DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	1	114

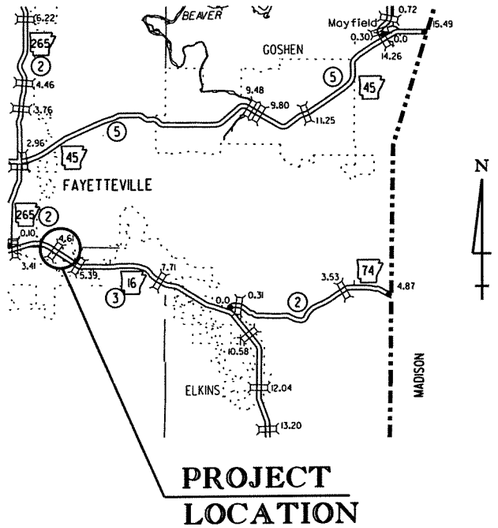
(2) WEST FORK WHITE RIVER STR. & APPRS. (FAYETTEVILLE) (S)

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

WEST FORK WHITE RIVER
STR. & APPRS. (FAYETTEVILLE) (S)

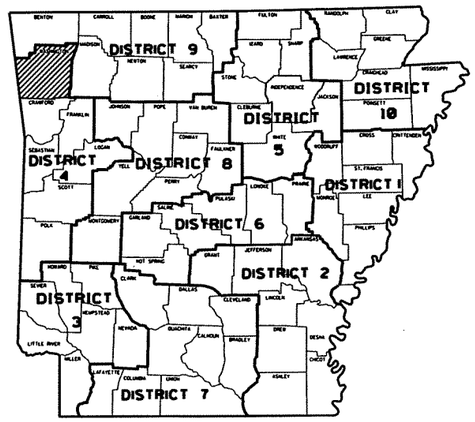
WASHINGTON COUNTY
ROUTE 16 SECTION 3
F.A.P. STPF-9142(28)

JOB 040569



PROJECT LOCATION

VICINITY MAP

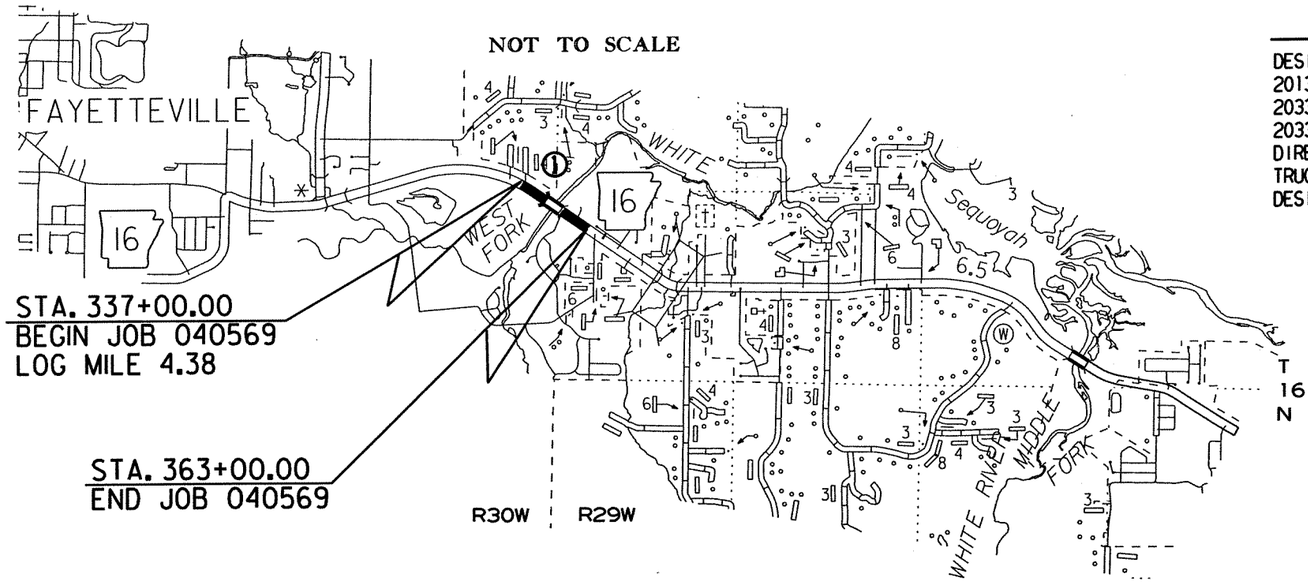


ARKANSAS HWY. DIST. 4

STRUCTURES OVER 20'-0" SPAN

(1) STA. 349+10.90 BR. END
BRIDGE NO. 07256
279'-0" CONT. COMP. W-BEAM SPANS (57'-78'-78'-66')
223'-0" CONT. COMP. W-BEAM SPANS (74'-85'-64')
54' CLEAR RDWY. BRIDGE
504.21' TOTAL LENGTH
STA. 354+15.10 BR. END

NOT TO SCALE



STA. 337+00.00
BEGIN JOB 040569
LOG MILE 4.38

STA. 363+00.00
END JOB 040569

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2033
2013 ADT	13,000
2033 ADT	18,000
2033 DHV	1,980
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	8%
DESIGN SPEED	45 MPH

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3917
FRANK VOZEL

4/8/13

DEPUTY DIRECTOR AND CHIEF ENGINEER

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N36°03'19"	N36°03'13"	N36°03'05"
LON.	W94°06'34"	W94°06'20"	W94°06'07"

GROSS LENGTH OF PROJECT	2600.00 FEET	OR	0.492 MILES
NET LENGTH OF ROADWAY	2095.80 FEET	OR	0.397 MILES
NET LENGTH OF BRIDGES	504.20 FEET	OR	0.095 MILES
NET LENGTH OF PROJECT	2600.00 FEET	OR	0.492 MILES

P.E. JOB 040569

040569

3/28/2013

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	2	114

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

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.	DATE
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2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS AND GENERAL NOTES			
3 - 4	TYPICAL SECTIONS OF IMPROVEMENT			
5	SPECIAL DETAILS			
6 - 13	TEMPORARY EROSION CONTROL DETAILS			
14 - 21	MAINTENANCE OF TRAFFIC DETAILS			
22 - 23	PERMANENT PAVEMENT MARKING DETAILS			
24 - 27	QUANTITY SHEETS			
28	SCHEDULE OF BRIDGE QUANTITIES	07256	52891	
29	SUMMARY OF QUANTITIES AND REVISIONS			
30 - 31	SURVEY CONTROL DETAILS			
32 - 37	PLAN AND PROFILE SHEETS			
38	LAYOUT OF BRIDGE OVER WEST FORK OF WHITE RIVER (SHEET 1 OF 2)	07256	52892	
39	LAYOUT OF BRIDGE OVER WEST FORK OF WHITE RIVER (SHEET 2 OF 2)	07256	52893	
40	DETAILS OF STAGE CONSTRUCTION	07256	52894	
41	DETAILS OF BENT 1 (SHEET 1 OF 3)	07256	52895	
42	DETAILS OF BENT 1 (SHEET 2 OF 3)	07256	52896	
43	DETAILS OF BENT 1 (SHEET 3 OF 3)	07256	52897	
44	DETAILS OF BENT 8 (SHEET 1 OF 3)	07256	52898	
45	DETAILS OF BENT 8 (SHEET 2 OF 3)	07256	52899	
46	DETAILS OF BENT 8 (SHEET 3 OF 3)	07256	52900	
47	DETAILS OF INTERMEDIATE BENTS 2 & 3 (SHEET 1 OF 2)	07256	52901	
48	DETAILS OF INTERMEDIATE BENTS 2 & 3 (SHEET 2 OF 2)	07256	52902	
49	DETAILS OF INTERMEDIATE BENT 4 (SHEET 1 OF 2)	07256	52903	
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54	DETAILS OF INTERMEDIATE BENTS 6 & 7 (SHEET 2 OF 2)	07256	52908	
55	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 7)	07256	52909	
56	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 7)	07256	52910	
57	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 7)	07256	52911	
58	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 4 OF 7)	07256	52912	
59	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 5 OF 7)	07256	52913	
60	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 6 OF 7)	07256	52914	
61	DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 7 OF 7)	07256	52915	
62	DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 6)	07256	52916	
63	DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 6)	07256	52917	
64	DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 6)	07256	52918	
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75	EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	1888A		4-10-03
76	DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES	1891F		4-10-03
77	DETAILS OF STANDARD TYPE D BRIDGE NAME PLATES	2387		10-30-13
78	DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	14991		4-10-03
79	DETAILS OF CONCRETE RIPRAP AND MISCELLANEOUS DETAILS OF STEEL PILINGS	14995A		4-10-03
80	CURBING DETAILS	CG-1		11-29-07
81	DETAILS OF DRIVEWAYS & ISLANDS	DR-1		11-29-07
82	FLARED END SECTION	FES-1		10-18-96
83	FLARED END SECTION	FES-2		10-18-96
84	DETAILS OF DROP INLETS & JUNCTION BOXES	FPC-9		11-16-01
85	DETAILS OF DROP INLETS (TYPE C)	FPC-9E		8-22-02
86	DETAILS OF DROP INLET (TYPE MO)	FPC-9M		8-22-02
87	MAILBOX DETAILS	MB-1		11-18-04
88	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1		12-15-11
89	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1		12-15-11
89A	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1		12-15-11
89B	PLASTIC PIPE CULVERT (PVC F949)	PCP-2		12-15-11
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92	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2		10-18-96
93	DETAILS OF SPECIAL ITEMS	SI-1		9-12-13
94	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1		12-15-11
95	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2		9-12-13
96	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3		10-15-09
97	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-4		10-15-09
98	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-5		10-15-09
99	TEMPORARY EROSION CONTROL DEVICES	TEC-1		12-15-11
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102	CHAIN LINK FENCE	WF-3		11-17-10
103	WIRE FENCE TYPE C AND D	WF-4		8-22-02
104	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	WR-1		11-10-05
105 - 114	CROSS SECTIONS			

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

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
102-1	BIDDING REQUIREMENTS AND CONDITIONS
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
105-3	CONTROL OF WORK
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
404-2	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-2	INSPECTION OF TRAFFIC CONTROL DEVICES IN CONTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
620-1	MULCH COVER
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 040569	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 040569	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 040569	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 040569	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 040569	HIGH PERFORMANCE PAVEMENT MARKING
JOB 040569	INTERNET BIDDING
JOB 040569	NESTING SITES OF MIGRATORY BIRDS
JOB 040569	PARTNERING REQUIREMENTS
JOB 040569	PLASTIC PIPE
JOB 040569	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 040569	SHORING
JOB 040569	SILICONE JOINT SEALANT
JOB 040569	SITE USE (A + C METHOD)
JOB 040569	STORM WATER POLLUTION PREVENTION PLAN
JOB 040569	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 040569	TRANSITIONAL APPROACH RAILING
JOB 040569	UTILITY ADJUSTMENTS
JOB 040569	VALUE ENGINEERING
JOB 040569	WARM MIX ASPHALT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-30-13

GENERAL NOTES

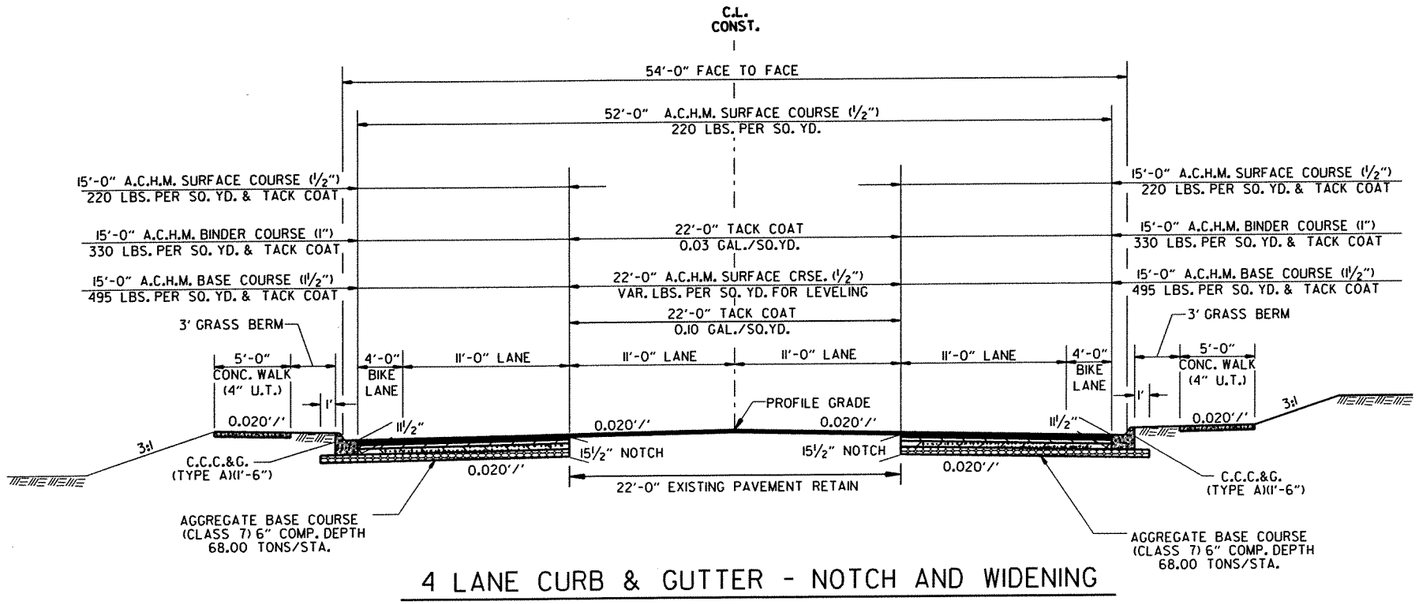
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY 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 IF AND WHERE 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.

10/8/2013

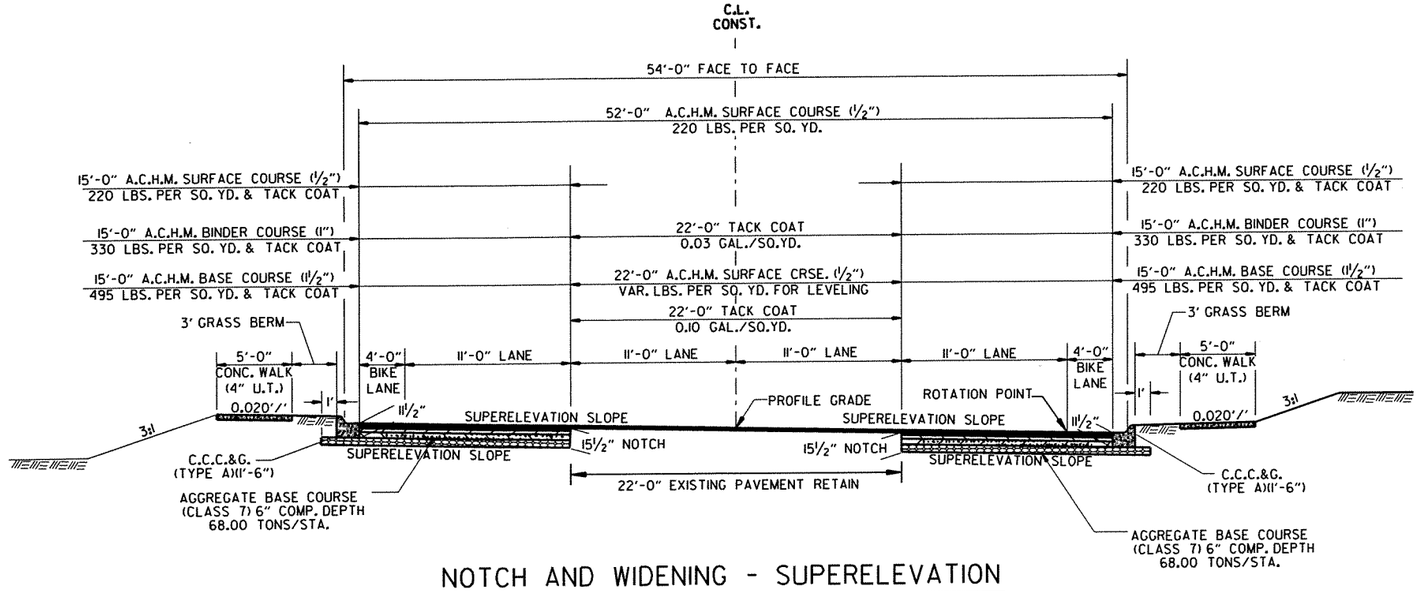
R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	3	114

(2) TYPICAL SECTIONS OF IMPROVEMENT



4 LANE CURB & GUTTER - NOTCH AND WIDENING



NOTCH AND WIDENING - SUPERELEVATION

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.

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

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

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

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.

8/27/2012

R040569.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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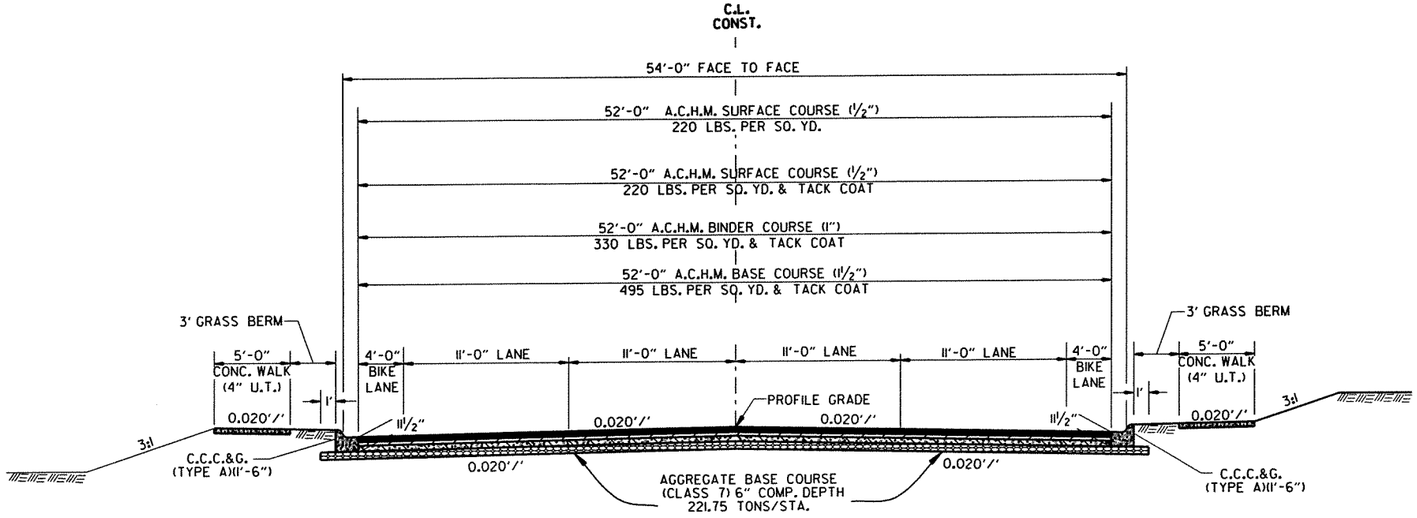
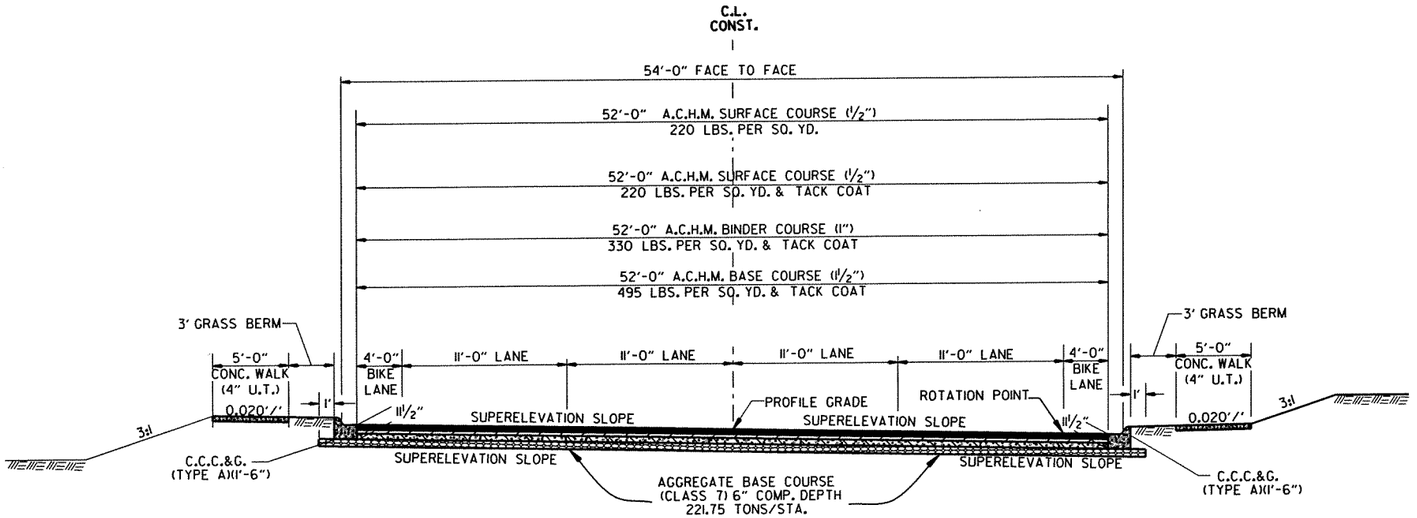
				6	ARK.			
				JOB NO.		040569	4	114

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13



4 LANE CURB & GUTTER - FULL DEPTH



FULL DEPTH - SUPERELEVATION

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.

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8/27/2012

R040569.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.			
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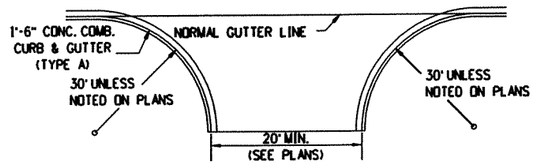
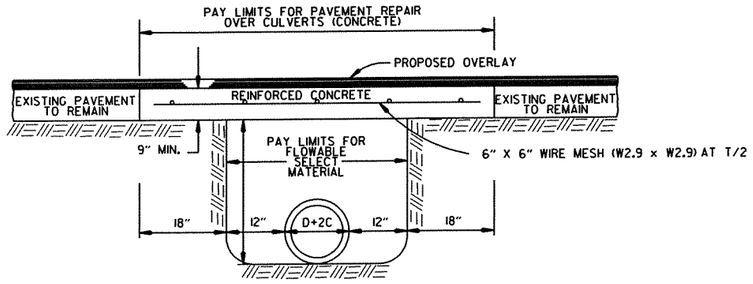
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

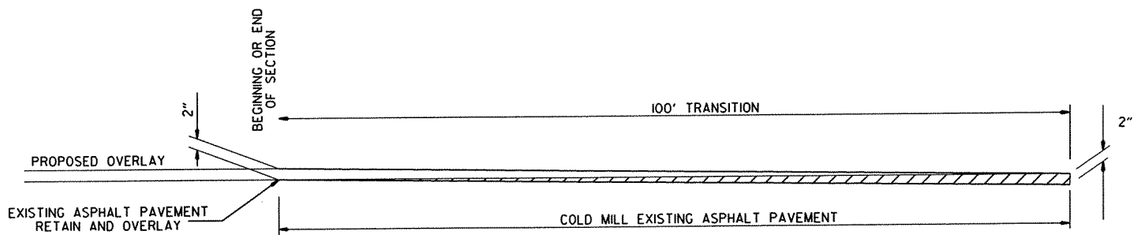


DETAIL OF TURNOUTS
ASPHALT STREETS

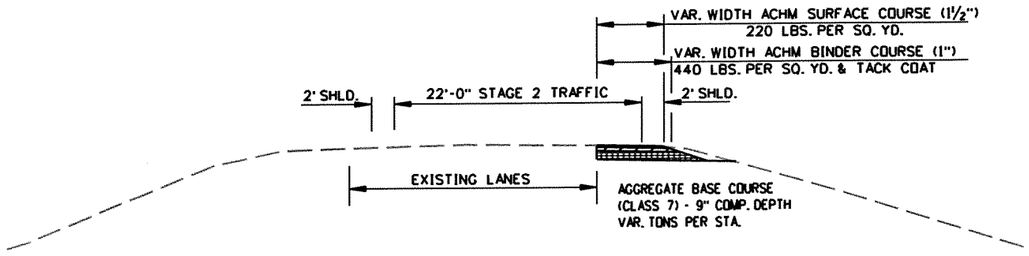
NOTE: THE TYPICAL SECTION FOR THE CITY STREET CONNECTIONS IN THE CURB & GUTTER SECTION SHALL MATCH THE PROPOSED WIDENING SECTION SHOWN FOR THE MAIN LANES. UNLESS OTHERWISE NOTED ON THE PLANS, ALL CITY STREET RADII WILL BE 30'.



PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



DETAIL FOR TRANSITIONS



DETAIL OF TEMPORARY WIDENING

8/31/2012

R040569.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.		040569	6	114

(2) TEMPORARY EROSION CONTROL DETAILS

TEMPORARY EROSION CONTROL GENERAL NOTES

DROP INLET SILT FENCE IS ESTIMATED AT 25 LIN. FT. PER DROP INLET.

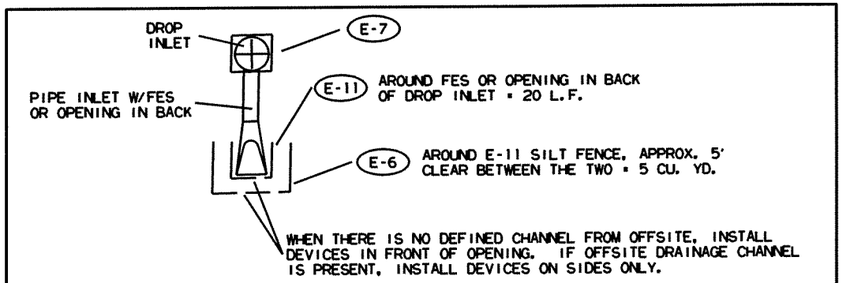
ROCK DITCH CHECKS (TYPE E-6) ARE ESTIMATED AT 5 CU. YD. PER DITCH CHECK.

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED, AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND



TYPICAL DEVICE PLACEMENT AT DROP INLETS

STATE OF ARKANSAS
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TEMPORARY EROSION CONTROL QUANTITIES (STAGE 1):
ROCK DITCH CHECKS (E 6) = 50 CU.YDS.
SILT FENCE (E 11) = 275 LIN.FT.
SEDIMENT REMOVAL AND DISPOSAL = 10 CU.YDS.

REVISIONS

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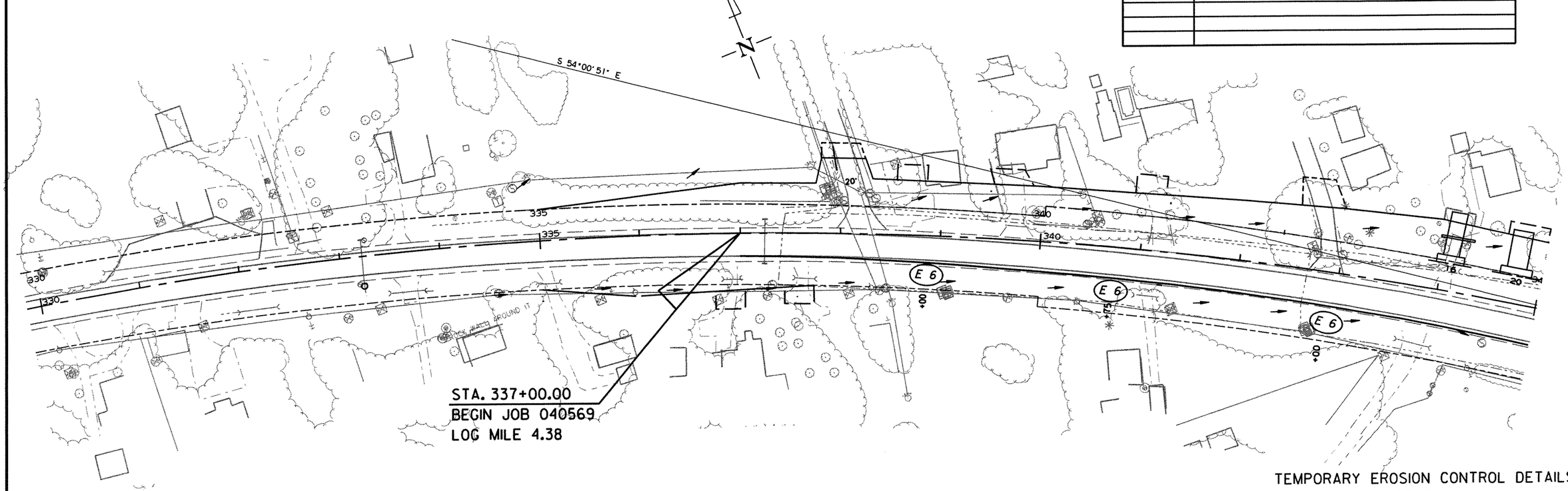

TEMPORARY EROSION CONTROL DETAILS
(STAGE 1)

11/8/2011

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				6	ARK.			
				JOB NO.		040569	7	114

(2) TEMPORARY EROSION CONTROL DETAILS

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND

STATE OF ARKANSAS
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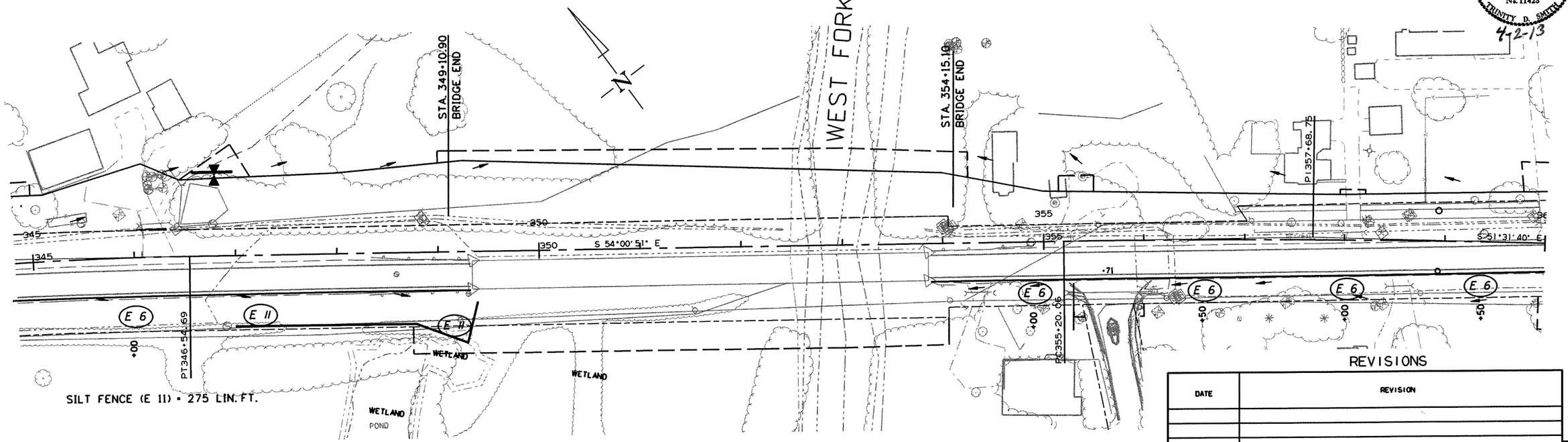

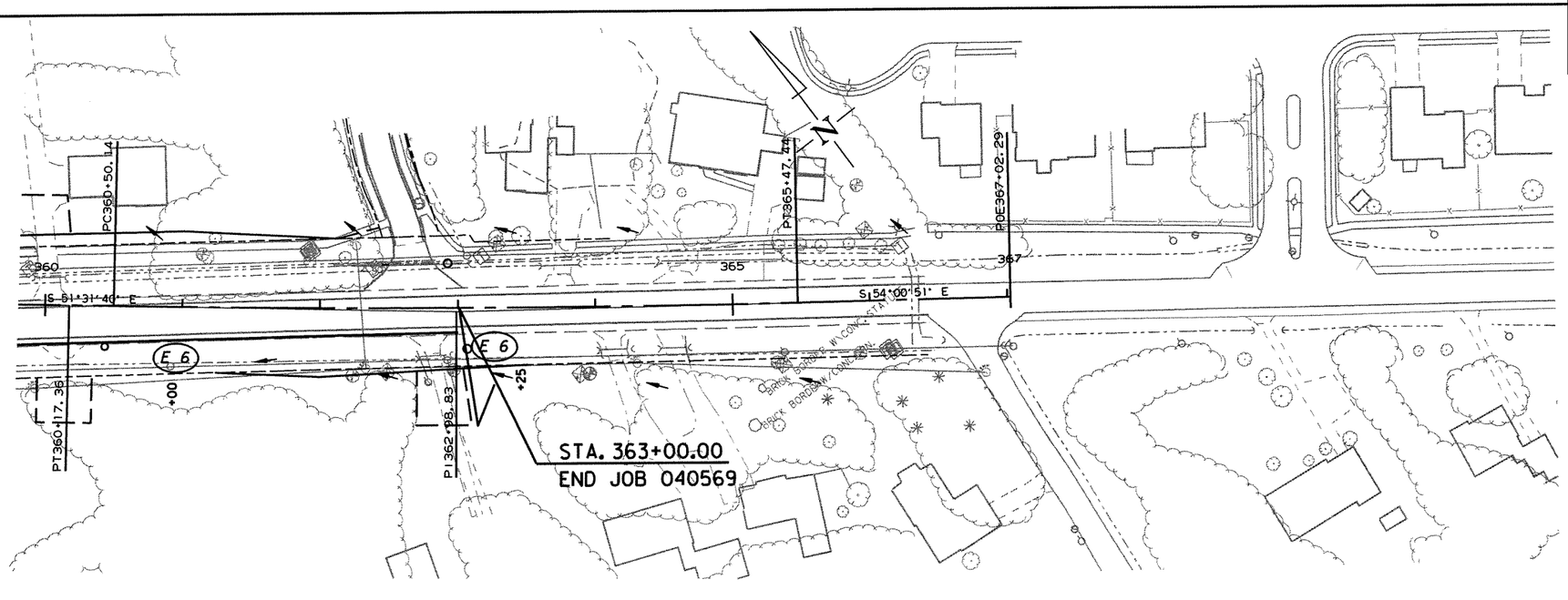

REVISIONS

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TEMPORARY EROSION CONTROL DETAILS
(STAGE I)

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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.			
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(2) TEMPORARY EROSION CONTROL DETAILS

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND

RETAIN TEMPORARY EROSION CONTROL ITEMS FROM STAGE 1 IF AND WHERE DIRECTED BY THE ENGINEER.

TEMPORARY EROSION CONTROL QUANTITIES (STAGE 2):
ROCK DITCH CHECKS (E 6) = 25 CU.YDS.
DROP INLET SILT FENCE (E 7) = 175
SILT FENCE (E 11) = 845 LIN.FT.
SEDIMENT BASIN (E 14) = 400 CU.YDS.
OBLITERATION OF SEDIMENT BASIN = 400 CU.YDS.
SEDIMENT REMOVAL AND DISPOSAL = 450 CU.YDS.

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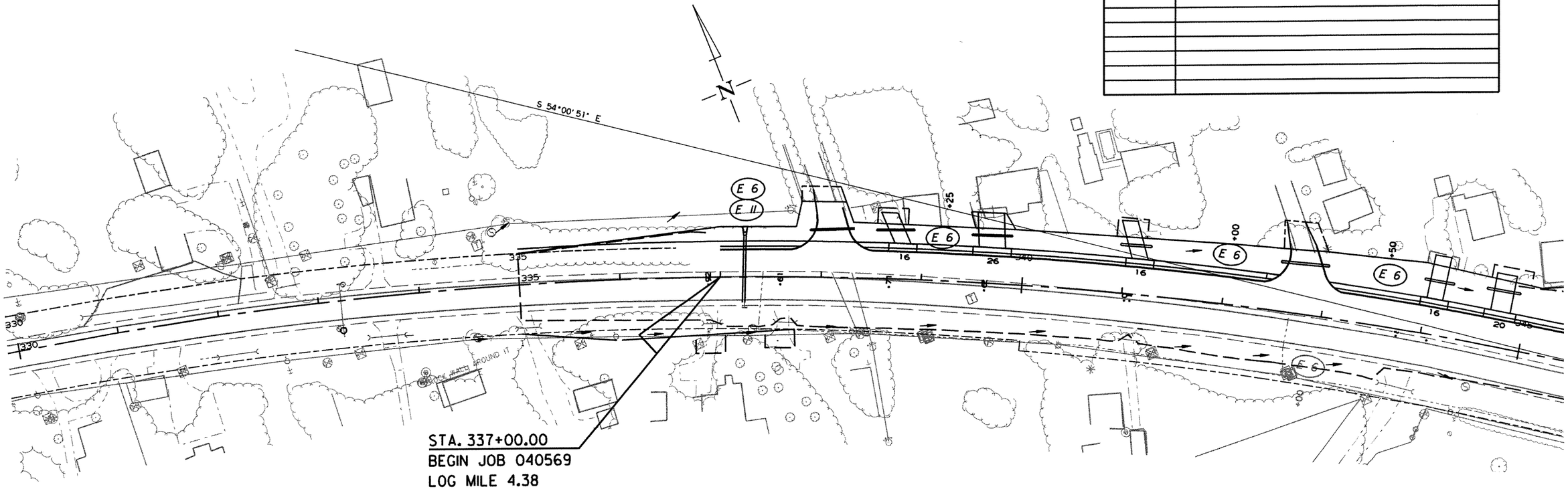

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BEGIN JOB 040569
LOG MILE 4.38

TEMPORARY EROSION CONTROL DETAILS
(STAGE 2)

11/8/2011
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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.			
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(2) TEMPORARY EROSION CONTROL DETAILS

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND

RETAIN TEMPORARY EROSION CONTROL ITEMS FROM STAGE 1 IF AND WHERE DIRECTED BY THE ENGINEER.

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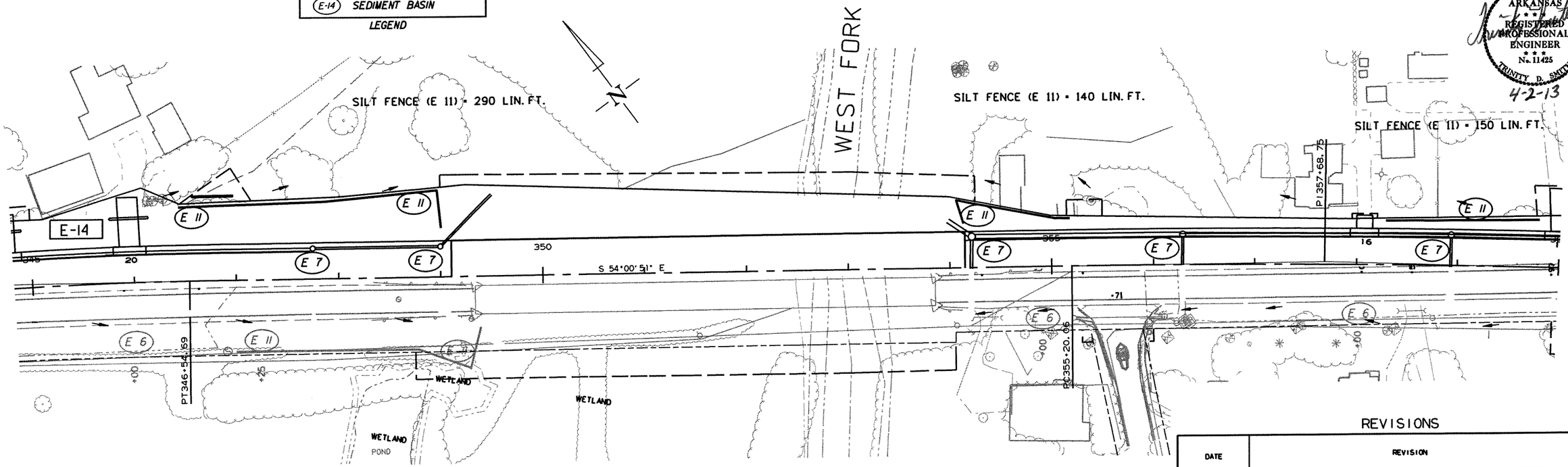

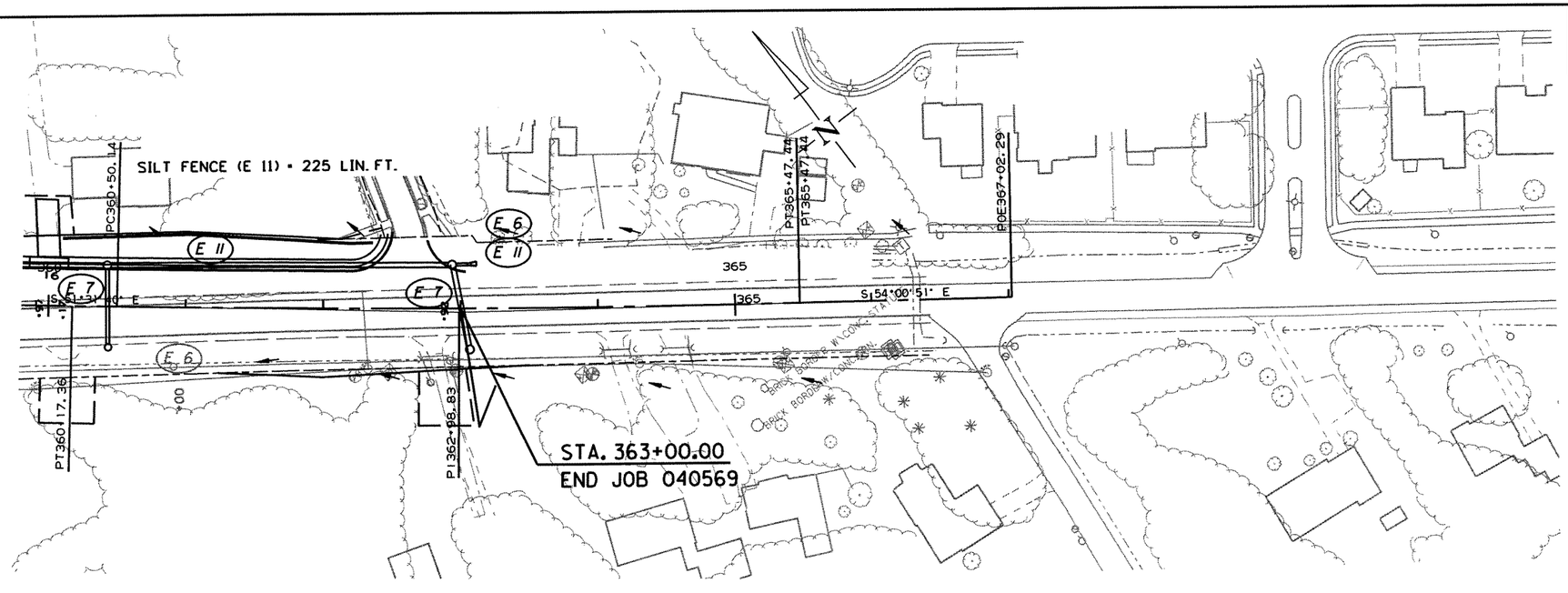

REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
(STAGE 2)

11/8/2011
ZBORDER.CEL

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) TEMPORARY EROSION CONTROL DETAILS

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(E-6)	ROCK DITCH CHECKS
(E-7)	DROP INLET SILT FENCE
(E-11)	SILT FENCE
(E-14)	SEDIMENT BASIN

LEGEND

RETAIN TEMPORARY EROSION CONTROL ITEMS FROM STAGE 1 IF AND WHERE DIRECTED BY THE ENGINEER.

TEMPORARY EROSION CONTROL QUANTITIES (STAGE 3):
ROCK DITCH CHECKS (E 6) = 55 CU.YDS.
DROP INLET SILT FENCE (E 7) = 350
SILT FENCE (E 11) = 530 LIN.FT.
SEDIMENT REMOVAL AND DISPOSAL = 35 CU.YDS.

REVISIONS

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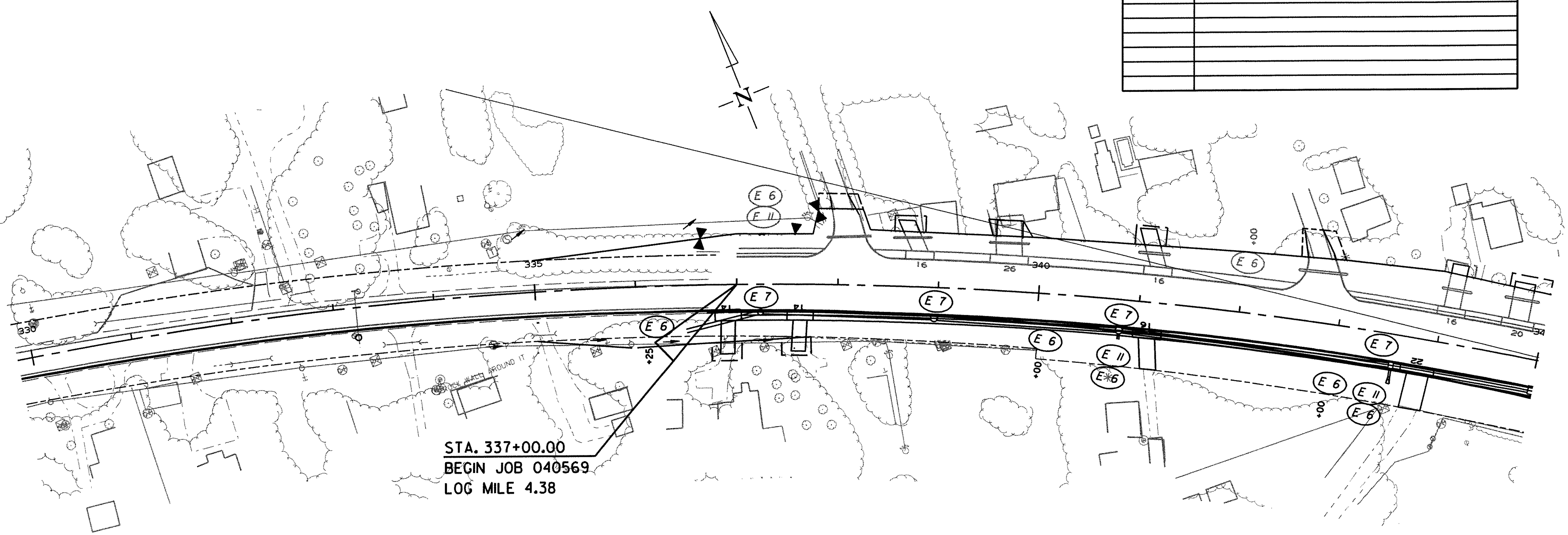

TEMPORARY EROSION CONTROL DETAILS
(STAGE 3)

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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.			
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(2) TEMPORARY EROSION CONTROL DETAILS

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND

RETAIN TEMPORARY EROSION CONTROL ITEMS FROM STAGE I IF AND WHERE DIRECTED BY THE ENGINEER.

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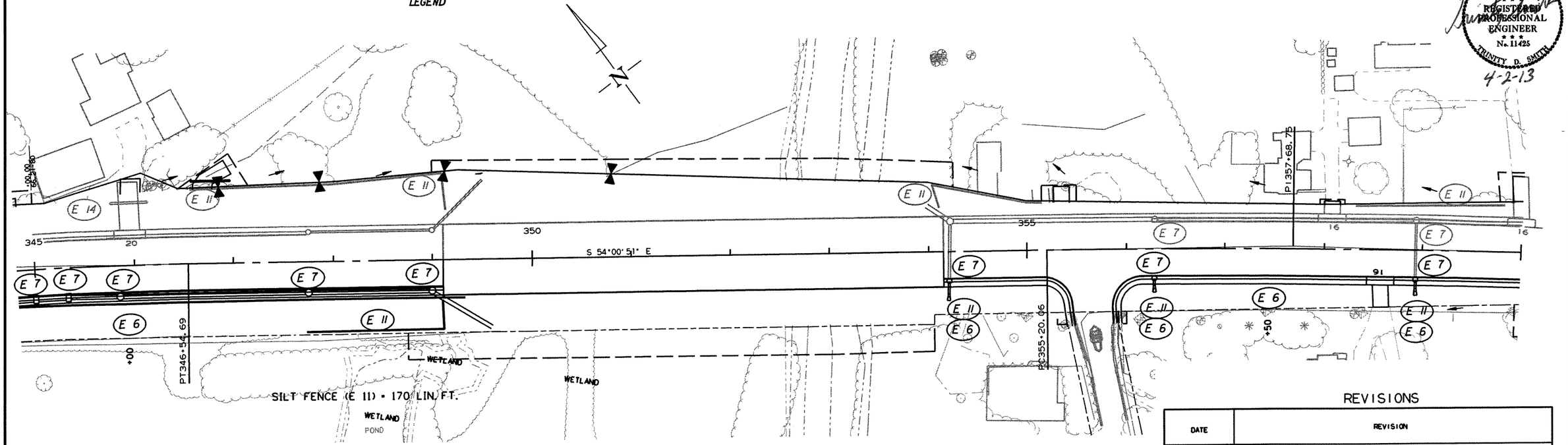
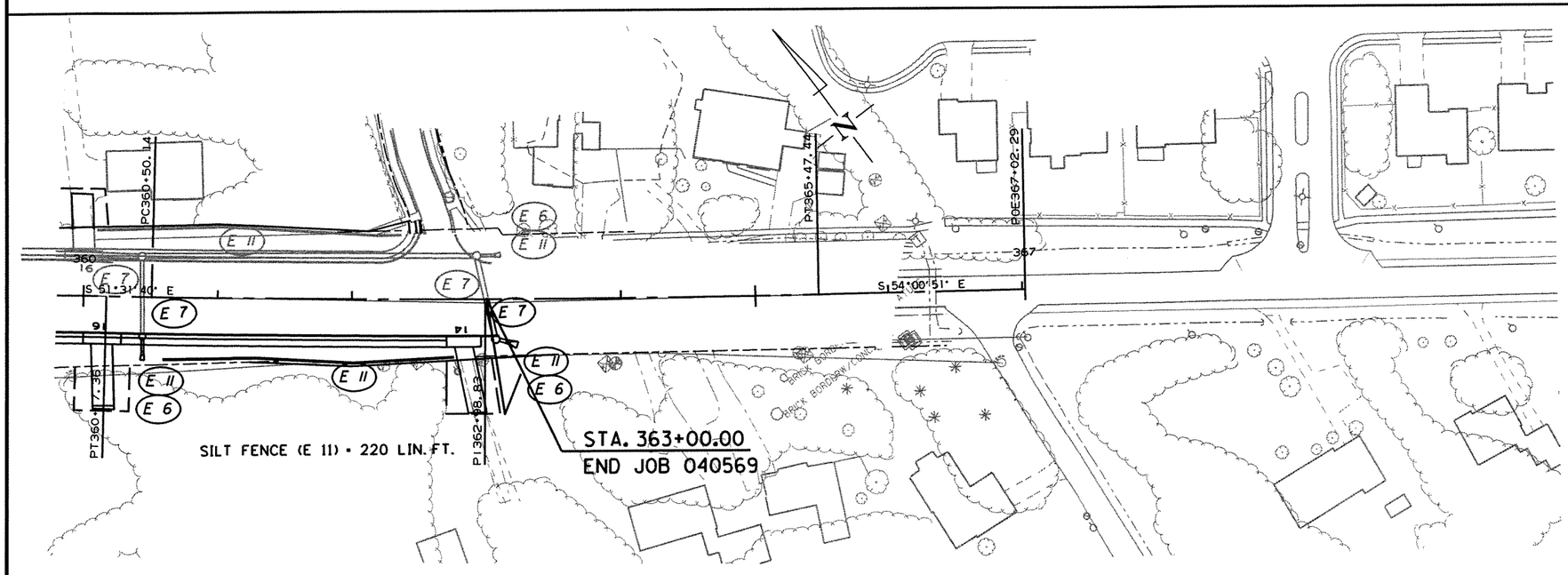


REVISIONS

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
(STAGE 3)

11/8/2011

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RETAIN TEMPORARY EROSION CONTROL ITEMS FROM STAGE 1 IF AND WHERE DIRECTED BY THE ENGINEER.

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				6	ARK.			
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(2) TEMPORARY EROSION CONTROL DETAILS

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND

TEMPORARY EROSION CONTROL QUANTITIES (STAGE 4):
DROP INLET SILT FENCE (E 7) = 50
SEDIMENT REMOVAL AND DISPOSAL = 5 CU.YDS.

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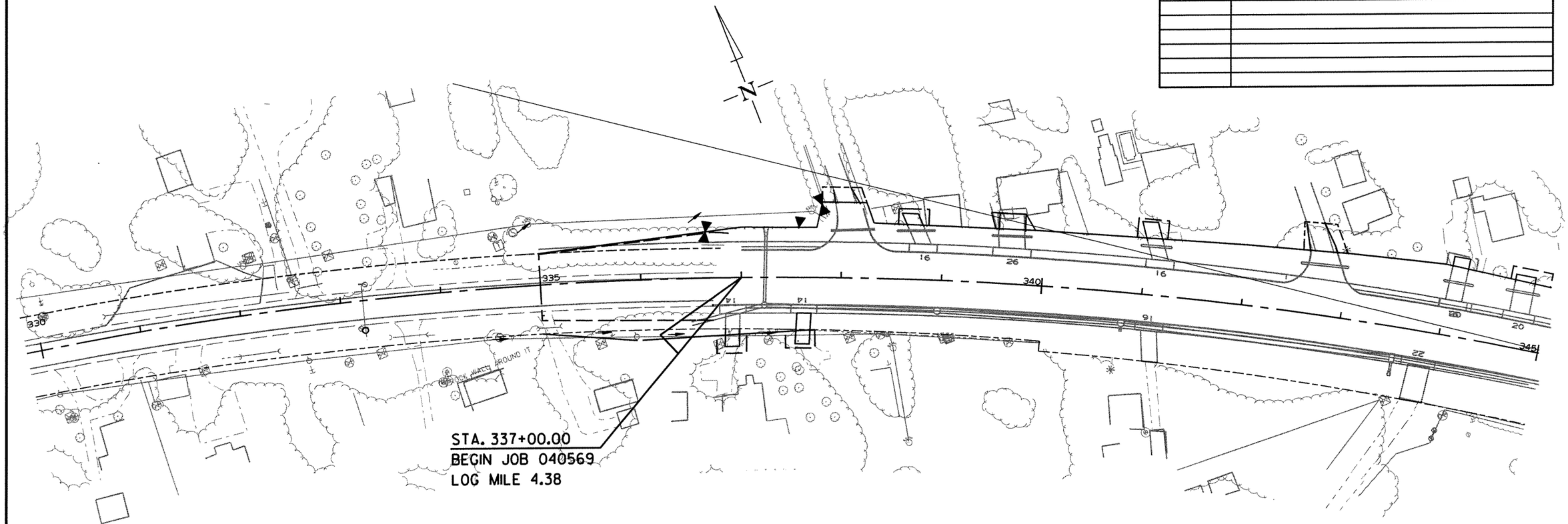

TEMPORARY EROSION CONTROL DETAILS
(STAGE 4)

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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.		040569	13	114

(2) TEMPORARY EROSION CONTROL DETAILS

(E-6) ROCK DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE
(E-14) SEDIMENT BASIN

LEGEND

RETAIN TEMPORARY EROSION CONTROL ITEMS FROM STAGE 1 IF AND WHERE DIRECTED BY THE ENGINEER.

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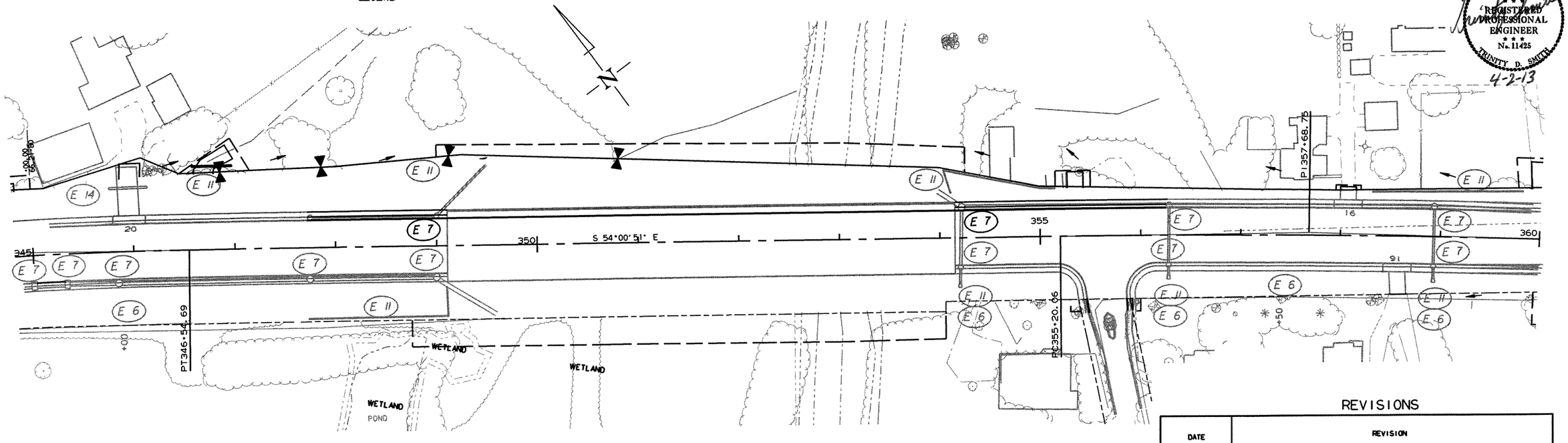

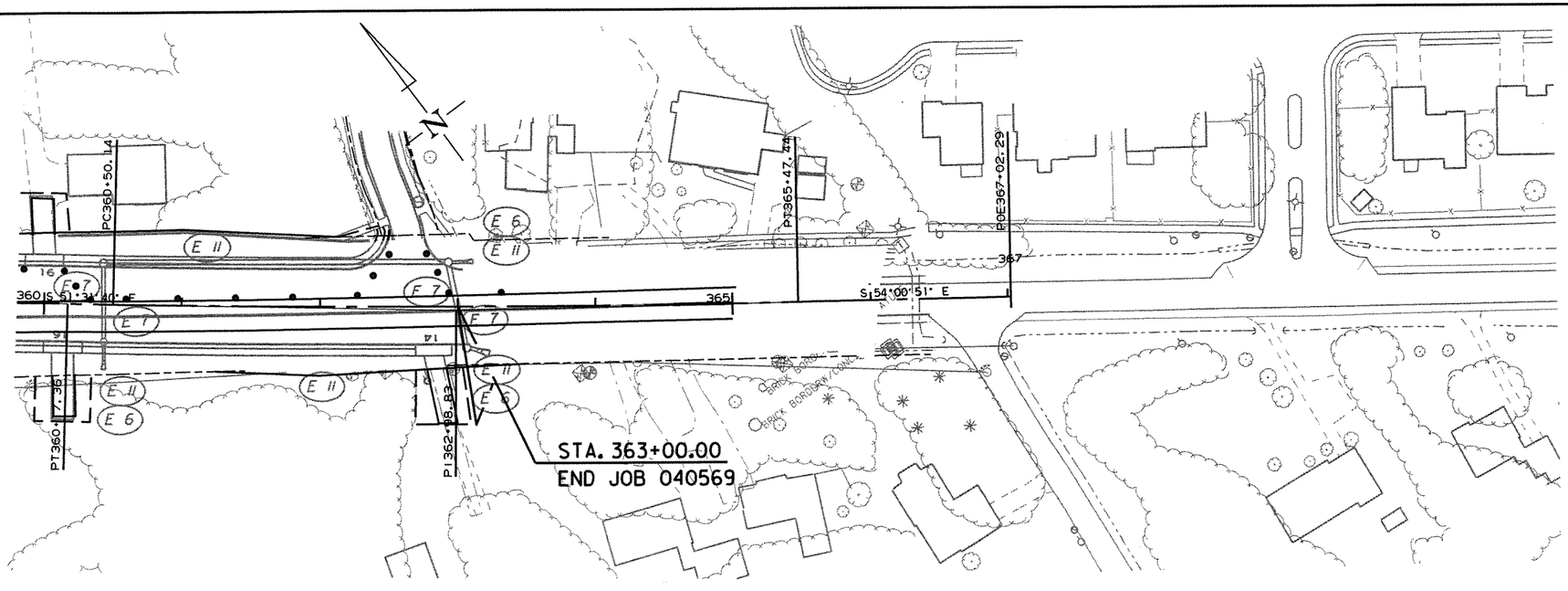

REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS
(STAGE 4)

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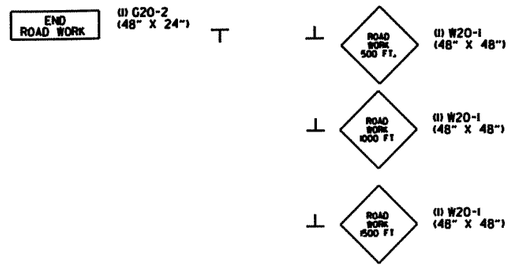
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	14	114

(2) MAINTENANCE OF TRAFFIC DETAILS



DETAIL OF SIGN PLACEMENT AT BEGINNING AND END OF PROJECT

MAINTENANCE OF TRAFFIC STAGE 1:

MAINTAIN TRAFFIC IN EXISTING LANES.
CONSTRUCT TEMPORARY WIDENING ON RT. STA. 340+50 - STA. 360+00.

DELINEATE TRAFFIC USING VERTICAL PANELS (40' SPACING) ON THE RT. OF THE EXISTING LANES.

ALL COUNTY ROADS, CITY STREET INTERSECTIONS AND DRIVEWAYS ON THE RT. OF THE EXISTING LANES ARE TO BE DELINEATED USING TRAFFIC DRUMS (6 EACH).

R4-1 SIGNS ARE TO BE PLACED THROUGH THE WORK ZONES AT 1/2 MI. INTERVALS.

W20-1 (AHEAD) SIGNS ARE TO BE PLACED AT ALL COUNTY ROAD AND CITY STREET INTERSECTIONS THROUGH THE WORK ZONE.

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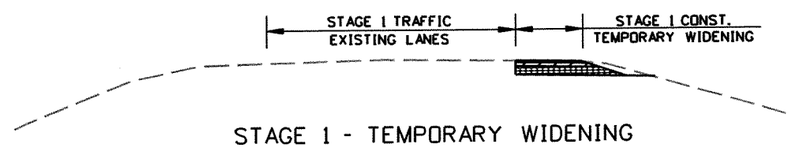
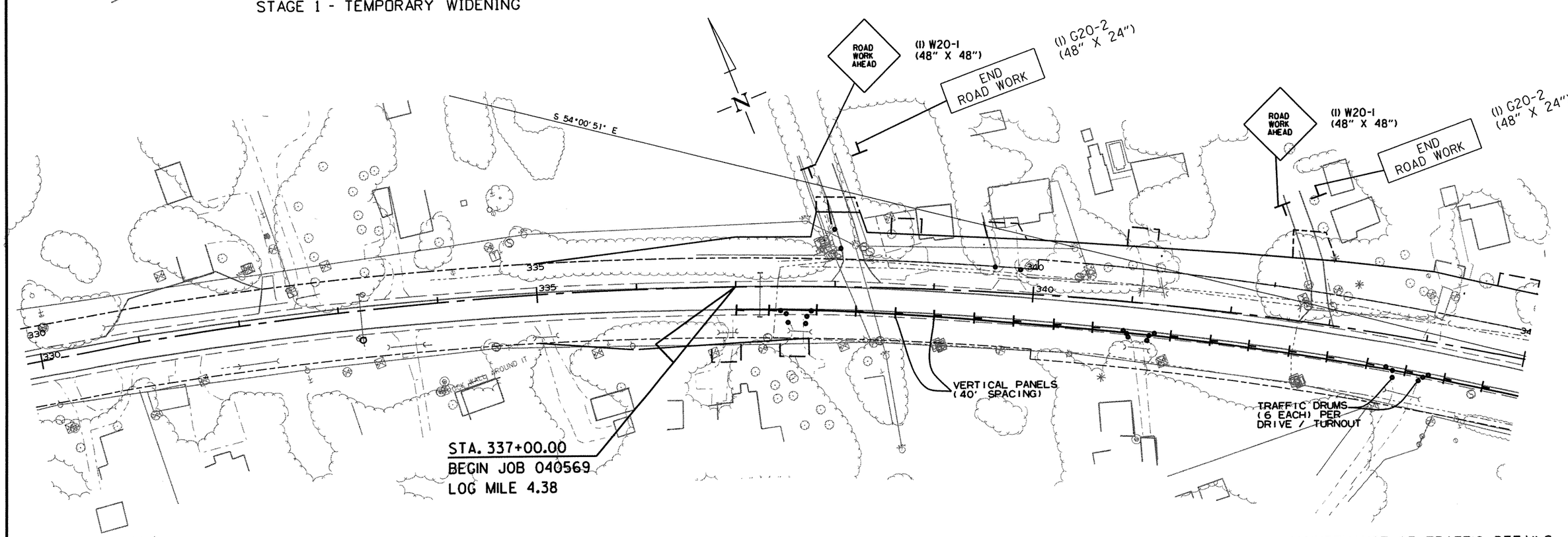
MAINTENANCE OF TRAFFIC QUANTITIES (STAGE 1):
SIGNS = 266 SQ. FT.
TRAFFIC DRUMS = 48 EACH
VERTICAL PANELS = 44 EACH



STAGE 1 - TEMPORARY WIDENING



MAINTENANCE OF TRAFFIC DETAILS (STAGE 1)

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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(2) MAINTENANCE OF TRAFFIC DETAILS

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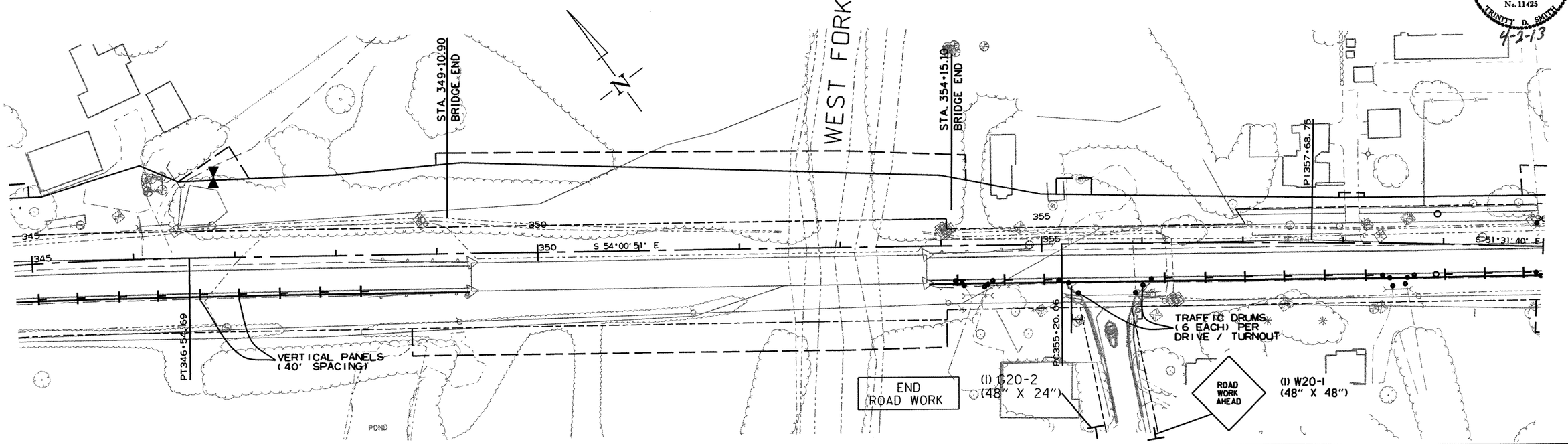

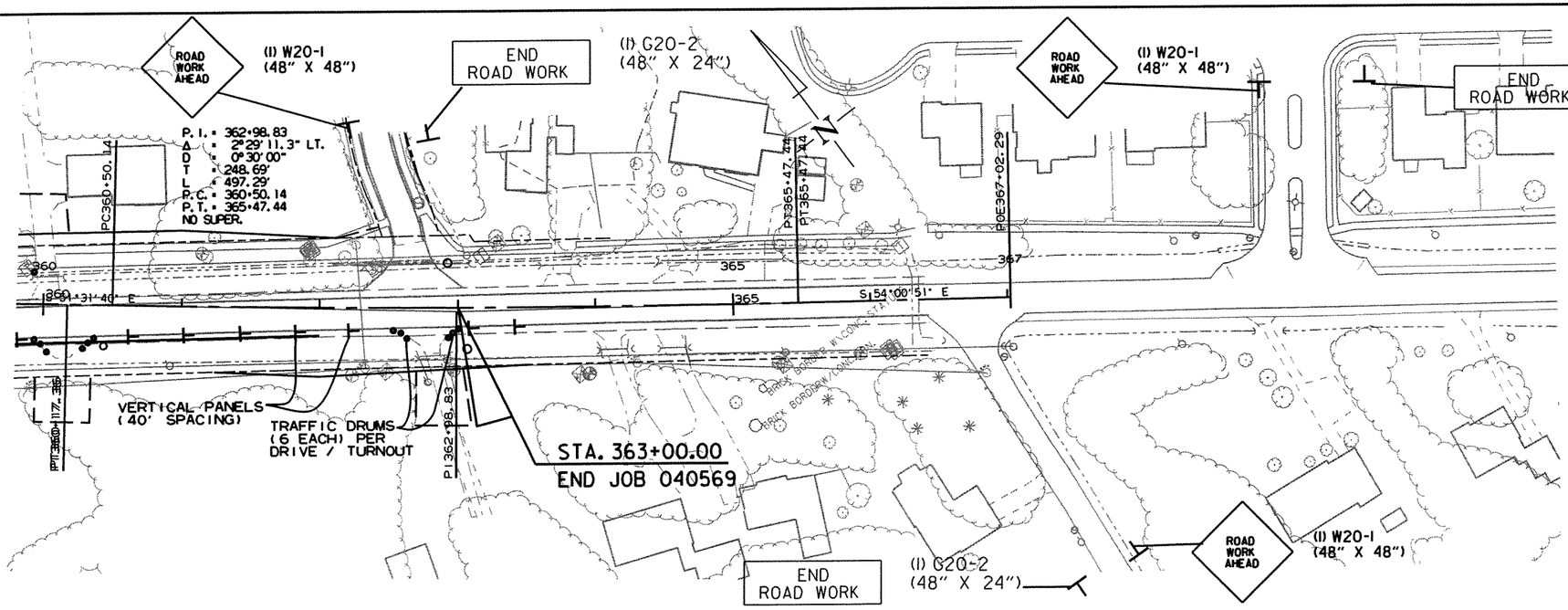

MAINTENANCE OF TRAFFIC DETAILS
(STAGE I)

11/8/2011

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) MAINTENANCE OF TRAFFIC DETAILS

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MAINTENANCE OF TRAFFIC STAGE 2:

MAINTAIN TRAFFIC IN EXISTING LANES WITH TEMPORARY WIDENING ON RT.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON RT. AND LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

CONSTRUCT WIDENING ON LEFT AS SHOWN ON PLANS. SIDEWALK ON LT. STA. 346+75 TO BR. END, ENTIRE LENGTH OF BRIDGE AND BR. END TO STA. 356+25 TO BE CONSTRUCTED IN LATER STAGE.

CONSTRUCT ADDITIONAL WIDENING ON LT. STA. 346+75 TO BR. END AND BR. END TO STA. 356+25 AS SHOWN ON PLANS.

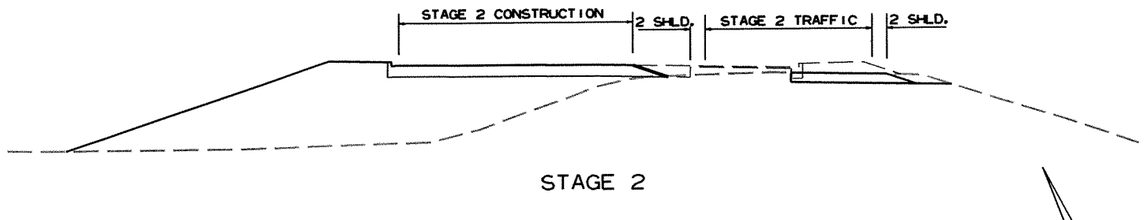
DELINEATE TRAFFIC USING VERTICAL PANELS (40' SPACING) ON THE SIDE BEING WIDENED.

ALL COUNTY ROADS, CITY STREET INTERSECTIONS AND DRIVEWAYS ON THE LT. OF EXISTING LANES. ARE TO BE DELINEATED USING TRAFFIC DRUMS (6 EACH).

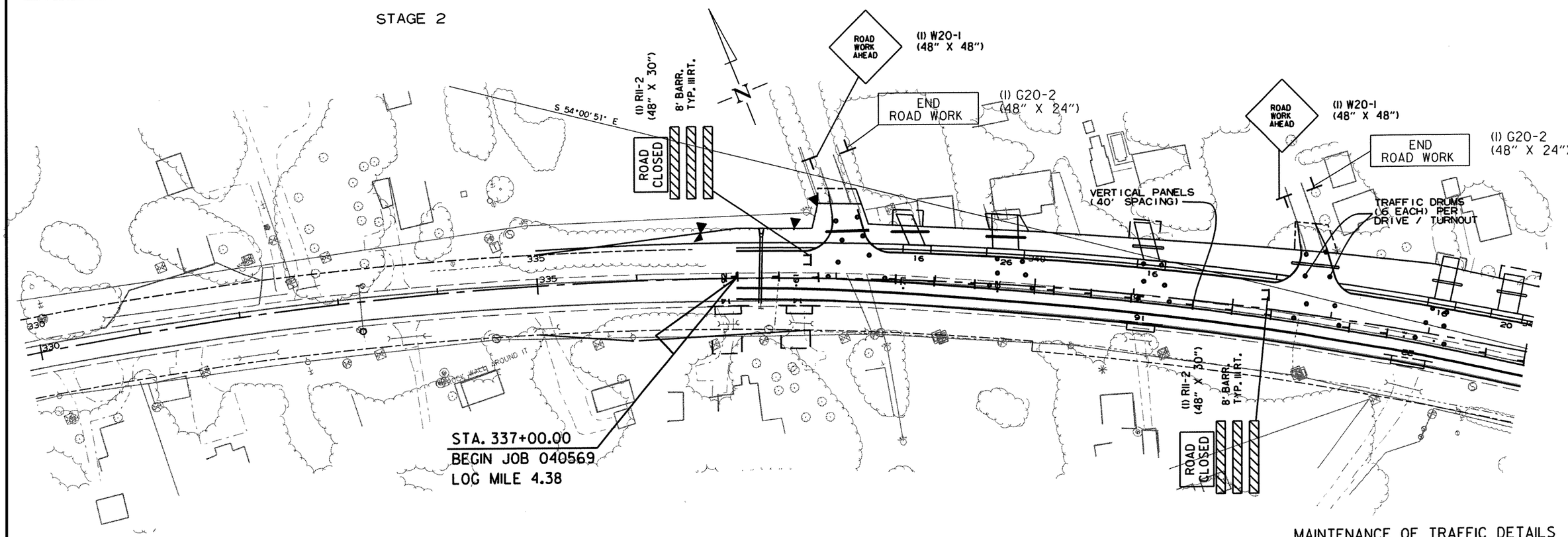
R4-1 SIGNS ARE TO BE PLACED THROUGH THE WORK ZONES AT 1/2 MI. INTERVALS.

W20-1 (AHEAD) SIGNS ARE TO BE PLACED AT ALL COUNTY ROAD AND CITY STREET INTERSECTIONS THROUGH THE WORK ZONE.

MAINTENANCE OF TRAFFIC QUANTITIES (STAGE 2):
- SIGNS = 316 SQ. FT.
- TRAFFIC DRUMS = 72 EACH
- VERTICAL PANELS = 35 EACH
- BARRICADES (TYPE III) = 56 LIN. FT.
- REMOVAL OF PERMANENT PVMT. MRK. = 1800 LIN. FT.
- CONSTRUCTION PVMT. MRK. = 9400 LIN. FT.
- REMOVABLE CONST. PVMT. MRK. = 1800 LIN. FT.



