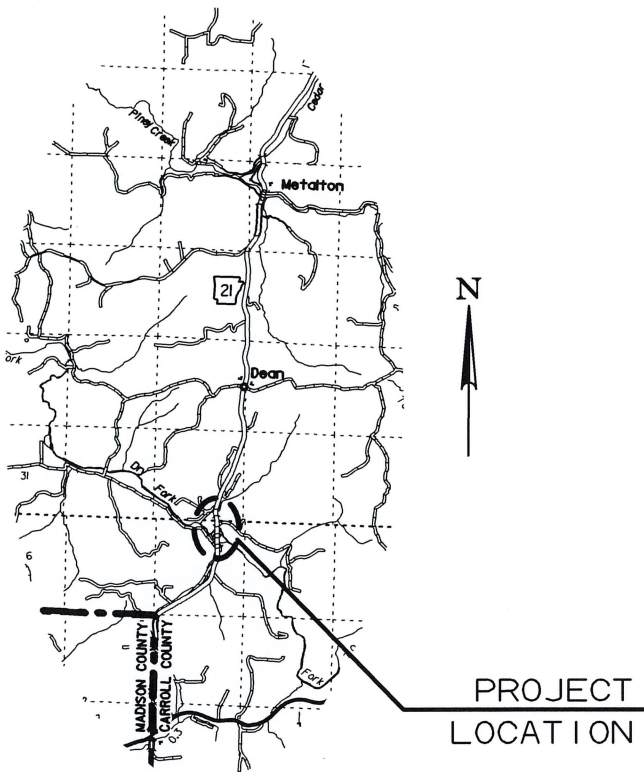


ARKANSAS DEPARTMENT OF TRANSPORTATION  
CONSTRUCTION PLANS FOR STATE HIGHWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	1	48

2 DRY FORK STR. & APPRS. (S)



CARROLL COUNTY  
VICINITY MAP

BRIDGE DATA

- ① STA. 208+98.50 BRIDGE END  
BRIDGE NO. 07526  
250'-0" INTEGRAL CONT. W-BEAM  
(55'-70'-70'-55')  
40'-0" CLEAR ROADWAY  
251'-0" BRIDGE LENGTH  
STA. 211+49.50 BRIDGE END

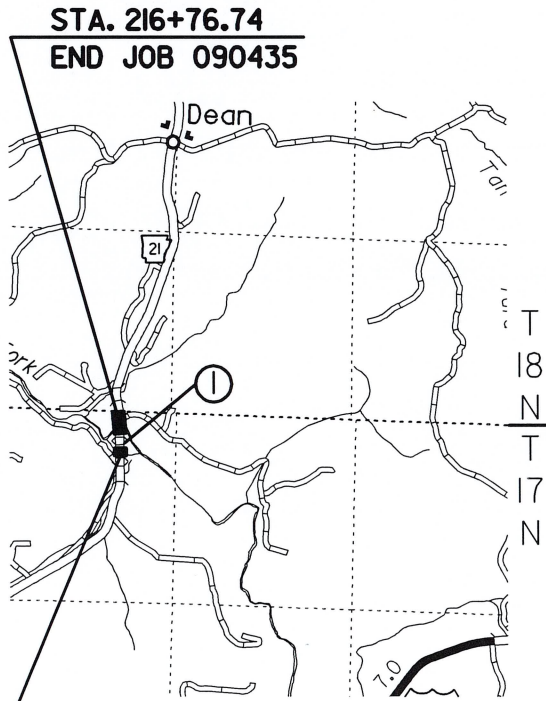
DRY FORK  
STR. & APPRS. (S)

CARROLL COUNTY  
ROUTE 21 SECTION 5

JOB 090435

FED. AID PROJ. NHPP-0008(46)

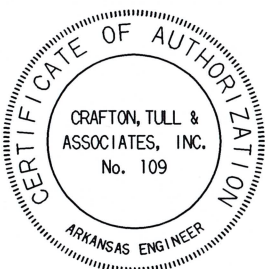
NOT TO SCALE



STA. 202+24.48  
BEGIN JOB 090435  
LOG MILE 2.33

DESIGN TRAFFIC DATA

HWY. 21  
DESIGN YEAR ————— 2043  
2023 ADT ————— 2,700  
2043 ADT ————— 3,400  
2043 DHV ————— 374  
DIRECTIONAL DISTRIBUTION ——— -60%  
TRUCKS ————— -12%  
DESIGN SPEED ————— 55 MPH



BEGINNING OF PROJECT  
LAT. = N 36°9' 55"  
LONG. = W 93°32' 18"

MID-POINT OF PROJECT  
LAT. = N 36°10' 7"  
LONG. = W 93°32' 17"

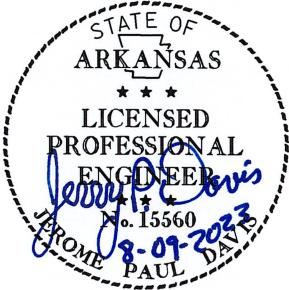
END OF PROJECT  
LAT. = N 36°10' 15"  
LONG. = W 93°32' 18"

LENGTH OF PROJECT CALCULATED ALONG C.L.					
GROSS LENGTH OF PROJECT	1452.26	FEET	OR	0.275	MILES
NET LENGTH OF ROADWAY	1201.26	FEET	OR	0.227	MILES
NET LENGTH OF BRIDGES	251.00	FEET	OR	0.048	MILES
NET LENGTH OF PROJECT	1452.26	FEET	OR	0.275	MILES



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 INDEX OF SHEETS AND 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 - 8	SPECIAL DETAILS		
9 - 11	TEMPORARY EROSION CONTROL DETAILS		
12 - 14	MAINTENANCE OF TRAFFIC DETAILS		
15	PERMANENT PAVEMENT MARKING DETAILS		
16 - 19	QUANTITIES		
20	SCHEDULE OF BRIDGE QUANTITIES	07526	63998
21	SUMMARY OF QUANTITIES AND REVISIONS		
22 - 23	SURVEY CONTROL DETAILS		
24 - 25	PLAN AND PROFILE SHEETS		
26	LAYOUT OF BRIDGE HIGHWAY 21 OVER DRY FORK CREEK (SHEET 1 OF 2)	07526	63999
27	LAYOUT OF BRIDGE HIGHWAY 21 OVER DRY FORK CREEK (SHEET 2 OF 2)	07526	64000
28	DETAILS OF BENTS 1 & 5 (SHEET 1 OF 2)	07526	64001
29	DETAILS OF BENTS 1 & 5 (SHEET 2 OF 2)	07526	64002
30	DETAILS OF BENTS 2 - 4 (SHEET 1 OF 3)	07526	64003
31	DETAILS OF BENTS 2 - 4 (SHEET 2 OF 3)	07526	64004
32	DETAILS OF BENTS 2 - 4 (SHEET 3 OF 3)	07526	64005
33	DETAILS OF ELASTOMERIC BEARINGS	07526	64006
34	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 1 OF 7)	07526	64007
35	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 2 OF 7)	07526	64008
36	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 3 OF 7)	07526	64009
37	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 4 OF 7)	07526	64010
38	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 5 OF 7)	07526	64011
39	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 6 OF 7)	07526	64012
40	DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 7 OF 7)	07526	64013
41	DETAILS FOR TYPE SPECIAL APPROACH GUTTERS	07526	64014
42 - 48	CROSS SECTIONS		

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	04-14-23
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	02-27-14
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-27-22

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
GR-6	GUARDRAIL DETAILS	05-19-22
GR-7	GUARDRAIL DETAILS	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
MB-1	MAILBOX DETAILS	11-18-04
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 (POLYETHYLENE)	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
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-4	WIRE FENCE TYPE C AND D	08-22-02



USER: jo5296  
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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② GOVERNING SPECIFICATIONS AND GENERAL NOTES								

GOVERNING SPECIFICATIONS

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

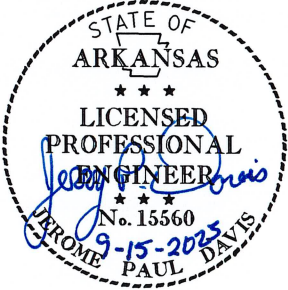
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - 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
105-4	MAINTENANCE DURING CONSTRUCTION
107-2	RESTRAINING CONDITIONS
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
307-1	CEMENT
308-1	CEMENT
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
400-7	TRACKLESS TACK
404-3	DESIGN OF ASPHALT MIXTURES
409-2	ASPHALT LABORATORY FACILITY
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4	EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1	RECYCLED ASPHALT PAVEMENT
501-2	CEMENT
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)
617-2	GUARDRAIL DELINEATORS
620-1	MULCH COVER
734-1	BRIDGE END TERMINAL
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
802-4	CEMENT
804-2	REINFORCING STEEL FOR STRUCTURES
807-2	STEEL STRUCTURES
808-1	INSTALLATION OF ELASTOMERIC BEARINGS
808-2	ELASTOMERIC BEARINGS
JOB 090435	BIDDING REQUIREMENTS AND CONDITIONS
JOB 090435	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090435	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090435	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 090435	CARGO PREFERENCE ACT REQUIREMENTS
JOB 090435	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 090435	COLD MILLING – COUNTY PROPERTY
JOB 090435	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 090435	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 090435	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
JOB 090435	DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 090435	DESIGN OF ASPHALT MIXTURES - AGGREGATES
JOB 090435	DIRECT TENSION INDICATORS FOR HIGH TENSION BOLT ASSEMBLIES
JOB 090435	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 090435	DRILLED SHAFT FOUNDATIONS

GOVERNING SPECIFICATIONS (CONTINUED)

NUMBER	TITLE
JOB 090435	ESTABLISHING CONTRACT TIME -- WORKING DAY CONTRACT
JOB 090435	FLEXIBLE BEGINNING OF WORK
JOB 090435	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090435	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 090435	MANDATORY ELECTRONIC CONTRACT
JOB 090435	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 090435	NESTING SITES OF MIGRATORY BIRDS
JOB 090435	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB 090435	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 090435	PARTNERING REQUIREMENTS
JOB 090435	PLASTIC PIPE
JOB 090435	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 090435	PRICE ADJUSTMENT FOR FUEL
JOB 090435	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 090435	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB 090435	SHORING
JOB 090435	SHORING FOR CULVERTS
JOB 090435	SOIL STABILIZATION
JOB 090435	SPECIAL CLEARING REQUIREMENTS
JOB 090435	STORM WATER POLLUTION PREVENTION PLAN
JOB 090435	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090435	SUBMISSION OF CONTRACTOR MATERIALS ACCEPTANCE RESULTS
JOB 090435	TOTAL SOLAR ECLIPSE
JOB 090435	UTILITY ADJUSTMENTS
JOB 090435	VALUE ENGINEERING
JOB 090435	WARM MIX ASPHALT
JOB 090435	WELLHEAD PROTECTION

GENERAL NOTES

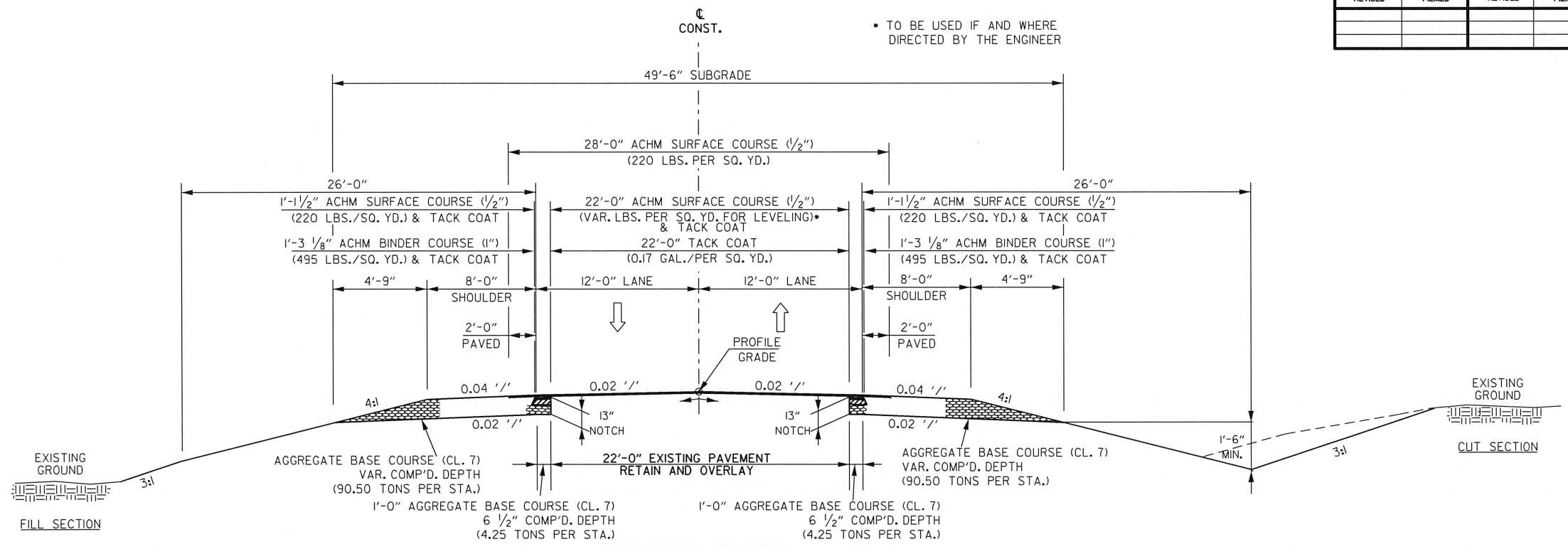
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- 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.
- 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.
- 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.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.





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2 TYPICAL SECTIONS OF IMPROVEMENT

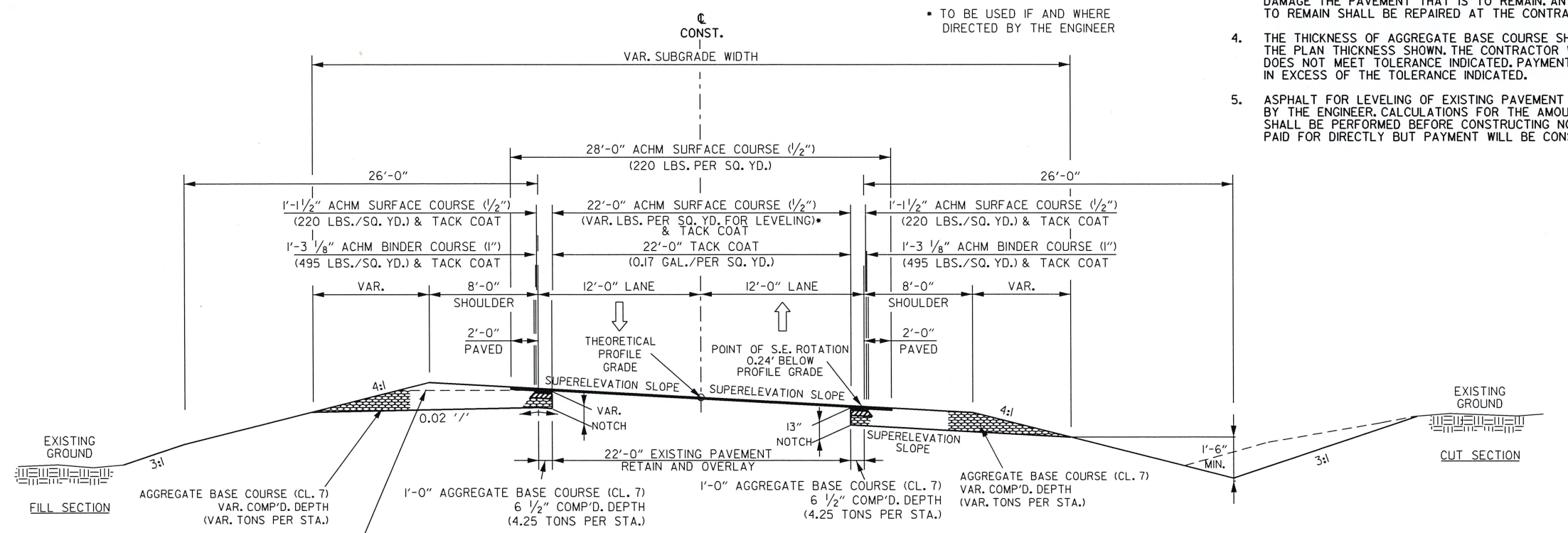


**NOTCH & WIDEN  
TYPICAL SECTION OF IMPROVEMENT  
HWY. 21**

STA. 202+24.48 TO STA. 207+09.97  
STA. 212+67.27 TO STA. 216+76.74

**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 PAVEMENT 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 OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.



**NOTCH & WIDEN  
SUPERELEVATED TYPICAL  
SECTION OF IMPROVEMENT  
HWY. 21**

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

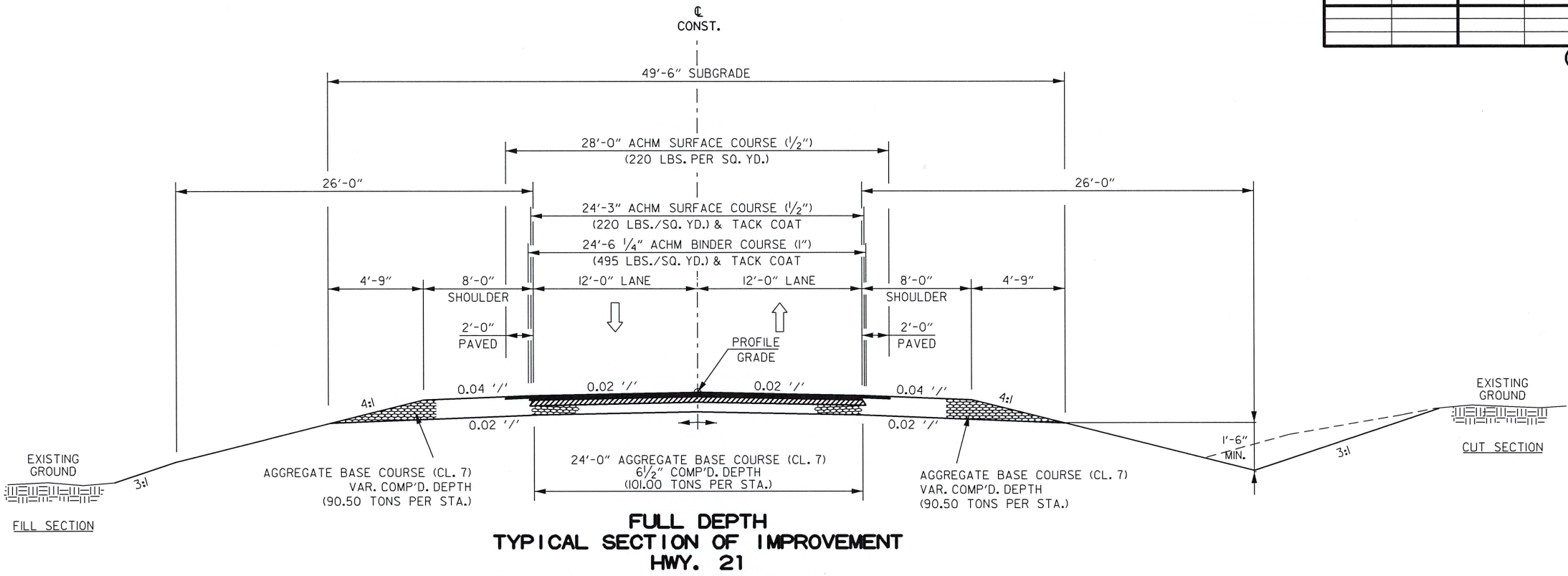
**TYPICAL SECTIONS OF IMPROVEMENT**

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				6	ARK.			
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2 TYPICAL SECTIONS OF IMPROVEMENT

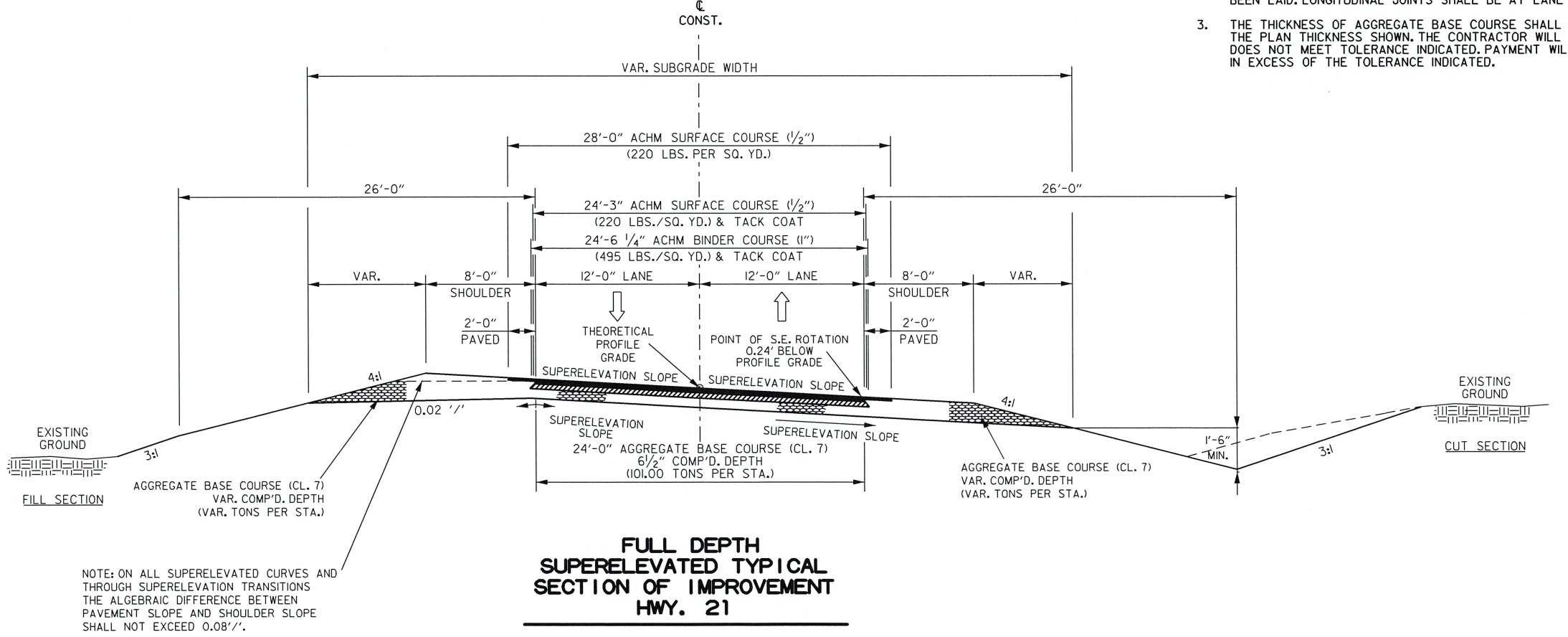


**FULL DEPTH  
TYPICAL SECTION OF IMPROVEMENT  
HWY. 21**

STA. 207+09.97 TO STA. 208+98.50  
STA. 211+49.50 TO STA. 212+67.27

**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.



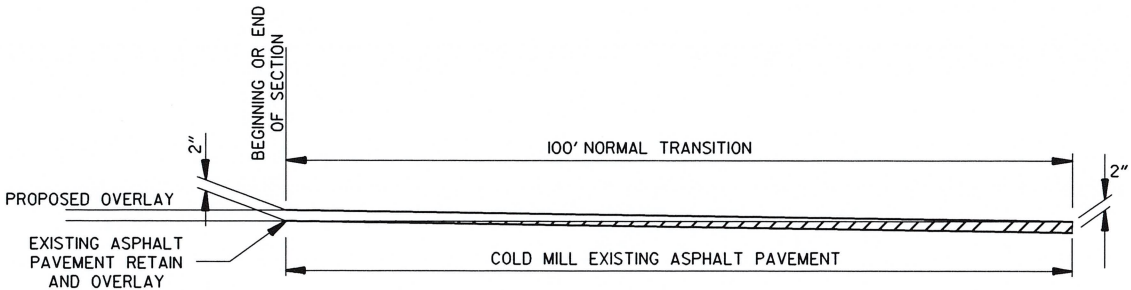
**FULL DEPTH  
SUPERELEVATED TYPICAL  
SECTION OF IMPROVEMENT  
HWY. 21**

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

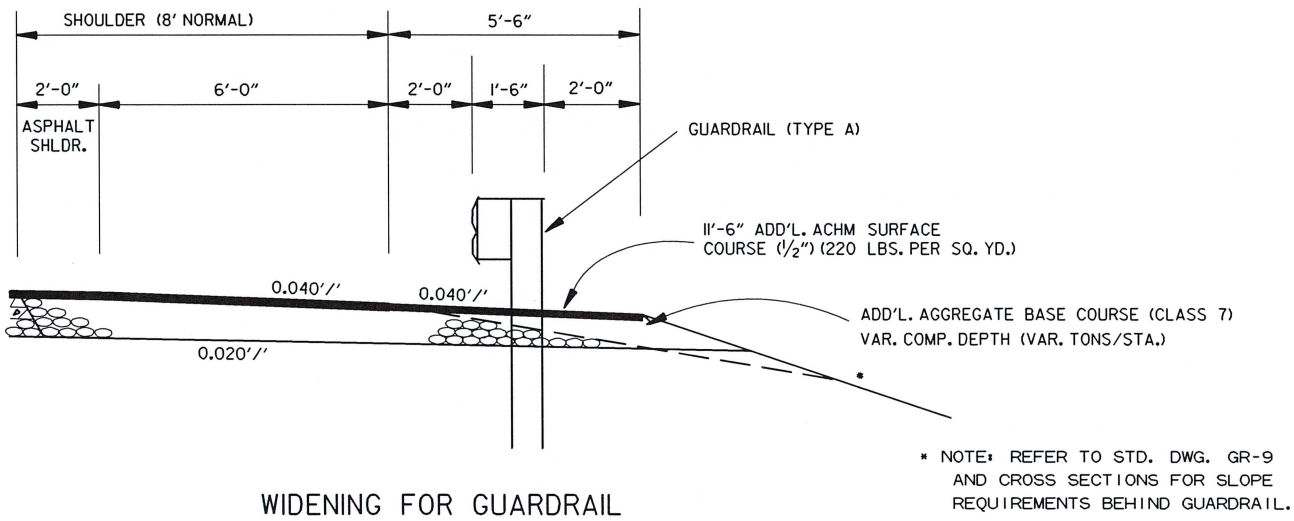


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				6	ARK.			
				JOB NO.		090435	6	48

2 SPECIAL DETAILS



DETAIL FOR TRANSITIONS

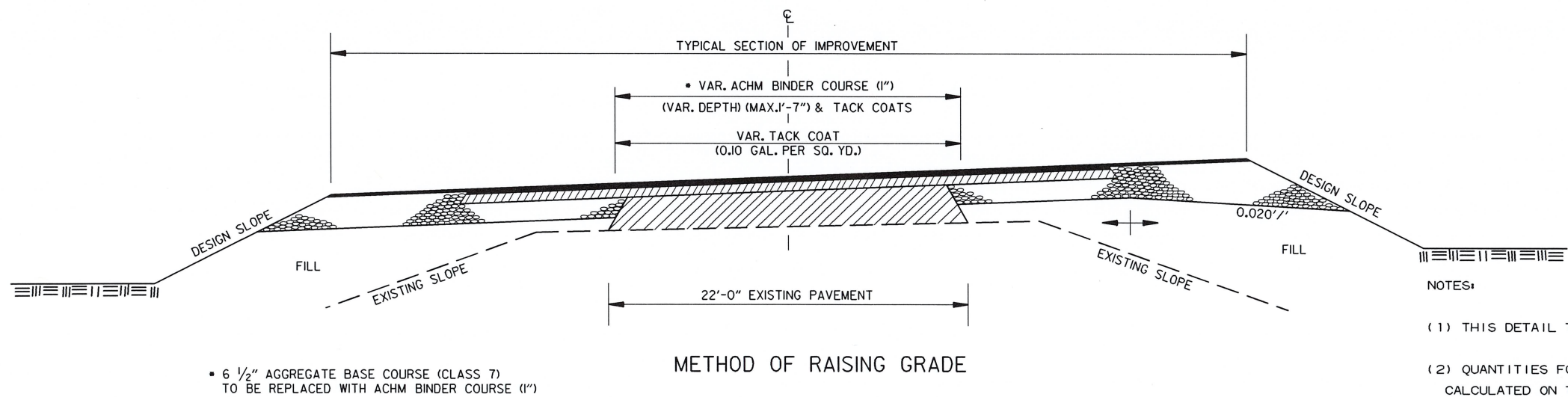
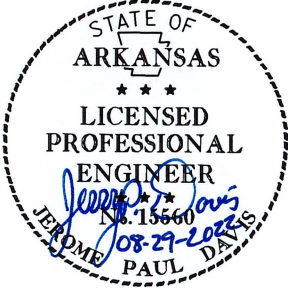


WIDENING FOR GUARDRAIL



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	7	48

2 SPECIAL DETAILS



NOTES:

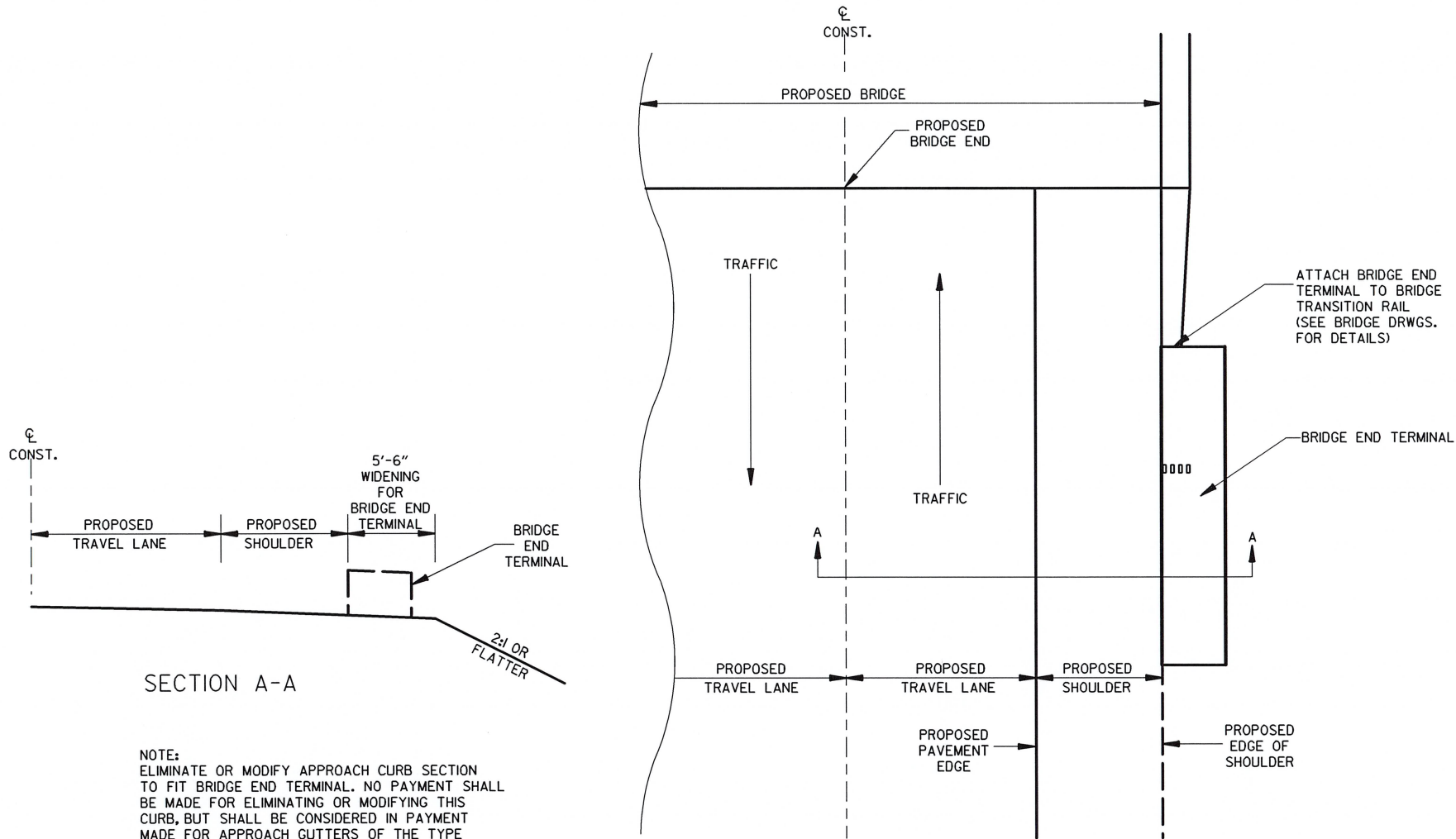
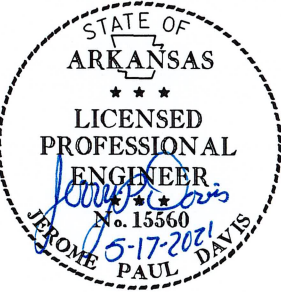
- (1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
- (2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
- (3) IN LOCATIONS WHERE THE 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.

SPECIAL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	8	48

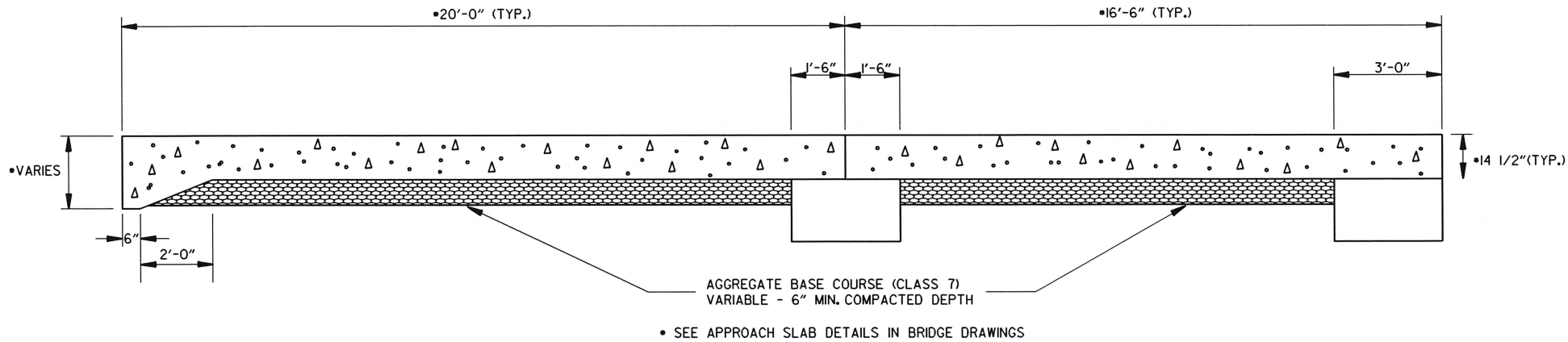
2 SPECIAL DETAILS



NOTE:  
ELIMINATE OR MODIFY APPROACH CURB SECTION TO FIT BRIDGE END TERMINAL. NO PAYMENT SHALL BE MADE FOR ELIMINATING OR MODIFYING THIS CURB, BUT SHALL BE CONSIDERED IN PAYMENT MADE FOR APPROACH GUTTERS OF THE TYPE SPECIFIED.

NOTE:  
BRIDGE END TERMINAL SHALL CONFORM TO THE FOLLOWING:  
-MAXIMUM LENGTH: 20'  
-MAXIMUM HEIGHT: 2.75'  
-DESIGN SPEED: 60 MPH

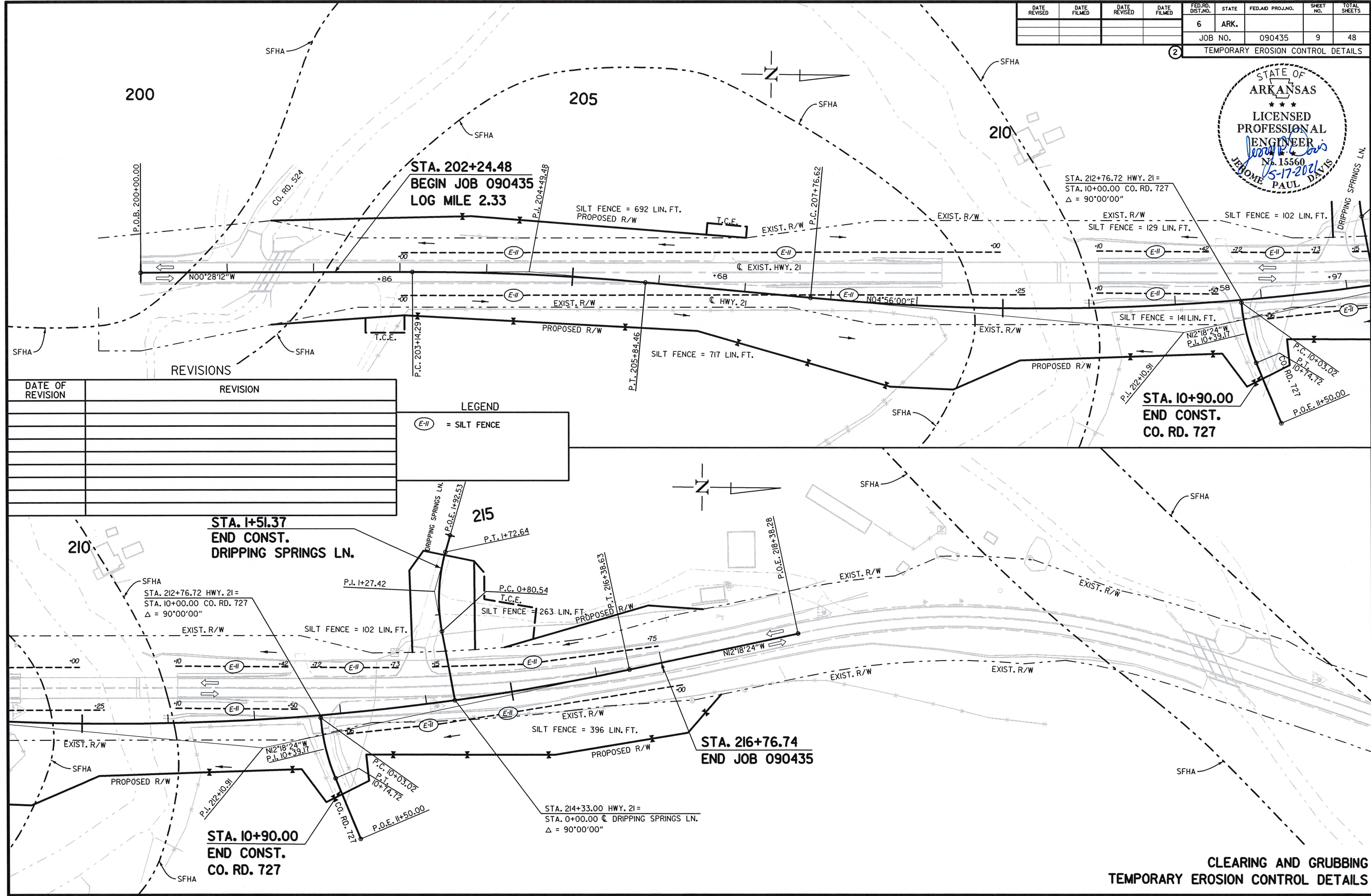
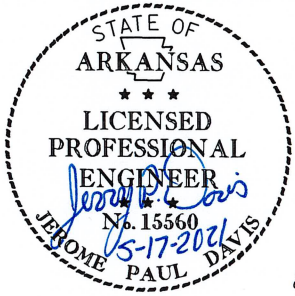
PLAN VIEW  
BRIDGE END TERMINAL  
DETAILS



SECTION OF APPROACH SLAB



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	090435	9 48
2 TEMPORARY EROSION CONTROL DETAILS								



DATE OF REVISION	REVISION

LEGEND

(E-II) = SILT FENCE

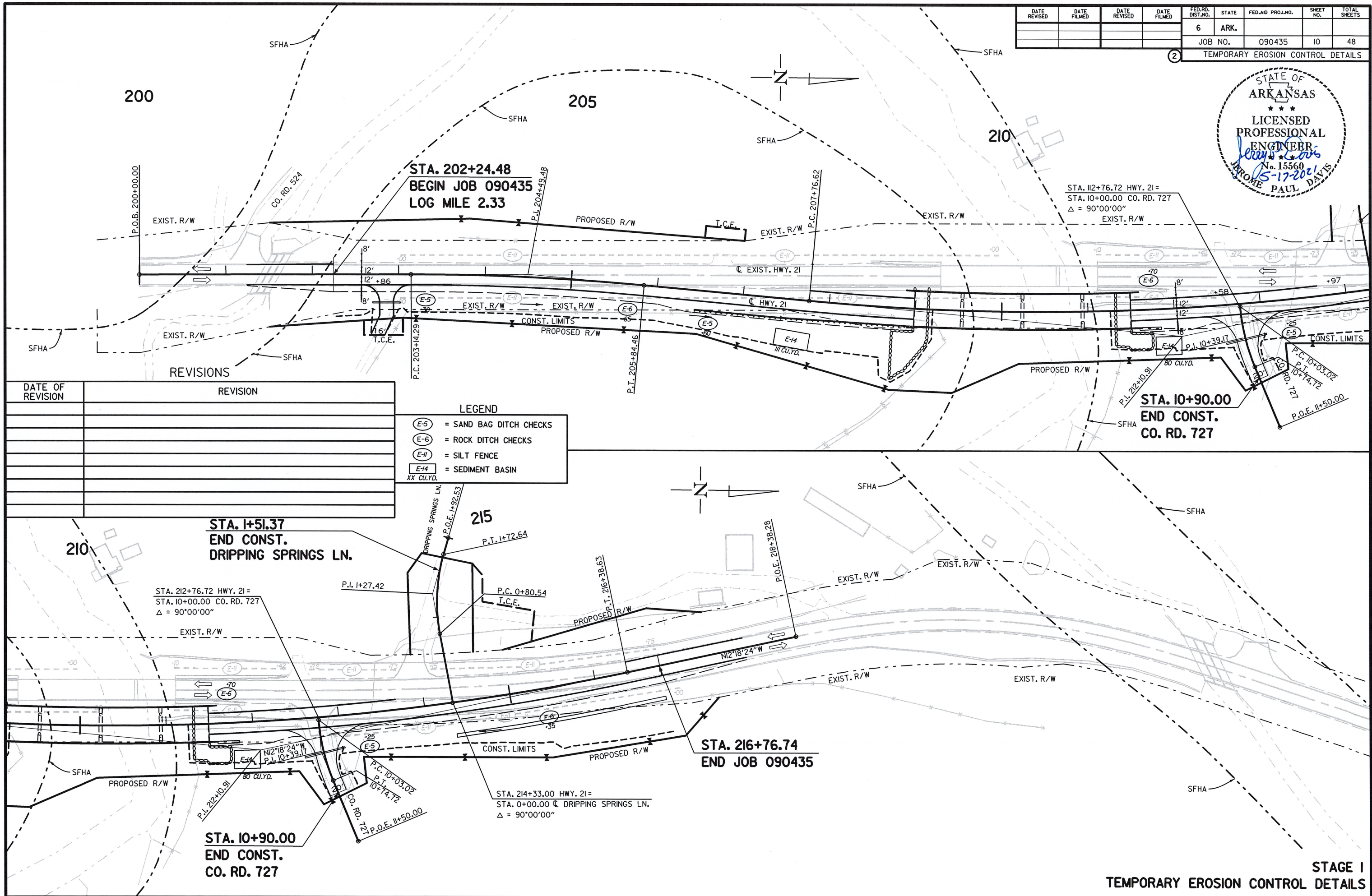
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PLOT: 5/14/2021 16:27 MODEL: Clearing and Grubbing - Dry Fork

CLEARING AND GRUBBING  
TEMPORARY EROSION CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	10	48

2 TEMPORARY EROSION CONTROL DETAILS



DATE OF REVISION	REVISION

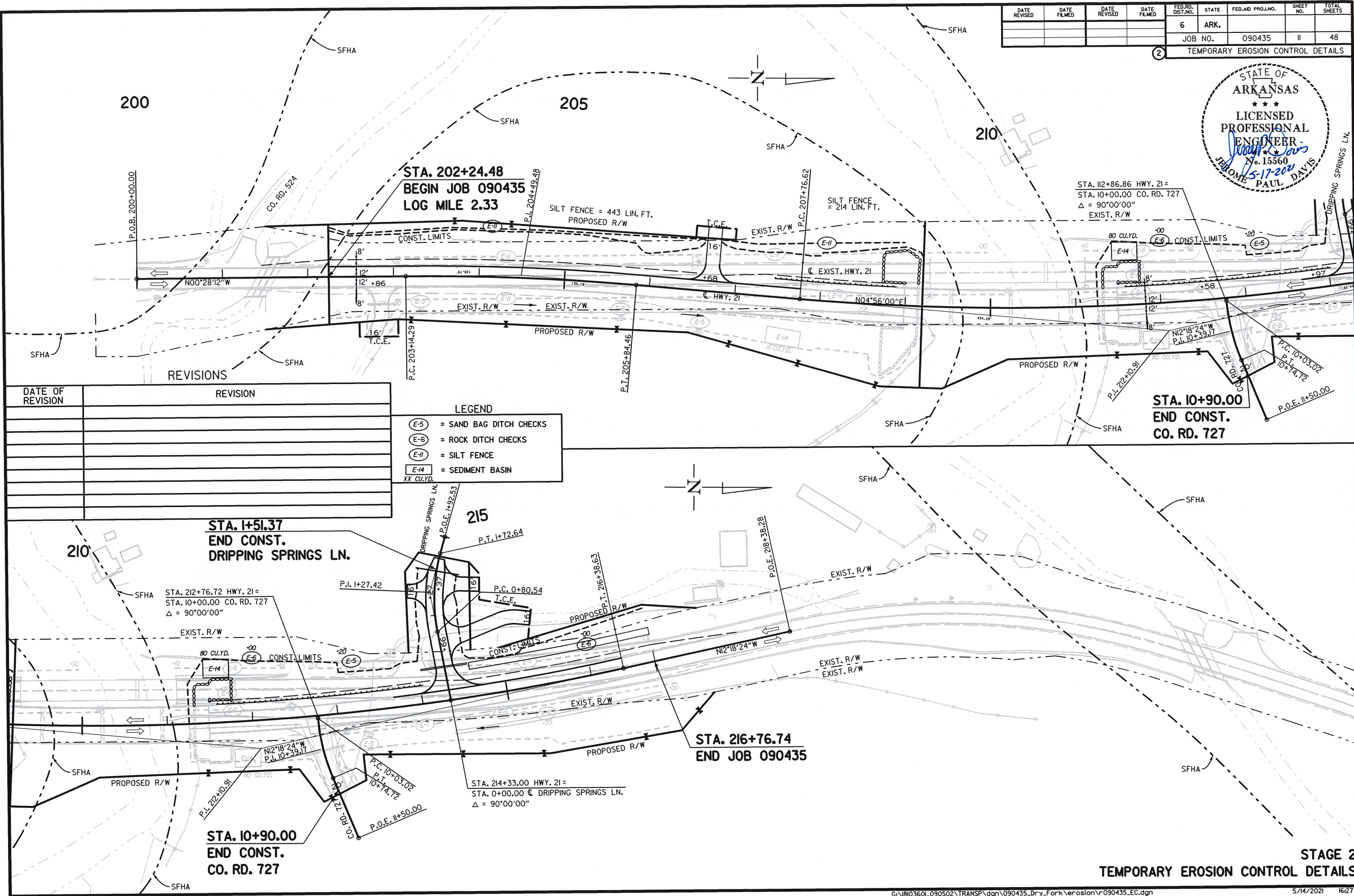
- LEGEND
- E-5 = SAND BAG DITCH CHECKS
  - E-6 = ROCK DITCH CHECKS
  - E-11 = SILT FENCE
  - E-14 = SEDIMENT BASIN  
XX CU.YD.

USER: jh5195  
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PLOTTER: 5/14/2021 16:27 MODEL: EROSION CONTROL STAGE I - Dry Fork

STAGE I  
TEMPORARY EROSION CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	II	48
2 TEMPORARY EROSION CONTROL DETAILS								



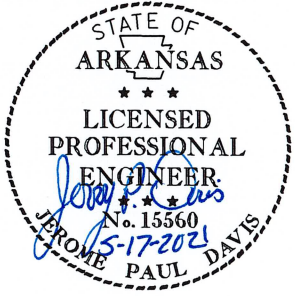
DATE OF REVISION	REVISION

- LEGEND
- (E-5) = SAND BAG DITCH CHECKS
  - (E-6) = ROCK DITCH CHECKS
  - (E-11) = SILT FENCE
  - (E-14) = SEDIMENT BASIN

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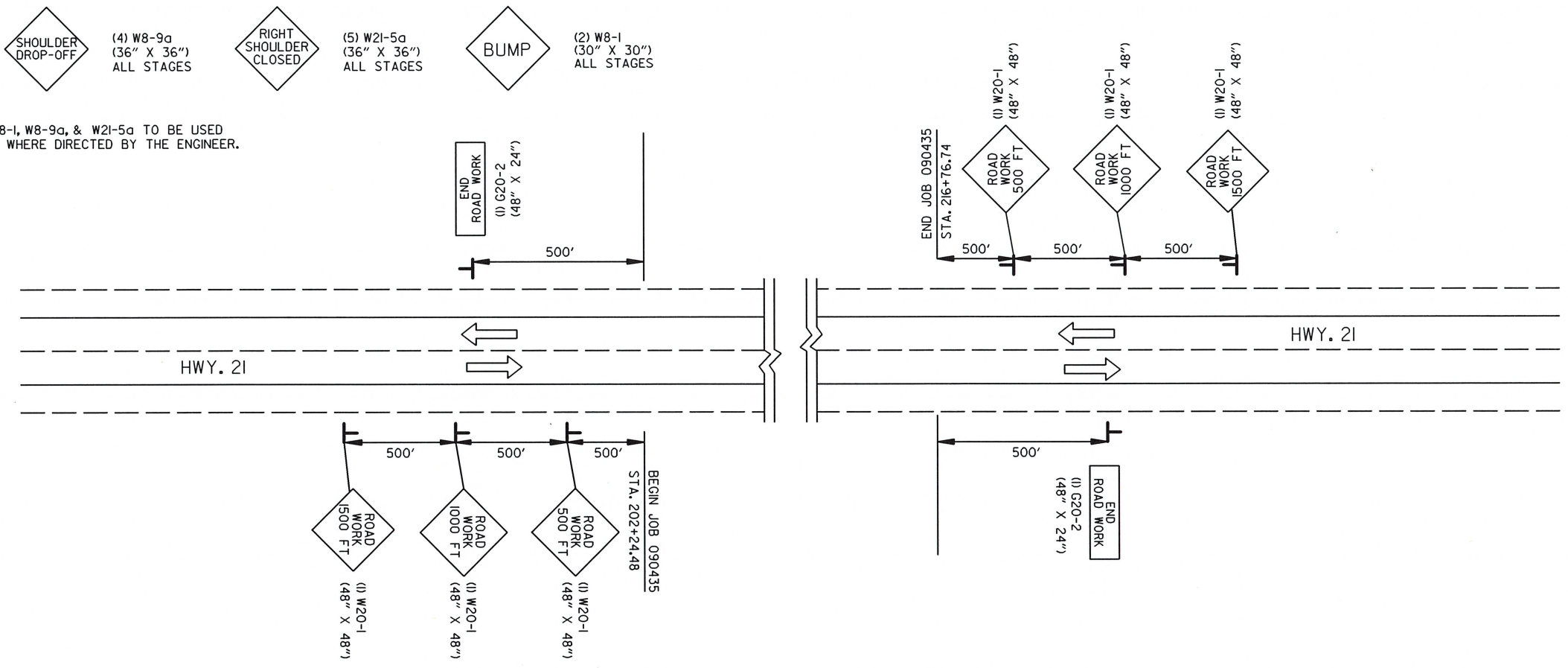


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	090435	I2 48
2 MAINTENANCE OF TRAFFIC DETAILS								



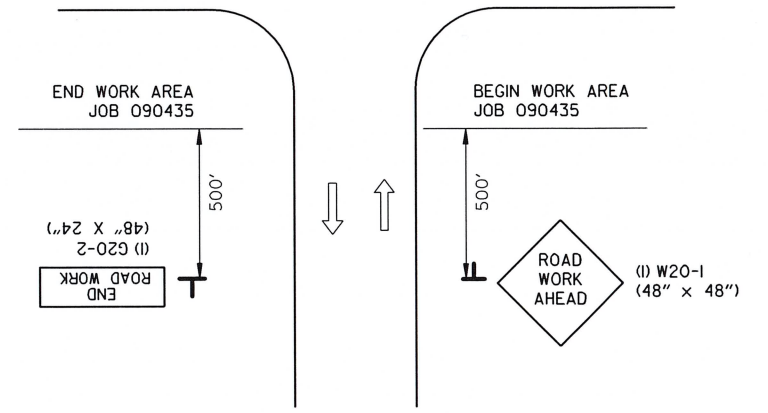
- DO NOT PASS
- (4) R4-1  
(24" X 30")  
ALL STAGES
- SHOULDER DROP-OFF
- (4) W8-9a  
(36" X 36")  
ALL STAGES
- RIGHT SHOULDER CLOSED
- (5) W21-5a  
(36" X 36")  
ALL STAGES
- BUMP
- (2) W8-1  
(30" X 30")  
ALL STAGES

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



- STAGE 1:**
- 1) INSTALL ADVANCE WARNING SIGNS.
  - 2) INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
  - 3) CONSTRUCT NEW ROADWAY & BRIDGE OVER DRY FORK CREEK.

- STAGE 2:**
- 1) MAINTAIN ADVANCE WARNING SIGNS.
  - 2) CONSTRUCT PAVEMENT WIDENING TO CONNECT EXIST. ROADWAY.
  - 3) CONSTRUCT FINAL LIFT OF ASPHALT, GUARDRAIL & PERMANENT PAVEMENT MARKINGS.
  - 4) SHIFT TRAFFIC TO NEW ROADWAY, REMOVE BRIDGE & EXIST. ROADWAY.



SIDE ROADS  
ALL STAGES

STA. 212+76.72 CO. RD. 727 RT.  
STA. 214+33.00 DRIPPING SPRINGS LN. LT.

ADVANCE SIGNS AT JOB ENDS  
MAINTENANCE OF TRAFFIC DETAILS



SEQUENCING:

STAGE I: 1) INSTALL ADVANCE WARNING SIGNS SITE 2.

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

200

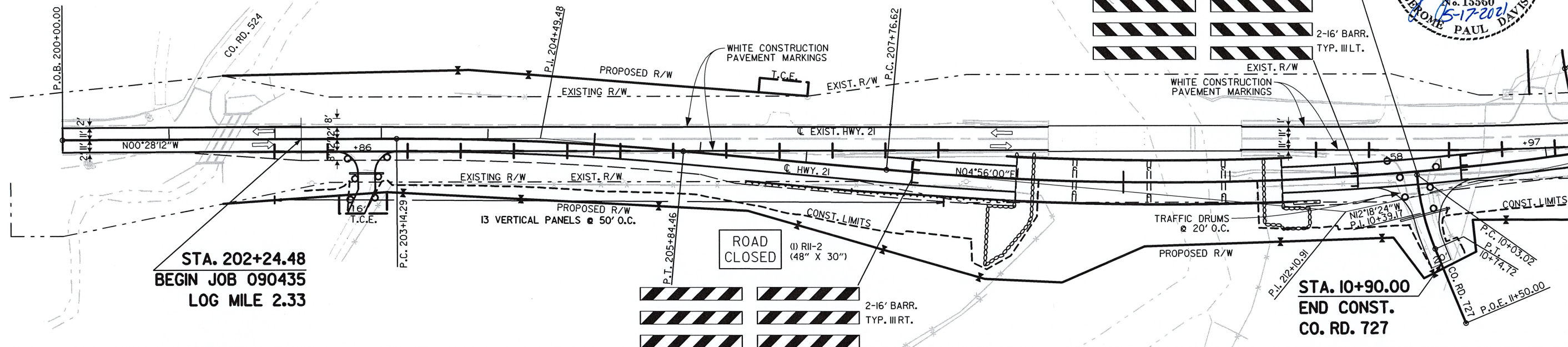
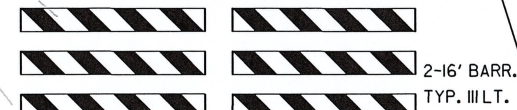
3) CONSTRUCT NEW ROADWAY AND BRIDGE OVER DRY FORK BRANCH.

205

210

STA. 212+76.72 HWY. 21 =  
STA. 10+00.00 CO. RD. 727  
 $\Delta = 90^{\circ}00'00''$

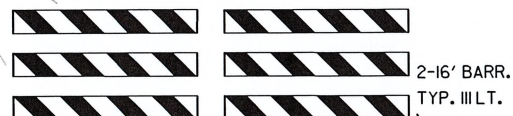
ROAD CLOSED (I) RII-2  
(48" X 30")



STA. 1+51.37  
END CONST.  
DRIPPING SPRINGS LN.

210

ROAD CLOSED (I) RII-2  
(48" X 30")



EXIST. R/W

10 VERTICAL PANELS @ 50' O.C.

P.I. 1+27.42

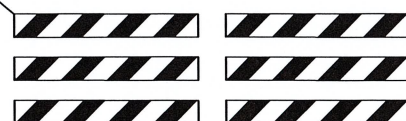
P.C. 0+80.54

T.C.E.

PROPOSED R/W

STA. 216+76.74  
END JOB 090435

ROAD CLOSED (I) RII-2  
(48" X 30")



2-16' BARR.  
TYP. III RT.

