE 2

SAND BAG CHECKS (E-5)
14 LOCATIONS = 308 BAG

ROCK DITCH CHECKS (E-6)
12 LOCATIONS = 36 CU. YD.

TRIANGULAR SILT DIKE
1 LOCATIONS = 325 LIN. FT.

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STA. 100+02.00
BEGIN JOB 061442
BEGIN SITE 1
SEC. 6 LOG MILE 7.29

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- △△△△△△ = TRIANGULAR SILT DIKE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 1- 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.		061442	47	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 1- 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.		061442	48	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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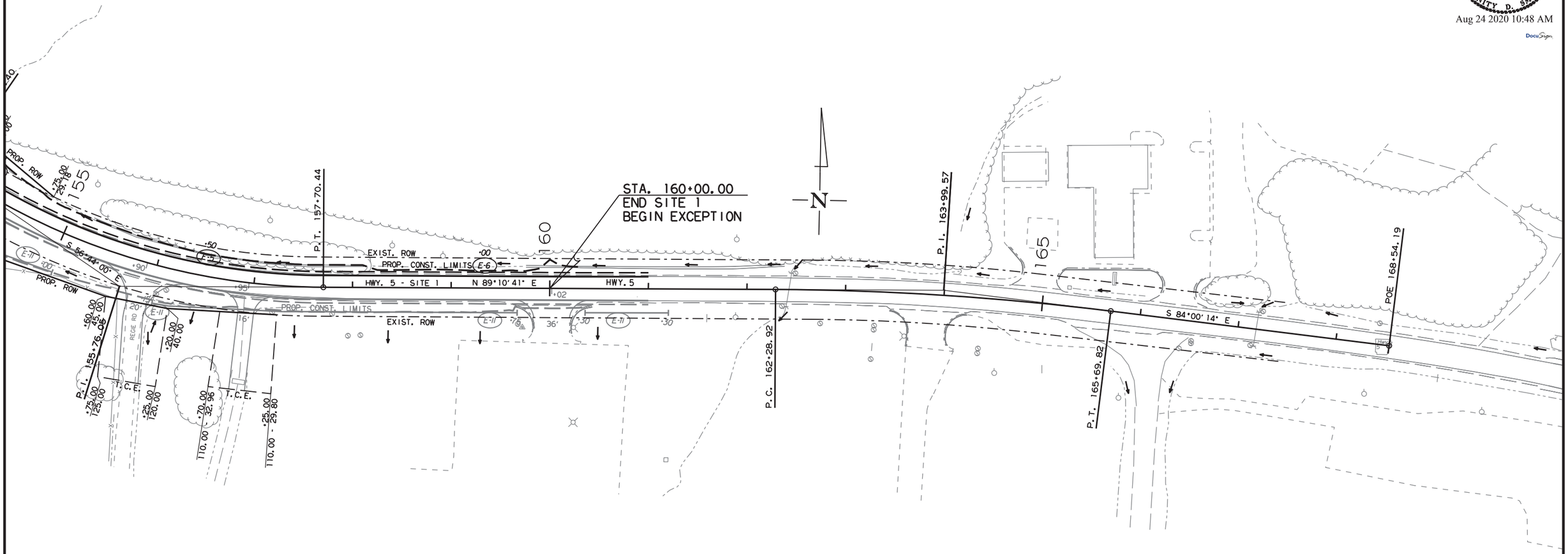

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 1 - 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.		061442	49	253

2 TEMPORARY EROSION CONTROL DETAILS

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SITE 2: STAGE 2

SAND BAG CHECKS (E-5)
10 LOCATIONS = 220 BAG

ROCK DITCH CHECKS (E-6)
10 LOCATIONS = 30 CU. YD.

STA. 196+50.00
END EXCEPTION
BEGIN SITE 2

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE
- E-12 = SLOPE DRAIN
- △△△△△△ = TRIANGULAR SILT DIKE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

10/22/2019

R061442.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.		061442	50	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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220 225 230

P.C. 219+87.10 | P.T. 223+65.76 | P.I. 232+90.98 | P.C. 230+77.43 | P.T. 234+96.45 | P.I. 221+79.39

N 83°39'14" E | N 59°02'26" E | N 59°02'26" E | N 86°16'37" E

HWY. 5

EXIST. ROW | PROP. CONST. LIMITS | PROP. ROW | T.C.E.

FLOODPLAIN BOUNDARY

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

240 245 250 235

P.I. 240+53.09 | P.T. 242+00.91 | P.C. 239+03.23 | P.C. 249+50.42 | P.T. 234+96.45

S 77°21'02" E | N 86°16'37" E

HWY. 5

EXIST. ROW | PROP. CONST. LIMITS | PROP. ROW | T.C.E. | FLOODPLAIN BOUNDARY

SHALEY CUTOFF RD

10/22/2019

R061442.DGN

HWY. 5
SITE 2 - 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.		061442	51	253

(2) TEMPORARY EROSION CONTROL DETAILS

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

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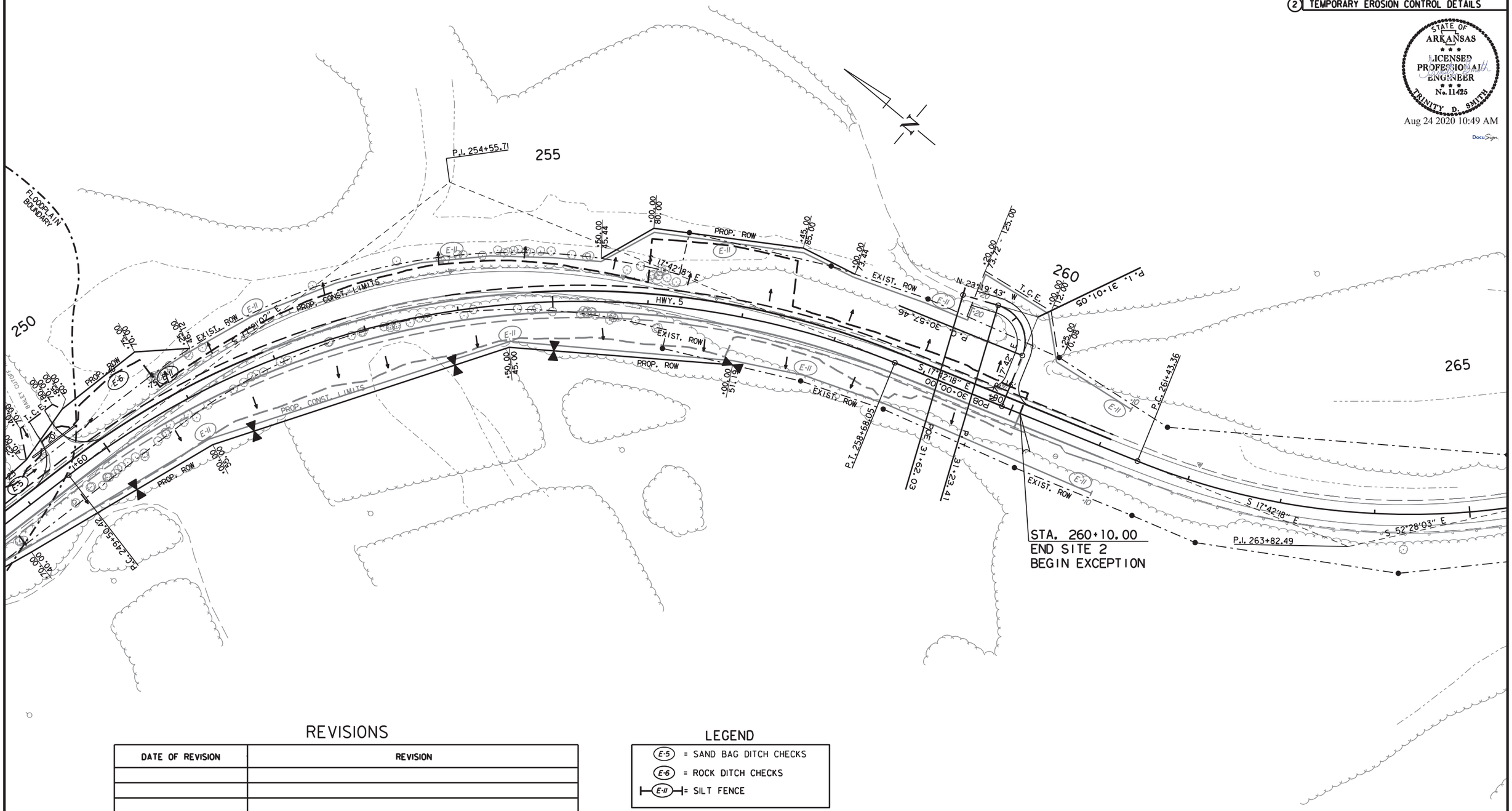

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

10/22/2019

R061442.DGN

HWY. 5
SITE 2 - 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.		061442	52	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 3: STAGE 1

SAND BAG CHECKS (E-5)
1 LOCATION = 22 BAG

ROCK DITCH CHECKS (E-6)
2 LOCATION = 6 CU. YD.

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LICENSED PROFESSIONAL ENGINEER
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REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 3 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

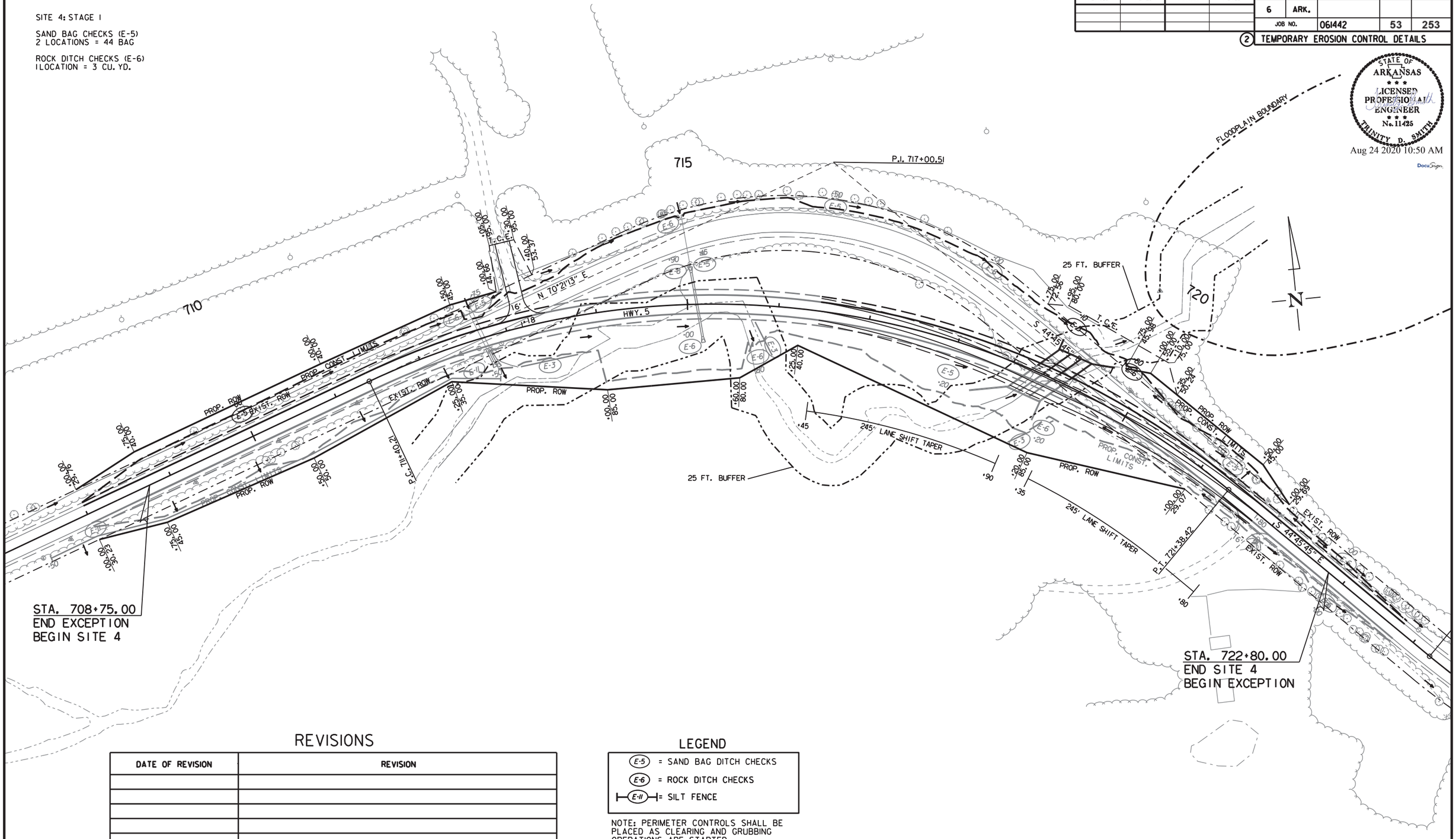
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	53	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 4: STAGE 1

SAND BAG CHECKS (E-5)
2 LOCATIONS = 44 BAG

ROCK DITCH CHECKS (E-6)
1LOCATION = 3 CU. YD.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5)	= SAND BAG DITCH CHECKS
(E-6)	= ROCK DITCH CHECKS
(E-11)	= SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 4 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	54	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
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No. 11425
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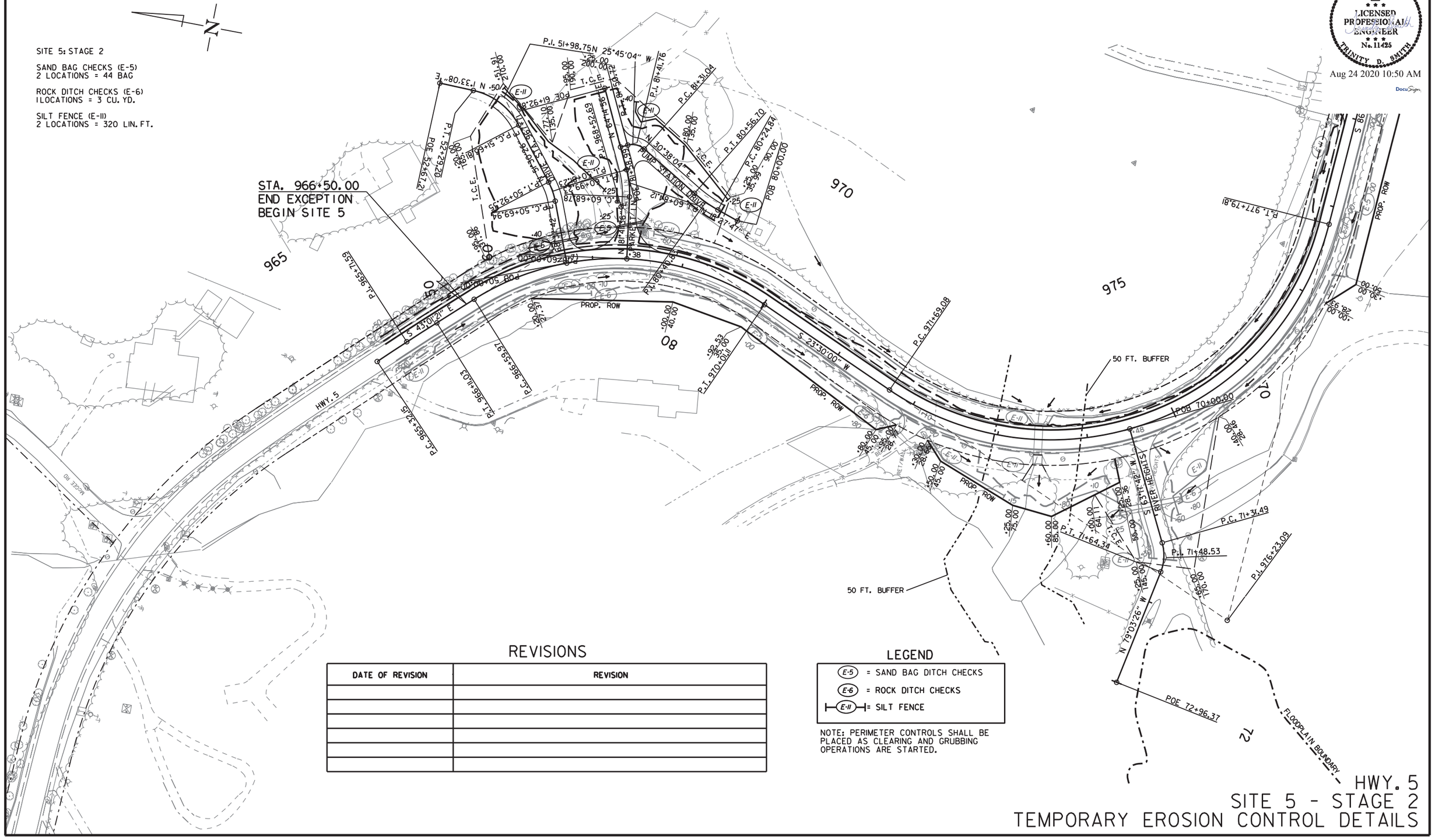
SITE 5: STAGE 2

SAND BAG CHECKS (E-5)
2 LOCATIONS = 44 BAG

ROCK DITCH CHECKS (E-6)
ILOCATIONS = 3 CU. YD.

SILT FENCE (E-11)
2 LOCATIONS = 320 LIN. FT.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 5 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	55	253

(2) TEMPORARY EROSION CONTROL DETAILS

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No. 11425
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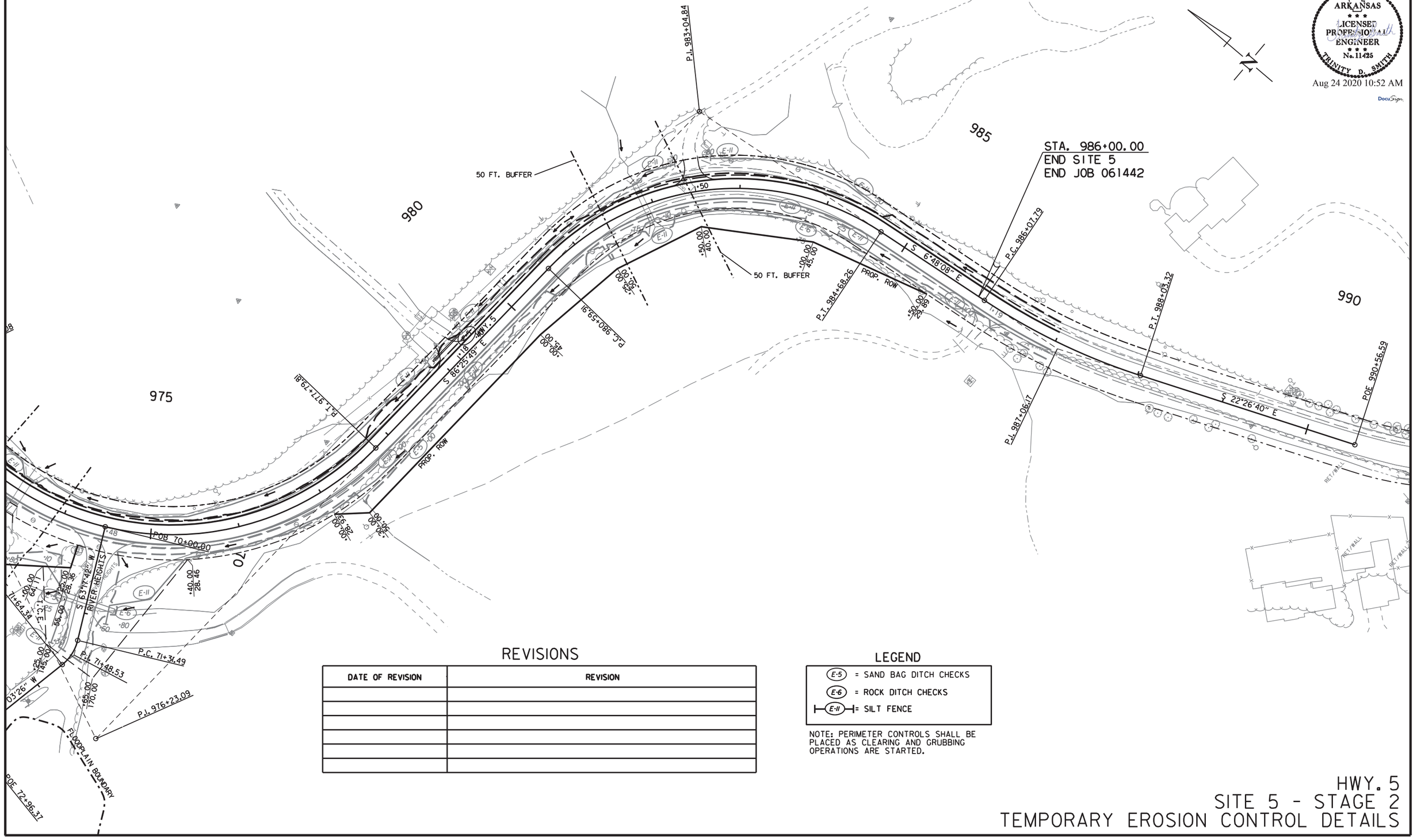

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- E-5 = SAND BAG DITCH CHECKS
- E-6 = ROCK DITCH CHECKS
- E-11 = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 5 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

10/22/2019

R061442.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.		061442	56	253

(2) TEMPORARY EROSION CONTROL DETAILS

SITE 1: STAGE 2

SAND BAG CHECKS (E-5)
1 LOCATION = 22 BAG

ROCK DITCH CHECKS (E-6)
1 LOCATIONS = 3 CU. YD.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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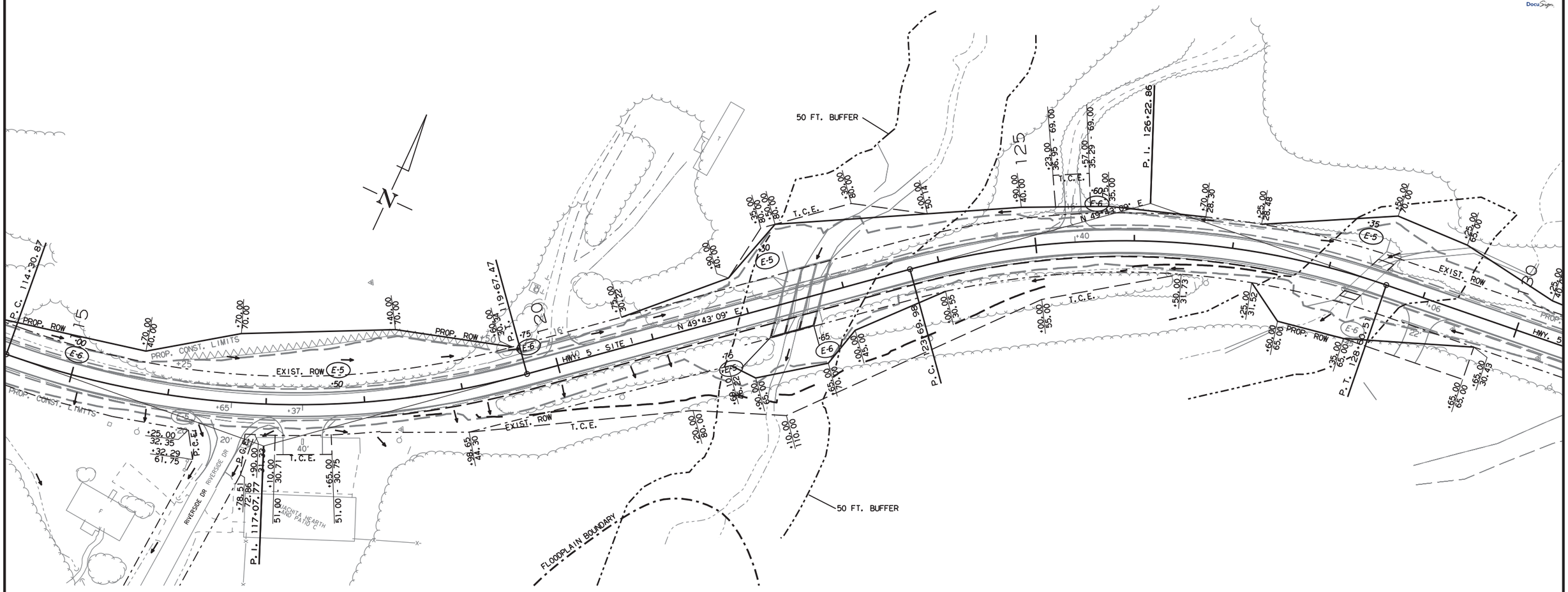

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

HWY. 5
SITE 1- STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	57	253

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
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No. 11425
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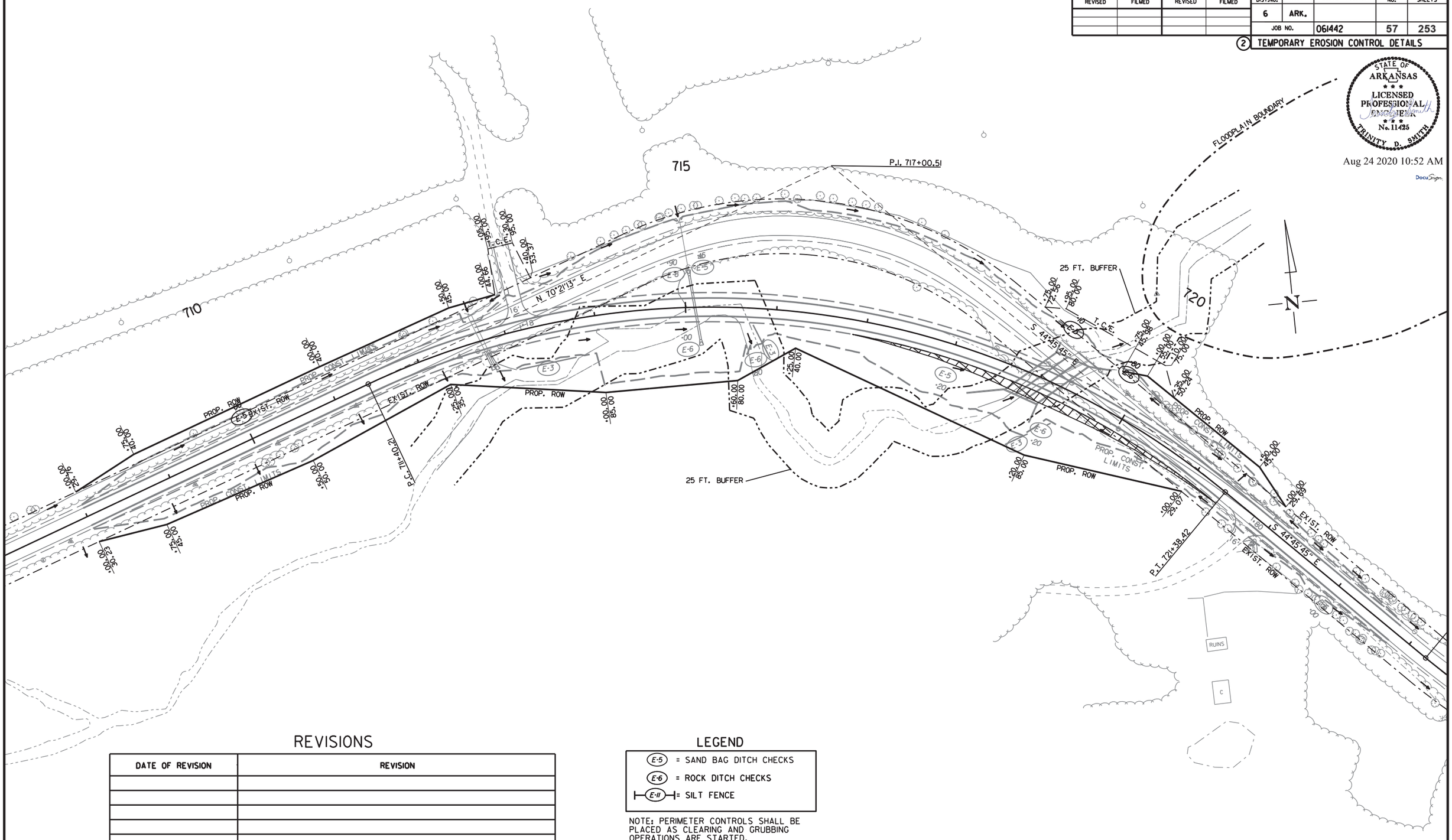

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECKS
E-6	= ROCK DITCH CHECKS
E-11	= SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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HWY. 5
SITE 4 - STAGE 3
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.		061442	58	253

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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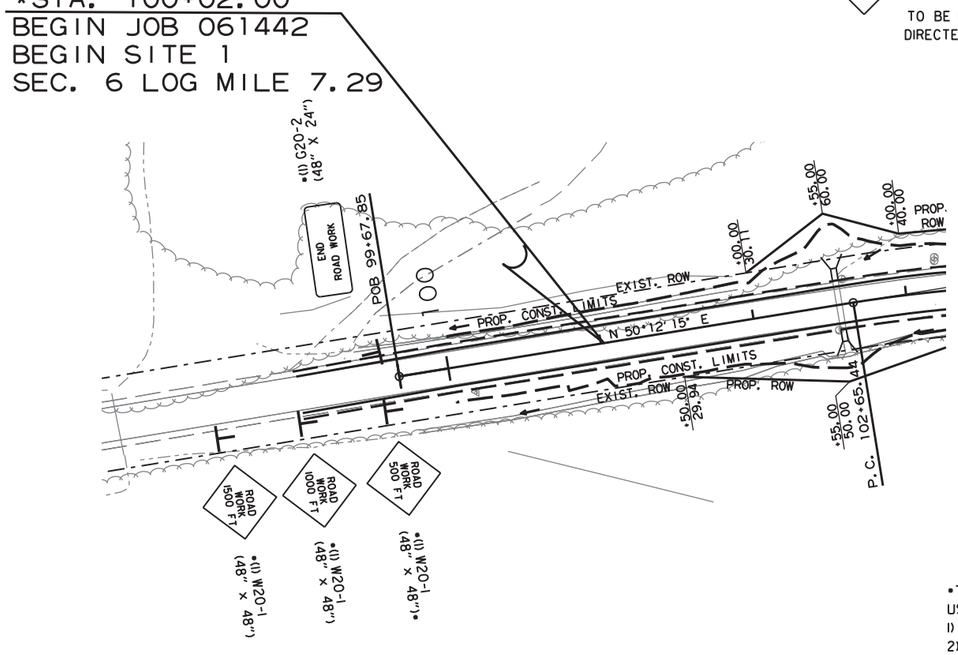
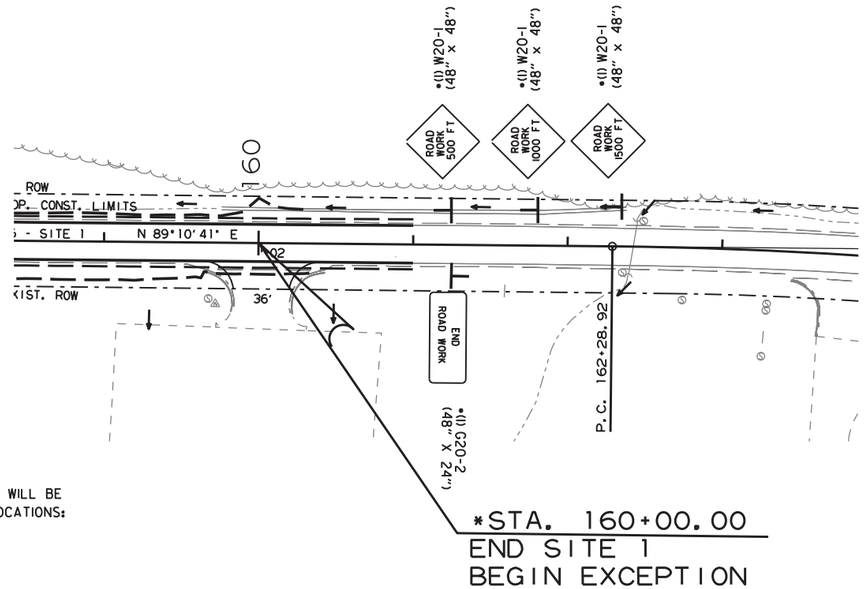
RIGHT SHOULDER CLOSED (4) W21-5a (48" X 30")

DO NOT PASS (4) R4-1 (24" X 30")

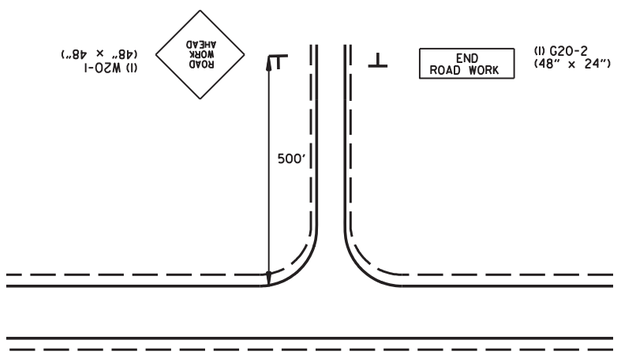
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.





•THE CONFIGURATION SHOWN WILL BE USED AT THE FOLLOWING LOCATIONS:

1) SITE 1 (SHOWN)
2) SITE 2
3) SITES 3 & 4
4) SITE 5



ADVANCE WARNING SIGNS

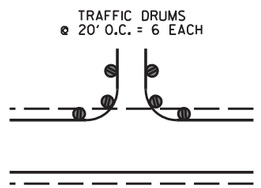
LOCATIONS

SITE 1:
GOOSE POND RD.
RIVERSIDE DR.
REGGIE RD.

SITE 2:
BAILEY CUTOFF RD.

SITE 3:
NICKEL BILL JAMES RD.

SITE 5:
PARKETT LN.
BEIGH ST.
RIVER HEIGHTS



DRIVEWAY & TURNOUTS

TRAFFIC DRUMS STAGE 1		STAGE 2	
SITE 1: 7 LOCATIONS	= 42 EACH	SITE 1: 6 LOCATIONS	= 36 EACH
SITE 2: 10 LOCATIONS	= 60 EACH	SITE 2: 5 LOCATIONS	= 30 EACH
SITE 3: 1 LOCATION	= 6 EACH	SITE 3: 3 LOCATIONS	= 18 EACH
SITE 4: 1 LOCATION	= 6 EACH	SITE 4: 1 LOCATION	= 6 EACH
SITE 5: 3 LOCATIONS	= 18 EACH	SITE 5: 4 LOCATIONS	= 24 EACH

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HWY. 5
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.		061442	59	253

MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
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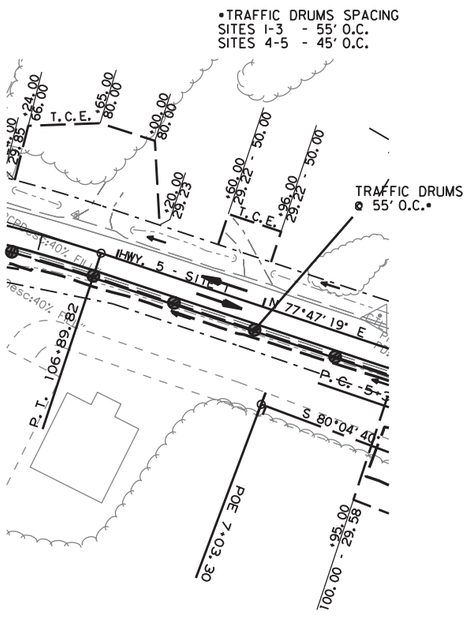
SEQUENCE OF CONSTRUCTION:

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

STAGE 3:
SITE 1 - MOVE TRAFFIC TO NEW ROADWAY.
OBLITERATE DETOUR.
CONSTRUCT SHOULDER & REMAINING BOX CULVERT ON LT.
PLACE FINAL SURFACE COURSE & PERMANENT PAVEMENT MARKINGS.
SITE 2 - PLACE FINAL SURFACE COURSE & PERMANENT PAVEMENT MARKINGS.
SITE 3 - PLACE FINAL SURFACE COURSE & PERMANENT PAVEMENT MARKINGS.
SITE 4 - MOVE TRAFFIC TO NEW ROADWAY.
REMOVE WIDENING FOR MAINTENANCE OF TRAFFIC ON RT.
PLACE FINAL SURFACE COURSE & PERMANENT PAVEMENT MARKINGS.
SITE 5 - PLACE FINAL SURFACE COURSE & PERMANENT PAVEMENT MARKINGS.



STAGE 1

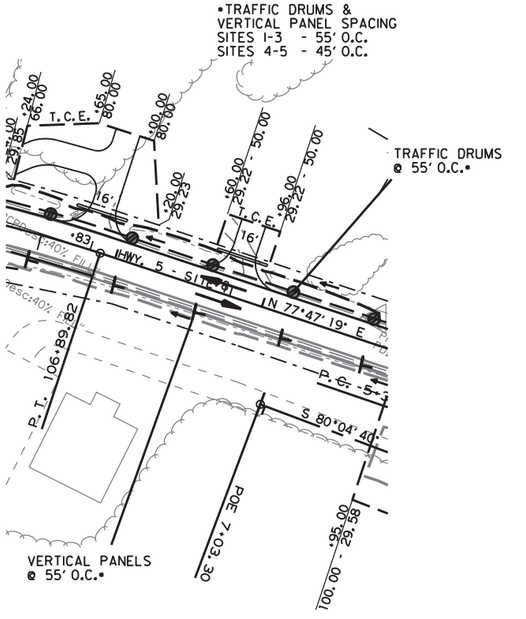
SITE 1:
TRAFFIC DRUMS = 109 EACH

SITE 2:
TRAFFIC DRUMS = 116 EACH

SITE 3:
TRAFFIC DRUMS = 21 EACH

SITE 4:
TRAFFIC DRUMS = 32 EACH

SITE 5:
TRAFFIC DRUMS = 43 EACH



STAGE 2

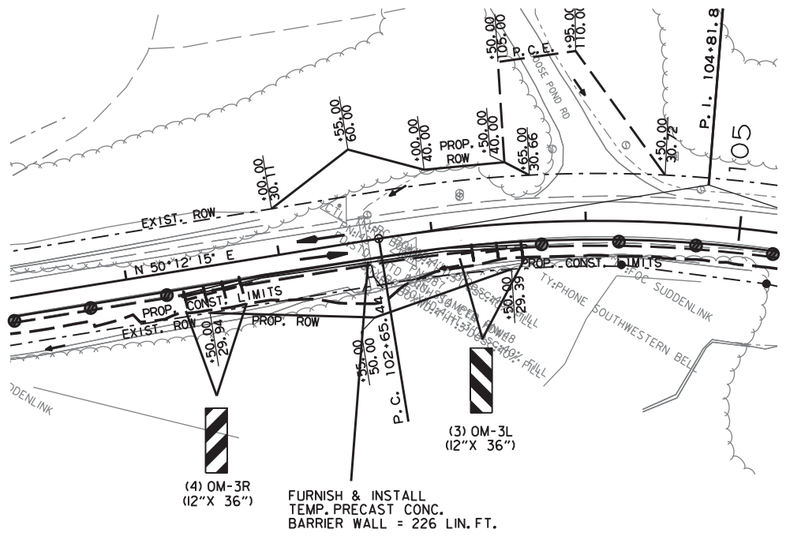
SITE 1:
TRAFFIC DRUMS = 109 EACH
VERTICAL PANELS = 109 EACH

SITE 2:
TRAFFIC DRUMS = 116 EACH
VERTICAL PANELS = 109 EACH

SITE 3:
TRAFFIC DRUMS = 21 EACH
VERTICAL PANELS = 109 EACH

SITE 4:
TRAFFIC DRUMS = 32 EACH
VERTICAL PANELS = 109 EACH

SITE 5:
TRAFFIC DRUMS = 43 EACH
VERTICAL PANELS = 109 EACH



BOX CULVERT & CROSS DRAIN EXTENSIONS

SITE 1:
6 LOCATIONS = 1356 LIN. FT.

SITE 2:
3 LOCATIONS = 678 LIN. FT.

SITE 3:
1LOCATION = 226 LIN. FT.

SITE 4:
2 LOCATIONS = 452 LIN. FT.

SITE 5:
2 LOCATIONS = 452 LIN. FT.

RELOCATING TEMP. PRECAST BARRIER WALL

SITE 1:
6 LOCATIONS = 1356 LIN. FT.

SITE 2:
2 LOCATIONS = 452 LIN. FT.

SITE 4:
2 LOCATIONS = 452 LIN. FT.

10/22/2019

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HWY. 5
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.		061442	60	253

MAINTENANCE OF TRAFFIC DETAILS

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

Aug 24 2020 10:53 AM

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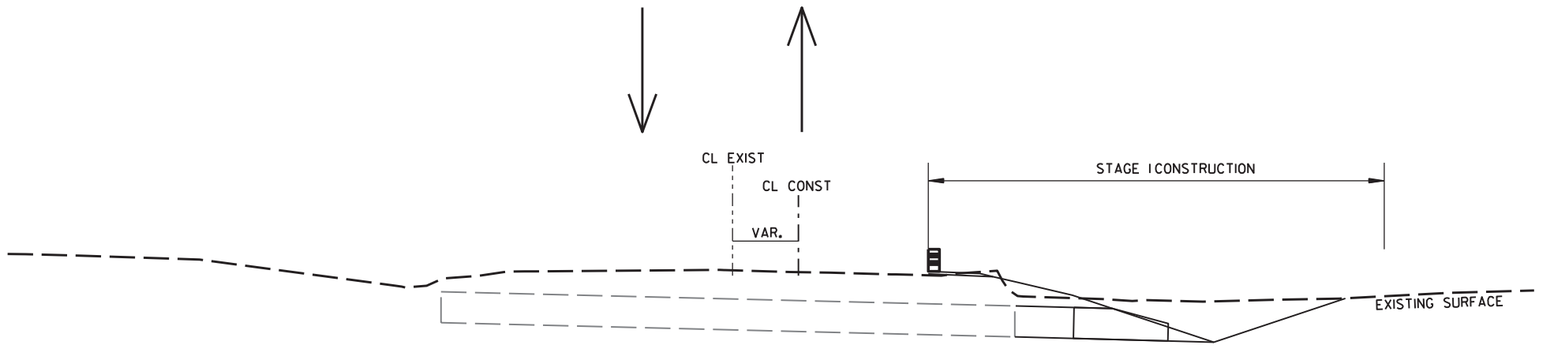
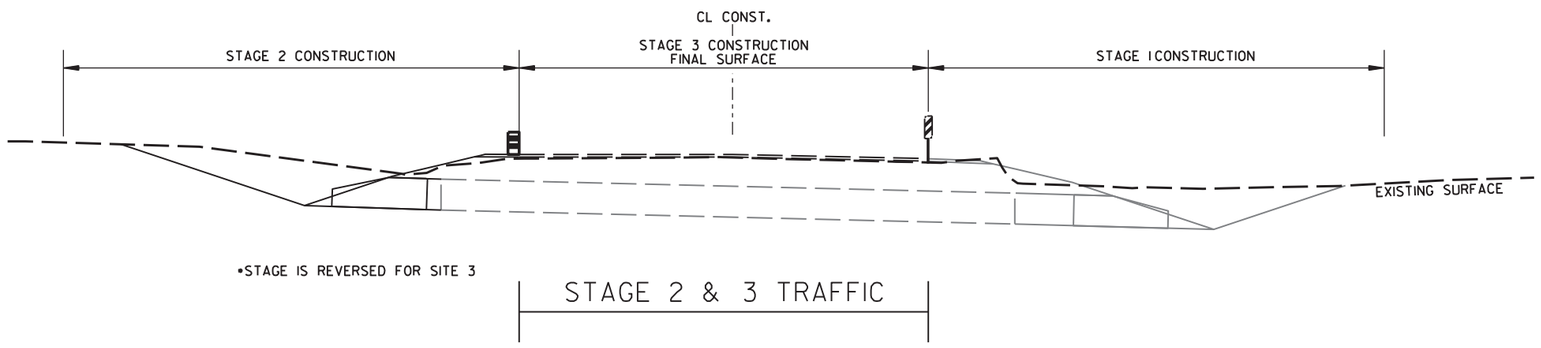


*STAGE IS REVERSED FOR SITE 3

EXISTING PAVEMENT
STAGE I TRAFFIC

STAGE I



*STAGE IS REVERSED FOR SITE 3

STAGE 2 & 3 TRAFFIC

STAGE 2 & 3

10/22/2019

R061442.DGN

HWY. 5
MAINTENANCE OF TRAFFIC DETAILS

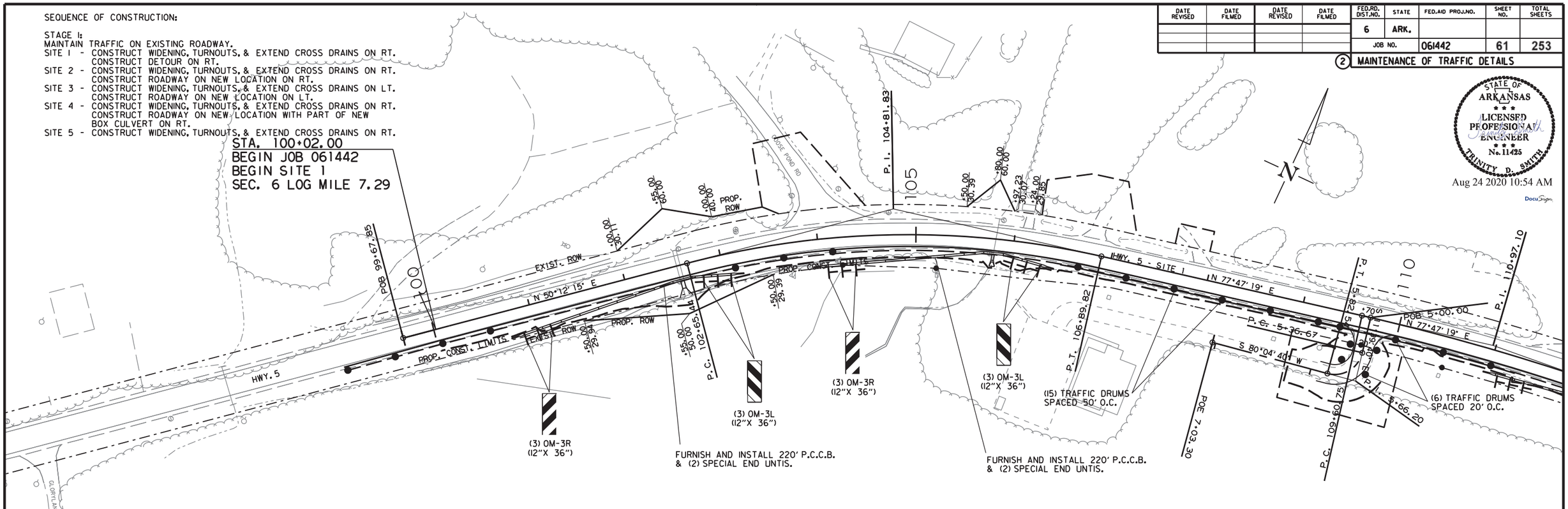
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	61	253

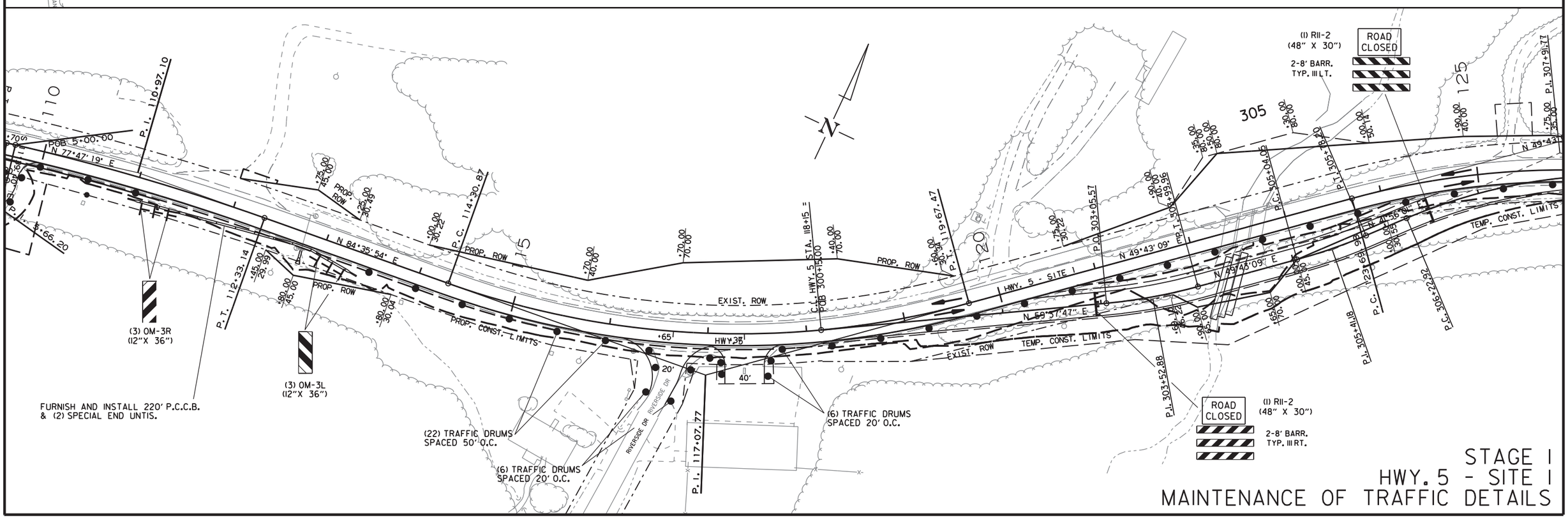
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 10:54 AM

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.





STAGE I
HWY. 5 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

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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.		061442	62	253

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

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

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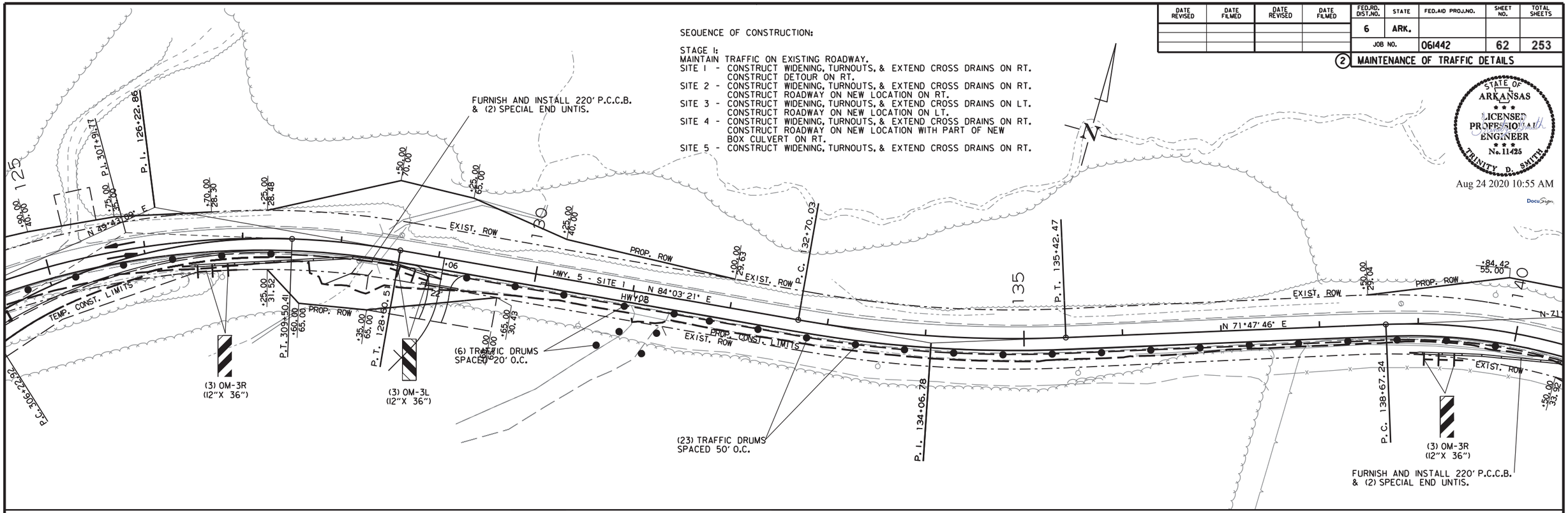

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STAGE I
HWY. 5 - SITE I
MAINTENANCE OF TRAFFIC DETAILS

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.		061442	63	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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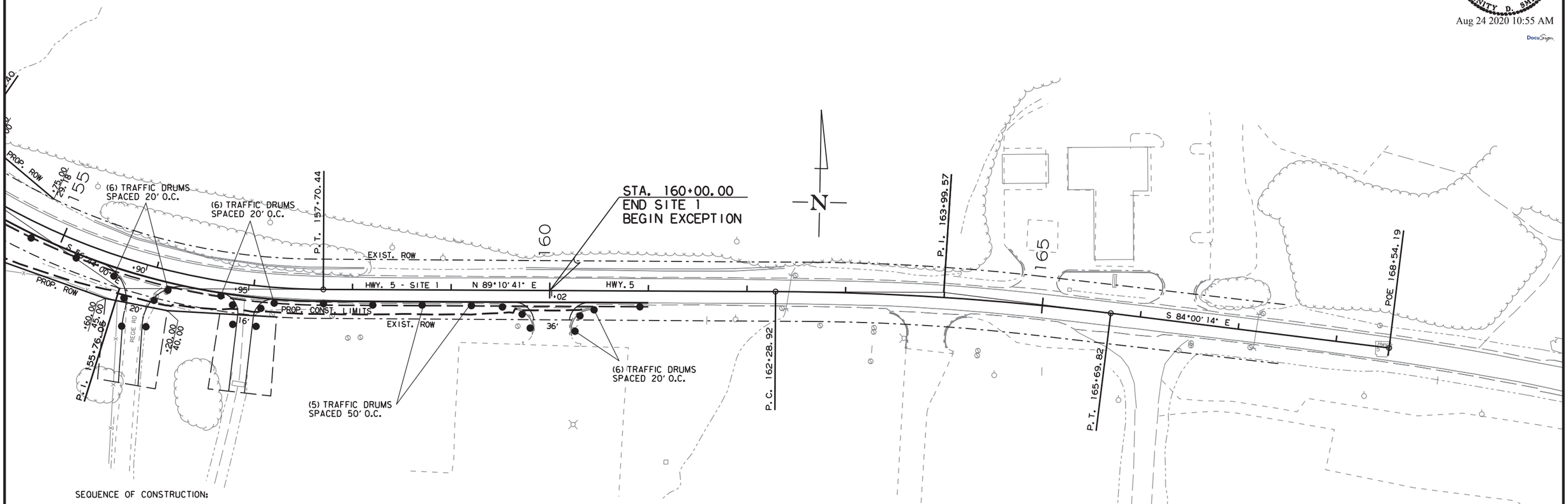

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

10/22/2019

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STAGE I
HWY. 5 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

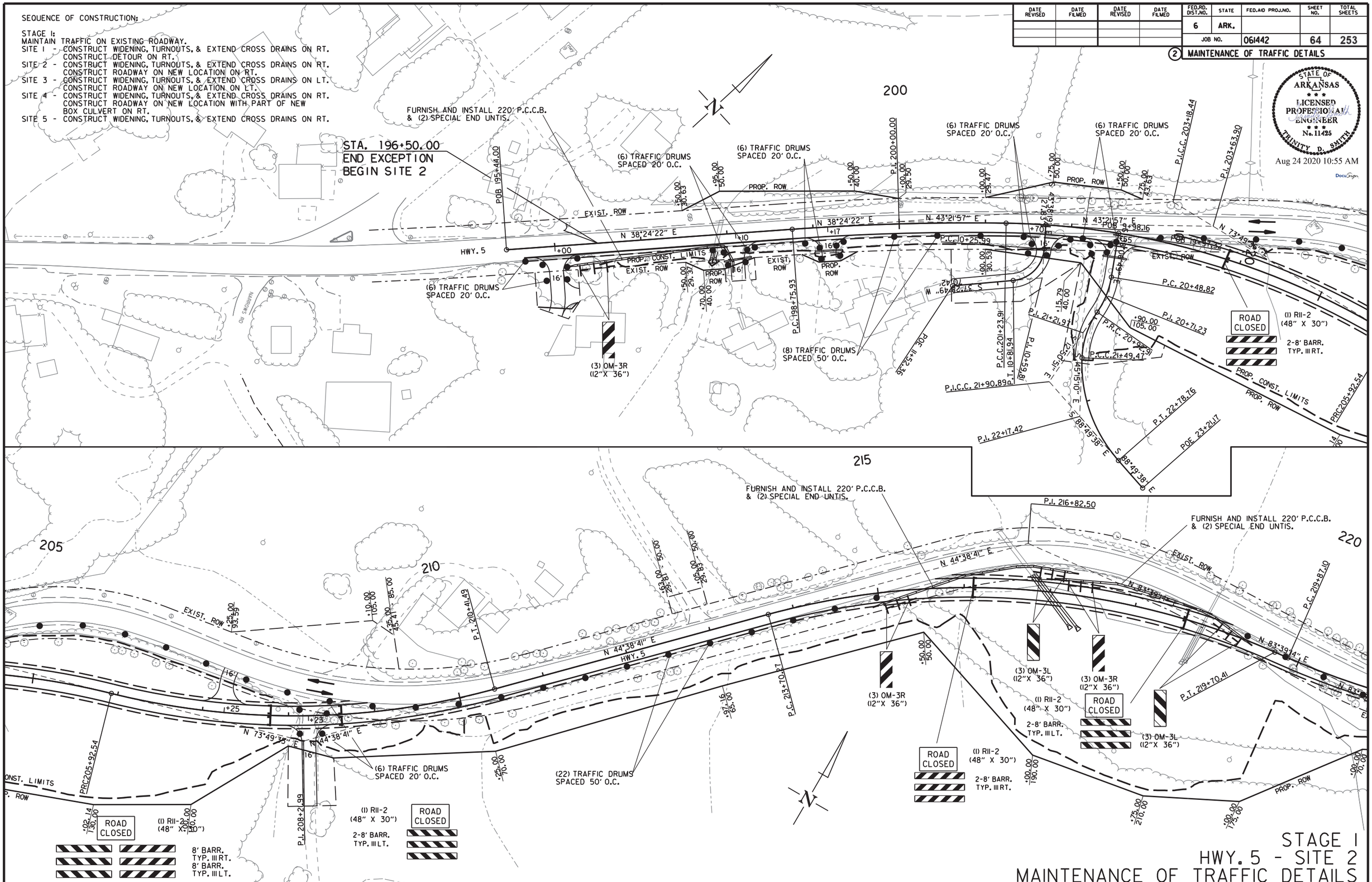
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	64	253

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 10:55 AM

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.



STAGE I
HWY. 5 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019
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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.		061442	65	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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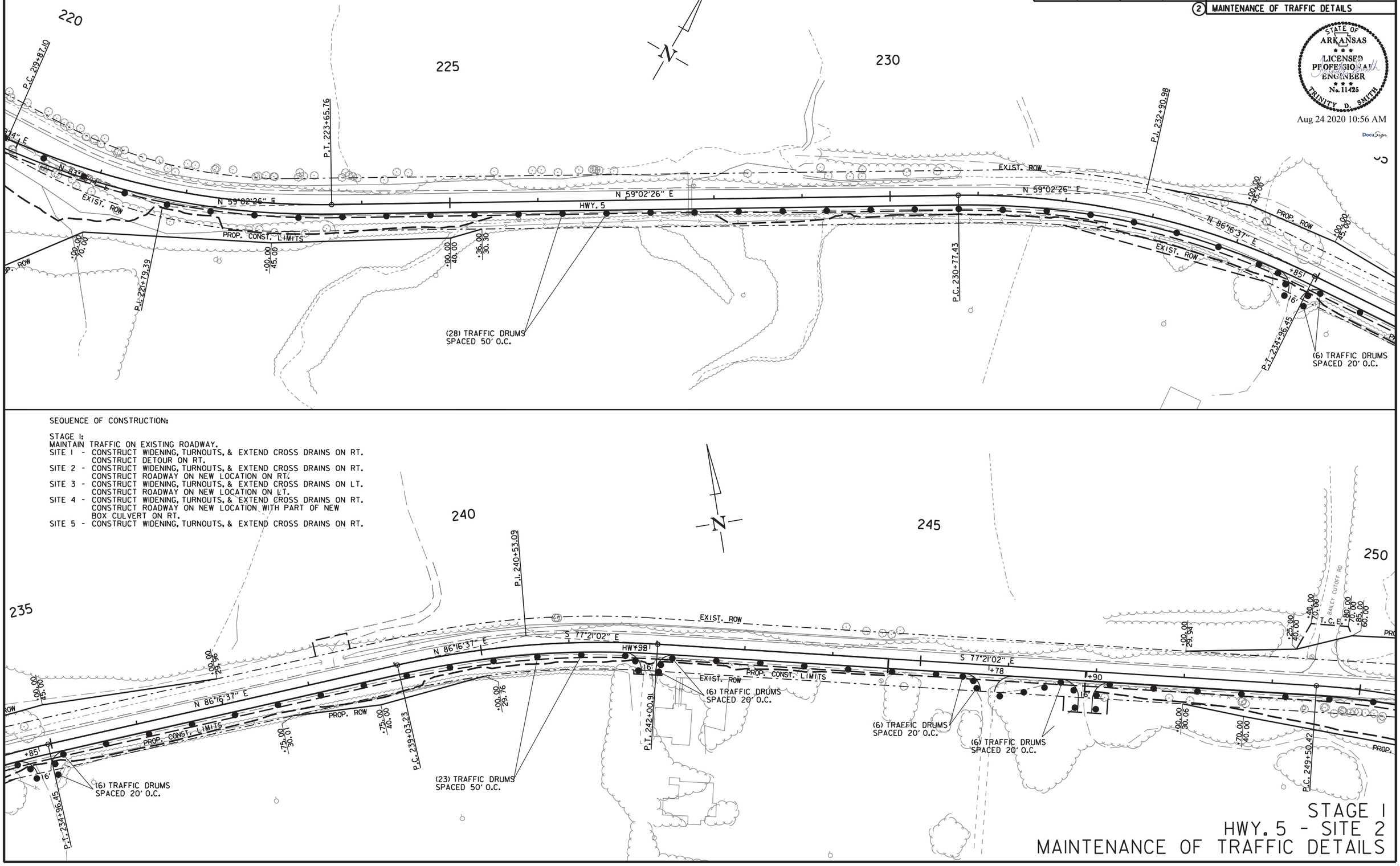
SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.



STAGE I
HWY. 5 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

R061442.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.		061442	66	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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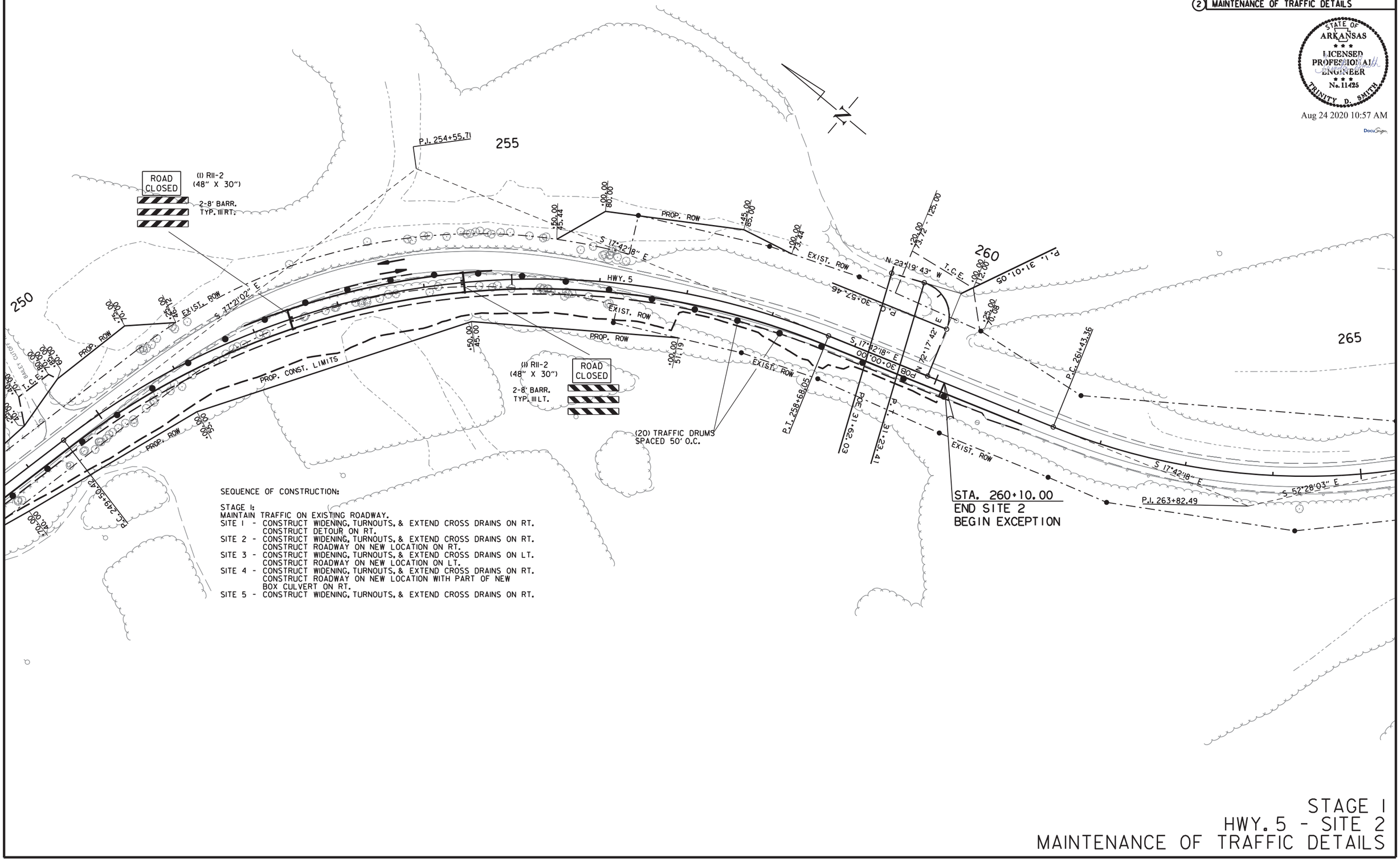

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

10/22/2019

R061442.DGN

STAGE I
HWY. 5 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	67	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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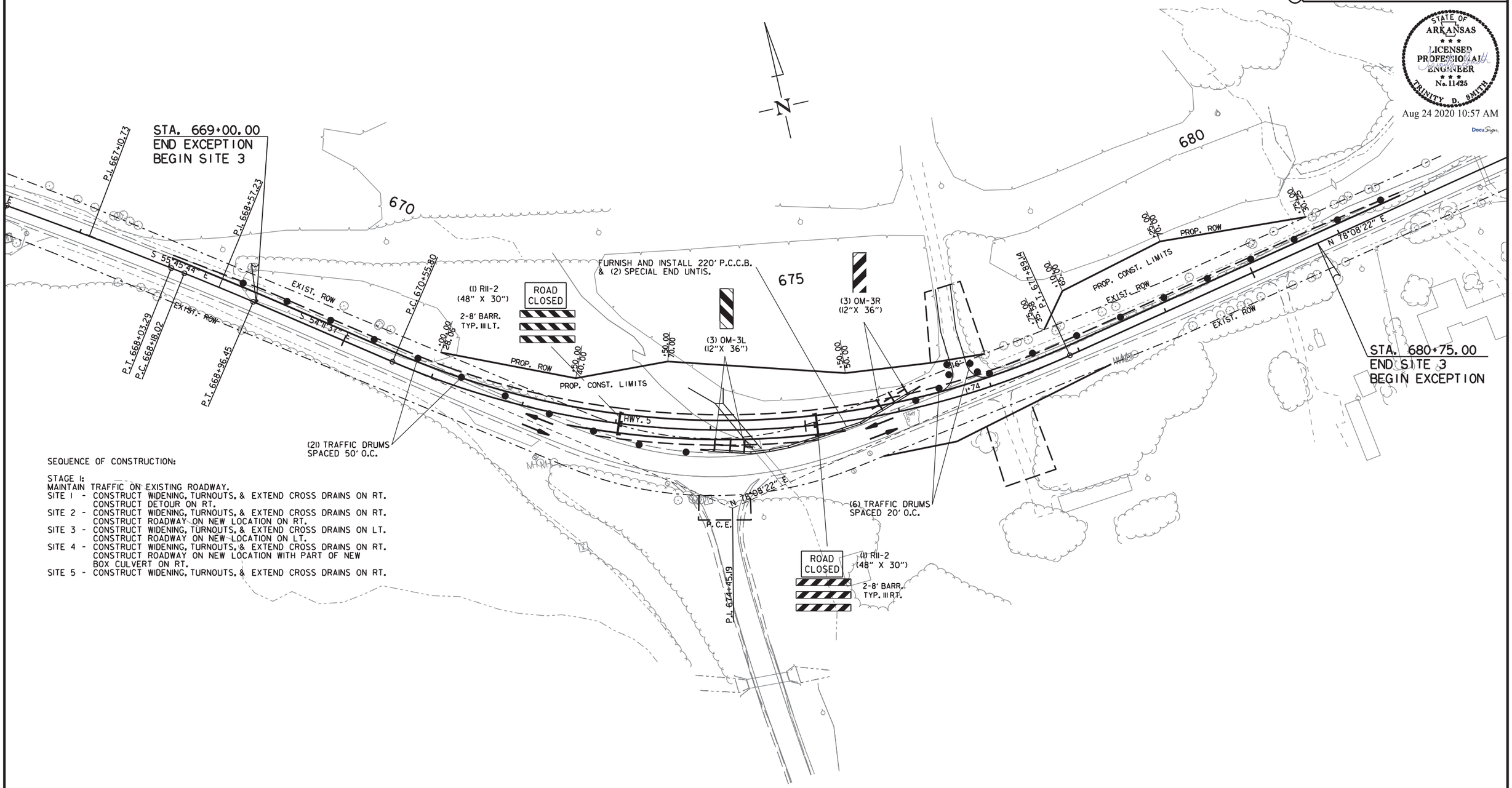

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW
BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

10/22/2019

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STAGE I
HWY. 5 - SITE 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
6	ARK.			
JOB NO.		061442	68	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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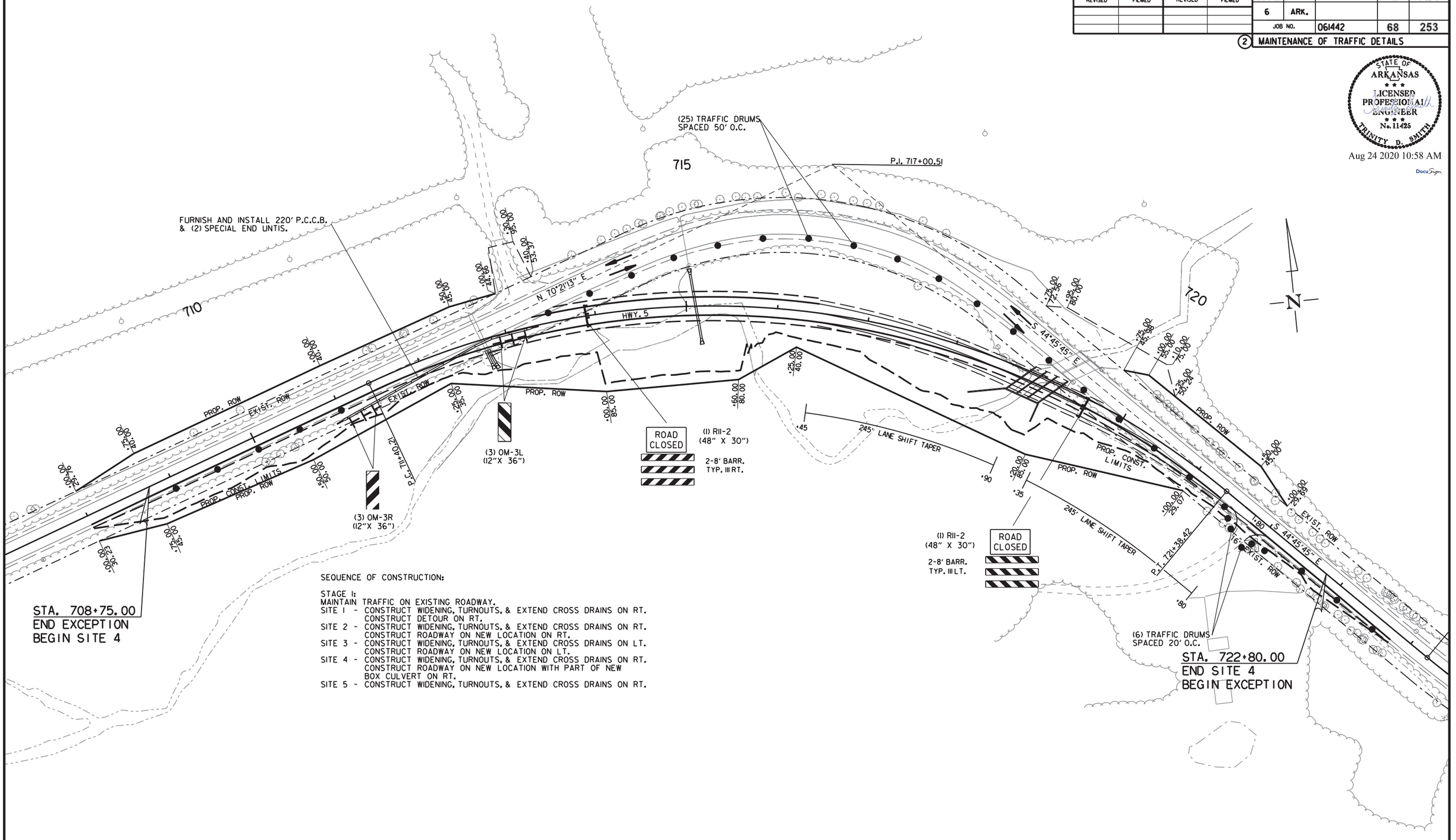

SEQUENCE OF CONSTRUCTION:

STAGE I:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

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STAGE I
HWY. 5 - SITE 4
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.		061442	69	253

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 10:58 AM
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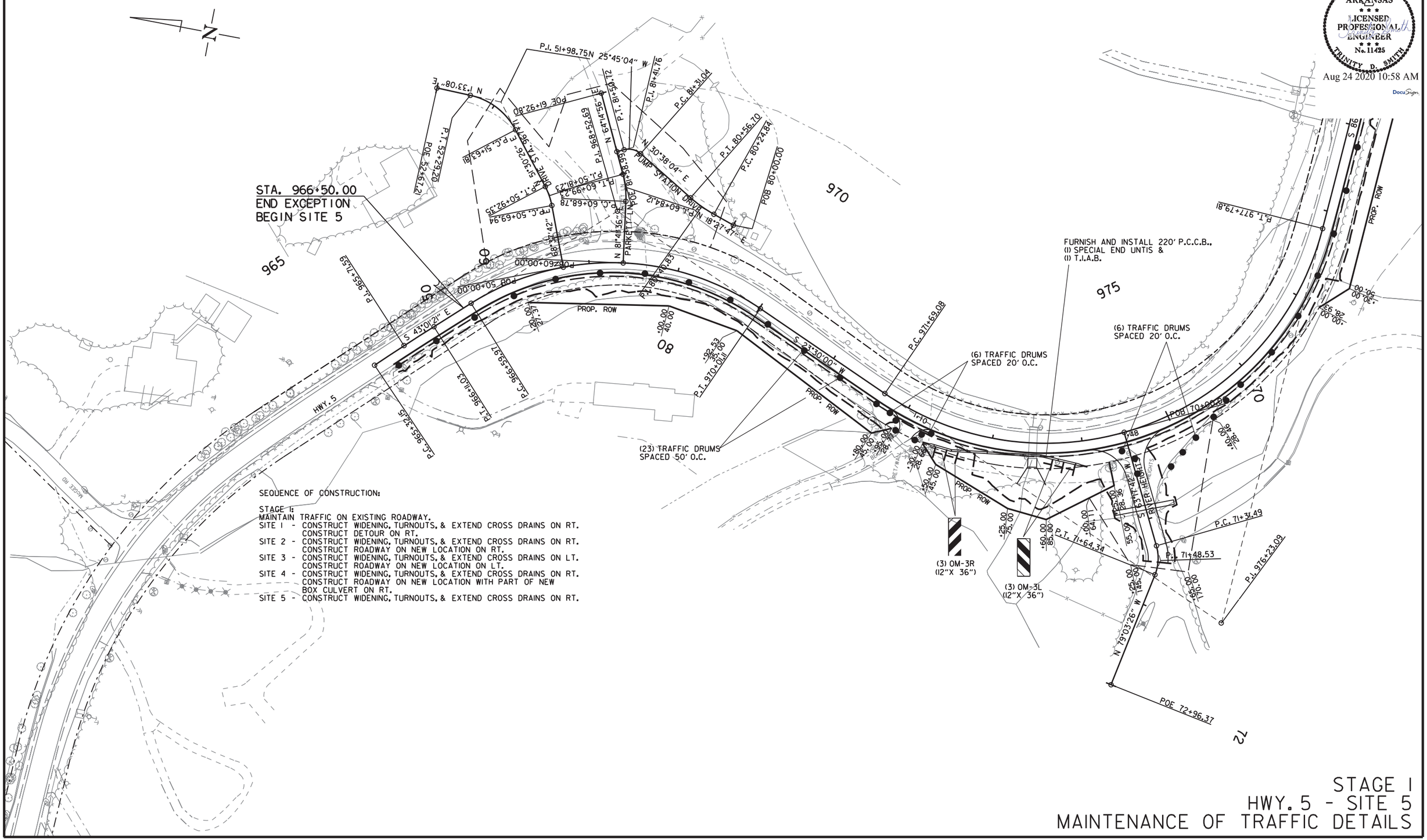

SEQUENCE OF CONSTRUCTION:

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

STAGE 1
HWY. 5 - SITE 5
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019
R061442.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.		061442	70	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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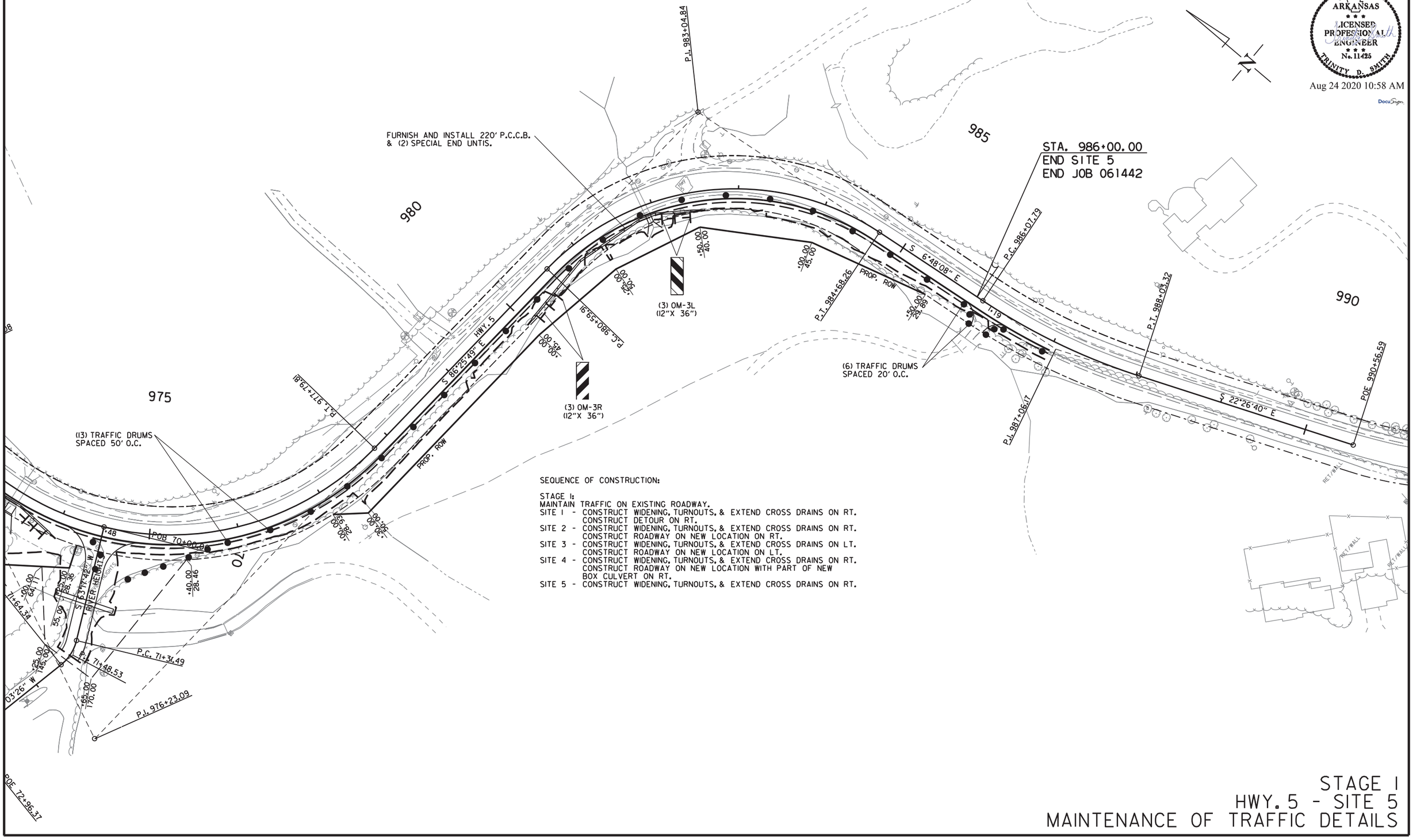

SEQUENCE OF CONSTRUCTION:

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 1 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT DETOUR ON RT.
SITE 2 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 3 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON LT.
CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
SITE 4 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.
CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX CULVERT ON RT.
SITE 5 - CONSTRUCT WIDENING, TURNOUTS, & EXTEND CROSS DRAINS ON RT.

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R061442.DGN

STAGE 1
HWY. 5 - SITE 5
MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

STAGE 3:
SITE 1 - MOVE TRAFFIC TO NEW ROADWAY.
OBLITERATE DETOUR.
CONSTRUCT SHOULDER & REMAINING BOX CULVERT ON LT.
PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 2 - PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 3 - PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 4 - MOVE TRAFFIC TO NEW ROADWAY.
REMOVE WIDENING FOR MAINTENANCE OF TRAFFIC ON RT.
PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 5 - PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	71	253

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 10:59 AM
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STA. 100+02.00
BEGIN JOB 061442
BEGIN SITE 1
SEC. 6 LOG MILE 7.29

RELOCATE 120' P.C.C.B.
(1) SPECIAL END UNITS &
(1) T.I.A.B.

(3) OM-3L
(12"X 36")

(3) OM-3R
(12"X 36")

(13) TRAFFIC DRUMS
SPACED 50' O.C.

RELOCATE 120' P.C.C.B.
& (1) SPECIAL END UNITS
FURNISH (1) T.I.A.B.

(6) TRAFFIC DRUMS
SPACED 20' O.C.

(25) VERTICAL PANELS
SPACED 50' O.C.

HWY. 5 - SITE#1

ROAD CLOSED

(1) RII-2
(48" X 30")
2-8' BARR.
TYP. III RT.

(1) RII-2
(48" X 30")
2-8' BARR.
TYP. III LT.

(11) VERTICAL PANELS
SPACED 50' O.C.

(20) TRAFFIC DRUMS
SPACED 50' O.C.

STAGE 2
HWY. 5 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

R061442.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.		061442	72	253

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

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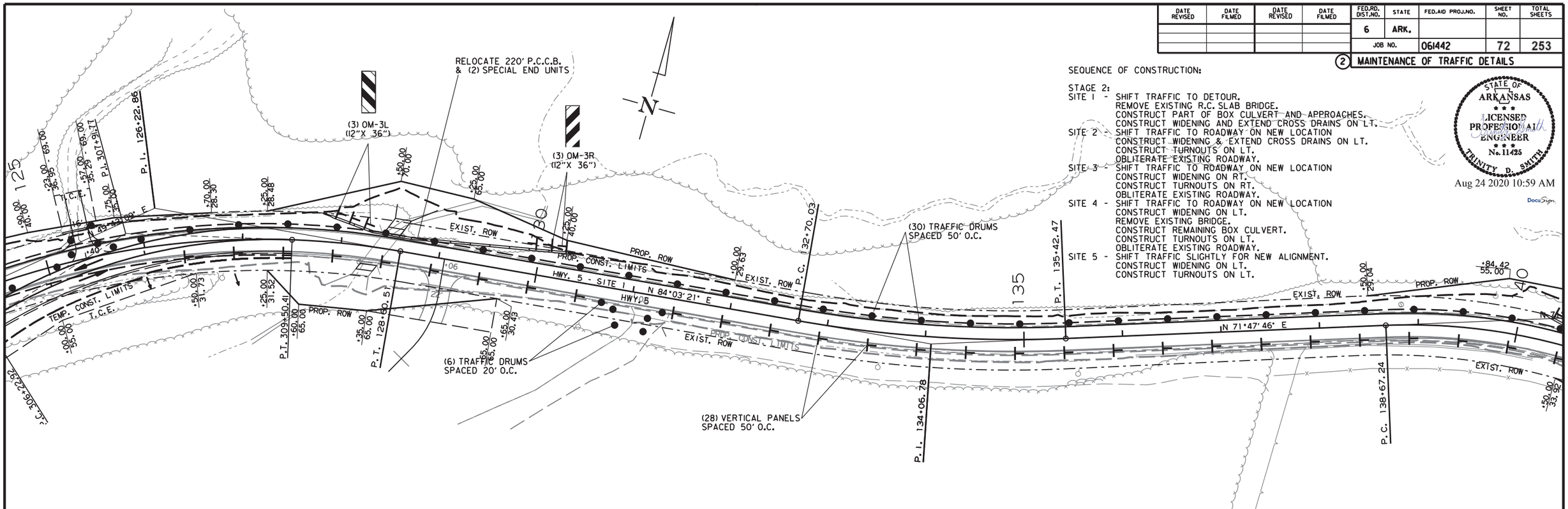

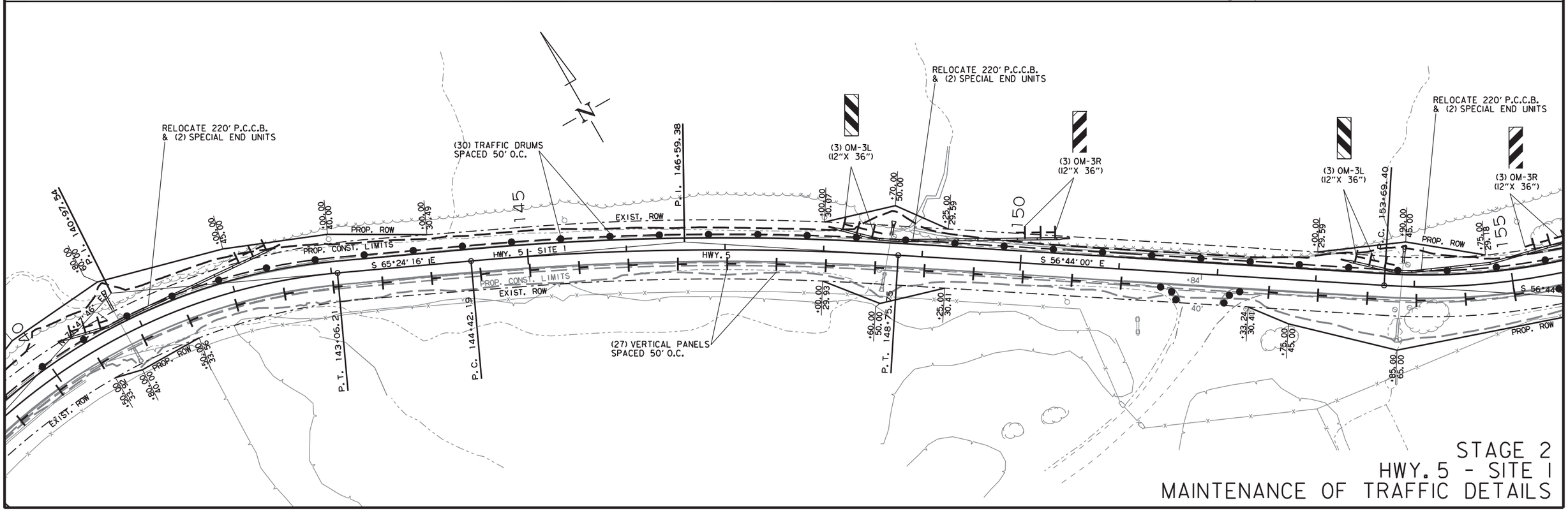

STAGE 2
HWY. 5 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

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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.		061442	73	253

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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TRINITY D. SMITH

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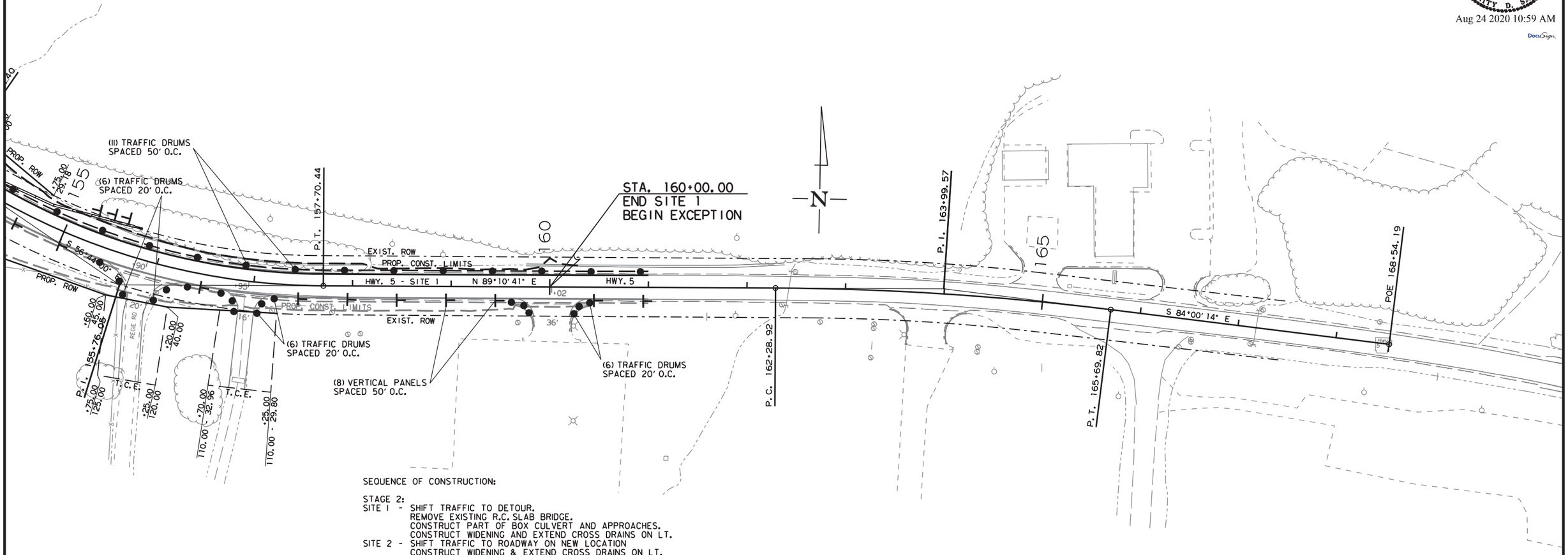

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

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STAGE 2
HWY. 5 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

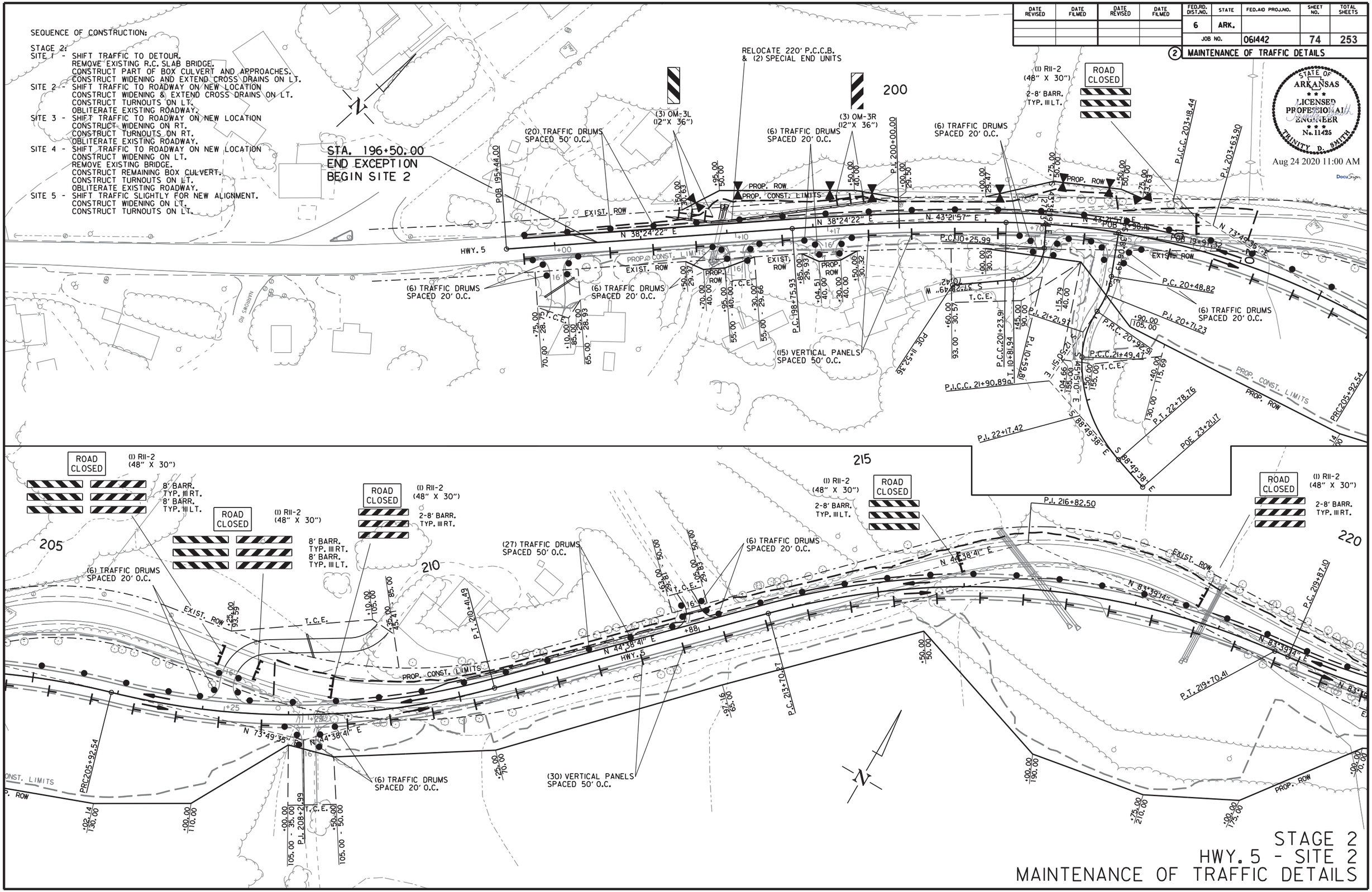
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	74	253

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:00 AM

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.



STAGE 2
HWY. 5 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

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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.		061442	75	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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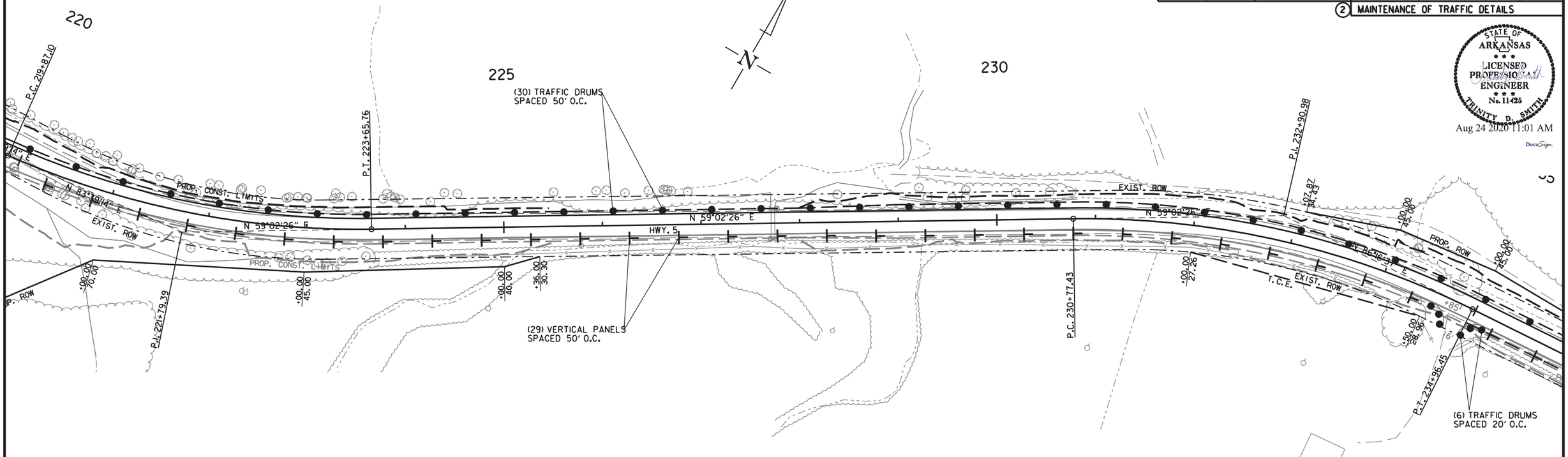
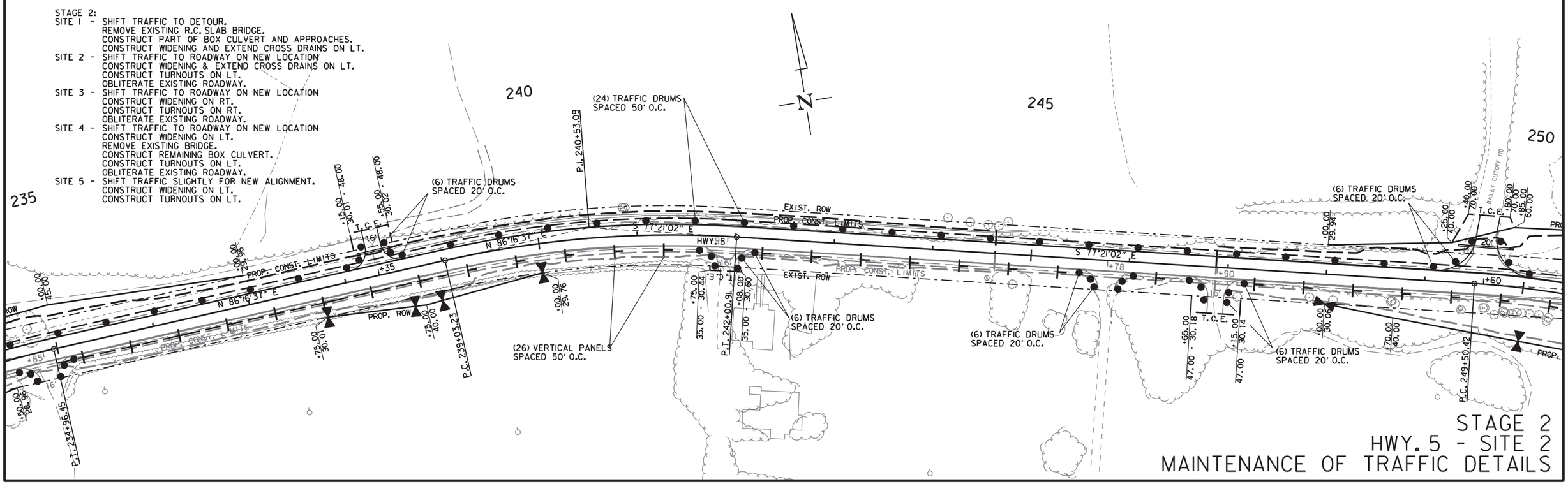


SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.



STAGE 2
HWY. 5 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

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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.		061442	76	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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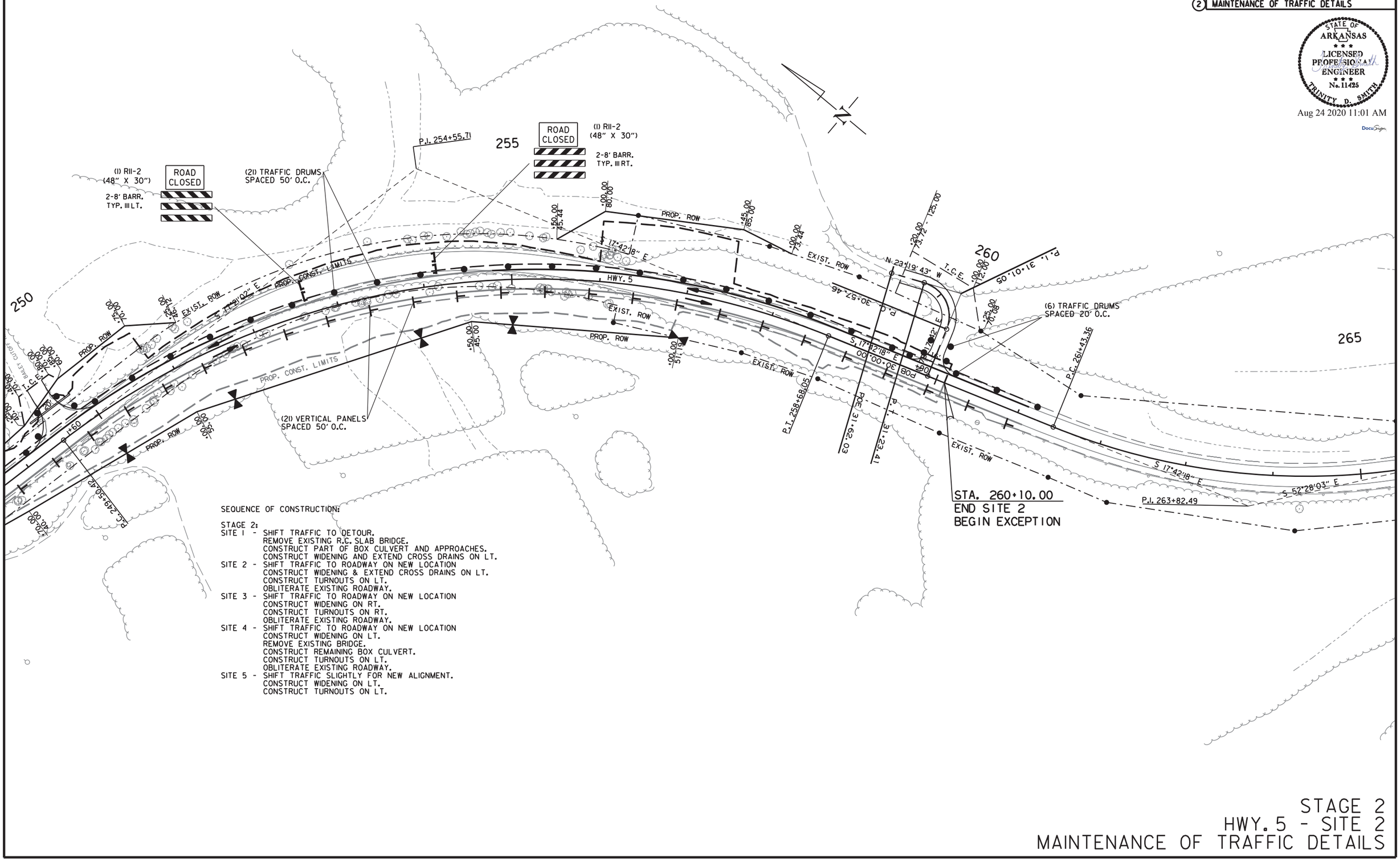

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

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STAGE 2
HWY. 5 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	77	253

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

STATE OF ARKANSAS
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No. 11425
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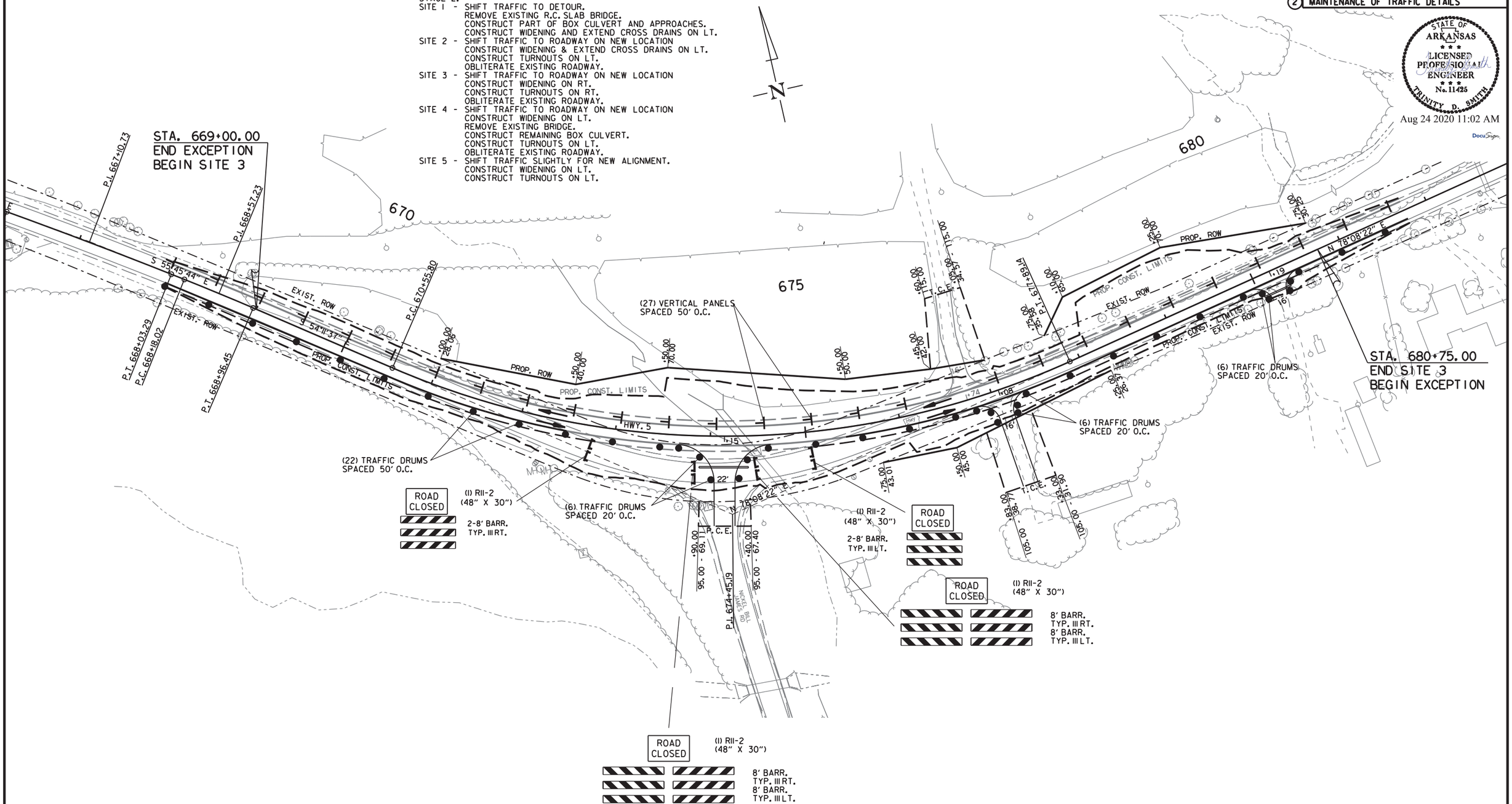

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STAGE 2
HWY. 5 - SITE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	78	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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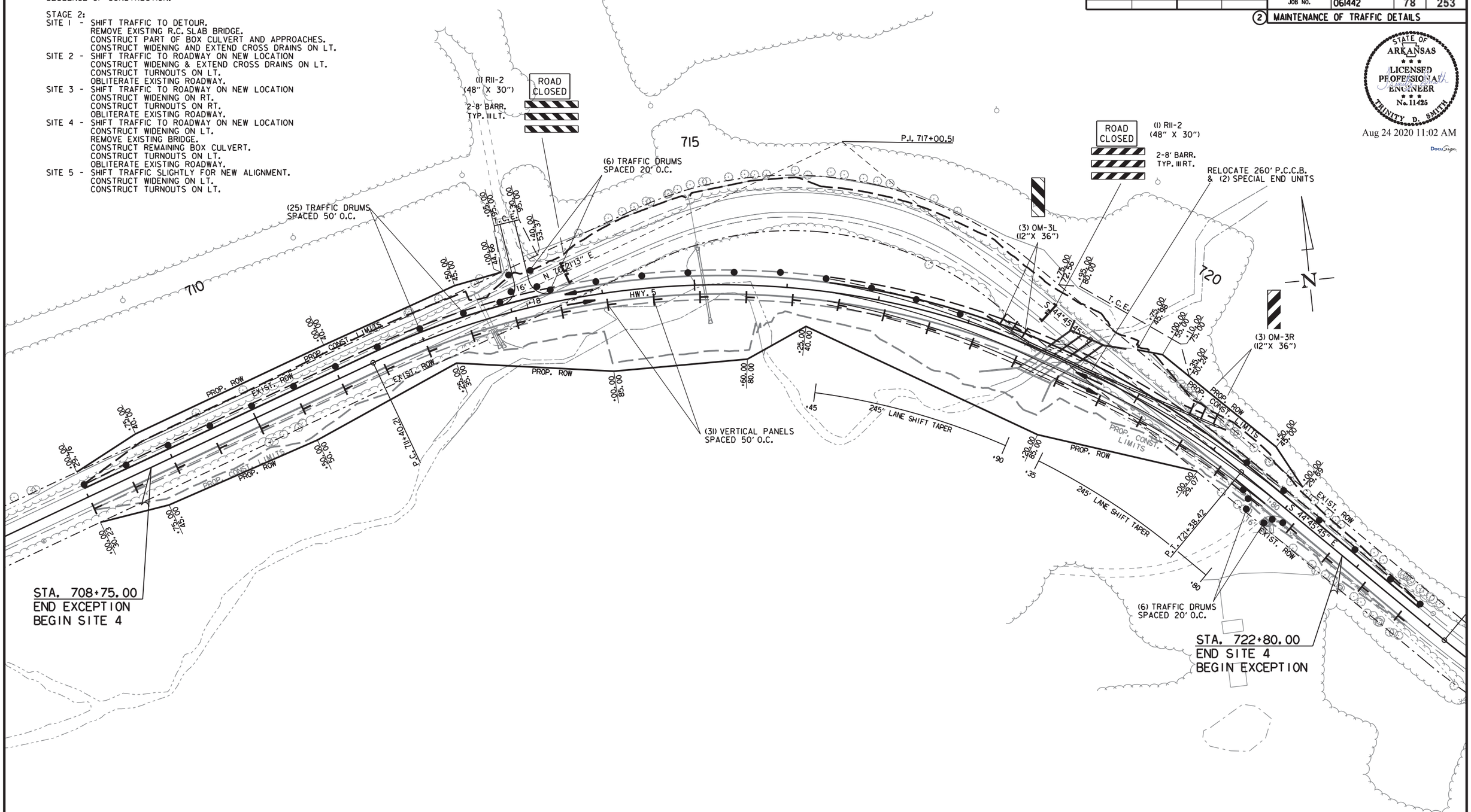
SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.



STAGE 2
HWY. 5 - SITE 4
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

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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.		061442	79	253

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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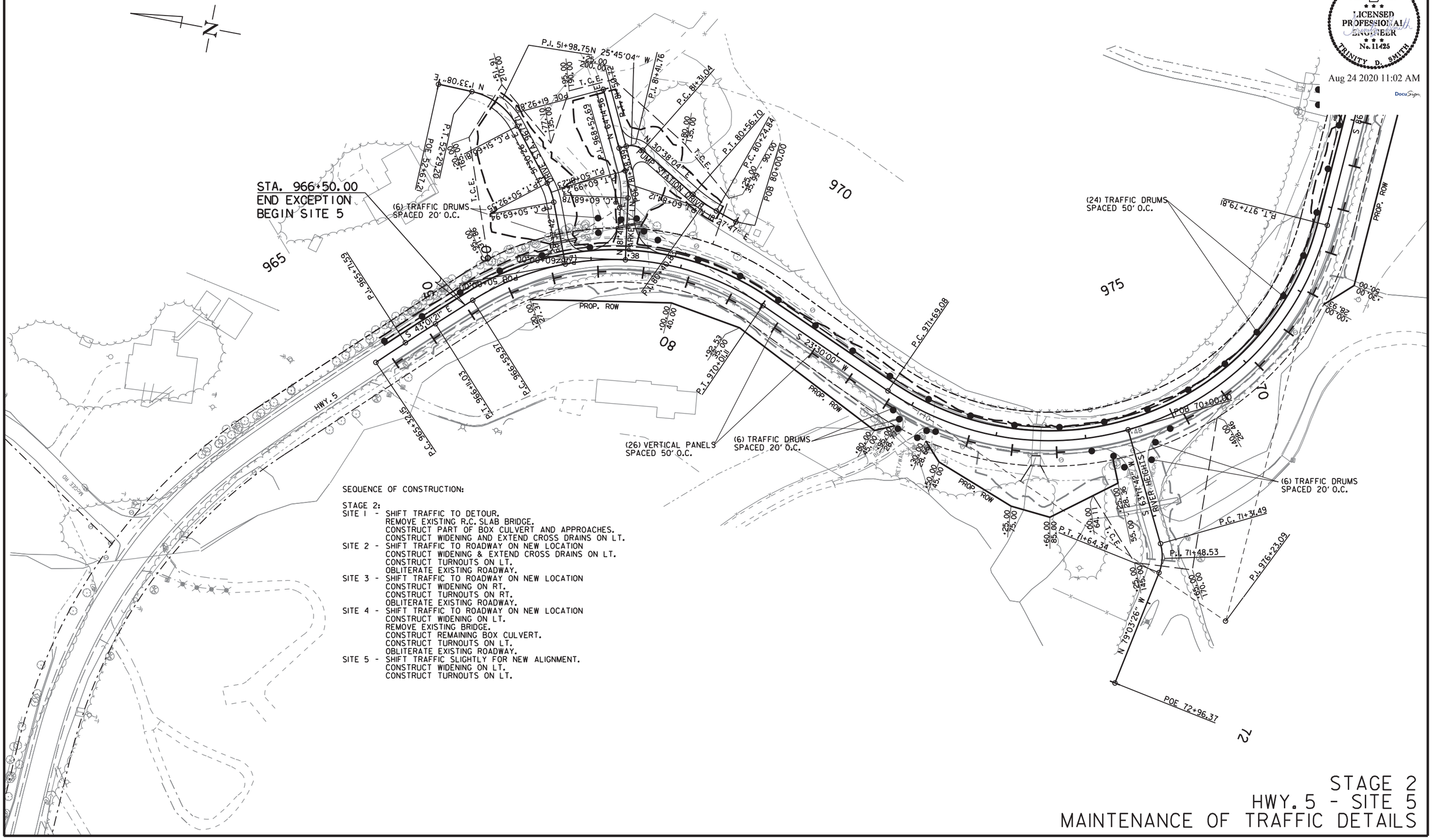

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

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STAGE 2
HWY. 5 - SITE 5
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

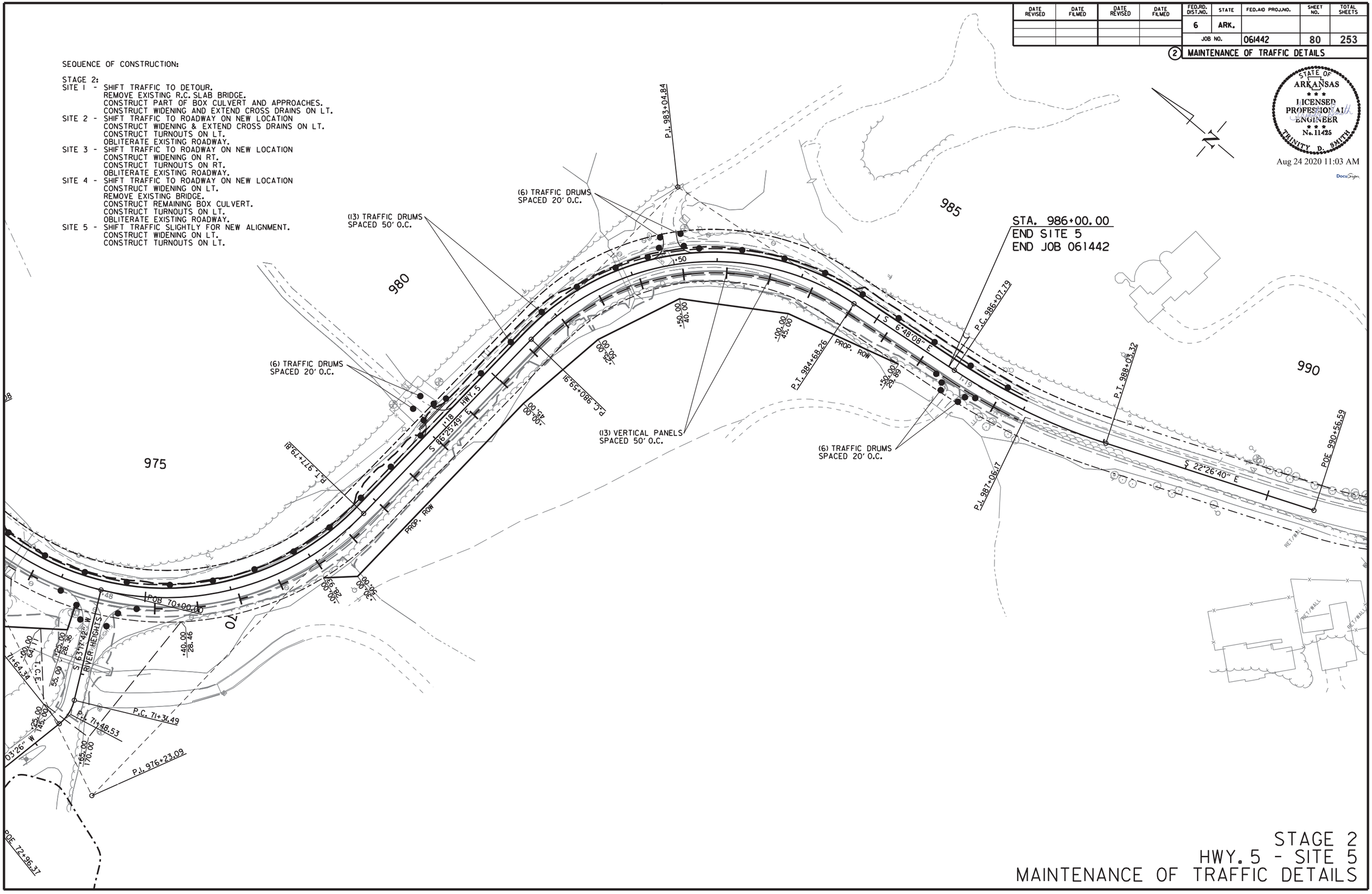
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	80	253

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION:

STAGE 2:
SITE 1 - SHIFT TRAFFIC TO DETOUR.
REMOVE EXISTING R.C. SLAB BRIDGE.
CONSTRUCT PART OF BOX CULVERT AND APPROACHES.
CONSTRUCT WIDENING AND EXTEND CROSS DRAINS ON LT.
SITE 2 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING & EXTEND CROSS DRAINS ON LT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 3 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON RT.
CONSTRUCT TURNOUTS ON RT.
OBLITERATE EXISTING ROADWAY.
SITE 4 - SHIFT TRAFFIC TO ROADWAY ON NEW LOCATION
CONSTRUCT WIDENING ON LT.
REMOVE EXISTING BRIDGE.
CONSTRUCT REMAINING BOX CULVERT.
CONSTRUCT TURNOUTS ON LT.
OBLITERATE EXISTING ROADWAY.
SITE 5 - SHIFT TRAFFIC SLIGHTLY FOR NEW ALIGNMENT.
CONSTRUCT WIDENING ON LT.
CONSTRUCT TURNOUTS ON LT.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:03 AM
DocuSigned by:



STAGE 2
HWY. 5 - SITE 5
MAINTENANCE OF TRAFFIC DETAILS

10/22/2019

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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.		061442	81	253

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

STAGE 3:
SITE 1 - MOVE TRAFFIC TO NEW ROADWAY.
OBLITERATE DETOUR.
CONSTRUCT SHOULDER & REMAINING BOX CULVERT ON LT.
PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 2 - PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 3 - PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 4 - MOVE TRAFFIC TO NEW ROADWAY.
REMOVE WIDENING FOR MAINTENANCE OF TRAFFIC ON RT.
PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.
SITE 5 - PLACE FINAL SURFACE COURSE &
PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH

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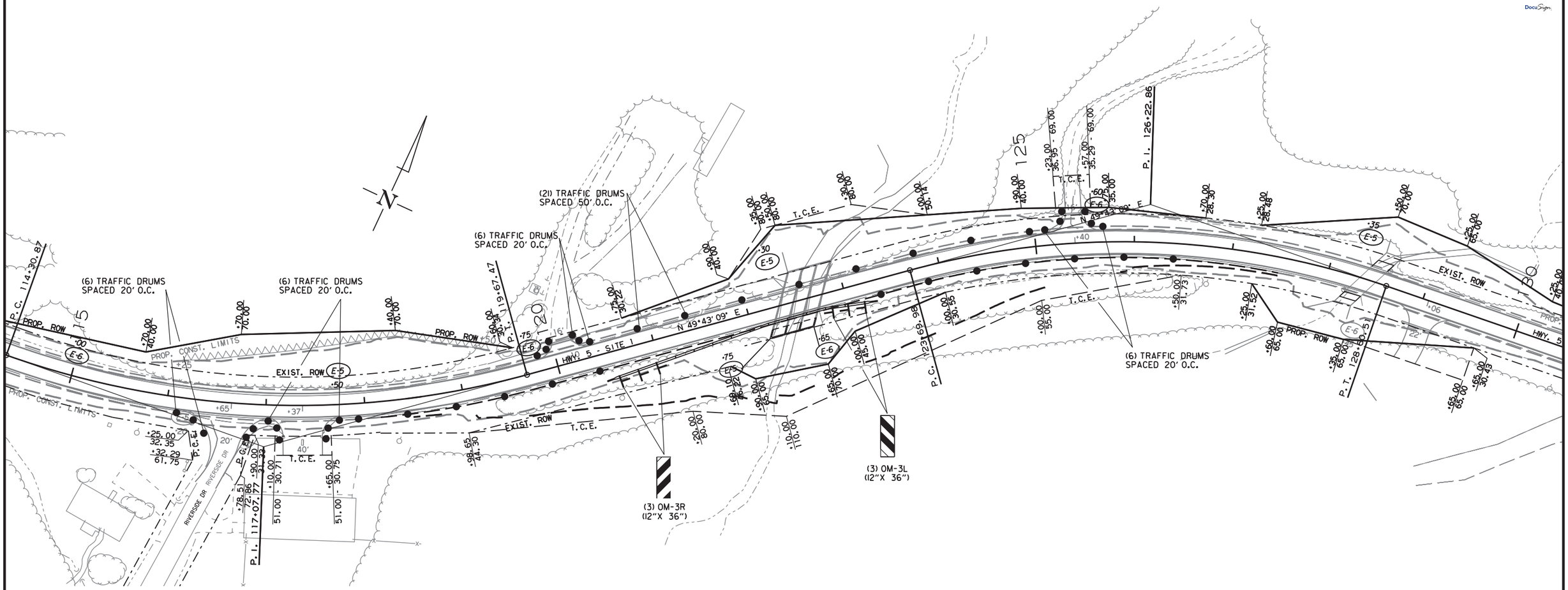

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STAGE 3
HWY. 5 - SITE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	82	253

(2) PERMANENT PAVEMENT MARKING DETAILS

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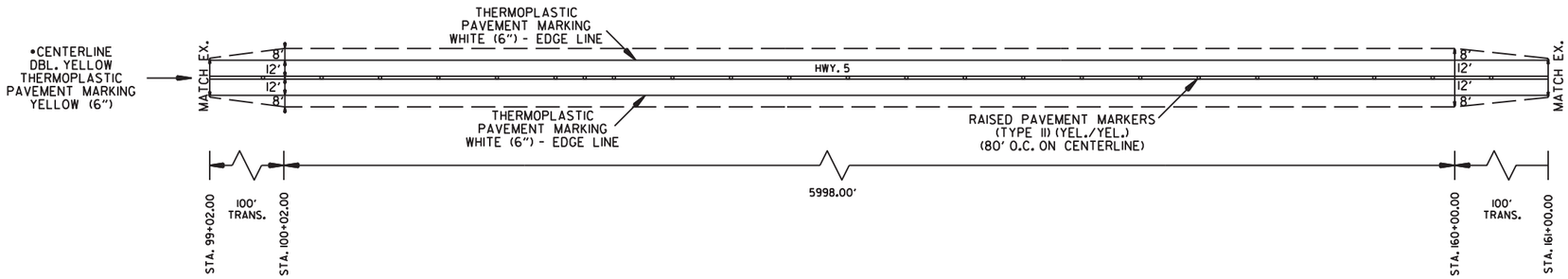


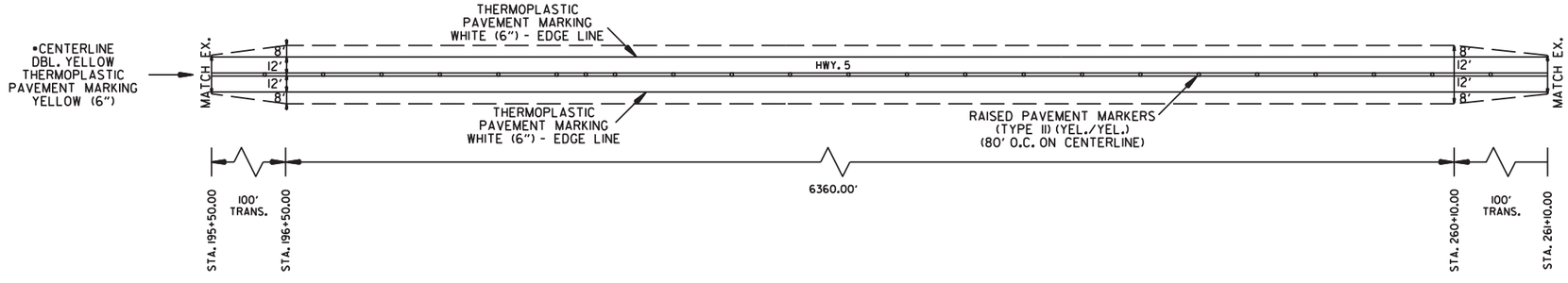
HWY. 5 - SITE 1 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKINGS:

6" THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 12396 LIN. FT. WHITE
DBL. CENTERLINE = 12396 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 75 EACH

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



HWY. 5 - SITE 2 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKINGS:

6" THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 13120 LIN. FT. WHITE
DBL. CENTERLINE = 13120 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 80 EACH

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

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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
				6	ARK.			
				JOB NO.		061442	83	253

(2) PERMANENT PAVEMENT MARKING DETAILS

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

Aug 24 2020 11:04 AM

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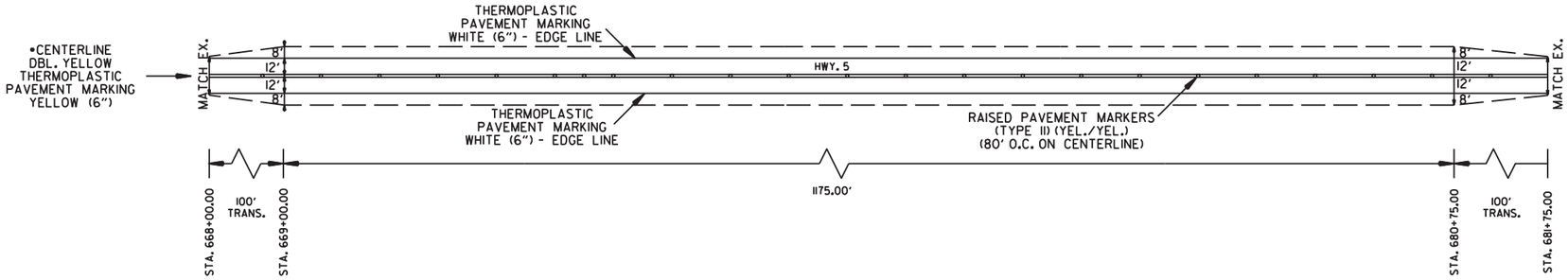


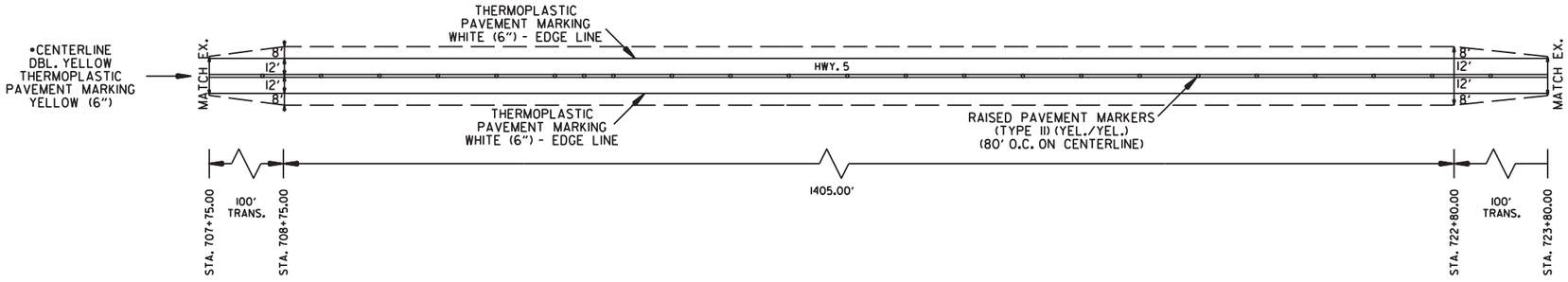
HWY. 5 - SITE 3 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKINGS:

6" THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 2750 LIN. FT. WHITE
DBL. CENTERLINE = 2750 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 15 EACH

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



HWY. 5 - SITE 4 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKINGS:

6" THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 3210 LIN. FT. WHITE
DBL. CENTERLINE = 3210 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 18 EACH

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

tw39665 10/22/2019
R061442.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.		061442	84	253

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:04 AM
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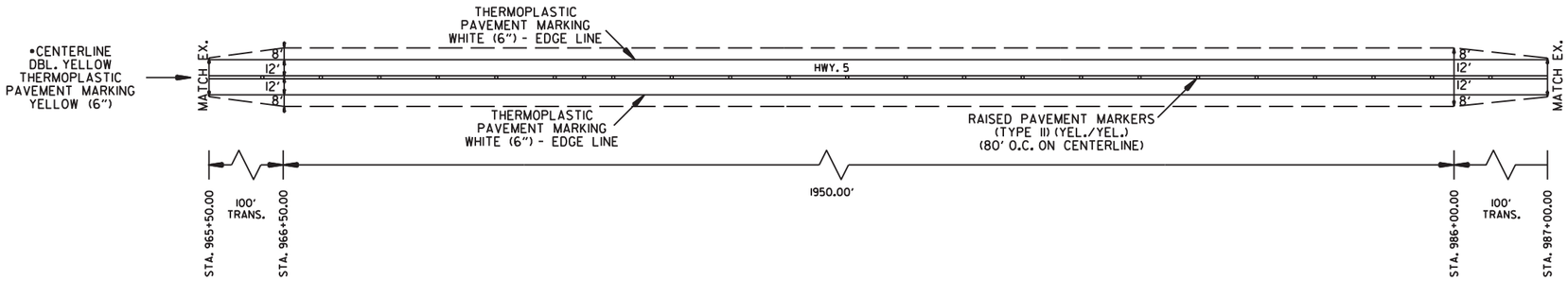

HWY. 5 - SITE 5 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKINGS:

6" THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 4300 LIN. FT. WHITE
DBL. CENTERLINE = 4300 LIN. FT. YELLOW

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 25 EACH

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

lw39665 10/22/2019
R061442.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.		061442	85	253

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
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CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING	
					TYPE II	6"	
					(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.	EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	71552	71152		142704			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)			223		223		
THERMOPLASTIC PAVEMENT MARKING WHITE (6")			35776			35775	
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")			35776				35776
TOTALS:				**142704**	**223**	**35775**	**35776**

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

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		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)
								NO.	SQ. FT.			RIGHT	LEFT				
			LIN. FT. - EACH							EACH		LIN. FT.				EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	10	10	10		10	10	160.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	10	10	10		10	10	160.0								
W20-1	ROAD WORK 500 FT.	48"x48"	10	10	10		10	10	160.0								
W20-1	ROAD WORK AHEAD	48"x48"	18	18	18		18	18	288.0								
G20-2	END ROAD WORK	48"x24"	18	18	18		18	18	144.0								
R11-2	ROAD CLOSED	48"x30"	10	10			16	16	160.0								
OM-3L	OBJECT MARKER	12"x36"	39	21	3		39	39	117.0								
OM-3R	OBJECT MARKER	12"x36"	42	21	3		42	42	126.0								
W1-6	LARGE ARROW	48"x24"		10			10	10	80.0								
R4-1	DO NOT PASS	24"x30"	12	12	12		12	12	60.0								
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	12	12	12		12	12	108.0								
	VERTICAL PANELS			317			317			317							
	TRAFFIC DRUMS		397	547	45		547				547						
	TYPE III BARRICADE-RT. (8')		10	10			30					240					
	TYPE III BARRICADE-LT. (8')		10	10			30						240				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		3080				3080							3080			
	RELOCATING PRECAST CONCRETE BARRIER			1800	260		2060								2060		
	TEMPORARY IMPACT ATTENUATION BARRIER			2			3									3	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			2			3										3
TOTALS:									**1563.0**	**317**	**547**	**240**	**240**	**3080**	**2060**	**3**	**3**

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.