STAGE 2



MAINTENANCE OF TRAFFIC DETAILS (STAGE 2)

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(2) MAINTENANCE OF TRAFFIC DETAILS

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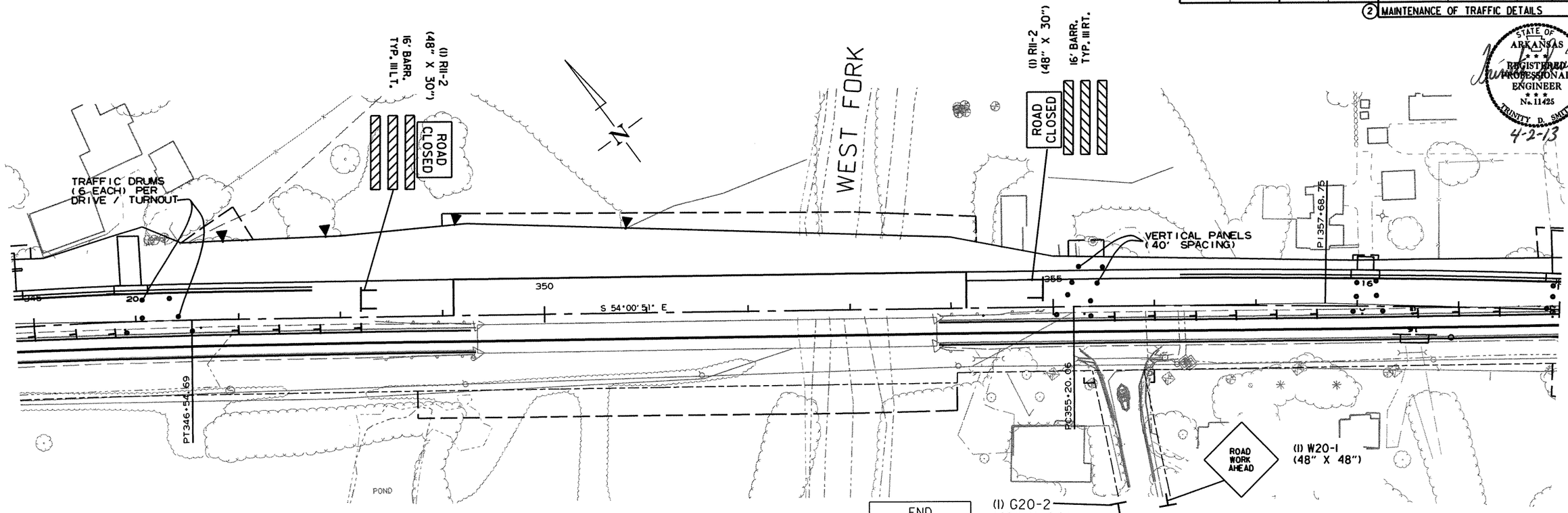

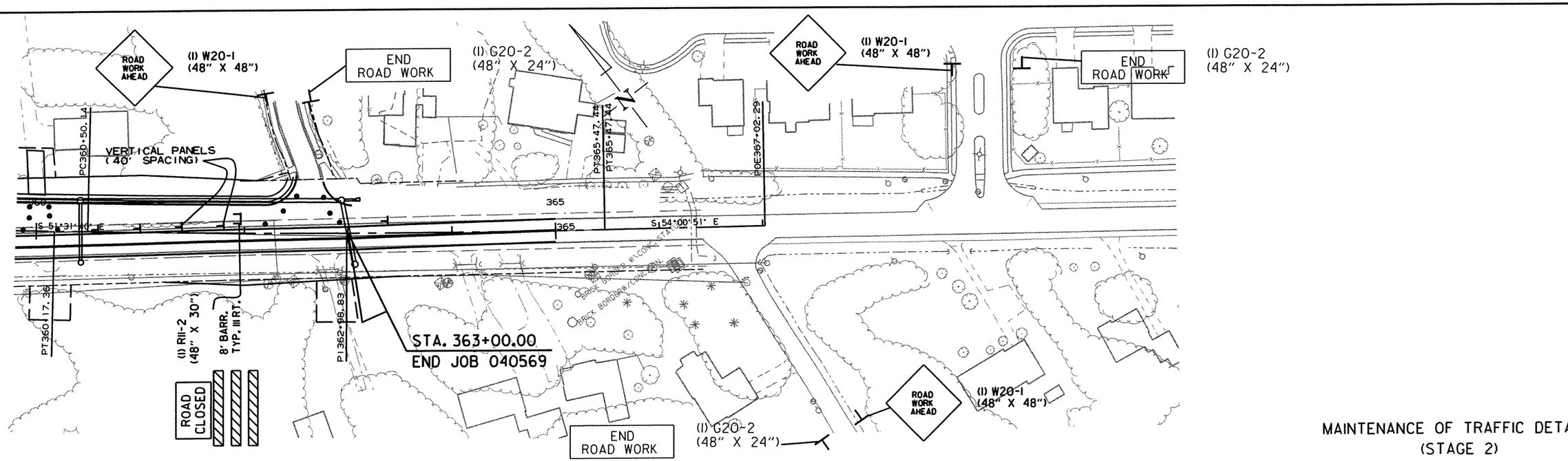

MAINTENANCE OF TRAFFIC DETAILS
(STAGE 2)

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				6	ARK.			
				JOB NO.		040569	18	114

(2) MAINTENANCE OF TRAFFIC DETAILS

MAINTENANCE OF TRAFFIC STAGE 3:

SHIFT TRAFFIC TO THE LEFT ON TO NEW LANES AND BRIDGE CONSTRUCTED DURING STAGE 2.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON RT. AND LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

CONSTRUCT WIDENING ON RIGHT AS SHOWN ON PLANS.

DELINEATE TRAFFIC USING VERTICAL PANELS (40' SPACING) ON THE SIDE BEING WIDENED.

ALL COUNTY ROADS, CITY STREET INTERSECTIONS AND DRIVEWAYS ARE TO BE DELINEATED AS SHOWN ON PLANS USING TRAFFIC DRUMS (6 EACH).

R4-1 SIGNS ARE TO BE PLACED THROUGH THE WORK ZONES AT 1/2 MI. INTERVALS.

W20-1 (AHEAD) SIGNS ARE TO BE PLACED AT ALL COUNTY ROAD AND CITY STREET INTERSECTIONS THROUGH THE WORK ZONE.

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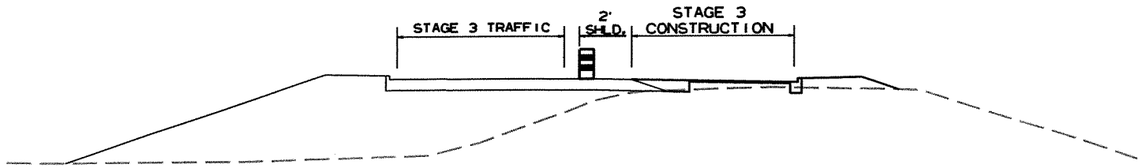
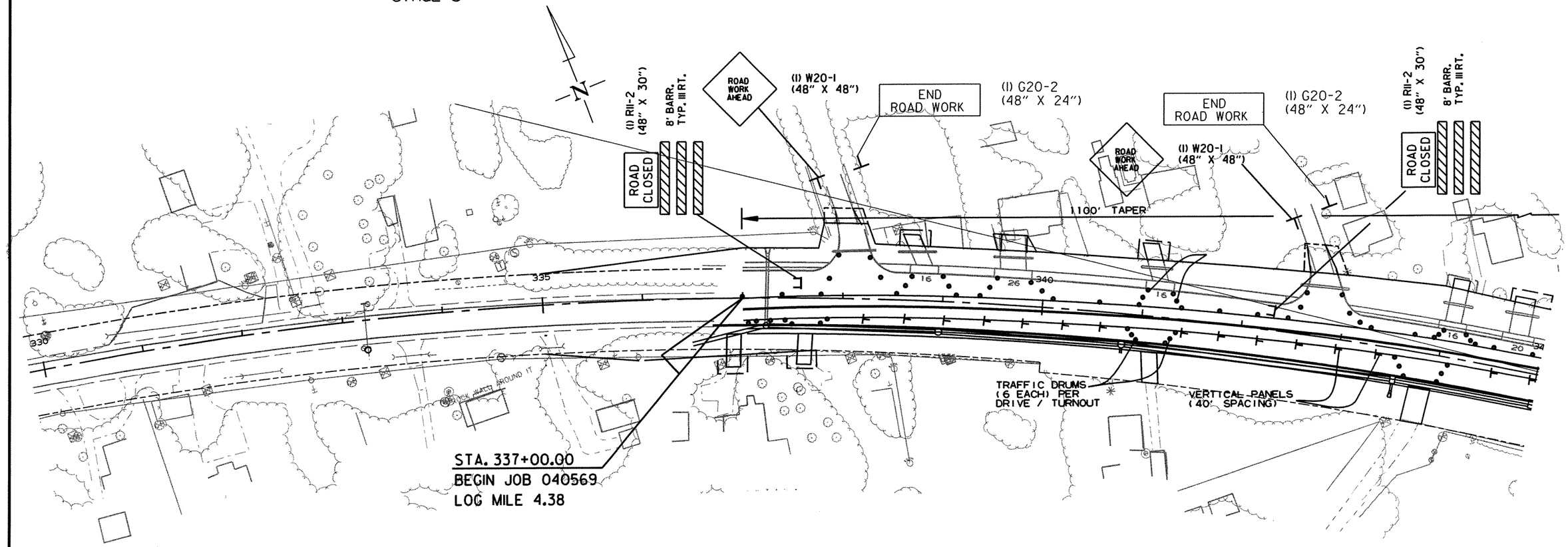


STAGE 3

MAINTENANCE OF TRAFFIC QUANTITIES (STAGE 3):
SIGNS = 306 SQ. FT.
TRAFFIC DRUMS = 136 EACH
VERTICAL PANELS = 32 EACH
BARRICADES (TYPE III) = 32 LIN. FT.
FURNISHING AND INSTALLING PRECAST CONC. BARRIER = 280 LIN.FT.
CONSTRUCTION PVMT. MRK. = 9400 LIN. FT.
REMOVABLE CONST. PVMT. MRK. = 1800 LIN. FT.



MAINTENANCE OF TRAFFIC DETAILS (STAGE 3)

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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.		040569	19	114

(2) MAINTENANCE OF TRAFFIC DETAILS

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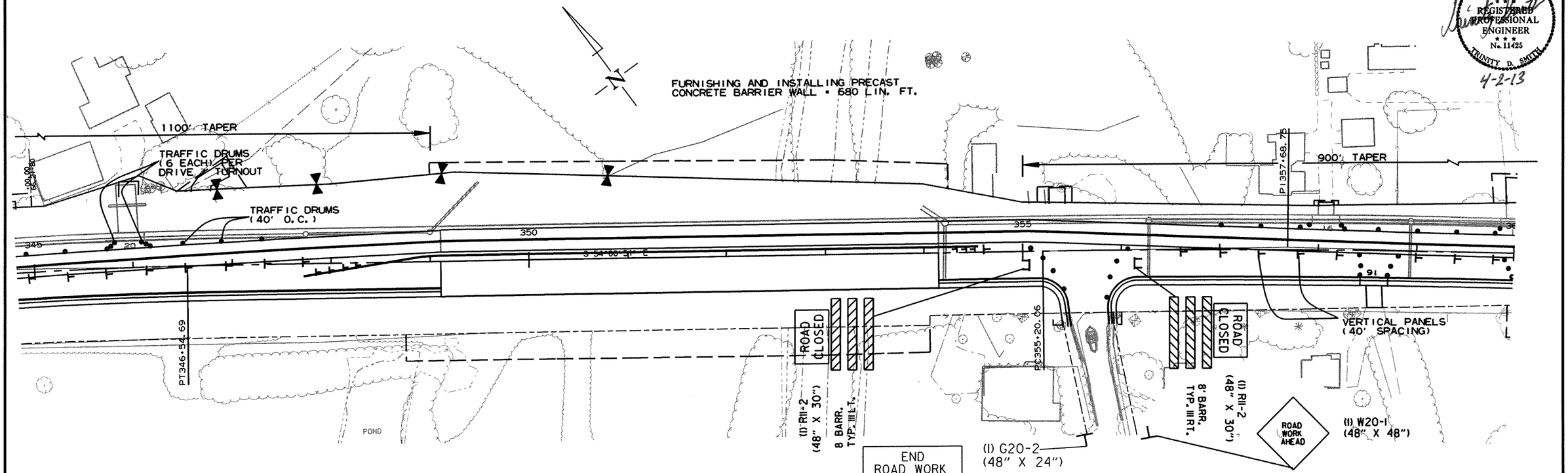

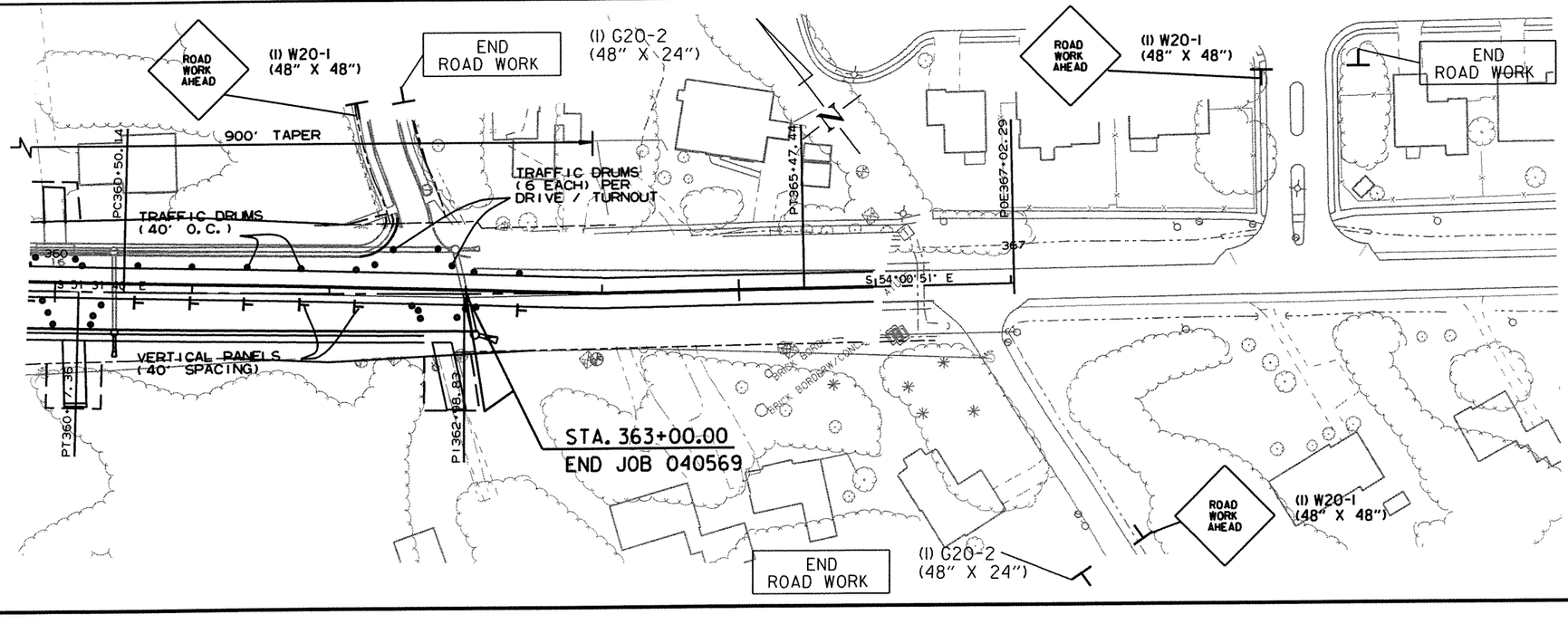

MAINTENANCE OF TRAFFIC DETAILS
(STAGE 3)

11/8/2011

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				6	ARK.			
				JOB NO.		040569	20	114

(2) MAINTENANCE OF TRAFFIC DETAILS

MAINTENANCE OF TRAFFIC STAGE 4:

SHIFT TRAFFIC TO THE RT. ONTO PORTION OF ROADWAY AND BRIDGE CONSTRUCTED DURING STAGE 3.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON RT. AND LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

CONSTRUCT WALK AND CURB ON LEFT AS SHOWN ON PLANS.

DELINEATE TRAFFIC USING VERTICAL PANELS (40' SPACING) ON THE LEFT.

ALL COUNTY ROADS, CITY STREET INTERSECTIONS AND DRIVEWAYS ON THE SIDE BEING WIDENED ARE TO BE DELINEATED USING TRAFFIC DRUMS (6 EACH).

R4-1 SIGNS ARE TO BE PLACED THROUGH THE WORK ZONES AT 1/2 MI. INTERVALS.

W20-1 (AHEAD) SIGNS ARE TO BE PLACED AT ALL COUNTY ROAD AND CITY STREET INTERSECTIONS THROUGH THE WORK ZONE.

STATE OF ARKANSAS
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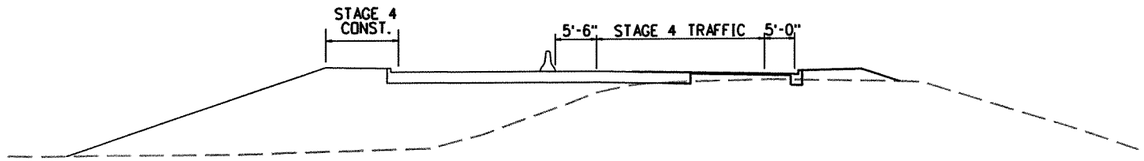
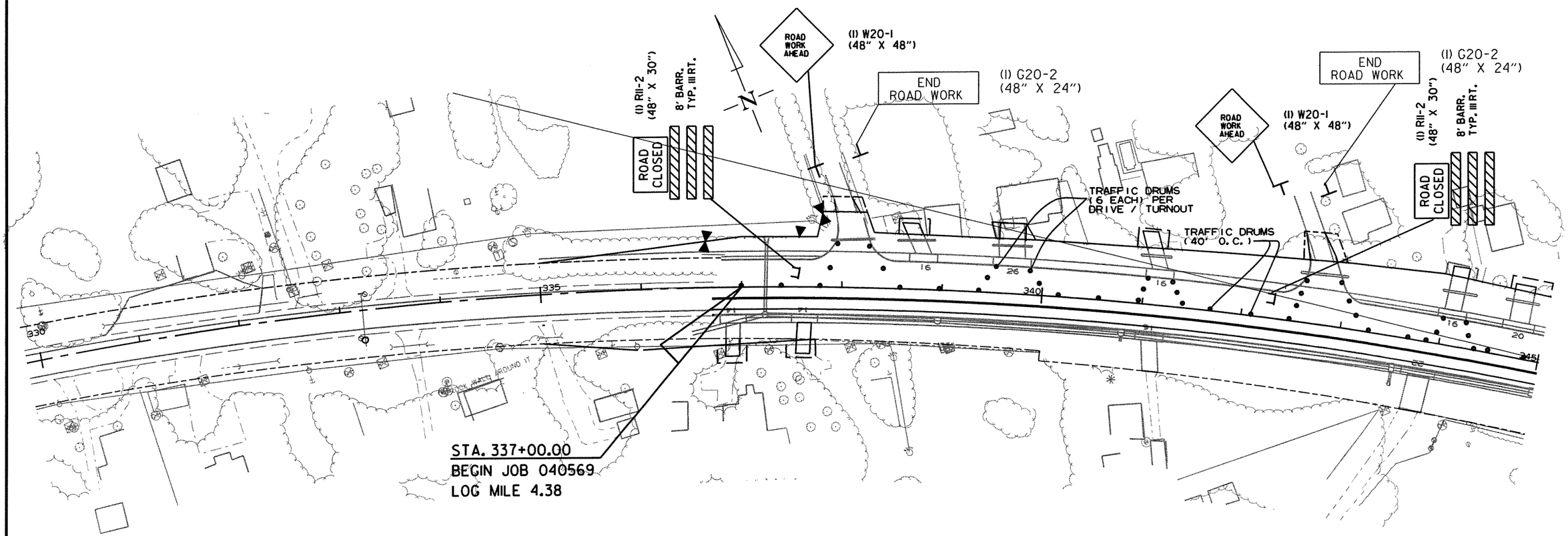
No. 11425
TRINITY D. SMITH
4-2-13



STAGE 4

MAINTENANCE OF TRAFFIC QUANTITIES (STAGE 4):
SIGNS = 317 SQ. FT.
TRAFFIC DRUMS = 88 EACH
BARRICADES (TYPE III) = 24 LIN. FT.
RELOCATING PRECAST CONRETE BARRIER WALL = 140 LIN. FT.
CONSTRUCTION PVMT. MRK. = 9400 LIN. FT.
REMOVAL OF CONST. PVMT. MRK. = 4200 LIN. FT.
REMOVABLE CONST. PVMT. MRK. = 1800 LIN. FT.



MAINTENANCE OF TRAFFIC DETAILS (STAGE 4)

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	21	114

(2) MAINTENANCE OF TRAFFIC DETAILS

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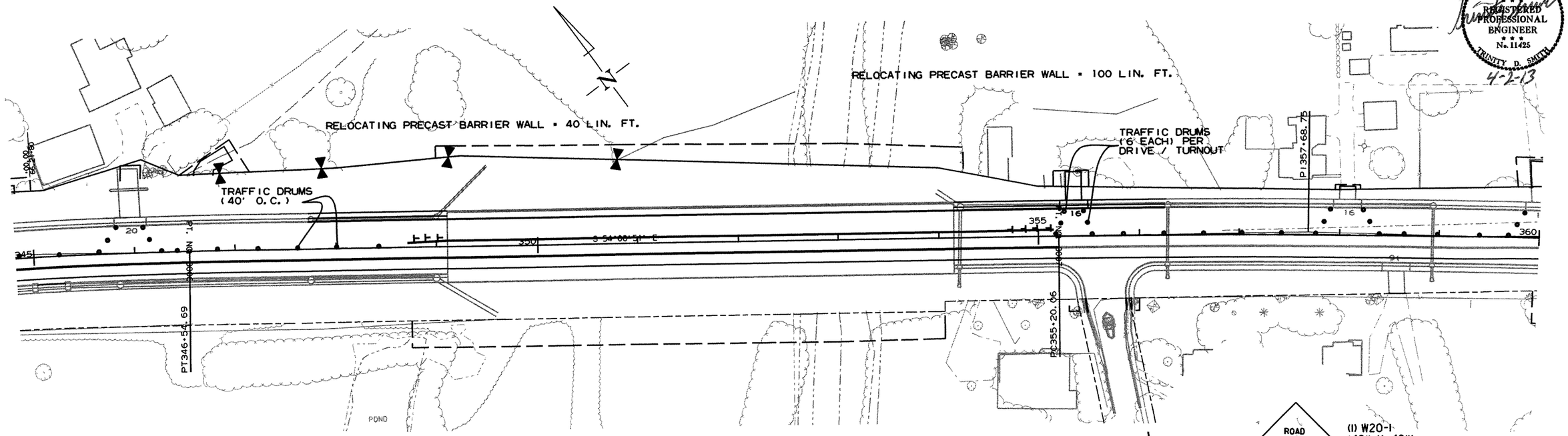

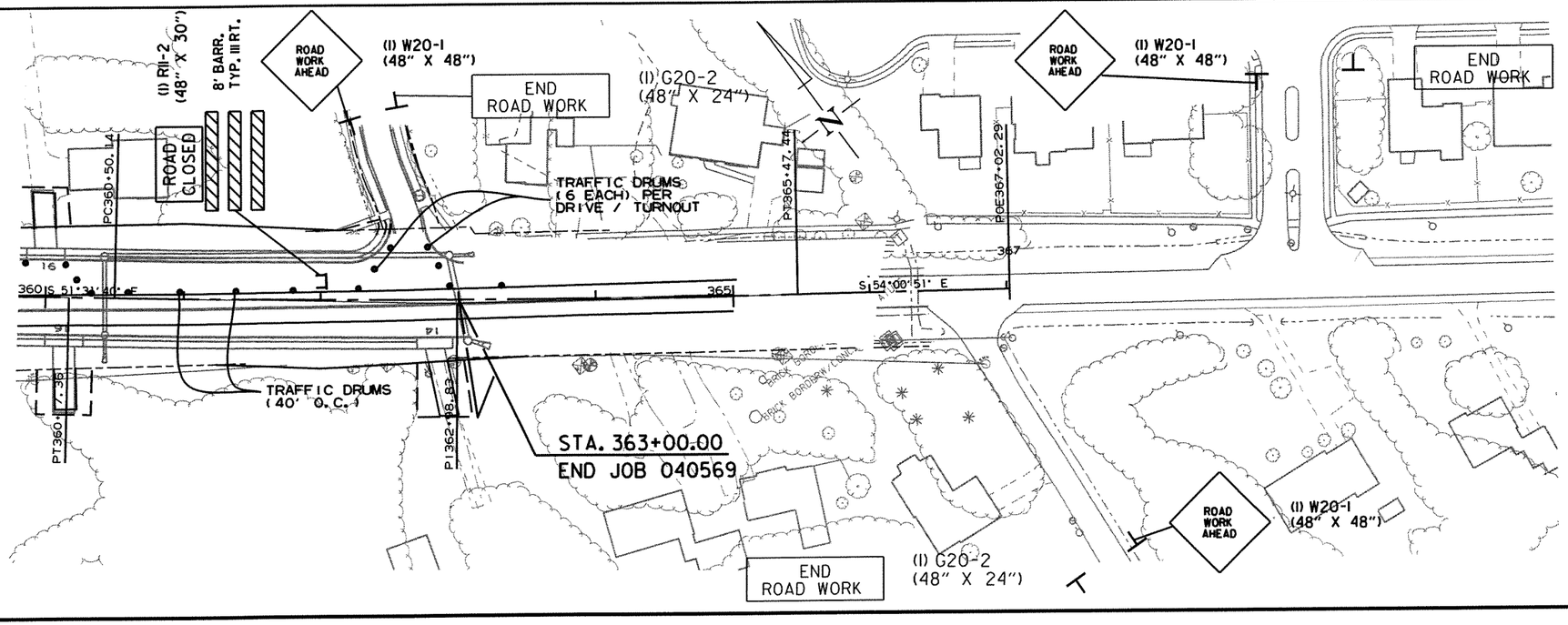

MAINTENANCE OF TRAFFIC DETAILS (STAGE 4)

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	22	114

(2) PERMANENT PAVEMENT MARKING DETAILS

NOTE: HWY. 16 WILL BE STRIPED FOR TWO LANES OF TRAFFIC.

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No. 11425
TRINITY D. SMITH
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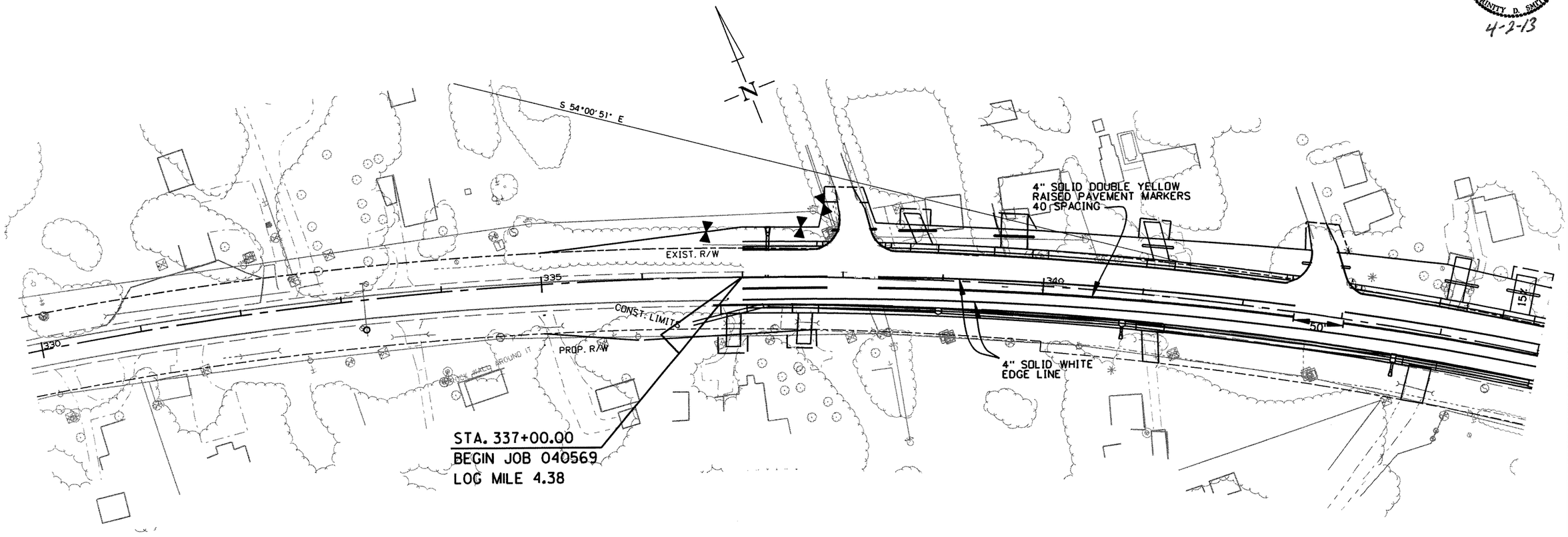

PERMANENT PAVEMENT MARKING QUANTITIES:
THERMOPLASTIC PAVEMENT MARKINGS 4" WHITE - 5400 LIN.FT.
THERMOPLASTIC PAVEMENT MARKINGS 4" YELLOW - 3800 LIN.FT.
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW 4" - 1010 LIN.FT.
RAISED PAVEMENT MARKERS (TYPE II) (YEL./YEL.) - 74 EACH

PERMANENT PAVEMENT MARKING DETAILS

ZBORDER.CEL 11/8/2011

NOTE: HWY. 16 WILL BE STRIPED FOR TWO LANES OF TRAFFIC.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	23	114

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
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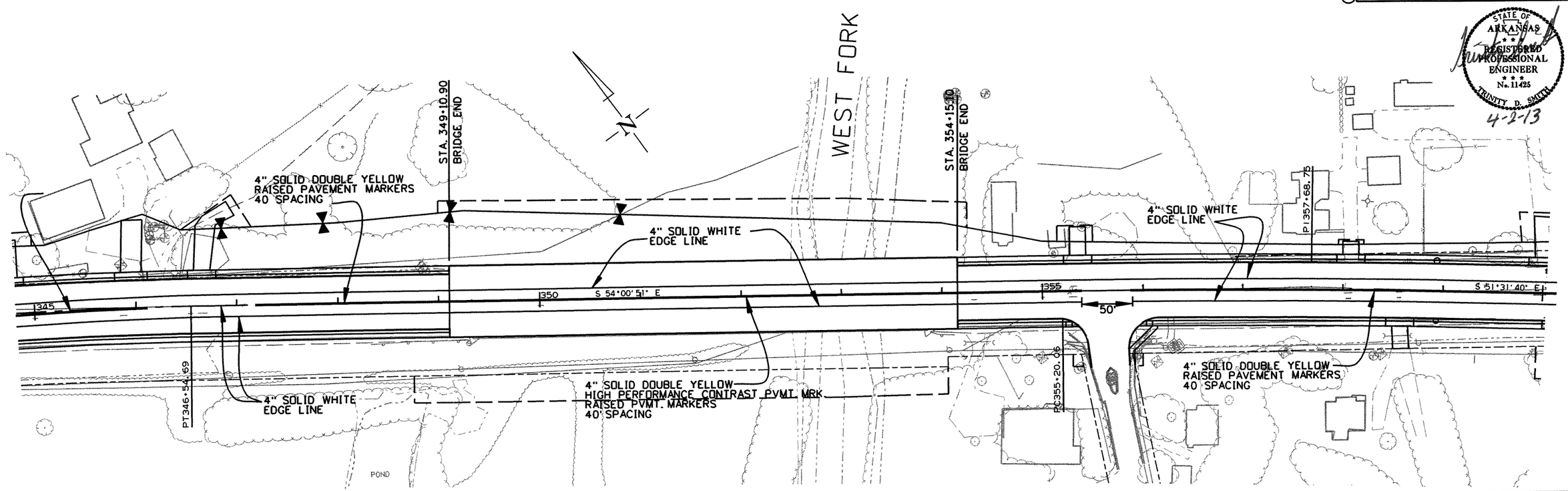
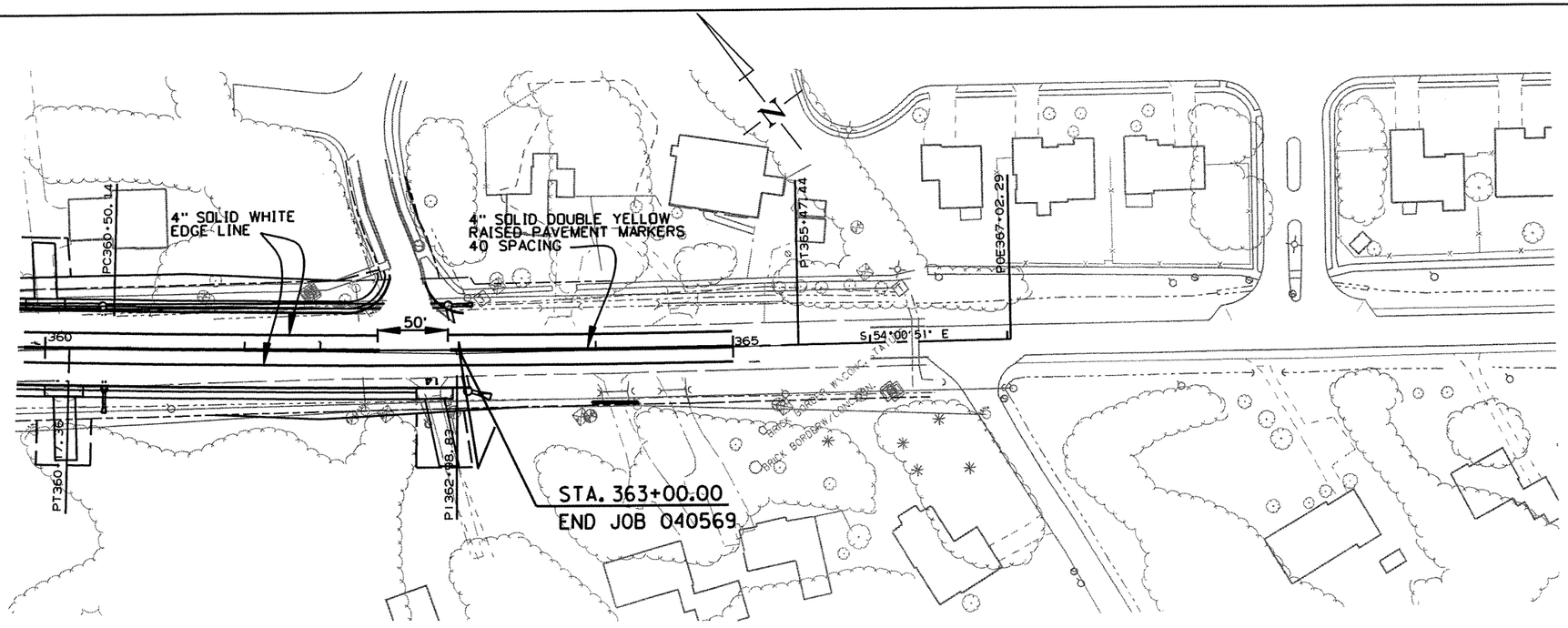
4-2-13





PERMANENT PAVEMENT MARKING DETAILS

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	040569		24	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 4	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER
								NO.	SQ. FT.			RIGHT	LEFT		
			LIN. FT. - EACH							EACH				LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	32.0						
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	32.0						
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	32.0						
W20-1	ROAD WORK AHEAD	48"x48"	6	6	6	6	6	6	96.0						
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	2	16.0						
R11-2	ROAD CLOSED	48"x30"		5	4	3	5	5	50.0						
OM-3L	OBJECT MARKER	12"x36"			3	3	3	3	9.0						
OM-3R	OBJECT MARKER	12"x36"			4	4	4	4	12.0						
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	2	10.0						
	VERTICAL PANELS		44	35	32		44	44		44					
	TRAFFIC DRUMS		48	72	136	88	136	136			136				
	TYPE III BARRICADE-RT. (8')			3	3	3	3	3				24			
	TYPE III BARRICADE-LT. (8')			2	1		2	2					16		
	TYPE III BARRICADE-RT. (16')			1			1	1				16			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER				680		680							680	
	RELOCATING PRECAST CONCRETE BARRIER					140	140								140
TOTALS:									289.0	44	136	40	16	680	140

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	STAGE 4	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKINGS 4"		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
										TYPE II (YEL/YEL)	WHITE	YELLOW	4" YELLOW
	LIN. FT. - EACH					LIN. FT.		LIN. FT.		EACH	LIN. FT.		LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS		1800				1800							
CONSTRUCTION PAVEMENT MARKINGS		9400	9400	9400			28200						
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS				4200				4200					
REMOVABLE CONSTRUCTION PAV'T MARKINGS		1800	1800	1800					5400				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)					74					74			
											5400		
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")					5400							3800	
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")					3800								1010
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")					1010								
TOTALS:						1800	28200	4200	5400	74	5400	3800	1010

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	MAIN LANES	1.85	3.70	1.85	206.3	1.85	1397	6.08	6.08	124.0							
ENTIRE	PROJECT	STAGE 1											50		275			10
ENTIRE	PROJECT	STAGE 2											25	175	845	400	400	450
ENTIRE	PROJECT	STAGE 3											55	350	530			35
ENTIRE	PROJECT	STAGE 4												50				5
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.									1.00	1.00	20.4	100			100	200	200	225
TOTALS:			1.85	3.70	1.85	206.3	1.85	1397	7.08	7.08	144.4	100	130	575	1750	600	600	725

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 ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

8/31/2012

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	25	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-11-13

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	WALKS	SIGN FOUNDATIONS	GUARDRAIL	CONCRETE DRAIN	BUILDINGS	SIGNS	RETAINING WALL	WELL	SEPTIC SYSTEM
			LIN. FT.	SQ. YD.	EACH	LIN. FT.	SQ.YD.	EACH	EACH	LIN. FT.	EACH	EACH
338+98		FRAME HOUSE ON LT.						1				
339+27		WELL ON LT.									1	
345+10		SIGN AND FOUNDATIONS			2				1			
348+32	349+34	GUARDRAIL ON LT. & RT.				200						
353+88	354+12	GUARDRAIL ON RT.				25						
353+88	354+88	GUARDRAIL ON RT.				100						
354+60		SEPTIC SYSTEM ON LT.										1
354+61		FRAME HOUSE ON LT.						1				
355+15		FRAME SHED ON LT.						1				
355+15		WELL ON LT.									1	
355+24	355+40	CONCRETE DRAIN ON RT.					9					
355+25	355+44	RETAINING WALL ON RT.								27		
355+49		CURB AND GUTTER ON RT.	44									
355+87		CURB AND GUTTER ON RT.	44									
355+90	356+15	RETAINING WALL ON RT.								20		
355+93	356+08	CONCRETE DRAIN ON RT.					8					
356+89	362+38	CONCRETE WALK ON LT.		366								
357+09	357+99	ROCK RETAINING WALL ON LT.								93		
362+70	362+94	WALL ON RT.								46		
362+77	363+69	CONCRETE WALK ON LT.		41								
364+48		WALL ON LT.								7		
TOTALS:			88	407	2	325	17	3	1	193	2	1

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
349+10.90	BRIDGE END ON LT.	1
354+15.10	BRIDGE END ON RT.	1

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
337+00	344+00		7	7
345+00	358+00		13	13
359+00	363+00		4	4
TOTALS:			24	24

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10
DIRECTED BY THE ENGINEER	
TOTAL:	10

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

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
335+00	13'RT	0-5'	24	10	A-4(2)	BROWN
335+00	5'RT	0-5'	24	8	A-4(1)	BROWN
348+00	CL	0-4.0Z	27	14	A-6(6)	RD/BR
356+00	10'RT	0-5	32	17	A-6(11)	RD/BR
356+00	10'RT	0-5'	35	18	A-6(12)	RD/BR
365+00	25'LT	0-5'	19	4	A-4(0)	RD/BR
365+00	13'LT	0-5	18	5	A-4(0)	RD/BR
365+00	5'LT	0-5'	19	6	A-4(1)	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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
336+60	337+80	LT. OF MAIN LANES	175
339+84	340+56	LT. OF MAIN LANES	70
345+20	345+52	LT. OF MAIN LANES	96
346+43	350+80	LT. OF MAIN LANES	635
349+48	352+47	RT. OF MAIN LANES	305
356+80	356+91	LT. OF MAIN LANES	23
358+80		LT. OF MAIN LANES	10
TOTAL:			1314

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
336+92	16"X26' C.M.P. - RT. SIDE DRAIN	1	
337+25	18"X45' R.C. PIPE CULVERT	1	
337+61	24"X20' C.M.P. - RT. SIDE DRAIN	1	
339+77	18"X28' C.M.P. - LT. SIDE DRAIN	1	
341+10	24"X20' C.M.P. - RT. SIDE DRAIN	1	
341+19	24"X24' C.M.P. - LT. SIDE DRAIN	1	
343+85	28"X34' C.M.P. - RT. SIDE DRAIN	1	
343+89	18"X28' C.M.P. - LT. SIDE DRAIN	1	
344+06	18"X16' C.M.P. - LT. SIDE DRAIN	1	
346+21	16'X28' R.C.P. - LT. SIDE DRAIN	1	
354+36	18"X24' R.C.P. - RT. SIDE DRAIN	1	
355+20	18"X20' C.M.P. - LT. SIDE DRAIN	1	
355+66	36"X84' R.C.P. - RT. SIDE DRAIN	1	
356+10	DROP INLET ON RT.		1
358+10	18"X20' C.M.P. - LT. SIDE DRAIN	1	
358+54	18"X26' C.M.P. - RT. SIDE DRAIN	1	
360+03	16"X26' R.C.P. - LT. SIDE DRAIN	1	
360+17	18"X25' C.M.P. - RT SIDE DRAIN	1	
362+65	30"X84' R.C.P. - LT. SIDE DRAIN	1	
362+81	18"X20' C.M.P. - RT. SIDE DRAIN	1	
TOTALS:		19	1

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
	EACH		
ENTIRE PROJECT	16	14	1
TOTALS:	16	14	1

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	1148	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	1062	10900
ENTIRE	PROJECT	STAGE 3 - MAIN LANES	250	4046
ENTIRE	PROJECT	STAGE 4 - MAIN LANES	33	268
ENTIRE	PROJECT	APPROACHES		1035
ENTIRE	PROJECT	BRIDGE EXCAVATION	995	
338+10		CUNNINGHAM LANE		40
342+77		JARNIGAN STREET		55
355+71		RIVER MEADOWS DRIVE		60
362+64		HODDLE PLACE		40
* ENTIRE	PROJECT	UNDERCUT FOR DITCHES AND SIDE	2000	2000
		SLOPES TO BE USED IF AND WHERE		
		DIRECTED BY THE ENGINEER		
TOTALS:			5488	18444

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

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
338+50	346+00	LT DITCH	750.0	666.7
TOTAL:				666.7

NOTE: AVERAGE WIDTH = 8'-0"

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS
			LIN. FT.
* ENTIRE PROJECT TO BE USED IF AND			1500
WHERE DIRECTED BY THE ENGINEER			
TOTAL:			1500

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

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

5/28/2013

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	040569		26	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

CONCRETE ITEMS

STATION	STATION	LOCATION	CONC. COMB. CURB & GUTTER (TY. A)(1' 6")	CONCRETE WALKS	WHEELCHAIR RAMPS (TYPE 3)
			LIN. FT.	SQ.YD.	SQ. YD.
337+00	337+95	LT. OF MAIN LANES	119	42	
337+95		LT. OF MAIN LANES			5.3
338+47		LT. OF MAIN LANES			5.3
338+28	342+61	LT. OF MAIN LANES	495	167	
343+15		LT. OF MAIN LANES			5.3
342+85	349+11	LT. OF MAIN LANES	651	285	
354+15	362+51	LT. OF MAIN LANES	862	424	
362+80	363+00	LT. OF MAIN LANES	40		
336+70	349+11	RT. OF MAIN LANES	1241	626	
354+15	355+47	RT. OF MAIN LANES	165	60	
355+23		RT. OF MAIN LANES			5.3
356+09		RT. OF MAIN LANES			5.8
355+86	363+00	RT. OF MAIN LANES	710	320	
TOTALS:			4283	1924	27.0

FENCING

STATION	STATION	SIDE	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D-1)
			LIN. FT.	
336+60	337+80	LT.	130	
346+80	350+80	LT.		400
TOTALS:			130	400

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	DEPTH	PAVEMENT REPAIR	FLOWABLE SELECT MATERIAL
		FEET	CU. YD.	CU.YD.
337+25	MAIN LANES	4	4.6	9.6
359+00	MAIN LANES	4	4.2	9.8
360+45	MAIN LANES	6.5	4.6	18.7
363+00	MAIN LANES	7	5.3	21.4
TOTALS:			18.7	59.5

AVG. DEPTH OF PAVEMENT = 9"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
336+00	337+00	MAIN LANES	22	244.44
365+00	366+00	MAIN LANES	22	244.44
TOTAL:				488.88

NOTE: AVERAGE MILLING DEPTH 1".

DRIVEWAYS & TURNOUTS

STATION	SIDE	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
									18"	24"	
		FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.		
336+92	RT.	14	336+71	337+13	23.10	38.9	4.3	15.9	28		PCC-1, PCM-1,PCP-1,PCP-2
337+61	RT.	14	337+40	337+82	23.10	46.7	5.1	19.1		28	PCC-1, PCM-1,PCP-1,PCP-2
338+10											PCC-1, PCM-1,PCP-1,PCP-2
338+71	LT.	16	338+49	338+93	24.90	58.7	6.5	24.0	28		PCC-1, PCM-1,PCP-1,PCP-2
339+65	LT.	26	339+38	339+92	33.80	95.3	10.5	38.9	40		PCC-1, PCM-1,PCP-1,PCP-2
341+05	RT.	16	340+83	341+27	24.90	55.1	6.1	22.5			
341+10	LT.	16	340+88	341+32	24.90	67.6	7.4	27.6		30	PCC-1, PCM-1,PCP-1,PCP-2
342+77	LT.									40	PCC-1, PCM-1,PCP-1,PCP-2
343+82	RT.	22	343+57	344+07	30.20	85.6	9.4	35.0			
344+10	LT.	16	343+88	344+32	24.90	76.4	8.4	31.2		34	PCC-1, PCM-1,PCP-1,PCP-2
344+75	LT.	24	344+49	345+01	32.00	101.3	11.1	41.4		40	PCC-1, PCM-1,PCP-1,PCP-2
345+94	LT.	20	345+70	346+18	28.40	106.7	11.7	43.6		48	PCC-1, PCM-1,PCP-1,PCP-2
346+65	LT.	16	346+43	346+87	24.90	74.7	8.2	30.5		48	PCC-1, PCM-1,PCP-1,PCP-2
355+35	LT.	16	355+13	355+57	24.90	49.8	5.5	20.3			
358+07	LT.	16	357+85	358+29	24.90	23.1	2.5	9.4			
358+58	RT.	16	358+36	358+80	24.90	40.9	4.5	16.7			
359+97	LT.	16	359+75	360+19	24.90	72.9	8.0	29.8			
360+17	RT.	16	359+95	360+39	24.90	85.3	9.4	34.8			
362+92	RT.	14	362+71	363+13	23.10	77.8	8.6	31.8			
* ENTIRE PROJECT TEMPORARY DRIVES								225.0			
TOTALS:					442.70	1156.8	127.2	697.5	96	268	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.1% MIN. AGGR.....5.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

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.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	300
ENGINEER	
TOTALS:	300

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

8/31/2012

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	27	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	42"	36"X23"	(CLASS IV) 18"	36"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 18"	36"	42"	44"X27"	51"X31"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	42"	36"X23"	DROP INLETS TYPE C	MO	EXT. 4'	8'	YARD DRAIN	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.												EACH				EACH					SQ.YD.	M.GAL	
337+25	CONST. PIPE STUB-INLET W/ F.E.S. ON LT.		62												1								8	0.10	PCC-1, FES-1, FES-2
337+25	CONST. D.I. RT. W/ STUB-IN & PIPE OUTLET				66					167							1		1				13	0.16	PCC-1,PCM-1, FPC-9E, FPC-9M
339+00	CONST. D.I. RT W/ EXT.& PIPE OUTLET											177							1		1				PCC-1,PCM-1, FPC-9E, FPC-9M
340+85	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET	6										268		1					1		1		5	0.06	PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
343+60	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET	6											137	1				1					5	0.06	PCC-1,PCM-1, FPC-9E, FES-1, FES-2
345+00	CONST. D.I. RT. W/ EXT. & PIPE OUT.												29					1		1					PCC-1,PCM-1, FPC-9E
345+33	CONST. D.I. RT. W/ PIPE OUTLET										47							1							PCC-1,PCM-1, FPC-9E
345+85	CONST. D.I. RT W/ EXT. & PIPE OUTLET										183								1	1					PCC-1,PCM-1, FPC-9E, FPC-9M
347+75	CONST. D.I. LT W/ EXT. & PIPE OUTLET								121										1	1					PCC-1,PCM-1, FPC-9E, FPC-9M
347+75	CONST. D.I. RT W/ EXT. & PIPE OUTLET										119								1	1					PCC-1,PCM-1, FPC-9E, FPC-9M
349+00	CONST. D.I. LT W/ EXT. & STUB-OUT W/ F.E.S.	64												1					1		1		5	0.06	PCC-1,PCM-1, FPC-9E, FPC-9M
349+00	CONST. D.I. RT W/ EXT. & STUB-OUT W/ F.E.S.			62												1			1		1		23	0.29	PCC-1,PCM-1, FPC-9E, FPC-9M
354+20	CONST. D.I. LT W/ EXT. & STUB-OUT W/ F.E.S.			20												1			1		1		23	0.29	PCC-1,PCM-1, FPC-9E, FPC-9M
354+20	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET	67												1					1		1		5	0.06	PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
356+30	CONST. D.I. LT W/ EXT. & PIPE OUTLET										201								1		1				PCC-1,PCM-1, FPC-9E, FPC-9M
356+30	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET	6				56								1					1		1		5	0.06	PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
358+90	CONST. D.I. LT W/ EXT. & PIPE OUTLET									262									1	1					PCC-1,PCM-1, FPC-9E, FPC-9M
358+90	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET	7				54								1					1	1			5	0.06	PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
360+45	CONST. D.I. LT W/ EXT. & PIPE OUTLET									144									1		1				PCC-1,PCM-1, FPC-9E, FPC-9M
360+45	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET	12	54																1		1				PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
363+00	CONST. D.I LT STUB-IN W/ F.E.S. & PIPE OUTLET	9								250				1					1				5	0.06	PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
363+00	CONST. D.I. RT W/ EXT., STUB-IN W/ F.E.S. & PIPE OUTLET		6				54								1				1	1			7	0.09	PCC-1,PCM-1, FPC-9E, FPC-9M, FES-1, FES-2
	ENTIRE PROJECT IF AND WHERE DIRECTED							500														5			FPC-9
	BY THE ENGINEER																								
TOTALS:		177	122	82	66	110	54	500	121	823	550	445	166	7	2	2	1	3	18	7	10	5	109	1.35	

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.

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7) TON / STATION	TON	TACK COAT TOTAL WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	ACHM BASE COURSE (1 1/2") AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	ACHM BINDER COURSE (1") AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	ACHM SURFACE COURSE (1/2") AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON
			FEET																		
337+00	340+00	MAIN LANES	300.0	136.00	408.0	112.0	3733.3	0.03	112.0	30.0	1000.0	495.0	247.5	30.0	1000.0	330.0	165.0	82.0	2733.3	220.0	300.7
340+00	347+50	MAIN LANES	750.0	151.75	1138.1	154.0	12833.3	0.03	385.0	34.0	2833.3	495.0	701.2	34.0	2833.3	330.0	467.5	86.0	7166.7	220.0	788.3
347+50	349+11	MAIN LANES	161.0	221.75	357.0	156.0	2790.7	0.03	83.7	52.0	930.2	495.0	230.2	52.0	930.2	330.0	153.5	104.0	1860.4	220.0	204.6
354+15	357+00	MAIN LANES	285.0	221.75	632.0	156.0	4940.0	0.03	148.2	52.0	1646.7	495.0	407.6	52.0	1646.7	330.0	271.7	104.0	3293.3	220.0	362.3
357+00	359+50	MAIN LANES	250.0	147.75	369.4	151.0	4194.4	0.03	125.8	33.0	916.7	495.0	226.9	33.0	916.7	330.0	151.3	85.0	2361.1	220.0	259.7
359+00	363+00	MAIN LANES	400.0	136.00	544.0	112.0	4977.8	0.03	149.3	30.0	1333.3	495.0	330.0	30.0	1333.3	330.0	220.0	82.0	3644.4	220.0	400.9
		CUNNINGHAM LANE		VAR.	77.0	VAR.	660.0	0.03	19.8	VAR.	220.0	495.0	54.5	VAR.	220.0	330.0	36.3	VAR.	660.0	220.0	72.6
		JARNIGAN STREET		VAR.	82.8	VAR.	709.5	0.03	21.3	VAR.	236.5	495.0	58.5	VAR.	236.5	330.0	39.0	VAR.	473.0	220.0	52.0
		RIVER MEADOWS DRIVE		VAR.	92.2	VAR.	790.0	0.03	23.7	VAR.	263.3	495.0	65.2	VAR.	263.3	330.0	43.4	VAR.	526.6	220.0	57.9
		HOODLE LANE		VAR.	44.7	VAR.	383.4	0.03	11.5	VAR.	127.8	495.0	31.6	VAR.	127.8	330.0	21.1	VAR.	255.6	220.0	28.1
340+50	345+00	TEMPORARY WIDENING ON RT. (STAGE 1)	450.0	94.50	425.3	12.0	600.0	0.03	18.0					12.3	615.0	440.0	135.3	12.0	600.0	220.0	66.0
345+00	349+11	TEMPORARY WIDENING ON RT. (STAGE 1)	411.0	71.25	292.8	8.0	365.3	0.03	11.0					8.3	379.0	440.0	83.4	8.0	365.3	220.0	40.2
354+15	356+00	TEMPORARY WIDENING ON RT. (STAGE 1)	185.0	94.50	174.8	12.0	246.7	0.03	7.4					12.3	252.8	440.0	55.6	12.0	246.7	220.0	27.1
356+00	360+00	TEMPORARY WIDENING ON RT. (STAGE 1)	400.0	71.25	285.0	8.0	355.6	0.03	10.7					8.3	368.9	440.0	81.2	8.0	355.6	220.0	39.1
ADDITIONAL FOR LEVELING AND GRADE RAISE																			VAR.	VAR.	363.4
337+00	347+50	MAIN LANES	1050.0			22.0	2566.7	0.10	256.7										VAR.	VAR.	330.5
357+00	363+00	MAIN LANES	600.0			22.0	1466.7	0.10	146.7												
TOTALS:					4923.1		41613.4		1530.8		9507.8		2353.2		11123.5		1924.3		24542.0		3393.4

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.1% MIN. AGGR.....5.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.4% MIN. AGGR.....4.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

3/29/2013

R040569.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.		040569	28	114
① 07256 -		QUANTITIES	- 52891	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 040569

BRIDGE NO. 07256
CODE NO. X071
BRIDGE NAME PLATE TITLE: WEST FORK OF WHITE RIVER

ITEM NO.	205	801	802	802	803	SS & 804	SS & 804	805	805	806	807	808	812	816	816	SP JOB 040569	SP JOB 040569
UNIT OF STRUCTURE / ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURES (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - BRIDGE	CLASS S CONCRETE - BRIDGE	CLASS S(AE) CONCRETE - BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GR. 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL ① PILING (HP 12X53)	PREBORING	METAL BRIDGE RAILING (TYPE H)	STRUCTURAL STEEL IN BEAM SPANS (M270, GR. 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SILICONE JOINT SEALANT	TRANSITIONAL APPROACH RAILING
UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EA.	SQ. YD.	CU. YD.	LIN. FT.	EA.
BENT NO. 1		8	52.49		0.4	5818		216			1521			693	368		2
BENT NO. 2		110	79.45			11989		360									
BENT NO. 3		112	81.64			12340		360									
BENT NO. 4		165	109.54			15886		480									
BENT NO. 5		111	84.55			12603		360									
BENT NO. 6		263	141.21			23525											
BENT NO. 7		524	144.78			24091											
BENT NO. 8		12	52.24		0.4	5818		72	64		1521						2
279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT				626.80	46.2		145120			522	445139	15107	1			119	
223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT				499.80	37.0		144870			440	408659	11198				119	
EXISTING BRIDGE NO. A0933 (SITE NO. 1)	1																
TOTAL FOR JOB NO. 040569	1	1305 *	745.90	1126.60	84.0	112070	289990	1848	64	962	856840	26305	1	693	368	238	4

* Includes approx. 123 cu. yds. of rock excavation.

① These Steel Piles are required to have approved driving points which will not be paid for directly but will be considered subsidiary to the item "Steel Piling (HP 12 X 53)".

BRYAN FREELING
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
WEST FORK OF WHITE RIVER
WEST FORK WHITE RIVER
STR. & APPRS. (FAYETTEVILLE) (S)
WASHINGTON COUNTY

ROUTE 16 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 5-30-12 FILENAME: b040569xl_ql.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: NONE
DESIGNED BY: DATE:

BRIDGE NO. 07256 DRAWING NO. 52891

PRINT DATE: dateprinted

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		24	STATION
201	GRUBBING		24	STATION
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		88	LIN. FT.
202	REMOVAL AND DISPOSAL OF WELL		2	EACH
202	REMOVAL AND DISPOSAL OF FENCE		1314	LIN. FT.
202	REMOVAL AND DISPOSAL OF WALKS		407	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		2	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		19	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		325	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRAIN		17	SQ. YD.
202	REMOVAL AND DISPOSAL OF BUILDINGS		3	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		1	EACH
202	REMOVAL AND DISPOSAL OF RETAINING WALLS		193	LIN. FT.
202	REMOVAL AND DISPOSAL OF SEPTIC SYSTEM		1	EACH
206	FLOWABLE SELECT MATERIAL		60	CU. YD.
210	UNCLASSIFIED EXCAVATION		5488	CU. YD.
210	COMPACTED EMBANKMENT		18444	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		5621	TON
401	TACK COAT		1559	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		2245	TON
SP, SS, & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")		108	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		1830	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		94	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		3314	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		7	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")		200	TON
412	COLD MILLING ASPHALT PAVEMENT		489	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		14	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		10	TON
505	PORTLAND CEMENT CONCRETE DRIVEWAY		442.70	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		289	SQ. FT.
SS & 604	BARRICADES		56	LIN. FT.
SS & 604	TRAFFIC DRUMS		136	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		680	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER		140	LIN. FT.
SS & 604	CONSTRUCTION PAVEMENT MARKINGS		28200	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		5400	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		4200	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		1800	LIN. FT.
SS & 604	VERTICAL PANELS		44	EACH
SS & 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		177	LIN. FT.
SS & 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		110	LIN. FT.
* SS & 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	121	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	121	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		122	LIN. FT.
SS & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		54	LIN. FT.
* SS & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	823	LIN. FT.
* 606	36" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	823	LIN. FT.
SS & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		82	LIN. FT.
* SS & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	550	LIN. FT.
* 606	42" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	550	LIN. FT.
SS & 606	36" X 23" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		66	LIN. FT.
* SS & 606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	445	LIN. FT.
* 606	42" X 29" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	445	LIN. FT.
* SS & 606	51" X 31" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	166	LIN. FT.
* 606	49" X 33" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	166	LIN. FT.
SS & 606	12" SIDE DRAIN		500	LIN. FT.
SP, SS & 606	18" SIDE DRAIN		96	LIN. FT.
SP, SS & 606	24" SIDE DRAIN		268	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		7	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	36" X 23" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS		1	EACH
606	SELECTED PIPE BEDDING		300	CU. YD.
609	DROP INLETS (TYPE C)		3	EACH
609	DROP INLETS (TYPE MO)		18	EACH
609	DROP INLET EXTENSIONS (4')		7	EACH
609	DROP INLET EXTENSIONS (8')		10	EACH
609	YARD DRAINS		5	EACH
611	4" PIPE UNDERDRAINS		1500	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		18.7	CU. YD.
619	WIRE FENCE (TYPE C)		130	LIN. FT.
619	WIRE FENCE (TYPE D-1)		400	LIN. FT.
620	LIME		4	TON
620	SEEDING		1.85	ACRE
SS & 620	MULCH COVER		8.93	ACRE
SS & 620	WATER		352.1	M.GAL.
621	TEMPORARY SEEDING		7.08	ACRE
621	SILT FENCE		1750	LIN. FT.
621	SAND BAG DITCH CHECKS		100	BAG
621	DROP INLET SILT FENCE		575	LIN. FT.
621	SEDIMENT BASIN		600	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		600	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		725	CU. YD.
621	ROCK DITCH CHECKS		130	CU. YD.
623	SECOND SEEDING APPLICATION		1.85	ACRE
624	SOLID SODDING		1506	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		667	SQ. YD.
633	CONCRETE WALKS		1924	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		4283	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		16	EACH
637	MAILBOX SUPPORTS (SINGLE)		14	EACH
637	MAILBOX SUPPORTS (DOUBLE)		1	EACH
641	WHEELCHAIR RAMPS (TYPE 3)		27	SQ. YD.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		5400	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		3800	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	1010	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	1010	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		74	EACH
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		1305	CU. YD.
802	CLASS S CONCRETE-BRIDGE		745.90	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		1126.60	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		84.0	GAL.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)		112070	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)		289990	POUND
805	STEEL PILING (HP 12X53)		1848	LIN. FT.
805	PREBORING		64	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H)		962	LIN. FT.
SP	TRANSITIONAL APPROACH RAILING		4	EACH
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		856840	POUND
808	ELASTOMERIC BEARINGS		26305	CU. IN.
SP	SILICONE JOINT SEALANT		238	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		1	EACH
816	FILTER BLANKET		693	SQ. YD.
816	DUMPED RIPRAP		368	CU. YD.

* ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER

DATE REVISED	DATE PLANS	DATE REVISED	DATE PLANS

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		29	114

JOB NO. 040569

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

10-11-13

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	30	114

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

APPROX. MID POINT FOR ENTIRE PROJECT
LT: 36-02-47.0
LG: 94-05-07.0

SURVEY CONTROL COORDINATES

Project Name: s040569
Date: 2/15/2011
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	633612.94	688409.62	1189.83	CTL	*2" REBAR & 5/8" ALUMINUM CAP
2	633454.67	689025.20	1188.58	CTL	*2" REBAR & 5/8" ALUMINUM CAP
3	633118.49	689517.87	1179.33	CTL	*2" REBAR & 5/8" ALUMINUM CAP
4	632870.67	689948.44	1184.30	CTL	*2" REBAR & 5/8" ALUMINUM CAP
5	632567.39	690302.12	1197.85	CTL	*2" REBAR & 5/8" ALUMINUM CAP
6	632195.71	690817.32	1217.88	CTL	*2" REBAR & 5/8" ALUMINUM CAP
7	629250.35	703278.30	1181.83	CTL	*2" REBAR & 5/8" ALUMINUM CAP
8	628699.76	703680.51	1182.42	CTL	*2" REBAR & 5/8" ALUMINUM CAP
9	628223.95	704185.35	1182.05	CTL	*2" REBAR & 5/8" ALUMINUM CAP
10	627893.46	704674.99	1184.90	CTL	*2" REBAR & 5/8" ALUMINUM CAP
11	627552.51	705180.27	1184.90	CTL	*2" REBAR & 5/8" ALUMINUM CAP
12	627238.25	705836.51	1182.70	CTL	*2" REBAR & 5/8" ALUMINUM CAP
13	627107.85	706443.12	1182.24	CTL	*2" REBAR & 5/8" ALUMINUM CAP
100	623470.56	713360.67	1197.51	CTL	*AHTD GPS 720055
101	624070.48	711930.32	1194.87	GPS	*AHTD GPS 720055A
102	630161.01	701040.04	1217.99	GPS	*AHTD GPS 720057
103	630114.48	699878.22	1225.60	GPS	*AHTD GPS 720057A
104	633253.30	685085.51	1204.02	GPS	*AHTD GPS 720058
105	633603.43	686481.18	1191.19	GPS	*AHTD GPS 720058A
900	632873.70	689869.08	1185.35	TBM	*CHSLD SQ SW CONR BRIDGE
901	632355.88	690432.98	1198.27	TBM	*CHSLD SQ SE CONR BRIDGE
902	631100.57	692377.57	1225.21	BM	*BRASS CAP TT 37 WM 1957
903	630113.88	695970.93	1217.72	BM	*STANDARD CAP W-7 1988
904	630119.68	700489.00	1221.50	TBM	*CHLSD SQ CTR HEADWALL
905	629774.99	702453.24	1181.05	TBM	*CHSLD SQ CTR HDWL S SIDE
906	627908.71	704632.18	1185.73	TBM	*CHSLD SQ SW CONR OF BRIDE
907	627490.57	705280.66	1185.72	TBM	*CHSLD SQ NE CONR BRIDGE
908	626944.00	707240.92	1186.49	TBM	*CHSLD SQ CTR HEADWALL
909	625168.98	709915.21	1194.64	TBM	*NW SIGN BOLT

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.999912612 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME s040569gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: CTL PTS. T-1 THRU T-6 BASED ON GPS PTS. 720057A - 720058A
CM: CTL PTS. T-7 THRU T-13 BASED ON GPS PTS. 720055A - 720057A
CONVERGENCE ANGLE: 01-12-20.6 LEFT AT LT: 36-02-48.5 LG: 094-04-05.3
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CENTERLINE CONSTRUCTION SECTION 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	297+73.16	633272.2493	685060.9221
8004	PC	313+16.89	633647.8346	686558.2618
8006	PT	346+54.69	633033.6638	689732.0025
8007	PC	355+20.06	632525.1855	690432.2263
8009	PT	360+17.36	632224.3456	690828.1507
8010	PC	360+50.14	632203.9474	690853.8203
8012	PT	365+47.44	631903.1075	691249.7447
8013	POE	367+02.29	631812.1184	691375.0455

CENTERLINE CONSTRUCTION SECTION 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8020	POB	497+93.04	628855.8574	703595.9607
8021	PC	500+03.43	628681.8610	703714.2356
8023	PT	507+28.34	628173.0538	704224.4612
8024	PC	520+92.76	627409.1619	705354.9927
8026	PT	526+82.67	627201.7999	705901.6395
8027	PC	528+68.07	627177.5992	706085.4539
8029	PT	534+73.12	627074.9621	706681.5677
8030	PC	538+27.38	627001.0759	707028.0409
8032	PT	542+68.40	626829.3716	707431.3070
8033	POE	544+17.44	626745.8379	707554.7372

11/8/2011
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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.		040569	31	114

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

P.I. 331+00.77

N 75°55'07" E

S 54°00'51" E

P. I. = 331+00.77
Δ = 50°04'01.6" RT.
D = 1°30'00.0"
T = 1783.89'
L = 3337.81'
P. C. = 313+16.89
P. T. = 346+54.69
e = 0.020
LS = 250'

C. L. CONSTRUCTION

330 335 340

S 75°34'52" E 635.6'

S 55°41'31" E 596.4'

PT. NO. 1 2' REBAR/CAP

SURVEY BASELINE

PT. NO. 2 2' REBAR/CAP

BEGIN JOB NO. 040569

STA. 337+00.00
BEGIN JOB 040569
LOG MILE 4.38

P. I. = 357+68.75
Δ = 2°29'11.3" RT.
D = 0°30'00"
T = 248.69'
L = 497.29'
P. C. = 355+20.06
P. T. = 360+17.36
NO SUPER.

P.I. 357+68.75

C. L. CONSTRUCTION

345 350 355

PT. NO. 8006

S 60°04'37" E 496.8'

S 54°00'51" E

S 49°23'13" E 465.9'

S 54°11'30" E 635.3'

PT. NO. 3 2' REBAR/CAP

PT. NO. 4 2' REBAR/CAP

PT. NO. 5 2' REBAR/CAP

PT. NO. 8007

SURVEY BASELINE

PT346+54.69

PC355+20.06

P. I. = 362+98.83
Δ = 2°29'11.3" LT.
D = 0°30'00"
T = 248.69'
L = 497.29'
P. C. = 360+50.14
P. T. = 365+47.44
NO SUPER.

P.I. 357+68.75

PC360+50.14

PT365+47.44

POE367+02.29

C. L. CONSTRUCTION

S 51°31'40" E 360 128°28'20" PT. NO. 8010

PT. NO. 8009

365

PT. NO. 8012

S 54°00'51" E

PT. NO. 8013

S 54°11'30" E 635.3'

PT. NO. 6 2' REBAR/CAP

SURVEY BASELINE

PT360+17.36

P.I. 362+98.83

STA. 363+00.00
END JOB 040569

SURVEY CONTROL DETAILS

8/31/2012

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	32	114
				(2) PLAN SHEET				

STA. 337+25 CONSTRUCT
24"X62' R.C. STUB-IN
WITH F.E.S ON LT.
CONN. TO D.I. STA.337+25 ON RT.

STA. 338+71 INSTALL
18"X28' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU.YD.

STA. 339+65 INSTALL
18"X40' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 45 CU.YD.

STA. 341+10 INSTALL
24"X30' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 40 CU.YD.

STA. 342+77 INSTALL
24"X40' PIPE CULVERT
LT. SIDE DRAIN

STA. 344+10 INSTALL
24"X34' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 65 CU.YD.

STA. 344+75 INSTALL
24"X 40' PIPE CULVERT
LT. SIDE DRAIN
CONST.APPR. = 110 CU. YDS.

FENCING

STA.	STA.	SIDE	TYPE
336+60	337+80	LT.	C = 130 LIN.FT.

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
4-2-13

P. I. = 331+00.77
Δ = 50°04' 01.6" RT.
D = 1°30' 00.0"
T = 1783.89'
L = 3337.81'
P.C. = 313+16.89
P. T. = 346+54.69
e = 0.020
LS = 250'

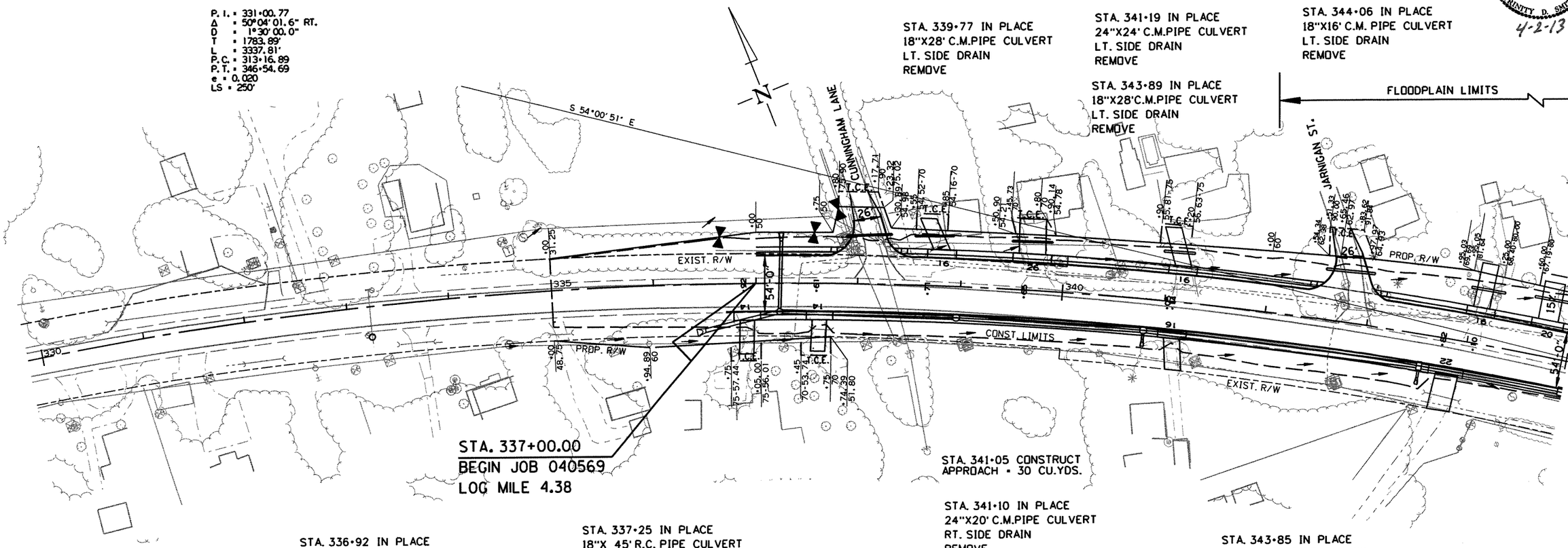
STA. 339+77 IN PLACE
18"X28' C.M.PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 341+19 IN PLACE
24"X24' C.M.PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 343+89 IN PLACE
18"X28'C.M.PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 344+06 IN PLACE
18"X16' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

FLOODPLAIN LIMITS



STA. 337+00.00
BEGIN JOB 040569
LOG MILE 4.38

STA. 341+05 CONSTRUCT
APPROACH = 30 CU.YDS.

STA. 341+10 IN PLACE
24"X20' C.M.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 336+92 IN PLACE
16"X26' C.M. PIPE CULVERT
REMOVE AND INSTALL
18"X 28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 35 CU.YDS.

STA. 337+25 CONSTRUCT
DROP INLET ON RT. (H=4'6")
W/ 36"X23"X66' R.C. STUB-IN W/F.E.S.
& 36"X167' PIPE OUTLET
CONN. TO D.I. STA. 339+00 RT.
DROP INLET TYPE MO = 5' DIA.
DROP INLET TYPE C = 4'X5'

STA. 337+25 IN PLACE
18"X 45' R.C. PIPE CULVERT
REMOVE

STA. 337+61 IN PLACE
24"X20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24"X28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR.= 30 CU.YDS.

STA. 339+00 CONSTRUCT
DROP INLET ON RT. (H=4'9")
WITH 8' EXTENSION
44"X27"X177' PIPE OUTLET
TO STA. 340+85 ON RT.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 340+85 CONSTRUCT
DROP INLET ON RT. (H=4'3")
WITH 8' EXTENSION
18"X6' R.C. STUB-IN W/F.E.S.
44"X27"X268' PIPE OUTLET
TO D.I. STA. 343+60 RT
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 343+60 CONSTRUCT
DROP INLET TYPE C (4'X7')
ON RT. (H=4'9")
WITH 8' EXTENSION
18"X6' R.C. STUB-IN W/F.E.S.
51"X31"X137' PIPE OUTLET
TO D.I. STA. 345+00 RT.

STA. 343+85 IN PLACE
28"X34' C.M.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 343+82 CONSTRUCT
APPROACH ON RT. = 40 CU.YDS.

FOR R.C. PIPE CULVERT (CLASS III) INSTALLATIONS USE
(TYPE 3) BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE AND PLASTIC PIPE CULVERT INSTALLATIONS USE
(TYPE 2) BEDDING UNLESS OTHERWISE SPECIFIED.

11/8/2011

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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.		040569	33	114

(2) PROFILE SHEET

STA. 335+00.00 - MATCH EXISTING
STA. 337+00.00 - MAX. SUPERELEV.(0.020)
STA. 345+92.19 - MAX. SUPERELEV.(0.020)
STA. 348+42.19 - END SUPERELEVATION

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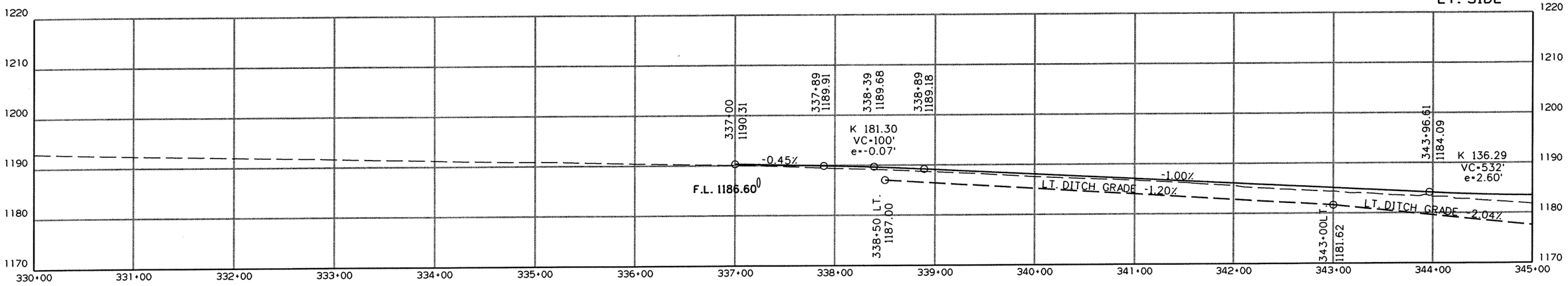
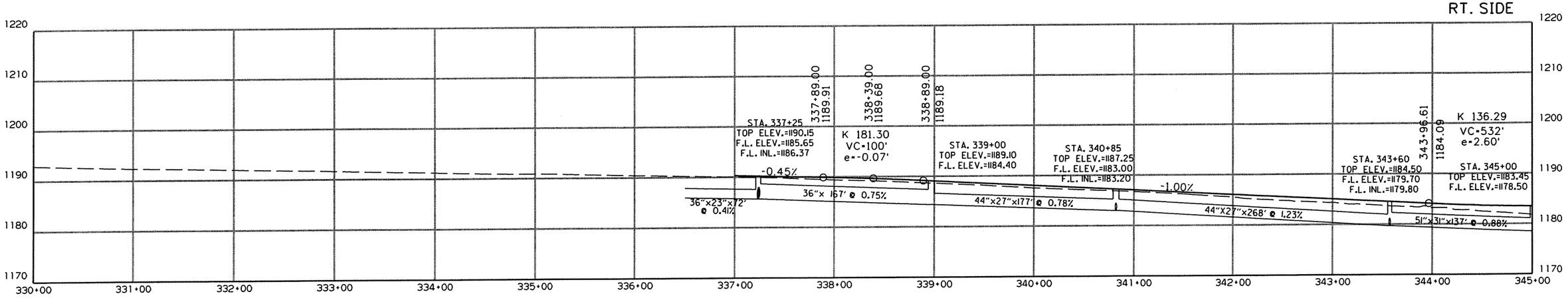
TRINITY D. SMITH
4-2-13

FLOODPLAIN LIMITS

LT. SIDE



RT. SIDE



11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	34	114

(2) PLAN SHEET

STA. 345+94 INSTALL
24"X48' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 160 CU.YD.