STAGE I QUANTITIES:

CONSTRUCTION PAVEMENT MARKINGS = 6609 LIN. FT.  
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) = 20 EACH  
VERTICAL PANELS = 23 EACH  
TRAFFIC DRUMS = 12 EACH  
SIGNS = 367.5 SQ. FT.  
TYPE III BARRICADES LT. (16') = 32 LIN. FT.  
TYPE III BARRICADES RT. (16') = 64 LIN. FT.

STAGE I  
MAINTENANCE OF TRAFFIC DETAILS



# SEQUENCING:

STAGE 2: 1) MAINTAIN ADVANCE WARNING SIGNS.

2) CONSTRUCT PAVEMENT WIDENING TO CONNECT EXISTING ROADWAY.  
CONSTRUCT FINAL LIFT OF ASPHALT, GUARDRAIL, AND PERMANENT  
PAVEMENT MARKING.

3) SHIFT TRAFFIC TO NEW ROADWAY AND BRIDGES. REMOVE OLD BRIDGES  
AND ROADWAY.

200

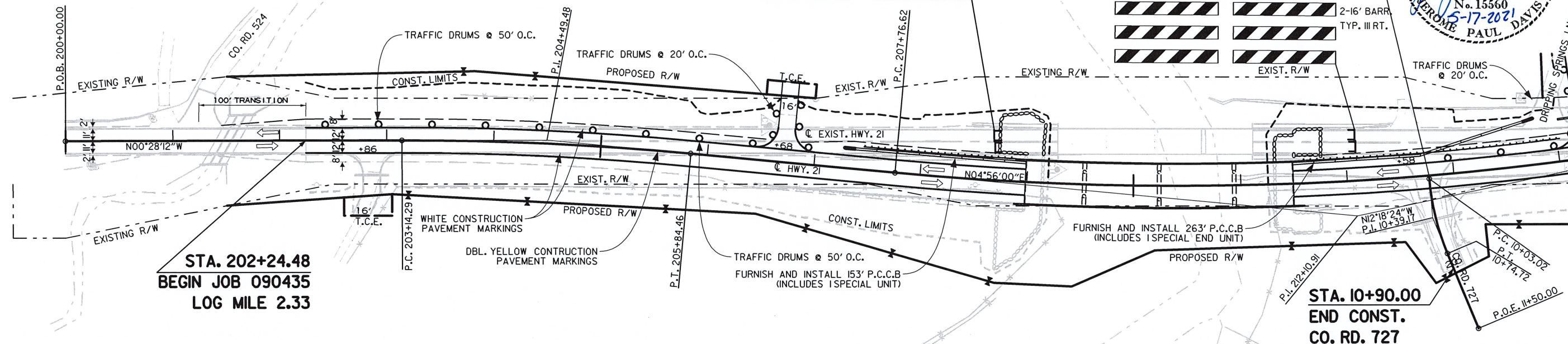
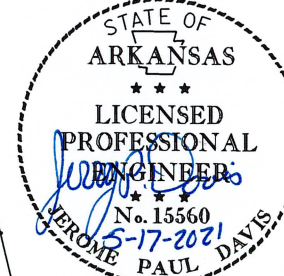
205

210

2

MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	14	48



210

STA. 1+51.37  
END CONST.  
DRIPPING SPRINGS LN.

STA. 216+76.74  
END JOB 090435

STA. 10+90.00  
END CONST.  
CO. RD. 727

## STAGE 2 QUANTITIES:

CONSTRUCTION PAVEMENT MARKINGS = 6609 LIN. FT.  
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) = 22 EACH  
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3097 LIN. FT.  
TRAFFIC DRUMS = 43 EACH  
SIGNS = 367.5 SQ. FT.  
TYPE III BARRICADES LT. (16') = 32 LIN. FT.  
TYPE III BARRICADES RT. (16') = 32 LIN. FT.  
FURNISH AND INSTALL P.C.C.B. = 401 LIN. FT.

STAGE 2  
MAINTENANCE OF TRAFFIC DETAILS

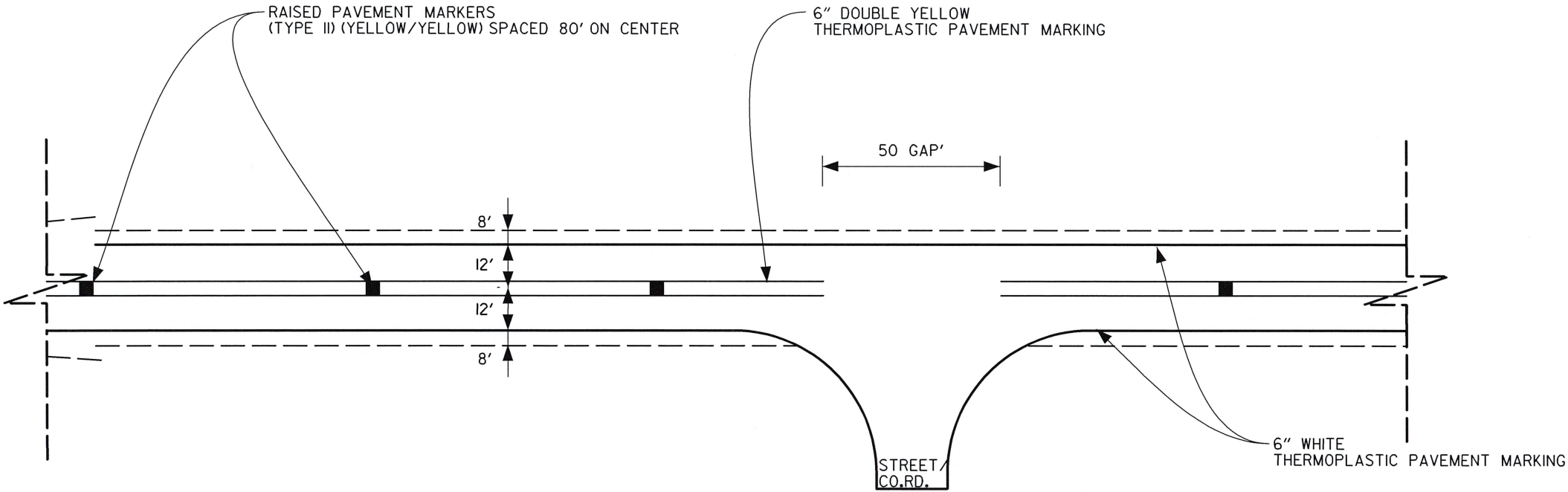
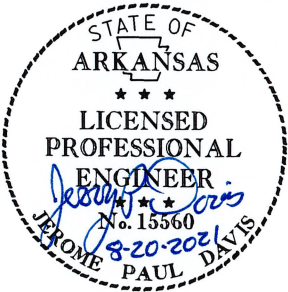


PERMANENT PAVEMENT MARKING

THERMOPLASTIC PAVEMENT MARKING:  
WHITE (6") = 3105 LIN. FT.  
YELLOW (6") = 3305 LIN. FT.

RAISED PAVEMENT MARKERS:  
TYPE II (YELLOW/YELLOW) (80' O.C.) = 22 EACH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	090435	15 48
2 PERMANENT PAVEMENT MARKING DETAILS								



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.

USER: qp5l8l  
DESIGN FILE: G:\1810360L\090502\TRANSP\dgn\090435.Dry\_Fork\quantities\090435.Dry\_Fork\_Quantities.dgn  
PLOTTED: 8/25/2022 14:48  
SCALE: 1:2  
MODEL: 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.		090435	16	48
				2QUANTITIES				



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)		FURNISHING & INSTALLING PRECAST CONC. BARRIER
			LIN. FT. - EACH	NO.		SQ. FT.	EACH			RIGHT	LEFT	
										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"	3	2	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"	2	2	2	2	12.5					
W8-9a	SHOULDER DROP-OFF	36"X36"	4	4	4	4	36.0					
	VERTICAL PANELS		23		23			23				
	TRAFFIC DRUMS		12	43	43				43			
	TYPE III BARRICADE-RT. (16')		4	2	4					64		
	TYPE III BARRICADE-LT. (16')		2	2	2						32	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			416	416							416
TOTALS:							303.5	23	43	64	32	416

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING	
						TYPE II	6"	
	(YELLOW/YELLOW)	WHITE	YELLOW					
		LIN. FT. - EACH			LIN. FT.		EACH	LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS		3097		3097				
CONSTRUCTION PAVEMENT MARKINGS	6609	6609			13218			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	22	22	22			66		
THERMOPLASTIC PAVEMENT MARKING WHITE (6")			4600				4600	
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")			4400					4400
TOTALS:				3097	13218	66	4600	4400

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

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
202+24	212+50	HWY. 21	11	11
214+70	215+25	HWY. 21	1	1
TOTALS:			12	12

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
212+58	REMOVE 14"X28' C.M. PIPE CULVERT	1
214+33	REMOVE 18"X34' C.M. PIPE CULVERT	1
215+44	REMOVE 16"X20' C.M. PIPE CULVERT	1
10+03	REMOVE 18"X36' C.M. PIPE CULVERT CO. RD. 727	1
TOTAL:		4

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
207+24	209+28	HWY. 21 - RT.	204
208+46	209+26	HWY. 21 - LT	79
211+13	211+91	HWY. 21 - RT.	78
211+13	212+44	HWY. 21 - LT	128
TOTAL:			489

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
203+05	209+36	HWY. 21 - RT.	726
203+69	204+37	HWY. 21 - LT.	70
211+26	212+83	HWY. 21 - RT.	269
212+93	217+37	HWY. 21 - RT.	520
TOTAL:			1585



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DESIGN FILE: G:\1810360L\090502\TRANSP\ dgn\090435\_Dry\_Fork Quantities.dgn  
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SCALE: 1:2  
MODEL: 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.	090435	17	48

2 QUANTITIES



CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	
214+60.00	216+77.00	HWY. 21 - LT.	217.00	8.00	192.89	96.44	1.22
214+33.00	216+77.00	HWY. 21 - RT.	244.00	4.00	108.44	108.44	1.37
TOTALS:					301.33	204.88	2.59

BASIS OF ESTIMATE:

WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

MAILBOXES

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								*SEDIMENT REMOVAL & DISPOSAL
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-5) BAG	(E-6) CU.YD.	(E-11) LIN. FT.	(E-14) CU.YD.	CU.YD.	
ENTIRE	PROJECT	CLEARING AND GRUBBING						1.00	1.00	20.4			2440			90
ENTIRE	PROJECT	STAGE 1	1.28	2.56	1.28	130.6	1.28	0.90	0.90	18.4	66	9		191	191	197
ENTIRE	PROJECT	STAGE 2	1.48	2.96	1.48	151.0	1.48	1.00	1.00	20.4	22	6	657	80	80	107
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.00	2.00	1.00	102.0	1.00	0.50	0.50	10.2	22	9	150	50	50	56
TOTALS:			3.76	7.52	3.76	383.6	3.76	3.40	3.40	69.4	110	24	3247	321	321	450

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.

FENCING

STATION	STATION	LOCATION	WIRE FENCE	
			(TYPE D)	(TYPE D-1)
			LIN. FT.	
203+05	208+83	HWY. 21 - RT.		581
203+69	204+36	HWY. 21 - LT.	69	
211+36	212+83	HWY. 21 - RT.	175	
212+93	217+36	HWY. 21 - RT.	479	
TOTALS:			723	581

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL
			LIN. FT.	EACH		
207+45.35	208+89.10	LT. SIDE	75	1	1	
206+45.35	208+89.10	RT. SIDE	175	1	1	
211+58.83	214+02.58	LT. SIDE	175	1	1	
211+58.83		RT. SIDE				1
TOTALS:			425	3	3	1

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
208+98.50	HWY. 21 BRIDGE END	1
TOTAL:		1

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
211+49.50	213+00.00	HWY. 21 - RT.	150.50	133.78
211+95.00	214+00.00	HWY. 21 - LT.	205.00	182.22
TOTAL:				316.00

NOTE: AVERAGE WIDTH = 8'-0"



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	18	48
				②	QUANTITIES			

2



EARTHWORK				
STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	2473	6279
ENTIRE	PROJECT	STAGE 2-MAIN LANES	2955	1193
ENTIRE	PROJECT	APPROACHES	130	170
ENTIRE	PROJECT	BRIDGE EXCAVATION	1721	
		CO. RD. 727		49
TOTALS:			7279	7691

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
201+24.48	202+24.48	MAIN LANES	22.00	244.44
216+76.74	217+76.74	MAIN LANES	22.00	244.44
TOTAL:				488.88

NOTE: COORDINATE COLD MILLING STOCKPILE LOCATIONS WITH DISTRICT ENGINEER. STOCKPILE LOCATIONS SHALL BE NO FURTHER THAN FIVE MILES FROM THE JOB SITE.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	7	14
TOTALS:	7	14

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	50
TOTAL:			50

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE SPECIAL)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
208+62.00	208+98.50	LT. SIDE APPROACH GUTTER	14.14		801	
208+62.00	208+98.50	APPROACH SLAB (TYPE C1)		49.15	5775	34.07
208+62.00	208+98.50	RT. SIDE APPROACH GUTTER	14.14		801	
211+49.50	211+86.00	LT. SIDE APPROACH GUTTER	14.14		801	
211+49.50	211+86.00	APPROACH SLAB (TYPE C1)		49.15	5775	34.07
211+49.50	211+86.00	RT. SIDE APPROACH GUTTER	14.14		801	
TOTALS:			56.56	98.30	14754	68.14

NOTE: USE T =8.5" FOR 8" SHOULDER.

4" PIPE UNDERDRAIN

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

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	25
TOTAL:	25

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

DRIVEWAYS & TURNOUTS

STATION	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	STANDARD DRAWINGS
		FEET	SQ. YD.	TON	TON	18" LIN. FT.	
202+86	HWY. 21 - RT.	16	122.18	13.44	49.89	32	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
206+68	HWY. 21 - LT.	16	131.08	14.42	53.52		
212+77	HWY. 21 - RT.	20	260.74	28.68	106.47	48	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
214+33	HWY. 21 - LT.	20	353.49	38.88	144.34	54	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
0+66	DRIPPING SPRINGS LN. - RT.	16	203.73	22.41	83.19		
1+27	DRIPPING SPRINGS LN. - LT.	16	54.07	5.95	22.08		
1+37	DRIPPING SPRINGS LN. - RT.	16	92.76	10.20	37.88		
ENTIRE PROJECT TEMPORARY DRIVES					35.00		
TOTALS:			1218.05	133.98	532.37	134	

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.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	19	48

2 QUANTITIES



BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		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
			TOTAL WID. FEET			SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON	FEET														
MAIN LANES																									
201+24.48	202+24.48	HWY. 21 TRANSITION	100.00	181.00	181.00				22.00	244.44	41.55	41.55									26.00	288.89	220.00	31.78	31.78
202+48.48	207+09.97	HWY. 21 NOTCH AND WIDEN	461.49	230.00	1061.43	23.80	1220.38	61.02				61.02	12.11	620.96	495.00	153.69	11.69	599.42	220.00	65.94	28.00	1435.75	220.00	157.93	223.87
207+09.97	208+62.00	HWY. 21 FULL DEPTH	152.03	282.00	428.72	48.77	823.83	41.19				41.19	24.52	414.20	495.00	102.51	24.25	409.64	220.00	45.06	28.00	472.98	220.00	52.03	97.09
211+86.00	212+67.27	HWY. 21 FULL DEPTH	81.27	282.00	229.18	48.77	440.39	22.02				22.02	24.52	221.42	495.00	54.80	24.25	218.98	220.00	24.09	28.00	252.84	220.00	27.81	51.90
212+67.27	216+76.74	HWY. 21 NOTCH AND WIDEN	409.47	248.25	1016.51	30.60	1392.20	69.61				69.61	16.62	756.15	495.00	187.15	13.98	636.04	220.00	69.96	28.00	1273.91	220.00	140.13	210.09
216+76.74	217+76.74	HWY. 21 TRANSITION	100.00	181.00	181.00				22.00	244.44	41.55	41.55									26.00	288.89	220.00	31.78	31.78
ADDITIONAL FOR GUARDRAIL WIDENING																									
206+02.44	208+98.50	HWY. 21 RT.	296.06	40.25	119.16															10.89	358.23	220.00	39.41	39.41	
206+84.85	208+98.50	HWY. 21 LT.	213.65	37.00	79.05															10.46	248.31	220.00	27.31	27.31	
211+49.50	212+19.08	HWY. 21 LT.	69.58	49.50	34.44															13.74	106.23	220.00	11.69	11.69	
211+49.50	214+56.21	HWY. 21 RT.	306.71	39.25	120.38															10.81	368.39	220.00	40.52	40.52	
ADDITIONAL FOR LEVELING																									
202+48.48	207+09.97	HWY. 21 NOTCH AND WIDEN	461.49						22.00	1128.09	191.78	191.78	22.00	1128.09	550.00	310.22	22.00	1128.09	220.00	124.09					124.09
212+67.27	216+76.74	HWY. 21 NOTCH AND WIDEN	409.47						22.00	1000.93	170.16	170.16	22.00	1000.93	330.00	165.15	22.00	1000.93	220.00	110.10					110.10
ADDITIONAL FOR SUPERELEVATION																									
202+24.38	204+49.38	HWY. 21 BEGIN SUPER	225.00	31.25	70.31																				
204+49.38	204+55.54	HWY. 21 MAX SUPER	6.16	36.00	2.22																				
204+55.54	206+80.54	HWY. 21 END SUPER	225.00	23.00	51.75																				
206+80.55	209+80.55	HWY. 21 BEGIN SUPER	300.00	41.00	123.00																				
209+80.55	213+75.16	HWY. 21 MAX SUPER	394.61	61.00	240.71																				
213+75.16	214+25.16	HWY. 21 END SUPER	50.00	41.25	20.63																				
TOTALS:					3959.49		3876.80	193.84		2617.90	445.04	638.88		4141.75		973.52		3993.10		439.24		5094.42		560.39	999.63

BASIS OF ESTIMATE:  
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER  
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% 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.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	20	48
				① 07526	BRIDGE QUANTITIES			63998

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 090435

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP, SS, & 802	SP, SS & 802	SP & 803	SS & 804	SS & 804	SS & 805 ①	SS & 805	SP, SS, & 807	SS & 808	812	SS & 816	SS & 816	SP JOB 090435	SP JOB 090435	SP JOB 090435	SP JOB 090435	SP JOB 090435
			ITEM	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	DUMPED RIPRAP	DRILLED SHAFT (48" DIA.)	PERMANENT STEEL CASING (54" DIA.)	CROSSHOLE SONIC LOGGING (48" DIA.)	CORING DRILLED SHAFT	SHORING (SITE NO. )
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	CU. YD.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LUMP SUM
07526	HWY. 21 OVER DRY FORK CREEK	BENT NO. 1				17.25			1,237	293	160	148				404	216					
		BENT NO. 2				35.69			13,610					2,986				60	40	2	30	
		BENT NO. 3				38.77			14,292					2,986				58	38	2	29	
		BENT NO. 4				35.24			11,604					2,986				38		2	19	
		BENT NO. 5			44	17.25			1,237	293	90	78				305	162					
		250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT					358.80	1,337.2		96,534			256,820		1							
		SITE NO. 1 (EX. BR. NO. 03308)		1																		1
		TOTALS FOR JOB NO. 090435		1	44	144.20	358.80	1,337.2	41,980	97,120	250	226	256,820	8,958	1	709	378	156	78	6	② 78	1

- ① All piling shall be ASTM A709, Grade 50. Steel piling (Gr. 50) shall have approved driving points which shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling (HP 12x53)." All piles shall conform to Std. Dwg. No. 55020.
- ② Quantity shown is for estimating and bidding purposed only. Actual quantities, if any, will be determined in the field.



SCHEDULE OF BRIDGE QUANTITIES  
DRY FORK STR. & APPRS. (S)  
CARROLL COUNTY  
ROUTE 21 SEC. 5  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: LDG    DATE: 09-10-19    FILENAME: b090435.qldgn  
CHECKED BY: CAW    DATE: 02-18-21    SCALE: NO SCALE  
DESIGNED BY: LDG    DATE: 08-05-19  
BRIDGE NO. 07526    DRAWING NO. 63998



## 2 SUMMARY OF QUANTITIES AND REVISIONS

STATE OF  
ARKANSAS  
\*\*\*  
LICENSED  
PROFESSIONAL  
ENGINEER  
88011360  
08/25-2022  
JEROME PAUL DAVIS

## SUMMARY OF QUANTITIES (BOX 2 OF 2)

## REVISIONS

## SUMMARY OF QUANTITIES AND REVISIONS



USER: jh5195  
DESIGN FILE: G:\1810360L\090502\TRANSP\dgn\090435\_Dry\_Fork\survey.ctb\090435 Survey CTL Dry Fork Creek.dgn  
PLOTTED: 5/14/2021 16:29  
MODEL: PROPOSED DESIGN  
SCALE: 1:100

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	22	48
				2 SURVEY CONTROL DETAILS				

SURVEY CONTROL COORDINATES

Project Name: s090435  
Date: 3/3/2017  
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 080038 - 080038A & 080039 - 080039A  
PROJECTED TO GROUND.  
Units: U.S. SURVEY FOOT



Point Name	Northing	Easting	Elev	Feature	Description
1	670493.2048	858373.7440	1330.503	CTL	AHTD STD. MON. STAMPED PN: 1
2	671349.4335	858333.9104	1328.954	CTL	AHTD STD. MON. STAMPED PN: 2
3	671619.0334	858373.4786	1324.405	CTL	AHTD STD. MON. STAMPED PN: 3
4	672549.8708	858255.2892	1349.079	CTL	AHTD STD. MON. STAMPED PN: 4
5	673123.5422	858329.2119	1337.762	CTL	AHTD STD. MON. STAMPED PN: 5
6	673551.9301	858470.1636	1345.355	CTL	AHTD STD. MON. STAMPED PN: 6
7	690045.0759	860896.2766	1379.243	CTL	AHTD STD. MON. STAMPED PN: 7
8	691136.9192	861036.0975	1351.596	CTL	AHTD STD. MON. STAMPED PN: 8
9	691195.9896	860982.6813	1363.573	CTL	AHTD STD. MON. STAMPED PN: 9
10	691446.1516	861218.8056	1356.118	CTL	AHTD STD. MON. STAMPED PN: 10
11	691821.4948	861106.7186	1365.696	CTL	AHTD STD. MON. STAMPED PN: 11
12	692163.6579	861059.9766	1390.587	CTL	AHTD STD. MON. STAMPED PN: 12
13	692451.8123	860901.1081	1405.557	CTL	AHTD STD. MON. STAMPED PN: 13
14	692699.6987	860922.4169	1402.911	CTL	AHTD STD. MON. STAMPED PN: 14
100	672101.8050	858365.1477	1335.314	GPS	AHTD GPS #080038
101	671417.2950	859787.7897	1374.397	GPS	AHTD GPS #080038A
102	689373.9538	860864.0645	1387.942	GPS	AHTD GPS #080039
103	690781.4718	860901.0252	1369.955	GPS	AHTD GPS #080039A
997	660000.6594	816415.2512	1377.195	BM	2ND ORDER NGS BM R 143
998	674342.9727	858616.5998	1379.912	BM	2ND ORDER NGS BM R 145
999	691397.5938	861095.6680	1355.006	BM	3RD ORDER NGS BM T 145 RESET

\*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 .9999329738 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 s090435gi.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 GPS CONTROL POINTS: 880088-880088A  
CONVERGENCE ANGLE: 00 53 42.23 LEFT AT PN: 3 LT: 36-10-07.03N LG: 093-32-17.45W  
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

DETERMINED FROM GPS CONTROL POINTS: 080039 - 080039A  
CONVERGENCE ANGLE: 00 53 25.49 LEFT AT PN: 8 LT: 36-13-20.41N LG: 093-31-48.68W  
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

090502 CL - HIGHWAY 21 (SITE 2)

POINT NO.	TYPE	STATION	NORTHING	EASTING
8016	P.O.B.	200+00.00	670691.7529	858352.9242
8017	P.C.	203+14.29	671006.0367	858350.3461
8019	P.T.	205+84.46	671275.9014	858360.8629
8020	P.C.	207+76.62	671467.3524	858377.3885
8022	P.T.	216+38.63	672324.3364	858322.1698
8023	P.O.E.	218+38.28	672519.3900	858279.6171

CO. RD. 727

POINT NO.	TYPE	STATION	NORTHING	EASTING
8029	P.O.B.	10+00.00	671966.8099	858376.7999
8030	P.C.	10+03.02	671967.0773	858379.8152
8032	P.T.	10+74.72	671984.3908	858449.0948
8100	P.O.E.	11+50.00	672013.7941	858518.3848

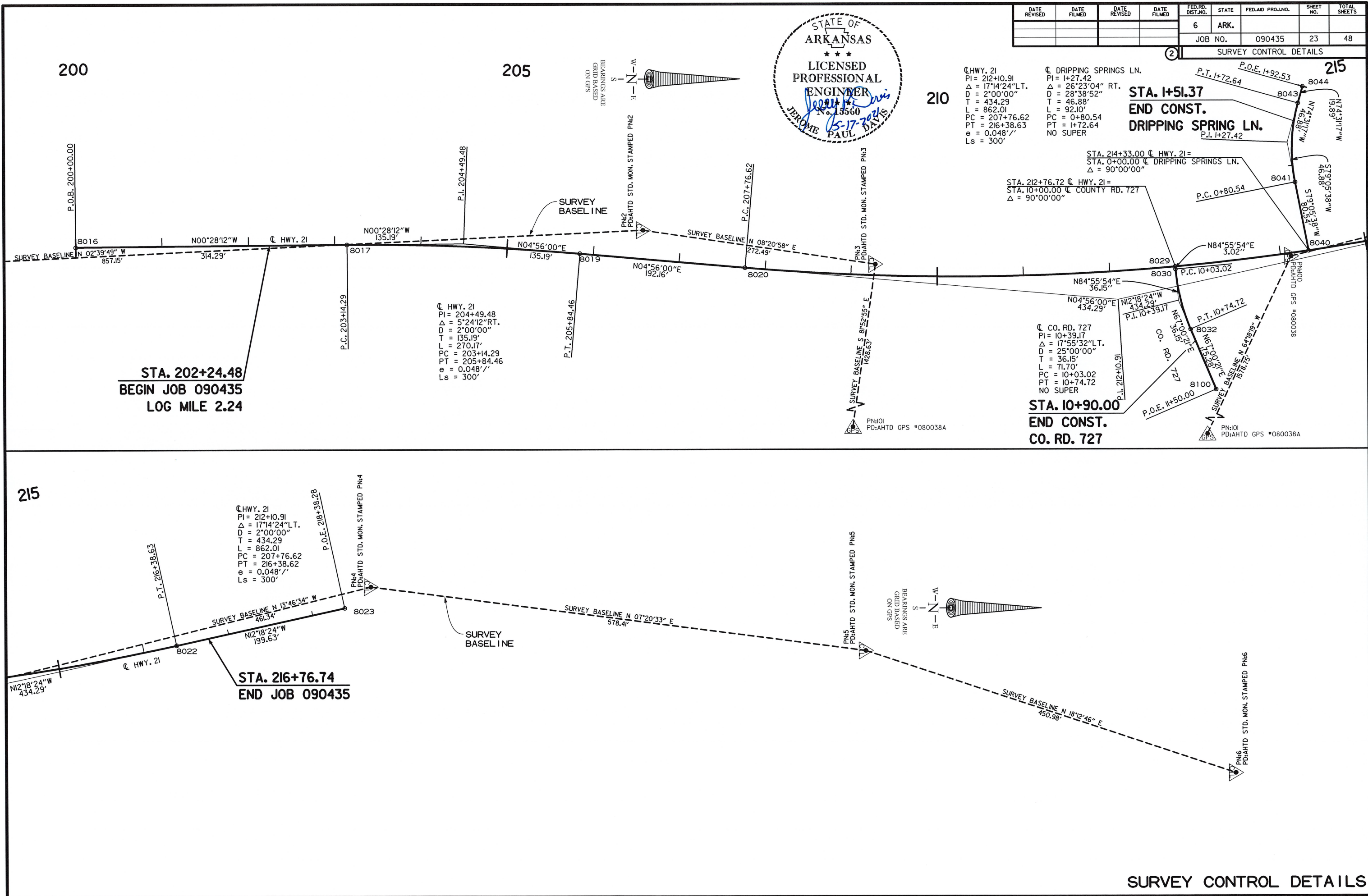
DRIPPING SPRINGS LN.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8040	P.O.B.	0+00.00	672122.0256	858358.7551
8041	P.C.	0+80.54	672106.7880	858279.6721
8043	P.T.	1+72.64	672110.4297	858188.4568
8044	P.O.E.	1+92.53	672115.7374	858169.2900



USER: JH5195  
DESIGN FILE: G:\8103601\_090502\TRANSP\090435\_Dry\_Fork\survey.dgn  
PLOTTED: 5/14/2021 16:29  
MODEL: PROPOSED DESIGN

SCALE: 1/800

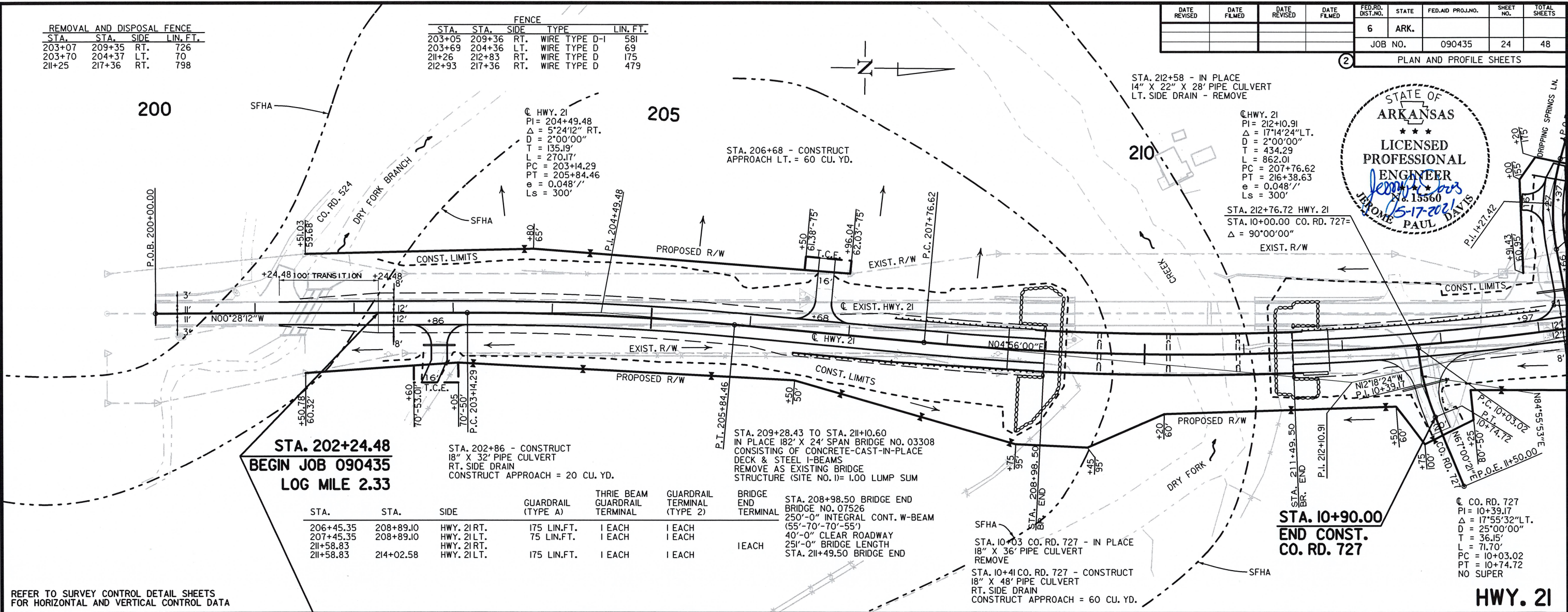
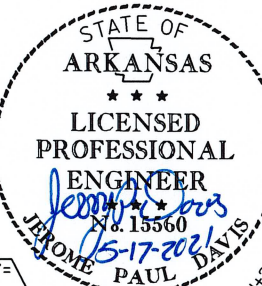




REMOVAL AND DISPOSAL FENCE			
STA.	STA.	SIDE	LIN. FT.
203+07	209+35	RT.	726
203+70	204+37	LT.	70
211+25	217+36	RT.	798

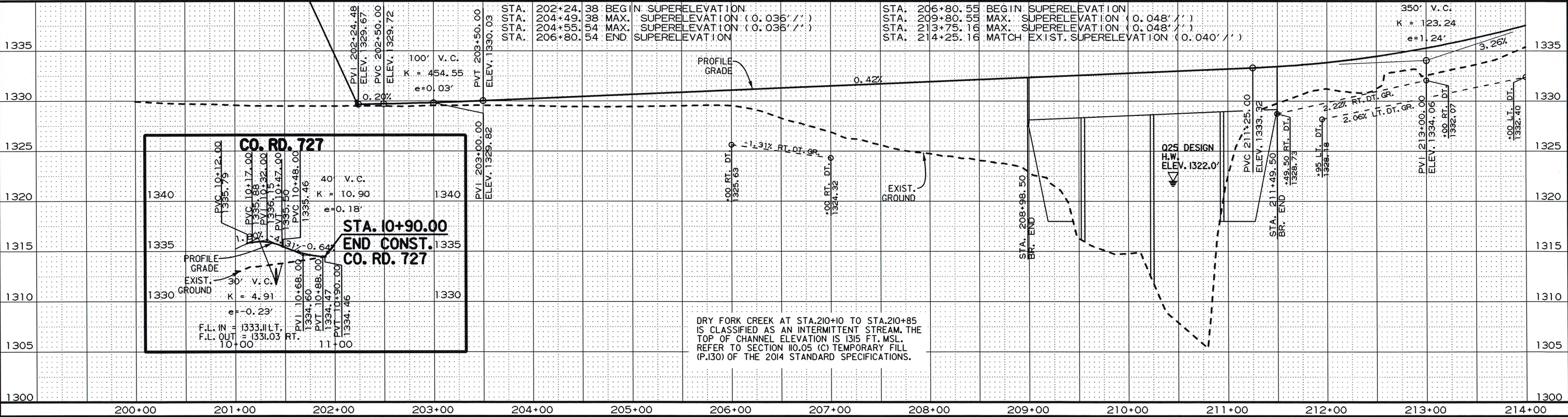
FENCE					
STA.	STA.	SIDE	TYPE	LIN. FT.	
203+05	209+36	RT.	WIRE TYPE D-I	581	
203+69	204+36	LT.	WIRE TYPE D	69	
211+26	212+83	RT.	WIRE TYPE D	175	
212+93	217+36	RT.	WIRE TYPE D	479	

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090435	24	48	
PLAN AND PROFILE SHEETS								



STA.	STA.	SIDE	GUARDRAIL (TYPE 1)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL
206+45.35	208+89.10	HWY. 21 RT.	175 LIN. FT.	1 EACH	1 EACH	
207+45.35	208+89.10	HWY. 21 LT.	75 LIN. FT.	1 EACH	1 EACH	
211+58.83		HWY. 21 RT.				1 EACH
211+58.83	214+02.58	HWY. 21 LT.	175 LIN. FT.	1 EACH	1 EACH	

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



USER: JH595  
DESIGN FILE: G:\8103601.090502\TRANSP\090435\_Dry\_Fork\p&p\090435\_PP\_DRY FORK CREEK\_OI.dgn  
PLOT: 5/17/2021 08:35  
SCALE: 1/80  
MODEL: PROPOSED DESIGN



STA. 0+66 RT.  
CONST. APPR. = 10 CU. YD.  
STA. 1+27 LT.  
CONST. APPR. = 10 CU. YD.

STA. 1+37 RT.  
CONST. APPR. = 10 CU. YD.

STA. 214+33 - IN PLACE  
18" X 34" PIPE CULVERT LT. SIDE  
DRAIN - REMOVE  
INSTALL 18" X 54" PIPE CULVERT  
LT. SIDE DRAIN  
CONST. APPR. = 30 CU. YD.

STA. 1+51.37  
END CONST.  
DRIPPING SPRINGS LN.

215  
C DRIPPING SPRINGS LN.  
PI = 1+27.42  
 $\Delta = 26^{\circ}23'04''$  RT.  
D = 28'38'52"  
T = 46.88'  
L = 92.10'  
PC = 0+80.54  
PT = 1+72.64  
NO SUPER

P.C. 0+80.54  
T.C.E.  
+45' 90'  
+35' 55.58'  
+65' 00' 51.61'

PROPOSED R/W  
CONST. LIMITS  
100' TRANSITION +76.16  
C HWY. 21  
N12'18'24"W

EXIST. R/W  
EXIST. CHWY. 21  
EXISTING R/W

EXIST. R/W  
CONST. LIMITS  
PROPOSED R/W

STA. 214+33.00 HWY. 21 =  
STA. 00+00.00 C DRIPPING SPRINGS LN.  
 $\Delta = 90^{\circ}00'00''$

STA. 216+76.74  
END JOB 090435

STA. 214+33.00 HWY. 21 =  
STA. 00+00.00 C DRIPPING SPRINGS LN.  
 $\Delta = 90^{\circ}00'00''$

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

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STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

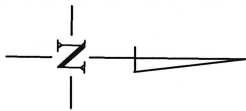
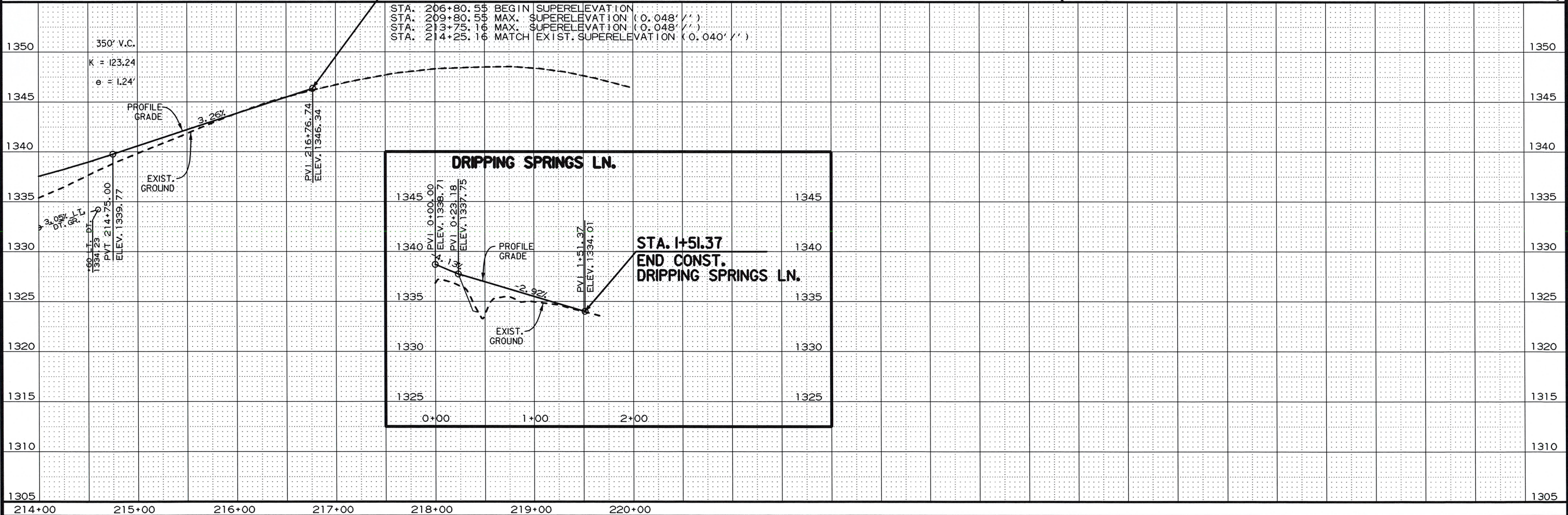
STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

STA. 216+76.74  
END JOB 090435

CONCRETE DITCH PAVING (TYP B)				
STA.	STA.	SIDE	"W"	SQ. YDS.
214+60	216+77	LT.	8	192
214+33	216+77	RT.	4	108

STA. 206+80.55 BEGIN SUPERELEVATION  
STA. 209+80.55 MAX. SUPERELEVATION (0.048' /' )  
STA. 213+75.16 MAX. SUPERELEVATION (0.048' /' )  
STA. 214+25.16 MATCH EXIST. SUPERELEVATION (0.040' /' )



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	25	48

PLAN AND PROFILE SHEETS



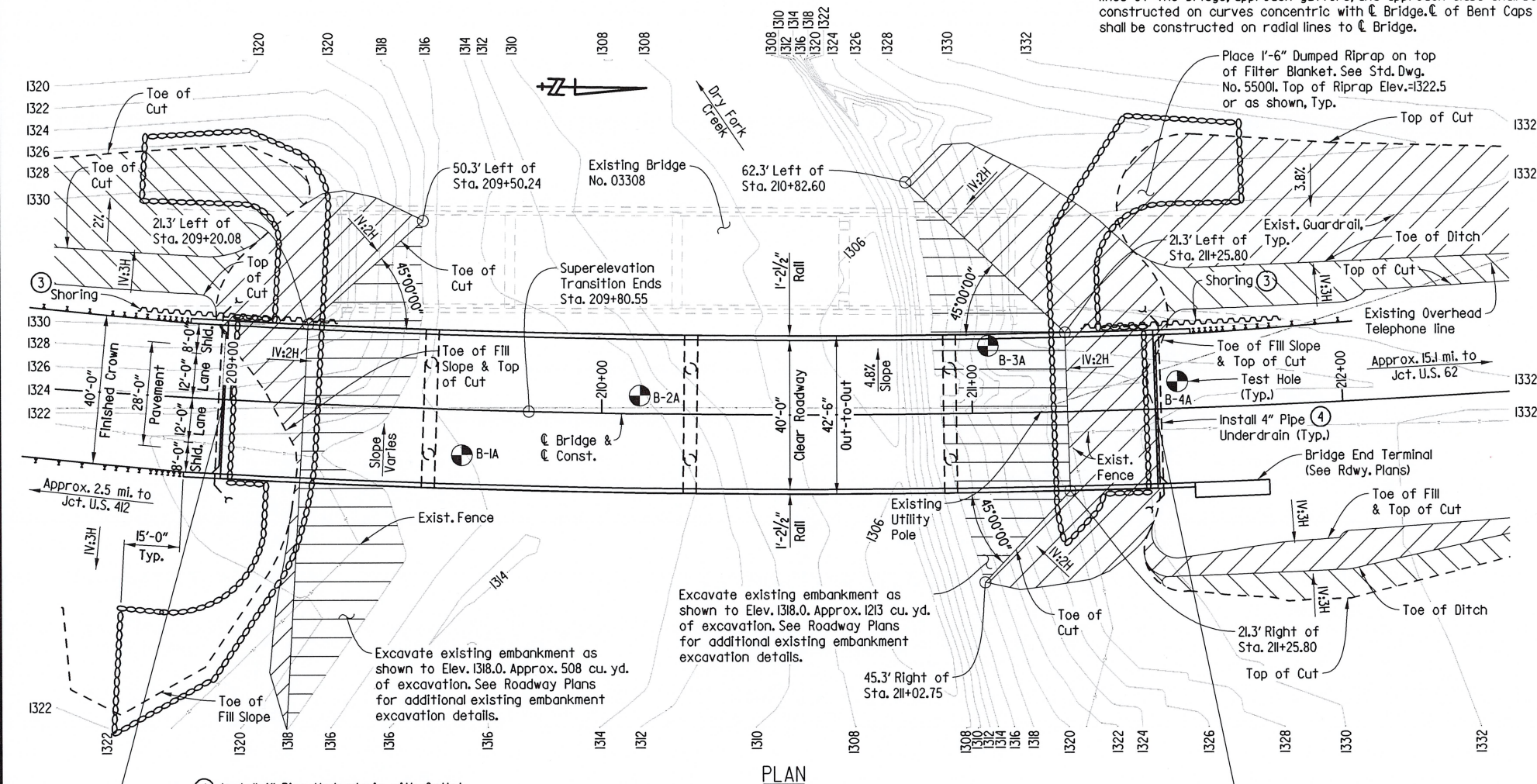
USER: jh595  
DESIGN FILE: G:\8103601\090502\TRANSP\090435\_Dry\_Fork\p&p\090435\_PP\_DRY FORK CREEK\_02.dgn  
PLOTTER: 5/17/2021 08:40  
SCALE: 1/80  
MODEL: PROPOSED DESIGN



For R/W Data, See Roadway Plans.

Note: Bridge is on a 2°00'00" curve left. Beams and the longitudinal lines of the bridge, approach gutters, and approach slabs shall be constructed on curves concentric with Bridge. Bent Caps shall be constructed on radial lines to Bridge.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	26	48
				GENERAL NOTES		07526	LAYOUT	63999



PLAN

HORIZONTAL CURVE DATA

Along Bridge Const.  
PI = Sta. 212+10.91  
Δ = 17°14'24" L.T.  
D = 2°00'00"  
T = 434.29  
L = 862.01  
PC = Sta. 207+76.62  
PT = Sta. 216+38.63

NONDESTRUCTIVE TESTING: Crosshole Sonic Logging (CSL) shall be performed on each drilled shaft in accordance with Special Provision Job No. 090435 "Nondestructive Testing of Drilled Shafts".

For Additional General Notes, see Dwg. No. 64000.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	NATURAL W.S. ELEVATION	W.S. ELEVATION WITH BACKWATER
	YEARS	CFS	FEET	FEET
DESIGN	25	11,691	1321.7	1322.0
BASE	100	17,707	1323.5	1323.8
EXTREME	500	25,796	1326.3	1326.0
OVERTOPPING	>500	---	---	---

① Unconstricted water surface elevation without structure or roadway approaches.

Q100 backwater elevation for existing structure = 1324.8 feet

② Proposed Low Bridge Chord Elev. = 1328.6 feet at Station 209+01.00

Drainage Area = 33.89 square miles  
Historical H.W. Elev. = 1329.1

VERTICAL ALIGNMENT DATA

Theoretical Elevation Along Bridge & Const.

NOTE: Stations shown are along Bridge. Elevations shown are actual top of deck elevations at Bridge. Any vertical dimension referenced to Deck is based on actual top of deck elevation at Bridge. See "SUPERELEVATION TRANSITION SKETCH" on Dwg. No. 64000 for more information.



**SHEET 1 OF 2**  
**LAYOUT OF BRIDGE**  
**HIGHWAY 21 OVER DRY FORK CREEK**  
**DRY FORK STR. & APPRS. (S)**  
**CARROLL COUNTY**  
ROUTE 21 SEC. 5  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 09-27-18 FILENAME: b090435.dgn  
CHECKED BY: CAW DATE: 08-28-20 SCALE: 1" = 20'  
DESIGNED BY: LDG DATE: 09-25-18  
BRIDGE NO. 07526 DRAWING NO. 63999



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	27	48
				07526	LAYOUT			64000

GENERAL NOTES (CONT'D.)

BRIDGE DECK: The concrete bridge deck shall be given a fine 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 Bridge Traffic Rails in accordance with Section 803.

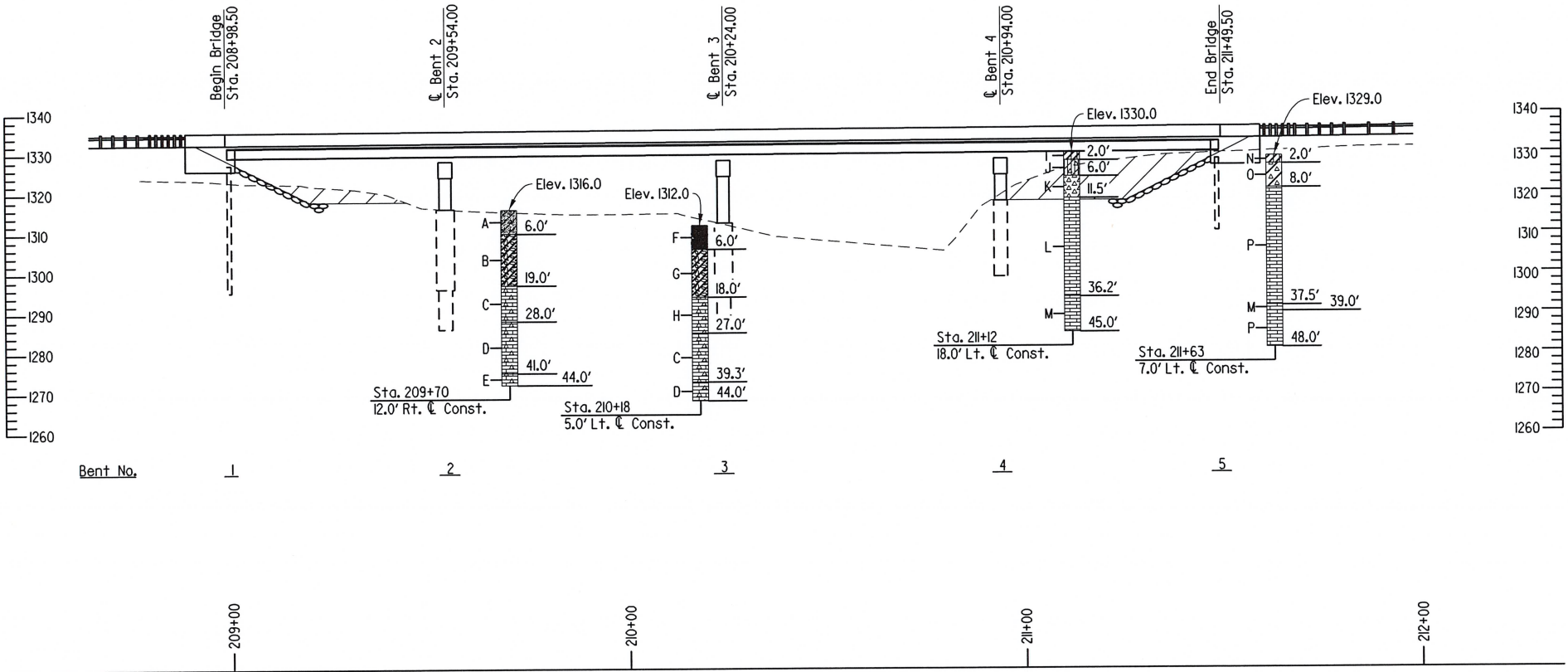
DETAIL DRAWINGS:  
End Bents  
Intermediate Bents  
Elastomeric Bearings  
250'-0" Integral Continuous W-Beam Unit  
General Notes for Steel Bridge Structures  
Details for Steel Bridge Structures  
Steel H-Piling  
Type Special Approach Gutters  
Type CI Approach Slabs  
Bridge Traffic Rail

DRAWING NO(S).  
64001-64002  
64003-64005  
64006  
64007-64013  
55006  
55007  
55020  
64014  
55040CI  
55070

EXISTING BRIDGE: Existing Bridge No. 03308 (Log Mile 2.47) is 28.5' wide (24.0' clear roadway) and 182.0' long and consists of I-beam spans (4 span total) supported by reinforced concrete bents on steel piles, reinforced concrete abutments on spread footings, and reinforced concrete column intermediate bents on spread footings. 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, Existing Bridge No. 03308 shall be removed, including dumped riprap, in accordance with Section 205. Removal of riprap will not be paid for directly but shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No.)". All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



ELEVATION OF SOIL BORINGS

"N" VALUES

Sta. 209+70 - 12.0' Right of  $\mathcal{C}$  Const.  
0.5 -1.5, N=50/3"  
2.5 -3.5, N=4  
4.5 -5.5, N=3  
6.5 -7.5, N=13  
9.0 -10.0, N=15  
14.0 -15.0, N=11  
18.0 -19.0, N=50/1"

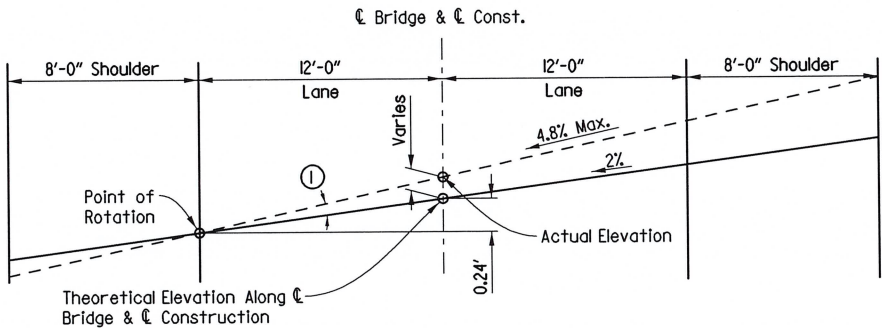
Sta. 210+18 - 5.0' Left of  $\mathcal{C}$  Const.  
0.5 -1.5, N=6  
2.5 -3.5, N=3  
4.5 -5.5, N=6  
6.5 -7.5, N=10  
9.0 -10.0, N=15  
14.0 -15.0, N=6  
18.5 -19.0, N=50/5"

Sta. 211+2 - 18.0' Left of  $\mathcal{C}$  Const.  
0.5 -1.5, N=6  
2.5 -3.5, N=25  
4.5 -5.5, N=20  
6.5 -7.5, N=22  
9.0 -9.5, N=50/4"

Sta. 211+63 - 7.0' Left of  $\mathcal{C}$  Const.  
0.5 -1.5, N=4  
2.5 -3.5, N=28  
4.5 -5.5, N=50/8"  
6.5 -7.5, N=50/7"

BORING LEGEND

- A. Very loose to loose brown clayey fine SAND
- B. Medium dense reddish brown and tan clayey fine GRAVEL, sandy
- C. Moderately hard light gray cherty LIMESTONE
- D. Moderately hard light green cherty LIMESTONE
- E. Moderately hard reddish brown cherty LIMESTONE
- F. Loose brown and tan silty fine SAND w/ CLAY pockets
- G. Loose to medium dense tan and brown clayey fine to coarse GRAVEL, sandy
- H. Moderately hard light gray weathered cherty LIMESTONE
- I. Soft brown silty CLAY w/ occasional crushed STONE fragments - fill
- J. Medium dense brown clayey CHERT fragments - fill
- K. Moderately hard gray CHERT w/ CLAY seams, layers, and pockets
- L. Moderately hard light tan LIMESTONE
- M. Moderately hard light green LIMESTONE
- N. Very soft to soft brown and tan silty CLAY w/ trace rootlets
- O. Very stiff brown, tan, and gray cherty CLAY
- P. Moderately hard light gray LIMESTONE



SUPERELEVATION TRANSITION SKETCH

(Looking Ahead)

For additional Superelevation Transition details, see Roadway Plans.

① Cross slope varies from 2% (Sta. 208+05.55) to 4.8% (Sta. 209+80.55).

SHEET 2 OF 2

LAYOUT OF BRIDGE  
HIGHWAY 21 OVER DRY FORK CREEK  
DRY FORK STR. & APPRS. (S)  
CARROLL COUNTY

ROUTE 21 SEC. 5

ARKANSAS STATE HIGHWAY COMMISSION

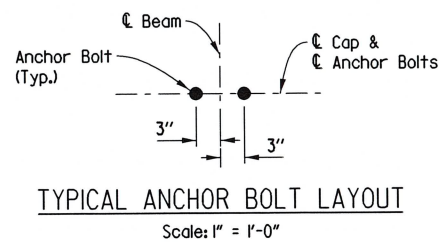
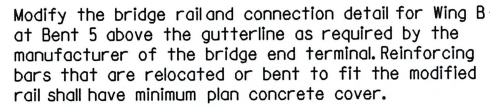
LITTLE ROCK, ARK.



