| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 1 | 118 |
| | | | | (2) | HWY. 351 RR OVERPASS (AIRPORT RD.) (JONESBORO) (S) | | | |

ARKANSAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS FOR STATE HIGHWAY

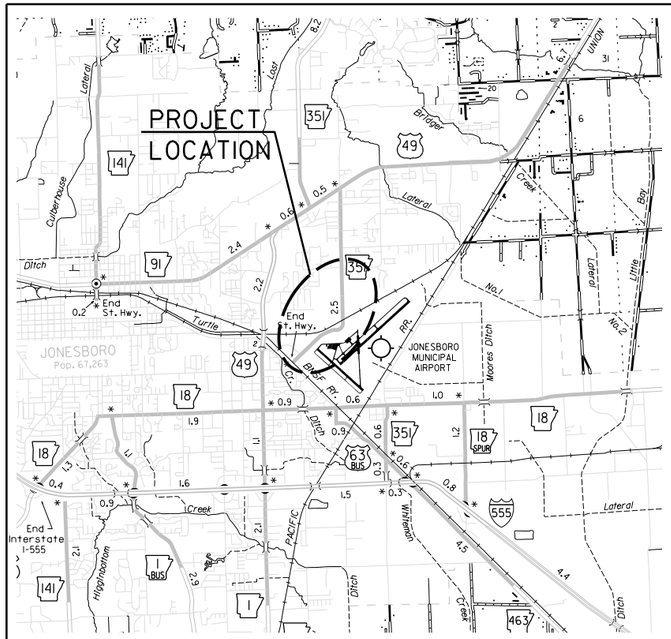
# HWY. 351 RR OVERPASS (AIRPORT RD.) (JONESBORO) (S)

CRAIGHEAD COUNTY

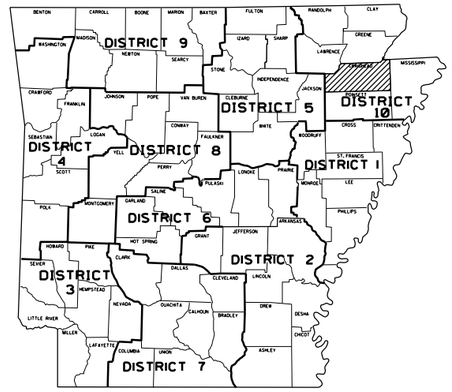
ROUTE 351 SECTION 1

# JOB 100942

FED. AID PROJ. STPLC-9227(71)




## VICINITY MAP

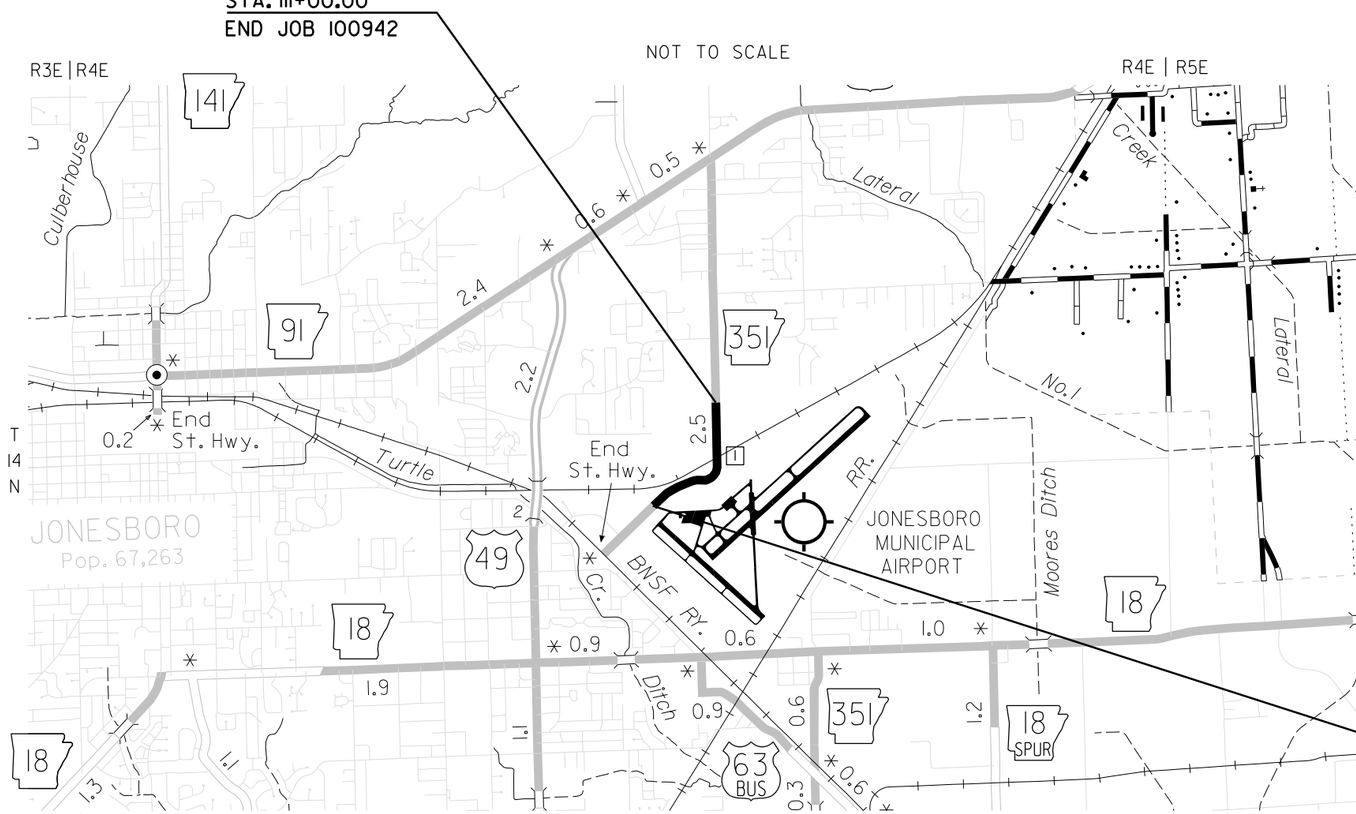



## ARK. HWY. DIST. NO. 10

### DESIGN TRAFFIC DATA

| | |
|---|---|
| DESIGN YEAR | 2041 |
| 2021 ADT | 6,600 |
| 2041 ADT | 8,200 |
| 2041 DHV | 902 |
| DIRECTIONAL DISTRIBUTION | 0.60 |
| TRUCKS | 2% |
| DESIGN SPEED | 40 MPH |

NOT TO SCALE




### BRIDGE CONSTRUCTION DATA

[1] STA. 94+43.41 BRIDGE END
BRIDGE NO. 07463 OVER UPRR
260'-0" COMPOSITE PLATE GIRDER UNIT (80'-100'-80')
222'-0" COMPOSITE PLATE GIRDER UNIT (111'-111')
294'-0" COMPOSITE PLATE GIRDER UNIT (147'-147')
30'-0" CLEAR ROADWAY
12'-0" SHARED USE PATH
778' - 2 1/4" BRIDGE LENGTH
STA. 102+21.60 BRIDGE END

| | BEGIN OF PROJECT | MID-POINT OF PROJECT | END PROJECT |
|---|---|---|---|
| LATITUDE | N 35°50'01.59" | N 35°50'07.21" | N 35°50'22.22" |
| LONGITUDE | W 90°39'21.63" | W 90°39'04.90" | W 90°39'0.99" |
| STATION | 80+00.00 | 95+50.00 | 111+00.00 |

### LENGTH COMPUTED ALONG C.L.

| | | | | |
|---|---|---|---|---|
| GROSS LENGTH OF PROJECT | 3100.00 | FEET OR | 0.587 | MILES |
| NET LENGTH OF ROADWAY | 2321.81 | FEET OR | 0.440 | MILES |
| NET LENGTH OF BRIDGES | 778.19 | FEET OR | 0.147 | MILES |
| NET LENGTH OF PROJECT | 3100.00 | FEET OR | 0.587 | MILES |

CERT. I.F.CATE OF AUTHORIZATION
MICHAEL BAKER INTERNATIONAL INC
No. 1126
ARKANSAS - ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
7-27-2022

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WORKSPACE: ARDOT
Y:\Projects\AHTD_16233_Hwy351RROverpass\Deliverables\ROADWAY\Drawings\r100942_01_C0-001.dgn
REVISED DATE: $$REVDATE$$

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| 6 - 9 | SPECIAL DETAILS | | |
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| 103 - 118 | CROSS SECTIONS | | |

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

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | I00942 | 2 | 118 |

(2) INDEX OF SHEETS & STANDARD DRAWINGS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
7-27-2022

## BRIDGE STANDARD DRAWINGS

| DRWG.NO. | TITLE | DATE |
|---|---|---|
| 55000 | STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS | 02-27-14 |
| 55002 | STANDARD DETAILS FOR CONCRETE RIPRAP | 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 |
| 55008 | STANDARD DETAILS FOR POURED SILICONE JOINTS | 02-11-16 |
| 55010 | STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE | 05-11-21 |
| 55013 | STANDARD DETAILS FOR TRANSITIONAL APPROACH RAILING | 02-11-16 |
| 55021 | STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS | 03-24-16 |

## ROADWAY STANDARD DRAWINGS

| DRWG.NO. | TITLE | DATE |
|---|---|---|
| CDP-1 | CONCRETE DITCH PAVING | 12-08-16 |
| CG-1 | CURBING DETAILS | 11-29-07 |
| DR-1 | DETAILS OF DRIVEWAYS & ISLANDS | 05-19-22 |
| DR-2 | DETAILS OF DRIVEWAYS & STREET TURNOUTS | 05-19-22 |
| FES-1 | FLARED END SECTION | 10-18-96 |
| FES-2 | FLARED END SECTION | 10-18-96 |
| FPC-9 | DETAILS OF DROP INLETS & JUNCTION BOXES | 11-16-01 |
| FPC-9E | DETAILS OF DROP INLETS (TYPE C) | 08-22-02 |
| FPC-9M | DETAILS OF DROP INLET (TYPE MO) | 08-22-02 |
| 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 (POLYPROPYLENE) | 02-27-20 |
| PM-1 | PAVEMENT MARKING DETAILS | 02-27-20 |
| PU-1 | DETAILS OF PIPE UNDERDRAIN | 12-08-16 |
| SE-3 | TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC (4% MAXIMUM) | 11-07-19 |
| SI-1 | DETAILS OF SPECIAL ITEMS | 10-25-18 |
| TC-1 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 11-07-19 |
| TC-2 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 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 |
| WR-1 | WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS | 11-10-05 |



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REVISED DATE: $$REVDATE$$

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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 3 | 118 |
| | | | | (2) | GOVERNING SPECIFICATIONS & GENERAL NOTES | | | |

