DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	1	116
				(2)	BEAR CREEK & SO. FOURCHE LA FAVE RIVER STRS. & APPRS. (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

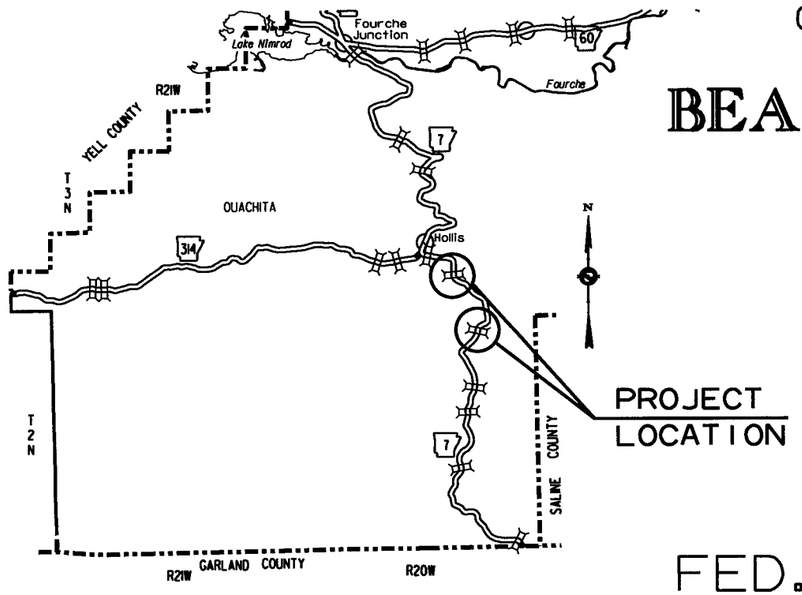
BEAR CREEK & SO. FOURCHE LA FAVE RIVER STRS. & APPRS. (S)

PERRY COUNTY

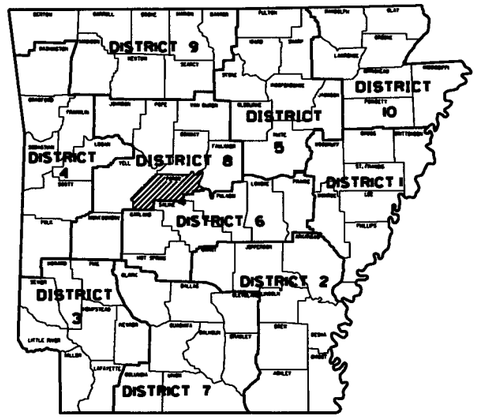
ROUTE 7 SECTION II

JOB 080439

FED. AID PROJ. NHPP-0053(29)



VICINITY MAP



ARK. HWY. DIST. NO. 8

BRIDGE DATA

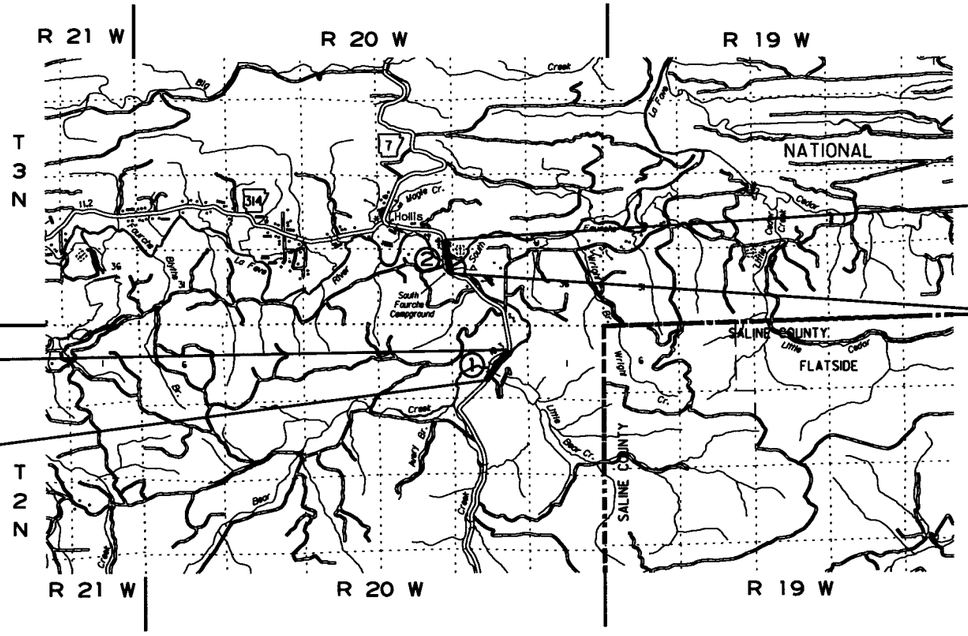
① STA. 107+88.72 - BRIDGE END
BRIDGE NO. 07415
420'-0" CONT. W-BEAM UNIT
(75'-90'-90'-90'-75')
34'-0" CLEAR ROADWAY
422'-6⅝" TOTAL LENGTH
STA. 112+11.27 - BRIDGE END

② STA. 211+60.72 - BRIDGE END
BRIDGE NO. 07416
248'-0" CONT. W-BEAM UNIT (77'-94'-77')
248'-0" CONT. W-BEAM UNIT (77'-94'-77')
34'-0" CLEAR ROADWAY
498'-6⅝" TOTAL LENGTH
STA. 216+59.27 - BRIDGE END

STA. 120+80.00
END SITE 1

STA. 100+00.00
BEGIN JOB 080439 &
SITE 1 - LOG MILE 6.95

NOT TO SCALE



STA. 229+50.30
END JOB 080439 &
SITE 2

STA. 201+00.00
BEGIN SITE 2 - LOG MILE 8.81

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2037
2017 ADT	1100
2037 ADT	1300
2037 DHV	143
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	10%
DESIGN SPEED	55 MPH

		BEGIN PROJECT	MIDPOINT OF PROJECT	END PROJECT
SITE 1	LAT.	N 34°50'54"	N 34°51'03"	N 34°51'11"
	LONG.	W 93°06'06"	W 93°06'01"	W 93°05'52"
SITE 2	LAT.	N 34°52'07"	N 34°52'19"	N 34°52'33"
	LONG.	W 93°06'31"	W 93°06'39"	W 93°06'39"

GROSS LENGTH OF PROJECT	4930.30	FEET	OR	0.934	MILES
NET " " ROADWAY	4009.20	"	"	0.760	"
NET " " BRIDGES	920.90	"	"	0.174	"
NET " " PROJECT	4930.30	"	"	0.934	"

P.E. JOB 080439

APPROVED

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

9-29-17

DEPUTY DIRECTOR
AND CHIEF ENGINEER

4/4/2014

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	2	116

(2) INDEX OF SHEETS & STANDARD DRAWINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

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80 - 116	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
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-8	GUARD RAIL DETAILS	7-14-10
GR-8A	GUARD RAIL DETAILS	7-14-10
GR-9	GUARD RAIL DETAILS	4-17-08
GR-9A	GUARD RAIL DETAILS	4-17-08
GR-10	GUARD RAIL DETAILS	7-14-10
GR-10A	GUARD RAIL DETAILS	7-14-10
GRT-1	GUARD RAIL DETAILS	7-14-10
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	2-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	2-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	2-27-14
PM-1	PAVEMENT MARKING DETAILS	6-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	4-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	9-02-15
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	2-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
TEC-1	TEMPORARY EROSION CONTROL DEVICES	12-15-11
TEC-2	TEMPORARY EROSION CONTROL DEVICES	6-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
TEC-4	TEMPORARY EROSION CONTROL DEVICES	7-26-12
WF-2	WIRE FENCE WATER GAPS	4-20-79
WF-4	WIRE FENCE TYPE C AND D	8-22-02

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	2-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	2-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	3-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	9-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	2-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	1-17-17
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	3-24-16
55030C	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	2-27-14
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	2-27-14

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INDEX OF SHEETS & STANDARD DRAWINGS

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10-31-17				6	ARK.			
11-9-17				JOB NO.		080439	3	116

(2) GOVERNING SPECIFICATIONS & GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-9-17

GOVERNING SPECIFICATIONS

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

NUMBER **TITLE**

ERRATA____ ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__ REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__ SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__ SUPPLEMENT - TRAINING PROGRAM - JOB 080439
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
303-1_____ AGGREGATE BASE COURSE
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
620-1_____ MULCH COVER
JOB 080439__ ARCHITECTURAL FINISH
JOB 080439__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 080439__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080439__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080439__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 080439__ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 080439__ CONSTRUCTION PROJECT INFORMATION SIGN
JOB 080439__ DELAY IN RIGHT OF WAY OCCUPANCY
JOB 080439__ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 080439__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 080439__ DRILLED SHAFT FOUNDATIONS
JOB 080439__ EROSION CONTROL MATTING
JOB 080439__ EXTENSION FOR PIPE CULVERTS
JOB 080439__ FOREST SERVICE REQUIREMENTS
JOB 080439__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080439__ MANDATORY ELECTRONIC CONTRACT
JOB 080439__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 080439__ NATIVE STONE FOR DITCH LINER
JOB 080439__ NATIVE STONE FOR RIPRAP
JOB 080439__ NESTING SITES OF MIGRATORY BIRDS
JOB 080439__ NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 080439__ OFF-SITE RESTRAINING CONDITIONS FOR NORTHERN LONG-EARED BATS
JOB 080439__ PARTNERING REQUIREMENTS
JOB 080439__ PLASTIC PIPE
JOB 080439__ PROTECTION OF WATER QUALITY AND WETLANDS
JOB 080439__ REMOVING AND REPLACING TOPSOIL
JOB 080439__ RESTRAINING CONDITIONS
JOB 080439__ ROCK FILL
JOB 080439__ RUMBLE STRIPS
JOB 080439__ SECTION 404 INDIVIDUAL PERMIT REQUIREMENTS
JOB 080439__ SHORING FOR CULVERTS
JOB 080439__ SOIL STABILIZATION
JOB 080439__ SPECIAL SEEEDING REQUIREMENTS
JOB 080439__ STAINING CONCRETE SURFACES
JOB 080439__ STORM WATER POLLUTION PREVENTION PLAN
JOB 080439__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080439__ UTILITY ADJUSTMENTS
JOB 080439__ VALUE ENGINEERING
JOB 080439__ WARM MIX ASPHALT
JOB 080439__ WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6/14/2017
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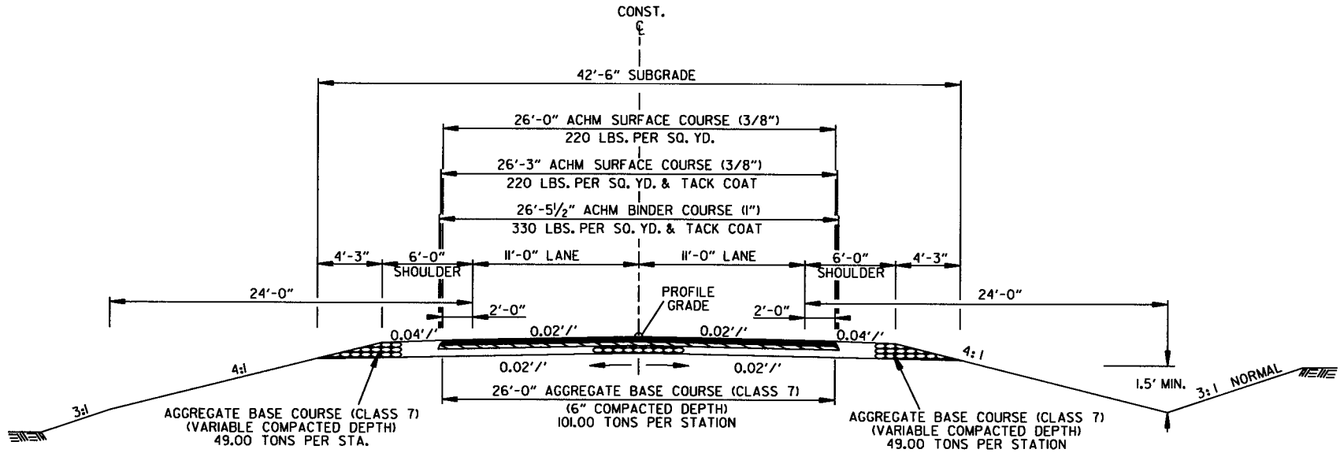
				6	ARK.			
				JOB NO.		080439	4	116

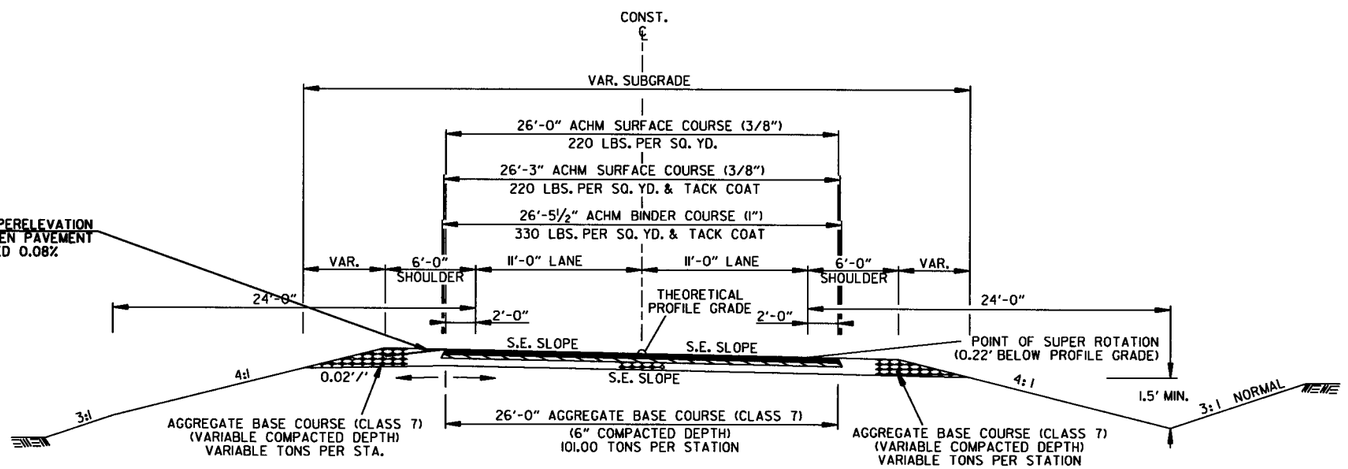
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-27-17



TYPICAL SECTION OF IMPROVEMENT
TANGENT

STA. 217+05.57 APPROACH SLAB - STA. 222+98.48



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

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

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

TYPICAL SECTION OF IMPROVEMENT
SUPERELEVATION

STA. 104+25.00 - STA. 107+42.40 APPROACH SLAB
STA. 112+11.78 APPROACH SLAB - STA. 115+85.26
STA. 203+90 - STA. 211+14.42 APPROACH SLAB
STA. 222+98.48 - STA. 227+82.04

7/15/2015

R080439.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
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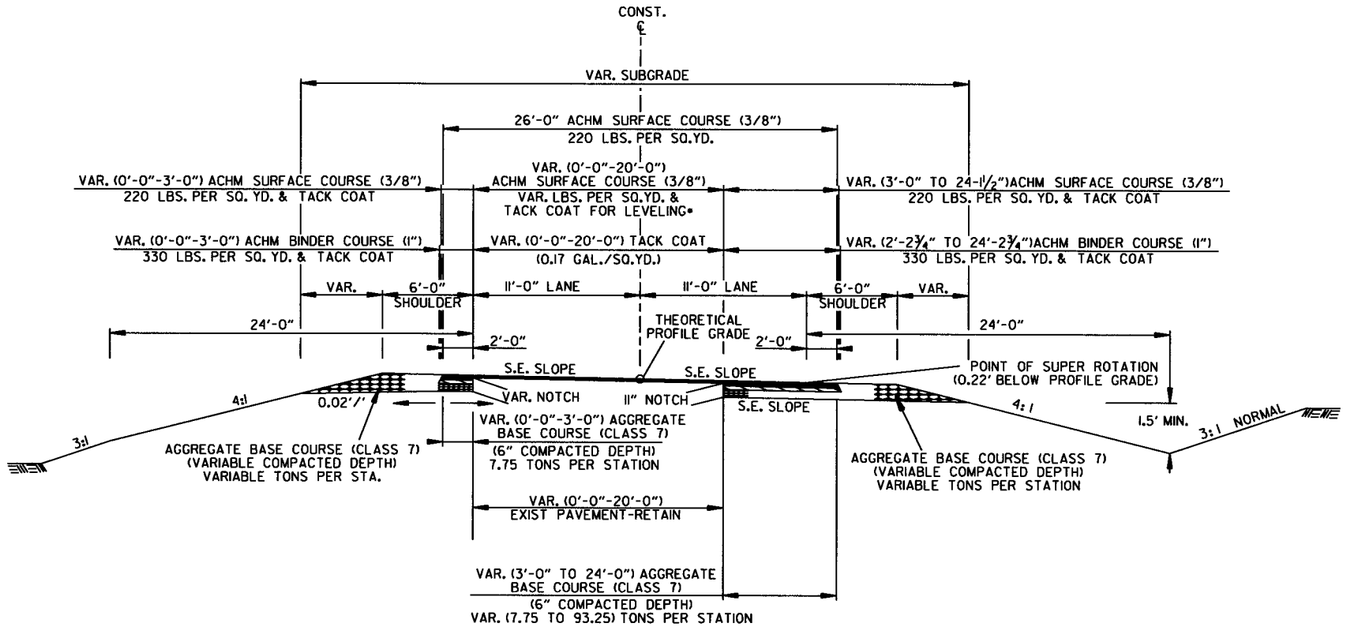
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



TYPICAL SECTION OF IMPROVEMENT SUPERELEVATION

STA. 100+00.00 - STA. 104+25.00
STA. 115+85.26 - STA. 120+80.00
STA. 201+00.00 - STA. 203+90.00
STA. 227+82.04 - STA. 229+50.30

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

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

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

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

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

7/15/2015

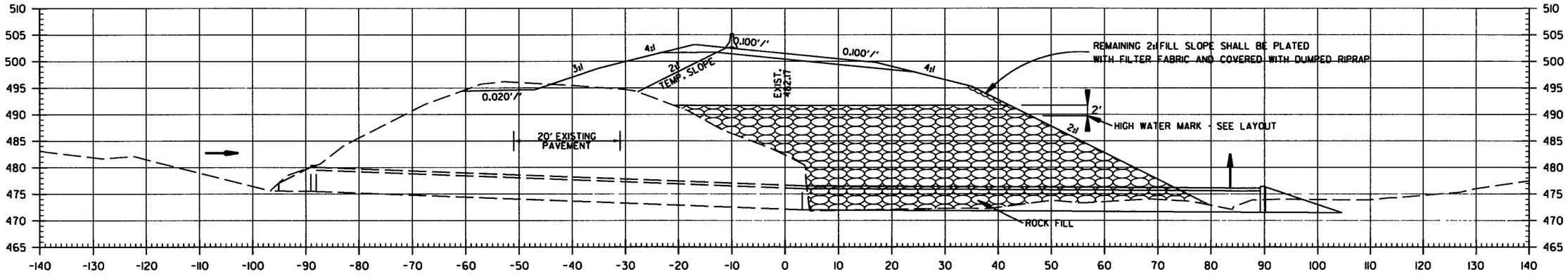
R080439.DGN

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.		080439	6	116

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



ROCK FILL

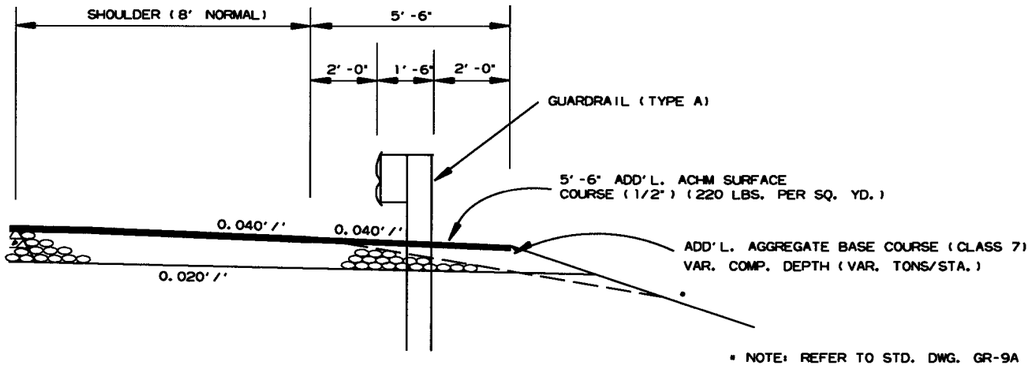
9/12/2017

R080439.DGN

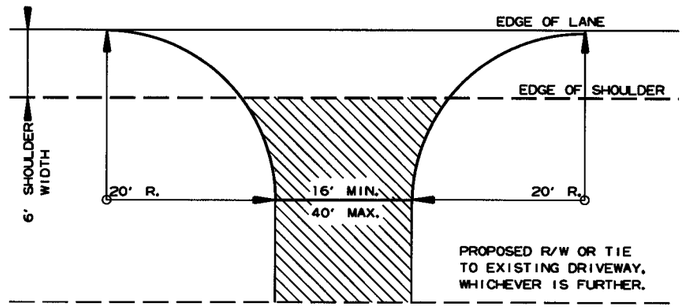
SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	7	116

(2) SPECIAL DETAILS



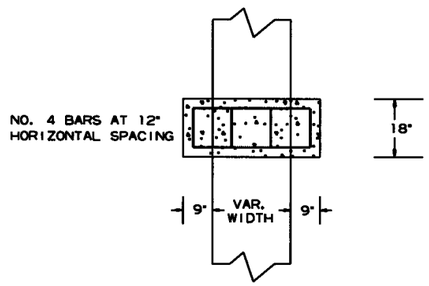
WIDENING FOR GUARDRAIL



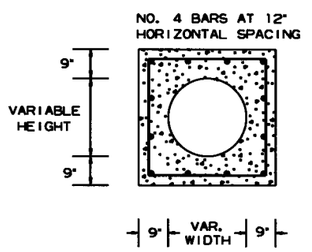
DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)

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

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

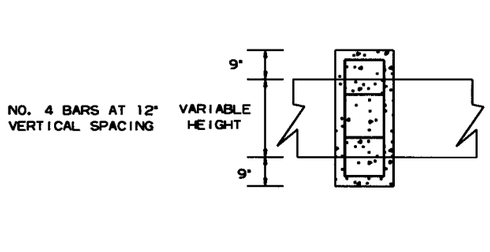


TOP VIEW



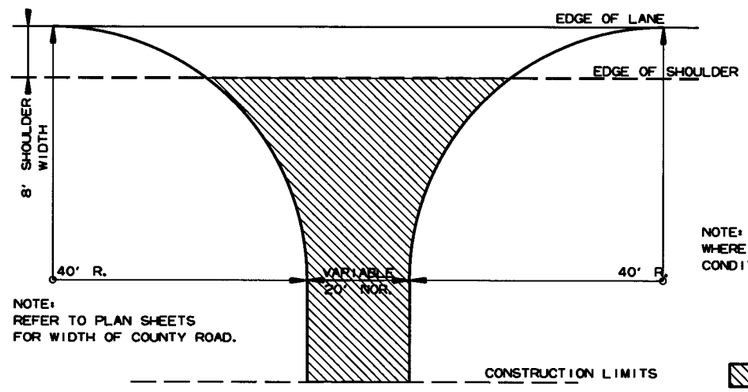
FRONT VIEW

MIN. 3" COVER



SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL



DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

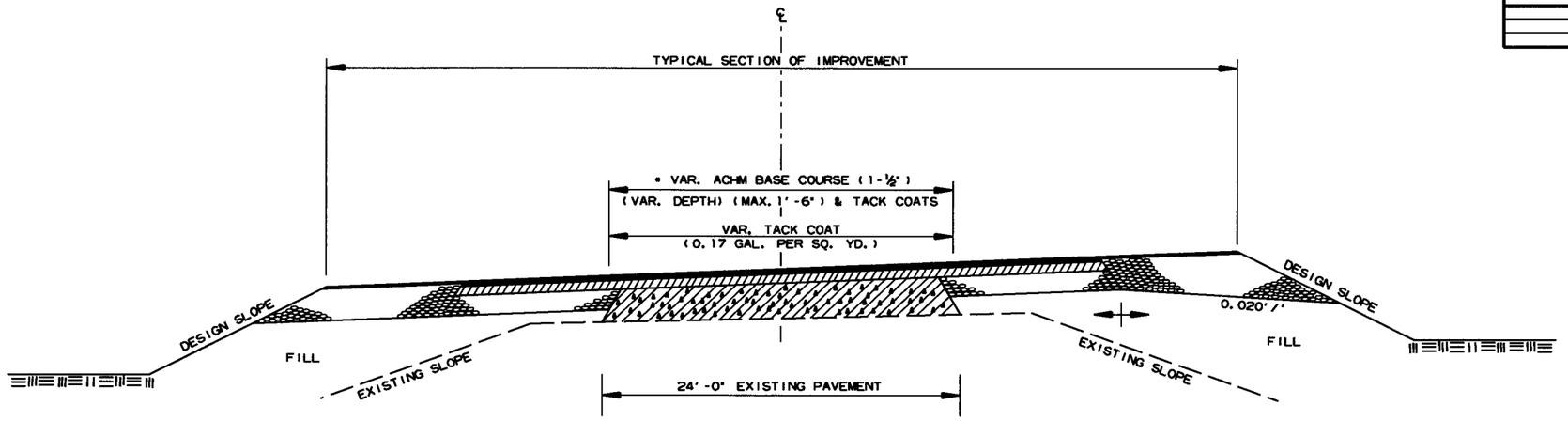
9/12/2017

R080439.DGN

SPECIAL DETAILS

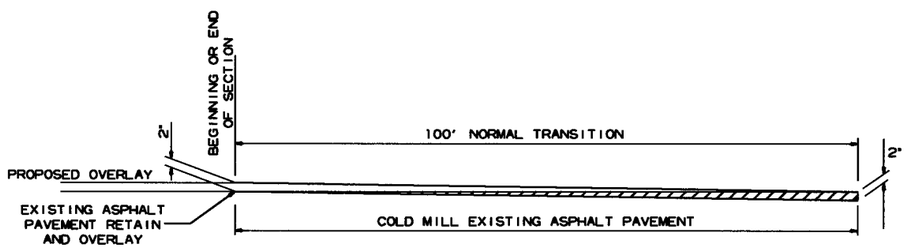
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	8	116

(2) SPECIAL DETAILS

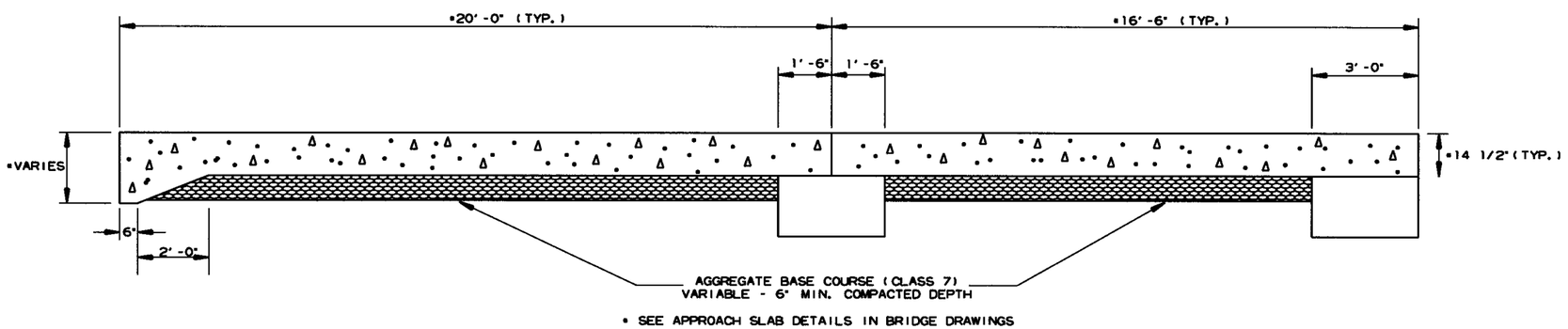


• 6" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BASE COURSE (1-½")

METHOD OF RAISING GRADE



DETAIL FOR TRANSITIONS



• SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB

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.

STATE OF ARKANSAS
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9-29-17

9/12/2017

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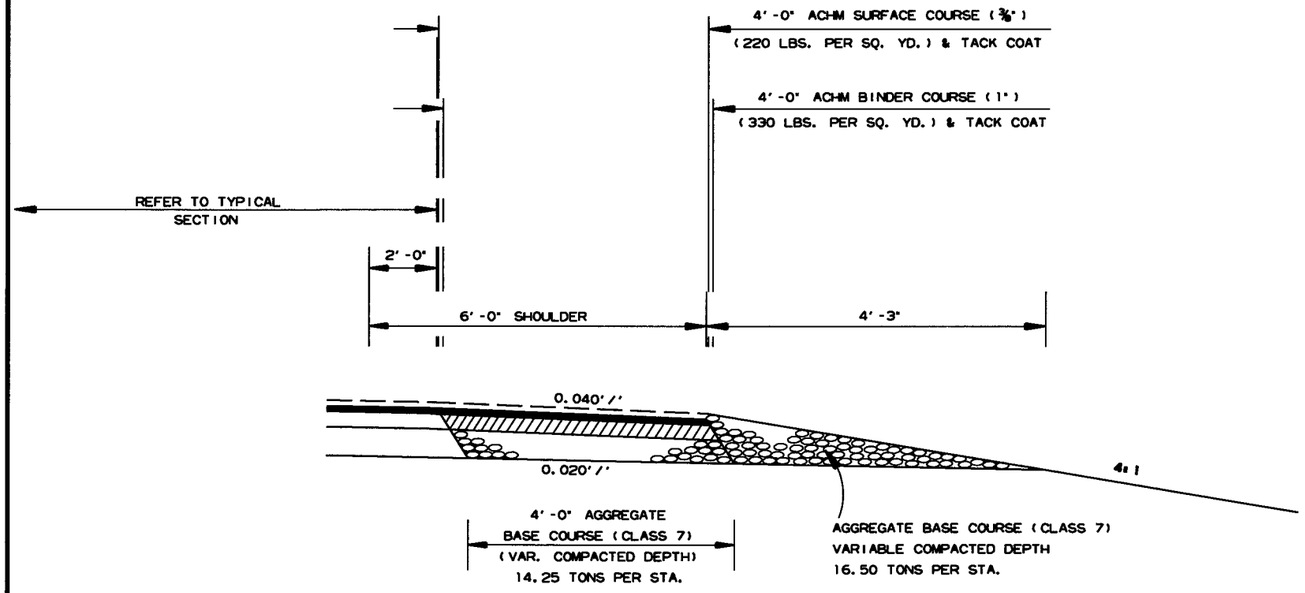
SPECIAL DETAILS

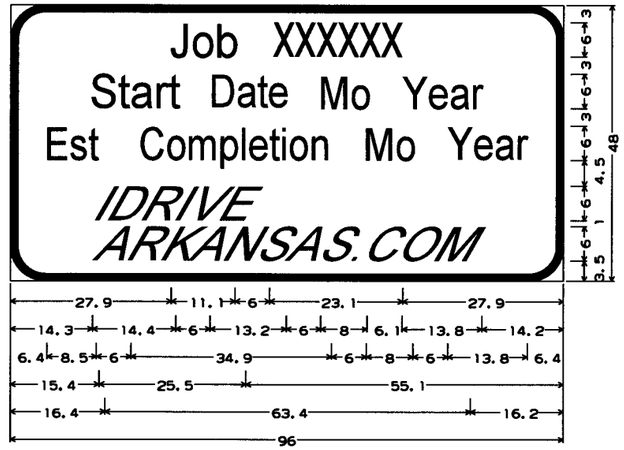
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	9	116

(2) SPECIAL DETAILS



FULL DEPTH SHOULDER FOR MAINTENANCE OF TRAFFIC

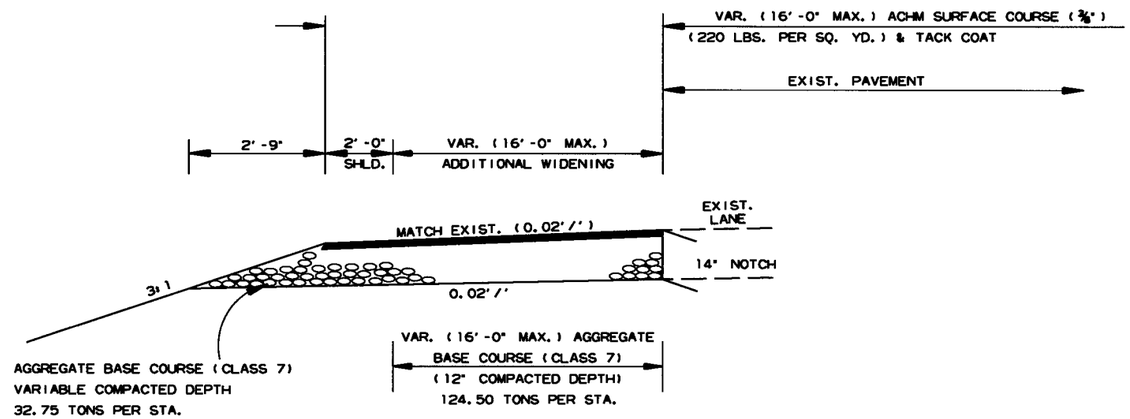
STA. 201+00 - STA. 209+33



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

CONSTRUCTION PROJECT INFORMATION SIGN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-29-17



ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC

STA. 30+10.50 - STA. 34+56.61
STA. 40+04.79 - STA. 42+55.85
STA. 50+00.00 - STA. 57+22.17

9/12/2017

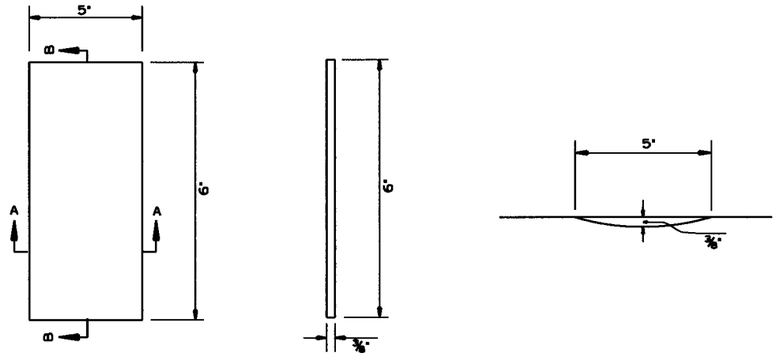
R080439.DGN

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.		080439	10	116

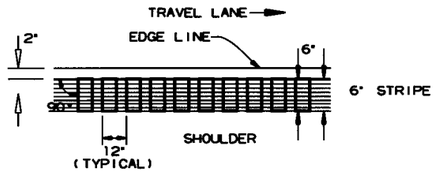
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

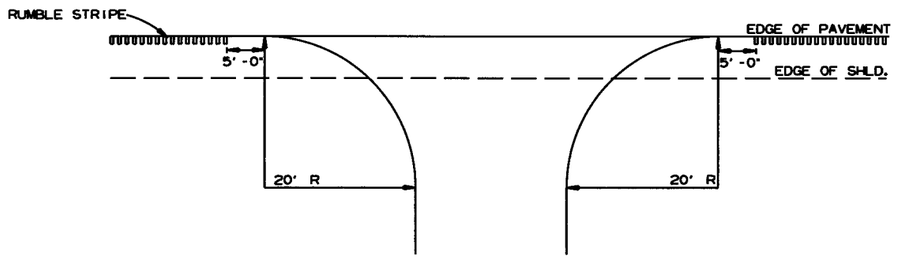


PLAN SECTION B-B SECTION A-A

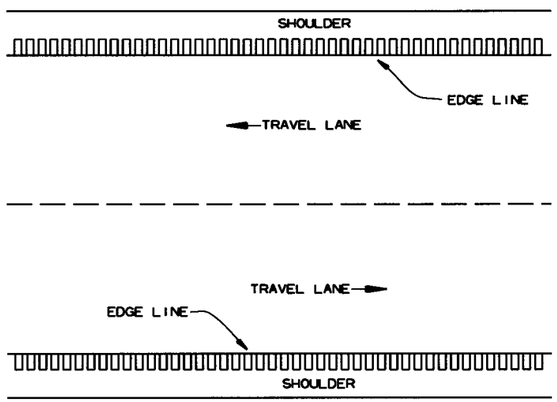
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE
LEFT OR RIGHT SHOULDER



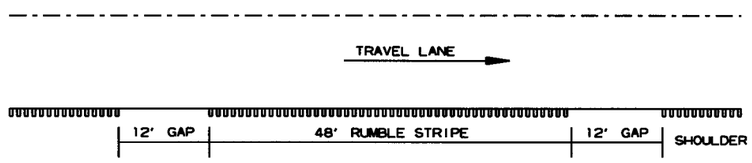
DETAIL FOR RUMBLE STRIPE GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIPE

9/12/2017

R080439.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.		080439	11	116

(2) TEMP. EROSION CONTROL DETAILS - CLEARING & GRUBBING

CLEARING & GRUBBING

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

SILT FENCE (E-11)
(2 LOCATIONS = 2100 LIN. FT.)

SEDIMENT BASIN (E-14)
(1 LOCATION = 93 CU. YD.)

TRIANGULAR SILT DIKE
(1 LOCATION = 50 LIN. FT.)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

98 100 105 110 115 120

POB 98+50.00
98+50.49
40.32'
100' TRANS.
100+00.00
P.C. 102+25.00
103+50.00
70.00
104+00.00
52.34'
P.T. 107+00.00
E-14 +75
93 CU. YD.
E-11 65
EXIST. R/W
PROPOSED R/W
HWY. 7
N 30°15'00" E
N 25°30'00" E
BEAR CREEK
98+50.66
39.68'
100+85.47
65.00'
103+25.00
65.00'
P.I. 104+72.64
105+18.89
100.00'
106+50.00
100.00'
98+00.00
70.00'
SITE I CONST.
BEGIN BRIDGE
STA. 107+88.72
50' VEGETATED BUFFER
RESTRAINING CONDITION
STA. 104+00 - 107+65
SILT FENCE = 640 LIN. FT.

STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE 1- LOG MILE 6.95

P.I. 115+69.56
117+60.37
85.38'
118+50.00
60.00'
120+80.00
65.00'
121+80.00
65.00'
121+80.00
39.14'
END BRIDGE
STA. 112+81.27
112+91.97
117+00.00
65.00'
P.T. 118+41.88
120+00.00
100.00'
121+80.00
100.00'
60.87'
N 59°45'00" E
STA. 110+45 - 120+80
SILT FENCE = 1460 LIN. FT.

STA. 120+80.00
END SITE 1

REVISIONS

DATE	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- △△△ TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

SITE 1 - CLEARING & GRUBBING TEMPORARY EROSION CONTROL DETAILS

3/31/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	12	116

(2) TEMP. EROSION CONTROL DETAILS - CLEARING & GRUBBING

CLEARING & GRUBBING

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

SILT FENCE (E-11)
(2 LOCATIONS = 1020 LIN. FT.)

SEDIMENT BASIN (E-14)
(2 LOCATIONS = 667 CU. YD.)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-29-17

STA. 201+00.00
BEGIN SITE 2
LOG MILE 8.81

STA. 200+00 - 205+50
SILT FENCE = 560 LIN. FT.

STA. 209+00 - 212+00
SILT FENCE = 460 LIN. FT.

111 CU. YD.

556 CU. YD.

556 CU. YD.

BEGIN BRIDGE
STA. 211+60.72

END BRIDGE
STA. 216+59.21

STA. 228+50.30
END JOB 080439
END SITE 2

50' VEGETATED BUFFER

SO. FOURCHE LA FAVE RIVER

RESTRAINING CONDITION

RESTRAINING CONDITION

RESTRAINING CONDITION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- △△△ TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE	REVISION

3/31/2016

R080439.DGN

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.		080439	13	116

(2) TEMP. EROSION CONTROL DETAILS - STAGE I

STAGE I

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

98 100 105

POB 98+50.00
98+50.49
40.32

100' TRANS.

100+00.00

P.C. 102+25.00

103+50.00
70.00

104+00.00
52.44

P.T. 107+00.00

E-14 +75
93 CU. YD.

E-11 65

EXIST. R/W
PROPOSED R/W
N 30°15'00" E
HWY. 7
N 25°30'00" E
BEAR CREEK

98+50.66
39.68

100+85.47
65.00

103+25.00
65.00

P.I. 104+92.64

105+18.89
100.00

106+50.00
100.00

108+00.00
70.00

SITE I CONST.

BEGIN BRIDGE
STA. 107+88.72

50' VEGETATED BUFFER

RESTRAINING CONDITION

STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE I - LOG MILE 6.95

REVISIONS

DATE	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

END BRIDGE
STA. 112+11.27

117+00.00
65.00

117+60.37
60.00

118+50.00
60.00

120+80.00
65.00

121+80.00
65.00

121+80.00
39.44

120+00.00
100.00

121+80.00
100.00

STA. 120+80.00
END SITE I

3/31/2016

R0804 39.DGN

SITE I - 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.		080439	14	116

(2) TEMP. EROSION CONTROL DETAILS - STAGE I

STAGE I

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

STA. 201+00.00
BEGIN SITE 2
LOG MILE 8.81

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- △△△ TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE	REVISION

PROPOSED R/W
EXIST. R/W
100' TRANS.
T.C.E.
50' VEGETATED BUFFER
SO. FOURCHE LA FAVE RIVER
RESTRAINING CONDITION
111 CU. YD.
556 CU. YD.

STA. 228+50.30
END JOB 080439
END SITE 2

SITE 2 - STAGE I
TEMPORARY EROSION CONTROL DETAILS

3/31/2016
R080439.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	15	116

STAGE 2

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

(2) TEMP. EROSION CONTROL DETAILS - STAGE 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE 1- LOG MILE 6.95

REVISIONS

DATE	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

STA. 120+80.00
END SITE 1

3/31/2016

R080439.DGN

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.		080439	16	116

(2) TEMP. EROSION CONTROL DETAILS - STAGE 2

STAGE 2

SAND BAG DITCH CHECKS (E-5)
(12 LOCATIONS = 264 BAG)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-29-17

STA. 201+00.00
BEGIN SITE 2
LOG MILE 8.81

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- △△△ TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE	REVISION

STA. 228+50.30
END JOB 080439
END SITE 2

SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

3/31/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	17	116

(2) TEMP. EROSION CONTROL DETAILS - STAGE 3

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
4-24-17

98 100 105

POB 98+50.00
98+50.49
40.32'

100' TRANS.

100+00.00

EXIST. R/W

PROPOSED R/W

16'

+50 E-5

+60

N 30°15'00" E

HWY. 7

98+50.66
39.68'

100+85.47
65.00

P.C. 102+25.00

103+25.00
65.00

103+50.00
70.00

104+00.00
52.34

P.I. 104+72.64

E-11 +00

40'

E-5 +50

SITE I CONST.

P.T. 107+00.00

E-14 +75
93 CU. YDS.

E-11 +65

BEAR CREEK

N 25°30'00" E

BEGIN BRIDGE
STA. 107+88.72

50' VEGETATED BUFFER

RESTRAINING CONDITION

105+18.89
100.00

106+50.00
100.00

108+00.00
70.00

STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE I- LOG MILE 6.95

REVISIONS

DATE	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

110 115 120

RESTRAINING CONDITION

EXIST. R/W

P.I. 115+69.56

CONST. LIMITS

SITE I CONST.

END BRIDGE
STA. 112+11.27

P.T. 112+31.57

117+00.00
65.00

P.T. 118+24.88

117+60.37
60.00

118+50.00
60.00

120+80.00
65.00

121+80.00
65.00

POE 121+80.00
39.14

N 59°45'00" E

120+00.00
100.00

121+80.00
100.00

60.87'

STA. 120+80.00
END SITE I

BEAR CREEK

3/31/2016

R0804 39.DGN

SITE I - 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.		080439	18	116

(2) TEMP. EROSION CONTROL DETAILS - STAGE 3

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-29-17

205 | 210 | 200 | 215 | 220 | 225 | 230

P.I. 207+13.61

EXIST. R/W | PROPOSED R/W | SITE 2 CONST. | 100' TRANS. | 50' VEGETATED BUFFER | T.C.E. | 111 CU. YD. | 556 CU. YD. | RESTRAINING CONDITION | BEGIN BRIDGE STA. 214+60.72 | END BRIDGE STA. 216+59.21 | SO. FOURCHE LA FAVE RIVER | N 1°00'00" W | N 59°00'00" W | N 12°41'15" W

STA. 201+00.00
BEGIN SITE 2
LOG MILE 8.81

STA. 228+50.30
END JOB 080439
END SITE 2

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN
- △△△ TRIANGULAR SILT DIKE

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

REVISIONS

DATE	REVISION

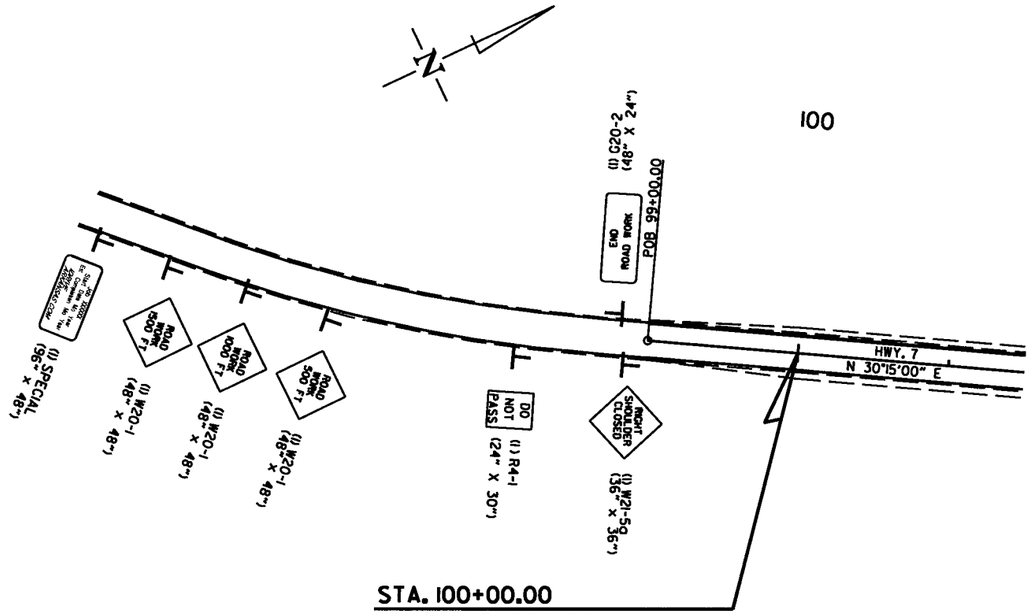
SITE 2 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

3/31/2016
R080439.DGN

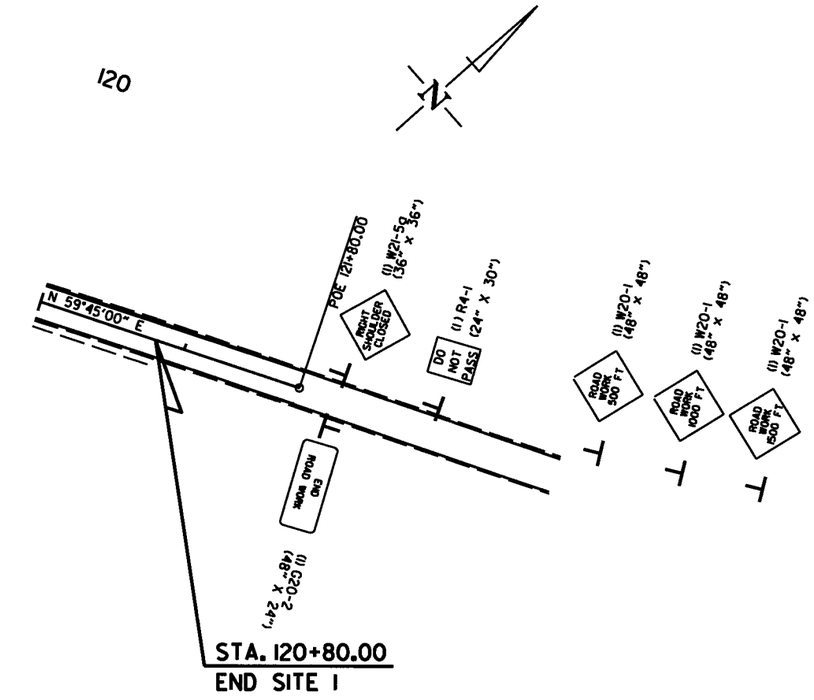
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	19	116

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY P. SMITH
9-29-17



STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE 1 - LOG MILE 6.95



STA. 120+80.00
END SITE 1

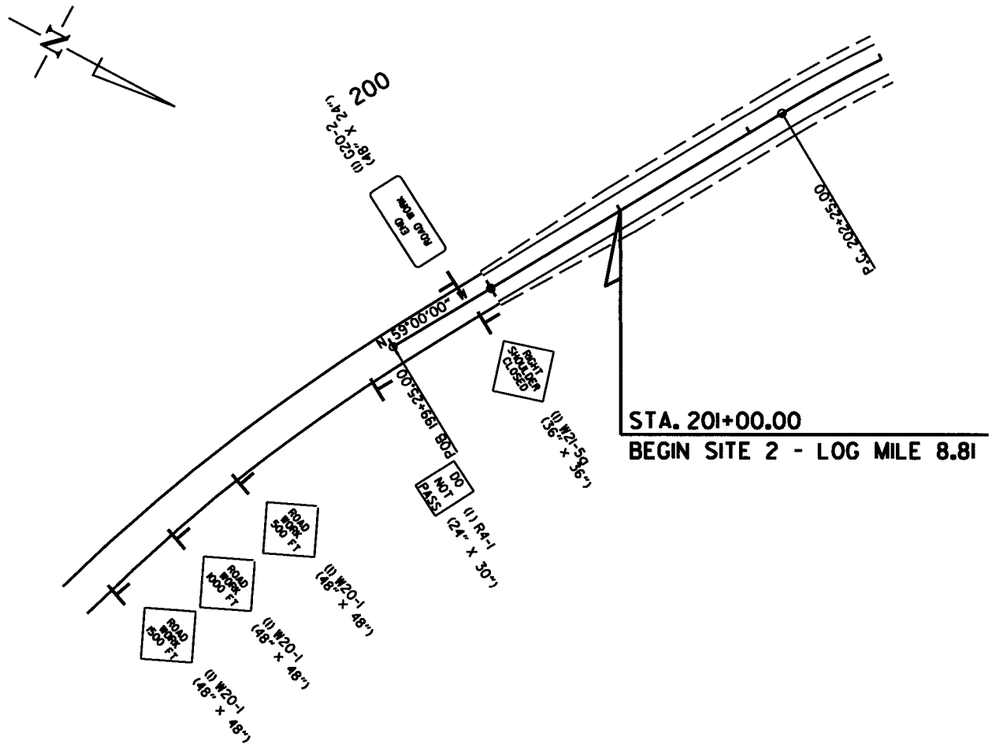
ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

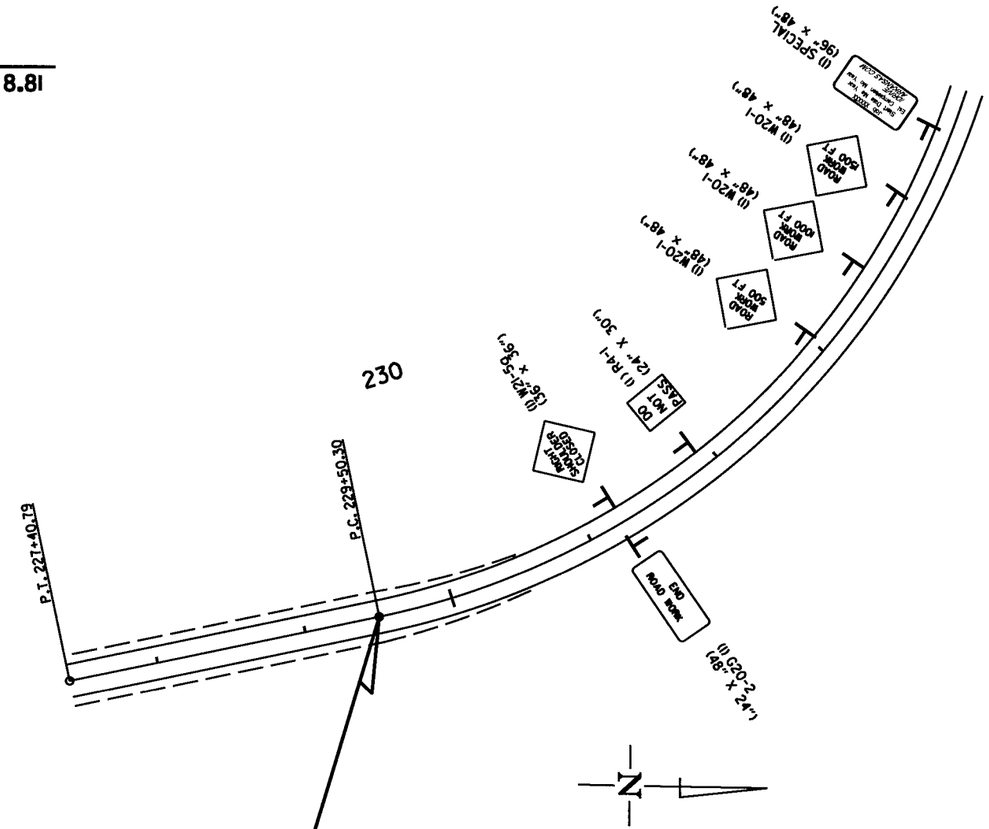
3/23/2016
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	20	116

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17





3/23/2016

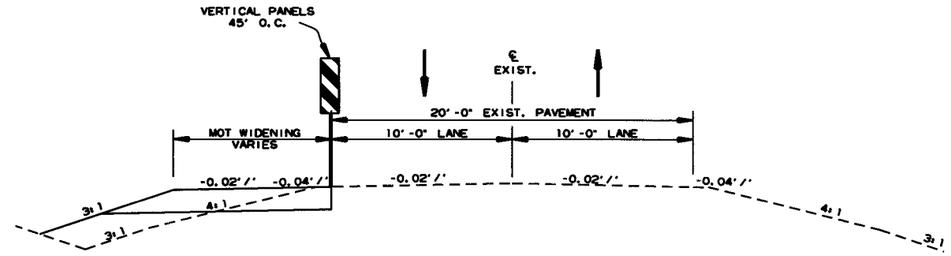
R080439.DGN

ALL STAGES
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.		080439	21	116

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



NOTCH & WIDEN
STAGE 1

SITE 1 - STA. 30+10.50 - STA. 34+56.61
SITE 1 - STA. 40+04.79 - STA. 42+55.65
SITE 2 - STA. 50+00.00 - STA. 57+22.17

R080439.DGN 3/23/2016

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	22	116

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION (SITES 1& 2):

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
CONSTRUCT TEMPORARY WIDENING OF EXISTING PAVEMENT ON LT.
JACK PIPE IN SITE 2.

STAGE 2:
SHIFT TRAFFIC ON TO TEMPORARY WIDENING.
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND TEMP. WIDENING.
CONSTRUCT HWY. 7 NOTCH & WIDENING RT. & NEW LOCATION.
CONSTRUCT BRIDGES.
CONSTRUCT LEVELING & GRADE RAISE.
CONSTRUCT TURNOUTS ON RT.

STAGE 3:
MOVE HWY. 7 TRAFFIC TO NEW LOCATION.
CONSTRUCT HWY. 7 NOTCH & WIDEN LT.
CONSTRUCT TURNOUTS ON LT.
REMOVE EXIST. PAVEMENT AND TEMP. WIDENING.
REMOVAL OF EXISTING BRIDGES.
PLACE FINAL SURFACE COURSE AND
PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

98 100 105 35

SITE 1MOT WIDENING 1
P.I. = 30+47.33
Δ = 7°43'16" LT.
D = 10°30'00"
T = 36.83'
L = 73.54'
P.C. = 30+10.50
P.T. = 30+84.04
e = MATCH EXIST.

SITE 1MOT WIDENING 1
P.I. = 32+32.48
Δ = 5°41'19" LT.
D = 6°30'00"
T = 43.80'
L = 87.52'
P.C. = 31+88.68
P.T. = 32+76.20
e = MATCH EXIST.

SITE 1MOT WIDENING 1
P.I. = 34+26.83
Δ = 6°15'36" LT.
D = 10°30'00"
T = 29.84'
L = 59.62'
P.C. = 33+96.99
P.T. = 34+56.61
e = MATCH EXIST.

POB 98+50.00
POB 102+00.00
P.C. 30+10.50
P.I. 30+47.33
P.T. 30+84.04
P.C. 31+88.68
P.T. 32+76.20
P.C. 33+96.99
P.T. 34+56.61
POE 35+03.91
P.I. 34+26.83
P.I. 32+32.48
P.I. 104+62.64
VERTICAL PANELS @ 45' O.C.
N 30°15'00" E
HWY. 7
N 30°15'00" E
N 22°30'00" E
N 15°30'25" E
N 10°30'49" E
N 25°30'00" E
SITE 1CONST.
BEGIN BRIDGE STA. 107+88.72
50' VEGETATED BUFFER

VERTICAL PANELS:
STA. 101+75 - STA. 107+25 LT. = 13 EACH
STA. 114+50 - STA. 119+25 LT. = 10 EACH
STA. 200+10 - STA. 207+00 LT. = 17 EACH

STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE 1- LOG MILE 6.95

110 115 40 120

SITE 1MOT WIDENING 2
P.I. = 40+36.15
Δ = 6°34'36" LT.
D = 10°30'00"
T = 31.35'
L = 62.64'
P.C. = 40+04.79
P.R.C.= 40+67.43
e = MATCH EXIST.

SITE 1MOT WIDENING 2
P.I. = 42+24.70
Δ = 6°32'54" LT.
D = 10°30'00"
T = 31.22'
L = 62.37'
P.R.C.= 41+93.49
P.T. = 42+55.85
e = MATCH EXIST.

SITE 1MOT WIDENING 2
P.I. = 41+30.74
Δ = 13°14'09" RT.
D = 10°30'00"
T = 63.31'
L = 126.06'
P.R.C.= 40+67.43
P.R.C.= 41+93.49
e = MATCH EXIST.

P.I. 115+69.56
POB 40+00.00
P.C. 40+04.79
PRC40+67.43
P.I. 41+30.74
P.T. 42+55.85
POE 42+63.43
P.I. 40+36.15
PRC41+93.49
P.I. 42+24.70
P.T. 118+24.89
POE 121+80.00
VERTICAL PANELS @ 45' O.C.
N 58°15'22" E
N 51°38'46" E
N 64°30'15" E
N 59°45'00" E
SITE 1CONST.
END BRIDGE STA. 112+11.27
P.C. 112+97.97
N 25°30'00" E
50' VEGETATED BUFFER

STA. 120+80.00
END SITE 1

SITE 1- STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

3/23/2016
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	23	116

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

SITE 2 MOT WIDENING
P.I. = 50+48.05
Δ = 10°03'50" LT.
D = 10°30'00"
T = 48.05'
L = 95.85'
P.C. = 50+00.00
P.R.C.= 50+95.85
e = MATCH EXIST.

SITE 2 MOT WIDENING
P.I. = 51+68.64
Δ = 15°11'46" RT.
D = 10°30'00"
T = 72.79'
L = 144.72'
P.R.C.= 50+95.85
P.T. = 52+40.57
e = MATCH EXIST.

SITE 2 MOT WIDENING
P.I. = 54+33.14
Δ = 15°19'59" RT.
D = 10°30'00"
T = 73.45'
L = 146.03'
P.C. = 53+59.69
P.T. = 55+05.72
e = MATCH EXIST.

SITE 2 MOT WIDENING
P.I. = 56+20.00
Δ = 13°31'19" RT.
D = 10°30'00"
T = 64.69'
L = 128.78'
P.C. = 55+55.31
P.T. = 56+84.90
e = MATCH EXIST.

STA. 201+00.00
BEGIN SITE 2 - LOG MILE 8.81

BEGIN BRIDGE
STA. 211+60.72

50' VEGETATED BUFFER

VERTICAL PANELS @ 45' O.C.

SITE 2 CONST.

N 59°00'00" W

N 38°32'04" W

N 25°00'45" W

N 1°00'00" W

55 205 210 215 200

3/23/2016

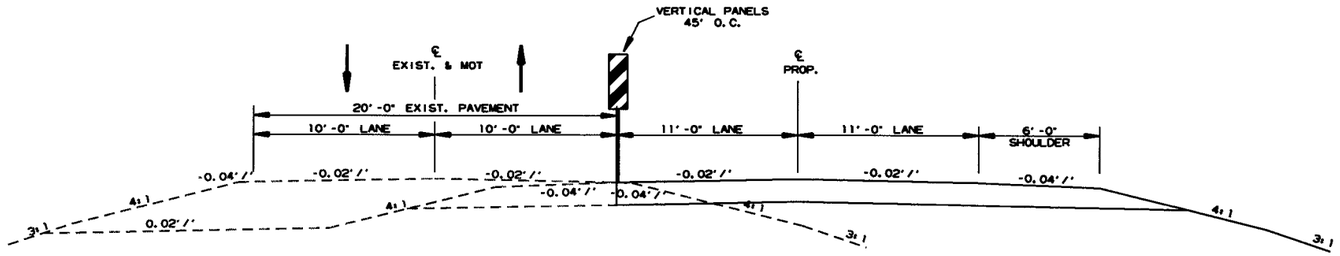
R080439.DGN

SITE 2 - STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	24	116

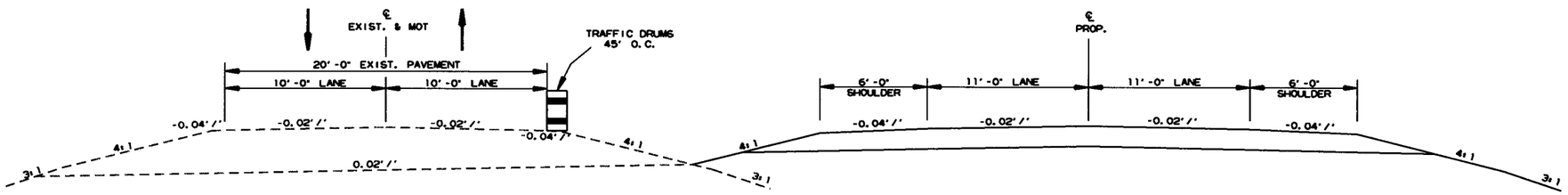
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-5-17



NOTCH & WIDEN
STAGE 2

STA. 100+00.00 - STA. 105+50.00
STA. 115+50.00 - STA. 120+80.00
STA. 201+00.00 - STA. 208+25.00
STA. 223+80.00 - STA. 229+50.30



FULL DEPTH
STAGE 2

STA. 105+50.00 - STA. 115+50.00
STA. 208+25.00 - STA. 223+80.00

3/23/2016

R080439.DGN

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	25	116

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION (SITES 1& 2):

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
CONSTRUCT TEMPORARY WIDENING OF EXISTING PAVEMENT ON LT.
JACK PIPE IN SITE 2.

STAGE 2:
SHIFT TRAFFIC ON TO TEMPORARY WIDENING.
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND TEMP. WIDENING.
CONSTRUCT HWY. 7 NOTCH & WIDENING RT. & NEW LOCATION.
CONSTRUCT BRIDGES.
CONSTRUCT LEVELING & GRADE RAISE.
CONSTRUCT TURNOUTS ON RT.

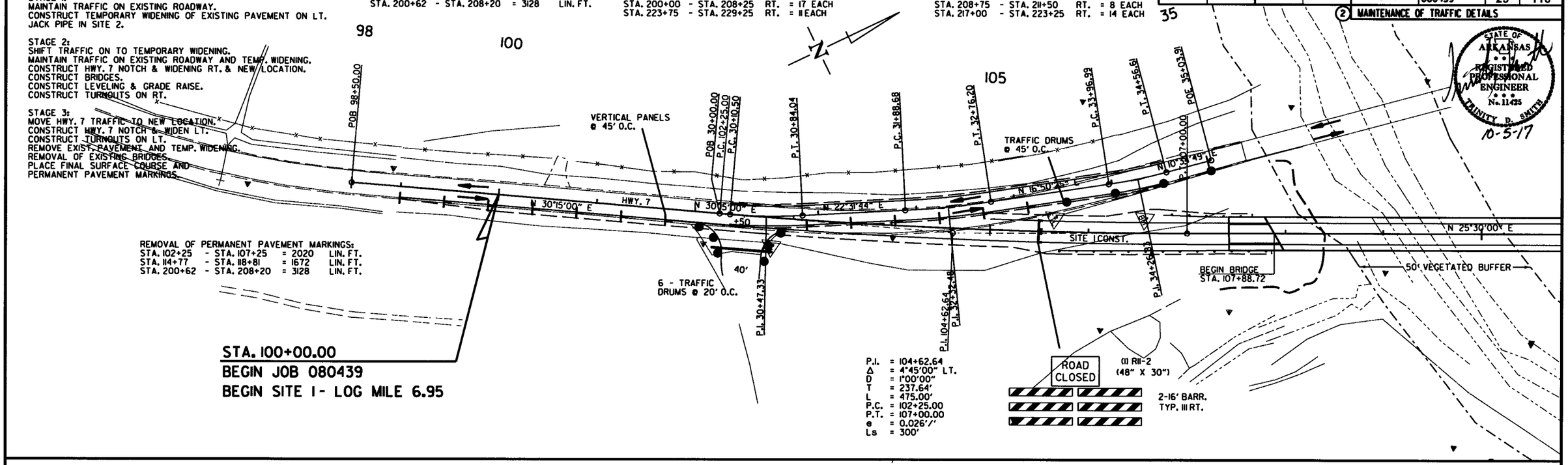
STAGE 3:
MOVE HWY. 7 TRAFFIC TO NEW LOCATION.
CONSTRUCT HWY. 7 NOTCH & WIDEN LT.
CONSTRUCT TURNOUTS ON LT.
REMOVE EXIST. PAVEMENT AND TEMP. WIDENING.
REMOVAL OF EXISTING BRIDGES.
PLACE FINAL SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS.

CONSTRUCTION PAVEMENT MARKINGS:
STA. 102+25 - STA. 107+25 = 2020 LIN. FT.
STA. 114+77 - STA. 118+81 = 1672 LIN. FT.
STA. 200+62 - STA. 208+20 = 3128 LIN. FT.

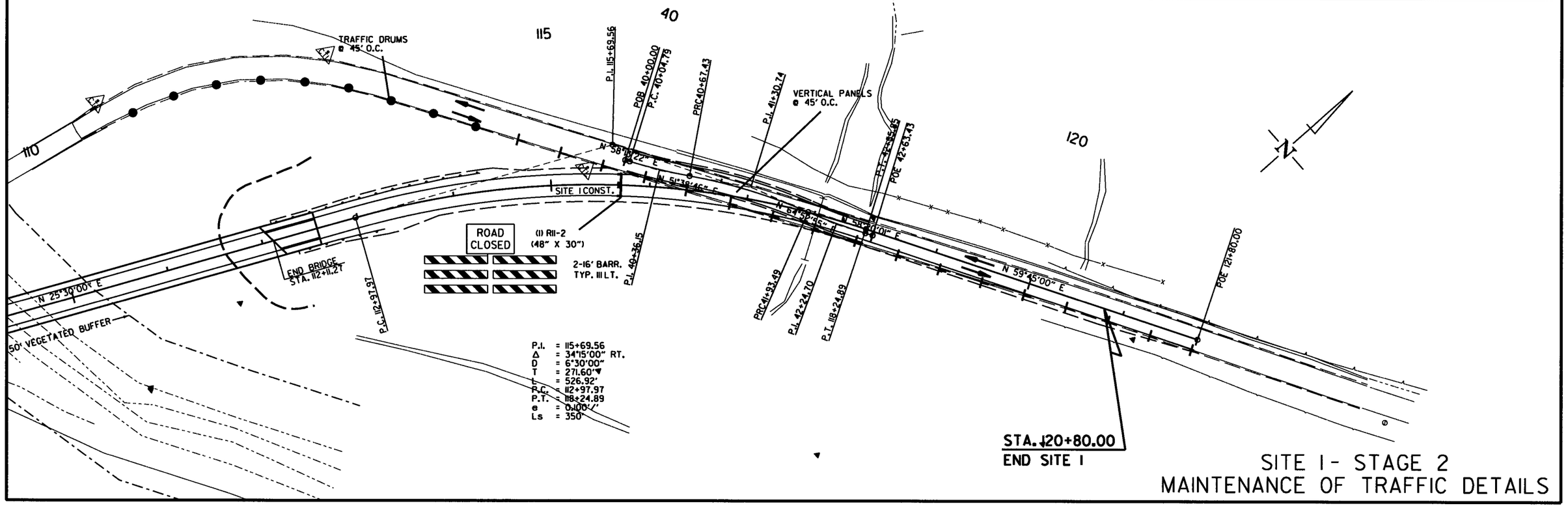
VERTICAL PANELS:
STA. 99+00 - STA. 105+50 RT. = 13 EACH
STA. 114+75 - STA. 121+75 RT. = 17 EACH
STA. 200+00 - STA. 208+25 RT. = 17 EACH
STA. 223+75 - STA. 229+25 RT. = 11 EACH

TRAFFIC DRUMS:
STA. 105+75 - STA. 107+25 RT. = 4 EACH
STA. 110+75 - STA. 114+25 RT. = 9 EACH
STA. 208+75 - STA. 211+50 RT. = 8 EACH
STA. 217+00 - STA. 223+25 RT. = 14 EACH

REMOVAL OF PERMANENT PAVEMENT MARKINGS:
STA. 102+25 - STA. 107+25 = 2020 LIN. FT.
STA. 114+77 - STA. 118+81 = 1672 LIN. FT.
STA. 200+62 - STA. 208+20 = 3128 LIN. FT.



STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE 1- LOG MILE 6.95



STA. 120+80.00
END SITE 1

SITE 1- STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
10-5-17

3/23/2016

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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.		080439	26	116

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17

205 P.I. 207+13.61 210 200 215 220 225 230

VERTICAL PANELS @ 45' O.C.

TRAFFIC DRUMS @ 45' O.C.

8 - TRAFFIC DRUMS @ 20' O.C.

2 - TRAFFIC DRUMS

SITE 2 CONST.

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

2-16' BARR. TYP. III RT.

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

2-8' BARR. TYP. III RT.

P.I. = 207+13.61
Δ = 58°00'00" RT.
D = 6°30'00"
T = 488.61'
L = 892.31'
P.C. = 202+25.00
P.T. = 211+17.31
e = 0.100'/'
Ls = 350'

P.I. = 226+51.20
Δ = 11°41'15" LT.
D = 6°30'00"
T = 90.22'
L = 179.81'
P.C. = 225+60.98
P.T. = 227+40.79
e = 0.100'/'
Ls = 350'

P.I. = 232+52.92
Δ = 60°18'45" LT.
D = 11°00'00"
T = 302.62'
L = 548.29'
P.C. = 229+50.30
P.T. = 234+98.59
e = 0.100'/'
Ls = 350'

50' VEGETATED BUFFER

BEGIN BRIDGE STA. 211+60.72

END BRIDGE STA. 216+59.21

N 59°00'00" W

N 1°00'00" W

N 25°00'45" W

N 12°41'15" W

STA. 201+00.00
BEGIN SITE 2 - LOG MILE 8.81

STA. 229+50.30
END JOB 080439
END SITE 2

SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

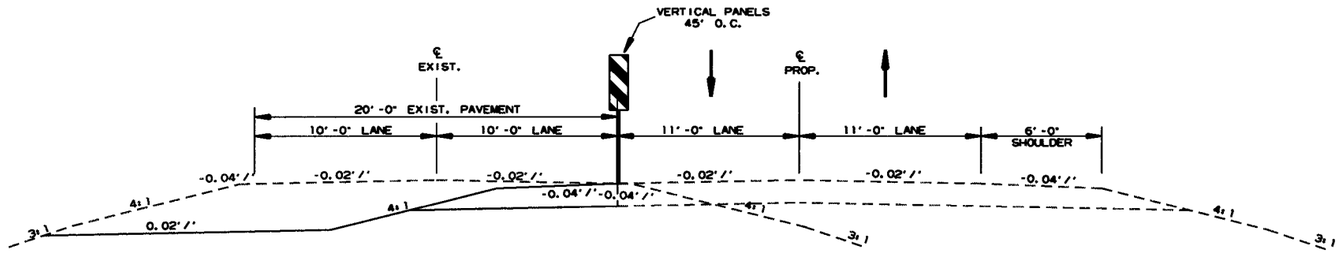
3/23/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	27	116

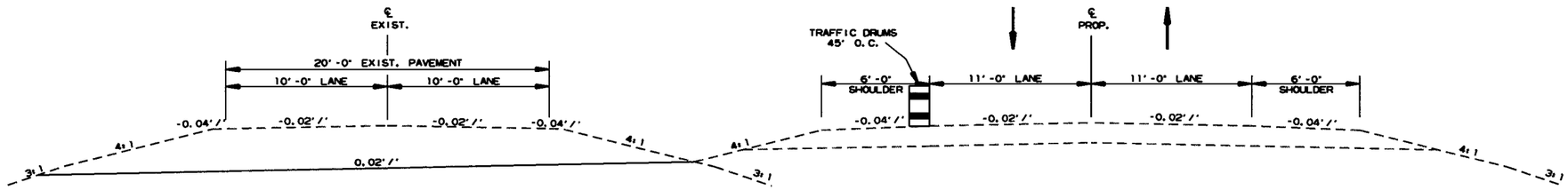
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-5-17



NOTCH & WIDEN
STAGE 3

STA. 100+00.00 - STA. 105+50.00
STA. 115+50.00 - STA. 120+80.00
STA. 201+00.00 - STA. 208+25.00
STA. 223+80.00 - STA. 229+50.30



FULL DEPTH
STAGE 3

STA. 105+50.00 - STA. 115+50.00
STA. 208+25.00 - STA. 223+80.00

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STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080439		28	116

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION (SITES 1 & 2):

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
CONSTRUCT TEMPORARY WIDENING OF EXISTING PAVEMENT ON LT.
JACK PIPE IN SITE 2.

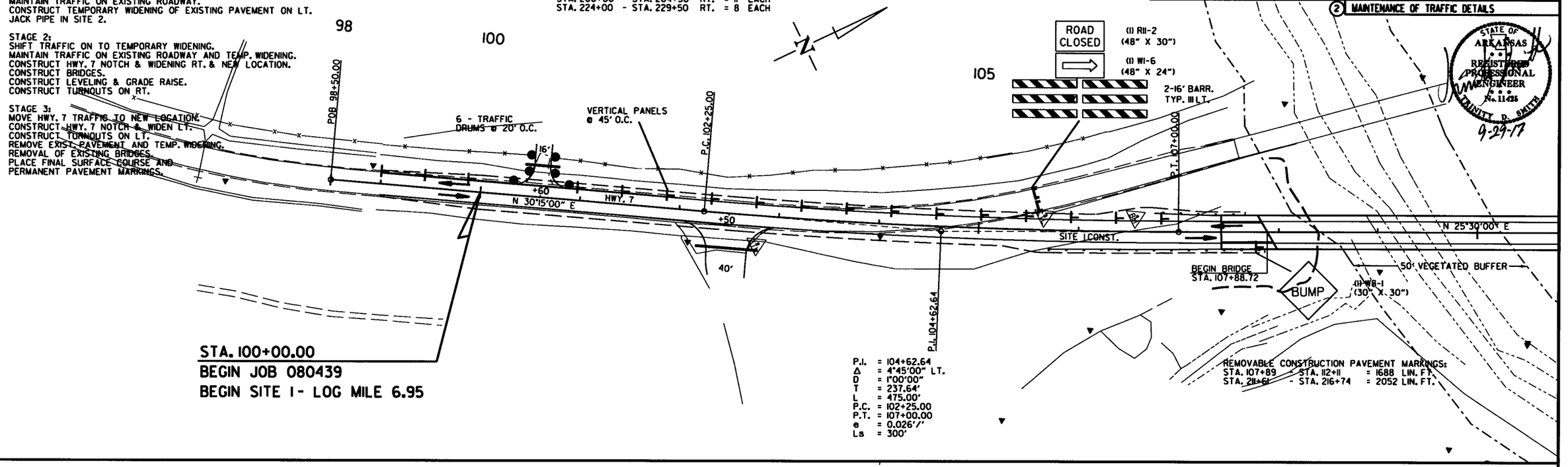
STAGE 2:
SHIFT TRAFFIC ON TO TEMPORARY WIDENING.
MAINTAIN TRAFFIC ON EXISTING ROADWAY AND TEMP. WIDENING.
CONSTRUCT HWY. 7 NOTCH & WIDENING RT. & NEW LOCATION.
CONSTRUCT BRIDGES.
CONSTRUCT LEVELING & GRADE RAISE.
CONSTRUCT TURNOUTS ON RT.

STAGE 3:
MOVE HWY. 7 TRAFFIC TO NEW LOCATION.
CONSTRUCT HWY. 7 NOTCH & WIDEN LT.
CONSTRUCT TURNOUTS ON LT.
REMOVE EXIST. PAVEMENT AND TEMP. WIDENING.
REMOVAL OF EXISTING BRIDGES.
PLACE FINAL SURFACE COURSE AND
PERMANENT PAVEMENT MARKINGS.

CONSTRUCTION PAVEMENT MARKINGS:
STA. 99+00 - STA. 121+80 = 9120 LIN. FT.
STA. 200+00 - STA. 229+50 = 11800 LIN. FT.

VERTICAL PANELS:
STA. 99+00 - STA. 106+50 LT. = 17 EACH
STA. 114+80 - STA. 121+80 LT. = 18 EACH
STA. 200+00 - STA. 204+50 RT. = 11 EACH
STA. 224+00 - STA. 229+50 RT. = 8 EACH

TRAFFIC DRUMS:
STA. 205+75 - STA. 210+75 RT. = 8 EACH
STA. 219+00 - STA. 223+50 RT. = 11 EACH



STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE 1 - LOG MILE 6.95

P.I. = 104+62.64
Δ = 4°45'00" LT.
D = 1°00'00"
T = 237.64'
L = 475.00'
P.C. = 102+25.00
P.T. = 107+00.00
e = 0.026'/'
Ls = 300'

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS:
STA. 107+89 - STA. 112+11 = 1688 LIN. FT.
STA. 211+61 - STA. 216+74 = 2052 LIN. FT.

STATE OF ARKANSAS
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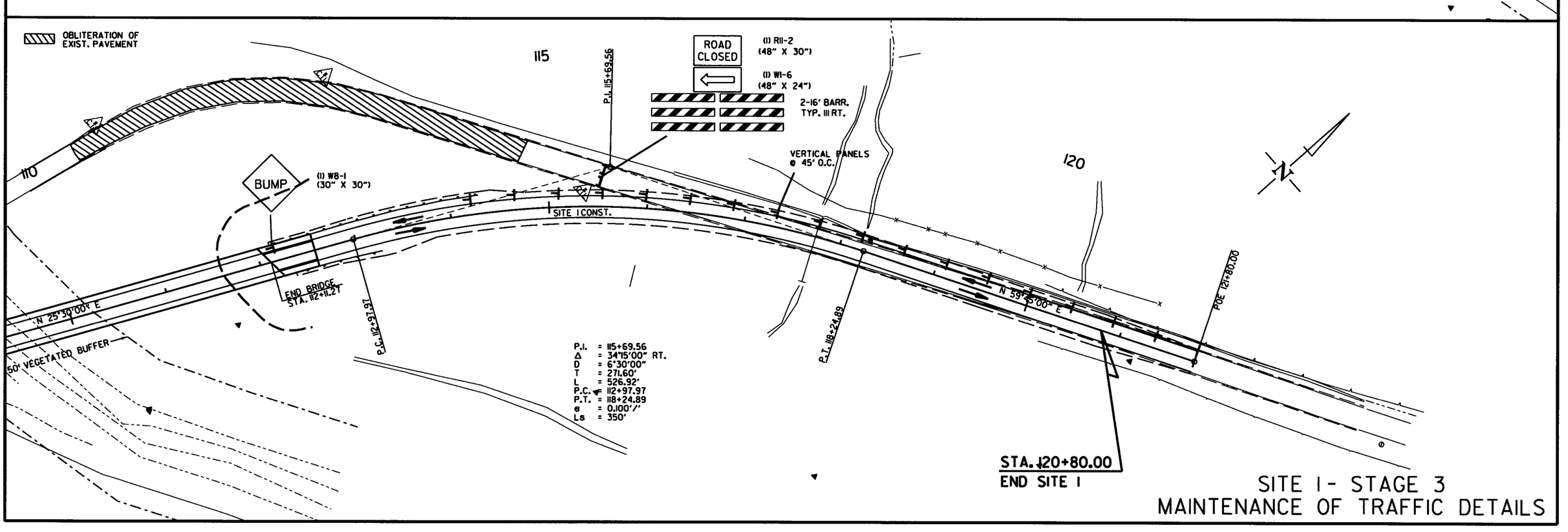

P.I. = 115+69.56
Δ = 34°15'00" RT.
D = 6°30'00"
T = 271.60'
L = 526.92'
P.C. = 112+97.97
P.T. = 118+24.89
e = 0.100'/'
Ls = 350'

STA. 120+80.00
END SITE 1

SITE 1 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

3/23/2016
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	29	116

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
2-16' BARR. TYP. III LT.

VERTICAL PANELS @ 45' O.C.

SITE 2 CONST.

STAGE 3 MOT LANE SHIFT
P.I. = 74+35.45
Δ = 35°20'17" RT.
D = 6°32'13"
R = 876.47'
T = 279.20'
L = 540.58'
P.C. = 71+56.25
P.R.C. = 76+96.83
N/A

STAGE 3 MOT LANE SHIFT
P.I. = 77+09.48
Δ = 2°39'19" LT.
D = 10°30'00"
R = 12.65'
L = 25.29'
P.R.C. = 76+96.83
P.R.C. = 77+22.12
N/A

TRAFFIC DRUMS @ 45' O.C.

6 - TRAFFIC DRUMS @ 20' O.C.

STAGE 3 MOT LANE SHIFT
P.I. = 77+76.18
Δ = 11°18'55" RT.
D = 10°30'00"
T = 54.06'
L = 107.76'
P.R.C. = 77+22.12
P.R.C. = 78+29.88
N/A

BUMP

(1) W8-1 (30" X 30")

50' VEGETATED BUFFER

BEGIN BRIDGE STA. 211+60.12

P.I. = 207+13.61
Δ = 58°00'00" RT.
D = 6°30'00"
T = 488.61'
L = 892.31'
P.C. = 202+25.00
P.T. = 211+17.31
e = 0.100'/'
Ls = 350'

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER

STA. 204+50	-	STA. 209+50	LT.	280 LIN. FT.

RELOCATING PRECAST CONCRETE BARRIER

STA. 207+50	-	STA. 209+50	LT.	226 LIN. FT.

STA. 201+00.00
BEGIN SITE 2 - LOG MILE 8.81

ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
2-16' BARR. TYP. III RT.

P.I. = 226+51.20
Δ = 11°41'15" LT.
D = 6°30'00"
T = 90.22'
L = 179.81'
P.C. = 225+60.98
P.T. = 227+40.79
e = 0.100'/'
Ls = 350'

P.I. = 232+52.92
Δ = 60°18'45" LT.
D = 11°00'00"
T = 302.62'
L = 548.29'
P.C. = 229+50.30
P.T. = 234+98.59
e = 0.100'/'
Ls = 350'

8 - TRAFFIC DRUMS @ 20' O.C.

15 - TRAFFIC DRUMS @ 20' O.C.

VERTICAL PANELS @ 45' O.C.

BUMP

(1) W8-1 (30" X 30")

TRAFFIC DRUMS @ 45' O.C.

END BRIDGE STA. 216+59.29

SITE 2 CONST.

ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
2-16' BARR. TYP. III RT.

STA. 229+50.30
END JOB 080439
END SITE 2

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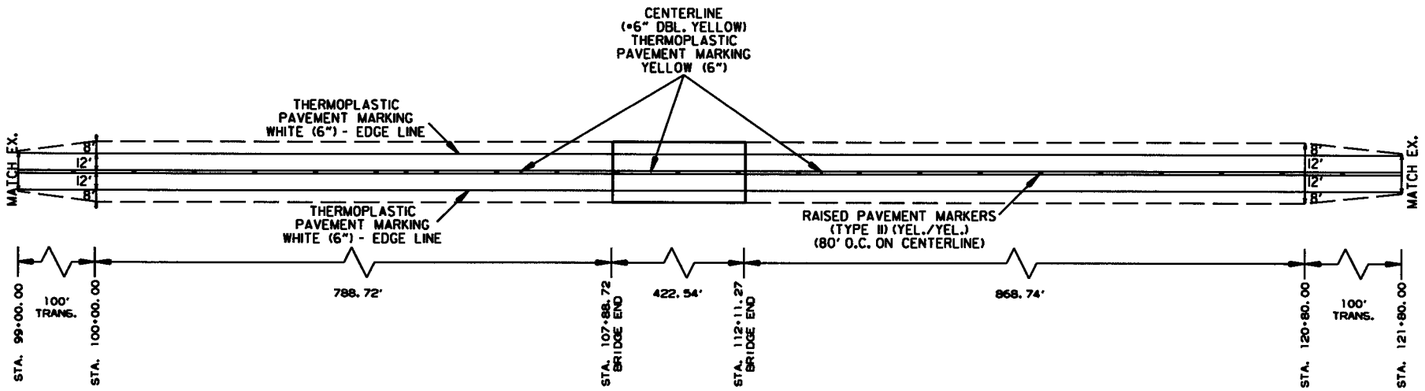
SITE 2 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	30	116

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17



SITE 1

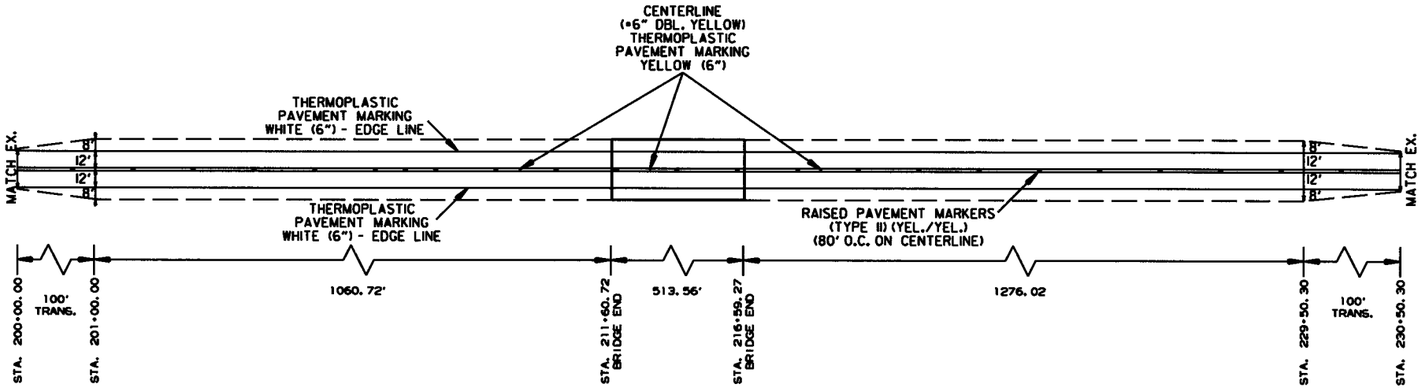
PERMANENT PAVEMENT MARKINGS:

THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 4560 LIN. FT. WHITE (6")
DBL. CENTERLINE = 3715 LIN. FT. YELLOW (6")

ENHANCED THERMOPLASTIC PAVEMENT MARKING
DBL. CENTERLINE = 845 LIN. FT. YELLOW (6")

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 57 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.



SITE 2

PERMANENT PAVEMENT MARKINGS:

THERMOPLASTIC PAVEMENT MARKING:
RT. AND LT. EDGE LINES = 6101 LIN. FT. WHITE (6")
DBL. CENTERLINE = 5074 LIN. FT. YELLOW (6")

ENHANCED THERMOPLASTIC PAVEMENT MARKING
DBL. CENTERLINE = 1027 LIN. FT. YELLOW (6")

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 76 EACH

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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
10-31-17				6	ARK.			
				JOB NO.		080439	31	116

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-1-17

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	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER
													RIGHT	LEFT	
			LIN. FT. - EACH					NO.	SQ. FT.	EACH			LIN. FT.		
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4		4	4	64.0						
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4		4	4	64.0						
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4		4	4	64.0						
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4		4	4	64.0						
G20-2	END ROAD WORK	48"x24"	4	4	4		4	4	32.0						
R11-2	ROAD CLOSED	48"x30"		6	5		6	6	60.0						
W1-6	LARGE ARROW	48"x24"			4		4	4	32.0						
R4-1	DO NOT PASS	24"x30"	4	4	4		4	4	20.0						
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	4	4	4		4	4	36.0						
W8-1	BUMP	30"x30"			4		4	4	25.0						
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	48"x96"	2				2	2	64.0						
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE											10			
	VERTICAL PANELS		40	58	54		58			58					
	TRAFFIC DRUMS			73	51		73				73				
	TYPE III BARRICADE-RT. (8')			2	1		2						16		
	TYPE III BARRICADE-LT. (8')			2	1		2							16	
	TYPE III BARRICADE-RT. (16')			4	4		4						64		
	TYPE III BARRICADE-LT. (16')			4	4		4							64	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER				280		280								280
TOTALS:									525.0	58	73	10	80	80	280

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING	
							TYPE II	6"	
							(YEL/YEL)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.		LIN. FT.	EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	6820			6820					
CONSTRUCTION PAVEMENT MARKINGS	6820	20920			27740				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		3740				3740			
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			133				133		
THERMOPLASTIC PAVEMENT MARKING WHITE (6")			10661					10661	
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")			10661						10661
TOTALS:				6820	27740	3740	133	10661	10661

NOTE: THIS IS A LOW 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.

NOTE: NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED UNTIL A MINIMUM OF 3 DAYS AFTER ALL MAIN LANE PAVING HAS BEEN COMPLETED. IN ADDITION,
NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED DURING THE TIME PERIOD FROM DECEMBER 21 TO MARCH 15, INCLUSIVE.

6/14/2017

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11-9-17				6	ARK.			
				JOB NO.		080439	32	116

(2) QUANTITIES

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DRIVEWAYS	SIGN FOUNDATIONS	GUARDRAIL	WELL HOUSE	SIGNS	WELL
			SQ. YD.	EACH	LIN. FT.	EACH	EACH	EACH
100+40	100+60	SITE 1 - LT.	17					
102+15	102+60	SITE 1 - RT.	62					
106+75	108+17	SITE 1 - RT.			253			
107+25	107+54	SITE 1 - LT.			28			
110+48	110+75	SITE 1 - LT.			28			
110+54	110+81	SITE 1 - RT.			28			
205+80		SITE 2 - RT.		1			1	
206+10		SITE 2 - RT.		1			2	
209+65	209+95	SITE 2 - LT.	42					
211+60	211+87	SITE 2 - RT.			28			
211+60	214+80	SITE 2 - LT.			28			
216+76	217+04	SITE 2 - RT.			28			
216+84	217+13	SITE 2 - LT.			28			
219+95	220+25	SITE 2 - RT.	19					
224+95		SITE 2 - RT.				1		1
229+50	230+10	SITE 2 - RT.	39					
TOTALS:			179	2	449	1	3	1

NOTE: REMOVAL AND DISPOSAL OF GUARDRAIL IS TO INCLUDE TERMINAL ANCHOR POSTS.

CONCRETE DITCH PAVING

	STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	NATIVE STONE FOR DITCH LINER	SOLID SODDING	WATER
				LIN. FT.	FEET	SQ. YD.	TON	SQ. YD.	M. GAL.
**	201+69.00	202+00.00	SITE 2 - LT.	31.00	6.00		11.71		
**	208+30.00	208+60.00	SITE 2 - RT.	30.00	6.00		11.33		
	219+85.00	220+50.00	SITE 2 - RT.	65.00	6.00	43.33		28.89	0.36
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE	100.00	6.00	66.67		44.44	0.56
			DIRECTED BY THE ENGINEER						
TOTALS:						110.00	23.04	73.33	0.92

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
NATIVE STONE FOR DITCH LINER.....1.7 TONS/CU. YD.

