DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	1	50
				(2)	LOCUST CREEK STR. & APPRS (S)			

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

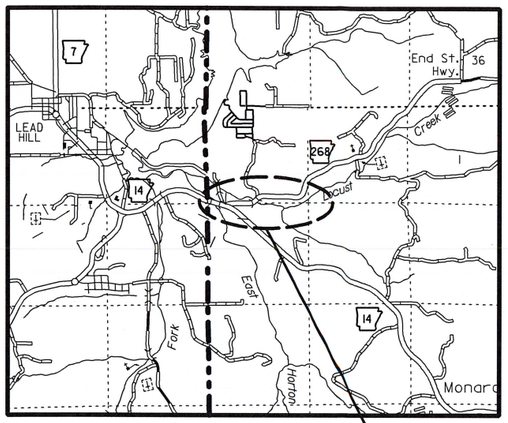
LOCUST CREEK STR. & APPRS. (S)

MARION COUNTY
HWY. 268 SECTION 0

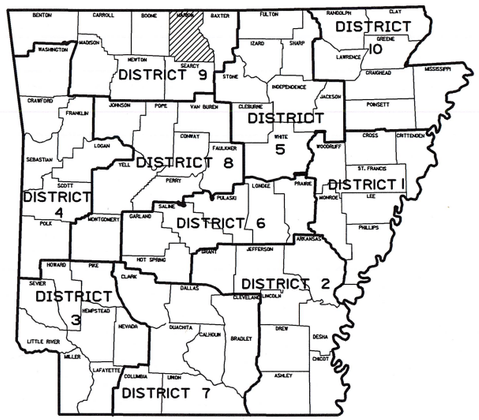
JOB 090551

FED. AID PROJ. STPB-0045(32)

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VICINITY MAP

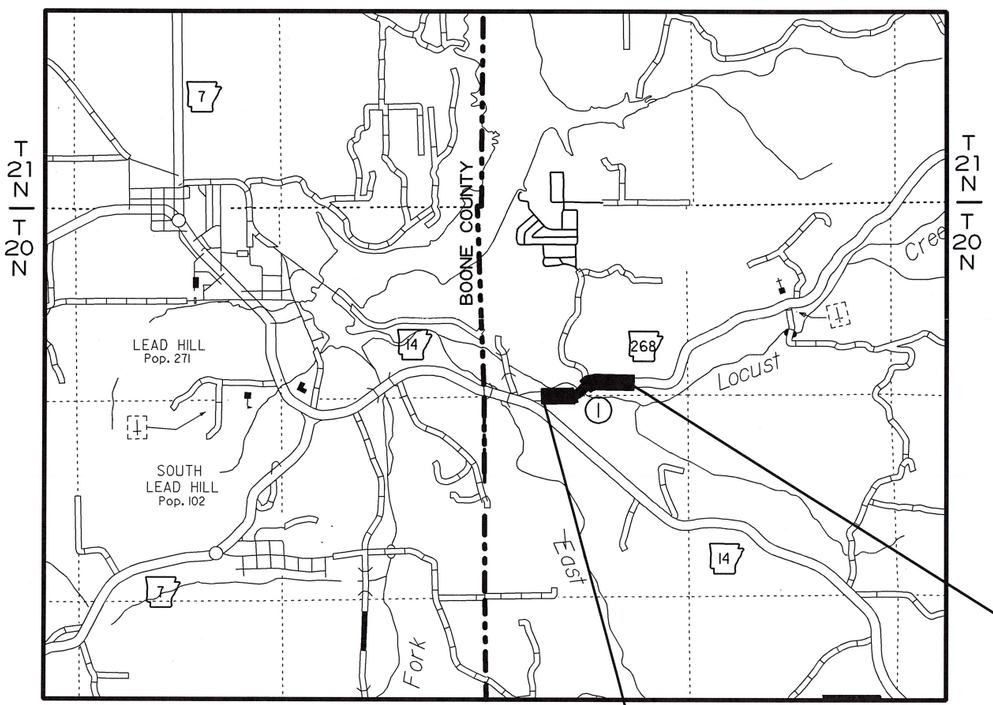


ARK. HWY. DIST. NO. 9

BRIDGE DATA

(1) STA. 109+47.47 BRIDGE END
BRIDGE NO. 07495
107'-0" INTEGRAL CONT. W-BEAM UNIT
(33'-41'-33')
30'-0" CLEAR ROADWAY
20° RT. FWD. SKEW
108'-0 3/4" BRIDGE LENGTH
STA. 110+55.53 BRIDGE END

R18W



R18W

STA. 118+72.85
END JOB 090551

STA. 101+77.23
BEGIN JOB 090551
LOG MILE 0.15

DESIGN TRAFFIC DATA

DESIGN YEAR	2040
2020 ADT	1,000
2040 ADT	1,200
2040 DHV	132
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	2%
DESIGN SPEED	55 MPH

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

P.E. 090551

BEGINNING OF PROJECT
LAT. = N 36°24'21"
LONG. = W 92°52'51"

MID-POINT OF PROJECT
LAT. = N 36°24'23"
LONG. = W 92°52'41"

END OF PROJECT
LAT. = N 36°24'24"
LONG. = W 92°52'31"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH	OF	PROJECT	1695.62	FEET	OR	0.321	MILES
NET	"	" ROADWAY	1587.56	"	"	0.301	"
NET	"	" BRIDGES	108.06	"	"	0.020	"
NET	"	" PROJECT	1695.62	"	"	0.321	"

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				6	ARK.			
				JOB NO.		090551	2	50

(2) INDEX OF SHEETS & STANDARD DRAWINGS

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 5	TYPICAL SECTIONS OF IMPROVEMENT		
6 - 7	SPECIAL DETAILS		
8 - 10	TEMPORARY EROSION CONTROL DETAILS		
11 - 13	MAINTENANCE OF TRAFFIC DETAILS		
14	PERMANENT PAVEMENT MARKING DETAILS		
15 - 17	QUANTITIES		
18	SCHEDULE OF BRIDGE QUANTITIES	07495	61738
19	SUMMARY OF QUANTITIES AND REVISIONS		
20 - 21	SURVEY CONTROL DETAILS		
22 - 23	PLAN AND PROFILE SHEETS		
24	LAYOUT OF BRIDGE HIGHWAY 268 OVER LOCUST CREEK (SHEET 1 OF 2)	07495	61739
25	LAYOUT OF BRIDGE HIGHWAY 268 OVER LOCUST CREEK (SHEET 2 OF 2)	07495	61740
26	DETAILS OF BENTS 1 & 4 (SHEET 1 OF 2)	07495	61741
27	DETAILS OF BENTS 1 & 4 (SHEET 2 OF 2)	07495	61742
28	DETAILS OF BENTS 2 & 3 (SHEET 1 OF 2)	07495	61743
29	DETAILS OF BENTS 2 & 3 (SHEET 2 OF 2)	07495	61744
30	DETAILS OF ELASTOMERIC BEARINGS	07495	61745
31	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 1 OF 7)	07495	61746
32	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 2 OF 7)	07495	61747
33	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 3 OF 7)	07495	61748
34	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 4 OF 7)	07495	61749
35	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 5 OF 7)	07495	61750
36	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 6 OF 7)	07495	61751
37	DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 7 OF 7)	07495	61752
38	DETAILS OF TYPE SPECIAL APPROACH SLABS	07495	61753
39	DETAILS OF TYPE SPECIAL APPROACH GUTTERS	07495	61754
40 - 50	CROSS SECTIONS		

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

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9620 HUBERT BURNS 06/05/2020

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	03-24-20
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-6	GUARDRAIL DETAILS	11-07-19
GR-7	GUARDRAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLLATION	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	05-14-20
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-4	WIRE FENCE TYPE C AND D	08-22-02

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				6	ARK.			
				JOB NO.		090551	3	50
				(2) GOVERNING SPECIFICATIONS & GENERAL NOTES				

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____	UNCLASSIFIED EXCAVATION
303-1_____	AGGREGATE BASE COURSE
306-1_____	QUALITY CONTROL AND ACCEPTANCE
400-1_____	TACK COATS
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____	LIQUID ANTI-STRIP ADDITIVE
404-3_____	DESIGN OF ASPHALT MIXTURES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2_____	INCIDENTAL CONSTRUCTION
603-1_____	LANE CLOSURE NOTIFICATION
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1_____	CONCRETE DITCH PAVING
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TERMINAL (TYPE 2)
620-1_____	MULCH COVER
634-1_____	CURBING
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
807-2_____	STEEL STRUCTURES
808-1_____	INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____	ELASTOMERIC BEARINGS
JOB 090551__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 090551__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090551__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 090551__	CAVE DISCOVERY
JOB 090551__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 090551__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 090551__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 090551__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 090551__	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 090551__	FLEXIBLE BEGINNING OF WORK
JOB 090551__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090551__	MANDATORY ELECTRONIC CONTRACT
JOB 090551__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 090551__	NESTING SITES OF MIGRATORY BIRDS
JOB 090551__	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 090551__	PLASTIC PIPE
JOB 090551__	PRICE ADJUSTMENT FOR ASPHALT BINDER

GOVERNING SPECIFICATIONS - CONTINUED

NUMBER	TITLE
JOB 090551__	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 090551__	SHORING FOR CULVERTS
JOB 090551__	SOIL STABILIZATION
JOB 090551__	SPECIAL SEEDING REQUIREMENTS
JOB 090551__	STORM WATER POLLUTION PREVENTION PLAN
JOB 090551__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090551__	UTILITY ADJUSTMENTS
JOB 090551__	VEGETATED BUFFER
JOB 090551__	WARM MIX ASPHALT
JOB 090551__	WATER POLLUTION CONTROL
JOB 090551__	WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. 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.
7. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
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.

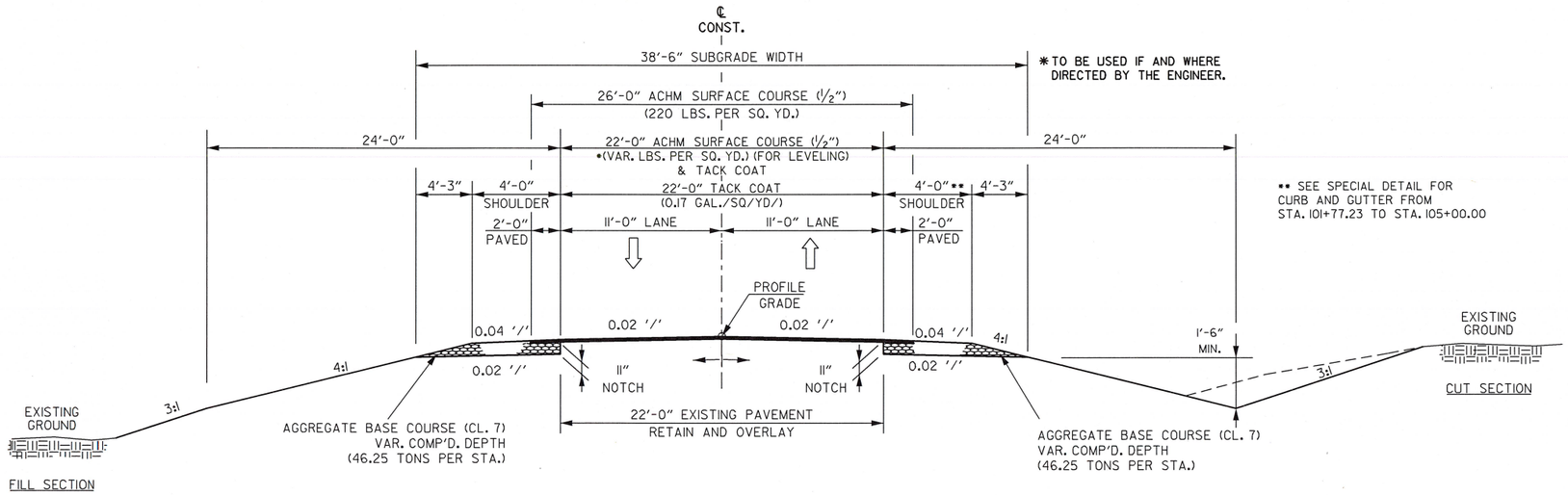
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/25/2020

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				6	ARK.			
				JOB NO.		090551	4	50

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

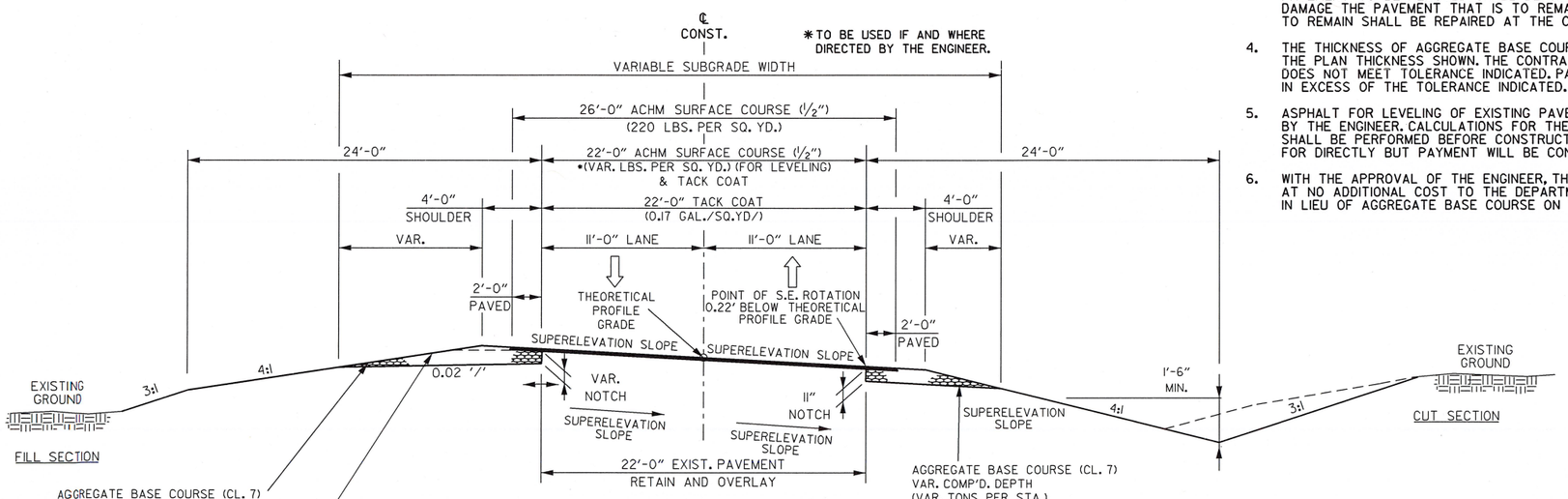


** SEE SPECIAL DETAIL FOR CURB AND GUTTER FROM STA. 101+77.23 TO STA. 105+00.00

NOTCH AND WIDEN TYPICAL SECTION OF IMPROVEMENT HWY. 268

** STA. 101+77.23 TO STA. 105+70.00
STA. 113+00.00 TO STA. 118+72.85

** SEE SPECIAL DETAILS FOR RIGHT SHLDER. STA. 100+77.23 TO STA. 105+00.00



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

SUPERELEVATED TYPICAL SECTION OF IMPROVEMENT HWY. 268

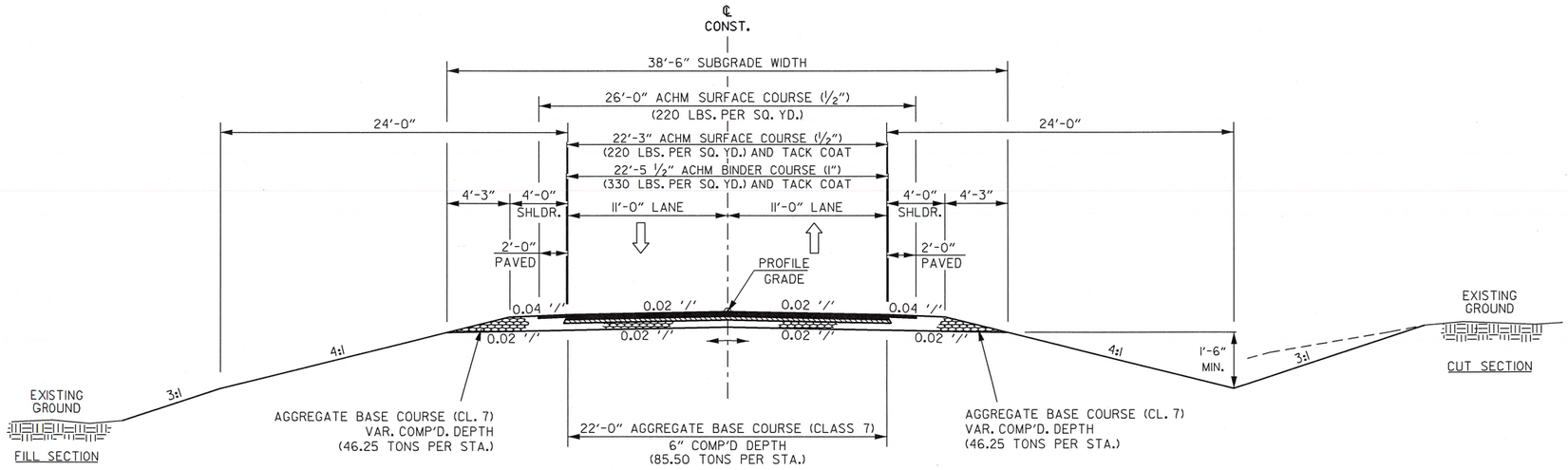
TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
3. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED SHALL BE SEPARATED BY 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 TO THE PAVMEMENT THAT IS TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
4. 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.
5. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND LEVELING OPERATIOINS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
6. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	5	50
				(2)	TYPICAL SECTIONS OF IMPROVEMENT			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

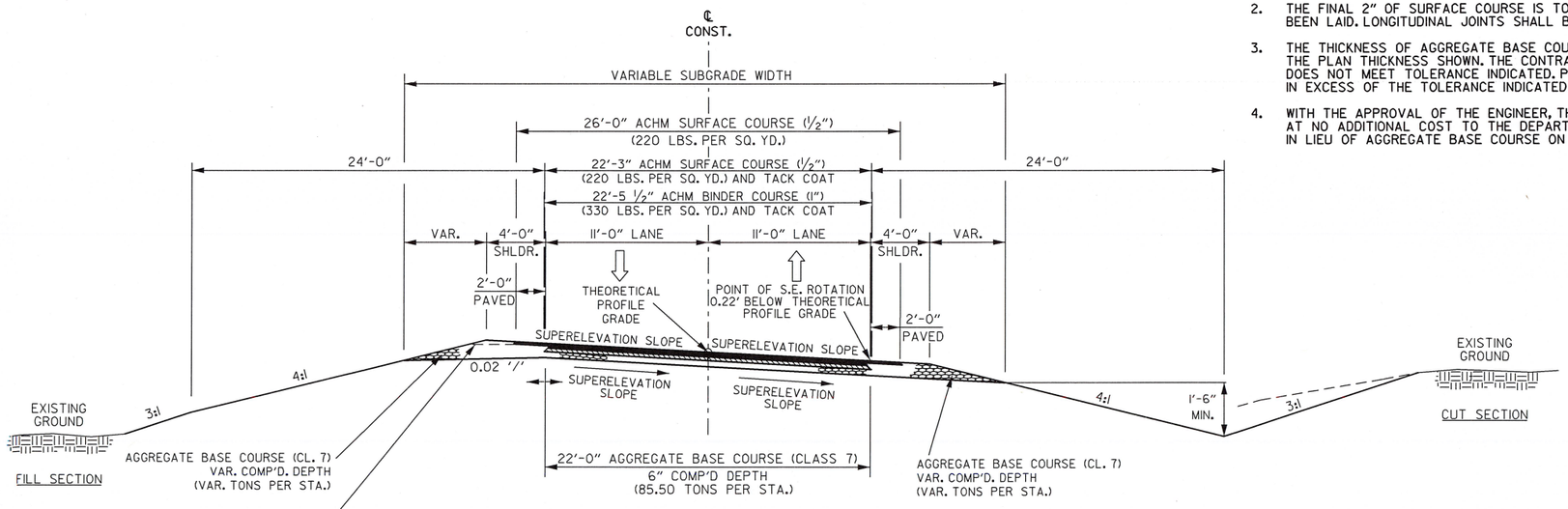


TYPICAL SECTION OF IMPROVEMENT HWY. 268

STA. 105+70.00 TO STA. 109+06.97
STA. 110+96.03 TO STA. 113+00.00

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
3. 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.
4. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



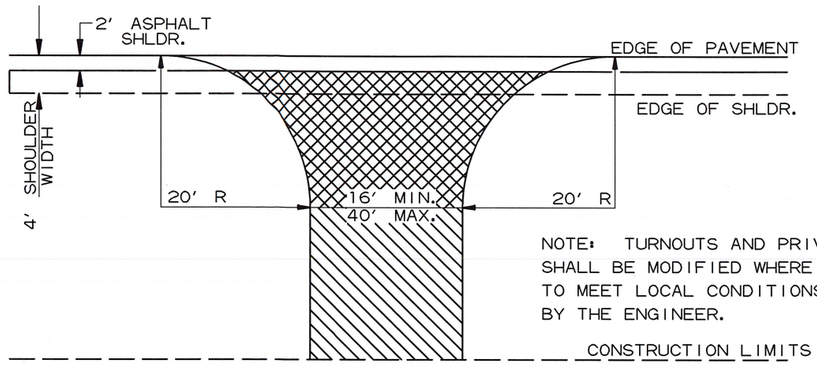
NOTE: ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

SUPERELEVATED TYPICAL SECTION OF IMPROVEMENT HWY. 268

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				6	ARK.			
				JOB NO.		090551	6	50

(2) SPECIAL DETAILS

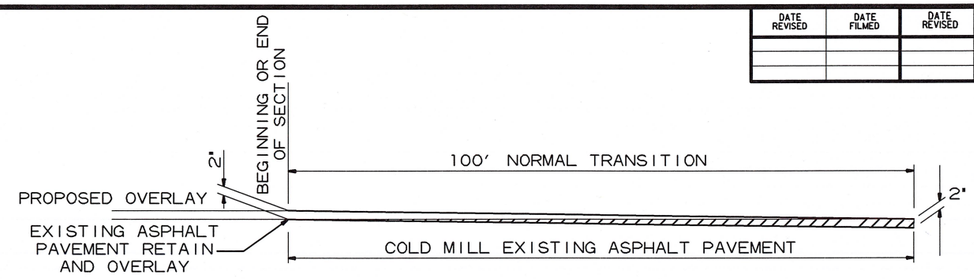


NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

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

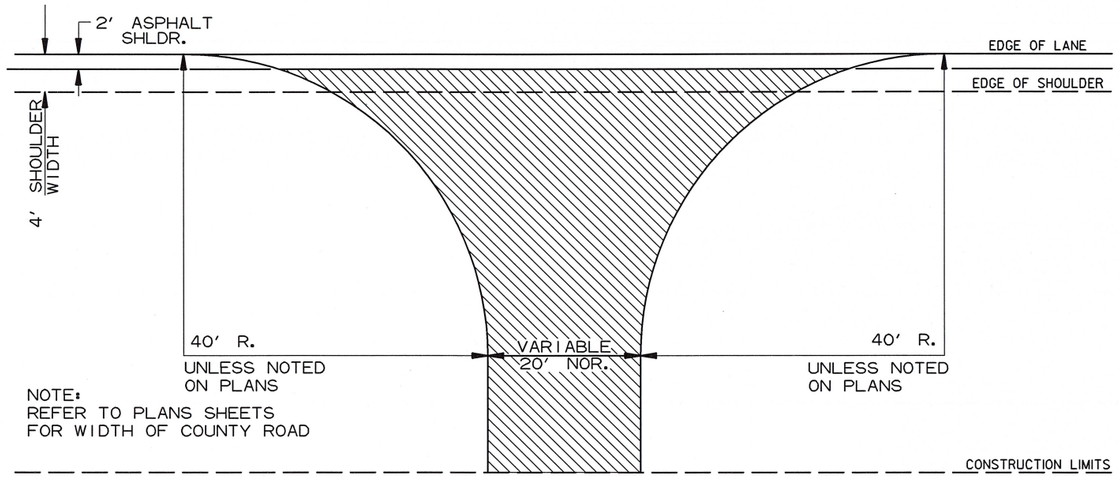
AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)



DETAIL FOR TRANSITIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020



NOTE:
REFER TO PLANS SHEETS FOR WIDTH OF COUNTY ROAD

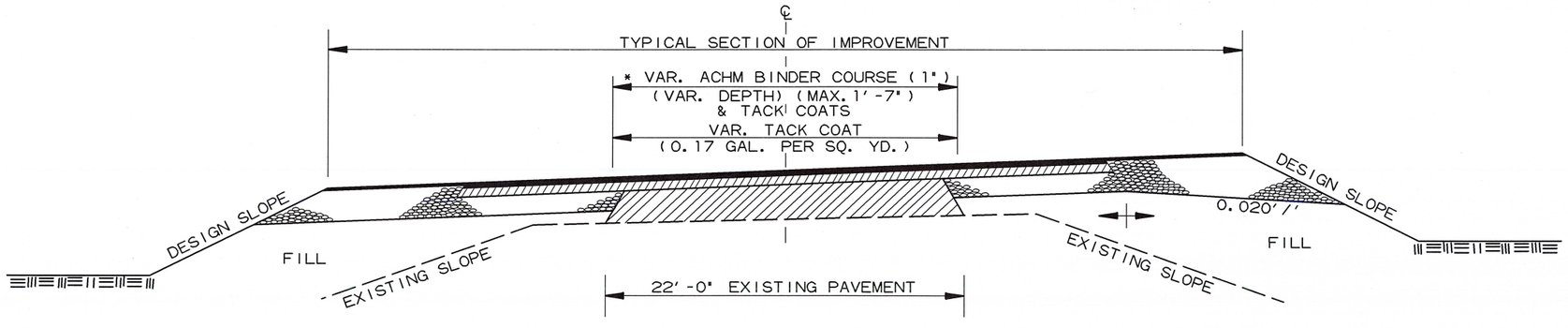
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION

NOTES:

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

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

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



METHOD OF RAISING GRADE

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

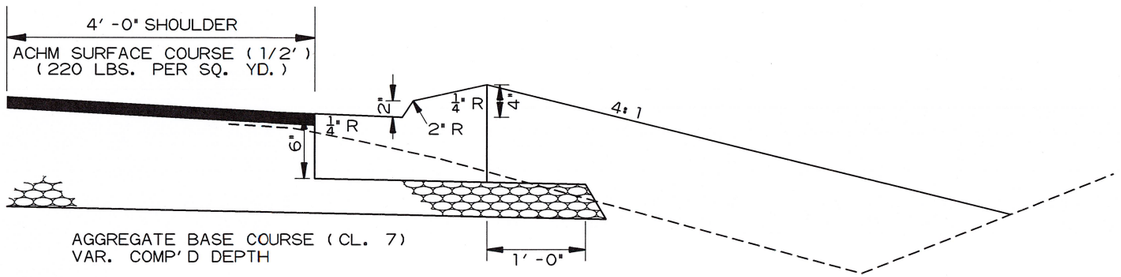
SPECIAL DETAILS

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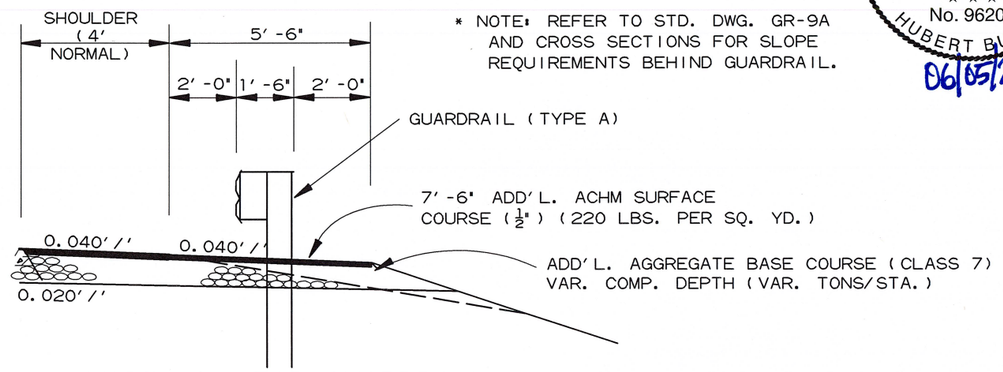
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				6	ARK.			
				JOB NO.		090551	7	50
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

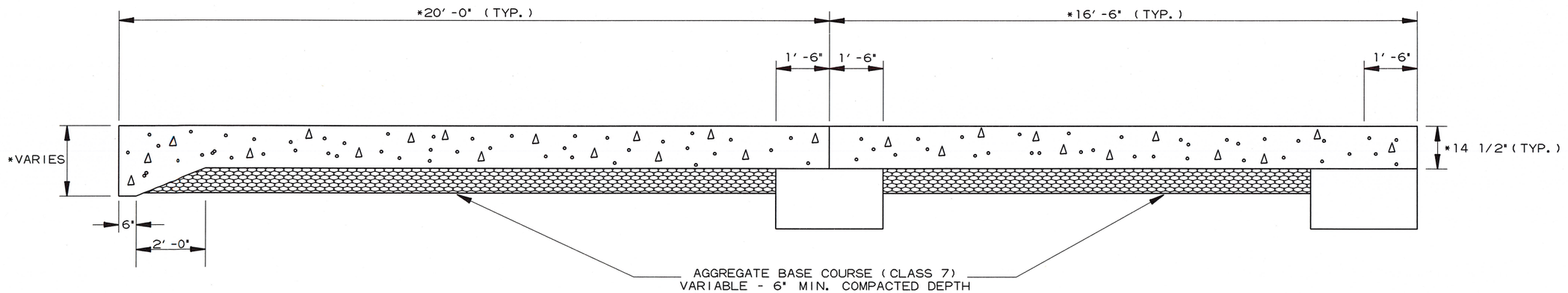


C. C. C. & G. (TYPE B-1) (1′ -6")
STA. 100+77.23 TO 105+00.00 RT.



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

WIDENING FOR GUARDRAIL



* SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090551	8	50

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
★ ★ ★
No. 9620
HUBERT BURNS
06/05/2020

STA. 101+77.23
BEGIN JOB 090551
LOG MILE 0.15

P.O.B. 100+00.00
P.C. 101+12.87
P.I. 102+10.46
P.T. 103+08.03
P.C. 103+76.82
P.I. 108+39.30
P.C. 111+13.89
P.I. 109+13.15

105

SILT FENCE = 163 LIN. FT.
SILT FENCE = 251 LIN. FT.
SILT FENCE = 76 LIN. FT.
SILT FENCE = 350 LIN. FT.

PROPOSED R/W
EXIST. R/W
℄ HWY. 268
N89°41'58"E
S88°20'56"E
N61°35'24"E
EX. HWY 268
M.C.R. 205
DRIVE
TANK
LOCUST CREEK
50' VEGETATED BUFFER

3'
11'
11'
3'
2'
11'
11'
1'
4'
11'
11'
1'

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

REVISIONS

DATE OF REVISION	REVISION

2

P.O.E. 2+90.97
P.T. 2+48.01
STA. 2+90.65
END CONST.
KNIGHT DR.
N02°04'05"E
P.C. 1+29.55
P.T. 1+02.54
P.I. 2+05.20
P.C. 1+13.89
P.I. 0+75.31
P.I. 113+68.90
P.T. 116+10.35
P.O.E. 120+72.28

115
120

SILT FENCE 160 LIN. FT.
SILT FENCE 160 LIN. FT.
SILT FENCE = 361 LIN. FT.
SILT FENCE 100 LIN. FT.
SILT FENCE 84 LIN. FT.
SILT FENCE 105 LIN. FT.
SILT FENCE 76 LIN. FT.
SILT FENCE 160 LIN. FT.
SILT FENCE 92 LIN. FT.

N88°25'45"W
N02°35'24"W
S86°08'26"E
N61°35'24"E
KNIGHT DR.
℄ HWY. 268
PROPOSED R/W
EXIST. R/W
50' VEGETATED BUFFER
LOCUST CREEK

℄ KNIGHT DR. STA. 0+00.00=
℄ HWY. 268 STA. 113+57.17
△ 90°00'00"

STA. 118+72.85
END JOB 090551

1

110

P.C. 111+13.89

4'
11'
11'
1'

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

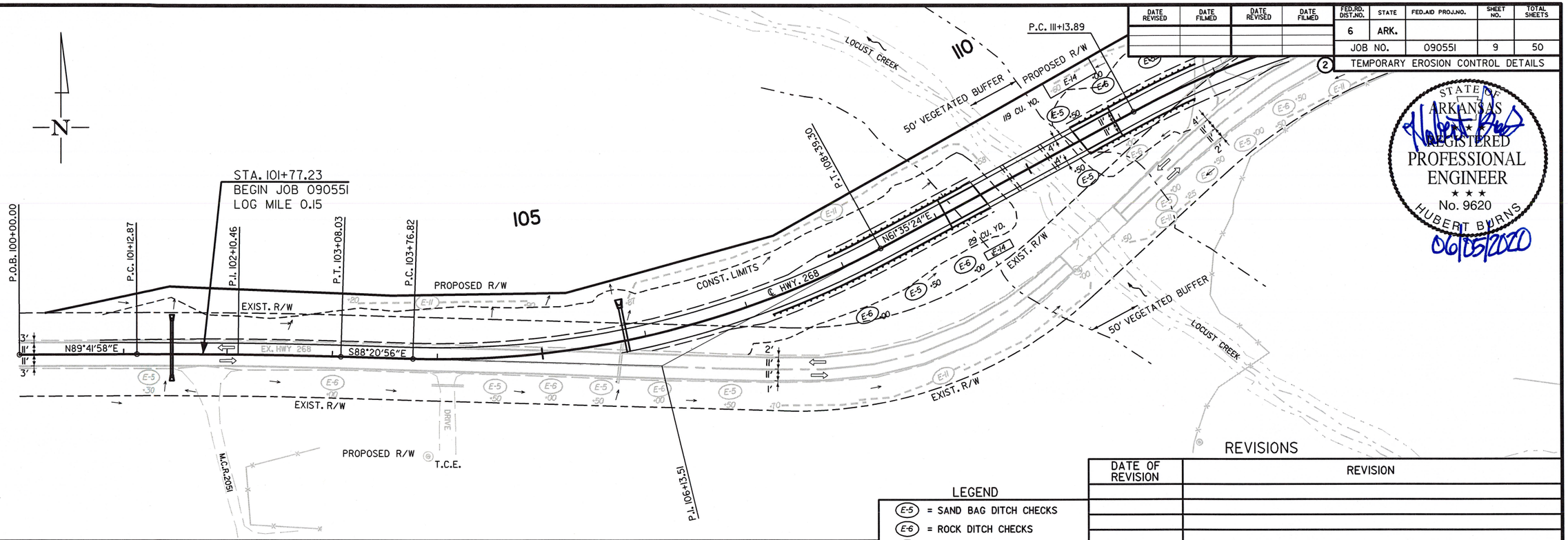
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	9	50

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020



REVISIONS

DATE OF REVISION	REVISION

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

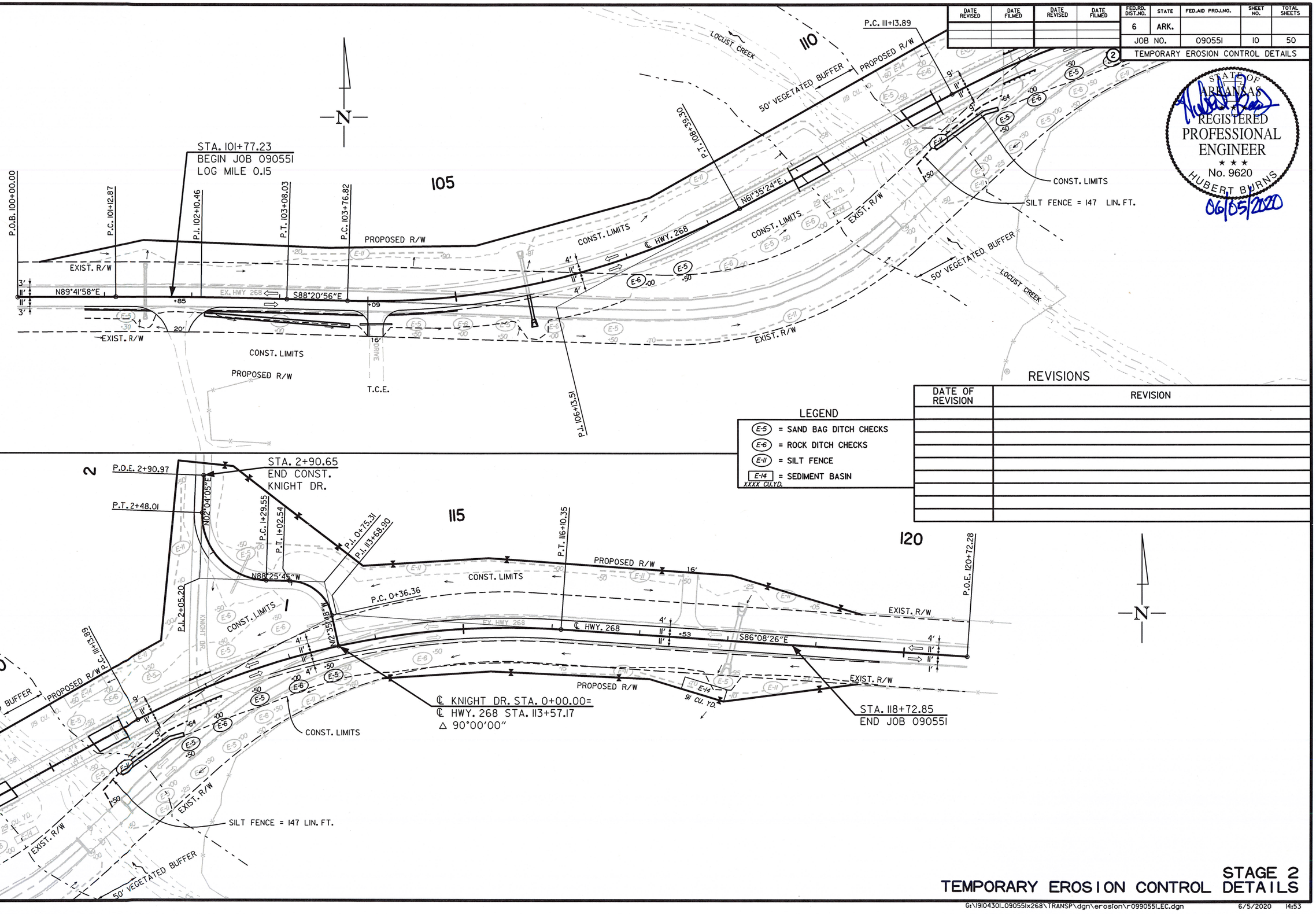
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090551		10	50

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
★ ★ ★
No. 9620
HUBERT BURNS
06/05/2020



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- [E-14] XXXX CU.YD. = SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090551		II	50

(2) MAINTENANCE OF TRAFFIC DETAILS

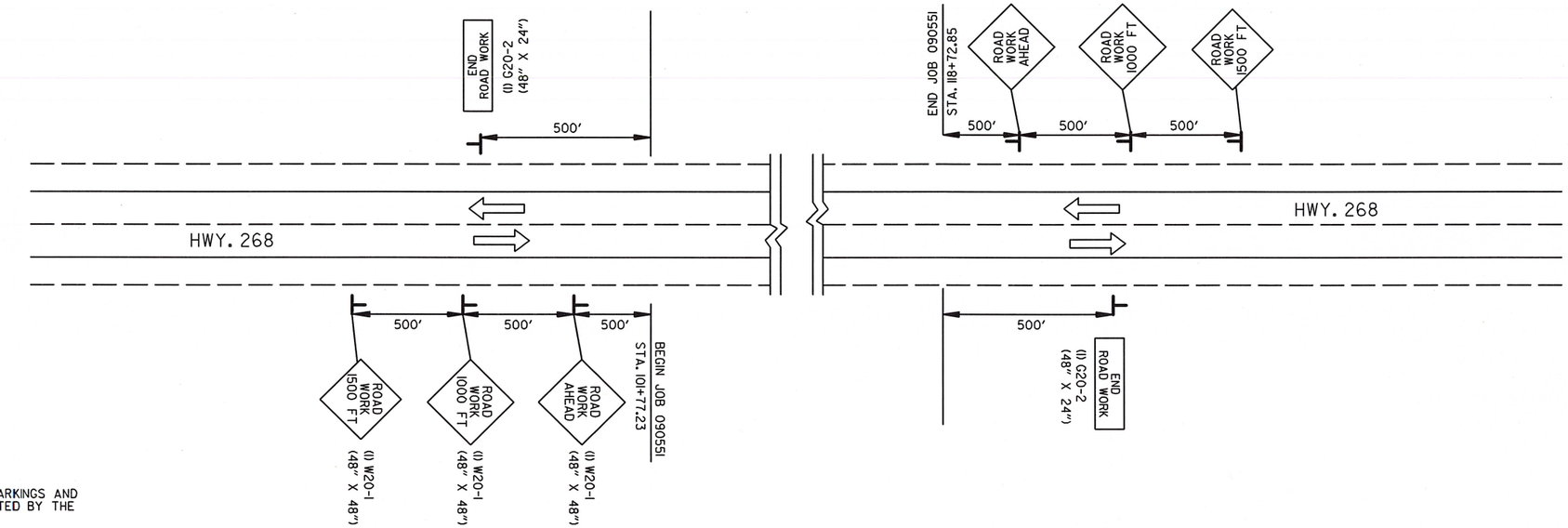
DO NOT PASS (4) R4-1 (24" X 30") ALL STAGES

SHOULDER DROP-OFF (4) W8-9a (36" X 36") ALL STAGES

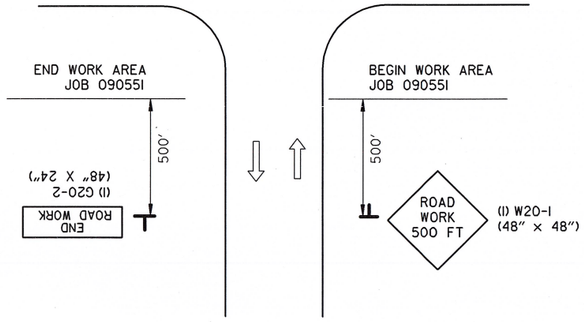
RIGHT SHOULDER CLOSED (5) W21-5a (36" X 36") ALL STAGES

BUMP (4) W8-1 (30" X 30") ALL STAGES

R4-1, W8-1, W8-9a, & W21-5a TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



ADVANCE SIGNS AT BEGINNING AND END OF JOB



SIDE ROADS ALL STAGES

TOTAL NEEDED = 2 SITES
101+78 RT. - M.C.R. 2051
112+93 LT. - KNIGHT DR.

SEQUENCING:
STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT NEW OFFSET ROADWAY AND BRIDGE OVER LOCUST CREEK.

4) CONSTRUCT KNIGHT DRIVE AND PROVIDE TEMPORARY CONNECTION TO EXIST. HWY. 268

5) INSTALL GUARDRAIL

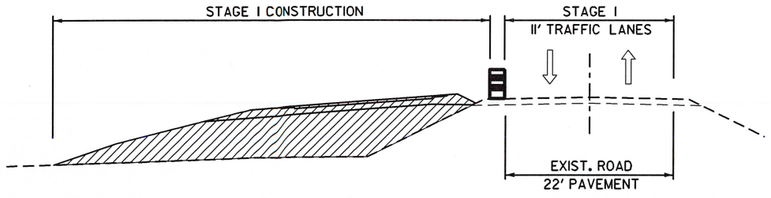
SEQUENCING:
STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

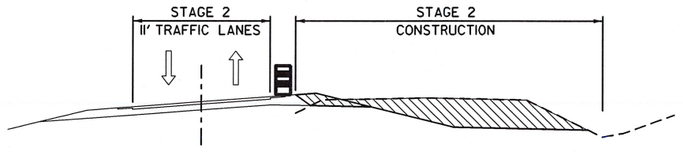
2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXISTING ROADWAY. PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKINGS.

4) SHIFT TRAFFIC TO NEW ROADWAY & BRIDGE. REMOVE OLD BRIDGE AND OBLITERATE EXISTING ROADWAY.



STAGE 1



STAGE 2

STAGING DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER ★★★ No. 9620 HUBERT BURNS
06/05/2020

MAINTENANCE OF TRAFFIC
ADVANCE SIGNS AT JOB ENDS

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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.	090551		12	50

2 MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:
STAGE 1:

1) INSTALL ADVANCE WARNING SIGNS.

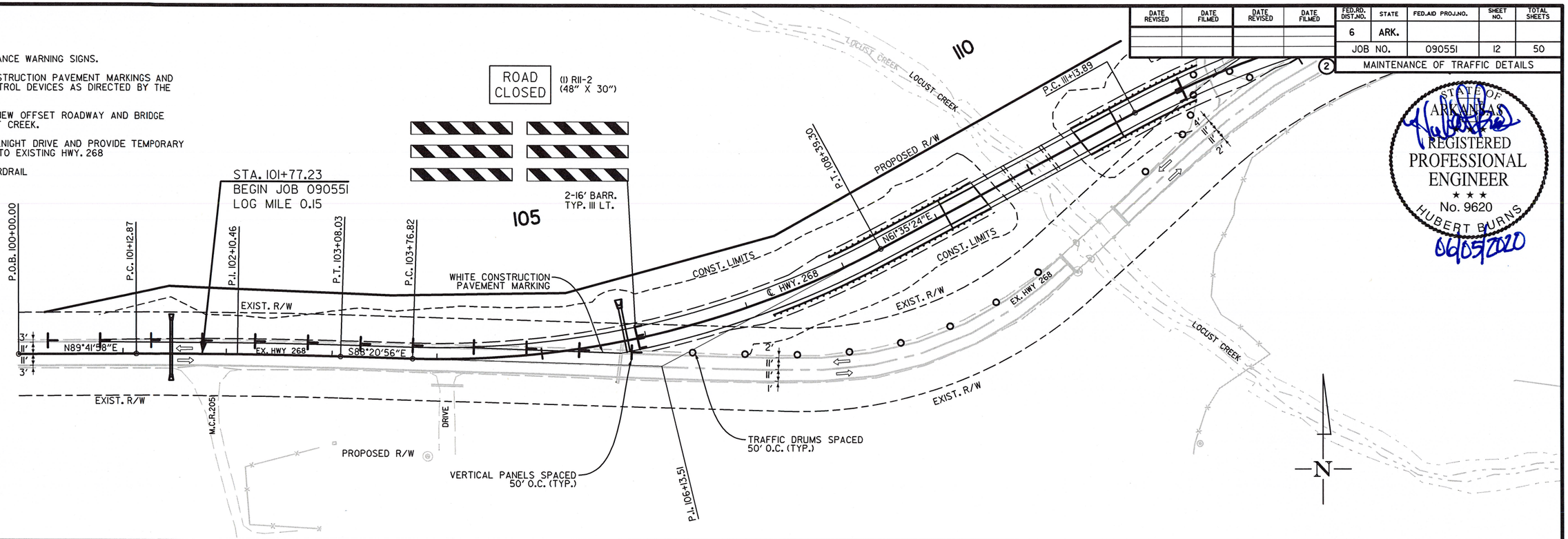
2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

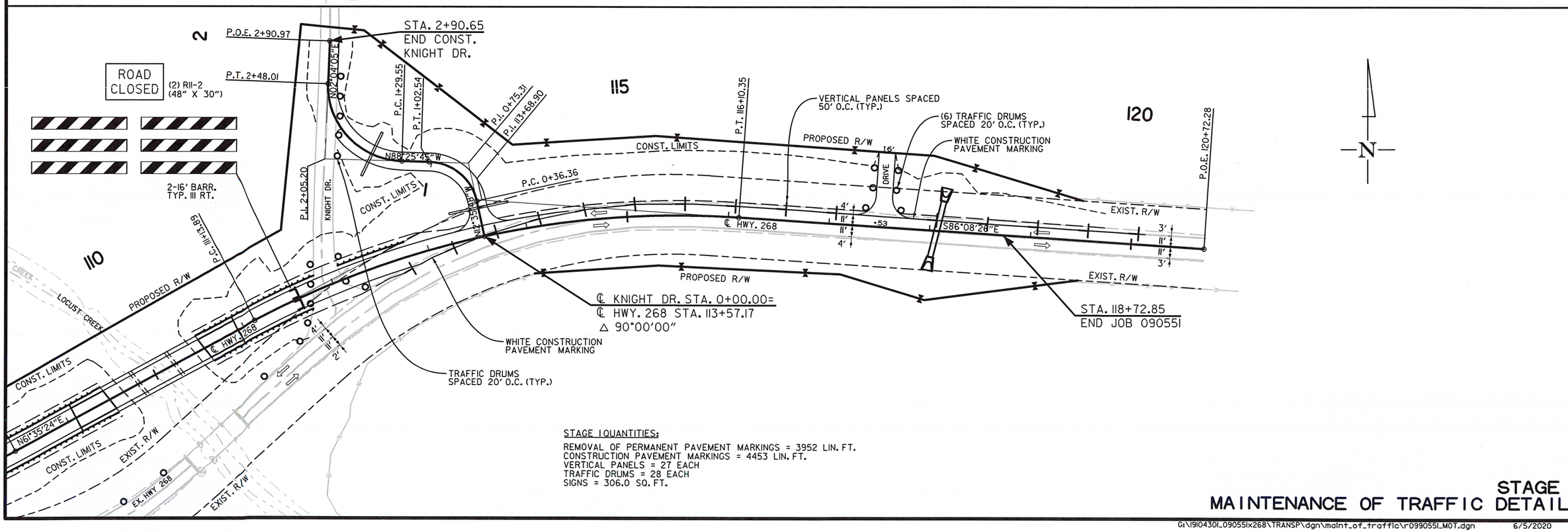
3) CONSTRUCT NEW OFFSET ROADWAY AND BRIDGE OVER LOCUST CREEK.