## GOVERNING SPECIFICATIONS

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

| NUMBER | TITLE |
|---|---|
| ERRATA | ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS |
| FHWA-1273 | REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS |
| FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS |
| FHWA-1273 | SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140) |
| FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES |
| FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS |
| FHWA-1273 | SUPPLEMENT - TRAINING PROGRAM - JOB 100942 |
| 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 MIXTURE |
| 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 |
| 501-2 | CEMENT |
| 502-1 | WELDED WIRE REINFORCEMENT |
| 505-1 | PORTLAND CEMENT CONCRETE DRIVEWAY |
| 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 |
| 620-1 | MULCH COVER |
| 621-1 | FILTER SOCKS |
| 633-1 | CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING |
| 634-1 | CURBING |
| 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 100942 | ARCHITECTURAL FINISH |
| JOB 100942 | BIDDING REQUIREMENTS AND CONDITIONS |
| JOB 100942 | BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT |
| JOB 100942 | BROADBAND INTERNET SERVICE FOR FIELD OFFICE |
| JOB 100942 | CARGO PREFERENCE ACT REQUIREMENTS |
| JOB 100942 | CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE |
| JOB 100942 | COLD MILLING – COUNTY PROPERTY |
| JOB 100942 | COMPACTED EMBANKMENT |
| JOB 100942 | CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS |
| JOB 100942 | CONSTRUCTION PROJECT INFORMATION SIGN |
| JOB 100942 | DELAY IN RIGHT OF WAY OCCUPANCY |
| JOB 100942 | DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES |
| JOB 100942 | DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES |
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| JOB 100942 | GEOGRID REINFORCED EMBANKMENT |
| JOB 100942 | GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION |
| JOB 100942 | INSURANCE, CONSTRUCTION AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPPR) |
| JOB 100942 | LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS |
| JOB 100942 | LONGITUDINAL JOINT DENSITIES FOR ACHM SURFACE COURSES |
| JOB 100942 | MANDATORY ELECTRONIC CONTRACT |
| JOB 100942 | MANDATORY ELECTRONIC DOCUMENT SUBMITTAL |
| JOB 100942 | PARTNERING REQUIREMENTS |
| JOB 100942 | PLASTIC PIPE |
| JOB 100942 | PREFORMED SILICONE JOINT SEAL |
| JOB 100942 | PRICE ADJUSTMENT FOR ASPHALT BINDER |
| JOB 100942 | PRICE ADJUSTMENT FOR FUEL |
| JOB 100942 | PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT |
| JOB 100942 | SHORING FOR CULVERTS |
| JOB 100942 | SOIL STABILIZATION |
| JOB 100942 | SPECIAL SAFETY REQUIREMENTS FOR BRIDGES |
| JOB 100942 | STEEL FENCE |
| JOB 100942 | STORM WATER POLLUTION PREVENTION PLAN |
| JOB 100942 | SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS |
| JOB 100942 | UTILITY ADJUSTMENTS |
| JOB 100942 | VALUE ENGINEERING |
| JOB 100942 | WARM MIX ASPHALT |
| JOB 100942 | WELLHEAD PROTECTION |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
8-8-2022

## GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED IF AND WHERE DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
10. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
11. 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.

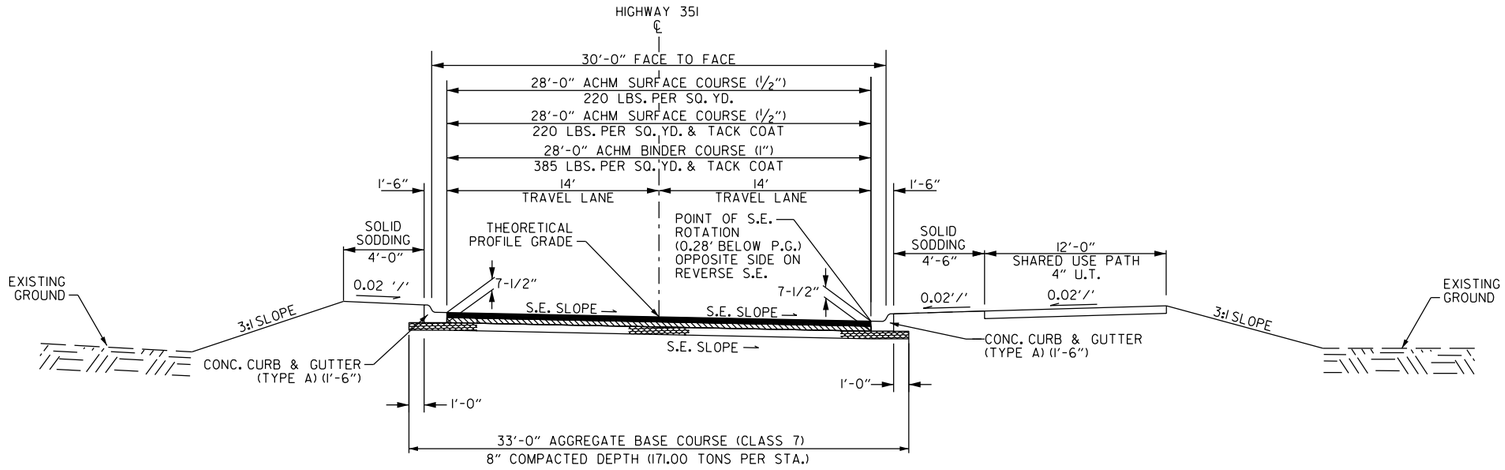


JessicaDeVon 8/8/2022 2:44:47 PM
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REVISED DATE: $$REVDATE$$

| 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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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 4 | 118 |
| | | | | (2) | TYPICAL SECTIONS OF IMPROVEMENT | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER

3-12-2021

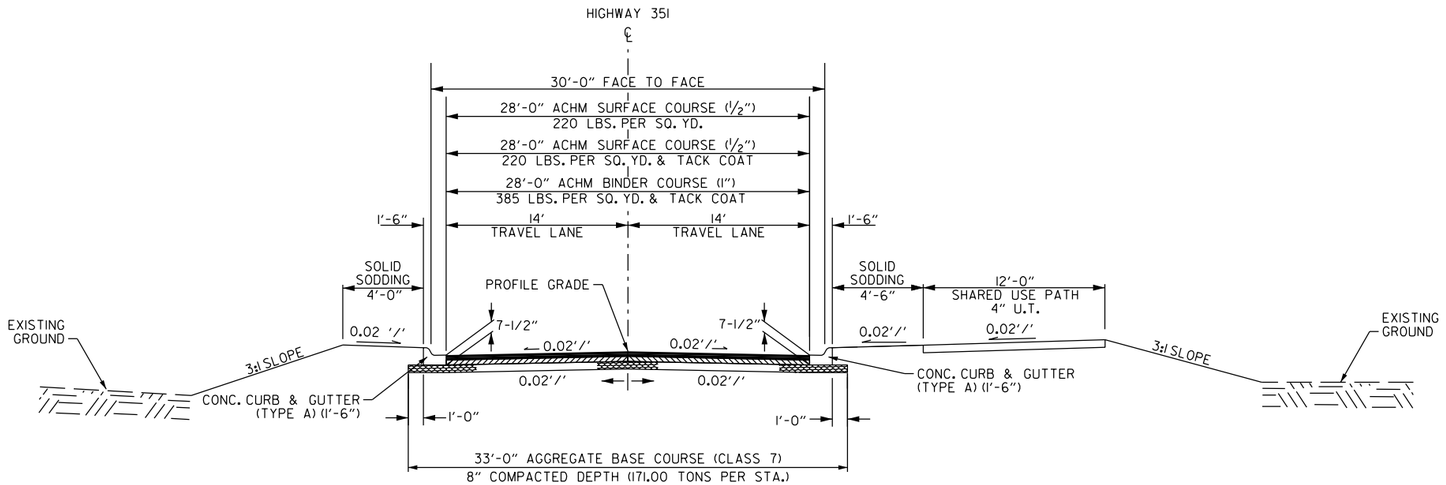



## HIGHWAY 351 - SUPERELEVATED TYPICAL SECTION

STA. 84+20.00 TO STA. 88+21.66
STA. 88+42.29 TO STA. 94+06.91
STA. 104+75.93 TO STA. 107+20.00
STA. 107+20.00 TO STA. 107+60.00 (RAISE GRADE)

STA. 82+77.00-84+20.00
TRANSITION FROM NOTCH & WIDEN TO FULL DEPTH

STA. 107+60.00-108+62.00
TRANSITION FROM FULL DEPTH TO NOTCH & WIDEN




## HIGHWAY 351 - TANGENT TYPICAL SECTION

STA. 88+21.66 TO STA. 88+42.29
STA. 102+58.10 TO STA. 104+75.93

NOTES:

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

2. 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 THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

4. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE SHARED USE PATH AT 45' INTERVALS.

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

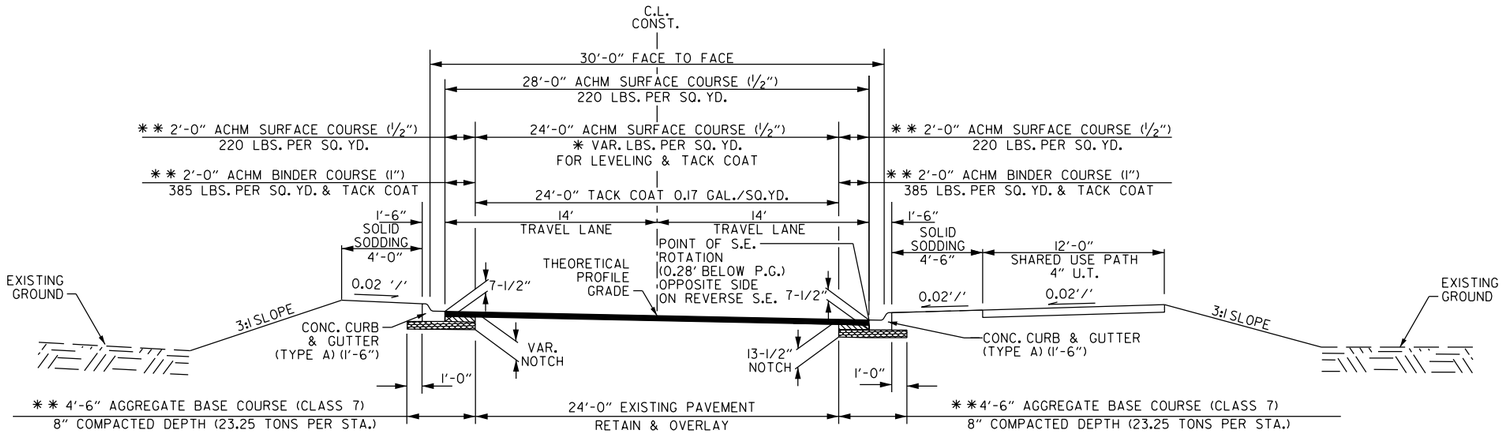
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REVISED DATE: $$REVDATE$$

TYPICAL SECTIONS OF IMPROVEMENT

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 5 | 118 |
| | | | | (2) | TYPICAL SECTIONS OF IMPROVEMENT | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER