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

** SOLID SODDING SHALL NOT BE USED INSIDE THE PARK BOUNDARY.

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	ROCK FILL	REMOVING AND REPLACING TOPSOIL	* SOIL STABILIZATION
			CU. YD.				TON
100+00.00	229+50.30	STAGE 1-MAIN LANES	229	204			
100+00.00	229+50.30	STAGE 2-MAIN LANES	2558	42238	27099		
100+00.00	229+50.30	STAGE 3-MAIN LANES	6821	3310			
ENTIRE	PROJECT	APPROACHES		2480			
107+50	112+50	BRIDGE NO. 07415		4000	4900		
211+60.72	216+59.27	BRIDGE NO. 07416			2700		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE				2000	100
		DIRECTED BY THE ENGINEER					
TOTALS:			9608	52232	34699	2000	100

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
98+51	104+00	SITE 1 - LT.	550
199+54.88	203+75	SITE 2 - LT.	452
208+90	210+00	SITE 2 - RT.	132
226+15	229+60	SITE 2 - RT.	308
TOTAL:			1442

TRENCHING AND SHOULDER PREPARATION

STATION	STATION	LOCATION	STATIONS
30+11	34+57	SITE 1 - MAIN LANE	5
40+08	42+56	SITE 1 - MAIN LANE	3
50+00	57+22	SITE 2 - MAIN LANE	8
TOTAL:			16

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
100+60	18"X20' CMP LT SIDE DRAIN	1
102+50	18"X84' CMP RT. SIDE DRAIN	1
205+60	18"X34' RCP RT. SIDE OF DRAIN	1
206+12	18"X66' RCP W/FES RT. SIDE DRAIN	1
206+44	18"X39' RCP RT. SIDE DRAIN	1
207+64	4'X4'X91' RCB-REMOVE	
220+08	36"X30' CMP RT. SIDE DRAIN	1
224+39	18"X89' CMP RT. SIDE DRAIN	1
226+85	24"X68' R.C. PIPE CULVERT	1
229+80	18"X36' CMP RT. SIDE DRAIN	1
TOTAL:		9

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
98+51	109+25	SITE 1 - MAIN LANE	11	11
109+75	121+80	SITE 1 - MAIN LANE	13	13
199+55	212+50	SITE 2 - MAIN LANE	13	13
213+50	228+36	SITE 2 - MAIN LANE	15	15
TOTALS:			52	52

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-9-17

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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
11-9-17				6	ARK.			
				JOB NO.		080439	33	116

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-9-17

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL									
			SPECIAL SEEDING	LIME	SPECIAL MULCH COVER	WATER	SPECIAL SECOND SEEDING APPLICATION	TEMPORARY SEEDING	SPECIAL MULCH COVER	WATER	WATTLE (20") DITCH CHECKS (E-1)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						9.53	9.53	194.4		528		3120	760		876
ENTIRE	PROJECT	STAGE 1						0.16	0.16	3.3		66					
ENTIRE	PROJECT	STAGE 2	4.46	8.92	4.46	454.9	4.46	4.46	4.46	91.0		330					
ENTIRE	PROJECT	STAGE 3	3.91	7.82	3.91	398.8	3.91	3.91	3.91	79.8		35				760	
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.											90	242	10	800			30
TOTALS:			**8.37**	**16.74**	**8.37**	**853.7**	**8.37**	**18.06**	**18.06**	**368.5**	**90**	**1201**	**10**	**3920**	**760**	**760**	**906**

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
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.

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 2	CLASS 3
			LIN. FT.	SQ. YD.	
201+69.00	202+00.00	SITE 2 - LT. (ALONG NATIVE STONE DITCH LINER)	31.00	13.78	
205+00.00	208+00.00	SITE 2 - LT.	300.00		266.67
219+85.00	220+50.00	SITE 2 - RT. (ALONG NATIVE STONE DITCH LINER)	65.00	28.89	
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	600.00		533.33
TOTAL:				**28.89**	**800.00**

NOTE: AVERAGE WIDTH = 8'-0"

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D)
			LIN. FT.
98+51	104+00	SITE 1 - LT.	550
199+55	203+75	SITE 2 - LT.	452
208+90	210+00	SITE 2 - RT.	132
226+15	229+60	SITE 2 - RT.	308
TOTAL:			**1442**

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	2	2
TOTALS:	**2**	**2**

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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.		080439	34	116

(2) QUANTITIES

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 9-29-17

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
99+00.00	100+00.00	MAIN LANES SITE 1	20.00	222.22
120+80.00	121+80.00	MAIN LANES SITE 1	20.00	222.22
200+00.00	201+00.00	MAIN LANES SITE 2	20.00	222.22
229+50.30	230+50.30	MAIN LANES SITE 2	20.00	222.22
TOTAL:				**888.88**

NOTE: AVERAGE MILLING DEPTH 1".

SELECTED PIPE BEDDING

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	25.00	50.00
DIRECTED BY THE ENGINEER		
TOTALS:	**25.00**	**50.00**

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50
DIRECTED BY THE ENGINEER	
TOTAL:	50

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
106+50	SITE 1 - 20 RT	1
217+30	SITE 2 - 20 RT	1
TOTAL:		**2**

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

RUMBLE STRIPES IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPES IN ASPHALT SHOULDERS
			LIN.FT.
ENTIRE	PROJECT	RT.	5330.3
ENTIRE	PROJECT	LT.	5330.3
TOTAL:			**10660.6**

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
101+00	34	50	53.70	93	6	5.90	5 RT	0-5	26	9	A-4 (3)	BROWN
101+00	34	50	53.60	93	6	5.80	20 RT	0-5	31	11	A-6 (4)	BR/RD
113+00	34	51	5.10	93	6	2.00	20 RT	0-4Z	29	11	A-6 (3)	BROWN
116+00	34	51	6.80	93	5	59.80	6 LT	0-5	32	17	A-6 (3)	GRAY
116+00	34	51	6.90	93	5	59.90	26 LT	0-4Z	32	17	A-6 (6)	GRAY
202+00	34	52	8.40	93	6	33.80	6 RT	0-5	48	26	A-7-6 (23)	BROWN
202+00	34	52	8.60	93	6	33.70	23 RT	0-5	44	24	A-7-7 (14)	BROWN
208+00	34	52	13.10	93	6	38.00	5 LT	0-5	34	15	A-6 (5)	GRAY
208+00	34	52	13.10	93	6	38.10	24 LT	0-5	38	17	A-6 (10)	RD/BR
217+00	34	52	22.20	93	6	38.40	5 RT	0-5	30	15	A-6 (7)	BROWN
217+00	34	52	22.20	93	6	38.20	18 RT	0-5	28	12	A-6 (5)	BROWN
305+00	34	52	11.90	93	6	36.80	CL	0-2Z	34	13	A-6 (4)	BROWN
315+00	34	52	22.30	93	6	37.80	CL	0-1Z	34	14	A-6 2)	BROWN
113+00	34	51	5.10	93	6	2.00	20 RT	0-5	29	17	A-6 (8)	BROWN
208+00	34	52	13.10	93	6	38.10	24 LT	0-5	34	15	A-6 (6)	RD/BR

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

6/14/2017

R080439.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-9-17				6	ARK.			
				JOB NO.		080439	35	116

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-9-17

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24"	REINFORCED CONCRETE PIPE CULVERT (CLASS V) 54"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 54"	TEMPORARY CULVERTS 18"	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.		EACH		LIN. FT.	SQ.YD.	M.GAL.	
* 117+74	EXTEND 24" x 66' PIPE CULVERT LT. & RT.	26		2					PCC-1, FES-1, FES-2
* 201+69	EXTEND 24"X38' PIPE CULVERT LT. & RT.	36		2					PCC-1, FES-1, FES-2
* 208+00	CONST. 54" x 184' PIPE CULVERT RT.		184		2				PCC-1, FES-1, FES-2
209+00	INSTALL 18" x 104' TEMP. PIPE CULVERT LT.					104			PCC-1, PCM-1
226+85	CONST. 24" x 68' PIPE CULVERT LT. & RT.	68		2			16	0.20	PCC-1, FES-1, FES-2
TOTALS:		130	184	6	2	104	16	0.20	

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.

* SOLID SODDING SHALL NOT BE USED INSIDE THE PARK BOUNDARY.

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE 1)
			LIN. FT.	EACH		
105+67.38	107+86.13	RT. SIDE	150	1	1	
106+72.76	107+66.51	LT. SIDE	75	1		1
112+13.86	114+32.61	LT. SIDE	150	1	1	
112+33.48	113+27.23	RT. SIDE	75	1		1
209+19.76	211+38.51	RT. SIDE	150	1	1	
210+64.38	211+58.13	LT. SIDE	75	1		1
216+61.86	217+55.61	RT. SIDE	75	1		1
216+81.48	219+00.23	LT. SIDE	150	1	1	
TOTALS:			900	8	4	4

DUMPED RIPRAP AND FILTER BLANKET

STATION	STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
			CU. YD.	SQ. YD.
106+00	107+89	SITE 1 - RT.	373	746
113+00	116+00	SITE 1 - RT.	705	1410
112+11	114+00	SITE 1 - LT.	462	923
	117+74	SITE 1 - 24" x 66' PIPE CULVERT AROUND F.E.S. LT. & RT.	8	16
	201+69	SITE 2 - 24"X38' PIPE CULVERT AROUND F.E.S. LT. & RT.	8	16
207+00	211+76	SITE 2 - RT.	113	226
	208+00	SITE 2 - 54" x 184' PIPE CULVERT AROUND F.E.S. LT. & RT.	35	70
216+74	222+00	SITE 2 - RT.	27	53
211+00	211+76	SITE 2 - LT.	29	58
*		*TO BE USED IF AND WHERE	200	400
		DIRECTED BY THE ENGINEER		
TOTALS:			1960	3918

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

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
207+64	PLUG & ABANDON BOX CULVERT CROSS DRAIN HWY. 7	54
209+00	PLUG & ABANDON PIPE CULVERT CROSS DRAIN HWY. 7	7
TOTAL:		61

6/14/2017

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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.		080439	36	116

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
9-29-17

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (3/8") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			STANDARD DRAWINGS
							18"	24"	36"	
			FEET	SQ. YD.	TON	TON	LIN. FT.			
SITE 1										
100+60	LT.	HWY. 7 MAIN LANES	16	70.43	7.75	28.76	34			PCC-1, PCM-1, PCP-1, PCP-2
102+50	RT.	HWY. 7 MAIN LANES	40	228.03	25.08	93.11	62			PCC-1, PCM-1, PCP-1, PCP-2
SITE 2										
205+60	RT.	HWY. 7 MAIN LANES	16	141.88	15.61	57.93	56			PCC-1, PCM-1, PCP-1, PCP-2
206+12	RT.	HWY. 7 MAIN LANES	28	233.84	25.72	95.48	56			PCC-1, PCM-1, PCP-1, PCP-2
209+69	LT.	HWY. 7 MAIN LANES	20	212.21	23.34	86.65	42			PCC-1, PCM-1, PCP-1, PCP-2
219+85	RT.	HWY. 7 MAIN LANES	16	236.21	25.98	96.45			200	PCC-1, PCM-1, PCP-1, PCP-2
224+60	LT.	HWY. 7 MAIN LANES	40	216.59	23.82	88.44	62			PCC-1, PCM-1, PCP-1, PCP-2
226+00	RT.	HWY. 7 MAIN LANES	16	85.10	9.36	34.75		40		PCC-1, PCM-1, PCP-1, PCP-2
226+10	LT.	HWY. 7 MAIN LANES	40	214.37	23.58	87.53	50			PCC-1, PCM-1, PCP-1, PCP-2
226+65	LT.	HWY. 7 MAIN LANES	16	84.21	9.26	34.39				PCC-1, PCM-1, PCP-1, PCP-2
206+44	RT.	HWY. 7 MAIN LANES	16	84.21	9.26	34.39	48			PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						90.00				
TOTALS:				**1807.08**	**198.76**	**827.88**	**410**	**40**	**200**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (3/8").....94.8% MIN. AGGR.....5.2% 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.

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
105+39	107+89	LT.	274	2
105+39	107+89	RT.	274	2
112+11	114+61	LT.	276	2
112+11	114+61	RT.	276	2
209+26	211+76	LT.	280	2
209+26	211+76	RT.	280	2
216+74	226+00	LT.	1038	5
216+74	226+00	RT.	1038	5
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			1000	8
TOTALS:			**4736**	**30**

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE C)	APPROACH SLABS (TYPE C1)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
107+42.41	107+78.91	LT. SIDE	11.55		630	
107+52.22	107+88.72	MAIN LANES		49.15	5775	24.8
107+62.03	107+98.53	RT. SIDE	11.55		630	
112+01.46	112+37.96	LT. SIDE	11.55		630	
112+11.27	112+47.77	MAIN LANES		49.15	5775	24.8
112+21.08	112+57.58	RT. SIDE	11.55		630	
211+14.41	211+50.91	RT. SIDE	11.55		630	
211+24.22	211+60.72	MAIN LANES		49.15	5775	24.8
211+34.03	211+70.53	LT. SIDE	11.55		630	
216+49.46	216+85.96	RT. SIDE	11.55		630	
216+59.27	216+95.77	MAIN LANES		49.15	5775	24.8
216+69.08	217+05.58	LT. SIDE	11.55		630	
TOTALS:			**92.40**	**196.60**	**28140**	**99.2**

NOTE: USE T =13" FOR 6' SHOULDER.

6/14/2017

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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.		080439	37	116

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (3/8")								
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																										
99+00 00	100+00.00	SITE 1 - TRANSITION	100 00			24 00	266 67	0 17	45.33													24.00	266 67	220.00	29 33	29 33
100+00 00	104+25.00	SITE 1 - NOTCH & WIDEN	425.00	VAR.	463 36	VAR.	1741 05	0.05	87 05					VAR.	490.01	330 00	80 85	VAR	1251.04	220 00	137 61	26.00	1227 78	220 00	135 06	272.67
104+25.00	107+42.40	SITE 1 - FULL DEPTH	317.40	199 00	631 63	52.71	1858 91	0.05	92 95					26.46	933.16	330 00	153 97	26 25	925.75	220.00	101 83	26 00	916.93	220 00	100 86	202.69
112+11.78	115+85 26	SITE 1 - FULL DEPTH	373.48	199 00	743 23	52.71	2187 35	0.05	109 37					26 46	1098 03	330 00	181 17	26 25	1089.32	220 00	119 83	26 00	1078 94	220 00	118.68	238.51
115+85.26	120+80 00	SITE 1 - NOTCH & WIDEN	494 74	VAR.	538 78	VAR.	2160 83	0.05	108 04					VAR.	568.52	330 00	93 81	VAR	1592.31	220 00	175 15	26 00	1429 25	220 00	157.22	332 37
120+80.00	121+80 00	SITE 1 - TRANSITION	100 00			24 00	266 67	0 17	45 33													24 00	266.67	220 00	29 33	29 33
200+00 00	201+00 00	SITE 2 - TRANSITION	100 00			24 00	266.67	0 17	45 33													24 00	266 67	220 00	29 33	29 33
201+00 00	203+90 00	SITE 2 - NOTCH & WIDEN	290 00	VAR	278.11	VAR	1214.00	0 05	60 70					VAR	331 19	330 00	54.65	VAR.	882 81	220 00	97 11	26.00	837 78	220.00	92 16	189 27
203+90 00	209+33.00	SITE 2 - NOTCH & WIDEN	543 00	186.00	1009.98	51 71	3119.84	0 05	155.99					25 46	1536.09	330.00	253.45	25.25	1523 42	220 00	167.58	25.00	1508.33	220.00	165 92	333 50
209+33 00	211+14.42	SITE 2 - FULL DEPTH	181 42	199 00	361.03	52 71	1062.52	0 05	53 13					26 46	533 37	330.00	88.01	26.25	529 14	220.00	58 21	26.00	524 10	220.00	57 65	115 86
217+05 57	227+82.04	SITE 2 - FULL DEPTH	1076.47	199 00	2142 18	52 71	6304.53	0 05	315 23					26 46	3164.82	330.00	522.20	26.25	3139 70	220.00	345.37	26.00	3109 80	220.00	342 08	687.45
227+82.04	229+50.30	SITE 2 - NOTCH & WIDEN	168.26	VAR	123 43	VAR	679.61	0 05	33.98					VAR	193 80	330.00	31.98	VAR	485.81	220.00	53.44	26.00	486.08	220.00	53.47	106.91
229+50.30	230+50.30	SITE 2 - TRANSITION	100 00			24.00	266.67	0 17	45.33													24 00	266.67	220 00	29.33	29.33
ADDITIONAL FOR LEVELING																										
100+00.00	104+25 00	SITE 1	425.00			10 00	472 22	0 17	80.28													10.00	472.22	220 00	51.94	51 94
115+85.26	120+80 00	SITE 1	494.74			10.00	549 71	0.17	93.45													10 00	549.71	220 00	60 47	60 47
201+00.00	203+90 00	SITE 2	290.00			10.00	322 22	0 17	54.78													10 00	322 22	220 00	35 44	35 44
227+82 04	229+50 30	SITE 2	168.26			10.00	186 96	0 17	31 78													10 00	186.96	220 00	20 57	20 57
ADDITIONAL FOR GRADE RAISE																										
100+00 00	104+25 00	SITE 1	425.00							10 00	472 22	159.22	75.19	VAR.	102.33	330 00	33 77									
115+85 26	120+80 00	SITE 1	494.74							10 00	549 71	957 40	526.29	VAR.	450 48	330 00	148 66									
201+00 00	203+90 00	SITE 2	290 00							10 00	322 22	149 37	48.13	VAR.	248 73	330 00	82 08									
227+82 04	229+50 30	SITE 2	168 26							10 00	186 96	46 85	8 76	VAR	108 58	330 00	35 83									
ADDITIONAL FOR SUPERELEVATION																										
112+11 43	115+61.43	SITE 1 - S.E. TRANSITION	350 00	24 25	84.88																					
115+61 43	117+37.39	SITE 1 - MAX S E.	175 96	48 50	85.34																					
117+37 39	120+87.39	SITE 1 - S E. TRANSITION	350 00	24 25	84.88																					
201+00.00	204+50.00	SITE 2 - S E. TRANSITION	350 00	24 25	84.88																					
204+50.00	208+00.00	SITE 2 - MAX S E.	350 00	48 50	169.75																					
208+00.00	211+50.00	SITE 2 - S E. TRANSITION	350 00	24 25	84.88																					
222+98.48	226+48.48	SITE 2 - S E. TRANSITION	350 00	24 25	84.88																					
226+48.48	229+50.30	SITE 2 - MAX S E.	301 82	48 50	146.38																					
229+50.30	230+50.30	SITE 2 - MATCH EXIST S E.	100 00	24 25	24.25																					
ADDITIONAL FOR TEMPORARY WIDENING																										
30+10 50	34+56 61	SITE 1	446 11	VAR	338.42													VAR	367 66	220 00	40 44					40.44
40+04 79	42+55 85	SITE 1	251 06	VAR	122 76													VAR	99 87	220 00	10 99					10.99
50+00 00	57+22 17	SITE 2	722 17	VAR	690 63													VAR.	803 36	220.00	88.37					88 37
ADDITIONAL FOR FULL DEPTH SHOULDER																										
201+00 00	209+33 00	SITE 2	833.00			4 00	370.22	0 05	18.51					4 00	370 22	330 00	61 09	4.00	370 22	220.00	40.72					40 72
TOTALS:					**8293.66**		**23296.65**		**1476.56**		**1531.11**		**658.37**		**10129.33**		**1821.52**		**14591.52**		**1605.07**		**12185.67**		**1340.42**	**2945.49**

BASIS OF ESTIMATE
ACHM SURFACE COURSE (3/8"). . .. .. 94.8% MIN AGGR ... . .5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").. . . .. 95 5% MIN AGGR.. ... . . 4 5% ASPHALT BINDER
ACHM BASE COURSE (1 1/2"). .. .. 96 1% MIN AGGR ... . 3.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

6/14/2017

R080439.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	38	116

① 07415 & 07416 - QUANTITIES - 53859

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 080439

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	SP & 802	803	804	804	805	805	SP & 807	808	809	812	816	816	SP JOB 080439	SP JOB 080439	SP JOB 080439	SP JOB 080439	SP JOB 080439	SP JOB 080439
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	② STEEL PILING (HP 14x73)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET	DRILLED SHAFT (72" DIA.)	PERMANENT STEEL CASING (84" DIA.)	CROSSHOLE SONIC LOGGING (72" DIA.)	CORING DRILLED SHAFT	ARCHITECTURAL FINISH	STAINING CONCRETE SURFACES
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GALLON	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	SQ. FT.	SQ. FT.
07415	BEAR CREEK	BENT NO. 1				40.67		0.1	4,985		145	140	705			1	215	430					125	155
		BENT NO. 2				53.81			9,382										48	12	2	24		
		BENT NO. 3				53.65			9,382										70	34	2			
		BENT NO. 4				54.69			9,443										88	52	2	44		
		BENT NO. 5				56.12			9,593										78	42	2			
		BENT NO. 6				42.16		0.1	5,015		145	140	705				300	600					125	155
		420'-0" CONT. COMP. W-BEAM UNIT					③506.70	31.7		168,770			509,970	16,490	84								6,220	6,220
		EXISTING BRIDGE NO. 01721 (SITE 1)		1																				
		TOTAL FOR BRIDGE NO. 07415		1	0	301.10	506.70	31.9	47,800	168,770	290	280	511,380	16,490	84	1	④ 515	④ 1,030	284	140	8	68	6,470	6,530
07416	SO. FOURCHE LA FAVE RIVER	BENT NO. 1			15	40.67		0.1	4,985		110	105	705			1							125	155
		BENT NO. 2				47.47			8,424										68	16	2	34		
		BENT NO. 3				47.47			8,424										82	30	2			
		BENT NO. 4				47.47			8,424										72	20	2	36		
		BENT NO. 5				47.47			8,424										64	12	2			
		BENT NO. 6				47.47			8,424										68	16	2	34		
		BENT NO. 7				40.68		0.1	4,985		145	140	705										125	155
		TWO 248'-0" CONT. COMP. W-BEAM UNITS					③596.50	37.4		198,480			626,510	23,120	126								7,350	7,350
		EXISTING BRIDGE NO. 01720 (SITE 2)		1																				
		TOTAL FOR BRIDGE NO. 07416		1	15	318.70	596.50	37.6	52,090	198,480	255	245	627,920	23,120	126	1	0	0	354	94	10	104	7,600	7,660
		TOTAL FOR JOB NO. 080439		—	①15	619.80	1,103.20	69.5	99,890	367,250	545	525	1,139,300	39,610	210	2	515	1,030	638	234	18	172	14,070	14,190

① Includes approx. 1 cubic yard of rock excavation.

② Steel piling is required to be Grade 50 and have special pile tips which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 14X73)".

③ Based upon neat lines of Decorative Concrete Parapet Railing, and the dimension of deck edge being 9¾".
Payment will be based upon plan quantities shown.

④ From Sta. 107+50 to 112+50

JEFF COVAY
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
BEAR CREEK & SO. FOURCHE LA FAVE RIVER
STRS. & APPRS. (S)
PERRY COUNTY

ROUTE 7 SEC. 11

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 04/19/2017 FILENAME: b080439_qt.dgn
CHECKED BY: JAC DATE: 9/20/17 SCALE: NO SCALE
DESIGNED BY: Std. DATE: —

BRIDGE NOS. 07415 & 07416 DRAWING NO. 53859

PRINT DATE: 9/20/2017

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	52	STATION
201	GRUBBING	52	STATION
202	REMOVAL AND DISPOSAL OF WELL	1	EACH
202	REMOVAL AND DISPOSAL OF FENCE	1442	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS	179	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	2	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	9	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	449	LIN. FT.
202	REMOVAL AND DISPOSAL OF WELL HOUSE	1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	3	EACH
206	FLOWABLE SELECT MATERIAL	61	CU. YD.
210	UNCLASSIFIED EXCAVATION	9608	CU. YD.
210	COMPACTED EMBANKMENT	52232	CU. YD.
SP & 210	ROCK FILL	34699	CU. YD.
SP	REMOVING AND REPLACING TOPSOIL	2000	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
215	TRENCHING AND SHOULDER PREPARATION	16	STATION
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	9221	TON
SS & 401	TACK COAT	1527	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")	632	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	26	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1740	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	82	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8")	2981	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8")	163	TON
412	COLD MILLING ASPHALT PAVEMENT	889	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	25	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	50	TON
504	APPROACH SLABS	196.60	CU. YD.
504	APPROACH GUTTERS	92.40	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	104	LIN. FT.
SS & 604	SIGNS	525	SQ. FT.
SP, SS, & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE	10	EACH
SS & 604	BARRICADES	160	LIN. FT.
SS & 604	TRAFFIC DRUMS	73	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	280	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	27740	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	3740	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	6820	LIN. FT.
SS & 604	VERTICAL PANELS	58	EACH
605	CONCRETE DITCH PAVING (TYPE B)	110	SQ. YD.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	130	LIN. FT.
606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	184	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	410	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	40	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	200	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	SELECTED PIPE BEDDING	50	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS	30	EACH
611	4" PIPE UNDERDRAINS	4736	LIN. FT.
617	GUARDRAIL (TYPE A)	900	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)	4	EACH
617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
617	THRIE BEAM GUARDRAIL TERMINAL	8	EACH
619	WIRE FENCE (TYPE D)	1442	LIN. FT.
620	LIME	17	TON
SP & 620	SPECIAL SEEDING	8.37	ACRE
SP, SS, & 620	SPECIAL MULCH COVER	26.43	ACRE
620	WATER	1223.3	M.GAL.
621	TEMPORARY SEEDING	18.06	ACRE
621	SILT FENCE	3920	LIN. FT.
621	SAND BAG DITCH CHECKS	1201	BAG
621	SEDIMENT BASIN	760	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	760	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	906	CU. YD.
621	ROCK DITCH CHECKS	10	CU. YD.
621	WATTLE (20")	90	LIN. FT.
SP & 623	SPECIAL SECOND SEEDING APPLICATION	8.37	ACRE
624	SOLID SODDING	89	SQ. YD.
SP & 626	EROSION CONTROL MATTING (CLASS 2)	29	SQ. YD.
SP & 626	EROSION CONTROL MATTING (CLASS 3)	800	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
SP & 642	RUMBLE STRIPES IN ASPHALT SHOULDERS	10661	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	10661	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	10661	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	133	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)	28140	POUND
SP & 816	FILTER BLANKET	3918	SQ. YD.
SP & 816	DUMPED RIPRAP	1960	CU. YD.
SP	NATIVE STONE FOR DITCH LINER	23	TON
	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
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	15	CU. YD.
802	CLASS S CONCRETE-BRIDGE	619.80	CU. YD.
SP & 802	CLASS S(AE) CONCRETE-BRIDGE	1103.20	CU. YD.
SP	ARCHITECTURAL FINISH	14070	SQ. FT.
SP	STAINING CONCRETE SURFACES	14190	SQ. FT.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	69.5	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	99890	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	367250	POUND
805	STEEL PILING (HP 14X73)	545	LIN. FT.
SP	CORING DRILLED SHAFT	172	LIN. FT.
SP	DRILLED SHAFT (72" DIAMETER)	638	LIN. FT.
SP	PERMANENT STEEL CASING (84" DIAMETER)	234	LIN. FT.
805	PREBORING	525	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (72" DIAMETER)	18	EACH
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	1139300	POUND
808	ELASTOMERIC BEARINGS	39610	CU. IN.
809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	210	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	2	EACH
816	FILTER BLANKET	1030	SQ. YD.
816	DUMPED RIPRAP	515	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER
10/19/17	REVISED FOREST SERVICE REQUIREMENTS SPECIAL PROVISION	39
10/31/2017	ADDED PAY ITEM "CONSTRUCTION PROJECT INFORMATION SIGN UPDATE"; CONSTRUCTION PROJECT INFORMATION SIGN SPECIAL PROVISION	3, 31, & 39
11/2/2017	REVISED SECTION C-C BRIDGE DETAIL ON SHEET 3 OF 3 DETAILS OF DECORATIVE CONCRETE PARAPET RAILING	39 & 63
11/8/2017	REVISED BIDDING REQUIREMENTS AND CONDITIONS SPECIAL PROVISION	39
11/9/2017	REVISED NATIVE STONE FOR RIPRAP & SECTION 404 INDIVIDUAL PERMIT REQUIREMENTS SPECIAL PROVISIONS; ADDED EROSION CONTROL MATTING SPECIAL PROVISION; ADDED PAY ITEM "EROSION CONTROL MATTING (CLASS 2)"; & REVISED THE QUANTITIES FOR "WATER", "SOLID SODDING", "FILTER BLANKET", & "DUMPED RIPRAP"	3, 32, 33, 35, & 39

SUMMARY OF QUANTITIES & REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
10-19-17		11-8-17	
10-31-17		11-9-17	
11-2-17			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	080439	39	116

(2) SUMMARY OF QUANTITIES & REVISIONS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11435 KELLEY D. SMITH

11-9-17

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080439		40	116

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: 080439
Date: 9/6/2013
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *530015-530015A 530016-530016A*
Projected to Ground Coordinates
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	189551.0178	0.0338	981984.5229	0.0281	576.82	0.005	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:1
2	189823.5122	0.0303	982082.1155	0.0259	559.98	0.006	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:2
3	190357.6532	0.0268	982149.4258	0.0230	555.17	0.006	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:3
4	190566.2600	0.0277	982266.3520	0.0235	563.88	0.006	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:4
5	197587.9070	0.0176	979175.9832	0.0203	496.34	0.002	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:5
6	197923.4227	0.0203	979129.5440	0.0186	480.51	0.005	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:6
7	198071.7914	0.0227	979198.2072	0.0199	494.82	0.003	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:7
8	198406.9213	0.0200	979160.8641	0.0194	490.24	0.004	CTL	5/8" x 24" Rebar with 2" aluminum cap stamped pn:8
100	191942.6683	0.0001	983500.1860	0.0001	540.81	0.004	GPS	PD:AHTD CAP GPS #530015
101	194064.5392	0.0001	983215.2417	0.0001	505.12	0.002	GPS	PD:AHTD CAP GPS #530015A
102	197319.7302	0.0001	979196.4969	0.0001	494.62	0.004	GPS	PD:AHTD CAP GPS #530016
103	199384.9553	0.0001	979171.2684	0.0001	505.29	0.005	GPS	PD:AHTD CAP GPS #530016A
901	196391.7373	30.0000	980777.8197	30.0000	494.32	0.005	TBM	PD:SQ.CUT.HDWL SE END 28' NE OF CL HWY 7
997	189905.5755	30.0000	982122.0176	30.0000	554.75	0.000	BM	PD:STD. DISK IN SW CONC. WINGWALL OF BR OVER BEAR CREEK NGS BM A 104
998	193937.4210	30.0000	983250.5322	30.0000	508.61	0.000	BM	PD:CAP IN 4X4 CONC POST M 102 NGS 2ND ORDER
999	198128.2215	30.0000	979214.0356	30.0000	495.93	0.000	BM	PD:BASS CAP IN NW COR BRIDGE NGS BM N 102

*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, and adjusted 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: 100-103*
Horizontal - Primary (2.0cm± 20PPM): *PN:1-8*
Horizontal - Secondary (3 cm ± 50PPM): *PN:######## (in the above example)*
Vertical - NGS 1st Order (±4mm x Vdist in km) *PN:901*
Vertical - NGS 2nd Order (±6mm x Vdist in km) *PN:997-999*
Vertical - NGS 3rd Order (±8mm x Vdist in km) *PN:#### (in the above example)*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.999994163 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: 0.9999751357 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 519.83 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-8, 100-103, 901,997-999 From NGS BM: M 102, N 102, A 104

Basis of Bearing: Grid Bearings based on AHTD GPS points: *530015-530015A 530016-530016A*
Convergence Angle is: 00 38 18.18 LEFT at PN: 101
LT: 34-51-41.3 LG: 93-05-49.4 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

Note: Information in Italics is for clarification only. It is not to be part of the actual Control Table or Control Detail Sheets.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY P. SMITH
9-24-17

HWY. 7 - SITE 1

POINT NAME	TYPE	STATION	NORTHING	EASTING
8000	POB	98+50.00	189192.2182	981742.9750
8001	PC	102+25.00	189516.1565	981931 8902
8003	PT	107+00.00	189935.9221	982153 9102
8004	PC	112+97 97	190475.6371	982411 3410
8006	PT	118+24.89	190857.6011	982762.8826
8007	POE	121+80.00	191036.4968	983069.6402

HWY. 7 - SITE 2

POINT NAME	TYPE	STATION	NORTHING	EASTING
8008	POB	199+25.00	196615 0346	979929 9256
8009	PC	202+25.00	196769.5460	979672.7754
8011	PT	211+17.31	197509.7327	979245.4284
8012	PC	225+60.98	198953.1866	979220.2329
8014	PT	227+40.79	199131.4053	979198.8434
8015	PC	229+50 30	199335.7964	979152.8283
8017	PT	234+98 59	199719.5062	978796.9639
8018	POE	239+69.30	199857.1276	978346.8245

SITE 1 - MOT 1

POINT NAME	TYPE	STATION	NORTHING	EASTING
8100	POB	30+00.00	189516.1735	981931 9001
8101	PC	30+10.50	189525.2473	981937 1918
8103	PT	30+84.04	189591.0681	981969.8505
8104	PC	31+88.68	189687.7249	982009.9443
8106	PT	32+76.20	189770.0951	982039.4123
8107	PC	33+96.99	189885 7092	982074.4069
8109	PT	34+56.61	189943.6010	982088.5304
8110	POE	35+03.91	189990 0923	982097.2144

SITE 2 - MOT

POINT NAME	TYPE	STATION	NORTHING	EASTING
8120	PC	50+00.00	196685.5229	979812.6133
8122	PRC	50+95.85	196662.0100	979701.5400
8124	PT	52+40.57	196796.3678	979599.7818
8125	PC	53+59.69	196866.6061	979503.5755
8127	PT	55+05.72	196967.3753	979398.4904
8128	PC	55+55.31	197006.1660	979367.5966
8130	PT	56+84.09	197115 3936	979299.9424
8131	POE	57+22.17	197149 9077	979283.8390

SITE 1 - MOT 2

POINT NAME	TYPE	STATION	NORTHING	EASTING
8111	POB	40+00.00	190720.1042	982548.5231
8112	PC	40+04.79	190722.6281	982552.5974
8114	PRC	40+67.43	190758.5935	982603.8365
8116	PRC	41+93.49	190824.7527	982710.8071
8118	PT	42+55.85	190854.3920	982765.6416
8119	POE	42+63.43	190858.3690	982772.0894

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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.		080439	41	116

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
9-29-17

SITE I- MOT 1
P.I. = 30+47.33
Δ = 7°43'16" LT.
D = 10°30'00"
T = 36.83'
L = 73.54'
P.C. = 30+10.50
P.T. = 30+84.04
e = MATCH EXIST.

SITE I- MOT 1
P.I. = 32+32.48
Δ = 5°41'19" LT.
D = 6°30'00"
T = 43.80'
L = 87.52'
P.C. = 31+88.68
P.T. = 32+76.20
e = MATCH EXIST.

P.I. = 104+62.64
Δ = 4°45'00" LT.
D = 1°00'00"
T = 237.64'
L = 475.00'
P.C. = 102+25.00
P.T. = 107+00.00
e = 0.026'/'
Ls = 300'

SITE I- MOT 1
P.I. = 34+26.83
Δ = 6°15'36" LT.
D = 10°30'00"
T = 29.84'
L = 59.62'
P.C. = 33+96.99
P.T. = 34+56.61
e = MATCH EXIST.

100 30 105 110

POB 98+50.00
8000
PNW49 PDB SPK TRIG ELEV
PNW41 PDB SPK
N 30°15'00" E HWY. 7 - SITE I
P.C. 102+25.00
MOT POB 30+00.00
MOT P.C. 30+10.50
MOT P.T. 30+84.04
MOT P.C. 31+88.68
MOT P.T. 32+76.20
MOT P.T. 34+56.61
MOT POE 35+03.51
8100 8001 8101 8103 8104 8106 8107 8109 8110
N 22°31'44" E
N 16°50'25" E
SITE I- MOT 1
N 10°34'49" E
PNW39 PDB SPKE.TRIG ELEV
N 7°10'56" E 538.37'
PNW40 PDB SPKE.TRIG ELEV
N 30°15'00" E
P.I. 30+47.33
N 19°42'17" E 289.44'
PNW50 PDB SPK TRIG ELEV
PNW PDOAHTD STD. MON. STAMPED PNW
PNW51 PDB SPK TRIG ELEV
P.I. 104+62.64
PNW48 PDOAHTD STD. MON. STAMPED PNW48 SPIKE
PNW49 PDOREBAR/CAP REDMONICA49
MOT P.I. 32+32.48
MOT P.I. 34+26.83
PNW111 PDOAHTD STD. MON. STAMPED PNW111 SPIKE
PNW52 PDOSTD. DISK IN SW CONC. WINGWALL
8002
8003
N 25°30'00" E HWY. 7 - SITE I
P.T. 107+00.00
PNW52 PDB SPK TRIG ELEV
PNW50 PDB SPKE.TRIG ELEV
PNW50 PDB SPKE.TRIG ELEV
PN PI

STA. 100+00.00
BEGIN JOB 080439
BEGIN SITE I- LOG MILE 6.95

40 115 120

SITE I- MOT 2
P.I. = 40+36.15
Δ = 6°34'36" LT.
D = 10°30'00"
T = 31.35'
L = 62.64'
P.C. = 40+04.79
P.R.C.= 40+67.43
e = MATCH EXIST.

SITE I- MOT 2
P.I. = 42+24.70
Δ = 6°32'54" LT.
D = 10°30'00"
T = 31.22'
L = 62.37'
P.R.C.= 41+93.49
P.T. = 42+55.85
e = MATCH EXIST.

N 29°16'16" E 239.14'
N 7°10'56" E 538.37'
PNW3 PDOAHTD STD. MON. STAMPED PN3
PNW4 PDOAHTD STD. MON. STAMPED PN4
P.I. 115+69.56
MOT POB 40+00.00
MOT P.C. 40+04.79
MOT PRC 40+67.43
MOT P.I. 41+30.74
8111 8112 8114
N 58°13'22" E
N 51°38'46" E
PNW43 PDOREBAR CAP 8 SPK
SITE I- MOT 2
N 64°42'55" E
8116
MOT P.I. 40+36.15
MOT P.I. 42+55.85
MOT P.R.C. 42+63.43
8119 MOT POE 42+63.43
8006
8118
PNW53 PDB SPK TRIG ELEV
N 58°20'01" E
MOT PRC 41+93.49
MOT P.I. 42+24.70
P.I. 118+24.89
HWY. 7 - SITE I N 59°45'00" E
POE 121+80.00
8007
P.C. 112+97.97
PNW47 PDB SPK
P.I. = 115+69.56
Δ = 34°15'00" RT.
D = 6°30'00"
T = 271.60'
L = 526.92'
P.C. = 112+97.97
P.T. = 118+24.89
e = 0.100'/'
Ls = 350'
PNW17 PDB SPIKE
PNW03 PDB SPIKE.TRIG ELEV
PNW15 PDB SPIKE
PNW44 PDB SPK
SITE I- MOT 2
P.I. = 41+30.74
Δ = 13°14'09" RT.
D = 10°30'00"
T = 63.31'
L = 126.06'
P.R.C.= 40+67.43
P.R.C.= 41+93.49
e = MATCH EXIST.
PNW45 PDB SPK
PNW46 PDB SPK

STA. 120+80.00
END SITE I

SITE I
SURVEY CONTROL DETAILS

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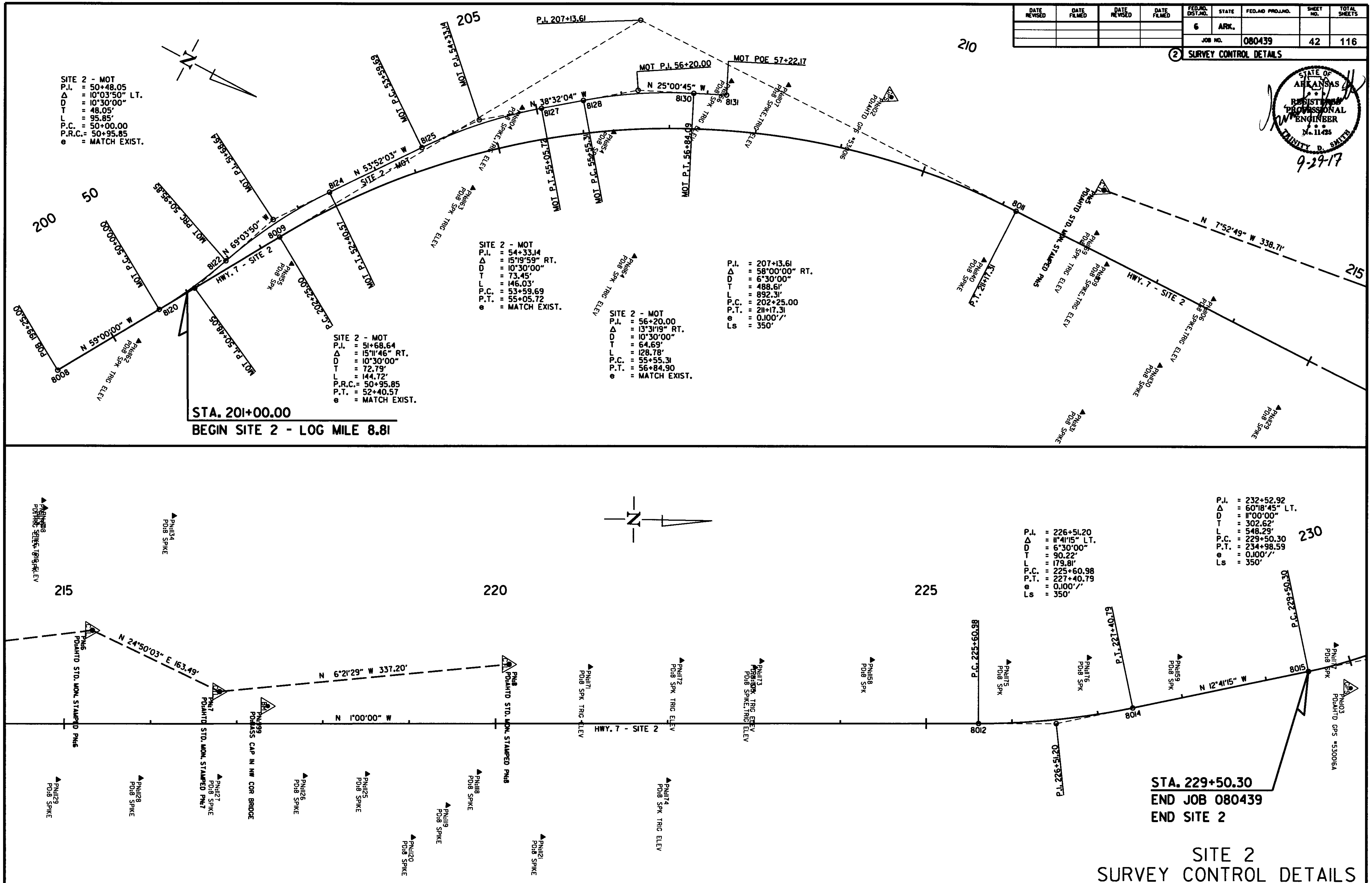
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	42	116

(2) SURVEY CONTROL DETAILS



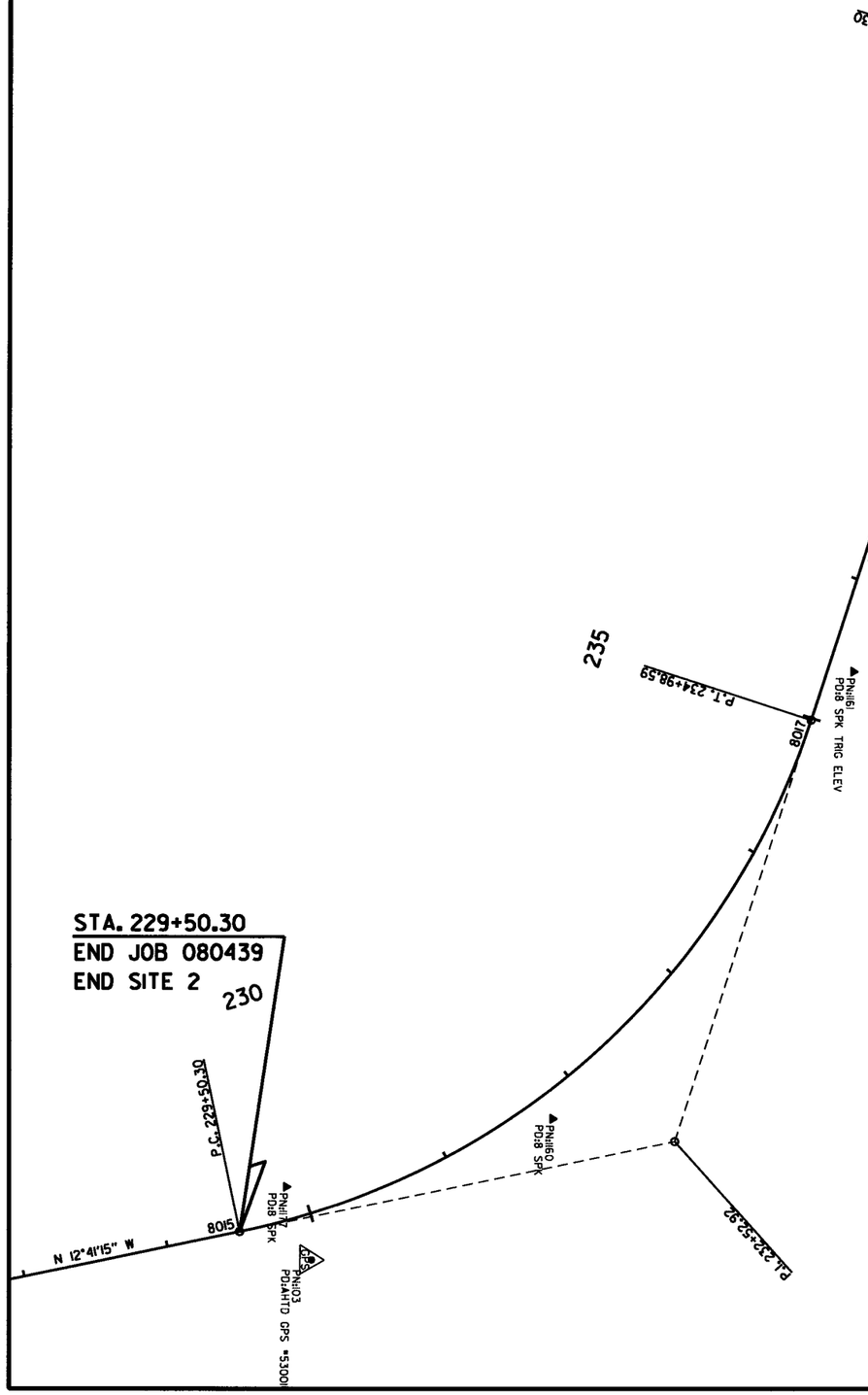
SITE 2
SURVEY CONTROL DETAILS

6/6/2017
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	43	116

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TAINTY D. SMITH
9-29-17



6/6/2017

R080439.DGN

SITE 2
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	44	116

(2) PLAN & PROFILE - SITE 1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-24-17

98 100 105

STA. 100+60 IN PLACE
18" X 20' CMP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

P.I. = 104+62.64
Δ = 4°45'00" LT.
D = 1°00'00"
T = 237.64'
L = 475.00'
P.C. = 102+25.00
P.T. = 107+00.00
e = 0.026'/'
Ls = 300'

STA. 107+57.46 - STA. 110+49.31 IN PLACE
22' X 304' BRIDGE NO. 01721 CONSISTING OF 4-30' R.C.D. GIRDER SPANS & 2-90' LOW TRUSS SPANS SUPPORTED BY WALL PIERS ON SPREAD FOOTINGS
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

100' TRANS.
POB 98+50.00
98+50.49
40.32'
98+50.66
39.68'
100+00.00
100+85.47
65.00'
102+25.00
65.00'
P.C. 102+25.00
103+50.00
70.00'
104+00.00
92.34'
P.I. 104+62.64
105+18.89
100.00'
106+50.00
100.00'
108+00.00
70.00'
P.T. 107+00.00
EXIST. R/W
PROPOSED R/W
CONST. LIMITS
16'
20'
22'
+60
N 30°15'00" E
HWY. 7
+50
40'
6'
13.5'
9.5'
11.5'
SITE 1 CONST.
BEGIN BRIDGE STA. 107+88.72
N 25°30'00" E
BEAR CREEK
50' VEGETATED BUFFER
RESTRAINING CONDITION
GUARDRAIL

STA. 102+50 IN PLACE
18" X 84' CMP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 135 CU. YD.

STA. 100+00.00
BEGIN JOB 080439
SITE 1 - LOG MILE 6.95

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	TERMINAL ANCHOR POST (TYPE 1) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
105+67.38	107+86.13	RT.	150	1	1	1
106+72.76	107+66.51	LT.	75			

STA. 107+88.72 - BRIDGE END
BRIDGE NO. 07415
420'-0" CONT. W-BEAM UNIT
(75'-90'-90'-90'-75')
34'-0" CLEAR ROADWAY
422'-6¾" TOTAL LENGTH
STA. 112+11.27 - BRIDGE END

SITE 1

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

STA. 100+00.00 BEGIN SUPERELEVATION (0.026 FT./FT.)
STA. 103+00.00 MAX SUPERELEVATION (0.026 FT./FT.)
STA. 104+80.00 MAX SUPERELEVATION
STA. 107+80.00 END SUPERELEVATION

P.V.I. 99+00.00 591.84'
-2.80%
P.V.C. 100+00.00 589.04'
P.V.I. 101+50.00 584.84'
VC= 300'
e= -0.98'
K= 114.26
P.V.R.C. 103+00.00 576.10'
-5.43%
VC= 1000'
e= 10.86'
K= 115.07
BEGIN BRIDGE STA. 107+88.72 ELEV. = 560.56'
3.26%
P.V.I. 108+00.00 549.57'
050 DESIGN H.W. ELEVATION 542.00'

BEAR CREEK FROM STA. 109+00 TO STA. 110+50 IS CLASSIFIED AS A PERENNIAL STREAM. THE TOP OF CHANNEL ELEVATION IS 534.5 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

610 600 590 580 570 560 550 540 530 520

95+00 100+00 105+00 110+00

7/15/2015
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	45	116

(2) PLAN & PROFILE - SITE 1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-29-17

RESTRAINING CONDITION
EXIST. R/W
OBLITERATION OF EXIST. PAVEMENT
EXIST. R/W
110
115
P.I. 115+69.56
EXIST. R/W
CONST. LIMITS
EXIST. R/W
SITE 1 CONST.
END BRIDGE STA. 112+11.27
CONST. LIMITS
P.C. 112+97.97
PROPOSED R/W
50' VEGETATED BUFFER
PROPOSED R/W
N 25°30'00" E
BEAR CREEK
117+60.37 65.00
118+50.00 60.00
PROPOSED R/W
120
100' TRANS.
120+80.00 65.00
121+80.00 65.00
121+80.00 39.14
PROPOSED R/W
N 59°45'00" E
P.T. 118+24.89
117+00.00 65.00
EXIST. R/W
120+00.00 60.00
PROPOSED R/W
EXIST. R/W
121+80.00 60.00-60.87

P.I. = 115+69.56
Δ = 34°15'00" RT.
D = 6°30'00"
T = 271.60'
L = 526.92'
P.C. = 112+97.97
P.T. = 118+24.89
e = 0.100'/'
Ls = 350'

STA. 117+74 IN PLACE
24" X 66' R.C. PIPE CULVERT
RETAIN & EXTEND
16' LT. & 2' RT.
TO A COMPLETED LENGTH OF 84'
(CLASS III) (TYPE 3 BEDDING)
W/FES LT. & RT.
050 = 23 CFS, D.A. = 10 ACRES
24" R.C. PIPE = 26 LIN. FT.
24" FES = 2 EACH

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	TERMINAL ANCHOR POST (TYPE I) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
112+13.86	114+32.61	LT.	150	1		1
112+33.48	113+27.23	RT.	75		1	1

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

SITE 1

STA. 112+11.43 BEGIN SUPERELEVATION
STA. 115+61.43 MAX SUPERELEVATION (0.100 FT./FT.)
STA. 117+37.39 MAX SUPERELEVATION (0.100 FT./FT.)
STA. 120+87.39 END SUPERELEVATION (0.100 FT./FT.)

STA. 120+80.00
END SITE 1

610 600 590 580 570 560 550 540 530 520

VC= 1000'
e= 10.86'
K= 115.07

END BRIDGE
STA. 112+11.27
ELEV. = 563.34'

P.V.T. 113+00.00
565.89'

3.26%

P.V.C. 113+12.50
566.30'

050 DESIGN H. W. ELEVATION 542.30'

P.V.I. 116+75.00
578.13'

VC= 725'
e= -5.62'
K= 116.98

+74
F.L. INLET LT. = 570.11
F.L. OUTLET RT. = 555.66

P.V.T. 120+37.50
567.50'

-2.93%

P.V.I. 121+80.00
563.32'

110+00 115+00 120+00 125+00

7/15/2015

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	46	116

(2) PLAN & PROFILE - SITE 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
9-22-17

205

P.I. 207+13.61

STAGE I
STA. 209+00 INSTALL
18" X 104' TEMP.
PIPE CULVERT
PLUG & ABANDON

STA. 209+69 IN PLACE
18" X 45' RCP CULVERT
LT. SIDE DRAIN
RETAIN & INSTALL
18" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YD.

210

STA. 207+64 IN PLACE
4' X 4' X 31' R.C. BOX CULVERT
W/3±WINGS LT. & RT.
PLUG & ABANDON

STA. 211+60.72 - BRIDGE END
BRIDGE NO. 07416
248'-0" CONT. W-BEAM UNIT (77'-94'-77')
248'-0" CONT. W-BEAM UNIT (77'-94'-77')
34'-0" CLEAR ROADWAY
498'-6⅝" TOTAL LENGTH
STA. 216+59.27 - BRIDGE END

EXIST. R/W
PROPOSED R/W
CONST. LIMITS
SITE 2 CONST.
100' TRANS.
200
215
N 55°00'00" W
N 1°00'00" W
+12
+69
28'
20'
16'
I.C.E.

STA. 205+60 IN PLACE
18" X 34' RCP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 56' PIPE CULVERT
RT. SIDE DRAIN

STA. 201+69 IN PLACE
24" X 38' R.C. PIPE CULVERT
RETAIN & EXTEND
14' LT. & 14' RT.
TO A COMPLETED LENGTH OF 66'
(CLASS III) (TYPE 3 BEDDING)
W/FES LT. & RT.
Q50 = 201 CFS D.A. = 66 ACRES
24" R.C. PIPE = 36 LIN. FT.
24" FES = 2 EACH

STA. 206+12 IN PLACE
18" X 66' RCP CULVERT W/FES
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 56' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 800 CU. YD.

STA. 206+44 IN PLACE
18" X 39' RCP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 48' PIPE CULVERT
RT. SIDE DRAIN

PROPOSED R/W
P.I. = 207+13.61
Δ = 58°00'00" RT.
D = 6°30'00"
T = 488.61'
L = 892.31'
P.C. = 202+25.00
P.T. = 211+17.31
e = 0.100'/'
Ls = 350'

STA. 208+00 CONST.
54" X 184' R.C. PIPE CULVERT
ON 15° RT. FWD. SKEW
(CLASS V) (TYPE 3 BEDDING)
Q50 = 152 CFS D.A. = 66 ACRES
(PIPE JACKING)

SO. FOURCHE LA FAVE RIVER

BEGIN BRIDGE
STA. 211+60.72

RESTRAINING CONDITION

STA. 211+94.92 - STA. 216+78.15 IN PLACE
22' X 485' BRIDGE NO. 01720 CONSISTING OF 7-40' R.C.D. GIRDER SPANS & 2-100' LOW TRUSS SPANS SUPPORTED BY WALL PIERS ON SPREAD FOOTINGS
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 27) - 1.00 LUMP SUM

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	TERMINAL ANCHOR POST (TYPE 1) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
209+19.76	211+38.51	RT.	150	1		1
210+64.38	211+58.13	LT.	75		1	1

SITE 2

STA. 201+00.00
BEGIN SITE 2 - LOG MILE 8.81

STA. 201+00.00 BEGIN SUPERELEVATION
STA. 204+50.00 MAX SUPERELEVATION (0.100 FT./FT.)
STA. 208+00.00 MAX SUPERELEVATION (0.100 FT./FT.)
STA. 211+50.00 END SUPERELEVATION

SO. FOURCHE LA FAVE RIVER FROM STA. 211+10 TO STA. 212+35 IS CLASSIFIED AS A PERENNIAL STREAM. THE TOP OF CHANNEL ELEVATION IS 472.0 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 200+00.00 500.50'
P.V.C. 200+50.00 501.90'
P.V.I. 204+00.00 511.75'
P.V.C. 207+75.00 506.25'
P.V.T. 207+50.00 502.02'
P.V.T. 211+50.00 494.50'
P.V.I. 209+62.50 494.50'

F.L. INLET LT. = 500.50
F.L. OUTLET RT. = 497.2

VC= 760'
e= -5.15'
K= 119.04

VC= 375'
e= 1.44'
K= 122.28

2.81%
1.29%
-0.16%
3.21%
3.07%
-2.00%
0.00%
-1.00%
-6.13%
-2.64%

F.L. INLET LT. = 475.58
F.L. OUTLET RT. = 471.17

200+00.00 LT. 500.61
+69.00 LT. 500.50
202+00.00 LT. 502.76
205+00.00 LT. 504.14
208+00.00 LT. 494.50
209+00.00 LT. 492.50
209+69.00 LT. 492.57
211+00.00 LT. 491.76
211+75.72 LT. 491.00
207+64.00 RT. 472.91
208+10.00 RT. 471.17
208+60.00 RT. 469.33

BEGIN BRIDGE
STA. 211+60.72
ELEV. = 494.50'

Q50 DESIGN H. W. ELEVATION 488.40'

200+00 205+00 210+00 215+00
540 530 520 510 500 490 480 470 460 450

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

4/14/2014
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	47	116

(2) PLAN & PROFILE - SITE 2

GUARDRAIL

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	GUARDRAIL TERMINAL (TYPE 2) EACH	TERMINAL ANCHOR POST (TYPE I) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
216+61.86	217+55.61	RT.	75		1	1
216+81.48	219+00.23	LT.	150	1		

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
4-19-17

STA. 224+60 INSTALL
18" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YD.

RESTRAINING CONDITION

STA. 226+10 INSTALL
18" X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 70 CU. YD.

STA. 226+65 CONSTRUCT APPROACH = 70 CU. YD.

P.I. = 226+51.20
Δ = 11°41'15" LT.
D = 6°30'00"
T = 90.22'
L = 179.81'
P.C. = 225+60.98
P.T. = 227+40.79
e = 0.100'/'
Ls = 350'

220 225 215

EXIST. R/W
CONST. LIMITS
PROPOSED R/W
END BRIDGE STA. 216+59.27
SITE 2 CONST.
N 1°00'00" W
N 12°41'15" W
T.C.E.
P.C. 225+60.98
P.T. 227+40.79
P.C. 229+50.30

STA. 220+08 IN PLACE
30" X 30' CMP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL @ STA. 219+85
QUAD. 36" X 50' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 335 CU. YD.

STA. 224+39 IN PLACE
18" X 89' CMP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL @ STA. 226+00
24" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YD.

STA. 226+85 IN PLACE
24" X 38' R.C. PIPE CULVERT
REMOVE & CONST.
24" X 68' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
W/FES LT. & RT.
Q50 = 12 CFS, D.A. = 5 ACRES
24" R.C. PIPE = 68 LIN. FT.
24" FES = 2 EACH

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

STA. 229+50.30
END JOB 080439 & SITE 2

SITE 2

STA. 222+98.48 BEGIN SUPERELEVATION
STA. 226+48.48 MAX SUPERELEVATION (0.100'/')
STA. 229+50.30 MAX SUPERELEVATION (0.100'/')
STA. 230+50.30 MATCH EXIST.

END BRIDGE STA. 216+59.27 ELEV. = 494.50'
Q50 DESIGN H.W. ELEVATION 488.40'
0.00%
RT. D.G. 6.03%
RT. D.G. 4.13%
RT. D.G. 9.58%
RT. D.G. 0.92%
RT. D.G. 2.00%
1.94%
1.08%
P.V.C. 222+41.75 494.50'
VC= 300'
e= 0.73'
K= 154.68
P.V.I. 223+91.75 494.50'
P.V.T. 225+41.75 497.41'
F.L. INLET LT. = 493.97
F.L. OUTLET RT. = 493.25
P.V.I. 228+30.00 503.00'
P.V.C. 228+87.80 503.62'
VC= 125'
e= 0.16'
K= 122.62
P.V.T. 228+80.00 503.54'
VC= 100'
e= -0.1'
K= 116.43
P.V.C. 227+80.00 502.03'
P.V.I. 229+50.30 504.30'
219+85.00 RT. 484.61
220+50.00 RT. 488.53
220+65.00 RT. 489.00
223+65.00 RT. 490.50
226+65.00 RT. 493.25
230+00.00 RT. 495.96
+76

540 530 520 510 500 490 480 470 460 450
215+00 220+00 225+00 230+00

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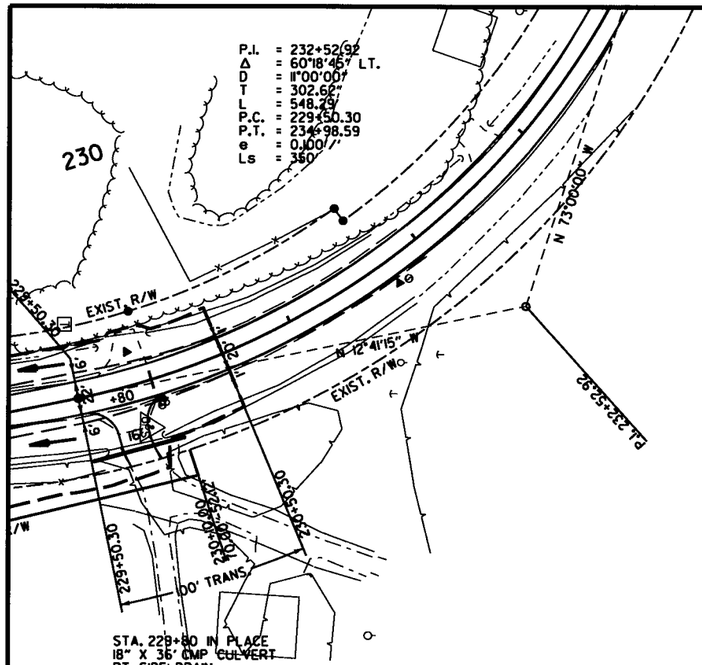
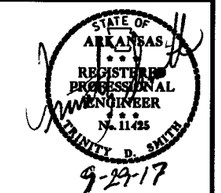
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	48	116

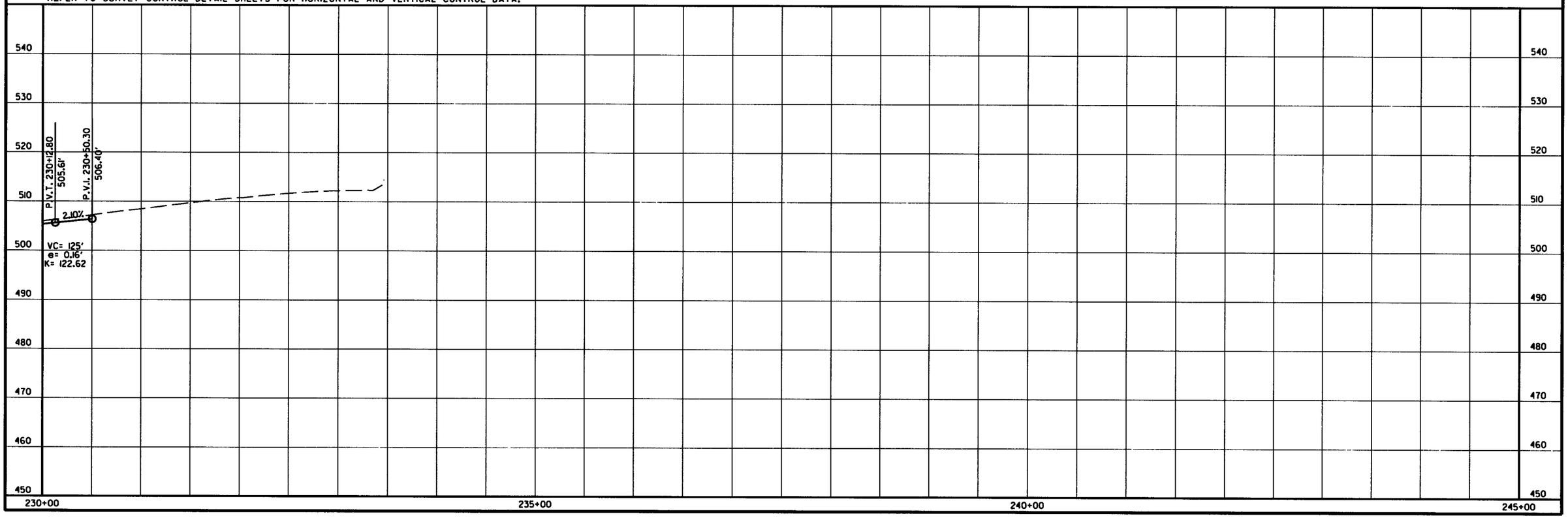
(2) PLAN & PROFILE - SITE 2





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

SITE 2



R080439.DGN 4/14/2014

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.		080439	49	116
				① 07415		- LAYOUT -	53860	

Note: For R/W Data, See Roadway Plans.

Existing Bridge No. 01721

Dumped Riprap 1'-6" thick placed on Filter Blanket above Elev. 545.0. Top of Riprap at end slope extending to pile cap and to Elev. 560.0 at side slopes. See Std. Dwg. No. 55001.

Dumped Riprap 1'-6" thick placed on Filter Blanket above Elev. 545.0. Top of Riprap at end slope extending to pile cap and to Elev. 562.0 at side slopes. See Std. Dwg. No. 55001.

⑤ Rock Fill placed to Elev. 545.0. See Special Provision Job No. 080439 "Rock Fill" (typ. both ends of bridge)

Bear Creek

Test Hole (typ.)

C.L. Bridge & C.L. Construction

Approx. 14.6 Mi. to Jct. S.H. 298

Approx. 3.2 Mi. to Jct. S.H. 314

15'-0" 30' (Typ.) 6'-0" Shdr. 1V:3H 34'-0" Finished Crown 22'-0" Pavement 6'-0" Shdr. 1V:2H

1'-10½" Parapet 34'-0" Dir. Rdwy. 37'-9" Out to Out 1'-10½" Parapet

2% Slope

Aggregate Base Course (Class 7)

Top of Rock Fill

Toe of Rock Fill

P.T. Sta. 107+00.00

P.C. Sta. 112+97.97

N 25° 30' 00.00" E

45'-0" Rt. of C.L. Constr. Sta. 108+36

45'-0" Rt. of C.L. Constr. Sta. 109+26

50'-0"

90'-0"

No construction activity shall be allowed in this area. See Special Provision Job No. 080439 "Restraining Conditions".

107+00 108+00 109+00 110+00 111+00 112+00 113+00

542 540 538 536 534 532 530 528 570 568 566 564 562 560 558 556 554 552 550 548 546 544

PLAN

Total Length of Bridge = 422'-6⅝"

1'-3⅝" 420'-0" Continuous Composite W-Beam Unit (75'-90'-90'-90'-75') 1'-3⅝"

Notes: Type Special Approach Gutters shall be placed at both ends of the bridge. See Dwg. No. 53889.

Type CI Approach Slabs (Width = 24'-0") shall be placed at both ends of the bridge. See Std. Dwg. No. 55040CI.

For Soil Boring Data, see Sheet 2 of 2.

Note: Stations and Elevations shown are along C.L. Bridge.

Elevations are shown at Working Point, see Std. Dwg. No. 55007.

Slope Intercept Sta. 107+80.00 Elev. = 560.56 — Begin Bridge Sta. 107+88.12 — C.L. Bent Sta. 108+65.00 Elev. = 559.92 — Decorative Concrete Parapet Railing — Low Steel to Design High Water = 13.6' — C.L. Bent Sta. 109+55.00 Elev. = 559.80 — Top of Deck @ C.L. Bridge to Low Steel = 4'-5⅝" "G" — C.L. Bent Sta. 110+45.00 Elev. = 560.39 — C.L. Bent Sta. 111+35.00 Elev. = 561.69 — Elev. = 563.34 End Bridge Sta. 112+11.27 — Slope Intercept Sta. 112+20.00

Guardrail (Typ.) - See Rdwy. Plans

⑥ Compacted Embankment

Proposed Grade Line along C.L. Construction

Elev. 545.0

Existing Ground Line along C.L. Constr.

⑤ Rock Fill

29' Piles

Exp. Exp. Fix Fix Exp. Exp.

Aggregate Base Course (Class 7)

Elev. 545.0

"H" "J" Elev. "L" Elev. "M"

84" ø Perm. Casing (Typ.)

72" ø Drilled Shafts (typ.)

Design H.W. (050) Elev. 541.7

OHW Elev. = 532.0

① C.L. 2½" Strip Seal Jt. (4" max. movement rating)

④ See Dwg. Nos. 53872 thru 53874 for Details of Decorative Concrete Parapet Railing.

⑤ For details of Rock Fill, see Rdwy. Plans and "Detail A", Dwg. No. 53861. From Sta. 107+50 to Sta. 112+50, approx. 4,900 Cu.Yds. of Rock Fill.

⑥ For details of Compacted Embankment (with 1V:2H slopes thereof being plated with Filter Blanket covered by Dumped Riprap), see Rdwy. Plans and "Detail A", Dwg. No. 53861. From Sta. 107+50 to Sta. 112+50, approx. 4,000 Cu.Yds. of Compacted Embankment. For Dumped Riprap and Filter Blanket Otys. from Sta. 107+50 to Sta. 112+50, see Dwg. No. 53859.

Bent No. 1 2 3 4 5 6

ELEVATION

P.V.C. 103+00.00 576.70 — P.V.I. 108+00.00 549.57 — P.V.T. 113+00.00 565.89

-5.43% 3.26%

Vertical Curve Length = 1000'

VERTICAL CURVE DATA

Along C.L. Construction
No Scale

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	③ NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	14,000	540.2	542.0
Base	100	16,100	540.8	542.9
Extreme	500	23,600	544.0	545.9
Overtopping	>500	-	-	-

② Low Steel occurs @ Sta. 109+24.39

③ Unconstricted water surface without Structures or roadway approaches.
Q100 backwater elevation for existing structure = 543.3
Drainage Area = 30.1 square miles
Historical High Water Elevation = 543.2

TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap "G"	Bent Height "H"	Shaft Length "J"	Casing Top Elev. "L"	Shaft Bott. Elev. "M"
2	4'-11⅞"	22'-0"	24'	532.99	508.99
3	4'-9⅞"	22'-0"	35'	533.00	498.00
4	4'-10⅞"	22'-6"	44'	533.01	489.01
5	5'-0⅞"	23'-6"	39'	533.14	494.14

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER BEAR CREEK
BEAR CREEK & SO. FOURCHE LA FAVE RIVER
STRS. & APPRS. (S)
PERRY COUNTY

ROUTE 7 SEC. 11

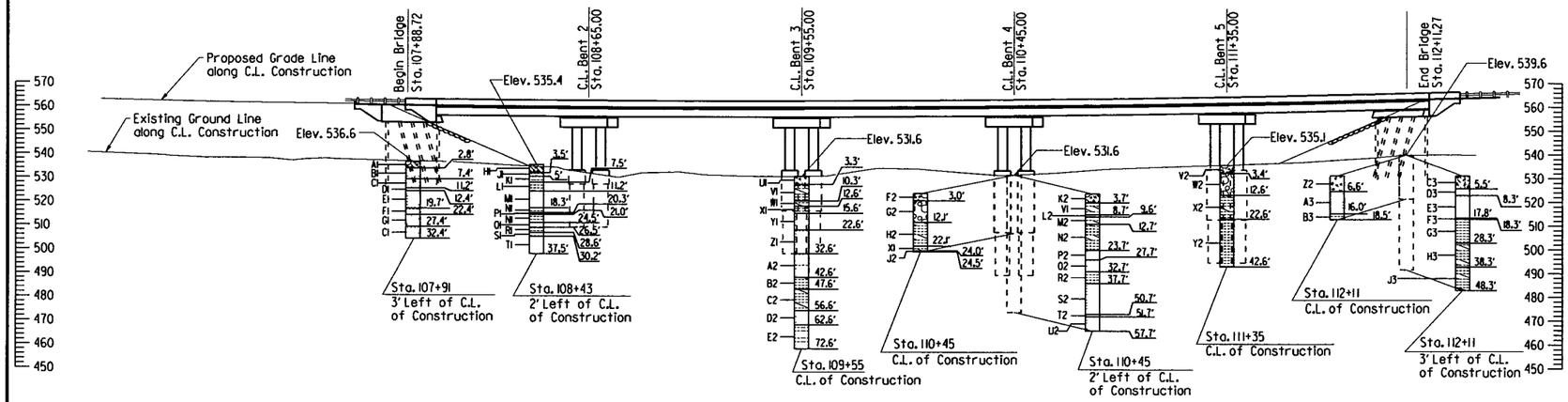
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 06/12/17 FILENAME: b080439xl_ll.dgn
CHECKED BY: JAC DATE: 9/19/17 SCALE: 1"=30'
DESIGNED BY: YZ DATE: 9/19/17

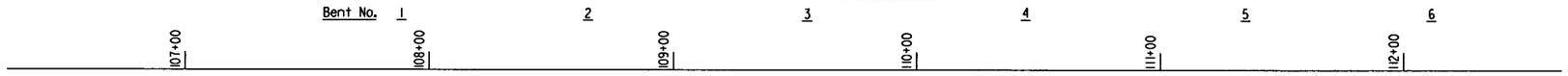
BRIDGE NO. 07415 DRAWING NO. 53860

PRINT DATE: 9/19/2017

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.		080439	50	116
				07415		- LAYOUT -		53861

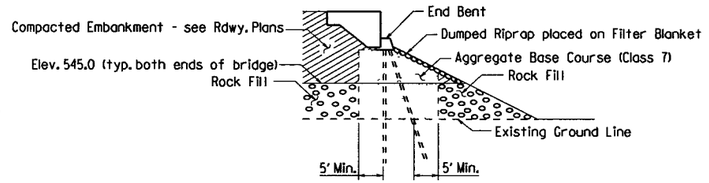


ELEVATION - SOIL BORINGS



BORING LEGEND

AI-Brown and Gray Clay with Gravel and Cobbles (Sandstone Fragments)
BI-SANDSTONE - Weathered, Cemented, Frequent Fractures, Moderately Dipping, Light Gray
CI-SANDSTONE - Unweathered, Well Cemented, Moderately Dipping, Light Gray
DI-SHALE INTERBEDDED WITH SANDSTONE - Slightly Weathered, Medium Hard, Moderately Dipping, Dark Gray
EI-SANDSTONE WITH OCCASIONAL SHALE SEAMS AND LAYERS - Unweathered, Well Cemented, Moderately Dipping, Light Gray
FI-SHALE INTERBEDDED WITH SANDSTONE - Unweathered, Medium Hard, Moderately Dipping, Dark Gray
GI-SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Well Cemented, Moderately Dipping, Light Gray
HI-Brown and Gray Clayey Cobbles and Boulders
JI-SHALE - Weathered, Medium Hard, Dark Gray
KI-SHALE INTERBEDDED WITH SANDSTONE - Weathered, Medium Hard, Cemented, Steeply Dipping, Gray
LI-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Slightly Weathered, Medium Hard, Steeply Dipping, Dark Gray
MI-SANDSTONE WITH OCCASIONAL SHALE SEAMS - Unweathered, Well Cemented, Steeply Dipping, Occasional Fractures, Light Gray
NI-SHALE - Slightly Weathered, Medium Hard, Steeply Dipping, Frequent Fractures, Dark Gray
PI-SANDSTONE - Unweathered, Well Cemented, Steeply Dipping, Frequent Fractures, Light Gray
QI-SANDSTONE WITH OCCASIONAL SHALE LAYERS - Unweathered, Well Cemented, Steeply Dipping, Occasional Fractures, Light Gray
RI-SHALE - Slightly Weathered, Medium Hard, Steeply Dipping, Occasional Fractures, Dark Gray
SI-SANDSTONE WITH FREQUENT SHALE SEAMS AND LAYERS - Unweathered, Well Cemented, Steeply Dipping, Frequent Fractures, Gray
TI-SANDSTONE - Unweathered, Well Cemented, Steeply Dipping, Frequent Fractures, Light Gray
UI-Wet, Medium Dense, Brown Sand and Gravel with Organic Matter
VI-SHALE - Highly Weathered, Soft, Gray
WI-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Highly Weathered, Soft to Medium Hard, Steeply Dipping, Gray
XI-SHALE - Highly Weathered, Soft, Steeply Dipping, Gray
YI-SANDSTONE - Slightly Weathered, Cemented, Frequent Fractures and Quartz Filled Veins, Steeply Dipping, Gray
ZI-SANDSTONE WITH OCCASSIONAL SHALE LAYERS - Slightly Weathered, Well Cemented with Occasional Soft Layers (Shale), Frequent Fractures,
A2-SANDSTONE WITH FREQUENT SHALE LAYERS - Slightly Weathered, Well Cemented with Occasional Soft Layers (Shale), Frequent Fractures, Steeply Dipping, Gray
B2-SHALE - Highly Weathered, Soft, Steeply Dipping, Steeply Dipping, Dark Gray
C2-SHALE - Highly Weathered, Soft with Occasional Medium Hard Layers, Steeply Dipping, Dark Gray
D2-SANDSTONE - Slightly Weathered, Well Cemented, Frequent Fractures, Steeply Dipping, Gray
E2-SHALE INTERBEDDED WITH SANDSTONE - Slightly Weathered to Highly Weathered, Soft to Medium Hard, Frequent Fractures, Steeply Dipping, Gray
F2-Gravel, Cobbles, and Boulders
G2-Moist, Cemented, Gray Sandstone Cobbles and Boulders
H2-SHALE - Highly Weathered, Soft to Medium Hard, Steeply Dipping, Gray
J2-SANDSTONE - Slightly Weathered, Cemented, Frequent Fractures, Steeply Dipping, Gray
K2-Gravel, Cobbles, and Boulders with Clay and Organic Matter
L2-SHALE - Highly Weathered, Medium Hard, Gray
M2-SHALE - Highly Weathered (No Recovery)
N2-SHALE - Highly Weathered, Soft, Steeply Dipping, Dark Gray
P2-SANDSTONE - Slightly Weathered, Well Cemented, Frequent Quartz Veins, Frequent Fractures, Steeply Dipping, Gray
Q2-SANDSTONE WITH OCCASIONAL SHALE SEAMS - Slightly Weathered, Occasional Fractures, Frequent Quartz Veins, Occasional Slickensides, Steeply Dipping, Gray
R2-SHALE - Slightly Weathered, Medium Hard, Frequent Slickensides, Occasional Talc Veins, Steeply Dipping, Dark Gray
S2-SANDSTONE - Slightly Weathered, Cemented, Occasional Fractures, Steeply Dipping, Gray
T2-SHALE - Highly Weathered, Soft to Medium Hard, Steeply Dipping, Dark Gray
U2-SANDSTONE WITH OCCASIONAL SHALE SEAMS AND LAYERS - Slightly Weathered, Cemented, Occasional Quartz Veins and Quartz-Lined Voids, Steeply Dipping, Gray
V2-Gravel, Cobbles, and Boulders with Sand
W2-Very Dense, Sandstone Cobbles and Boulders
X2-SHALE - Highly Weathered to Weathered, Soft to Medium Hard, Occasional Slickensides, Occasional Quartz Veins, Moderately to Steeply Dipping, Gray
Y2-SHALE - Weathered, Medium Hard, Frequent Fractures, Moderately to Steeply Dipping, Occasional Slickensides, Dark Gray
Z2-Moist, Medium Dense, Brown Sand with Gravel (Rock Fragments)
A3-SANDSTONE - Weathered, Well Cemented, Occasional Quartz Veins, Steeply Dipping, Gray
B3-SHALE - Weathered, Medium Hard, Moderate Dip, Frequent Slickensides, Steeply Dipping, Dark Gray
C3-Moist, Very Dense, Brown and Gray Gravel with Clay and Sand
D3-SANDSTONE - Weathered, Well Cemented, Frequent Quartz Veins, Steeply Dipping, Gray
E3-SANDSTONE - Weathered, Well Cemented, Frequent Quartz Veins, Frequent Fractures, Steeply Dipping, Gray
F3-SHALE - Unweathered, Hard, Frequent Slickensides, Steeply Dipping, Gray
G3-SHALE - Unweathered, Hard, Frequent Slickensides, Frequent Quartz Veins, Steeply Dipping, Gray
H3-SHALE - Weathered with Highly Weathered Layers, Medium Hard with Soft Layers, Frequent Slickensides, Frequent Quartz Veins, Steeply Dipping, Gray
J3-SHALE - Weathered with Highly Weathered Layers, Medium Hard with Soft Layers, Occasional Slickensides, Steeply Dipping, Gray



Where rock fill is used for embankment construction, aggregate base course (Class 7), in accordance with Subsection 303.02, shall be placed as shown in areas where piling will be located. The top layer of Rock Fill shall be comprised of a minimum of 6" aggregate base course (Class 7). Aggregate base course (Class 7) shall be paid for as "Rock Fill". See Special Provision Job No. 080439 "Rock Fill".

DETAIL A

No Scale

"N" VALUES

Sta. 107+91 - 3' Left of C.L. of Construction
2.8 - 2.8, N=100 (0")

Sta. 108+43 - 2' Left of C.L. of Construction
4.0 - 4.6, N=92 (7")

Sta. 109+55 - C.L. of Construction
3.8 - 4.8, N=18
8.8 - 9.8, N=51

Sta. 110+45 - C.L. of Construction
3.0 - 3.0, N=100 (0")

Sta. 110+45 - 2' Left of C.L. of Construction
4.2 - 5.2, N=56
9.2 - 9.5, N=60 (5")

Sta. 111+35 - C.L. of Construction
3.4 - 3.4, N=100 (0")

Sta. 112+11 - C.L. of Construction
4.8 - 5.8, N=16
6.6 - 6.6, N=100 (0")

Sta. 112+11 - 3' Left of C.L. of Construction
4.7 - 5.5, N=109 (9")

GENERAL NOTES

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

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

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

LIVE LOADING: HL-93 SEISMIC ZONE: 1 (SDI = 0.12)

MATERIALS AND STRENGTHS:

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

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

STEEL PILING: Piling in Bents 1 and 6 shall be HP 14X73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer into material designated as CI at Bent 1 and D3/E3 at Bent 6 on the boring legend and to a minimum safe bearing capacity of 90 tons per pile. Piles shall be driven after embankment to bottom of cap is in place. Minimum penetration shall be 10 feet below natural ground for all piling. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piles in Bents 1 and 6. The depth of preboring shall be sufficient to provide the specified minimum penetration and to set the pile tips a minimum of 3 ft into the materials designated as CI at Bent 1 and D3/E3 at Bent 6 on the boring legend, whichever is lower. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts in Bents 2 through 5 shall be constructed in accordance with Special Provision Job No. 080439 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum 18'-0" into the slightly weathered shale or sandstone designated as LI/MI, YI/ZI, P2/Q2/R2, or Y2 on the Boring Legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer. Temporary casing may be required.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. 080439 "Nondestructive Testing of Drilled Shafts".

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

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface only. It SHALL NOT be applied to the wings, railings, or curbs.

DETAIL DRAWINGS:	DRAWING NO.
Bents 1 & 6	53862-53864, 53866-53868
Bents 2 - 5	53865
420'-0" Continuous W-Beam Unit	53869-53875
Elastomeric Bearings	53876
Standard General Notes	55006
Steel Piling	55020
Type Special Approach Gutters	53889
Type CI Approach Slabs	55040CI

EXISTING BRIDGE: Existing Bridge No. 01721 is 22' wide and 304' long and consists of four 30' R.C. Deck Girder Spans and two 90' Pony Truss Spans supported by wall piers on spread footings.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, Existing Bridge No. 01721 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the bridge guardrail system, (including rails, posts, bolts and related accessories), which shall remain the property of the State. The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide temporary storage and on site loading onto AHTD equipment for removal of salvage items from the site. This work shall be considered incidental to the item "Removal of Existing Bridge Structure".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
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BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER BEAR CREEK
BEAR CREEK & SO. FOURCHE LA FAVE RIVER
STRS. & APPRS. (S)
PERRY COUNTY
ROUTE 7 SEC. 11
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 06/12/17 FILENAME: b080439xl_ll.dgn
CHECKED BY: JAC DATE: 9/18/17 SCALE: 1"=30'
DESIGNED BY: YZ DATE: 9/18/17
BRIDGE NO. 07415 DRAWING NO. 53861

PRINT DATE: 9/19/2017

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.		080439	51	116
				①		07415 - BENT 1 - 53862		

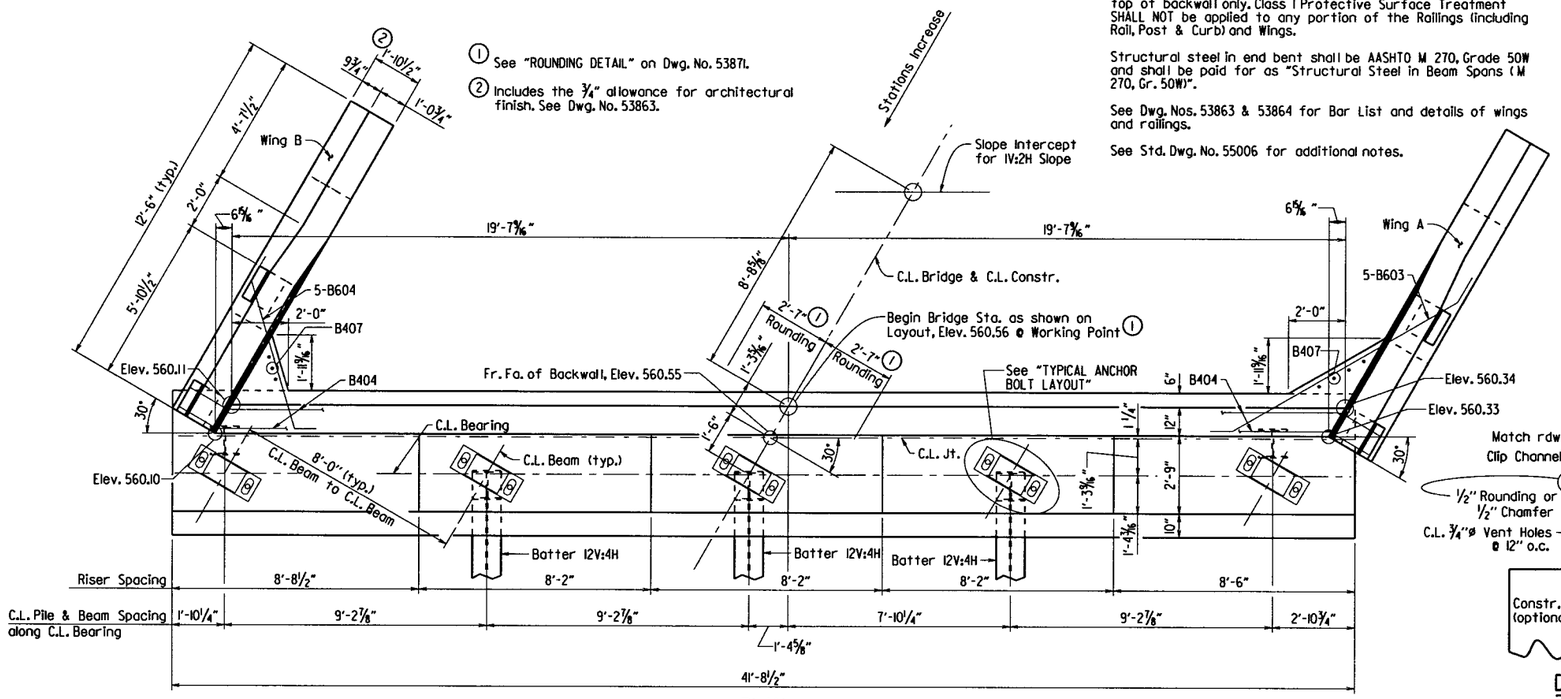
Notes:

Class I Protective Surface Treatment shall be applied to the top of backwall only. Class I Protective Surface Treatment SHALL NOT be applied to any portion of the Railings (including Rail, Post & Curb) and Wings.

Structural steel in end bent shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

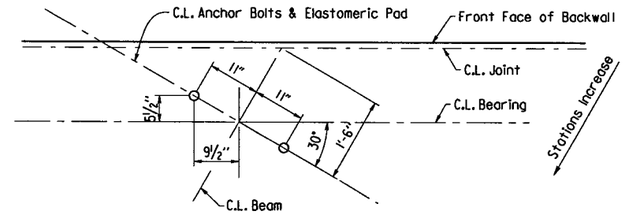
See Dwg. Nos. 53863 & 53864 for Bar List and details of wings and railings.

See Std. Dwg. No. 55006 for additional notes.



PLAN

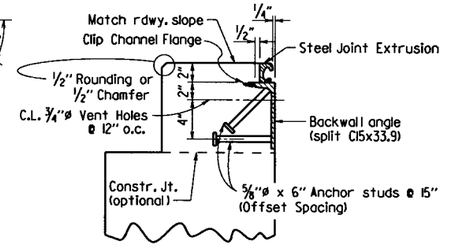
⅜" = 1'-0"



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"



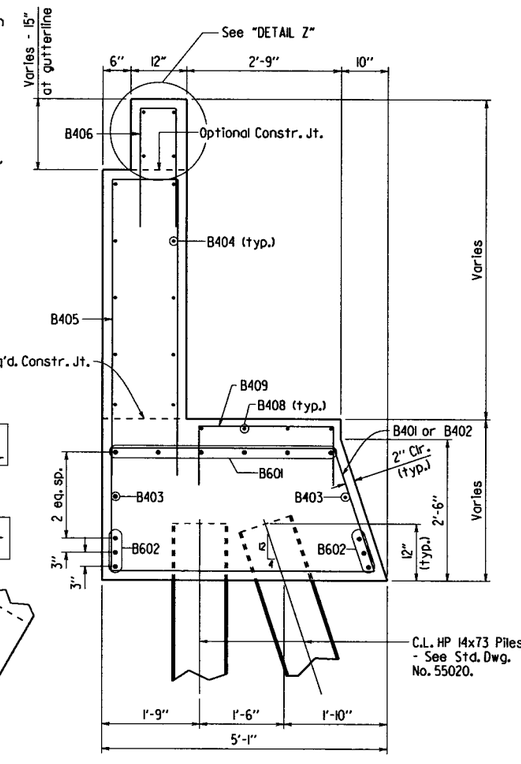
DETAIL "Z"

No Scale

NOTES: For additional Joint Details, see Dwg. No. 53875.

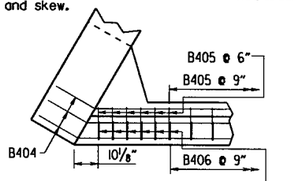
Concrete shall be hand packed under the joint armor in the backwall.

The backwall angle shall be profiled to account for vertical curve and skew.