10/22/2019

R061442.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.		061442	86	253

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:09 AM
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REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
122+55	122+55	HWY. 5 - SITE 1	1.00
719+15	719+15	HWY. 5 - SITE 2	1.00

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
197+48	200+00	HWY. 5 - SITE 2 - LT.	255	
201+00	203+75	HWY. 5 - SITE 2 - LT.	155	
207+80	207+96	HWY. 5 - SITE 2 - RT.	16	
208+10	208+40	HWY. 5 - SITE 2 - RT.		1
208+40	208+56	HWY. 5 - SITE 2 - RT.	16	
237+75	240+00	HWY. 5 - SITE 2 - RT.	225	
248+00	257+00	HWY. 5 - SITE 2 - RT.	900	
719+70	721+38	HWY. 5 - SITE 4 - LT.	170	
TOTALS:			1737	1

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	RETAINING WALLS	SIGN FOUNDATIONS	STEEL POSTS	SIGNS
			LIN. FT.	EACH	EACH	EACH
117+40	117+40	HWY. 5 - SITE 1 - RT.		1		2
208+70	208+70	HWY. 5 - SITE 2 - LT.			2	
248+00	257+00	HWY. 5 - SITE 2 - RT.				
975+00	975+12	HWY. 5 - SITE 5 - RT.	12			
TOTALS:			12	1	2	2

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
99+02	161+00	HWY. 5 - SITE 1 - LT. & RT.	62	62
195+50	225+13	HWY. 5 - SITE 2 - LT. & RT.	30	30
228+14	244+64	HWY. 5 - SITE 2 - LT. & RT.	17	17
246+87	261+10	HWY. 5 - SITE 2 - LT. & RT.	15	15
668+00	681+75	HWY. 5 - SITE 3 - LT. & RT.	14	14
707+75	723+80	HWY. 5 - SITE 4 - LT. & RT.	17	17
965+50	987+00	HWY. 5 - SITE 5 - LT. & RT.	22	22
TOTALS:			177	177

REMOVING AND REPLACING TOPSOIL

STATION	STATION	LOCATION	*REMOVING AND REPLACING TOPSOIL
			CU. YD.
100+02	160+00	HWY. 5 - SITE 1 - LT. & RT.	1800
196+50	260+10	HWY. 5 - SITE 2 - LT. & RT.	3200
669+00	680+75	HWY. 5 - SITE 3 - LT. & RT.	500
708+75	722+80	HWY. 5 - SITE 4 - LT. & RT.	1200
966+50	986+00	HWY. 5 - SITE 5 - LT. & RT.	600
TOTAL:			7300

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
109+70	HWY. 5 - SITE 1 RT.	1
120+10	HWY. 5 - SITE 1 LT.	1
125+40	HWY. 5 - SITE 1 LT.	1
131+02	HWY. 5 - SITE 1 RT.	1
155+90	HWY. 5 - SITE 1 RT.	1
198+10	HWY. 5 - SITE 2 RT.	1
199+17	HWY. 5 - SITE 2 RT.	1
201+70	HWY. 5 - SITE 2 RT.	1
202+30	HWY. 5 - SITE 2 RT.	1
212+88	HWY. 5 - SITE 2 RT.	1
238+35	HWY. 5 - SITE 2 LT.	1
249+60	HWY. 5 - SITE 2 LT.	1
968+38	HWY. 5 - SITE 5 LT.	1
974+48	HWY. 5 - SITE 5 RT.	1
979+18	HWY. 5 - SITE 5 LT.	1
TOTALS:		15

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL												
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	FILTER SOCK (18") (E-3)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	TRIANGULAR SILT DIKE	PIPE FOR SLOPE DRAINS SLOPE DRAIN (E-12)	DUMPED RIPRAP SLOPE DRAIN (E-12)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
100+02	160+00	CLEARING AND GRUBBING - SITE 1						7.19	7.19	146.7	658	550	75	2920						108
100+02	160+00	STAGE 1 - SITE 1	1.25	2.50	1.25	127.5	1.25	0.32	0.32	6.5		222	30	35						1
100+02	160+00	STAGE 2 - SITE 1	1.89	3.78	1.89	192.8	1.89					308	36		325					170
100+02	160+00	STAGE 3 - SITE 1	0.75	1.50	0.75	76.5	0.75					22	3							170
196+50	260+10	CLEARING AND GRUBBING - SITE 2						11.66	11.66	237.9		440	66	5495						204
196+50	260+10	STAGE 1 - SITE 2	4.53	9.06	4.53	462.1	4.53	0.16	0.16	3.3		176	27	55	525	420	12			2
196+50	260+10	STAGE 2 - SITE 2	2.36	4.72	2.36	240.7	2.36					120	30							
669+00	680+75	CLEARING AND GRUBBING - SITE 3						1.83	1.83	37.3		66	15	760						28
669+00	680+75	STAGE 1 - SITE 3	0.51	1.02	0.51	52.0	0.51	0.05	0.05	1.0		44	6							
669+00	680+75	STAGE 2 - SITE 3	0.45	0.90	0.45	45.9	0.45					22	6							4510
708+75	722+80	CLEARING AND GRUBBING - SITE 4						3.19	3.19	65.1	825	132	21	535						20
708+75	722+80	STAGE 1 - SITE 4	0.80	1.60	0.80	81.6	0.80	0.35	0.35	7.1		44	15							
708+75	722+80	STAGE 2 - SITE 4	1.49	2.98	1.49	152.0	1.49					44	3							
708+75	722+80	STAGE 3 - SITE 4	0.21	0.42	0.21	21.4	0.21													
966+50	986+00	CLEARING AND GRUBBING - SITE 5						3.32	3.32	67.7	125	66	18	3215						119
966+50	986+00	STAGE 1 - SITE 5	0.70	1.40	0.70	71.4	0.70					66	12	305						11
966+50	986+00	STAGE 2 - SITE 5	0.60	1.20	0.60	61.2	0.60					44	3	320						12
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			4.00	8.00	4.00	408.0	4.00	4.00	4.00	81.6		150	20	2000	300	200	5	325	325	399
TOTALS:			19.54	39.08	19.54	1993.1	19.54	32.07	32.07	654.2	1608	2516	386	15640	1150	620	17	325	325	5754

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

10/22/2019

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	87	253

(2) QUANTITIES

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
99+02.00	100+02.00	HWY. 5 - TRANSITION - SITE 1	32.00	355.56
160+00.00	161+00.00	HWY. 5 - TRANSITION - SITE 1	32.00	355.56
195+50.00	196+50.00	HWY. 5 - TRANSITION - SITE 2	30.00	333.33
260+10.00	261+10.00	HWY. 5 - TRANSITION - SITE 2	30.00	333.33
668+00.00	669+00.00	HWY. 5 - TRANSITION - SITE 3	26.00	288.89
680+75.00	681+75.00	HWY. 5 - TRANSITION - SITE 3	26.00	288.89
707+75.00	708+75.00	HWY. 5 - TRANSITION - SITE 4	26.00	288.89
722+80.00	723+80.00	HWY. 5 - TRANSITION - SITE 4	26.00	288.89
965+50.00	966+50.00	HWY. 5 - TRANSITION - SITE 4	28.00	311.11
986+00.00	987+00.00	HWY. 5 - TRANSITION - SITE 4	28.00	311.11
TOTAL:				3155.56

NOTE: AVERAGE MILLING DEPTH 1".

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
146+00	18	0-5	ND	NP	A-1-B(0)	BR/GR
146+00	6	0-5	32	12	A-6(3)	BR/GR
146+00	13	0-5	30	10	A-4(2)	BROWN
146+00	18	0-5	35	15	A-6(2)	BR/GR
162+00	13	0-5	34	15	A-6(7)	BROWN
162+00	22	0-5	39	18	A-6(12)	BROWN
162+00	6	0-5	34	16	A-6(9)	BROWN
503+00	13	0-5	31	13	A-6(4)	BROWN
503+00	6	0-5	30	12	A-6(5)	BROWN
503+00	17	0-5	28	13	A-6(6)	BROWN
518+00	6	0-5	37	19	A-6(10)	BROWN
518+00	13	0-5	29	11	A-6(5)	BROWN
518+00	18	0-5	23	5	A-4(1)	BROWN
518+00	18	0-5	26	11	A-6(3)	BROWN
534+00	20	0-5	33	16	A-6(8)	BROWN
534+00	6	0-5	33	17	A-6(9)	BROWN
534+00	13	0-5	26	10	A-4(3)	BROWN
534+00	20	0-5	31	11	A-6(4)	BROWN
542+00	19	0-5	27	11	A-6(4)	BROWN
550+00	6	0-5	35	15	A-6(7)	BROWN
550+00	13	0-5	31	13	A-6(3)	BROWN
550+00	30	0-5	24	7	A-4(0)	BROWN
715+00	13	0-5	53	26	A-7-6(29)	BROWN
715+00	21	0-5	42	18	A-7-6(15)	BROWN
715+00	6	0-5	48	24	A-7-6(24)	BROWN
723+00	13	0-5	52	30	A-7-6(27)	BROWN
723+00	21	0-5	40	22	A-6(8)	BROWN
723+00	6	0-5	49	28	A-7-6(25)	BROWN
731+00	6	0-5	37	14	A-6(9)	BROWN
731+00	20	0-5	33	11	A-6(5)	BROWN
731+00	20	0-5	33	12	A-6(8)	BROWN
731+00	13	0-5	41	18	A-7-6(16)	BROWN
757+00	6	0-5	25	8	A-4(4)	GRAY
757+00	13	0-5	28	11	A-6(6)	BROWN
757+00	20	0-5	29	11	A-6(6)	GRAY
765+00	13	0-5	30	12	A-6(6)	GRAY
765+00	20	0-5	31	12	A-6(6)	GRAY
765+00	6	0-5	31	14	A-6(8)	GRAY
765+00	20	0-5	32	11	A-6(4)	GRAY
771+00	24	0-5	31	11	A-6(6)	BROWN
775+00	6	0-5	41	21	A-7-6(17)	BROWN
775+00	21	0-5	31	14	A-6(5)	BR/GR
775+00	13	0-5	37	18	A-6(12)	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.
NP - NON-PLASTIC
ND - NOT DETERMINABLE

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
100+02.00	160+33.00	SITE 1 - STAGE 1 - HWY. 5 RT.	368	4699	
100+02.00	160+33.00	SITE 1 - STAGE 2 - HWY. 5 LT.	1926	3536	
100+02.00	160+33.00	SITE 1 - STAGE 3 - DETOUR OBLT. RT.	4189	37	
196+50.00	260+10.00	SITE 2 - STAGE 1 - HWY. 5 RT.	86901	13839	
196+50.00	260+10.00	SITE 2 - STAGE 2 - HWY. 5 LT.	382	2252	
196+50.00	260+10.00	SITE 2 - STAGE 3 - EXIST. ROADWAY OBLT. LT.	1054		
669+00.00	680+75.00	SITE 3 - STAGE 1 - HWY. 5 LT.	1069	2951	
669+00.00	680+75.00	SITE 3 - STAGE 2 - HWY. 5 RT.	274	169	
708+75.00	722+80.00	SITE 4 - STAGE 1 - HWY. 5 RT.	1255	9310	
708+75.00	722+80.00	SITE 4 - STAGE 2 - HWY. 5 LT.	4655	868	
966+50.00	986+00.00	SITE 5 - STAGE 1 - HWY. 5 RT.	265	1163	
966+50.00	986+00.00	SITE 5 - STAGE 2 - HWY. 5 LT.	355	47	
ENTIRE	PROJECT	CHANNEL CHANGE	1450		
ENTIRE	PROJECT	APPROACHES	1970	5030	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			500
		DIRECTED BY THE ENGINEER			
TOTALS:			86113	43901	500

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

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
102+00.00	102+55.00	HWY. 5 - SITE 1 - LT.	55.00	6.00	36.67	24.44	0.31
102+59.00	103+00.00	HWY. 5 - SITE 1 - LT.	41.00	6.00	27.33	18.22	0.23
102+59.00	103+00.00	HWY. 5 - SITE 1 - RT.	41.00	6.00	27.33	18.22	0.23
105+50.00	105+95.00	HWY. 5 - SITE 1 - LT.	45.00	6.00	30.00	20.00	0.25
112+00.00	113+00.00	HWY. 5 - SITE 1 - LT.	100.00	6.00	66.67	44.44	0.56
112+50.00	112+78.00	HWY. 5 - SITE 1 - RT.	28.00	6.00	18.67	12.44	0.16
113+50.00	113+70.00	HWY. 5 - SITE 1 - RT.	20.00	6.00	13.33	8.89	0.11
121+25.00	121+75.00	HWY. 5 - SITE 1 - RT.	50.00	6.00	33.33	22.22	0.28
122+00.00	122+45.00	HWY. 5 - SITE 1 - LT.	45.00	6.00	30.00	20.00	0.25
122+65.00	123+00.00	HWY. 5 - SITE 1 - RT.	35.00	6.00	23.33	15.56	0.20
127+90.00	128+14.00	HWY. 5 - SITE 1 - RT.	24.00	6.00	16.00	10.67	0.13
128+00.00	128+50.00	HWY. 5 - SITE 1 - LT.	50.00	6.00	33.33	22.22	0.28
128+32.00	128+50.00	HWY. 5 - SITE 1 - RT.	18.00	6.00	12.00	8.00	0.10
148+40.00	148+80.00	HWY. 5 - SITE 1 - RT.	40.00	6.00	26.67	17.78	0.22
148+30.00	148+90.00	HWY. 5 - SITE 1 - LT.	60.00	6.00	40.00	26.67	0.34
197+70.00	199+00.00	HWY. 5 - SITE 2 - LT.	130.00	6.00	86.67	57.78	0.73
199+00.00	199+50.00	HWY. 5 - SITE 2 - RT.	50.00	6.00	33.33	22.22	0.28
201+00.00	202+55.00	HWY. 5 - SITE 2 - RT.	155.00	6.00	103.33	68.89	0.87
202+55.00	204+00.00	HWY. 5 - SITE 2 - LT.	145.00	6.00	96.67	64.44	0.81
207+82.00	208+00.00	HWY. 5 - SITE 2 - LT.	18.00	6.00	12.00	8.00	0.10
215+20.00	218+00.00	HWY. 5 - SITE 2 - LT.	280.00	6.00	186.67	124.44	1.57
215+45.00	218+82.00	HWY. 5 - SITE 2 - RT.	337.00	6.00	224.67	149.78	1.89
249+40.00	249+80.00	HWY. 5 - SITE 2 - LT.	40.00	6.00	26.67	17.78	0.22
671+60.00	674+00.00	HWY. 5 - SITE 3 - RT.	240.00	6.00	160.00	106.67	1.34
680+00.00	680+20.00	HWY. 5 - SITE 3 - RT.	20.00	6.00	13.33	8.89	0.11
712+80.00	713+00.00	HWY. 5 - SITE 4 - LT.	20.00	6.00	13.33	8.89	0.11
714+00.00	716+75.00	HWY. 5 - SITE 4 - LT.	275.00	6.00	183.33	122.22	1.54
717+00.00	718+25.00	HWY. 5 - SITE 4 - RT.	125.00	6.00	83.33	55.56	0.70
718+00.00	718+90.00	HWY. 5 - SITE 4 - LT.	90.00	6.00	60.00	40.00	0.50
719+10.00	719+25.00	HWY. 5 - SITE 4 - RT.	15.00	6.00	10.00	6.67	0.08
719+75.00	720+50.00	HWY. 5 - SITE 4 - LT.	75.00	6.00	50.00	33.33	0.42
973+00.00	973+35.00	HWY. 5 - SITE 5 - RT.	35.00	6.00	23.33	15.56	0.20
973+55.00	974+00.00	HWY. 5 - SITE 5 - RT.	45.00	6.00	30.00	20.00	0.25
TOTALS:					1831.32	1220.89	15.37

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:09 AM
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10/22/2019

R061442.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.		061442	88	253

(2) QUANTITIES

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

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SELECTED PIPE BEDDING

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

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
208+25.00	209+55.00	HWY. 5 - SITE 2 - RT.	130.00	115.56
210+25.00	210+75.00	HWY. 5 - SITE 2 - RT.	50.00	44.44
218+00.00	219+75.00	HWY. 5 - SITE 2 - LT.	175.00	155.56
218+82.00	220+00.00	HWY. 5 - SITE 2 - RT.	118.00	104.89
234+00.00	235+00.00	HWY. 5 - SITE 2 - LT.	100.00	88.89
674+00.00	676+20.00	HWY. 5 - SITE 3 - RT.	220.00	195.56
713+00.00	714+00.00	HWY. 5 - SITE 4 - LT.	100.00	88.89
720+50.00	721+00.00	HWY. 5 - SITE 4 - RT.	50.00	44.44
TOTAL:				838.23

NOTE: AVERAGE WIDTH = 8'-0"

CULVERT CLEAN OUT

STATION	LOCATION	EACH
712+73	HWY. 5 - SITE 4	1
715+10	HWY. 5 - SITE 4	1
TOTAL:		2

CONCRETE CURB

STATION	STATION	LOCATION	TYPE B (12")
			LIN. FT.
106+50	111+26	HWY. 5 - SITE 1 - RT.	476
TOTAL:			476

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH
210+00.00	212+50.00	HWY. 5 - SITE 2 - LT.	150	2
TOTALS:			150	2

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	33	15	9
TOTALS:	33	15	9

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			5750	24
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			5750	24

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE (CLASS III) 24"	REINFORCED CONCRETE (CLASS III) 30"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 30"	TEMPORARY CULVERTS 84"	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.	LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
102+57	SITE 1 - EXTEND R.C. BOX CULVERT LT. & RT. W/ 3:1 WINGS LT. & RT.						4	3	19	13.73	1270	12	14	0.18	RCB-1, RCB-2, RCB-3, W-X003-1, R-100X-0
105+81	SITE 1 - EXTEND R.C. PIPE CULVERT ON A 5° LT. FWD. SKEW W/ F.E.S. LT. & RT.		17		2								26	0.33	FES-1, FES-2, PCC-1
112+78	SITE 1 - EXTEND R.C. PIPE CULVERT ON A 5° RT. FWD. SKEW LT. & RT. W/ F.E.S. LT. & RT.	5		2									16	0.20	FES-1, FES-2, PCC-1
* 128+40	SITE 1 - EXTEND R.C. BOX CULVERT ON A 30° LT. FWD. SKEW LT. & RT. W/ 3:1 WINGS LT. & RT.						15	6	23	75.23	8346	51	26	0.33	RCB-1, RCB-2, RCB-3, W-X30, W-X303-1, R-130X-0
140+82	SITE 1 - EXTEND R.C. PIPE CULVERT LT. & RT. W/ F.E.S. LT. & RT.	18		2									16	0.20	FES-1, FES-2, PCC-1
148+65	SITE 1 - EXTEND R.C. PIPE CULVERT ON A 5° LT. FWD. SKEW LT. & RT. W/ F.E.S. LT. & RT.	16		2									16	0.20	FES-1, FES-2, PCC-1
153+87	SITE 1 - EXTEND R.C. PIPE CULVERT LT. & RT. W/ F.E.S. LT. & RT.	24		2									16	0.20	FES-1, FES-2, PCC-1
304+60	SITE 1 DETOUR - INSTALL TEMP. TRI. PIPE CULVERT ON A 30° LT. FWD. SKEW					180									PCC-1, PCM-1
197+90	SITE 2 - EXTEND DBL. R.C. PIPE CULVERT ON A 15° LT. FWD. SKEW LT. & RT. W/ F.E.S. LT. & RT.		32		4								28	0.35	FES-1, FES-2, PCC-1
216+58	SITE 2 - EXTEND DBL. R.C. PIPE CULVERT ON A 45° RT. FWD. SKEW RT. W/ F.E.S. LT. & RT.		236		2								14	0.18	FES-1, FES-2, PCC-1
218+85	SITE 2 - EXTEND DBL. R.C. PIPE CULVERT RT. W/ F.E.S. RT.	88		2									58	0.73	FES-1, FES-2, PCC-1
674+32	SITE 3 - EXTEND R.C.BOX CULVERT ON A 45° RT. FWD. SKEW LT. W/ 3:1 WINGS LT.						8	7	76	95.69	9354	52	32	0.40	RCB-1, RCB-2, RCB-3, W-X45, R-145X-0, W-X453-1
712+73	SITE 4 - EXTEND DBL. R.C. PIPE CULVERT IN PARALLEL W/ F.E.S. LT. & RT.	32		2									9	0.11	FES-1, FES-2, PCC-1
715+10	SITE 4 - CONSTRUCT R.C. PIPE CULVERT W/ F.E.S. LT. & RT.	68		2									16	0.20	FES-1, FES-2, PCC-1
973+45	SITE 5 - EXTEND R.C. BOX CULVERT RT. W/ 3:1 WINGS RT.						10	10	12	59.83	5166	43	30	0.38	RCB-1, RCB-2, RCB-3, W-X003-1, R-100X-0
981+90	SITE 5 - EXTEND R.C. BOX CULVERT RT. W/ 3:1 WINGS RT.						6	4	14	17.69	1649	15	15	0.19	RCB-1, RCB-2, RCB-3, W-X003-1, R-100X-0
SUBTOTALS:		251	285	14	8	180				262.17	25785	173	332	4.18	
	STRUCTURES OVER 20' - 0" SPAN														
122+55	CONSTRUCT TRI. R.C. BOX CULVERT ON A 30° LT. FWD. SKEW W/ 3:1 WINGS LT. & RT.						12.00	8	70	293.30	42624	130	43	0.54	SPECIAL DETAILS, RCB-1, RCB-2
719+05	CONSTRUCT TRI. R.C. BOX CULVERT W/ 2:1 WINGS LT. & RT.						10.00	8	72	258.30	35833	109	40	0.50	SPECIAL DETAILS, RCB-1, RCB-2
SUBTOTALS:										551.60	78457	239	83	1.04	
TOTALS:		251	285	14	8	180				813.77	104242	412	415	5.22	

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.
* NOTE: QUANTITIES BASED ON 12' SPAN FROM BRIDGE STANDARD DRAWINGS AND INCREASED BY 25% TO CALCULATE 15' SPAN.

10/22/2019

R061442.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.		061442	89	253

(2) QUANTITIES

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	100
DIRECTED BY THE ENGINEER	
TOTAL:	**100**

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS				STANDARD DRAWINGS
							18"	24"	60"	21"X15"	
			FEET	SQ. YD.	TON	TON	LIN. FT.				
103+97	LT.	SITE 1 - HWY. 5 - GOOSE POND RD.	22	232.67	25.59	95.01					
106+83	LT.	SITE 1 - HWY. 5	16	176.21	19.38	71.95	30				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
107+78	LT.	SITE 1 - HWY. 5	16	62.43	6.87	25.49	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
109+70	RT.	SITE 1 - HWY. 5	20	136.65	15.03	55.80					
112+15	LT.	SITE 1 - HWY. 5	16	44.65	4.91	18.23	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
116+65	RT.	SITE 1 - HWY. 5 - RIVERSIDE DR.	20	128.67	14.15	52.54					
117+37	RT.	SITE 1 - HWY. 5	40	154.43	16.99	63.06					
120+10	LT.	SITE 1 - HWY. 5	16	30.43	3.35	12.43					PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
125+40	LT.	SITE 1 - HWY. 5	16	96.21	10.58	39.29	30				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
129+06	RT.	SITE 1 - HWY. 5	22	120.43	13.25	49.18	42				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
151+84	RT.	SITE 1 - HWY. 5	40	67.76	7.45	27.67					
155+90	RT.	SITE 1 - HWY. 5 - REGIE RD.	20	275.34	30.29	112.43	52				
156+95	RT.	SITE 1 - HWY. 5	16	169.10	18.60	69.05					
160+02	RT.	SITE 1 - HWY. 5	36	61.54	6.77	25.13					
196+00	RT.	SITE 2 - HWY. 5	16	125.90	13.85	51.41					
198+10	RT.	SITE 2 - HWY. 5	16	76.12	8.37	31.08	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
199+17	RT.	SITE 2 - HWY. 5	16	46.79	5.15	19.11	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
201+70	RT.	SITE 2 - HWY. 5	16	277.01	30.47	113.11				30	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
202+55	RT.	SITE 2 - HWY. 5	16	259.23	28.52	105.85				28	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
207+25	LT.	SITE 2 - HWY. 5	16	419.23	46.12	171.19					
208+23	RT.	SITE 2 - HWY. 5	16	168.57	18.54	68.83					
212+88	LT.	SITE 2 - HWY. 5	16	74.34	8.18	30.36	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
234+85	RT.	SITE 2 - HWY. 5	16	30.43	3.35	12.43					
238+35	LT.	SITE 2 - HWY. 5	16	62.43	6.87	25.49	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
241+92	RT.	SITE 2 - HWY. 5	16	37.54	4.13	15.33					
245+78	RT.	SITE 2 - HWY. 6	16	61.94	6.81	25.29					
246+90	RT.	SITE 2 - HWY. 5	16	58.87	6.48	24.04					
249+60	LT.	SITE 2 - HWY. 5 - BAILEY CUTOFF RD.	20	162.00	17.82	66.15		52			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
259+90	LT.	SITE 2 - HWY. 5	16	263.32	28.97	107.52					
674+15	RT.	SITE 3 - HWY. 5 - NICKEL BILL JAMES RD.	22	237.55	26.13	97.00	52				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
676+74	LT.	SITE 3 - HWY. 5	16	183.32	20.17	74.86					
677+08	RT.	SITE 3 - HWY. 5	16	163.76	18.01	66.87					
680+19	RT.	SITE 3 - HWY. 5	16	30.43	3.35	12.43	28				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
713+18	LT.	SITE 4 - HWY. 5	16	145.99	16.06	59.61					
721+73	RT.	SITE 4 - HWY. 5	16	30.43	3.35	12.43					
967+71	LT.	SITE 5 - HWY. 5	16	353.45	38.88	144.33		32			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
968+38	LT.	SITE 5 - HWY. 5 - PARKETT LN.	20	464.52	51.10	189.68		36			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
968+38	LT.	SITE 5 - HWY. 5 - PUMP STA. DR.	20	222.22	24.44	90.74					
972+10	RT.	SITE 5 - HWY. 5	16	37.01	4.07	15.11					
974+48	RT.	SITE 5 - HWY. 5 - RIVER HEIGHTS RD.	22	395.86	43.54	161.64			50		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
979+18	LT.	SITE 5 - HWY. 5	16	37.01	4.07	15.11	42				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
982+50	LT.	SITE 5 - HWY. 5	16	50.34	5.54	20.56					
986+19	RT.	SITE 5 - HWY. 5	16	37.01	4.07	15.11					
* ENTIRE PROJECT TEMPORARY DRIVES						400.00					
TOTALS:				**6269.14**	**689.62**	**2959.93**	**444**	**120**	**50**	**58**	

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

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
102+57	HWY. 5 - SITE 1 - RT.	1
122+55	HWY. 5 - SITE 1 - LT.	1
128+40	HWY. 5 - SITE 1 - RT.	1
674+32	HWY. 5 - SITE 3 - LT.	1
719+05	HWY. 5 - SITE 4 - RT.	1
973+45	HWY. 5 - SITE 5 - LT.	1
981+90	HWY. 5 - SITE 5 - RT.	1
TOTAL:		**7**

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
100+02	160+00	HWY. 5 - SITE 1 - LT. & RT.	11996
229+00	260+10	HWY. 5 - SITE 2 - LT. & RT.	6220
669+00	680+75	HWY. 5 - SITE 3 - LT. & RT.	2350
708+75	722+80	HWY. 5 - SITE 4 - LT. & RT.	2810
TOTAL:			**23376**

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	55	110
DIRECTED BY THE ENGINEER		
TOTALS:	**55**	**110**

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 TRAFFC.....50 GAL./MILE

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)	* 16'-0" GATES
			LIN. FT.	EACH
197+48	200+00	HWY. 5 - SITE 2 - LT.	255	
201+00	203+75	HWY. 5 - SITE 2 - LT.	175	
207+80	207+96	HWY. 5 - SITE 2 - RT.	16	
208+10	208+40	HWY. 5 - SITE 2 - RT.		1
208+40	2208+56	HWY. 5 - SITE 2 - RT.	16	
237+75	240+00	HWY. 5 - SITE 2 - RT.	225	
248+00	257+00	HWY. 5 - SITE 2 - RT.	1000	
719+70	721+38	HWY. 5 - SITE 2 - LT.	175	
TOTALS:			**1862**	**1**

* DENOTES ALTERNATE BID ITEM.

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/20/2020				6	ARK.			
				JOB NO.		061442	90	253

(2) QUANTITIES

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

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BASE AND SURFACING (BOX 1 OF 3)

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")							
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																		
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																												
99+02.00	100+02.00	HWY. 5 - SITE 1 - TRANSITION	100.00						32.00	355.56	60.45	60.45													32.00	355.56	220.00	39.11	39.11
100+02.00	106+50.00	HWY. 5 - SITE 1 - OVERLAY	648.00	7.00	45.36	24.00	1728.00	86.40				86.40													32.00	2304.00	220.00	253.44	253.44
106+50.00	111+26.00	HWY. 5 - SITE 1 - MOUNTABLE CURB OVERLAY	476.00	31.50	149.94	24.00	1269.33	63.47				63.47													32.00	1692.44	220.00	186.17	186.17
111+26.00	121+90.00	HWY. 5 - SITE 1 - OVERLAY	1064.00	7.00	74.48	24.00	2837.33	141.87				141.87													32.00	3783.11	220.00	416.14	416.14
121+90.00	123+20.00	HWY. 5 - SITE 1 - FULL DEPTH	130.00	180.75	234.98	48.75	704.17	35.21				35.21	24.50	353.89	440.00	77.86	24.25	350.28	220.00	38.53	32.00	462.22	220.00	50.84	89.37			
123+20.00	160+00.00	HWY. 5 - SITE 1 - OVERLAY	3680.00	7.00	257.60	24.00	9813.33	490.67				490.67													32.00	13084.44	220.00	1439.29	1439.29
160+00.00	161+00.00	HWY. 5 - SITE 1 - TRANSITION	100.00						32.00	355.56	60.45	60.45													32.00	355.56	220.00	39.11	39.11
195+50.00	196+50.00	HWY. 5 - SITE 2 - TRANSITION	100.00						30.00	333.33	56.67	56.67													30.00	333.33	220.00	36.67	36.67
196+50.00	201+80.00	HWY. 5 - SITE 2 - OVERLAY	530.00	1.00	5.30	30.00	1766.67	88.33				88.33													30.00	1766.67	220.00	194.33	194.33
201+80.00	203+20.00	HWY. 5 - SITE 2 - TRANSITION TO FULL DEPTH	140.00	50.00	70.00	VAR.	581.47	29.07				29.07					VAR.	175.00	440.00	38.50	VAR.	173.13	220.00	19.04	30.00	466.67	220.00	51.33	70.37
203+20.00	209+00.00	HWY. 5 - SITE 2 - FULL DEPTH	580.00	185.50	1075.90	44.75	2883.89	144.19				144.19	22.50	1450.00	440.00	319.00	22.25	1433.89	220.00	157.73	30.00	1933.33	220.00	212.67	370.40			
209+00.00	210+80.00	HWY. 5 - SITE 2 - TRANSITION TO OVERLAY	180.00	50.00	90.00	VAR.	747.60	37.38				37.38	VAR.	225.00	440.00	49.50	VAR.	222.60	220.00	24.49	30.00	600.00	220.00	66.00	90.49			
210+80.00	213+90.00	HWY. 5 - SITE 2 - OVERLAY	310.00	1.00	3.10	30.00	1033.33	51.67				51.67									30.00	1033.33	220.00	113.67	113.67			
213+90.00	215+70.00	HWY. 5 - SITE 2 - TRANSITION TO FULL DEPTH	180.00	50.00	90.00	VAR.	747.60	37.38				37.38	VAR.	225.00	440.00	49.50	VAR.	222.60	220.00	24.49	30.00	600.00	220.00	66.00	90.49			
215+70.00	219+20.00	HWY. 5 - SITE 2 - FULL DEPTH	350.00	185.50	649.25	44.75	1740.28	87.01				87.01	22.50	875.00	440.00	192.50	22.25	865.28	220.00	95.18	30.00	1166.67	220.00	128.33	223.51			
219+20.00	221+30.00	HWY. 5 - SITE 2 - TRANSITION TO OVERLAY	210.00	50.00	105.00	VAR.	872.20	43.61				43.61	VAR.	262.50	440.00	57.75	VAR.	259.70	220.00	28.57	30.00	700.00	220.00	77.00	105.57			
221+30.00	225+12.76	HWY. 5 - SITE 2 - OVERLAY	382.76	1.00	3.83	30.00	1275.87	63.79				63.79									30.00	1275.87	220.00	140.35	140.35			
225+12.76	228+00.00	HWY. 5 - SITE 2 - OVERLAY TO NOTCH & WIDEN TRANSITION	287.24	40.25	115.61	30.00	957.47	47.87				47.87									32.00	1021.30	220.00	112.34	112.34			
228+00.00	229+00.00	HWY. 5 - SITE 2 - SHOULDER TRANSITION	100.00	57.38	57.38	30.00															33.00	366.67	22.00	4.03	4.03			
229+00.00	250+00.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	2100.00	125.00	2625.00	22.00	5133.33	256.67				256.67									34.00	7933.33	220.00	872.67	872.67			
250+00.00	251+00.00	HWY. 5 - SITE 2 - TRANSITION TO FULL DEPTH	100.00	167.75	167.75	VAR.	370.89	18.54				18.54	VAR.	125.00	440.00	27.50	VAR.	123.67	220.00	13.60	34.00	377.78	220.00	41.56	55.16			
251+00.00	254+79.48	HWY. 5 - SITE 2 - FULL DEPTH	379.48	210.50	798.81	44.75	1886.86	94.34				94.34	22.50	948.70	440.00	208.71	22.25	938.16	220.00	103.20	34.00	1433.59	220.00	157.69	260.89			
254+79.48	257+00.00	HWY. 5 - SITE 2 - TRANSITION TO NOTCH & WIDEN	220.52	167.75	369.92	VAR.	817.68	40.89				40.89	VAR.	275.65	440.00	60.64	VAR.	272.71	220.00	30.00	34.00	833.08	220.00	91.64	121.64			
257+00.00	260+10.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	310.00	125.00	387.50	22.00	757.78	37.89				37.89									32.00	1102.22	220.00	121.24	121.24			
260+10.00	261+10.00	HWY. 5 - SITE 2 - TRANSITION	100.00						30.00	333.33	56.67	56.67																	
668+00.00	669+00.00	HWY. 5 - SITE 3 - TRANSITION	100.00	62.50	62.50				29.00	322.22	54.78	54.78									29.00	322.22	220.00	35.44	35.44			
669+00.00	670+80.00	HWY. 5 - SITE 3 - NOTCH & WIDEN	180.00	125.00	225.00	20.00	400.00	20.00				20.00									32.00	640.00	220.00	70.40	70.40			
670+80.00	672+50.00	HWY. 5 - SITE 3 - TRANSITION	170.00	VAR.	285.18	VAR.	573.84	28.69				28.69	VAR.	193.61	440.00	42.59	VAR.	191.34	220.00	21.05	32.00	604.44	220.00	66.49	87.54			
672+50.00	676+10.00	HWY. 5 - SITE 3 - FULL DEPTH	360.00	210.50	757.80	40.75	1630.00	81.50				81.50	20.50	820.00	440.00	180.40	20.25	810.00	220.00	89.10	32.00	1280.00	220.00	140.80	229.90			
676+10.00	676+70.00	HWY. 5 - SITE 3 - TRANSITION	60.00	VAR.	100.65	VAR.	202.53	10.13				10.13	VAR.	68.33	440.00	15.03	VAR.	67.53	220.00	7.43	32.00	213.33	220.00	23.47	30.90			
676+70.00	680+75.00	HWY. 5 - SITE 3 - NOTCH & WIDEN	405.00	125.00	506.25	20.00	900.00	45.00				45.00									32.00	1440.00	220.00	158.40	158.40			
680+75.00	681+75.00	HWY. 5 - SITE 3 - TRANSITION	100.00	62.50	62.50				29.00	322.22	54.78	54.78									29.00	322.22	220.00	35.44	35.44			
707+75.00	708+75.00	HWY. 5 - SITE 4 - TRANSITION	100.00	62.50	62.50				29.00	322.22	54.78	54.78									29.00	322.22	220.00	35.44	35.44			
708+75.00	711+80.00	HWY. 5 - SITE 4 - NOTCH & WIDEN	305.00	125.00	381.25	20.00	677.78	33.89				33.89									32.00	1084.44	220.00	119.29	119.29			
711+80.00	713+32.00	HWY. 5 - SITE 4 - TRANSITION	152.00	VAR.	254.98	VAR.	513.08	25.65				25.65	VAR.	173.11	440.00	38.08	VAR.	171.08	220.00	18.82	32.00	540.44	220.00	59.45	78.27			
713+32.00	719+49.00	HWY. 5 - SITE 4 - FULL DEPTH	617.00	210.50	1298.79	40.75	2793.64	139.68				139.68	20.50	1405.39	440.00	309.19	20.25	1388.25	220.00	152.71	32.00	2193.78	220.00	241.32	394.03			
719+49.00	721+10.00	HWY. 5 - SITE 4 - TRANSITION	161.00	VAR.	270.08	VAR.	543.46	27.17				27.17	VAR.	183.36	440.00	40.34	VAR.	181.21	220.00	19.93	32.00	572.44	220.00	62.97	82.90			
721+10.00	722+80.00	HWY. 5 - SITE 4 - NOTCH & WIDEN	170.00	125.00	212.50	20.00	377.78	18.89				18.89									32.00	604.44	220.00	66.49	66.49			
722+80.00	723+80.00	HWY. 5 - SITE 4 - TRANSITION	100.00	62.50	62.50				29.00	322.22	54.78	54.78									29.00	322.22	220.00	35.44	35.44			
965+50.00	966+50.00	HWY. 5 - SITE 5 - TRANSITION	100.00	50.00	50.00				27.50	305.56	51.95	51.95									28.50	316.67	220.00	34.83	34.83			
966+50.00	986+00.00	HWY. 5 - SITE 5 - NOTCH & WIDEN	1950.00	100.00	1950.00	22.00	4766.67	238.33				238.33									30.00	6500.00	220.00	715.00	715.00			
986+00.00	987+00.00	HWY. 5 - SITE 5 - TRANSITION	100.00	50.00	50.00				27.50	305.56	51.95	51.95									28.50	316.67	220.00	34.83	34.83			
DETOURS																												
300+15.00	302+80.00	HWY. 5 - SITE 1 - DETOUR TRANSITION	265.00	VAR.	85.94																VAR.	441.67	220.00	48.58	48.58			
302+80.00	305+50.00	HWY. 5 - SITE 1 - DETOUR	270.00	219.75	593.33																30.00	900.00	220.00	99.00	99.00			
305+50.00	309+50.41	HWY. 5 - SITE 1 - DETOUR TRANSITION	400.41	VAR.	129.86																VAR.	667.35	220.00	73.41	73.41			
ADDITIONAL FOR GUARDRAIL WIDENING																												
209+69.00	209+90.00	HWY. 5 - SITE 2 LT. - TAPER	21.00	15.00	3.15																1.75	4.08	220.00	0.45	0.45			
209+90.00	212+60.00	HWY. 5 - SITE 2 LT.	270.00	30.00	81.00																3.50	105.00	220.00	11.55	11.55			
212+60.00	212+81.00	HWY. 5 - SITE 2 LT. - TAPER	21.00	15.00	3.15																1.75	4.08	220.00	0.45	0.45			
ADDITIONAL FOR MOT SHOULDER WIDENING																												
716+45.00	718+90.00	HWY. 5 - SITE 4 RT. - MOT TAPER	245.00	28.88	70.76	VAR.	219.30	10.97				10.97					VAR.	217.78	440.00	47.91					5.00	136.11	220.00	14.97	14.97
718+90.00	719+35.00	HWY. 5 - SITE 4 RT. - MOT	45.00	57.75	25.99	16.50	82.50	4.13				4.13	16.00	80.00	440.00	17.60					10.00	50.00	220.00	5.50	5.50			
719+35.00	721+80.00	HWY. 5 - SITE 4 RT. - MOT TAPER	245.00	28.88	70.76	VAR.	219.29	10.96				10.96	VAR.	217.78	440.00	47.91					5.00	136.11	220.00	14.97	14.97			
SUBTOTALS:					15033.13		51825.15	2591.24		3277.78	557.26	3148.50		8275.10		1820.51		7671.43		843.37		65021.10		7116.00	7959.87			

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

10/22/2019

R061442.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/20/2020				6	ARK.			
				JOB NO.		061442	91	253

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Oct 20 2020 5:02 PM
DocuSign

BASE AND SURFACING (BOX 2 OF 3)

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 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
ADDITIONAL FOR LEVELING																													
100+02.00	106+50.00	HWY. 5 - SITE 1 - OVERLAY	648.00						24.00	1728.00	293.76	293.76									24.00	1728.00	VAR.	190.08					190.08
106+50.00	111+26.00	HWY. 5 - SITE 1 - MOUNTABLE CURB OVERLAY	476.00						24.00	1269.33	215.79	215.79									24.00	1269.33	VAR.	139.63					139.63
111+26.00	121+90.00	HWY. 5 - SITE 1 - OVERLAY	1064.00						24.00	2837.33	482.35	482.35									24.00	2837.33	VAR.	312.11					312.11
123+20.00	160+00.00	HWY. 5 - SITE 1 - OVERLAY	3680.00						24.00	9813.33	1668.27	1668.27									24.00	9813.33	VAR.	1079.47					1079.47
196+50.00	201+80.00	HWY. 5 - SITE 2 - OVERLAY	530.00						22.00	1295.56	220.25	220.25									22.00	1295.56	VAR.	142.51					142.51
201+80.00	203+20.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	140.00						VAR.	171.11	29.09	29.09									VAR.	171.11	VAR.	18.82					18.82
209+00.00	210+80.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	180.00						VAR.	220.00	37.40	37.40									VAR.	220.00	VAR.	24.20					24.20
210+80.00	213+90.00	HWY. 5 - SITE 2 - OVERLAY	310.00						22.00	757.78	128.82	128.82									22.00	757.78	VAR.	83.36					83.36
213+90.00	215+70.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	180.00						VAR.	220.00	37.40	37.40									VAR.	220.00	VAR.	24.20					24.20
219+20.00	221+30.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	210.00						VAR.	256.67	43.63	43.63									VAR.	256.67	VAR.	28.23					28.23
221+30.00	225+12.76	HWY. 5 - SITE 2 - OVERLAY	382.76						22.00	935.64	159.06	159.06									22.00	935.64	VAR.	102.92					102.92
225+12.76	228+14.93	HWY. 5 - SITE 2 - TRANSITION	302.17						22.00	738.64	125.57	125.57									22.00	738.64	VAR.	96.02					96.02
228+14.93	250+00.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	2185.07						22.00	5341.28	908.02	908.02									22.00	5341.28	VAR.	587.54					587.54
250+00.00	251+00.00	HWY. 5 - SITE 2 - TRANSITION TO FULL DEPTH	100.00						VAR.	166.67	28.33	28.33									VAR.	166.67	VAR.	18.33					18.33
254+79.48	257+00.00	HWY. 5 - SITE 2 - TRANSITION TO NOTCH & WIDEN	220.52						VAR.	367.53	62.48	62.48									VAR.	367.53	VAR.	40.43					40.43
257+00.00	260+10.00	HWY. 5 - SITE 2 - NOTCH & WIDEN	310.00						22.00	757.78	128.82	128.82									22.00	757.78	VAR.	83.36					83.36
669+00.00	670+80.00	HWY. 5 - SITE 3 - NOTCH & WIDEN	180.00						20.00	400.00	68.00	68.00									20.00	400.00	VAR.	44.00					44.00
670+80.00	672+50.00	HWY. 5 - SITE 3 - TRANSITION	170.00						VAR.	245.56	41.75	41.75									VAR.	245.56	VAR.	27.01					27.01
676+10.00	676+70.00	HWY. 5 - SITE 3 - TRANSITION	60.00						VAR.	86.67	14.73	14.73									VAR.	86.67	VAR.	9.53					9.53
676+70.00	680+75.00	HWY. 5 - SITE 3 - NOTCH & WIDEN	405.00						20.00	900.00	153.00	153.00									20.00	900.00	VAR.	99.00					99.00
708+75.00	711+80.00	HWY. 5 - SITE 4 - NOTCH & WIDEN	305.00						20.00	677.78	115.22	115.22									20.00	677.78	VAR.	74.56					74.56
711+80.00	713+32.00	HWY. 5 - SITE 4 - TRANSITION	152.00						VAR.	219.56	37.33	37.33									VAR.	219.56	VAR.	24.15					24.15
719+49.00	721+10.00	HWY. 5 - SITE 4 - TRANSITION	161.00						VAR.	232.56	39.54	39.54									VAR.	232.56	VAR.	25.58					25.58
721+10.00	722+80.00	HWY. 5 - SITE 4 - NOTCH & WIDEN	170.00						20.00	377.78	64.22	64.22									20.00	377.78	VAR.	41.56					41.56
966+50.00	986+00.00	HWY. 5 - SITE 5 - NOTCH & WIDEN	1950.00						22.00	4766.67	810.33	810.33									22.00	4766.67	VAR.	524.33					524.33
ADDITIONAL FOR GRADE RAISE																													
101+00.00	108+00.00	HWY. 5 - SITE 1	700.00						24.00	1866.67	317.33	317.33									24.00	1866.67	VAR.	742.93					742.93
109+70.00	112+14.00	HWY. 5 - SITE 1	244.00						24.00	650.67	110.61	110.61									24.00	650.67	VAR.	46.85					46.85
115+00.00	119+00.00	HWY. 5 - SITE 1	400.00						24.00	1066.67	181.33	181.33									24.00	1066.67	VAR.	67.20					67.20
125+00.00	130+00.00	HWY. 5 - SITE 1	500.00						24.00	1333.33	226.67	226.67									24.00	1333.33	VAR.	441.33					441.33
132+00.00	136+00.00	HWY. 5 - SITE 1	400.00						24.00	1066.67	181.33	181.33									24.00	1066.67	VAR.	203.20					203.20
140+00.00	150+45.00	HWY. 5 - SITE 1	1045.00						24.00	2786.67	473.73	473.73									24.00	2786.67	VAR.	837.39					837.39
152+00.00	159+00.00	HWY. 5 - SITE 1	700.00						24.00	1866.67	317.33	317.33									24.00	1866.67	VAR.	491.87					491.87
196+50.00	201+70.00	HWY. 5 - SITE 2	520.00						22.00	1271.11	216.09	216.09									22.00	1271.11	VAR.	440.44					440.44
210+00.00	213+00.00	HWY. 5 - SITE 2	300.00						22.00	733.33	124.67	124.67	22.00	733.33	VAR.	677.96					22.00	733.33	VAR.	175.27					175.27
220+00.00	224+00.00	HWY. 5 - SITE 2	400.00						22.00	977.78	166.22	166.22									22.00	977.78	VAR.	356.89					356.89
228+15.00	244+00.00	HWY. 5 - SITE 2	1585.00						50.00	9157.78	1556.82	1556.82	30.00	5283.33	VAR.	1175.54	30.00	5283.33	VAR.	995.91									
248+00.00	251+00.00	HWY. 5 - SITE 2	300.00						50.00	1733.33	294.67	294.67	30.00	1000.00	VAR.	236.50	30.00	1000.00	VAR.	169.00									
255+00.00	260+10.00	HWY. 5 - SITE 2	510.00						50.00	2946.67	500.93	500.93	30.00	1700.00	VAR.	340.85	30.00	1700.00	VAR.	228.65									
670+00.00	672+00.00	HWY. 5 - SITE 3	200.00						40.00	888.89	151.11	151.11	26.00	577.78	VAR.	45.07	26.00	577.78	VAR.	74.24									
676+00.00	680+20.00	HWY. 5 - SITE 3	420.00						40.00	1866.67	317.33	317.33	26.00	1213.33	VAR.	783.20	26.00	1213.33	VAR.	166.23									
709+00.00	713+19.00	HWY. 5 - SITE 4	419.00						40.00	1862.22	316.58	316.58	26.00	1210.44	VAR.	337.11	26.00	1210.44	VAR.	174.30									
720+00.00	722+00.00	HWY. 5 - SITE 4	200.00						40.00	888.89	151.11	151.11	26.00	577.78	VAR.	247.00	26.00	577.78	VAR.	99.38									
966+50.00	968+00.00	HWY. 5 - SITE 5	150.00						40.00	733.33	124.67	124.67	28.00	466.67	VAR.	6.77	28.00	466.67	VAR.	36.17									
938+00.00	970+00.00	HWY. 5 - SITE 5	3200.00						16.00	5688.89	967.11	967.11					28.00	9955.56	VAR.	572.44									
970+00.00	976+00.00	HWY. 5 - SITE 5	600.00						40.00	2933.33	498.67	498.67	28.00	1866.67	VAR.	139.07	28.00	1866.67	VAR.	274.40									
976+00.00	986+19.00	HWY. 5 - SITE 5	1019.00						16.00	1811.56	307.97	307.97					28.00	3170.22	VAR.	166.44									
SUBTOTALS:										78914.36	13415.44	13415.44		14629.33		3989.07		27021.78		2957.16		48402.80		7644.30					7644.30

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

10/22/2019

R061442.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/20/2020				6	ARK.			
				JOB NO.		061442	92	253

(2) QUANTITIES

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

Oct 20 2020 5:02 PM

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BASE AND SURFACING (BOX 3 OF 3)

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")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																				
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
ADDITIONAL FOR SUPERELEVATION																													
121+90.00	123+20.00	HWY. 5 - SITE 1 - SUPERELEVATION	130.00	9.63	12.52																								
203+20.00	203+61.54	HWY. 5 - SITE 2 - SUPERELEVATION	41.54	34.50	14.33																								
203+61.54	205+92.54	HWY. 5 - SITE 2 - SUPERELEVATION	231.00	17.25	39.85																								
205+92.54	208+16.54	HWY. 5 - SITE 2 - SUPERELEVATION	224.00	17.25	38.64																								
208+16.54	209+00.00	HWY. 5 - SITE 2 - SUPERELEVATION	83.46	34.50	28.79																								
215+70.00	216+70.75	HWY. 5 - SITE 2 - SUPERELEVATION	100.75	45.75	46.09																								
216+70.75	219+20.00	HWY. 5 - SITE 2 - SUPERELEVATION	249.25	22.88	57.03																								
229+00.00	231+64.93	HWY. 5 - SITE 2 - SUPERELEVATION	264.93	40.63	107.64																								
231+64.93	234+08.95	HWY. 5 - SITE 2 - SUPERELEVATION	244.02	81.25	198.27																								
234+08.95	236+88.95	HWY. 5 - SITE 2 - SUPERELEVATION	280.00	56.75	158.90																								
237+15.20	239+90.73	HWY. 5 - SITE 2 - SUPERELEVATION	275.53	53.75	148.10																								
239+90.73	241+13.41	HWY. 5 - SITE 2 - SUPERELEVATION	122.68	76.25	93.54																								
241+13.41	244+63.41	HWY. 5 - SITE 2 - SUPERELEVATION	350.00	38.11	133.39																								
246+87.92	250+37.92	HWY. 5 - SITE 2 - SUPERELEVATION	350.00	40.75	142.63																								
250+37.92	251+00.00	HWY. 5 - SITE 2 - SUPERELEVATION	62.08	81.50	50.60																								
251+00.00	254+79.48	HWY. 5 - SITE 2 - SUPERELEVATION	379.48	40.75	154.64																								
254+79.48	256+55.70	HWY. 5 - SITE 2 - SUPERELEVATION	176.22	81.50	143.62																								
256+55.70	260+05.70	HWY. 5 - SITE 2 - SUPERELEVATION	350.00	40.75	142.63																								
669+76.13	672+50.00	HWY. 5 - SITE 3 - SUPERELEVATION	273.87	20.38	55.81																								
672+50.00	673+26.13	HWY. 5 - SITE 3 - SUPERELEVATION	76.13	40.75	31.02																								
673+26.13	676+10.00	HWY. 5 - SITE 3 - SUPERELEVATION	283.87	81.50	231.35																								
676+10.00	677+01.64	HWY. 5 - SITE 3 - SUPERELEVATION	91.64	40.75	37.34																								
677+01.64	680+51.64	HWY. 5 - SITE 3 - SUPERELEVATION	350.00	20.38	71.33																								
708+77.71	712+27.71	HWY. 5 - SITE 4 - SUPERELEVATION	350.00	20.38	71.33																								
712+27.71	713+32.00	HWY. 5 - SITE 4 - SUPERELEVATION	104.29	40.75	42.50																								
713+32.00	719+30.93	HWY. 5 - SITE 4 - SUPERELEVATION	598.93	81.50	488.13																								
719+30.93	719+49.00	HWY. 5 - SITE 4 - SUPERELEVATION	18.07	40.75	7.36																								
719+49.00	722+80.93	HWY. 5 - SITE 4 - SUPERELEVATION	331.93	20.38	67.65																								
966+50.00	967+32.50	HWY. 5 - SITE 5 - SUPERELEVATION	82.50	43.76	36.10																								
967+32.50	968+35.09	HWY. 5 - SITE 5 - SUPERELEVATION	102.59	51.75	53.09																								
968+35.09	970+85.09	HWY. 5 - SITE 5 - SUPERELEVATION	250.00	25.88	64.70																								
970+85.10	973+35.10	HWY. 5 - SITE 5 - SUPERELEVATION	250.00	25.88	64.70																								
973+35.10	976+69.86	HWY. 5 - SITE 5 - SUPERELEVATION	334.76	51.75	173.24																								
976+69.86	979+19.86	HWY. 5 - SITE 5 - SUPERELEVATION	250.00	25.88	64.70																								
979+19.86	981+69.86	HWY. 5 - SITE 5 - SUPERELEVATION	250.00	25.88	64.70																								
981+69.86	982+88.02	HWY. 5 - SITE 5 - SUPERELEVATION	118.16	51.75	61.15																								
982+88.02	985+38.02	HWY. 5 - SITE 5 - SUPERELEVATION	250.00	25.88	64.70																								
302+93.33	303+52.76	HWY. 5 - SITE 1 DETOUR - SUPERELEVATION	59.43	1.25	0.74																								
303+52.76	305+41.13	HWY. 5 - SITE 1 DETOUR - SUPERELEVATION	188.37	2.50	4.71																								
305+41.13	306+00.56	HWY. 5 - SITE 1 DETOUR - SUPERELEVATION	59.43	1.25	0.74																								
306+00.56	307+86.66	HWY. 5 - SITE 1 DETOUR - SUPERELEVATION	186.10	8.50	15.82																								
307+86.66	309+50.41	HWY. 5 - SITE 1 DETOUR - SUPERELEVATION	163.75	17.00	27.84																								
SUBTOTALS (BOX 3 OF 3):					3511.96																								
SUBTOTALS (BOX 2 OF 3):									78914.36	13415.44	13415.44		14629.33		3989.07		27021.78		2957.16		48402.80		7644.30					7644.30
SUBTOTALS (BOX 1 OF 3):				15033.13		51825.15	2591.24		3277.78	557.26	3148.50						8275.10		1820.51		7671.43		843.87		65021.10		7116.00	7959.87
TOTALS:				18545.09		51825.15	2591.24		82192.14	13972.70	16563.94		14629.33		3989.07		35296.88		4777.67		56074.23		8488.17		65021.10		7116.00	15604.17

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

10/22/2019

R061442.DGN

QUANTITIES

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	177	STATION
201	GRUBBING	177	STATION
202	REMOVAL AND DISPOSAL OF FENCE	1737	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
202	REMOVAL AND DISPOSAL OF STEEL POSTS	2	EACH
202	REMOVAL AND DISPOSAL OF RETAINING WALLS	12	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	15	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	2	EACH
SS & 210	UNCLASSIFIED EXCAVATION	86113	CU. YD.
210	COMPACTED EMBANKMENT	43901	CU. YD.
SP	REMOVING AND REPLACING TOPSOIL	7300	CU. YD.
SP & 210	SOIL STABILIZATION	500	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	21505	TON
SS & 401	TACK COAT	16674	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	3837	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	152	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	4577	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	201	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	15496	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	798	TON
412	COLD MILLING ASPHALT PAVEMENT	3156	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	55	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	84" TEMPORARY CULVERT	180	LIN. FT.
SS & 604	SIGNS	1563	SQ. FT.
SS & 604	BARRICADES	480	LIN. FT.
SS & 604	TRAFFIC DRUMS	547	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	3080	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	2060	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	142704	LIN. FT.
SS & 604	VERTICAL PANELS	317	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	1831	SQ. YD.
SP	CULVERT CLEAN OUT	2	EACH
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	251	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	285	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	444	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	120	LIN. FT.
SS & 606	60" SIDE DRAIN	50	LIN. FT.
SS & 606	21" X 15" SIDE DRAIN	58	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	14	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	8	EACH
606	SELECTED PIPE BEDDING	100	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	5750	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	24	EACH
SS & 617	GUARDRAIL (TYPE A)	150	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	2	EACH
619	WIRE FENCE (TYPE C)	1862	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	1	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	1	EACH
620	LIME	39	TON
620	SEEDING	19.54	ACRE
SS & 620	MULCH COVER	51.61	ACRE
620	WATER	2667.9	M. GAL.
621	TEMPORARY SEEDING	32.07	ACRE
621	SILT FENCE	15640	LIN. FT.
621	SAND BAG DITCH CHECKS	2516	BAG
621	SEDIMENT BASIN	325	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	325	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	5754	CU. YD.
621	PIPE FOR SLOPE DRAINS	620	LIN. FT.
621	ROCK DITCH CHECKS	386	CU. YD.
SS & 621	FILTER SOCK (18")	1608	LIN. FT.
621	TRIANGULAR SILT DIKE	1150	LIN. FT.
623	SECOND SEEDING APPLICATION	19.54	ACRE
624	SOLID SODDING	1636	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	838	SQ. YD.
SS & 634	CONCRETE CURB (TYPE B)	476	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	33	EACH
637	MAILBOX SUPPORTS (SINGLE)	15	EACH
637	MAILBOX SUPPORTS (DOUBLE)	9	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	23376	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	35776	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	35776	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	223	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	3	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	173	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	262.17	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	25785	POUND
816	DUMPED RIPRAP	17	CU. YD.
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	239	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	551.60	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	78457	POUND

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
9/28/2020	REVISED RIGHT OF WAY ON SITE 3. ADDED "DELAY IN RIGHT OF WAY OCCUPANCY" SPECIAL PROVISION.	3, 93, & 135
10/8/2020	REVISED SS 100-3. ADDED SUPPLEMENTAL SPECIFICATION 400-7 "TRACKLESS TACK."	3 & 93
10/20/2020	REVISED TYPICAL SECTIONS OF IMPROVEMENT PLAN SHEETS. REVISED QUANTITIES FOR "AGGREGATE BASE COURSE (CLASS 7)", "TACK COAT", "MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")", AND "ASPHALT BINDER (64-22) IN ACHM SURFACE COURSE (1/2")" PAY ITEMS. ADDED "PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS" SPECIAL PROVISION.	3, 4, 5, 7, 8, 9, 10, 11, 12, 90, 91, 92 & 93
10/29/2020	ADDED "PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT" SPECIAL PROVISION.	3 & 93

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
TIMOTHY D. SMITH
No. 11435
Oct 29 2020 10:04 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
09/28/2020		10/29/2020	
10/8/2020			
10/20/2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		93	253

JOB NO.
061442

② SUMMARY OF QUANTITIES & REVISIONS

SUMMARY OF QUANTITIES & REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	94	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:12 AM

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SURVEY CONTROL COORDINATES
Project Name: 061428
Date: 2/19/2015
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *260028, 260028A, 260023, 260023A, 260024, 260024A,260025,- 260025A, 620041, 620041A, 620021, 260021A, 520037 , 620037A*
Projected to Ground Coorcinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	2007949.9938	0.0180	1134616.449	0.0150	432.34	0.007	CTL	PD:STD AHTD MON# STAMPED PN:1
2	2008527.3246	0.0170	1134630.3109	0.0130	430.71	0.008	CTL	PD:STD AHTD MON. STAMPED PN:2
3	2009322.1566	0.0140	1134382.4597	0.0120	457.14	0.009	CTL	PD:STD AHTD MON. STAMPED PN:3
4	2009773.9551	0.0190	1134062.6508	0.0160	426.09	0.010	CTL	PD:STD AHTD MON. STAMPED PN:4
5	2010142.4302	0.0230	1133703.7093	0.0180	396.99	0.010	CTL	PD:STD AHTD MON. STAMPED PN:5
6	2010728.5695	0.0210	1133468.6179	0.0160	359.19	0.011	CTL	PD:STD AHTD MON. STAMPED PN:6
7	2011522.2784	0.0180	1133687.7353	0.0140	330.73	0.011	CTL	PD:STD AHTD MON. STAMPED PN:7
8	2012389.5871	0.0180	1133889.4675	0.0140	328.30	0.011	CTL	PD:STD AHTD MON. STAMPED PN:8
9	2012917.1296	0.0180	1133950.0214	0.0150	339.50	0.011	CTL	PD:STD AHTD MON. STAMPED PN:9
10	2013110.0853	0.0200	1133534.3262	0.0170	364.51	0.012	CTL	PD:STD AHTD MON. STAMPED PN:10
11	2013313.2515	0.0220	1133050.6826	0.0180	372.10	0.012	CTL	PD:STD AHTD MON. STAMPED PN:11
12	2013704.1611	0.0200	1132554.1952	0.0150	401.48	0.013	CTL	PD:STD AHTD MON. STAMPED PN:12
13	2013986.9746	0.0240	1132389.2414	0.0190	400.70	0.013	CTL	PD:STD AHTD MON. STAMPED PN:13
14	2014217.0786	0.0380	1132070.7735	0.0290	378.16	0.013	CTL	PD:STD AHTD MON. STAMPED PN:14
15	2015039.8765	0.0330	1131833.8560	0.0250	326.26	0.013	CTL	PD:STD AHTD MON. STAMPED PN:15
16	2015157.7862	0.0330	1131156.6578	0.0250	305.47	0.013	CTL	PD:STD AHTD MON. STAMPED PN:16
17	2015491.6740	0.0230	1131031.3946	0.0210	307.95	0.013	CTL	PD:STD AHTD MON. STAMPED PN:17
18	2015850.6785	0.0220	1131191.1910	0.0210	325.30	0.013	CTL	PD:STD AHTD MON. STAMPED PN:18
19	2016379.7791	0.0220	1130752.7114	0.0200	365.99	0.014	CTL	PD:STD AHTD MON. STAMPED PN:19
20	2016400.5824	0.0190	1130303.5470	0.0170	363.06	0.014	CTL	PD:STD AHTD MON. STAMPED PN:20
21	2016662.5646	0.0320	1129889.1109	0.0220	348.07	0.013	CTL	PD:STD AHTD MON. STAMPED PN:21
22	2016469.1239	0.0190	1129293.7450	0.0150	318.00	0.014	CTL	PD:STD AHTD MON. STAMPED PN:22
23	2016715.6320	0.0300	1128762.3802	0.0210	312.64	0.014	CTL	PD:STD AHTD MON. STAMPED PN:23
24	2016834.8538	0.0190	1128148.9421	0.0140	333.25	0.014	CTL	PD:STD AHTD MON. STAMPED PN:24
25	2016984.2396	0.0160	1127734.7780	0.0160	328.97	0.014	CTL	PD:STD AHTD MON. STAMPED PN:25
26	2017593.4374	0.0140	1127167.6249	0.0130	308.61	0.014	CTL	PD:STD AHTD MON. STAMPED PN:26
27	2018275.4050	0.0140	1126731.1584	0.0140	308.10	0.014	CTL	PD:STD AHTD MON. STAMPED PN:27
28	2018614.0842	0.0150	1126145.2171	0.0150	304.21	0.014	CTL	PD:STD AHTD MON. STAMPED PN:28
29	2018803.2335	0.0180	1125429.4243	0.0130	301.92	0.014	CTL	PD:STD AHTD MON. STAMPED PN:29
30	2018973.9307	0.0200	1124790.0305	0.0150	298.29	0.014	CTL	PD:STD AHTD MON. STAMPED PN:30
31	2019156.4286	0.0160	1124027.2556	0.0120	299.26	0.014	CTL	PD:STD AHTD MON. STAMPED PN:31
32	2019488.4863	0.0150	1123512.8099	0.0120	302.73	0.014	CTL	PD:STD AHTD MON. STAMPED PN:32
33	2019394.1342	0.0150	1122164.0947	0.0110	308.63	0.014	CTL	PD:STD AHTD MON. STAMPED PN:33
34	2019098.7969	0.0170	1121132.2103	0.0130	337.23	0.015	CTL	PD:STD AHTD MON. STAMPED PN:34
35	2018893.7245	0.0220	1120322.7923	0.0170	311.71	0.014	CTL	PD:STD AHTD MON. STAMPED PN:35
36	2018780.7171	0.0210	1119559.9495	0.0160	319.42	0.014	CTL	PD:STD AHTD MON. STAMPED PN:36
37	2018856.8670	0.0240	1118814.4767	0.0190	325.70	0.014	CTL	PD:STD AHTD MON. STAMPED PN:37
38	2018871.2140	0.0210	1118099.7800	0.0160	331.01	0.014	CTL	PD:STD AHTD MON. STAMPED PN:38
39	2018989.7737	0.0200	1117470.3538	0.0150	342.83	0.014	CTL	PD:STD AHTD MON. STAMPED PN:39
40	2018992.4689	0.0250	1116726.4472	0.0200	335.52	0.014	CTL	PD:STD AHTD MON. STAMPED PN:40
41	2019123.4475	0.0220	1115899.9421	0.0160	336.44	0.014	CTL	PD:STD AHTD MON. STAMPED PN:41
42	2019271.6472	0.0230	1115293.5595	0.0170	346.37	0.014	CTL	PD:STD AHTD MON. STAMPED PN:42
43	2019560.3430	0.0240	1114546.2286	0.0170	348.72	0.014	CTL	PD:STD AHTD MON. STAMPED PN:43
44	2019531.0881	0.0180	1114086.8966	0.0190	355.14	0.014	CTL	PD:STD AHTD MON. STAMPED PN:44
45	2019617.3688	0.0250	1113424.6713	0.0250	353.92	0.014	CTL	PD:STD AHTD MON. STAMPED PN:45
46	2019713.2730	0.0250	1113053.7470	0.0190	367.31	0.014	CTL	PD:STD AHTD MON. STAMPED PN:46
47	2019681.5320	0.0270	1112417.0544	0.0260	364.00	0.014	CTL	PD:STD AHTD MON. STAMPED PN:47
48	2019504.7474	0.0200	1111856.2527	0.0160	363.10	0.014	CTL	PD:STD AHTD MON. STAMPED PN:48
49	2019504.9964	0.0170	1111259.7847	0.0140	354.02	0.014	CTL	PD:STD AHTD MON. STAMPED PN:49
50	2019607.0451	0.0180	1110575.1300	0.0160	368.16	0.014	CTL	PD:STD AHTD MON. STAMPED PN:50
51	2019826.1494	0.0200	1109984.1193	0.0180	356.71	0.014	CTL	PD:STD AHTD MON. STAMPED PN:51
52	2020190.0942	0.0200	1109351.7280	0.0180	361.20	0.013	CTL	PD:STD AHTD MON. STAMPED PN:52
53	2020650.1263	0.0180	1108795.9556	0.0160	362.48	0.013	CTL	PD:STD AHTD MON. STAMPED PN:53
54	2021081.5195	0.0180	1108154.0366	0.0160	369.47	0.014	CTL	PD:STD AHTD MON. STAMPED PN:54
55	2021060.0441	0.0180	1107310.2365	0.0140	367.73	0.013	CTL	PD:STD AHTD MON. STAMPED PN:55
56	2021806.2869	0.0210	1106223.8854	0.0210	378.89	0.013	CTL	PD:STD AHTD MON. STAMPED PN:56
57	2021799.7915	0.0260	1105802.0478	0.0250	379.42	0.013	CTL	PD:STD AHTD MON. STAMPED PN:57
58	2021493.8265	0.0270	1105066.1627	0.0290	386.34	0.013	CTL	PD:STD AHTD MON. STAMPED PN:58
59	2021220.1166	0.0220	1104226.7918	0.0210	389.51	0.013	CTL	PD:STD AHTD MON. STAMPED PN:59
60	2021109.8504	0.0370	1103639.4964	0.0270	396.50	0.013	CTL	PD:STD AHTD MON. STAMPED PN:60
61	2020931.2827	0.0380	1102724.8456	0.0250	413.39	0.013	CTL	PD:STD AHTD MON. STAMPED PN:61
62	2020817.8563	0.0380	1102000.0742	0.0250	426.34	0.012	CTL	PD:STD AHTD MON. STAMPED PN:62
63	2021164.5569	0.0310	1101439.1096	0.0210	451.84	0.012	CTL	PD:STD AHTD MON. STAMPED PN:63
64	2021601.9835	0.0490	1100885.0473	0.0350	475.25	0.012	CTL	PD:STD AHTD MON. STAMPED PN:64
65	2022162.6892	0.0310	1100461.6376	0.0250	494.08	0.012	CTL	PD:STD AHTD MON. STAMPED PN:65
66	2022461.3147	0.0170	1099833.5456	0.0140	526.12	0.012	CTL	PD:STD AHTD MON. STAMPED PN:66
67	2022838.6694	0.0200	1099428.5391	0.0160	524.01	0.011	CTL	PD:STD AHTD MON. STAMPED PN:67
68	2023050.4363	0.0220	1098839.3916	0.0200	539.11	0.010	CTL	PD:STD AHTD MON. STAMPED PN:68
69	2023339.0811	0.0270	1098500.2284	0.0220	555.25	0.010	CTL	PD:STD AHTD MON. STAMPED PN:69
70	2023477.0642	0.0270	1097927.9250	0.0210	540.56	0.010	CTL	PD:STD AHTD MON. STAMPED PN:70
71	2023479.0613	0.0230	1097246.0454	0.0180	537.85	0.010	CTL	PD:STD AHTD MON. STAMPED PN:71
72	2023491.3191	0.0220	1096639.1117	0.0180	518.89	0.009	CTL	PD:STD AHTD MON. STAMPED PN:72
73	2023310.3703	0.0160	1096026.8997	0.0130	524.45	0.009	CTL	PD:STD AHTD MON. STAMPED PN:73
74	2023149.2987	0.0150	1094906.9914	0.0120	455.84	0.006	CTL	PD:STD AHTD MON. STAMPED PN:74
75	2022971.6811	0.0160	1094263.3403	0.0130	412.32	0.004	CTL	PD:STD AHTD MON. STAMPED PN:75
76	2022621.4522	0.0160	1092715.7581	0.0130	412.23	0.006	CTL	PD:STD AHTD MON. STAMPED PN:76
77	2022329.8561	0.0210	1092207.9319	0.0170	452.40	0.007	CTL	PD:STD AHTD MON. STAMPED PN:77
78	2022082.4380	0.0220	1091843.8351	0.0170	461.11	0.007	CTL	PD:STD AHTD MON. STAMPED PN:78
79	2021742.3967	0.0250	1091389.3314	0.0180	441.99	0.008	CTL	PD:STD AHTD MON. STAMPED PN:79
80	2021344.2197	0.0390	1090874.9368	0.0280	408.21	0.005	CTL	PD:STD AHTD MON. STAMPED PN:80
81	2021083.7787	0.0280	1090217.3678	0.0200	380.91	0.008	CTL	PD:STD AHTD MON. STAMPED PN:81
82	2021232.6984	0.0290	1089528.1757	0.0230	379.58	0.008	CTL	PD:STD AHTD MON. STAMPED PN:82
83	2021546.9979	0.0300	1088762.0946	0.0210	395.72	0.009	CTL	PD:STD AHTD MON. STAMPED PN:83
84	2021897.1618	0.0220	1088313.2073	0.0200	401.14	0.009	CTL	PD:STD AHTD MON. STAMPED PN:84
85	2022208.2182	0.0160	1087624.2352	0.0140	403.46	0.009	CTL	PD:STD AHTD MON. STAMPED PN:85
86	2022588.9231	0.0230	1087186.8616	0.0190	389.23	0.009	CTL	PD:STD AHTD MON. STAMPED PN:86
87	2022988.5332	0.0220	1086685.8278	0.0190	381.28	0.008	CTL	PD:STD AHTD MON. STAMPED PN:87
88	2023536.6120	0.0210	1086451.0435	0.0170	384.68	0.008	CTL	PD:STD AHTD MON. STAMPED PN:88
89	2023966.3391	0.0270	1086167.2629	0.0220	381.50	0.009	CTL	PD:STD AHTD MON. STAMPED PN:89
90	2024166.8923	0.0280	1085550.3126	0.0270	385.66	0.009	CTL	PD:STD AHTD MON. STAMPED PN:90
91	2024298.4549	0.0270	1084857.3763	0.0250	393.05	0.008	CTL	PD:STD AHTD MON. STAMPED PN:91
92	2024250.2807	0.0290	1084144.4997	0.0260	385.60	0.008	CTL	PD:STD AHTD MON. STAMPED PN:92
93	2023677.6593	0.0310	1083233.7071	0.0240	389.90	0.008	CTL	PD:STD AHTD MON. STAMPED PN:93
94	2023601.1463	0.0310	1082652.8491	0.0200	403.98	0.008	CTL	PD:STD AHTD MON. STAMPED PN:94
95	2023117.1636	0.0390	1082210.7672	0.0250	441.88	0.007	CTL	PD:STD AHTD MON. STAMPED PN:95
96	2022970.6080	0.0290	1081701.9710	0.0220	438.01	0.007	CTL	PD:STD AHTD MON. STAMPED PN:96
97	2022521.8847	0.0260	1081329.7926	0.0210	409.93	0.004	CTL	PD:STD AHTD MON. STAMPED PN:97
98	2021976.6930	0.0210	1080892.2280	0.0170	410.85	0.002	CTL	PD:STD AHTD MON. STAMPED PN:98
99	2021442.5131	0.0180	1080331.2923	0.0170	399.53	0.004	CTL	PD:STD AHTD MON. STAMPED PN:99
100	2021264.8365	0.0180	1079727.8859	0.0190	401.93	0.005	CTL	PD:STD AHTD MON. STAMPED PN:100
101	2021303.0850	0.0160	1079110.9695	0.0180	396.92	0.005	CTL	PD:STD AHTD MON. STAMPED PN:101
102	2021663.1865	0.0160	1078621.3295	0.0170	396.24	0.005	CTL	PD:STD AHTD MON. STAMPED PN:102
103	2022136.1985	0.0190	1078228.2858	0.0190	393.59	0.006	CTL	PD:STD AHTD MON. STAMPED PN:103
104	2022657.7936	0.0160	1077789.8781	0.0170	396.58	0.006	CTL	PD:STD AHTD MON. STAMPED PN:104
105	2022808.6094	0.0220	1077237.0130	0.0210	394.77	0.007	CTL	PD:STD AHTD MON. STAMPED PN:105
106	2022775.1313	0.0300	1076383.5532	0.0320	410.65	0.007	CTL	PD:STD AHTD MON. STAMPED PN:106
107	2022712.1801	0.0220	1075676.8250	0.0270	417.22	0.006	CTL	PD:STD AHTD MON. STAMPED PN:107
108	2022538.4218	0.0320	1075104.7306	0.0250	427.68	0.007	CTL	PD:STD AHTD MON. STAMPED PN:108
109	2022174.4950	0.0350	1074368.1094	0.0240	432.01	0.007	CTL	PD:STD AHTD MON. STAMPED PN:109
110	2021813.8754	0.0290	1073814.6902	0.0250	443.50	0.007	CTL	PD:STD AHTD MON. STAMPED PN:110
111	2021477.8254	0.0260	1073207.4265	0.0280	453.05	0.006	CTL	PD:STD AHTD MON. STAMPED PN:111
112	2021352.4982	0.0180	1072587.7870	0.0180	459.18	0.006	CTL	PD:STD AHTD MON. STAMPED PN:112
113	2021338.1943	0.0220	1071918.0022	0.0240	477.22	0.006	CTL	PD:STD AHTD MON. STAMPED PN:113
114	2021170.4943	0.0200	1071297.6356	0.0210	496.96	0.005	CTL	PD:STD AHTD MON. STAMPED PN:114
115	2021282.2676	0.0280	1070649.5362	0.0250	517.05	0.004	CTL	PD:STD AHTD MON. STAMPED PN:115
116	2021372.5915	0.0180	1069956.0069	0.0140	529.00	0.002	CTL	PD:STD AHTD MON. STAMPED PN:116
117	2021575.6368	0.0280	1069482.0859	0.0200	538.33	0.004	CTL	PD:STD AHTD MON. STAMPED PN:117
118	2021937.5635	0.0210	1068923.3134	0.0170	525.42	0.006	CTL	PD:STD AHTD MON. STAMPED PN:118
119	2022251.1620	0.0190	1068352.8391	0.0140	524.90	0.006	CTL	PD:STD AHTD MON. STAMPED PN:119
120	2022456.3644	0.0180	1067564.4405	0.0130	531.94	0.007	CTL	PD:STD AHTD MON. STAMPED PN:120
121	2022556.8310	0.0240	1066887.3242	0.0200	540.79	0.007	CTL	PD:STD AHTD MON. STAMPED PN:121
122	2022619.4791	0.0190	1066215.4553	0.0160	538.83	0.007	CTL	PD:STD AHTD MON. STAMPED PN:122
123	2022651.2872	0.0150	1065625.6167	0.0130	539.92	0.007	CTL	PD:STD AHTD MON. STAMPED PN:123

8/19/2020

R061442.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.		061442	95	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:12 AM

DocuSign

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
124	2022734.5746	0.0170	1064917.2604	0.0160	553.75	0.008	CTL	PD:STD AHTD MON. STAMPED PN:124
125	2022883.1923	0.0180	1064416.6977	0.0180	548.72	0.008	CTL	PD:STD AHTD MON. STAMPED PN:125
126	2022906.8179	0.0240	1063868.3098	0.0230	543.54	0.008	CTL	PD:STD AHTD MON. STAMPED PN:126
127	2022907.0669	0.0240	1063030.0920	0.0230	539.40	0.008	CTL	PD:STD AHTD MON. STAMPED PN:127
128	2022919.1437	0.0300	1062392.3633	0.0270	529.98	0.009	CTL	PD:STD AHTD MON. STAMPED PN:128
129	2022958.0082	0.0200	1061791.2360	0.0160	557.31	0.009	CTL	PD:STD AHTD MON. STAMPED PN:129
130	2022962.7055	0.0180	1060941.5524	0.0160	531.07	0.010	CTL	PD:STD AHTD MON. STAMPED PN:130
131	2022996.9448	0.0190	1060446.1590	0.0170	550.65	0.009	CTL	PD:STD AHTD MON. STAMPED PN:131
132	2023180.2617	0.0180	1059501.7643	0.0170	550.00	0.010	CTL	PD:STD AHTD MON. STAMPED PN:132
133	2023477.2462	0.0200	1058874.9633	0.0180	510.26	0.010	CTL	PD:STD AHTD MON. STAMPED PN:133
134	2023792.1858	0.0230	1058287.7079	0.0210	502.30	0.010	CTL	PD:STD AHTD MON. STAMPED PN:134
135	2024143.3267	0.0180	1057471.8536	0.0160	525.21	0.010	CTL	PD:STD AHTD MON. STAMPED PN:135
136	2024395.7702	0.0170	1056847.0987	0.0140	503.22	0.009	CTL	PD:STD AHTD MON. STAMPED PN:136
137	2024542.4868	0.0170	1056249.9087	0.0140	520.93	0.010	CTL	PD:STD AHTD MON. STAMPED PN:137
138	2024807.4641	0.0170	1055607.3536	0.0140	532.60	0.010	CTL	PD:STD AHTD MON. STAMPED PN:138
139	2025005.4821	0.0250	1054395.8704	0.0230	513.81	0.009	CTL	PD:STD AHTD MON. STAMPED PN:139
140	2025234.3511	0.0260	1053186.5453	0.0240	505.44	0.009	CTL	PD:STD AHTD MON. STAMPED PN:140
141	2025644.5799	0.0320	1052553.4199	0.0290	477.94	0.009	CTL	PD:STD AHTD MON. STAMPED PN:141
142	2025670.6916	0.0350	1052098.1442	0.0320	471.59	0.009	CTL	PD:STD AHTD MON. STAMPED PN:142
143	2025495.1811	0.0340	1051715.4731	0.0270	466.27	0.009	CTL	PD:STD AHTD MON. STAMPED PN:143
144	2025432.8600	0.0270	1050965.7951	0.0230	447.02	0.009	CTL	PD:STD AHTD MON. STAMPED PN:144
145	2025082.9902	0.0390	1050454.0887	0.0330	442.68	0.009	CTL	PD:STD AHTD MON. STAMPED PN:145
146	2024794.7103	0.0260	1050113.6964	0.0220	451.97	0.009	CTL	PD:STD AHTD MON. STAMPED PN:146
147	2024736.1575	0.0290	1049343.3440	0.0230	459.31	0.009	CTL	PD:STD AHTD MON. STAMPED PN:147
148	2024500.3451	0.0350	1048757.0097	0.0280	448.26	0.009	CTL	PD:STD AHTD MON. STAMPED PN:148
149	2024025.1070	0.0290	1048254.5348	0.0260	441.53	0.009	CTL	PD:STD AHTD MON. STAMPED PN:149
150	2023600.2742	0.0280	1047729.5235	0.0260	447.36	0.008	CTL	PD:STD AHTD MON. STAMPED PN:150
151	2023209.0666	0.0390	1047047.1849	0.0320	449.56	0.008	CTL	PD:STD AHTD MON. STAMPED PN:151
152	2022863.2900	0.0440	1046343.0819	0.0360	452.56	0.008	CTL	PD:STD AHTD MON. STAMPED PN:152
153	2022540.9099	0.0320	1045809.1809	0.0280	453.90	0.008	CTL	PD:STD AHTD MON. STAMPED PN:153
154	2022343.0770	0.0260	1045082.9174	0.0220	457.05	0.008	CTL	PD:STD AHTD MON. STAMPED PN:154
155	2022254.5522	0.0320	1044659.4278	0.0270	459.34	0.007	CTL	PD:STD AHTD MON. STAMPED PN:155
156	2022378.9894	0.0270	1044153.3867	0.0230	451.13	0.007	CTL	PD:STD AHTD MON. STAMPED PN:156
176	2022639.0114	0.0180	1041867.4852	0.0170	452.51	0.007	CTL	PD:STD AHTD MON. STAMPED PN:176
177	2022965.6467	0.0220	1041301.3012	0.0220	458.49	0.007	CTL	PD:STD AHTD MON. STAMPED PN:177
178	2023119.6048	0.0170	1040573.9296	0.0180	462.86	0.007	CTL	PD:STD AHTD MON. STAMPED PN:178
179	2023296.7004	0.0180	1039911.9023	0.0180	463.95	0.007	CTL	PD:STD AHTD MON. STAMPED PN:179
25925	2023110.5642	0.0190	1036557.1460	0.0210	470.40	0.008	CTL	PD:STD AHTD MON. STAMPED PN:25 JOB#061259
25926	2023250.7804	0.0190	1037308.2271	0.0190	475.36	0.008	CTL	PD:STD AHTD MON. STAMPED PN:26 JOB#061259
25927	2023448.5563	0.0260	1037956.3214	0.0280	485.51	0.008	CTL	PD:STD AHTD MON. STAMPED PN:27 JOB#061259
25928	2023471.5008	0.0210	1038685.6061	0.0220	481.59	0.008	CTL	PD:STD AHTD MON. STAMPED PN:28 JOB#061259
25933	2022411.3875	0.0170	1042808.6557	0.0150	446.90	0.006	CTL	PD:STD AHTD MON. STAMPED PN:33 JOB#061259
25934	2022355.0258	0.0310	1043533.4911	0.0240	446.19	0.006	CTL	PD:STD AHTD MON. STAMPED PN:34 JOB#061259
180	2009336.3055	0.0000	1134423.8194	0.0000	462.41	0.009	GPS	PD:AHTD GPS MON. 620041
181	2007905.0779	0.0000	1134700.0903	0.0000	428.41	0.007	GPS	PD:AHTD GPS MON. 620041A
182	2019659.1975	0.0000	1123053.2909	0.0000	309.29	0.014	GPS	PD:AHTD GPS MON. 620021
183	2019135.2471	0.0000	1121467.6996	0.0000	336.76	0.014	GPS	PD:AHTD GPS MON. 620021A
184	2021105.5881	0.0000	1107876.5365	0.0000	366.56	0.013	GPS	PD:AHTD GPS MON. 620037
185	2021217.2124	0.0000	1106774.3896	0.0000	373.26	0.013	GPS	PD:AHTD GPS MON. 620037A
186	2023327.5994	0.0000	1095552.4606	0.0000	521.52	0.008	GPS	PD:AHTD GPS MON. 620033
187	2022714.2434	0.0000	1093423.1962	0.0000	400.74	0.003	GPS	PD:AHTD GPS MON. 620033A
188	2024799.1596	0.0000	1081682.4837	0.0000	489.57	0.006	GPS	PD:AHTD GPS MON. 620038
189	2023378.8350	0.0000	1081000.6994	0.0000	435.74	0.005	GPS	PD:AHTD GPS MON. 620038A
190	2022306.4316	0.0000	1068224.2216	0.0000	525.17	0.006	GPS	PD:AHTD GPS MON. 620039
191	2021691.6444	0.0000	1069370.8680	0.0000	537.79	0.004	GPS	PD:AHTD GPS MON. 620039A
192	2024866.2760	0.0000	1055145.3824	0.0000	526.72	0.010	GPS	PD:AHTD GPS MON. 620040
193	2024950.2125	0.0000	1053675.1021	0.0000	503.95	0.009	GPS	PD:AHTD GPS MON. 620040A
194	2023177.6077	0.0000	1040668.5286	0.0000	479.46	0.005	GPS	PD:AHTD GPS MON. 260025
195	2023368.4143	0.0000	1039115.6789	0.0000	486.21	0.000	GPS	PD:AHTD GPS MON. 260025A
901	2007910.0972	30.0000	1134636.2553	30.0000	428.29	0.008	TBM	PD:CHIS SQUARE TOP RCP
903	2009221.4950	30.0000	1135145.5496	30.0000	457.32	0.009	TBM	PD:CHISELED SQUARE CURB
904	2010139.5980	30.0000	1133729.3080	30.0000	402.01	0.010	TBM	PD:CHISELED SQUARE IN CATCH BASIN
905	2011252.6598	30.0000	1133568.5305	30.0000	333.92	0.011	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
907	2013277.0772	30.0000	1133162.2279	30.0000	363.47	0.012	TBM	PD:CHISELED SQUARE ON RCP
908	2014193.3151	30.0000	1132080.6532	30.0000	381.78	0.013	TBM	PD:CHISELED SQUARE IN CATCH BASIN
909	2015105.1707	30.0000	1131751.5687	30.0000	320.87	0.013	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
910	2015615.0901	30.0000	1131002.1207	30.0000	308.52	0.013	TBM	PD:CHISELED SQUARE SW COR DW
911	2016425.8581	30.0000	1130672.4861	30.0000	365.51	0.014	TBM	PD:CHISELED SQUARE TOP RCP
916	2018574.3996	30.0000	1126421.7492	30.0000	305.16	0.014	TBM	PD:CHISELED SQUARE SW CORNER OF BRIDGE
917	2018675.4992	30.0000	1126422.3592	30.0000	304.63	0.014	TBM	PD:AHTD DISC NW CORNER OF BRIDGE

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
919	2019501.5882	30.0000	1123585.1547	30.0000	303.14	0.014	TBM	PD:CHISELED SQUARE NW COR TB CONC BOX
920	2019510.8488	30.0000	1122080.5203	30.0000	307.03	0.014	TBM	PD:AHTD DISK NW CORNER OF HEADWALL
921	2019213.2443	30.0000	1121159.1390	30.0000	338.88	0.014	TBM	PD:CHISELED SQUARE SW. COR DW
922	2019017.8106	30.0000	1120071.1859	30.0000	309.40	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
923	2018827.6751	30.0000	1118147.2921	30.0000	319.44	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
924	2018928.7747	30.0000	1118147.9301	30.0000	327.53	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
925	2019036.7468	30.0000	1117061.8701	30.0000	330.47	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
926	2019144.7569	30.0000	1115975.8181	30.0000	334.91	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
927	2019249.0587	30.0000	1115474.9143	30.0000	338.27	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
928	2019563.0912	30.0000	1113805.0402	30.0000	347.69	0.014	TBM	PD:CHISELED SQUARE NE COR DW
929	2019671.2163	30.0000	1112719.0171	30.0000	363.91	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
930	2019575.0020	30.0000	1111966.0459	30.0000	366.88	0.014	TBM	PD:CHISELED SQUARE SE COR DW
931	2019479.3537	30.0000	1111129.4792	30.0000	356.73	0.014	TBM	PD:CHISELED SQUARE
932	2019891.9697	30.0000	1109878.2754	30.0000	358.87	0.014	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
933	2020504.6268	30.0000	1108962.7945	30.0000	362.66	0.013	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
934	2021120.0870	30.0000	1107629.4183	30.0000	368.60	0.013	TBM	PD:AHTD DISK SW CORNER OF BRIDGE
935	2021127.8885	30.0000	1106459.2088	30.0000	378.34	0.013	TBM	PD:CHISELED SQUARE CTR CONC BR RAIL
936	2021739.5255	30.0000	1105711.0019	30.0000	380.03	0.013	TBM	PD:CHISELED SQUARE NE COR N. HW
937	2021440.1590	30.0000	1105123.8675	30.0000	385.08	0.013	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
938	2021141.9315	30.0000	1104369.5492	30.0000	388.14	0.012	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
939	2020939.7322	30.0000	1104368.1841	30.0000	410.93	0.013	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
940	2020753.4291	30.0000	1102026.3700	30.0000	424.87	0.012	TBM	PD:CHISELED SQUARE CTR
941	2022895.4821	30.0000	1099282.6765	30.0000	521.52	0.011	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
942	2023204.5763	30.0000	1098448.9680	30.0000	554.65	0.010	TBM	PD:CHISELED SQUARE WEST BASE OF GATE
943	2023514.2756	30.0000	1097531.6950	30.0000	529.87	0.010	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
944	2023325.5472	30.0000	1095607.9343	30.0000	518.86	0.008	TBM	PD:CHISELED SQUARE BOTTOM CONC DL
946	2022536.2886	30.0000	1092844.0155	30.0000	392.51	0.005	TBM	PD:AHTD DISK
947	2021937.4575	30.0000	1091753.0972	30.0000	458.43	0.008	TBM	PD:CHISELED SQUARE BOTTOM CONC DL
948	2021039.5838	30.0000	1090074.8454	30.0000	380.82	0.008	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
949	2021452.4498	30.0000	1088907.5671	30.0000	387.83	0.008	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
951	2022780.7496	30.0000	1086994.7190	30.0000	387.34	0.008	TBM	PD:AHTD DISK SW CORNER OF BRIDGE
952	2024104.2422	30.0000	1085750.6627	30.0000	380.84	0.009	TBM	PD:CHISELED SQUARE SW CORNER BASE OF TELEPHONE BOX
953	2023917.4910	30.0000	1083659.7040	30.0000	376.75	0.007	TBM	PD:CHISELED SQUARE TOP OF W. RETAINING WALL
954	2023618.5434	30.0000	1083072.3936	30.0000	392.37	0.008	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
955	2022214.3926	30.0000	1081557.3525	30.0000	418.76	0.005	TBM	PD:CHISELED SQUARE CORNER OF HEADWALL
957	2020910.7873	30.0000	1080126.5239	30.0000	400.62	0.005	TBM	PD:CHISELED SQUARE SE CORNER OF PARKING LOT
958	2021219.1345	30.0000	1079460.1214	30.0000	397.45	0.005	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
959	2021933.7942	30.0000	1078546.0466	30.0000	396.49	0.005	TBM	PD:AHTD DISK SW CORNER OF BRIDGE
960	2022443.7376	30.0000	1077964.8056	30.0000	396.52	0.006	TBM	PD:AHTD DISK SW CORNER OF BRIDGE
961	2022853.2304	30.0000	1077299.2291	30.0000	392.29	0.007	TBM	PD:CHISELED SQUARE CTR
962	2022257.5144	30.0000	1075873.6828	30.0000	412.99	0.006	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
963	2022468.0762	30.0000	1074788.6589	30.0000	426.88	0.007	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
964	2022068.1990	30.0000	1074200.4524	30.0000	433.81	0.007	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
965	2021667.6858	30.0000	1073695.8154	30.0000	444.41	0.007	TBM	PD:CHISELED SQUARE CTR 5
966	2021573.0767	30.0000	1072859.1797	30.0000	456.63	0.006	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
967	2021277.5963	30.0000	1071853.7890	30.0000	479.51	0.006	TBM	PD:CHISELED SQUARE IN CENTER OF HEADWALL
968	2021181.0730	30.0000	1071267.8957	30.0000	494.31	0.005	TBM	PD:CHISELED SQUARE TOP 24IN RCP
969	2021288.7261	30.0000	1070432.8281	30.0000	513.08	0.003	TBM	PD:CHISELED SQUARE
970	2021804.7548	30.0000	1069099.4459	30.0000	522.17	0.005	TBM	PD:CHISELED SQUARE CTR
971	2022322.1696	30.0000	1067598.9418	30.0000	526.94	0.007	TBM	PD:CHISELED SQUARE CTR S.-W
972	2022532.3554	30.0000	1066597.5573	30.0000	537.23	0.007	TBM	PD:CHISELED SQUARE
973	2022640.8055	30.0000	1065678.9592	30.0000	539.33	0.008	TBM	PD:CHISELED SQUARE NW COR CONC BASE TB
974	2022944.1013	30.0000	1065681.3884	30.0000	547.55	0.008	TBM	PD:CHISELED SQUARE CTR N.HW
975	2022858.4617	30.0000	1063758.1986	30.0000	537.82	0.008	TBM	PD:CHISELED SQUARE CTR N.HW
976	2022869.2864	30.0000	1062420.8922	30.0000	530.08	0.009	TBM	PD:CHISELED SQUARE CTR S.-W
977	2022981.2677	30.0000	1061084.4108	30.0000	528.12	0.010	TBM	PD:CHISELED SQUARE W.END OF N.HW
978	2023192.3505	30.0000	1059999.5098	30.0000	545.40	0.009	TBM	PD:CHISELED SQUARE TOP 18IN RCP
979	2023710.2094	30.0000	1058499.2227	30.0000	494.90	0.010	TBM	PD:CHISELED SQUARE
980	2024122.1963	30.0000	1057583.1958	30.0000	520.30	0.010	TBM	PD:CHISELED SQUARE CTR S.-W
981	2024232.3035	30.0000	1056497.5188	30.0000	507.68	0.010	TBM	PD:CHISELED SQUARE E.END N.HW

8/19/2020

R061442.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.		061442	96	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:12 AM

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Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
982	2024745.4491	30.0000	1055582.3760	30.0000	533.78	0.010	TBM	PD:CHISELED SQUARE IN CURB NORTH END OF ISLAND
983	2024857.7284	30.0000	1054245.9986	30.0000	506.31	0.009	TBM	PD:FIRE HYDRANT
984	2025474.8538	30.0000	1052997.4640	30.0000	494.29	0.009	TBM	PD:CHISELED SQUARE CENTER OF HEADWALL W.SIDE HWY
985	2025491.1039	30.0000	1051075.2483	30.0000	449.39	0.009	TBM	PD:CHISELED SQUARE CENTER OF HEADWALL W.SIDE HWY
986	2024794.7893	30.0000	1049732.0205	30.0000	456.34	0.009	TBM	PD:CHISELED SQUARE CENTER OF HEADWALL
987	2024499.3480	30.0000	1048810.0842	30.0000	450.52	0.008	TBM	PD:CHISELED SQUARE CENTER OF HEADWALL
988	2023201.5811	30.0000	1046876.4777	30.0000	448.15	0.008	TBM	PD:CHISELED SQUARE CNTR FES
989	2022802.9591	30.0000	1046204.3368	30.0000	451.58	0.008	TBM	PD:CHISELED SQUARE CENTER OF HEADWALL
990	2022408.7023	30.0000	1045030.6800	30.0000	459.68	0.008	TBM	PD:TOP OF FIRE HYDRANT
991	2022319.2414	30.0000	1043692.4715	30.0000	449.70	0.006	TBM	PD:ALUMINUM CAP SE CORNER OF BRIDGE
1900	2006596.2933	30.0000	1134545.0473	30.0000	392.34	0.006	TBM	PD:1900 2' ALUM CAP
259918	2022878.3664	30.0000	1035826.7761	30.0000	481.84	0.008	TBM	PD:TBM 918 FROM JOB 061259
259919	2023174.1913	30.0000	1036981.6680	30.0000	475.04	0.008	TBM	PD:TBM 919 FROM JOB 061259
259920	2023441.0081	30.0000	1038427.1990	30.0000	475.11	0.008	TBM	PD:TBM 920 FROM JOB 061259
259922	2023064.9841	30.0000	1040808.8255	30.0000	457.92	0.005	TBM	PD:TBM 922 FROM JOB 061259
9100	2003880.2547	30.0000	1135675.1842	30.0000	417.83	0.000	BM	PD:NGS BM BENTON NORTH MERIDIAN
9101	2022731.9474	30.0000	1093764.8597	30.0000	391.98	0.000	BM	PD:NGS BM D 98
9102	2021892.2735	0.0250	1080910.2352	0.0200	407.93	0.000	BM	PD:NGS BM E 78
9103	2021279.7325	30.0000	1070290.6518	30.0000	518.64	0.000	BM	PD:NGS BM X 105
9104	2016936.5571	30.0000	1025886.8039	30.0000	524.25	0.000	BM	PD:USGS MARK 523

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped 'Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, andadjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) — *PN: 180-195*
- Horizontal - Primary (2.0cm± 20PPM): — *PN:1-156,176-179*
- Horizontal - Secondary (3 cm ± 50PPM): — *PN:N/A*
- Vertical - NGS 1st Order (±4mm x Vdist in km) — *PN:N/A*
- Vertical - NGS 2nd Order (±6mm x Vdist in km) — *PN:9100-9104*
- Vertical - NGS 3rd Order (±8mm x Vdist in km) — *PN:901-991, 1900*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0302 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.9999346105 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.9999796372 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 425.71 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-156, 176-179 From NGS BM D 98, E 78, X 105, BENTON NORTH MERIDIAN

Basis of Bearing: Grid Bearings based on AHTD GPS points: *230034, 730004 - 730004A, 730035 - 730035A, 730034 - 730034A, 730016 - 730016A, 730015*
Convergence Angle is: 0-24-12 LEFT at PN 44
LT: N 34-037-05 LG: W 092-43-15
Grid Azimuth = Astronomical Azimuth - Convergence Ange

8/19/2020

R061442.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.		061442	97	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:13 AM

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HWY. 5 - SITE 1

POINT NAME	TYPE	STATION	NORTHING	EASTING
8000	POB	99+67.85	2024304.4354	1048561.0760
8001	PC	102+65.44	2024494.9120	1048789.7279
8003	PT	106+89.82	2024679.1778	1049167.4704
8004	PC	109+60.75	2024736.4838	1049432.2689
8006	PT	112+33.14	2024778.1610	1049701.2882
8007	PC	114+30.87	2024796.7742	1049898.1392
8009	PT	119+67.47	2025001.8717	1050385.0657
8010	PC	123+69.98	2025262.1095	1050692.1347
8012	PT	128+60.51	2025451.7911	1051136.5686
8013	PC	132+70.03	2025494.2004	1051543.8924
8015	PT	135+42.47	2025551.0786	10551809.7961
8016	PC	138+67.24	2025652.5359	1052118.3116
8018	PT	143+06.21	2025628.6287	1052546.4772
8019	PC	144+42.19	2025572.0317	1052670.1212
8021	PT	148+75.75	2025362.4956	1053049.2086
8022	PC	153+69.40	2025091.7092	1053461.9647
8024	PT	157+70.44	2024981.3168	1053841.3847
8025	PC	162+28.92	2024987.8933	1054299.8138
8027	PT	165+69.82	2024972.5153	1054640.1614
8028	POE	168+54.19	2024942.8096	1054922.9812

HWY. 5 - SITES 3 & 4

POINT NAME	TYPE	STATION	NORTHING	EASTING
8060	POB	658+13.54	2021798.9582	1100709.9650
8061	PC	663+36.30	2021438.2802	1101088.3760
8063	PT	665+61.09	2021300.0930	1101265.2095
8064	PC	666+18.15	2021269.5261	1101313.4005
8066	PT	668+03.29	2021167.8547	1101468.1095
8067	PC	668+18.02	2021159.5684	1101480.2851
8069	PT	668+96.45	2021114.5573	1101544.5149
8070	PC	670+55.80	2021021.3291	1101673.7486
8072	PT	677+89.14	2020873.5481	1102370.6236
8073	PC	684+03.44	2020999.8069	1102971.8137
8075	PT	687+40.20	2021066.5972	1103301.8778
8076	PC	698+05.54	2021270.2143	1104347.5749
8078	PT	699+97.26	2021320.8622	1104532.3006
8079	PC	711+40.21	2021705.1354	1105608.7127
8081	PT	721+38.42	2021495.6838	1106530.9483
8082	PC	724+23.45	2021293.3015	1106731.6604
8084	PT	729+89.79	2021081.4300	1107241.0465
8085	POE	739+56.27	2021082.5960	1108207.5321

HWY. 5 - SITE 2

POINT NAME	TYPE	STATION	NORTHING	EASTING
8030	POB	195+44.00	2022234.8010	1081077.3756
8031	PC	198+75.93	2022494.9130	1081283.5838
8033	PCC	201+23.91	2022682.3332	1081445.8525
8035	PRC	205+92.54	2022923.6519	1081841.1367
8037	PT	210+41.49	2023150.8197	1082222.0000
8038	PC	213+70.27	2023384.7438	1082453.7939
8040	PT	219+70.41	2023641.3966	1082983.5082
8041	PC	219+87.10	2023643.2406	1083000.0886
8043	PT	223+65.76	2023763.4210	1083356.1114
8044	PC	230+77.43	2024129.5264	1083966.3916
8046	PT	234+96.45	2024253.2480	1084362.6103
8047	PC	239+03.23	20224279.6622	1084768.5305
8049	PT	242+00.91	2024256.5761	1085064.3005
8050	PC	249+50.42	2024092.4458	1085795.6177
8052	PT	258+68.05	2023500.4357	1086442.3123
8053	PC	261+43.36	2023238.1617	1086526.0393
8055	PT	266+06.86	2022864.6744	1086788.3962
8056	POE	276+48.13	2022230.3212	1087614.1314

HWY. 5 - SITE 5

POINT NAME	TYPE	STATION	NORTHING	EASTING
8109	PC	965+32.15	2016124.9034	1130997.7840
8111	PT	966+11.03	2016067.9835	1131052.3895
8112	PC	966+59.97	2016032.2042	1131085.7804
8114	PT	970+01.11	2015714.5702	1131140.4238
8115	PC	971+69.08	2015560.5286	1131073.4446
8117	PT	977+79.81	2015115.9106	1131345.5348
8118	PC	980+59.91	2015098.4703	1131625.0947
8120	PT	984+68.26	2014840.0176	1131898.5563
8121	PC	986+07.79	2014701.4699	1131915.0828
8123	PT	988+03.32	2014512.8626	1131964.2937
8124	POE	990+56.59	2014278.7761	1132060.9903

HWY. 5 - SITE 1 DETOUR

POINT NAME	TYPE	STATION	NORTHING	EASTING
8140	POB	300+15.00	2024913.8193	1050260.8225
8141	PC	303+05.57	2025060.7288	1050511.5215
8143	PT	303+99.96	2025115.2374	1050588.4339
8144	PC	305+04.05	2025182.5336	1050667.8405
8146	PT	305+78.20	2025234.1631	1050720.9810
8147	PC	306+22.92	2025267.4345	1050750.8689
8149	PT	309+50.41	2025432.9731	1051027.7599

SITE 1 - HOME INSTEAD SENIOR CARE DRIVE

POINT NAME	TYPE	STATION	NORTHING	EASTING
8130	POB	5+00.00	2024738.4103	1049441.0765
8131	PC	5+36.67	2024702.4963	1049448.4885
8133	PT	5+82.54	20224668.4865	1049425.3683
8134	POE	7+03.30	2024647.6780	1049306.4137

SITE 2 - DRIVE STA. 202+55

POINT NAME	TYPE	STATION	NORTHING	EASTING
8150	POB	19+97.32	2022770.5989	1081542.6046
8151	PC	20+48.82	2022730.0787	1081574.3920
8153	PRC	20+92.91	2022690.5922	1081593.2096
8155	PCC	21+49.47	2022641.8062	1081620.3079
8157	PT	22+78.76	2022592.5788	1081736.5054
8158	POE	23+21.17	2022591.7108	1081778.9078

SITE 2 - DRIVE STA. 259+90

POINT NAME	TYPE	STATION	NORTHING	EASTING
8160	POB	30+00.00	2023384.7582	1086479.2406
8161	PC	30+57.46	2023402.2231	1086533.9775
8163	PT	31+23.41	2023455.5226	1086558.2447
8164	POE	31+62.03	2023490.9873	1086542.9502

SITE 5 - DRIVE STA. 967+71

POINT NAME	TYPE	STATION	NORTHING	EASTING
8170	POB	50+00.00	2015938.8065	1131144.5892
8171	PC	50+69.94	2015964.2937	1131209.7200
8173	PT	50+92.35	2015975.4351	1131229.0702
8174	PC	51+63.81	2016019.9128	1131285.0006
8176	PT	52+29.20	2016076.5827	1131313.2918
8177	POE	52+67.21	2016114.5802	1131314.3214

SITE 5 - PARKETT LN.

POINT NAME	TYPE	STATION	NORTHING	EASTING
8180	POB	60+00.00	2015874.1813	1131161.7111
8181	PC	60+68.78	2015884.1181	1131229.7710
8183	PT	60+99.23	2015893.0001	1131258.7704
8184	POE	61+92.80	2015933.6530	1131343.0481

SITE 5 - PUMP STATION DRIVE

POINT NAME	TYPE	STATION	NORTHING	EASTING
8190	POB	80+00.00	2015761.5626	1131226.1257
8191	PC	80+24.84	2015785.1203	1131233.9911
8193	PT	80+56.70	2015814.0498	1131247.2048
8194	PC	81+31.04	2015878.0101	1131285.0827
8196	PT	81+50.72	2015896.8906	1131285.8877
8197	POE	81+58.99	2015904.3459	1131282.2915

SITE 5 - RIVER HEIGHTS DRIVE

POINT NAME	TYPE	STATION	NORTHING	EASTING
8200	POB	70+00.00	2015290.5559	1131080.9972
8201	PC	71+31.49	2015231.4650	1130963.5329
8203	PT	71+64.34	2015227.0408	1130931.5717
8204	POE	72+96.37	2015252.1037	1130801.9434

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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.		061442	98	253

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:13 AM
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SITE 1

STA. 100+02.00
BEGIN JOB 061442
BEGIN SITE 1
SEC. 6 L.M. 7.29

SURVEY BASELINE S 46°35'45" W 691.62'

POB 99+67.85

8000

PN#49
PD:STD AHTD MON. STAMPED PN#49

N 50°12'15" E
HWY. 5 - SITE 1

8001

PN#48
PD:STD AHTD MON. STAMPED PN#48

P.C. 102+65.44

PI = 104+81.83
Δ = 27°35'04"RT.
D = 6°30'00"
T = 216.38'
L = 424.38'
PC = 102+65.44
PT = 106+89.82
e = 0.100'/'
Ls = 350'

P.I. 104+81.83

SURVEY BASELINE S 68°05'27" W 631.98'

8003

P.T. 106+89.82

HOME INSTEAD SENIOR CARE DRIVE
PI = 5+66.20
Δ = 91°44'20"RT.
D = 220°00'00"
T = 29.53'
L = 45.87'
PC = 5+36.67
PT = 5+82.54
NO SUPER

HWY. 5 - SITE 1 N 77°47'19" E

PN#47
PD:STD AHTD MON. STAMPED PN#47

STA. 109+70.00 HWY. 5 =
STA. 5+00.00 HOME INSTEAD
SENIOR CARE DRIVE
= 90° 00' 00"

P.I. 5+66.20

8004

S 12°12'41" E 28.54

8130

S 77°47'19" W 39.40'

8131

POB 5+00.00
N 77°47'19" E

8134

P.C. 5+36.67

S 80°04'40" W

8133

P.C. 109+60.75

POE 7+03.30

105

110

SITE 1 DETOUR
P.I. = 303+52.88
Δ = 9°54'38" LT.
D = 10°30'00"
T = 47.31'
L = 94.39'
P.C. = 303+05.57
P.T. = 303+99.96
e = 0.100'/'
Ls = 275'

SITE 1 DETOUR
P.I. = 305+41.18
Δ = 7°47'08" LT.
D = 10°30'00"
T = 37.13'
L = 74.15'
P.C. = 305+04.05
P.T. = 305+78.20
e = 0.100'/'
Ls = 275'

PI = 110+97.10
Δ = 6°48'35"RT.
D = 2°30'00"
T = 136.35'
L = 272.39'
PC = 109+60.75
PT = 112+33.14
e = 0.058'/'
Ls = 300'

P.I. 110+97.10

P.T. 112+33.14

8006

SURVEY BASELINE S 85°39'12" W 772.57'

N 84°35'54" E

P.C. 114+30.87

PI = 117+07.77
Δ = 34°52'46"LT.
D = 6°30'00"
T = 276.91'
L = 536.61'
PC = 114+30.87
PT = 119+67.47
e = 0.100'/'
Ls = 350'

115

HWY. 5 - SITE 1

PN#46
PD:STD AHTD MON. STAMPED PN#46

RIVERSIDE DR

P.I. 117+07.77

C.L. HWY. 5 STA. 118+15 =
POB 300+15.00

SURVEY BASELINE S 49°44'19" W 446.06'

8140

STA. 300+15.00
BEGIN DETOUR =
STA. 118+15.00
HWY. 5

120

P.T. 119+67.47

8009

HWY. 5 - SITE 1 DETOUR N 59°37'47" E 8141

8143

P.I. 303+52.88

PN#45
PD:STD AHTD MON. STAMPED PN#45

P.C. 303+05.57

P.T. 303+99.96

N 49°43'09" E

305

P.C. 305+04.05

P.T. 305+78.20

8010

SURVEY BASELINE S 55°38'18" W 619.88'

N 49°43'09" E

8144

P.I. 305+41.18

P.C. 123+69.98

8146

N 41°56'01" E

8147

P.C. 306+22.98

PI = 126+22.86
Δ = 34°20'13"RT.
D = 7°00'00"
T = 252.88'
L = 490.53'
PC = 123+69.98
PT = 128+60.51
e = 0.100'/'
Ls = 350'

125

SITE 1
SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	99	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:13 AM

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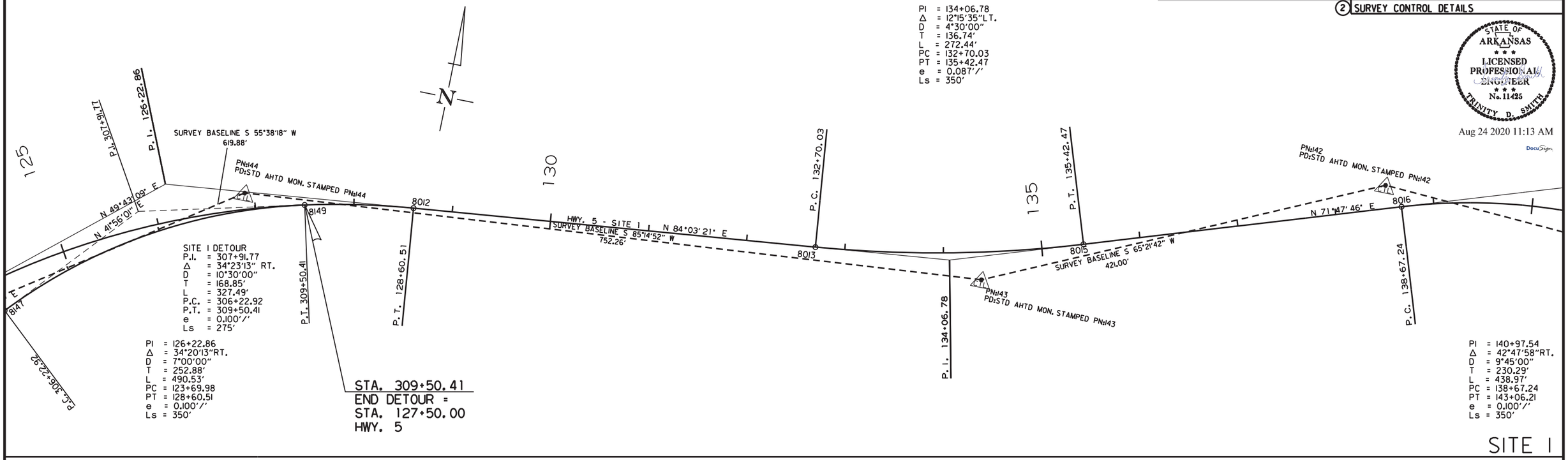

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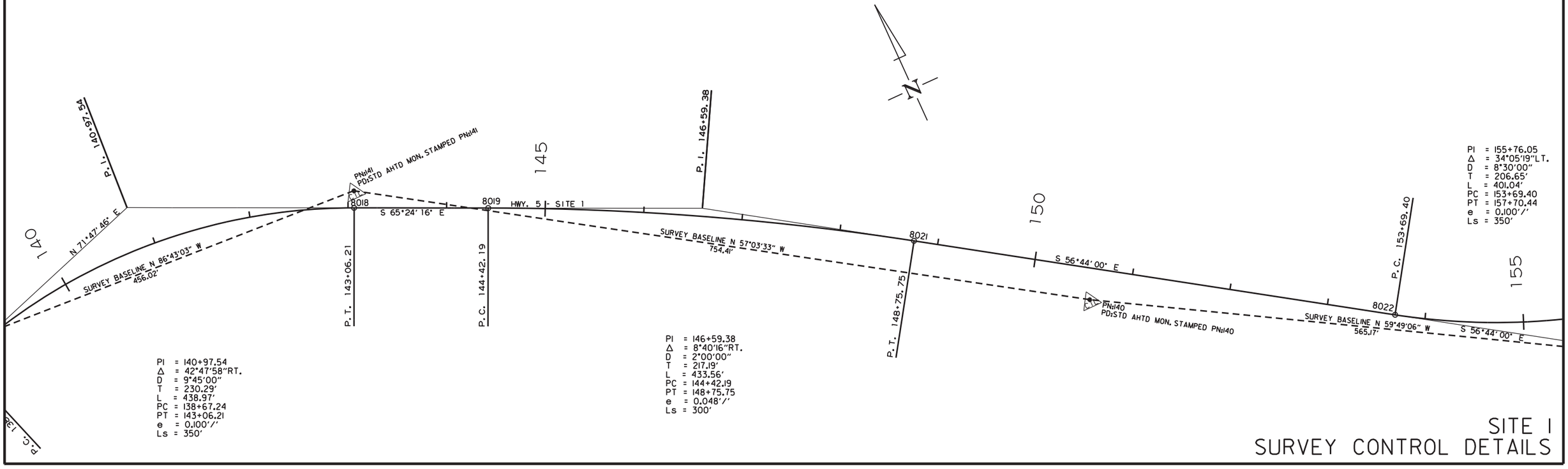

SITE I
SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	100	253

(2) SURVEY CONTROL DETAILS

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

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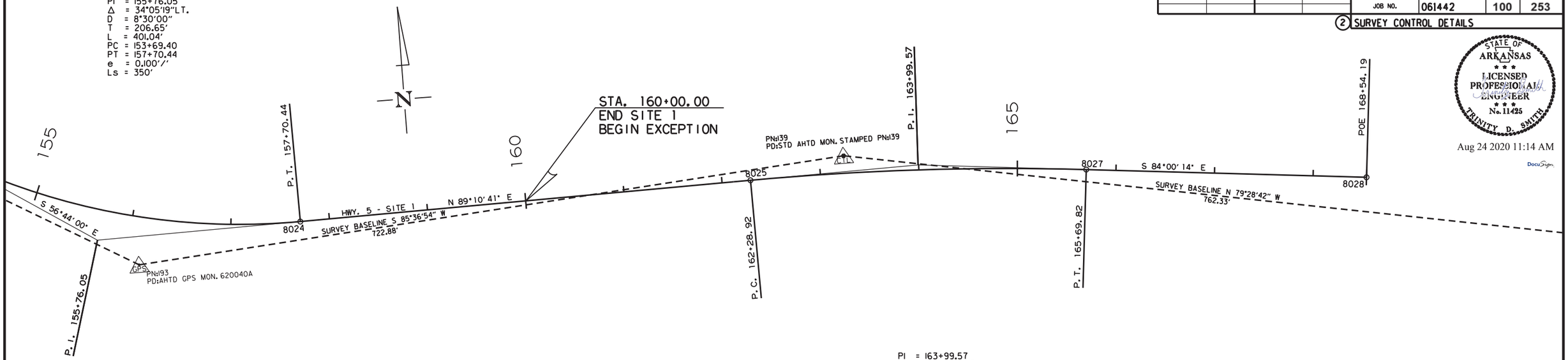
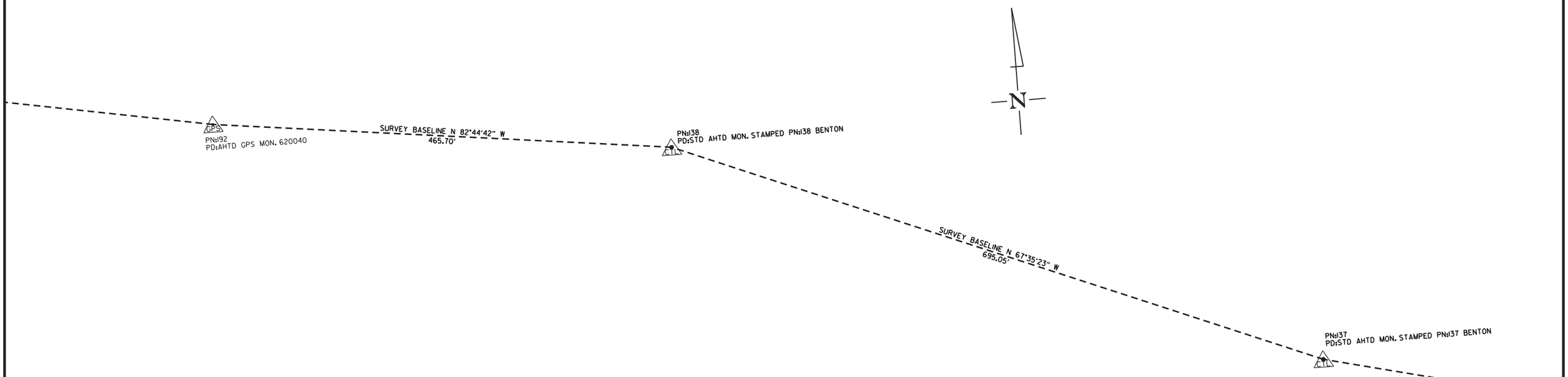
PI = 155+76.05
Δ = 34°05'19"LT.
D = 8°30'00"
T = 206.65'
L = 401.04'
PC = 153+69.40
PT = 157+70.44
e = 0.100'/'
Ls = 350'



PI = 163+99.57
Δ = 6°49'05"RT.
D = 2°00'00"
T = 170.65'
L = 340.90'
PC = 162+28.92
PT = 165+69.82

SITE 1



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SITE 1
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	101	253

(2) SURVEY CONTROL DETAILS

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

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SURVEY BASELINE N 76°11'49" W
614.95'

PN#36
PD:STD AHTD MON. STAMPED PN#36 BENTON

SURVEY BASELINE N 67°59'53" W
673.83'

PN#35
PD:STD AHTD MON. STAMPED PN#3

SURVEY BASELINE N 66°42'47" W
888.21'

HWY. 5

PN#34
PD:STD AHTD MON. STAMPED PN#34 BENTON

SURVEY BASELINE N 61°47'45" W
666.38'

PN#33
PD:STD AHTD MON. STAMPED PN#33 BENTON

SURVEY BASELINE N 64°38'53" W
693.60'

HWY. 5

PN#32
PD:STD AHTD MON. STAMPED PN#32 BENTON

SURVEY BASELINE N 79°00'54" W
962.02'

PN#31
PD:STD AHTD MON. STAMPED PN#31 BENTON

SURVEY BASELINE N 86°02'47" W
496.58'

HWY. 5

SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	102	253

(2) SURVEY CONTROL DETAILS

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

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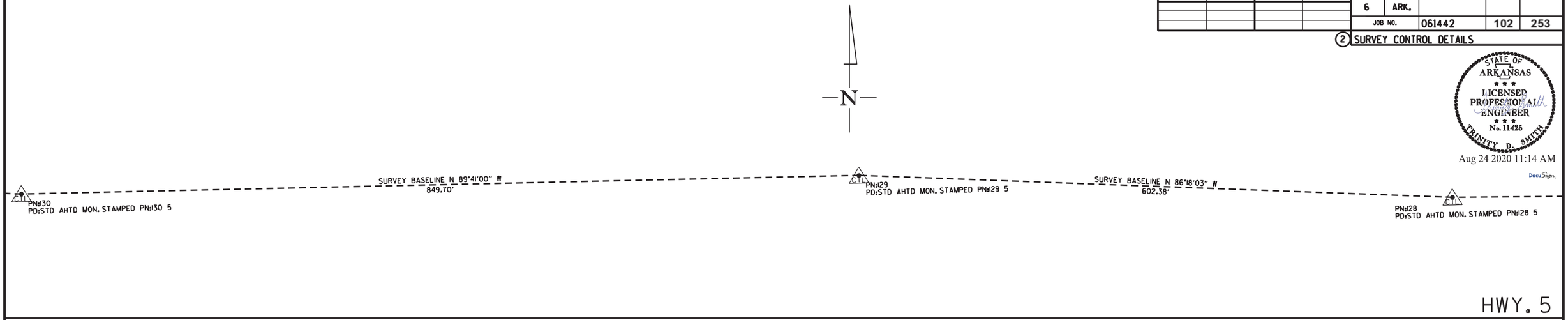

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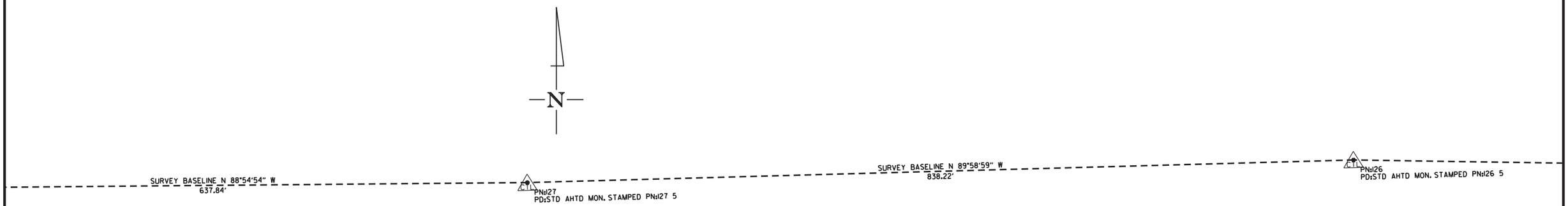

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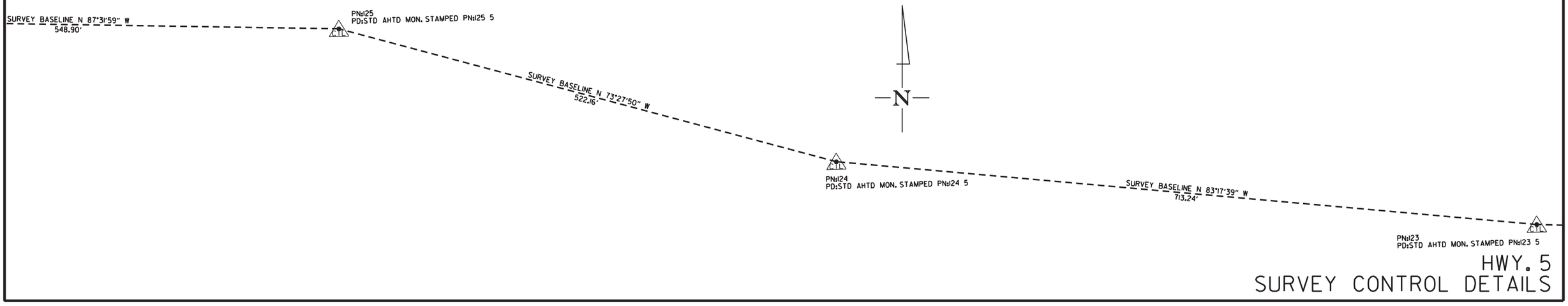

HWY. 5

SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	103	253

(2) SURVEY CONTROL DETAILS

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

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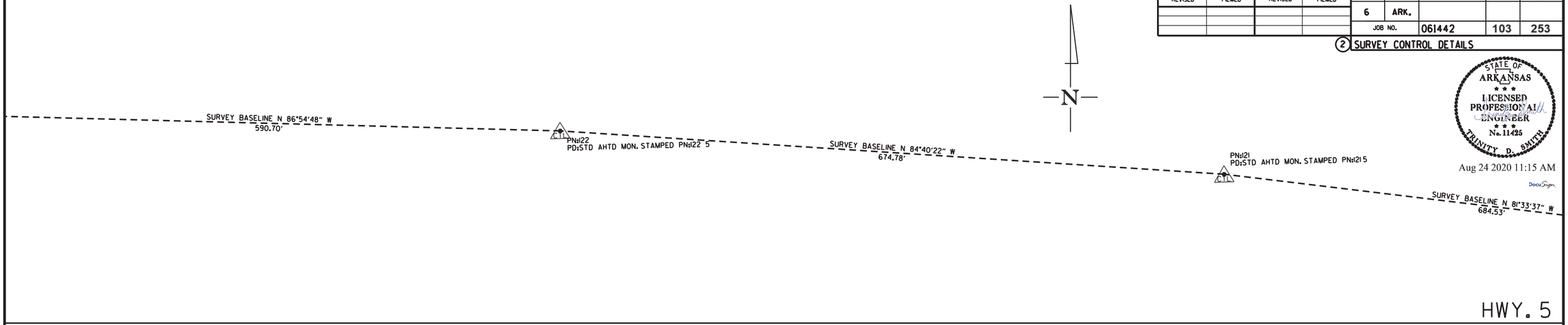

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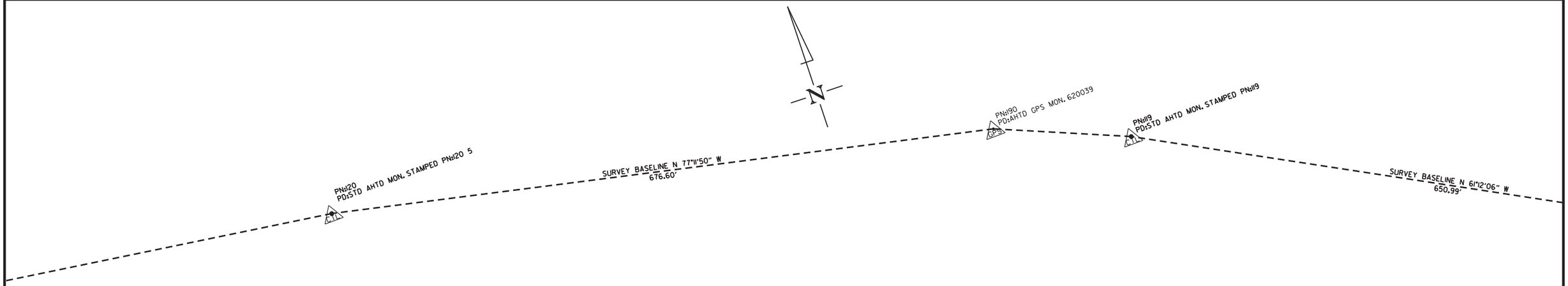

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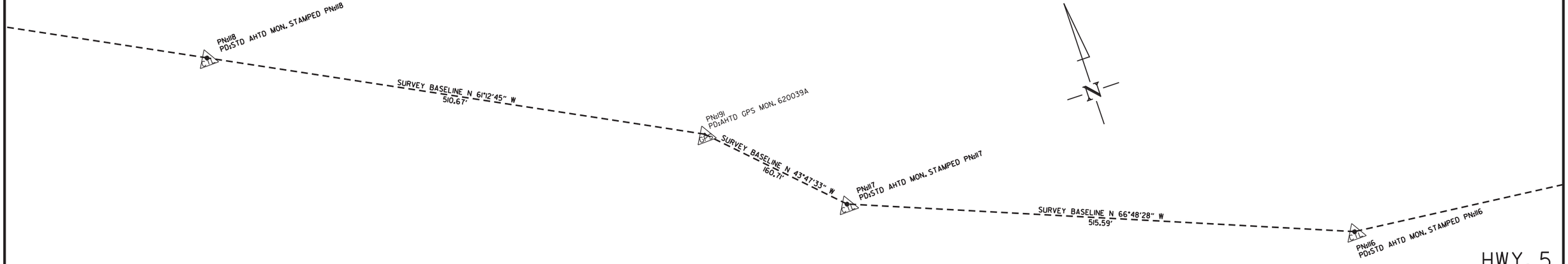

HWY. 5
SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	104	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:15 AM

SURVEY BASELINE N 82°34'47" W
699.39'

PN:115
PD:STD AHTD MON. STAMPED PN:115

SURVEY BASELINE N 80°12'53" W
657.67'

PN:114
PD:STD AHTD MON. STAMPED PN:114

SURVEY BASELINE S 74°52'23" W
642.63'

HWY. 5

SURVEY BASELINE S 88°46'36" W
669.94'

PN:113
PD:STD AHTD MON. STAMPED PN:113

PN:112
PD:STD AHTD MON. STAMPED PN:112

SURVEY BASELINE S 78°33'57" W
632.19'

PN:111
PD:STD AHTD MON. STAMPED PN:111

HWY. 5

SURVEY BASELINE S 61°02'26" W
694.05'

PN:110
PD:STD AHTD MON. STAMPED PN:110

SURVEY BASELINE S 56°54'39" W
660.54'

PN:109
PD:STD AHTD MON. STAMPED PN:109

HWY. 5
SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	105	253

(2) SURVEY CONTROL DETAILS

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

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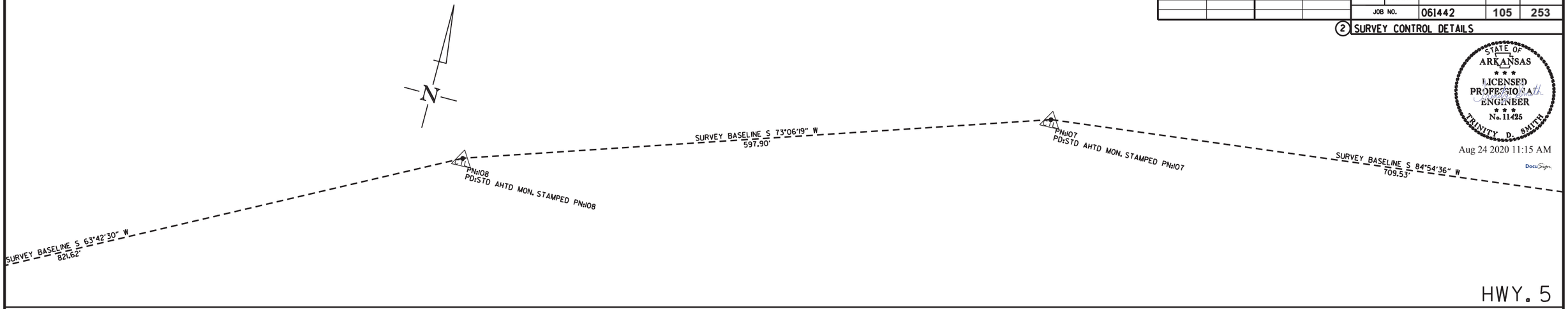

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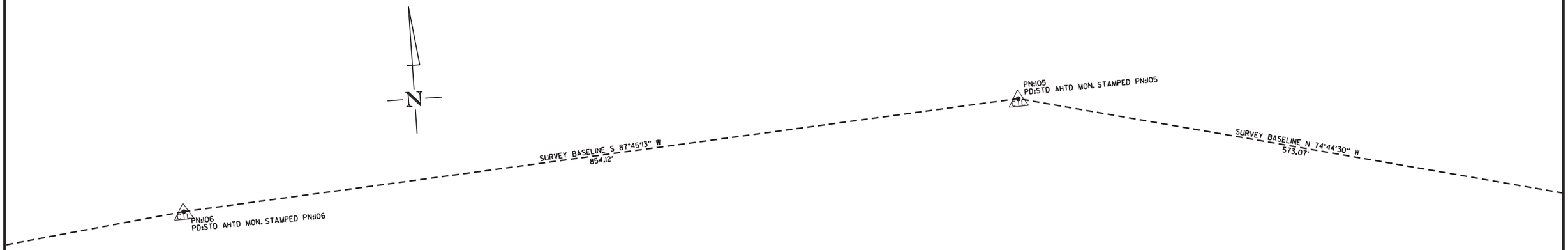

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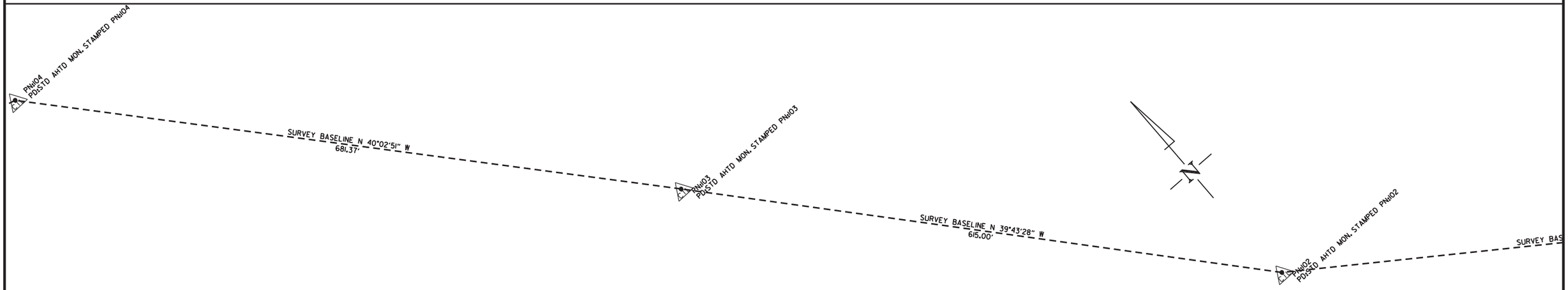

HWY. 5
SURVEY CONTROL DETAILS

8/19/2020

R061442.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.		061442	106	253

(2) SURVEY CONTROL DETAILS

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

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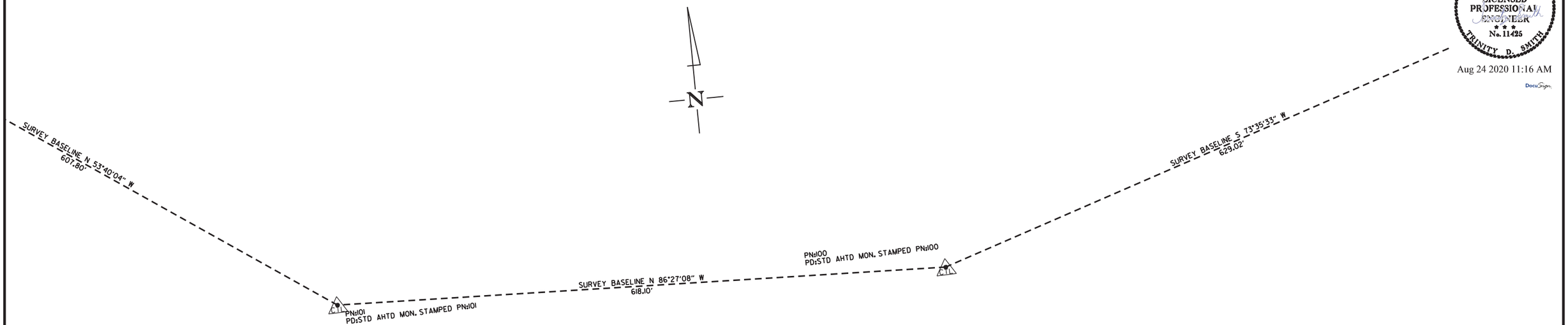
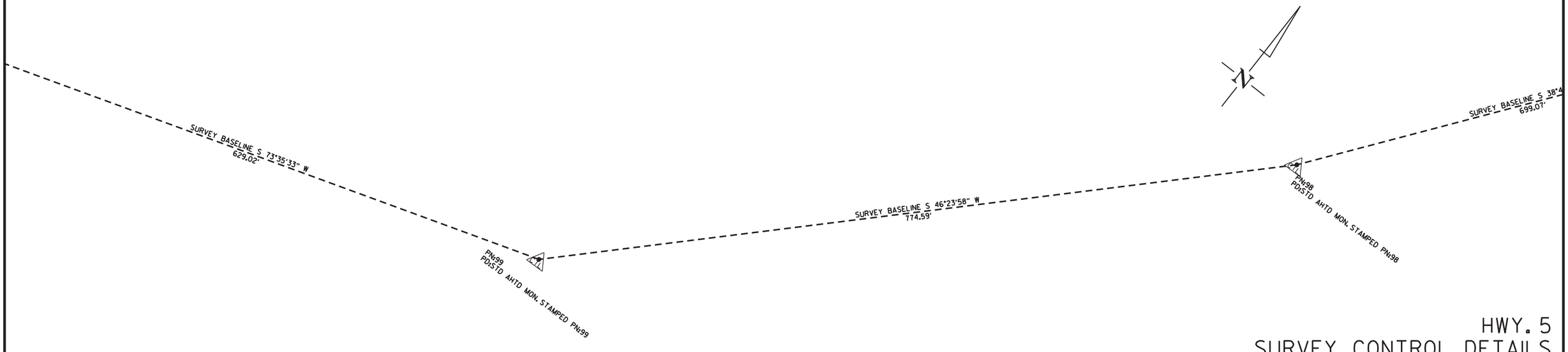