3-12-2021

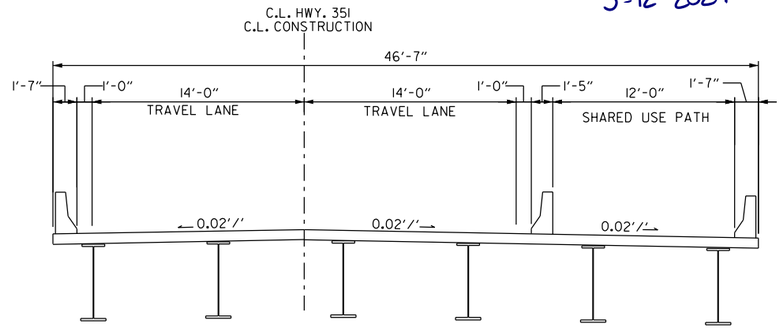



## HIGHWAY 351 - SUPERELEVATED TYPICAL SECTION NOTCH AND WIDEN

STA. 80+00.00-82+77.00
STA. 108+62.00 TO STA. 111+00.00

STA. 82+77.00-84+20.00
TRANSITION FROM NOTCH & WIDEN TO FULL DEPTH

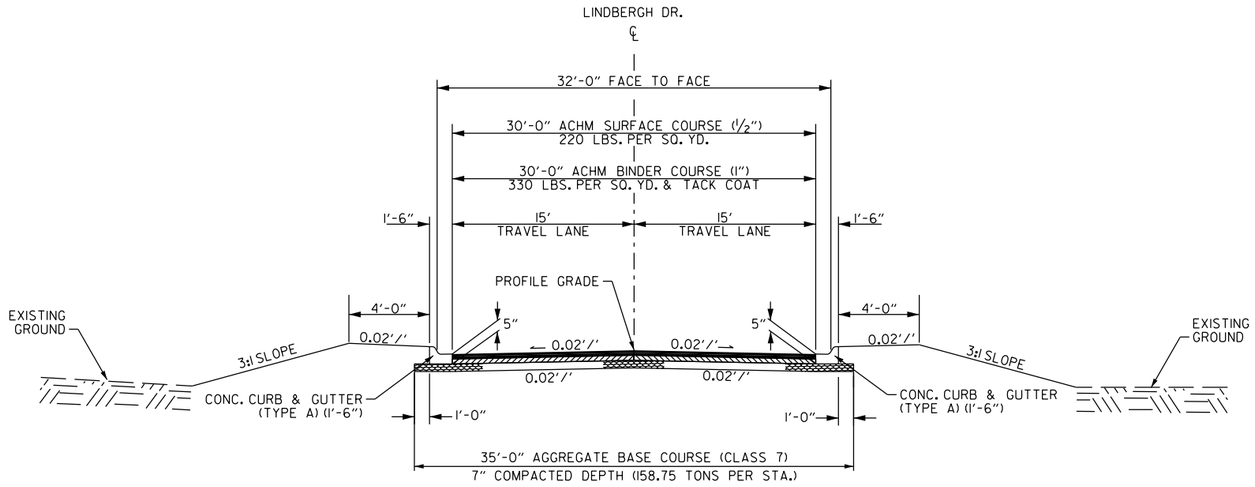
STA. 107+60.00-108+62.00
TRANSITION FROM FULL DEPTH TO NOTCH & WIDEN




## TYPICAL SECTION - HWY. 351 BRIDGE STA. 94+43.41 - STA. 102+21.60

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

** FOR WIDENING LESS THAN 4'-0", USE THE P.C.C. BASE WIDENING SPECIAL DETAIL.




## LINDBERGH DRIVEWAY - TYPICAL SECTION

STA. 8+07.73 TO STA. 9+68.00

NOTES:

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

2. 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 THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

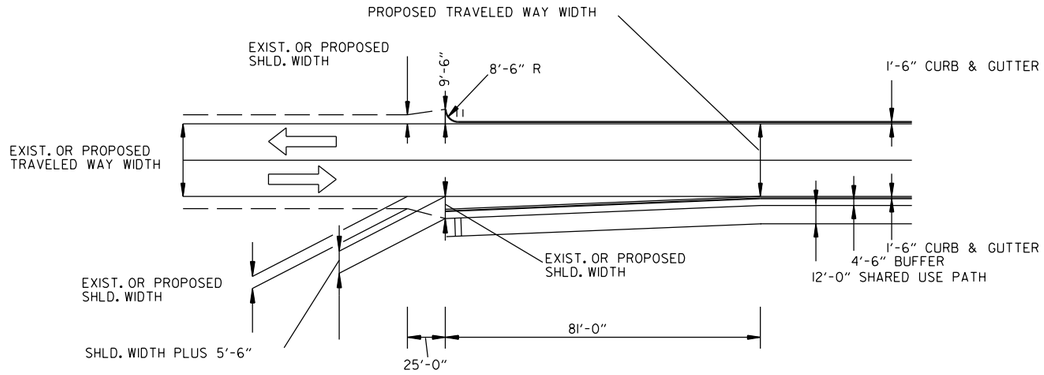
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IFAND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED INCLUDED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

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

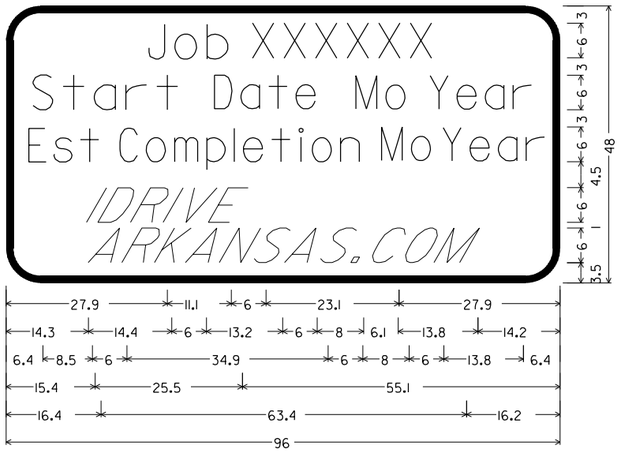
5. PRIOR TO AND DURING PLACEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

Phillip.Zeagler 3/12/2021 8:47:32 AM
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REVISED DATE: $$REVDATE$$

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|---|---|---|---|---|---|---|---|---|
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| | | | | JOB NO. | | 100942 | 6 | 118 |
| | | | | (2) | SPECIAL DETAILS | | | |

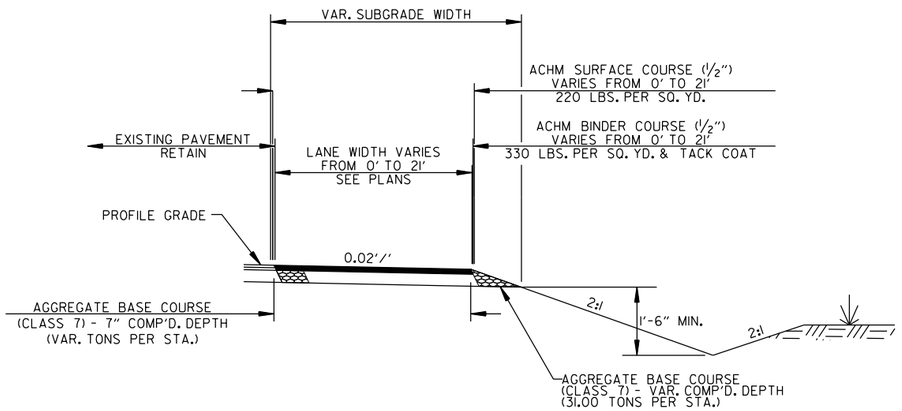



TRANSITION FROM OPEN SHOULDER
TO CURB & GUTTER SECTION




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

CONSTRUCTION PROJECT INFORMATION SIGN



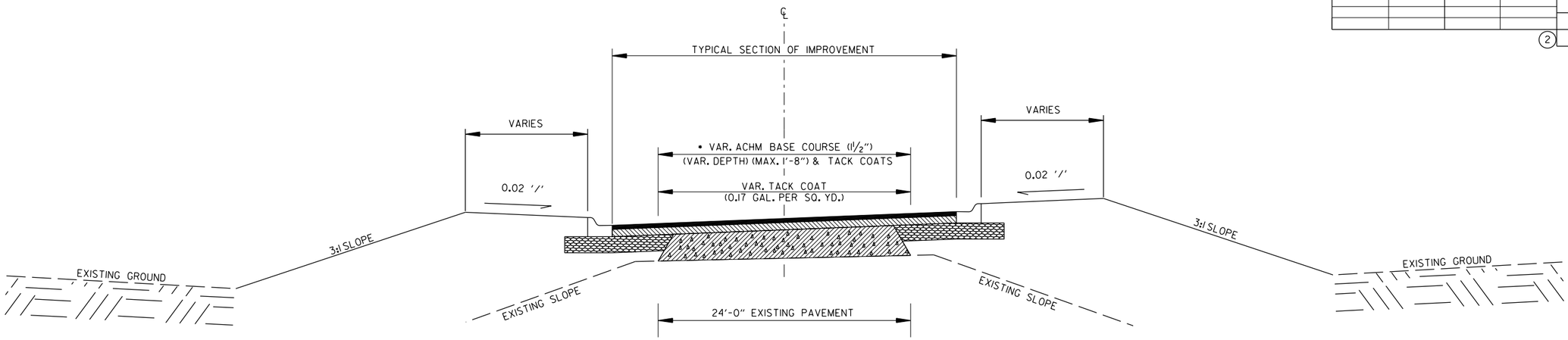

TEMPORARY WIDENING
FOR MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
9-8-2022

ByronLawrence 9/8/2022 4:35:37 PM
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| | | | | JOB NO. | | 100942 | 7 | 118 |
| | | | | (2) | SPECIAL DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021




• 8" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH A.C.H.M. BASE COURSE (1-1"2")

## METHOD OF RAISING GRADE

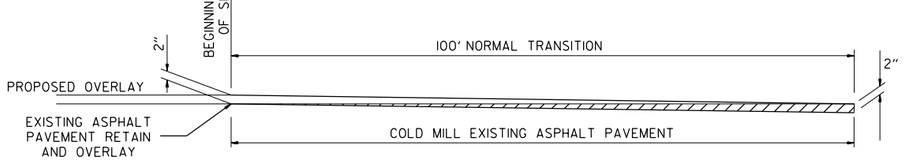
STA. 107+20.00 TO STA. 107+60.00

NOTES:

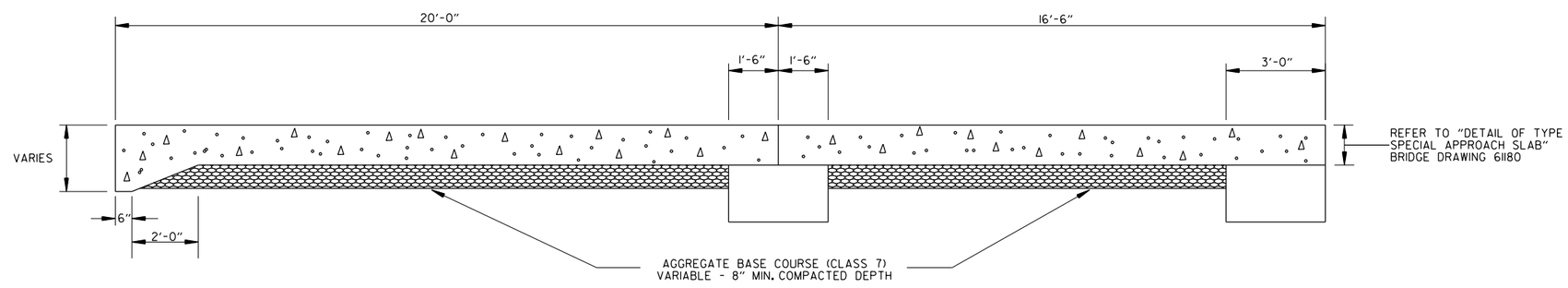
(1) THIS DETAIL TO BE USED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.