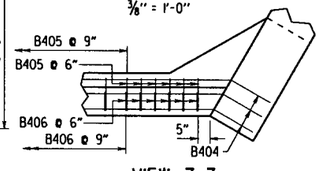
SECTION X-X

¾" = 1'-0"



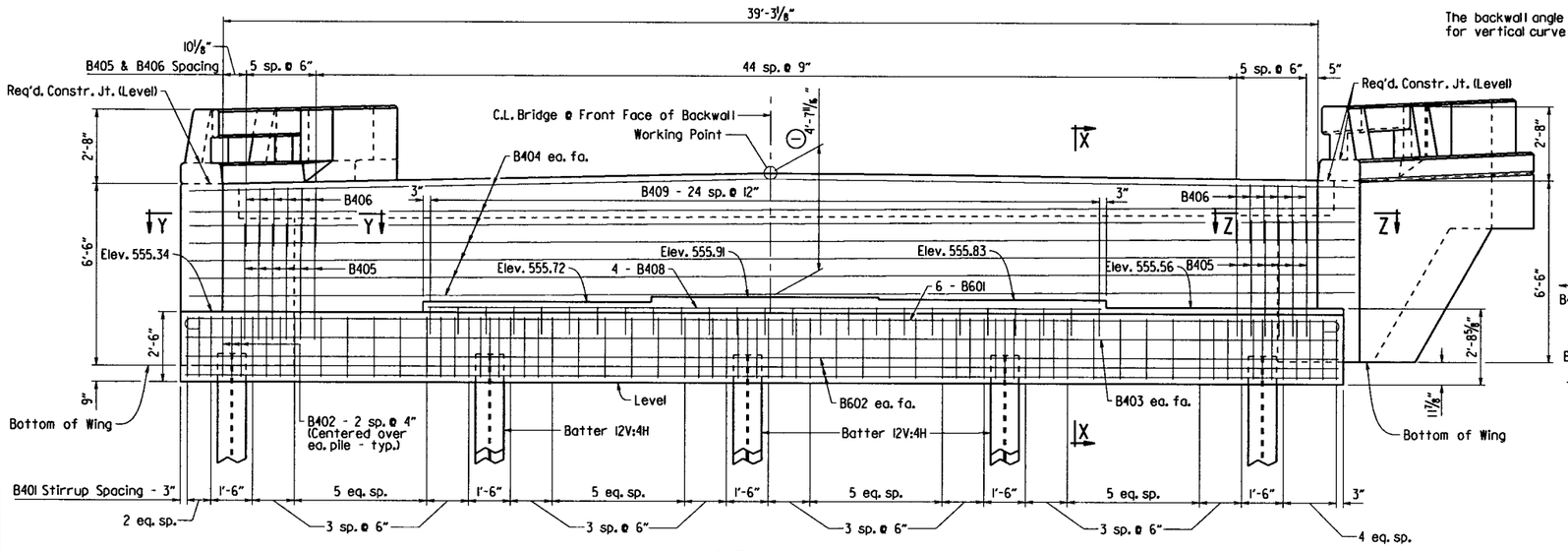
VIEW Y-Y

⅜" = 1'-0"



VIEW Z-Z

⅜" = 1'-0"



ELEVATION

Looking Back

⅜" = 1'-0"

STATE OF ARKANSAS
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SHEET 1 OF 3
DETAILS OF BENT NO. 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17
CHECKED BY: TMG DATE: 9/21/17
DESIGNED BY: TMG DATE: 7/2017

FILENAME: b080439x1.dgn
SCALE: As Shown

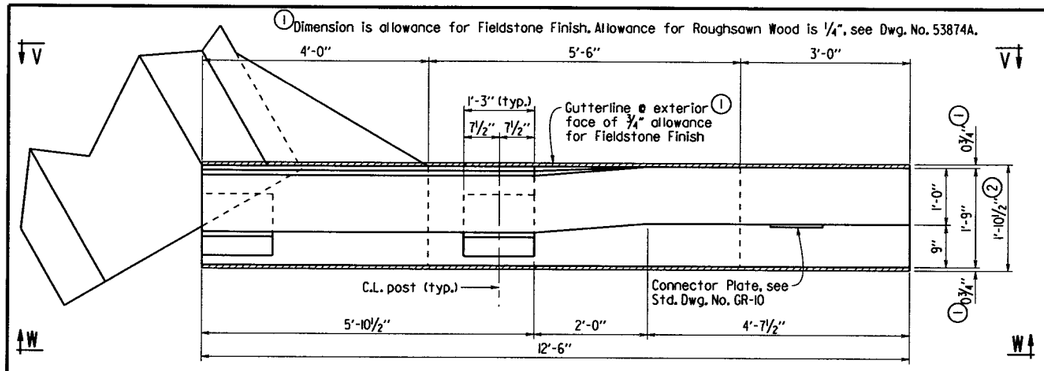
BRIDGE NO. 07415

DRAWING NO. 53862

PRINT DATE: 9/21/2017

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.		080439	52	116
				①		07415 - BENT 1 - 53863		

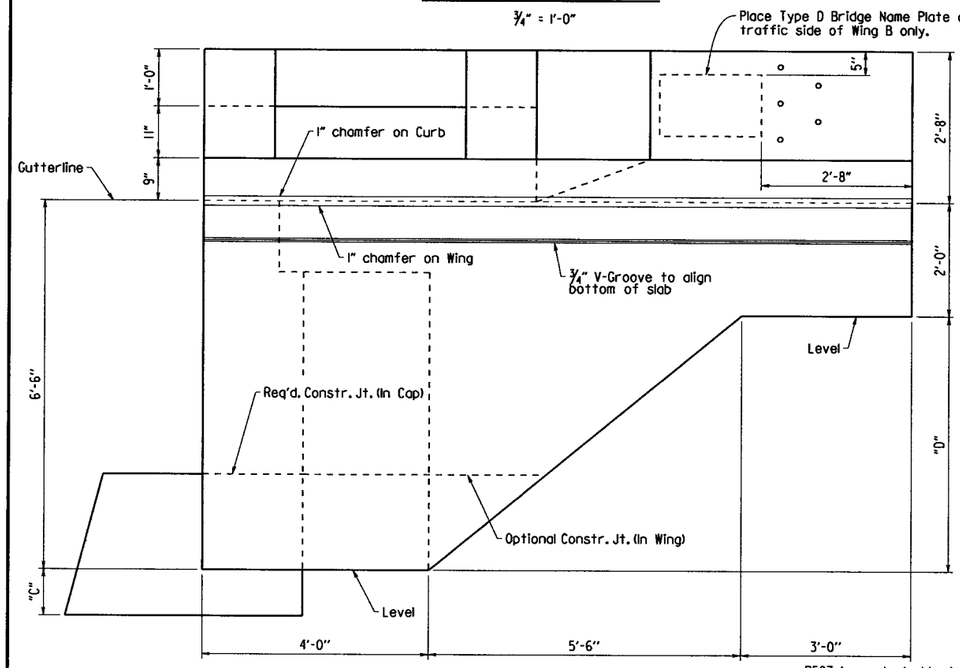
① Dimension is allowance for Fieldstone Finish. Allowance for Roughsawn Wood is 1/4", see Dwg. No. 53874A.



② Includes allowance for ¾" Fieldstone Finish each side.

PLAN OF RAILING (WING A)

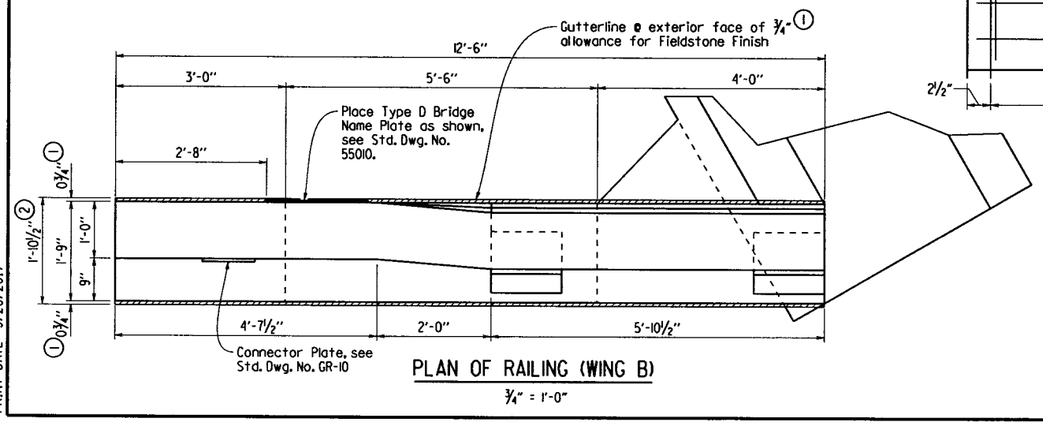
¾" = 1'-0"



VIEW W-W

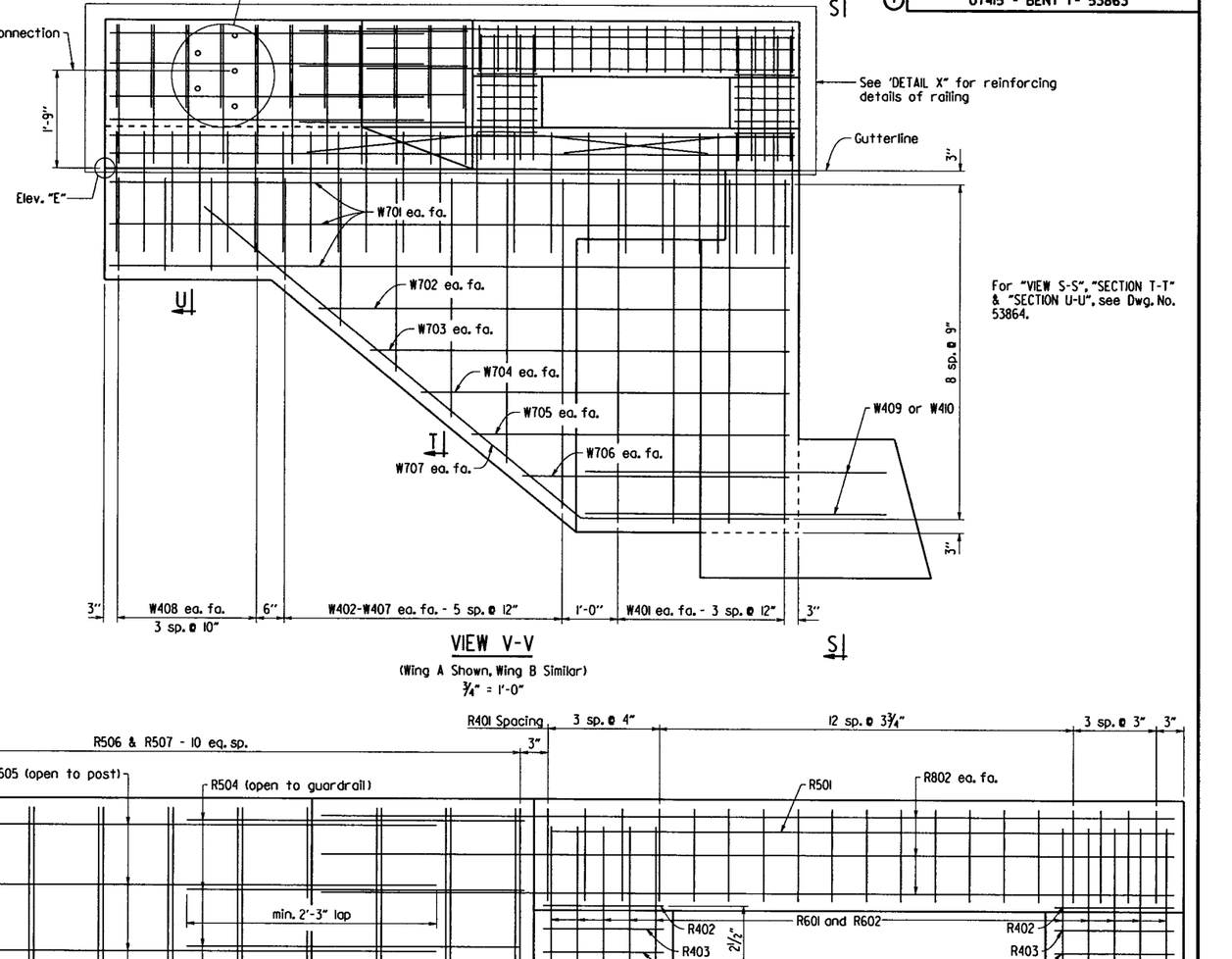
(Wing A Shown, Wing B Similar)

¾" = 1'-0"



PLAN OF RAILING (WING B)

¾" = 1'-0"

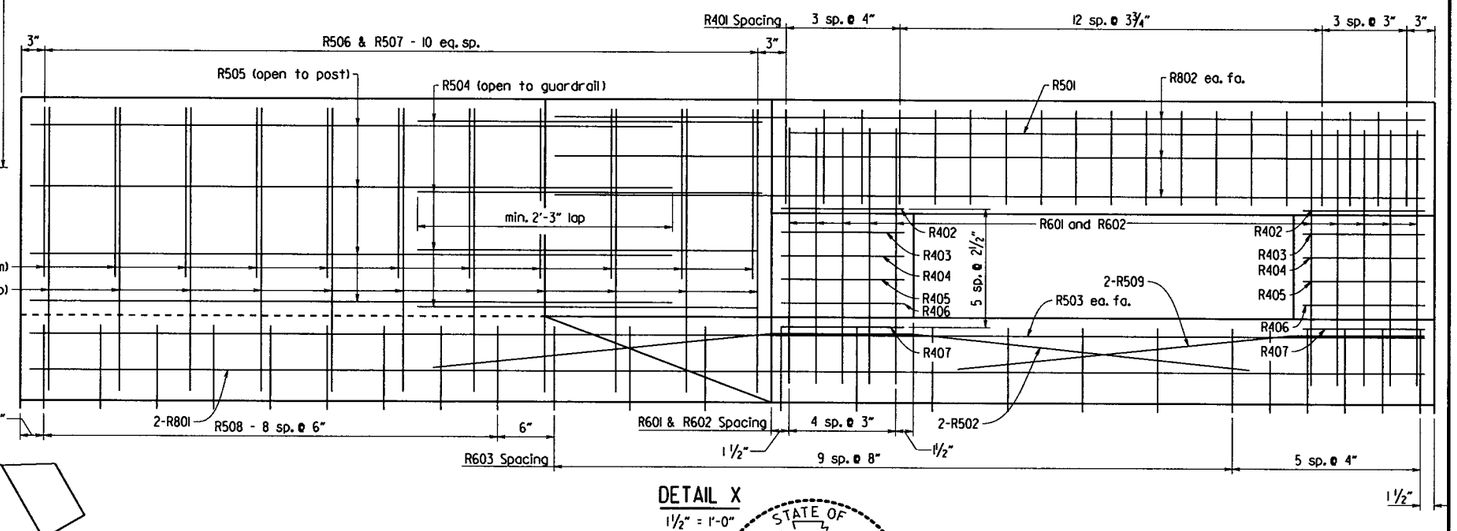


For "VIEW S-S", "SECTION T-T" & "SECTION U-U", see Dwg. No. 53864.

VIEW V-V

(Wing A Shown, Wing B Similar)

¾" = 1'-0"



DETAIL X

1½" = 1'-0"

TABLE OF VARIABLES

Wing	"C"	"D"	Elev. "E"
A	11⅞"	4'-7⅝"	560.49
B	9"	4'-7⅜"	560.24

STATE OF ARKANSAS
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SHEET 2 OF 3
DETAILS OF BENT NO. 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17 FILENAME: b080439xl_bl.dgn
CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown
DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07415 DRAWING NO. 53863

PRINT DATE: 9/20/2017

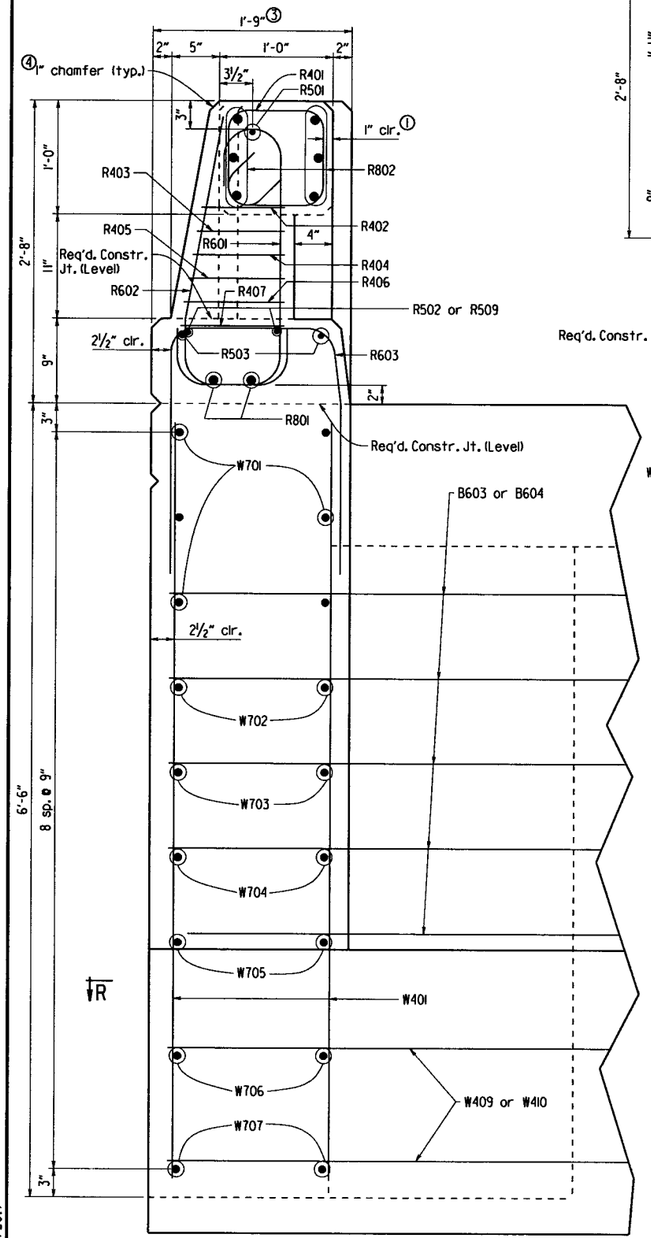
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	53	116
				① 07415 - BENT 1 - 53864				

① A typical clear cover of 1" shall be provided for the Railing (includes Rail, Post and Curb) reinforcement, unless otherwise noted.

② Typ. for wings unless noted otherwise

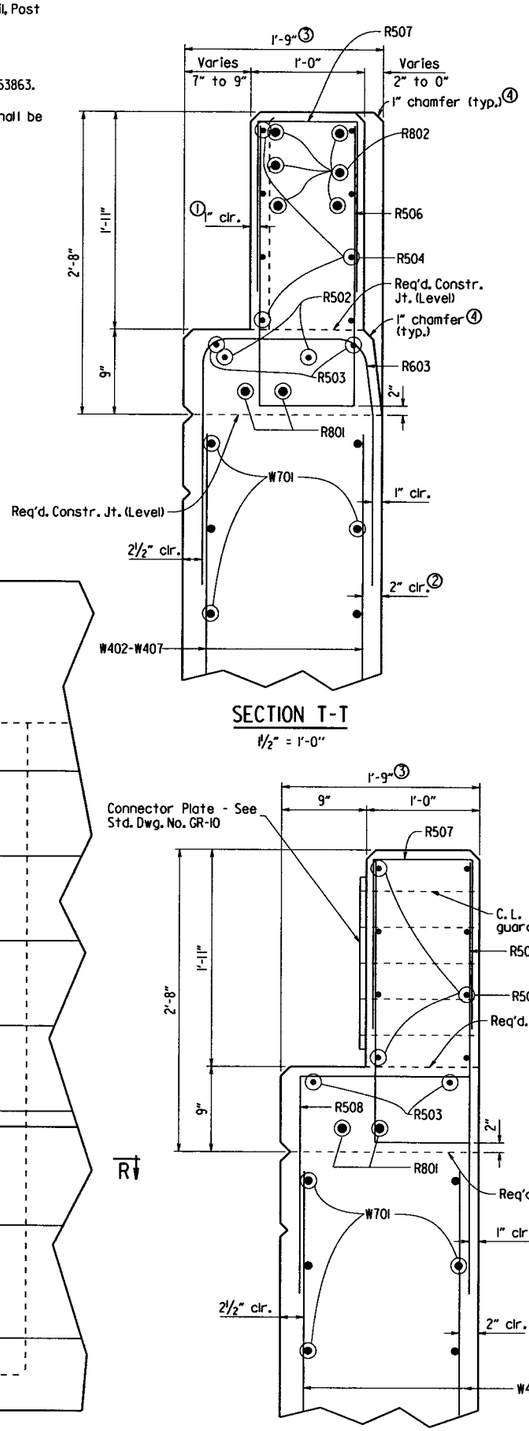
③ Does not include the ¾" allowance for architectural finish. See Dwg. No. 53863.

④ All exposed corners for the Railing components (Rail, Post, Curb & Wall) shall be chamfered 1" unless otherwise noted.



VIEW S-S

1½" = 1'-0"

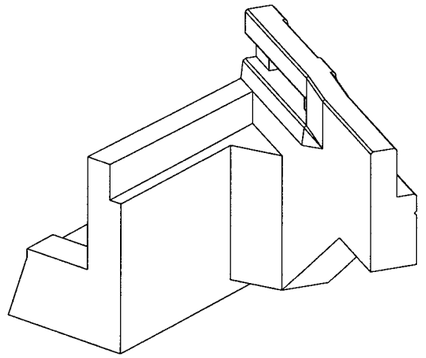


SECTION T-T

½" = 1'-0"

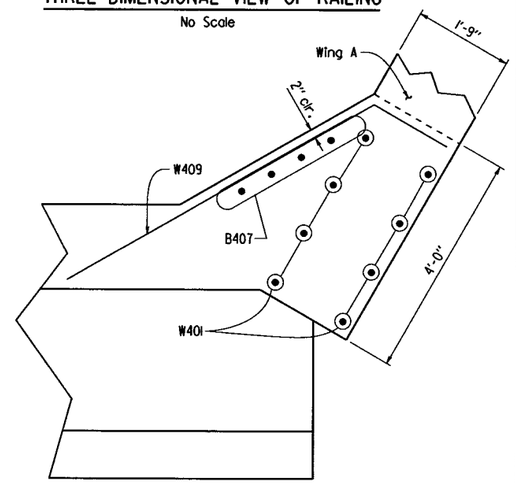
SECTION U-U

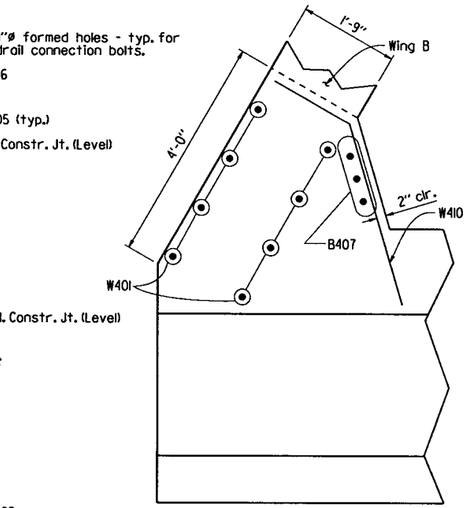
1½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAILING

No Scale





SECTION R-R

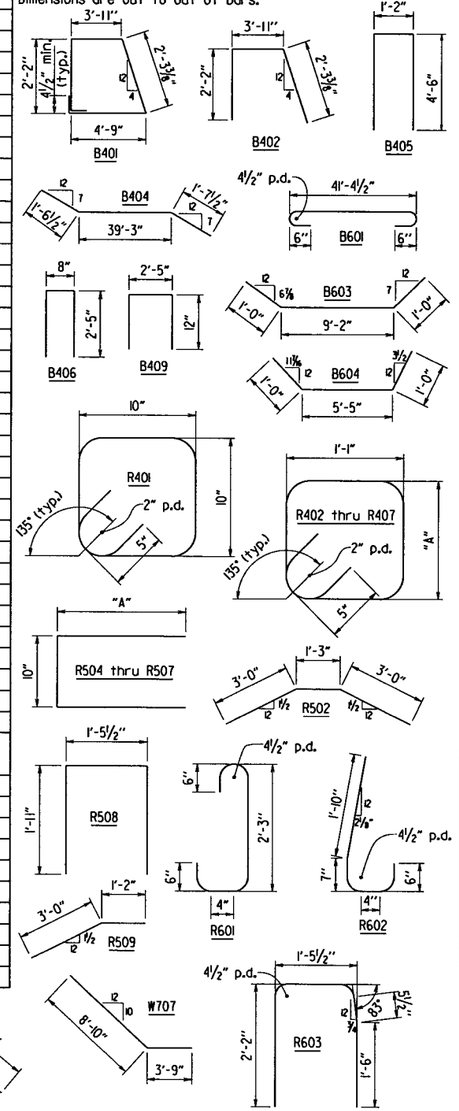
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
B401	56	13'-6"	-	2"
B402	15	8'-3"	-	2"
B403	2	41'-4½"	-	Str.
B404	14	38'-11"	-	Str.
B405	54	10'-0"	-	2"
B406	54	5'-4"	-	2"
B407	7	4'-11"	-	Str.
B408	4	24'-2"	-	Str.
B409	25	4'-3"	-	2"
B601	6	42'-8½"	-	4½"
B602	6	41'-4½"	-	Str.
B603	5	11'-2"	-	4½"
B604	5	7'-5"	-	4½"
R401	38	3'-8"	-	2"
R402	4	4'-0"	9"	2"
R403	4	4'-1"	9½"	2"
R404	4	4'-2"	10"	2"
R405	4	4'-3"	10½"	2"
R406	4	4'-4"	11"	2"
R407	4	4'-5"	11½"	2"
R501	2	5'-7"	-	Str.
R502	4	7'-3"	-	3¾"
R503	4	12'-4"	-	Str.
R504	8	6'-8"	3'-0½"	3¾"
R505	8	11'-11"	5'-8"	3¾"
R506	22	5'-7"	2'-6"	3¾"
R507	22	3'-7"	1'-6"	3¾"
R508	18	5'-1"	-	3¾"
R509	4	4'-2"	-	3¾"
R601	16	4'-0"	-	4½"
R602	16	3'-5"	-	4½"
R603	30	5'-6"	-	4½"
R801	4	12'-4"	-	Str.
R802	12	7'-9"	-	Str.
W401	16	6'-2"	-	Str.
W402 - W407	4 ea.	5'-11" to 1'-10"	-	Str.
W408	16	1'-8"	-	Str.
W409	2	7'-9"	-	2"
W410	2	4'-10"	-	2"
W701	12	12'-2"	-	Str.
W702	4	8'-5"	-	Str.
W703	4	7'-6"	-	Str.
W704	4	6'-7"	-	Str.
W705	4	5'-8"	-	Str.
W706	4	4'-9"	-	Str.
W707	4	12'-7"	-	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT NO. 1

ROUTE SEC.

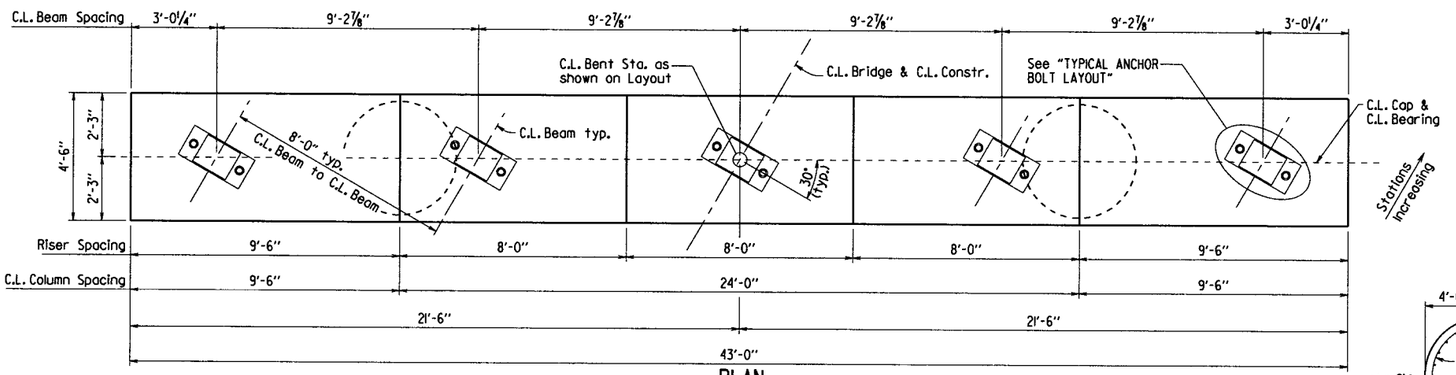
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17
CHECKED BY: TMG DATE: 9/21/17
DESIGNED BY: TMG DATE: 7/2017
FILENAME: b080439xl_bl.dgn
SCALE: As Shown

BRIDGE NO. 07415 DRAWING NO. 53864

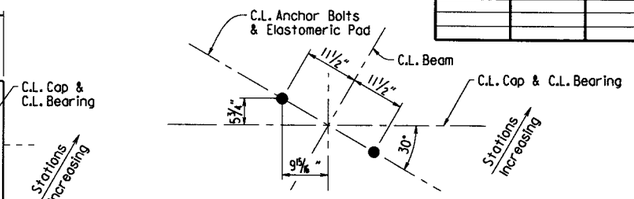
PRINT DATE: 9/20/2017

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE & ARK.	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				JOB NO.		080439	54	116
				① 07415 -		INT. BENTS -		53865



PLAN

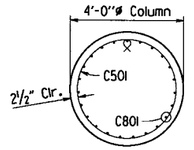
⅜" = 1'-0"



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT

No Scale



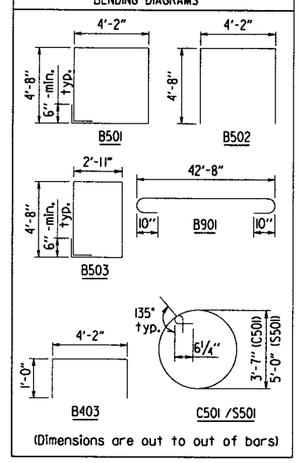
SECTION D-D

⅜" = 1'-0"

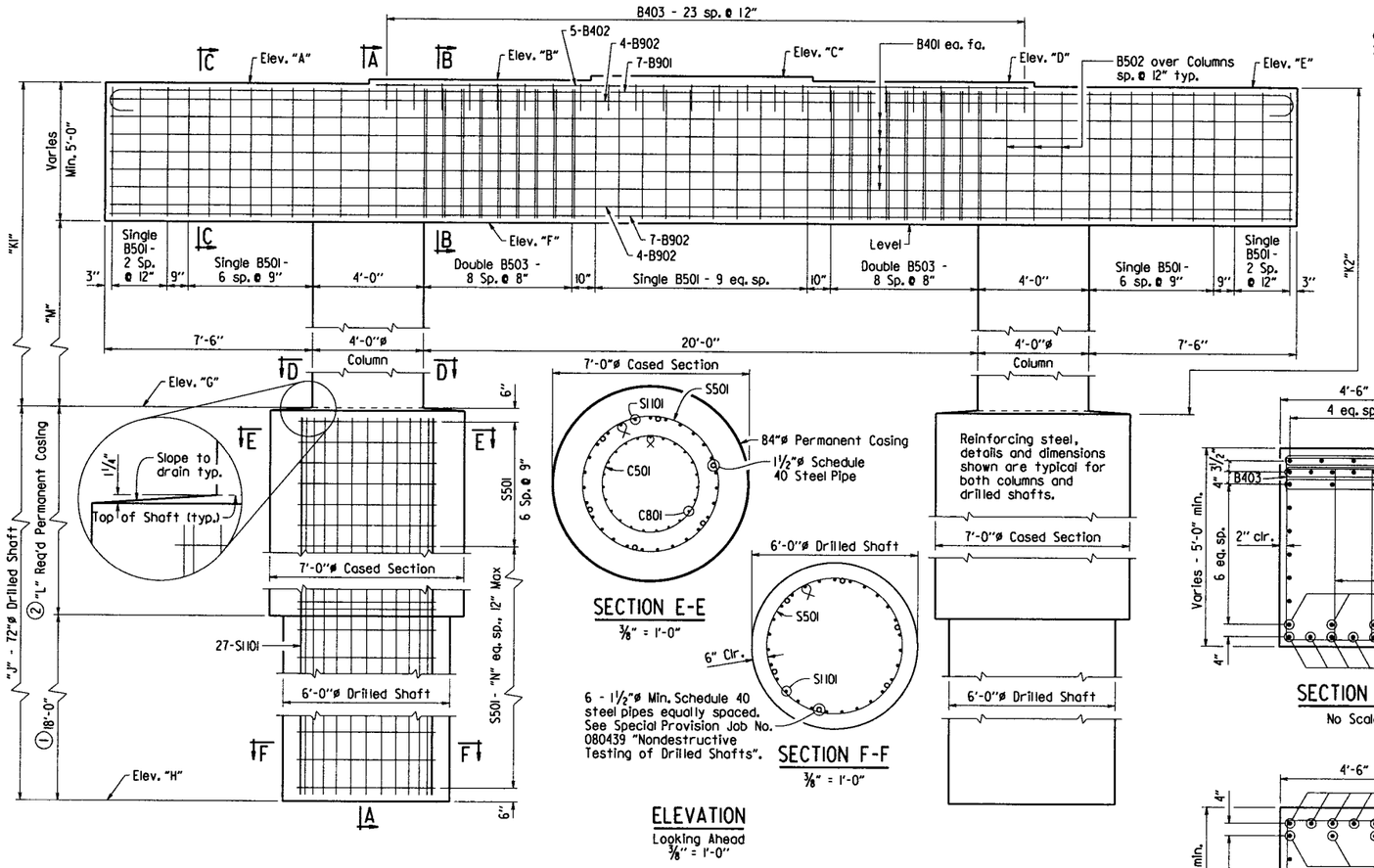
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	10	42'-8"	Str.
B402	5	23'-8"	Str.
B403	24	6'-0"	2"
B501	30	18'-2"	2½"
B502	6	13'-4"	2½"
B503	36	15'-8"	2½"
B901	7	45'-2"	9"
B902	15	42'-8"	Str.
C501	"O"	12'-9"	3¾"
C801	46	"S"	Str.
④ S501	"R"	17'-3"	3¾"
④ S1101	54	"T"	Str.

BENDING DIAGRAMS



(Dimensions are out to out of bars)



ELEVATION

Looking Ahead

⅜" = 1'-0"

SECTION E-E

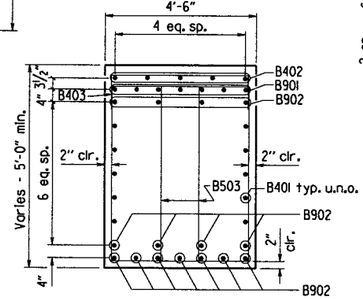
⅜" = 1'-0"

6 - 1½"ø Min. Schedule 40 steel pipes equally spaced. See Special Provision Job No. 080439 "Nondestructive Testing of Drilled Shafts".

SECTION F-F

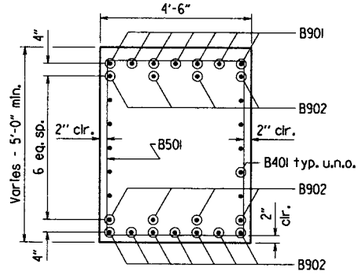
⅜" = 1'-0"

Reinforcing steel, details and dimensions shown are typical for both columns and drilled shafts.



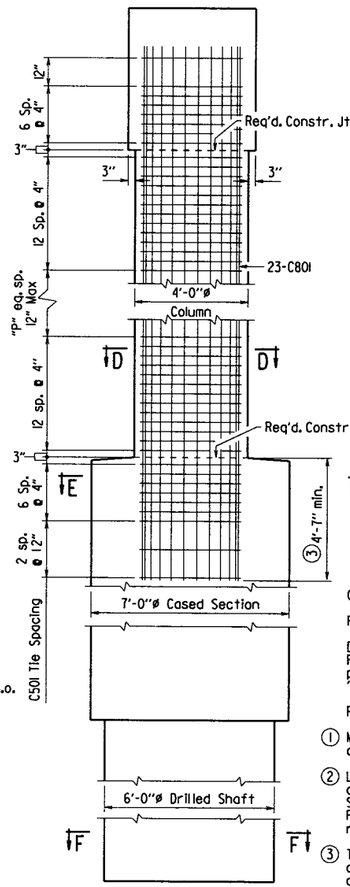
SECTION B-B

No Scale



SECTION C-C

No Scale



SECTION A-A

⅜" = 1'-0"

General Notes:

For Standard General Notes, See Std. Dwg. No. 55006.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 080439 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (72" Dia.)" and "Permanent Steel Casing (84" Dia.)".

For additional information, see Layout.

① Minimum penetration into competent rock below permanent casing.

② Length of permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 080439 "Drilled Shaft Foundations". Permanent casings shall not extend below top of competent rock.

③ The column reinforcing cage may be placed before or after concrete placement in the shaft is complete. Vibration of the concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

④ Non-pay item - Subsidiary to the item "Drilled Shaft (72" Dia.)".

TABLE OF VARIABLES

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	"J"	"K1"	"K2"	② "L"	"M"	"N"	"P"	"Q"	"R"	"S"	"T"
2	555.09	555.39	555.50	555.34	554.99	549.99	532.99	508.99	24'-0"	22'-1⅜"	22'-0"	6'-0"	17'-0"	19	9	100	52	25'-3"	23'-6"
3	555.00	555.33	555.48	555.36	555.04	550.00	533.00	498.00	35'-0"	22'-0"	22'-0½"	17'-0"	17'-0"	30	9	100	78	25'-3"	34'-6"
4	555.51	555.89	556.07	555.98	555.71	550.51	533.01	489.01	44'-0"	22'-6"	22'-8⅜"	26'-0"	17'-6"	39	9	100	92	25'-9"	43'-6"
5	556.64	557.05	557.26	557.22	556.98	551.64	533.14	494.14	39'-0"	23'-6"	23'-10⅛"	21'-0"	18'-6"	34	10	102	82	26'-9"	38'-6"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF BENT NOS. 2 THRU 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/30/2017 FILENAME: b080439xl_b2.dgn

CHECKED BY: TMG DATE: 8/30/17 SCALE: As Shown

DESIGNED BY: TMG DATE: 7/20/17

BRIDGE NO. 07415 DRAWING NO. 53865

PRINT DATE: 8/30/2017

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.		080439	55	116
				①		07415 - BENT 6 - 53866		

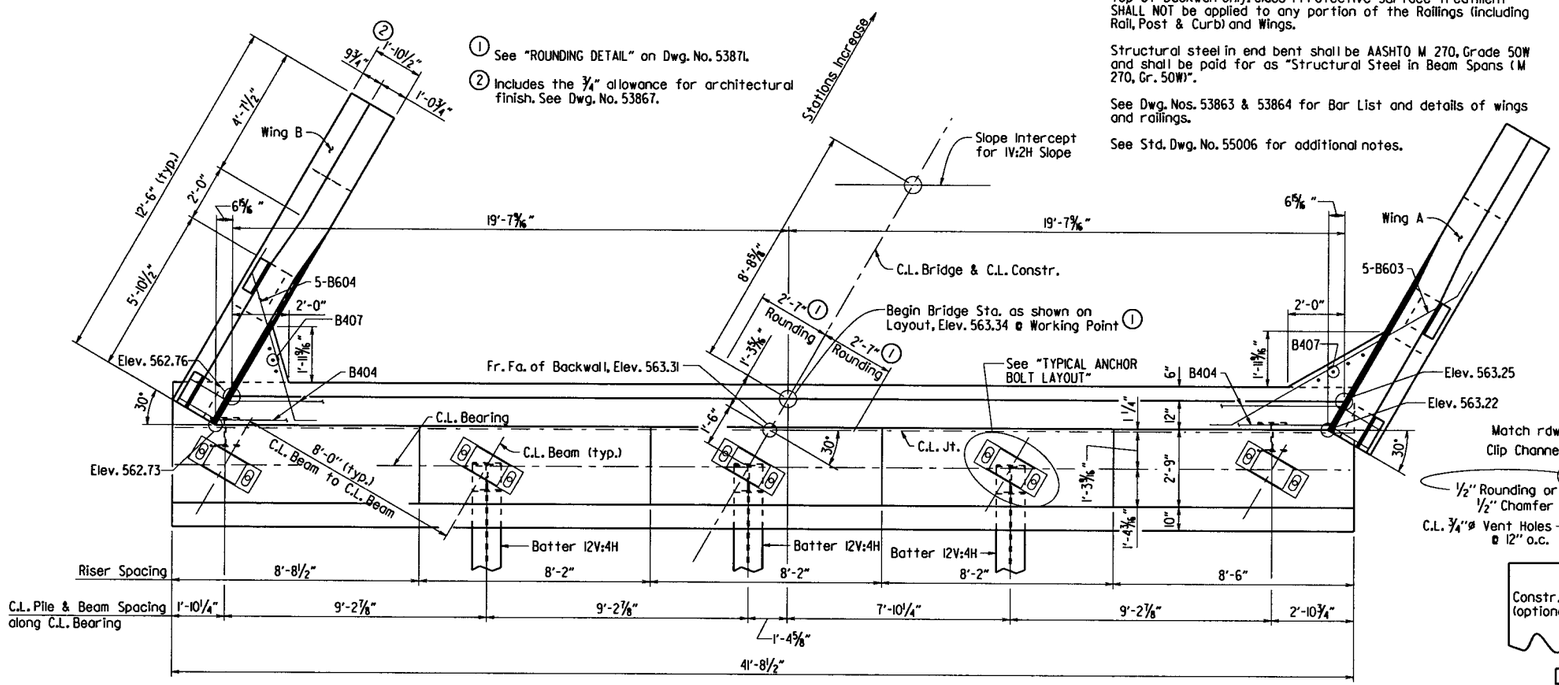
Notes:

Class I Protective Surface Treatment shall be applied to the top of backwall only. Class I Protective Surface Treatment SHALL NOT be applied to any portion of the Railings (including Rail, Post & Curb) and Wings.

Structural steel in end bent shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

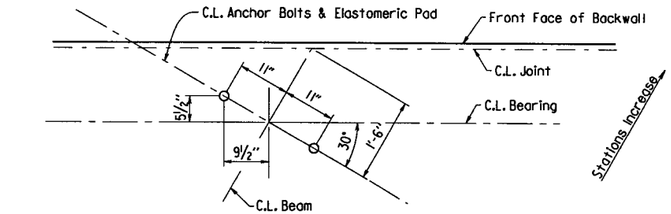
See Dwg. Nos. 53863 & 53864 for Bar List and details of wings and railings.

See Std. Dwg. No. 55006 for additional notes.



PLAN

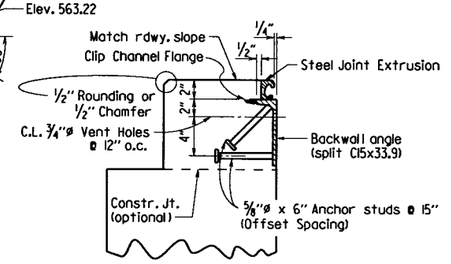
⅜" = 1'-0"



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"



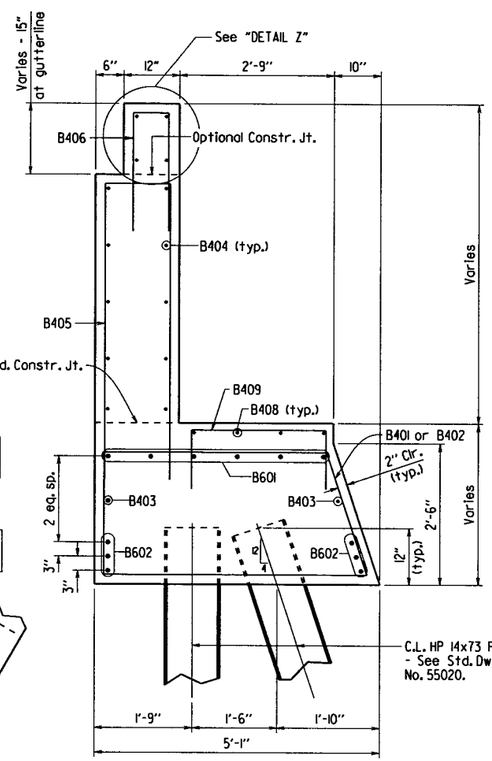
DETAIL "Z"

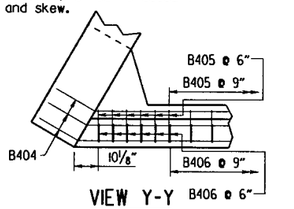
No Scale

NOTES: For additional Joint Details, see Dwg. No. 53875.

Concrete shall be hand packed under the joint armor in the backwall.

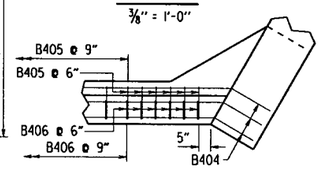
The backwall angle shall be profiled to account for vertical curve and skew.





VIEW Y-Y

⅜" = 1'-0"

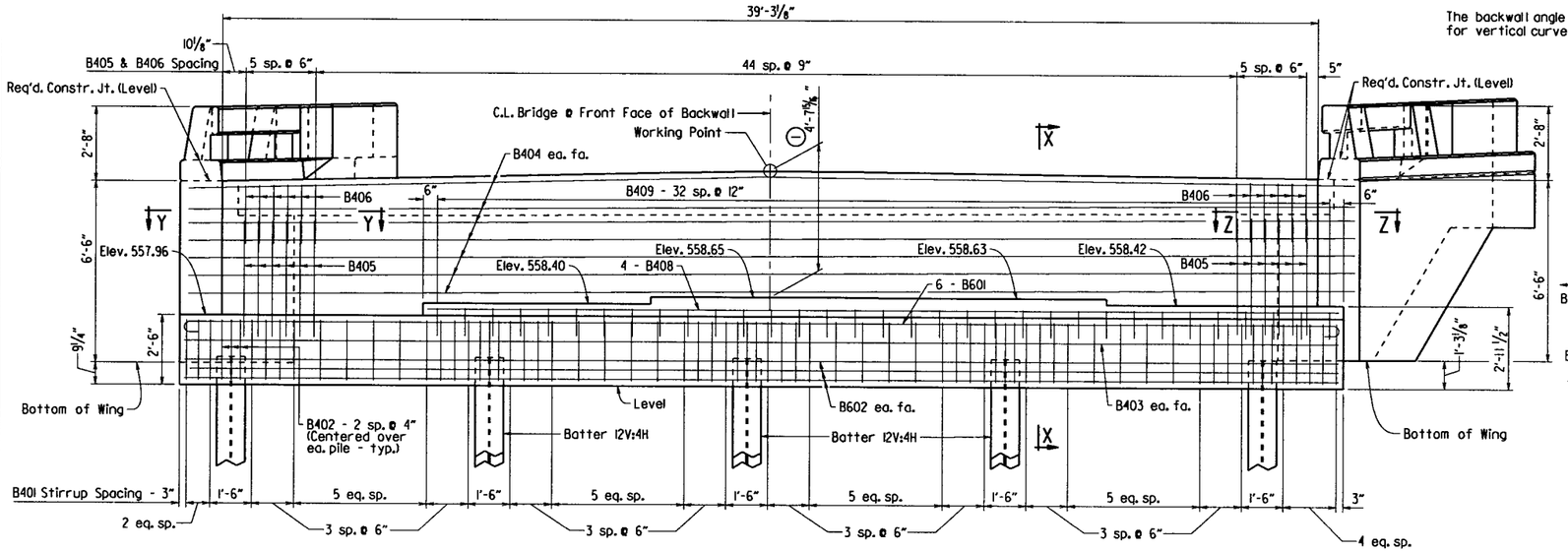


VIEW Z-Z

⅜" = 1'-0"

SECTION X-X

¾" = 1'-0"



ELEVATION

Looking Ahead

⅜" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3

DETAILS OF BENT NO. 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17 FILENAME: b080439x1_bl.dgn

CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown

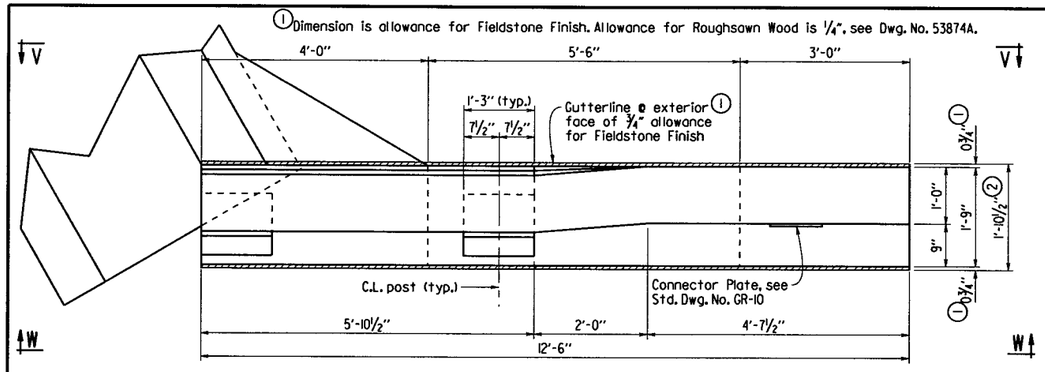
DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07415 DRAWING NO. 53866

PRINT DATE: 9/21/2017

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.		080439	56	116
				07415 - BENT 6 - 53867				

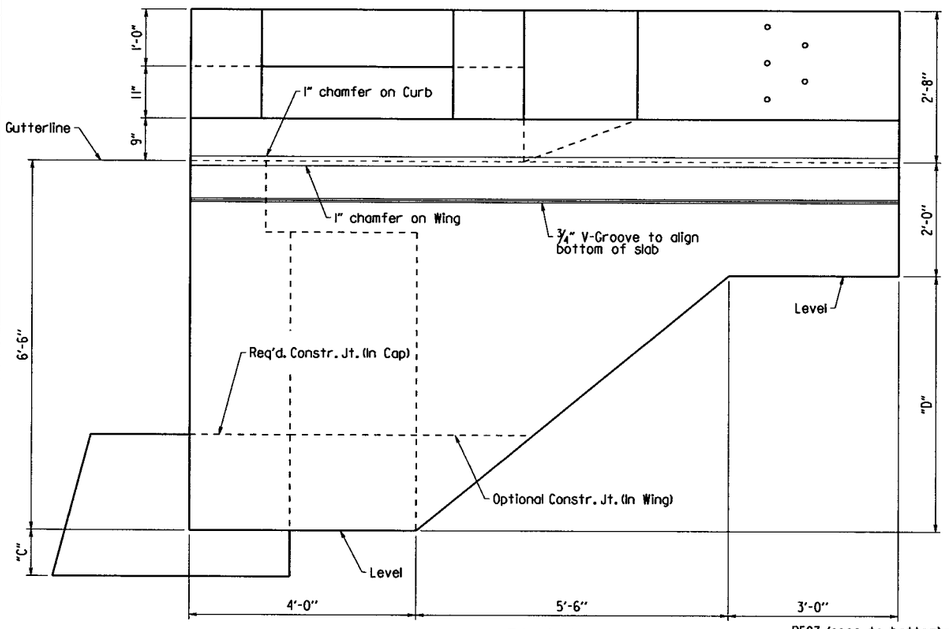
① Dimension is allowance for Fieldstone Finish. Allowance for Roughsawn Wood is 1/4", see Dwg. No. 53874A.



② Includes allowance for ¾" Fieldstone Finish each side.

PLAN OF RAILING (WING A)

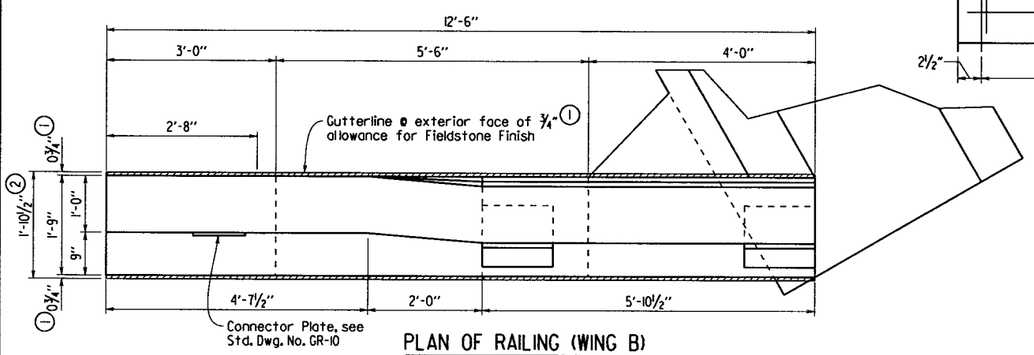
¾" = 1'-0"



VIEW W-W

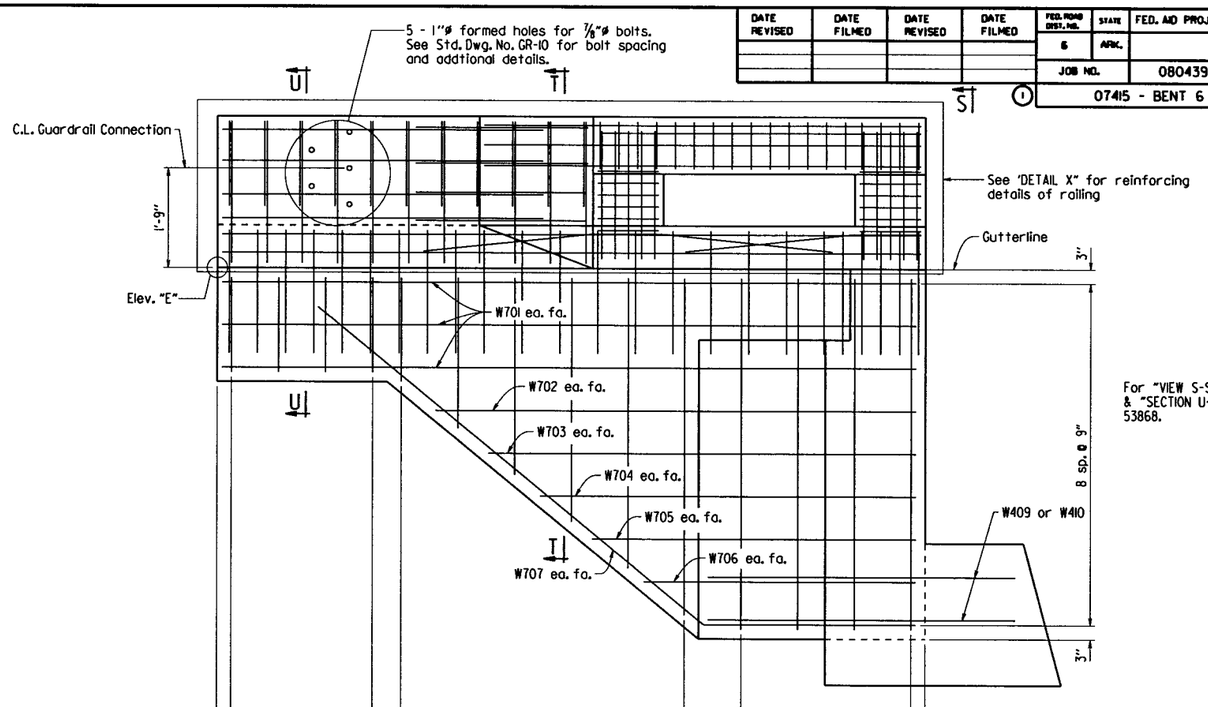
(Wing A Shown, Wing B Similar)

¾" = 1'-0"



PLAN OF RAILING (WING B)

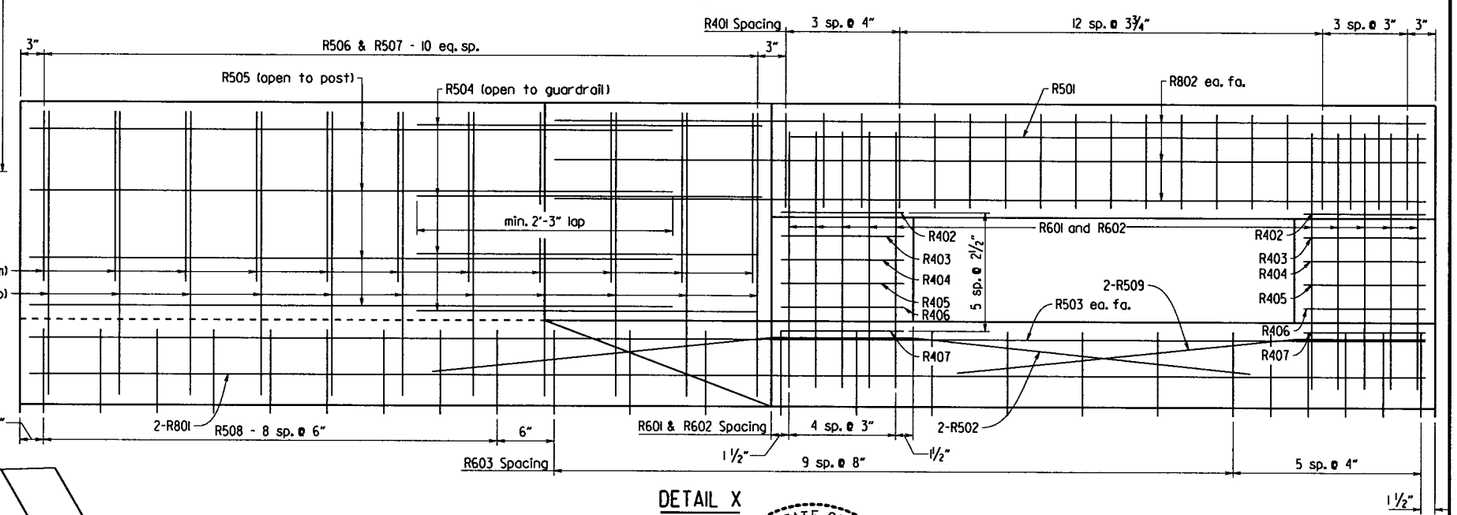
¾" = 1'-0"



VIEW V-V

(Wing A Shown, Wing B Similar)

¾" = 1'-0"



DETAIL X

1½" = 1'-0"

TABLE OF VARIABLES

Wing	"C"	"D"	Elev. "E"
A	1'-3⅛"	4'-9⅛"	563.54
B	9¼"	4'-9⅛"	563.03

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
9-21-17

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT NO. 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17 FILENAME: b080439xl_bl.dgn
CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown
DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07415 DRAWING NO. 53867

PRINT DATE: 9/20/2017

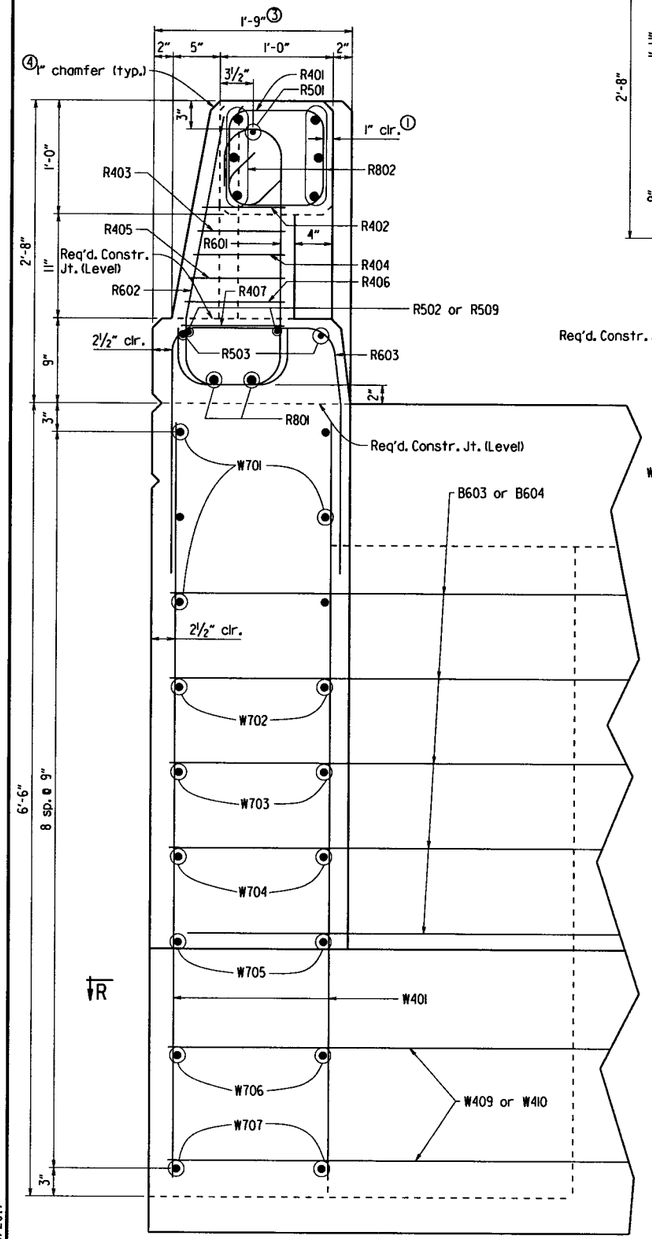
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	57	116
				①		07415 - BENT 6 - 53868		

① A typical clear cover of 1" shall be provided for the Railing (includes Rail, Post and Curb) reinforcement, unless otherwise noted.

② Typ. for wings unless noted otherwise

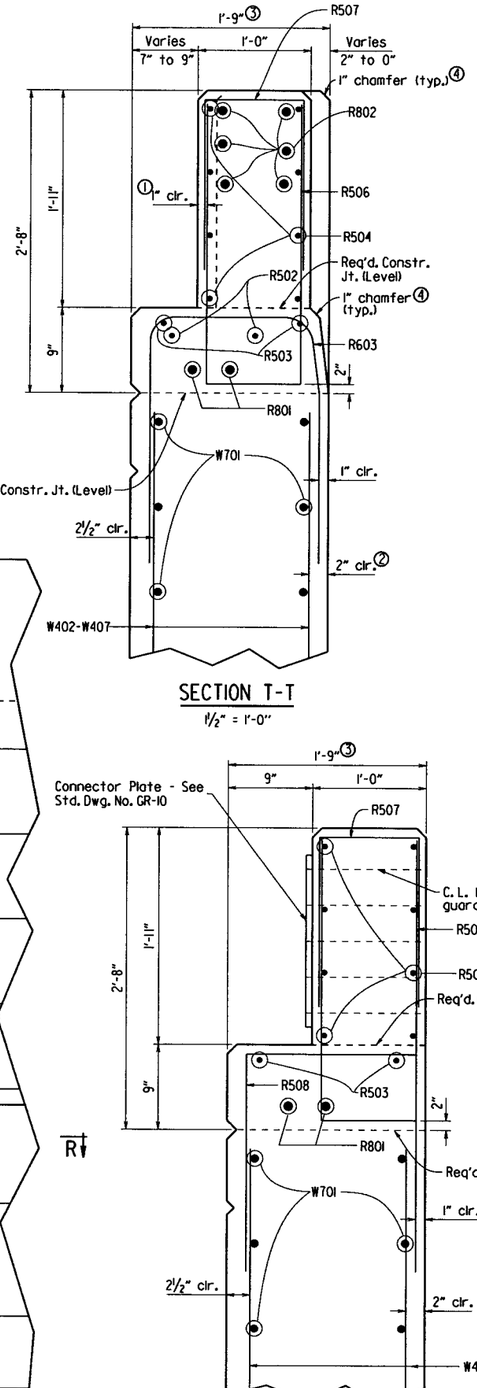
③ Does not include the ¾" allowance for architectural finish. See Dwg. No. 53863.

④ All exposed corners for the Railing components (Rail, Post, Curb & Wall) shall be chamfered 1" unless otherwise noted.



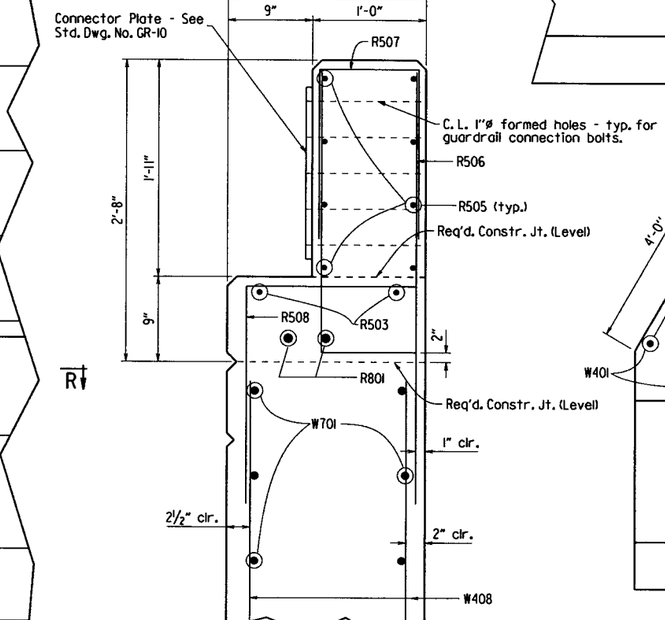
VIEW S-S

1½" = 1'-0"



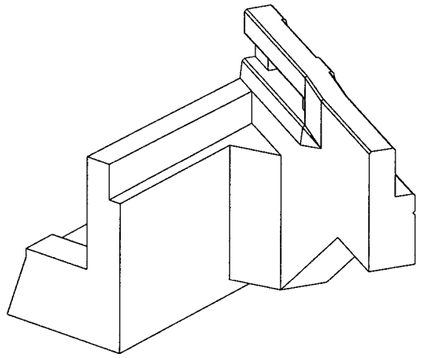
SECTION T-T

1½" = 1'-0"



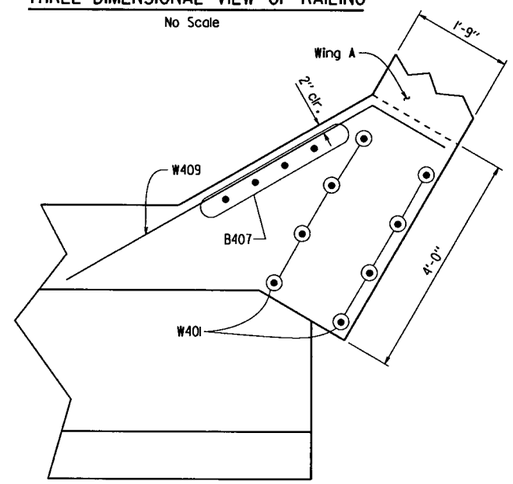
SECTION U-U

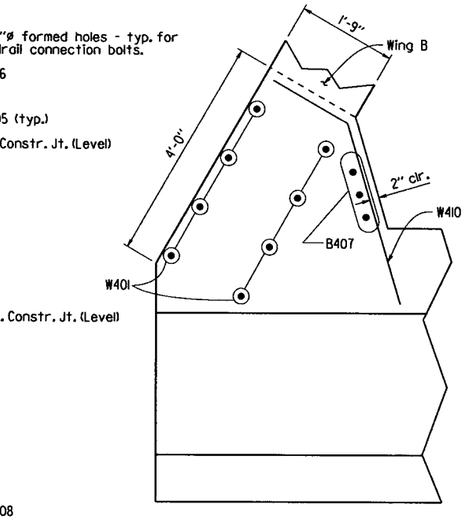
1½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAILING

No Scale





SECTION R-R

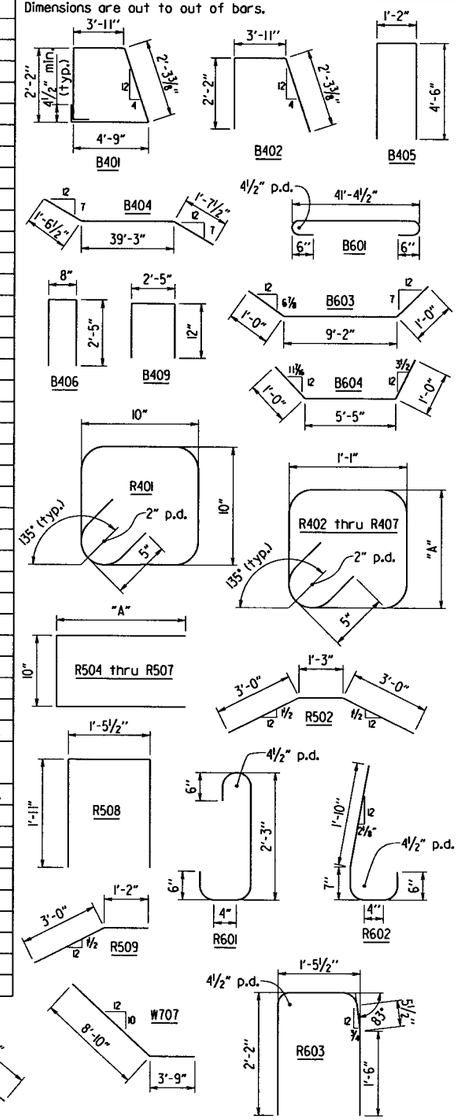
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
B401	56	13'-6"	-	2"
B402	15	8'-3"	-	2"
B403	2	41'-4½"	-	Str.
B404	14	38'-11"	-	Str.
B405	54	10'-0"	-	2"
B406	54	5'-4"	-	2"
B407	7	4'-11"	-	Str.
B408	4	32'-8"	-	Str.
B409	33	4'-3"	-	2"
B601	6	42'-8½"	-	4½"
B602	6	41'-4½"	-	Str.
B603	5	11'-2"	-	4½"
B604	5	7'-5"	-	4½"
R401	38	3'-8"	-	2"
R402	4	4'-0"	9"	2"
R403	4	4'-1"	9½"	2"
R404	4	4'-2"	10"	2"
R405	4	4'-3"	10½"	2"
R406	4	4'-4"	11"	2"
R407	4	4'-5"	11½"	2"
R501	2	5'-7"	-	Str.
R502	4	7'-3"	-	3¾"
R503	4	12'-4"	-	Str.
R504	8	6'-8"	3'-0½"	3¾"
R505	8	11'-11"	5'-8"	3¾"
R506	22	5'-7"	2'-6"	3¾"
R507	22	3'-7"	1'-6"	3¾"
R508	18	5'-1"	-	3¾"
R509	4	4'-2"	-	3¾"
R601	16	4'-0"	-	4½"
R602	16	3'-5"	-	4½"
R603	30	5'-6"	-	4½"
R801	4	12'-4"	-	Str.
R802	12	7'-9"	-	Str.
W401	16	6'-2"	-	Str.
W402 - W407	4 ea.	5'-11" to 1'-10"	-	Str.
W408	16	1'-8"	-	Str.
W409	2	7'-9"	-	2"
W410	2	4'-10"	-	2"
W701	12	12'-2"	-	Str.
W702	4	8'-5"	-	Str.
W703	4	7'-6"	-	Str.
W704	4	6'-7"	-	Str.
W705	4	5'-8"	-	Str.
W706	4	4'-9"	-	Str.
W707	4	12'-7"	-	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT NO. 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

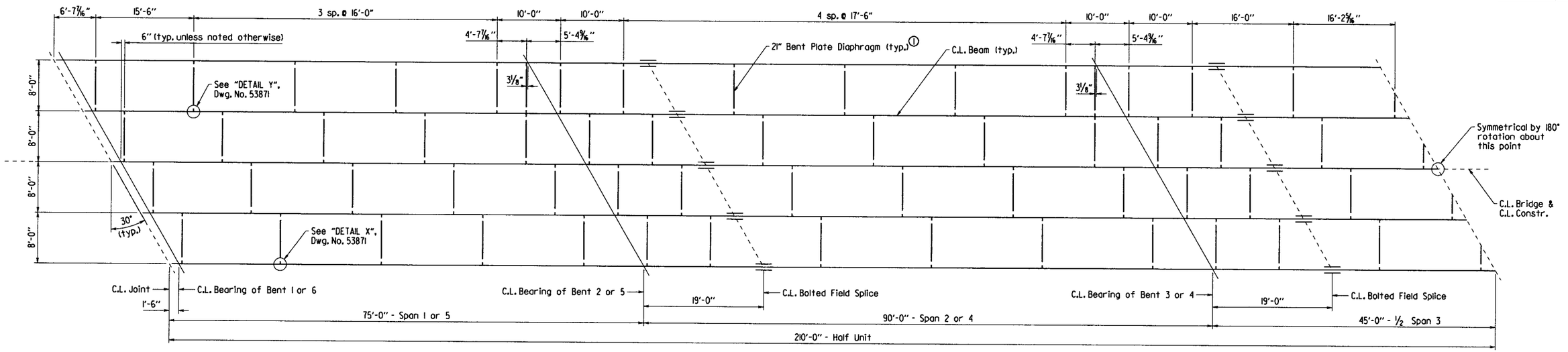
DRAWN BY: YZ DATE: 09-18-17 FILENAME: b080439x1_bt.dgn
CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown
DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07415 DRAWING NO. 53868

PRINT DATE: 9/20/2017

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.		080439	58	116
				① 07415 - 420'-0" CONT. UNIT - 53869				

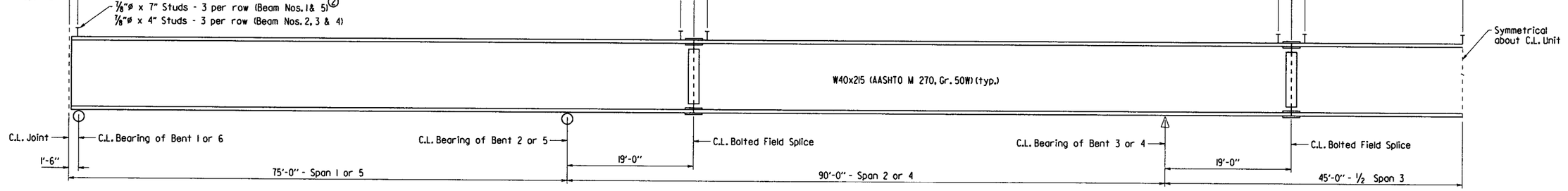
① For details of 21" Bent Plate Diaphram, see Dwg. No. 53871.



HALF - FRAMING PLAN

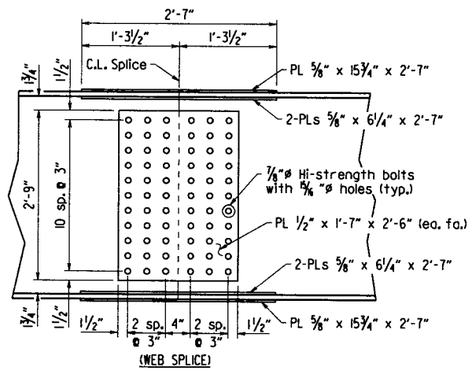
1/8" = 1'-0"

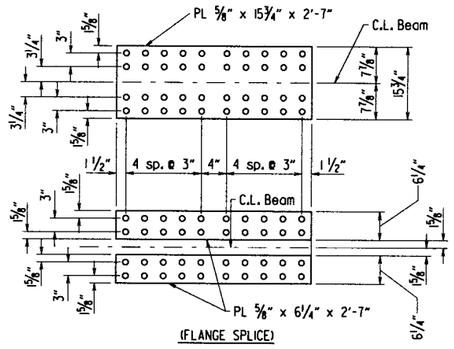
② See Dwg. No. 53871 for Beam Numbering



HALF - TYPICAL BEAM ELEVATION

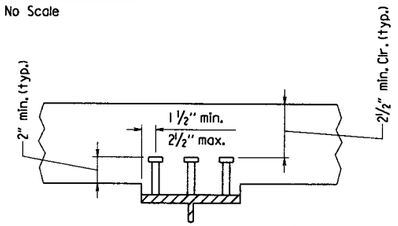
No Scale





DETAILS OF FIELD SPLICES

No Scale



Stud Shear Connectors shown shall be 7/8"ø x 4" or 7/8"ø x 7", granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

No Scale

NOTE: Bolted field splices may be eliminated or shop welds substituted with the approval of the Engineer. Payment will be made on the basis of the splices shown.

NOTE: All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel In Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted.

Note: For "STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES", See Std. Dwg. No. 55006

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
9-27-17

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF 420'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 08/30/17 FILENAME: b080439x1_sl.dgn
CHECKED BY: J.A.C. DATE: 8/31/17 SCALE: As Shown
DESIGNED BY: YZ DATE: 08/30/17

BRIDGE NO. 07415 DRAWING NO. 53869

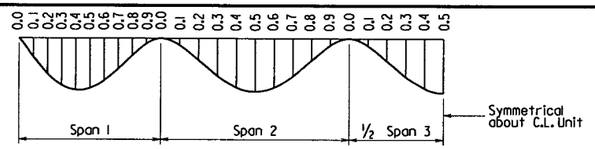
PRINT DATE: 8/30/2017

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.		080439	59	116
				①	07415 - 420'-0" CONT. UNIT - 53870			

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
Span 1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.049	0.052	0.244	0.261	0.290	0.261
	0.2	0.091	0.095	0.449	0.481	0.534	0.481
	0.3	0.120	0.125	0.590	0.632	0.702	0.632
	0.4	0.132	0.138	0.651	0.697	0.774	0.697
	0.5	0.127	0.134	0.629	0.673	0.748	0.673
	0.6	0.108	0.113	0.532	0.570	0.633	0.570
	0.7	0.078	0.081	0.383	0.410	0.455	0.410
	0.8	0.043	0.045	0.212	0.227	0.252	0.227
	0.9	0.013	0.014	0.066	0.071	0.078	0.071
Span 2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.017	0.018	0.084	0.090	0.100	0.090
	0.2	0.055	0.058	0.272	0.291	0.324	0.291
	0.3	0.095	0.100	0.472	0.505	0.561	0.505
	0.4	0.125	0.131	0.618	0.662	0.735	0.662
	0.5	0.136	0.143	0.672	0.719	0.799	0.719
	0.6	0.125	0.132	0.619	0.663	0.736	0.663
	0.7	0.096	0.101	0.474	0.508	0.564	0.508
	0.8	0.056	0.058	0.275	0.294	0.327	0.294
	0.9	0.017	0.018	0.086	0.093	0.102	0.093
½ Span 3	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.018	0.019	0.089	0.096	0.106	0.096
	0.2	0.057	0.060	0.281	0.301	0.334	0.301
	0.3	0.098	0.103	0.483	0.517	0.574	0.517
	0.4	0.128	0.134	0.630	0.675	0.749	0.675
	0.5	0.138	0.145	0.683	0.732	0.812	0.732

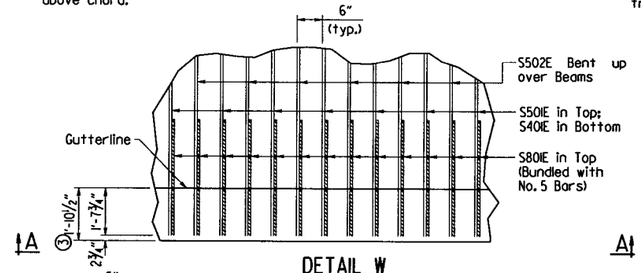
Symmetrical about C.L. Unit



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber for Dead Load Deflection plus Vertical curve +/- ¼" tolerance. Deflections shown are along a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



DETAIL W

No Scale

VIEW A-A

No Scale

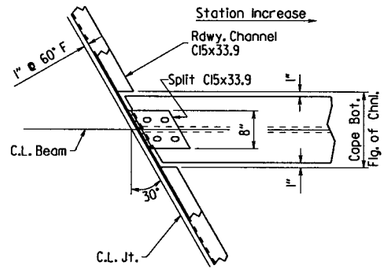
Slab Pouring Sequence Notes:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

Concrete in bridge superstructure must be placed, consolidated and screeded for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The Contractor must obtain approval from the Engineer for any deviations from the Pouring Sequences shown.

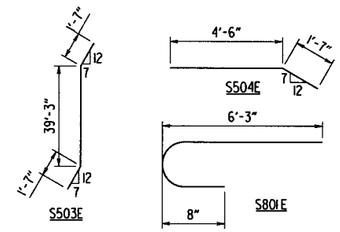


CHANNEL CONNECTION DETAIL

No Scale

BAR LIST

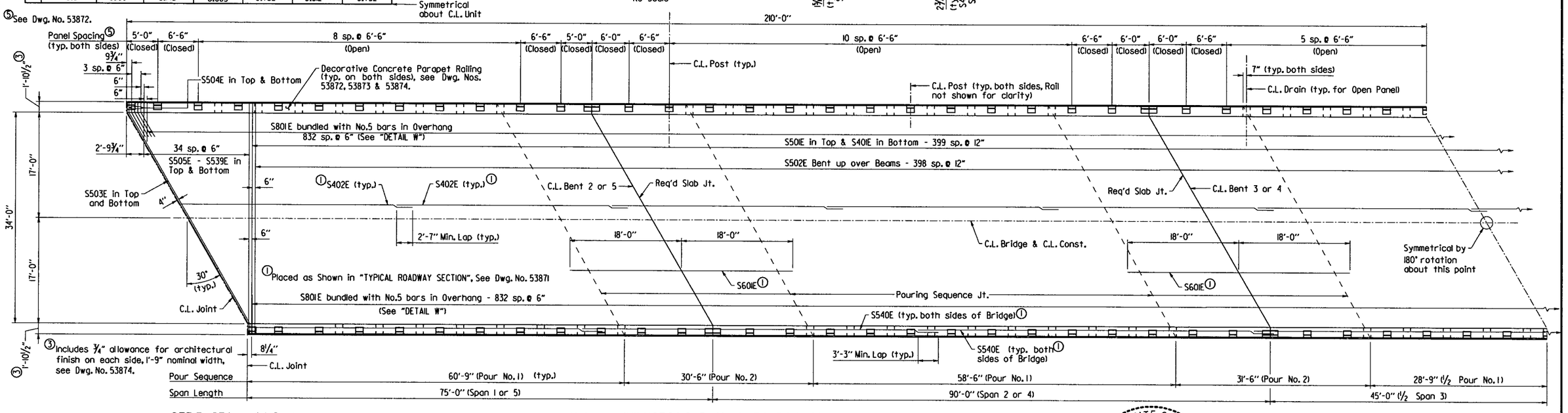
Mark	No. Req'd.	Length	Pin Dia.	Bending Diagrams
S401E	400	37'-4"	Str.	(Dimensions are out to out of bars)
S402E	1140	37'-4"	Str.	
S501E	400	37'-4"	Str.	
S502E	399	38'-1"	3"	
S503E	4	42'-5"	3¾"	
S504E	16	6'-1"	3¾"	
S505E-S539E	4 ea.	5'-11" 35'-5"	Str.	
S540E	64	55'-4"	Str.	
S601E	148	36'-0"	Str.	
S801E	1666	7'-2"	6"	



④ ½" Overtolerance, No Undertolerance.

Note: All bars designated with an "E" suffix shall be Epoxy Coated

⑤ See Dwg. No. 53872.



STRIP SEAL JOINT DATA

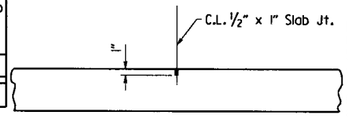
For details of Strip Seal Joint, see Dwg. No. 53875.

Bent No(s).	Movement Rating (inch)	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ② of:			"B" Width Perpendicular to Joint at 24 Hour Average Temperature ② of:			"C" Width Perpendicular to Joint at 24 Hour Average Temperature of:
		40° F	60° F	80° F	40° F	60° F	80° F	60° F
1 & 6	4"	2⅜"	2"	1⅝"	2⅞"	2½"	2⅛"	2¼"±

② The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

HALF - REINFORCING PLAN & POURING SEQUENCE

⅛"=1'-0"



SLAB JOINT DETAIL

No Scale

Note: Use ½" X 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

STATE OF ARKANSAS
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No. 9235
9-21-17
CHARLES R. ELLIS
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PRINT DATE: 9/19/2017

SHEET 2 OF 2
DETAILS OF 420'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09/19/17 FILENAME: b080439xl_sl.dgn

CHECKED BY: JAC DATE: 9/19/17 SCALE: As Shown

DESIGNED BY: YZ DATE: 9/19/17

BRIDGE NO. 07415 DRAWING NO. 53870

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.		080439	60	1116
				①		07415 & 07416 - SLAB - 53871		

Slab Reinforcing:

Longitudinal: S402E as shown
S601E as shown over int. supports, see "HALF - REINFORCING PLAN & POURING SEQUENCE", Dwg. Nos. 53870 & 53888.

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom
S801E @ 6" in top of overhangs (bundled with #5 bars)

Note: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of Bar S502E.

Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface only. CLASS I PROTECTIVE SURFACE TREATMENT SHALL NOT be applied to any portion of the Railings (including Rail, Post & Curb) and Wings.

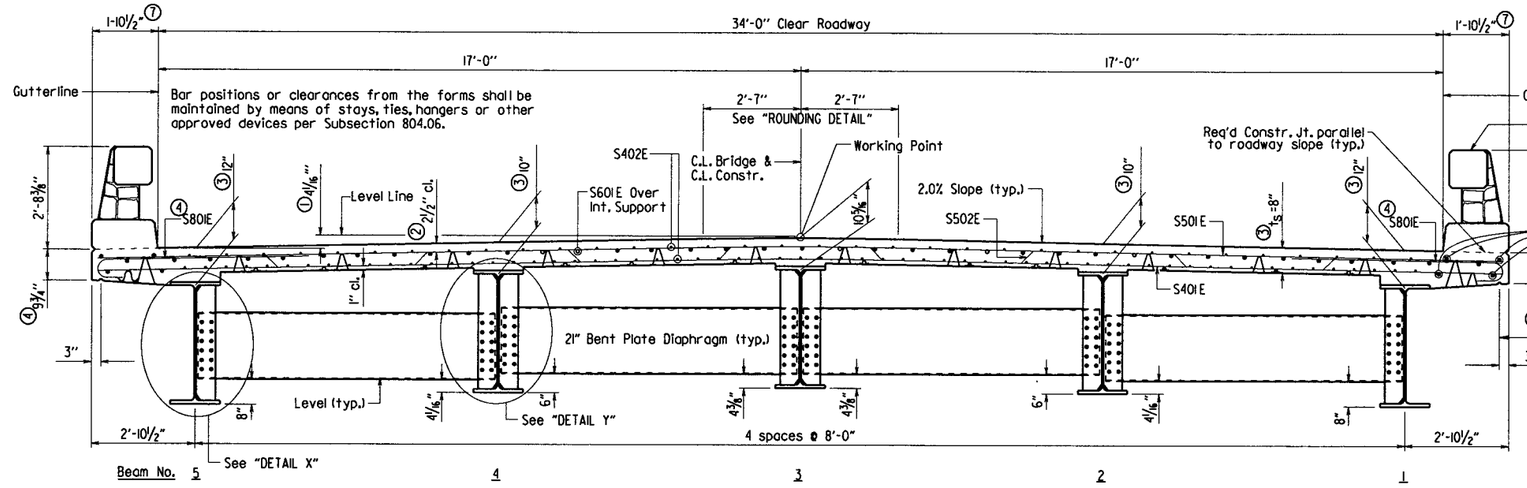
Note: All bars designated with an "E" shall be Epoxy Coated.

① Working point to gutterline.

② Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE".

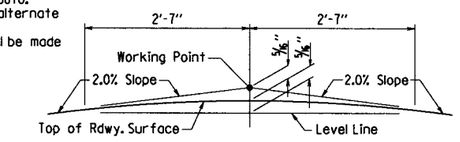
④ S801E shall be placed in a 45° angle to satisfy the specified minimum clearance, see "DETAIL W", Dwg. No. 53870. Epoxy-coated threaded End Anchor (LENTON® TERMINATOR - D6 or approved equal) may be utilized as an alternate to hooked rebar. In this case, the edge of deck dimension shall be detailed to a thickness of 8 3/4". See "ALTERNATE OVERHANG DETAIL". Payment for reinforcing shall be based on hooked S801E. No adjustment will be made for concrete volume. Payment for concrete shall be based on the edge thickness of 9 3/4".



TYPICAL ROADWAY SECTION

Looking Ahead
1/2" = 1'-0"

⑤ See Dwg. Nos. 53870 & 53888.

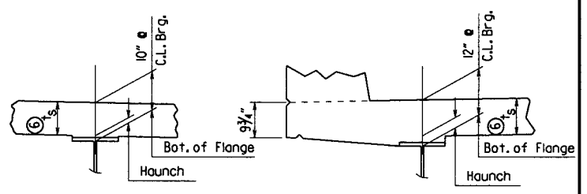


NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

t_s = slab thickness as shown in "TYPICAL ROADWAY SECTION"



⑥ Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

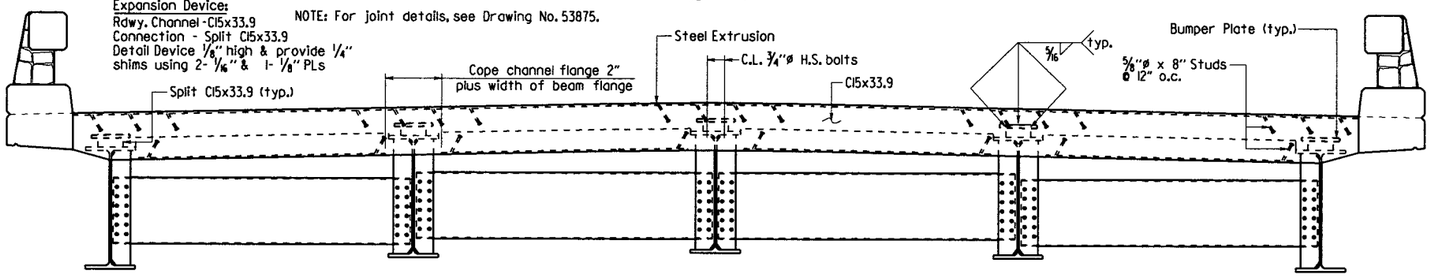
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

⑦ 1'-9" nominal width - see Dwg. No. 53874.

Expansion Device:
Rdwy. Channel - C15x33.9
Connection - Split C15x33.9
Detail Device 1/8" high & provide 1/4" shims using 2- 1/16" & 1- 1/8" PLs

NOTE: For joint details, see Drawing No. 53875.

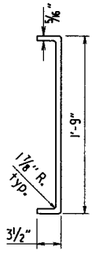


TYPICAL ROADWAY SECTION NEAR JOINT

Looking Ahead
1/2" = 1'-0"

NOTE: For "BAR LIST", see Dwg. No. 53870 for Bridge No. 07415 and Dwg. No. 53888 for Bridge No. 07416.

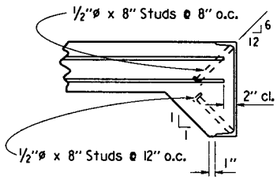
For "CHANNEL CONNECTION DETAIL", see Dwg. Nos. 53870 & 53888.



Typ. cross-section for all 21" Bent Plate Diaphragms

SECTION X-X

No Scale



Note: As an alternate to 5/8"ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

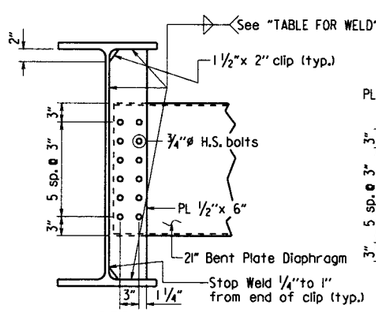
DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

TABLE FOR WELD

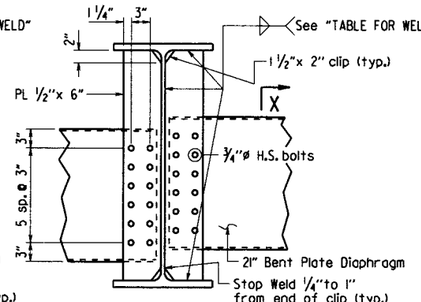
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



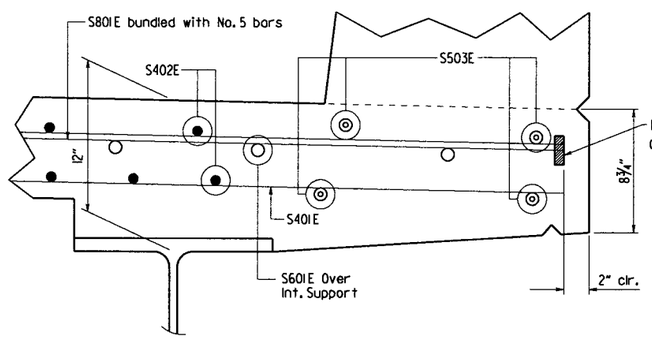
DETAIL X

1" = 1'-0"



DETAIL Y

1" = 1'-0"



ALTERNATE OVERHANG DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-27-17
CHARLES R. ELLIS

BRIDGE ENGINEER

COMMON SUPERSTRUCTURE DETAILS

ROUTE SEC.