4) CONSTRUCT KNIGHT DRIVE AND PROVIDE TEMPORARY CONNECTION TO EXISTING HWY. 268

5) INSTALL GUARDRAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
★ ★ ★
No. 9620
HUBERT BURNS
06/05/2020





STAGE 1 QUANTITIES:

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3952 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 4453 LIN. FT.
VERTICAL PANELS = 27 EACH
TRAFFIC DRUMS = 28 EACH
SIGNS = 306.0 SQ. FT.

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090551	13	50

MAINTENANCE OF TRAFFIC DETAILS

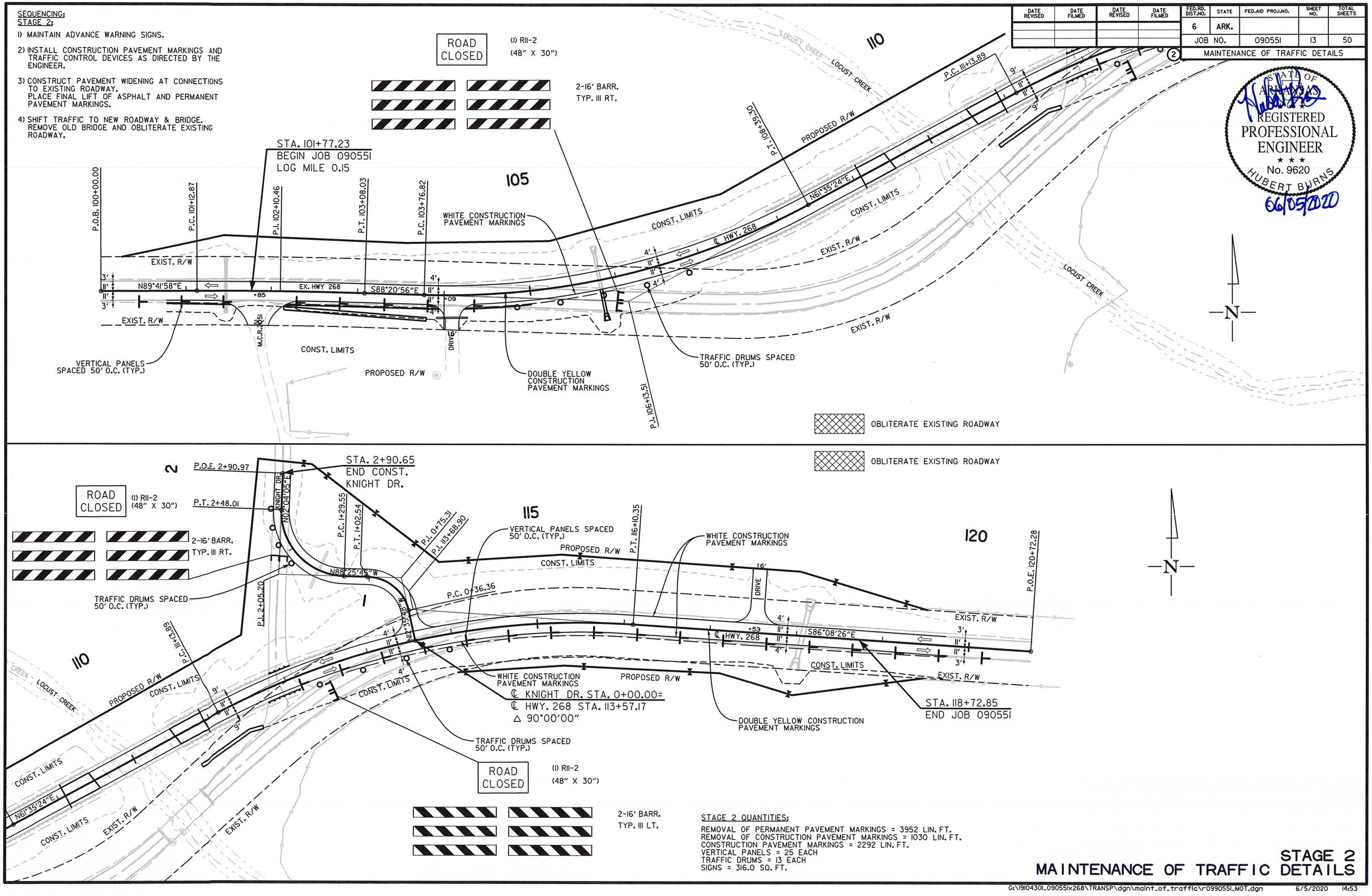
SEQUENCING:
STAGE 2:

1) MAINTAIN ADVANCE WARNING SIGNS.

2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.

3) CONSTRUCT PAVEMENT WIDENING AT CONNECTIONS TO EXISTING ROADWAY. PLACE FINAL LIFT OF ASPHALT AND PERMANENT PAVEMENT MARKINGS.

4) SHIFT TRAFFIC TO NEW ROADWAY & BRIDGE. REMOVE OLD BRIDGE AND OBLITERATE EXISTING ROADWAY.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

STAGE 2 QUANTITIES:

REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3952 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 1030 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 2292 LIN. FT.
VERTICAL PANELS = 25 EACH
TRAFFIC DRUMS = 13 EACH
SIGNS = 316.0 SQ. FT.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	14	50

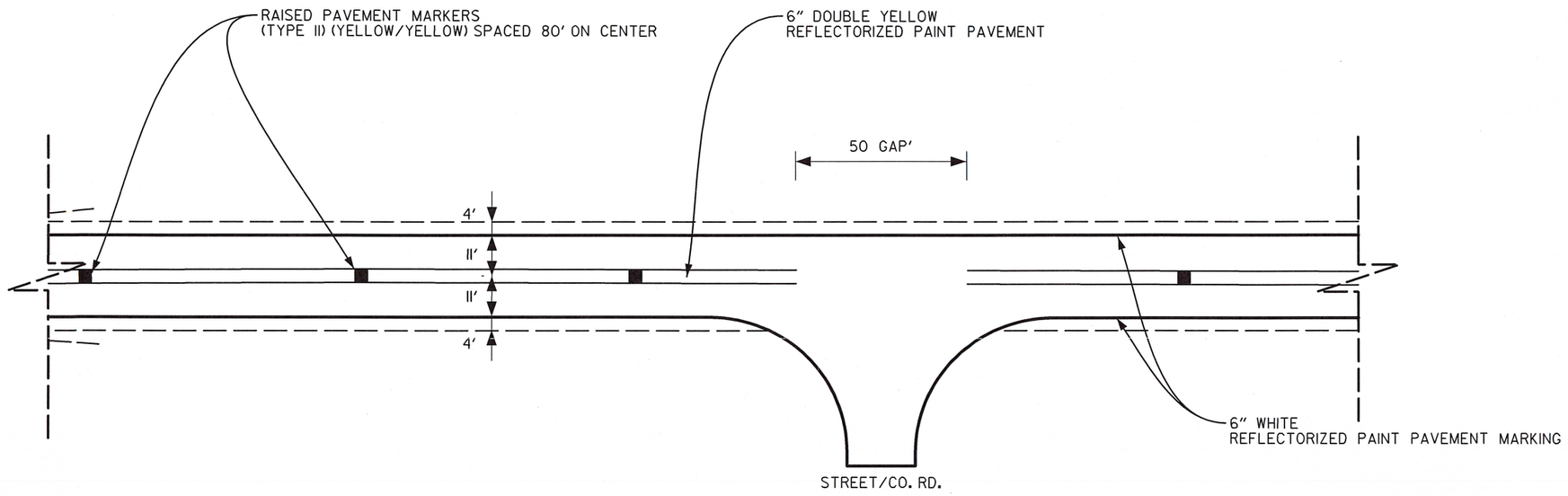
(2) PERMAMENT PAVEMENT MARKING DETAIL

PERMANENT PAVEMENT MARKING

REFLECTORIZED PAINT PAVEMENT MARKING:
WHITE (6") = 3791 LIN. FT.
YELLOW (6") = 3791 LIN. FT.

RAISED PAVEMENT MARKERS:
TYPE II (YELLOW/YELLOW) (80' O.C.) = 45 EACH

STATE OF ARKANSAS
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HUBERT BURNS
06/05/2020



TYPICAL 2-LANE PERMANENT PAVEMENT MARKING LAYOUT

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

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PERMANENT PAVEMENT MARKING DETAIL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	15	50

(2) QUANTITIES

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
										RIGHT	LEFT
			LIN. FT. - EACH			NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0				
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	32.0				
G20-2	END ROAD WORK	48"x24"	4	4	4	4	32.0				
R11-2	ROAD CLOSED	48"x30"	2	3	3	3	30.0				
R4-1	DO NOT PASS	24"x30"	4	4	4	4	20.0				
W21-5A	RIGHT SHOULDER CLOSED	36"x36"	5	5	5	5	45.0				
W8-1	BUMP	30"x30"	4	4	4	4	25.0				
W8-9a	SHOULDER DROP OFF	36"X36"	4	4	4	4	36.0				
	VERTICAL PANELS		27	25	27			27			
	TRAFFIC DRUMS		28	13	28				28		
	TYPE III BARRICADE-RT. (16')		2	3	3					48	
	TYPE III BARRICADE-LT. (16')		2	2	2						32
TOTALS:							**316.0**	**27**	**28**	**48**	**32**

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

SELECTED PIPE BEDDING

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

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
101+47	HYW. 268	1
104+09	HYW. 268	1
105+77	HYW. 268	1
111+85	HYW. 268	1
118+08	HYW. 268	1
TOTAL:		**5**

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/08/2020

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
							TYPE II	6"	
							(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.		LIN. FT.	EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1852	1733		3585					
CONSTRUCTION PAVEMENT MARKINGS	4453	2292			6745				
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		1030				1030			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)			45				45		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")			3791					3791	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")			3791						3791
TOTALS:				**3585**	**6745**	**1030**	**45**	**3791**	**3791**

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
* ENTIRE PROJECT - TO BE USED IF AND WHERE	10	20
DIRECTED BY THE ENGINEER		
TOTALS:	**10**	**20**

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE B-1 (1' 6")
			LIN. FT.
100+77	105+00	HWY 268 ON RT.	423
TOTAL:			**423**

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.	EACH	
107+21.43	109+40.17	HWY. 268 RT.	150	1	1
107+91.02	109+34.77	HWY. 268 LT.	75	1	1
110+62.83	112+81.58	HWY. 268 LT.	150	1	1
110+68.23	112+11.98	HWY. 268 RT.	75	1	1
TOTALS:			**450**	**4**	**4**

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D)	* 16'-0" GATES
			LIN. FT.	EACH
112+61	119+41	HWY. 268 - LT.	736	
117+53		HWY. 268 - LT.		1
114+00	119+48	HWY. 268 - RT.	544	
TOTALS:			**1280**	**1**

* DENOTES ALTERNATE BID ITEM.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
110+56	111+00	HWY. 268 - LT.	104	
112+61	119+50	HWY. 268 - LT.	887	
117+53		HWY. 268 - LT.		1
114+00	119+48	HWY. 268 - RT.	537	
TOTALS:			**1528**	**1**

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
104+50	115+30	HWY. 268 - LT.	11	11
TOTALS:			**11**	**11**

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	16	50

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/08/2020

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SPECIAL SEEDING	LIME	SPECIAL MULCH COVER	WATER	SPECIAL SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						1.00	1.00	20.4	220	4	2062			93
ENTIRE	PROJECT	STAGE 1	1.71	3.42	1.71	174.4	1.71	1.71	1.71	34.9	88	12		148	148	157
ENTIRE	PROJECT	STAGE 2	0.63	1.26	0.63	64.3	0.63	0.63	0.63	12.9	88	12		91	91	98
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.68	1.36	0.68	69.4	0.68	0.68	0.68	13.9	99	12	561	60	60	81
TOTALS:			**3.02**	**6.04**	**3.02**	**308.1**	**3.02**	**4.02**	**4.02**	**82.1**	**495**	**40**	**2623**	**299**	**299**	**429**

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

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

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 18"	SIDE DRAINS 24"	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	LIN. FT.		
101+78	RT.	HWY. 268	20	211.86	23.30	86.51			
104+09	RT.	HWY. 268	16	129.60	14.26	62.25	36		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
113+57	LT.	HWY. 268	18	568.17	62.50	521.80	60	66	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
117+53	LT.	HWY. 268	16	123.56	13.59	91.52			
1+60	LT.	KNIGHT DRIVE						28	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT TEMPORARY DRIVES						50.00			
TOTALS:				**1033.19**	**113.65**	**812.08**	**96**	**94**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
110+50	AT BRIDGE	1
TOTAL:		**1**

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES	3859	9985	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	1433	423	
ENTIRE	PROJECT	STAGE 1-KNIGHT DR.	922	547	
ENTIRE	PROJECT	APPROACHES		70	
ENTIRE	PROJECT	OBLITERATION OF EXISTING ROADWAY	532		
ENTIRE	PROJECT	REMOVAL OF EXISTING BRIDGE EMBANKMENT	435		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
		DIRECTED BY THE ENGINEER			
TOTALS:			**7181**	**11025**	**100**

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

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

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
102+15.00	103+80.00	Hwy 268 RT.	165.00	8.00	146.67	73.33	0.92
110+65.00	111+70.00	Hwy 268 RT.	105.00	12.00	140.00	46.67	0.59
TOTALS:					**286.67**	**120.00**	**1.51**

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

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 36"	(CLASS IV) 24"	(CLASS V) 60"	FLARED END SECTION FOR R.C. PIPE 24"	36"	60"	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.			EACH			SQ.YD.	M.GAL.	
101+47	24" X 52' R.C. PIPE CULVERT W/ FES LT. & RT.		52		2			20	0.25	FES-1, FES-2, PCC-1
105+81	36" X 72' R.C. PIPE CULVERT W/ FES LT. & RT.	72				2		34	0.43	FES-1, FES-2, PCC-1
118+08	60" X 58' R.C. PIPE CULVERT W/ FES LT. & RT.			58			2	90	1.13	FES-1, FES-2, PCC-1
TOTALS:		**72**	**52**	**58**	**2**	**2**	**2**	**144**	**1.81**	

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.

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QUANTITIES

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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.		090551	17	50

(2) QUANTITIES

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE SPECIAL)	APPROACH SLABS (TYPE SPECIAL)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
109+06.97	109+47.47	APPROACH SLAB		53.35	5981	34.45
110+96.03	110+55.53	APPROACH SLAB		53.35	5981	34.45
109+16.43	109+52.41	APPROACH GUTTER ON RT.	7.93		430	
109+05.51	109+42.53	APPROACH GUTTER ON LT.	8.19		444	
110+60.47	110+97.49	APPROACH GUTTER ON RT.	8.19		444	
110+50.59	110+86.57	APPROACH GUTTER ON LT.	7.93		430	
TOTALS:			32.24	106.70	13710	68.90

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			1000	4
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			1000	4

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

STATE OF ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
101+47	HWY. 268	8.50	24	11
105+77	HWY. 268	9.67	24	13
118+08	HWY. 268	12.00	24	16
TOTAL:				40

AVG. DEPTH = 9"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
100+77.23	101+77.23	MAIN LANES	22.00	244.44
118+72.85	119+72.85	MAIN LANES	22.00	244.44
TOTAL:				488.88

NOTE: AVERAGE MILLING DEPTH 1".

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
100+77.23	101+47.00	HWY 268 LT.	69.77	62.02
101+48.00	102+30.00	HWY 268 LT.	82.00	72.89
104+25.00	105+65.00	HWY 268 RT.	140.00	124.44
111+70.00	112+05.00	HWY 268 RT.	35.00	31.11
112+05.00	115+25.00	HWY 268 LT.	320.00	284.44
TOTAL:				574.90

NOTE: AVERAGE WIDTH = 8'-0"

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
101+77.23	105+74.23	NOTCH & WIDEN HWY. 268	397.00	105.75	419.83	9.49	418.61	20.93				20.93	4.77	210.41	330.00	34.72	4.72	208.20	220.00	22.90	26.00	1146.89	220.00	126.16	149.06
105+74.30	109+08.99	FULL DEPTH HWY. 268	334.69	178.00	595.75	44.71	1662.67	83.13				83.13	22.46	835.24	330.00	137.81	22.25	827.43	220.00	91.02	26.00	966.88	220.00	106.36	197.38
110+94.01	112+88.04	FULL DEPTH HWY. 268	194.03	178.00	345.37	44.71	963.90	48.20				48.20	22.46	484.21	330.00	79.89	22.25	479.69	220.00	52.77	26.00	560.53	220.00	61.66	114.43
112+88.04	118+72.85	NOTCH & WIDEN HWY. 268	584.81	103.25	603.82	8.81	572.46	28.62				28.62	4.46	289.81	330.00	47.82	4.35	282.66	220.00	31.09	26.00	1689.45	220.00	185.84	216.93
100+77.23	101+77.23	HWY. 268 BEGIN TRANSITION	100.00	63.00	63.00	45.44	504.90	25.25	22.00	246.96	41.98	67.23									26.00	288.89	220.00	31.78	31.78
118+72.85	119+72.85	HWY. 268 END TRANSITION	100.00	75.75	75.75	45.73	508.09	25.40	22.00	248.36	42.22	67.62									26.00	288.89	220.00	31.78	31.78
ADDITIONAL FOR LEVELING & METHOD OF RAISING GRADE																									
101+77.23	105+74.23	HWY. 268	397.00			37.12	1637.40	81.87	22.00	970.44	164.97	246.84	18.57	819.14	220.00	90.11	18.57	819.14	220.00	90.11					90.11
112+88.04	118+72.85	HWY. 268	584.81			44.31	2879.21	143.96	22.00	1429.54	243.02	386.98	14.77	959.74	660.00	316.71	14.77	959.74	220.00	105.57					105.57
105+00.00	106+75.00	HWY. 268 Method of Raising Grade	175.00	30.75	53.81				22.00	427.78	72.72	72.72	24.00	466.67	330.00	77.00	24.00	466.67	220.00	51.33					51.33
ADDITIONAL FOR SUPERELEVATION																									
103+42.42	108+73.70	HWY. 268	531.28	13.75	73.05																				
108+73.70	109+08.99	HWY. 268	35.29	16.50	5.82																				
110+94.01	118+72.85	HWY. 268	778.84	24.25	188.87																				
WIDENING FOR GUARDRAIL																									
106+78.43	109+51.46	HWY. 268 RT.	273.03	20.00	54.61																7.17	217.51	220.00	23.93	23.93
107+48.02	109+43.78	HWY. 268 LT.	195.76	19.50	38.17																7.04	153.13	220.00	16.84	16.84
110+51.84	113+24.58	HWY. 268 LT.	272.74	20.00	54.55																7.17	217.28	220.00	23.90	23.90
110+59.22	112+54.98	HWY. 268 RT.	195.76	19.50	38.17																7.17	155.96	220.00	17.16	17.16
WIDENING FOR CURB & GUTTER																									
101+77.23	105+00.00	HWY. 268 RT.	322.77																		2.00	71.73	220.00	7.89	7.89
TOTALS:					2610.57		9147.24	457.36		3323.08	564.91	1022.27		4065.22		784.06		4043.53		444.79		5757.14		633.30	1078.09

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
07-31-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090551	18	50
(1) 07495		BRIDGE QUANTITIES		61738

⚠ Revised Quantities, 07-31-2020

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 090551

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805 (1)	SS & 805	SP, SS, & 807	SS & 808	812	816	816
			ITEM / UNIT	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE -BRIDGE	CLASS S (AE) CONCRETE -BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12X53)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	FOUNDATION PROTECTION RIPRAP
				LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	TON
07495	HIGHWAY 268 OVER LOCUST CREEK	BENT NO. 1				15.18 ~~17.60~~ ⚠			1,080	300	92	82 ~~60~~ ⚠				159	262 ~~338~~ ⚠
		BENT NO. 2			194	51.35 ~~51.45~~ ⚠			6,655				~~2,045~~ ⚠	1,911.0 ~~1,560.0~~ ⚠			
		BENT NO. 3			204	51.50 ~~51.43~~ ⚠			6,655				~~2,045~~ ⚠	1,911.0 ~~1,560.0~~ ⚠			
		BENT NO. 4				15.47 ~~18.12~~ ⚠			1,080	300	92	82 ~~60~~ ⚠				161	259 ~~327~~ ⚠
		107'-0" INTEGRAL CONT. W-BEAM UNIT					137.10 ~~132.60~~ ⚠	465.0 ~~456.8~~ ⚠		36,700 ~~36,560~~ ⚠			41,350 ~~41,050~~ ⚠		1		
		SITE NO. 1 (EX. BR. NO. M3776)		1													
		TOTALS FOR JOB NO. 090551			398	133.50 ~~138.60~~ ⚠	137.10 ~~132.60~~ ⚠	465.0 ~~456.8~~ ⚠	15,470	37,300 ~~37,160~~ ⚠	184	164 ~~120~~ ⚠	41,350 ~~45,140~~ ⚠	3,822.0 ~~3,120.0~~ ⚠	1	320	521 ~~665~~ ⚠

(1) All piling shall be ASTM A709, Grade 50. Steel piling (Gr. 50) shall have special QPL approved driving points which shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling (HP 12x53)."

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
7/31/20

SCHEDULE OF BRIDGE QUANTITIES
LOCUST CREEK STR. & APPRS. (S)
MARION COUNTY
ROUTE 268 SEC. 0
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: CAW DATE: 04-20-2020 SCALE: NO SCALE
DESIGNED BY: LDG DATE: 03-13-2020
BRIDGE NO. 07495 DRAWING NO. 61738

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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
07-31-2020				6	ARK.			
				JOB NO.		090551	19	50

(2) SUMMARY OF QUANTITIES & REVISIONS

SUMMARY OF QUANTITIES (BOX 1 OF 2)

	ITEM NUMBER	ITEM		QUANTITY	UNIT
	201	CLEARING		11	STATION
	201	GRUBBING		11	STATION
	202	REMOVAL AND DISPOSAL OF FENCE		1528	LIN. FT.
	202	REMOVAL AND DISPOSAL OF GATES		1	EACH
	202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		5	EACH
	SS & 210	UNCLASSIFIED EXCAVATION		7181	CU. YD.
	210	COMPACTED EMBANKMENT		11025	CU. YD.
	SP & 210	SOIL STABILIZATION		100	TON
	SS & 303	AGGREGATE BASE COURSE (CLASS 7)		3492	TON
	SS & 401	TACK COAT		1042	GAL.
	SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		749	TON
	SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		35	TON
	SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		1126	TON
	SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		66	TON
	412	COLD MILLING ASPHALT PAVEMENT		489	SQ. YD.
	SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		10	TON
	SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		50	TON
	504	APPROACH SLABS		106.70	CU. YD.
	504	APPROACH GUTTERS		32.24	CU. YD.
	601	MOBILIZATION		1.00	LUMP SUM
	SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
	SS & 604	SIGNS		316	SQ. FT.
	SS & 604	BARRICADES		80	LIN. FT.
	SS & 604	TRAFFIC DRUMS		28	EACH
	604	CONSTRUCTION PAVEMENT MARKINGS		6745	LIN. FT.
	604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		1030	LIN. FT.
	604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		3585	LIN. FT.
	SS & 604	VERTICAL PANELS		27	EACH
	SS & 605	CONCRETE DITCH PAVING (TYPE B)		287	SQ. YD.
	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		52	LIN. FT.
	606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		72	LIN. FT.
	606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)		58	LIN. FT.
	SP, SS & 606	18" SIDE DRAIN		96	LIN. FT.
	SP, SS & 606	24" SIDE DRAIN		94	LIN. FT.
	606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
	606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
	606	60" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
	606	SELECTED PIPE BEDDING		50	CU. YD.
	SS & 611	4" PIPE UNDERDRAINS		1000	LIN. FT.
	SS & 611	UNDERDRAIN OUTLET PROTECTORS		4	EACH
	615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)		40	TON
	SS & 617	GUARDRAIL (TYPE A)		450	LIN. FT.
	SS & 617	GUARDRAIL TERMINAL (TYPE 2)		4	EACH
	SS & 617	THRIE BEAM GUARDRAIL TERMINAL		4	EACH
	619	WIRE FENCE (TYPE D)		1280	LIN. FT.
*	619	16' STEEL GATES	(ALTERNATE NO. 1)	1	EACH
*	619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
	620	LIME		6	TON
	SP & 620	SPECIAL SEEDING		3.02	ACRE
	SP, SS, & 620	SPECIAL MULCH COVER		7.04	ACRE
	620	WATER		393.5	M. GAL.
	621	TEMPORARY SEEDING		4.02	ACRE
	621	SILT FENCE		2623	LIN. FT.
	621	SAND BAG DITCH CHECKS		495	BAG
	621	SEDIMENT BASIN		299	CU. YD.
	621	OBLITERATION OF SEDIMENT BASIN		299	CU. YD.
	621	SEDIMENT REMOVAL AND DISPOSAL		429	CU. YD.
	621	ROCK DITCH CHECKS		40	CU. YD.
	SP & 623	SPECIAL SECOND SEEDING APPLICATION		3.02	ACRE
	624	SOLID SODDING		264	SQ. YD.
	626	EROSION CONTROL MATTING (CLASS 3)		575	SQ. YD.
	SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE B-1) (1' 6")		423	LIN. FT.
	635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")		3791	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		3791	LIN. FT.
	721	RAISED PAVEMENT MARKERS (TYPE II)		45	EACH
	SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		13710	POUND

* DENOTES ALTERNATE BID ITEMS.

STATE OF ARKANSAS
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No. 9620
HUBERT BURNS
07/31/2020

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
	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	398	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	133.50	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	137.10	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT	465.0	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	15470	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	37300	POUND
SS & 805	STEEL PILING (HP 12X53)	184	LIN. FT.
SS & 805	PREBORING	164	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	41350	POUND
SS & 808	ELASTOMERIC BEARINGS	3822	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	320	SQ. YD.
816	FOUNDATION PROTECTION RIPRAP	521	TON

REVISIONS

DATE	REVISION	SHEET NUMBER
7/31/2020	REVISED QUANTITIES CLASS S CONCRETE-BRIDGE, CLASS S (AE) CONCRETE-BRIDGE, CLASS 2 PROTECTIVE SURFACE TREATMENT, REINFORCING STEEL-BRIDGE, EPOXY COATED REINFORCING STEEL (GRADE 60), PREBORING,STRUCTURAL STEEL IN BEAM SPANS (A709, GR 50W), ELASTOMERIC BEARINGS, & FOUNDATION PROTECTION RIPRAP.	18,19,& 37

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SCALE: 1:200

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	20	50
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
06/05/2020

SURVEY CONTROL COORDINATES

Project Name: s090551
Date: 2/5/2019
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	755464.7212	1052361.8831	709.494	CTL	*STD ARDOT MONUMENT STAMPED PN: 1
2	755494.5476	1052938.2659	710.493	CTL	*STD ARDOT MONUMENT STAMPED PN: 2
3	755544.3802	1053825.7809	704.653	CTL	*STD ARDOT MONUMENT STAMPED PN: 3
4	755854.4668	1054226.3033	715.621	CTL	*STD ARDOT MONUMENT STAMPED PN: 4
5	755778.8522	1055269.7519	730.831	CTL	*STD ARDOT MONUMENT STAMPED PN: 5
900	755398.9641	1052340.0253	708.082	TBM	*SQUARE CUT CNTR N HW
901	755653.7983	1053906.4542	703.433	TBM	*SQUARE CUT ON NW CRNR BR
902	755824.7923	1055489.9469	740.536	TBM	*SQUARE CUT CNTR OF ROCK
998	723900.7254	1013350.74571241.152		TBM	*STD ARDOT MON 7 BERGMAN
999	723722.2678	1013299.06911215.790		BM	*NGS DISK STMPD Z35 1934 7 BERGMAN

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped *(standard markings common to all caps), or as indicated (other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 1.000009012 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. s090551gi.ctl
HORIZONTAL DATUM: NAD 83 (2011)
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 AN AVERAGE FOR POINTS 1-5
CONVERGENCE ANGLE: 00 00-30-40 LEFT AT LAT N 36-24-21 LON W092-52-42
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

090551 CL - HIGHWAY 268

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	P.O.B.	100+00.00	755510.9503	1052866.2136
8001	P.C.	101+12.87	755511.5422	1052979.0792
8003	P.T.	103+08.03	755509.2422	1053174.2147
8004	P.C.	103+76.82	755507.2601	1053242.9766
8006	P.T.	108+39.30	755613.0542	1053687.7608
8007	P.C.	111+13.89	755743.7018	1053929.2871
8009	P.T.	116+10.35	755847.8629	1054408.0040
8010	P.O.E.	120+72.28	755816.7706	1054868.8925

090551 CL - KNIGHT DRIVE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8011	P.O.B.	0+00.00	755828.6440	1054156.4342
8012	P.C.	0+36.36	755864.1327	1054148.5036
8014	P.T.	1+02.54	755903.2095	1054101.0778
8015	P.C.	1+29.55	755903.9499	1054074.0802
8017	P.T.	2+48.01	755981.6281	1054001.1851
8018	P.O.E.	2+90.97	756024.5654	1054002.7355

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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.		090551	21	50

SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
★ ★ ★
No. 9620
HUBERT BURNS
06/05/2020

℄ CONST. HWY. 268
P.I. = 102+10.46
△ = 01°57'06" RT.
D = 01°00'00"
T = 97.59'
L = 195.16'
P.C. = 101+12.87
P.T. = 103+08.03
e = 0.026'/'
Ls = 300'

STA. 101+77.23
BEGIN JOB 090551
LOG MILE 0.15

P.O.B. 100+00.00
P.C. 101+12.87
P.I. 102+10.46
P.T. 103+08.03
P.C. 103+76.82

℄ HWY. 268
N89°41'58"E 112.87'
N89°41'58"E 97.59'
S88°20'56"E 97.59'
68.79'
S88°20'56"E
SURVEY BASELINE N 87°02'16" E 577.15'
8000 8001 8003 8004
PN:2
PD:STD ARDOT MONUMENT STAMPED PN:2

105

℄ CONST. HWY. 268
P.I. = 106+13.51
△ = 30°03'40" LT.
D = 06°30'00"
T = 236.69'
L = 462.48'
P.C. = 103+76.82
P.T. = 108+39.30
e = 0.10'/'
Ls = 350'

BEARINGS ARE GRID BASED ON GPS

SURVEY BASELINE N 86°47'11" E 888.91'
S88°20'56"E 236.69'
N61°35'24"E 236.69'
P.I. 106+13.51

110

P.T. 108+39.30
P.C. 111+13.89
8006 8007
N61°35'24"E 274.60'
℄ HWY. 268
N61°35'24"E 255.01'
8007
SURVEY BASELINE N 52°15'10" E 506.53'

TBM
PN:901
PD:SQUARE CUT ON NW CRNR BR

℄ CONST. HWY. 268
P.I. = 113+68.90
△ = 32°16'10" RT.
D = 06°30'00"
T = 255.01'
L = 496.46'
P.C. = 111+13.89
P.T. = 116+10.35
e = 0.10'/'
Ls = 350'

PN:3
PD:STD ARDOT MONUMENT STAMPED PN:3

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SCALE: 1:100

℄ CONST. HWY. 268
P.I. = 102+10.46
△ = 01°57'06" RT.
D = 01°00'00"
T = 97.59'
L = 195.16'
P.C. = 101+12.87
P.T. = 103+08.03
e = 0.026'/'
Ls = 300'

℄ KNIGHT DR.
PI = 2+05.20
△ = 90°29'50" RT.
D = 76°23'41"
T = 75.65'
L = 118.46'
PC = 1+29.55
PT = 2+48.01
NO SUPER

℄ KNIGHT DR.
PI = 0+75.31
△ = 75°49'57" LT.
D = 114°35'07"
T = 38.95'
L = 66.18'
PC = 0+36.36
PT = 1+02.54
NO SUPER

2

P.O.E. 2+90.97 8018
STA. 2+90.65
END CONST.
KNIGHT DR.
P.T. 2+48.01 8017
42.97' N02°04'05"E
75.65' N02°04'05"E
P.C. 1+29.55 8016
P.T. 1+02.54
38.95' N88°25'45"W
P.I. 0+75.31
P.I. 113+68.90
38.95' N12°35'48"W
N88°25'45"W
75.65' N88°25'45"W 8015
8014
P.I. 2+05.20
℄ KNIGHT DR. N88°25'45"W 27.01'
8013
P.C. 0+36.36 8012
N12°35'48"W 36.36'
255.01' S86°08'26"E
PN:4
PD:STD ARDOT MONUMENT STAMPED PN:4
8011
8009
492.81' S86°08'26"E
SURVEY BASELINE S 85°51'50" E 1046.18'
8010
P.O.E. 120+72.28

115

120

P.T. 116+10.35

℄ KNIGHT DR. STA. 0+00.00=
℄ HWY. 268 STA. 113+57.17
△ 90°00'00"

STA. 118+72.85
END JOB 090551

BEARINGS ARE GRID BASED ON GPS

SURVEY CONTROL DETAILS

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				6	ARK.			
				JOB NO.		090551	22	50

PLAN AND PROFILE SHEETS

OBLITERATE OF EXISTING ROADWAY

℄ CONST. HWY. 268
P.I. = 102+10.46
Δ = 01°57'06" RT.
D = 01°00'00"
T = 97.59'
L = 195.16'
P.C. = 101+12.87
P.T. = 103+08.03
e = 0.026'/'
Ls = 300'

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
107+21.43	109+40.17	HWY. 268 RT.	150' LIN. FT.	1 EACH	1 EACH
107+91.02	109+34.77	HWY. 268 LT.	75' LIN. FT.	1 EACH	1 EACH
110+62.83	112+81.58	HWY. 268 LT.	150' LIN. FT.	1 EACH	1 EACH
110+68.23	112+11.98	HWY. 268 RT.	75' LIN. FT.	1 EACH	1 EACH

STA. 109+88.65 TO STA. 110+57.65
IN PLACE 69.0' X 22.0' BRIDGE NO. M3776
CONSISTING OF PRECAST CONCRETE BEAMS
REMOVE AS EXISTING BRIDGE
STRUCTURE (SITE NO.1)= 1.00 LUMP SUM

STA. 109+47.47 BRIDGE END
BRIDGE NO. 07495
107'-0" INTEGRAL CONT. W-BEAM UNIT
(33'-41'-33')
30'-0" CLEAR ROADWAY
20° RT. FWD. SKEW
108'-0 3/4" BRIDGE LENGTH
STA. 110+55.53 BRIDGE END

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06/05/2020

P.O.B. 100+00.00
100' TRANSITION
+77.23
P.C. 101+12.87
+45 65'
+77.23
P.I. 102+10.46
P.T. 103+08.03
+55 60'
P.C. 103+76.82
2' SHLD.
11' 11"
2' SHLD.
N89°41'58"E
268
105
+85
20'
S88°20'56"E
+09
16'
PROPOSED R/W
+30 55'
+50 55'
CONST. LIMITS
℄ HWY. 268
4' SHLD.
11' 11"
4' SHLD.
N61°35'24"E
P.T. 108+39.30
STA. 109+47.47 BR. END
50' VEGETATED BUFFER
STA. 110+55.53 BR. END
P.C. 111+13.89
110
+75 70
CONST. LIMITS
EXIST. R/W
℄ EXIST. HWY. 268
50' VEGETATED BUFFER
LOCUST CREEK
P.I. 106+13.51

℄ CONST. HWY. 268
P.I. = 106+13.51
Δ = 30°03'40" LT.
D = 06°30'00"
T = 236.69'
L = 462.48'
P.C. = 103+76.82
P.T. = 108+39.30
e = 0.10'/'
Ls = 350'

N

P.O.E. 2+90.97
+55 225
P.T. 2+48.01
N0°04'05"E
+00 230'
P.C. 1+29.55
P.T. 1+02.54
P.I. 2+05.20
KNIGHT DR.
N88°25'43"W
P.I. 0+75.31
P.I. 113+68.90
+00 85'
115
P.C. 0+36.36
S86°08'26"E
N1°35'33"W
+00 46.00
PROPOSED R/W
CONST. LIMITS
+30 50'

STA. 2+90.65
END CONST.
KNIGHT DR.

℄ KNIGHT DR.
PI = 2+05.20
Δ = 90°29'50" RT.
D = 76°23'41"
T = 75.65'
L = 118.46'
PC = 1+29.55
PT = 2+48.01
NO SUPER

℄ KNIGHT DR.
PI = 0+75.31
Δ = 75°49'57" LT.
D = 114°35'07"
T = 38.95'
L = 66.18'
PC = 0+36.36
PT = 1+02.54
NO SUPER

℄ KNIGHT DR. STA. 0+00.00=
℄ HWY. 268 STA. 113+57.17
Δ 90°00'00"

℄ CONST. HWY. 268
P.I. = 113+68.90
Δ = 32°16'10" RT.
D = 06°30'00"
T = 255.01'
L = 496.46'
P.C. = 111+13.89
P.T. = 116+10.35
e = 0.10'/'
Ls = 350'

STA. 101+85 - CONSTRUCT
APPROACH ON RT. = 30 CU. YDS.

1'-6" C.C.C. & G.
(TYPE B-1)

STA. 101+77.23
BEGIN JOB 090551
LOG MILE 0.15

STA. 101+47 - IN PLACE
24" X 40' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
24" X 52' R.C. PIPE CULVERT
W/ F.E.S. LT. & RT.
(CLASS IV)(TYPE 3 BEDDING)
D.A. = 1.7 ACRES, Q50 = 7.3 CFS

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

REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT.	GATE
110+56	111+00	LT.	104	
112+61	117+41	LT.	876	
117+53		LT.		1
114+00	119+48	RT.	537	

STA. 104+09 - IN PLACE
18" X 30' C.M. PIPE CULVERT
REMOVE & INSTALL 18' X 36'
RT. SIDE DRAIN
CONST. APPR. = 15 CU. YDS.

STA. 105+81 - IN PLACE
24" X 40' C.M. PIPE CULVERT
REMOVE & INSTALL
36" X 72' R.C. PIPE CULVERT
W/ F.E.S. LT. & RT.
(CLASS III)(TYPE 3 BEDDING)
D.A. = 6.1 ACRES, Q50 = 30.4 CFS

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
112+61	119+41	LT.	WIRE TYPE D	736	
117+53		LT.			1
114+00	119+48	RT.	WIRE TYPE D	544	

STA. 113+57 - INSTALL
18" X 60' LT. SIDE DRAIN

STA. 1+60 KNIGHT DRIVE - INSTALL
24" X 66' LT. SIDE DRAIN

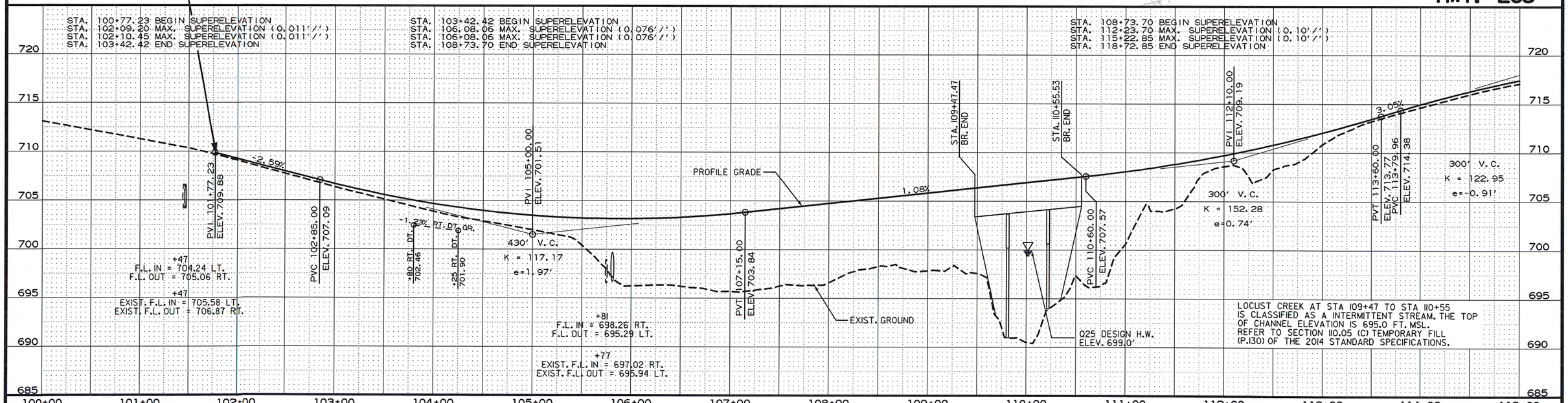
STA. 111+85 - IN PLACE
18" X 62' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

HWY. 268

STA. 100+77.23 BEGIN SUPERELEVATION
STA. 102+09.20 MAX. SUPERELEVATION (0.011'/')
STA. 102+10.45 MAX. SUPERELEVATION (0.011'/')
STA. 103+42.42 END SUPERELEVATION

STA. 103+42.42 BEGIN SUPERELEVATION
STA. 106+08.06 MAX. SUPERELEVATION (0.076'/')
STA. 106+08.06 MAX. SUPERELEVATION (0.076'/')
STA. 108+73.70 END SUPERELEVATION

STA. 108+73.70 BEGIN SUPERELEVATION
STA. 112+23.70 MAX. SUPERELEVATION (0.10'/')
STA. 115+22.85 MAX. SUPERELEVATION (0.10'/')
STA. 118+72.85 END SUPERELEVATION



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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.		090551	23	50
				(2)	PLAN AND PROFILE SHEETS			

STATE OF ARKANSAS
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★ ★ ★
No. 9620
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06/05/2020

REMOVAL AND DISPOSAL FENCE

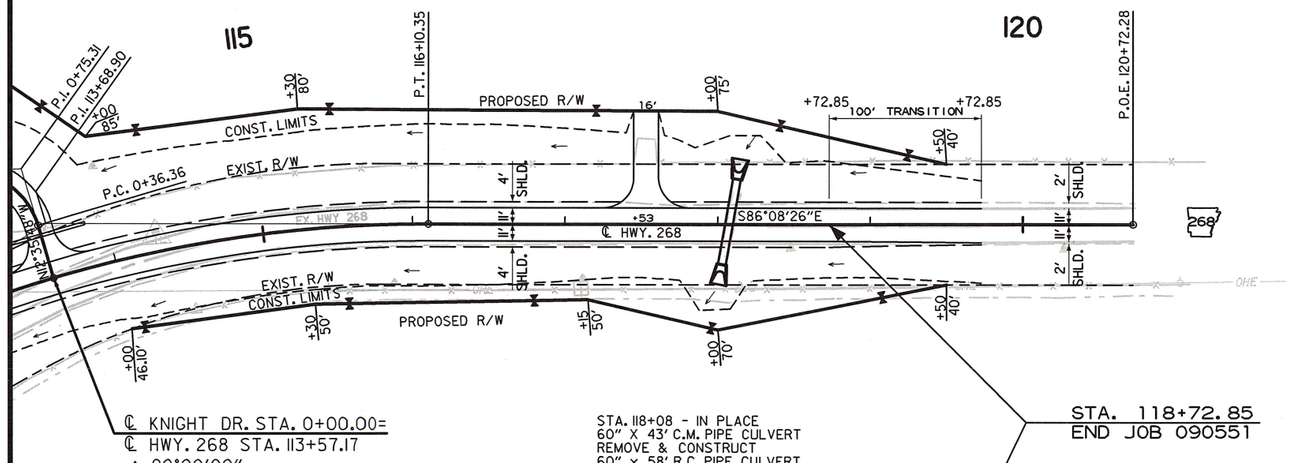
STA.	STA.	SIDE	LIN. FT.	GATE
110+56	111+00	LT.	104	
112+61	117+41	LT.	876	
117+53		LT.		1
114+00	119+48	RT.	537	

FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE
112+61	119+41	LT.	WIRE TYPE D	736	
117+53		LT.			1
114+00	119+48	RT.	WIRE TYPE D	544	

C.L. CONST. HWY. 268
P.I. = 113+68.90
Δ = 32°16'10" RT.
D = 06°30'00"
T = 255.01'
L = 496.46'
P.C. = 111+13.89
P.T. = 116+10.35
e = 0.10'/'
Ls = 350'

STA. 117+53 CONSTRUCT
APPROACH LT. = 25 CU. YDS.



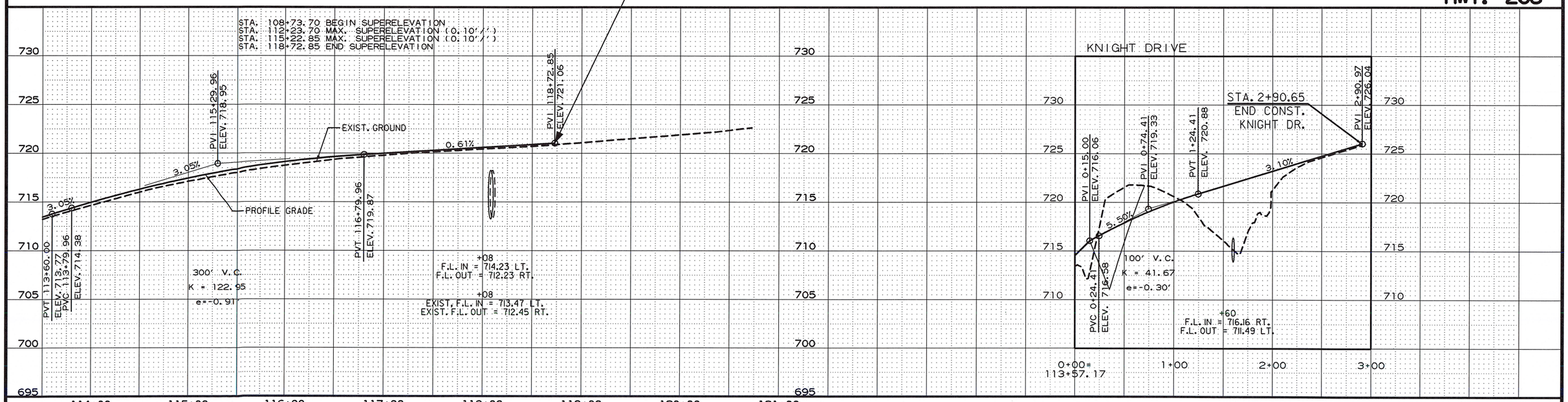
℄ KNIGHT DR. STA. 0+00.00=
℄ HWY. 268 STA. 113+57.17
Δ 90°00'00"

STA. 118+08 - IN PLACE
60" X 43' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
60" x 58' R.C. PIPE CULVERT
W/FES LT. & RT.
ON 10° LT. FWD. SKEW
(CLASS V)(TYPE 3 BEDDING)
D.A. = 70 ACRES, Q50 = 104.6CFS

STA. 118+72.85
END JOB 090551

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

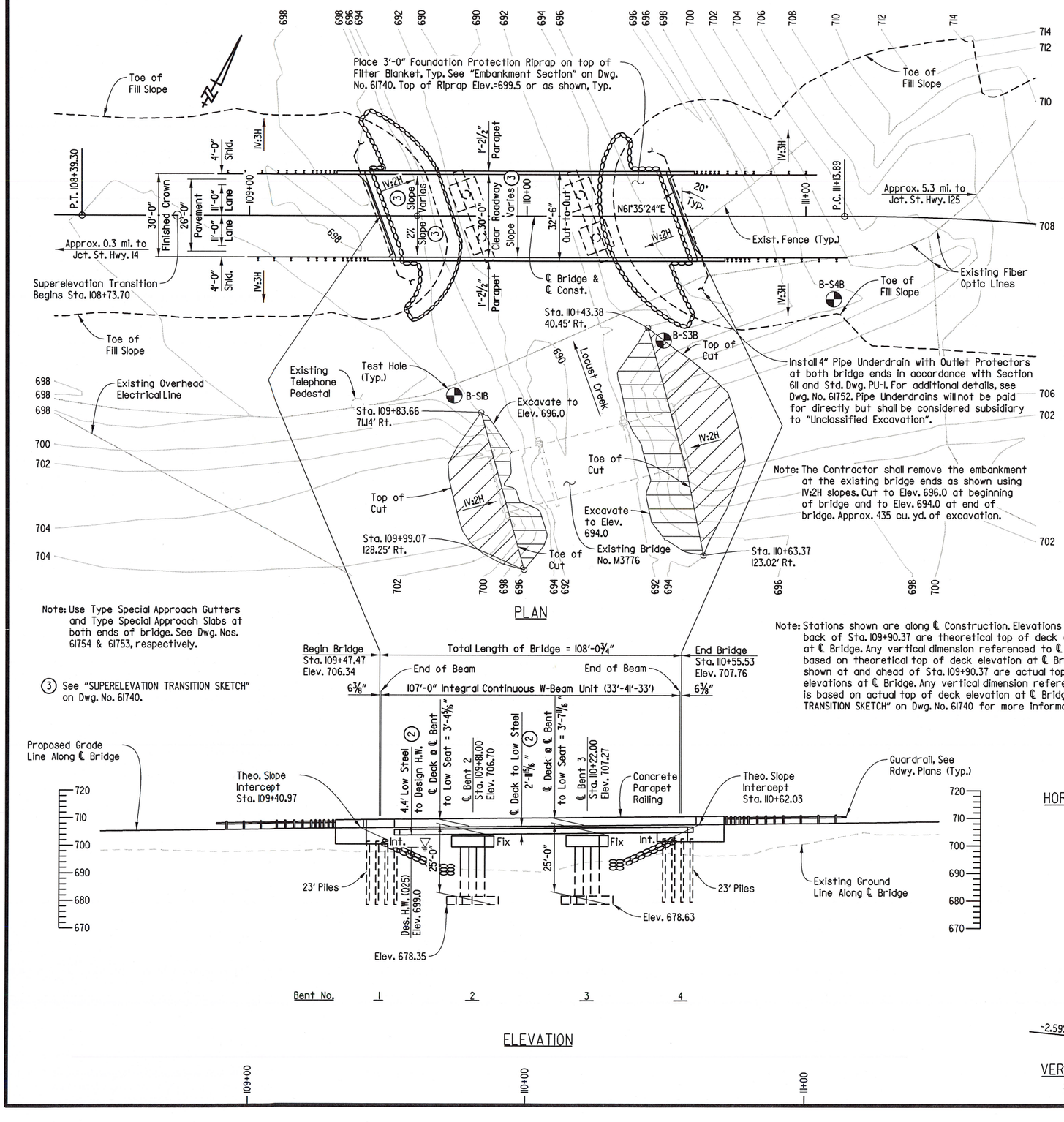
HWY. 268



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PLOTTED: 6/5/2020 14:54
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MODEL: PROPOSED DESIGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	24	50
				(1) 07495		LAYOUT		61739

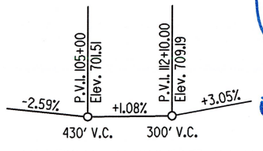
For R/W Data, See Roadway Plans.