(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.




## DETAIL FOR PAVEMENT TRANSITIONS

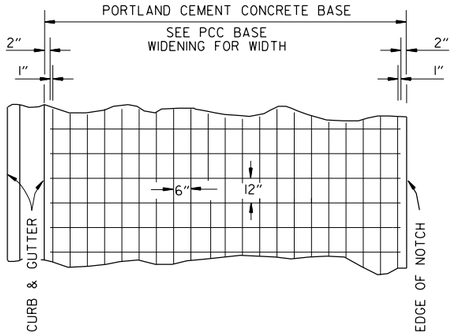



## SECTION OF APPROACH SLAB



Phillip.Zeagler 3/12/2021 8:47:34 AM
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| | | | | JOB NO. | | 100942 | 8 | 118 |
| | | | | (2) | SPECIAL DETAILS | | | |



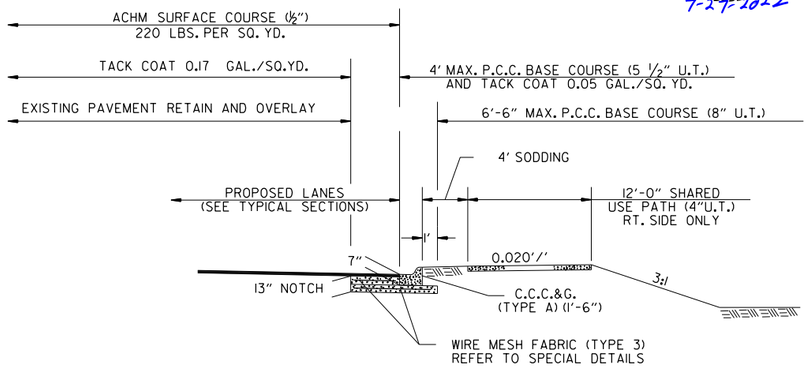

6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ.YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (5 1/2" & 8" U.T.)

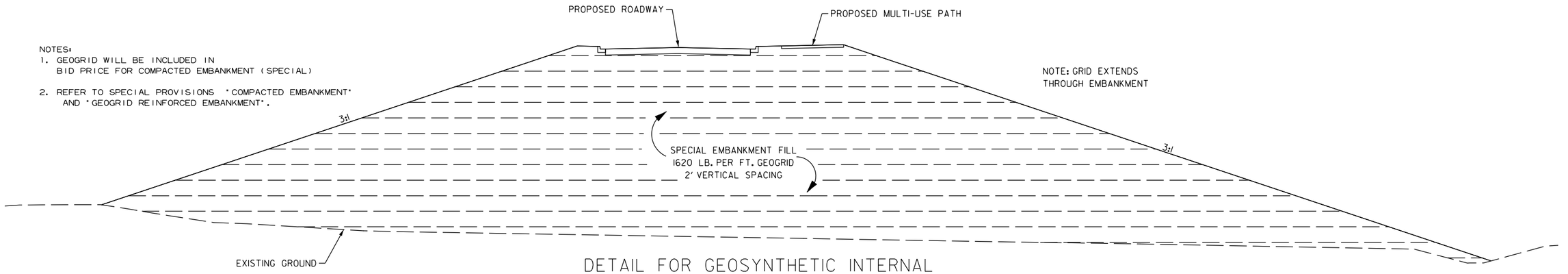
## DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
7-21-2022




## P.C.C. BASE WIDENING DETAIL

STA. 80+00.00 TO STA. 82+77.00 RT.
STA. 80+00.00 TO STA. 82+75.00 LT.
STA. 108+17.24 TO STA. 111+00.00 RT.
STA. 108+62.00 TO STA. 111+00.00 LT.




## DETAIL FOR GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT

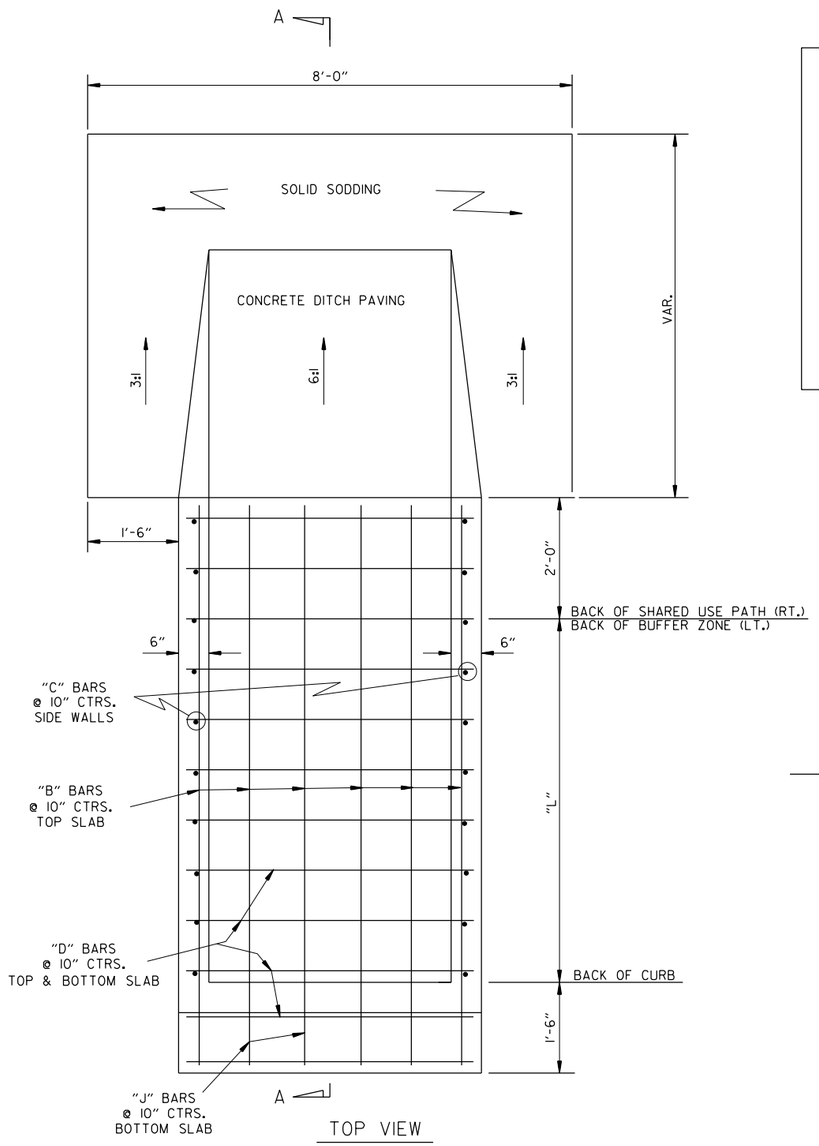
HWY. 351
STA. 92+20 TO STA. 94+84
STA. 101+65 TO STA. 103+93



LondonMiller 7/21/2022 11:40:32 AM
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REVISED DATE: $$REVDATE$$

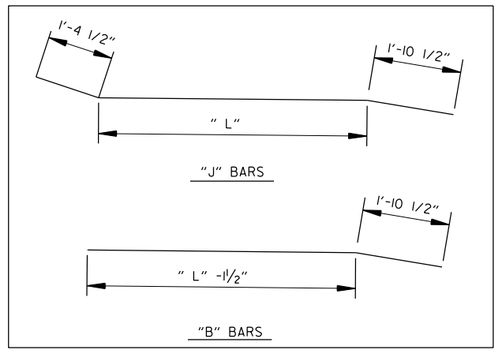
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 9 | 118 |
| | | | | (2) | SPECIAL DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021



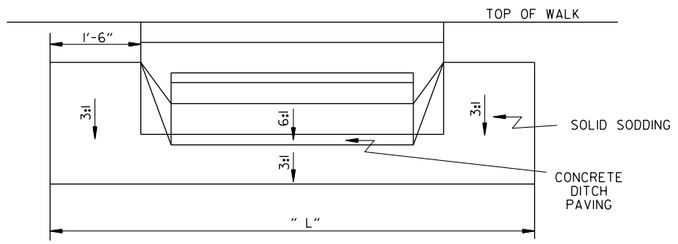

TOP VIEW

BAR DIAGRAM

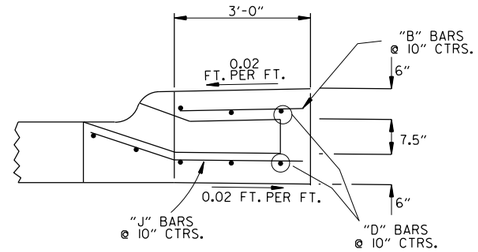



| HWY. 351 | LENGTH " L" | OPENING " H" | CLASS A CONC. | REINF. STEEL-RDWY. GRADE 60 |
|---|---|---|---|---|
| | LIN. FT. | LIN. FT. | CU. YDS. | POUND |
| LT. OF C.L. | 4.0 | 0.67 | 2.27 | 104 |
| RT. OF C.L. | 16.5 | 1.17 | 5.23 | 427 |

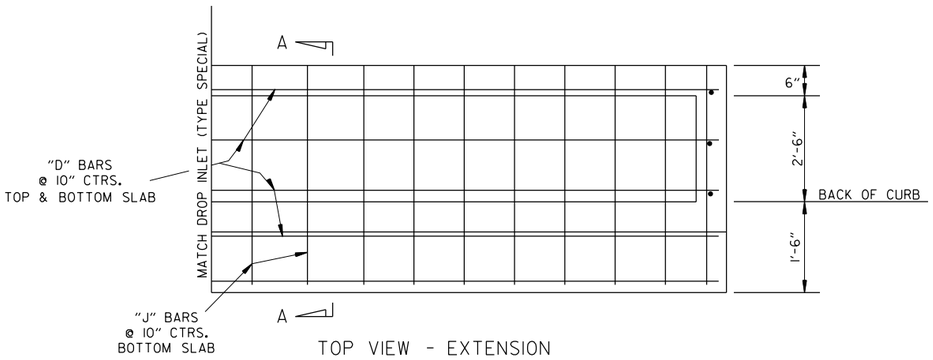
QUANTITIES FOR INFORMATION ONLY
DROP INLET (TYPE SPECIAL)



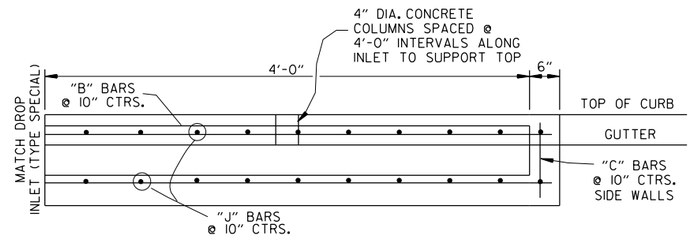

BACK VIEW



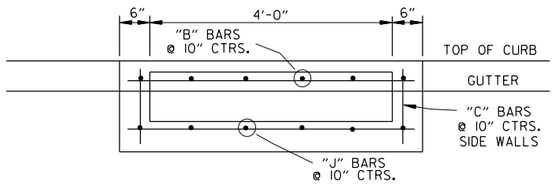

SECTION A-A - EXTENSION



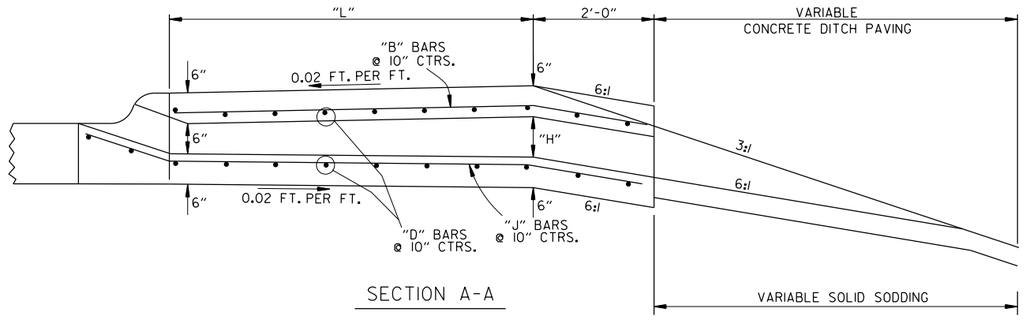

TOP VIEW - EXTENSION




FRONT VIEW - EXTENSION




FRONT VIEW




SECTION A-A

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. ALL REINF. BARS SHALL BE #4 AND HAVE 1 1/2" COVER.
3. DROP INLETS AND EXTENSIONS ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
4. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
5. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
6. CONCRETE DITCH PAVING & SOLID SODDING SHALL BE PAID FOR SEPARATELY.
7. CONSTRUCT EXTENSIONS UPSTREAM OF DROP INLET UNLESS OTHERWISE SPECIFIED.