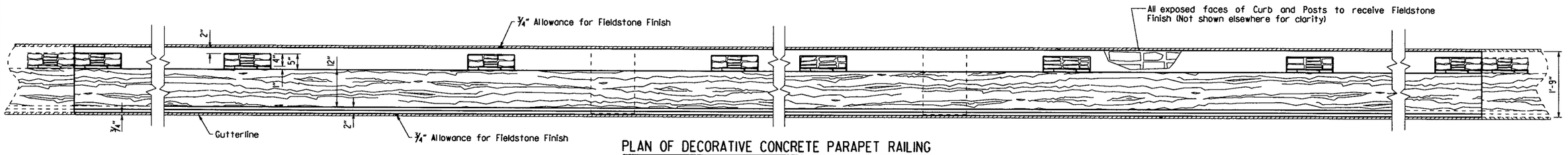
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 08/30/17 FILENAME: b080439xl_sl.dgn
CHECKED BY: JAC DATE: 8/30/17 SCALE: As Shown
DESIGNED BY: PGT DATE: 6/20/17

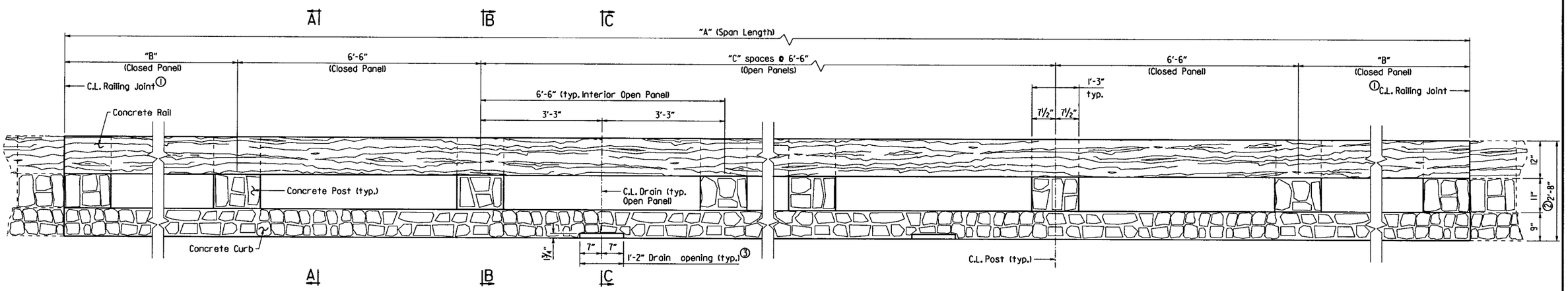
BRIDGE NO. 07415 & 07416 DRAWING NO. 53871

PRINT DATE: 8/30/2017

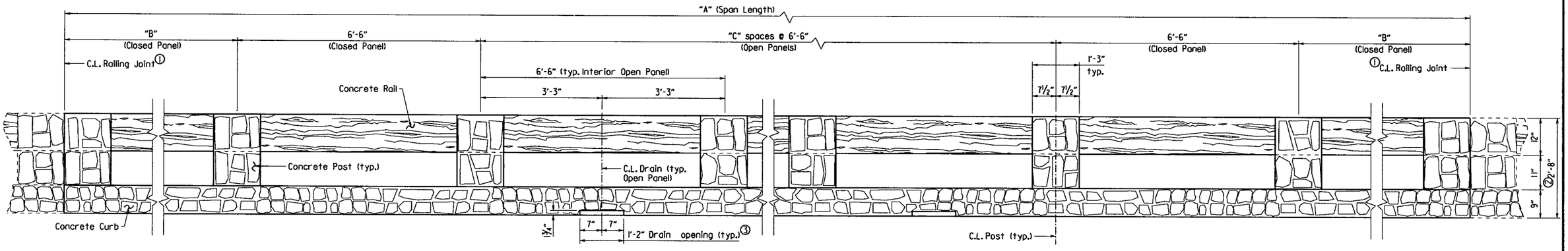
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	61	116
				① 07415 & 07416 - RAILING- 53872				



PLAN OF DECORATIVE CONCRETE PARAPET RAILING



ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING (FROM TRAFFIC SIDE)



ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING (FROM BACK SIDE)

① See Dwg. No. 53873 for Railing Joint details.

② Measured at gutterline and not including ¼" allowance for Roughsawn Wood Finish, see "VIEW A-A", "SECTION B-B" & "SECTION C-C", Dwg. No. 53874.

TABLE OF VARIABLES

Variable	420'-0" Unit		248'-0" Unit	
	75'-0" Span	90'-0" Span	77'-0" Span	94'-0" Span
"A"	75'-0"	90'-0"	77'-0"	94'-0"
"B"	5'-0"	6'-0"	6'-0"	4'-9"
"C"	8	10	8	11

③ Closed panels shall be utilized for the End Panels and Interior Panels within 10'-0" (left and right) of the C.L. of all the Bents. The Interior Panels beyond 10'-0" of the C.L. of the bents shall be Open Panels. Each Open Panel shall have a 1'-2" x 1¾" Drain opening.

STATE OF ARKANSAS
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SHEET 1 OF 3
DETAILS OF DECORATIVE CONCRETE PARAPET RAILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09/19/2017 FILENAME: b080439xl_sl.dgn
CHECKED BY: JAC DATE: 9/19/17 SCALE: ¾" = 1'-0"
DESIGNED BY: PGT DATE: 8/2017

BRIDGE NO. 07415 & 07416 DRAWING NO. 53872

PRINT DATE: 9/19/2017

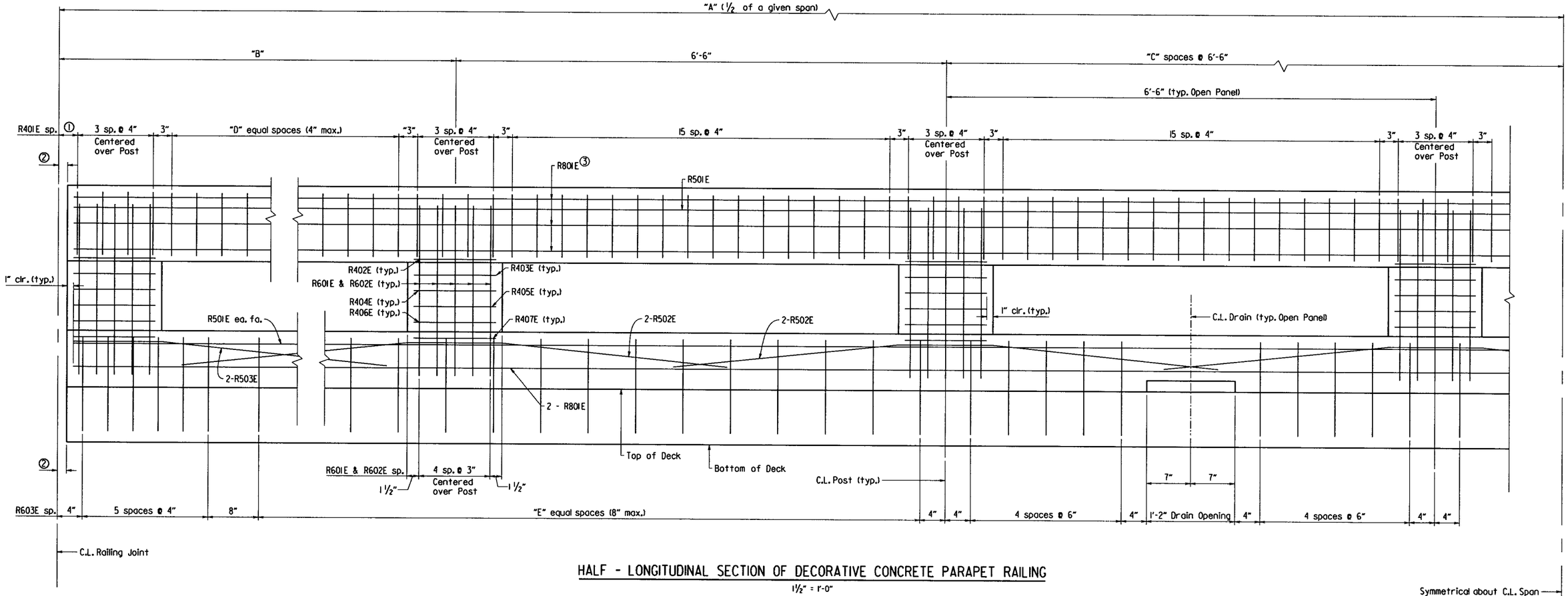
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	62	116
				①		07415 & 07416 - RAILING - 53873		

① 2⅝" at Expansion Joint locations; 2" at other Railing Joint locations.

② 1⅛" at Expansion Joint locations; ½" at other Railing Joint locations.

③ Splicing of continuous longitudinal rail reinforcing shall be staggered. Min. lap length for No. 8 bars = 6'-4", Min. lap length for No. 5 bars = 3'-3", Maximum bar length = 60'-0".

NOTE: All Railing Joints shall extend from the top of the concrete rail to the top of deck.



HALF - LONGITUDINAL SECTION OF DECORATIVE CONCRETE PARAPET RAILING

1½" = 1'-0"

TABLE OF VARIABLES

Variable	420'-0" Unit		248'-0" Unit	
	75'-0" Span	90'-0" Span	77'-0" Span	94'-0" Span
"A"	37'-6"	45'-0"	38'-6"	47'-0"
"B"	5'-0"	6'-0"	6'-0"	4'-9"
"C"	4	5	4	5½
"D"	9	12	12	8
"E"	13	14	14	12

STATE OF ARKANSAS
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SHEET 2 OF 3
DETAILS OF DECORATIVE CONCRETE PARAPET RAILING

ROUTE SEC.

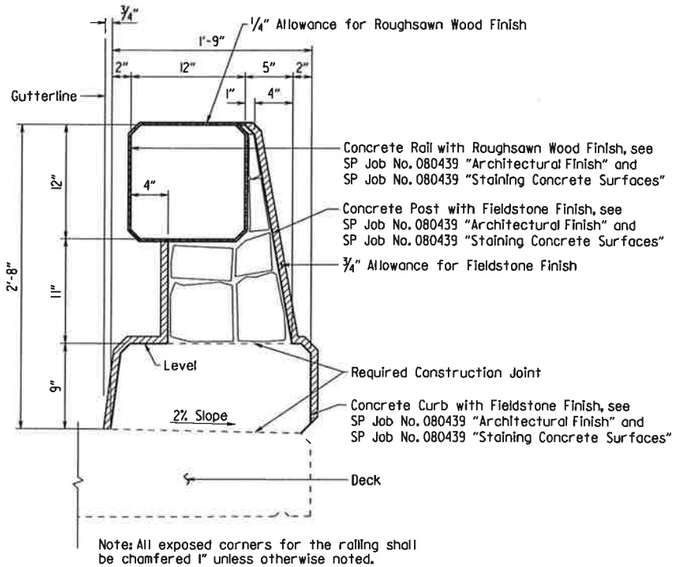
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09/19/17
CHECKED BY: JAC DATE: 9/19/17
DESIGNED BY: PGT DATE: 6/2017
FILENAME: b080439x1_sl.dgn
SCALE: As Shown

BRIDGE NO. 07415 & 07416 DRAWING NO. 53873

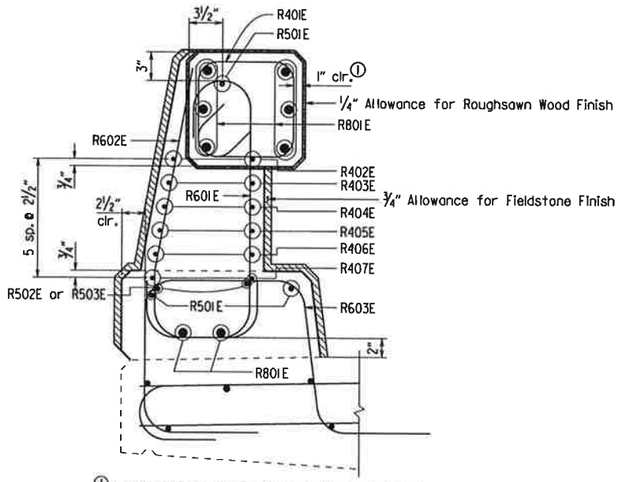
PRINT DATE: 9/19/2017

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-2-17				6	ARK.			
				JOB NO.		080439	63	116
				①		07415 & 07416 - RAILING - 53874		



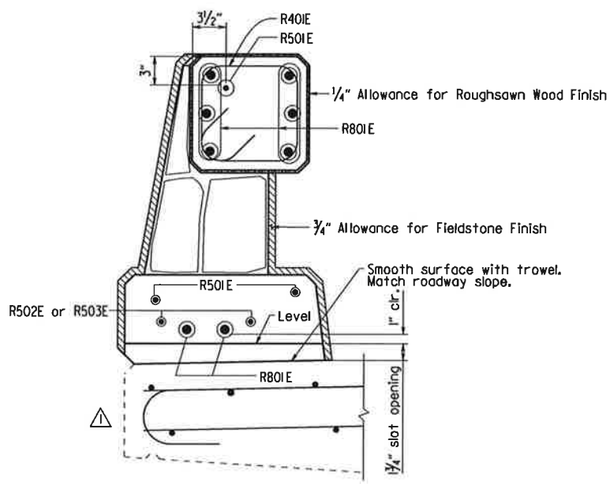
Note: All exposed corners for the railing shall be chamfered 1" unless otherwise noted.

VIEW A-A
1½" = 1'-0"



① A typical clear cover of 1" shall be maintained for the Railing system (including Rail, Post, and Curb) reinforcement unless otherwise noted.

SECTION B-B
1½" = 1'-0"



SECTION C-C
1½" = 1'-0"

TABLE OF VARIABLES

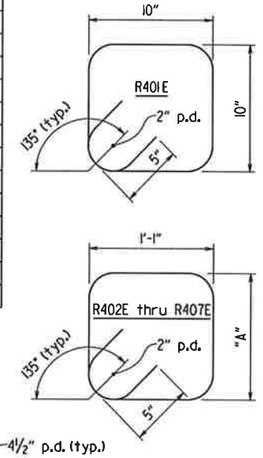
Variable	420'-0" Unit		248'-0" Unit	
	75'-0" Span	90'-0" Span	77'-0" Span	94'-0" Span
"B"	464	556	476	580
"C"	26	30	26	32
"D"	12	12	12	12
"E"	39'-0"	46'-6"	40'-0"	48'-6"
"F"	44	52	44	56
"G"	130	150	130	160
"H"	240	288	248	296
"J"	32	32	32	32
"K"	40'-6"	48'-0"	41'-6"	50'-0"

BAR LIST - PER SPAN

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
R401E	"B"	3'-8"	-	2"
R402E	"C"	4'-0"	9"	2"
R403E	"C"	4'-1"	9½"	2"
R404E	"C"	4'-2"	10"	2"
R405E	"C"	4'-3"	10½"	2"
R406E	"C"	4'-4"	11"	2"
R407E	"C"	4'-5"	11½"	2"
R501E	"D"	"E"	-	Str.
R502E	"F"	7'-3"	-	3¾"
R503E	8	4'-2"	-	3¾"
R601E	"G"	4'-0"	-	4½"
R602E	"G"	3'-5"	-	4½"
R603E	"H"	5'-6"	-	4½"
R801E	"J"	"K"	-	Str.

Dimensions are out to out of bars.

BENDING DIAGRAMS



Note: All bars designated with an "E" suffix shall be Epoxy Coated

⚠ Revised Section C-C to show correct limit of Fieldstone Finish.
Made by: JAC Date: 11-2-17
Chk'd. by: TMB Date: 11/2/17

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
11-2-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF DECORATIVE CONCRETE PARAPET RAILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09/19/17 FILENAME: b080439xl_sl.dgn
CHECKED BY: JAC DATE: 9/19/17 SCALE: As Shown
DESIGNED BY: PBT DATE: 8/2017
BRIDGE NO. 07415 & 07416 DRAWING NO. 53874

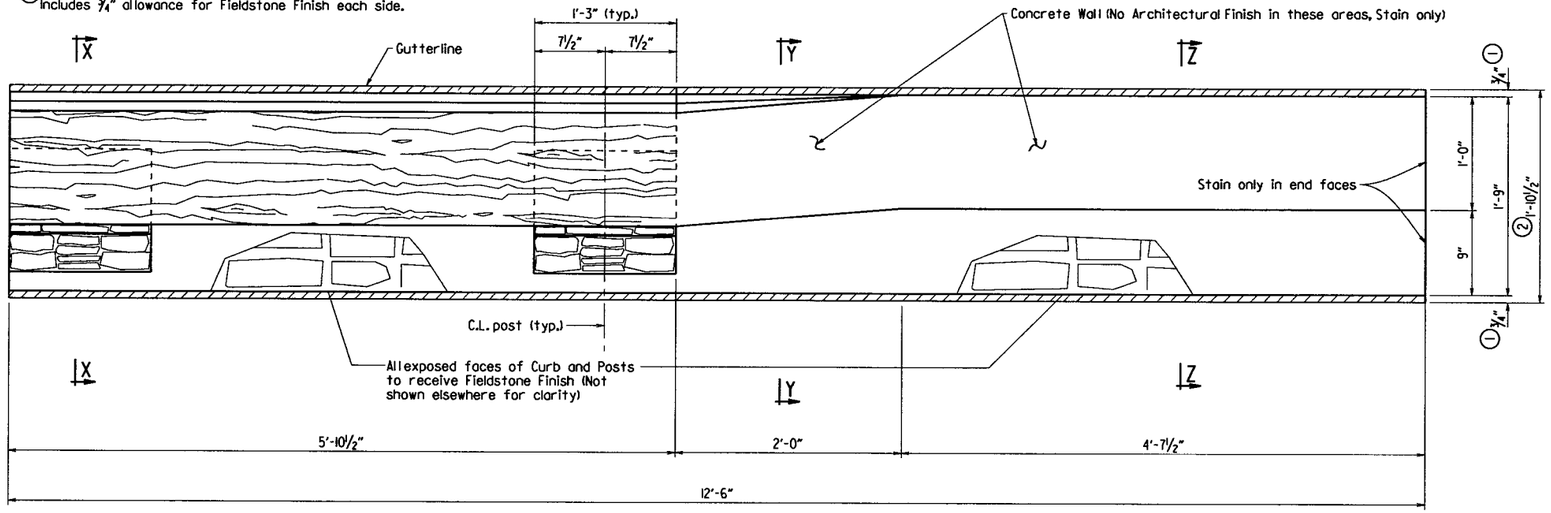
PRINT DATE: 11/2/2017

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.		080439	64	116

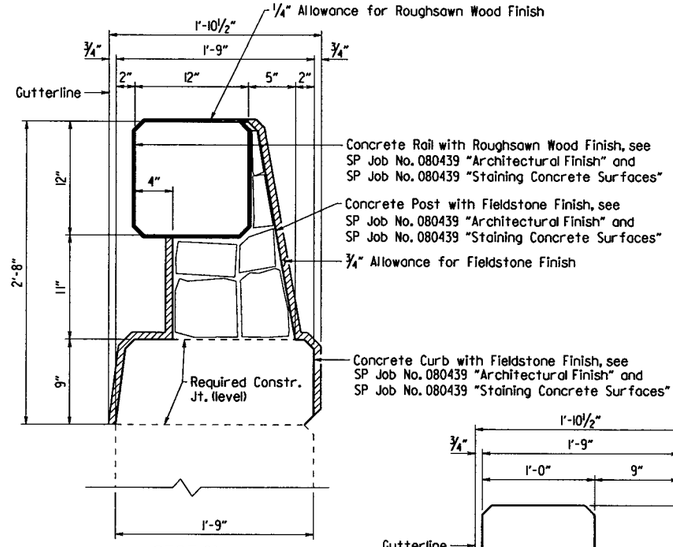
(1) 07415 & 07416 - APPR. RAILING - 53874A

(1) Dimension is allowance for Fieldstone Finish. Allowance for Roughsawn Wood is 1/4", see "SECTION X-X" & "SECTION Y-Y".

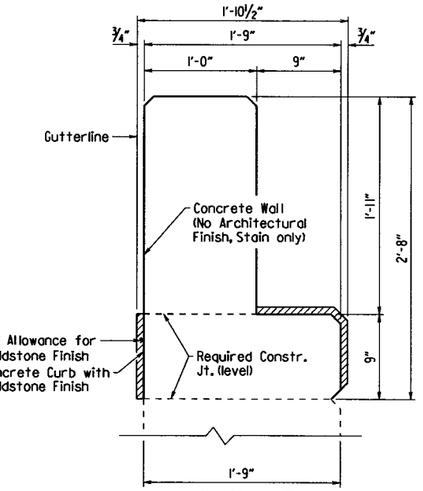
(2) Includes 3/4" allowance for Fieldstone Finish each side.



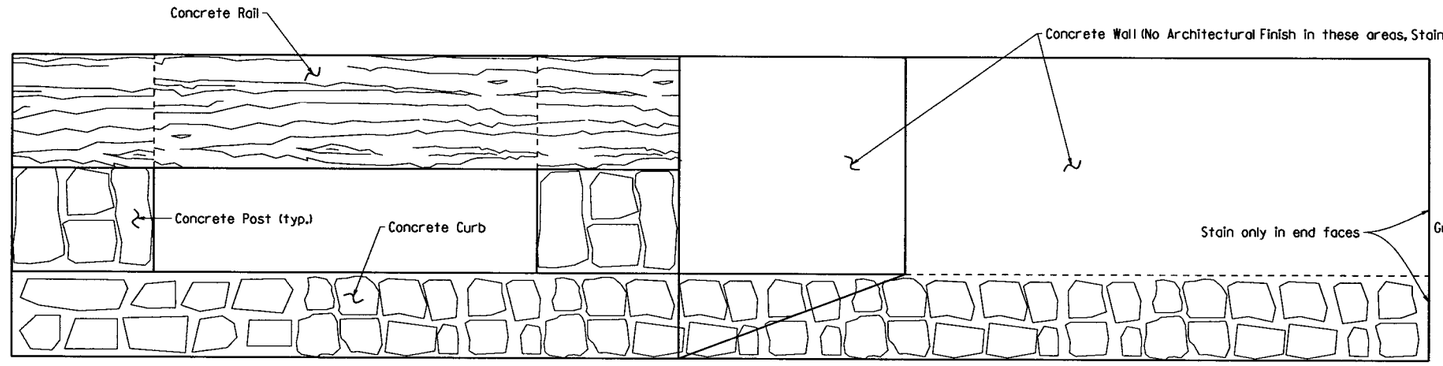
PLAN OF DECORATIVE CONCRETE PARAPET RAILING AT END BENTS



SECTION X-X

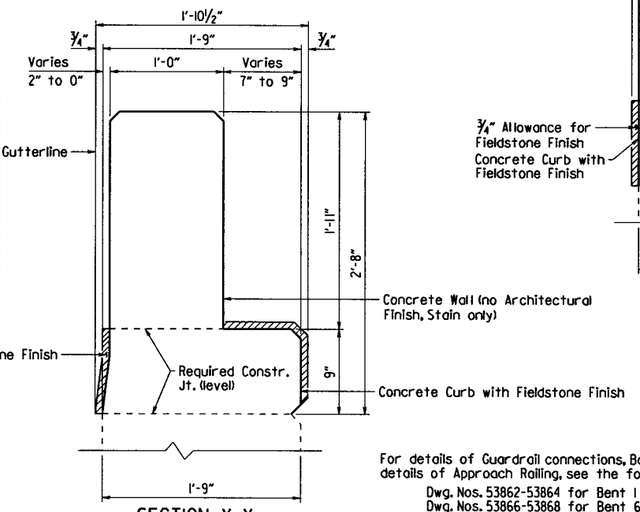


SECTION Z-Z

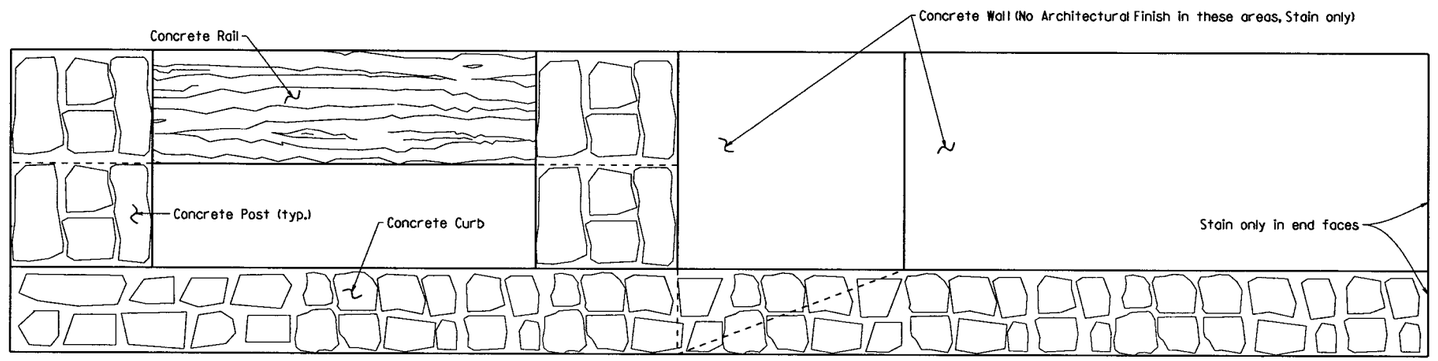


ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING (TRAFFIC SIDE) AT END BENTS

Note: All exposed corners for the Railing components (Rail, Post, Curb & Wall) shall be chamfered 1" unless otherwise noted.



SECTION Y-Y



ELEVATION OF DECORATIVE CONCRETE PARAPET RAILING (BACK SIDE) AT END BENTS

For details of Guardrail connections, Bar List of End Bents & additional details of Approach Railing, see the following detail drawings:

Dwg. Nos. 53862-53864 for Bent 1 of Bridge No. 07415
Dwg. Nos. 53866-53868 for Bent 6 of Bridge No. 07415
Dwg. Nos. 53879-53881 for Bent 1 of Bridge No. 07416
Dwg. Nos. 53884-53886 for Bent 7 of Bridge No. 07416.

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COMMON DETAILS OF DECORATIVE CONCRETE PARAPET RAILING - END BENT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

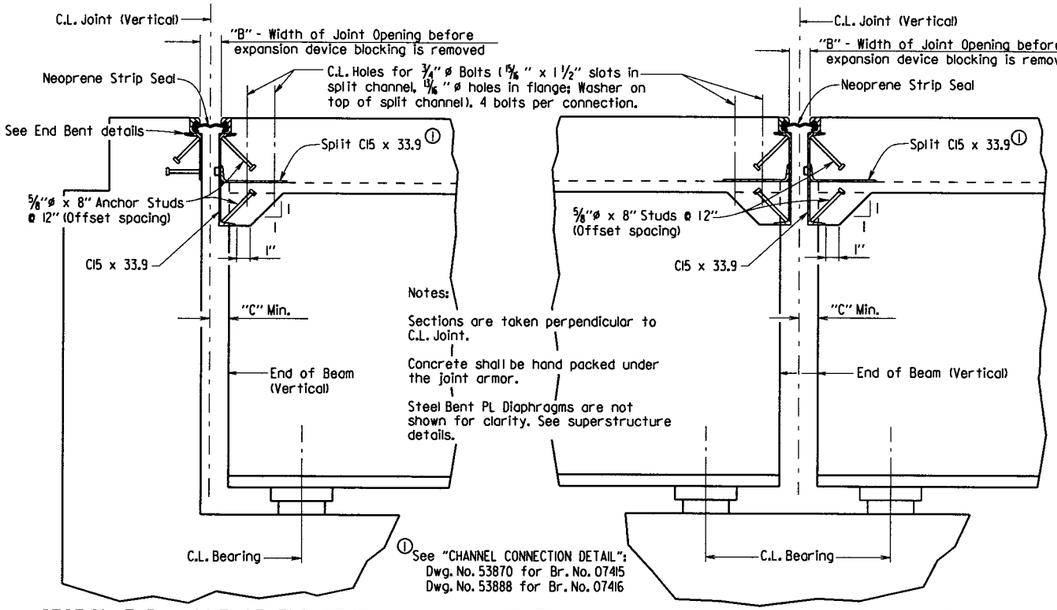
DRAWN BY: YZ DATE: 09-21-17 FILENAME: b080439x1_bl.dgn
CHECKED BY: TMG DATE: 9/21/17 SCALE: 1 1/2" = 1'-0"
DESIGNED BY: PGT DATE: 6/2017

BRIDGE NO. 07415 & 07416 DRAWING NO. 53874A

PRINT DATE: 9/21/2017

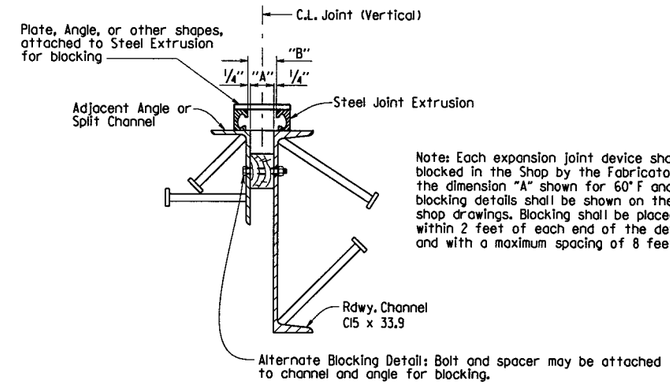
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	65	116

① 07415 & 07416 -STRIP SEAL JOINT- 53875



SECTION THRU JOINT AT END BENT

SECTION THRU JOINT AT BENT NO. 4 (BR. NO. 07416 ONLY)



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

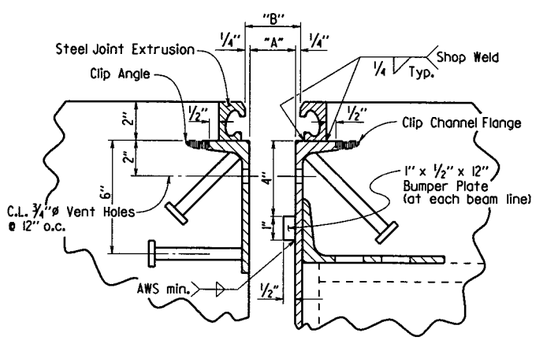
EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENT 4 OF BR. NO. 07416:

After all beams on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

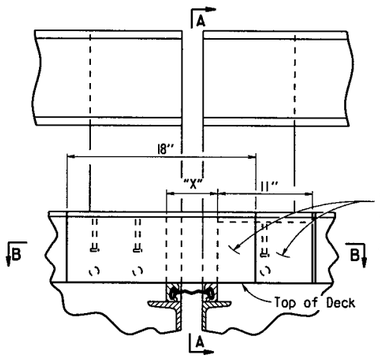
SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

SEE "TABLE OF STRIP SEAL JOINT DATA" (DWG. NO. 53870 FOR BRIDGE NO. 07415, & DWG. NO. 53888 FOR BRIDGE NO. 07416) FOR VARIABLES "A", "B", AND "C".



DETAIL OF STRIP SEAL JOINT

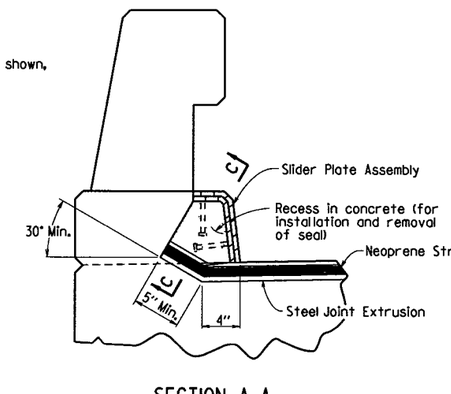
Detail shown at End Bent.
Details similar at Intermediate Bent 4 of Br. No. 07416



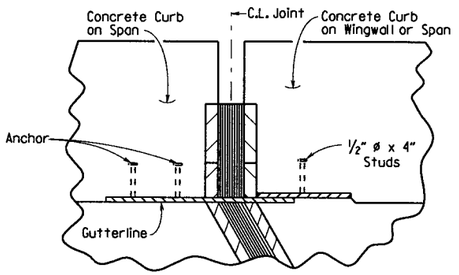
Note: Architectural Finish not shown, for clarity.

✓ Dimension "X" equals the width of opening in curb to allow for removal or repair of joint.

DETAIL OF CURB SLIDER PLATES



SECTION A-A

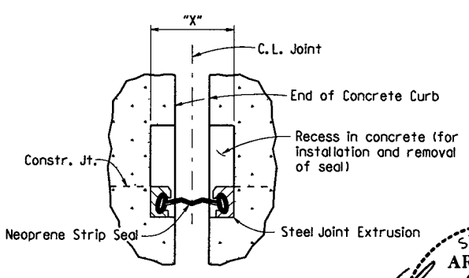


The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal".

Method of installation and fabrication shall be determined by the Manufacturer.

SECTION B-B

SKEW SHOWN FOR BR. NO. 07415
(DETAILS SIMILAR FOR BR. NO. 07416)



SECTION C-C

GENERAL NOTES FOR NEOPRENE STRIP SEAL JOINTS:

The steel extrusion and neoprene strip seal material and installation shall be in accordance with Section 809.

The expansion device shall provide for the movement rating(s) shown in the "TABLE OF STRIP SEAL JOINT DATA" in the superstructure details for the applicable unit. The expansion joint shall be capable of sealing the deck surface and concrete curb area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to the Engineer for approval prior to the fabrication of any structural steel at the expansion device.

All structural steel shall conform to AASHTO M 270, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). The curb slider plates and structural steel completely embedded in concrete shall conform to AASHTO M 270, Grade 36, 50 or 50W steel. Unless otherwise noted in the plans, all exposed surfaces of the curb slider plates shall be cleaned and painted in accordance with Section 638. Painting shall not be paid for directly and structural steel completely embedded in concrete need not be painted. Payment for structural steel shall be as specified elsewhere in the plans.

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DETAILS OF NEOPRENE STRIP SEAL JOINTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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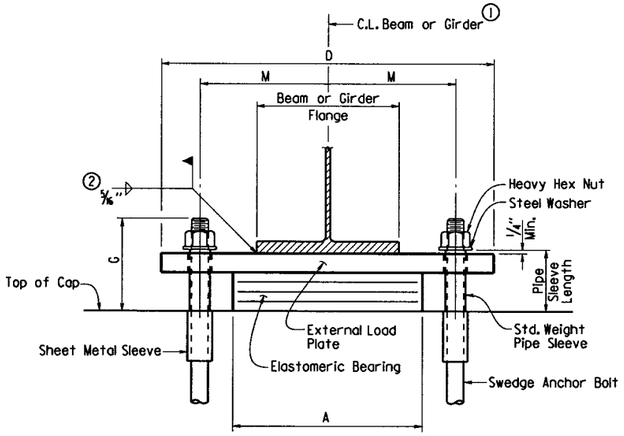
DESIGNED BY: JAC DATE: 7-26-17

FILENAME: b080439_jt.dgn
SCALE: No Scale

BRIDGE NOS. 07415 & 07416 DRAWING NO. 53875

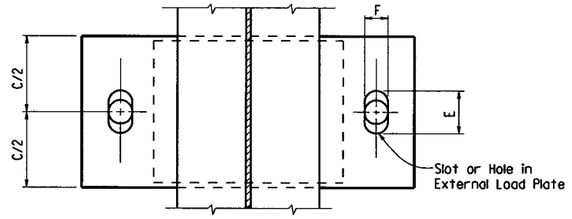
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	606	1116

① 07415 & 07416 - ELASTO BRGS.- 53876

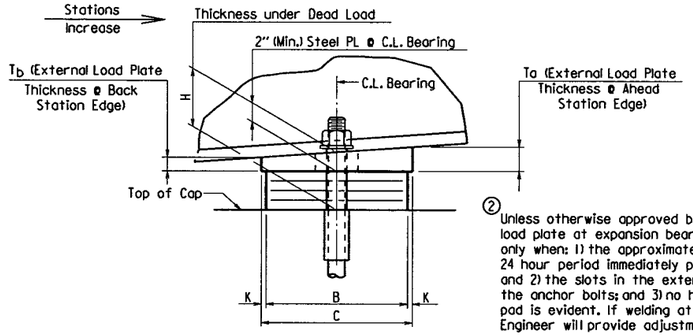


FRONT VIEW

① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.



PLAN VIEW

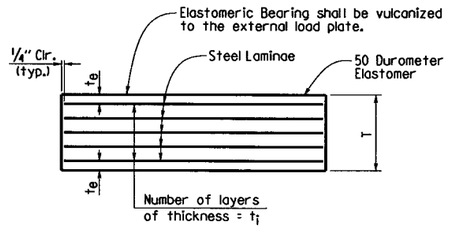


SIDE VIEW

The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

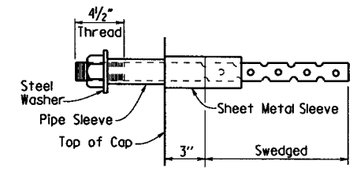


t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD G	ELASTOMERIC PAD H	ELASTOMERIC PAD A	ELASTOMERIC PAD B	ELASTOMERIC PAD N	ELASTOMERIC PAD t_i	ELASTOMERIC PAD t_e	ELASTOMERIC PAD NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD T	EXTERNAL LOAD PLATE C	EXTERNAL LOAD PLATE D	EXTERNAL LOAD PLATE E	EXTERNAL LOAD PLATE F	EXTERNAL LOAD PLATE K	EXTERNAL LOAD PLATE M	EXTERNAL LOAD PLATE T_a	EXTERNAL LOAD PLATE T_b	ANCHOR BOLT ANCHOR BOLT (ø x L)	ANCHOR BOLT GRADE	ANCHOR BOLT PIPE SLEEVE SIZE (ø x L)	ANCHOR BOLT SHEET METAL SLEEVE SIZE (ø x L)	ANCHOR BOLT STEEL WASHER SIZE (O.D.)
07415	1	1 - 5	Exp.	5	114	10 3/8"	7 3/8"	16"	8"	8	1/2"	1/4"	9 @ 12 Ga.	5 7/16"	10 1/2"	29"	7 1/8"	3 1/8"	1 1/4"	11"	1.95"	2.05"	2" x 32"	55	2 1/2" x 7 5/8"	4" x 6"	3 3/4"
	2	1 - 5	Exp.	5	261	8 3/4"	4 5/8"	16"	12"	4	1/2"	1/4"	5 @ 12 Ga.	3"	13"	30"	6 3/8"	3 3/4"	1/2"	11 1/2"	1.97"	2.03"	2 1/2" x 35"	55	3" x 5 1/4"	4" x 6"	4 1/2"
	3	1 - 5	Fix.	5	261	8 1/8"	3 13/16"	16"	13"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	14"	30"	3 3/4"	3 3/4"	1/2"	11 1/2"	2.02"	1.98"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 6"	5"
	4	1 - 5	Fix.	5	261	8 1/8"	3 13/16"	16"	13"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	14"	30"	3 3/4"	3 3/4"	1/2"	11 1/2"	2.07"	1.93"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 6"	5"
	5	1 - 5	Exp.	5	261	8 3/4"	4 5/8"	16"	12"	4	1/2"	1/4"	5 @ 12 Ga.	3"	13"	30"	6 3/8"	3 3/4"	1/2"	11 1/2"	2.12"	1.88"	2 1/2" x 35"	55	3" x 5 1/4"	4" x 6"	4 1/2"
	6	1 - 5	Exp.	5	114	10 3/8"	7 3/8"	16"	8"	8	1/2"	1/4"	9 @ 12 Ga.	5 7/16"	10 1/2"	29"	7 1/8"	3 1/8"	1 1/4"	11"	2.11"	1.89"	2" x 32"	55	2 1/2" x 7 5/8"	4" x 6"	3 3/4"
07416	1 & 4 Bk.	1 - 5	Exp.	5	115	8 3/8"	5 3/16"	16"	10"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	11"	27"	4 5/8"	2 1/4"	1/2"	10 1/2"	2"	2"	1 3/4" x 24"	55	2"x5 7/8"	4" x 6"	3 3/8"
	2 & 3	1 - 5	Fix.	5	271	8 3/4"	4 5/8"	16"	12"	4	1/2"	1/4"	5 @ 12 Ga.	3"	13"	30"	3 3/4"	3 3/4"	1/2"	11 1/2"	2"	2"	2 1/2" x 35"	55	3" x 5 1/4"	4" x 6"	4 1/2"
	4 Ahd.&7	1 - 5	Exp.	5	115	8 3/8"	5 3/16"	16"	10"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	11"	27"	4 5/8"	2 1/4"	1/2"	10 1/2"	2"	2"	1 3/4" x 24"	55	2"x5 7/8"	4" x 6"	3 3/8"
	5 & 6	1 - 5	Fix.	5	271	8 3/4"	4 5/8"	16"	12"	4	1/2"	1/4"	5 @ 12 Ga.	3"	13"	30"	3 3/4"	3 3/4"	1/2"	11 1/2"	2"	2"	2 1/2" x 35"	55	3" x 5 1/4"	4" x 6"	4 1/2"

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 08/22/17 FILENAME: b080439xl_el.dgn

CHECKED BY: TMG DATE: 9/19/17 SCALE: As Shown

DESIGNED BY: TMG DATE: 5/2017

BRIDGE NOS. 07415 & 07416 DRAWING NO. 53876

PRINT DATE: 9/19/2017

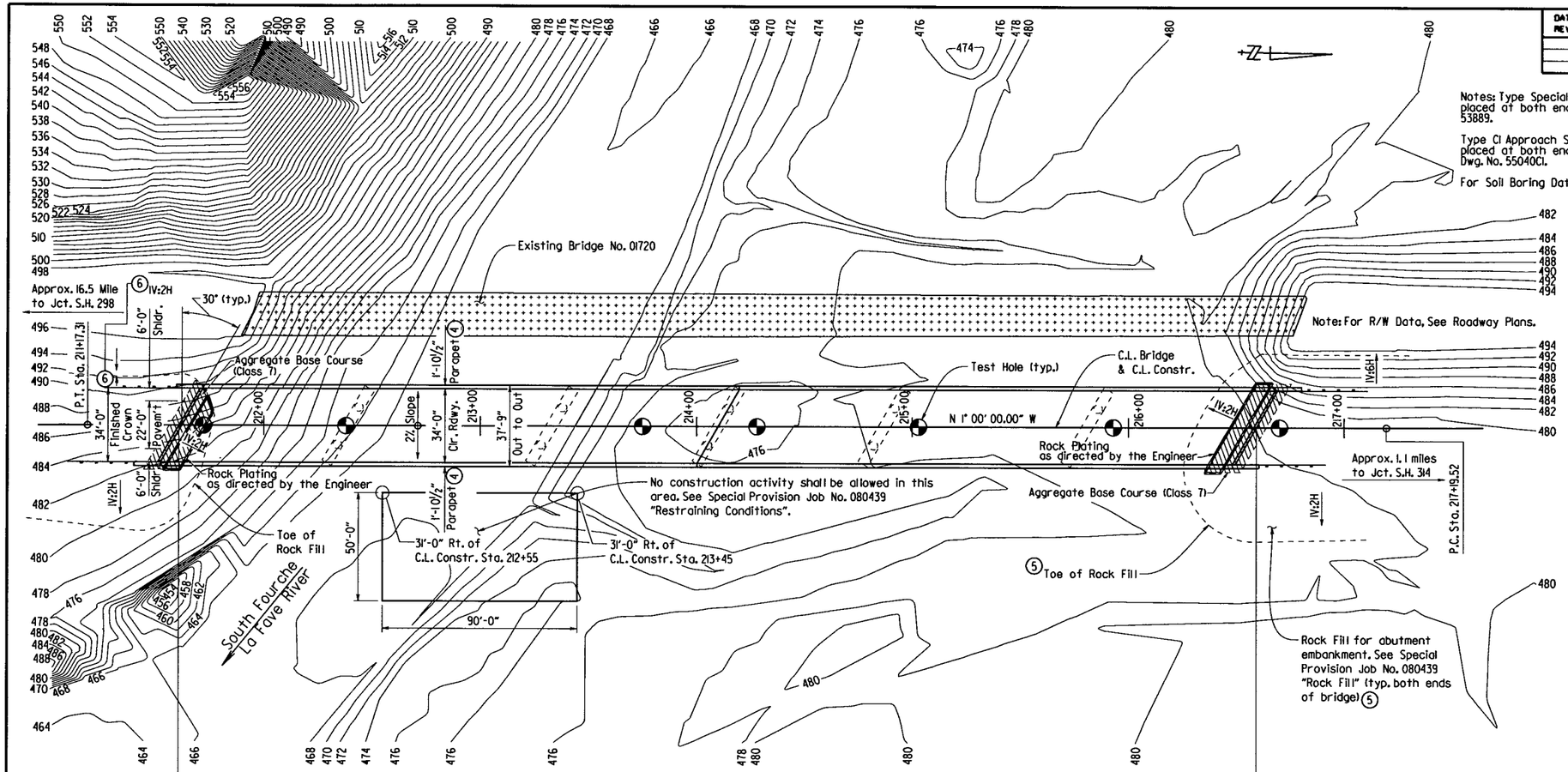
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	67	116
				(1) 07416		- LAYOUT -	53877	

Notes: Type Special Approach Gutters shall be placed at both ends of the bridge. See Dwg. No. 53889.

Type CI Approach Slabs (Width = 24'-0") shall be placed at both ends of the bridge. See Std. Dwg. No. 55040CI.

For Soil Boring Data, see Sheet 2 of 2.

Note: For R/W Data, See Roadway Plans.



PLAN

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(2) NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	31,800	486.4	488.4
Base	100	36,200	487.5	489.7
Extreme	500	50,400	490.8	494.2
Overtopping	>500	-	-	-

(2) Unconstricted water surface without Structures or roadway approaches.

Q100 backwater elevation for existing structure = 489.5

Drainage Area = 127 square miles

Historical High Water Elevation = 486.5

TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap "C"	Bent Height "H"	Shaft Length "J"	Casing Top Elev. "L"	Shaft Bott. Elev. "M"
2	4'-10⅜"	15'-6"	34'-0"	474.12	440.12
3	4'-10⅜"	15'-6"	41'-0"	474.12	433.12
4	4'-10⅜"	15'-6"	36'-0"	474.07	438.07
5	4'-10⅜"	15'-6"	32'-0"	474.12	442.12
6	4'-10⅜"	15'-6"	34'-0"	474.12	440.12

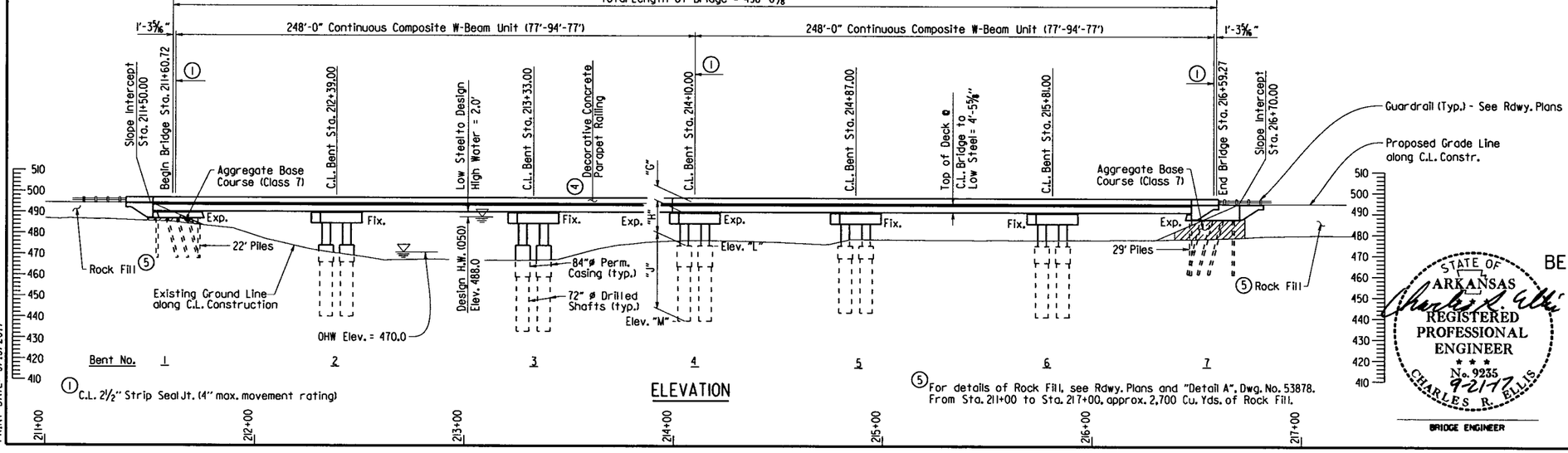
BRIDGE IS IN LEVEL GRADE

C.L. Deck Elevation is 494.50

Note: Stations and Elevations shown are along C.L. Bridge. Elevations are shown at Working Point, see Std. Dwg. No. 55007.

(4) See Dwg. Nos. 53872 thru 53874 for Details of Decorative Concrete Parapet Railing.

Total Length of Bridge = 498'-6⅝"



(1) C.L. 2½" Strip Seal Jt. (4" max. movement rating)

ELEVATION

(5) For details of Rock Fill, see Rdwy. Plans and "Detail A", Dwg. No. 53878. From Sta. 211+00 to Sta. 217+00, approx. 2,700 Cu. Yds. of Rock Fill.

PRINT DATE: 9/19/2017

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9/21/17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER
SO. FOURCHE LA FAVE RIVER
BEAR CREEK & SO. FOURCHE LA FAVE RIVER
STRS. & APPRS. (S)
PERRY COUNTY

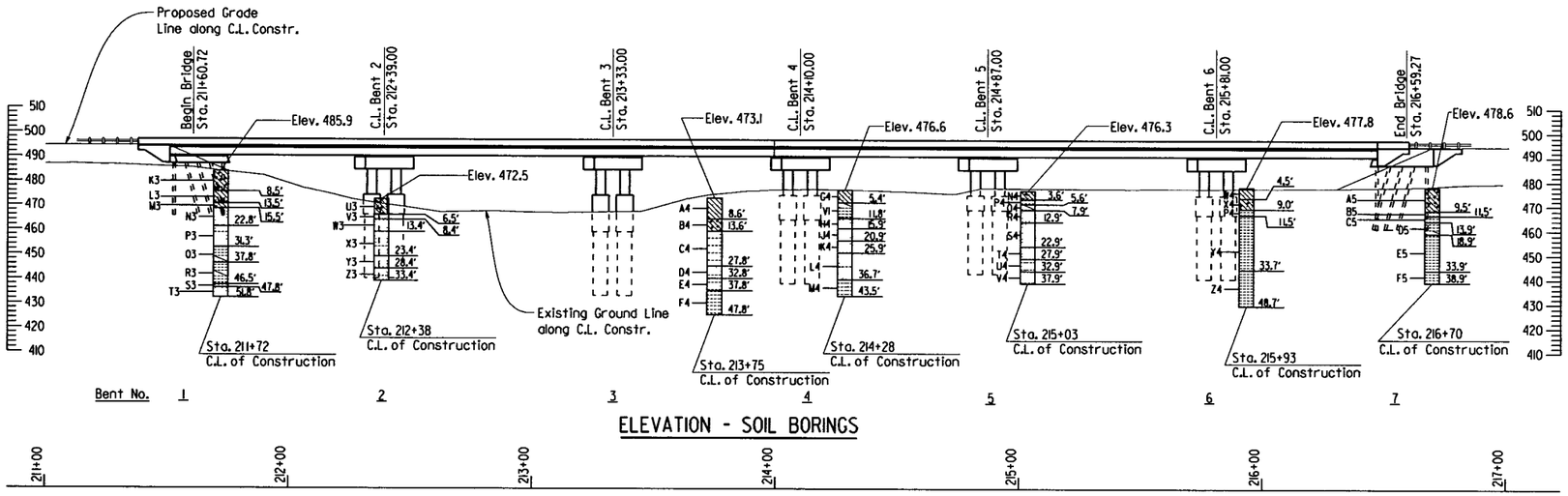
ROUTE 7 SEC. 11

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 06/13/17 FILENAME: b080439x2_ll.dgn
CHECKED BY: JAC DATE: 7/19/17 SCALE: 1"=30'
DESIGNED BY: YZ DATE: 9/19/17

BRIDGE NO. 07416 DRAWING NO. 53877

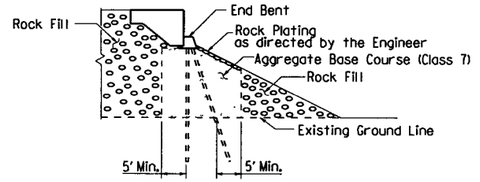
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	68	116
				07416		- LAYOUT -	53878	



ELEVATION - SOIL BORINGS

BORING LEGEND

K3-Moist, Very Stiff, Reddish Brown Clay with Gravel (Shale Fragments)
L3-Moist, Stiff, Reddish Brown Sandy Clay
W3-Moist, Very Hard, Gray and Reddish Brown Sandy Clay with Gravel (Sandstone Fragments)
N3-SANDSTONE - Weathered, Cemented, Frequent Quartz Veins, Steeply Dipping, Gray and White
P3-SANDSTONE W/ FREQUENT SHALE LAYERS - Weathered, Cemented w/ Frequent Soft Layers (Shale), Occasional Quartz Veins, Steeply Dipping, Gray and White
O3-SHALE - Highly Weathered, Soft, Frequent Quartz Veins, Steeply Dipping, Dark Gray
R3-SHALE - Highly Weathered, Soft to Medium Hard, Occasional Quartz Veins, Steeply Dipping, Dark Gray
S3-SANDSTONE - Slightly Weathered, Well Cemented, Steeply Dipping, Light Gray
T3-SANDSTONE - Unweathered, Well Cemented, Steeply Dipping, Gray
U3-Wet, Very Stiff, Gray and Reddish Brown Sandy Clay with Gravel (Shale and Sandstone Fragments)
V3-SANDSTONE WITH OCCASIONAL SHALE SEAMS- Slightly Weathered, Well Cemented, Frequent Fractures, Steeply Dipping, Light Gray
W3-SANDSTONE WITH FREQUENT SHALE SEAMS - Slightly Weathered with Highly Weathered Seams, Well Cemented with Soft Seams, Steeply Dipping, Gray
X3-SANDSTONE WITH FREQUENT SHALE SEAMS AND LAYERS - Slightly Weathered, Well Cemented, Steeply Dipping, Gray
Y3-SANDSTONE WITH OCCASIONAL SHALE PARTINGS - Unweathered, Well Cemented, Steeply Dipping, Dark Gray
Z3-SANDSTONE WITH FREQUENT SHALE PARTINGS - Slightly Weathered, Well Cemented, Frequent Fractures, Steeply Dipping, Gray
A4-Moist, Medium Stiff, Gray Sandy Clay with Some Organic Matter
B4-Moist, Hard, Gray Clay with Gravel (Shale and Sandstone Fragments)
C4-SANDSTONE AND SHALE INTERBEDDED - Slightly to Highly Weathered, Well Cemented (Sandstone) to Soft (Shale), Steeply Dipping, Frequent Slickensides, Gray
D4-SANDSTONE WITH FREQUENT SHALE LAYERS - Slightly Weathered, Well Cemented, Steeply Dipping, Frequent Slickensides, Frequent Fractures, Gray
E4-SANDSTONE AND SHALE INTERBEDDED - Unweathered, Well Cemented (Sandstone) and Medium Hard (Shale), Steeply Dipping, Frequent Slickensides, Gray
F4-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Unweathered, Medium Hard, Steeply Dipping, Frequent Slickensides, Dark Gray
G4-Moist, Hard, Sandy Clay with Some Gravel and Organic Matter
H4-SANDSTONE WITH OCCASSIONAL CLAY LAYERS - Weathered, Well Cemented, Steeply Dipping, Gray
J4-SANDSTONE WITH OCCASSIONAL SHALE LAYERS - Slightly Weathered, Well Cemented, Steeply Dipping, Gray
K4-SANDSTONE - Slightly Weathered, Well Cemented, Steeply Dipping, Gray
L4-SANDSTONE WITH FREQUENT SHALE LAYERS - Slightly Weathered, Well Cemented, Steeply Dipping, Gray
M4-SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Slightly Weathered, Medium Hard, Steeply Dipping, Frequent Slickensides, Dark Gray
N4-Gray and Brown Clayey Gravel with Sand
P4-SHALE - Highly Weathered, Medium Hard, Dark Gray
Q4-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Highly Weathered, Medium Hard with Soft Layers, Steeply Dipping, Dark Gray
R4-SANDSTONE WITH OCCASIONAL SHALE LAYERS - Weathered with Occasional Highly Weathered Layers, Well Cemented, Steeply Dipping, Dark Gray
S4-SANDSTONE - Slightly Weathered, Well Cemented, Occasional Fractures, Occasional Quartz Veins, Steeply Dipping, Dark Gray
T4-SANDSTONE WITH OCCASIONAL SHALE LAYERS - Weathered with Occasional Highly Weathered Layers, Well Cemented, Steeply Dipping, Gray
U4-SHALE INTERBEDDED WITH SANDSTONE - Slightly Weathered to Unweathered, Medium Hard, Well Cemented, Highly Fractured, Steeply Dipping, Gray
V4-SANDSTONE WITH FREQUENT SHALE LAYERS AND SEAMS - Unweathered, Well Cemented, Occasional Fractures, Steeply Dipping, Gray
W4-Wet, Soft, Brown Sandy Clay with Some Organic Matter
X4-Wet, Very Hard, Light Brown to Gray Sandy Clay with Gravel (Shale and Sandstone Fragments)
Y4-SHALE - Weathered, Medium Hard, Steeply Dipping, Frequent Slickensides, Dark Gray
Z4-SHALE - Unweathered, Medium Hard, Steeply Dipping, Frequent Slickensides, Dark Gray
A5-Moist, Hard, Brown Sandy Clay with Gravel (Rock Fragments)
B5-SHALE - Highly Weathered, Medium Hard, Dark Gray
C5-SHALE - Weathered, Medium Hard, Gray
D5-SHALE - Highly Weathered to Weathered, Medium Hard with Soft Layers, Steeply Dipping, Gray
E5-SHALE - Weathered, Medium Hard, Steeply Dipping, Frequent Slickensides, Dark Gray
F5-SHALE - Weathered, Medium Hard, Occasional Fractures, Frequent Slickensides, Dark Gray



Where rock fill is used for embankment construction, aggregate base course (Class 7), in accordance with Subsection 303.02, shall be placed as shown in areas where piling will be located. The top layer of Rock Fill shall also be comprised of a minimum of 6" aggregate base course (Class 7). Aggregate base course (Class 7) and Rock Plating shall be paid for as "Rock Fill". See Special Provision Job No. 080439 "Rock Fill".

DETAIL A

No Scale

"N" VALUES

Sta. 211+72 - C.L. of Construction
4.0- 5.0, N=21
9.0- 10.0, N=9
14.0- 14.8, N=66(9")

Sta. 212+38 - C.L. of Construction
3.7- 4.7, N=28
6.5- 6.5, N=10(0")

Sta. 213+75 - C.L. of Construction
4.1- 5.1, N=6
9.1- 10.1, N=54
13.6- 13.6, N=10(0")

Sta. 214+28 - C.L. of Construction
5.1- 6.1, N=60
11.3- 11.8, N=60(6")

Sta. 215+03 - C.L. of Construction
4.1- 4.6, N=60(6")

Sta. 215+93 - C.L. of Construction
5.0- 6.0, N=74
10.0- 11.0, N=88

Sta. 216+70 - C.L. of Construction
5.0- 6.0, N=53
10.0- 10.8, N=100(10")

GENERAL NOTES

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

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

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

LIVE LOADING: HL-93 SEISMIC ZONE: 1 (SDI = 0.12)

MATERIALS AND STRENGTHS:

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

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

STEEL PILING: Piling in Bents 1 and 7 shall be HP 14X73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer into material designated as N3 at Bent 1 and C5/D5 at Bent 7 on the boring legend and to a minimum safe bearing capacity of 90 tons per pile. Piles shall be driven after embankment to bottom of cap is in place. Minimum penetration shall be 10 feet below natural ground for all piling. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual pile lengths are to be determined in the field. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piles in Bents 1 and 7. The depth of preboring shall be sufficient to provide the specified minimum penetration and to set pile tips a minimum of 3 ft into the materials designated as N3 at Bent 1 and C5/D5 at Bent 7 on the boring legend, whichever is lower. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

DRILLED SHAFTS: Drilled shafts in Bents 2 through 6 shall be constructed in accordance with Special Provision Job No. 080439 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum 26'-0" into the slightly weathered shale or sandstone designated as W3, X3, C4, J4, K4, S4, or Y4 on the Boring Legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer. Temporary casing may be required.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. 080439 "Nondestructive Testing of Drilled Shafts".

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

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface only. It SHALL NOT be applied to any portion of the wings, railings, or curbs.

DETAIL DRAWINGS:	DRAWING NO.
Bents 1 & 7	53879-53881, 53884-53886
Bents 2 - 6	53882, 53883
248'-0" Continuous W-Beam Unit	53871-53875, 53887, 53888
Elastomeric Bearings	53876
Standard General Notes	55006
Steel Piling	55020
Type Special Approach Gutters	53889
Type CI Approach Slabs	55040CI

EXISTING BRIDGE: Existing Bridge No. 01720 is 22' wide and 485' long and consists of seven 40' R.C. Deck Girder Spans and two 100' pony Truss Spans supported by wall piers on spread footings.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, Existing Bridge No. 01720 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor except the bridge guardrail system (including rails, posts, bolts, and related accessories), which shall remain the property of the State. The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide temporary storage and on site loading onto AHTD equipment for removal of salvage items from the site. This work shall be considered incidental to the item "Removal of Existing Bridge Structure".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER SO. FOURCHE LA FAVE RIVER BEAR CREEK & SO. FOURCHE LA FAVE RIVER STRS. & APPRS. (S)
PERRY COUNTY
ROUTE 7 SEC. 11

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 06/05/17 FILENAME: b080439x2_ll.dgn
CHECKED BY: JAC DATE: 9/19/17 SCALE: 1"=30'
DESIGNED BY: YZ DATE: 9/19/17

BRIDGE NO. 07416 DRAWING NO. 53878

PRINT DATE: 9/19/2017

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.		080439	69	116
				①	07416 - BENT 1 - 53879			

Notes:

Class I Protective Surface Treatment shall be applied to the top of backwall only. Class I Protective Surface Treatment SHALL NOT be applied to any portion of the Railings (including Rail, Post & Curb) and Wings.

Structural steel in end bent shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

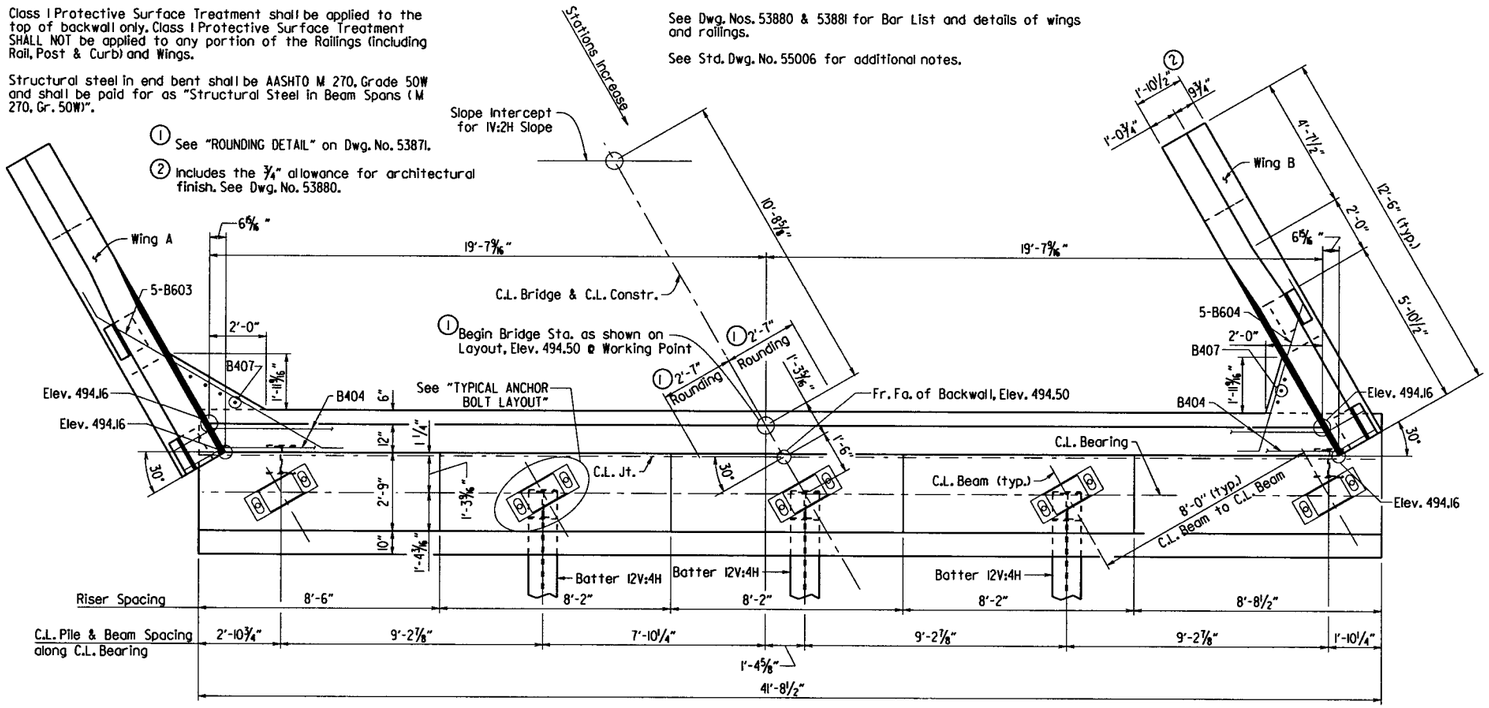
Notes:

See Dwg. Nos. 53880 & 53881 for Bar List and details of wings and railings.

See Std. Dwg. No. 55006 for additional notes.

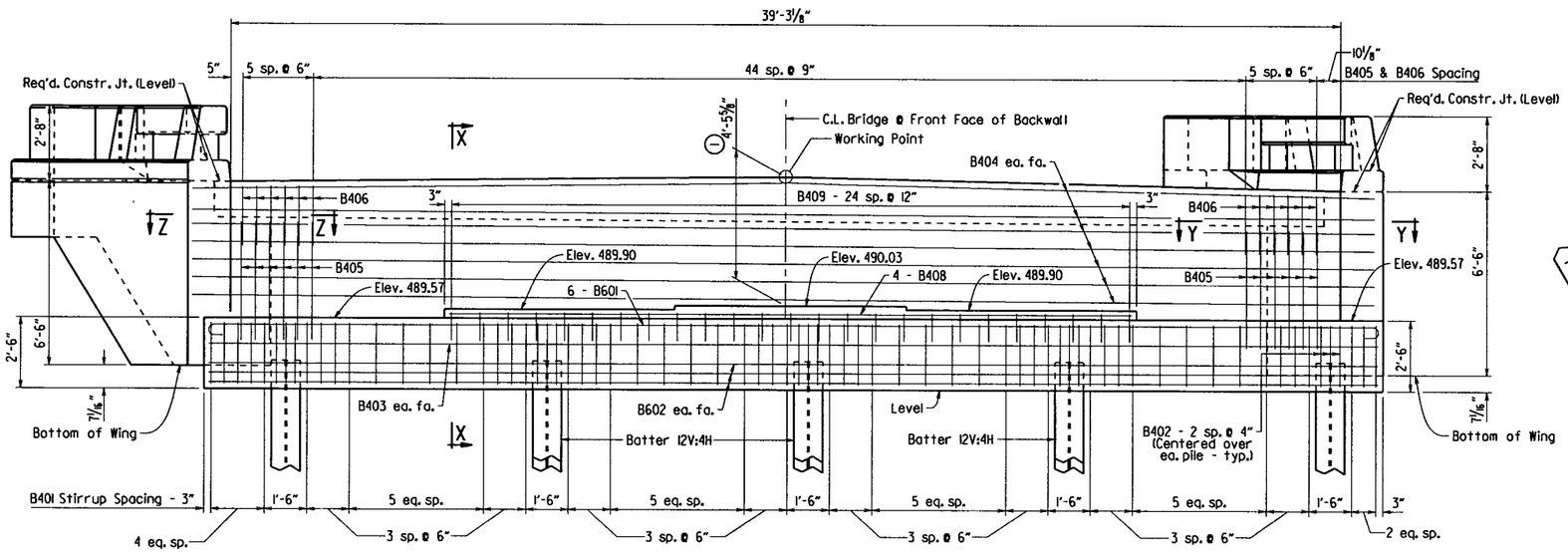
① See "ROUNDING DETAIL" on Dwg. No. 53871.

② Includes the ¾" allowance for architectural finish. See Dwg. No. 53880.



PLAN

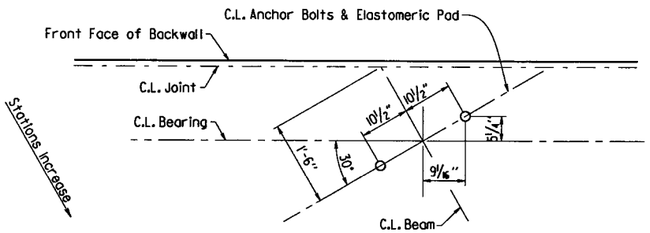
⅜" = 1'-0"



ELEVATION

Looking Back

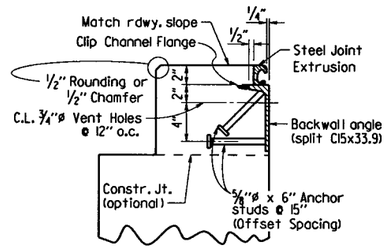
⅜" = 1'-0"



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"



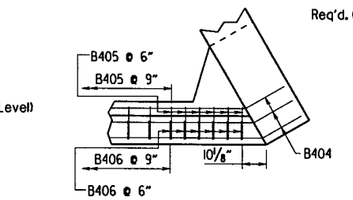
DETAIL "Z"

No Scale

NOTES: For additional Joint Details, see Dwg. No. 53875.

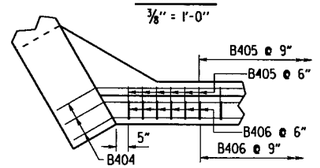
Concrete shall be hand packed under the joint armor in the backwall.

The backwall angle shall be profiled to account for vertical curve and skew.



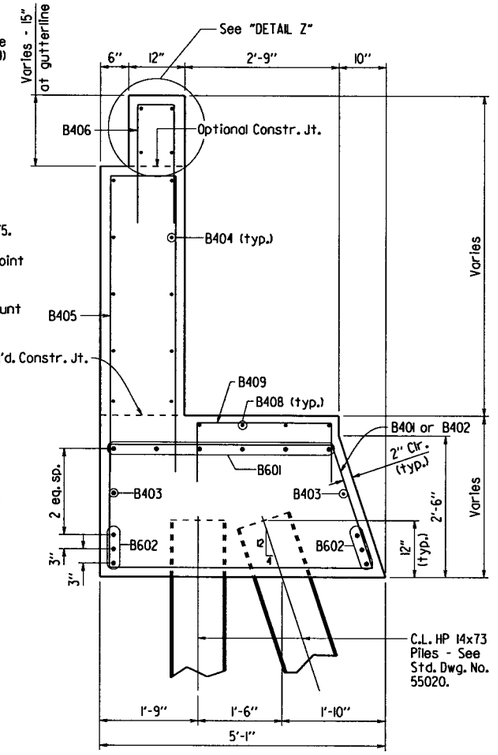
VIEW Y-Y

⅜" = 1'-0"



VIEW Z-Z

⅜" = 1'-0"



SECTION X-X

¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENT NO. 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17
CHECKED BY: TMG DATE: 9/21/17
DESIGNED BY: TMG DATE: 7/2017

FILENAME: b080439x2.bl.dgn
SCALE: As Shown

BRIDGE NO. 07416

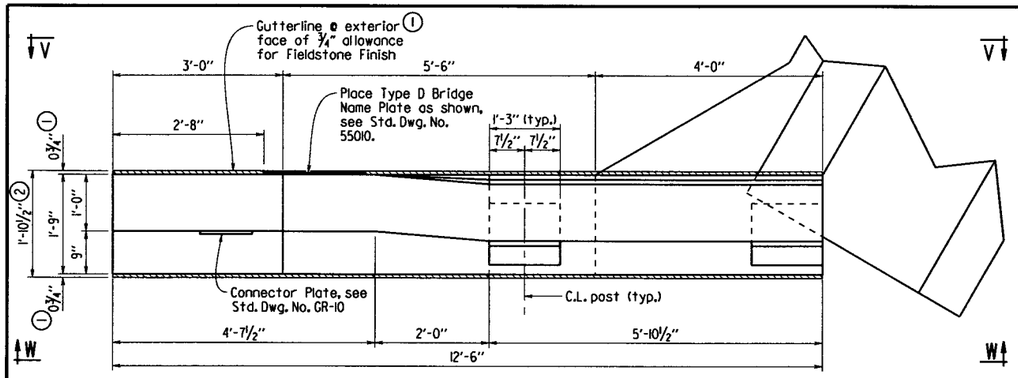
DRAWING NO. 53879

PRINT DATE: 9/21/2017

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.		080439	70	116
				①		07416 - BENT 1 - 53880		

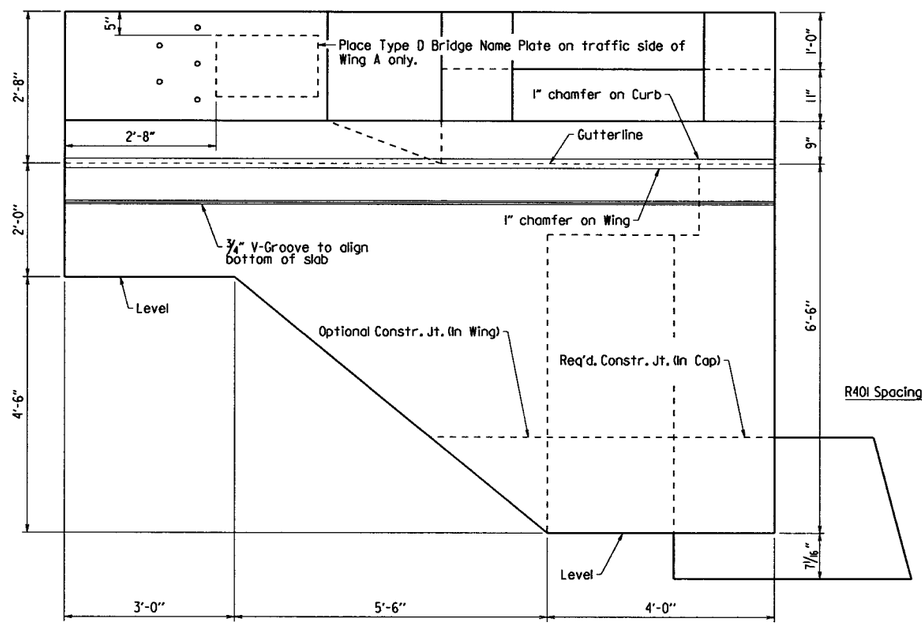
① Dimension is allowance for Fieldstone Finish. Allowance for Roughsawn Wood is 1/4", see Dwg. No. 53874A.

② Includes allowance for 3/4" Fieldstone Finish each side.



PLAN OF RAILING (WING A)

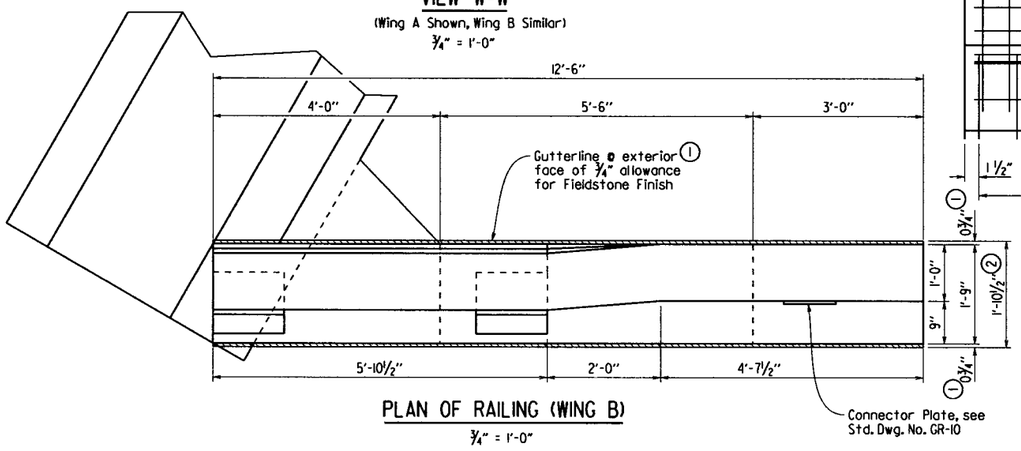
3/4" = 1'-0"



VIEW W-W

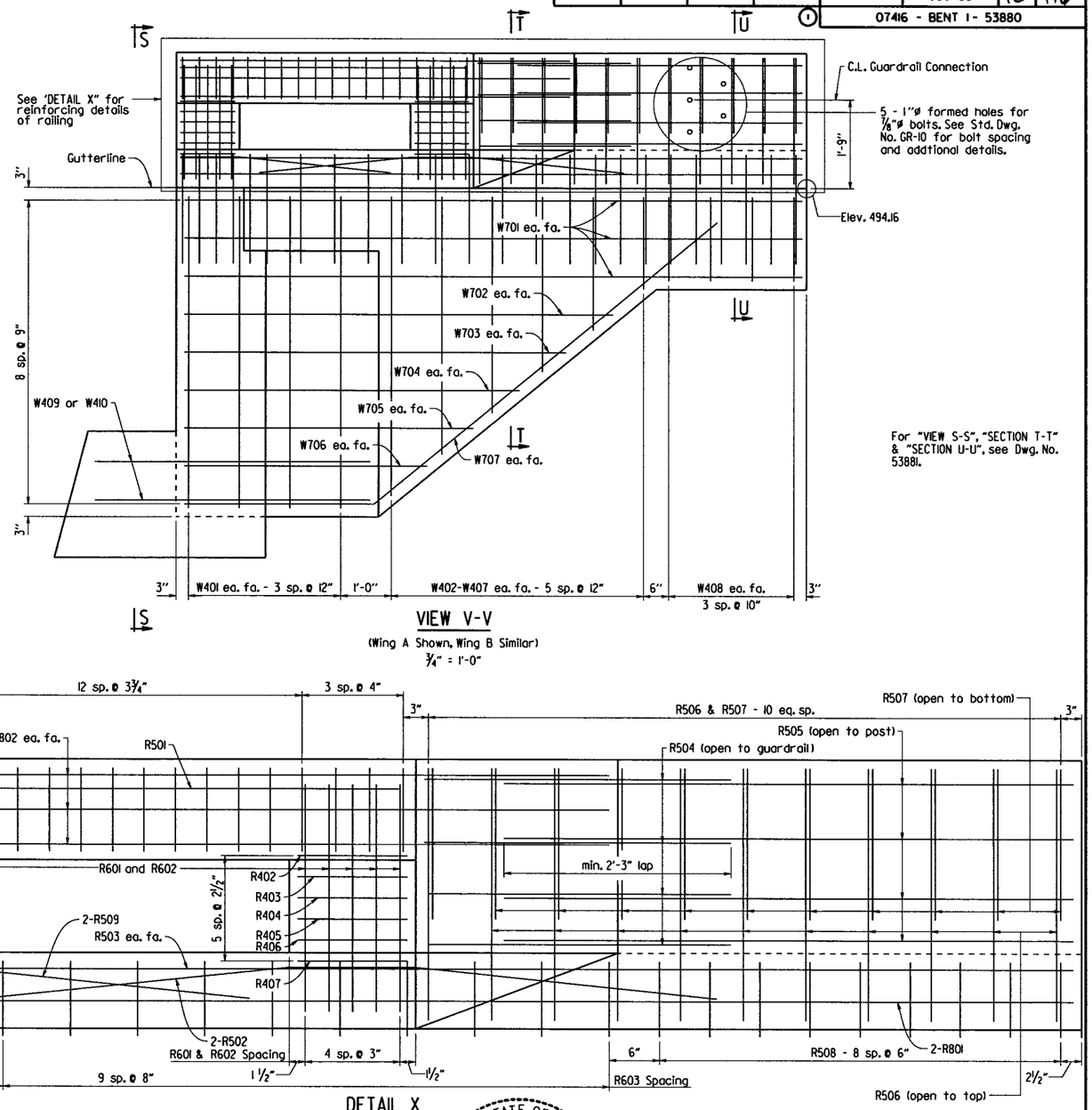
(Wing A Shown, Wing B Similar)

3/4" = 1'-0"



PLAN OF RAILING (WING B)

3/4" = 1'-0"



VIEW V-V

(Wing A Shown, Wing B Similar)

3/4" = 1'-0"

For "VIEW S-S", "SECTION T-T" & "SECTION U-U", see Dwg. No. 53881.

DETAIL X

1 1/2" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT NO. 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-20-17 FILENAME: b080439x2.bl.dgn

CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown

DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07416 DRAWING NO. 53880

PRINT DATE: 9/21/2017

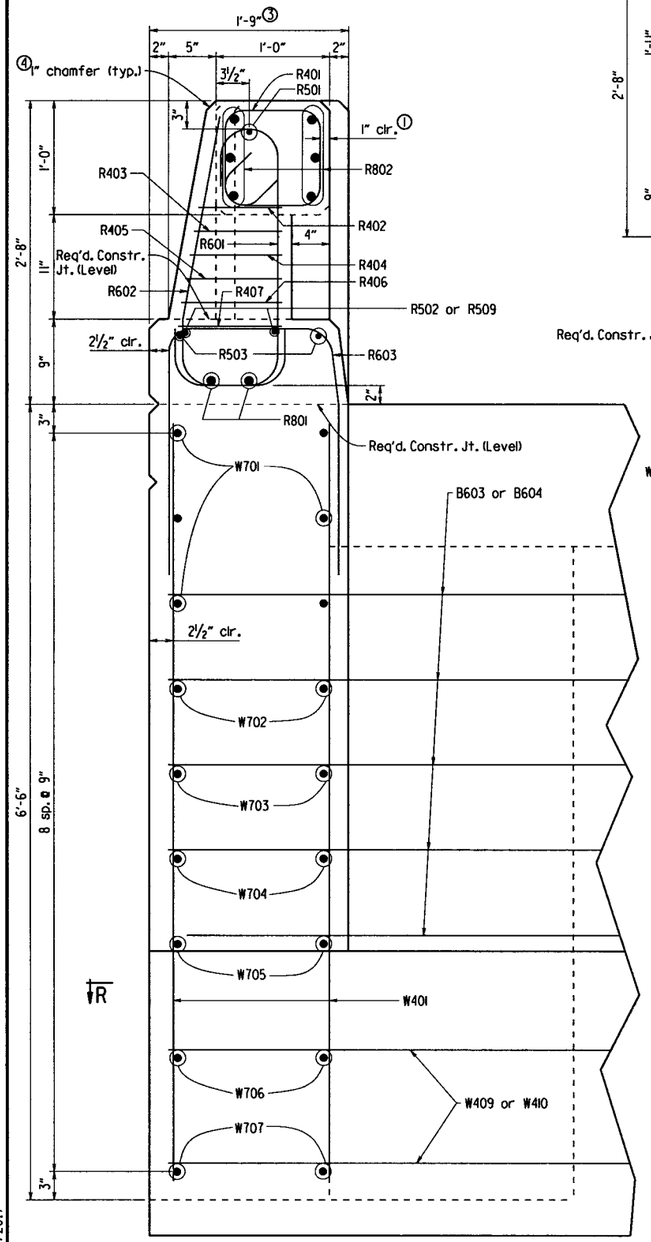
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. HIWAY DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	71	116
				①		07416 - BENT 1- 53881		

① A typical clear cover of 1" shall be provided for the Railing (includes Rail, Post and Curb) reinforcement, unless otherwise noted.

② Typ. for wings unless noted otherwise

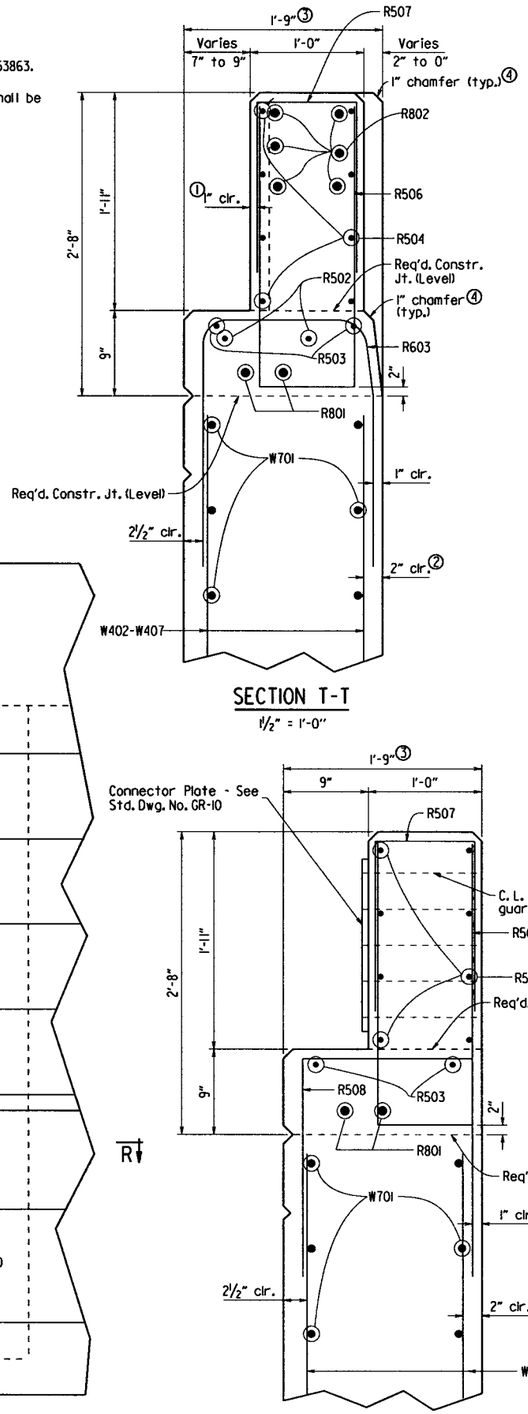
③ Does not include the ¾" allowance for architectural finish. See Dwg. No. 53863.

④ All exposed corners for the Railing components (Rail, Post, Curb & Wall) shall be chamfered 1" unless otherwise noted.