HORIZONTAL CURVE DATA

Along ℄ Const.

PI= Sta. 113+68.90
Δ = 32°16'10"RT.
D = 06°30'00"
T = 255.01'
L = 496.46'
PC = Sta. 111+13.89
PT = Sta. 116+10.35



VERTICAL ALIGNMENT DATA

Along Profile Grade Line

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Seventh Edition (2014) with 2015 interim revisions.

LIVE LOADING: HL-93 SITE CLASS = B S_{DI} = 0.072 SEISMIC PERFORMANCE ZONE: I

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60 AASHTO M 31 or M 322 Type A)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi

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

STEEL PILING: All piling shall be HP 12x53 (Gr. 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 97 tons per pile into the material designated as moderately hard to hard Dolostone on the boring legend. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Piles in End Bents 1 & 4 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 piling at Bents 1 and 4. Preboring shall be to a minimum depth of 5' into material designated as moderately hard to hard Dolostone on the boring legend or to a mimimum depth of 15' below the bottom of the cap, whichever is lower. Prebored holes shall have a diameter of 6" greater than the diagonal of the pile for a depth of 10' below the bottom of the cap. The size and depth of the remaining preboring shall be determined in the field by the Engineer. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to within 10' of the bottom of the cap, and the remaining 10' shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other approved methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

SPREAD FOOTINGS: Footings shall be set a minimum of 2' into material designated as moderately hard to hard Dolostone on the boring legend. The top of the footings at Bents 2 & 3 shall be set 2' below the channel bottom as determined by the lowest channel elevation within the footprint of the footing. Foundations for footings shall be prepared in accordance with Subsection 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. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

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

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and roadway face and top of parapet rails in accordance with Section 803.

For Additional General Notes, see Dwg. No. 61740.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	(1) NATURAL W.S. ELEVATION	W.S. ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	25	3,204	698.5	699.0
BASE	100	4,922	700.1	701.2
EXTREME	500	7,264	701.0	704.8
OVERTOPPING	215	5,963	---	702.3

(1) Unconstricted water surface elevation without structure or roadway approaches. Q100 backwater elevation for existing structure = 704.5 feet
(2) Proposed Low Bridge Chord Elev. = 703.38 feet at Station 109+50.00
Drainage Area = 6.46 square miles
Historical H.W. Elev. = 700.9 feet

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 1 OF 2

LAYOUT OF BRIDGE
HIGHWAY 268 OVER LOCUST CREEK
LOCUST CREEK STR. & APPRS. (S)
MARION COUNTY
ROUTE 268 **SEC.** 0

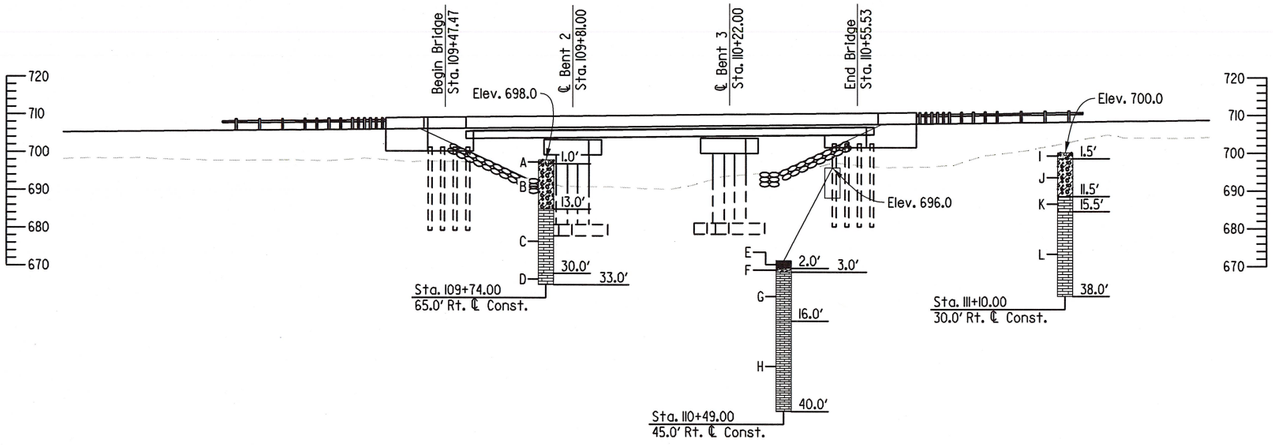
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

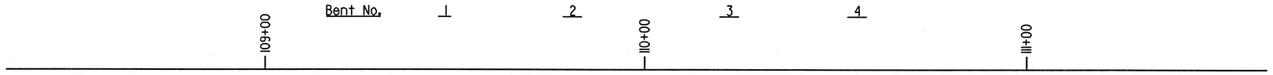
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BRIDGE NO. 07495 DRAWING NO. 61739

USER: NS5187
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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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				JOB NO.		090551	25	50
				(I) 07495		LAYOUT		61740





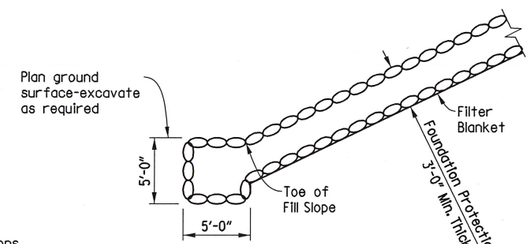
ELEVATION OF SOIL BORINGS

"N" VALUES

Sta. 109+74.00 - 65.0′ Right of ℄ Const.	Sta. 110+49.00 - 45.0′ Right of ℄ Const.	Sta. 111+10.00 - 30.0′ Right of ℄ Const.
0.5 -1.5,N=6	0.5 -1.5,N=8	0.5 -1.5,N=3
2.5 -3.5,N=4	2.5 -3.0,N=50/3″	2.5 -3.5,N=13
4.5 -5.5,N=6		4.5 -5.5,N=28
6.5 -7.5,N=13		6.5 -7.5,N=39
9.0 -9.5,N=25/0″		8.0 -9.0,N=25/0″

BORING LEGEND

A. Soft dark brown fine sandy Clay w/ some fine to coarse Gravel and numerous organics
B. Loose dark brown to brown clayey fine to coarse Gravel w/ fine to coarse Sand
C. Moderately hard to hard gray slightly weathered limy Dolostone, flat bedded w/ very close argillaceous laminations and inclusions
D. Hard gray limy Dolostone, flat bedded w/ very close argillaceous laminations and inclusions and frequent calcite nodules and inclusions
E. Firm dark brown fine sandy Clay w/ trace Dolostone fragments and numerous organics
F. Medium dense reddish brown clayey fine to coarse Gravel w/ fine to coarse Sand
G. Hard gray slightly weathered limy Dolostone, flat bedded w/ very close argillaceous laminations, slightly vuggy
H. Hard gray limy Dolostone, flat bedded w/ very close argillaceous laminations and occasional calcite nodules and inclusions
I. Very soft dark brown fine sandy Clay w/ some fine Gravel and numerous organics
J. Medium dense brown and reddish brown clayey fine to coarse Gravel w/ fine to coarse Sand and occasional Dolostone fragments
K. Moderately hard to hard gray slightly weathered limy Dolostone, flat bedded w/ close argillaceous laminations and occasional calcareous nodules and inclusions
L. Hard gray limy Dolostone, flat bedded w/ very close argillaceous laminations, frequent calcareous inclusions and nodules and occasional calcite inclusions



EMBANKMENT SECTION
No Scale

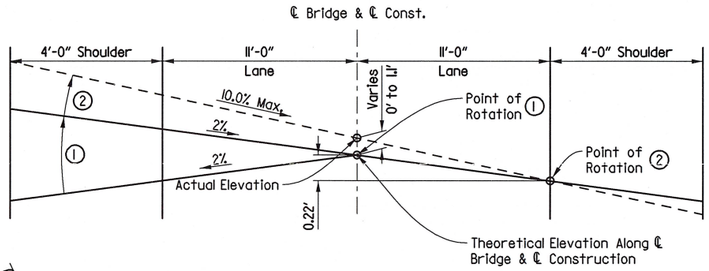
GENERAL NOTES (CONT'D.)

DETAIL DRAWINGS:	DRAWING NUMBER
End Bents	61741-61742
Intermediate Bents	61743-61744
Elastomeric Bearings	61745
107′-0″ Integral Continuous W-Beam Unit	61746-61752
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Details for Steel H-Piles and Pile Encasements	55020
Type Special Approach Slabs	61753
Type Special Approach Gutters	61754

EXISTING BRIDGE: Existing Bridge No. M3776 (Log Mile 0.31) is 22.0′ wide (21.0′ clear roadway) and 69.0′ long and consists of precast concrete units supported by reinforced concrete abutments on spread footings and reinforced concrete column intermediate bents on spread footings. The existing bridge is located approximately 90′ downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove existing Bridge No. M3776, including existing riprap, in accordance with Section 205 of the Standard Specifications. Removal of existing riprap will not be paid for directly by shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 1)". All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



SUPERELEVATION TRANSITION SKETCH
(Looking Ahead)

For additional Superelevation Transition details, see Roadway Plans.

(1) Cross slope varies from -2.0% (Sta. 108+73.70) to 2.0% (Sta. 109+90.37).

(2) Cross slope varies from 2.0% (Sta. 109+90.37) to 10.0% (Sta. 112+23.70).

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 268 OVER LOCUST CREEK
LOCUST CREEK STR. & APPRS. (S)
MARION COUNTY
ROUTE 268 **SEC.** 0

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

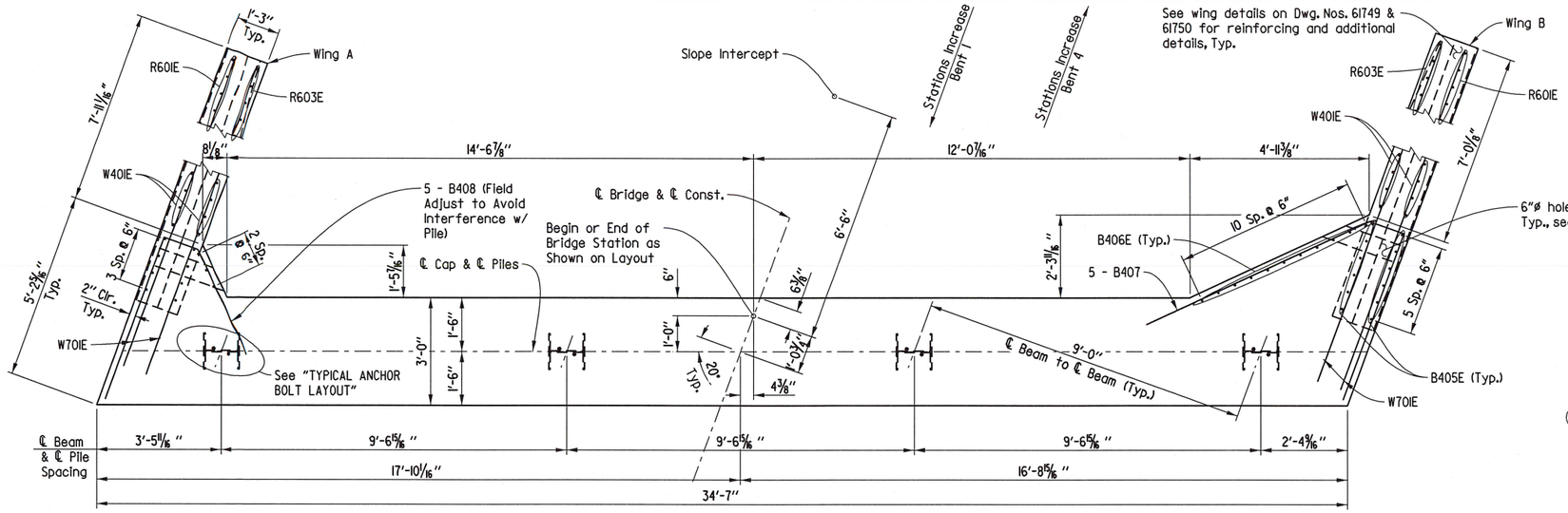
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DESIGNED BY: LDG DATE: 09-24-19

BRIDGE NO. 07495 DRAWING NO. 61740

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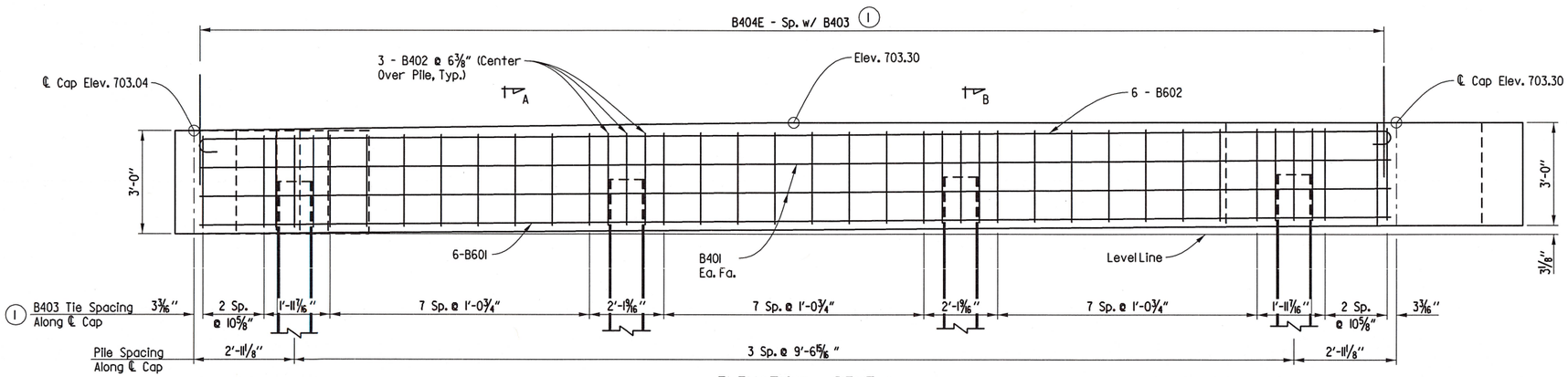
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				6	ARK.			
				JOB NO.		090551	26	50

(1) 07495 END BENTS 61741



PLAN

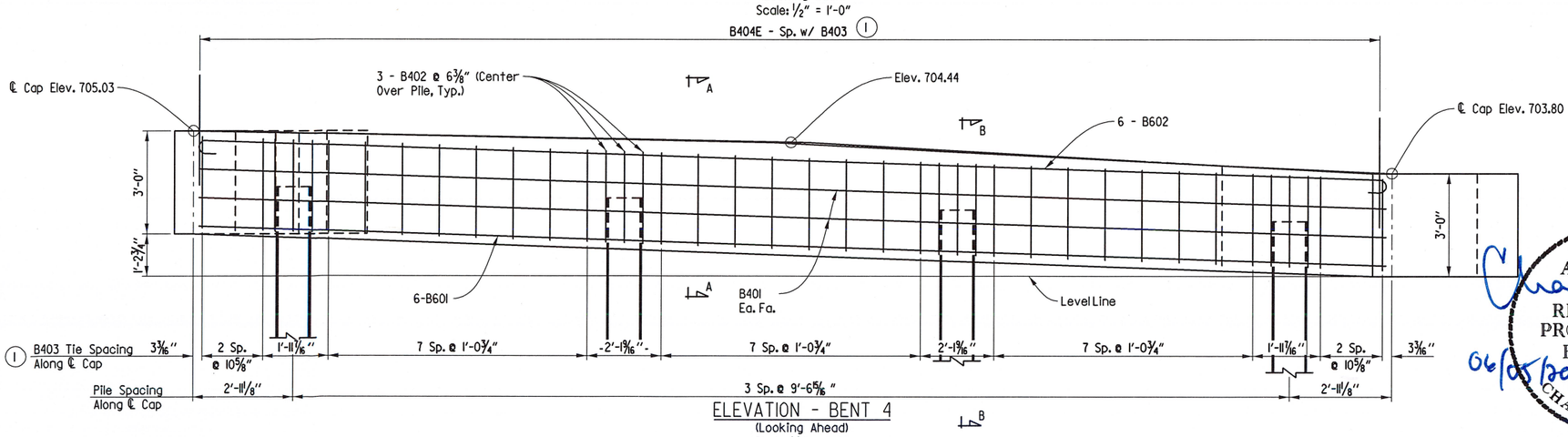
Scale: ½" = 1'-0"



ELEVATION - BENT 1

(Looking Back)

Scale: ½" = 1'-0"



ELEVATION - BENT 4

(Looking Ahead)

Scale: ½" = 1'-0"

TYPICAL ANCHOR BOLT LAYOUT

Scale: 1" = 1'-0"

For "SECTION A-A", "SECTION B-B", and Bar List, See Dwg. No. 61742.

For General Notes, see Std. Dwg. No. 55006.

Notes:
Bars B405E and B406E shall have a 2'-10" minimum embedment into the end bent cap.

Granular Backfill and Pipe Underdrain required behind Cap. See Dwg. No. 61752.

(1) Place horizontal leg of bars parallel to ℄ Beam.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 1 OF 2

DETAILS OF BENTS 1 & 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

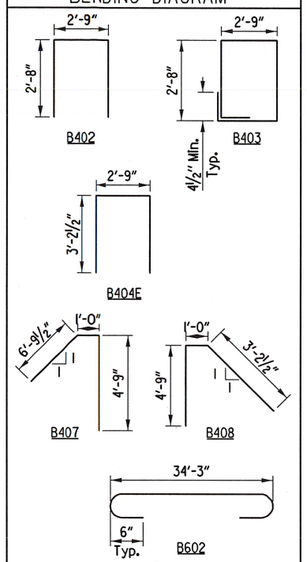
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DESIGNED BY: LDG DATE: 03-17-2020

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				JOB NO.		090551	27	50
				(1) 07495		END BENTS		61742

BENDING DIAGRAM

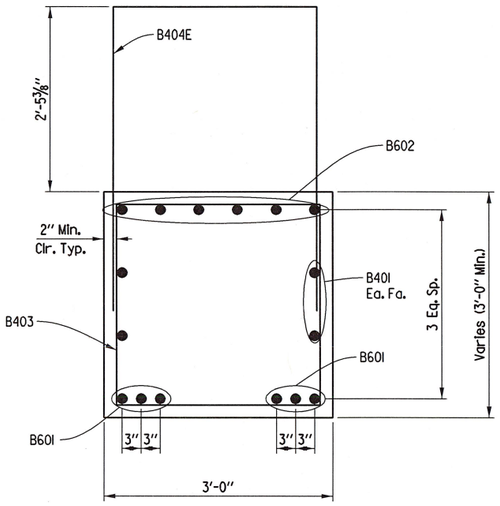


BAR LIST
(Per Bent)

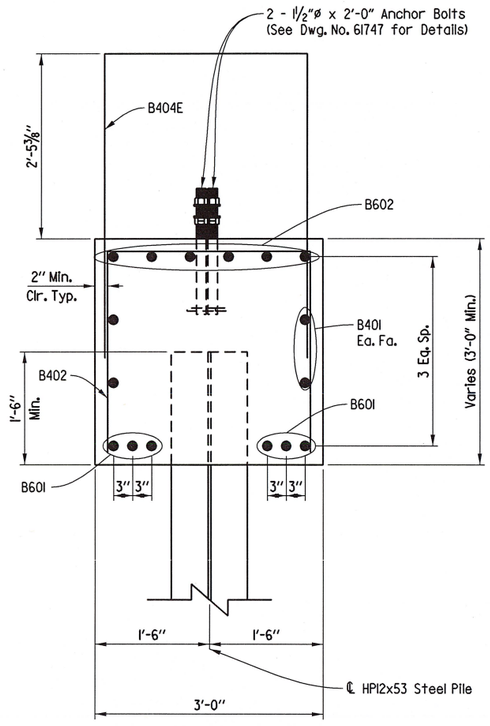
Mark	Number Required	Length	Pin Diameter
B401	4	34'-3"	Str.
B402	12	7'-11"	2"
B403	30	11'-2"	2"
B404E	30	9'-0"	2"
B405E	20	5'-9"	Str.
B406E	14	4'-6"	Str.
B407	5	12'-5"	2"
B408	5	8'-10"	2"
B601	6	34'-3"	Str.
B602	6	35'-7"	4½"

Note:
Dimensions of bars are out-to-out.

Bar designations ending with "E" indicate epoxy-coated bars.



SECTION A-A
Scale: 1" = 1'-0"



SECTION B-B
Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 2 OF 2

DETAILS OF BENTS 1 & 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 03-25-2020 FILENAME: b090551_bl2.dgn
CHECKED BY: CAW DATE: 04-14-2020 SCALE: SEE DETAILS
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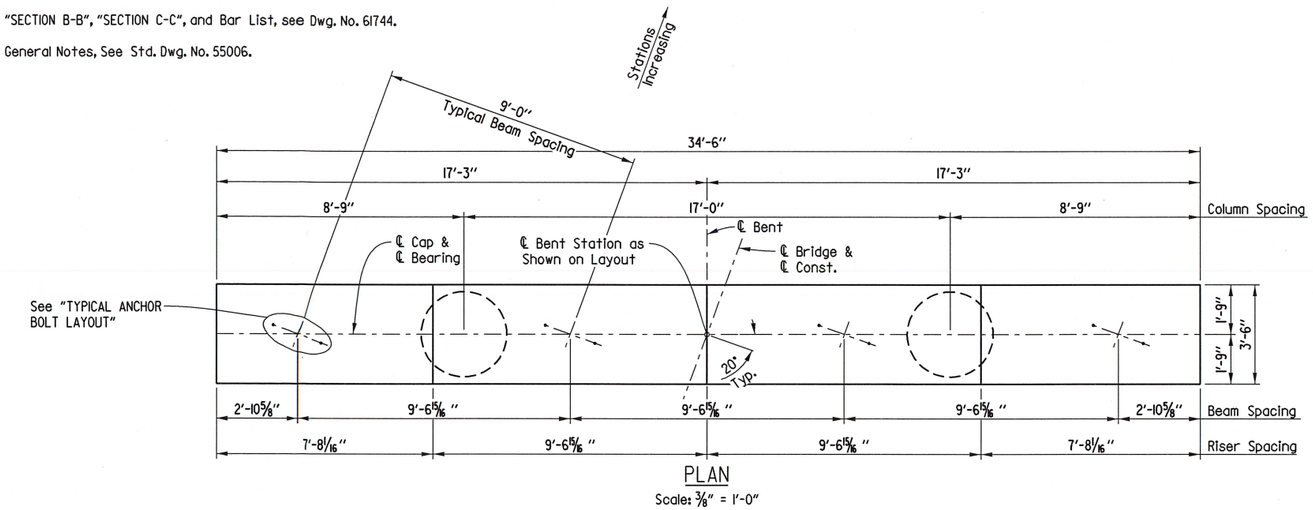
BRIDGE NO. 07495 DRAWING NO. 61742

USER: NS5187
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For "SECTION B-B", "SECTION C-C", and Bar List, see Dwg. No. 61744.

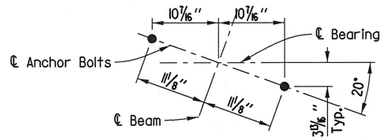
For General Notes, See Std. Dwg. No. 55006.

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				JOB NO.		090551	28	50
				(1) 07495		INT. BENTS		61743



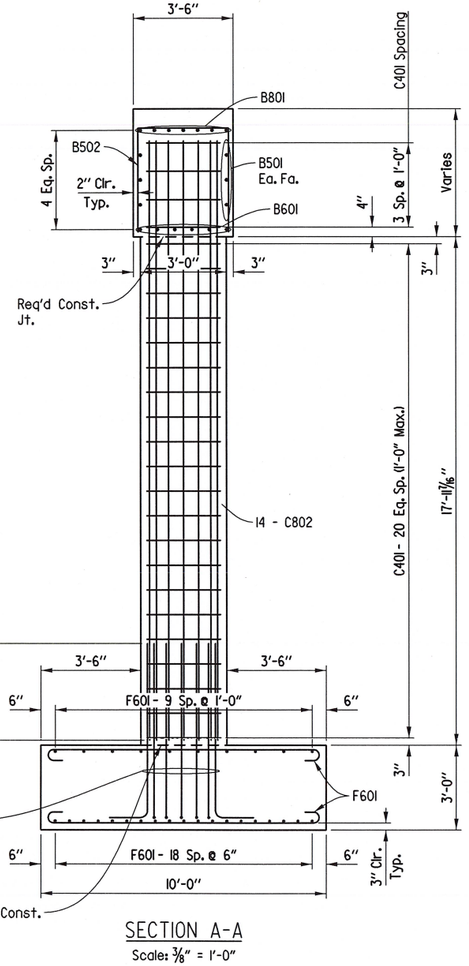
PLAN

Scale: ⅜" = 1'-0"



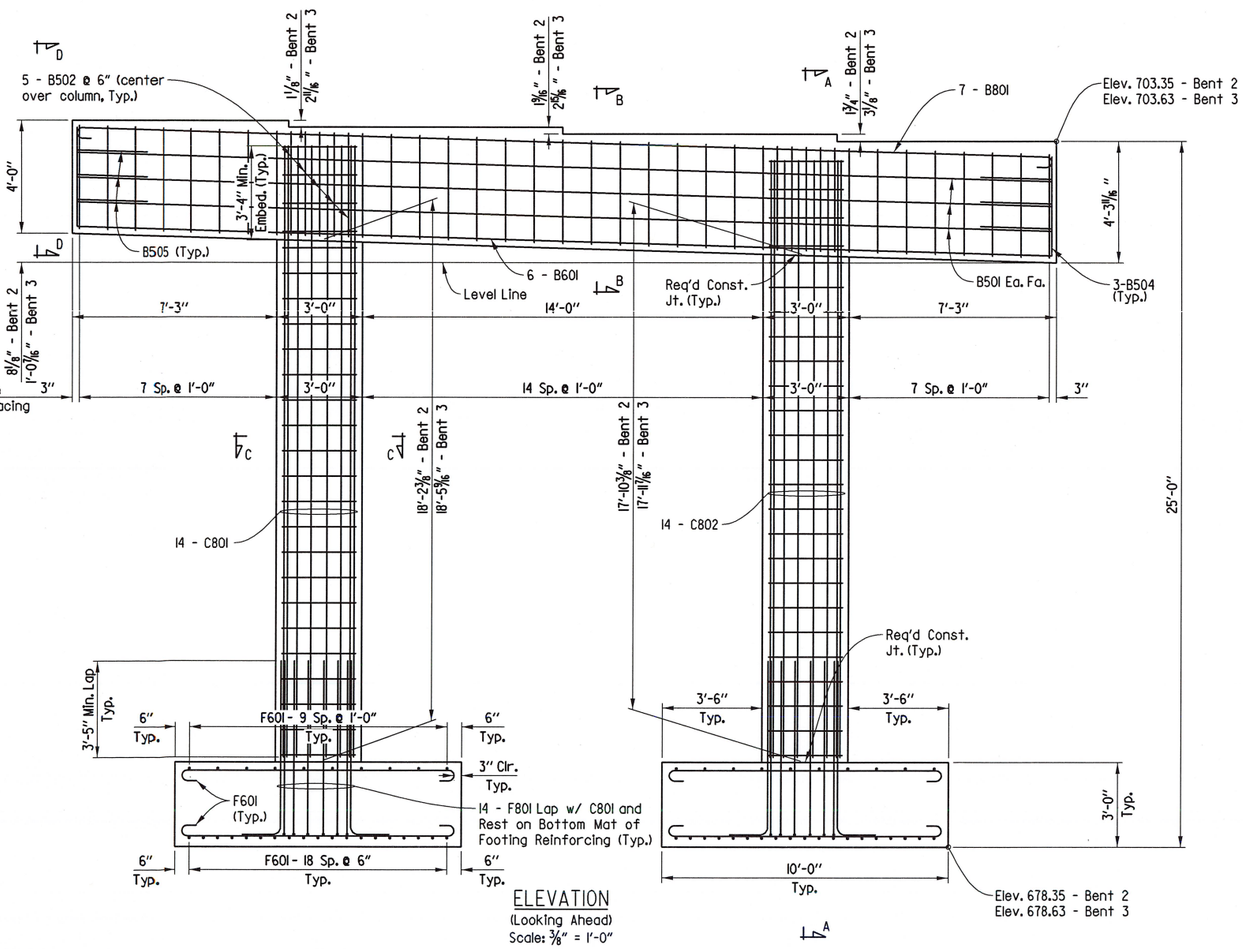
TYPICAL ANCHOR BOLT LAYOUT

Scale: 1" = 1'-0"



SECTION A-A

Scale: ⅜" = 1'-0"



ELEVATION

(Looking Ahead)

Scale: ⅜" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF

06/05/2020

SHEET 1 OF 2

DETAILS OF BENTS 2 & 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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CHECKED BY: CAW DATE: 04-15-2020 SCALE: SEE DETAILS

DESIGNED BY: LDG DATE: 03-17-2020

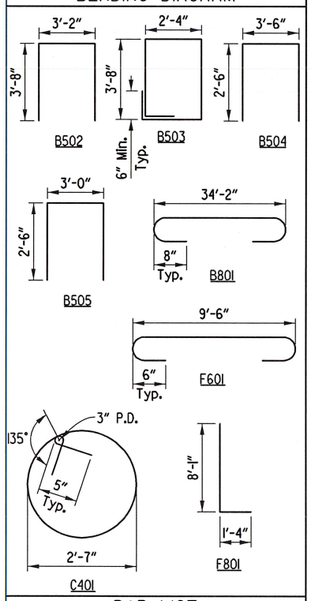
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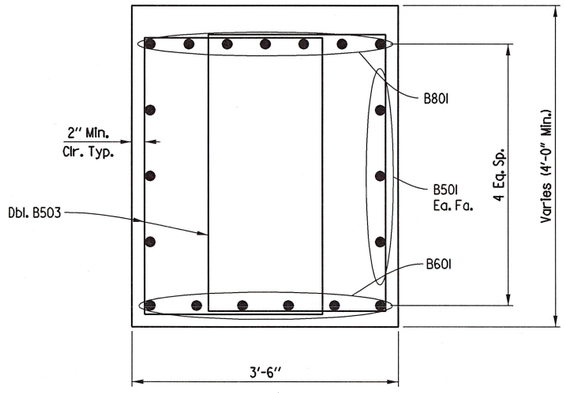
BENDING DIAGRAM



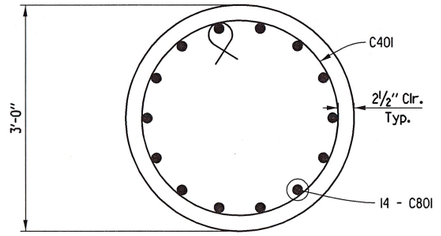
BAR LIST
(Per Bent)

Mark	Number Required	Length	Pin Diameter
B501	6	34'-2"	Str.
B502	10	10'-4"	2½"
B503	62	12'-6"	2½"
B504	6	8'-4"	2½"
B505	6	7'-10"	2½"
B601	6	34'-2"	Str.
B801	7	36'-0"	6"
C401	42	9'-3"	3"
C801	14	21'-9"	Str.
C802	14	21'-2"	Str.
F601	116	10'-10"	4½"
F801	28	9'-3"	6"

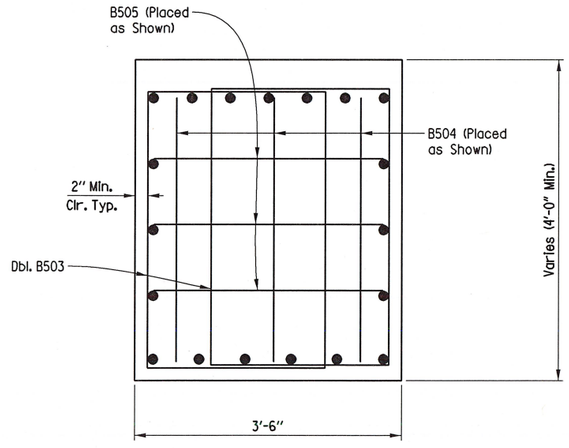
Note:
Dimensions of bars are out-to-out.



SECTION B-B
Scale: 1" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"



SECTION D-D
(Typ. Both End of Cap)
Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 2 OF 2

DETAILS OF BENTS 2 & 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 03-26-2020 FILENAME: b090551_b22.dgn
CHECKED BY: CAW DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 03-17-2020

BRIDGE NO. 07495 DRAWING NO. 61744

USER: NSSIB7
DESIGN FILE: G:\1910430I_090551x268\TRANSP\dgn\bridge\b090551_b22.dgn SCALE: 1:2
PLOTTED: 6/5/2020 14:54

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	30	50
				(1) 07495		BEARING DETAILS		61745

TABLE OF FABRICATOR VARIABLES

			③ SERVICE LOAD				ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
BRIDGE NO.	BENT NO.	BEARING TYPE	NO. OF BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	Ti	Te	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	J	K	M	Ta	Tb	ø X L	GRADE	PIPE SLEEVE SIZE (ø X L)	SHEET METAL SLEEVE SIZE (ø X L)	STEEL WASHER SIZE (O.D.)
07495	2	Fix.	4	148	7¾"	5"	13"	12"	4	½"	¼"	5 @ 12 Ga.	3/16"	13"	30½"	2¼"	2¼"	-	½"	11⅛"	2.07"	1.93"	1½" X 25"	55	1½" X 5¼"	3" X 6"	3"
	3	Fix.	4	148	7¾"	5"	13"	12"	4	½"	¼"	5 @ 12 Ga.	3/16"	13"	30½"	2¼"	2¼"	-	½"	11⅛"	2.07"	1.93"	1½" X 25"	55	1½" X 5¼"	3" X 6"	3"

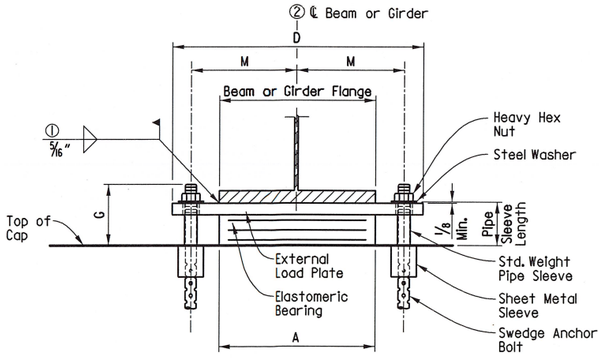
① Care shall be taken to ensure that the External Load plate is in full and complete contact with the Beam or Girder Flange before welding begins.

② Center line of Beam or Girder shall be aligned with center line of Elastometric pad.

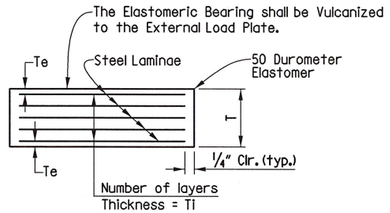
③ Maximum Design Load = Service I Limit State

Note:
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb 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 or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

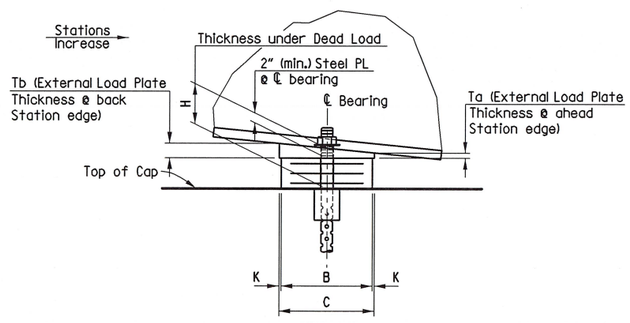


FRONT VIEW
No Scale

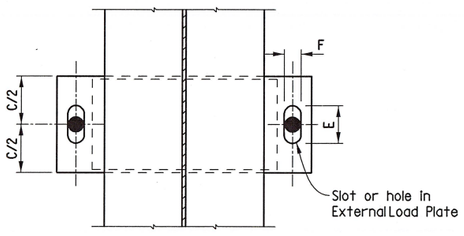


Te = thickness of Elastomer cover on top and bottom of pad
Ti = thickness of Elastomer between Steel Laminae
N = number of Elastomer layers of thickness Ti

ELASTOMERIC BEARING
No Scale



SIDE VIEW
No Scale



PLAN VIEW
No Scale

GENERAL NOTES

Elastomeric bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings". Long-duration testing of random lot samples specified in Subsection 808.05 is required.

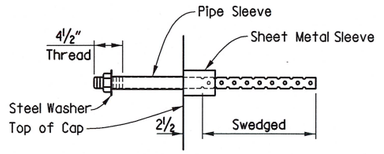
External load plates shall conform to ASTM A709, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

Pipe Sleeves, Anchor bolts, Washers, and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans, (ASTM A709, Gr. 50W)". External load plates will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

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



ANCHOR BOLT DETAIL
No Scale

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

If Anchor Bolts are to be drilled and grouted in place, the galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of structural steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized sheet metal sleeves shall meet the requirements of ASTM 653, CS Type B or approved equivalent, be of minimum 16 gauge thickness, and be galavanized according to ASTM B695, Class 50. Galvanized sheet metal sleeves will not be paid for directly, but will be considered subsidiary to the items "Structural Steel in Beam Spans, (ASTM A709, Gr. 50W)".

Prior to erection of the Beams or Girders, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 03-26-2020 FILENAME: b090551_el.dgn
CHECKED BY: CAW DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 03-13-2020

BRIDGE NO. 07495 DRAWING NO. 61745

USER: NS187
DESIGN FILE: G:\1910430I_090551x268\TRANSP\dgn\bridge\b090551_el.dgn SCALE: 1:16
PLOTTED: 6/5/2020 14:54

G:\1910430I_090551x268\TRANSP\dgn\bridge\b090551_el.dgn 6/5/2020 14:54

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

Note: At Contractor's option, in lieu of providing bar S503E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bar S503E. Bars in top and bottom shall be Epoxy Coated.

SLAB REINFORCING:

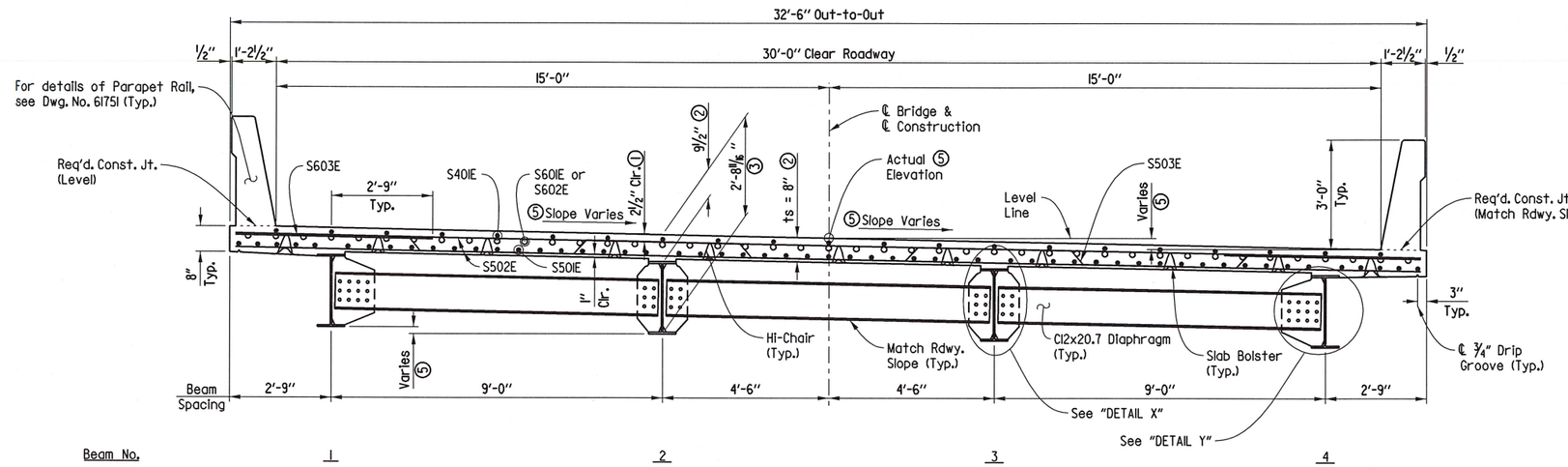
Transverse:
S502E @ 1'-0" o.c. in top and bottom
S503E @ 1'-0" o.c. bent up over beams
(Alternate w/ S501E bars)
S603E @ 1'-0" o.c. in top at overhangs

Longitudinal:
S401E spa. as shown in top
S501E spa. as shown in bottom
S601E & S602E spa. as shown in top over supports, see "REINFORCING PLAN AND POURING SEQUENCE" on Dwg. No. 61749

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	31	50
				(1) 07495		SPAN DETAILS		61746

See. Std. Dwg. No. 55007 for additional information.

Bar positions or clearances from the forms shall be maintained by means of stays, ties, hangers, or other approved devices per Subsection 804.06. Placement of slab bolsters or high-chairs with full-length lower runners directly on removable deck forms will not be allowed.



TYPICAL ROADWAY SECTION

(Looking Ahead)
Scale: 1/2" = 1'-0"

Note: 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 ARDOT Std. Dwg. No. 55005 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

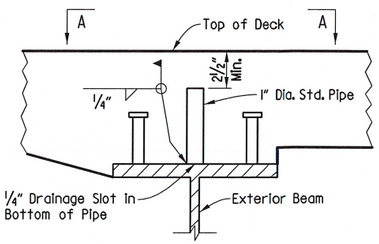
① Tolerances: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance

② See "Adjustment for Slab Thickness Tolerance" Std. Dwg. No. 55007.

③ Measured at ℄ Bearing and ℄ Beam (Typ.)

④ If permanent steel bridge deck forms are used, the Fabricator shall clip plate as necessary to accomodate the deck form supports.

⑤ See "SUPERELEVATION TRANSITION SKETCH" on Dwg. No. 61740 for more information.



TRANSVERSE SCREED RAIL SUPPORT DETAIL

No Scale

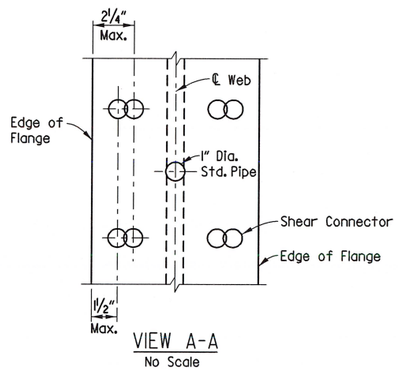
Notes: The transverse screed rail supports shall be centered over the beam web and centered longitudinally between adjacent rows of shear connectors.

The pipe shall not interfere with proper vertical position of the deck reinforcing steel.

The pipe shall be free of dirt, grease, rust, or other foreign substance before the deck is poured.

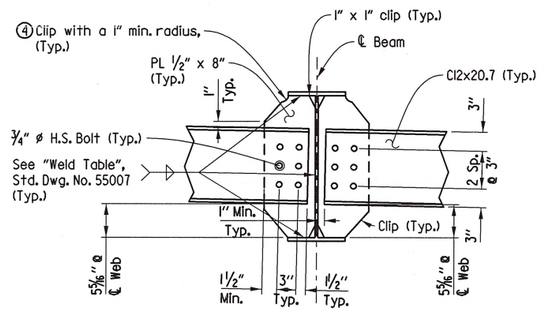
Care shall be exercised so as air voids do not exist in the pipe after placement of the deck concrete.

All welding shall be performed by a certified welder and in accordance with Subsections 802.13 and 807.26.



VIEW A-A

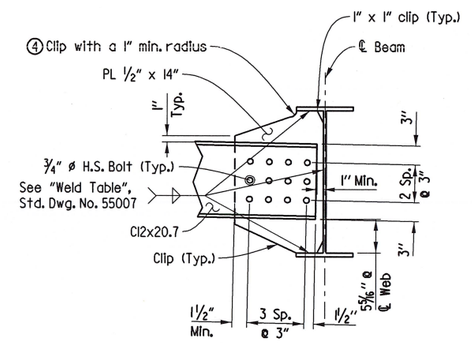
No Scale



DETAIL X

Scale: 1" = 1'-0"

Note: Stop welds 1/4" to 1" from end of clip (Typ.)



DETAIL Y

Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 1 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

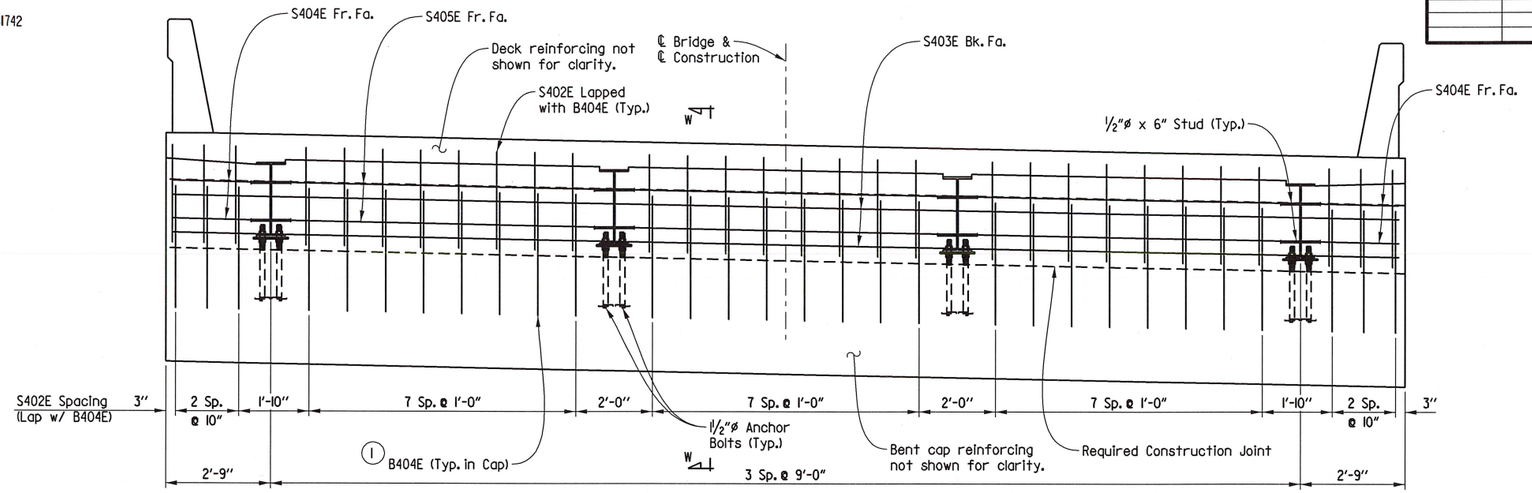
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CHECKED BY: CAW DATE: 11-06-19
DESIGNED BY: LDG DATE: 09-24-19
FILENAME: b090551_sl.dgn
SCALE: SEE DETAILS

BRIDGE NO. 07495 DRAWING NO. 61746

USER: NS5187
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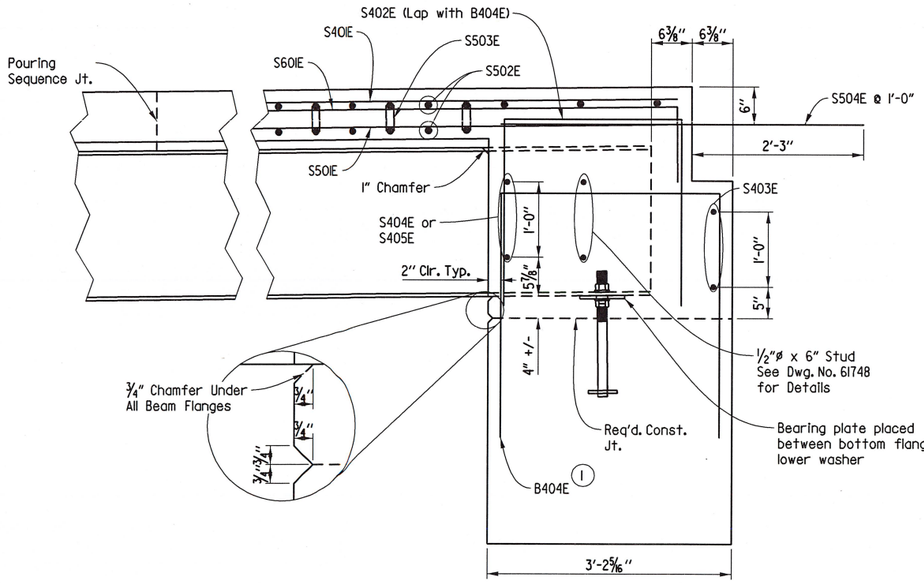
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	32	50
				(1) 07495		SPAN DETAILS		61747

(1) See End Bent Details on Dwg. Nos. 61741 & 61742 for reinforcing and additional details.