# DROP INLET (TYPE SPECIAL)



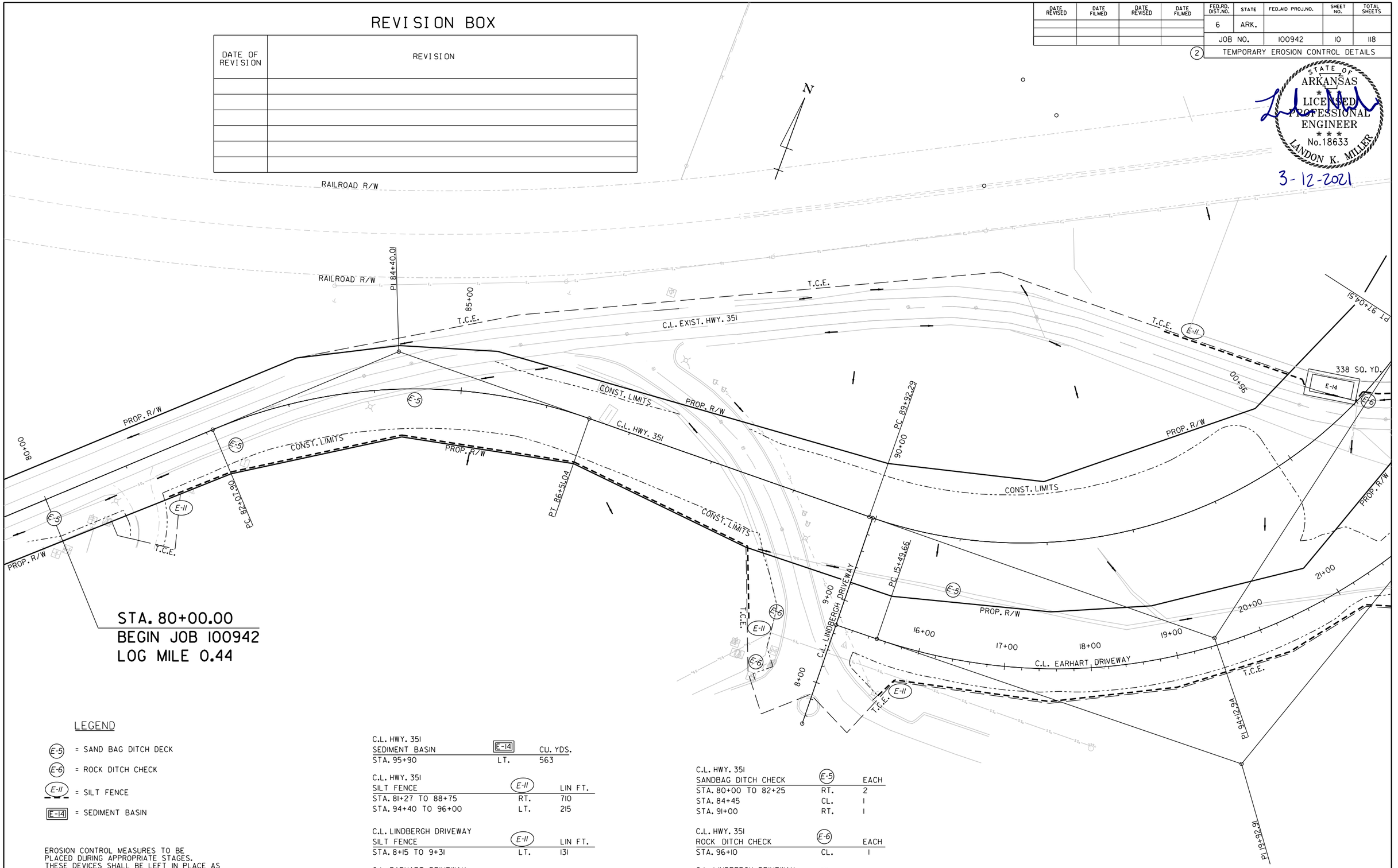
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REVISED DATE: $$REVDATE$$

## REVISION BOX

| DATE OF REVISION | REVISION |
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 10 | 118 |
| | | | | (2) | TEMPORARY EROSION CONTROL DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




STA. 80+00.00
BEGIN JOB 100942
LOG MILE 0.44

LEGEND

- (E-5) = SAND BAG DITCH DECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

| C.L. HWY. 351 SEDIMENT BASIN [E-14] | | CU. YDS. |
|---|---|---|
| STA. 95+90 | LT. | 563 |

| C.L. HWY. 351 SILT FENCE (E-11) | | LIN FT. |
|---|---|---|
| STA. 81+27 TO 88+75 | RT. | 710 |
| STA. 94+40 TO 96+00 | LT. | 215 |

| C.L. LINDBERGH DRIVEWAY SILT FENCE (E-11) | | LIN FT. |
|---|---|---|
| STA. 8+15 TO 9+31 | LT. | 131 |

| C.L. EARHART DRIVEWAY SILT FENCE (E-11) | | LIN FT. |
|---|---|---|
| STA. 15+70 TO 21+20 | RT. | 600 |

| C.L. HWY. 351 SANDBAG DITCH CHECK (E-5) | | EACH |
|---|---|---|
| STA. 80+00 TO 82+25 | RT. | 2 |
| STA. 84+45 | CL. | 1 |
| STA. 91+00 | RT. | 1 |

| C.L. HWY. 351 ROCK DITCH CHECK (E-6) | | EACH |
|---|---|---|
| STA. 96+10 | CL. | 1 |

| C.L. LINDBERGH DRIVEWAY ROCK DITCH CHECK (E-6) | | EACH |
|---|---|---|
| STA. 8+00 TO 8+60 | LT. | 2 |

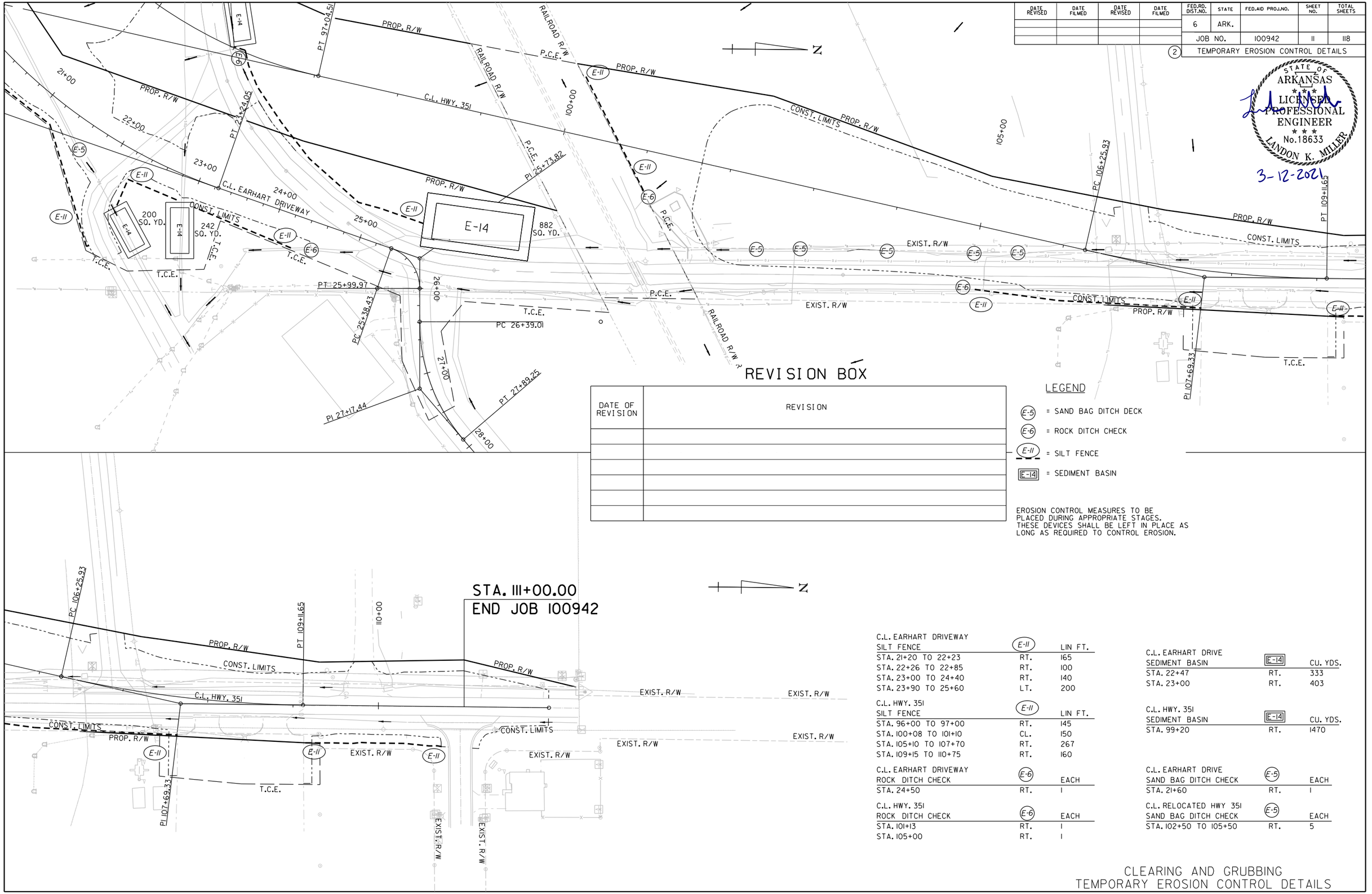
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

Phillip.Zeagler 3/12/2021 8:47:38 AM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| 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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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 11 | 118 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




## REVISION BOX

| DATE OF REVISION | REVISION |
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LEGEND