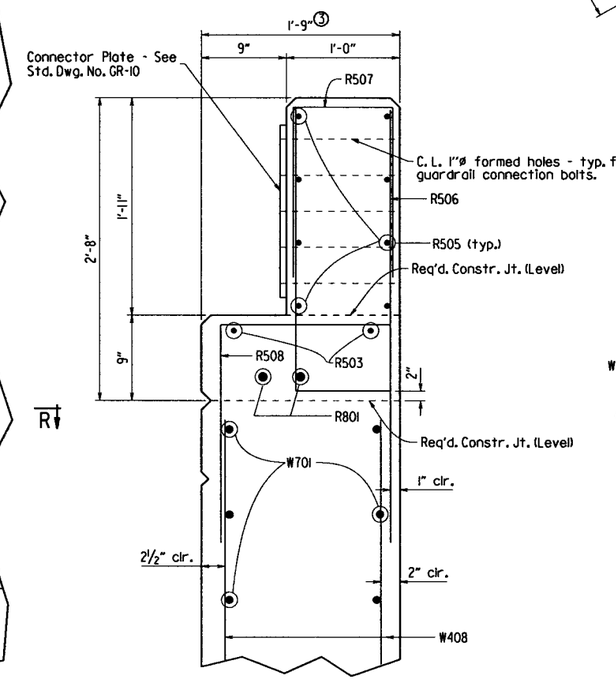
VIEW S-S

1½" = 1'-0"



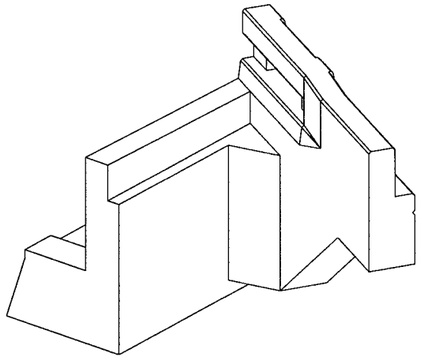
SECTION T-T

1½" = 1'-0"



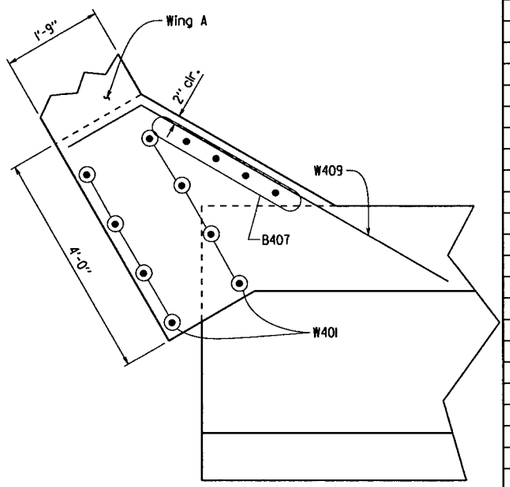
SECTION U-U

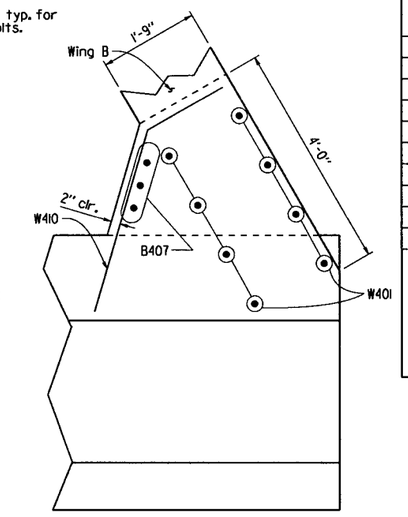
1½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAILING

No Scale





SECTION R-R

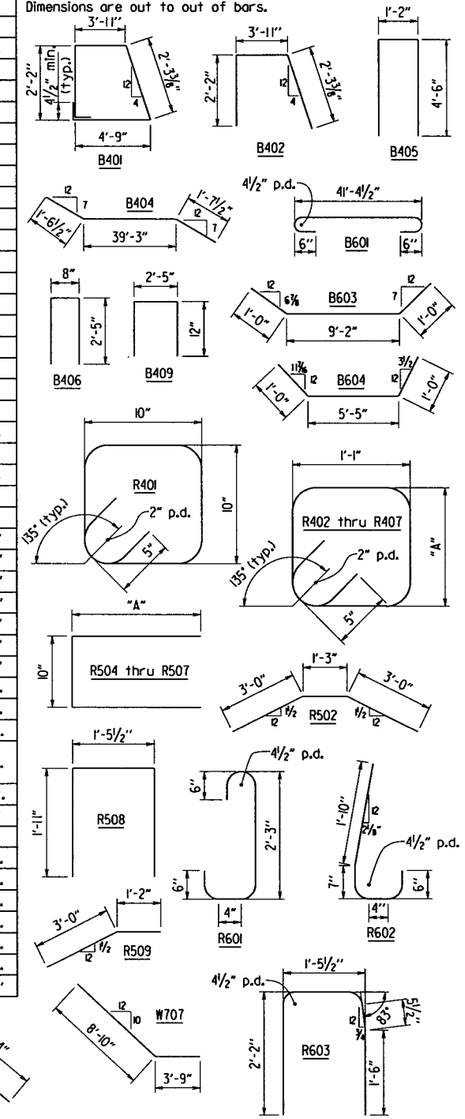
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
B401	56	13'-6"	-	2"
B402	15	8'-3"	-	2"
B403	2	41'-4½"	-	Str.
B404	14	38'-11"	-	Str.
B405	54	10'-0"	-	2"
B406	54	5'-4"	-	2"
B407	7	4'-11"	-	Str.
B408	4	24'-2"	-	Str.
B409	25	4'-3"	-	2"
B601	6	42'-8½"	-	4½"
B602	6	41'-4½"	-	Str.
B603	5	11'-2"	-	4½"
B604	5	7'-5"	-	4½"
R401	38	3'-8"	-	2"
R402	4	4'-0"	9"	2"
R403	4	4'-1"	9½"	2"
R404	4	4'-2"	10"	2"
R405	4	4'-3"	10½"	2"
R406	4	4'-4"	11"	2"
R407	4	4'-5"	11½"	2"
R501	2	5'-7"	-	Str.
R502	4	7'-3"	-	3¾"
R503	4	12'-4"	-	Str.
R504	8	6'-8"	3'-0½"	3¾"
R505	8	11'-11"	5'-8"	3¾"
R506	22	5'-7"	2'-6"	3¾"
R507	22	3'-7"	1'-6"	3¾"
R508	18	5'-1"	-	3¾"
R509	4	4'-2"	-	3¾"
R601	16	4'-0"	-	4½"
R602	16	3'-5"	-	4½"
R603	30	5'-6"	-	4½"
R801	4	12'-4"	-	Str.
R802	12	7'-9"	-	Str.
W401	16	6'-2"	-	Str.
W402 - W407	4 ea.	5'-11" to 1'-10"	-	Str.
W408	16	1'-8"	-	Str.
W409	2	7'-9"	-	2"
W410	2	4'-10"	-	2"
W701	12	12'-2"	-	Str.
W702	4	8'-5"	-	Str.
W703	4	7'-6"	-	Str.
W704	4	6'-7"	-	Str.
W705	4	5'-8"	-	Str.
W706	4	4'-9"	-	Str.
W707	4	12'-7"	-	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT NO. 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

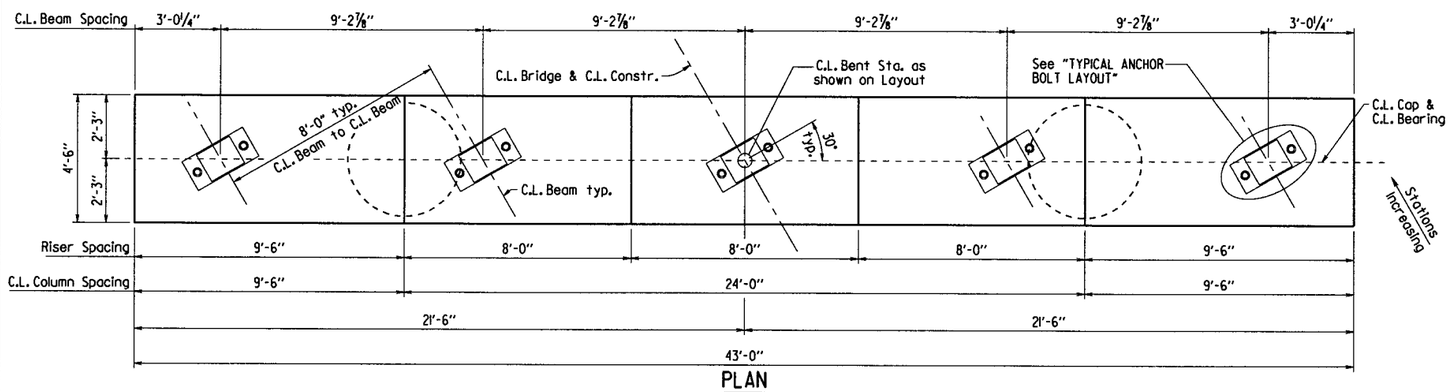
LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17
CHECKED BY: TMG DATE: 9/21/17
DESIGNED BY: TMG DATE: 7/2017
FILENAME: b080439x2_bl.dgn
SCALE: As Shown

BRIDGE NO. 07416 DRAWING NO. 53881

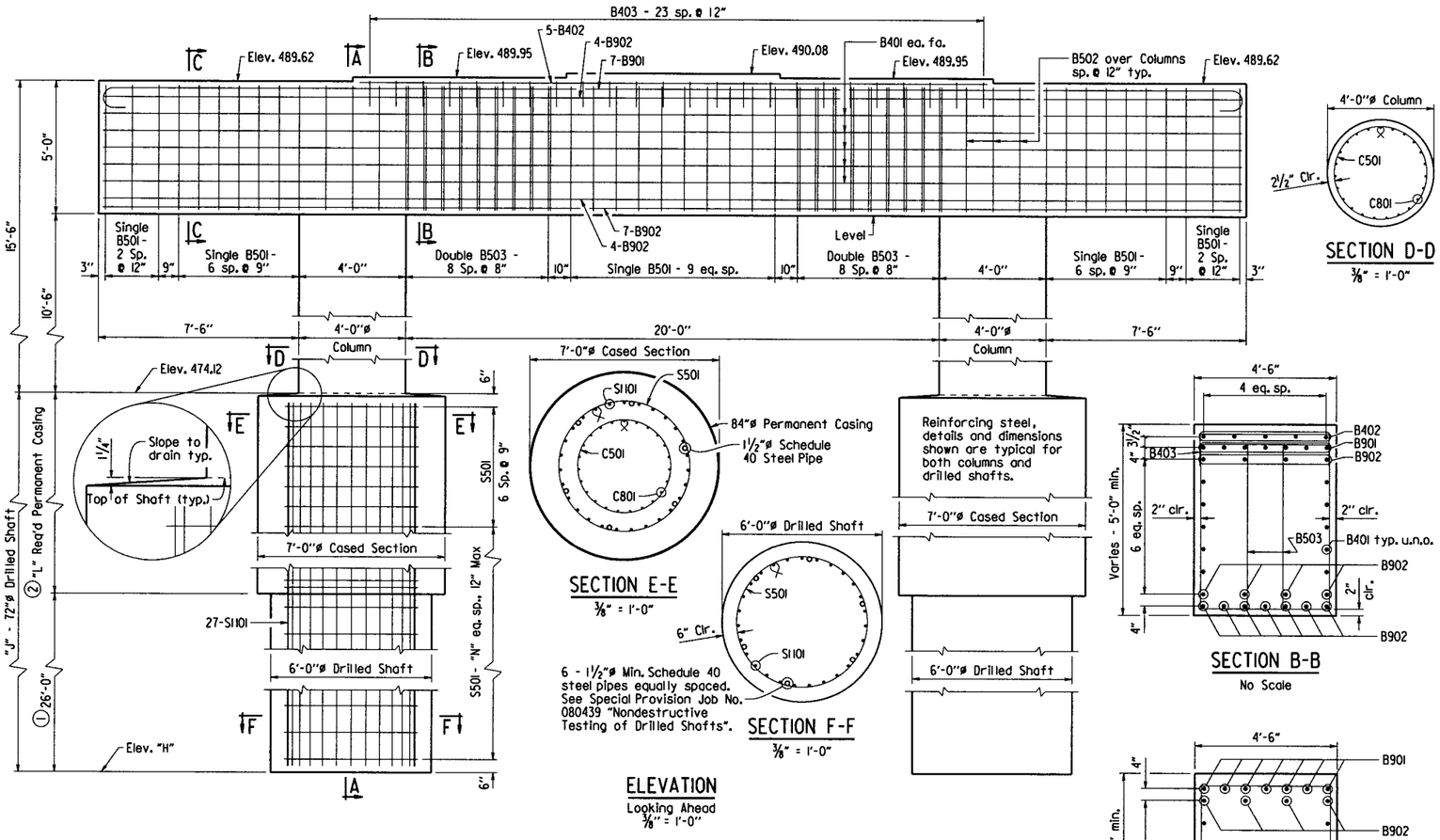
PRINT DATE: 9/20/2017

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.		080439	72	116
				①	07416 -	INT. BENTS	- 53882	



PLAN

⅜" = 1'-0"



ELEVATION

Looking Ahead

⅜" = 1'-0"

SECTION E-E

⅜" = 1'-0"

SECTION F-F

⅜" = 1'-0"

TABLE OF VARIABLES

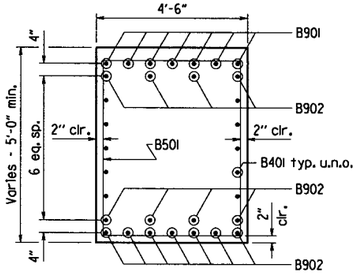
Bent No.	Elev. "H"	"J"	② "L"	"N"	"R"	"T"
2	440.12	34'-0"	8'-0"	29	72	33'-6"
3	433.12	41'-0"	15'-0"	36	86	40'-6"
5	442.12	32'-0"	6'-0"	27	68	31'-6"
6	440.12	34'-0"	8'-0"	29	72	33'-6"

SECTION D-D

⅜" = 1'-0"

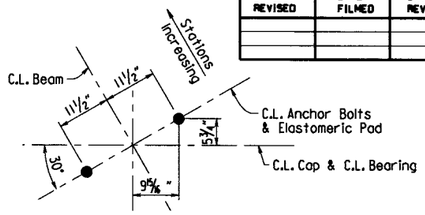
SECTION B-B

No Scale



SECTION C-C

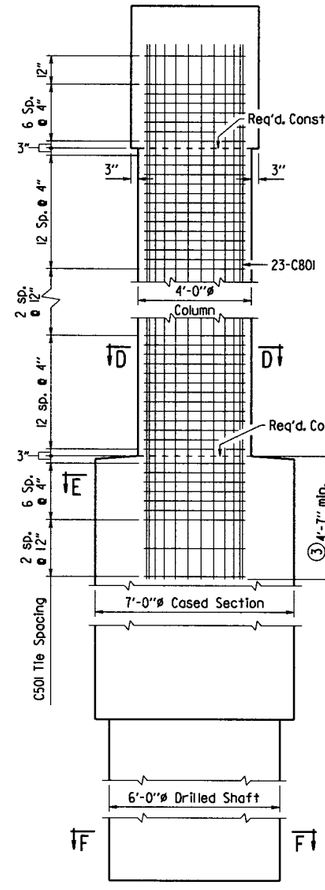
No Scale



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT

No Scale



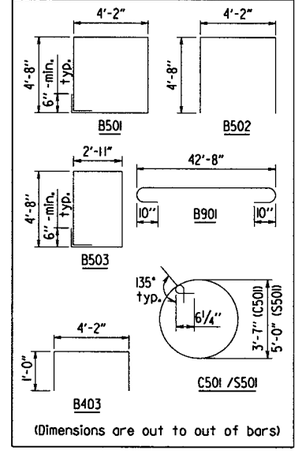
SECTION A-A

⅜" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	10	42'-8"	Str.
B402	5	23'-8"	Str.
B403	24	6'-0"	2"
B501	30	18'-2"	2½"
B502	6	13'-4"	2½"
B503	36	15'-8"	2½"
B901	7	45'-2"	9"
B902	15	42'-8"	Str.
C501	88	12'-9"	3¾"
C801	46	18'-9"	Str.
④ S501	"R"	17'-3"	3¾"
④ S1101	54	"T"	Str.

BENDING DIAGRAMS



(Dimensions are out to out of bars)

General Notes:

For Standard General Notes, See Std. Dwg. No. 55006.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 080439 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (72" Dia.)" and "Permanent Steel Casing (84" Dia.)".

For additional information, see Layout.

① Minimum penetration into competent rock below permanent casing.

② Length of permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 080439 "Drilled Shaft Foundations". Permanent casings shall not extend below top of competent rock.

③ The column reinforcing cage may be placed before or after concrete placement in the shaft is complete. Vibration of the concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

④ Non-pay Item - Subsidiary to the Item "Drilled Shaft (72" Dia.)".

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF BENT NOS. 2, 3, 5 & 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/30/2017 FILENAME: b080439x2_b2.dgn

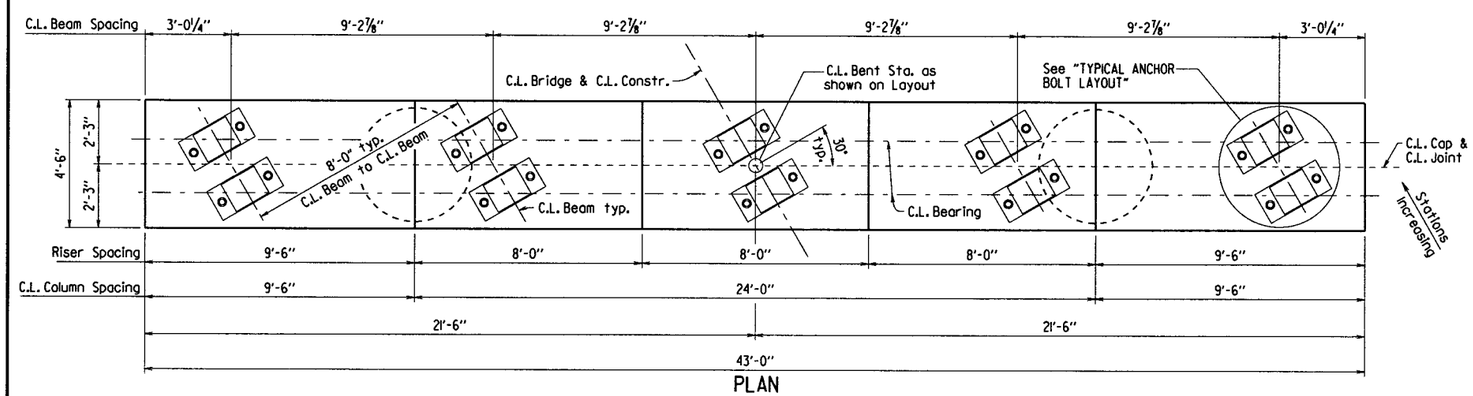
CHECKED BY: TMG DATE: 8/30/17 SCALE: As Shown

DESIGNED BY: TMG DATE: 8/2017

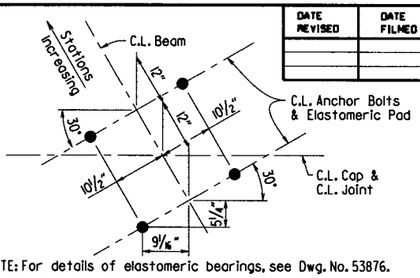
BRIDGE NO. 07416 DRAWING NO. 53882

PRINT DATE: 8/30/2017

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.		080439	73	116
				①	07416 -	INT. BENT	- 53883	

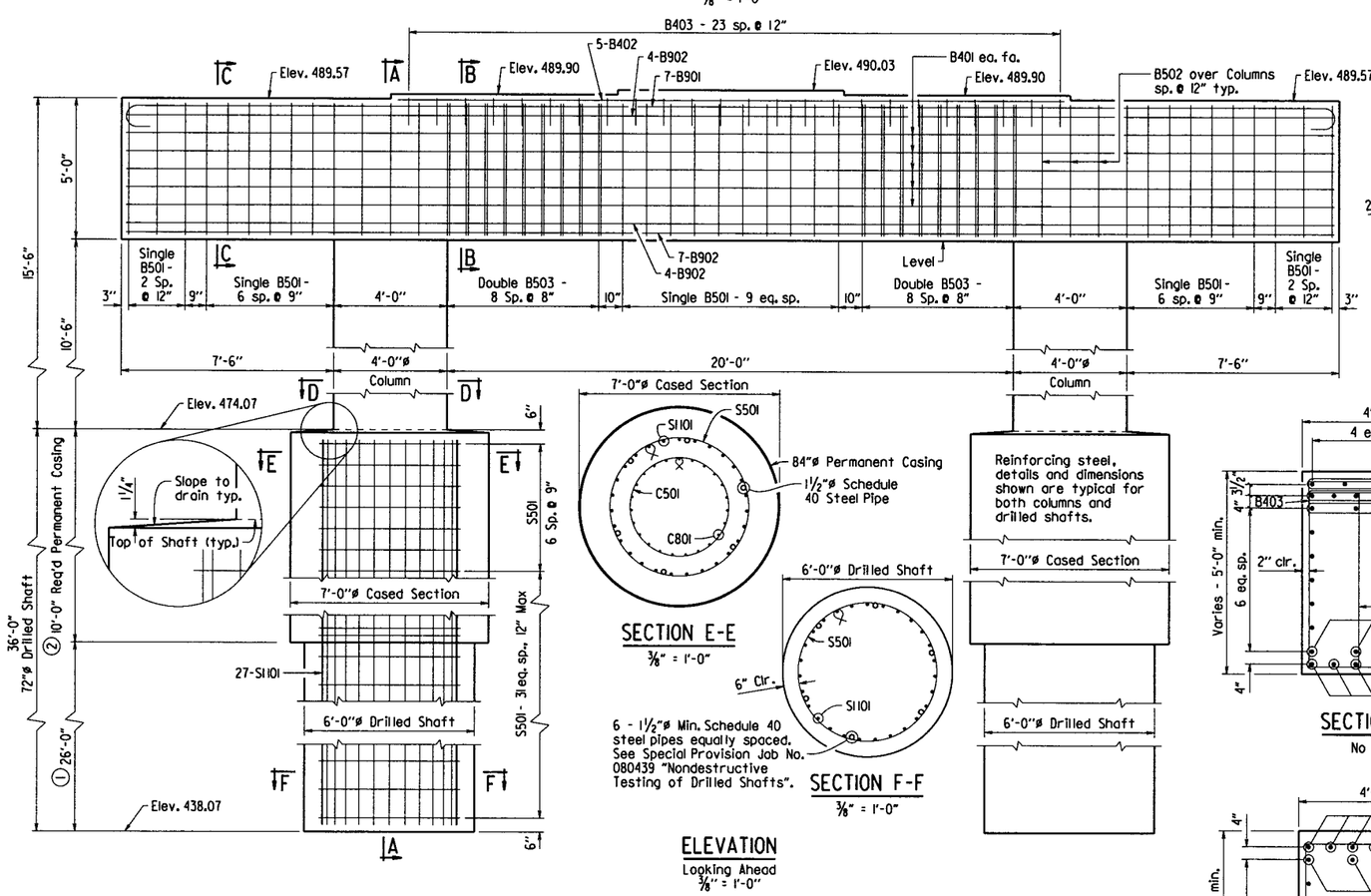


PLAN
⅜" = 1'-0"



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

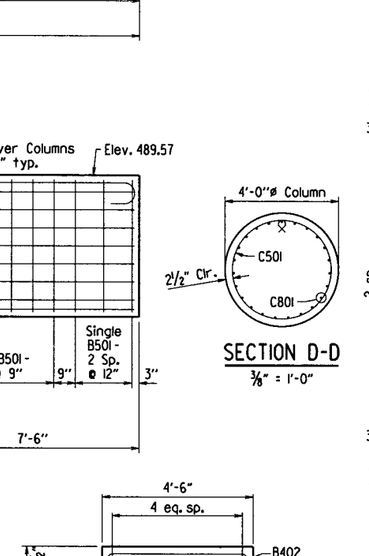


ELEVATION
Looking Ahead
⅜" = 1'-0"

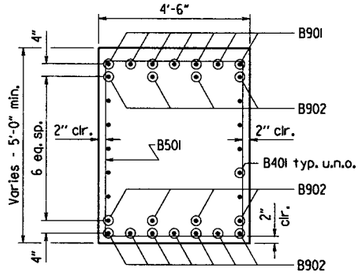
SECTION E-E
⅜" = 1'-0"

SECTION F-F
⅜" = 1'-0"

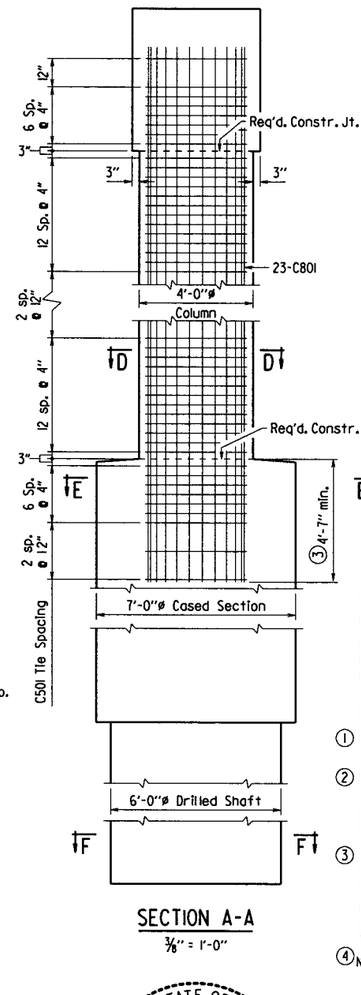
SECTION D-D
⅜" = 1'-0"



SECTION B-B
No Scale



SECTION C-C
No Scale

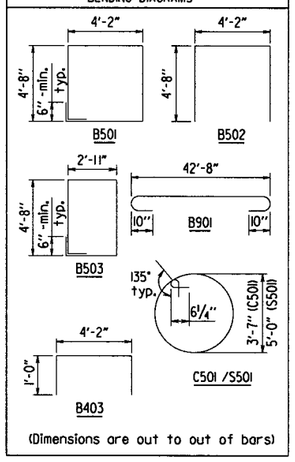


SECTION A-A
⅜" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	10	42'-8"	Str.
B402	5	23'-8"	Str.
B403	24	6'-0"	2"
B501	30	18'-2"	2½"
B502	6	13'-4"	2½"
B503	36	15'-8"	2½"
B901	7	45'-2"	9"
B902	15	42'-8"	Str.
C501	88	12'-9"	3¾"
C801	46	18'-9"	Str.
④ S501	76	17'-3"	3¾"
④ S1101	54	35'-6"	Str.

BENDING DIAGRAMS



(Dimensions are out to out of bars)

General Notes:

For Standard General Notes, See Std. Dwg. No. 55006.

Drilled shafts and permanent casing shall conform to Special Provision Job No. 080439 "Drilled Shaft Foundations" and shall be paid for at the unit bid price for "Drilled Shaft (72" Dia.)" and "Permanent Steel Casing (84" Dia.)".

For additional information, see Layout.

① Minimum penetration into competent rock below permanent casing.

② Length of permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 080439 "Drilled Shaft Foundations". Permanent casings shall not extend below top of competent rock.

③ The column reinforcing cage may be placed before or after concrete placement in the shaft is complete. Vibration of the concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

④ Non-pay item - Subsidiary to the item "Drilled Shaft (72" Dia.)".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT NO. 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 8/30/2017 FILENAME: b080439x2_b2.dgn
CHECKED BY: TMG DATE: 8/30/17 SCALE: As Shown
DESIGNED BY: TMG DATE: 7/20/17

BRIDGE NO. 07416 DRAWING NO. 53883

PRINT DATE: 8/30/2017

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.		080439	74	116
				①	07416 - BENT 7 - 53884			

Notes:

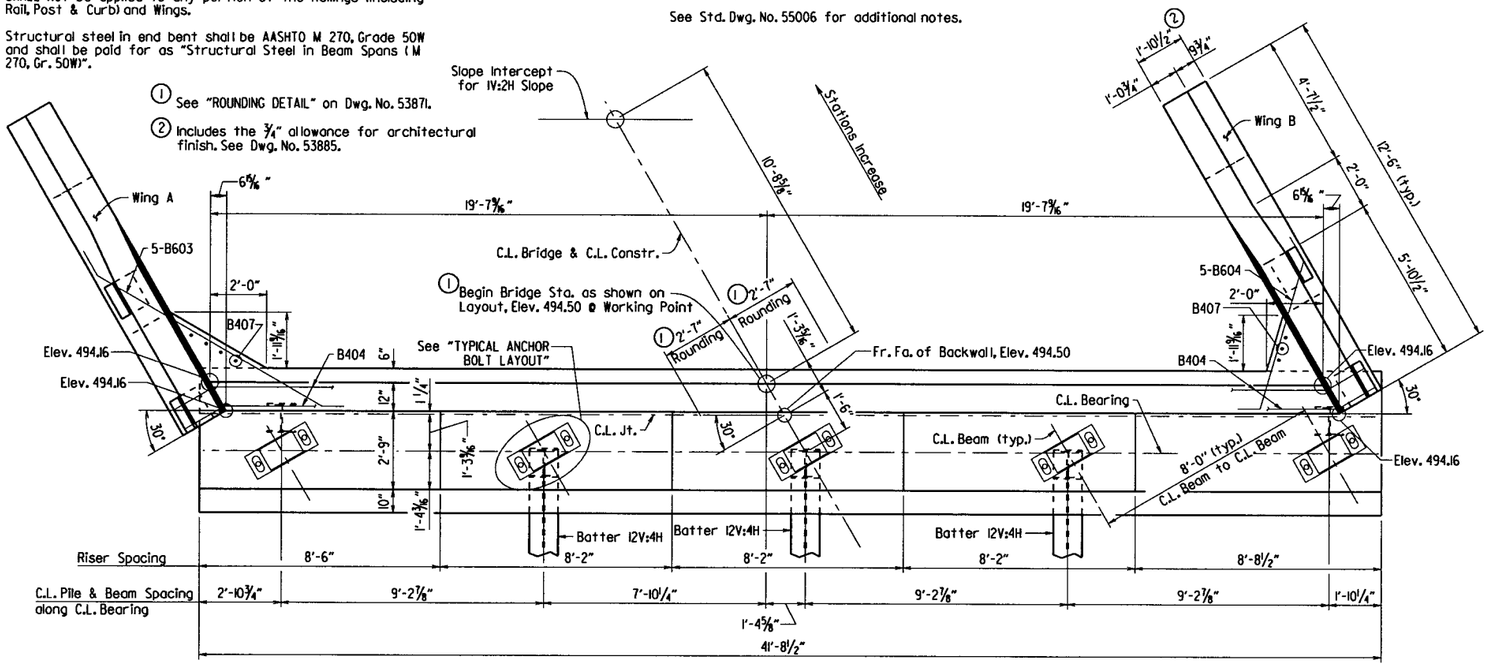
Class I Protective Surface Treatment shall be applied to the top of backwall only. Class I Protective Surface Treatment SHALL NOT be applied to any portion of the Railings (including Rail, Post & Curb) and Wings.

Structural steel in end bent shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

Notes:

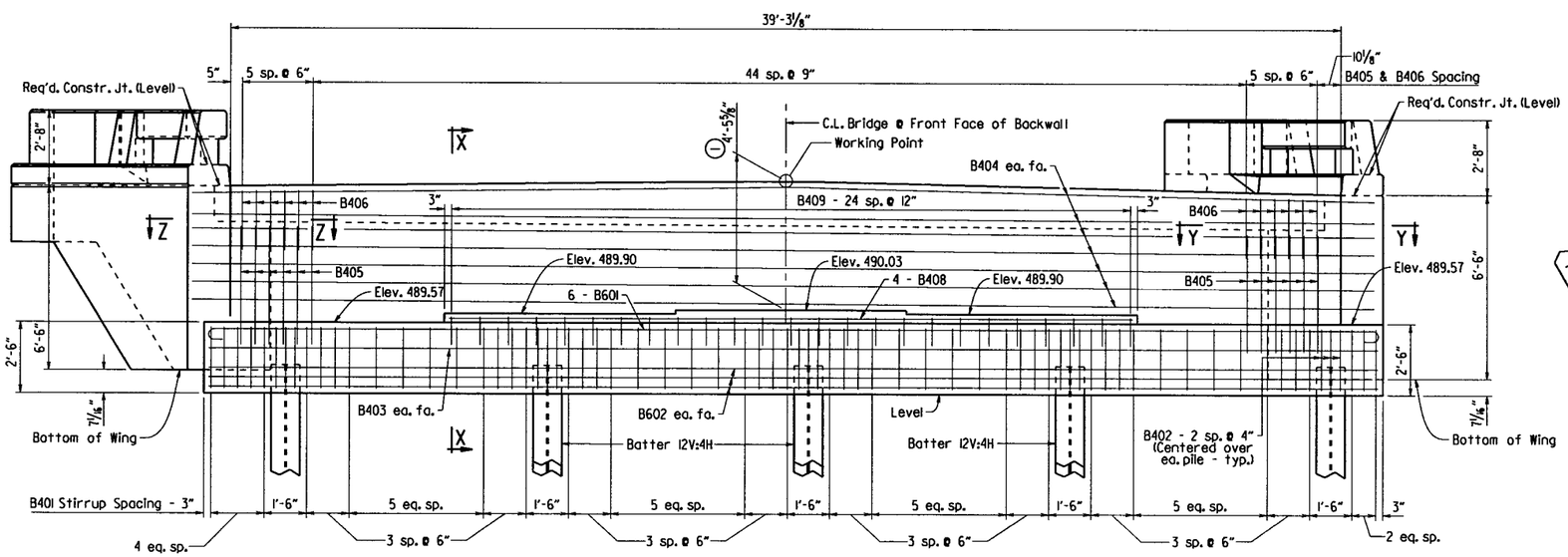
See Dwg. Nos. 53885 & 53886 for Bar List and details of wings and railings.

See Std. Dwg. No. 55006 for additional notes.



PLAN

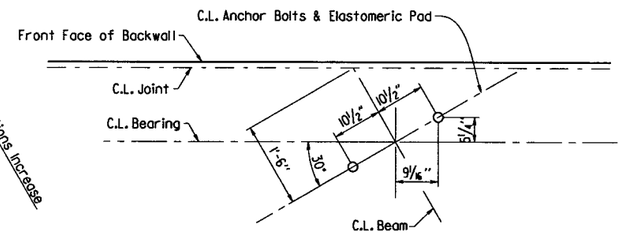
⅜" = 1'-0"



ELEVATION

Looking Ahead

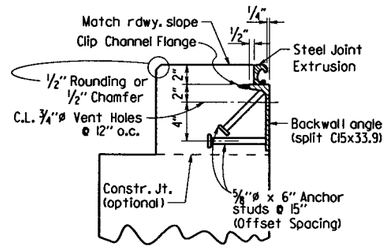
⅜" = 1'-0"



NOTE: For details of elastomeric bearings, see Dwg. No. 53876.

TYPICAL ANCHOR BOLT LAYOUT

¾" = 1'-0"



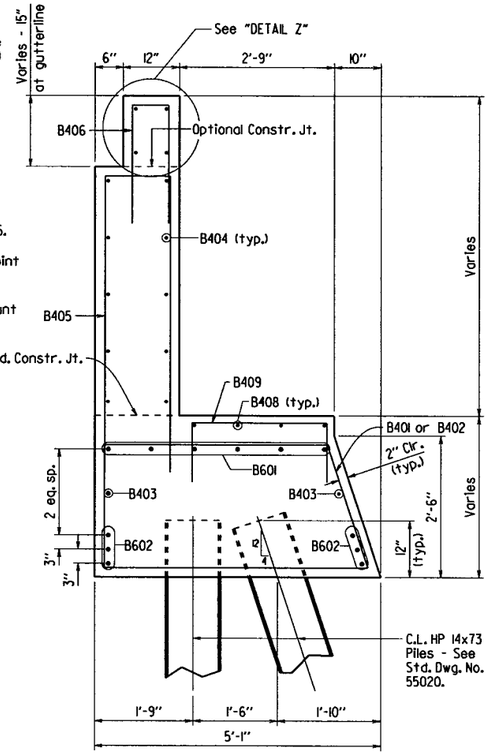
DETAIL "Z"

No Scale

NOTES: For additional Joint Details, see Dwg. No. 53875.

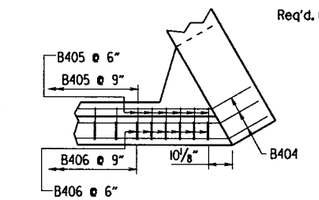
Concrete shall be hand packed under the joint armor in the backwall.

The backwall angle shall be profiled to account for vertical curve and skew.



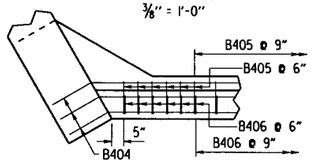
SECTION X-X

¾" = 1'-0"



VIEW Y-Y

⅜" = 1'-0"



VIEW Z-Z

⅜" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3

DETAILS OF BENT NO. 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17 FILENAME: b080439x2.bl.dgn

CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown

DESIGNED BY: TMG DATE: 7/2017

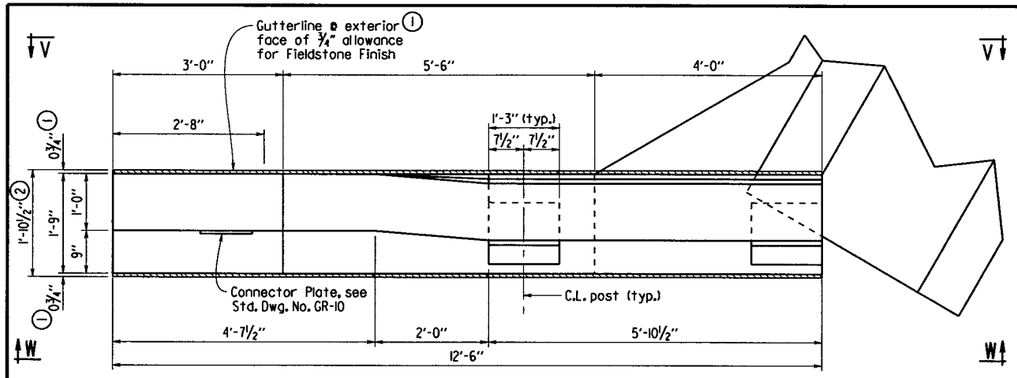
BRIDGE NO. 07416 DRAWING NO. 53884

PRINT DATE: 9/21/2017

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.		080439	75	116
				①		07416 - BENT 7 - 53885		

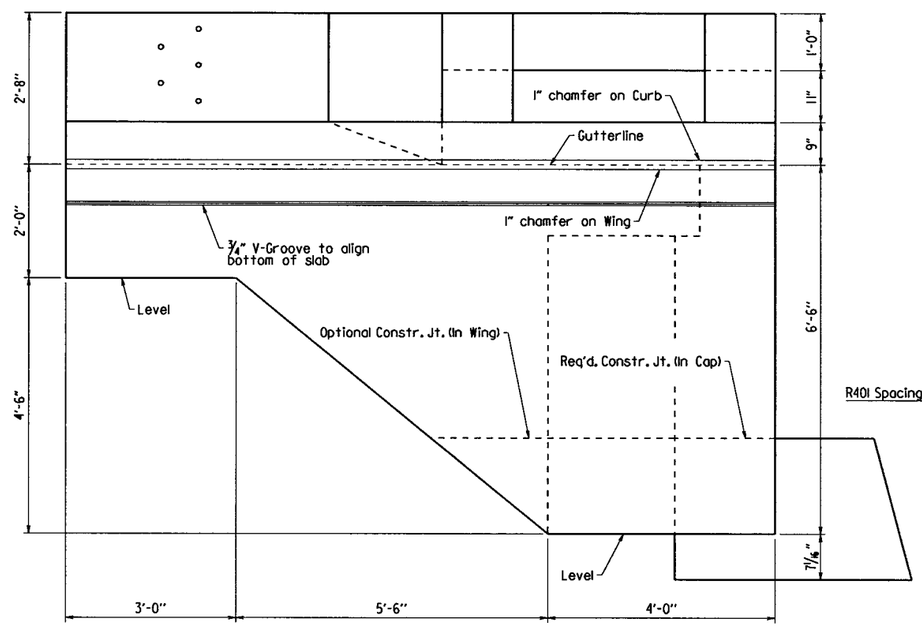
① Dimension is allowance for Fieldstone Finish. Allowance for Roughsawn Wood is 1/4", see Dwg. No. 53874A.

② Includes allowance for 3/4" Fieldstone Finish each side.



PLAN OF RAILING (WING A)

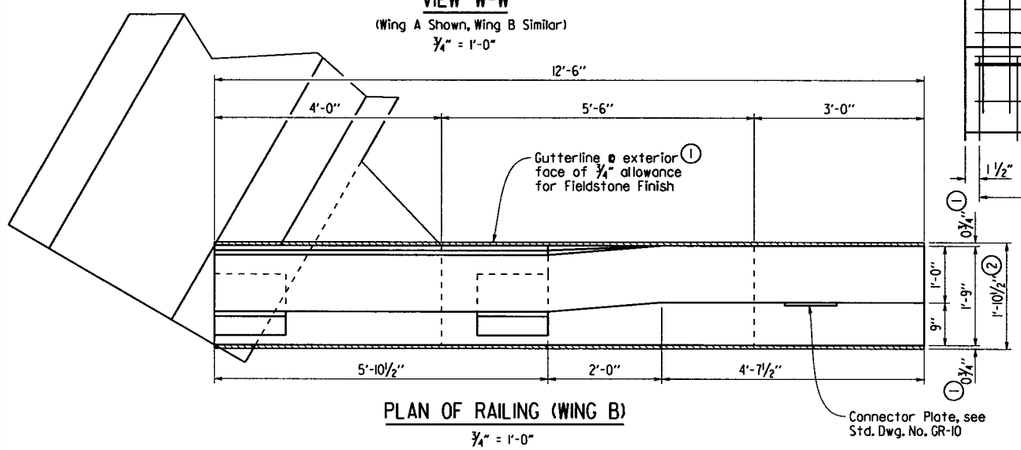
3/4" = 1'-0"



VIEW W-W

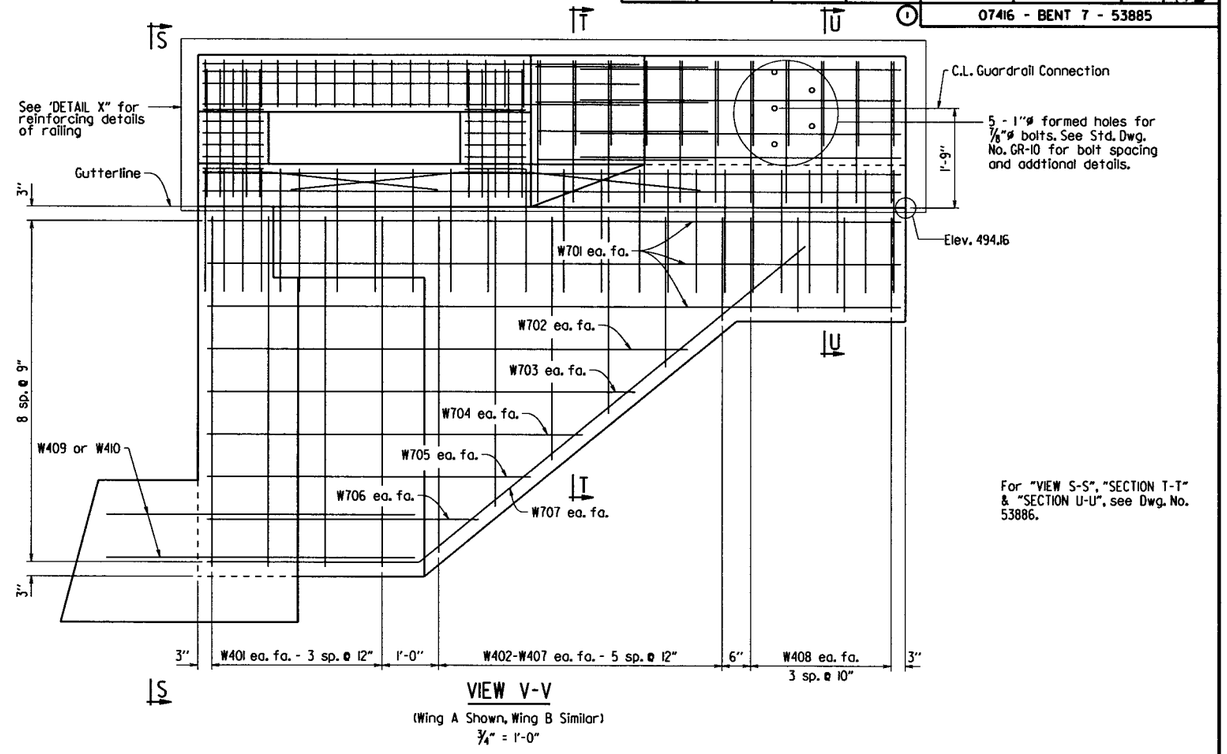
(Wing A Shown, Wing B Similar)

3/4" = 1'-0"



PLAN OF RAILING (WING B)

3/4" = 1'-0"

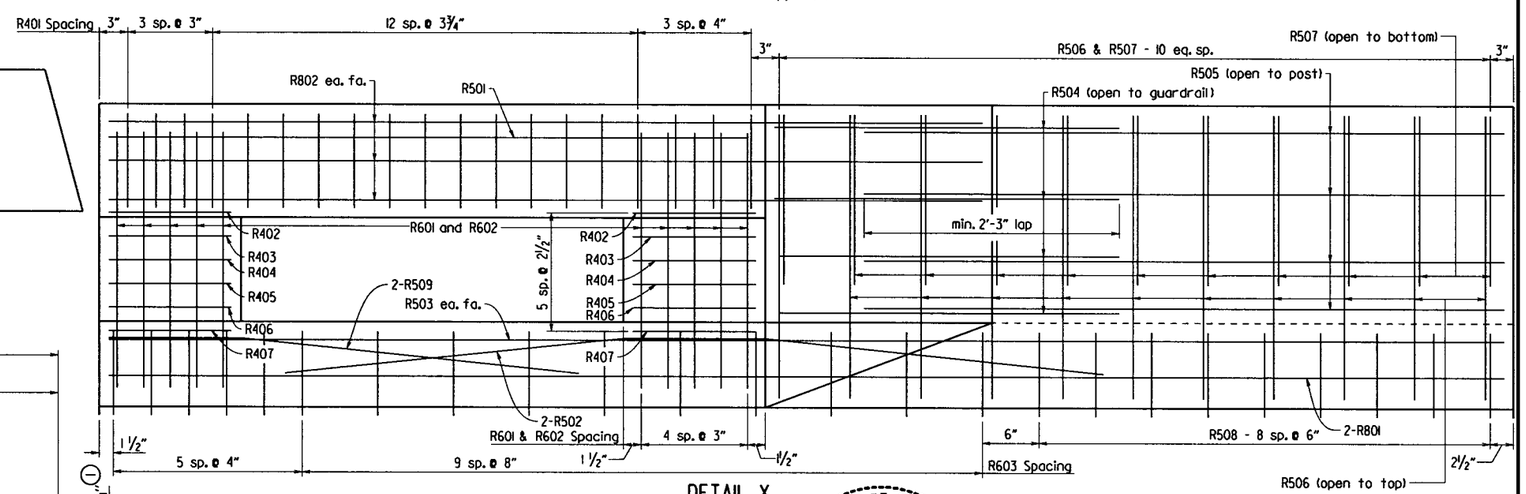


For "VIEW S-S", "SECTION T-T" & "SECTION U-U", see Dwg. No. 53886.

VIEW V-V

(Wing A Shown, Wing B Similar)

3/4" = 1'-0"



DETAIL X

1 1/2" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT NO. 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-20-17 FILENAME: b080439x2.bl.dgn

CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown

DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07416 DRAWING NO. 53885

PRINT DATE: 9/21/2017

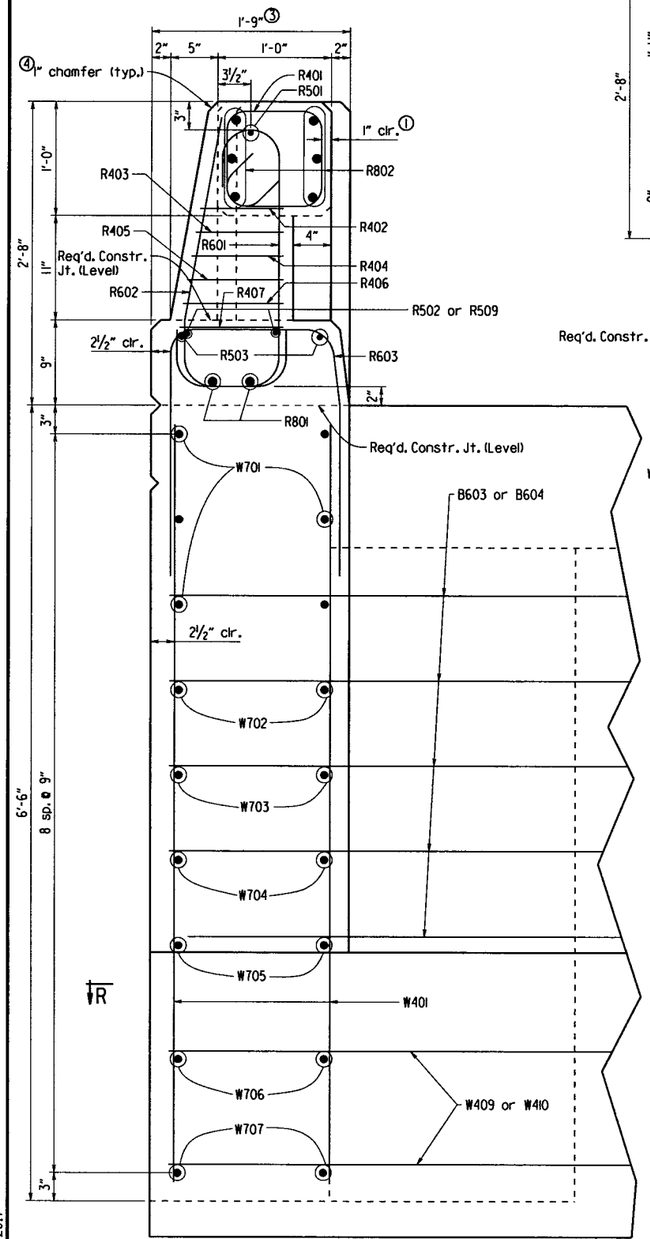
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	76	116
				①		07416 - BENT 1 - 53886		

① A typical clear cover of 1" shall be provided for the Railing (includes Rail, Post and Curb) reinforcement, unless otherwise noted.

② Typ. for wings unless noted otherwise

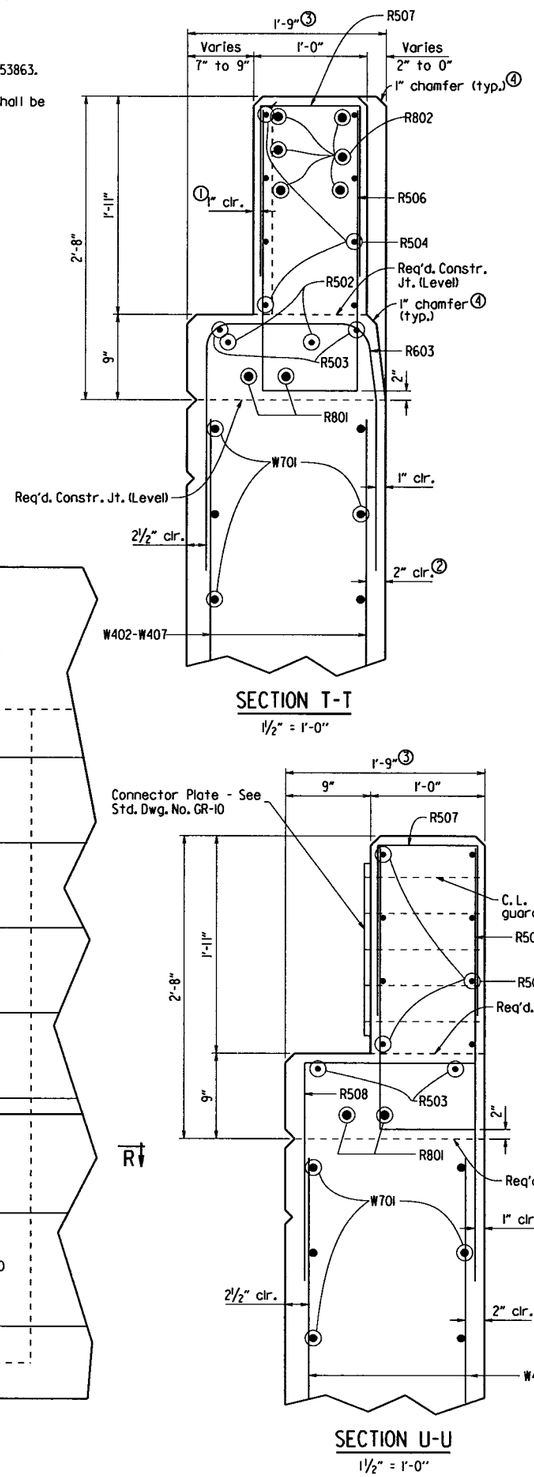
③ Does not include the ¾" allowance for architectural finish. See Dwg. No. 53863.

④ All exposed corners for the Railing components (Rail, Post, Curb & Wall) shall be chamfered 1" unless otherwise noted.



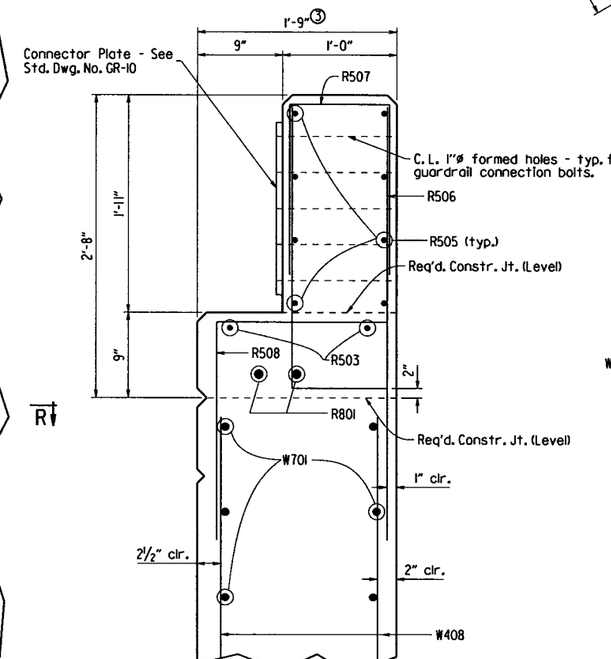
VIEW S-S

1½" = 1'-0"



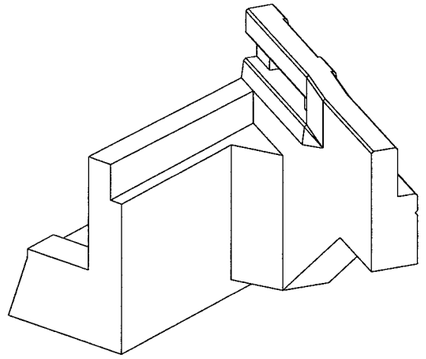
SECTION T-T

1½" = 1'-0"



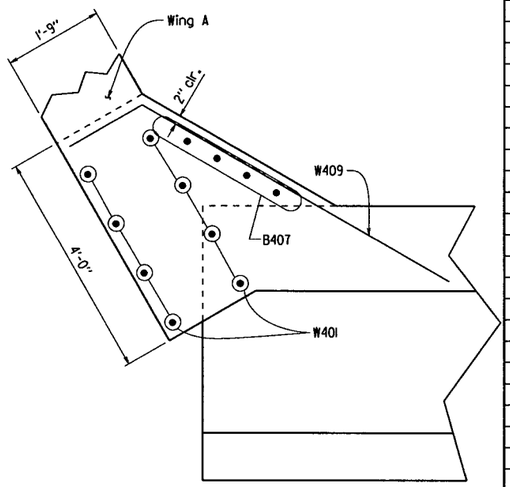
SECTION U-U

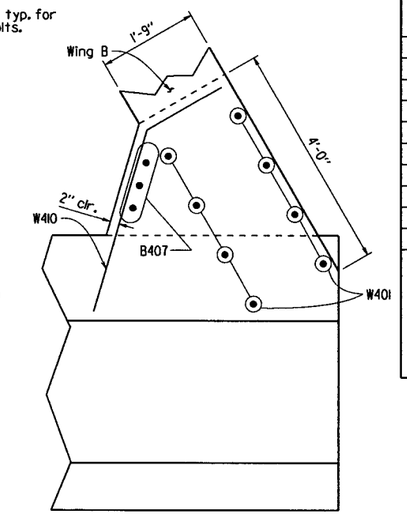
1½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAILING

No Scale





SECTION R-R

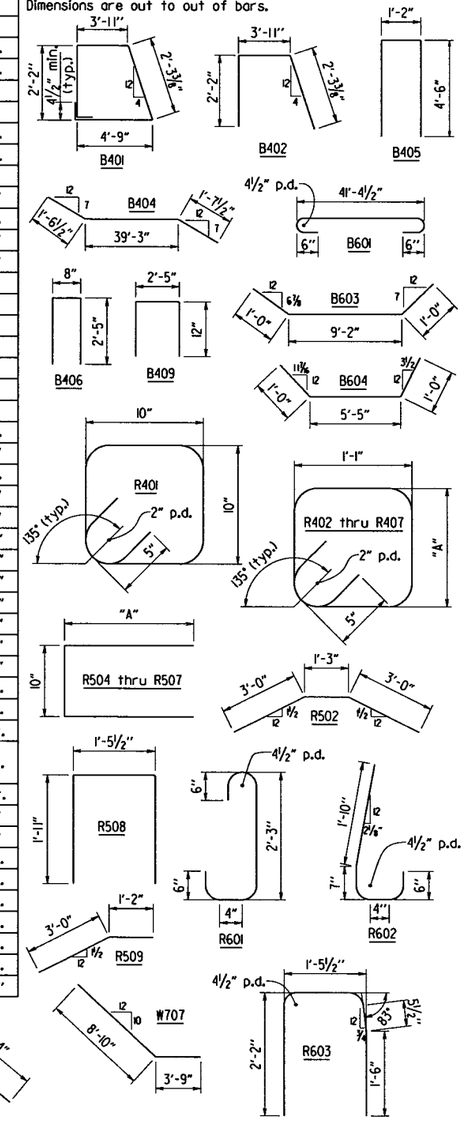
¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
B401	56	13'-6"	-	2"
B402	15	8'-3"	-	2"
B403	2	41'-4½"	-	Str.
B404	14	38'-11"	-	Str.
B405	54	10'-0"	-	2"
B406	54	5'-4"	-	2"
B407	7	4'-11"	-	Str.
B408	4	24'-2"	-	Str.
B409	25	4'-3"	-	2"
B601	6	42'-8½"	-	4½"
B602	6	41'-4½"	-	Str.
B603	5	11'-2"	-	4½"
B604	5	7'-5"	-	4½"
R401	38	3'-8"	-	2"
R402	4	4'-0"	9"	2"
R403	4	4'-1"	9½"	2"
R404	4	4'-2"	10"	2"
R405	4	4'-3"	10½"	2"
R406	4	4'-4"	11"	2"
R407	4	4'-5"	11½"	2"
R501	2	5'-7"	-	Str.
R502	4	7'-3"	-	3¾"
R503	4	12'-4"	-	Str.
R504	8	6'-8"	3'-0½"	3¾"
R505	8	11'-11"	5'-8"	3¾"
R506	22	5'-7"	2'-6"	3¾"
R507	22	3'-7"	1'-6"	3¾"
R508	18	5'-1"	-	3¾"
R509	4	4'-2"	-	3¾"
R601	16	4'-0"	-	4½"
R602	16	3'-5"	-	4½"
R603	30	5'-6"	-	4½"
R801	4	12'-4"	-	Str.
R802	12	7'-9"	-	Str.
W401	16	6'-2"	-	Str.
W402 - W407	4 ea.	5'-11" to 1'-10"	-	Str.
W408	16	1'-8"	-	Str.
W409	2	7'-9"	-	2"
W410	2	4'-10"	-	2"
W701	12	12'-2"	-	Str.
W702	4	8'-5"	-	Str.
W703	4	7'-6"	-	Str.
W704	4	6'-7"	-	Str.
W705	4	5'-8"	-	Str.
W706	4	4'-9"	-	Str.
W707	4	12'-7"	-	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
9-21-17
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT NO. 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 09-18-17 FILENAME: b080439x2_bl.dgn
CHECKED BY: TMG DATE: 9/21/17 SCALE: As Shown
DESIGNED BY: TMG DATE: 7/2017

BRIDGE NO. 07416 DRAWING NO. 53886

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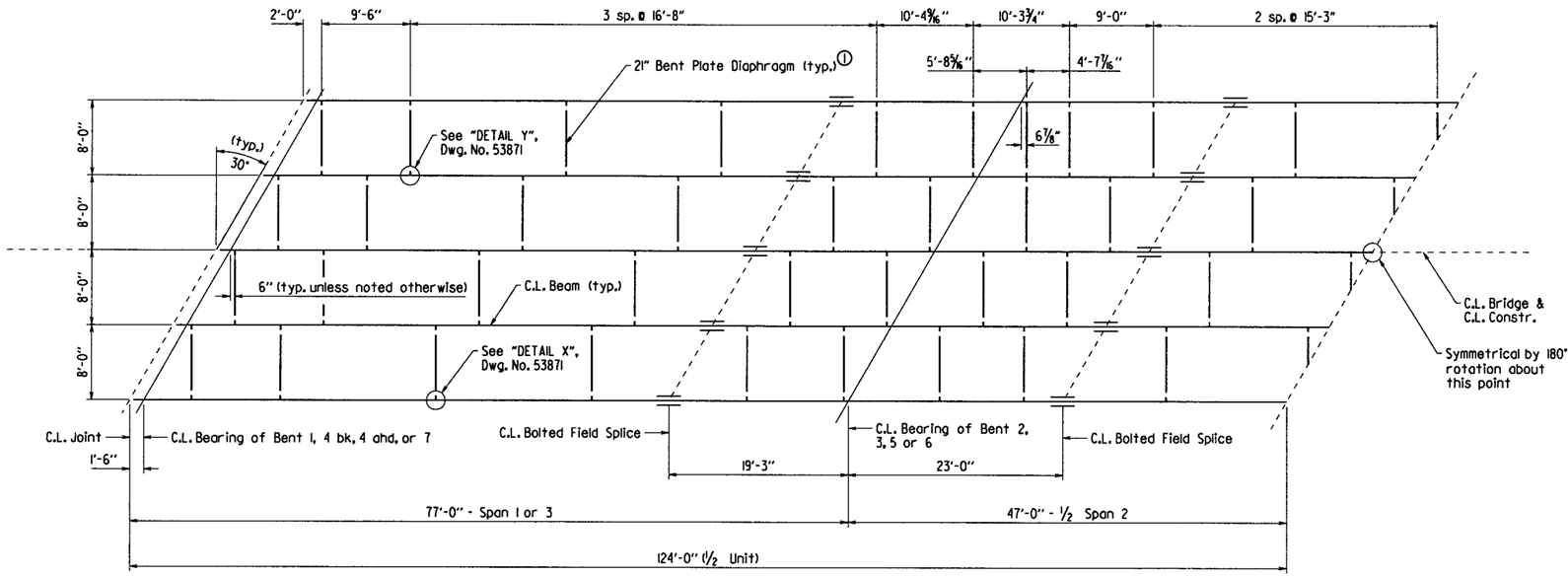
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	77	116
				①	07416 - 248'-0" CONT. UNIT - 53887			

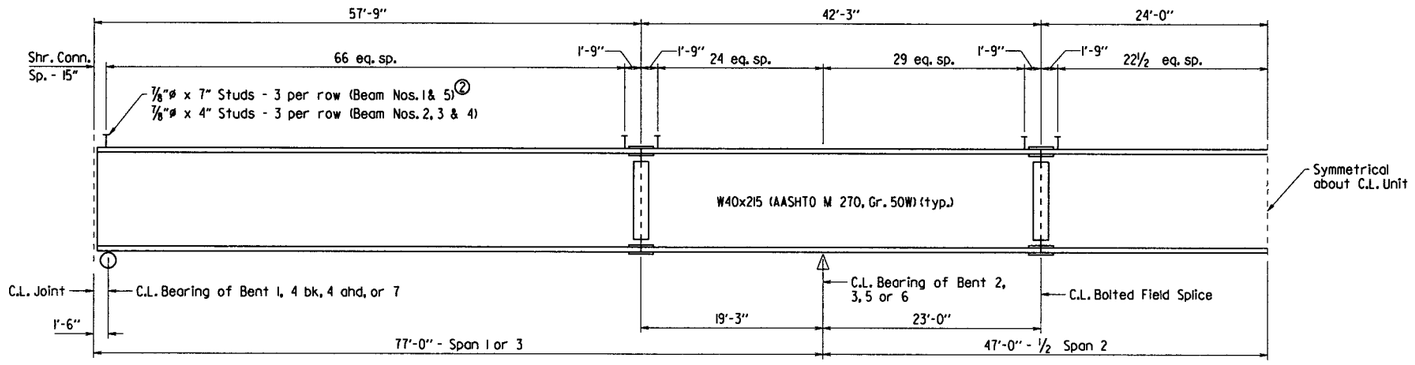
①For details of 21" Bent Plate Diaphragm, see Dwg. No. 53871.



HALF - FRAMING PLAN

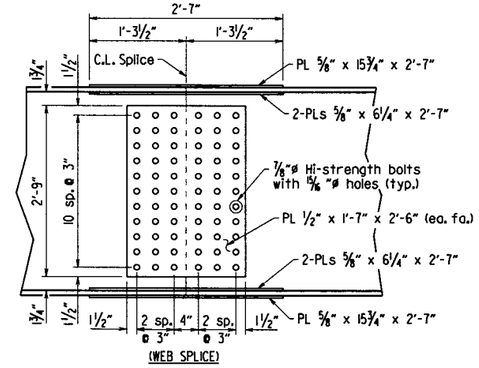
⅛" = 1'-0"

②See Dwg. No. 53871 for Beam Numbering

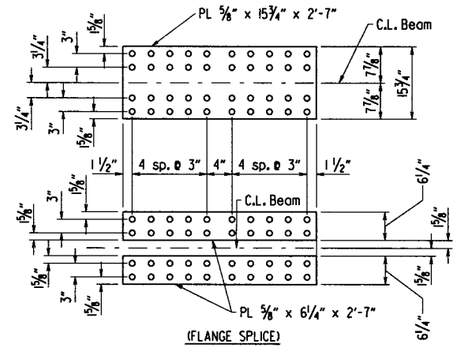


HALF - TYPICAL BEAM ELEVATION

No Scale



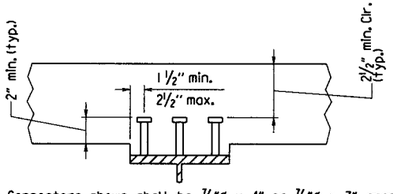
(WEB SPLICE)



(FLANGE SPLICE)

DETAILS OF FIELD SPLICES

No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" or ⅞"ø x 7", granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one ⅞"ø stud. ⅞"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

No Scale

NOTE: Bolted field splices may be eliminated or shop welds substituted with the approval of the Engineer. Payment will be made on the basis of the splices shown.

NOTE: All structural steel shall be AASHTO M 270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted.

Note: For "STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES", See Std. Dwg. No. 55006

STATE OF ARKANSAS
Charles R. Ellis
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No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF 248'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: YZ DATE: 08/30/17 FILENAME: b080439x2.sl.dgn
CHECKED BY: JAC DATE: 9/3/17 SCALE: As Shown
DESIGNED BY: YZ DATE: 08/30/17

BRIDGE NO. 07416 DRAWING NO. 53887

PRINT DATE: 8/30/2017

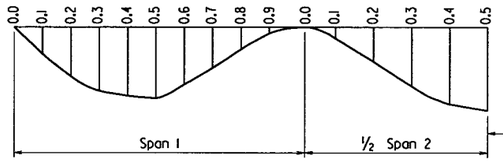
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	78	116

① 07416 - 248'-0" CONT. UNIT - 53888

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel Ext. Beam	Structural Steel Int. Beam	Structural Steel + Slab Ext. Beam	Structural Steel + Slab Int. Beam	Structural Steel + Slab + Parapet Ext. Beam	Structural Steel + Slab + Parapet Int. Beam
Span 1	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.054	0.056	0.269	0.283	0.319	0.283
	0.2	0.100	0.104	0.495	0.520	0.588	0.520
	0.3	0.130	0.136	0.649	0.682	0.771	0.682
	0.4	0.144	0.150	0.714	0.750	0.848	0.750
	0.5	0.138	0.144	0.687	0.722	0.816	0.722
	0.6	0.116	0.121	0.578	0.607	0.686	0.607
	0.7	0.083	0.086	0.411	0.432	0.488	0.432
	0.8	0.045	0.047	0.223	0.234	0.265	0.234
	0.9	0.013	0.014	0.065	0.068	0.077	0.068
Span 2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.023	0.024	0.114	0.120	0.135	0.120
	0.2	0.070	0.073	0.349	0.367	0.414	0.367
	0.3	0.120	0.125	0.596	0.626	0.708	0.626
	0.4	0.156	0.163	0.775	0.814	0.920	0.814
	0.5	0.169	0.176	0.840	0.882	0.998	0.882

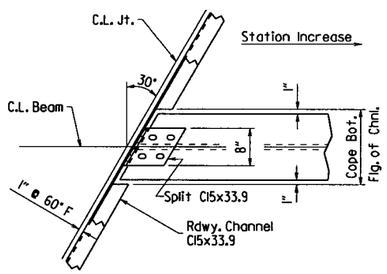
Symmetrical about C.L. Unit



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber for Dead Load Deflection plus Vertical curve +/- ¼" tolerance. Deflections shown are along a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



CHANNEL CONNECTION DETAIL

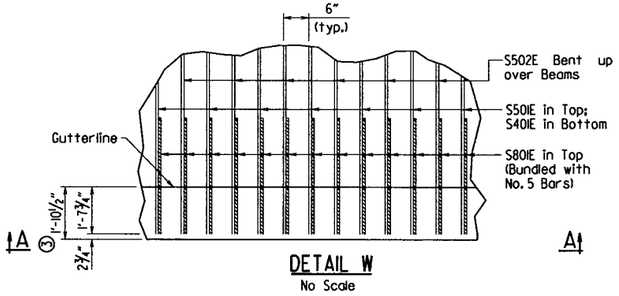
No Scale

STRIP SEAL JOINT DATA

Bent No(s).	Movement Rating (inch)	"A" Width Perpendicular to Joint at 24 Hour Average Temperature② of: 40° F	60° F	80° F	"B" Width Perpendicular to Joint at 24 Hour Average Temperature② of: 40° F	60° F	80° F	"C" Width Perpendicular to Joint at 24 Hour Average Temperature of: 60° F
1 & 7	4"	2¼"	2"	1¾"	2¾"	2½"	2¼"	2¼"±
4	4"	2½"	2"	1½"	3"	2½"	2"	2¼"±

② The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

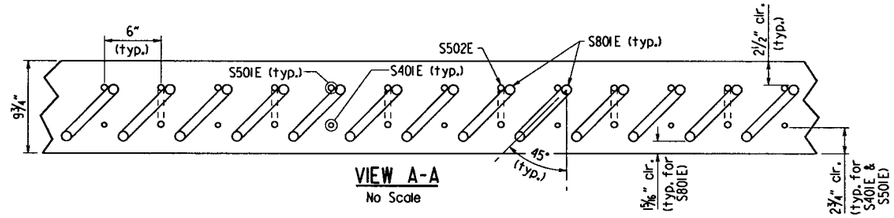
For details of Strip Seal Joint, see Dwg. No. 53875.



DETAIL W

No Scale

③ Includes ¾" allowance for architectural finish on each side, 1'-9" nominal width, see Dwg. No. 53874.



VIEW A-A

No Scale

Slab Pouring Sequence Notes:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

Concrete in bridge superstructure must be placed, consolidated and screeded for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

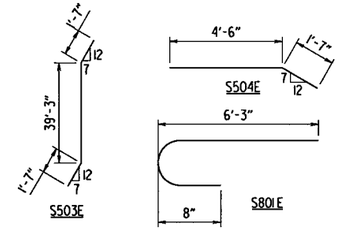
The Contractor must obtain approval from the Engineer for any deviations from the Pouring Sequences shown.

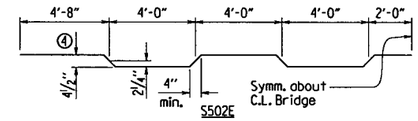
BAR LIST - PER UNIT

Mark	No. Req'd.	Length	Pin Dia.
S401E	228	37'-4"	Str.
S402E	665	37'-8"	Str.
S501E	228	37'-4"	Str.
S502E	227	38'-1"	3"
S503E	4	42'-5"	3¾"
S504E	16	6'-1"	3¾"
S505E - S539E	4 ea.	5'-11" - 35'-5"	Str.
S540E	40	52'-1"	Str.
S601E	74	36'-0"	Str.
S801E	978	7'-2"	6"

Bending Diagrams

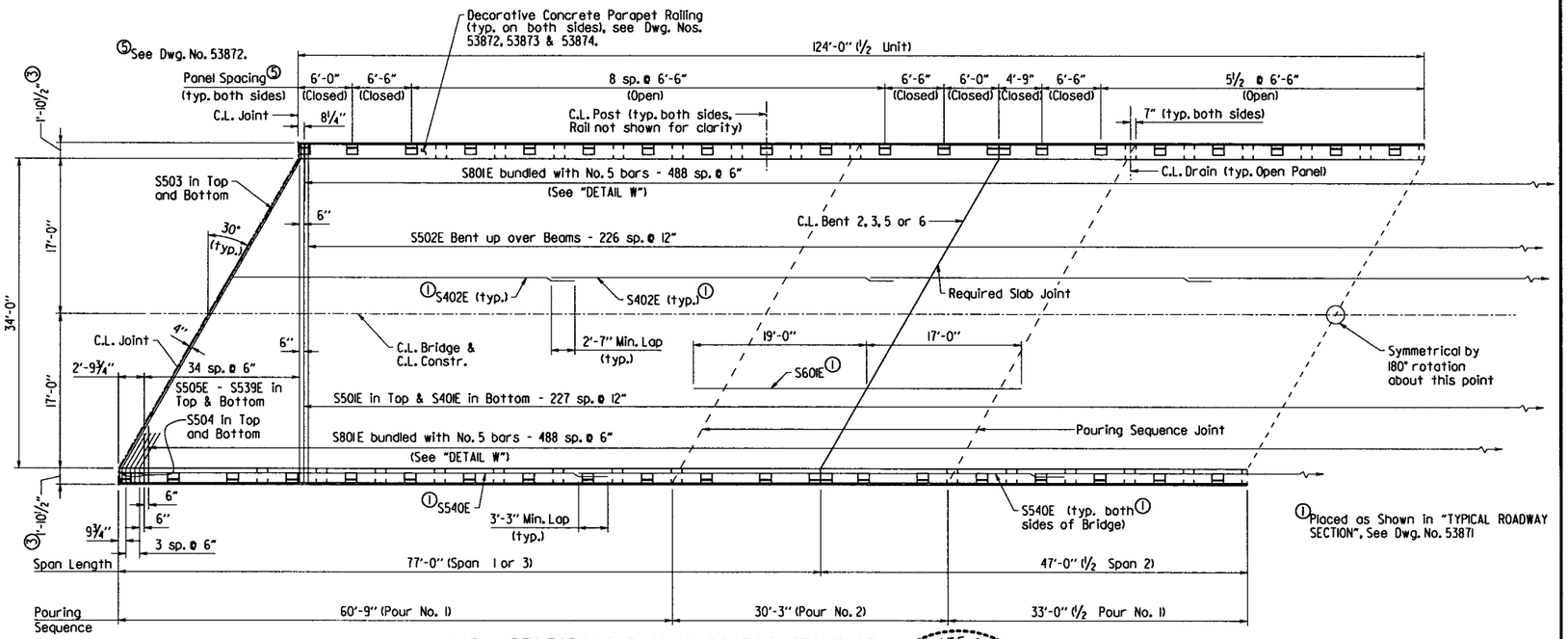
(Dimensions are out to out of bars)





④ ½" Overtolerance, No Undertolerance.

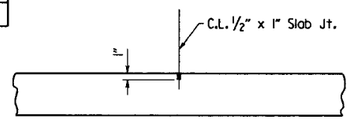
Note: All bars designated with an "E" suffix shall be Epoxy Coated



① Placed as Shown in "TYPICAL ROADWAY SECTION", See Dwg. No. 53871

HALF - REINFORCING PLAN & POURING SEQUENCE

⅛"=1'-0"



SLAB JOINT DETAIL

No Scale

Note:
Use ½" X 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the railing curb is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF 248'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

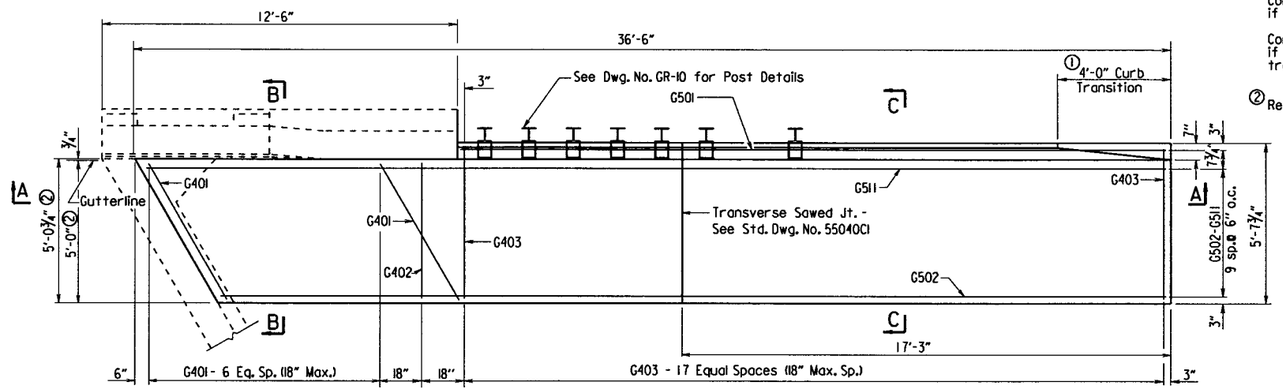
DRAWN BY: YZ DATE: 09/19/17 FILENAME: b080439x2_sl.dgn
CHECKED BY: JAC DATE: 9/19/17 SCALE: As Shown
DESIGNED BY: YZ DATE: 9/19/17

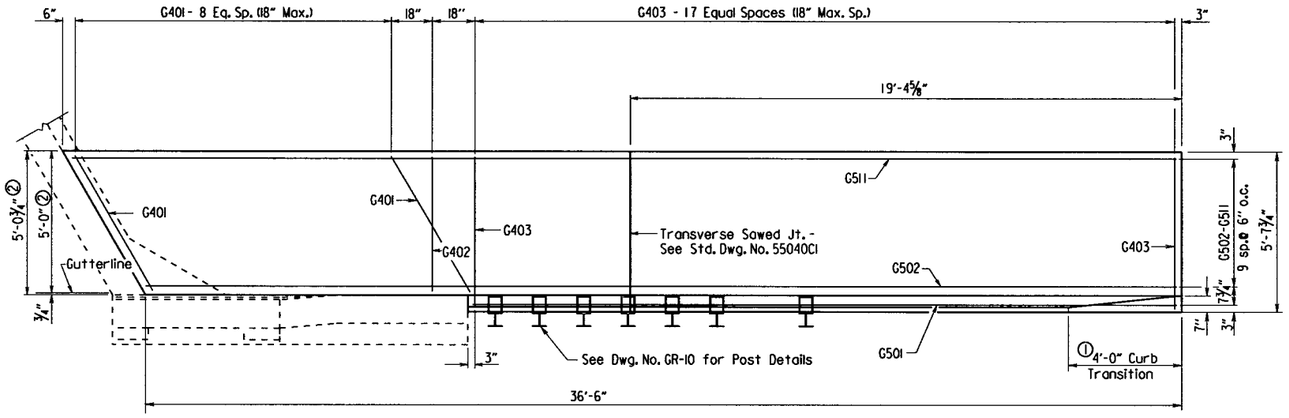
BRIDGE NO. 07416 DRAWING NO. 53888

PRINT DATE: 9/19/2017

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.		080439	79	116

① 07415 & 07416 - TYPE SPECIAL GUTTERS - 53889





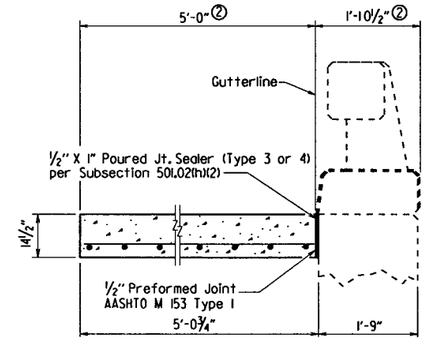
PLAN OF APPROACH GUTTERS

(Bridge No. 07415 shown. Bridge No. 07416 similar.)

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

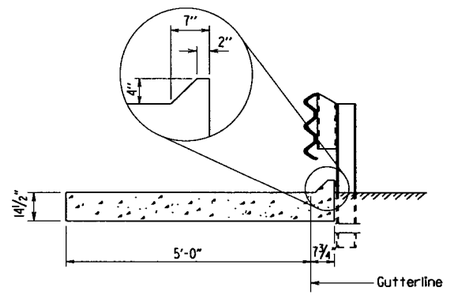
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

② Refer to "SECTION X-X", Dwg. No. 53874A.



SECTION B-B

N.T.S.



SECTION C-C

N.T.S.

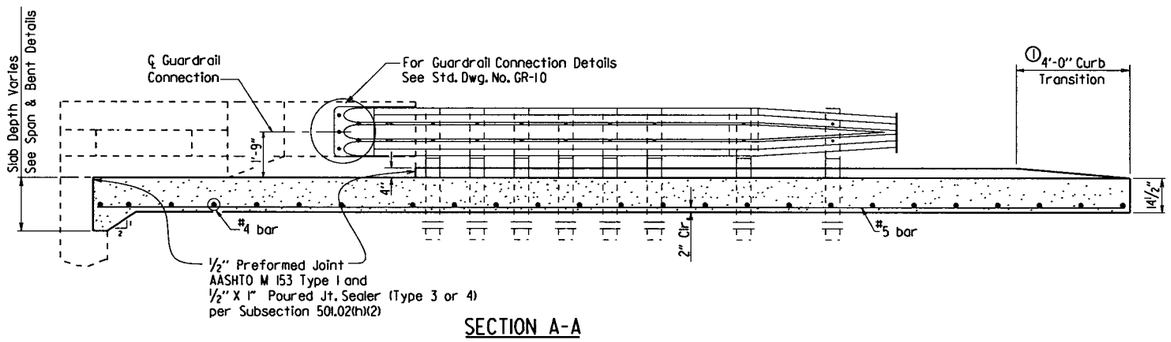
BAR LIST FOR ONE TYPE SPECIAL GUTTER

Mark	No. Req'd.	Length
G401	Varies	5'-5½"
G402	1	4'-8"
G403	18	5'-3½"
G501	1	24'-10"
G502-G511	1 each	Var. 36'-4" to 38'-10"

QUANTITIES FOR ONE APPROACH GUTTER

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
655	9.50



SECTION A-A

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-21-17
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF TYPE SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JAC DATE: 8-29-17
CHECKED BY: TMG DATE: 9/19/17
DESIGNED BY: Std. DATE: -

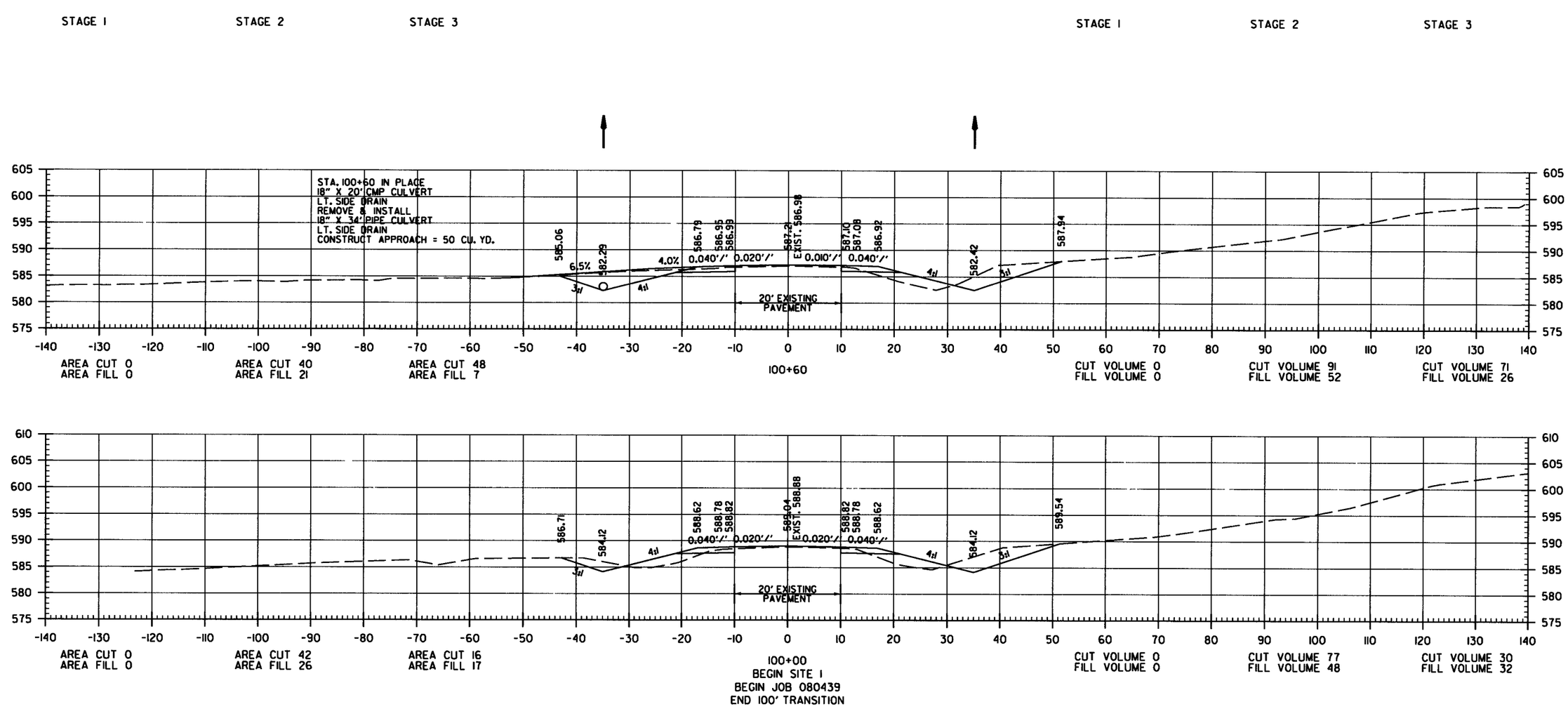
FILENAME: b080439_agl.dgn
SCALE: ⅜" = 1'-0" or As Shown

BRIDGE NOS. 07415 & 07416

DRAWING NO. 53889

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.NO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	80	116

(2) CROSS SECTIONS - SITE 1



CROSS SECTION STA. 99+00 TO STA. 100+60

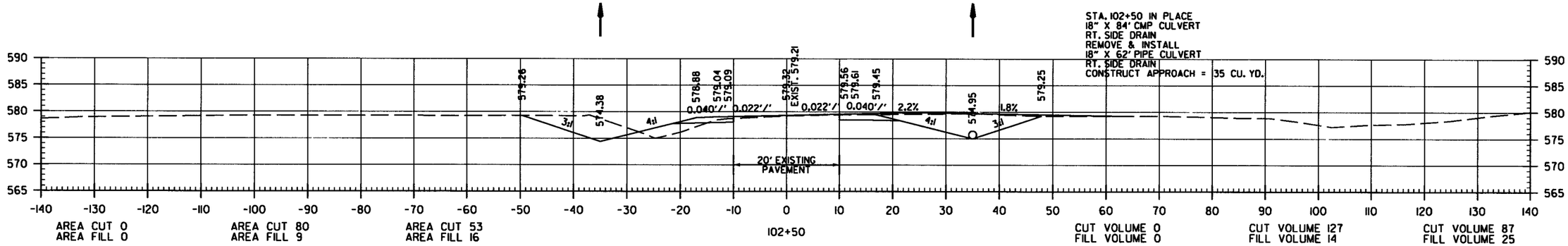
2/17/2016

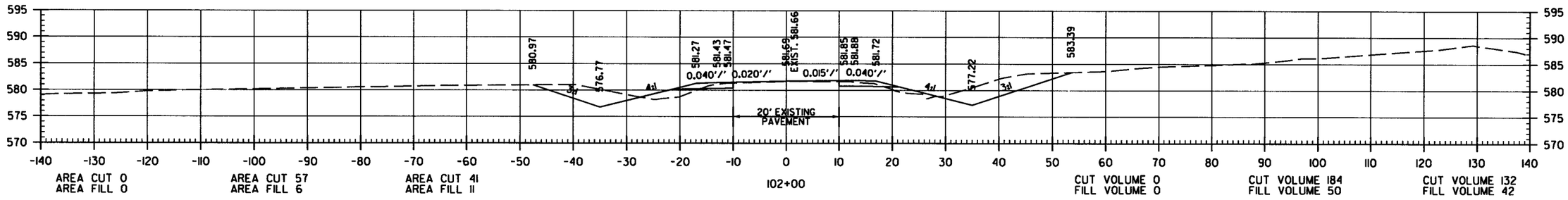
R080439.DGN

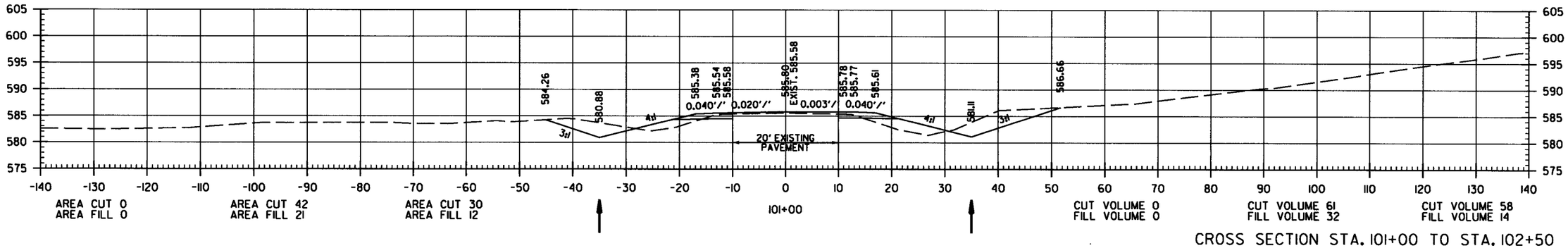
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	81	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3







CROSS SECTION STA. 101+00 TO STA. 102+50

2/17/2016

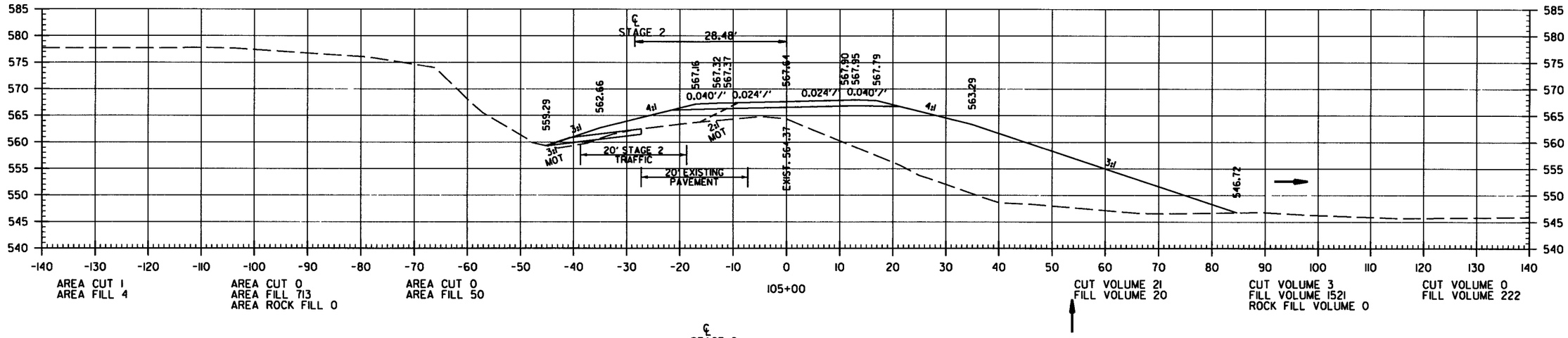
R080439.DGN

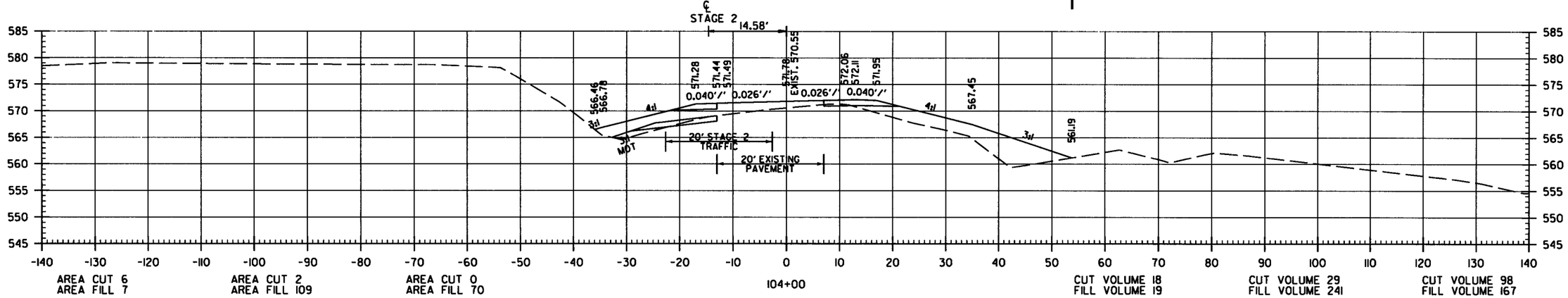
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	82	116

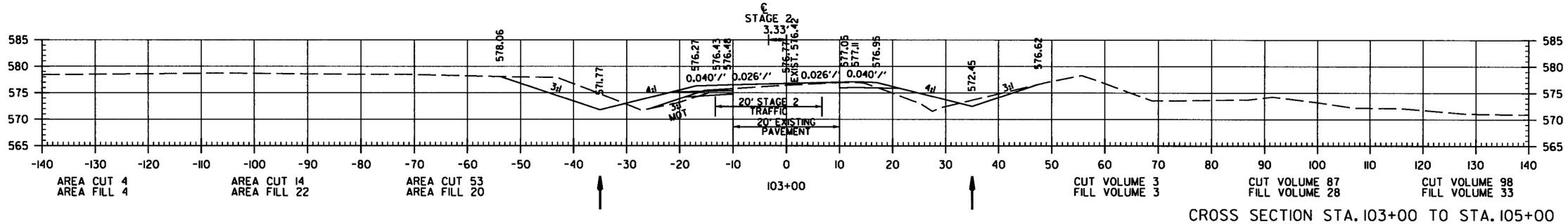
(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

STA. 105+67.38 RT. BEGIN GUARDRAIL
STA. 105+57.38 RT. END GUARDRAIL WIDENING TAPER
STA. 105+24.38 RT. BEGIN GUARDRAIL WIDENING TAPER







CROSS SECTION STA. 103+00 TO STA. 105+00

2/17/2016

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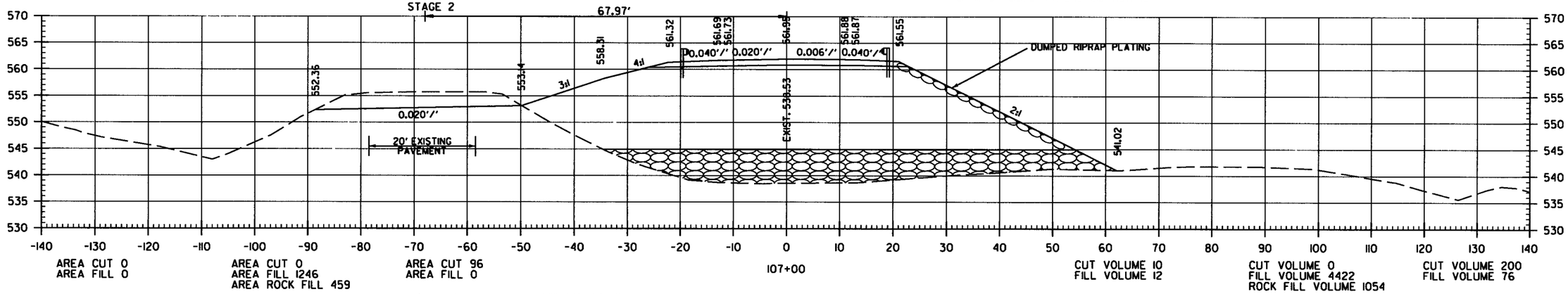
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	83	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