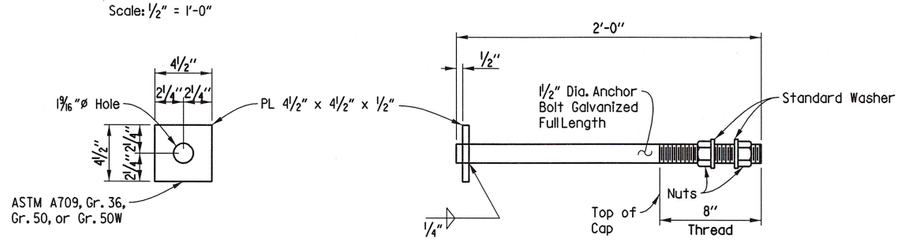
TYPICAL ROADWAY SECTION NEAR END OF SPAN

(Looking Ahead - Bent 4
Bent 1 Similar)
Scale: ½" = 1'-0"



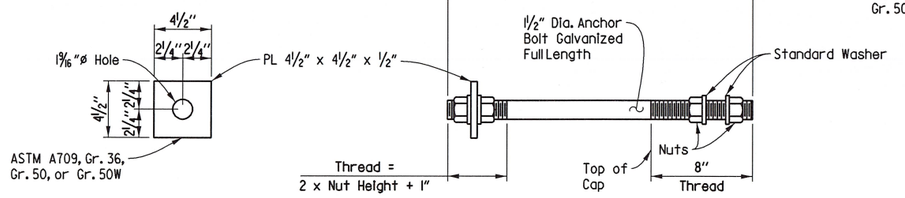
SECTION W-W

(Parallel to ℄ Beam)
Scale: 1" = 1'-0"



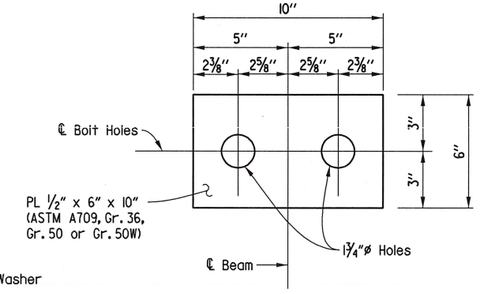
ANCHOR BOLT DETAIL

Scale: 2" = 1'-0"



ALTERNATE ANCHOR BOLT DETAIL

Scale: 2" = 1'-0"



BEARING PLATE DETAIL

Scale: 3" = 1'-0"

Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

Bolts, nuts, and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (A709, Gr. 50W)".

STATE OF ARKANSAS
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SHEET 2 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

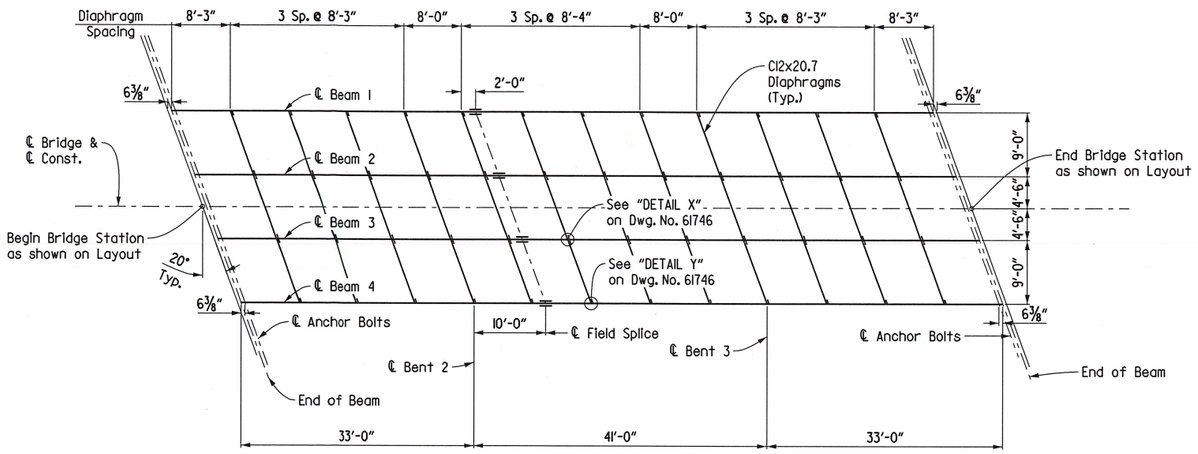
DRAWN BY: LDG DATE: 03-19-2020 FILENAME: b090551_s2.dgn
CHECKED BY: CAW DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 03-13-2020

BRIDGE NO. 07495 DRAWING NO. 61747

USER: N551187
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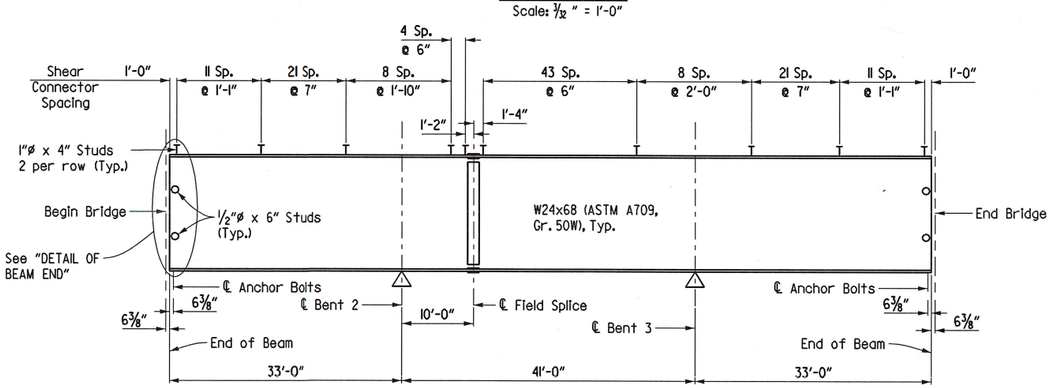
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	33	50
				(I) 07495		SPAN DETAILS		61748



FRAMING PLAN

Scale: 3/32 " = 1'-0"



TYPICAL BEAM ELEVATION

No Scale

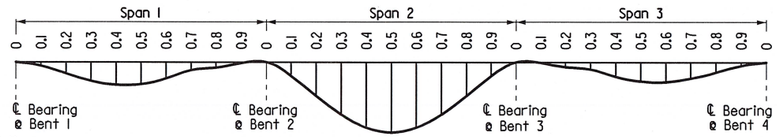
Note: All structural steel shall be ASTM A709, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

Note:
For Shear Connector details, see Std. Dwg. No. 55007

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Camber for Dead Load Deflection plus Vertical curve ±¼" tolerance.
Deflections shown are off a chord from ℄ Brng. to ℄ Brng. Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

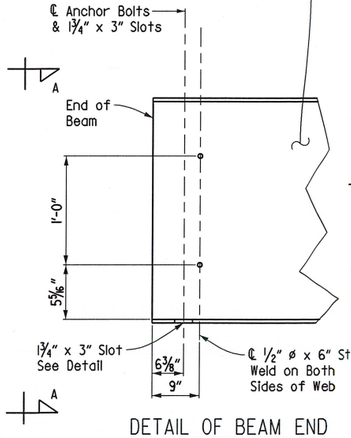
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.008	0.007	0.088	0.069	0.089	0.070
	0.2	0.014	0.013	0.161	0.126	0.164	0.129
	0.3	0.019	0.017	0.211	0.166	0.215	0.171
	0.4	0.021	0.018	0.233	0.181	0.238	0.187
	0.5	0.020	0.018	0.223	0.175	0.228	0.181
	0.6	0.017	0.015	0.188	0.147	0.192	0.152
	0.7	0.012	0.011	0.133	0.104	0.135	0.107
	0.8	0.006	0.006	0.071	0.056	0.072	0.057
	0.9	0.002	0.002	0.020	0.016	0.019	0.015
	0	0.000	0.000	0.000	0.000	0.000	0.000
2	0.1	0.004	0.003	0.040	0.031	0.045	0.036
	0.2	0.011	0.009	0.119	0.093	0.131	0.106
	0.3	0.018	0.016	0.202	0.158	0.220	0.178
	0.4	0.024	0.021	0.263	0.206	0.286	0.231
	0.5	0.025	0.023	0.284	0.223	0.308	0.250
	0.6	0.024	0.021	0.263	0.206	0.286	0.231
	0.7	0.018	0.016	0.202	0.158	0.220	0.178
	0.8	0.011	0.009	0.119	0.093	0.131	0.106
	0.9	0.004	0.003	0.040	0.031	0.045	0.036
	0	0.000	0.000	0.000	0.000	0.000	0.000
3	0.1	0.002	0.002	0.020	0.016	0.019	0.015
	0.2	0.006	0.006	0.071	0.056	0.072	0.057
	0.3	0.012	0.011	0.133	0.104	0.135	0.107
	0.4	0.017	0.015	0.188	0.147	0.192	0.152
	0.5	0.020	0.018	0.223	0.175	0.228	0.181
	0.6	0.021	0.018	0.233	0.181	0.238	0.187
	0.7	0.019	0.017	0.211	0.166	0.215	0.171
	0.8	0.014	0.013	0.161	0.126	0.164	0.129
	0.9	0.008	0.007	0.088	0.069	0.089	0.070
	0	0.000	0.000	0.000	0.000	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM

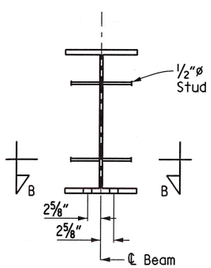
No Scale

Prior To Pouring Concrete Diaphragm, Remove Mill Scale From Surfaces To Be In Contact With Concrete With A Wire Brush At Beam Ends (2'-2" Min. Length).



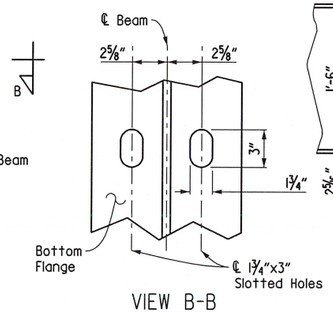
DETAIL OF BEAM END

No Scale



VIEW A-A

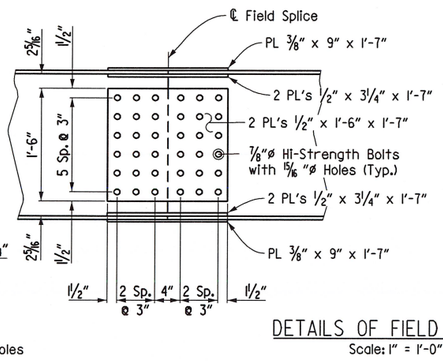
No Scale



VIEW B-B

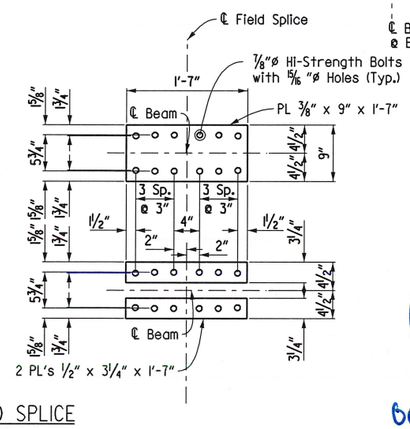
No Scale

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. See Bolted Field Splice Details.



DETAILS OF FIELD SPLICE

Scale: 1" = 1'-0"



STATE OF ARKANSAS
CHARLES A. WIPF
REGISTERED PROFESSIONAL ENGINEER
No. 11856
06/05/2020

SHEET 3 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 03-21-2020
CHECKED BY: CAW DATE: 04-15-2020
DESIGNED BY: LDG DATE: 03-13-2020

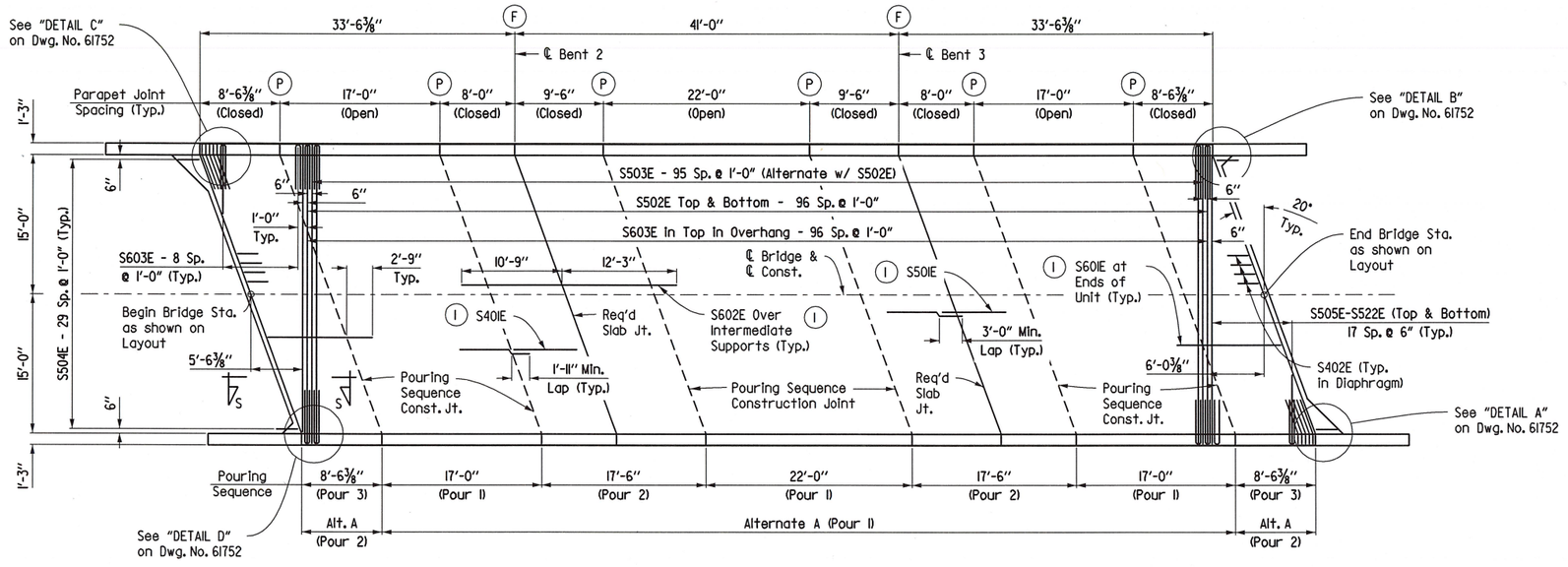
FILENAME: b09055l_s3.dgn
SCALE: SEE DETAILS

BRIDGE NO. 07495 DRAWING NO. 61748

USER: NS5187
DESIGN FILE: G:\1910430l_09055lx268\TRANSP\dgn\bridge\b09055l_s3.dgn
PLOTTED: 6/5/2020 14:54
SCALE: 1:2\3333

G:\1910430l_09055lx268\TRANSP\dgn\bridge\b09055l_s3.dgn 6/5/2020 14:54

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	34	50
				(I) 07495		SPAN DETAILS		61749



REINFORCING PLAN AND POURING SEQUENCE

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

Note:
Parapet rail spacing and joint depth shown are typical for both sides of roadway. For Parapet reinforcing details, see Dwg. No. 61751.

Rails and wings are included in span construction and are included in span quantities.

Required slab joints and pouring sequence joints shall align with parapet open joints at the gutterline.

For "Transverse Slab Joint Detail" and Longitudinal Construction Joint", See Std. Dwg. No. 55007.

For "VIEW R-R" and "VIEW S-S", see Dwg. No. 61750.

For "SECTION AT END BENT (NORMAL TO CAP)", and Bar List, see Dwg. No. 61752.

(P) Partial depth parapet joint at this location.

(F) Full depth parapet joint at this location.

(I) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 61746.

Pouring Sequence Notes:

Pours with the same number may be place simultaneously or separately. All Pours (1) must be place before Pours (2) can be placed. Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

A minimum of 72 hours shall elapse between completion of the slab and the pouring of the bridge railing. Any railing pours made before the entire slab unit has been place must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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

Concrete diaphragms shall be poured monolithically with the slab.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 4 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

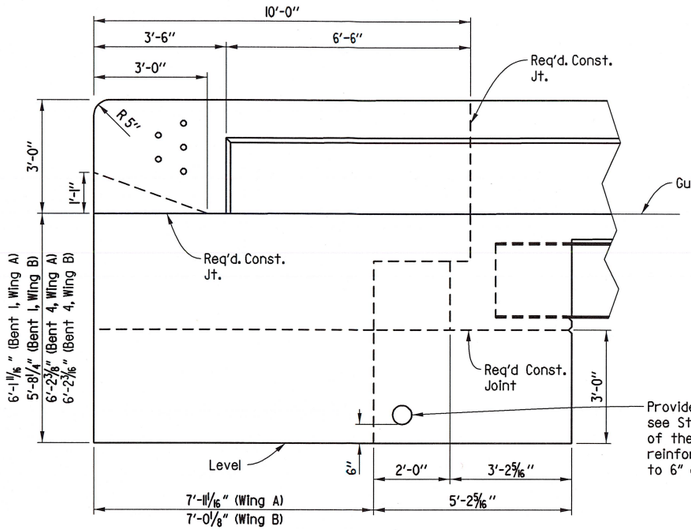
DRAWN BY: LDG DATE: 03-21-2020 FILENAME: b090551_s4.dgn
CHECKED BY: CAW DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 03-13-2020

BRIDGE NO. 07495 DRAWING NO. 61749

USER: NS5187
DESIGN FILE: G:\1910430I_090551x268\TRANSP\dgn\bridge\b090551_s4.dgn
PLOTTED: 6/5/2020 14:54 SCALE: 1:16

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	35	50

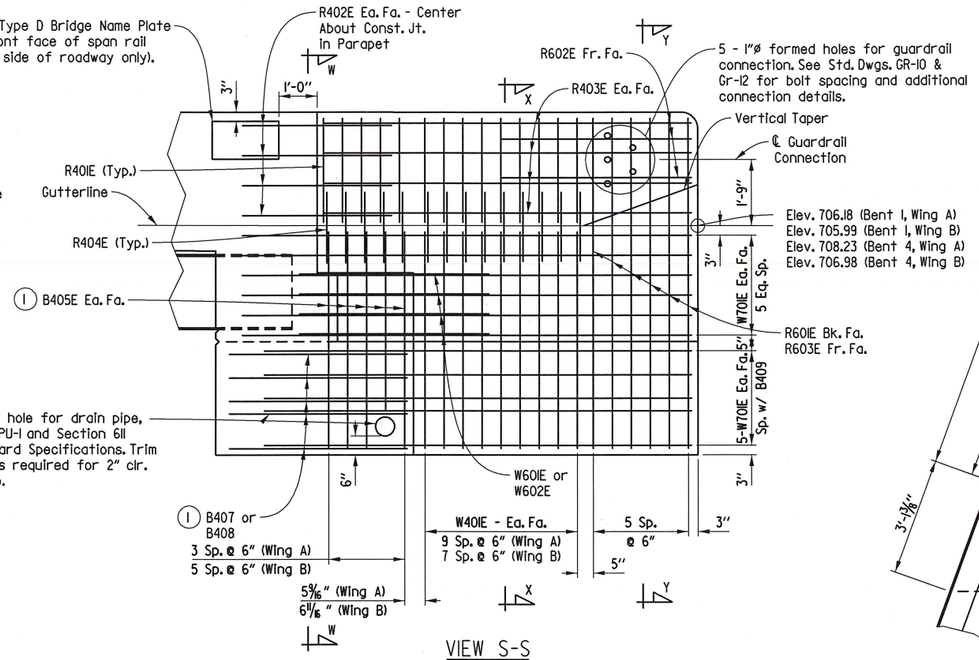
(1) 07495 SPAN DETAILS 61750



VIEW R-R

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

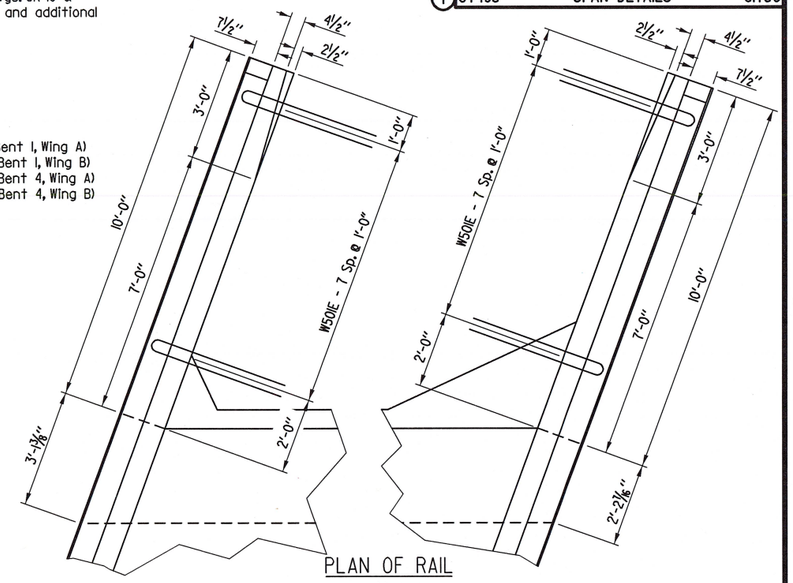
(1) See End Bent Details on Dwg. Nos. 61741 & 61742 for reinforcing and additional details.



VIEW S-S

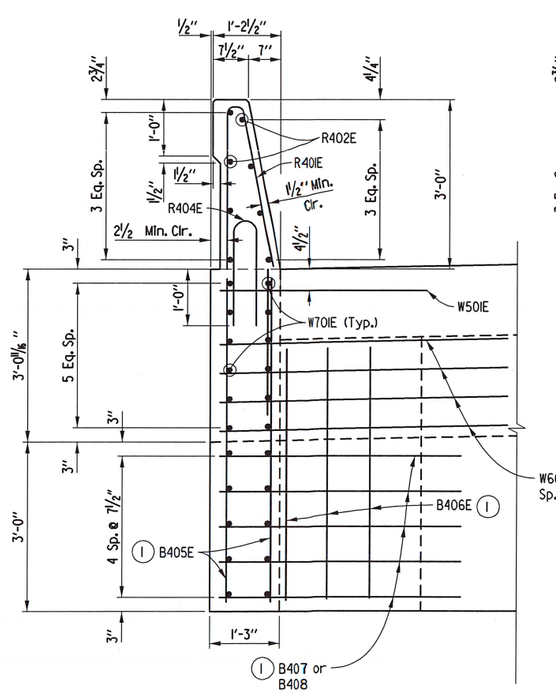
Scale: 1/2" = 1'-0"

Note: For Bar List, See Dwg. No. 61752



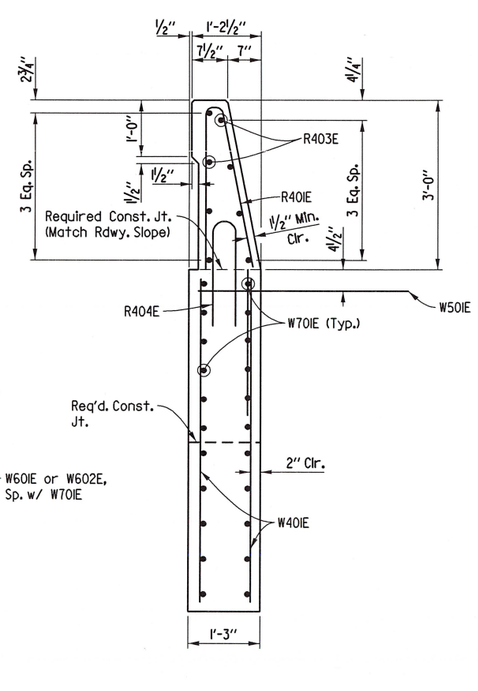
PLAN OF RAIL

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



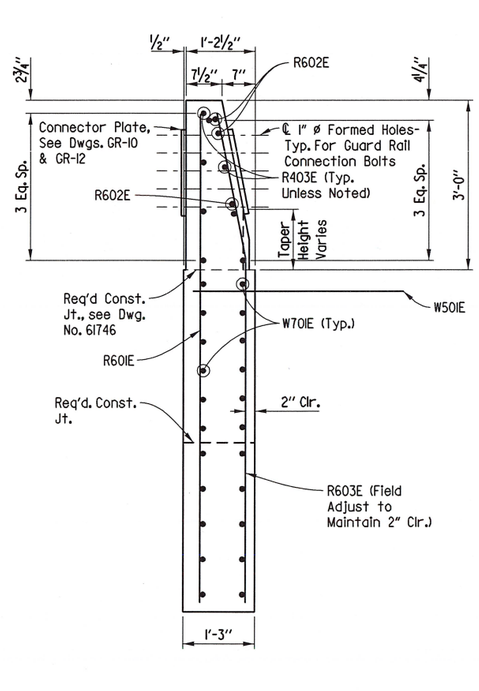
SECTION W-W

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



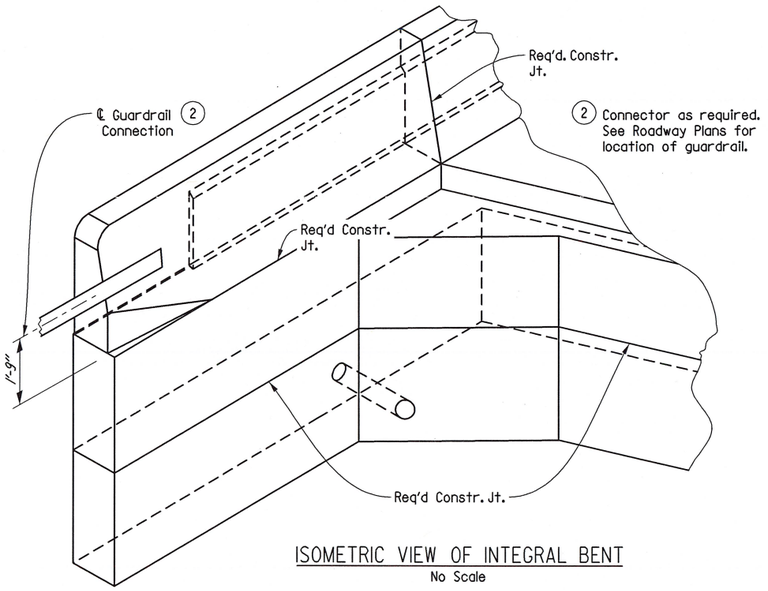
SECTION X-X

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



SECTION Y-Y

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



ISOMETRIC VIEW OF INTEGRAL BENT

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 5 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 03-23-2020 FILENAME: b09055l_s5.dgn

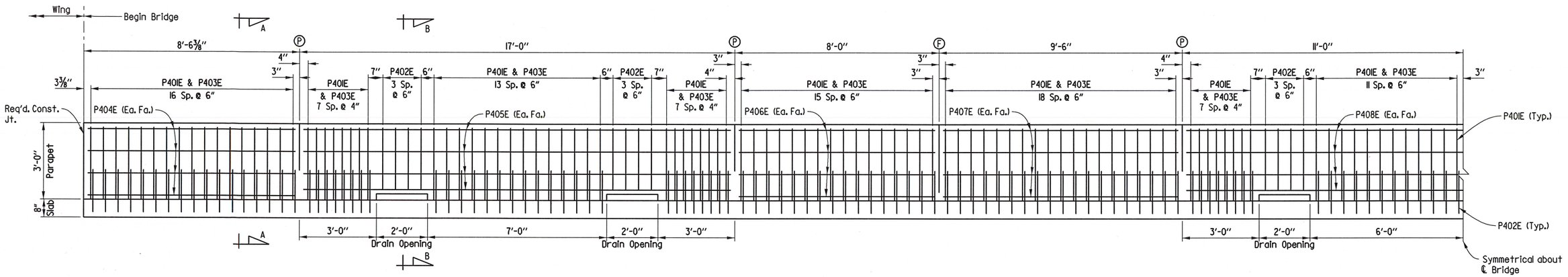
CHECKED BY: CAW DATE: 04-14-2020 SCALE: SEE DETAILS

DESIGNED BY: LDG DATE: 03-13-2020

BRIDGE NO. 07495 DRAWING NO. 61750

USER: NSSIBT
DESIGN FILE: G:\1910430l_09055lx268\TRANSP\dgn\bridge\b09055l_s5.dgn SCALE: 1:4
PLOTTED: 6/5/2020 14:54

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	36	50
				(I) 07495		SPAN DETAILS		61751

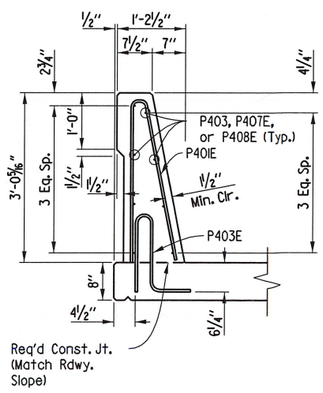


ELEVATION - CONCRETE PARAPET RAIL

(Right Parapet Shown, Left Parapet Similar)
Scale: ½" = 1'-0"

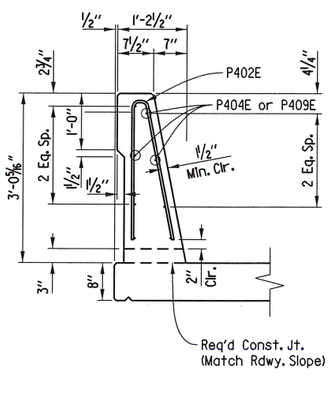
Ⓟ Partial depth parapet joints (¼" to 1" max.) shall be stopped 1'-2" from top of slab.

Ⓕ Full depth parapet joints (¼" to 1" max.) shall be stopped 4" from top of slab.



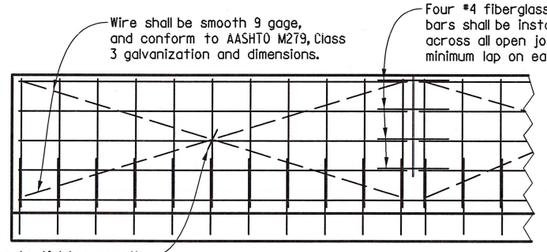
SECTION A-A

Scale: ¾" = 1'-0"

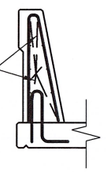


SECTION B-B

Scale: ¾" = 1'-0"



All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 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.



For actual placement of reinforcing steel, see parapet details.

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

Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3 Textured Coating Finish in place of Class 2 Rubbed Finish.

Note:
For additional parapet details, see Dwg. No. 61749.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

SHEET 6 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 03-23-2020 FILENAME: b090551_s6.dgn
CHECKED BY: CAW DATE: 04-16-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 03-13-2020

BRIDGE NO. 07495 DRAWING NO. 61751

USER: NS5187
DESIGN FILE: G:\1910430I_09055Ix268\TRANSP\dgn\bridge\b090551_s6.dgn SCALE: 1:4
PLOTTED: 6/5/2020 14:54

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
07-31-2020				6	ARK.			
				JOB NO.		090551	37	50

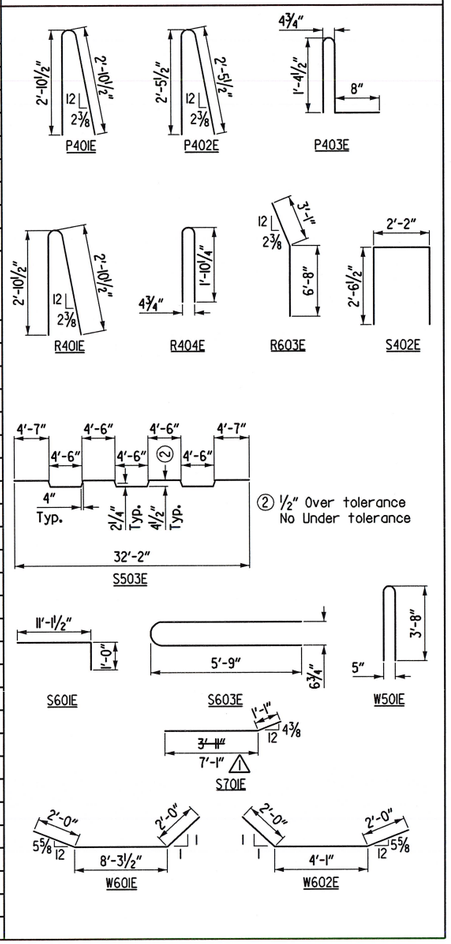
⚠ S701E Bar Revised, 07-31-2020

(1) 07495 SPAN DETAILS 61752

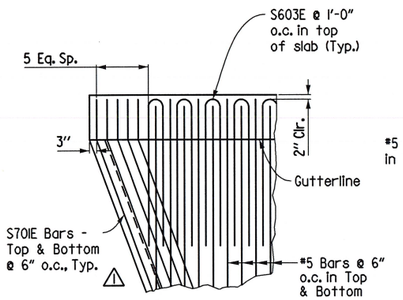
BAR LIST

Mark	Number Required	Length	Pin Diameter
S401E	63	37'-3"	Str.
S402E	60	7'-1"	2"
S403E	4	34'-3"	Str.
S404E	8	2'-8"	Str.
S405E	12	9'-3"	Str.
S501E	165	37'-11"	Str.
S502E	194	31'-8"	Str.
S503E	96	32'-10"	3¾"
S504E	60	4'-9"	Str.
S505E to S522E	4 Each	Var. 7'-6" to 30'-11"	Str.
S601E	86	12'-0"	4½"
S602E	86	23'-0"	Str.
S603E	212	11'-8"	4½"
S701E	20	~~8'-2" 4'-10"~~ ⚠	5¼"
P401E	408	5'-11"	2½"
P402E	48	5'-1"	2½"
P403E	408	3'-6"	3¾"
P404E	32	8'-3"	Str.
P405E	32	16'-8"	Str.
P406E	32	7'-8"	Str.
P407E	32	9'-2"	Str.
P408E	16	21'-8"	Str.
R401E	56	5'-11"	2½"
R402E	32	5'-4"	Str.
R403E	32	9'-8"	Str.
R404E	56	3'-6"	3¾"
R601E	24	8'-9"	Str.
R602E	12	5'-0"	Str.
R603E	24	8'-10"	4½"
W401E	72	5'-9"	Str.
W501E	32	7'-6"	3¾"
W601E	8	12'-2"	4½"
W602E	8	8'-0"	4½"
W701E	88	11'-9"	Str.

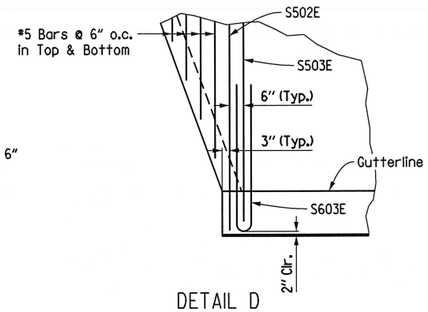
BENDING DIAGRAM



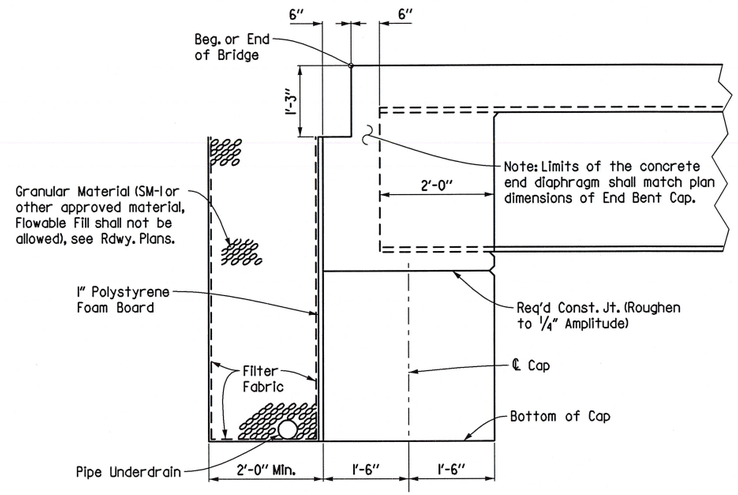
Note:
Dimensions of bars are out-to-out.
Bar designations ending with "E" indicate epoxy-coated bars.



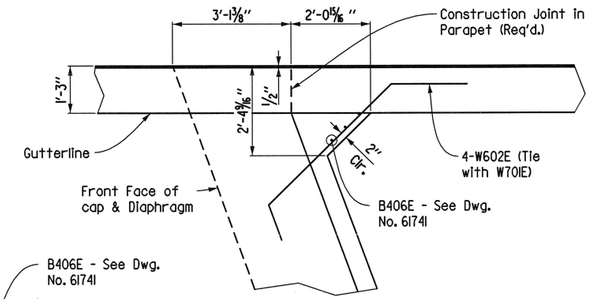
DETAIL C
(Begin Bridge shown, End Bridge similar)
Scale: ⅜" = 1'-0"



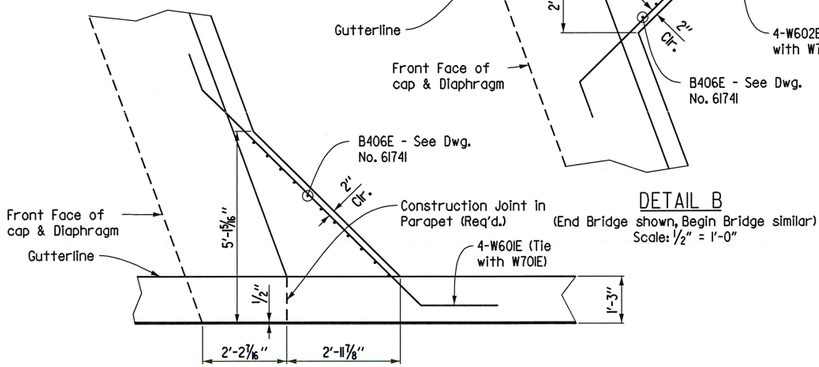
DETAIL D
(Begin Bridge shown, End Bridge similar)
Scale: ⅜" = 1'-0"



SECTION AT END BENT (NORMAL TO CAP)
Scale: ¾" = 1'-0"



DETAIL B
(End Bridge shown, Begin Bridge similar)
Scale: ½" = 1'-0"



DETAIL A
(End Bridge shown, Begin Bridge similar)
Scale: ½" = 1'-0"

Notes:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611 of the Standard Specifications. Pipe underdrains will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".

1" Polystyrene Foam Board, Filter Fabric, and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
07/31/2020

SHEET 7 OF 7

DETAILS OF 107'-0" INTEGRAL CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

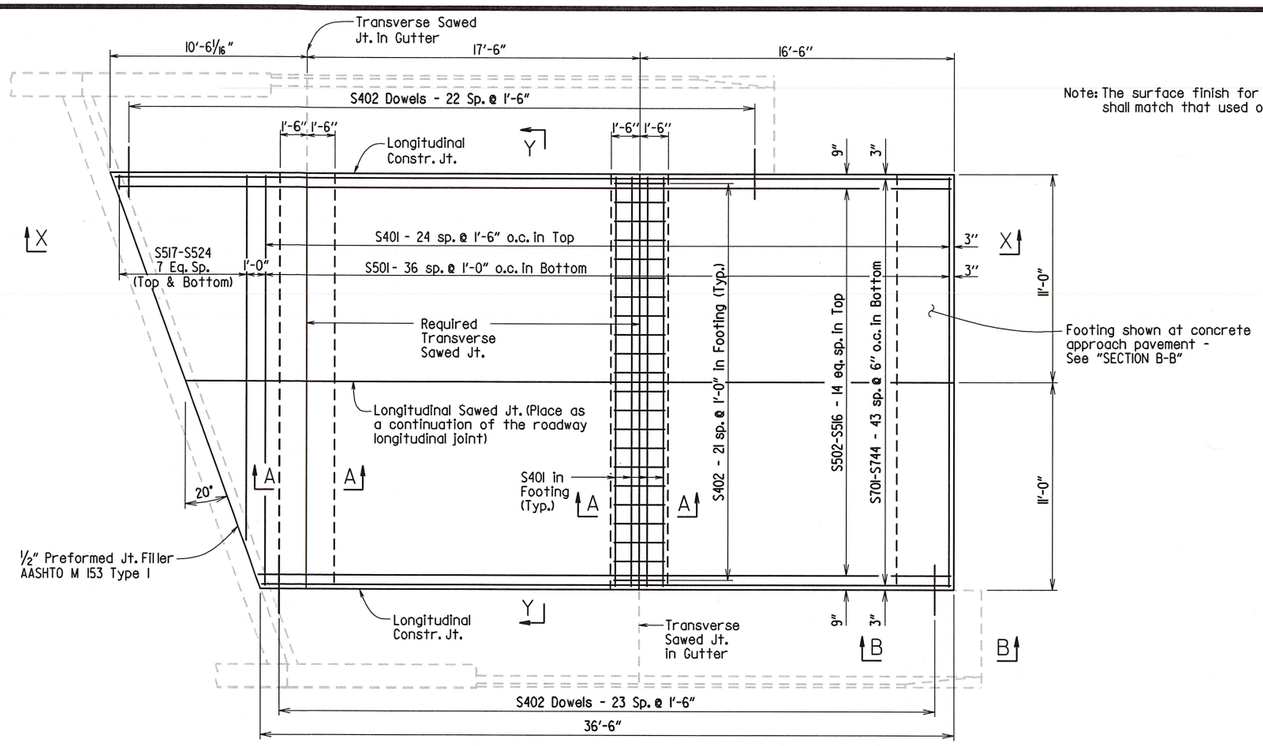
DRAWN BY: LDG DATE: 03-21-2020 FILENAME: b090551_s7.dgn
CHECKED BY: CAW DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 03-13-2020

BRIDGE NO. 07495 DRAWING NO. 61752

USER: lg5169
DESIGN FILE: G:\1910430I_09055Ix268\TRANSP\dgn\bridge\b090551_s7.dgn
PLOTTED: 7/31/2020 13:25
SCALE: 1:21.3333

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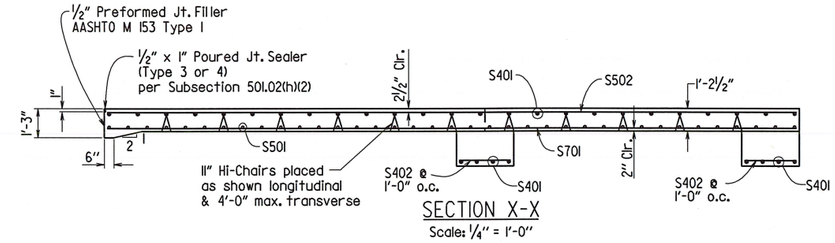
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	38	50
				(1) 07495		APPROACH SLAB		61753



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

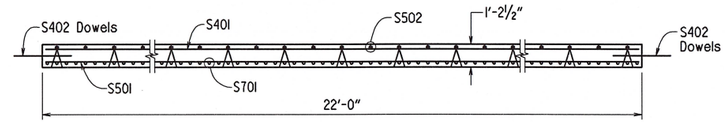
(Bent 4 Shown, Bent 1 Similar)
Scale: 1/4" = 1'-0"

Note: The surface finish for Approach Slabs shall match that used on the bridge deck.



SECTION X-X

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



SECTION Y-Y

No Scale

BAR LIST FOR ONE TYPE SPECIAL APPROACH SLAB

Mark	No. Req'd.	Length
S401	37	21'-8"
S402	113	2'-8"
S501	37	21'-8"
S502 to S516	1 ea.	Var. 36'-5" to 43'-11"
S517 to S524	2 ea.	Var. 9" to 19'-3"
S701 to S744	1 ea.	Var. 36'-3" to 44'-1"

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone 1.

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

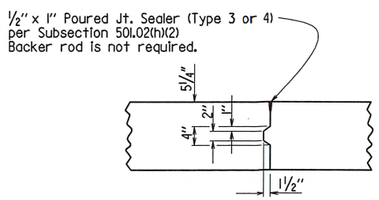
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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

QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

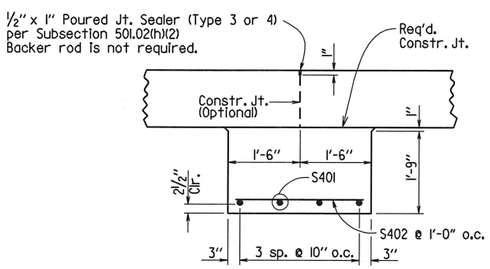
(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
5,981	53.35



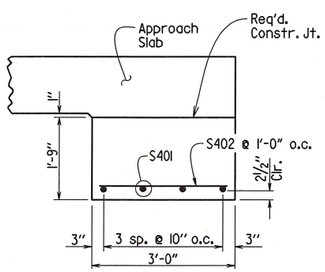
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

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



SECTION A-A

No Scale



SECTION B-B

(At Asphalt Approach Pavement)
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

DETAILS FOR TYPE SPECIAL APPROACH SLABS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

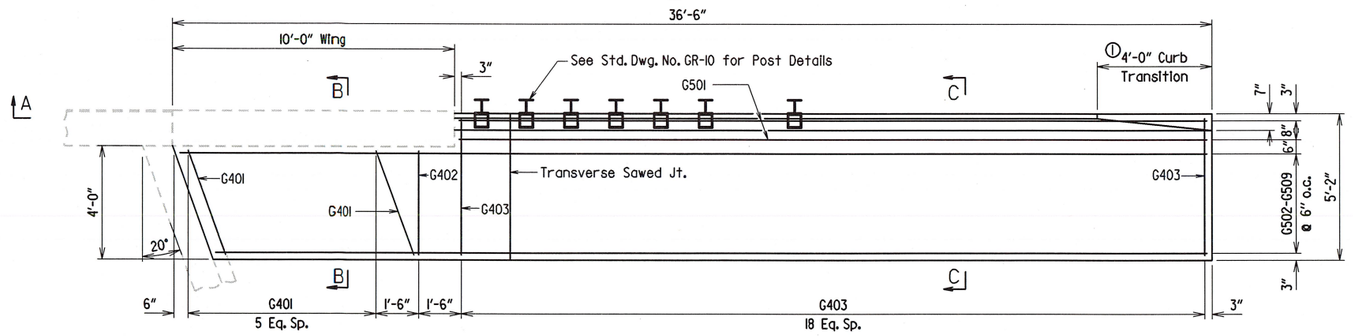
DRAWN BY: LDG DATE: 04-14-2020 FILENAME: b090551_al.dgn
CHECKED BY: MLC DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 04-14-2020

BRIDGE NO. 07495 DRAWING NO. 61753

USER: NS5187
DESIGN FILE: G:\1910430I_090551x268\TRANSP\dgn\bridge\b090551_al.dgn
PLOTTED: 6/5/2020 14:54
SCALE: 1:8

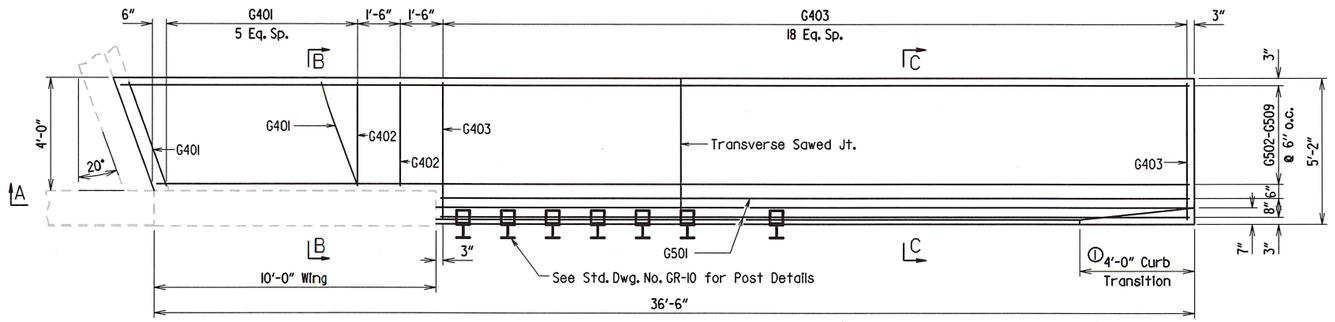
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090551	39	50
				① 07495		APPROACH GUTTER		61754



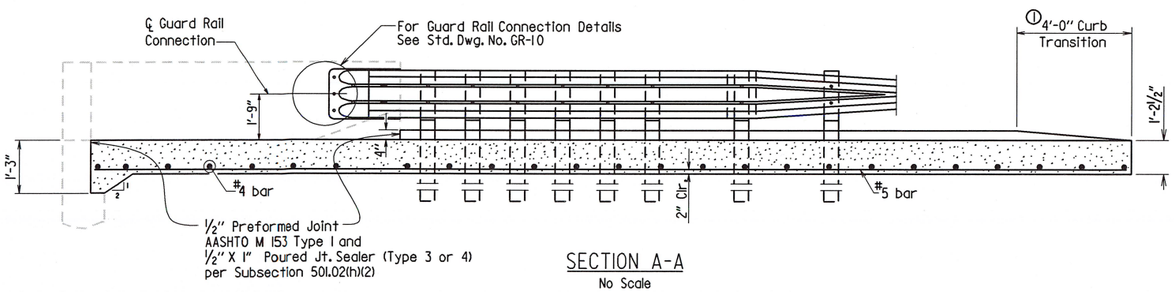
PLAN OF APPROACH GUTTER A

(End Bridge Shown, Begin Bridge Similar)
Scale: 3/8" = 1'-0"



PLAN OF APPROACH GUTTER B

(End Bridge Shown, Begin Bridge Similar)
Scale: 3/8" = 1'-0"

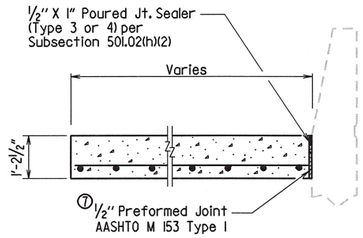


SECTION A-A

No Scale

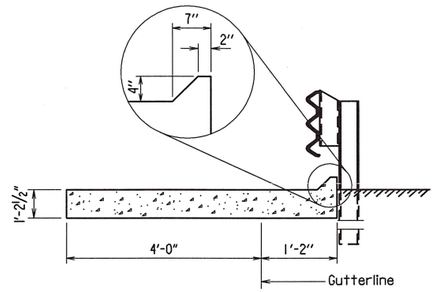
① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

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



SECTION B-B

No Scale



SECTION C-C

No Scale

BAR LIST FOR TYPE SPECIAL GUTTERS

	Mark	No. Req'd.	Length
Gutter A	G401	6	3'-11"
	G402	1	3'-8"
	G403	19	4'-10"
	G501	2	26'-2"
	G502 - G509	1 each	Var. 34'-10" to 36'-1"
Gutter B	G401	6	3'-11"
	G402	2	3'-8"
	G403	19	4'-10"
	G501	2	26'-2"
	G502 - G509	1 each	Var. 36'-3" to 37'-6"

QUANTITIES FOR TYPE SPECIAL GUTTERS

(For Information Only)

	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
Gutter A	430	7.93
Gutter B	444	8.19

GENERAL NOTES

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

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11856
CHARLES A. WIPF
06/05/2020

DETAILS FOR TYPE SPECIAL APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 04-14-2020 FILENAME: b090551_gl.dgn
CHECKED BY: MLC DATE: 04-15-2020 SCALE: SEE DETAILS
DESIGNED BY: LDG DATE: 04-14-2020

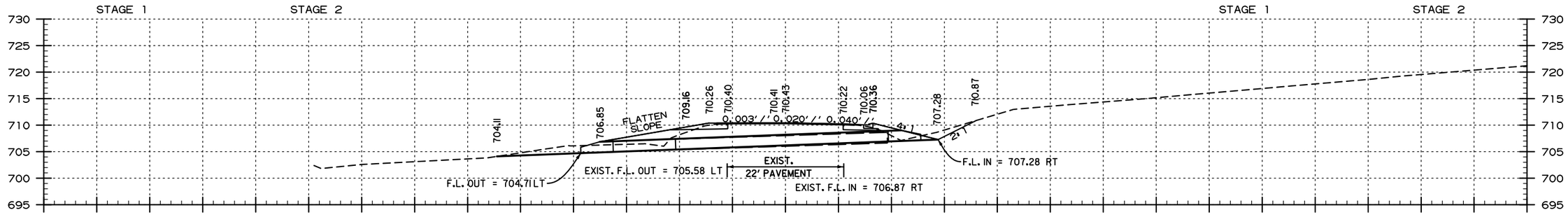
BRIDGE NO. 07495 DRAWING NO. 61754

USER: NS5187
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				JOB NO.		090551	40	50
				(2)	CROSS SECTIONS			

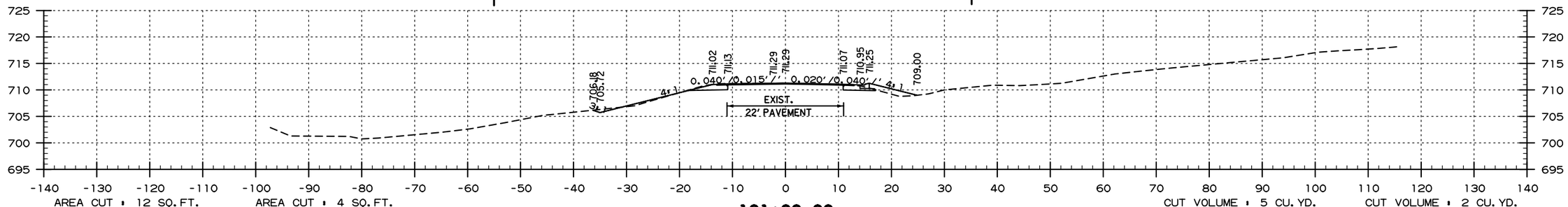
STA. 101+47 - IN PLACE
24" X 40' C.M. PIPE CULVERT
REMOVE & CONSTRUCT
24" X 52' R.C. PIPE CULVERT
W/ F.E.S. LT. & RT.
(CLASS IV)(TYPE 3 BEDDING)
D.A. = 1.7 ACRES, Q50 = 7.3 CFS

STAGE 2 — 11' TRAFFIC LANES
STAGE 2 — CONSTRUCTION
STAGE 1 — CONSTRUCTION
STAGE 1 — 11' TRAFFIC LANES



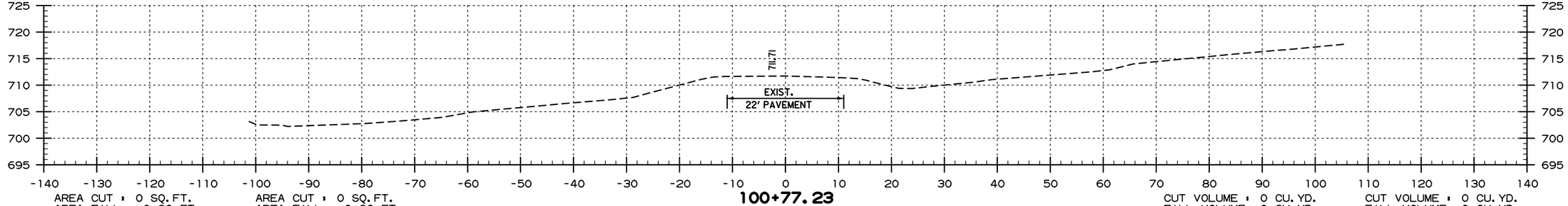
AREA CUT = 8 SQ.FT. AREA FILL = 26 SQ.FT.
AREA CUT = 7 SQ.FT. AREA FILL = 8 SQ.FT.
CUT VOLUME = 18 CU.YD. FILL VOLUME = 24 CU.YD.
CUT VOLUME = 10 CU.YD. FILL VOLUME = 13 CU.YD.