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

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

STA. 111+00.00
END JOB 100942

| C.L. EARHART DRIVEWAY SILT FENCE | (E-11) | LIN FT. |
|---|---|---|
| STA. 21+20 TO 22+23 | RT. | 165 |
| STA. 22+26 TO 22+85 | RT. | 100 |
| STA. 23+00 TO 24+40 | RT. | 140 |
| STA. 23+90 TO 25+60 | LT. | 200 |

| C.L. HWY. 351 SILT FENCE | (E-11) | LIN FT. |
|---|---|---|
| STA. 96+00 TO 97+00 | RT. | 145 |
| STA. 100+08 TO 101+10 | CL. | 150 |
| STA. 105+10 TO 107+70 | RT. | 267 |
| STA. 109+15 TO 110+75 | RT. | 160 |

| C.L. EARHART DRIVEWAY ROCK DITCH CHECK | (E-6) | EACH |
|---|---|---|
| STA. 24+50 | RT. | 1 |

| C.L. HWY. 351 ROCK DITCH CHECK | (E-6) | EACH |
|---|---|---|
| STA. 101+13 | RT. | 1 |
| STA. 105+00 | RT. | 1 |

| C.L. EARHART DRIVE SEDIMENT BASIN | (E-14) | CU. YDS. |
|---|---|---|
| STA. 22+47 | RT. | 333 |
| STA. 23+00 | RT. | 403 |

| C.L. HWY. 351 SEDIMENT BASIN | (E-14) | CU. YDS. |
|---|---|---|
| STA. 99+20 | RT. | 1470 |

| C.L. EARHART DRIVE SAND BAG DITCH CHECK | (E-5) | EACH |
|---|---|---|
| STA. 21+60 | RT. | 1 |

| C.L. RELOCATED HWY 351 SAND BAG DITCH CHECK | (E-5) | EACH |
|---|---|---|
| STA. 102+50 TO 105+50 | RT. | 5 |

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

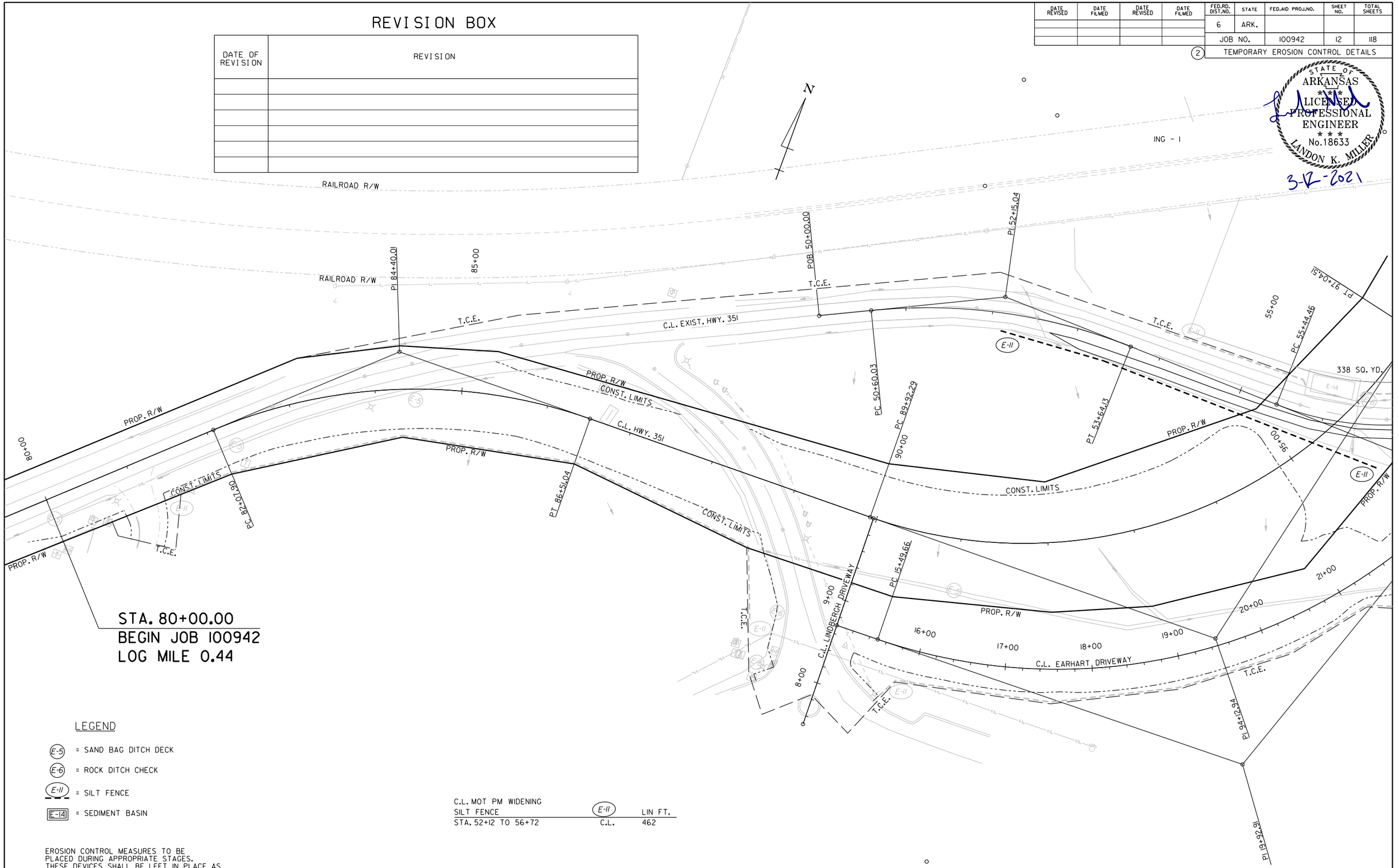
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 12 | 118 |
| | | | | (2) | TEMPORARY EROSION CONTROL DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




STA. 80+00.00
BEGIN JOB 100942
LOG MILE 0.44

LEGEND

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

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

| C.L. MOT PM WIDENING SILT FENCE | (E-11) | LIN FT. |
|---|---|---|
| STA. 52+12 TO 56+72 | C.L. | 462 |

STAGE I
TEMPORARY EROSION CONTROL DETAILS

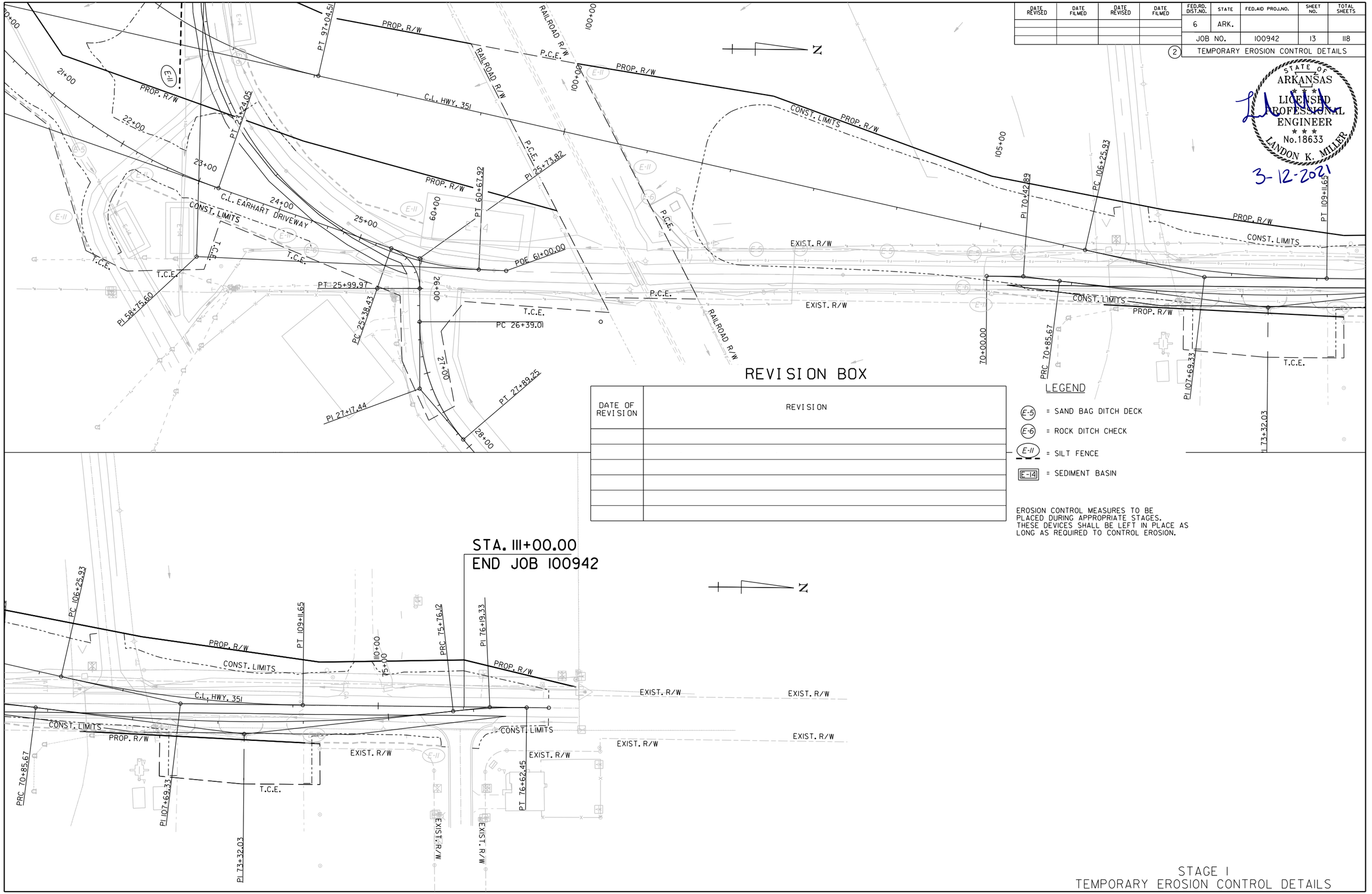
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| 6 | ARK. | | | |
| JOB NO. | | 100942 | 13 | 118 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