STA. 346+65 INSTALL
24"X48' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 240 CU.YD.

STA. 347+75 CONSTRUCT
DROP INLET (H=5'-9")
ON LT. W/ 4' EXTENSION
18"X 121' PIPE OUTLET
TO D.I. STA. 349+00 LT
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

STA. 349+00 CONSTRUCT
DROP INLET (H=12'9")
ON LT. W/ 8' EXTENSION
18"X64' R.C. STUB-OUT TO LT.
WITH F.E.S.
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

FENCING

STA.	STA.	SIDE	TYPE
346+80 -	350+80	LT.	D-I = 400 LIN.FT.

STA. 354+20 CONSTRUCT
DROP INLET (H=9'0") ON LT.
WITH 8' EXTENSION
42"X20' R.C. STUB-OUT TO LT.
WITH F.E.S.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 356+30 CONSTRUCT
DROP INLET (H=10'3") ON LT.
WITH 8' EXTENSION
42"X201' PIPE OUTLET
TO D.I. 354+20 LT.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 358+90 CONSTRUCT
DROP INLET (H=6'9") ON LT.
WITH 4' EXTENSION
36"X261' PIPE OUTLET
TO STA. 356+30 LT.
D.I. TYPE MO = 5' DIA.
D.I. TYPE C = 4'X5'

STATE OF ARKANSAS
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STA. 358+10 IN PLACE
18"X20' C.M.PIPE CULVERT
LT. SIDE DRAIN
REMOVE

FLOODPLAIN LIMITS

STA. 346+21 IN PLACE
16"X28' R.C.P. CULVERT
LT. SIDE DRAIN
REMOVE

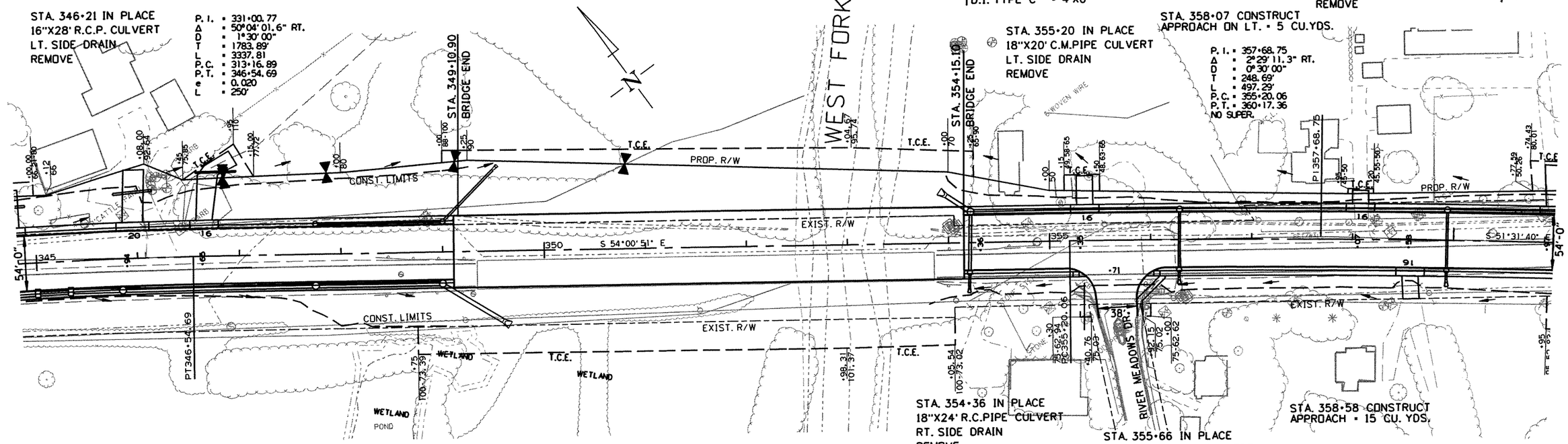
P.I. = 331+00.77
Δ = 50°04'01.6" RT.
D = 1°30'00"
T = 1783.89'
L = 3337.81
P.C. = 313+16.89
P.T. = 346+54.69
e = 0.020
L = 250'

STA. 355+35 CONSTRUCT
APPROACH ON LT. = 15 CU.YDS.

STA. 358+07 CONSTRUCT
APPROACH ON LT. = 5 CU.YDS.

STA. 355+20 IN PLACE
18"X20' C.M.PIPE CULVERT
LT. SIDE DRAIN
REMOVE

P.I. = 357+68.75
Δ = 2°29'11.3" RT.
D = 0°30'00"
T = 248.69'
L = 497.29'
P.C. = 355+20.06
P.T. = 360+17.36
NO SUPER.



STA. 349+10.90 - STA. 354+15.10 CONSTRUCT
504'-2½" X 54' CLR. RDWY. BRIDGE
279'-0" CONT. COMP. W-BEAM SPANS (57'-78'-78'-66')
223'-0" CONT. COMP. W-BEAM SPANS (74'-85'-64')
BRIDGE NO. 07256

STA.349+25 - STA. 353+78 - IN PLACE
BR. NO. 0993
454.93' X 28'CLEAR ROADWAY WIDTH
CONT. COMP. W-BEAM UNIT BRIDGE
WITH PIERS AND ENCASED PILE BENTS
REMOVE EXISTING BRIDGE STRUCTURE
(SITE NO. 1)= 1.00 LUMP SUM

STA. 354+36 IN PLACE
18"X24' R.C.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 355+66 IN PLACE
36"X84' R.C.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 358+58 CONSTRUCT
APPROACH = 15 CU. YDS.

STA. 354+20 CONSTRUCT
DROP INLET (H=6'9") ON RT.
WITH 8' EXTENSION
18"X12' R.C. STUB-IN W/F.E.S.
18"X55' R.C. PIPE OUTLET TO LT
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

STA. 358+54 IN PLACE
18"X26' C.M.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 345+00 CONSTRUCT
DROP INLET TYPE C (4'X7)
(H=5'0") ON RT. W/ 4' EXTENSION
51"X31"X29' ARCH PIPE OUTLET
TO D.I. STA. 345+33 RT.

STA. 345+33 CONSTRUCT
DROP INLET TYPE C (4'X7)
(H=5'0") ON RT.
42"X47' PIPE OUTLET
TO D.I. STA. 345+85 RT.

STA. 345+85 CONSTRUCT
DROP INLET ON RT. (H=6'0")
WITH 4' EXTENSION
42"X183' PIPE OUTLET
TO D.I. STA. 347+75 RT.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 347+75 CONSTRUCT
DROP INLET (H=10'0")
ON RT. WITH 4' EXTENSION
42"X119' PIPE OUTLET
TO D.I. STA. 349+00 RT.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 349+00 CONSTRUCT
DROP INLET (H=14'3")
ON RT. W/ 8' EXTENSION
42"X62' R.C. STUB-OUT TO RT.
WITH F.E.S.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 356+30 CONSTRUCT
DROP INLET (H=3'6") ON RT.
WITH 8' EXTENSION
18"X6' R.C. STUB-IN W/F.E.S.
18"X56' R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING) TO LT.
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

STA. 358+90 CONSTRUCT
DROP INLET (H=4'0") ON RT.
WITH 4' EXTENSION
18"X7' R.C. STUB-IN W/F.E.S.
18"X54' R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING) TO LT.
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

FOR R.C. PIPE CULVERT (CLASS III) INSTALLATIONS USE
(TYPE 3) BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE AND PLASTIC PIPE CULVERT INSTALLATIONS USE
(TYPE 2) BEDDING UNLESS OTHERWISE SPECIFIED.

11/8/2011

ZBORDER.CEL

STA. 335+00.00 - MATCH EXISTING
STA. 337+00.00 - MAX. SUPERELEV.(0.020)
STA. 345+92.19 - MAX. SUPERELEV.(0.020)
STA. 348+42.19 - END SUPERELEVATION

STA. 352+45 - STA. 353+50 WEST FORK WHITE RIVER
FOR THE CONSTRUCTION OF TEMPORARY
WORK ROADS OR HAUL ROADS, THIS STREAM
IS CLASSIFIED AS A 5 CFS STREAM.
THE STREAM BANK ELEVATIONS ARE 1170 FT. MSL

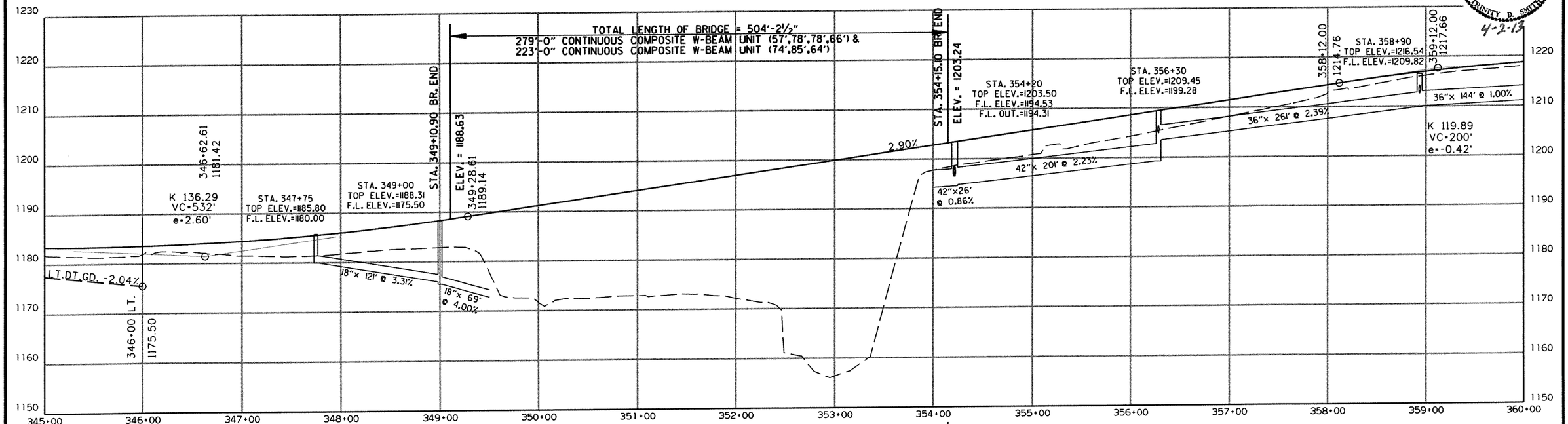
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	35	114

(2) PROFILE SHEET

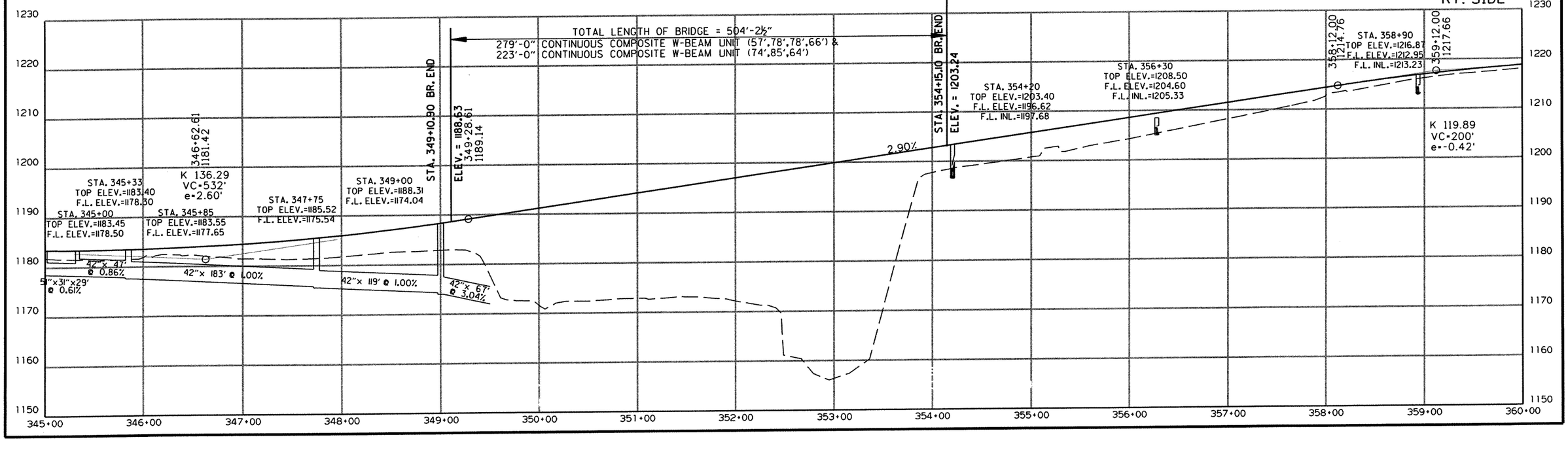
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

FLOODPLAIN LIMITS

LT. SIDE



RT. SIDE



11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	36	114

(2) PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

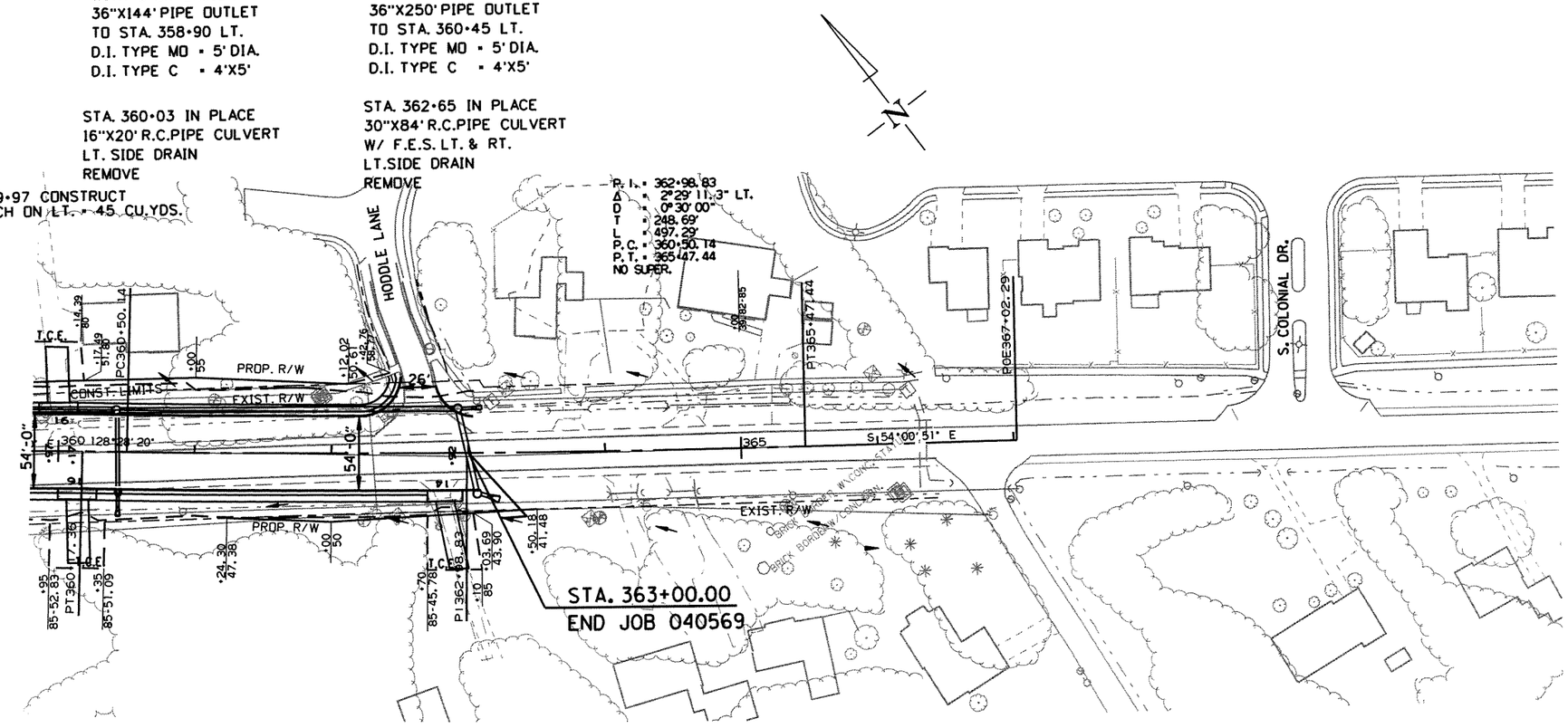
STA. 360+45 CONSTRUCT
DROP INLET (H=8'0") ON LT.
WITH 8' EXTENSION
36"X144' PIPE OUTLET
TO STA. 358+90 LT.
D.I. TYPE MO = 5' DIA.
D.I. TYPE C = 4'X5'

STA. 360+03 IN PLACE
16"X20' R.C.PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 359+97 CONSTRUCT
APPROACH ON LT. = 45 CU.YDS.

STA. 363+00 CONSTRUCT
DROP INLET (H=8'0") ON LT.
18"X9' R.C. STUB-IN W/F.E.S.
36"X250' PIPE OUTLET
TO STA. 360+45 LT.
D.I. TYPE MO = 5' DIA.
D.I. TYPE C = 4'X5'

STA. 362+65 IN PLACE
30"X84' R.C.PIPE CULVERT
W/ F.E.S. LT. & RT.
LT.SIDE DRAIN
REMOVE



STA. 360+17 IN PLACE
18"X25'C.M.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 360+17 CONSTRUCT
APPROACH = 75 CU. YDS.

STA. 360+45 CONSTRUCT
DROP INLET (H=6'9") ON RT.
WITH 8' EXTENSION
18"X12' R.C. STUB-IN W/F.E.S.
24"X54' R.C. PIPE OUTLET TO LT.
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

STA. 362+81 IN PLACE
18"X20' C.M.PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 362+92 CONSTRUCT
APPROACH = 50 CY. YDS.

STA. 363+00 CONSTRUCT
DROP INLET (H=9'3") ON RT.
WITH 4' EXTENSION
24"X6' R.C. STUB-IN W/F.E.S.
36"X54' R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING) TO LT.
D.I. TYPE MO = 4' DIA.
D.I. TYPE C = 4'X4'

FOR R.C. PIPE CULVERT (CLASS III) INSTALLATIONS USE
(TYPE 3) BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE AND PLASTIC PIPE CULVERT INSTALLATIONS USE
(TYPE 2) BEDDING UNLESS OTHERWISE SPECIFIED.

11/8/2011

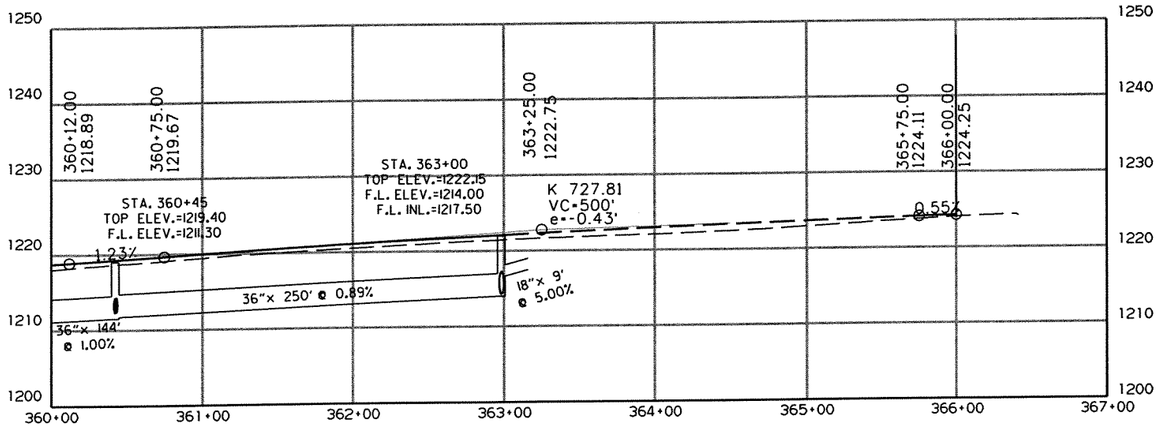
ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	37	114

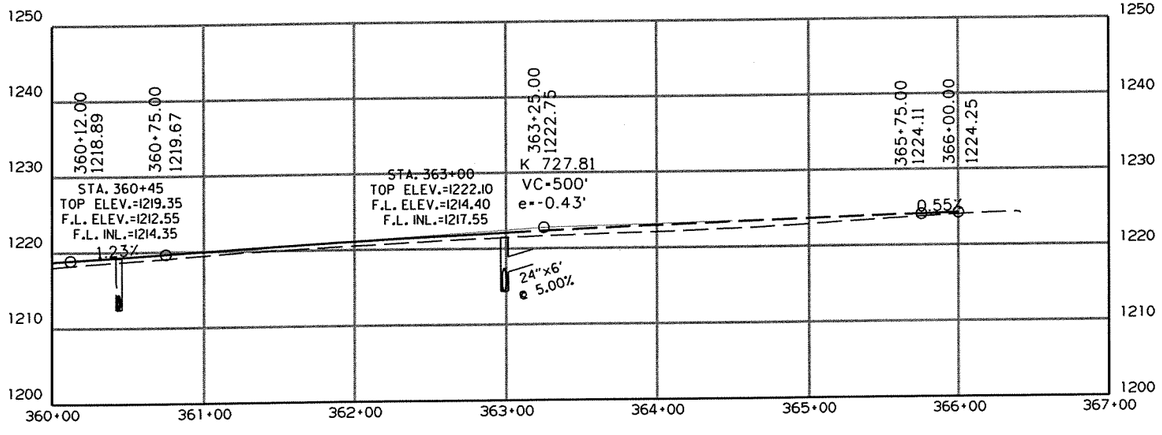
(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-2-13

LT. SIDE



RT. SIDE



11/8/2011

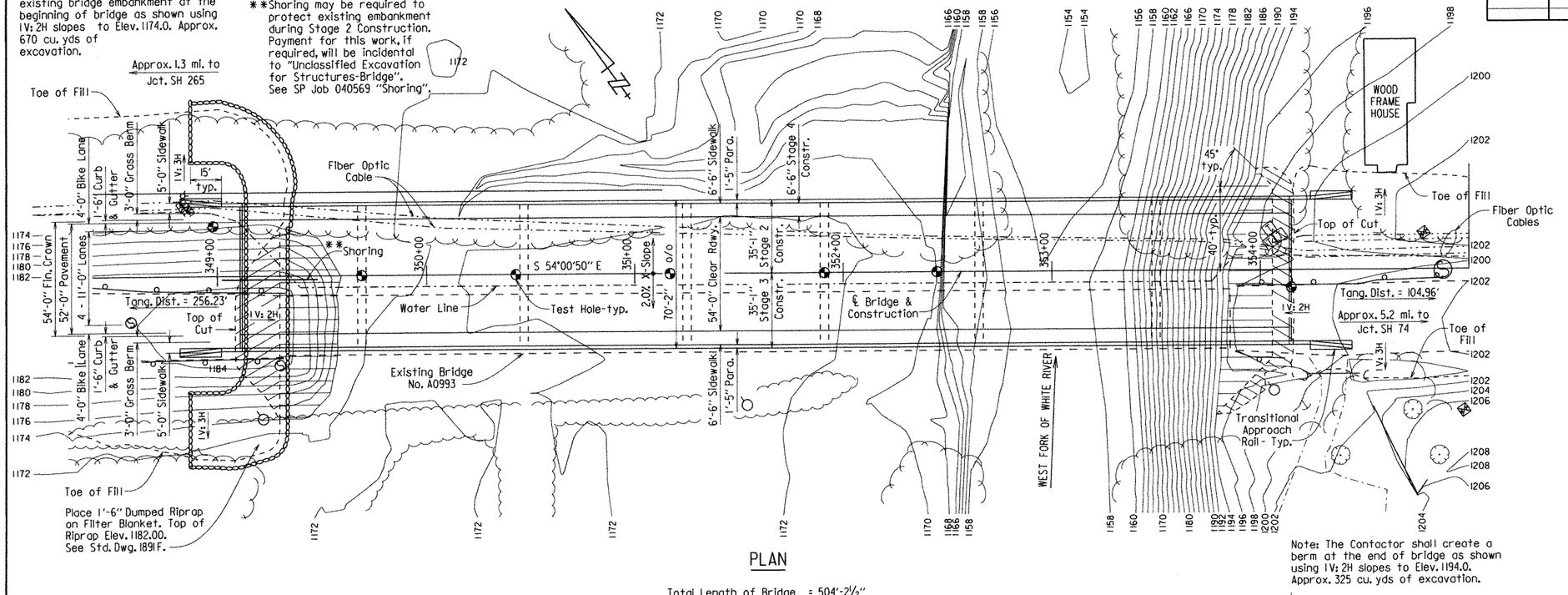
ZBORDER.CEL

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.		040569	38	114
				①	07256 -	LAYOUT	- 52892	

For R/W Data, See Rdwy. Plans

Note: The Contactor shall remove the existing bridge embankment at the beginning of bridge as shown using 1V: 2H slopes to Elev. 1174.0. Approx. 670 cu. yds of excavation.

**Shoring may be required to protect existing embankment during Stage 2 Construction. Payment for this work, if required, will be incidental to "Unclassified Excavation for Structures-Bridge". See SP Job 040569 "Shoring".



PLAN

Note: The Contactor shall create a berm at the end of bridge as shown using 1V: 2H slopes to Elev. 1194.0. Approx. 325 cu. yds of excavation.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	39500	1181.4	1182.1
Base	100	48000	1183.1	1184.6
Extreme	500	71000	1186.8	1187.6
Overtopping	55	42150	1181.8	1182.7

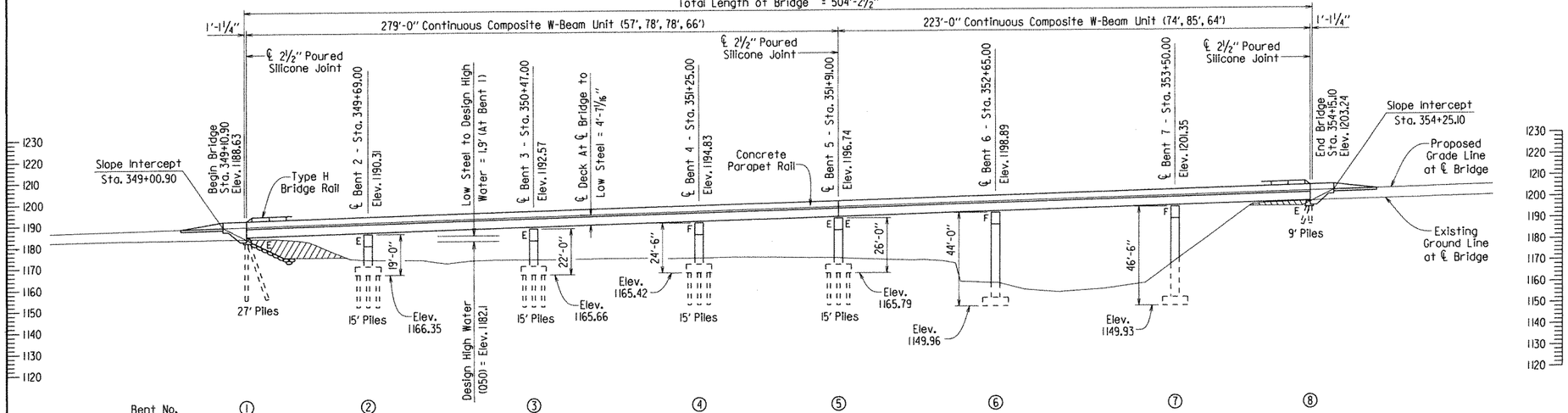
* Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 1184.6 ft.
Proposed Low Bridge Chord Elevation = 1184.04 ft.
Drainage area = 118 square miles.
Historical H.W. Elevation = 1182.9 ft.

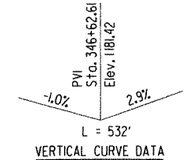
Bent No.	℄ Deck at ℄ Bridge to Low Side Top of Cap
2	4'-11½"
3	4'-10⅝"
4	4'-10⅝"
5	4'-11⅞"
6	4'-11⅜"
7	4'-11⅛"

Total Length of Bridge = 504'-2½"

1'-1¼" | 279'-0" Continuous Composite W-Beam Unit (57', 78', 78', 66') | 223'-0" Continuous Composite W-Beam Unit (74', 85', 64') | 1'-1¼"



ELEVATION



VERTICAL CURVE DATA

Stations and elevations are along ℄ Bridge.

For General Notes and soil boring data, see Dwg. No. 52893.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER WEST FORK OF WHITE RIVER
WEST FORK WHITE RIVER
STR. & APPRS. (FAYETTEVILLE) (S)
WASHINGTON COUNTY

ROUTE 16 SEC. 3

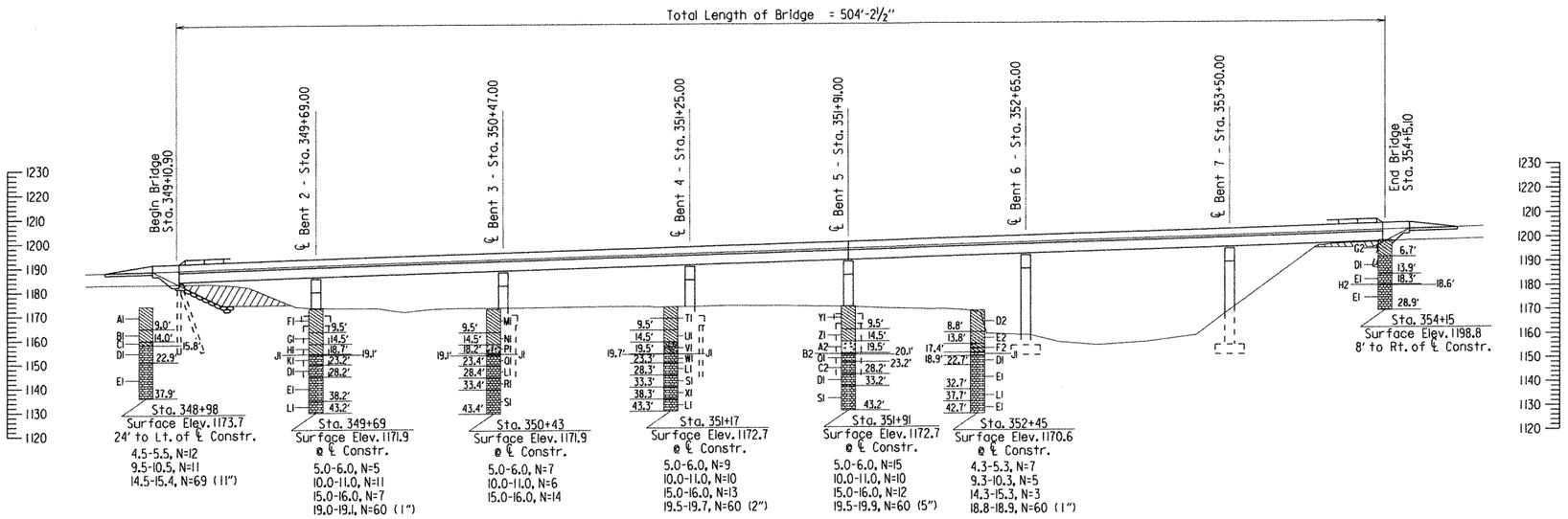
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 1-12-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: DCM DATE: 10/11
FILENAME: b040569x1_11.dgn
SCALE: 1" = 30'

BRIDGE NO. 07256 DRAWING NO. 52892

PRINT DATE: 05-JUL-2012

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.		040569	39	114
				①	07256 -	LAYOUT		- 52893



SOIL BORING ELEVATION

Scale: 1" = 30'

BORING LEGEND

AI-Moist, Stiff, Brown and Gray Clay
BI-Moist, Stiff, Brown and Gray Clay with Iron Nodules
CI-Moist, Very Hard, Brown and Gray Sandy Clay with Gravel (Limestone Fragments)
DI-LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
EI-LIMESTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip
FI-Moist, Medium Stiff, Brown and Gray Clay with Iron Nodules
GI-Moist, Stiff, Brown Clay with Iron Nodules
HI-Moist to Wet, Medium Stiff, Brown and Gray Clay
JI-LIMESTONE - Gray, Hard
KI-LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and frequent Fractured Layers
LI-LIMESTONE - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip
MI-Moist, Medium Stiff, Brown and Gray Clay with Trace of Limestone
NI-Moist, Medium Stiff, Brown and Gray Clay with Iron Nodules
PI-Wet, Medium Dense, Dark Gray Clayey Sand with Gravel (Sandstone Fragments)
QI-LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip with Fractured and Vertically Fractured Layers
RI-LIMESTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers
SI-LIMESTONE - Gray, Thick Bedded, Hard, with Slight Dip
TI-Moist, Stiff, Reddish Brown Clay
UI-Moist, Medium Stiff, Brown Clay
VI-Moist to Wet, Stiff, Brown Sandy Clay with Gravel (Sandstone and Limestone Fragments) and Cobbles
WI-LIMESTONE - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers
XI-LIMESTONE - Gray, Very Thick Bedded, Hard, with Slight Dip
YI-Moist, Stiff, Reddish Brown Clay with Trace of Limestone
ZI-Moist, Stiff, Reddish Brown and Gray Clay with Trace of Limestone
A2-Wet, Medium Dense, Dark Gray Sand with Gravel (Sandstone Fragments)
B2-LIMESTONE - Gray, Moderately Hard
C2-LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip with occasional Fractured Layers
D2-Moist, Medium Stiff, Reddish Brown Clay
E2-Moist, Medium Stiff, Brown and Gray Sandy Clay
F2-Wet, Soft, Gray Sandy Clay with Gravel (Limestone Fragments)
G2-Dry, Very Hard, Brown and Gray Clay with Sand
H2-CAVITY (18.3' to 18.6')

GENERAL NOTES

BENCH MARK: BM 900 - Chisled Square in SW Corner of Bridge, 37.09' right of Sta. 349+34.03, Elev. 1185.35

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans Section and Subsection refer to the Standard Construction Specifications.

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

LIVE LOADING: HL-93 SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 53, Gr. 60)	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 Programs and Contracts Division.

STEEL PILING: Piling in Bents 1-5 and 8 shall be HP 12 x 53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as hard limestone on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specifications. Piles in end bents to be driven after embankment to bottom of cap is in place. On all piles the contractor shall use approved steel H-Pile driving points.

PREBORING: Preboring is required for all piling in Bent 8. Preboring shall be to a depth of 8' below the bottom of cap and shall have a minimum petetration of 3' into material designated as hard limestone on the boring legend. The quantities of preboring shown are for bidding purposes only. The actual size and depths of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require 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 of prebored hole shall be backfilled with an approved non-shrink grout or other approved material to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "Preboring".

FOOTINGS: Footings at Bents 2 - 5 shall have a minimum cover above the top of footing of 2'-0". Footings at Bents 6 & 7 shall be have a minimum embedment of 2'-6" into material designated as hard limestone on the boring legend and shall have a minimum cover above top of footings of 2'-0". Foundations for footings shall be prepared in accordance with Section 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

BRIDGE DECK: The concrete bridge deck (except sidewalk) shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6 Broomed Finish.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	52895-52900
Intermediate Bents	52901-52908
279' Continuous Composite W-Beam Unit	52909-52915
223' Continuous Composite W-Beam Unit	52916-52921
General Notes for Superstructure	52922
Joints	52923-52924
Elastomeric Bearings	52925-52926
Transitional Approach Railing	52927
Type H Metal Bridge Railing	52928
Steel Piling	14995A

EXISTING BRIDGE: Existing Bridge No. A0993 (Log Mi. 4.6) is 454' long and 33.6' wide and is comprised of 10 concrete deck and steel beam spans supported by steel pile bents and concrete column piers on spread footings. The existing bridge occupies the same location as the proposed new bridge.

REMOVAL AND SALVAGE: After Stage 2 Construction of the new bridge is open to traffic, existing Bridge No. A0993 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Carl B. Russeller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL 7/6/12 RUSSELLER

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER WEST FORK OF WHITE RIVER
WEST FORK WHITE RIVER
STR. & APPRS. (FAYETTEVILLE) (S)
WASHINGTON COUNTY

ROUTE 16 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 1-13-12 FILENAME: b040569x1_11.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: DGM DATE: 10/11

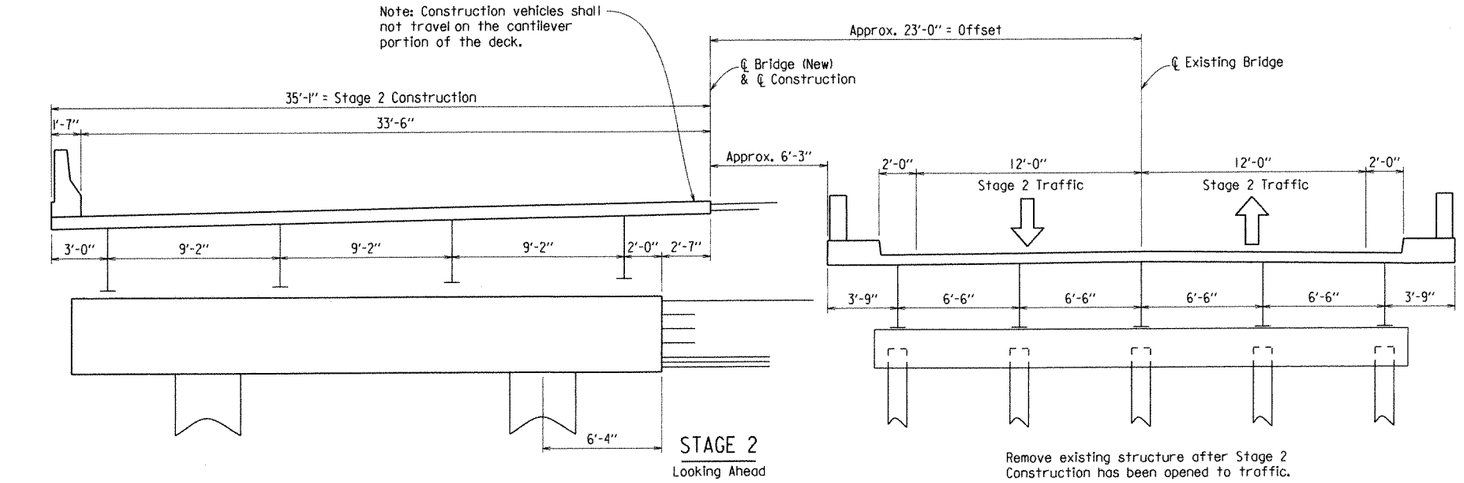
BRIDGE NO. 07256 DRAWING NO. 52893

PRINT DATE: 05-JUL-2012

349+00 350+00 351+00 352+00 353+00 354+00 355+00

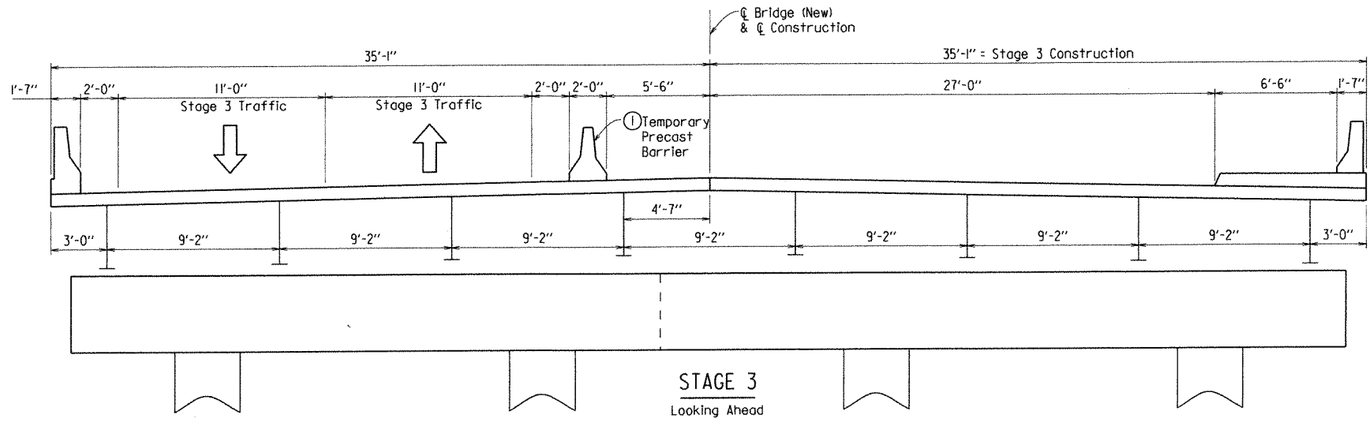
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040569	40	114
(1)	07256 - STAGE CONSTRUCTION - 52894			

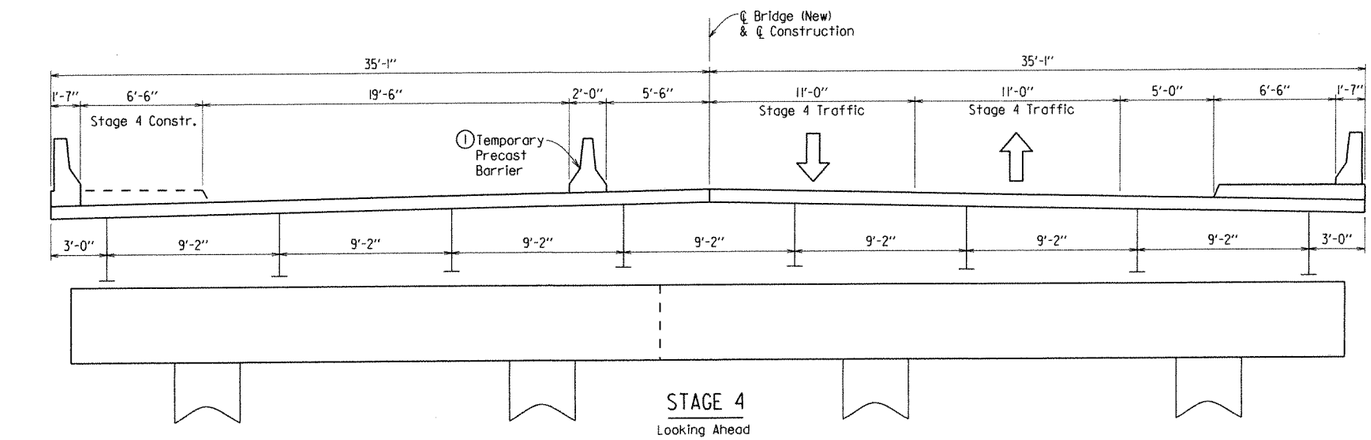


STAGE 2
Looking Ahead

Remove existing structure after Stage 2 Construction has been opened to traffic.



STAGE 3
Looking Ahead



STAGE 4
Looking Ahead

Sections for Stage Construction are shown at Intermediate Bents.

See Roadway Plans for additional details of Stage Construction and Maintenance of traffic.

(1) For Details of Temporary Precast Barrier, see Std. Dwg. No. TC-4. (Do not connect to new deck)

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. PUSELLIER

BRIDGE ENGINEER

DETAILS OF STAGE CONSTRUCTION
WEST FORK OF WHITE RIVER
WEST FORK WHITE RIVER
STR. & APPRS. (FAYETTEVILLE) (S)
WASHINGTON COUNTY

ROUTE 16 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

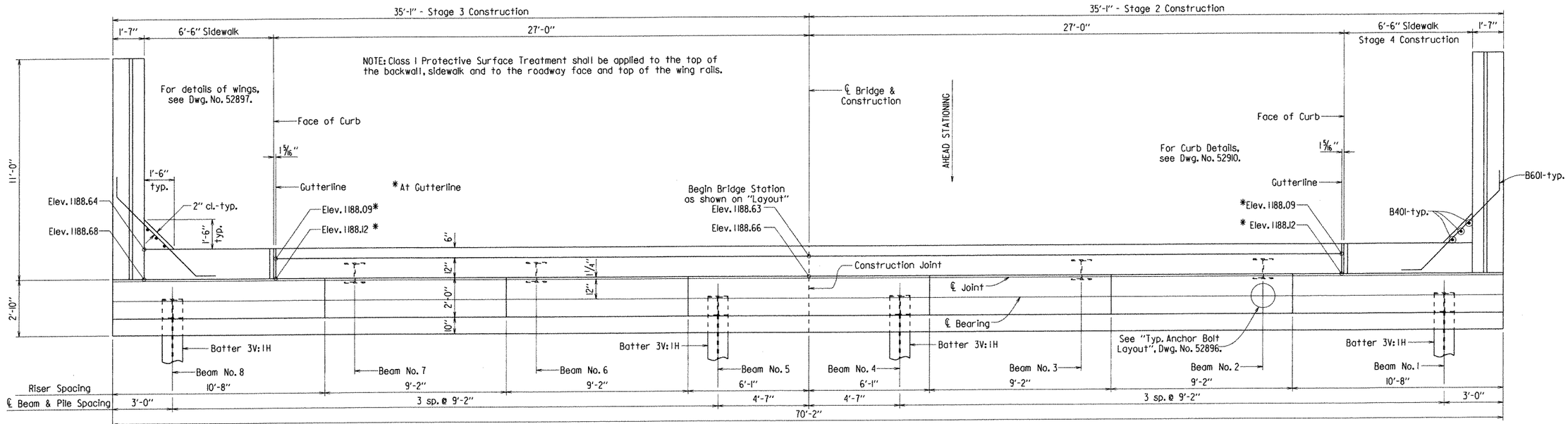
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1-19-12 FILENAME: b040569x1_sc.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: 1/4" = 1'
DESIGNED BY: CJR DATE: 1/12

BRIDGE NO. 07256 DRAWING NO. 52894

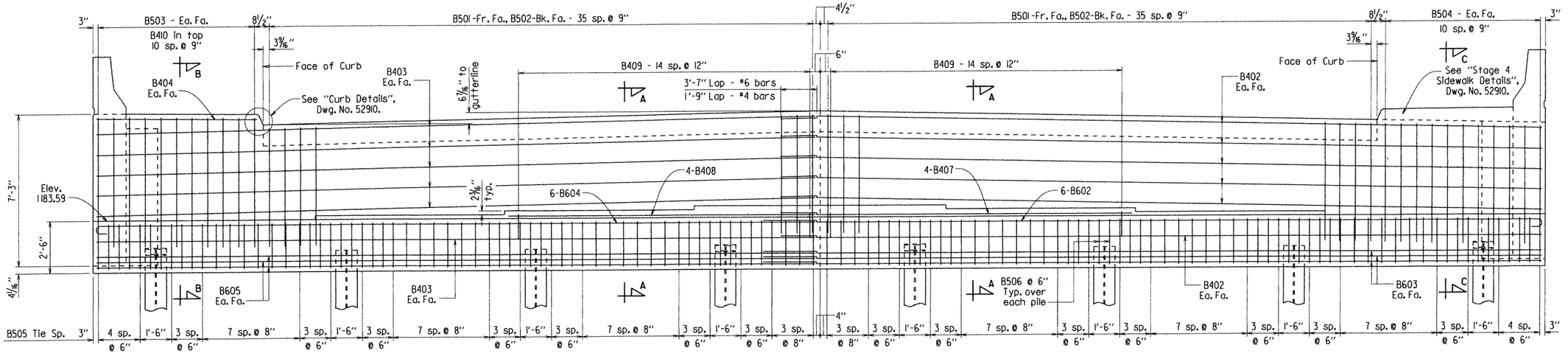
PRINT DATE: 7/5/2012

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.		040569	41	114
				①		07256 - BENT 1 - 52895		



PLAN

Scale: 3/8" = 1'-0"



ELEVATION

Looking Back

Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENT 1
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

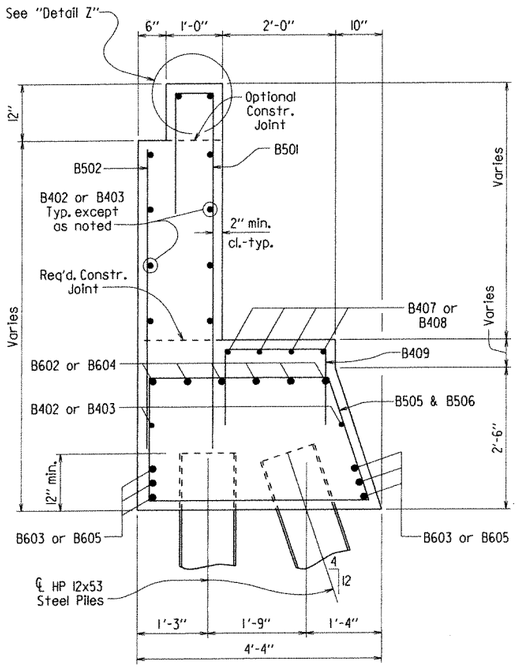
DRAWN BY: KDH DATE: 6-13-12
CHECKED BY: CJF DATE: 6/28/12
DESIGNED BY: MCB DATE: 6/5/12

FILENAME: b040569xl_b1.dgn
SCALE: AS NOTED

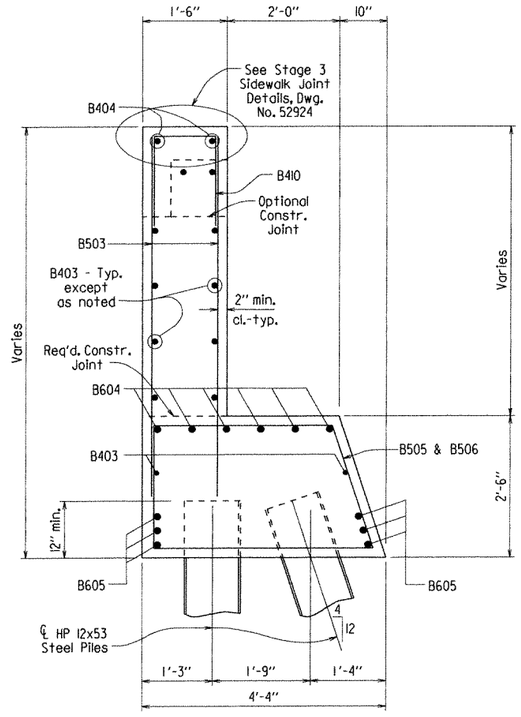
BRIDGE NO. 07256 DRAWING NO. 52895

PRINT DATE: 7/5/2012

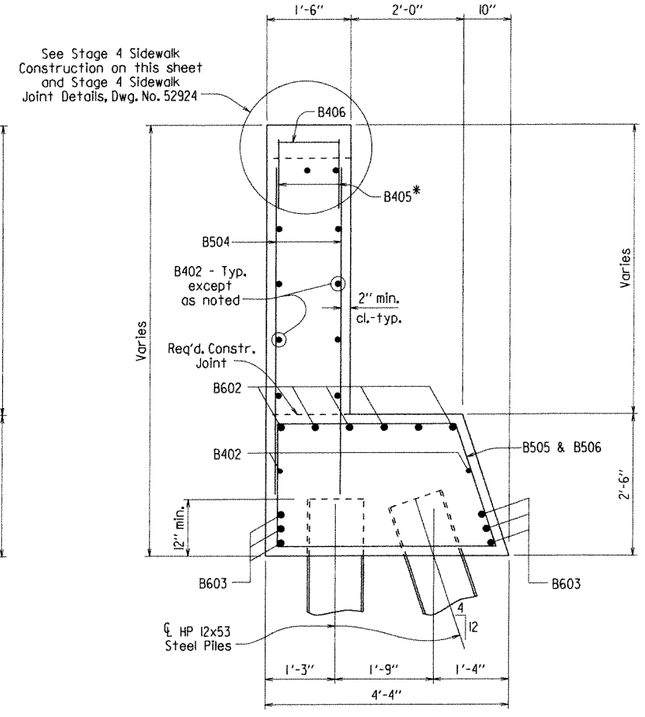
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	42	114
				①		07256 - BENT 1 - 52896		



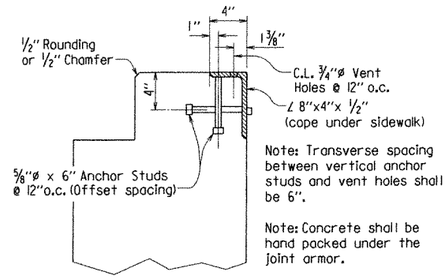
SECTION A-A
Scale: 3/4" = 1'-0"



SECTION B-B
Scale: 3/4" = 1'-0"

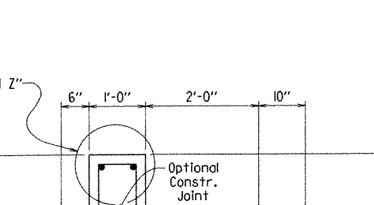


SECTION C-C
Scale: 3/4" = 1'-0"



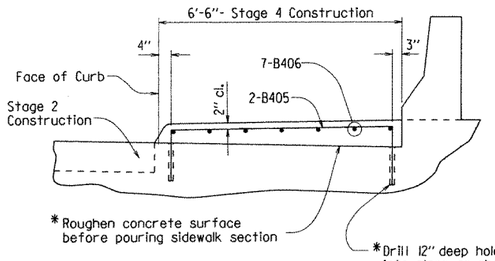
Note: For additional joint details, see Dwg. No. 52923.

DETAIL Z
No Scale



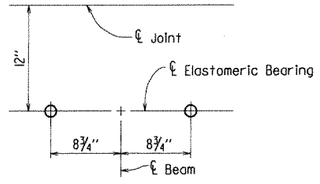
Note: Payment for membrane to be considered subsidiary to "Class S Concrete-Bridge".

CONSTRUCTION JOINT DETAIL
No Scale

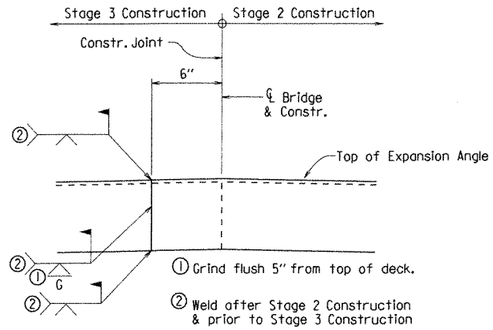


*This work to be completed as part of Stage 4 Construction. Payment for this work will not be paid for directly, but shall be considered subsidiary to the item "Class S Concrete".

STAGE 4 SIDEWALK CONSTRUCTION
No Scale



TYP. ANCHOR BOLT LAYOUT
No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE
Looking back
No Scale

STATE OF ARKANSAS
Carl L. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL L. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT 1
WEST FORK OF WHITE RIVER

ROUTE SEC.

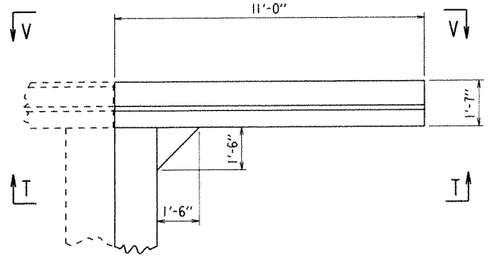
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-14-12 FILENAME: b040569x1_bl.dgn
CHECKED BY: CSR DATE: 6/28/12 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 05/12

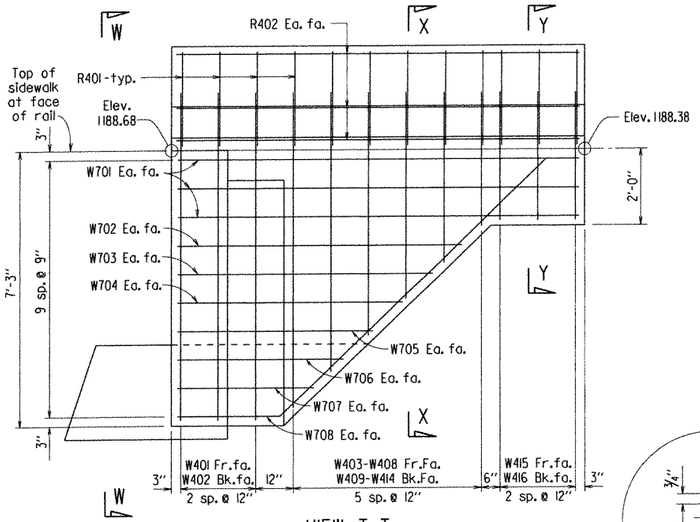
BRIDGE NO. 07256 DRAWING NO. 52896

PRINT DATE: 7/5/2012

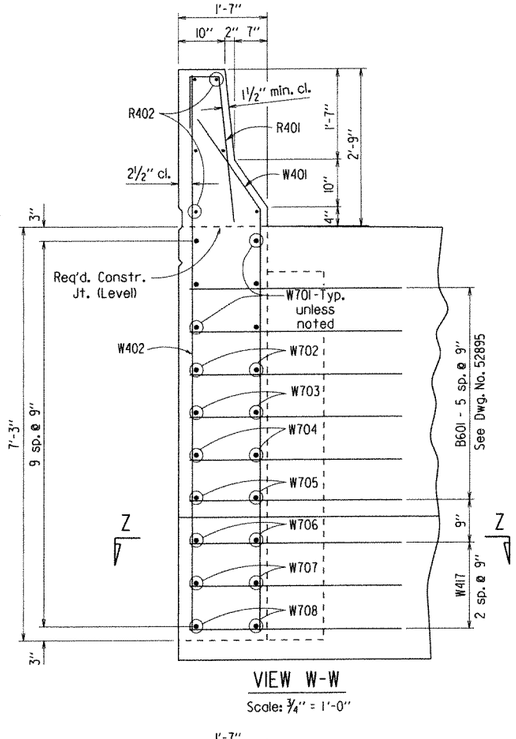
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	43	114
				①		07256 - BENT 1 - 52897		



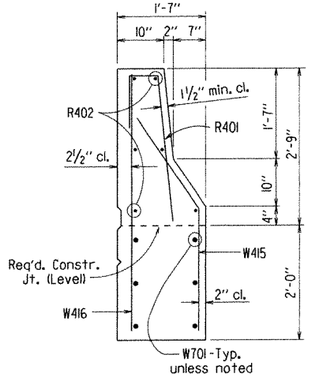
PLAN OF WING
Scale: 3/8" = 1'-0"



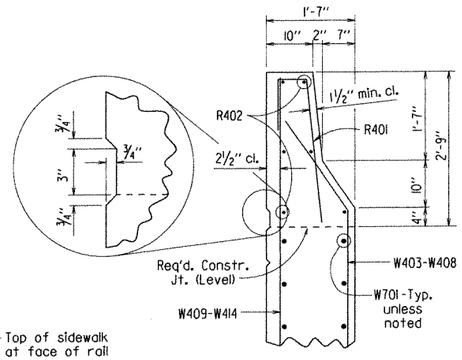
VIEW T-T
Scale: 1/2" = 1'-0"



VIEW W-W
Scale: 3/4" = 1'-0"



SECTION Y-Y
Scale: 3/4" = 1'-0"



SECTION X-X
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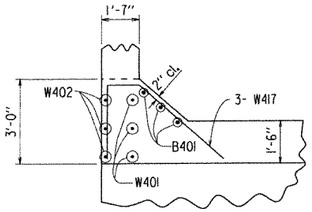
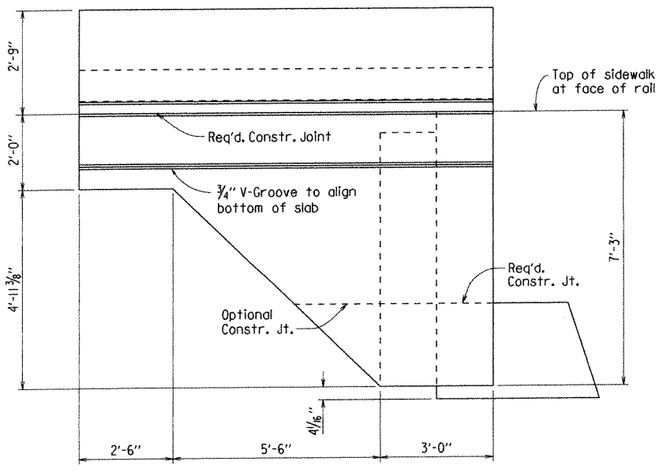


SECTION Z-Z
No Scale

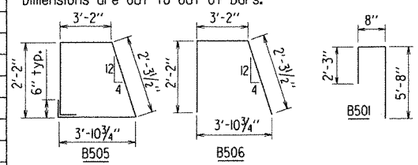


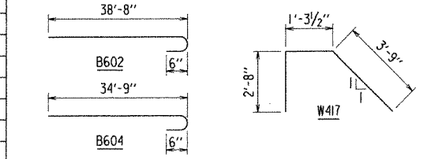
VIEW V-V
Scale: 1/2" = 1'-0"

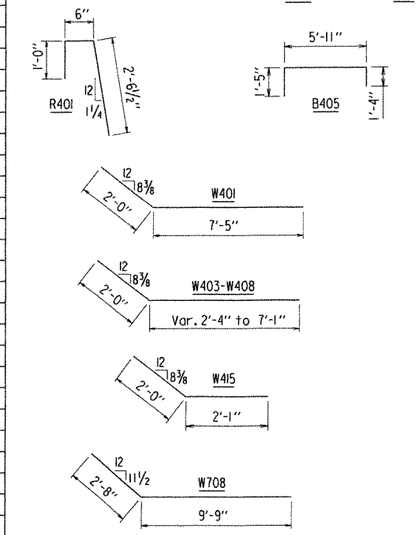
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	6'-2"	Str.
B402	12	36'-10"	Str.
B403	12	34'-9"	Str.
B404	2	7'-8"	Str.
B405	2	8'-7"	2"
B406	7	1'-2"	Str.
B407	4	17'-0"	Str.
B408	4	14'-10"	Str.
B409	30	4'-6"	2"
B410	11	3'-0"	2"
R401	24	3'-11"	2"
R402	12	10'-8"	Str.
W401	6	9'-5"	2"
W402	6	9'-8"	Str.
W403-W408	2 each	Var. 4'-4" to 9'-1"	2"
W409 W414	2 each	Var. 4'-7" to 9'-4"	Str.
W415	6	4'-1"	2"
W416	6	4'-5"	Str.
W417	6	7'-7"	2"
B501	72	8'-3"	2½"
B502	72	4'-8"	Str.
B503	11	6'-3"	Str.
B504	11	5'-9"	Str.
B505	108	12'-1"	2½"
B506	16	7'-5"	2½"
B601	12	7'-5"	4½"
B602	6	34'-4"	4½"
B603	6	38'-8"	Str.
B604	6	35'-5"	4½"
B605	6	34'-9"	Str.
W701	12	10'-8"	Str.
W702	4	7'-5"	Str.
W703	4	6'-9"	Str.
W704	4	6'-0"	Str.
W705	4	5'-2"	Str.
W706	4	4'-5"	Str.
W707	4	3'-7"	Str.
W708	4	12'-2"	5¼"

BENDING DIAGRAMS
Dimensions are out to out of bars.







GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Gr. 60.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270-Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 52923.

For additional information, See layout.

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLIER

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT 1
WEST FORK OF WHITE RIVER

ROUTE SEC.

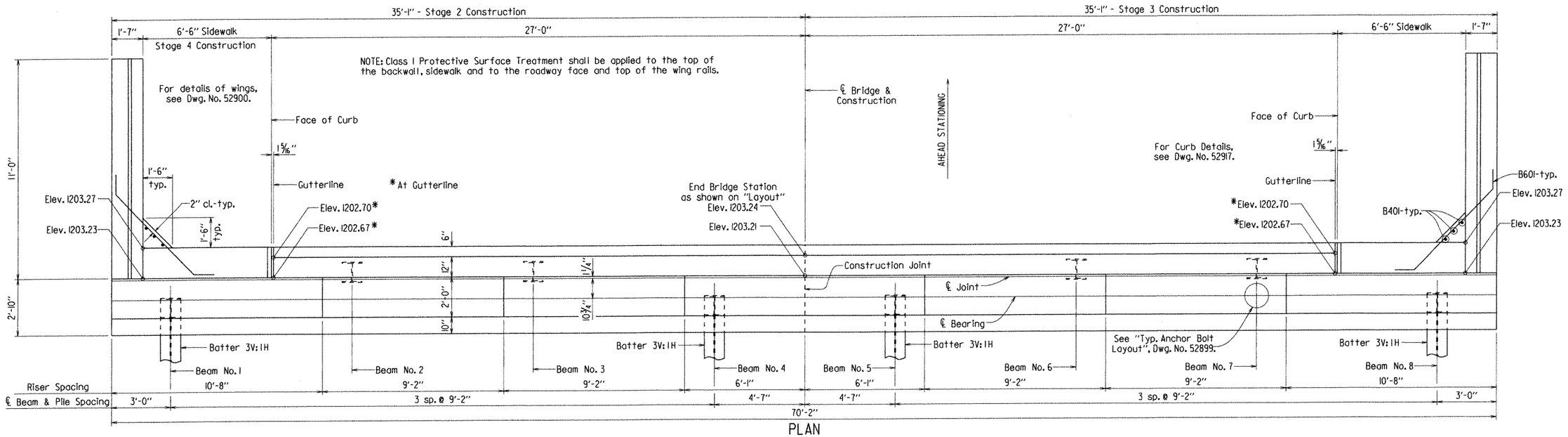
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-18-12
CHECKED BY: CJP DATE: 6/28/12
DESIGNED BY: MCB DATE: 05/12
FILENAME: b040569xl_bl.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52897

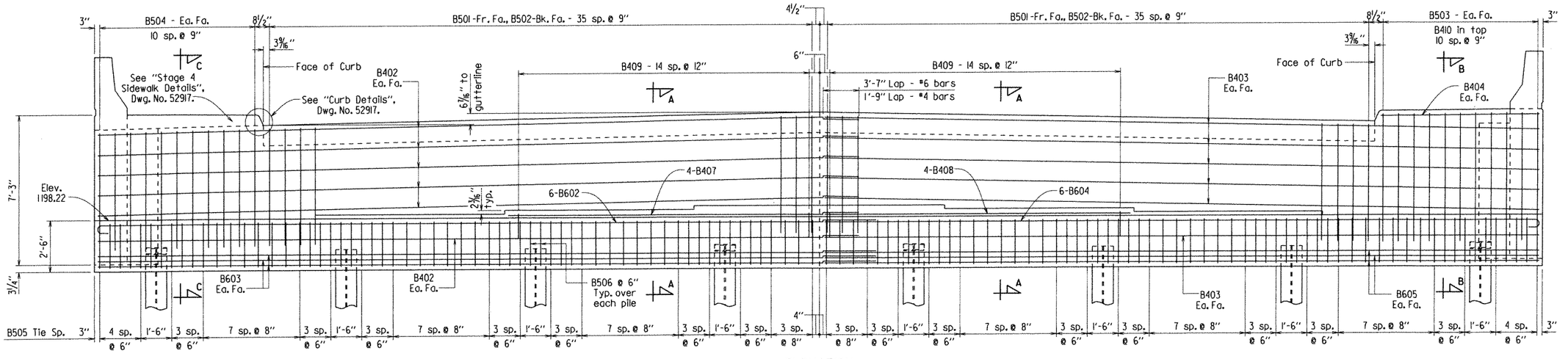
PRINT DATE: 7/5/2012

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.		040569	44	114
				(1)	07256 -	BENT NO. 8		- 52898



PLAN

Scale: 3/8" = 1'-0"



ELEVATION

Looking Ahead
Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
Carl J. Puselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELIER
7/6/12

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF BENT 8
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

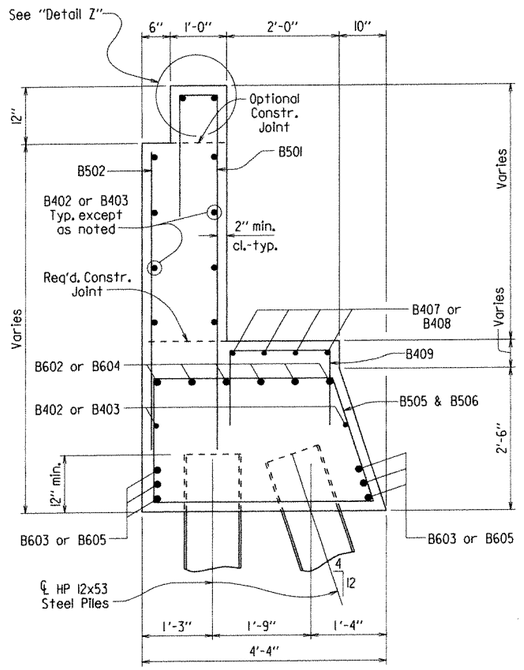
DRAWN BY: KDH DATE: 6-19-12
CHECKED BY: CJP DATE: 6/28/12
DESIGNED BY: MCB DATE: 6/5/12

FILENAME: b040569x1_b8.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52898

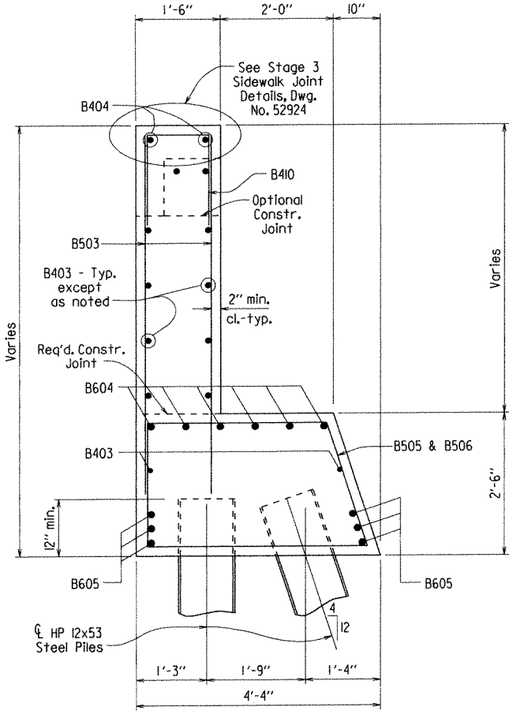
PRINT DATE: 7/5/2012

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.		040569	45	114
				①	07256 -	BENT 8	- 52899	



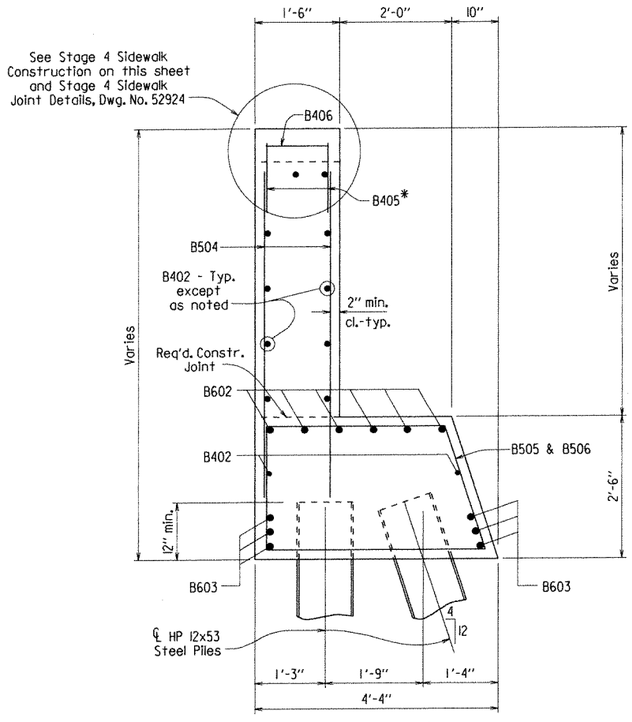
SECTION A-A

Scale: 3/4" = 1'-0"



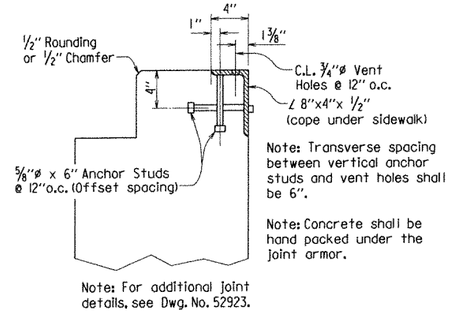
SECTION B-B

Scale: 3/4" = 1'-0"



SECTION C-C

Scale: 3/4" = 1'-0"



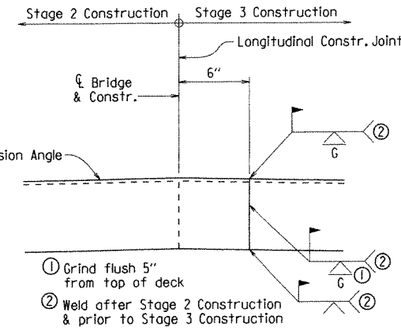
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 52923.

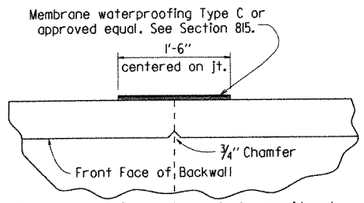
DETAIL Z

No Scale



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

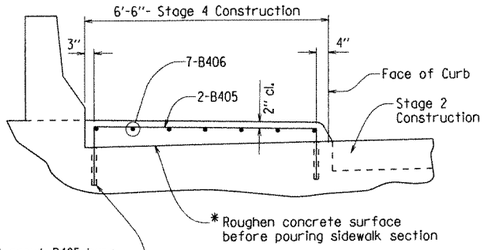
No Scale



Note: Payment for membrane to be considered subsidiary to "Class S Concrete-Bridge".

CONSTRUCTION JOINT DETAIL

No Scale

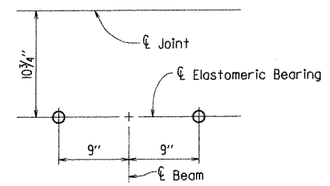


*Drill 12" deep holes and grout B405 bars into place as shown using an approved epoxy grout listed on the QPL. Hole diameter, and installation procedure shall be as recommended by the grout manufacturer.

*This work to be completed as part of Stage 4 Construction. Payment for this work will not be paid for directly, but shall be considered subsidiary to the item "Class S(AE) Concrete.