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CHECKED BY: CAW DATE: 08-28-20 SCALE: 1" = 20'  
DESIGNED BY: LDG DATE: 09-25-18  
BRIDGE NO. 07526 DRAWING NO. 64000



07526	END BENTS	64001
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STATE OF  
ARKANSAS  
REGISTERED  
PROFESSIONAL  
ENGINEER  
No. 11856  
CHARLES A. WIFE

05/20/2021

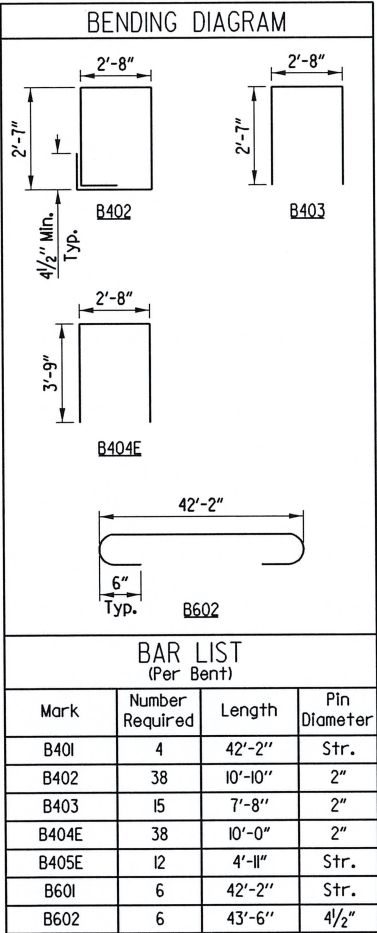
Charles A. Wipe

DR  
CH  
DE

DRAWN BY:	<u>LDG</u>	DATE:	<u>09-10-19</u>	FILENAME:	<u>b090435_bll.dgn</u>
CHECKED BY:	<u>CAW</u>	DATE:	<u>01-29-21</u>	SCALE:	<u>SEE DETAILS</u>
DESIGNED BY:	<u>LDG</u>	DATE:	<u>08-05-19</u>		
BRIDGE NO. 07526			DRAWING NO. 64001		

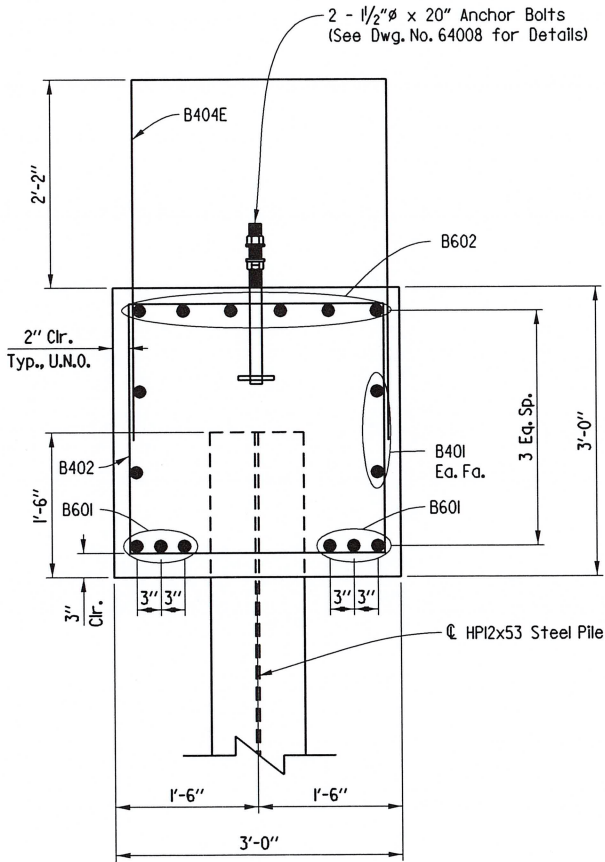


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	090435	29	48
				1	07526	END BENTS		64002



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

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



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



**SHEET 2 OF 2**  
**DETAILS OF BENTS 1 & 5**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 09-10-19 FILENAME: b090435\_b12.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 08-05-19  
BRIDGE NO. 07526 DRAWING NO. 64002



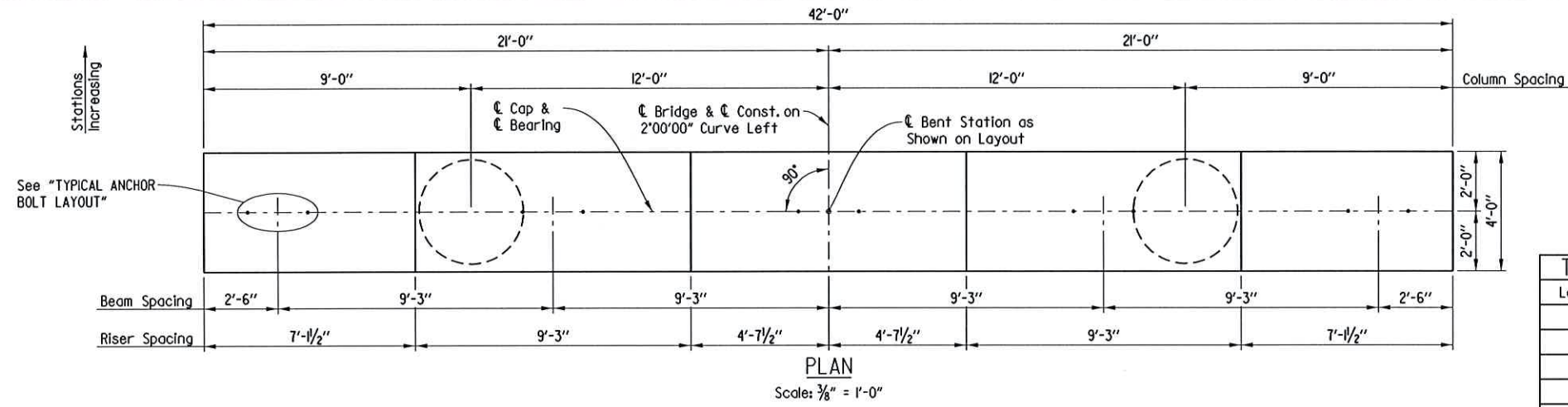
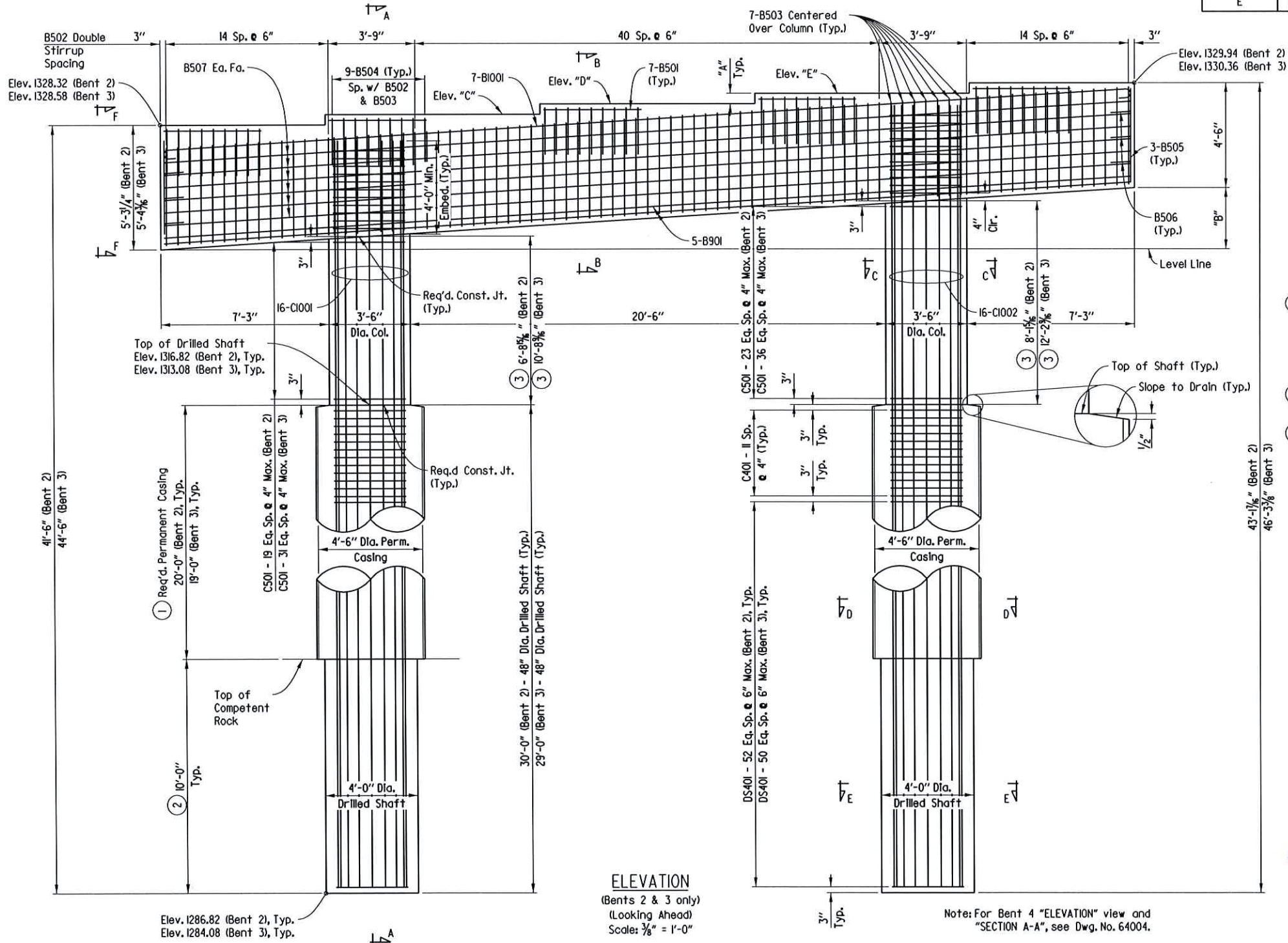
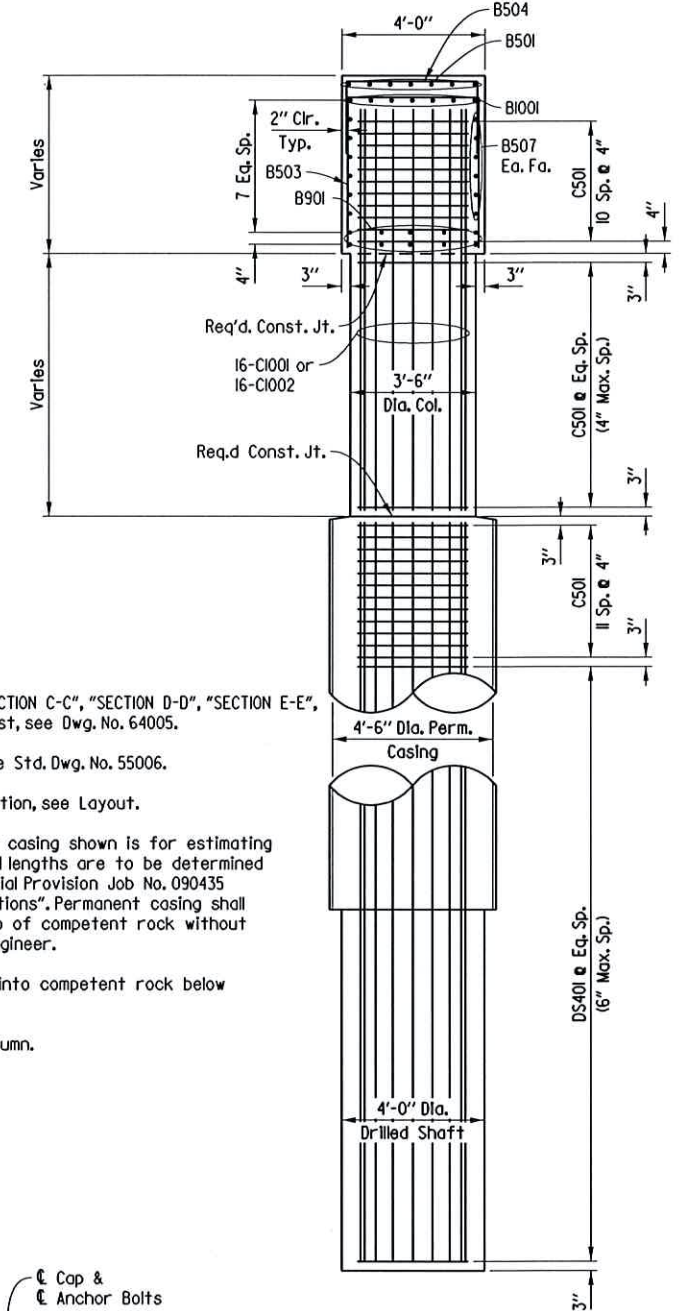


TABLE OF VARIABLES		
Location	Bent 2	Bent 3
A	4 1/8"	5 5/8"
B	2'-4 3/4"	2'-7 1/2"
C	1328.72	1329.03
D	1329.13	1329.47
E	1329.53	1329.92



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	30	48

07526 INT. BENTS 64003

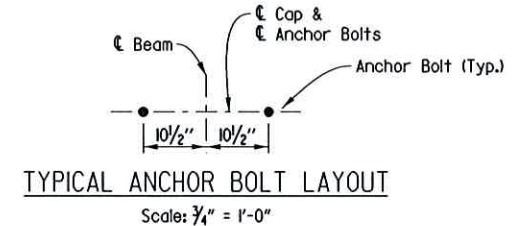


For "SECTION B-B", "SECTION C-C", "SECTION D-D", "SECTION E-E", "VIEW F-F", and Bar List, see Dwg. No. 64005.

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

For additional information, see Layout.

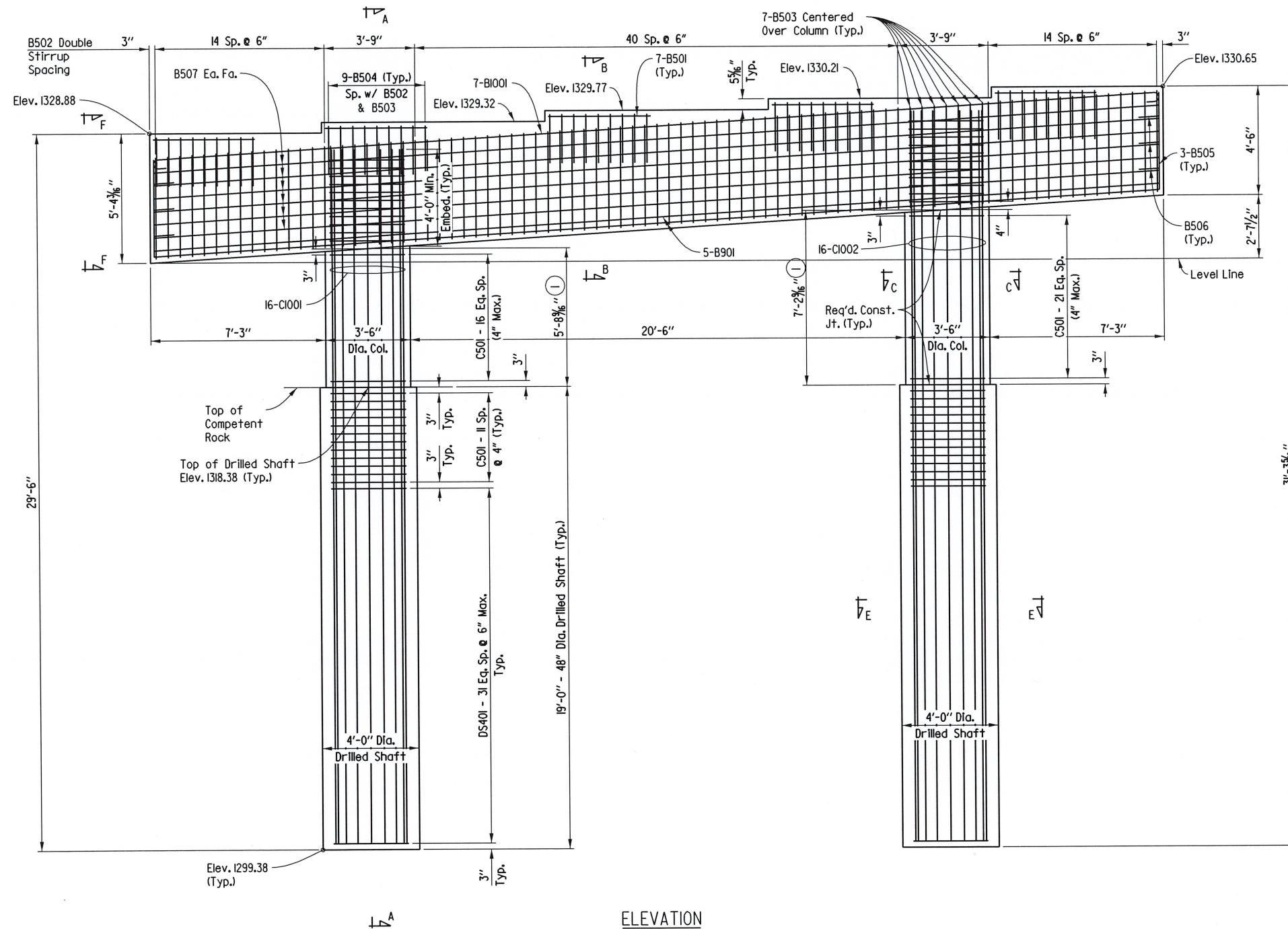
- Length of permanent casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. 090435 "Drilled Shaft Foundations". Permanent casing shall not extend below top of competent rock without approval from the Engineer.
- Minimum penetration into competent rock below permanent casing.
- Measured at C of column.



SHEET 1 OF 3  
DETAILS OF BENTS 2 - 4  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: LOG DATE: 09-10-19 FILENAME: b090435.b2l.dgn  
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DESIGNED BY: LOG DATE: 08-05-19  
BRIDGE NO. 07526 DRAWING NO. 64003



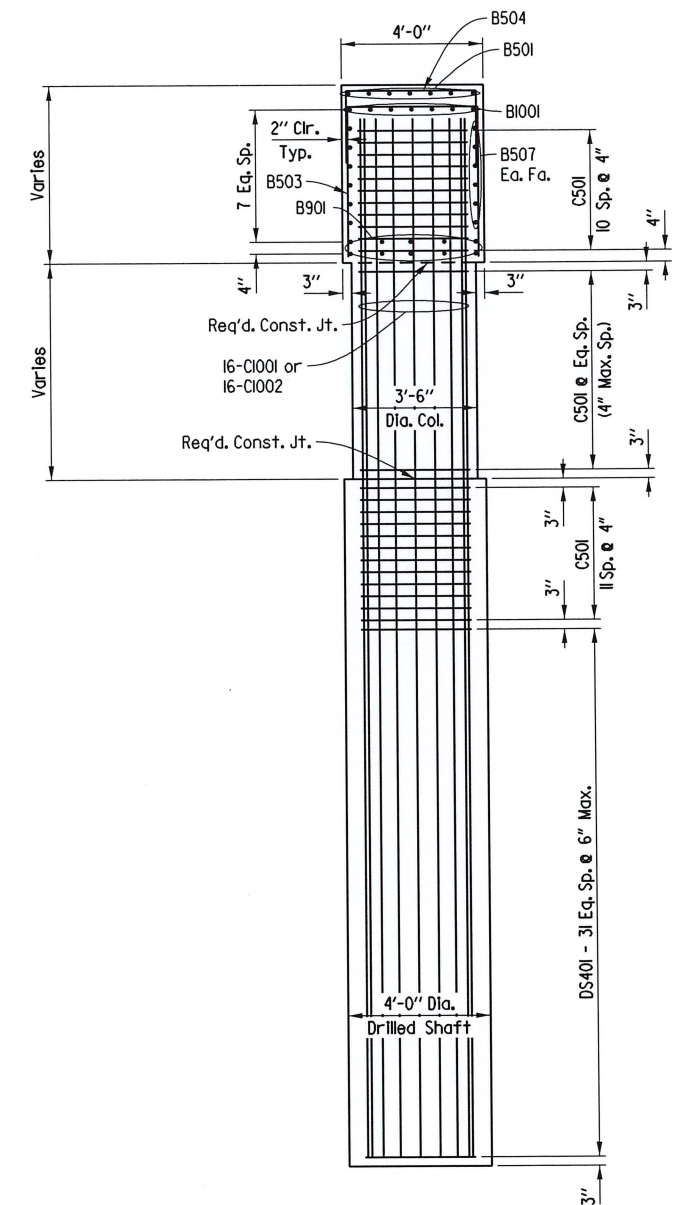
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				6	ARK.			
				JOB NO.		090435	31	48
				07526	INT. BENTS			64004



ELEVATION  
(Bent 4 only)  
(Looking Ahead)  
Scale:  $\frac{3}{8}" = 1'-0"$

For Bent 4 "PLAN" view, see Dwg. No. 64003.  
For "SECTION B-B", "SECTION C-C", "SECTION E-E",  
"VIEW F-F", and Bar List, see Dwg. No. 64005.  
For General Notes, See Std. Dwg. No. 55006.  
For additional information, see Layout.

① Measured at  $\mathbb{C}$  of column.



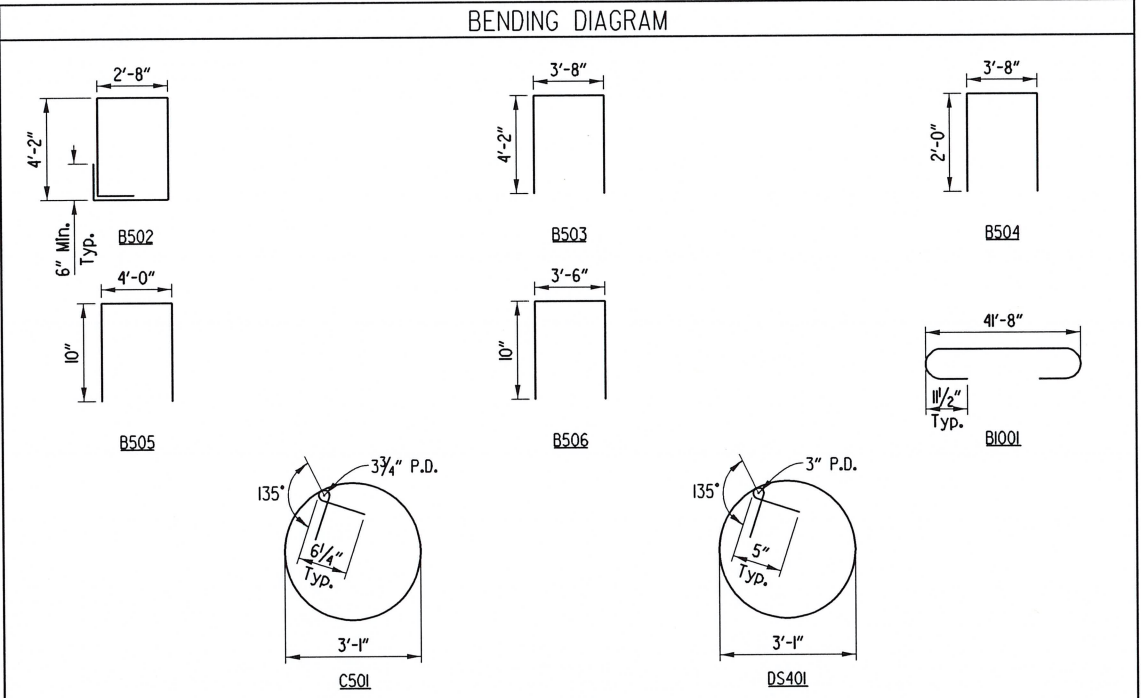
SECTION A-A  
(Bent 4 only)  
Scale:  $\frac{3}{8}" = 1'-0"$

SHEET 2 OF 3  
DETAILS OF BENTS 2 - 4  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: LDG DATE: 02-13-20 FILENAME: b090435\_b22.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 08-05-19  
BRIDGE NO. 07526 DRAWING NO. 64004

05/22/2021

STATE OF  
ARKANSAS  
\*\*\*  
REGISTERED  
PROFESSIONAL  
ENGINEER  
\*\*\*  
No. 11856  
CHARLES A. WIFE

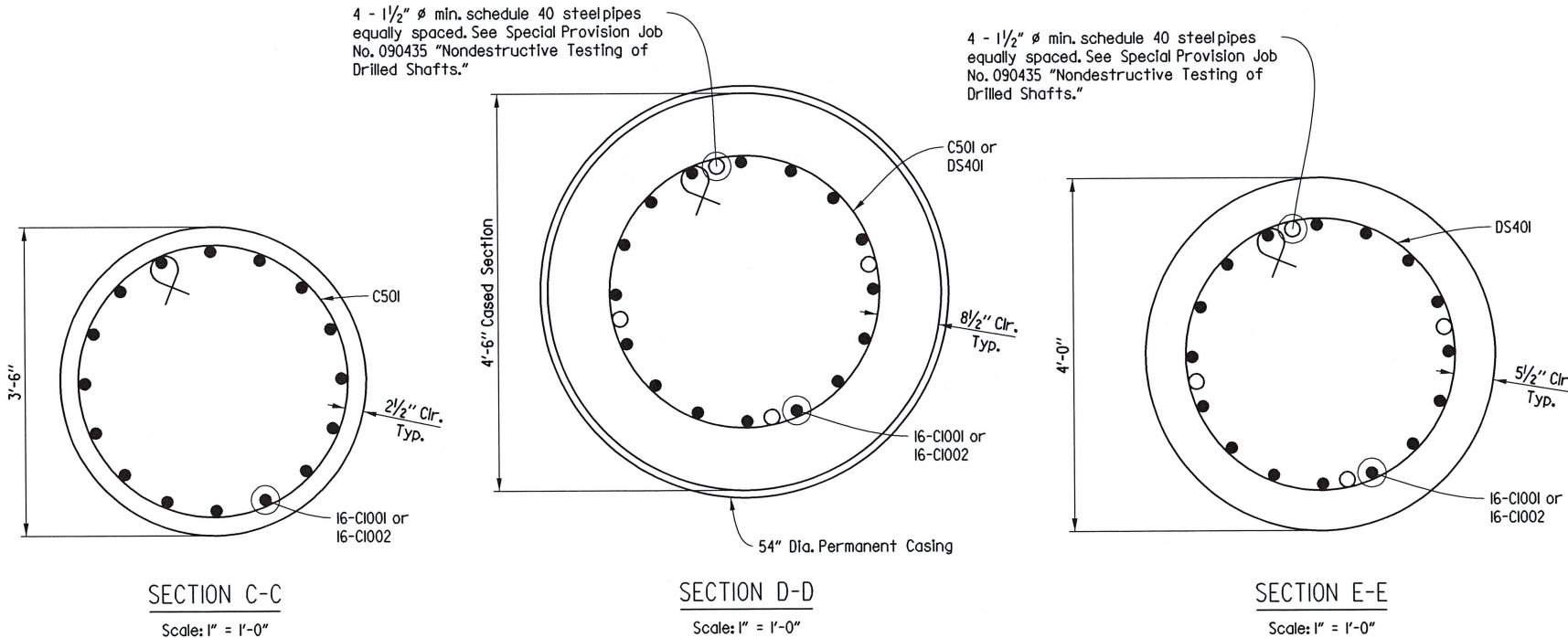
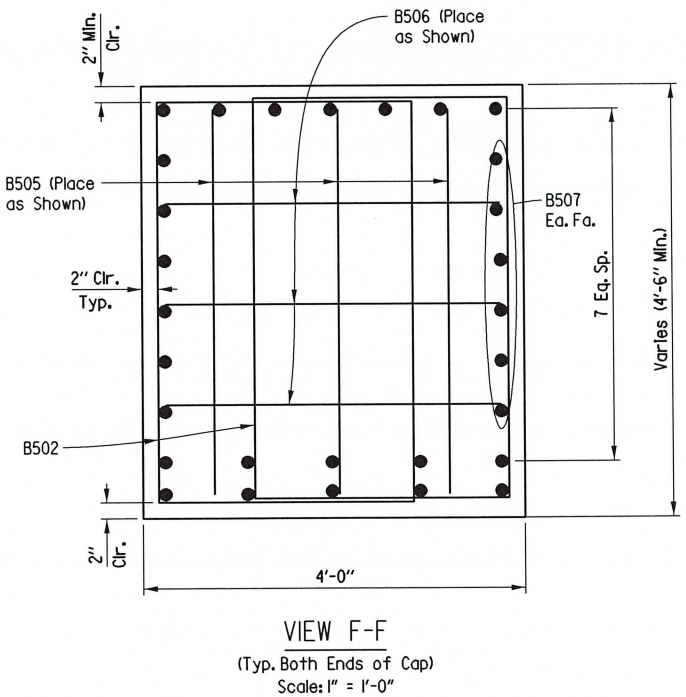
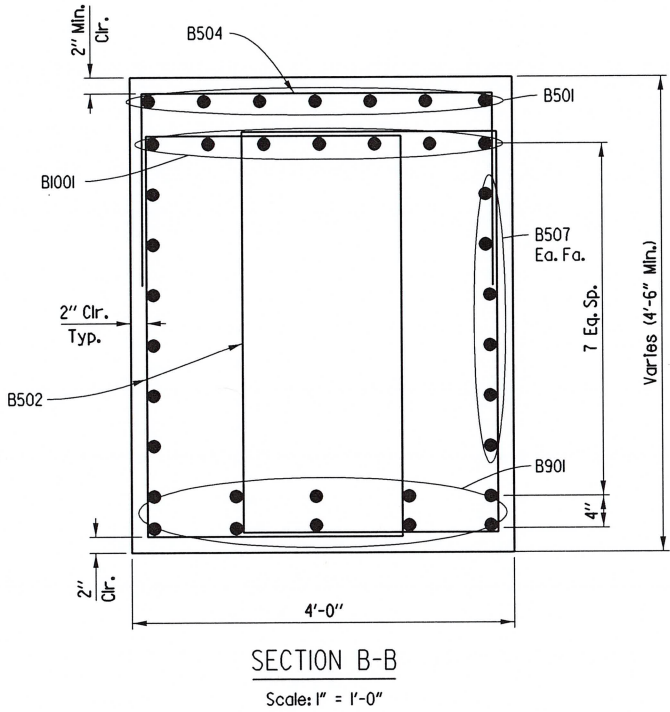




BAR LIST											
Bent 2				Bent 3				Bent 4			
Mark	Number Required	Length	Pin Diameter	Mark	Number Required	Length	Pin Diameter	Mark	Number Required	Length	Pin Diameter
B501	35	4'-3"	Str.	B501	35	4'-3"	Str.	B501	35	4'-3"	Str.
B502	142	14'-2"	2 1/2"	B502	142	14'-2"	2 1/2"	B502	142	14'-2"	2 1/2"
B503	14	11'-10"	2 1/2"	B503	14	11'-10"	2 1/2"	B503	14	11'-10"	2 1/2"
B504	45	7'-6"	2 1/2"	B504	45	7'-6"	2 1/2"	B504	45	7'-6"	2 1/2"
B505	6	5'-6"	2 1/2"	B505	6	5'-6"	2 1/2"	B505	6	5'-6"	2 1/2"
B506	6	5'-0"	2 1/2"	B506	6	5'-0"	2 1/2"	B506	6	5'-0"	2 1/2"
B507	12	4'-8"	Str.	B507	12	4'-8"	Str.	B507	12	4'-8"	Str.
B901	10	4'-8"	Str.	B901	10	4'-8"	Str.	B901	10	4'-8"	Str.
B1001	7	44'-6"	10"	B1001	7	44'-6"	10"	B1001	7	44'-6"	10"
C501	90	11'-1"	3 3/4"	C501	115	11'-1"	3 3/4"	C501	85	11'-1"	3 3/4"
C1001	16	40'-7"	Str.	C1001	16	43'-7"	Str.	C1001	16	28'-7"	Str.
C1002	16	42'-0"	Str.	C1002	16	45'-1"	Str.	C1002	16	30'-1"	Str.
DS401	106	10'-9"	3"	DS401	102	10'-9"	3"	DS401	64	10'-9"	3"

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

① Non-pay Item - Subsidiary to the pay item "Drilled Shaft (48" Dia.)".

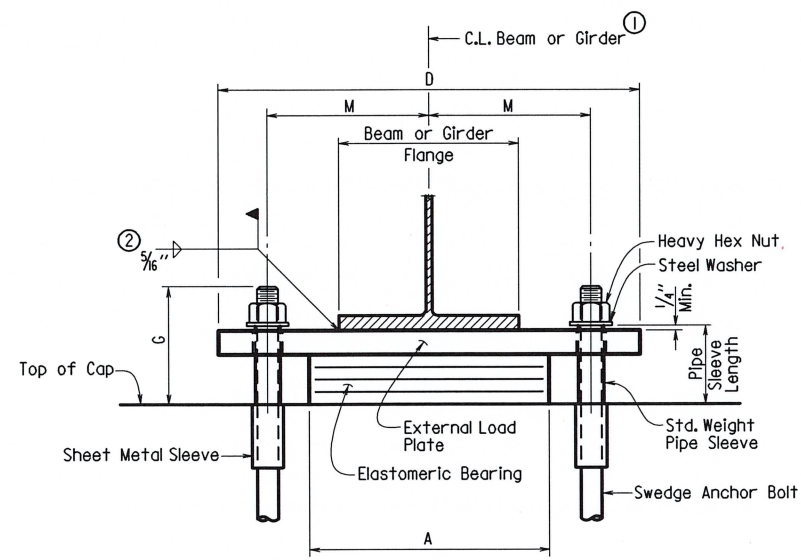


**SHEET 3 OF 3**  
**DETAILS OF BENTS 2 - 4**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: LDG DATE: 09-20-19 FILENAME: b090435\_b23.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 08-05-19  
BRIDGE NO. 07526 DRAWING NO. 64005

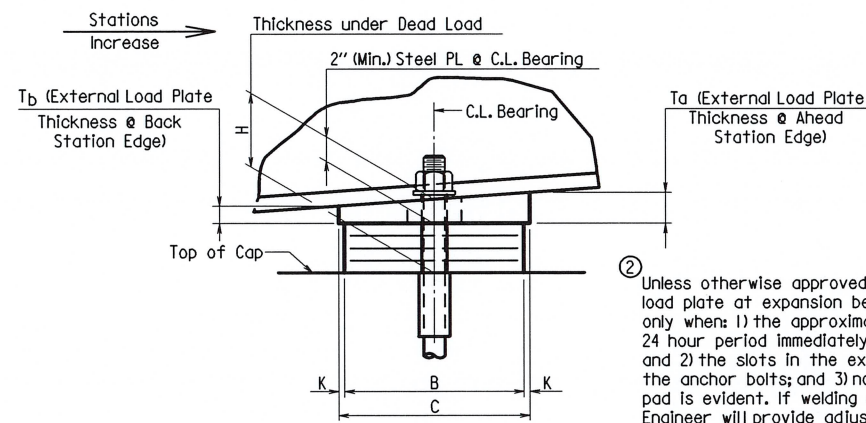


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	33	48
				07526	BEARING DETAILS		64006	

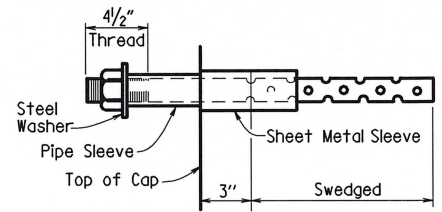
The direction of bevel of the external load plate may not be accurately depicted with respect to  $T_a$  and  $T_b$  values shown in the "Table of Fabricator Variables".



FRONT VIEW



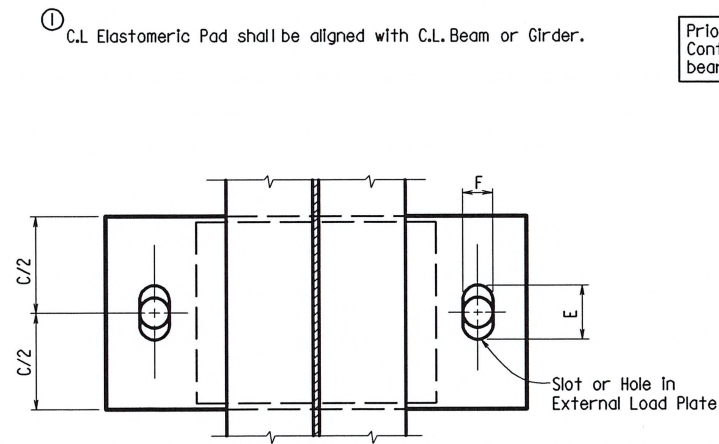
SIDE VIEW



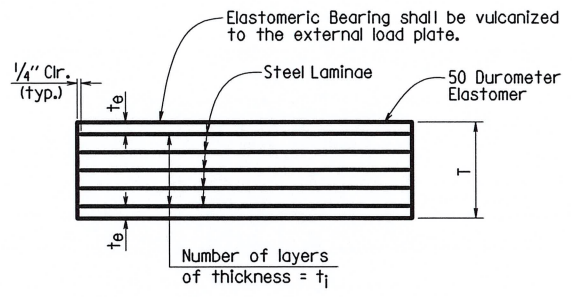
ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (A709, Gr. 50W)"



PLAN VIEW



ELASTOMERIC BEARING

$t_e$  = Thickness of elastomer cover on top and bottom of pad  
 $t_1$  = Thickness of elastomer between steel laminae  
 $N$  = Number of elastomer layers of thickness  $t_1$

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State										ELASTOMERIC PAD						EXTERNAL LOAD PLATE								ANCHOR BOLT				
BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	t <sub>1</sub>	t <sub>e</sub>	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T <sub>a</sub>	T <sub>b</sub>	ANCHOR BOLT		PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)	
	BENT NO(S).	BEAM OR GIRDER NO.																					ø x L	GRADE				
07526	2	I-5	Fix.	5	241	7¾"	5"	15"	13"	4	½"	¼"	5 @ 12 Ga.	3/16"	14"	27½"	3/8"	3/8"	½"	10½"	2.03"	1.97"	2" x 32"	55	2½" x 5¼"	4" x 10"	3¾"	
	3	I-5	Fix.	5	247	7¾"	5"	15"	13"	4	½"	¼"	5 @ 12 Ga.	3/16"	14"	27½"	3/8"	3/8"	½"	10½"	2.03"	1.97"	2" x 32"	55	2½" x 5¼"	4" x 10"	3¾"	
	4	I-5	Fix.	5	241	7¾"	5"	15"	13"	4	½"	¼"	5 @ 12 Ga.	3/16"	14"	27½"	3/8"	3/8"	½"	10½"	2.03"	1.97"	2" x 32"	55	2½" x 5¼"	4" x 10"	3¾"	

GENERAL NOTES

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

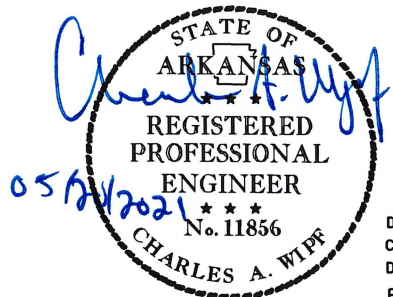
External load plates shall conform to ASTM A709, Gr. 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

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

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



DETAILS OF  
ELASTOMERIC BEARINGS  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 09-11-19 FILENAME: b090435\_el.dgn  
CHECKED BY: CAM DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 07-30-19  
BRIDGE NO. 07526 DRAWING NO. 64006

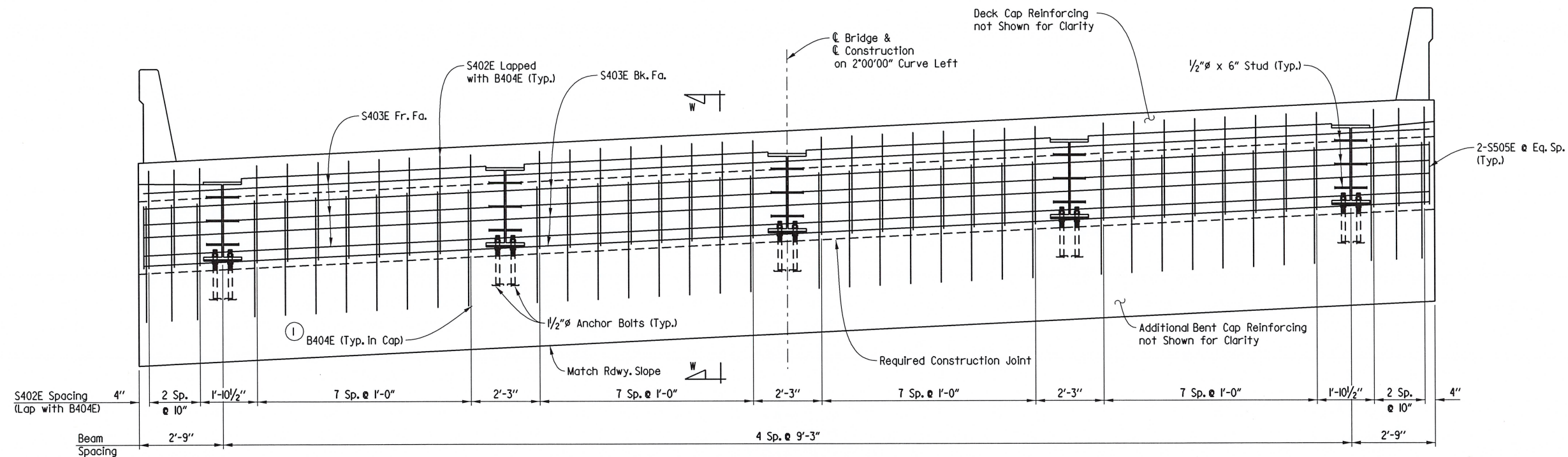






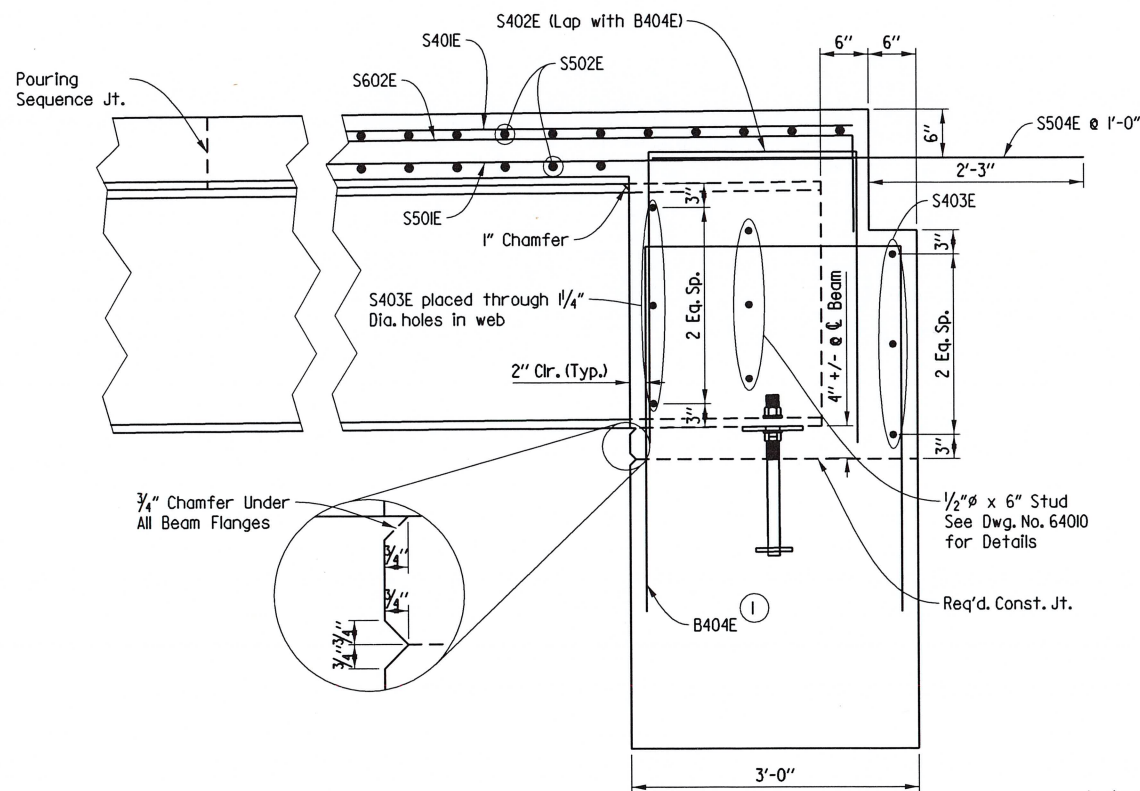
① See End Bent Details on Dwg. Nos. 64001 & 64002 for reinforcing and additional details.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090435	35	48	
				07526	SPAN DETAILS	64008		

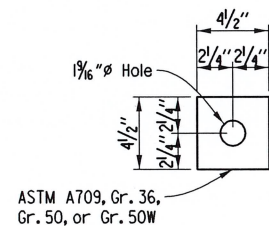


### TYPICAL ROADWAY SECTION NEAR END OF SPAN

(Looking Ahead - Bent 5,  
Bent 1 Similar)  
Scale: 1/2" = 1'-0"

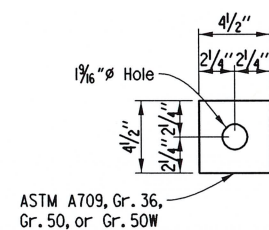


SECTION W-W  
(Parallel to Beam)  
Scale: 1" = 1'-0"



### ANCHOR BOLT DETAIL

Scale: 2" = 1'-0"



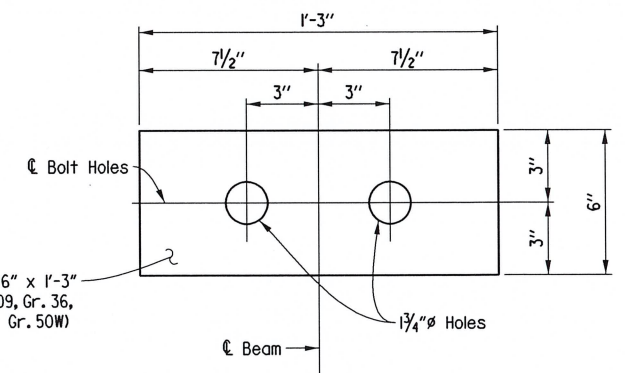
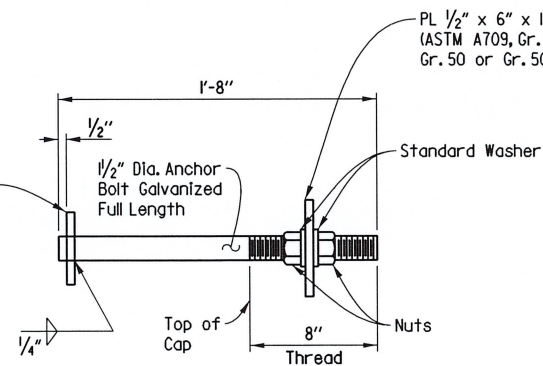
### ALTERNATE ANCHOR BOLT DETAIL

Scale: 2" = 1'-0"

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.

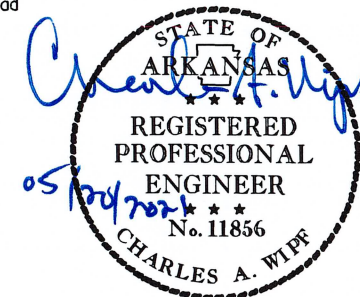
Use nut and washer below bearing plate to adjust to grade. Snug tight top nut and washer after grade is adjusted.

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



Note: See End Bent Details on Dwg. No. 64001 for additional information.

BEARING PLATE DETAIL  
Scale: 3" = 1'-0"



**SHEET 2 OF 7**  
**DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: LDG DATE: 09-11-19 FILENAME: b090435\_s2.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 07-30-19  
BRIDGE NO. 07526 DRAWING NO. 64008

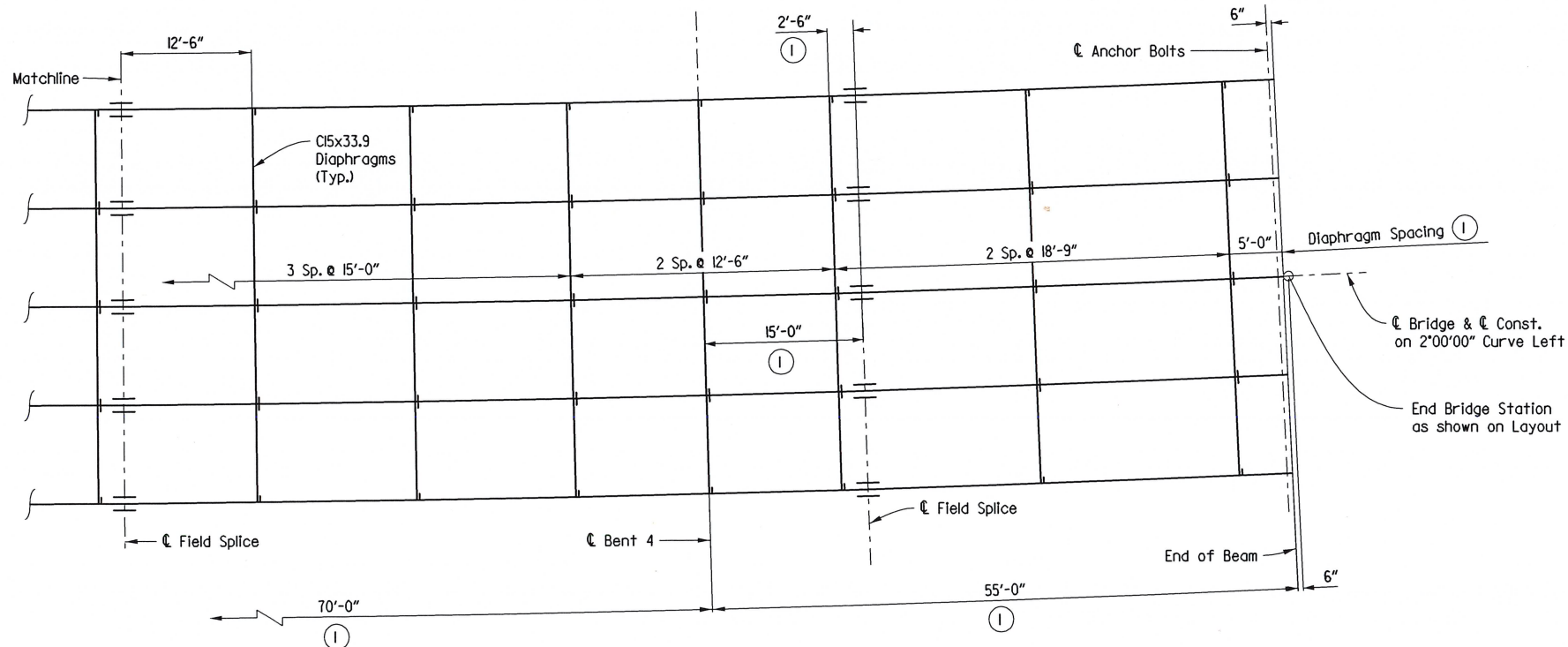
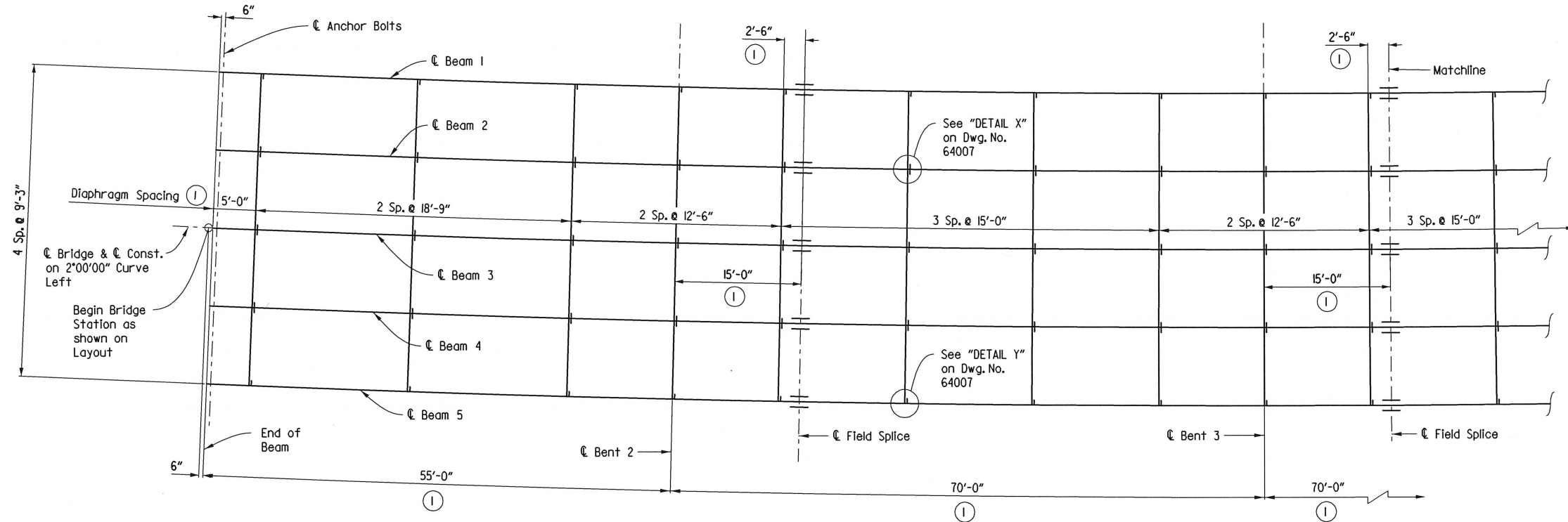


Note: All structural steel shall be ASTM A709, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

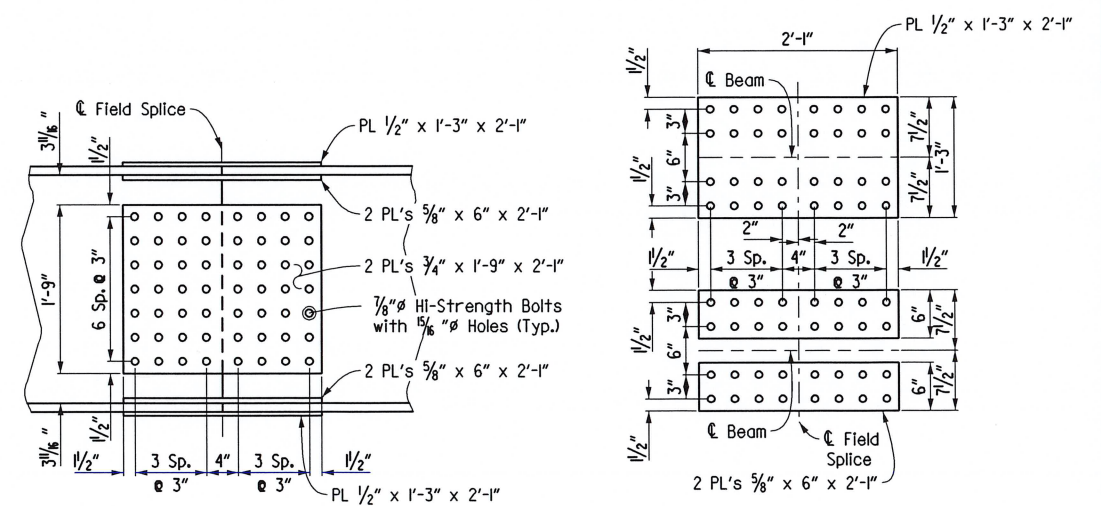
Note:  
Beams are curved and concentric to  $\odot$  Bridge and  $\odot$  Construction. Diaphragms, connection plates, and field splices are on radial lines.

(1) Measured along  $\odot$  Const.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	36	48
				(1) 07526		SPAN DETAILS		64009



FRAMING PLAN  
Scale:  $\frac{1}{8}" = 1'-0"$



DETAILS OF FIELD SPICE  
Scale:  $1" = 1'-0"$



**SHEET 3 OF 7**  
**DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: LDG DATE: 09-11-19 FILENAME: b090435\_s3.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 07-30-19  
BRIDGE NO. 07526 DRAWING NO. 64009



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: Beams are curved and concentric to  $\text{C}$  Bridge and  $\text{C}$  Construction. Diaphragms, connection plates, and field splices are on radial lines.

① Measured along  $\text{C}$  Beam.

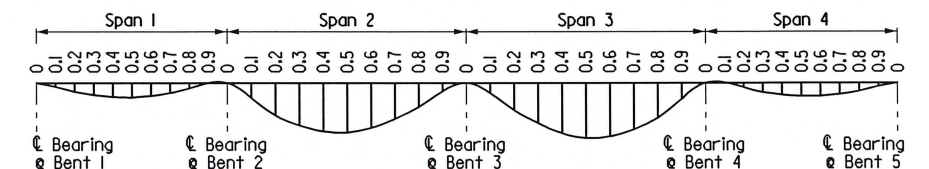
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090435		37	48
				07526	SPAN DETAILS		64010	

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

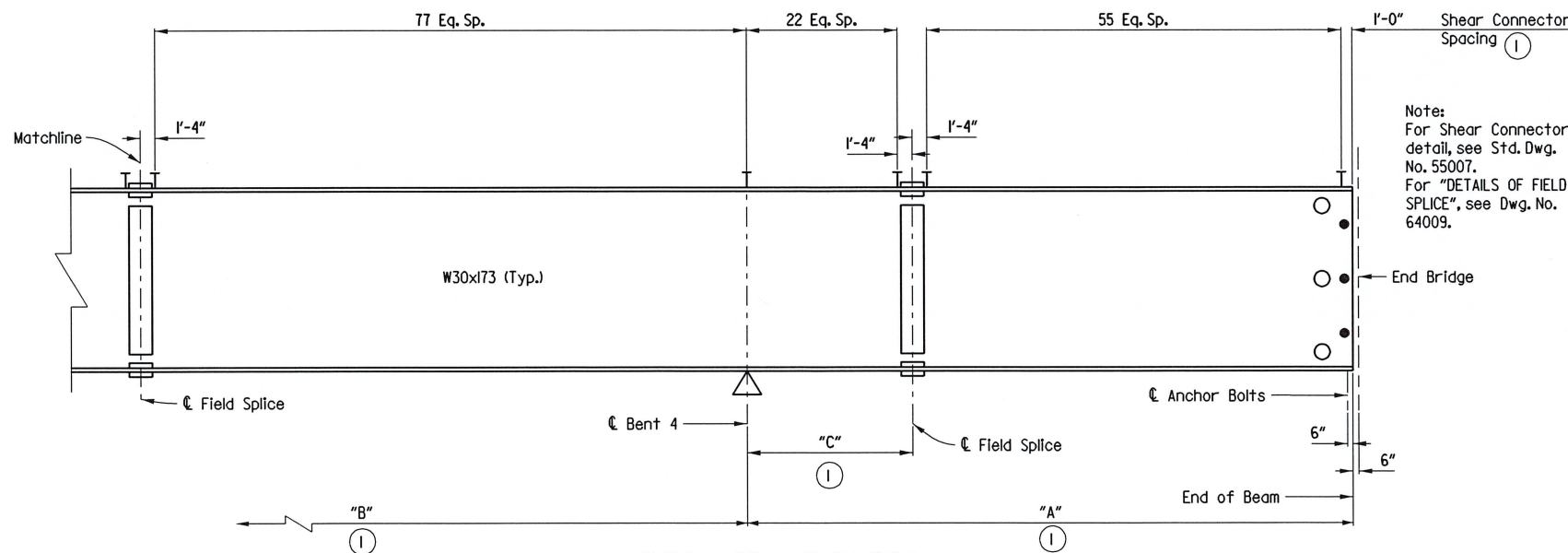
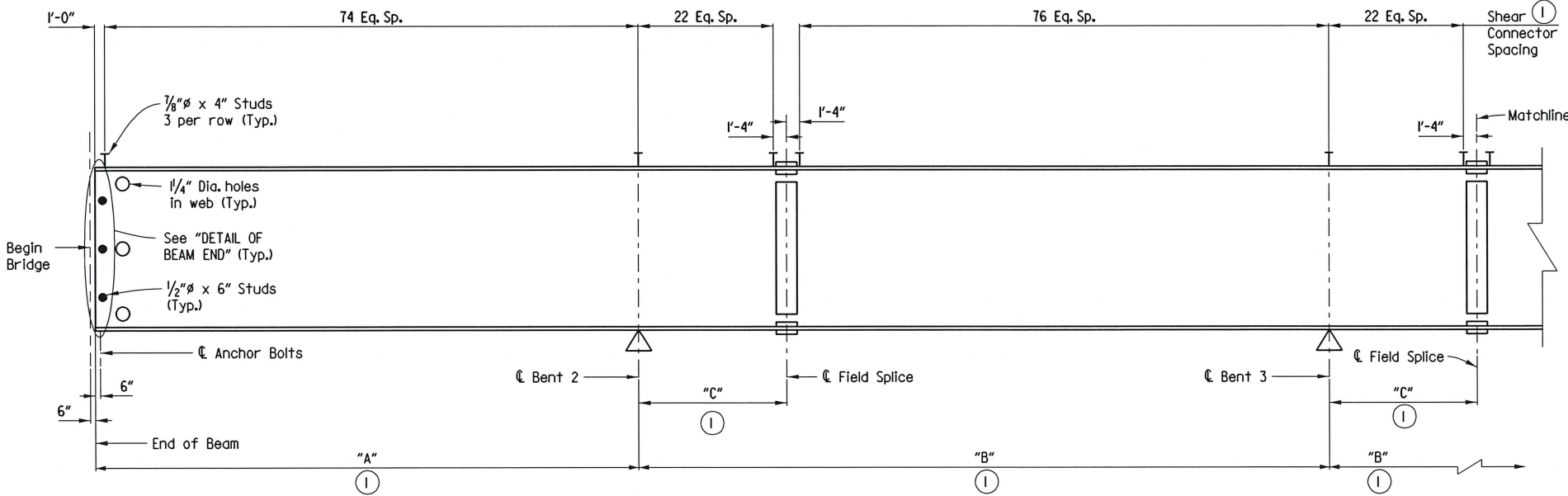
Camber for Dead Load Deflection  $\pm 1/4"$  tolerance. Deflections shown are along centerline of beam/girder from the plane perpendicular to the web extending from  $\text{C}$  Bearing to  $\text{C}$  Bearing. Negative sign (-) indicates point above plane. Vertical curve corrections not included. Superlevation transition corrections not included.