HWY. 5



8/19/2020

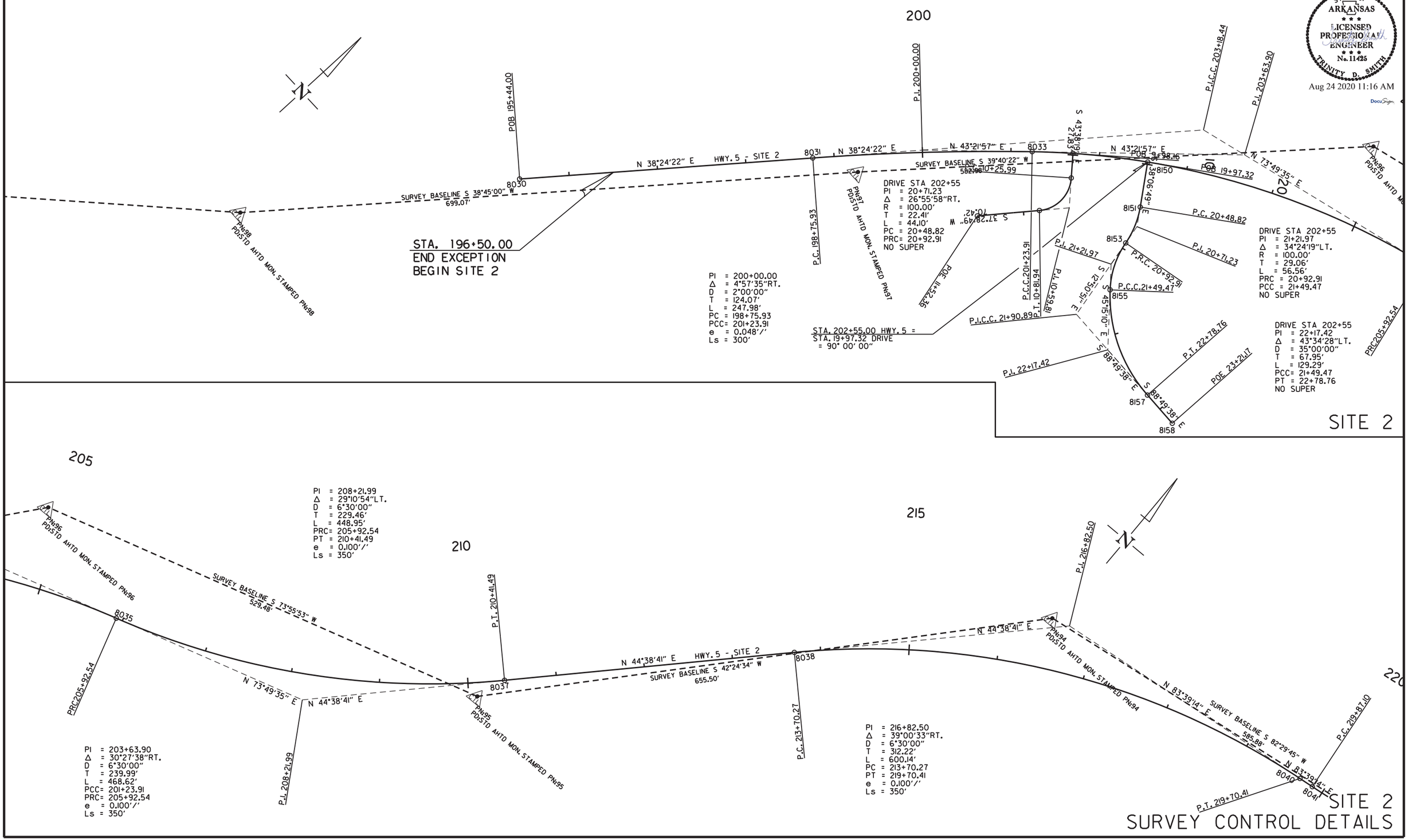
R061442.DGN

HWY. 5
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.		061442	107	253

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:16 AM



8/17/2020

R061442.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.		061442	108	253

(2) SURVEY CONTROL DETAILS

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

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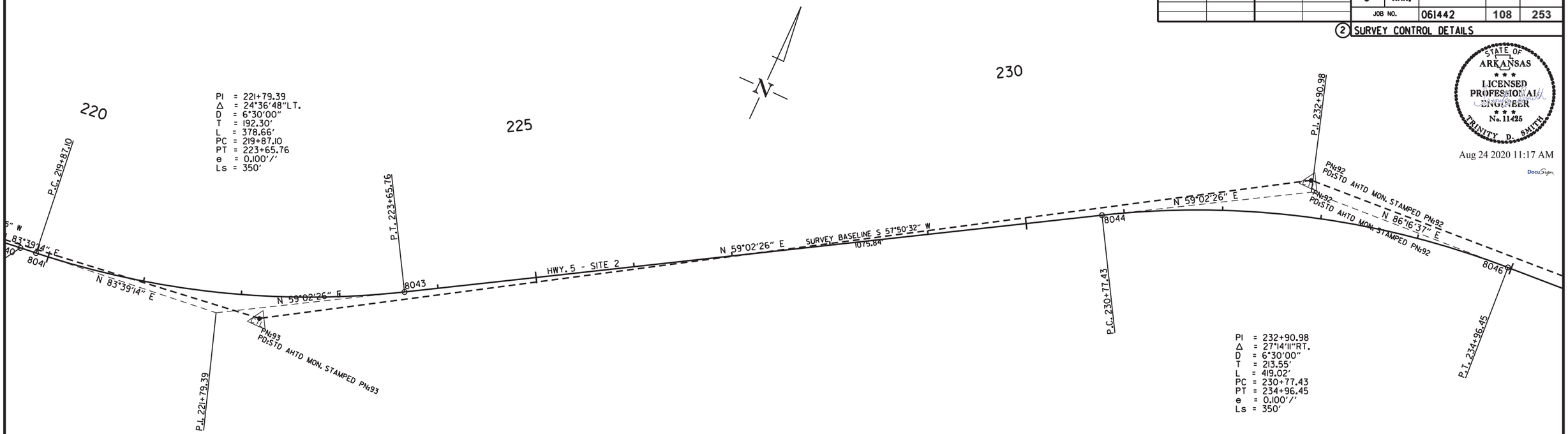
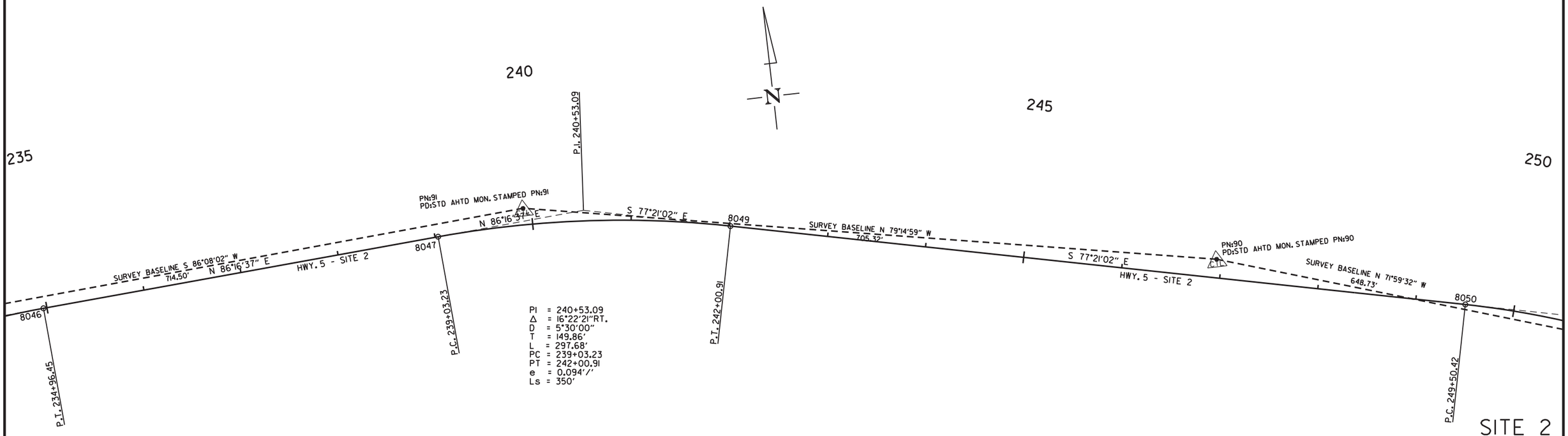


SITE 2



SITE 2
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	109	253

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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TRINITY D. SMITH
Aug 24 2020 11:17 AM
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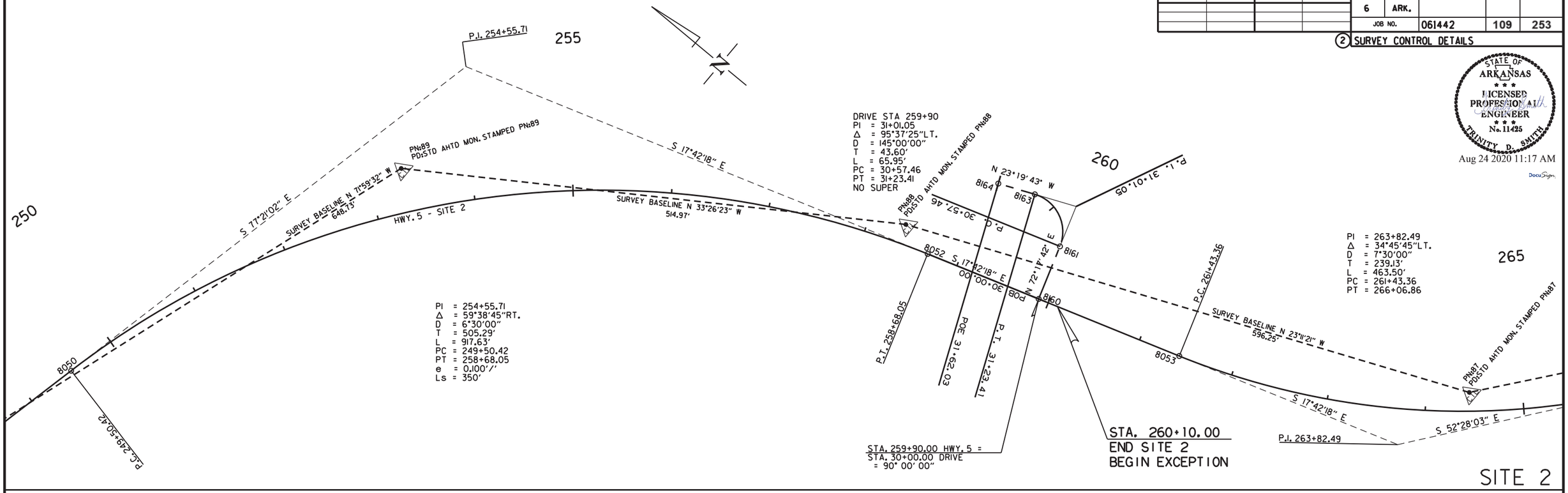
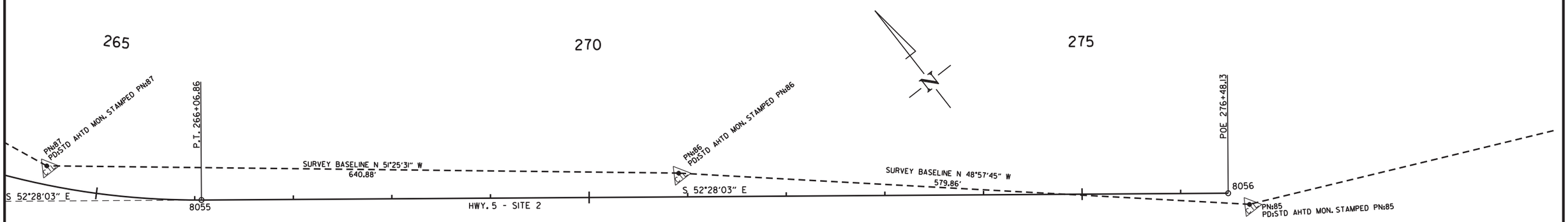


SITE 2



SITE 2
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	110	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:17 AM

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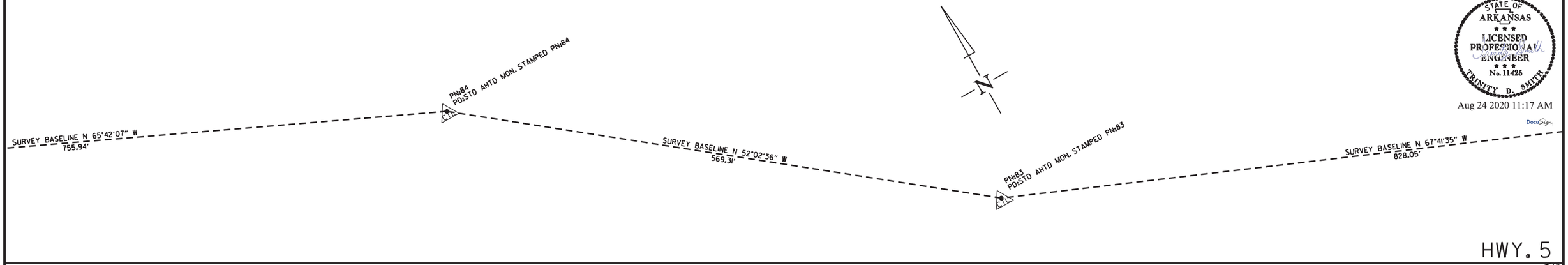
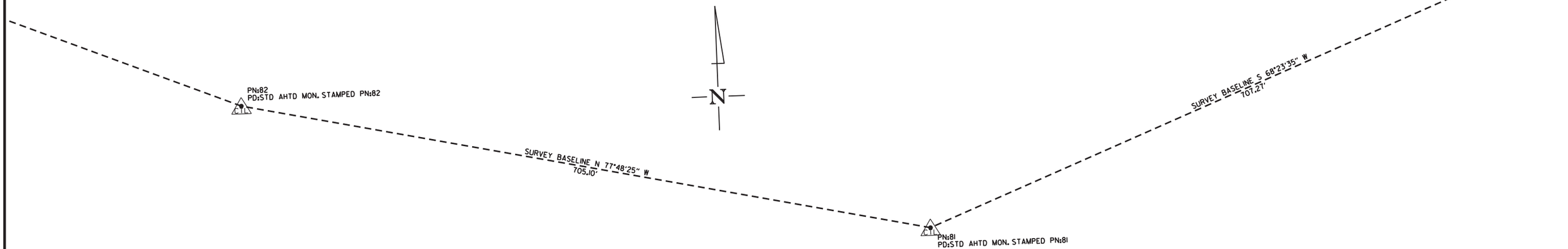


HWY. 5



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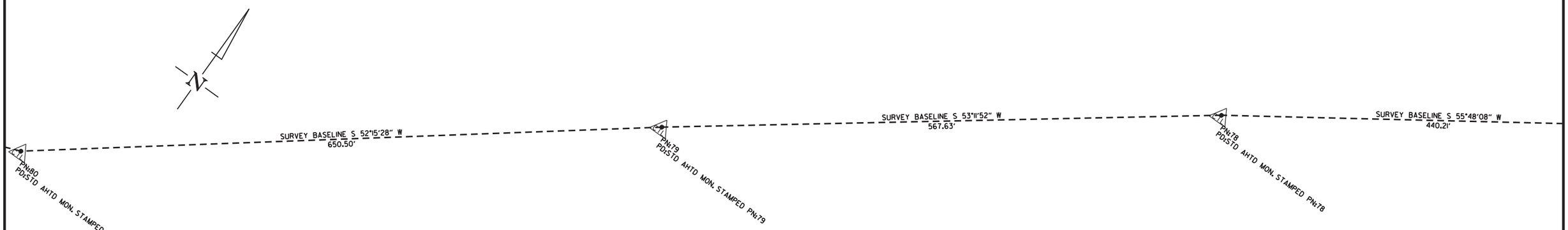

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	111	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:18 AM

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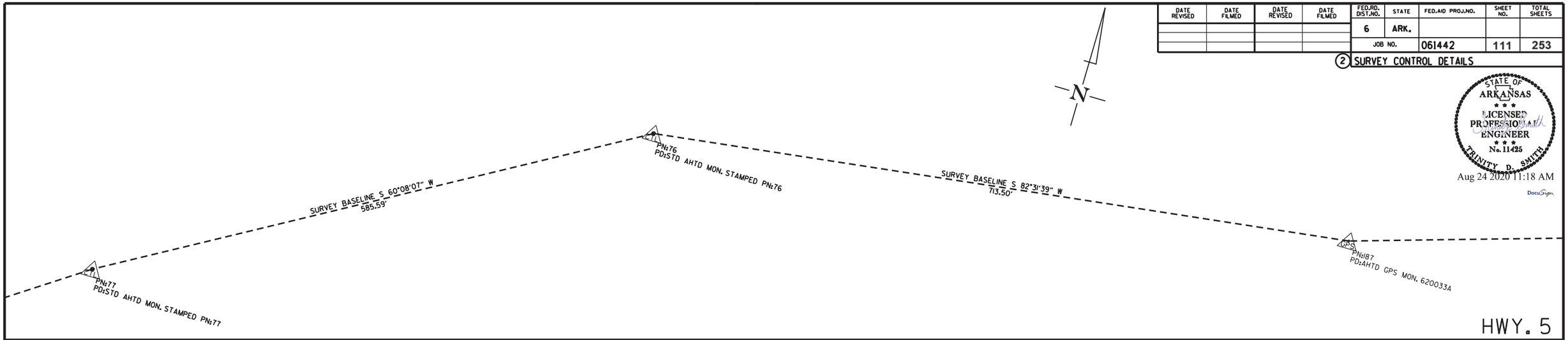

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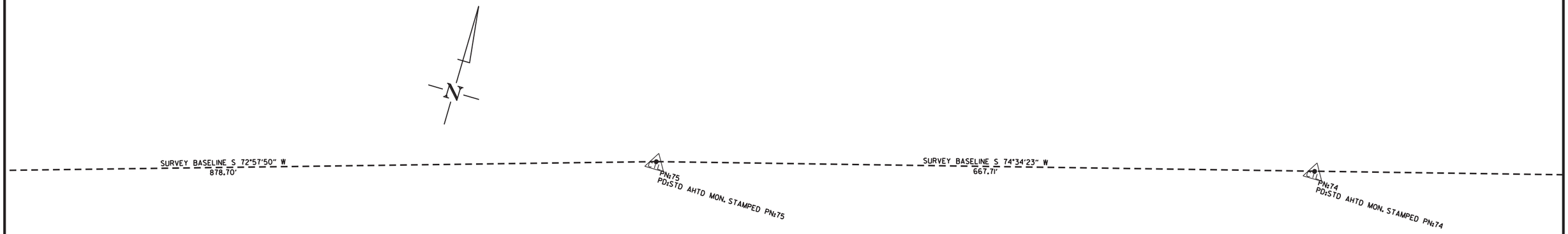

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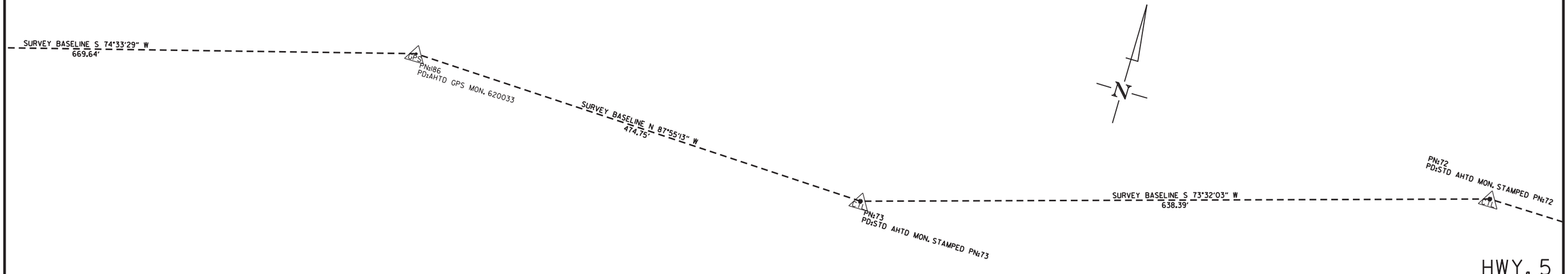

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	112	253

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:18 AM
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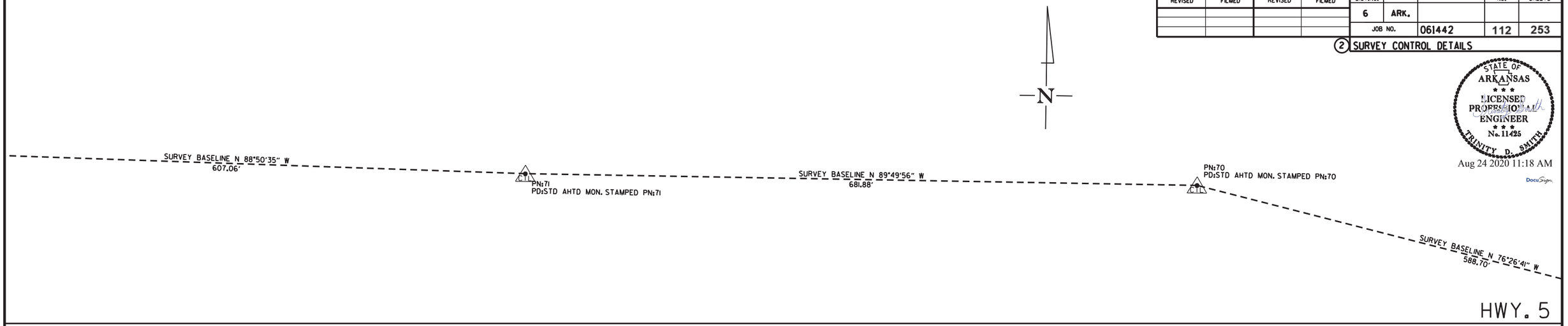

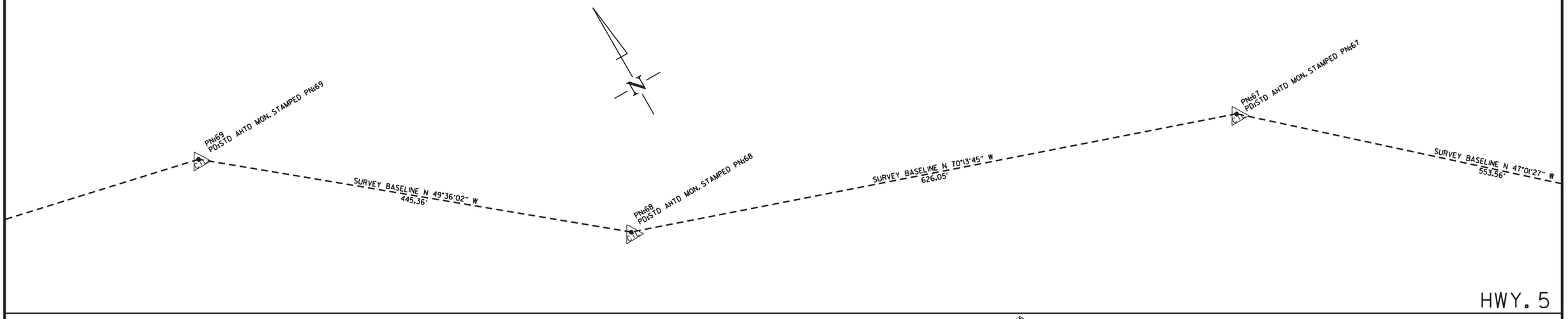

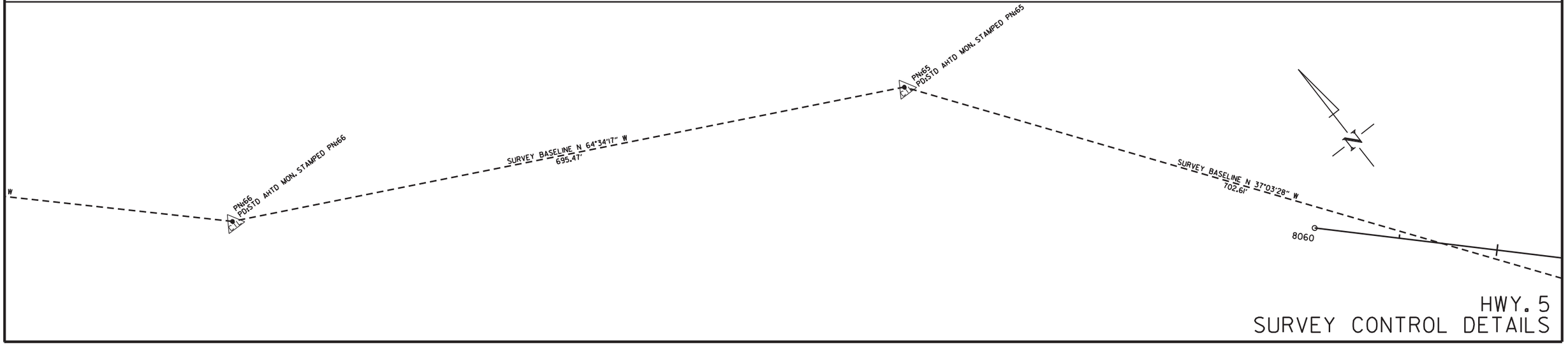

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	113	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:19 AM

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660

665

670

PI = 664+49.06
Δ = 11°14'21"LT.
D = 5°00'00"
T = 112.75'
L = 224.78'
PC = 663+36.30
PT = 665+61.09

PI = 674+45.19
Δ = 47°40'01"LT.
D = 6°30'00"
T = 389.39'
L = 733.34'
PC = 670+55.80
PT = 677+89.14
e = 0.100'/'
Ls = 350'

STA. 669+00.00
END EXCEPTION
BEGIN SITE 3

S 46°22'28" E

P.C. 663+36.30

P.T. 665+61.09

P.I. 667+10.73

P.I. 668+57.23

P.C. 670+55.80

PN:64
PD:STD AHTD MON. STAMPED PN:64

8061

SURVEY BASELINE N 51°42'33" W
705.92'

8063

S 57°36'49" E 8064

S 55°45'44" E

8066

8067

8069

S 54°11'37" E

8070

HWY. 5 - SITES 3 & 4

SURVEY BASELINE N 58°16'56" W
659.46'

PN:62
PD:STD AHTD MON. STAMPED PN:62

N 78°08'22" E

P.I. 664+49.06

P.C. 666+18.15

PI = 667+10.73
Δ = 1°51'05"RT.
D = 1°00'00"
T = 92.58'
L = 185.13'
PC = 666+18.15
PT = 668+03.29

PN:63
PD:STD AHTD MON. STAMPED PN:63

P.T. 668+03.29

P.C. 668+18.02

P.T. 668+96.45

PI = 668+57.23
Δ = 1°34'07"RT.
D = 2°00'00"
T = 39.22'
L = 78.43'
PC = 668+18.02
PT = 668+96.45

P.I. 674+45.19

SITE 3

675

680

685

PI = 674+45.19
Δ = 47°40'01"LT.
D = 6°30'00"
T = 389.39'
L = 733.34'
PC = 670+55.80
PT = 677+89.14
e = 0.100'/'
Ls = 350'

P.T. 677+89.14

STA. 680+75.00
END SITE 3
BEGIN EXCEPTION

P.I. 685+71.83

N. STAMPED PN:62

8072

N 78°08'22" E

SURVEY BASELINE S 81°06'19" W
733.59'

PN:61
PD:STD AHTD MON. STAMPED PN:61

HWY. 5 - SITES 3 & 4

8073

N 78°08'22" E

N 78°58'53" E

8075

SURVEY BASELINE S 78°57'11" W
931.92'

P.C. 684+03.44

P.T. 687+40.20

PI = 685+71.83
Δ = 0°50'31"RT.
D = 0°15'00"
T = 168.38'
L = 336.76'
PC = 684+03.44
PT = 687+40.20

SITE 3
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	114	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:19 AM

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690

695

PI = 699+01.58
Δ = 8°37'39"LT.
D = 4°30'00"
T = 96.04'
L = 191.72'
PC = 698+05.54
PT = 699+97.26
e = '/'
Ls = '/'

700

P.C. 698+05.54

P.T. 699+97.26

N 78°58'53" E

HWY. 5 - SITES 3 & 4

SURVEY BASELINE S 79°21'59" W
597.56'

PN:60
PD:STD AHTD MON. STAMPED PN:60

PN:59
PD:STD AHTD MON. STAMPED PN:59

8076

N 78°58'53" E

N 70°21'13" E

8078

P.I. 699+01.58

SURVEY BASELINE S 71°56'22" W
882.87'

N

HWY. 5

715

710

705

P.I. 717+00.51

PN:57
PD:STD AHTD MON. STAMPED PN:57

N 70°21'13" E

SURVEY BASELINE S 89°07'04" W
421.89'

PN:56
PD:STD AHTD MON. STAMPED PN:56

SURVEY BASELINE N 43°03'41" W - S 44°45'45" E
805.27'

STA. 708+75.00
END EXCEPTION
BEGIN SITE 4

SURVEY BASELINE S 67°25'25" W
796.96'

8079

P.C. 711+40.21

HWY. 5 - SITES 3 & 4

N 70°21'13" E

PN:58
PD:STD AHTD MON. STAMPED PN:58

PI = 717+00.51
Δ = 64°53'01"RT.
D = 6°30'00"
T = 560.30'
L = 998.21'
PC = 711+40.21
PT = 721+38.42
e = 0.100'/'
Ls = 350'

SITE 4
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	115	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:19 AM

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720

725

730

735

HWY. 5 - SITES 3 & 4

N

PI = 727+22.36
Δ = 45°18'24"LT.
D = 8°00'00"
T = 298.91'
L = 566.33'
PC = 724+23.45
PT = 729+89.79

PI = 717+00.51
Δ = 64°53'01"RT.
D = 6°30'00"
T = 560.30'
L = 998.21'
PC = 711+40.21
PT = 721+38.42
e = 0.100'/'
Ls = 350'

8081

P.T. 721+38.42

S 44°45'45" E

P.C. 724+23.45

8082

P.T. 729+89.79

8084

SURVEY BASELINE N 73°39'11" W
558.42'

SURVEY BASELINE S 85°24'07" W
568.13'

N 89°55'51" E

S 44°45'45" E

N 89°55'51" E

GPS

PN:185
PD:AHTD GPS MON. 620037A

PN:55
PD:STD AHTD MON. STAMPED PN:55

STA. 722+80.00
END SITE 4
BEGIN EXCEPTION

P.I. 727+22.36

8/17/2020

R061442.DGN

SITE 4
HWY. 5
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.		061442	116	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:20 AM

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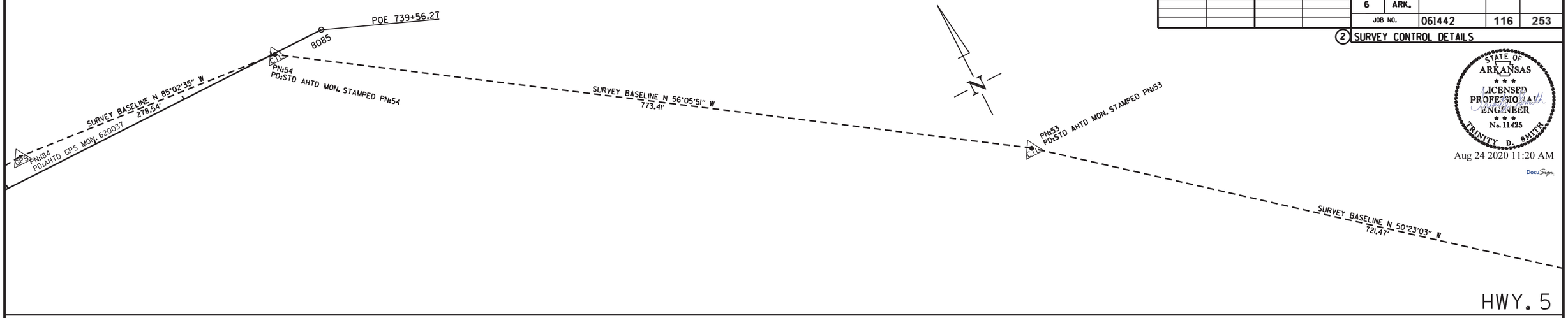

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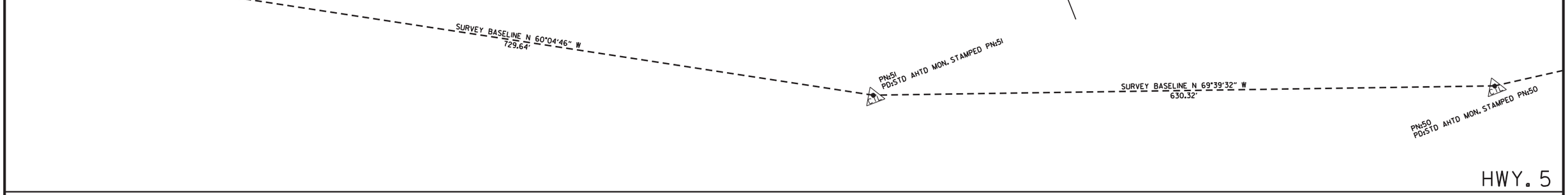

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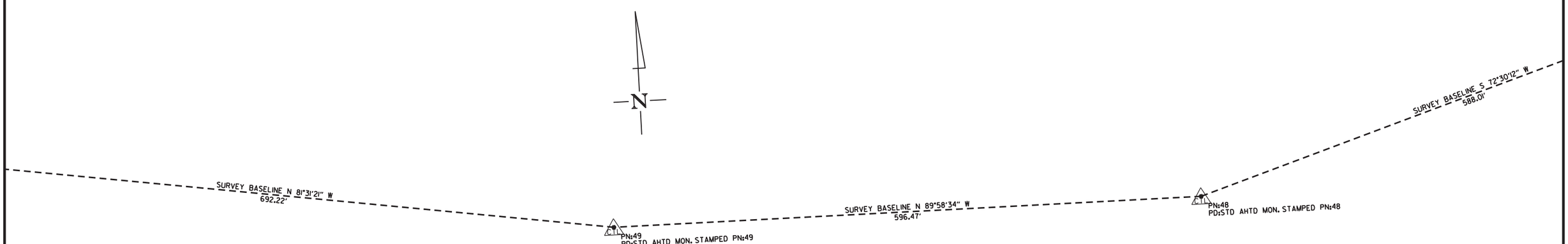

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	117	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:20 AM

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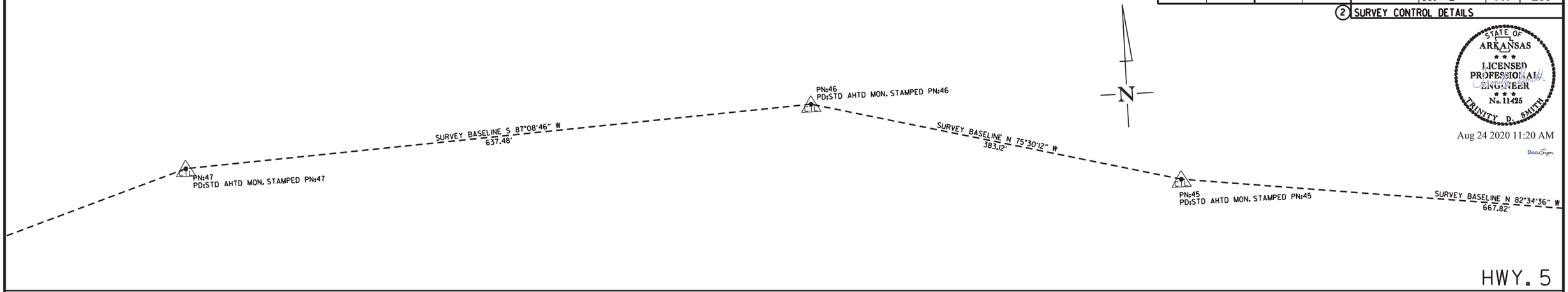

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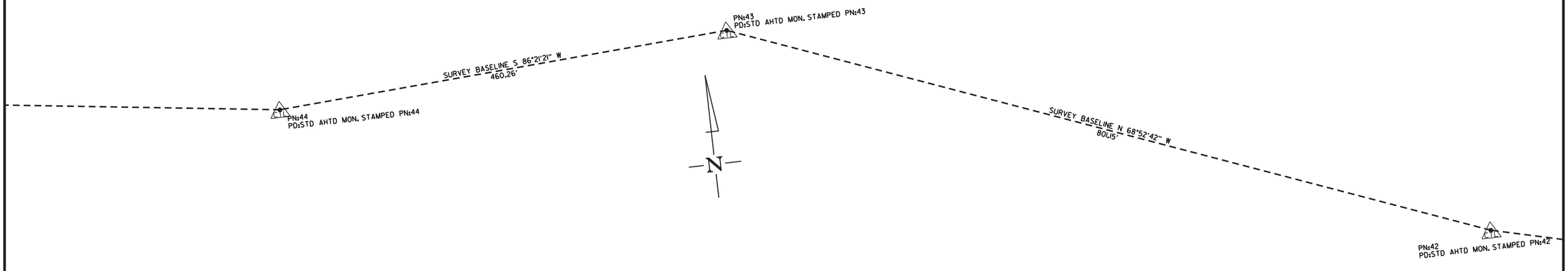

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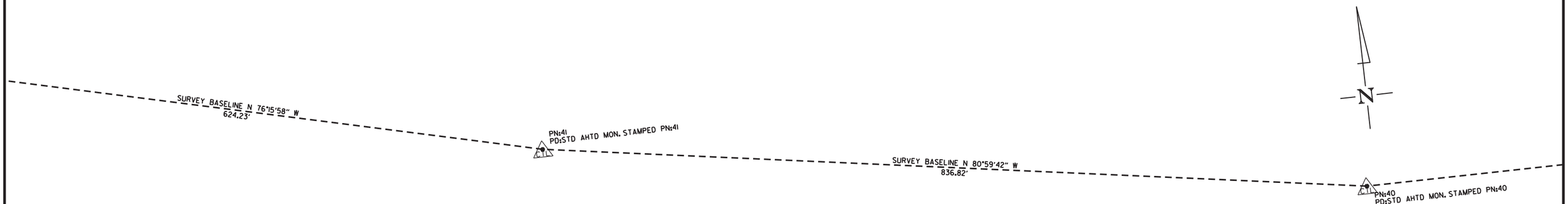

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	118	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:20 AM

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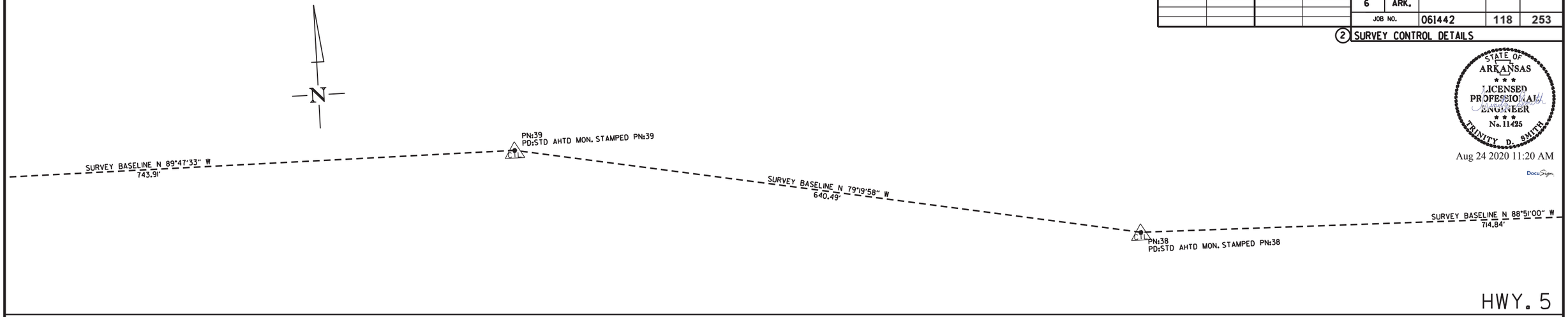

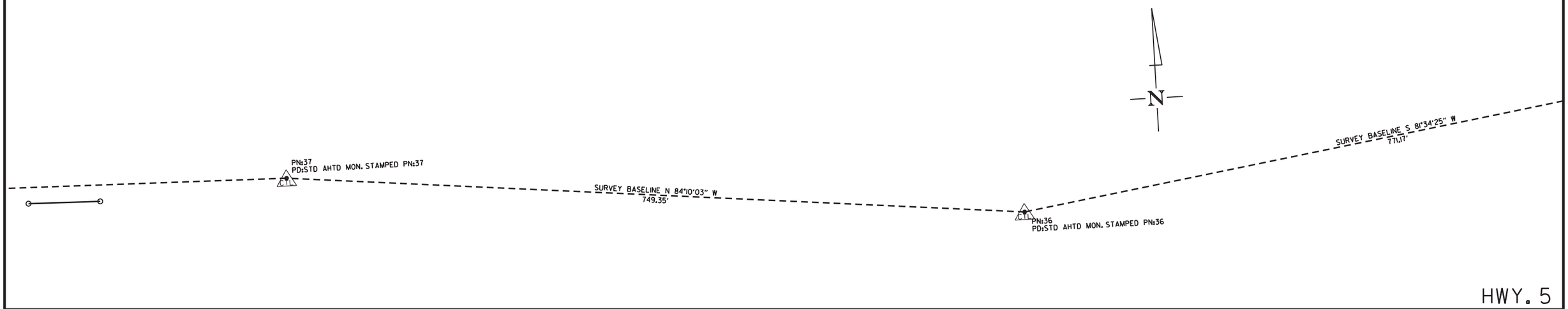

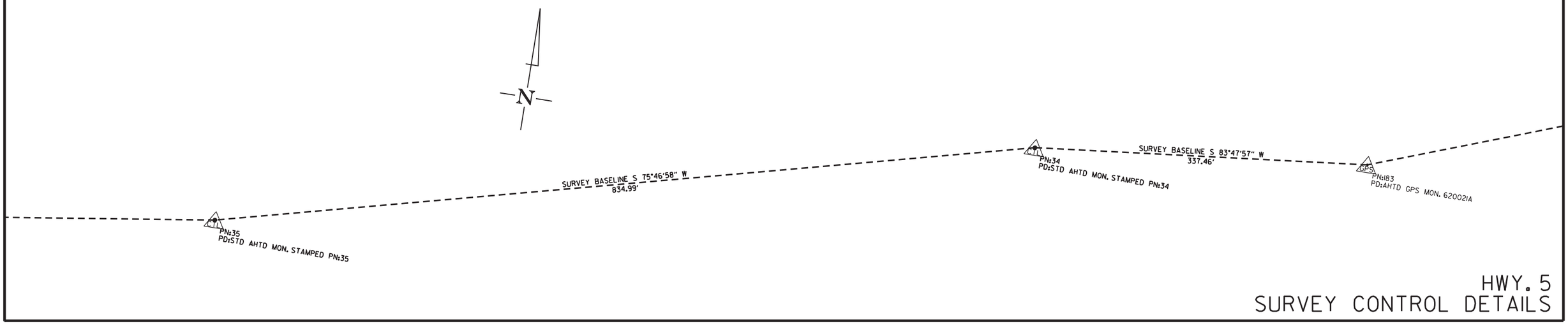

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	119	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:21 AM

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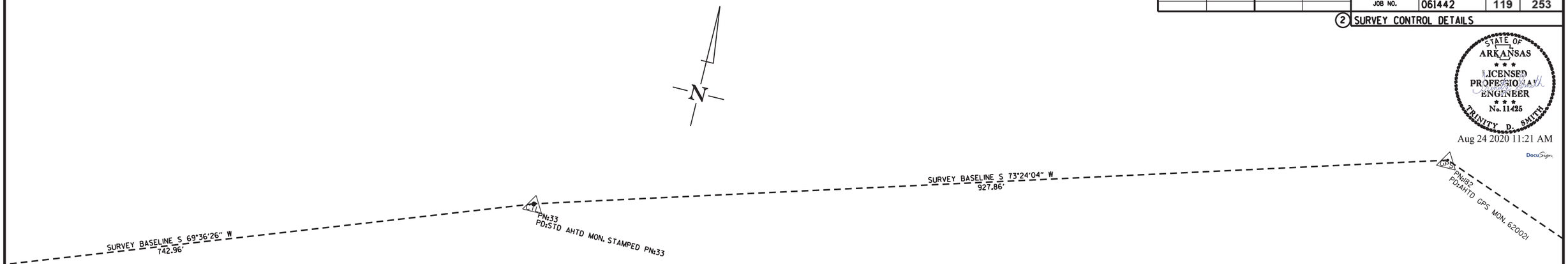
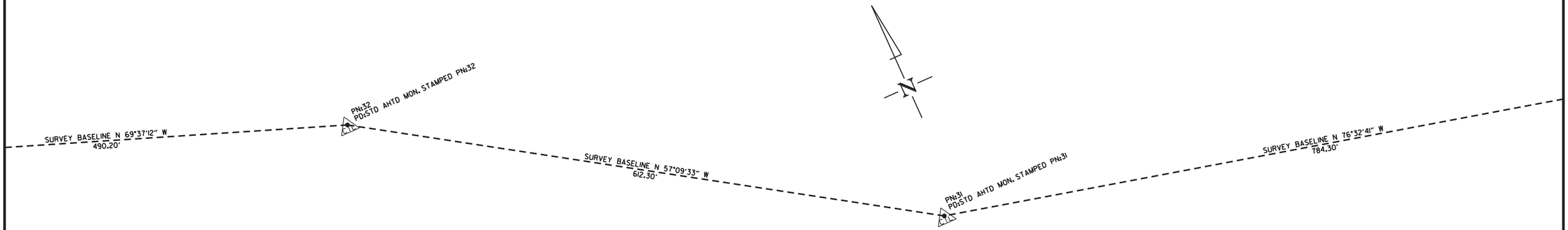


HWY. 5



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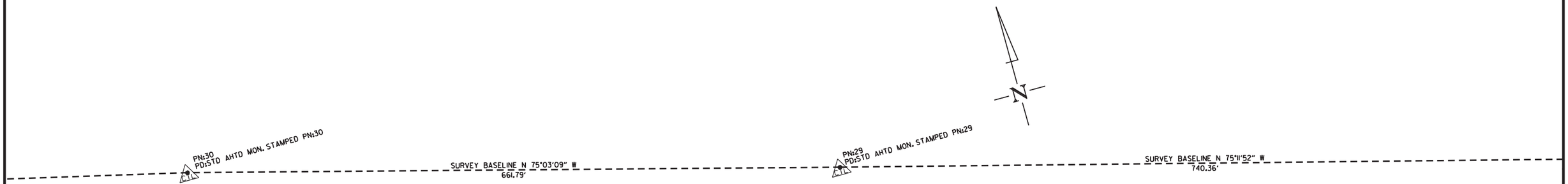

HWY. 5
SURVEY CONTROL DETAILS

8/17/2020

R061442.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.		061442	120	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:21 AM

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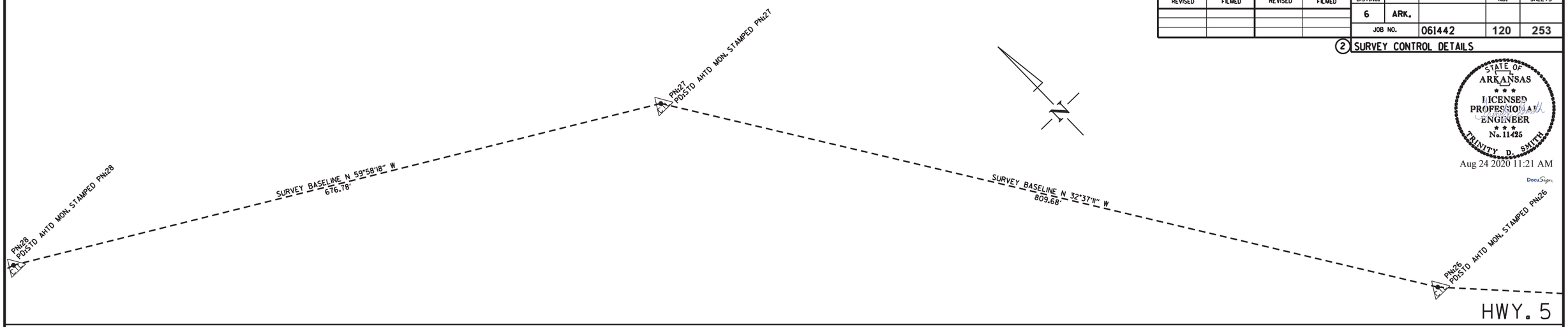

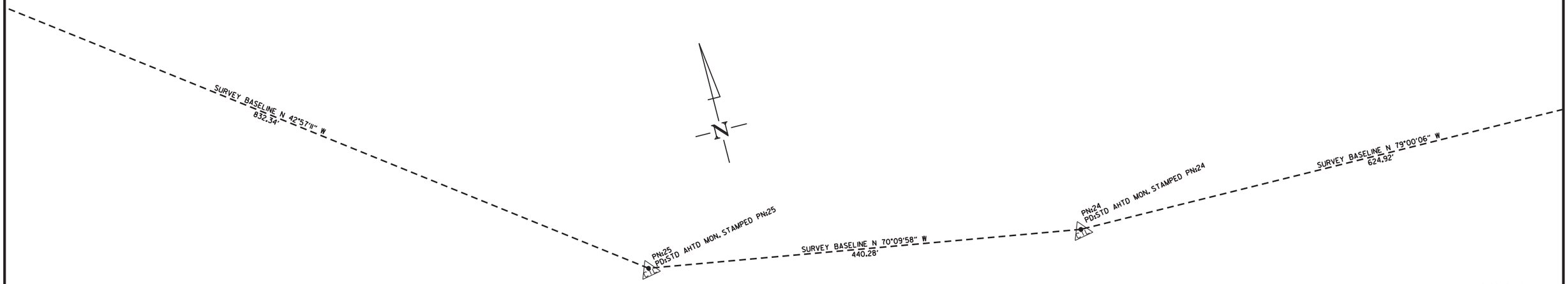

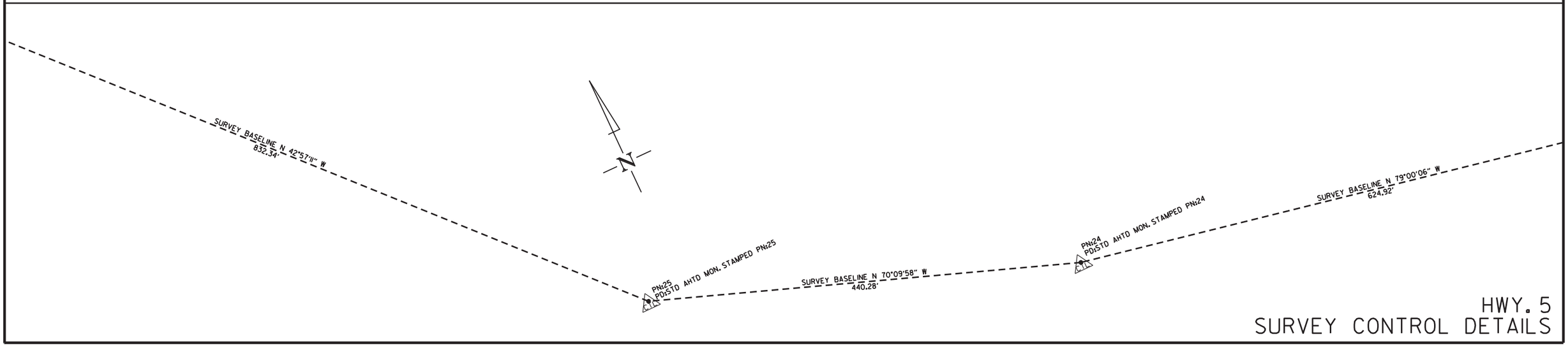

8/17/2020

R061442.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.		061442	121	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:21 AM

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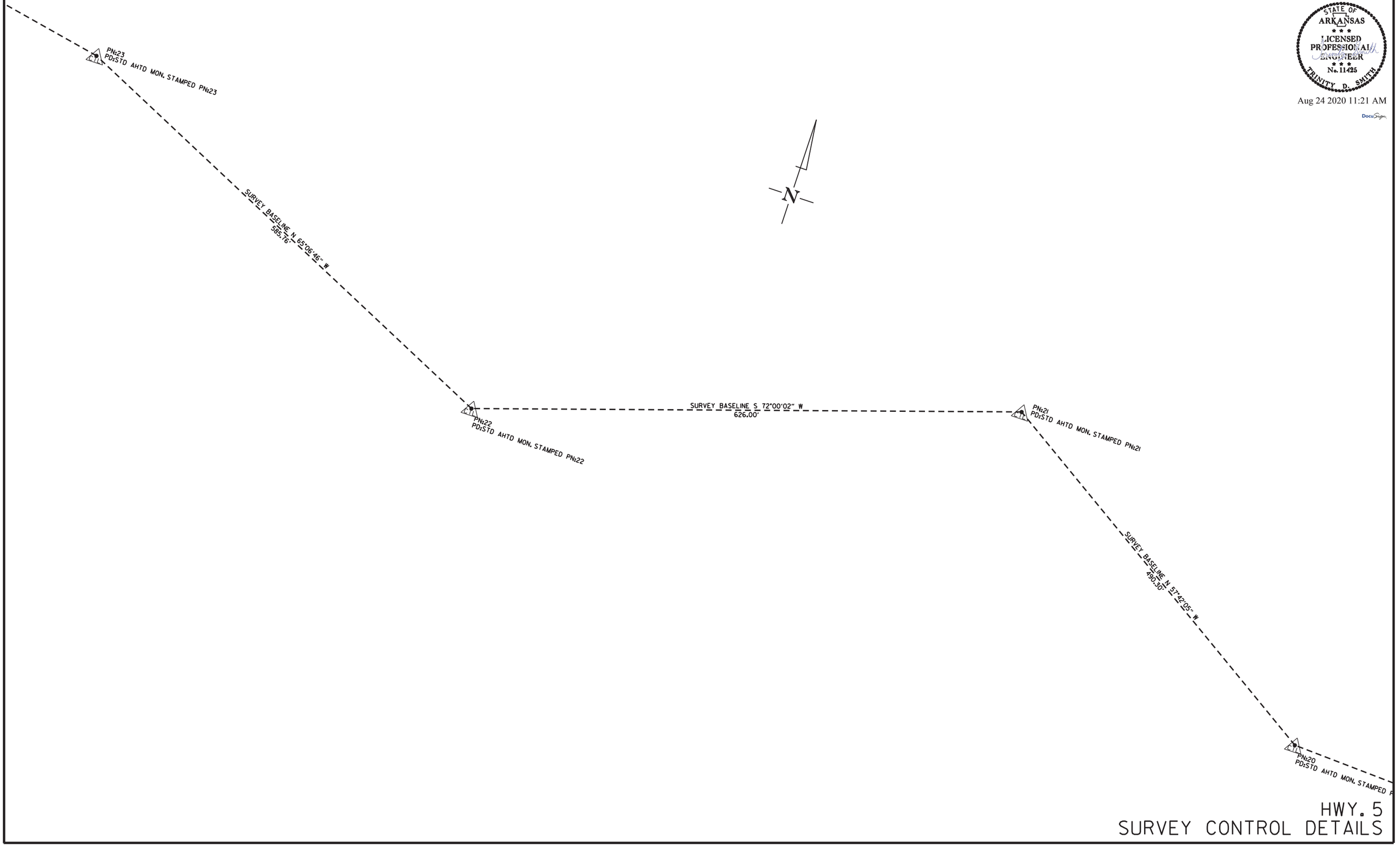

8/17/2020

R061442.DGN

HWY. 5
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.		061442	122	253

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:22 AM
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PN:21
PD:STD AHTD MON. STAMPED PN:21

SURVEY BASELINE N 57°42'05" W
490.30'

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

SURVEY BASELINE N 87°20'54" W
449.65'

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

SURVEY BASELINE N 39°38'58" W
687.18'

8109

HWY. 5

PARKETT LN.
PI = 60+84.12
Δ = 17°26'41"LT.
D = 57°17'45"
R = 100.00'
T = 15.34'
L = 30.45'
PC = 60+68.78
PT = 60+99.23
NO SUPER

P.I. 51+98.75N 25°45'04" W

P.I. 81+41.76

P.C. 81+31.04

STA. 61+25.34 PARKETT LN. =
STA. 81+58.99 PUMP STATION DRIVE
= 90° 00' 00"

P.I. 80+56.70

P.C. 80+24.84

POB 80+00.00

PUMP STATION DRIVE
PI = 81+41.76
Δ = 56°23'08"LT.
D = 286°28'44"
R = 20.00'
T = 10.72'
L = 19.68'
PC = 81+31.04
PT = 81+50.72
NO SUPER

8184

N 1°33'08" E

8177

8176

POE 61+92.80

8174

P.I. 968+52.63

P.I. 81+50.72

8183

8182

8181

8193

8191

8190

970

PUMP STATION DRIVE
PI = 80+40.83
Δ = 12°10'16"RT.
D = 38°11'50"
R = 150.00'
T = 15.99'
L = 31.86'
PC = 80+24.84
PT = 80+56.70
NO SUPER

DRIVE STA. 967+71
PI = 50+81.23
Δ = 17°07'17"LT.
D = 76°23'40"
R = 75.00'
T = 11.29'
L = 22.41'
PC = 50+69.94
PT = 50+92.35
NO SUPER

DRIVE STA. 967+71
PI = 51+98.75
Δ = 49°57'18"LT.
D = 76°23'40"
R = 75.00'
T = 34.94'
L = 65.39'
PC = 51+63.81
PT = 52+29.20
NO SUPER

P.T. 52+29.20

POE 52+67.21

DRIVE STA. 967+71 E
P.C. 51+63.81

P.I. 50+81.23

P.I. 60+99.23

P.C. 60+68.78

8173

P.C. 50+69.94

8171

P.I. 60+84.12

N 18°27'47" E

P.I. 81+41.76

N 81°41'36" E

PARKETT LN.

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

P.I. 80+40.83

8180

8170

POB 50+00.00

60

50

965

STA. 966+50.00
END EXCEPTION
BEGIN SITE 5

P.I. 965+71.59

8112

S 43°01'21" E

8111

8109

S 39°38'58" W
687.18'

P.C. 966+59.91

P.I. 966+11.03

P.C. 965+32.15

PI = 965+71.59
Δ = 1°34'39"RT.
D = 2°00'00"
T = 39.44'
L = 78.88'
PC = 965+32.15
PT = 966+11.03

PI = 968+52.69
Δ = 66°31'21"RT.
D = 19°30'00"
T = 192.72'
L = 341.14'
PC = 966+59.97
PT = 970+01.11
e = 0.100'/'
Ls = 250'

STA. 968+38.00 HWY. 5 =
STA. 30+00.00 PARKETT LN.
= 90° 00' 00"

STA. 967+71.00 HWY. 5 =
STA. 50+00.00 DRIVE
= 90° 00' 00"

80

P.T. 970+01.11

P.C. 971+69.08

STA. 974+48.00 HWY. 5 =
STA. 70+00.00 RIVER HEIGHTS RD.
= 90° 00' 00"

8114

HWY. 5 - SITE 5

S 23°30'00" W

SURVEY BASELINE N 23°59'40" E
392.96'

8115

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

975

P.I. 977+79.81

8117

POB 70+00.00

SURVEY BASELINE N 20°33'52" W
356.61'

8200

S 63°11'42" W

RIVER HEIGHTS

RIVER HEIGHTS RD.
PI = 71+48.53
Δ = 37°38'52"RT.
R = 50.00'
T = 17.04'
L = 35.85'
PC = 71+31.49
PT = 71+64.34
NO SUPER

P.C. 71+31.49

8201

P.I. 71+48.53

P.T. 71+64.34

8203

P.I. 976+23.09

N 79°03'26" W

POE 72+96.37

8204

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

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

8/17/2020

R061442.DGN

SITE 5
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.		061442	123	253

(2) SURVEY CONTROL DETAILS

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

Aug 24 2020 11:22 AM

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975

PI = 976+23.09
Δ = 109°55'49"LT.
D = 18°00'00"
T = 454.01'
L = 610.72'
PC = 971+69.08
PT = 977+79.81
e = 0.100'/'
Ls = 250'

980

P.I. 983+04.84

PNI5
PDSTD AHTD MON. STAMPED PNI5

HWY. 5 - SITE 5
S 86°25'49" E
SURVEY BASELINE N 80°07'23" W
687.39'

8118

P.C. 980+86.75

PI = 983+04.84
Δ = 79°37'41"RT.
D = 19°30'00"
T = 244.93'
L = 408.35'
PC = 980+59.91
PT = 984+98.26
e = 0.100'/'
Ls = 250'

P.I. 984+68.26

8120

985

STA. 986+00.00
END SITE 5
END JOB 061442

P.C. 986+07.79

PI = 987+06.17
Δ = 15°38'32"LT.
D = 8°00'00"
T = 98.38'
L = 195.53'
PC = 986+07.79
PT = 988+03.32
MATCH EXIST.

8121

SURVEY BASELINE N 16°03'48" W
856.23'

P.I. 988+03.32

990

P.I. 971+79.81

8117

SURVEY BASELINE N 20°33'52" W
356.61'

8200

POB 70+00.00

PNI6
PDSTD AHTD MON. STAMPED PNI6

P.C. 71+31.49

P.I. 976+23.09

P.I. 987+06.17

8123

S 22°26'40" E

POE 990+56.59

8124

PNI4
PDSTD AHTD MON. STAMPED PNI4

8/17/2020

R061442.DGN

SITE 5
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.		061442	124	253

(2) PLAN AND PROFILE SHEETS

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

Aug 24 2020 11:22 AM

STA. 106+20 IN PLACE
18' PIPE CULVERT LT.
RETAIN

STA. 103+97 CONSTRUCT
TURNOUT ON LT. = 275 CU. YDS.

STA. 106+83 INSTALL
18' X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

STA. 107+78 INSTALL
18' X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YDS.

STA. 109+70.00 HWY. 5 =
STA. 5+00.00 HOME INSTEAD
SENIOR CARE DRIVE
= 90° 00' 00"

100' TRANSITION

P.I. 104+81.83

PROP. CONST. LIMITS
EXIST. ROW
PROP. ROW
N 50°12'15" E
N 77°47'19" E
HWY. 5 - SITE 1
UNNAMED STREAM
CHOSE POND RD
GLORYLAND

P.C. 102+65.44
P.T. 106+89.82
P.C. 5+36.67
P.T. 5+66.20
P.C. 109+60.75
P.T. 112+33.14

T.C.E.
475' TYPE B CURB
S 80°04'40" W
POE 7+03.36
POB 5+00.00
N 77°47'19" E

STA. 100+02.00
BEGIN JOB 061442
BEGIN SITE 1
SEC. 6 LOG MILE 7.29

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

STA. 102+57 IN PLACE
4' X 3' X 33' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN AND EXTEND 12' L.T. AND 7' RT
TO A COMPLETED LENGTH OF 62'
Q50 = 2 CFS D.A. = 1.64 ACRES

PI = 104+81.83
Δ = 27°35'04"RT.
D = 6°30'00"
T = 216.38'
L = 424.38'
PC = 102+65.44
PT = 106+89.82
e = 0.100'/'
Ls = 350'

STA. 105+81 IN PLACE
30" X 38" R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS LT. & RT. AND
EXTEND R.C. PIPE
9' LT. AND 8' RT.
TO A COMPLETED LENGTH OF 55'
5° LT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 54 CFS D.A. = 45.94 ACRES
30" R.C. PIPE = 17 LIN. FT.
30" FES = 2 EA.

STA. 106+50 - STA. 111+25
CONSTRUCT TYPE B CURB
ON RT. = 475 LIN. FT.

STA. 109+70 IN PLACE
27" PIPE CULVERT
RT. SIDE DRAIN
REMOVE & CONSTRUCT TURN OUT ON RT.
UNCL. EXC. = 440 CU. YDS.

STA. 100+02.94 BEGIN SUPERELEVATION
STA. 103+52.94 MAX. SUPERELEVATION (0.100'/')
STA. 106+02.32 MAX. SUPERELEVATION (0.100'/')
STA. 108+82.32 REVERSE CROWN (0.020'/')

STA. 108+89.63 REVERSE CROWN (0.020'/')
STA. 110+18.94 MAX. SUPERELEVATION (0.045'/')
STA. 110+99.24 MAX. SUPERELEVATION (0.045'/')
STA. 113+32.00 END SUPERELEVATION

PI = 110+97.10
Δ = 6°48'35"RT.
D = 2°30'00"
T = 136.35'
L = 272.39'
PC = 109+60.75
PT = 112+33.14
e = 0.058'/'
Ls = 300'

UNNAMED STREAM
AT STA. 102+57 - STA. 102+61 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 448 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

UNNAMED STREAM
AT STA. 105+81 - STA. 105+83 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 451 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

F.L. INLET LT. = 446.00
F.L. OUTLET RT. = 445.00
LT. D.G. 0.00%
LT. D.G. 6.55%
LT. D.G. 6.5%
RT. D.G. 7.05%
RT. D.G. -1.04%
RT. D.G. 0.00%
102+00.00 LT. 449.60
102+00.00 RT. 445.57
102+55.00 LT. 446.00
102+55.00 RT. 445.00
102+58.00 RT. 445.00
102+59.00 LT. 446.00
103+00.00 RT. 447.89
103+00.00 LT. 448.67

F.L. INLET LT. = 449.27
F.L. OUTLET RT. = 448.37
LT. D.G. 12.35%
LT. D.G. 22.64%
105+50.00 LT. 453.10
105+81.00 LT. 449.27
105+95.00 LT. 452.44

STA. 100+02
BEGIN JOB 061442
BEGIN SITE 1
SEC 6 LOG MILE 7.29

475 470 465 460 455 450 445 440 435 430

95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00

8/19/2020

R061442.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.		061442	125	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:23 AM
DocuSigned by:

STA. 112+15 INSTALL
18' X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

STA. 122+34.67- STA. 122+77.66 IN PLACE
46.00' X 30.00' R.C. SLAB BRIDGE NO. M0108
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

STA. 122+55 IN PLACE
TRP. 12' X 7' X 36' R.C. SLAB CULVERT
REMOVE

PI = 117+07.77
Δ = 34°52'46"LT.
D = 6°30'00"
T = 276.91'
L = 536.61'
PC = 114+30.87
PT = 119+67.47
e = 0.100'/'
Ls = 350'

STA. 120+10 IN PLACE
18' X 40' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18' X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.

PI = 110+97.10
Δ = 6°48'35"RT.
D = 2°30'00"
T = 136.35'
L = 272.39'
PC = 109+60.75
PT = 112+33.14
e = 0.058'/'
Ls = 300'

STA. 112+78 IN PLACE
24" X 38' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS LT. & RT. AND
EXTEND R.C. PIPE
1' LT. AND 4' RT.
TO A COMPLETED LENGTH OF 43'
5° RT. FWD. SKEW
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 10 CFS D.A. = 4.28 ACRES
24" R.C. PIPE = 5 LIN. FT.
24" FES = 2 EA.

STA. 116+65 CONSTRUCT
TURNOUT APPROACH ON RT. = 15 CU. YDS.

STA. 117+37 CONSTRUCT
TURNOUT APPROACH ON RT. = 35 CU. YDS.

PI = 126+22.86
Δ = 34°20'13"RT.
D = 7°00'00"
T = 252.88'
L = 490.53'
PC = 123+69.98
PT = 128+60.51
e = 0.100'/'
Ls = 350'

STA. 122+55 CONSTRUCT
TRP. 12' X 8' X 70' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
ON 30° LT. FWD. SKEW
Q50 = 1550 CFS D.A. = 840 ACRES
SPAN = 38'-11"

HWY. 5 - SITE 1

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

STA. 108+89.63 REVERSE CROWN (0.020'/')
STA. 110+18.94 MAX. SUPERELEVATION (0.045'/')
STA. 110+99.24 MAX. SUPERELEVATION (0.045'/')
STA. 113+32.00 END SUPERELEVATION

STA. 113+32.01 BEGIN SUPERELEVATION
STA. 115+42.01 MAX. SUPERELEVATION (0.060'/')
STA. 119+58.72 MAX. SUPERELEVATION (0.060'/')
STA. 121+68.72 END SUPERELEVATION

STA. 121+68.73 BEGIN SUPERELEVATION
STA. 125+18.73 MAX. SUPERELEVATION (0.100'/')
STA. 127+15.27 MAX. SUPERELEVATION (0.100'/')
STA. 130+65.27 END SUPERELEVATION

F.L. INLET LT. = 453.70
F.L. OUTLET RT. = 452.15

112+00.00 LT. 457.38
112+14.00 LT. 457.00
112+50.00 RT. 456.52
112+78.00 LT. 453.70
112+78.00 RT. 452.15
113+00.00 LT. 455.76
113+50.00 RT. 451.79
113+70.00 RT. 452.65

LT. D.G. -5.71%
LT. D.G. -5.16%
RT. D.G. -5.61%
LT. D.G. -5.16%
RT. D.G. -0.50%
RT. D.G. -4.30%

UNNAMED STREAM
AT STA. 122+55 - STA. 122+67 IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 434 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 121+90.00
443.67'
P.V.I. 123+20.00
443.29'
-0.29%
-0.17%

F.L. INLET LT. = 430.90
F.L. OUTLET RT. = 430.20

121+25.00 RT. 439.89
122+00.00 LT. 437.76
123+00.00 RT. 436.55
121+75.00 RT. 430.20
122+45.00 LT. 430.90
122+65.00 RT. 430.20
123+35.00 LT. 430.90

RT. D.G. -13.44%
LT. D.G. -16.24%
RT. D.G. -18.14%
RT. D.G. 0.00%
LT. D.G. 0.00%

465 460 455 450 445 440 435 430 425 420

110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00

8/19/2020
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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.		061442	126	253

(2) PLAN AND PROFILE SHEETS

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

Aug 24 2020 11:23 AM

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STA. 125+40 IN PLACE
24" PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

PI = 134+06.78
Δ = 12°15'35"LT.
D = 4°30'00"
T = 136.74'
L = 272.44'
PC = 132+70.03
PT = 135+42.47
e = 0.087'/'
Ls = 350'

PI = 126+22.86
Δ = 34°20'13"RT.
D = 7°00'00"
T = 252.88'
L = 490.53'
PC = 123+69.98
PT = 128+60.51
e = 0.100'/'
Ls = 350'

STA. 128+40 IN PLACE
15' X 6' X 37' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
ON A 30° LT. FWD. SKEW
RETAIN AND EXTEND 19' L.T. AND 9' RT
TO A COMPLETED LENGTH OF 65'
Q50 = 315 CFS D.A. = 112 ACRES

STA. 129+06 INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

STA. 131+02 IN PLACE
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
REMOVE

PI = 140+97.54
Δ = 42°47'58"RT.
D = 9°45'00"
T = 230.29'
L = 438.97'
PC = 138+67.24
PT = 143+06.21
e = 0.100'/'
Ls = 350'

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

HWY. 5 - SITE 1

STA. 121+68.73 BEGIN SUPERELEVATION
STA. 125+18.73 MAX. SUPERELEVATION (0.100'/')
STA. 127+15.27 MAX. SUPERELEVATION (0.100'/')
STA. 130+65.27 END SUPERELEVATION

STA. 130+65.27 BEGIN SUPERELEVATION
STA. 133+62.97 MAX. SUPERELEVATION (0.074'/')
STA. 134+07.15 MAX. SUPERELEVATION (0.074'/')
STA. 137+04.85 END SUPERELEVATION

STA. 137+04.86 BEGIN SUPERELEVATION
STA. 140+54.86 MAX. SUPERELEVATION (0.100'/')
STA. 142+18.71 MAX. SUPERELEVATION (0.100'/')
STA. 144+39.46 SUPERELEVATION (0.040'/')

UNNAMED STREAM
AT STA. 128+40 - STA. 128+55 IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 444 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

F.L. INLET LT. = 441.20
F.L. OUTLET RT. = 440.78

127+90.00 RT. 441.66
128+14.00 RT. 440.78
128+32.00 RT. 440.78
128+40.00 LT. 445.71
128+50.00 RT. 443.10
128+50.00 LT. 441.20
128+67.00 LT. 441.20
129+00.00 LT. 441.70
RT. D.G. -3.67%
RT. D.G. 0.00%
RT. D.G. (2.85%)
LT. D.G. 1.52%
LT. D.G. 0.00%

480 475 470 465 460 455 450 445 440 435

125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00

8/19/2020

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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.		061442	127	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:23 AM
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STA. 140+82 IN PLACE
24" X 44' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS LT. & RT. AND
EXTEND R.C. PIPE
12' LT. AND 6' RT.
TO A COMPLETED LENGTH OF 62'
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 38 CFS D.A. = 18.75 ACRES
24" R.C. PIPE = 18 LIN. FT.
24" FES = 2 EA.

STA. 148+65 IN PLACE
24" X 40' R.C. PIPE CULVERT
5° LT. FWD. SKEW
WITH HDWLS LT. & RT.
REMOVE HDWLS LT. & RT. AND
EXTEND R.C. PIPE
6' LT. AND 10' RT.
TO A COMPLETED LENGTH OF 56'
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 40 CFS D.A. = 18.75 ACRES
24" R.C. PIPE = 16 LIN. FT.
24" FES = 2 EA.

STA. 153+87 IN PLACE
24" X 58' R.C. PIPE CULVERT
WITH HDWLS LT. & RT.
REMOVE HDWLS LT. & RT. AND
EXTEND R.C. PIPE
10' LT. AND 14' RT.
TO A COMPLETED LENGTH OF 82'
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 35 CFS D.A. = 20.47 ACRES
24" R.C. PIPE = 24 LIN. FT.
24" FES = 2 EA.

PI = 140+97.54
Δ = 42°47'58"RT.
D = 9°45'00"
T = 230.29'
L = 438.97'
PC = 138+67.24
PT = 143+06.21
e = 0.100'/'
Ls = 350'

PI = 146+59.38
Δ = 8°40'16"RT.
D = 2°00'00"
T = 217.19'
L = 433.56'
PC = 144+42.19
PT = 148+75.75
e = 0.048'/'
Ls = 300'

PI = 155+76.05
Δ = 34°05'19"LT.
D = 8°30'00"
T = 206.65'
L = 401.04'
PC = 153+69.40
PT = 157+70.44
e = 0.100'/'
Ls = 350'

STA. 151+84 CONSTRUCT
CONSTRUCT APPROACH ON RT. = 10 CU. YDS.

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

HWY. 5 - SITE 1

STA. 137+04.86 BEGIN SUPERELEVATION
STA. 140+54.86 MAX. SUPERELEVATION (0.100'/')
STA. 142+18.71 MAX. SUPERELEVATION (0.100'/')
STA. 144+39.46 SUPERELEVATION (0.040'/')

STA. 144+57.19 SUPERELEVATION (0.040'/')
STA. 145+17.19 MAX. SUPERELEVATION (0.048'/')
STA. 148+00.75 MAX. SUPERELEVATION (0.048'/')
STA. 151+00.75 END SUPERELEVATION

STA. 151+22.58 BEGIN SUPERELEVATION
STA. 154+72.58 MAX. SUPERELEVATION (0.100'/')
STA. 156+49.68 MAX. SUPERELEVATION (0.100'/')
STA. 159+99.68 END SUPERELEVATION

UNNAMED STREAM
AT STA. 140+82 - STA. 140+84 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 467 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

UNNAMED STREAM
AT STA. 148+65 - STA. 148+67 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 488 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

UNNAMED STREAM
AT STA. 153+87 - STA. 153+89 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 495 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

F.L. INLET RT. = 468.50
F.L. OUTLET LT. = 464.61

F.L. INLET LT. = 492.61
F.L. OUTLET RT. = 490.00

F.L. INLET LT. = 496.98
F.L. OUTLET RT. = 493.98

8/19/2020

R061442.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.		061442	128	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:24 AM
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PI = 155+76.05
Δ = 34°05'19"LT.
D = 8°30'00"
T = 206.65'
L = 401.04'
PC = 153+69.40
PT = 157+70.44
e = 0.100'/'
Ls = 350'

+00 100' TRANSITION +00

STA. 160+00.00
END SITE 1
BEGIN EXCEPTION

P.T. 157+70.44

P.I. 163+99.57

POE 168+54.19

EXIST. ROW
PROP. CONST. LIMITS
HWY. 5 - SITE 1
N 89°10'41" E
S 84°00'14" E
S 56°44'00" E
PROP. ROW
PROP. CONST. LIMITS
EXIST. ROW

P.C. 162+28.92

P.T. 165+69.82

TBM

REGIE RD

P.T. 155+76.05

T.C.E.

T.C.E.

STA. 155+90 IN PLACE
34' X 24' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND CONSTRUCT
TURNOUT ON RT. = 280 CU. YDS.

STA. 156+95 CONSTRUCT
APPROACH ON RT. = 230 CU. YDS.

STA. 160+02 CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

PI = 163+99.57
Δ = 6°49'05"RT.
D = 2°00'00"
T = 170.65'
L = 340.90'
PC = 162+28.92
PT = 165+69.82

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

HWY. 5 - SITE 1

STA. 151+22.58 BEGIN SUPERELEVATION
STA. 154+72.58 MAX. SUPERELEVATION (0.100'/')
STA. 156+49.68 MAX. SUPERELEVATION (0.100'/')
STA. 159+99.68 END SUPERELEVATION

STA. 160+00.00
END SITE 1
BEGIN EXCEPTION

535 530 525 520 515 510 505 500 495 490

155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00 166+00 167+00 168+00 169+00 170+00

8/19/2020

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) PLAN AND PROFILE SHEETS

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REMOVAL AND DISPOSAL OF WIRE FENCE

STA.	STA.	SIDE	LIN. FT.
197+48	200+00	LT.	205
201+00	203+75	LT.	155

WIRE FENCE (TYPE C)

STA.	STA.	SIDE	LIN. FT.
197+48	200+00	LT.	255
201+00	203+75	LT.	175

200

STA. 197+90 IN PLACE
DBL. 30' X 38' R.C. PIPE CULVERT
WITH HDWLS LT. & R.T
REMOVE HDWLS LT. & RT. AND
EXTEND R.C. PIPE
8' LT. AND 8' RT.
15° LT. FWD. SKEW
TO A COMPLETED LENGTH OF 54'
(CLASS (T1) (TYPE 3 BEDDING)
WITH FES LT. & RT.
Q50 = 35 CFS D.A. = 20.47 ACRES
30" R.C. PIPE = 32 LIN. FT.
30" FES = 4 EA.

STA. 202+55.00 HWY. 5
STA. 19+97.32 DRIVE
= 90° 00' 00"

STA. 196+50.00
END EXCEPTION
BEGIN SITE 2

STA. 196+00 INSTALL
18" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT. = 90 CU. YDS.

STA. 198+10 IN PLACE
18" X 24' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

STA. 199+17 IN PLACE
18" X 29' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YDS.

STA. 201+70 IN PLACE
18" X 27' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.
UNCL. EXC. = 350 CU. YDS.

STA. 202+30 IN PLACE
24" PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL @ STA. 202+55
18" X 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.
UNCL. EXC. = 680 CU. YDS.

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

HWY. 5 - SITE 2

STA. 196+50.93 BEGIN SUPERELEVATION
STA. 199+50.93 MAX. SUPERELEVATION (0.048'/')
STA. 200+48.91 MAX. SUPERELEVATION (0.048'/')
STA. 201+12.11 SUPERELEVATION (0.042'/')

STA. 201+97.66 SUPERELEVATION (0.042'/')
STA. 201+81.66 MAX. SUPERELEVATION (0.066'/')
STA. 203+61.54 MAX. SUPERELEVATION (0.066'/')
STA. 205+92.54 END SUPERELEVATION

UNNAMED STREAM
AT STA. 197+90 - STA. 197+92 IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 403 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 196+50.00
END EXCEPTION
BEGIN SITE 2

F.L. INLET LT. = 403.59
F.L. OUTLET RT. = 403.16

6/6/2018

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(2) PLAN AND PROFILE SHEETS

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LICENSED PROFESSIONAL ENGINEER
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GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH
210+00.00	212+50.00	LT.	150	2

POND

205

EXIST. ROW 23.00 95.99

14'

16'

PI = 208+21.99
Δ = 29°10'54"LT.
D = 6°30'00"
T = 229.46'
L = 448.95'
PRC= 205+92.54
PT = 210+41.49
e = 0.100'/'
Ls = 350'

STA. 207+25 INSTALL
18' X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 405 CU. YDS.
UNCL. EXC. = 45 CU. YDS.

210

10.00 105.00
35.00 45.41

P.T. 210+41.49

STA. 212+88 IN PLACE
18' X 24' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18' X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YDS.

63.00 29.81
105.00 29.83
50.00
50.00

215

STA. 216+58 IN PLACE
DBL. 30" X 51' R.C. PIPE CULVERT
WITH HDWLS LT. & R.T.
REMOVE HDWL RT. AND
EXTEND R.C. PIPE
67' RT. ON 45° RT. FWD. SKEW
TO A COMPLETED LENGTH OF 118'
(CLASS III) (TYPE 3 BEDDING)
WITH FES RT.
Q50 = 28 CFS D.A. = 16.67 ACRES
30" R.C. PIPE = 236 LIN. FT.
30" FES = 2

UNNAMED STREAM

P.I. 216+82.50

STA. 218+85 IN PLACE
DBL. 24" X 44" R.C. PIPE CULVERT
WITH HDWLS LT. & R.T.
REMOVE HDWL RT. & LT. AND
EXTEND R.C. PIPE 44' RT.
TO A COMPLETED LENGTH OF 88'
(CLASS III) (TYPE 3 BEDDING)
WITH FES RT. & LT.
Q50 = 14 CFS D.A. = 3.69 ACRES
24" R.C. PIPE = 88 LIN. FT.
24" FES = 2

UNNAMED STREAM

+25

+23

+88

PROP. CONST. LIMITS

N 44°38'41" E

N 73°49'35" E

N 44°38'41" E

N 44°38'41" E

N 83°39'14" E

N 83°39'14" E

EXIST. ROW

T. LIMITS

OW

PRC205+92.54

92.14 130.00

100.00 110.00

PI = 203+63.90
Δ = 30°27'38"RT.
D = 6°30'00"
T = 239.99'
L = 468.62'
PCC= 201+23.91
PRC= 205+92.54
e = 0.100'/'
Ls = 350'

GATE

16'

P.I. 208+23.99

STA. 208+23 CONSTRUCT
APPROACH ON RT. = 15 CU. YDS.
UNLC. EXC. = 55 CU. YDS.

25.00 70.00

97.16 65.00

P.C. 213+70.27

50.00 50.00

PI = 216+82.50
Δ = 39°00'33"RT.
D = 6°30'00"
T = 312.22'
L = 600.14'
PC = 213+70.27
PT = 219+70.41
e = 0.100'/'
Ls = 350'

P.C. 219+87.10

P.T. 219+70.41

220

HWY. 5 - SITE 2

REMOVAL AND DISPOSAL OF WIRE FENCE

STA.	STA.	SIDE	LIN. FT.	GATES
207+80	207+96	RT.	16	
208+10	208+40	RT.		1
208+40	208+56	RT.	16	

WIRE FENCE (TYPE C)

STA.	STA.	SIDE	LIN. FT.	GATES
207+80	207+96	RT.	16	
208+10	208+40	RT.		1
208+40	208+56	RT.	16	

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

STA. 201+97.66 SUPERELEVATION (0.042'/')
STA. 204+81.66 MAX. SUPERELEVATION (0.066'/')
STA. 203+61.54 MAX. SUPERELEVATION (0.066'/')
STA. 205+92.54 END SUPERELEVATION

P.V.I. 208+00.00
459.50'

STA. 205+92.54 BEGIN SUPERELEVATION
STA. 208+16.54 MAX. SUPERELEVATION (0.064'/')
STA. 209+81.88 MAX. SUPERELEVATION (0.064'/')
STA. 212+05.88 END SUPERELEVATION

STA. 212+05.88 BEGIN SUPERELEVATION
STA. 215+13.88 MAX. SUPERELEVATION (0.088'/')
STA. 216+70.75 MAX. SUPERELEVATION (0.088'/')
STA. 219+78.75 END SUPERELEVATION

UNNAMED STREAM
AT STA. 216+58 - STA. 216+60 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 403 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

UNNAMED STREAM
AT STA. 218+85 - STA. 218+89 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 395 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

LT. D.G. -2.00%
RT. D.G. -1.74%
VC= 875'
e= -14.36'
K= 66.64
207+82.00 LT. 442.82
208+00.00 LT. 443.18
208+25.00 RT. 445.07
209+55.00 RT. 442.81
RT. D.G. -1.32%
210+25.00 RT. 430.25
210+75.00 RT. 429.59
P.V.T. 212+37.50 431.40'
-6.42%
P.V.C. 215+50.00 411.33'
EXIST F.L. INLET LT. = 395.50
F.L. OUTLET RT. = 384.00
VC= 550'
e= 4.07'
K= 92.85
EXIST. F.L. INLET LT. = 392.51
F.L. OUTLET RT. = 384.00
215+20.00 LT. 411.82
215+45.00 RT. 405.10
LT. D.G. -6.65%
RT. D.G. -2.60%
216+00.00 RT. 403.67
216+00.00 LT. 406.50
RT. D.G. -7.00%
LT. D.G. -8.00%
216+50.00 LT. 403.00
RT. D.G. -8.14%
217+00.00 LT. 399.00
217+25.00 RT. 395.56
393.50
LT. D.G. -4.06%
RT. D.G. 0.00%
RT. D.G. -6.46%
LT. D.G. -3.04%
218+00.00 LT. 395.00
218+25.00 393.67
P.V.I. 218+25.00
218+82.00 RT. 384.00
LT. D.G. -0.55%
218+82.00 LT. 392.51
RT. D.G. -1.34%
218+82.00 LT. 391.96
220+00.00 RT. 382.42

460 450 440 430 420 410 400 390 380 370

205+00 210+00 215+00 220+00

6/6/2018

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6	ARK.			
JOB NO.		061442	131	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:25 AM
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220 225 230

PI = 221+79.39
Δ = 24°36'48"LT.
D = 6°30'00"
T = 192.30'
L = 378.66'
PC = 219+87.10
PT = 223+65.76
e = 0.100'/'
Ls = 350'

P.C. 219+87.10
P.T. 223+65.76
P.I. 221+79.39
N 83°39'14" E
N 59°02'26" E
PROP. CONST. LIMITS
EXIST. ROW
PROP. ROW
+00.00 70.00
+00.00 45.00
+00.00 40.00
+36.00 30.30
FLOODPLAIN BOUNDARY

+46 254' OVERLAY +00 100' TRANSITION +00

P.I. 232+90.98
P.C. 230+77.43
P.T. 234+96.45
N 59°02'26" E
N 83°16'37" E
EXIST. ROW
PROP. ROW
+00.00 45.00
+00.00 45.00
+85
16'

PI = 232+90.98
Δ = 27°14'11"RT.
D = 6°30'00"
T = 213.55'
L = 419.02'
PC = 230+77.43
PT = 234+96.45
e = 0.100'/'
Ls = 350'

STA. 234+85 CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

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

HWY. 5 - SITE 2

STA. 219+78.76 BEGIN SUPERELEVATION
STA. 221+74.76 MAX. SUPERELEVATION (0.056'/')
STA. 223+16.76 MAX. SUPERELEVATION (0.056'/')
STA. 225+12.76 END SUPERELEVATION

STA. 228+14.93 BEGIN SUPERELEVATION
STA. 231+64.93 MAX. SUPERELEVATION (0.100'/')
STA. 234+08.95 MAX. SUPERELEVATION (0.100'/')
STA. 236+88.95 REVERSE CROWN (0.020'/')

VERTICAL CURVE FOR INFORMATION ONLY
+46 +00

VC= 550'
e= 4.07'
K= 92.85
-0.50%
P.V.R.C. 221+00.00
392.30
P.V.I. 222+00.00
391.80'
VC= 200'
e= -0.80'
K= 62.58
P.V.T. 223+00.00
388.11'
-3.69%
P.V.C. 224+60.00
382.19'
P.V.I. 225+60.00
378.50'
END PROFILE GRADE
BEGIN OVERLAY
VC= 200'
e= 0.92'
K= 54.14
P.V.T. 226+60.00
378.50'
END OVERLAY
BEGIN PROFILE GRADE
0.00%
P.V.C. 229+25.00
378.50'
P.V.I. 230+25.00
378.50'
VC= 200'
e= 0.64'
K= 77.59
P.V.T. 231+25.00
381.08'
P.V.C. 231+50.00
381.72'
2.58%
P.V.I. 232+50.00
384.30'
VC= 200'
e= 0.32'
K= 156.33
P.V.T. 233+50.00
388.16'
P.V.C. 233+60.00
388.54'
3.86%
234+00.00 LT.
389.49
LT. 0.0. 1.76%
VC= 200'
e= -0.89'
K= 56.09
P.V.I. 234+60.00
392.40'
235+00.00 LT.
391.25

430 420 410 400 390 380 370 360 350 340

220+00 225+00 230+00 235+00

6/6/2018

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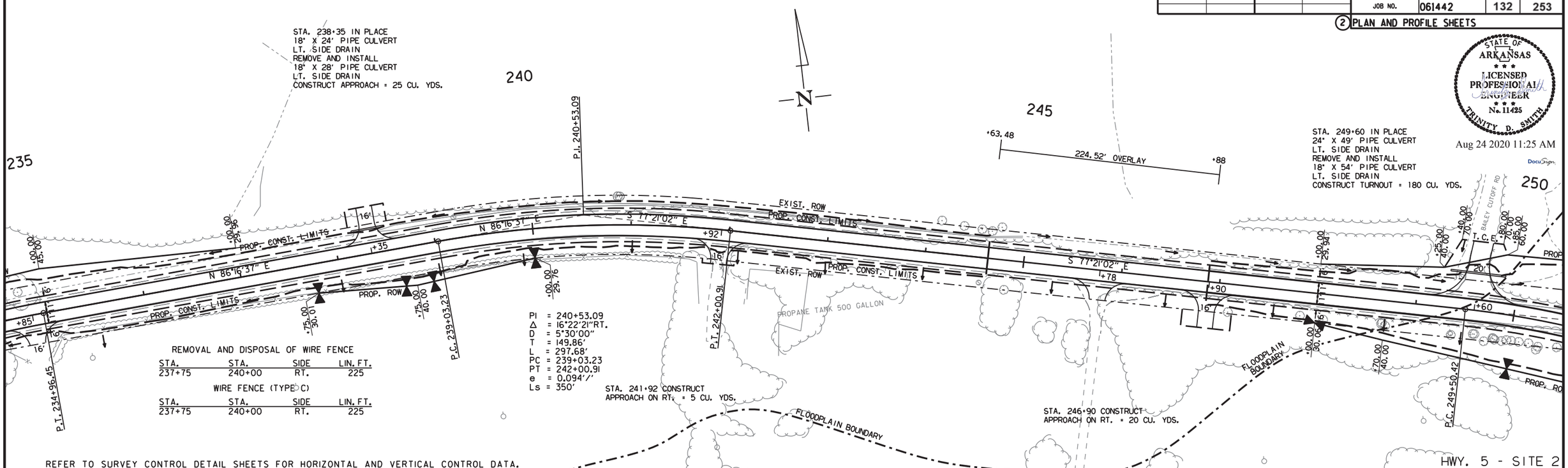
				6	ARK.			
				JOB NO.		061442	132	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:25 AM



REMOVAL AND DISPOSAL OF WIRE FENCE

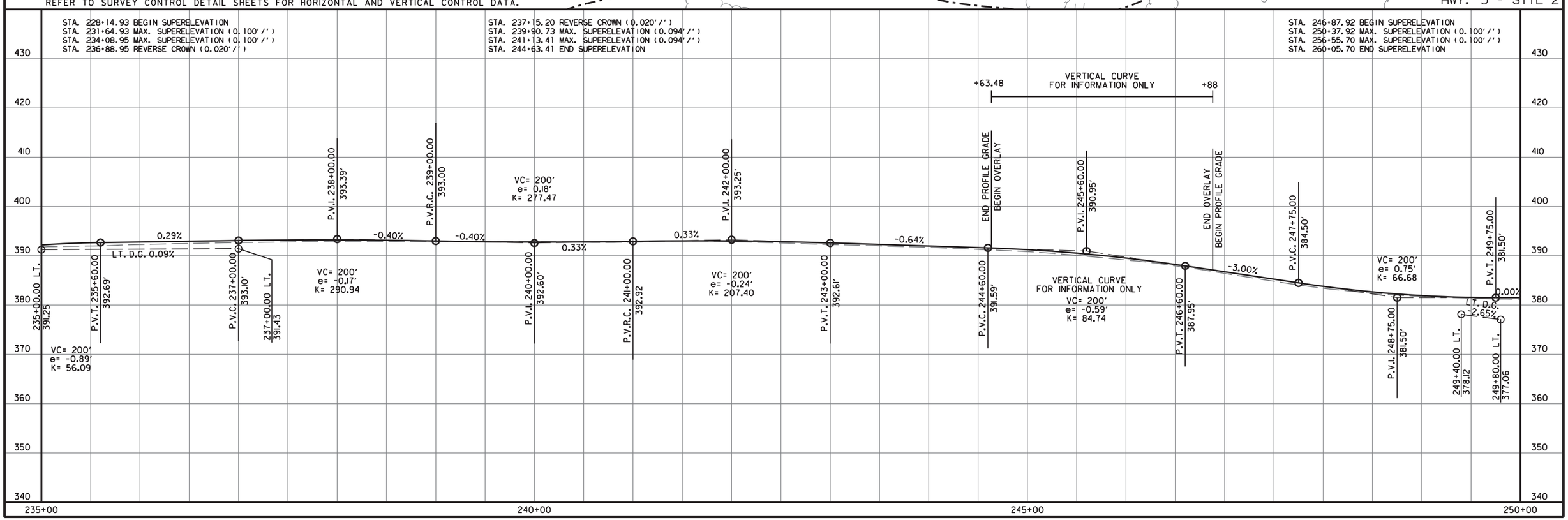
STA.	STA.	SIDE	LIN. FT.
237+75	240+00	RT.	225

WIRE FENCE (TYPE C)

STA.	STA.	SIDE	LIN. FT.
237+75	240+00	RT.	225

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

HWY. 5 - SITE 2



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JOB NO.		061442	133	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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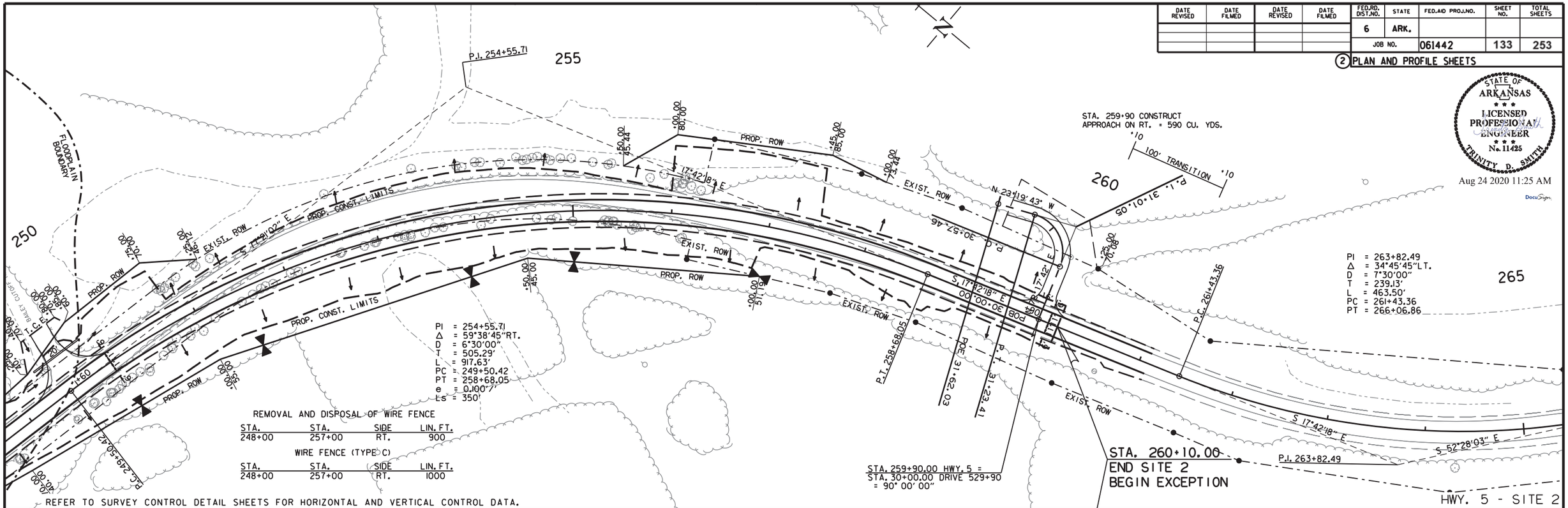

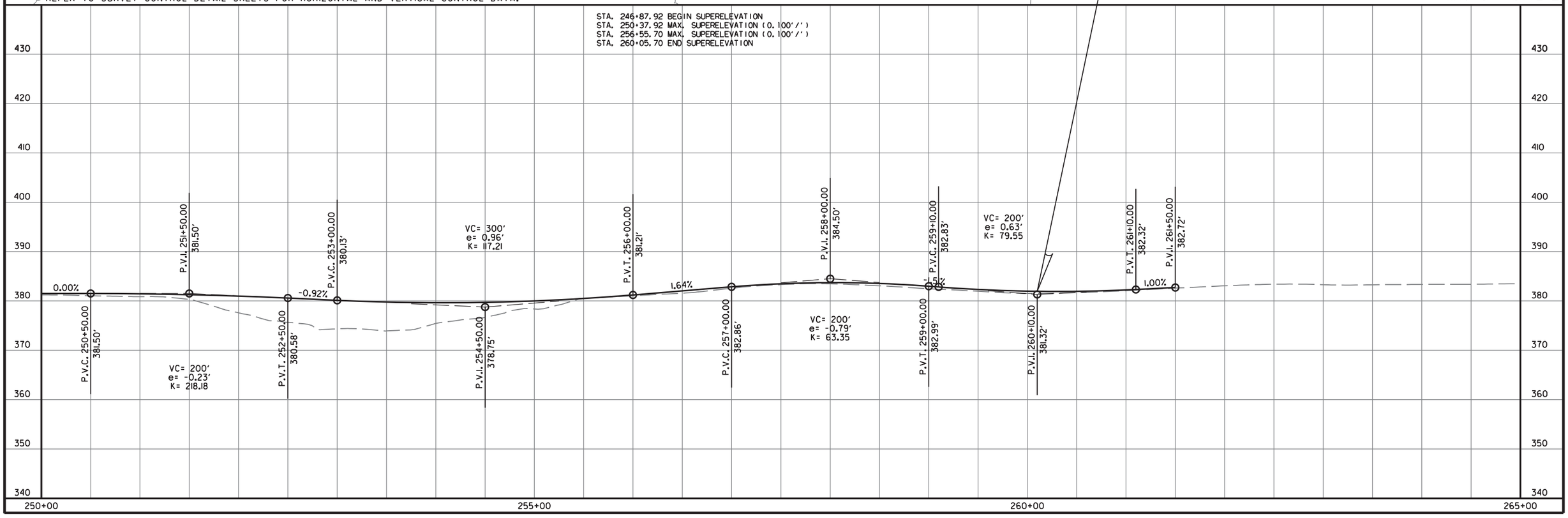

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(2) PLAN AND PROFILE SHEETS

660

665

670

PI = 664+49.06
Δ = 11°14'21"LT.
D = 5°00'00"
T = 112.75'
L = 224.78'
PC = 663+36.30
PT = 665+61.09

+00 100' TRANSITION +00

STA. 669+00.00
END EXCEPTION
BEGIN SITE 3

STA. 674+32 IN PLACE
8' X 7' X 40' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
ON 45° RT. FWD. SKEW
RETAIN AND EXTEND 76' LT.
TO A COMPLETED LENGTH OF 116'
Q50 = 122 CFS D.A. = 87.06 ACRES

PI = 674+45.19
Δ = 47°40'01"LT.
D = 6°30'00"
T = 389.39'
L = 733.34'
PC = 670+55.80
PT = 677+89.14
e = 0.100'/'
Ls = 350'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:26 AM

S 46°22'28" E
S 57°36'49" E
S 55°35'44" E
S 54°11'37" E

P.C. 663+36.30
P.T. 665+61.09
P.I. 667+10.73
P.I. 668+57.23
P.C. 670+55.80
P.I. 664+49.06
P.C. 666+18.15
P.T. 668+03.29
P.C. 668+18.02
P.T. 668+96.45

EXIST. ROW
PROP. ROW
PROP. CONST. LIMITS
UNNAMED STREAM
P.C.E.

PI = 667+10.73
Δ = 1°51'05"RT.
D = 1°00'00"
T = 92.58'
L = 185.13'
PC = 666+18.15
PT = 668+03.29
MATCH EXIST. SUPER

PI = 668+57.23
Δ = 1°34'07"RT.
D = 2°00'00"
T = 39.22'
L = 78.43'
PC = 668+18.02
PT = 668+96.45
MATCH EXIST. SUPER

STA. 674+15 INSTALL
18" X 52' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT ON RT. = 310 CU. YDS.

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

HWY. 5 - SITE 3

STA. 669+76.13 BEGIN SUPERELEVATION
STA. 673+26.13 MAX. SUPERELEVATION (0.100'/')
STA. 677+01.64 MAX. SUPERELEVATION (0.100'/')
STA. 680+51.64 END SUPERELEVATION

UNNAMED STREAM
AT STA. 674+32 - STA. 674+40 IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 416 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 669+00.00
ELEV. 447.94
-5.04%

P.V.C. 671+50.00
ELEV. 435.34
K 64.97
VC=200'
e=0.77'
P.V.I. 672+50.00
ELEV. 430.30
P.V.T. 673+50.00
ELEV. 428.34

671+60.00 RT. 434.29
673+00.00 RT. 428.25
674+00.00 RT. 425.20
673+50.00 LT. 417.00

RT. D.G. -4.31%
RT. D.G. -3.05%
LT. D.G. -0.85%
RT. D.G. -1.96%
RT. D.G. -1.20%
LT. D.G. 1.33%

F.L. INLET LT. = 416.50
F.L. OUTLET RT. = 415.99
674+09.00 LT. 416.50

STA. 669+00.00
END EXCEPTION
BEGIN SITE 3

490 480 470 460 450 440 430 420 410 400

660+00 661+00 662+00 663+00 664+00 665+00 666+00 667+00 668+00 669+00 670+00 671+00 672+00 673+00 674+00 675+00

6/6/2018

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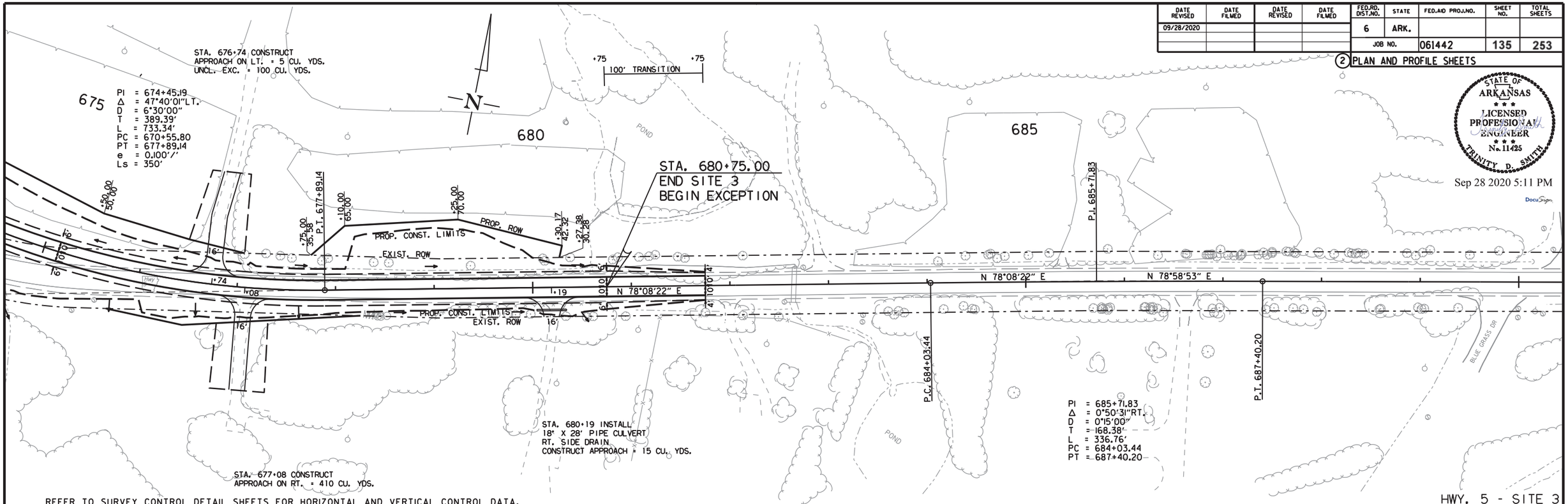
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09/28/2020				6	ARK.			
				JOB NO.		061442	135	253

(2) PLAN AND PROFILE SHEETS

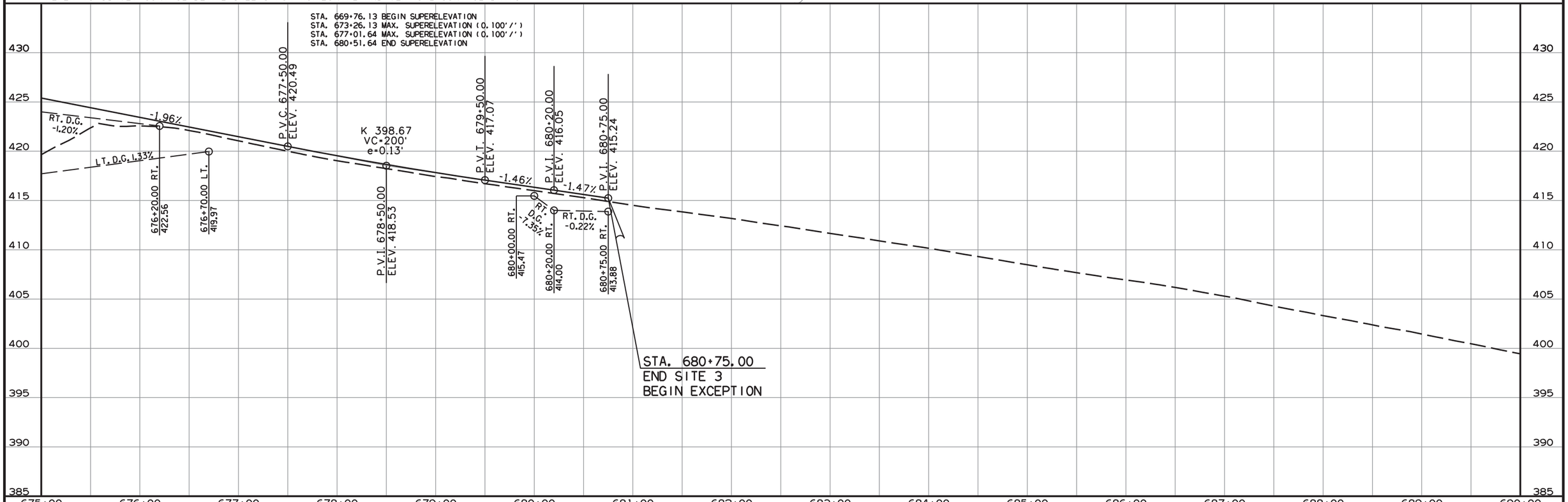
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH

Sep 28 2020 5:11 PM



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

HWY. 5 - SITE 3



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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	136	253

(2) PLAN AND PROFILE SHEETS

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STA. 719+15.53 - STA. 719+41.73 IN PLACE
30.20' X 32.20' R.C. SLAB BRIDGE NO. M0114
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

STA. 713+18 CONSTRUCT
APPROACH ON LT. = 200 CU. YDS.

STA. 708+75.00
END EXCEPTION
BEGIN SITE 4

STA. 712+73 - IN PLACE
DBL. 24" X 43' R.C. PIPE CULVERT
W/HDWLS LT. & RT.
REMOVE HDWLS. LT. & RT. AND EXTEND R.C. PIPE
16' RT. ON 15° RT. FWD. SKEW
TO A COMPLETED LENGTH OF 59'
(CLASS III) (TYPE 3 BEDDING)
W/FES LT. & RT.
Q50 = 49 CFS D.A. = 36 ACRES
CULVERT CLEAN OUT = 1 EACH
24" R.C. PIPE CULVERT (CLASS III) = 32 LIN. FT.
24" FLARED END SECTION = 4 EACH

STA. 715+10 - INSTALL
24" X 68' PIPE CULVERT
ON 15° RT. FWD. SKEW
W/FES LT. & RT.
Q50 = 14 CFS D.A. = 8.80 ACRES
CULVERT CLEAN OUT = 1 EACH
24" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 68 LIN. FT.
24" F.E.S. = 2 EACH

STA. 715+00 - IN PLACE
24" X 48' R.C. PIPE CULVERT
W/HDWLS LT. & RT.
REMOVE

PI = 717+00.51
Δ = 64°53'01"RT.
D = 6°30'00"
T = 560.30'
L = 998.21'
PC = 711+40.21
PT = 721+38.42
e = 0.100''/'
Ls = 350'

REMOVAL AND DISPOSAL OF WIRE FENCE

STA.	STA.	SIDE	LIN. FT.
719+70	721+38	LT.	170

WIRE FENCE (TYPE C)

STA.	STA.	SIDE	LIN. FT.
719+70	721+38	LT.	175

STA. 719+05 CONSTRUCT
TRP. 10' X 8' X 72' R.C. BOX CULVERT
WITH 2:1 WINGS LT. & 3:1 WINGS RT.
ON 30° LT. FWD. SKEW
Q50 = 910 CFS D.A. = 637 ACRES
SPAN = 33'-2"

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

HWY. 5 - SITE 4

STA. 708+77.71 BEGIN SUPERELEVATION
STA. 712+27.71 MAX. SUPERELEVATION (0.100''/')
STA. 719+30.93 MAX. SUPERELEVATION (0.100''/')
STA. 722+80.93 END SUPERELEVATION

UNNAMED STREAM
AT STA. 712+73 - STA. 712+75 IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 372 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

DOTSON BRANCH
AT STA. 719+08 - STA. 719+19 IS CLASSIFIED AS INTEMITTENT.
THE TOP OF CHANNEL ELEVATION IS 369 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 708+75.00
END EXCEPTION
BEGIN SITE 4
P.V.I. 708+75.00
ELEV. 385.05

-0.80%

P.V.I. 711+00.00
ELEV. 383.25

K 256.81
VC=200'
e=-0.19'

P.V.C. 710+00.00
ELEV. 384.05

P.V.T. 712+00.00
ELEV. 381.67

-1.58%

P.V.C. 713+00.00
ELEV. 380.08

LT. D.G. -4.60%
LT. D.G. -1.00%
LT. D.G. -1.60%

K 126.32
VC=200'
e=0.40'

712+80.00 LT. 380.92
713+00.00 LT. 380.00
713+50.00 LT. 379.50
714+00.00 LT. 378.70

LT. D.G. -5.83%

P.V.T. 715+00.00
ELEV. 378.50

0.00%

P.V.C. 718+00.00
ELEV. 378.50

K 196.72
VC=200'
e=-0.25'

P.V.I. 719+00.00
ELEV. 378.50

F.L. INLET RT. = 365.80
F.L. OUTLET LT. = 364.70

P.V.T. 720+00.00
ELEV. 377.48

RT. D.G. -0.10%
LT. D.G. -2.47%
LT. D.G. -2.24%
LT. D.G. +0.40%
RT. D.G. -4.86%
LT. D.G. -5.89%
RT. D.G. 0.00%
LT. D.G. 0.00%
RT. D.G. 27.73%
LT. D.G. 24.20%

714+00.00 RT. 378.50
714+00.00 RT. 370.00
715+04.00 LT. 372.64
715+40.00 LT. 373.53
715+75.00 RT. 369.82
716+75.00 LT. 370.50
717+00.00 RT. 371.87
718+00.00 LT. 370.00
718+25.00 RT. 365.80
718+90.00 LT. 364.70
719+10.00 RT. 365.80
719+75.00 LT. 364.70
720+00.00 LT. 370.75
719+25.00 RT. 369.96

F.L. INLET LT. = 376.44
F.L. OUTLET RT. = 372.77

F.L. INLET LT. = 372.64
F.L. OUTLET RT. = 369.88

705+00 706+00 707+00 708+00 709+00 710+00 711+00 712+00 713+00 714+00 715+00 716+00 717+00 718+00 719+00 720+00

400 395 390 385 380 375 370 365 360 355

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				JOB NO.		061442	137	253

(2) PLAN AND PROFILE SHEETS

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25 FT. BUFFER

PROP. ROW

PROP. CONST. LIMITS

EXIST. ROW

245' LANE SHIFT TAPER

P.T. 721+38.42

P.C. 724+23.45

'80 100' TRANSITION '80

PI = 727+22.36
Δ = 45°18'24"LT.
D = 8°00'00"
T = 298.91'
L = 566.33'
PC = 724+23.45
PT = 729+89.79

P.T. 729+89.79

N 89°55'51" E

S 44°45'45" E

FLOODPLAIN BOUNDARY

HARRISON RD.

P.I. 727+22.36

PI = 717+00.51
Δ = 64°53'01"RT.
D = 6°30'00"
T = 560.30'
L = 998.21'
PC = 711+40.21
PT = 721+38.42
e = 0.100'/'
Ls = 350'

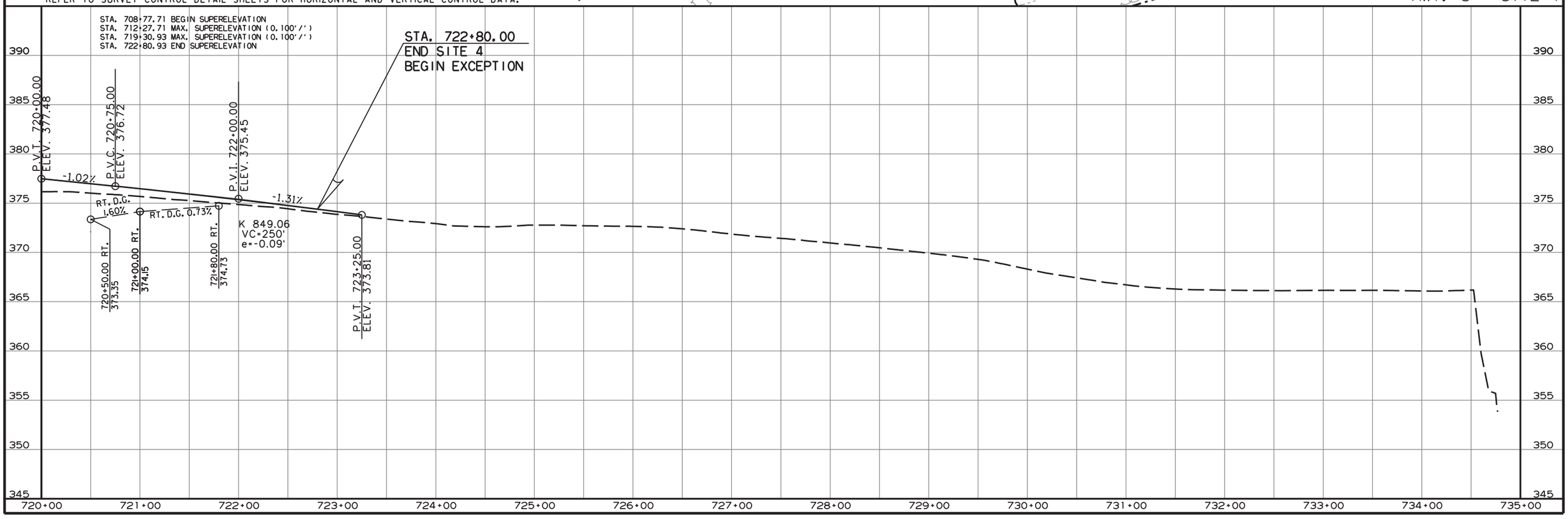
STA. 721+73 CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 722+80.00
END SITE 4
BEGIN EXCEPTION

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

HWY. 5 - SITE 4

STA. 708+77.71 BEGIN SUPERELEVATION
STA. 712+27.71 MAX. SUPERELEVATION (0.100'/')
STA. 719+30.93 MAX. SUPERELEVATION (0.100'/')
STA. 722+80.93 END SUPERELEVATION



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STA. 967+71 INSTALL
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.
UNCL. EXC. = 300 CU. YDS.

P.I. 51+98.75N 25°45'04" W

N 1°33'08" E

POE 52+67.2

P.T. 52+29.20

100' TRANSITION

STA. 966+50.00
END EXCEPTION
BEGIN SITE 5

PAVED DRIVE

PI = 965+71.59
Δ = 1°34'39"RT.
D = 2°00'00"
T = 39.44'
L = 78.88'
PC = 965+32.15
PT = 966+11.03

P.I. 965+71.59

S 45°01'21" E

P.C. 966+59.97

P.I. 966+44.03

P.C. 965+32.15

NOTE:
DO NOT DISTURB BACKSLOPE BETWEEN
STA. 965+50 & STA. 971+75 ON THE RT.

PI = 968+52.69
Δ = 66°31'21"RT.
D = 19°30'00"
T = 192.72'
L = 341.14'
PC = 966+59.97
PT = 970+01.11
e = 0.100'/'
LS = 250'

STA. 967+71.00 HWY. 5 =
STA. 50+00.00 DRIVE 967+71
= 90° 00' 00"

STA. 964+34 IN PLACE
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
RETAIN

STA. 965+47 IN PLACE
18" X 35' PIPE CULVERT
RT. SIDE DRAIN
RETAIN

P.I. 81+41.76

P.C. 81+31.04

P.I. 80+56.70

P.C. 80+24.84

POB 80+00.00

N 30°38'04" E

PUMP STATION DRIVE

970

STA. 968+38 IN PLACE
24" X 50' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 235 CU. YDS.

STA. 973+45 IN PLACE
10' X 10' X 38' R.C. BOX CULVERT
RETAIN & EXTEND 12' RT.
TO A COMPLETED LENGTH OF 50'
WITH 3:1 WING RT.
Q50 = 271 CFS D.A. = 285.69 ACRES

975

STA. 968+38.00 HWY. 5 =
STA. 30+00.00 DRIVE PARKETT LN.
= 90° 00' 00"

STA. 972+10 IN PLACE
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
RETAIN & CONSTRUCT
APPROACH = 5 CU. YDS.

STA. 974+48 INPLACE
58" X 40' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
60" X 68' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 375 CU. YDS.

STA. 974+48.00 HWY. 5 =
STA. 70+00.00 RIVER HEIGHTS RD.
= 90° 00' 00"

50 FT. BUFFER

P.C. 971+69.08

S 23°30'00" W

PROP. ROW

P.T. 970+01.11

POB 70+00.00

P.C. 71+31.49

P.T. 71+64.34

P.T. 71+48.53

P.I. 976+23.09

UNNAMED STREAM

50 FT. BUFFER

HWY. 5 - SITE 5

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

STA. 966+50.00 MATCH EXIST. SUPERELEVATION (0.067'/')
STA. 967+32.50 MAX. SUPERELEVATION (0.100'/')
STA. 968+35.09 MAX. SUPERELEVATION (0.100'/')
STA. 970+85.09 END SUPERELEVATION

STA. 970+85.10 BEGIN SUPERELEVATION
STA. 973+35.10 MAX. SUPERELEVATION (0.100'/')
STA. 976+69.86 MAX. SUPERELEVATION (0.100'/')
STA. 979+19.86 END SUPERELEVATION

UNNAMED STREAM
AT STA. 973+45 - STA. 973+60 IS CLASSIFIED AS INTERMITTENT.
THE TOP OF CHANNEL ELEVATION IS 297 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 966+50.00
END EXCEPTION
BEGIN SITE 5

F.L. INLET LT. = 293.24
F.L. OUTLET RT. = 293.00

+45

RT. D.C. 15.91%

RT. D.C. 10.04%

P.T. D.C. 0.00%

973+00.00 RT. 298.59
973+35.00 RT. 293.00
973+55.00 RT. 293.00
974+00.00 RT. 297.52

370 360 350 340 330 320 310 300 290 280

960+00 965+00 970+00 975+00

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				6	ARK.			
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(2) PLAN AND PROFILE SHEETS

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

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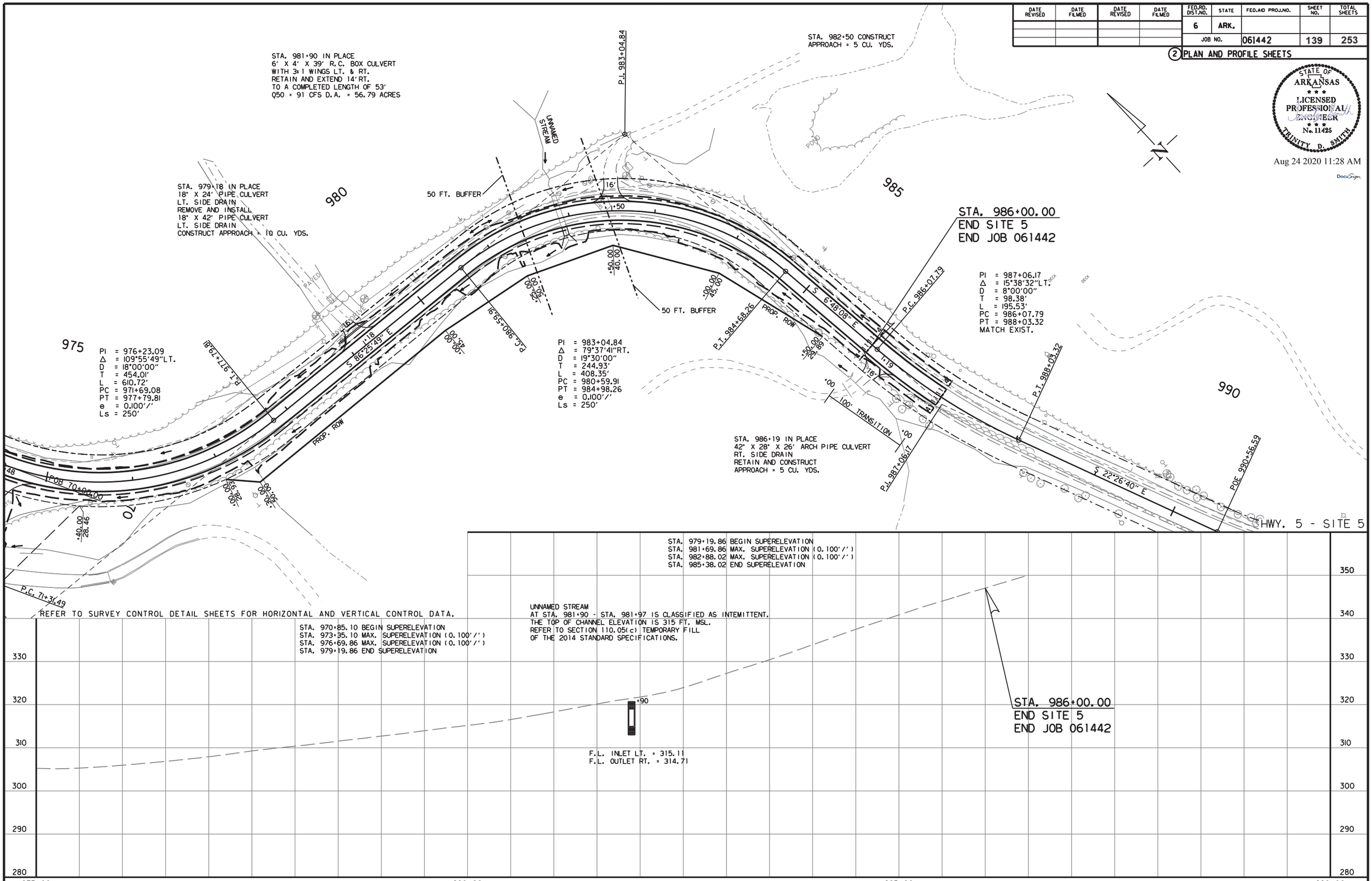

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(2) PLAN AND PROFILE SHEETS

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P.I. = 303+52.88
Δ = 9°54'38" LT.
D = 10°30'00"
T = 47.31'
L = 94.39'
P.C. = 303+05.57
P.T. = 303+99.96
e = 0.100'/'
Ls = 275'

P.I. = 305+41.18
Δ = 7°47'08" LT.
D = 10°30'00"
T = 37.13'
L = 74.15'
P.C. = 305+04.05
P.T. = 305+78.20
e = 0.100'/'
Ls = 275'

P.I. = 307+91.77
Δ = 34°23'13" RT.
D = 10°30'00"
T = 168.85'
L = 327.49'
P.C. = 306+22.92
P.T. = 309+50.41
e = 0.100'/'
Ls = 275'

STA. 304+35 CONSTUCT
TRI. 84" X 60' TEMPORARY PIPE
ON A 30° LT. FWD. SKEW
84" TEMP. PIPE CULVERT = 180 LIN. FT.

DETOUR C.L. STA. 309+50.41 =
HWY. 5 C.L. STA. 127+50.00
END DETOUR SITE 1

HWY. 5 - SITE 1 - DETOUR

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DETOUR C.L. STA. 300+15.00 =
HWY. 5 C.L. STA. 118+15.00
BEGIN DETOUR SITE 1

STA. 302+93.33 MATCH EXIST. SUPERELEVATION
STA. 303+52.76 MAX. SUPERELEVATION (0.021'/')
STA. 305+41.13 MAX. SUPERELEVATION (0.021'/')
STA. 306+00.56 END SUPERELEVATION

STA. 306+00.56 BEGIN SUPERELEVATION
STA. 307+86.66 MAX. SUPERELEVATION (0.067'/')
STA. 309+50.41 END SUPERELEVATION (0.067'/')

P.V.C. 300+15.00 450.68'
VC= 70'
e= -0.13'
K= 45.38
P.V.I. 300+50.00 449.90'
P.V.T. 300+85.00 448.58'
P.V.C. 301+10.00 447.63'
P.V.I. 301+85.00 444.80'
VC= 150'
e= 0.52'
K= 54.03
P.V.T. 302+60.00 444.05'
P.V.C. 302+75.00 443.90'
P.V.I. 303+15.00 443.15'
VC= 150'
e= 0.13'
K= 214.29
P.V.T. 303+75.00 435.65'
P.V.T. 304+25.00 442.92'
P.V.C. 305+75.00 442.48'
VC= 150'
e= 0.43'
K= 65.22
P.V.I. 306+90.00 442.25'
P.V.T. 307+25.00 443.75'
P.V.C. 308+25.00 445.75'
P.V.I. 308+75.00 446.75'
VC= 100'
e= -0.03'
K= 362.20
P.V.T. 309+25.00 447.61'
P.V.I. 309+50.41 448.05'

2.33%
3.78%
-1.00%
-0.30%
2.00%
1.72%

304+00.00 RT. 431.30
304+25.00 RT. 431.30
304+35.00 LT. 431.95
304+65.00 LT. 431.95
304+80.00 RT. 435.70

RT. D.C. -0.00%
LT. D.C. 0.00%
RT. D.C. 8.00%

F.L. INLET LT. = 431.95
F.L. OUTLET RT. = 431.30

465 460 455 450 445 440 435 430 425 420

297+00 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00 311+00 312+00

8/19/2020

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
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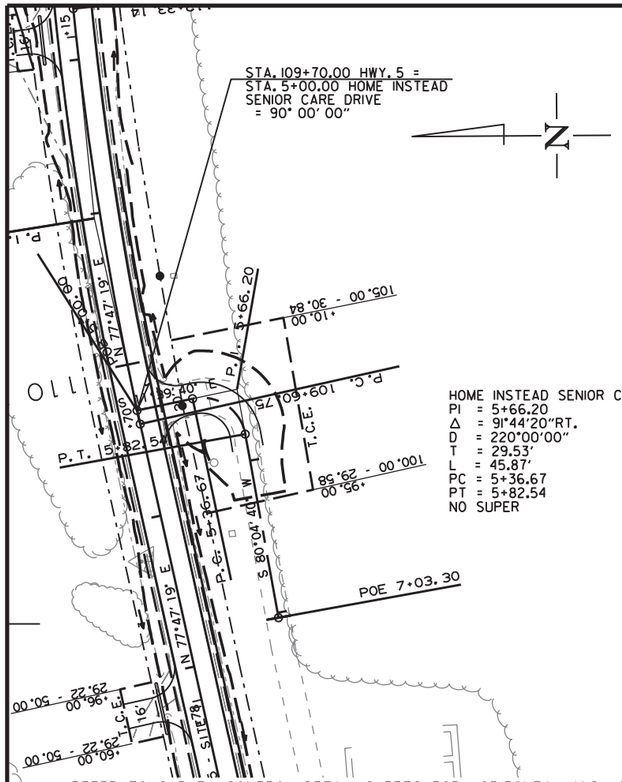

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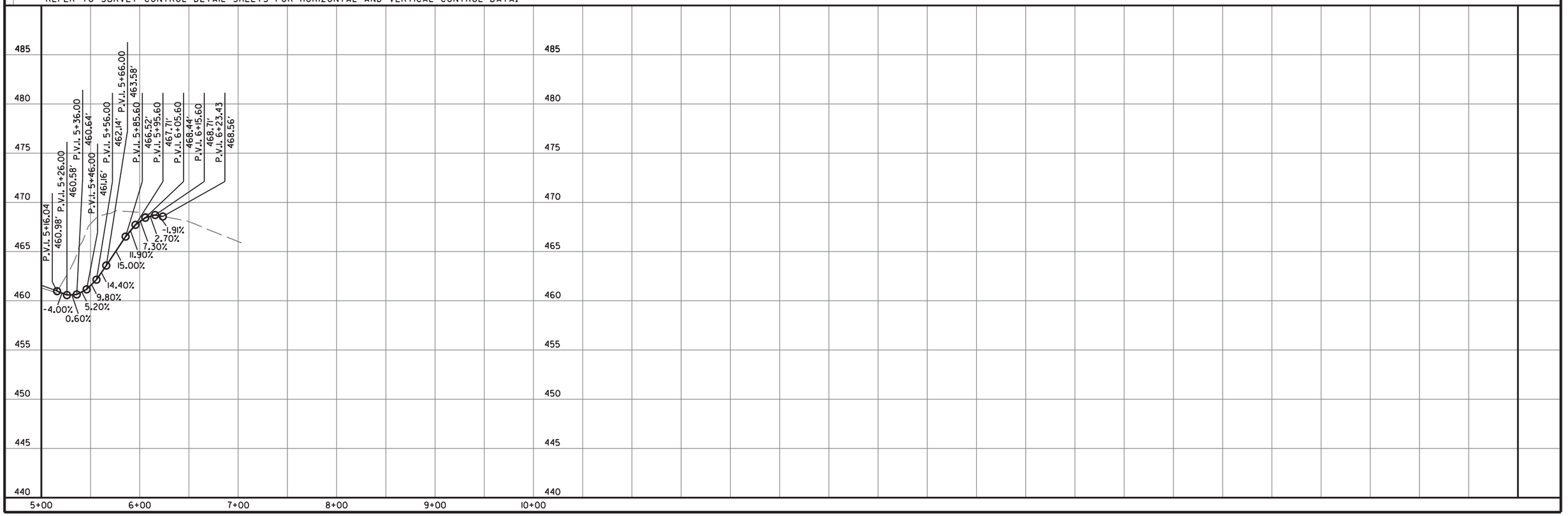

8/19/2020

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(2) PLAN AND PROFILE SHEETS

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

DRIVE STA. 201+70

DRIVE STA. 201+70
R = 100.00'
POE 11+52.36

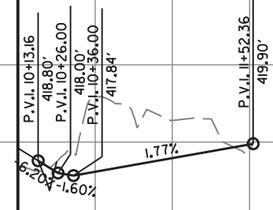
DRIVE STA. 202+55

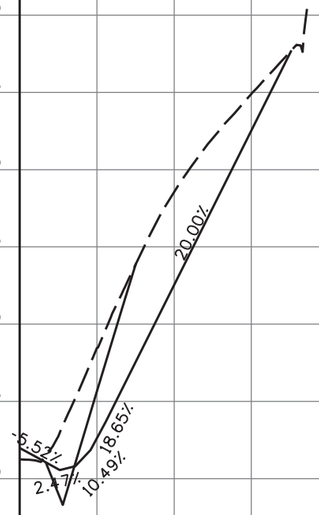
STA. 202+55.00 HWY. 5 = STA. 19+97.32 DRIVE = 90° 00' 00"

DRIVE STA. 202+55
PI = 22+17.42
Δ = 43°34'28"LT.
D = 35°00'00"
T = 67.95'
L = 129.29'
PCC = 21+49.47
PT = 22+78.76
NO SUPER

DRIVE STA. 202+55
PI = 21+21.97
Δ = 34°24'19"LT.
R = 100.00'
T = 29.06'
L = 56.56'
PRC = 20+92.91
PCC = 21+49.47
NO SUPER

DRIVE STA. 202+55
PI = 20+71.23
Δ = 26°55'58"RT.
R = 100.00'
T = 22.41'
L = 44.10'
PC = 20+48.82
PRC = 20+92.91
NO SUPER





6/6/2018

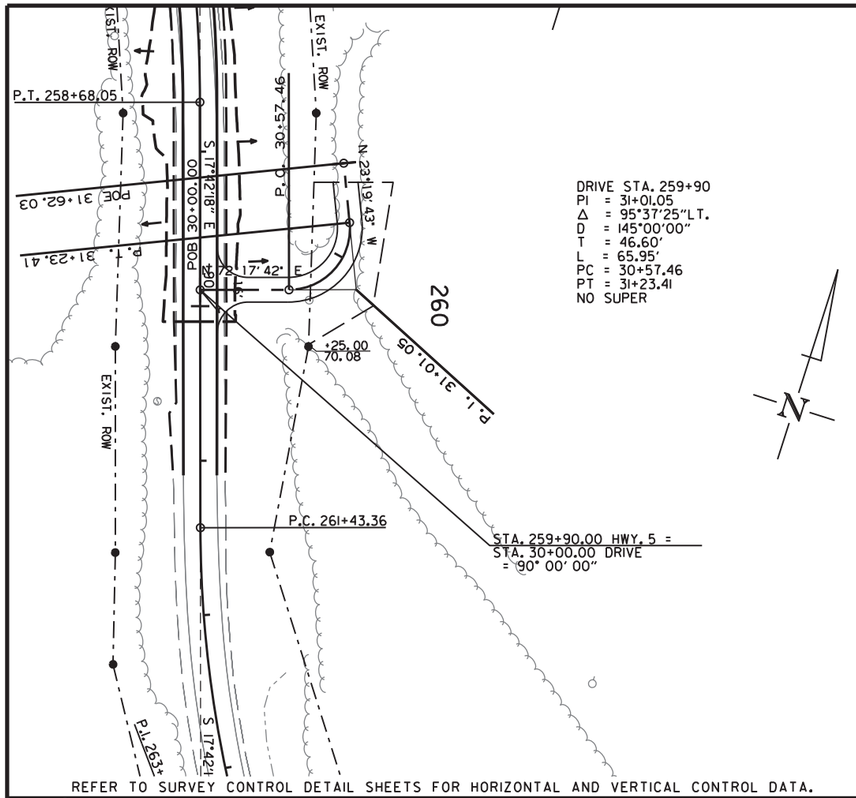
R061442.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

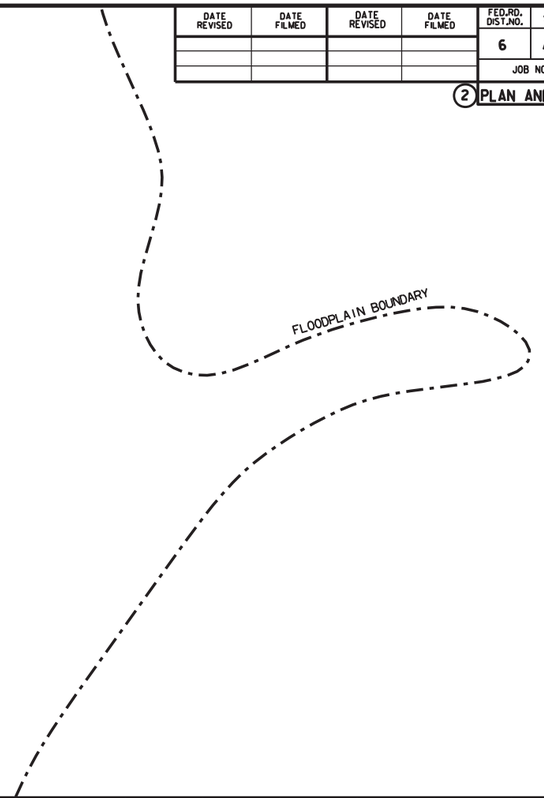
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	143	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:29 AM
DocuSign

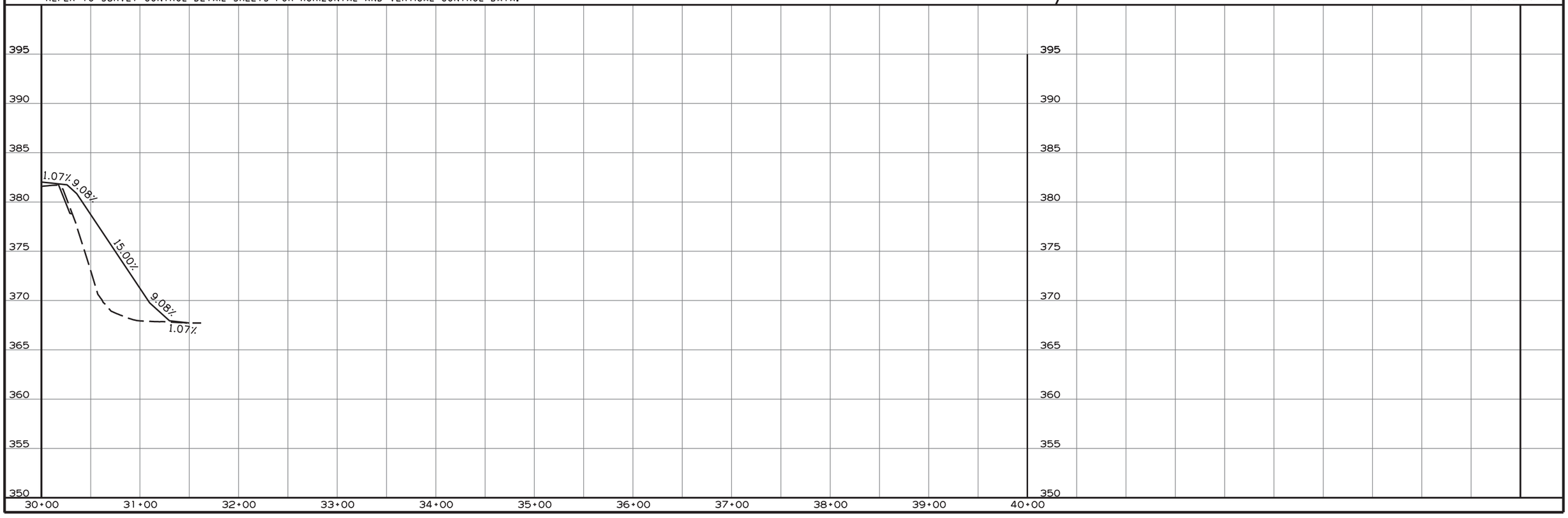


DRIVE STA. 259+90
PI = 31+01.05
Δ = 95°37'25"LT.
D = 145°00'00"
T = 46.60'
L = 65.95'
PC = 30+57.46
PT = 31+23.41
NO SUPER



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

DRIVE STA. 259+90



6/6/2018
R061442.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.		061442	144	253

(2) PLAN AND PROFILE SHEETS

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

Aug 24 2020 11:30 AM

DocuSigned by:

STA. 967+71.00 HWY. 5 =
STA. 50+00.00 DRIVE
= 90° 00' 00"

DRIVE STA. 967+71
PI = 50+81.23
Δ = 17°07'17"LT.
D = 76°23'40"
R = 75.00'
T = 11.29'
L = 22.41'
PC = 50+69.94
PT = 50+92.35
NO SUPER

DRIVE STA. 967+71
PI = 51+98.75
Δ = 49°57'18"LT.
D = 76°23'40"
R = 75.00'
T = 34.94'
L = 65.39'
PC = 51+63.81
PT = 52+29.20
NO SUPER

STA. 968+38.00 HWY. 5 =
STA. 30+00.00 PARKETT LN.
= 90° 00' 00"

PARKETT LN.
PI = 60+84.12
Δ = 17°26'41"LT.
D = 57°17'45"
R = 100.00'
T = 15.34'
L = 30.45'
PC = 60+68.78
PT = 60+99.23
NO SUPER

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

DRIVE STA. 967+71

PARKETT LN.