STAGE 4 SIDEWALK CONSTRUCTION

No Scale



TYP. ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT 8
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

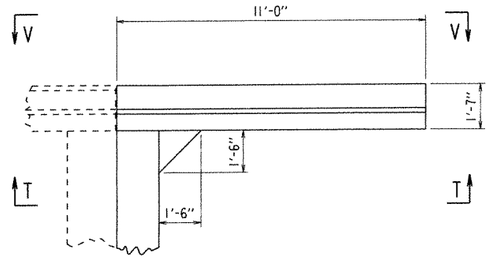
DRAWN BY: KDH DATE: 6-19-12
CHECKED BY: CSR DATE: 6/25/12
DESIGNED BY: MCB DATE: 05/12

FILENAME: b040569x1_b8.dgn
SCALE: AS NOTED

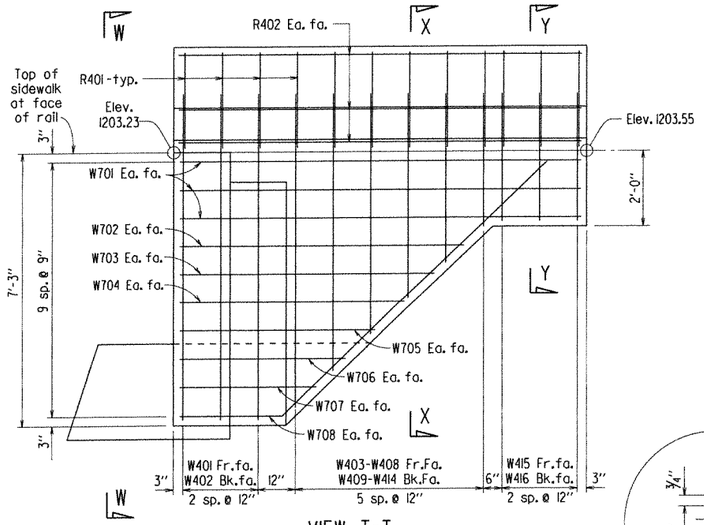
BRIDGE NO. 07256 DRAWING NO. 52899

PRINT DATE: 7/5/2012

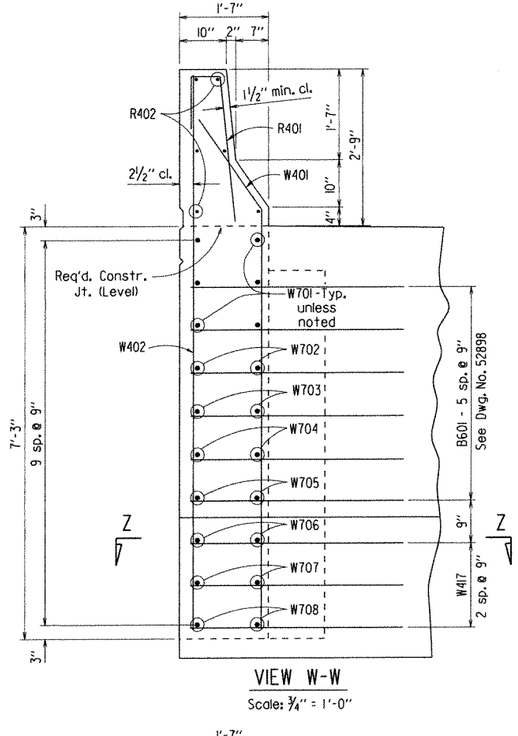
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	46	114
				(1) 07256 -		BENT 8		- 52900



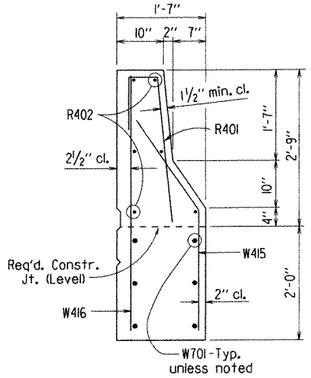
PLAN OF WING
Scale: 3/8" = 1'-0"



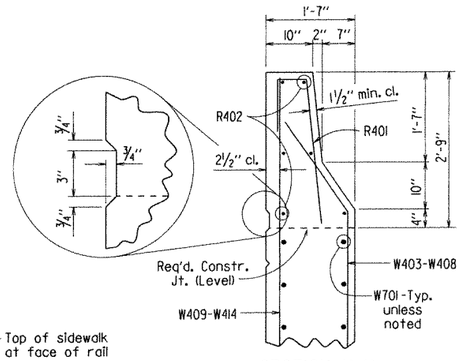
VIEW T-T
Scale: 1/2" = 1'-0"



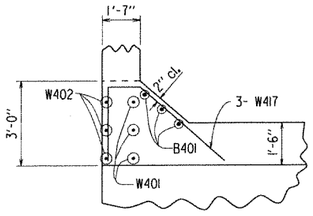
VIEW W-W
Scale: 3/4" = 1'-0"



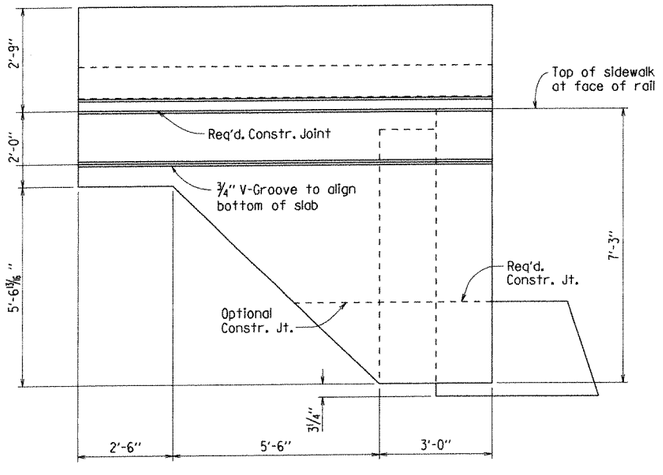
SECTION Y-Y
Scale: 3/4" = 1'-0"



SECTION X-X
Scale: 3/4" = 1'-0"



SECTION Z-Z
No Scale



VIEW V-V
Scale: 1/2" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Gr. 60.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270-Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 52923.

For additional information, See layout.

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	6'-2"	Str.
B402	12	36'-10"	Str.
B403	12	34'-9"	Str.
B404	2	7'-8"	Str.
B405	2	8'-7"	2"
B406	7	1'-2"	Str.
B407	4	17'-0"	Str.
B408	4	14'-10"	Str.
B409	30	4'-6"	2"
B410	11	3'-0"	2"
R401	24	3'-11"	2"
R402	12	10'-8"	Str.
W401	6	9'-5"	2"
W402	6	9'-8"	Str.
W403-W408	2 each	Var. 4'-4" to 9'-1"	2"
W409-W414	2 each	Var. 4'-7" to 9'-4"	Str.
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W416	6	4'-5"	Str.
W417	6	7'-7"	2"
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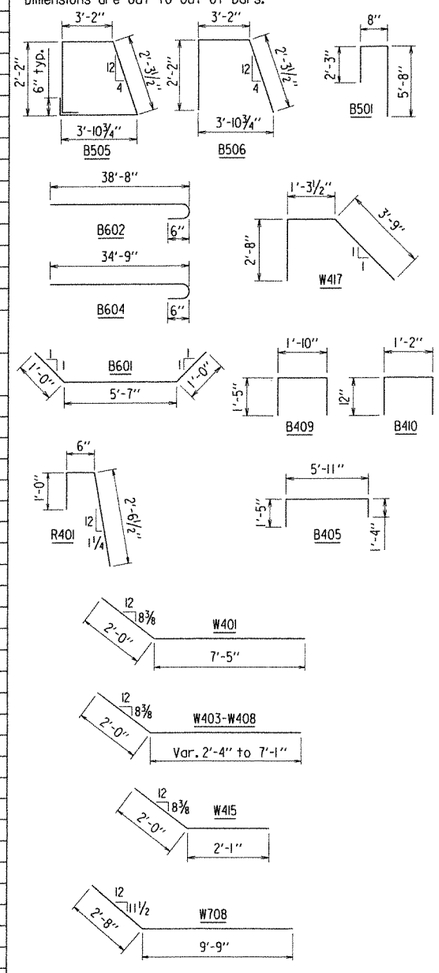
B502	72	4'-8"	Str.
B503	11	6'-3"	Str.
B504	11	5'-9"	Str.
B505	108	12'-1"	2½"
B506	16	7'-5"	2½"
B601	12	7'-5"	4½"
B602	6	39'-4"	4½"
B603	6	38'-8"	Str.
B604	6	35'-5"	4½"
B605	6	34'-9"	Str.
W701	12	10'-8"	Str.
W702	4	7'-5"	Str.
W703	4	6'-9"	Str.
W704	4	6'-0"	Str.
W705	4	5'-2"	Str.
W706	4	4'-5"	Str.
W707	4	3'-7"	Str.
W708	4	12'-2"	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
Carl L. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL L. PUSELLER
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT 8
WEST FORK OF WHITE RIVER

ROUTE SEC.

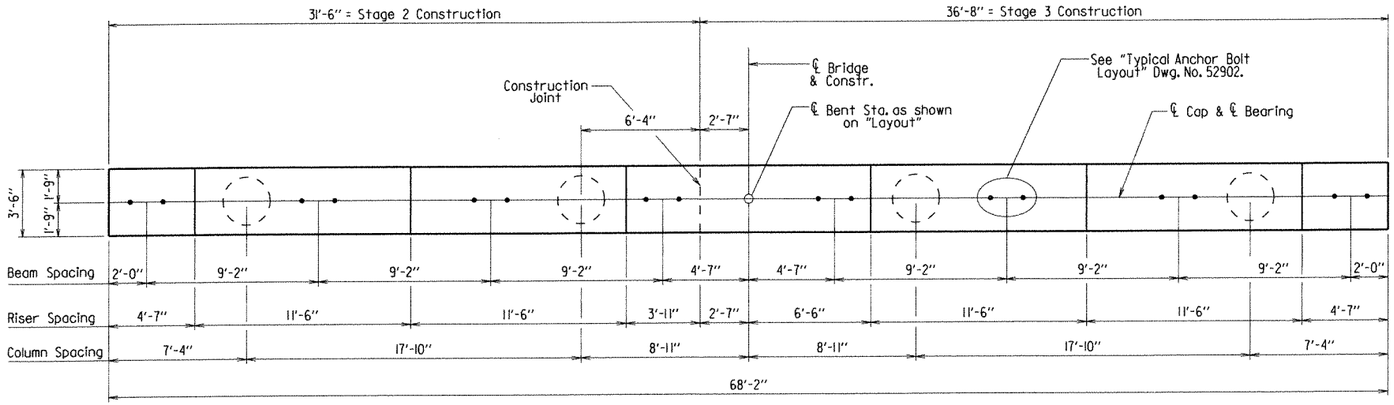
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-19-12
CHECKED BY: CSK DATE: 6/28/12
DESIGNED BY: mcb DATE: 05/12
FILENAME: b040569xl_b8.dgn
SCALE: AS NOTED

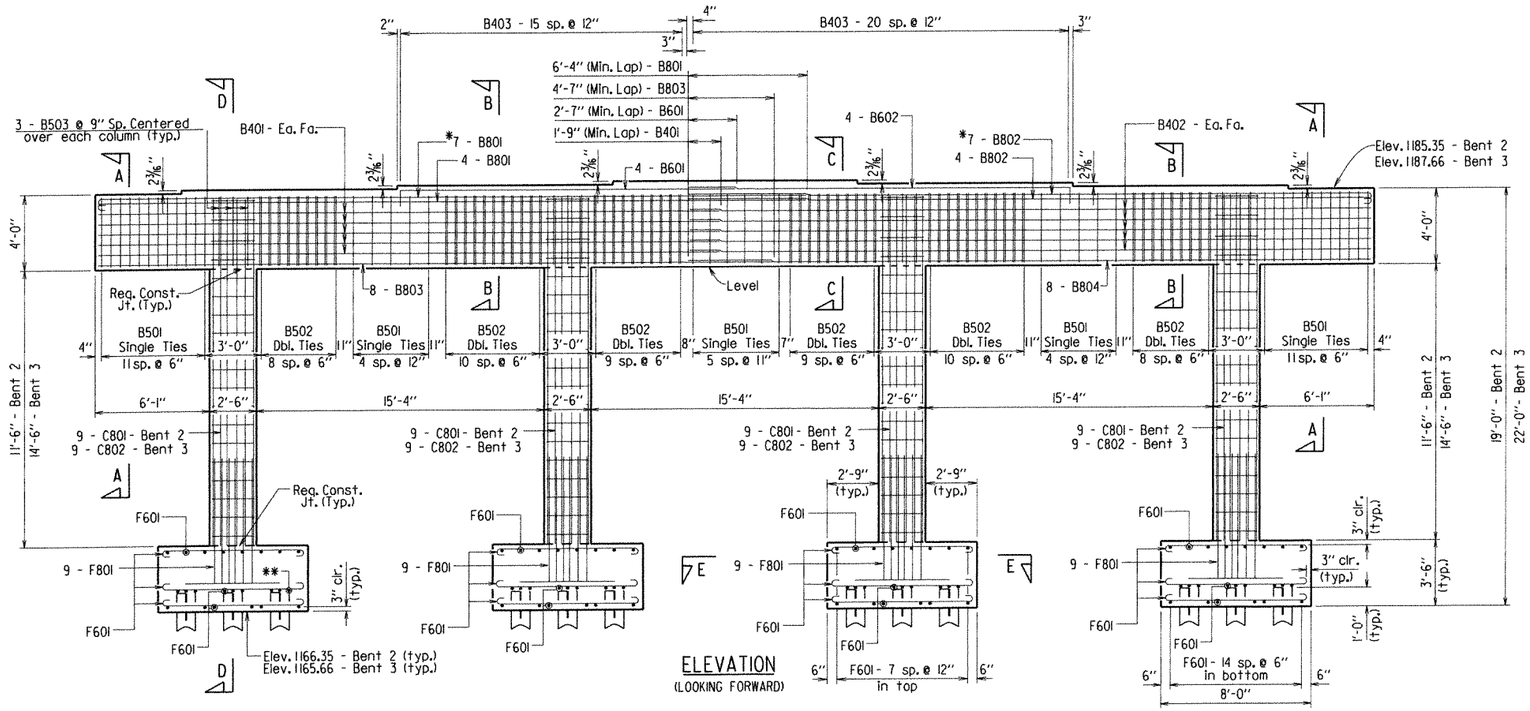
BRIDGE NO. 07256 DRAWING NO. 52900

PRINT DATE: 7/5/2012

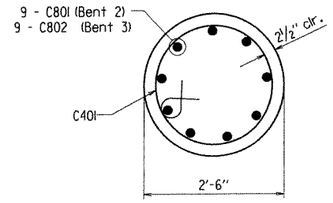
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	47	114
				(1)	07256	– Int. Bents –	52901	



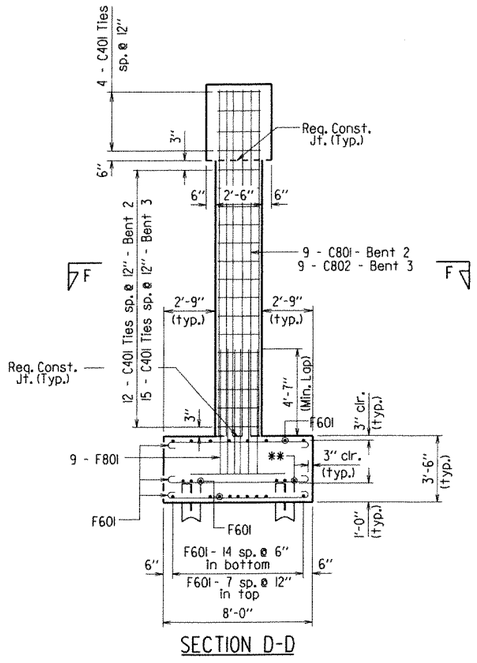
PLAN



ELEVATION
(LOOKING FORWARD)

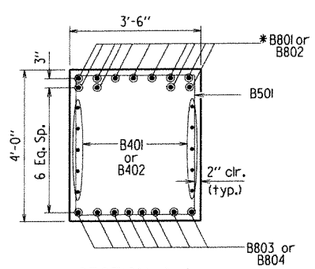


SECTION F-F
¾" = 1'-0"

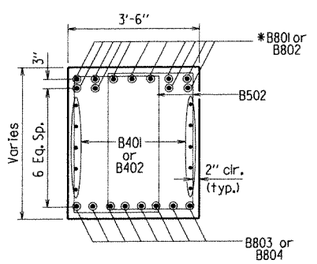


SECTION D-D

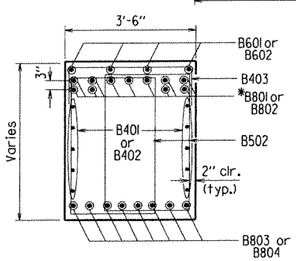
** Reinforcing shall rest on top of piles.



SECTION A-A
½" = 1'-0"



SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS 2 & 3 WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

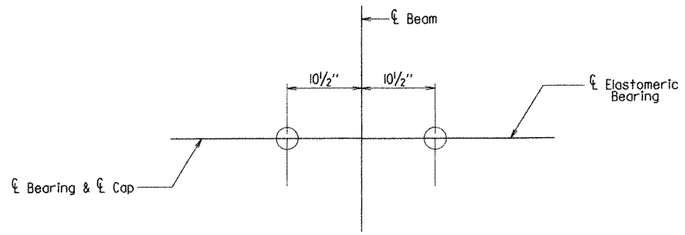
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 6/7/12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: MLB DATE: 05/12
FILENAME: b040569x1_b2.dgn
SCALE: 1/4" = 1'-0" OR AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52901

PRINT DATE: 7/5/2012

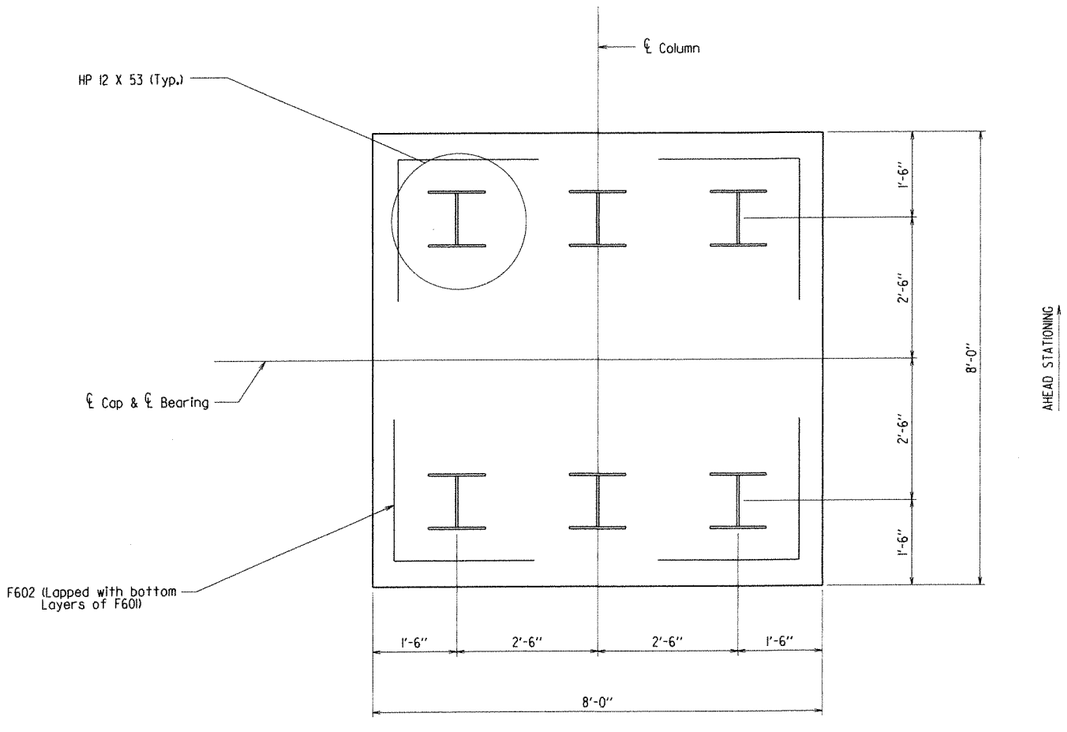
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	48	114
				(1) 07256	—	Int. Bents	—	52902



TYPICAL ANCHOR BOLT LAYOUT

Not to Scale

For Details of Elastomeric Bearings, See Dwg. No. 52925.



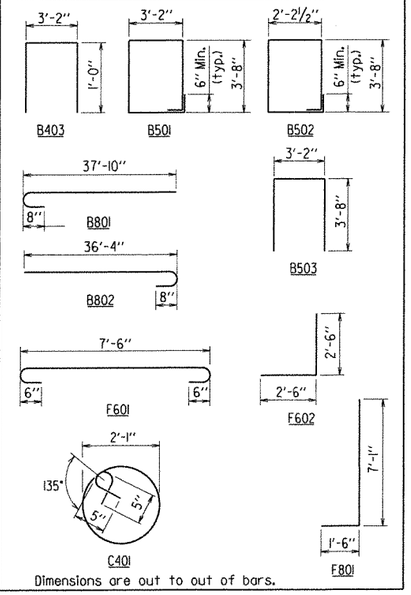
SECTION E-E

¾" = 1'-0"

BAR LIST

MARK	NUMBER REQ'D Bent 2	NUMBER REQ'D Bent 3	LENGTH	P.D.
B401	10	10	33'-3"	Str.
B402	10	10	36'-4"	Str.
B403	37	37	5'-0"	2"
B501	40	40	14'-2"	2½"
B502	120	120	12'-3"	2½"
B503	12	12	10'-4"	2½"
B601	4	4	18'-0"	Str.
B602	4	4	20'-3"	Str.
B801	11	11	38'-9"	6"
B802	11	11	37'-3"	6"
B803	8	8	36'-1"	Str.
B804	8	8	36'-4"	Str.
C401	64	76	7'-8"	3"
C801	36	–	15'-0"	Str.
C802	–	36	18'-0"	Str.
F601	184	184	8'-10"	4½"
F602	16	16	4'-11"	4½"
F801	36	36	8'-5"	6"

BENDING DIAGRAMS



Dimensions are out to out of bars.

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield strength = 60,000 psi.)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Carl J. Pusellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. PUSELLIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS 2 & 3 WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

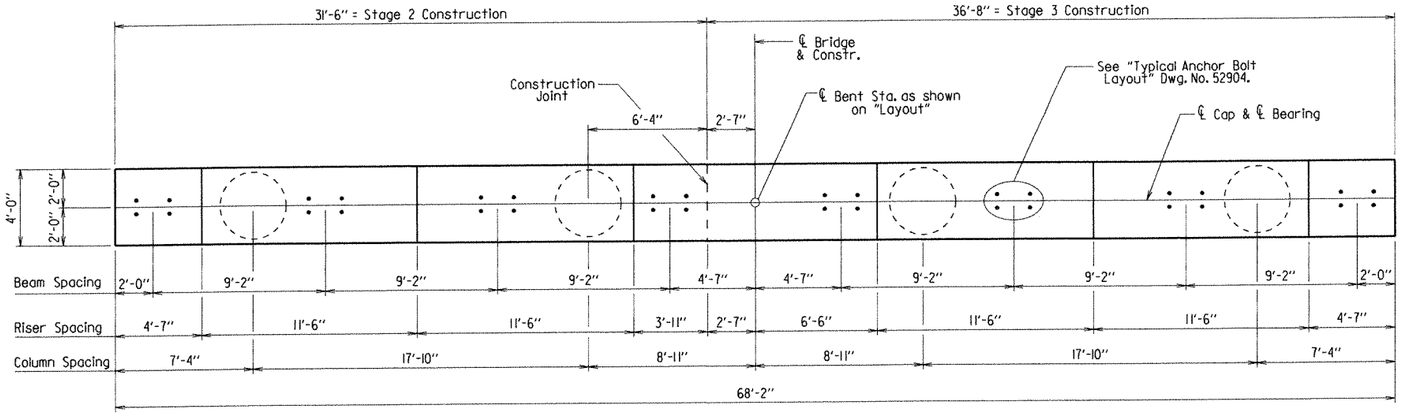
DRAWN BY: CJR DATE: 6/6/12
CHECKED BY: REF DATE: 7/3/12
DESIGNED BY: MLB DATE: 05/12

FILENAME: b040569x1_b2.dgn
SCALE: 3/8" = 1'-0" OR AS NOTED

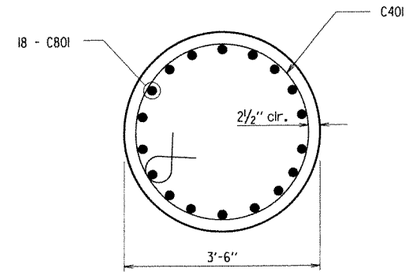
BRIDGE NO. 07256 DRAWING NO. 52902

PRINT DATE: 7/5/2012

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.		040569	49	114
				①	07256	– Int. Bent –	52903	

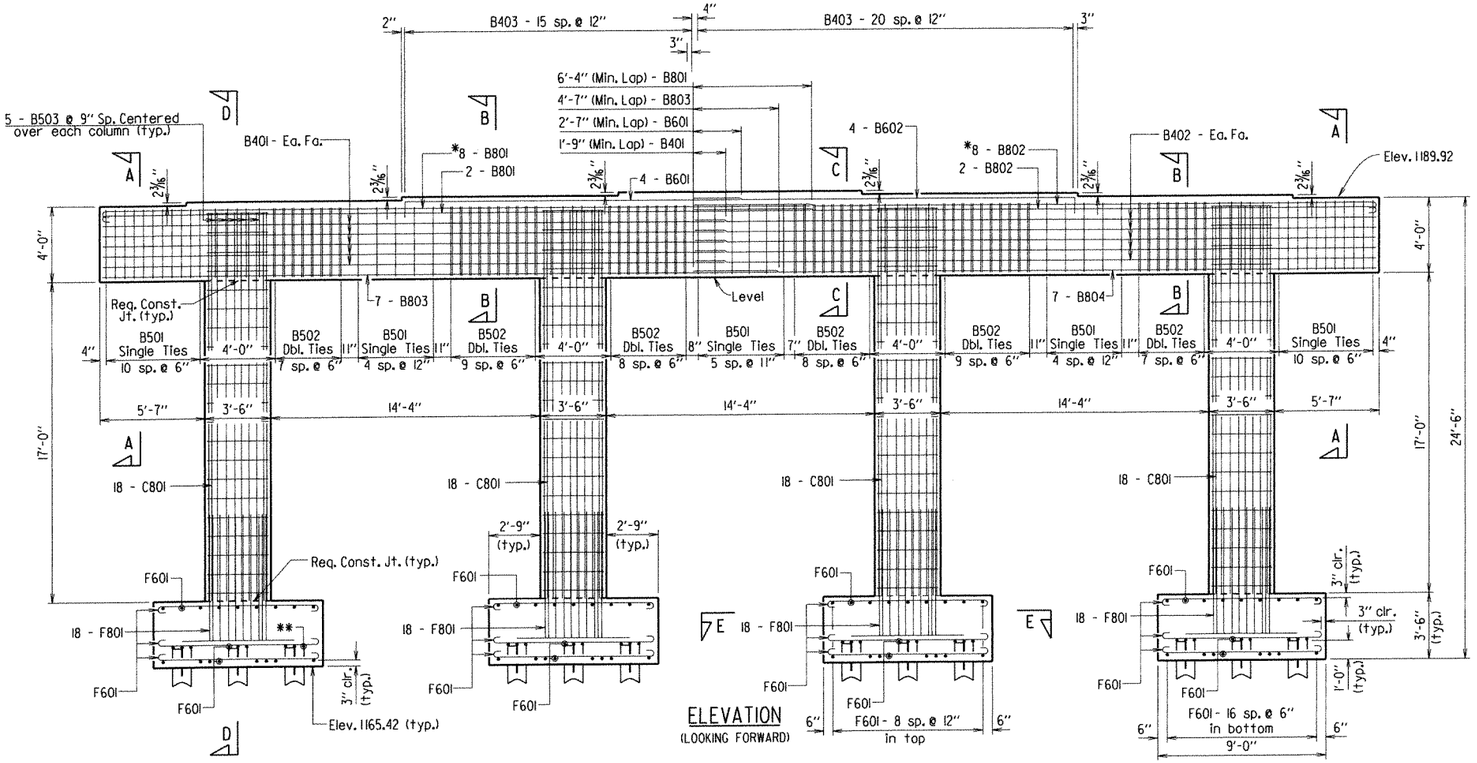


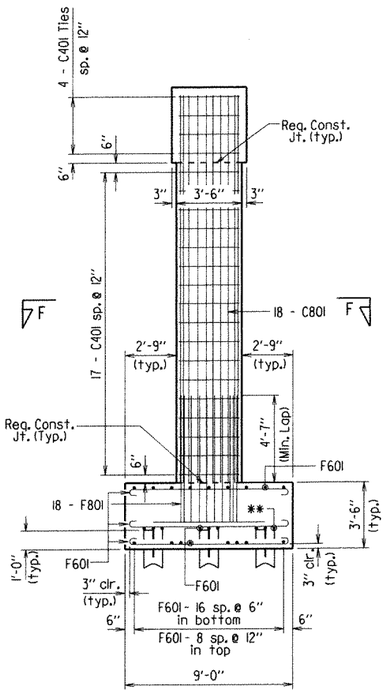
PLAN



SECTION F-F

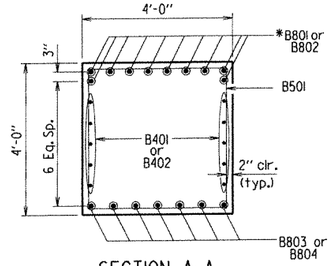
¾" = 1'-0"





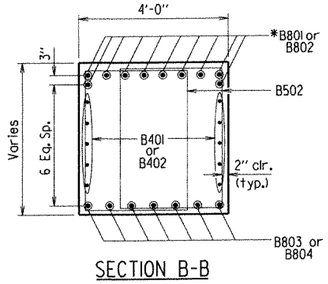
SECTION D-D

**Reinforcing shall rest on top of piles.



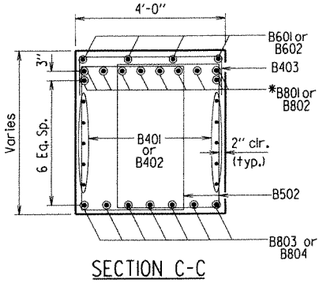
SECTION A-A

½" = 1'-0"



SECTION B-B

½" = 1'-0"



SECTION C-C

½" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF
INTERMEDIATE BENT 4
WEST FORK OF WHITE RIVER

ROUTE SEC.

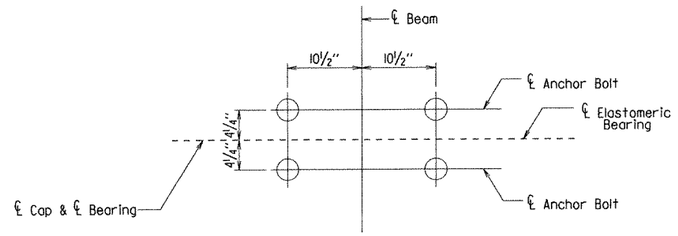
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 6/6/12 FILENAME: b040569x1_b2.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: 1/4" = 1'-0" OR AS NOTED
DESIGNED BY: MCB DATE: 04/12

BRIDGE NO. 07256 DRAWING NO. 52903

PRINT DATE: 7/5/2012

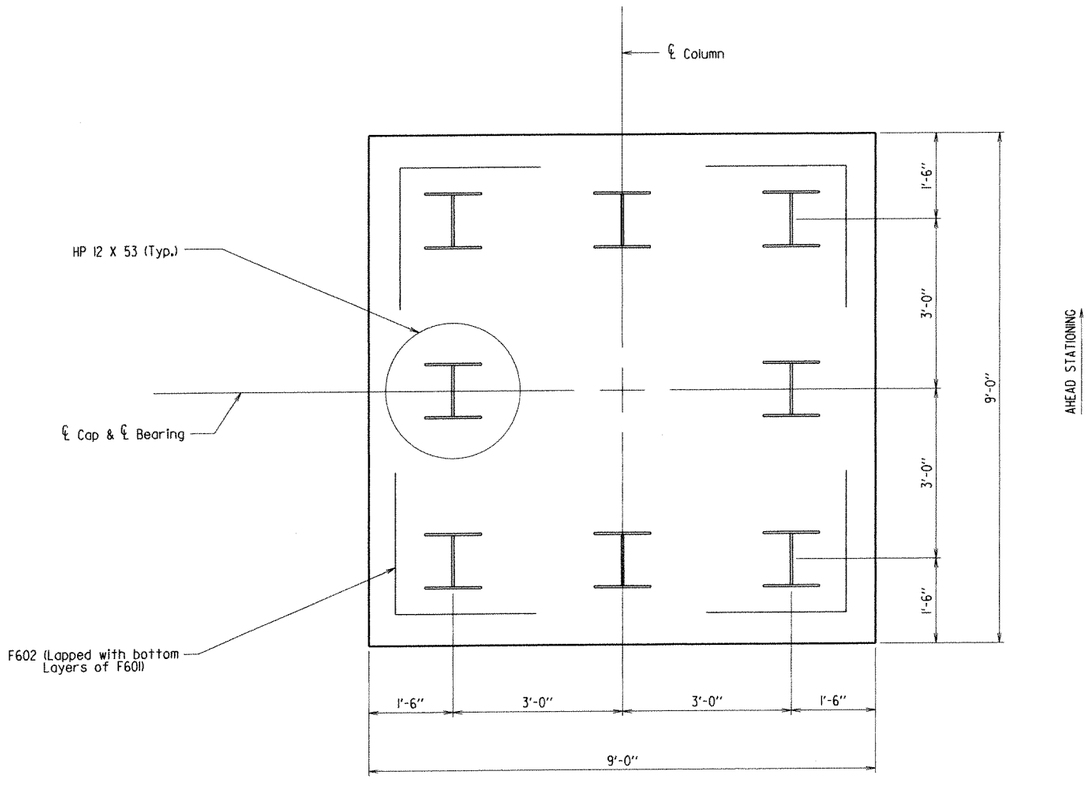
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	50	114
				(1) 07256	—	Int. Bent	—	52904



TYPICAL ANCHOR BOLT LAYOUT

Not to Scale

For Details of Elastomeric Bearings, See Dwg. No. 52926.



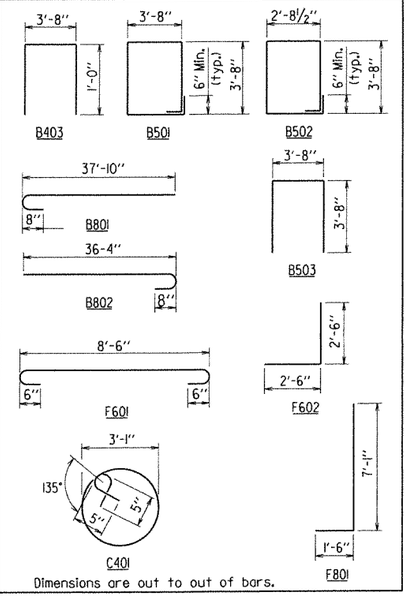
SECTION E-E

¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
B401	10	33'-3"	Str.
B402	10	36'-4"	Str.
B403	37	5'-6"	2"
B501	38	15'-2"	2½"
B502	108	13'-3"	2½"
B503	20	10'-10"	2½"
B601	4	18'-0"	Str.
B602	4	20'-3"	Str.
B801	10	38'-9"	6"
B802	10	37'-3"	6"
B803	7	36'-1"	Str.
B804	7	36'-4"	Str.
C401	84	10'-9"	3"
C801	72	20'-6"	Str.
F601	208	9'-10"	4½"
F602	16	4'-11"	4½"
F801	72	8'-5"	6"

BENDING DIAGRAMS



Dimensions are out to out of bars.

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield strength = 60,000 psi.)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Carl J. Puseliер
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT 4
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

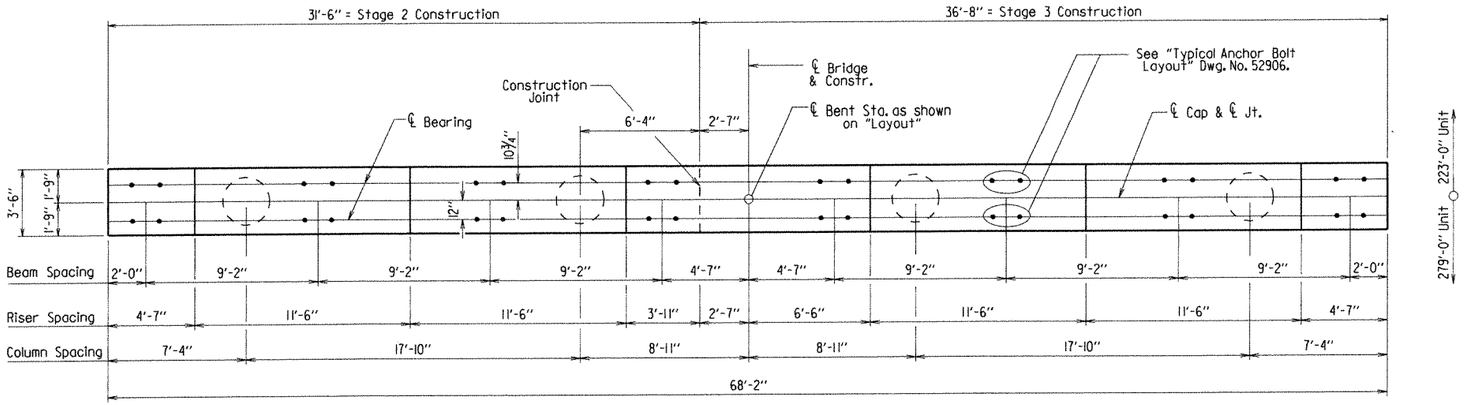
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 6/6/12 FILENAME: b040569xi_b2.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: ⅜" = 1'-0"
DESIGNED BY: MCB DATE: 04/12 OR AS NOTED

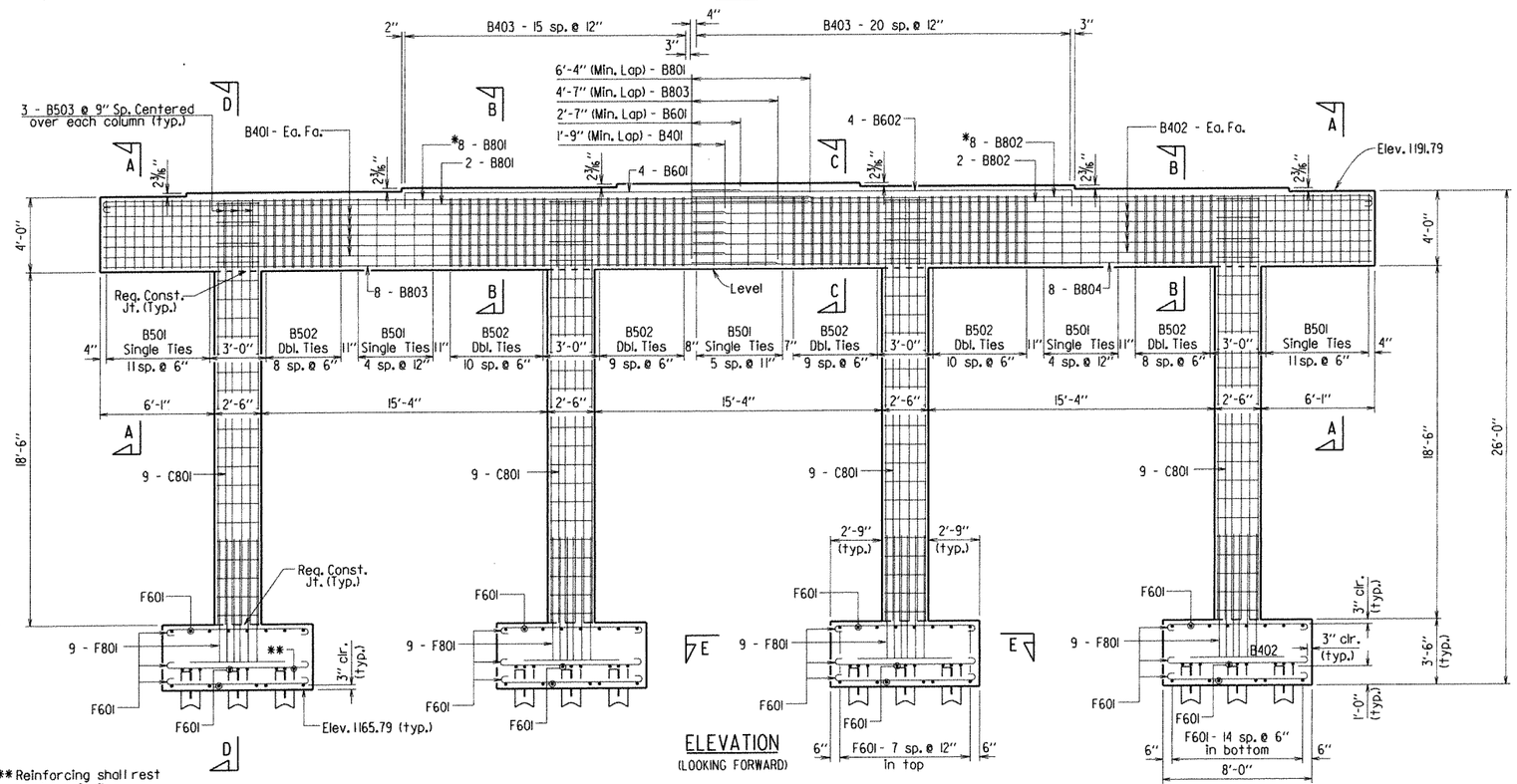
BRIDGE NO. 07256 DRAWING NO. 52904

PRINT DATE: 7/5/2012

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.		040569	51	114
				①	07256	– Int. Bent –	52905	

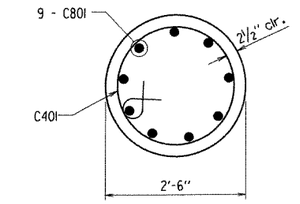


PLAN

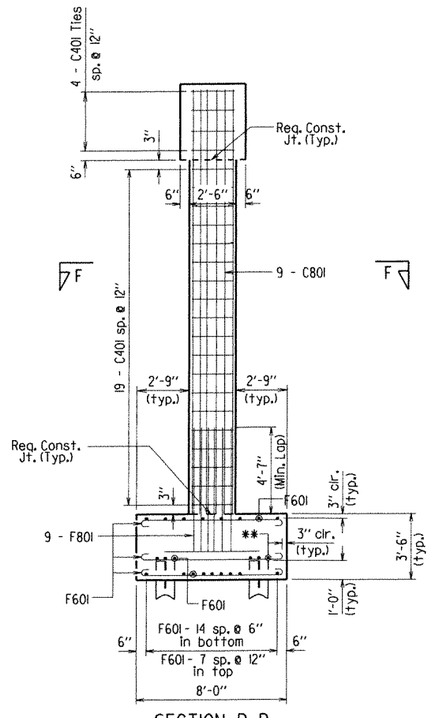


**Reinforcing shall rest on top of piles.

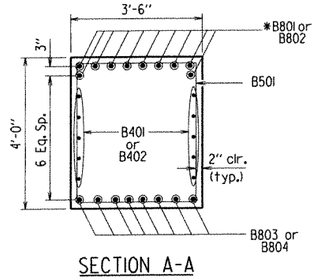
ELEVATION
(LOOKING FORWARD)



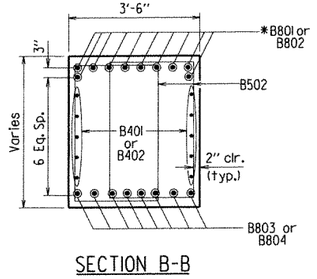
SECTION F-F
¾" = 1'-0"



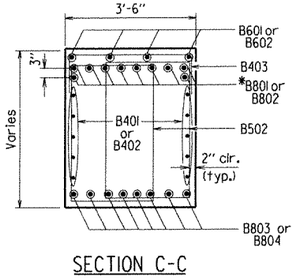
SECTION D-D



SECTION A-A
½" = 1'-0"



SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STATE OF ARKANSAS
Carl J. Puseliier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENT 5 WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

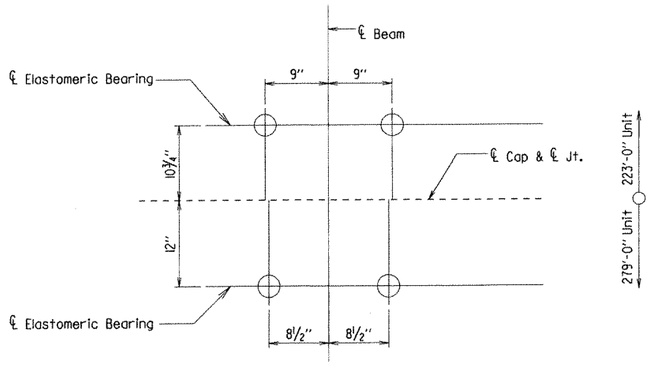
DRAWN BY: CJR DATE: 6/11/12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: mcb DATE: 04/12

FILENAME: b040569x1_b2.dgn
SCALE: 1/4" = 1'-0" OR AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52905

PRINT DATE: 7/5/2012

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.		040569	52	114
				(1) 07256	—	Int. Bent	—	52906

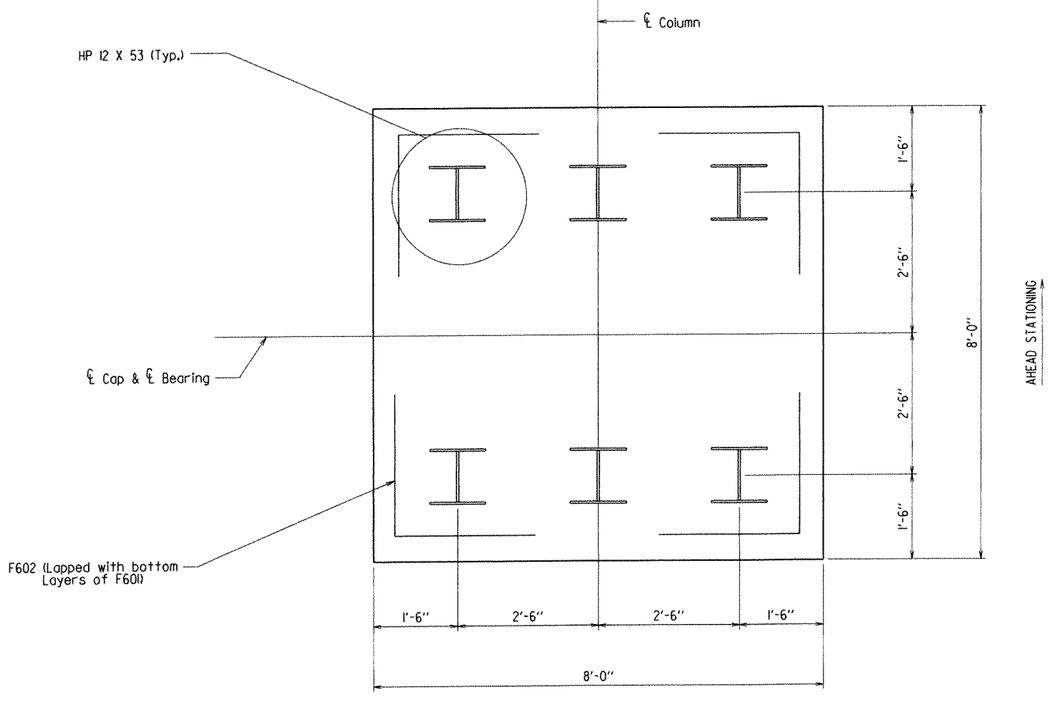


TYPICAL ANCHOR BOLT LAYOUT

(LOOKING FORWARD)

Not to Scale

For Details of Elastomeric Bearings, See Dwg. No. 52925.



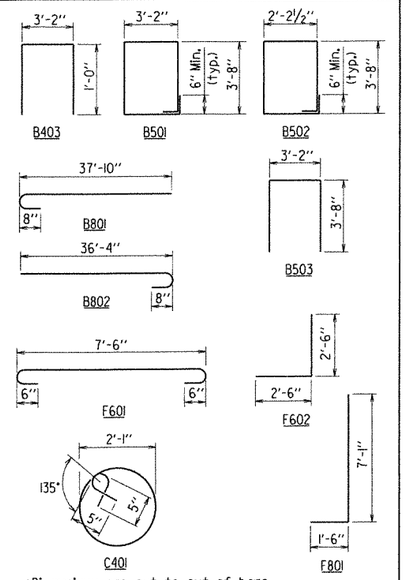
SECTION E-E

¾" = 1'-0"

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.
B401	10	33'-3"	Str.
B402	10	36'-4"	Str.
B403	37	5'-0"	2"
B501	40	14'-2"	2½"
B502	120	12'-3"	2½"
B503	12	10'-4"	2½"
B601	4	18'-0"	Str.
B602	4	20'-3"	Str.
B801	10	38'-9"	6"
B802	10	37'-3"	6"
B803	8	36'-1"	Str.
B804	8	36'-4"	Str.
C401	92	7'-8"	3"
C801	36	22'-0"	Str.
F601	184	8'-10"	4½"
F602	16	4'-11"	4½"
F801	36	8'-5"	6"

BENDING DIAGRAMS



Dimensions are out to out of bars.

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield strength = 60,000 psi.)

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENT 5 WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 6/11/12 FILENAME: b040569xl_b2.dgn

CHECKED BY: BEF DATE: 7/3/12 SCALE: ¾" = 1'-0" OR AS NOTED

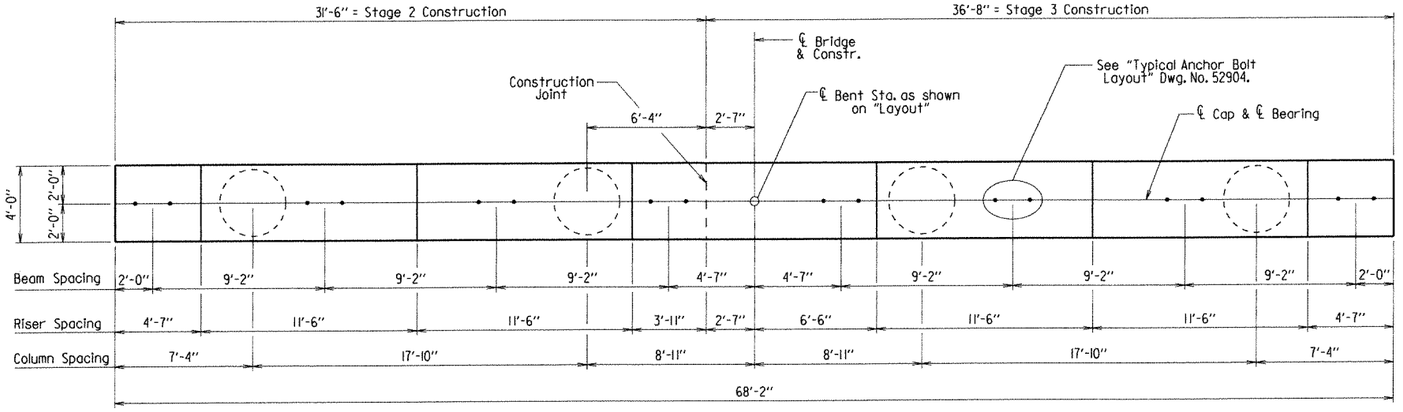
DESIGNED BY: MCG DATE: 04/12

BRIDGE NO. 07256 DRAWING NO. 52906

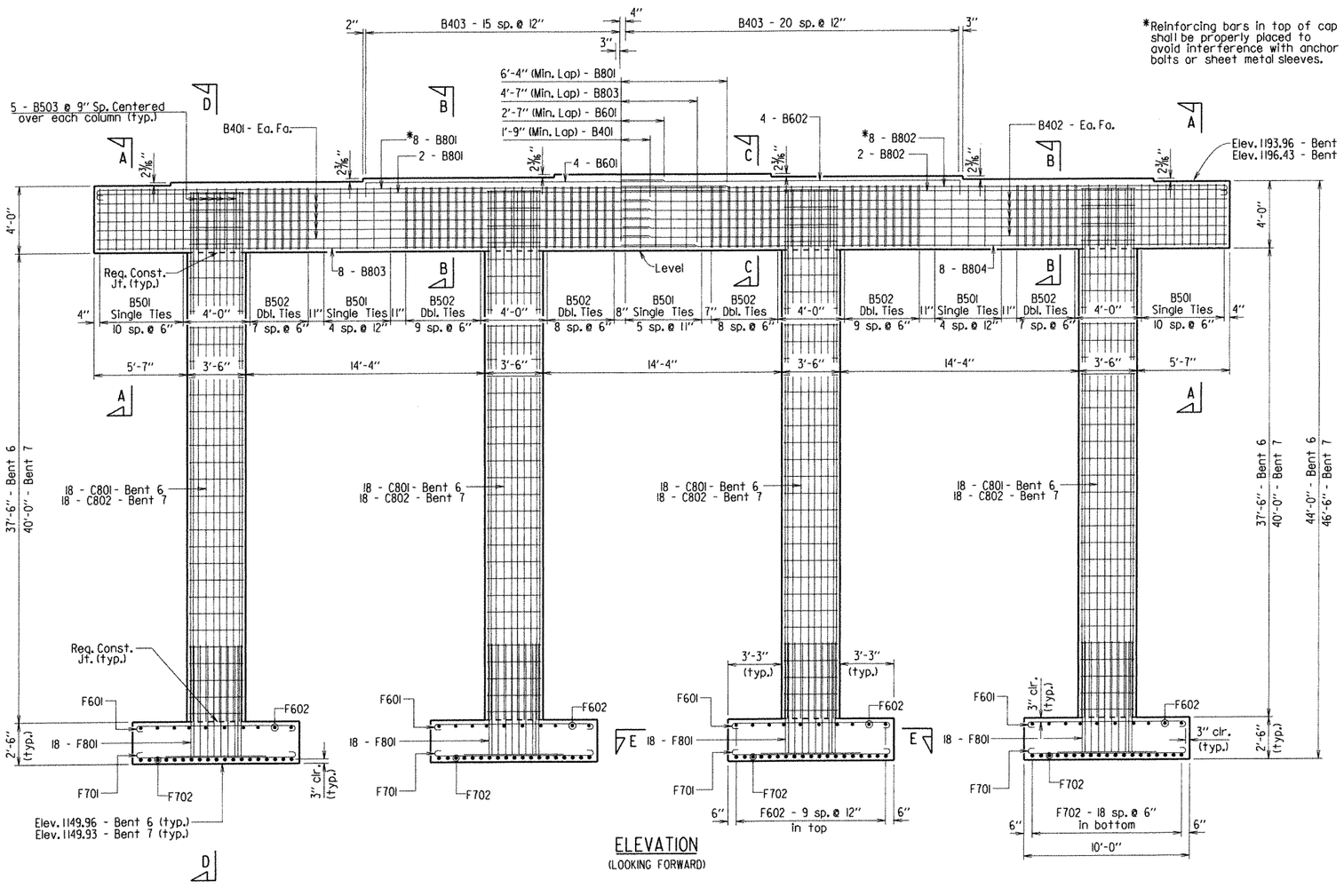
PRINT DATE: 7/5/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

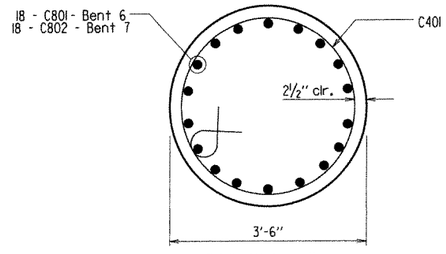
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040569	53	114
(1)	07256	– Int. Bent –	52907	



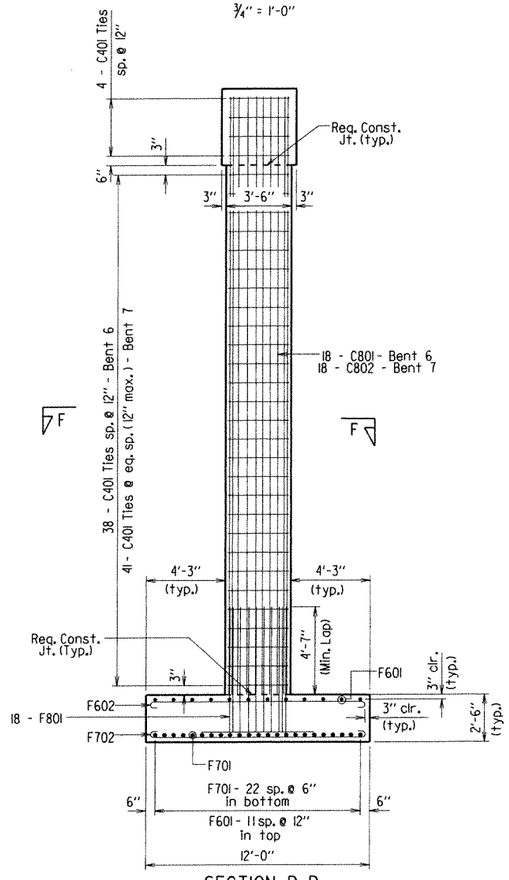
PLAN



ELEVATION
(LOOKING FORWARD)



SECTION F-F
¾" = 1'-0"



SECTION D-D

STATE OF ARKANSAS
Carl J. Puseliер
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/16/12
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS 6 & 7 WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

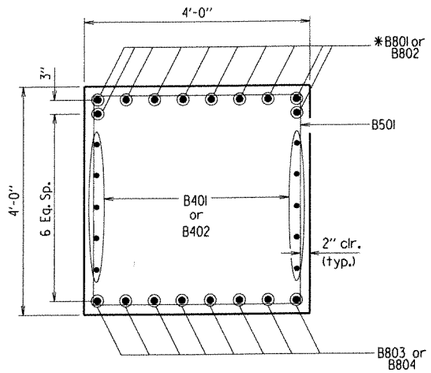
DRAWN BY: CJR DATE: 6/6/12
CHECKED BY: MCB DATE: 06/28/12
DESIGNED BY: MCB DATE: 06/12

FILENAME: b040569x1_b2.dgn
SCALE: 1/4" = 1'-0" OR AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52907

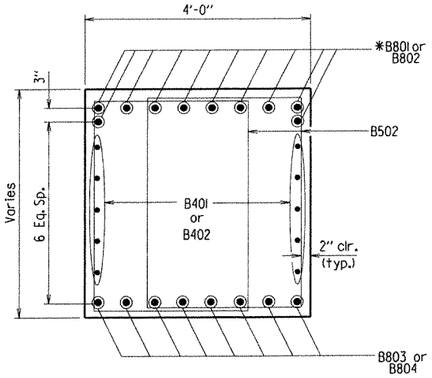
PRINT DATE: 7/5/2012

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.		040569	54	114
				(1)	07256	— Int. Bent —	52908	



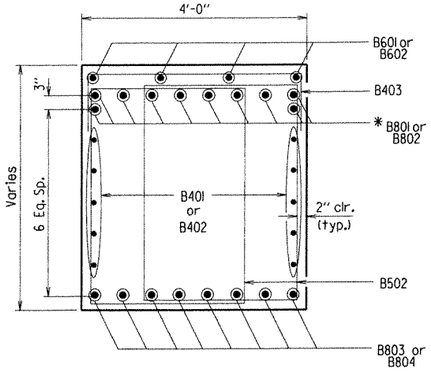
SECTION A-A

3/4" = 1'-0"



SECTION B-B

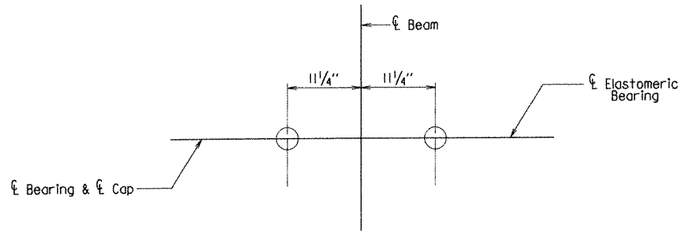
3/4" = 1'-0"



SECTION C-C

3/4" = 1'-0"

*Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.



TYPICAL ANCHOR BOLT LAYOUT

Not to Scale

For Details of Elastomeric Bearings, See Dwg. No. 52925.

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

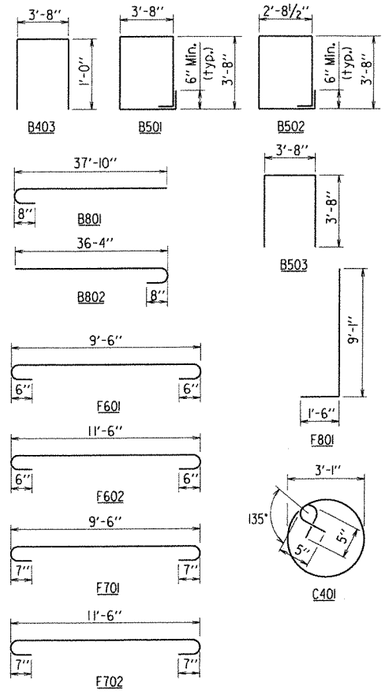
All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield strength = 60,000 psi.)

For additional information, see Layout.

BAR LIST

MARK	NUMBER REQ'D Bent 6	NUMBER REQ'D Bent 7	LENGTH	P.D.
B401	10	10	33'-3"	Str.
B402	10	10	36'-4"	Str.
B403	37	37	5'-6"	2"
B501	38	38	15'-2"	2 1/2"
B502	108	108	13'-3"	2 1/2"
B503	20	20	10'-10"	2 1/2"
B601	4	4	18'-0"	Str.
B602	4	4	20'-3"	Str.
B801	10	10	38'-9"	6"
B802	10	10	37'-3"	6"
B803	8	8	36'-1"	Str.
B804	8	8	36'-4"	Str.
C401	168	180	10'-10"	3"
C801	72	-	41'-0"	Str.
C802	-	72	43'-6"	Str.
F601	48	48	10'-10"	4 1/2"
F602	40	40	12'-10"	4 1/2"
F701	92	92	11'-2"	5 1/4"
F702	76	76	13'-2"	5 1/4"
F801	72	72	10'-5"	6"

BENDING DIAGRAMS



Dimensions are out to out of bars.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/4/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF
INTERMEDIATE BENTS 6 & 7
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 6/6/12
CHECKED BY: mcb DATE: 06/28/12
DESIGNED BY: mcb DATE: 06/12

FILENAME: b040569x1_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52908

PRINT DATE: 7/5/2012

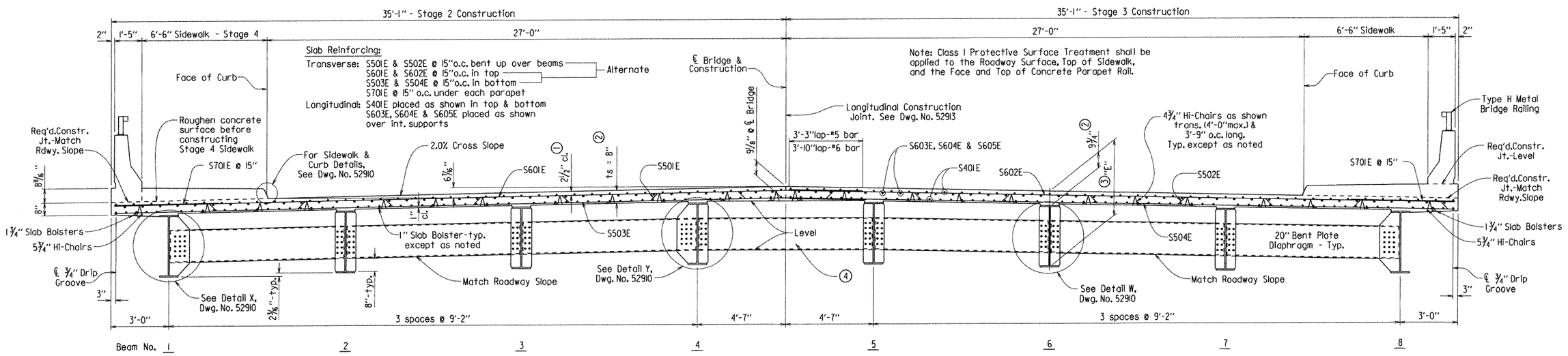
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	55	114
				① 07256 -		279 FT. UNIT	- 52909	

① Tolerance : Minus = 1/4", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance.

② See "Adjustment for Slab Thickness Tolerance", Dwg. No. 52910.

③ "E" = 3'-11 3/8" measured at ℄ Bearing & ℄ Beam

Note: At Contractor's Option, in lieu of providing bars S501E or S502E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be Epoxy Coated.

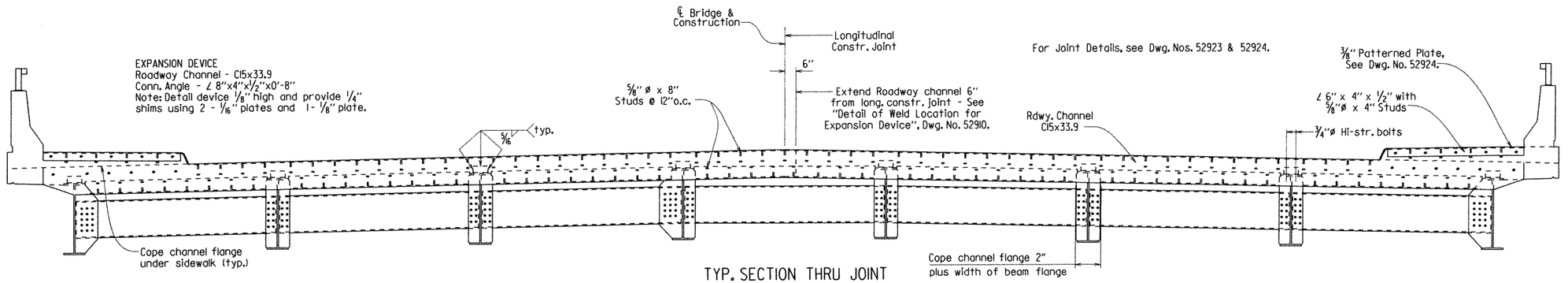


④ In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with significant differential deflections. Hole diameters of 15/16" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 3 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 2 overhang shall be provided and shall remain in place until after completion of the Stage 3 deck pour. See "Deck Support at Longitudinal Construction Joint" detail, Dwg. No. 52910. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 3 deck pour.

TYP. ROADWAY SECTION

Looking Ahead
Scale: 3/8" = 1'-0"



TYP. SECTION THRU JOINT

Looking Ahead - Bent 1
Bent 5 Similar
Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
No. 7510
REGISTERED PROFESSIONAL ENGINEER
CARL J. FUSELIER
7/6/12

BRIDGE ENGINEER

SHEET 1 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

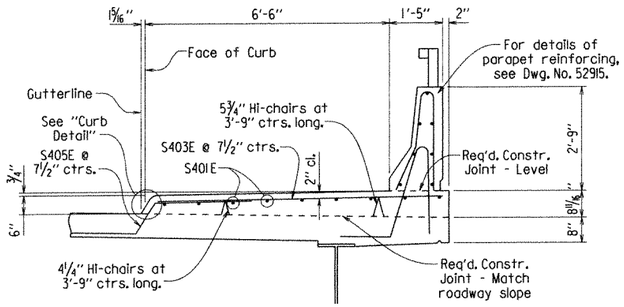
DRAWN BY: KDH DATE: 3-22-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: mcb DATE: 2/12

FILENAME: b040569xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52909

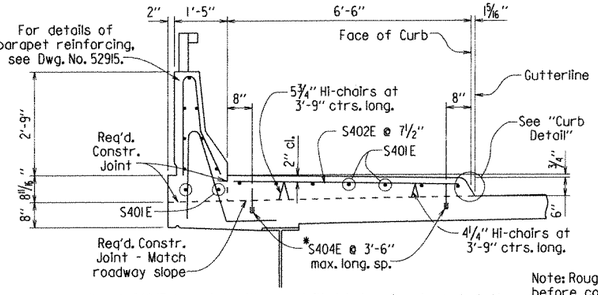
PRINT DATE: 05-JUL-2012

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.		040569	56	117
				①	07256 -	279 FT. UNIT	- 52910	



STAGE 3 SIDEWALK DETAIL

Scale: 1/2" = 1'-0"

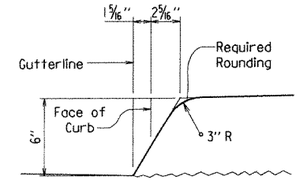


* Grout S404E bars into 4" deep drilled holes. Grout used shall be an approved epoxy grout listed on the QPL. Hole diameter and installation procedure shall be as recommended by the grout manufacturer. Dowels shall be located to avoid damaging deck reinforcing. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

STAGE 4 SIDEWALK DETAIL

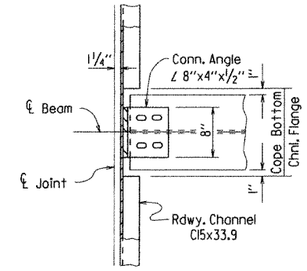
Scale: 1/2" = 1'-0"

Note: Roughen concrete surfaces before constructing Stage 4 sidewalk.



CURB DETAIL

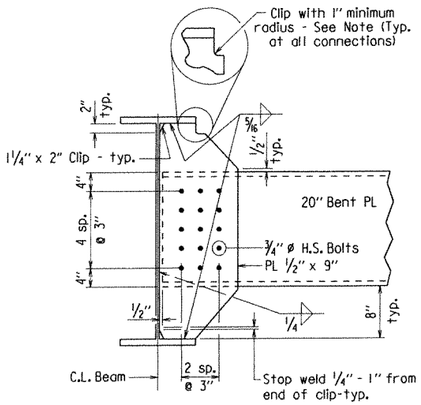
No Scale



CHANNEL CONNECTION DETAIL

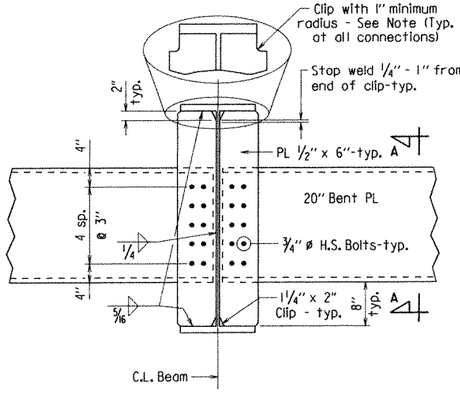
No Scale

Note: If permanent steel deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



DETAIL X

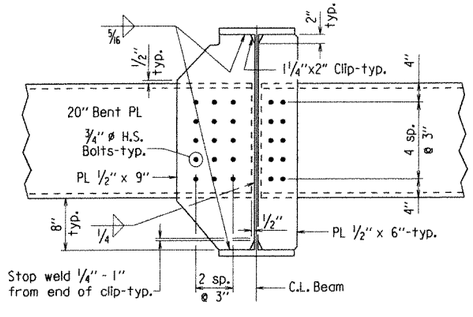
No Scale



DETAIL W

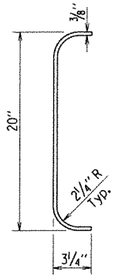
No Scale

Bolts in diaphragm connections shall be properly installed and tightened in accordance with Subsection 807.71 of the Standard Specifications.



DETAIL Y

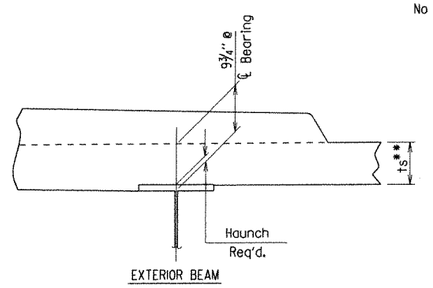
No Scale



Typical cross-section for all 20" bent plate diaphragms.

SECTION A-A

No Scale



** 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.

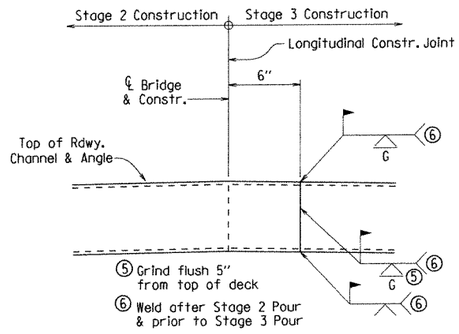
Note : ts = slab thickness as shown in "Typ. Roadway Section".

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.

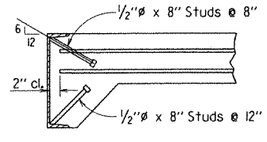
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale



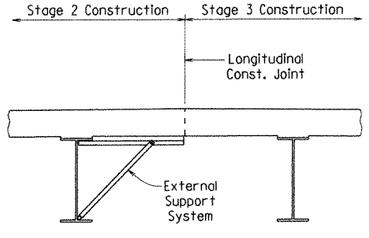
DETAIL OF WELD LOCATION FOR EXPANSION DEVICE



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

No Scale



Stage 2 external supports in this bay shall remain in place until after completion of the Stage 3 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

Looking Ahead
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.

STATE OF ARKANSAS
Carl L. Puselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL L. PUSELIER

BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

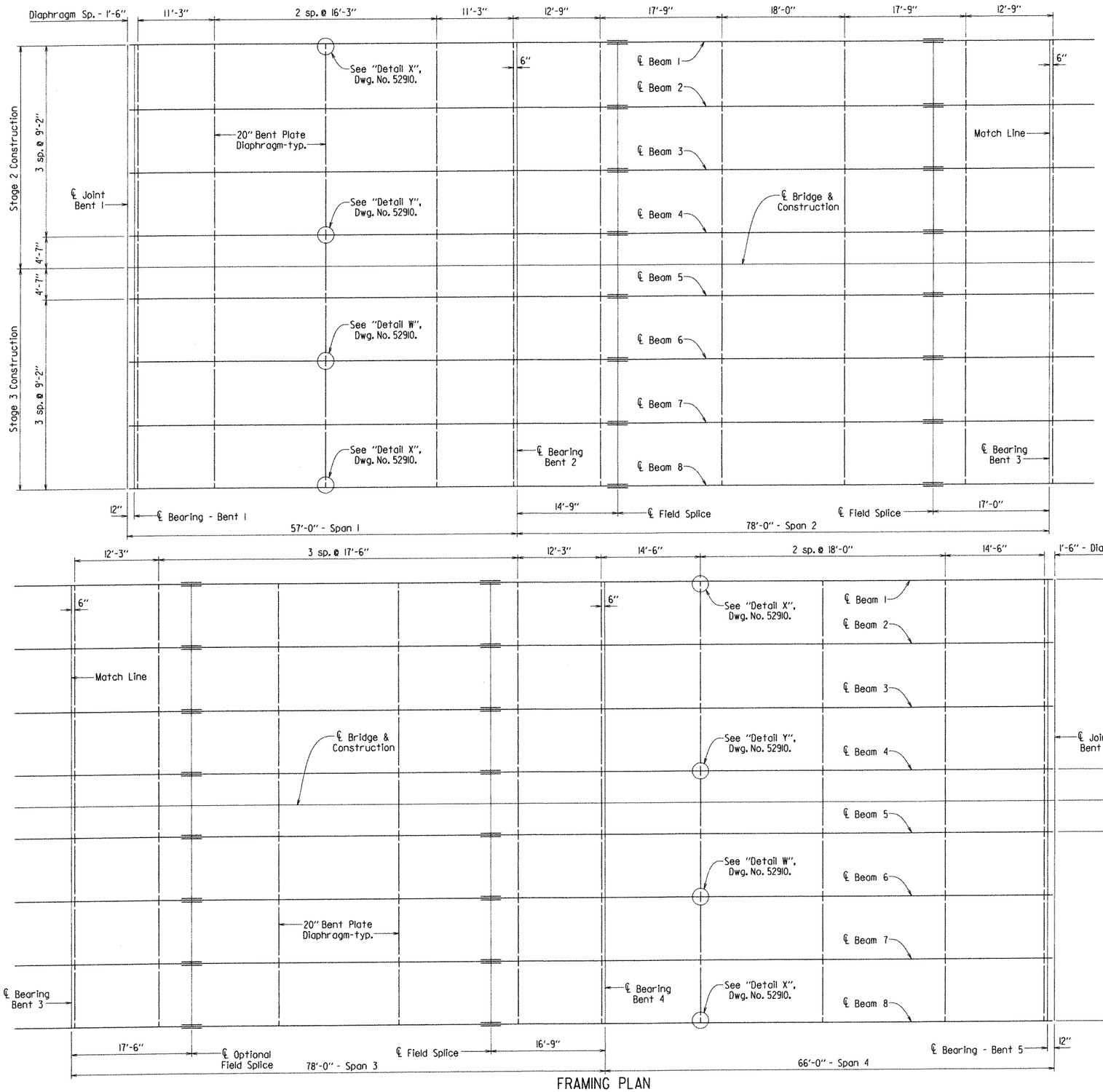
DRAWN BY: KDH DATE: 3-26-12 FILENAME: b040569x1_sl.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 03/12

BRIDGE NO. 07256 DRAWING NO. 52910

PRINT DATE: 05-JUL-2012

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.		040569	57	114
(1)	07256 -	279 FT. UNIT	- 52911	



FRAMING PLAN
Scale: 1/8" = 1'-0"

STATE OF ARKANSAS
Carl J. Puselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

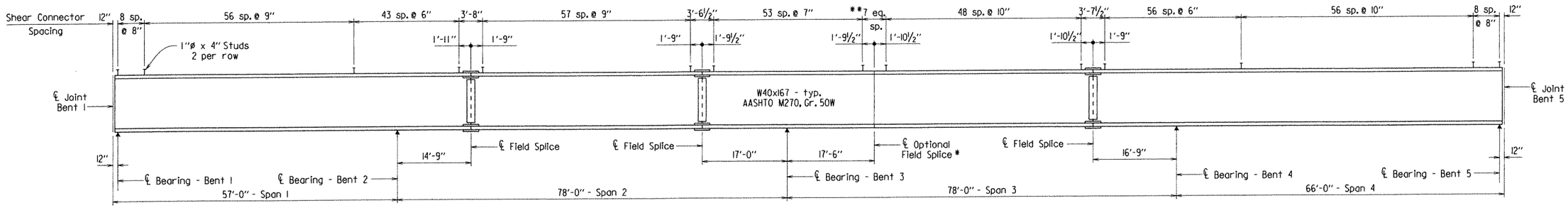
DRAWN BY: KDH DATE: 3-27-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: MCB DATE: 03/12

FILENAME: b040569xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52911

PRINT DATE: 05-JUL-2012

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.		040569	58	114
				①	07256 -	279 FT. UNIT	- 52912	



Note: Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

BEAM ELEVATION

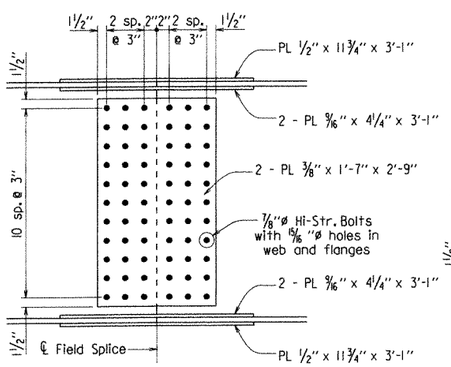
No Scale

*At the contractor's option, a field splice may be provided at this location. Payment will be at the contractor's expense.