Span	Point of Deflection	Structural Steel					Structural Steel + Slab					Structural Steel + Slab + Rail				
		Beam No.					Beam No.					Beam No.				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.022	0.024	0.024	0.024	0.024	0.117	0.141	0.147	0.143	0.126	0.119	0.143	0.149	0.145	0.128
	0.2	0.041	0.044	0.044	0.044	0.044	0.216	0.259	0.271	0.265	0.231	0.222	0.265	0.277	0.271	0.238
	0.3	0.054	0.057	0.058	0.058	0.057	0.283	0.338	0.355	0.345	0.302	0.293	0.347	0.364	0.355	0.312
	0.4	0.059	0.062	0.063	0.064	0.063	0.310	0.370	0.388	0.379	0.331	0.321	0.381	0.399	0.390	0.343
	0.5	0.056	0.059	0.060	0.061	0.060	0.296	0.353	0.371	0.362	0.316	0.307	0.364	0.382	0.373	0.328
	0.6	0.047	0.049	0.050	0.051	0.050	0.247	0.295	0.310	0.303	0.263	0.256	0.304	0.319	0.312	0.273
	0.7	0.033	0.034	0.035	0.035	0.035	0.173	0.207	0.217	0.212	0.184	0.179	0.213	0.223	0.218	0.190
	0.8	0.017	0.018	0.018	0.018	0.018	0.090	0.109	0.114	0.111	0.096	0.092	0.111	0.116	0.113	0.098
	0.9	0.004	0.004	0.004	0.005	0.004	0.023	0.028	0.029	0.030	0.024	0.022	0.027	0.028	0.029	0.023
2	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.015	0.016	0.016	0.016	0.015	0.075	0.087	0.091	0.089	0.079	0.083	0.095	0.099	0.097	0.088
	0.2	0.040	0.043	0.044	0.044	0.043	0.207	0.241	0.254	0.247	0.220	0.224	0.261	0.274	0.267	0.242
	0.3	0.066	0.070	0.072	0.072	0.070	0.341	0.397	0.418	0.407	0.362	0.372	0.428	0.449	0.439	0.395
	0.4	0.084	0.090	0.092	0.092	0.090	0.436	0.508	0.535	0.520	0.464	0.475	0.546	0.573	0.559	0.505
	0.5	0.090	0.096	0.098	0.098	0.096	0.467	0.544	0.573	0.557	0.496	0.508	0.584	0.613	0.598	0.539
	0.6	0.083	0.088	0.090	0.090	0.088	0.428	0.499	0.525	0.511	0.454	0.465	0.535	0.561	0.548	0.493
	0.7	0.063	0.067	0.068	0.069	0.067	0.327	0.381	0.401	0.391	0.347	0.355	0.408	0.428	0.419	0.376
	0.8	0.037	0.039	0.040	0.040	0.039	0.191	0.223	0.234	0.228	0.202	0.207	0.239	0.250	0.244	0.219
	0.9	0.012	0.013	0.013	0.013	0.013	0.062	0.073	0.076	0.074	0.066	0.067	0.078	0.081	0.079	0.071
	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Symmetrical about  $\text{C}$  of Unit



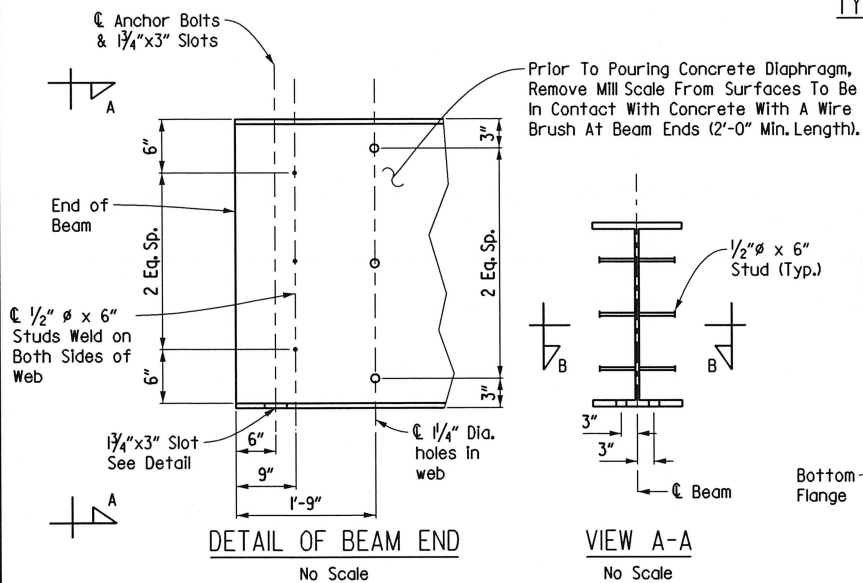
DEAD LOAD DEFLECTION DIAGRAM  
No Scale



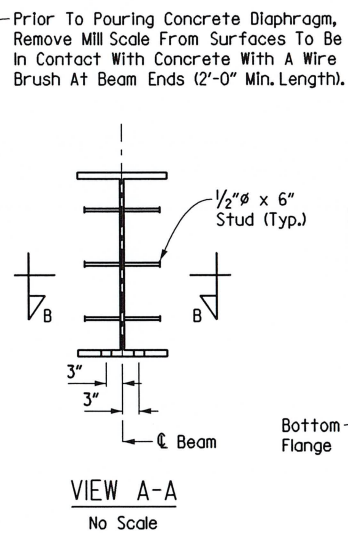
TYPICAL BEAM ELEVATION  
No Scale

TABLE OF VARIABLES

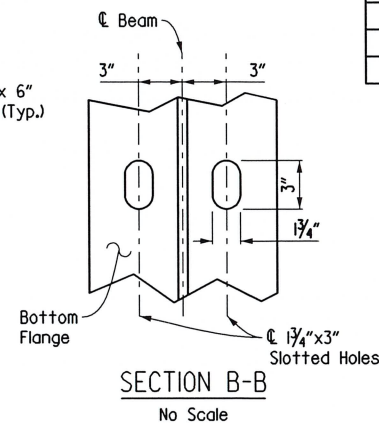
Beam No.	"A"	"B"	"C"
1	54'-7 $\frac{3}{4}$ "	69'-6 $\frac{5}{16}$ "	14'-10 $\frac{9}{16}$ "
2	54'-9 $\frac{5}{16}$ "	69'-9 $\frac{5}{16}$ "	14'-11 $\frac{1}{16}$ "
3	55'-0"	70'-0"	15'-0"
4	55'-2 $\frac{1}{8}$ "	70'-2 $\frac{1}{16}$ "	15'-0 $\frac{3}{16}$ "
5	55'-4 $\frac{1}{4}$ "	70'-5 $\frac{1}{16}$ "	15'-1 $\frac{3}{16}$ "



DETAIL OF BEAM END  
No Scale



VIEW A-A  
No Scale



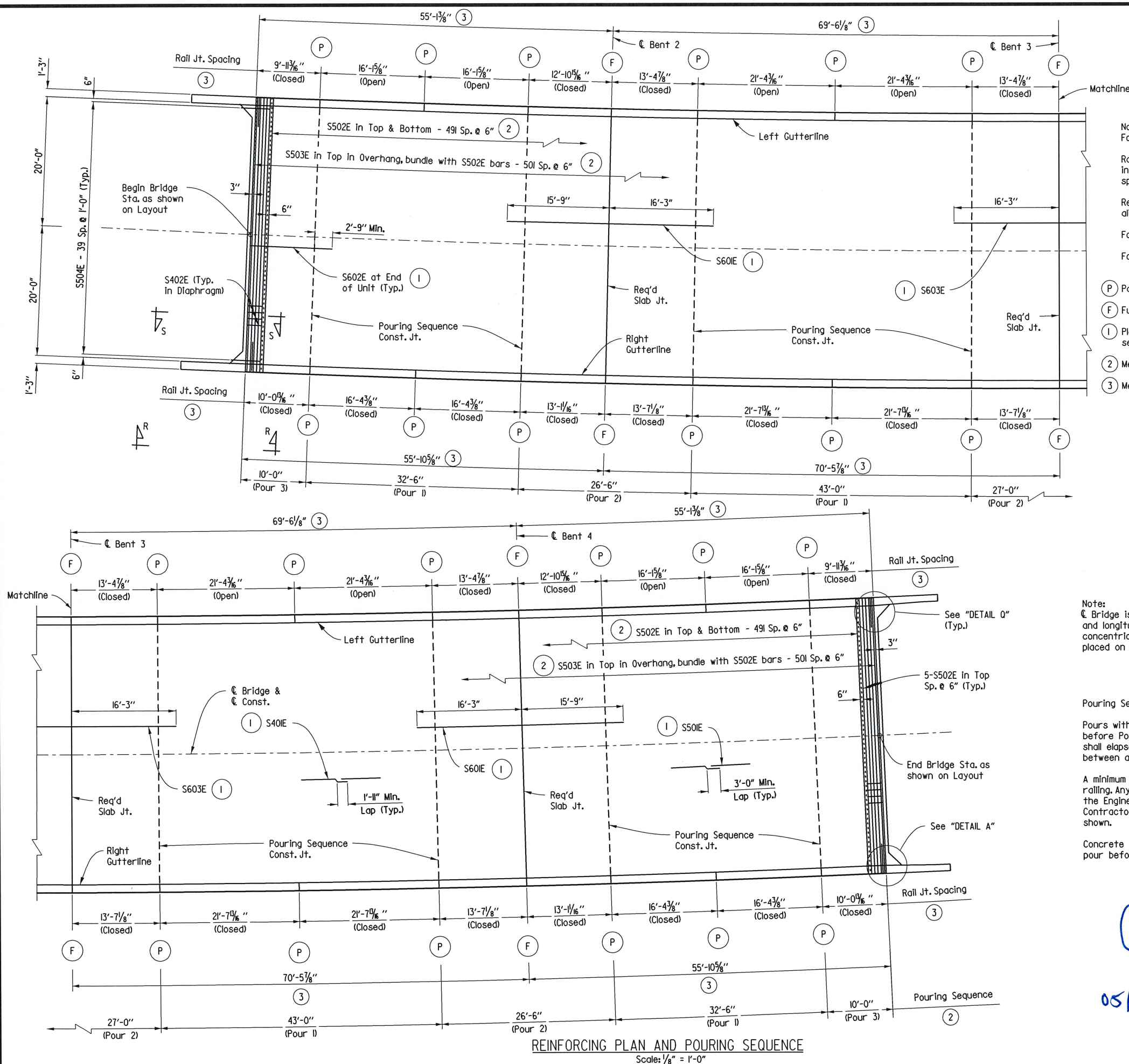
SECTION B-B  
No Scale



**SHEET 4 OF 7**  
**DETAILS OF 250'-0" INTEGRAL CONTINUOUS W-BEAM UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: LDG DATE: 09-11-19 FILENAME: b090435\_s4.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 07-30-19  
BRIDGE NO. 07526 DRAWING NO. 64010



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	38	48
							07526	SPAN DETAILS
								64011



Note:  
For rail reinforcing details, see Std. Dwg. No. 55070 and Dwg. No. 64012.

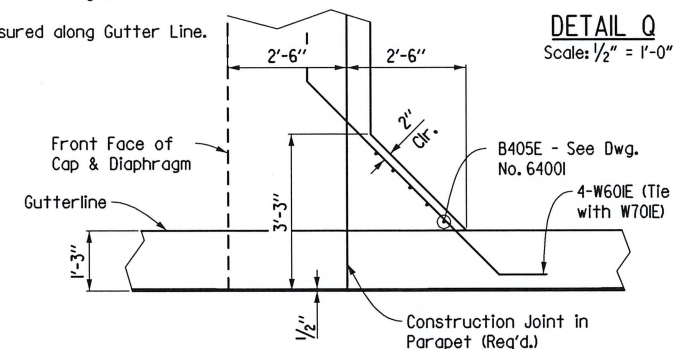
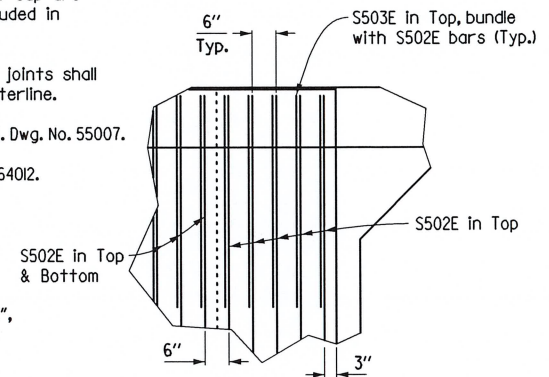
Rails and wings above the top of end bent cap are included in span construction and are included in span quantities.

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

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

For "VIEW R-R" and "VIEW S-S", see Dwg. No. 64012.

- (P) Partial depth rail joint at this location.
- (F) Full depth rail joint at this location.
- (I) Place as shown in "TYPICAL ROADWAY SECTION", see Dwg. No. 64007.
- (2) Measured along C Const.
- (3) Measured along Gutter Line.



Note:  
C Bridge is on a 2'00'00\" curve to the left. All longitudinal lines and longitudinal reinforcing steel shall be placed on curves concentric with C Bridge. All transverse reinforcing steel shall be placed on radial lines and shall be measured along C Bridge.

#### Pouring Sequence Notes:

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 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 placed must be approved by the Engineer. Concrete diaphragms at end bents shall be poured monolithically with the deck. 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.



**SHEET 5 OF 7**  
**DETAILS OF 250'-0\"**  
**CONTINUOUS W-BEAM UNIT**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: LDG DATE: 09-11-19 FILENAME: b090435\_s5.dgn  
CHECKED BY: CAW DATE: 01-29-21 SCALE: SEE DETAILS  
DESIGNED BY: LDG DATE: 07-30-19  
BRIDGE NO. 07526 DRAWING NO. 64011





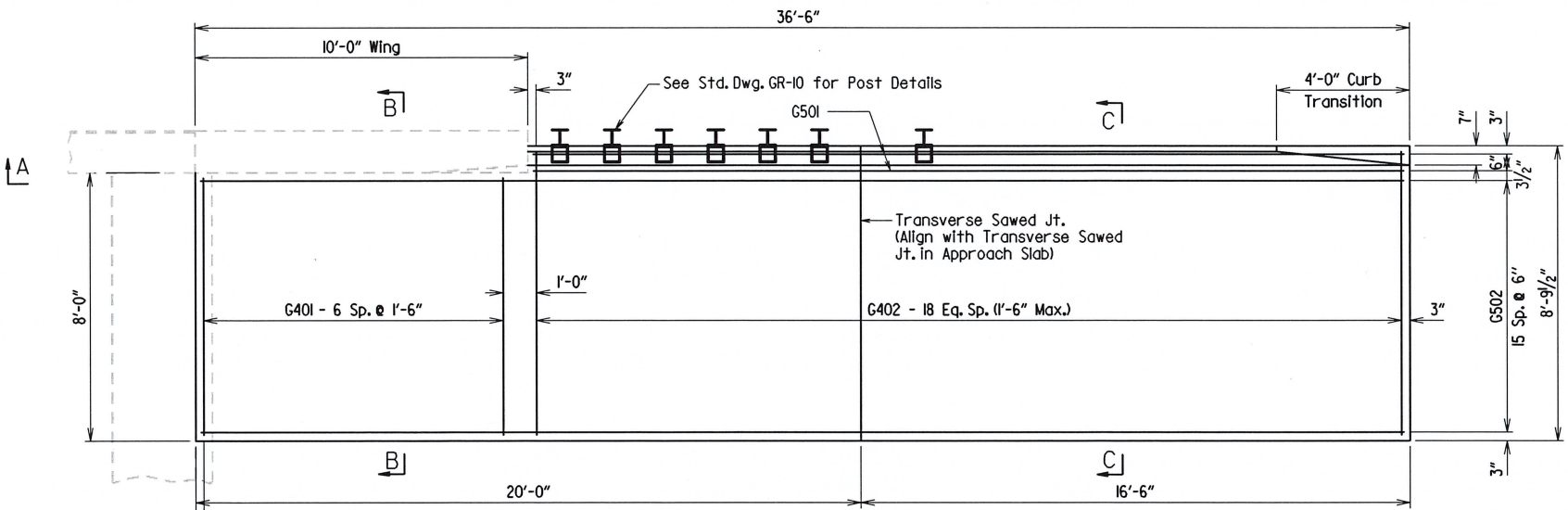




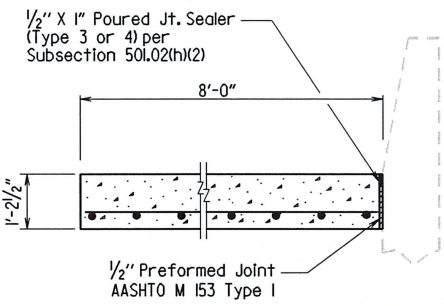


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	090435	41	48
					07526	APPROACH GUTTER		64014

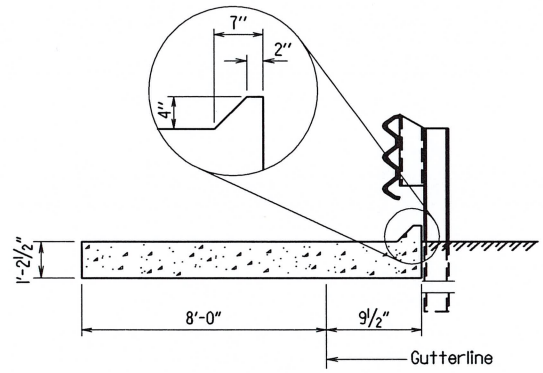
Note:  
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge.  
Adjustment to longitudinal bar lengths may be required.  
Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



PLAN OF APPROACH GUTTER  
(Bent 5 Left Side Shown, Others Similar)  
Scale: 3/8" = 1'-0"



SECTION B-B  
No Scale



SECTION C-C  
No Scale

BAR LIST FOR ONE  
TYPE SPECIAL GUTTER

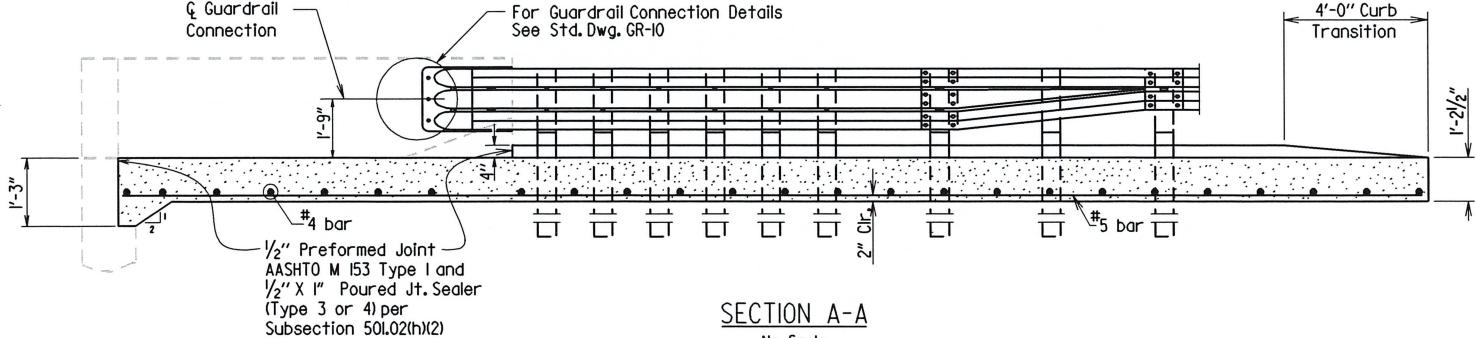
Mark	No. Req'd.	Length
G401	7	7'-8"
G402	19	8'-5"
G501	2	26'-2"
G502	16	36'-2"

QUANTITIES FOR ONE  
TYPE SPECIAL GUTTER  
(For Information Only)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
801	14.14

GENERAL NOTES

All concrete shall be Class S or Class (SAE) 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.



SECTION A-A  
No Scale

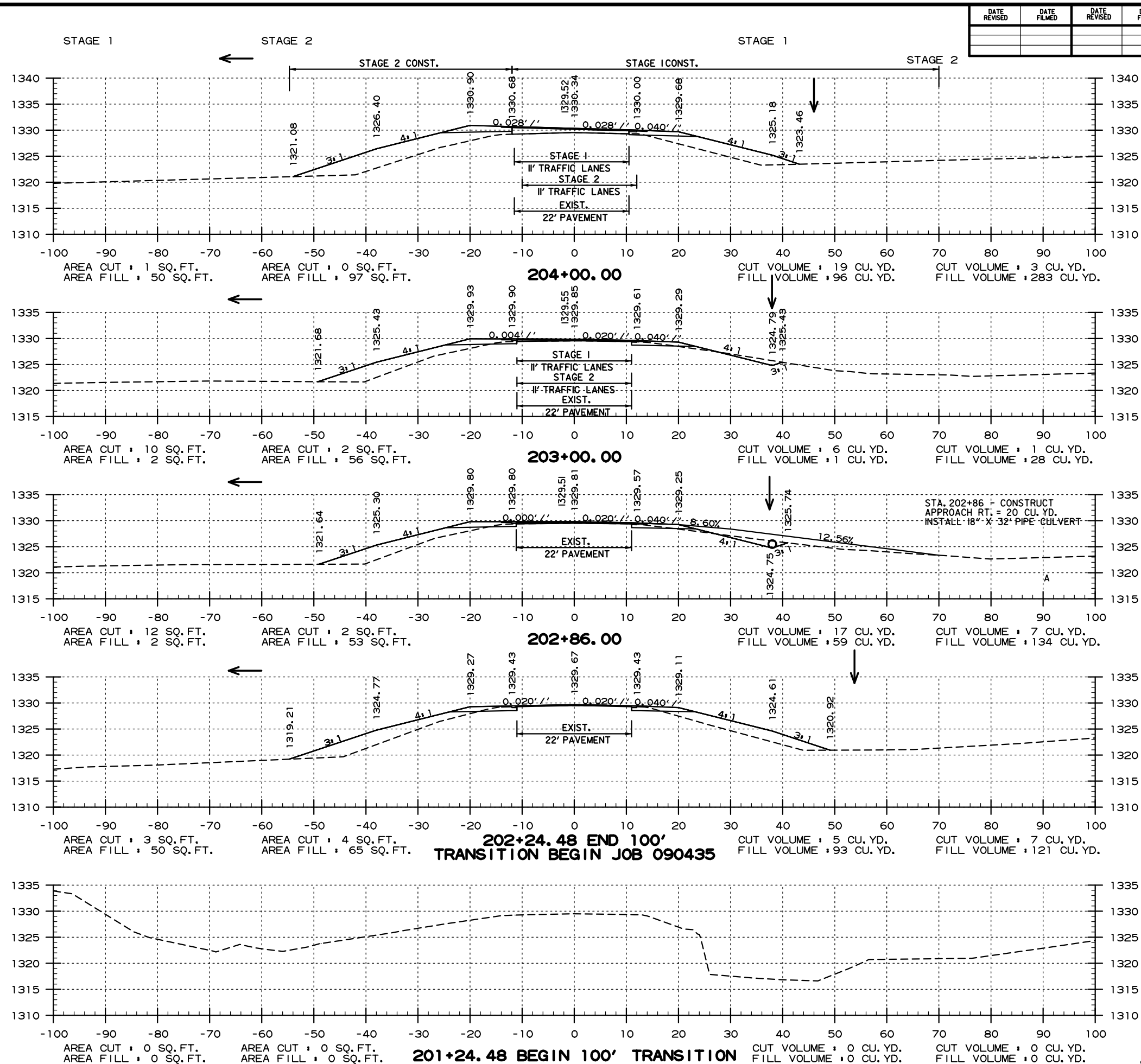


DETAILS FOR  
TYPE SPECIAL APPROACH GUTTERS  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: LDG	DATE: 06-17-20	FILENAME: b090435_gldgn
CHECKED BY: CAW	DATE: 01-29-21	SCALE: SEE DETAILS
DESIGNED BY: LDG	DATE: 06-17-20	
BRIDGE NO. 07526	DRAWING NO. 64014	



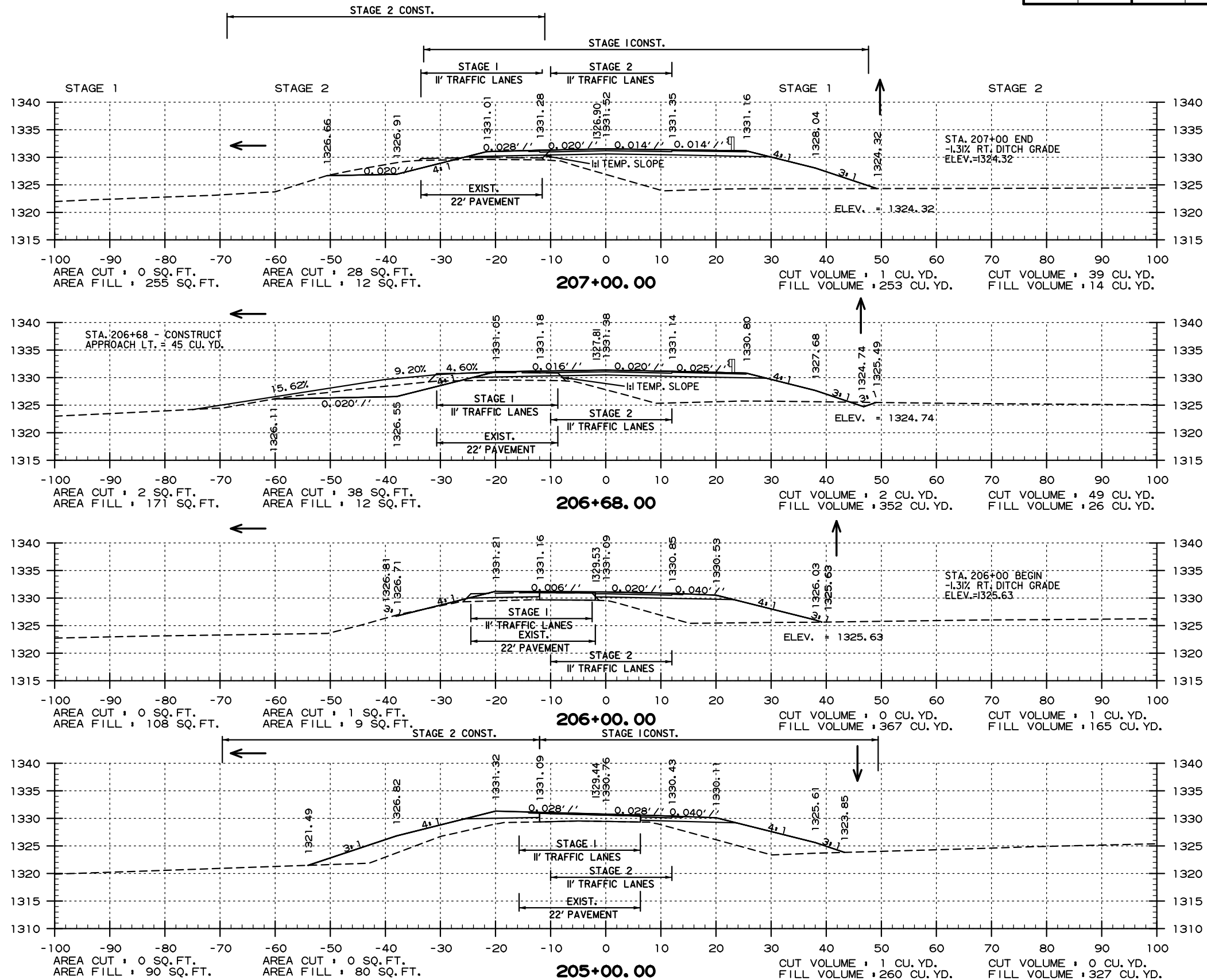
USER: jh5195  
DESIGN FILE: G:\18103601\090502\TRANSP\dgn\090435\_Dry\_Fork\sheet\090435\_XS\_Dry\_Fork.dgn  
PLOTED: 5/14/2021 16:29 MODEL: PROPOSED DESIGN SCALE: 1:20



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090435	42	48	
2 CROSS SECTIONS								
STA. 202+24 TO STA. 204+00								



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090435	43	48	
2 CROSS SECTIONS								





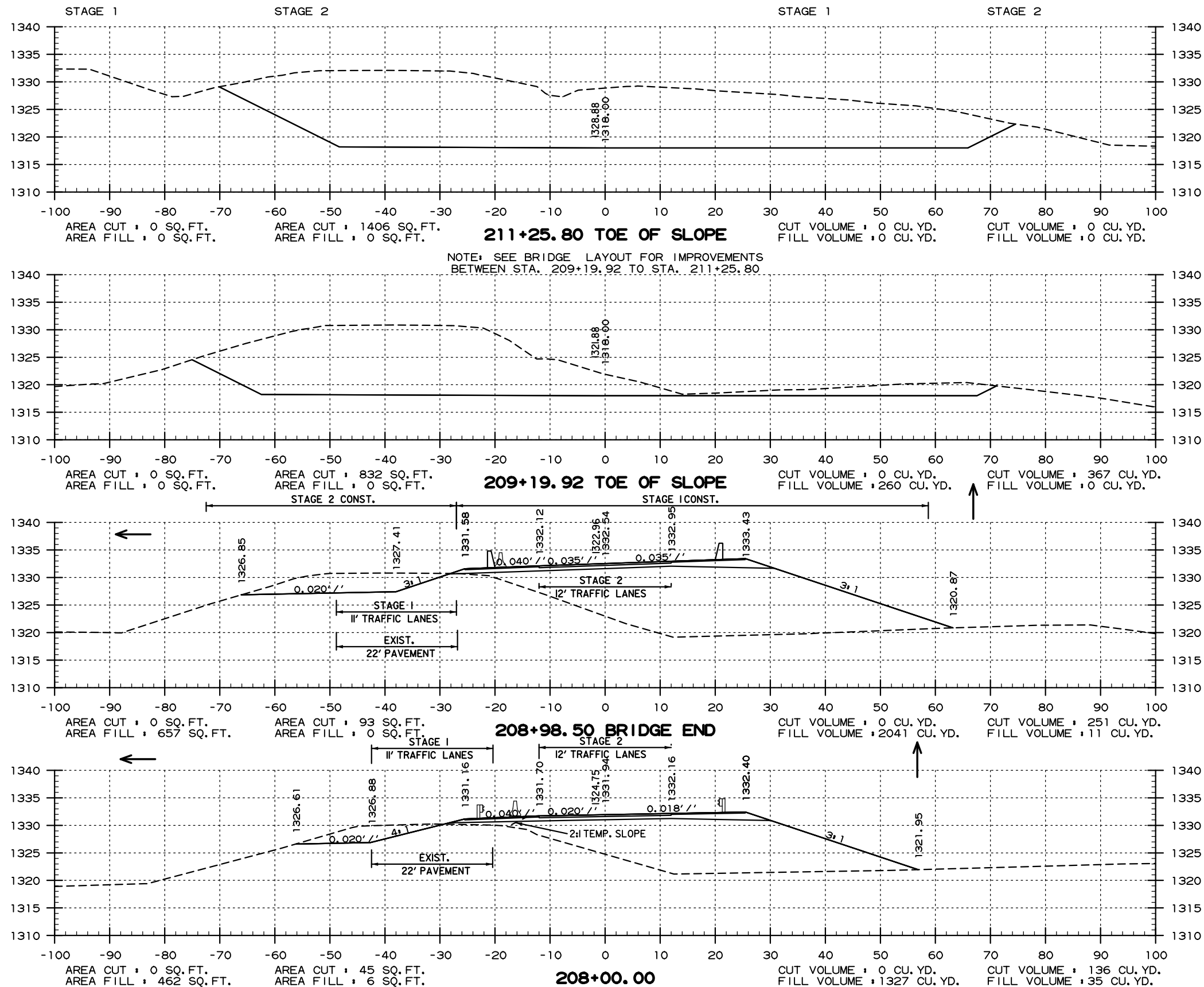
USER: jh5195

DESIGN FILE: G:\18103601\090502\TRANSP\dgn\090435\_Dry\_Fork\Xsect\090435\_XS\_Dry\_Fork.dgn

PLOTTED: 5/14/2021 16:29 MODEL: PROPOSED DESIGN

SCALE: 1:20

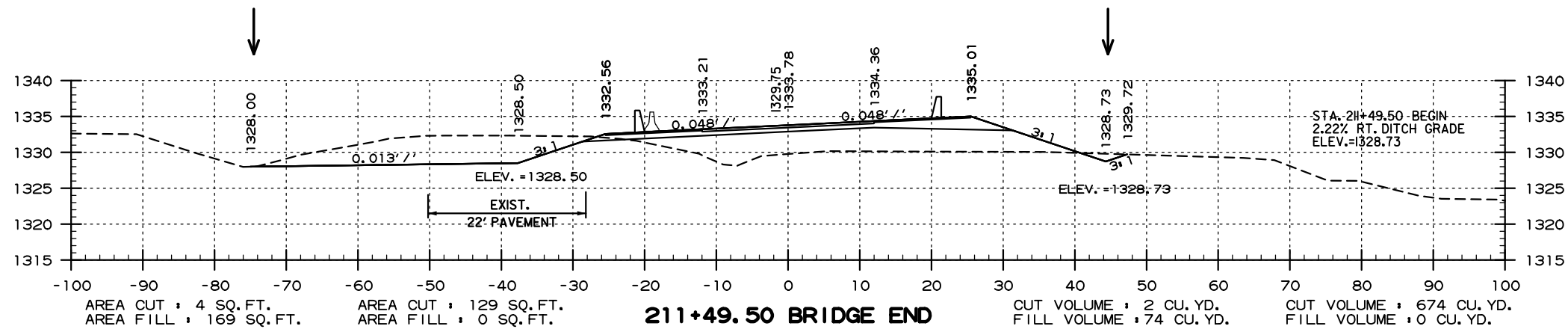
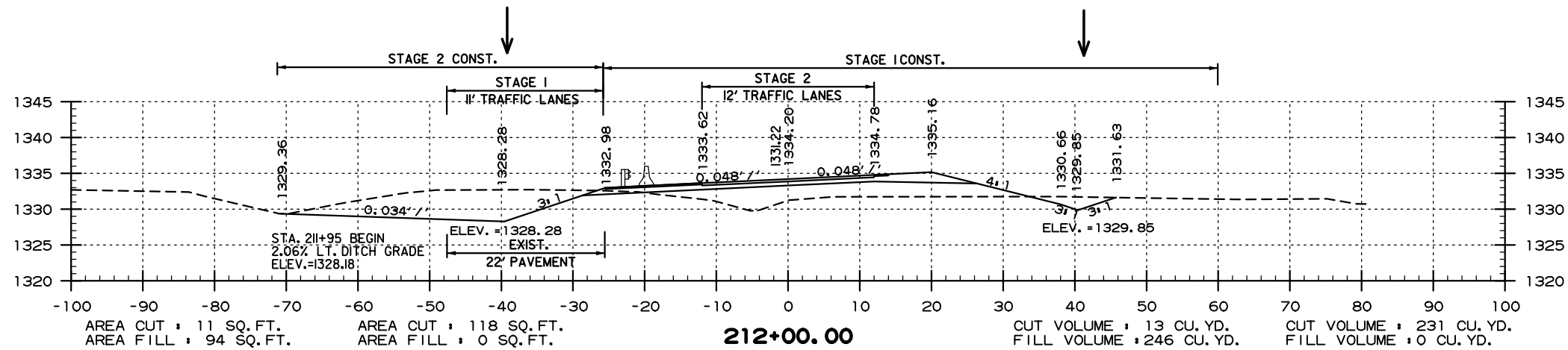
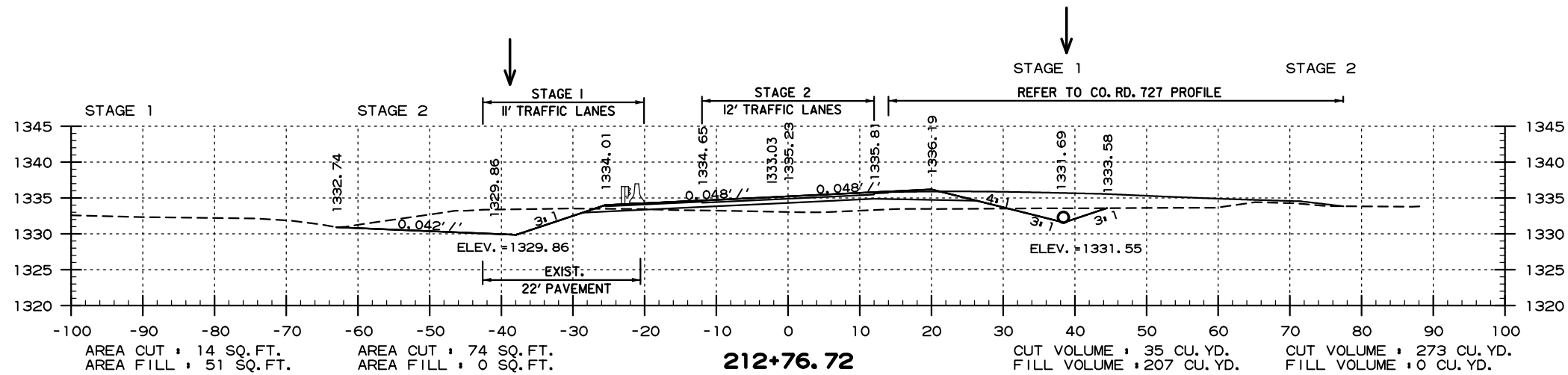
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090435	44	48
				2 CROSS SECTIONS				





USER: jh5195  
DESIGN FILE: G:\18103601\090502\TRANSP\dgn\090435\_Dry\_Fork\Xsect\090435\_XS\_Dry\_Fork.dgn  
PLOTTER: 5/14/2021 16:29  
MODEL: PROPOSED DESIGN  
SCALE: 1:20

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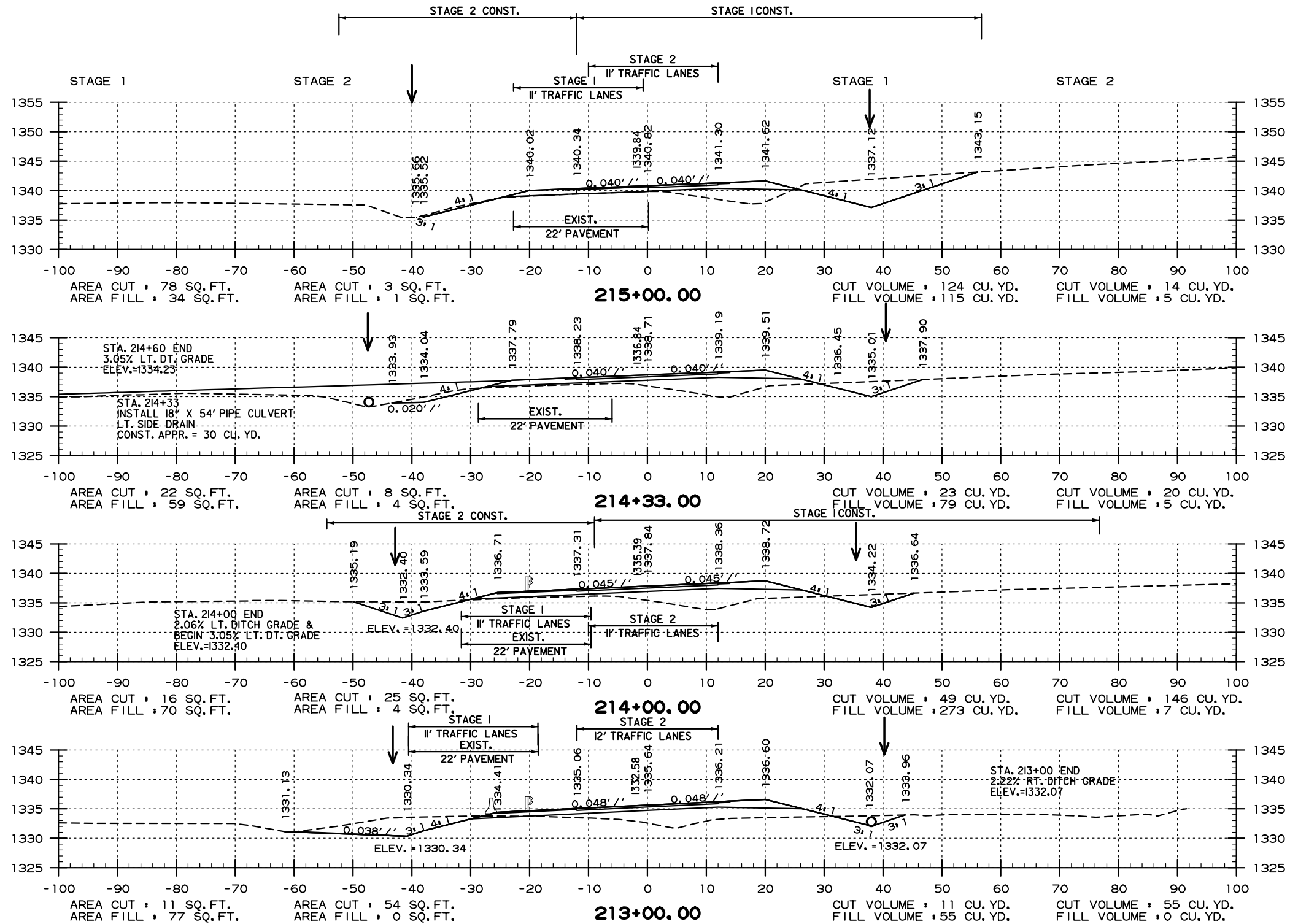


STA. 211+50 TO STA. 212+77



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SCALE: 1:20

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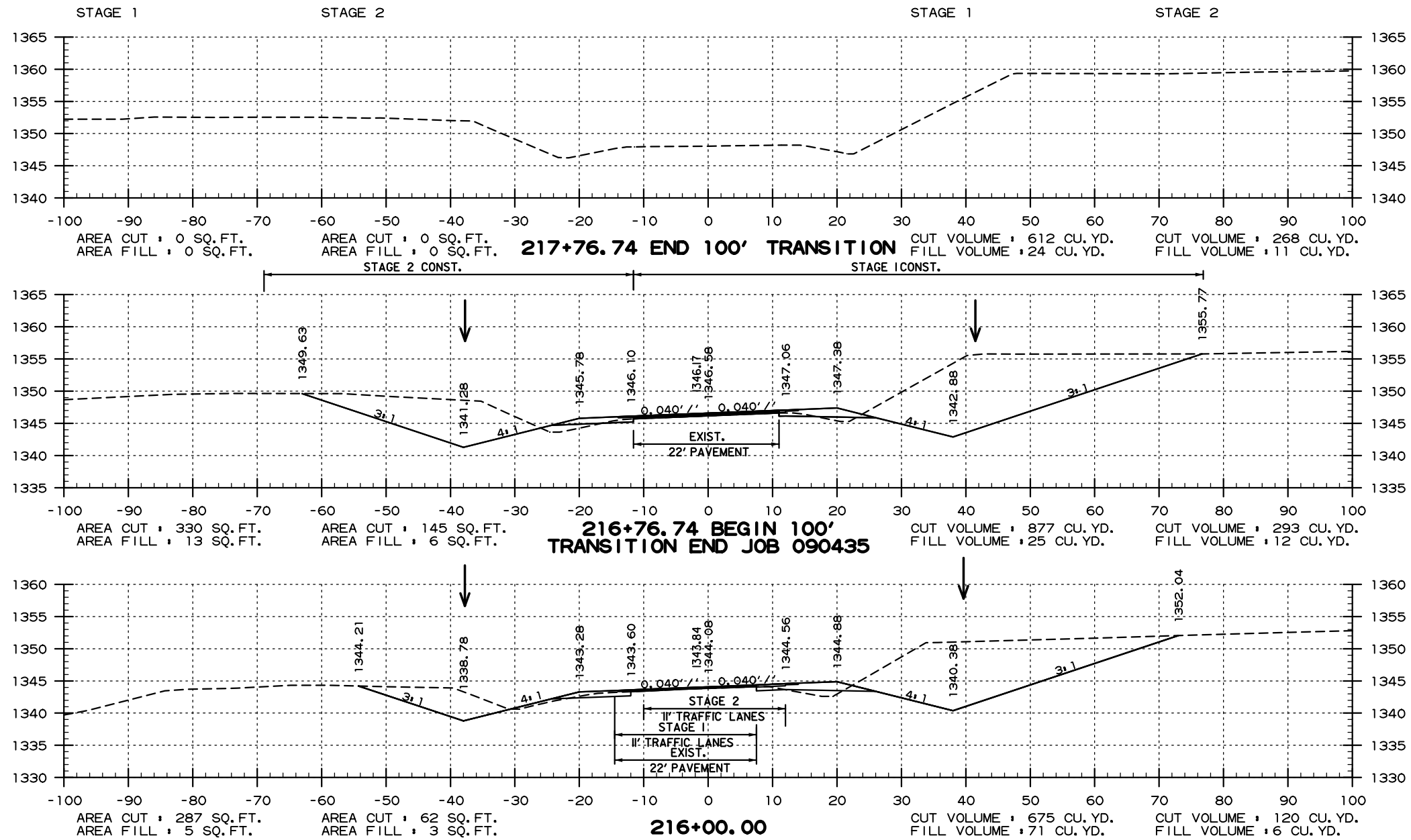


STA. 213+00 TO STA. 215+00



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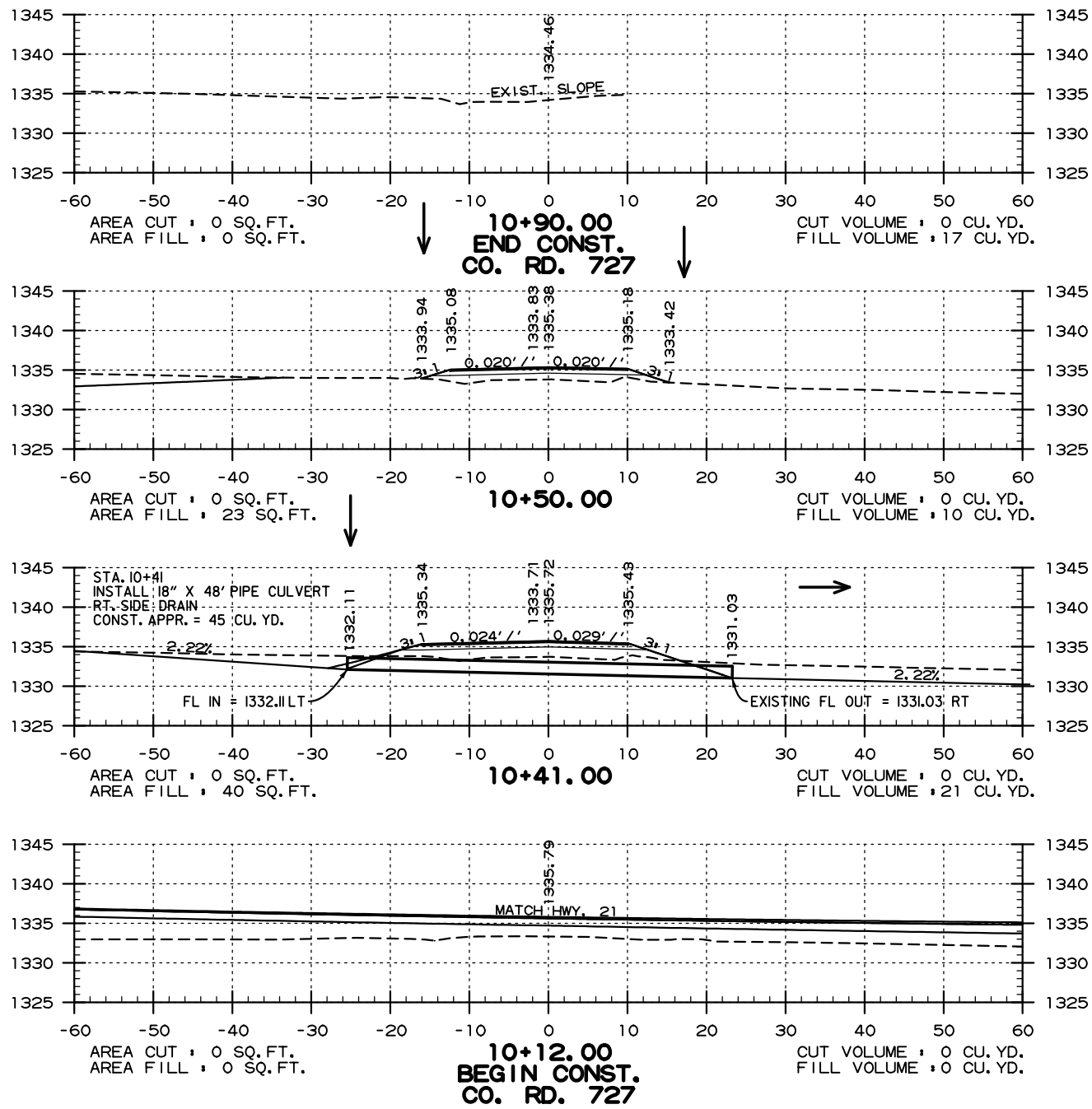
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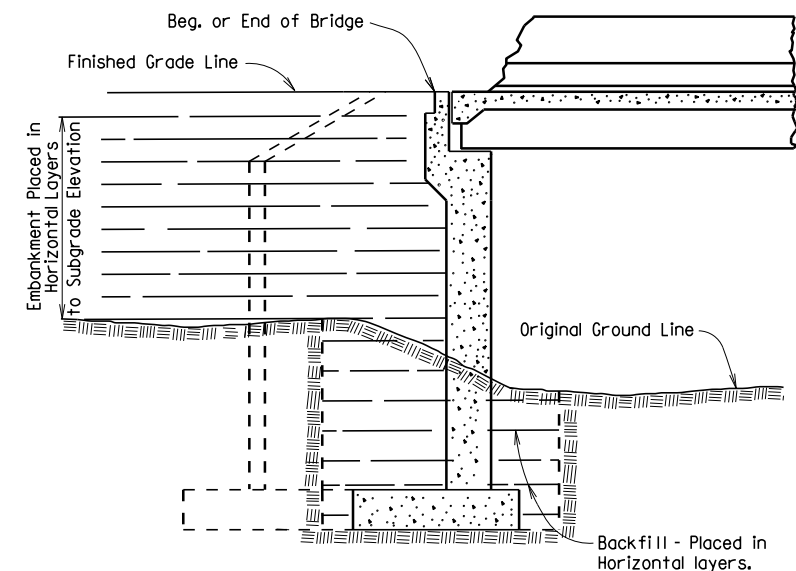


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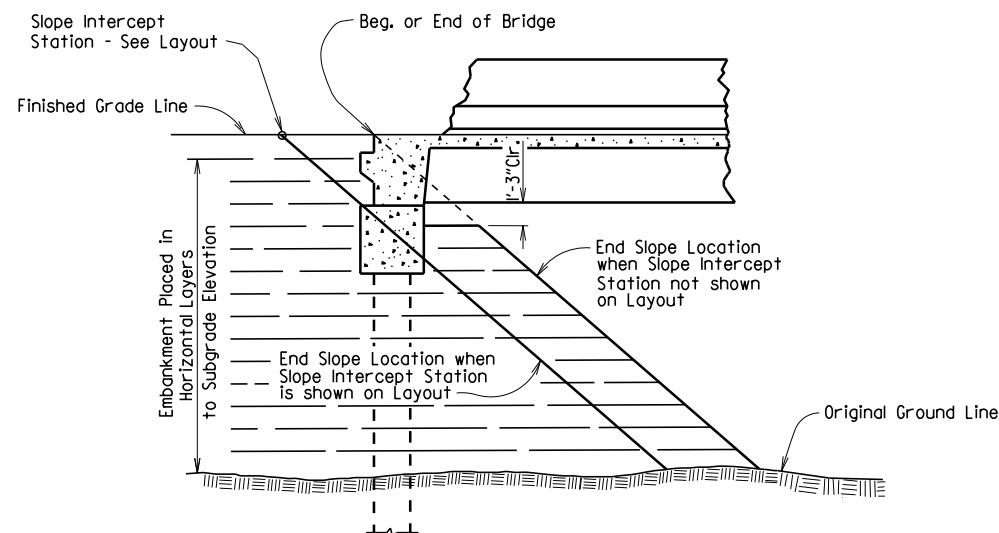
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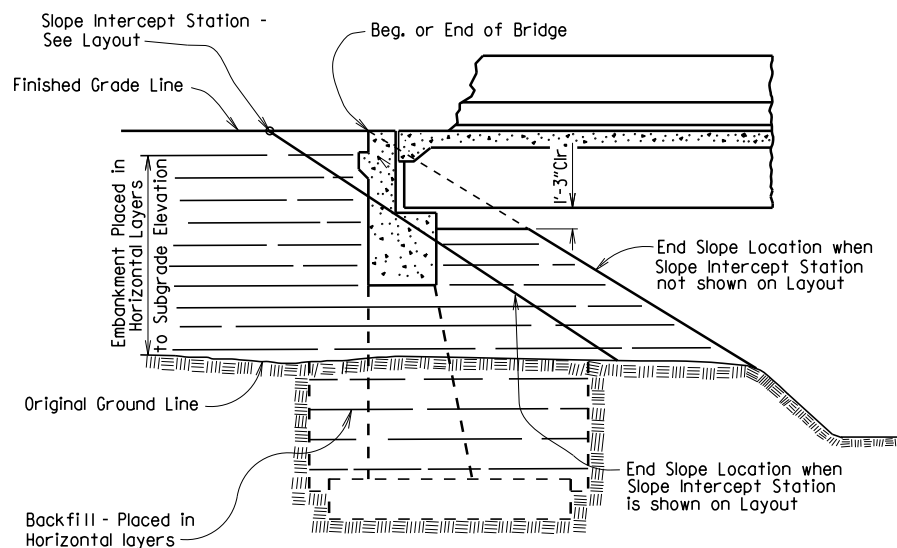




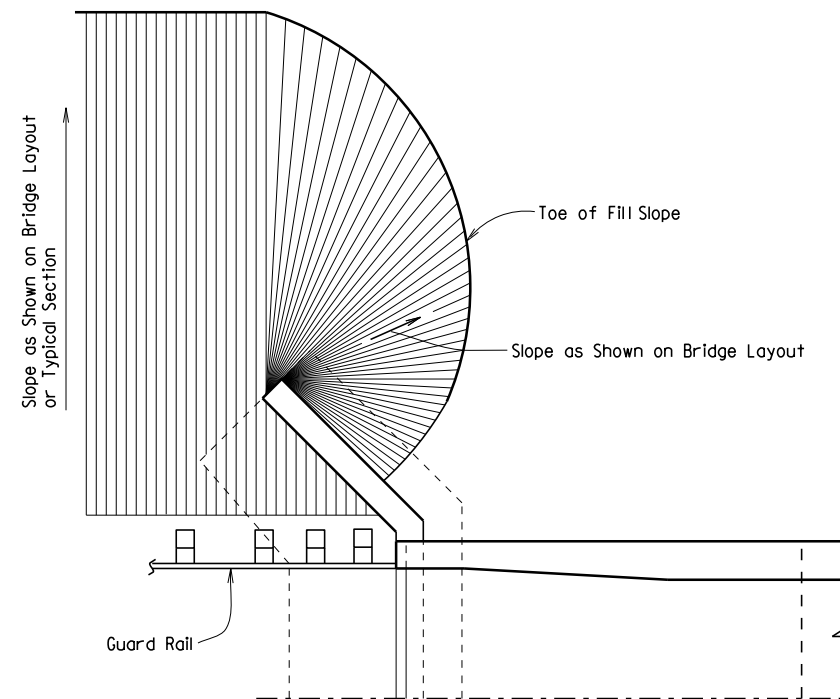
**EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL  
AT VERTICAL WALL ABUTMENTS**