## REVISION BOX

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LEGEND

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

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

STA. 111+00.00
END JOB 100942

STAGE I
TEMPORARY EROSION CONTROL DETAILS

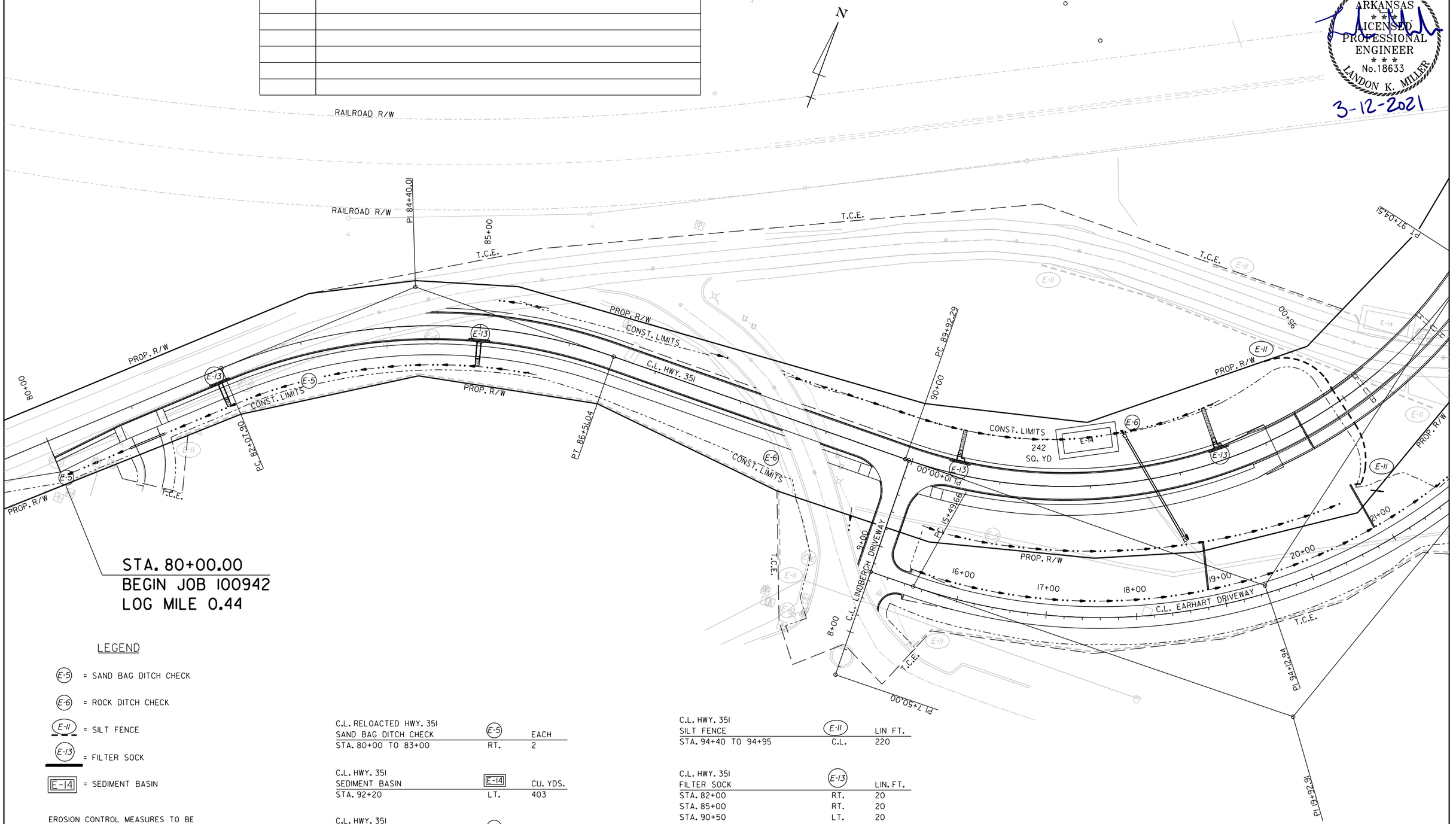
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| | | | | (2) | TEMPORARY EROSION CONTROL DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




STA. 80+00.00
BEGIN JOB 100942
LOG MILE 0.44

### LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK
- [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

| C.L. RELOACTED HWY. 351 SAND BAG DITCH CHECK | (E-5) | EACH |
|---|---|---|
| STA. 80+00 TO 83+00 | RT. | 2 |

| C.L. HWY. 351 SEDIMENT BASIN | [E-14] | CU. YDS. |
|---|---|---|
| STA. 92+20 | LT. | 403 |

| C.L. HWY. 351 ROCK DITCH CHECK | (E-6) | EACH |
|---|---|---|
| STA. 88+50 | RT. | 1 |
| STA. 92+60 | LT. | 1 |

| C.L. HWY. 351 SILT FENCE | (E-11) | LIN FT. |
|---|---|---|
| STA. 94+40 TO 94+95 | C.L. | 220 |

| C.L. HWY. 351 FILTER SOCK | (E-13) | LIN. FT. |
|---|---|---|
| STA. 82+00 | RT. | 20 |
| STA. 85+00 | RT. | 20 |
| STA. 90+50 | LT. | 20 |
| STA. 93+50 | LT. | 20 |

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

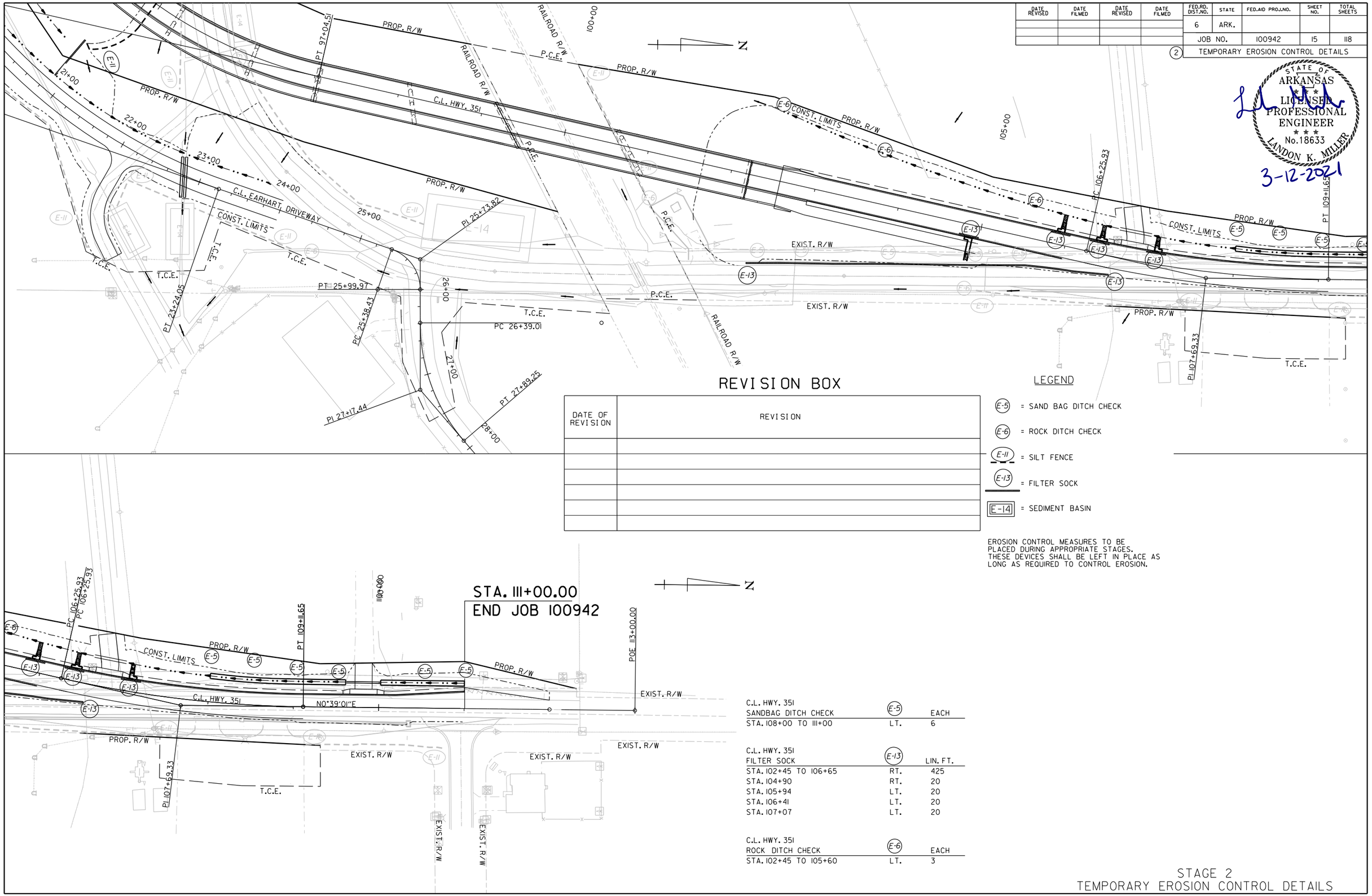
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| 6 | ARK. | | | |
| JOB NO. | | 100942 | 15 | 118 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




## REVISION BOX

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## LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK
- [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

| C.L. HWY. 351 SANDBAG DITCH CHECK | (E-5) | EACH |
|---|---|---|
| STA. 108+00 TO 111+00 | LT. | 6 |

| C.L. HWY. 351 FILTER SOCK | (E-13) | LIN. FT. |
|---|---|---|
| STA. 102+45 TO 106+65 | RT. | 425 |
| STA. 104+90 | RT. | 20 |
| STA. 105+94 | LT. | 20 |
| STA. 106+41 | LT. | 20 |
| STA. 107+07 | LT. | 20 |

| C.L. HWY. 351 ROCK DITCH CHECK | (E-6) | EACH |
|---|---|---|
| STA. 102+45 TO 105+60 | LT. | 3 |

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

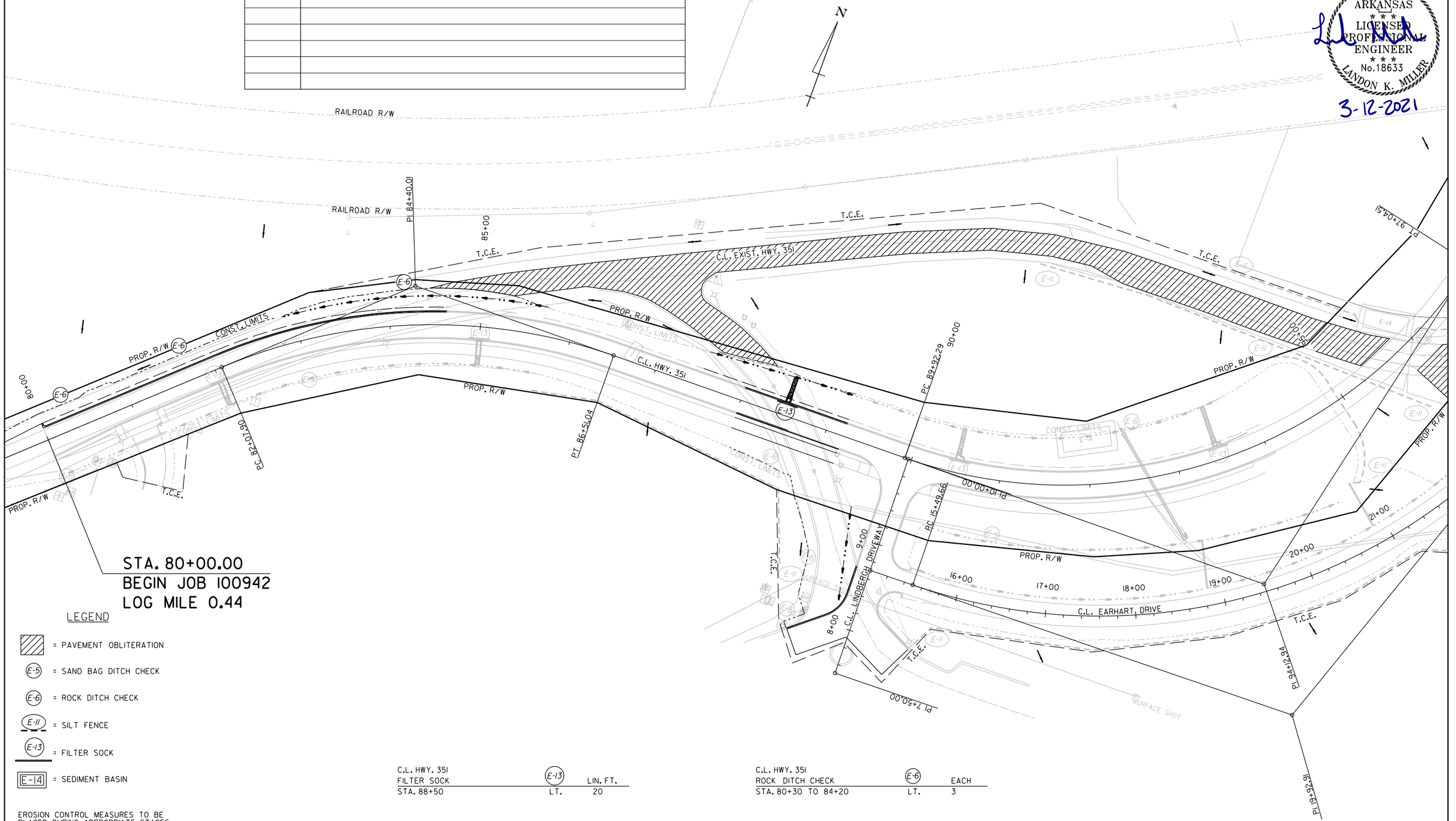
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 16 | 118 |
| | | | | (2) | TEMPORARY EROSION CONTROL DETAILS | | | |