P.V.I. 50+11.00 331.72'
9.80%
P.V.C. 50+75.00 338.00'
VC= 50'
e= -0.35'
K= 8.93
P.V.I. 51+00.00 340.45'
4.20%
P.V.T. 51+25.00 341.50'
P.V.C. 51+50.00 342.55'
VC= 50'
e= 0.35'
K= 9.05
P.V.I. 51+75.00 343.60'
P.V.T. 52+00.00 346.03'
9.13%
P.V.I. 52+00.93 346.12'

P.V.I. 60+11.00 327.13'
9.80%
P.V.C. 60+15.00 327.52'
P.V.I. 60+50.00 330.95'
VC= 70'
e= -2.00'
K= 3.06
P.V.T. 60+85.00 326.36'
-13.11%
P.V.C. 61+25.00 321.12'
VC= 50'
e= 0.57'
K= 5.49
P.V.I. 61+50.00 317.84'
P.V.T. 61+75.00 316.84'
-4.00%
P.V.I. 61+89.47 316.26'

390 380 370 360 350 340 330 320 310 300
360 350 340 330 320 310 300 290 280 270
50+00 55+00 60+00 65+00

6/6/2018

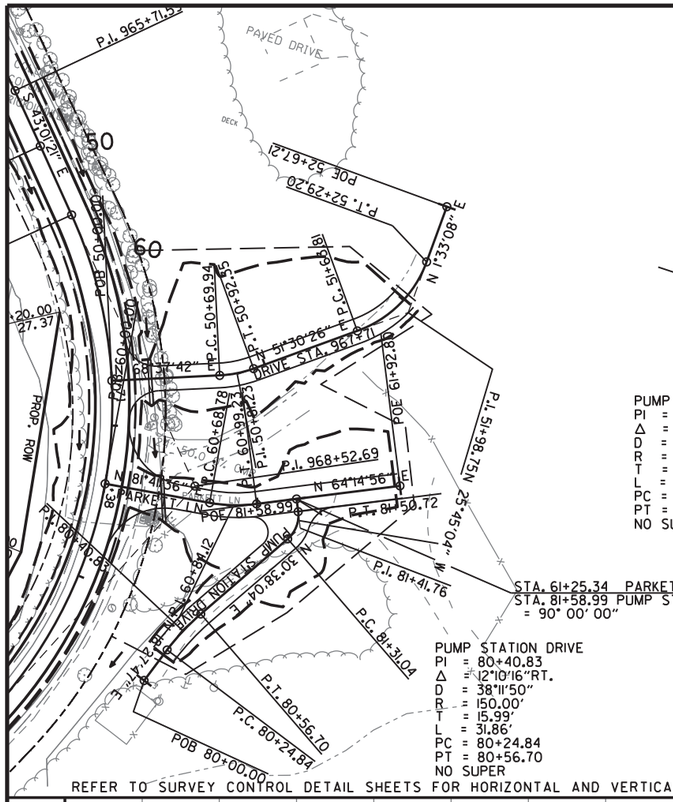
R061442.DGN

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.		061442	145	253

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
Aug 24 2020 11:30 AM
DocuSign



PUMP STATION DRIVE
PI = 81+41.76
Δ = 56°23'08"LT.
D = 286°28'44"
R = 20.00'
T = 10.72'
L = 19.68'
PC = 81+31.04
PT = 81+50.72
NO SUPER

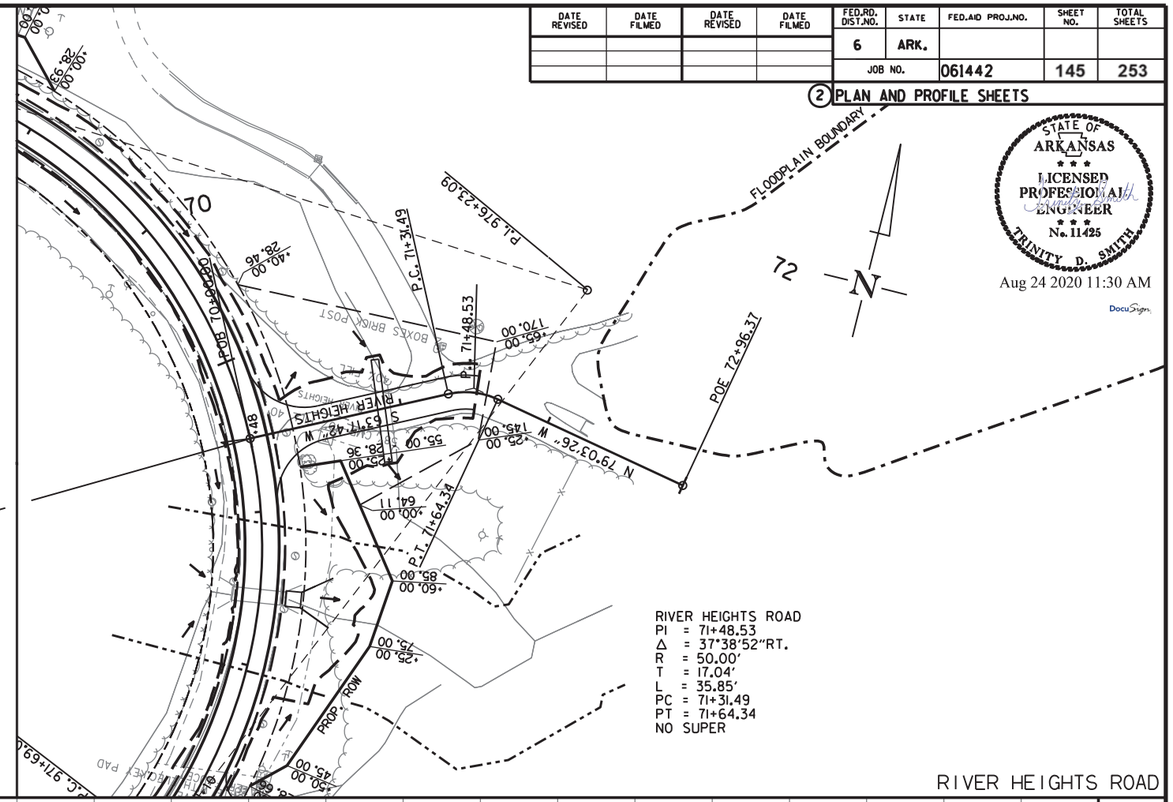
STA. 61+25.34 PARKETT LN. =
STA. 81+58.99 PUMP STATION DRIVE
= 90° 00' 00"

PUMP STATION DRIVE
PI = 80+40.83
Δ = 12°10'16"RT.
D = 38°11'50"
R = 150.00'
T = 15.99'
L = 31.86'
PC = 80+24.84
PT = 80+56.70
NO SUPER

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

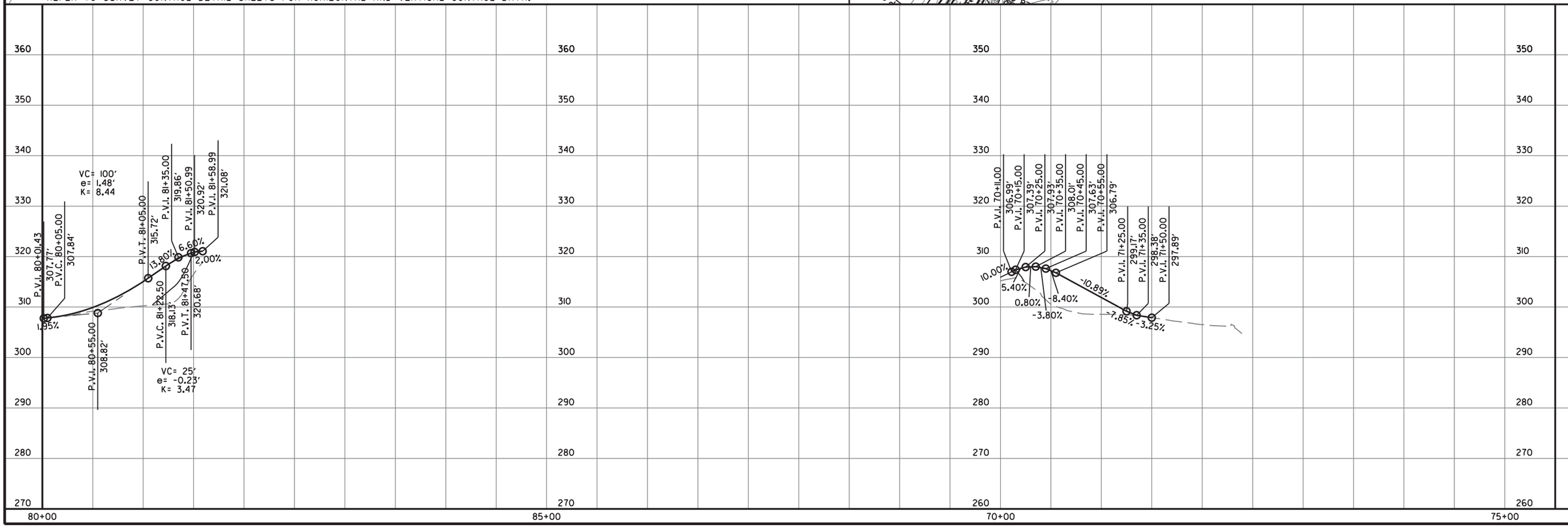
PUMP STATION DRIVE

STA. 974+48.00 HWY. 5 =
STA. 70+00.00 RIVER HEIGHTS RD.
= 90° 00' 00"



RIVER HEIGHTS ROAD
PI = 71+48.53
Δ = 37°38'52"RT.
R = 50.00'
T = 17.04'
L = 35.85'
PC = 71+31.49
PT = 71+64.34
NO SUPER

RIVER HEIGHTS ROAD

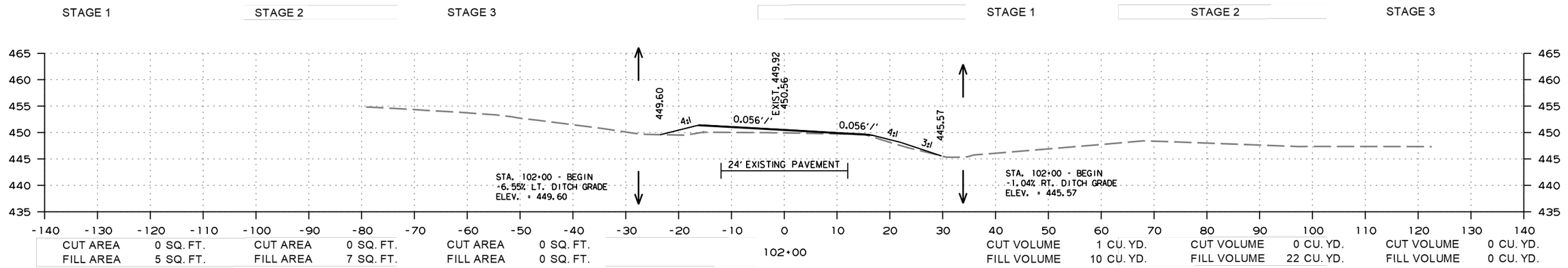


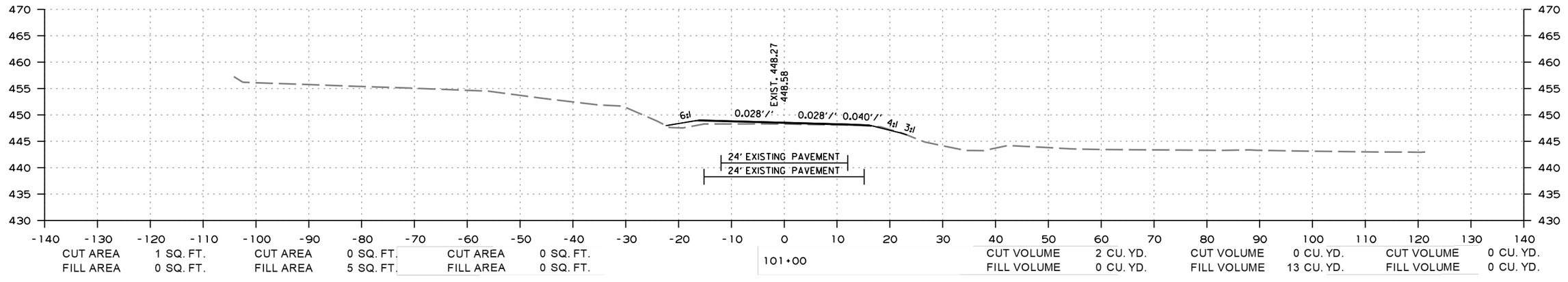
6/6/2018

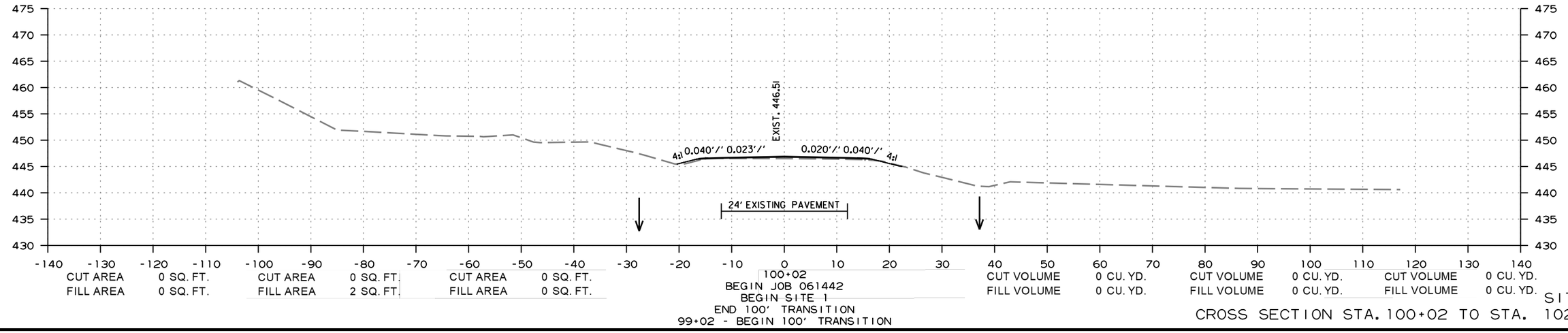
R061442.DGN

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.		061442	146	253

(2) CROSS SECTIONS







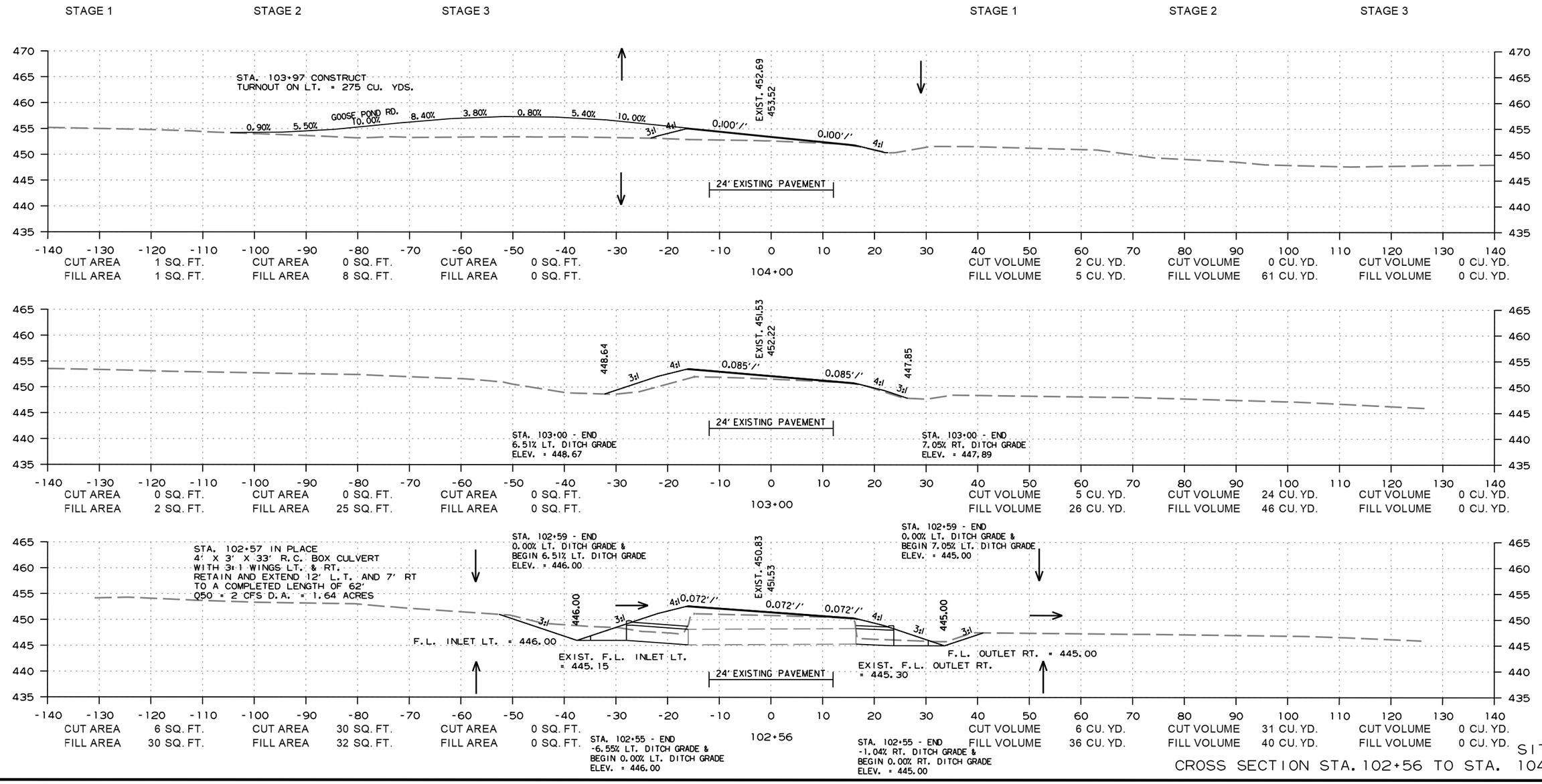
SITE 1

CROSS SECTION STA. 100+02 TO STA. 102+00

lw39665 10/21/2019
R061442.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.		061442	147	253

(2) CROSS SECTIONS

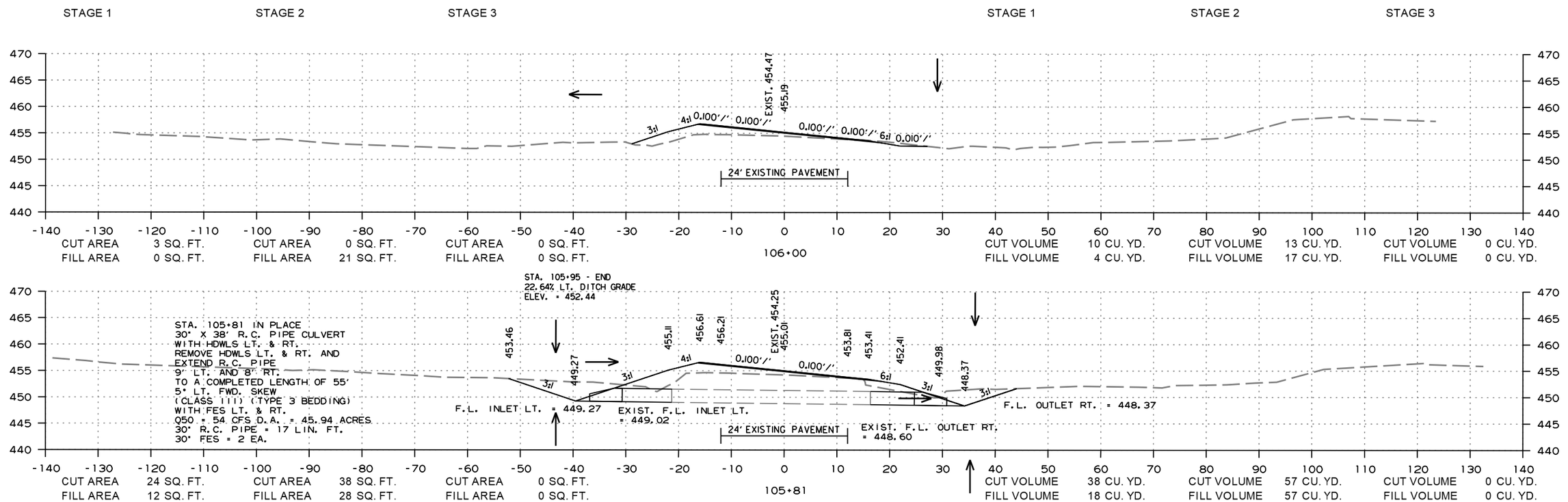


SITE 1
CROSS SECTION STA. 102+56 TO STA. 104+00

tw39665 10/21/2019
R061442.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.		061442	148	253

(2) CROSS SECTIONS

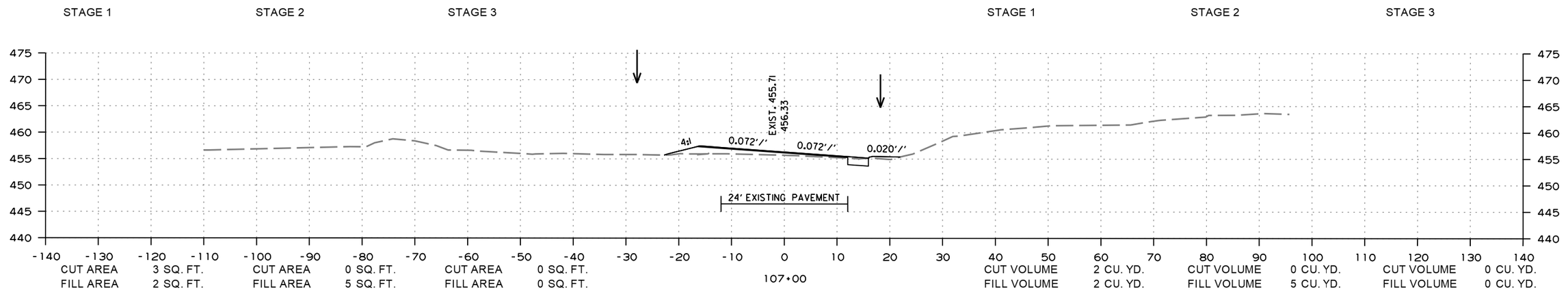


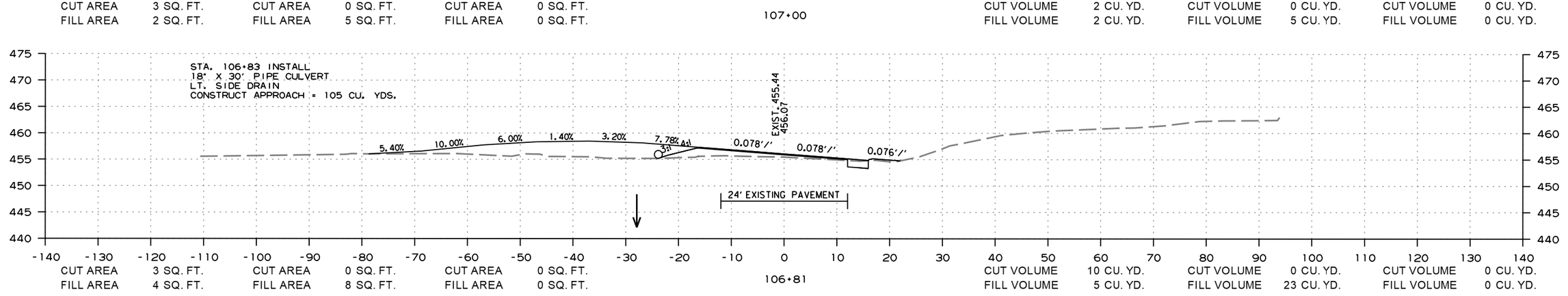
SITE 1
CROSS SECTION STA. 105+00 TO STA. 106+00

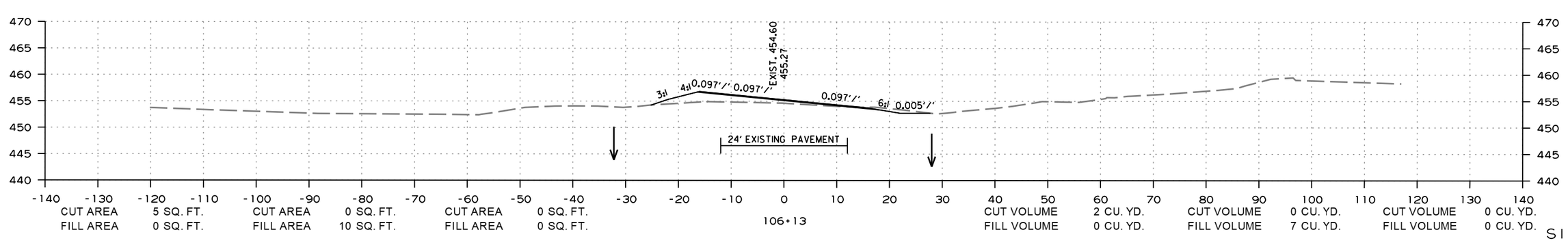
tw39665 10/21/2019
R061442.DGN

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.		061442	149	253

(2) CROSS SECTIONS





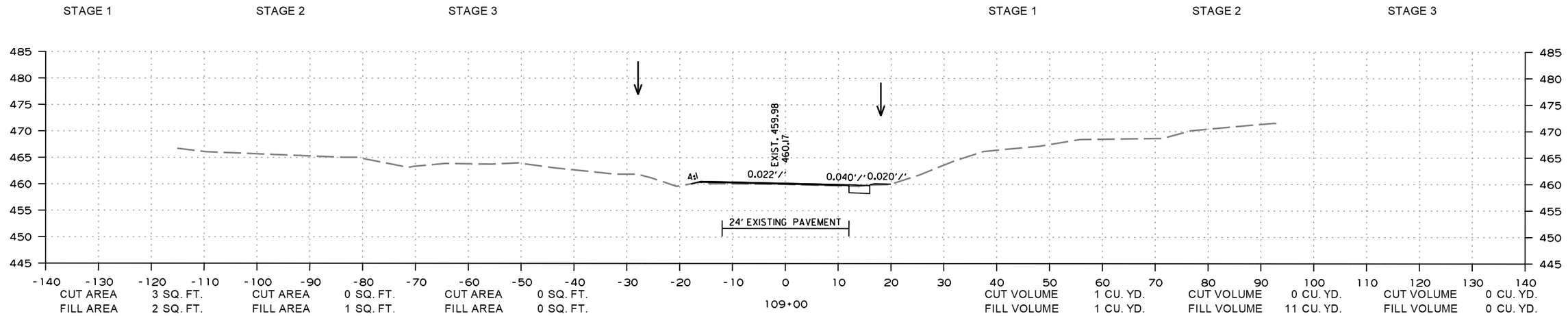


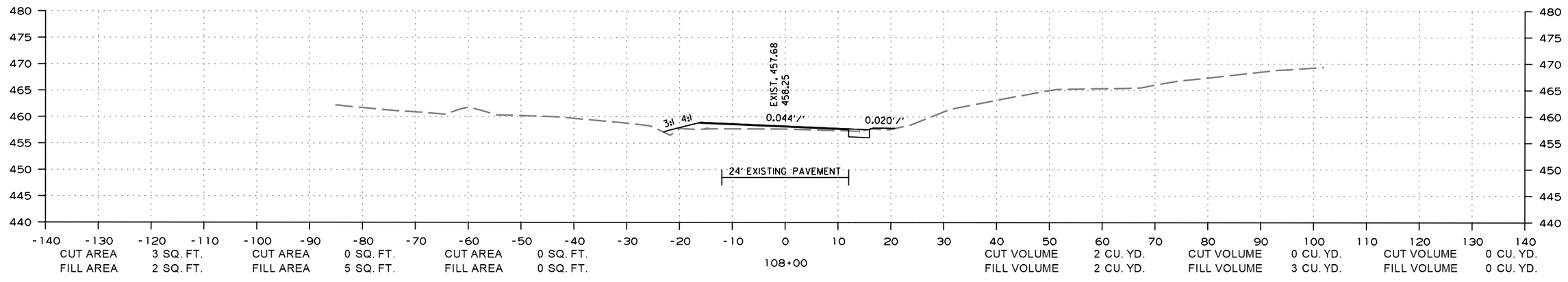
tw39665 10/21/2019
R061442.DGN

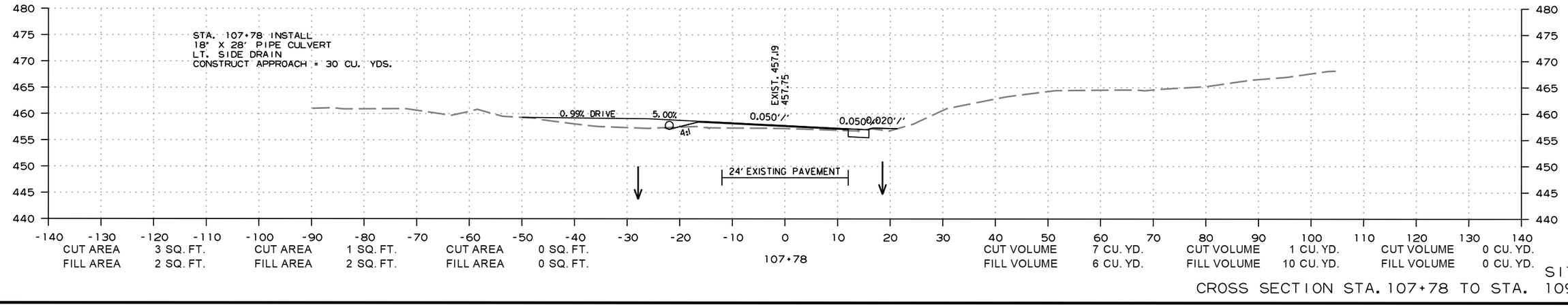
SITE 1
CROSS SECTION STA. 106+13 TO STA. 107+00

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.		061442	150	253

(2) CROSS SECTIONS





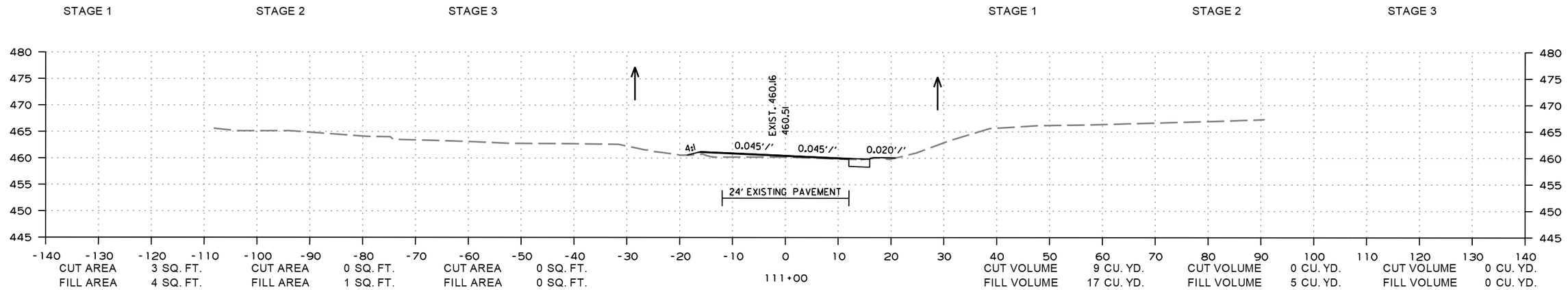


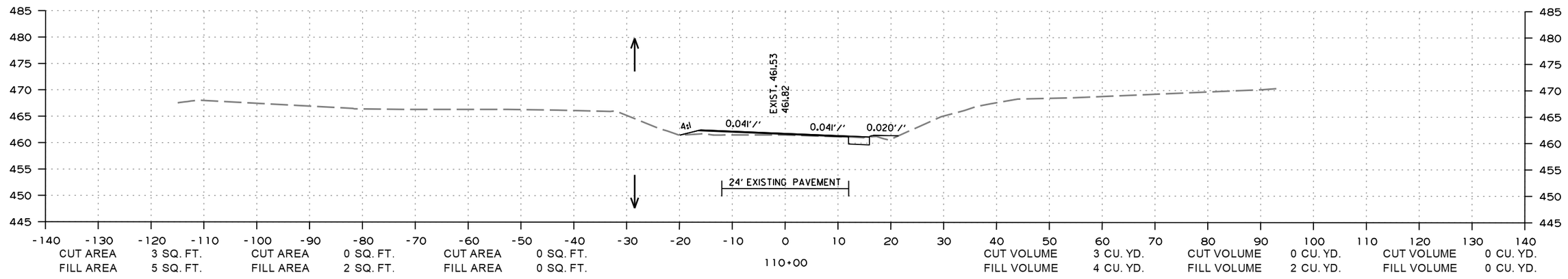
SITE 1
CROSS SECTION STA. 107+78 TO STA. 109+00

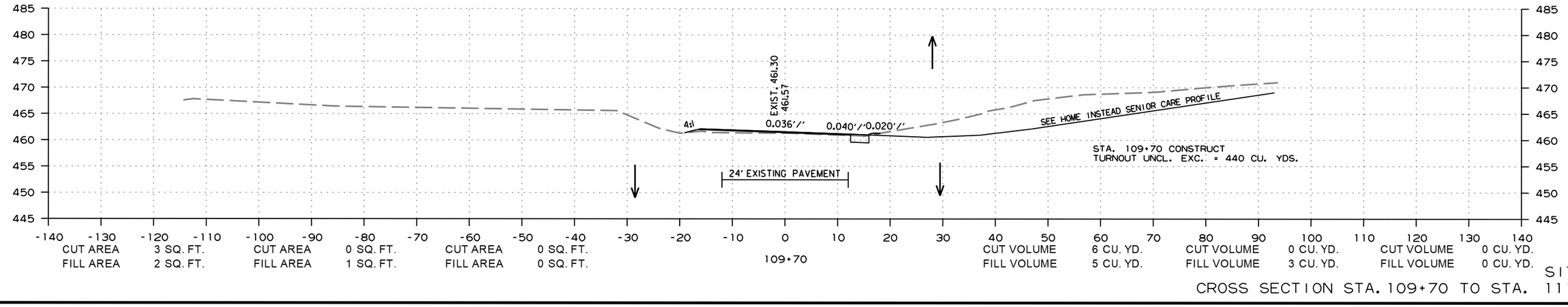
tw:39665 10/21/2019
R061442.DGN

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.		061442	151	253

(2) CROSS SECTIONS







SITE 1
CROSS SECTION STA. 109+70 TO STA. 111+00

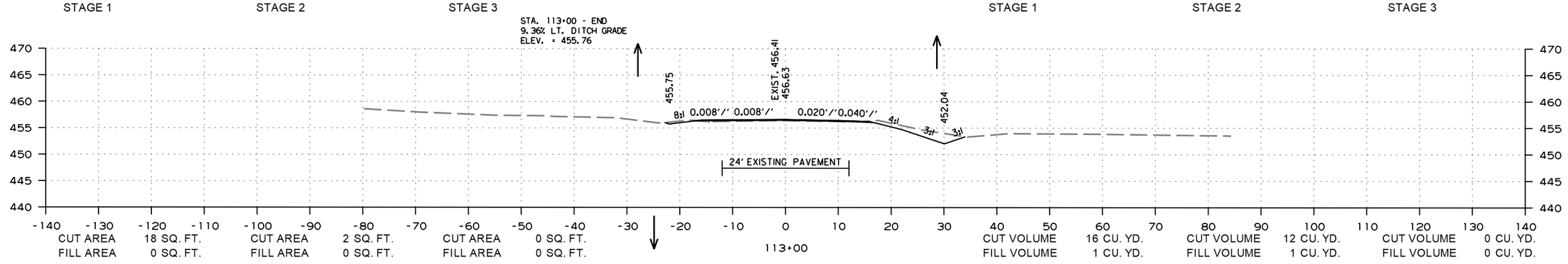
tw:39665 10/21/2019
R061442.DGN

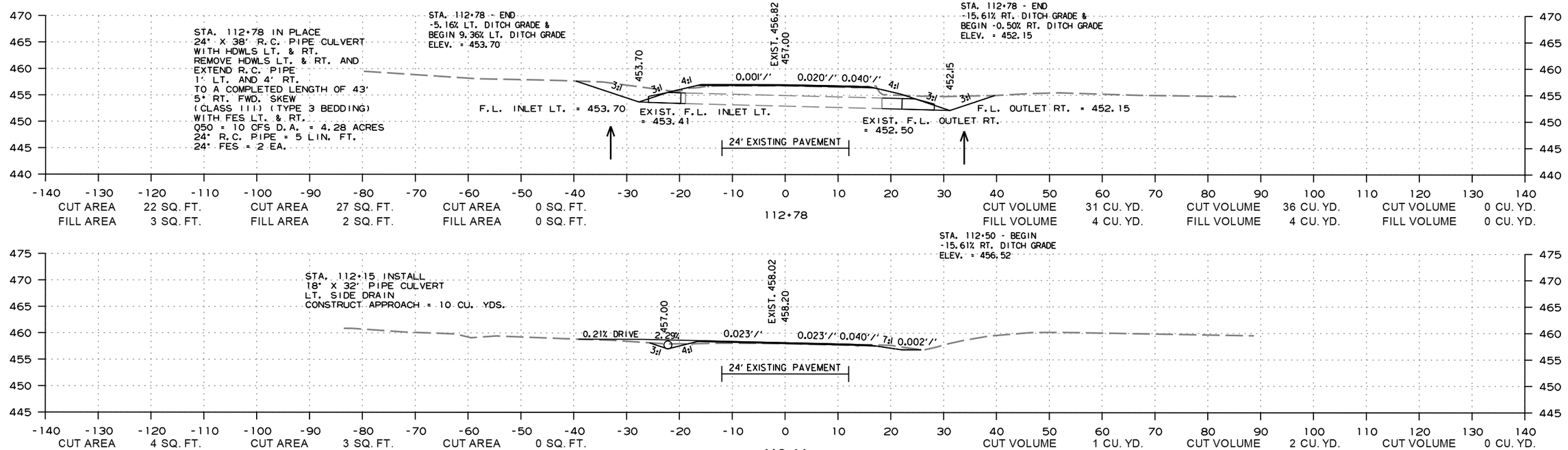
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	152	253

(2) CROSS SECTIONS

STA. 113+70 - END
4.30% RT. DITCH GRADE
ELEV. = 452.65

STA. 113+50 - END
-0.50% RT. DITCH GRADE &
BEGIN 4.30% RT. DITCH GRADE
ELEV. = 451.79



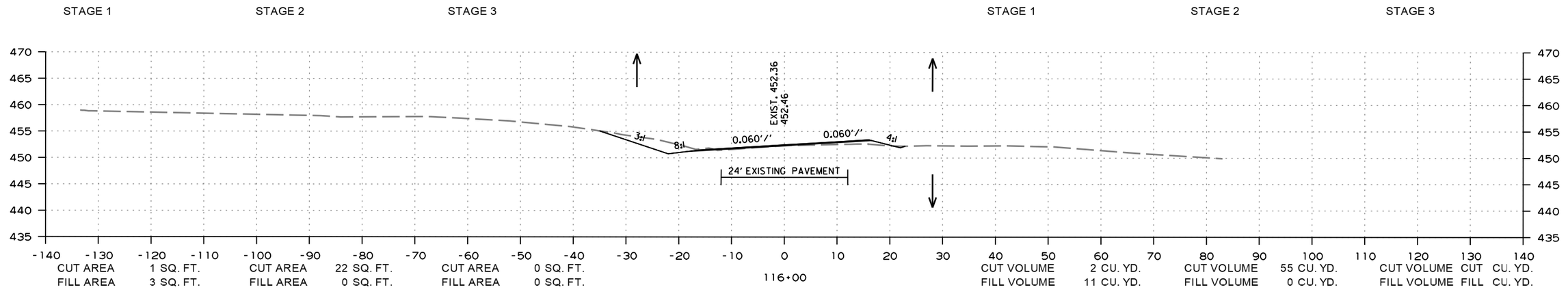


tw39665 10/21/2019
R061442.DGN

SITE 1
CROSS SECTION STA. 112+00 TO STA. 113+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.		061442	153	253

(2) CROSS SECTIONS

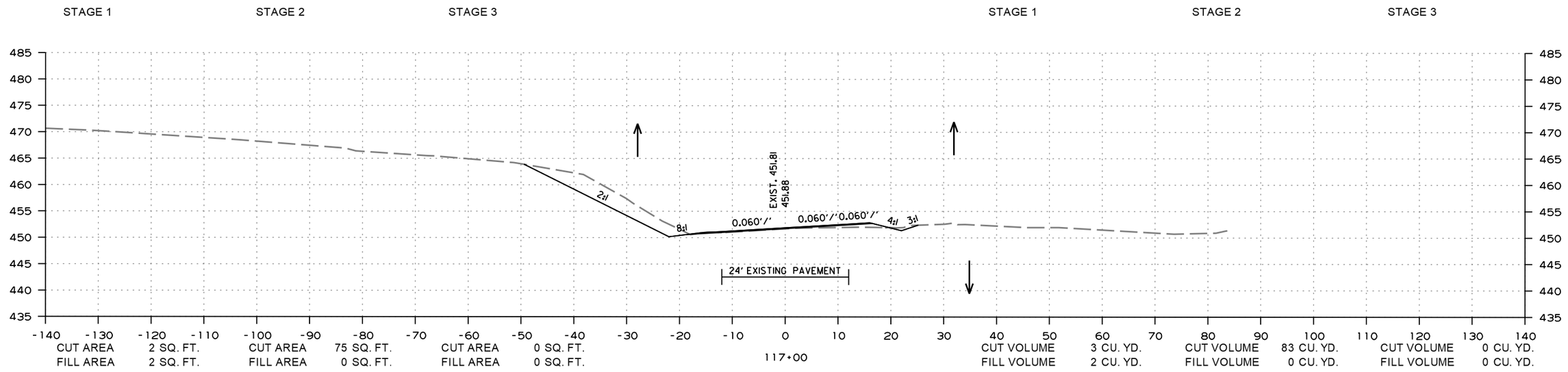


SITE 1
CROSS SECTION STA. 114+00 TO STA. 116+00

tw39665 10/21/2019
R061442.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.		061442	154	253

(2) CROSS SECTIONS



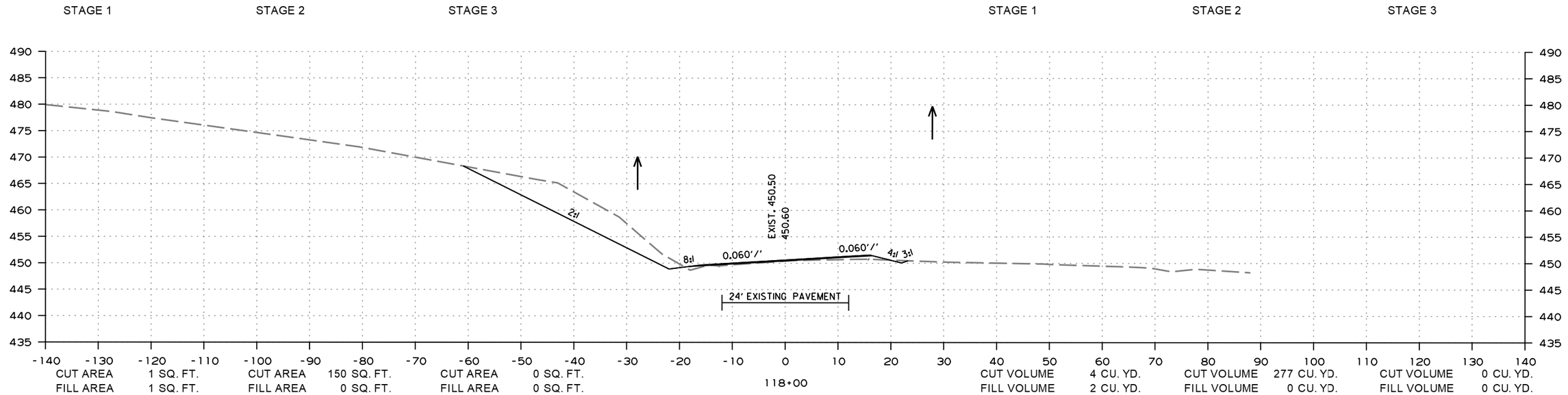
SITE 1
CROSS SECTION STA. 116+65 TO STA. 117+00

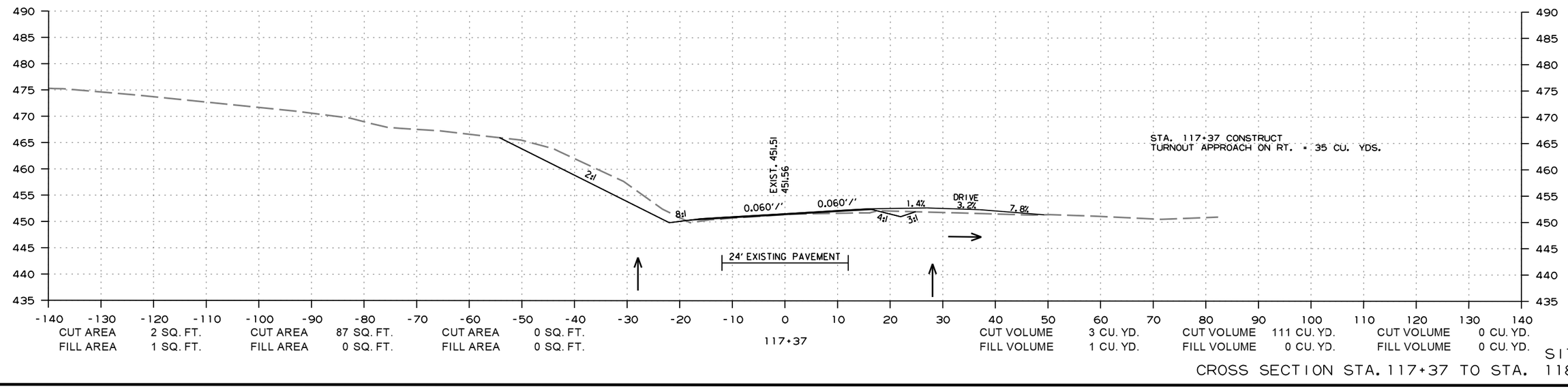
lw39665 10/21/2019
R061442.DGN

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.		061442	155	253

(2) CROSS SECTIONS

C.L. HWY. 5 STA. 118+15.00 =
C.L. DETOUR STA. 300+15.00



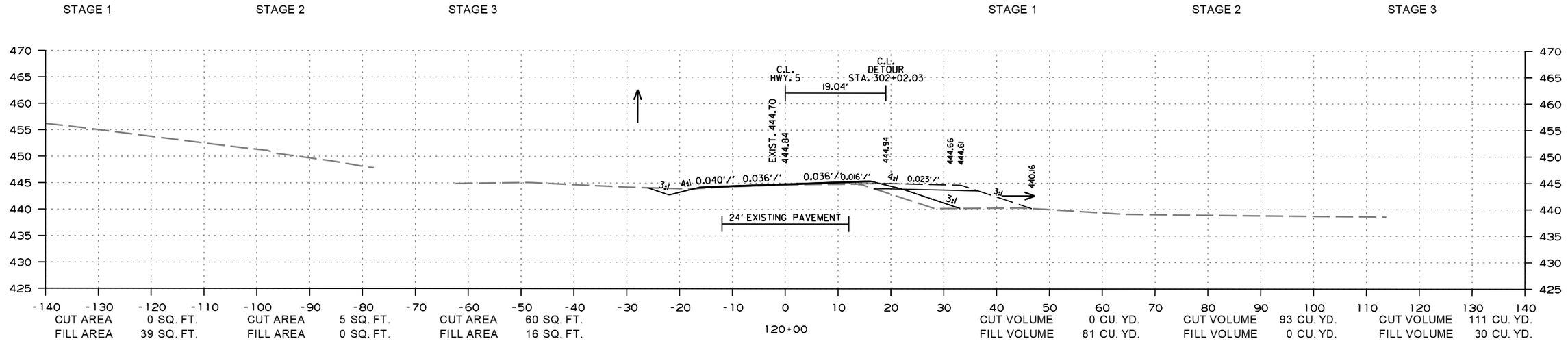


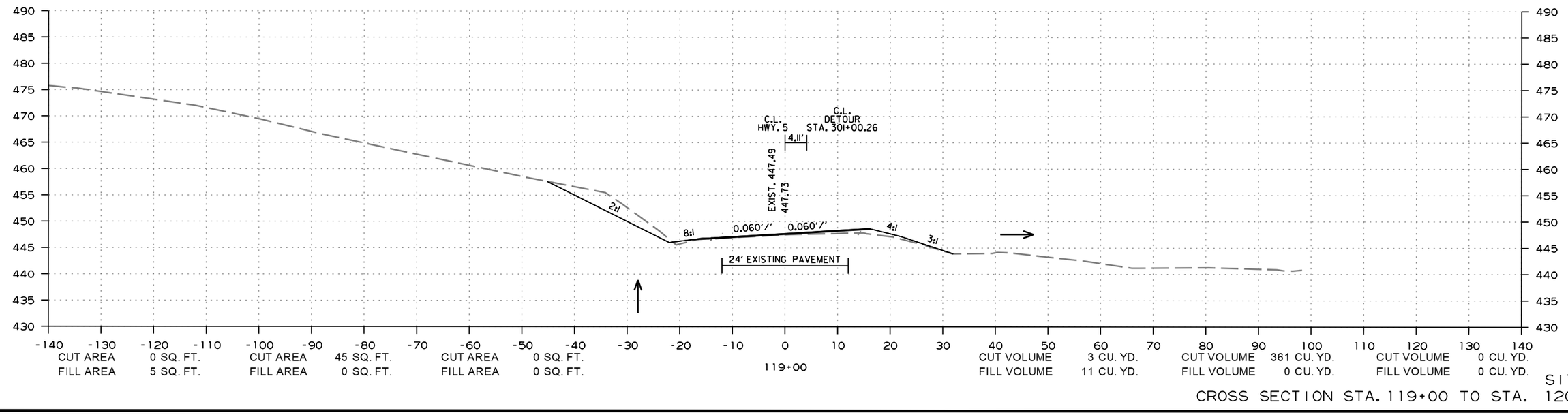
SITE 1
CROSS SECTION STA. 117+37 TO STA. 118+00

tw39665 10/21/2019
R061442.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.		061442	156	253

(2) CROSS SECTIONS



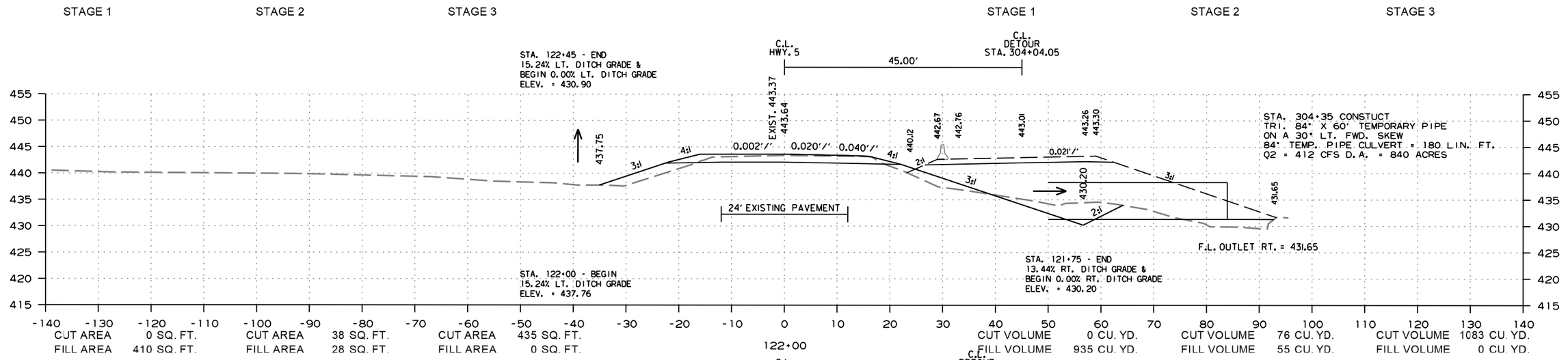


SITE 1
CROSS SECTION STA. 119+00 TO STA. 120+00

lw39665 10/21/2019
R061442.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.		061442	157	253

(2) CROSS SECTIONS

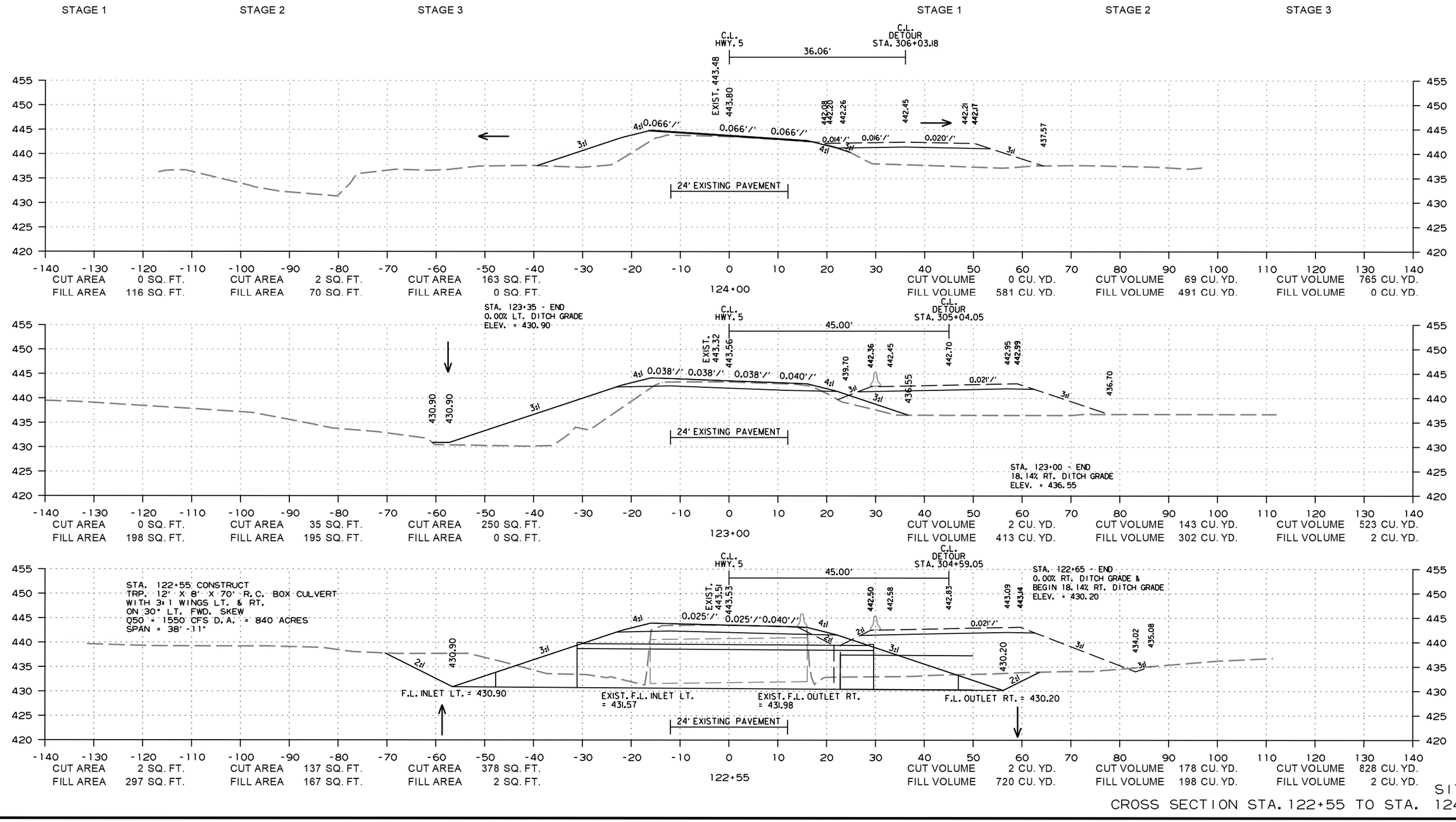


SITE 1
CROSS SECTION STA. 120+10 TO STA. 122+00

lw39665 10/21/2019
R061442.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.		061442	158	253

(2) CROSS SECTIONS



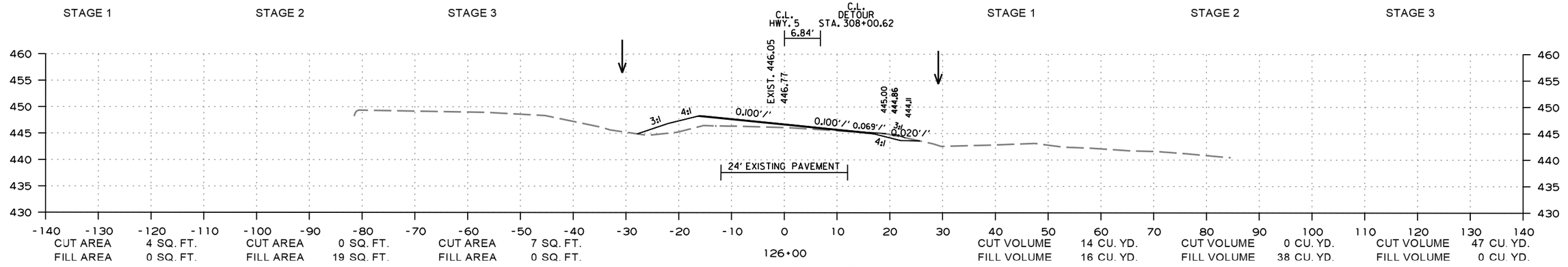
SITE 1

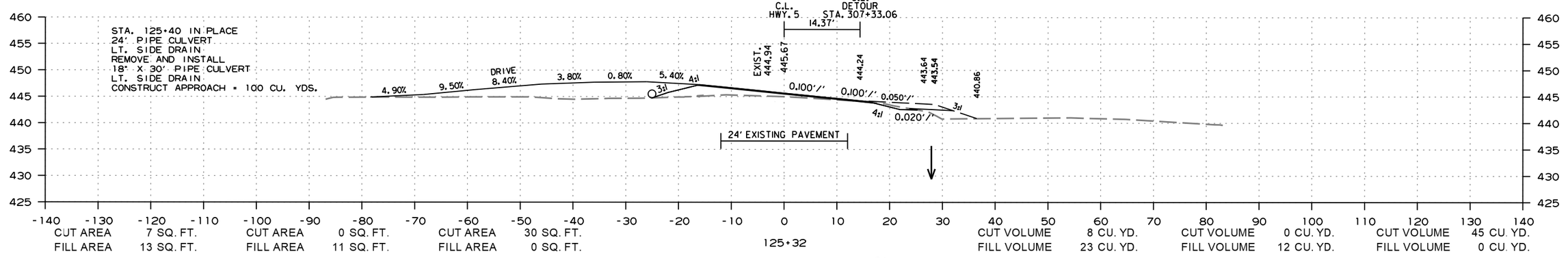
CROSS SECTION STA. 122+55 TO STA. 124+00

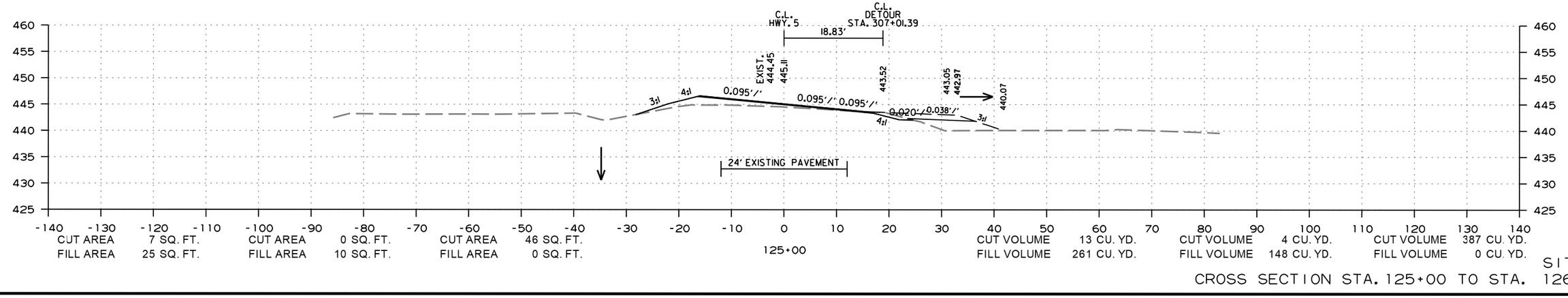
tw39665 10/21/2019
R061442.DGN

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.		061442	159	253

(2) CROSS SECTIONS





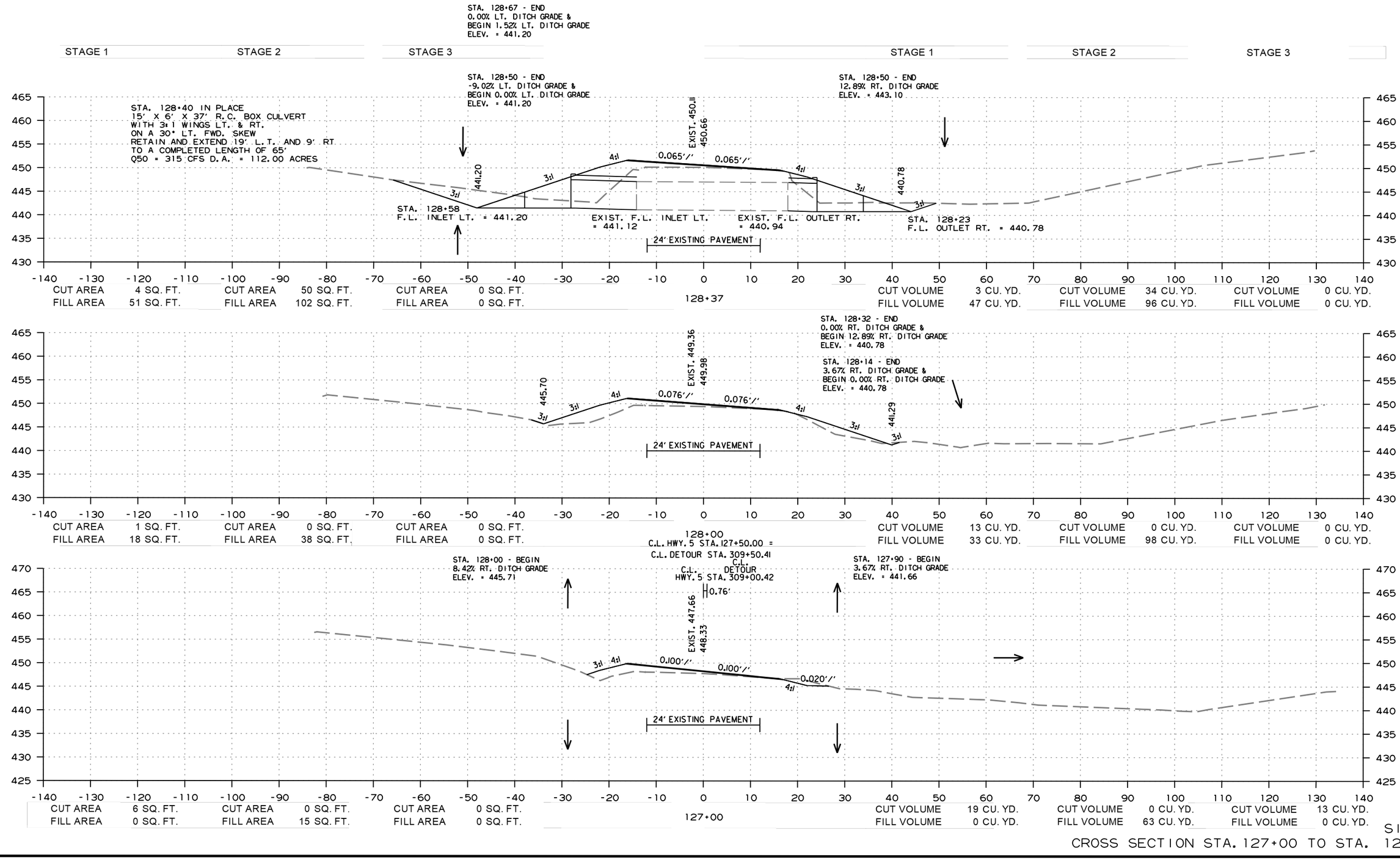


SITE 1
CROSS SECTION STA. 125+00 TO STA. 126+00

lw39665 10/21/2019
R061442.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.		061442	160	253

(2) CROSS SECTIONS



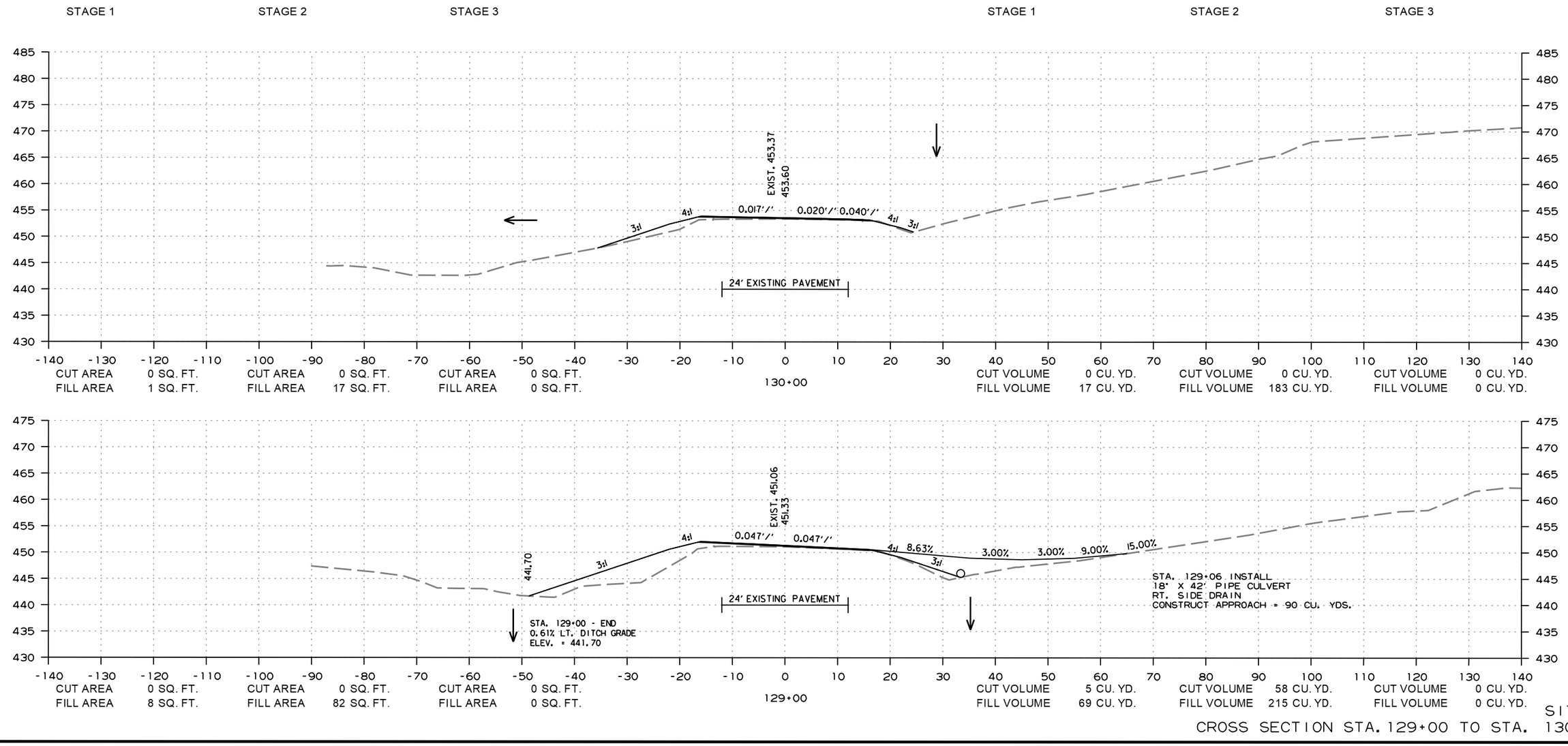
SITE 1
CROSS SECTION STA. 127+00 TO STA. 128+37

lw39665 10/21/2019
R061442.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.		061442	161	253

(2) CROSS SECTIONS

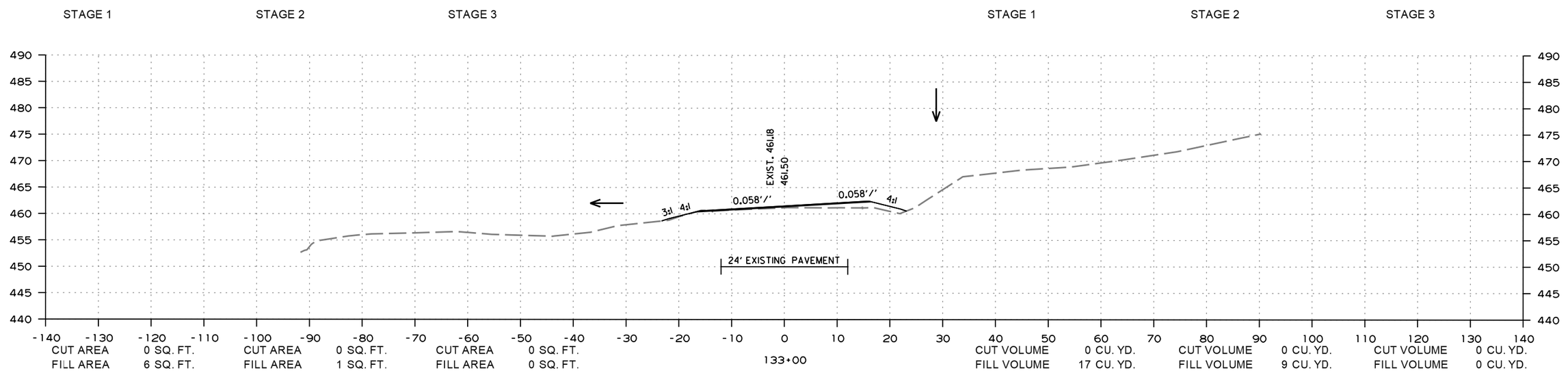


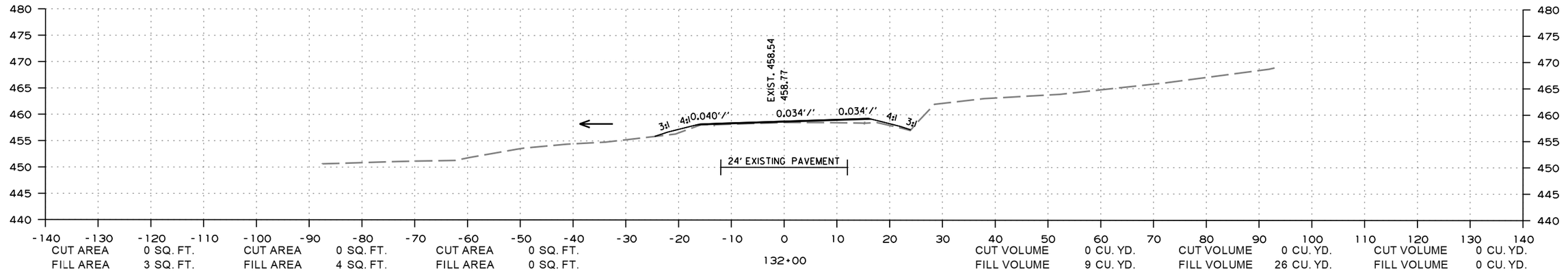
lw39665 10/21/2019
R061442.DGN

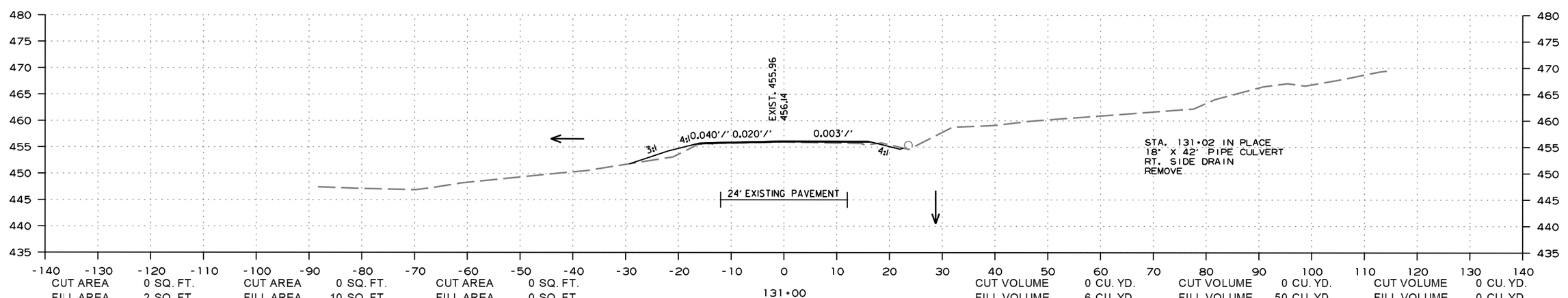
SITE 1
CROSS SECTION STA. 129+00 TO STA. 130+00

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.		061442	162	253

(2) CROSS SECTIONS





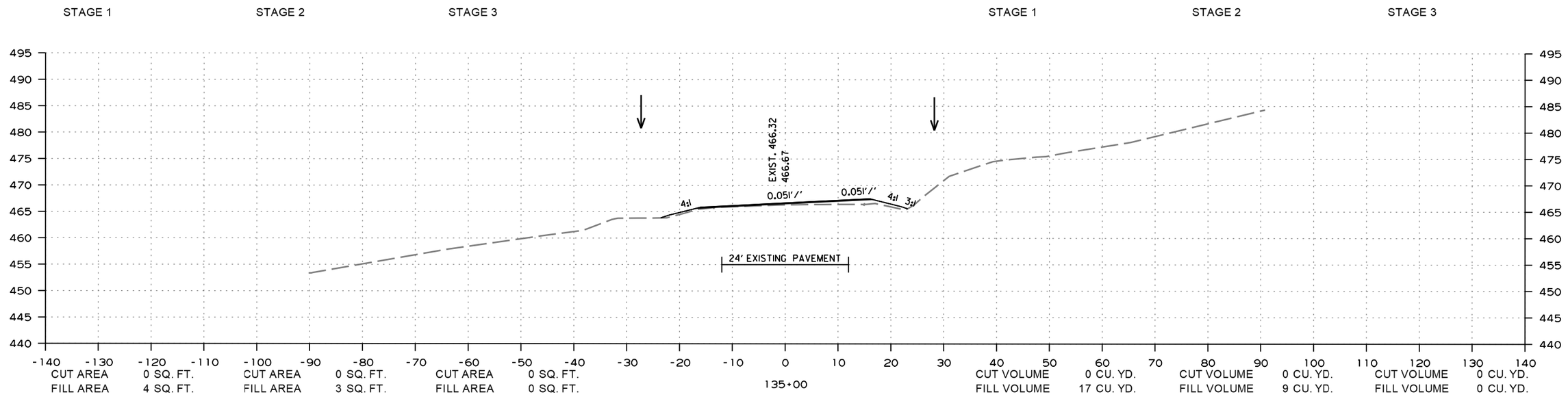


SITE 1
CROSS SECTION STA. 131+00 TO STA. 133+00

tw39665 10/21/2019
R061442.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.		061442	163	253

(2) CROSS SECTIONS

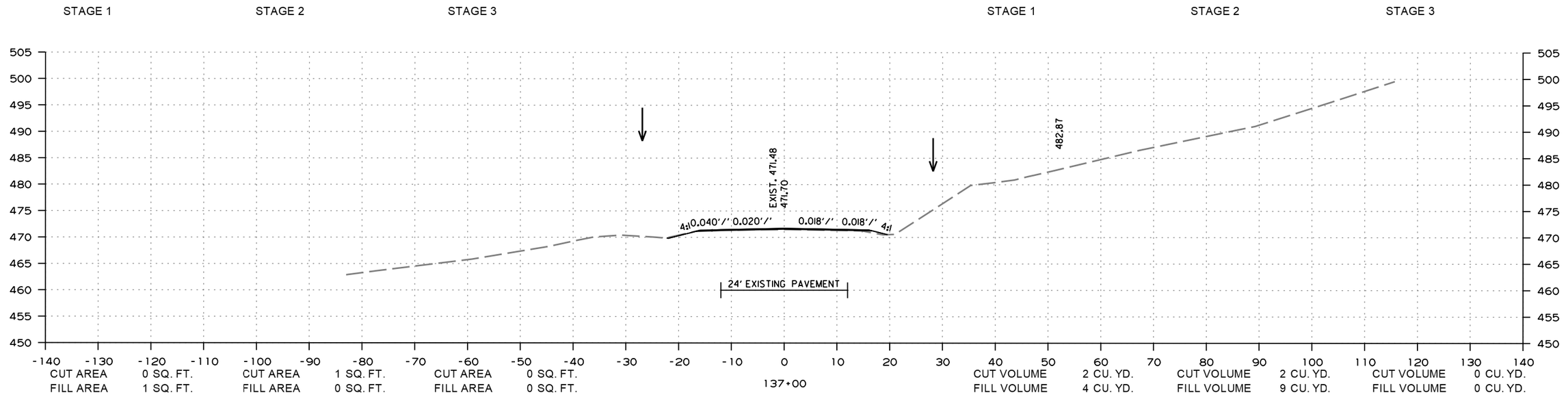


SITE 1
CROSS SECTION STA. 134+00 TO STA. 135+00

tw39665 10/21/2019
R061442.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.		061442	164	253

(2) CROSS SECTIONS

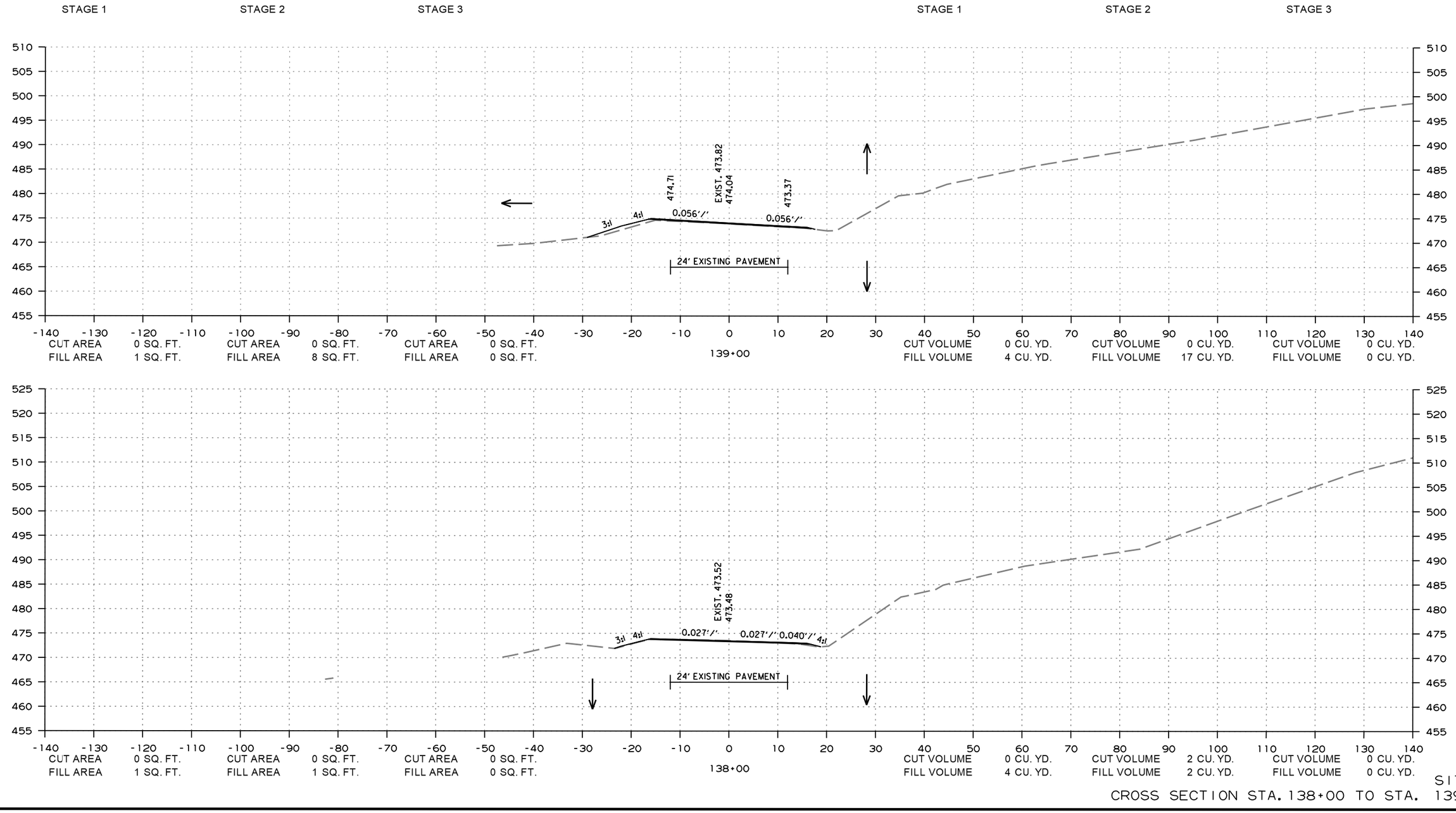


SITE 1
CROSS SECTION STA. 136+00 TO STA. 137+00

lw39665 10/21/2019
R061442.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.		061442	165	253

(2) CROSS SECTIONS

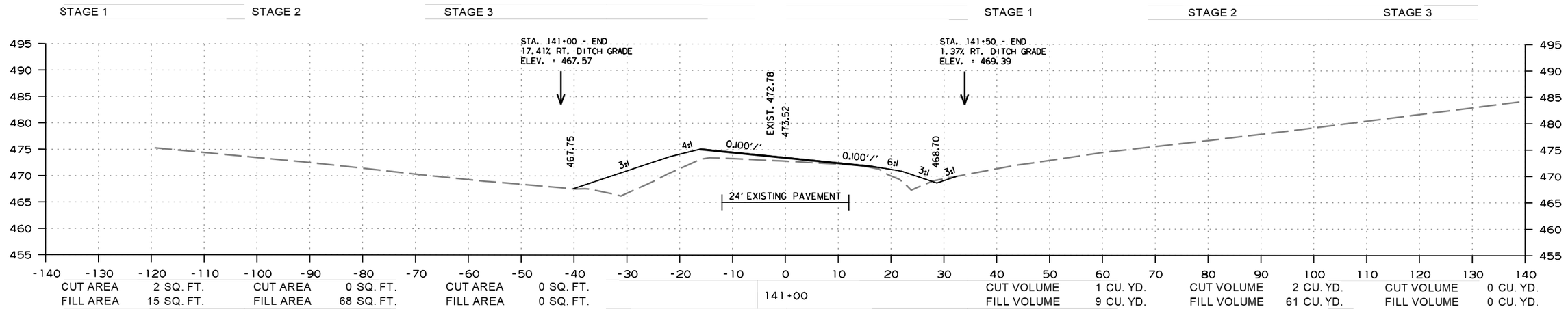


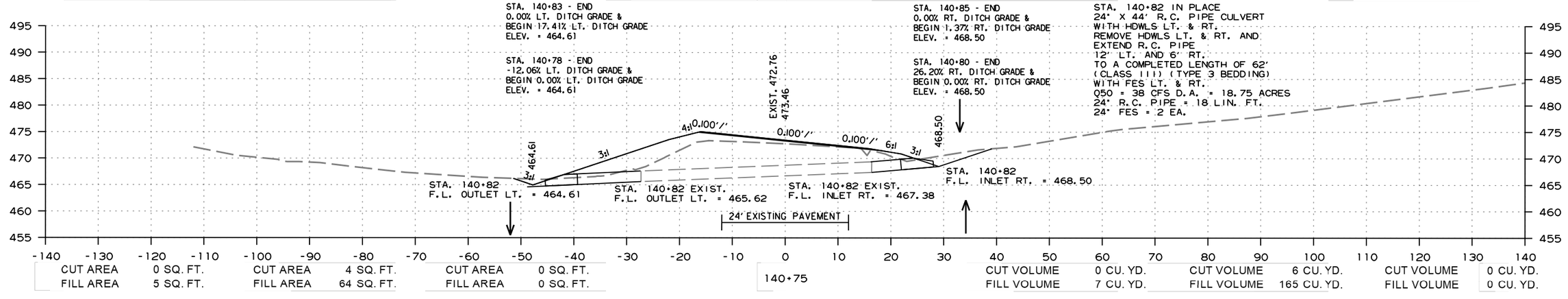
SITE 1
CROSS SECTION STA. 138+00 TO STA. 139+00

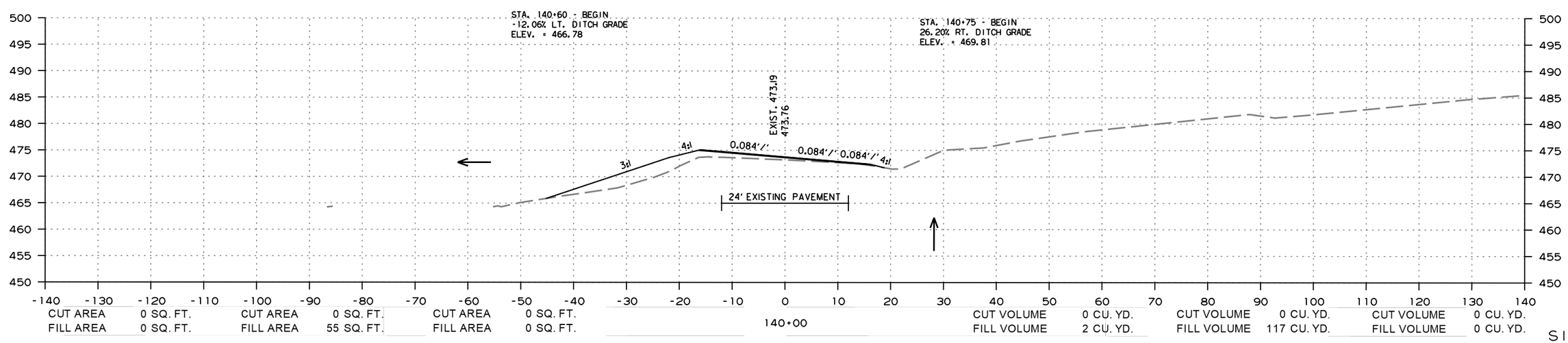
tw39665 10/21/2019
R061442.DGN

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.		061442	166	253

(2) CROSS SECTIONS





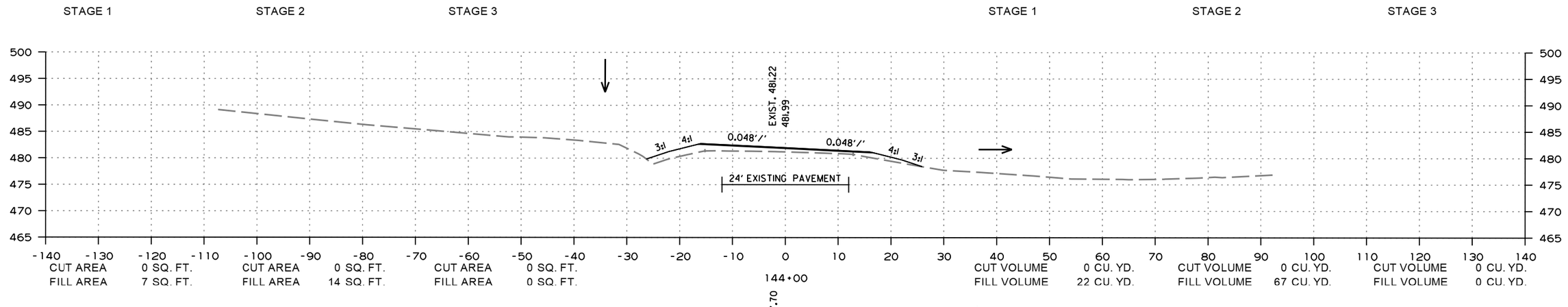


SITE 1
CROSS SECTION STA. 140+00 TO STA. 141+00

lw39665 10/21/2019
R061442.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.		061442	167	253

(2) CROSS SECTIONS

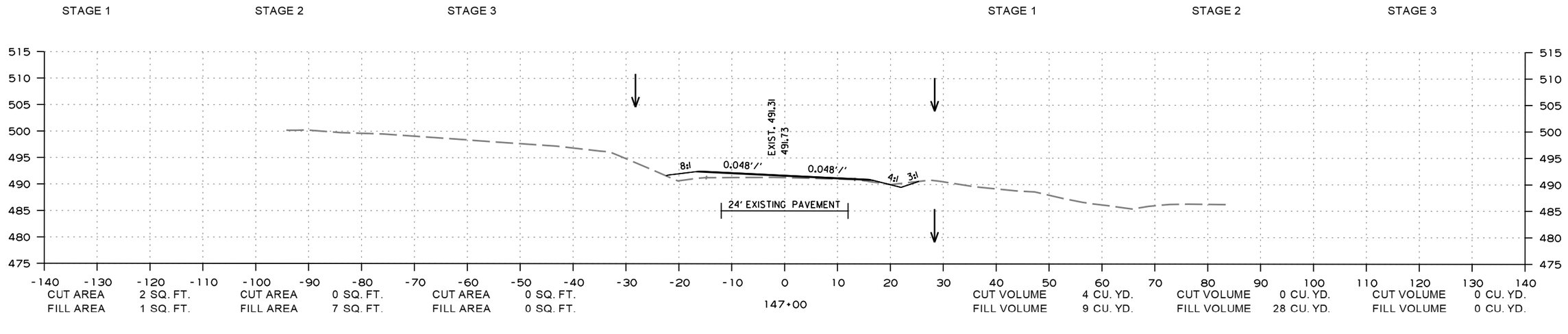


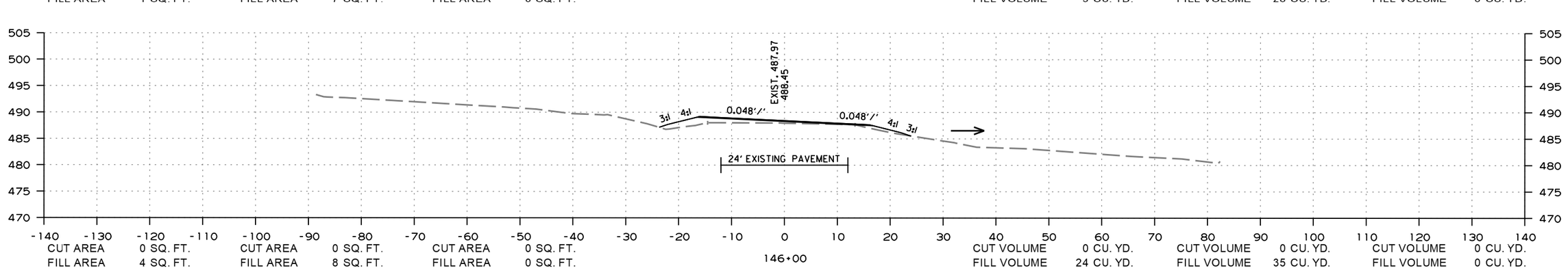
SITE 1
CROSS SECTION STA. 142+00 TO STA. 144+00

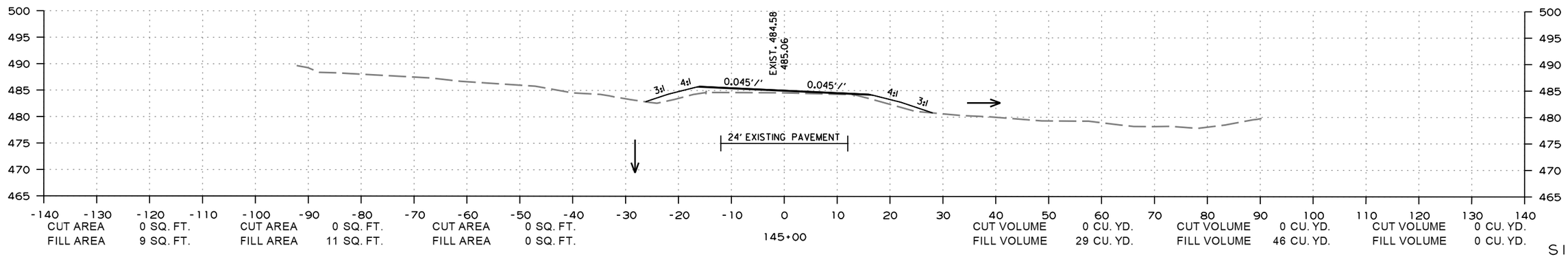
tw39665 10/21/2019
R061442.DGN

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.		061442	168	253

(2) CROSS SECTIONS





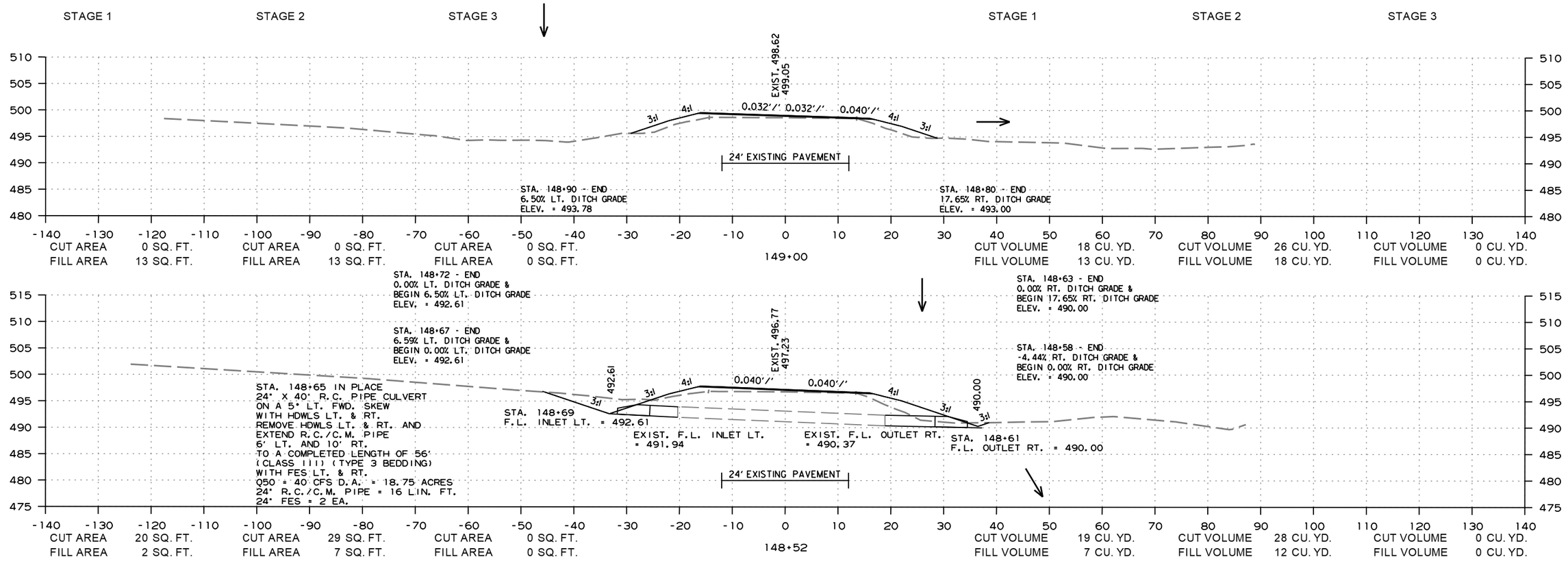


SITE 1
CROSS SECTION STA. 145+00 TO STA. 147+00

tw39665 10/21/2019
R061442.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.		061442	169	253

(2) CROSS SECTIONS

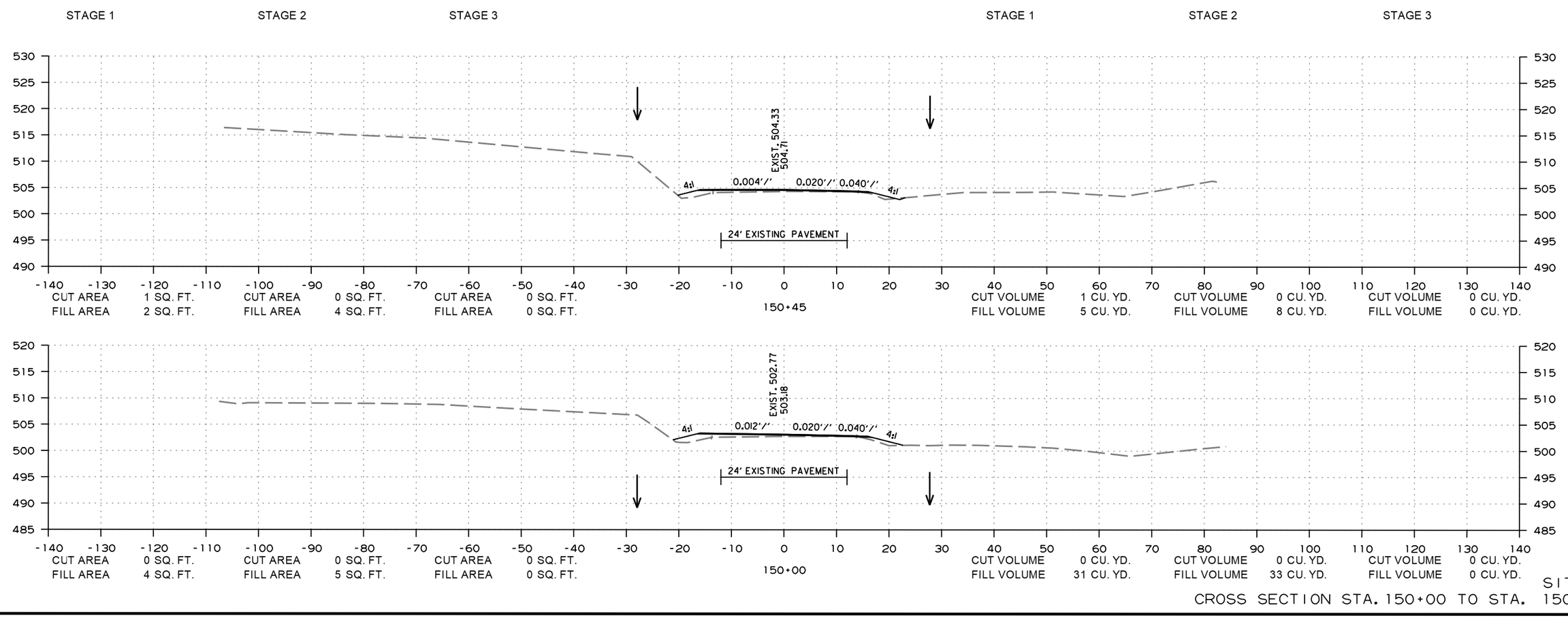


SITE 1
CROSS SECTION STA. 148+00 TO STA. 149+00

lw39665 10/21/2019
R061442.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.		061442	170	253

(2) CROSS SECTIONS



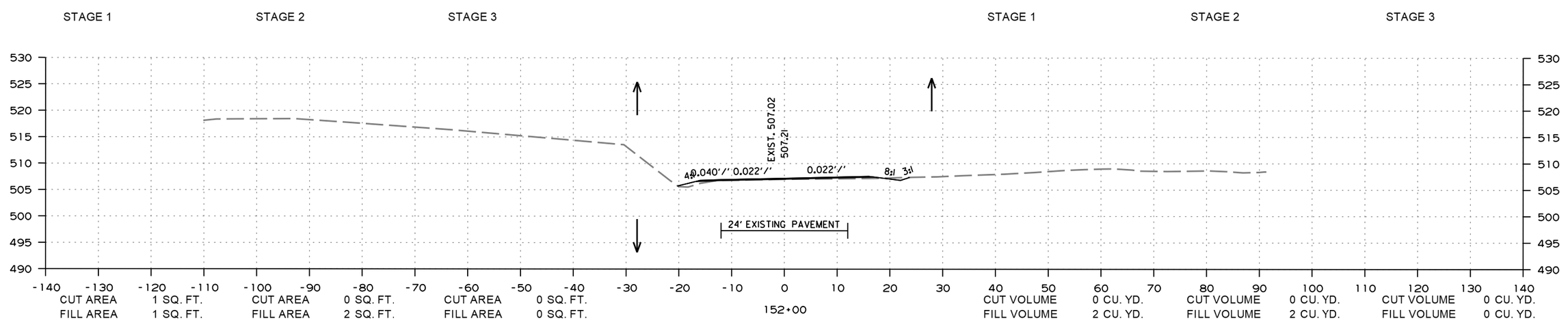
SITE 1

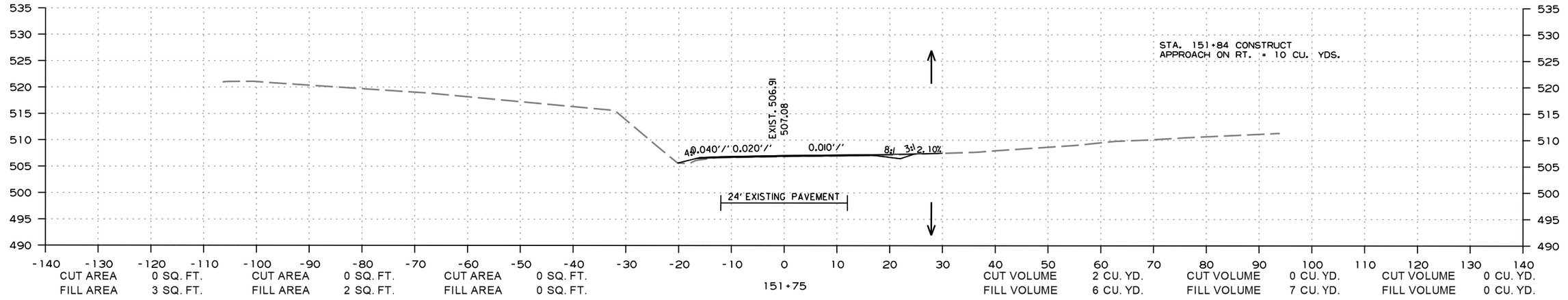
CROSS SECTION STA. 150+00 TO STA. 150+45

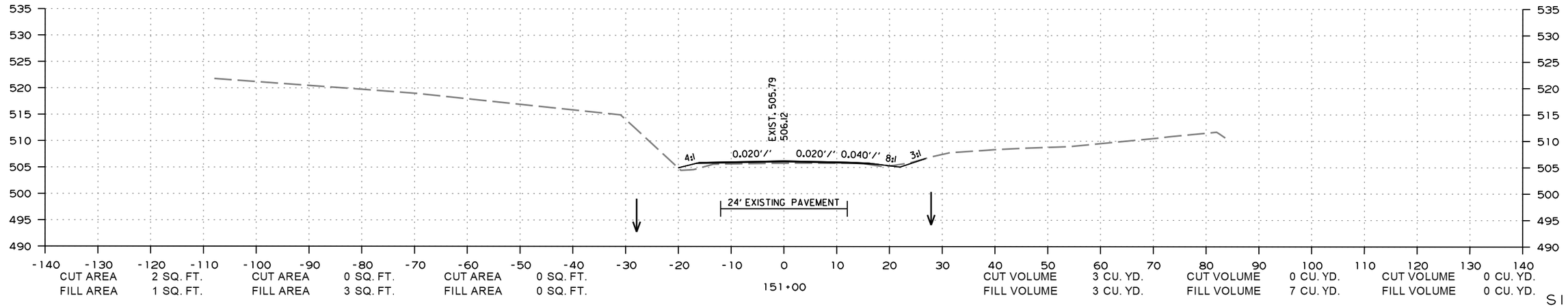
tw:39665 10/21/2019
R061442.DGN

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.		061442	171	253

(2) CROSS SECTIONS





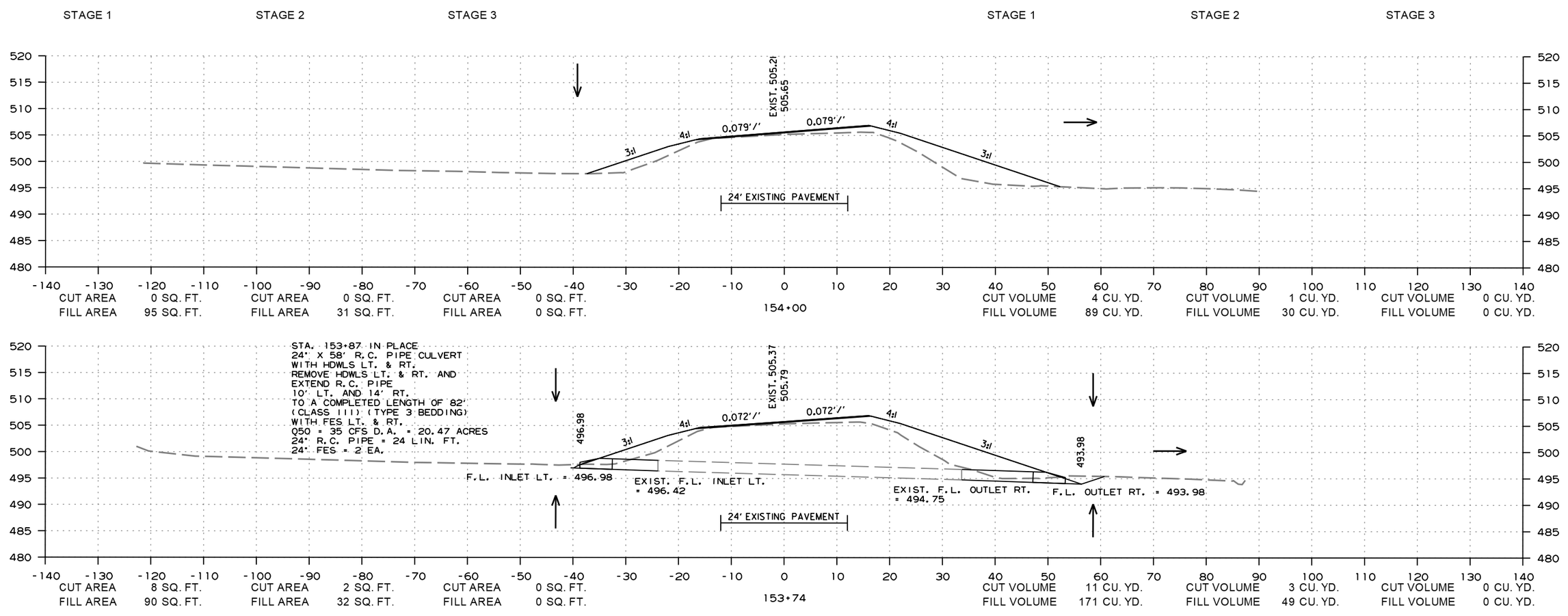


SITE 1
CROSS SECTION STA. 151+00 TO STA. 152+00

lw39665 10/21/2019
R061442.DGN 10/21/2019

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.		061442	172	253

(2) CROSS SECTIONS



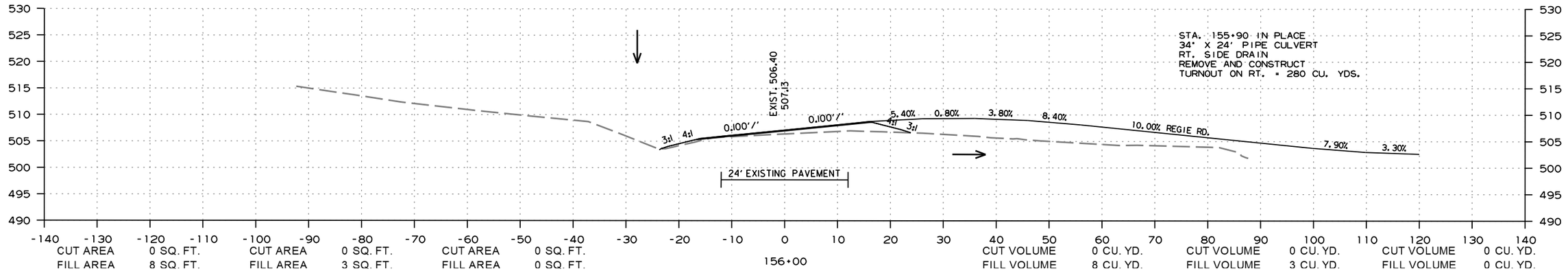
SITE 1
CROSS SECTION STA. 153+00 TO STA. 154+00

tw39665 10/21/2019
R061442.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.		061442	173	253

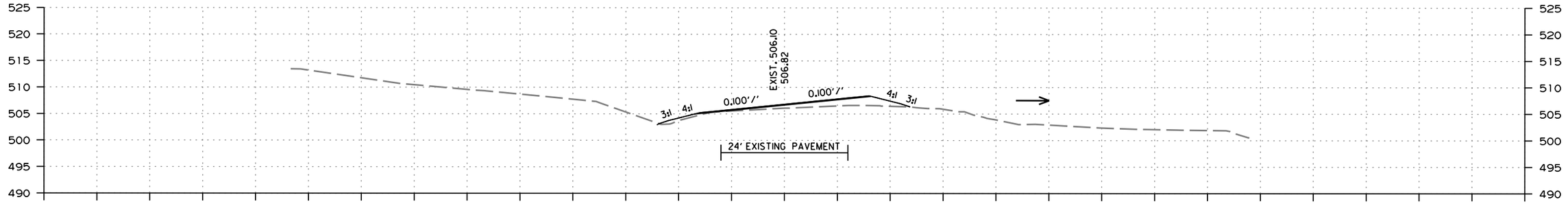
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



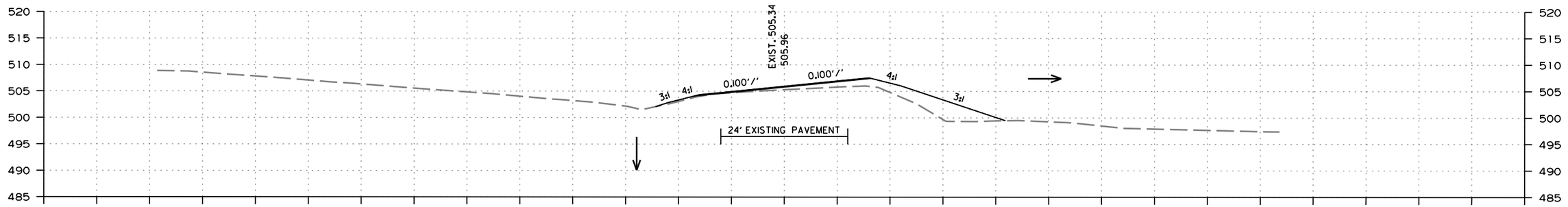
CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL AREA	8 SQ. FT.	FILL AREA	3 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	8 CU. YD.	FILL VOLUME	3 CU. YD.	FILL VOLUME	0 CU. YD.

156+00



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL AREA	8 SQ. FT.	FILL AREA	4 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	87 CU. YD.	FILL VOLUME	8 CU. YD.	FILL VOLUME	0 CU. YD.

155+73



CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT AREA	0 SQ. FT.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.	CUT VOLUME	0 CU. YD.
FILL AREA	56 SQ. FT.	FILL AREA	2 SQ. FT.	FILL AREA	0 SQ. FT.	FILL VOLUME	280 CU. YD.	FILL VOLUME	60 CU. YD.	FILL VOLUME	0 CU. YD.