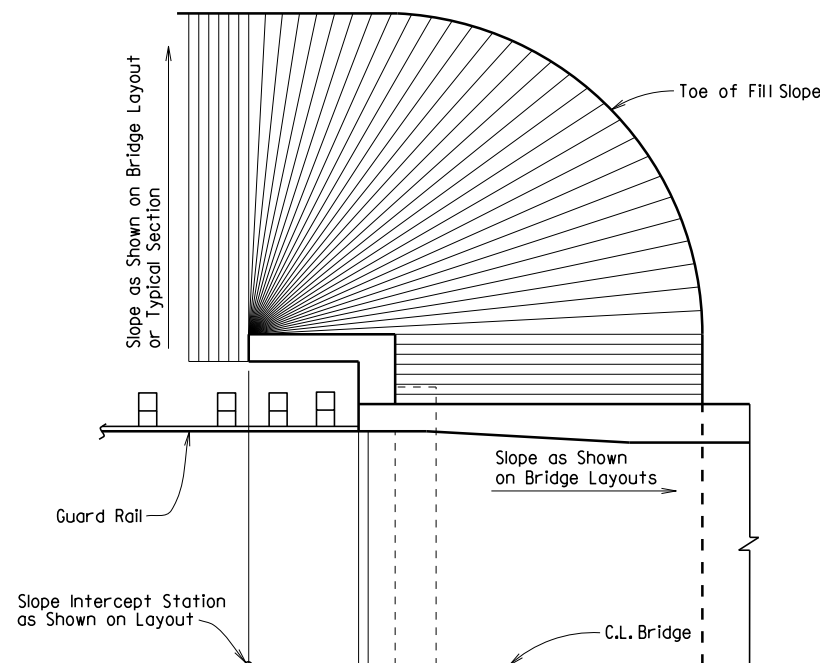
**EMBANKMENT CONSTRUCTION AT SPILL-THROUGH  
PILE END BENTS**



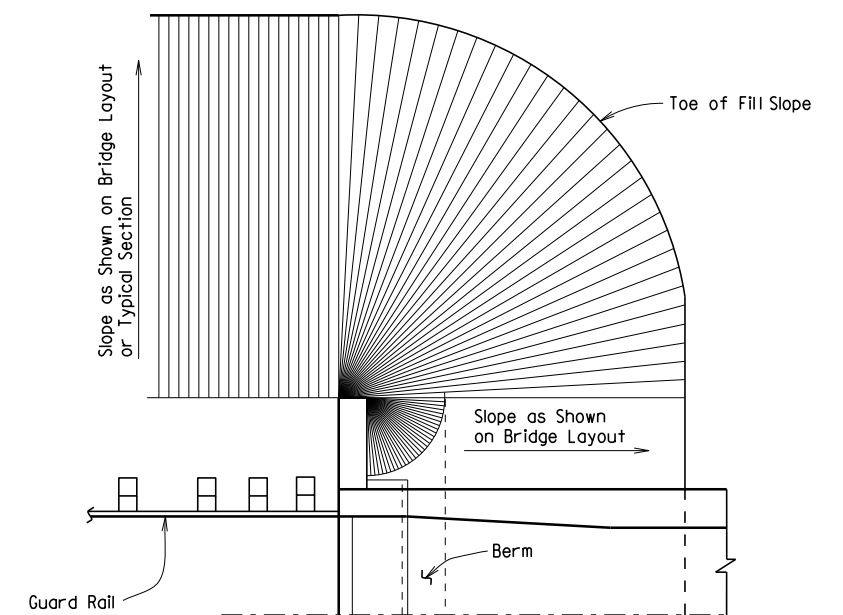
**EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL  
AT SPILL-THROUGH END BENTS**



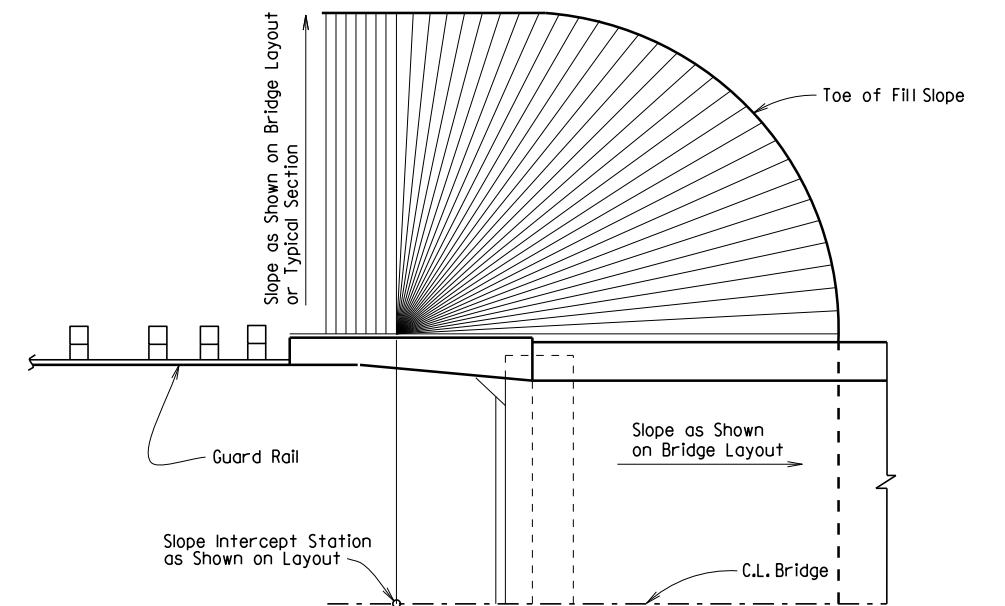
**VERTICAL WALL ABUTMENTS**



**SPILL-THROUGH END BENTS WITH TURNBACK WING**



**SPILL-THROUGH END BENTS WITH STUB WING**



**SPILL-THROUGH END BENTS WITH TRANSITION WING**

**METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS**

**GENERAL NOTES**

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

**STANDARD DETAILS FOR  
EMBANKMENT CONSTRUCTION AND  
BACKFILL AT BRIDGE ENDS**

**ARKANSAS STATE HIGHWAY COMMISSION**

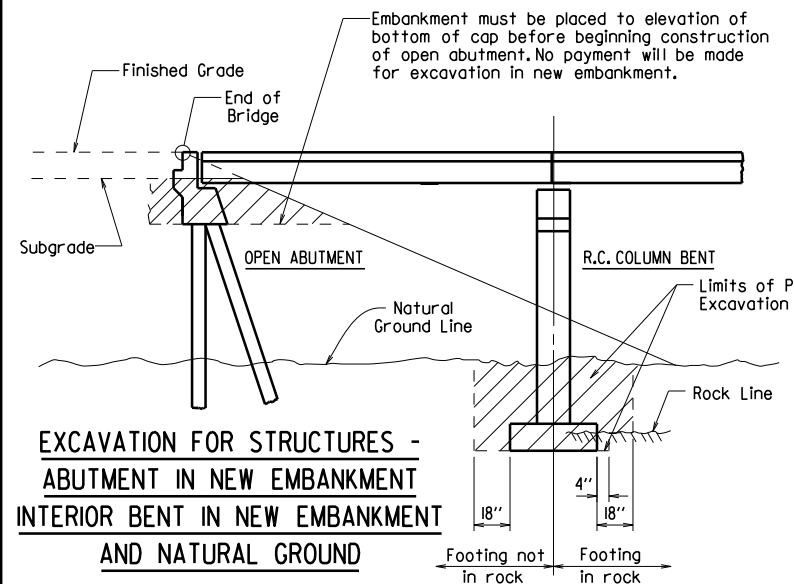
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn  
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE  
DESIGNED BY: STD. DATE: -

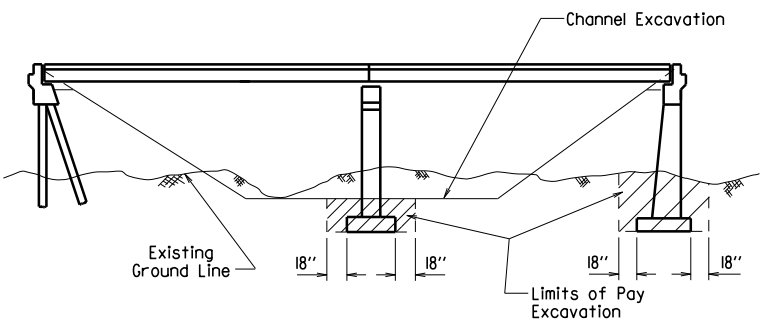
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				1	EMBANKMENT & BACKFILL	55000		

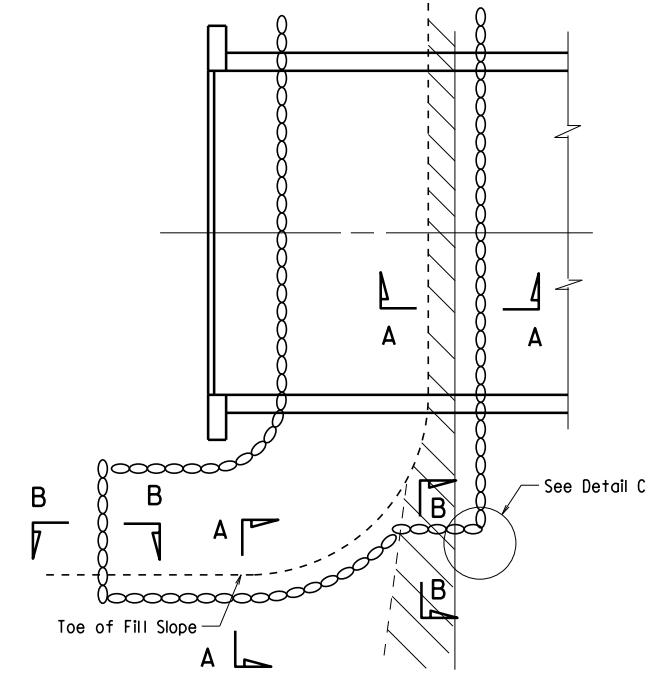




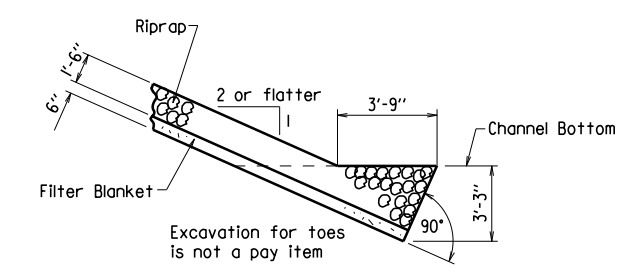
**EXCAVATION FOR STRUCTURES -  
ABUTMENT IN NEW EMBANKMENT  
AND NATURAL GROUND**



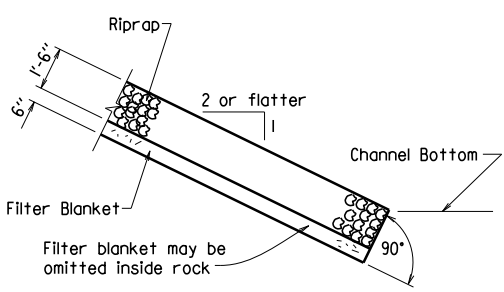
**EXCAVATION FOR STRUCTURES - BRIDGE  
LOCATION WITH DESIGNATED CHANNEL CHANGE**



**PLAN OF DUMPED RIPRAP**



**SECTION A-A  
(Toe Excavation in Soil)**

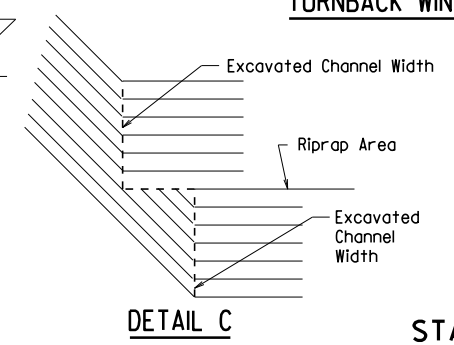


**SECTION A-A  
(Toe Excavation in Rock)**

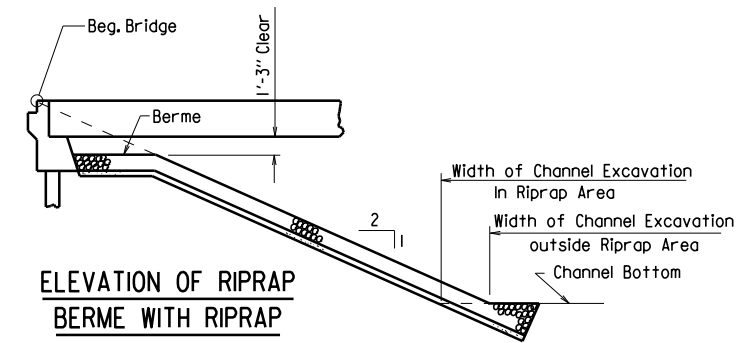
Note: Use this type of toe when rock is encountered which is in a stable condition.

Note: In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

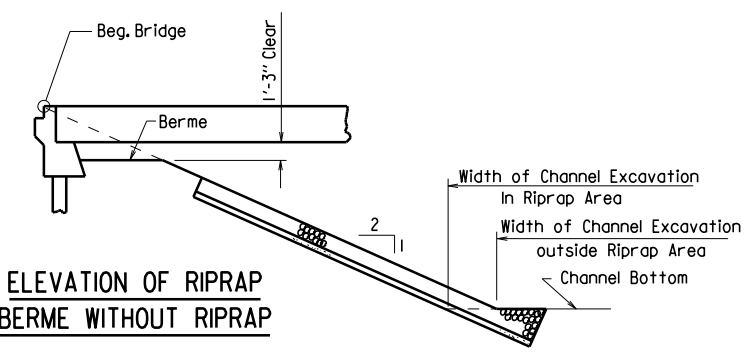
Note: Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



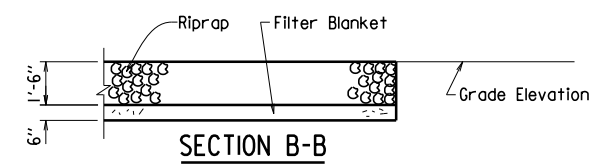
**DETAIL C**



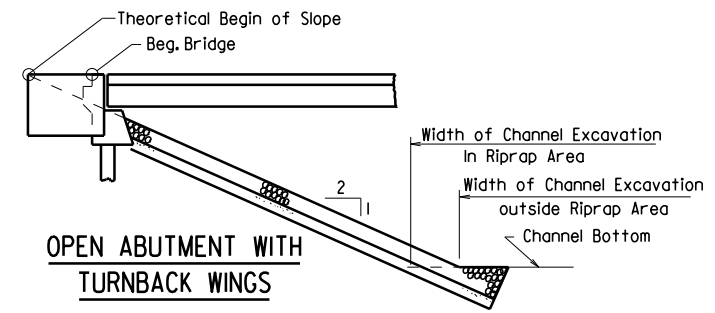
**ELEVATION OF RIPRAP  
BERME WITH RIPRAP**



**ELEVATION OF RIPRAP  
BERME WITHOUT RIPRAP**



**SECTION B-B**



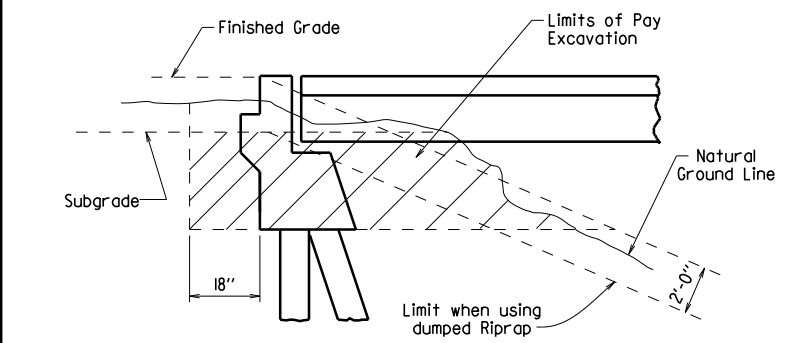
**OPEN ABUTMENT WITH  
TURNBACK WINGS**

**STANDARD DETAILS FOR  
DUMPED RIPRAP AND FILTER BLANKET  
AND COMPUTING  
EXCAVATION FOR STRUCTURES  
ARKANSAS STATE HIGHWAY COMMISSION**

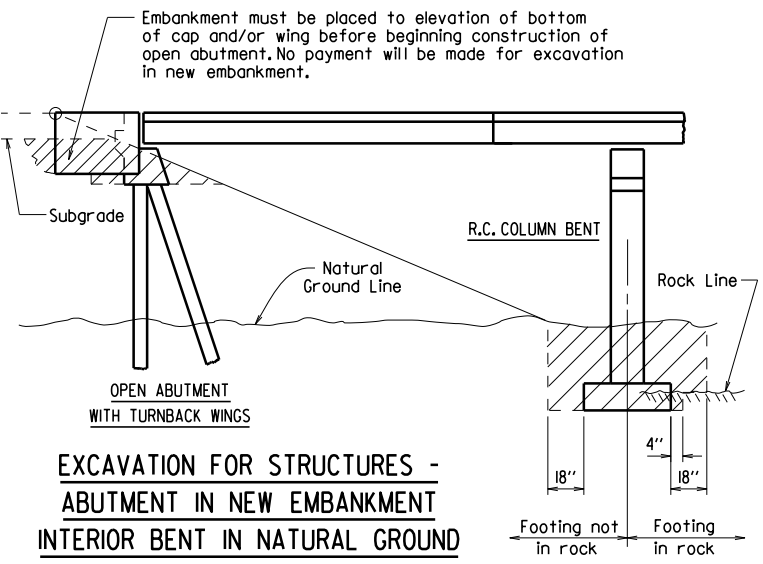
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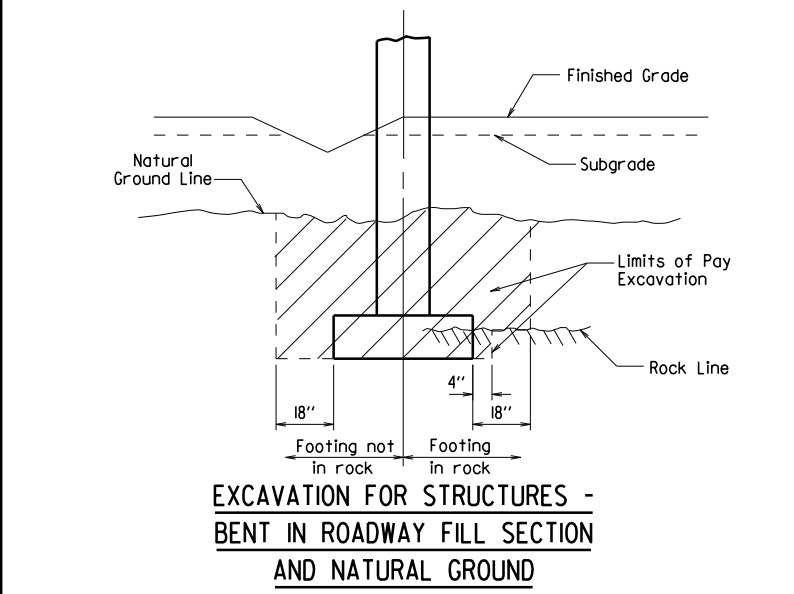
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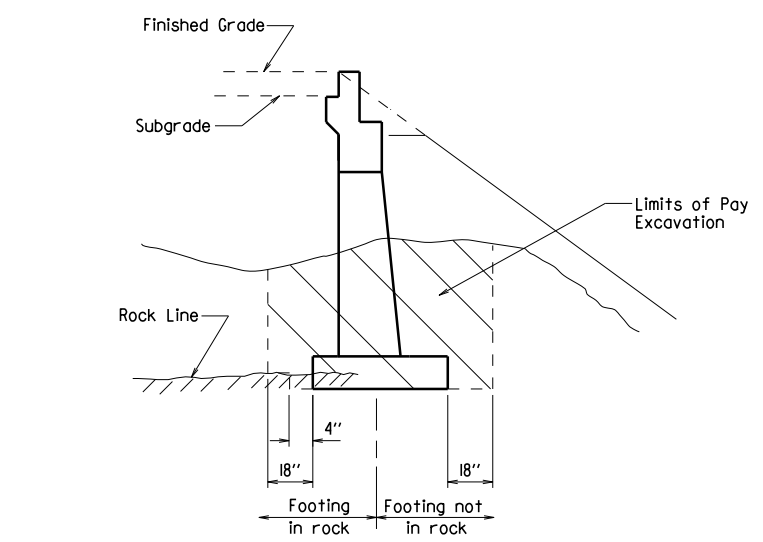
**EXCAVATION FOR STRUCTURES -  
ABUTMENT IN NATURAL GROUND**



**EXCAVATION FOR STRUCTURES -  
ABUTMENT IN NEW EMBANKMENT  
AND NATURAL GROUND**



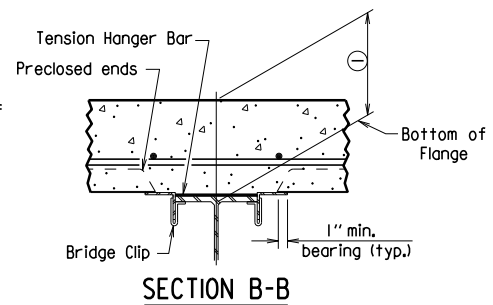
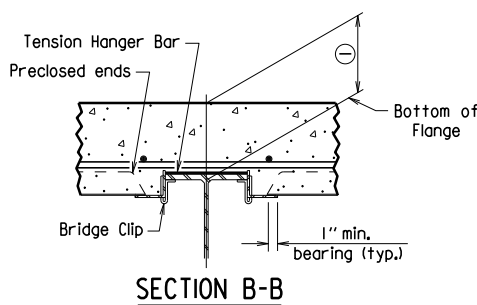
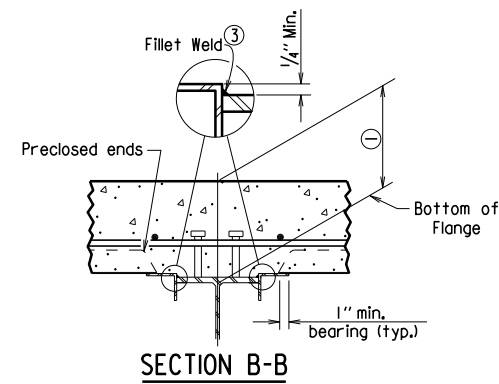
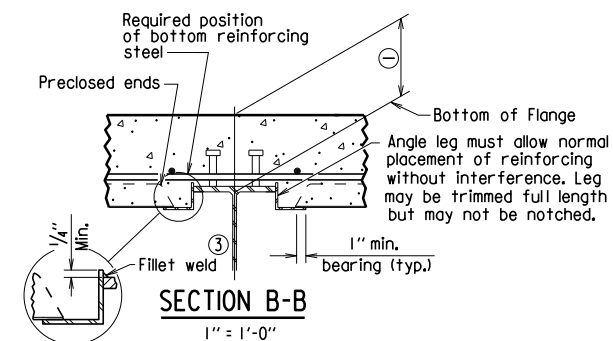
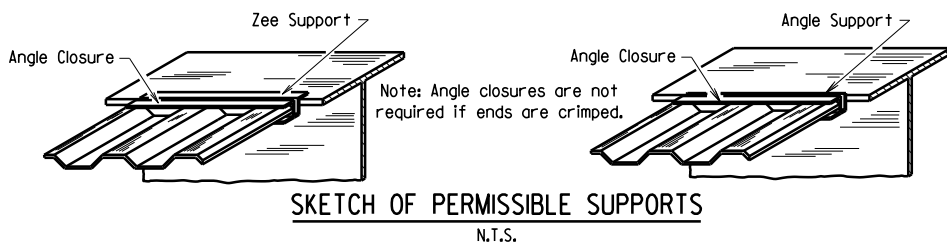
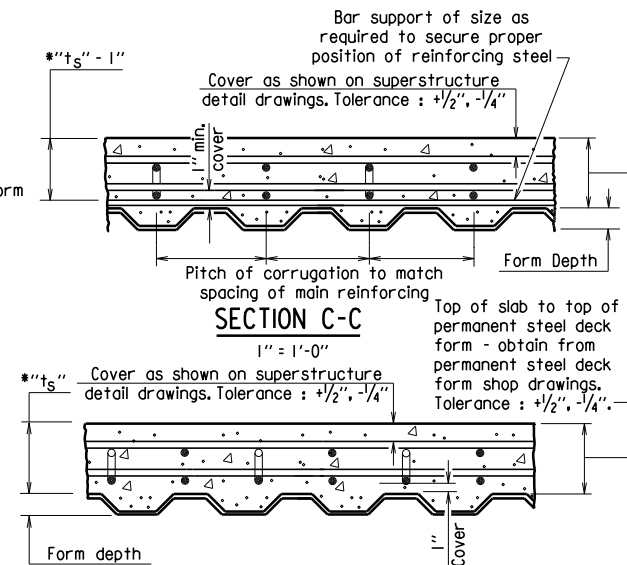
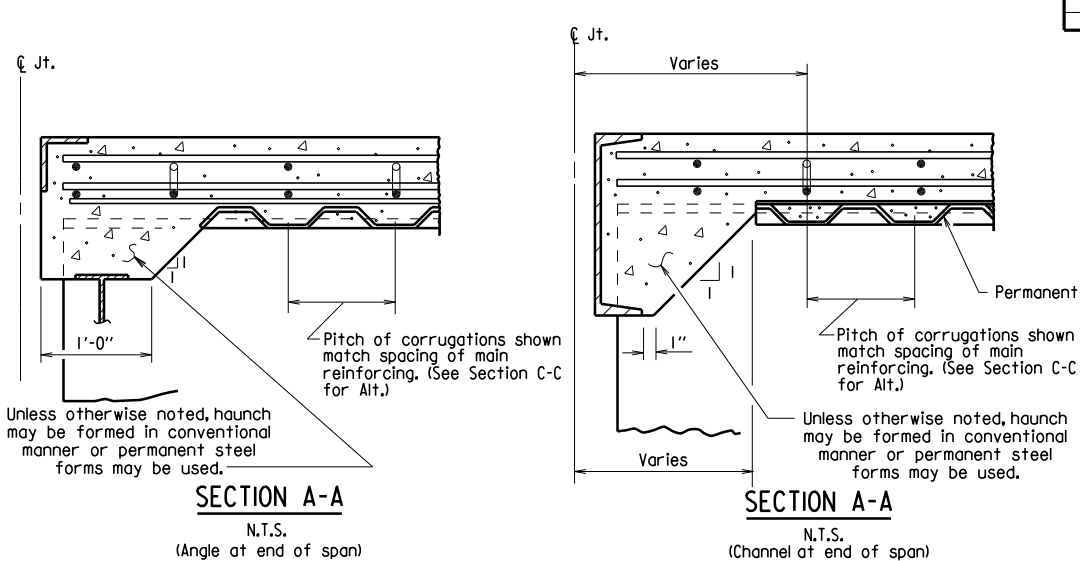
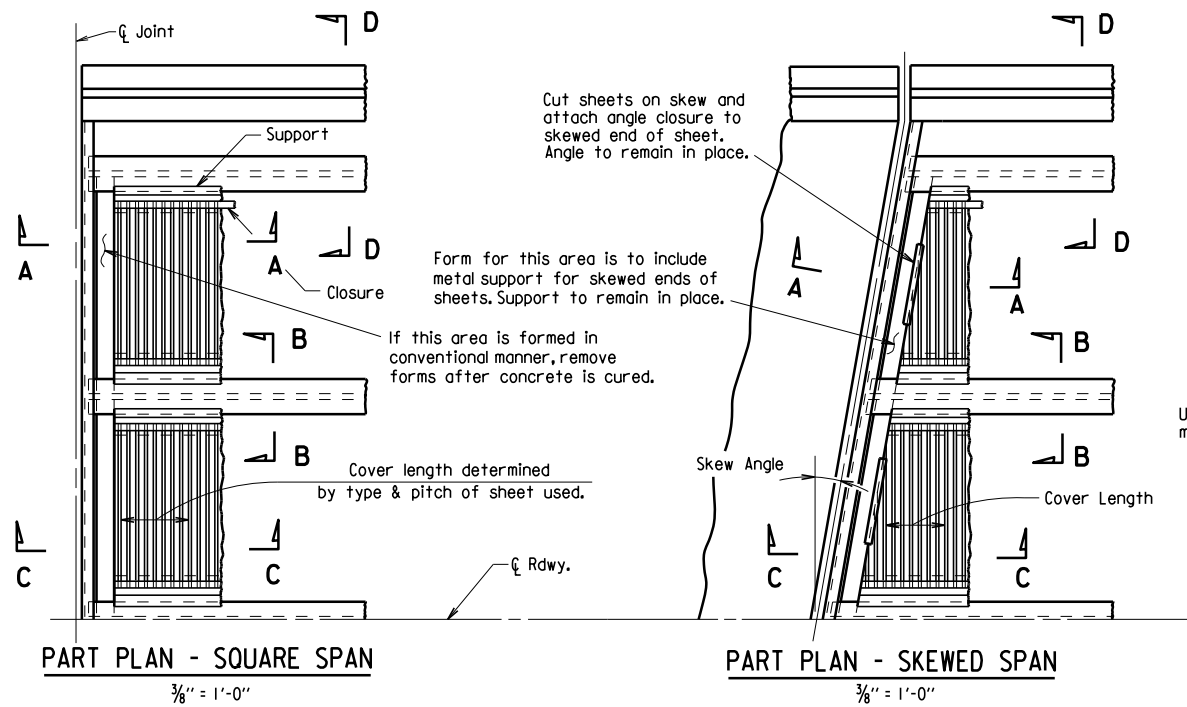
**EXCAVATION FOR STRUCTURES -  
BENT IN ROADWAY FILL SECTION  
AND NATURAL GROUND**



**EXCAVATION FOR STRUCTURES - ABUTMENT  
IN NATURAL GROUND AND NEW EMBANKMENT**



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.				
				1	BRIDGE DECK FORMS	55005		

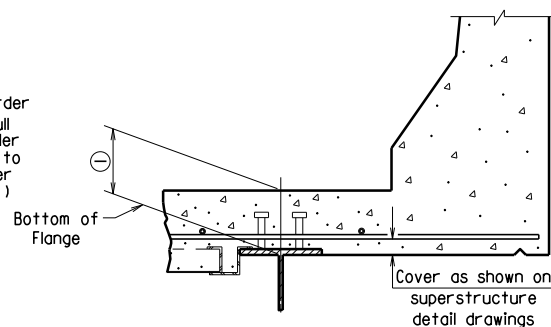
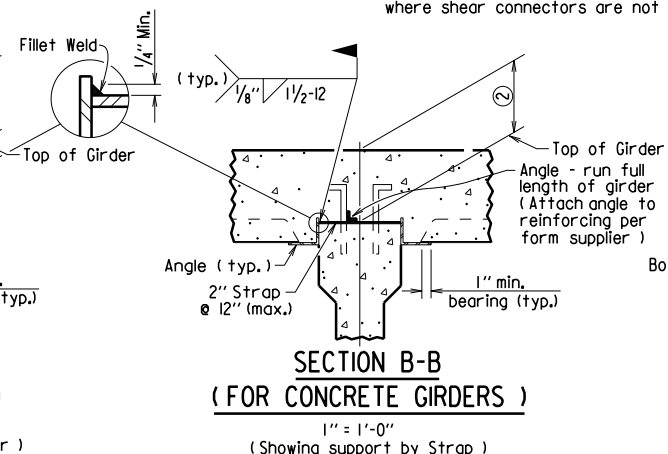
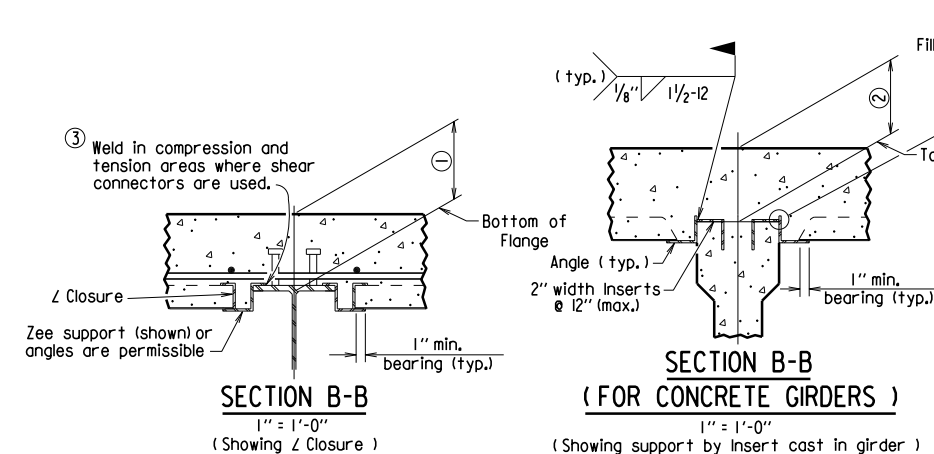


(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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

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

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



Note: Only Bottom Reinforcing is shown.

\*t<sub>s</sub> = 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 L 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.

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

### ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

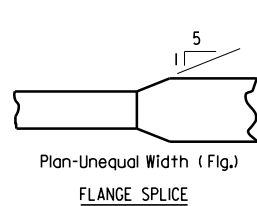
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DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

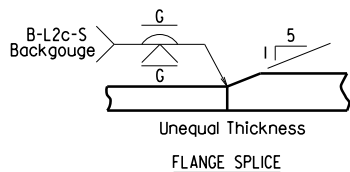
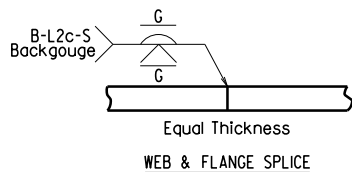




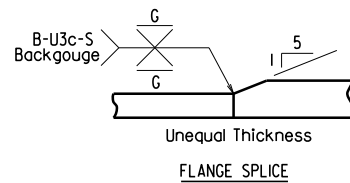
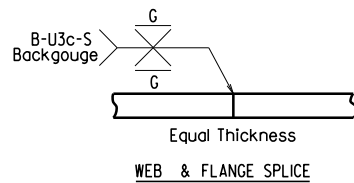




### FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

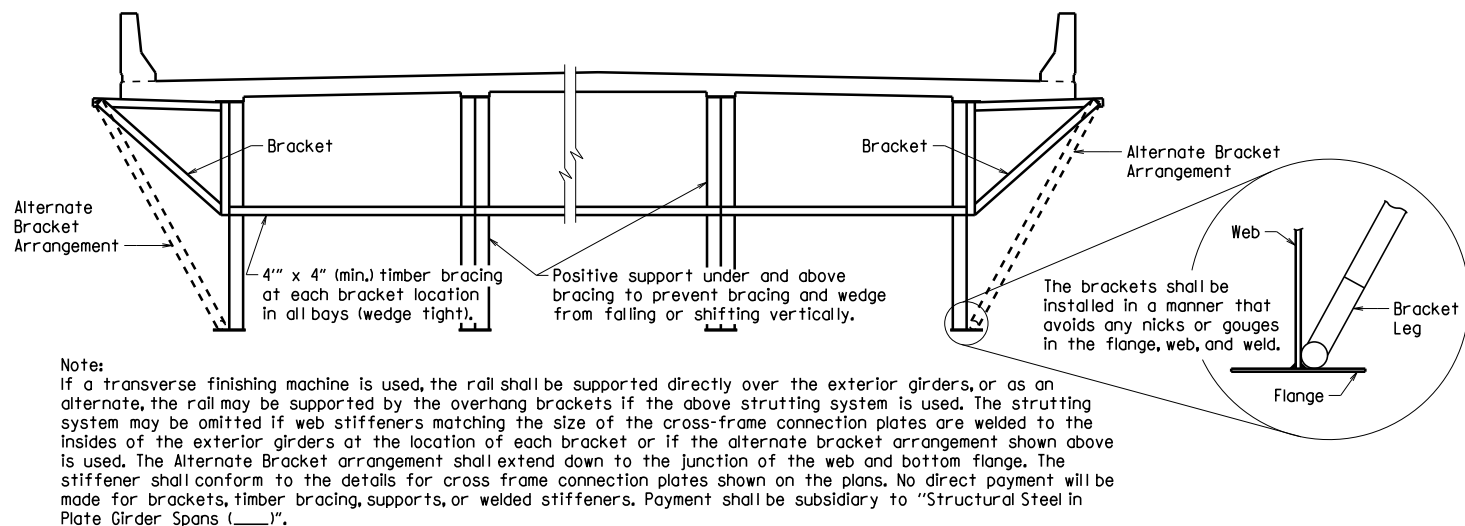


(Use when Base Metal Thickness is Equal to or Less than 2")



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

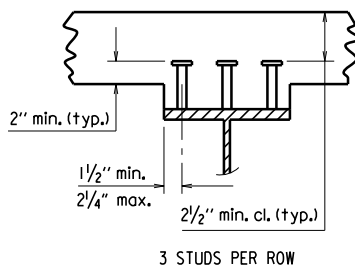
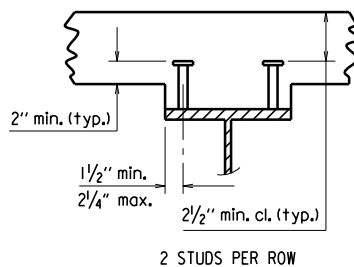
### DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



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

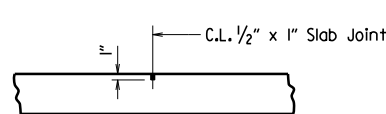
### SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



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

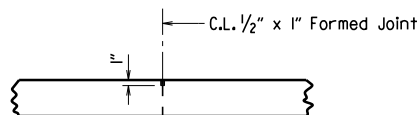
### SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 50I.02(h) and 50I.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.

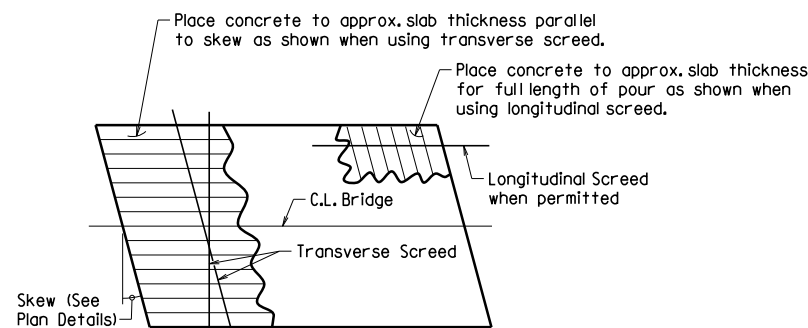
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:  
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and across the top of the sidewalk 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



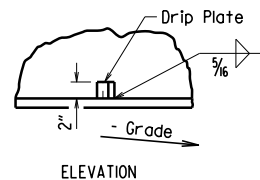
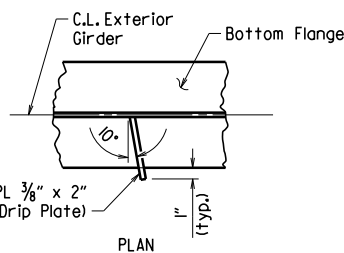
Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 50I.02(h) and 50I.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

### LONGITUDINAL CONSTRUCTION JOINT



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

### CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



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

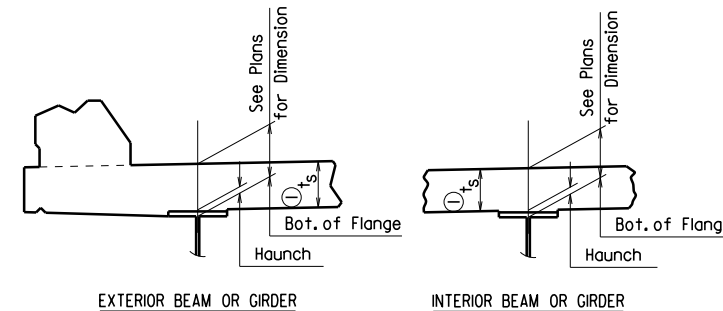
Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

### BOTTOM FLANGE DRIP PLATE

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

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

t<sub>s</sub> = slab thickness. See "Typical Roadway Section" in the plans.

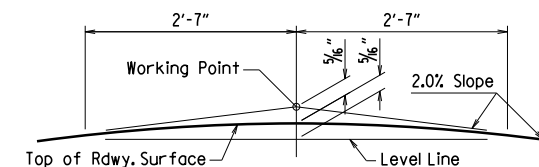


① Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:  
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4" 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 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

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

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 REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
4-14-23		6	ARK.			
TYPE D NAME PLATE - 55010						

The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using  $\frac{1}{8}$ " raised letters and numerals  $\frac{3}{8}$ " high.

Line 1 Example 1 RED RIVER  
Line 2 RELIEF Example 2 SOUTHERN RAILROAD  
OVERPASS Example 3 SALINE RIVER  
RELIEF Example 4 HIGHWAY 5

GENERAL NOTES

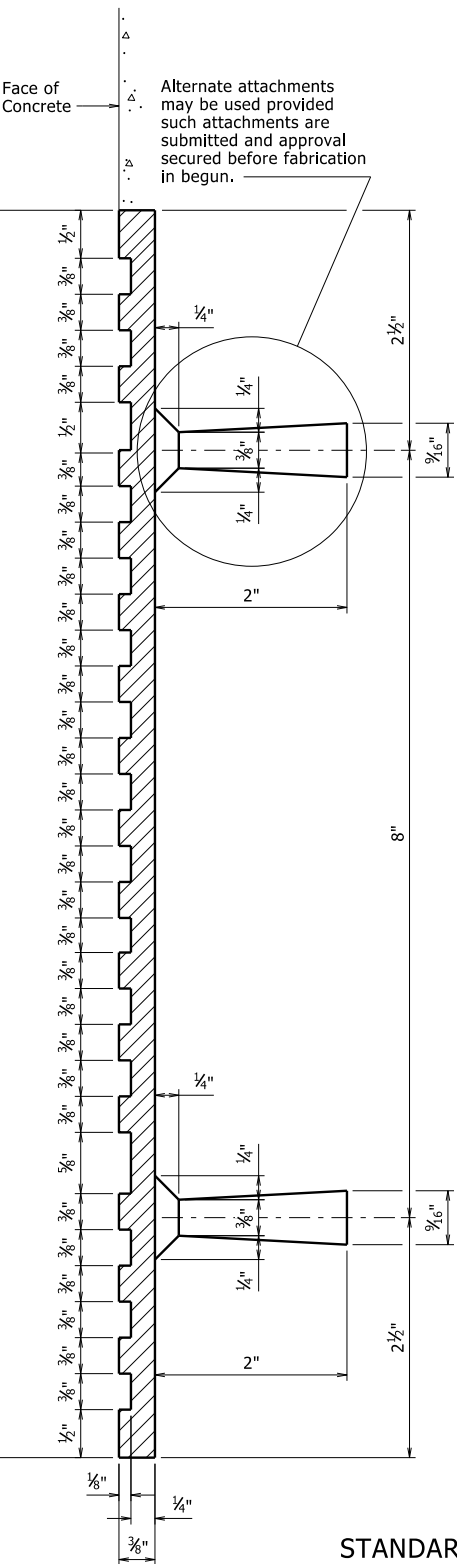
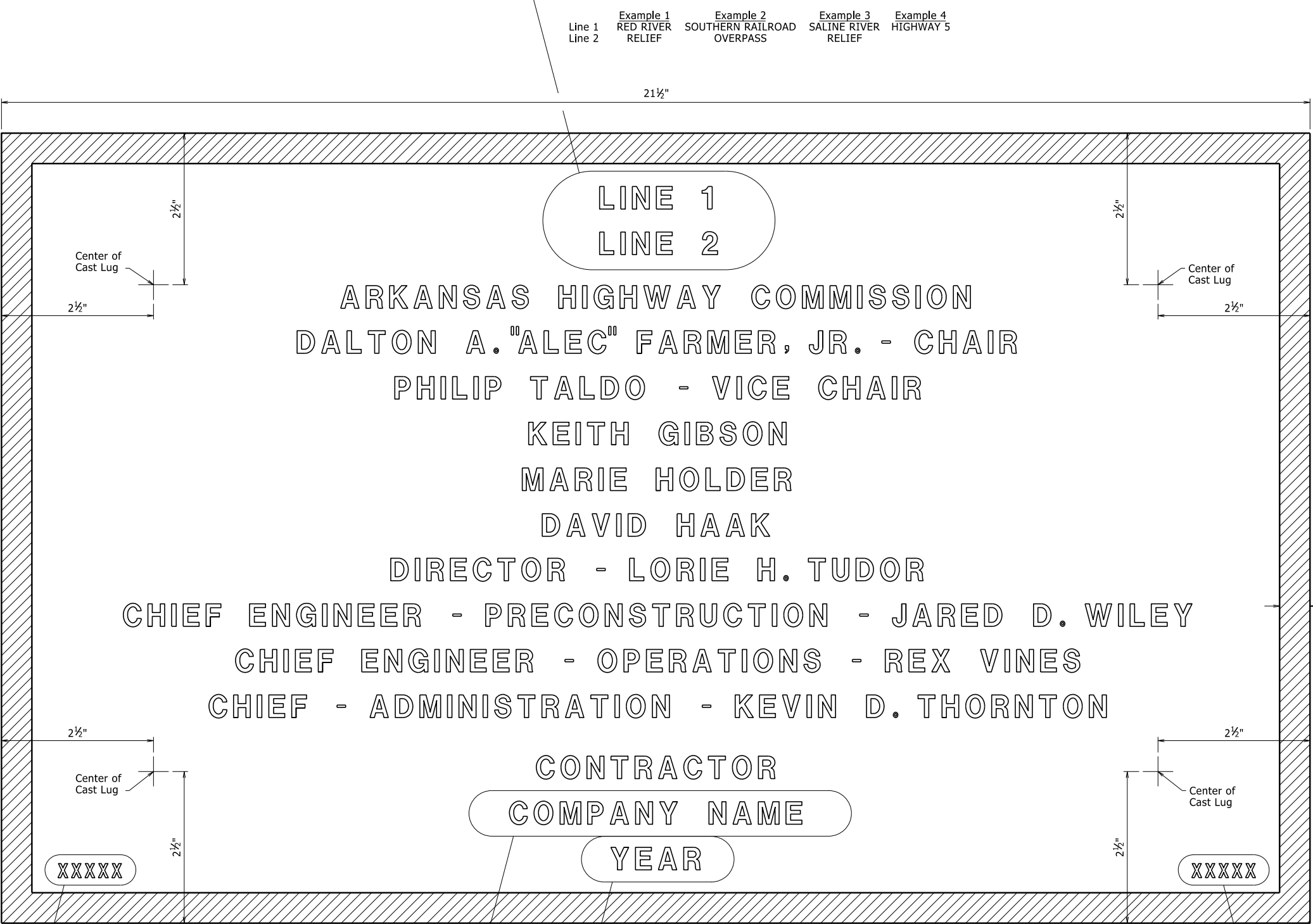
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

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

Body of plate shall be  $\frac{1}{4}$ " thick and shall include four tapering cone lugs  $\frac{3}{8}$ " to  $\frac{1}{16}$ " x 2" long. The border and all lettering shall be raised  $\frac{1}{8}$ " above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.



1 Revised and Redrawn  
4-14-23 CGP 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



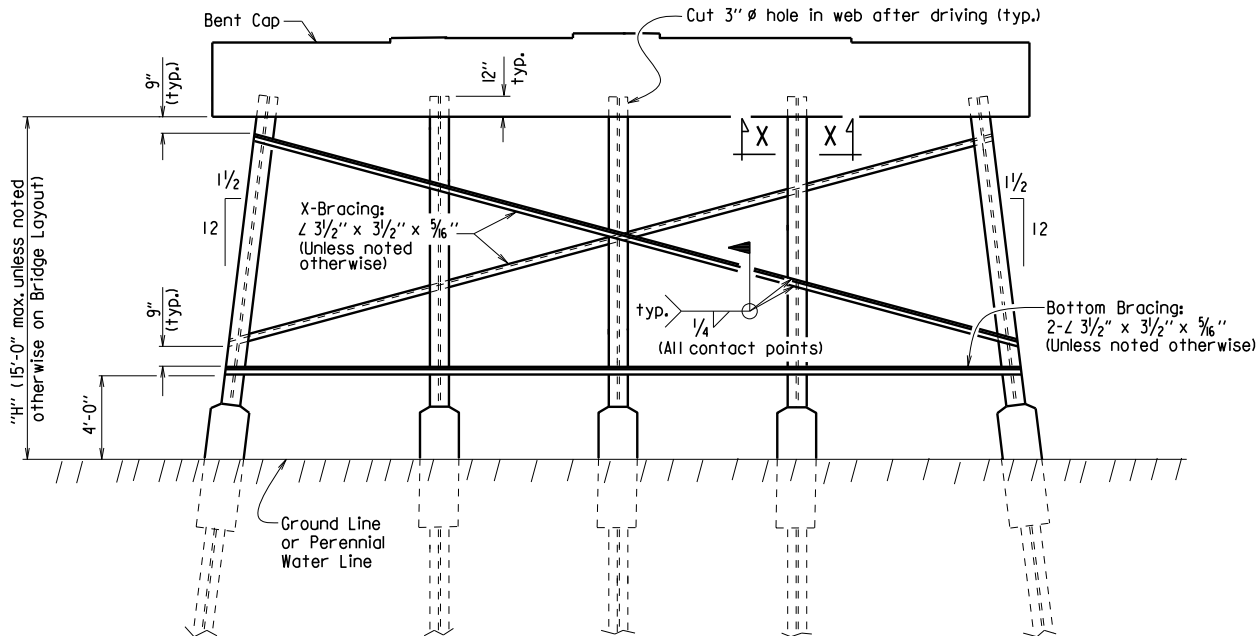
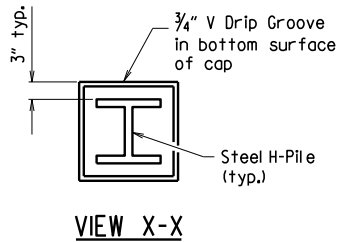
GENERAL NOTES FOR STEEL H-PILES:

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".



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.

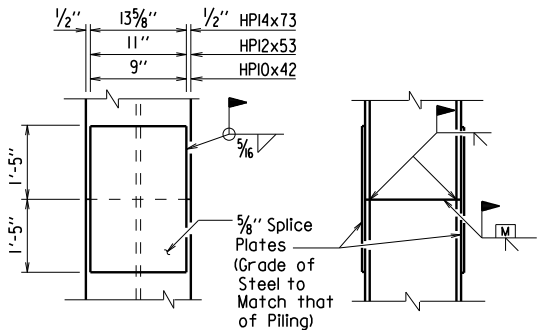
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

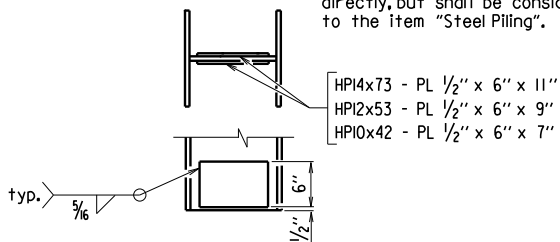
(Shown with Partial Height Encasement)



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 inch 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 Specifications for Highway Construction (2014 Edition).



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

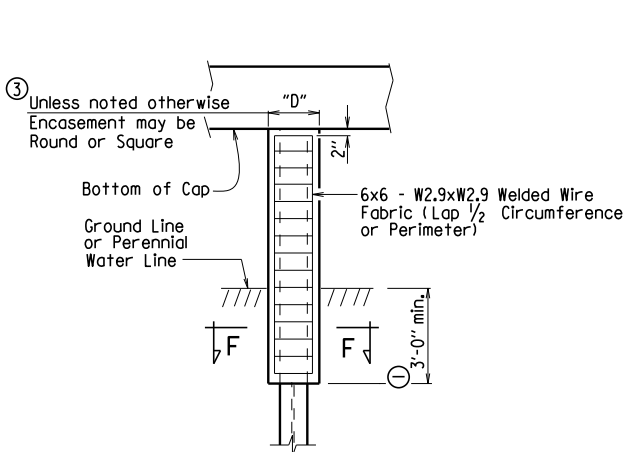
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

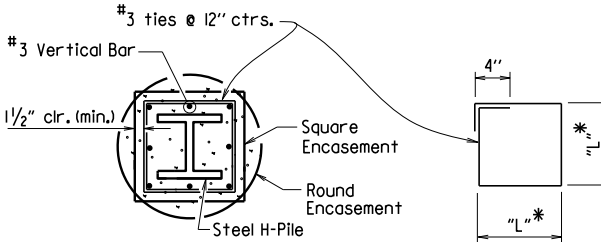
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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

(Shown with Encasement to Bottom of Cap)

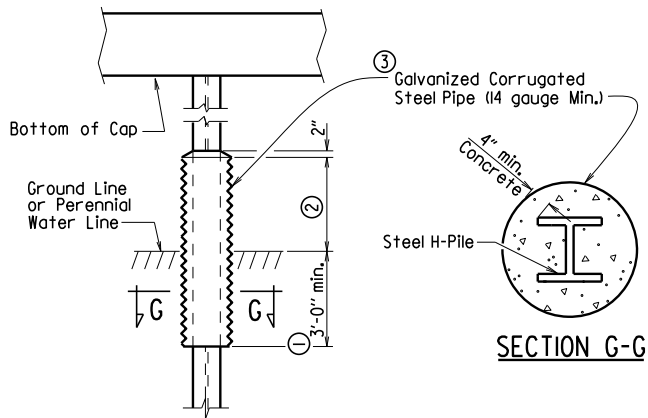


SECTION F-F

\* Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D"		"L"*
	Square Encsmt.	Round Encsmt.	
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

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

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1 1/2" and a minimum clearance of 1 1/4" from the pile.

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

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



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

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

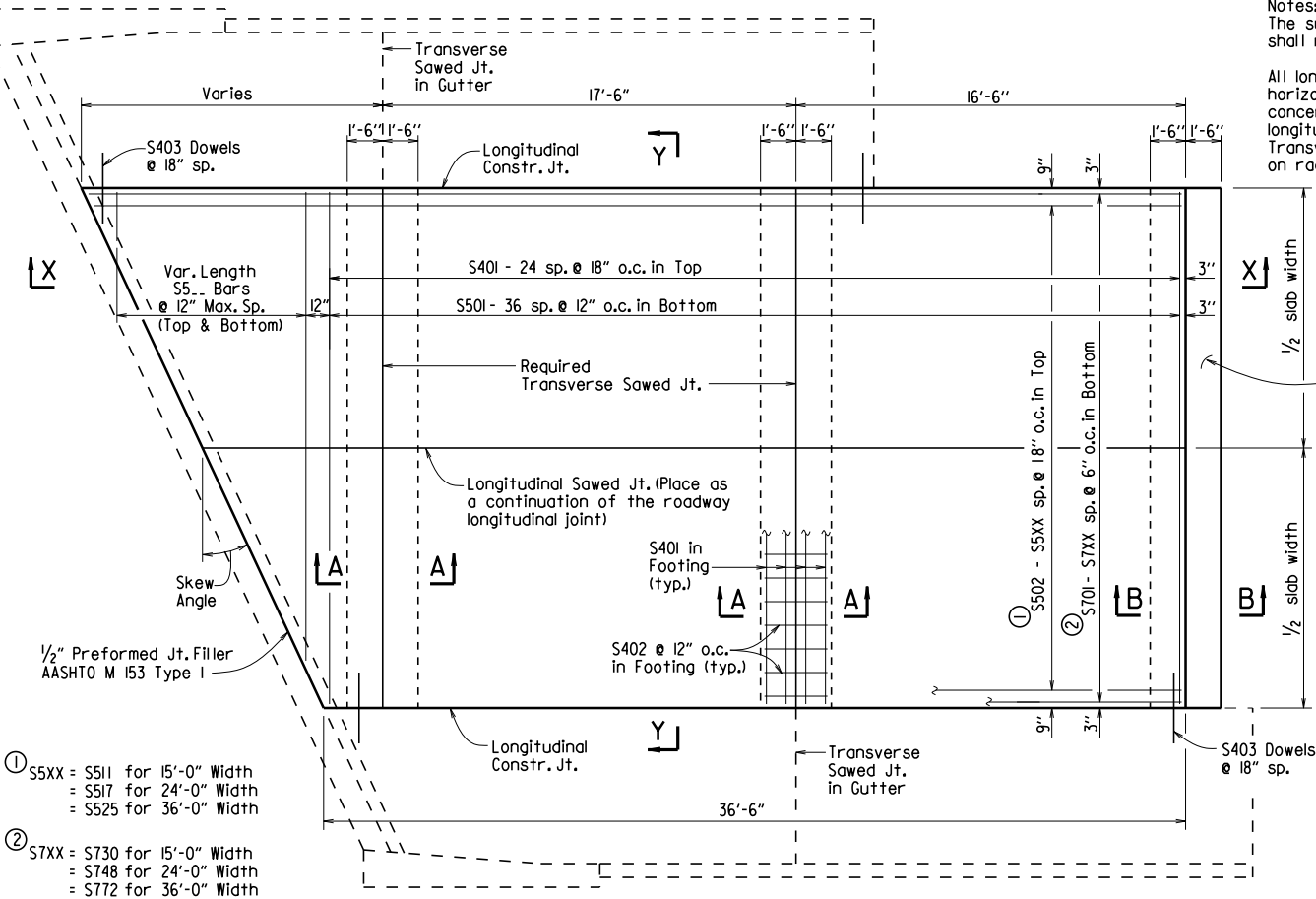
LITTLE ROCK, ARK.