101+47.00



AREA CUT = 12 SQ.FT. AREA FILL = 1 SQ.FT.
AREA CUT = 4 SQ.FT. AREA FILL = 7 SQ.FT.
CUT VOLUME = 5 CU.YD. FILL VOLUME = 1 CU.YD.
CUT VOLUME = 2 CU.YD. FILL VOLUME = 3 CU.YD.

101+00.00



AREA CUT = 0 SQ.FT. AREA FILL = 0 SQ.FT.
AREA CUT = 0 SQ.FT. AREA FILL = 0 SQ.FT.
CUT VOLUME = 0 CU.YD. FILL VOLUME = 0 CU.YD.
CUT VOLUME = 0 CU.YD. FILL VOLUME = 0 CU.YD.

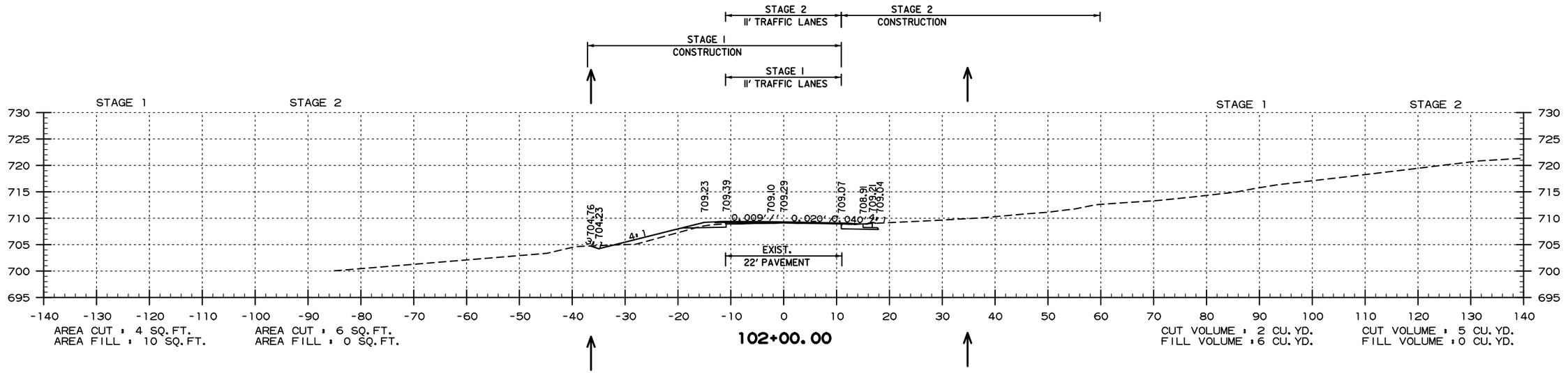
100+77.23
BEGIN 100' TRANSITION

STA. 100+77 TO STA. 101+47

USER: NS5187
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PLOTTED: 6/5/2020 15:18
SCALE: 1:20

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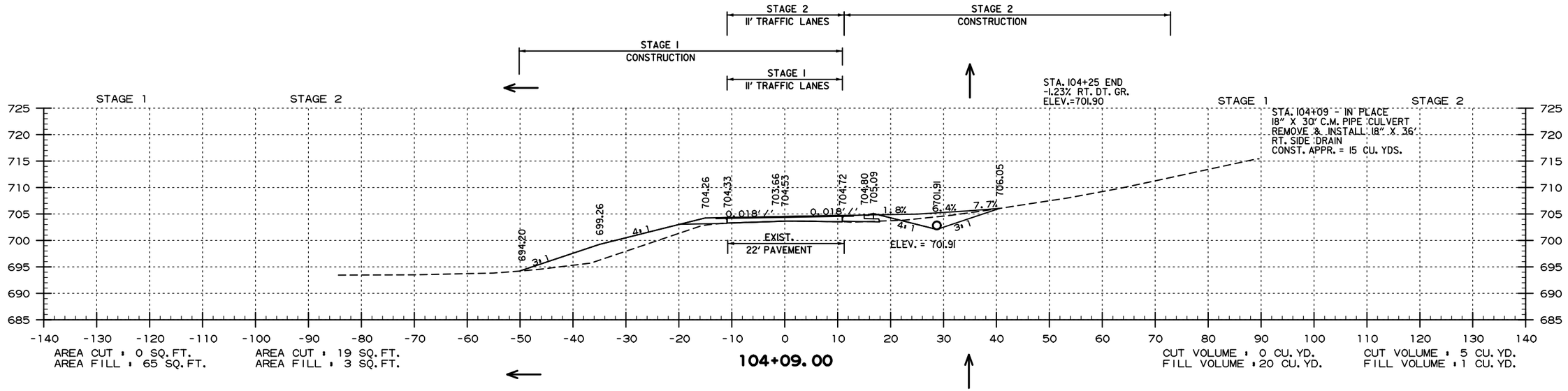


STA. 101+77 TO STA. 102+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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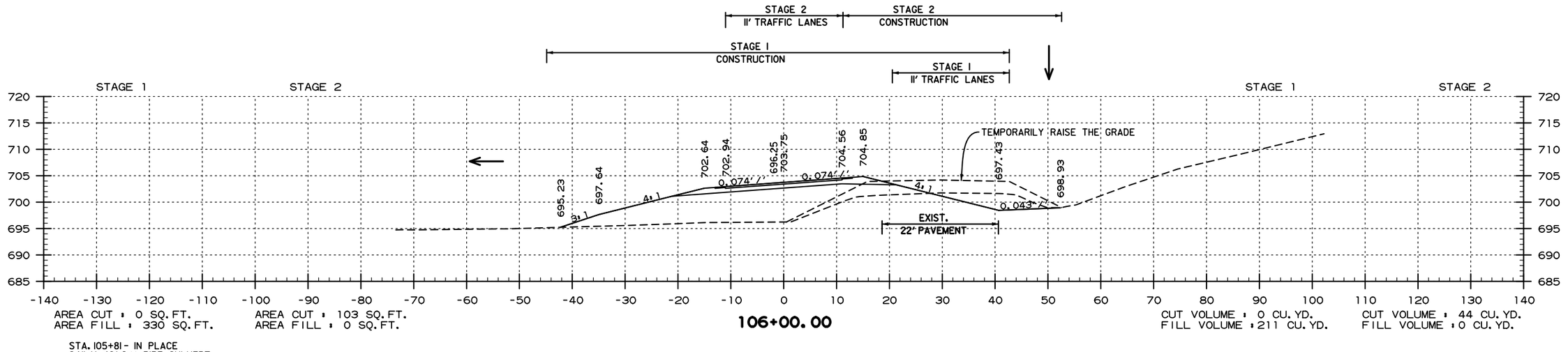


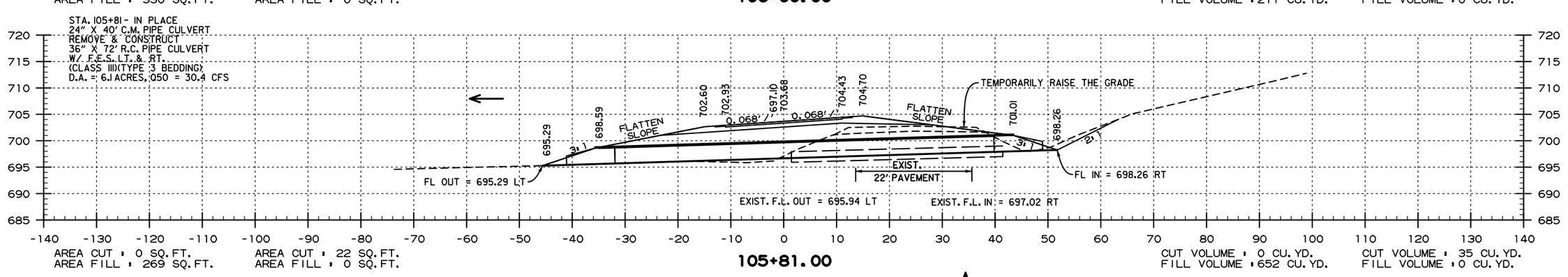
STA. 103+00 TO STA. 104+09

USER: NS587
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SCALE: 1:20

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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)	CROSS SECTIONS			



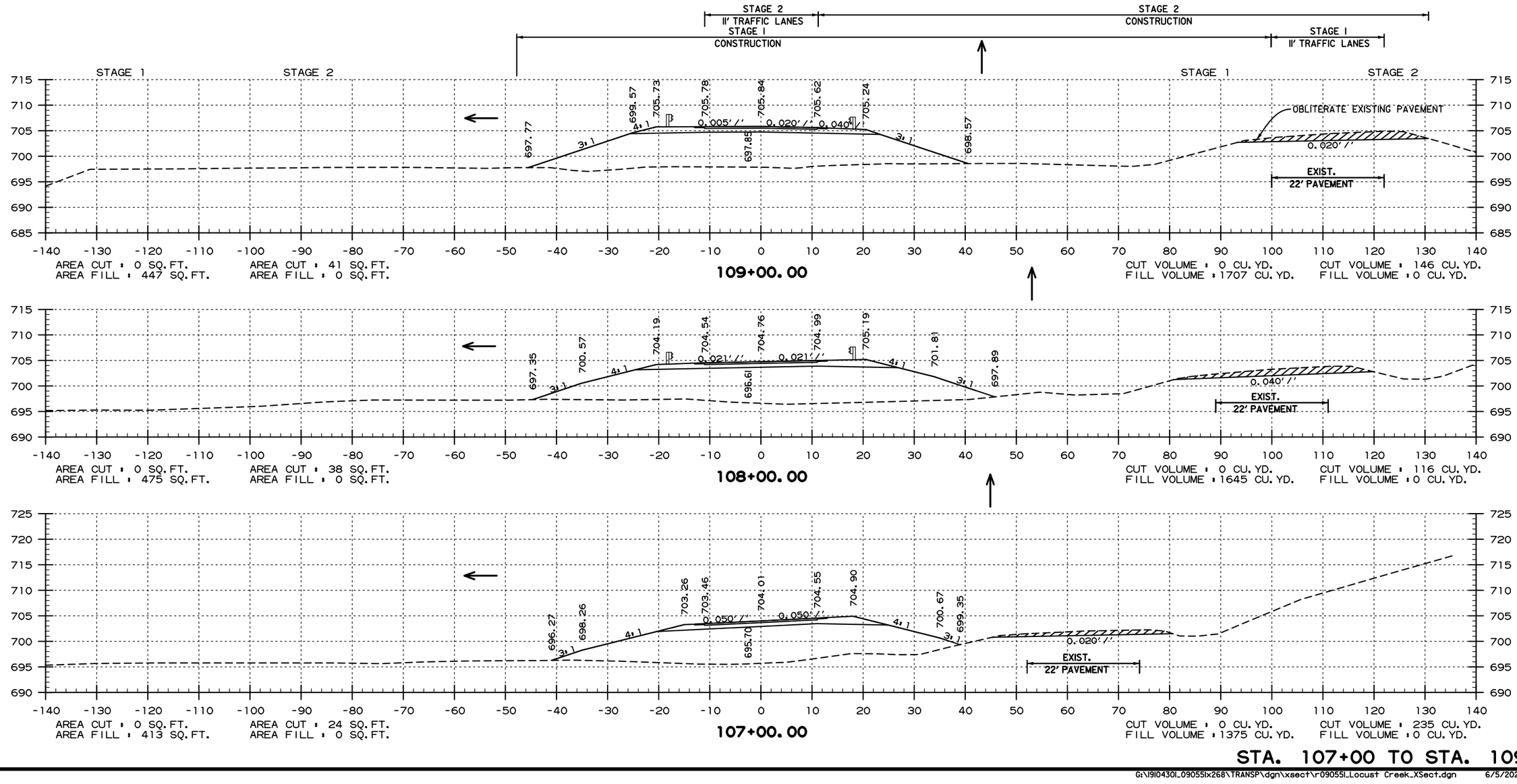


STA. 105+00 TO STA. 106+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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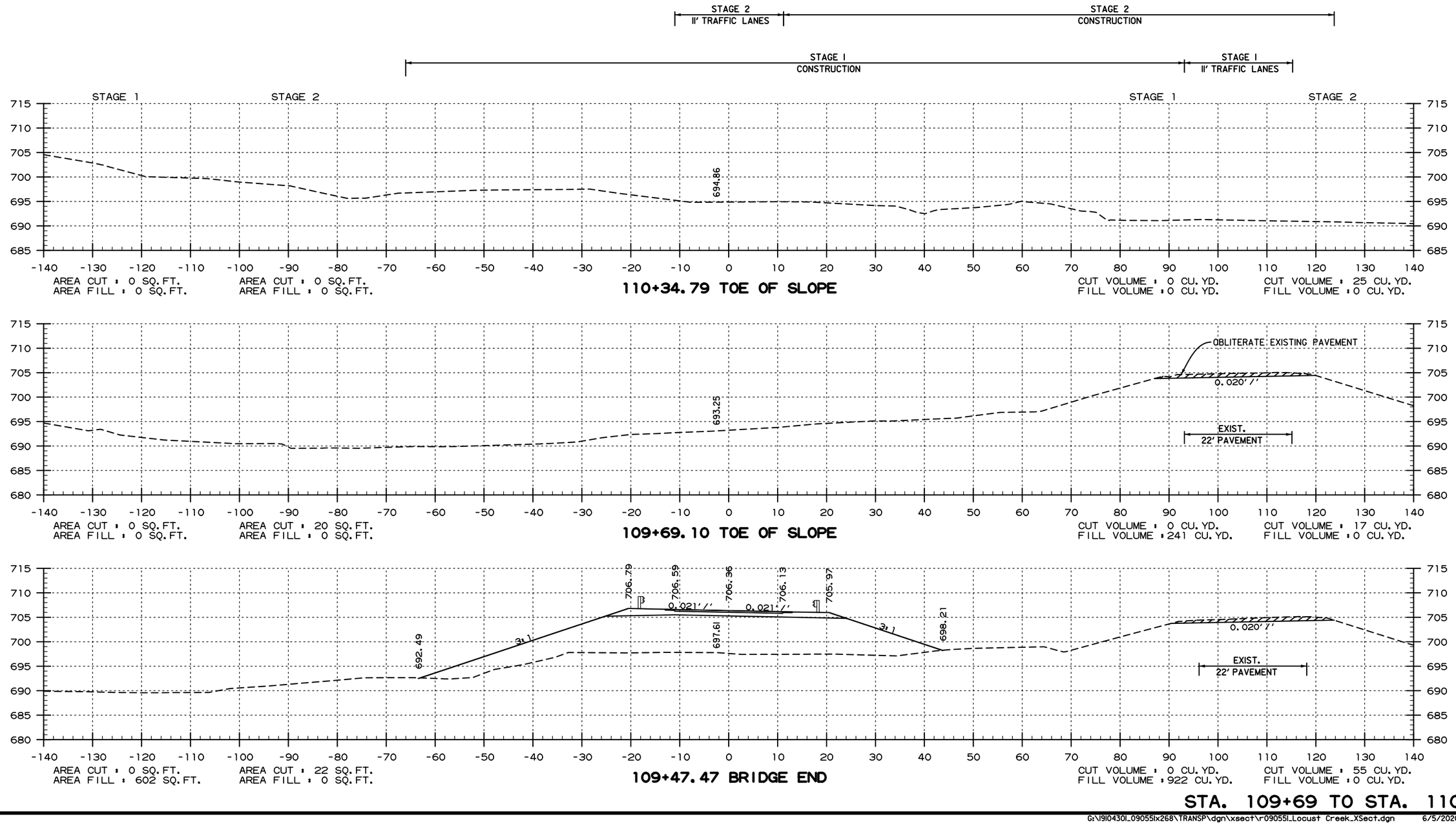


STA. 107+00 TO STA. 109+47

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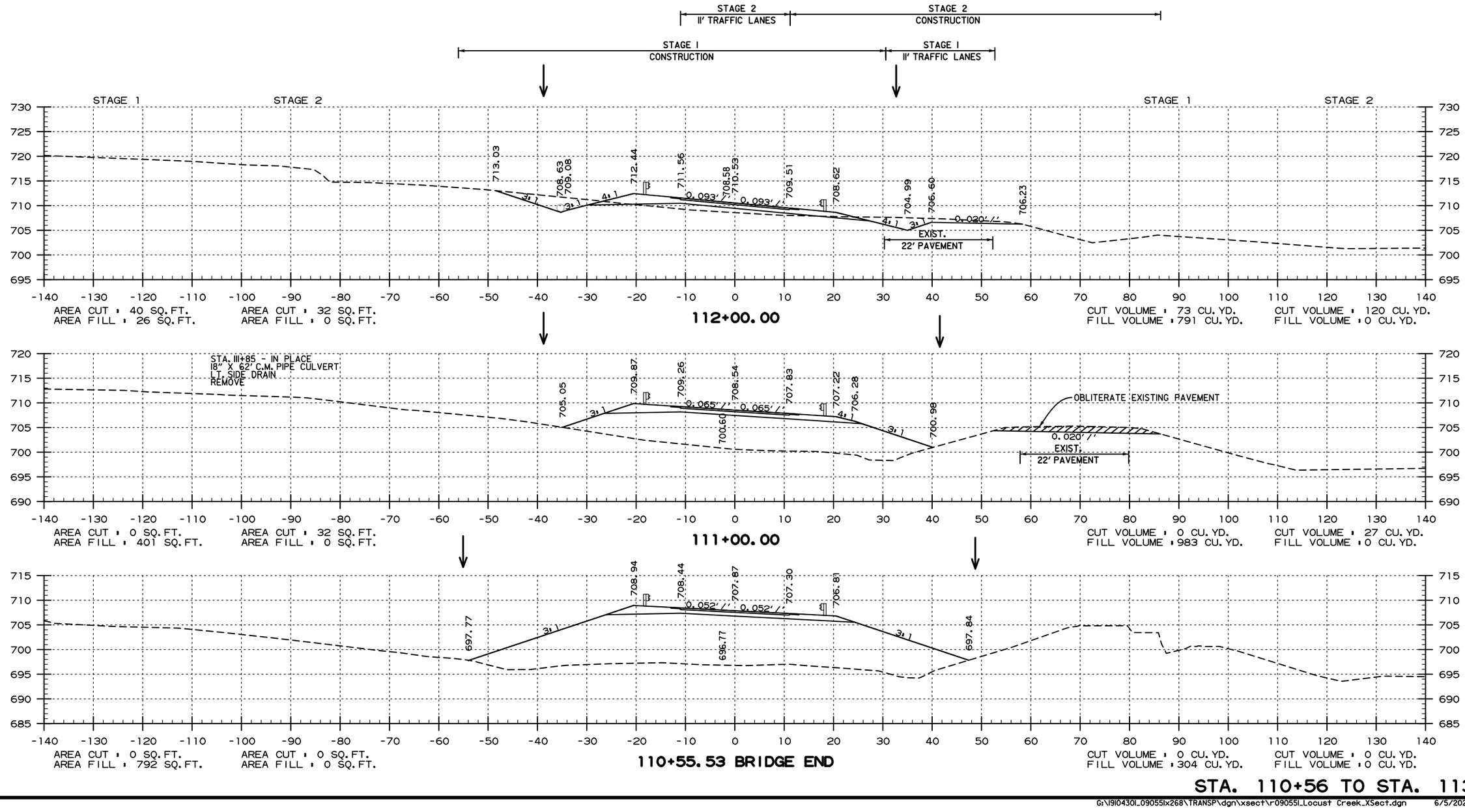


STA. 109+69 TO STA. 110+35

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(2) CROSS SECTIONS

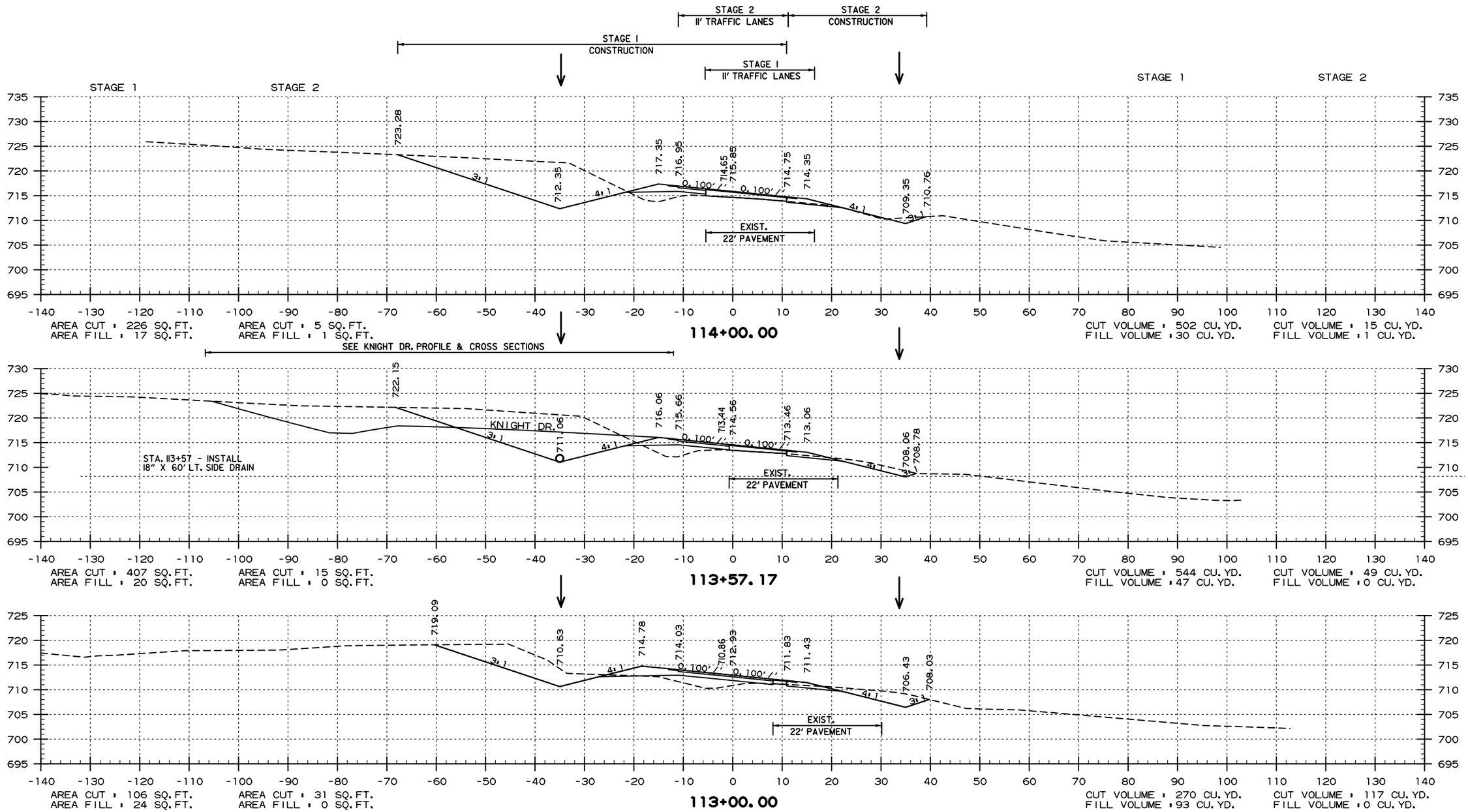


STA. 110+56 TO STA. 113+00

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				JOB NO.		090551	47	50
				(2)	CROSS SECTIONS			



STA. 113+00 TO STA. 114+00

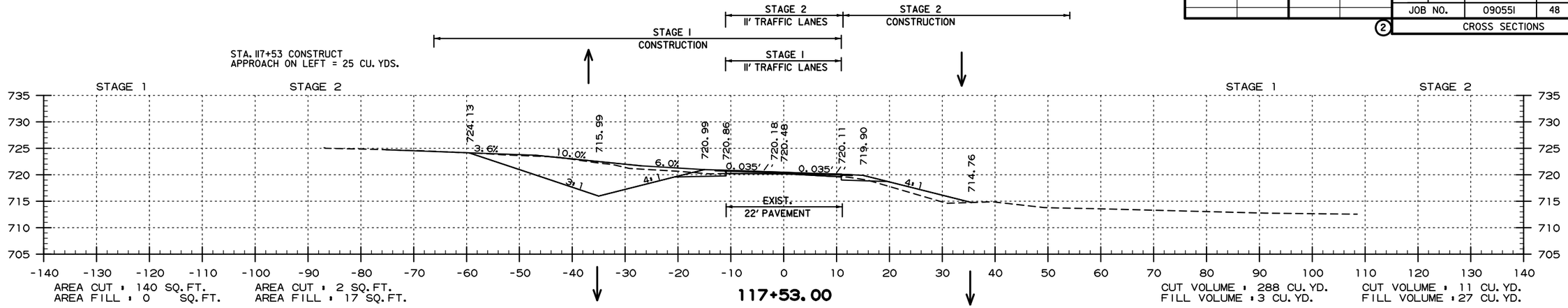
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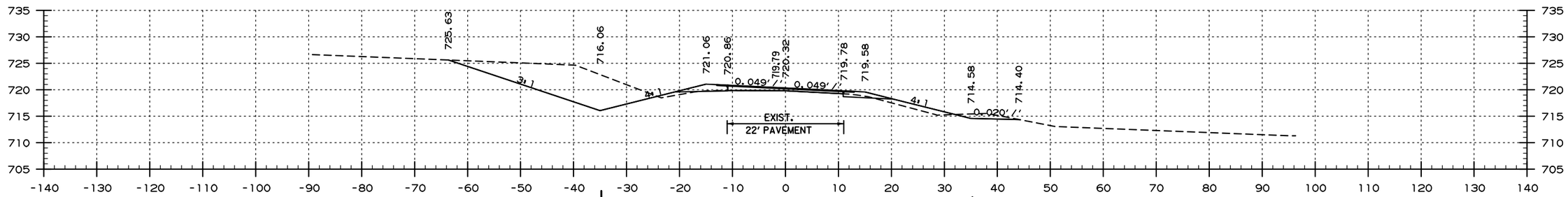
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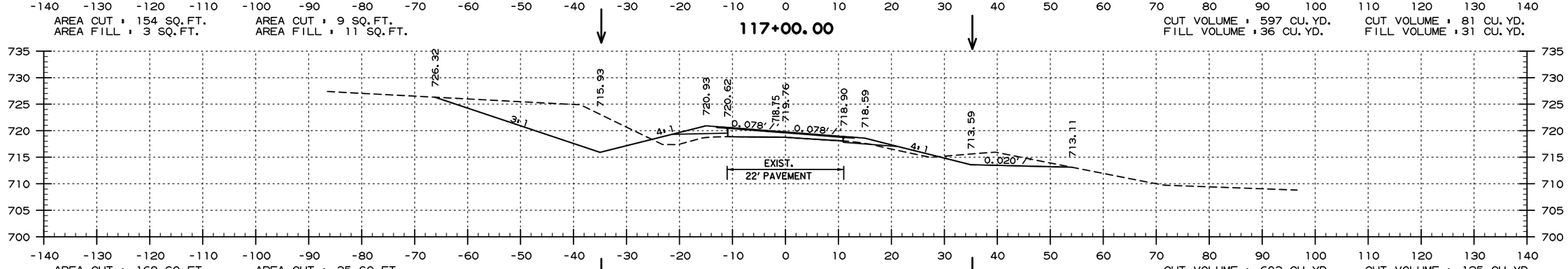
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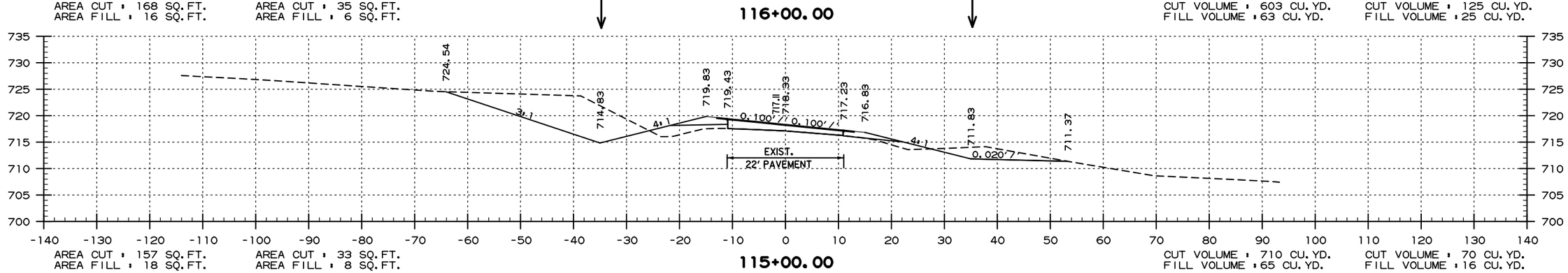
(2) CROSS SECTIONS

STA. 117+53 CONSTRUCT
APPROACH ON LEFT = 25 CU. YDS.







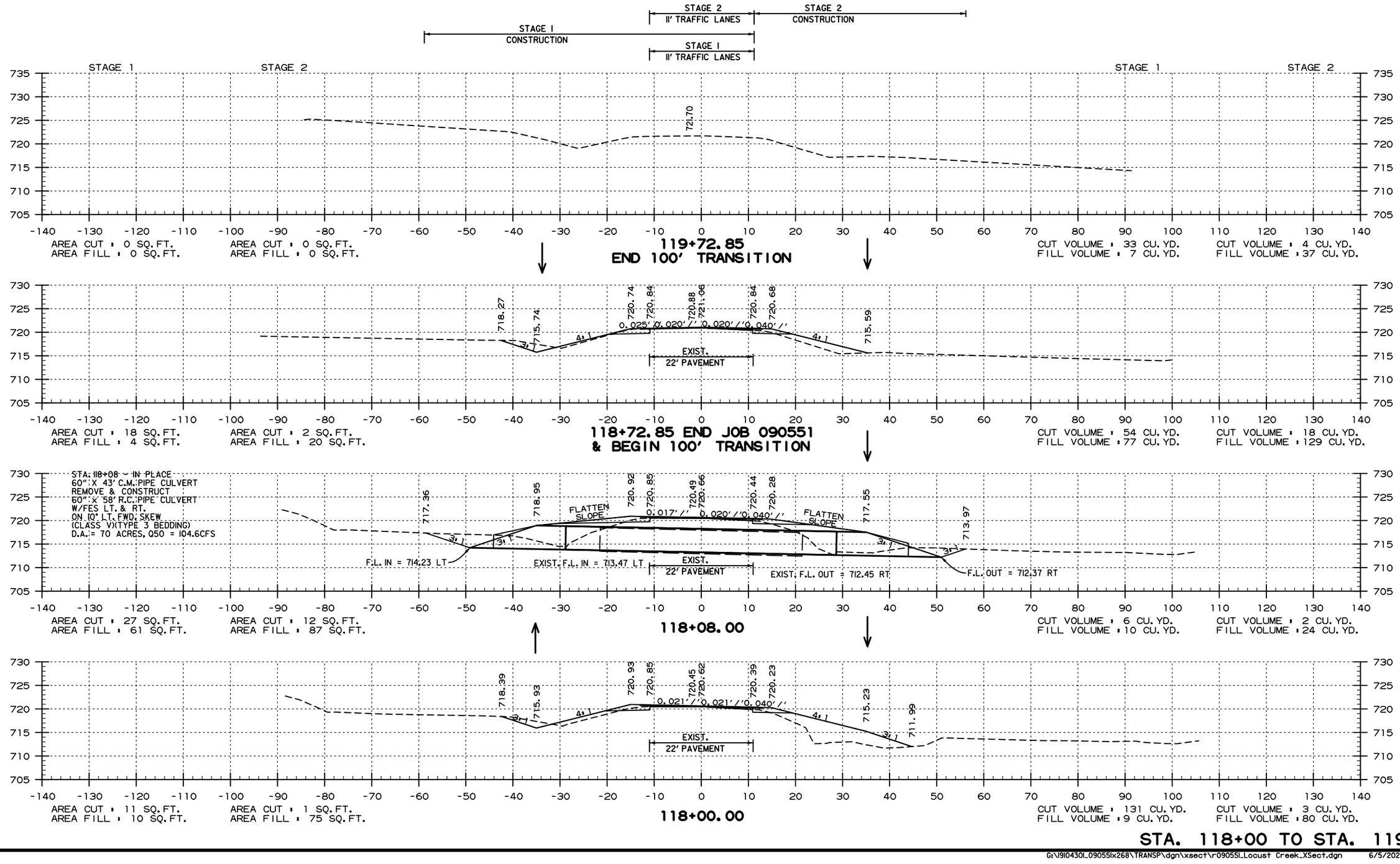


STA. 115+00 TO STA. 117+00

USER: NS5187
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PLOTTED: 6/5/2020 15:18
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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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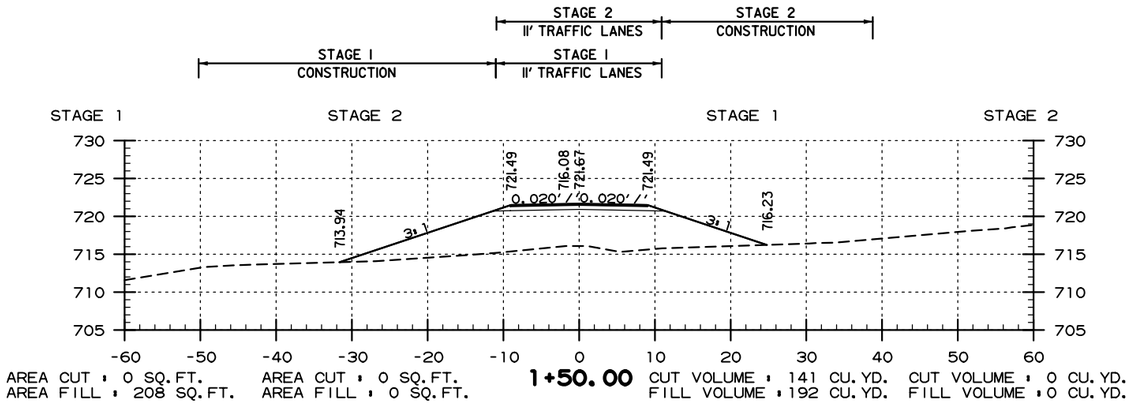
STA. 118+00 TO STA. 119+73

USER: NS5187
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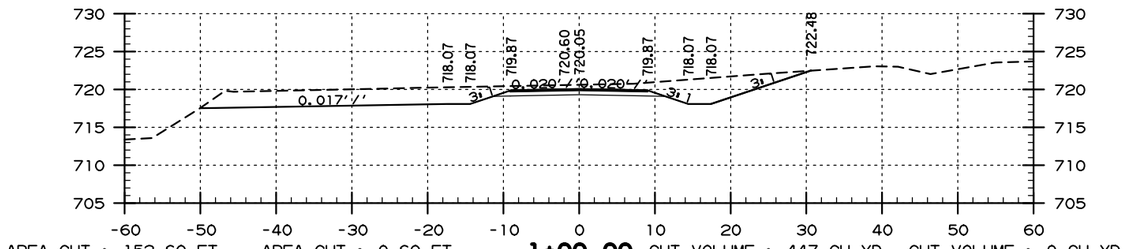
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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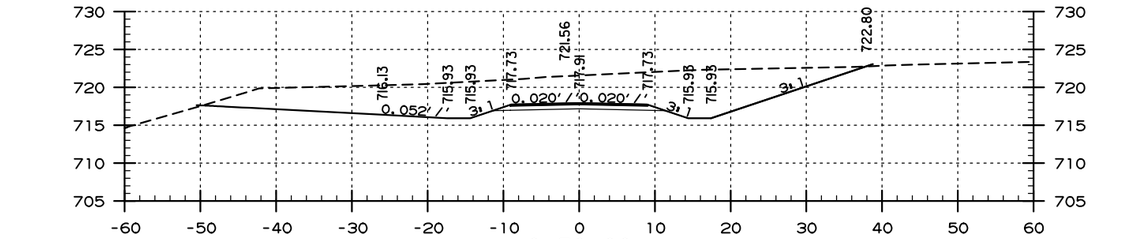
(2) CROSS SECTIONS



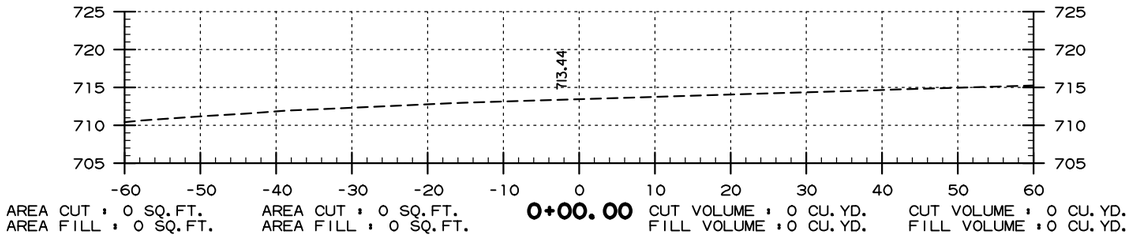
AREA CUT = 0 SQ.FT. AREA FILL = 208 SQ.FT. | AREA CUT = 0 SQ.FT. AREA FILL = 0 SQ.FT. | **1+50.00** | CUT VOLUME = 141 CU.YD. FILL VOLUME = 192 CU.YD. | CUT VOLUME = 0 CU.YD. FILL VOLUME = 0 CU.YD.



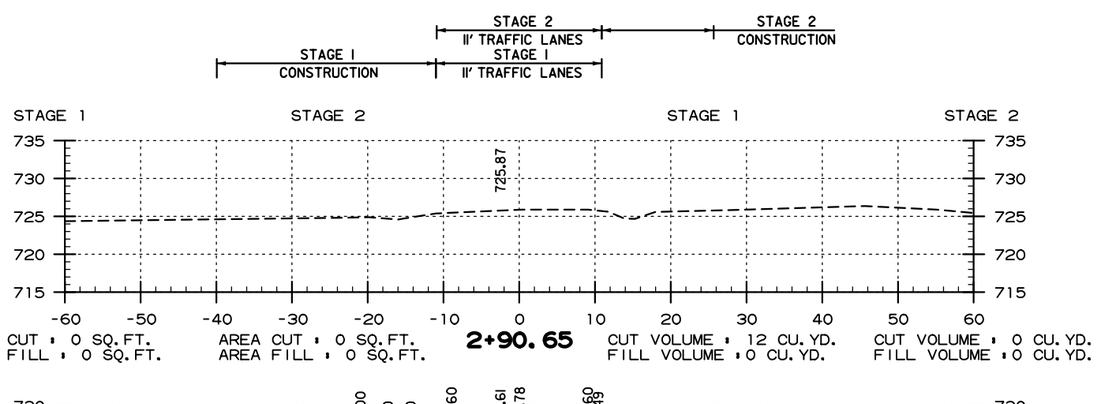
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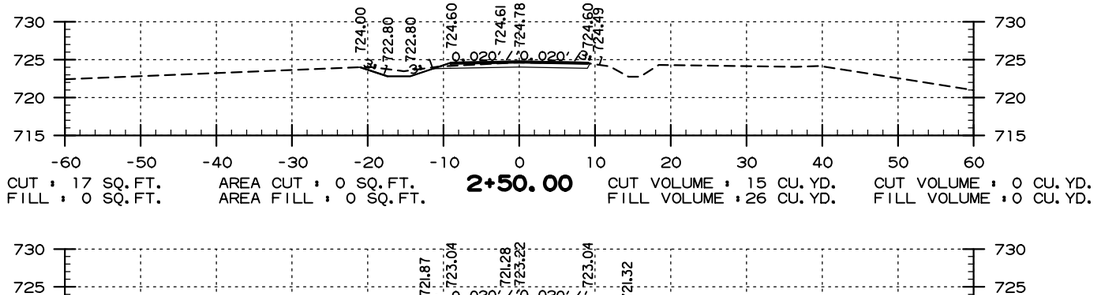
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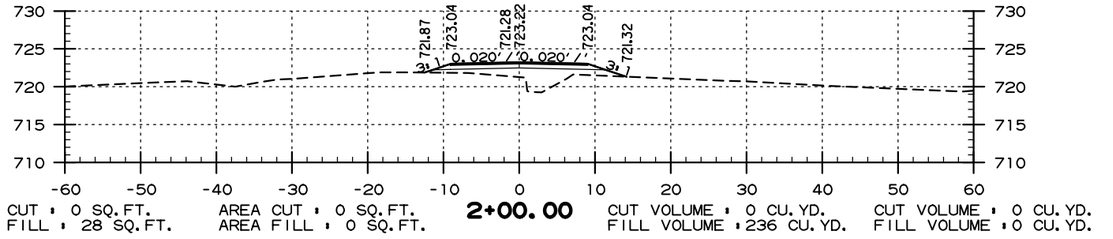
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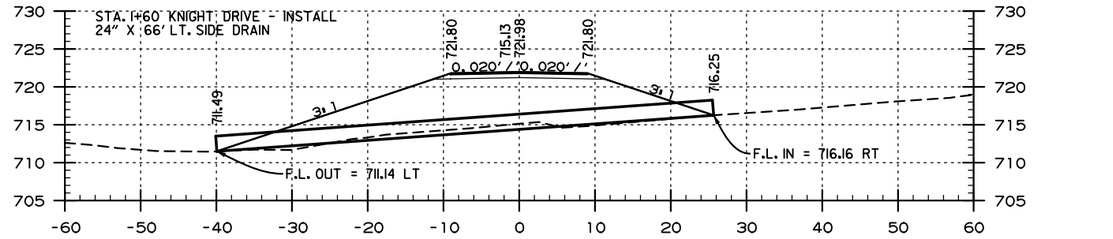
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AREA CUT = 17 SQ.FT. AREA FILL = 0 SQ.FT. | AREA CUT = 0 SQ.FT. AREA FILL = 0 SQ.FT. | **2+50.00** | CUT VOLUME = 15 CU.YD. FILL VOLUME = 26 CU.YD. | CUT VOLUME = 0 CU.YD. FILL VOLUME = 0 CU.YD.



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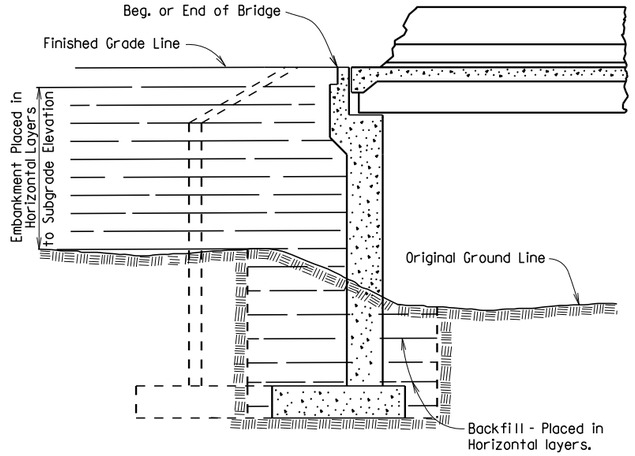
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KNIGHT DR.
STA. 0+00 TO STA. 2+91

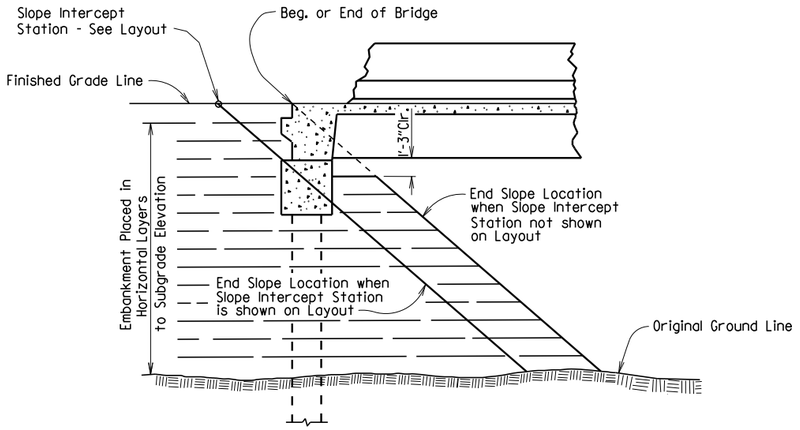
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				JOB NO.				