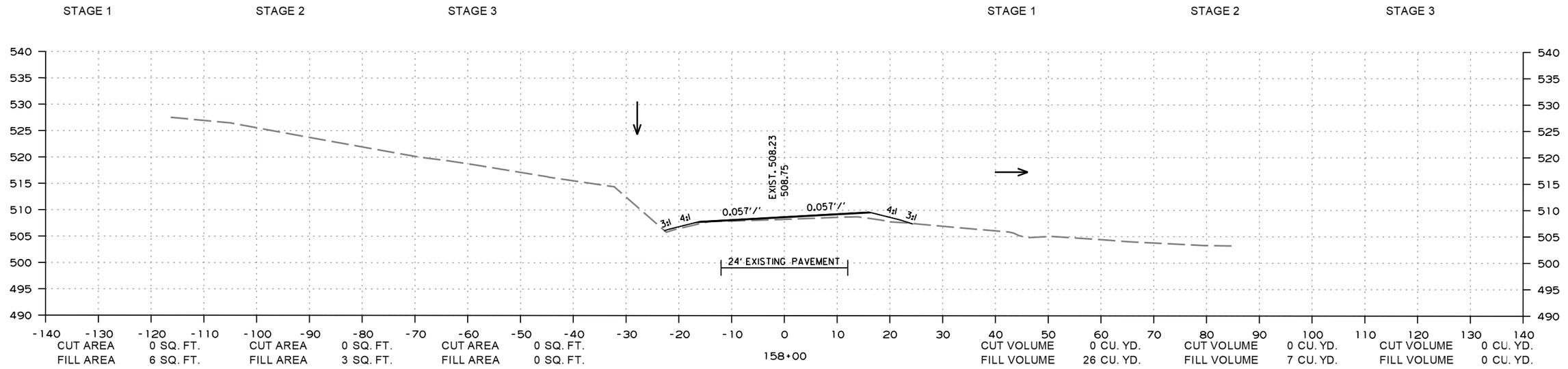
155+00

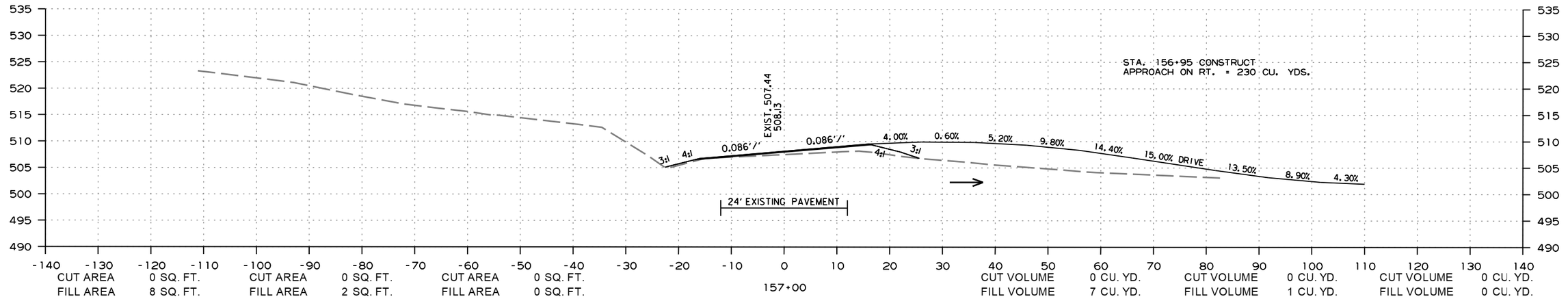
SITE 1
CROSS SECTION STA. 155+00 TO STA. 156+00

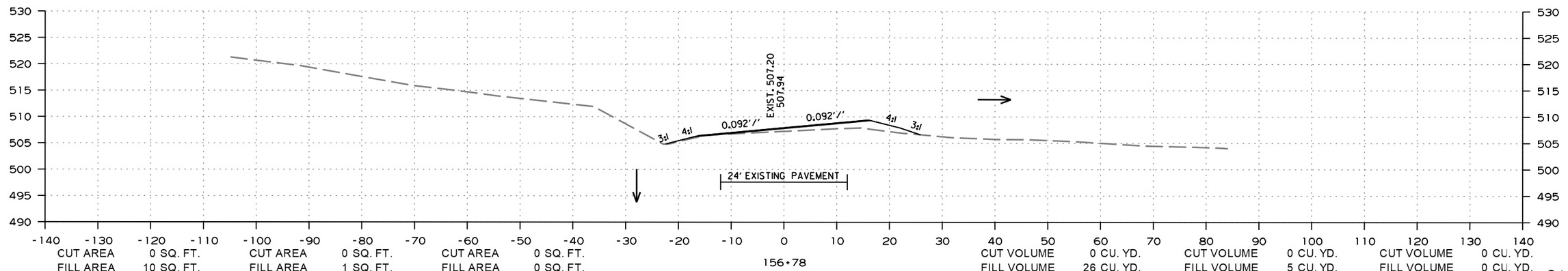
tw39665 10/21/2019
R061442.DGN

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.		061442	174	253

(2) CROSS SECTIONS





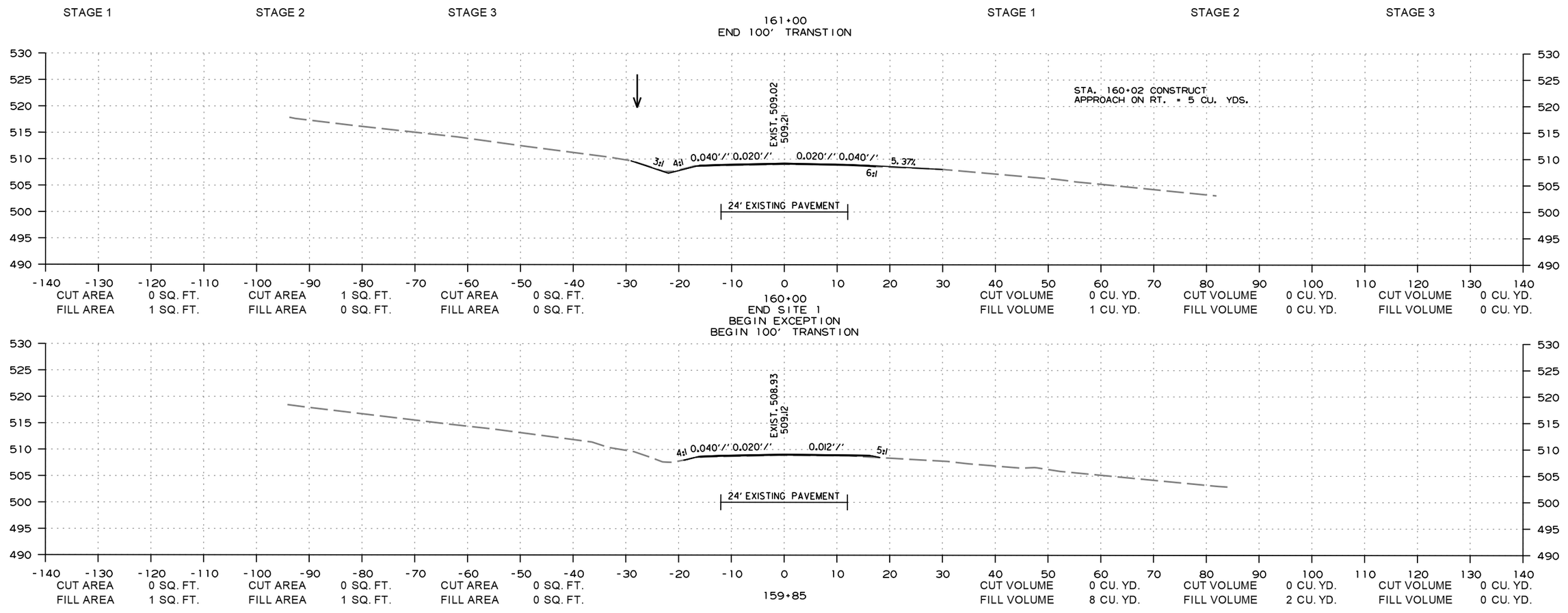


SITE 1
CROSS SECTION STA. 156+78 TO STA. 158+00

tw39665 10/21/2019
R061442.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.		061442	175	253

(2) CROSS SECTIONS



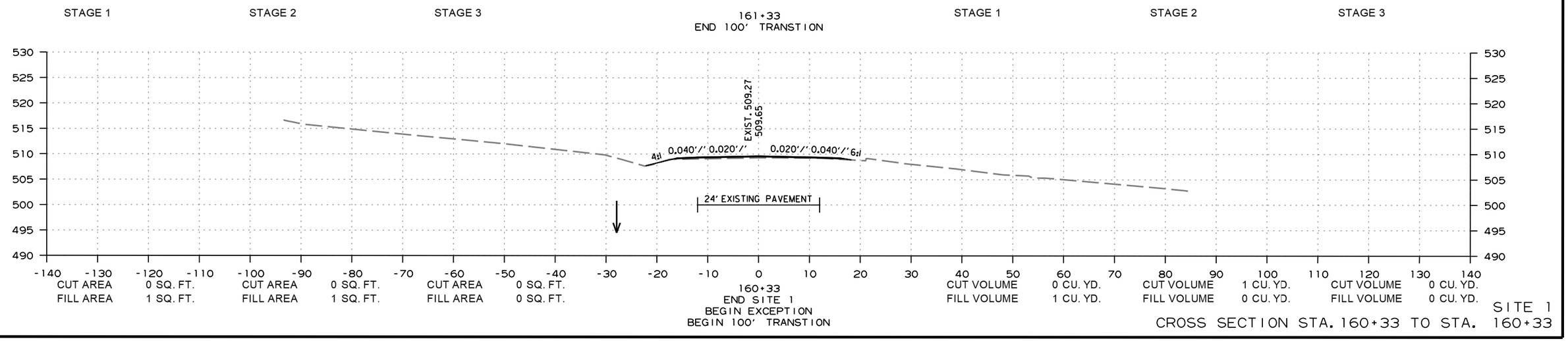
SITE 1
CROSS SECTION STA. 159+00 TO STA. 160+00

tw39665 10/21/2019
R061442.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.		061442	176	253

(2) CROSS SECTIONS

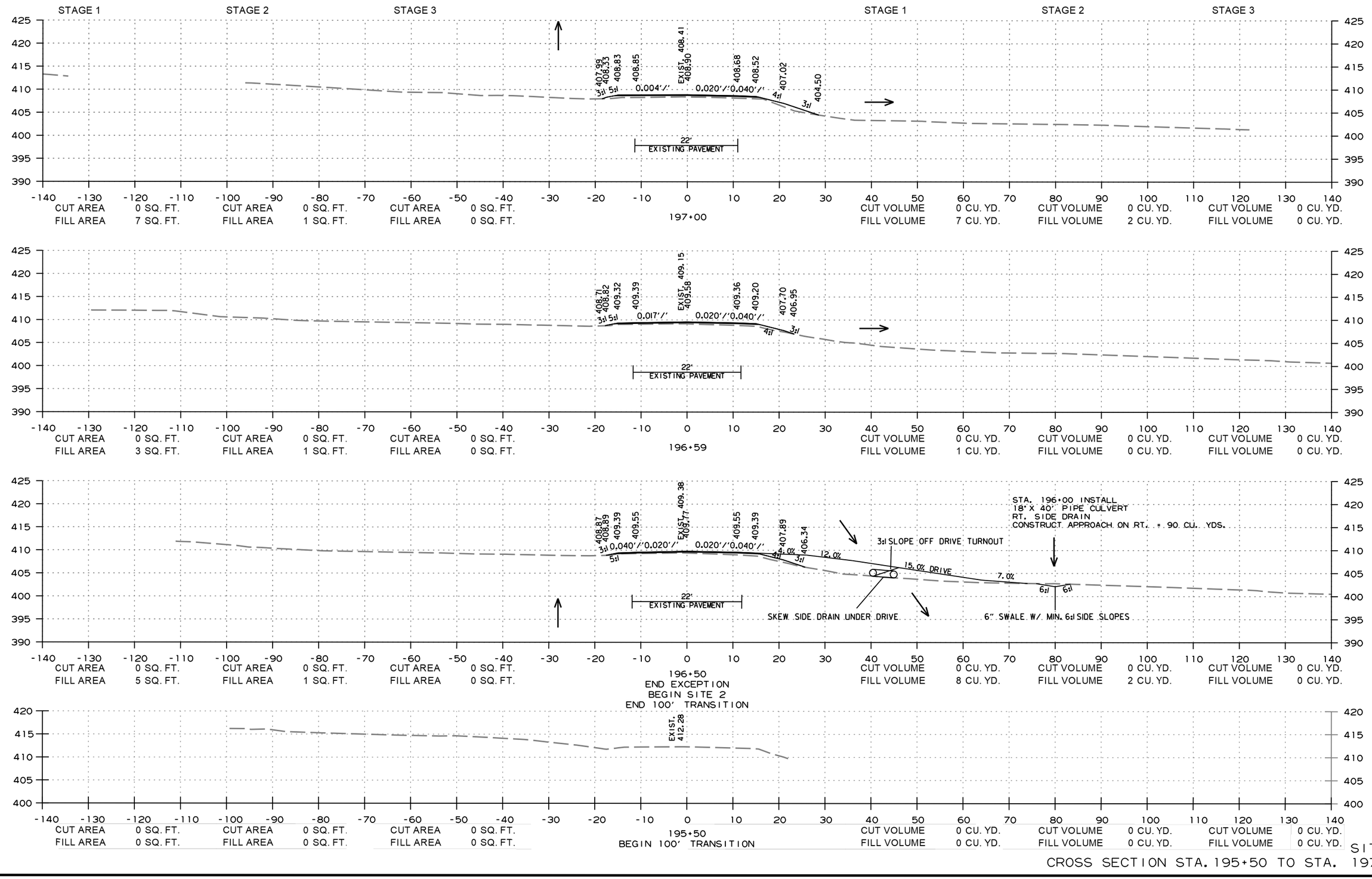


SITE 1
CROSS SECTION STA. 160+33 TO STA. 160+33

tw39665 10/21/2019
R061442.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.		061442	177	253

(2) CROSS SECTIONS

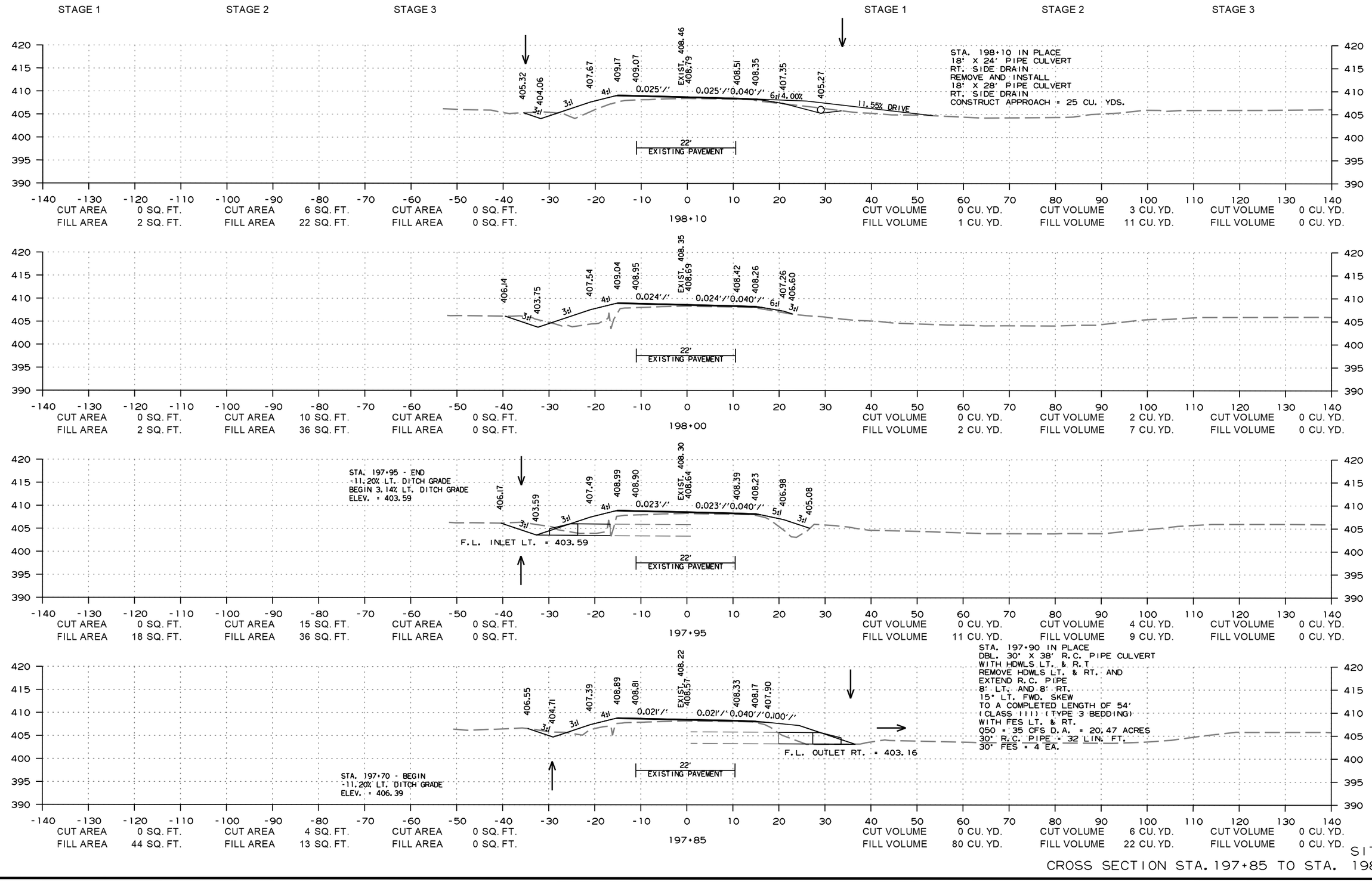


SITE 2
CROSS SECTION STA. 195+50 TO STA. 197+00

tw39665 10/21/2019
R061442.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.		061442	178	253

(2) CROSS SECTIONS

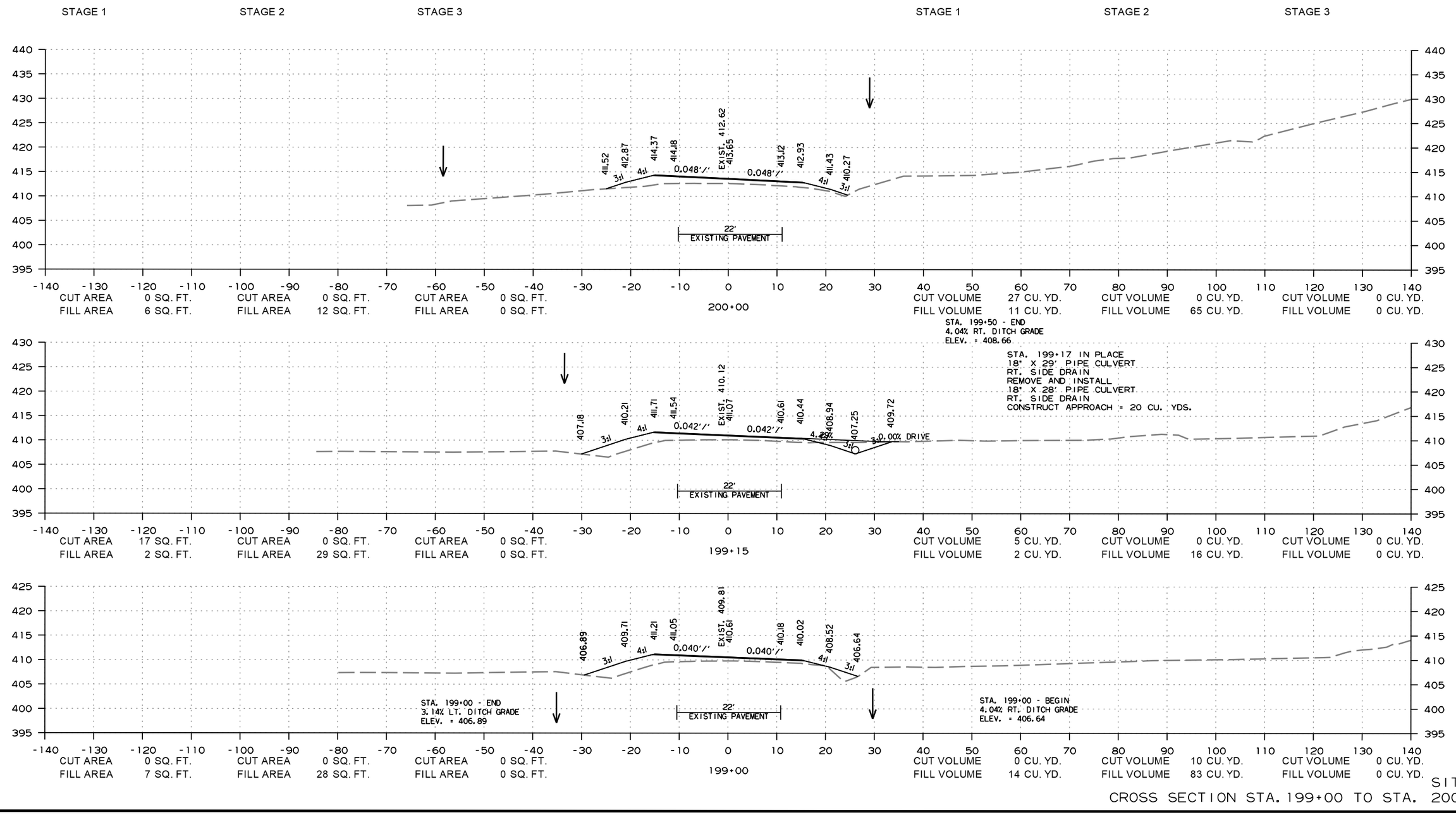


SITE 2
CROSS SECTION STA. 197+85 TO STA. 198+10

tw39665 10/21/2019
R061442.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.		061442	179	253

(2) CROSS SECTIONS



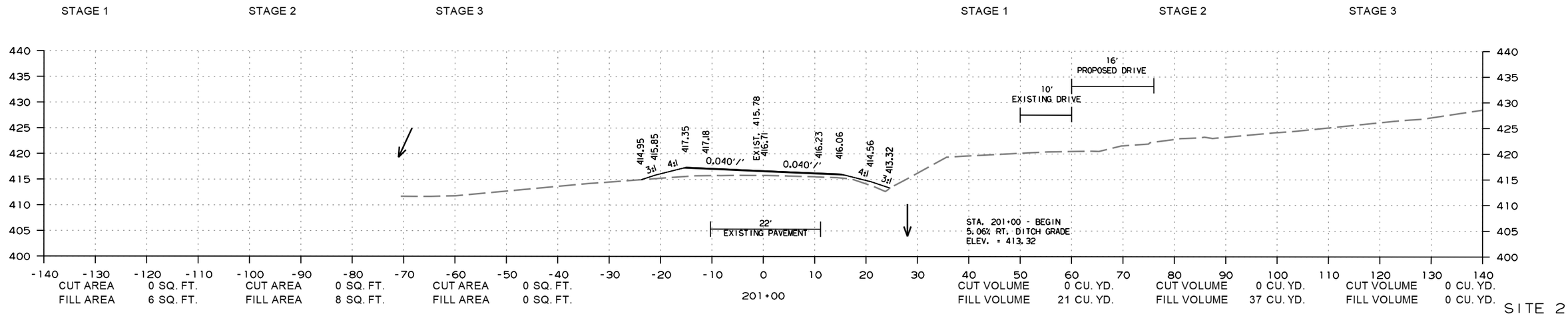
lw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 199+00 TO STA. 200+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	180	253

(2) CROSS SECTIONS

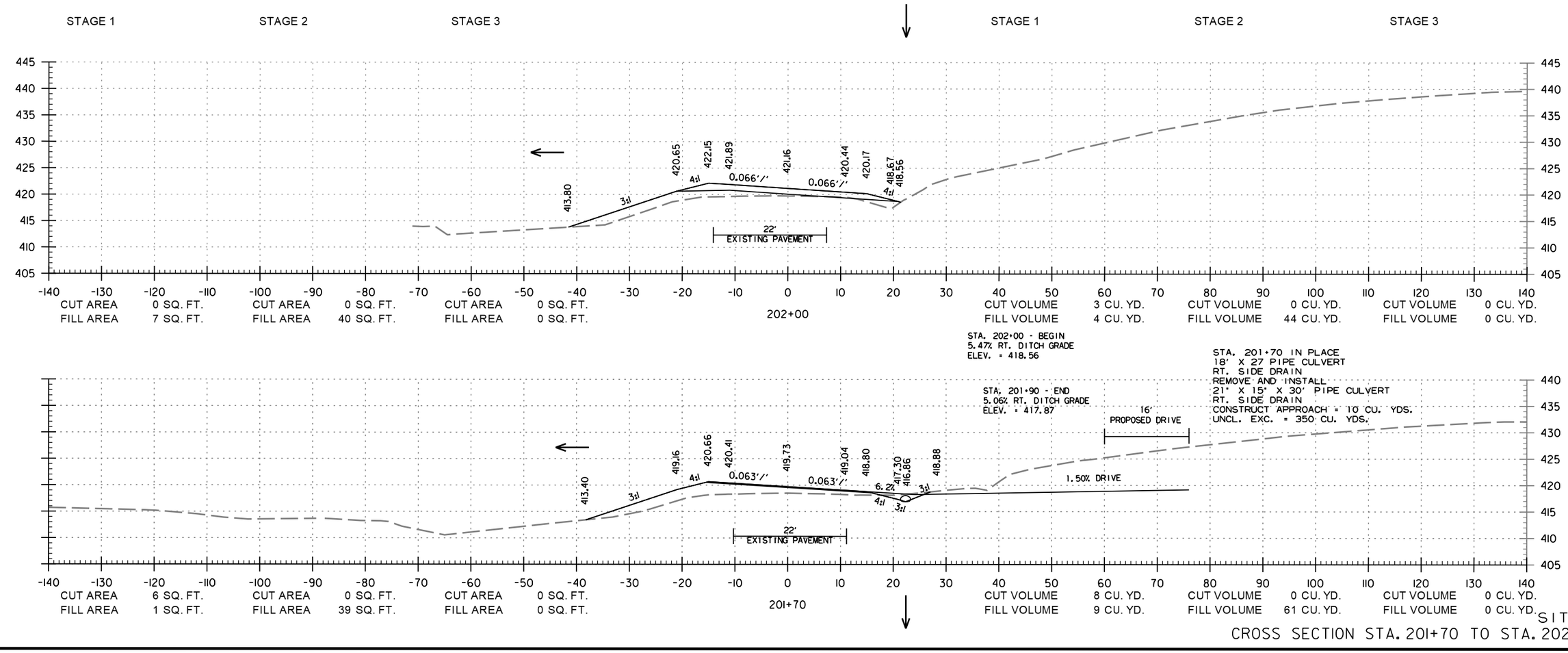


SITE 2
CROSS SECTION STA. 201+00 TO STA. 202+00

tw39665 10/21/2019
R061442.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.		061442	181	253

(2) CROSS SECTIONS

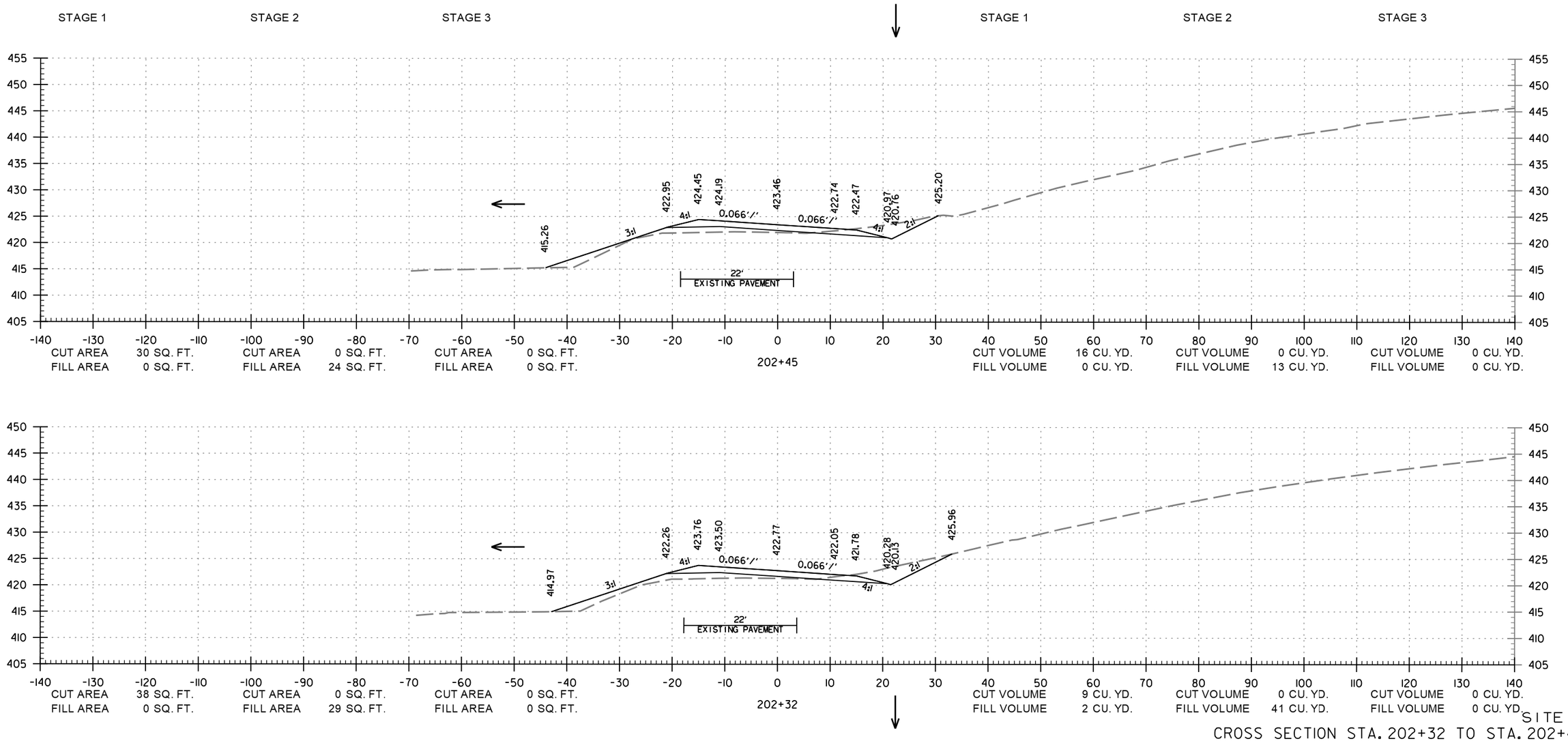


SITE 2
CROSS SECTION STA. 201+70 TO STA. 202+00

lw39665 10/21/2019
R061442.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.		061442	182	253

(2) CROSS SECTIONS

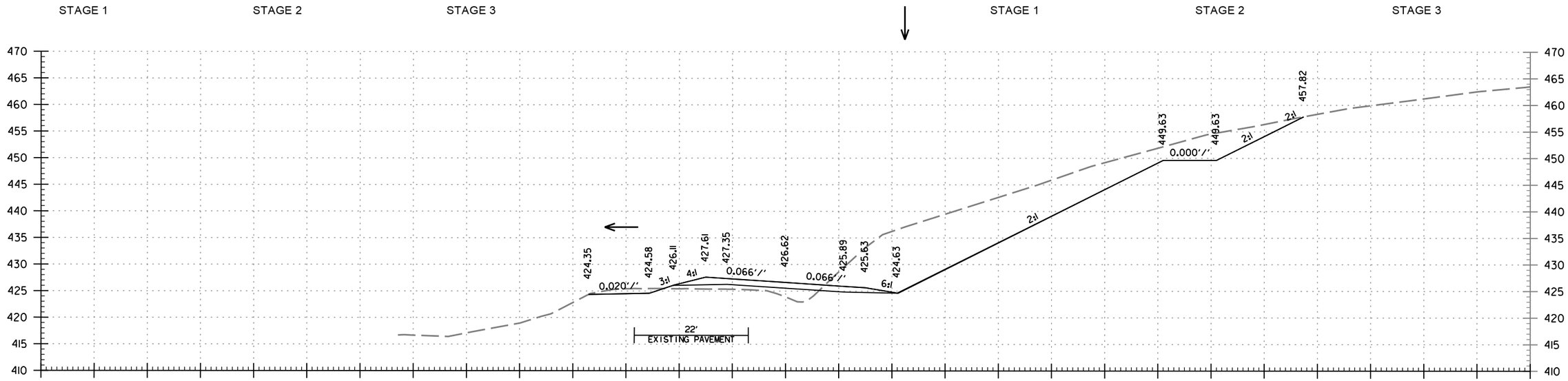


SITE 2
CROSS SECTION STA. 202+32 TO STA. 202+45

lw39665 10/21/2019
R061442.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.		061442	183	253

(2) CROSS SECTIONS



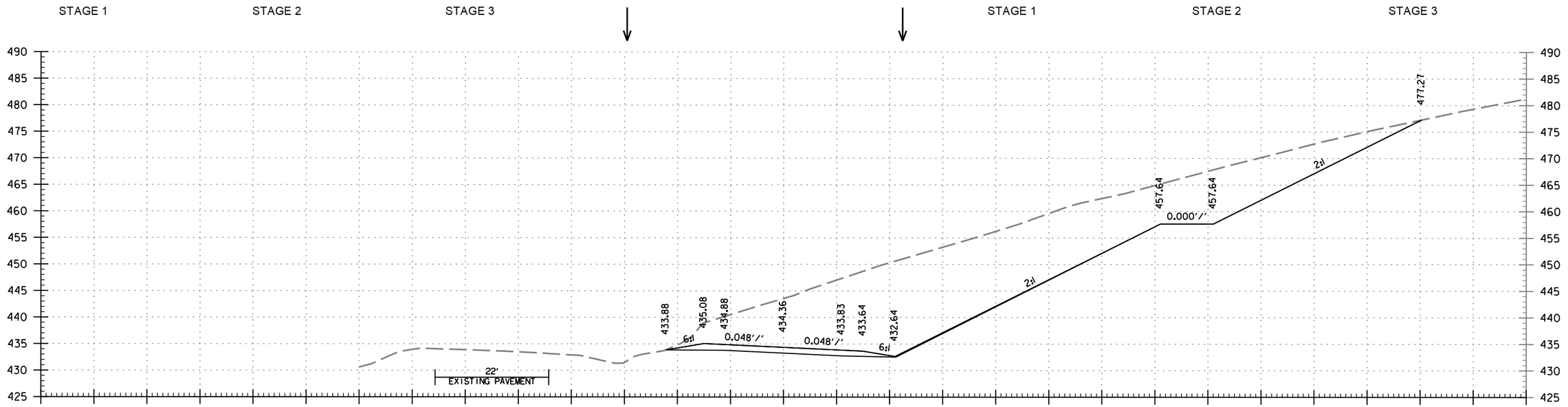
SITE 2

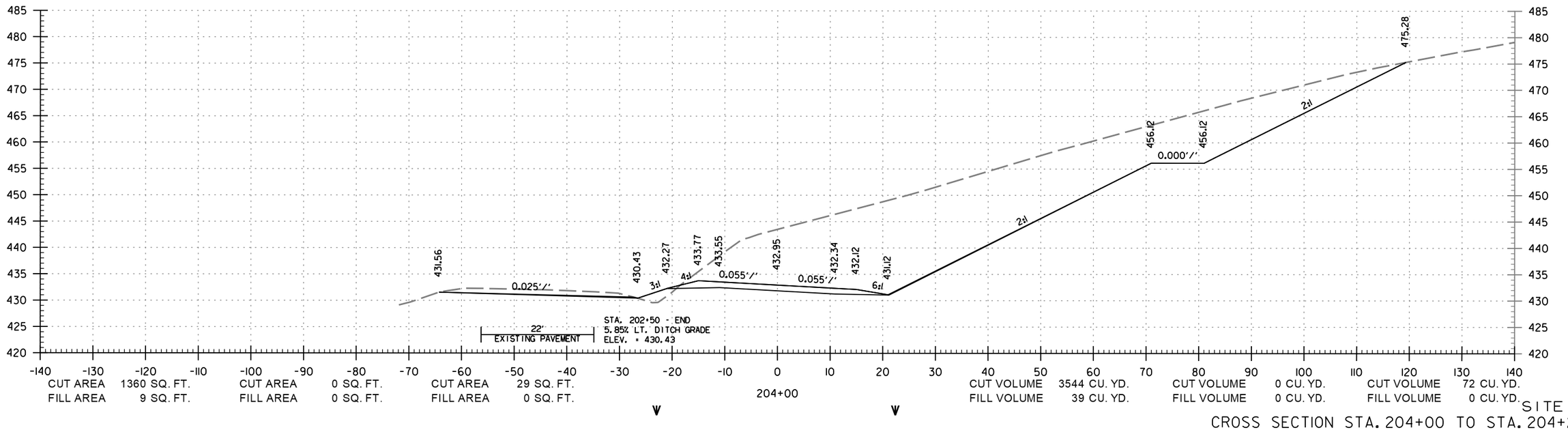
CROSS SECTION STA. 202+55 TO STA. 203+00

tw39665 10/21/2019
R061442.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.		061442	184	253

(2) CROSS SECTIONS



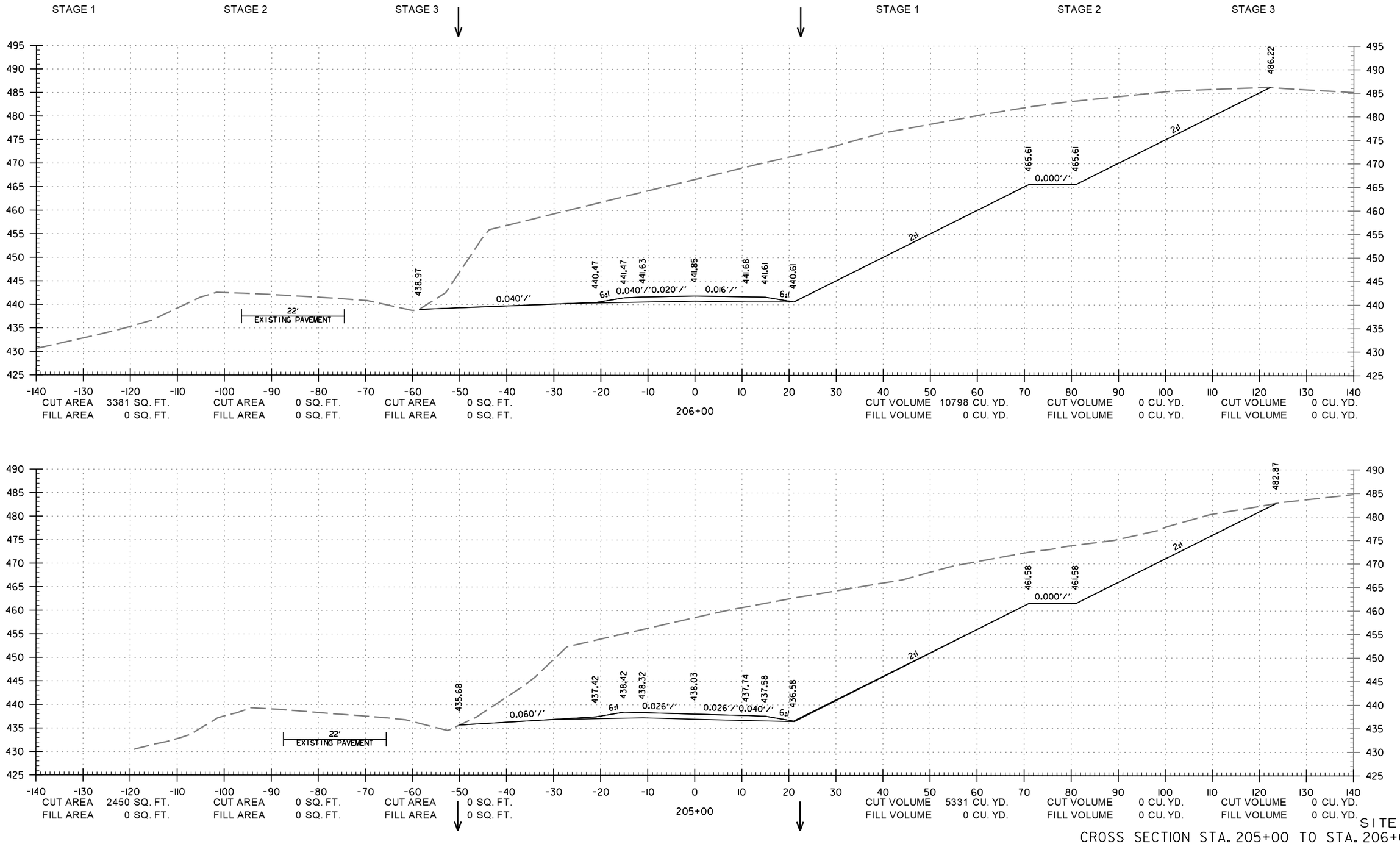


SITE 2
CROSS SECTION STA. 204+00 TO STA. 204+25

tw39665 10/21/2019
R061442.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.		061442	185	253

(2) CROSS SECTIONS

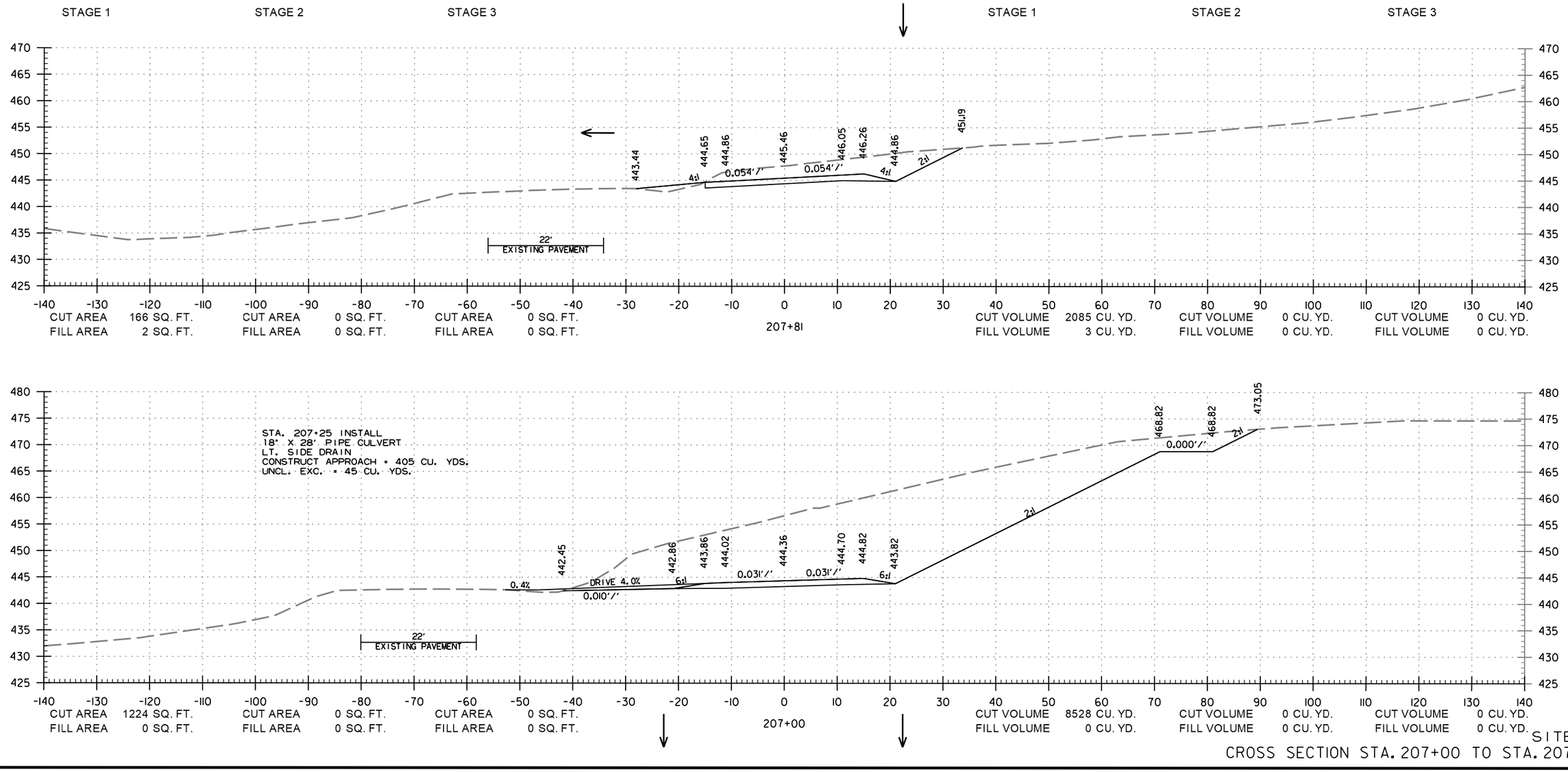


SITE 2
CROSS SECTION STA. 205+00 TO STA. 206+00

tw39665 10/21/2019
R061442.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.		061442	186	253

(2) CROSS SECTIONS

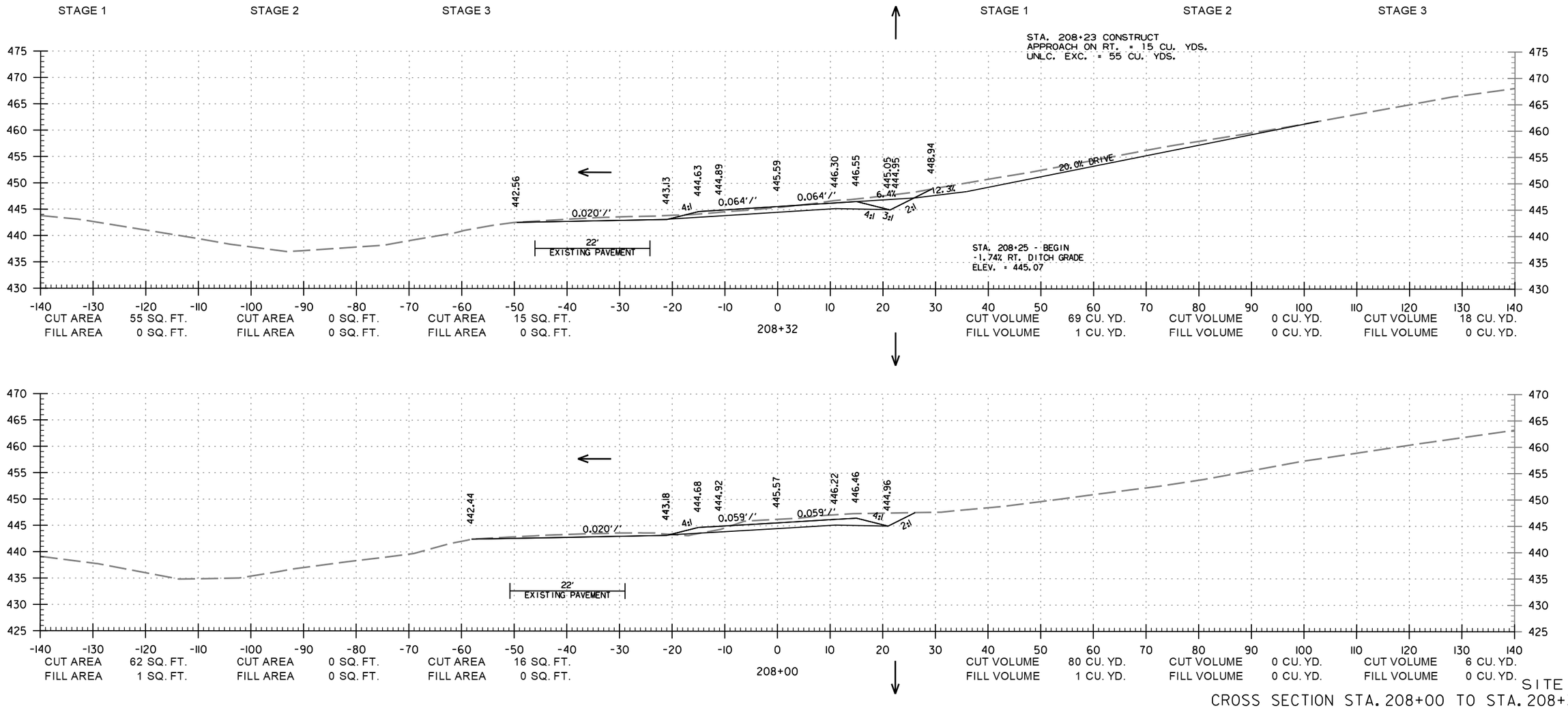


SITE 2
CROSS SECTION STA. 207+00 TO STA. 207+81

lw39665 10/21/2019
R061442.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.		061442	187	253

(2) CROSS SECTIONS

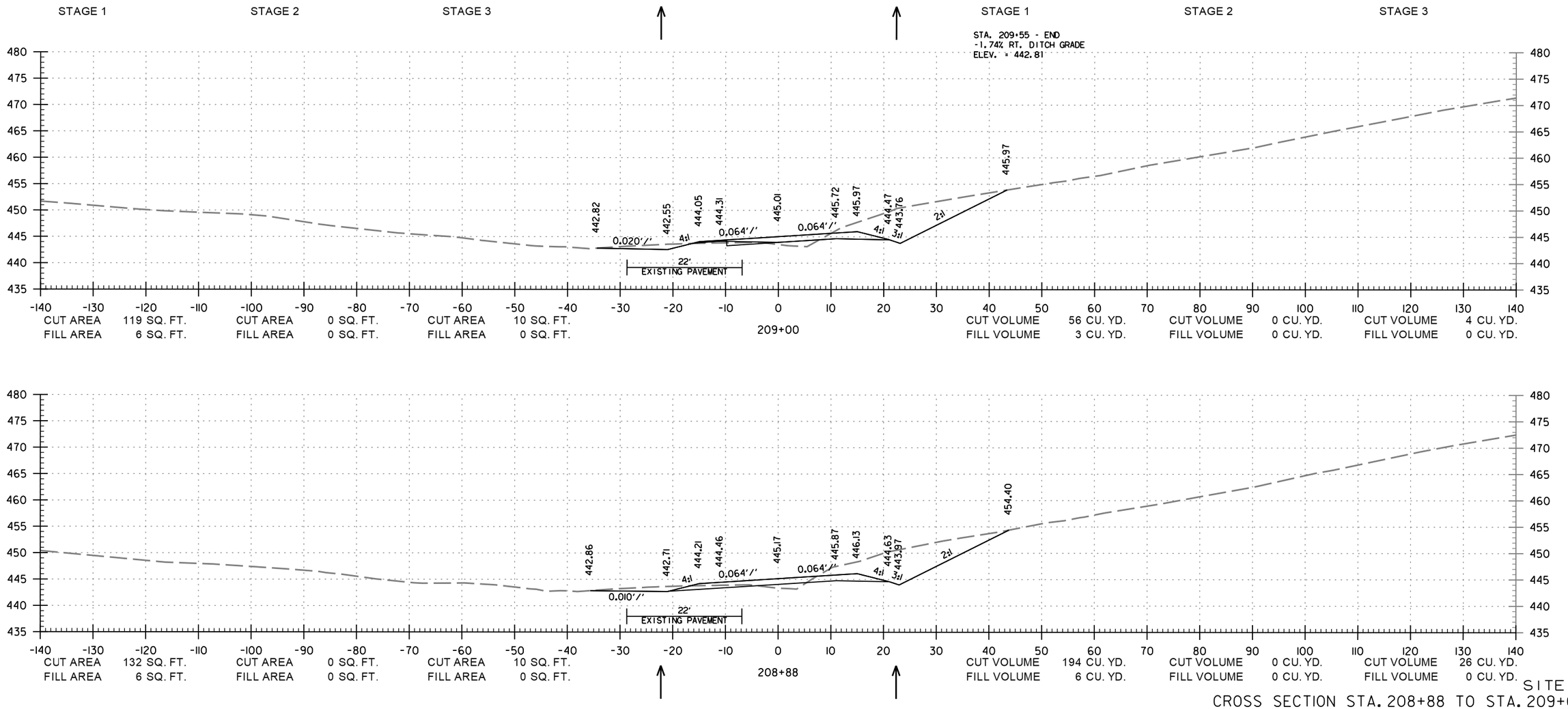


SITE 2
CROSS SECTION STA. 208+00 TO STA. 208+32

lw39665 10/21/2019
R061442.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.		061442	188	253

(2) CROSS SECTIONS



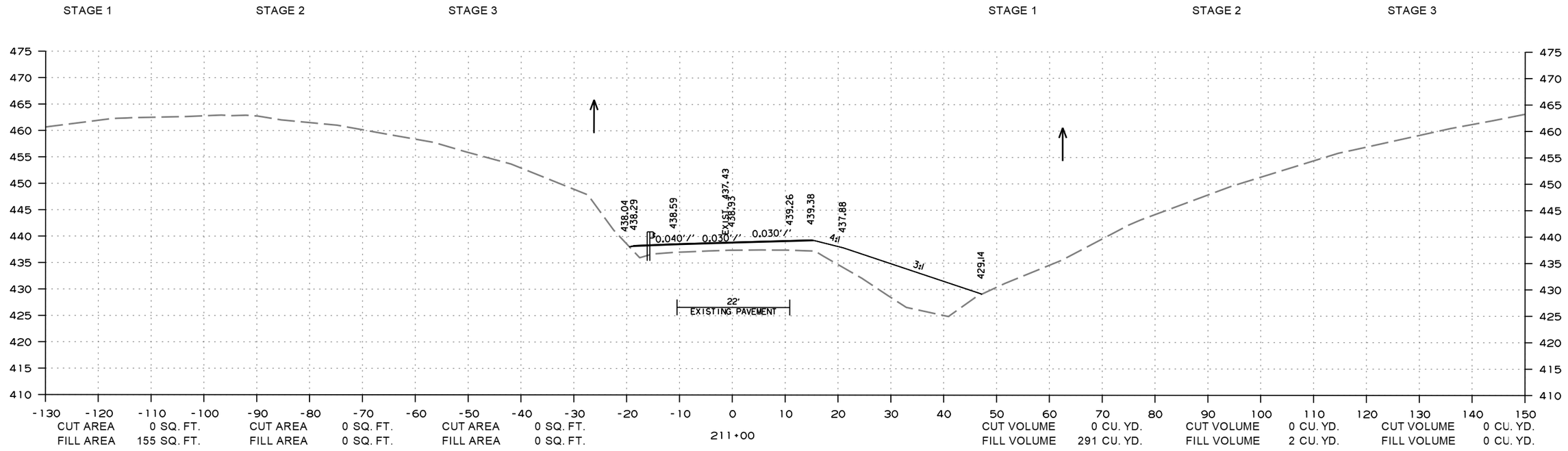
SITE 2
CROSS SECTION STA. 208+88 TO STA. 209+00

lw39665 10/21/2019
R061442.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.		061442	189	253

(2) CROSS SECTIONS

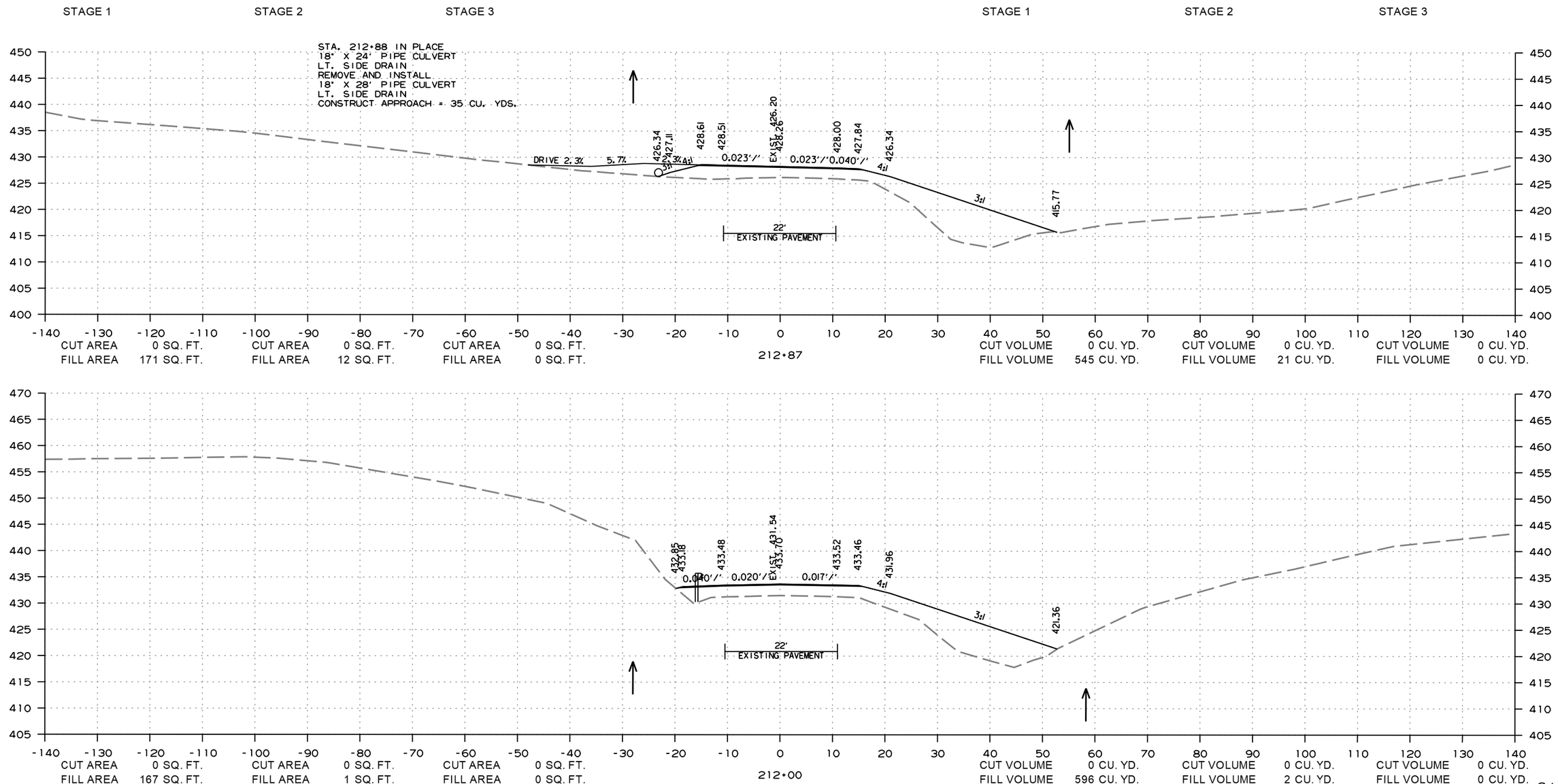


SITE 2
CROSS SECTION STA. 210+00 TO STA. 211+00

lw39665 10/21/2019
R061442.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.		061442	190	253

(2) CROSS SECTIONS



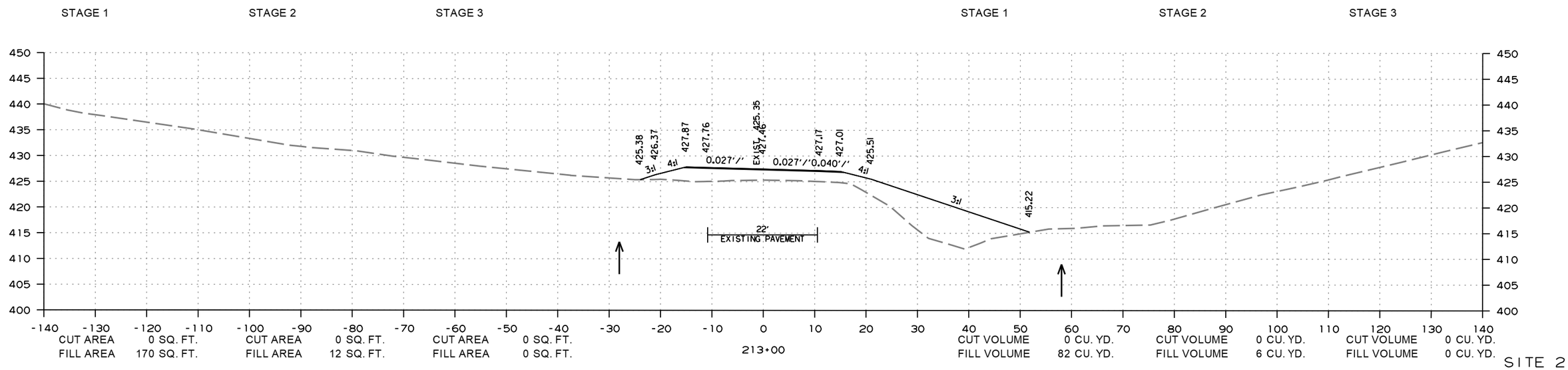
lw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 212+00 TO STA. 212+87

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	191	253

(2) CROSS SECTIONS



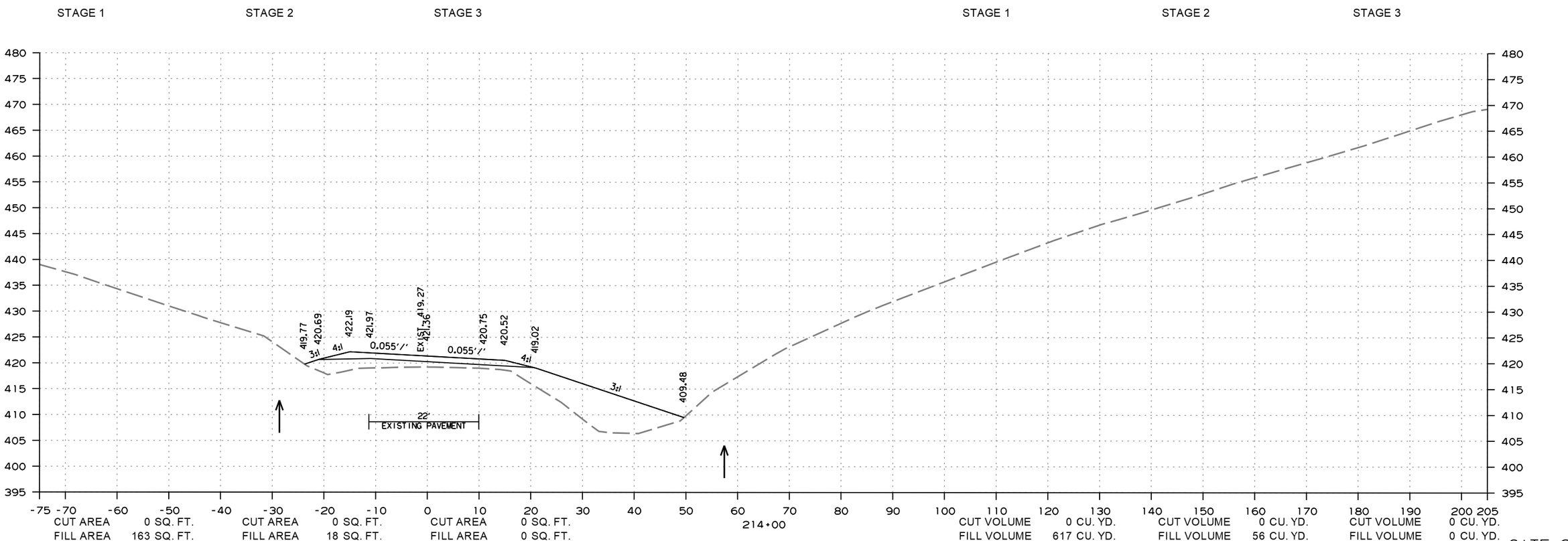
SITE 2
CROSS SECTION STA. 213+00 TO STA. 213+00

tw39665 10/21/2019
R061442.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.		061442	192	253

(2) CROSS SECTIONS



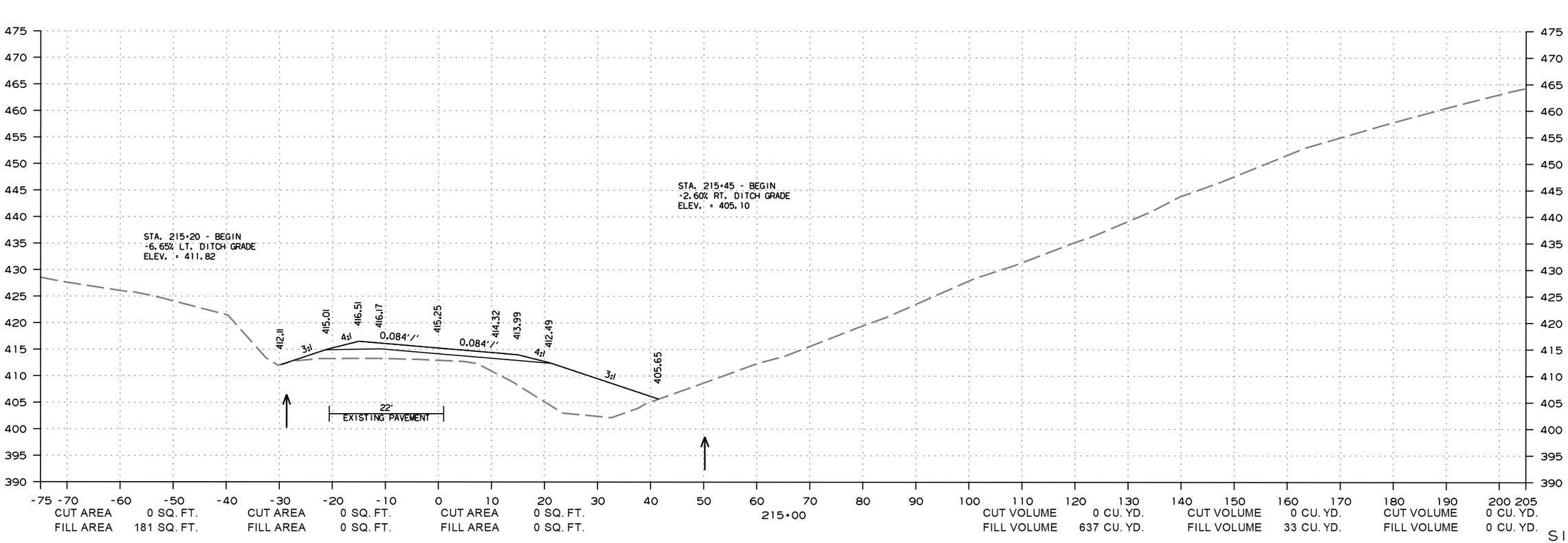
SITE 2
CROSS SECTION STA. 214+00 TO STA. 214+00

tw39665 10/21/2019
R061442.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.		061442	193	253

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 181 SQ. FT. FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

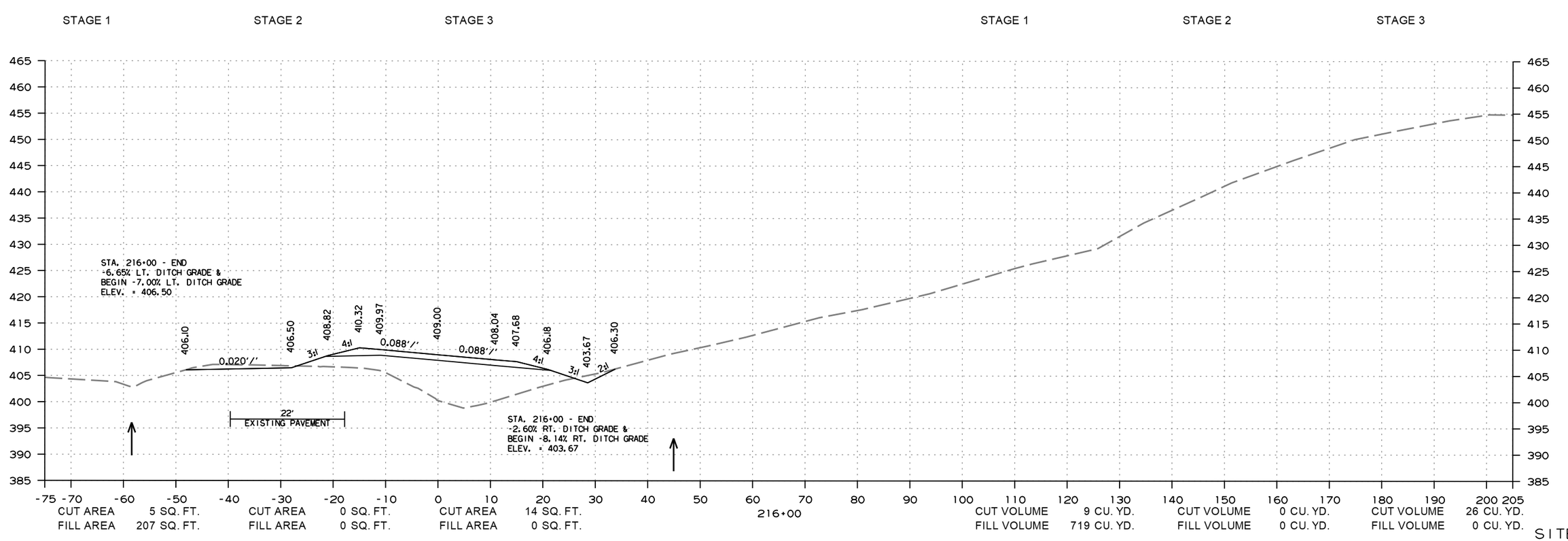
CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 637 CU. YD. FILL VOLUME 33 CU. YD. FILL VOLUME 0 CU. YD.

SITE 2
CROSS SECTION STA. 215+00 TO STA. 215+00

tw39665 10/21/2019
R061442.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.		061442	194	253

(2) CROSS SECTIONS



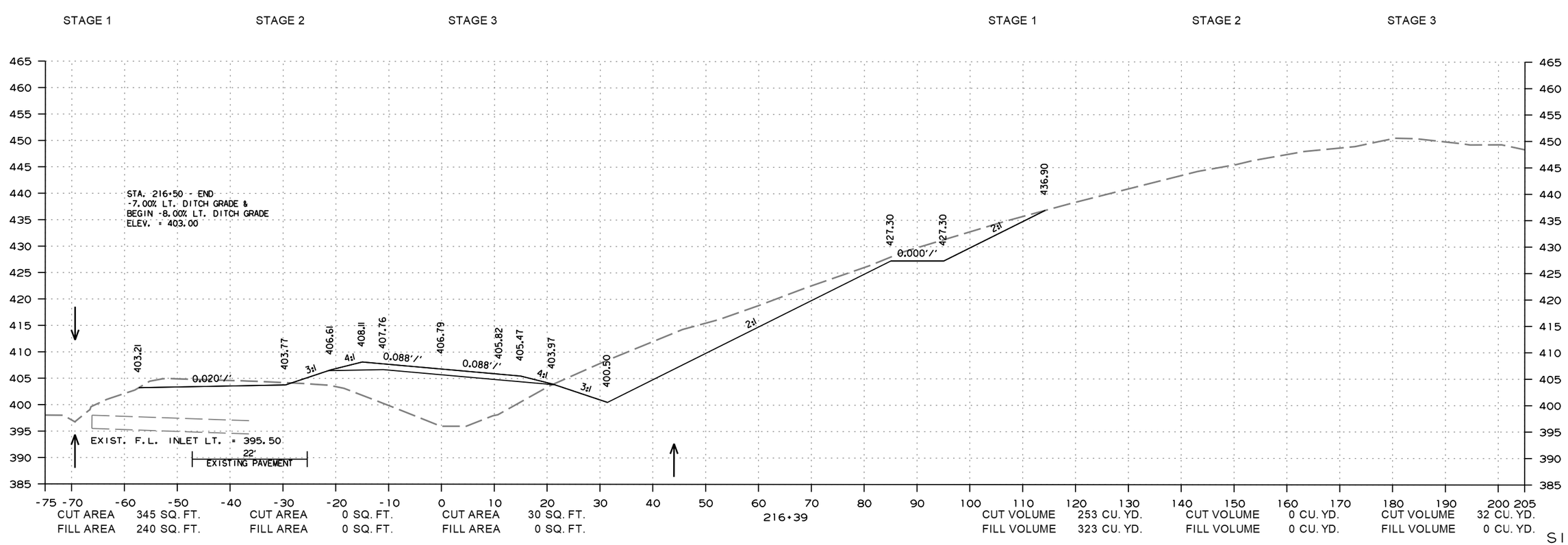
SITE 2
CROSS SECTION STA. 216+00 TO STA. 216+00

tw39665 10/21/2019
R061442.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.		061442	195	253

(2) CROSS SECTIONS

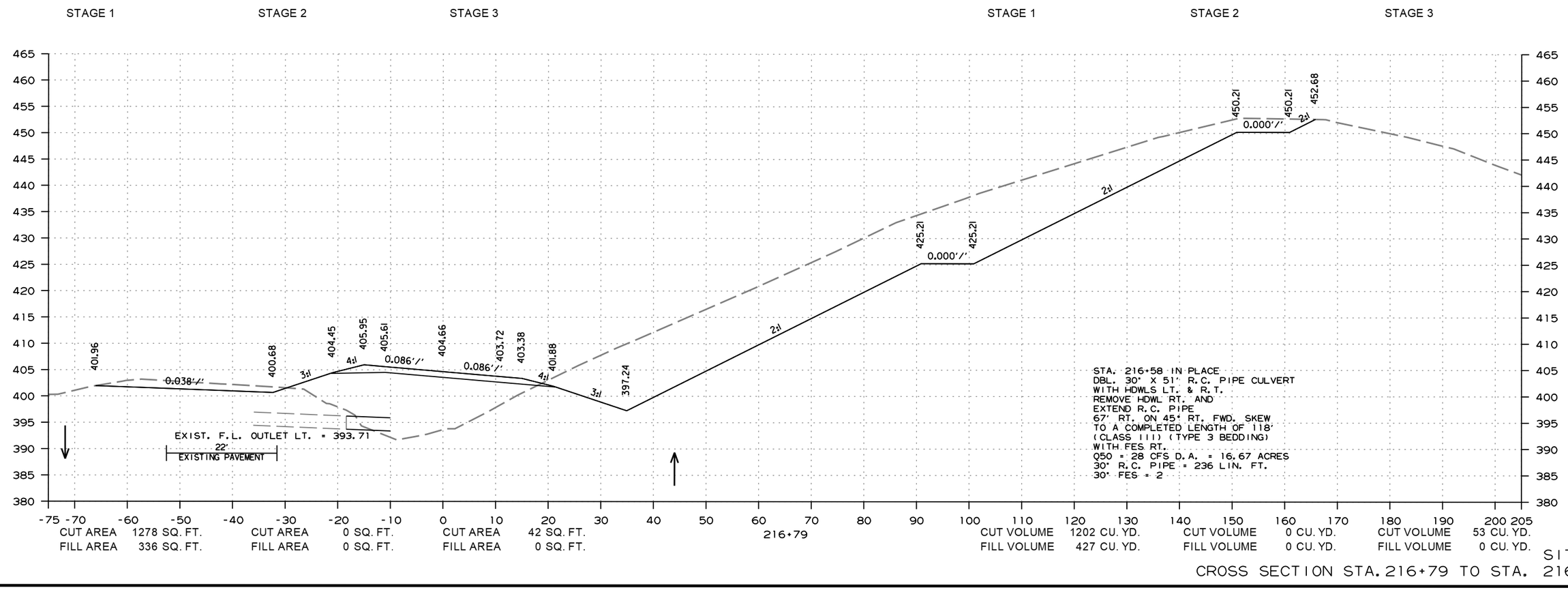


SITE 2
CROSS SECTION STA. 216+39 TO STA. 216+39

tw39665 10/21/2019
R061442.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.		061442	196	253

(2) CROSS SECTIONS

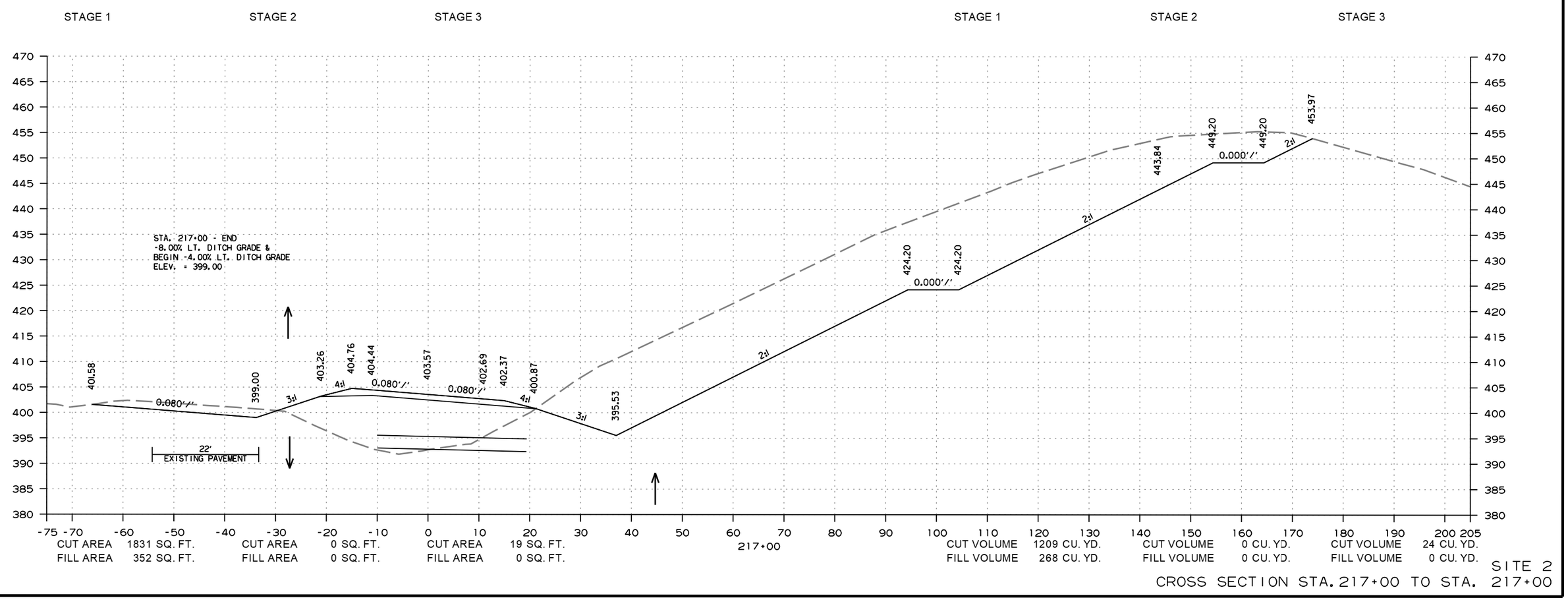


SITE 2
CROSS SECTION STA. 216+79 TO STA. 216+79

tw39665 10/21/2019
R061442.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.		061442	197	253

(2) CROSS SECTIONS

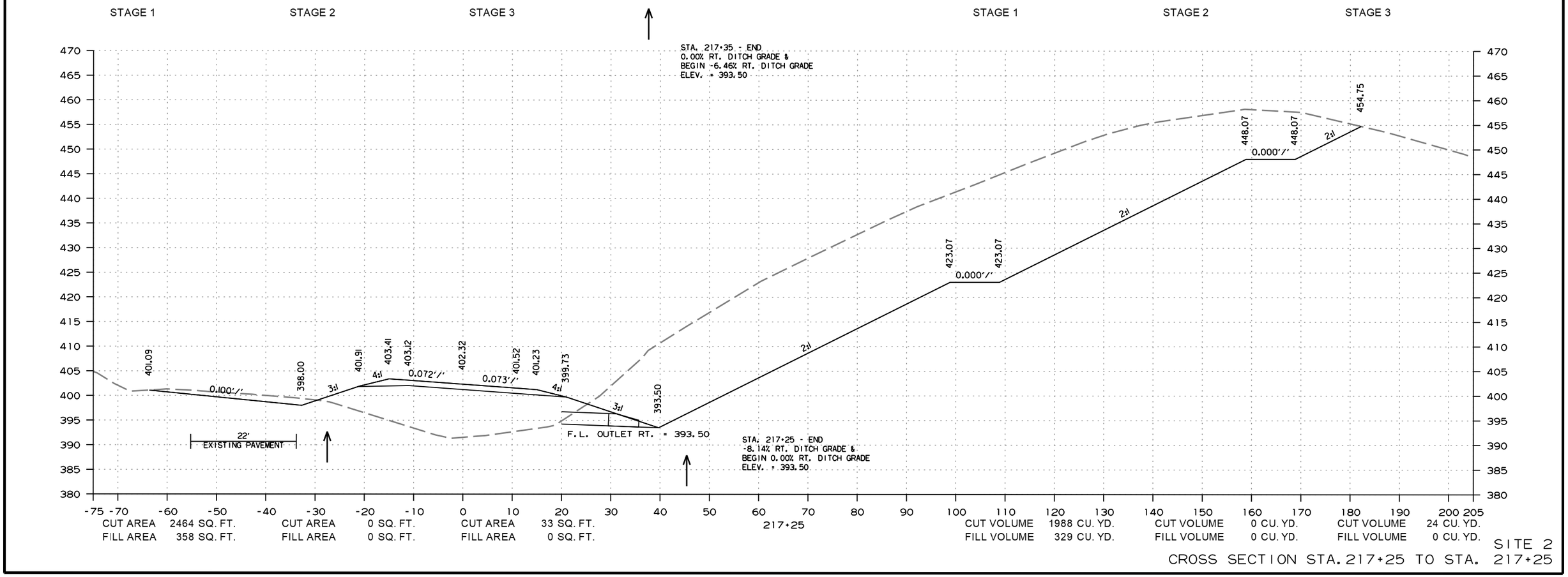


SITE 2
CROSS SECTION STA. 217+00 TO STA. 217+00

tw:39665 10/21/2019
R061442.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.		061442	198	253

(2) CROSS SECTIONS

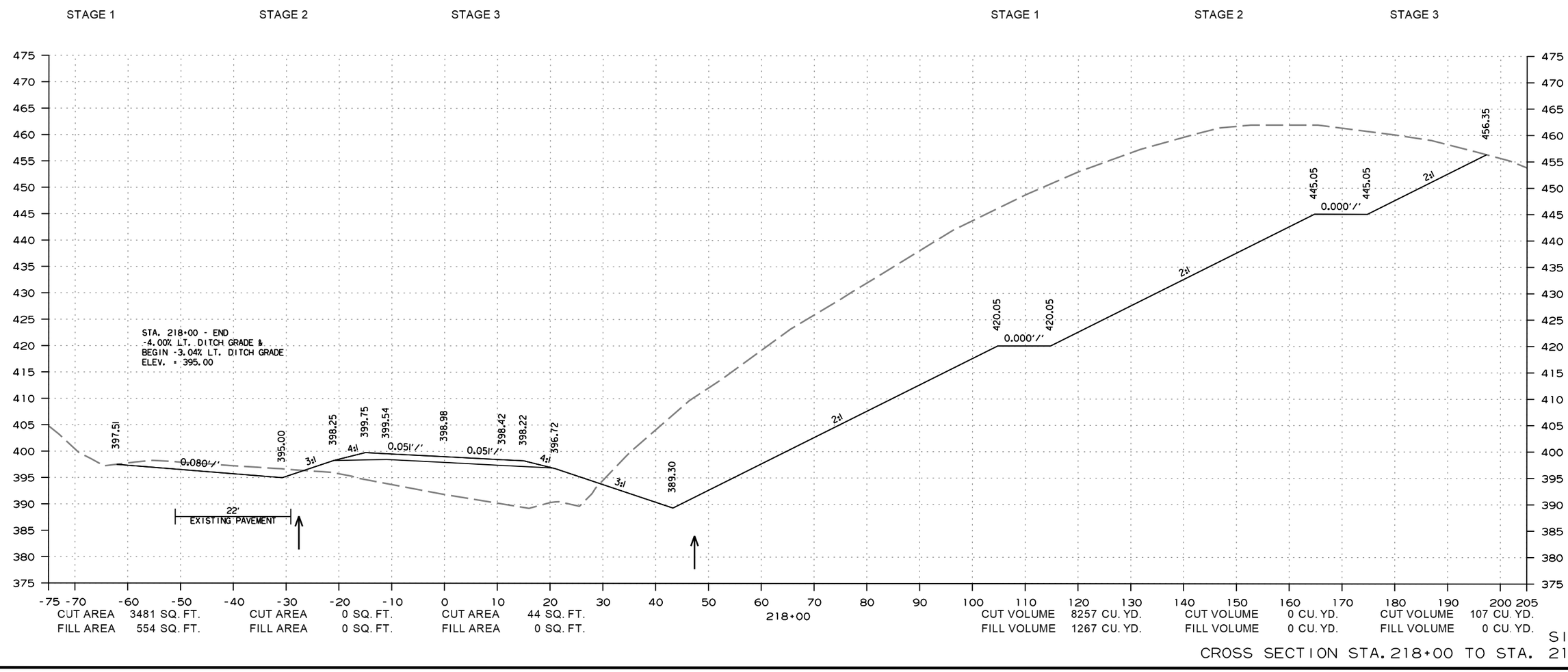


SITE 2
CROSS SECTION STA. 217+25 TO STA. 217+25

lw39665 10/21/2019
R061442.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.		061442	199	253

(2) CROSS SECTIONS



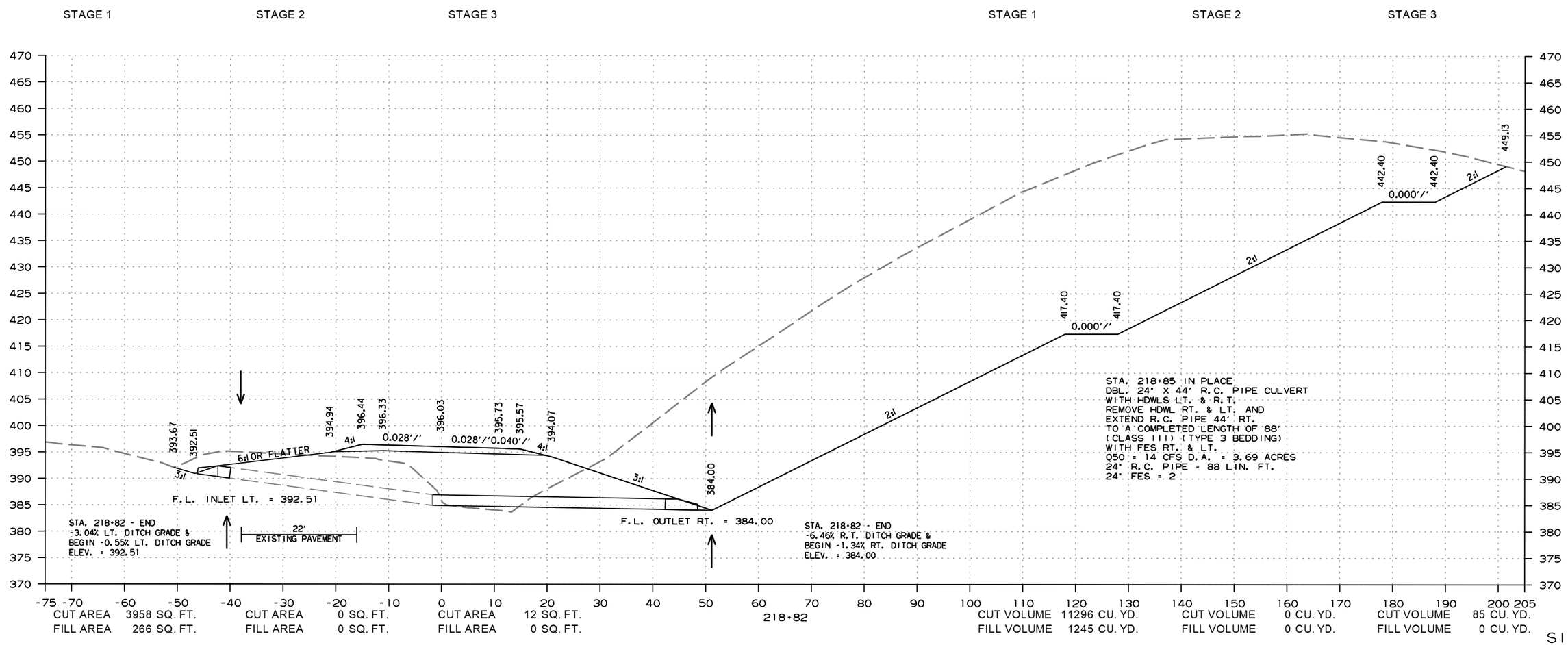
SITE 2
CROSS SECTION STA. 218+00 TO STA. 218+00

tw39665 10/21/2019
R061442.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.		061442	200	253

(2) CROSS SECTIONS



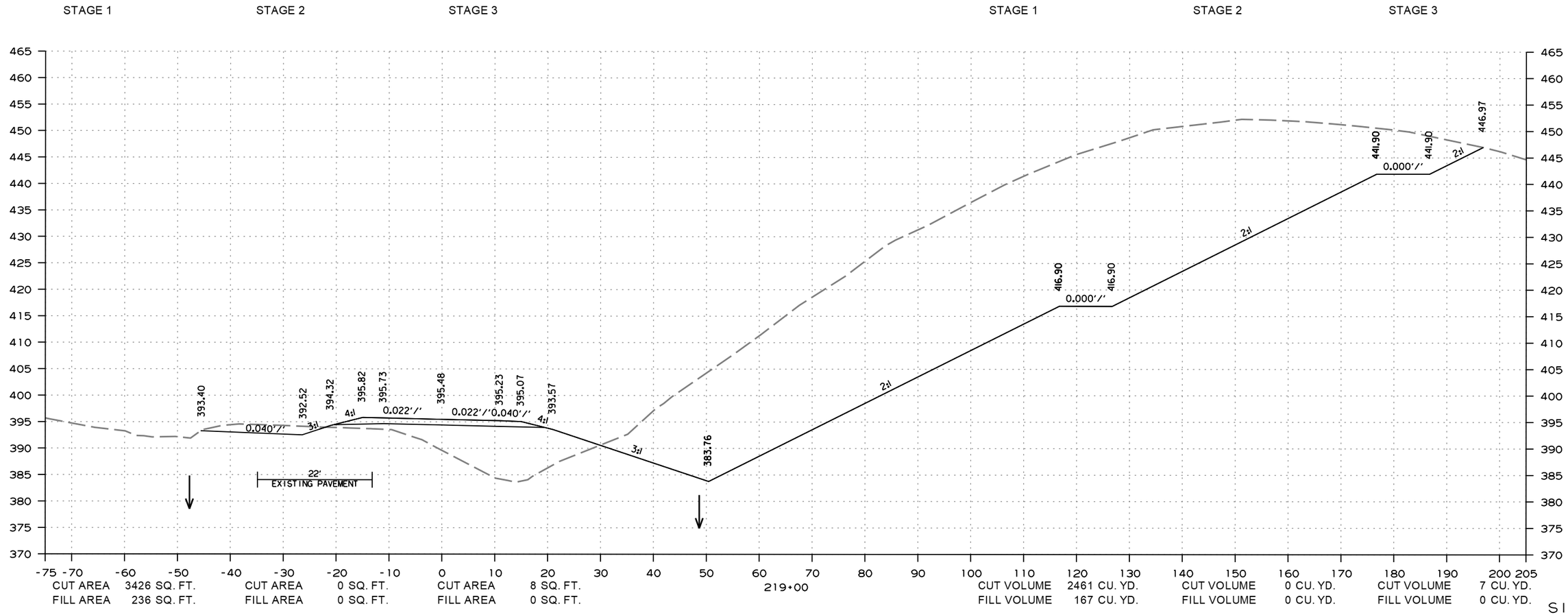
SITE 2

CROSS SECTION STA. 218+82 TO STA. 218+82

lw39665 10/21/2019
R061442.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.		061442	201	253

(2) CROSS SECTIONS



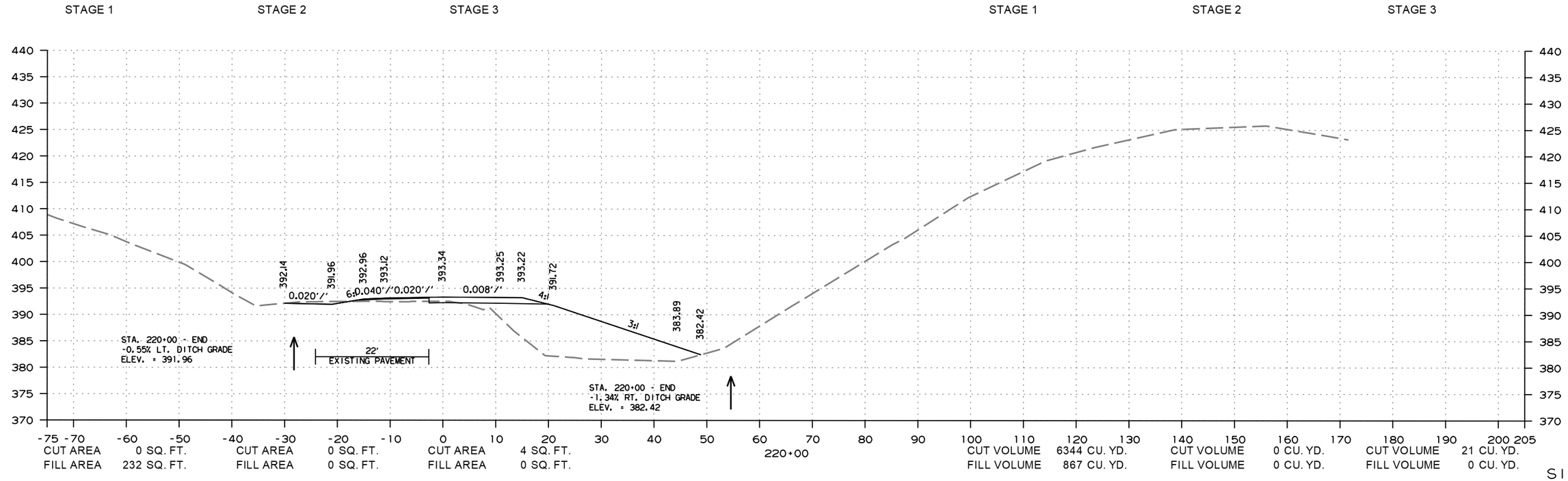
SITE 2
CROSS SECTION STA. 219+00 TO STA. 219+00

tw39665 10/21/2019
R061442.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.		061442	202	253

(2) CROSS SECTIONS

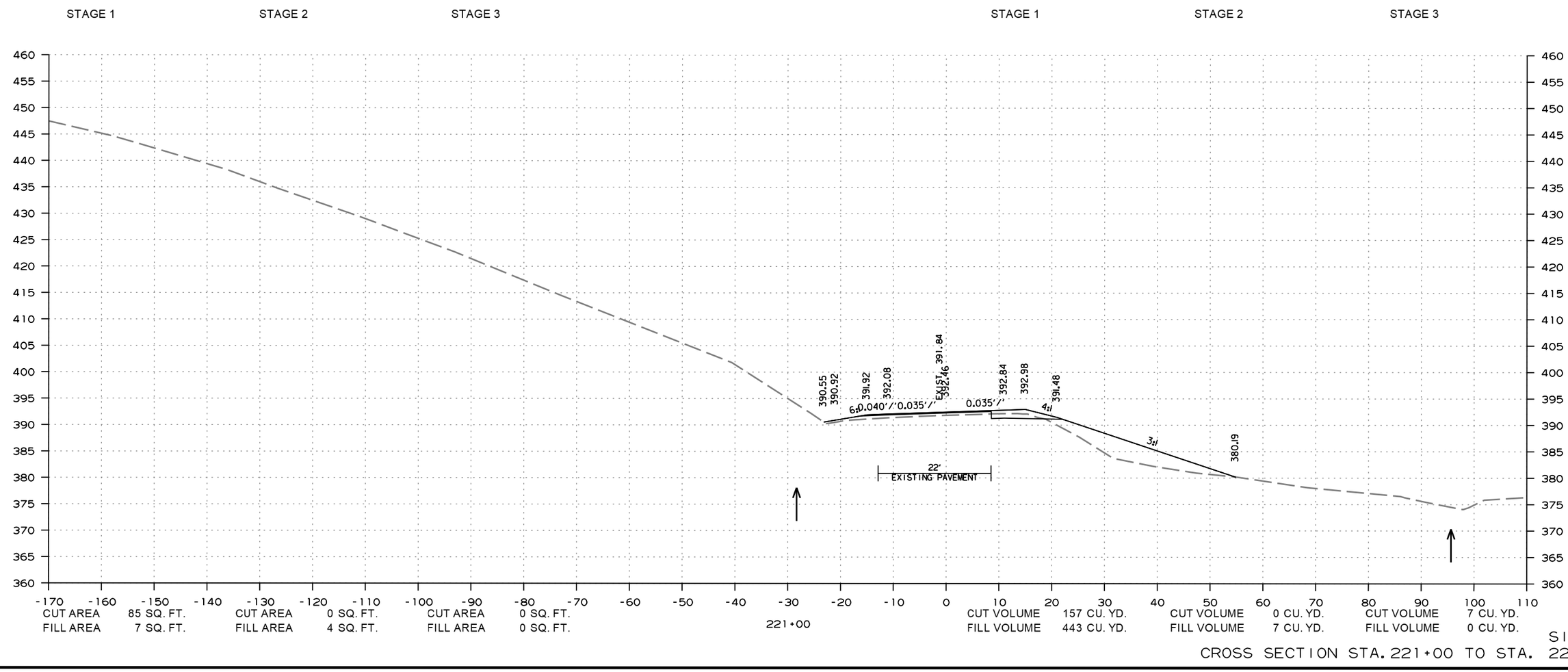


SITE 2
CROSS SECTION STA. 220+00 TO STA. 220+00

tw39665 10/21/2019
R061442.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.		061442	203	253

(2) CROSS SECTIONS

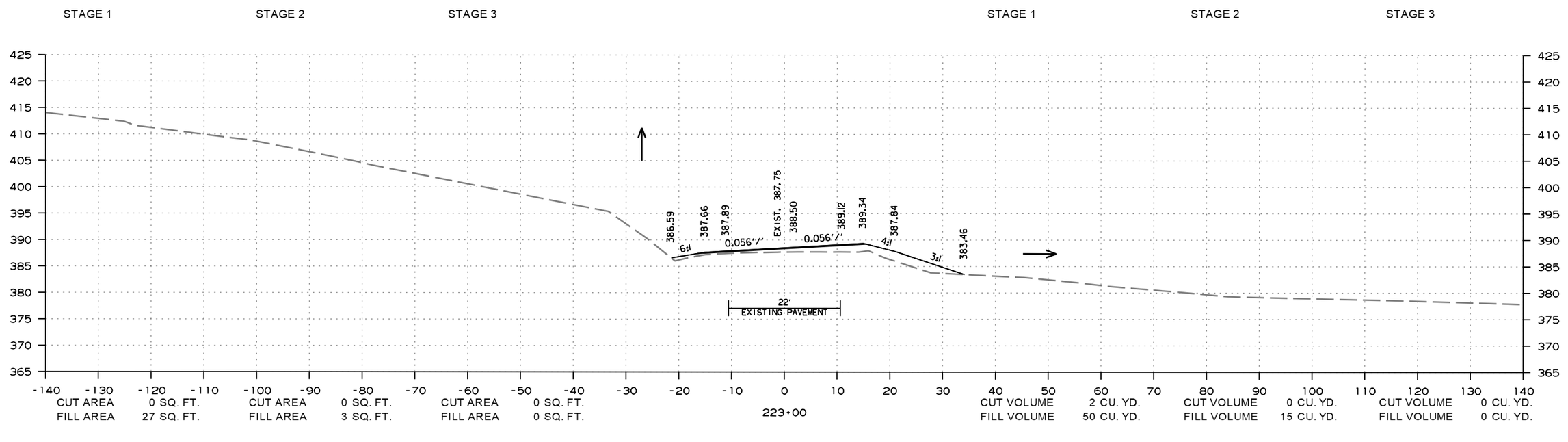


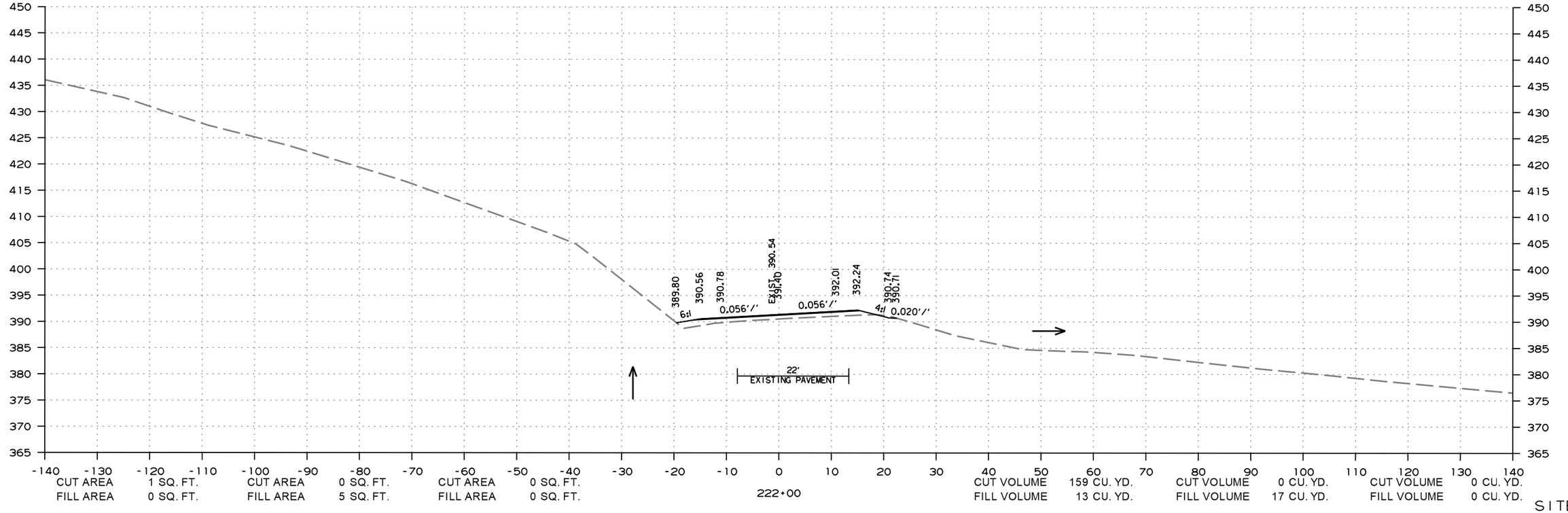
SITE 2
CROSS SECTION STA. 221+00 TO STA. 221+00

lw39665 10/21/2019
R061442.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.		061442	204	253

(2) CROSS SECTIONS





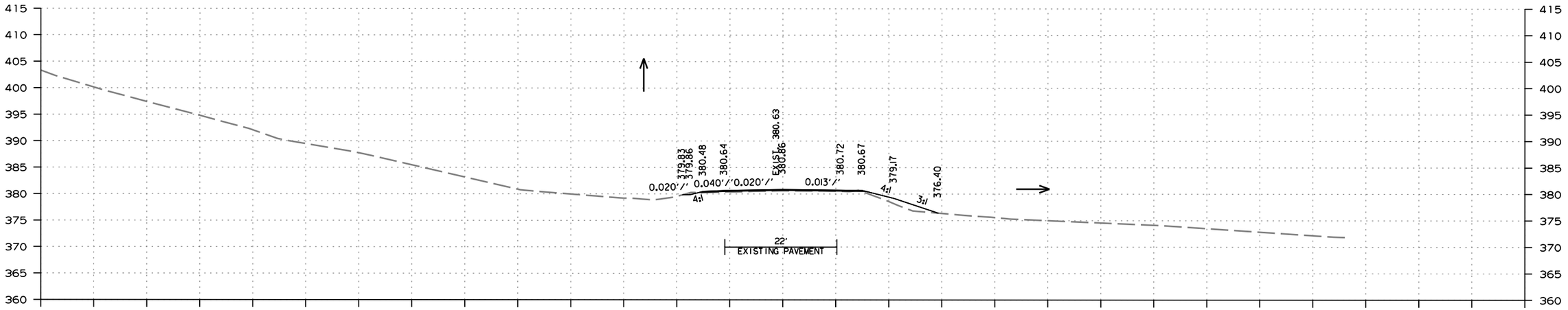
SITE 2
CROSS SECTION STA. 222+00 TO STA. 223+00

tw39665 10/21/2019
R061442.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.		061442	205	253

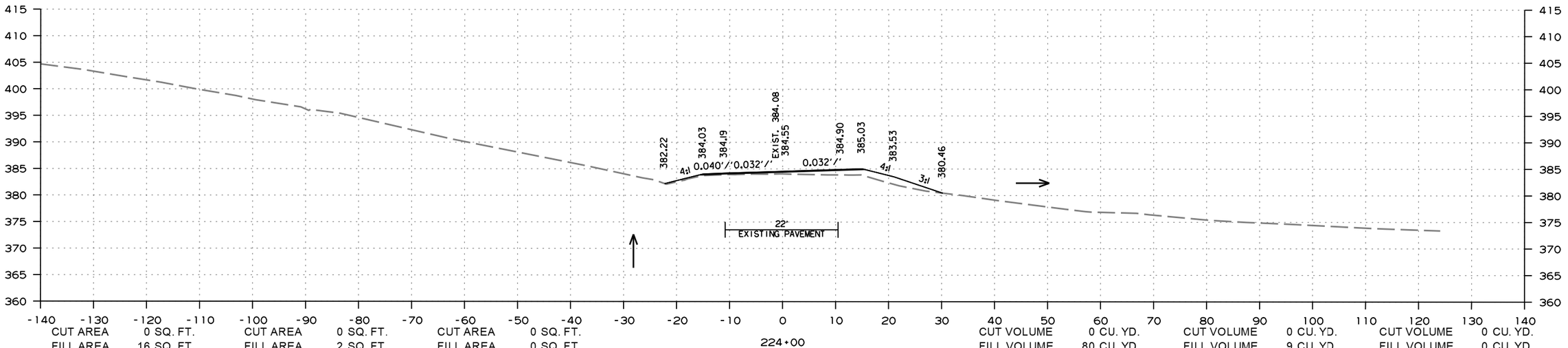
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CUT AREA 0 SQ. FT. CUT AREA 1 SQ. FT. CUT AREA 0 SQ. FT. CUT VOLUME 0 CU. YD. CUT VOLUME 2 CU. YD. CUT VOLUME 0 CU. YD.
FILL AREA 10 SQ. FT. FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT. FILL VOLUME 48 CU. YD. FILL VOLUME 4 CU. YD. FILL VOLUME 0 CU. YD.

225+00



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT. CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL AREA 16 SQ. FT. FILL AREA 2 SQ. FT. FILL AREA 0 SQ. FT. FILL VOLUME 80 CU. YD. FILL VOLUME 9 CU. YD. FILL VOLUME 0 CU. YD.

224+00

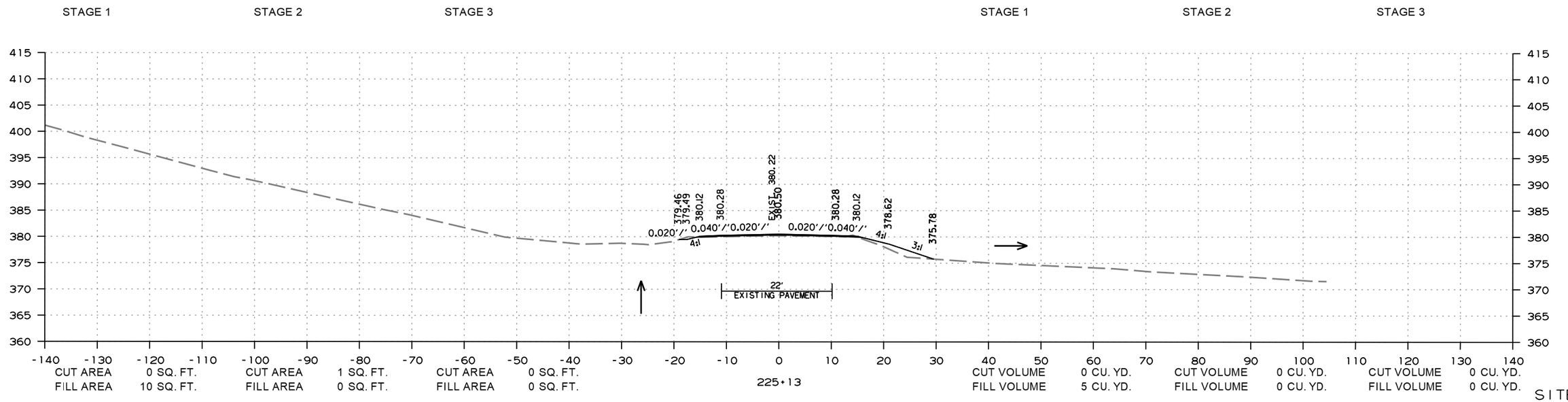
lw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 224+00 TO STA. 225+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.		061442	206	253

(2) CROSS SECTIONS

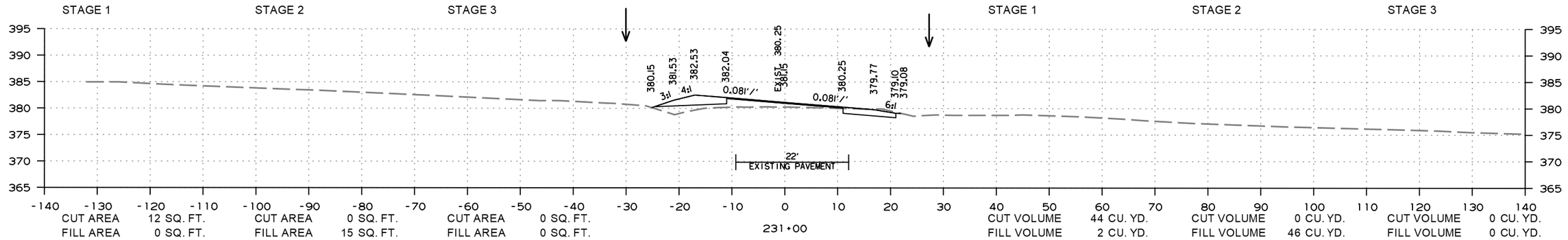


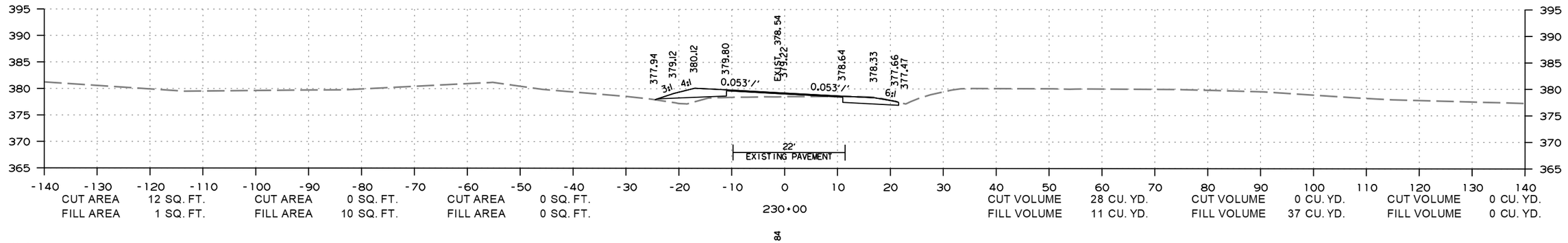
SITE 2
CROSS SECTION STA. 225+13 TO STA. 225+13

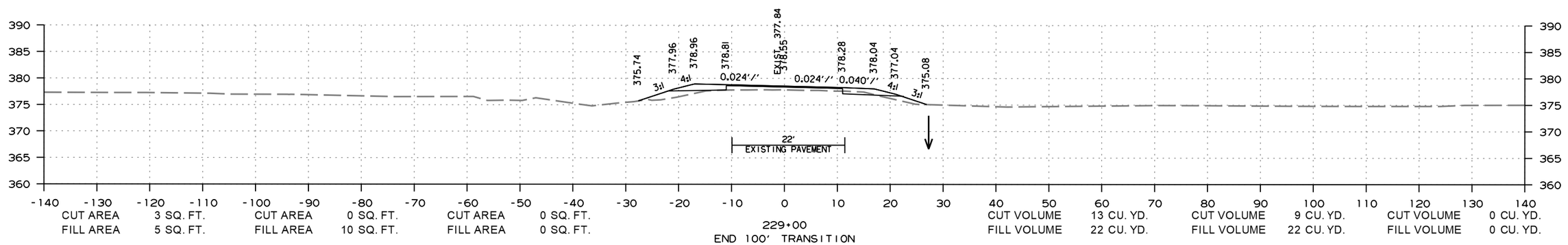
tw39665 10/21/2019
R061442.DGN

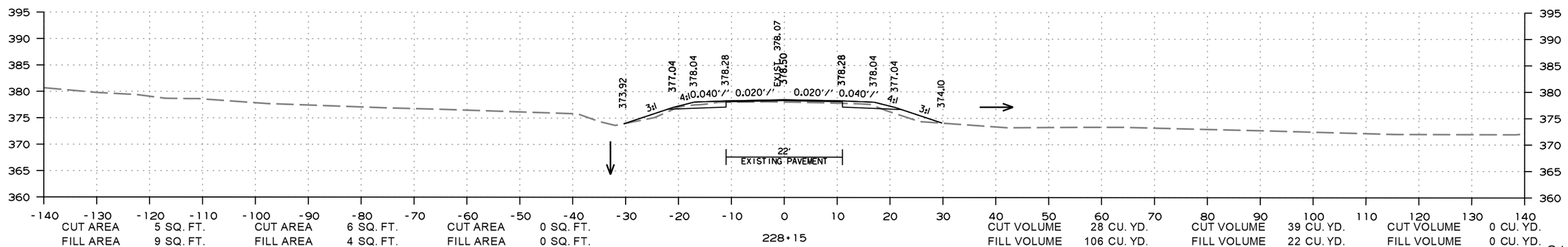
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	207	253

(2) CROSS SECTIONS







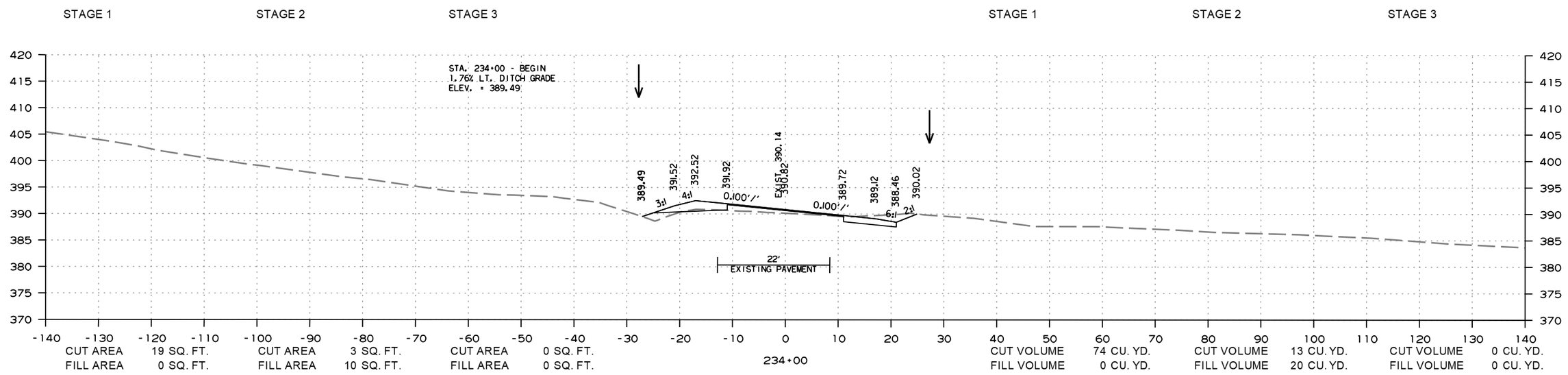


SITE 2
CROSS SECTION STA. 228+15 TO STA. 231+00

tw39665 10/21/2019
R061442.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.		061442	208	253

(2) CROSS SECTIONS

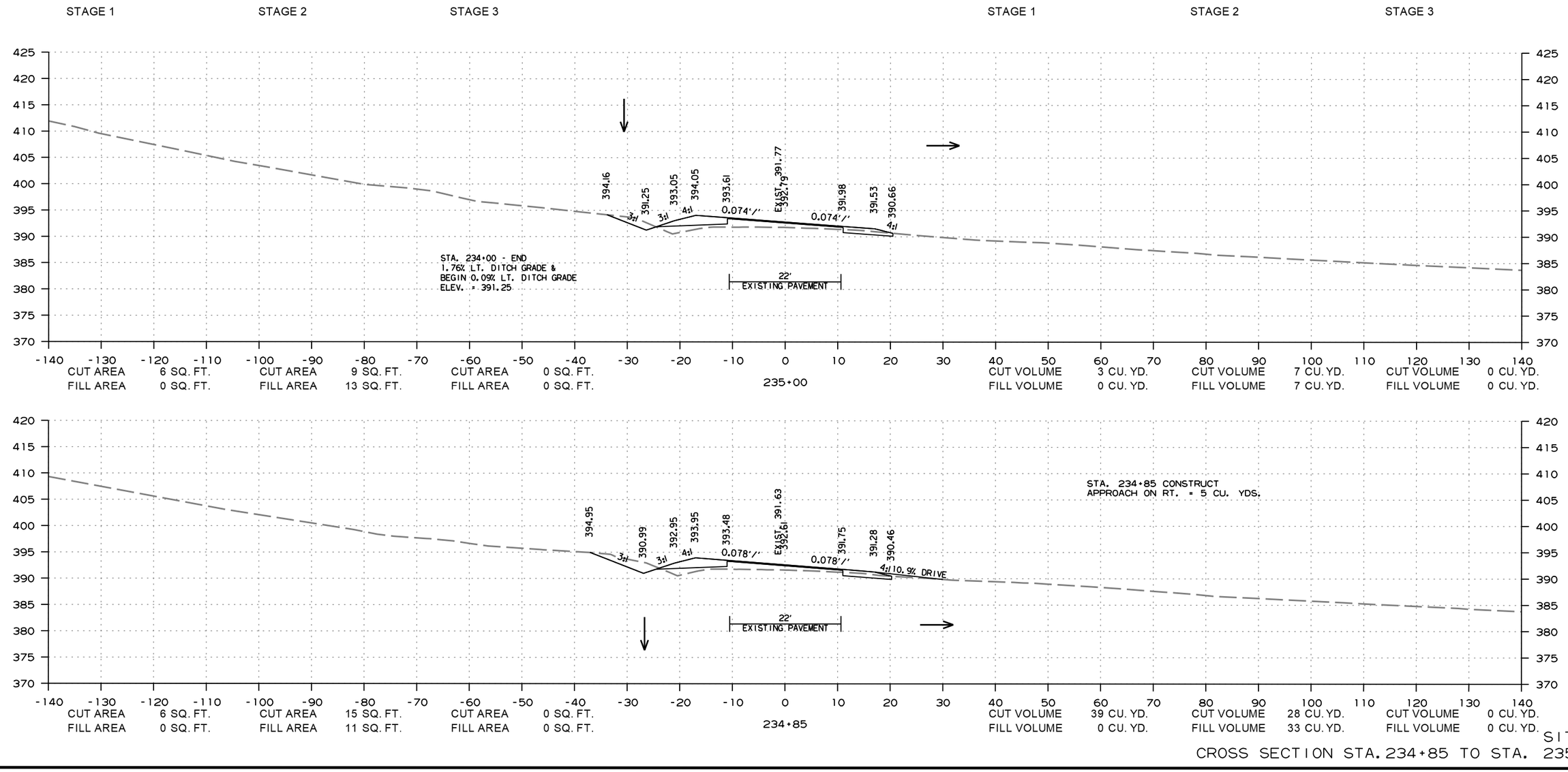


SITE 2
CROSS SECTION STA. 232+00 TO STA. 234+00

tw39665 10/21/2019
R061442.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.		061442	209	253

(2) CROSS SECTIONS

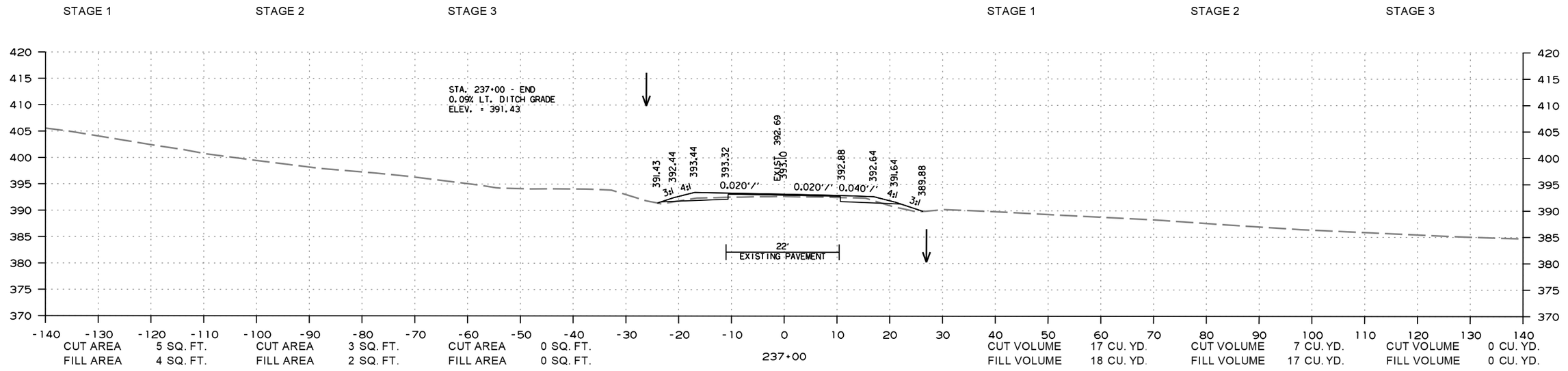


SITE 2
CROSS SECTION STA. 234+85 TO STA. 235+00

tw39665 10/21/2019
R061442.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.		061442	210	253

(2) CROSS SECTIONS

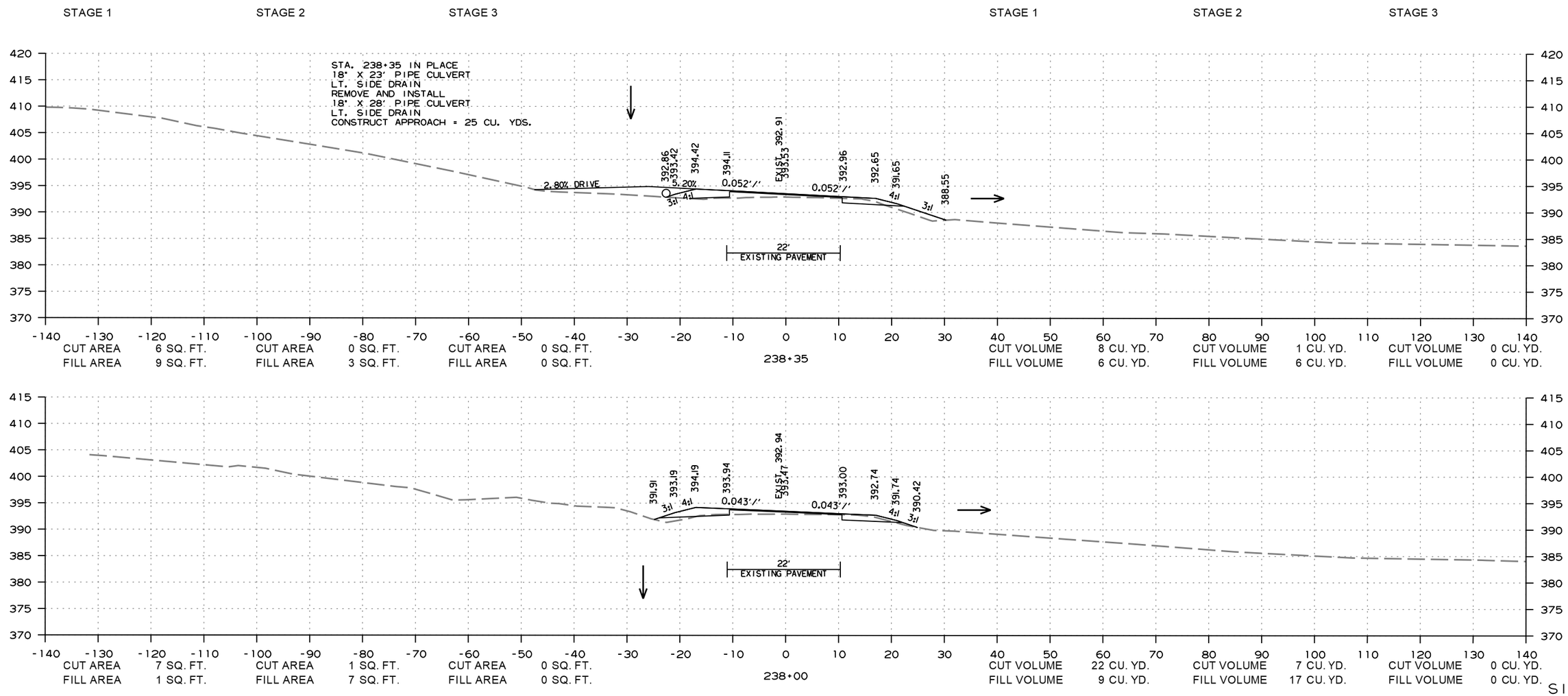


SITE 2
CROSS SECTION STA. 236+00 TO STA. 237+00

lw39665 10/21/2019
R061442.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.		061442	211	253

(2) CROSS SECTIONS



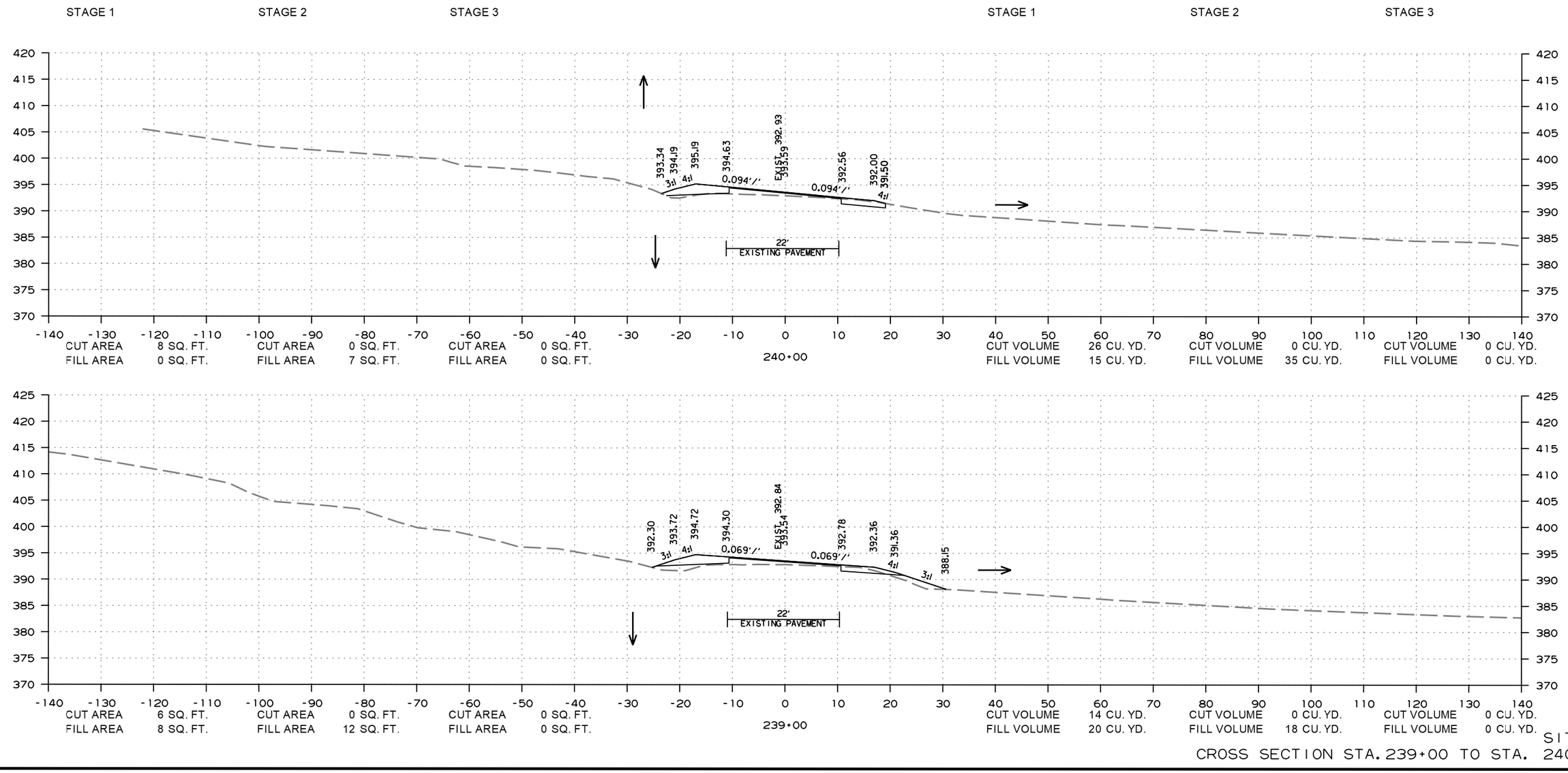
SITE 2
CROSS SECTION STA. 238+00 TO STA. 238+35

tw39665 10/21/2019
R061442.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.		061442	212	253

(2) CROSS SECTIONS



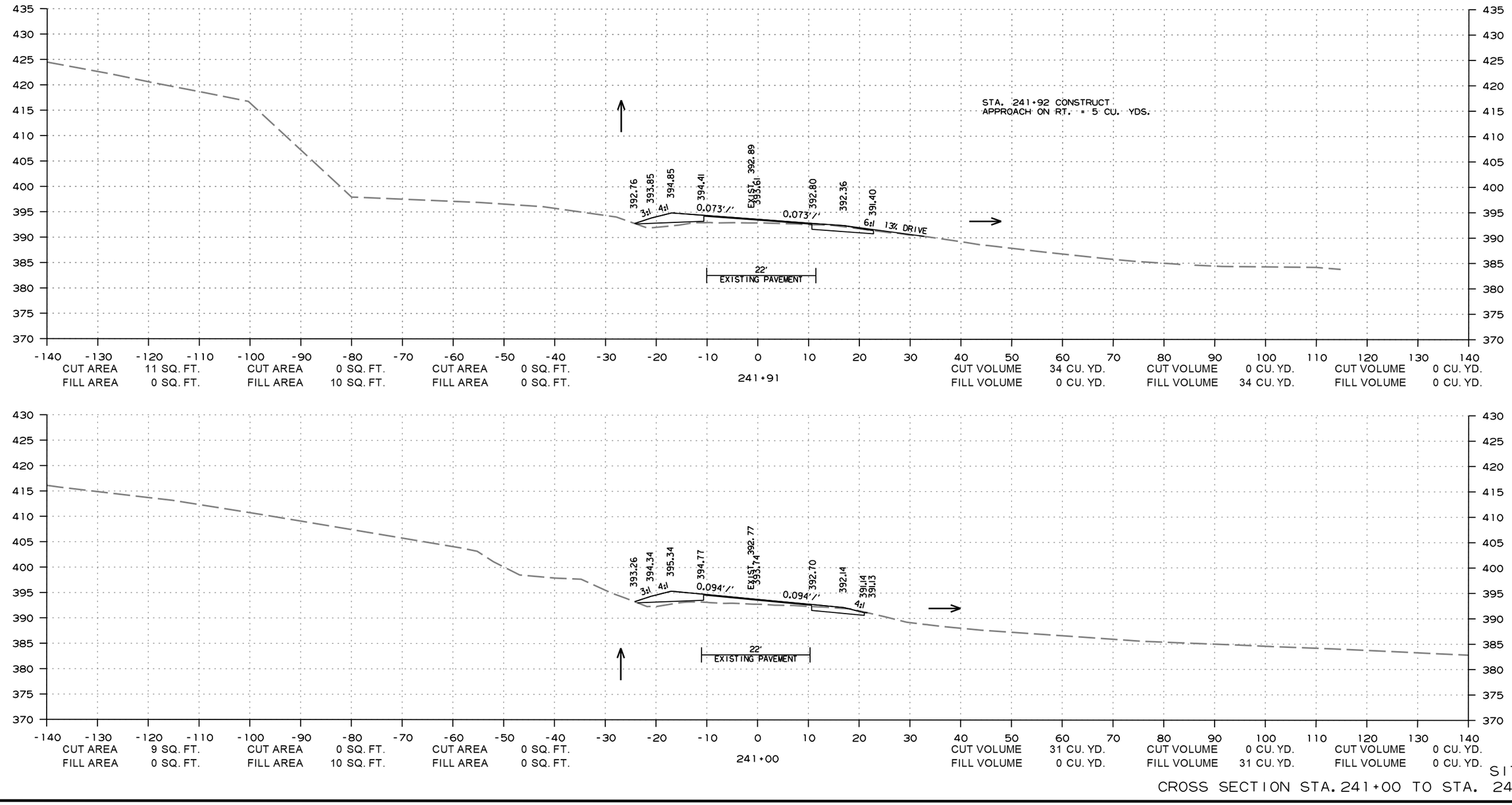
SITE 2
CROSS SECTION STA. 239+00 TO STA. 240+00

lw39665 10/21/2019
R061442.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.		061442	213	253

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

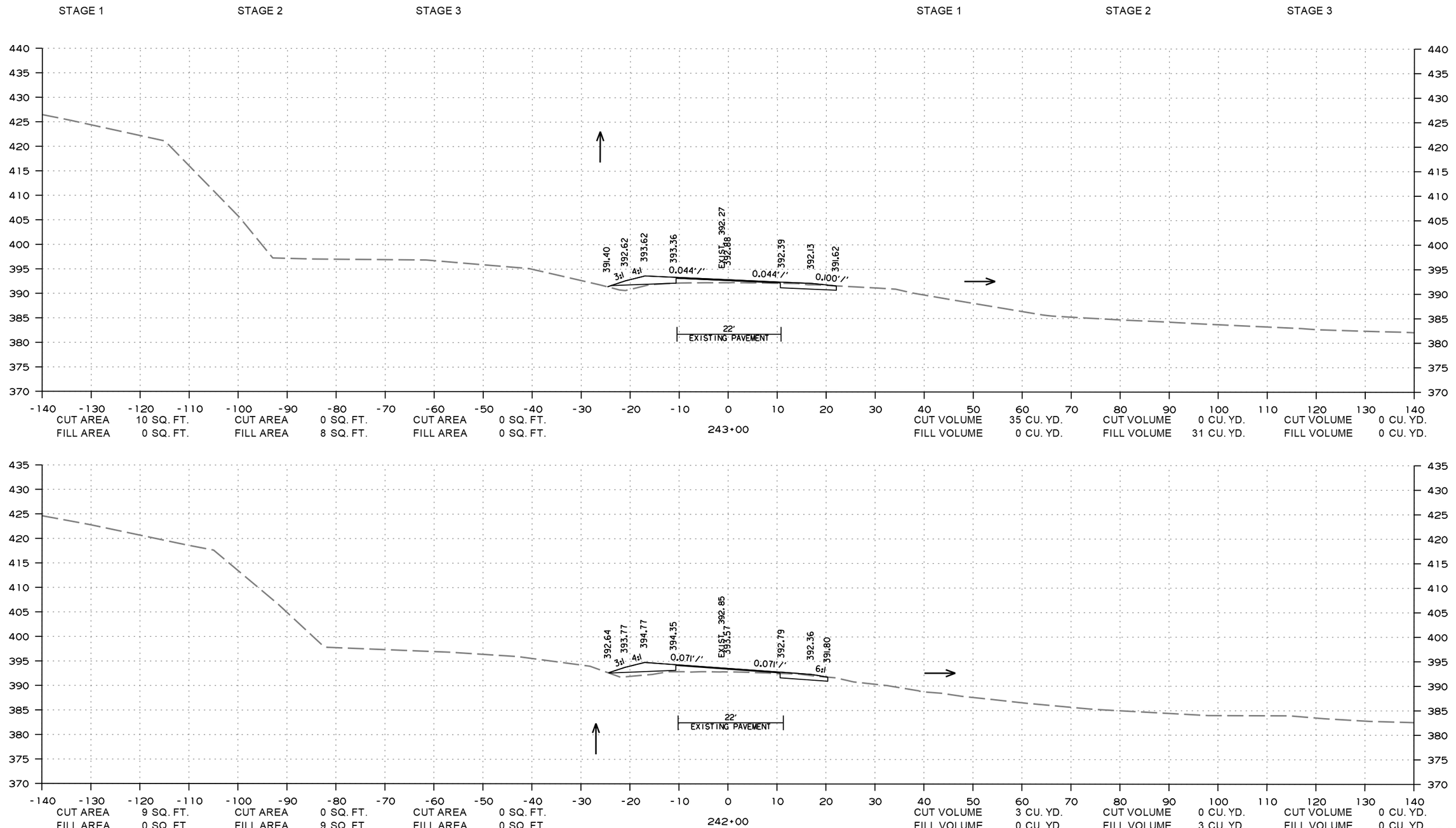


tw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 241+00 TO STA. 241+91

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	214	253

(2) CROSS SECTIONS

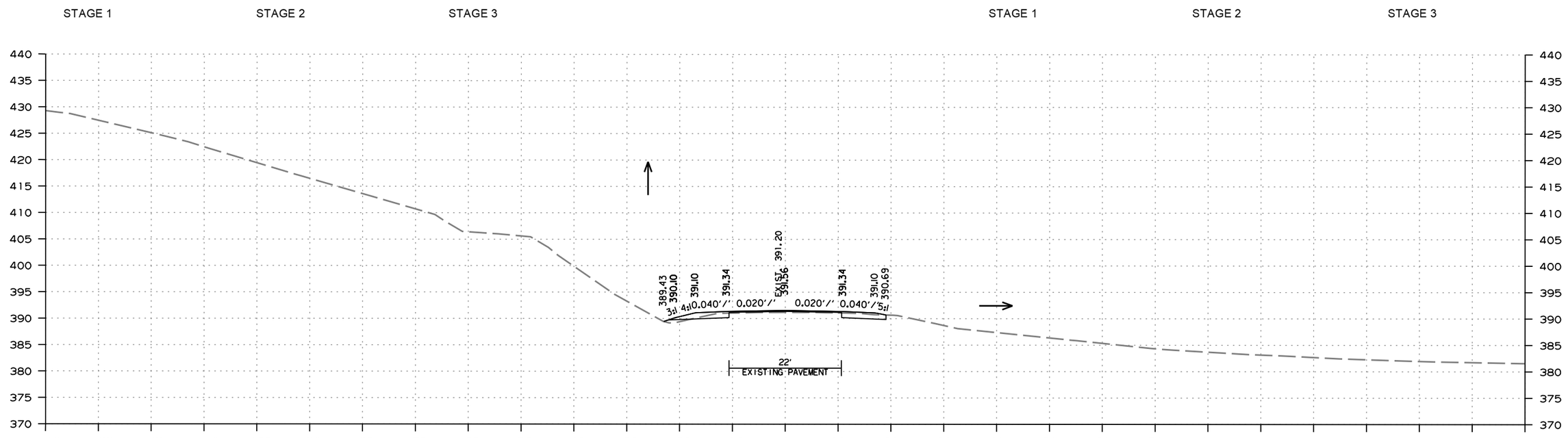


lw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 242+00 TO STA. 243+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.		061442	215	253

(2) CROSS SECTIONS

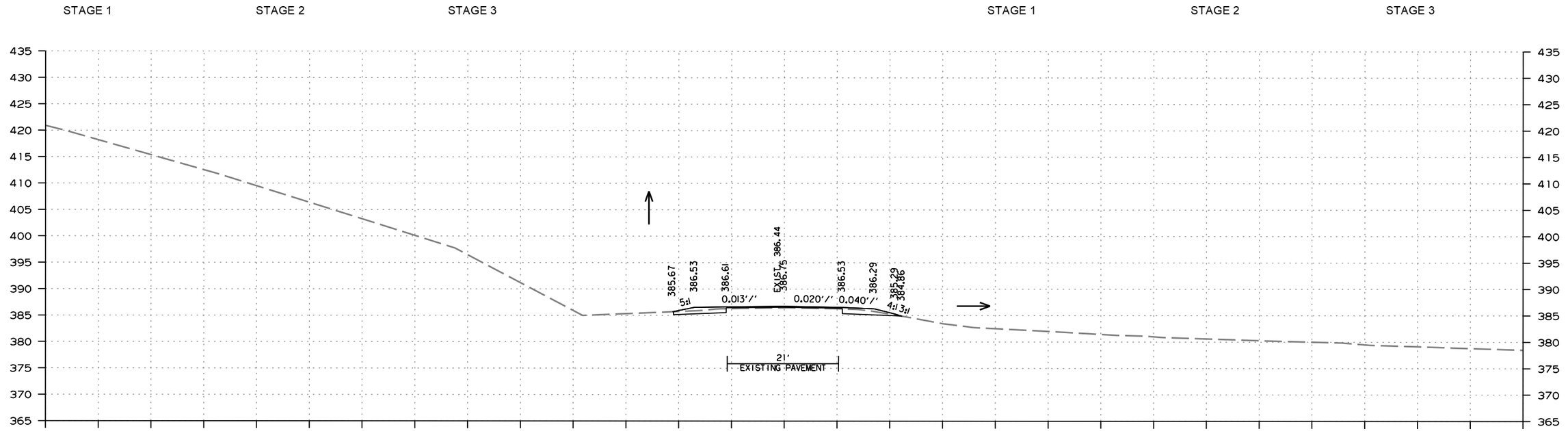


SITE 2
CROSS SECTION STA. 244+00 TO STA. 244+64

tw39665 10/21/2019
R061442.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.		061442	216	253

(2) CROSS SECTIONS

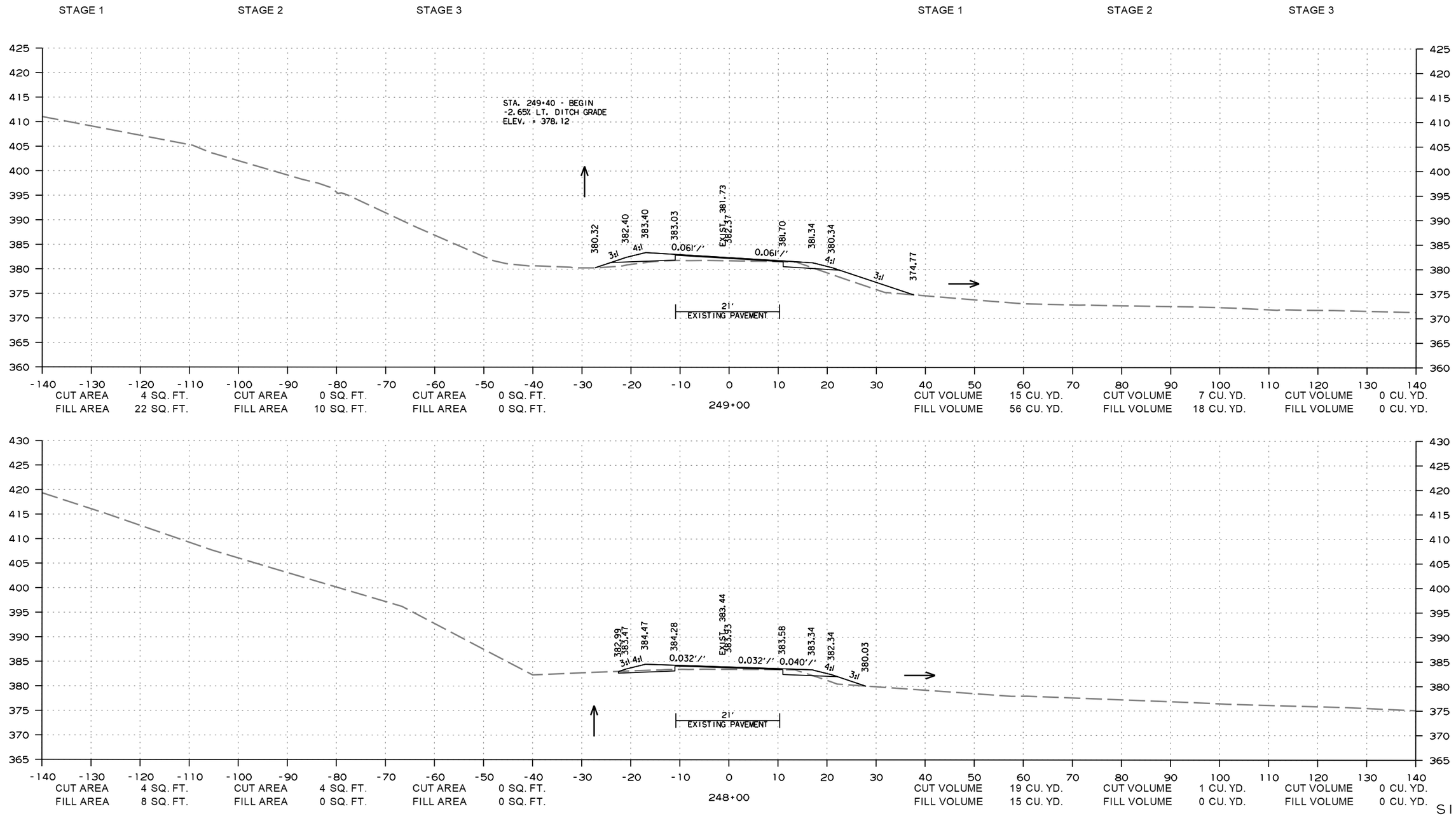


SITE 2
CROSS SECTION STA. 246+88 TO STA. 247+00

tw39665 10/21/2019
R061442.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.		061442	217	253

(2) CROSS SECTIONS

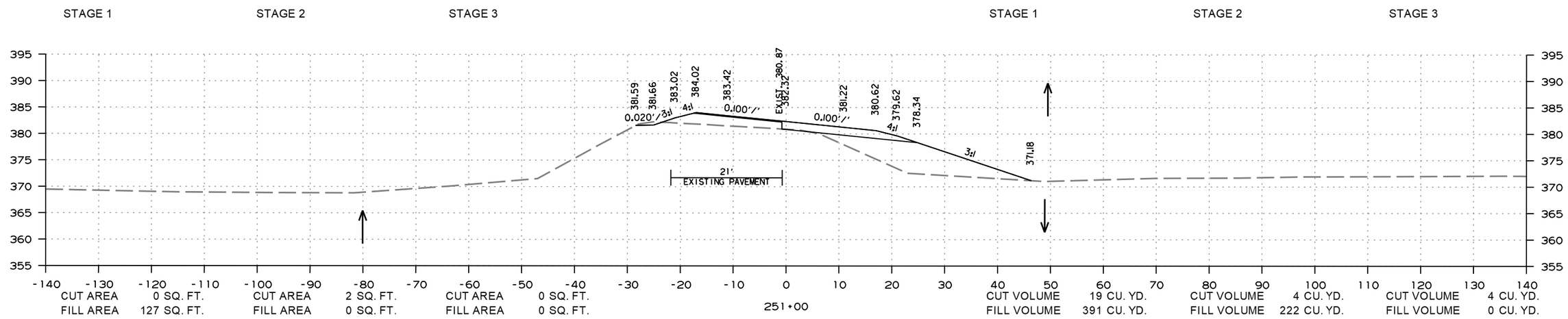


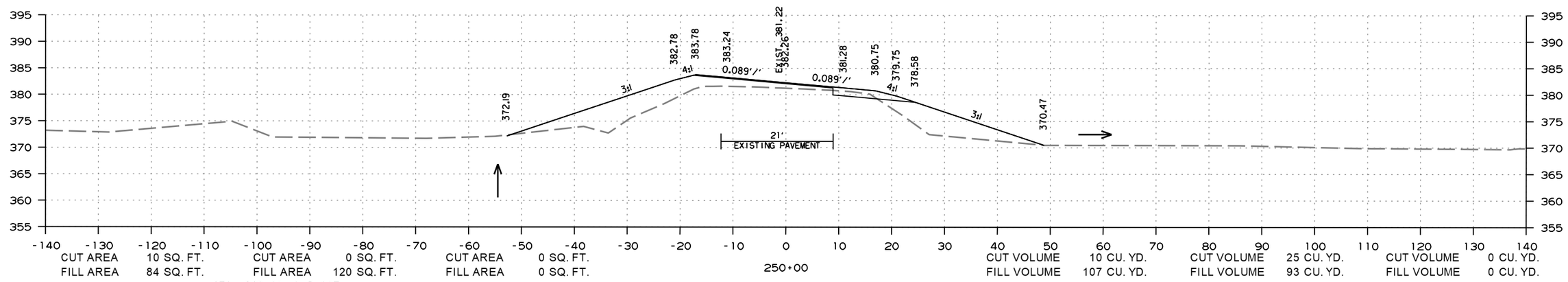
lw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 248+00 TO STA. 249+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.		061442	218	253

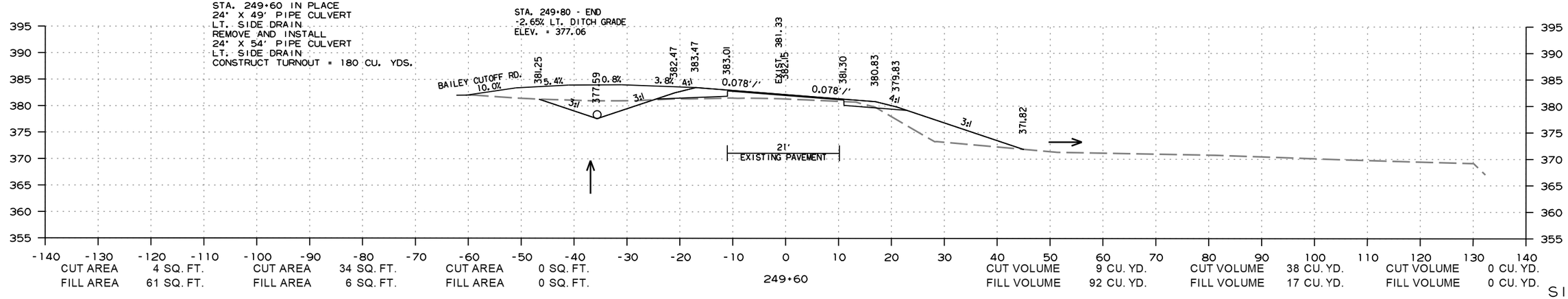
(2) CROSS SECTIONS





STA. 249+60 IN PLACE
24" X 49' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
24" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT TURNOUT = 180 CU. YDS.