STA. 107+66.51 LT. END GUARDRAIL

STA. 107+86.13 RT. END GUARDRAIL



AREA CUT 0
AREA FILL 0

AREA CUT 0
AREA FILL 1246
AREA ROCK FILL 459

AREA CUT 96
AREA FILL 0

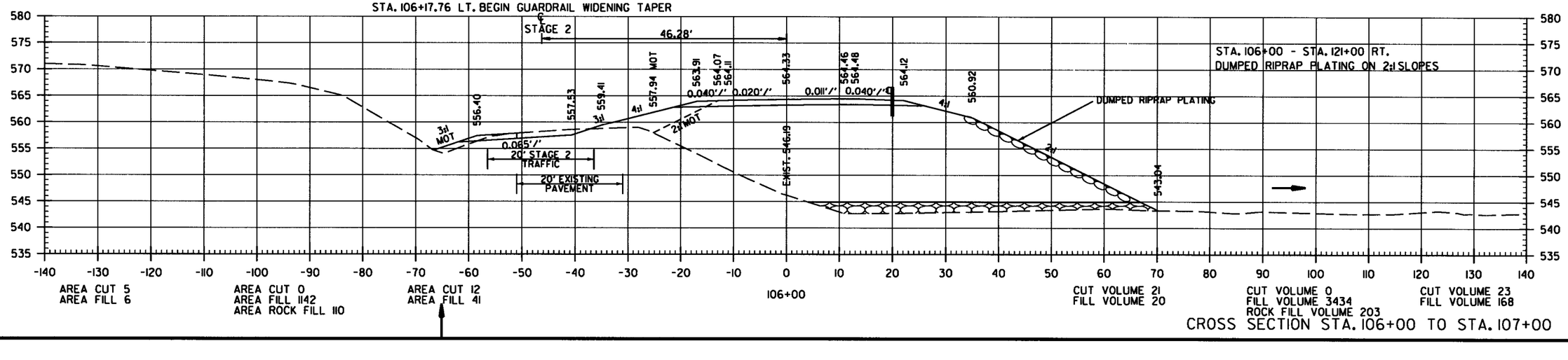
CUT VOLUME 10
FILL VOLUME 12

CUT VOLUME 0
FILL VOLUME 4422
ROCK FILL VOLUME 1054

CUT VOLUME 200
FILL VOLUME 76

STA. 106+72.76 LT. BEGIN GUARDRAIL
STA. 106+62.76 LT. END GUARDRAIL WIDENING TAPER
STA. 106+17.76 LT. BEGIN GUARDRAIL WIDENING TAPER

STA. 106+00 - STA. 121+00 RT.
DUMPED RIPRAP PLATING ON 2:1 SLOPES



AREA CUT 5
AREA FILL 6

AREA CUT 0
AREA FILL 1142
AREA ROCK FILL 110

AREA CUT 12
AREA FILL 41

CUT VOLUME 21
FILL VOLUME 20

CUT VOLUME 0
FILL VOLUME 3434
ROCK FILL VOLUME 203

CUT VOLUME 23
FILL VOLUME 168

CROSS SECTION STA. 106+00 TO STA. 107+00

R080439.DGN 2/17/2016

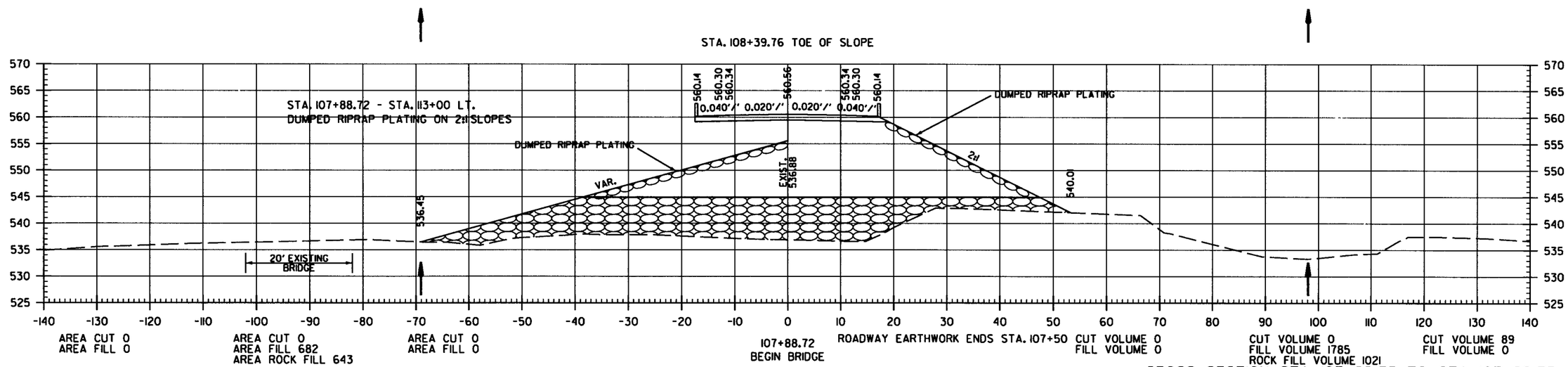
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	84	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

BRIDGE EARTHWORK BETWEEN STA. 107+50 AND STA. 112+50

FILL VOLUME 4000
ROCK FILL VOLUME 4900



CROSS SECTION STA. 107+88.75 TO STA. 107+88.75

2/17/2016

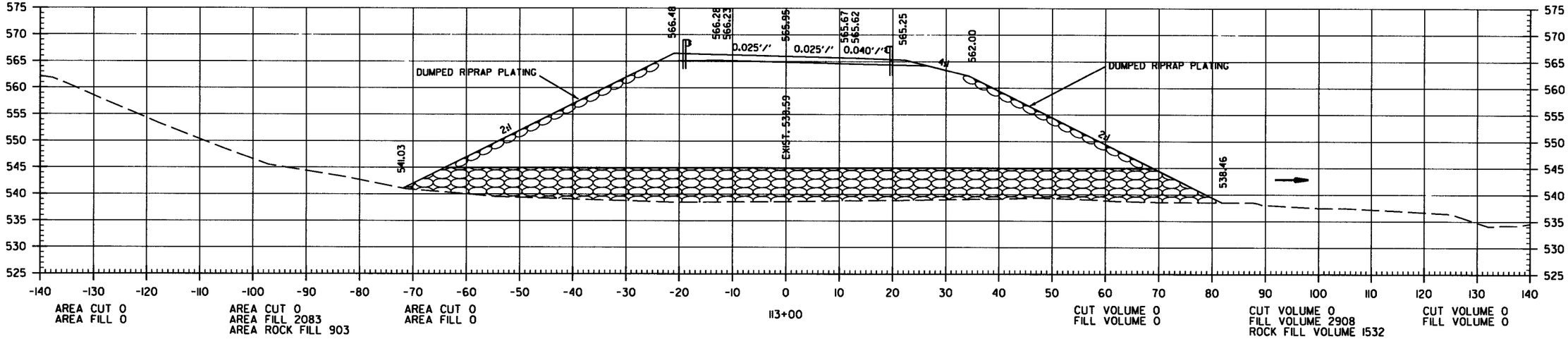
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	85	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

STA. 113+82.23 RT. END GUARDRAIL TAPER
STA. 113+37.23 RT. BEGIN GUARDRAIL TAPER
STA. 113+27.23 RT. END GUARDRAIL



AREA CUT 0
AREA FILL 0

AREA CUT 0
AREA FILL 2083
AREA ROCK FILL 903

AREA CUT 0
AREA FILL 0

113+00

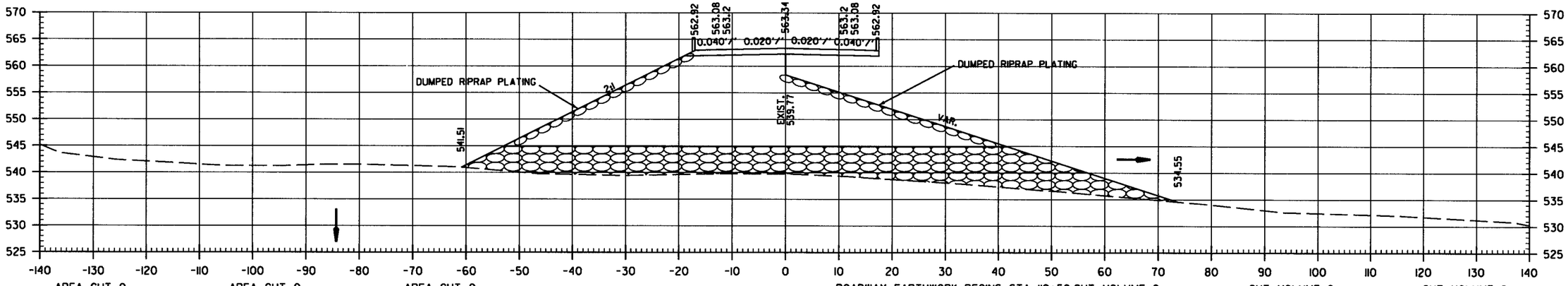
CUT VOLUME 0
FILL VOLUME 0

CUT VOLUME 0
FILL VOLUME 2908
ROCK FILL VOLUME 1532

CUT VOLUME 0
FILL VOLUME 0

STA. 112+13.86 LT. BEGIN GUARDRAIL

STA. 112+33.48 RT. BEGIN GUARDRAIL



AREA CUT 0
AREA FILL 0

AREA CUT 0
AREA FILL 1057
AREA ROCK FILL 752

AREA CUT 0
AREA FILL 0

112+11.27
END BRIDGE
STA. 111+60.88 TOE OF SLOPE

ROADWAY EARTHWORK BEGINS STA. 112+50

CUT VOLUME 0
FILL VOLUME 0

CUT VOLUME 0
FILL VOLUME 0
ROCK FILL VOLUME 0

CUT VOLUME 0
FILL VOLUME 0

CROSS SECTION STA. 112+11.25 TO STA. 113+00

R080439.DGN 2/17/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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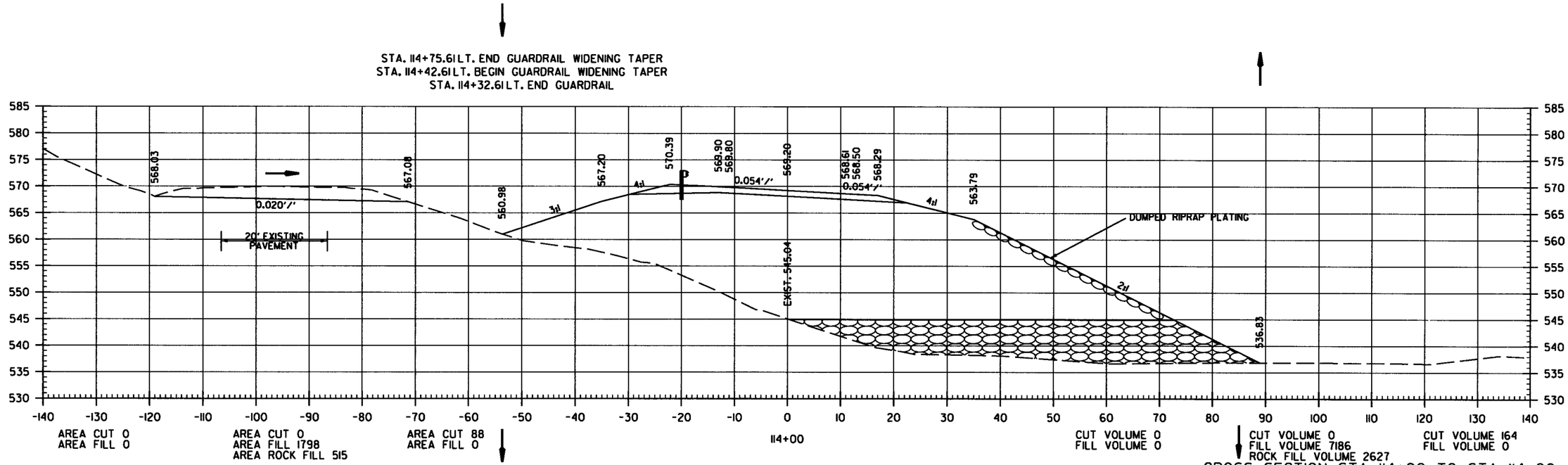
(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 114+00 TO STA. 114+00

2/17/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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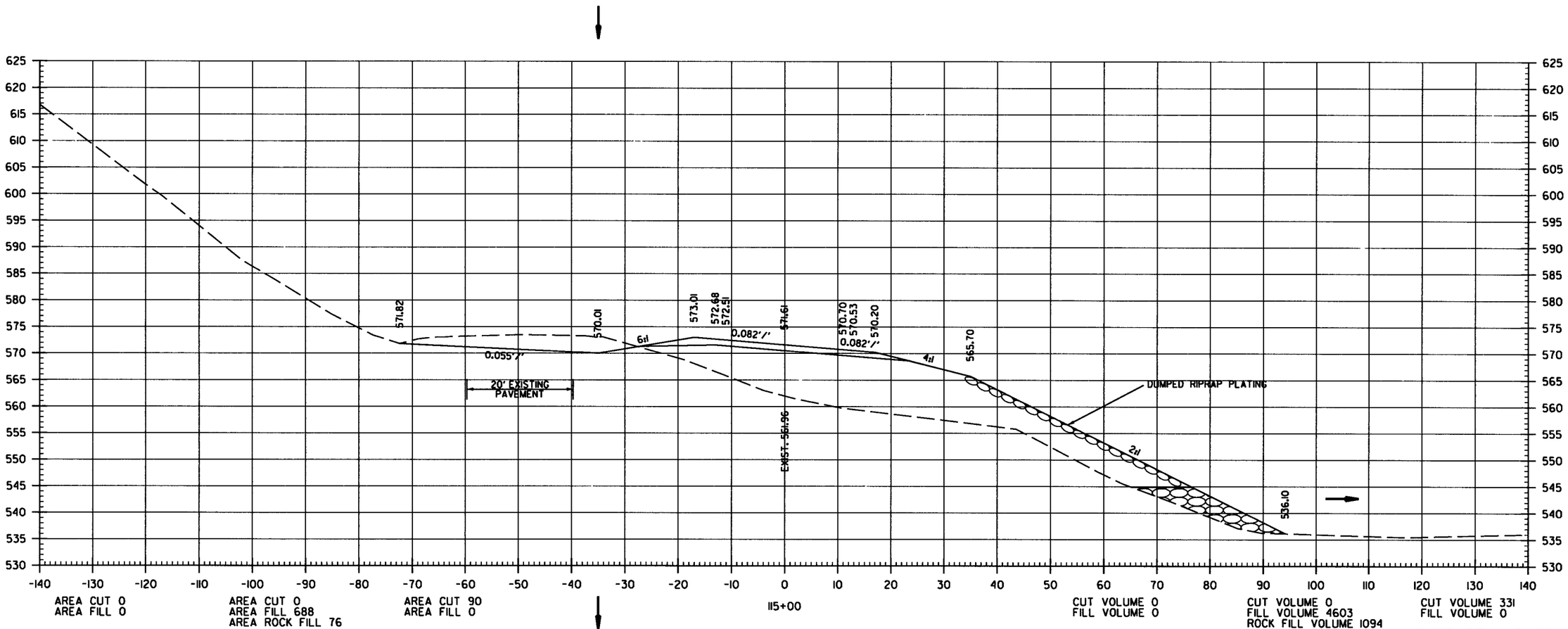
(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 115+00 TO STA. 115+00

2/17/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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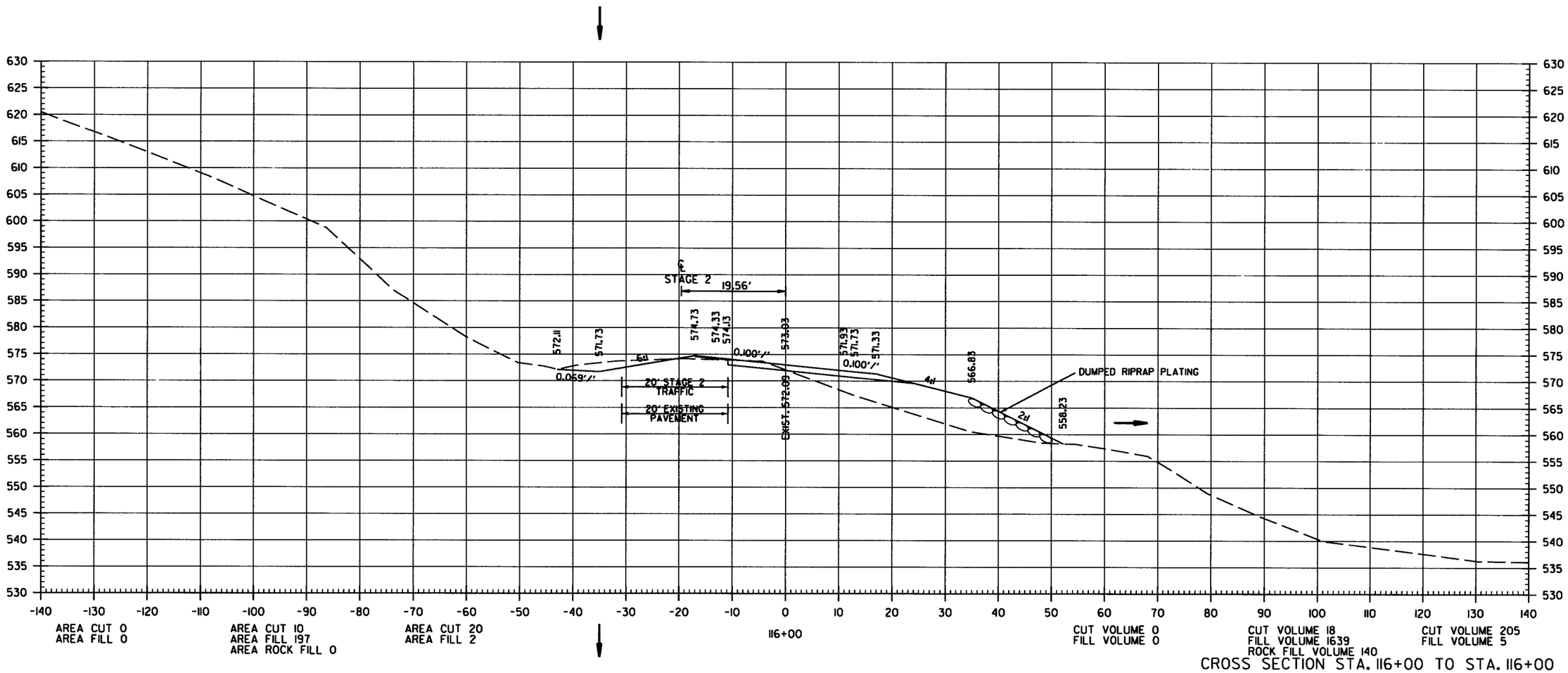
(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



AREA CUT 0
AREA FILL 0

AREA CUT 10
AREA FILL 197
AREA ROCK FILL 0

AREA CUT 20
AREA FILL 2

CUT VOLUME 0
FILL VOLUME 0

CUT VOLUME 18
FILL VOLUME 1639
ROCK FILL VOLUME 140

CUT VOLUME 205
FILL VOLUME 5

CROSS SECTION STA. 116+00 TO STA. 116+00

R080439.DGN 2/17/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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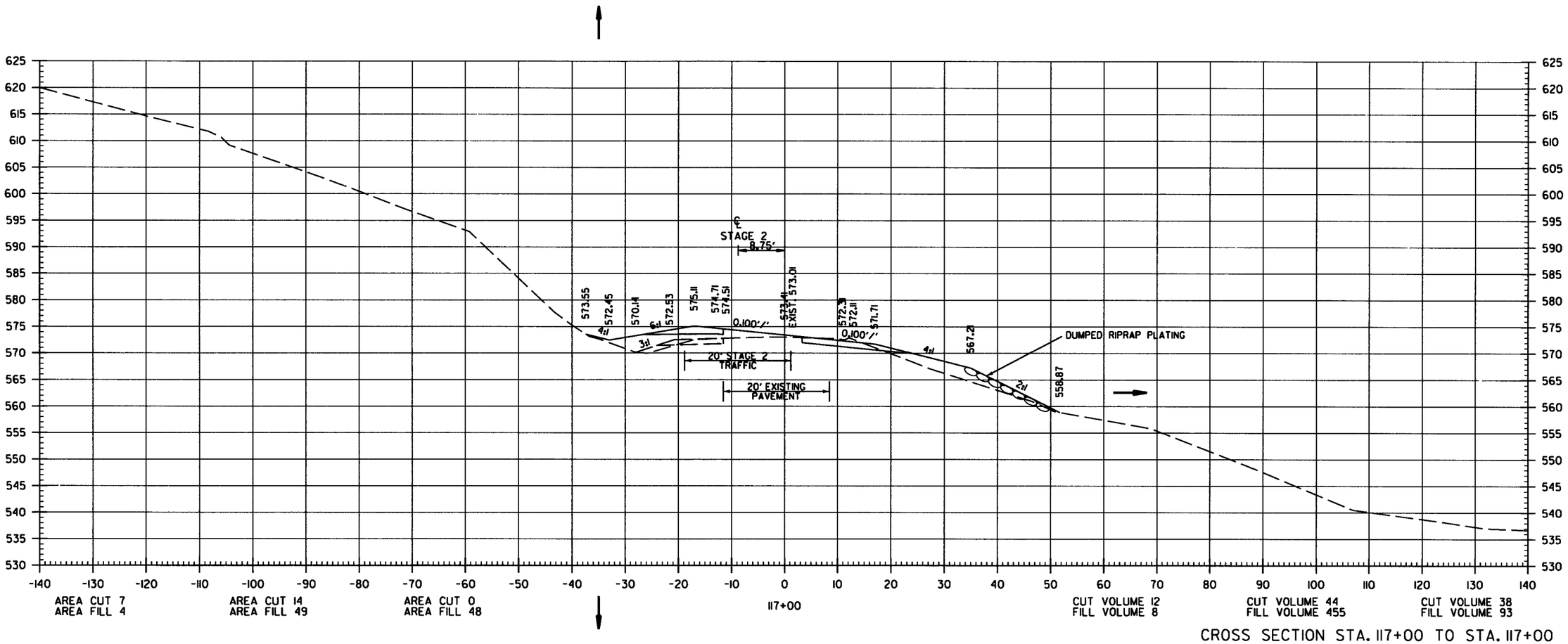
				JOB NO.		080439	89	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 117+00 TO STA. 117+00

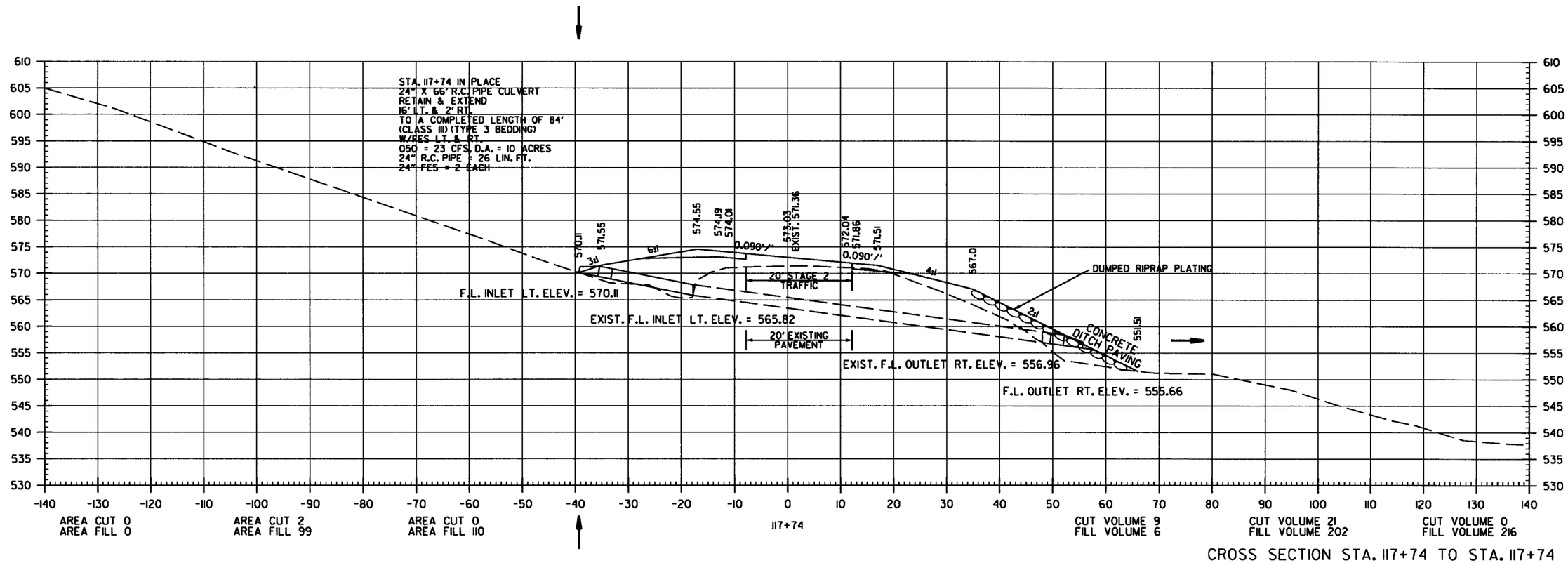
2/17/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	90	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 117+74 TO STA. 117+74

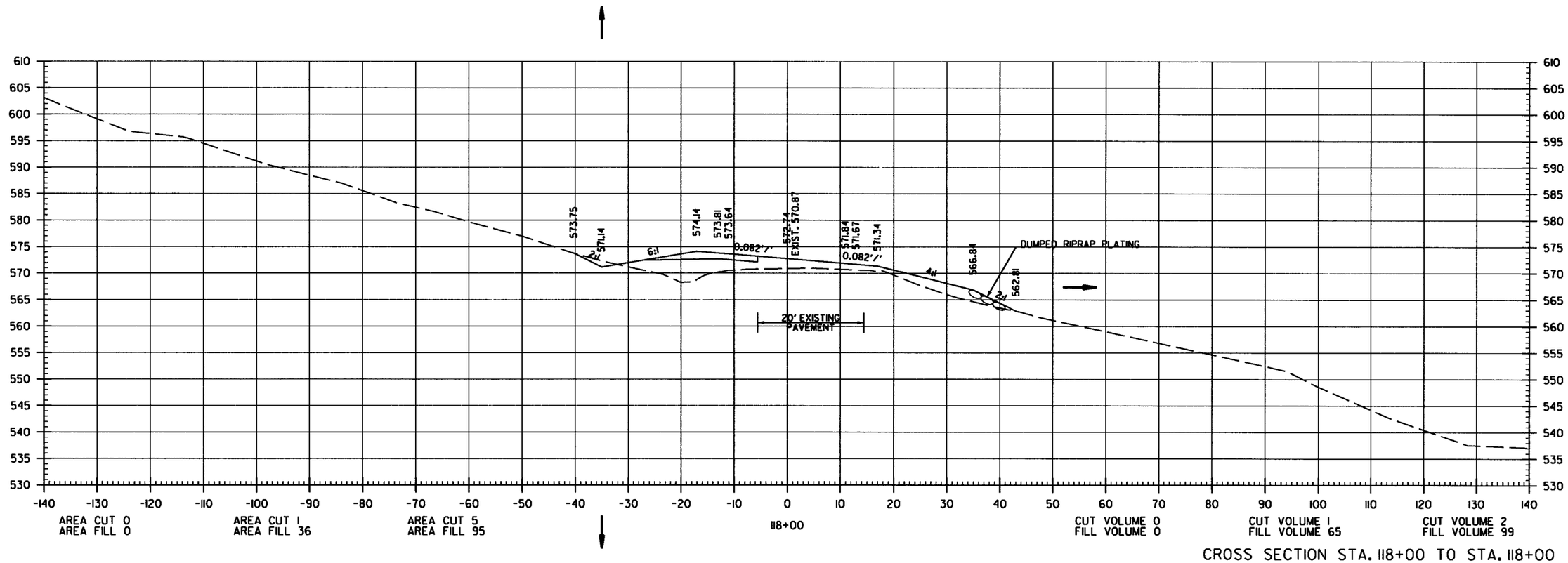
2/17/2016

R0804.39.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	91	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 118+00 TO STA. 118+00

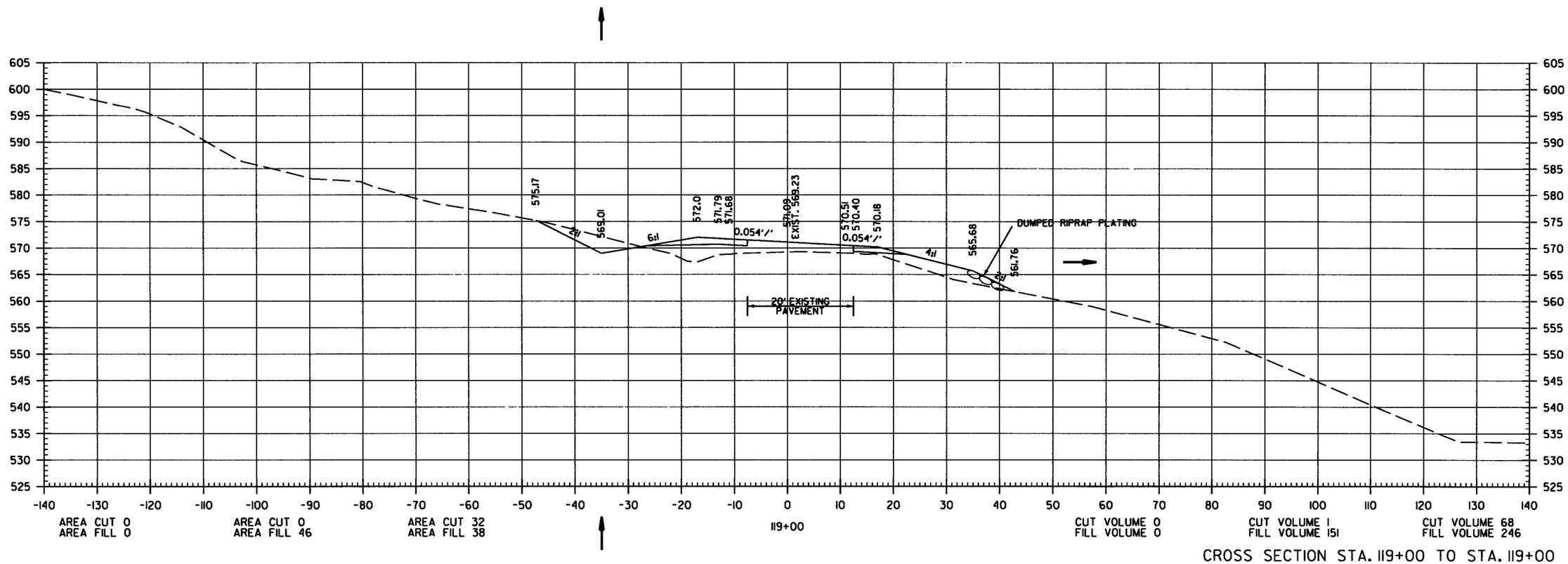
2/17/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	92	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 119+00 TO STA. 119+00

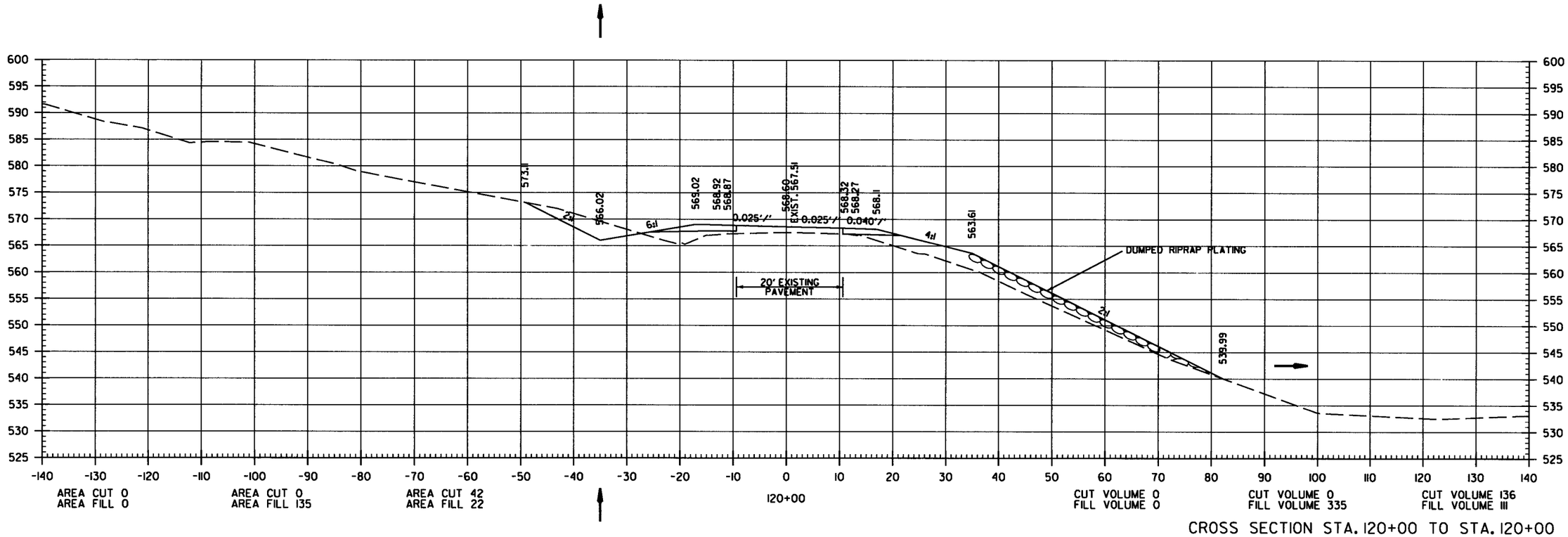
2/17/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	93	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



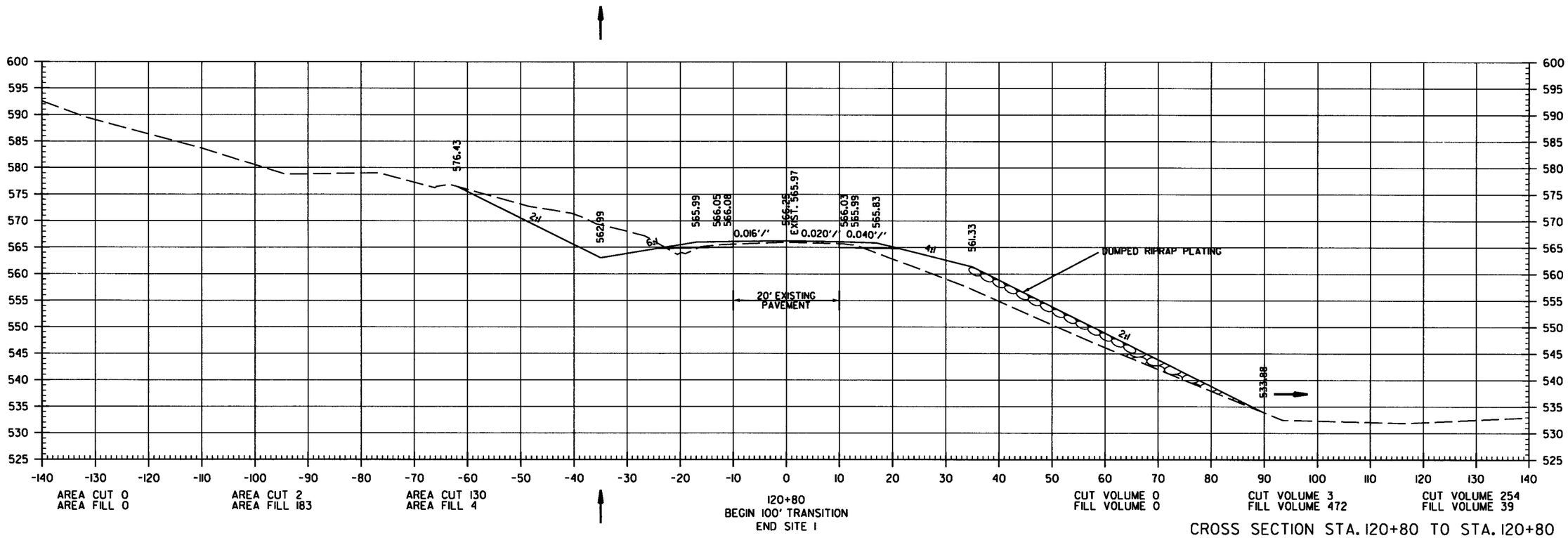
CROSS SECTION STA. 120+00 TO STA. 120+00

R080439.DGN 2/17/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	94	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



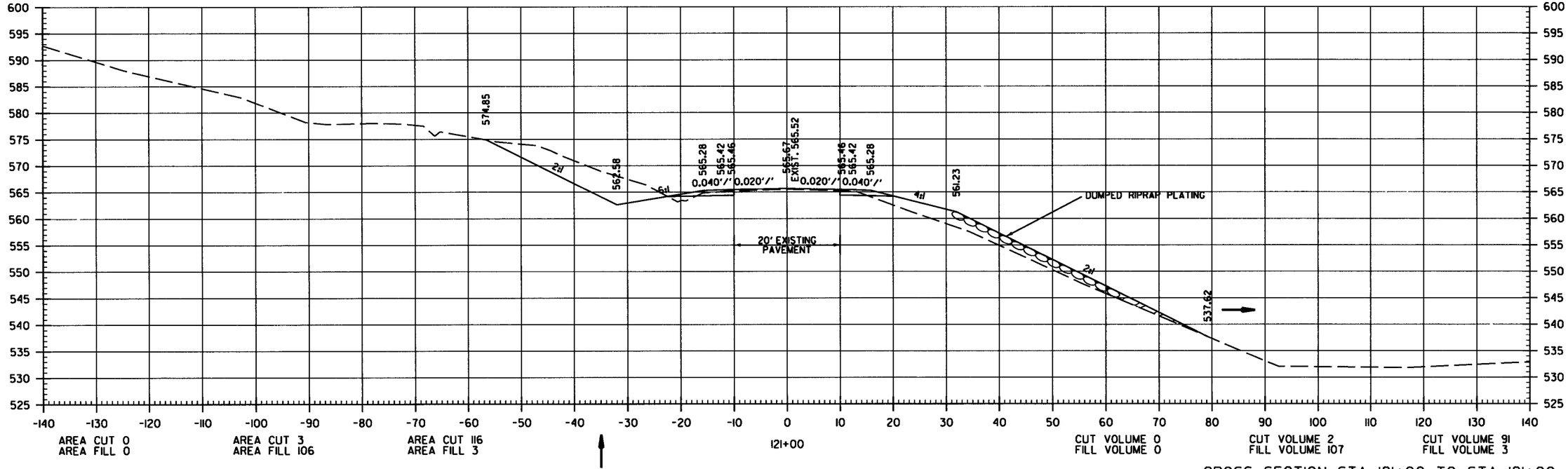
CROSS SECTION STA. 120+80 TO STA. 120+80

R080439.DGN 2/17/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	95	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 121+00 TO STA. 121+00

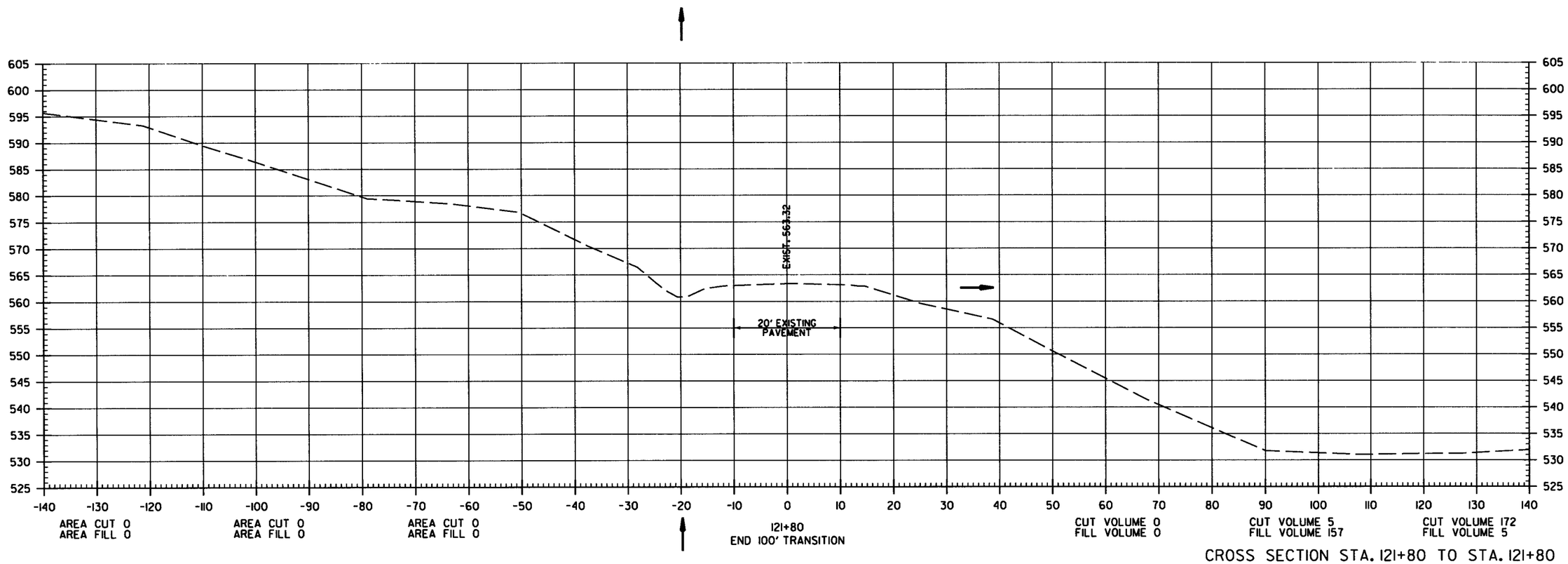
2/17/2016

R080439.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.		080439	96	116

(2) CROSS SECTIONS - SITE 1

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 121+80 TO STA. 121+80

2/17/2016

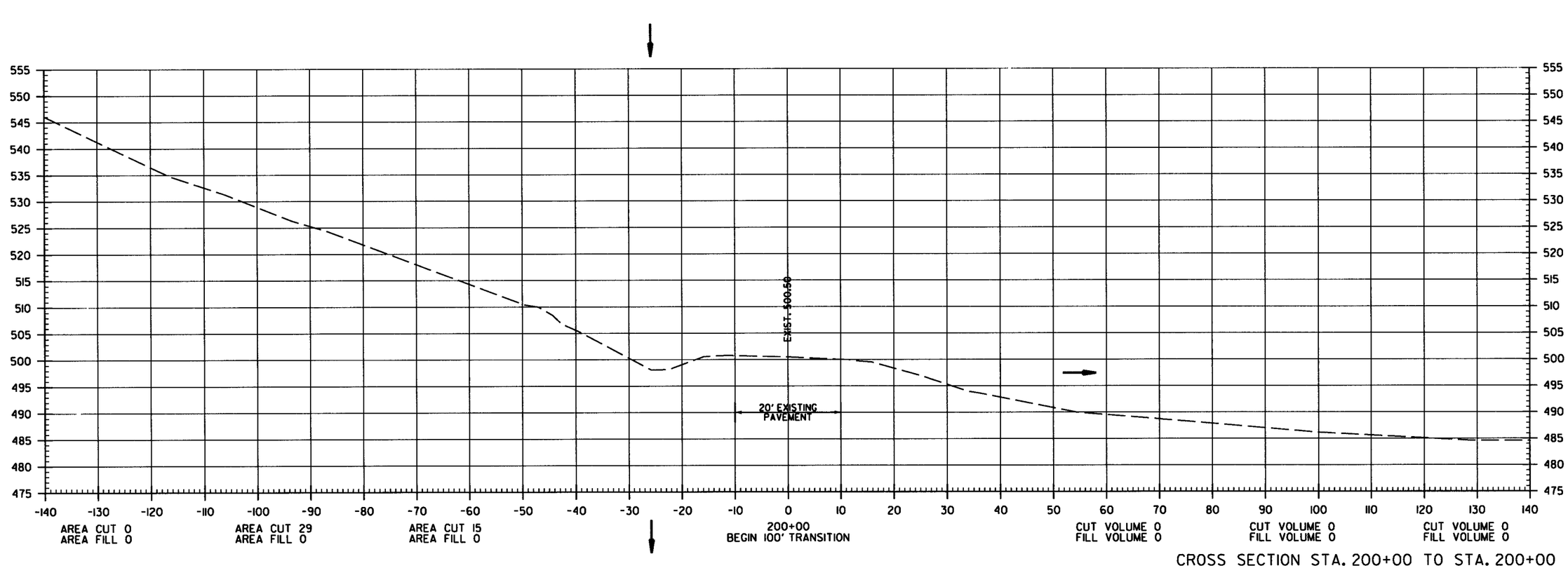
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	97	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 200+00 TO STA. 200+00

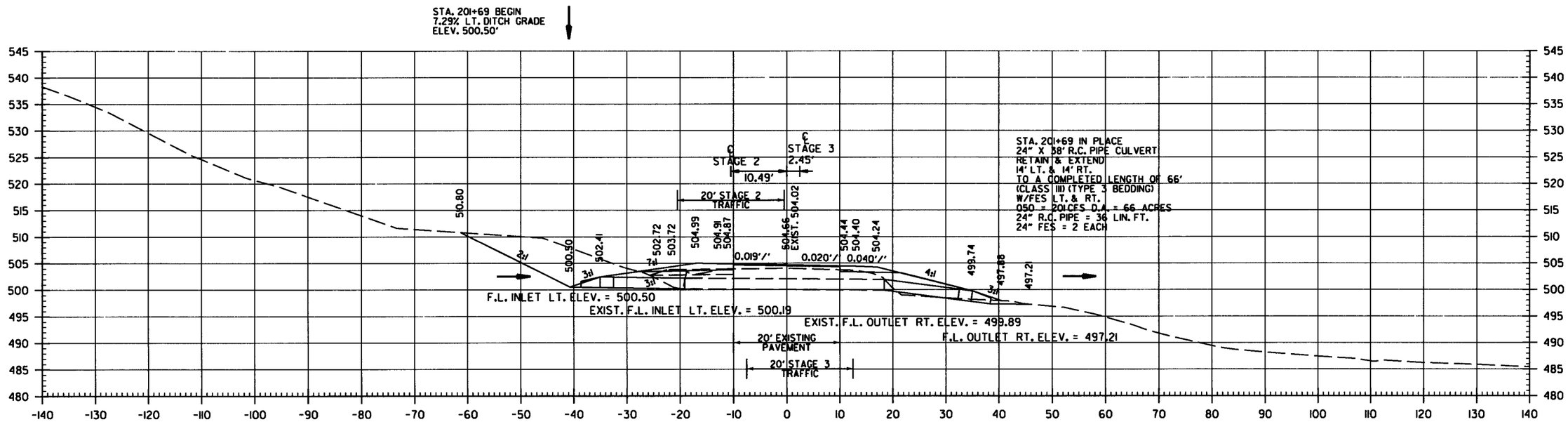
9/30/2016

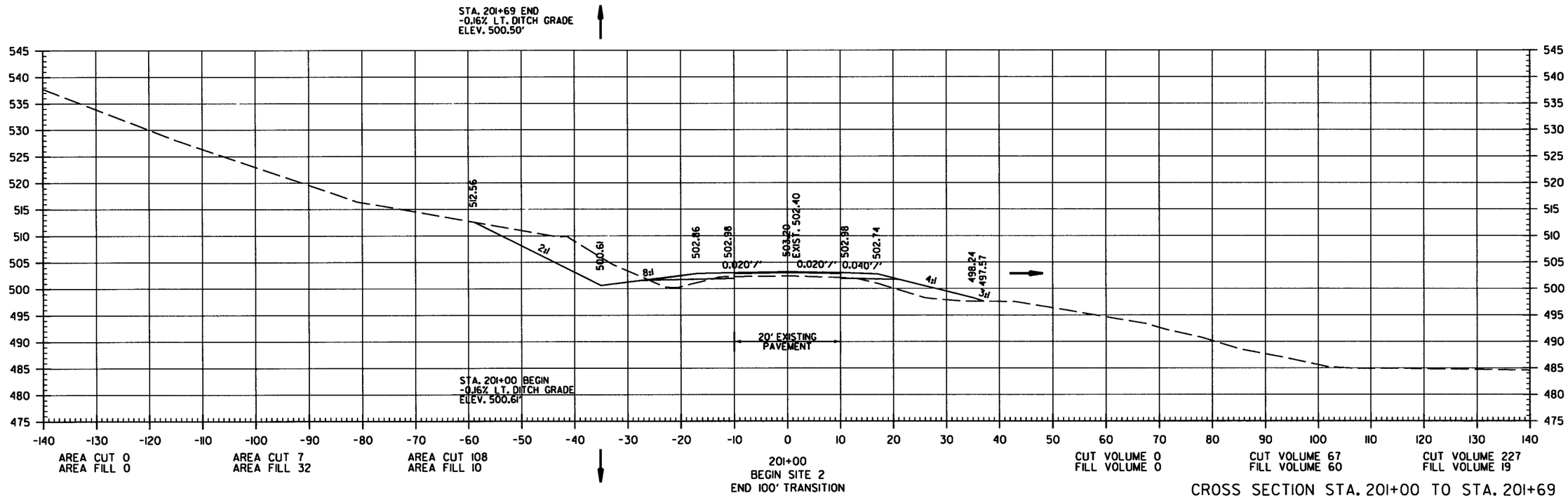
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.NO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	98	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3





CROSS SECTION STA. 201+00 TO STA. 201+69

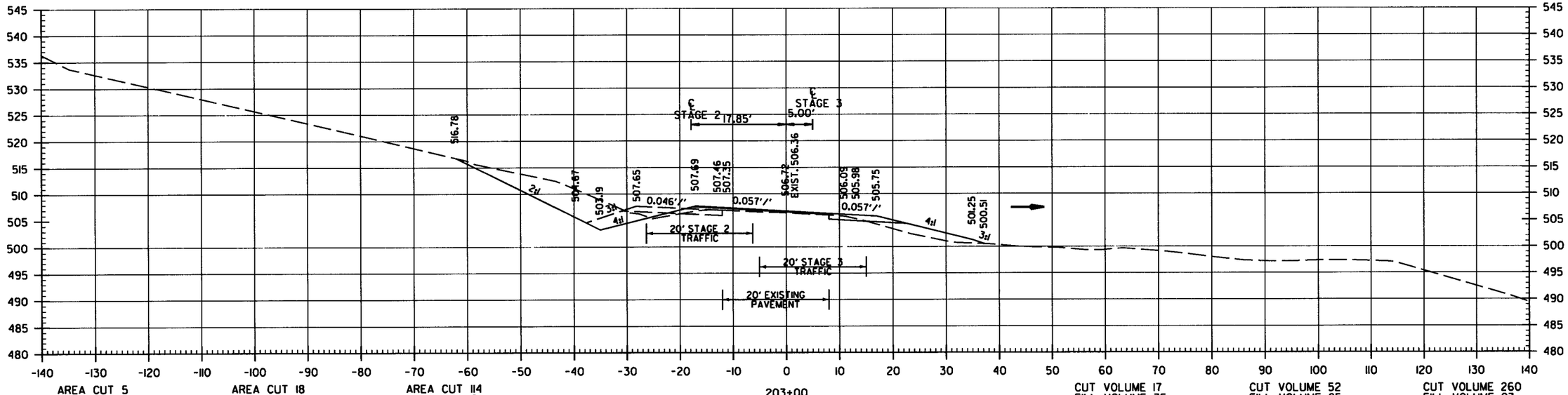
9/30/2016

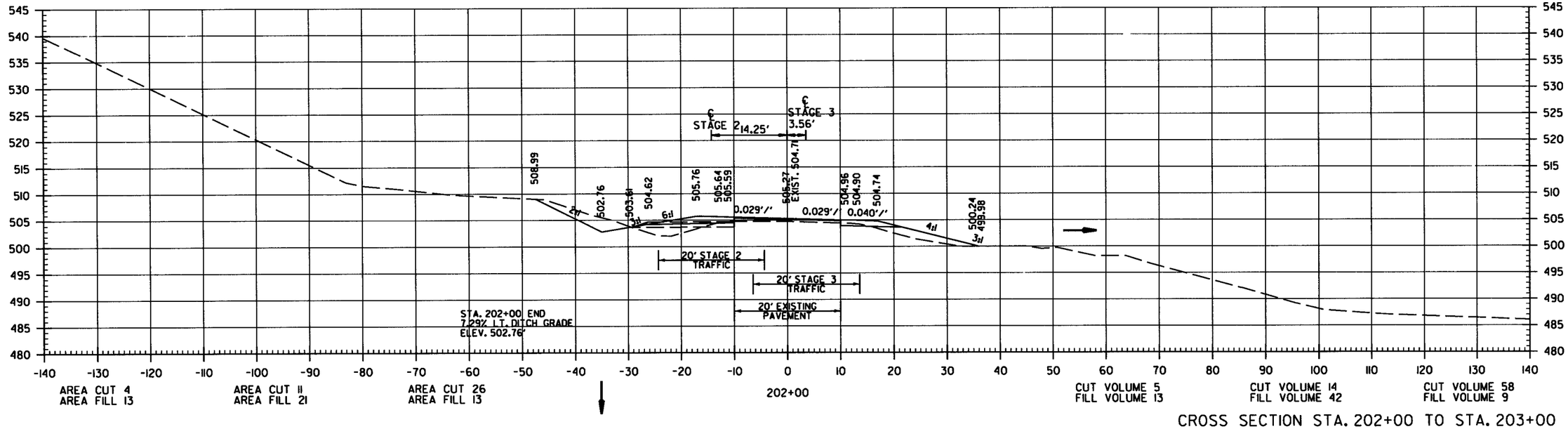
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	99	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3





CROSS SECTION STA. 202+00 TO STA. 203+00

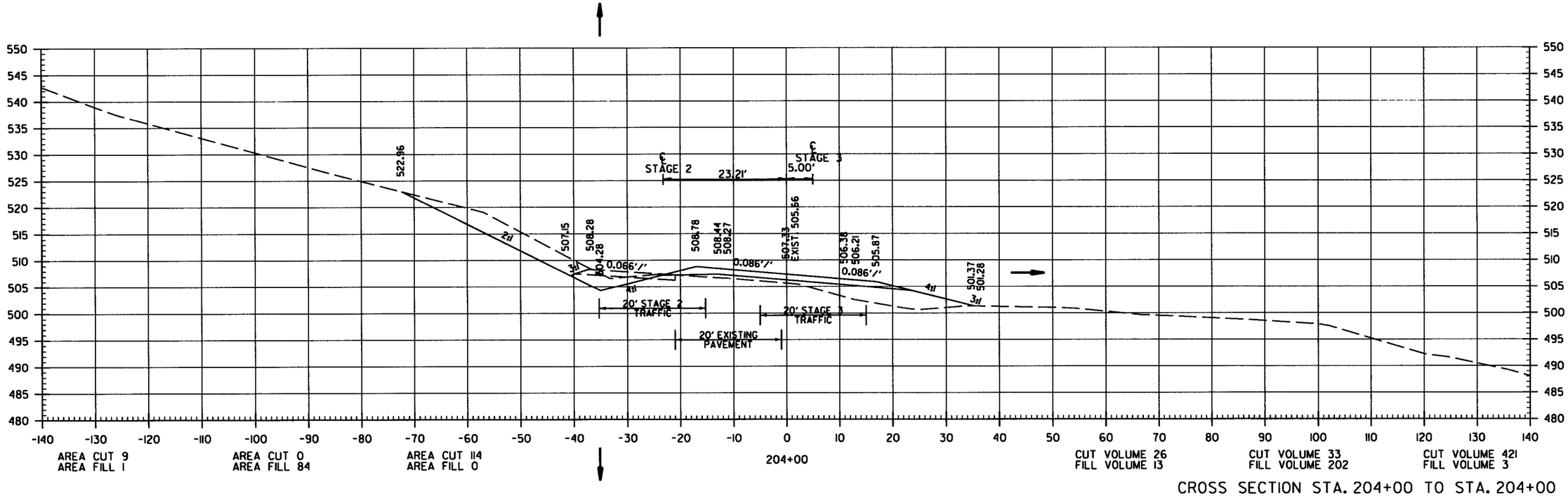
9/30/2016

R0804 39.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	100	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 204+00 TO STA. 204+00

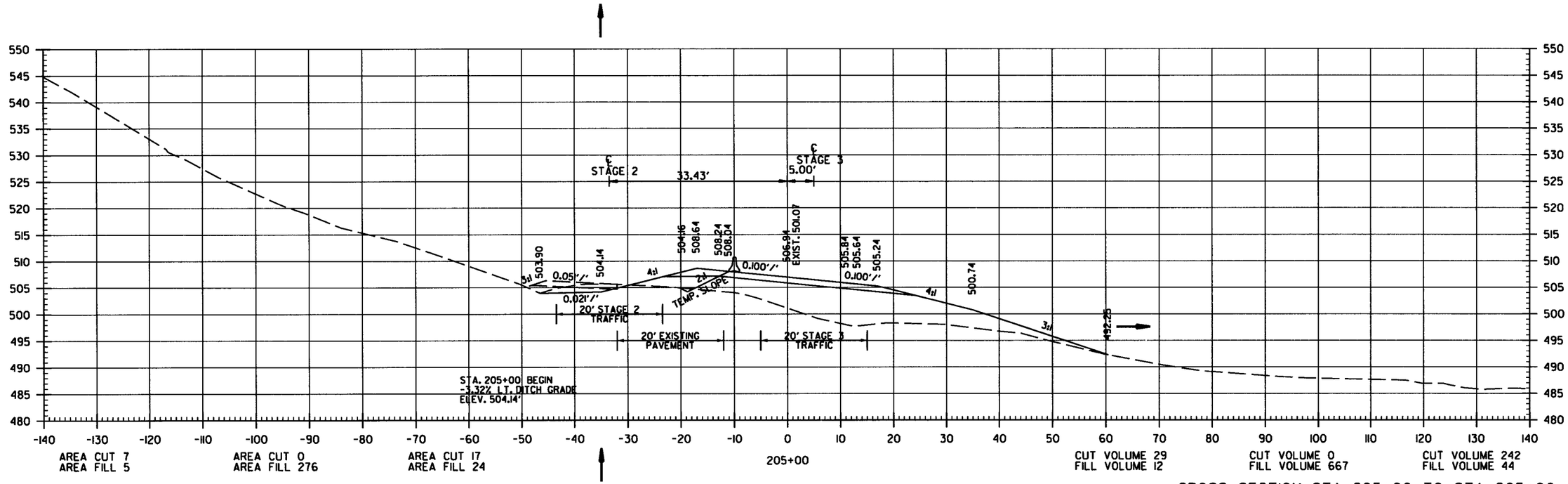
9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	101	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 205+00 TO STA. 205+00

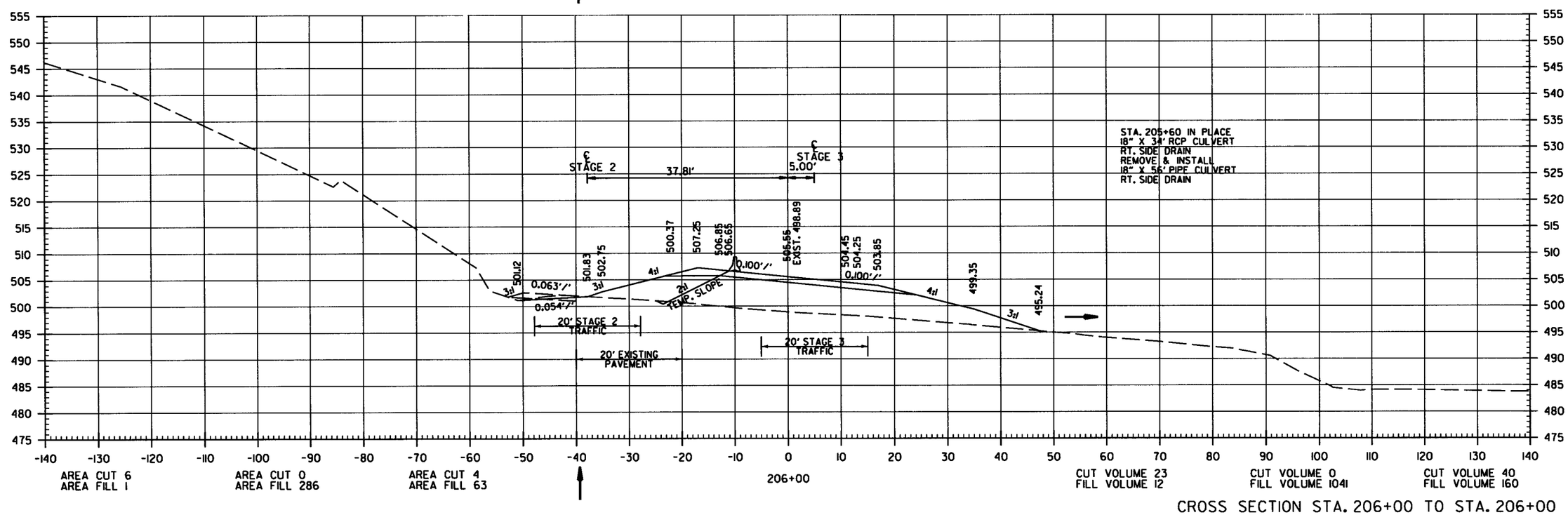
9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	102	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 206+00 TO STA. 206+00

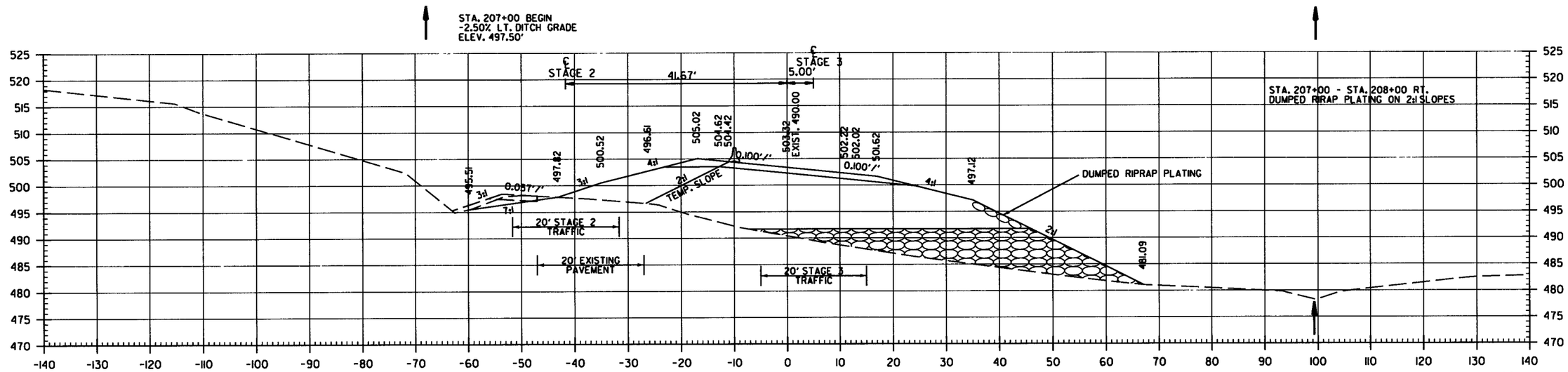
9/30/2016

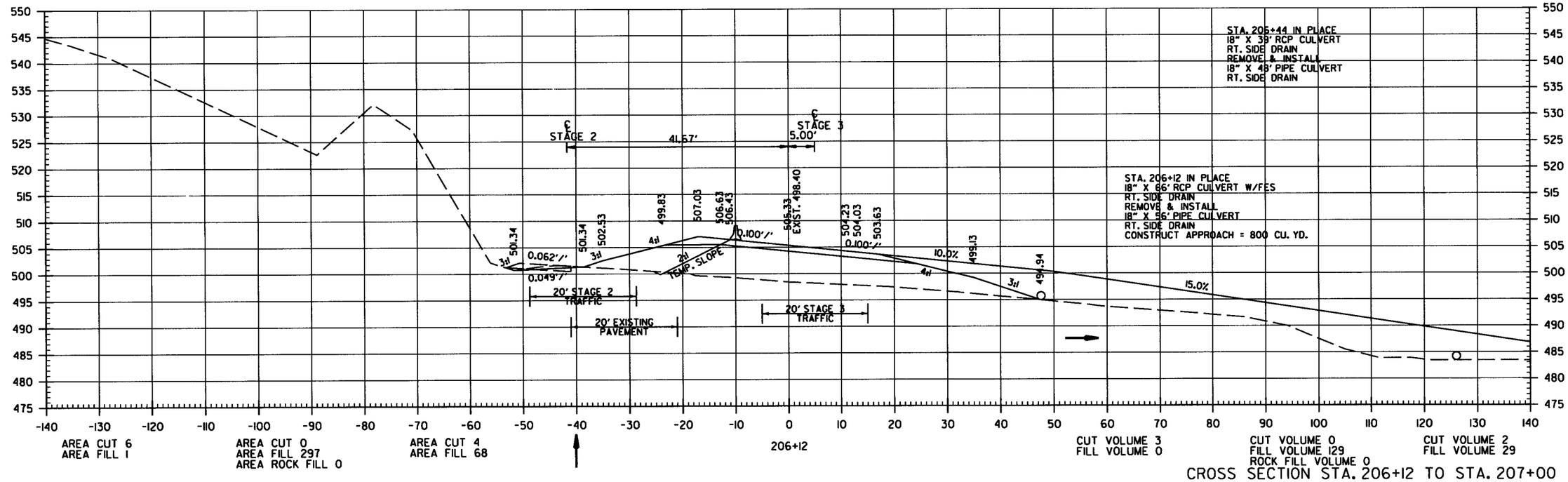
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	103	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3





CROSS SECTION STA. 206+12 TO STA. 207+00

9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	104	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3

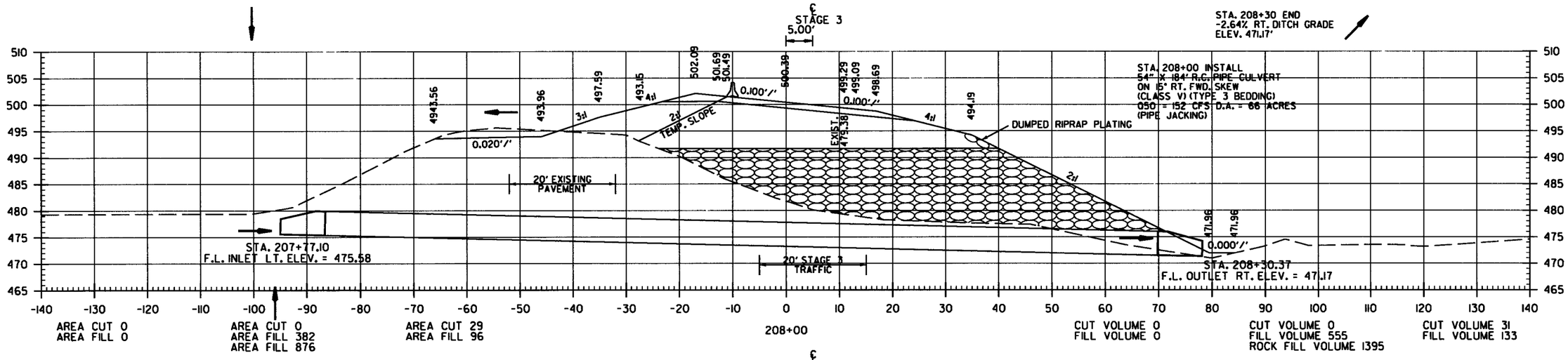
STAGE 1 STAGE 2 STAGE 3

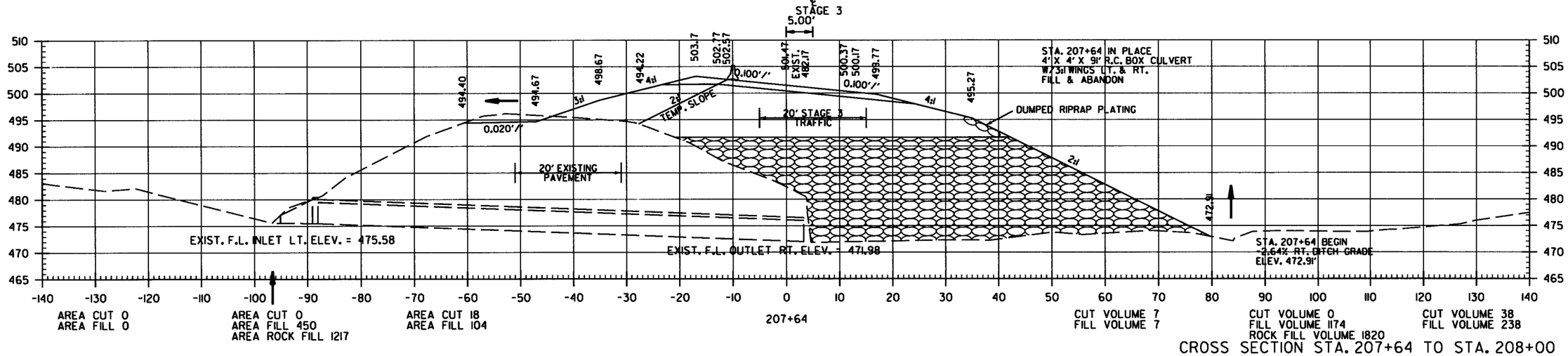
STA. 208+76.76 RT. BEGIN GUARDRAIL WIDENING TAPER

STA. 208+60 END
-6.13% RT. DITCH GRADE
ELEV. 469.33'

STA. 208+30 BEGIN
-6.13% RT. DITCH GRADE
ELEV. 471.17'

STA. 208+30 END
-2.64% RT. DITCH GRADE
ELEV. 471.17'





CROSS SECTION STA. 207+64 TO STA. 208+00

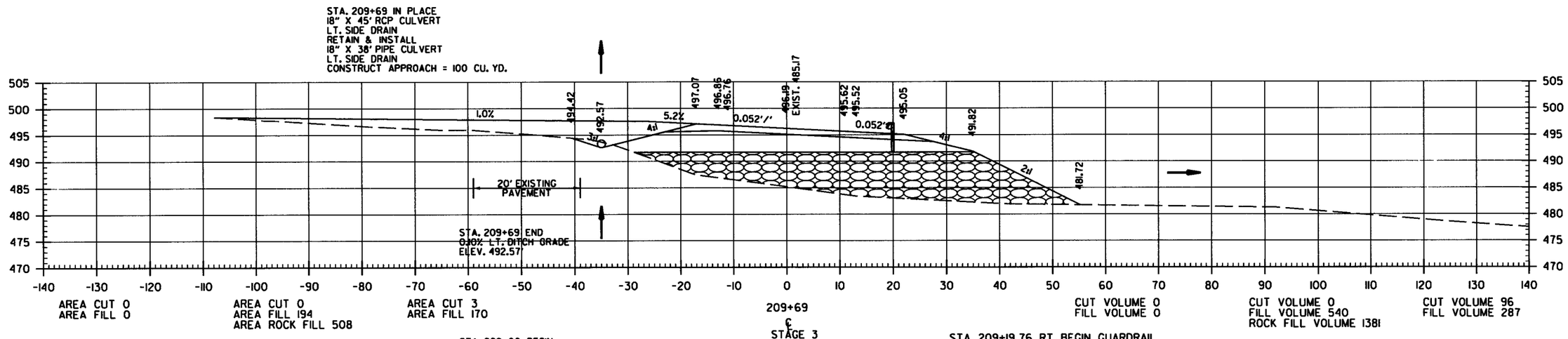
9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	105	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 209+00 TO STA. 209+69

9/30/2016

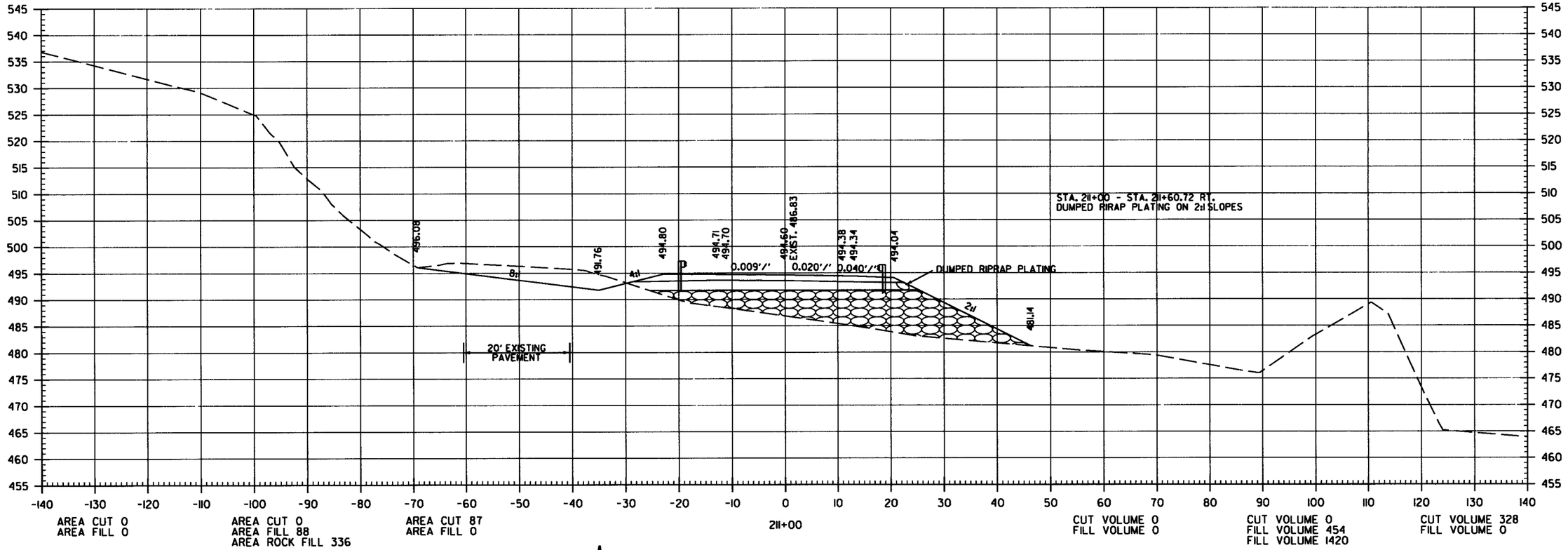
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	106	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

STA. 211+38.51 RT. END GUARDRAIL



AREA CUT 0
AREA FILL 0

AREA CUT 0
AREA FILL 88
AREA ROCK FILL 336

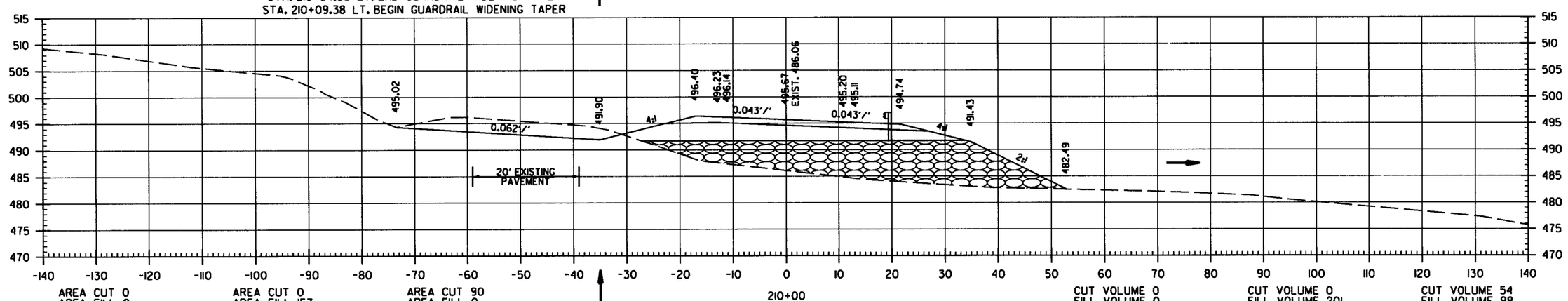
AREA CUT 87
AREA FILL 0

CUT VOLUME 0
FILL VOLUME 0

CUT VOLUME 0
FILL VOLUME 454
FILL VOLUME 1420

CUT VOLUME 328
FILL VOLUME 0

STA. 210+64.38 LT. BEGIN GUARDRAIL
STA. 210+54.38 LT. END GUARDRAIL WIDENING TAPER
STA. 210+09.38 LT. BEGIN GUARDRAIL WIDENING TAPER



AREA CUT 0
AREA FILL 0

AREA CUT 0
AREA FILL 157
AREA ROCK FILL 431

AREA CUT 90
AREA FILL 0

CUT VOLUME 0
FILL VOLUME 0

CUT VOLUME 0
FILL VOLUME 201
ROCK FILL VOLUME 539

CUT VOLUME 54
FILL VOLUME 98

CROSS SECTION STA. 210+00 TO STA. 211+00

9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	107	116

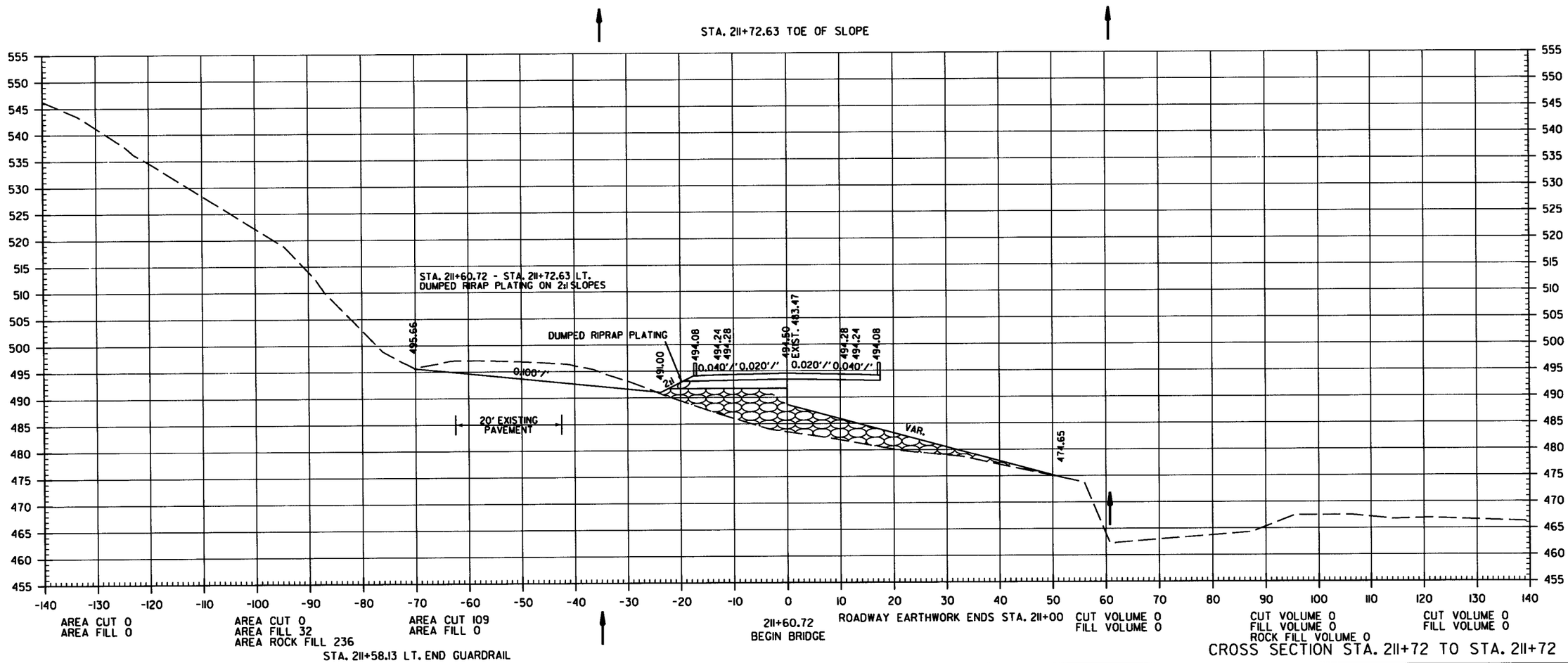
(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3

BRIDGE EARTHWORK BETWEEN STA. 211+00 AND STA. 217+00

ROCK FILL VOLUME 2700



CROSS SECTION STA. 211+72 TO STA. 211+72

9/30/2016

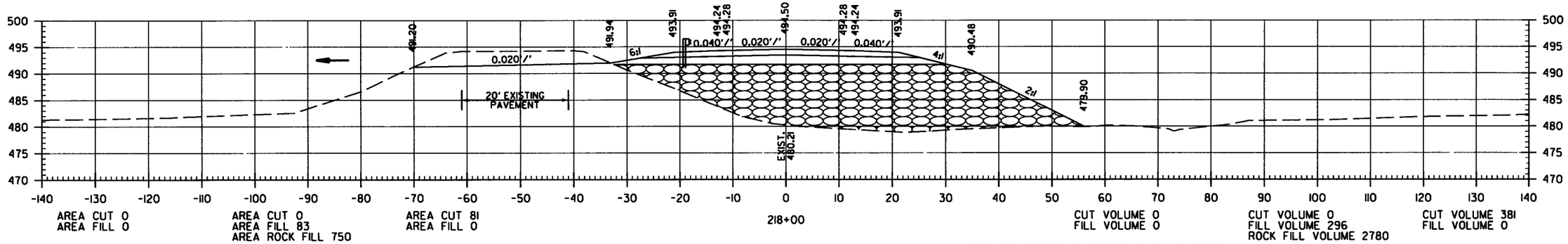
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	108	116

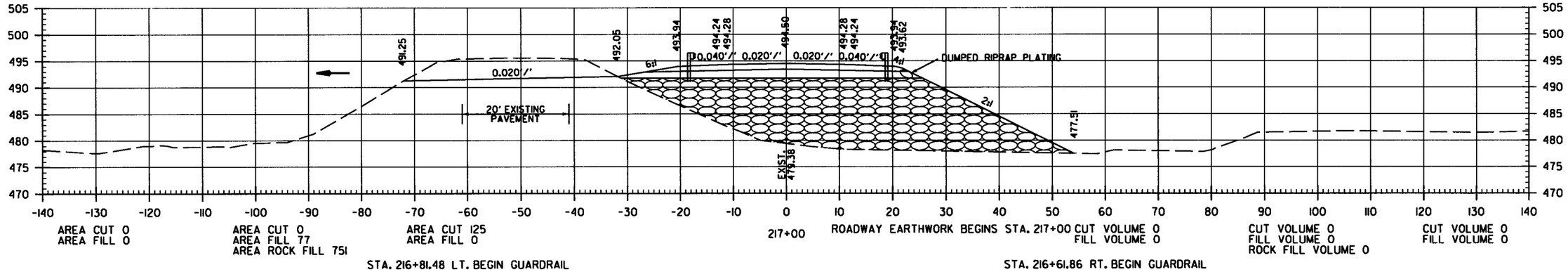
(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3

STA. 218+05.61 RT. END GUARDRAIL WIDENING TAPER

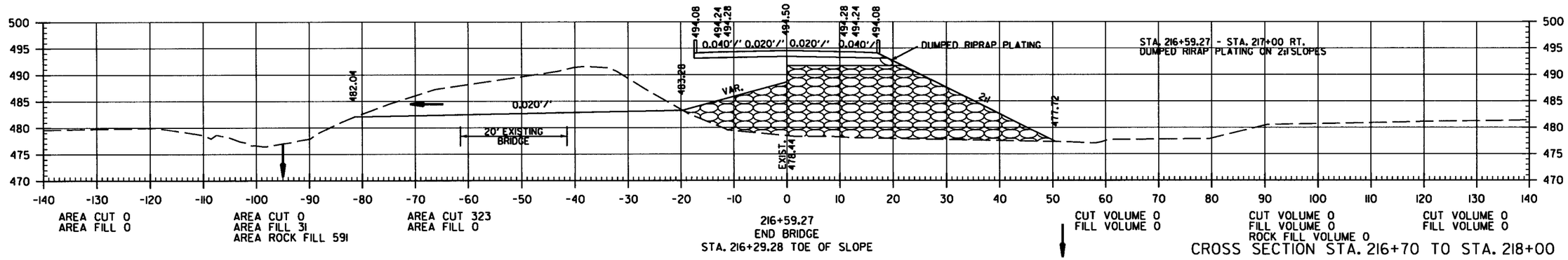


STA. 217+65.61 RT. BEGIN GUARDRAIL WIDENING TAPER
STA. 217+55.61 RT. END GUARDRAIL



STA. 216+81.48 LT. BEGIN GUARDRAIL

STA. 216+61.86 RT. BEGIN GUARDRAIL



CROSS SECTION STA. 216+70 TO STA. 218+00

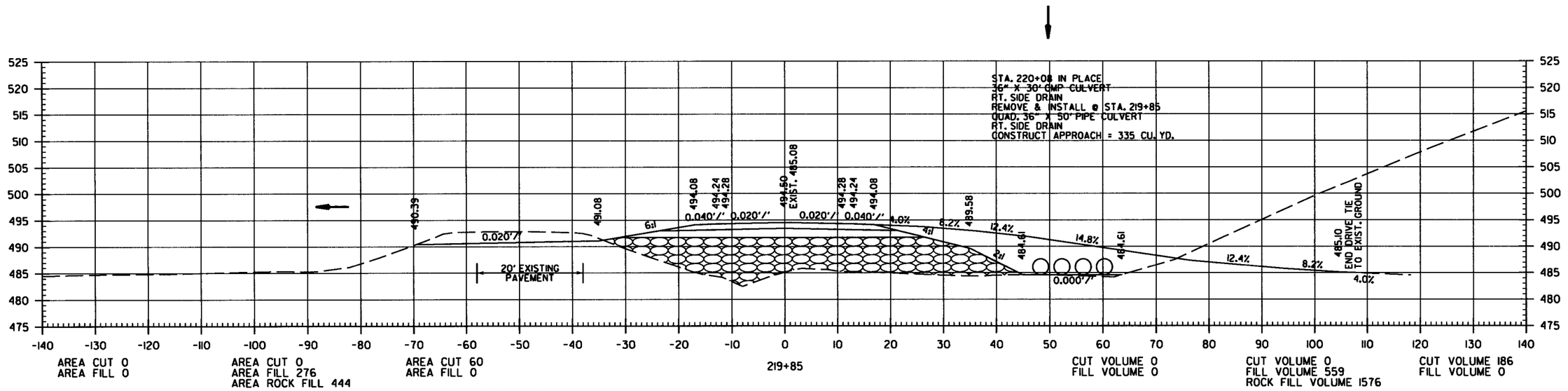
9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	109	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



CROSS SECTION STA. 219+00 TO STA. 219+85

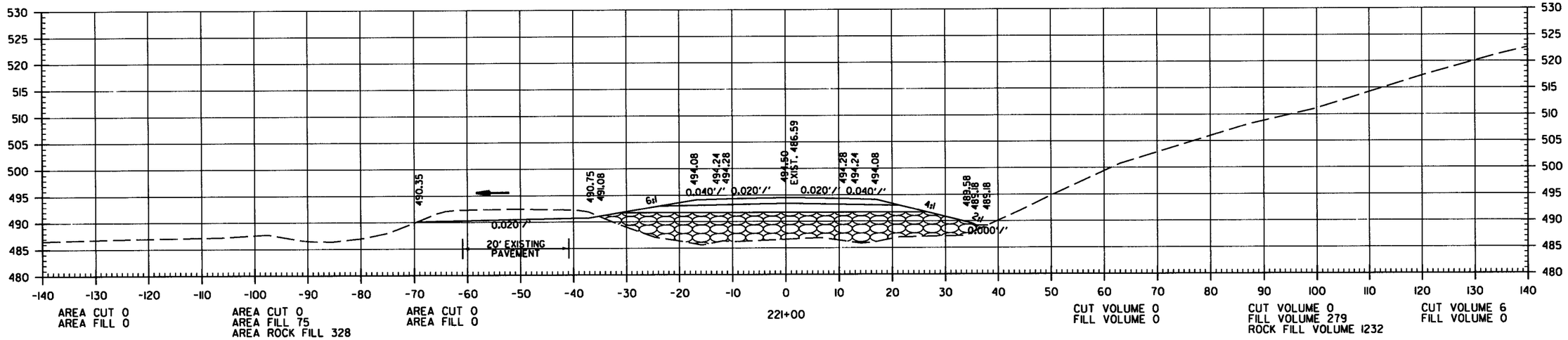
9/30/2016

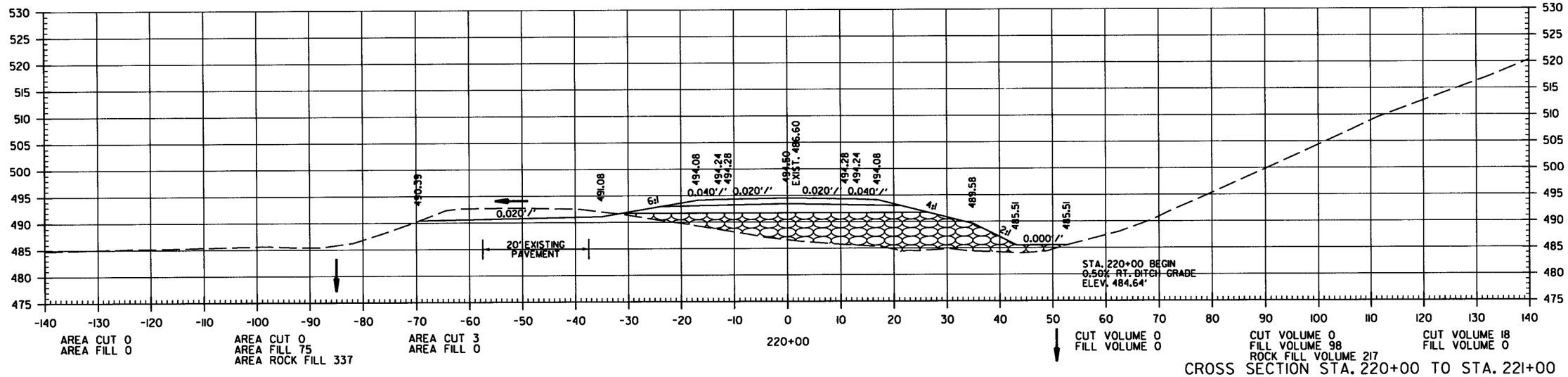
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	110	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3