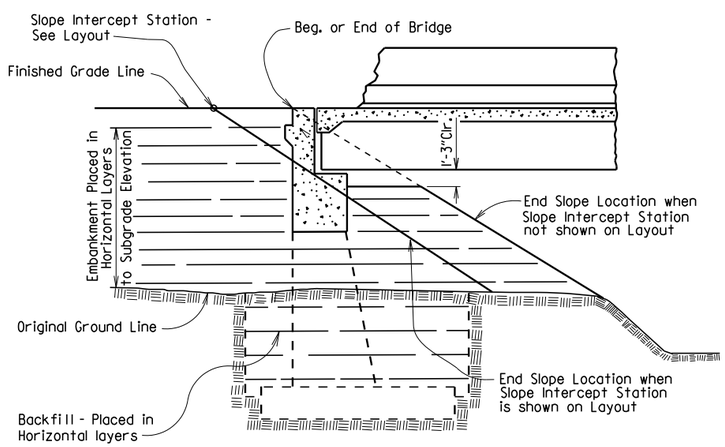
1 EMBANKMENT & BACKFILL 55000



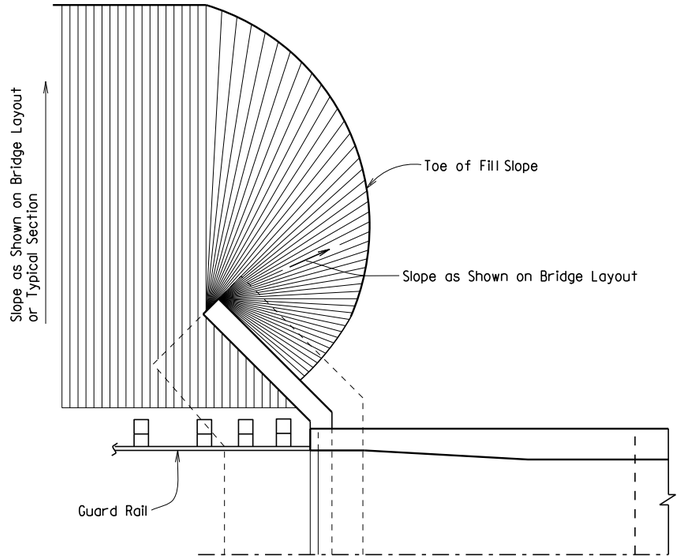
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



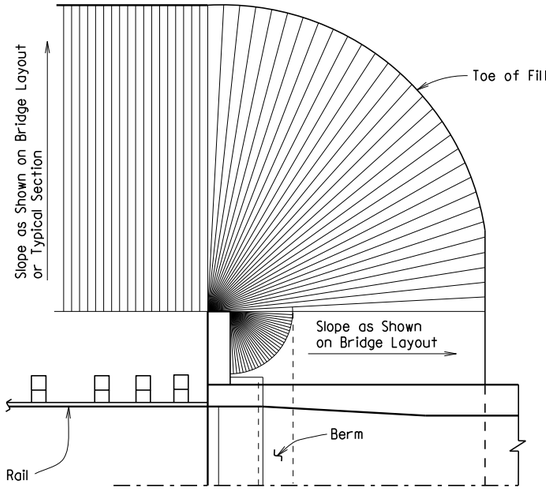
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



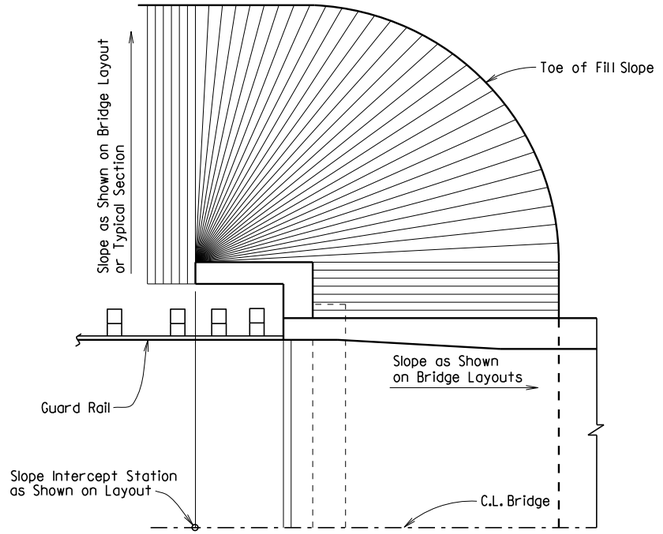
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



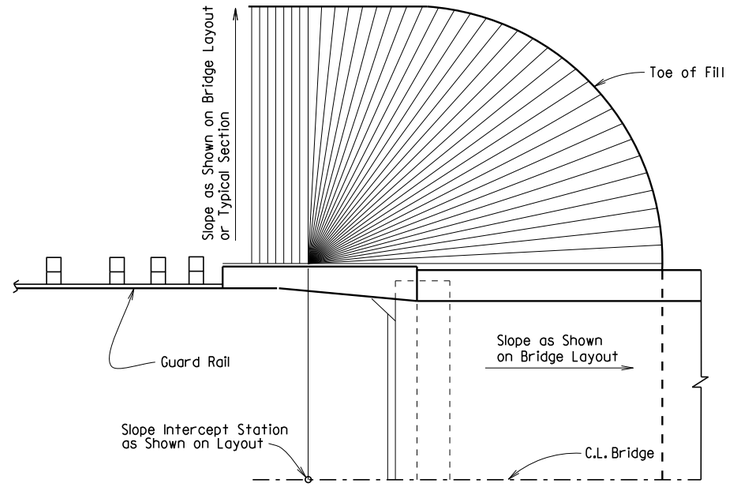
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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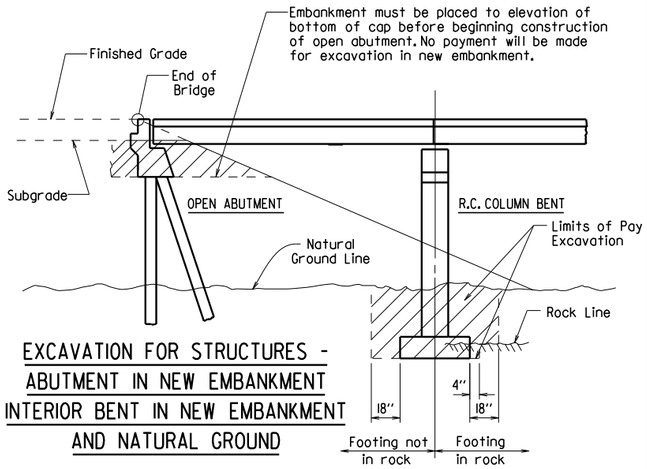
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DESIGNED BY: STD. DATE: -

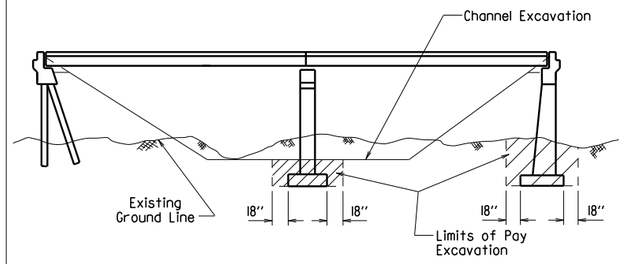
DRAWING NO. 55000

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				JOB NO.				

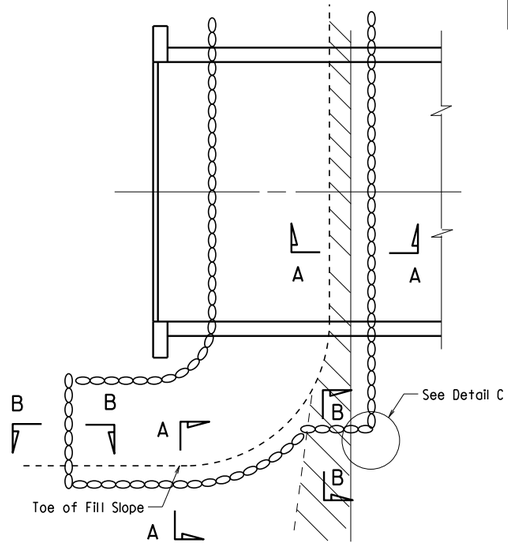
1 RIPRAP & EXCAV. 55001



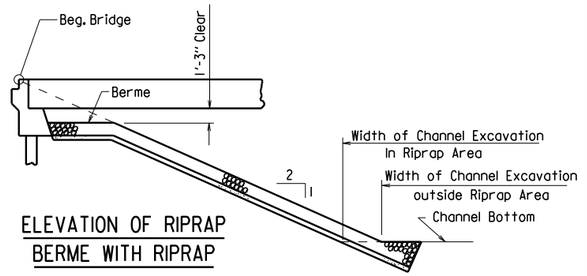
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



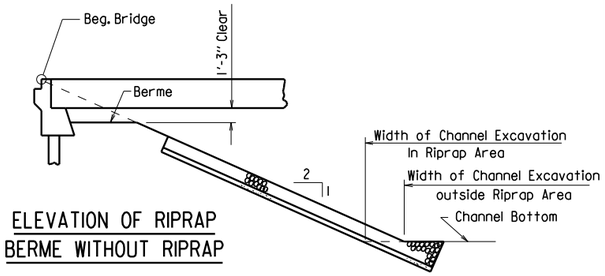
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



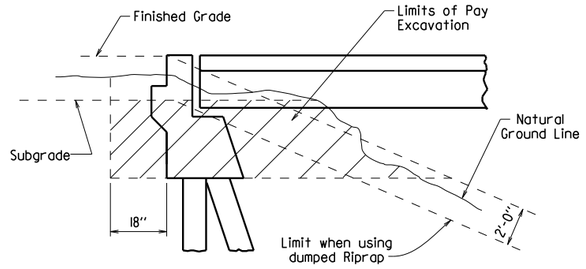
PLAN OF DUMPED RIPRAP



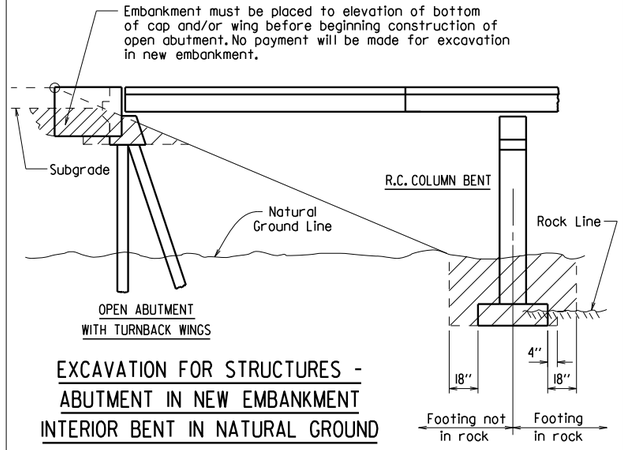
ELEVATION OF RIPRAP BERME WITH RIPRAP



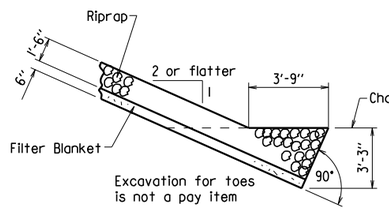
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND

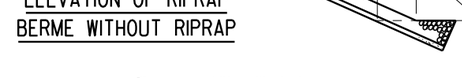


EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND

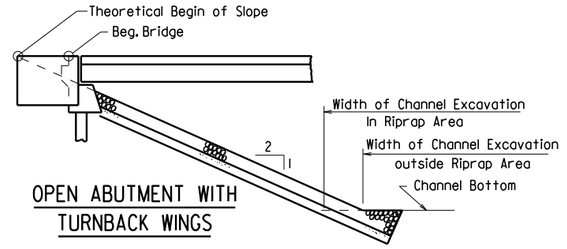


SECTION A-A

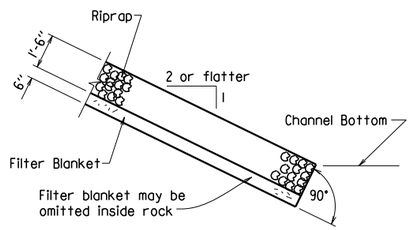
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



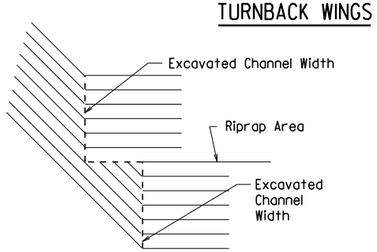
SECTION A-A

(Toe Excavation in Rock)

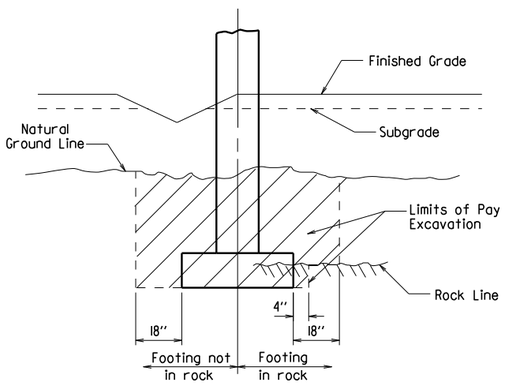
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

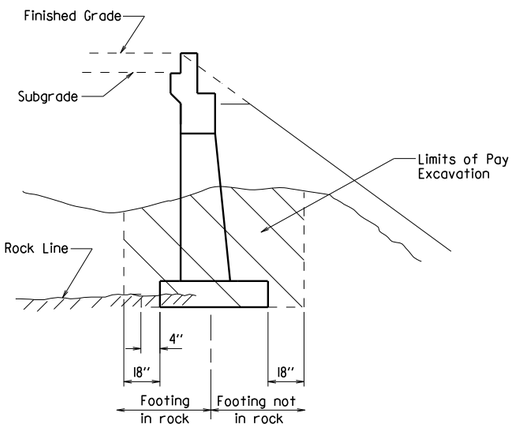
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



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



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

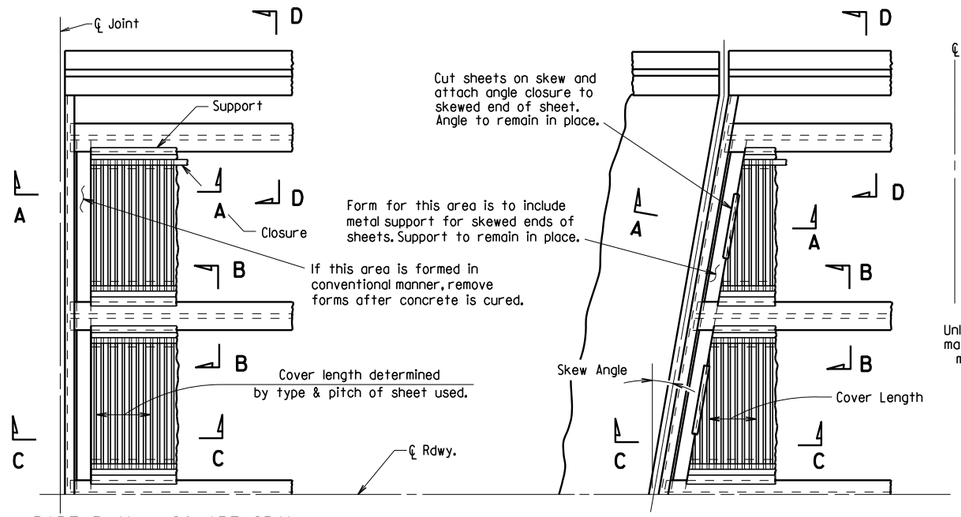
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CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

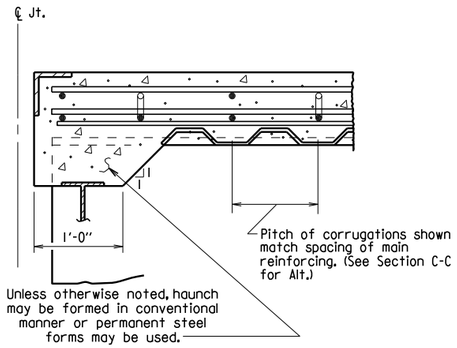


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

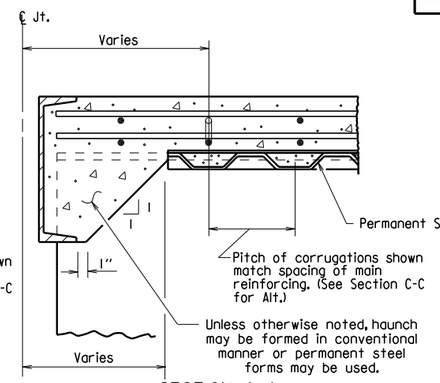
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



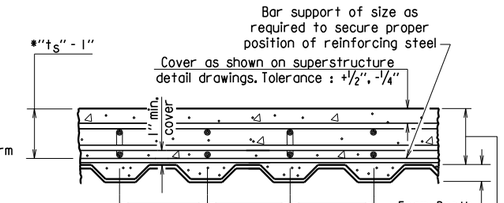
SECTION A-A

N.T.S.
(Angle at end of span)



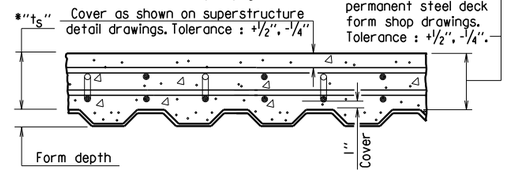
SECTION A-A

N.T.S.
(Channel at end of span)



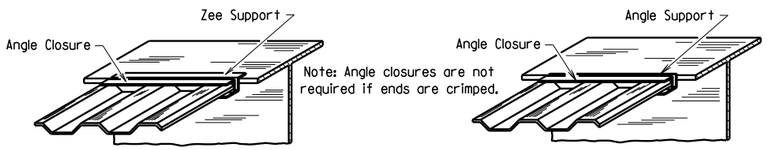
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

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

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

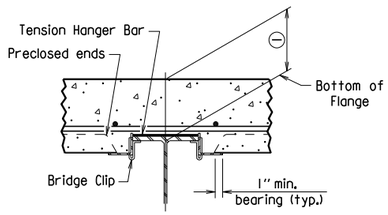
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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

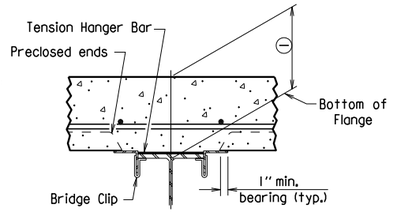
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



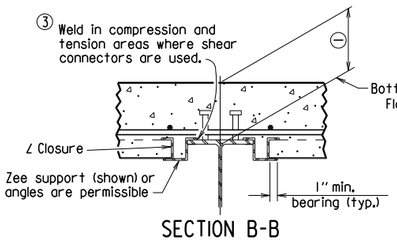
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



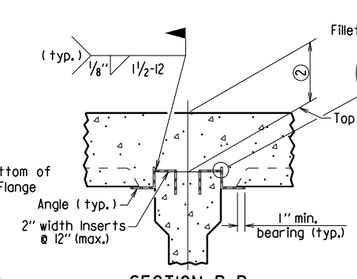
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



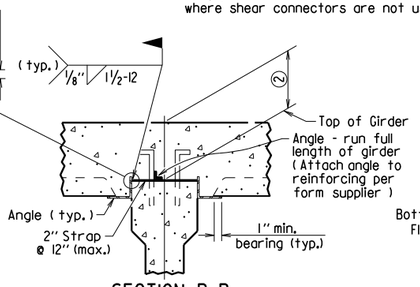
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



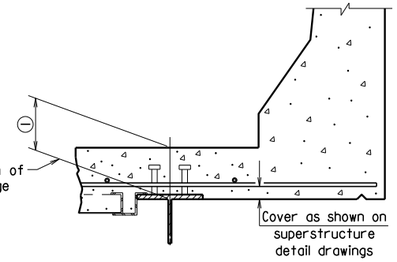
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

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

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

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		GENERAL NOTES		55006

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy =	70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

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

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

Unless otherwise noted, diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Web and flange plates for main members and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

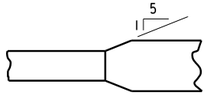
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

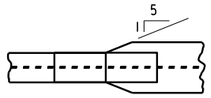
PRINT DATE: 11/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			

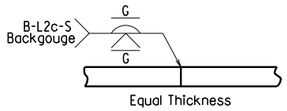


Plan-Unequal Width (Flg.)

FLANGE SPLICE

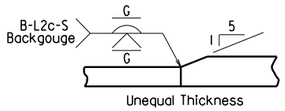


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

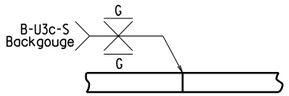
WEB & FLANGE SPLICE



Unequal Thickness

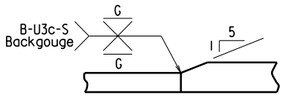
FLANGE SPLICE

(Use when Base Metal Thickness is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

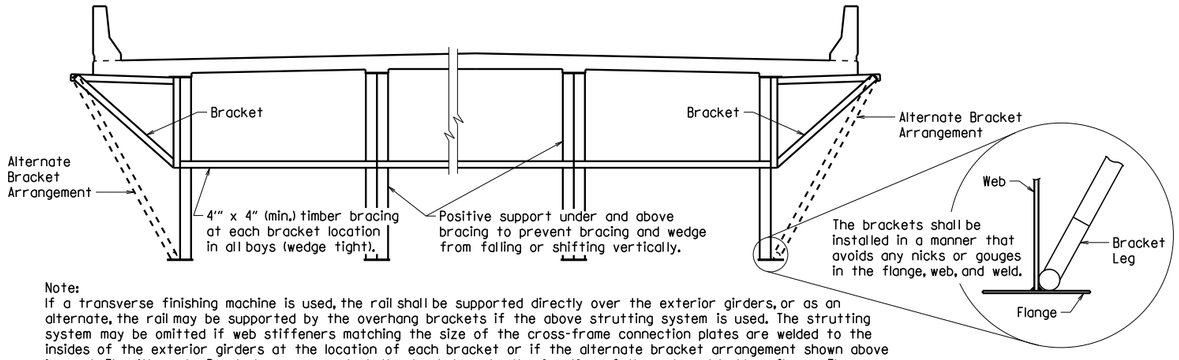


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness is Greater than 2")

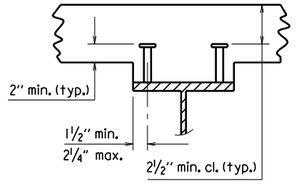
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



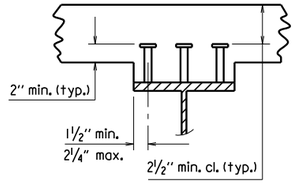
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (___)".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



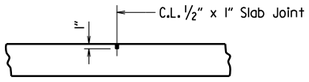
2 STUDS PER ROW



3 STUDS PER ROW

Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

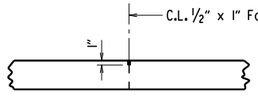
SHEAR CONNECTOR DETAIL



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

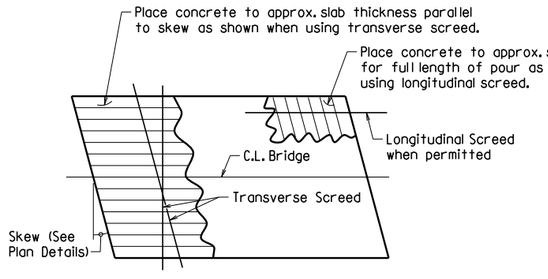
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



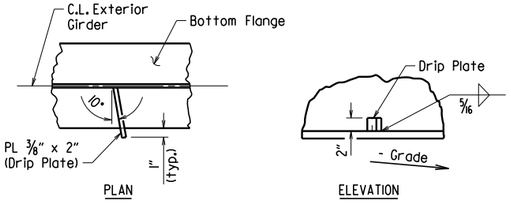
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C. L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



PLAN

ELEVATION

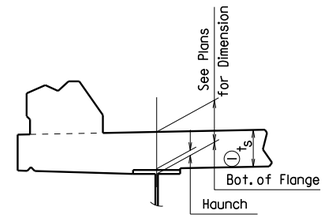
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

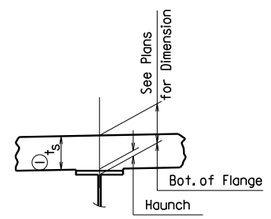
BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER



INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾" unless otherwise noted in the plans. No increase in concrete and structural steel quantities will be made to maintain tolerances.

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	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.

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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

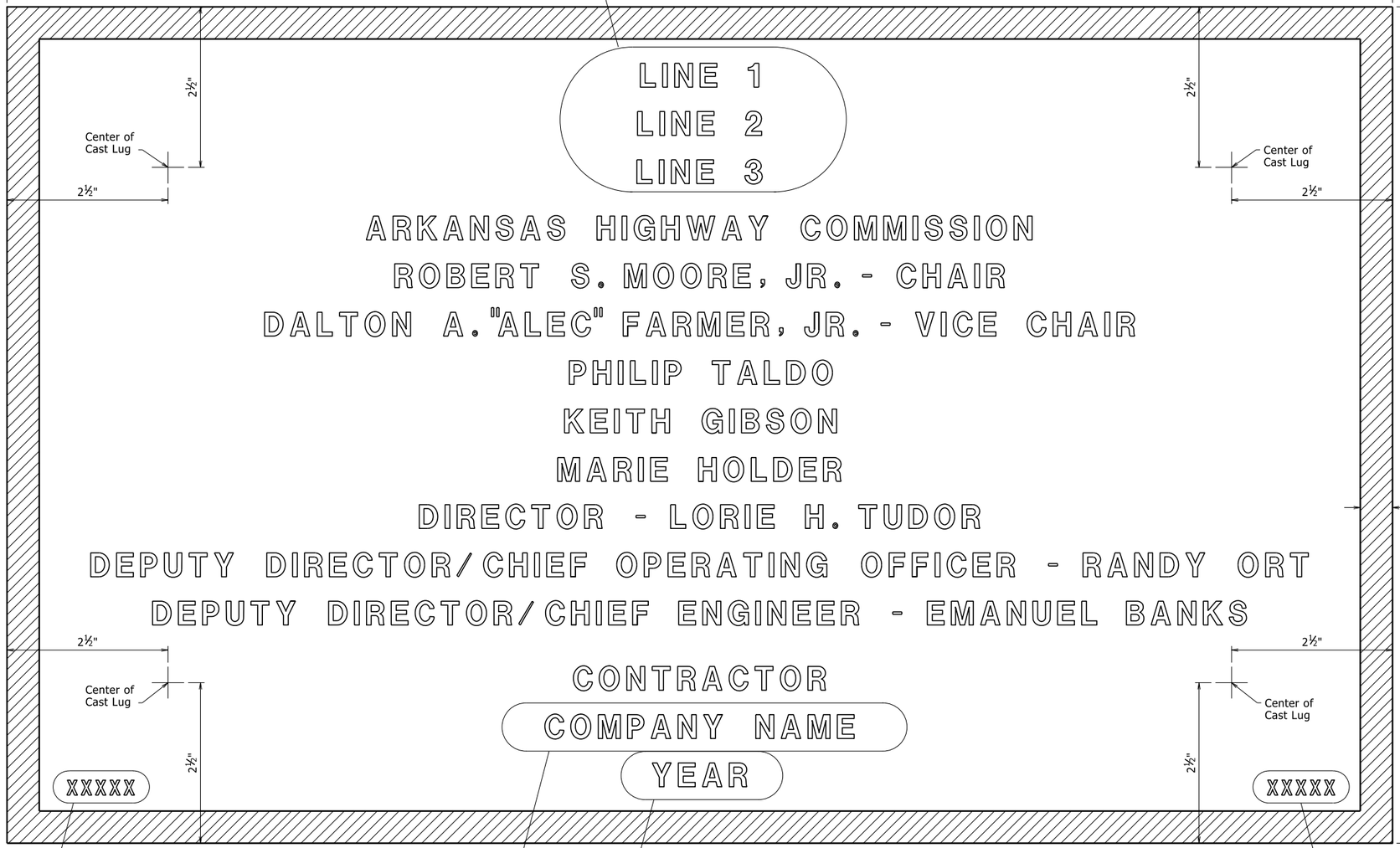
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
12-1-14		1-15-19	
1-14-15		3-24-2020	
1-17-17			

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

(1) TYPE D NAME PLATE - 55010

The name of the bridge as shown on the plans shall be placed on Lines 1-3 using ⅛" raised letters and numerals ⅜" 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	



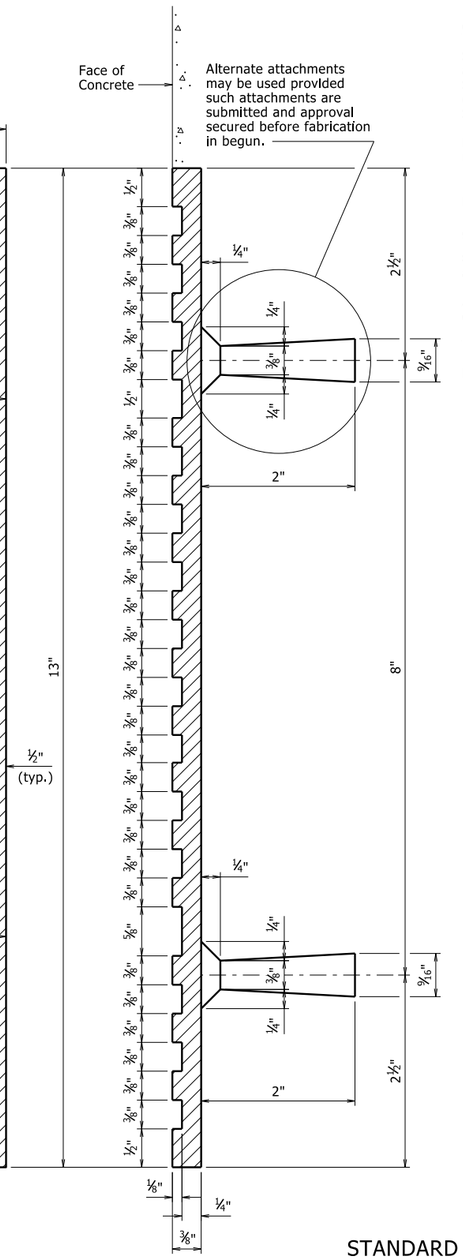
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

Place the Year in which Contract was awarded here using ⅛" raised numerals ⅜" high. Example: 2001

Place the name of the company awarded the construction contract here using ⅛" raised letters and numerals ⅜" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using ⅛" raised letters and numerals ¼" high. Examples: A1234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to 9/16" x 2" long. The border and all lettering shall be raised ⅛" 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.

(5) Revised Director, Deputy Director/Chief Operating Officer, Chair, Vice Chair and added New Commissioner
3-24-2020 CGP Checked By: CRE

(4) Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE

(3) Added New Commissioner
1-17-17 KDH Checked By: CRE

(2) Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

(1) Revised Deputy DIrector/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55010

PRINT DATE: 4/6/2020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

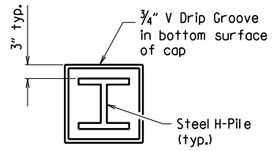
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

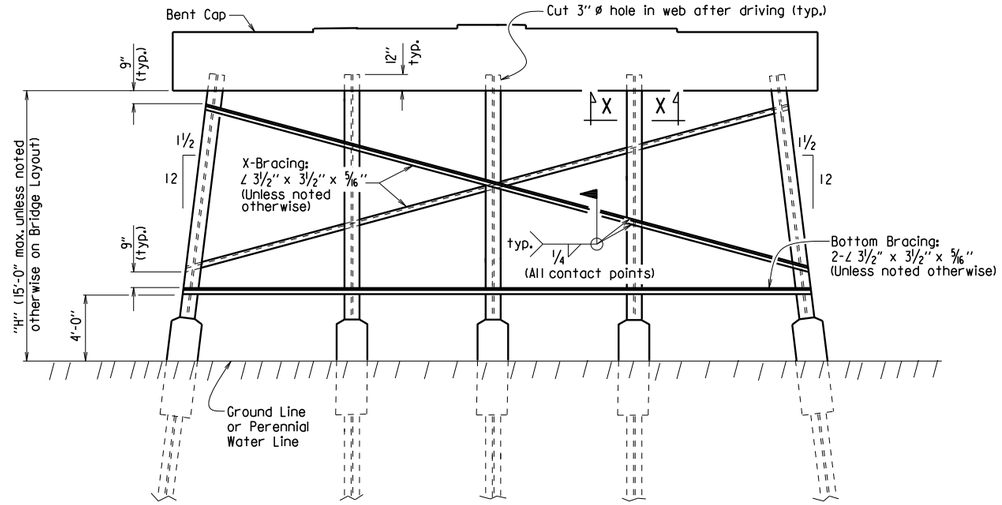
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



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

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

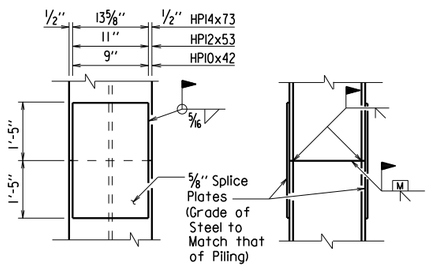
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



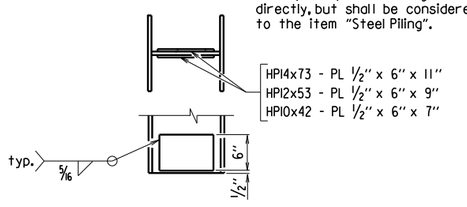
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

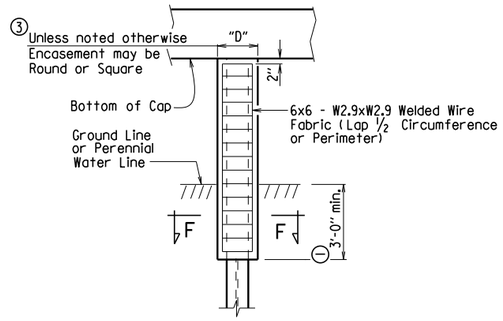
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

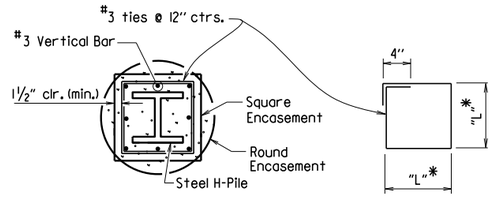
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

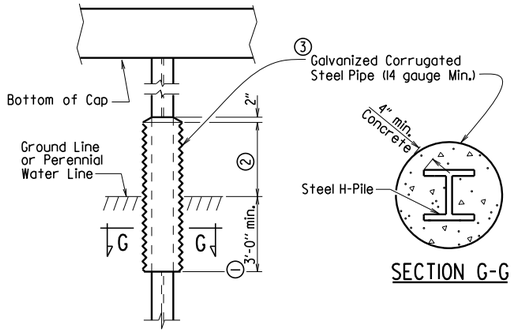


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

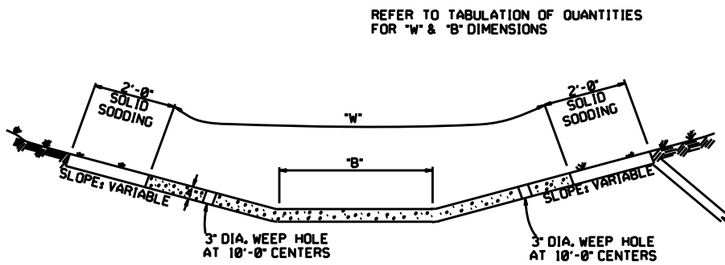
STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

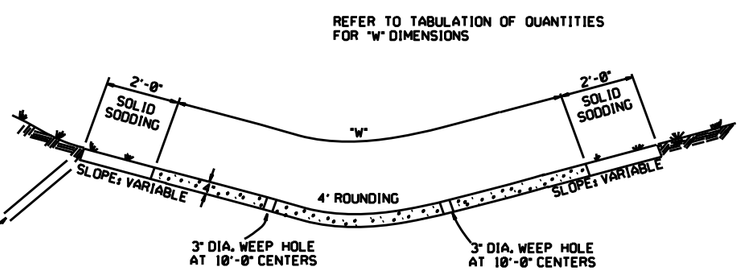
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020



TYPE A

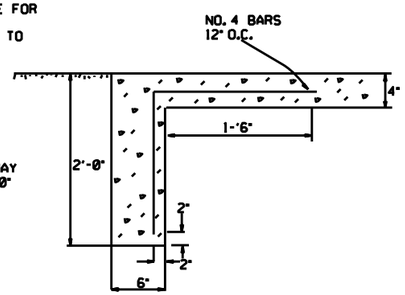
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



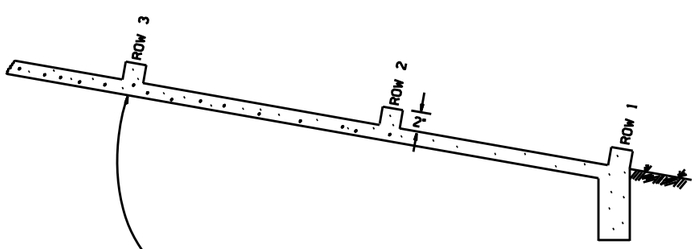
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."

TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

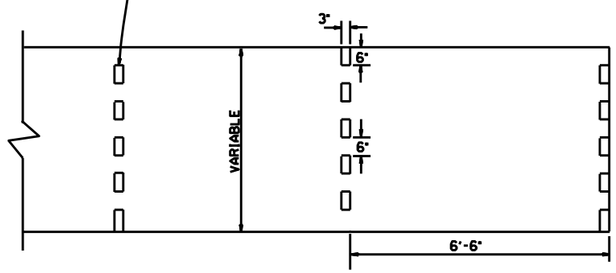


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

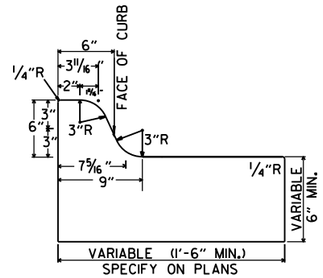
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

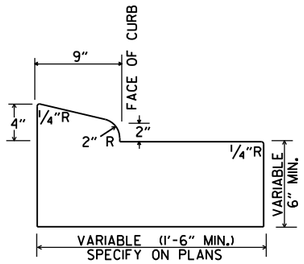
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

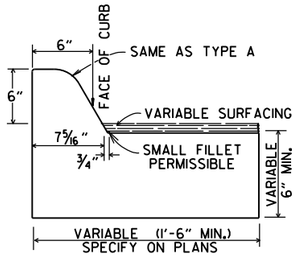
STANDARD DRAWING CDP-1



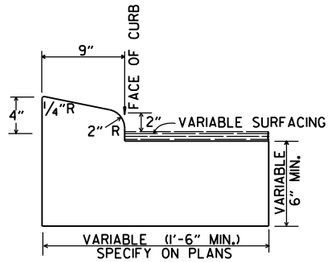
TYPE A



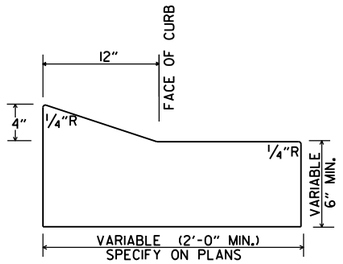
TYPE B-1



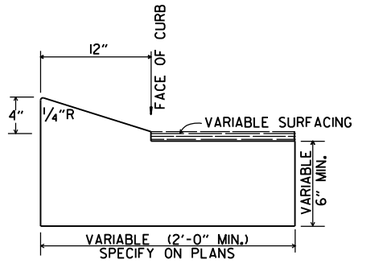
TYPE C



TYPE B-2

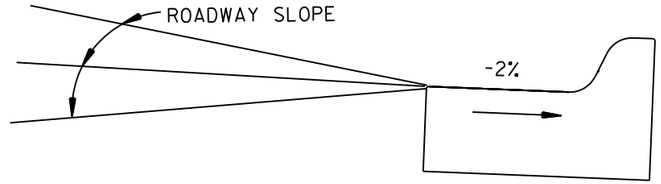


TYPE E-1



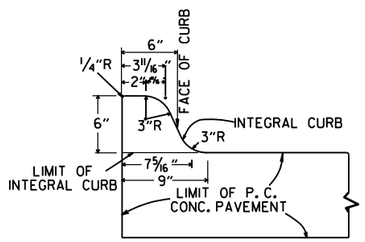
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

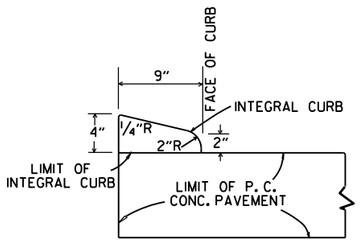


DETAIL OF GUTTER SLOPE

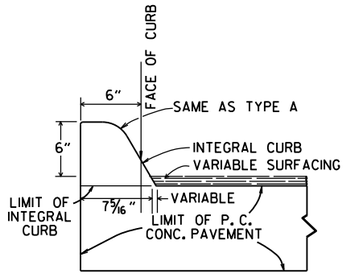
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

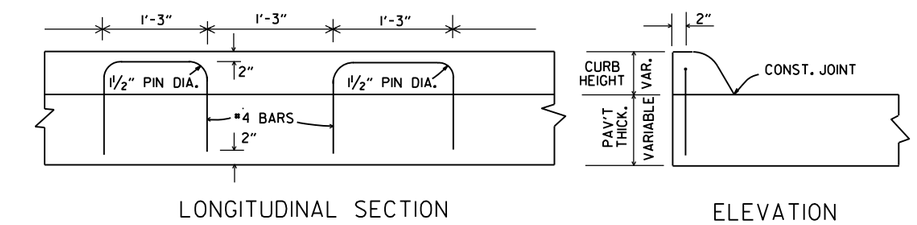


TYPE B



TYPE C

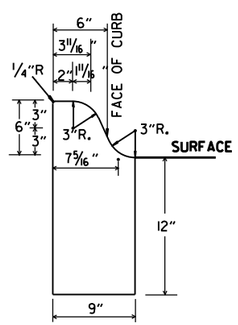
INTEGRAL CURB



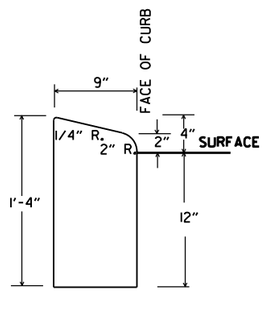
LONGITUDINAL SECTION

ELEVATION

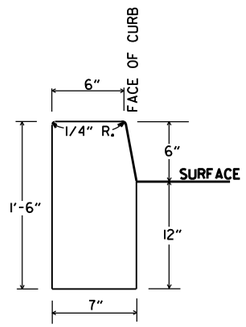
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



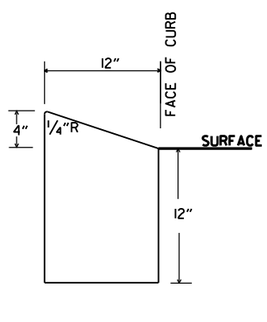
TYPE A



TYPE B

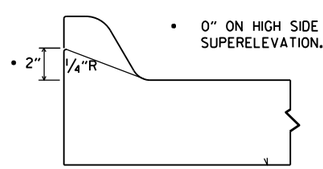


TYPE D



TYPE E

CONCRETE CURB



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

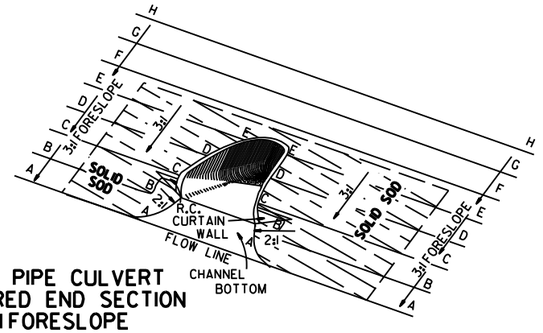
DETAILS OF MODIFIED CURB

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

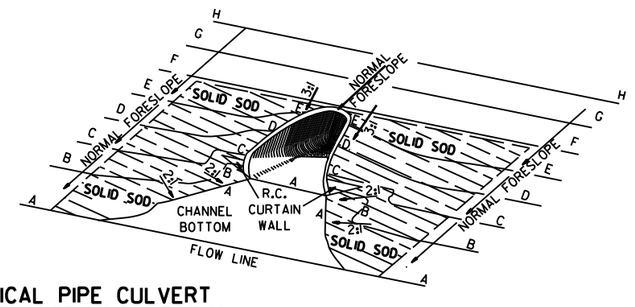
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

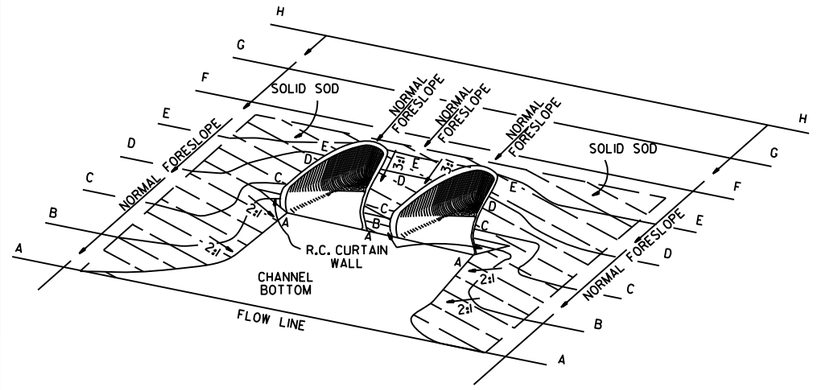
STANDARD DRAWING CG-1



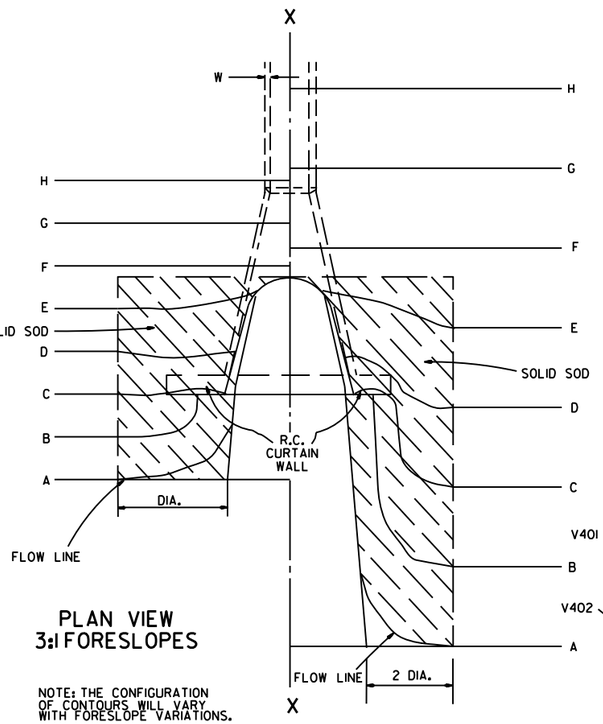
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

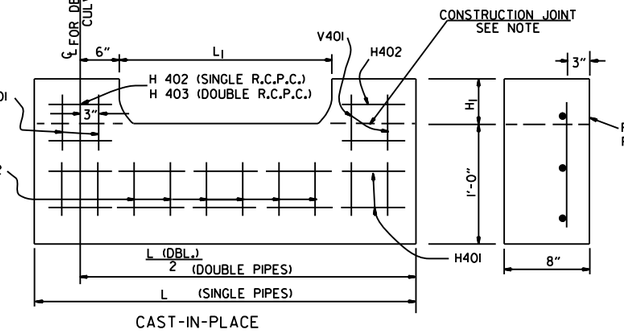
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

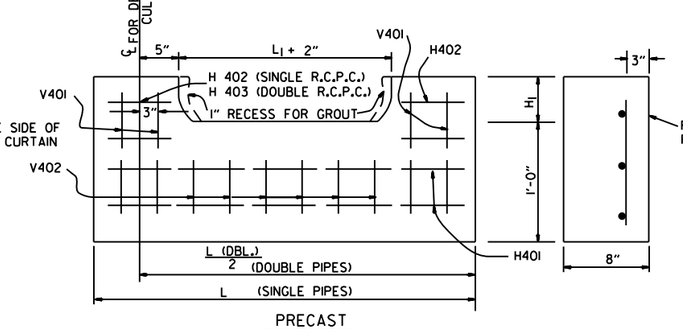
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45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

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



CAST-IN-PLACE

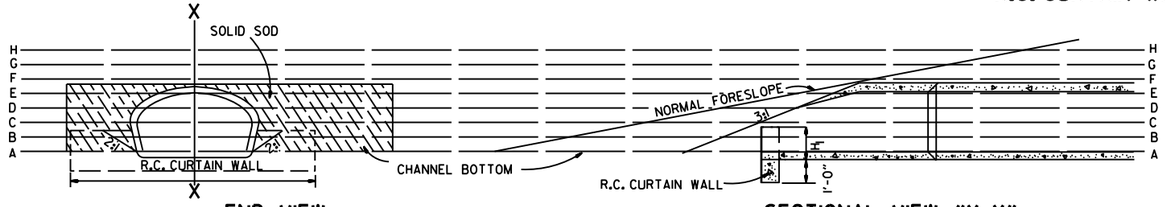
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

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

R.C. CURTAIN WALL DETAILS



END VIEW

SECTIONAL VIEW "X-X"

REINFORCING STEEL SCHEDULE

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

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

SOLID SODDING

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

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

GENERAL NOTES

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

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

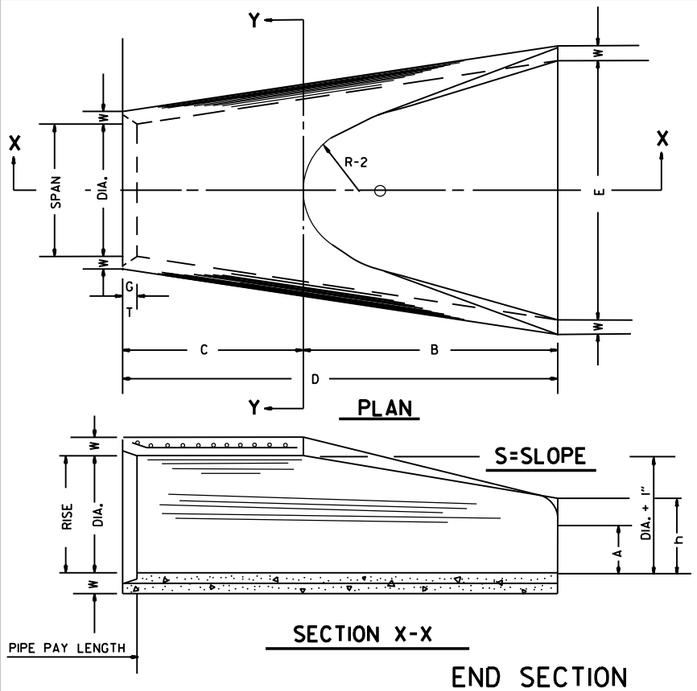
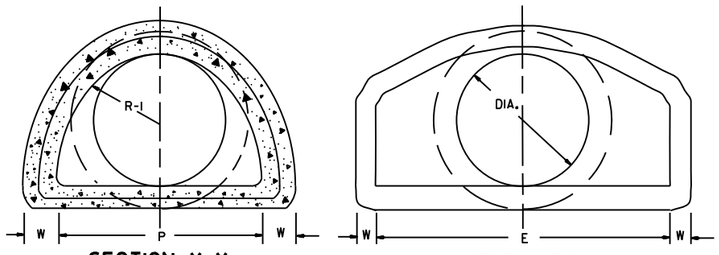


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 15/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

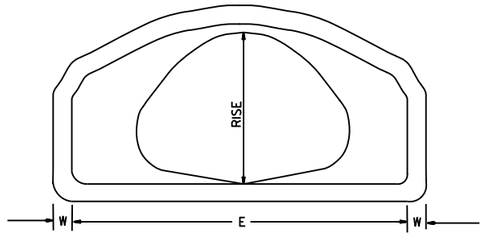


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

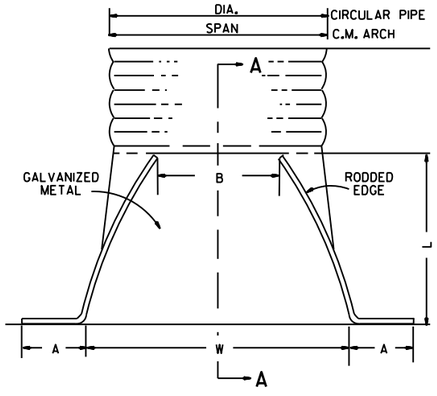
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	20"	3"	2½:1
36	43¾	44	26⅜	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2¼:1

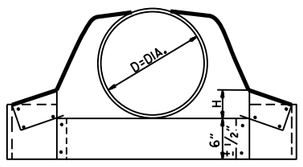
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



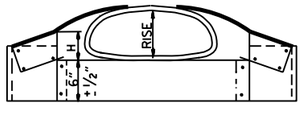
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

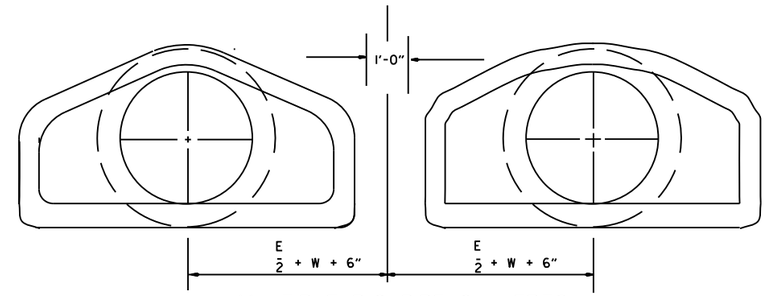
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

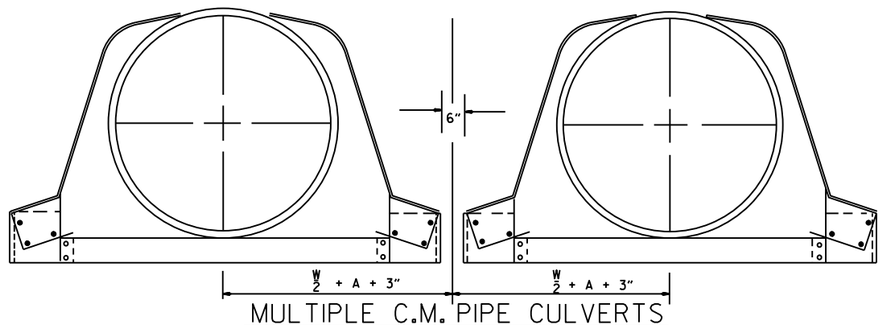
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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



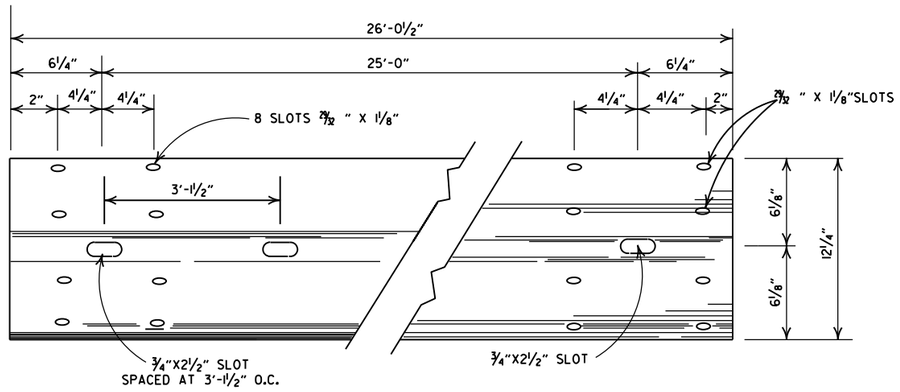
MULTIPLE C.M. PIPE CULVERTS

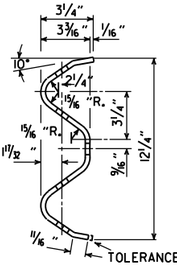
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

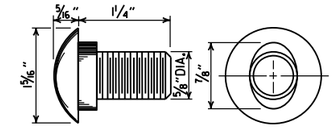
STANDARD DRAWING FES-2



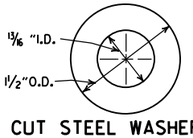


DETAILS OF W-BEAM GUARDRAIL

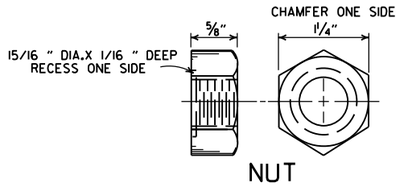
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



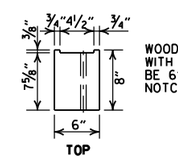
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



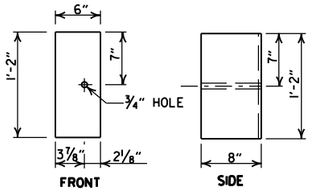
CUT STEEL WASHER



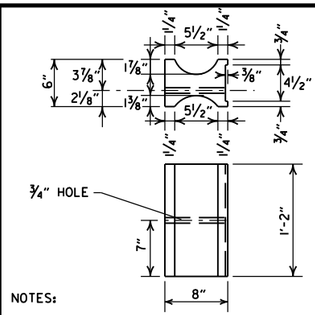
NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"xl'-2" WITH NO NOTCH REQUIRED.