STA. 249+80 - END
-2.65% LT. DITCH GRADE
ELEV. = 377.06

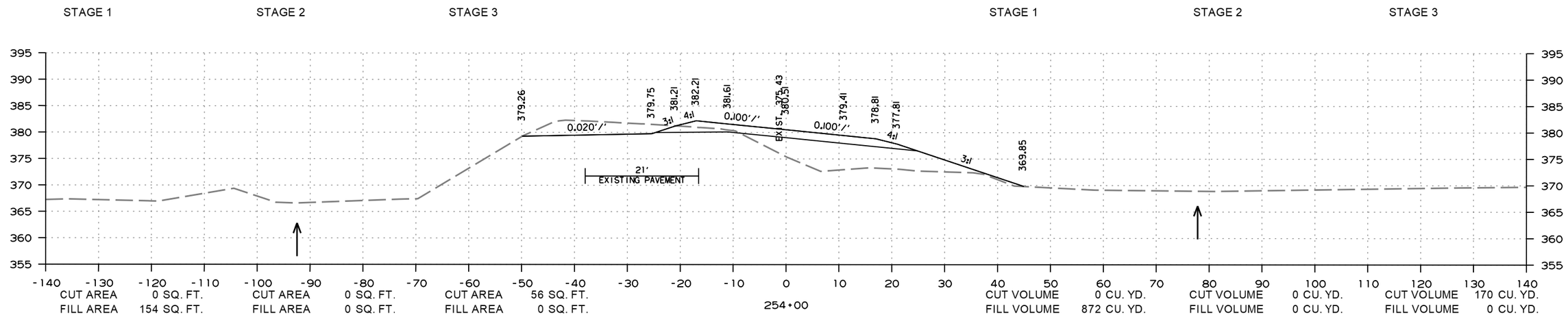


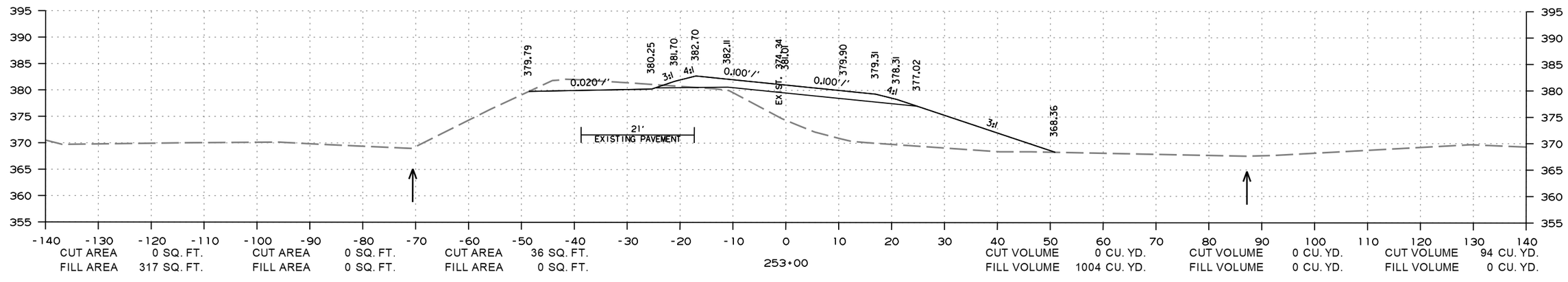
SITE 2
CROSS SECTION STA. 249+60 TO STA. 251+00

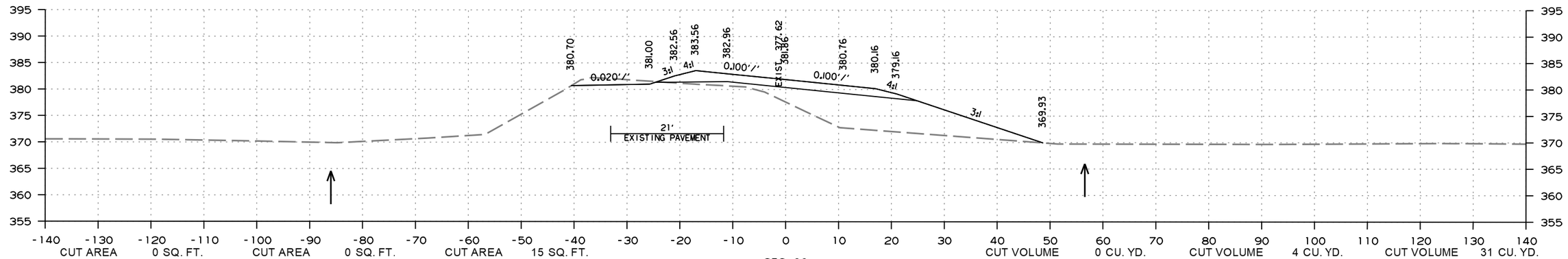
lw39665 10/21/2019
R061442.DGN

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.		061442	219	253

(2) CROSS SECTIONS





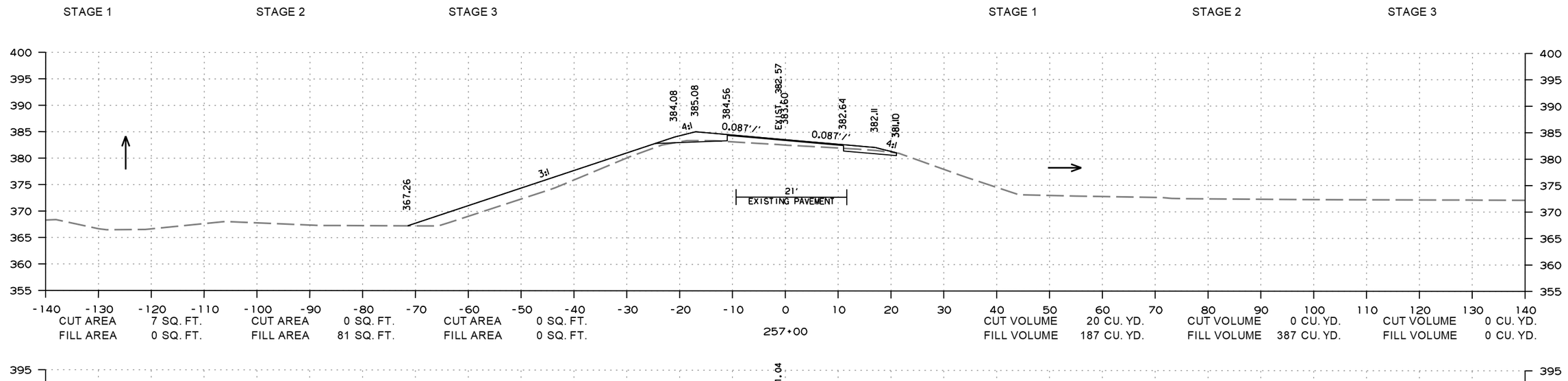


SITE 2
CROSS SECTION STA. 252+00 TO STA. 254+00

lw39665 10/21/2019
R061442.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.		061442	220	253

(2) CROSS SECTIONS

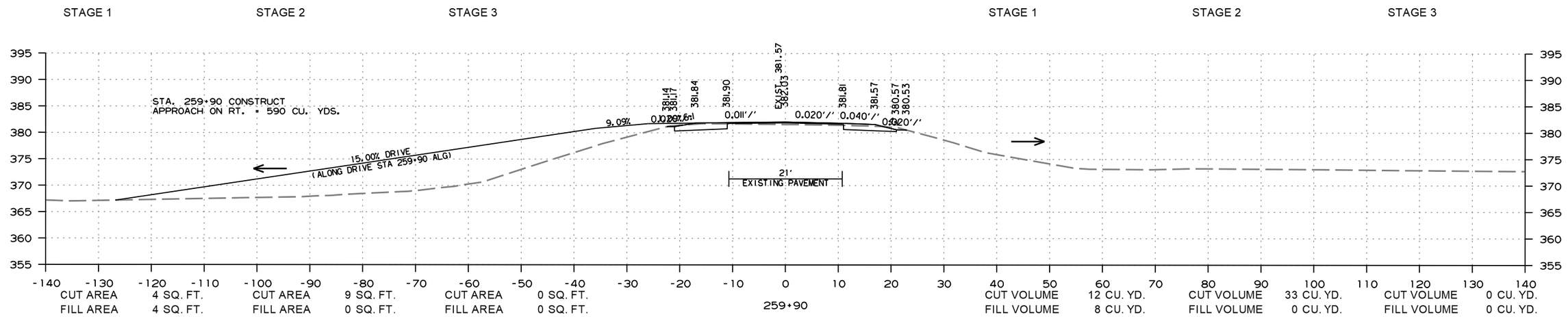


lw39665 10/21/2019
R061442.DGN

SITE 2
CROSS SECTION STA. 255+00 TO STA. 257+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.		061442	221	253

(2) CROSS SECTIONS

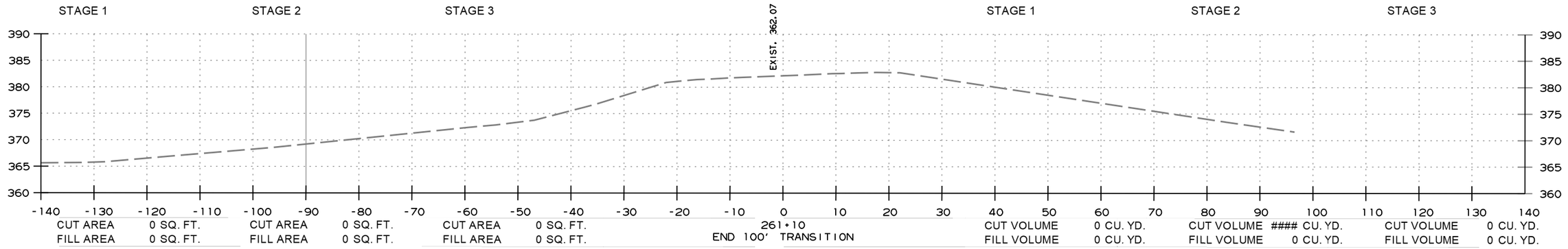


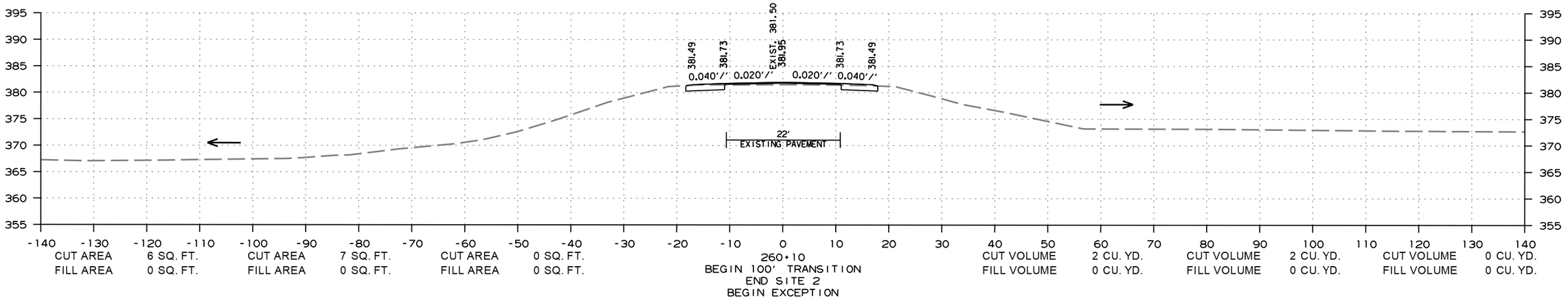
SITE 2
CROSS SECTION STA. 258+00 TO STA. 259+90

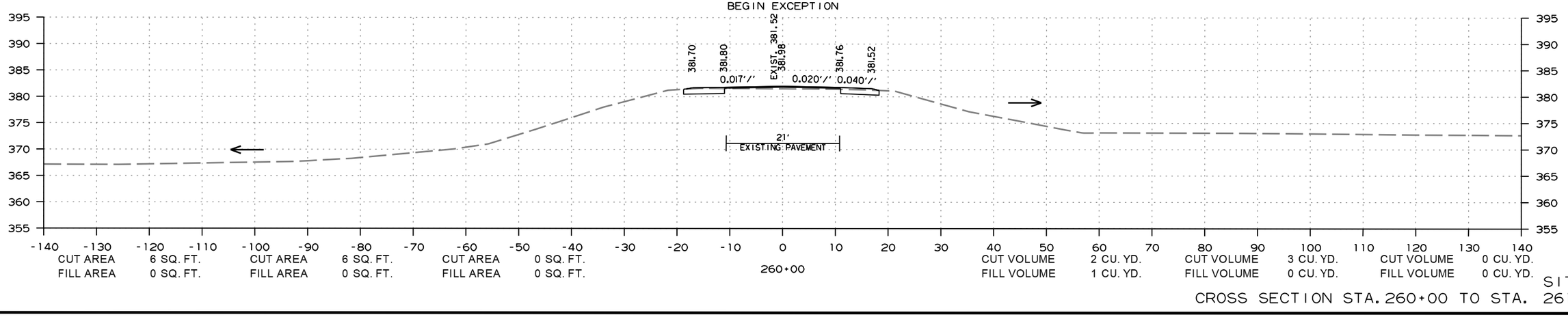
tw39665 10/21/2019
R061442.DGN

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.		061442	222	253

(2) CROSS SECTIONS





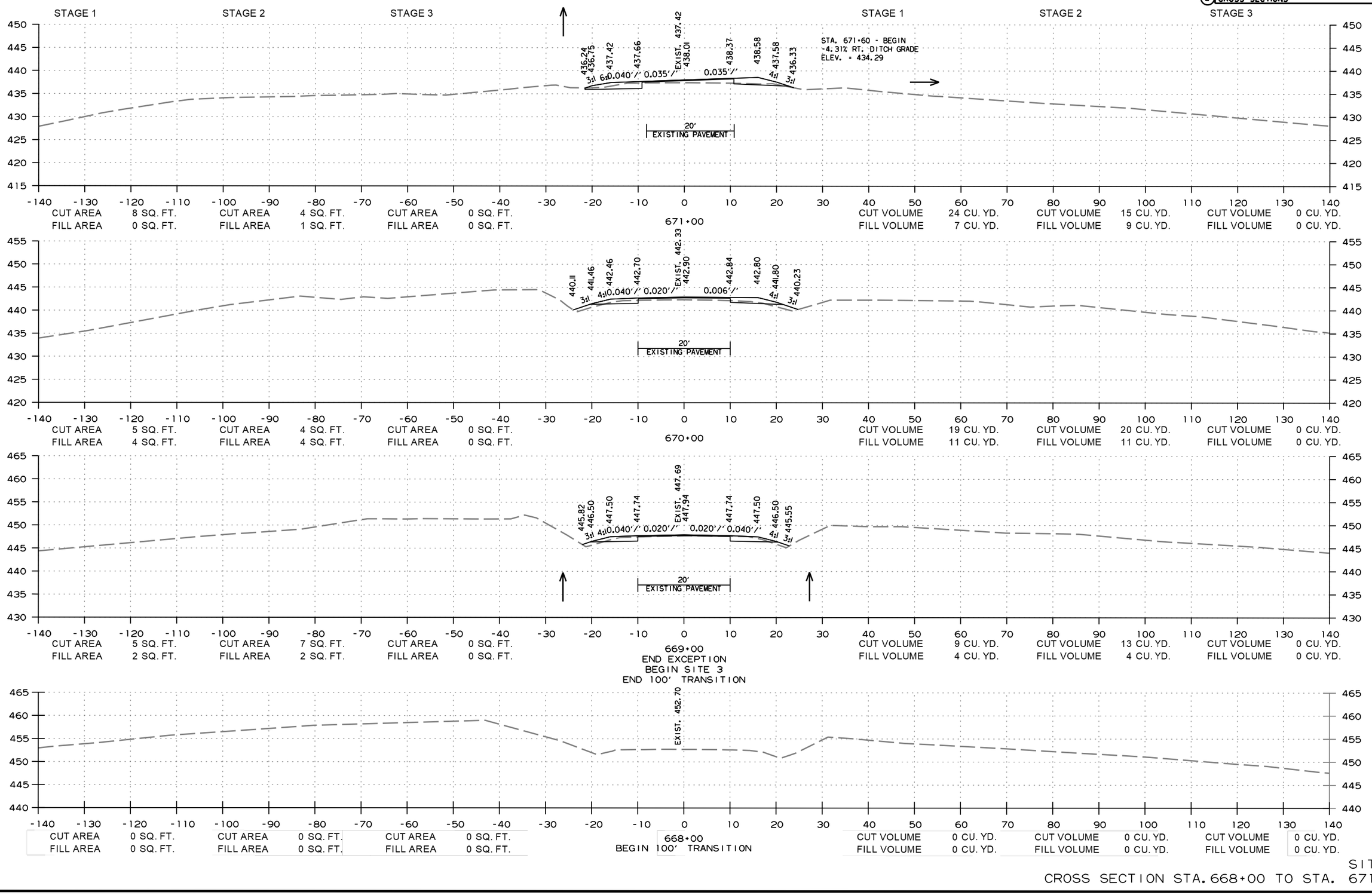


SITE 2
CROSS SECTION STA. 260+00 TO STA. 261+10

tw:39665 10/21/2019
R061442.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.		061442	223	253

(2) CROSS SECTIONS

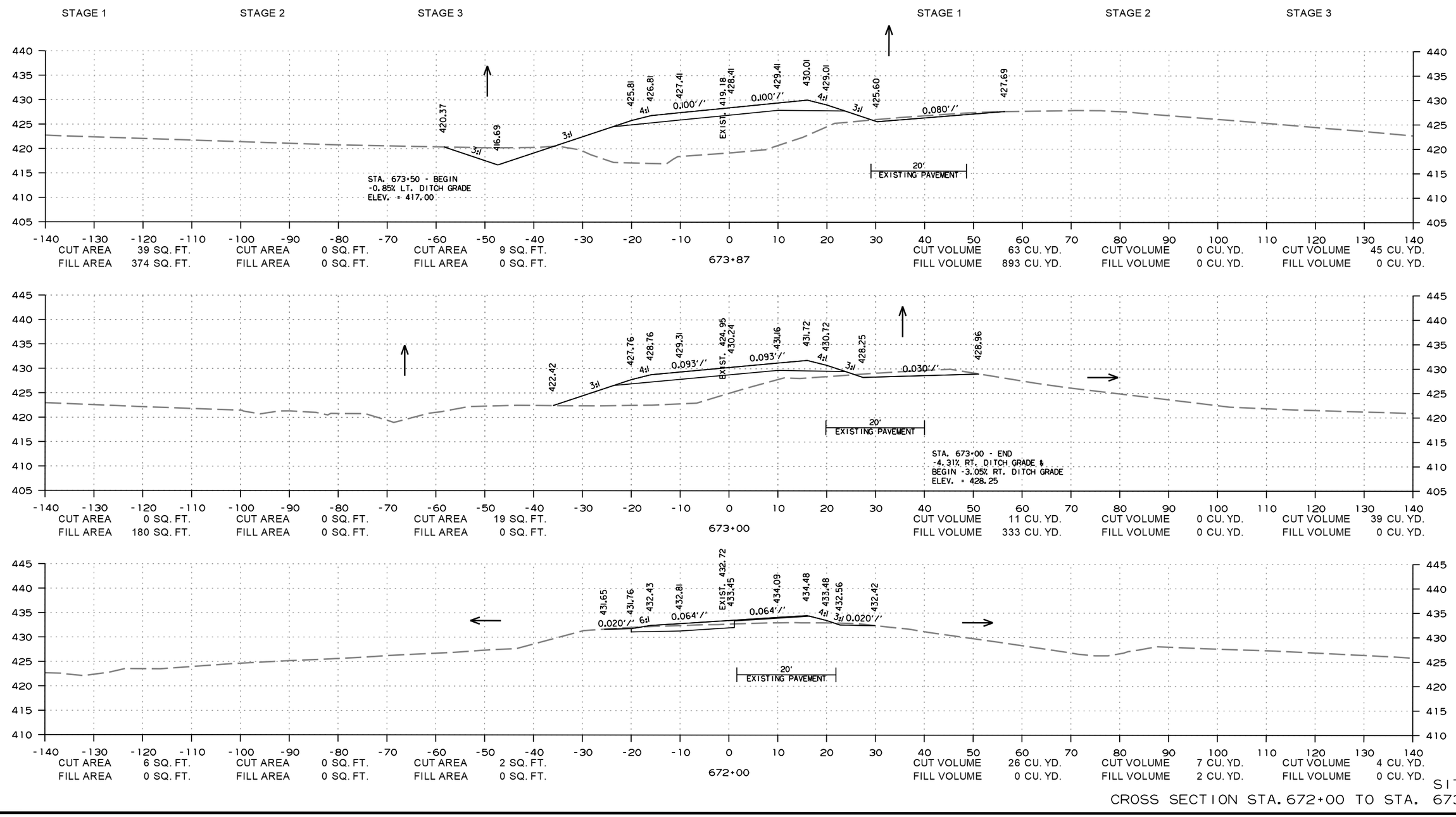


SITE 3
CROSS SECTION STA. 668+00 TO STA. 671+00

tw39665 10/21/2019
R061442.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.		061442	224	253

(2) CROSS SECTIONS

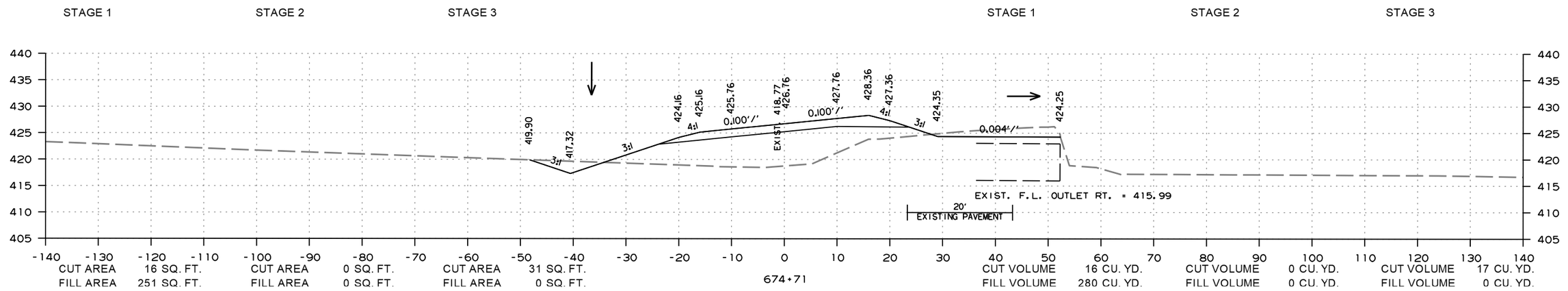


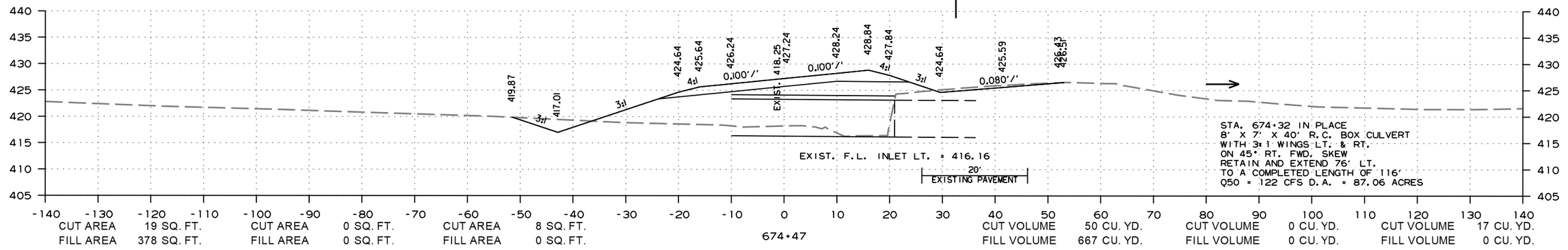
SITE 3
CROSS SECTION STA. 672+00 TO STA. 673+87

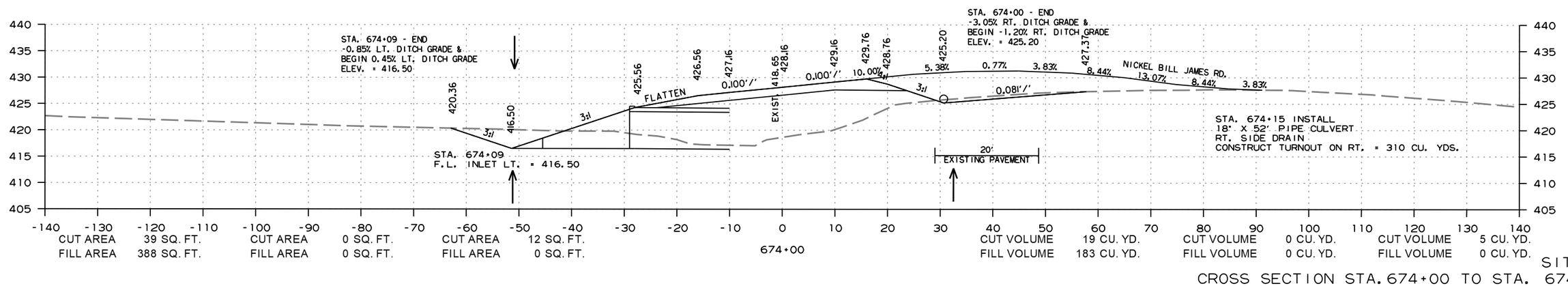
tw39665 10/21/2019
R061442.DGN

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.		061442	225	253

(2) CROSS SECTIONS





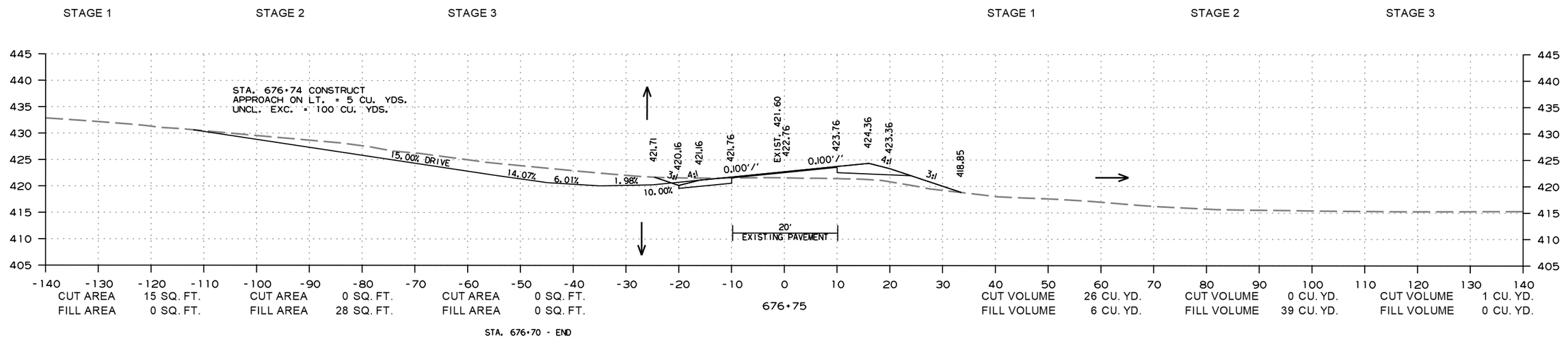


lw39665 10/21/2019
R061442.DGN

SITE 3
CROSS SECTION STA. 674+00 TO STA. 674+71

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	226	253

(2) CROSS SECTIONS

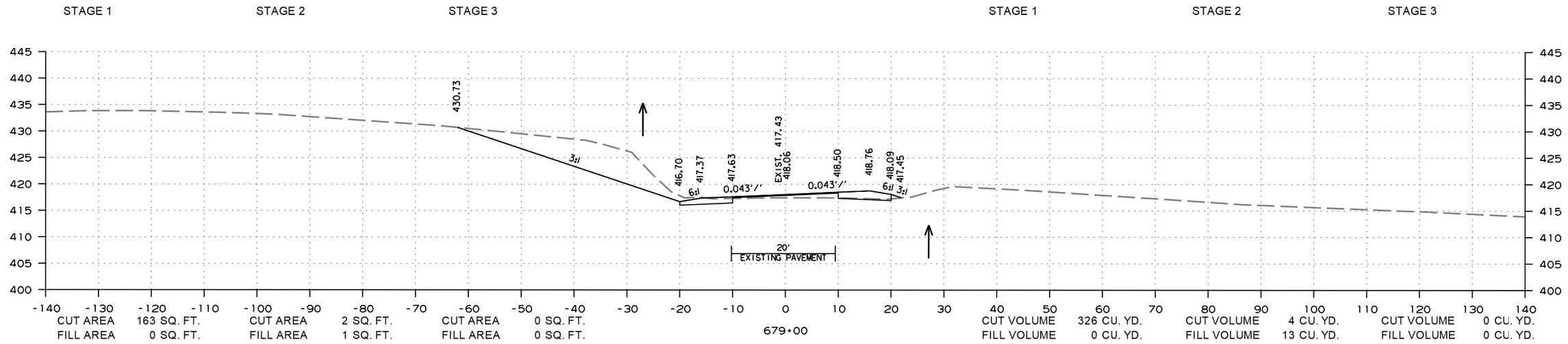


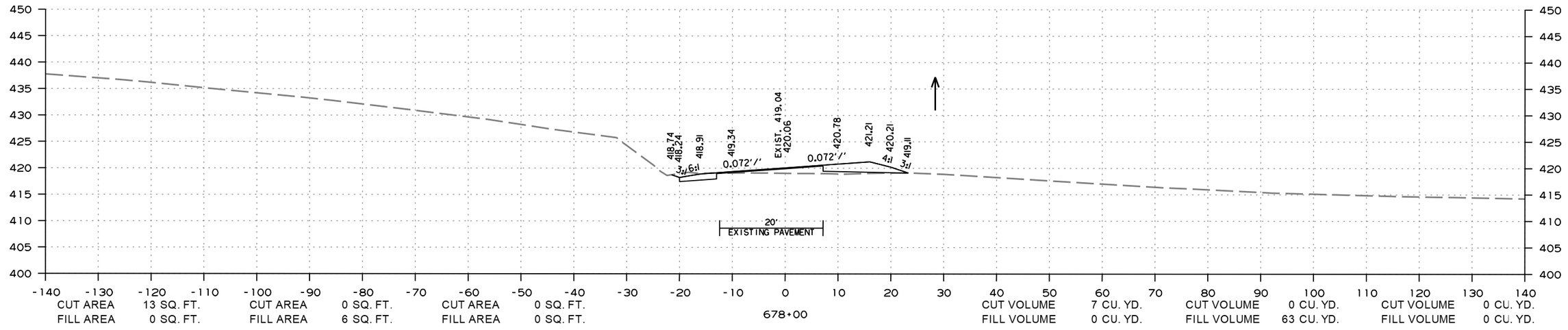
SITE 3
CROSS SECTION STA. 675+00 TO STA. 676+75

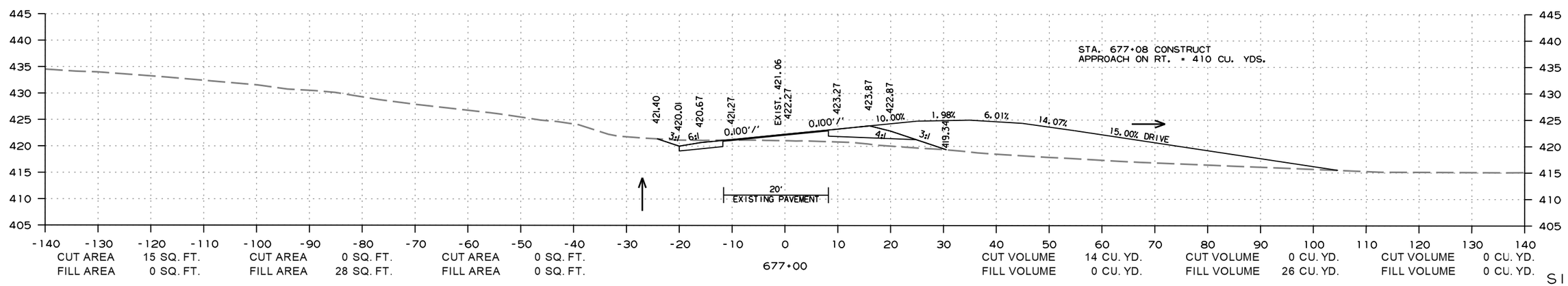
lw39665 10/21/2019
R061442.DGN

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.		061442	227	253

(2) CROSS SECTIONS





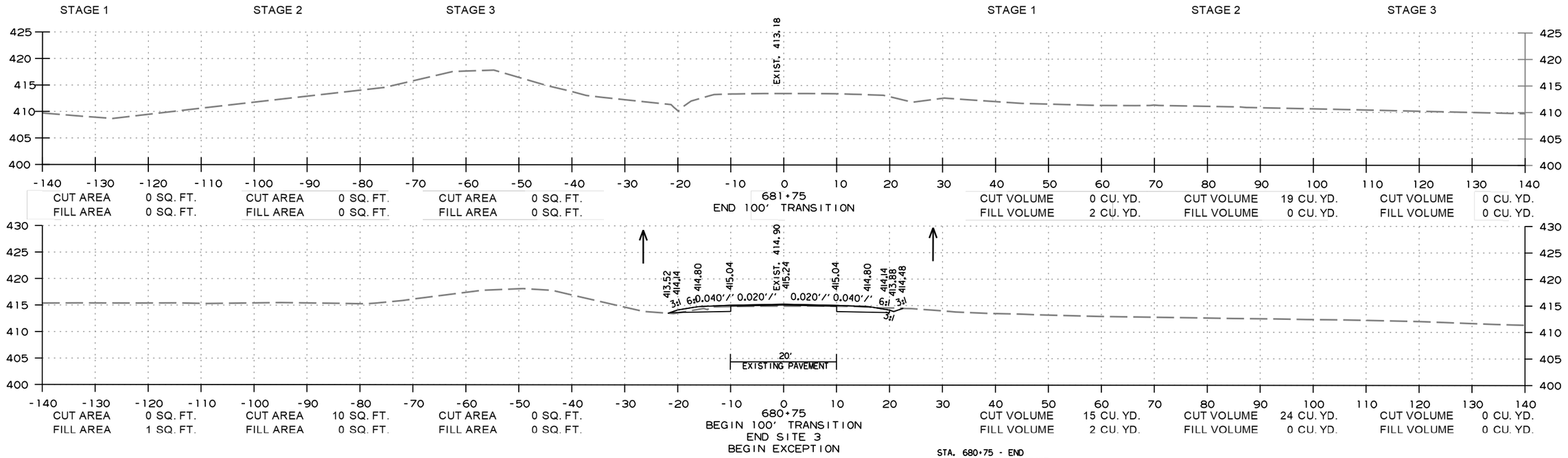


SITE 3
CROSS SECTION STA. 677+00 TO STA. 679+00

lw39665 10/21/2019
R061442.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.		061442	228	253

(2) CROSS SECTIONS

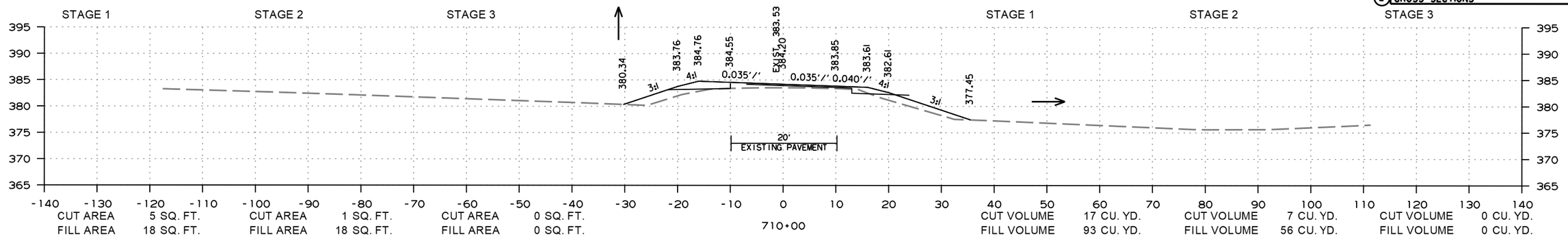


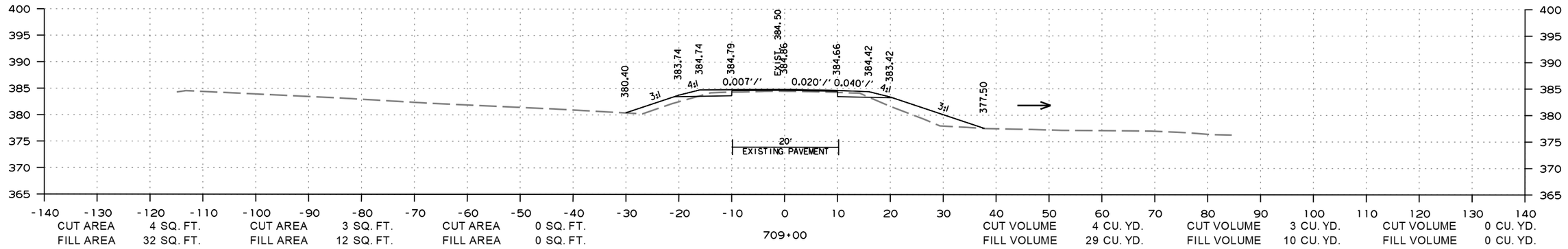
tw39665 10/21/2019
R061442.DGN

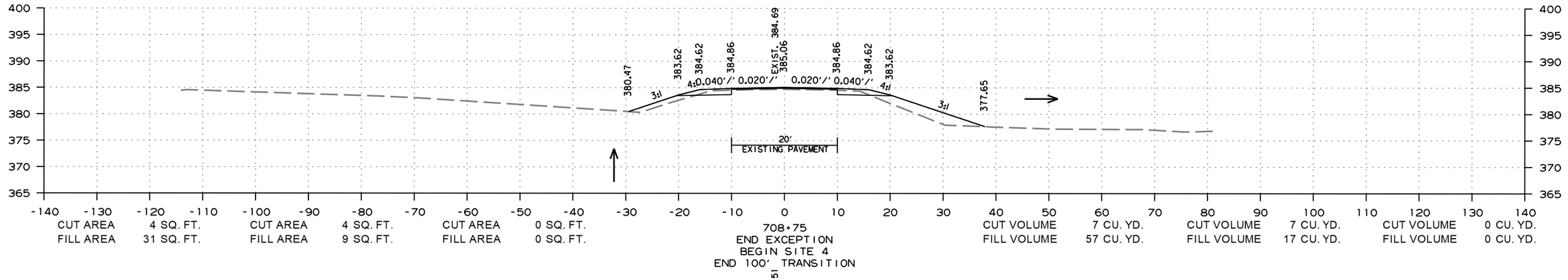
SITE 3
CROSS SECTION STA. 680+00 TO STA. 681+75

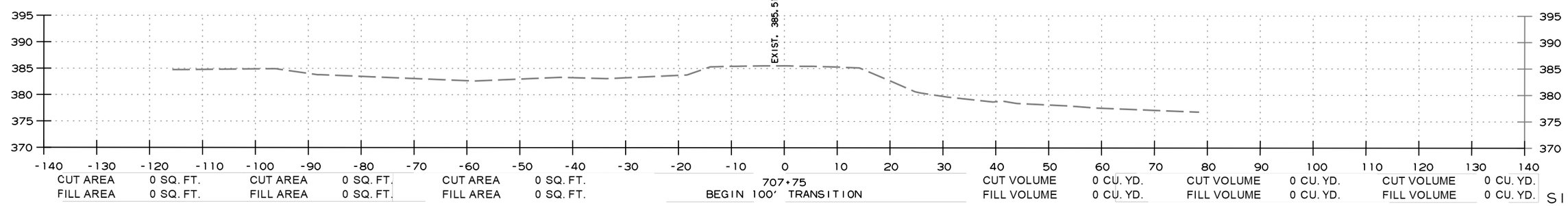
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	229	253

(2) CROSS SECTIONS







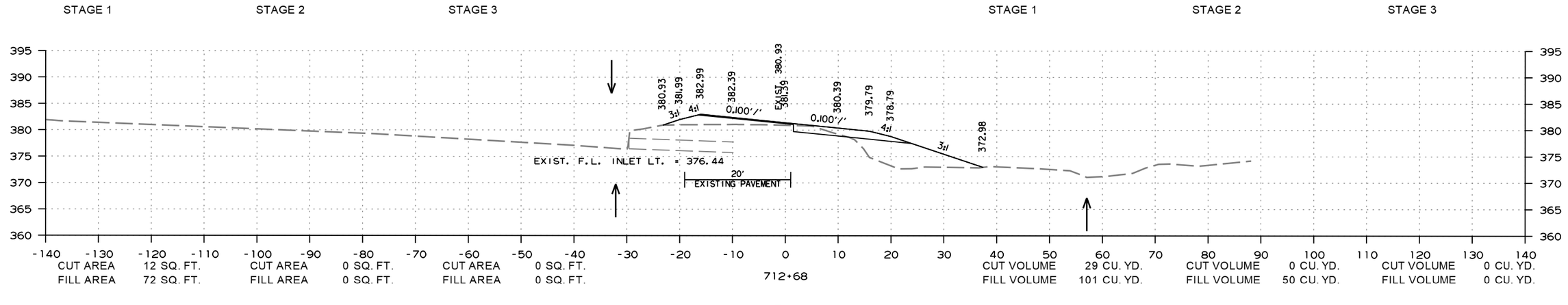


SITE 4
CROSS SECTION STA. 707+75 TO STA. 710+00

tw39665 10/21/2019
R061442.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.		061442	230	253

(2) CROSS SECTIONS

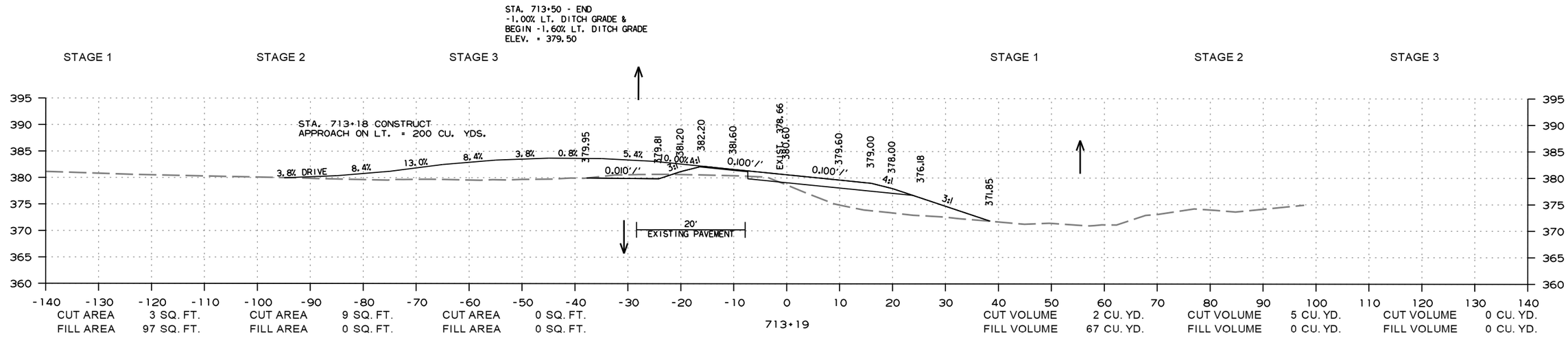


SITE 4
CROSS SECTION STA. 711+00 TO STA. 712+68

tw39665 10/21/2019
R061442.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.		061442	231	253

(2) CROSS SECTIONS

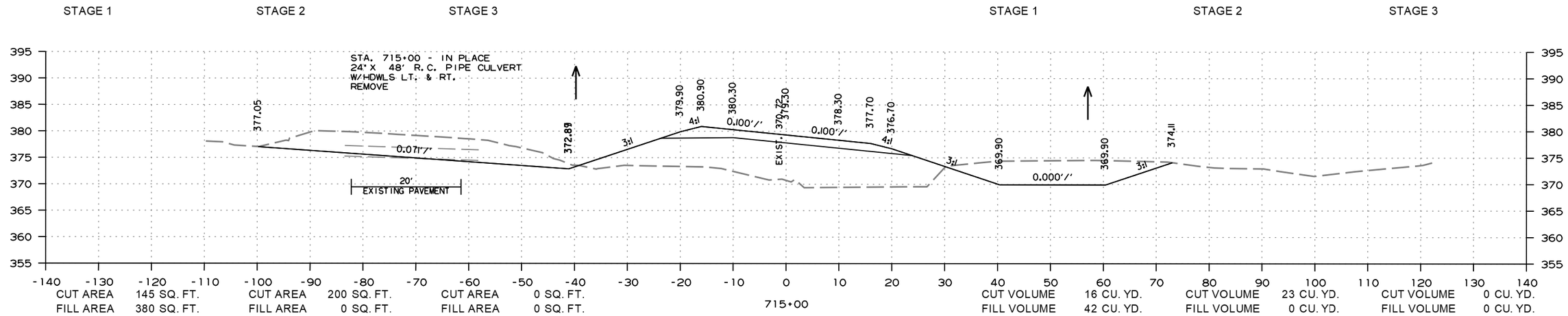


SITE 4
CROSS SECTION STA. 712+75 TO STA. 713+19

tw39665 10/21/2019
R061442.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.		061442	232	253

(2) CROSS SECTIONS

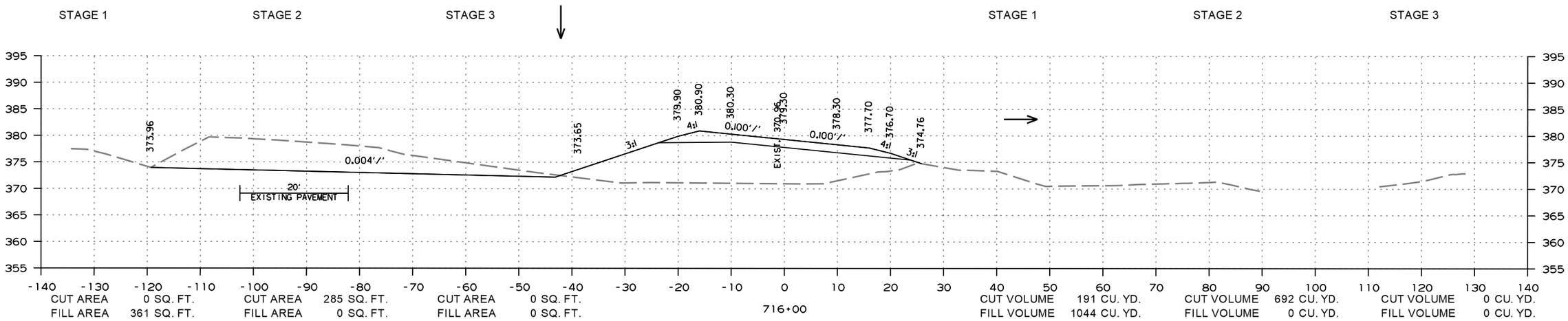


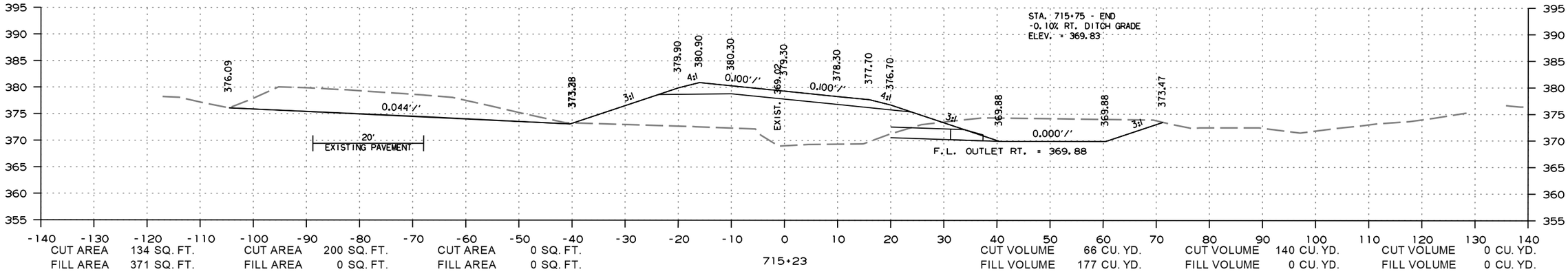
tw:39665 10/21/2019
R061442.DGN

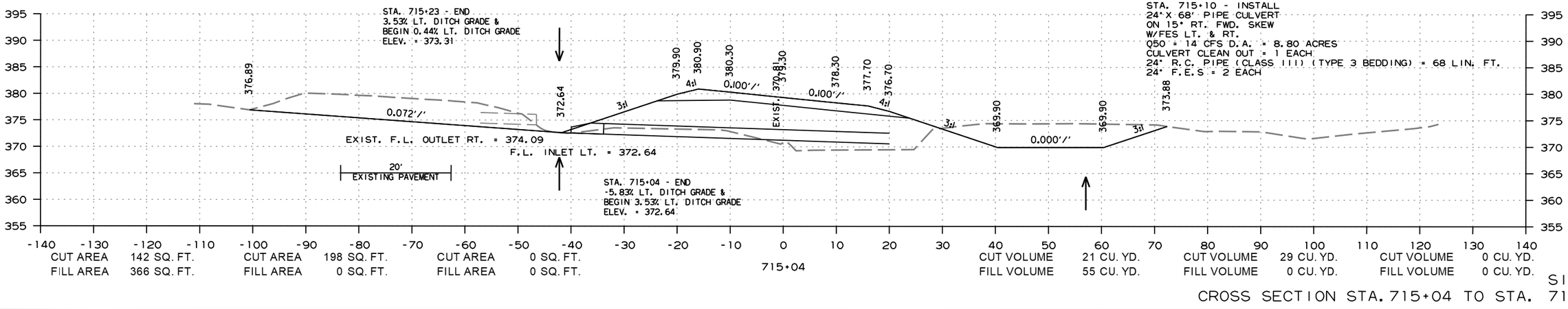
SITE 4
CROSS SECTION STA. 714+00 TO STA. 715+00

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.		061442	233	253

(2) CROSS SECTIONS





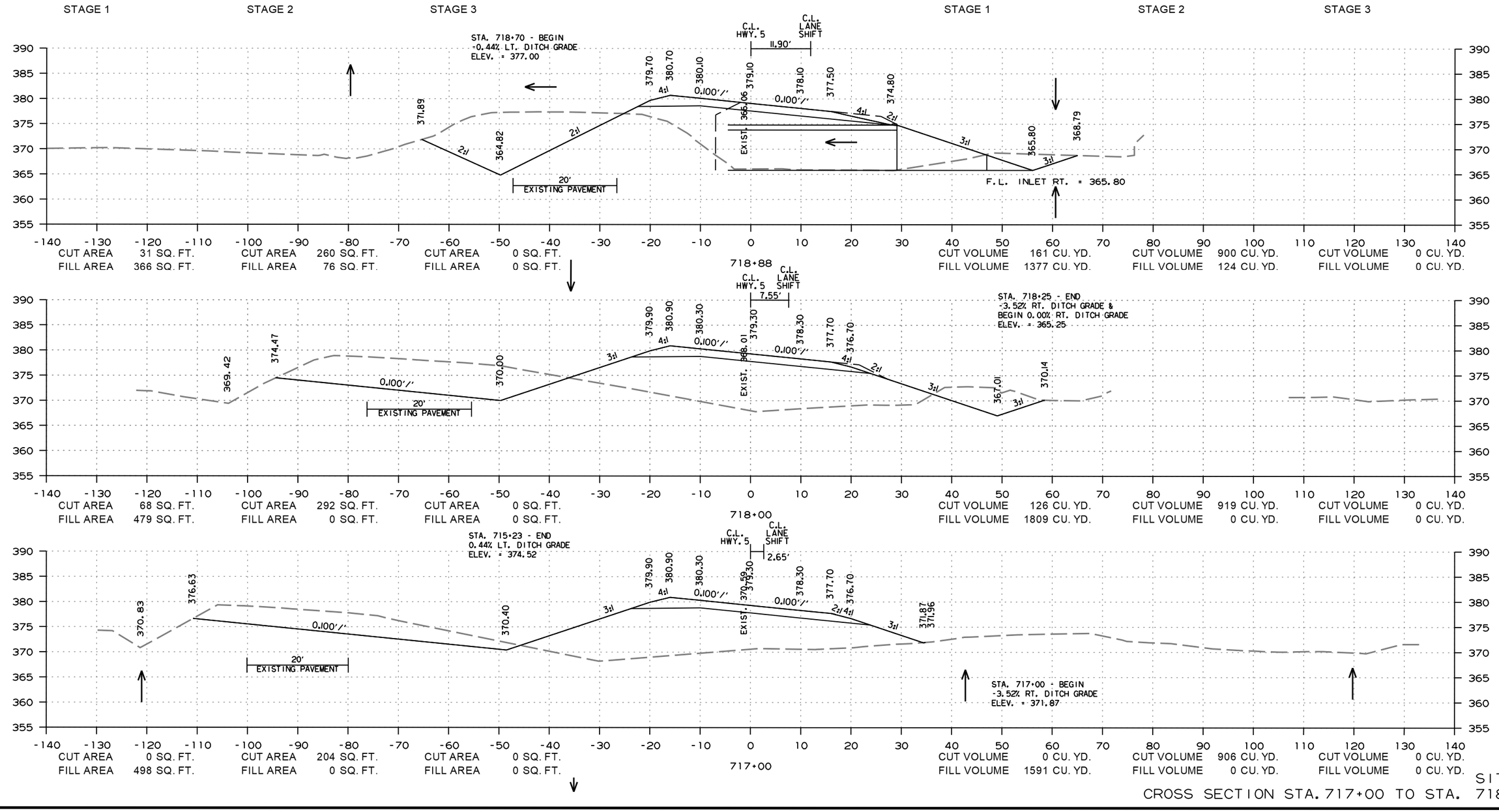


SITE 4
CROSS SECTION STA. 715+04 TO STA. 716+00

tw:39665 10/21/2019
R061442.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.		061442	234	253

(2) CROSS SECTIONS



lw39665 10/21/2019
R061442.DGN

SITE 4
CROSS SECTION STA. 717+00 TO STA. 718+88

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	235	253

(2) CROSS SECTIONS

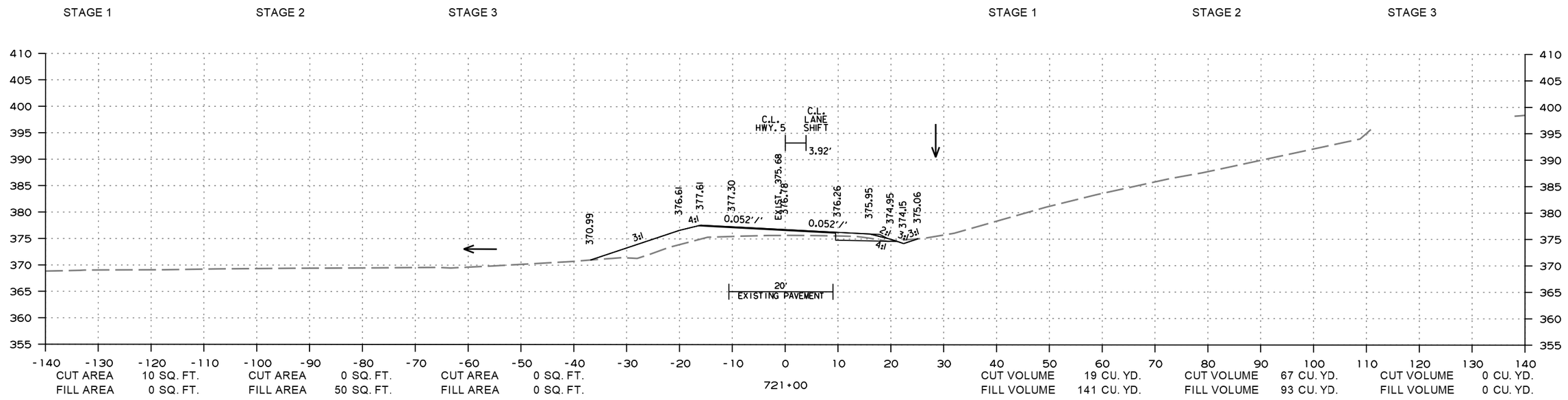
lw39665 10/21/2019
R061442.DGN

SITE 4
CROSS SECTION STA. 719+00 TO STA. 719+38

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061442	236	253

(2) CROSS SECTIONS

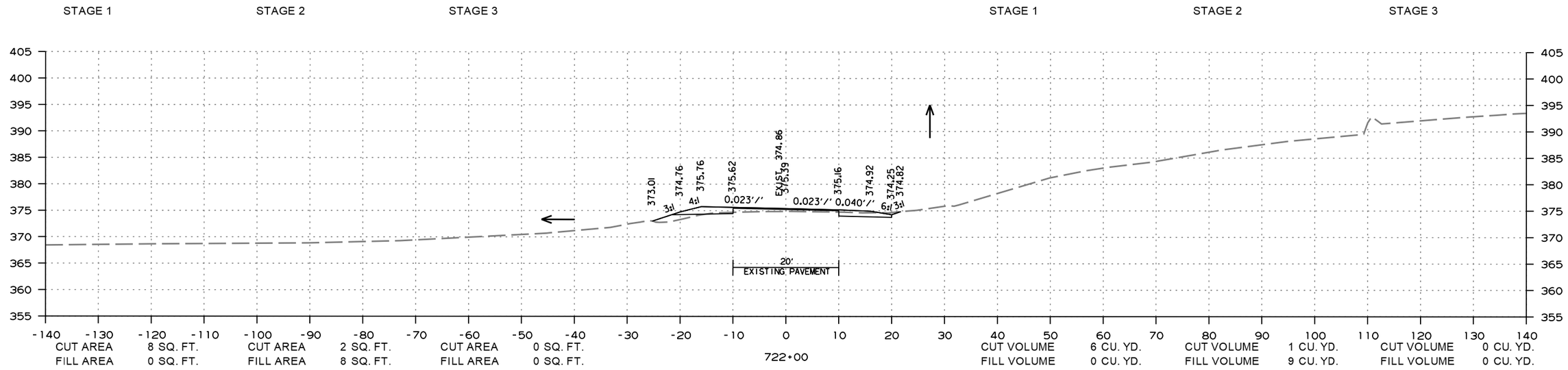


SITE 4
CROSS SECTION STA. 720+00 TO STA. 721+00

tw39665 10/21/2019
R061442.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.		061442	237	253

(2) CROSS SECTIONS

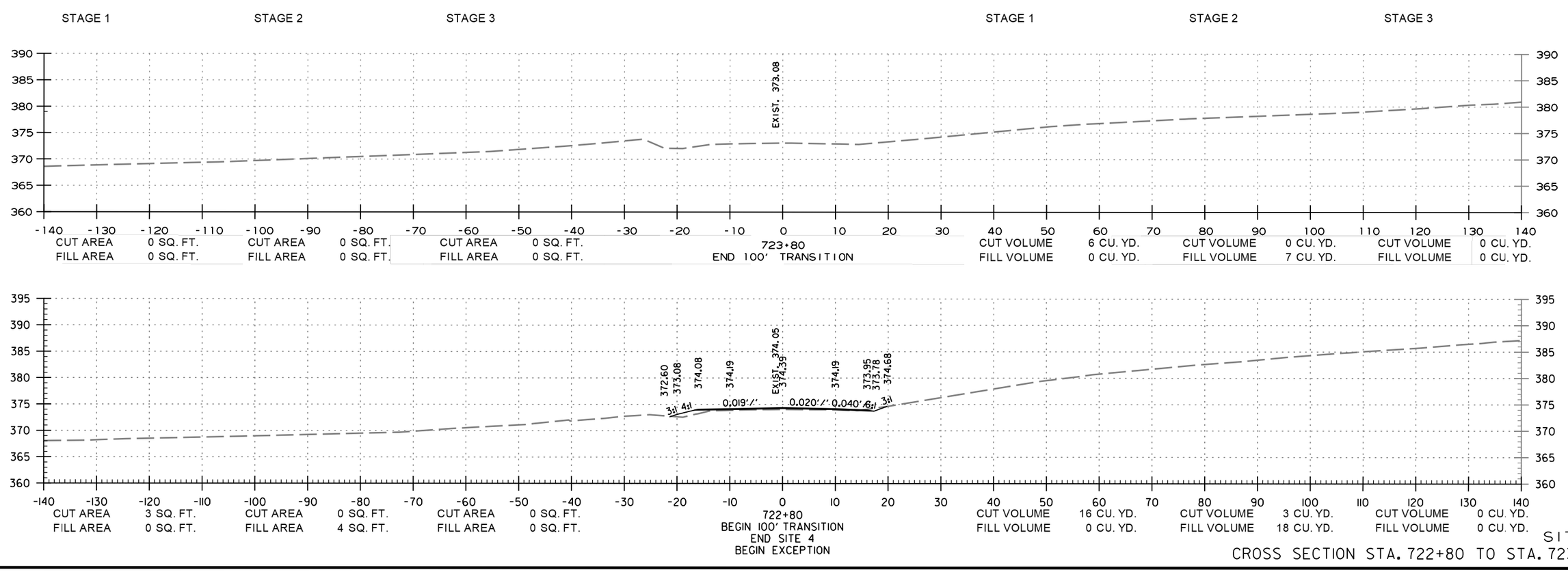


SITE 4
CROSS SECTION STA. 721+79 TO STA. 722+00

lw39665 10/21/2019
R061442.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.		061442	238	253

(2) CROSS SECTIONS

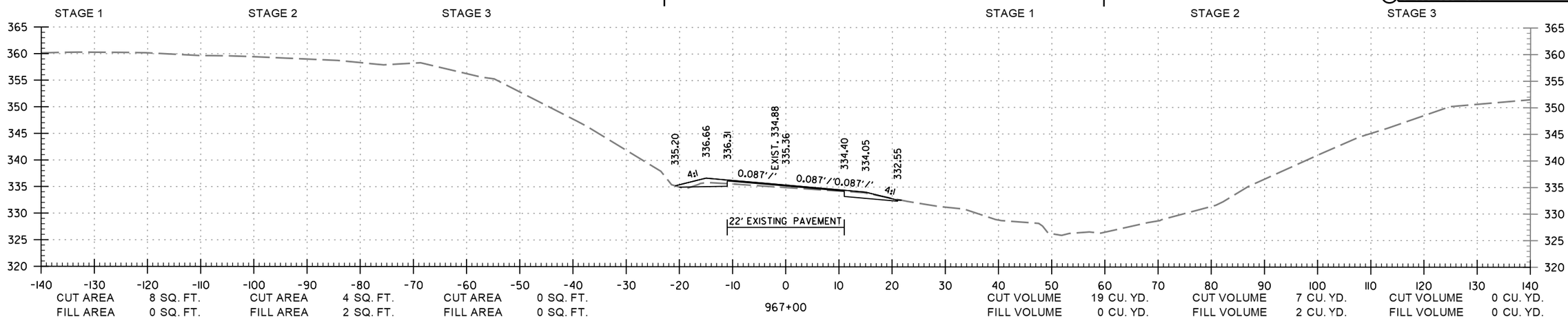


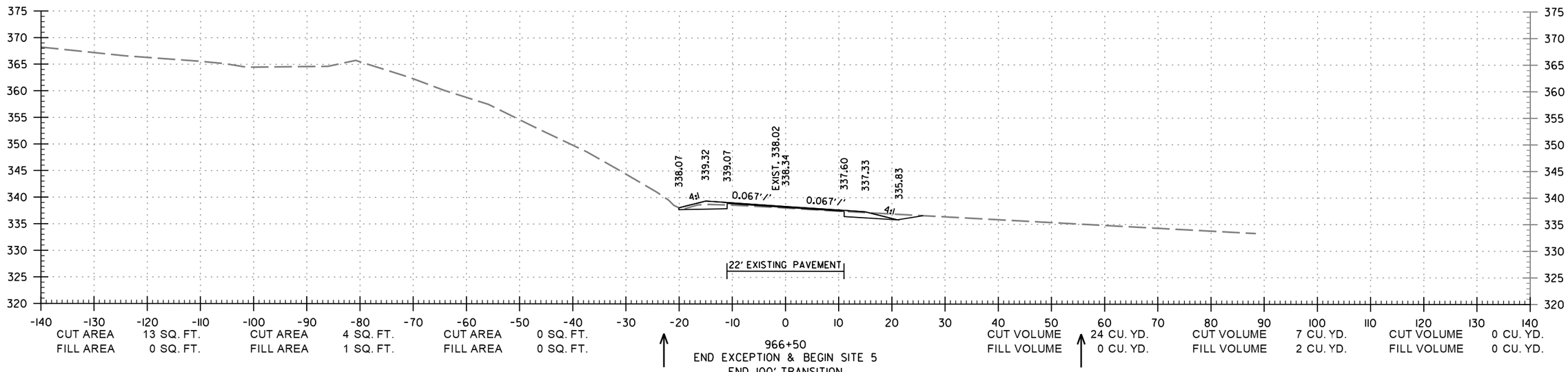
SITE 4
CROSS SECTION STA. 722+80 TO STA. 723+80

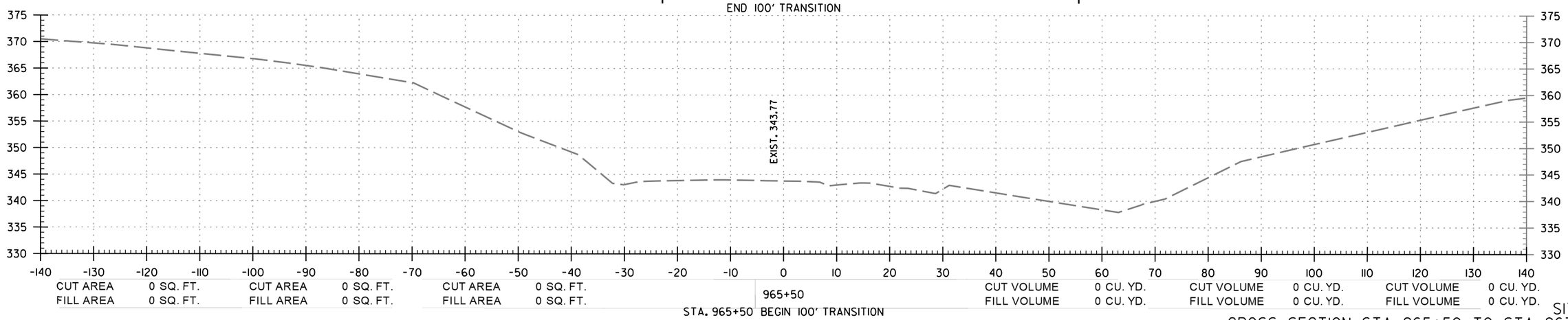
tw39665 10/21/2019
R061442.DGN

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.		061442	239	253

(2) CROSS SECTIONS





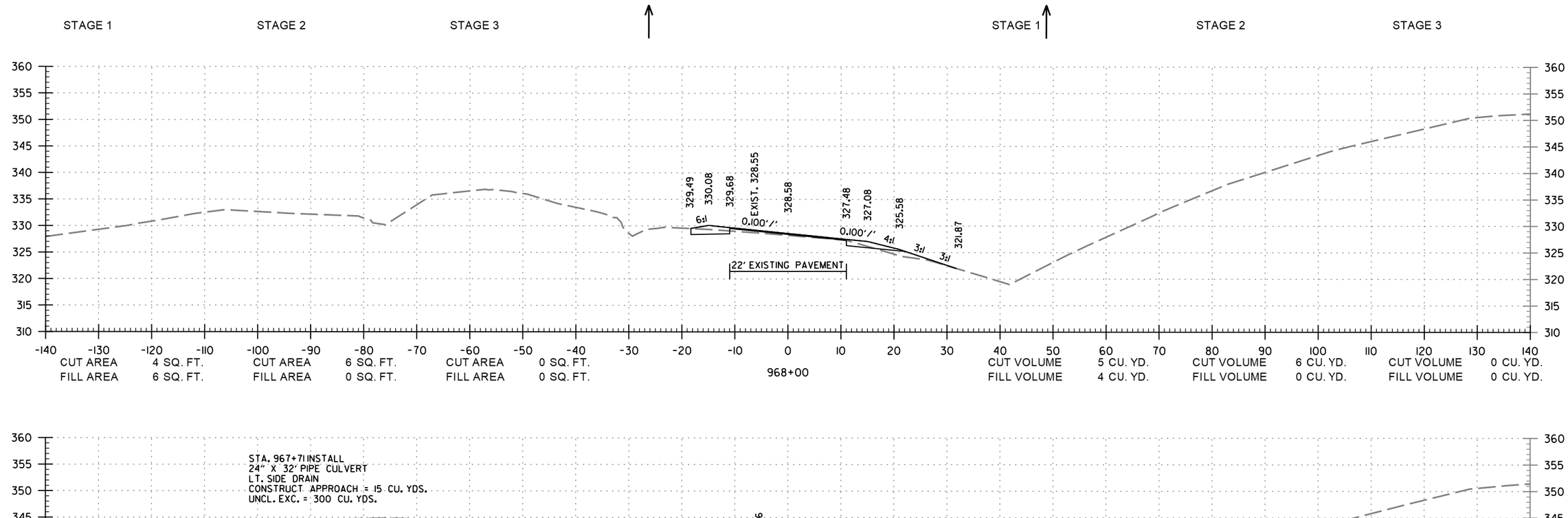


SITE 5
CROSS SECTION STA. 965+50 TO STA. 967+00

tw39665 10/21/2019
R061442.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.		061442	240	253

(2) CROSS SECTIONS

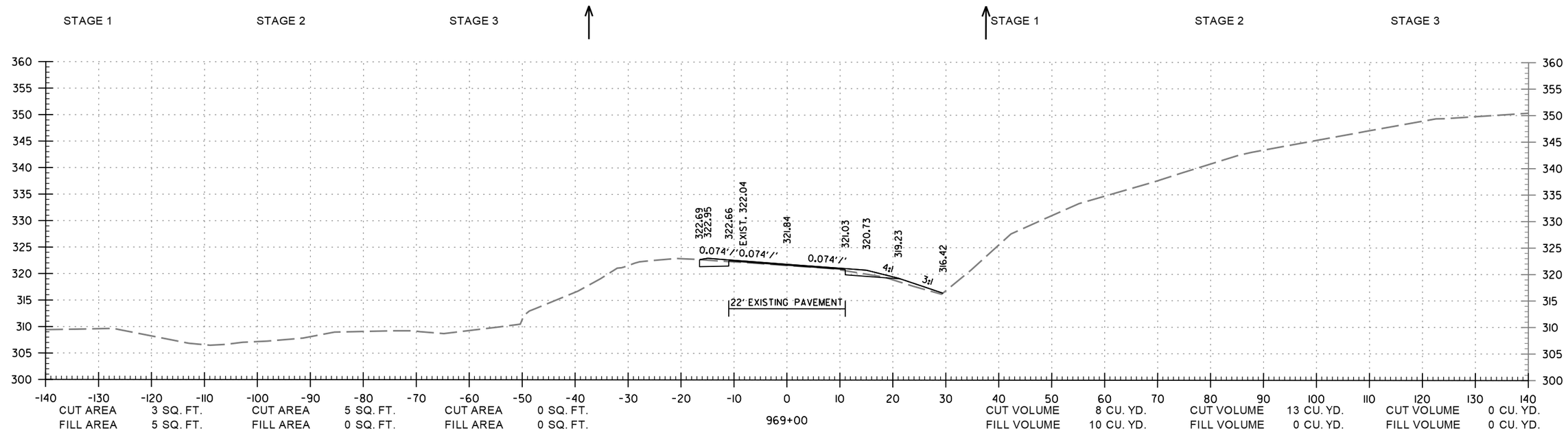


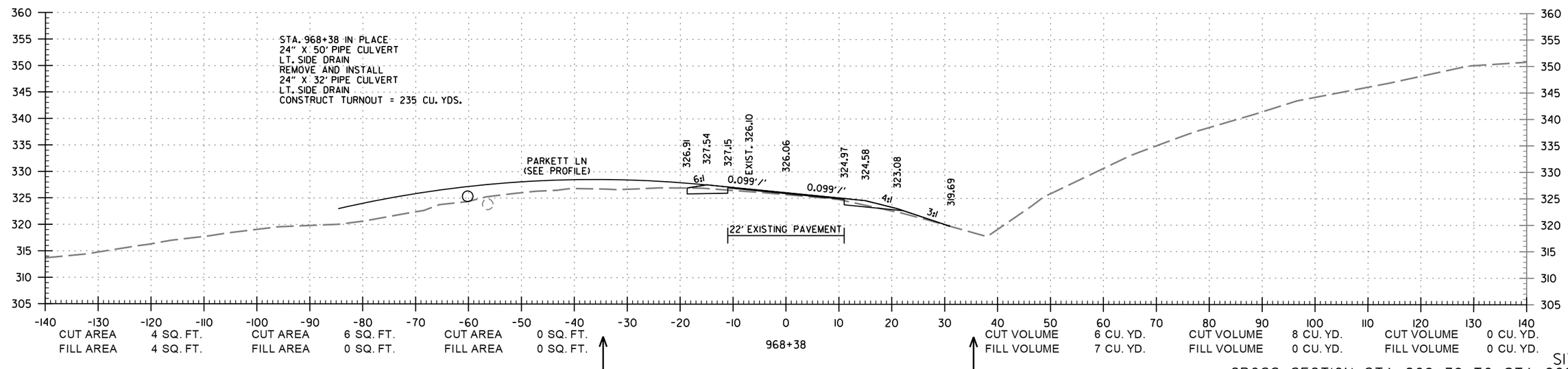
SITE 5
CROSS SECTION STA. 967+71 TO STA. 968+00

tw39665 10/21/2019
R061442.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.		061442	241	253

(2) CROSS SECTIONS



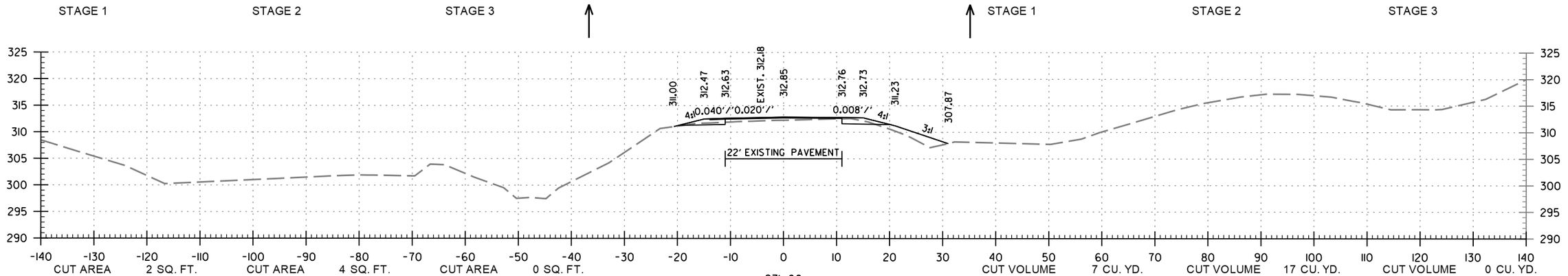


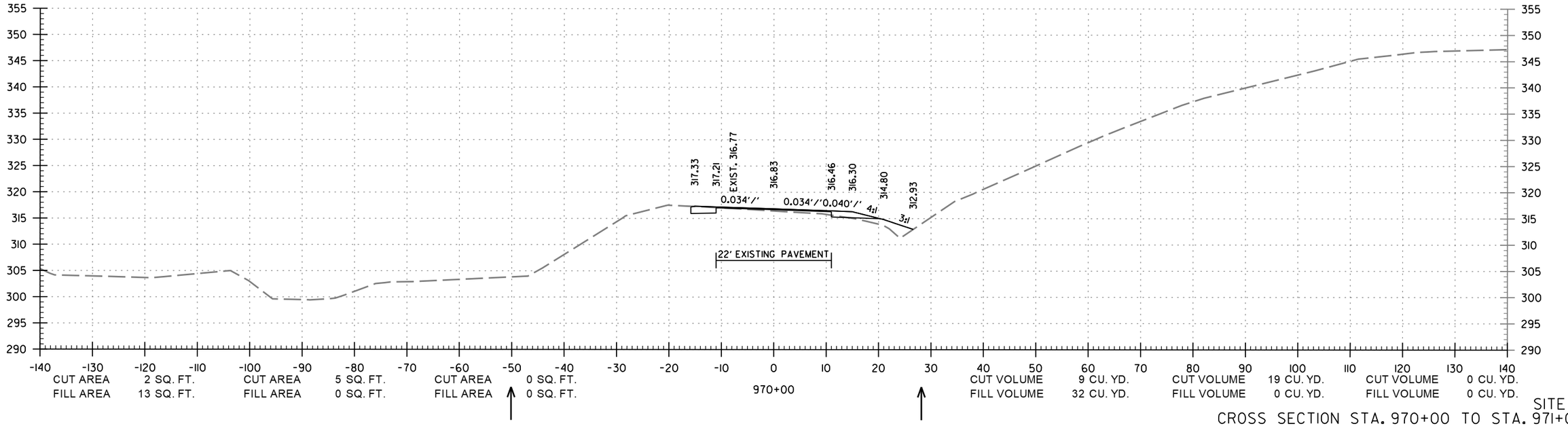
SITE 5
CROSS SECTION STA. 968+38 TO STA. 969+00

tw39665 10/21/2019
R061442.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.		061442	242	253

(2) CROSS SECTIONS



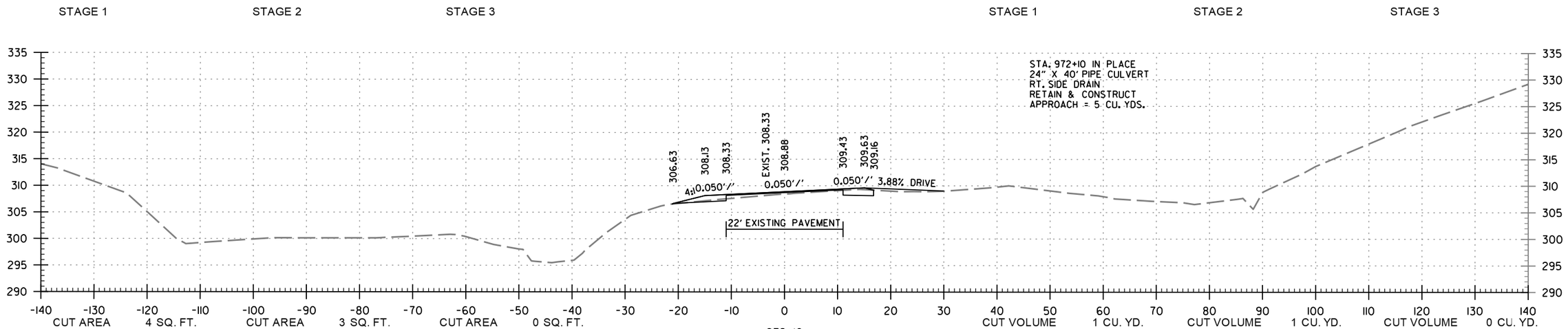


SITE 5
CROSS SECTION STA. 970+00 TO STA. 971+00

tw39665 10/21/2019
R061442.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.		061442	243	253

(2) CROSS SECTIONS

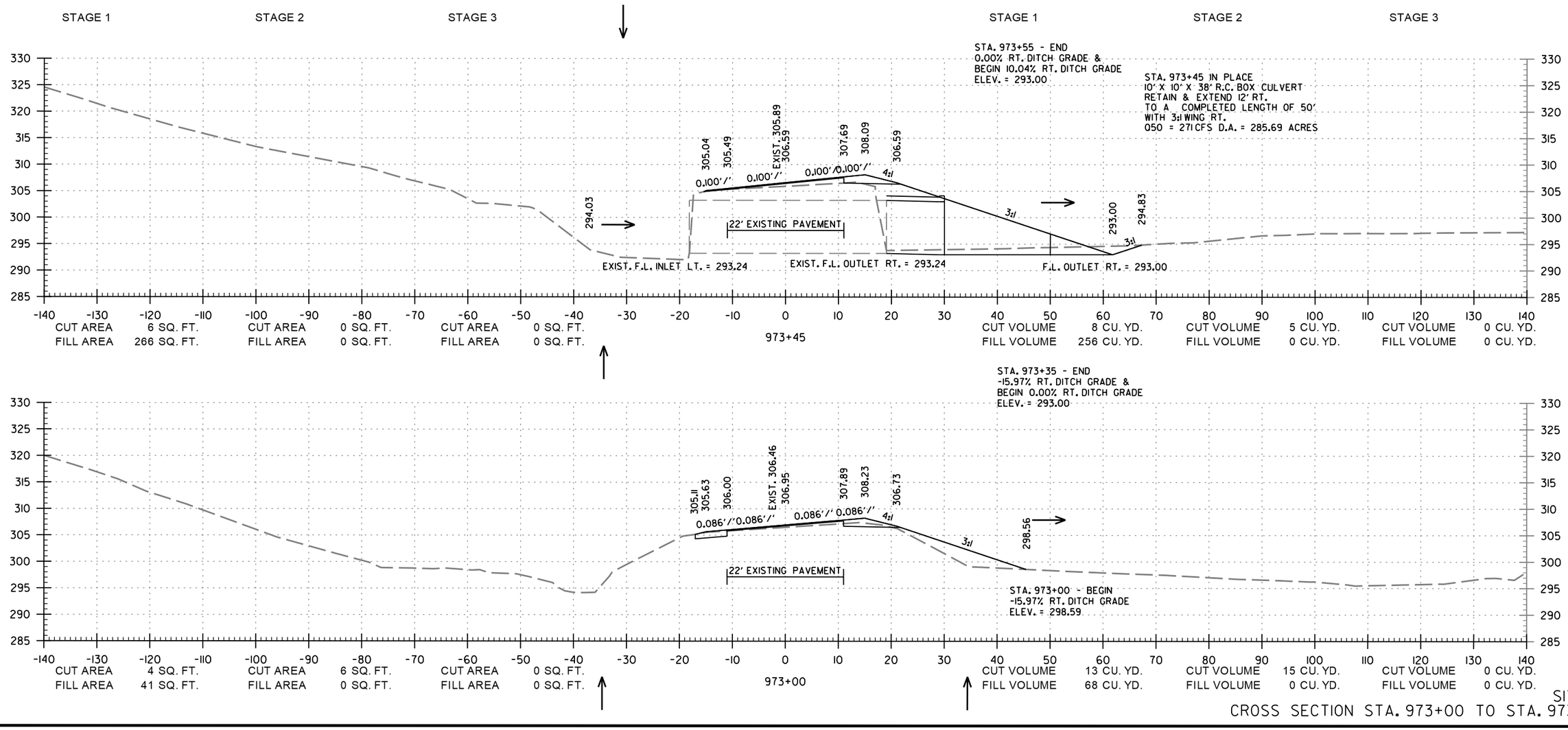


SITE 5
CROSS SECTION STA. 972+00 TO STA. 972+10

lw39665 10/21/2019
R061442.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.		061442	244	253

(2) CROSS SECTIONS

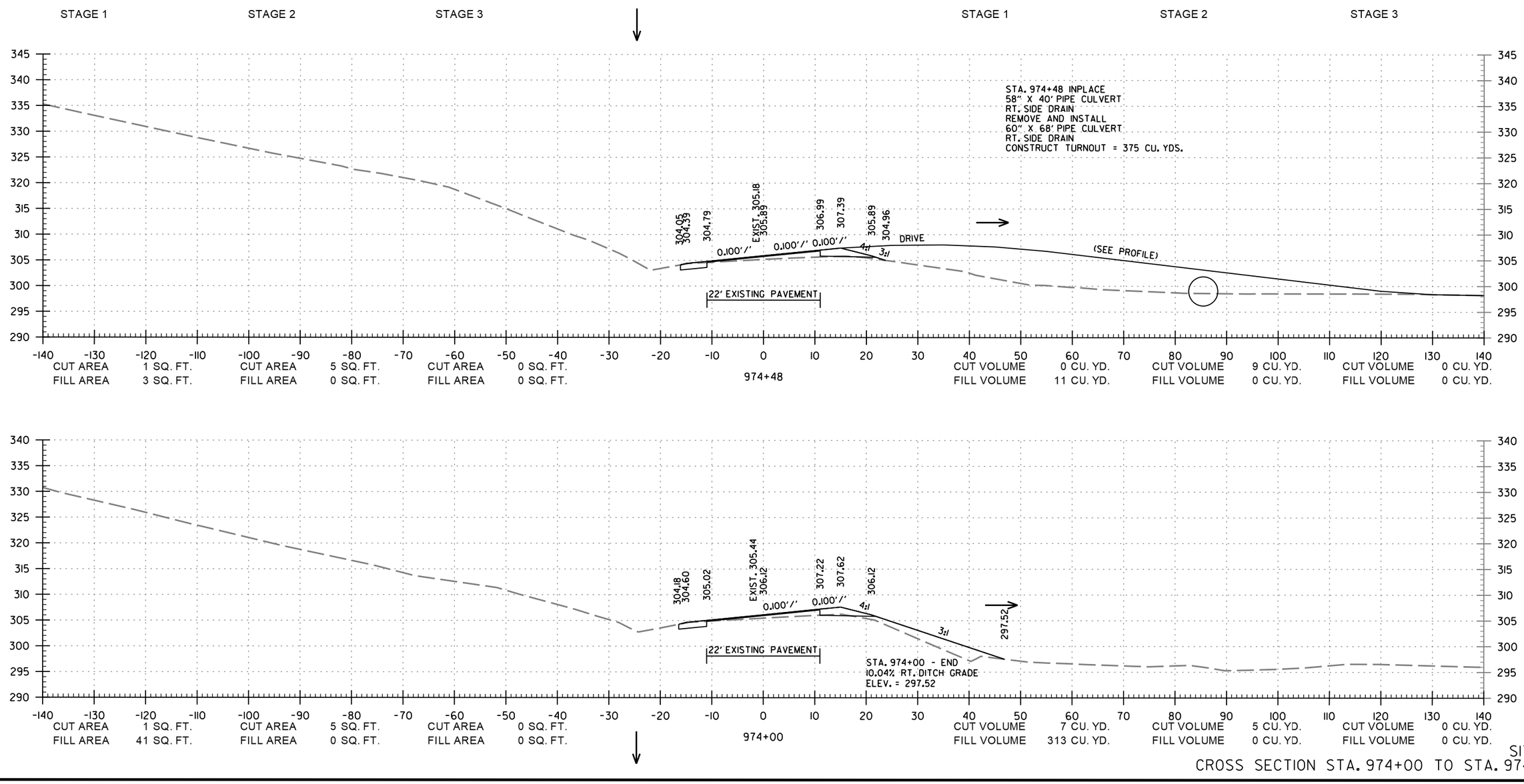


SITE 5
CROSS SECTION STA. 973+00 TO STA. 973+45

tw39665 10/21/2019
R061442.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.		061442	245	253

(2) CROSS SECTIONS

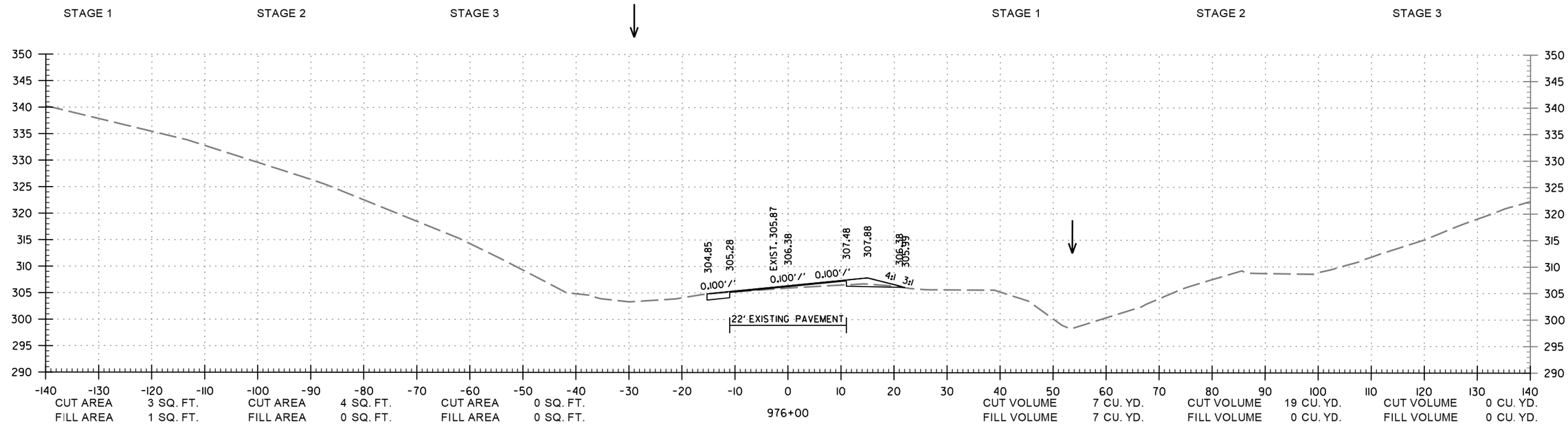


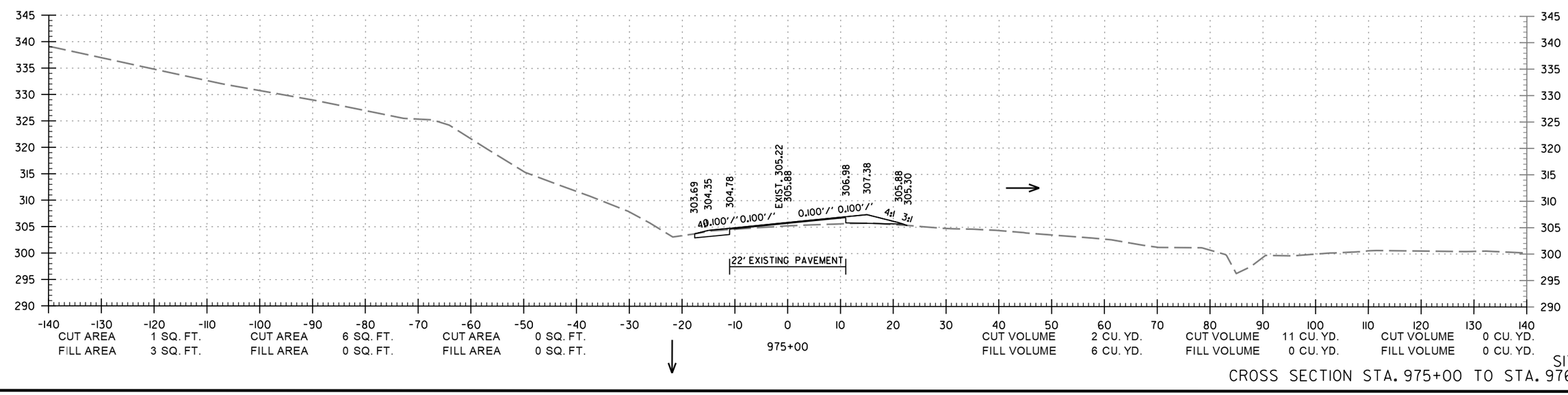
SITE 5
CROSS SECTION STA. 974+00 TO STA. 974+48

lw39665 10/21/2019
R061442.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.		061442	246	253

(2) CROSS SECTIONS



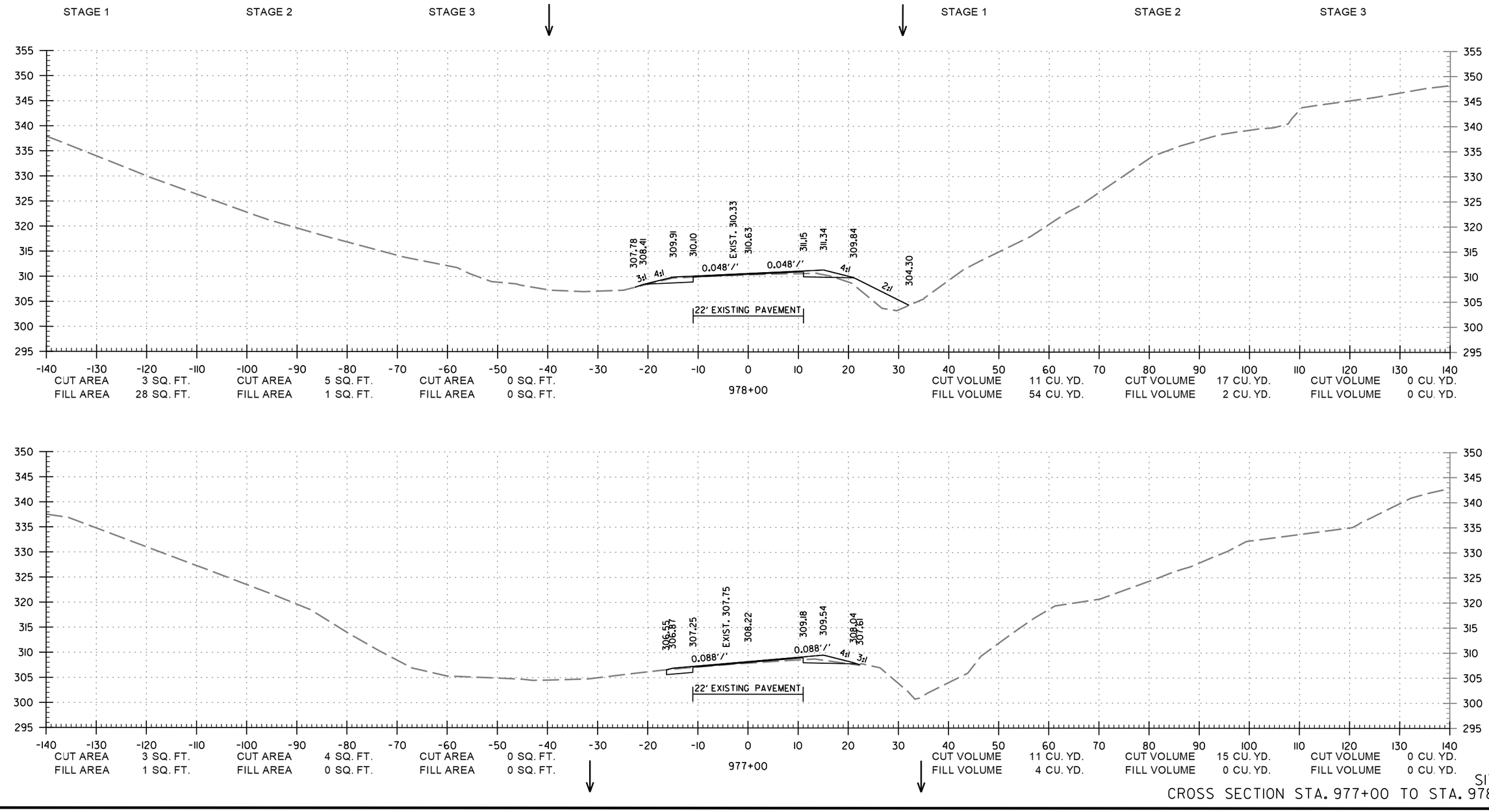


SITE 5
CROSS SECTION STA. 975+00 TO STA. 976+00

lw39665 10/21/2019
R061442.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.		061442	247	253

(2) CROSS SECTIONS

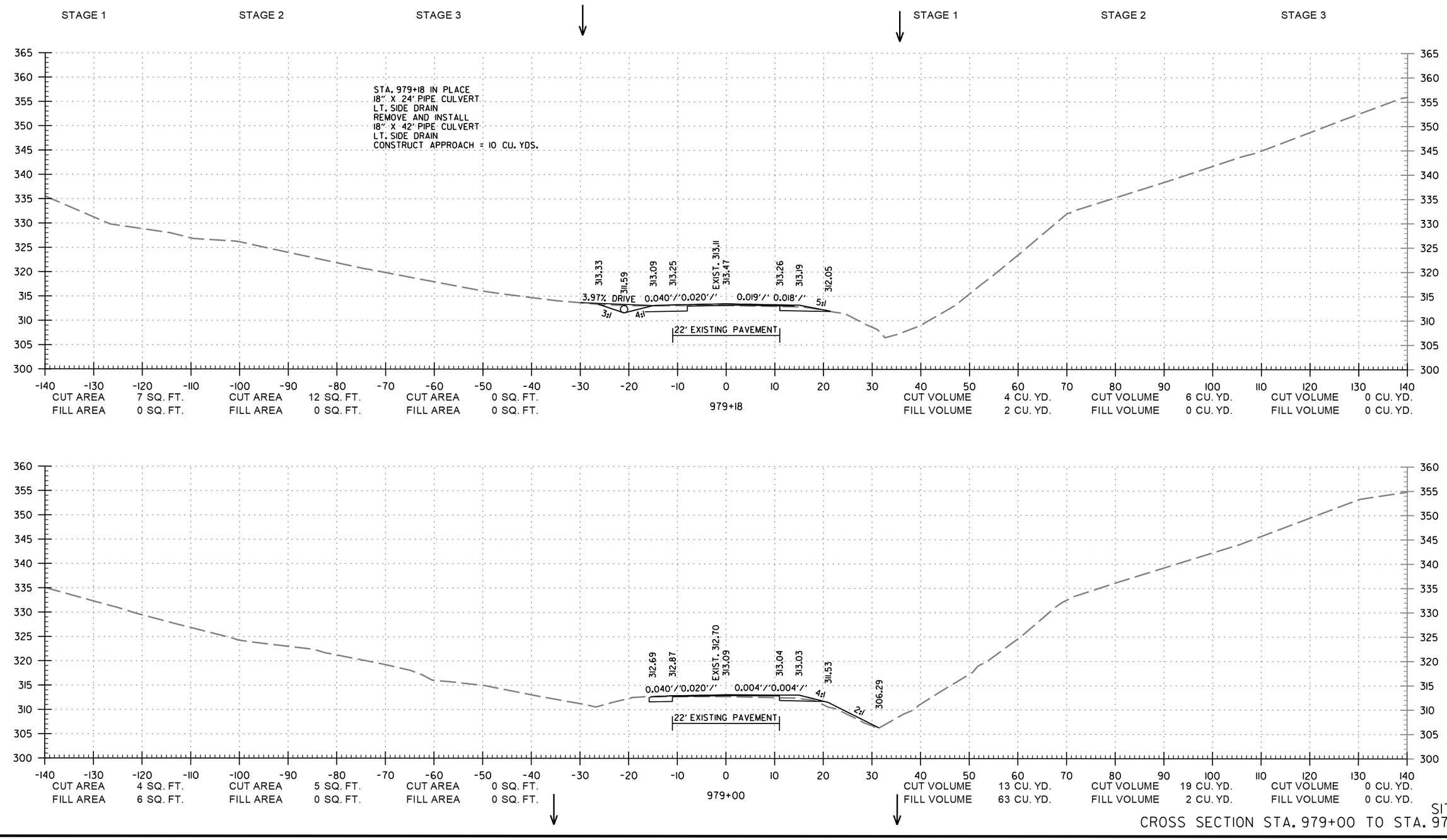


SITE 5
CROSS SECTION STA. 977+00 TO STA. 978+00

lw39665 10/21/2019
R061442.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.		061442	248	253

(2) CROSS SECTIONS

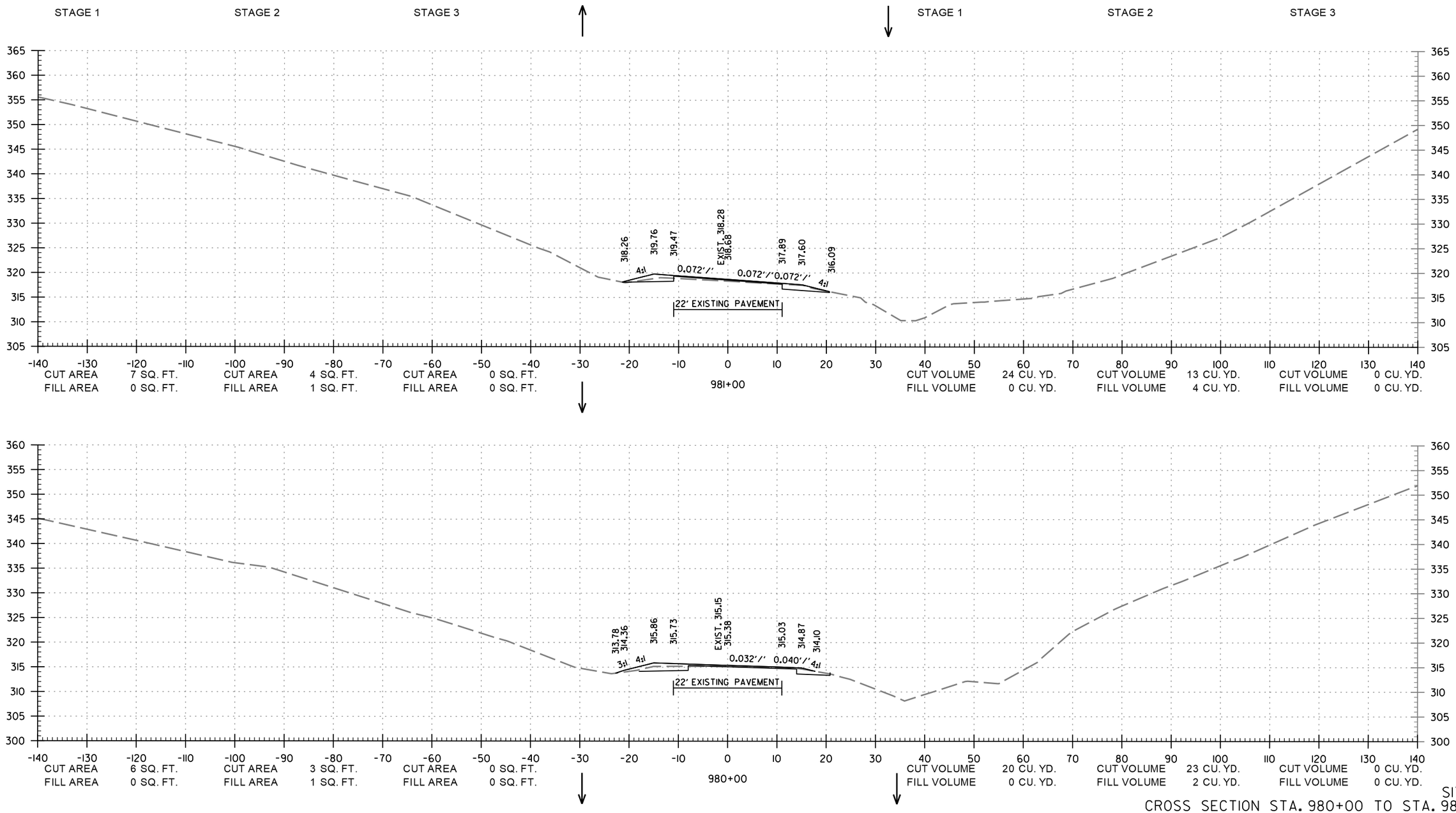


lw39665 10/21/2019
R061442.DGN

SITE 5
CROSS SECTION STA. 979+00 TO STA. 979+18

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	249	253

(2) CROSS SECTIONS

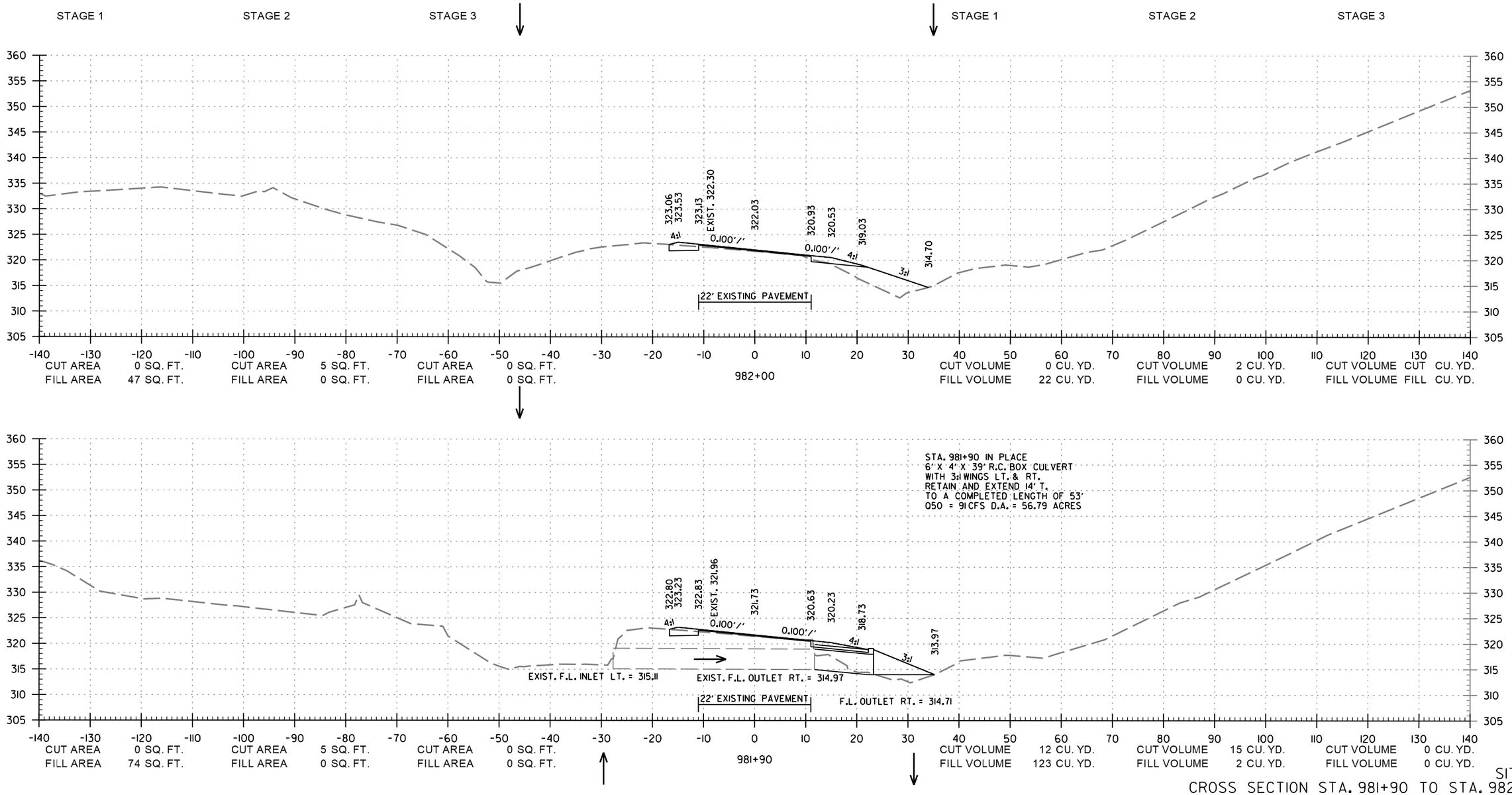


SITE 5
CROSS SECTION STA. 980+00 TO STA. 981+00

lw39665 10/21/2019
R061442.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.		061442	250	253

(2) CROSS SECTIONS

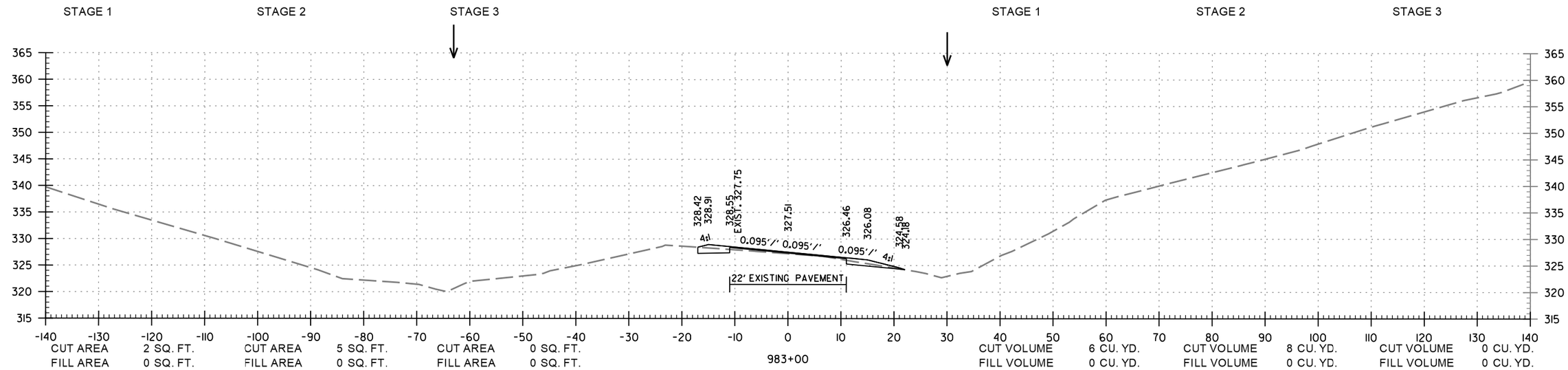


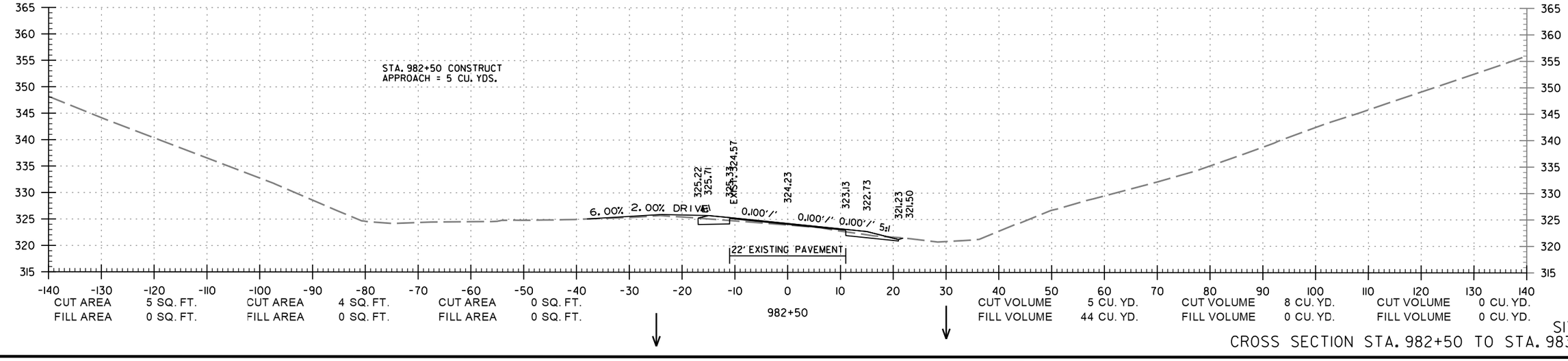
SITE 5
CROSS SECTION STA. 981+90 TO STA. 982+00

lw39665 10/21/2019
R061442.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.		061442	251	253

(2) CROSS SECTIONS



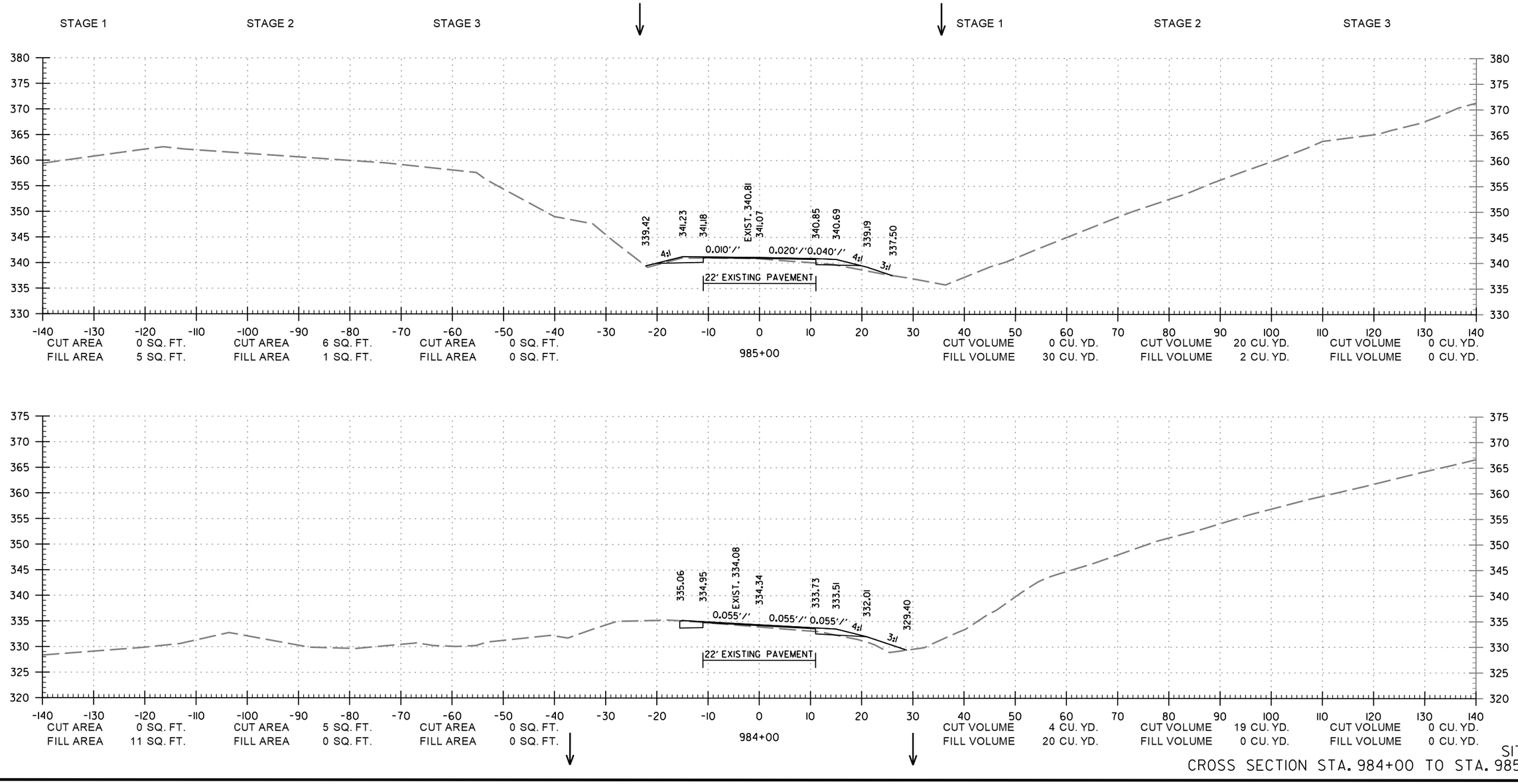


SITE 5
CROSS SECTION STA. 982+50 TO STA. 983+00

lw39665 10/21/2019
R061442.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.		061442	252	253

(2) CROSS SECTIONS

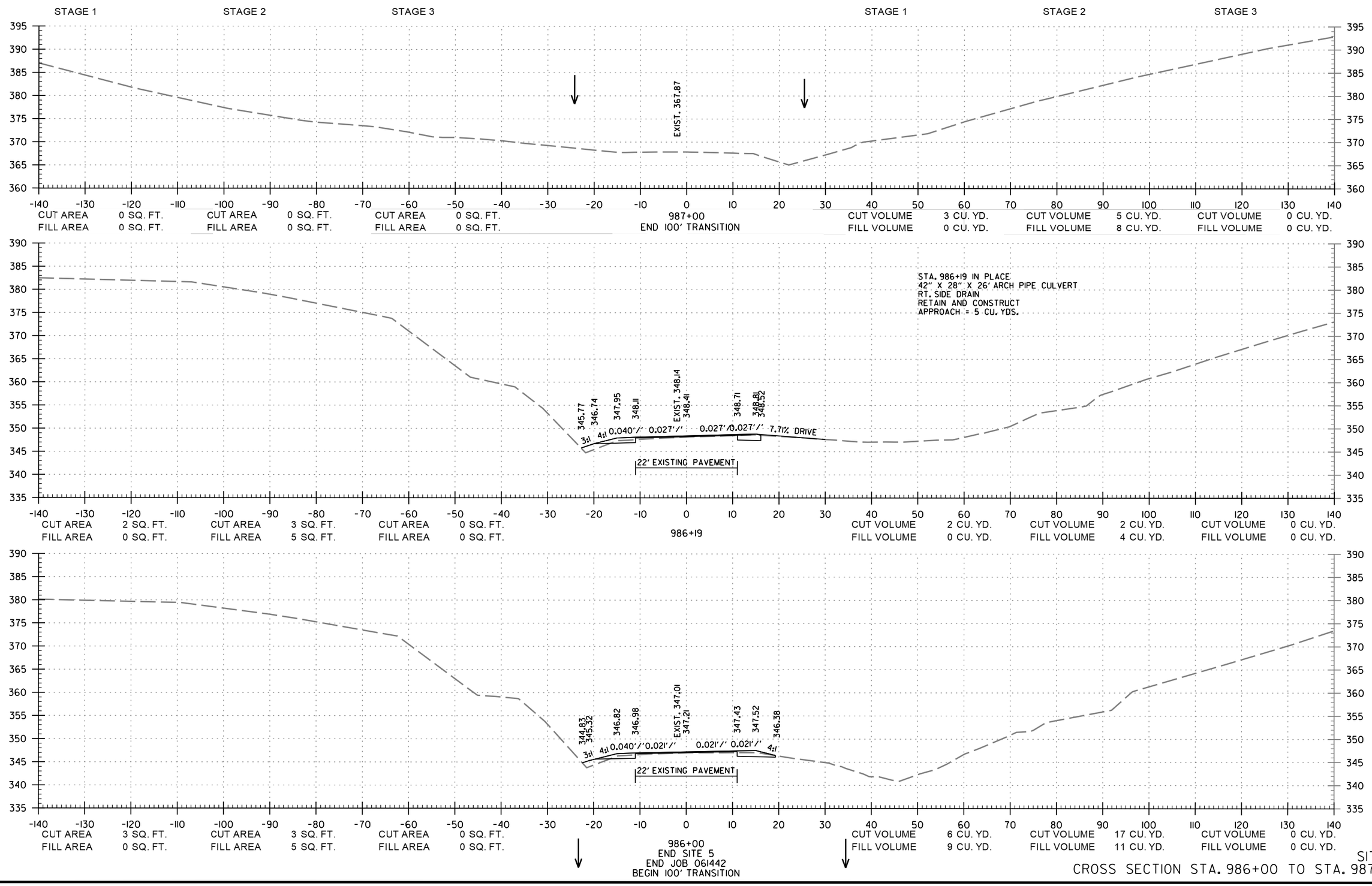


SITE 5
CROSS SECTION STA. 984+00 TO STA. 985+00

lw39665 10/21/2019
R061442.DGN

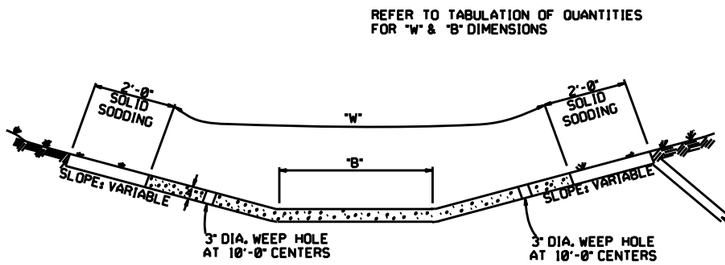
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061442	253	253

(2) CROSS SECTIONS



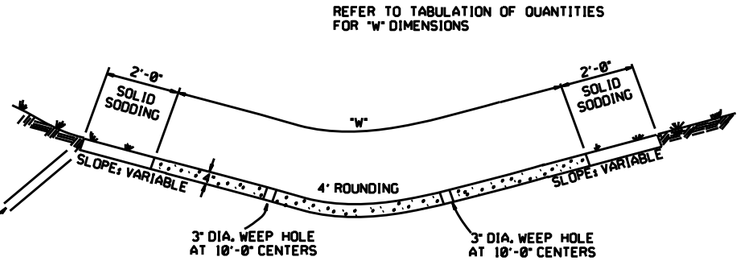
SITE 5
CROSS SECTION STA. 986+00 TO STA. 987+00

tw39665 10/21/2019
R061442.DGN



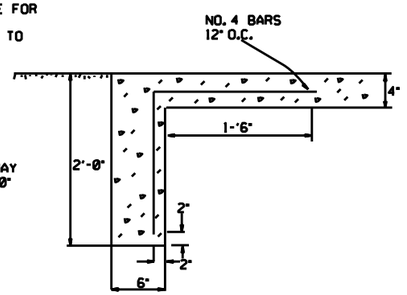
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

TYPE A



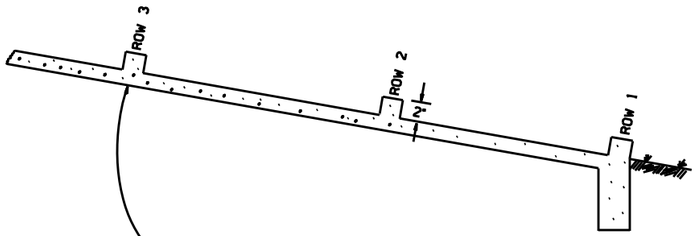
TYPE B

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 DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

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.