**If the optional field splice is used, eliminate the shear connectors in this region.

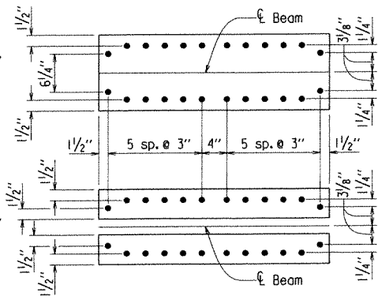
TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Sidewalk + Parapet	
		Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.
1	0	0	0	0	0	0	0
	0.1	0.017	0.016	0.099	0.084	0.107	0.110
	0.2	0.030	0.028	0.179	0.152	0.194	0.199
	0.3	0.039	0.036	0.231	0.196	0.25	0.256
	0.4	0.042	0.039	0.248	0.210	0.268	0.275
	0.5	0.038	0.036	0.228	0.194	0.247	0.254
	0.6	0.030	0.028	0.180	0.152	0.195	0.199
	0.7	0.019	0.018	0.113	0.096	0.122	0.126
	0.8	0.007	0.007	0.044	0.037	0.048	0.049
	0.9	-0.001	0.000	-0.004	-0.002	-0.004	-0.003
2	0	0	0	0	0	0	0
	0.1	0.020	0.019	0.119	0.101	0.129	0.132
	0.2	0.052	0.049	0.308	0.262	0.333	0.343
	0.3	0.083	0.078	0.492	0.418	0.533	0.547
	0.4	0.104	0.098	0.618	0.525	0.669	0.687
	0.5	0.111	0.104	0.658	0.559	0.712	0.731
	0.6	0.101	0.095	0.600	0.510	0.650	0.667
	0.7	0.077	0.073	0.460	0.391	0.498	0.512
	0.8	0.046	0.043	0.272	0.231	0.294	0.302
	0.9	0.016	0.015	0.093	0.079	0.101	0.103
3	0	0	0	0	0	0	0
	0.1	0.010	0.009	0.058	0.049	0.063	0.064
	0.2	0.035	0.033	0.206	0.175	0.223	0.229
	0.3	0.062	0.058	0.366	0.311	0.396	0.407
	0.4	0.082	0.077	0.485	0.412	0.525	0.539
	0.5	0.089	0.083	0.528	0.448	0.572	0.586
	0.6	0.082	0.077	0.486	0.413	0.526	0.540
	0.7	0.062	0.058	0.368	0.313	0.398	0.409
	0.8	0.035	0.033	0.208	0.177	0.225	0.232
	0.9	0.010	0.010	0.060	0.052	0.065	0.068
4	0	0	0	0	0	0	0
	0.1	0.011	0.010	0.066	0.055	0.071	0.072
	0.2	0.034	0.032	0.200	0.170	0.217	0.222
	0.3	0.059	0.056	0.353	0.300	0.382	0.393
	0.4	0.082	0.077	0.487	0.413	0.527	0.540
	0.5	0.096	0.090	0.571	0.485	0.618	0.635
	0.6	0.099	0.093	0.589	0.500	0.638	0.654
	0.7	0.090	0.084	0.533	0.452	0.577	0.591
	0.8	0.068	0.064	0.405	0.344	0.438	0.450
	0.9	0.037	0.035	0.219	0.187	0.237	0.244
	0	0	0	0	0	0	0



WEB SPLICE

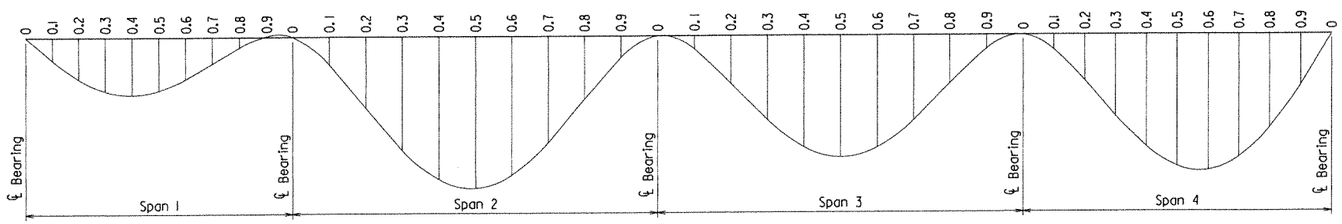
All splice plates shall be AASHTO M270, Gr. 50W.



FLANGE SPLICE

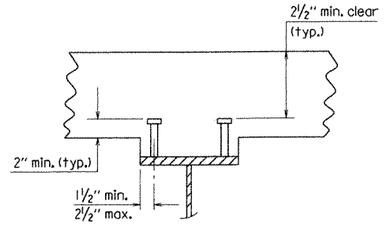
FIELD SPLICE DETAILS

Scale: 1" = 1'-0"



DEAD LOAD DEFLECTIONS DIAGRAM

Note
Camber for Dead Load Deflection plus Vertical curve ± 1/4" tolerance. Deflections shown are from a chord from ℄ Bearing to ℄ Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale

STATE OF ARKANSAS
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7/4/12
CARL J. PUSELIER

BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

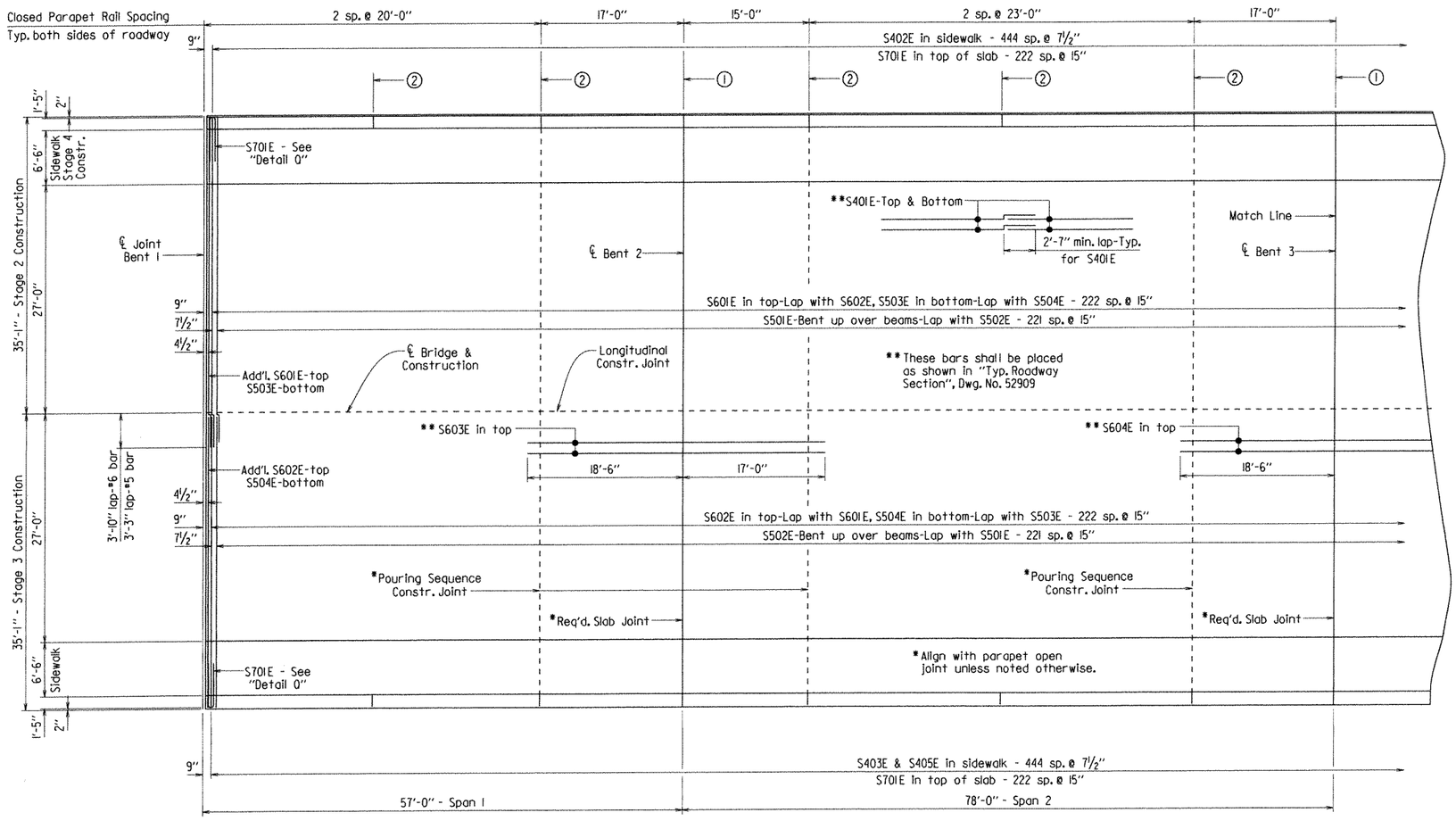
DRAWN BY: KDH DATE: 3-28-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: MCB DATE: 02/12

FILENAME: b040569xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52912

PRINT DATE: 05-JUL-2012

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.		040569	59	114
				①	07256 -	279 FT. UNIT	- 52913	

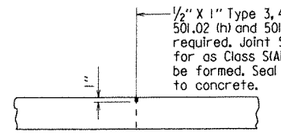


① ℄ Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.

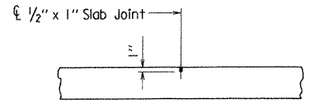
REINFORCING PLAN

Scale: ⅛" = 1'-0"



LONGITUDINAL CONSTRUCTION JOINT

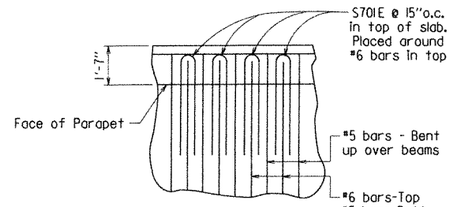
No Scale



SLAB JOINT DETAIL

No Scale

Use Type 3, 4, or 6 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. Slab joints shall be installed before the sidewalk and 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. No joint sealer shall be placed under the sidewalk area. The joint sealer shall extend across the deck slab and across the top of the sidewalk.



DETAIL Q

No Scale

STATE OF ARKANSAS
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No. 7510
7/4/12
CARL L. PUSELIER

BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

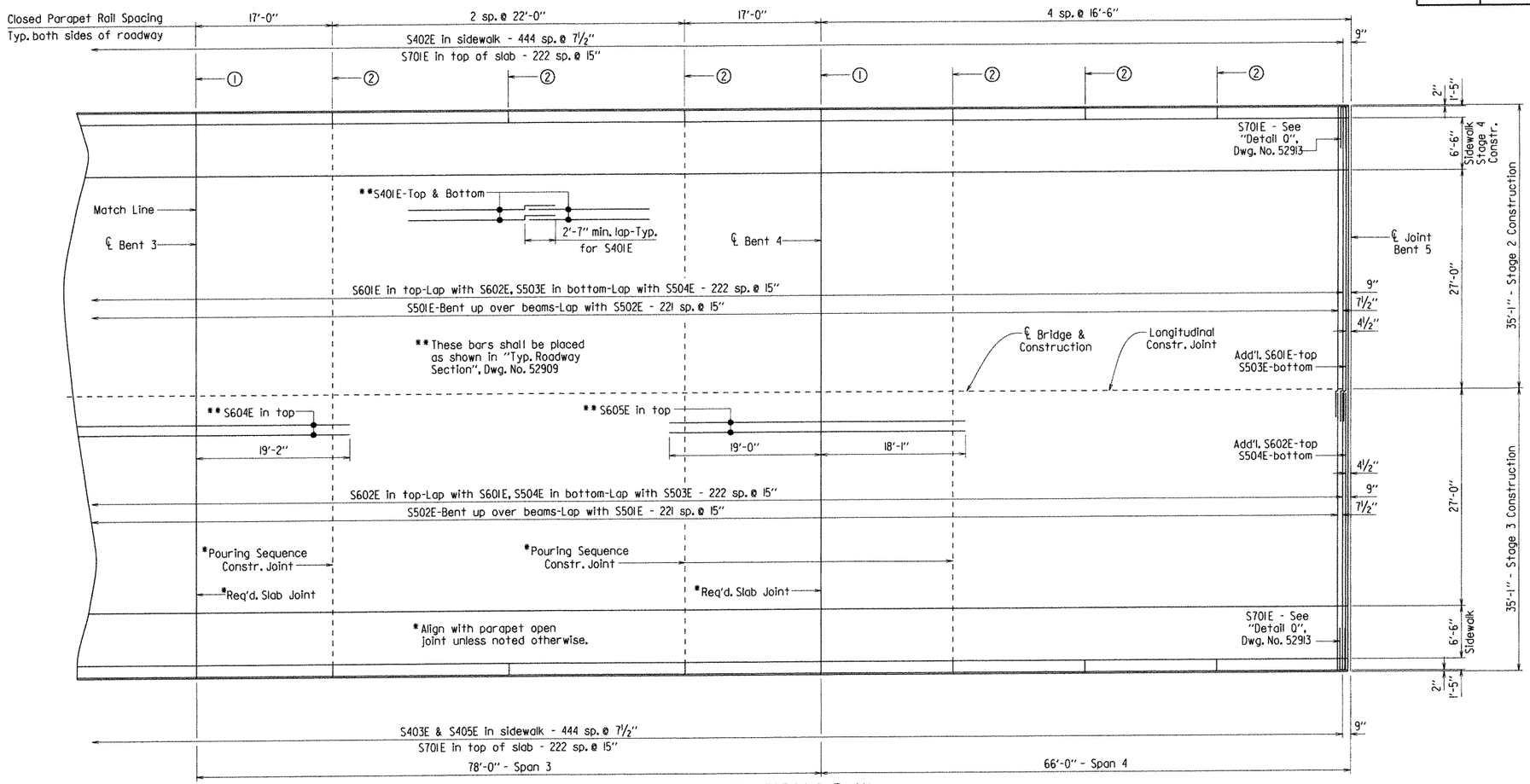
DRAWN BY: KDH DATE: 3-29-12 FILENAME: b040569xl_sl.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 02/12

BRIDGE NO. 07256 DRAWING NO. 52913

PRINT DATE: 05-JUL-2012

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.		040569	60	114
①	07256 -	279 FT. UNIT	- 52914	

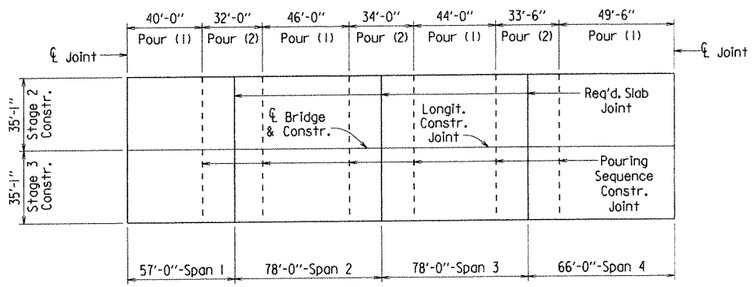


REINFORCING PLAN

Scale: ⅛" = 1'-0"

① ℄ Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.



POURING SEQUENCE

Note: For each stage of construction, 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 the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the end of a deck pour and the start of a sidewalk pour. 72 hours shall elapse between the end of a sidewalk pour and the start of a parapet rail ing pour. Any sidewalk or railing pours made before the entire slab unit has been placed for each stage must be approved by the Engineer. The concrete in a bridge superstructure unit must be consolidated for the entire pour before 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 sequence shown.

STATE OF ARKANSAS
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SHEET 6 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

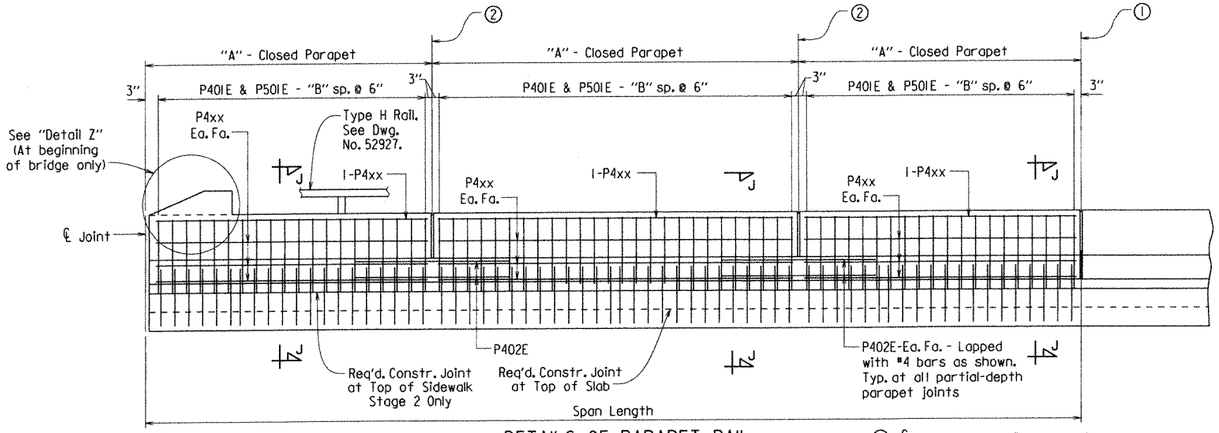
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-29-12 FILENAME: b040569xl_sl.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 02/12

BRIDGE NO. 07256 DRAWING NO. 52914

PRINT DATE: 05-JUL-2012

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.		040569	61	114
				①	07256 -	279 FT. UNIT	- 52915	

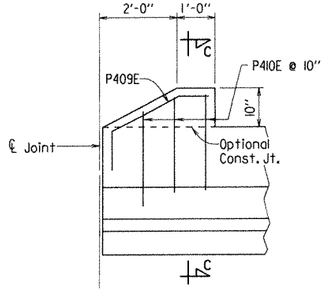


① ℄ Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan", Dwg. Nos. 52913 & 52914. Stop 4" from top of sidewalk.

② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan", Dwg. Nos. 52913 & 52914. Stop 1'-2" from top of sidewalk.

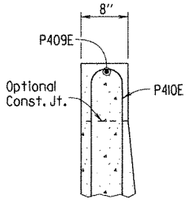
DETAILS OF PARAPET RAIL

Scale: 3/8" = 1'-0"



DETAIL Z

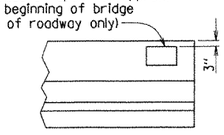
No Scale



SECTION C-C

No Scale

Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from beginning of bridge (Right side of roadway only)



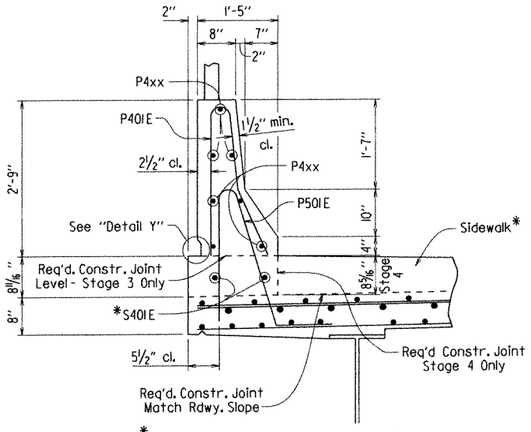
NAME PLATE DETAIL

No Scale

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
20'-0"	39	P403E
17'-0"	33	P404E
15'-0"	29	P405E
23'-0"	45	P406E
22'-0"	43	P407E
16'-6"	32	P408E

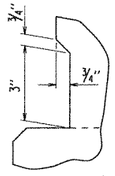
For location of Closed Parapet panels, see "Reinforcing Plan", Dwg. No. 52913 & 52914.



* For additional information and details, see "Stage 3 Sidewalk Detail" or "Stage 4 Sidewalk Detail", Dwg. No. 52910.

SECTION J-J

Scale: 3/4" = 1'-0"



DETAIL Y

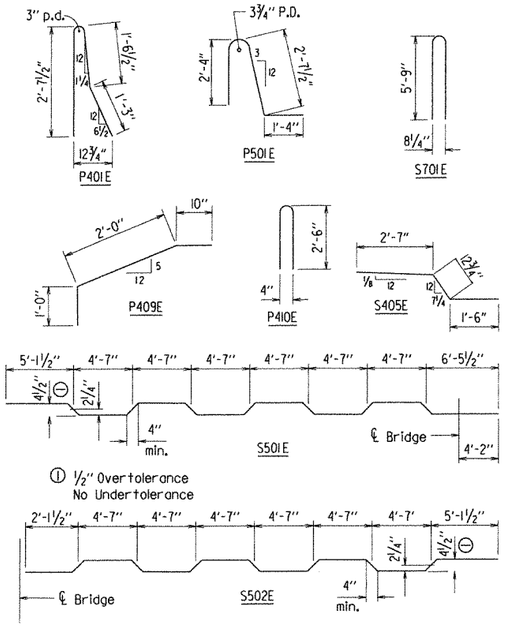
No Scale

BAR LIST

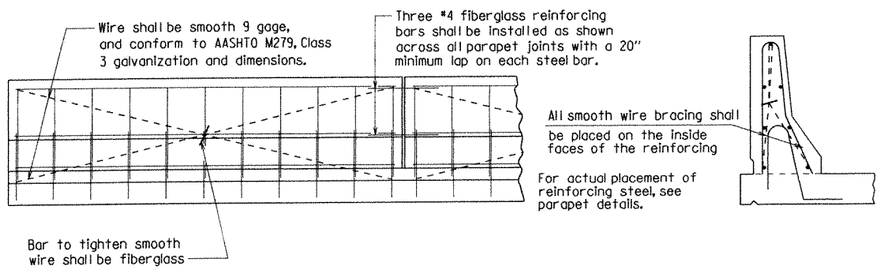
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	1696	37'-2"	Str.
S402E	445	6'-1"	Str.
S403E	445	7'-8"	Str.
S404E	160	8"	Str.
S405E	445	5'-2"	3"
P401E	1116	5'-6"	3"
P402E	88	5'-6"	Str.
P403E	28	19'-8"	Str.
P404E	56	16'-8"	Str.
P405E	14	14'-8"	Str.
P406E	28	22'-8"	Str.
P407E	28	21'-8"	Str.
P408E	56	16'-2"	Str.
P409E	2	3'-10"	2"
P410E	6	5'-2"	3"
S501E	222	39'-10"	3"
S502E	222	35'-6"	3"
S503E	225	38'-4"	Str.
S504E	225	34'-9"	Str.
P501E	1116	6'-5"	2½"
S601E	225	38'-11"	Str.
S602E	225	34'-8"	Str.
S603E	76	35'-6"	Str.
S604E	76	37'-8"	Str.
S605E	76	37'-1"	Str.
S701E	446	11'-10"	6½"

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars marked with and "E" suffix shall be epoxy coated.



All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF 279'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-30-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: MCB DATE: 02/12

FILENAME: b040569xl_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52915

PRINT DATE: 05-JUL-2012

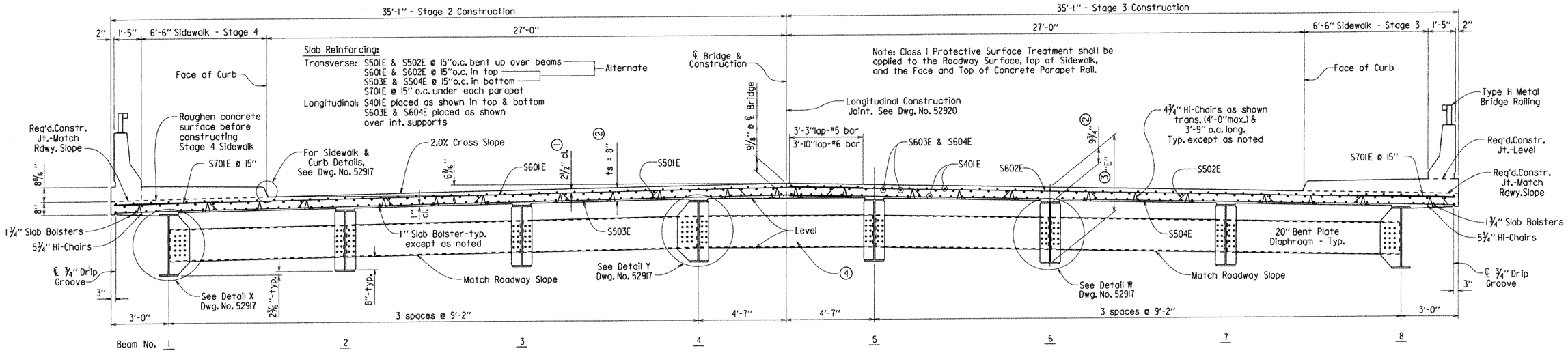
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	62	114
				①	07256 -	223 FT. UNIT	- 52916	

① Tolerance : Minus = 1/4", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance.

② See "Adjustment for Slab Thickness Tolerance" on Dwg. No. 52917.

③ "E" = 3'-11 11/16" at Bts. 5 & 6
3'-11 9/16" at Bts. 7 & 8
measured at ℄ Bearing & ℄ Beam

Note: At Contractor's Option, in lieu of providing bars S501E or S502E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E and S502E. Bars in top and bottom shall be Epoxy Coated.

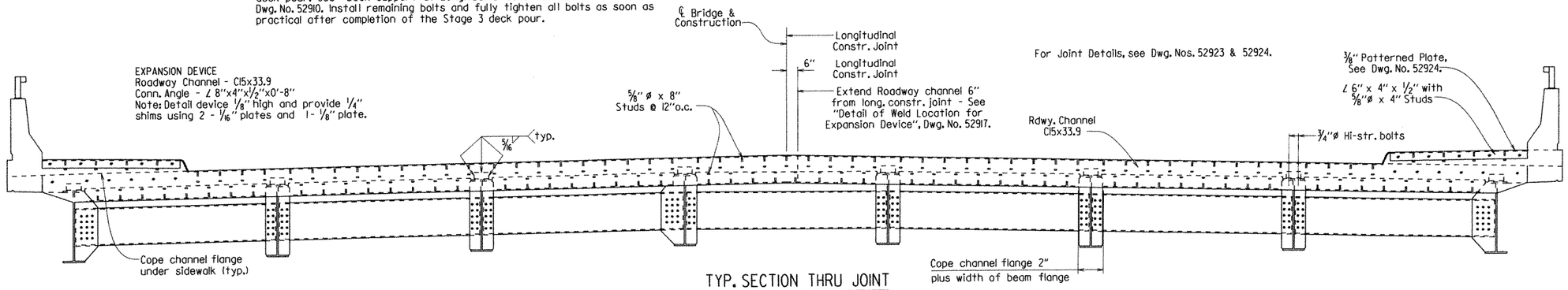


④ In this bay, connection plate widths and diaphragm lengths shall be fabricated, as necessary, to facilitate installation of diaphragms between adjacent beams with significant differential deflections. Hole diameters of 5/8" shall be provided for these connections with a washer supplied under both the nut and head of bolt.

Before the Stage 3 deck pour, loosely install as many bolts as possible on both ends of the diaphragm in this bay to the satisfaction of the Engineer. An external means of supporting the Stage 2 overhang shall be provided and shall remain in place until after completion of the Stage 3 deck pour. See "Deck Support at Longitudinal Construction Joint" detail, Dwg. No. 52910. Install remaining bolts and fully tighten all bolts as soon as practical after completion of the Stage 3 deck pour.

TYP. ROADWAY SECTION

Looking Ahead
Scale: 3/8" = 1'-0"



TYP. SECTION THRU JOINT

Looking Ahead - Bent 5
Bent 8 Similar
Scale: 3/8" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
WEST FORK OF WHITE RIVER

ROUTE SEC.

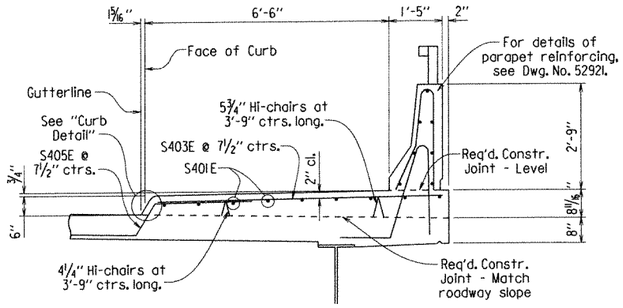
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-22-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: MCB DATE: 02/12
FILENAME: b040569x1_s2.dgn
SCALE: AS NOTED

BRIDGE NO. 07256 DRAWING NO. 52916

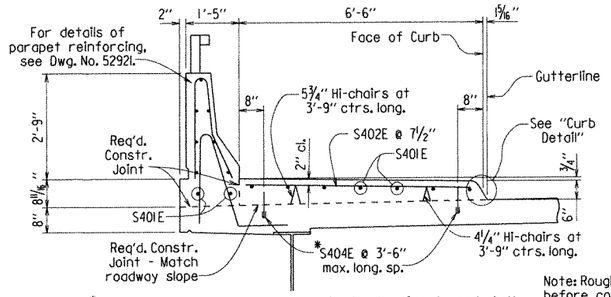
PRINT DATE: 05-JUL-2012

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.		040569	63	114
				(1)	07256 -	223 FT. UNIT	- 52917	



STAGE 3 SIDEWALK DETAIL

Scale: ½" = 1'-0"

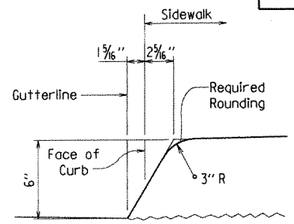


* Grout S404E bars into 4" deep drilled holes. Grout used shall be an approved epoxy grout listed on the QPL. Hole diameter and installation procedure shall be as recommended by the grout manufacturer. Dowels shall be located to avoid damaging deck reinforcing. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

Note: Roughen concrete surfaces before constructing Stage 4 sidewalk.

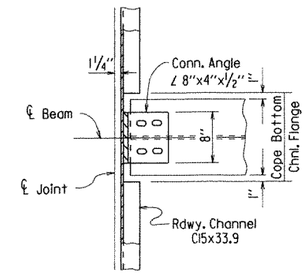
STAGE 4 SIDEWALK DETAIL

Scale: ½" = 1'-0"



CURB DETAIL

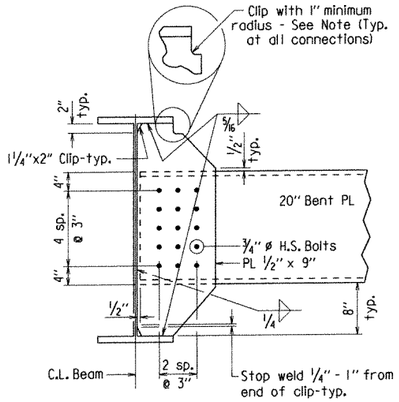
No Scale



CHANNEL CONNECTION DETAIL

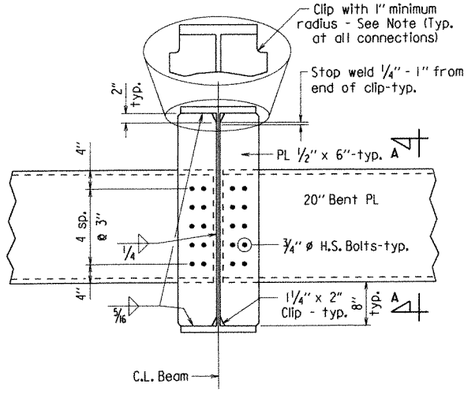
No Scale

Note: If permanent steel deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



DETAIL X

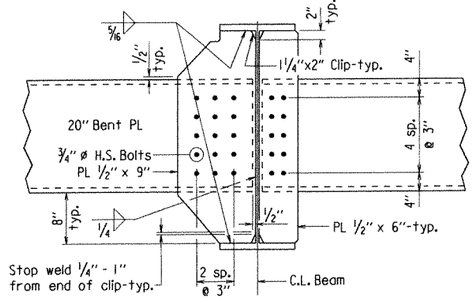
No Scale



DETAIL W

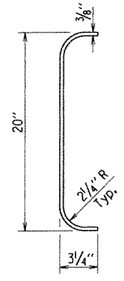
No Scale

Bolts in diaphragm connections shall be properly installed and tightened in accordance with Subsection 807.71 of the Standard Specifications.



DETAIL Y

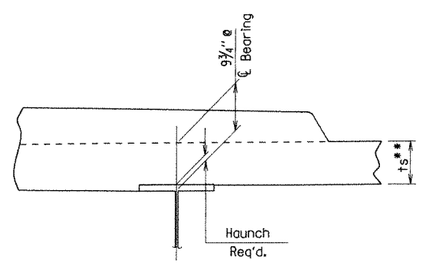
No Scale



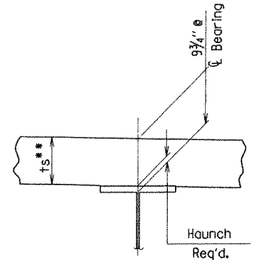
Typical cross-section for all 20" bent plate diaphragms.

SECTION A-A

No Scale



EXTERIOR BEAM



INTERIOR BEAM

**Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

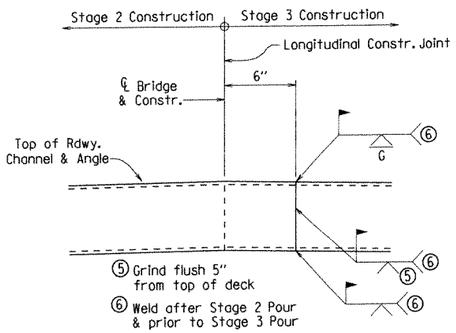
Note : ts = slab thickness as shown in "Typ. Roadway Section".

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". No increase in concrete and structural steel quantities will be made to maintain tolerances.

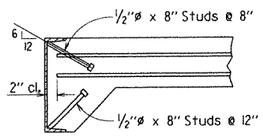
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale



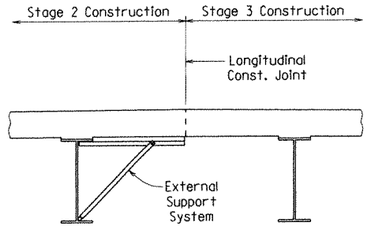
DETAIL OF WELD LOCATION FOR EXPANSION DEVICE



Note: As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

No Scale



Stage 2 external supports in this bay shall remain in place until after completion of the Stage 3 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

Looking Ahead
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 ¾" Inclusive	¼"	
Over ¾"	⅝"	

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.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

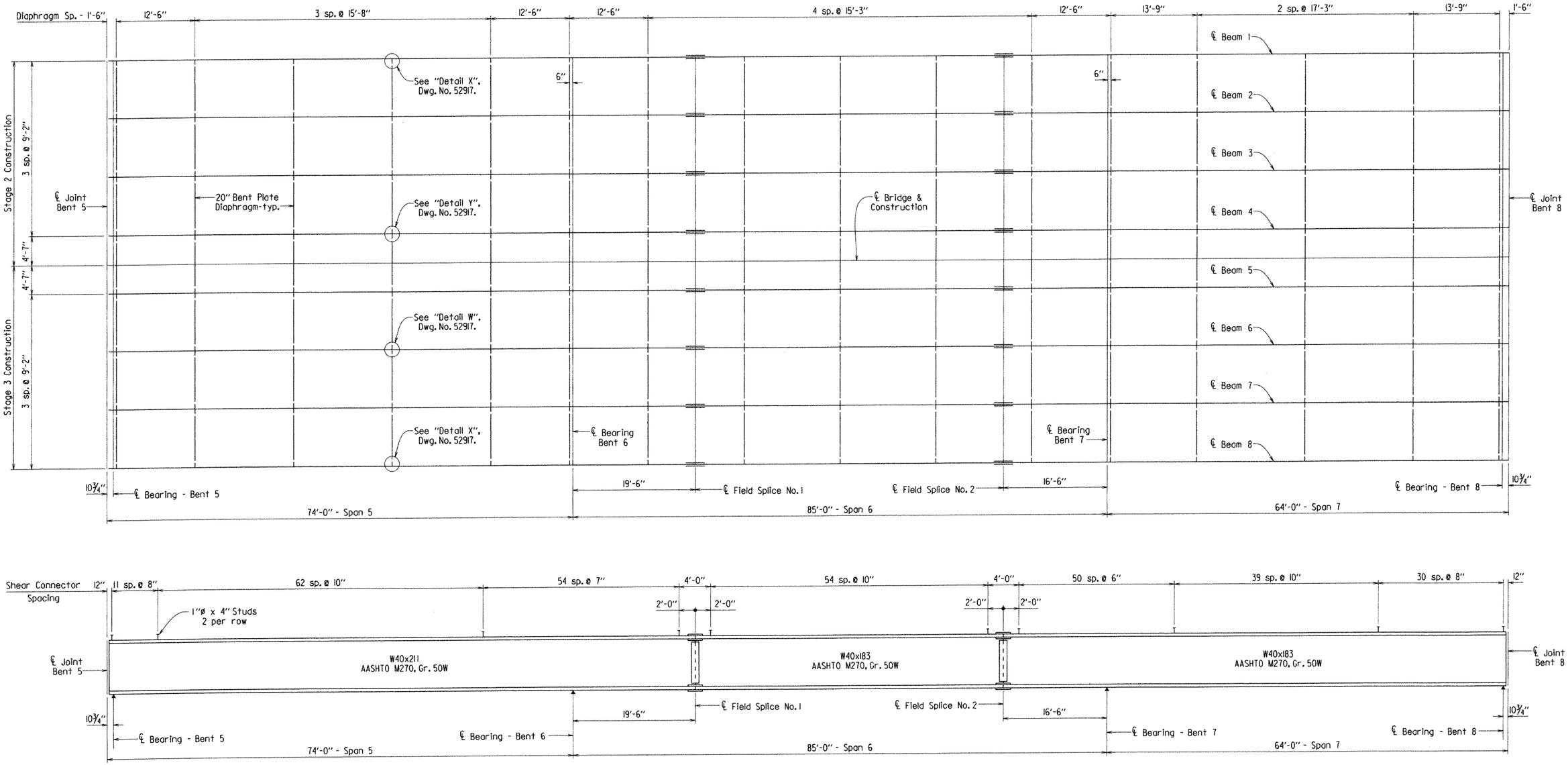
DRAWN BY: KDH DATE: 3-26-12 FILENAME: b040569xl_s2.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: mcb DATE: 02/12

BRIDGE NO. 07256 DRAWING NO. 52917

PRINT DATE: 05-JUL-2012

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.		040569	64	114
(1) 07256 -		223 FT. UNIT		- 52918



Note: Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

BEAM ELEVATION

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-27-12
CHECKED BY: BEF DATE: 7/3/12
DESIGNED BY: MCG DATE: 06/12

FILENAME: b040569x1_s2.dgn
SCALE: AS NOTED

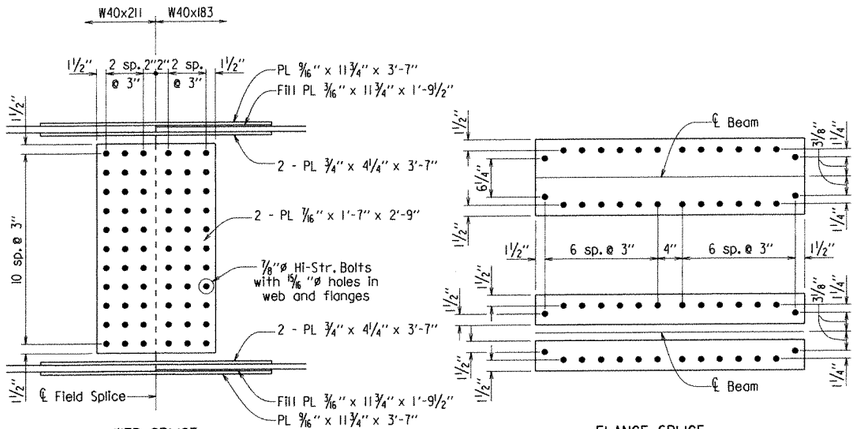
BRIDGE NO. 07256 DRAWING NO. 52918

PRINT DATE: 05-JUL-2012

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.		040569	65	114
				①	07256 -	223 FT. UNIT	- 52919	

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Sidewalk + Parapet	
		Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.
5	0	0	0	0	0	0	0
	0.1	0.055	0.053	0.266	0.228	0.289	0.302
	0.2	0.102	0.097	0.491	0.420	0.534	0.557
	0.3	0.135	0.128	0.646	0.552	0.703	0.731
	0.4	0.150	0.142	0.714	0.610	0.776	0.808
	0.5	0.146	0.138	0.690	0.590	0.750	0.782
	0.6	0.125	0.119	0.585	0.501	0.636	0.663
	0.7	0.092	0.087	0.422	0.361	0.459	0.478
	0.8	0.053	0.050	0.236	0.202	0.257	0.267
	0.9	0.018	0.018	0.074	0.065	0.081	0.086
6	0	0	0	0	0	0	0
	0.1	0.011	0.010	0.080	0.068	0.087	0.090
	0.2	0.043	0.040	0.269	0.228	0.293	0.303
	0.3	0.080	0.075	0.479	0.407	0.521	0.540
	0.4	0.110	0.103	0.644	0.546	0.700	0.724
	0.5	0.123	0.115	0.715	0.607	0.777	0.804
	0.6	0.117	0.110	0.676	0.575	0.735	0.761
	0.7	0.093	0.087	0.536	0.455	0.583	0.603
	0.8	0.057	0.054	0.330	0.281	0.359	0.372
	0.9	0.021	0.019	0.121	0.102	0.132	0.135
7	0	0	0	0	0	0	0
	0.1	0.004	0.004	0.018	0.015	0.019	0.019
	0.2	0.019	0.018	0.099	0.085	0.107	0.111
	0.3	0.038	0.036	0.205	0.174	0.222	0.229
	0.4	0.056	0.053	0.303	0.258	0.329	0.340
	0.5	0.069	0.065	0.372	0.317	0.404	0.417
	0.6	0.072	0.068	0.393	0.334	0.426	0.440
	0.7	0.066	0.062	0.361	0.307	0.392	0.405
	0.8	0.051	0.048	0.278	0.236	0.302	0.311
	0.9	0.028	0.026	0.152	0.129	0.165	0.170
	0	0	0	0	0	0	0



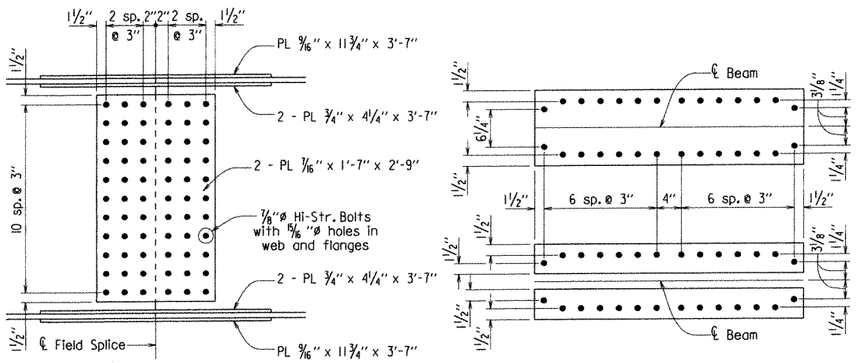
WEB SPLICE

FLANGE SPLICE

All splice plates shall be AASHTO M270, Gr. 50W.

FIELD SPLICE NO. 1 DETAILS

Scale: 1" = 1'-0"



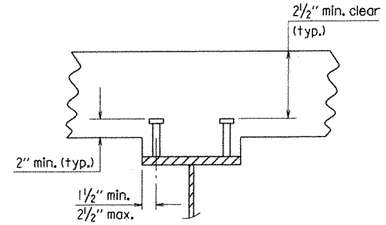
WEB SPLICE

All splice plates shall be AASHTO M270, Gr. 50W.

FLANGE SPLICE

FIELD SPLICE NO. 2 DETAILS

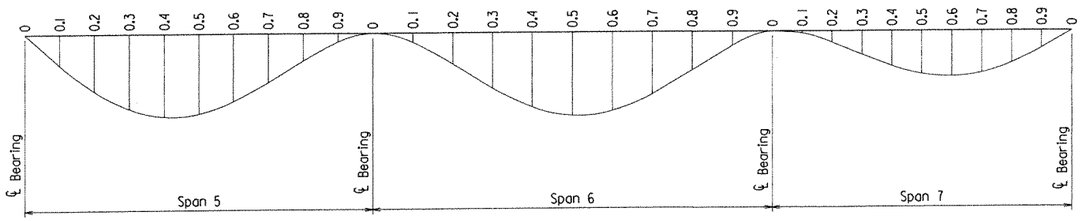
Scale: 1" = 1'-0"



Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale



DEAD LOAD DEFLECTIONS DIAGRAM

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

STATE OF ARKANSAS
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SHEET 4 OF 6
DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

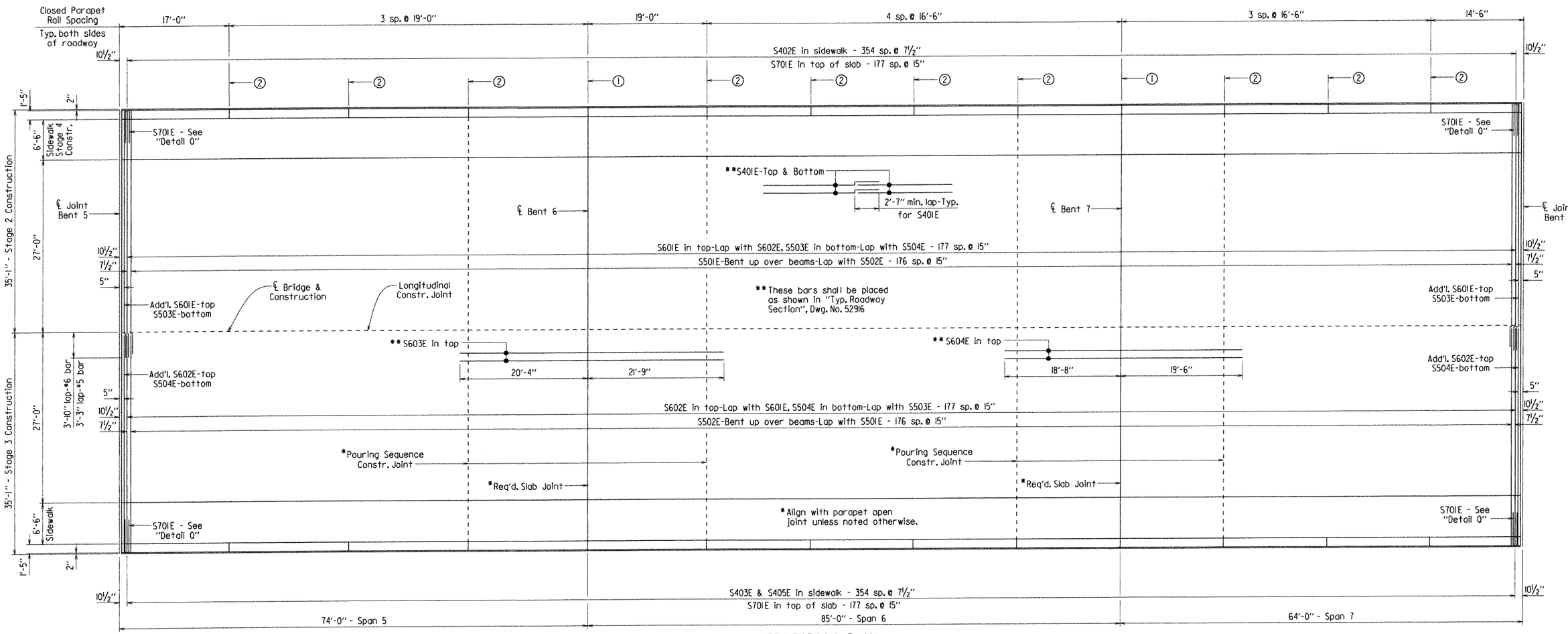
DRAWN BY: KDH DATE: 3-28-12 FILENAME: b040569x1_s2.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: mcb DATE: 02/12

BRIDGE NO. 07256 DRAWING NO. 52919

PRINT DATE: 05-JUL-2012

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.		040569	66	114
①	07256 -	223 FT. UNIT	- 52920	

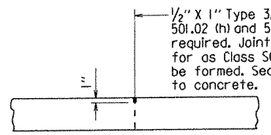


REINFORCING PLAN

Scale: ⅛" = 1'-0"

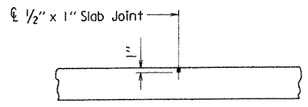
① ℄ Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.



LONGITUDINAL CONSTRUCTION JOINT

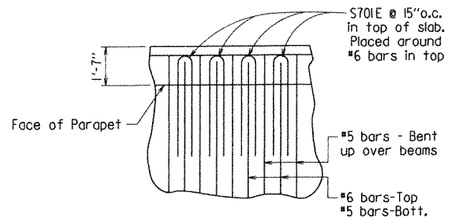
No Scale



SLAB JOINT DETAIL

No Scale

Use Type 3, 4, or 6 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. Slab joints shall be installed before the sidewalk and 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. No joint sealer shall be placed under the sidewalk area. The joint sealer shall extend across the deck slab and across the top of the sidewalk.



DETAIL 0

No Scale

STATE OF ARKANSAS
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SHEET 5 OF 6
DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

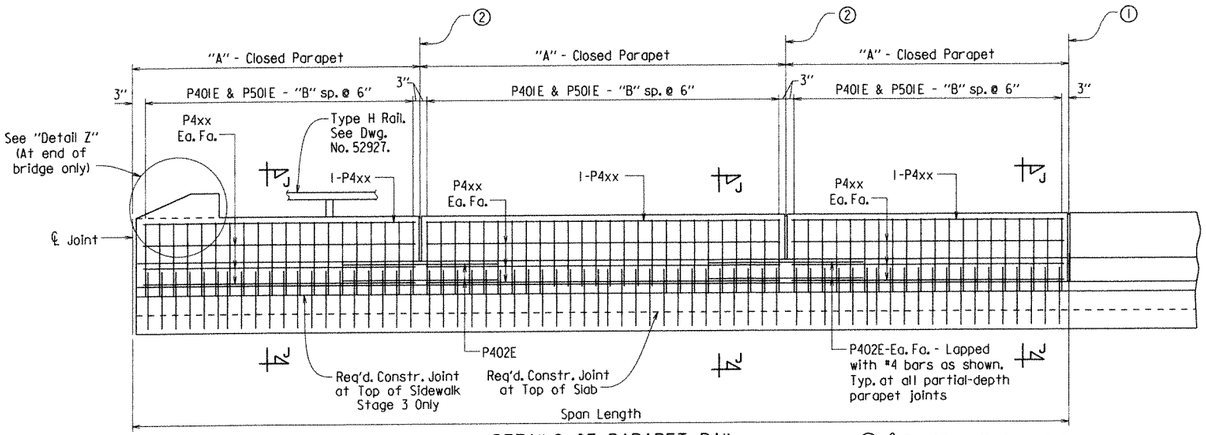
DRAWN BY: KDH DATE: 3-29-12 FILENAME: b040569xl_s2.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: mcs DATE: 6/7/12

BRIDGE NO. 07256 DRAWING NO. 52920

PRINT DATE: 05-JUL-2012

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.		040569	67	114
①	07256 -	223 FT. UNIT	- 52921	



① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan", Dwg. Nos. 52920. Stop 4" from top of sidewalk.

DETAILS OF PARAPET RAIL

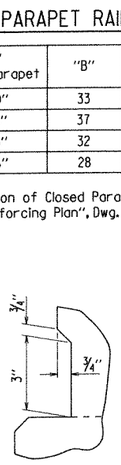
Scale: ⅜" = 1'-0"

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan", Dwg. Nos. 52920. Stop 1'-2" from top of sidewalk.

TABLE OF PARAPET RAIL VARIABLES

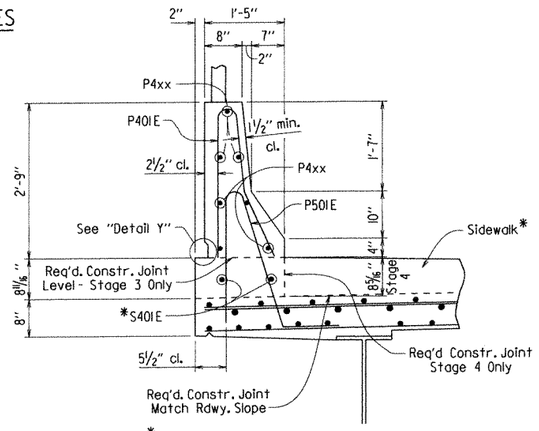
"A" Closed Parapet	"B"	P4xx Bar
17'-0"	33	P403E
19'-0"	37	P404E
16'-6"	32	P405E
14'-6"	28	P406E

For location of Closed Parapet panels, see "Reinforcing Plan", Dwg. No. 52920.



DETAIL Y

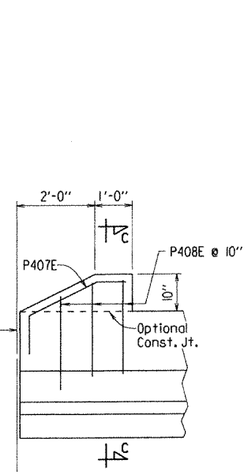
No Scale



* For additional information and details, see "Stage 3 Sidewalk Detail" or "Stage 4 Sidewalk Detail", Dwg. No. 52917.

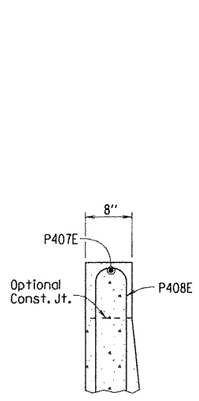
SECTION J-J

Scale: ¾" = 1'-0"



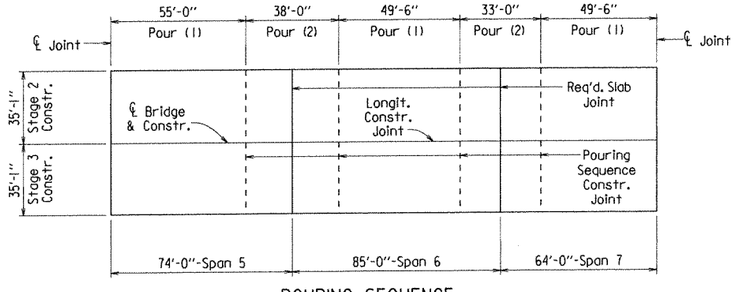
DETAIL Z

No Scale



SECTION C-C

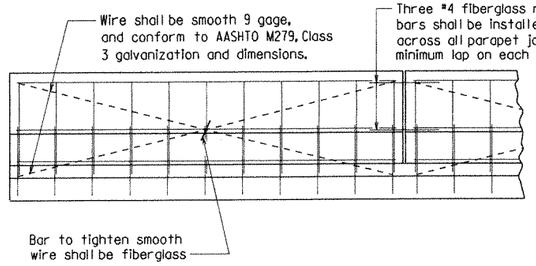
No Scale

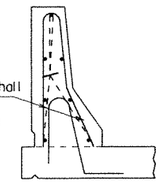


POURING SEQUENCE

Note: For each stage of construction, 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 the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the end of a deck pour and the start of a sidewalk pour. 72 hours shall elapse between the end of a sidewalk pour and the start of a parapet railing pour. Any sidewalk or railing pours made before the entire slab unit has been placed for each stage must be approved by the Engineer. The concrete in a bridge superstructure unit must be consolidated for the entire pour before 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 sequence shown.





For actual placement of reinforcing steel, see parapet details.

All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

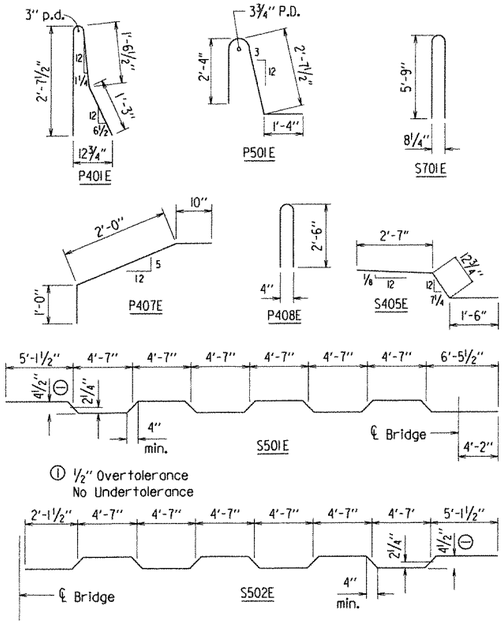
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	1272	39'-4"	Str.
S402E	355	6'-1"	Str.
S403E	355	7'-8"	Str.
S404E	128	8"	Str.
S405E	355	5'-2"	3"
P401E	892	5'-6"	3"
P402E	80	5'-6"	Str.
P403E	14	16'-8"	Str.
P404E	56	18'-8"	Str.
P405E	98	16'-2"	Str.
P406E	14	14'-2"	Str.
P407E	2	3'-10"	2"
P408E	6	5'-2"	3"
S501E	177	39'-10"	3"
S502E	177	35'-6"	3"
S503E	180	38'-4"	Str.
S504E	180	34'-9"	Str.
P501E	892	6'-5"	2½"
S601E	180	38'-11"	Str.
S602E	180	34'-8"	Str.
S603E	76	42'-1"	Str.
S604E	76	38'-2"	Str.
S701E	356	11'-10"	6½"

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars marked with and "E" suffix shall be epoxy coated.

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SHEET 6 OF 6
DETAILS OF 223'-0" CONTINUOUS COMPOSITE W-BEAM UNIT WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-30-12 FILENAME: b040569xl_s2.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 03-12

BRIDGE NO. 07256 DRAWING NO. 52921

PRINT DATE: 05-JUL-2012

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.		040569	68	114
				(1) 07256 - GEN. NOTES-SUPERSTR. - 52922				

GENERAL NOTES - SUPERSTRUCTURE

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions.

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

MATERIAL AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (AASHTO M31 or M53,Gr. 60)	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

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi. 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. 14991 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The concrete deck, except sidewalks, shall be given a tine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a 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. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing and sidewalk. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the sidewalk. A minimum of 72 hours shall elapse between completion of a sidewalk pour and the beginning of a parapet pour. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. 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:
All Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 or Gr. 50 unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with subsection 807.04, submitted and approval secured before fabrication is begun.

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.

Beams and field splice plates 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 (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal in groups as specified in subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shal l be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" +/- is allowed for camber.

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 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 false work 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.

Field connections shall be bolted with high-strength bolts and shall be 3/4" ø bolts unless otherwise noted. Open Holes shall be 13/16" ø unless otherwise noted. Holes for 3/4" 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. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

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.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

PRINT DATE: 05-JUL-2012

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

GENERAL NOTES FOR SUPERSTRUCTURE
WEST FORK OF WHITE RIVER

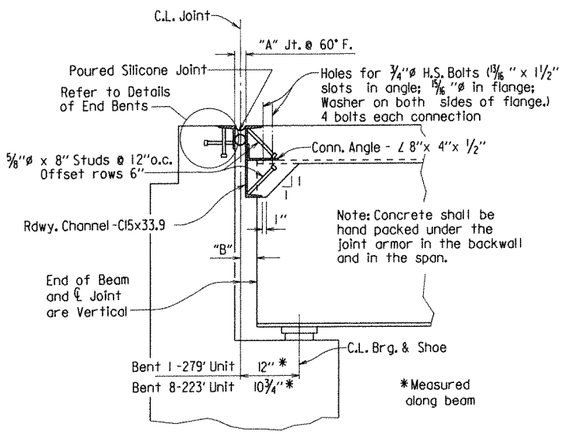
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-16-12 FILENAME: b040569_gen.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: NONE
DESIGNED BY: MCB DATE: 03/12

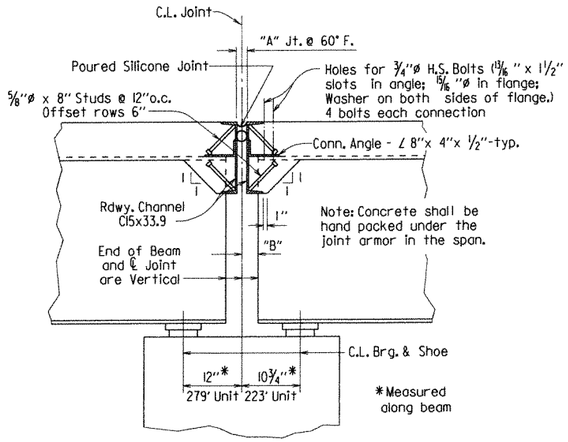
BRIDGE NO. 07256 DRAWING NO. 52922

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.		040569	69	114
				(1) 07256 -		JOINTS	- 52923	



SECTION THRU JOINT AT END BENTS

No Scale



SECTION THRU JOINT AT BENT 5

No Scale

SILICONE JOINT DATA

Bent Number	(1) "A" Width Perpendicular to Joint at 24 Hour Average Temperature Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1	2 13/16"	2½"	2 3/16"	2½" ±	1" x 1¼"	5"
5	2⅛"	2½"	2⅛"	2½" ±	1" x 1¼"	5"
8	2⅝"	2½"	2⅜"	2½" ±	1" x 1¼"	5"

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

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

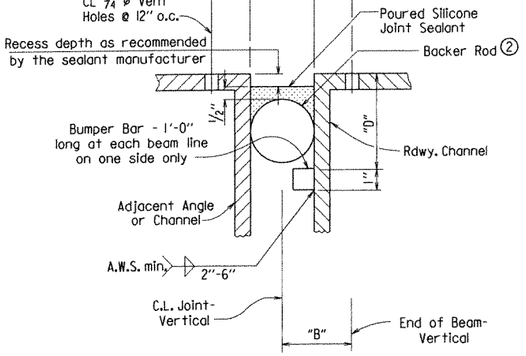
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

(2) BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

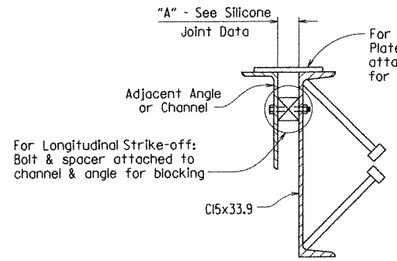
Except as noted, do not install more backer rod that can be sealed in the same day.

The contractor shall verify separation of the backer rod from the joint material after the joint material has set.



DETAIL OF POURED SILICONE JOINT SEAL

No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 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

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device for the end bents 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, the opening adjusted for temperature, and the backwall constructed.

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. **Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.**

EXPANSION DEVICE INSTALLATION AT BENT 5:

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.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/16/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF JOINTS
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

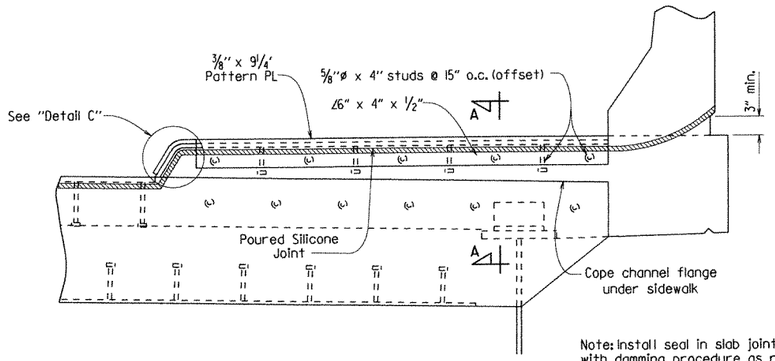
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-16-12 FILENAME: b040569x1_jtl.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: MLG DATE: 03/12

BRIDGE NO. 07256 DRAWING NO. 52923

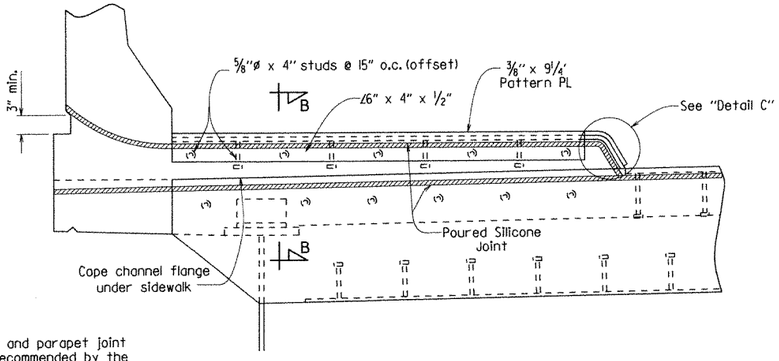
PRINT DATE: 05-JUL-2012

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.		040569	70	114
				① 07256 -		JOINTS	- 52924	



SECTION THRU SIDEWALK - STAGE 3

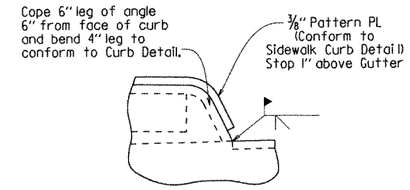
No Scale



SECTION THRU SIDEWALK - STAGE 4

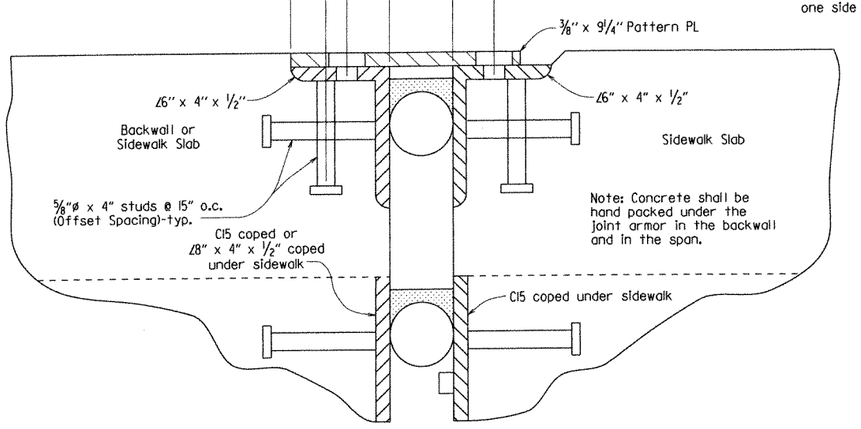
No Scale

Note: Install seal in slab joint and parapet joint with damming procedure as recommended by the manufacturer. The sealant shall be recessed to prevent damage and be allowed to cure prior to removal of the outer damming material.



DETAIL C

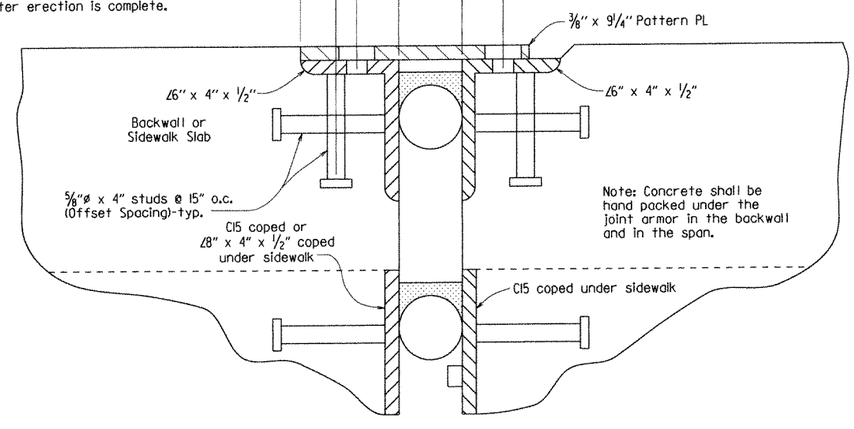
No Scale



SECTION A-A

No Scale

* 3/4" x 1 5/8" Ctsk. Slots in 3/8" Pattern Plates. Tap 4" leg of angle for 7/8" ø flat head cap screws @ 12" o.c. Install screws in the shop and ship as a unit. Remove screws on one side after erection is complete.



SECTION B-B

No Scale

STATE OF ARKANSAS
Carl J. Fussellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSSELLIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF JOINTS
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

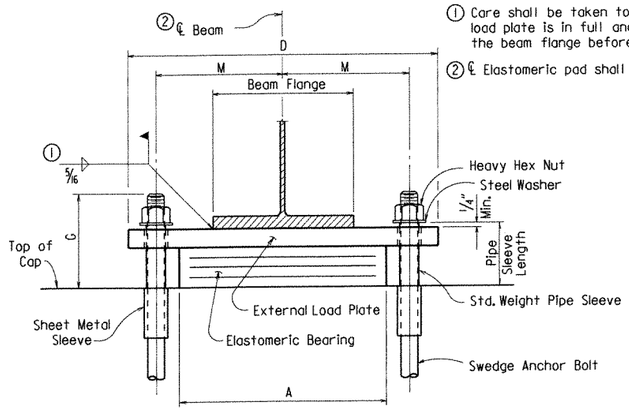
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-16-12 FILENAME: b040569x1_jtl.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: AS NOTED
DESIGNED BY: mcs DATE: 07/12

BRIDGE NO. 07256 DRAWING NO. 52924

PRINT DATE: 05-JUL-2012

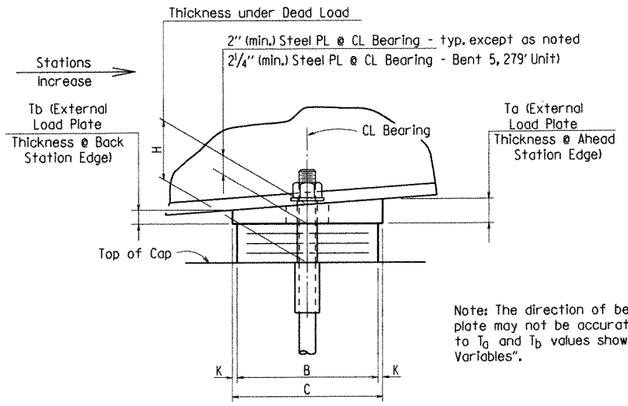
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	71	114
				①	07256 - ELASTO. BEARINGS - 52925			



FRONT VIEW

① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.

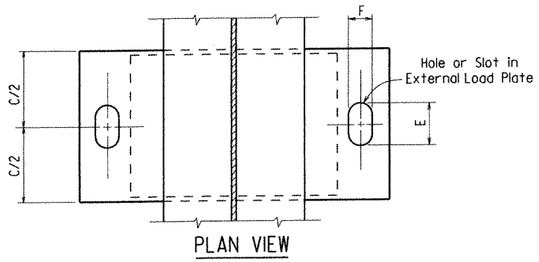
② ℄ Elastomeric pad shall be aligned with ℄ Beam



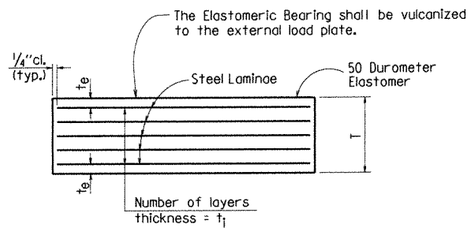
SIDE VIEW

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

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam 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.



PLAN VIEW

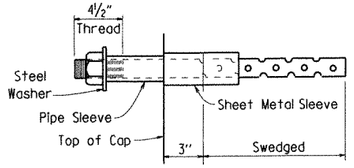


t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

NOTE: 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 masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL 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 (M270, Gr. 50W)"

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 M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, 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(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 or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

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

TABLE OF FABRICATOR VARIABLES

** Includes Load Plate Thickening at Bent 5, 279' Unit

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: UNIT	LOCATION: BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	E	F	K	M	**T_a	**T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07256	1	279'	All	Exp.	8	102	9 1/4"	6 3/16"	12 1/2"	8 1/2"	6	1/2"	1/4"	7 @ 12 Gauge	4 1/4"	9 1/2"	23 1/2"	5 3/4"	2 5/8"	1/2"	8 3/4"	2.13"	1.87"	1 3/4"ø x 30"	55	2"ø x 6 1/2"	4"ø x 10"	3 3/8"ø
	2	279'	All	Exp.	8	237	8"	4 3/8"	15 1/2"	13"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	14"	27 1/2"	5 3/8"	3 1/8"	1/2"	10 1/2"	2.20"	1.80"	2 1/4"ø x 34"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"ø
	3	279'	All	Exp.	8	249	7 1/4"	3 13/16"	15 1/2"	13"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14"	27 1/2"	4 1/4"	3 1/8"	1/2"	10 1/2"	2.20"	1.80"	2"ø x 30 1/2"	55	2 1/2"ø x 4 1/4"	4"ø x 12"	3 3/4"ø
	5	279'	All	Exp.	8	114	6 3/4"	4"	12 1/2"	9 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	10 1/2"	22 1/2"	3 3/4"	2 1/4"	1/2"	8 1/2"	2.34"	2.04"	1 1/2"ø x 25"	55	1 1/2"ø x 4 1/4"	3"ø x 10"	3"ø
	5	223'	All	Exp.	8	123	7 1/4"	4 3/8"	13 1/2"	9"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	10"	23 1/2"	4 5/16"	2 1/4"	1/2"	9"	2.15"	1.85"	1 1/2"ø x 25"	55	1 1/2"ø x 4 3/4"	3"ø x 10"	3"ø
	6	223'	All	Fix	8	279	7 5/8"	3 13/16"	16 1/2"	13 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14 1/2"	29 1/2"	3 3/4"	3 3/4"	1/2"	11 1/4"	2.21"	1.79"	2 1/2"ø x 36"	55	3"ø x 4 1/8"	4"ø x 12"	4 1/2"ø
	7	223'	All	Fix	8	255	7 5/8"	3 13/16"	16 1/2"	13 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14 1/2"	29 1/2"	3 3/4"	3 3/4"	1/2"	11 1/4"	2.21"	1.79"	2 1/2"ø x 36"	55	3"ø x 4 1/8"	4"ø x 12"	4 1/2"ø
	8	223'	All	Exp.	8	110	7 1/4"	4 3/8"	13 1/2"	9"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	10"	23 1/2"	3 15/16"	2 1/4"	1/2"	9"	2.15"	1.85"	1 1/2"ø x 25"	55	1 1/2"ø x 4 3/4"	3"ø x 10"	3"ø

*Maximum Design Load = Service I Limit State

Tabular Data by : KDH Date: 4-17-12

Checked by : BEF Date: 7/3/12

Designed by : MCB Date: 07/12

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF ELASTOMERIC BEARINGS WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 11-12-96 FILENAME: b040569_el.dgn

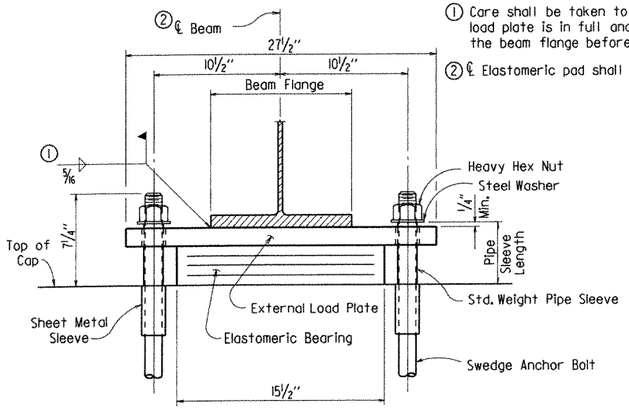
CHECKED BY: AMS DATE: 11-15-96 SCALE: NONE

DESIGNED BY: STD. DATE:

BRIDGE NO. 07256 DRAWING NO. 52925

PRINT DATE: 05-JUL-2012

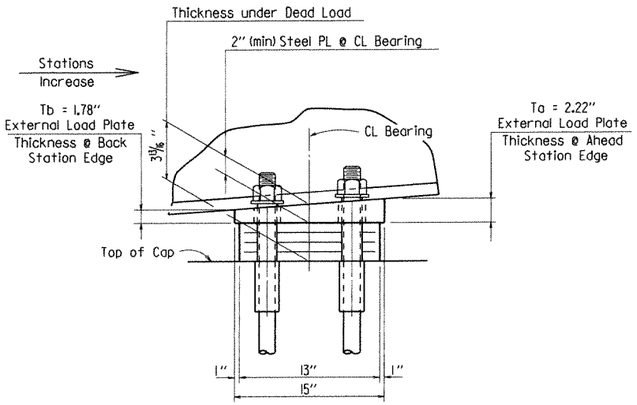
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	72	114
				①	07256 - ELASTO. BEARINGS - 52926			



FRONT VIEW

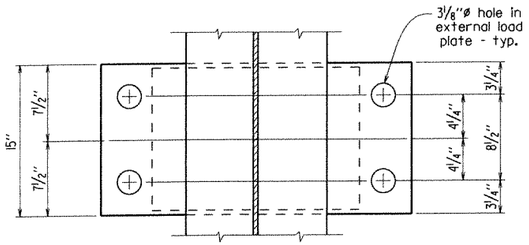
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.

② ℄ Elastomeric pad shall be aligned with ℄ Beam

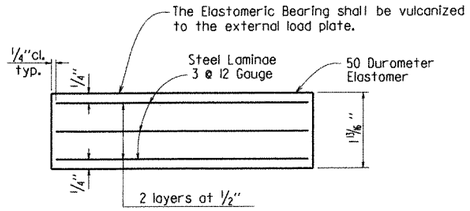


SIDE VIEW

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam 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.