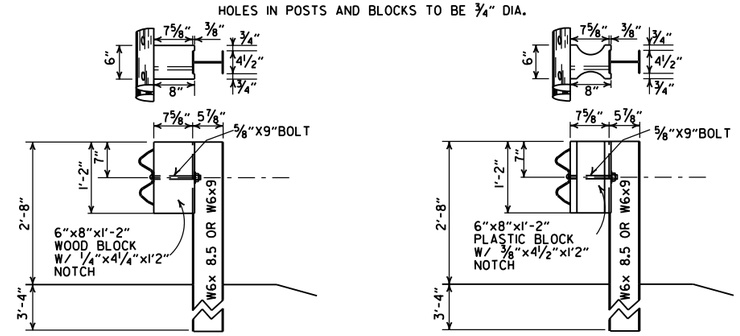
WOOD BLOCKOUT (W-BEAM)



NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

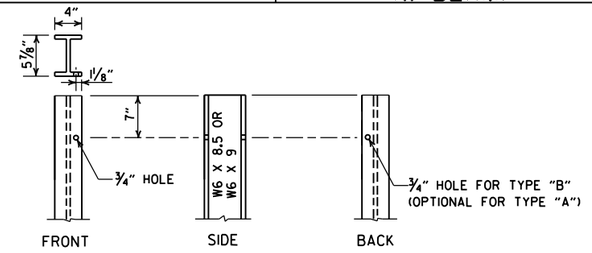
PLASTIC BLOCKOUT (W-BEAM)



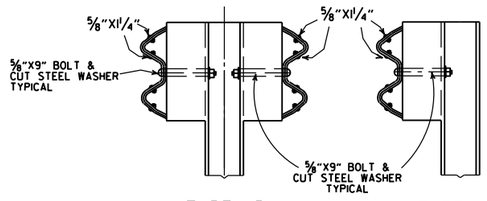
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

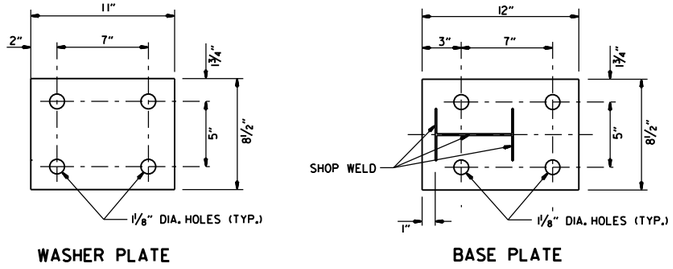
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARDRAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARDRAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST ,ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

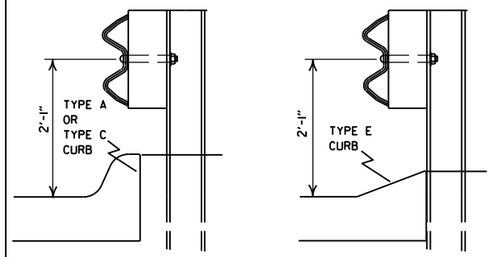
STANDARD DRAWING GR-6



WASHER PLATE

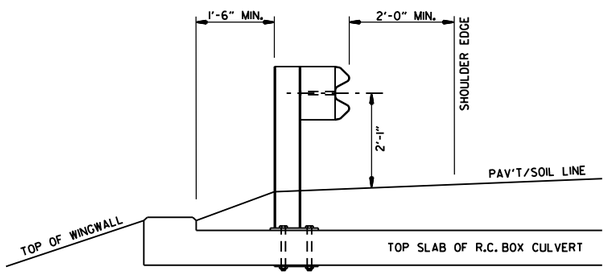
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

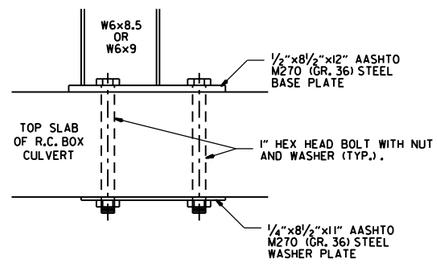


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

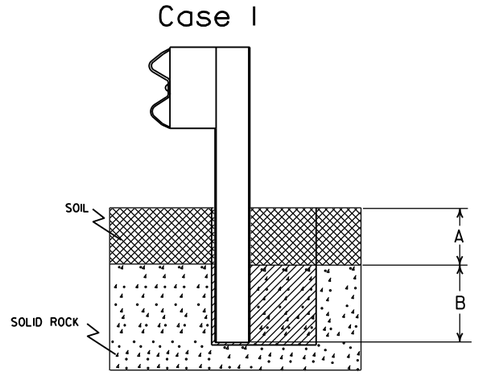
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

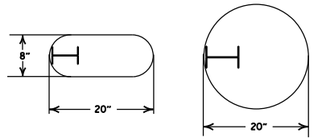


DETAIL OF CONNECTION



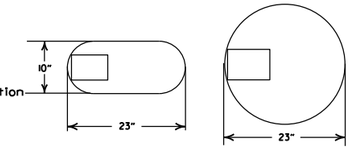
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

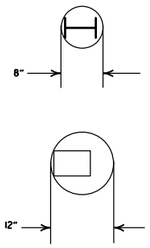
Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

Zone A:
Backfill according to Section 617.03(a).

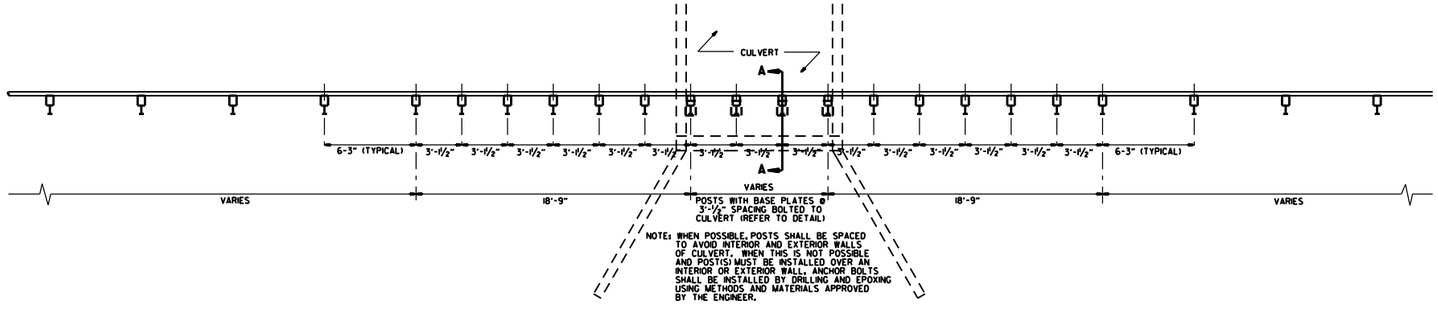
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DWG. GR-6.

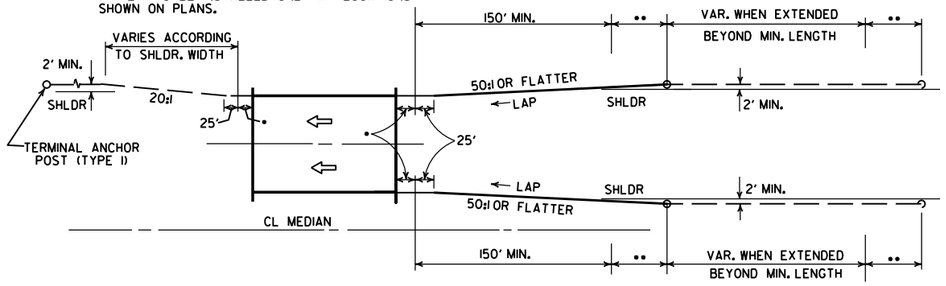
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

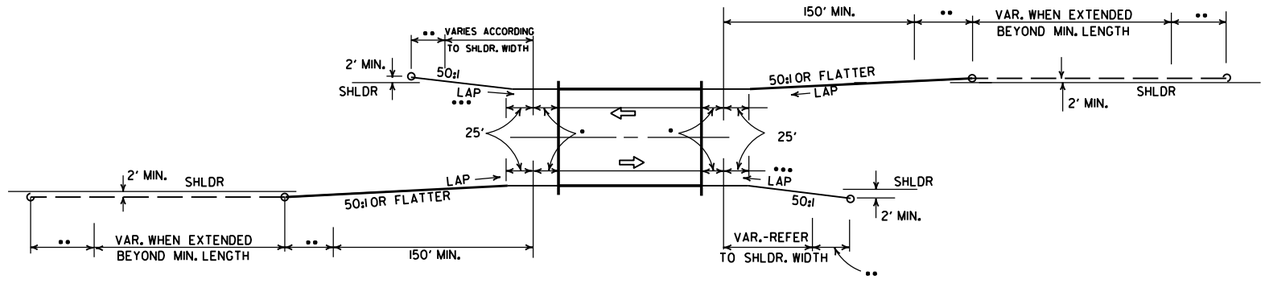
STANDARD DRAWING GR-7

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

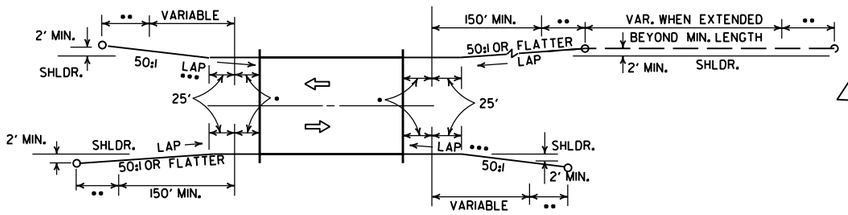
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

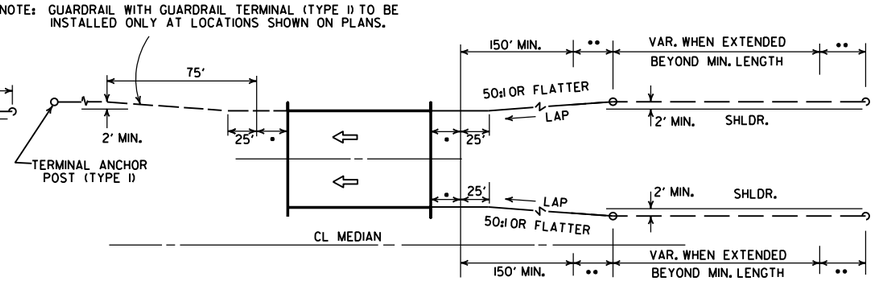
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

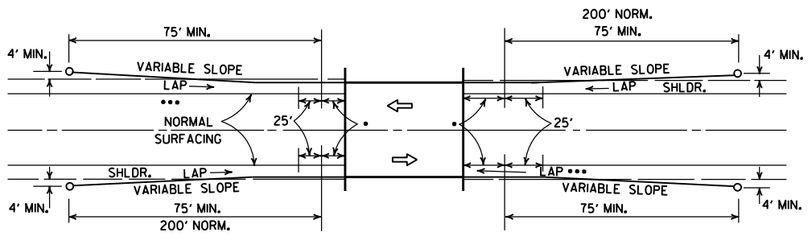
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

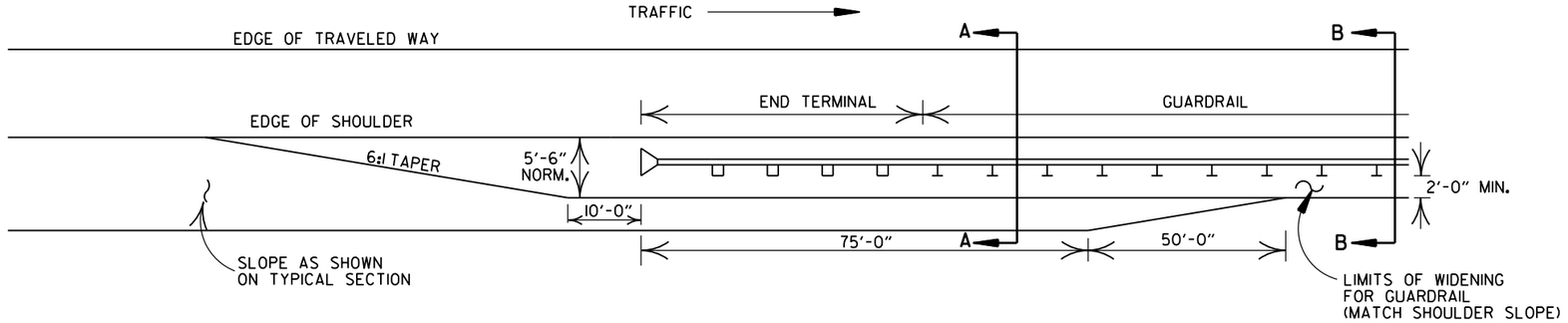
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

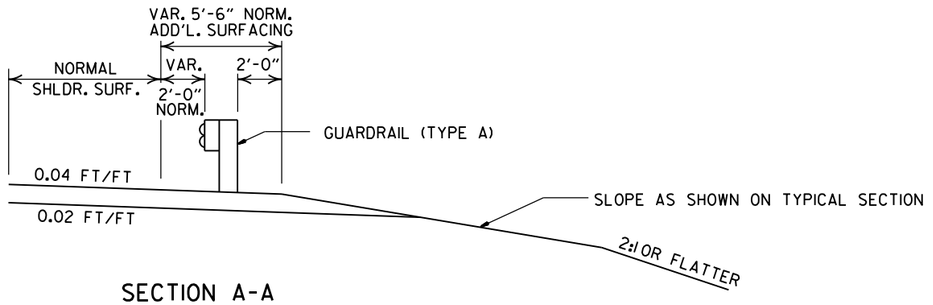
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

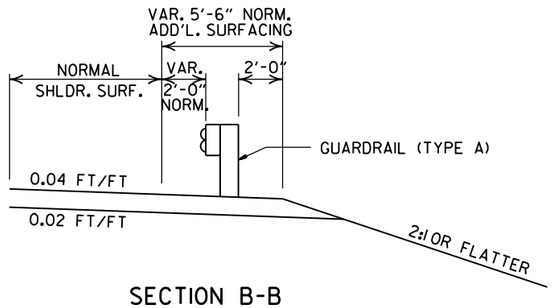
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



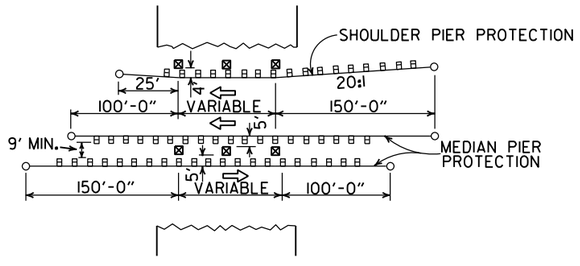


SECTION A-A



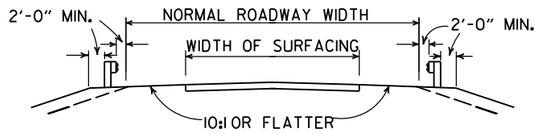
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

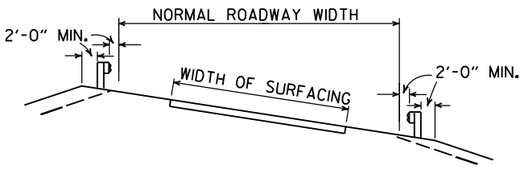


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARDRAIL.



SECTION ON TANGENT



SECTION ON CURVE

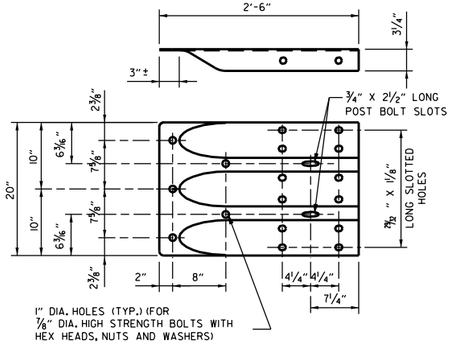
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

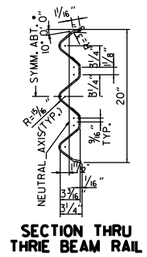
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

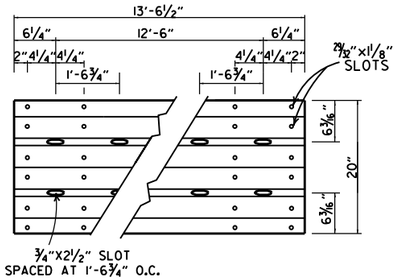
STANDARD DRAWING GR-9



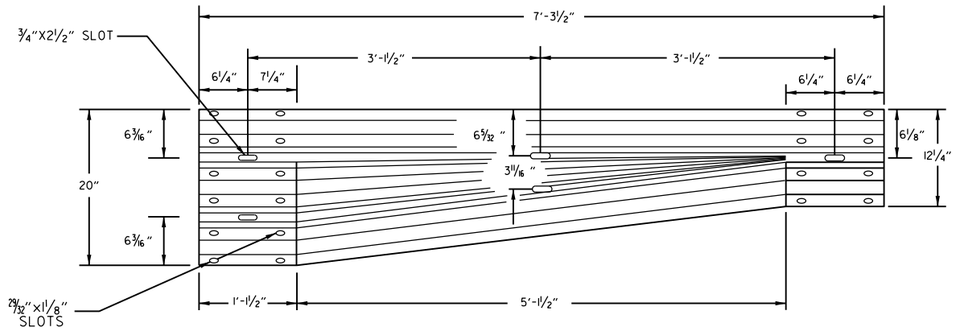
SPECIAL END SHOE



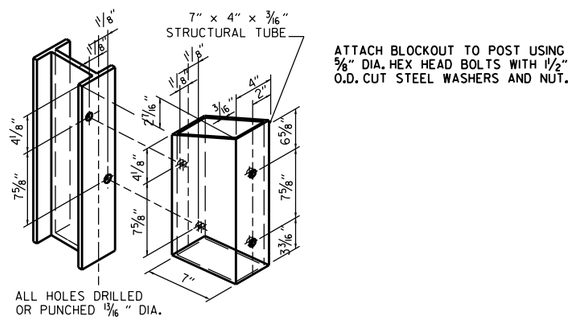
SECTION THRU THRIE BEAM RAIL



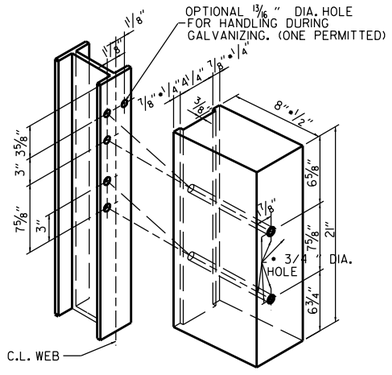
THRIE BEAM RAIL



TRANSITION SECTION



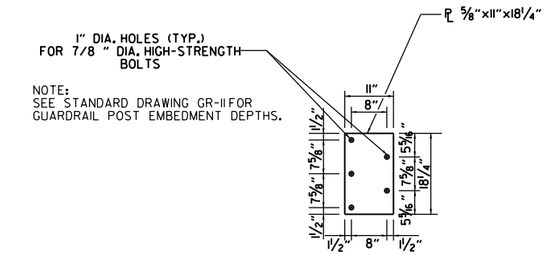
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

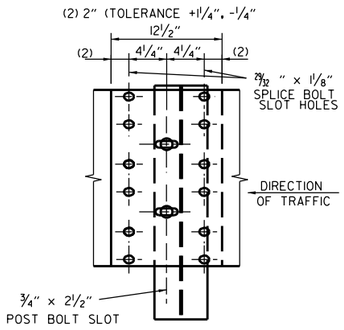
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE 1.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3"4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

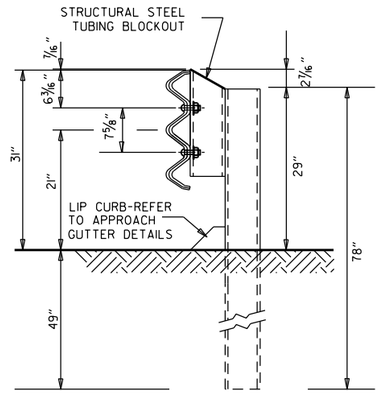
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED AND REVISED REFERENCES	
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

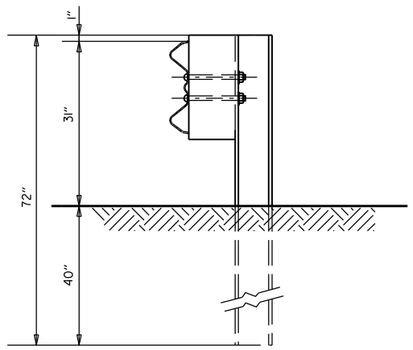
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

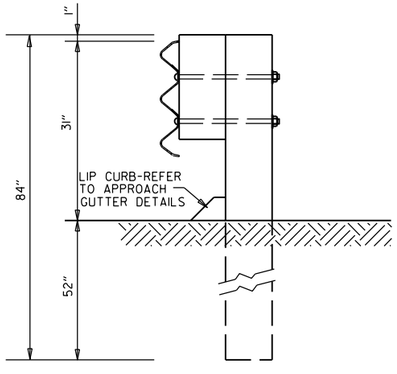
STANDARD DRAWING GR-10



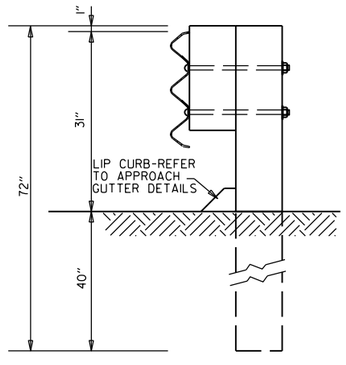
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



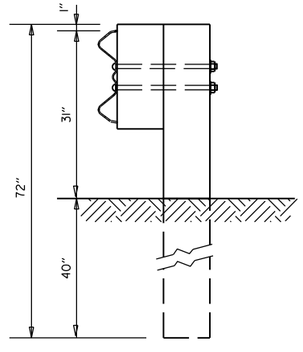
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

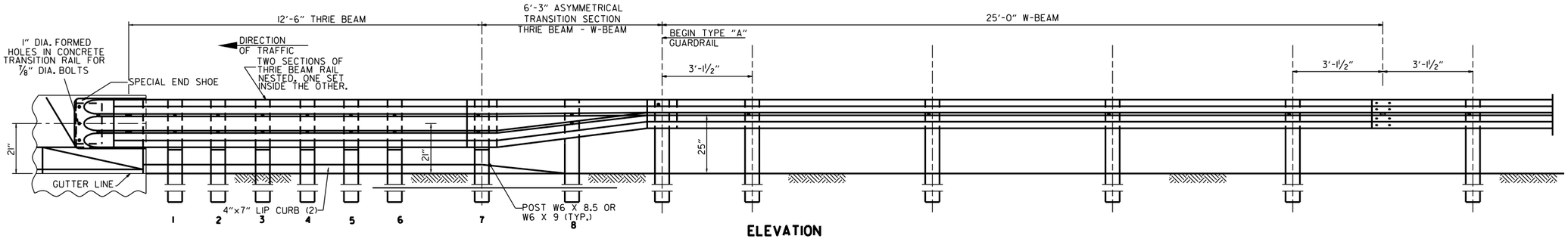
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO.1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11	
07-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
08-22-02	REVISED LIP CURB NOTE	
03-30-00	DRAWN & ISSUED	

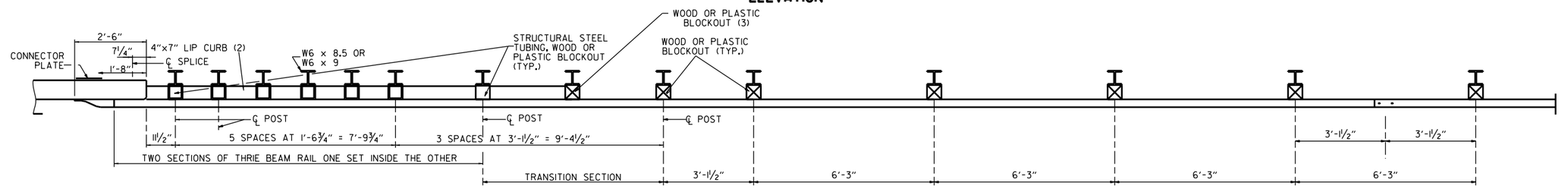
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

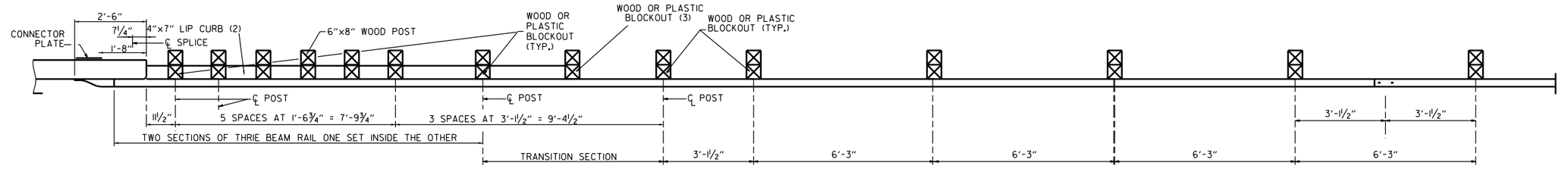
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
05-14-20	REVISED NOTES	
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅜	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

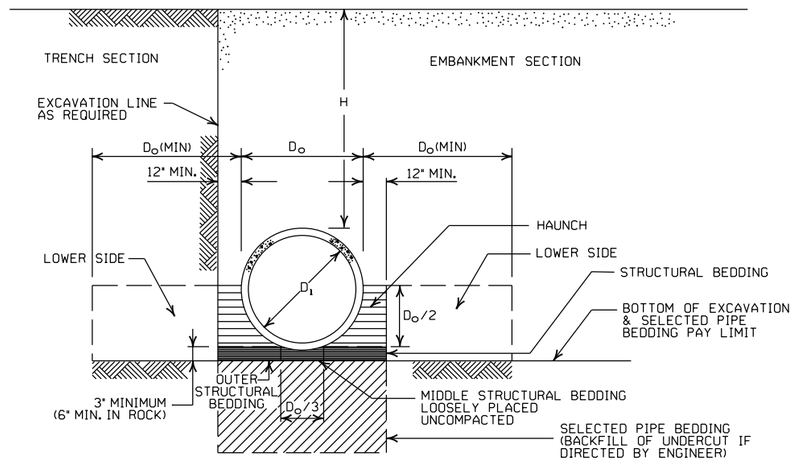
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

CORRUGATED METAL PIPE ARCHES

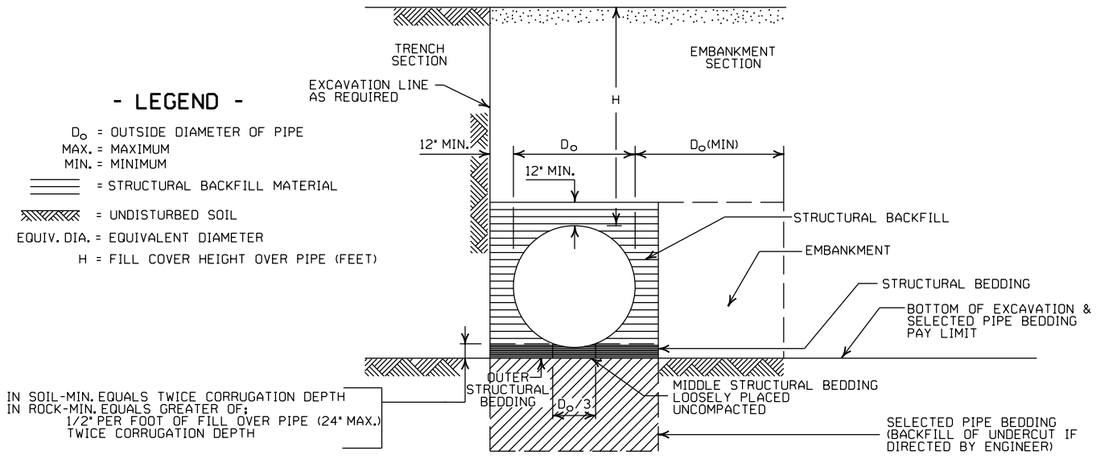
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)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

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

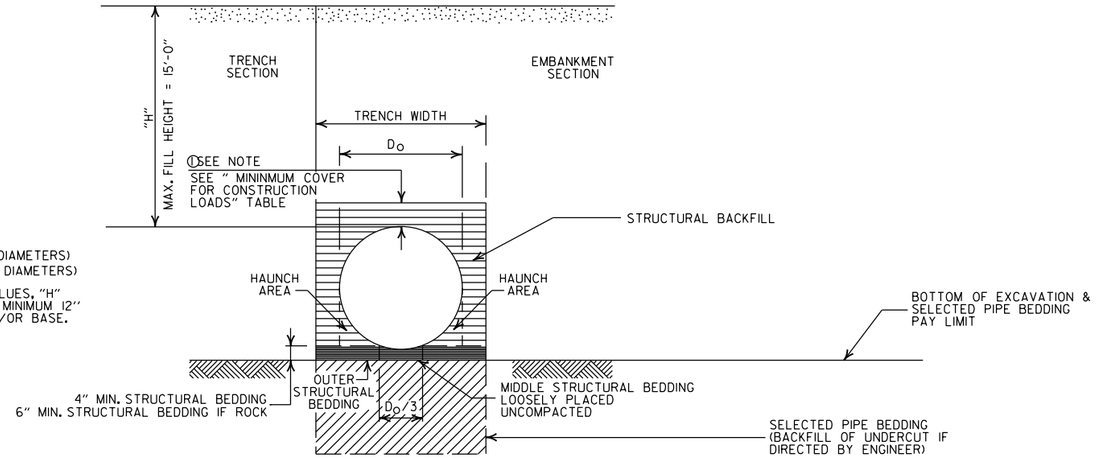
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

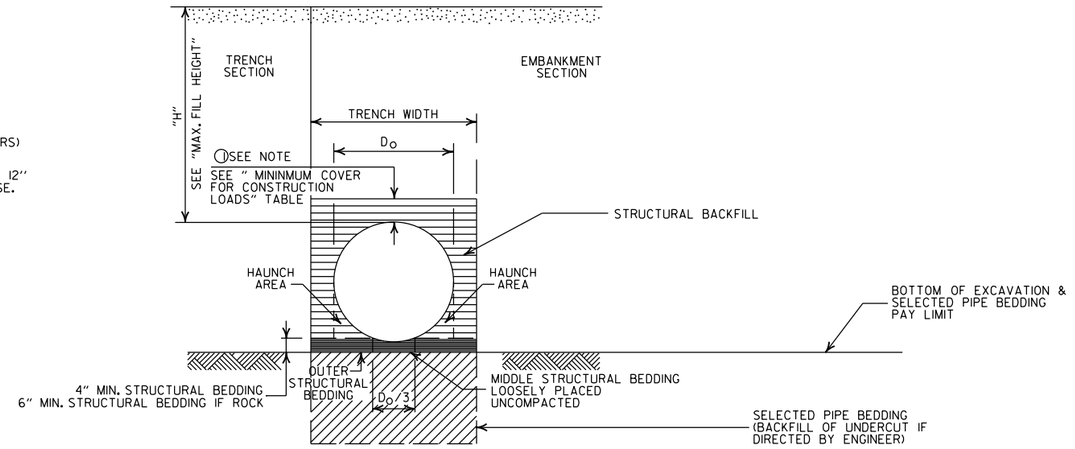
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

** STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

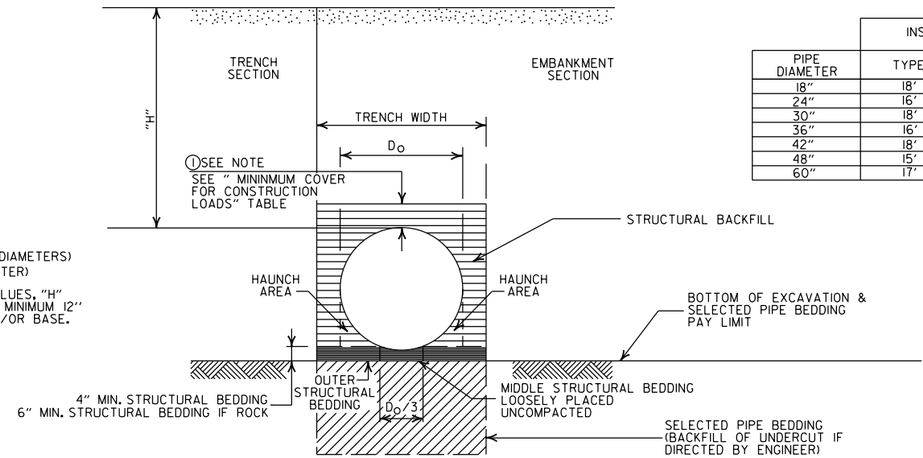
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H"

PIPE DIAMETER	INSTALLATION TYPE	
	TYPE 1	TYPE 2
18"	18'	14'
24"	16'	12'
30"	18'	14'
36"	16'	12'
42"	18'	13'
48"	15'	11'
60"	17'	12'



MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M330, TYPE S, INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

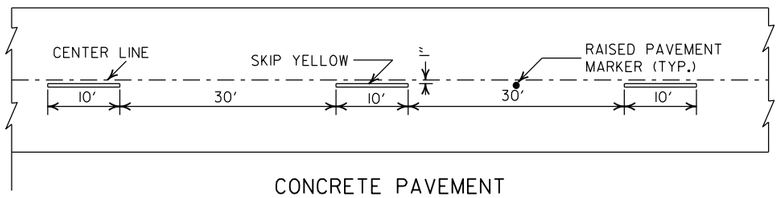
= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

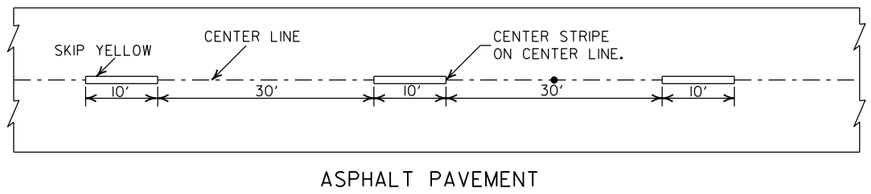
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

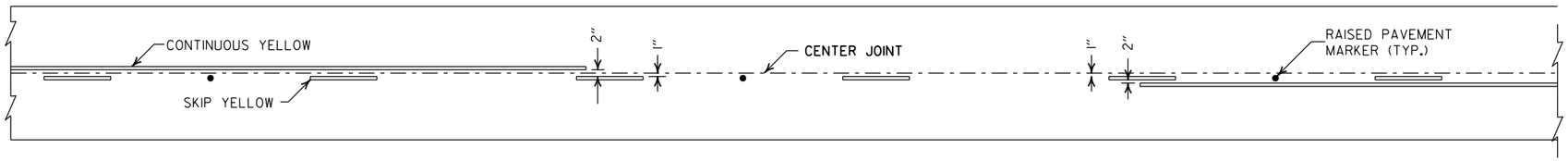


CONCRETE PAVEMENT

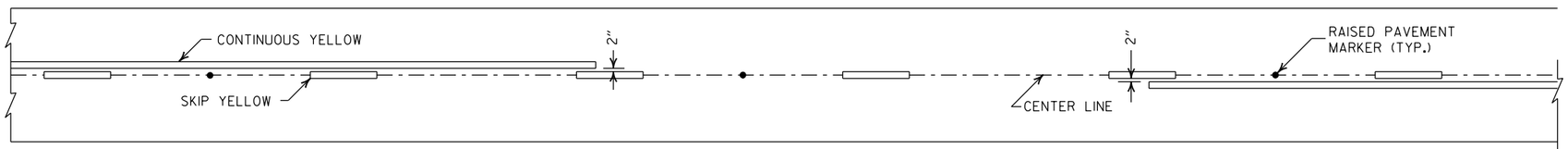


ASPHALT PAVEMENT

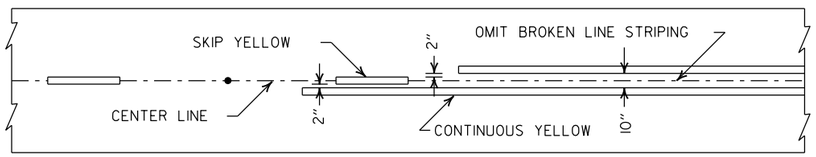
BROKEN LINE STRIPING



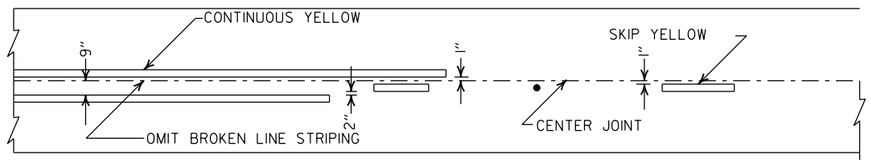
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

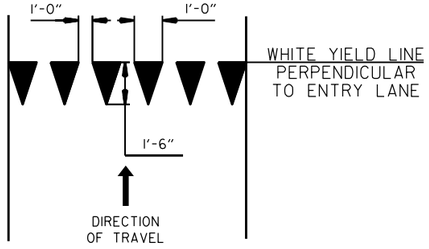


ASPHALT PAVEMENT

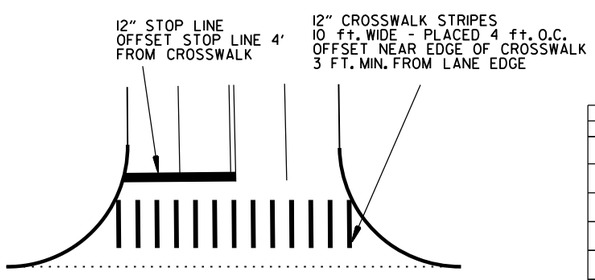


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

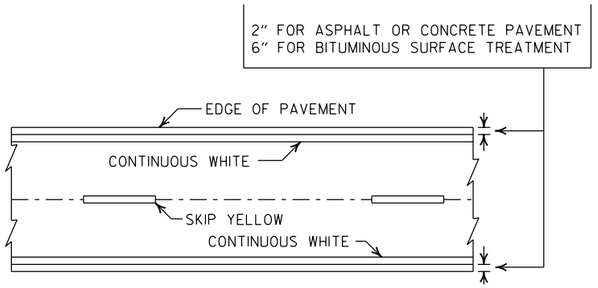


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

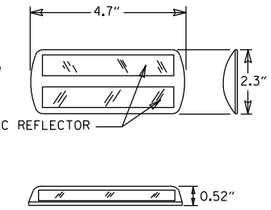
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

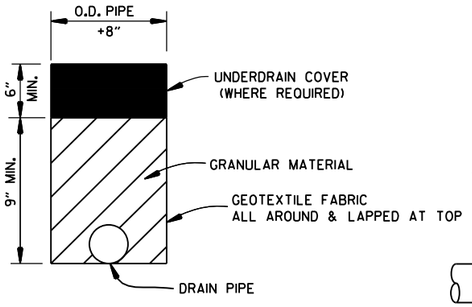
PAVEMENT MARKING DETAILS

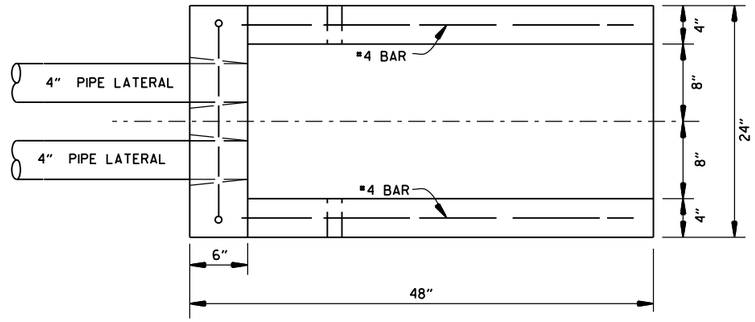
STANDARD DRAWING PM-1

NOTE:

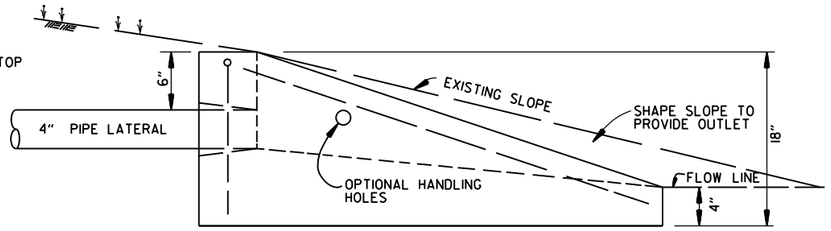
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

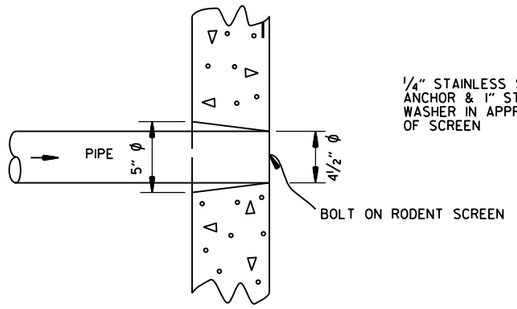




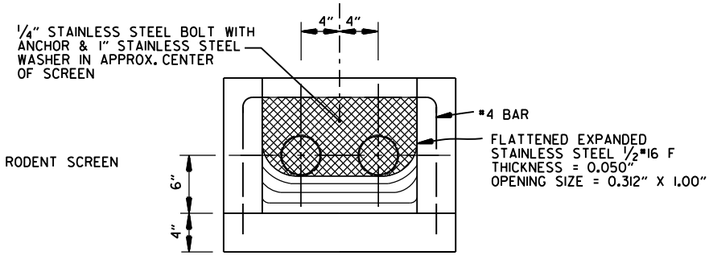
PLAN VIEW



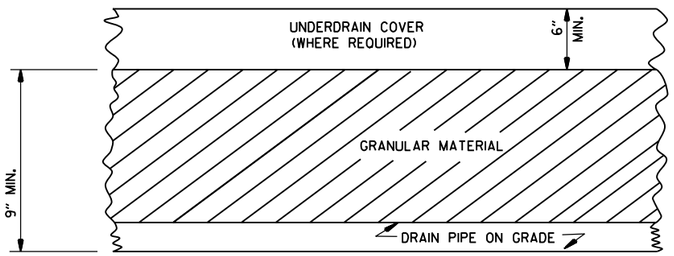
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

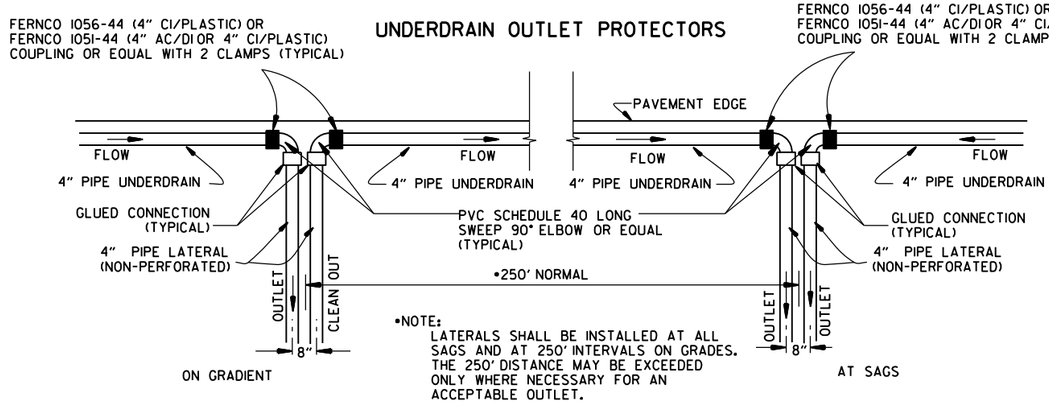
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139	300	0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168	300	0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300	D MAX = 13° 45'																			
14° 00'	0.080	180		0.094	222																								
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

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.)