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

BRIDGE ENGINEER

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



- ① S5XX = S511 for 15'-0" Width  
= S517 for 24'-0" Width  
= S525 for 36'-0" Width
- ② S7XX = S730 for 15'-0" Width  
= S748 for 24'-0" Width  
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

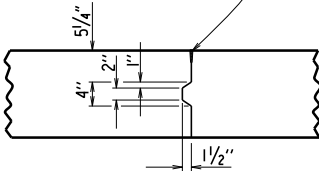
BAR LIST

(Square & Skewed Approach Slabs)

	Square		Skewed	
	Mark	No. Req'd.	Length	No. Req'd.
15'-0" Slab Width	S401	33	14'-8"	37
	S402	30	2'-8"	45
	S403	50	3'-0"	*
	S501	37	14'-8"	37
	S502	10	36'-2"	—
	S502 - S511	—	—	1 Ea.
	S5...	—	—	2 Ea.
	S701	30	36'-2"	—
24'-0" Slab Width	S701 - S730	—	—	1 Ea.
	S401	33	23'-8"	37
	S402	48	2'-8"	72
	S403	50	3'-0"	*
	S501	37	23'-8"	37
	S502	16	36'-2"	—
	S502 - S517	—	—	1 Ea.
	S5...	—	—	2 Ea.
36'-0" Slab Width	S701 - S748	—	—	1 Ea.
	S401	33	35'-8"	37
	S402	72	2'-8"	108
	S403	50	3'-0"	*
	S501	37	35'-8"	37
	S502	24	36'-2"	—
	S502 - S525	—	—	1 Ea.
	S5...	—	—	2 Ea.
36'-0" Slab Width	S701 - S772	—	—	1 Ea.
	S401	33	35'-8"	37
	S402	72	2'-8"	108

\* Varies with skew angle

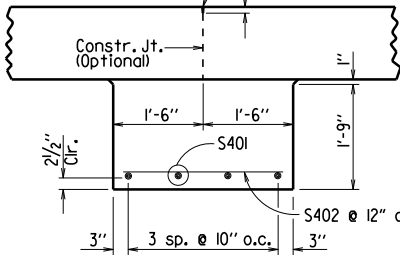
1/2" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"

1/2" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION A-A

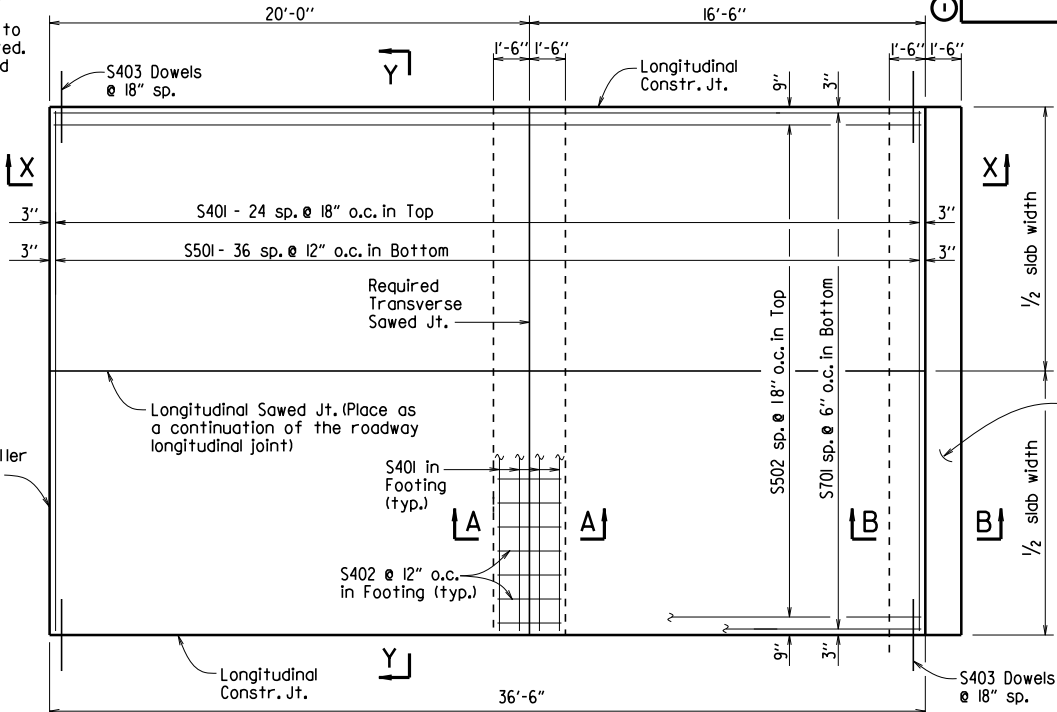
N.T.S.

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

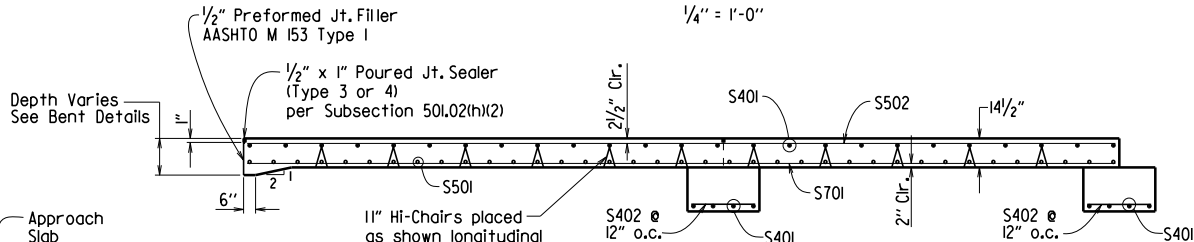
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

Footing shown at concrete approach pavement - See "Section B-B"

1/2" Preformed Jt. Filler AASHTO M 153 Type I



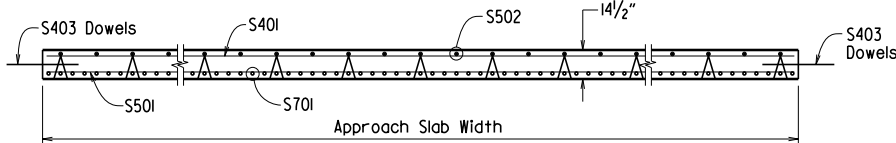
PLAN - SQUARE APPROACH SLAB



SECTION X-X

SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"



SECTION Y-Y

N.T.S.

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone I and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°  
24'-0" Slab Width: Maximum Skew Angle = 40°  
36'-0" Slab Width: Maximum Skew Angle = 30°

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

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

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

STANDARD DETAILS FOR  
TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040cl.dgn  
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN  
DESIGNED BY: STD. DATE:

DRAWING NO. 55040CI

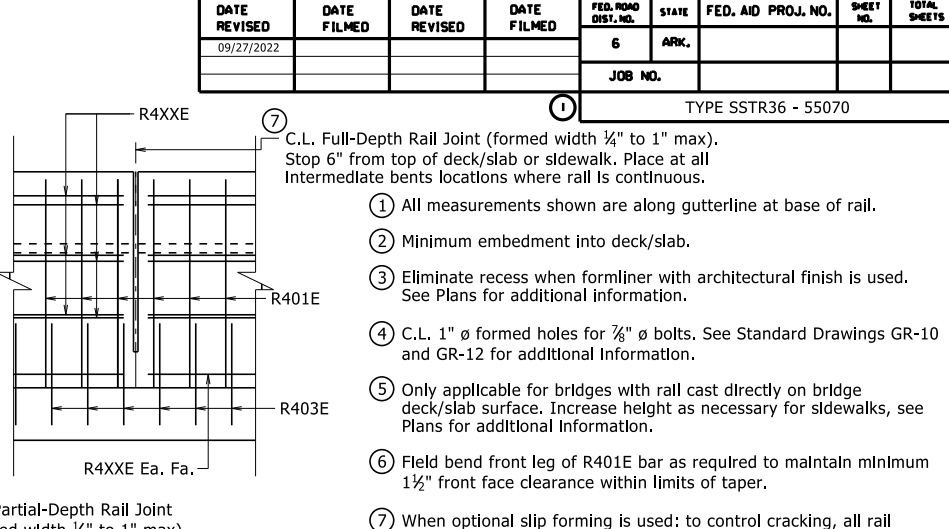
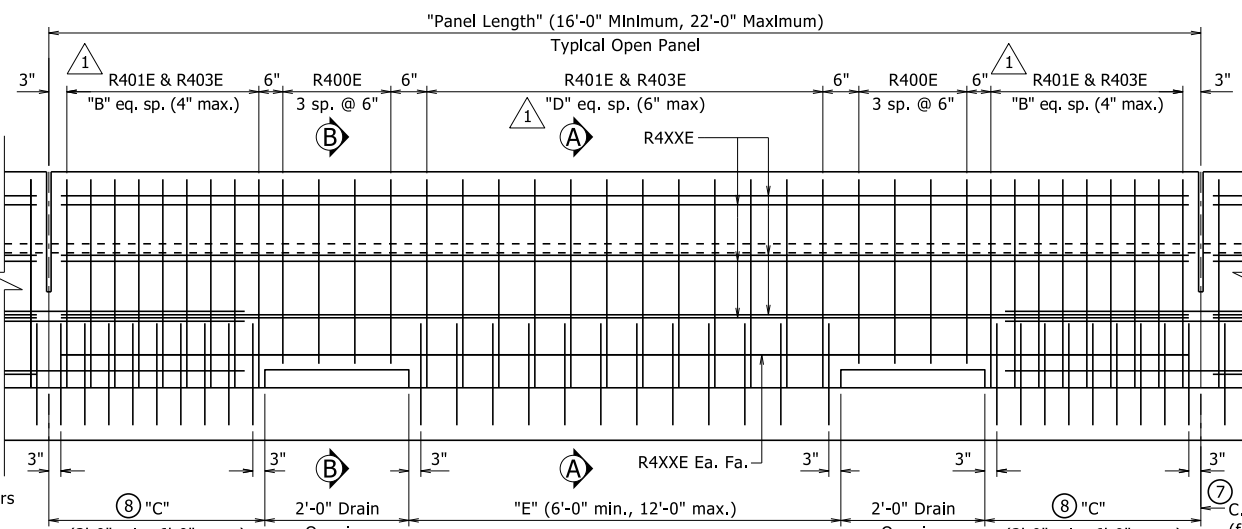
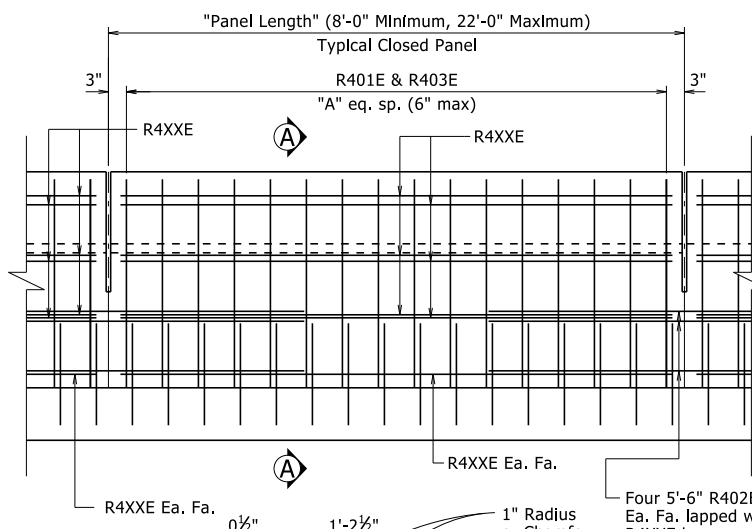
TABLE OF QUANTITIES FOR ONE  
SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75



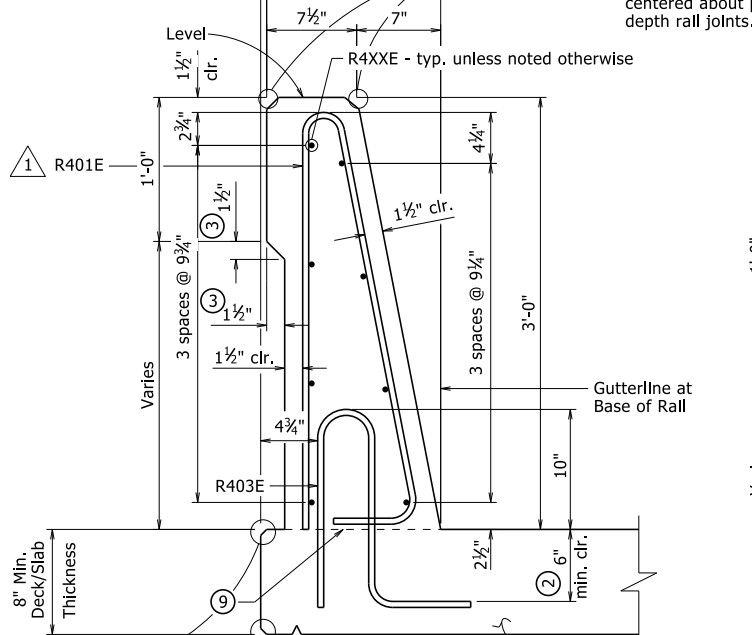
PRINT DATE: 10/6/2022



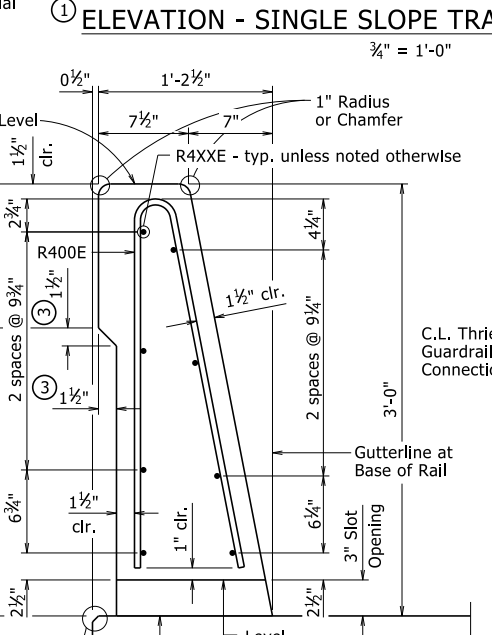
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070

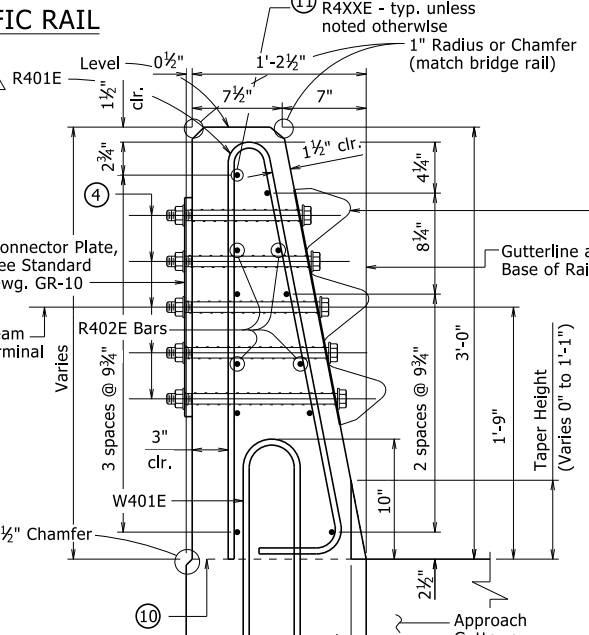
- All measurements shown are along gutterline at base of rail.
- Minimum embedment into deck/slab.
- Eliminate recess when formliner with architectural finish is used. See Plans for additional information.
- C.L. 1"  $\phi$  formed holes for  $\frac{7}{8}$ "  $\phi$  bolts. See Standard Drawings GR-10 and GR-12 for additional information.
- Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.
- Field bend front leg of R401E bar as required to maintain minimum  $\frac{1}{2}$ " front face clearance within limits of taper.
- When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be  $\frac{1}{2}$ ". Sawing of the joints shall be done as soon as practical to a width of  $\frac{1}{4}$ ", and must be controlled so it will follow the V-Groove.
- End posts shall be the same length within a panel.



SECTION A-A

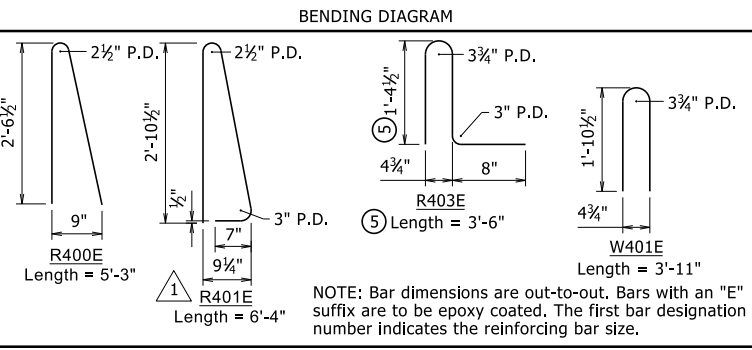


SECTION B-B

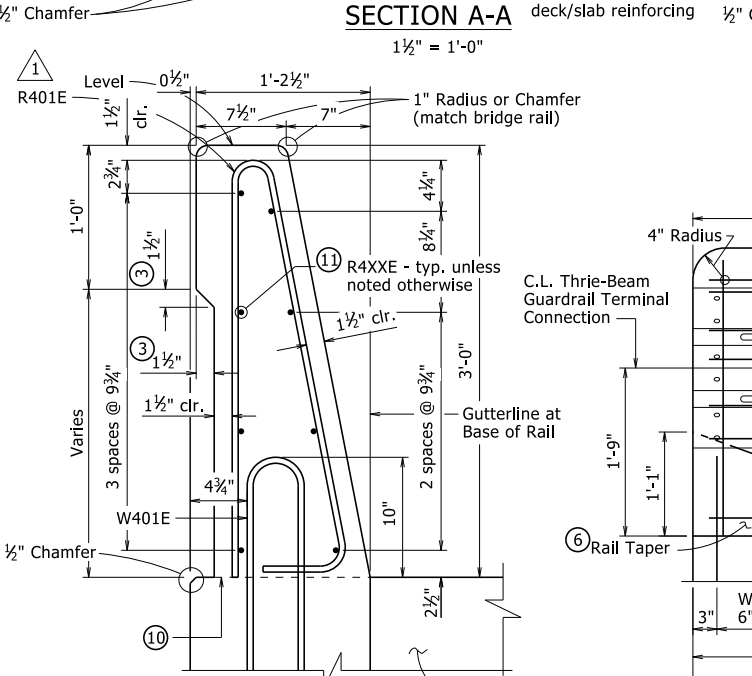
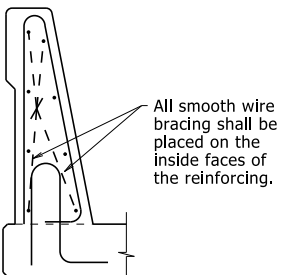
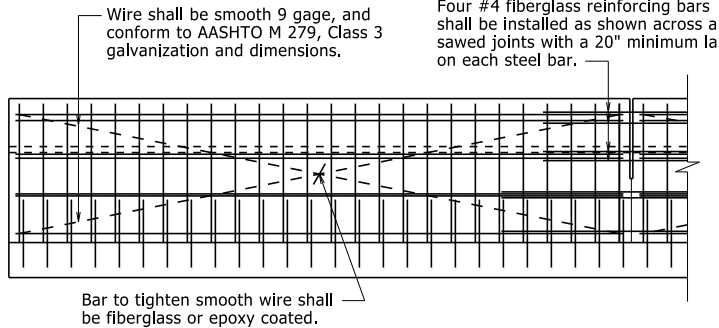


SECTION C-C

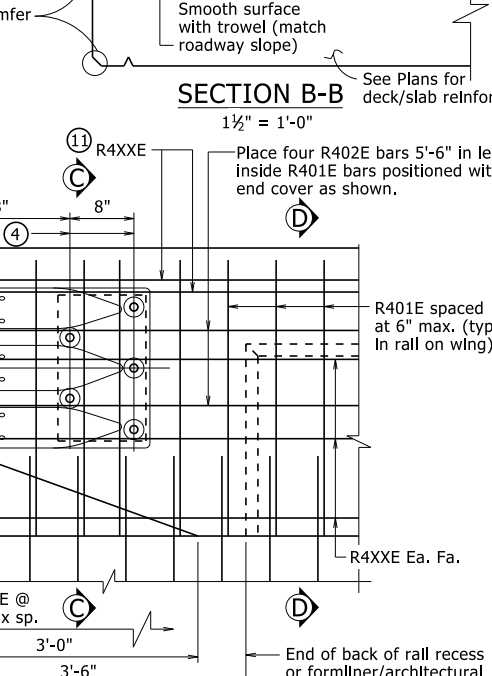
Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than  $\frac{3}{4}$ " beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.



NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.



SECTION D-D



RAIL TERMINUS DETAILS

- Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.
- Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.
- These bars will not be included in the "Table of Variables". See Plans for details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels				
Panel Length	A	R4XXE	Panel Length	B	C	D	E

See Plans for table with values.

GENERAL NOTES

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria.

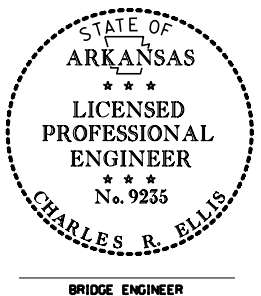
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings shown are not applicable for bridges with sidewalks. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.



BRIDGE ENGINEER

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

Modified bending diagram and spacing for R401E bar. No Scale

By: CGP, Checked by: CMW 09/27/2022

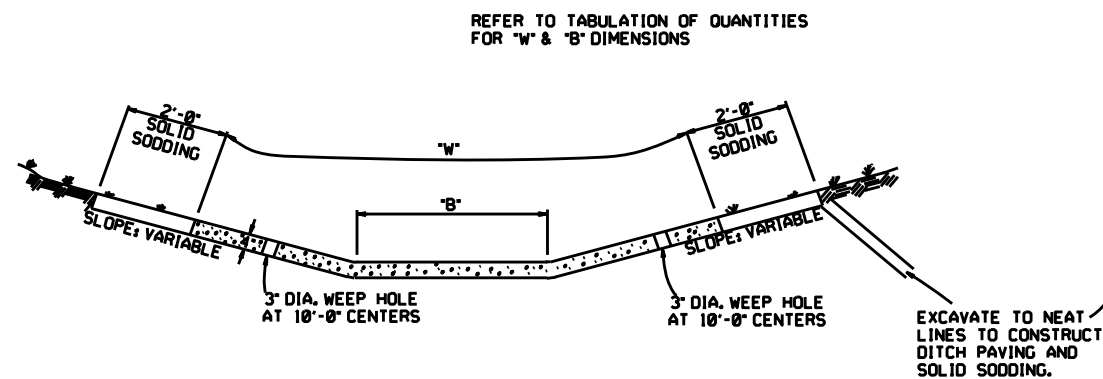
This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 5, 2020. This copy is not a signed and sealed document.

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

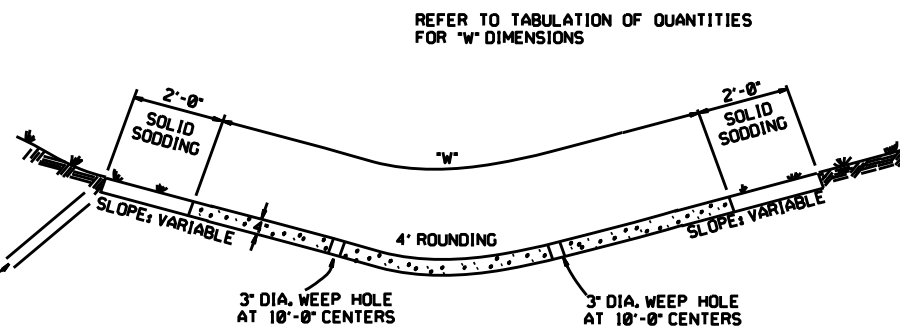
STANDARD DETAILS FOR  
BRIDGE TRAFFIC RAIL  
TYPE SSTR36  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KKY DATE: 11/5/2020 FILENAME: b55070.dgn  
CHECKED BY: LJB DATE: 11/5/2020 SCALE: As Noted  
DESIGNED BY: STD. DATE: ----

DRAWING NO. 55070

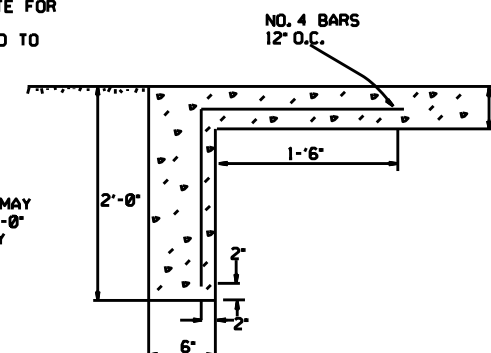


TYPE A

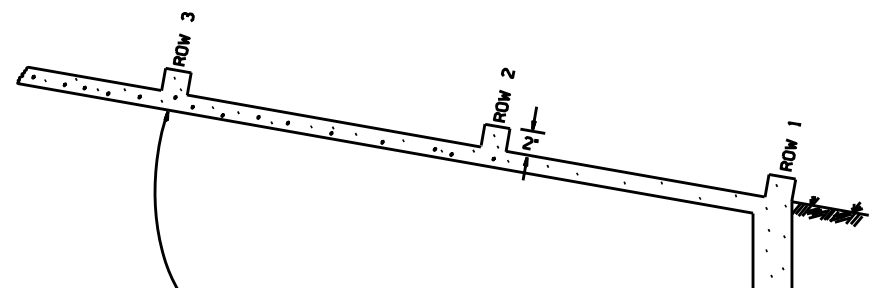


TYPE B

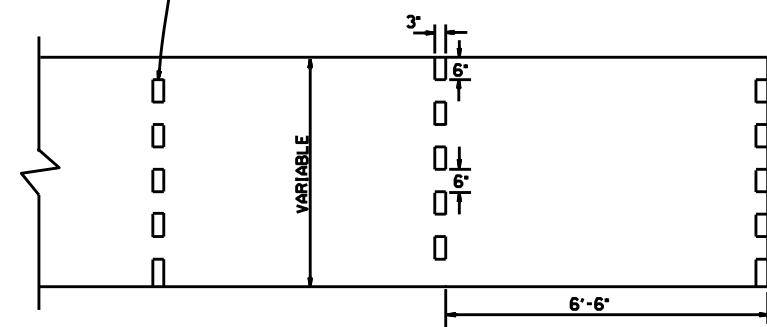
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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



ENERGY DISSIPATORS  
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

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

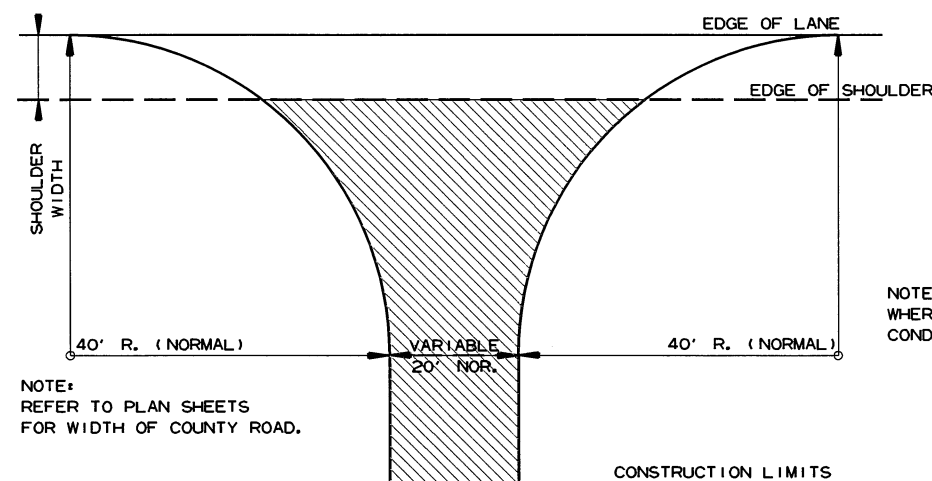
DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-88	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	632-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	639-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED	
10-2-72	TYPED A & B	
	REVISED AND REDRAWN	508-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

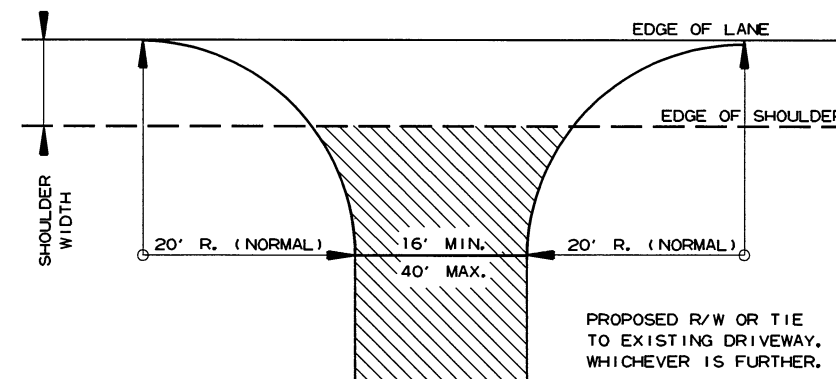




DETAIL FOR COUNTY ROAD TURNOUTS  
OPEN SHOULDER SECTION

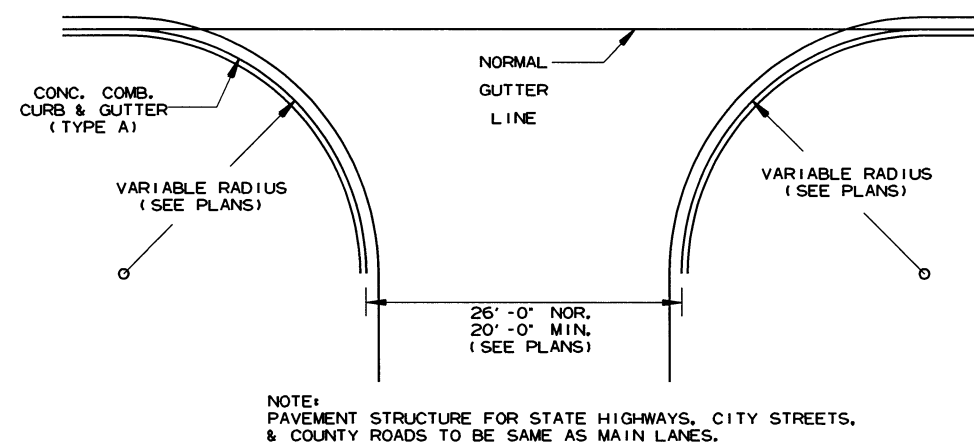
NOTE: TURNOUTS SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH, UNLESS OTHERWISE SPECIFIED IN PLANS.

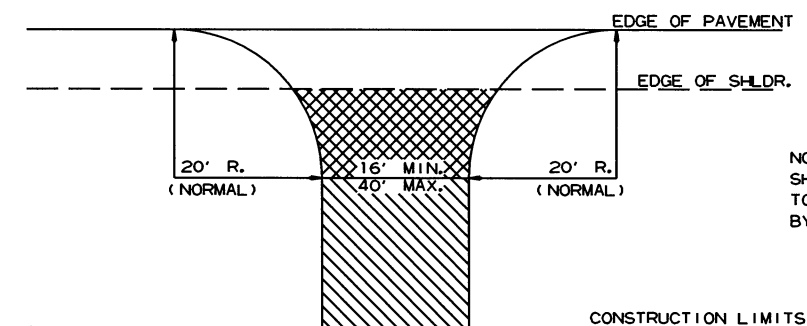


DETAIL FOR DRIVEWAY TURNOUTS  
OPEN SHOULDER SECTION  
(ARTERIALS)

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



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



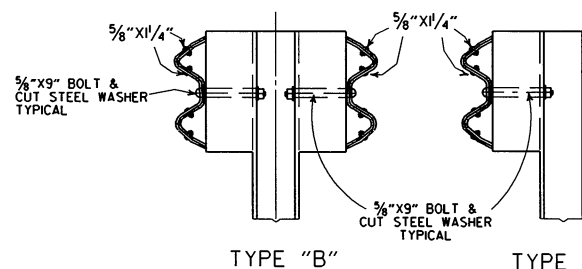
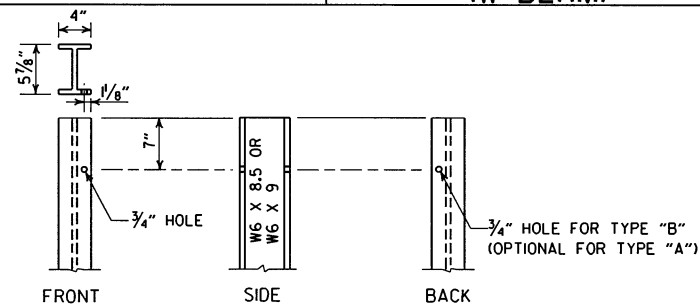
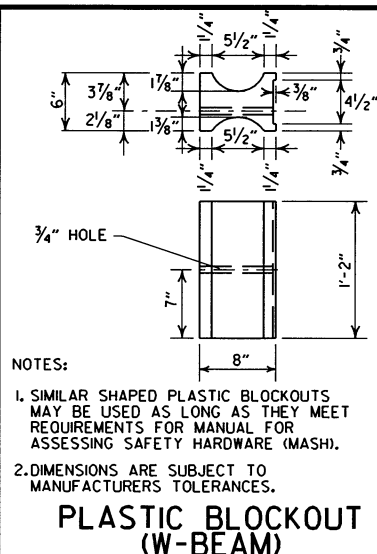
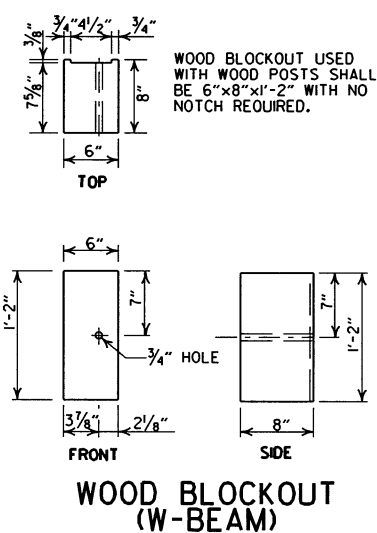
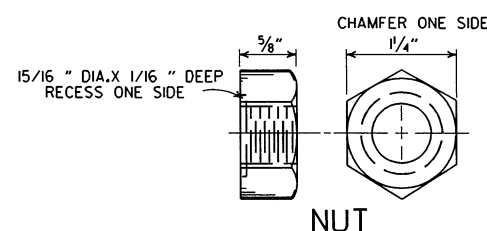
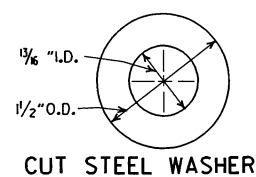
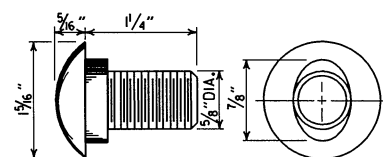
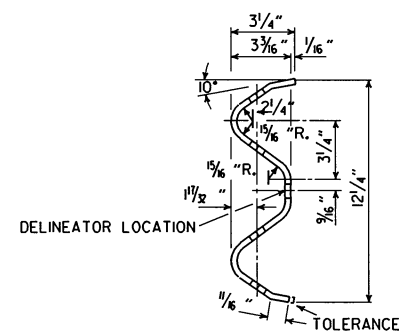
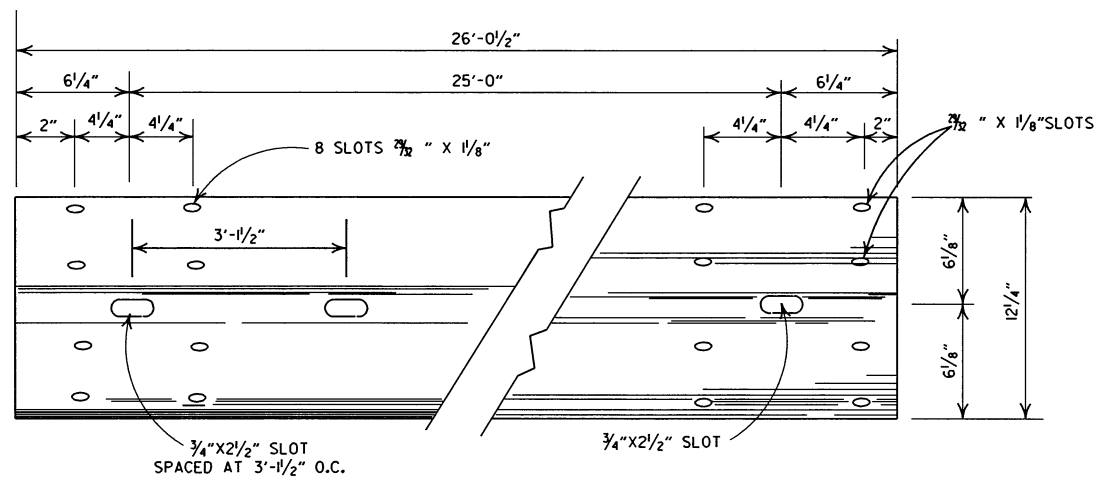
ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.) AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR 6" CONCRETE IF CONCRETE DRIVE EXIST.

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

DETAIL FOR DRIVEWAY TURNOUTS  
(COLLECTORS)

5-19-22		ISSUED	
DATE REV	DATE FILMED	DESCRIPTION	

ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DRIVEWAYS & STREET  
TURNOUTS  
STANDARD DRAWING DR-2



-GENERAL NOTES-

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

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

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.

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

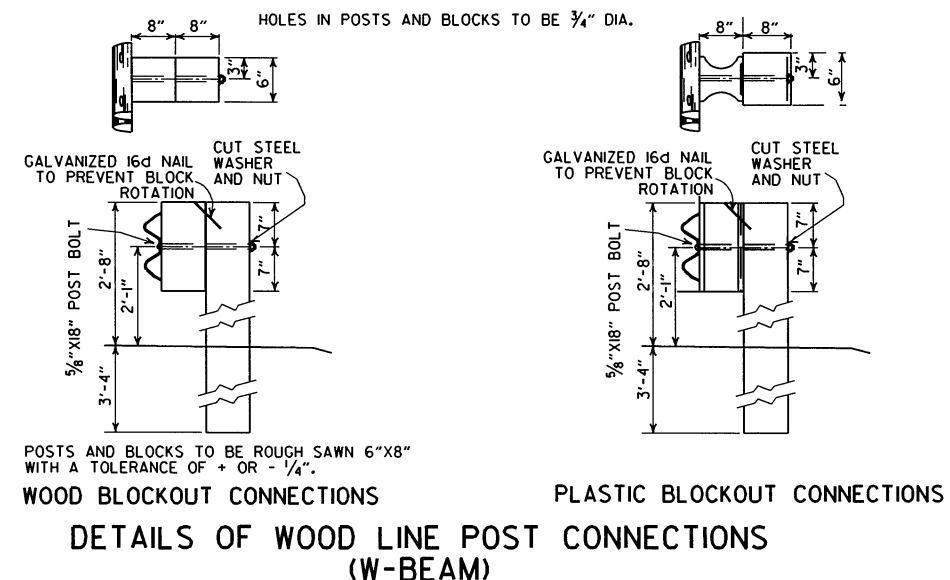
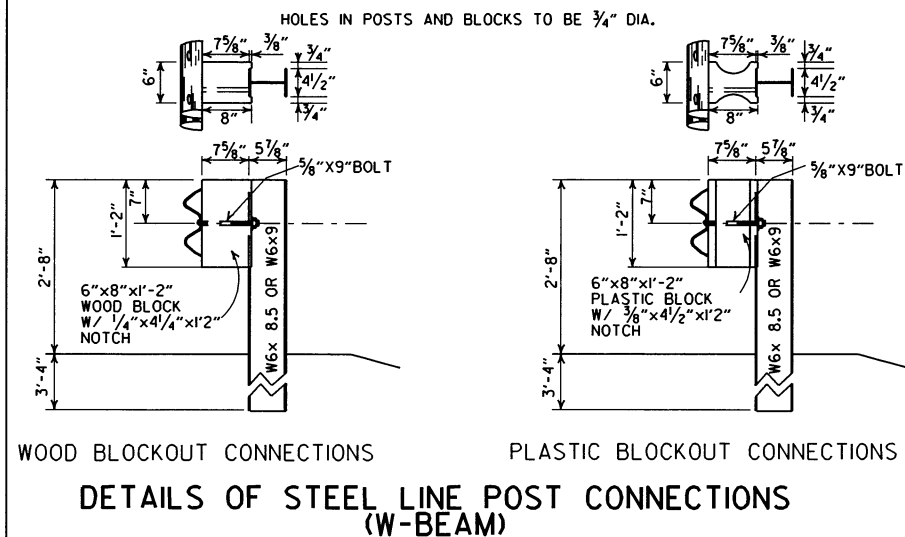
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.  
FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL  
COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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.

DELINATORS SHALL BE MOUNTED AT 37.5' SPACING ON THE FRONT FACE OF THE GUARDRAIL. SPACING MAY BE REDUCED IN CURVES, AS DIRECTED BY THE ENGINEER. COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR GUARDRAIL.



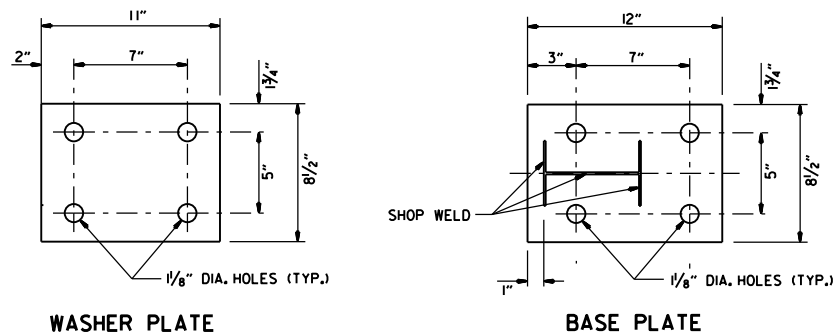
05-19-22	REVISED GENERAL NOTES.	
11-07-19	ADDED DELINEATOR LOCATION.	
	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & 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 RAIL. 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	546-10-30-8
10-09-87	REDRAWN & REVISED	802-10-9-87
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

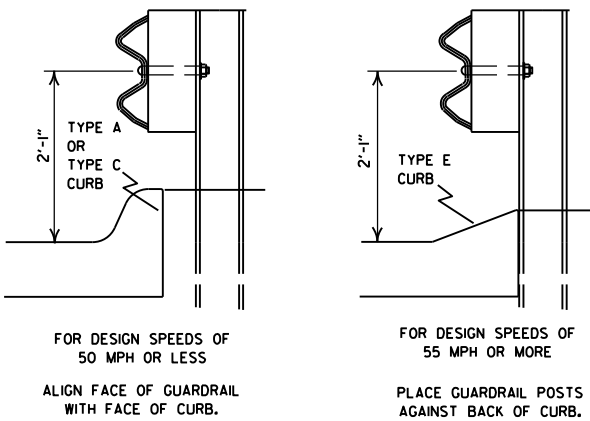
## GUARDRAIL DETAILS

STANDARD DRAWING GR-6



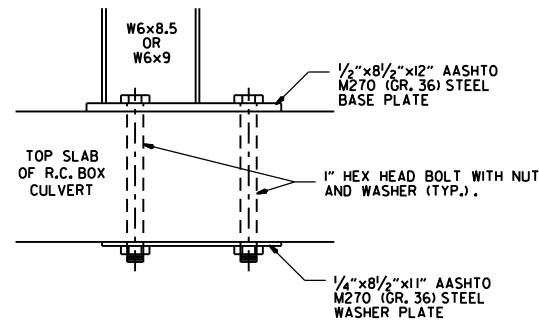
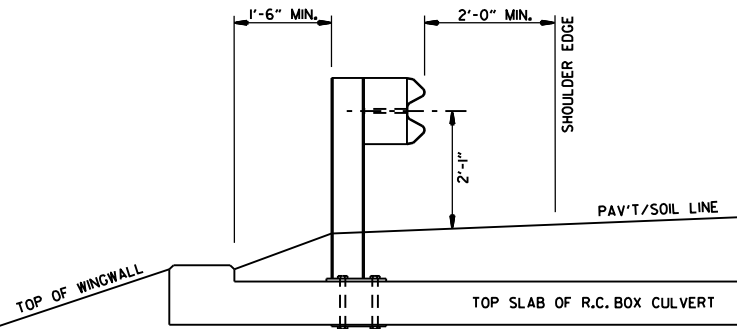


Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



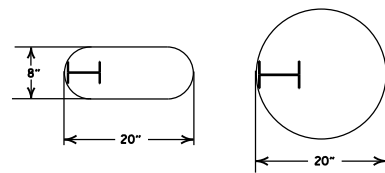
### DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

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.



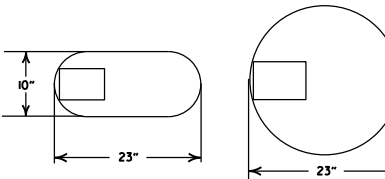
### Plan View Steel Posts

Either hole configuration acceptable



### Plan View Wood Posts

Either hole configuration acceptable

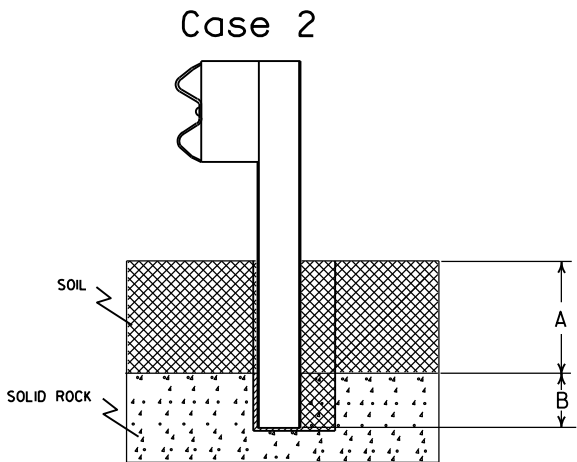


Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

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

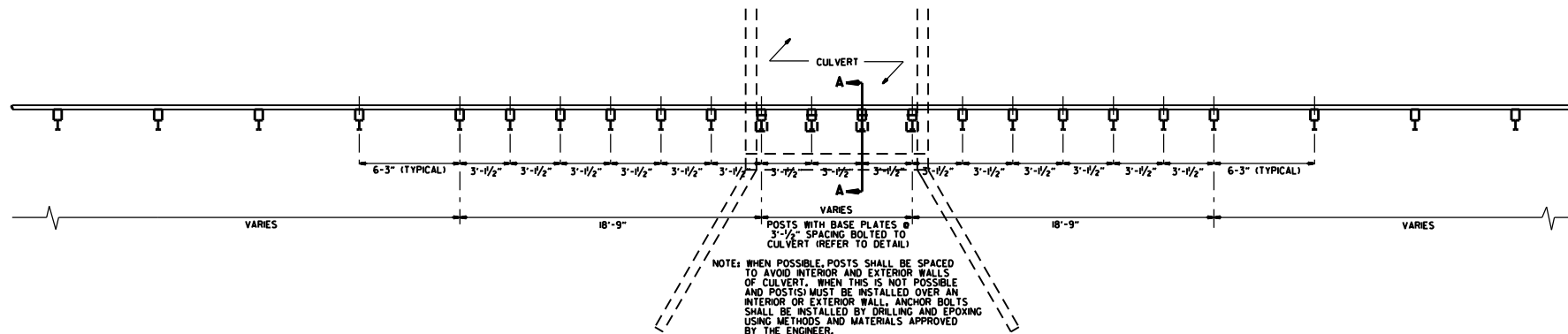
Zone B:  
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

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



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).



### PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

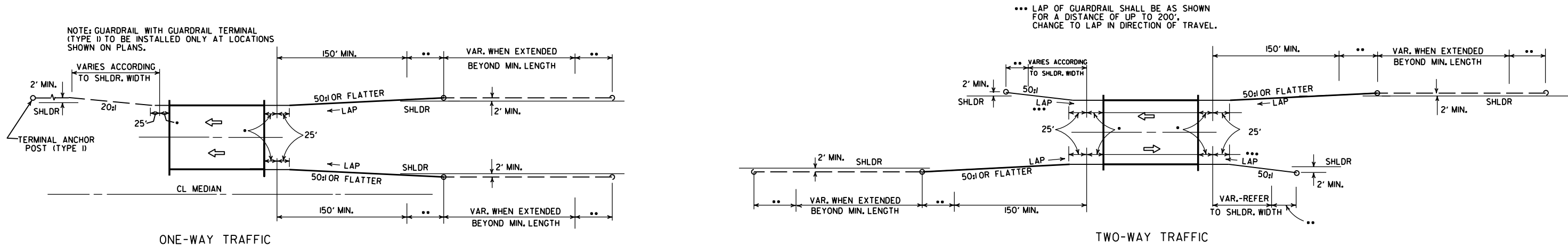
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DRWG. GR-6.

DATE	REVISION	FILED
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 CULVERT, 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

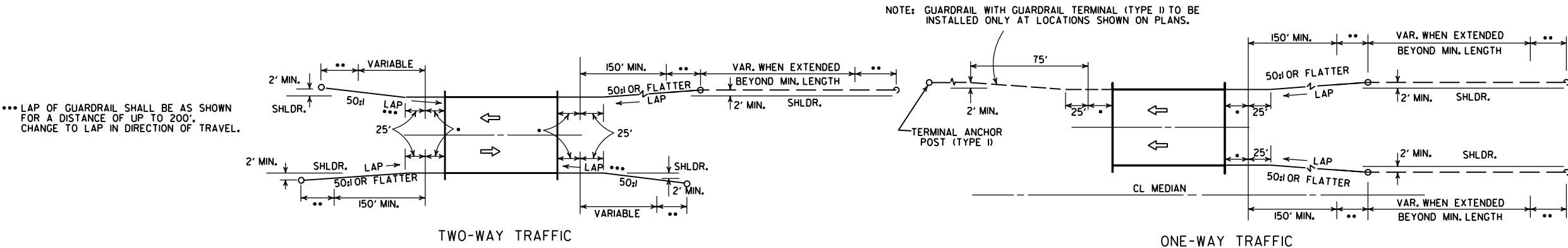
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

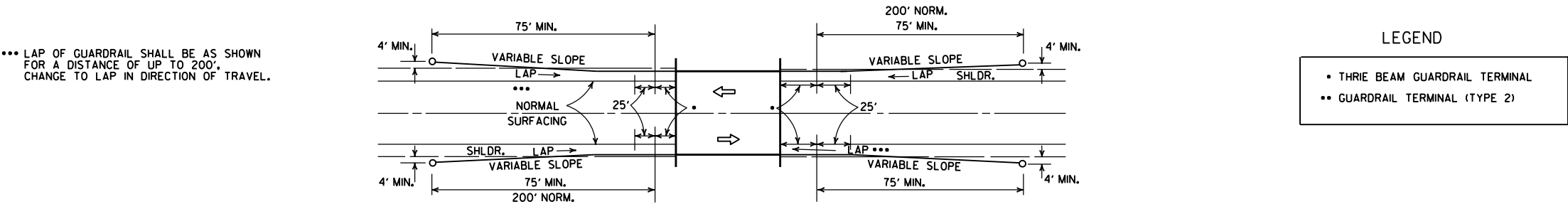
STANDARD DRAWING GR-7



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



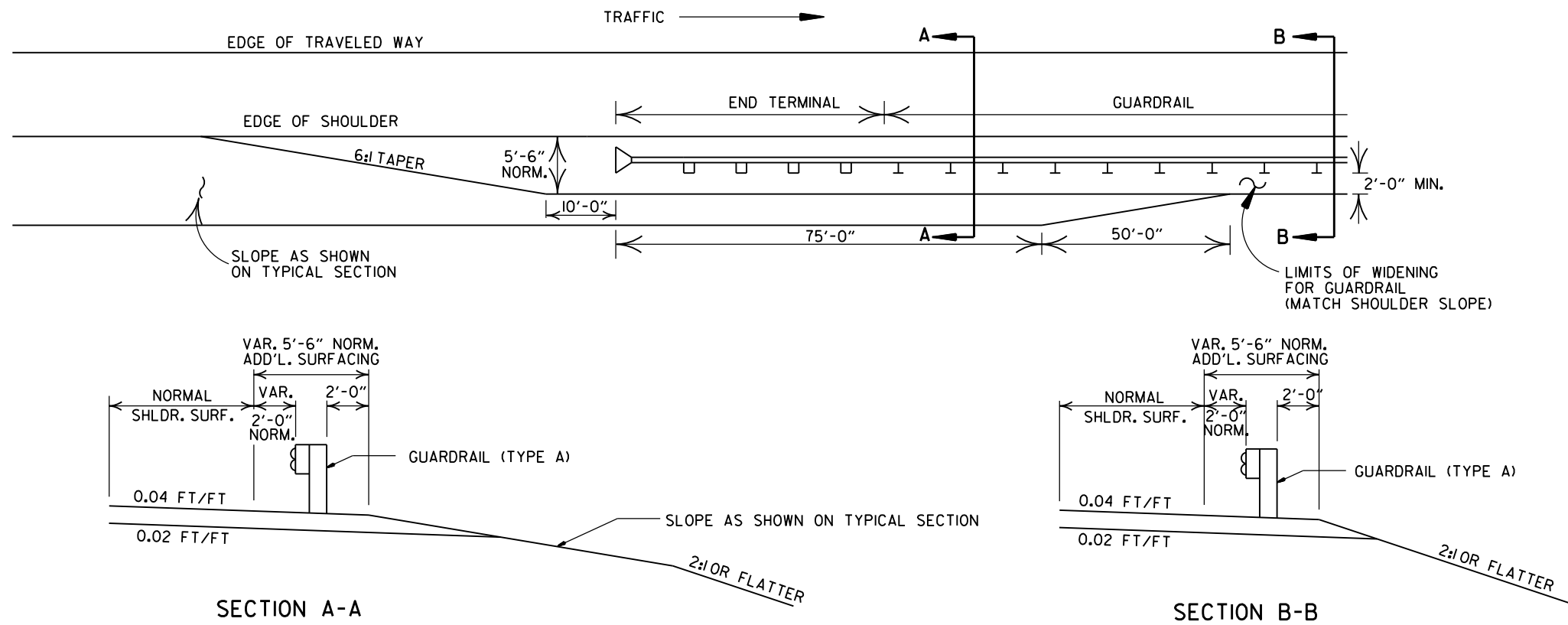
METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)



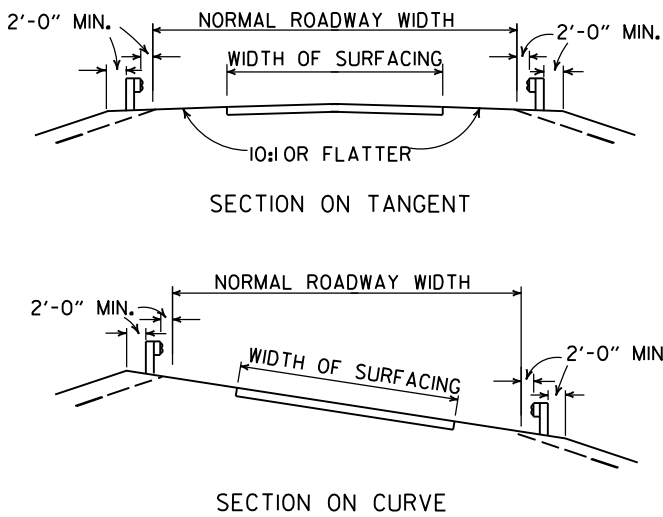
METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

			ARKANSAS STATE HIGHWAY COMMISSION
11-07-19	RENUMBERED AND RENAMED		GUARDRAIL DETAILS
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	STANDARD DRAWING GR-8
6-26-97	REVISED LAYOUT		
10-1-92	REDRAWN & REVISED	10-1-92	
10-9-87	ADDED NOTE		
DATE	REVISION	DATE FILM	

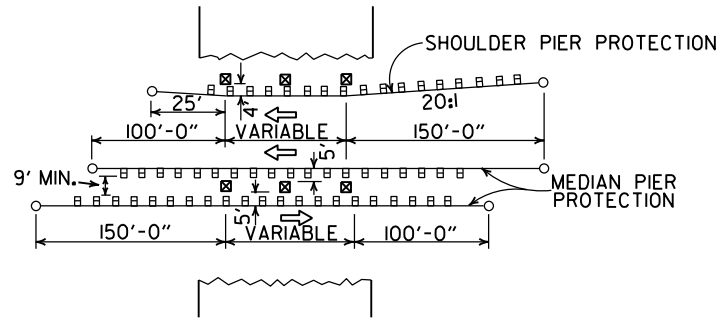




DETAILS OF WIDENING FOR GUARDRAIL



DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY



METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
			STANDARD DRAWING GR-9
11-07-19	RENUMBERED AND RENAMED		
4-17-08	MINOR REVISION		
11-10-05	DRAWN		
DATE	REVISION	DATE FILED	



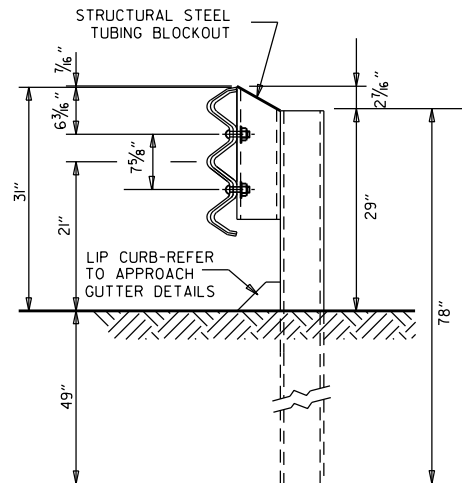
## CONNECTOR PLATE

## THRIE BEAM RAIL SPLICE AT POST

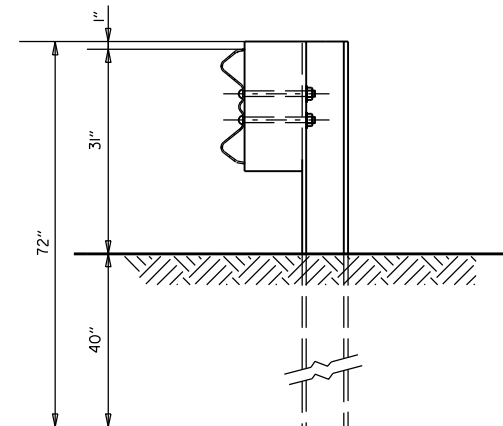
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

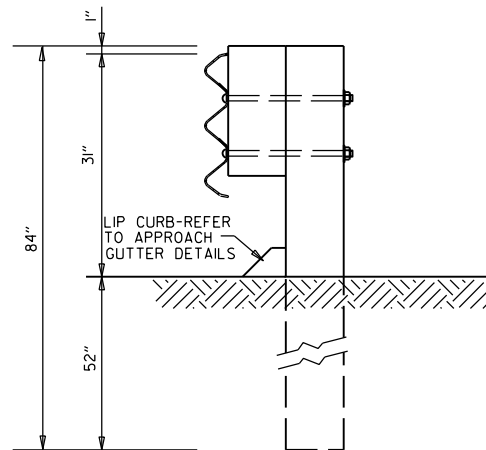




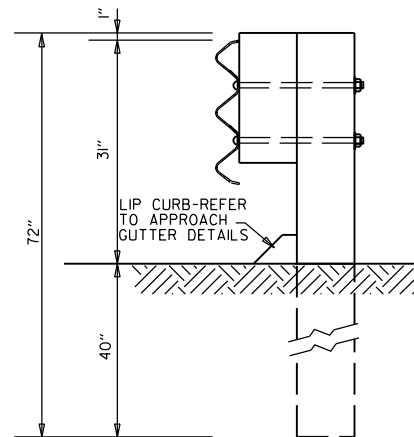
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT  
AND STEEL POST  
POSTS 1-7



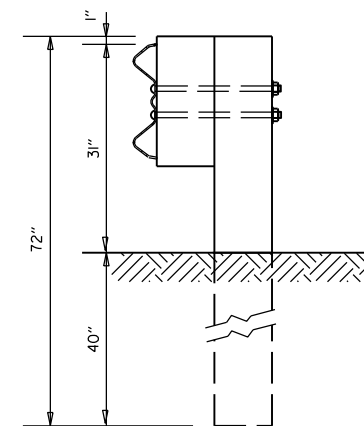
W-BEAM TO THRIE BEAM TRANSITION RAIL  
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST  
POST 8



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



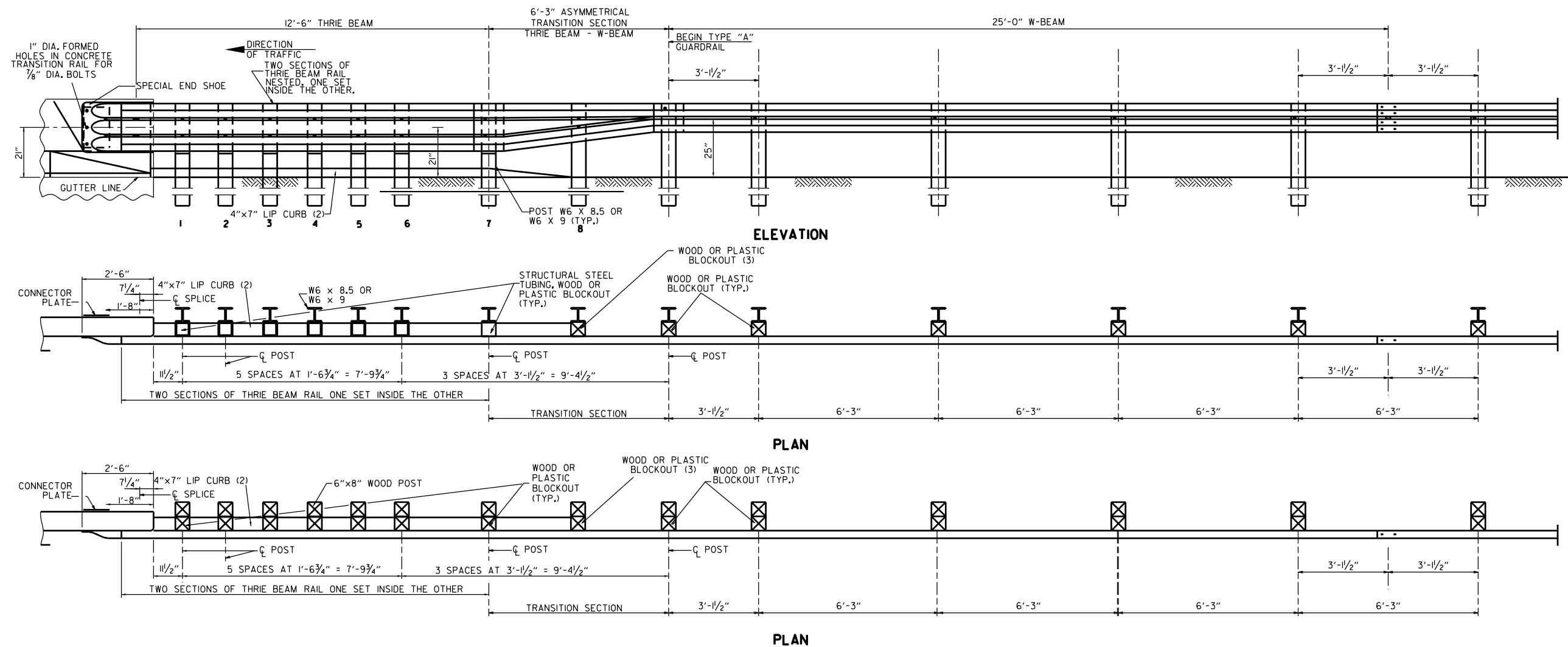
W-BEAM TO THRIE BEAM  
TRANSITION RAIL WITH WOOD OR  
PLASTIC BLOCKOUT & WOOD POST  
POST 8

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. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 350 f SOUTHERN PINE.