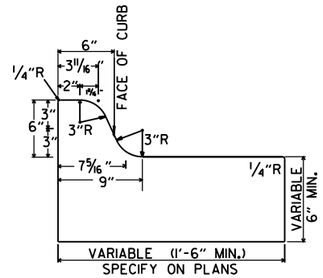
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

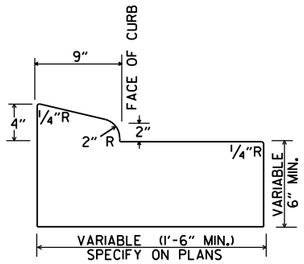
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

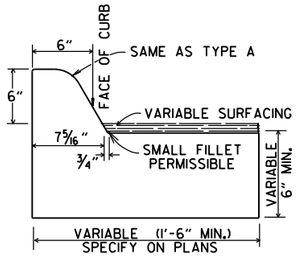
STANDARD DRAWING CDP-1



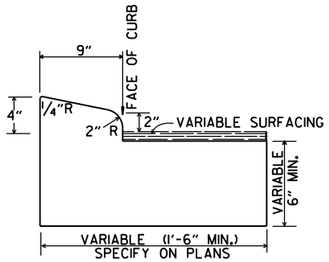
TYPE A



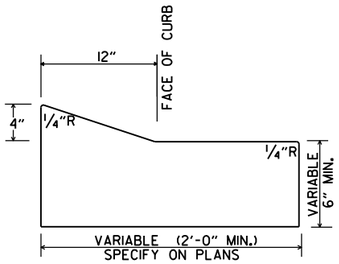
TYPE B-1



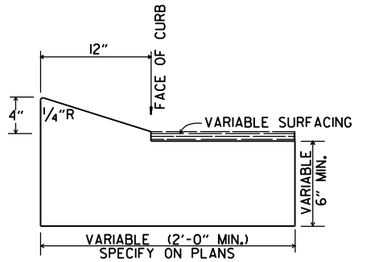
TYPE C



TYPE B-2

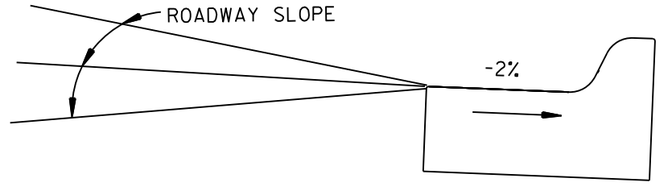


TYPE E-1



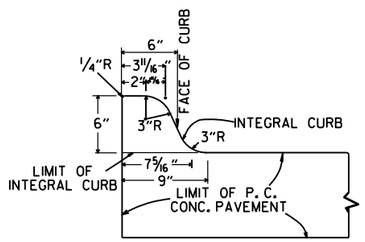
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

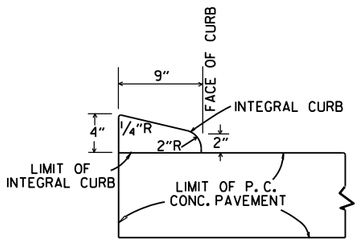


DETAIL OF GUTTER SLOPE

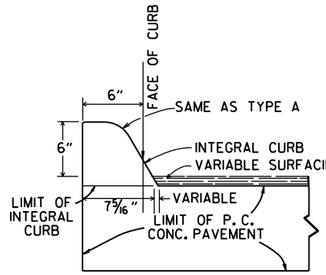
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

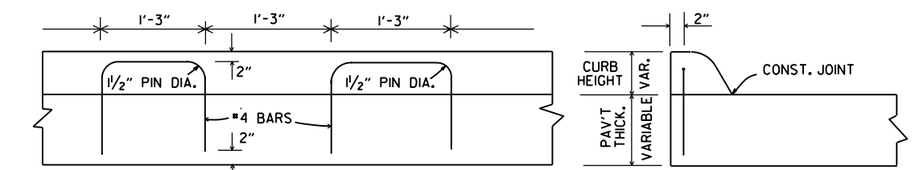


TYPE B



TYPE C

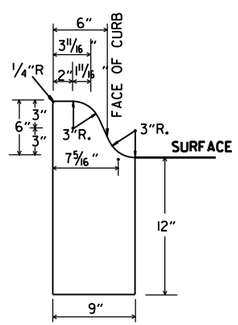
INTEGRAL CURB



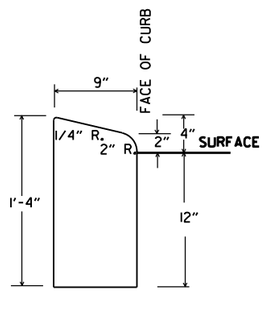
LONGITUDINAL SECTION

ELEVATION

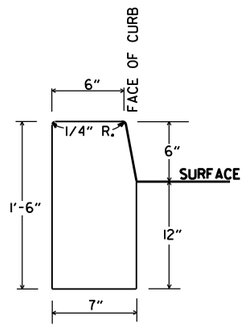
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



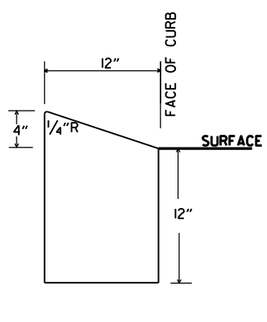
TYPE A



TYPE B

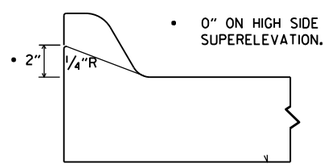


TYPE D



TYPE E

CONCRETE CURB



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

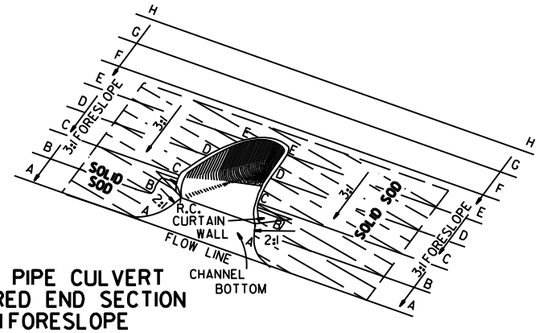
DETAILS OF MODIFIED CURB

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

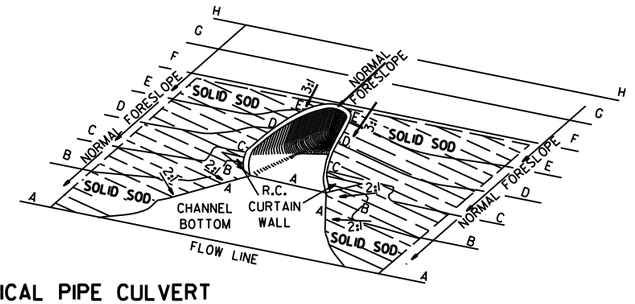
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

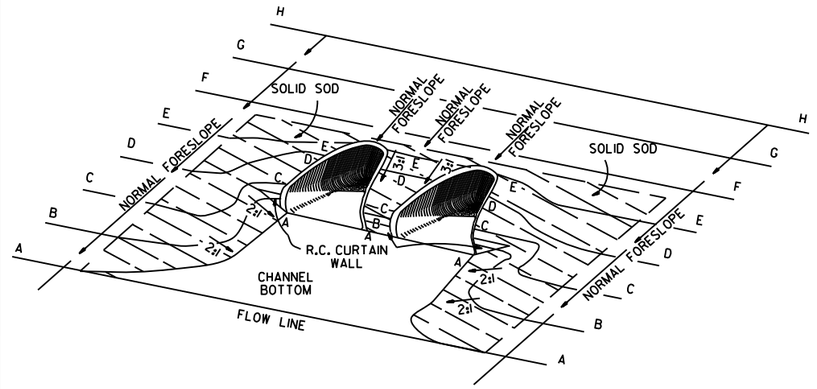
STANDARD DRAWING CG-1



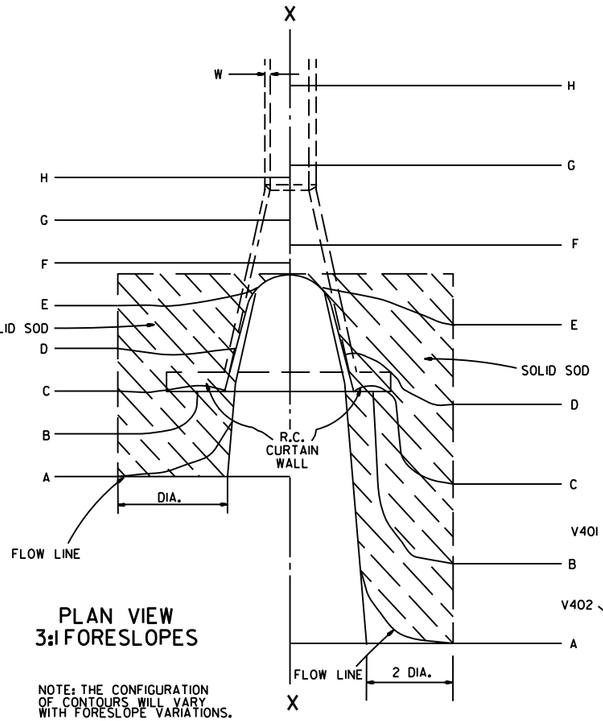
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

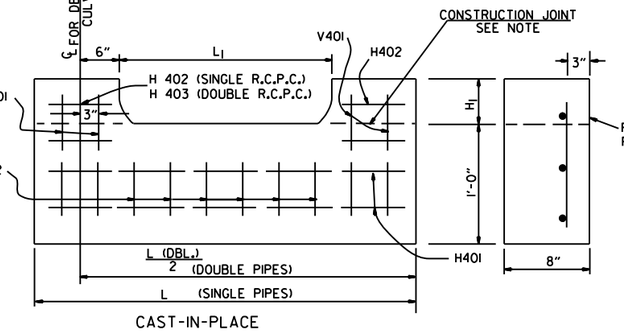
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

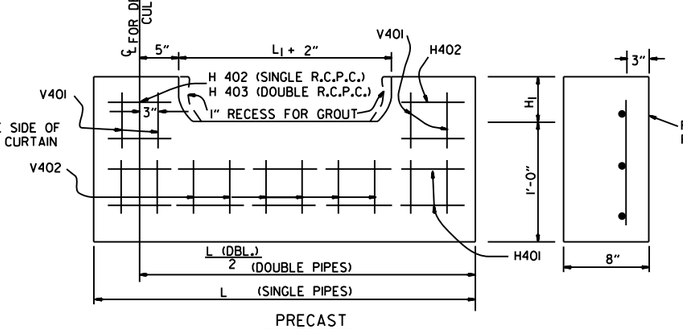
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67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

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



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

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

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

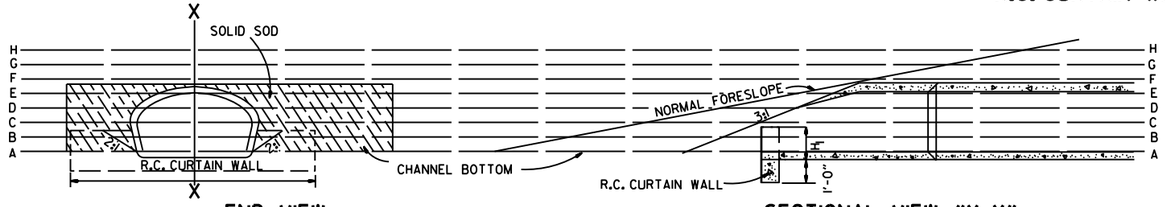
SOLID SODDING

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 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

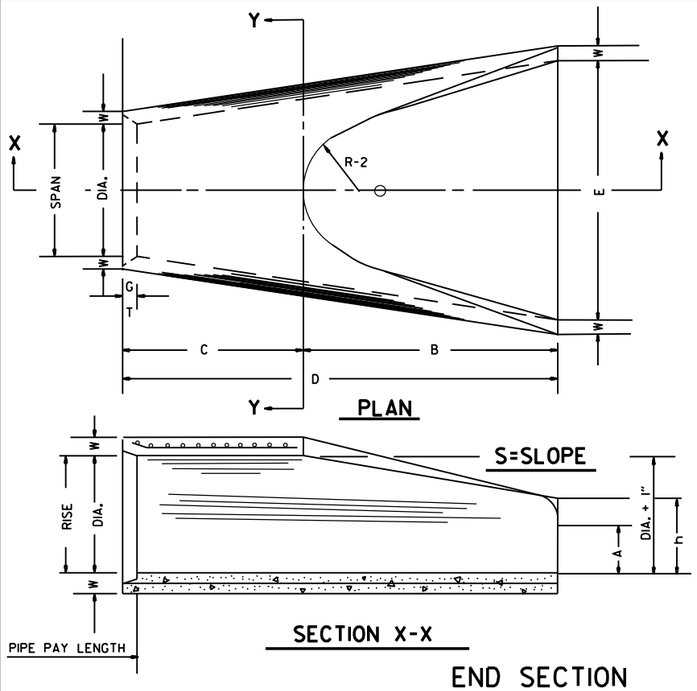
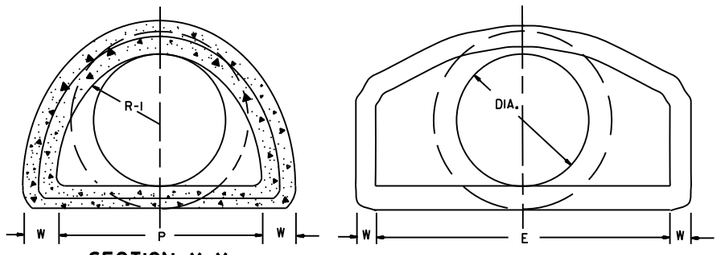


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 15/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

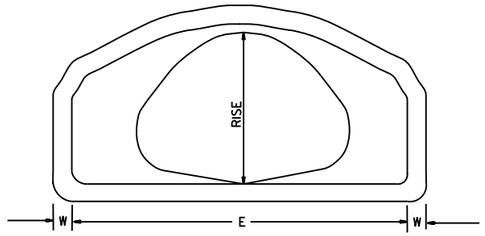


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

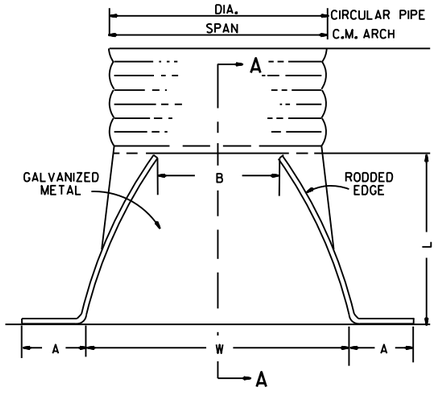
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	20"	3"	2½:1
36	43¾	44	26⅜	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

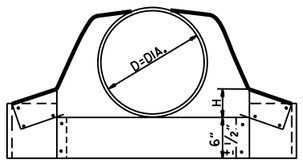
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

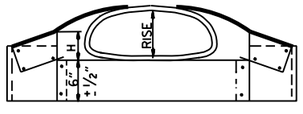


END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS







CIRCULAR PIPE

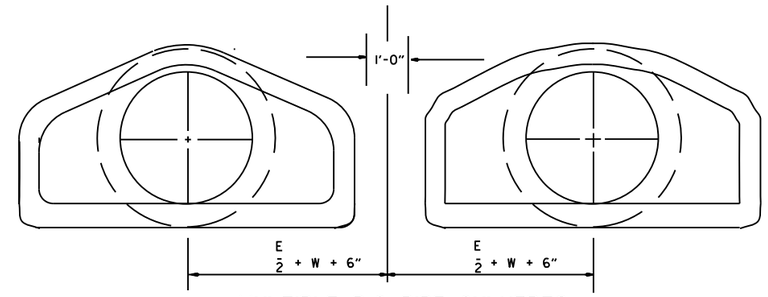
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

C.M. ARCH PIPE

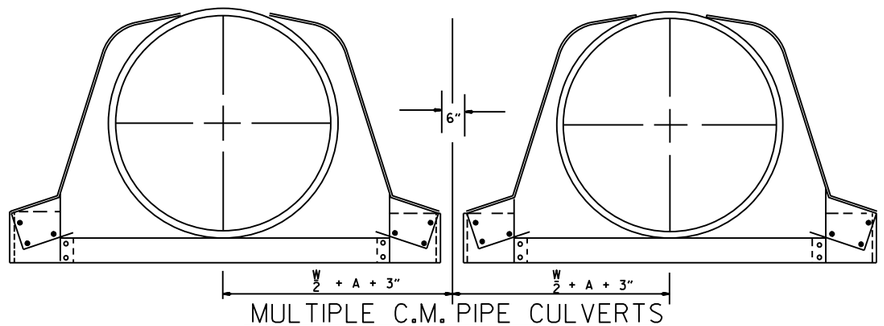
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

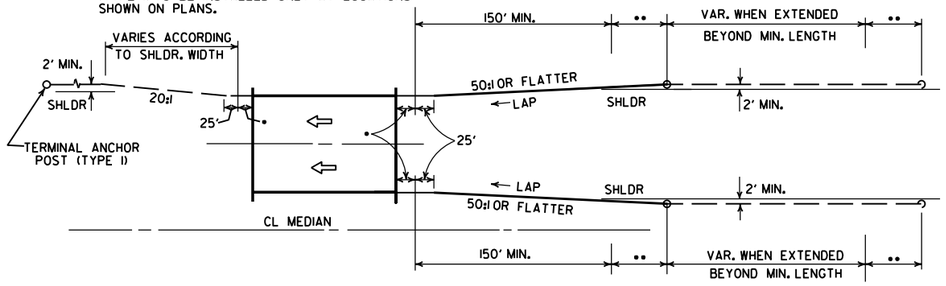
DATE	REVISION	BY	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO		
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.		664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES		752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS		517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.		500-12-5-74
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

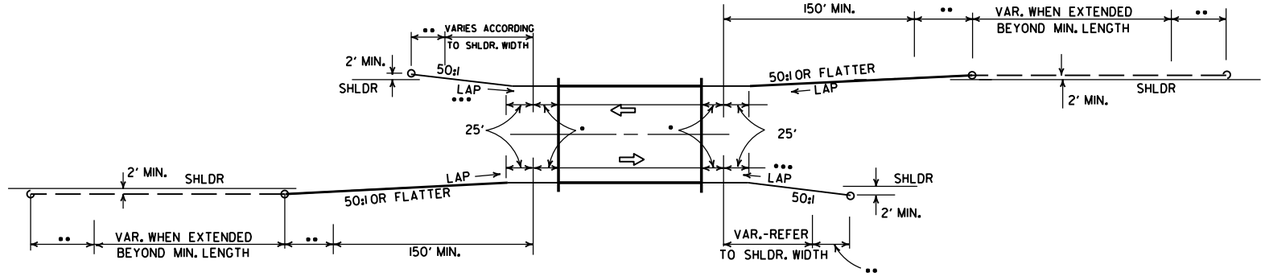
STANDARD DRAWING FES-2

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

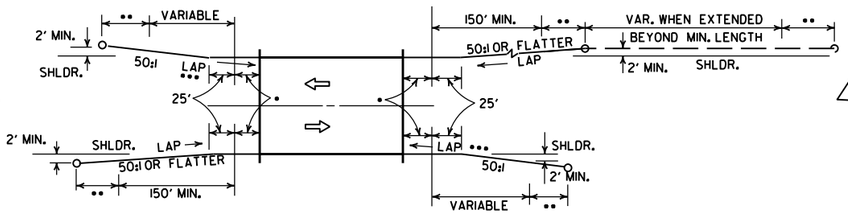
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

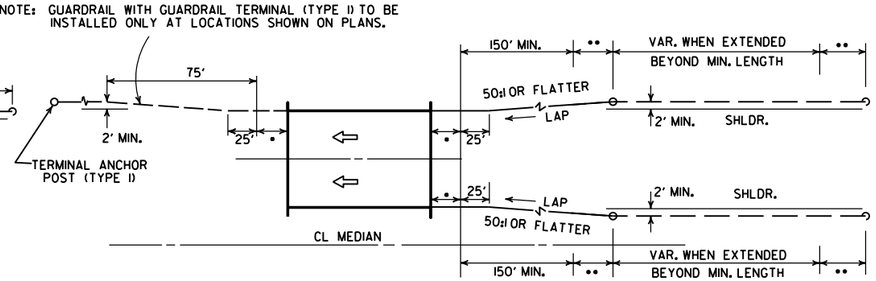
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

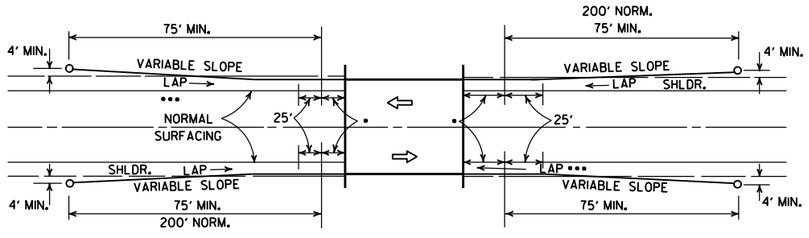
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

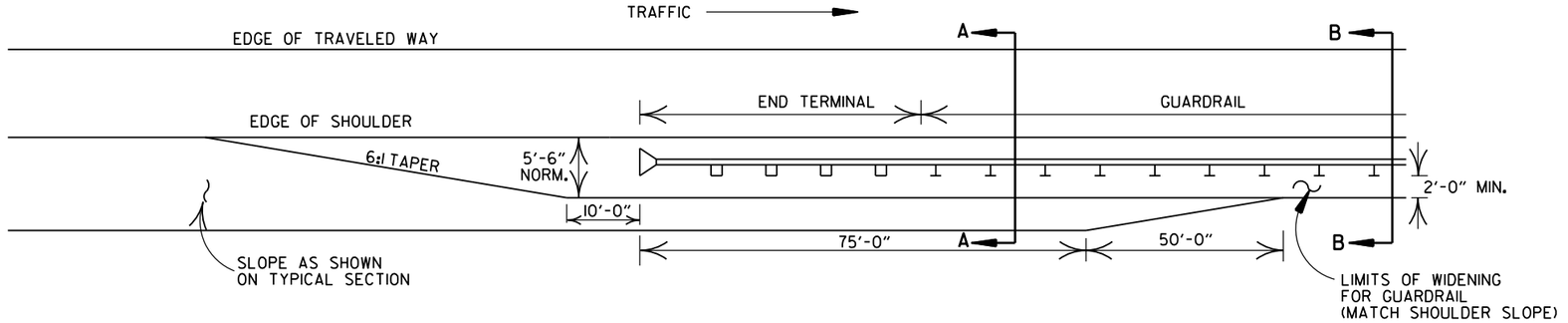
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

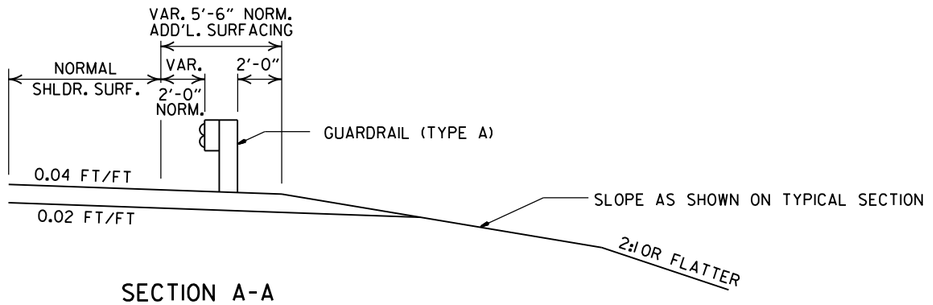
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

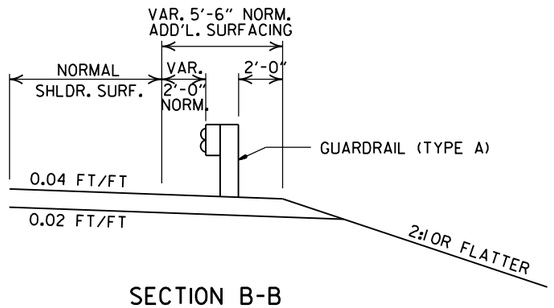
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



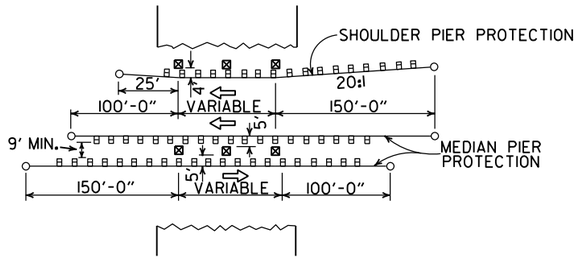


SECTION A-A



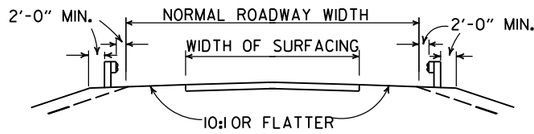
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

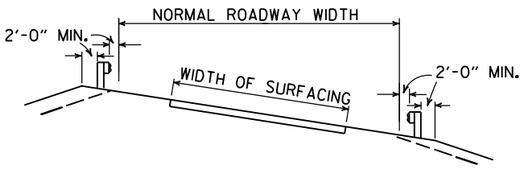


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

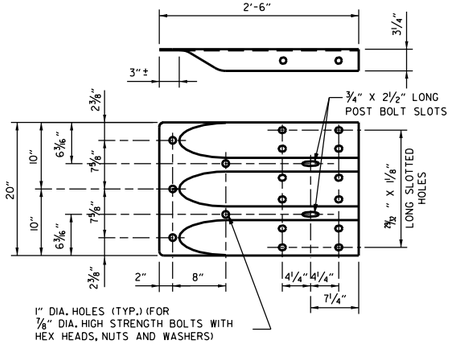
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

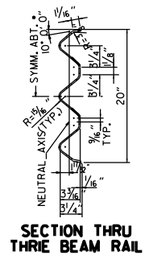
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

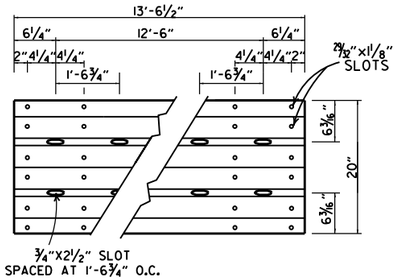
STANDARD DRAWING GR-9



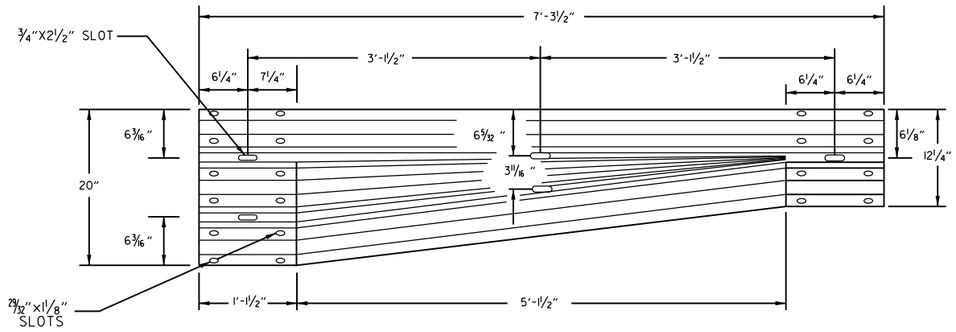
SPECIAL END SHOE



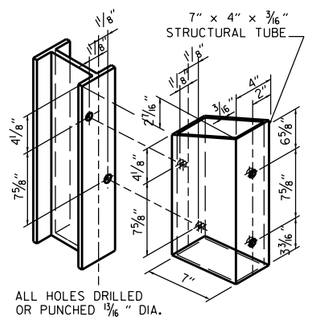
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

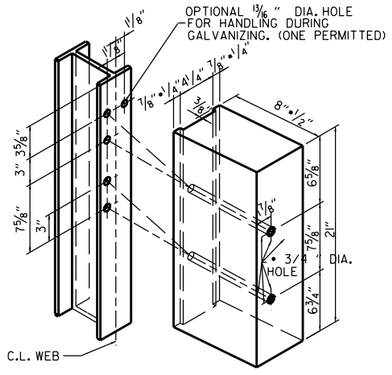


TRANSITION SECTION



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

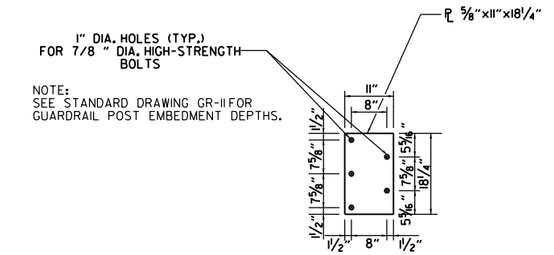
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

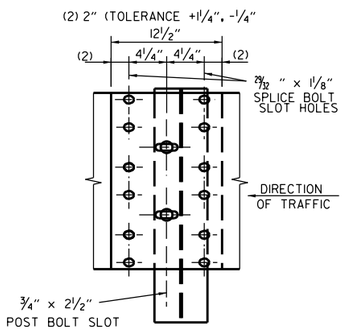
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



NOTE:
SEE STANDARD DRAWING GR-11 FOR GUARDRAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 1.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

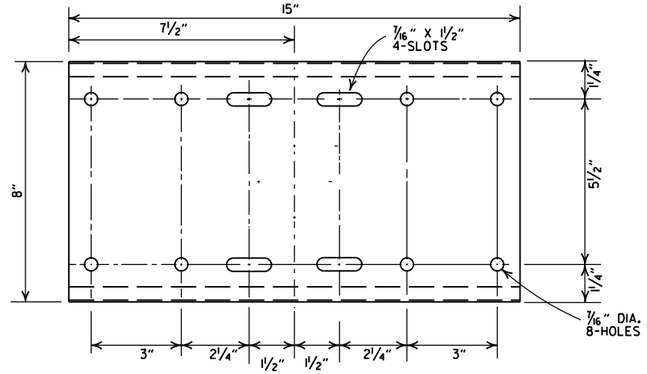
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED AND REVISED REFERENCES	
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

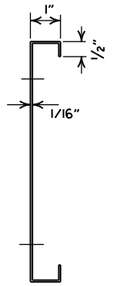
ARKANSAS STATE HIGHWAY COMMISSION

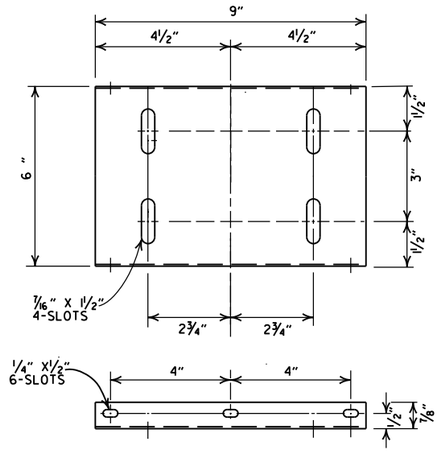
GUARDRAIL DETAILS

STANDARD DRAWING GR-10

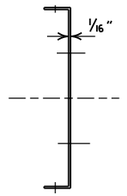


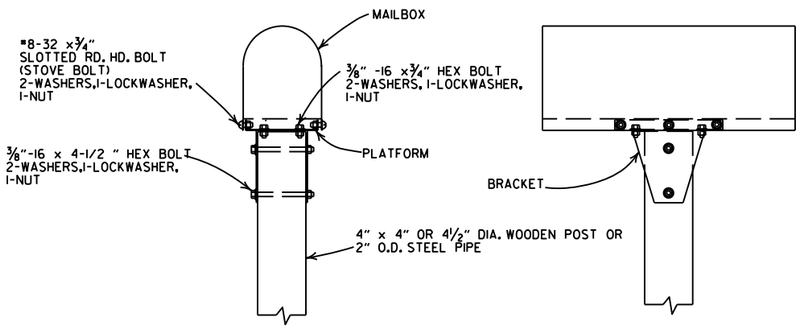
SHELF



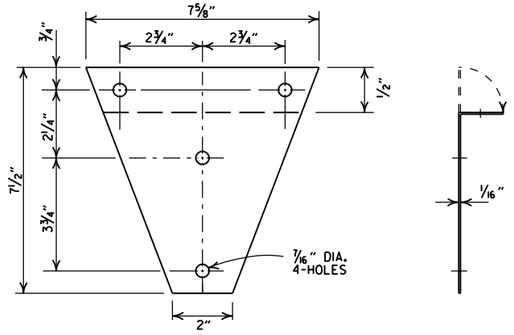


PLATFORM





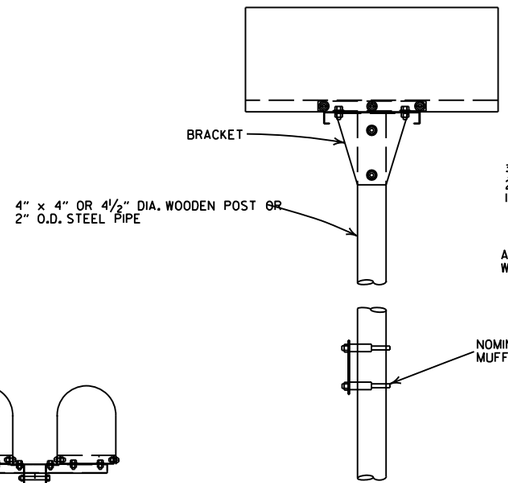
SINGLE INSTALLATION



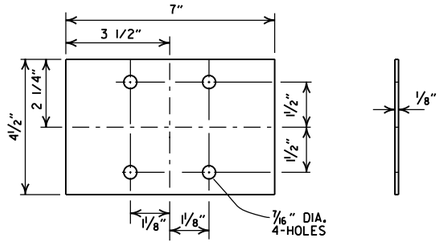
BRACKET

GENERAL NOTES

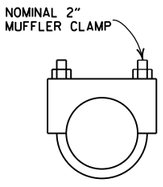
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



DOUBLE INSTALLATION



ANTI-TWIST PLATE



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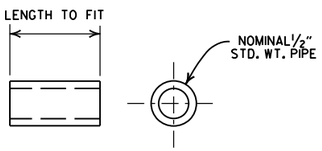
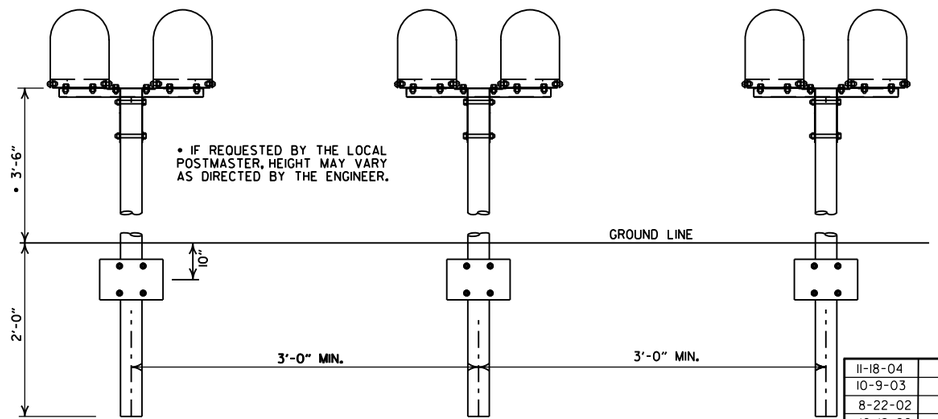


SPACER



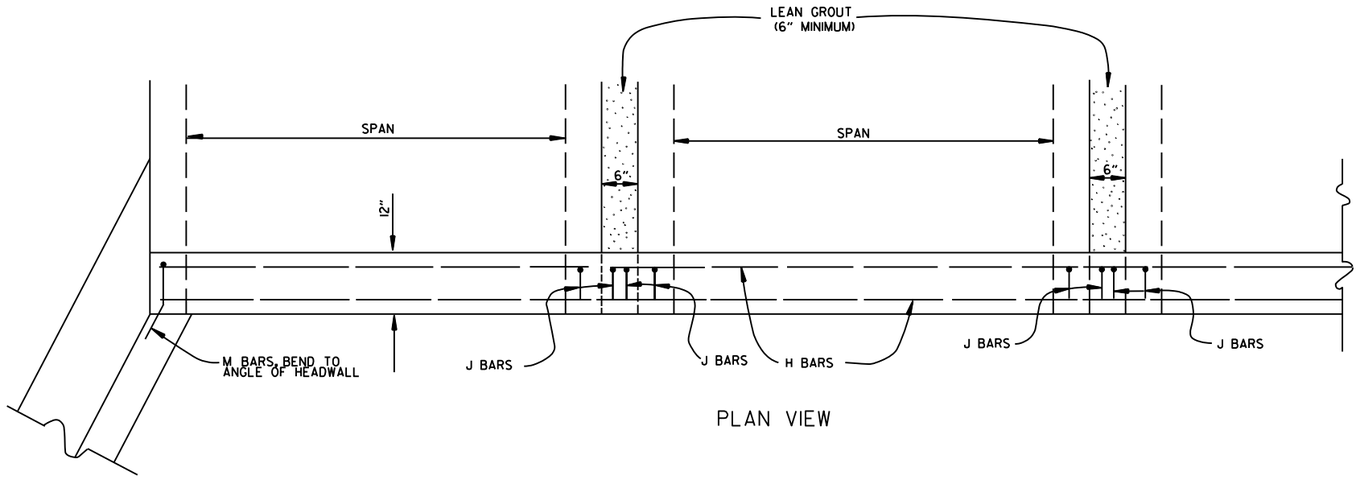
SPACING FOR MULTIPLE POST INSTALLATION

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

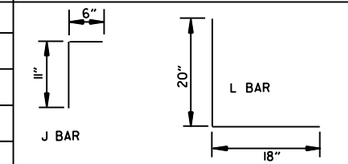
STANDARD DRAWING MB-1



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.

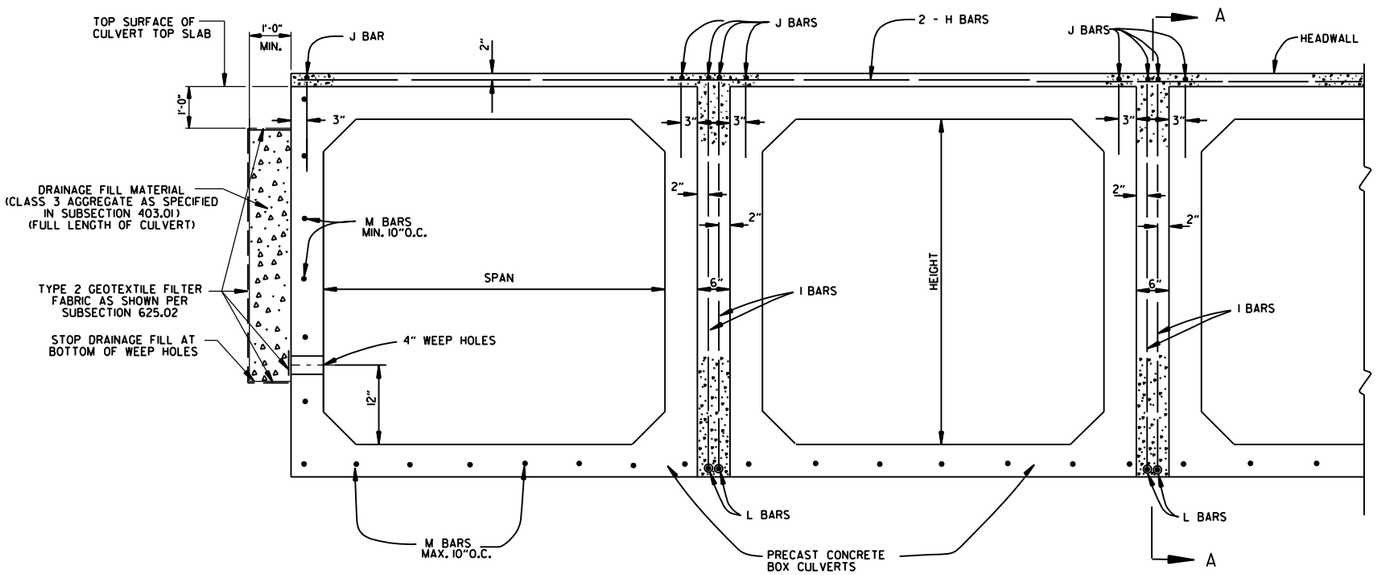
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

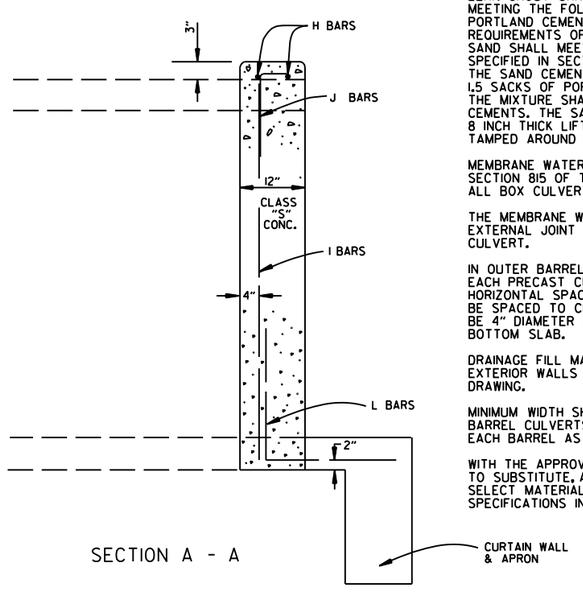
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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	ARDOT NOMINAL	AASHTO M 206	ARDOT 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	31⅜	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.

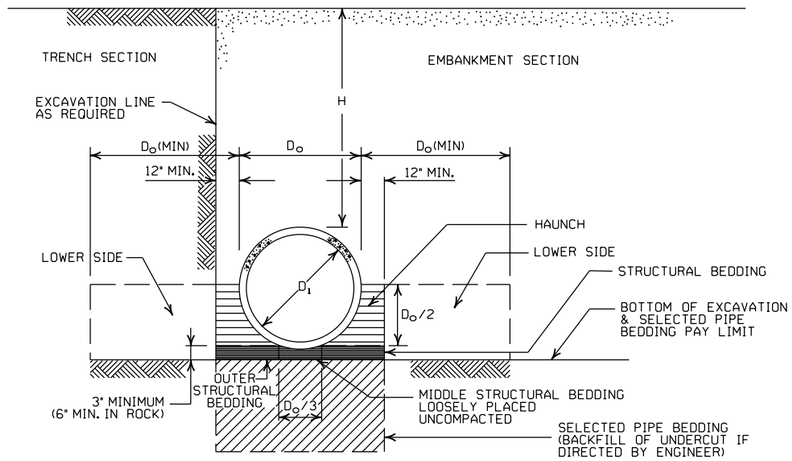
- LEGEND -

D_1 = 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 DEPARTMENT OF TRANSPORTATION 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

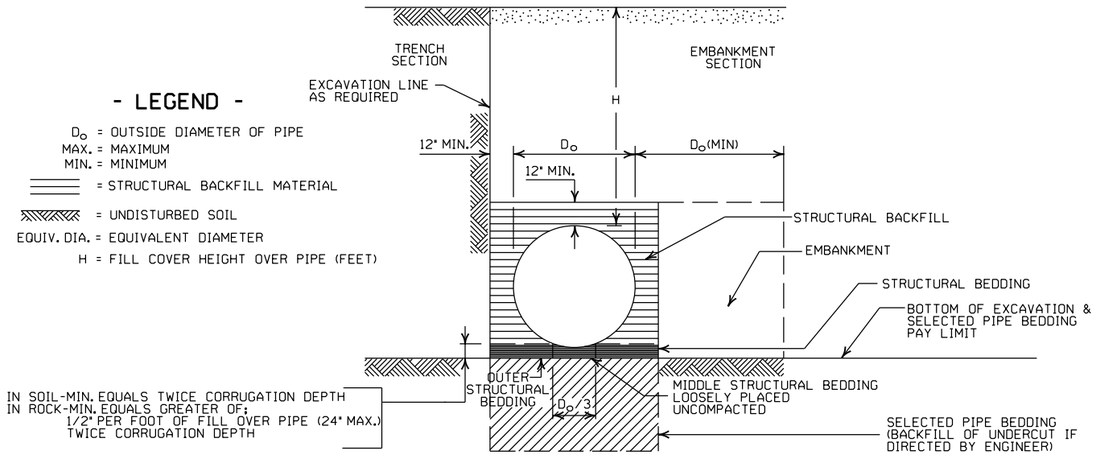
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION 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 TYPE 2	INSTALLATION TYPE 1		INSTALLATION TYPE 2	INSTALLATION 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.

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION 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"

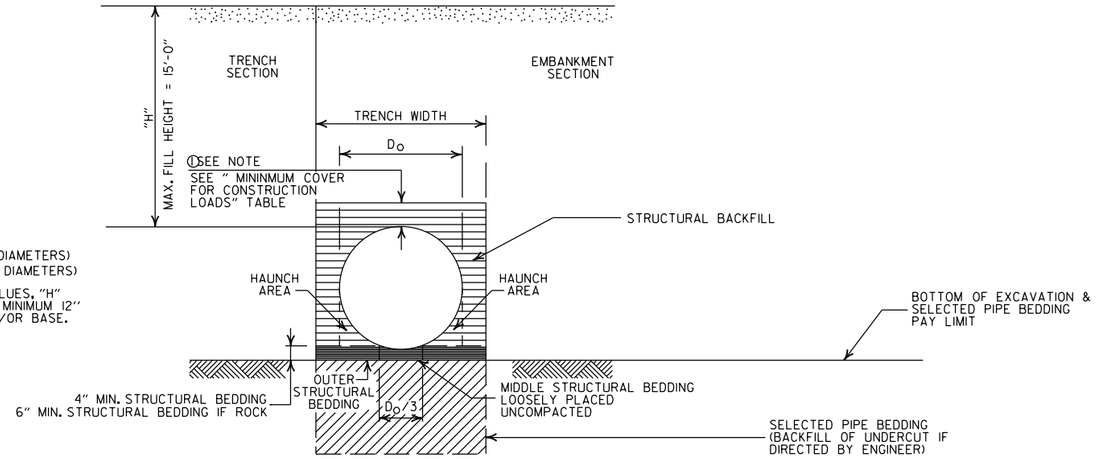
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

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 CONFORM 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

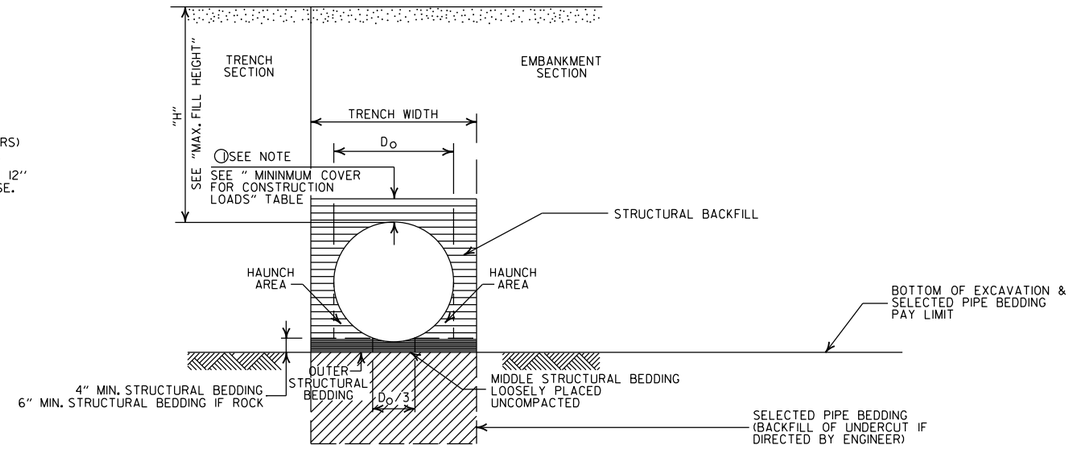
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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 CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS 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

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

*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 POLYPROPYLENE PIPE.

MULTIPLE INSTALLATION OF POLYPROPYLENE 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"
60"	5'-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"
60"	10'-0"	15'-0"

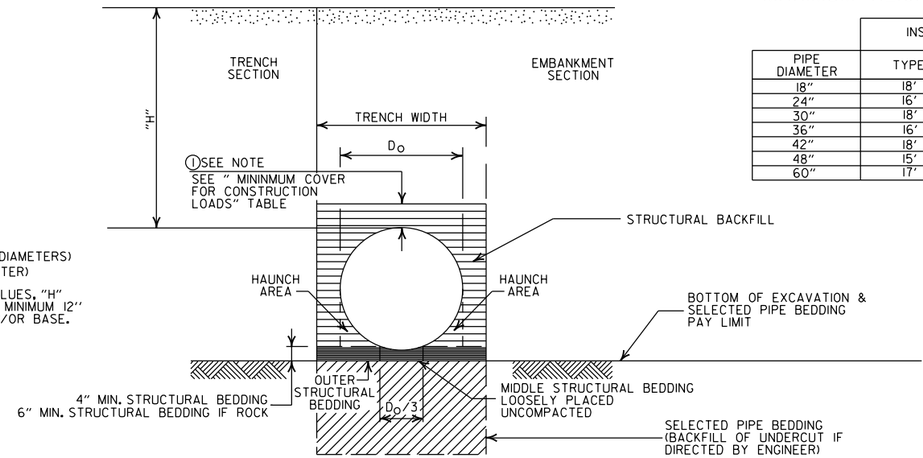
MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (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.

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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



MAXIMUM HEIGHT OF FILL "H"

PIPE DIAMETER	INSTALLATION TYPE	
	TYPE 1	TYPE 2
18"	18'	14'
24"	16'	12'
30"	18'	14'
36"	16'	12'
42"	18'	13'
48"	15'	11'
60"	17'	12'

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 M330, TYPE S, INSTALLATION SHALL CONFORM 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, SIXTH EDITION (2012) WITH 2013 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. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. 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

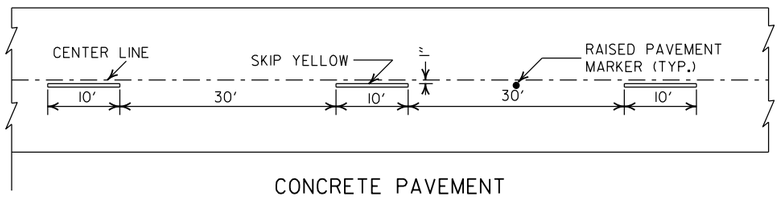
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

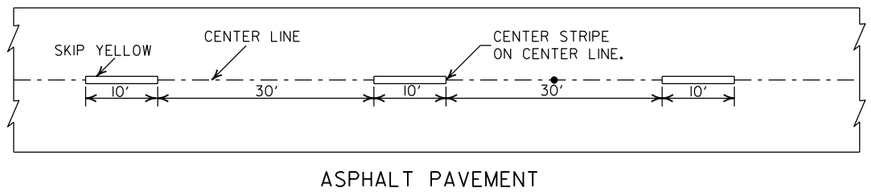
PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

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.

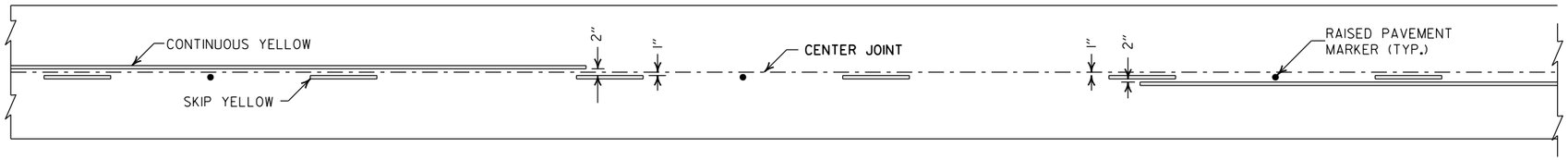


CONCRETE PAVEMENT

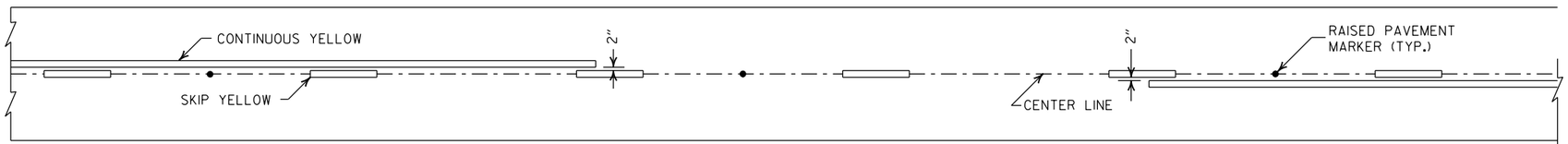


ASPHALT PAVEMENT

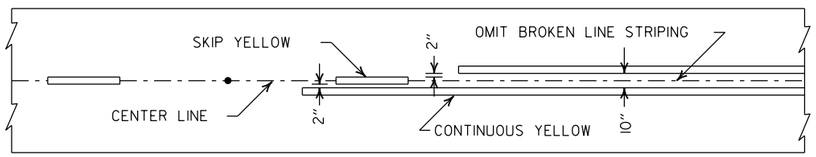
BROKEN LINE STRIPING



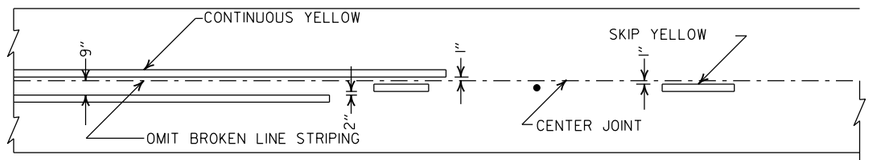
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

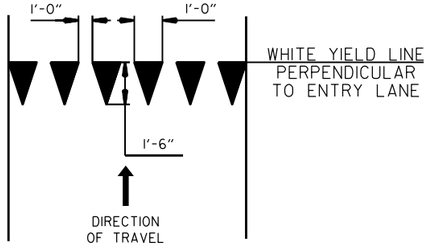


ASPHALT PAVEMENT

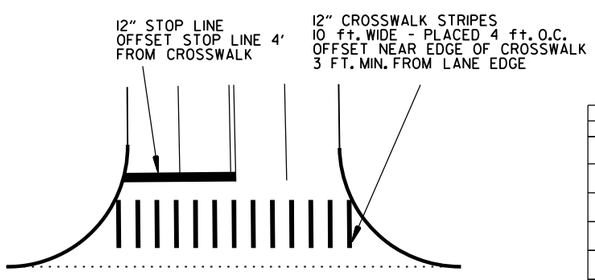


CONCRETE PAVEMENT

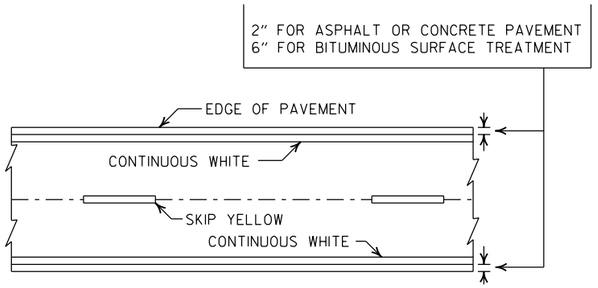
STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL



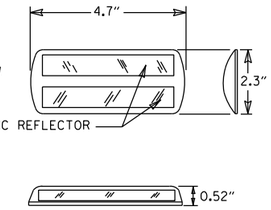
CROSSWALK AND STOP LINE DETAILS



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 ARDOT QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

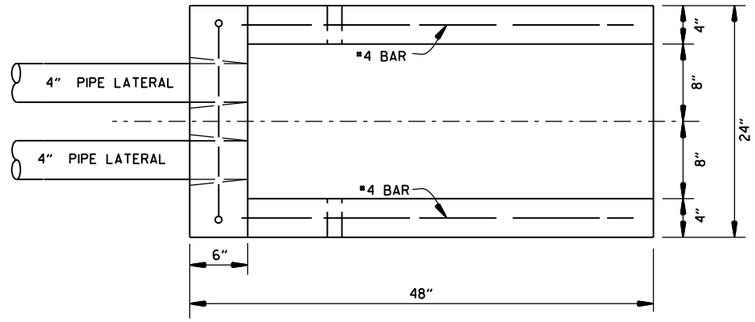
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

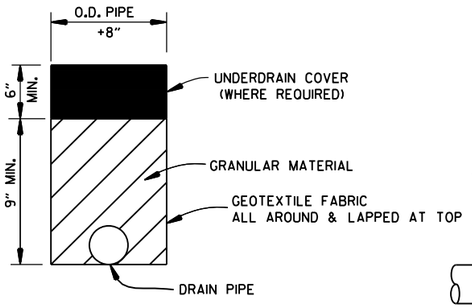
NOTE:

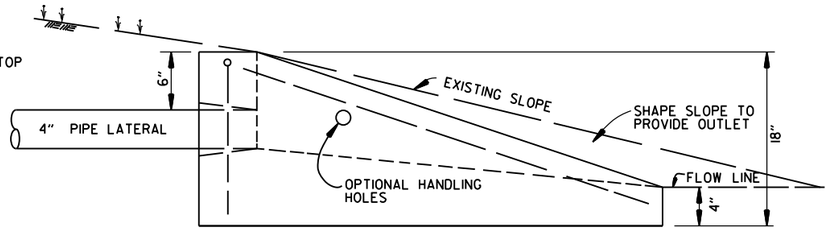
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

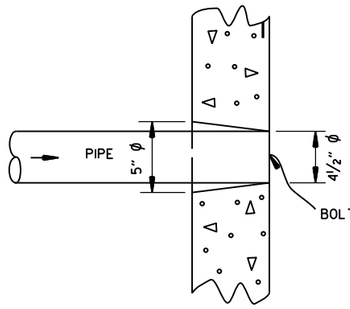


PLAN VIEW

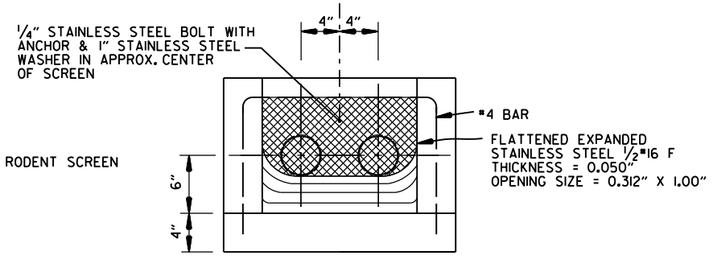




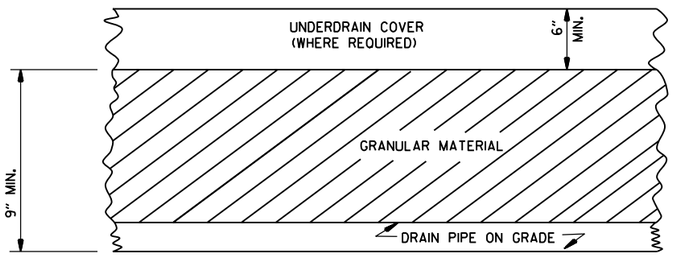
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

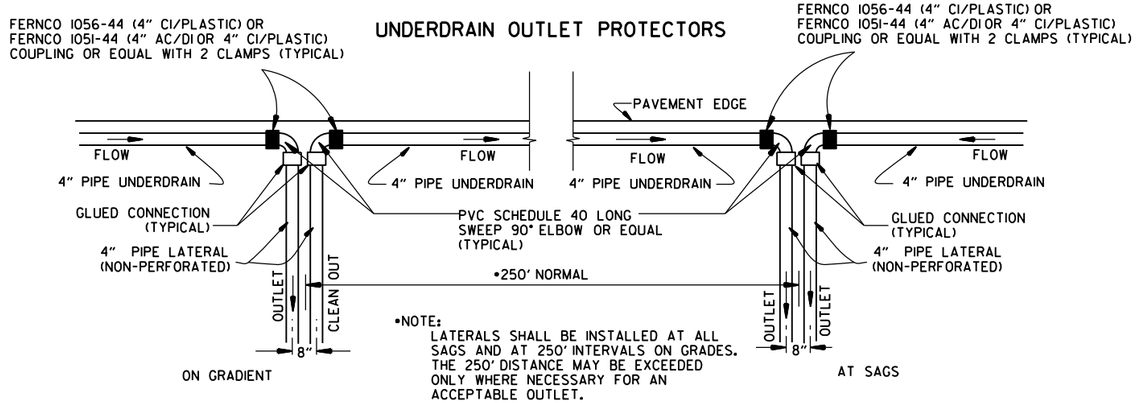


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

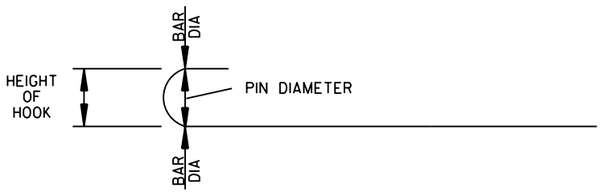
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

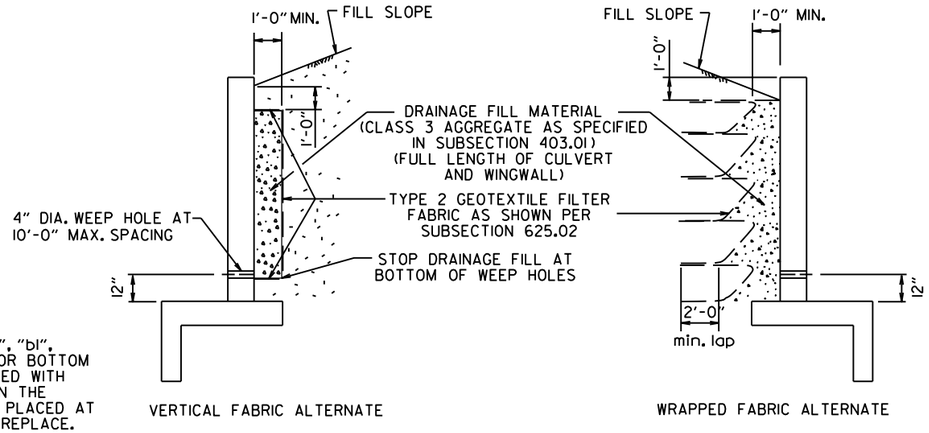
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

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

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

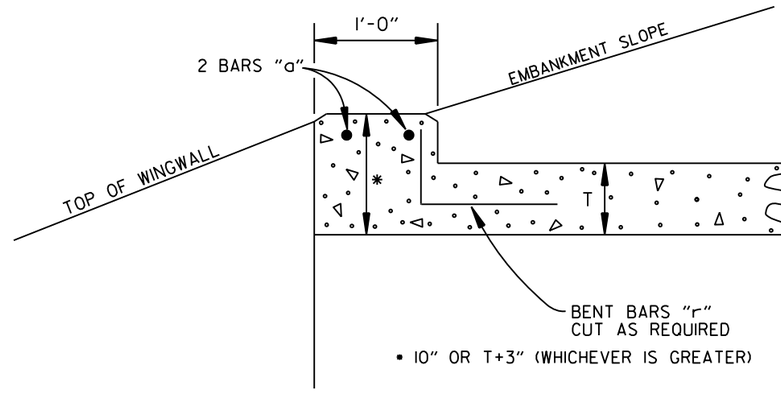
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

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

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

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



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.

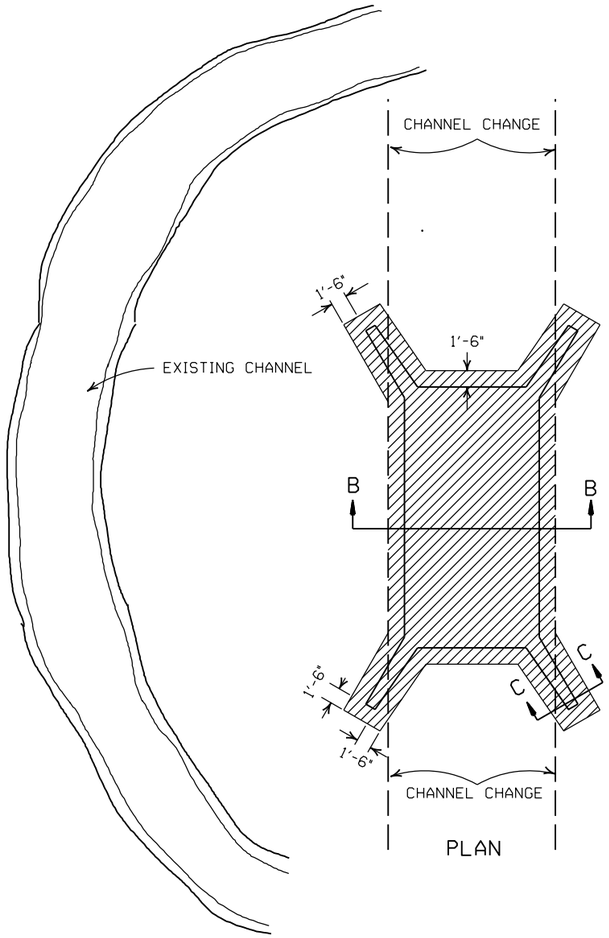
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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	

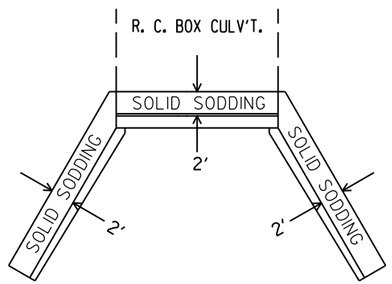
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



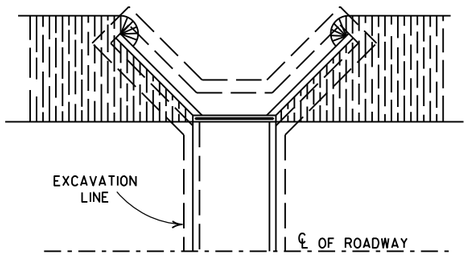
PLAN



PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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



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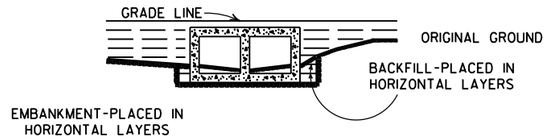
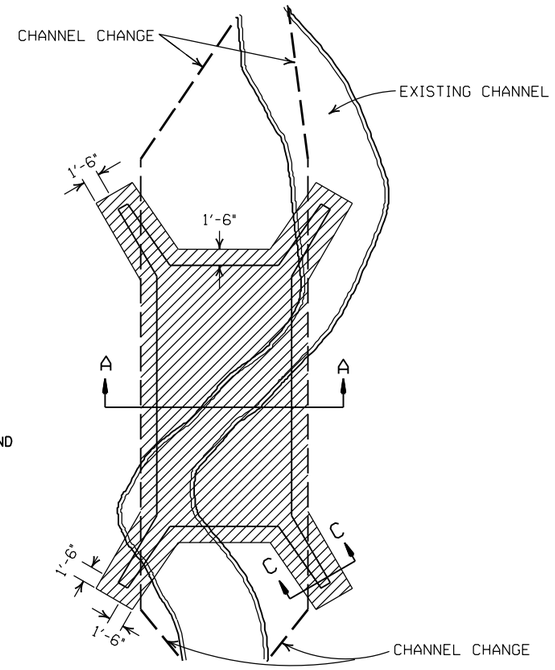
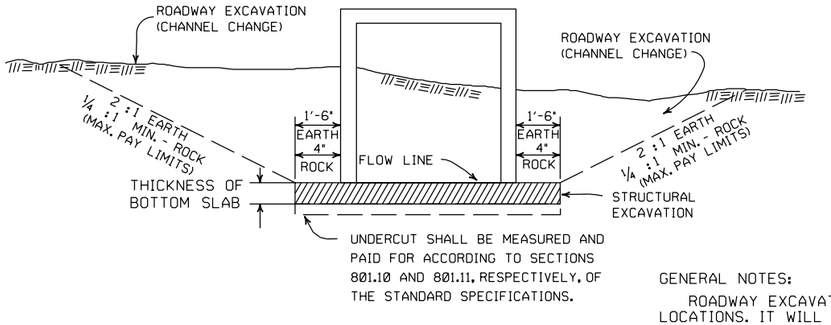


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

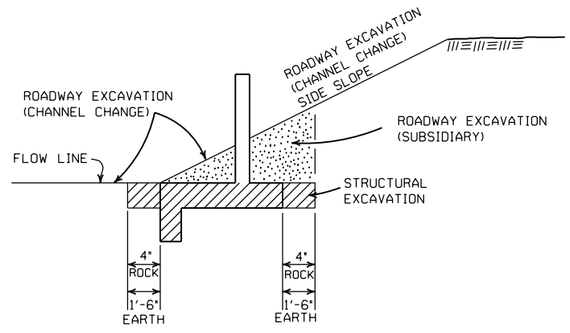


PLAN

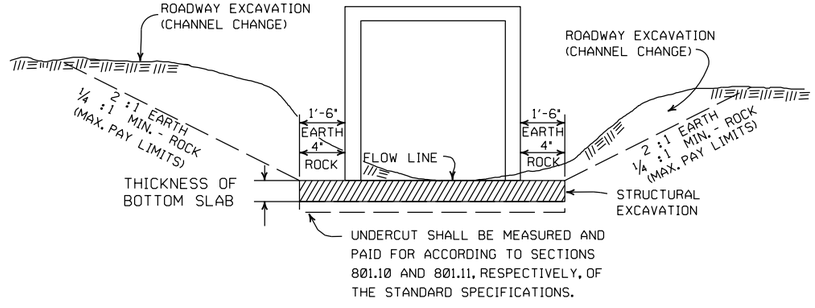


SECTION B-B

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.

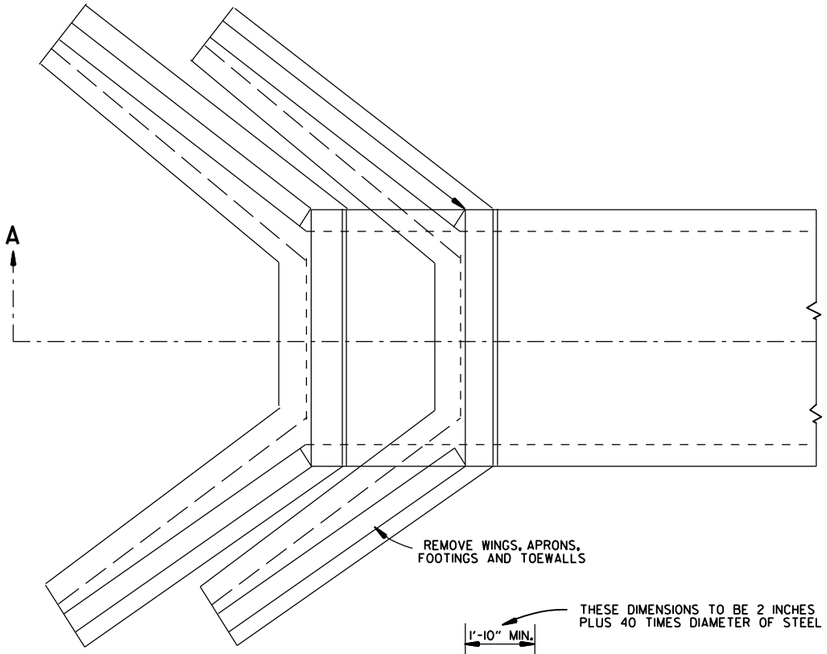
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

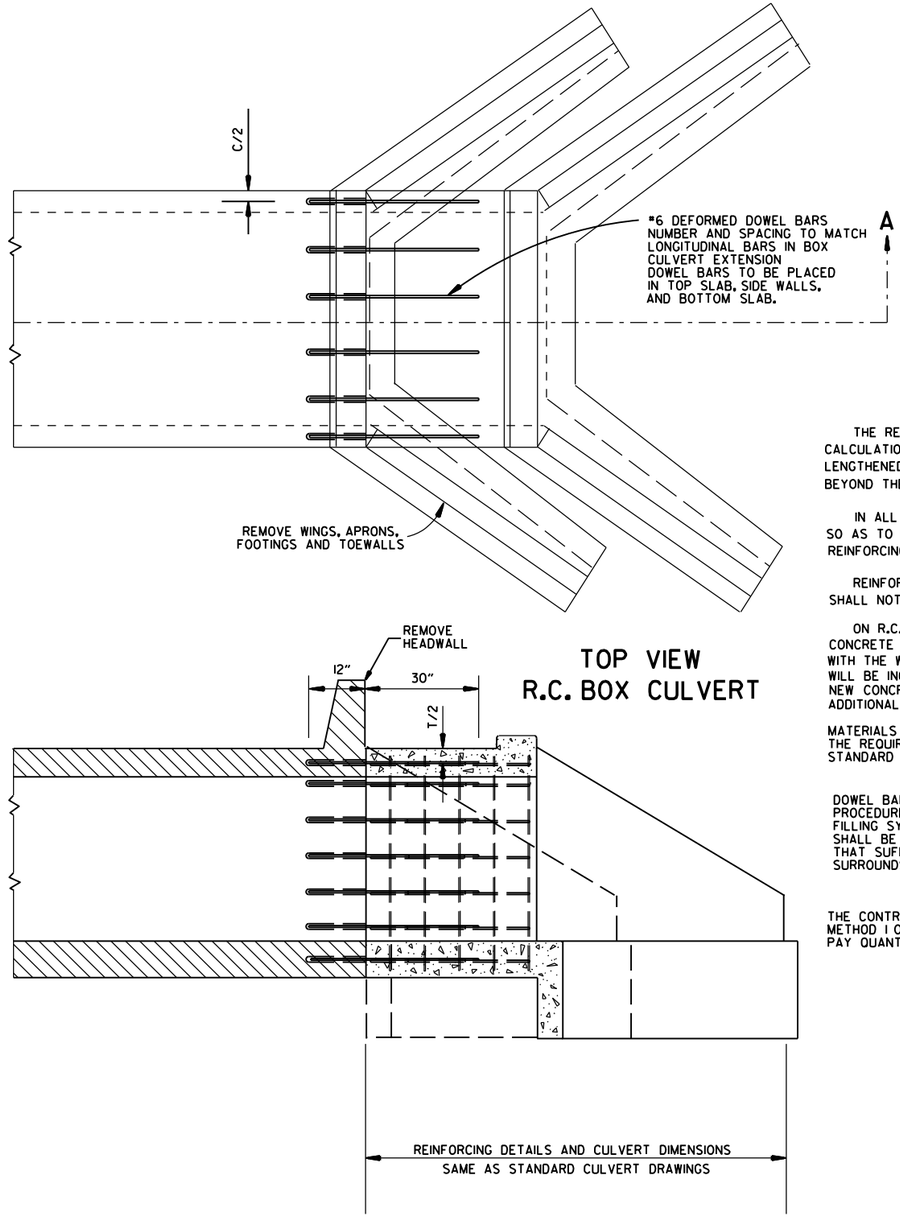
STANDARD DRAWING RCB-2



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

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139	300	0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168	300	0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100	200	0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259	300	0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198	250	0.086	239		0.096	278		D MAX = 6° 30'														
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283																
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252	300	0.100	288																
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		D MAX = 8° 25'																	
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																			
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																			
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																				
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211	250	0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																							
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250	D MAX = 19° 30'																										
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												

D MAX = 28° 30'

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%

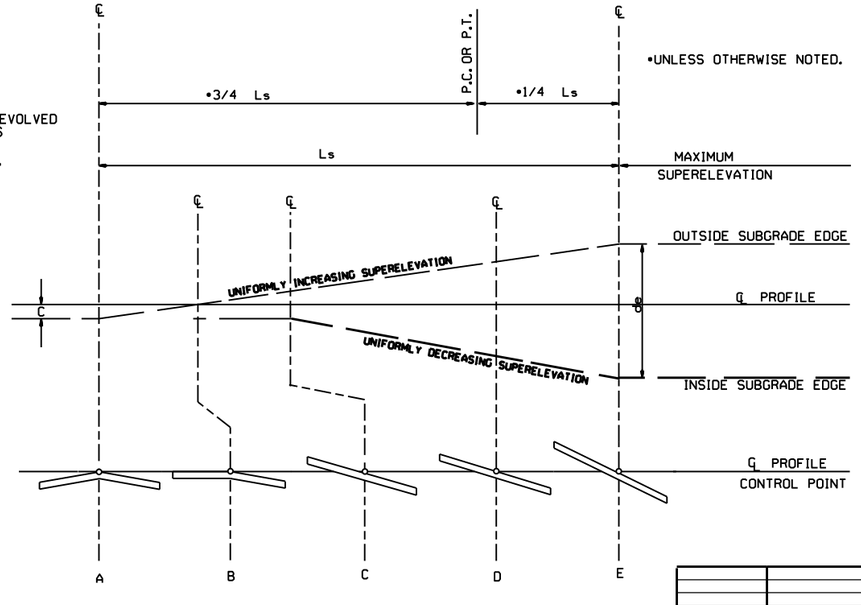
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

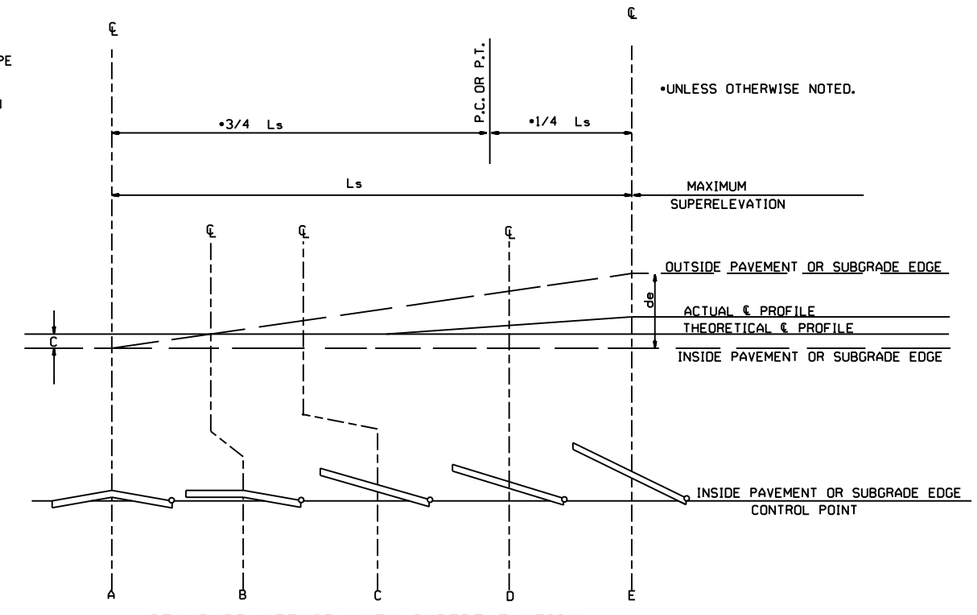
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

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 CENTER LINE



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

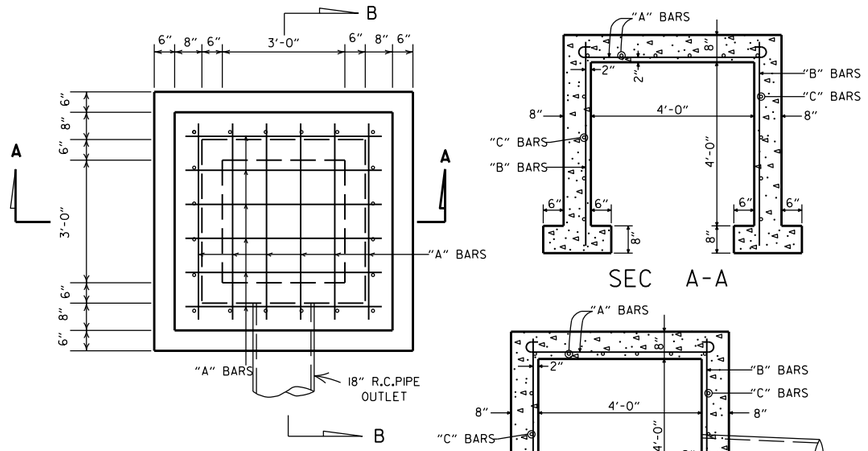
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

DATE	REVISION	DATE FILMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

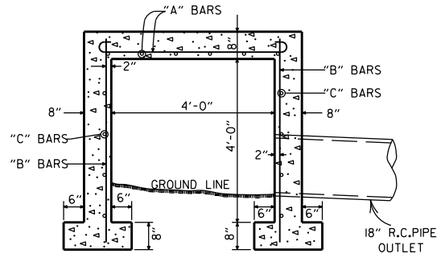
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A



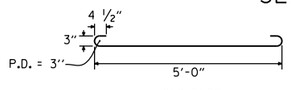
SEC B-B

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

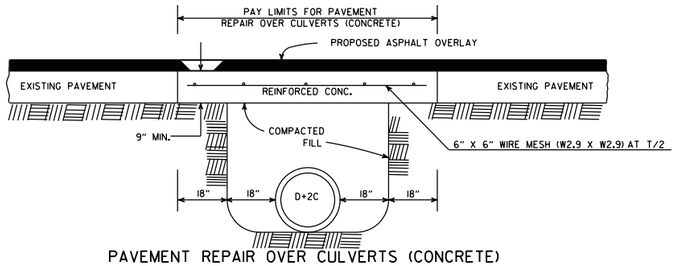
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

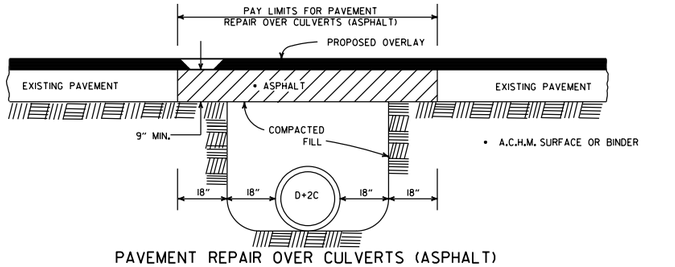
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



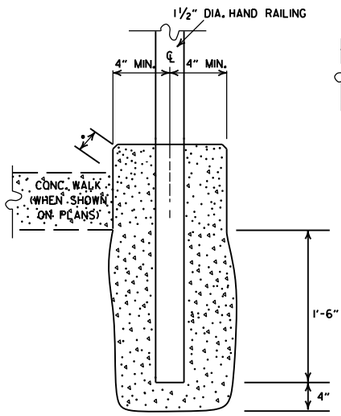
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



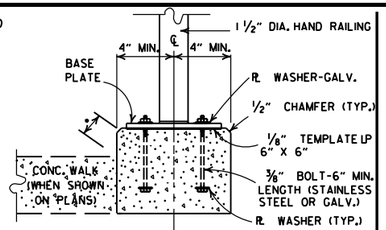
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

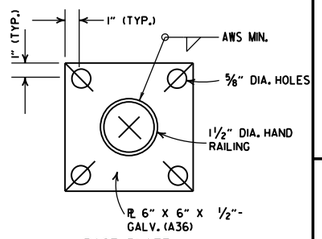
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

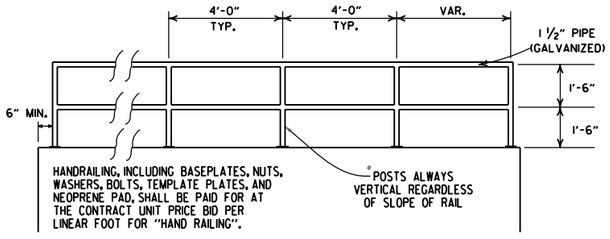


POST CONNECTION TO WALL

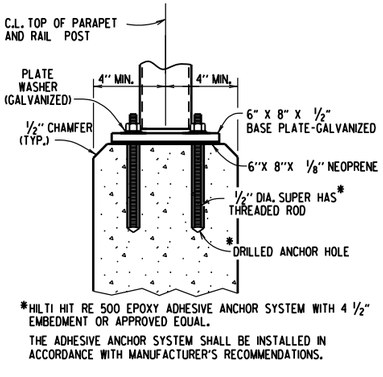


BASE PLATE

POST CONNECTION DETAILS



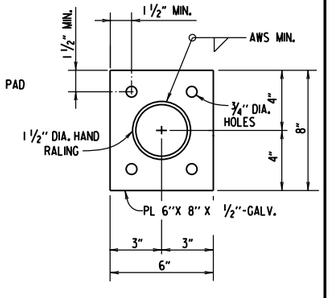
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

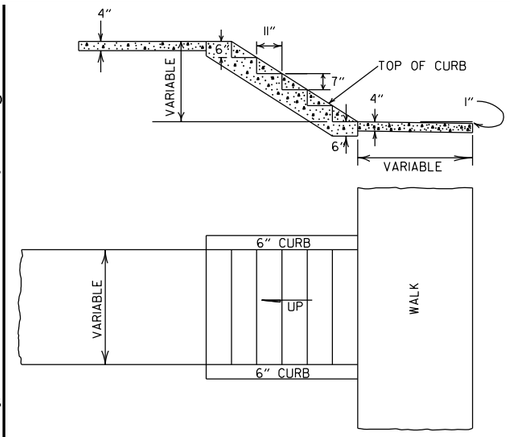
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

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	
4-26-94	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

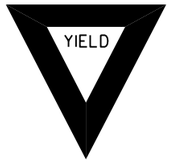
DETAILS OF SPECIAL ITEMS

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"

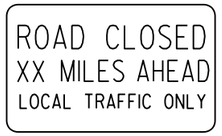
R5-1

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"

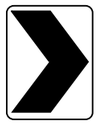
WI-4

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"

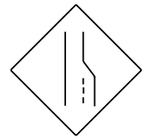
W3-1

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"

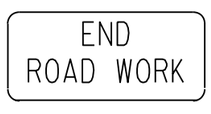
W8-9

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

G20-1

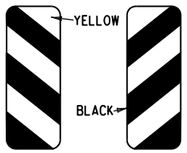
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

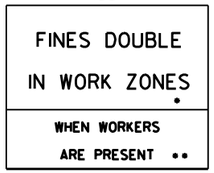
M4-9

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.

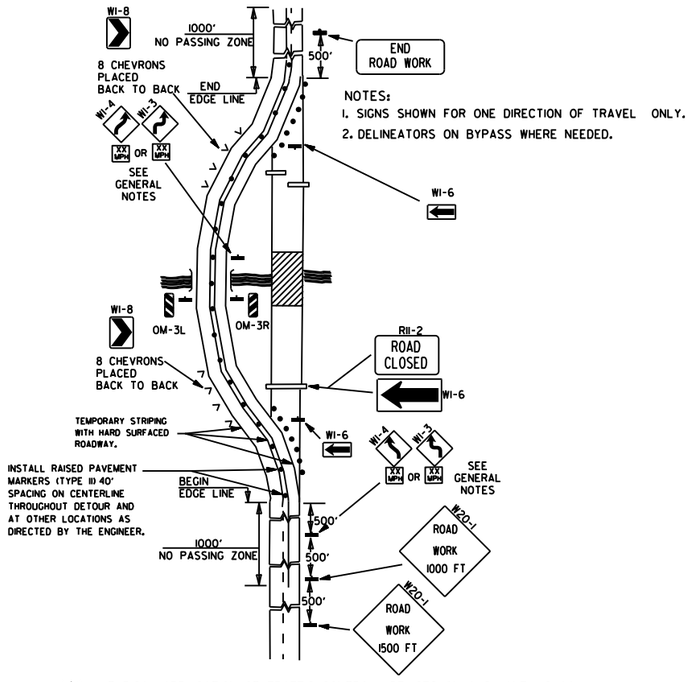
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
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

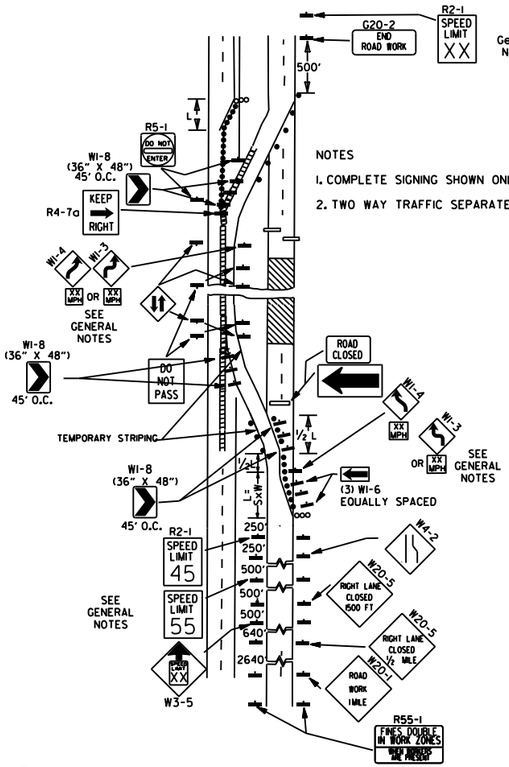
STANDARD DRAWING TC-1



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

NOTES:

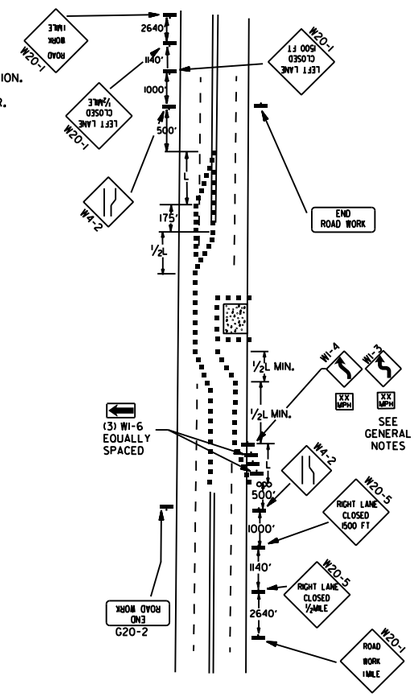
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.



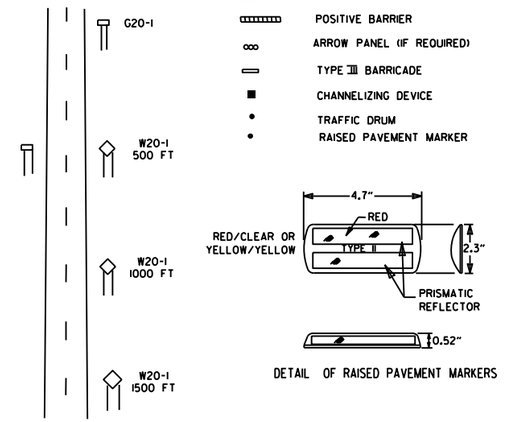
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

NOTES

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



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:

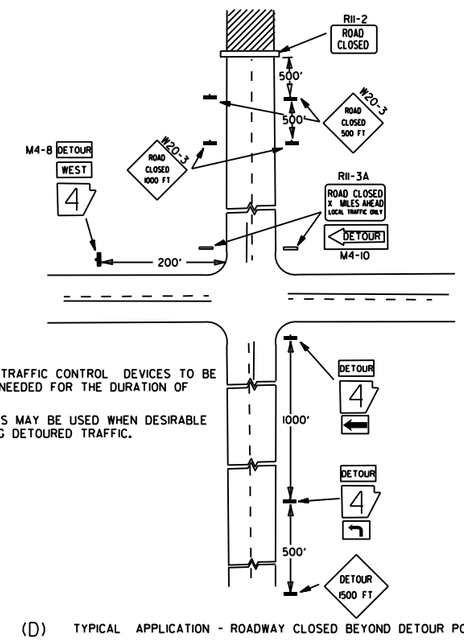
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

GENERAL NOTES:

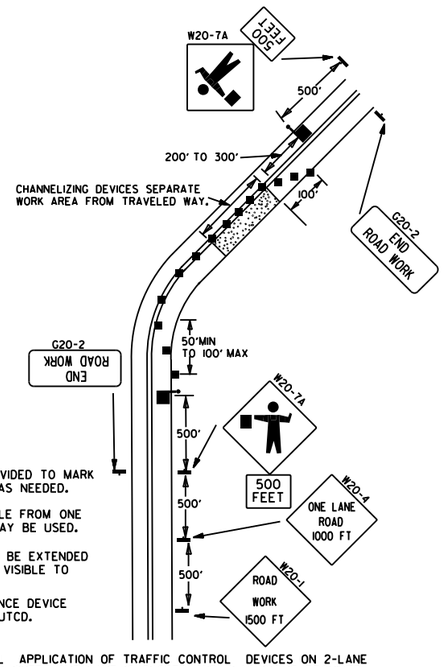
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT 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 R2-145MPH 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 R2-155MPH 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 ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



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.

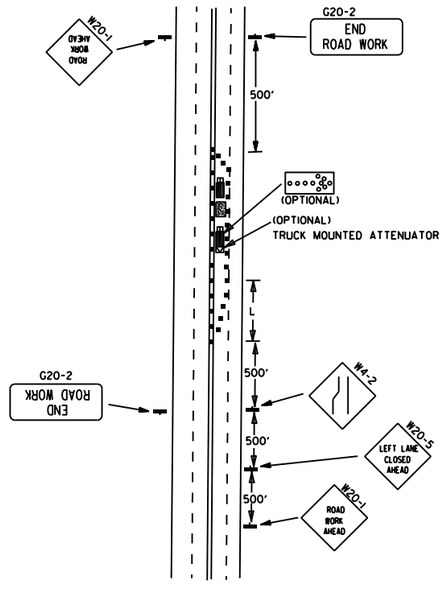
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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.



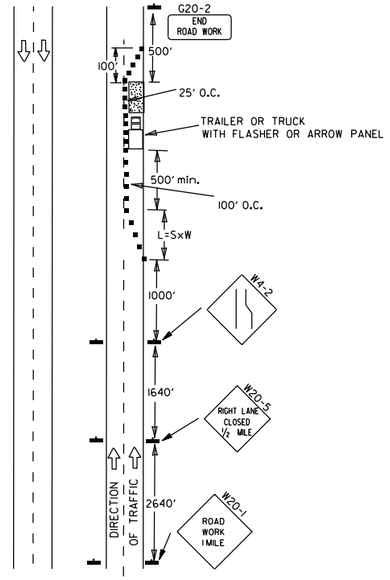
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

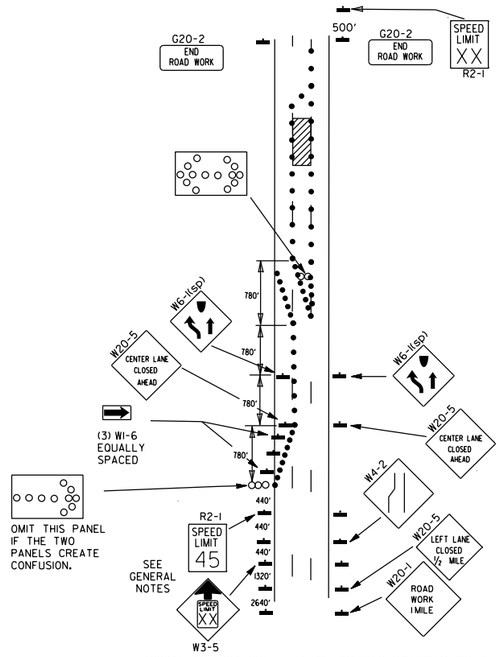
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

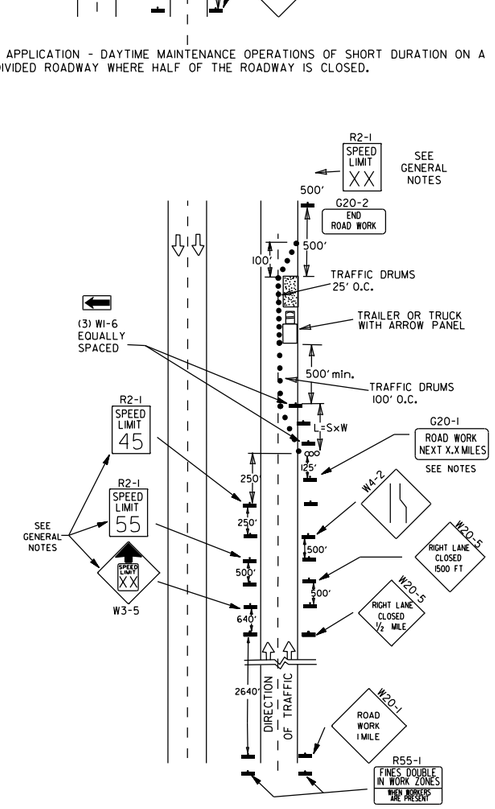
STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.



(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

KEY:

ooo ARROW PANEL (IF REQUIRED)

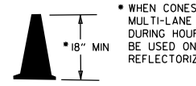
■ CHANNELIZING DEVICE

● TRAFFIC DRUM

GENERAL NOTES:

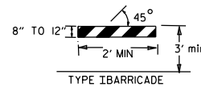
1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 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 R2-155MPH 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 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

CHANNELIZING DEVICES

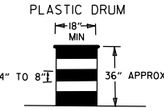


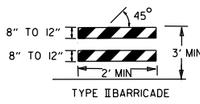
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

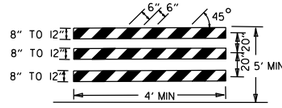
CONES



PLASTIC DRUM

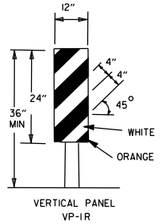




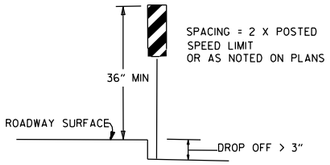


TYPE III BARRICADE

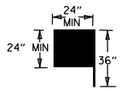
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

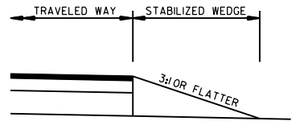
TRAFFIC CONTROL DEVICES

NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS(3)
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(4) & EDGE LINES	PRECAST CONCRETE BARRIER(4) & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

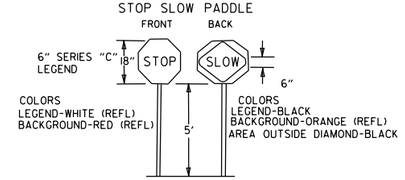
GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



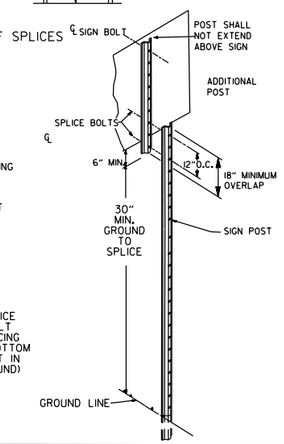
STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

STOP SLOW PADDLE



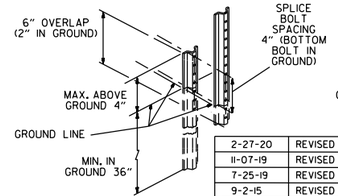
DETAIL OF SPLICES

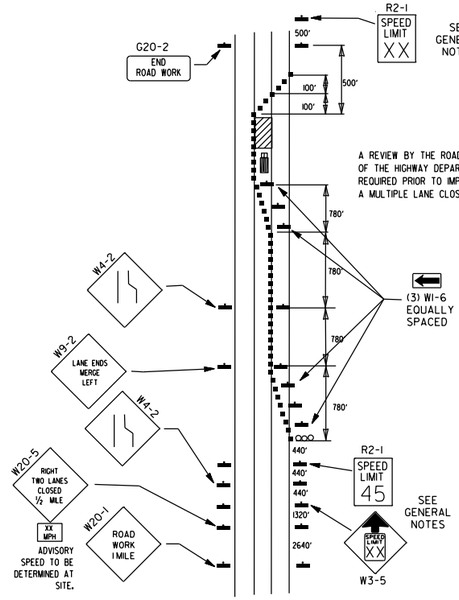


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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.





(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

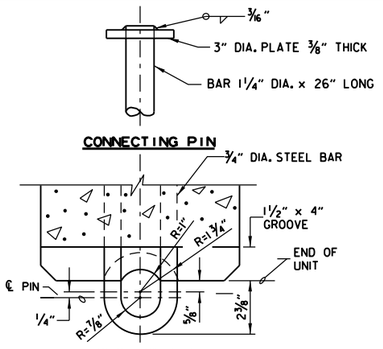
ARKANSAS STATE HIGHWAY COMMISSION

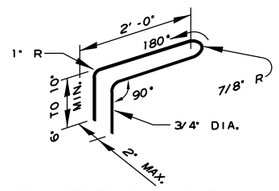
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

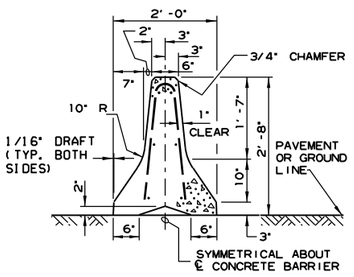
STANDARD DRAWING TC-3

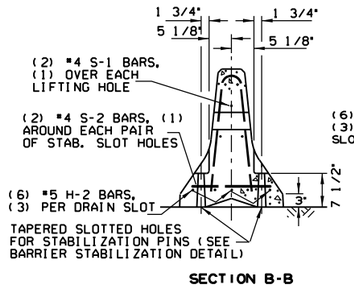
REINFORCING BAR TABLE PER BARRIER UNIT

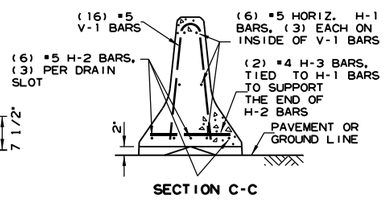
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-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°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8"

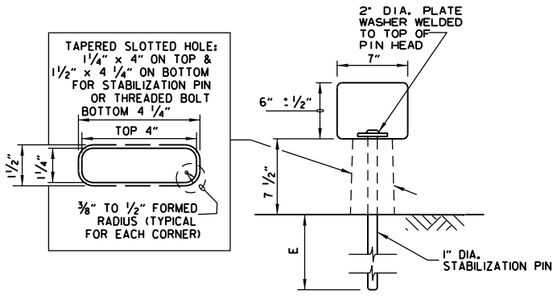




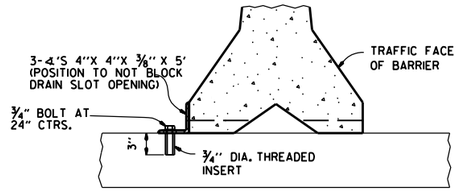






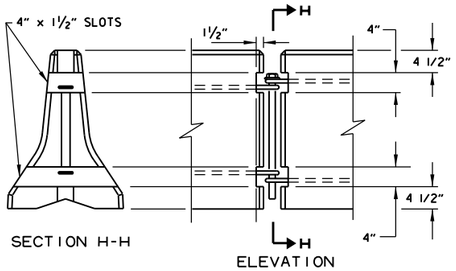


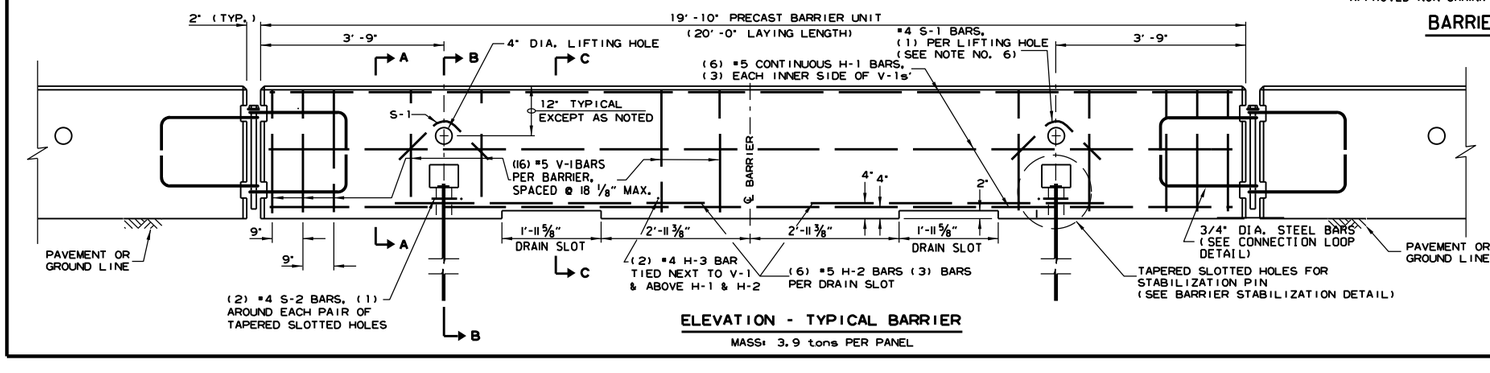
Ⓔ 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



NOTE: " 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 WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT 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 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 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 MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). 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.

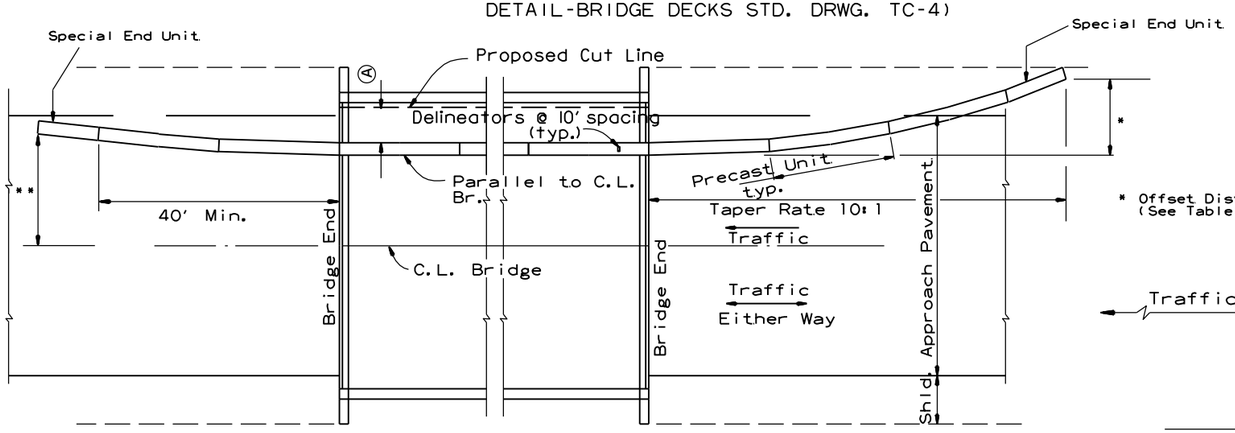
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO WASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED 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

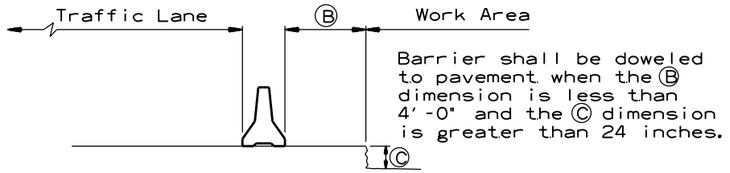
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

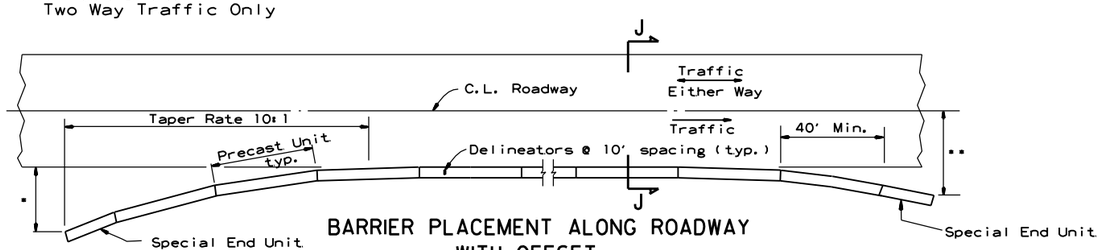
** Offset Distance for Two Way Traffic Only



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

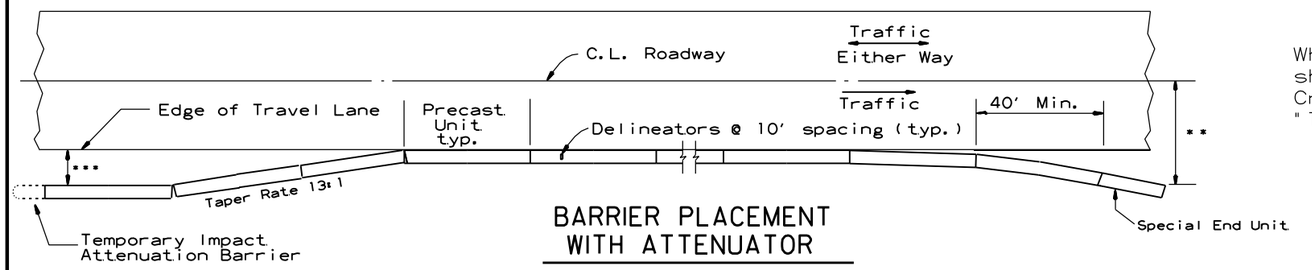
** Offset Distance For Two Way Traffic Only

* 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.

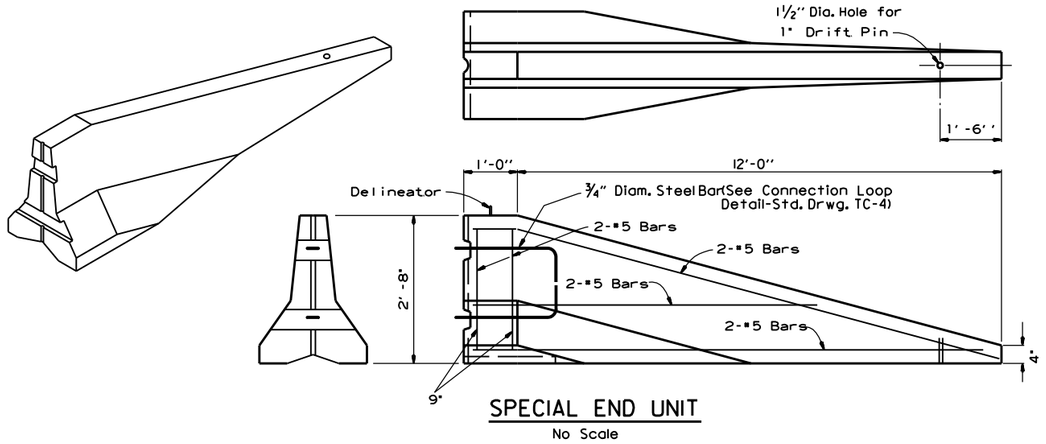


BARRIER PLACEMENT WITH ATTENUATOR

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 a 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
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

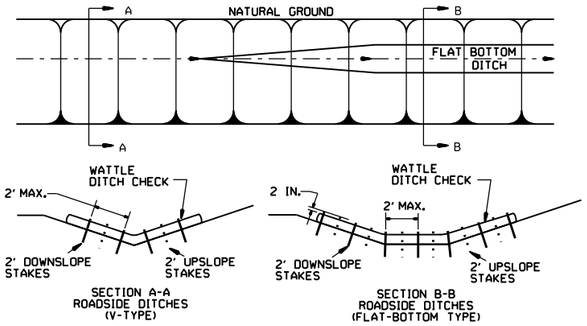
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

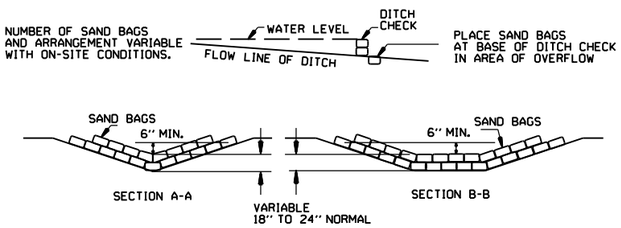
STANDARD DRAWING TC-5

GENERAL NOTES

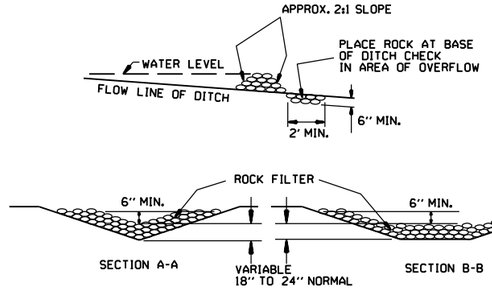
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

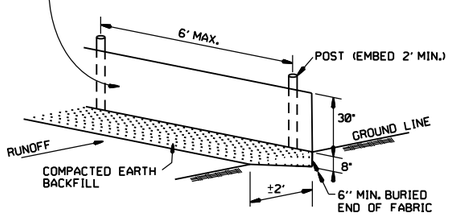


ROCK DITCH CHECK (E-6)

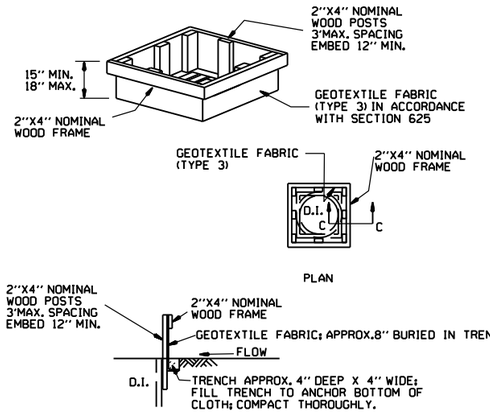
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

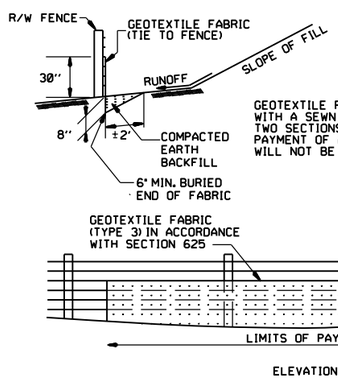
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

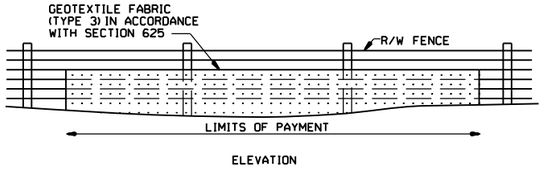


DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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



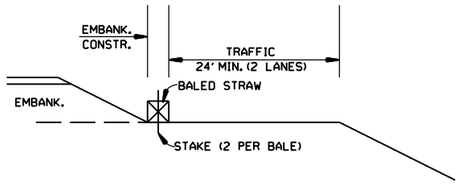
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

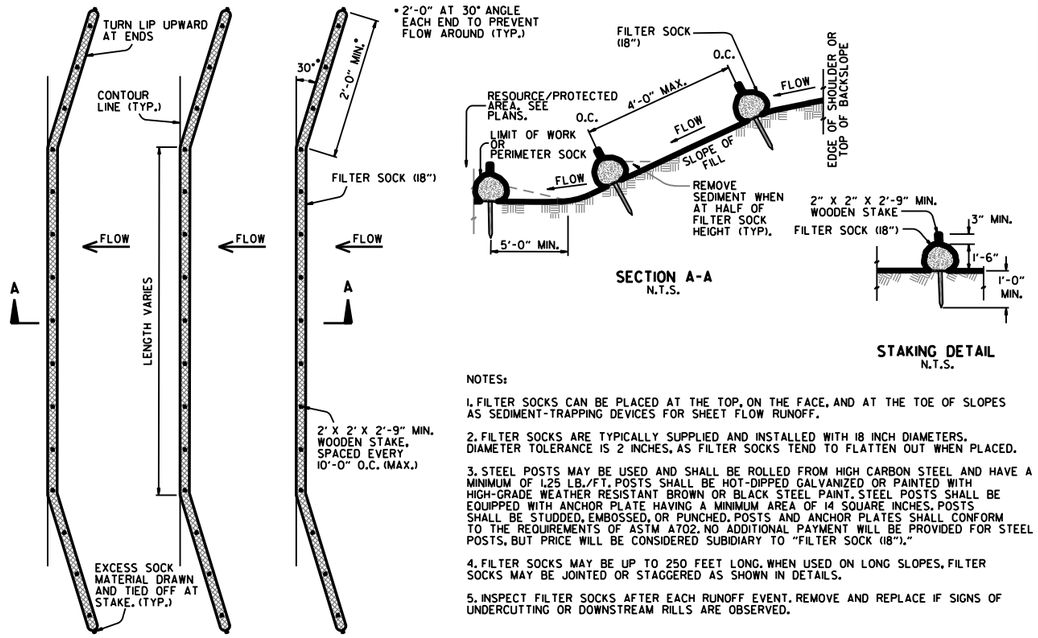
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



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.

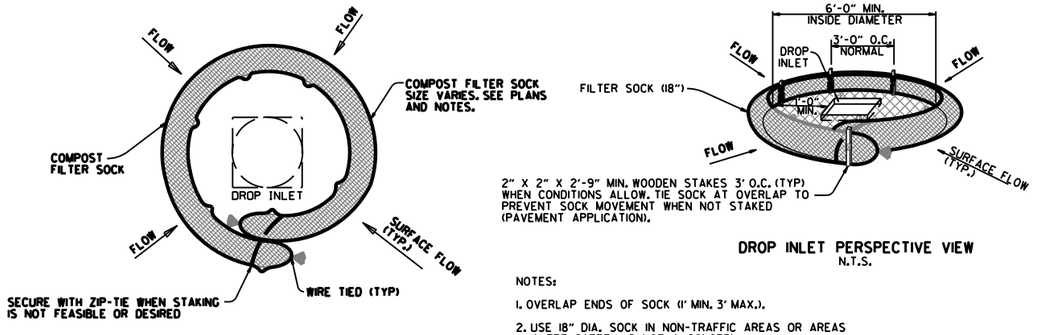
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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)



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.

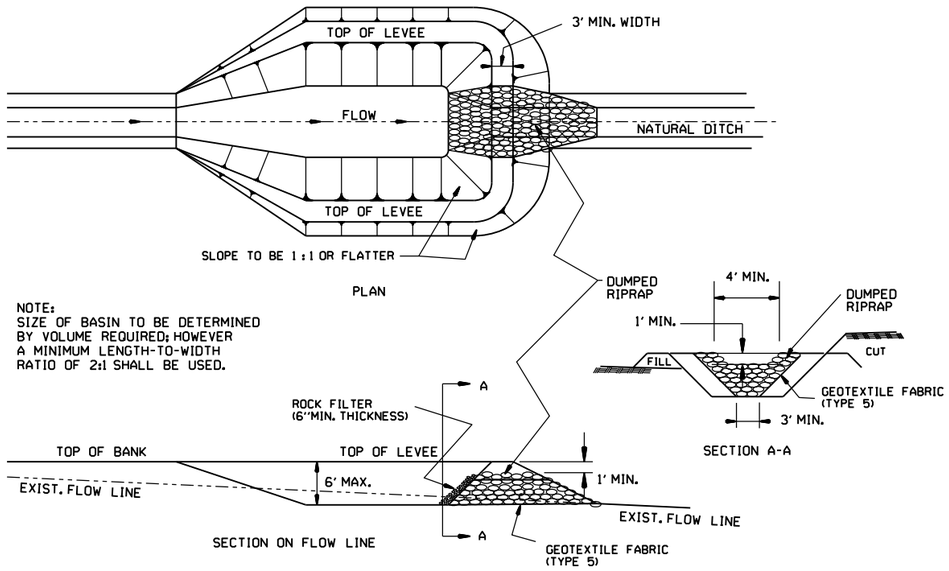
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

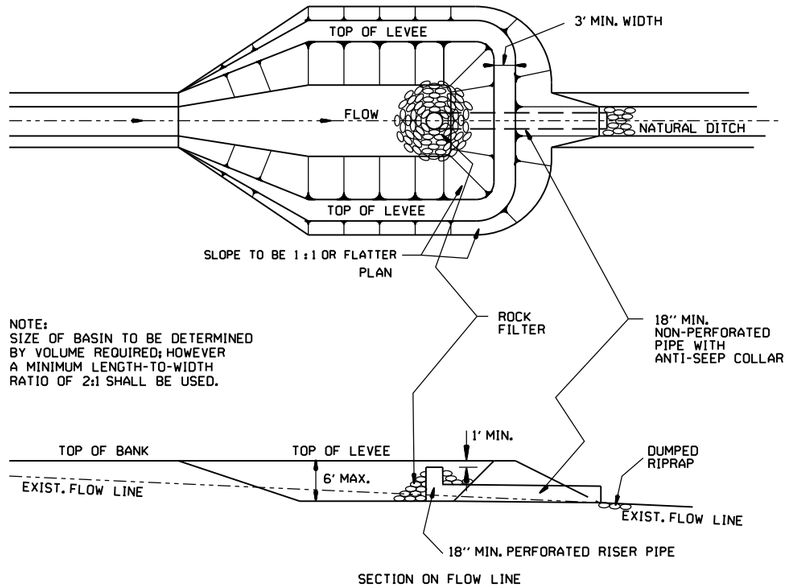
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

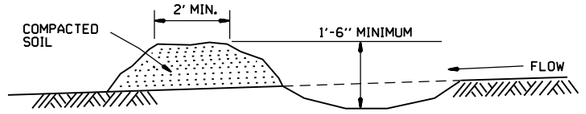
STANDARD DRAWING TEC-1



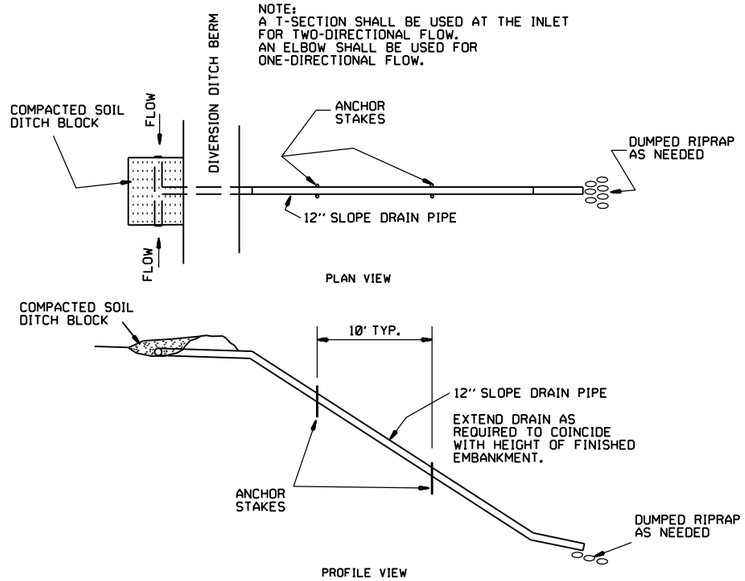
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



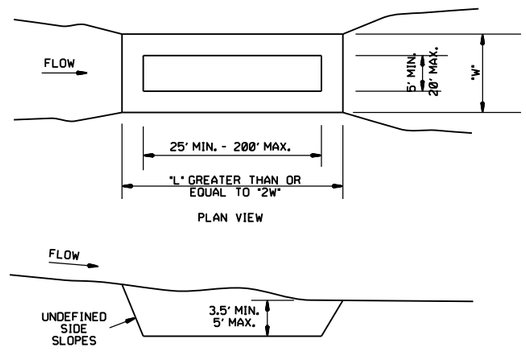
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

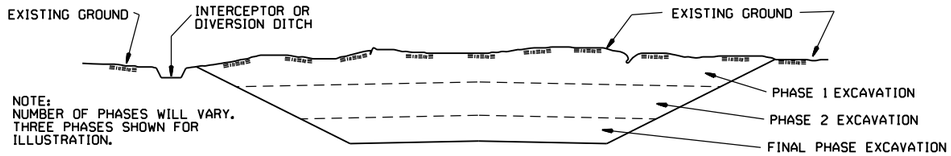
STANDARD DRAWING TEC-2

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



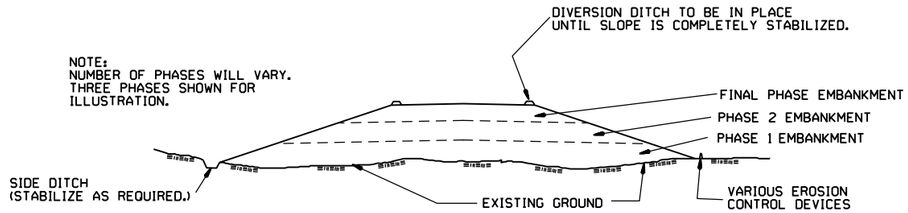
GENERAL NOTE

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.

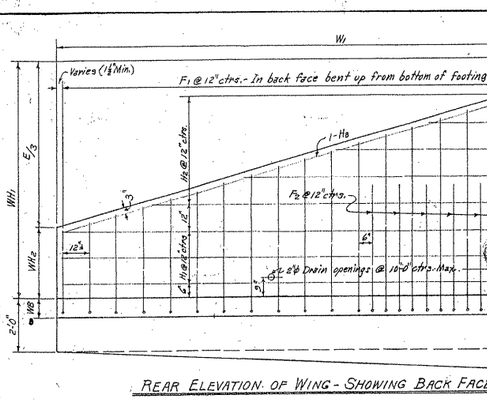
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

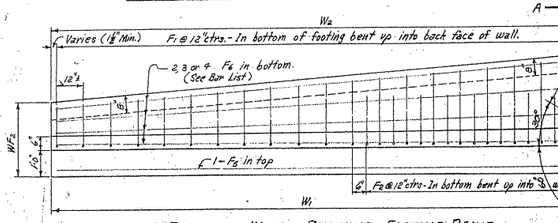
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

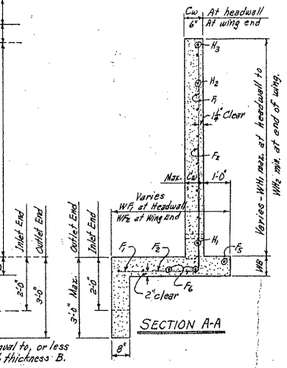
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



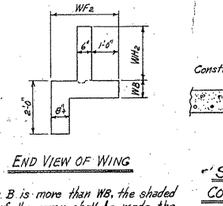
PLAN OF WING - SHOWING FOOTING REINF.



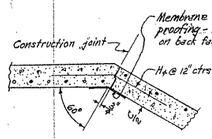
SECTION A-A

WB may be more, equal to, or less than the bottom slab thickness B.

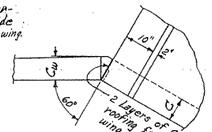
When B is more than W8, the shaded portion of the apron shall be made the same thickness as the barrel base B.



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		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTH OF WING WALLS	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.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11⅜"	6'-6"	7'-6"	7'-1½"	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'-3"	3'-0"	2'-3"	1'-5"	10'-6"	12'-1⅝"	12'-1⅝"	1.868	2.027
5'	7'	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7⅛"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅜"	12'-6"	14'-5⅝"	14'-7⅛"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅛"	14'-6"	16'-9"	17'-1⅝"	3.440	3.661
		7⅝"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅛"	14'-6"	16'-9"	17'-1⅝"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅛"	14'-6"	16'-9"	17'-1⅝"	3.582	3.803
7'	8⅝"	7⅝"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅜"	16'-6"	19'-0⅝"	19'-8⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅜"	16'-6"	19'-0⅝"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4⅝"	22'-0"	5.761	6.097

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W8.

APRON DIMENSION W8

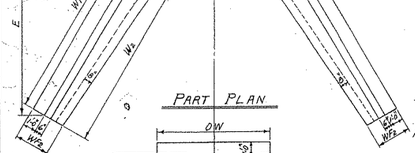
W8 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	2 x FOOTING DIMENSION	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W8	OW	W8	OW	W8	OW	W8	OW	W8
4'	2'	1'-11⅞"	5'-0"	3'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅜"	5'-0"	2'-3⅜"	9'-8"	6'-11⅜"	14'-4"	11'-7⅜"	19'-0"	16'-3⅜"	23'-8"	20'-11⅜"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅜"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-8⅜"
	6'	5'-0⅜"	5'-2"	0'-1⅜"	9'-11"	4'-10⅜"	14'-8"	9'-7⅜"	19'-5"	14'-4⅜"	24'-2"	19'-1⅜"
5'	3'	2'-8⅜"	6'-0"	3'-3⅜"	11'-8"	8'-11⅜"	17'-4"	14'-7⅜"	23'-0"	20'-3⅜"	28'-8"	25'-11⅜"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅜"	11'-8"	7'-5⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-8⅜"
	6'	5'-0⅜"	6'-2"	1'-1⅜"	11'-11"	6'-10⅜"	17'-8"	12'-7⅜"	23'-5"	18'-4⅜"	29'-2"	24'-1⅜"
	7'	6'-2⅛"	6'-5"	0'-0⅝"	12'-1"	5'-10⅝"	17'-11"	11'-8⅝"	23'-9"	17'-8⅝"	29'-7"	23'-6⅝"
6'	3'	2'-8⅜"	7'-0"	4'-3⅜"	13'-8"	10'-11⅜"	20'-4"	17'-7⅜"	27'-0"	24'-3⅜"	33'-8"	30'-11⅜"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅜"	13'-8"	9'-5⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-5⅜"
	6'	5'-0⅜"	7'-2"	2'-1⅜"	13'-11"	8'-10⅜"	20'-8"	15'-7⅜"	27'-5"	22'-2⅜"	34'-2"	28'-10⅜"
	7'	6'-2⅛"	7'-5"	1'-0⅝"	14'-1"	7'-10⅝"	20'-11"	14'-8⅝"	27'-9"	21'-4⅝"	34'-7"	28'-0⅝"
	8'	7'-1⅝"	7'-8"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-4"	34'-8"	27'-0"
8'	4'	3'-6"	9'-0"	5'-6"	17'-6"	14'-2"	26'-0"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-10⅜"	17'-11"	13'-7⅜"	26'-6"	23'-6⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0⅜"	9'-2"	4'-1⅜"	17'-11"	12'-10⅜"	26'-6"	21'-7⅜"	35'-5"	30'-2⅜"	44'-2"	39'-1⅜"
	7'	6'-2⅛"	9'-5"	3'-0⅝"	18'-1"	11'-10⅝"	26'-11"	20'-8⅝"	35'-9"	29'-4⅝"	44'-7"	38'-0⅝"
	8'	7'-1⅝"	9'-8"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-4"	44'-8"	37'-0"
9'	5'	4'-3⅜"	10'-2"	5'-10⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0⅜"	10'-3"	5'-2⅜"	20'-1"	15'-0⅜"	29'-11"	24'-5⅜"	39'-9"	34'-5⅜"	49'-7"	44'-1⅜"
	7'	6'-2⅛"	10'-5"	4'-0⅝"	20'-1"	13'-10⅝"	29'-11"	23'-2⅝"	39'-9"	33'-2⅝"	49'-7"	43'-0⅝"
	8'	7'-1⅝"	10'-8"	3'-0"	20'-2"	12'-10"	30'-0"	22'-2"	39'-10"	32'-2"	49'-8"	42'-0"
10'	5'	4'-3⅜"	11'-2"	6'-10⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0⅜"	11'-3"	6'-2⅜"	22'-1"	17'-0⅜"	32'-11"	27'-10⅜"	43'-9"	38'-6⅜"	54'-7"	49'-1⅜"
	7'	6'-2⅛"	11'-5"	5'-0⅝"	22'-1"	15'-10⅝"	32'-11"	26'-7⅝"	43'-9"	37'-4⅝"	54'-7"	48'-0⅝"
	8'	7'-1⅝"	11'-8"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-4"	54'-8"	47'-0"
11'	6'	5'-0⅜"	12'-4"	7'-3⅜"	24'-2"	19'-1⅜"	36'-0"	30'-11⅜"	47'-10"	42'-3⅜"		
	7'	6'-2⅛"	12'-6"	6'-1⅝"	24'-2"	17'-11⅝"	36'-0"	29'-8⅝"	47'-10"	41'-1⅝"		
	8'	7'-1⅝"	12'-8"	5'-0"	24'-2"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0⅜"	13'-4"	8'-3⅜"	26'-2"	21'-1⅜"	39'-0"	33'-11⅜"	51'-10"	46'-3⅜"		
	7'	6'-2⅛"	13'-6"	7'-1⅝"	26'-2"	19'-11⅝"	39'-0"	32'-10⅝"	51'-10"	45'-1⅝"		
	8'	7'-1⅝"	13'-8"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		

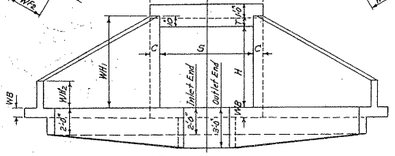
QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - FOR 4 WINGS @	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.42	7.38	8.34
	3'	6"	7"	169.4	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"	169.4	6.97	7.68	8.79	9.96	11.12
	4'	6"	7"	259.6	8.54	9.70	10.87	10.03	12.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7⅞	8⅝	1139.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	169.4	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	259.6	8.75	10.12	11.49	12.87	14.25
	5'	7"	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'	7⅞	8⅝	1139.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	25.09	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	21.66
	7'	7⅞	8⅝	1139.6	19.38	21.02	22.68	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	19.34
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7⅞	8⅝	1139.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1925.6	24.54	26.41	28.28	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.97
	6'	7⅞	8"	583.1	15.94	18.09	20.09	22.19	24.23
	7'	7⅞	8⅝	1139.6	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	12.49	14.80	17.05	19.24	21.52
	6'	7⅞	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7⅞	8⅝	1139.6	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"	8⅝	1139.6	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"	8⅝	1139.6	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.

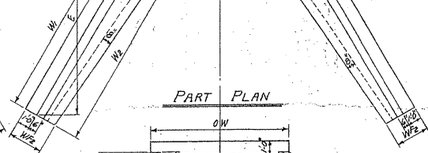


PART PLAN



END ELEVATION

SINGLE BARREL CULVERT



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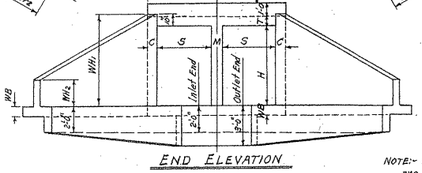
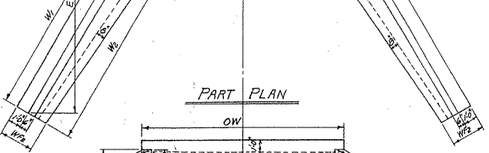


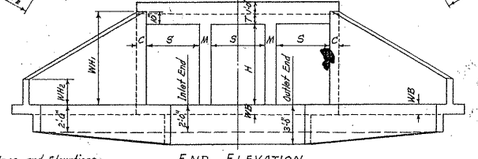
END ELEVATION

DOUBLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.

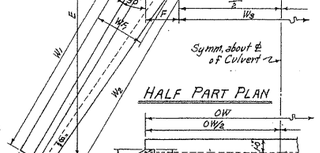


PART PLAN

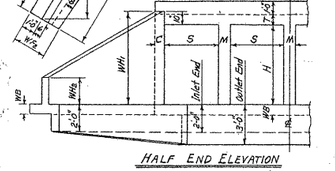


END ELEVATION

TRIPLE BARREL CULVERT

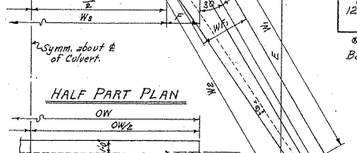


HALF PART PLAN

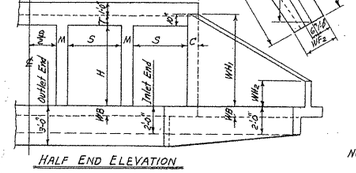


HALF END ELEVATION

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.

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.								F2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						F3 STRAIGHT: Longitudinal in top of wing footing heel.			F4 STRAIGHT: Longitudinal in bottom of wing footing toe.			H1 STRAIGHT: Horizontal in back face of wing.				H2 STRAIGHT: Horizontal in back face of wing. One bar of each length.				H3 STRAIGHT: In back face of wing at top - on slope.			H4 BENT: Dowels thru construction joint at headwall.				QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
	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		
H																																						LB.	
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	2	7'-6"	9'-0"	#3	1	——	9'-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"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	9'-0"	#3	1	9'-9"	#3	12"	3	2'-8"	1'-9"	41.1	
4'	#3	12"	13	2'-8"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	14'-9"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	9'-0"	#3	1	10'-2"	#3	12"	4	2'-8"	1'-9"	63.7	
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	9'-0"	#3	1	10'-7"	#3	12"	5	2'-8"	1'-9"	89.5	
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-5"	9'-0"	#3	1	11'-0"	#3	12"	6	2'-8"	1'-9"	145.8	
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	9'-0"	#4	1	11'-5"	#4	12"	7	3'-6"	1'-9"	283.7	
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-6"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	9'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4	

NOTE:- Dimensions are to bar centers.

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:- RMS 1-9-63
Checked By:- RMS 1-31-63
Rechecked By:- RMS 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

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

MYLAR

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

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

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall- Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	"b" bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	"d1" bars STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	No. REQ'D	LENGTH	"e" bars. STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	"f" bars STRAIGHT Verticals in Sidewalls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
D	S	H																											
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"	#5	10½"	6	#4	16"	4	#4	12"	5	#4	12"	5	#4	12"	120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			6			5			5			120	120	3'-11"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			8			5			5			120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			6			10			5			5			120	120	6'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			6			12			5			5			120	120	6'-11"
	1 @ 5'	3'			120	120	5'-9"			110	110	6'-10"	5'-8"			7			6			6			6			120	120	5'-0"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			7			8			6			6			120	120	6'-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"	6	#4	12"	120	120	7'-0"
		6'			120	120	5'11"			110	110	7'-0"	5'-10"			7			12			6			6			120	120	8'-0"
		7'			120	120	6'0"			110	110	7'-1"	5'11"			7			14			6			6					
	1 @ 6'	3'			128	128	6'-9"			118	118	7'-10"	6'-8"			8			6			7			7			120	120	4'-1"
		4'			128	128	6'9"			118	118	7'-10"	6'-8"			8			8			7			7			120	120	5'-1"
		5'			128	128	6'9"			118	118	7'-10"	6'-8"			8			10			7			7			120	120	6'-1"
		6'	#6	12"	128	128	6'11"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8	#4	12"	12	#4	12"	7	#4	12"	7	#4	12"	120	120	7'-1"
		7'			128	128	7'0"			118	118	8'-1"	6'-10"			8			14			7			7			120	120	8'-1"
		8'			128	128	7'1"			118	118	8'-2"	7'-0"			8			16			7			7			120	120	9'-1"
		9'			128	128	7'1"			118	118	8'-3"	7'-0"			8			18			7			7	#5	12"	120	120	10'-1"
	1 @ 7'	4'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			8			8			8			120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9			10			8			8	#4	12"	120	120	6'-2"
		6'	#6	11"	140	140	7'-11"	#6	11"	130	130	9'-0"	7'-10"	#5	10½"	9	#4	12"	12	#4	12"	8	#4	12"	8			120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9			14			8			8			120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9			16			8			8			120	120	9'-2"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			9			18			8			8	#5	12"	120	120	10'-2"
	1 @ 8'	4'			128	128	8'-9"			118	118	9'-10"	8'-8"			9			8			9			9			120	120	5'-6"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			9			10			9			9	#4	12"	120	120	6'-6"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			9			12			9			9			120	120	7'-8"
		7'	#7	12"	128	128	8'-11"	#6	12"	118	118	10'-1"	8'-11"	#5	10'	11	#4	12"	14	#4	12"	9	#4	12"	9			120	120	8'-10"
		8'			128	128	9'-0"			118	118	10'-2"	9'-0"			11			16			9			9			10"	144	144	9'-2"
		9'			128	128	9'-1"			118	118	10'-4"	9'-2"			11			18			9			9			10"	144	144	9'-5"
		10'			128	128	9'-3"			118	118	10'-5"	9'-3"			11			20			9			9			11"	132	132	11'-9"
	1 @ 9'	5'			140	140	9'-11"			130	130	11'-0"	9'-10"			12			10			10			10	#5	12"	120	120	6'-5"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12			12			10			10			120	120	7'-5"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			12			14			10			10	#4	12"	120	120	8'-5"
		8'	#7	11"	140	140	10'-1"	#6	11"	130	130	11'-2"	10'-0"	#5	10'	12	#4	12"	16	#4	12"	10	#4	12"	10			10"	144	144	9'-5"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			12			18			10			10			11"	132	132	11'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			12			20			10			10	#5	12"	120	120	6'-8"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			12			22			10			10			120	120	7'-8"
	1 @ 10'	5'			128	128	10'-11"			118	118	12'-2"	10'-10"			13			10			11			11			120	120	8'-8"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13			12			11			11			120	120	9'-8"
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13			14			11			11			120	120	10'-8"
		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"	11			120	120	11'-8"
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"			13			18			11			11	#5	11"	132	132	11'-6"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			13			20			11			11			144	144	12'-6"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			13			22			11			11	#6	12"	120	120	13'-6"
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"			13			24			11			11					
	1 @ 11'	6'			140	140	12'-1"			130	130	13'-6"	12'-0"			15			12			12			12	#4	12"	120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-6"	12'-0"			15			14			12			12			120	120	8'-7"
		8'			140	140	12'-1"			130	130	13'-6"	12'-0"			15			16			12			12			10"	144	144	9'-7"
		9'	#7	11"	140	140	12'-3"	#7	11"	130	130	13'-6"	12'-2"	#5	9½"	15	#4	12"	18	#4	12"	12	#4	12"	12			120	120	10'-7"
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15			20			12			12	#5	11"	132	132	11'-7"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15			22			12			12			144	144	12'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15			24			12			12	#6	12"	120	120	13'-7"
	1 @ 12'	6'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			12			13			13					
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			14			13			13	#4	12"	120	120	8'-9"
		8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16			16			13			13			10"	144	144	9'-9"
		9'	#8	12"	128	128	13'-3"	#7	12"	118	118	14'-6"	13'-2"	#5	9½"	16	#4	12"	18	#4	12"	13	#4	12"	13			120	120	10'-9"
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16			20			13			13	#5	11"	132	132	11'-9"
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16			22			13			13			144	144	12'-9"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16			24			13			13	#6	12"	120	120	13'-9"

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b".
#6	3"	5"	1'-2"	K, Pin Diam., X
#7	3½"	5⅜"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQD	LENGTH	X
4'	#4	11"±	12	2'-6"	1'-3"
5'	#4	11"±	14	2'-7"	1'-3⅛"
6'	#4	11"±	16	2'-8"	1'-4"
7'	#4	11"±	18	2'-9"	1'-4⅛"
8'	#4	11⅛"±	20	2'-11"	1'-5⅛"
9'	#4	11⅛"±	22	3'-0"	1'-6"
10'	#4	11⅛"±	24	3'-1"	1'-6⅛"
11'	#4	12"±	26	3'-2"	1'-7"
12'	#4	12"±	28	3'-3"	1'-7⅛"

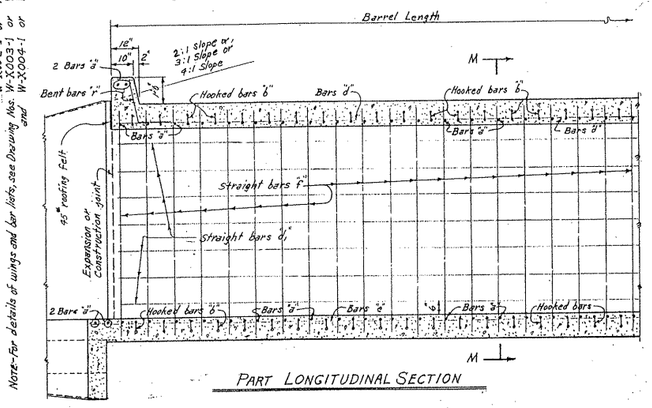
Bars "r" Dowel bars in Headwalls. (X, 2, 12)

Designed By:- W.C.H. 1-23-63. Checked By:- RBG. 5-8-63.
Drawn By:- W.C.H. 2-8-63. Checked By:- RBG. 5-8-63.
Quantities By:- W.C.H. 2-12-63. Checked By:- RBG. 5-24-63.

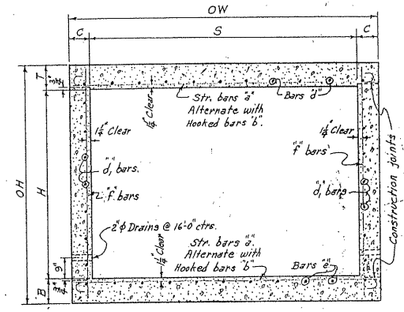
DIMENSIONS AND QUANTITIES

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	ADDITIONAL PER LAP	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	41.99	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"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7"	6"	7½"	4'-2⅝"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2⅝"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		6'-2⅝"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2⅝"	0.535	64.99	27.20	103.27
		7'	35	6'-3"		7½"		8'-2⅝"	0.609	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	0.496	66.29	29.76	118.96
		4'	24	7'-0"		6"		5'-3½"	0.983	68.96	26.93	118.96
		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"	8½"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	39.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.996	105.59	32.36	142.89
	1 @ 8'	4'	32	9'-0"	9½"	6"	9½"	5'-7"	0.676	95.26	33.32	196.07
		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'-4"		8"		9'-7"	0.942	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.92	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.186	126.67	43.34	204.97
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	0.849	119.72	37.56	213.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.54	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.148	135.80	44.24	225.06
		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"	10½"	7"	11"	6'-9½"	0.957	130.64	40.13	242.64
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"		8"		9'-9½"	1.147	142.55	45.14	245.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	96.81	248.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	98.98	250.81
		11'	110	11'-10"		11"		12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.26
	1 @ 11'	6'	66	12'-3"	11"	8"	11½"	7'-10⅝"	1.153	155.16	96.12	268.62
		7'	77	12'-3"		8"		8'-10⅝"	1.202	157.83	97.79	268.62
		8'	88	12'-4"		8"		9'-10⅝"	1.252	163.06	99.46	268.62
		9'	99	12'-6"		9"		10'-10⅝"	1.368	172.60	51.13	271.39
		10'	110	12'-8"		10"		11'-10⅝"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10⅝"	1.638	187.67	54.97	276.79
		12'	132	13'-0"		12"		13'-10⅝"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-9"	11½"	8"	12½"	8'-0"	1.284	172.20	98.69	357.62
		7'	84	13'-9"		8"		9'-0"	1.333	176.87	50.36	357.62
		8'	96	13'-9"		8"		10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	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	217.95	58.71	371.86

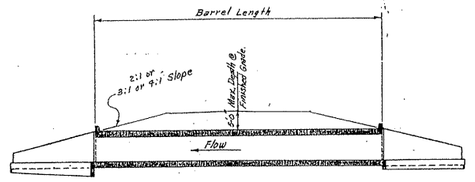
W-X002-1, W-X003-2, or W-X004-2.
W-X002-1 or W-X003-2 or W-X004-2.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

NOTE:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2 and W-X004-1 or W-X004-2.

GENERAL NOTES:-
- CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 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 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

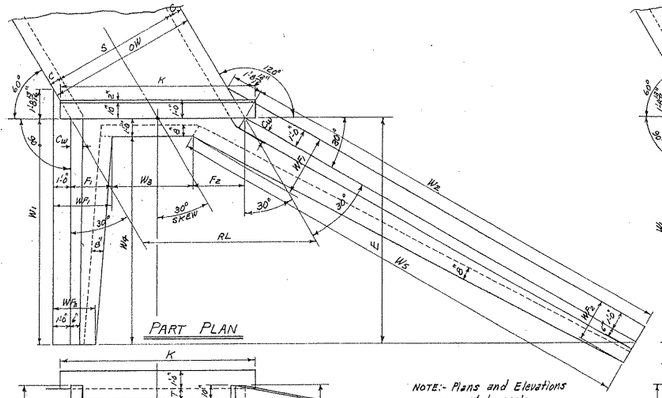
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 OR 4:1 SLOPES
SINGLES — UNDER 5'-0" COVER

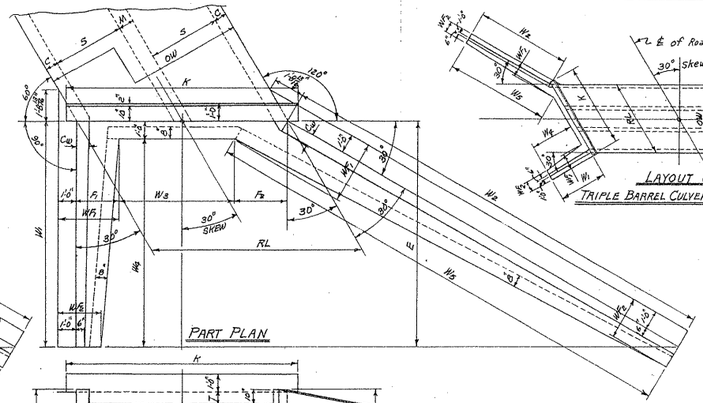
STANDARD DRAWING NO. R-100X-0

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



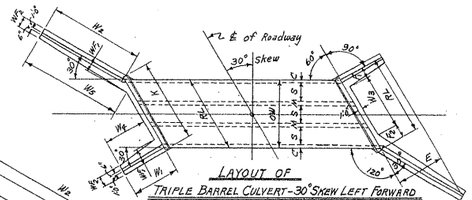
SINGLE BARREL CULVERT-30°SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Layout below.

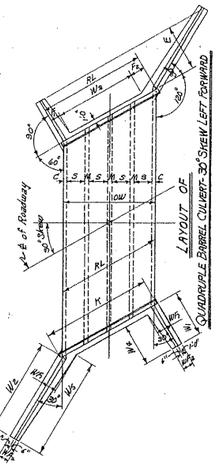


DOUBLE BARREL CULVERT-30°SKEW RIGHT FORWARD

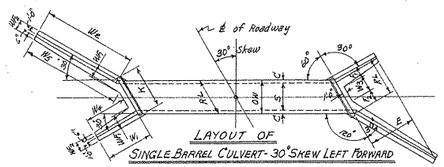
Details of Culvert with 30° Skew Left Forward is reversed, see Layout below.