PLAN VIEW



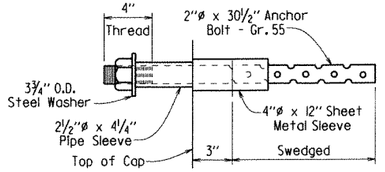
ELASTOMERIC BEARING

BENT 4

ELASTOMERIC BEARING DATA

BRIDGE NO.	LOCATION			BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)
	BENT NO(S).	UNIT	BEAM NO.			
07256	4	279'	All	Fix	8	248

*Maximum Design Load = Service I Limit State



ANCHOR BOLT DETAIL

NOTE: 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 masonry. 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 (M270, Gr. 50W)"

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 M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, 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(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 or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

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

Tabular Data by : KDH Date: 4-17-12

Checked by : BEF Date: 7/3/12

Designed by : MCB Date: 03/12

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF ELASTOMERIC BEARINGS
WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 11-12-96 FILENAME: b040569_el.dgn

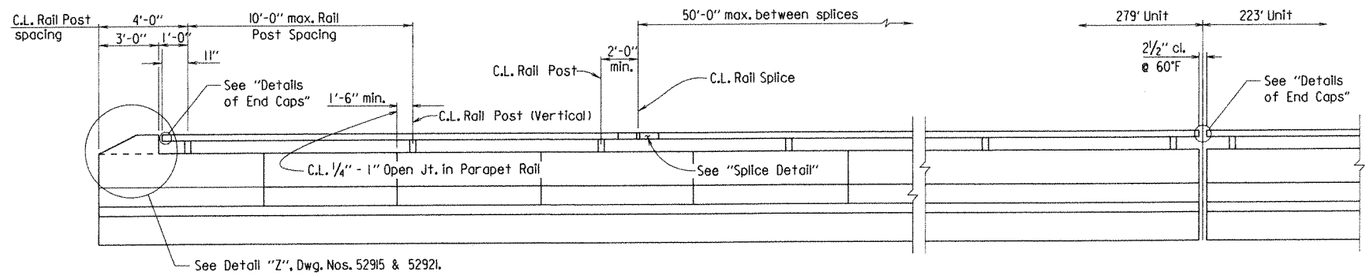
CHECKED BY: AMS DATE: 11-15-96 SCALE: NONE

DESIGNED BY: STD. DATE:

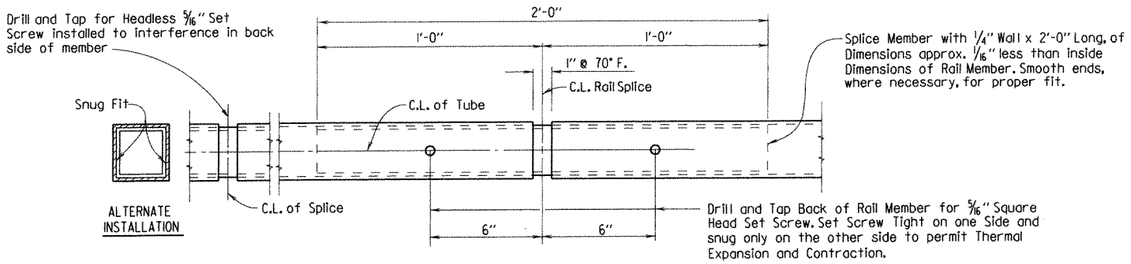
BRIDGE NO. 07256 DRAWING NO. 52926

PRINT DATE: 05-JUL-2012

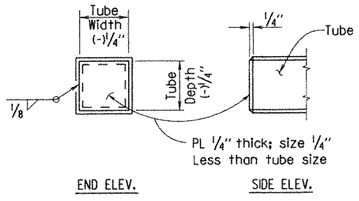
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	73	114
				(1)	07256 - METAL BRIDGE RAIL - 52927			



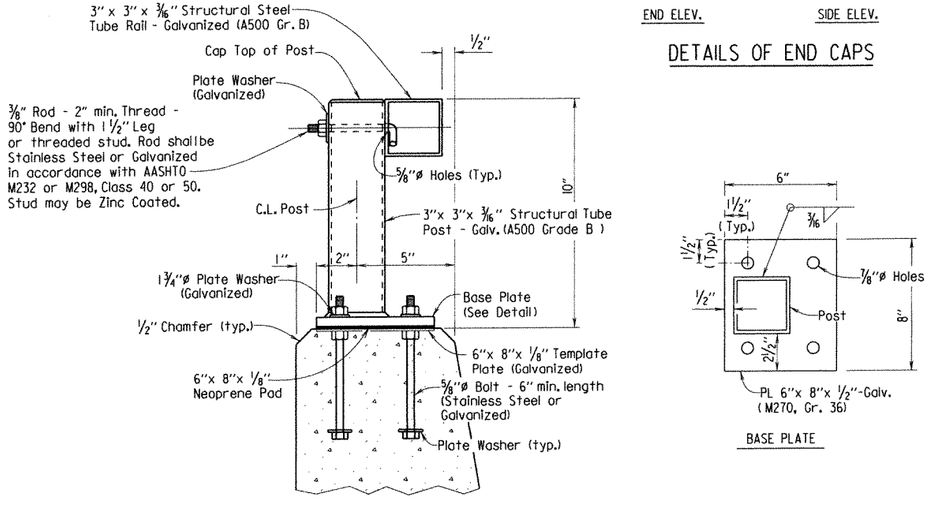
RAIL POST SPACING DETAIL



SPLICE DETAIL



DETAILS OF END CAPS



DETAILS OF POST ANCHOR SYSTEM

(CAST IN PLACE BOLTS)

NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge.

Maximum post spacing = 10'-0"

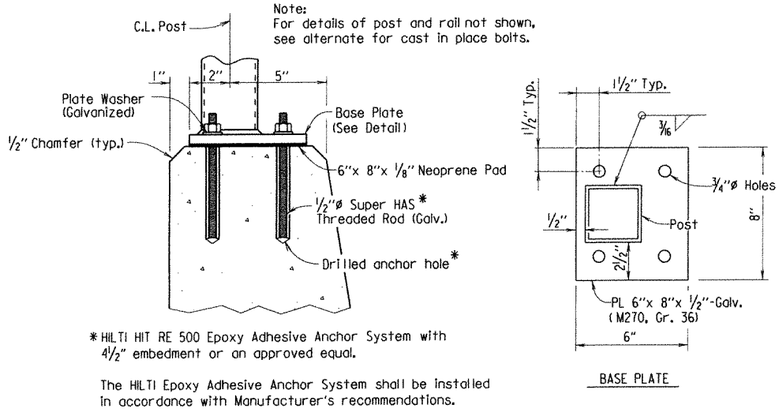
Minimum distance from centerline post to centerline open or contraction joints in parapet = 1'-6".

Rail splices shall be at 50' maximum spacing. Centerline splices shall be located at a maximum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including posts, fasteners, template plates, and neoprene pad shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)".

Shop drawings showing details of railing shall be submitted and approval secured before fabrication is begun.



*HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal.

The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(EPOXY ADHESIVE ANCHORS)

MATERIALS:

Tubing, Posts, and Accessories: AASHTO M270, Gr. 36 or ASTM A500-Grade B.

Railing End Caps: AASHTO M270, Grade 36, galvanized.

Steel Rail Members shall be galvanized in accordance with AASHTO M 111 after fabrication.

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to AASHTO M164 or A354-Grade BC galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Splice Set Screws: Stainless steel, ASTM Specifications A193 or A320-Grade B8, or AASHTO M270, Grade 36, galvanized.

Nuts: Nuts shall conform to AASHTO M292, Gr. 8 (Stainless steel) or galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Threads: Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1.

Washers shall conform to AASHTO M293, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50, or of stainless steel conforming to ASTM A276 or A167-Type 302.

STATE OF ARKANSAS
Carl E. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL E. FUSELIER

BRIDGE ENGINEER

DETAILS OF TYPE H METAL BRIDGE RAILING WEST FORK OF WHITE RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

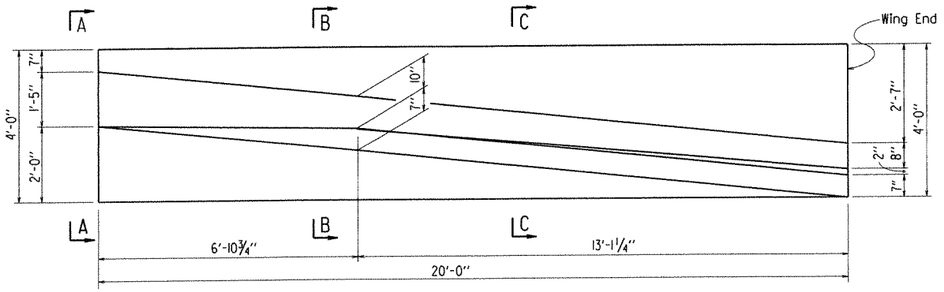
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-23-12 FILENAME: b040569_hr.dgn
CHECKED BY: BEF DATE: 6/27/12 SCALE: NONE
DESIGNED BY: MCG DATE: 05/12

BRIDGE NO. 07256 DRAWING NO. 52927

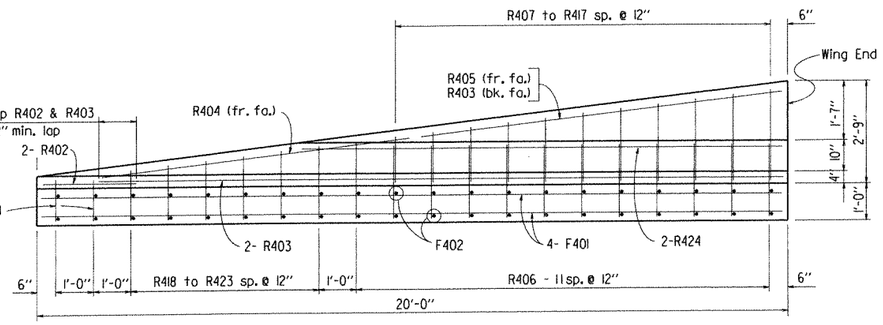
PRINT DATE: 7/5/2012

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.		040569	74	114
				①	07256 -	RAIL	- 52928	



PLAN OF TRANSITIONAL APPROACH RAILING

Note: Railings on each side of Roadway are opposite hand to each other.



ELEVATION OF TRANSITIONAL APPROACH RAILING

General Notes

Transitional Approach Railing shall be placed at ends of turnback wings at locations shown on the layout.

All Concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

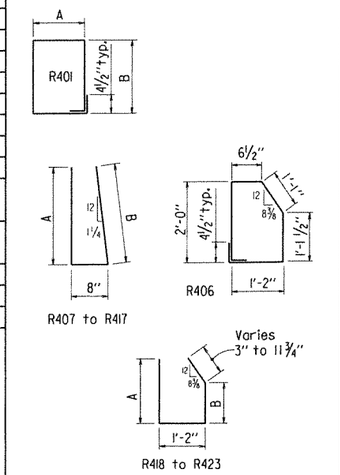
All Reinforcing Steel shall conform to AASHTO M31 or M53, Grade 60.

Transitional Approach Railing shall be paid for at the contract unit price bid per each for "Transitional Approach Railing." See SP Job No. 040569 "Transitional Approach Railing."

BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.
F401	8	19'-8"			str.
F402	40	3'-8"			str.
R401	2	4'-10"	1'-2"	1'-1"	2"
R402	2	3'-0"			str.
R403	3	17'-9"			str.
R404	1	5'-0"			str.
R405	1	12'-9"			str.
R406	12	6'-3"			2"
R407-R417	1ea.	3'-0"-5'-5"	1'-3"-2'-5½"	1'-3"-2'-5½"	2"
R418-R423	1ea.	3'-9"-5'-1"	1'-4"-1'-11¼"	1'-1½"	2"
R424	2	10'-9"			str.

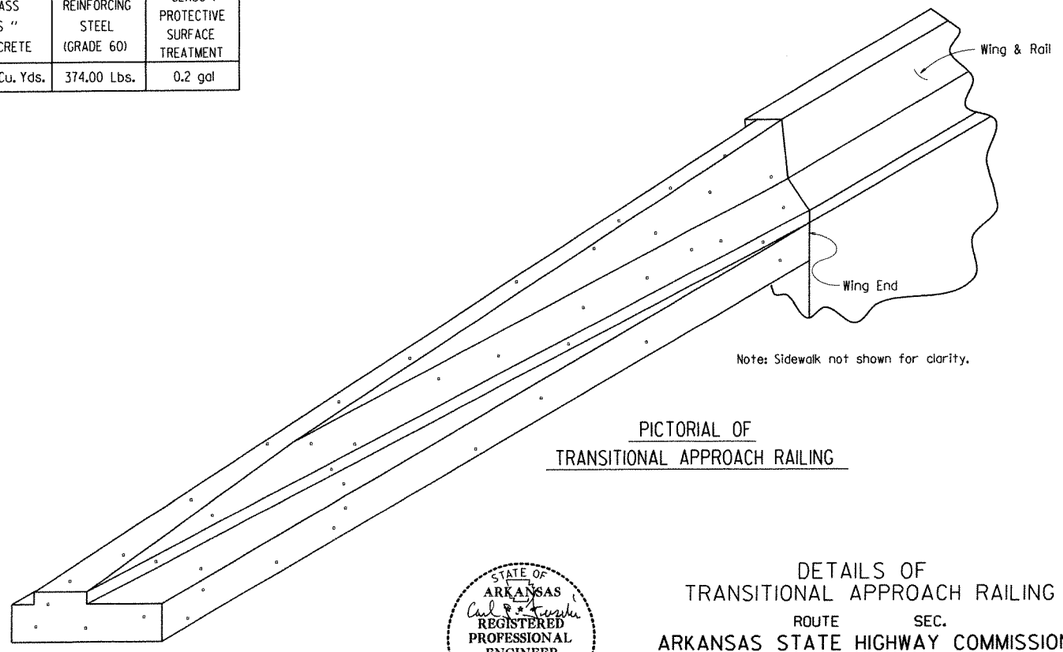
Bending Diagram



Dimensions are out to out of bars.

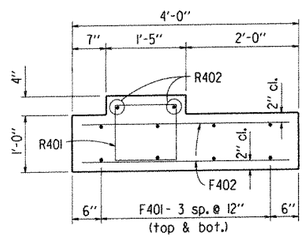
FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS I PROTECTIVE SURFACE TREATMENT
4.20 Cu. Yds.	374.00 Lbs.	0.2 gal

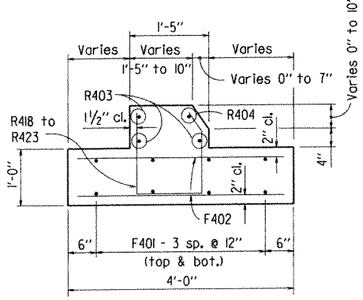


Note: Sidewalk not shown for clarity.

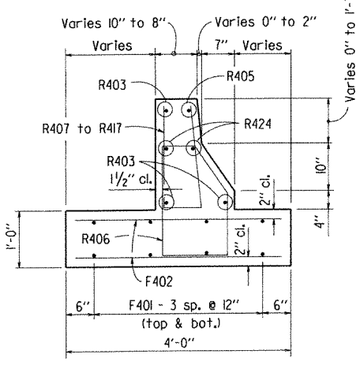
PICTORIAL OF
TRANSITIONAL APPROACH RAILING



VIEW A - A
¾" = 1'-0"



SECTION B - B
¾" = 1'-0"



SECTION C - C
¾" = 1'-0"

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
7/6/12
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF
TRANSITIONAL APPROACH RAILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

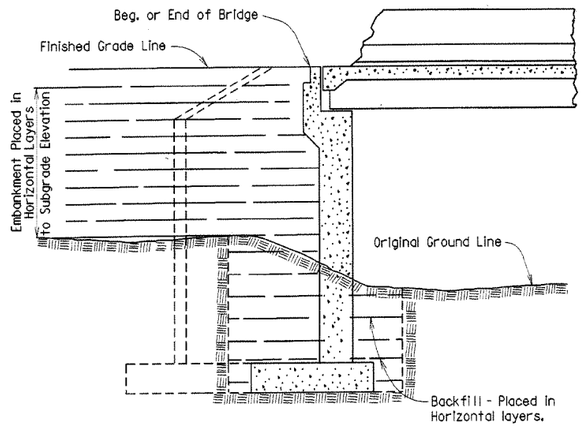
DRAWN BY: CSL DATE: 11/21/2005 FILENAME: b040569xl_trl.dgn
CHECKED BY: BEF DATE: 7/3/12 SCALE: ½" = 1'-0" or as noted
DESIGNED BY: Std. DATE:

BRIDGE NO. 07256 DRAWING NO. 52928

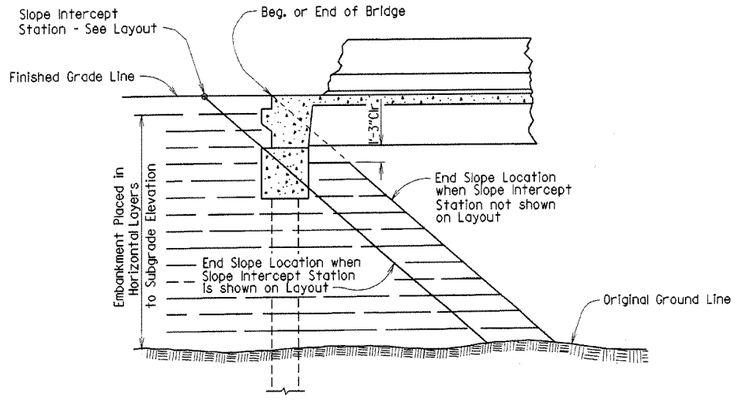
PRINT DATE: 7/5/2012

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		75	
				JOB NO.				

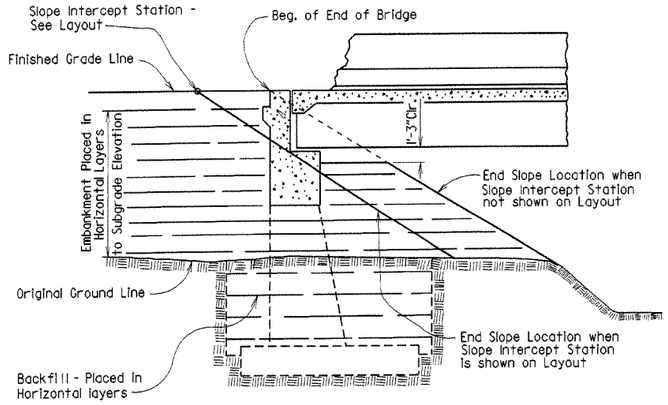
① EMBANKMENT & BACKFILL 1888A



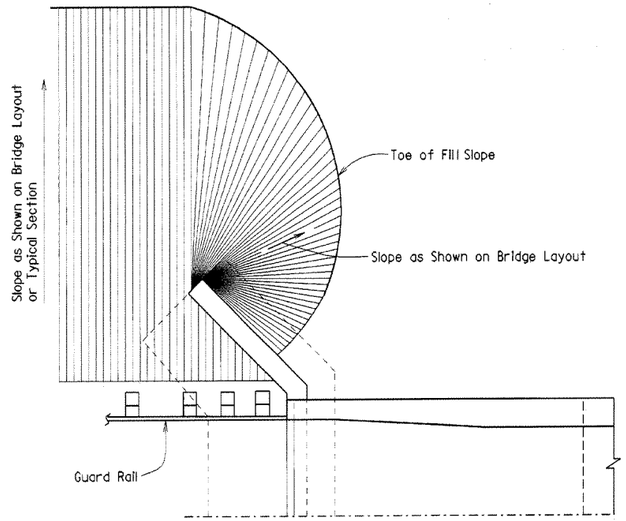
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



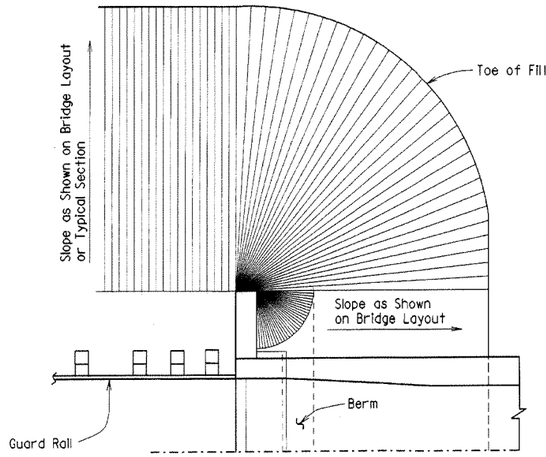
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



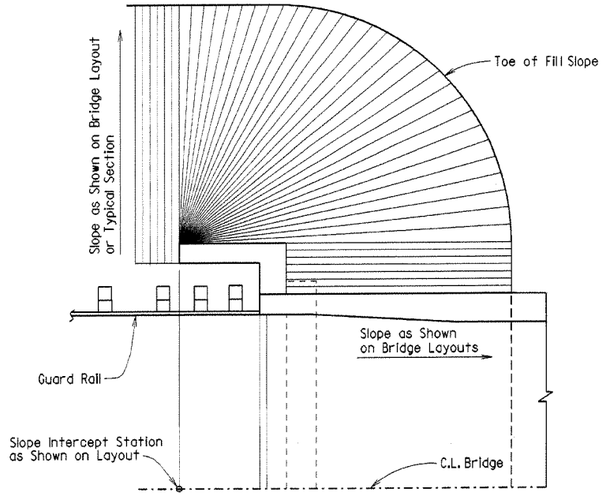
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



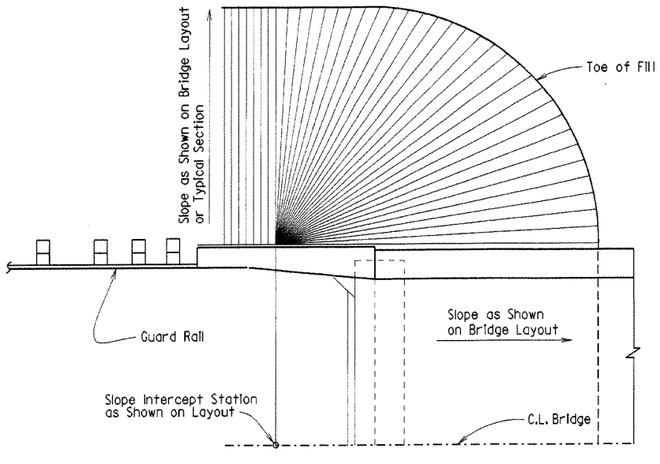
VERTICAL WALL ABUTMENTS



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 4 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 of the Specifications for construction requirements.

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4537
CHARLES P. BRAND

BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

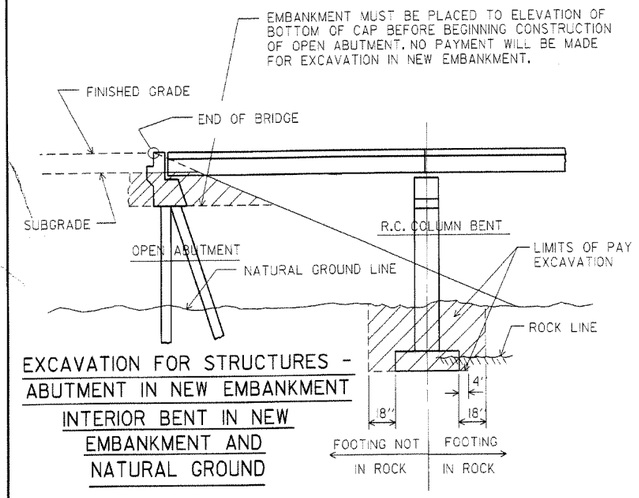
DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1888A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: ____

BRIDGE NO. DRAWING NO. 1888A

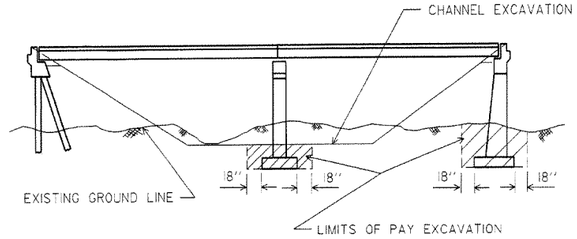
B1888A.STD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		76	
				JOB NO.				

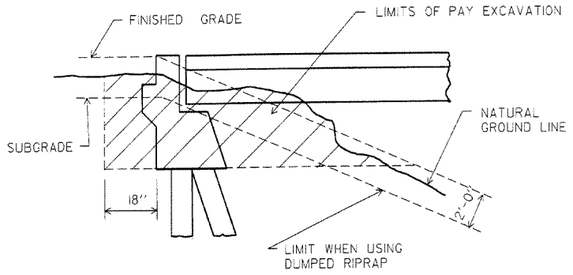
(1) RIP. & EXCAV. 1891F



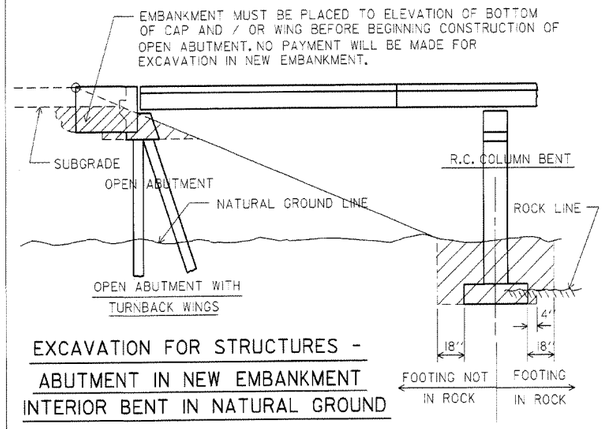
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



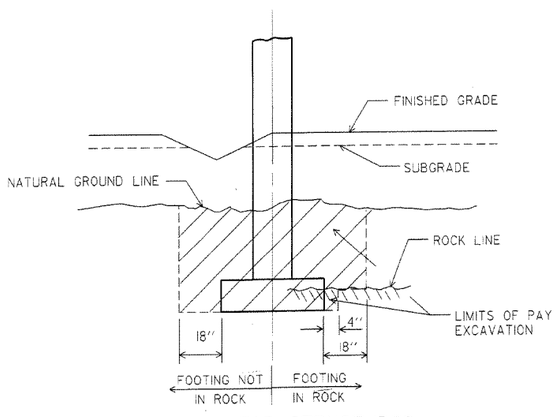
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



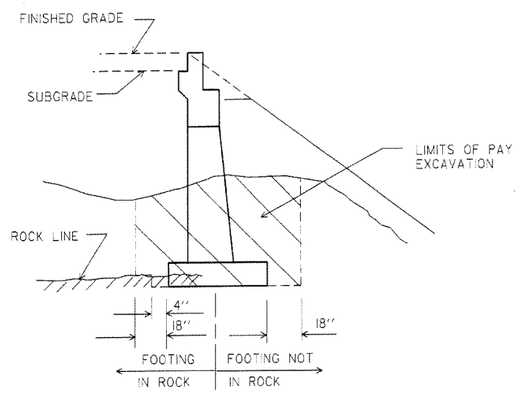
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



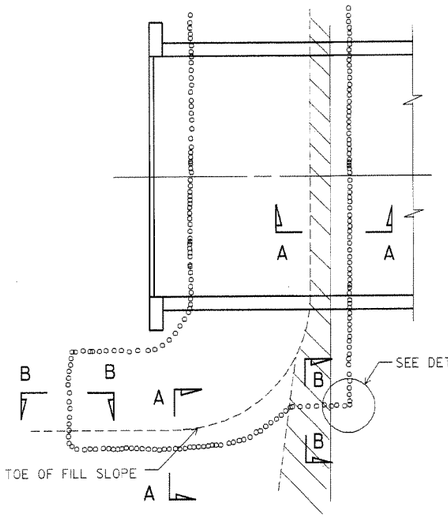
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



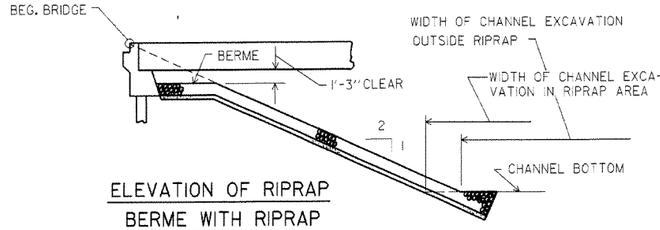
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



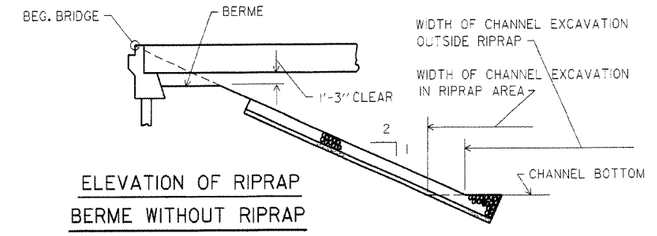
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



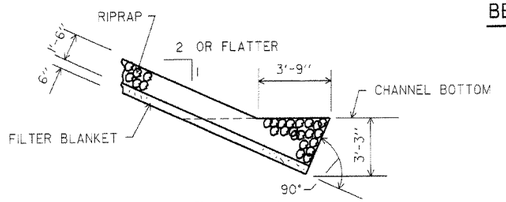
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP



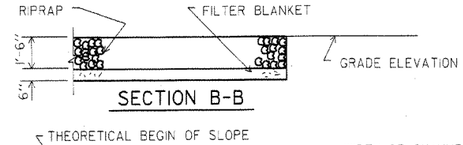
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



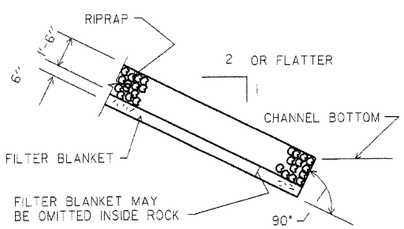
SECTION A-A

(TOE EXCAVATION IN SOIL)

EXCAVATION FOR TOES IS NOT A PAY ITEM



SECTION B-B



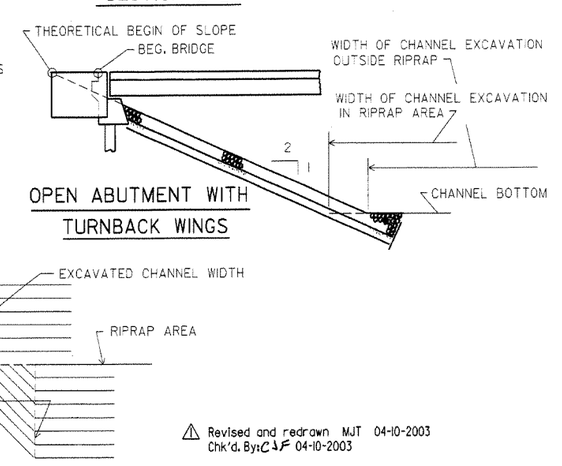
SECTION A-A

(TOE EXCAVATION IN ROCK)

NOTE : USE THIS TYPE OF TOE WHEN ROCK IS ENCOUNTERED WHICH IS IN A STABLE CONDITION.

NOTE : IN LIEU OF AN AGGREGATE FILTER BLANKET, A SYNTHETIC FIBER GEOTEXTILE FABRIC COMPLYING WITH THE REQUIREMENTS OF SUBSECTION 816.02(e) MAY BE USED.

NOTE : DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES ARE INCLUDED FOR INFORMATION AS TO HOW PLAN QUANTITIES WERE CALCULATED AND FOR USE WHEN ADJUSTING QUANTITIES WHEN CHANGING FOOTING ELEVATION.



OPEN ABUTMENT WITH TURNBACK WINGS

DETAIL C

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B1891F.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

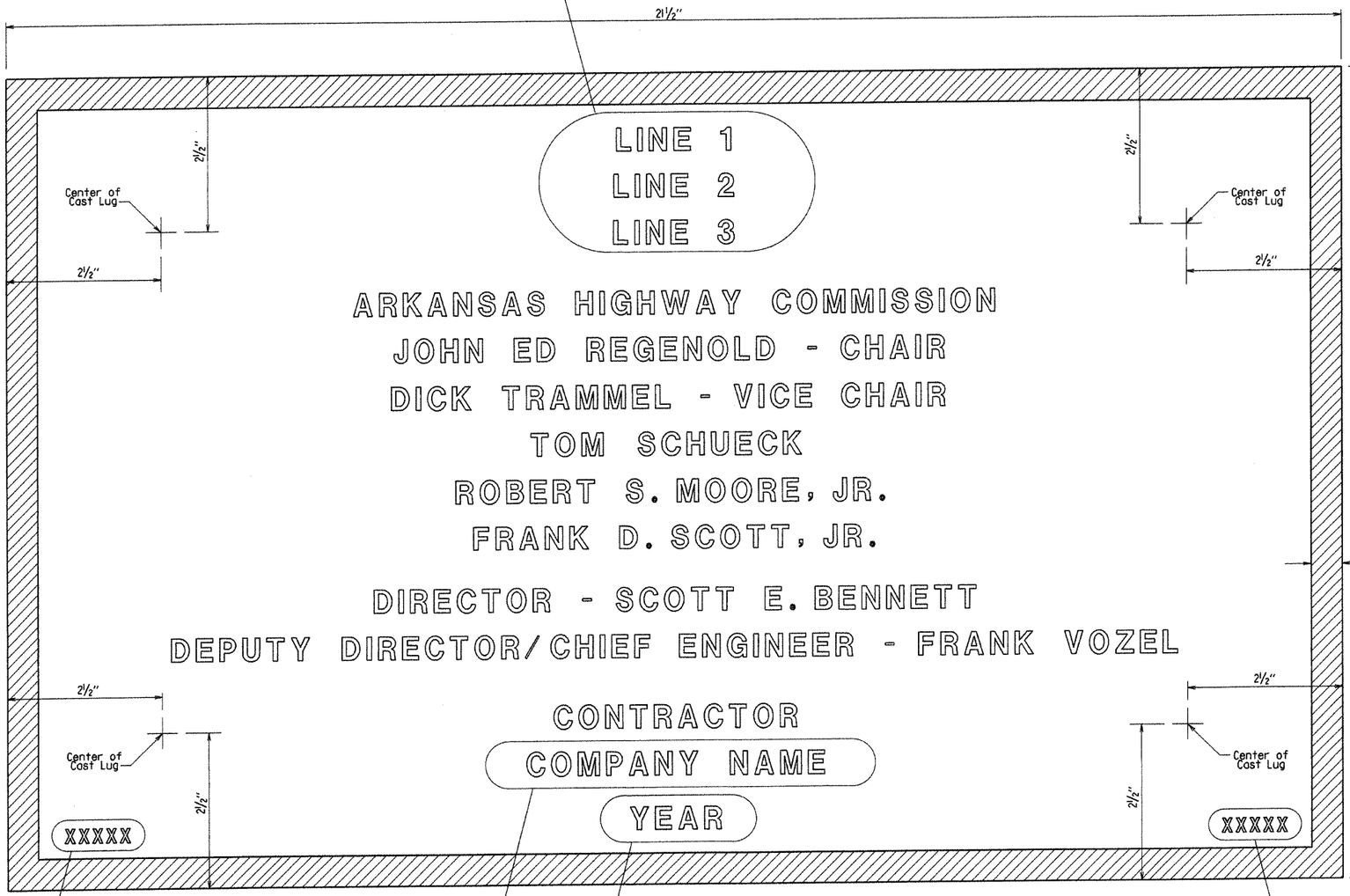
BRIDGE NO. DRAWING NO. 1891F

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9-8-11		10-30-13		6	ARK.		77	
1-3-13				JOB NO.				
1-10-13								

(1) NAME PLATE 2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



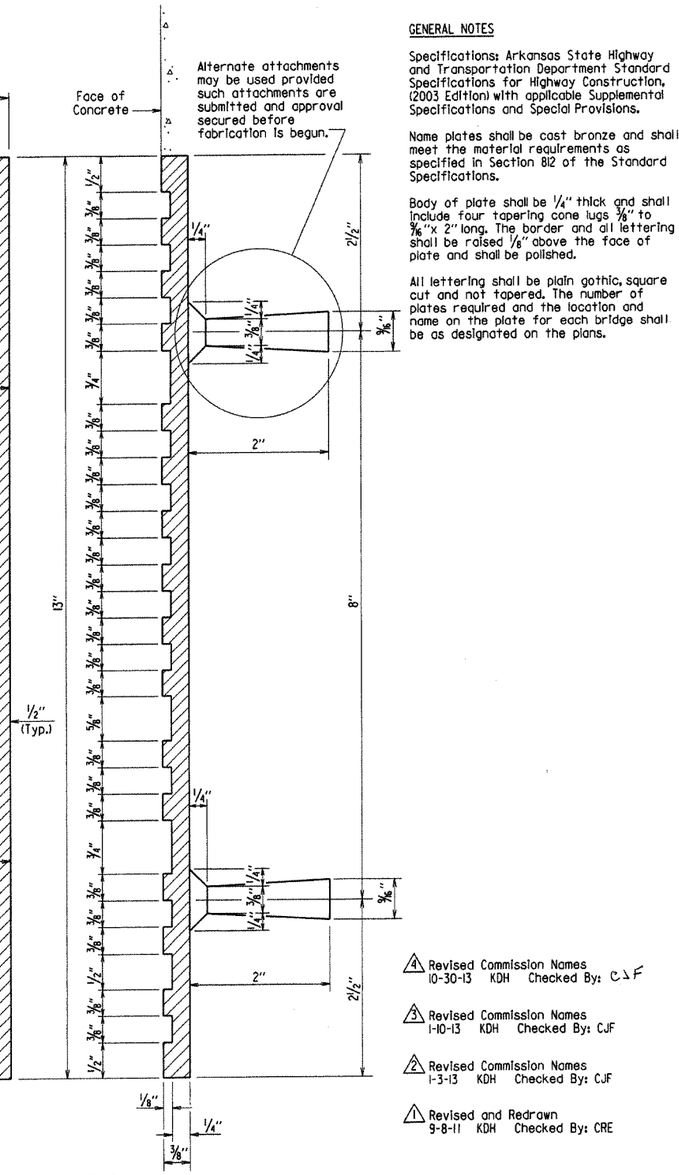
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20, HL-93

Place the 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 Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

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, (2003 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 of the Standard Specifications.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 5/8"x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

4 Revised Commission Names 10-30-13 KDH Checked By: CJF
3 Revised Commission Names 1-10-13 KDH Checked By: CJF
2 Revised Commission Names 1-3-13 KDH Checked By: CJF
1 Revised and Redrawn 9-8-11 KDH Checked By: CRE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSELLER
BRIDGE ENGINEER

DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

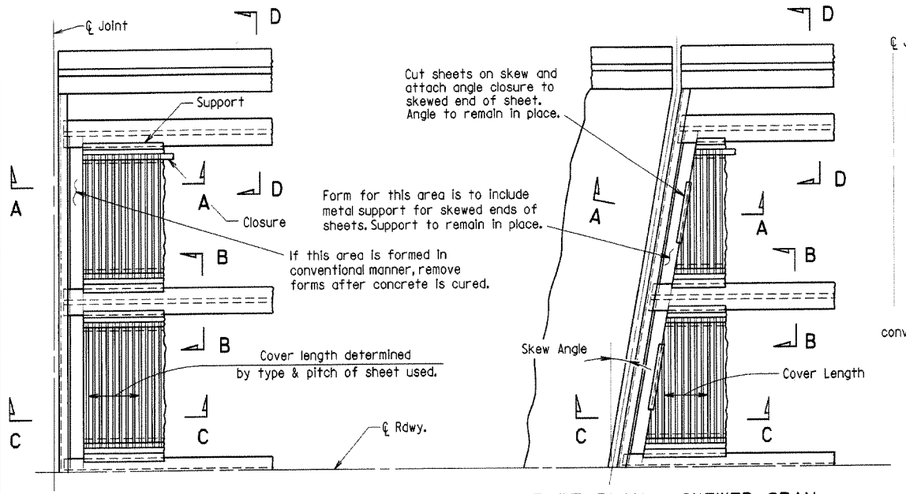
DRAWN BY: KDH DATE: 9-8-11 FILENAME: b2387_std.dgn
CHECKED BY: CRE DATE: 9-8-11 SCALE: 1'-0" = 1'-0"
DESIGNED BY: STD. DATE: — OR AS NOTED

BRIDGE NO. DRAWING NO. 2387

PRINT DATE: 10/30/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		78	
04-10-2003						JOB NO.				

(1) BR. DECK FORMS 14991

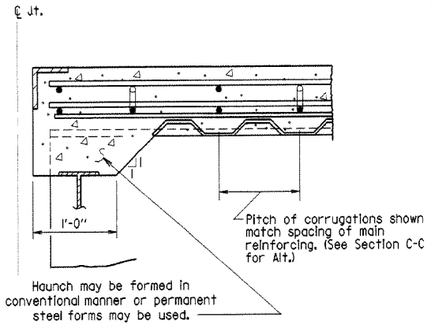


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

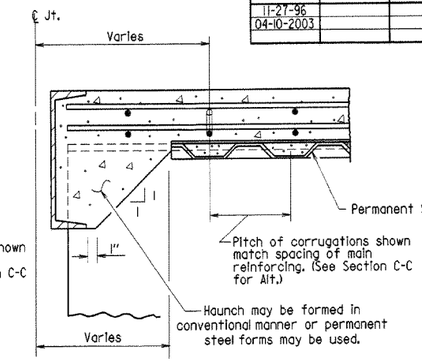
3/8" = 1'-0"



SECTION A-A

N.T.S.

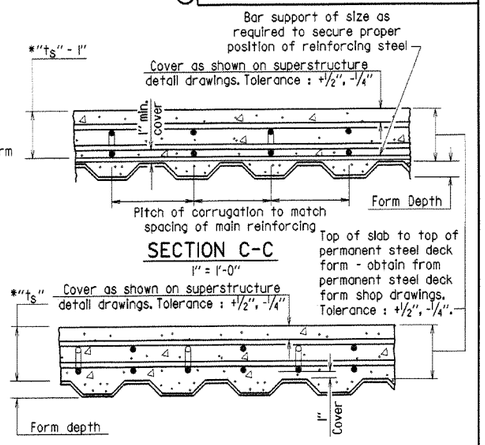
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



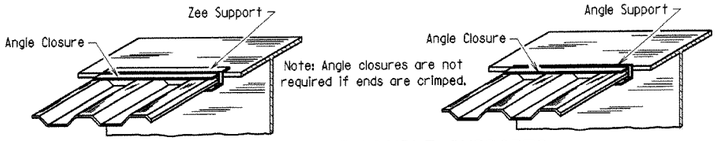
SECTION C-C

1" = 1'-0"

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) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge 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 Bridge Engineer.

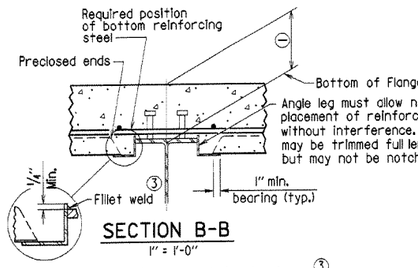
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Bridge Engineer.

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 (2003 Edition), with applicable supplemental specifications and special provisions.

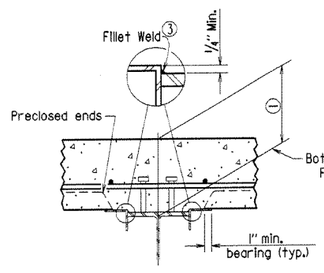


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

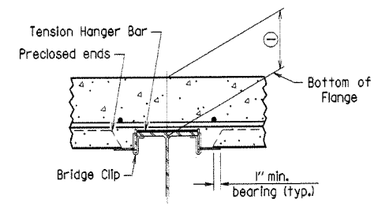
(3) Minimum weld: 1/8" x 1" ℄ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

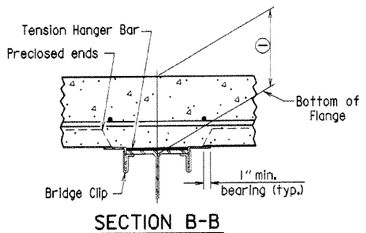
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

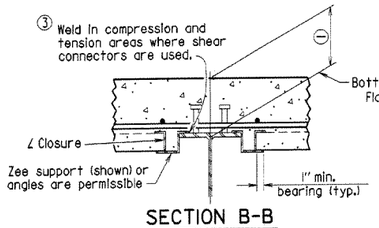
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

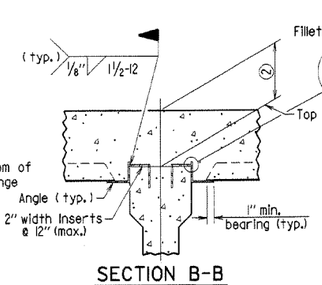
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

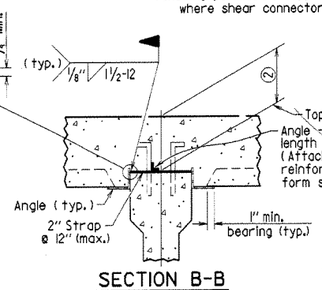


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

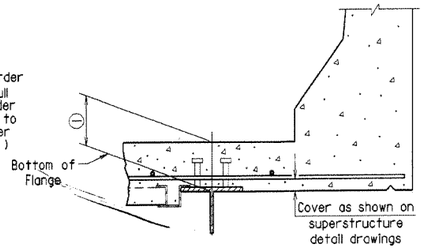


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

(1) Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

(2) Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠ Redrawn and revised 11/27/96; MJT

⚠ Revised for 2003 AHTD Construction Specifications and CPB Seal. MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

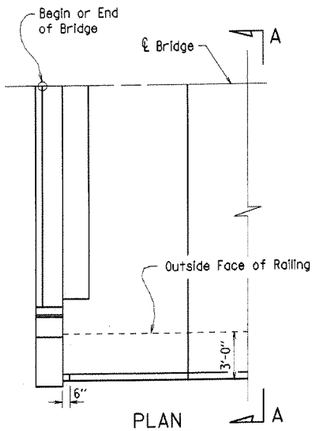
DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96 SCALE: as noted
DESIGNED BY: STD. DATE: —

BRIDGE NO. DRAWING NO. 14991

B14991.STD

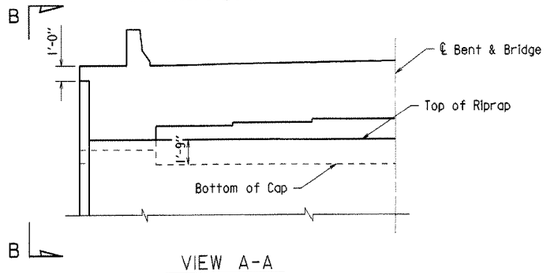
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		79	
				JOB NO.				

(1) RIPRAP & PILE - 14995A

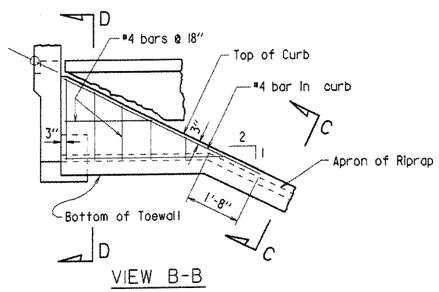


PLAN

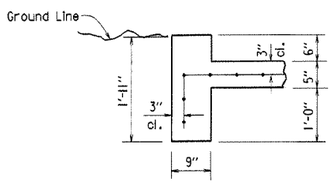
Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



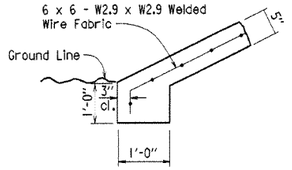
VIEW A-A



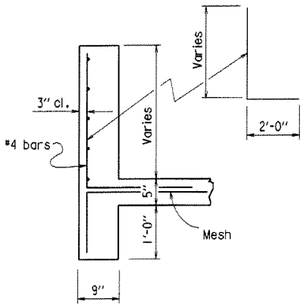
VIEW B-B



SECTION C-C

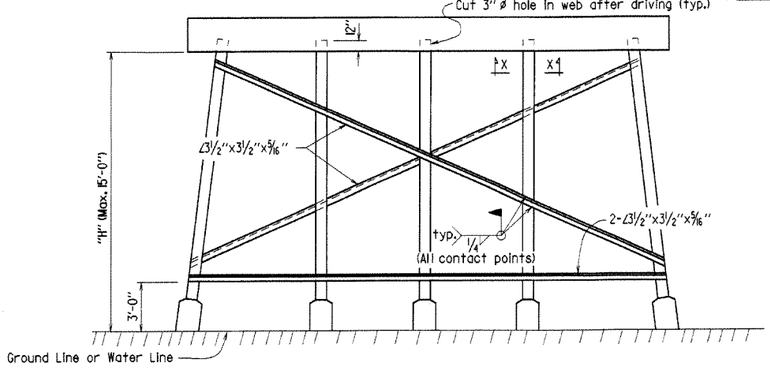


TOE WALL



SECTION D-D

DETAILS OF CONCRETE RIPRAP



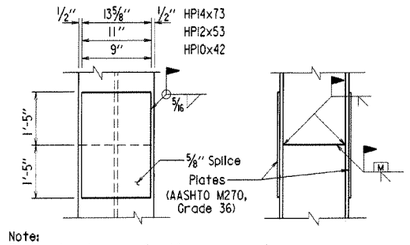
Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under item 807.

Omit bottom bracing where "H" is less than 10 ft. Omit all bracing where "H" is less than 5 ft.

Note:
Where required by the bridge layout sheet, pile encasements shall be constructed.

Omit bracing (and V-groove in cap) where pile encasement is extended to bottom of bent cap.

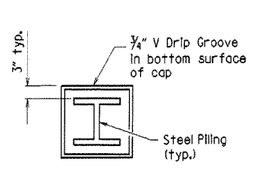
TYPICAL BRACING FOR INT. STEEL PILE BENTS



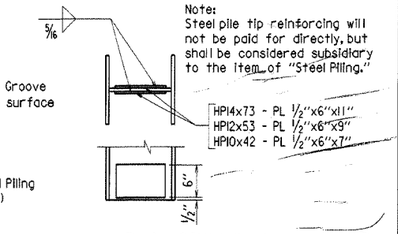
Note:
The contractor may for his own convenience and at this own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft.

PILE SPLICE DETAIL

Scale : 1" = 1'-0"

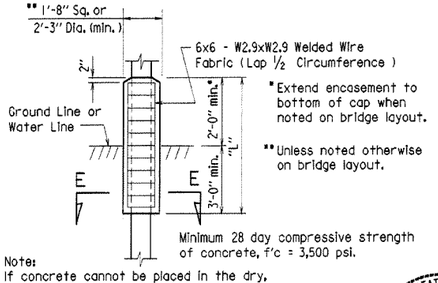


VIEW X-X



REINFORCING DETAIL FOR STEEL PILE TIP

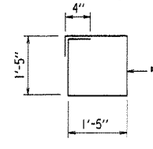
Scale : 1" = 1'-0"

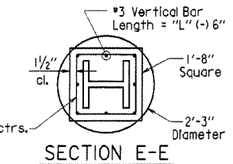


Note:
If concrete cannot be placed in the dry, seal concrete may be deposited under water. Concrete & welded wire fabric or reinforcing in encasements shall be paid for at the contract unit price per linear foot bid for "Pile Encasement."

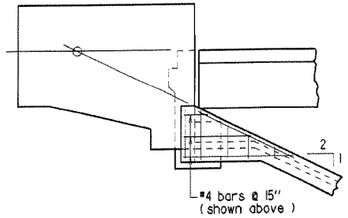
PILE ENCASEMENT DETAIL

Reinforcing Alternate
#3 Vertical - 8 per encasement
#3 ties @ 12" ctrs.
Yield Strength , fy = 60,000 psi.

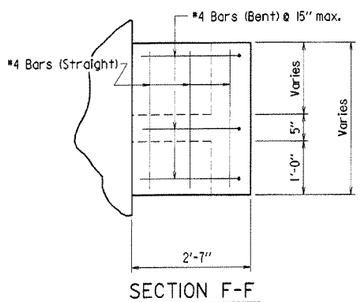




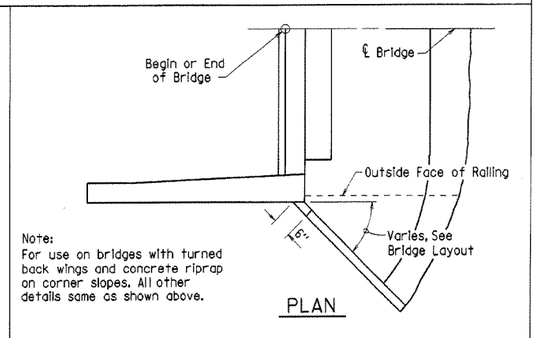
SECTION E-E
REINF. ALTERNATE



ELEVATION

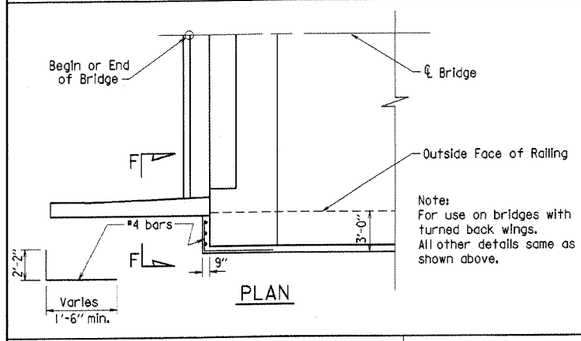


SECTION F-F



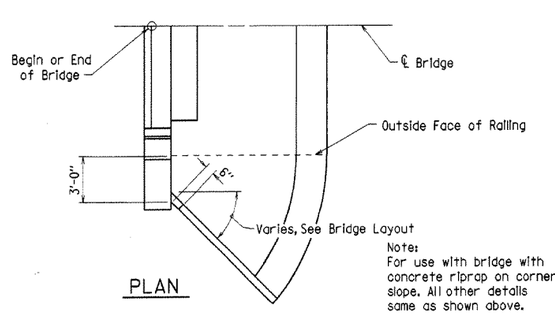
Note:
For use on bridges with turned back wings and concrete riprap on corner slopes. All other details same as shown above.

PLAN



PLAN

Note:
For use on bridges with turned back wings. All other details same as shown above.



PLAN

Note:
For use with bridge with concrete riprap on corner slope. All other details same as shown above.

Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS OF CONCRETE RIPRAP
AND MISC. DETAILS OF STEEL PILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

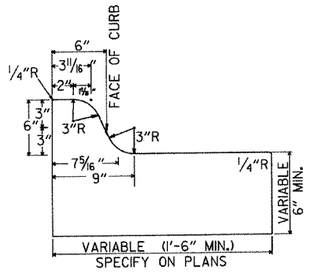
LITTLE ROCK, ARK.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

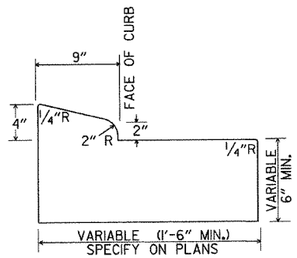
BRIDGE ENGINEER

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI4995A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: No Scale or As Noted
DESIGNED BY: STD. DATE: —

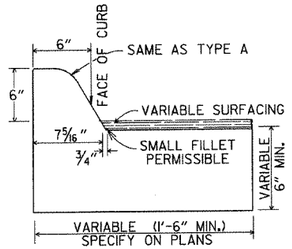
BRIDGE NO. DRAWING NO. 14995A



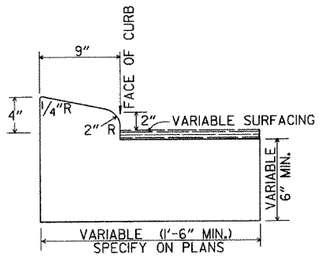
TYPE A



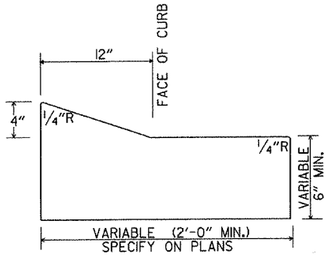
TYPE B-I



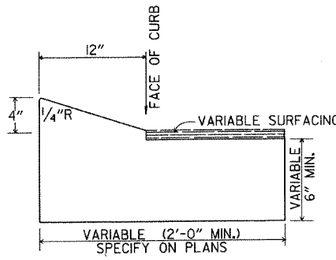
TYPE C



TYPE B-2

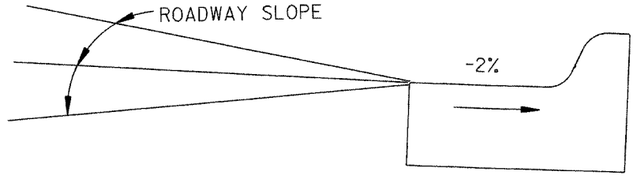


TYPE E-1



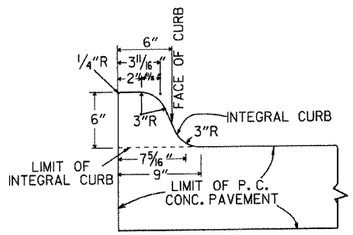
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

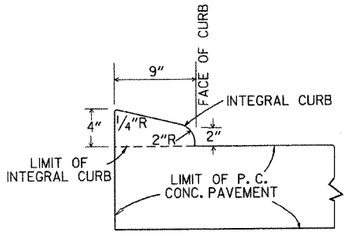


DETAIL OF GUTTER SLOPE

GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A



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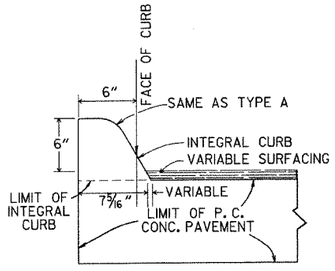
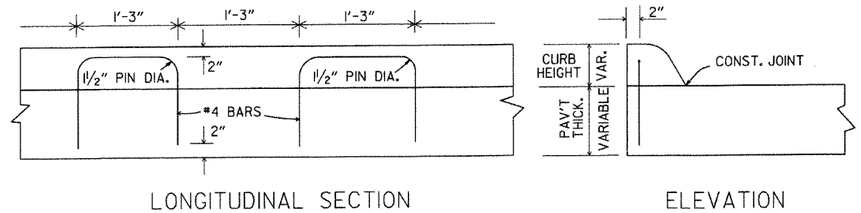


TYPE C

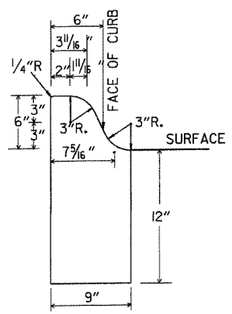
INTEGRAL CURB



LONGITUDINAL SECTION

ELEVATION

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



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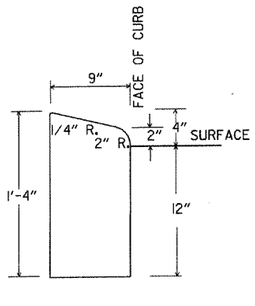

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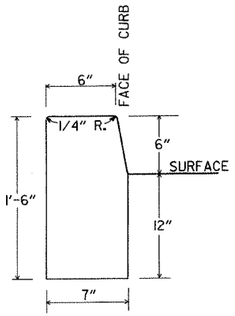
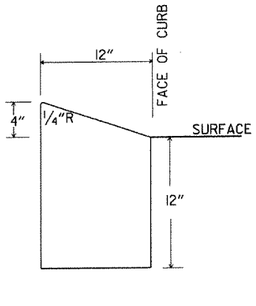
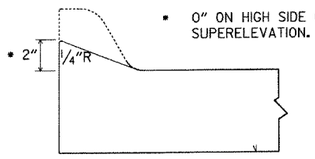


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

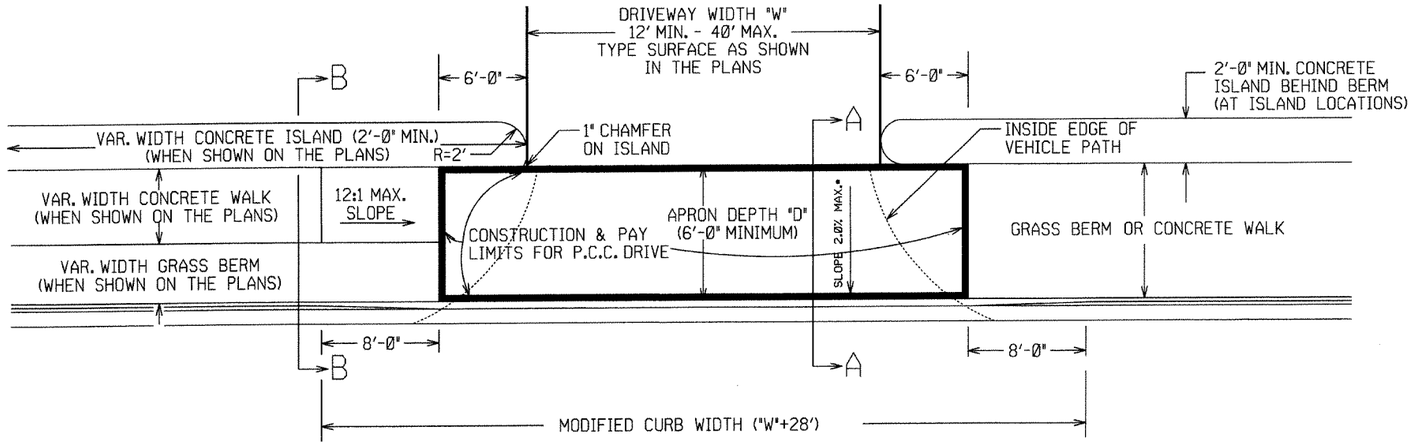
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

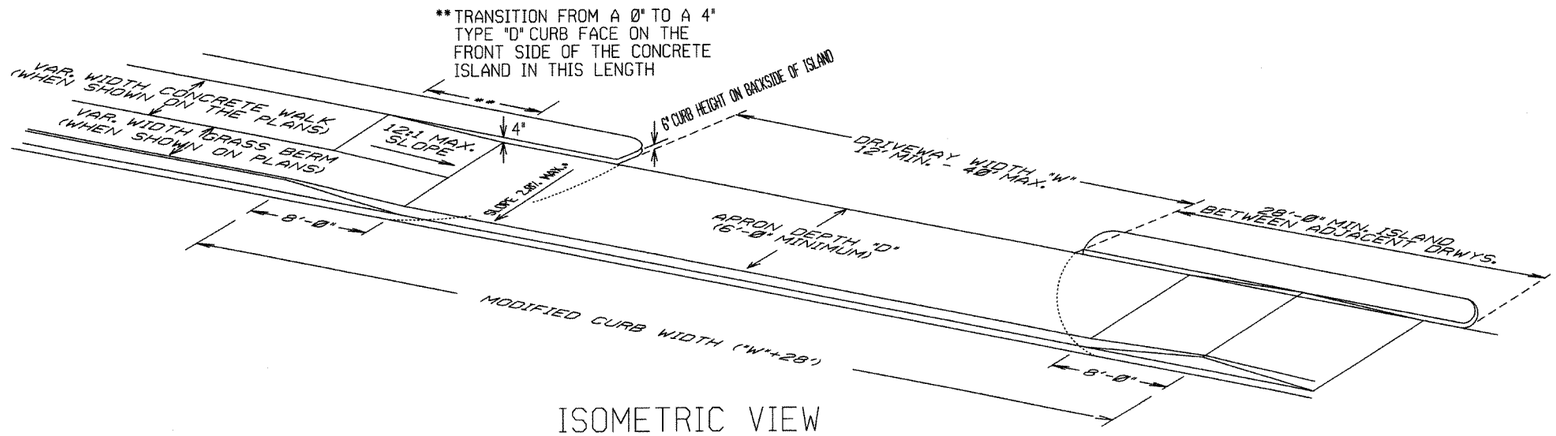
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

STANDARD DRAWING CG-1

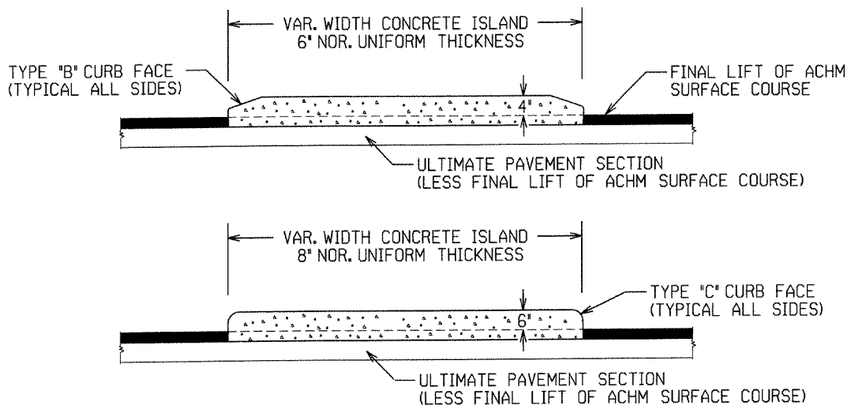


PLAN VIEW

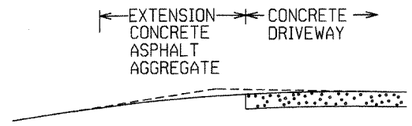


ISOMETRIC VIEW

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

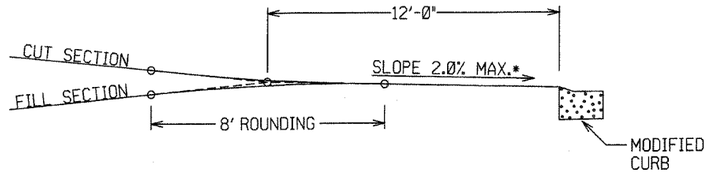
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

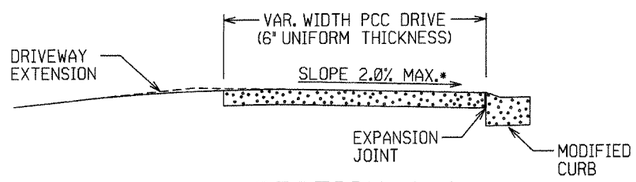
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

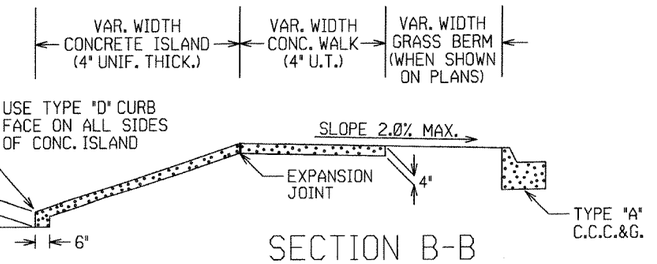


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A

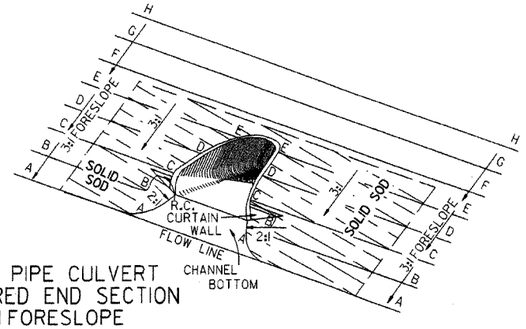


SECTION B-B

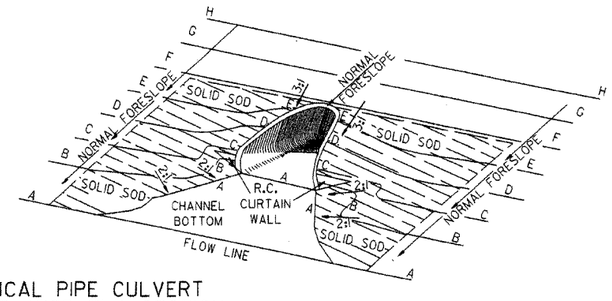
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

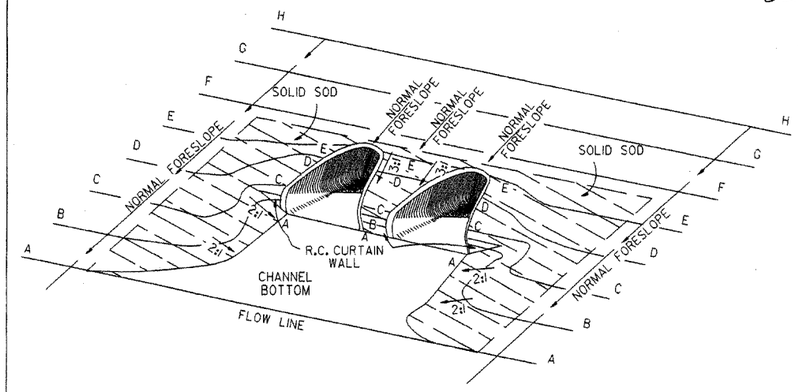
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

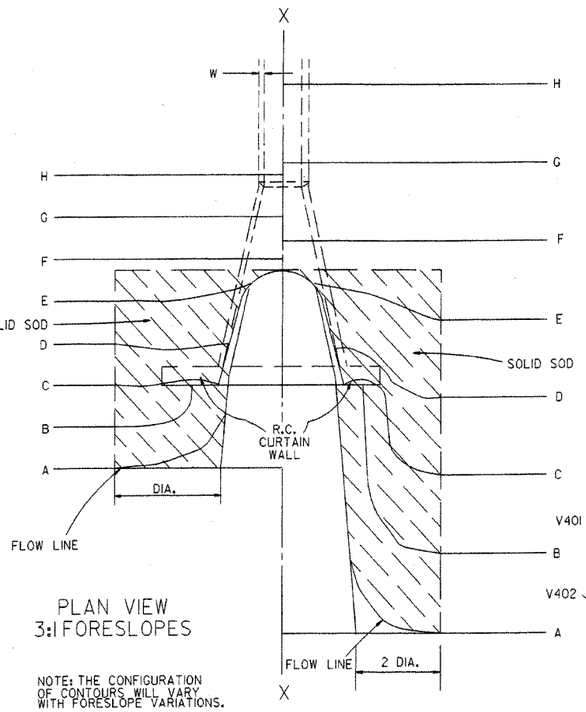
PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	V401 L	NO.	V402 L	NO.	DOUBLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	H403 L	NO.	V401 L	NO.	V402 L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	36	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

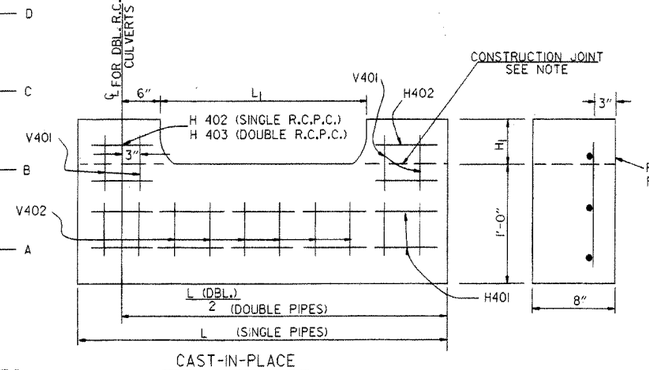
NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.



PLAN VIEW
3:1 FORESLOPES

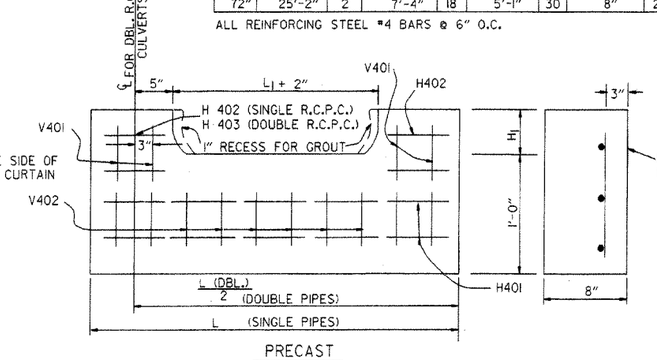
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

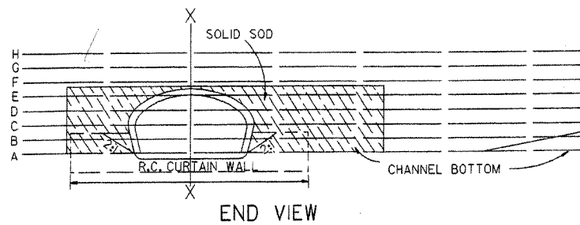
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



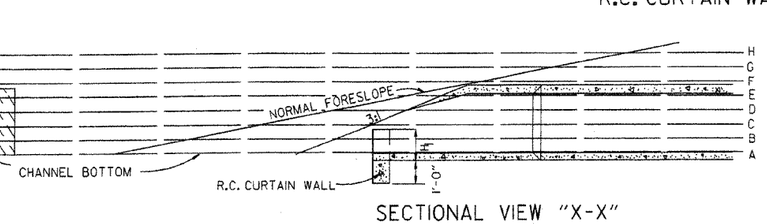
PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS



END VIEW



SECTIONAL VIEW "X-X"

GENERAL NOTES

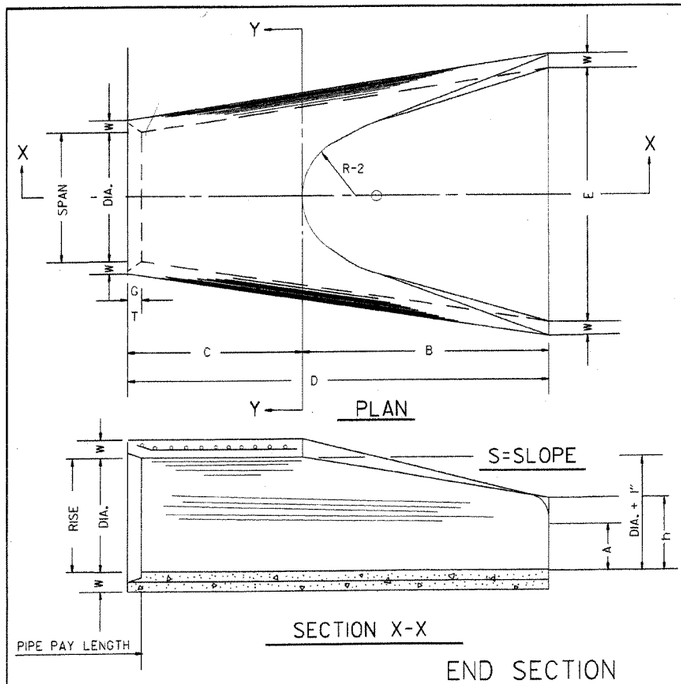
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 × 3 W/10 × W10 MAY BE USED IN LIEU OF REINFORCING BARS.

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

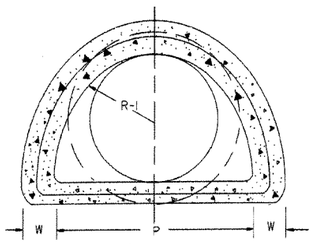
TABLE OF DIMENSIONS

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"	33⅜"	16¹³⁄₁₆"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47¹³⁄₁₆"	24⁵⁄₁₆"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅜"	24"	4"	8750	2'-10½"
60"	6"	2'-0"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36¹¹⁄₁₆"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77¹³⁄₁₆"	38¹⁵⁄₁₆"	24"	5"	13250	4'-6"

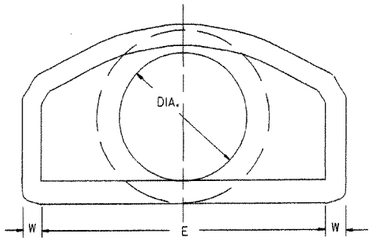
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
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"	36¹¹⁄₁₆"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47¹³⁄₁₆"	20"	3"	2½:1
36	43⅜	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72¹¹⁄₁₆"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77¹³⁄₁₆"	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.