CROSS SECTION STA. 220+00 TO STA. 221+00

9/30/2016

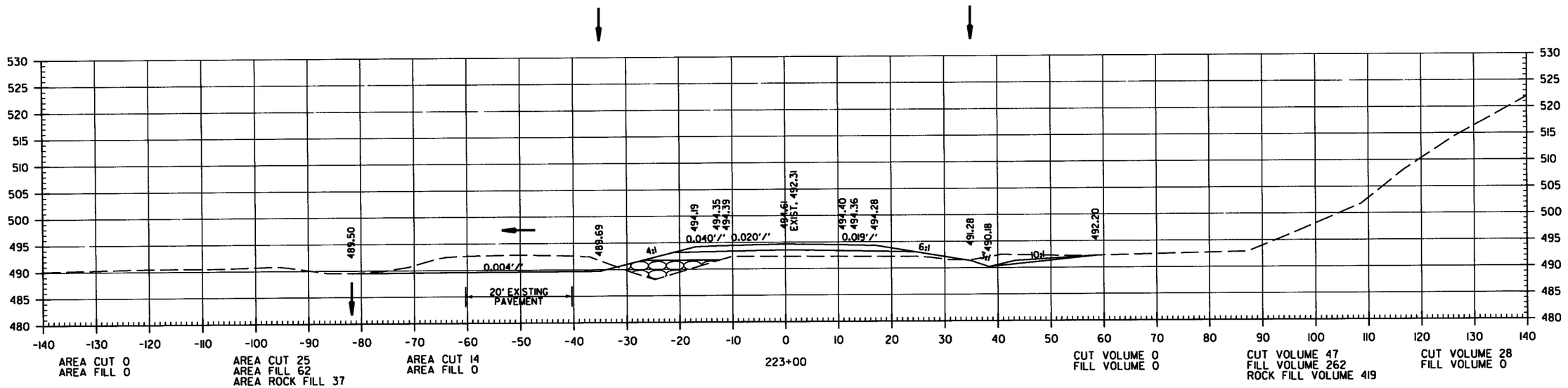
R080439.DGN

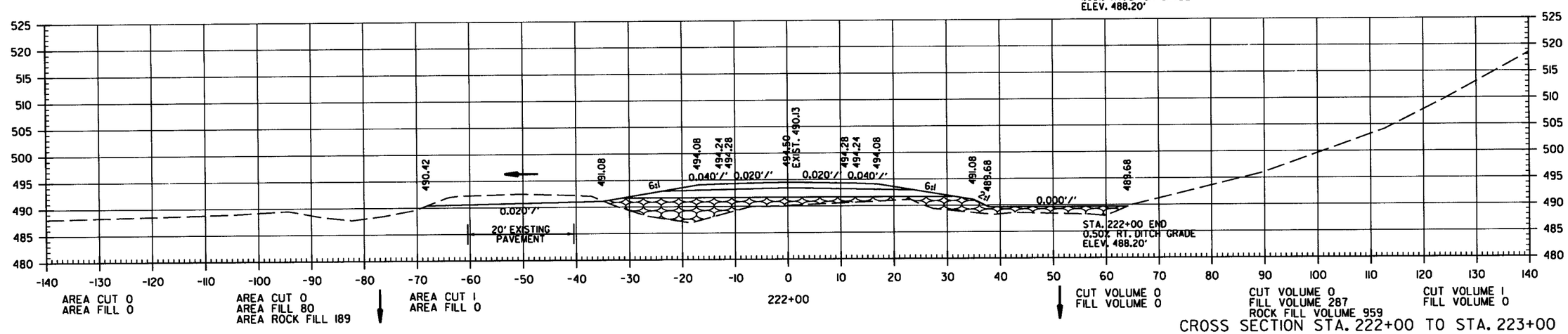
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	111	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3





CROSS SECTION STA. 222+00 TO STA. 223+00

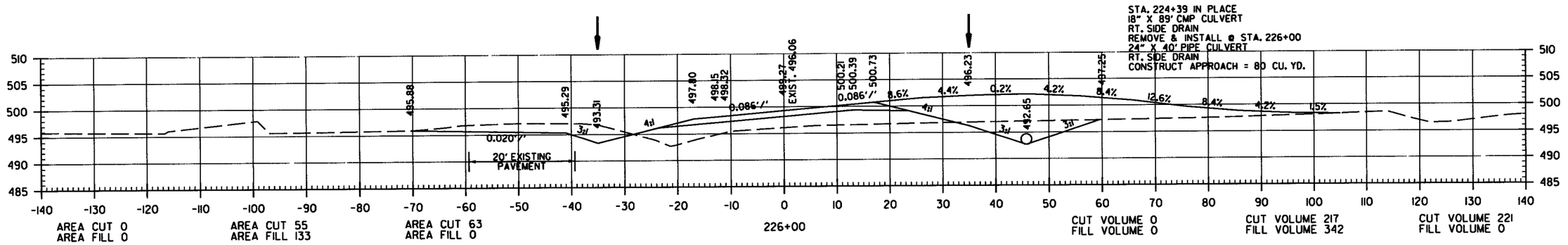
9/30/2016

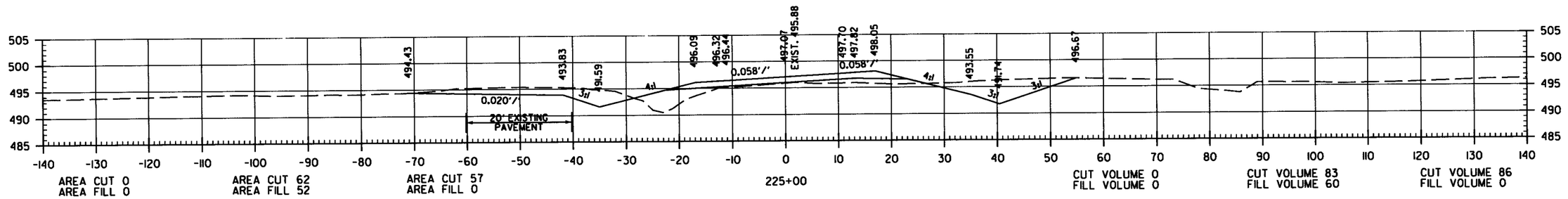
R080439.DGN

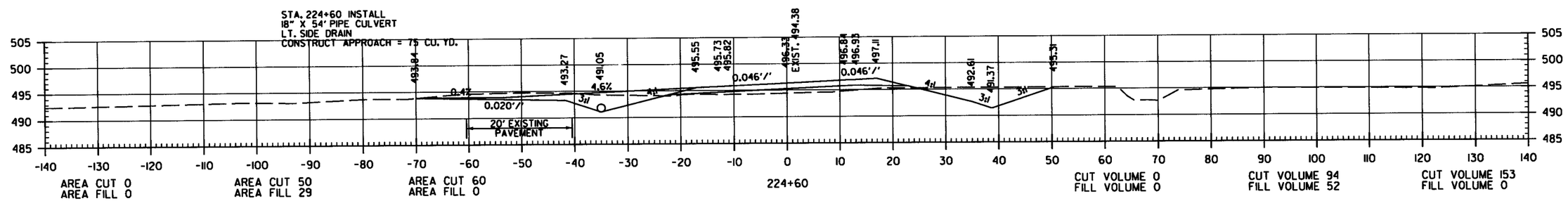
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	112	116

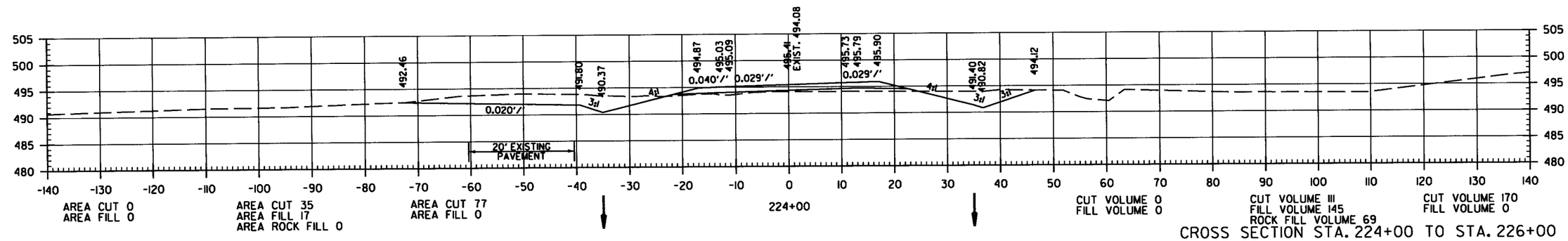
(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3









CROSS SECTION STA. 224+00 TO STA. 226+00

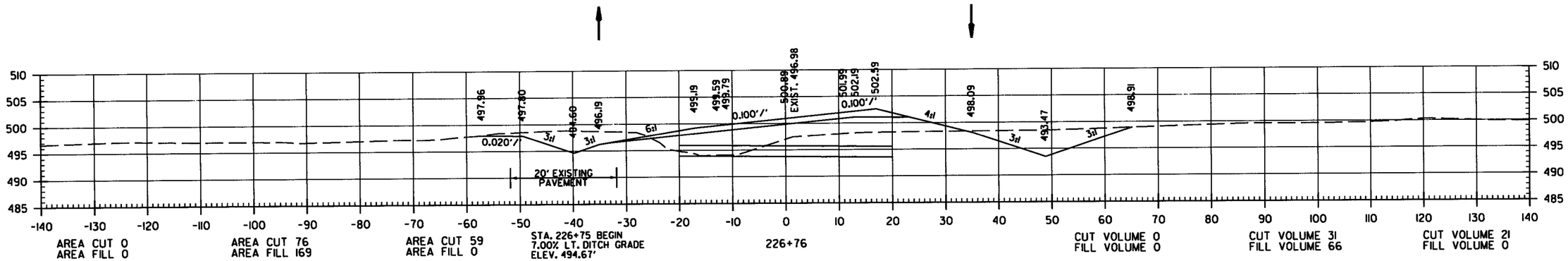
9/30/2016

R080439.DGN

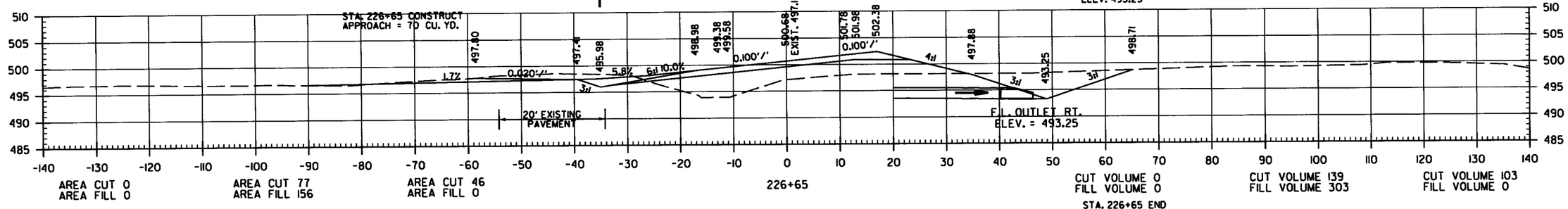
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.RD. PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	113	116

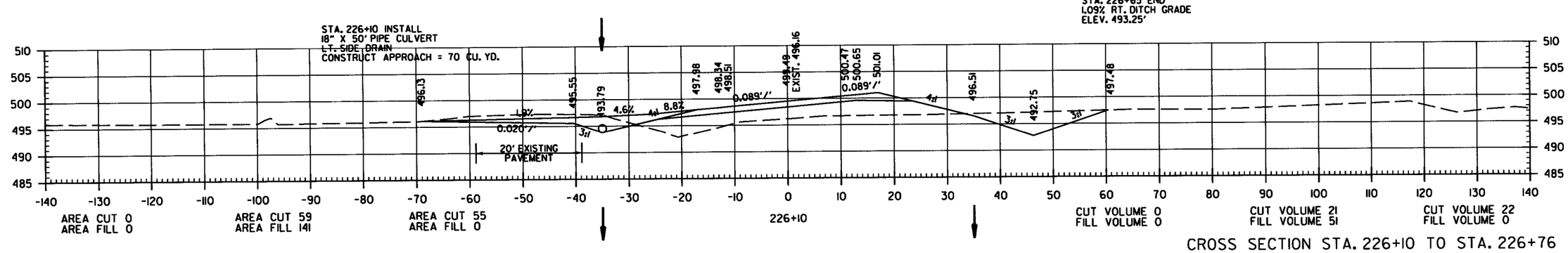
(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3



STAGE 1 STAGE 2 STAGE 3





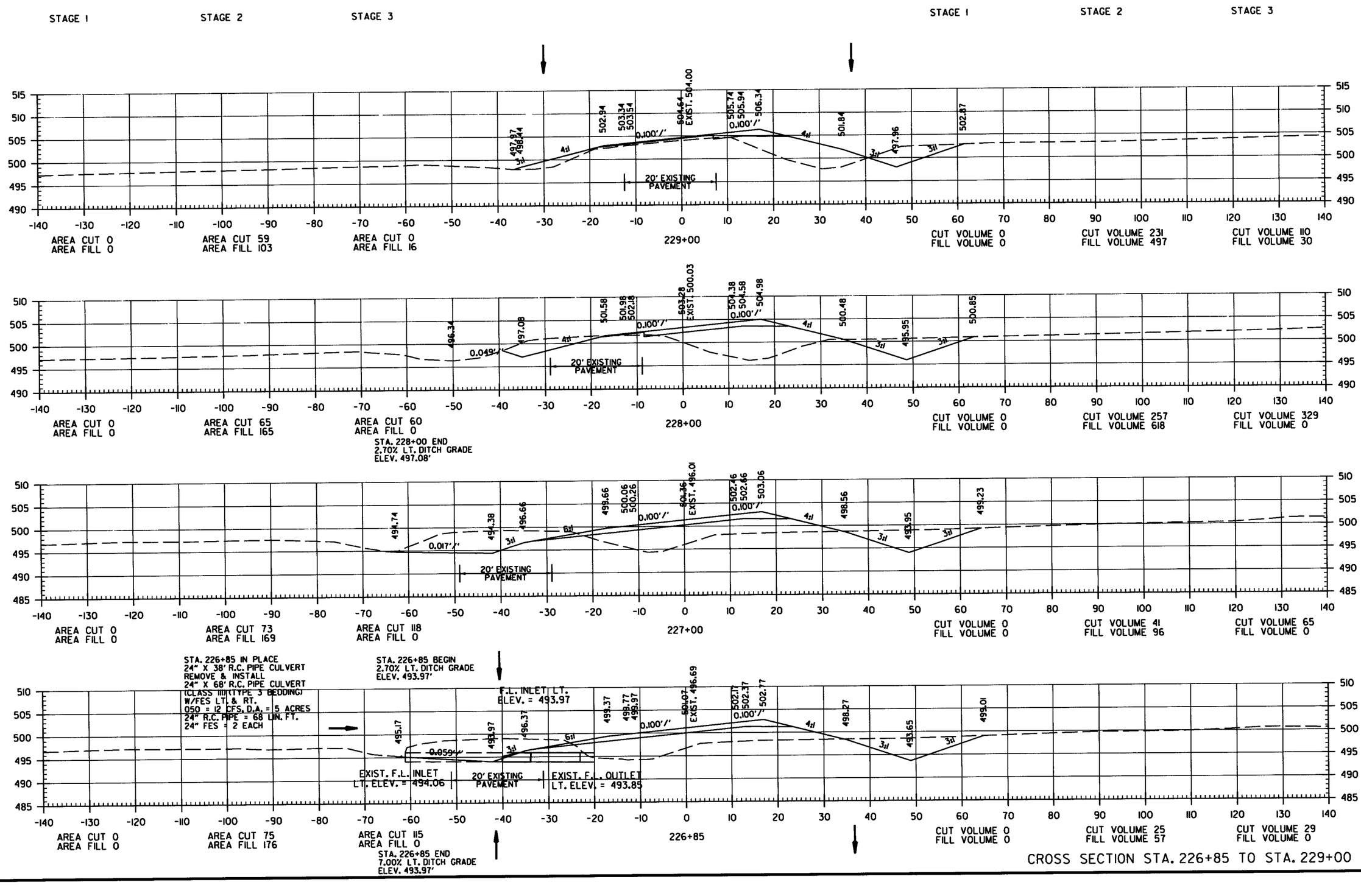
CROSS SECTION STA. 226+10 TO STA. 226+76

9/30/2016

R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	114	116

(2) CROSS SECTIONS - SITE 2



CROSS SECTION STA. 226+85 TO STA. 229+00

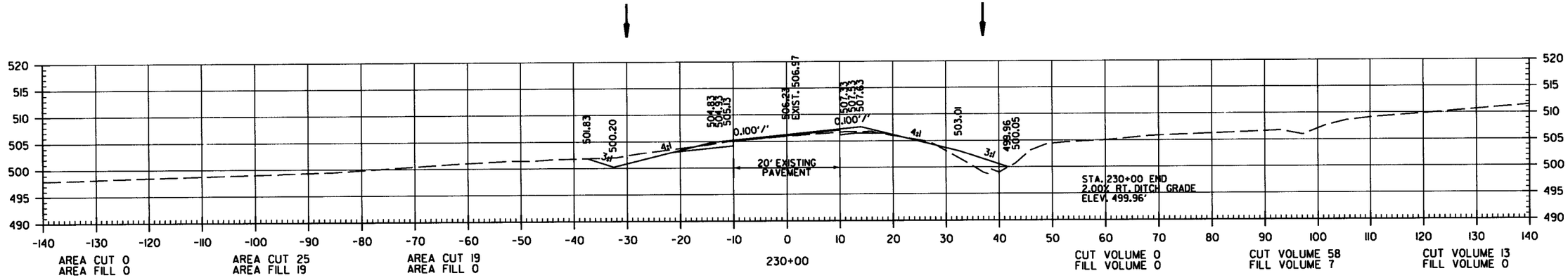
9/30/2016

R080439.DGN

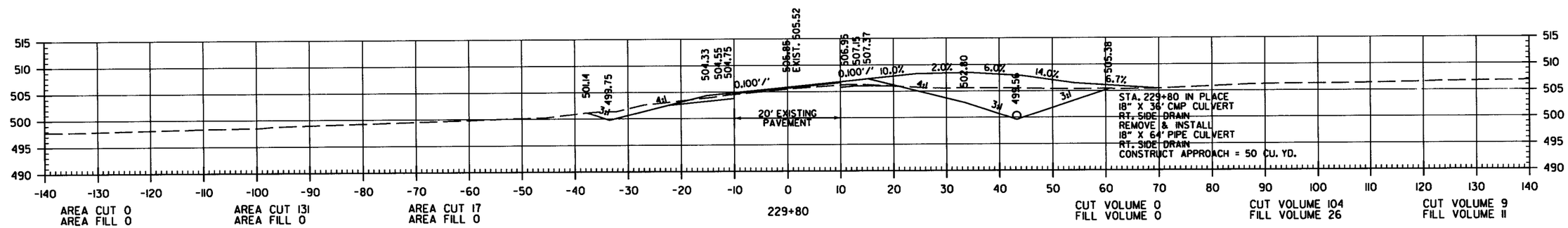
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	115	116

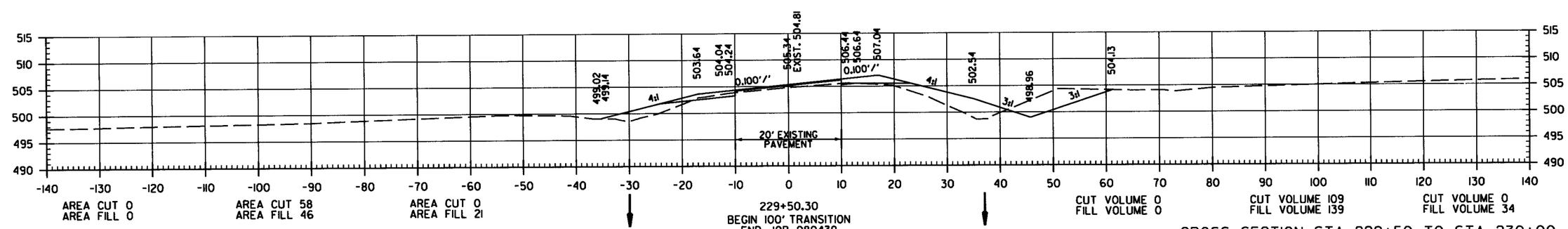
(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3



STAGE 1 STAGE 2 STAGE 3





CROSS SECTION STA. 229+50 TO STA. 230+00

9/30/2016

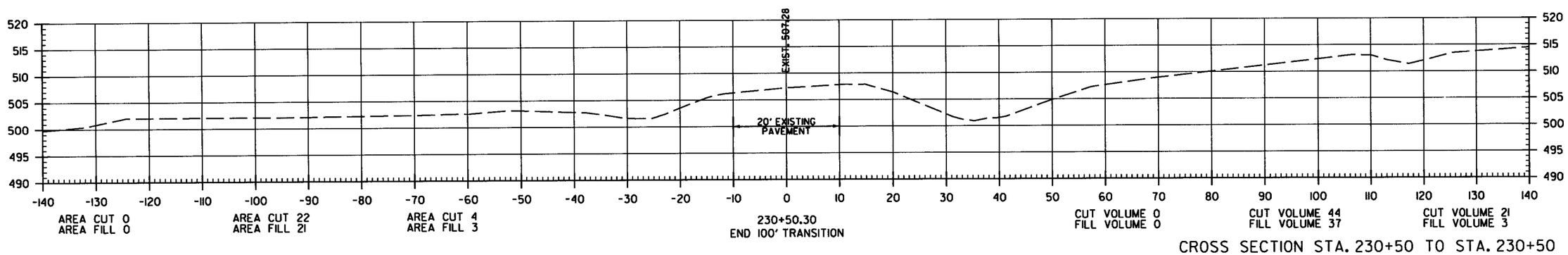
R080439.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080439	116	116

(2) CROSS SECTIONS - SITE 2

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



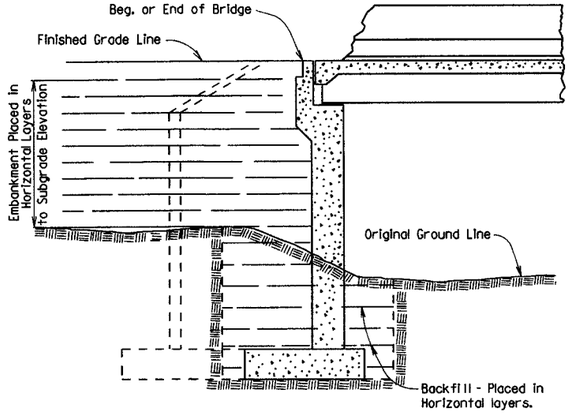
CROSS SECTION STA. 230+50 TO STA. 230+50

9/30/2016

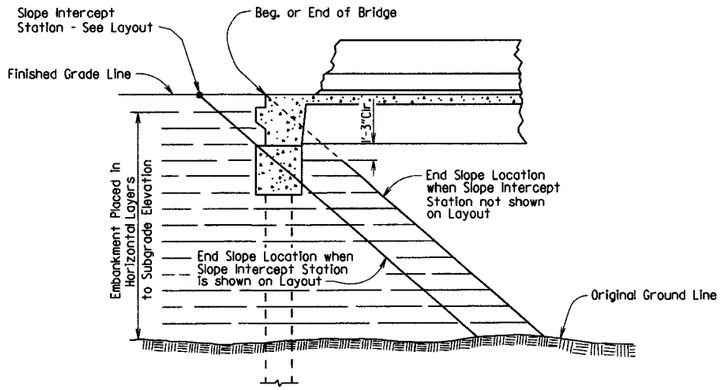
R080439.DGN

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

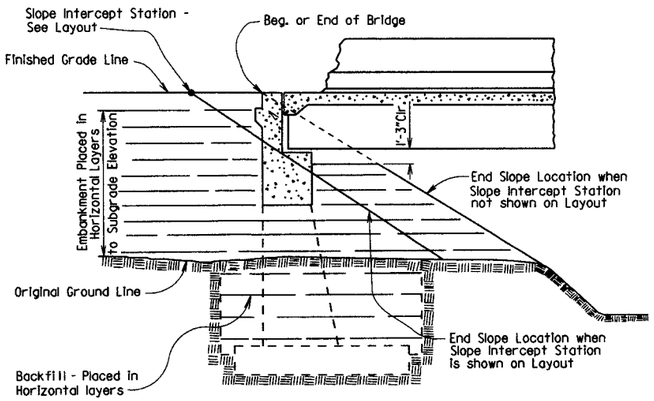
① EMBANKMENT & BACKFILL 55000



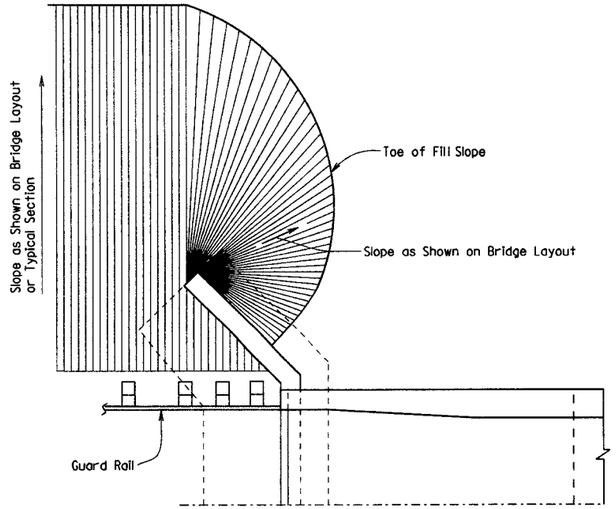
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



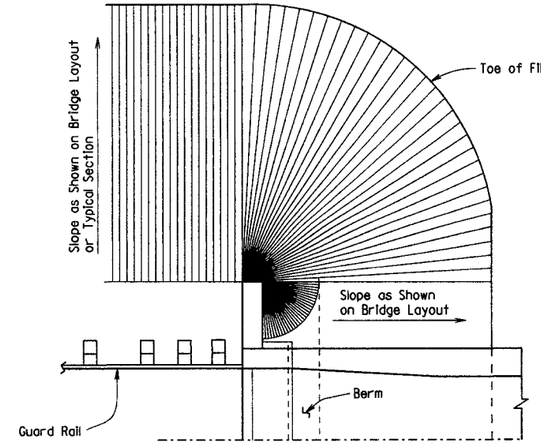
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



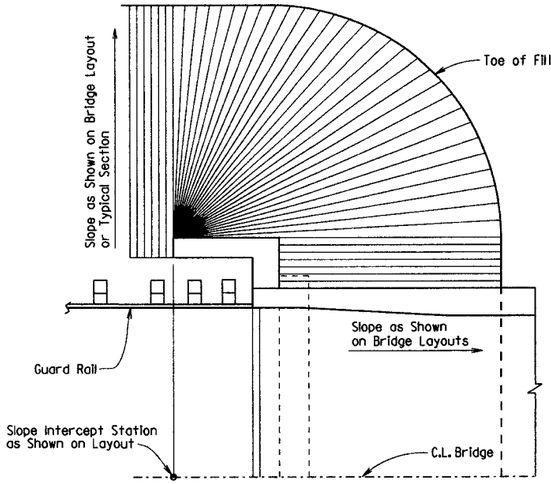
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



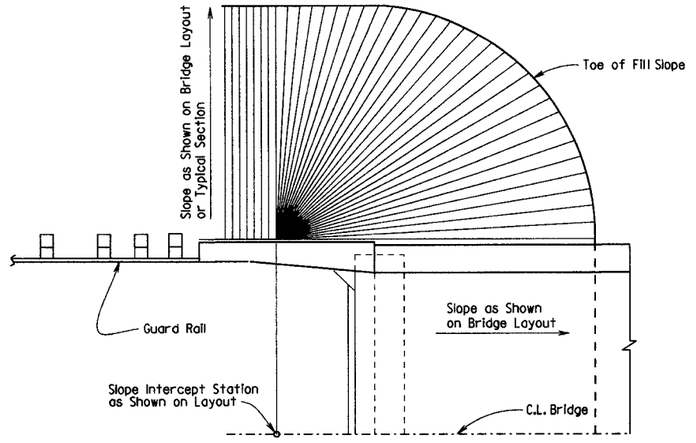
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

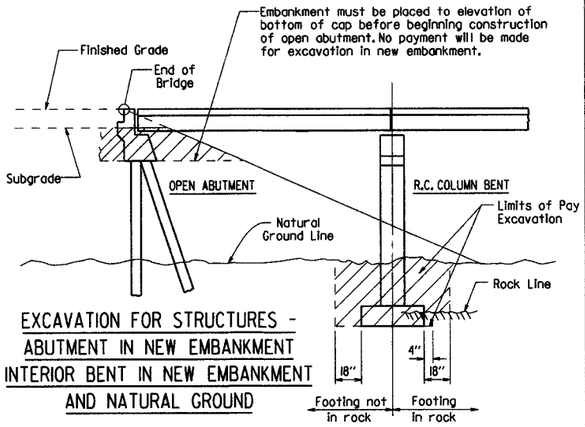
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

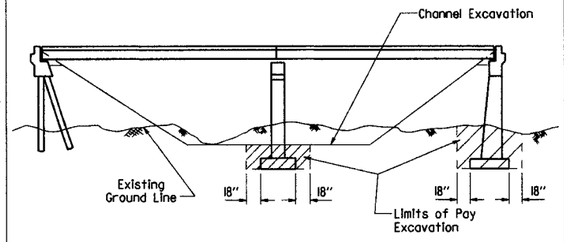
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

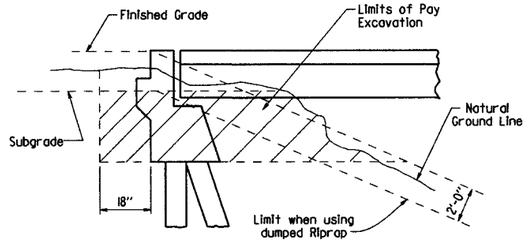
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				1	RIPRAP & EXCAV. 55001			



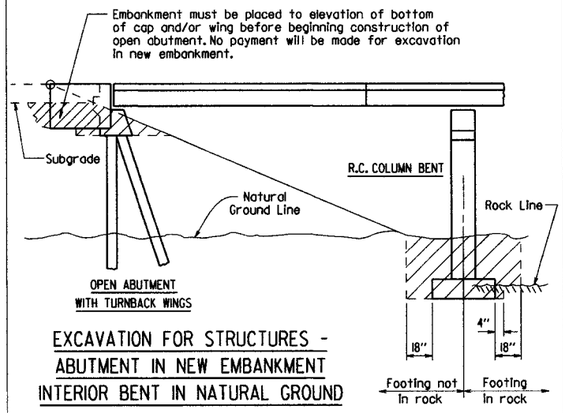
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



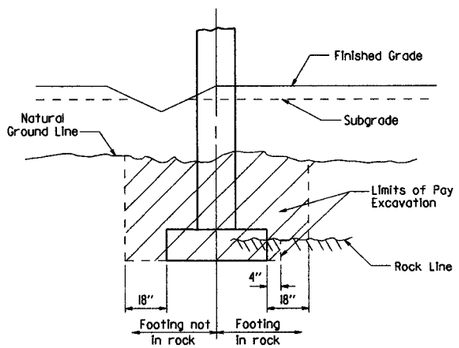
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



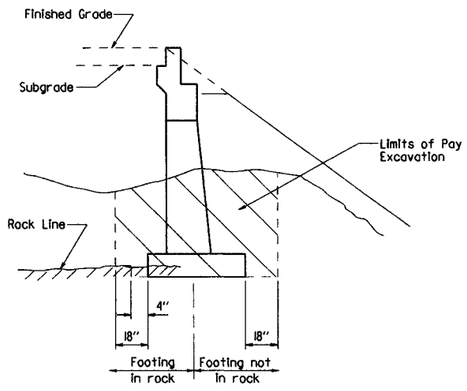
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



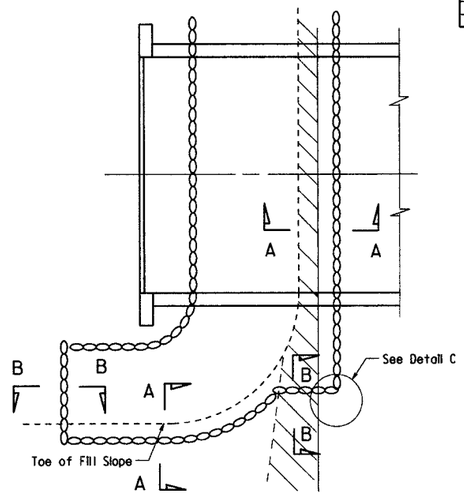
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



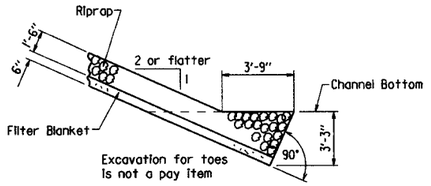
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

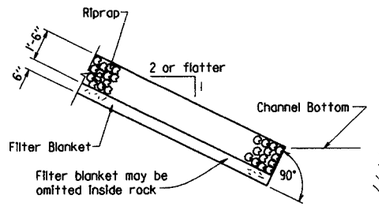


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



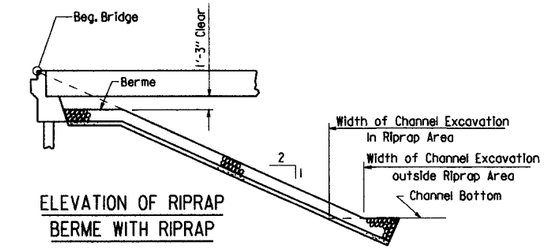
SECTION A-A

(Toe Excavation in Rock)

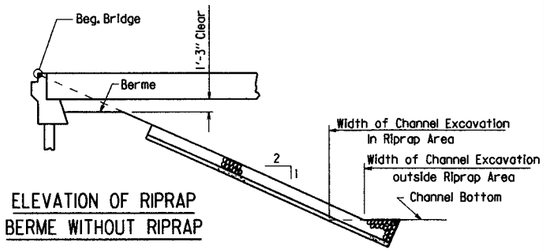
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

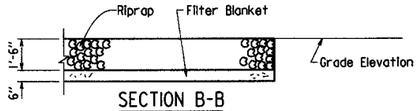
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



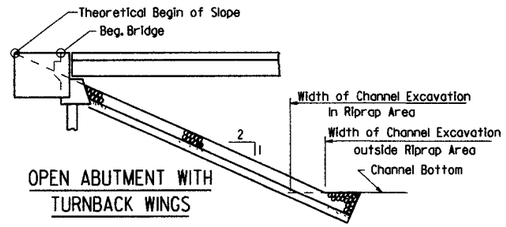
ELEVATION OF RIPRAP BERME WITH RIPRAP



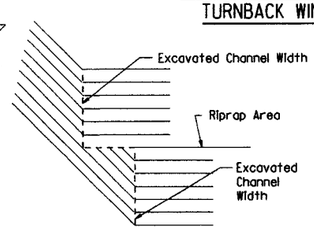
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

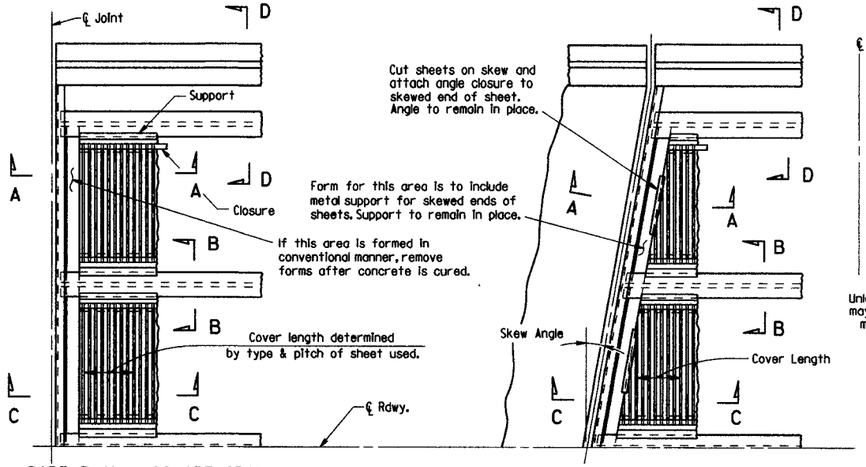
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS	55005		

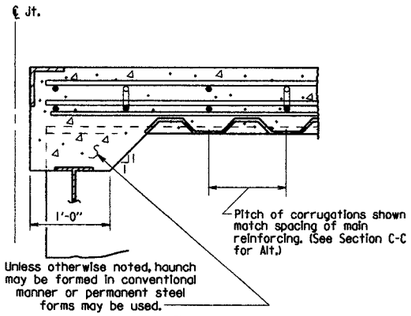


PART PLAN - SQUARE SPAN

⅜" = 1'-0"

PART PLAN - SKEWED SPAN

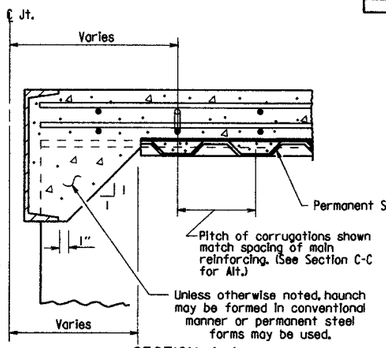
⅜" = 1'-0"



SECTION A-A

N.T.S.

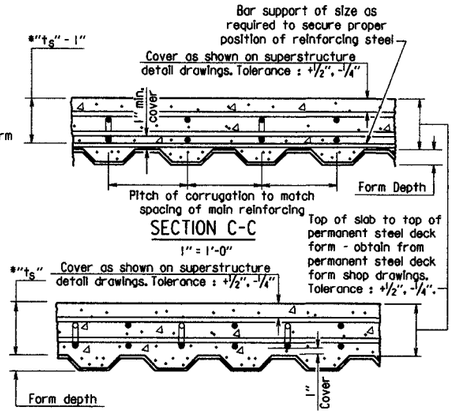
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



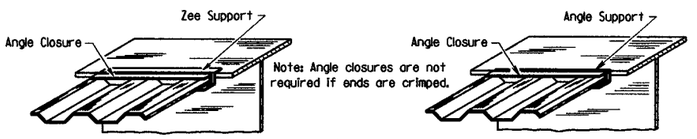
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

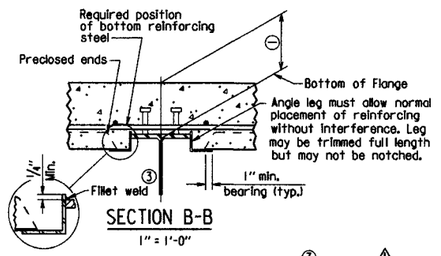
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

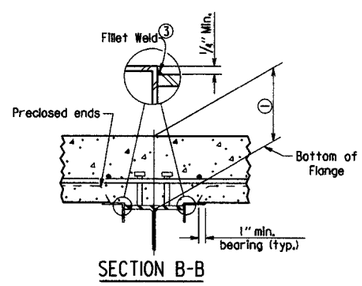
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.



SECTION B-B

1" = 1'-0"

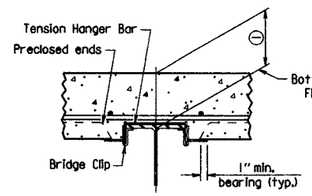
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

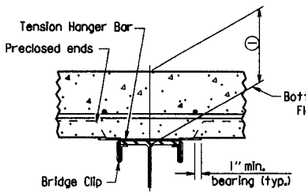
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

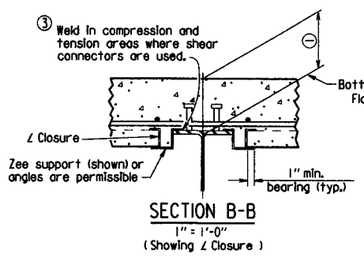
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

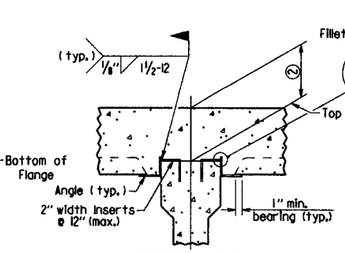
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

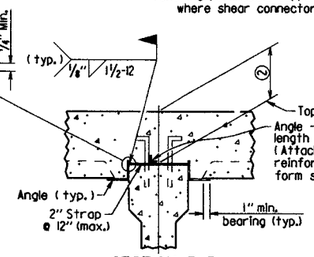


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

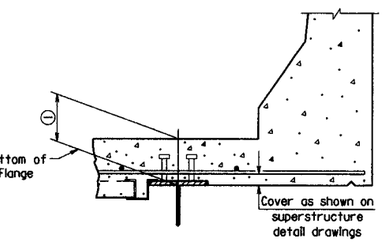


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1¾" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

③ Minimum weld: ⅛" x 1" @ 18". More weld may be required; maximum length per weld = 1½" (typ.)

⚠ Revised weld dimension by KWY. Ck'd. by BEF, 3/24/16.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				1	GENERAL NOTES		55006	

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy =	70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 15/16" ø open holes. Holes for ¾" ø high-strength bolts may be 15/16" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

Unless otherwise noted, diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Web and flange plates for main members and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

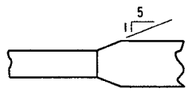
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

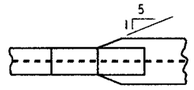
DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

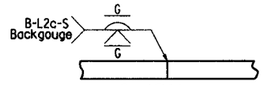
PRINT DATE: 9/10/2015

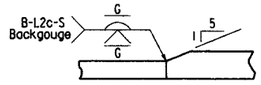
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			



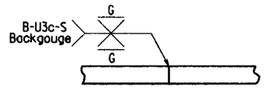


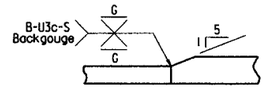
FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS





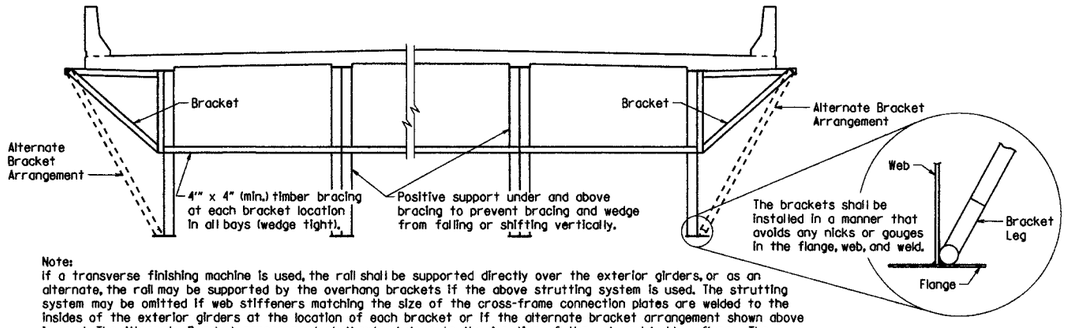
(Use when Base Metal Thickness is Equal to or Less than 2")





(Use when Base Metal Thickness is Greater than 2")

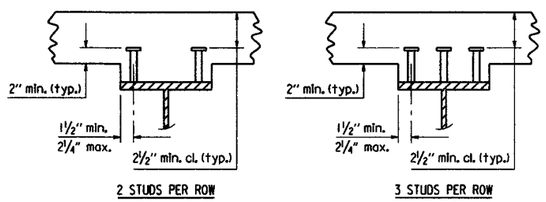
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



Note:
if a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (____)".

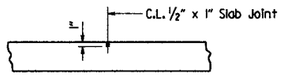
SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

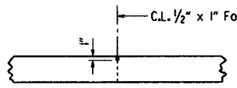
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

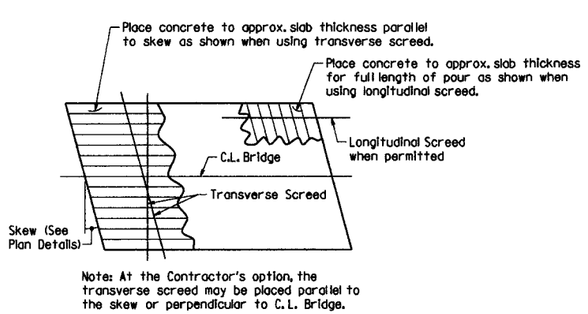
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



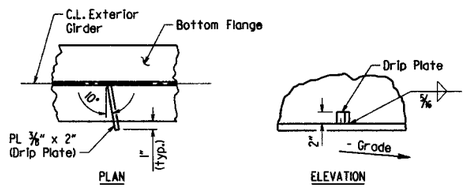
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



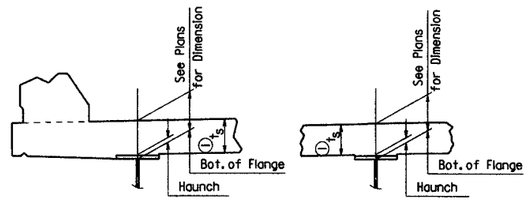
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.

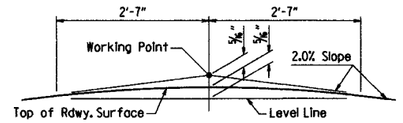


① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾" unless otherwise noted in the plans. No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn
CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

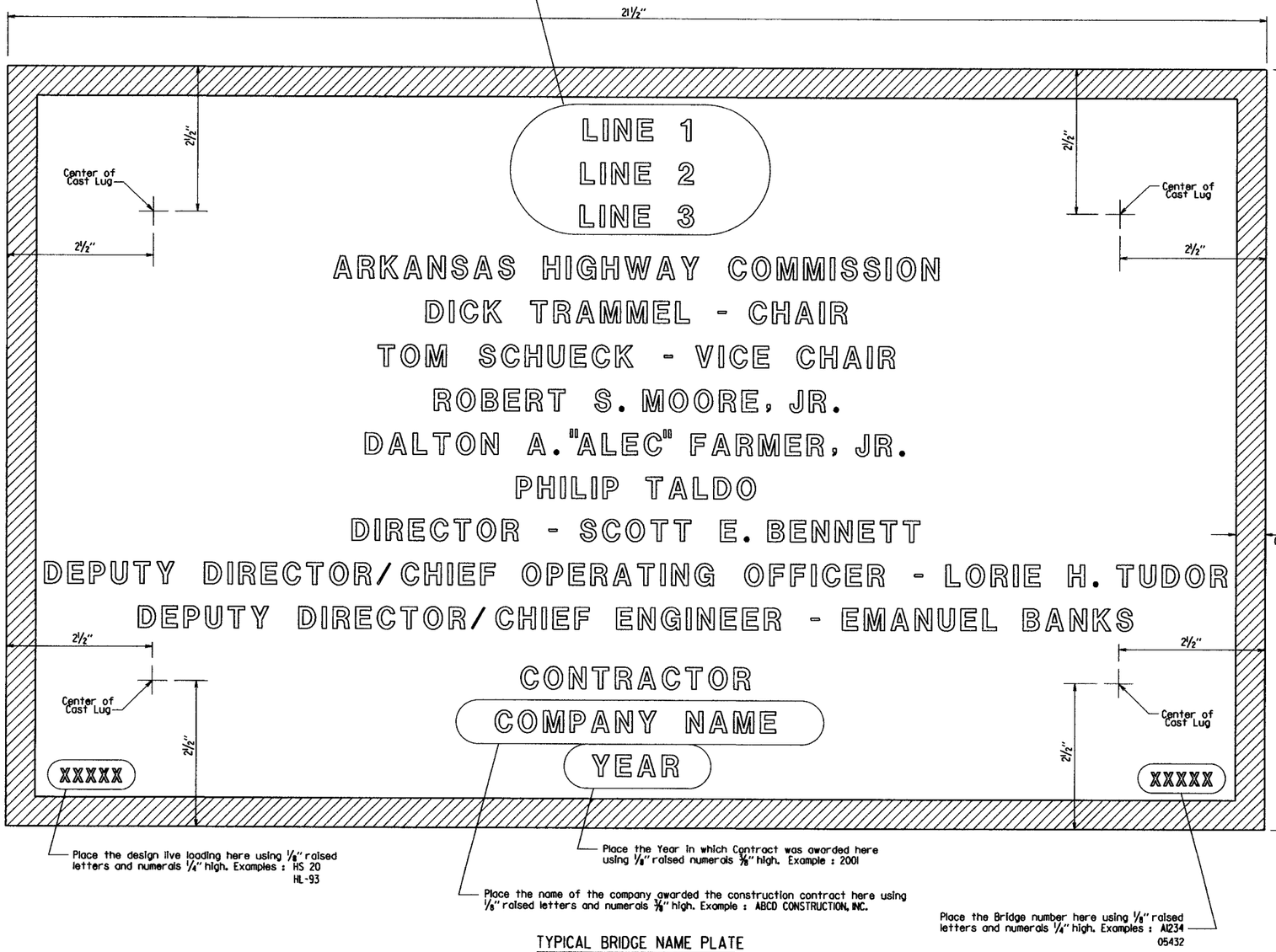
DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.			
1-14-15				JOB NO.				
1-17-17								

① TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/4" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



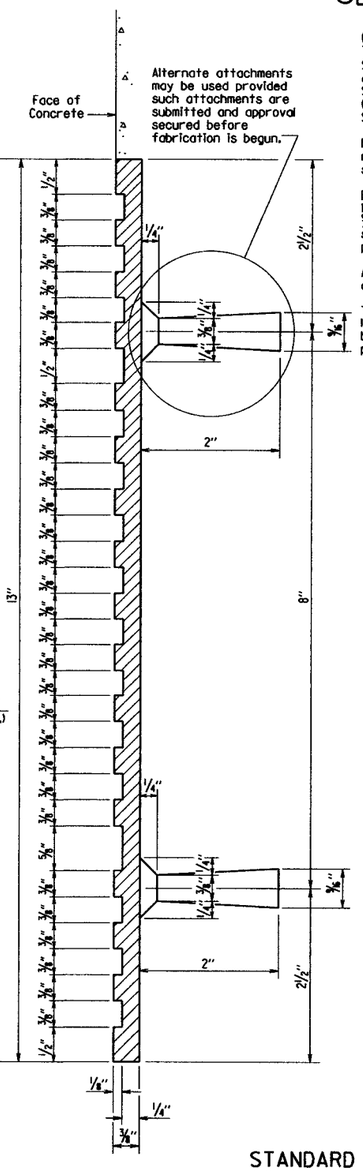
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 5/8", 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

③ Added New Commissioner
1-17-17 KDH Checked By: CRE

② Revised Chair and Vice Chair
Added New Commissioner
1-14-15 KDH Checked By: CRE

① Revised Deputy Director/
Chief Engineer
Added Deputy Director/
Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	STEEL H-PILES			55020

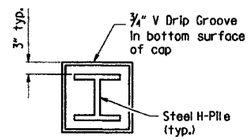
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

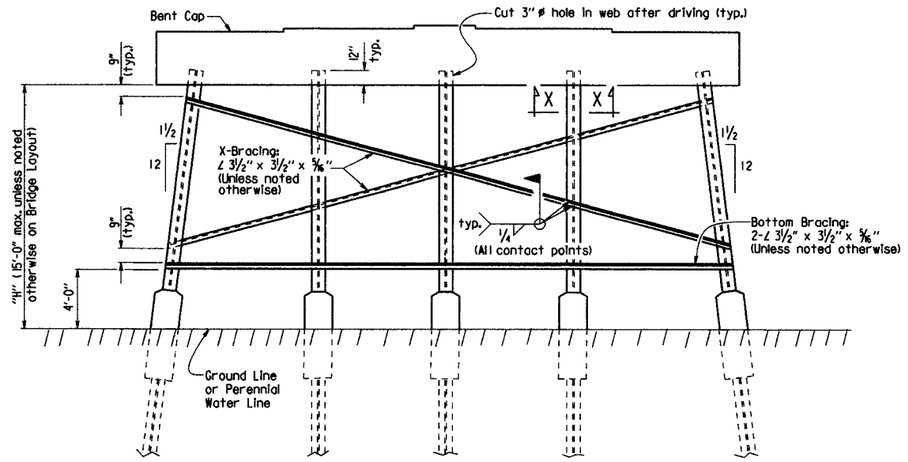
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

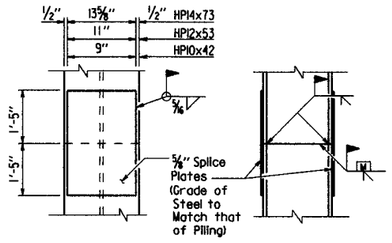
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



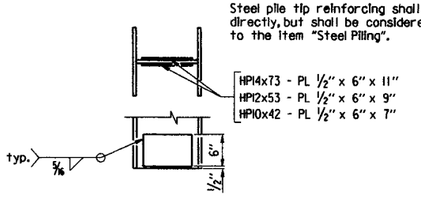
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a ⅝" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

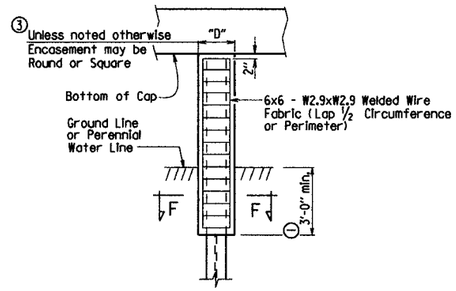
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

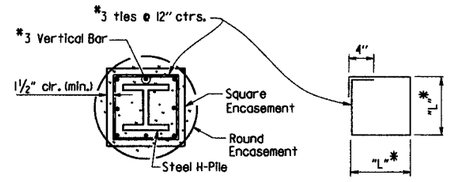
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

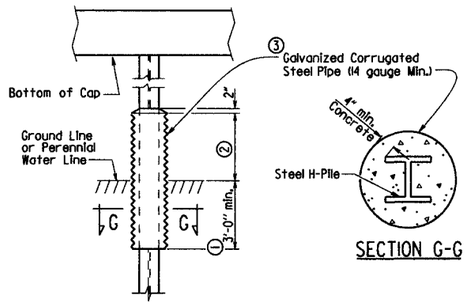


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

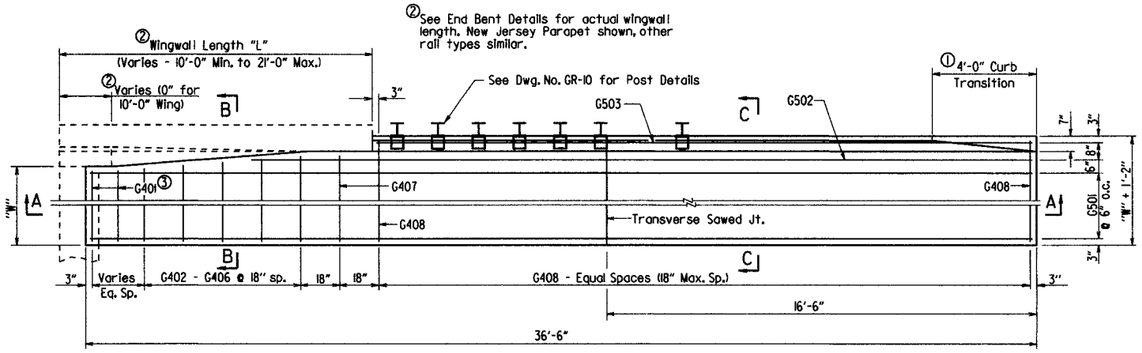
STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

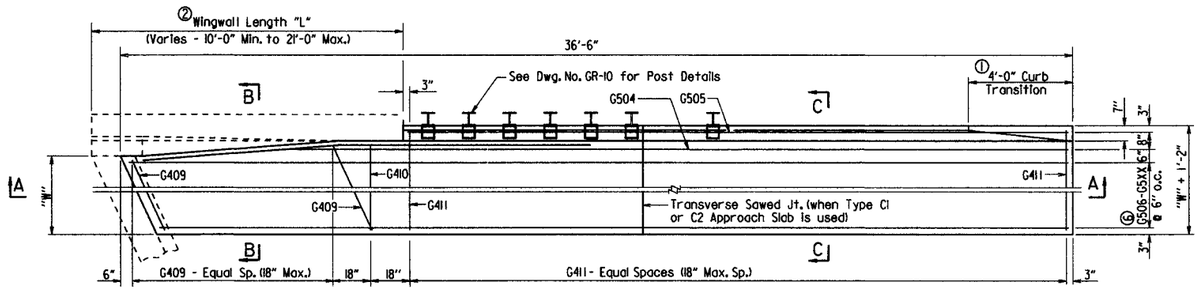
DRAWING NO. 55020

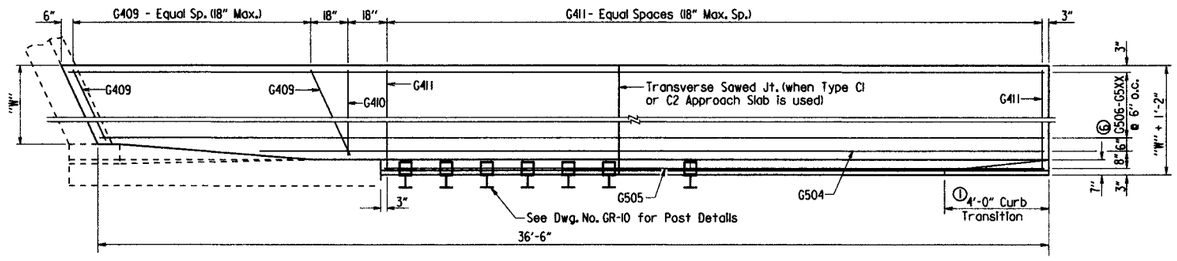
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				① TYPE C GUTTERS			55030C	



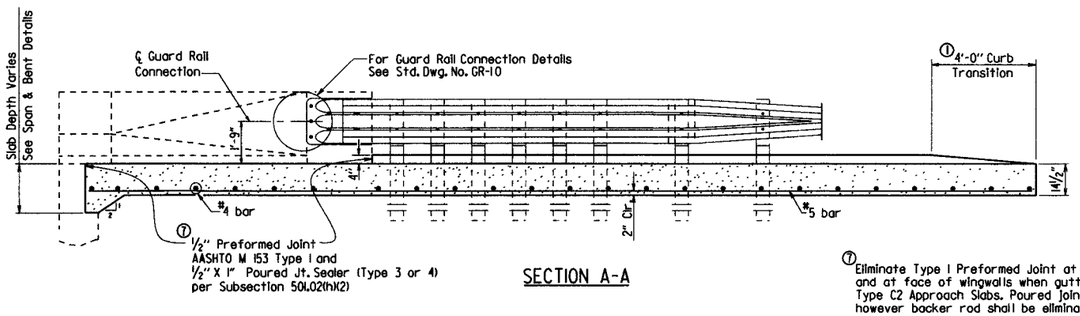
③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





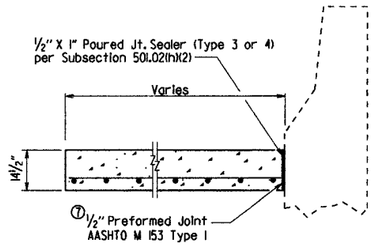
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



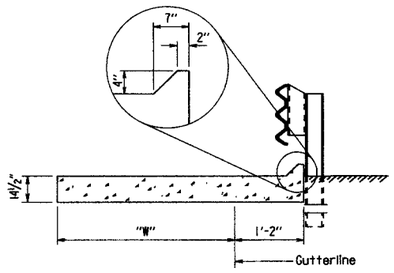
SECTION A-A

①Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑦Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④No. Req'd. varies with Skew and Wingwall Length.

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ¾" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

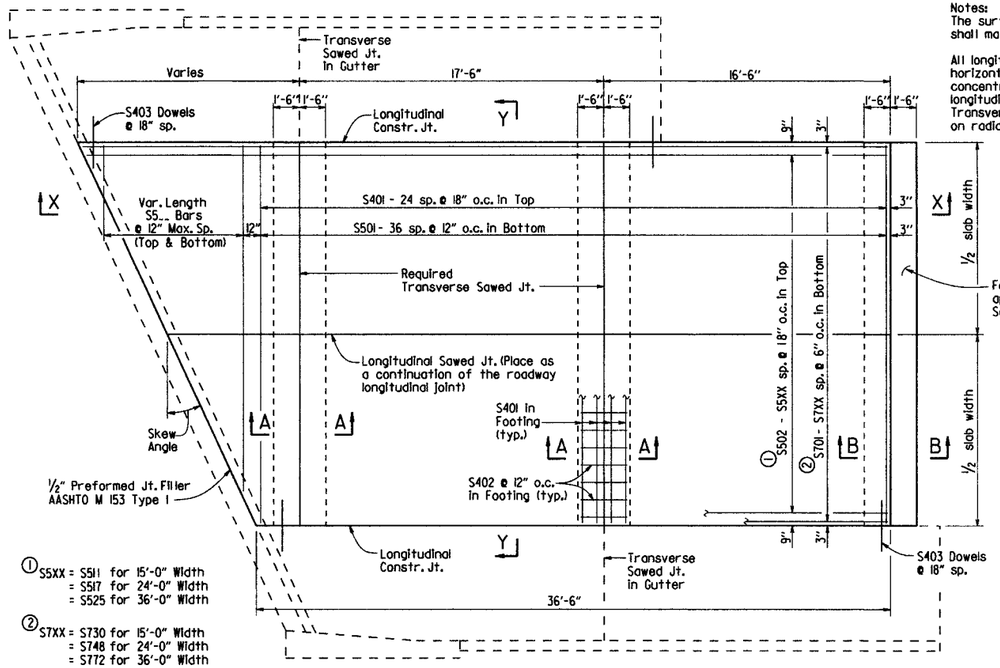
DRAWING NO. 55030C

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

TYPE CI APPROACH SLAB 55040CI

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

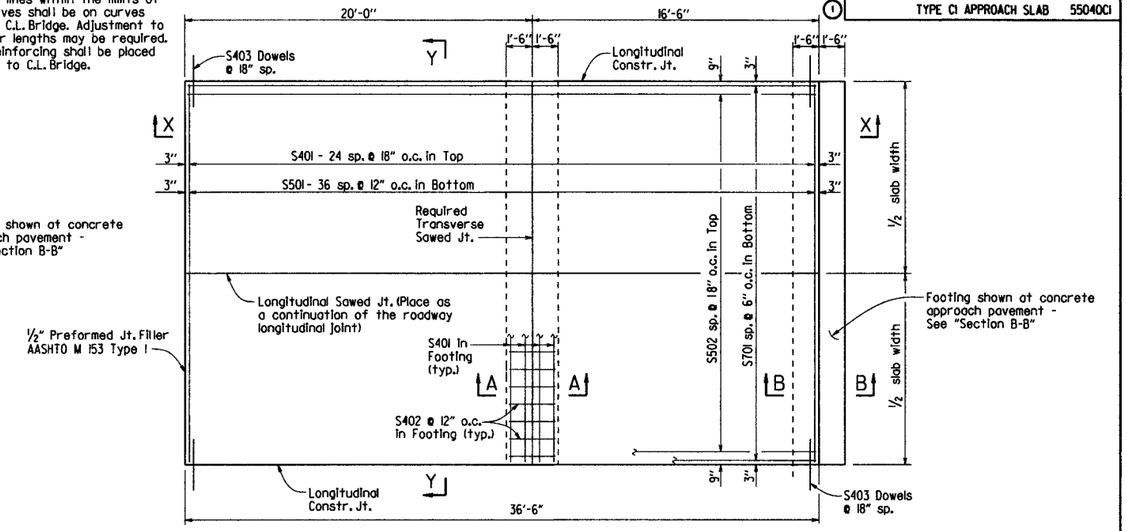


① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

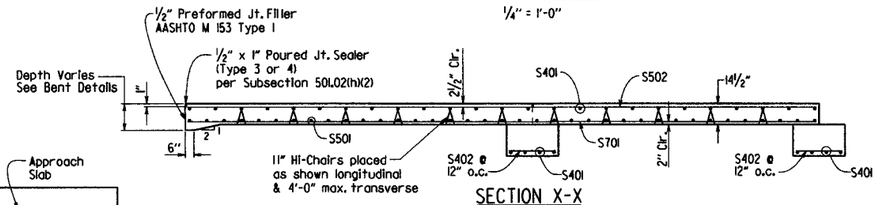
PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"



PLAN - SQUARE APPROACH SLAB

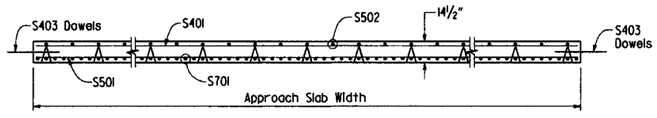
¼" = 1'-0"



SECTION X-X

SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



SECTION Y-Y

N.T.S.

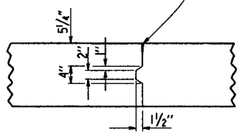
BAR LIST

(Square & Skewed Approach Slabs)

	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5..	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 14.75' (tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	48	2'-8"	72	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 23.25' (tan skew angle)
	S5..	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 23.75' (tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	72	2'-8"	108	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 35.25' (tan skew angle)
	S5..	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 35.75' (tan skew angle)

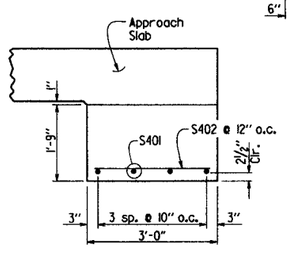
* Varies with skew angle

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"

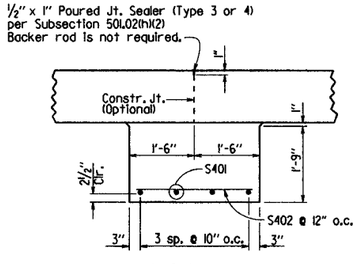


SECTION B-B

AT ASPHALT APPROACH PAVEMENT

N.T.S.

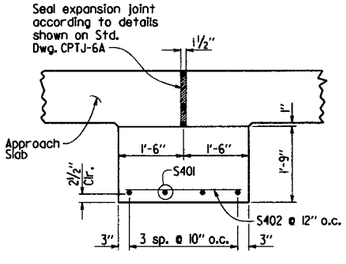
½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION A-A

N.T.S.

Seal expansion joint according to details shown on Std. Dwg. CPTJ-6A



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone 1 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

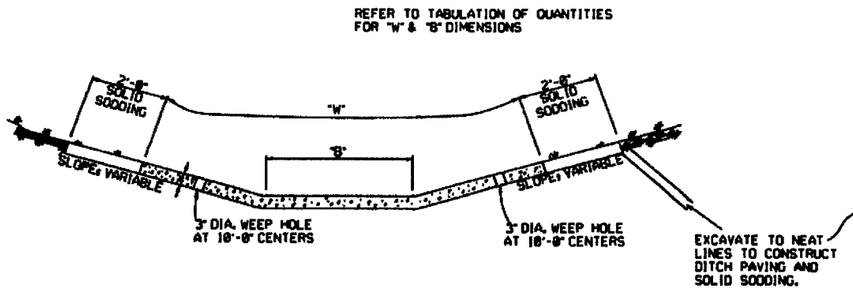
STANDARD DETAILS FOR TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

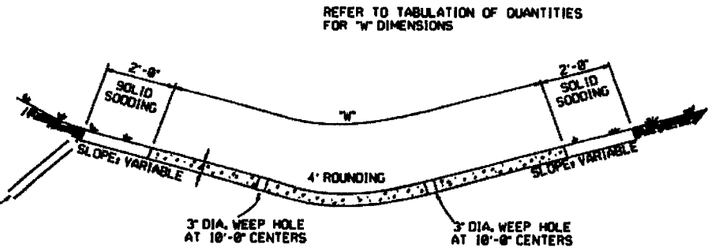
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040ci.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040CI

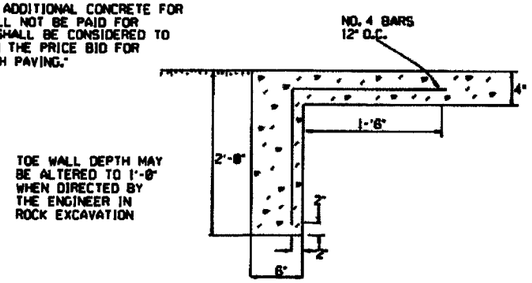


TYPE A

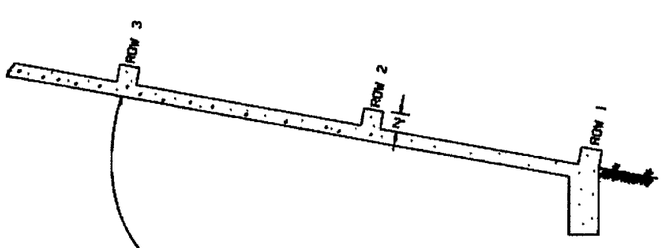


TYPE B

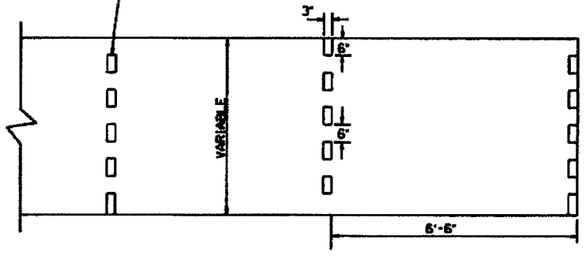
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

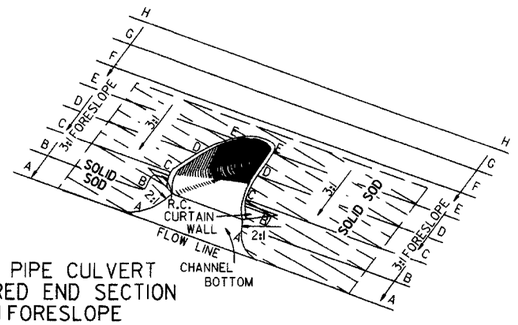
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
1-7-10	ADDED GENERAL NOTE	
8-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-10-8	ELIMINATED MIN. NUMB. OF ELEMENTS	111-10-88
7-15-88	REVISED DISSIPATOR NOTE	853-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	871-4-3-87
9-9-87	MODIFIED NOTE ON ENERGY DISS.	892-9-9-87
2-2-86	ADDED NOTE TO ENERGY DISS.	858-2-2-86
1-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-1-1-84
1-1-84	EXCAVATION DETAILS ADDED	
	TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

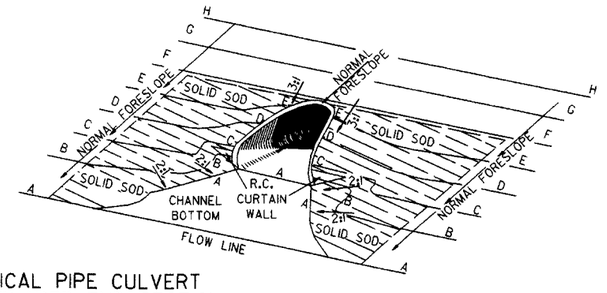
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

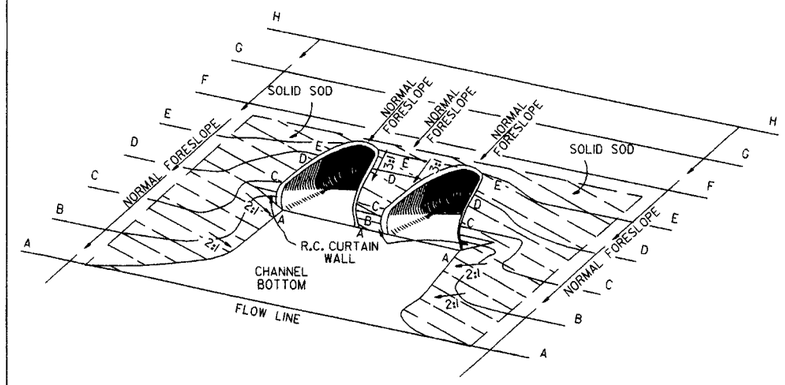
STANDARD DRAWING CDP-1



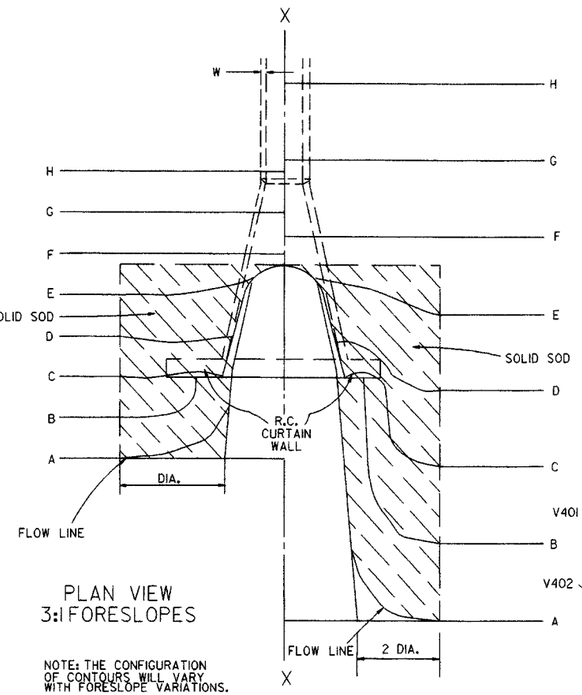
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



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

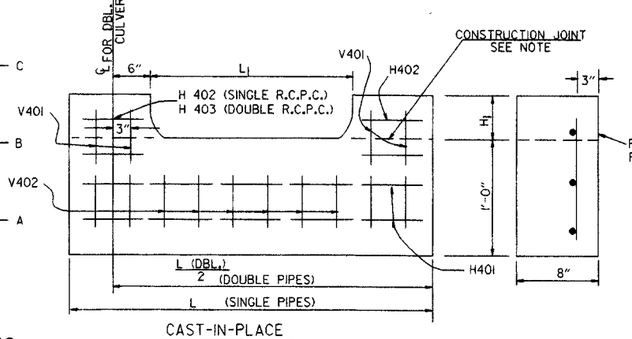
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

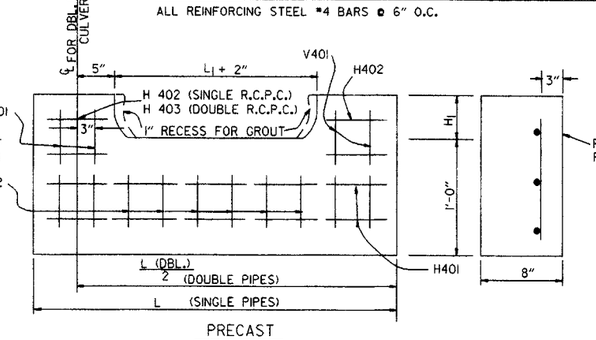
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

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



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

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

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

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

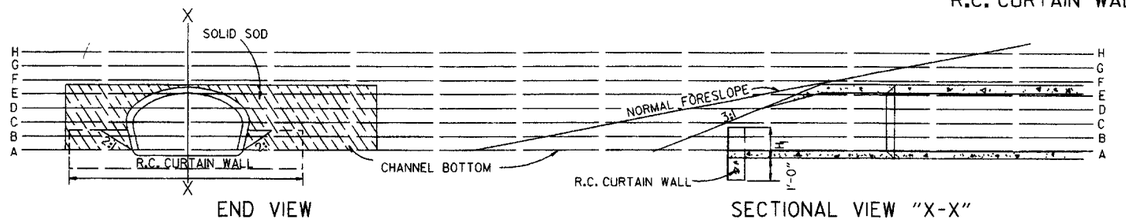
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	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

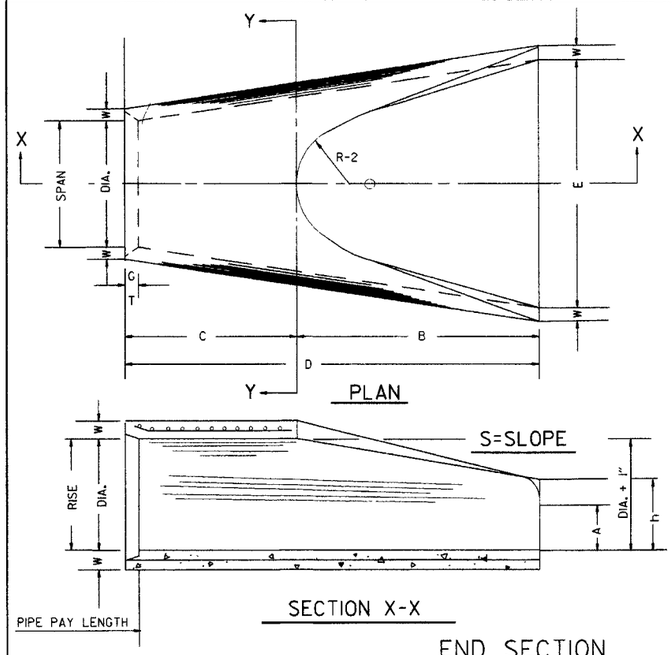
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

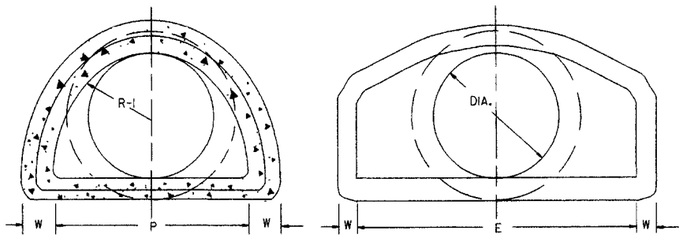
STANDARD DRAWING FES-1



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

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 5/8"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3½"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 1/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	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 1/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

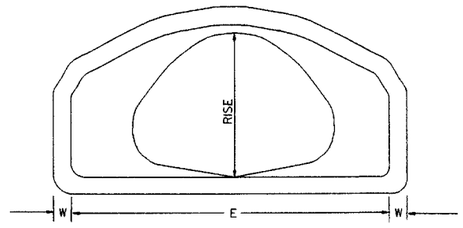


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

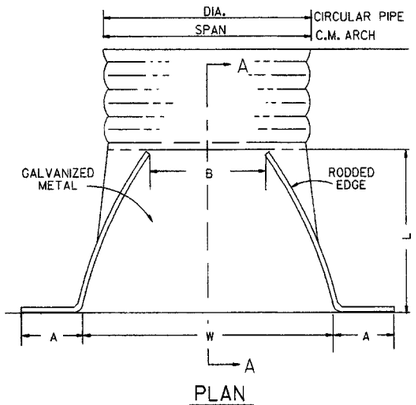
ARCH PIPE

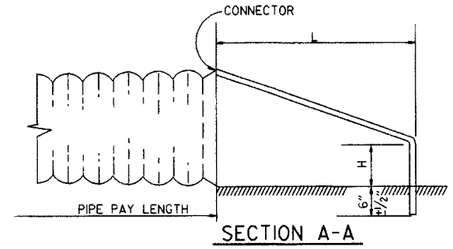
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 5/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 5/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 7/16"	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.

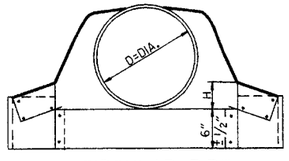


END VIEW
CONCRETE ARCH PIPE

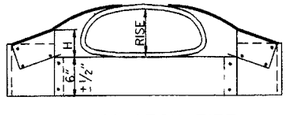




NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.



CIRCULAR PIPE



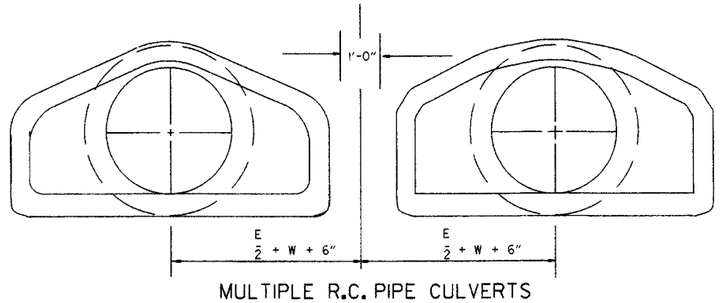
C.M. ARCH PIPE

CIRCULAR PIPE

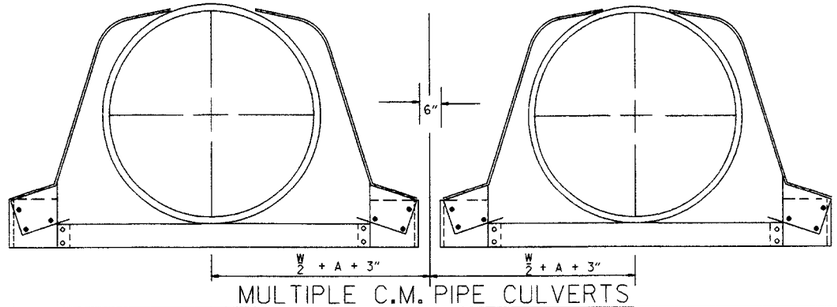
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

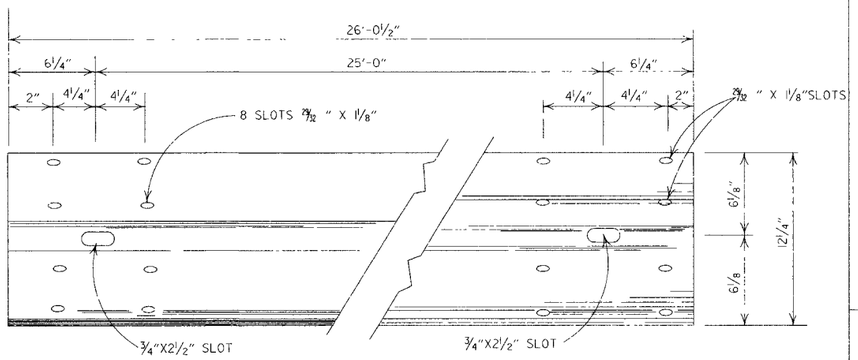
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

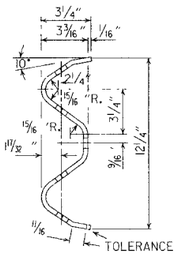
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

stdfes2.dgn

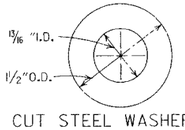




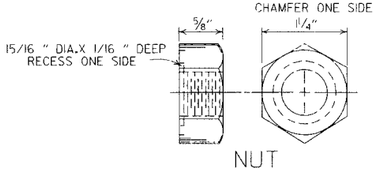
DETAILS OF W-BEAM GUARD RAIL

RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

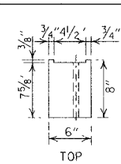
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

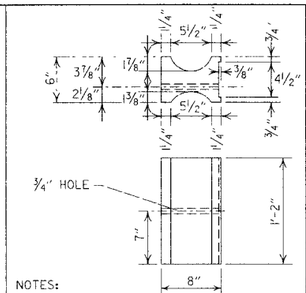


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

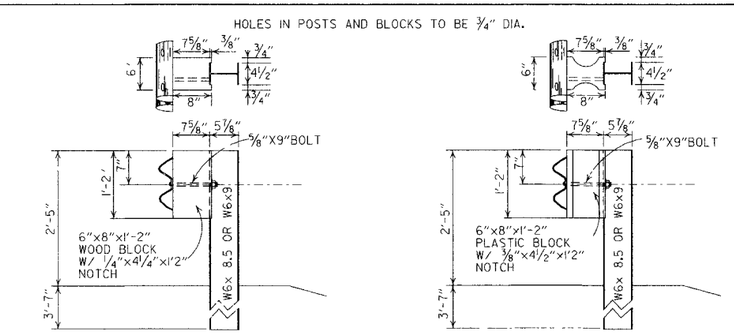
WOOD BLOCKOUT (W-BEAM)



NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

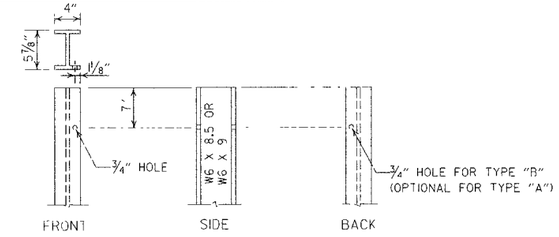
PLASTIC BLOCKOUT (W-BEAM)



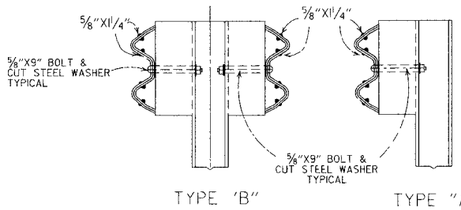
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

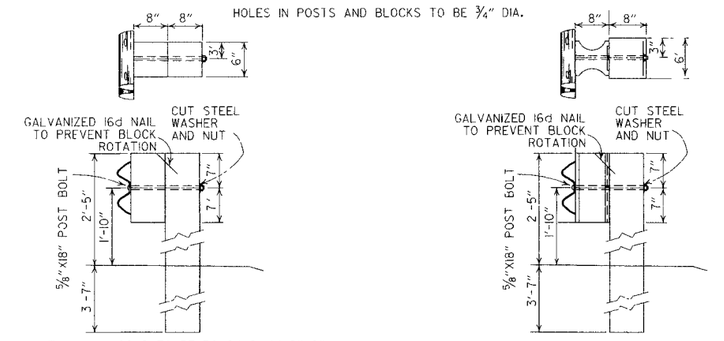
W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

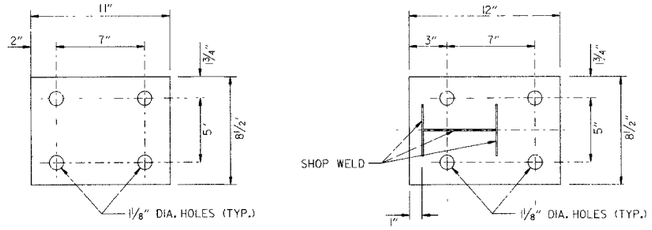
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

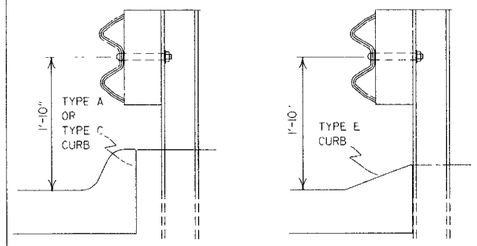
STANDARD DRAWING GR-8



WASHER PLATE

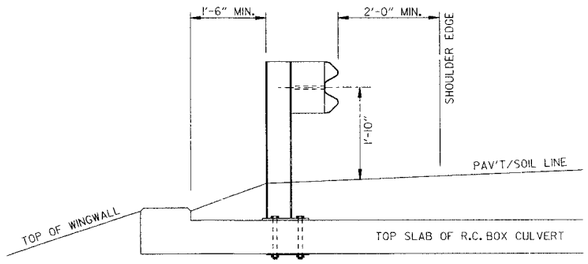
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

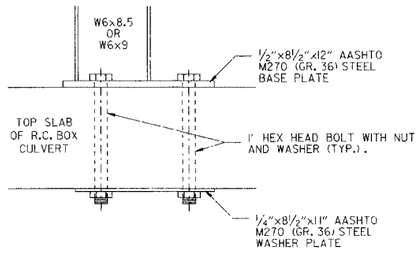


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

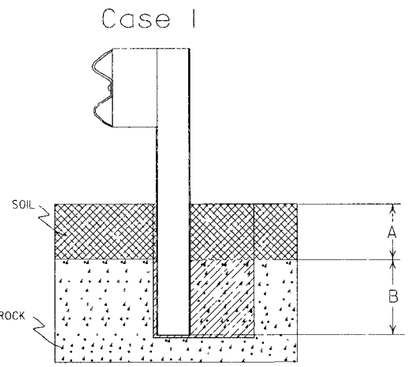
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

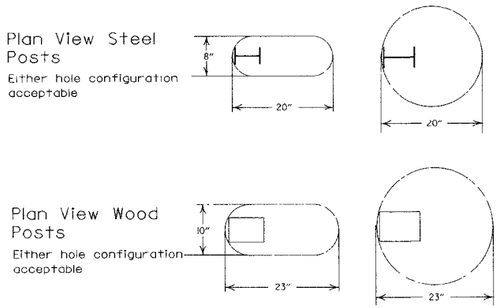


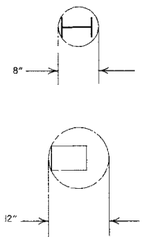
SECTION A-A



DETAIL OF CONNECTION







Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

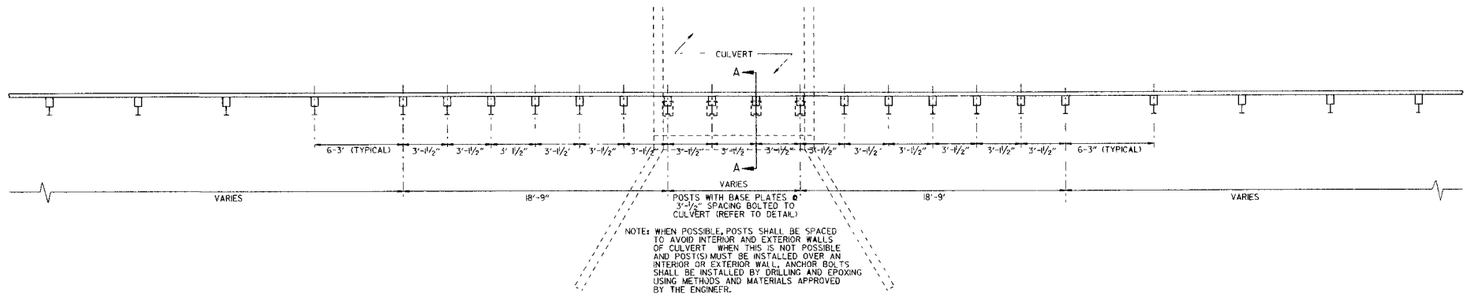
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

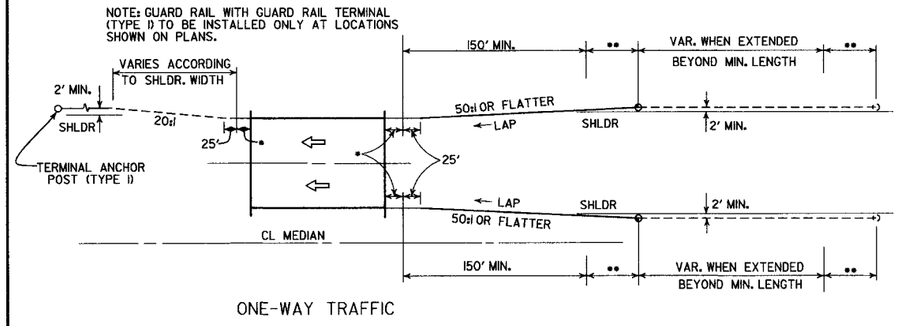
NOTE THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

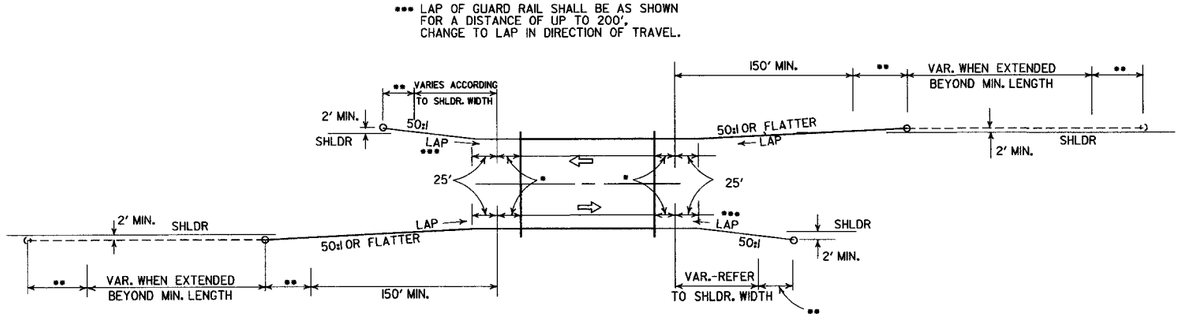
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8A

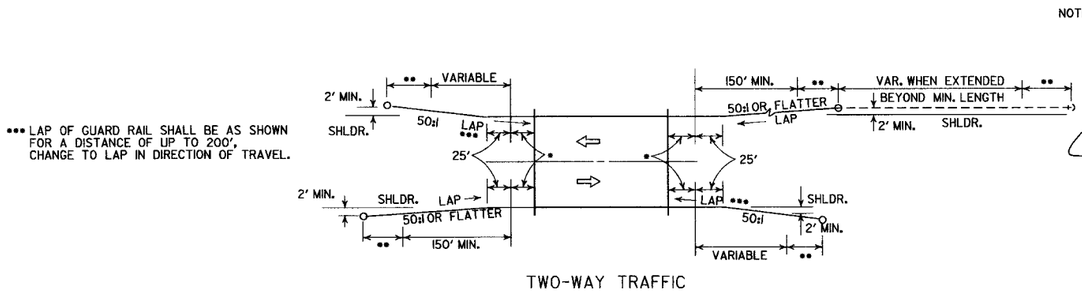


ONE-WAY TRAFFIC

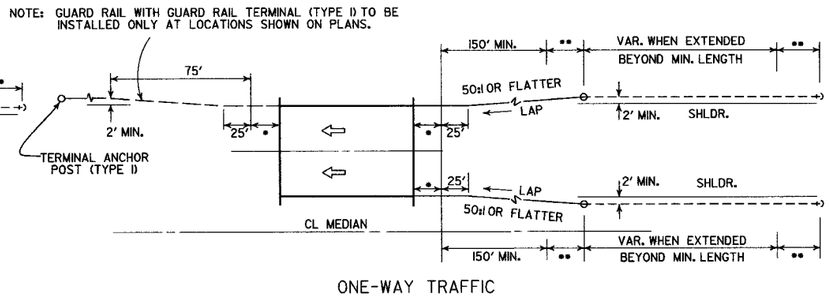


TWO-WAY TRAFFIC

METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



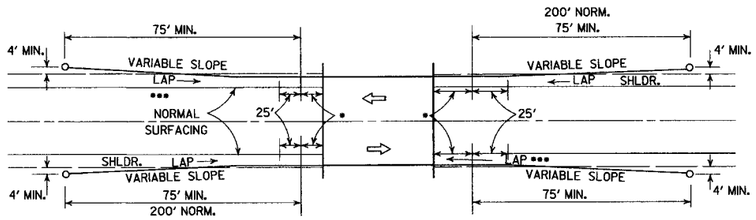
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

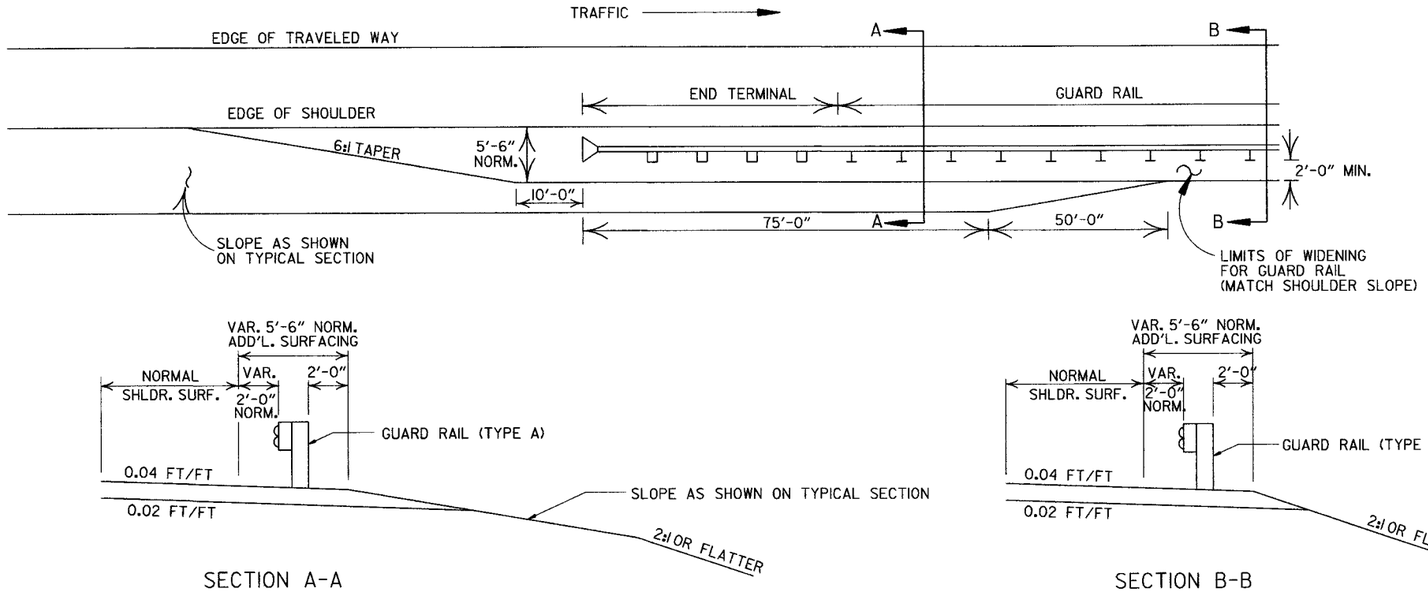
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

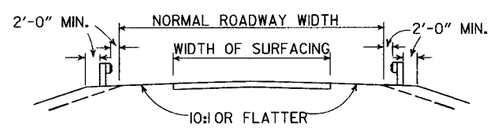
GUARD RAIL DETAILS

STANDARD DRAWING GR-9

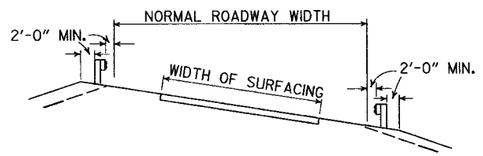


DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

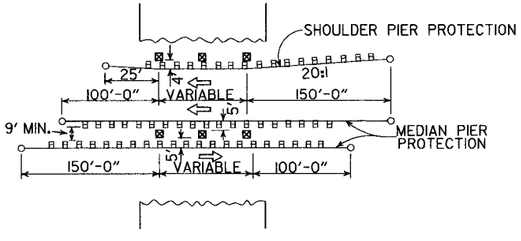


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



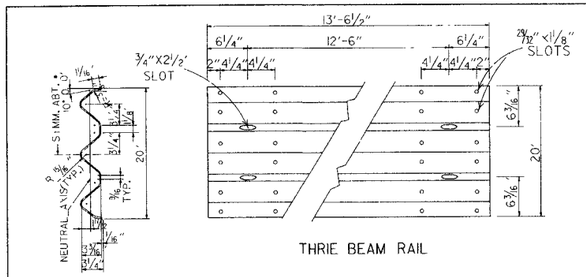
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
8-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

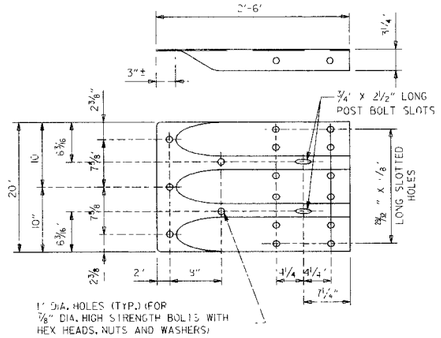
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



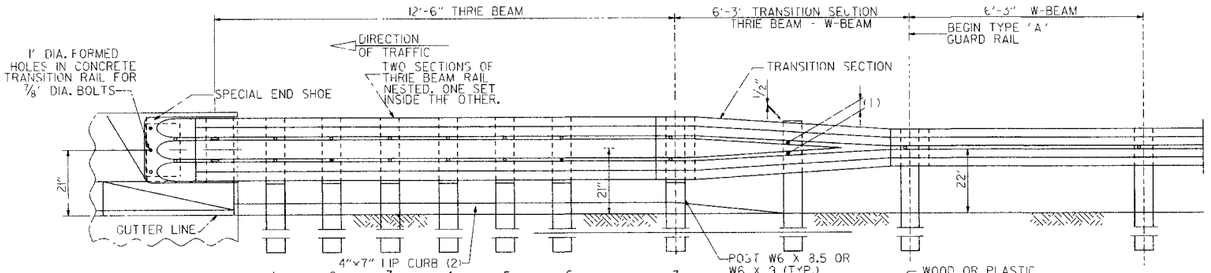
THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL

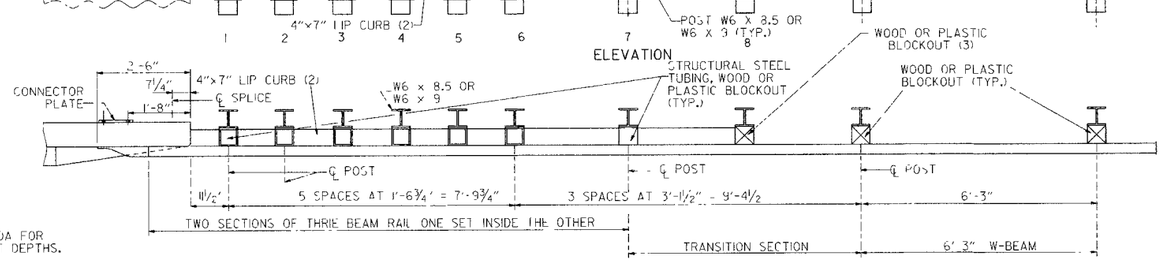


1" DIA. HOLES (TYP.) FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

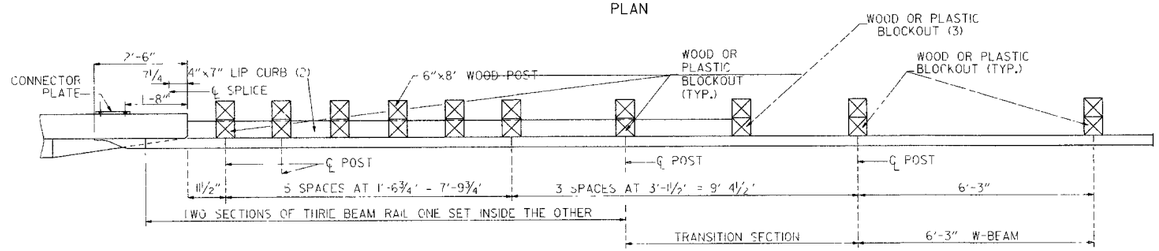
SPECIAL END SHOE



ELEVATION



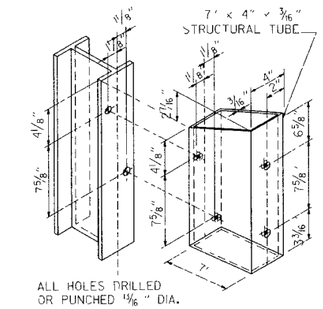
PLAN



PLAN

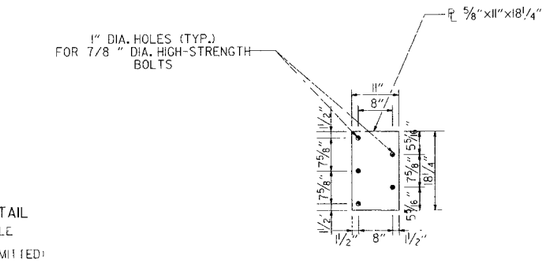
(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

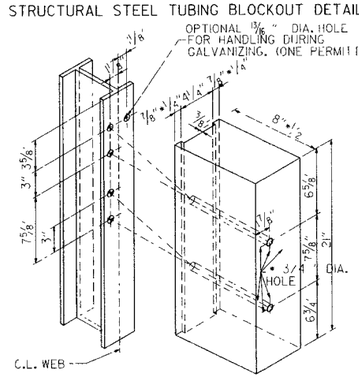
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



CONNECTOR PLATE

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

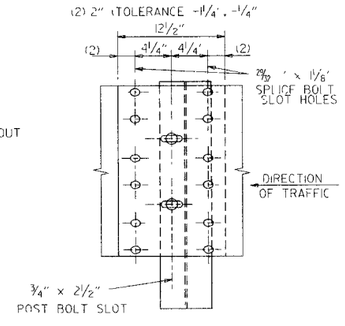
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



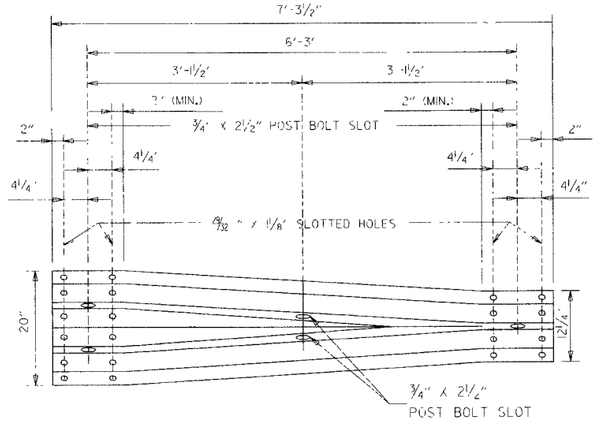
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



THRIE BEAM RAIL
SPLICE AT POST



TRANSITION SECTION

GENERAL NOTES.