GENERAL NOTES

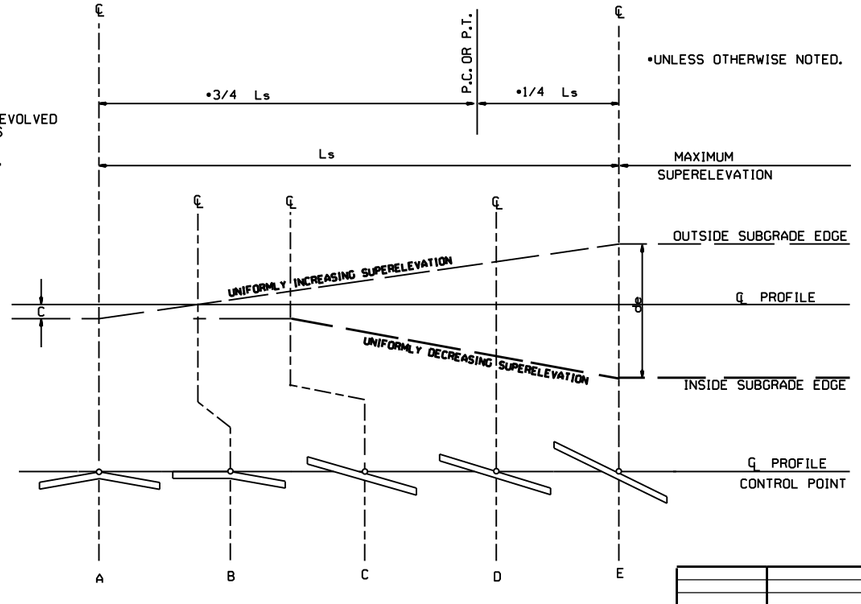
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED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

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

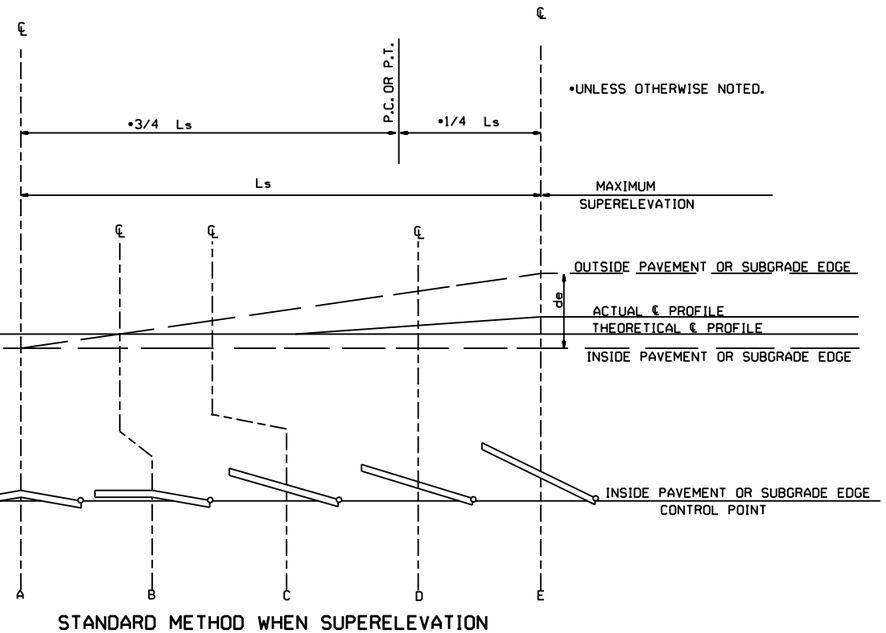
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

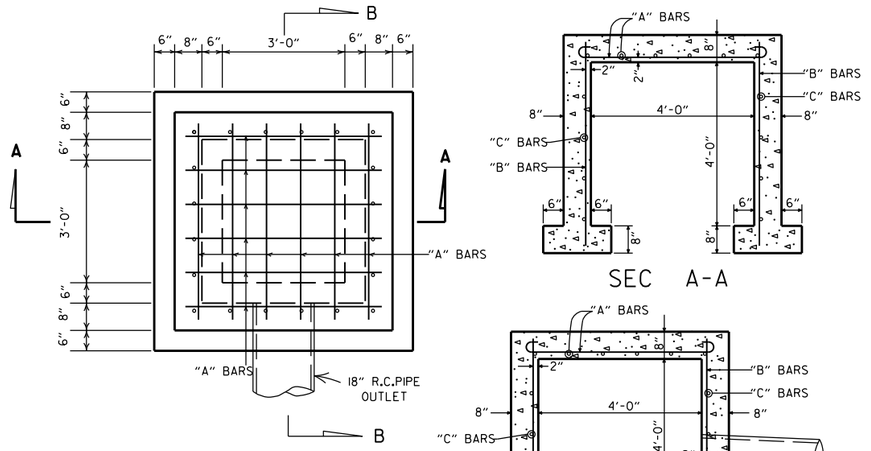
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

DATE	REVISION	DATE FILLMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

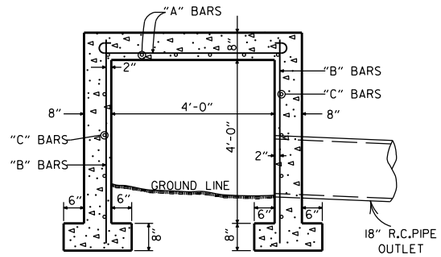
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A



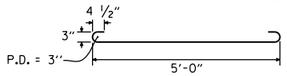
SEC B-B

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

STEEL SCHEDULE

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

ALL STEEL TO BE #4 BARS



"A" BARS

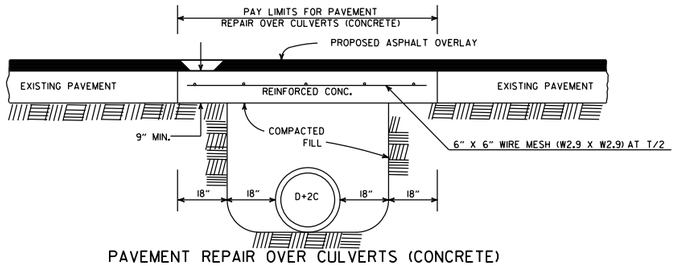
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

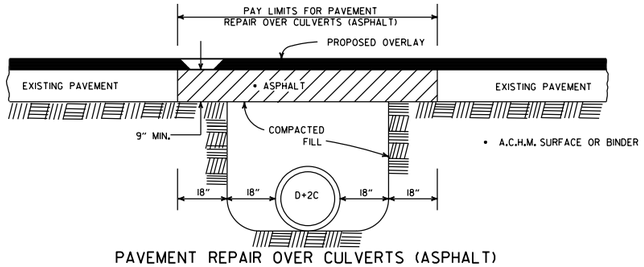
GENERAL NOTE:

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

REINFORCED CONCRETE SPRING BOX



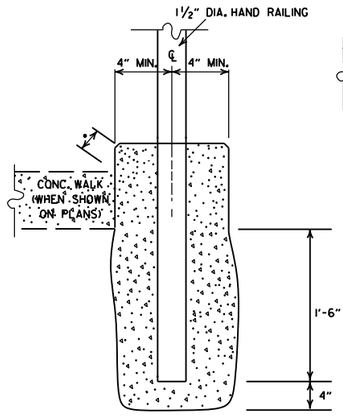
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



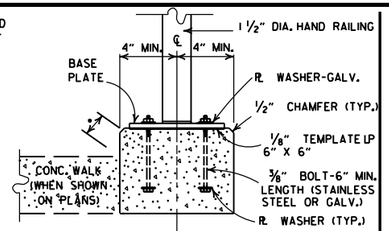
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

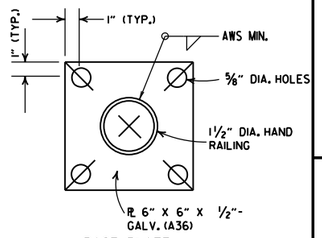
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

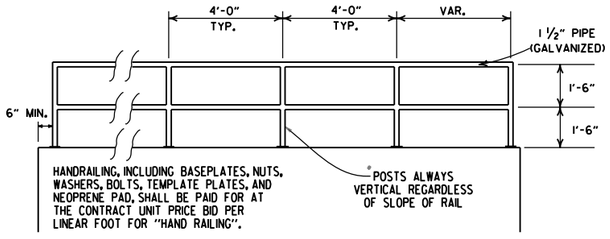


POST CONNECTION TO WALL

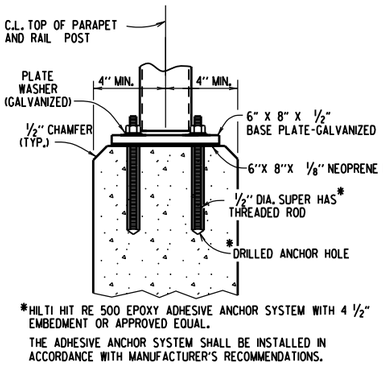


BASE PLATE

POST CONNECTION DETAILS



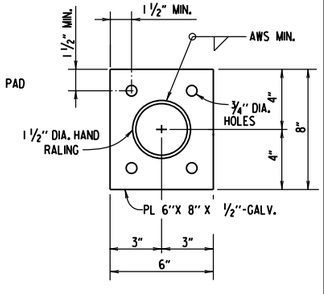
HAND RAILING SHALL CONFORM TO SECTION 633.



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

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

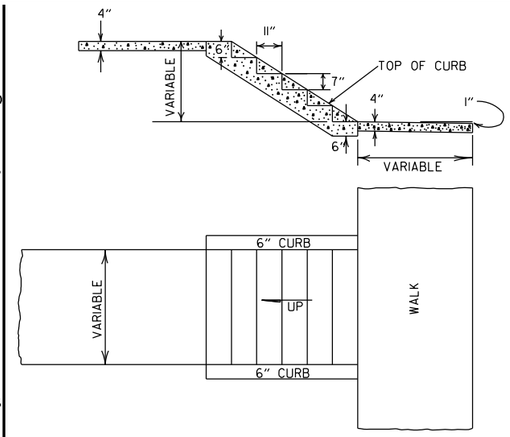
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

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

DETAILS OF CONCRETE STEPS & WALKS

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

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DETAILS OF SPECIAL ITEMS

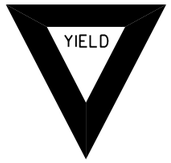
STANDARD DRAWING SI - 1

R1-1



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

R1-2



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

R2-1



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

W3-5



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

W3-5a



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

R4-1



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

R4-2



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

R5-1



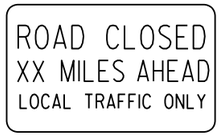
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



48"X30"

R11-3A



60"X30"

R11-4



60"X30"

W21-5a



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

W1-1



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

W1-2



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

W1-3



STD. 48"X48"

W1-4



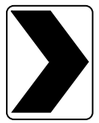
STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



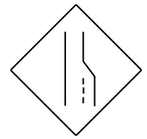
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1



STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7



EXPWY. 36"X36"
FWY. 48"X48"

W9-2



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

W13-1



STD. 24"X24"

W20-1



STD. 48"X48"

W20-2



STD. 48"X48"

W20-3



STD. 48"X48"

W20-4



STD. 48"X48"

W20-5



STD. 48"X48"

W20-7a



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

W21-2



STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



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

W8-9



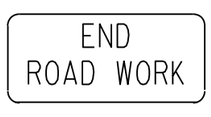
STD. 36"X36"
FWY. 48"X48"

G20-1



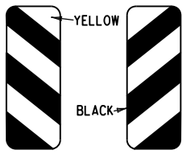
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

M4-9



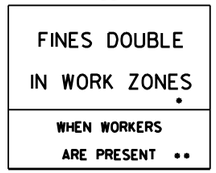
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10



48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

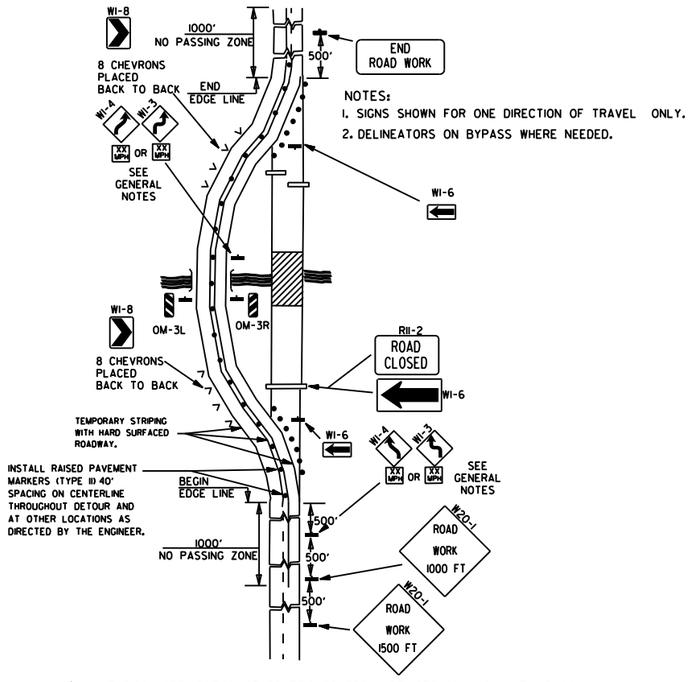
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

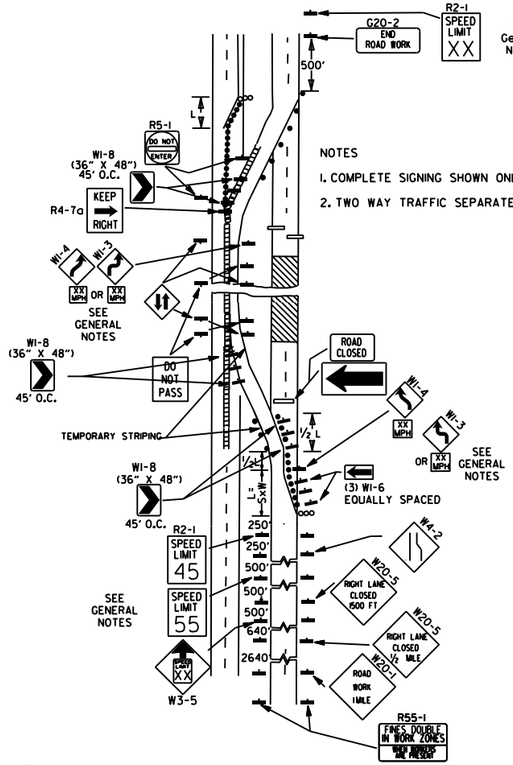
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



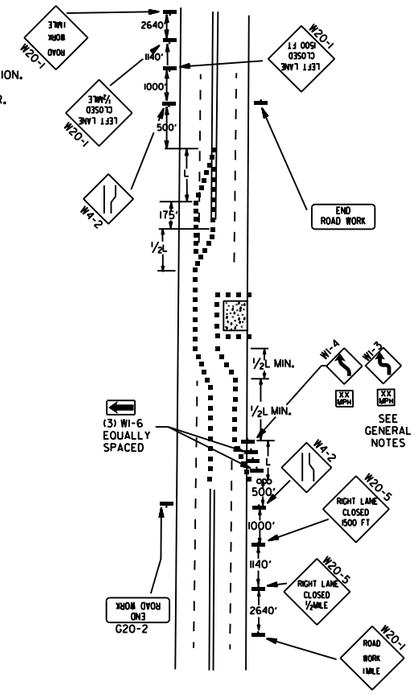
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

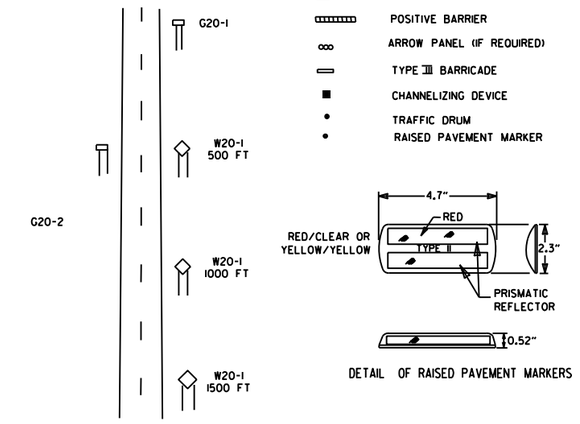


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:

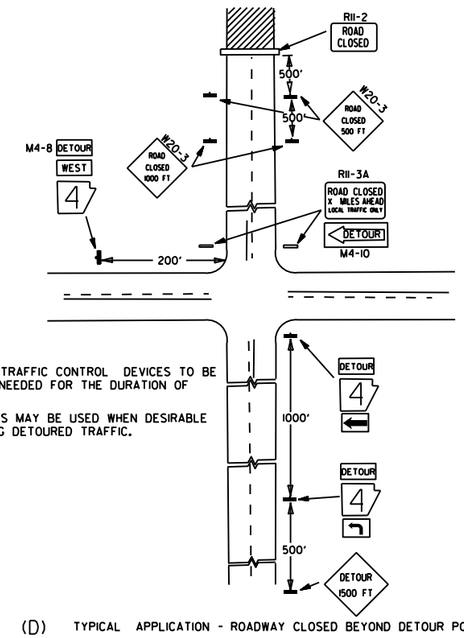
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

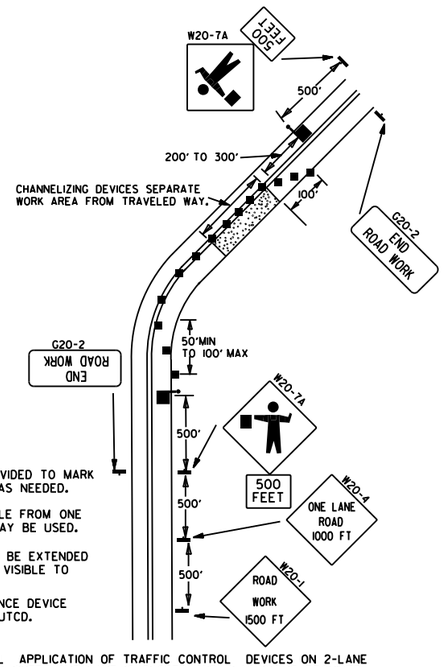
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



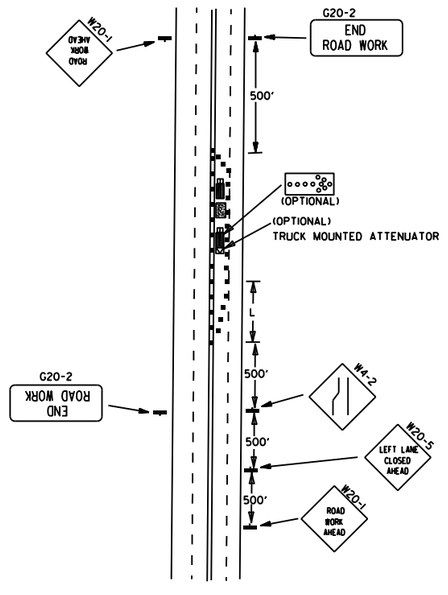
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



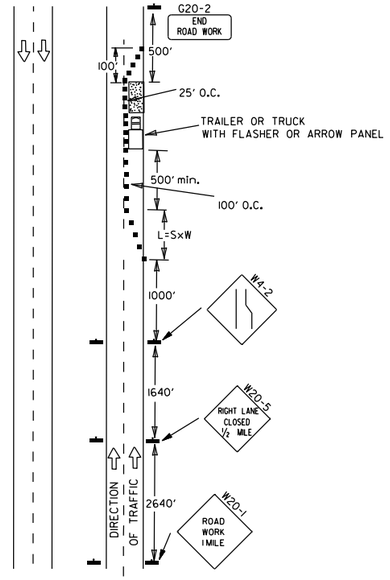
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

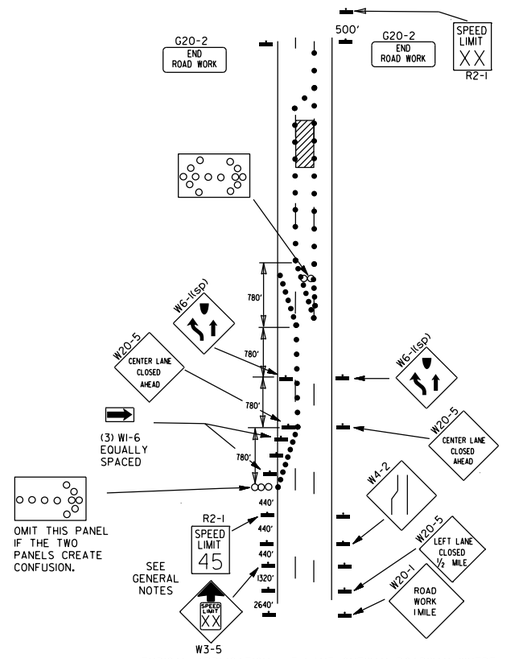
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

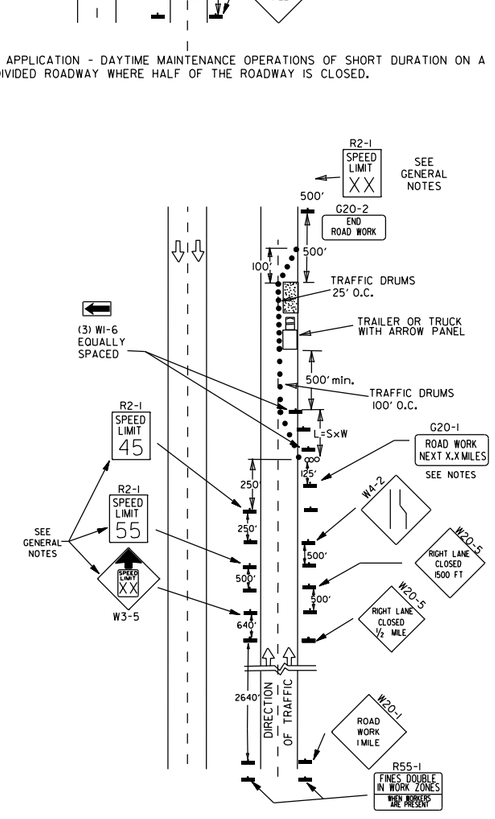
STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.



(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

KEY:

ooo ARROW PANEL (IF REQUIRED)

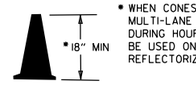
■ CHANNELIZING DEVICE

● TRAFFIC DRUM

GENERAL NOTES:

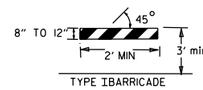
1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

CHANNELIZING DEVICES

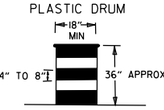


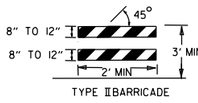
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

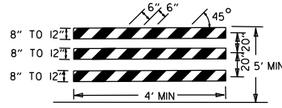
CONES



PLASTIC DRUM

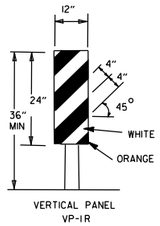




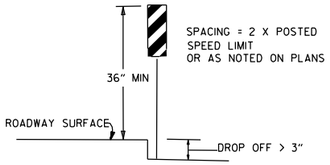


TYPE III BARRICADE

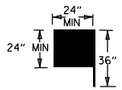
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



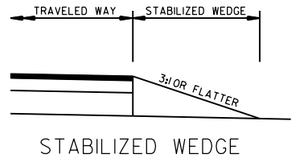
VERTICAL PANEL PLACEMENT



FLAG

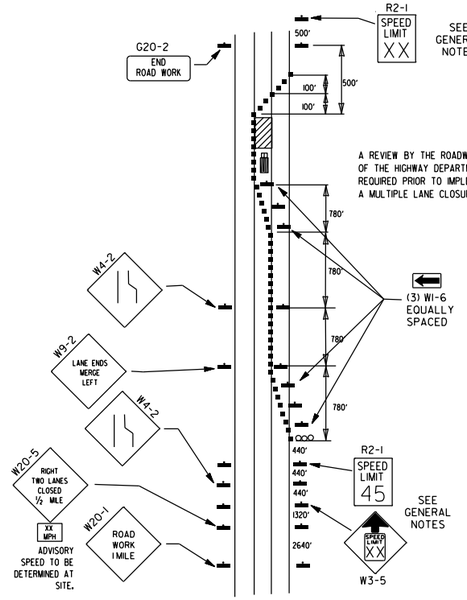


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

TRAFFIC CONTROL DEVICES

NON-INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL ≤ 45 MPH	TRAFFIC CONTROL > 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS(3)
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(4) & EDGE LINES	PRECAST CONCRETE BARRIER(4) & EDGE LINES

INTERSTATE

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

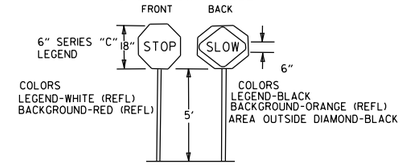
INTERSTATE AND NON-INTERSTATE

FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

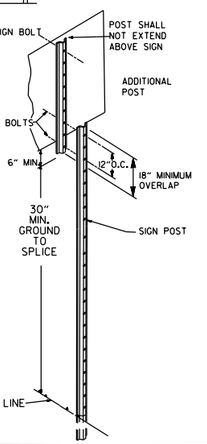
GENERAL NOTES:

1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.

STOP SLOW PADDLE



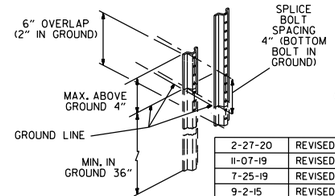
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

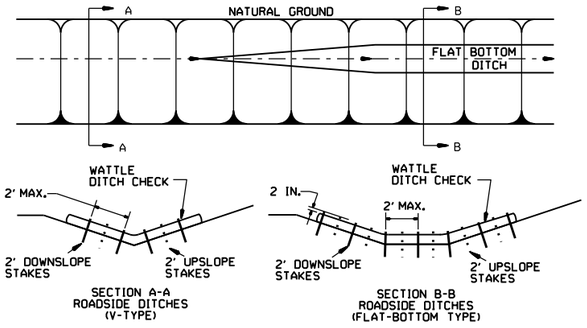
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

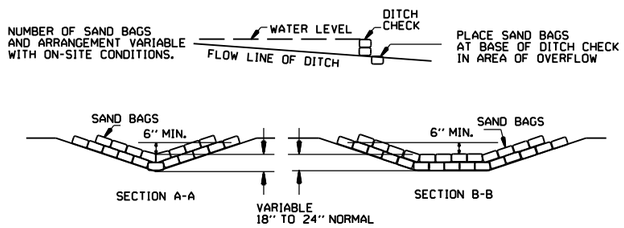
STANDARD DRAWING TC-3

GENERAL NOTES

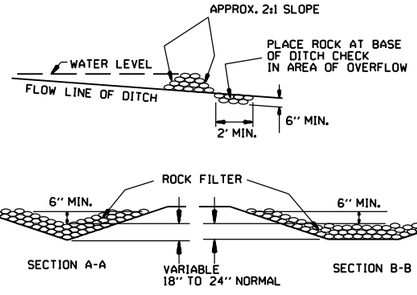
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

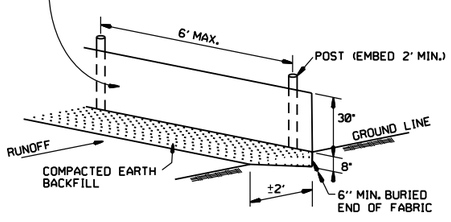


ROCK DITCH CHECK (E-6)

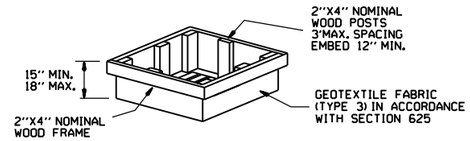
GENERAL NOTES

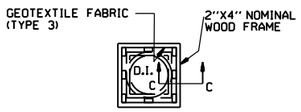
GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

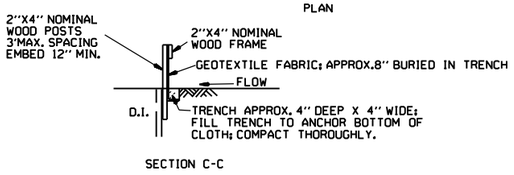
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



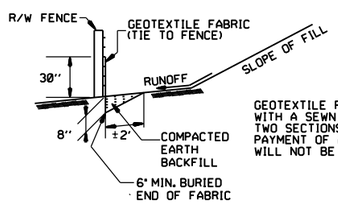
SILT FENCE (E-11)





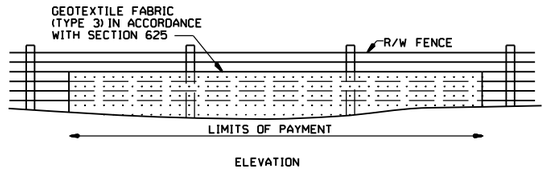


DROP INLET SILT FENCE (E-7)



GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



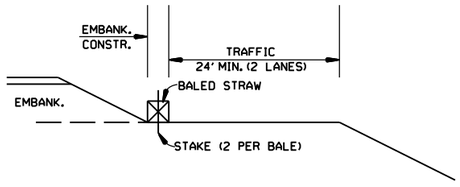
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

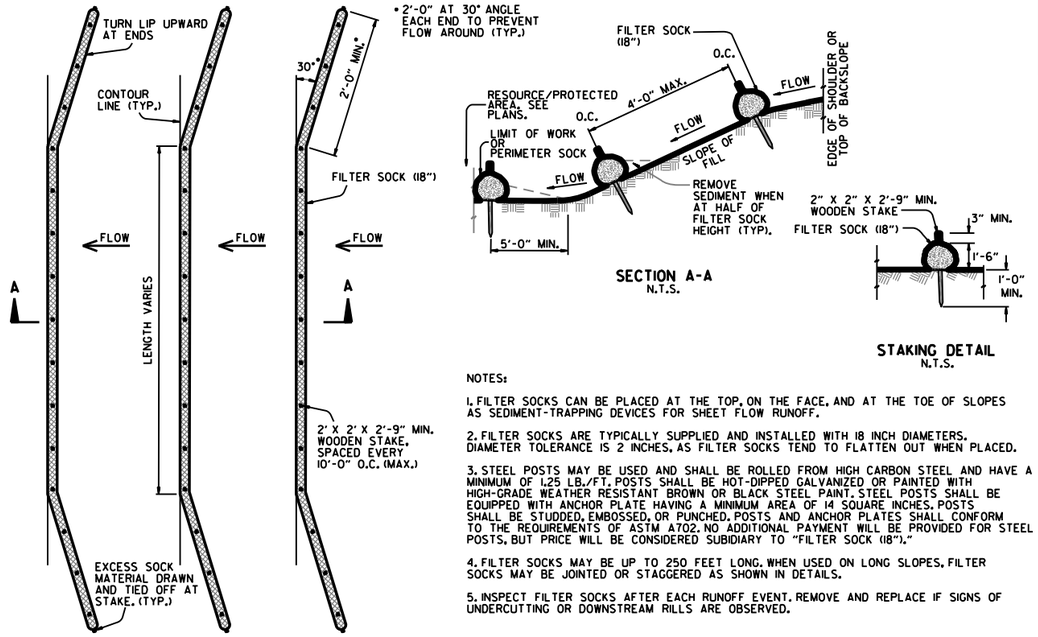
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

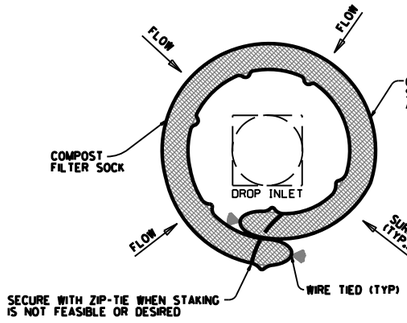
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

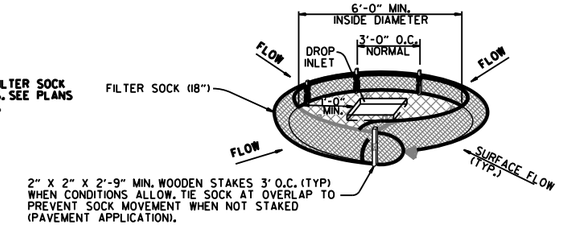
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

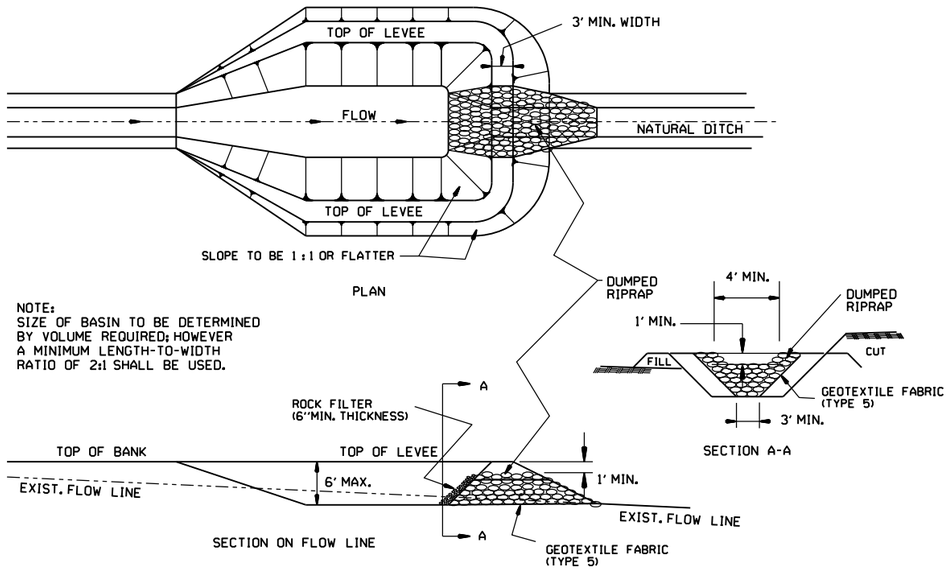
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

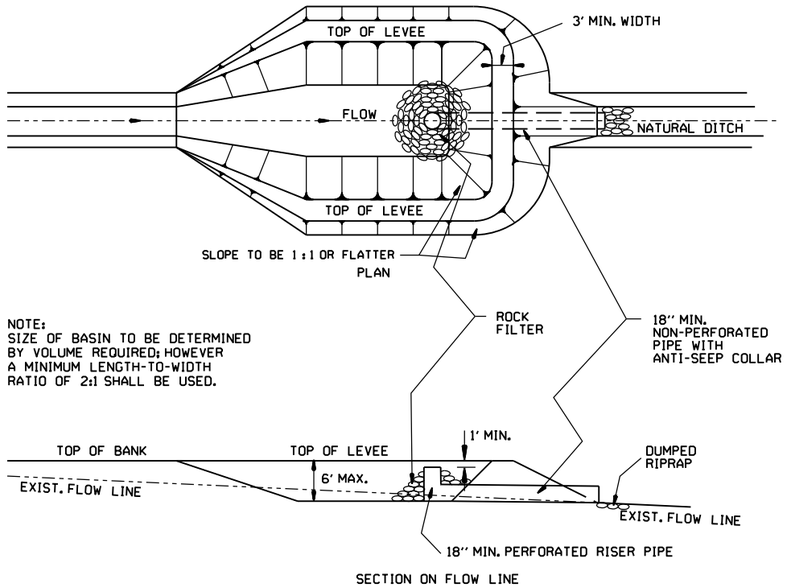
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

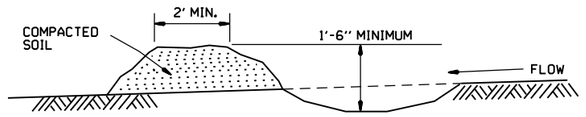
STANDARD DRAWING TEC-1



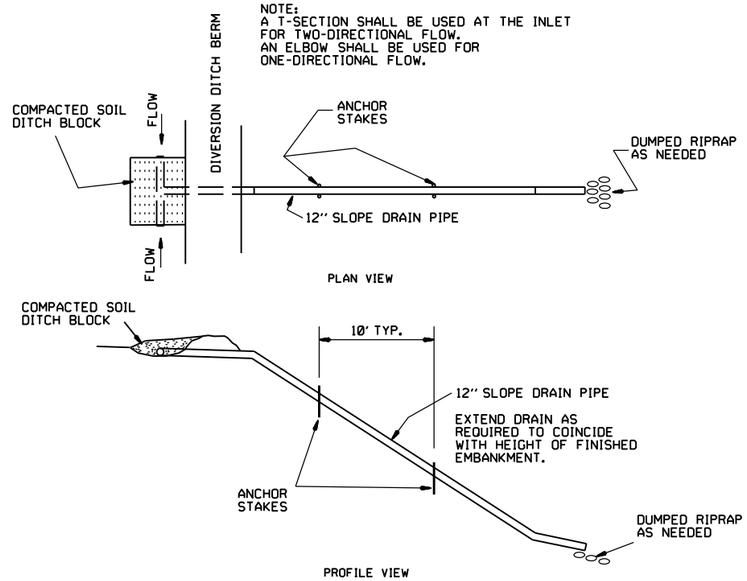
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



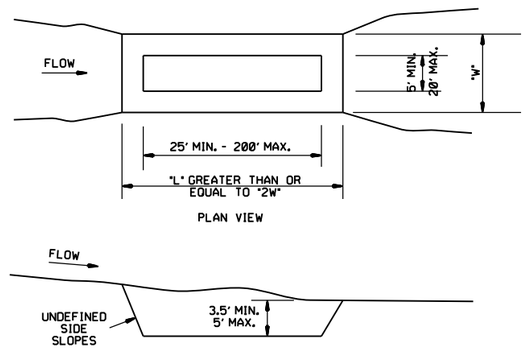
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

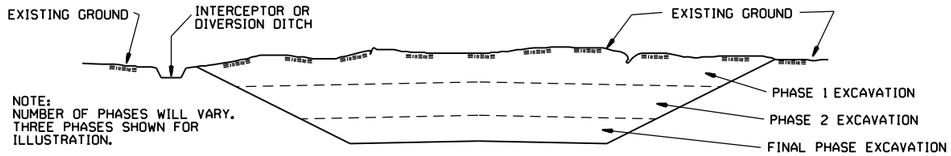
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



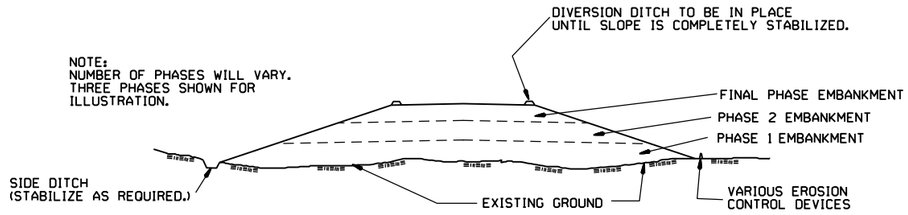
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

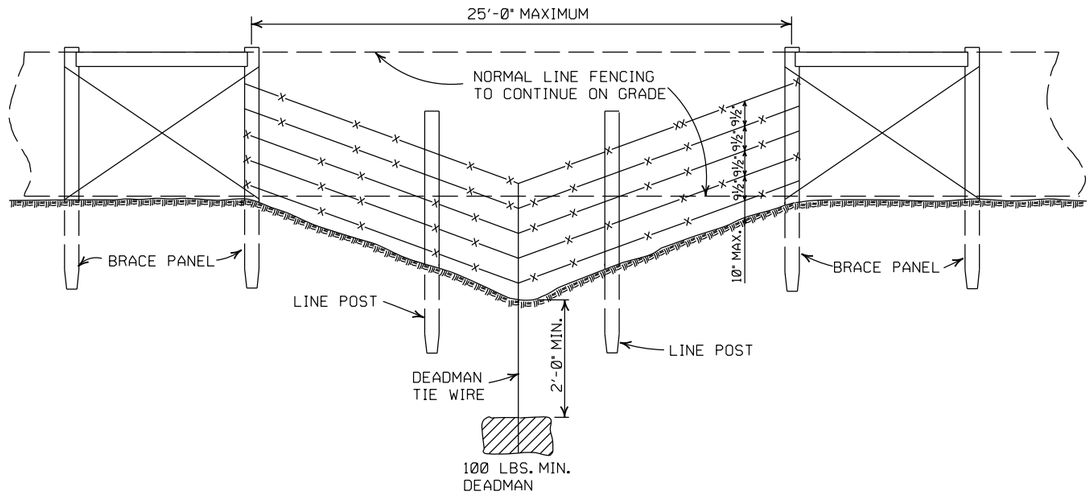
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

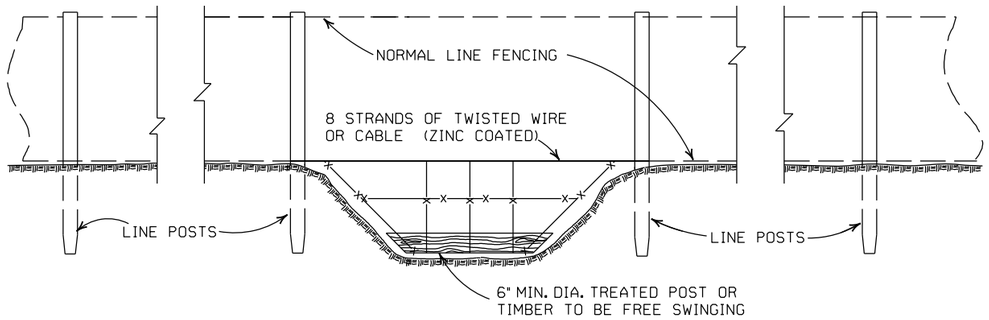
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

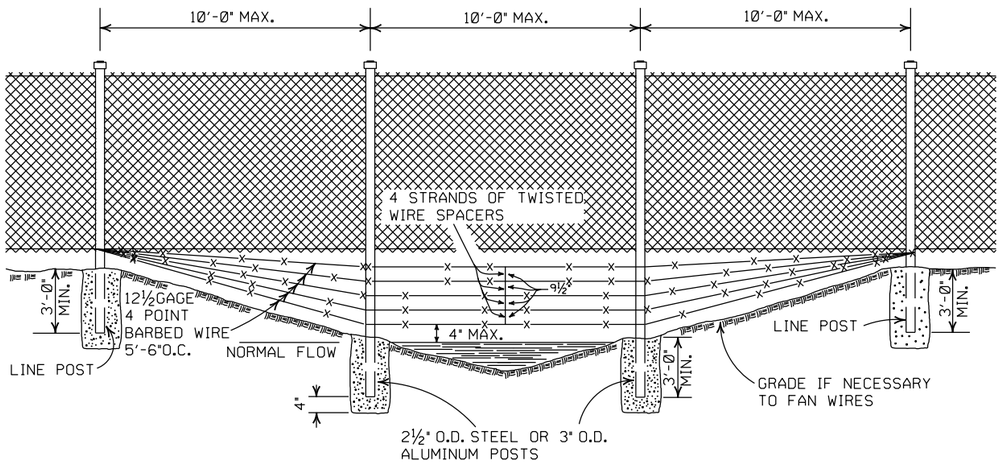
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

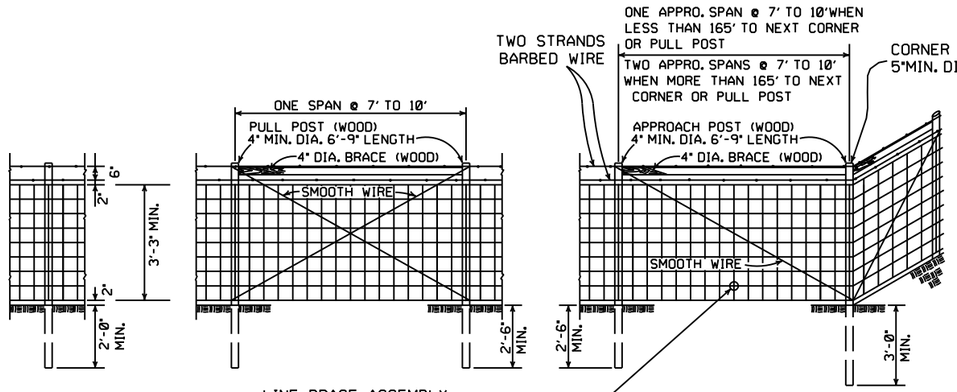
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	FILMED
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED AND REDRAWN	529-10-2-72

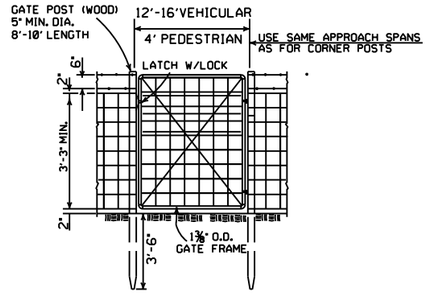
ARKANSAS STATE HIGHWAY COMMISSION

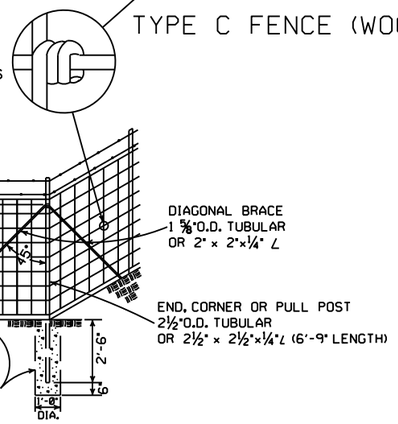
WIRE FENCE WATER GAPS

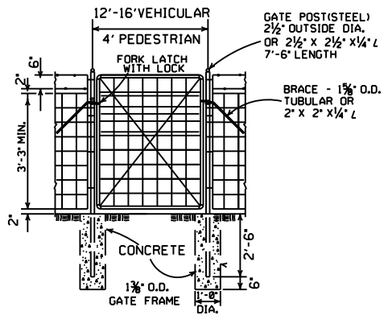
STANDARD DRAWING WF-2



TYPE C FENCE (WOOD POSTS)

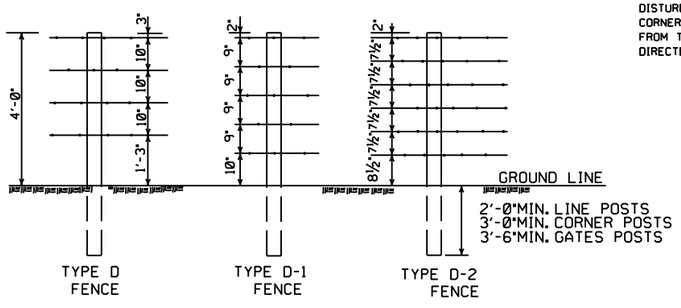




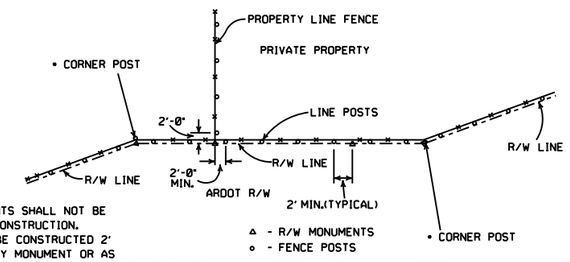


NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

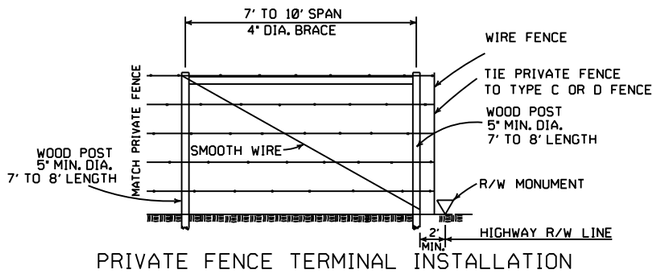


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



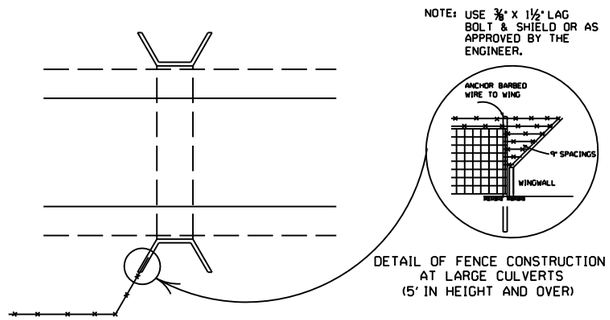
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION

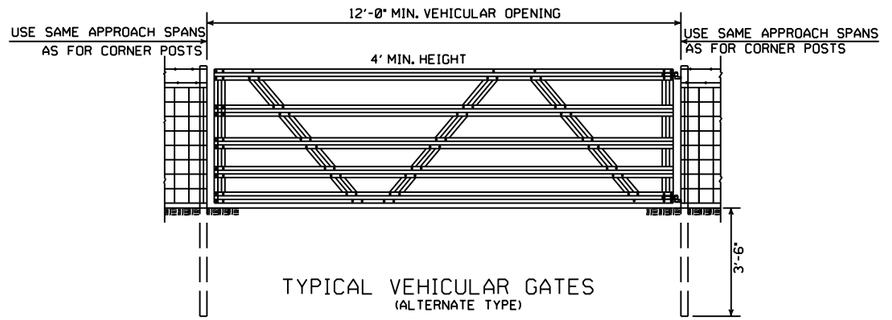


PRIVATE FENCE TERMINAL INSTALLATION

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.



DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)



TYPICAL VEHICULAR GATES

(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK)SHALL MEET THE APPROVAL OF THE ENGINEER.

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4