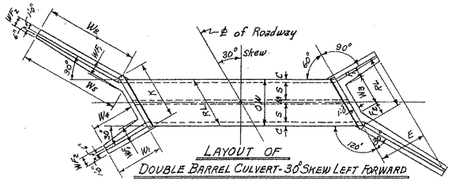
LAYOUT OF TRIPLE BARREL CULVERT-30°SKEW LEFT FORWARD



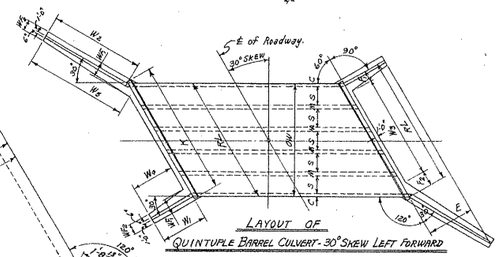
LAYOUT OF QUADRUPLE BARREL CULVERT-30°SKEW LEFT FORWARD



LAYOUT OF SINGLE BARREL CULVERT-30°SKEW LEFT FORWARD



LAYOUT OF DOUBLE BARREL CULVERT-30°SKEW LEFT FORWARD



LAYOUT OF QUINTUPLE BARREL CULVERT-30°SKEW LEFT FORWARD

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.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

$RL = OW \times 1.154 + 7$

$K = RL + (2 \times 1\frac{2}{3})$

$W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING No.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF EQUIVALENT 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_3	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-X302-1, W-X303-1 or W-X304-1. (FOR H=9'0" OR LESS)	4'	2'	2'-3½	5'-0"	5'-3½	6'-11⅝	3'-1"	9'-8"	11'-2"	12'-3⅜	8'-10⅝	14'-6"	16'-6½	17'-8⅜	14'-3⅝	19'-6"	21'-11⅝	23'-1"	19'-1⅝	23'-8"	27'-4"	28'-5⅜	25'-0⅜
		3'	2'-3½	5'-0"	"	"	2'-6"	9'-8"	"	"	7'-10⅝	14'-9"	"	"	13'-3⅜	19'-0"	"	"	18'-8"	23'-8"	"	"	29'-0⅜
		4'	4'-3½	5'-0"	"	"	1'-6"	9'-8"	"	"	6'-10⅝	14'-9"	"	"	12'-3⅜	19'-0"	"	"	17'-8"	23'-8"	"	"	33'-0⅜
		5'	5'-3½	5'-0"	5'-3½	6'-11⅝	0'-6"	9'-8"	11'-2"	12'-3⅜	5'-10⅝	14'-9"	16'-6½	17'-8⅜	11'-3⅜	19'-0"	21'-10⅛	23'-1"	16'-8"	23'-8"	27'-4"	28'-5⅜	22'-0⅜
		6'	6'-3½	5'-2"	5'-11⅝	7'-1⅛	Ⓐ 0"	9'-11"	11'-5½	12'-7⅝	5'-2⅜	14'-8"	16'-11⅝	18'-1"	10'-8"	19'-5"	22'-5"	23'-7"	16'-3⅜	24'-2"	27'-10⅜	29'-0⅜	21'-7⅜
	5'	3'	3'-3½	6'-0"	6'-11⅝	8'-1"	3'-7⅛	11'-8"	13'-5⅜	14'-7½	10'-2⅝	17'-4"	20'-0⅛	21'-2"	16'-9"	23'-0"	26'-6⅜	27'-8½	23'-3⅜	28'-8"	33'-1½	34'-3"	29'-10"
		4'	4'-3½	6'-0"	"	"	2'-7½	11'-8"	"	"	9'-2⅝	17'-4"	"	"	15'-9"	23'-0"	"	"	22'-3⅜	28'-8"	"	"	28'-10"
		5'	5'-3½	6'-0"	6'-11⅝	8'-1"	1'-7⅝	11'-8"	13'-5⅜	14'-7½	8'-2⅝	17'-4"	20'-0⅛	21'-2"	14'-9"	23'-0"	26'-6⅜	27'-8½	21'-3⅜	28'-8"	33'-1½	34'-3"	27'-10"
		6'	6'-3½	6'-2"	7'-1½	8'-3½	0'-10⅝	11'-11"	13'-9½	14'-11"	7'-5⅜	17'-8"	20'-4⅝	21'-6⅝	14'-1½	23'-5"	27'-0⅜	28'-2⅝	20'-9⅝	29'-2"	33'-8½	34'-10"	27'-5"
		7'	7'-3½	6'-3"	7'-2⅝	8'-4⅝	Ⓐ 0"	12'-1"	13'-11⅝	15'-1⅝	6'-2⅝	17'-11"	20'-8½	21'-10"	12'-11"	23'-9"	27'-5⅝	28'-7"	19'-8"	29'-7"	34'-2"	35'-3⅜	26'-0⅜
	6'	3'	3'-3½	7'-0"	8'-1"	9'-2⅞	4'-9⅜	13'-8"	15'-9⅜	16'-11⅝	12'-6⅜	20'-4"	23'-5⅝	24'-7½	20'-2⅝	27'-0"	31'-2⅝	32'-4"	27'-1½	33'-8"	38'-10⅝	40'-0⅝	35'-7⅜
		4'	4'-3½	7'-0"	"	"	3'-9⅜	13'-8"	"	"	11'-6⅜	20'-4"	"	"	18'-1"	27'-0"	"	"	26'-11"	33'-8"	"	"	34'-7⅜
		5'	5'-3½	7'-0"	8'-1"	9'-2⅞	2'-9⅜	13'-8"	15'-9⅜	16'-11⅝	10'-6⅜	20'-4"	23'-5⅝	24'-7½	18'-2⅜	27'-0"	31'-2⅝	32'-4"	25'-1"	33'-8"	38'-10⅝	40'-0⅝	33'-7⅜
		6'	6'-3½	7'-2"	8'-3½	9'-5⅛	2'-1⅜	13'-11"	16'-0⅜	17'-2⅝	9'-3⅝	20'-8"	23'-10⅛	25'-0⅛	17'-7⅛	27'-5"	31'-7⅞	32'-9⅝	23'-11"	34'-2"	39'-5⅝	40'-7⅛	33'-2⅝
		7'	7'-3½	7'-3"	8'-4⅝	9'-6⅞	0'-7⅝	14'-1"	16'-3⅜	17'-5"	8'-1"	20'-11"	24'-1⅛	25'-3⅜	16'-4½	27'-9"	32'-0½	33'-2⅝	22'-3⅝	34'-7"	39'-11⅛	41'-1"	32'-2"
		8'	9'-3½	7'-9"	8'-11⅝	9'-12⅛	Ⓐ 0"	14'-2"	16'-5⅝	17'-7⅝	7'-11"	21'-0"	24'-3"	25'-5⅝	16'-11⅝	27'-10"	32'-1⅝	33'-3⅝	22'-10½	34'-10"	40'-0⅝	41'-2⅝	30'-9⅝
	7'	4'	4'-3½	8'-0"	9'-2⅞	10'-5⅝	4'-11⅝	15'-6"	18'-1⅛	19'-3"	13'-9⅜	23'-4"	26'-11⅝	28'-1⅛	22'-1⅝	31'-0"	35'-5½"	36'-11⅝	31'-6⅝	38'-6"	44'-2⅝	45'-5⅜	40'-4⅝
		5'	5'-3½	8'-0"	9'-2⅞	10'-5⅝	3'-11⅝	15'-8"	18'-1⅛	"	13'-9⅜	23'-6"	26'-11⅝	28'-1⅛	22'-1⅝	31'-0"	35'-5½"	36'-11⅝	31'-6⅝	38'-6"	44'-2⅝	45'-5⅜	39'-4⅝
		6'	6'-3½	8'-2"	9'-5⅝	10'-7"	3'-2"	15'-11"	18'-4½	19'-6½	12'-1⅛	23'-8"	27'-1"	28'-3⅝	21'-0⅜	31'-5"	36'-0⅜	37'-5⅝	30'-1⅜	38'-10"	44'-7⅛	45'-10⅜	38'-11⅝
		7'	7'-3½	8'-3"	9'-6⅛	10'-8⅝	1'-5"	16'-1"	18'-4⅝	19'-6⅝	10'-3⅜	23'-11"	27'-3⅜	28'-5⅝	19'-10⅝	31'-9"	36'-4"	37'-7⅝	28'-10⅝	39'-1"	45'-0⅝	46'-2⅝	37'-11"
		8'	9'-3½	8'-4"	9'-7½	10'-9⅝	0'-4⅛"	16'-2"	18'-6"	19'-8⅜	9'-4⅝	24'-0"	27'-5⅛	28'-7⅝	18'-5⅝	31'-10"	36'-5⅝	37'-11"	27'-6"	39'-3"	45'-2⅝	46'-5⅜	36'-6⅛
	8'	4'	4'-3½	9'-0"	10'-4⅝	11'-6⅛	6'-1⅛"	17'-6"	20'-0⅝	21'-2⅝	16'-1⅝	26'-4"	30'-1⅜	31'-3⅝	26'-1⅝	35'-0"	40'-5"	41'-6⅝	36'-1⅝	43'-6"	50'-5⅜	51'-7"	46'-1⅜
		5'	5'-3½	9'-2"	10'-7"	11'-8⅝	5'-3⅛	17'-11"	20'-6⅛	21'-7⅝	15'-5"	26'-8"	30'-5¼	31'-7⅝	25'-6⅝	35'-5"	40'-10⅝	42'-0⅛	35'-7½	43'-10"	50'-9⅝	52'-0⅛	45'-8⅝
		6'	6'-3½	9'-2"	10'-7"	11'-8⅝	4'-3⅜	17'-11"	20'-8⅝	21'-10"	14'-5"	26'-8"	30'-5⅝	31'-11⅝	24'-6⅝	35'-5"	40'-10⅝	42'-0⅛	34'-7½	43'-10"	50'-9⅝	52'-1⅛	44'-8⅝
		7'	7'-3½	9'-3"	10'-8⅝	11'-10"	2'-1"	18'-1"	20'-10⅞	22'-0⅛	13'-1⅝	26'-11"	31'-1"	32'-3⅝	23'-3⅝	35'-9"	41'-3⅜	42'-5⅝	33'-6⅝	44'-2"	51'-1⅜	52'-3⅝	43'-8⅝
		8'	9'-3½	9'-4"	10'-9⅝	11'-11⅝	1'-6⅝	18'-2"	20'-11⅝	22'-1⅛	11'-8⅝	27'-0"	31'-2⅜	32'-4"	21'-11"	35'-10"	41'-7½	42'-10⅛	32'-11⅝	44'-6"	51'-5"	52'-8⅜	42'-8⅜
	9'	5'	5'-3½	10'-2"	11'-8⅜	12'-10⅝	6'-5⅜	19'-1"	21'-9⅛	22'-11⅝	17'-0⅝	27'-3"	31'-5"	32'-7⅝	28'-1⅝	36'-5"	41'-10⅝	43'-1"	39'-0"	45'-1"	52'-0"	53'-2⅜	49'-0"
		6'	6'-3½	10'-3"	11'-10"	13'-0"	5'-6⅝	20'-1"	23'-0⅛	24'-2⅝	17'-10⅝	29'-11"	34'-4⅝	35'-8⅝	28'-5⅝	39'-1"	45'-0⅝	46'-3⅝	39'-0⅝	48'-7"	56'-0⅜	57'-2⅝	50'-1⅜
		7'	7'-3½	10'-3"	11'-10"	13'-0"	4'-10⅜	20'-1"	23'-1⅛	24'-2⅝	16'-7⅛	29'-11"	34'-4⅝	35'-8⅝	27'-10⅜	39'-1"	45'-0⅝	46'-3⅝	38'-1⅝	48'-7"	56'-0⅜	57'-2⅝	49'-1⅜
		8'	9'-3½	10'-4"	11'-11⅝	13'-1"	2'-8"	20'-2"	23'-2⅝	24'-3⅝	15'-4⅝	29'-11"	34'-4⅝	35'-8⅝	27'-4⅜	39'-1"	45'-0⅝	46'-3⅝	37'-3⅝	48'-7"	56'-0⅜	57'-2⅝	48'-1⅜
	10'	5'	5'-3½	11'-2"	12'-10⅝	14'-0½	7'-7⅛	21'-8"	25'-1⅜	26'-5⅛	20'-0⅛	32'-8"	37'-2⅜	38'-6⅜	32'-5⅛	43'-5"	50'-1⅜	51'-3⅝	44'-1⅜	53'-4"	62'-1⅛	63'-3⅜	57'-2⅜
		6'	6'-3½	11'-3"	12'-11⅝	14'-1⅜	6'-6⅝	22'-1"	25'-6"	26'-7⅞	19'-2⅝	32'-11"	38'-0⅜	39'-2"	31'-9"	43'-9"	50'-6⅝	51'-8"	44'-1⅜	53'-8"	62'-3⅝	63'-5⅞	56'-9"
		7'	7'-3½	11'-3"	12'-11⅝	14'-1⅜	5'-5⅝	22'-1"	25'-6"	26'-7⅞	17'-8⅜	32'-11"	38'-0⅜	39'-2"	30'-3"	43'-9"	50'-6⅝	51'-8"	42'-5"	53'-8"	62'-3⅝	63'-5⅞	55'-8"
		8'	9'-3½	11'-4"	13'-1"	14'-3"	3'-9⅝"	22'-2"	25'-7⅛	26'-9"	16'-4"	33'-0"	38'-1⅛	39'-3"	28'-10"	43'-10"	50'-7⅝	51'-9⅝"	41'-6⅝	53'-9"	62'-4⅜	63'-7"	53'-6⅛
	11'	6'	6'-3½	12'-0"	14'-2⅝	15'-6⅝	7'-11⅝	24'-2"	27'-10⅝	29'-0⅝	21'-7⅝	36'-10"	41'-4⅝	42'-8⅝	35'-3⅝	47'-10"	55'-2⅝	56'-6⅝	48'-10⅝	58'-11⅝	—	—	—	—
		7'	7'-3½	12'-1"	"	"	6'-5⅝	24'-2"	"	"	20'-1⅝	36'-10"	"	"	33'-3⅝	47'-10"	"	"	47'-5⅛	—	—	—	—
		8'	9'-3½	12'-1"	"	"	4'-11⅝	24'-2"	"	"	18'-7⅛	36'-10"	"	"	32'-1⅝	47'-10"	"	"	45'-11⅝	—	—	—	—
	12'	6'	6'-3½	13'-4"	15'-4⅝	16'-4⅝	9'-1⅛	26'-2"	30'-0⅝	31'-0⅝	23'-11⅝	39'-10"	45'-0⅜	46'-4⅜	38'-9⅝	51'-10"	59'-10⅝	61'-0"	53'-2"	—	—	—	—
		7'	7'-3½	13'-4"	"	"	7'-7⅛	26'-2"	"	"	22'-5⅝	39'-10"	"	"	37'-3⅝	51'-10"	"	"	52'-1"	—	—	—	—
		8'	9'-3½	13'-4"	"	"	6'-1⅝	26'-2"	"	"	20'-11⅛	39'-10"	"	"	35'-9⅝	51'-10"	"	"	50'-7"	—	—	—	—
(FOR H=9'0" & OVER) W-X302-2, W-X303-2 OR W-X304-2	7'	9'	10'-3⅛	8'-6"	9'-9⅜	10'-11⅝	Ⓐ 0"	16'-5"	18'-11⅝	20'-1⅛	8'-2⅝	28'-4"	28'-11⅛	29'-3"	17'-9"	32'-3"	37'-2⅜	38'-4⅜	26'-5⅝"	40'-2"	46'-10⅝	47'-6⅝	36'-7⅛
	8'	9'	10'-3⅛	9'-6"	10'-11⅝	12'-1½	0'-2⅜	18'-5"	21'-3⅛	22'-5"	10'-6"	27'-9"	31'-6⅝	32'-8½	20'-9½	36'-3"	41'-10⅝	43'-0⅝	31'-1"	45'-2"	52'-1⅜	53'-3⅝	41'-8⅝
		10'	12'-3⅛	9'-8"	11'-2"	12'-3⅜	Ⓐ 0"	18'-8"	21'-6⅜	22'-8⅜	9'-3⅜	27'-8"	31'-11⅜	33'-1⅛	19'-8⅛	36'-8"	42'-4⅝	43'-6"	30'-8⅜	45'-8"	52'-8⅜	53'-10⅝	40'-5⅛
	9'	9'	10'-3⅛	10'-6"	12'-1½	13'-3⅜	1'-4⅝	20'-5"	23'-6⅛	24'-10⅜	12'-9⅜	30'-9"	35'-0⅛	36'-2⅝	22'-3"	40'-3"	46'-5⅜	47'-7½	35'-0⅛	50'-2"	57'-1⅛	58'-3"	45'-2"
		10'	12'-3⅛	10'-8"	12'-3⅜	13'-5⅜	0'-0⅛"	20'-8"	23'-9⅛	25'-0⅜	11'-7⅛	30'-8"	35'-0⅛	36'-4⅜	23'-1⅜	40'-8"	46'-10⅛	48'-1⅛	34'-8⅛	50'-8"	57'-7⅛	58'-9"	44'-7⅛
		11'	13'-3⅛	10'-10"	12'-6⅛	13'-8"	Ⓐ 0"	20'-10"	24'-0⅛	25'-2⅛	10'-3⅝	30'-10"	35'-2⅛	36'-5"	21'-10"	40'-10"	47'-1⅛	48'-3⅜	33'-9⅛	50'-10"	57'-10⅛	59'-0⅛	44'-11⅛
	10'	9'	10'-3⅛	11'-6"	13'-2⅜	14'-5½	2'-6⅛	22'-5"	25'-10⅜	27'-0⅜	15'-3⅛	32'-4"	38'-4⅜	39'-7½	27'-8⅜	44'-3"	51'-1⅛	52'-3"	40'-9"	55'-2"	63'-0⅜	64'-2⅝	52'-11⅛
		10'	12'-3⅛	11'-8"	13'-5⅜	14'-7⅛	1'-2⅝	22'-8"	26'-1⅜	27'-3"	15'-0⅜	33'-0"	38'-10⅛	40'-0⅜	26'-7⅛	44'-8"	51'-5"	52'-8⅜	39'-3⅜	55'-8"	63'-5⅜	64'-7⅝	52'-4"
		11'	13'-3⅛	11'-10"	13'-8"	14'-9⅜	Ⓐ 0"	22'-10"	26'-4⅜	27'-6⅛	14'-10⅝	33'-3"	39'-0⅝	40'-2⅝	25'-3⅜	44'-10"	51'-7⅜	52'-11"	38'-0"	55'-11"	63'-7⅝	64'-10⅛	51'-8"
		12'	15'-3⅛	12'-0"	13'-10⅝	15'-0⅝	Ⓐ 0"	23'-0"	26'-6⅝	27'-8⅝	14'-8⅜	33'-6"	39'-3⅛	40'-5"	24'-0"	45'-0"	51'-11⅛	53'-1⅝	36'-8⅛	56'-0"	63'-8"	65'-0⅛	49'-10⅛
	11'	9'	10'-3⅛	12'-6"	14'-5⅛	15'-7"	3'-8"	24'-5"	28'-2⅜	29'-4⅜	17'-5"	36'-4"	41'-11⅛	43'-1⅛	31'-2⅝	48'-3"	55'-0⅜	56'-2⅝	44'-1⅛	—	—	—	—
		10'	12'-3⅛	12'-8"	14'-7⅝	15'-9⅛	2'-9⅝	24'-8"	28'-5⅞	29'-7⅝	17'-2⅝	36'-8"	42'-3⅛	43'-5⅜	30'-0⅜	48'-8"	54'-2⅜	57'-4⅛	43'-3⅛	—	—	—	—
		11'	13'-3⅛	12'-10"	14'-9⅜	15'-11⅝	1'-0⅝	24'-10"	28'-8⅝	29'-10"	16'-1"	36'-10"	42'-6⅝	43'-9"	28'-9⅝	48'-10"	54'-4⅝	57'-6⅝	42'-5⅝	—	—	—	—
		12'	15'-3⅛	13'-0"	15'-0⅝	16'-2"	Ⓐ 0"	25'-0"	28'-10⅜	30'-0⅜	15'-7⅛	37'-0"	42'-9⅜	43'-10⅝	27'-5⅛	49'-0"	54'-7"	57'-9⅜	41'-5⅜	—	—	—	—
	12'	9'	10'-3⅛	13'-6"	15'-7⅛	16'-9"	4'-3⅜	26'-5"	30'-2⅝	31'-4"	19'-0⅝	39'-4"	45'-1⅝	46'-3"	34'-0⅝	52'-3"	60'-0"	61'-3½	49'-0⅝	—	—	—	—
		10'	12'-3⅛	13'-8"	15'-9⅜	16'-11⅛	3'-6⅝	26'-8"	30'-5½	31'-7⅛	18'-6⅛	39'-8"	45'-5⅜	46'-6⅝	33'-6⅛	52'-8"	60'-5⅜	61'-8⅛	48'-6⅛	—	—	—	—
		11'	13'-3⅛	13'-10"	15'-11⅝	17'-1⅝	2'-2⅝	26'-10"	30'-11⅛	32'-1⅜	17'-12⅝	39'-10"	46'-0"	47'-1⅜	32'-12⅜	52'-10"	60'-10⅝	62'-2"	47'-12⅜	—	—	—	—
		12'	15'-3⅛	14'-0"	16'-1"	17'-3⅜	0'-10⅝	27'-0"	31'-2⅝	32'-4"	15'-11"	40'-0"	46'-2⅝	47'-4"	30'-11"	53'-0"	61'-2⅜	62'-6⅝	45'-11⅝	—	—	—	—

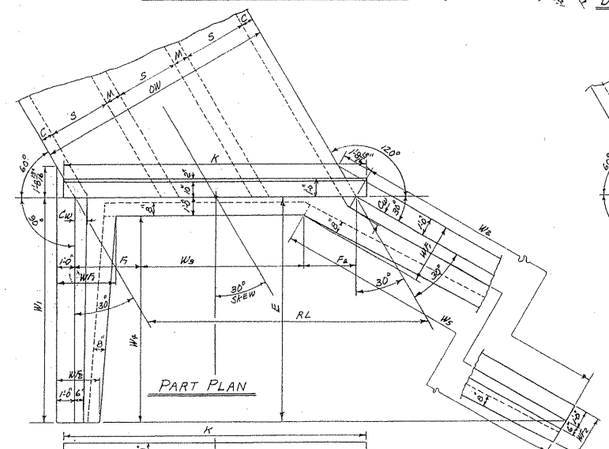
Ⓐ *Special case for these boxes, See Detail 'A' and Table 'A' for revised values of F_1, F_2, W_2 and W_5, when apron width is more than 1'-0" and W_3=0". For Details 'A' and Tables 'A' for each slope, see Drawing Nos. W-X302-1, W-X302-2, or W-X303-1, W-X303-2, or W-X304-1, W-X304-2.*

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 30° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X302-1 or W-X302-2	W-X303-1 or W-X303-2	W-X304-1 or W-X304-2.

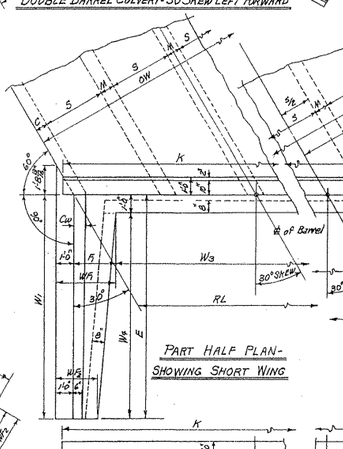
NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.—

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		



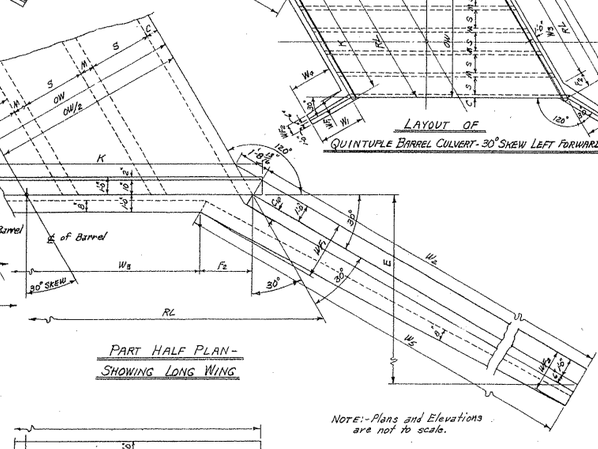
TRIPLE BARREL CULVERT-30°SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Layout at top center of sheet.



QUADRUPLE BARREL CULVERT-30°SKEW RT. FWD.

Details of Culvert with 30° Skew Left Forward is reversed, see Layout at above center.



QUINTUPLE BARREL CULVERT-30°SKEW RT. FWD.

Details of Culvert with 30° Skew Left Forward is reversed, see Layout above.

NOTE:-Plans and Elevations are not to scale.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS

FOR

REINFORCED CONCRETE BOX CULVERTS

30° SKEW

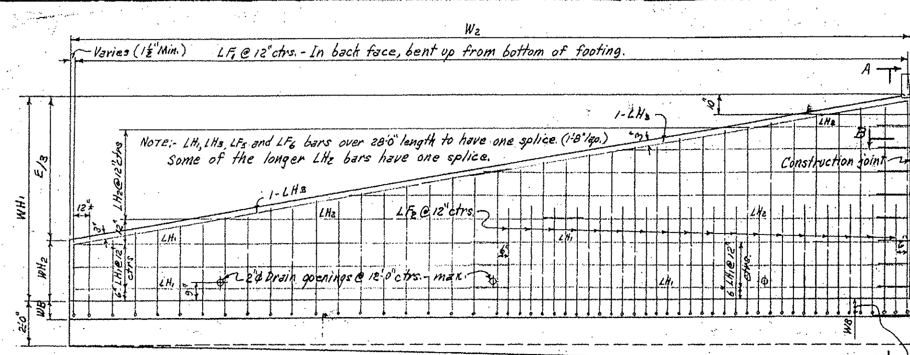
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'.

STANDARD DRAWING NO. W-X30

Designed by:- W.C.H. 5-16-63 Checked by:-
Drawn by:- W.C.H. 7-15-63 Checked by:- REMS - 8-21-63
Quantities by:- Checked by:-

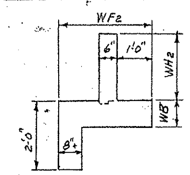
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



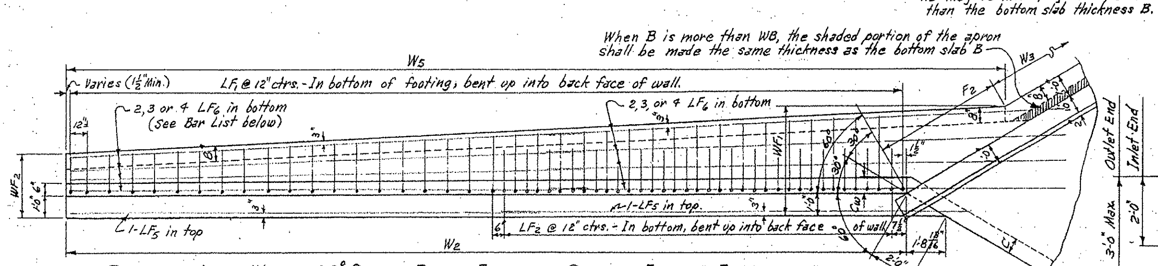
REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING

NOTE:- LH_1, LH_3, LF_5 and LF_6 bars over 28'-0" length to have one splice. (1'-8" lap.) Some of the longer LH_2 bars have one splice.

WB may be more, equal to, or less than the bottom slab thickness B.

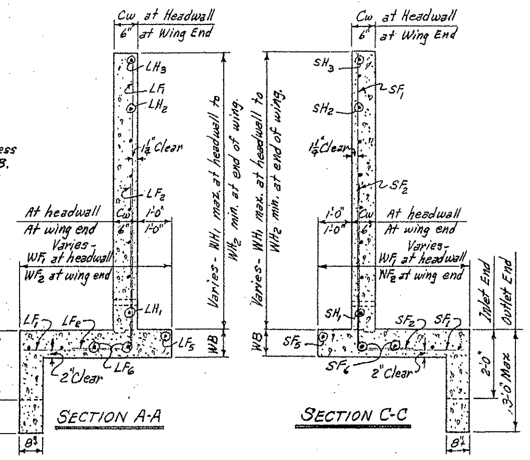


TYPICAL END VIEW OF WING



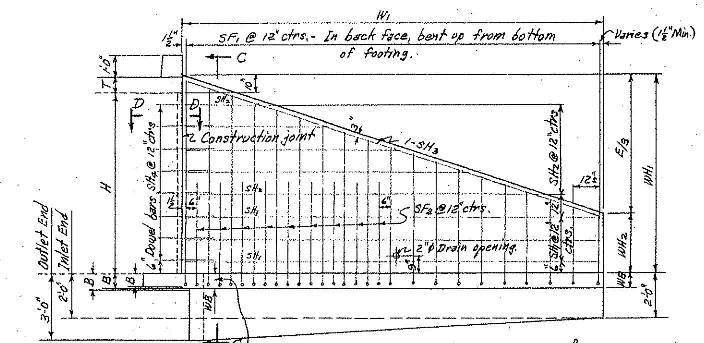
PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.



SECTION A-A

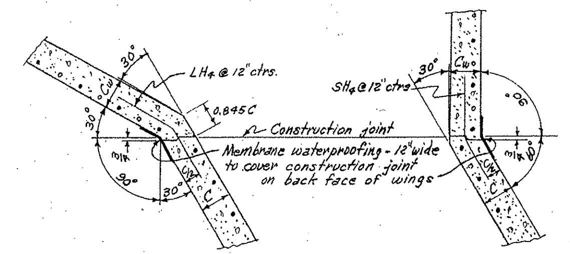
SECTION C-C



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD

SHOWING BACK FACE REINFORCING

WB may be more, equal to, or less than the bottom slab B.

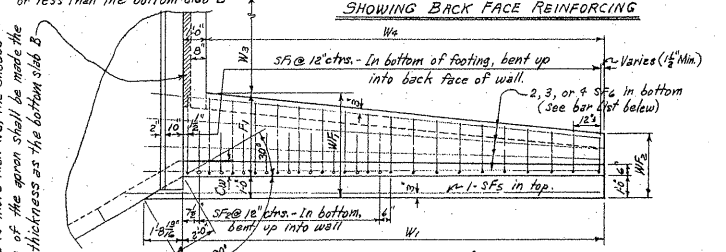


SECTION B-B

SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

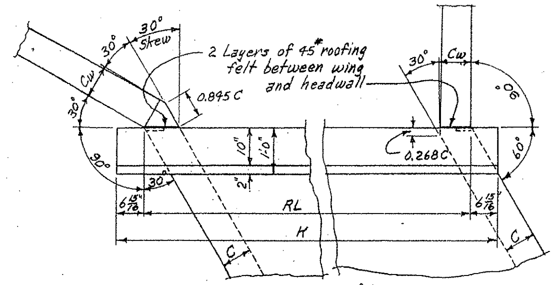
NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD

SHOWING FOOTING REINFORCING

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

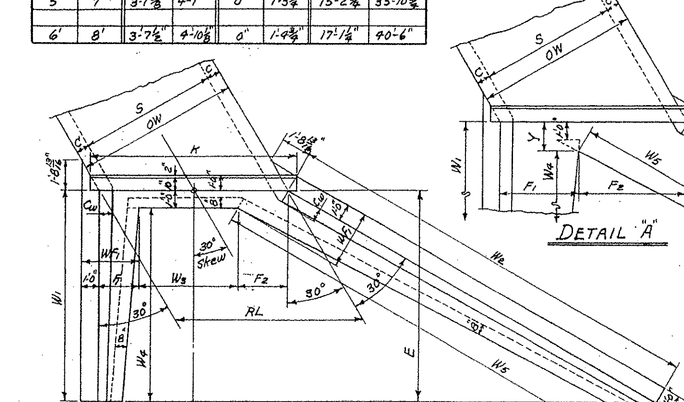
REGULAR WING DIMENSIONS - 3:1 SLOPES

Clear Height of Box	Thickness of Wing Footing	Thickness of Wing at Hdwl. = 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 Hdwl. 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	WH_1	WH_2	WF_1	WF_2	F_1	F_2	E	W_1	W_2	W_4	W_5	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	1'-4"	0'-11¼"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3¾"	0.752	1.599	0.836	1.717
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-8"	1'-7¼"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10¾"	1.130	2.340	1.239	2.565
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3¼"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5½"	1.577	3.270	1.711	3.552
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11¼"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.093	4.341	2.252	4.680
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11¼"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.179	4.524	2.337	4.862
⊙ 6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¼"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.908	6.024	3.092	6.419
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¼"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.966	6.147	3.150	6.543
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7¼"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	3.025	6.272	3.208	6.667
⊙ 7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7¼"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5¾"	3.811	7.895	4.019	8.350
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-2"	4'-7¼"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5¾"	3.887	8.057	4.095	8.512
⊙ 8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-7¼"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4¼"	4.874	10.097	5.107	10.612

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.
⊙ See Table "A" for special values of F_1 & F_2 and W_4 & W_5 for Single 4'x6', 5'x7' and 6'x8' Box Culverts.

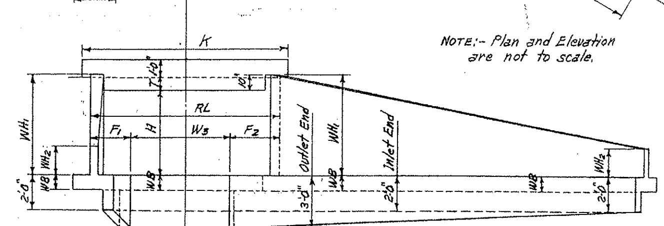
TABLE "A" - DIMENSIONS FOR DETAIL "A"

S	H	F_1	F_2	W_3	Y	W_4	W_5
4'	6'	2'-7⅞"	3'-3¾"	0"	1'-1⅞"	13'-4¼"	31'-3½"
5'	7'	3'-1⅝"	4'-1"	0"	1'-3¼"	15'-2¾"	35'-10¾"
6'	8'	3'-7½"	4'-10⅛"	0"	1'-4¾"	17'-1¼"	40'-6"



PART PLAN

DETAIL "A"



NOTE:- Plan and Elevation are not to scale.

END ELEVATION

SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X30.

TYPICAL WING DETAILS

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X30.
For values of RL, K and W_3 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 of wings.

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

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.
4'	2'	6"	7"	141	5.80	6.90	8.01	9.12	10.23
	3'	6"	7"	213	8.08	9.18	10.29	11.40	12.51
	4'	6"	7"	327	10.78	11.88	12.99	14.10	15.21
	5'	6"	7"	460	13.90	15.00	16.11	17.22	18.32
	6'	7"	8"	762	18.85	19.99	21.13	22.27	23.41
5'	3'	6"	7"	213	8.33	9.67	11.01	12.36	13.70
	4'	6"	7"	327	11.03	12.36	13.71	15.06	16.40
	5'	6"	7"	460	14.14	15.48	16.83	18.17	19.52
	6'	7"	8"	762	19.11	20.48	21.86	23.24	24.62
	7'	7½"	8½"	1474	24.51	25.94	27.35	28.75	30.16
6'	3'	6"	7"	213	8.57	10.17	11.73	13.33	14.92
	4'	6"	7"	327	11.27	12.86	14.43	16.03	17.62
	5'	6"	7"	460	14.38	15.98	17.55	19.15	20.73
	6'	7"	8"	762	19.35	20.98	22.59	24.21	25.83
	7'	7½"	8½"	1474	24.79	26.44	28.08	29.73	31.38
	8'	8"	9"	1870	31.15	32.87	34.51	36.17	37.83
7'	4'	6"	7"	327	11.52	13.37	15.19	17.05	18.85
	5'	6"	7"	460	14.63	16.49	18.31	20.16	21.97
	6'	7"	8"	762	19.61	21.48	23.32	25.20	27.04
	7'	7½"	8½"	1474	25.05	26.94	28.82	30.71	32.59
	8'	8"	9"	1870	31.47	33.37	35.25	37.16	39.05
8'	4'	6"	7"	327	11.77	13.89	15.97	18.09	20.12
	5'	7"	7"	460	15.46	17.60	19.70	21.83	23.89
	6'	7"	8"	762	19.86	21.98	24.05	26.17	28.20
	7'	7½"	8½"	1474	25.30	27.46	29.58	31.73	33.81
	8'	8"	9"	1870	31.72	33.88	36.00	38.16	40.27
9'	5'	7"	7"	460	15.72	18.13	20.47	22.87	25.15
	6'	7½"	8"	762	20.50	22.93	25.29	27.71	30.01
	7'	7½"	8½"	1474	25.55	27.98	30.34	32.76	35.07
	8'	8"	9"	1870	31.97	34.39	36.76	39.18	41.49
10'	5'	7"	7"	460	15.98	18.65	21.25	23.80	26.42
	6'	7½"	8"	762	20.76	23.45	26.07	28.64	31.28
	7'	7½"	8½"	1474	25.81	28.50	31.12	33.70	36.34
	8'	8"	9"	1870	32.22	34.91	37.54	40.12	42.76
11'	6'	8"	8"	762	21.39	24.38	27.25	30.11	—
	7'	8"	8½"	1474	26.55	29.53	32.41	35.27	—
	8'	8"	9"	1870	32.47	35.45	38.33	41.19	—
12'	6'	8"	8"	762	21.66	24.93	28.05	31.20	—
	7'	8"	8½"	1474	26.81	30.08	33.21	36.36	—
	8'	8"	9"	1870	32.73	35.99	39.13	42.28	—

⊛ For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

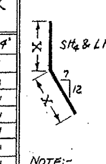
SF_1 & LF_1 — Bent — In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length.
SF_2 & LF_2 — Bent — In bottom of footing, bent up into back face of wing. Alt. with F_1 bars.
SF_5 & LF_5 — Straight — Longitudinal in top of wing footing heel.
SF_6 & LF_6 — Straight — Longitudinal in bottom of wing footing toe.

Clear Height H	Wing Location (Short or Long)	SF_1&LF_1 Size	Spacing	No. Req'd	Lengths Vary Min.	Lengths Vary Max.	X Min.	X Max.	Y Min.	Y Max.	SF_2&LF_2 Size	Spacing	No. Req'd	Length	X	Y	SF_5&LF_5 Size	No. Req'd	Length	SF_6&LF_6 Size	No. Req'd	Length
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	—	—	—	—	—	—	#3	1	9'-0"	#3	2	8'-0"
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—	#3	1	15'-6"	#3	2	15'-6"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-4"	4'-0"	—	—	—	—	—	—	#3	1	11'-0"	#3	2	10'-0"
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-2"	4'-0"	—	—	—	—	—	—	#3	1	19'-6"	#3	2	20'-2"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-8"	5'-0"	—	—	—	—	—	—	#3	1	13'-0"	#3	3	12'-0"
	Long	#3	12"	22	2'-4"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	23'-6"	#3	3	24'-10"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-1"	2'-6"	#3	1	15'-0"	#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'-1"	2'-6"	#3	1	27'-6"	#3	6	15'-7"
6'	Short	#4	12"	15	3'-6"	9'-4"	1'-2"	2'-4"	2'-5"	7'-1"	#3	12"	3	4'-6"	1'-4"	3'-3"	#3	1	17'-0"	#3	3	16'-0"
	Long	#4	12"	30	3'-4"	9'-3"	1'-2"	2'-3"	2'-3"	7'-1"	#3	12"	6	4'-6"	1'-4"	3'-3"	#3	2	16'-8"	#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	19'-0"	#4	4	18'-0"
	Long	#4	12"	34	3'-9"	10'-8"	1'-3"	2'-8"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	18'-8"	#4	8	20'-4"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-4"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	1	21'-0"	#4	4	20'-0"
	Long	#4	12"	38	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	20'-8"	#4	8	22'-9"

SH_1 & LH_1 — Straight — Horizontal in back face of wing.
SH_2 & LH_2 — Straight — Horizontal in back face of wing. One bar of each length. *
SH_3 & LH_3 — Straight — In back face of wing at top - on slope.
SH_4 & LH_4 — Bent — Dowels thru construction joint at headwall.

Clear Height H	Wing Location (Short or Long)	SH_1&LH_1 Size	Spacing	No. Req'd	Length	SH_2&LH_2 Size	Spacing	No. Req'd	Lengths Vary Max.	Lengths Vary Min.	SH_3&LH_3 Size	No. Req'd	Length	SH_4&LH_4 Size	Spacing	No. Req'd	Length	X	Quantity - Reinforcing Steel per Wing - Lbs.: Short Wing	Long Wing
2'	Short	#3	12"	1	6'-3"	#3	12"	1	—	3'-3"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-4"	24.7	45.6
	Long	#3	12"	1	12'-8"	#3	12"	1	—	6'-6"	#3	1	12'-11"	#3	12"	2	"	"		
3'	Short	#3	12"	1	8'-3"	#3	12"	2	6'-3"	3'-3"	#3	1	8'-8"	#3	12"	3	"	"	37.0	69.5
	Long	#3	12"	1	16'-8"	#3	12"	2	12'-6"	6'-6"	#3	1	16'-11"	#3	12"	3	"	"		
4'	Short	#3	12"	1	10'-3"	#3	12"	3	9'-3"	3'-3"	#3	1	10'-9"	#3	12"	4	"	"	56.2	107.2
	Long	#3	12"	1	20'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"		
5'	Short	#3	12"	2	12'-3"	#3	12"	3	9'-3"	3'-3"	#3	1	12'-11"	#3	12"	5	"	"	78.0	152.2
	Long	#3	12"	2	24'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	25'-1"	#3	12"	5	"	"		
6'	Short	#3	12"	2	14'-3"	#3	12"	4	12'-3"	3'-3"	#3	1	15'-0"	#3	12"	6	"	"	127.8	253.1
	Long	#3	12"	4	15'-2"	#3	12"	4	24'-6"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-4"		
7'	Short	#4	12"	2	16'-3"	#4	12"	5	15'-3"	3'-3"	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"	267.0	489.8
	Long	#4	12"	4	17'-2"	#4	12"	5	*30'-6"	6'-6"	#4	2	17'-5"	#4	12"	7	"	"		
8'	Short	#4	12"	3	18'-3"	#4	12"	5	15'-3"	3'-3"	#4	1	19'-3"	#4	12"	8	"	"	312.9	622.3
	Long	#4	12"	6	19'-2"	#4	12"	5	*30'-6"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"		

BAR BENDING DIAGRAM



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.)

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

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

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

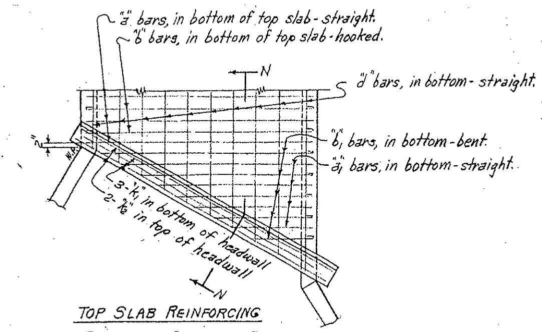
DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES.
SINGLES, DOUBLES, TRIPLES, — ALL DEPTHS OF COVER
QUADRUPLES & QUINTUPLES. — FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X303-1

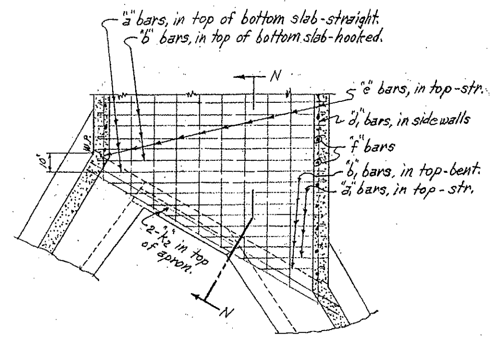
Designed By:- W.C.H. 5-13-63 Checked By:-
Drawn By:- W.C.H. 7-26-63 Checked By:- BHS 8-19-63
Quantities By:- W.C.H. 1-7-64 Checked By:- DMT 7-15-64

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



TOP SLAB REINFORCING

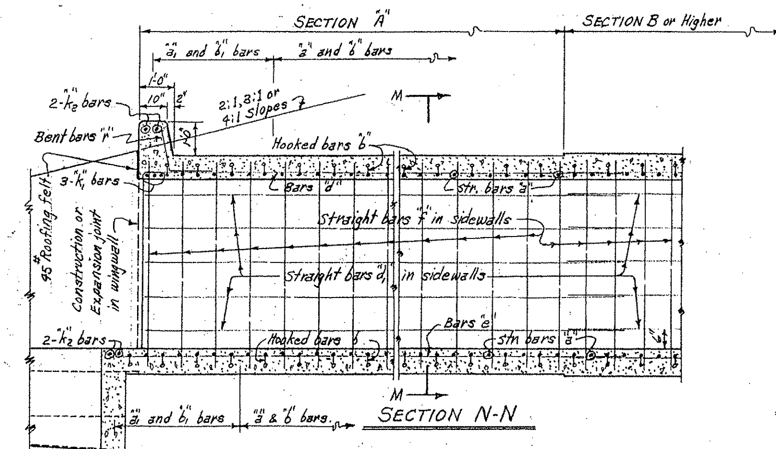
PART PLAN AT END OF CULVERT



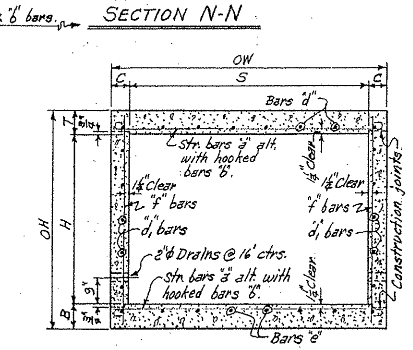
BOTTOM SLAB REINFORCING

PART PLAN AT END OF CULVERT

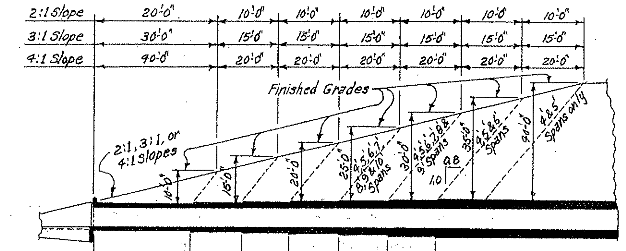
NOTE:- The "d", "d1" and "e" bars vary in length. They should extend 1'-9" min. into SECTION "B".



SECTION N-N



TYPICAL SECTION M-M

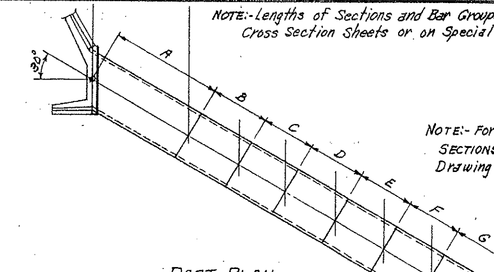


	SECTIONS / Bar Group							
2:1 Slope =	SECTIONS	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	MID-SECTION G-Varies
	Bar Group	A	B	C	D	E	F	G
3:1 Slope =	SECTIONS	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	MID-SECTION G-Varies
	Bar Group	A	B	C	D	E	F	G
4:1 Slope =	SECTIONS	A=32'-0"	B=16'-0"	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

These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths below.

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

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

NOTE:- For Details and Bar Lists for SECTIONS B thru G, see Barrel Drawing Nos. R-100X-X1 or R-100X-X2.

LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B,C,D, E&F	A	B,C,D, E&F	A	B,C,D, E&F
LENGTHS	13'-10¼"	6'-11⅛"	25'-4¾"	12'-8⅜"	36'-11¼"	18'-5¾"

NOTE:- Minimum ℄ Length of SECTION "A" on 30° Skew = (0.288675 OW + 2").

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	B	C				D
25.0' to 29.5'	A	B	C	D			E
30.0' to 34.5'	A	B	C	D	E		F
35.0' to 40.0'	A	B	C	D	E	F	G

(Columns A–F: SECTIONS & BAR GROUPS FOR END SECTIONS)

OR ALT.

DEPTHS OF COVER	A	B	C	D	E	F	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A						A
10.0' to 14.5'	A						B
15.0' to 19.5'	A	B					C
20.0' to 24.5'	A	2@C					D
25.0' to 29.5'	A	B	2@D				E
30.0' to 34.5'	A	2@C		2@E			F
35.0' to 40.0'	A	B	2@D		2@F		G

(Columns A–F: SECTIONS & BAR GROUPS FOR END SECTIONS)

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS "b"
#4	2"	4"	0'-10½"	K — Pin diam. — X
#5	2½"	4¼"	0'-11½"	
#6	3"	5"	1'-2"	
#7	3½"	5¾"	1'-4"	

BAR SIZE	PIN DIAM.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS "b1"
#4	2"	4"	0'-5¼"	K — Pin diam. — X
#5	2½"	4¼"	0'-5¾"	
#6	3"	5"	0'-7"	
#7	3½"	5¾"	0'-8"	

NOTE:- Dimensions are to centers of bars. ("b" and "b1")

DOWEL BARS FOR ONE HEADWALL

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Dowel bars "r" in One Headwall
4'	#4	12"±	6	2'-5"	1'-2½"	2" — 12" — X — X
5'	#4	12"±	8	2'-6"	1'-3"	
6'	#4	12"±	9	2'-7"	1'-3½"	
7'	#4	12"±	10	2'-8"	1'-4"	
8'	#4	12"±	11	2'-10"	1'-5"	
9'	#4	12"±	13	3'-0"	1'-6"	
10'	#4	12"±	14	3'-2"	1'-7"	

BAR LIST FOR SECTION "A" ON 30° SKEW - ONE END ONLY.

SECTION "A" & BAR GROUP "A". LENGTH OF SECTION: 2:1 = 13'-10¼", 3:1 = 25'-4¾", 4:1 = 36'-11¼". DEPTH OF COVER (D): 0'-0" TO 10'-0" MAXIMUM.

"a" bars — STRAIGHT — In Top and Bottom Slabs of Barrel. "a1" bars (▼) — STRAIGHT — In Top and Bottom Slab of Barrel - (Two of each Length.)

S	H	"a" Size	"a" Spacing	No. Req'd 2:1	3:1	4:1	"a" Length	"a1" Size	"a1" Spacing	"a1" No. Req'd	"a1" Length Max.	"a1" Length Min.
1@4'	2'	#4	12"	27	49	73	4'-9"	#4	12"	2	3'-0"	—
	3'			27	49	73	"			2	"	—
	4'			27	49	73	"			2	"	—
	5'			27	49	73	"			2	"	—
	6'			27	49	73	4'-11"			2	3'-2"	—
1@5'	3'	#5	12"	25	49	73	5'-9"	#5	12"	4	4'-0"	2'-3"
	4'			25	49	73	"			4	"	"
	5'			25	49	73	"			4	"	"
	6'			25	49	73	5'-11"			4	4'-2"	2'-5"
	7'			25	49	73	6'-0"			4	4'-3"	2'-6"
1@6'	3'	#5	12"	25	49	71	6'-9"	#5	12"	4	5'-0"	3'-3"
	4'			25	49	71	"			4	"	"
	5'			25	49	71	"			4	"	"
	6'			25	49	71	6'-11"			4	5'-2"	3'-5"
	7'			25	49	71	7'-0"			4	5'-3"	3'-6"
	8'			25	49	71	7'-1"			4	5'-4"	3'-7"
1@7'	4'	#5	12"	25	47	71	7'-9"	#5	12"	6	6'-0"	2'-6"
	5'			25	47	71	"			6	"	"
	6'			25	47	71	7'-11"			6	6'-2"	2'-8"
	7'			25	47	71	8'-0"			6	6'-3"	2'-9"
	8'			25	47	71	8'-1"			6	6'-4"	2'-10"
	9'			25	47	71	8'-3"			6	6'-6"	3'-0"
1@8'	4'	#6	12"	25	47	71	8'-9"	#6	12"	6	7'-0"	3'-6"
	5'			25	47	71	8'-11"			6	7'-2"	3'-8"
	6'			25	47	71	"			6	"	"
	7'			25	47	71	9'-0"			6	7'-3"	3'-9"
	8'			25	47	71	9'-1"			6	7'-4"	3'-10"
	9'			25	47	71	9'-3"			6	7'-6"	4'-0"
	10'			25	47	71	9'-5"			6	7'-8"	4'-2"
1@9'	5'	#6	11"	25	51	75	9'-11"	#6	11"	8	8'-4"	3'-7"
	6'			25	51	75	10'-0"			8	8'-5"	3'-8"
	7'			25	51	75	"			8	"	"
	8'			25	51	75	10'-1"			8	8'-6"	3'-9"
	9'			25	51	75	10'-3"			8	8'-8"	3'-11"
	10'			25	51	75	10'-5"			8	8'-10"	4'-1"
	11'			25	51	75	10'-7"			8	9'-0"	4'-3"
1@10'	5'	#7	12"	23	45	69	10'-11"	#7	12"	10	9'-2"	2'-2"
	6'			23	45	69	11'-0"			10	9'-3"	2'-3"
	7'			23	45	69	"			10	"	"
	8'			23	45	69	11'-1"			10	9'-4"	2'-4"
	9'			23	45	69	11'-3"			10	9'-6"	2'-6"
	10'			23	45	69	11'-5"			10	9'-8"	2'-8"
	11'			23	45	69	11'-7"			10	9'-10"	2'-10"
	12'			23	45	69	11'-9"			10	10'-0"	3'-0"

"b" bars — BENT - See Diagrams at Right — In Top and Bottom Slabs of Barrel - hooked. Alternate with "a" bars. "b1" bars (▼) — In Top and Bottom Slabs of Barrel - one end hooked. (Two of each Length) Alternate with "a1" bars.

S	H	"b" Size	"b" Spacing	No. Req'd 2:1	3:1	4:1	"b" Length	"b" X	"b1" Size	"b1" Spacing	"b1" No. Req'd	"b1" Length Max.	"b1" Length Min.	"b1" X Max.	"b1" X Min.
1@4'	2'	#4	12"	25	49	71	5'-7"	4'-8½"	#4	12"	4	4'-3"	2'-6"	3'-10"	2'-1"
	3'			25	49	71	"	"			4	"	"	"	"
	4'			25	49	71	"	"			4	"	"	"	"
	5'			25	49	71	"	"			4	"	"	"	"
	6'			25	49	71	5'-9"	4'-10½"			4	4'-5"	2'-8"	4'-0"	2'-3"
1@5'	3'	#5	12"	25	47	71	6'-8"	5'-8½"	#5	12"	4	5'-4"	3'-7"	4'-10"	3'-1"
	4'			25	47	71	"	"			4	"	"	"	"
	5'			25	47	71	"	"			4	"	"	"	"
	6'			25	47	71	6'-10"	5'-10½"			4	5'-6"	3'-9"	5'-0"	3'-3"
	7'			25	47	71	6'-11"	5'-11½"			4	5'-7"	3'-10"	5'-1"	3'-4"
1@6'	3'	#6	12"	25	47	71	7'-10"	6'-8"	#6	12"	6	6'-5"	2'-11"	5'-10"	2'-4"
	4'			25	47	71	"	"			6	"	"	"	"
	5'			25	47	71	"	"			6	"	"	"	"
	6'			25	47	71	8'-0"	6'-10"			6	6'-7"	3'-1"	6'-0"	2'-6"
	7'			25	47	71	8'-1"	6'-11"			6	6'-8"	3'-2"	6'-1"	2'-7"
	8'			25	47	71	8'-2"	7'-0"			6	6'-9"	3'-3"	6'-2"	2'-8"
1@7'	4'	#6	12"	23	47	69	8'-10"	7'-8"	#6	12"	6	7'-5"	3'-11"	6'-10"	3'-4"
	5'			23	47	69	"	"			6	"	"	"	"
	6'			23	47	69	9'-0"	7'-10"			6	7'-7"	4'-1"	7'-0"	3'-6"
	7'			23	47	69	9'-1"	7'-11"			6	7'-8"	4'-2"	7'-1"	3'-7"
	8'			23	47	69	9'-2"	8'-0"			6	7'-9"	4'-3"	7'-2"	3'-8"
	9'			23	47	69	9'-4"	8'-2"			6	7'-11"	4'-5"	7'-4"	3'-10"
1@8'	4'	#6	12"	23	47	69	9'-10"	8'-8"	#6	12"	8	8'-5"	3'-2"	7'-10"	2'-7"
	5'			23	47	69	10'-0"	8'-10"			8	8'-7"	3'-4"	8'-0"	2'-9"
	6'			23	47	69	"	"			8	"	"	"	"
	7'			23	47	69	10'-1"	8'-11"			8	8'-8"	3'-5"	8'-1"	2'-10"
	8'			23	47	69	10'-2"	9'-0"			8	8'-9"	3'-6"	8'-2"	2'-11"
	9'			23	47	69	10'-4"	9'-2"			8	8'-11"	3'-8"	8'-4"	3'-1"
	10'			23	47	69	10'-6"	9'-4"			8	9'-1"	3'-10"	8'-6"	3'-3"
1@9'	5'	#7	11"	25	49	75	11'-2"	9'-10"	#7	11"	10	9'-9"	3'-5"	9'-1"	2'-9"
	6'			25	49	75	11'-3"	9'-11"			10	9'-10"	3'-6"	9'-2"	2'-10"
	7'			25	49	75	"	"			10	"	"	"	"
	8'			25	49	75	11'-4"	10'-0"			10	9'-11"	3'-7"	9'-3"	2'-11"
	9'			25	49	75	11'-6"	10'-2"			10	10'-1"	3'-9"	9'-5"	3'-1"
	10'			25	49	75	11'-8"	10'-4"			10	10'-3"	3'-11"	9'-7"	3'-3"
	11'			25	49	75	11'-10"	10'-6"			10	10'-5"	4'-1"	9'-9"	3'-5"
1@10'	5'	#7	12"	21	45	69	12'-2"	10'-10"	#7	12"	10	10'-8"	3'-8"	10'-0"	3'-0"
	6'			21	45	69	12'-3"	10'-11"			10	10'-9"	3'-9"	10'-1"	3'-1"
	7'			21	45	69	"	"			10	"	"	"	"
	8'			21	45	69	12'-4"	11'-0"			10	10'-10"	3'-10"	10'-2"	3'-2"
	9'			21	45	67	12'-6"	11'-2"			10	11'-0"	4'-0"	10'-4"	3'-4"
	10'			21	45	67	12'-8"	11'-4"			10	11'-2"	4'-2"	10'-6"	3'-6"
	11'			21	45	67	12'-10"	11'-6"			10	11'-4"	4'-4"	10'-8"	3'-8"
	12'			21	45	67	13'-0"	11'-8"			10	11'-6"	4'-6"	10'-10"	3'-10"

"d" bars — STRAIGHT — Longitudinal in Top Slab of Barrel. Lengths Vary - Average Length; 2:1 = 15'-6", 3:1 = 27'-1", 4:1 = 38'-8".
"d1" bars — STRAIGHT — Longitudinal in Sidewalls. Lengths Vary - Average Length; 2:1 = 15'-6", 3:1 = 27'-1", 4:1 = 38'-8".
"e" bars — STRAIGHT — Longitudinal in Bottom Slab of Barrel. Lengths Vary - Average Length; 2:1 = 16'-8", 3:1 = 28'-3", 4:1 = 39'-10".

S	H	"d" Size	"d" Spacing	"d" No. Req'd	"d1" Size	"d1" Spacing	"d1" No. Req'd	"e" Size	"e" Spacing	"e" No. Req'd
1@4'	2'	#4	12"	5	#4	12"	4	#4	12"	5
	3'			5			6			5
	4'			5			8			5
	5'			5			10			5
	6'			5			12			5
1@5'	3'	#4	12"	6	#4	12"	6	#4	12"	6
	4'			6			8			6
	5'			6			10			6
	6'			6			12			6
	7'			6			14			6
1@6'	3'	#4	12"	7	#4	12"	6	#4	12"	7
	4'			7			8			7
	5'			7			10			7
	6'			7			12			7
	7'			7			14			7
	8'			7			16			7
1@7'	4'	#4	12"	8	#4	12"	8	#4	12"	8
	5'			8			10			8
	6'			8			12			8
	7'			8			14			8
	8'			8			16			8
	9'			8			18			8
1@8'	4'	#4	12"	9	#4	12"	8	#4	12"	9
	5'			9			10			9
	6'			9			12			9
	7'			9			14			9
	8'			9			16			9
	9'			9			18			9
	10'			9			20			9
1@9'	5'	#4	12"	10	#4	12"	10	#4	12"	10
	6'			10			12			10
	7'			10			14			10
	8'			10			16			10
	9'			10			18			10
	10'			10			20			10
	11'			10			22			10
1@10'	5'	#4	12"	11	#4	12"	10	#4	12"	11
	6'			11			12			11
	7'			11			14			11
	8'			11			16			11
	9'			11			18			11
	10'			11			20			11
	11'			11			22			11
	12'			11			24			11

"f" bars — STRAIGHT — Verticals in Sidewalls. "k1" bars (▼) — STRAIGHT — In Bottom of Headwall. "k2" bars (▼) — In Top of Headwall and Apron. (2 Each)

S	H	"f" Size	"f" Spacing	No. Req'd 2:1	3:1	4:1	"f" Length	"k1" Size	"k1" No. Req'd	"k1" Length	"k2" Size	"k2" No. Req'd	"k2" Length
1@4'	2'	#4	12"	28	51	74	2'-10"	#5	3	5'-6"	#5	4	6'-8"
	3'			28	51	74	3'-10"		3	"		4	"
	4'			28	51	74	4'-10"		3	"		4	"
	5'			28	51	74	5'-10"		3	"		4	"
	6'			28	51	74	6'-10"		3	5'-8"		4	6'-10"
1@5'	3'	#4	12"	28	51	74	3'-11"	#5	3	6'-8"	#5	4	7'-10"
	4'			28	51	74	4'-11"		3	"		4	"
	5'			28	51	74	5'-11"		3	"		4	"
	6'			28	51	74	6'-11"		3	6'-10"		4	8'-0"
	7'		10"	34	61	89	7'-11"		3	6'-11"		4	8'-1"
1@6'	3'	#4	12"	28	51	74	4'-0"	#5	3	7'-10"	#5	4	9'-0"
	4'			28	51	74	5'-0"		3	"		4	"
	5'			28	51	74	6'-0"		3	"		4	"
	6'			28	51	74	7'-0"		3	8'-0"		4	9'-2"
	7'		10"	34	61	89	8'-0"		3	8'-1"		4	9'-3"
	8'	#5	11"	31	56	81	9'-0"		3	8'-2"		4	9'-4"
1@7'	4'	#4	12"	28	51	74	5'-1"	#6	3	9'-0"	#6	4	10'-2"
	5'			28	51	74	6'-1"		3	"		4	"
	6'			28	51	74	7'-1"		3	9'-2"		4	10'-4"
	7'		11"	31	56	81	8'-1"		3	9'-3"		4	10'-5"
	8'	#5	12"	28	51	74	9'-1"		3	9'-4"		4	10'-6"
	9'		11"	31	56	81	10'-1"		3	9'-6"		4	10'-8"
1@8'	4'	#4	12"	28	51	74	5'-3"	#6	3	10'-1"	#6	4	11'-3"
	5'			28	51	74	6'-3"		3	10'-4"		4	11'-6"
	6'			28	51	74	7'-3"		3	"		4	"
	7'			28	51	74	8'-3"		3	10'-5"		4	11'-7"
	8'	#5	12"	28	51	74	9'-3"		3	10'-6"		4	11'-8"
	9'		11"	31	56	81	10'-3"		3	10'-8"		4	11'-10"
	10'		10"	34	61	89	11'-3"		3	10'-11"		4	12'-0"
1@9'	5'	#4	12"	28	51	74	6'-5"	#6	3	11'-5"	#6	4	12'-7"
	6'			28	51	74	7'-5"		3	11'-7"		4	12'-9"
	7'			28	51	74	8'-5"		3	"		4	"
	8'	#5	12"	28	51	74	9'-5"		3	11'-8"		4	12'-10"
	9'		11"	31	56	81	10'-5"		3	11'-10"		4	13'-0"
	10'		10"	34	61	89	11'-5"		3	12'-1"		4	13'-2"
	11'	#6	12"	28	51	74	12'-5"		3	12'-3"		4	13'-5"
1@10'	5'	#4	12"	28	51	74	6'-7"	#7	3	12'-7"	#7	4	13'-9"
	6'			28	51	74	7'-7"		3	12'-8"		4	13'-10"
	7'		11"	31	56	81	8'-7"		3	"		4	"
	8'	#5	12"	28	51	74	9'-7"		3	12'-10"		4	14'-0"
	9'			28	51	74	10'-7"		3	13'-0"		4	14'-2"
	10'		10"	34	61	89	11'-7"		3	13'-2"		4	14'-4"
	11'	#6	12"	28	51	74	12'-7"		3	13'-5"		4	14'-6"
	12'		11"	31	56	81	13'-7"		3	13'-7"		4	14'-9"

▼ These bars are in the skewed portion of barrel only. The length of "a1" bars and overall length X of "b1" bars vary by 1'-9" for 12" spacing and 1'-7" for 11" spacing.

BARREL DIMENSIONS / * QUANTITIES - ONE SECTION "A"

MAX. DESIGN DEPTH OF COVER (D): SECTION "A" = 10'-0"

CLEAR SPANS (S)	CLEAR HEIGHT (H)	SQ.FT. OPENING (A)	OVERALL WIDTH (OW)	THICKNESS OF TOP SLAB (T)	THICKNESS OF SIDEWALLS (C)	THICKNESS OF BOTTOM SLAB (B)	OVERALL HEIGHT (OH)	ROADWAY LENGTH (RL)	LENGTH OF HEADWALL (K)	CLASS S CONCRETE, BARREL ONLY 2:1 Cu.Yd.	3:1 Cu.Yd.	4:1 Cu.Yd.	REINFORCING STEEL, BARREL, APRON AND HEADWALL 2:1 Lb.	3:1 Lb.	4:1 Lb.
1@4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	5'-9¼"	6'-11⅛"	3.81	6.98	10.16	453	764	1074
	3'	12	5'-0"		6"		4'-1"	"	"	4.32	7.92	11.53	492	834	1175
	4'	16	5'-0"		6"		5'-1"	"	"	4.84	8.86	12.89	531	904	1276
	5'	20	5'-0"		6"		6'-1"	"	"	5.35	9.80	14.26	571	975	1377
	6'	24	5'-2"		7"		7'-1"	5'-11⅝"	7'-1½"	6.47	11.86	17.25	614	1053	1492
1@5'	3'	15	6'-0"	7"	6"	7"	4'-2"	6'-11⅝"	8'-1"	5.13	9.40	13.67	687	1183	1693
	4'	20	6'-0"		6"		5'-2"	"	"	5.64	10.34	15.03	726	1253	1794
	5'	25	6'-0"		6"		6'-2"	"	"	6.15	11.28	16.40	765	1323	1895
	6'	30	6'-2"		7"		7'-2"	7'-1½"	8'-3¾"	7.29	13.36	19.43	816	1413	2024
	7'	35	6'-3"		7½"		8'-2"	7'-2⅝"	8'-4½"	8.23	15.09	21.94	893	1525	2171
1@6'	3'	18	7'-0"	7½"	6"	7½"	4'-3"	8'-1"	9'-2⅞"	6.03	11.05	16.07	894	1538	2192
	4'	24	7'-0"		6"		5'-3"	"	"	6.54	11.99	17.44	934	1609	2293
	5'	30	7'-0"		6"		6'-3"	"	"	7.05	12.93	18.80	973	1679	2394
	6'	36	7'-2"		7"		7'-3"	8'-3¼"	9'-5⅛"	8.19	15.01	21.83	1027	1773	2529
	7'	42	7'-3"		7½"		8'-3"	8'-4⅛"	9'-6⅜"	9.14	16.76	24.38	1105	1908	2727
	8'	48	7'-4"		8"		9'-3"	8'-5⅝"	9'-7½"	10.18	18.67	27.15	1242	2156	3080
1@7'	4'	28	8'-0"	8"	6"	8½"	5'-4½"	9'-2⅞"	10'-4¾"	7.70	14.12	20.54	1054	1815	2565
	5'	35	8'-0"		6"		6'-4½"	"	"	8.22	15.06	21.90	1094	1885	2666
	6'	42	8'-2"		7"		7'-4½"	9'-5¼"	10'-7"	9.35	17.14	24.93	1147	1979	2800
	7'	49	8'-3"		7½"		8'-4½"	9'-6¼"	10'-8⅜"	10.31	18.89	27.48	1210	2088	2956
	8'	56	8'-4"		8"		9'-4½"	9'-7½"	10'-9⅝"	11.35	20.80	30.25	1282	2263	3234
	9'	63	8'-6"		9"		10'-4½"	9'-9¾"	10'-11¾"	12.93	23.69	34.46	1432	2484	3525
1@8'	4'	32	9'-0"	8½"	6"	9½"	5'-6"	10'-4¾"	11'-6⅛"	8.98	16.46	23.94	1293	2219	3141
	5'	40	9'-2"		7"		6'-6"	10'-7"	11'-8⅞"	10.04	18.41	26.78	1362	2329	3294
	6'	48	9'-2"		7"		7'-6"	"	"	10.65	19.53	28.41	1401	2400	3395
	7'	56	9'-3"		7½"		8'-6"	10'-8¼"	11'-10"	11.61	21.28	30.95	1438	2474	3506
	8'	64	9'-4"		8"		9'-6"	10'-9⅜"	11'-11¼"	12.66	23.21	33.76	1589	2735	3884
	9'	72	9'-6"		9"		10'-6"	10'-11⅜"	12'-1½"	14.24	26.11	37.97	1683	2907	4128
	10'	80	9'-8"		10"		11'-6"	11'-2"	12'-3¾"	15.99	29.31	42.63	1789	3089	4398
1@9'	5'	45	10'-2"	9½"	7"	10½"	6'-8"	11'-8⅞"	12'-10¾"	11.69	21.43	31.18	1674	2940	4221
	6'	54	10'-3"		7½"		7'-8"	11'-10"	13'-0"	12.61	23.11	33.61	1792	3096	4416
	7'	63	10'-3"		7½"		8'-8"	"	"	13.26	24.30	35.35	1831	3166	4517
	8'	72	10'-4"		8"		9'-8"	11'-11¼"	13'-1"	14.31	26.23	38.16	1981	3435	4905
	9'	81	10'-6"		9"		10'-8"	12'-1½"	13'-3¼"	15.91	29.15	42.40	2085	3615	5161
	10'	90	10'-8"		10"		11'-8"	12'-3⅞"	13'-5¾"	17.68	32.41	47.13	2196	3806	5445
	11'	99	10'-10"		11"		12'-8"	12'-6⅛"	13'-8"	19.62	35.96	52.30	2357	4104	5869
1@10'	5'	50	11'-2"	10½"	7"	11½"	6'-10"	12'-10¾"	14'-0⅛"	13.49	24.74	35.98	1980	3417	4898
	6'	60	11'-3"		7½"		7'-10"	12'-11⅞"	14'-1¾"	14.44	26.46	38.49	2047	3522	5042
	7'	70	11'-3"		7½"		8'-10"	"	"	15.07	27.63	40.19	2103	3621	5183
	8'	80	11'-4"		8"		9'-10"	13'-1"	14'-3"	16.14	29.59	43.03	2224	3852	5524
	9'	90	11'-6"		9"		10'-10"	13'-3⅜"	14'-5¼"	17.75	32.53	47.32	2298	3981	5658
	10'	100	11'-8"		10"		11'-10"	13'-5¾"	14'-7½"	19.52	35.78	52.05	2445	4231	6024
	11'	110	11'-10"		11"		12'-10"	13'-8"	14'-9¾"	21.47	39.36	57.25	2609	4534	6455
	12'	120	12'-0"		12"		13'-10"	13'-10¼"	15'-0¼"	23.61	43.27	62.94	2758	4790	6817

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961

AND

SPECIAL MILITARY LOADING

Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.
For Barrels of 4', 5' & 6' Spans, See Drawing No. R-100X-X1.
For Barrels of 7', 8', 9' & 10' Spans, See Drawing No. R-100X-X2.

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

Designed by:- W.C.H. 9-5-62 Checked by:- R.H.S. 11-8-62
Drawn by:- W.C.H. 1-24-64 Checked by:-
Quantities by:- W.C.H 4-21-64 Checked by:-

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS

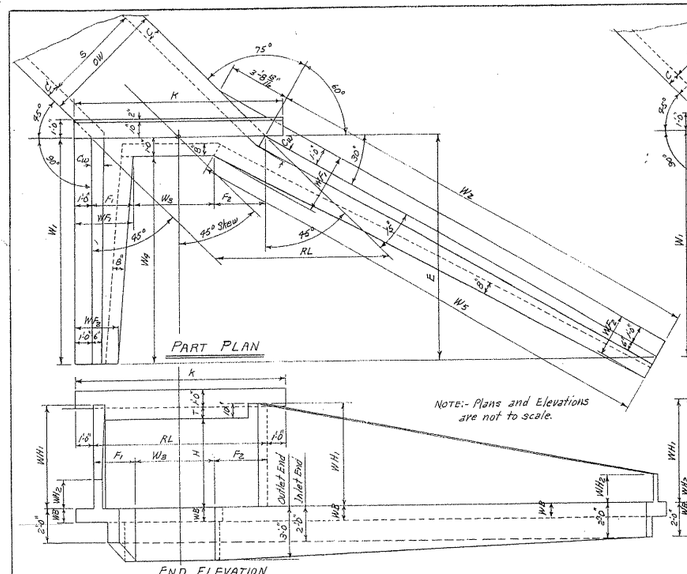
30° SKEW ~ SECTIONS "A" ONLY

4', 5', 6', 7', 8', 9' & 10' SPANS — SINGLES

2:1, 3:1 OR 4:1 SLOPES OVER 5'-0" COVER

STANDARD DRAWING No. R-130X-1

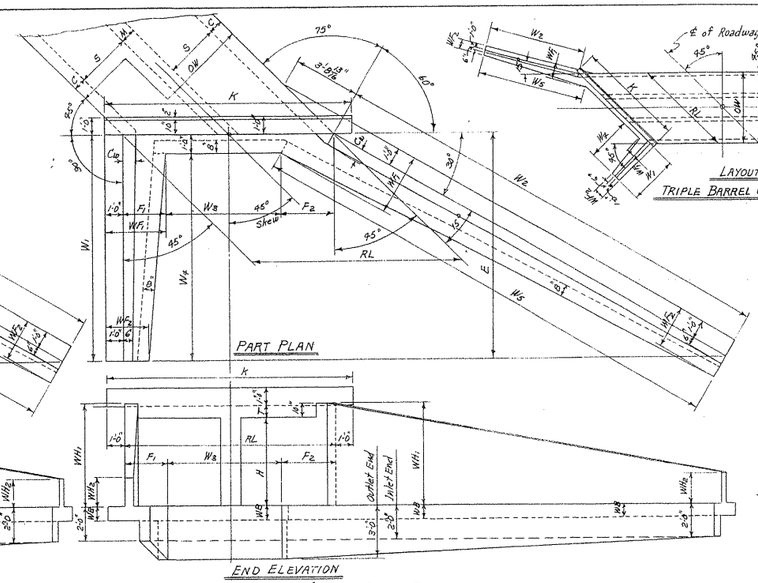
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

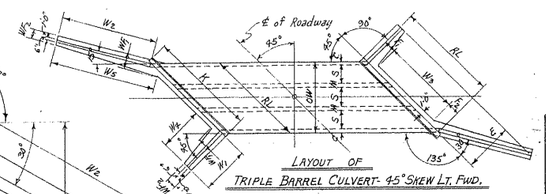
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.

NOTE:- Plans and Elevations are not to scale.

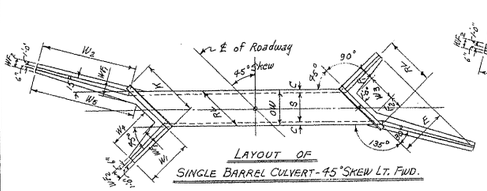


DOUBLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

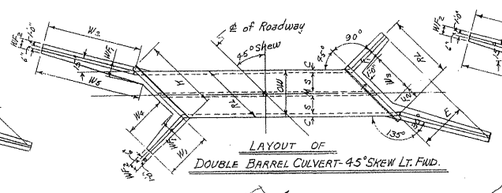
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.



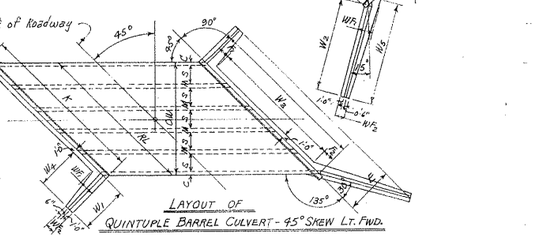
LAYOUT OF TRIPLE BARREL CULVERT - 45° SKEW LT. FWD.



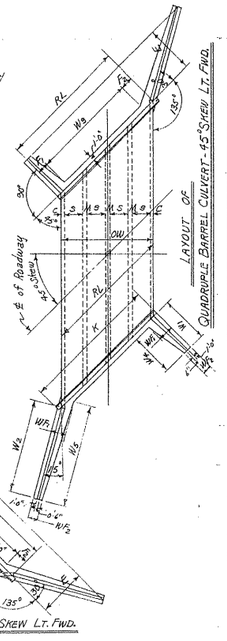
LAYOUT OF SINGLE BARREL CULVERT - 45° SKEW LT. FWD.



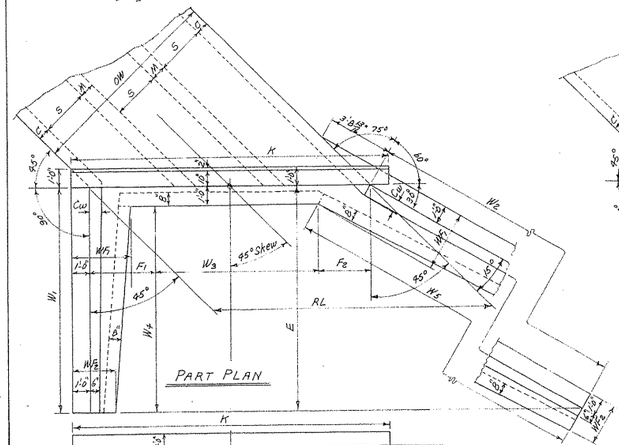
LAYOUT OF DOUBLE BARREL CULVERT - 45° SKEW LT. FWD.



LAYOUT OF QUINTUPLE BARREL CULVERT - 45° SKEW LT. FWD.

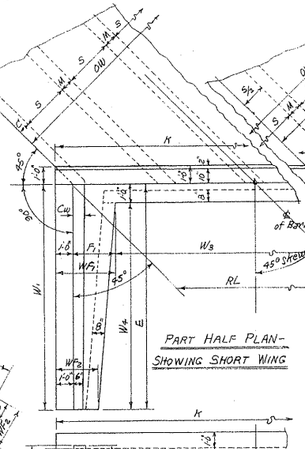


LAYOUT OF QUADRUPLE BARREL CULVERT - 45° SKEW LT. FWD.



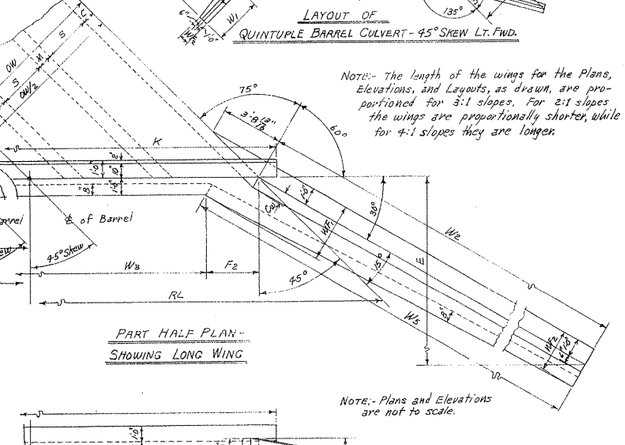
TRIPLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at top center of sheet.



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.

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.

ROADWAY LENGTH RL — RL = OW x 1.4142 1

HEADWALL LENGTH K — K = RL + (2'0")

APRON DIMENSION W3 — W3 = RL - (F1 + F2)

USE WITH DRAWING NO.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF F1 & F2	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W3
W-X452-1, W-X453-1 OR W-X454-1. (FOR H=8'0" OR LESS) W-X452-2, W-X453-2 OR W-X454-2	4'	2'	2'3"	6'-0"	7'-0"	9'-0"	4'-9"	9'-8"	13'-8"	15'-8"	11'-4"	14'-4"	20'-3"	22'-3"	18'-6"	19'-0"	26'-10"	28'-10"	24'-7"	23'-8"	33'-5"	35'-5"	31'-2"
		3'	3'3"	5'-0"	"	"	3'-9"	9'-8"	"	"	10'-4"	14'-4"	"	"	17'-0"	19'-0"	"	"	23'-7"	23'-8"	"	"	30'-2"
		4'	4'3"	5'-0"	"	"	2'-9"	9'-8"	"	"	9'-4"	14'-4"	"	"	16'-0"	19'-0"	"	"	22'-7"	23'-8"	"	"	29'-2"
		5'	5'3"	5'-0"	7'-0"	9'-0"	1'-9"	9'-8"	13'-8"	15'-8"	8'-4"	14'-4"	20'-3"	22'-3"	15'-0"	19'-0"	26'-10"	28'-10"	21'-7"	23'-8"	33'-5"	35'-5"	28'-2"
		6'	6'3"	5'-0"	7'-3"	9'-3"	1'-0"	9'-11"	14'-0"	16'-0"	7'-0"	14'-8"	20'-8"	22'-9"	14'-3"	19'-5"	27'-5"	29'-5"	21'-2"	24'-2"	34'-2"	36'-2"	27'-10"
4'		3'	3'3"	6'-0"	8'-5"	10'-5"	5'-2"	11'-8"	16'-6"	18'-6"	13'-2"	17'-4"	24'-6"	26'-6"	21'-3"	23'-0"	32'-6"	34'-6"	29'-3"	28'-8"	40'-6"	42'-6"	37'-3"
		4'	4'3"	6'-0"	"	"	4'-2"	11'-8"	"	"	12'-8"	17'-4"	"	"	20'-3"	23'-0"	"	"	28'-3"	28'-8"	"	"	36'-3"
		5'	5'3"	6'-0"	8'-5"	10'-5"	3'-2"	11'-8"	16'-6"	18'-6"	11'-2"	17'-4"	24'-6"	26'-6"	19'-3"	23'-0"	32'-6"	34'-6"	27'-3"	28'-8"	40'-6"	42'-6"	35'-3"
		6'	6'3"	6'-0"	8'-5"	10'-5"	2'-5"	11'-11"	16'-10"	18'-10"	10'-7"	17'-8"	24'-10"	26'-10"	17'-8"	23'-5"	33'-1"	35'-1"	24'-10"	29'-2"	41'-3"	43'-3"	34'-1"
		7'	7'3"	6'-3"	8'-10"	10'-10"	1'-8"	12'-1"	17'-1"	19'-1"	9'-3"	17'-11"	25'-4"	27'-4"	17'-4"	23'-9"	33'-7"	35'-7"	24'-2"	29'-7"	41'-10"	43'-10"	34'-6"
		3'	3'3"	7'-0"	9'-10"	11'-10"	6'-7"	13'-8"	19'-3"	21'-3"	16'-0"	20'-4"	28'-9"	30'-9"	25'-5"	27'-0"	38'-2"	40'-2"	34'-11"	33'-8"	47'-7"	49'-7"	44'-4"
		4'	4'3"	7'-0"	"	"	5'-7"	13'-8"	"	"	15'-0"	20'-4"	"	"	24'-5"	27'-0"	"	"	33'-1"	33'-8"	"	"	43'-4"
	6'	5'	5'3"	7'-0"	9'-10"	11'-10"	4'-7"	13'-8"	19'-3"	21'-3"	14'-0"	20'-4"	28'-9"	30'-9"	23'-5"	27'-0"	38'-2"	40'-2"	32'-11"	33'-9"	47'-8"	49'-8"	42'-5"
		6'	6'3"	7'-2"	10'-1"	12'-1"	3'-10"	13'-11"	19'-8"	21'-8"	13'-5"	20'-8"	29'-2"	31'-2"	22'-1"	27'-5"	38'-9"	40'-9"	32'-6"	34'-2"	48'-5"	50'-5"	42'-10"
		7'	7'3"	7'-3"	10'-3"	12'-3"	2'-5"	14'-1"	19'-11"	21'-11"	12'-1"	20'-11"	29'-7"	31'-7"	21'-0"	27'-8"	39'-3"	41'-3"	31'-5"	34'-7"	48'-10"	50'-11"	41'-7"
		8'	8'3"	7'-4"	10'-5"	12'-5"	1'-1"	14'-2"	20'-0"	22'-0"	10'-9"	21'-0"	29'-8"	31'-8"	20'-5"	27'-10"	39'-4"	41'-4"	30'-1"	34'-8"	49'-0"	51'-0"	39'-9"
		4'	4'3"	8'-0"	11'-3"	13'-3"	7'-0"	15'-8"	22'-1"	24'-1"	17'-0"	23'-4"	33'-0"	35'-0"	28'-0"	31'-0"	43'-10"	45'-10"	39'-6"	38'-8"	54'-8"	56'-8"	50'-5"
		5'	5'3"	8'-0"	11'-3"	13'-3"	6'-0"	15'-9"	22'-2"	24'-2"	16'-10"	23'-4"	33'-0"	35'-0"	27'-8"	31'-0"	43'-10"	45'-10"	38'-7"	38'-9"	54'-8"	56'-8"	49'-5"
		6'	6'3"	8'-2"	11'-6"	13'-6"	5'-3"	15'-11"	22'-6"	24'-6"	16'-2"	23'-8"	33'-5"	35'-5"	27'-2"	31'-5"	44'-5"	46'-5"	38'-2"	39'-2"	55'-4"	57'-4"	49'-11"
		7'	7'3"	8'-3"	11'-8"	13'-8"	3'-10"	16'-1"	22'-9"	24'-9"	14'-11"	23'-11"	33'-9"	35'-10"	26'-10"	31'-7"	44'-10"	46'-10"	37'-11"	39'-7"	55'-11"	57'-11"	48'-8"
		8'	8'3"	8'-4"	11'-9"	13'-9"	2'-6"	16'-2"	22'-10"	24'-10"	13'-7"	24'-0"	33'-11"	35'-11"	24'-8"	31'-10"	45'-0"	47'-0"	35'-9"	39'-8"	56'-1"	58'-1"	46'-10"
		4'	4'3"	9'-0"	12'-8"	14'-8"	8'-5"	17'-8"	24'-11"	26'-11"	20'-1"	26'-8"	37'-8"	39'-8"	32'-4"	35'-0"	49'-6"	51'-6"	44'-5"	43'-8"	61'-9"	63'-9"	57'-6"
		5'	5'3"	9'-2"	12'-11"	14'-11"	7'-8"	17'-11"	25'-2"	27'-2"	20'-0"	26'-8"	37'-10"	39'-10"	32'-5"	35'-5"	50'-1"	52'-1"	44'-9"	44'-2"	62'-5"	64'-5"	57'-2"
	8'	6'	6'3"	9'-2"	12'-11"	14'-11"	6'-10"	17'-11"	25'-3"	27'-3"	19'-0"	26'-11"	38'-0"	40'-0"	31'-5"	35'-6"	50'-2"	52'-2"	43'-10"	44'-3"	62'-6"	64'-6"	56'-11"
		7'	7'3"	9'-3"	13'-1"	15'-1"	5'-11"	18'-1"	25'-6"	27'-7"	17'-10"	27'-2"	38'-3"	40'-3"	30'-6"	35'-6"	50'-6"	52'-6"	42'-10"	44'-7"	63'-0"	65'-0"	55'-7"
		8'	9'3"	9'-4"	13'-2"	15'-2"	5'-1"	19'-2"	25'-8"	27'-8"	16'-5"	27'-0"	38'-2"	40'-2"	28'-11"	35'-10"	50'-10"	52'-8"	41'-5"	44'-8"	63'-2"	65'-2"	53'-10"
		5'	5'3"	10'-2"	14'-4"	16'-4"	9'-1"	19'-11"	28'-2"	30'-2"	22'-10"	28'-9"	41'-0"	43'-0"	36'-0"	39'-5"	55'-10"	57'-10"	50'-5"	49'-2"	69'-6"	71'-6"	64'-3"
	9'	6'	6'3"	10'-3"	14'-6"	16'-6"	8'-2"	20'-1"	28'-4"	30'-4"	22'-1"	29'-11"	42'-3"	44'-3"	36'-4"	39'-9"	56'-2"	58'-2"	49'-11"	49'-7"	70'-1"	72'-1"	63'-10"
		7'	7'3"	10'-3"	14'-6"	16'-6"	6'-8"	20'-1"	28'-4"	30'-4"	20'-7"	29'-11"	42'-3"	44'-3"	34'-6"	39'-9"	56'-2"	58'-2"	48'-5"	49'-7"	70'-1"	72'-1"	62'-8"
		8'	9'3"	10'-4"	14'-7"	16'-7"	5'-5"	20'-2"	28'-6"	30'-6"	19'-3"	30'-0"	42'-5"	44'-5"	33'-2"	39'-10"	56'-4"	58'-4"	47'-10"	49'-8"	70'-2"	72'-3"	60'-11"
		5'	5'3"	11'-2"	15'-9"	17'-9"	10'-6"	21'-11"	31'-0"	33'-0"	25'-10"	32'-8"	46'-2"	48'-2"	40'-11"	43'-5"	61'-9"	63'-9"	56'-6"	56'-2"	76'-7"	78'-7"	71'-4"
		6'	6'3"	11'-3"	15'-11"	17'-11"	9'-7"	22'-1"	31'-2"	33'-2"	24'-11"	32'-11"	46'-6"	48'-6"	39'-10"	43'-9"	61'-10"	63'-10"	55'-10"	56'-7"	77'-0"	79'-0"	70'-7"
	10'	7'	7'3"	11'-3"	15'-11"	17'-11"	8'-7"	22'-1"	31'-2"	33'-2"	23'-5"	33'-1"	46'-8"	48'-8"	38'-9"	43'-9"	61'-10"	63'-10"	54'-6"	56'-7"	77'-0"	79'-0"	69'-5"
		8'	9'3"	11'-4"	16'-0"	18'-0"	6'-9"	22'-2"	31'-4"	33'-4"	22'-1"	33'-0"	46'-9"	48'-9"	37'-9"	43'-10"	61'-11"	63'-11"	53'-6"	56'-8"	77'-1"	79'-3"	68'-10"
		6'	6'3"	12'-4"	17'-5"	19'-5"	11'-2"	24'-2"	34'-2"	36'-2"	27'-11"	36'-0"	50'-11"	52'-11"	43'-7"	47'-10"	67'-11"	69'-11"	61'-4"	—	—	—	—
		7'	7'3"	12'-5"	"	"	9'-8"	24'-2"	"	"	26'-5"	36'-0"	"	"	43'-1"	47'-10"	"	"	59'-10"	—	—	—	—
	11'	8'	9'3"	12'-5"	"	"	8'-2"	24'-2"	"	"	24'-11"	36'-0"	"	"	41'-7"	47'-10"	"	"	58'-4"	—	—	—	—
		6'	6'3"	13'-4"	18'-10"	20'-10"	12'-7"	26'-2"	37'-0"	39'-0"	30'-8"	39'-0"	55'-1"	57'-1"	48'-1"	51'-10"	73'-3"	75'-3"	67'-0"	—	—	—	—
	12'	7'	7'3"	13'-4"	"	"	11'-7"	26'-2"	"	"	29'-2"	39'-0"	"	"	47'-4"	51'-10"	"	"	65'-6"	—	—	—	—
		8'	9'3"	13'-4"	"	"	9'-7"	26'-2"	"	"	27'-8"	39'-0"	"	"	45'-10"	51'-10"	"	"	64'-0"	—	—	—	—
	7'	9'	10'-9"	8'-6"	12'-0"	14'-0"	1'-3"	16'-5"	23'-2"	25'-2"	12'-5"	24'-4"	34'-5"	36'-5"	23'-7"	32'-3"	45'-7"	47'-7"	34'-10"	40'-2"	56'-9"	58'-9"	46'-0"
	8'	9'	10'-9"	9'-6"	13'-5"	15'-5"	2'-8"	18'-5"	26'-0"	28'-0"	15'-5"	27'-4"	38'-7"	40'-8"	27'-10"	36'-3"	51'-3"	53'-3"	40'-6"	45'-2"	63'-10"	65'-10"	53'-1"
		9'	10'-9"	10'-6"	14'-10"	16'-10"	4'-1"	20'-5"	28'-10"	30'-10"	18'-1"	30'-8"	42'-10"	44'-10"	32'-1"	40'-3"	56'-11"	58'-11"	46'-1"	50'-2"	70'-11"	72'-11"	60'-2"
	9'	10'	12'-3"	10'-8"	16'-1"	17'-11"	2'-9"	20'-8"	29'-2"	31'-2"	18'-11"	30'-8"	43'-10"	45'-10"	31'-6"	40'-8"	57'-6"	59'-6"	45'-3"	50'-8"	71'-7"	73'-7"	59'-4"
		11'	12'-3"	10'-10"	16'-3"	17'-3"	1'-4"	20'-10"	29'-5"	31'-5"	18'-8"	30'-10"	43'-7"	45'-7"	29'-10"	40'-10"	57'-9"	59'-9"	43'-11"	50'-10"	71'-10"	73'-10"	58'-7"
		9'	10'-9"	11'-6"	16'-3"	18'-3"	5'-6"	22'-5"	31'-8"	33'-8"	20'-11"	33'-4"	47'-1"	49'-1"	34'-6"	44'-3"	62'-7"	64'-7"	51'-3"	55'-2"	78'-6"	80'-6"	67'-3"
	10'	10'	12'-3"	11'-8"	16'-6"	18'-6"	4'-2"	22'-10"	32'-0"	34'-0"	19'-9"	33'-8"	47'-7"	49'-7"	35'-4"	44'-8"	63'-2"	65'-2"	50'-10"	55'-8"	78'-8"	80'-8"	66'-5"
		11'	13'-9"	11'-10"	16'-8"	18'-8"	2'-11"	22'-10"	32'-3"	34'-3"	19'-6"	33'-10"	47'-10"	49'-10"	34'-1"	44'-10"	63'-3"	65'-5"	49'-7"	55'-10"	78'-11"	80'-11"	65'-8"
		12'	15'-3"	12'-0"	16'-11"	18'-11"	1'-8"	23'-0"	32'-5"	34'-5"	17'-3"	34'-0"	48'-1"	50'-1"	32'-9"	45'-0"	63'-5"	65'-7"	48'-4"	56'-0"	79'-2"	81'-2"	63'-11"
		9'	10'-9"	12'-6"	17'-5"	19'-5"	13'-3"	26'-5"	37'-4"	39'-4"	26'-2"	39'-4"	55'-5"	57'-5"	44'-10"	52'-3"	73'-5"	75'-5"	63'-1"	—	—	—	—
		10'	12'-3"	13'-0"	18'-1"	20'-1"	9'-5"	26'-8"	37'-10"	39'-10"	25'-5"	39'-8"	56'-1"	58'-1"	43'-10"	52'-8"	74'-1"	76'-1"	61'-8"	—	—	—	—
	11'	11'	13'-9"	13'-10"	19'-3"	21'-3"	5'-10"	26'-10"	37'-11"	39'-11"	24'-2"	39'-10"	56'-2"	58'-2"	42'-6"	52'-10"	74'-10"	76'-10"	60'-11"	—	—	—	—
		12'	15'-3"	14'-0"	19'-5"	21'-5"	2'-3"	27'-0"	38'-1"	40'-1"	22'-11"	40'-0"	56'-6"	58'-6"	41'-3"	53'-0"	74'-11"	76'-11"	59'-8"	—	—	—	—

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

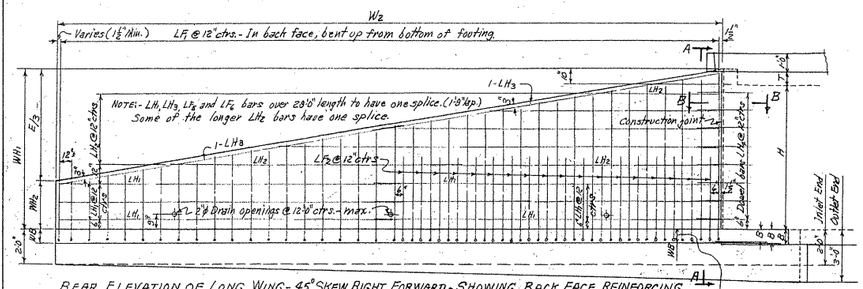
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER H = 2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'

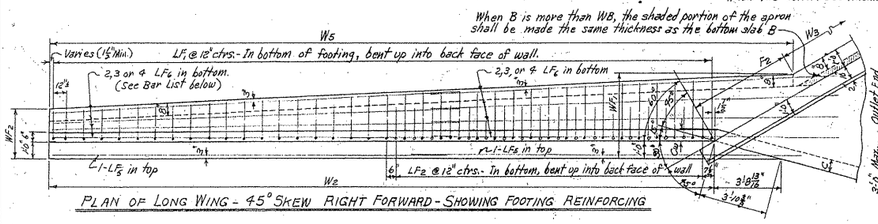
STANDARD DRAWING No. W-X45

Designed by:- W.C.H. 5-16-63 Checked by:-
Drawn by:- W.C.H. 6-15-64 Checked by:- J.E.M. 6-23-64
Quantities by:- Checked by:-

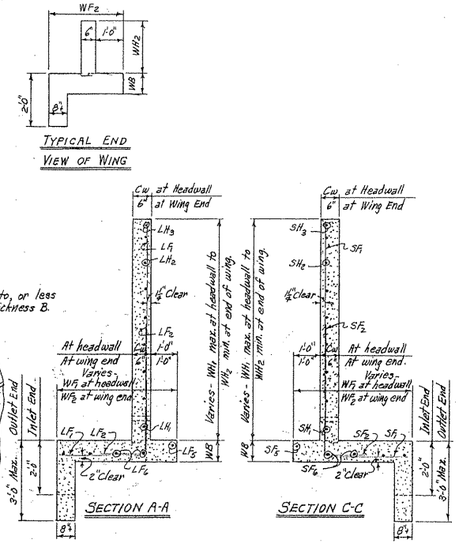
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



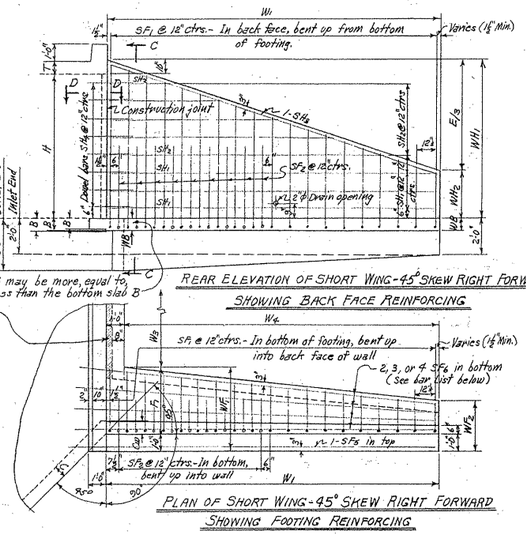
REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



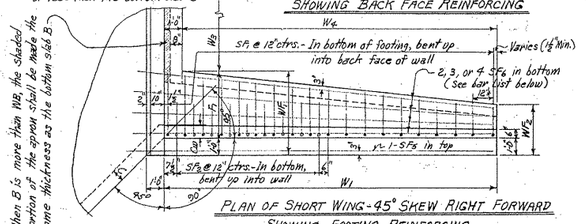
PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



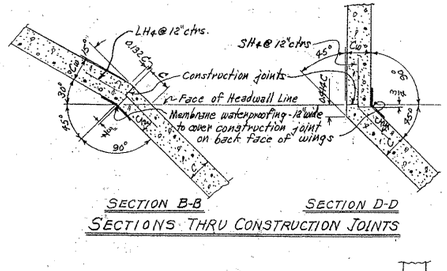
SECTION A-A — SECTION C-C



REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING

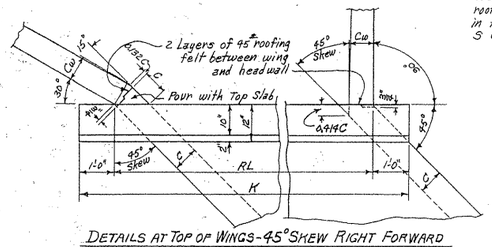


PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



SECTION B-B — SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS



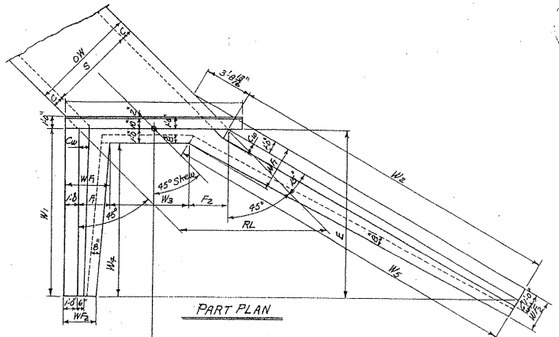
DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

NOTE:- Payment for the membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

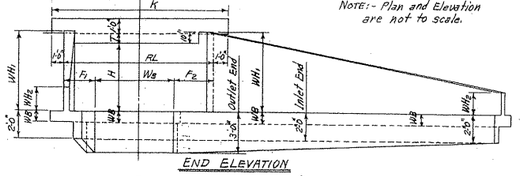
REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT 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	FOOTING DIMENSION PERPENDICULAR TO WING HEADWALL SHORT WING	FOOTING DIMENSION PERPENDICULAR TO WING HEADWALL LONG WING	PERPENDICULAR CAST FROM ADJUST 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'-8"	2'-0"	1'-4"	0'-11⅝"	6'-1⅝"	6'-6"	13'-0"	5'-6"	13'-3⅜"	0.743	1.572	0.829	1.741
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-8"	1'-2⅝"	8'-1⅝"	8'-6"	17'-0"	7'-6"	17'-10⅜"	1.180	2.369	1.289	2.590
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3⅝"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5⅝"	1.547	3.295	1.700	3.577
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.082	4.367	2.241	4.705
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-6"	11'-6"	27'-10⅝"	2.166	4.551	2.325	4.889
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.894	6.055	3.078	6.450
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-2⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	3.009	6.306	3.192	6.700
7'	8½"	7½"	7'-10"	2'-8"	4'-0"	2'-10½"	3'-2"	3'-7⅝"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅝"	3.794	7.930	9.003	8.385
		8"	7'-10"	2'-8"	4'-0"	2'-10½"	3'-2"	3'-7⅝"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅝"	3.870	8.093	9.078	8.598
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	3'-11⅝"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4⅝"	9.855	10.136	5.088	10.651

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.



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 W_3 for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three applications 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.

Revisions:- Membrane Added. 5-10-66 W.C.H.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL ⊕ 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	8.44	9.79	11.14	12.50	13.86	⊕
	4'	6"	7"	328	11.13	12.48	13.84	15.20	16.56	
	5'	6"	7"	463	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	11.98	13.07	14.72	16.37	18.02	
	5'	6"	7"	463	14.55	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"	1475	26.98	26.69	28.91	30.14	31.86	
6'	3'	6"	7"	214	9.03	10.99	12.91	19.86	16.79	
	4'	6"	7"	328	11.73	13.49	15.60	17.56	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"	1475	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	12.04	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	20.19	22.94	24.69	26.98	29.24	
	7'	7½"	8½"	1475	25.59	27.91	30.21	32.58	34.83	
	8'	8"	9"	1872	32.02	34.36	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	16.05	18.47	21.07	23.86	26.37	
	6'	7"	8"	763	20.95	23.07	25.64	28.24	30.77	
	7'	7½"	8½"	1475	25.90	28.54	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	16.32	19.32	22.18	25.02	27.91	
	6'	7½"	8"	763	21.16	24.18	27.02	29.99	32.81	
	7'	7½"	8½"	1475	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	19.96	23.14	26.27	29.47	
	6'	7½"	8"	763	21.98	24.77	27.99	31.18	34.36	
	7'	7½"	8½"	1475	26.53	29.82	33.04	36.19	39.42	
	8'	8"	9"	1872	32.95	36.25	39.46	42.62	45.85	
11'	6'	8"	8"	763	22.18	25.83	29.35	32.84		
	7'	8"	8½"	1475	27.33	30.99	34.51	38.01		
	8'	8"	9"	1872	33.26	36.91	40.43	43.93		
12'	6'	8"	8"	763	22.50	26.51	30.33	34.19		
	7'	8"	8½"	1475	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, — ALL DEPTHS OF COVER
QUADRUPLES & QUINTUPLES — FOR H = 8'-0" OR LESS

STANDARD DRAWING No. W-X453-1

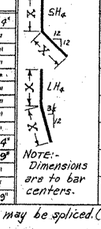
BAR LIST FOR ONE SHORT AND ONE LONG WING — 2 EACH REQUIRED

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. SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars SIZE	SPACING	NO. REQD	LENGTH	X	Y	SF5 & LF3 STRAIGHT: Longitudinal in top of wing footing heel SIZE	NO. REQD	LENGTH	SF6 & LF4 STRAIGHT: Longitudinal in bottom of wing footing toe SIZE	NO. REQD	LENGTH	SH1 & LH1 Horizontal in back face of wing. SIZE	SPACING	NO. REQD	LENGTH	SH2 & LH2 STRAIGHT: Horizontal in back face of wing. One bar of each length.* SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	MIN.	SH3 & LH3 In back face of wing at top - on slope SIZE	NO. REQD	LENGTH	SH4 & LH4 BENT: Dowels thru construction joint at headwall. SIZE	SPACING	NO. REQD	LENGTH	X
H	SHORT & LONG	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	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	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X
2'	Short	#3	12"	7	1'-7"	3'-1"	0'-8"	1'-0"	1'-0"	3'-0"	—	—	—	—	—	—	#3	1	8'-9"	#3	2	8'-0"	#3	12"	1	4'-3"	#3	12"	1	—	3'-5"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-9"
	Long	#3	12"	14	1'-5"	3'-1"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—	#3	1	17'-6"	#3	2	15'-6"	#3	12"	1	12'-8"	#3	12"	1	—	6'-6"	#3	1	12'-11"	#3	12"	2	"	"
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-0"	4'-10"	—	—	—	—	—	—	#3	1	10'-9"	#3	2	10'-0"	#3	12"	1	8'-3"	#3	12"	2	6'-3"	3'-9"	#3	1	8'-8"	#3	12"	3	"	"
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-0"	4'-10"	—	—	—	—	—	—	#3	1	21'-6"	#3	2	20'-6"	#3	12"	1	16'-8"	#3	12"	2	18'-6"	6'-6"	#3	1	16'-11"	#3	12"	3	"	"
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-3"	5'-10"	—	—	—	—	—	—	#3	1	12'-9"	#3	3	12'-0"	#3	12"	1	10'-3"	#3	12"	3	9'-3"	3'-9"	#3	1	10'-9"	#3	12"	4	"	"
	Long	#3	12"	22	2'-4"	6'-6"	0'-11"	1'-7"	1'-4"	5'-10"	—	—	—	—	—	—	#3	1	25'-6"	#3	3	24'-6"	#3	12"	1	20'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-10"	#3	12"	3	8'-6"	1'-1"	2'-6"	#3	1	14'-6"	#3	3	14'-0"	#3	12"	2	12'-9"	#3	12"	3	8'-3"	3'-9"	#3	1	12'-11"	#3	12"	5	"	"
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	2'-0"	6'-10"	#3	12"	6	8'-6"	1'-1"	2'-6"	#3	2	15'-6"	#3	3	15'-0"	#3	12"	3	18'-6"	6'-6"	#3	1	15'-11"	#3	12"	5	"	"
6'	Short	#3	12"	15	3'-6"	9'-4"	1'-2"	2'-4"	2'-4"	7'-11"	#3	12"	8	8'-6"	1'-4"	3'-8"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	16'-3"	#3	12"	4	12'-3"	3'-9"	#3	1	15'-0"	#3	12"	6	"	"
	Long	#3	12"	30	3'-4"	9'-3"	1'-2"	2'-3"	2'-3"	7'-11"	#3	12"	6	9'-6"	1'-4"	3'-8"	#3	2	17'-8"	#3	6	18'-6"	#3	12"	4	15'-2"	#3	12"	4	24'-6"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-11"
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"	#4	12"	2	16'-3"	#4	12"	5	15'-3"	3'-9"	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"
	Long	#4	12"	34	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	19'-8"	#4	8	20'-6"	#4	12"	4	17'-2"	#4	12"	5	30'-6"	6'-6"	#4	2	17'-5"	#4	12"	7	"	"
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-4"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	2	20'-6"	#4	4	20'-0"	#4	12"	3	18'-3"	#4	12"	5	18'-3"	3'-9"	#4	1	19'-5"	#4	12"	8	"	"
	Long	#4	12"	38	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	23'-9"	#4	8	22'-9"	#4	12"	6	19'-3"	#4	12"	5	30'-6"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"

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)

BAR BENDING DIAGRAM



Note:- Dimensions are to bar centers.

QUANTITY REINFORCING STEEL PER WING - LBS.	SHORT WING	LONG WING
	29.4	96.3
	36.8	70.3
	55.9	102.9
	72.7	153.7
	127.6	253.9
	246.5	491.1
	312.5	623.6

Designed By:- W.C.H. 5-13-63 Checked By:- JEM 7-21-64
Drawn By:- W.C.H. 6-5-64 Checked By:- JEM 7-21-64
Quantities By:- W.C.H. 7-2-64 Checked By:- JEM 7-21-64

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.

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 45° SKEWED ENDS.

"a" bars: STRAIGHT – In Top and Bottom Slabs of Barrel. "a₁" bars: STRAIGHT – In Top and Bottom Slab of Barrel- (Four of each Length). "b" bars: BENT - See Diagrams below – In Top and Bottom Slabs of Barrel- hooked. Alternate with "a" bars. D = Depth of Cover, S = Clear Span, H = Clear Height.

D	S	H	"a" Size	"a" Spacing	"a" No. Reqd	"a" Length	"a₁" Size	"a₁" Spacing	"a₁" No. Reqd	"a₁" Length Max.	"a₁" Length Min.	"b" Size	"b" Spacing	"b" No. Reqd	"b" Length	"b" X
0'-0" TO 5'-0" MAXIMUM	1 @ 4'	2'	#5	13"	104	4'-9"	#5	13"	8	3'-8"	2'-7"	#6	13"	104	5'-10"	4'-8"
		3'			104	4'-9"			8	"	"			104	5'-10"	"
		4'			104	4'-9"			8	"	"			104	5'-10"	"
		5'			104	4'-9"			8	"	"			104	5'-10"	"
		6'			104	4'-11"			8	3'-10"	2'-9"			104	6'-0"	4'-10"
	1 @ 5'	3'	#6	13"	102	5'-9"	#6	13"	12	4'-8"	2'-6"	#6	13"	102	6'-10"	5'-8"
		4'			102	5'-9"			12	"	"			102	6'-10"	"
		5'			102	5'-9"			12	"	"			102	6'-10"	"
		6'			102	5'-11"			12	4'-10"	2'-8"			102	7'-0"	5'-10"
		7'			102	6'-0"			12	4'-11"	2'-9"			102	7'-1"	5'-11"
	1 @ 6'	3'	#6	12"	110	6'-9"	#6	12"	16	5'-9"	2'-9"	#6	12"	108	7'-10"	6'-8"
		4'			110	6'-9"			16	"	"			108	7'-10"	"
		5'			110	6'-9"			16	"	"			108	7'-10"	"
		6'			108	6'-11"			16	5'-11"	2'-11"			108	8'-0"	6'-10"
		7'			108	7'-0"			16	6'-0"	3'-0"			108	8'-1"	6'-11"
		8'			108	7'-1"			16	6'-1"	3'-1"			108	8'-2"	7'-0"
	1 @ 7'	4'	#6	11"	116	7'-9"	#6	11"	24	6'-10"	2'-3"	#6	11"	116	8'-10"	7'-8"
		5'			116	7'-9"			24	"	"			116	8'-10"	"
		6'			116	7'-11"			24	7'-0"	2'-5"			116	9'-0"	7'-10"
		7'			116	8'-0"			24	7'-1"	2'-6"			116	9'-1"	7'-11"
		8'			116	8'-1"			24	7'-2"	2'-7"			114	9'-2"	8'-0"
		9'			116	8'-3"			24	7'-4"	2'-9"			114	9'-4"	8'-2"
	1 @ 8'	4'	#7	12"	106	8'-9"	#7	12"	24	7'-9"	2'-9"	#6	12"	104	9'-10"	8'-8"
		5'			104	8'-11"			24	7'-11"	2'-11"			104	10'-0"	8'-10"
		6'			104	8'-11"			24	"	"			104	10'-0"	"
		7'			104	9'-0"			24	8'-0"	3'-0"			104	10'-1"	8'-11"
		8'			104	9'-1"			24	8'-1"	3'-1"			104	10'-2"	9'-0"
		9'			104	9'-3"			24	8'-3"	3'-3"			104	10'-4"	9'-2"
		10'			104	9'-5"			28	8'-5"	2'-5"			102	10'-6"	9'-4"
	1 @ 9'	5'	#7	11"	112	9'-11"	#7	11"	32	9'-0"	2'-7"	#6	11"	110	11'-0"	9'-10"
		6'			112	10'-0"			32	9'-1"	2'-8"			110	11'-1"	9'-11"
		7'			112	10'-0"			32	"	"			110	11'-1"	9'-11"
		8'			112	10'-1"			32	9'-2"	2'-9"			110	11'-2"	10'-0"
		9'			112	10'-3"			32	9'-4"	2'-11"			110	11'-4"	10'-2"
		10'			110	10'-5"			32	9'-6"	3'-1"			110	11'-6"	10'-4"
		11'			110	10'-7"			32	9'-8"	3'-3"			110	11'-8"	10'-6"
	1 @ 10'	5'	#7	12"	100	10'-11"	#7	12"	32	9'-11"	2'-11"	#7	12"	100	12'-2"	10'-10"
		6'			100	11'-0"			32	10'-0"	3'-0"			100	12'-3"	10'-11"
		7'			100	11'-0"			32	"	"			100	12'-3"	"
		8'			100	11'-1"			32	10'-1"	3'-1"			100	12'-4"	11'-0"
		9'			100	11'-3"			32	10'-3"	3'-3"			100	12'-6"	11'-2"
		10'			100	11'-5"			36	10'-5"	2'-5"			98	12'-8"	11'-4"
		11'			100	11'-7"			36	10'-7"	2'-7"			98	12'-10"	11'-6"
		12'			100	11'-9"			36	10'-9"	2'-9"			98	13'-0"	11'-8"
	1 @ 11'	6'	#7	11"	108	12'-1"	#7	11"	40	11'-2"	2'-11"	#7	11"	106	13'-4"	12'-0"
		7'			106	12'-1"			40	"	"			106	13'-4"	"
		8'			106	12'-1"			40	"	"			106	13'-4"	"
		9'			106	12'-3"			40	11'-4"	3'-1"			106	13'-6"	12'-2"
		10'			106	12'-5"			44	11'-6"	2'-4"			106	13'-8"	12'-4"
		11'			106	12'-7"			44	11'-8"	2'-6"			106	13'-10"	12'-6"
		12'			106	12'-9"			44	11'-10"	2'-8"			104	14'-0"	12'-8"
	1 @ 12'	6'	#8	12"	96	13'-1"	#8	12"	40	12'-1"	3'-1"	#7	12"	96	14'-4"	13'-0"
		7'			96	13'-1"			40	"	"			96	14'-4"	"
		8'			96	13'-1"			40	"	"			96	14'-4"	"
		9'			96	13'-3"			40	12'-3"	3'-1"			96	14'-6"	13'-2"
		10'			96	13'-5"			44	12'-5"	2'-5"			94	14'-8"	13'-4"
		11'			96	13'-7"			44	12'-7"	2'-7"			94	14'-10"	13'-6"
		12'			96	13'-9"			44	12'-9"	2'-9"			94	15'-0"	13'-8"

"b₁" bars: BENT – In Top and Bottom Slabs of Barrel- one end hooked. (Four of each Length) Alternate with "a₁" bars. "d" bars: STRAIGHT – Longitudinal in Top Slab of Barrel. "d₁" bars: Longitudinal in Sidewalls. "e" bars: Longitudinal in Bottom Slab of Barrel.

S	H	"b₁" Size	"b₁" Spacing	"b₁" No. Reqd	"b₁" Length Max.	"b₁" Length Min.	"b₁" X Max.	"b₁" X Min.	"d" Size	"d" Spacing	"d" No. Reqd	"d" Length	"d₁" Size	"d₁" Spacing	"d₁" No. Reqd	"d₁" Length	"e" Size	"e" Spacing	"e" No. Reqd	"e" Length
1 @ 4'	2'	#6	13"	8	4'-9"	3'-8"	4'-2"	3'-1"	#5	10½"	6	2 @ 30'-8", for 60'-0" Length Barrel. (1'-8" Lap)	#4	12"	4	2 @ 30'-6", for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	5	2 @ 31'-10", for 60'-0" Length Barrel. (1'-3" Lap)
	3'			8	"	"	"	"			6				6				5	
	4'			8	"	"	"	"			6				8				5	
	5'			8	"	"	"	"			6				10				5	
	6'			8	4'-11"	3'-10"	4'-4"	3'-3"			6				12				5	
1 @ 5'	3'	#6	13"	12	5'-9"	3'-7"	5'-2"	3'-0"	#5	10½"	7		#4	12"	6		#4	12"	6	
	4'			12	"	"	"	"			7				8				6	
	5'			12	"	"	"	"			7				10				6	
	6'			12	5'-11"	3'-9"	5'-4"	3'-2"			7				12				6	
	7'			12	6'-0"	3'-10"	5'-5"	3'-3"			7				14				6	
1 @ 6'	3'	#6	12"	16	6'-9"	3'-9"	6'-2"	3'-2"	#5	10½"	8		#4	12"	6		#4	12"	7	
	4'			16	"	"	"	"			8				8				7	
	5'			16	"	"	"	"			8				10				7	
	6'			20	6'-11"	2'-11"	6'-4"	2'-4"			8				12				7	
	7'			20	7'-0"	3'-0"	6'-5"	2'-5"			8				14				7	
	8'			20	7'-1"	3'-1"	6'-6"	2'-6"			8				16				7	
1 @ 7'	4'	#6	11"	24	7'-10"	3'-3"	7'-3"	2'-8"	#5	10½"	9		#4	12"	8		#4	12"	8	
	5'			24	"	"	"	"			9				10				8	
	6'			24	8'-0"	3'-5"	7'-5"	2'-10"			9				12				8	
	7'			24	8'-1"	3'-6"	7'-6"	2'-11"			9				14				8	
	8'			24	8'-2"	3'-7"	7'-7"	3'-0"			9				16				8	
	9'			24	8'-4"	3'-9"	7'-9"	3'-2"			9				18				8	
1 @ 8'	4'	#6	12"	24	8'-9"	3'-9"	8'-2"	3'-2"	#5	10"	11		#4	12"	8		#4	12"	9	
	5'			28	8'-11"	2'-11"	8'-4"	2'-4"			11				10				9	
	6'			28	"	"	"	"			11				12				9	
	7'			28	9'-0"	3'-0"	8'-5"	2'-5"			11				14				9	
	8'			28	9'-1"	3'-1"	8'-6"	2'-6"			11				16				9	
	9'			28	9'-3"	3'-3"	8'-8"	2'-8"			11				18				9	
	10'			28	9'-5"	3'-5"	8'-10"	2'-10"			11				20				9	
1 @ 9'	5'	#6	11"	32	10'-0"	3'-7"	9'-5"	3'-0"	#5	10"	12		#4	12"	10		#4	12"	10	
	6'			32	10'-1"	3'-8"	9'-6"	3'-1"			12				12				10	
	7'			32	"	"	"	"			12				14				10	
	8'			32	10'-2"	3'-9"	9'-7"	3'-2"			12				16				10	
	9'			36	10'-4"	3'-0"	9'-9"	2'-5"			12				18				10	
	10'			36	10'-6"	3'-2"	9'-11"	2'-7"			12				20				10	
	11'			36	10'-8"	3'-4"	10'-1"	2'-9"			12				22				10	
1 @ 10'	5'	#7	12"	36	11'-0"	3'-0"	10'-4"	2'-4"	#5	10"	13		#4	12"	10		#4	12"	11	
	6'			36	11'-1"	3'-1"	10'-5"	2'-5"			13				12				11	
	7'			36	"	"	"	"			13				14				11	
	8'			36	11'-2"	3'-2"	10'-6"	2'-6"			13				16				11	
	9'			36	11'-4"	3'-4"	10'-8"	2'-8"			13				18				11	
	10'			36	11'-6"	3'-6"	10'-10"	2'-10"			13				20				11	
	11'			36	11'-8"	3'-8"	11'-0"	3'-0"			13				22				11	
	12'			36	11'-10"	3'-10"	11'-2"	3'-2"			13				24				11	
1 @ 11'	6'	#7	11"	44	12'-3"	4'-1"	11'-7"	2'-5"	#5	9½"	15		#4	12"	12		#4	12"	12	
	7'			44	"	"	"	"			15				14				12	
	8'			44	"	"	"	"			15				16				12	
	9'			44	12'-5"	4'-3"	11'-9"	2'-7"			15				18				12	
	10'			44	12'-7"	4'-5"	11'-11"	2'-9"			15				20				12	
	11'			44	12'-9"	4'-7"	12'-1"	2'-11"			15				22				12	
	12'			44	12'-11"	4'-9"	12'-3"	3'-1"			15				24				12	
1 @ 12'	6'	#7	12"	44	13'-2"	3'-2"	12'-6"	2'-6"	#5	9½"	16		#4	12"	12		#4	12"	13	
	7'			44	"	"	"	"			16				14				13	
	8'			44	"	"	"	"			16				16				13	
	9'			44	13'-4"	3'-4"	12'-8"	2'-8"			16				18				13	
	10'			44	13'-6"	3'-6"	12'-10"	2'-10"			16				20				13	
	11'			44	13'-8"	3'-8"	13'-0"	3'-0"			16				22				13	
	12'			44	13'-10"	3'-10"	13'-2"	3'-2"			16				24				13	

"f" bars: STRAIGHT – Verticals in Sidewalls. "k₁" bars: STRAIGHT – In Bottom of Headwall. "k₂" bars: In Top of Headwall and Apron. (2 Each)

S	H	"f" Size	"f" Spacing	"f" No. Reqd	"f" Length	"k₁" Size	"k₁" No. Reqd	"k₁" Length	"k₂" Size	"k₂" No. Reqd	"k₂" Length
1 @ 4'	2'	#4	12"	120	2'-11"	#5	6	6'-9"	#5	8	8'-10"
	3'			120	3'-11"		6	"		8	
	4'			120	4'-11"		6	"		8	"
	5'			120	5'-11"		6	"		8	"
	6'			120	6'-11"		6	6'-11"		8	9'-0"
1 @ 5'	3'	#4	12"	120	4'-0"	#6	6	8'-1"	#6	8	10'-3"
	4'			120	5'-0"		6	"		8	"
	5'			120	6'-0"		6	"		8	"
	6'			120	7'-0"		6	8'-4"		8	10'-5"
	7'			120	8'-0"		6	8'-5"		8	10'-7"
1 @ 6'	3'	#4	12"	120	4'-1"	#6	6	9'-6"	#6	8	11'-7"
	4'			120	5'-1"		6	"		8	"
	5'			120	6'-1"		6	"		8	"
	6'			120	7'-1"		6	9'-9"		8	11'-10"
	7'			120	8'-1"		6	9'-10"		8	12'-0"
	8'	#5	12"	120	9'-1"		6	10'-0"		8	12'-1"
1 @ 7'	4'	#4	12"	120	5'-2"	#7	6	10'-11"	#7	8	13'-0"
	5'			120	6'-2"		6	"		8	"
	6'			120	7'-2"		6	11'-2"		8	13'-3"
	7'			120	8'-2"		6	11'-3"		8	13'-5"
	8'		10"	144	9'-2"		6	11'-4"		8	13'-6"
	9'	#5	12"	120	10'-2"		6	11'-7"		8	13'-9"
1 @ 8'	4'	#4	12"	120	5'-4"	#7	6	12'-4"	#7	8	14'-5"
	5'			120	6'-4"		6	12'-7"		8	14'-8"
	6'			120	7'-4"		6	"		8	"
	7'			120	8'-4"		6	12'-8"		8	14'-10"
	8'		10"	144	9'-4"		6	12'-10"		8	14'-11"
	9'	#5	12"	120	10'-4"		6	13'-0"		8	15'-2"
	10'		11"	132	11'-4"		6	13'-3"		8	15'-5"
1 @ 9'	5'	#4	12"	120	6'-5"	#8	6	14'-0"	#8	8	16'-1"
	6'			120	7'-5"		6	14'-1"		8	16'-3"
	7'			120	8'-5"		6	"		8	"
	8'		10"	144	9'-5"		6	14'-2"		8	16'-4"
	9'	#5	12"	120	10'-5"		6	14'-5"		8	16'-7"
	10'		11"	132	11'-5"		6	14'-8"		8	16'-10"
	11'		10"	144	12'-5"		6	14'-11"		8	17'-0"
1 @ 10'	5'	#4	12"	120	6'-6"	#8	6	15'-5"	#8	8	17'-6"
	6'			120	7'-6"		6	15'-6"		8	17'-8"
	7'			120	8'-6"		6	"		8	"
	8'		10"	144	9'-6"		6	15'-7"		8	17'-9"
	9'	#5	12"	120	10'-6"		6	15'-10"		8	18'-0"
	10'		11"	132	11'-6"		6	16'-1"		8	18'-3"
	11'		10"	144	12'-6"		6	16'-4"		8	18'-5"
	12'	#6	12"	120	13'-6"		6	16'-7"		8	18'-8"
1 @ 11'	6'	#4	12"	120	7'-7"	#9	6	17'-0"	#9	8	19'-2"
	7'			120	8'-7"		6	"		8	"
	8'		10"	144	9'-7"		6	"		8	"
	9'	#5	12"	120	10'-7"		6	17'-3"		8	19'-5"
	10'		11"	132	11'-7"		6	17'-6"		8	19'-8"
	11'		10"	144	12'-7"		6	17'-9"		8	19'-10"
	12'	#6	12"	120	13'-7"		6	18'-0"		8	20'-1"
1 @ 12'	6'	#4	12"	120	7'-9"	#9	6	18'-5"	#9	8	20'-7"
	7'			120	8'-9"		6	"		8	"
	8'		10"	144	9'-9"		6	"		8	"
	9'	#5	12"	120	10'-9"		6	18'-8"		8	20'-10"
	10'		11"	132	11'-9"		6	18'-11"		8	21'-1"
	11'		10"	144	12'-9"		6	19'-2"		8	21'-3"
	12'	#6	12"	120	13'-9"		6	19'-5"		8	21'-6"

These bars are in the skewed portion of barrel only. The length of "a₁" bars and overall length X of "b₁" bars vary by 1'-1" for 13" spacing, 1'-0" for 12" spacing and 0'-11" for 11" spacing.

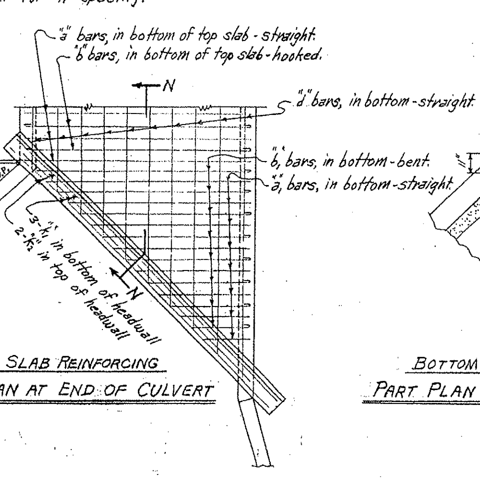
BAR SIZE	PIN DIAM	K	ADD FOR HOOKS	BENDING DIAGRAMS FOR BARS "b" & "b₁"
#6	3"	5"	1'-2"	2 Hooks – "b" bars
#7	3½"	5¾"	1'-4"	
#6	3"	5"	0'-7"	1 Hook – "b₁" bars
#7	3½"	5¾"	0'-8"	

NOTE:- Dimensions are to centers of bars. ("b" and "b₁")

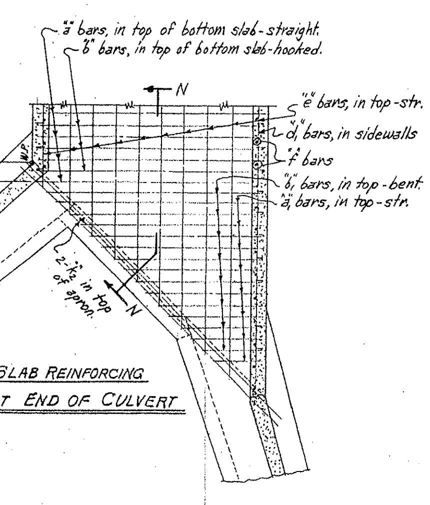
DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQD	LENGTH	X
4'	#4	12"±	16	2'-6"	1'-3"
5'	#4	12"±	18	2'-7"	1'-3½"
6'	#4	12"±	22	2'-8"	1'-4"
7'	#4	12"±	24	2'-9"	1'-4½"
8'	#4	12"±	28	2'-11"	1'-5½"
9'	#4	12"±	30	3'-0"	1'-6"
10'	#4	12"±	34	3'-1"	1'-6½"
11'	#4	12"±	36	3'-2"	1'-7"
12'	#4	12"±	40	3'-3"	1'-7½"

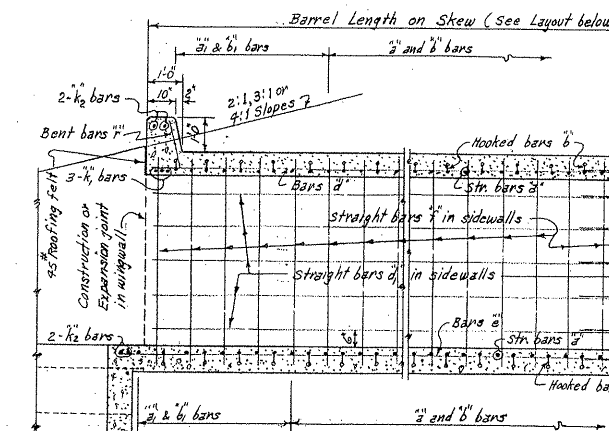
Dowel bars "r" in Two Headwalls



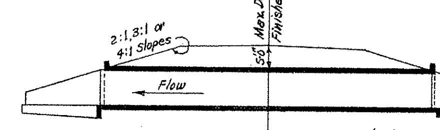
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT



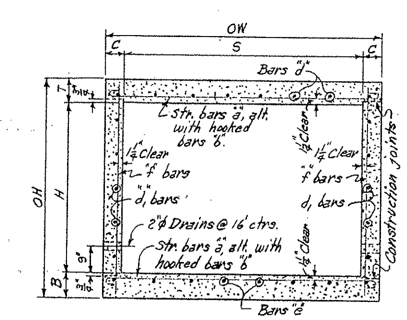
BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT



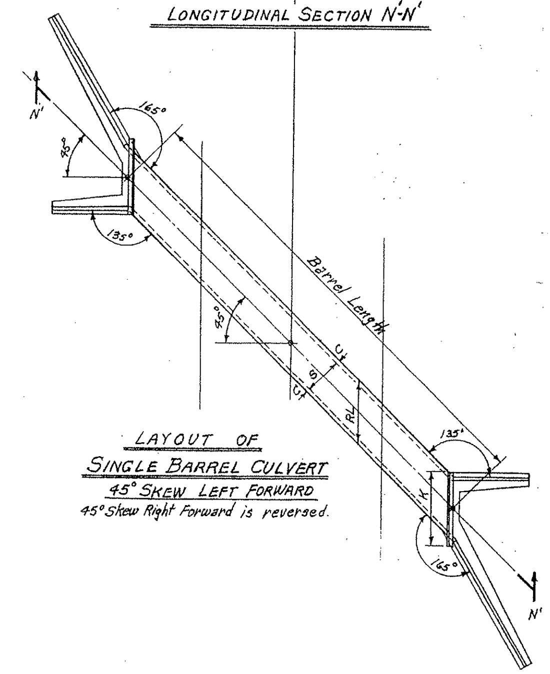
SECTION N-N



LONGITUDINAL SECTION N-N'



TYPICAL SECTION M-M



LAYOUT OF
SINGLE BARREL CULVERT
45° SKEW LEFT FORWARD
45° Skew Right Forward is reversed.

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.

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 min.
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.

BARREL DIMENSIONS / * QUANTITIES

D = Max. Design Depth of Cover; S = Clear Spans; H = Clear Height; A = Sq. Ft. Opening; OW = Overall Width; T = Thickness of Top Slab; C = Thickness of Sidewalls; B = Thickness of Bottom Slab; OH = Overall Height; RL = Roadway Length; K = Length of Headwall.

D	S	H	A	OW	T	C	B	OH	RL	K	Class S Conc. per Lin. Ft. of Barrel Cu.Yd.	Reinforcing Steel: Total for 60'-0" Length of Barrel Lb.	Per Lin. Ft. of Barrel Lb.	Additional per Lap Lb.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	7'-0⅞"	9'-0⅞"	0.282	2635	41.49	17.95
		3'	12	5'-0"		6"		4'-1½"	"	"	0.319	2797	44.16	19.62
		4'	16	5'-0"		6"		5'-1½"	"	"	0.356	2958	46.83	21.29
		5'	20	5'-0"		6"		6'-1½"	"	"	0.394	3120	49.50	22.96
		6'	24	5'-2"		7"		7'-1½"	7'-3⅝"	9'-3⅝"	0.474	3336	52.96	24.63
	1 @ 5'	3'	15	6'-0"	7½"	6"	7"	4'-2½"	8'-5⅞"	10'-5⅞"	0.380	3572	55.55	22.19
		4'	20	6'-0"		6"		5'-2½"	"	"	0.417	3733	58.23	23.86
		5'	25	6'-0"		6"		6'-2½"	"	"	0.454	3895	60.90	25.53
		6'	30	6'-2"		7"		7'-2½"	8'-8⅜"	10'-8⅜"	0.535	4115	64.49	27.20
		7'	35	6'-3"		7½"		8'-2½"	8'-10⅞"	10'-10⅞"	0.604	4308	67.63	28.87
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	9'-10¾"	11'-10¾"	0.446	4260	66.29	24.76
		4'	24	7'-0"		6"		5'-3½"	"	"	0.483	4421	68.96	26.43
		5'	30	7'-0"		6"		6'-3½"	"	"	0.520	4583	71.64	28.10
		6'	36	7'-2"		7"		7'-3½"	10'-1⅛"	12'-1⅛"	0.602	4813	75.31	29.77
		7'	42	7'-3"		7½"		8'-3½"	10'-3"	12'-3"	0.671	5008	78.48	31.44
		8'	48	7'-4"		8"		9'-3½"	10'-4½"	12'-4½"	0.746	5610	88.47	33.11
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	11'-3¾"	13'-3¾"	0.568	5303	81.32	29.01
		5'	35	8'-0"		6"		6'-5"	"	"	0.605	5464	84.00	30.68
		6'	42	8'-2"		7"		7'-5"	11'-6⅝"	13'-6½"	0.688	5700	87.76	32.35
		7'	49	8'-3"		7½"		8'-5"	11'-8"	13'-8"	0.757	5901	90.98	34.02
		8'	56	8'-4"		8"		9'-5"	11'-9⅜"	13'-9⅜"	0.832	6219	96.65	35.69
		9'	63	8'-6"		9"		10'-5"	12'-0¼"	14'-0¼"	0.946	6976	105.59	37.36
	1 @ 8'	4'	32	9'-0"	9½"	6"	9½"	5'-7"	12'-8¾"	14'-8¾"	0.676	6196	95.26	33.32
		5'	40	9'-2"		7"		6'-7"	12'-11⅝"	14'-11½"	0.754	6423	99.12	34.99
		6'	48	9'-2"		7"		7'-7"	"	"	0.797	6584	101.79	36.66
		7'	56	9'-3"		7½"		8'-7"	13'-1"	15'-1"	0.867	6788	105.05	38.33
		8'	64	9'-4"		8"		9'-7"	13'-2½"	15'-2½"	0.942	7141	110.81	40.00
		9'	72	9'-6"		9"		10'-7"	13'-5¼"	15'-5¼"	1.057	7701	119.92	41.67
		10'	80	9'-8"		10"		11'-7"	13'-8"	15'-8"	1.184	8121	126.67	43.34
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	14'-4½"	16'-4½"	0.844	7535	114.72	37.56
		6'	54	10'-3"		7½"		7'-8"	14'-6"	16'-6"	0.910	7745	118.04	39.23
		7'	63	10'-3"		7½"		8'-8"	"	"	0.957	7906	120.71	40.90
		8'	72	10'-4"		8"		9'-8"	14'-7⅜"	16'-7¼"	1.033	8264	126.54	42.57
		9'	81	10'-6"		9"		10'-8"	14'-10¼"	16'-10¼"	1.148	8856	135.80	44.24
		10'	90	10'-8"		10"		11'-8"	15'-1"	17'-1"	1.276	9248	142.68	45.91
		11'	99	10'-10"		11"		12'-8"	15'-3⅞"	17'-3¾"	1.416	9717	150.40	47.58
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"	15'-9½"	17'-9½"	0.957	8572	130.64	40.13
		6'	60	11'-3"		7½"		7'-9½"	15'-11"	17'-11"	1.024	8784	133.99	41.80
		7'	70	11'-3"		7½"		8'-9½"	"	"	1.071	8946	136.66	43.47
		8'	80	11'-4"		8"		9'-9½"	16'-0⅜"	18'-0¼"	1.147	9308	142.55	45.14
		9'	90	11'-6"		9"		10'-9½"	16'-3⅜"	18'-3¼"	1.263	9891	151.92	46.81
		10'	100	11'-8"		10"		11'-9½"	16'-6"	18'-6"	1.391	10,310	158.89	48.48
		11'	110	11'-10"		11"		12'-9½"	16'-8⅞"	18'-8¾"	1.532	10,785	166.71	50.15
		12'	120	12'-0"		12"		13'-9½"	16'-11⅝"	18'-11¾"	1.685	11,524	178.67	51.82
	1 @ 11'	6'	66	12'-4"	11"	8"	11½"	7'-10½"	17'-5¾"	19'-5¾"	1.153	10,378	155.16	46.12
		7'	77	12'-4"		8"		8'-10½"	"	"	1.202	10,539	157.83	47.79
		8'	88	12'-4"		8"		9'-10½"	"	"	1.252	10,855	163.06	49.46
		9'	99	12'-6"		9"		10'-10½"	17'-8⅝"	19'-8¾"	1.368	11,493	172.60	51.13
		10'	110	12'-8"		10"		11'-10½"	17'-11"	19'-11"	1.497	11,886	179.70	52.80
		11'	121	12'-10"		11"		12'-10½"	18'-1⅞"	20'-1¾"	1.638	12,374	187.67	54.47
		12'	132	13'-0"		12"		13'-10½"	18'-4⅝"	20'-4½"	1.792	13,071	199.79	56.14
	1 @ 12'	6'	72	13'-4"	11¾"	8"	12¼"	8'-0"	18'-10⅞"	20'-10¾"	1.284	11,420	172.20	48.69
		7'	84	13'-4"		8"		9'-0"	"	"	1.333	11,581	174.87	50.36
		8'	96	13'-4"		8"		10'-0"	"	"	1.383	11,899	180.15	52.03
		9'	108	13'-6"		9"		11'-0"	19'-1⅝"	21'-1"	1.500	12,500	189.85	53.70
		10'	120	13'-8"		10"		12'-0"	19'-3⅞"	21'-4"	1.630	12,948	197.07	55.37
		11'	132	13'-10"		11"		13'-0"	19'-6¾"	21'-6¾"	1.772	13,446	205.16	57.04
		12'	144	14'-0"		12"		14'-0"	19'-9⅝"	21'-9½"	1.926	14,212	217.45	58.71

* For remainder of quantities see Std. Wing Drawings listed at left.
Total steel quantities listed above include one lap of longitudinal bars.

Designed by:- W.C.H. 1-23-63. Checked by:- R.H.S. 5-8-63
Drawn by:- W.C.H. 7-10-64 Checked by:-
Quantities by:- W.C.H. 9-30-64 Checked by:-

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS SINGLES
2:1, 3:1 OR 4:1 SLOPES UNDER 5'-0" COVER

STANDARD DRAWING NO. R-145X-0