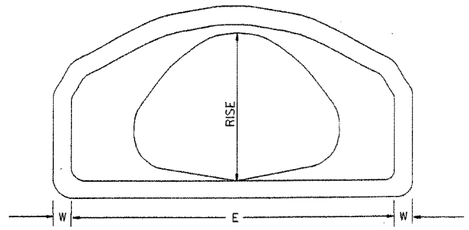


SECTION Y-Y

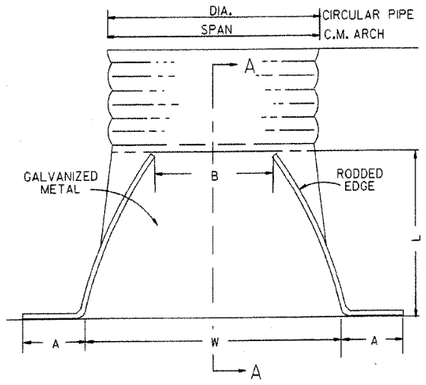


END VIEW

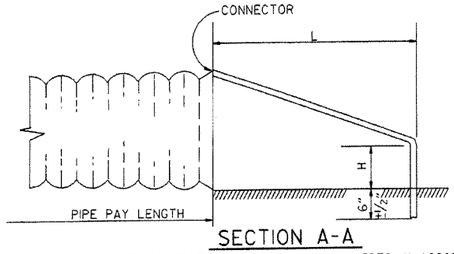
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION



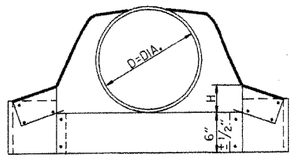
END VIEW
CONCRETE ARCH PIPE



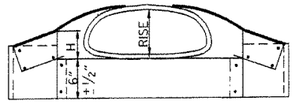
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

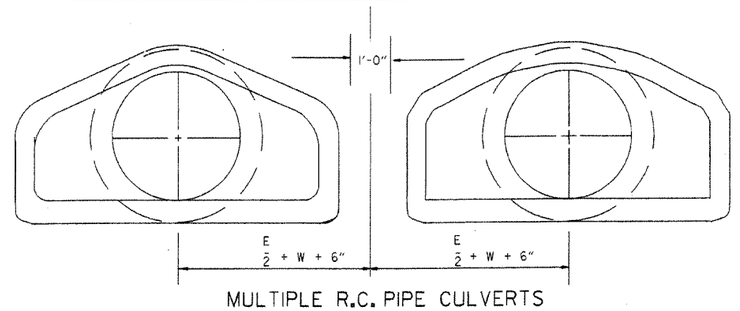
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	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

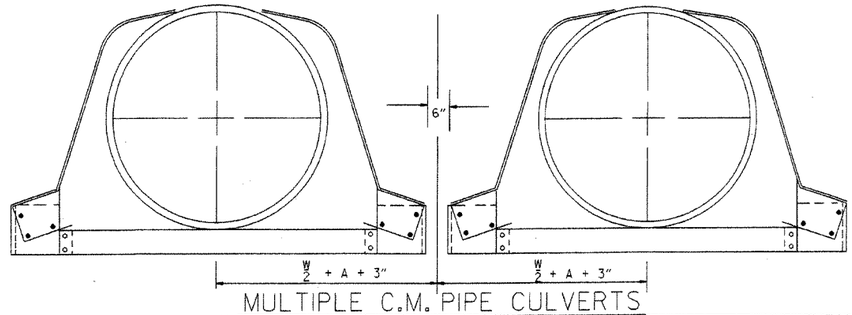
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
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

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



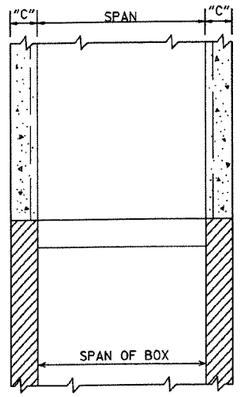
MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	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

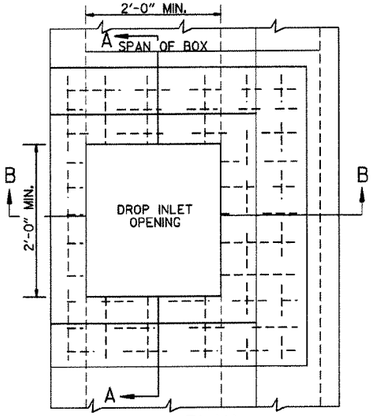
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

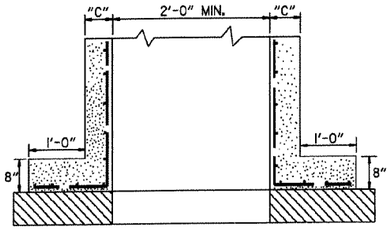
STANDARD DRAWING FES-2



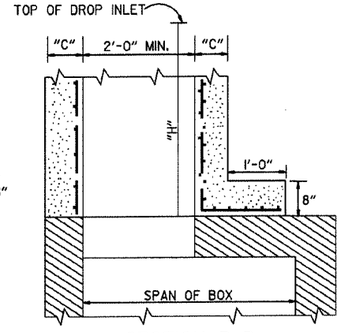
SECTION B-B



PLAN

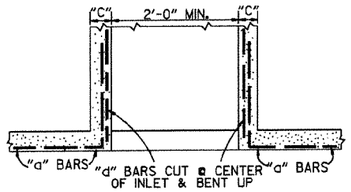


SECTION A-A

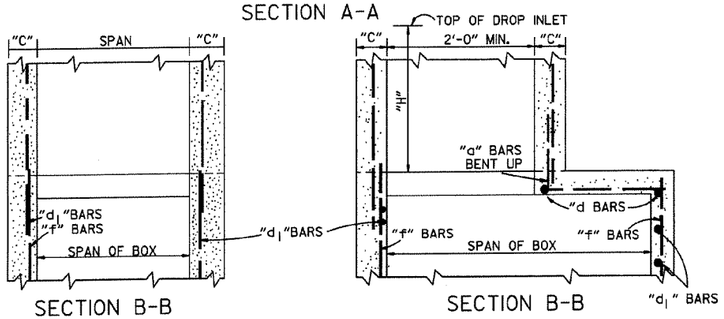


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



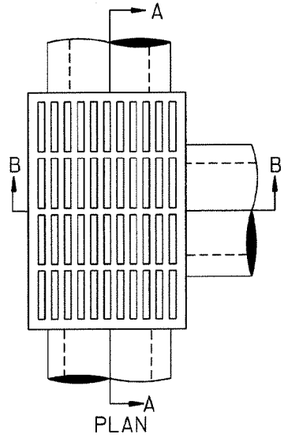
SECTION A-A



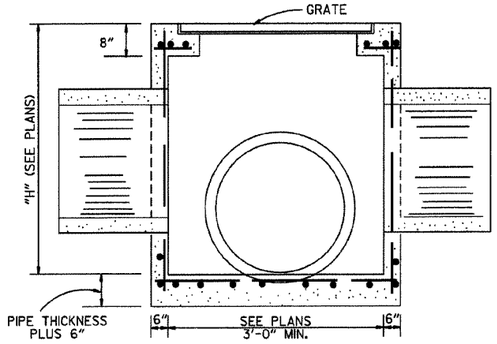
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

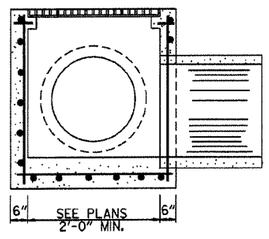


PLAN



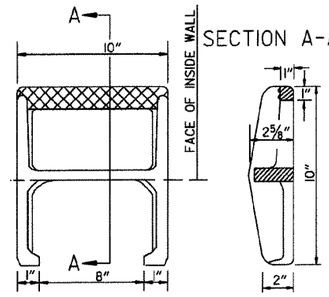
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

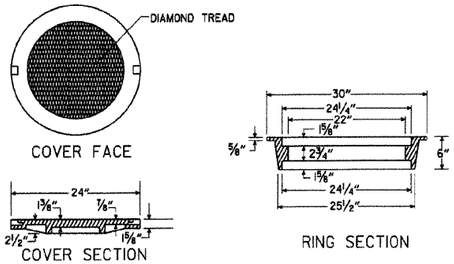


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

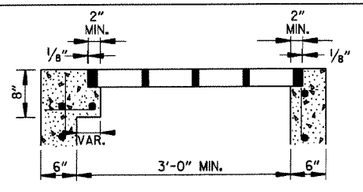
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

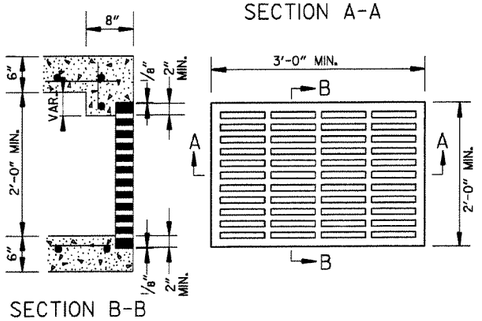


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



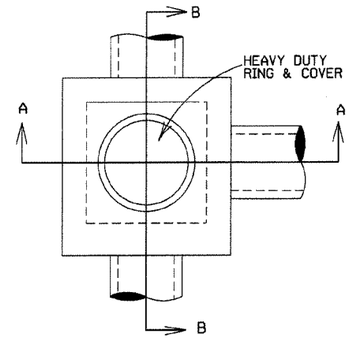
SECTION A-A



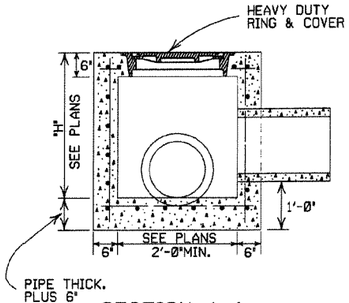
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

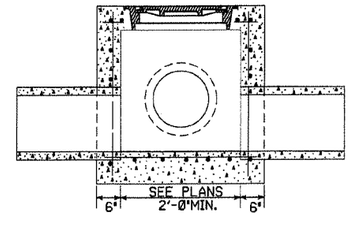


PLAN



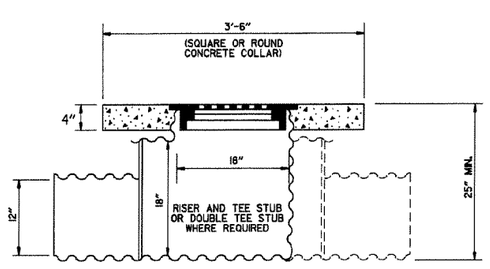
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

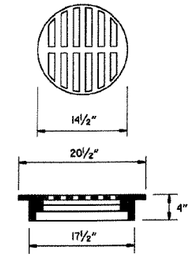


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

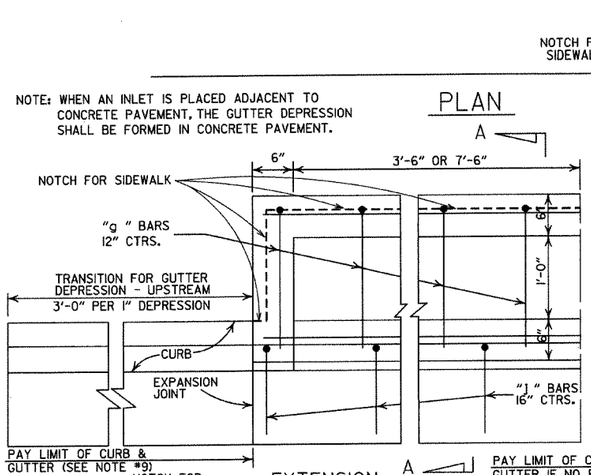
DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

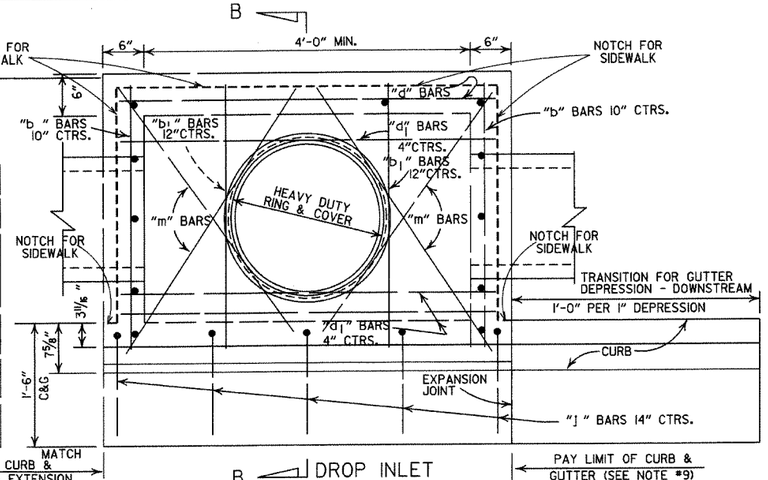
ARKANSAS STATE HIGHWAY COMMISSION

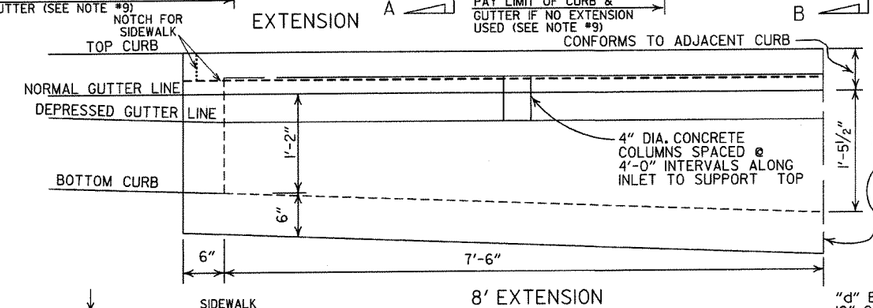
DETAILS OF DROP INLETS & JUNCTION BOXES

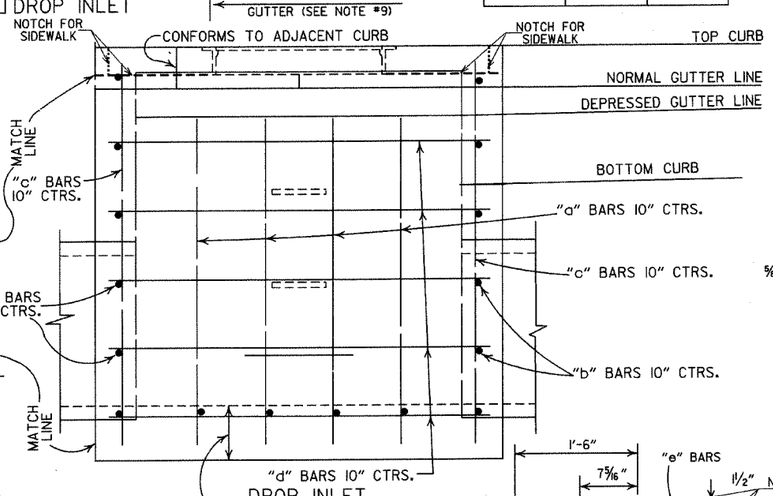
STANDARD DRAWING FPC-9

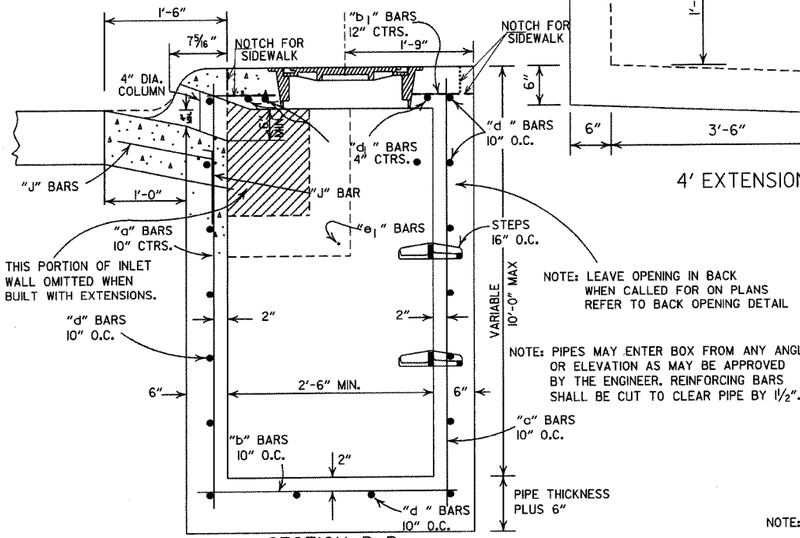
NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.

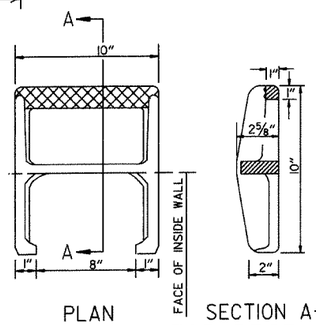






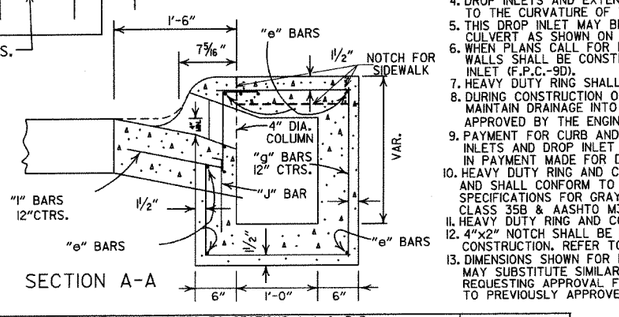






APPROX. WEIGHT = 11 LBS. (CAST IRON)

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

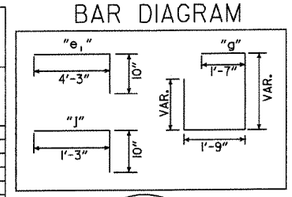
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

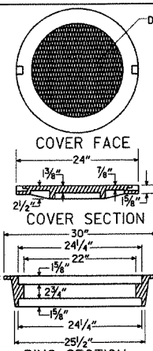
DROP INLET EXTENSION

4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET		
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

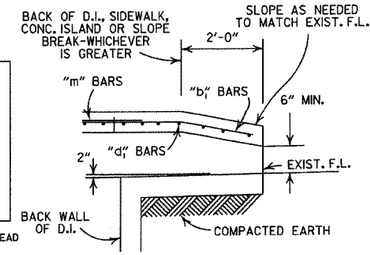
BAR DIAMOND





APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

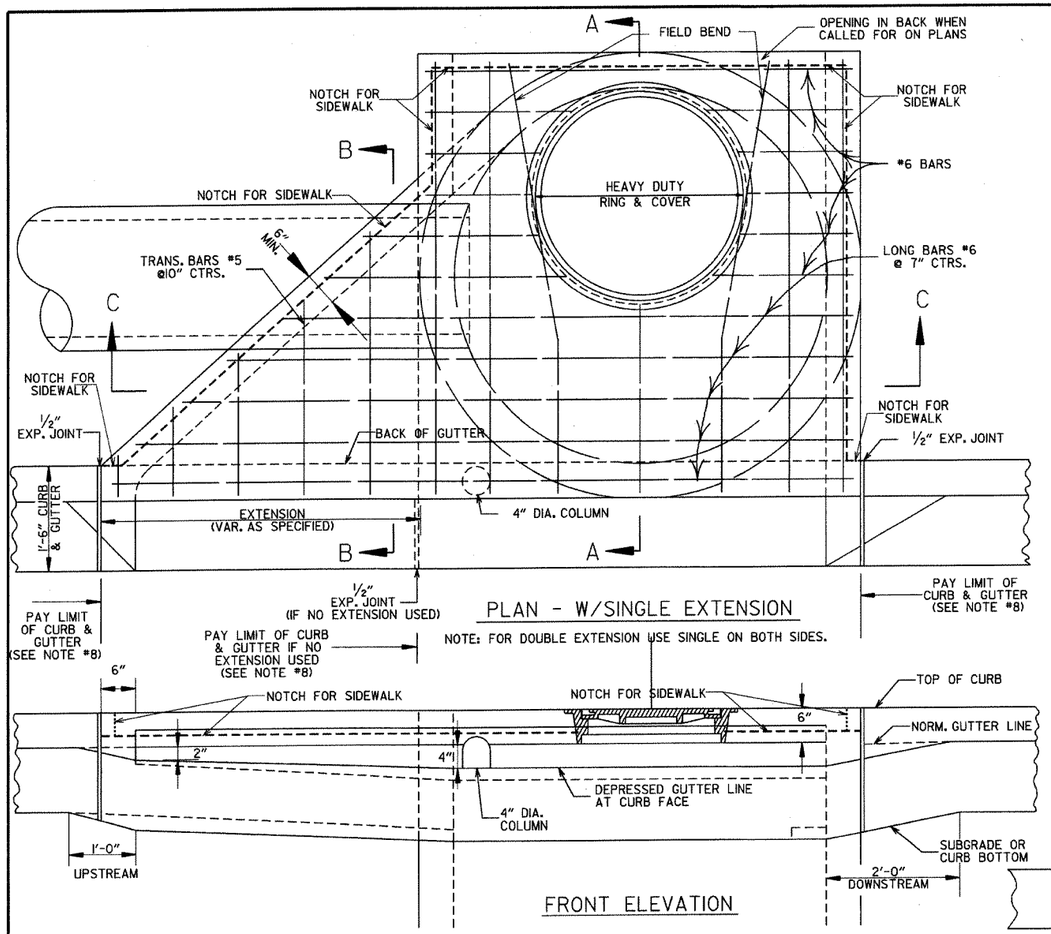
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

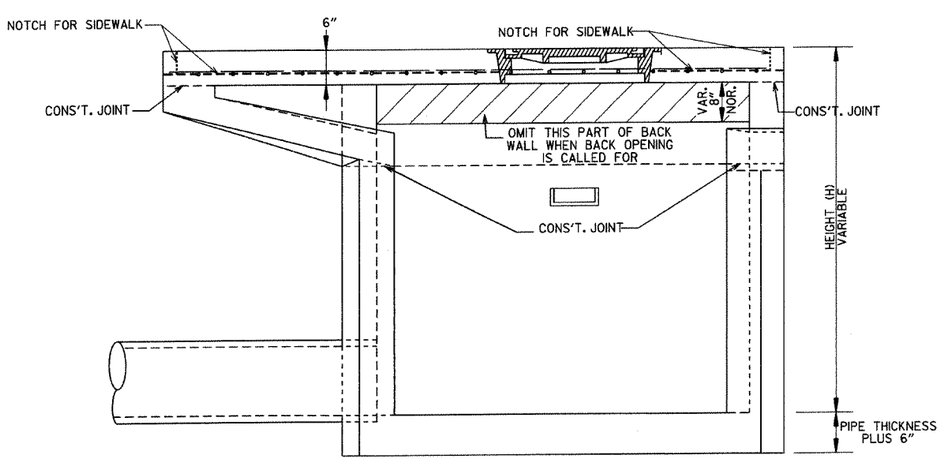
STANDARD DRAWING FPC-9E



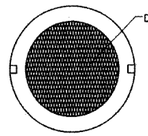
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

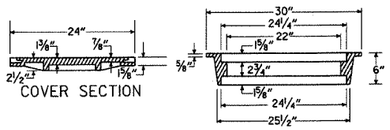
FRONT ELEVATION



SECTION C-C



COVER FACE



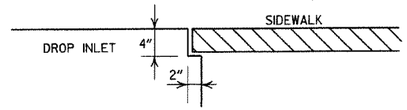
COVER SECTION

RING SECTION

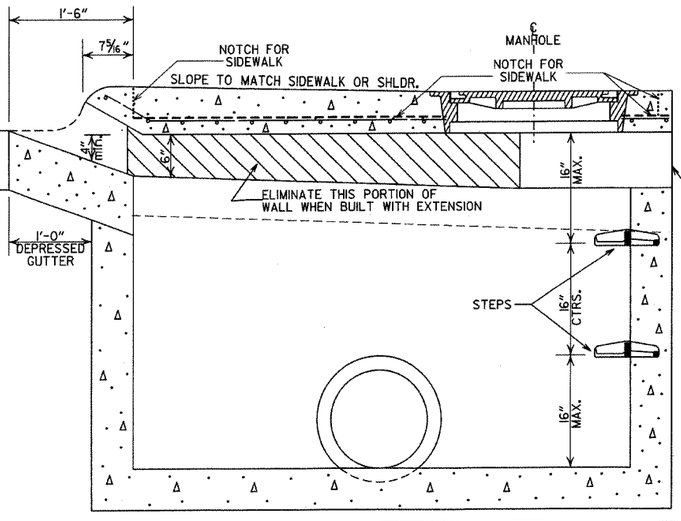
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

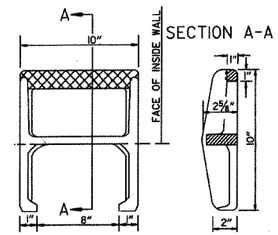
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A

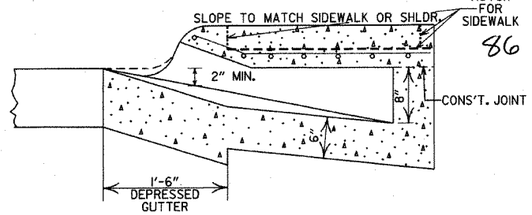


APPROX. WEIGHT = 11 LBS. (CAST IRON)

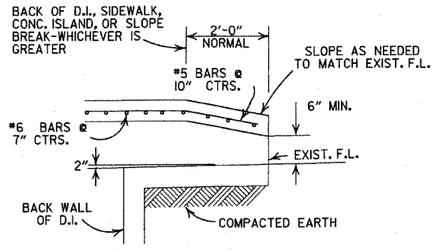
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

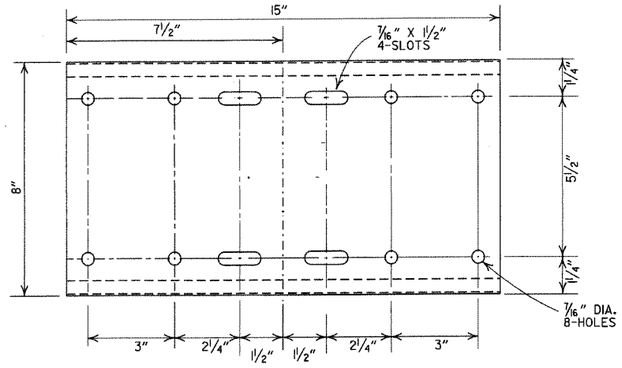
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 & ADJ. OPENING DIMENSION	
10-12-95	CORRECTED *6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE 8, MINIMUM WALL THICKNESS	513-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	635-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

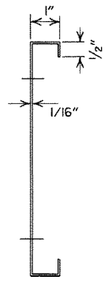
ARKANSAS STATE HIGHWAY COMMISSION

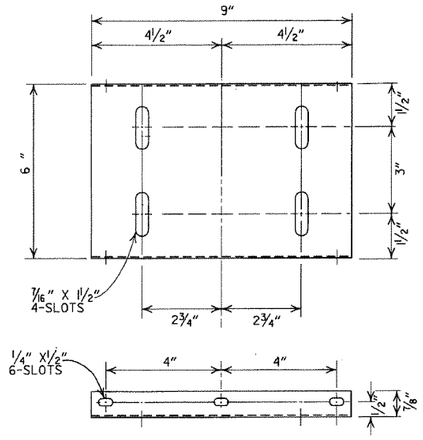
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

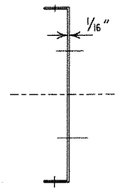


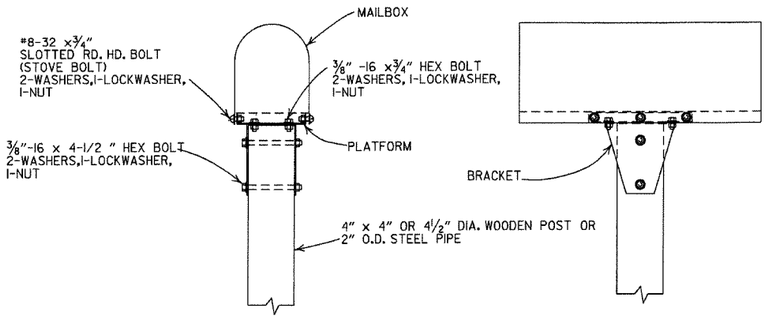
SHELF



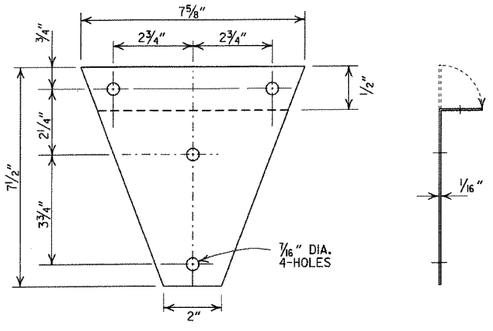


PLATFORM





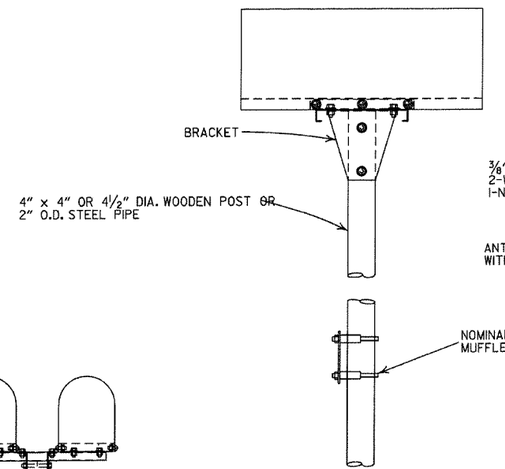
SINGLE INSTALLATION

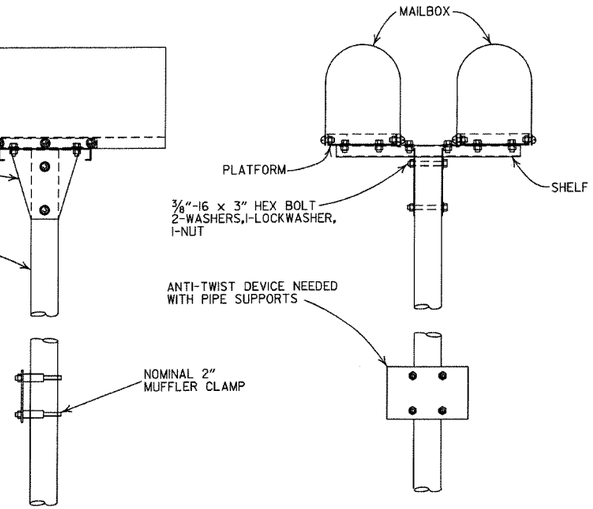


BRACKET

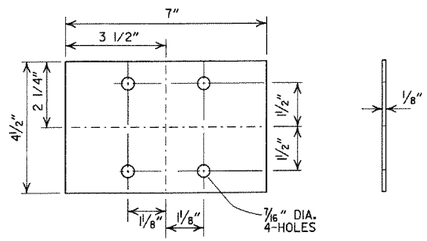
GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL. HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.

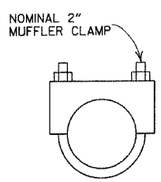




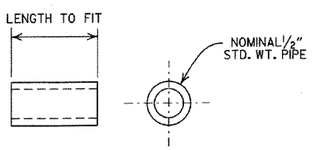
DOUBLE INSTALLATION



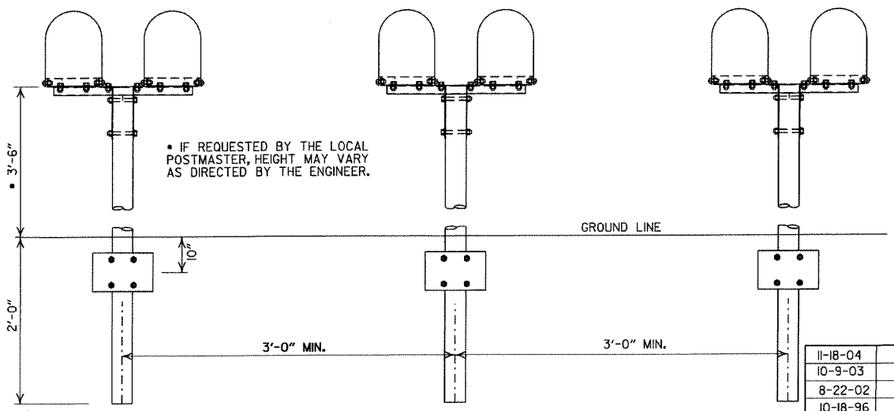
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

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	43⅞	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(ii).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

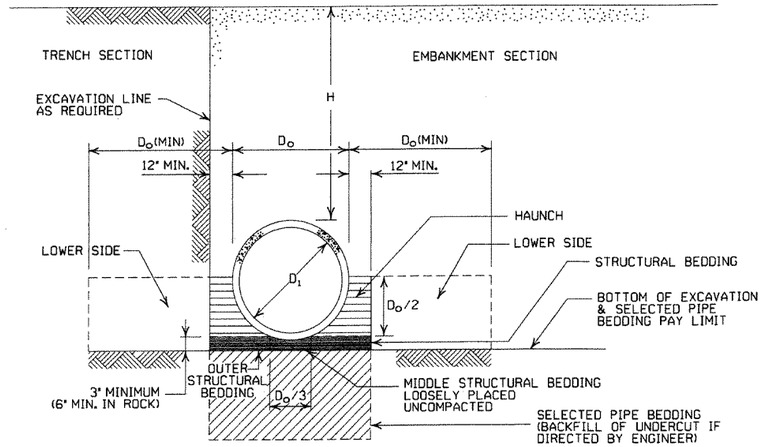
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
▨ = UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 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
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL					ALUMINUM				
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION		INSTALLATION			INSTALLATION		INSTALLATION	
				TYPE 1		TYPE 1			TYPE 1		TYPE 1	
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
15	17x13	3	0.064	2		15		0.060	2		15	
18	21x15	3	0.064	2		15		0.060	2		15	
21	24x18	3	0.064	2.25		15		0.060	2.25		15	
24	28x20	3	0.064	2.5		15		0.075	2.5		15	
30	35x24	3	0.079	3		12		0.075	3		12	
36	42x29	3½	0.079	3		12		0.105	3		12	
42	49x33	4	0.079	3		12		0.105	3		12	
48	57x38	5	0.109	3		13		0.135	3		13	
54	64x43	6	0.109	3		14		0.135	3		14	
60	71x47	7	0.138	3		15		0.164	3		15	
66	77x52	8	0.168	3		15						
72	83x57	9	0.168	3		15						
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM									
				INSTALLATION		INSTALLATION						
				TYPE 2	TYPE 1	TYPE 2	TYPE 1					
36	40x31	5	0.079	3	2	12	15					
42	46x36	6	0.079	3	2	13	15					
48	53x41	7	0.079	3	2	13	15					
54	60x46	8	0.079	3	2	13	15					
60	66x51	9	0.079	3	2	13	15					
66	73x55	12	0.079	3	2	15	15					
72	81x59	14	0.079	3	2	15	15					
78	87x63	14	0.079	3	2	15	15					
84	95x67	16	0.109	3	2	15	15					
90	103x71	16	0.109	3	2	15	15					
96	112x75	18	0.109	3	2	15	15					
102	117x79	18	0.109	3	2	15	15					
108	128x83	18	0.138	3	2	15	15					

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

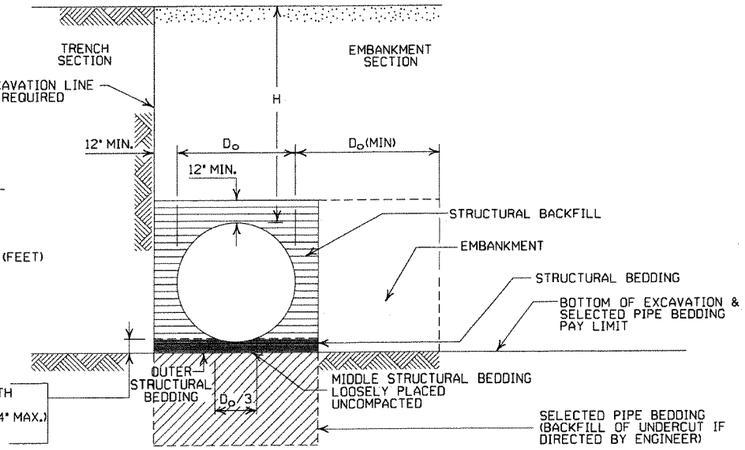
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
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

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 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
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"	"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"

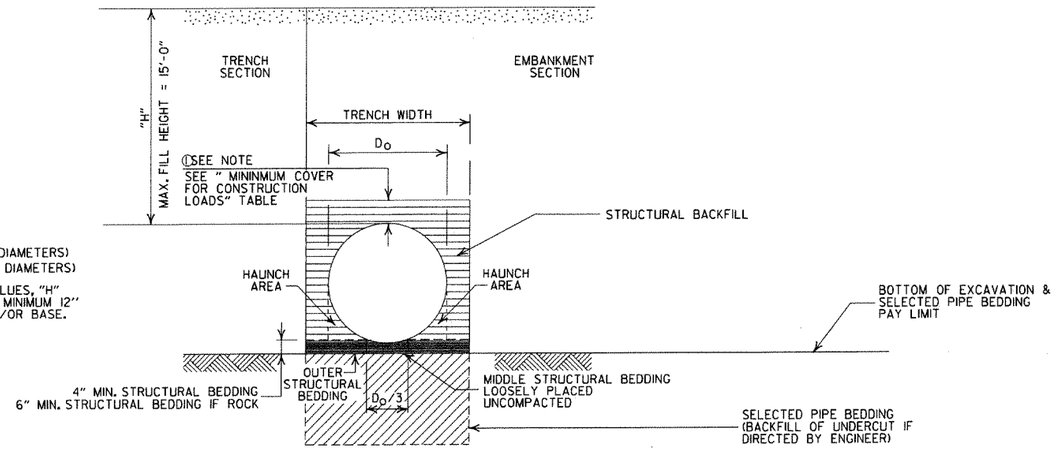
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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, 2003 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
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"

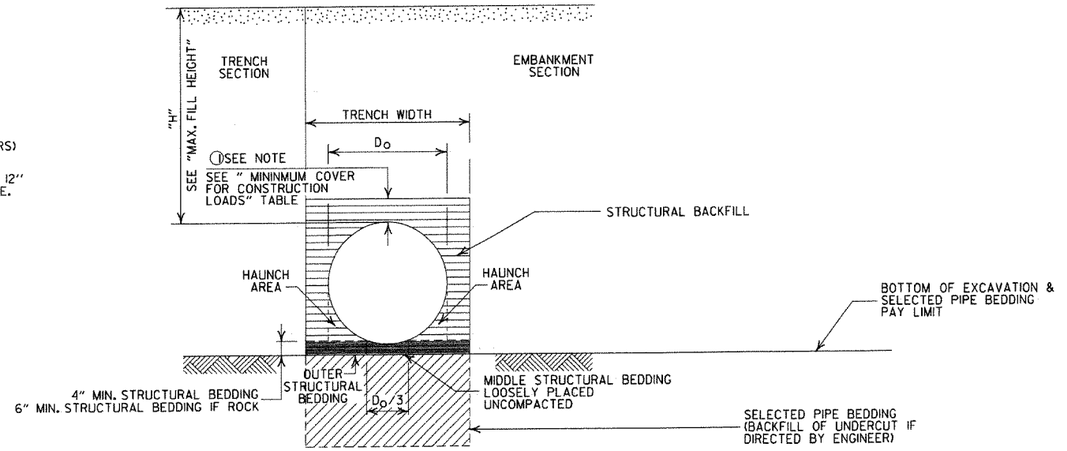
① NOTE:
12" MIN. (18" - 36" DIAMETERS)

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, 2003 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

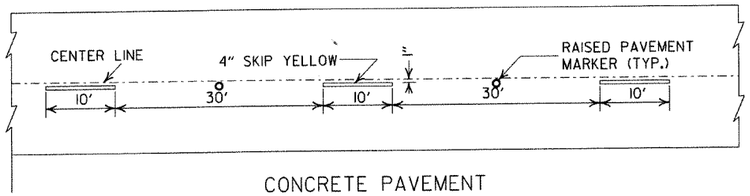
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

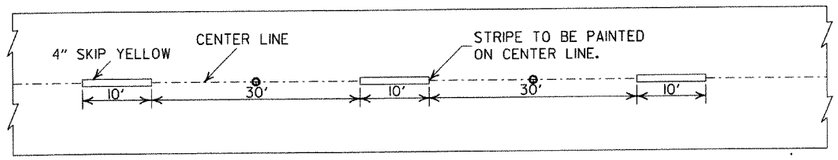
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

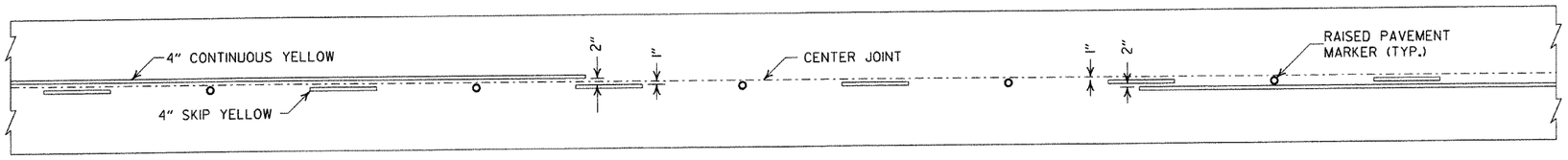


CONCRETE PAVEMENT

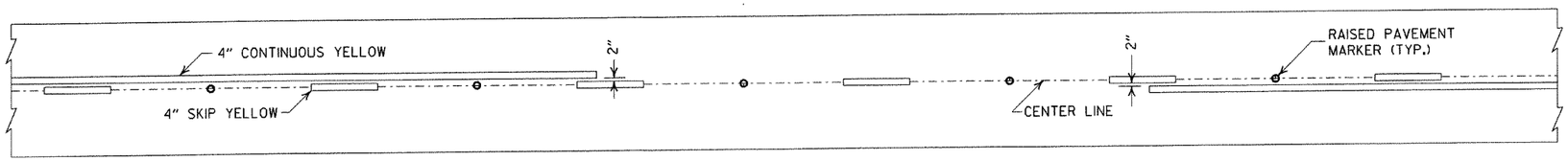


ASPHALT PAVEMENT

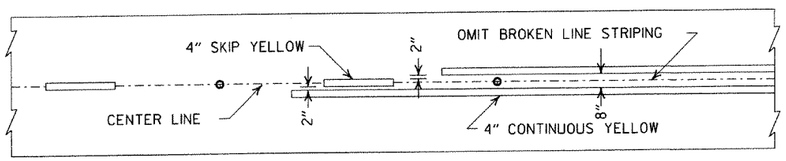
BROKEN LINE STRIPING



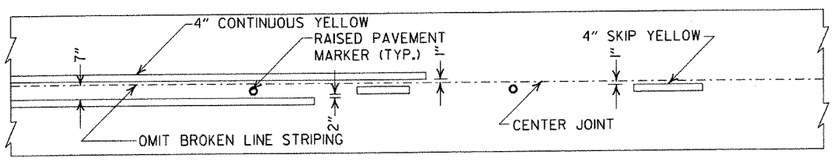
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

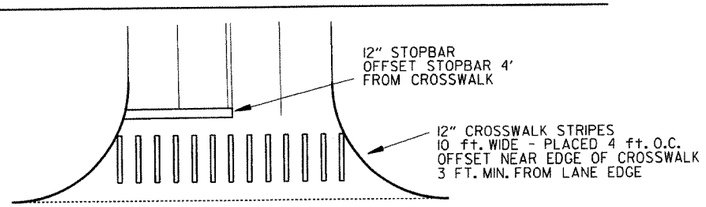


ASPHALT PAVEMENT



CONCRETE PAVEMENT

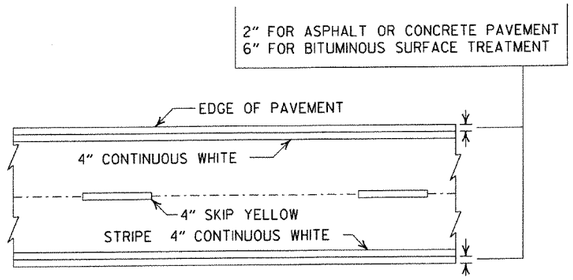
STRIPING AT ADJACENT NO PASSING LANES



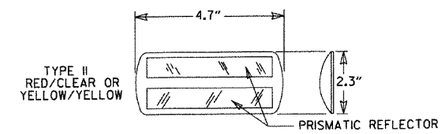
CROSSWALK AND STOPBAR DETAILS

NOTES:

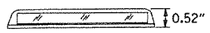
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". LATEST REVISION.

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.

DATE	REVISION	FILMED
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

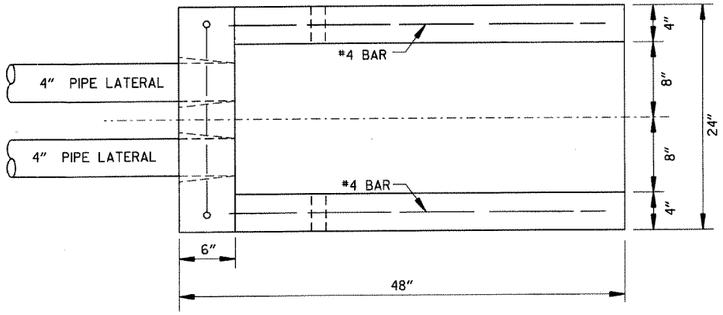
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

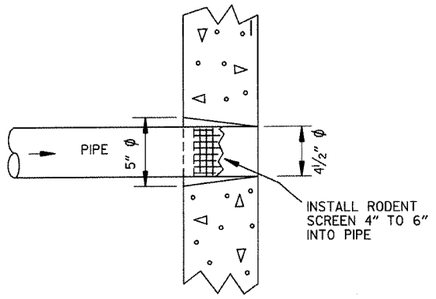
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

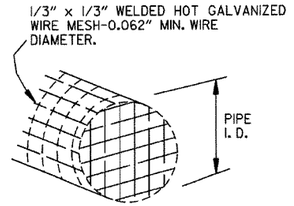
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



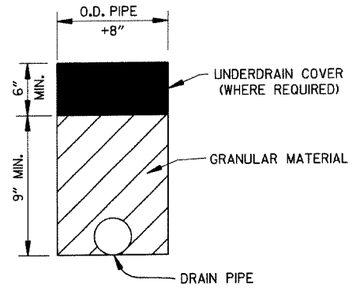
PLAN VIEW

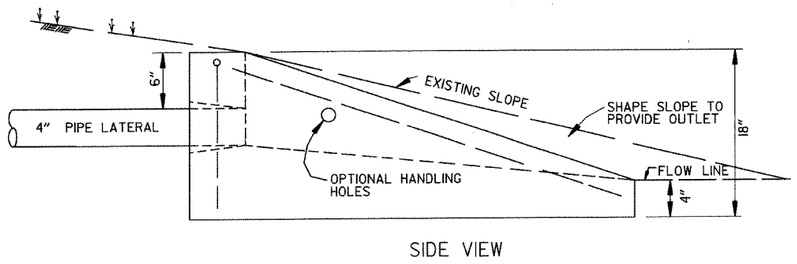


DETAIL OF HOLE FOR 4" PIPE

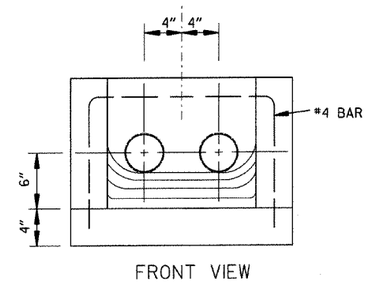


DETAIL OF RODENT SCREEN

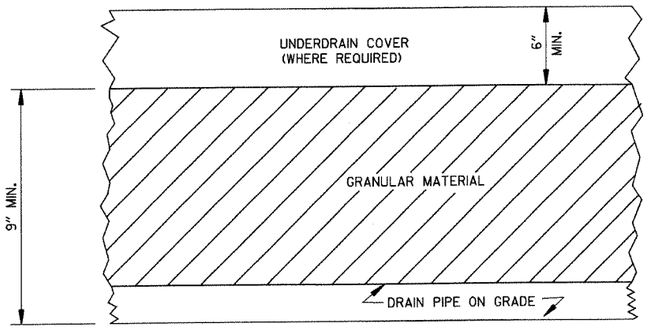




SIDE VIEW

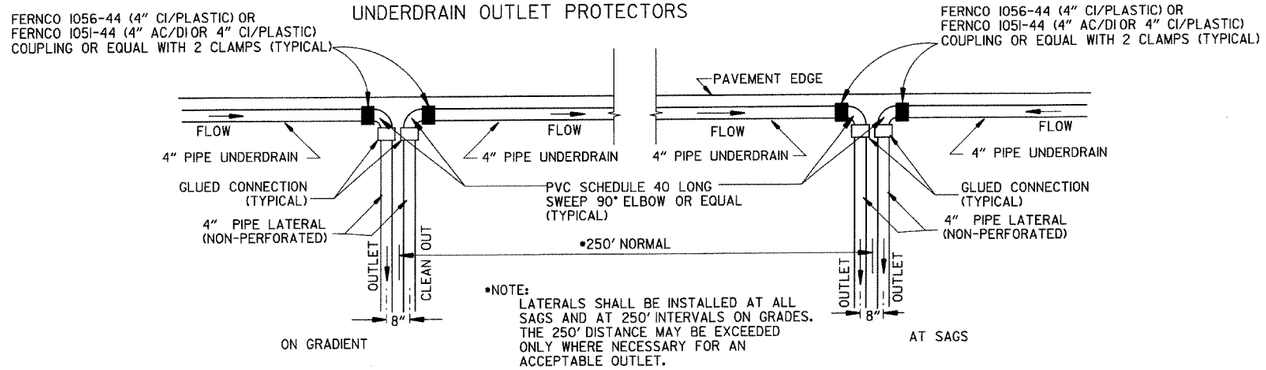


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
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

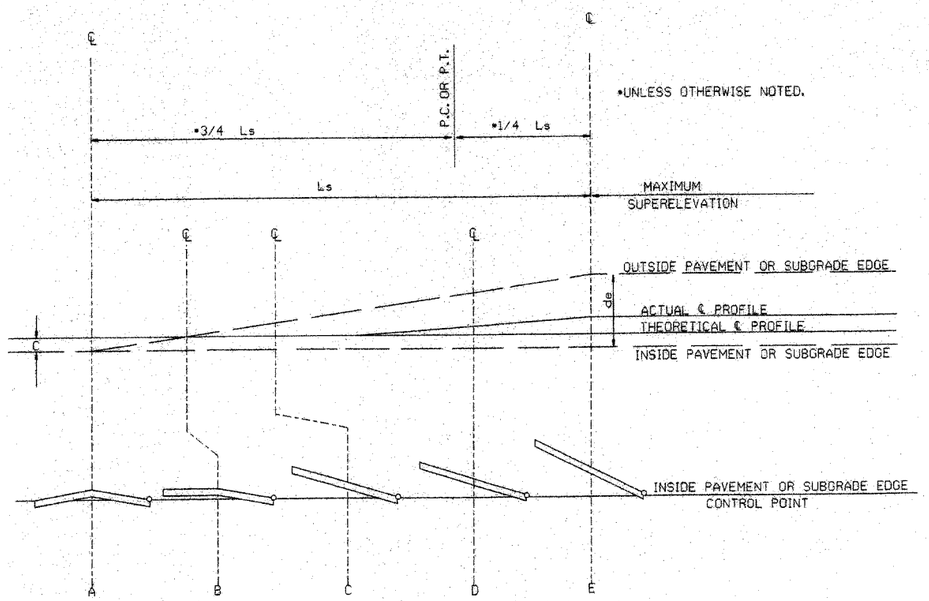
7-20-95 INSTD.PUI

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			0.043			0.061	205		0.072	245		0.082	275		0.098	360	
3° 30'	0.029			0.046			0.065	215		0.076	255		0.086	285		0.100	360	
3° 45'	0.031			0.049			0.069	225		0.080	265		0.090	295				
4° 00'	0.033			0.051			0.072	240		0.083	270		0.093	305				
4° 30'	0.037			0.056			0.078	250		0.087	280		0.096	315				
5° 00'	0.040			0.061			0.083	260		0.091	295		0.098	320				
5° 30'	0.043			0.066	185		0.088	270		0.094	300	350						
6° 00'	0.046			0.070	190		0.092	280		0.096	305							
6° 30'	0.050			0.074	200		0.095	285		0.100	315							
7° 00'	0.053			0.078	210		0.098	290										
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													
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	260													
13° 00'	0.080	180		0.100	250													
14° 00'	0.083	190																
15° 00'	0.086	195																
16° 00'	0.089	200																
17° 00'	0.091	200																
18° 00'	0.093	205																
19° 00'	0.095	210																
20° 00'	0.097	215	250															
21° 00'	0.098	215																
22° 00'	0.099	215																
23° 00'	0.099	215																
24° 00'	0.100	220																
	D MAX = 24° 45'			D MAX = 13° 15'			D MAX = 8° 15'			D MAX = 6° 30'			D MAX = 5° 15'			D MAX = 3° 30'		

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

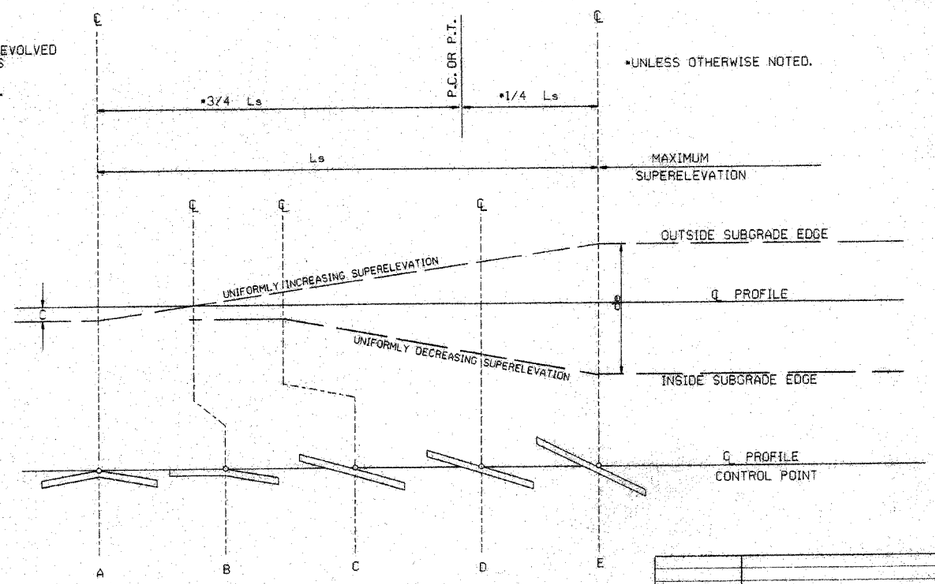
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

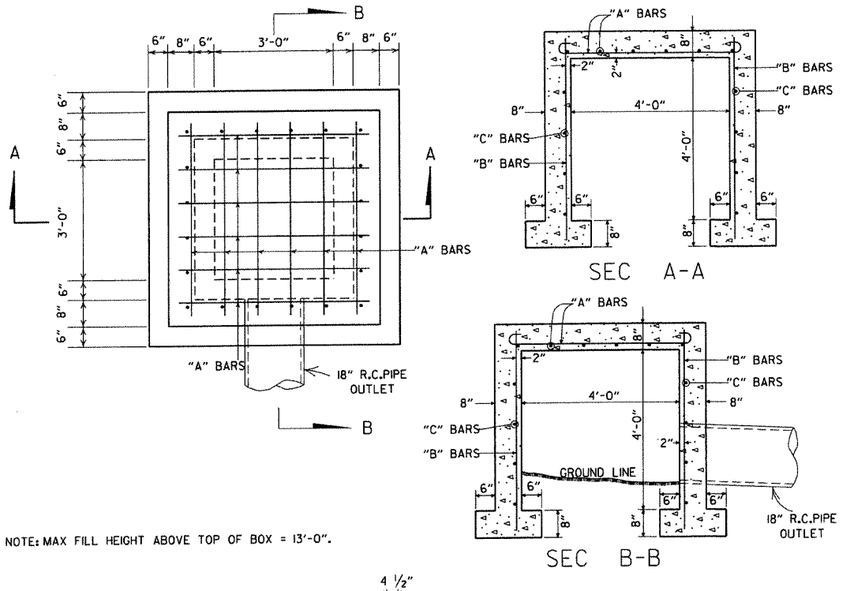
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

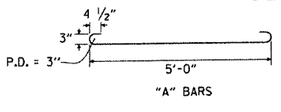


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS

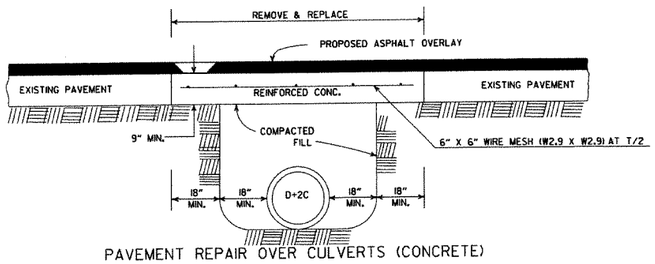


QUANTITIES

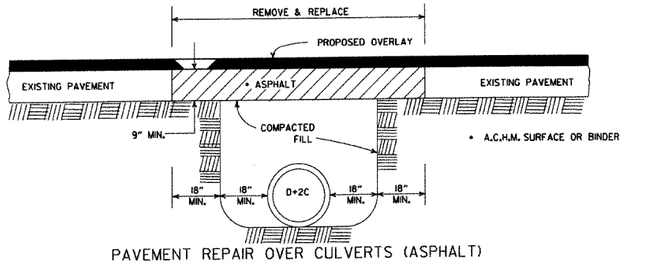
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



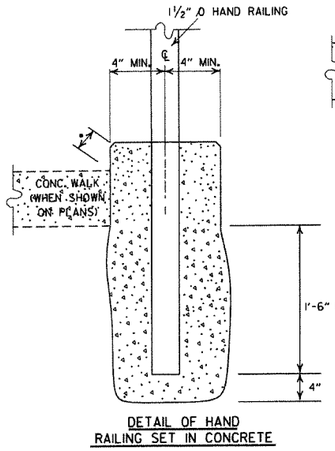
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



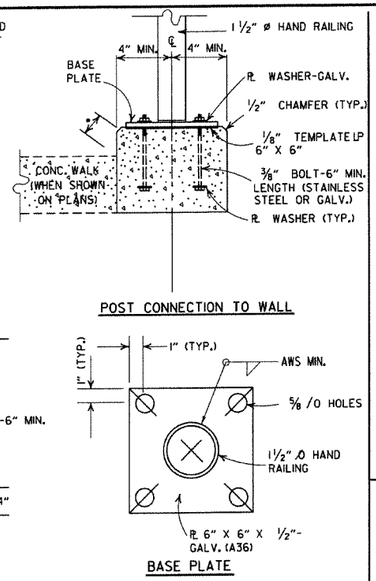
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



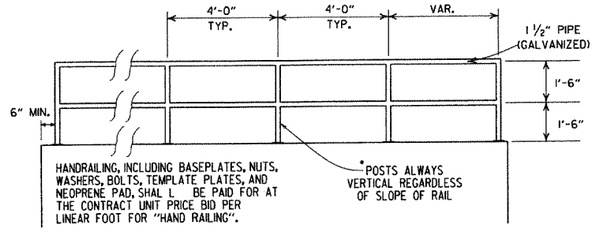
DETAIL OF HAND RAILING SET IN CONCRETE



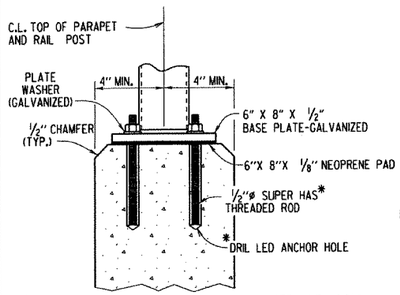
POST CONNECTION TO WALL

BASE PLATE

POST CONNECTION DETAILS



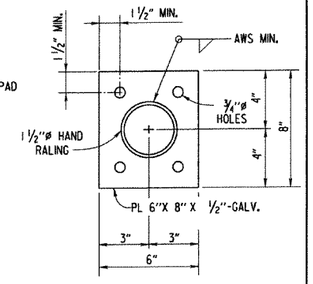
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

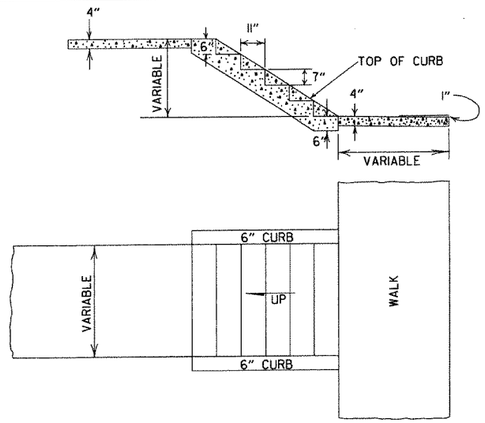
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

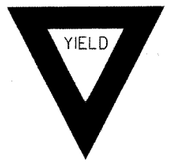
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

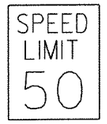
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

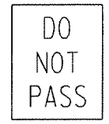
R2-5A

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

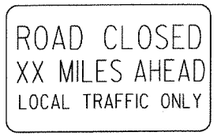
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

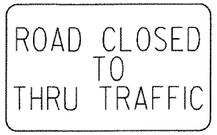
48"X30"

R11-3A



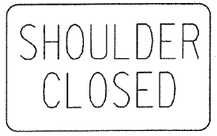
60"X30"

R11-4



60"X30"

RSP-1



48"X30"

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"

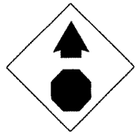
W1-6

STD. 48"X24"
SPECIAL 60"X30"

W1-8

STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1

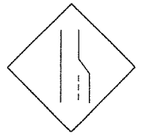


STD. 36"X36"
SPECIAL 48"X48"

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"

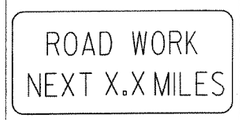
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

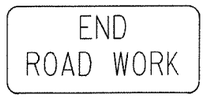
STD. 36"X36"
FWY. 48"X48"

G20-1



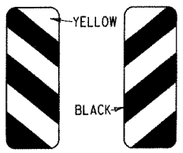
60"X24"

G20-2



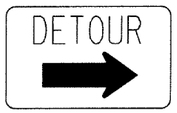
48"X24"

OM-3L OM-3R



12"X36"

M4-9

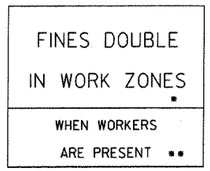


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

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.

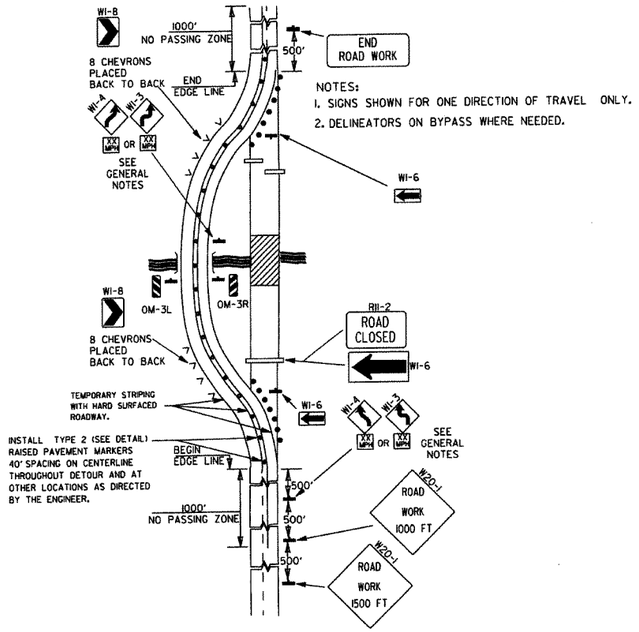
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

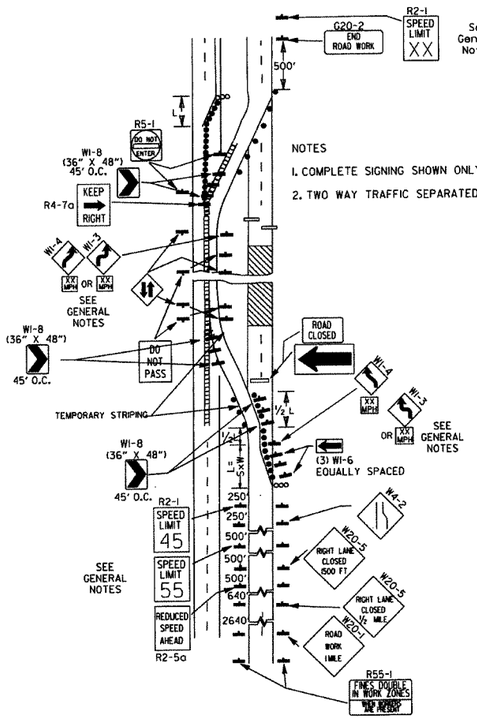
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



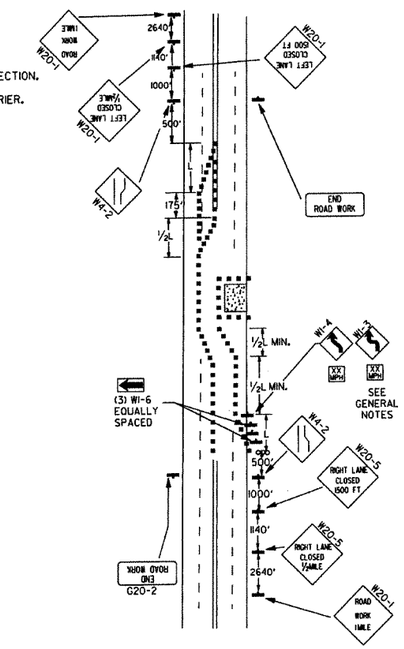
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

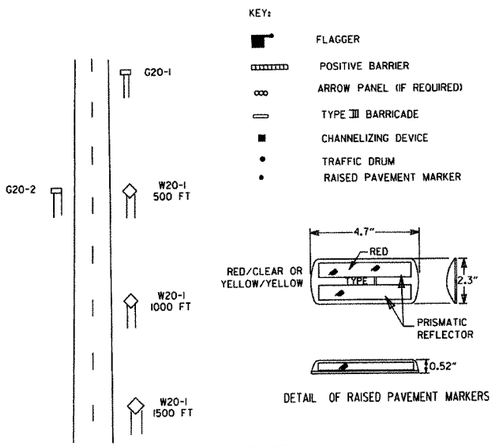


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

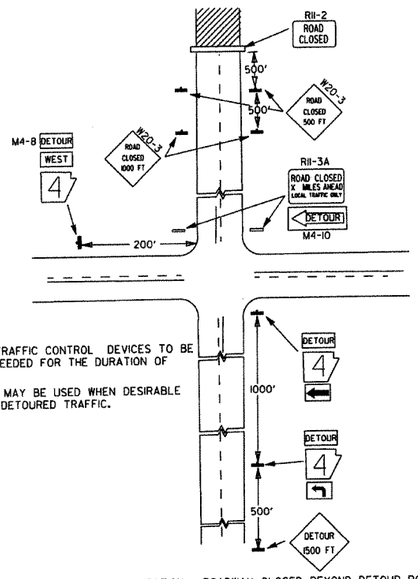
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ 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.

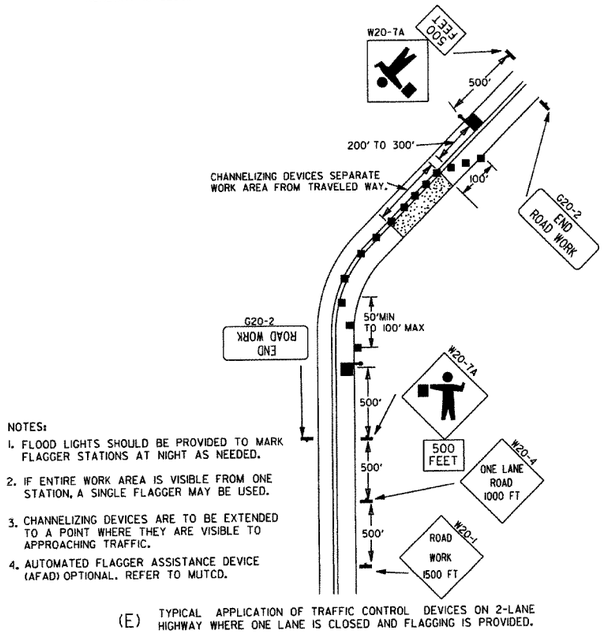
GENERAL NOTES:

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 R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.



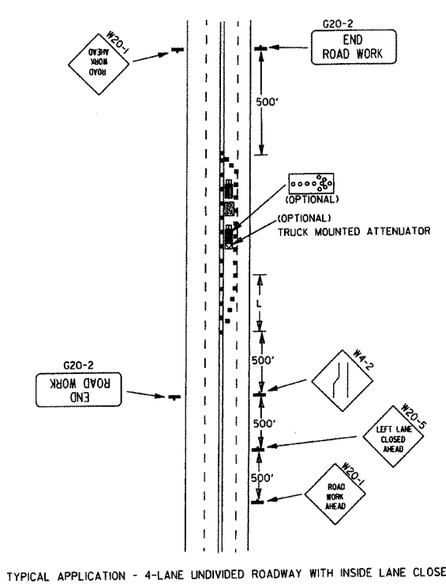
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



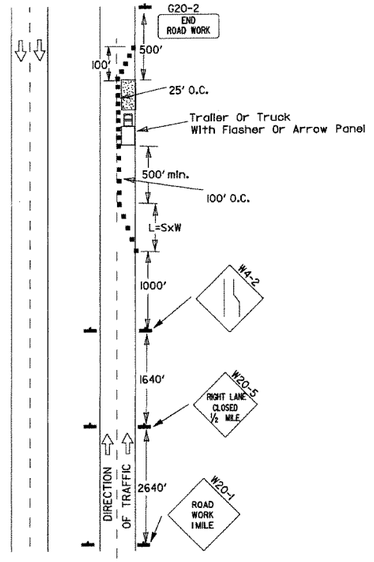
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

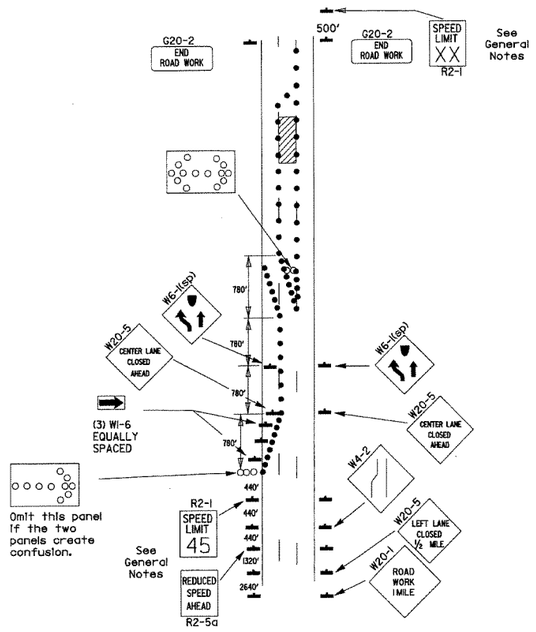
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

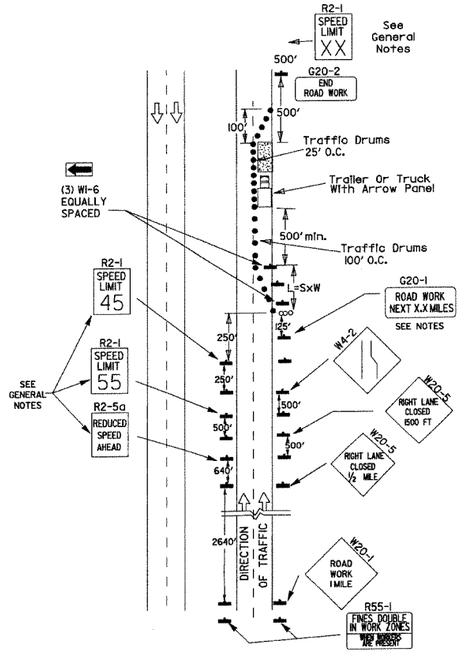
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

○○○ Arrow Panel (If Required)

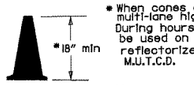
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

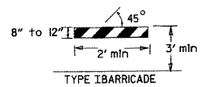
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional 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.

Channelizing devices



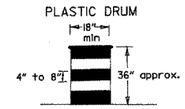
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

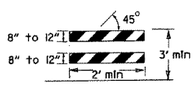
CONES



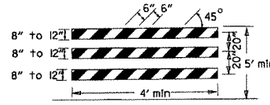
TYPE I BARRICADE

PLASTIC DRUM



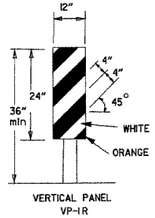


TYPE II BARRICADE



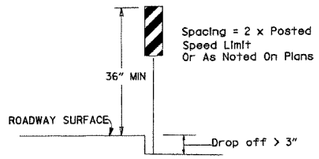
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



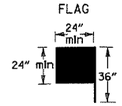
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

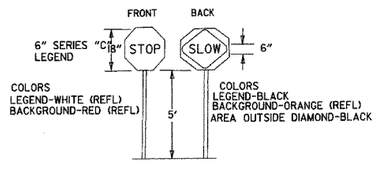
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

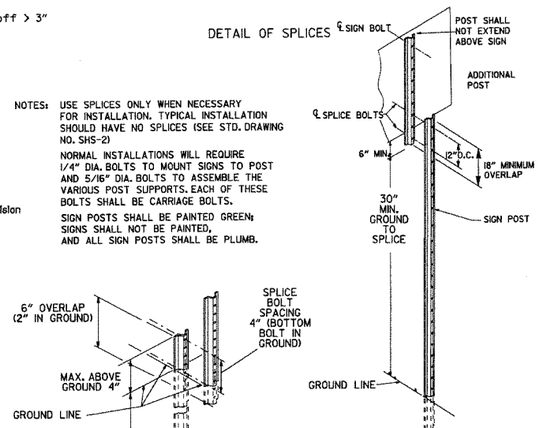
FLAG



Flag shall be of good grade red material

STOP SLOW PADDLE

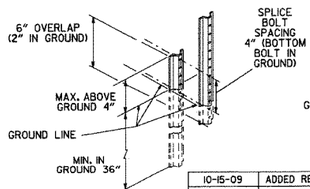


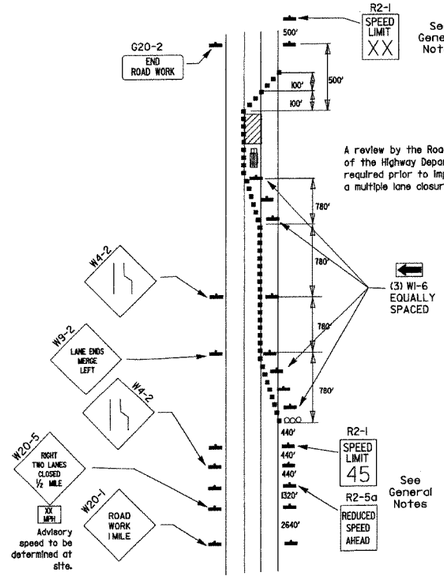


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

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.