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

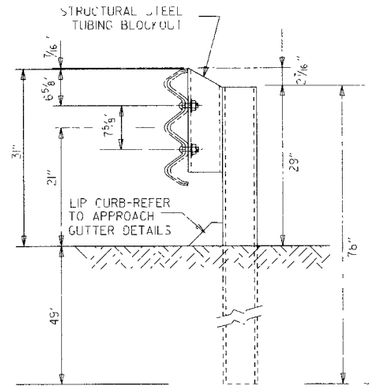
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	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	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

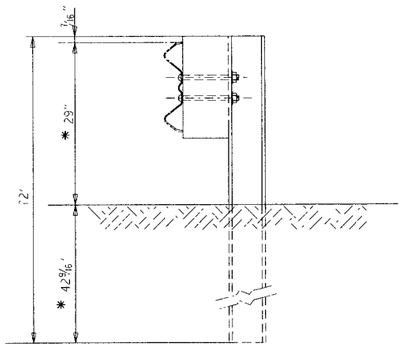
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

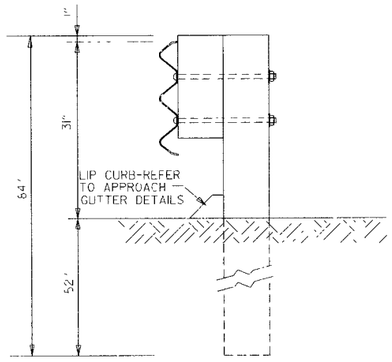


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

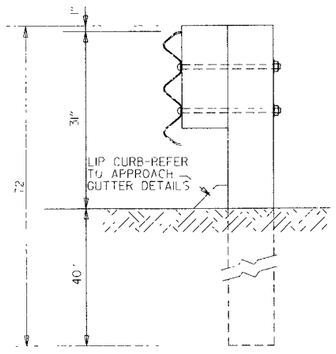


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

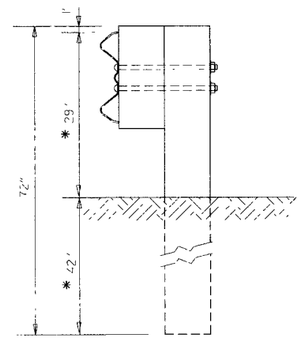
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAP TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

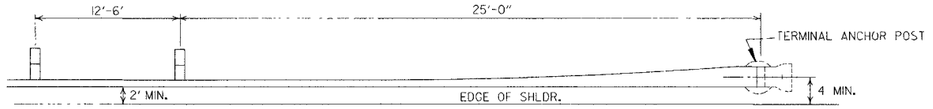
WOOD POSTS & WOOD BLOCKS SHALL BE EITHEP DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 (1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

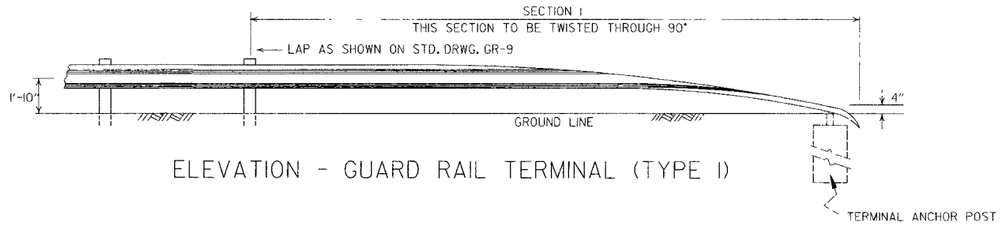
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

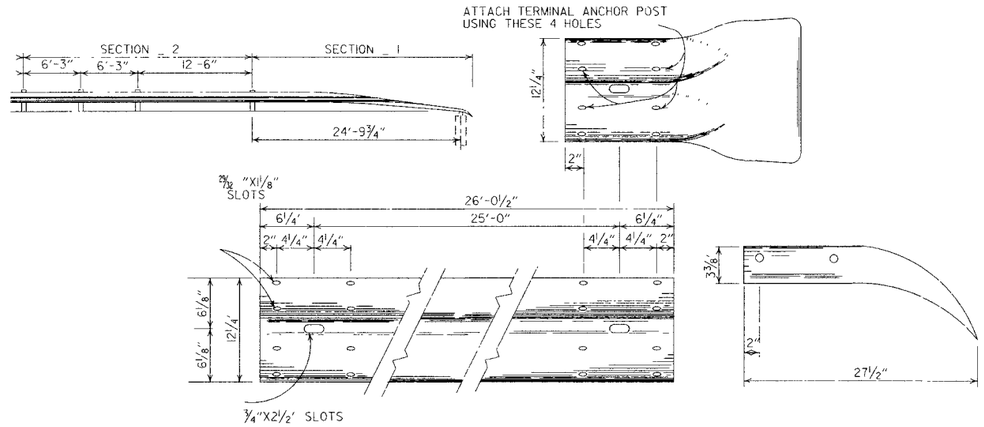


PLAN - GUARD RAIL TERMINAL (TYPE I)



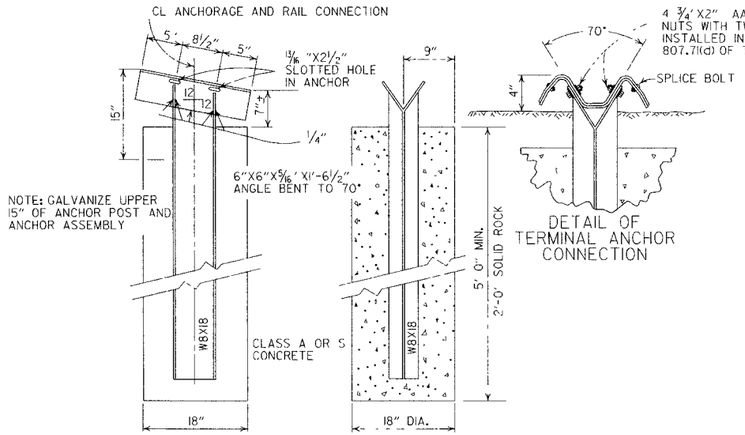
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

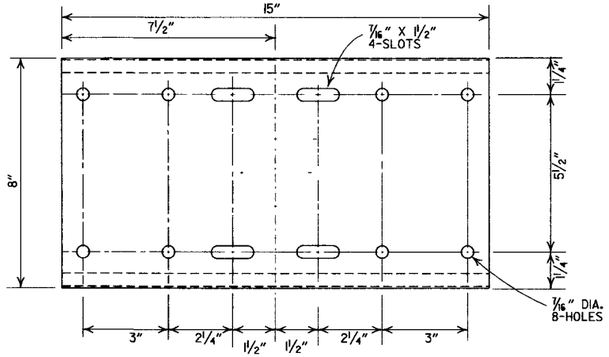
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

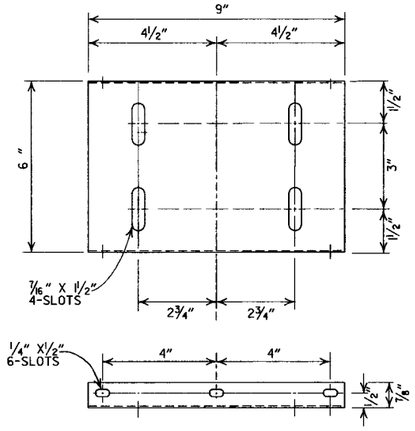
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

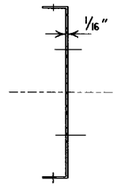
STANDARD DRAWING GRT-1

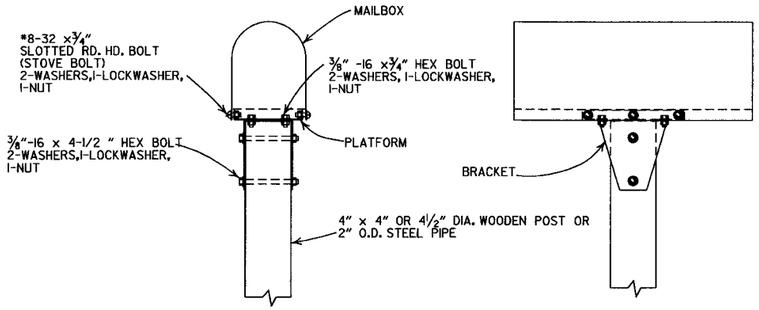


SHELF

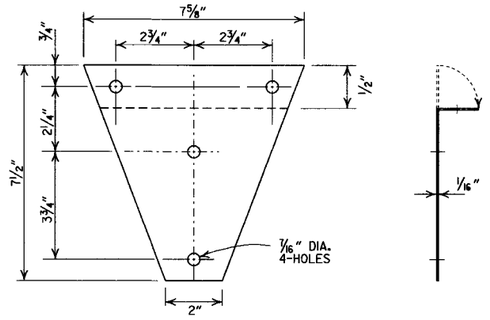


PLATFORM





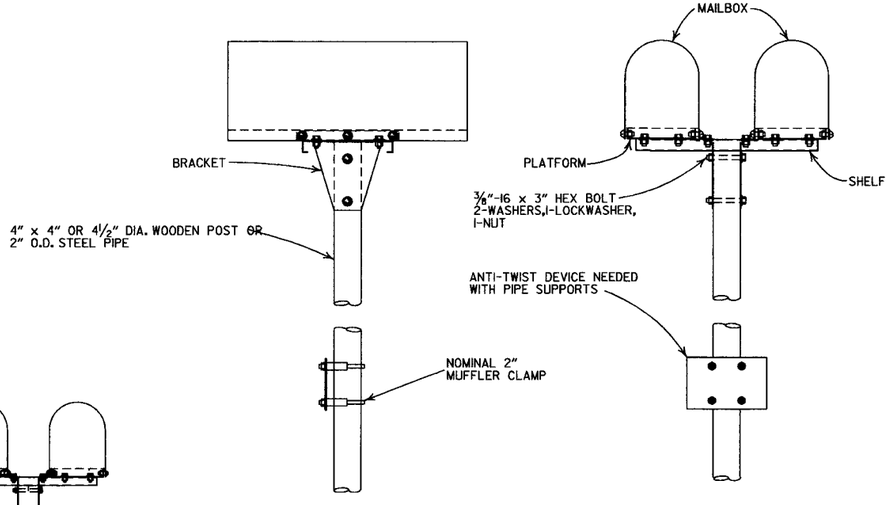
SINGLE INSTALLATION



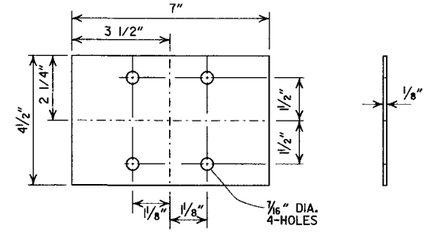
BRACKET

GENERAL NOTES

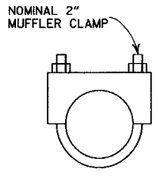
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



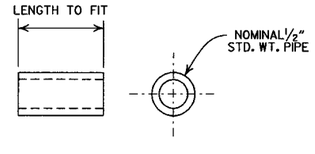
DOUBLE INSTALLATION



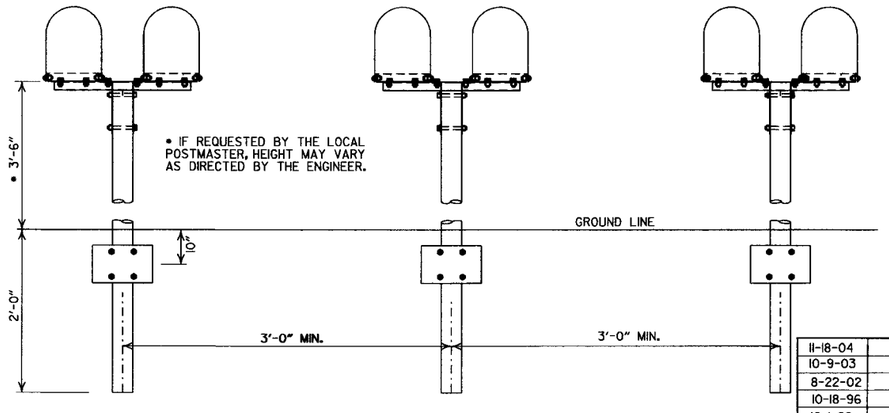
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

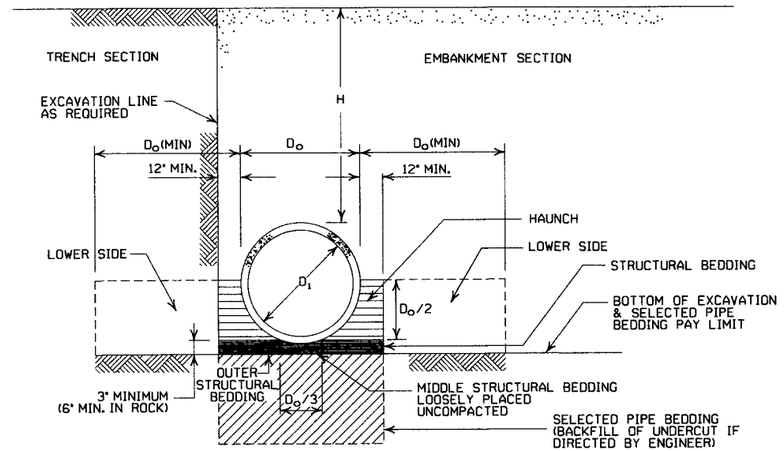
- LEGEND -

D_i = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

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.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) 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	

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.

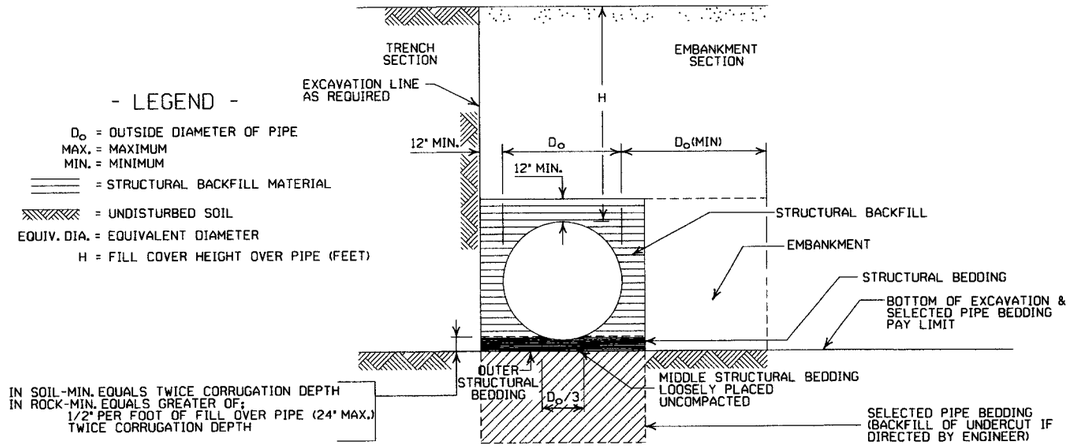
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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



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. INSTALAALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

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

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

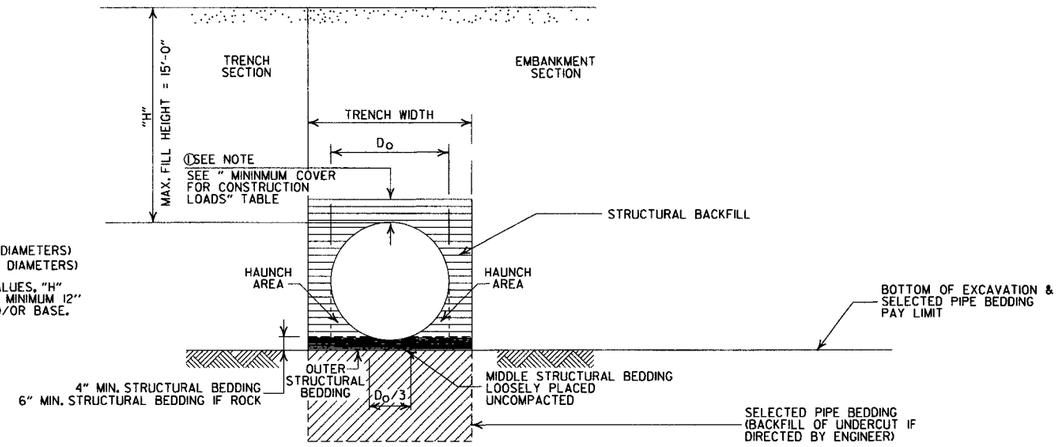
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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



MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

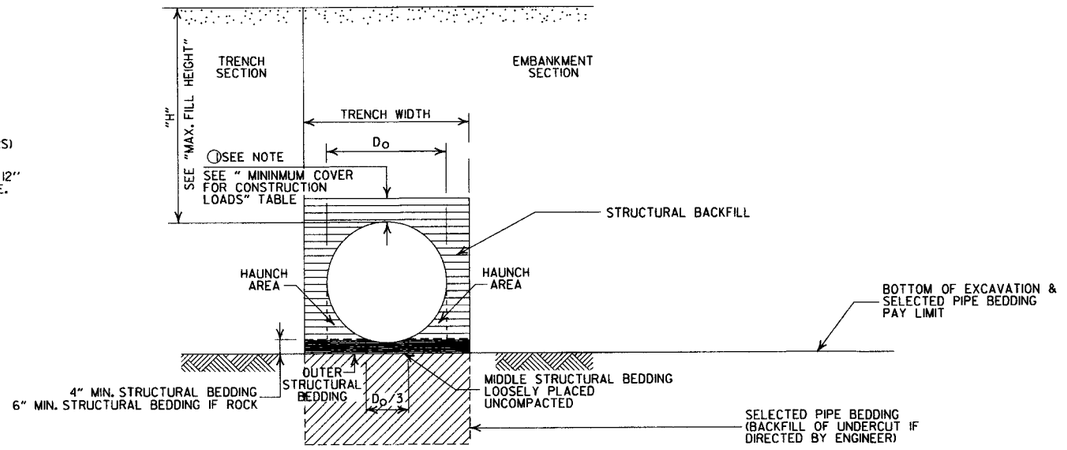
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

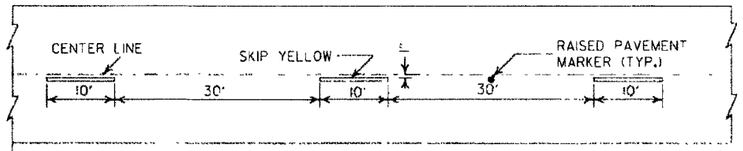
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

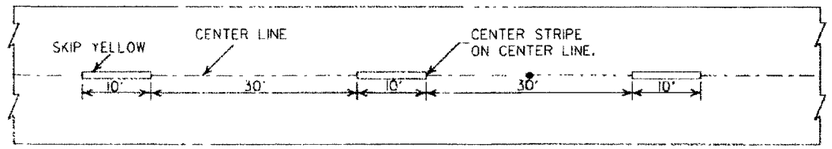
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

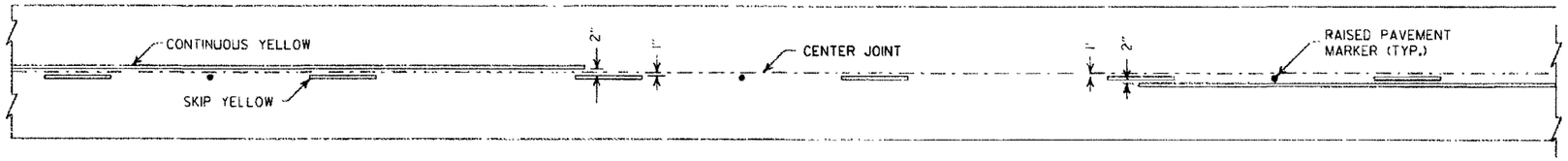


CONCRETE PAVEMENT

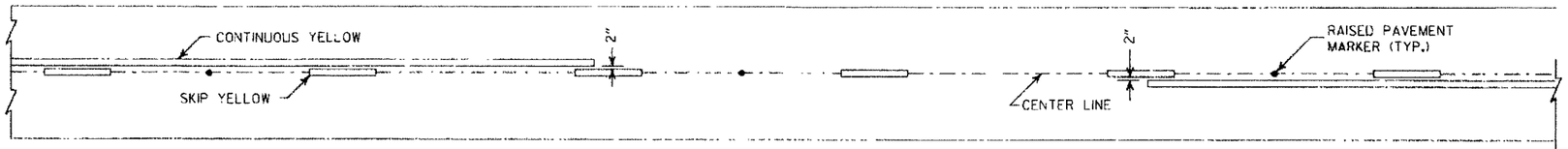


ASPHALT PAVEMENT

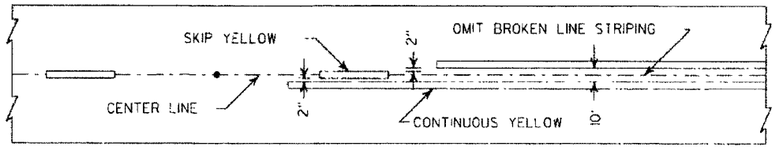
BROKEN LINE STRIPING



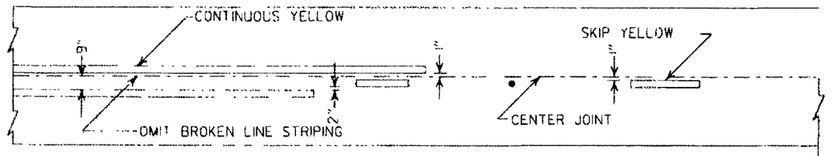
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

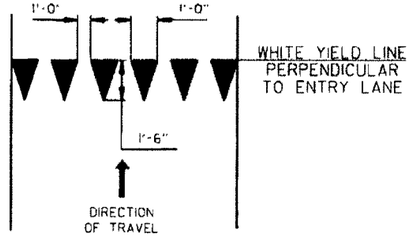


ASPHALT PAVEMENT

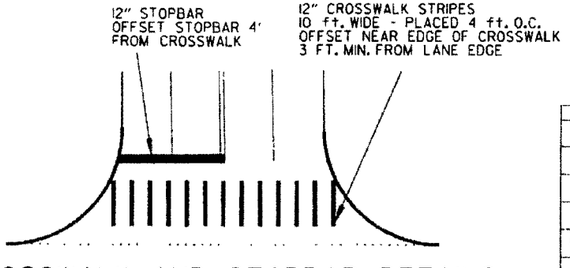


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

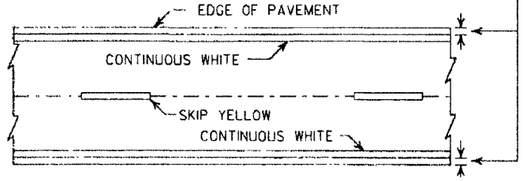


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

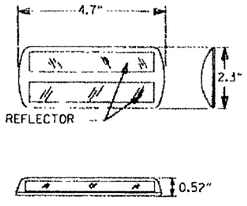
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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

TYPE II RED/CLEAR OR YELLOW/YELLOW



NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

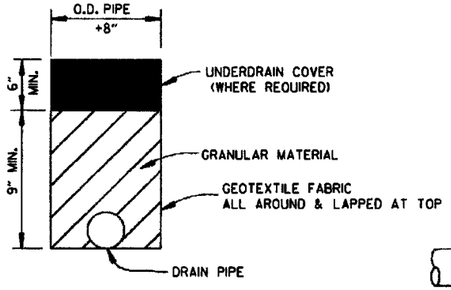
PAVEMENT MARKING DETAILS

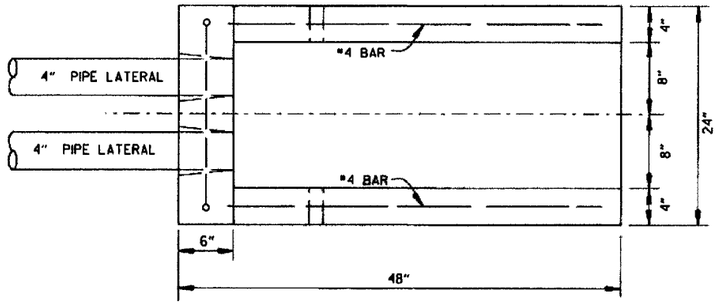
STANDARD DRAWING PM-1

NOTE:

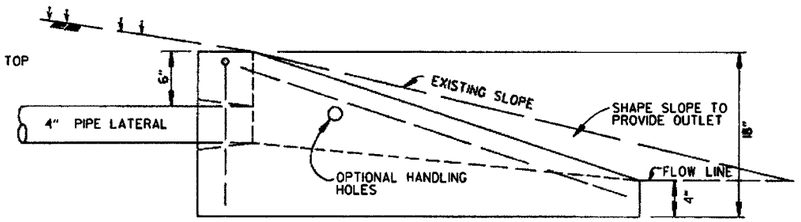
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

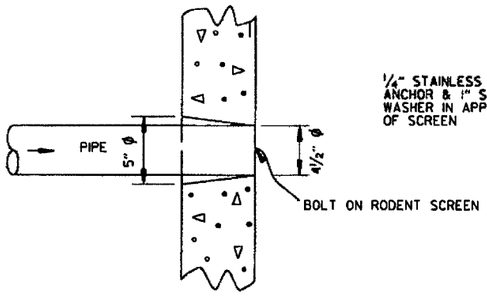




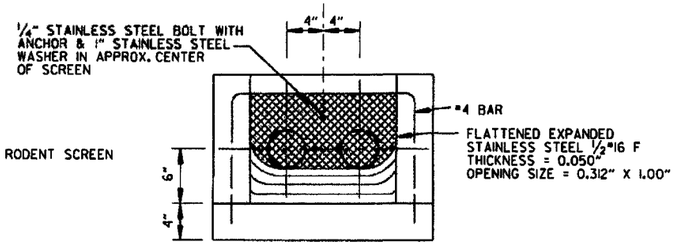
PLAN VIEW



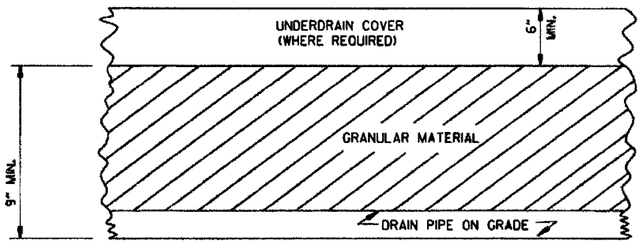
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

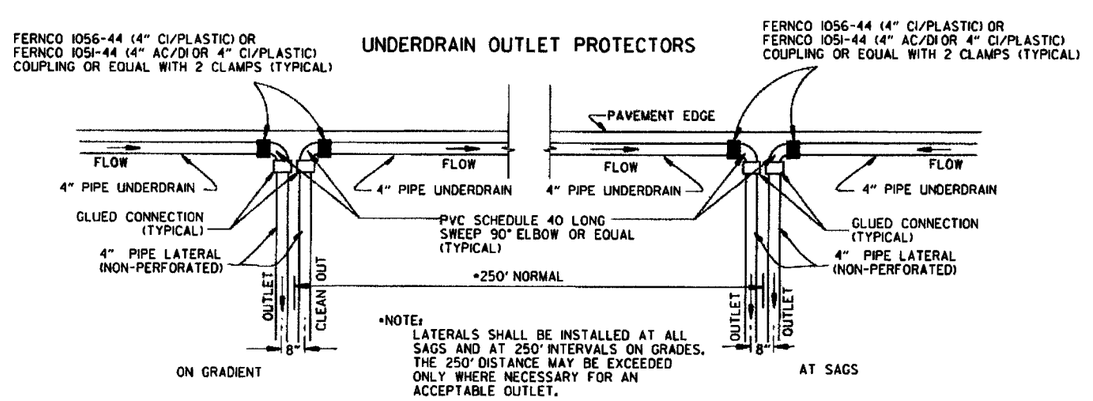
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

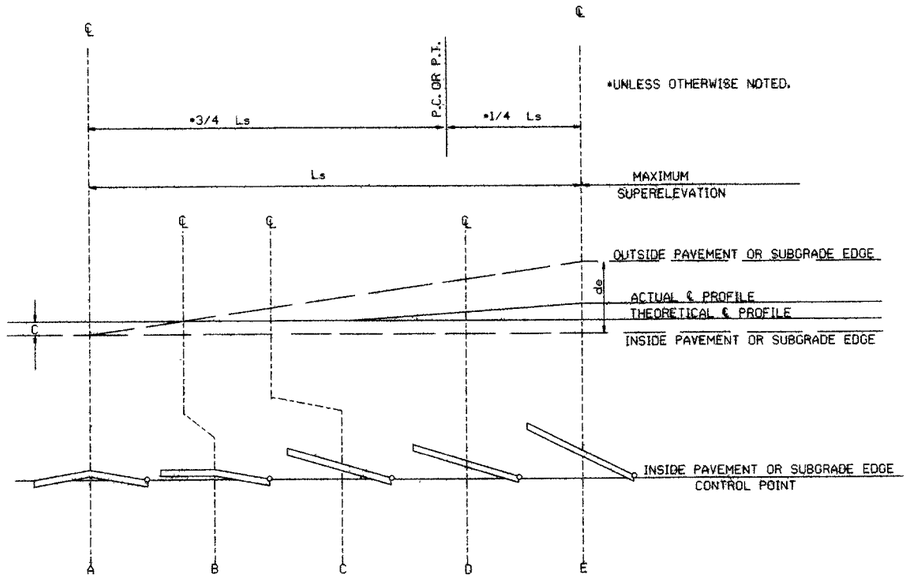
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045			0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.066	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305	350			
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300							
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250												
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

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



*UNLESS OTHERWISE NOTED.

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

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

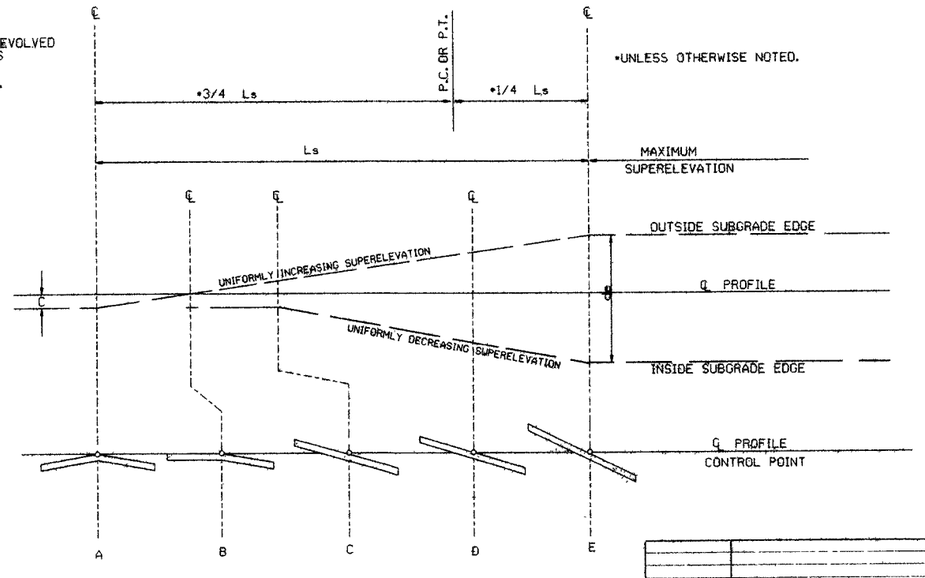
GENERAL NOTES

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

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

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

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



*UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

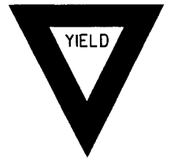
STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1

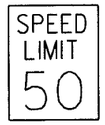
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

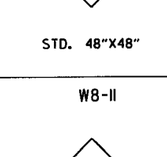
R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

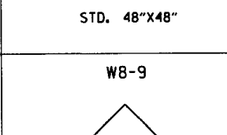
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



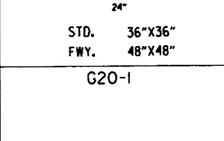
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



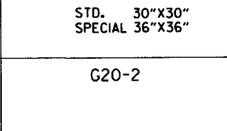
48"X30"

R11-3A



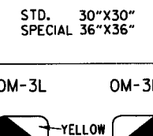
60"X30"

R11-4



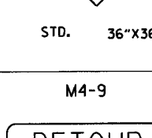
60"X30"

W21-5a



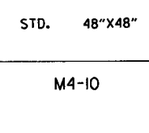
STD. 36"X36"
FWY. 48"X48"

W1-1



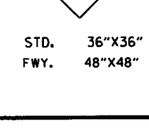
STD. 36"X36"
FWY. 48"X48"

W1-2



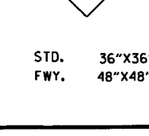
STD. 36"X36"
FWY. 48"X48"

W1-3



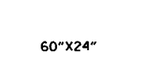
STD. 48"X48"

W1-4



STD. 48"X48"

W1-6

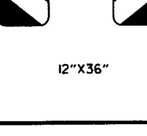


STD. 48"X24"
SPECIAL 60"X30"

W1-8

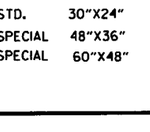
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



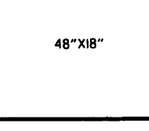
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

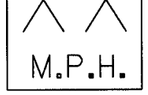
W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

W13-1



STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

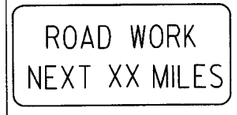
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

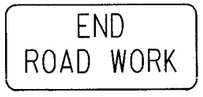
STD. 36"X36"
FWY. 48"X48"

G20-1



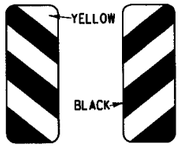
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

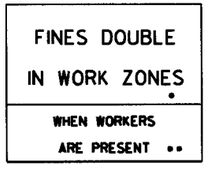
M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

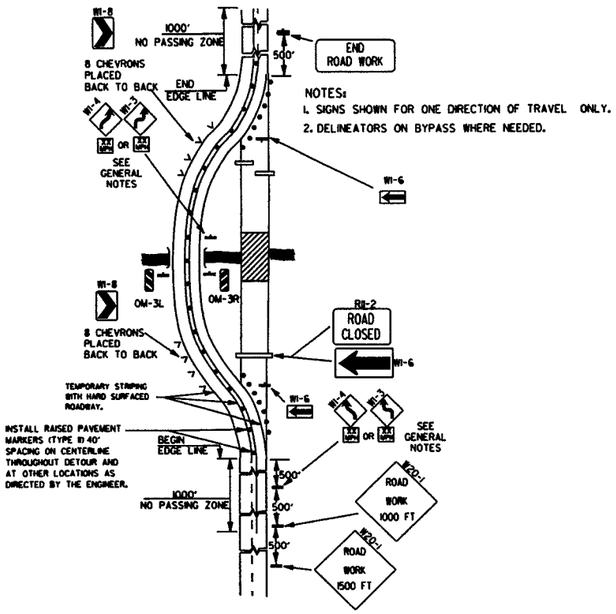
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-16-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

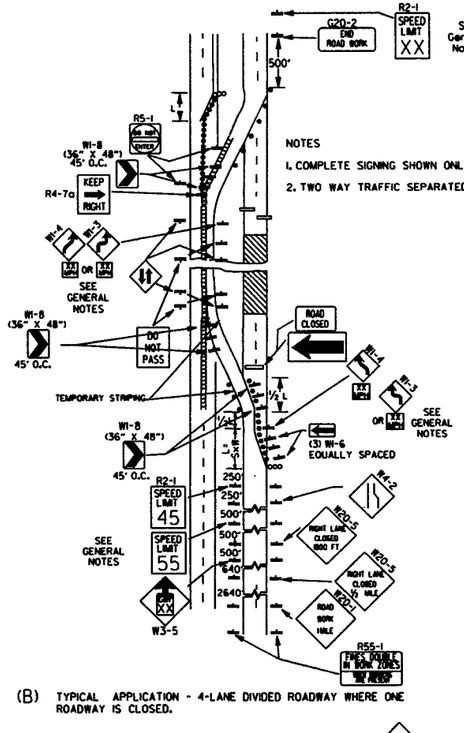
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



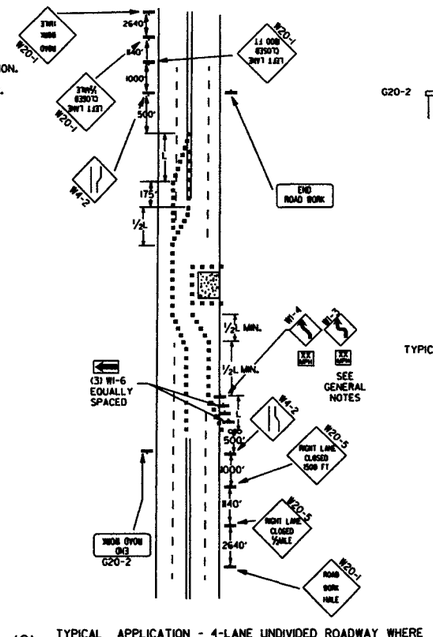
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

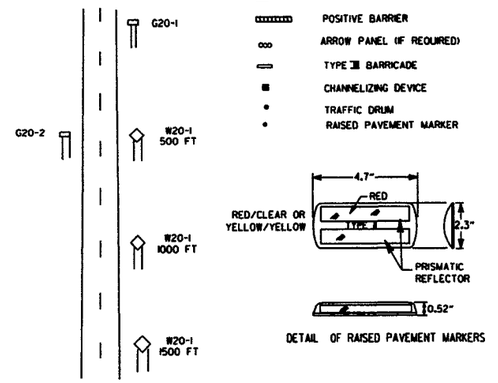


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

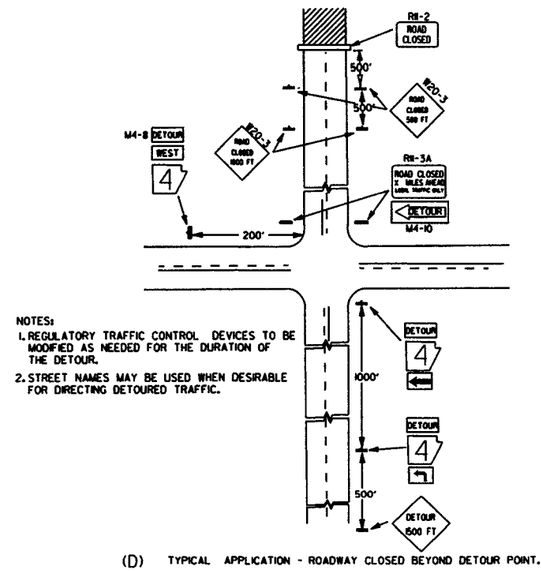
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

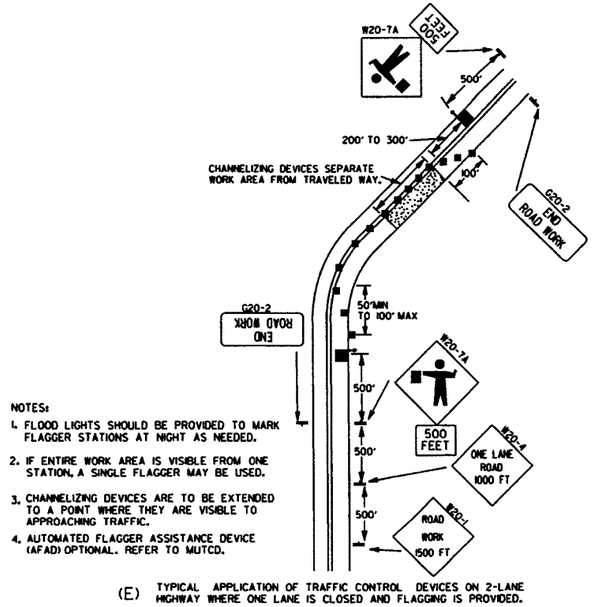
GENERAL NOTES:

1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-K45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



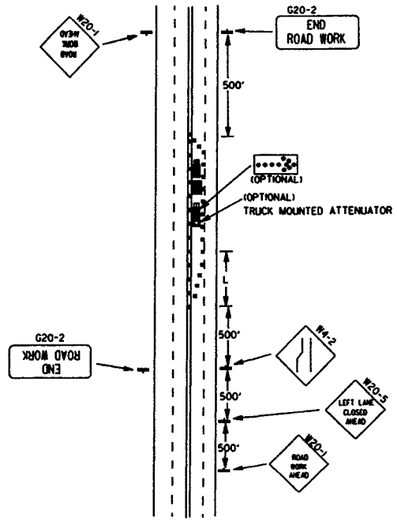
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



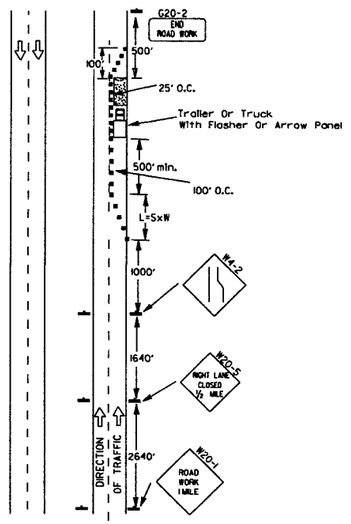
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

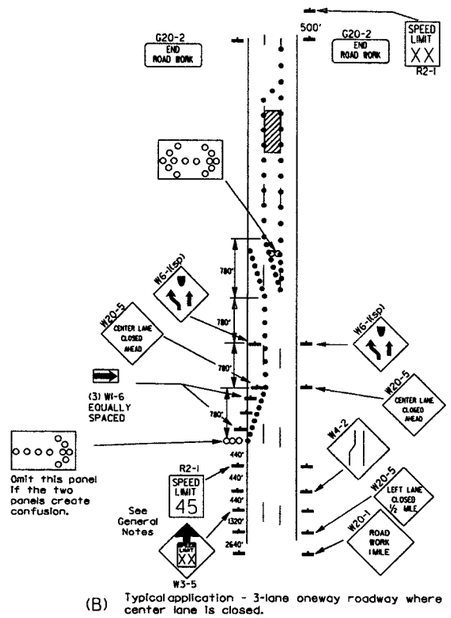
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



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

KEY:

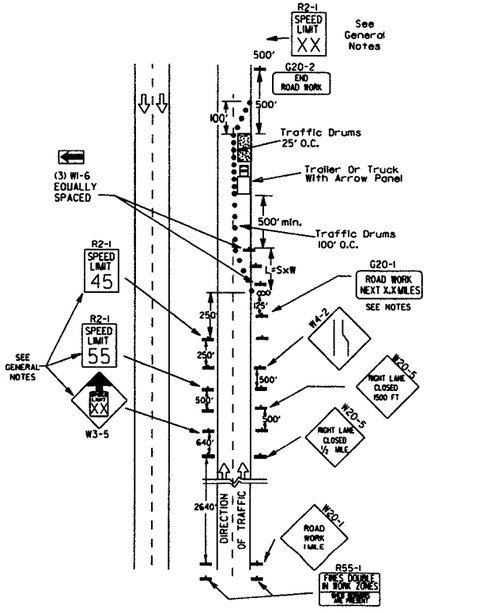
ooo Arrow Panel (If Required)

■ Channelizing Device

● Traffic drum

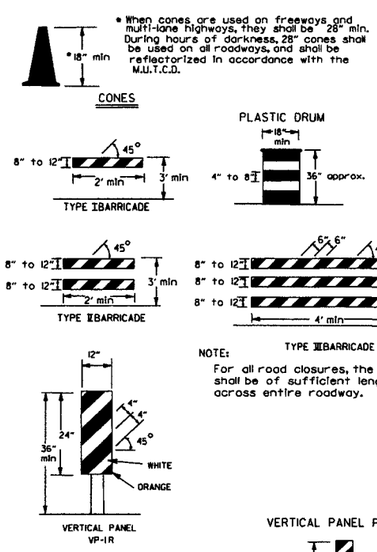
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



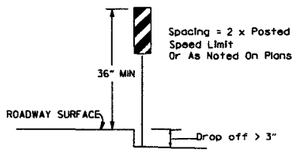
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

Channelizing devices



NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

VERTICAL PANEL PLACEMENT



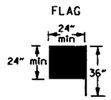
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	WB-11
1" to 3"	Edge of shoulder	WB-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

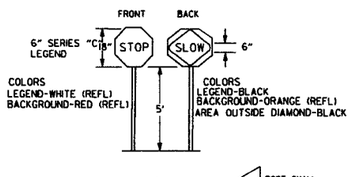
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

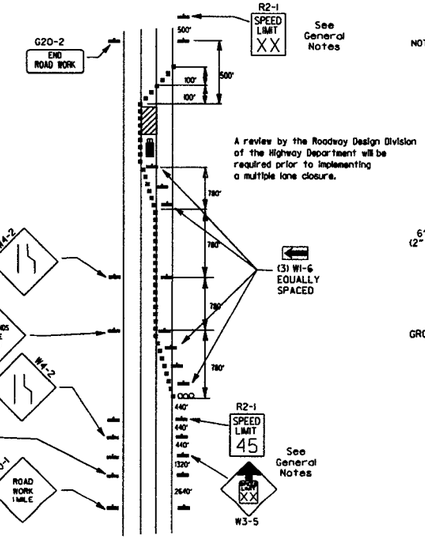
FLAG



Flag shall be of good grade red material

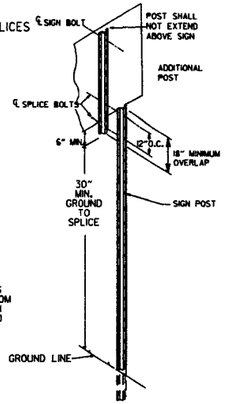
STOP SLOW PADDLE





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

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

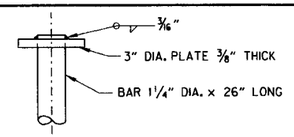
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

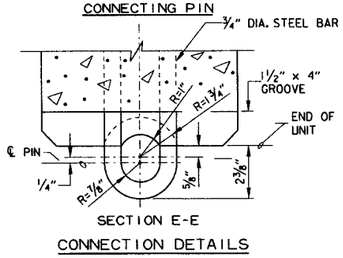
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR, 1'-6", 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 19 1/2", 4 3/8", 2'-1 3/8"

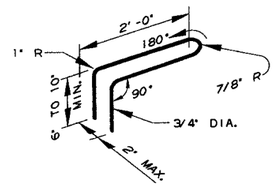


CONNECTING PIN

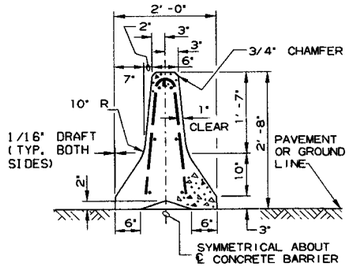


SECTION E-E

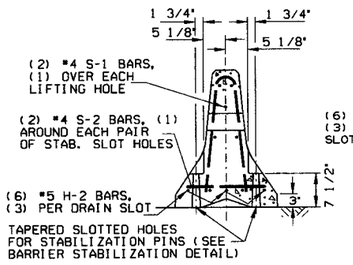
CONNECTION DETAILS



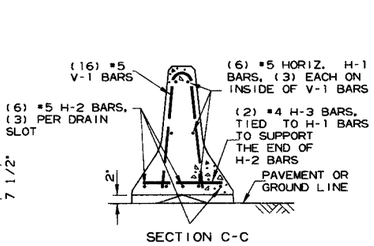
CONNECTION LOOP



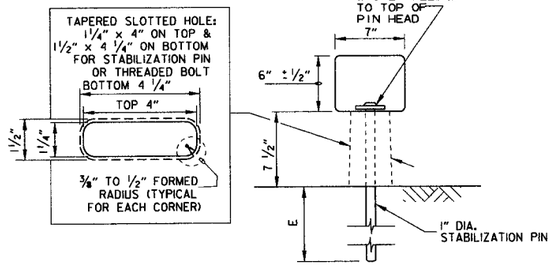
SECTION A-A



SECTION B-B



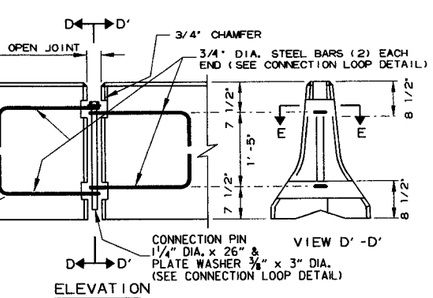
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

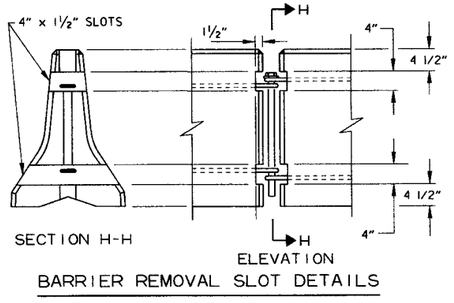
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



VIEW D-D

VIEW D'-D'

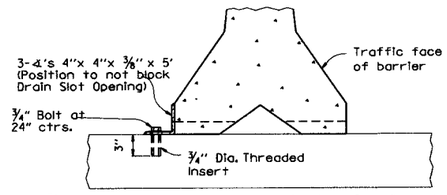
ELEVATION



SECTION H-H

ELEVATION

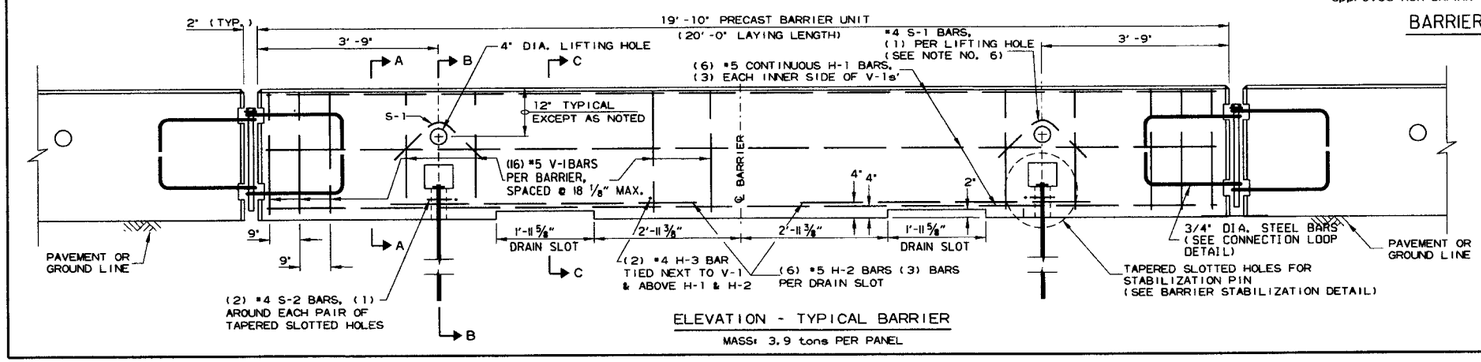
BARRIER REMOVAL SLOT DETAILS



NOTE: 3/4" Threaded inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

BRIDGE DECKS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

(1) The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

(2) Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

(3) Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

(4) Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

(5) Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

(6) A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

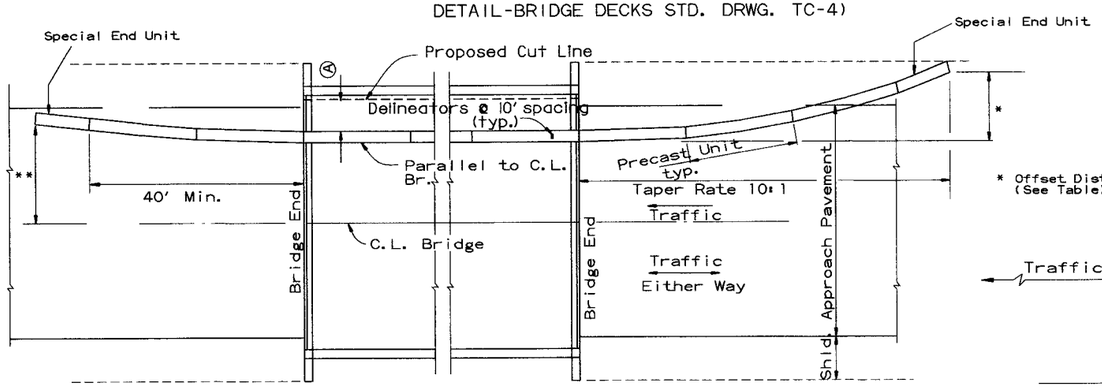
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

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

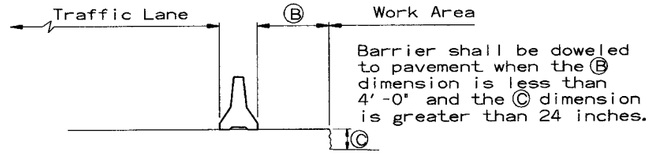


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

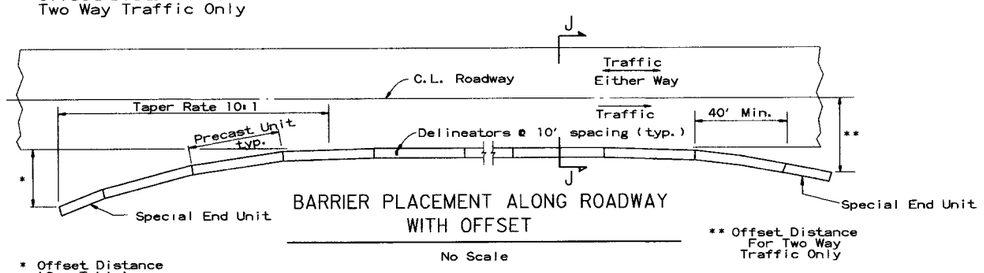
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

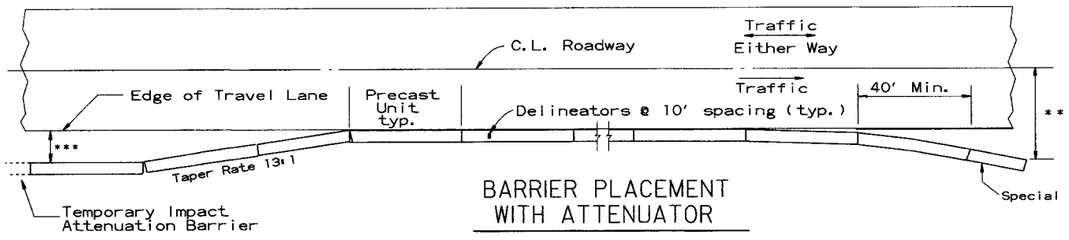
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

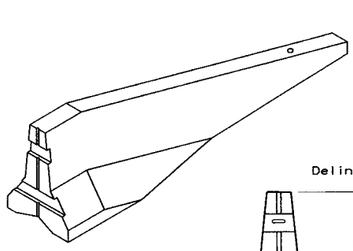


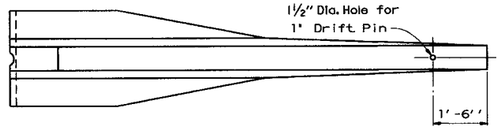
BARRIER PLACEMENT WITH ATTENUATOR

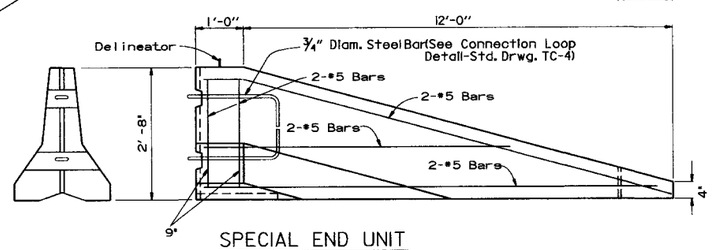
No Scale

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

** Offset Distance For Two Way Traffic Only







SPECIAL END UNIT

No Scale

General Notes

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

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

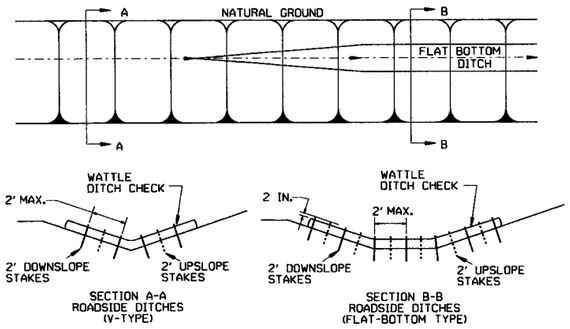
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

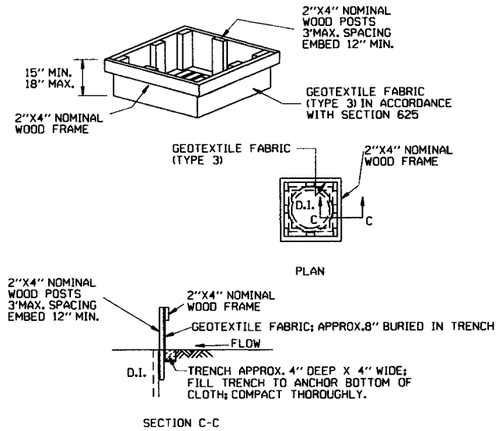
STANDARD DRAWING TC-5

GENERAL NOTES

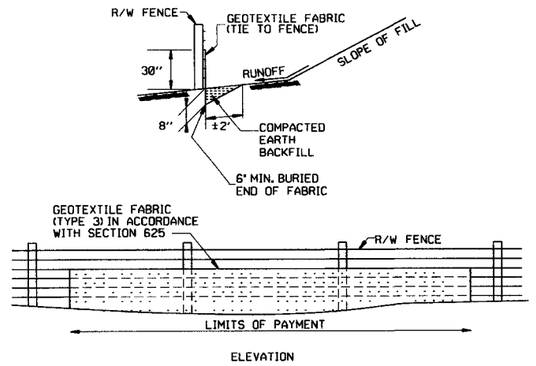
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

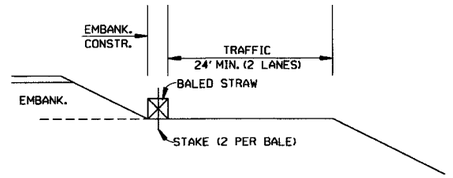
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

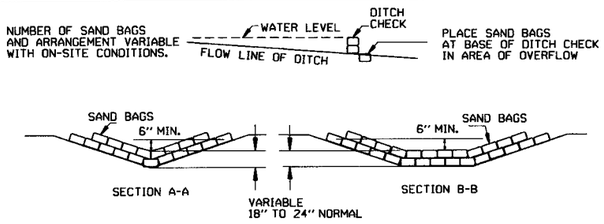
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

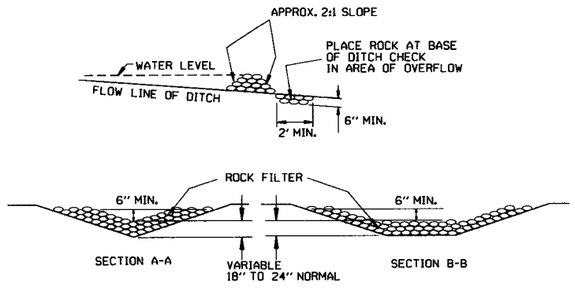
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



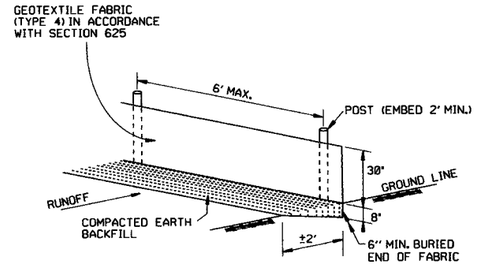
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

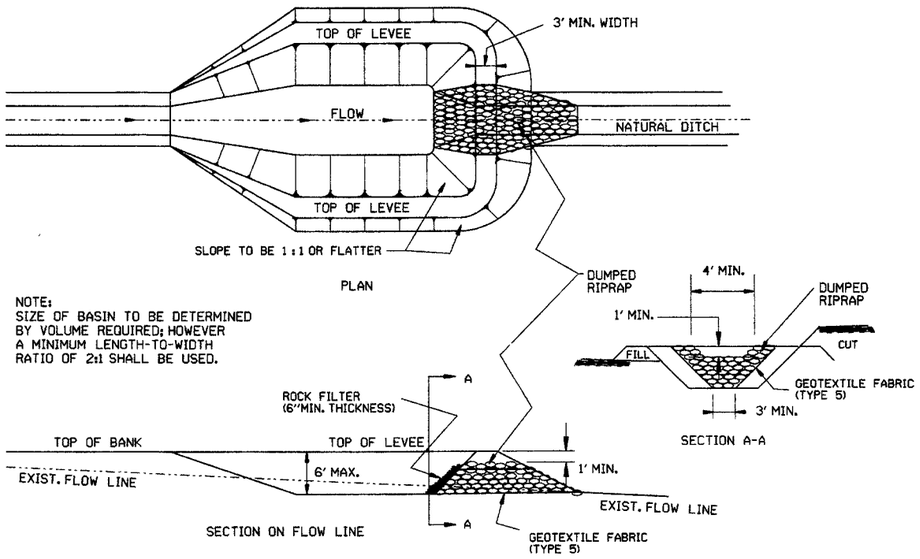
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

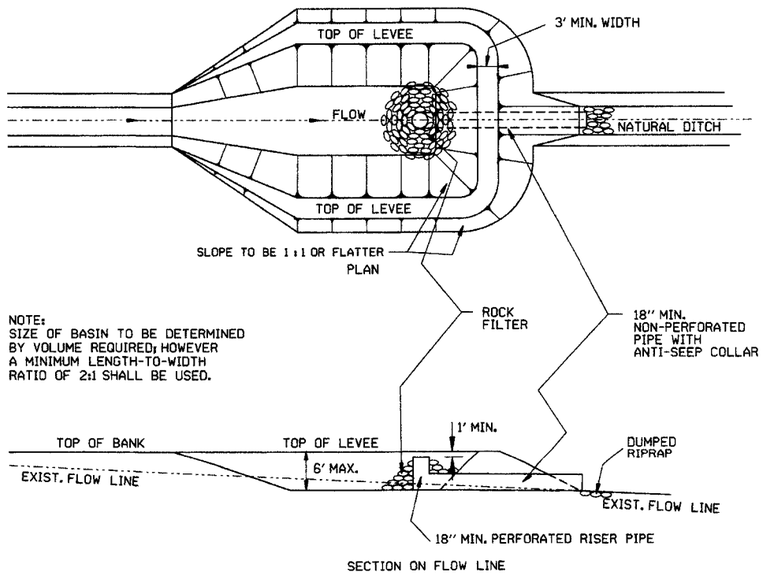
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

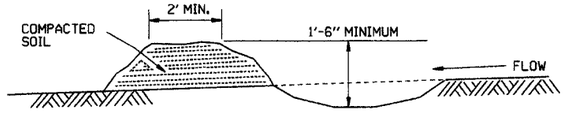
STANDARD DRAWING TEC-1



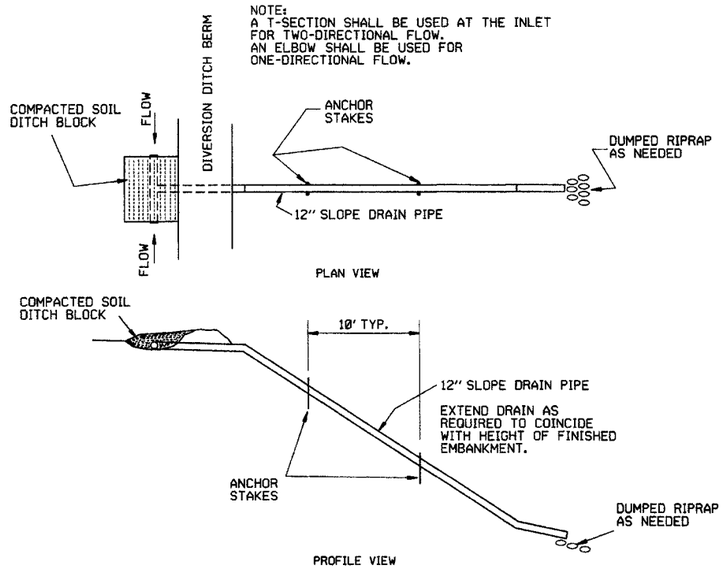
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



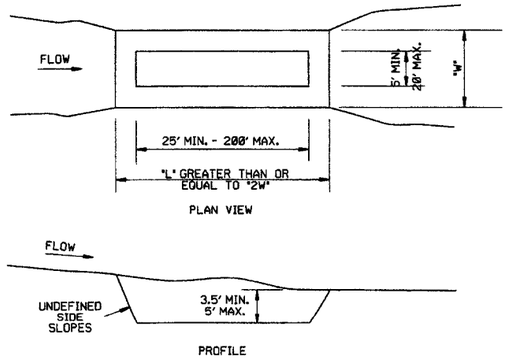
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

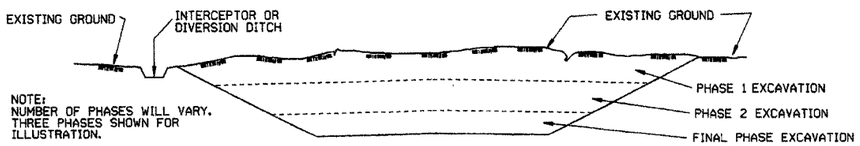
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



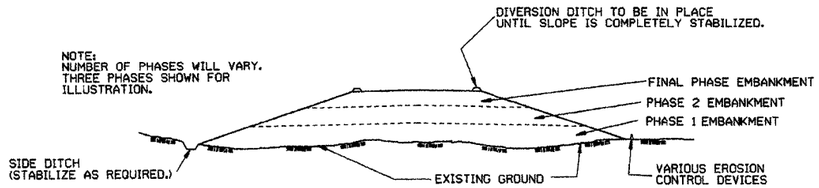
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

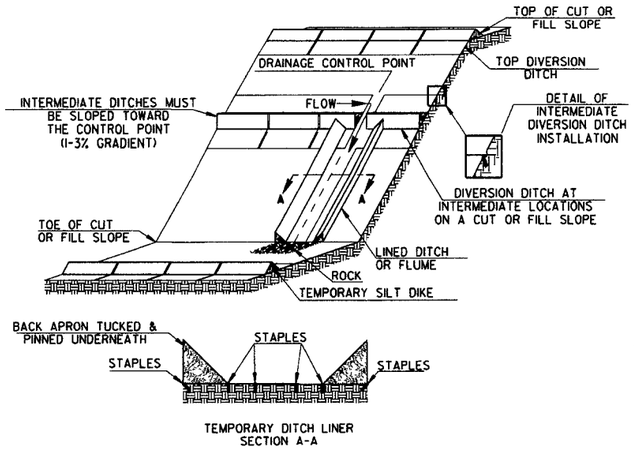
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

DATE	REVISION	FILMED
11-23-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

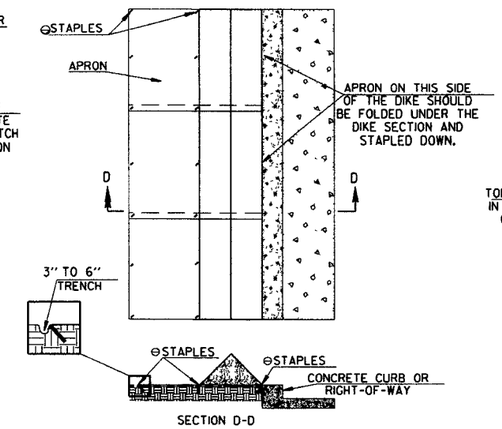
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



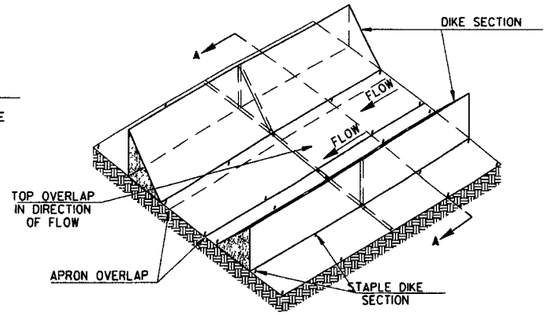
TEMPORARY DITCH LINER
SECTION A-A

TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

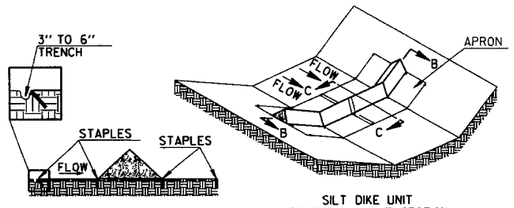


SECTION D-D

TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER

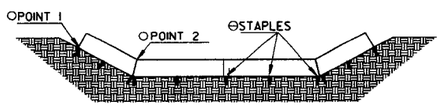


TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER



SECTION C-C

SILT DIKE UNIT
ISOMETRIC / CUT SECTION

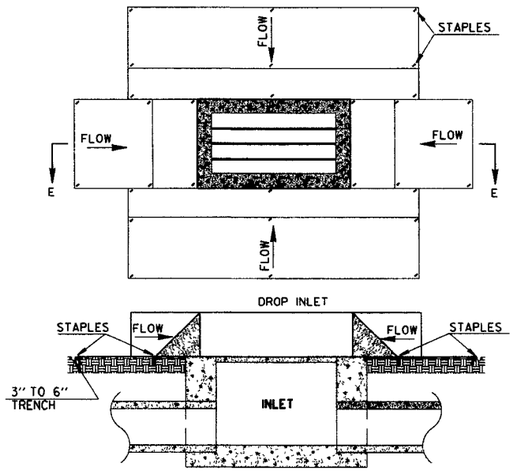


DIKE SECTION
SECTION B-B

TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

⊖ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



SECTION E-E

TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS

SYMBOLOGY
SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS

NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.

2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.

   THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.

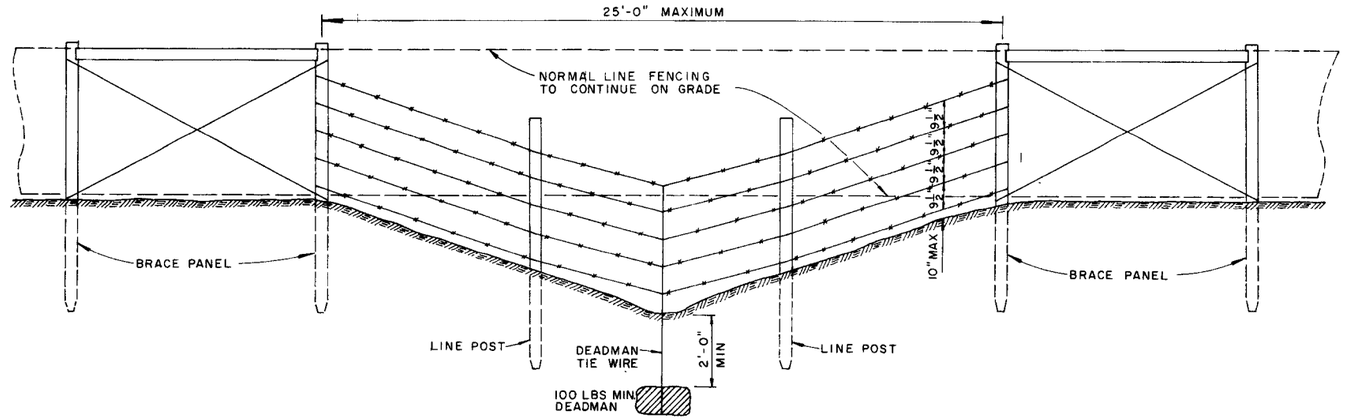
3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

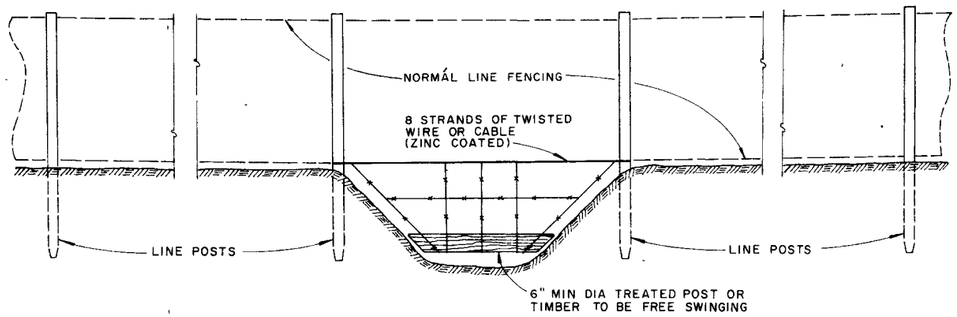
DATE	REVISION	FILMED
7-26-12	REVISED GENERAL NOTE 2.	
12-15-11	ISSUED	

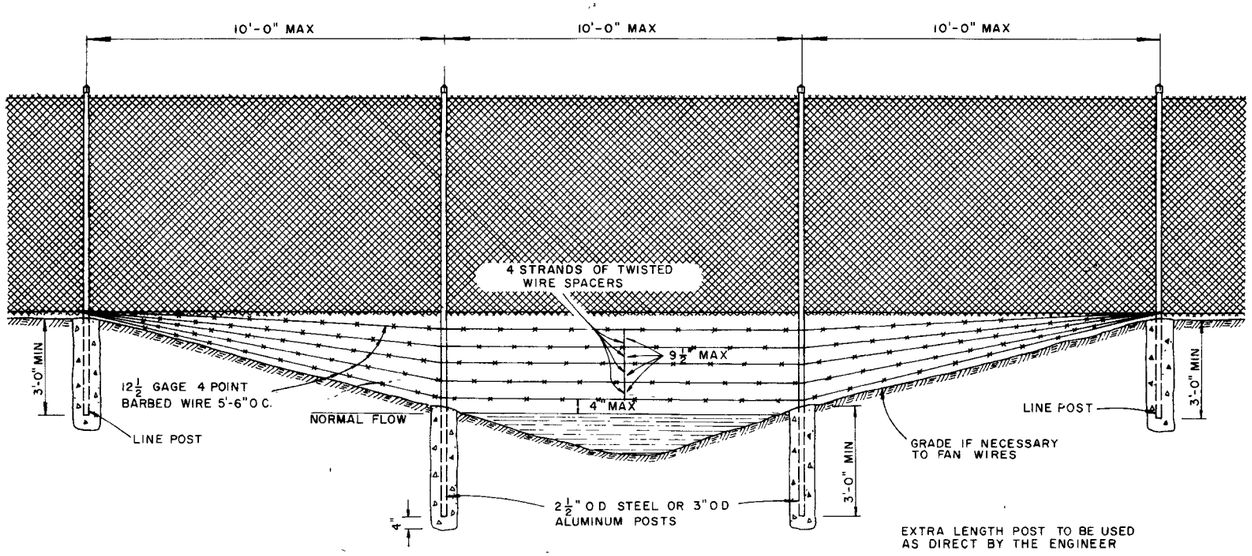
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-4







EXTRA LENGTH POST TO BE USED AS DIRECT BY THE ENGINEER

GENERAL NOTES

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER

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

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE

DATE	REVISION	DATE FILM'D
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72

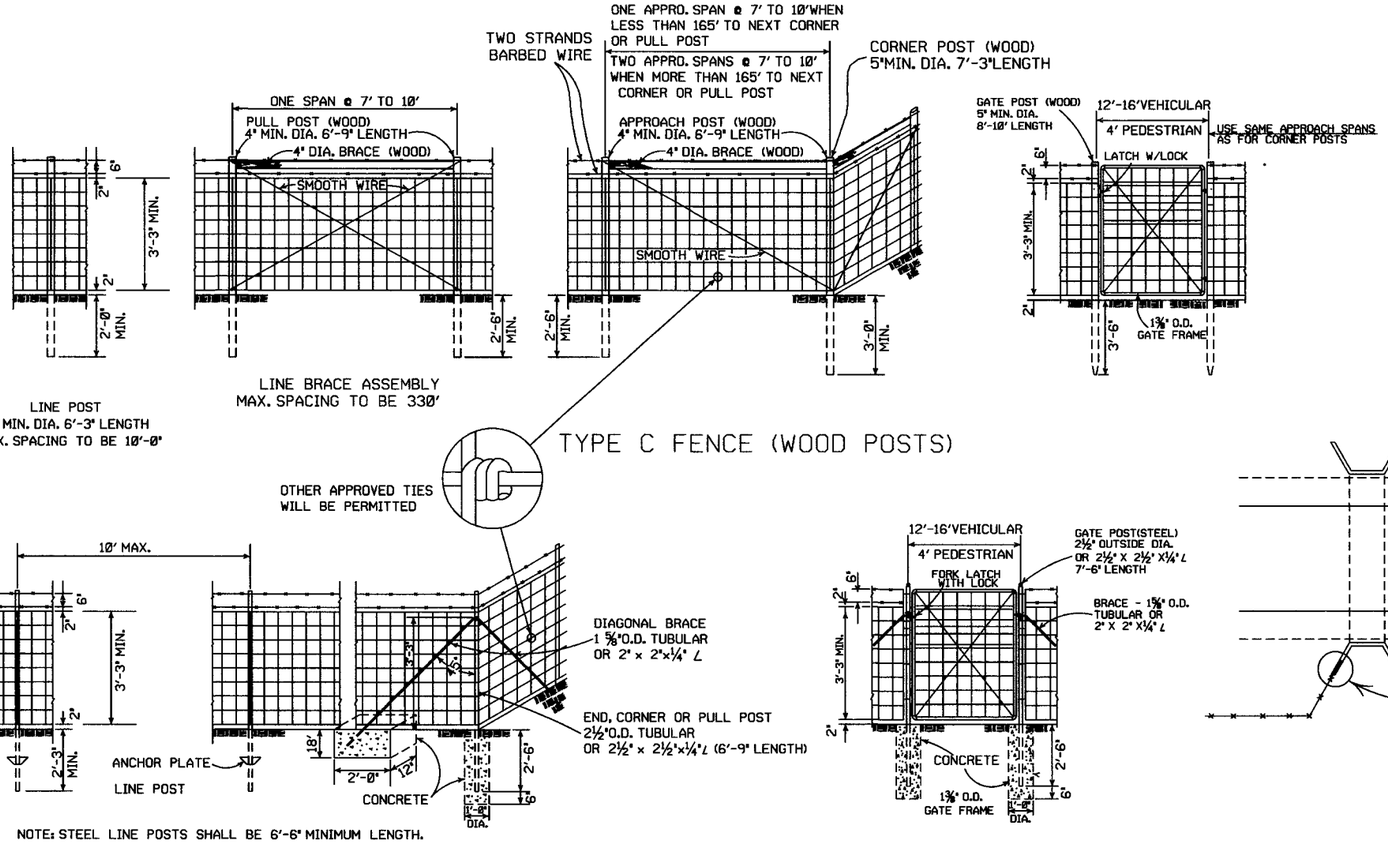
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

1M—11-71—67001—PP&BC0



NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

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

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

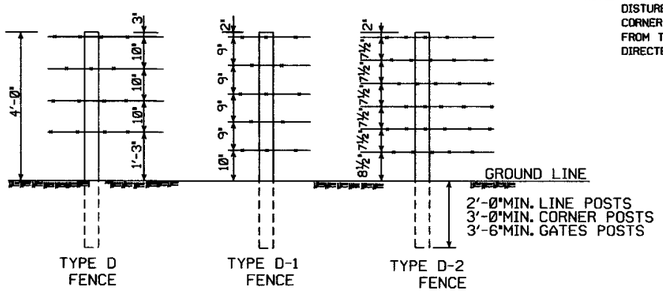
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

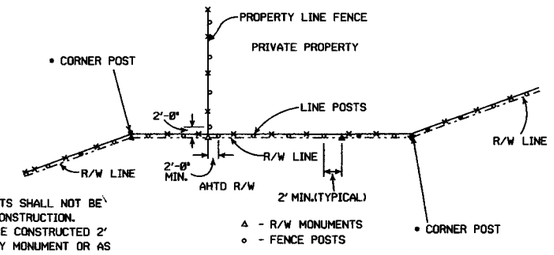
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

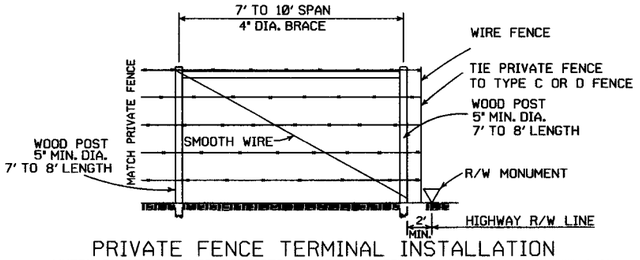


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

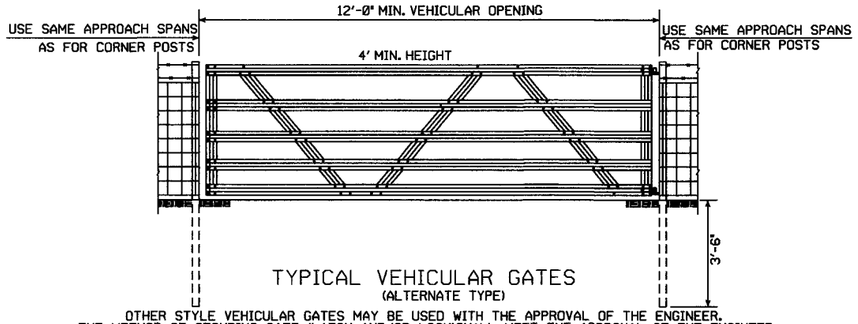


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4