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
11-07-19	RENAMED		
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II		STANDARD DRAWING GR-II
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		
DATE	REVISION	FILMED	



- (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-II FOR POST DETAILS.

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

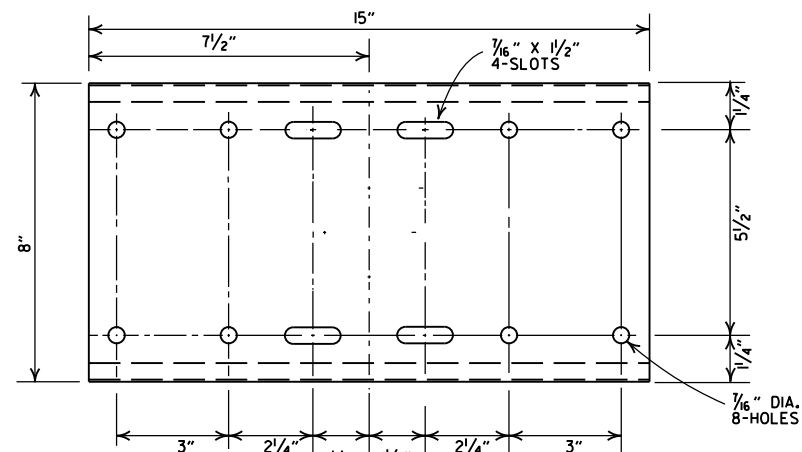
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

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

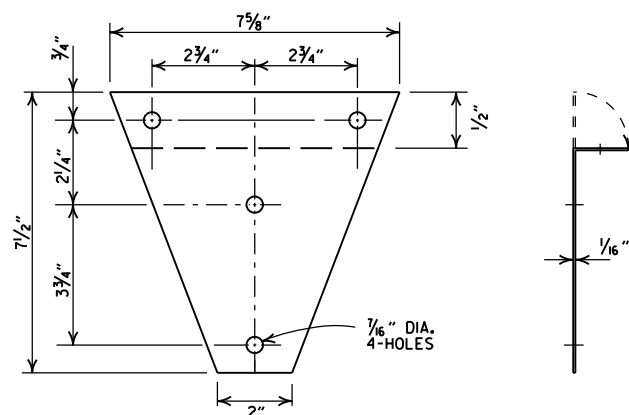
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

ARKANSAS STATE HIGHWAY COMMISSION		
GUARDRAIL DETAILS		
STANDARD DRAWING GR-12		
05-14-20	REVISED NOTES	
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	
DATE	REVISION	FILMED

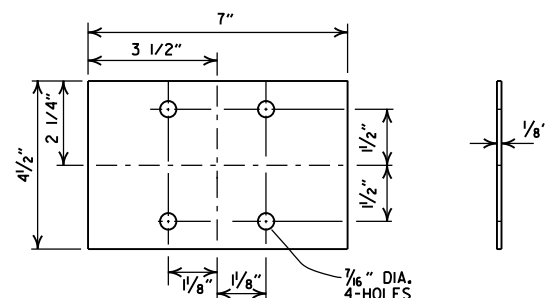




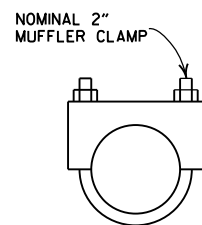
SHELF



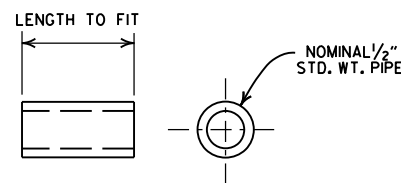
BRACKET



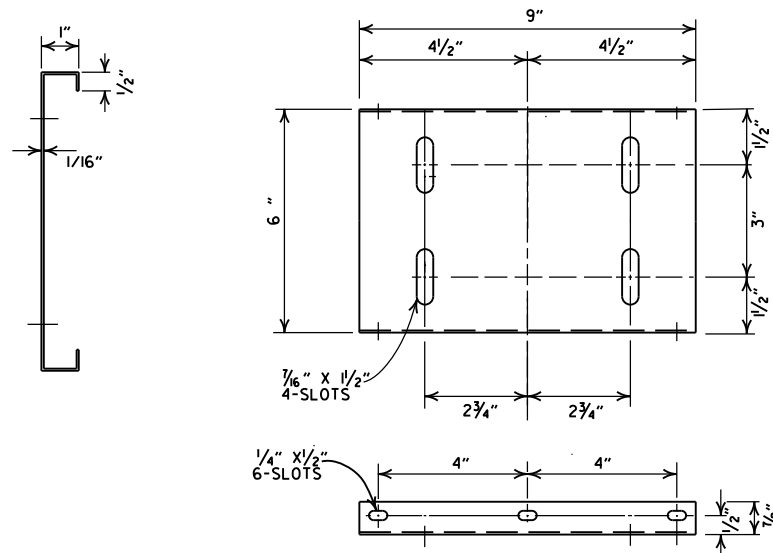
ANTI-TWIST PLATE



CLAMP



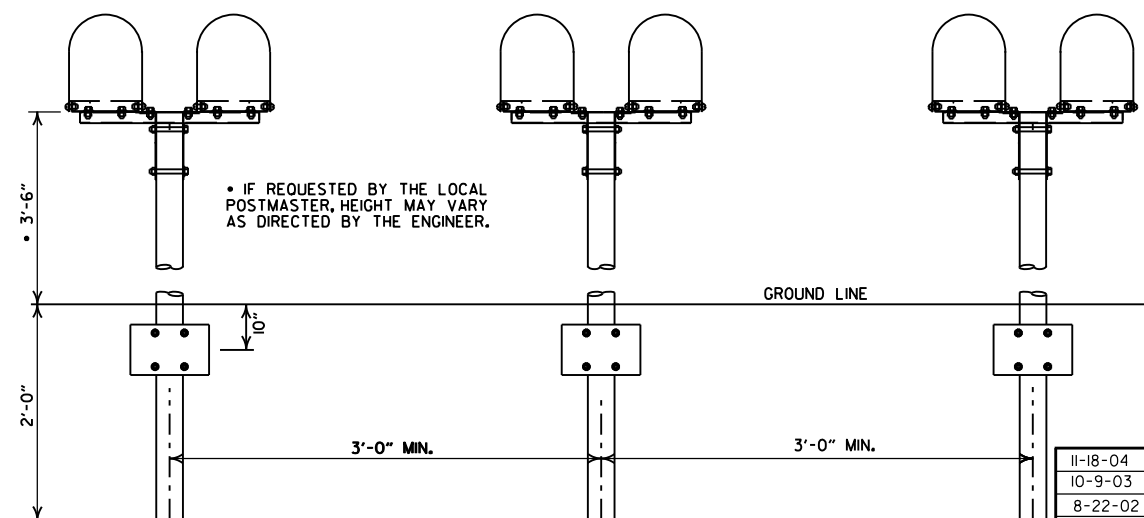
SPACER



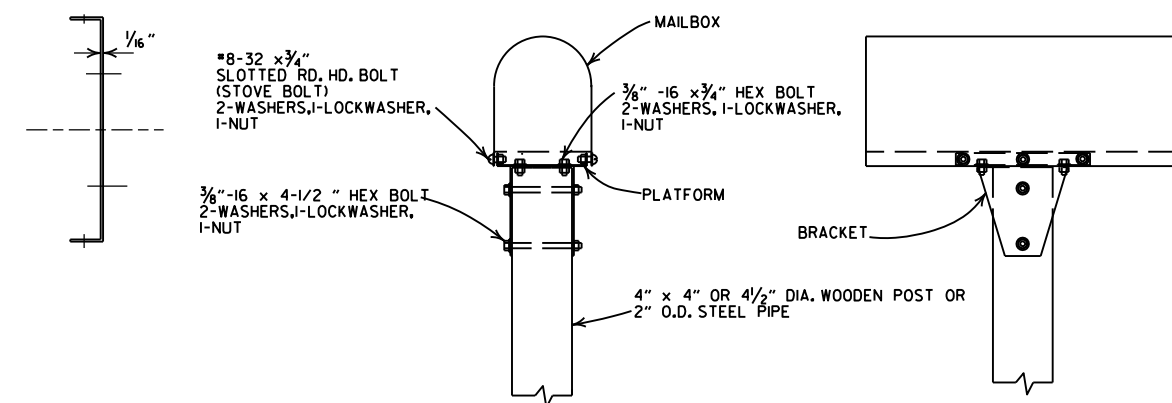
PLATFORM

#### GENERAL NOTES

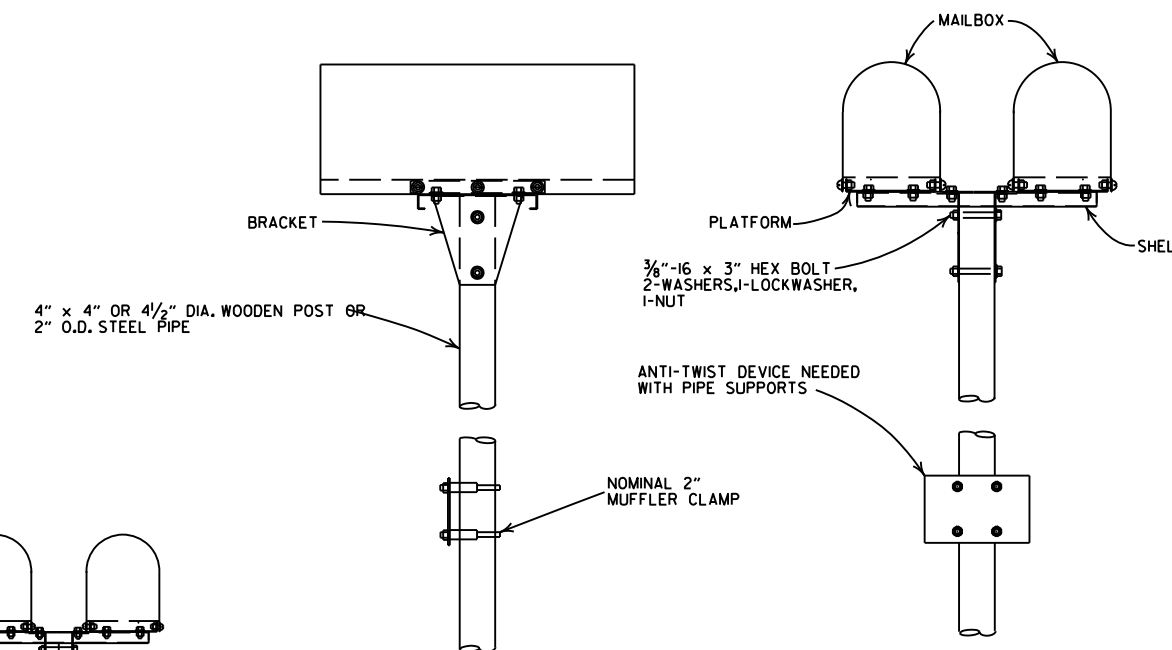
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



SPACING FOR MULTIPLE POST INSTALLATION



SINGLE INSTALLATION



DOUBLE INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	120-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE  
ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	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	43¾	44	26¾	27
42	51½	51	31¾	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	87½	87
120	154	154	96¾	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.

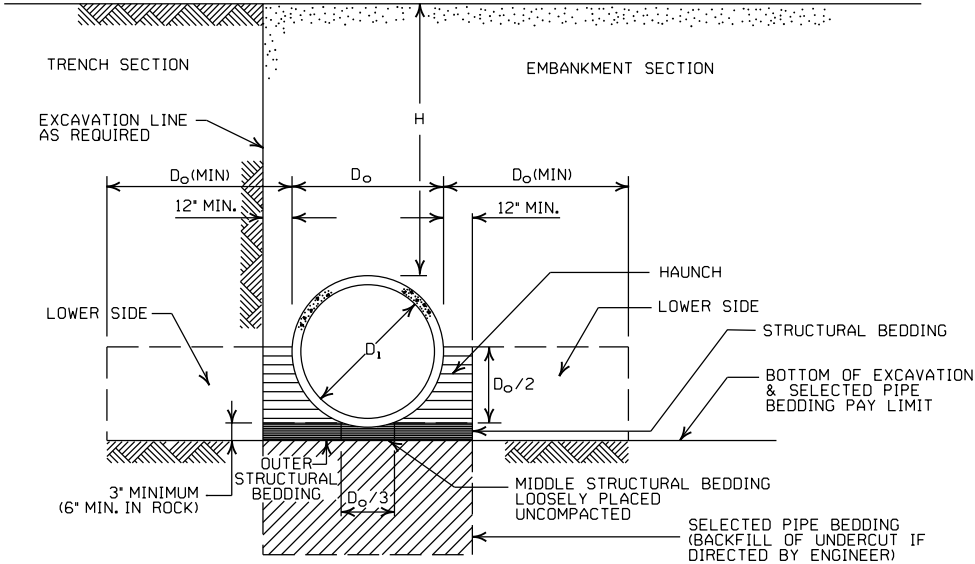
- LEGEND -

D<sub>i</sub> = NORMAL INSIDE DIAMETER OF PIPE  
D<sub>o</sub> = 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.

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 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.

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.

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	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1





CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM 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
2 3/4 INCH BY 1/2 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 MINIMUM 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 3/4 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM 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 ¾ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ¾ 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	0.135	3	15	
66	77x52	8	0.168	3	15	0.164	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				① FOR MINIMUM COVER VALUES, "H" SHALL ② WHERE THE STANDARD 2 2/3" x ½" COR WITH A 3' x 1' OR 5' x 1' CORRUGATION OR GREATER THAN THE MAXIMUM FILL		
			INSTALLATION		INSTALLATION				
			TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15		
42	46x36	6	0.079	3	2	13	15		
48	53x41	7	0.079	3	2	13	15		
54	60x46	8	0.079	3	2	13	15		
60	66x51	9	0.079	3	2	13	15		
66	73x55	12	0.079	3	2	15	15		
72	81x59	14	0.079	3	2	15	15		
78	87x63	14	0.079	3	2	15	15		
84	95x67	16	0.109	3	2	15	15		
90	103x71	16	0.109	3	2	15	15		
96	112x75	18	0.109	3	2	15	15		
102	117x79	18	0.109	3	2	15	15		
108	128x83	18	0.138	3	2	15	15		

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

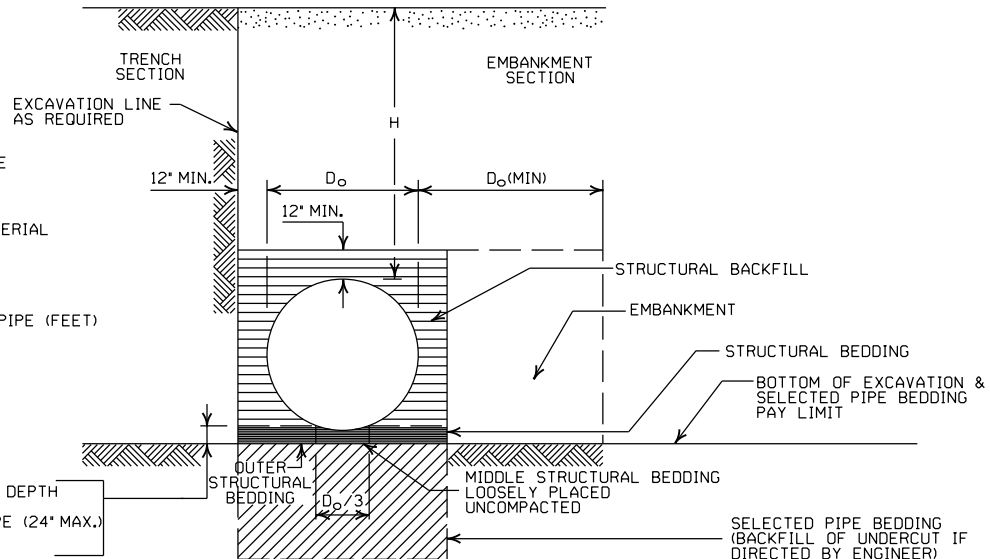
EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM  
===== = STRUCTURAL BACKFILL MATERIAL  
||||||| = UNDISTURBED SOIL  
EQUIV. DIA. = EQUIVALENT DIAMETER  
H = FILL COVER HEIGHT OVER PIPE (FEET)

IN SOIL-MIN. EQUALS TWICE CORRUGATION DEPTH  
IN ROCK-MIN. EQUALS GREATER OF:  
1/2" PER FOOT OF FILL OVER PIPE (24" MAX.)  
TWICE CORRUGATION DEPTH



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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/4" X 1/2" 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."

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

② WHERE THE STANDARD 2 2/3" X 1/2" 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.

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
  - SM3 WILL NOT BE ALLOWED.
  - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH  
BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" ≥ 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"

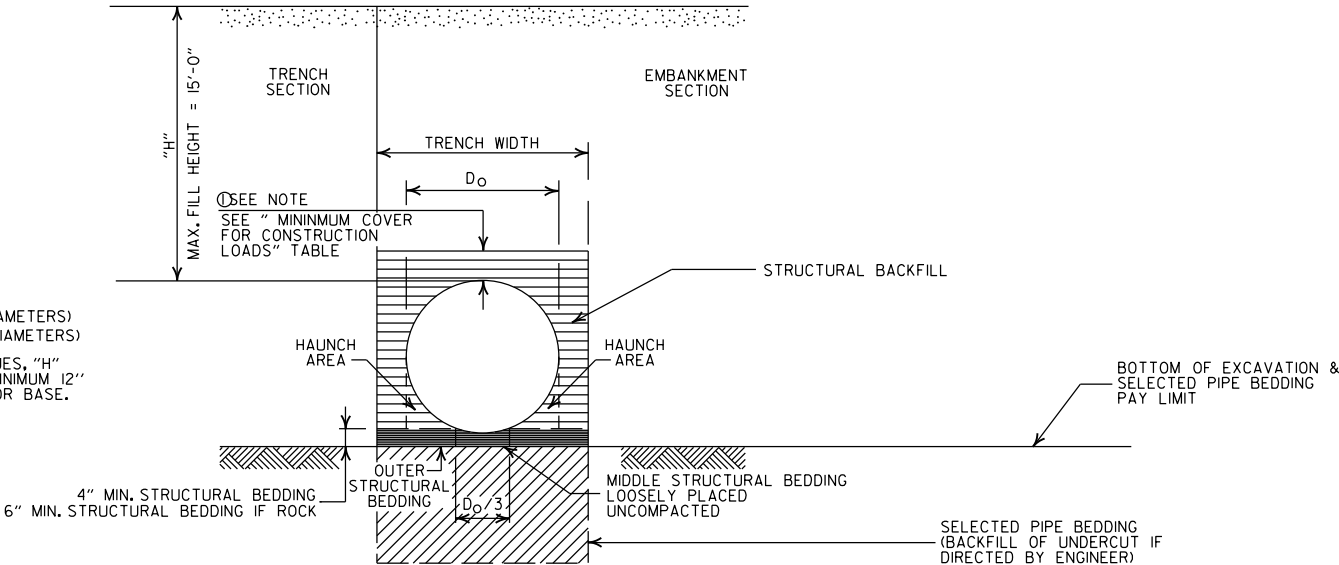
NOTE:  
18" MIN. (18" - 30" DIAMETERS)  
24" MIN. (36" - 48" DIAMETERS)  
MINIMUM COVER VALUES, "H"  
SHALL INCLUDE A MINIMUM 12"  
OF PAVEMENT AND/OR BASE.

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"

PIPE DIAMETER	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"

MINIMUM 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

- 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

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

- H = FILL HEIGHT (FT.)  
Do = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL  
===== = UNDISTURBED SOIL

GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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.

			ARKANSAS STATE HIGHWAY COMMISSION
			PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)
			STANDARD DRAWING PCP-1
2-27-14	REVISED GENERAL NOTE 1.		
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE		
11-17-10	ISSUED		
DATE	REVISION	DATE FILMED	



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.  
  
SM3 WILL NOT BE ALLOWED.
- STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/4 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH  
BASED ON FILL HEIGHT "H"

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

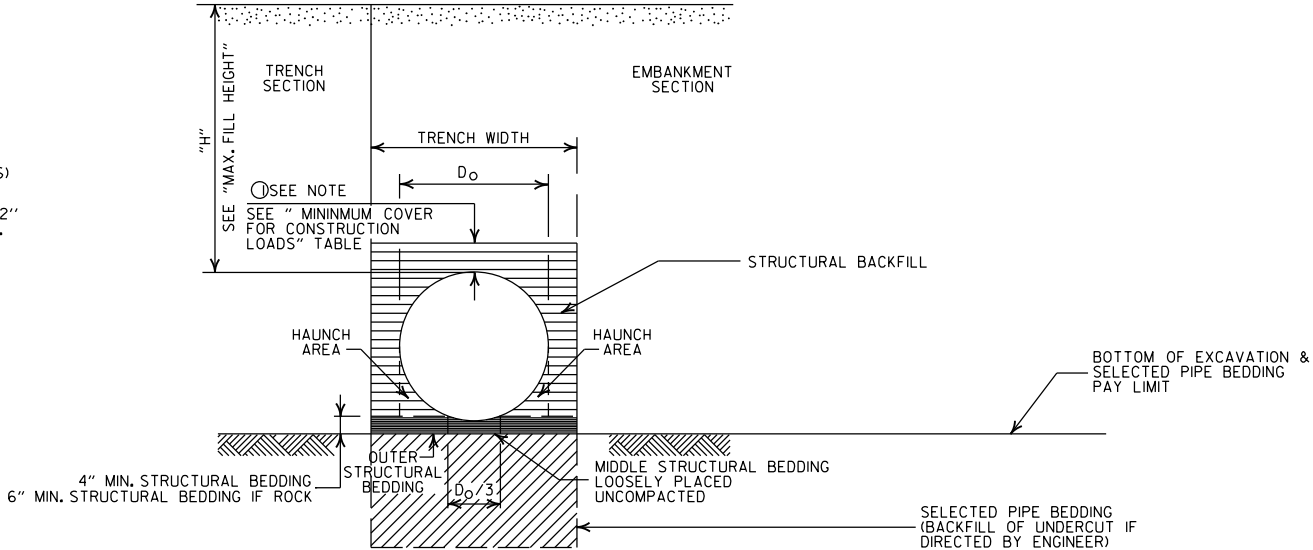
MULTIPLE INSTALLATION OF  
PVC PIPES

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.



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.

- LEGEND -

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

===== = STRUCTURAL BACKFILL MATERIAL  
XXXXXX = UNDISTURBED SOIL

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 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.

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

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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

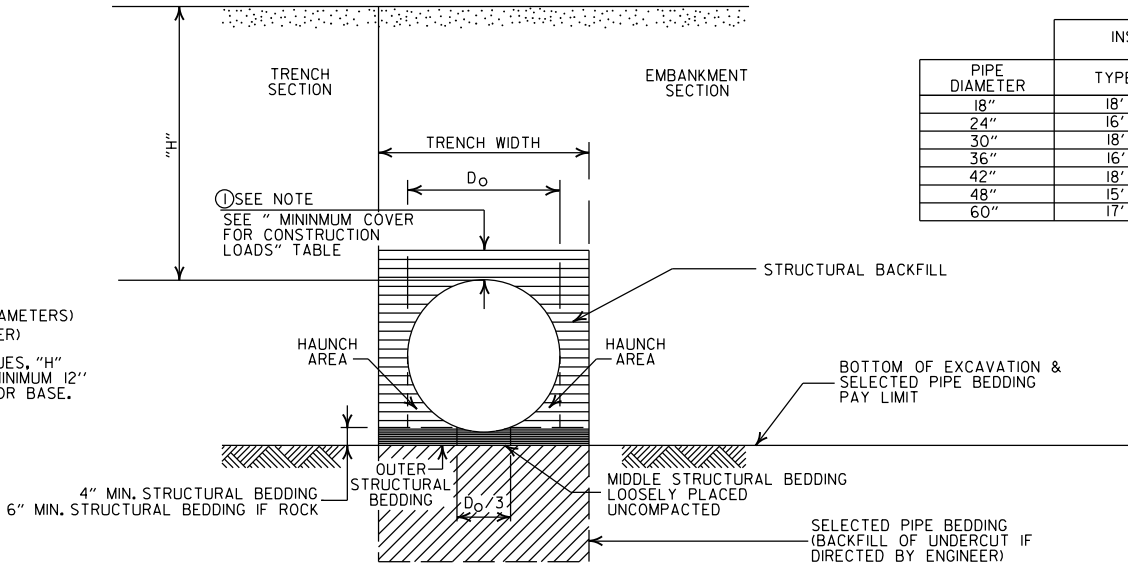
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

①NOTE:  
12" MIN. (18" - 42" DIAMETERS)  
24" MIN. (60" DIAMETER)  
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

#### 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.



#### MAXIMUM HEIGHT OF FILL "H"

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

#### EMBANKMENT AND TRENCH INSTALLATIONS

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

#### CONSTRUCTION SEQUENCE

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

#### GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M330, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS 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<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

===== = STRUCTURAL BACKFILL MATERIAL  
XXXXXXXXXX = UNDISTURBED SOIL

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

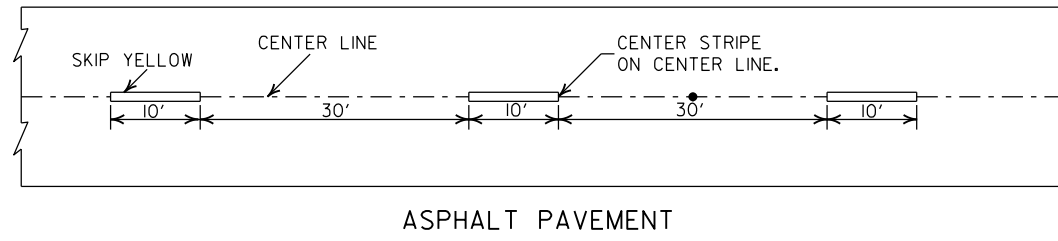
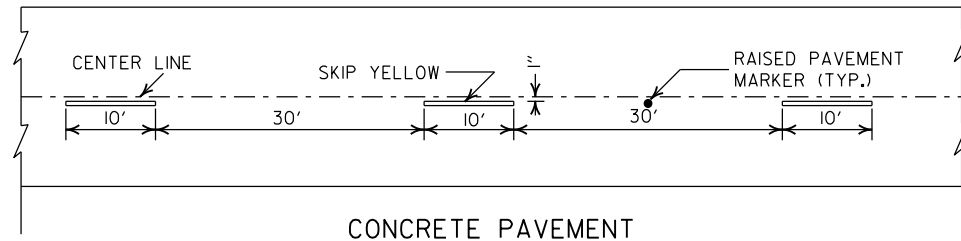
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT  
(POLYPROPYLENE)

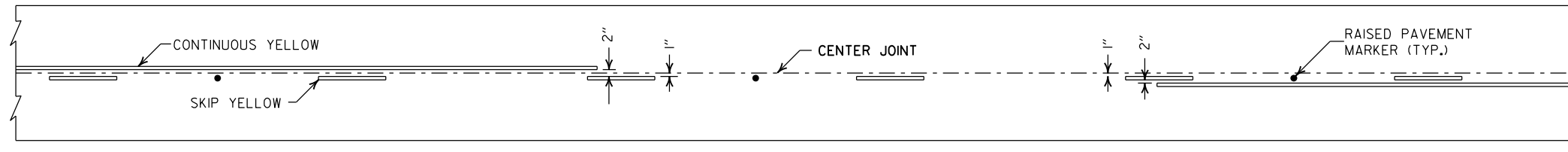
STANDARD DRAWING PCP-3



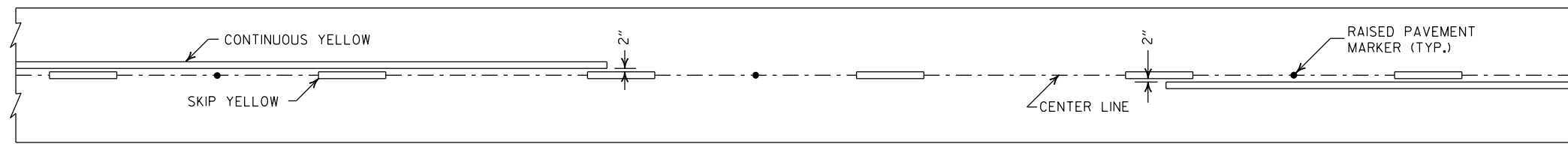




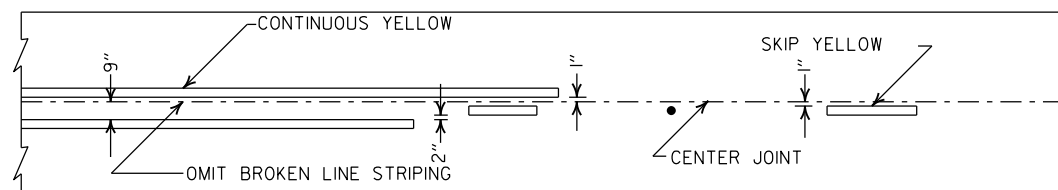
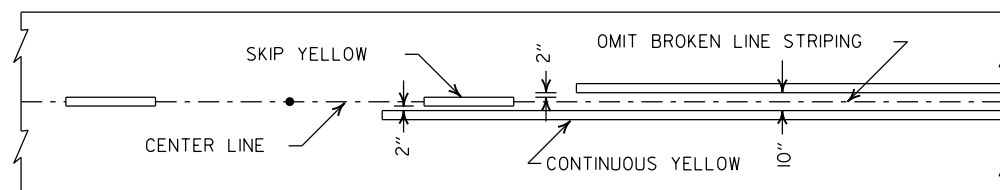
### BROKEN LINE STRIPING



### SOLID LINE STRIPING ON CONCRETE PAVEMENT



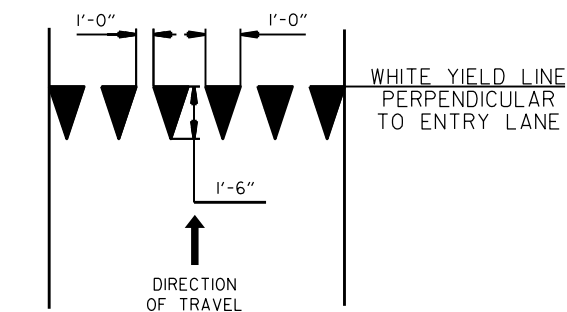
### SOLID LINE STRIPING ON ASPHALT PAVEMENT



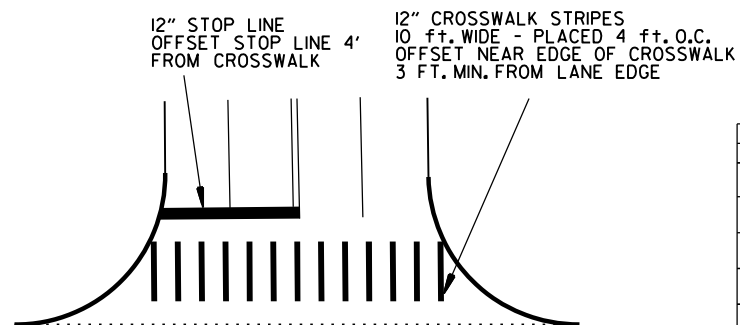
ASPHALT PAVEMENT

CONCRETE PAVEMENT

### STRIPING AT ADJACENT NO PASSING LANES



### YIELD LINE DETAIL

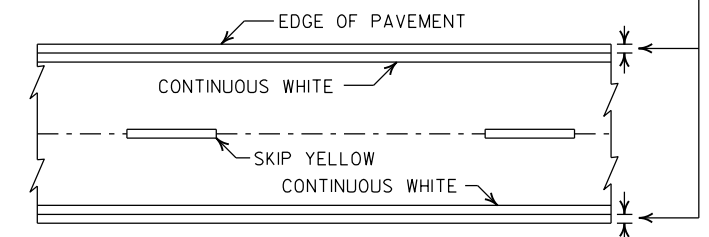


### CROSSWALK AND STOP LINE DETAILS

#### 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.

2" FOR ASPHALT OR CONCRETE PAVEMENT  
6" FOR BITUMINOUS SURFACE TREATMENT

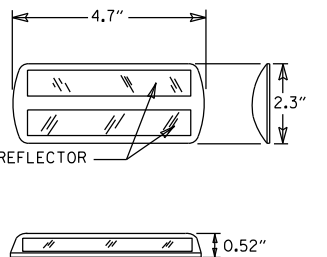


### PAVEMENT EDGE LINE MARKING

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

TYPE II  
RED/CLEAR OR  
YELLOW/YELLOW

PRISMATIC REFLECTOR



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

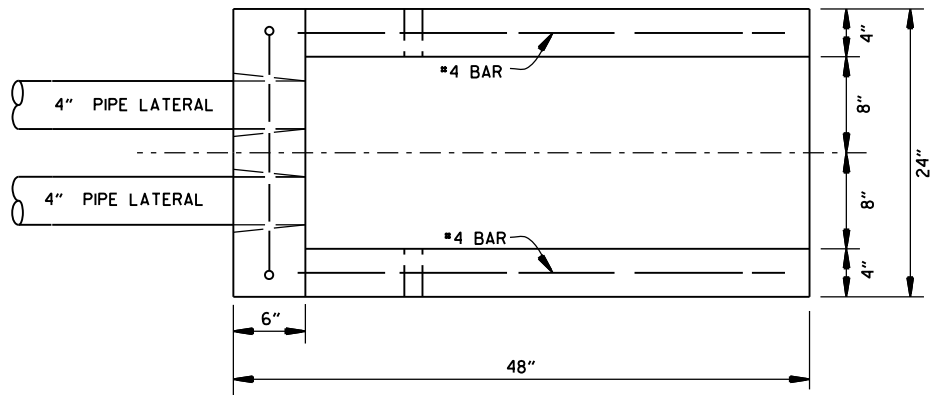
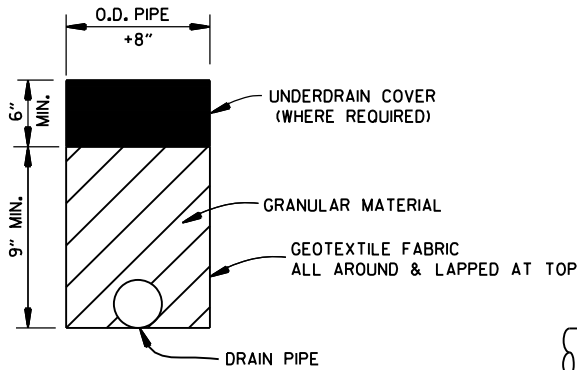
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & 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
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

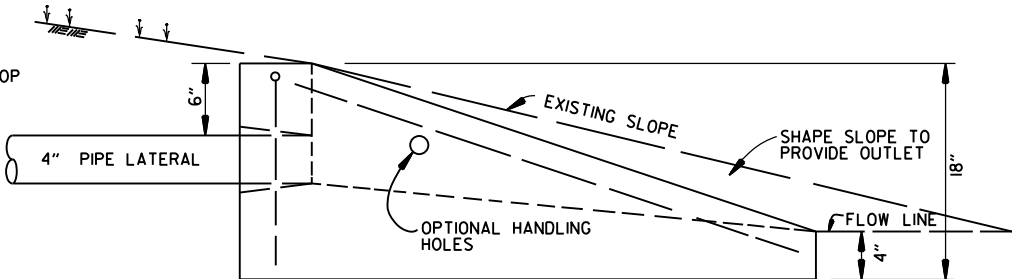
### PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

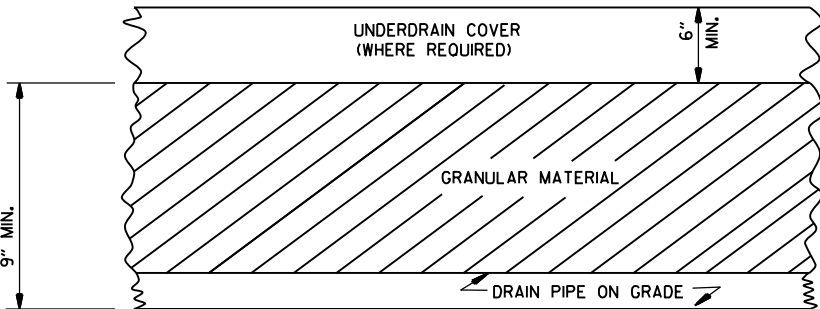
NOTE:  
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.  
2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW



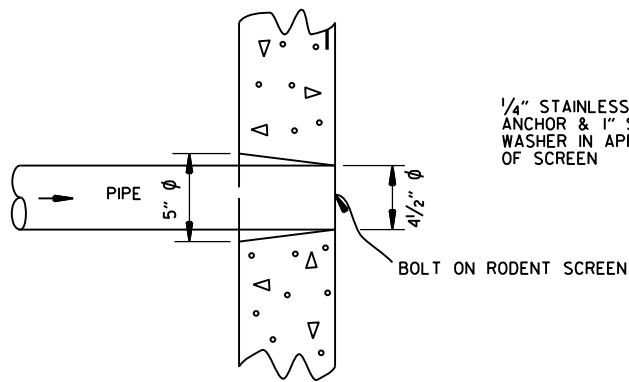
SIDE VIEW



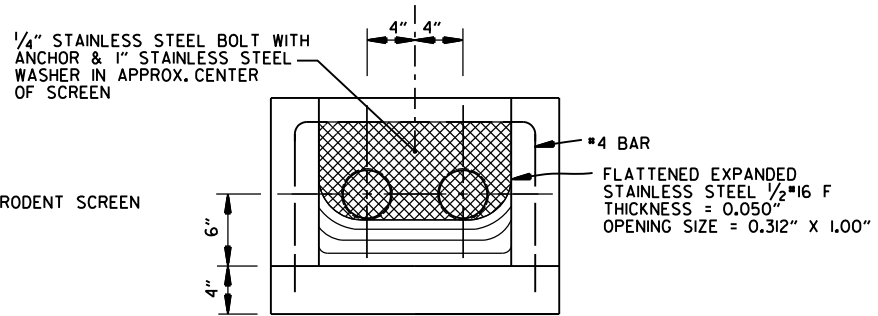
DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.



DETAIL OF HOLE FOR 4" PIPE

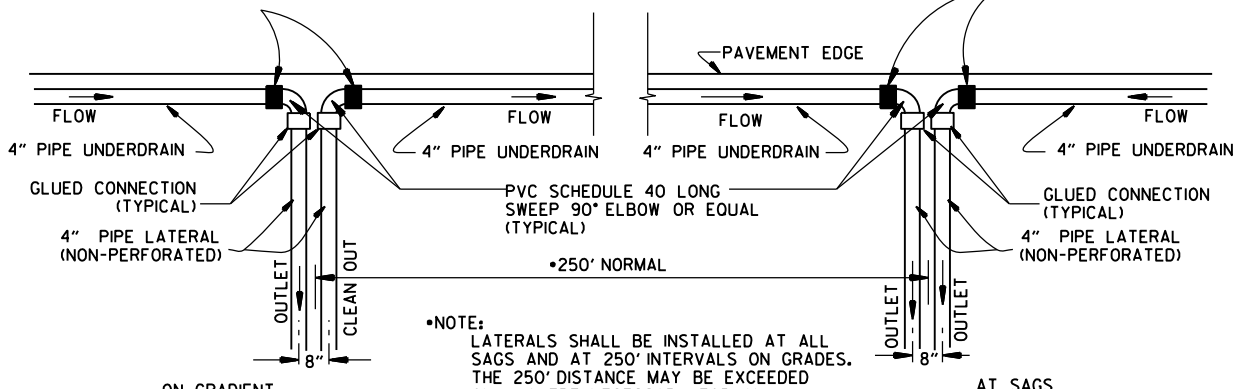


FRONT VIEW (DETAIL OF RODENT SCREEN)

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



NOTE: LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

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.

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: 5 1/2" 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 POLYETHYLENE 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
DATE	REVISION	DATE FILMED

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		RC	96	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96		RC	96		RC	96	
1° 00'	NC			NC			NC			NC			RC	96		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	
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		0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.048	163		0.050	168		0.056	182		0.064	202	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.054	178		0.062	197		0.068	211		0.072	221	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.068	211		0.072	221		0.076	230	
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.066	206		0.074	216		0.082	235		0.090	264	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149		0.054	178		0.062	197		0.070	216		0.078	235		0.086	254		0.094	283	
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.066	206		0.074	216		0.082	235		0.090	264		0.098	283	
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.070	216		0.078	235		0.086	254		0.094	283		0.100	288	
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.074	216		0.082	235		0.090	264		0.098	283		0.100	288	
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.066	206		0.074	216		0.082	235		0.090	264		0.098	283		0.100	288	
4° 00'	0.034	97		0.042	121		0.052	151		0.062	185		0.070	216		0.078	235		0.086	254		0.094	283		0.100	288		0.100	288	
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.072	216		0.080	240		0.088	269		0.096	298		0.100	300		0.100	300	
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.088	269		0.098	300		0.100	300		0.100	300		0.100	300	
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	283		0.100	300		0.100	300		0.100	300		0.100	300	
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	283		0.100	300		0.100	300		0.100	300		0.100	300	
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221		0.088	269		0.098	300		0.100	300		0.100	300		0.100	300		0.100	300	
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.098	283		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		0.098	283		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
8° 30'	0.060	144		0.072	179		0.086	223		0.096	261		0.098	283		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300		0.100	300	
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		0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252																						
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																							
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198		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'																														

OR P.T.

•UNLESS OTHERWISE NOTED.

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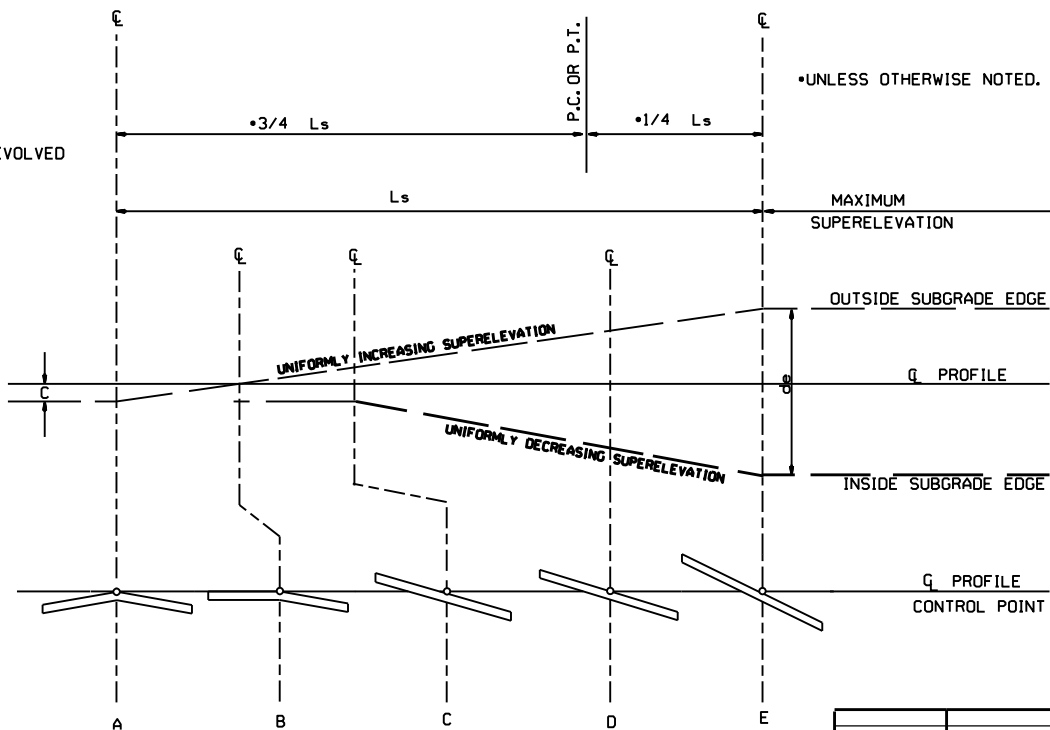
### GENERAL NOTES

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:

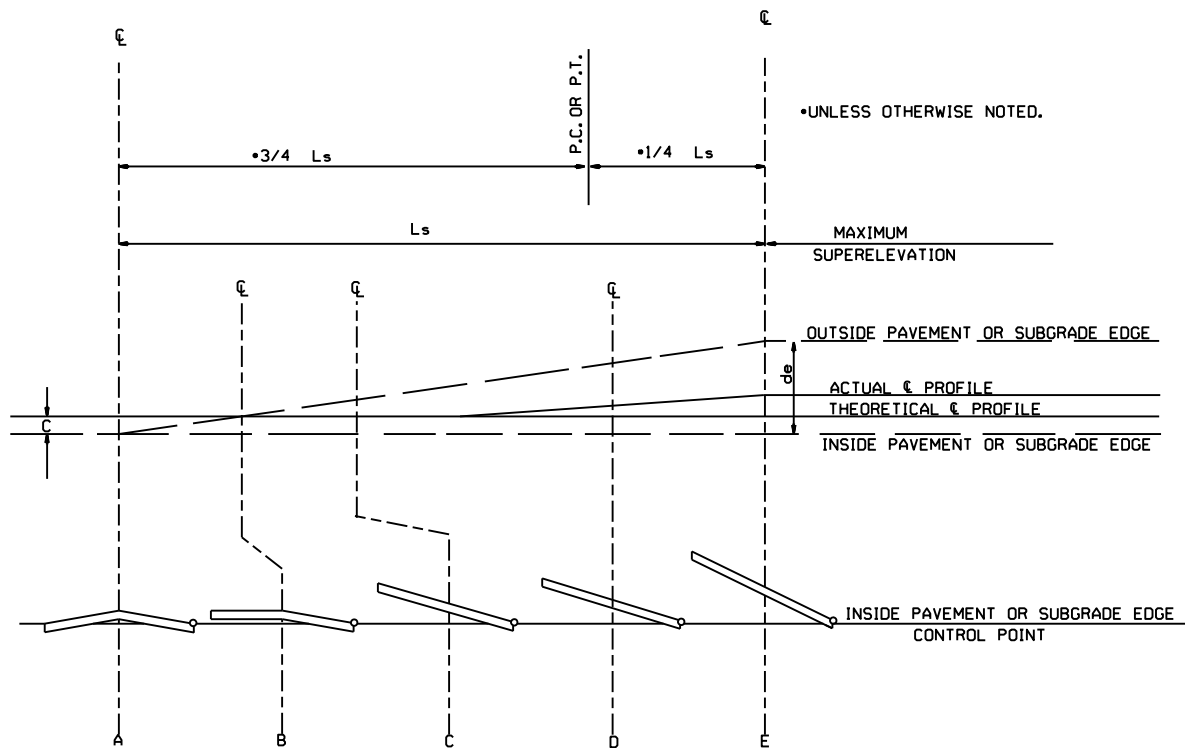
3	LANE	UNDIVIDED	-	-	-	-	+20%
4	LANE	UNDIVIDED	-	-	-	-	+50%
5	LANE	UNDIVIDED	-	-	-	-	+80%
6	LANE	UNDIVIDED	-	-	-	-	+100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE  
UNTIL SUPERELEVATION EXCEEDS 2C.  
RATE OF SUPERELEVATION SHALL BE  
COMPUTED ON STRAIGHT LINE METHOD  
USING APPLICABLE Ls.

$$\text{SUPERELEVATION FORMULA} = \frac{Lde}{L_s}$$



### STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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


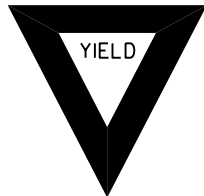

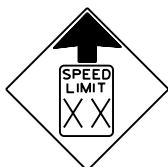

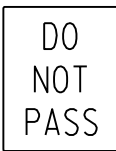



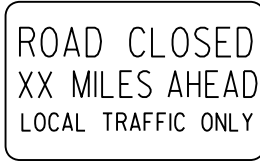


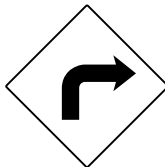




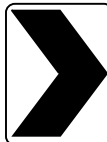
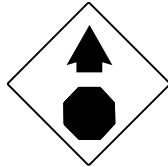
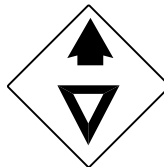
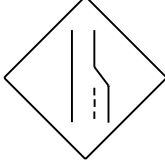



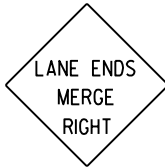


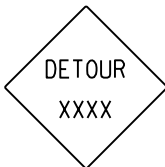










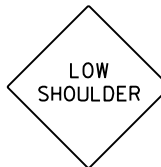

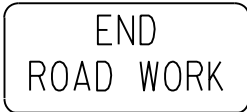
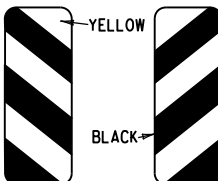


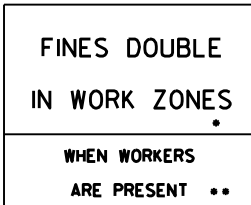
NOTE: MAINTAIN NORMAL CROWN ON  
INSIDE UNTIL SUPERELEVATION  
EXCEEDS 2C.