(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

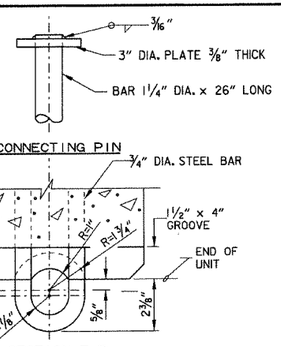
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

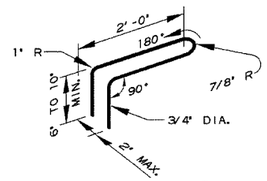
REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 1 1/2", ±9", 2'-1 3/8", 4 3/8"

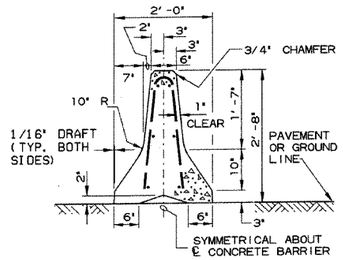


SECTION E-E

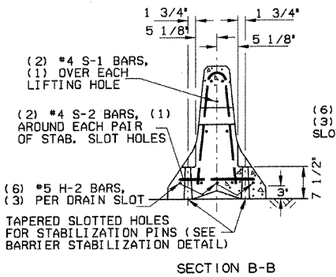
CONNECTION DETAILS



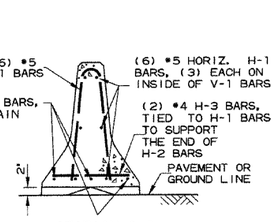
CONNECTION LOOP



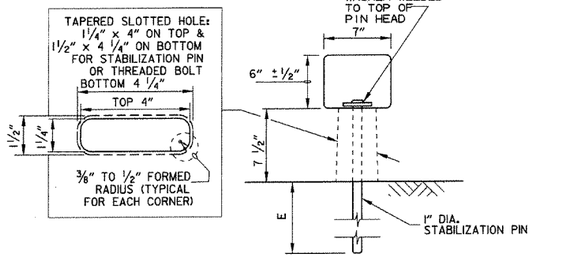
SECTION A-A



SECTION B-B



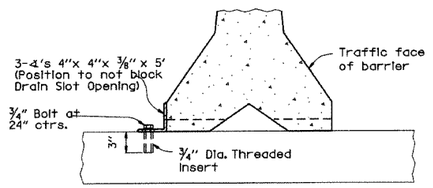
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

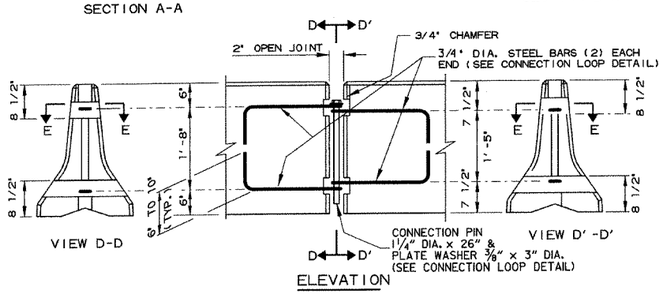
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. 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

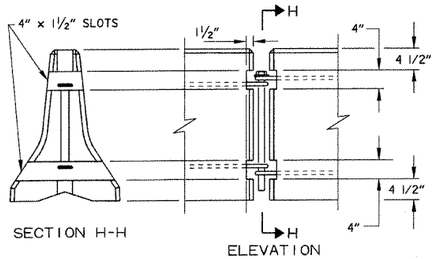
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

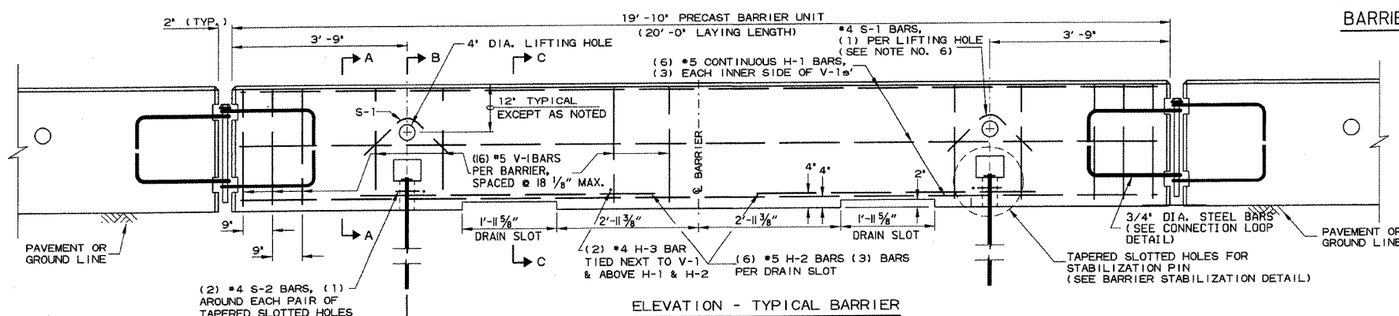
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

(1) The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

(2) Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier".
The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

(3) Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

(4) Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

(5) Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

(6) A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

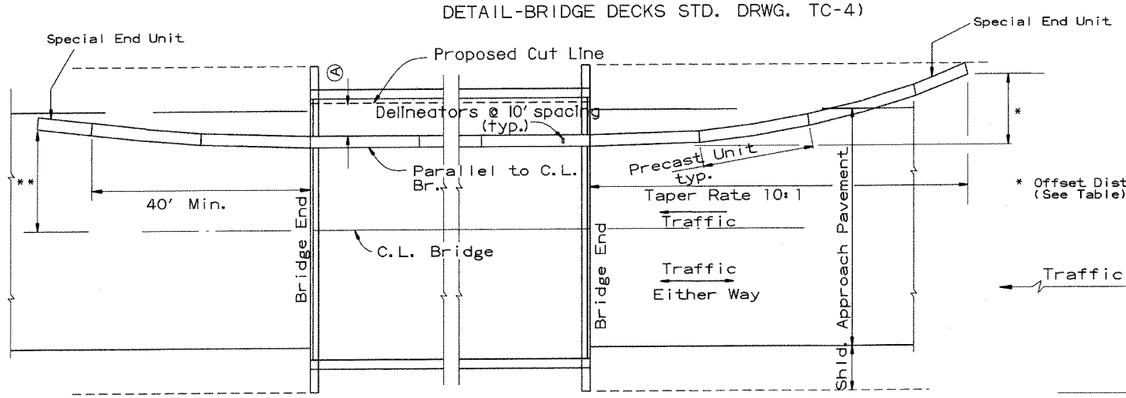
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

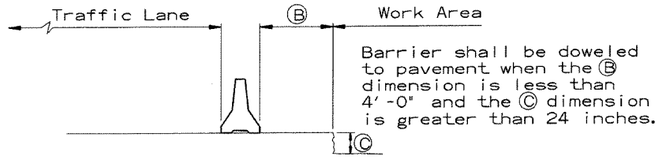
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

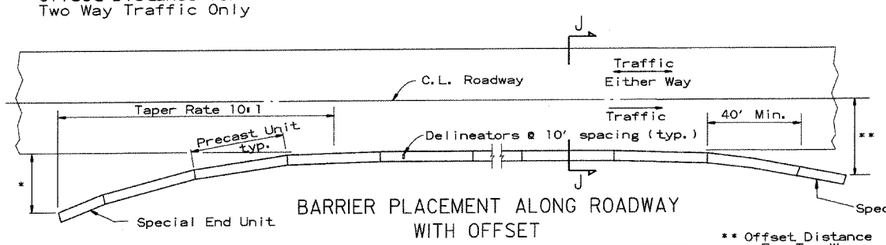


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

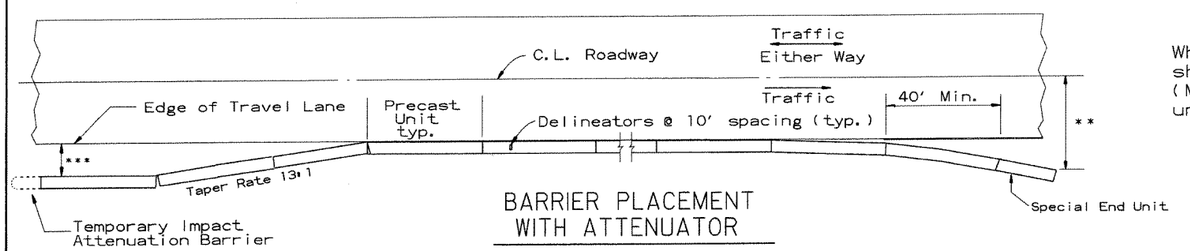
* Offset Distance (See Table)

** 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.

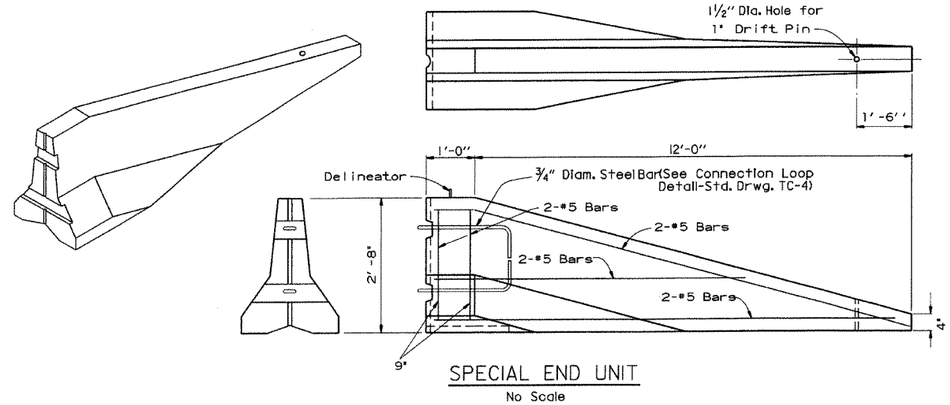


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

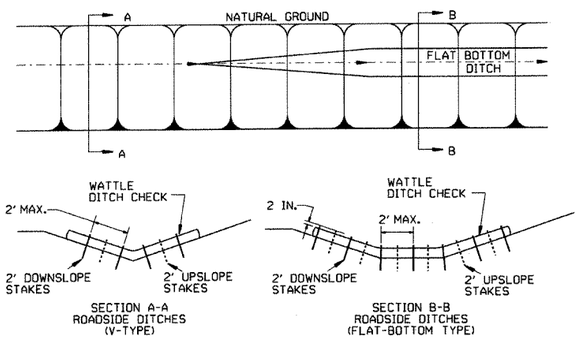
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

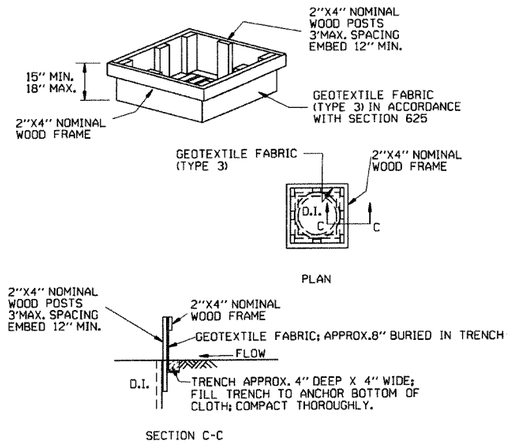
STANDARD DRAWING TC-5

GENERAL NOTES

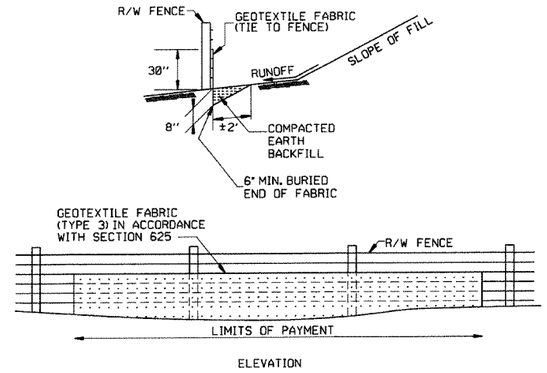
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

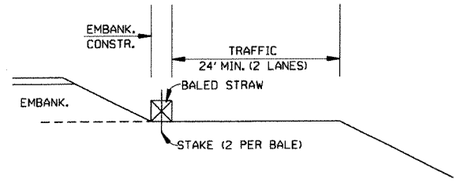
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

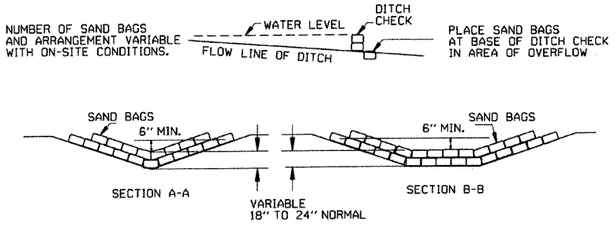
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

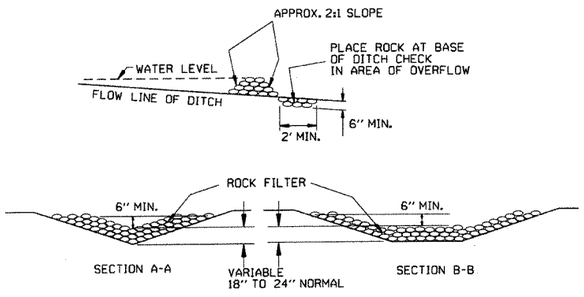
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



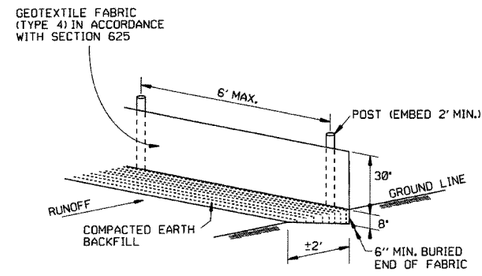
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

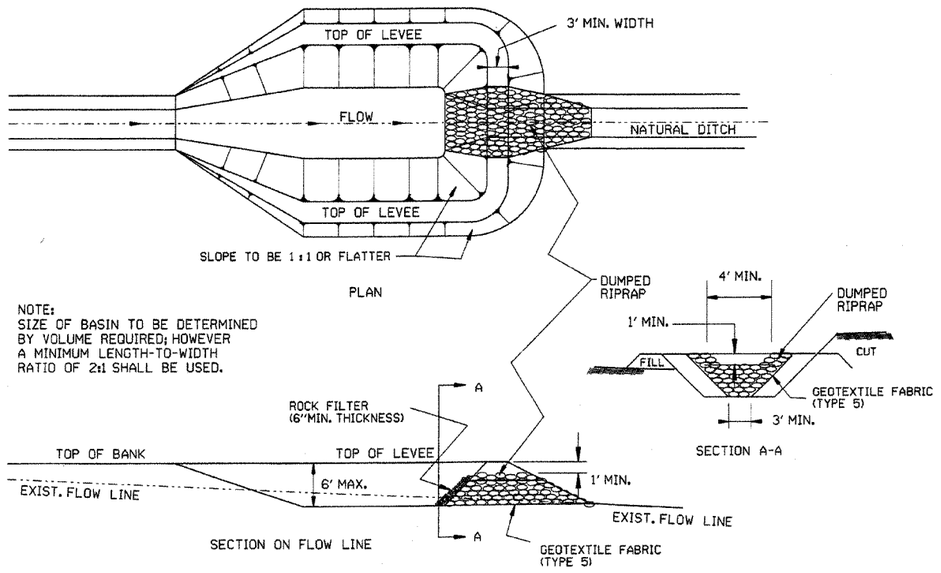
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

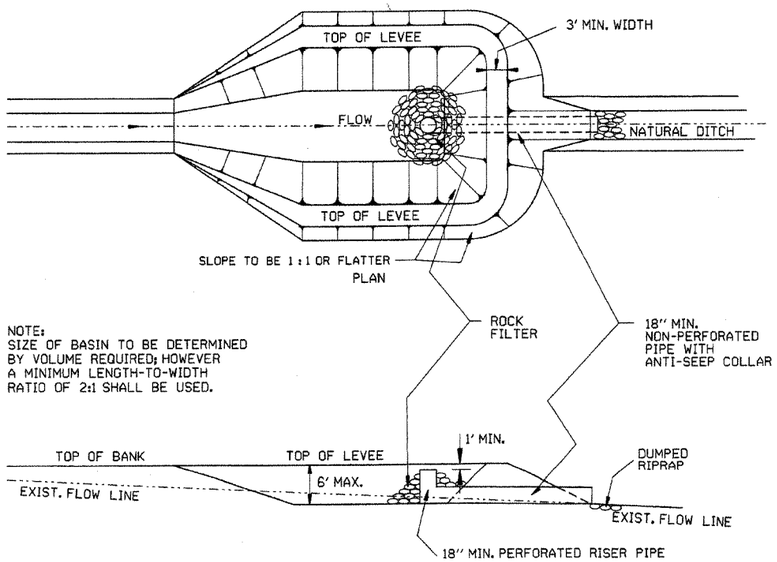
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

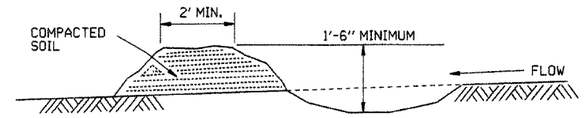
STANDARD DRAWING TEC-1



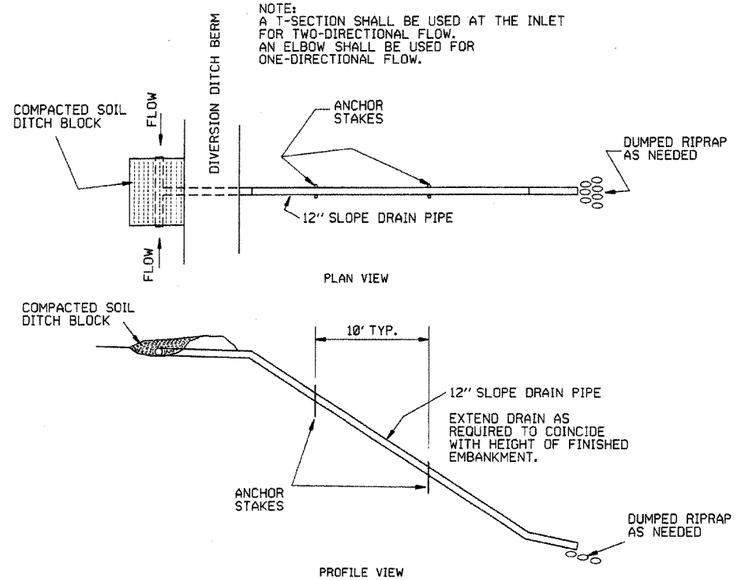
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



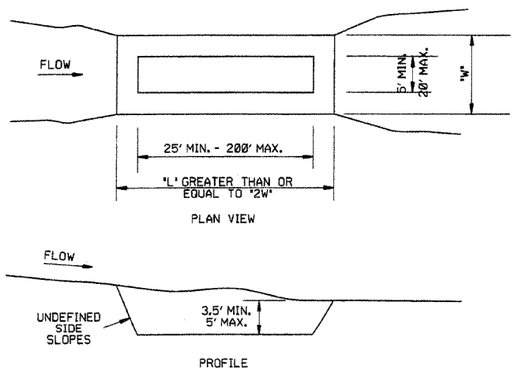
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

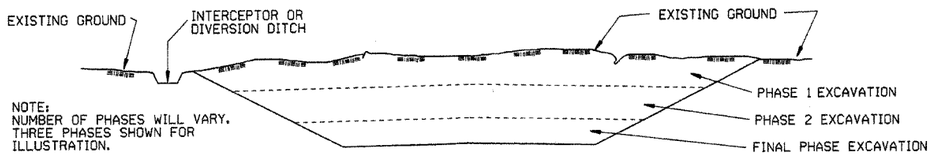
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



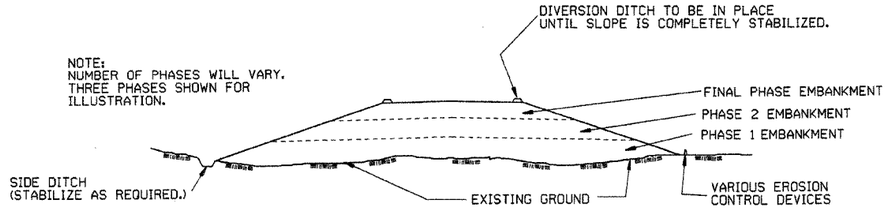
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

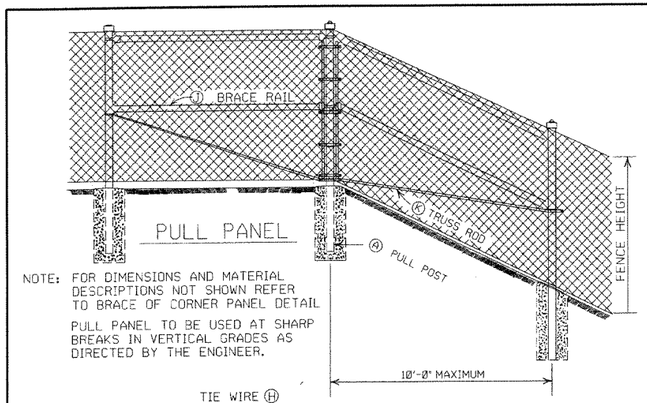
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

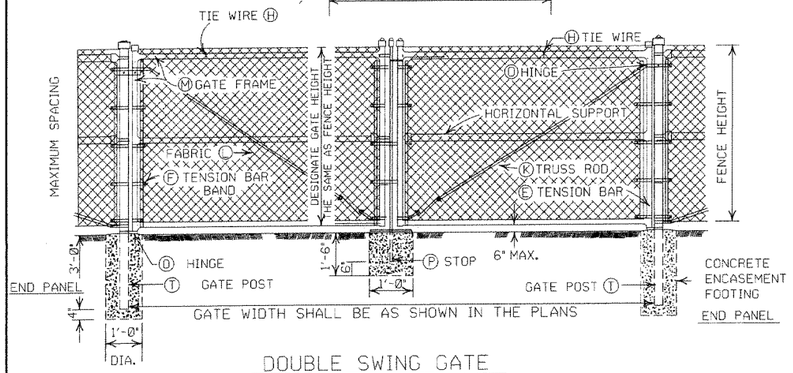
STANDARD DRAWING TEC-3



PULL PANEL

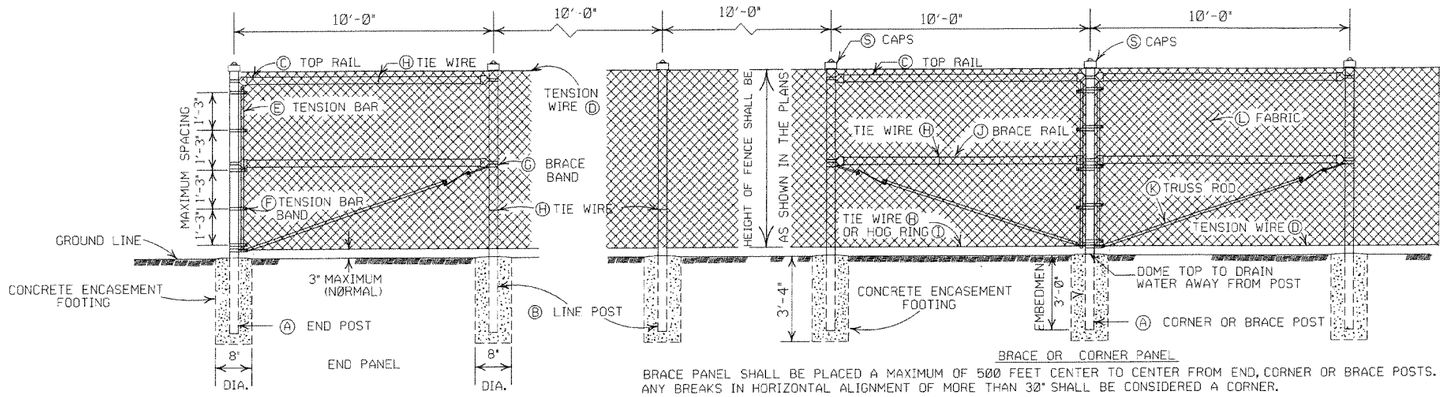
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



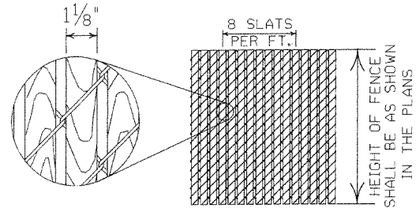
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

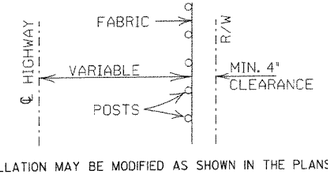
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS		(C) TOP RAIL			(D) TENSION WIRE		(E) TENSION BAR		(F) TENSION BAR BAND			(G) BRACE BAND	
		SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE	BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF 5/16" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3' O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.122	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

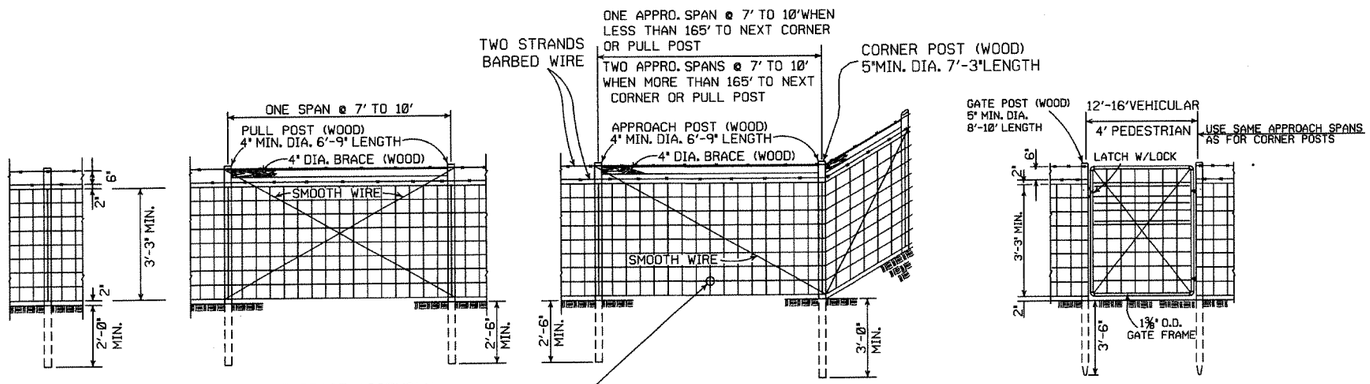
EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

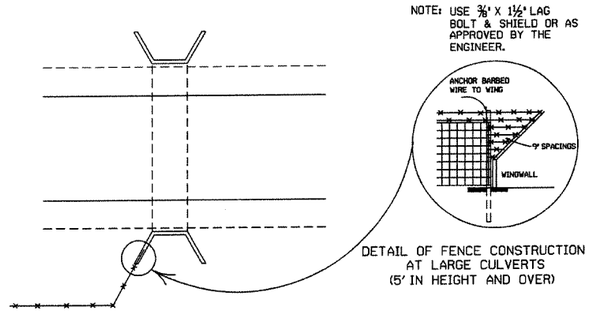
DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

STANDARD DRAWING WF-3





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.

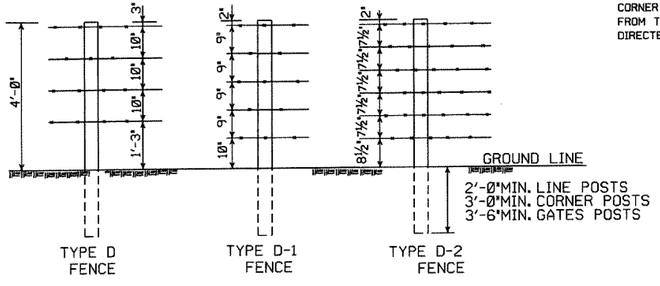
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 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.

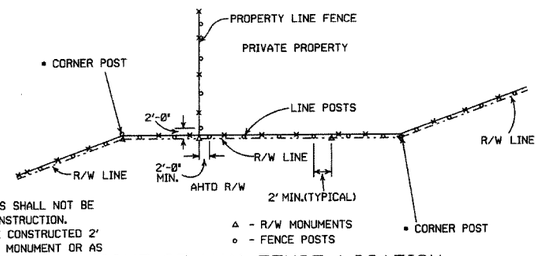
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

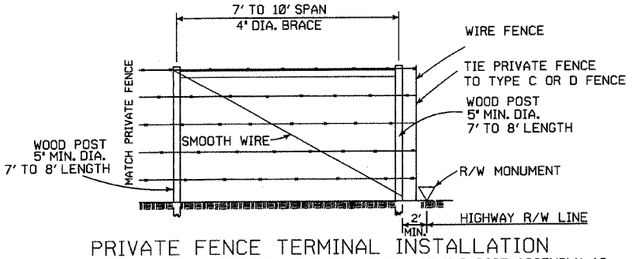


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



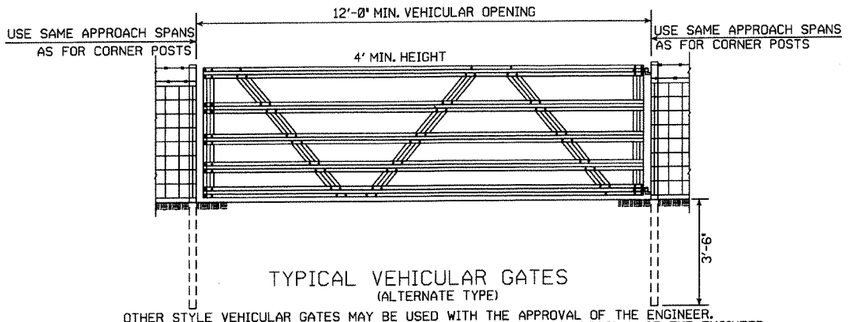
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

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)

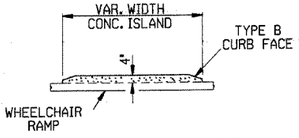
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK)SHALL MEET THE APPROVAL OF THE ENGINEER.

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

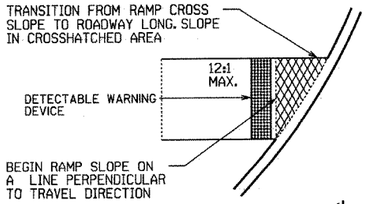
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4



CONCRETE ISLAND DETAIL



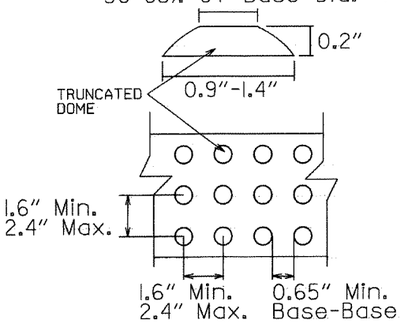
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

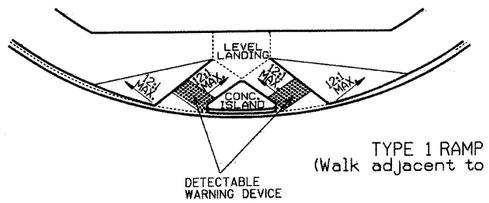
RADIUS "R" FEET	DISTANCE "X" FEET	DISTANCE "Y" FEET	LENGTH "L" FEET	RAMP AREA "A" SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

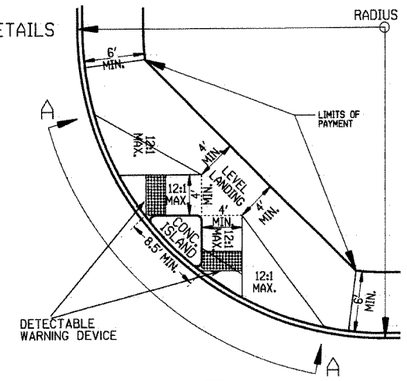
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).

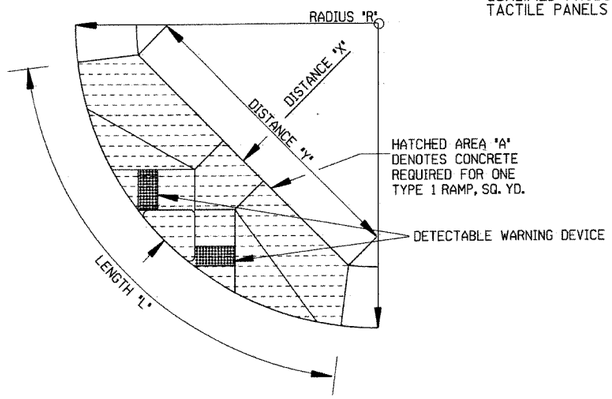


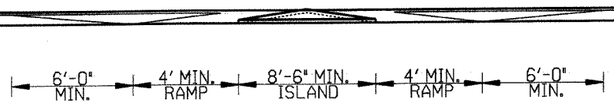
DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)





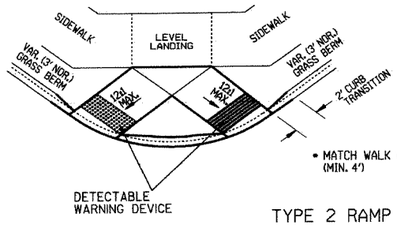


SECTION A-A

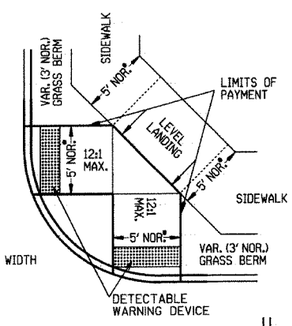
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

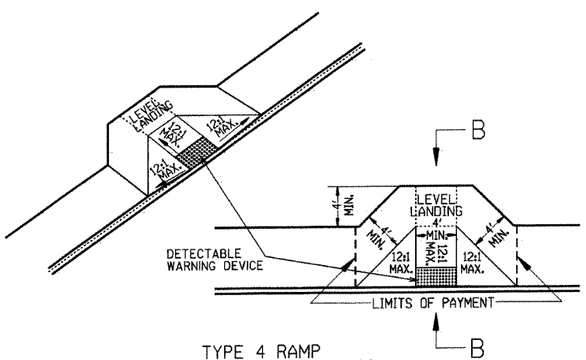
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

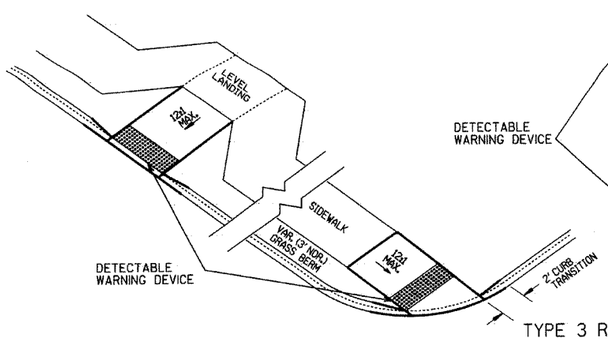


TYPE 2 RAMP

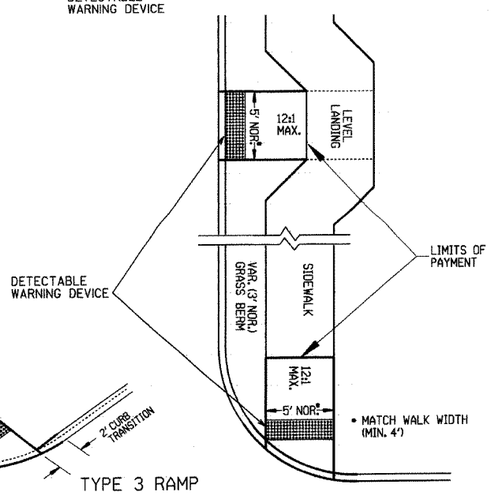


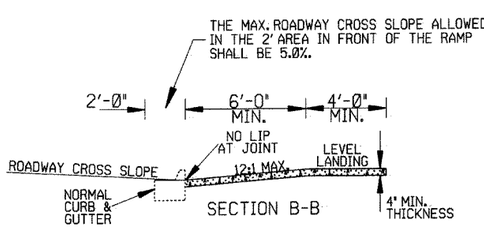


TYPE 4 RAMP
(Walk adjacent to curb)



TYPE 3 RAMP





SECTION B-B

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD.SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM:8:1TO12:1MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	-------
6-02-76	ISSUED-P.H.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

STANDARD DRAWING WR-1

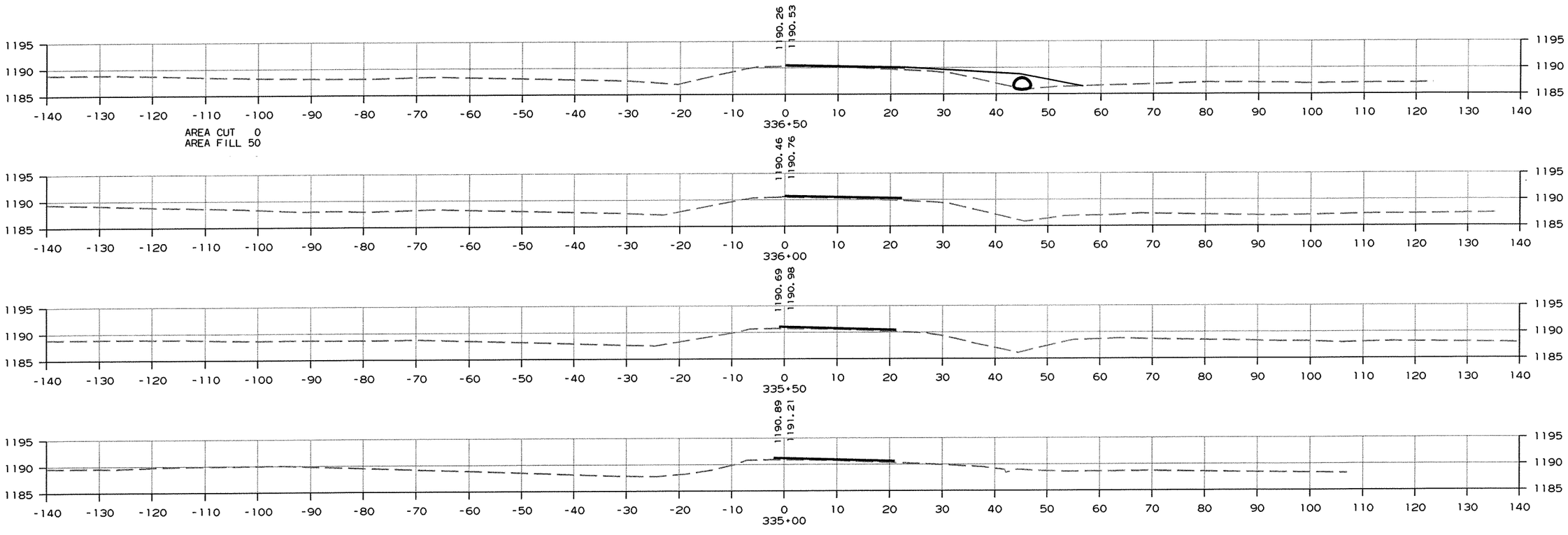
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	105	114

(2) CROSS SECTIONS

102

STAGE 2 STAGE 3 STAGE 4

STAGE 2 STAGE 3 STAGE 4



8/31/2012

R040569.DGN

CROSS SECTION STA. 335+00 TO STA. 336+50

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	106	114

(2) CROSS SECTIONS

STAGE 2 STAGE 3 STAGE 4

STA. 339+65 INSTALL
18"X40' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 45 CU.YD. +65

-10.00% DRIVE

1187.09 1189.73 1189.57 1189.09 1188.15 1188.57 1188.05 1188.53 1188.69 1184.34

1185.80

0.020'/' 3:1 3:1

AREA CUT 13 AREA CUT 2
AREA FILL 49 AREA FILL 35

339+50

STA. 339+00
TOP ELEV. = 1189.10
F.L. ELEV. = 1184.40

STA. 339+00 CONSTRUCT
DROP INLET ON RT. (H=4'9")
WITH 8' EXTENSION
44"X27"X177' PIPE OUTLET
TO STA. 340+85 ON RT.
D.I. TYPE MO = 6' DIA.
D.I. TYPE C = 4'X6'

1187.20 1190.23 1190.07 1189.59 1188.63 1189.07 1188.55 1189.03 1189.19 1184.69

1186.40

AREA CUT 10 AREA CUT 3
AREA FILL 42 AREA FILL 39

339+00

CUT VOLUME 21 CUT VOLUME 5
FILL VOLUME 84 FILL VOLUME 69

CUT VOLUME 19 CUT VOLUME 6
FILL VOLUME 71 FILL VOLUME 78

STA. 338+71 INSTALL
18"X28' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU.YD.

+71

-13% DRIVE

1187.86 1187.00 1190.69 1190.53 1190.05 1189.08 1189.53 1189.01 1189.49 1189.65 1184.99

STA. 338+50 BEGIN
LT. DT. GD.
ELEV. 1187.00

AREA CUT 11 AREA CUT 3
AREA FILL 35 AREA FILL 45

338+50

CUT VOLUME 18 CUT VOLUME 6
FILL VOLUME 97 FILL VOLUME 85

+10

1187.47 1191.01 1190.85 1190.37 1189.38 1189.85 1189.33 1189.81 1189.97 1185.48

AREA CUT 8 AREA CUT 4
AREA FILL 70 AREA FILL 47

338+00

STA. 337+25
TOP ELEV. = 1190.15
F.L. ELEV. = 1185.65

CUT VOLUME 15 CUT VOLUME 8
FILL VOLUME 129 FILL VOLUME 73

STA. 337+25 CONSTRUCT
24"X62' R.C. STUB-IN
WITH F.E.S ON LT.
CONN. TO D.I. STA.337+25 ON RT.

1187.93 1191.24 1191.08 1190.60 1189.80 1190.08 1189.56 1190.04 1190.20 1186.16

+61

-10.00% DRIVE

F.L. INL. 1186.60 F.L. INL. 1186.37

STA. 337+25 CONSTRUCT
DROP INLET ON RT. (H=4'6")
W/ 36"X23"X66' R.C. STUB-IN W/F.E.S.
& 36"X167' PIPE OUTLET
CONN. TO D.I. STA. 339+00 RT.
DROP INLET TYPE MO = 5' DIA.
DROP INLET TYPE C = 4'X5'

STA. 337+61 IN PLACE
24"X20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24"X28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 30 CU.YDS.

AREA CUT 8 AREA CUT 5
AREA FILL 69 AREA FILL 32

337+50

CUT VOLUME 16 CUT VOLUME 9
FILL VOLUME 119 FILL VOLUME 55

1188.69 1191.47 1191.31 1190.83 1190.06 1190.31 1189.79 1190.27 1190.43 1186.90

+92

-10.00% DRIVE

STA. 336+92 IN PLACE
16"X26' C.M. PIPE CULVERT
REMOVE AND INSTALL
18"X 28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 35 CU.YDS.

AREA CUT 9 AREA CUT 5
AREA FILL 59 AREA FILL 27

STA. 337+00 BEGIN
JOB 040569 & SECTION 1

CUT VOLUME 5
FILL VOLUME 71

CROSS SECTION STA. 337+00 TO STA. 339+50

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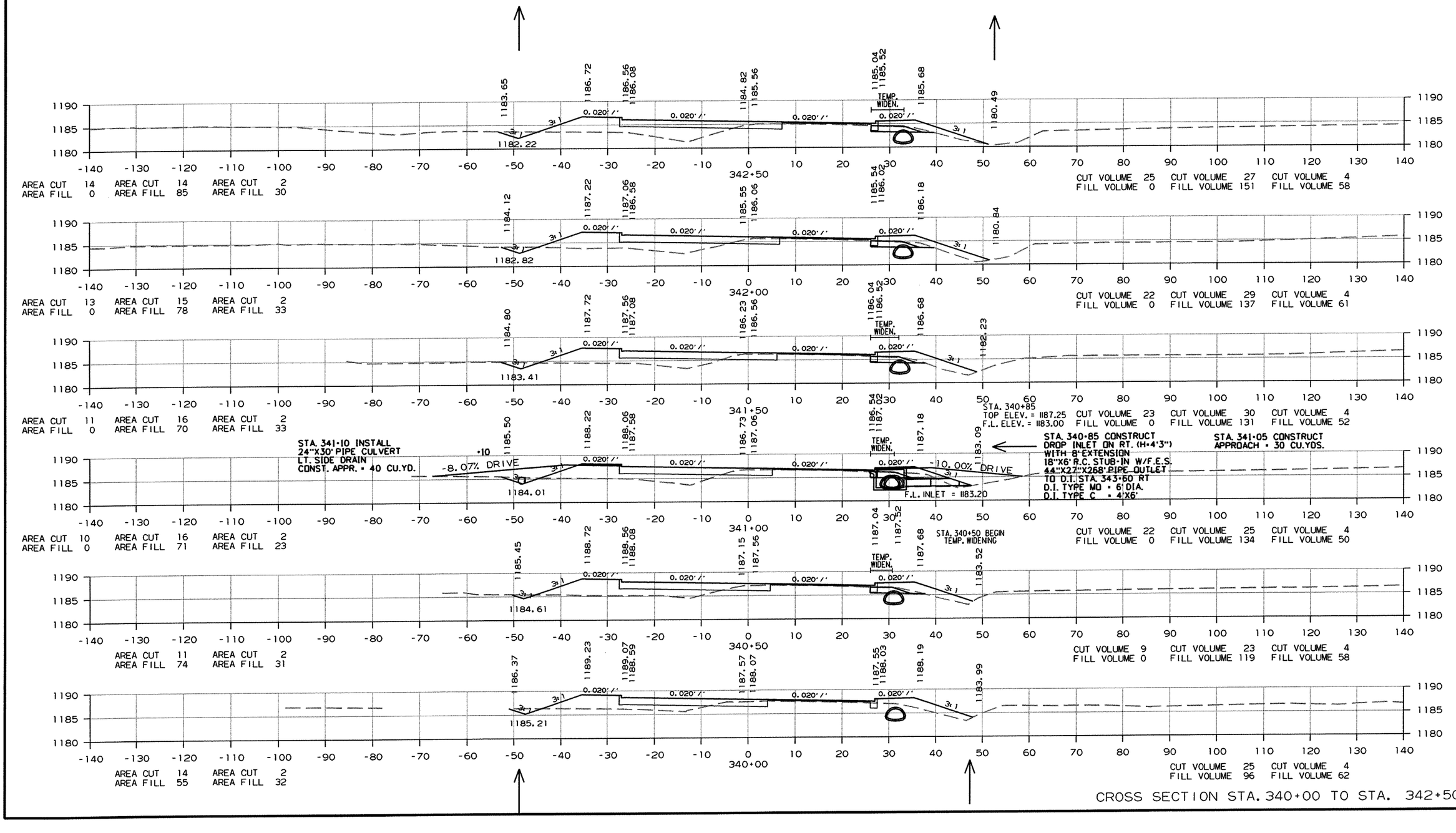
				6	ARK.			
				JOB NO.		040569	107	114

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 4

STAGE 1 STAGE 2 STAGE 3 STAGE 4



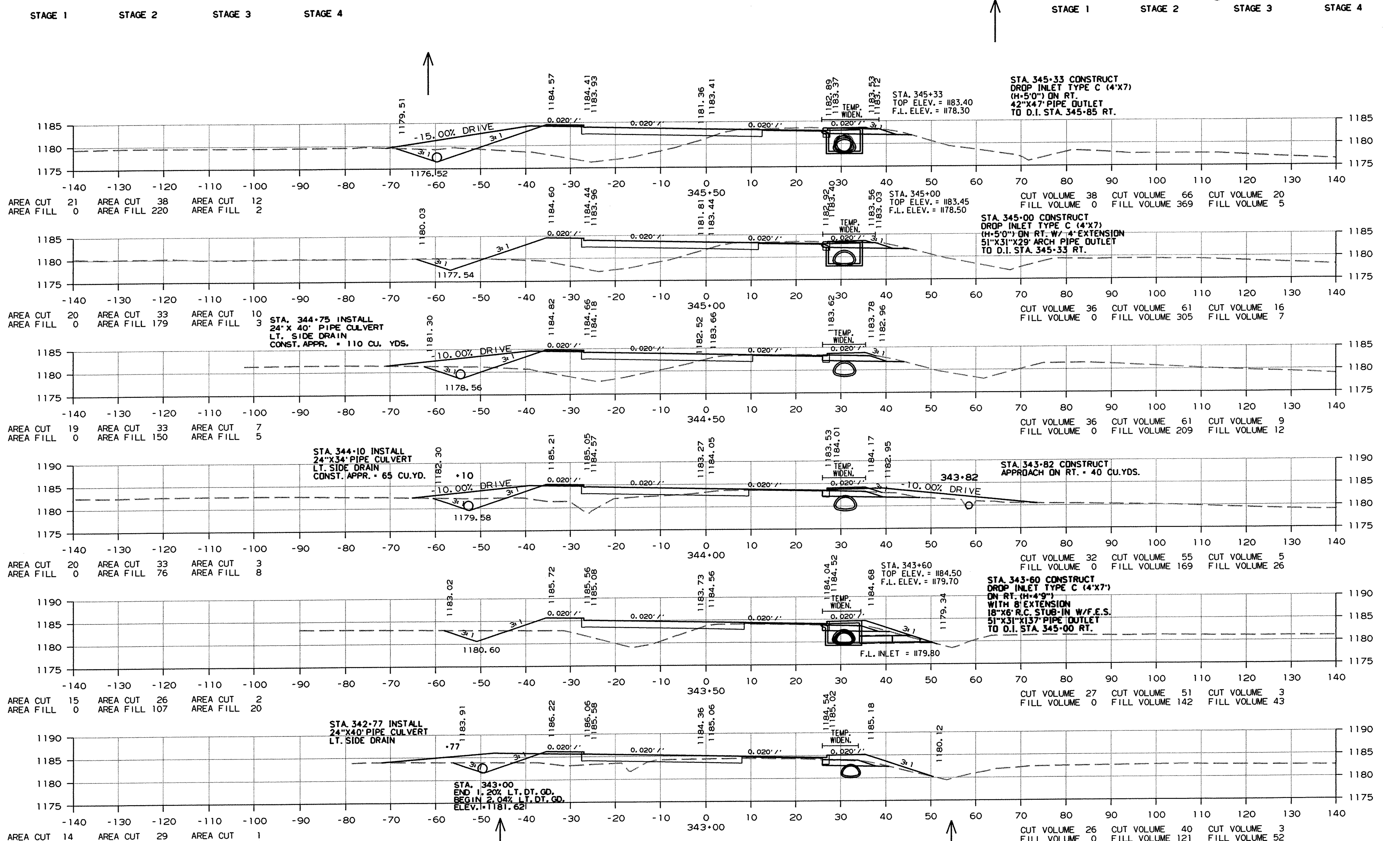
CROSS SECTION STA. 340+00 TO STA. 342+50

8/31/2012

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	108	114

(2) CROSS SECTIONS



CROSS SECTION STA. 343+00 TO STA. 345+50

8/31/2012

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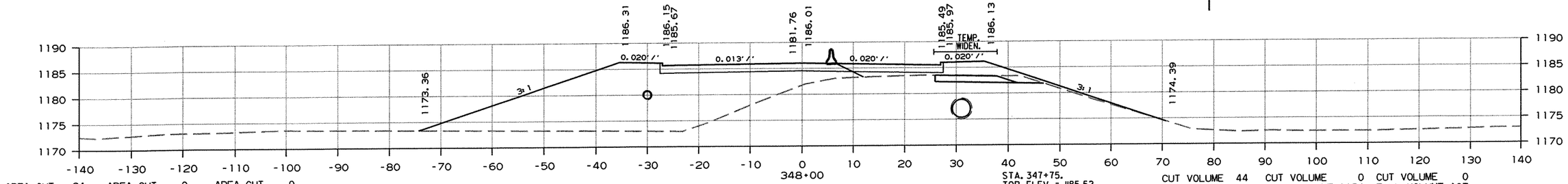
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	109	114

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 4

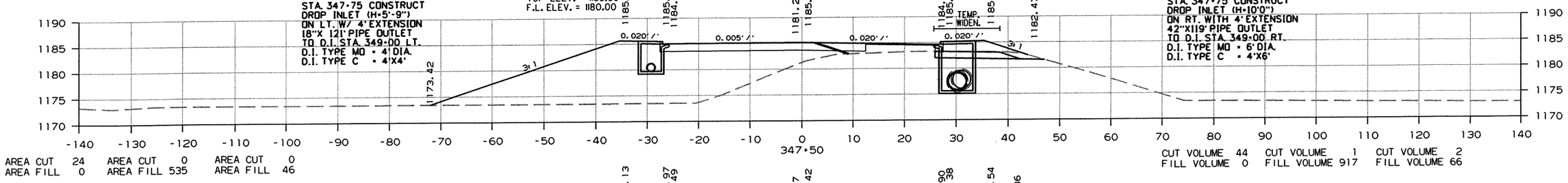


AREA CUT 24 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 603 AREA FILL 70

STA. 347+75.
TOP ELEV. = 1185.52
F.L. ELEV. = 1175.54

CUT VOLUME 44 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 1054 FILL VOLUME 107

STA. 347+75 CONSTRUCT
DROP INLET (H=5'-9")
ON LT. W/ 4' EXTENSION
18"X 121' PIPE OUTLET
TO D.I. STA. 349+00 LT.
D.I. TYPE MD - 4' DIA.
D.I. TYPE C - 4'X4'



AREA CUT 24 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 535 AREA FILL 46

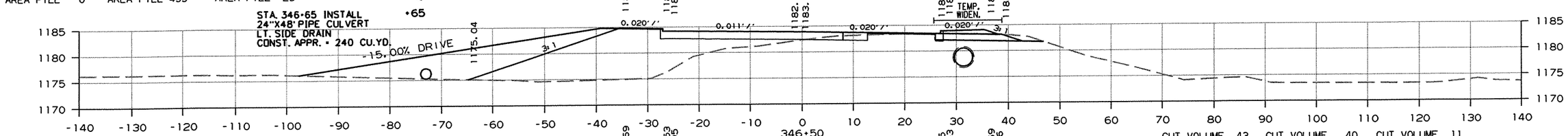
STA. 347+75 CONSTRUCT
DROP INLET (H=10'0")
ON RT. WITH 4' EXTENSION
42"X119' PIPE OUTLET
TO D.I. STA. 349+00 RT.
D.I. TYPE MD - 6' DIA.
D.I. TYPE C - 4'X6'

CUT VOLUME 44 CUT VOLUME 1 CUT VOLUME 2
FILL VOLUME 0 FILL VOLUME 917 FILL VOLUME 66

AREA CUT 24 AREA CUT 1 AREA CUT 2
AREA FILL 0 AREA FILL 455 AREA FILL 25

CUT VOLUME 44 CUT VOLUME 8 CUT VOLUME 5
FILL VOLUME 0 FILL VOLUME 694 FILL VOLUME 31

STA. 346+65 INSTALL
24"X48' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 240 CU.YD.



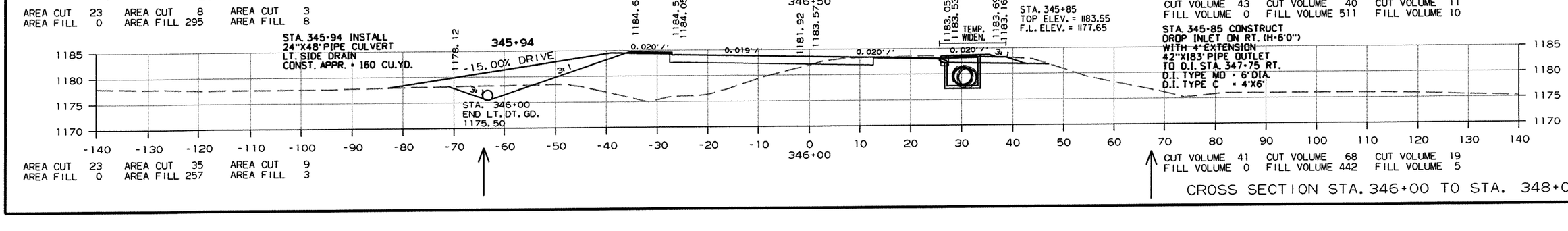
AREA CUT 23 AREA CUT 8 AREA CUT 3
AREA FILL 0 AREA FILL 295 AREA FILL 8

STA. 345+85
TOP ELEV. = 1183.55
F.L. ELEV. = 1177.65

CUT VOLUME 43 CUT VOLUME 40 CUT VOLUME 11
FILL VOLUME 0 FILL VOLUME 511 FILL VOLUME 10

STA. 345+94 INSTALL
24"X48' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 160 CU.YD.

STA. 345+85 CONSTRUCT
DROP INLET ON RT. (H=6'0")
WITH 4' EXTENSION
42"X183' PIPE OUTLET
TO D.I. STA. 347+75 RT.
D.I. TYPE MD - 6' DIA.
D.I. TYPE C - 4'X6'



AREA CUT 23 AREA CUT 35 AREA CUT 9
AREA FILL 0 AREA FILL 257 AREA FILL 3

CUT VOLUME 41 CUT VOLUME 68 CUT VOLUME 19
FILL VOLUME 0 FILL VOLUME 442 FILL VOLUME 5

CROSS SECTION STA. 346+00 TO STA. 348+00

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				6	ARK.			
				JOB NO.		040569	110	114

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 4

AREA CUT 0 AREA CUT 0 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0 AREA FILL 0 AREA FILL 0

TOE OF SLOPE

CUT VOLUME 8 CUT VOLUME 0 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 220 FILL VOLUME 86 FILL VOLUME 26

STAGE 1 STAGE 2 STAGE 3 STAGE 4

AREA CUT 24 AREA CUT 0 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 626 AREA FILL 244 AREA FILL 73

STA. 349+10.88 BR. END

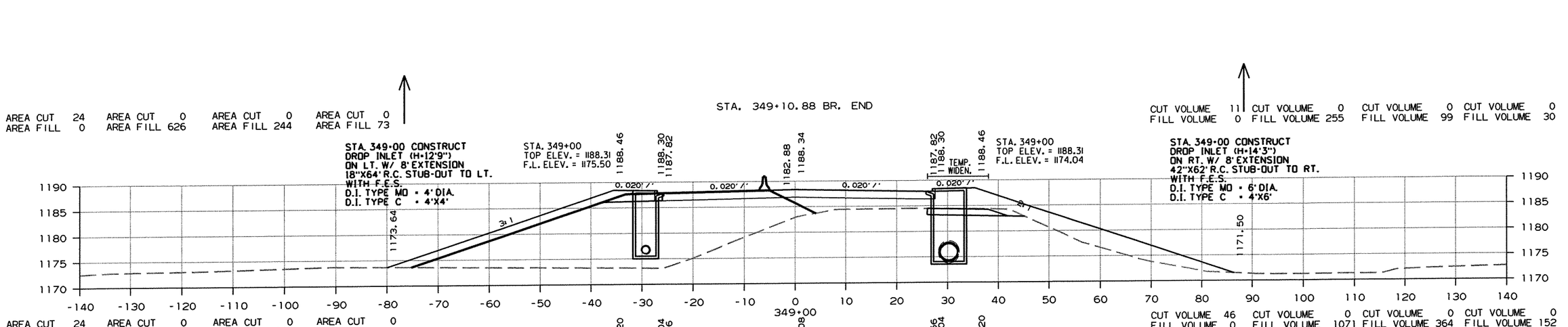
CUT VOLUME 11 CUT VOLUME 0 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 255 FILL VOLUME 99 FILL VOLUME 30

STA. 349+00 CONSTRUCT DROP INLET (H=12'9") ON LT. W/ 8' EXTENSION 18"X64' R.C. STUB-OUT TO LT. WITH F.E.S.
D.I. TYPE MD = 4' DIA.
D.I. TYPE C = 4'X4'

STA. 349+00
TOP ELEV. = 1188.31
F.L. ELEV. = 1175.50

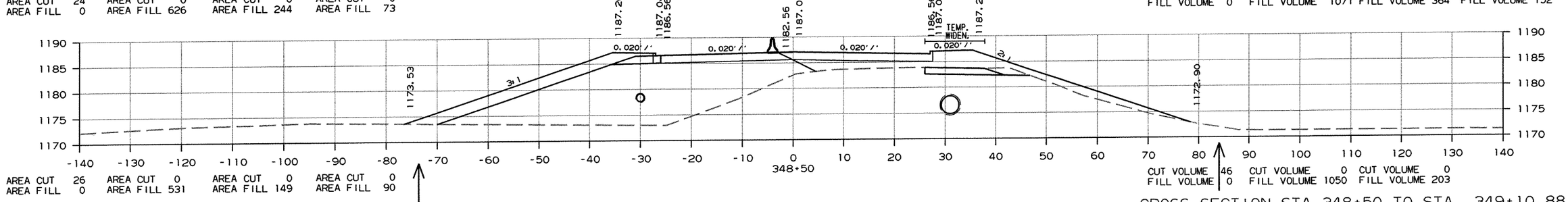
STA. 349+00
TOP ELEV. = 1188.31
F.L. ELEV. = 1174.04

STA. 349+00 CONSTRUCT DROP INLET (H=14'3") ON RT. W/ 8' EXTENSION 42"X62' R.C. STUB-OUT TO RT. WITH F.E.S.
D.I. TYPE MD = 6' DIA.
D.I. TYPE C = 4'X6'



AREA CUT 24 AREA CUT 0 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 626 AREA FILL 244 AREA FILL 73

CUT VOLUME 46 CUT VOLUME 0 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 1071 FILL VOLUME 364 FILL VOLUME 152



AREA CUT 26 AREA CUT 0 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 531 AREA FILL 149 AREA FILL 90

CUT VOLUME 46 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 1050 FILL VOLUME 203

CROSS SECTION STA. 348+50 TO STA. 349+10.88

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				6	ARK.			
				JOB NO.		040569	111	114

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 4

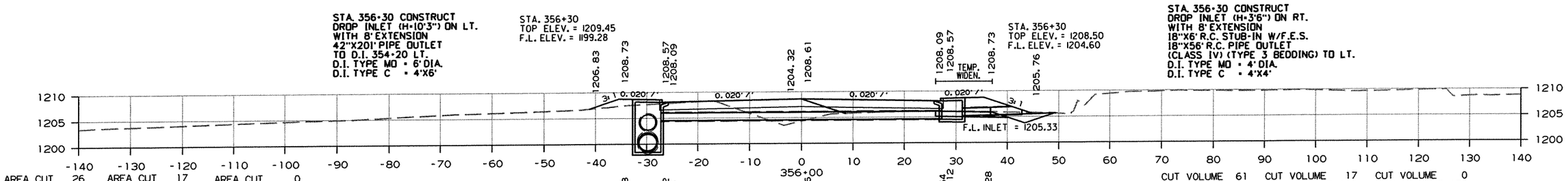
STAGE 1 STAGE 2 STAGE 3 STAGE 4

STA. 356+30 CONSTRUCT
DROP INLET (H=10'3") ON LT.
WITH 8' EXTENSION
42"X201' PIPE OUTLET
TO D.I. 354+20 LT.
D.I. TYPE MD = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 356+30
TOP ELEV. = 1209.45
F.L. ELEV. = 1199.28

STA. 356+30
TOP ELEV. = 1208.50
F.L. ELEV. = 1204.60

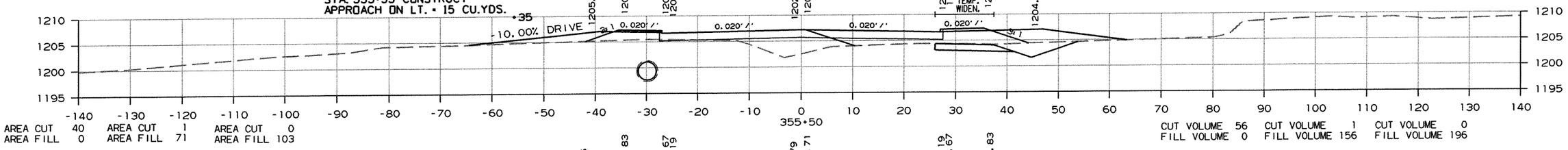
STA. 356+30 CONSTRUCT
DROP INLET (H=3'6") ON RT.
WITH 8' EXTENSION
18"X6' R.C. STUB-IN W/F.E.S.
18"X56' R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING) TO LT.
D.I. TYPE MD = 4' DIA.
D.I. TYPE C = 4'X4'



AREA CUT 26 AREA CUT 17 AREA CUT 0
AREA FILL 0 AREA FILL 53 AREA FILL 83

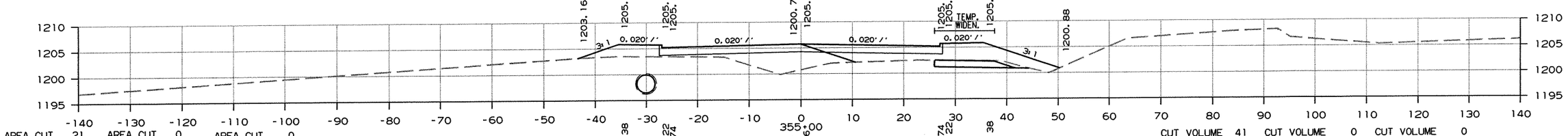
CUT VOLUME 61 CUT VOLUME 17 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 115 FILL VOLUME 172

STA. 355+35 CONSTRUCT
APPROACH ON LT. = 15 CU.YDS.



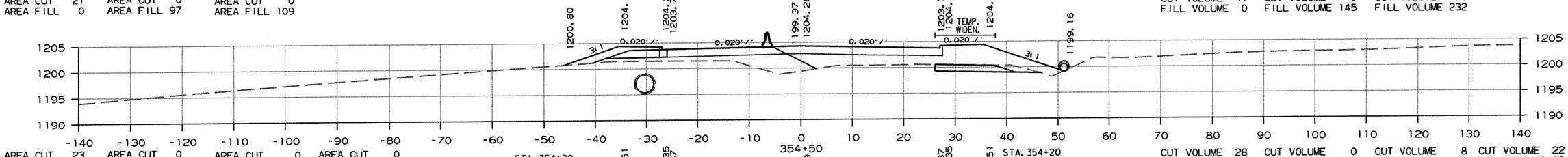
AREA CUT 40 AREA CUT 1 AREA CUT 0
AREA FILL 0 AREA FILL 71 AREA FILL 103

CUT VOLUME 56 CUT VOLUME 1 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 156 FILL VOLUME 196



AREA CUT 21 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 97 AREA FILL 109

CUT VOLUME 41 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 145 FILL VOLUME 232



AREA CUT 23 AREA CUT 0 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 60 AREA FILL 142 AREA FILL 19

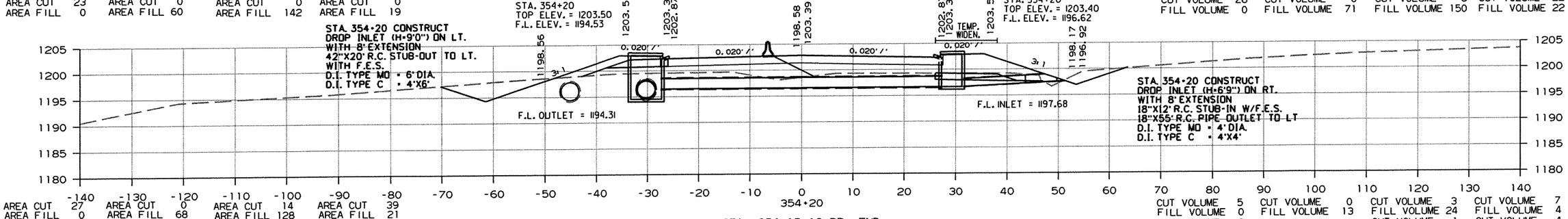
CUT VOLUME 28 CUT VOLUME 0 CUT VOLUME 8 CUT VOLUME 22
FILL VOLUME 0 FILL VOLUME 71 FILL VOLUME 150 FILL VOLUME 22

STA. 354+20 CONSTRUCT
DROP INLET (H=9'0") ON LT.
WITH 8' EXTENSION
42"X20' R.C. STUB-OUT TO LT.
WITH F.E.S.
D.I. TYPE MD = 6' DIA.
D.I. TYPE C = 4'X6'

STA. 354+20
TOP ELEV. = 1203.50
F.L. ELEV. = 1194.53

STA. 354+20
TOP ELEV. = 1203.40
F.L. ELEV. = 1196.62

STA. 354+20 CONSTRUCT
DROP INLET (H=6'9") ON RT.
WITH 8' EXTENSION
18"X12' R.C. STUB-IN W/F.E.S.
18"X55' R.C. PIPE OUTLET TO LT
D.I. TYPE MD = 4' DIA.
D.I. TYPE C = 4'X4'



STA. 354+15.13 BR. END
TOE OF SLOPE

AREA CUT	27	AREA CUT	0	AREA CUT	14	AREA CUT	39	CUT VOLUME	5	CUT VOLUME	0	CUT VOLUME	3	CUT VOLUME	7
AREA FILL	0	AREA FILL	68	AREA FILL	128	AREA FILL	21	FILL VOLUME	0	FILL VOLUME	13	FILL VOLUME	24	FILL VOLUME	4
AREA CUT	27	AREA CUT	0	AREA CUT	14	AREA CUT	39	CUT VOLUME	3	CUT VOLUME	0	CUT VOLUME	1	CUT VOLUME	4
AREA FILL	0	AREA FILL	68	AREA FILL	128	AREA FILL	21	FILL VOLUME	0	FILL VOLUME	6	FILL VOLUME	12	FILL VOLUME	2
AREA CUT	0	AREA CUT	0	AREA CUT	0	AREA CUT	0								
AREA FILL	0	AREA FILL	0	AREA FILL	0	AREA FILL	0								

CROSS SECTION STA. 354+00 TO STA. 356+00

8/31/2012

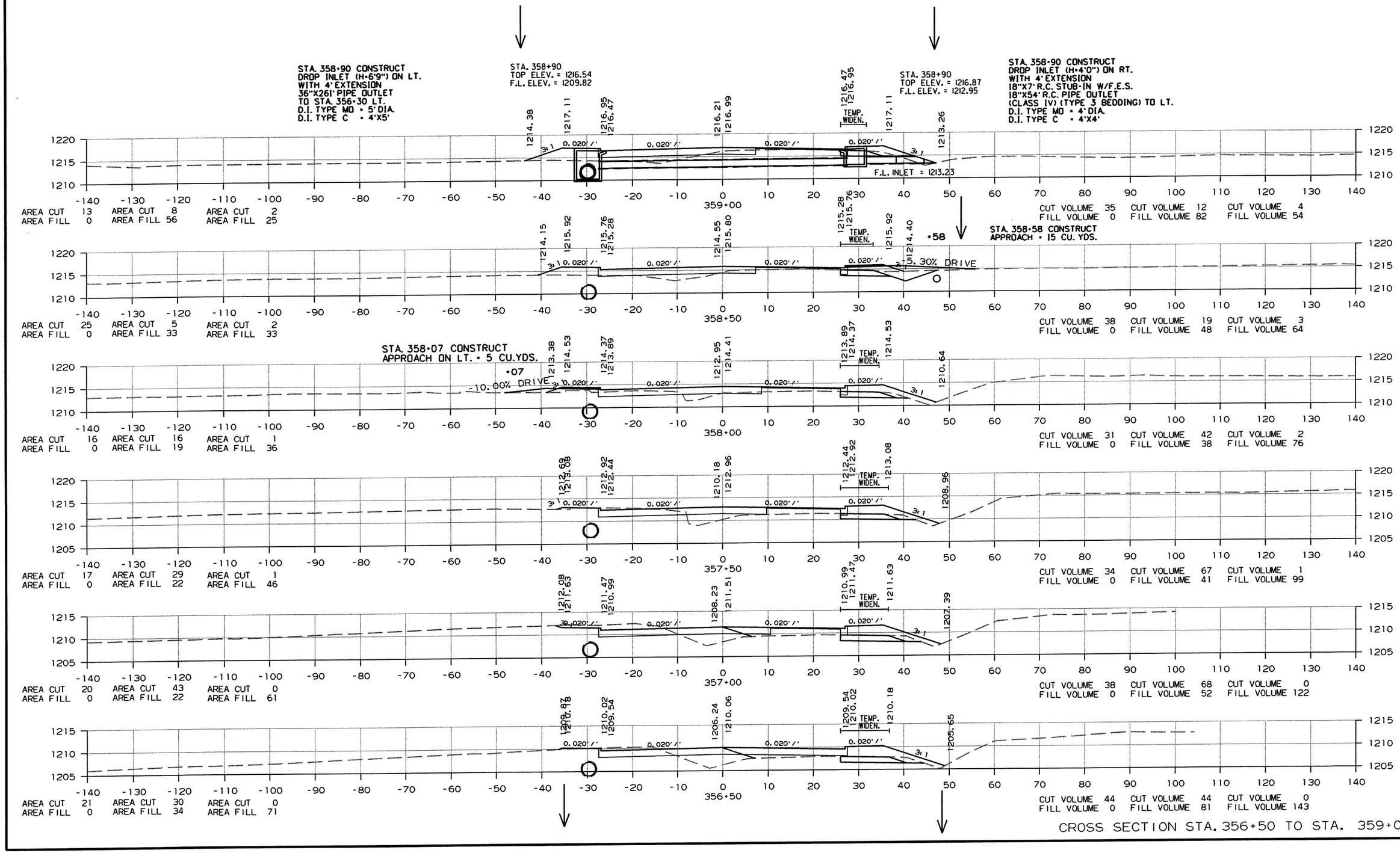
R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	040569		112	114

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 4

STAGE 1 STAGE 2 STAGE 3 STAGE 4



CROSS SECTION STA. 356+50 TO STA. 359+00

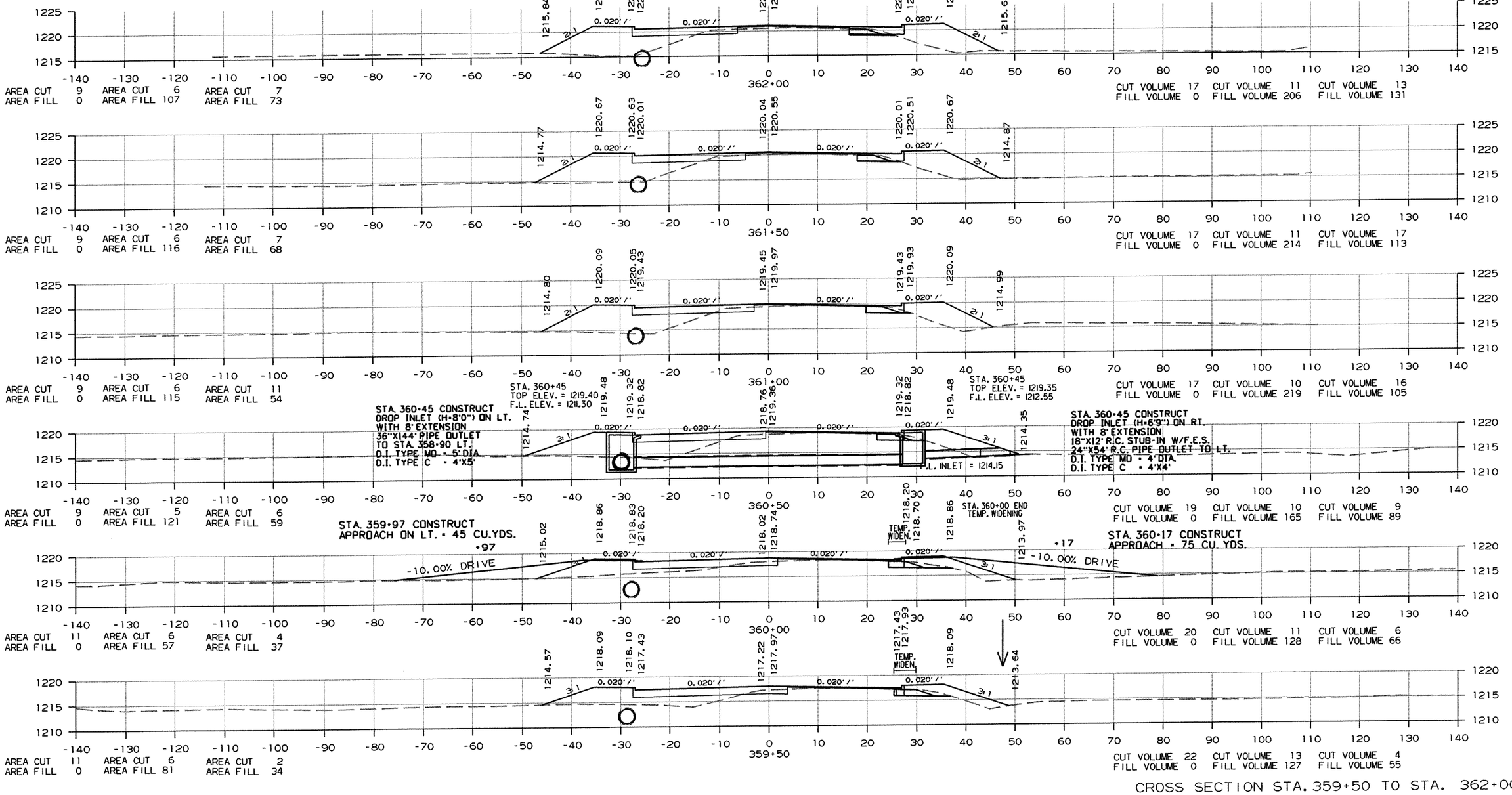
8/31/2012

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	113	114

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 4



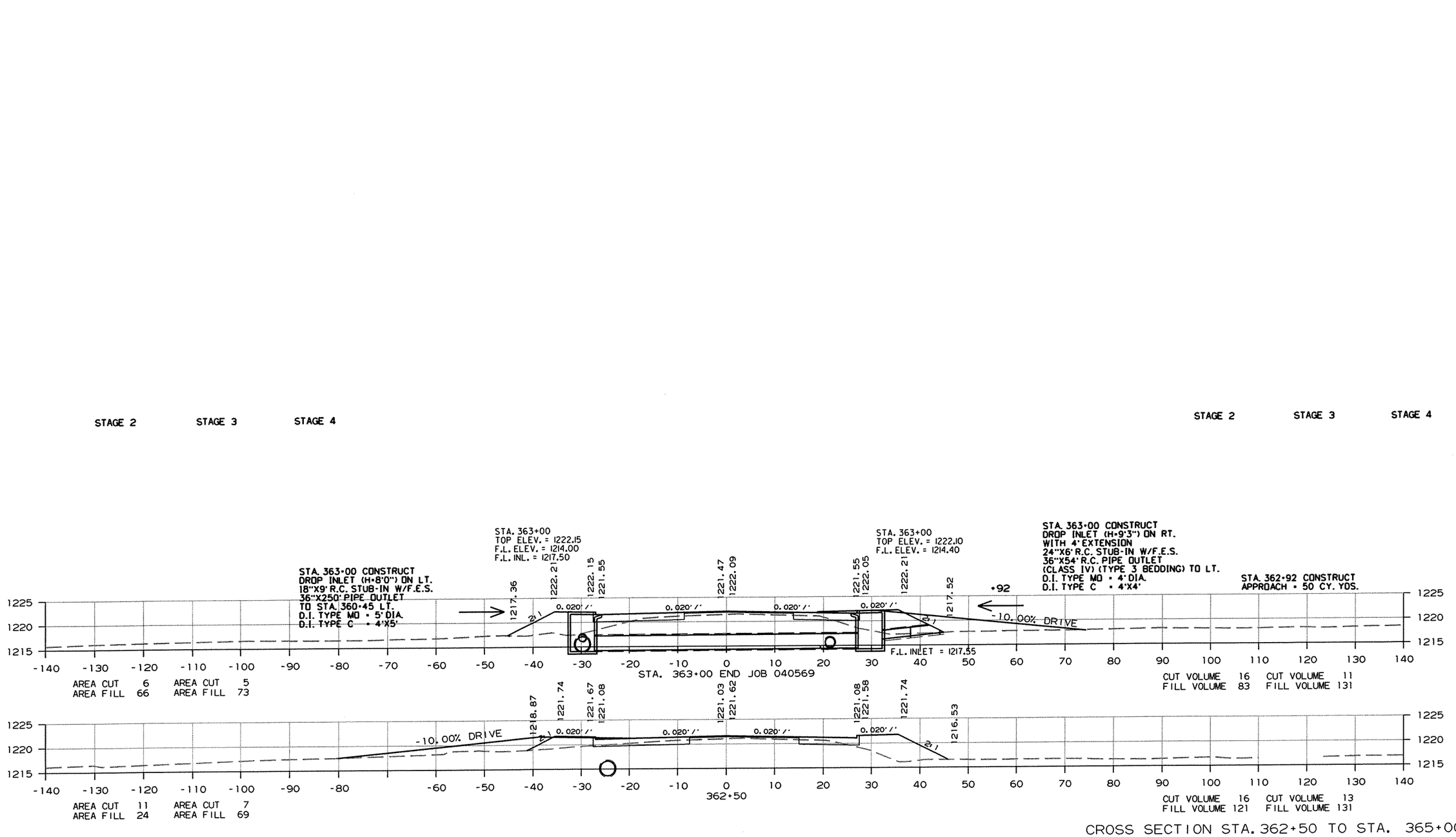
CROSS SECTION STA. 359+50 TO STA. 362+00

8/31/2012

R040569.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040569	114	114

(2) CROSS SECTIONS



8/31/2012

R040569.DGN