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

ARKANSAS STATE HIGHWAY COMMISSION

# TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

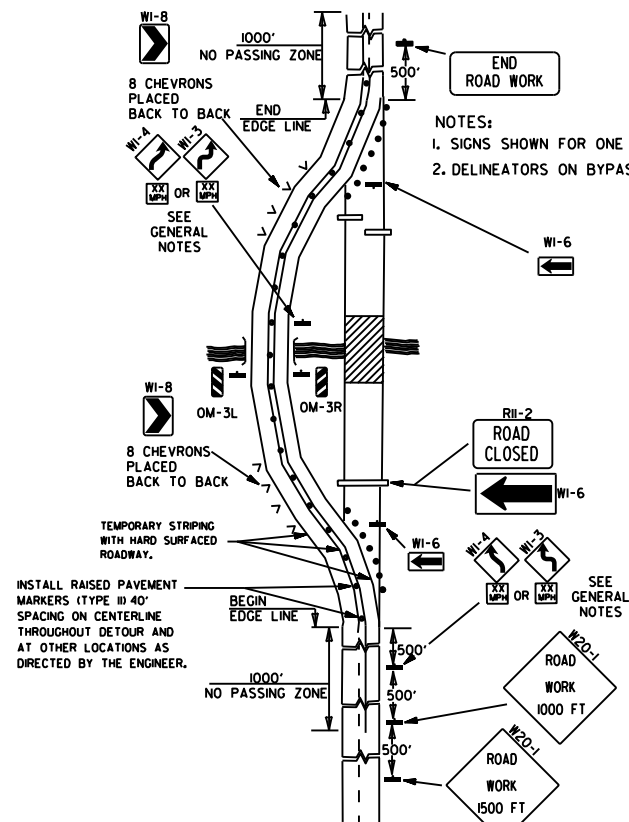
STANDARD DRAWING SE-2

<div>RI-I</div> <div></div> <div>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</div>	<div>RI-2</div> <div></div> <div>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</div>	<div>R2-I</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>W3-5</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>W3-5a</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>R4-I</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>R4-2</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>ADVANCE DISTANCES (XXXX)</div> <div>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</div> <div>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 &amp; 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.</div>
<div>R5-I</div> <div></div> <div>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>R1I-2</div> <div></div> <div>48"x30"</div>	<div>R1I-3A</div> <div></div> <div>60"x30"</div>	<div>R1I-4</div> <div></div> <div>60"x30"</div>	<div>W2I-5a</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>WI-I</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>WI-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>WI-3</div> <div></div> <div>STD. 48"x48"</div>	<div>WI-4</div> <div></div> <div>STD. 48"x48"</div>	<div>WI-6</div> <div></div> <div>STD. 48"x24" SPECIAL 60"x30"</div>	<div>WI-8</div> <div></div> <div>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</div>	<div>W3-I</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W3-2</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W4-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>W5-I</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W6-3</div> <div></div> <div>EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>W8-7</div> <div></div> <div>EXPWY. 36"x36" FWY. 48"x48"</div>	<div>W9-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W13-I</div> <div></div> <div>STD. 24"x24"</div>	<div>W20-I</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-2</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-3</div> <div></div> <div>STD. 48"x48"</div>
<div>W20-4</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-5</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-7a</div> <div><div>18" 500 FEET 24" W16-2</div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W2I-2</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W2I-5</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W24-I</div> <div></div> <div>STD. 36"x36"</div>	<div>WI-4b</div> <div></div> <div>STD. 48"x48"</div>	<div>R56-I</div> <div></div> <div>STD. 18"x18"</div>
<div>W8-II</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W8-9</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>G20-I</div> <div></div> <div>60"x24"</div>	<div>G20-2</div> <div></div> <div>48"x24"</div>	<div>OM-3L OM-3R</div> <div></div> <div>12"x36"</div>	<div>M4-9</div> <div></div> <div>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</div>	<div>M4-10</div> <div></div> <div>48"x18"</div>	<div>R55-I</div> <div></div> <div>36"x60" • USE 6" C LETTERS •• USE 4" D LETTERS</div>

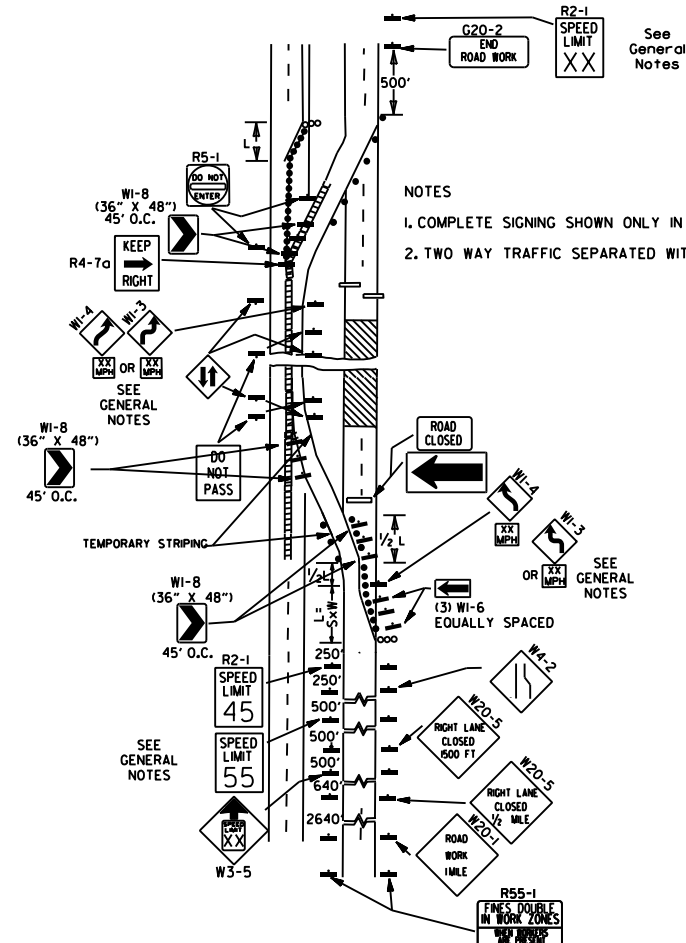
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W2I-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	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	
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-1

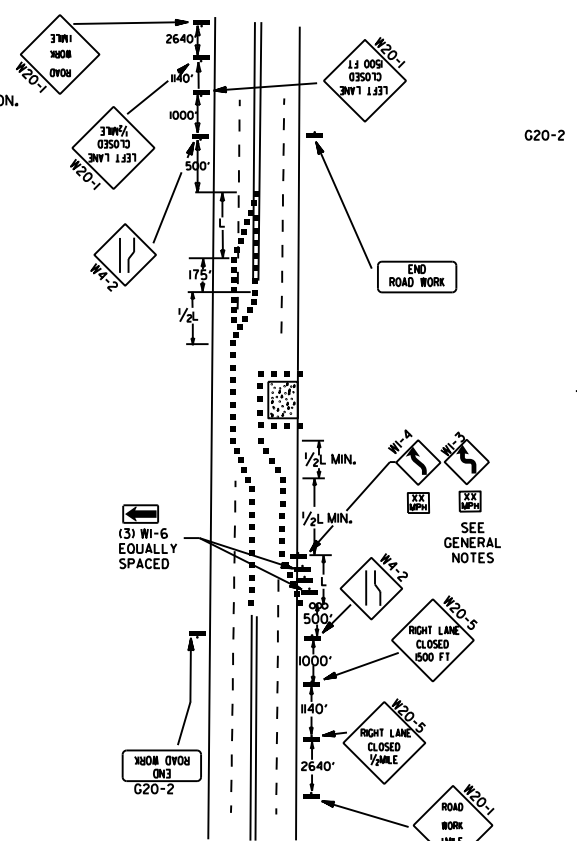




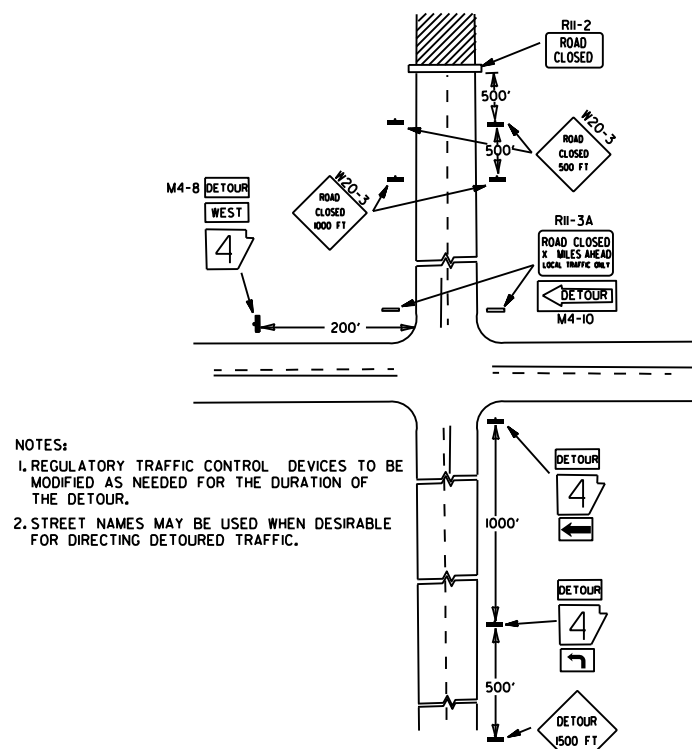
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



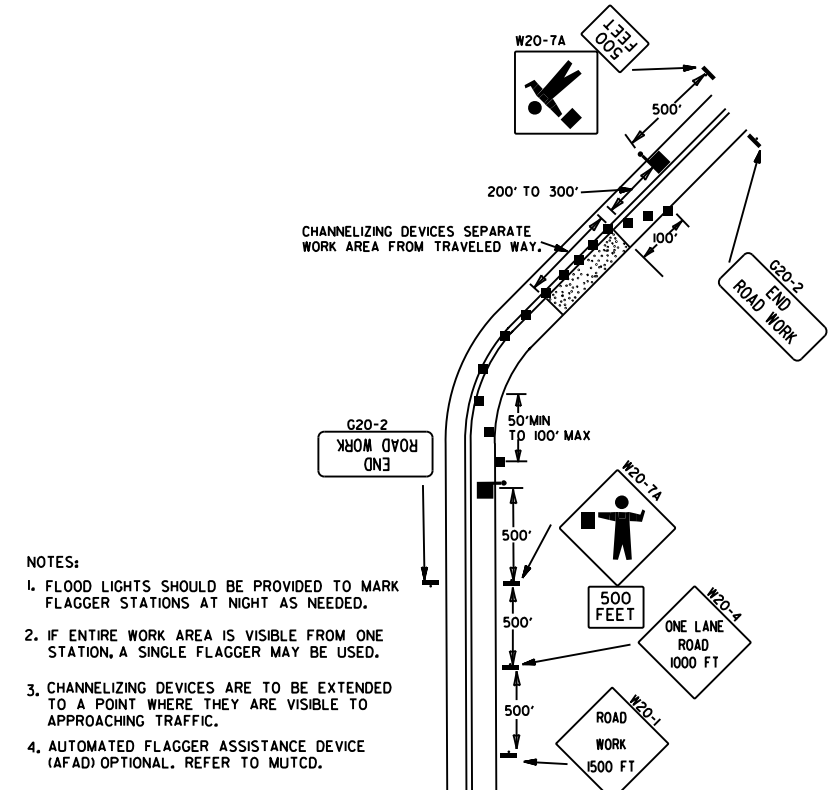
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



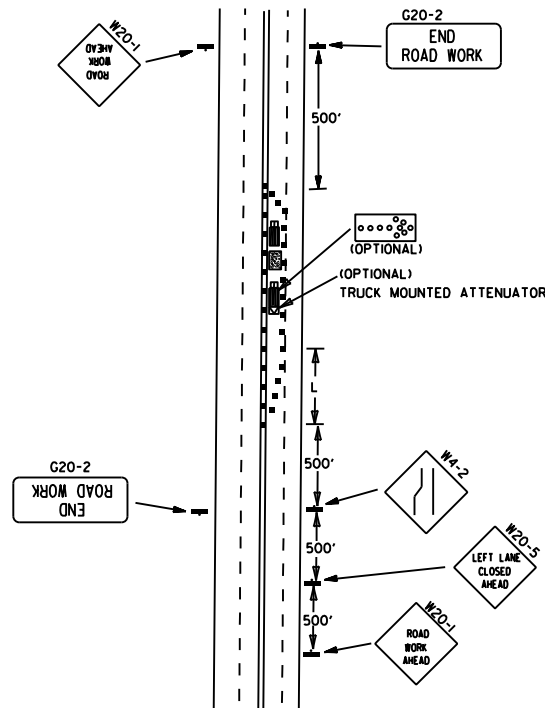
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



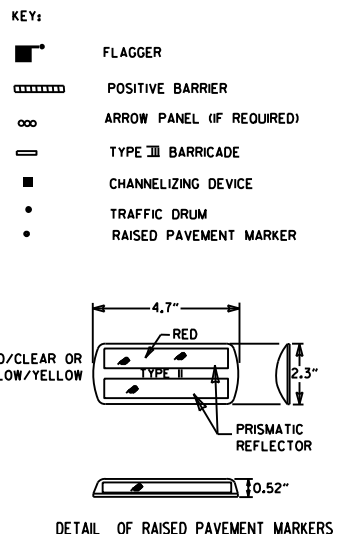
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(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.



- 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 R2-1(45)MPH 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(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH 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. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.  
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).

05-20-21	REVISED NOTE 7	
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

(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY 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.

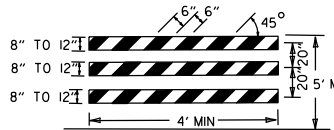
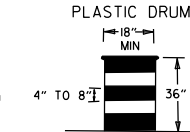
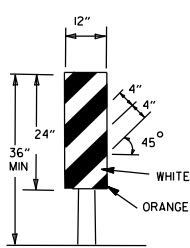
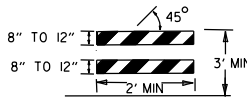
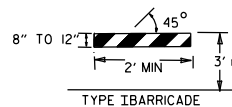
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

#### CHANNELIZING DEVICES



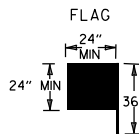
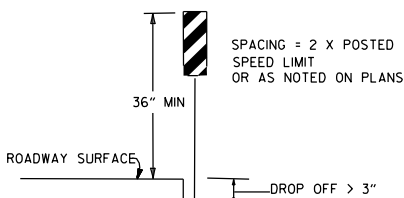
• WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

#### CONES



NOTE:  
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.

#### VERTICAL PANEL PLACEMENT



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

#### KEY:

- ○ ○ ○ ARROW PANEL (IF REQUIRED)
- CHANNELIZING DEVICE
- TRAFFIC DRUM

#### GENERAL NOTES:

- A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
- WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
- WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-(65) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
- 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.
- WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
- PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
- 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 (1/2 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
- FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- 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. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
- 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).

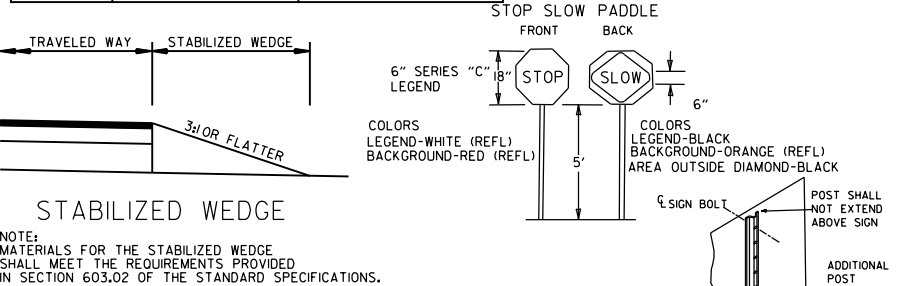
(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

#### TRAFFIC CONTROL DEVICES

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
≤ 3"	CENTERLINE	STANDARD LANE CLOSURE <sup>(6)</sup>	STANDARD LANE CLOSURE <sup>(6)</sup>
> 3"	CENTERLINE	STANDARD LANE CLOSURE <sup>(6)</sup>	STANDARD LANE CLOSURE <sup>(6)</sup>
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9 AND TRAFFIC DRUMS <sup>(1)</sup>	W8-9 AND TRAFFIC DRUMS <sup>(1)</sup>
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(1)</sup>	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(1)</sup>
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(1)</sup>	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(2)</sup>
> 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(1)</sup>	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS <sup>(3)</sup>
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER <sup>(4)</sup> & EDGE LINES	PRECAST CONCRETE BARRIER <sup>(4)</sup> & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(2)</sup>
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS <sup>(2)</sup>
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

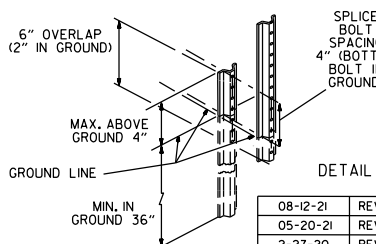
INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS



#### STABILIZED WEDGE

NOTE:  
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

NOTES:  
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)  
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.  
SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



#### DETAIL OF SPLICES

DATE	REVISION	FILED
08-12-21	REVISED TRAFFIC CONTROL DEVICES AND NOTES	
05-20-21	REVISED NOTE 10	
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE II	
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 W6-18 & 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	

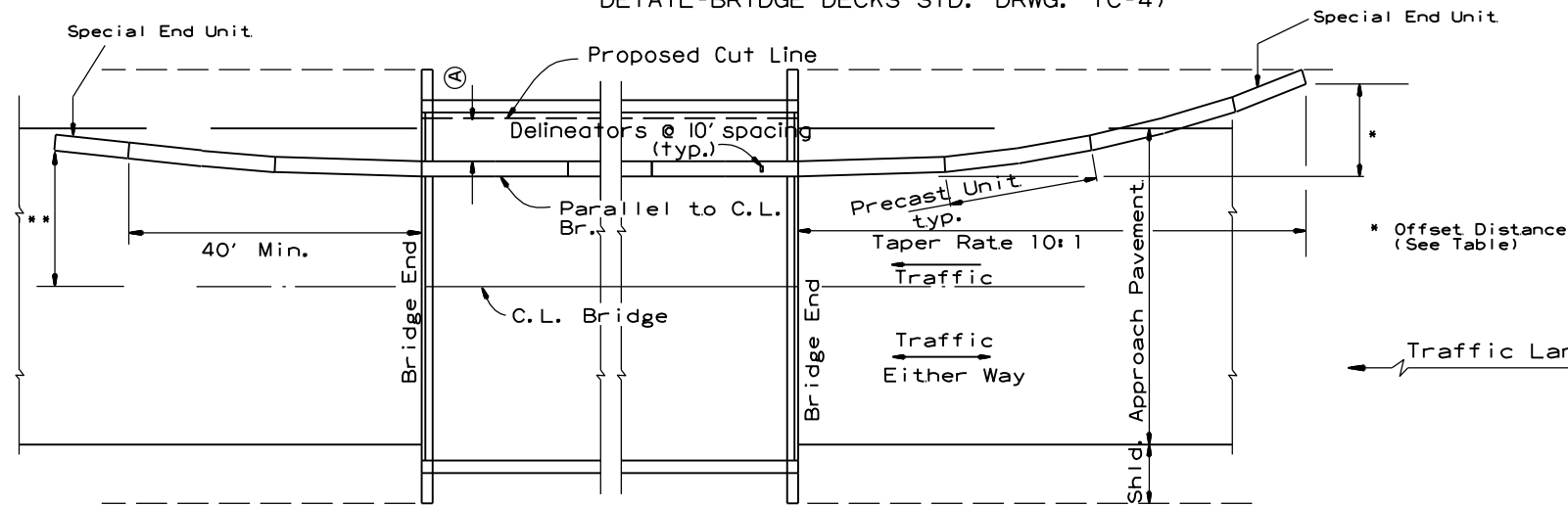
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3





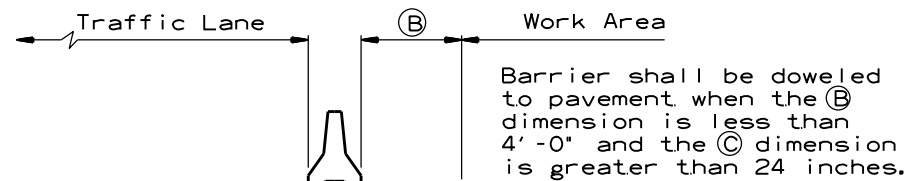
- (A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



**BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET**

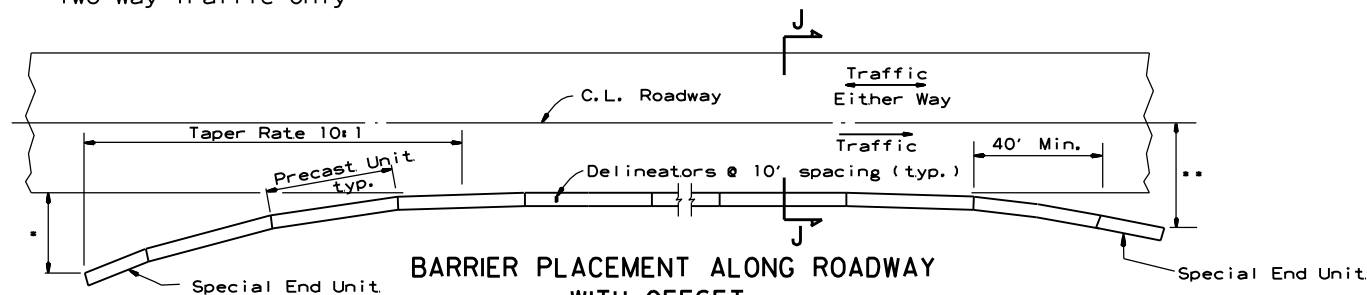
No Scale

\*\* Offset Distance for Two Way Traffic Only



**SECTION J-J**

No Scale



**BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET**

No Scale

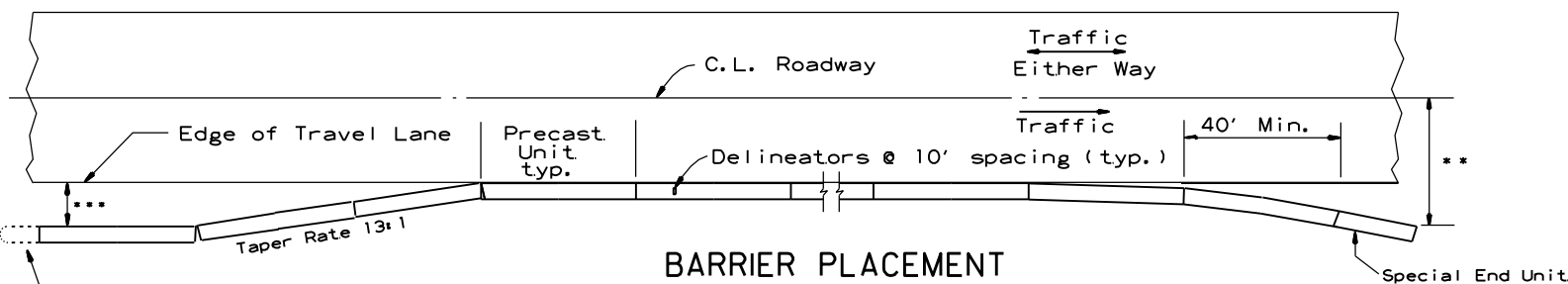
\* Offset Distance (See Table)

\*\* Offset Distance For Two Way Traffic Only

**Offset Distance Table**

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

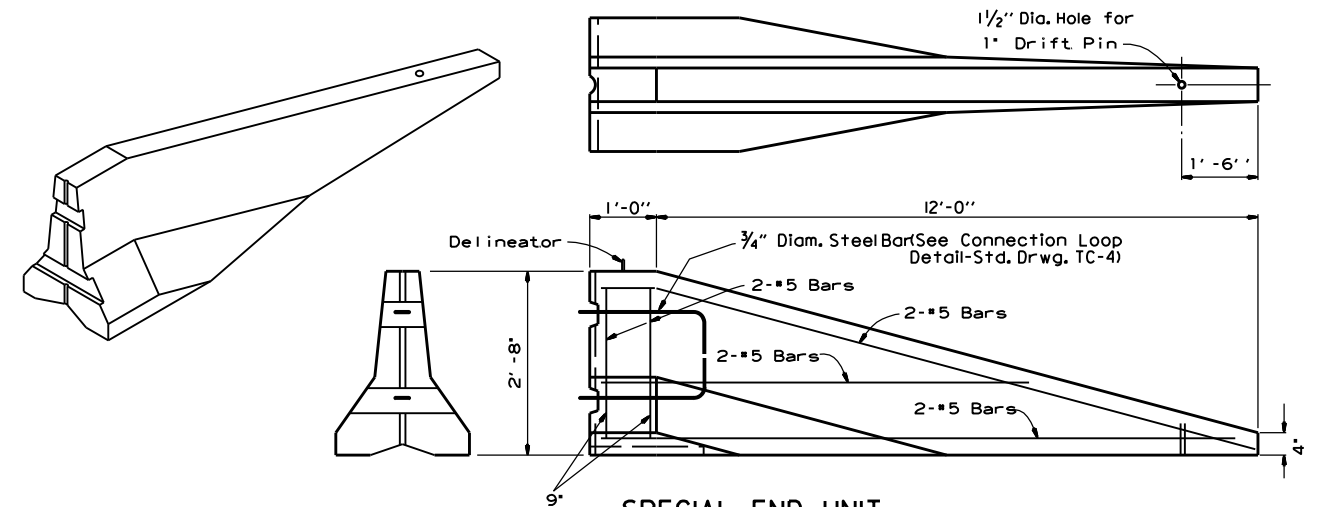


**BARRIER PLACEMENT WITH ATTENUATOR**

No Scale

\*\* Offset Distance For Two Way Traffic Only

\*\*\*Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



**SPECIAL END UNIT**

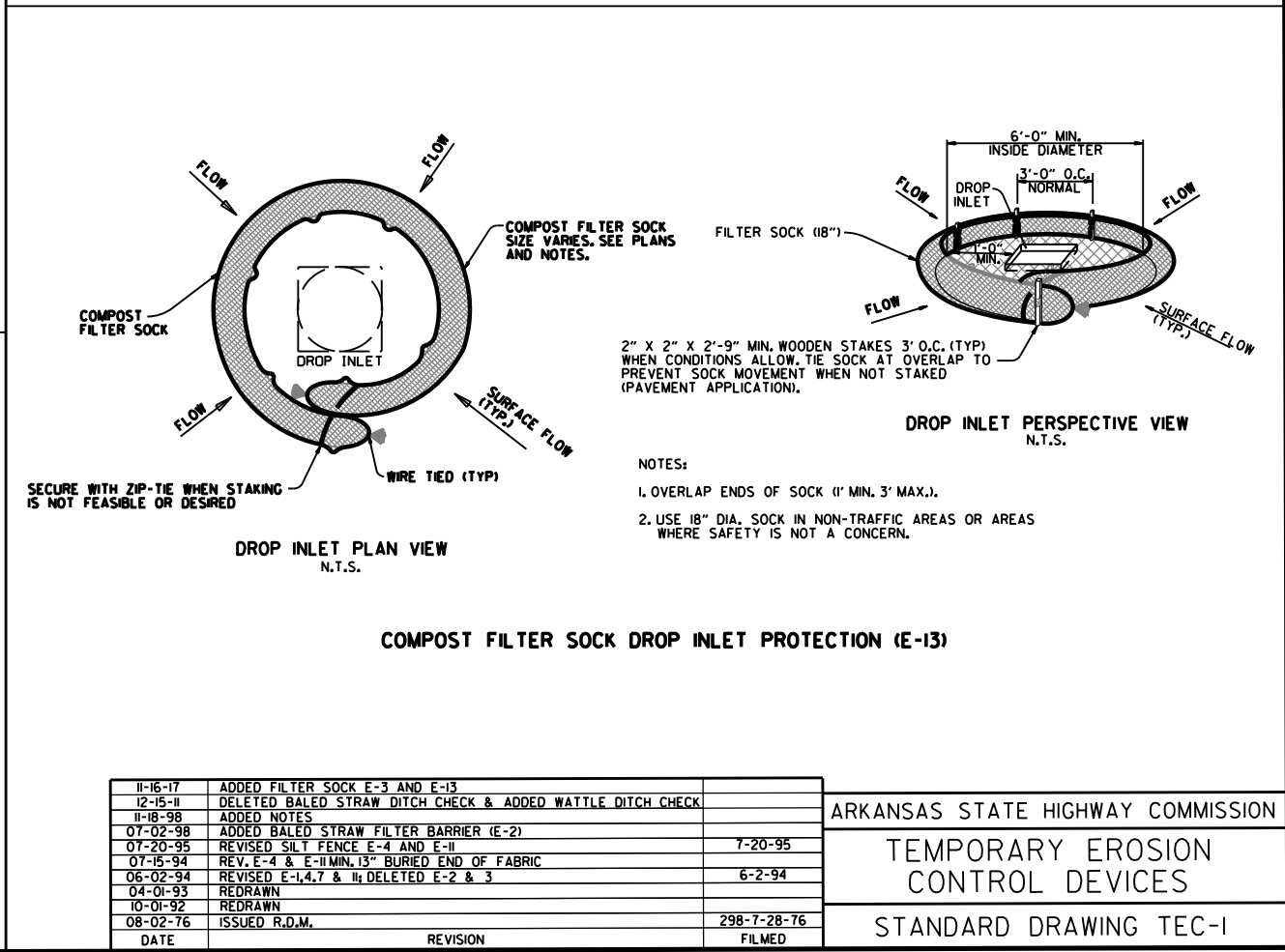
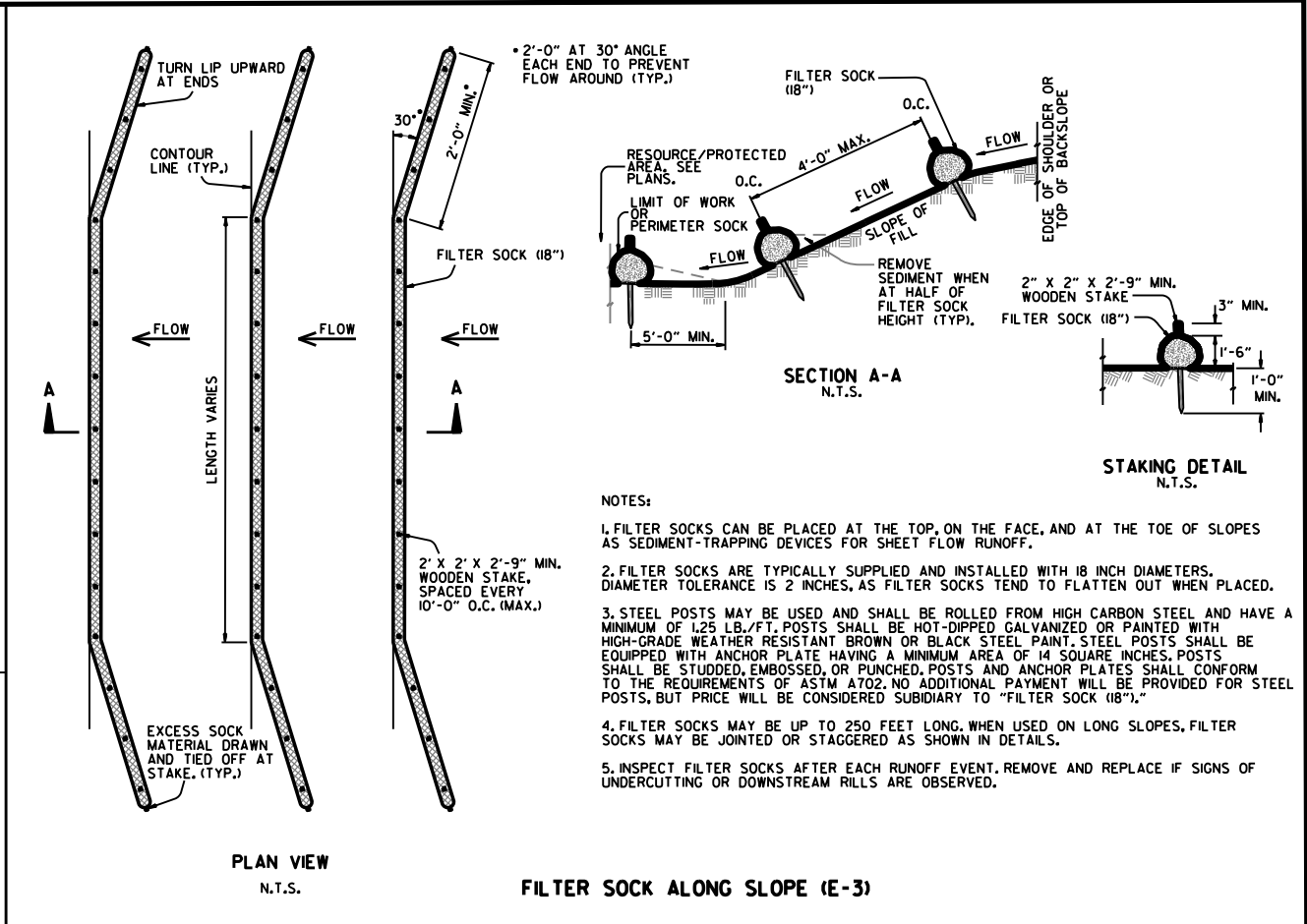
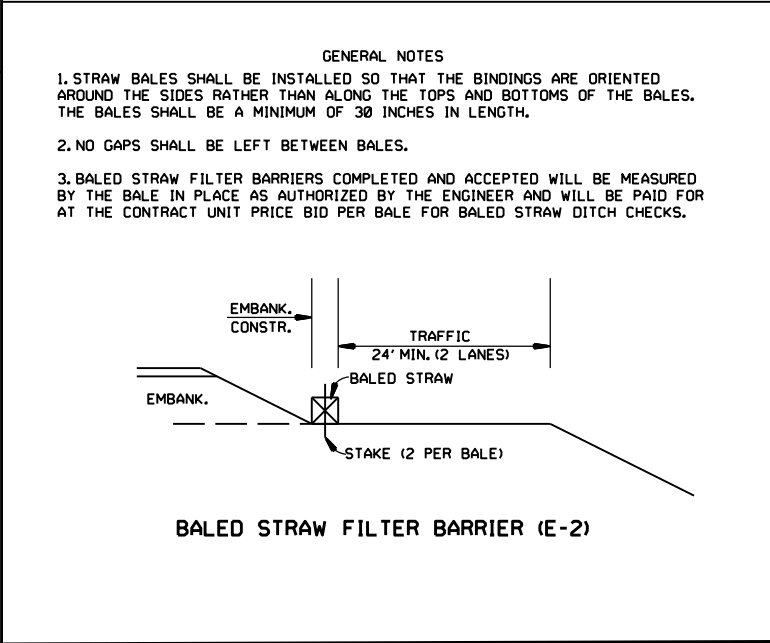
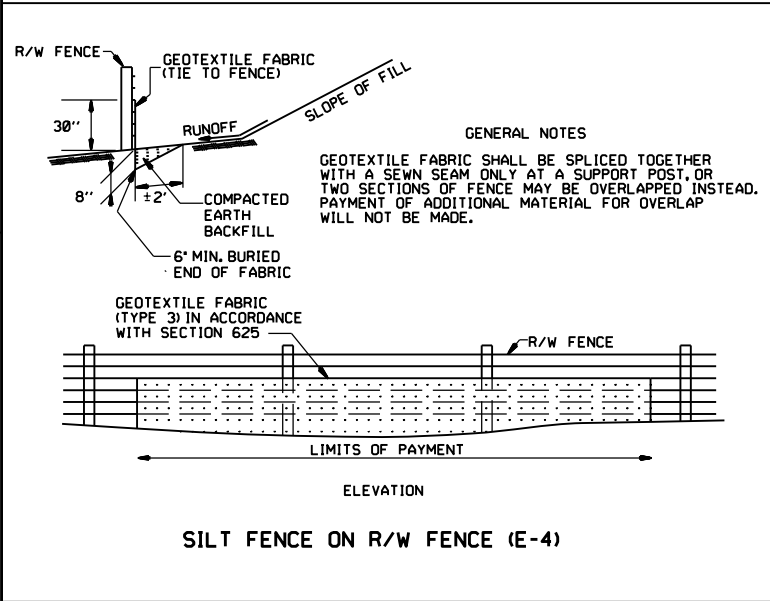
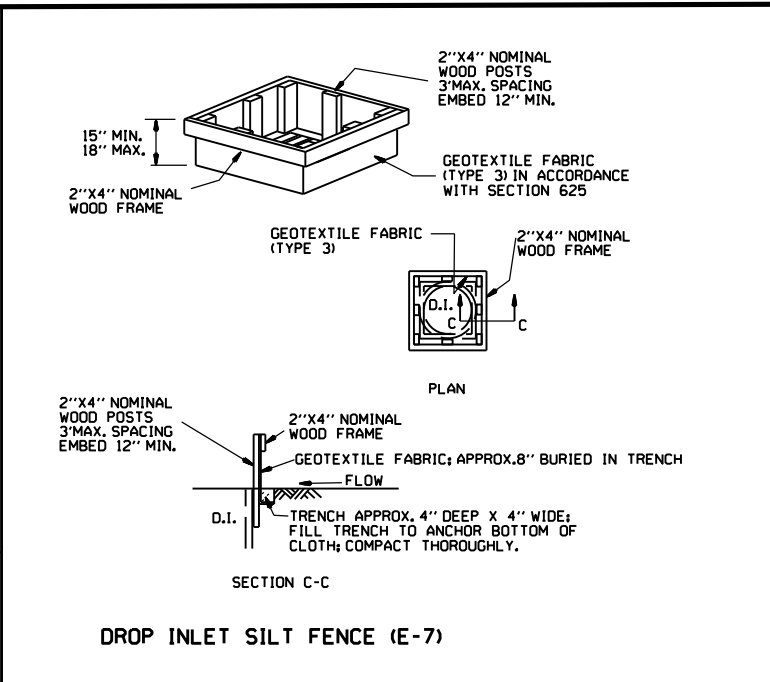
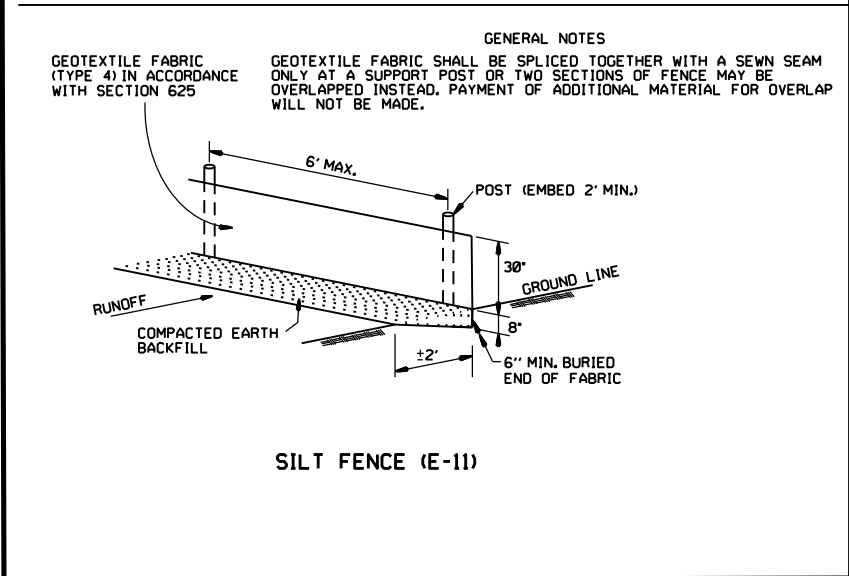
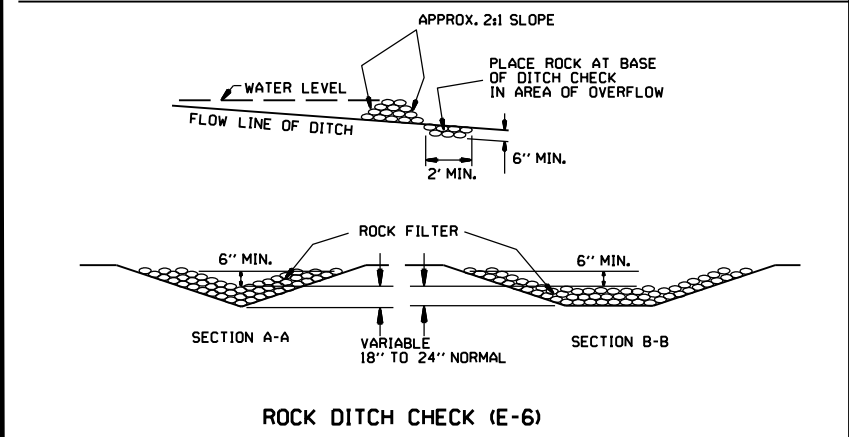
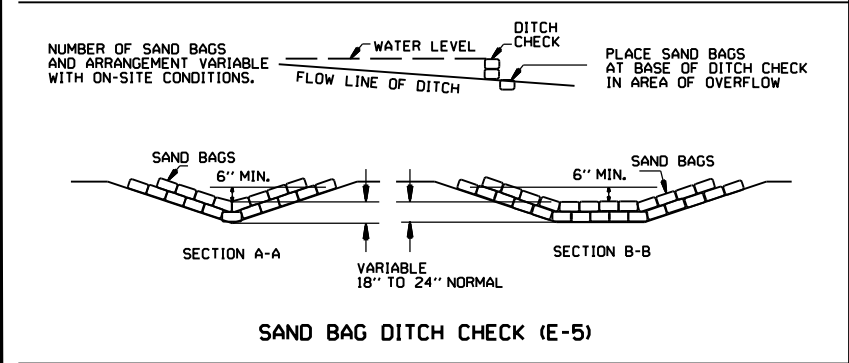
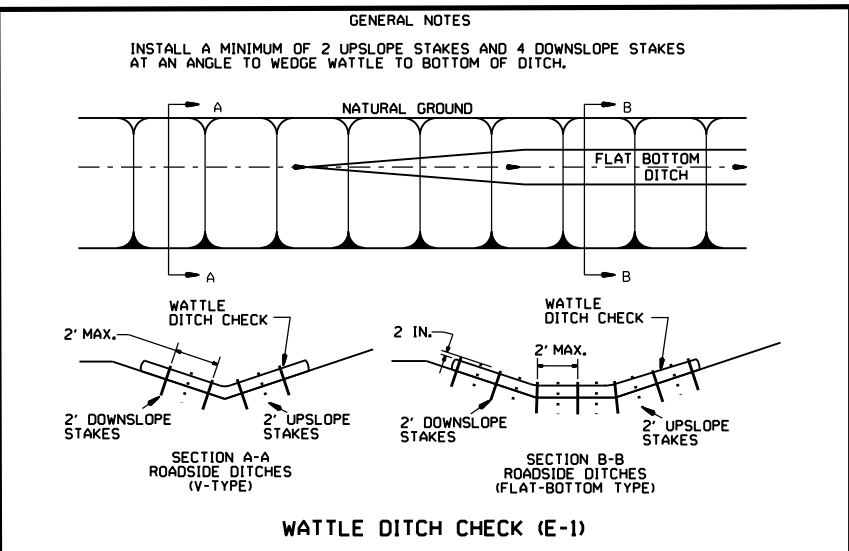
No Scale

**General Notes**

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with a Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

			<b>ARKANSAS STATE HIGHWAY COMMISSION</b>	
			<b>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER</b>	
11-07-19	REVISED NOTE		<b>STANDARD DRAWING TC-5</b>	
10-15-09	ADDED REFERENCE TO MASH			
5-25-06	REVISED BARRIER PLACEMENT			
8-22-02	ISSUED NEW DRAWING			
DATE	REVISION	FILMED		



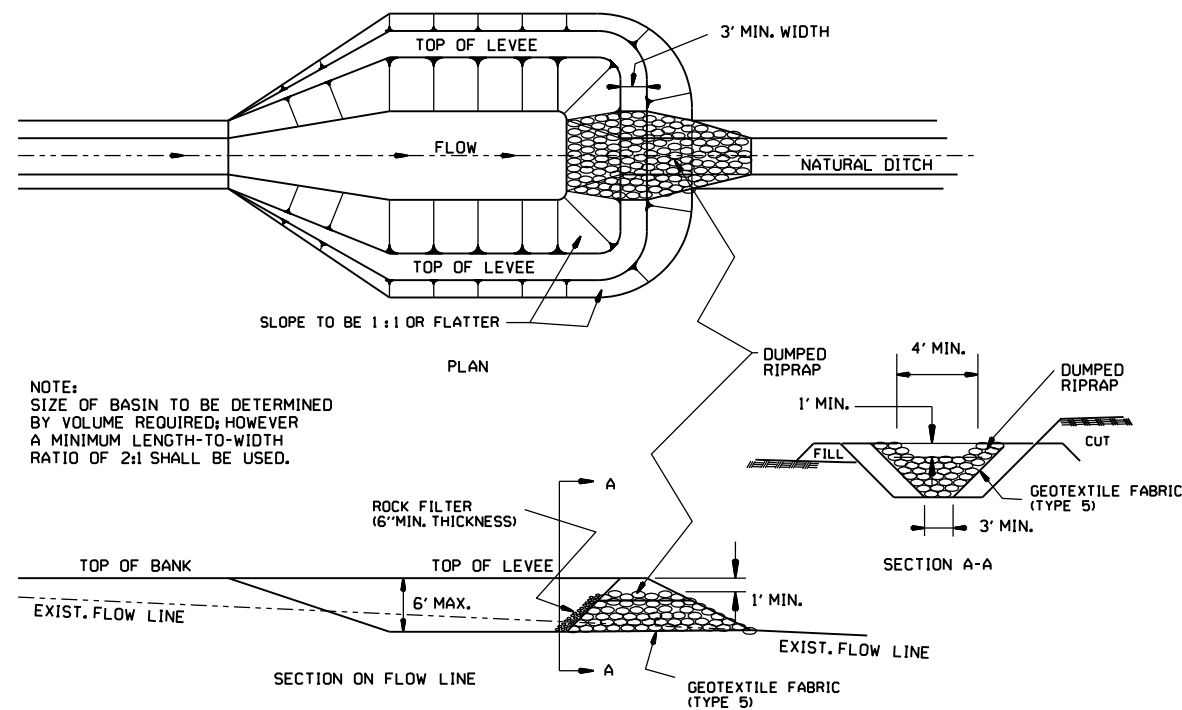


11-16-17	ADDED FILTER SOCK E-3 AND E-13		
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		
11-18-98	ADDED NOTES		
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
06-02-94	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	
DATE	REVISION	FILMED	

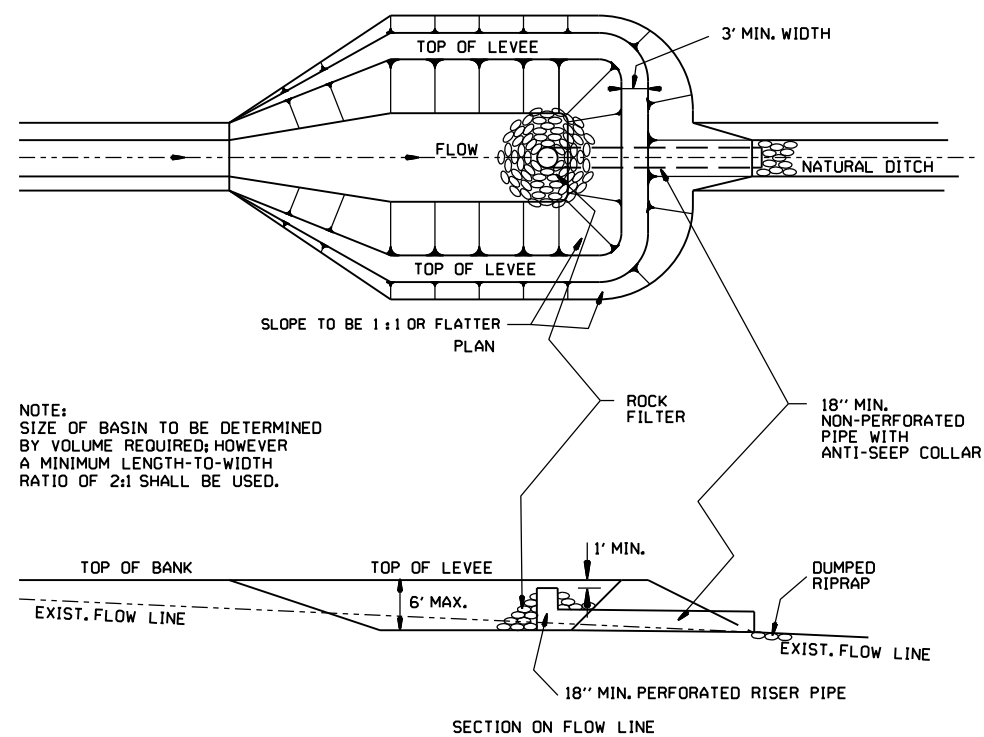
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

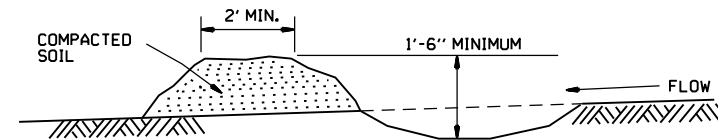
STANDARD DRAWING TEC-1



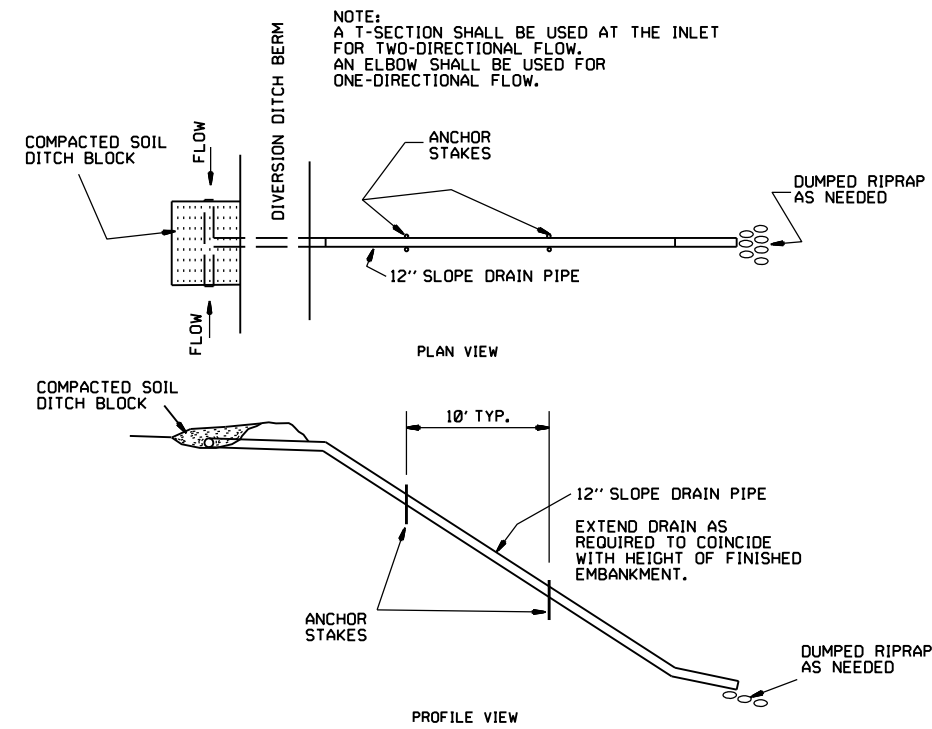
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



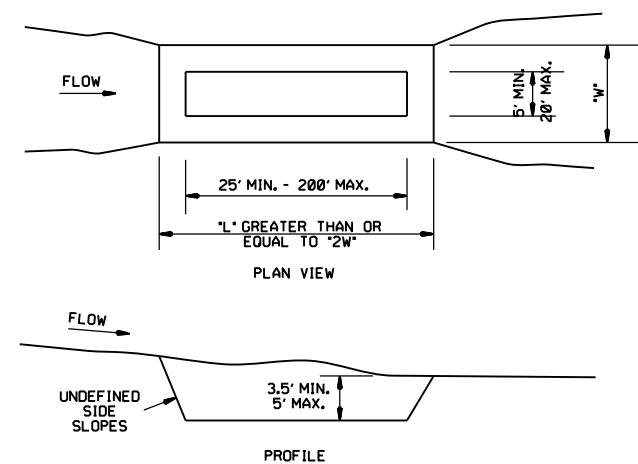
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

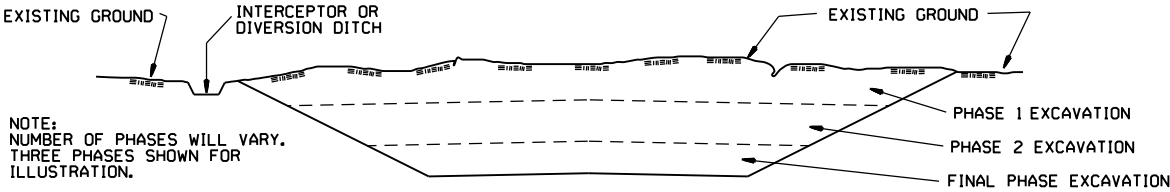
			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
			STANDARD DRAWING TEC-2
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION	FILMED	



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

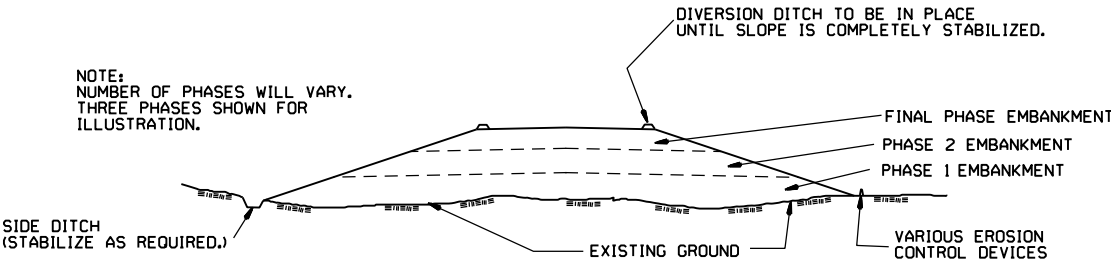


GENERAL NOTE

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

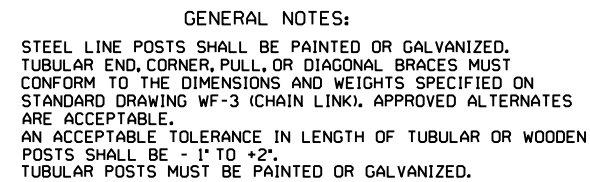


GENERAL NOTE

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.

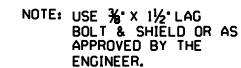
			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
11-03-94	CORRECTED SPELLING		STANDARD DRAWING TEC-3
6-2-94	Drawn & Issued	6-2-94	
DATE	REVISION	FILMED	



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.

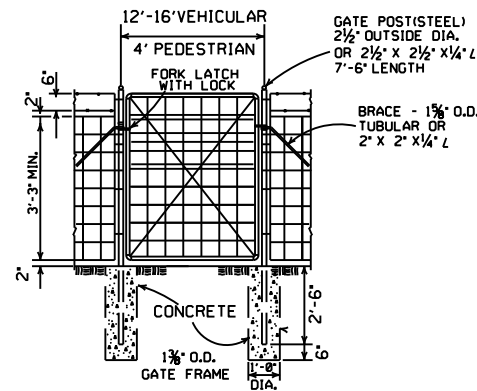
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS, WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD, WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED 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.

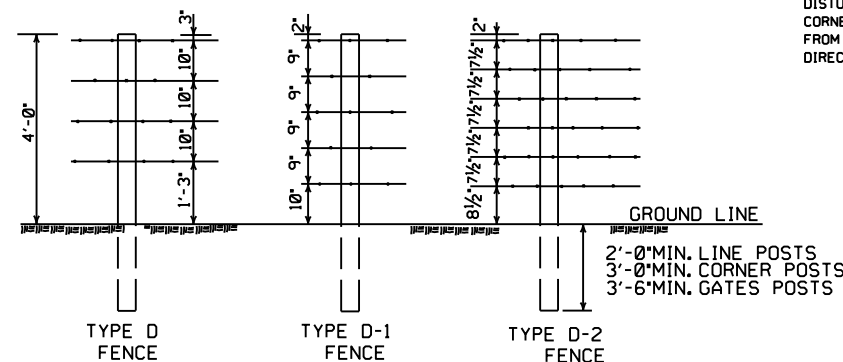
STAPLE AT LEAST TOP,BOTTOM AND ALTERNATE  
WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



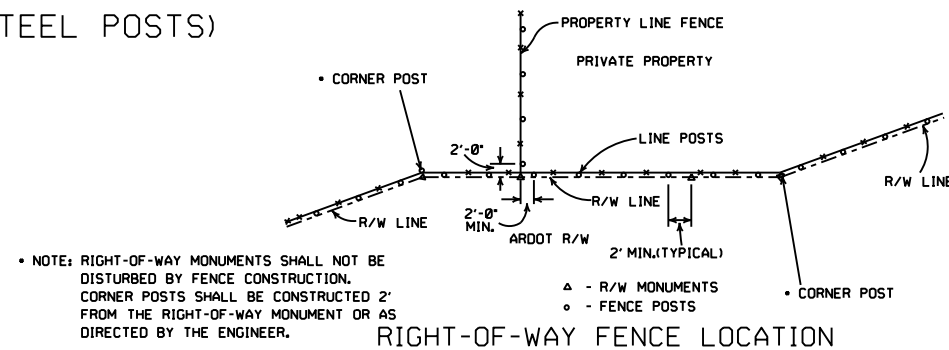
DETAIL OF FENCE CONSTRUCTION  
AT LARGE CULVERTS  
(5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

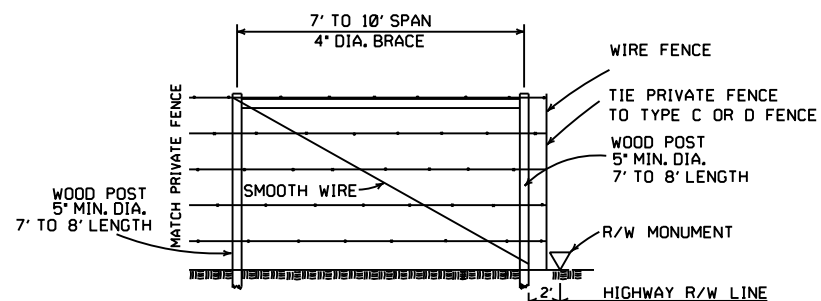
- 4 STRANDS BARBED WIRE (D)  
5 STRANDS BARBED WIRE (D-1)  
6 STRANDS BARBED WIRE (D-2)



NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

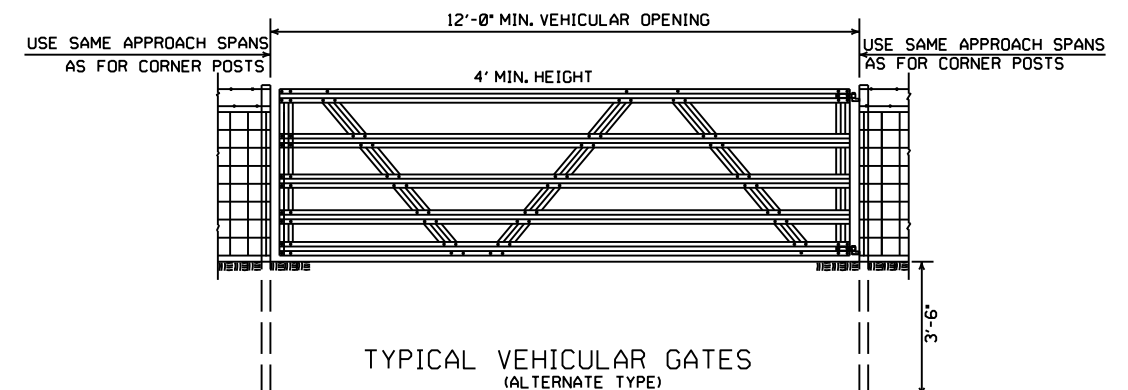


RIGHT-OF-WAY FENCE LOCATION



## 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.



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.

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	7-15-88
10-30-87	GENERAL REVISIONS	10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	11-1-84
1-4-83	MIN. DIA. LINE POST	1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	12-1-72
10-2-72	REVISED AND REDRAWN	10-2-72
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE  
TYPE C AND D

STANDARD DRAWING WF-4