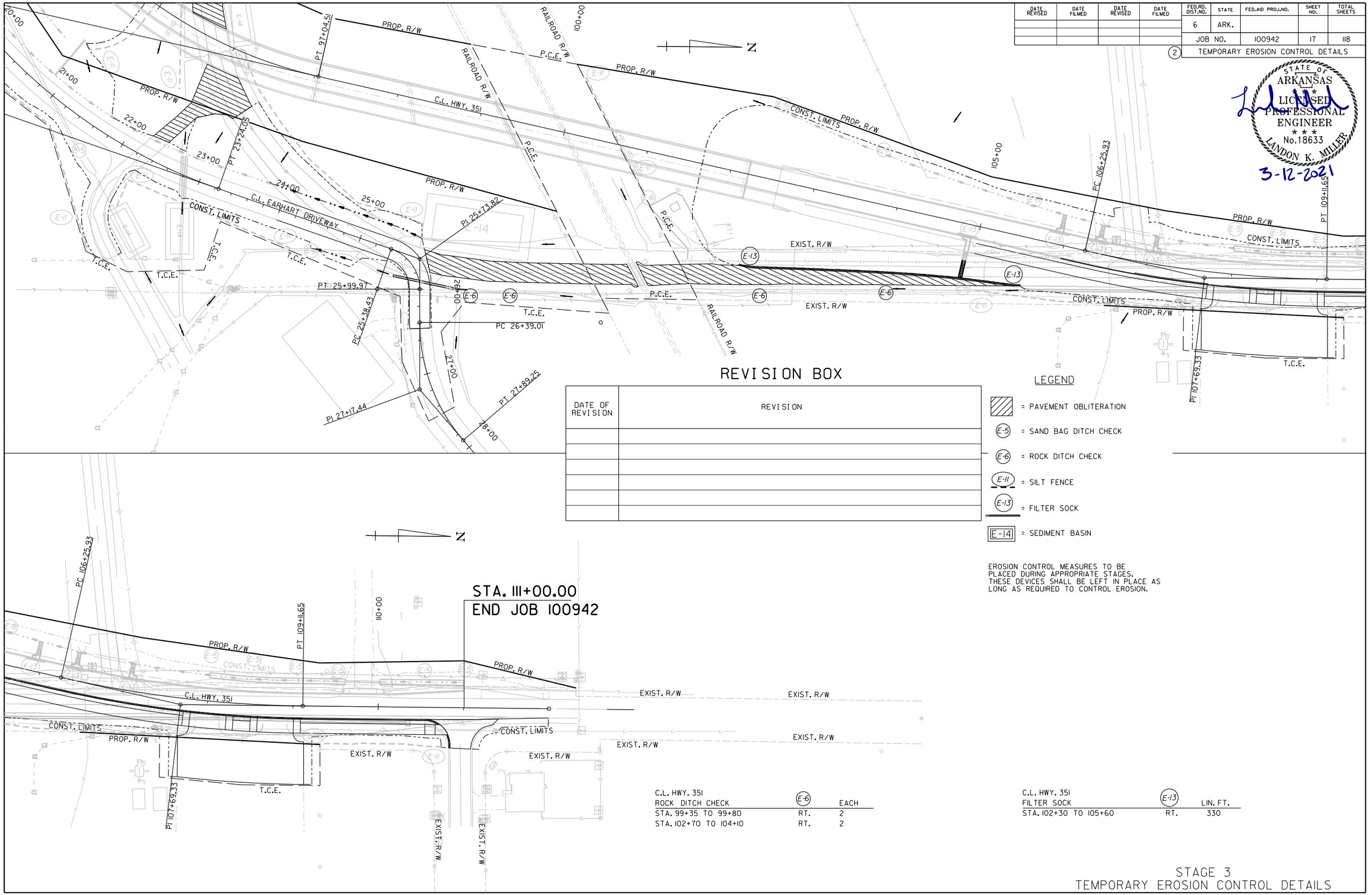
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021


N
RAILROAD R/W
RAILROAD R/W
PI 84+40.01
85+00
T.C.E.
C.L. EXIST. HWY. 351
T.C.E.
T.C.E.
E-6
PROP. R/W
E-6
CONST. LIMITS
PROP. R/W
80+00
E-6
E-13
C.L. HWY. 351
PROP. R/W
PC 89+92.29
90+00
PT 86+51.04
CONST. LIMITS
CONST. LIMITS
E-14
E-11
E-11
E-11

| 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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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 17 | 118 |

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




## REVISION BOX

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LEGEND

- = PAVEMENT OBLITERATION
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-13) = FILTER SOCK
- [E-14] = SEDIMENT BASIN

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

STA. 111+00.00
END JOB 100942

| C.L. HWY. 351 ROCK DITCH CHECK | (E-6) | EACH |
|---|---|---|
| STA. 99+35 TO 99+80 | RT. | 2 |
| STA. 102+70 TO 104+10 | RT. | 2 |

| C.L. HWY. 351 FILTER SOCK | (E-13) | LIN. FT. |
|---|---|---|
| STA. 102+30 TO 105+60 | RT. | 330 |

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

Phillip.Zeagler 3/12/2021 8:47:47 AM
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REVISED DATE: $$REVDATE$$

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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 18 | 118 |
| | | | | (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING SIGN DETAILS.

INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT TEMPORARY PAVEMENT WIDENING AS SHOW ON THE STAGE 1MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES, CONSTRUCTION PAVEMENT MARKINGS. SHIFT TRAFFIC ONTO NEWLY CONSTRUCTED TEMPORARY PAVEMENT WIDENING AND INSTALL PRECAST CONCRETE BARRIER WALL.

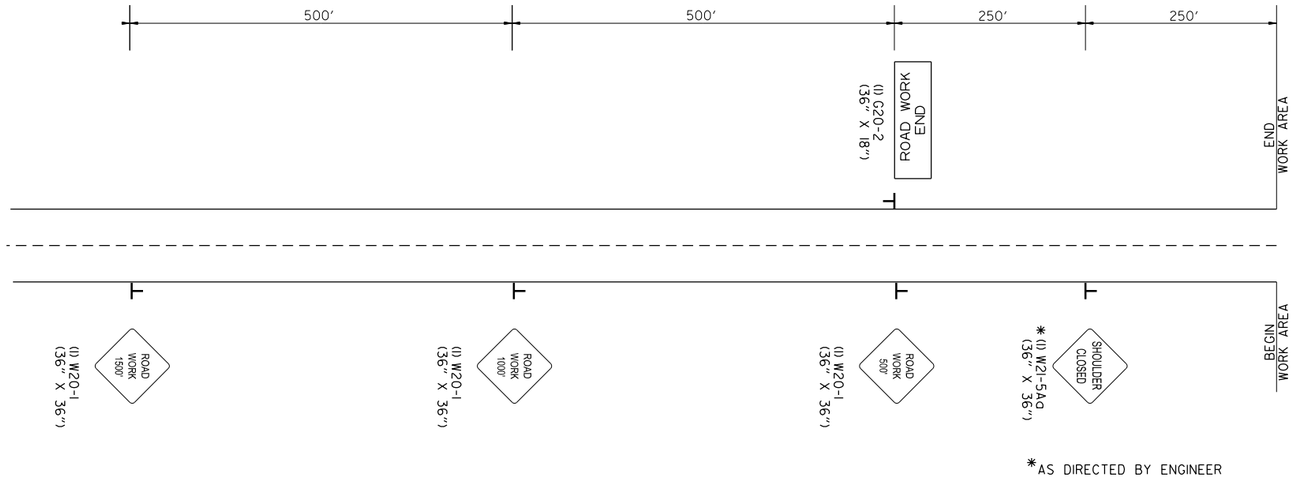
CONSTRUCT EMBANKMENT, SHARED USE PATH, DRAINAGE, BRIDGE AND ROADWAY WITHIN THE EXTENTS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES AND ROUTE TRAFFIC ONTO NEWLY CONSTRUCTED HWY. 35I. OBLITERATE EXISTING ROADWAY AND TEMPORARY PAVEMENT WIDENING.

CONSTRUCT REMAINDER OF ROADWAY TIES, SHARED USE PATH, EMBANKMENT, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

STATE OF ARKANSAS
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No.18633
LANDON K. MILLER
3-12-2021




*AS DIRECTED BY ENGINEER

ADVANCED WARNING SIGN DETAILS
AT THE BEGINNING AND END OF PROJECT
ALL STAGES



Phillip.Ziegler 3/12/2021 8:47:48 AM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

CONSTRUCTION SEQUENCE

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING SIGN DETAILS.

INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT TEMPORARY PAVEMENT WIDENING AS SHOW ON THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 18033
LANDON K. MILLER
8/4/2022

C.L. MOT PAVEMENT WIDENING - 1
P.I. = 52+15.04
DELTA = 27°22'07" RT.
D = 9°00'00"
T = 155.01'
L = 304.10'
P.C. = 50+60.03
P.T. = 53+64.13
NO SUPER

14 VERTICAL PANELS @ 50' O.C.

C.L. MOT WIDEN
STA. 2+69.26
12.5' RT.
BEGIN TEMP. PAVEMENT WIDENING

C.L. MOT WIDEN
STA. 9+87.62
19.30' RT.
END TEMP. PAVEMENT WIDENING

C.L. MOT PAVEMENT WIDENING - 1
P.I. = 58+75.60
DELTA = 88°59'21" LT.
D = 17°00'00"
T = 331.14'
L = 523.46'
P.C. = 55+44.46
P.T. = 60+67.92
NO SUPER

7 TRAFFIC DRUMS @ 15' O.C.

C.L. HWY. 351
STA. 95+70.00 RT. INSTALL
18" X 12' TEMPORARY PIPE CULVERT EXTENSION

C.L. HWY. 351
STA. 97+97.00 RT. INSTALL
24" X 10' TEMPORARY PIPE CULVERT EXTENSION

LEGEND

- TRAFFIC DRUM
- STAGE I TEMP. PAVEMENT WIDENING
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS

JessicaDeVon 8/3/2022 10:41:22 AM
WORKSPACE: ARDOT
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STAGE I
MAINTENANCE OF TRAFFIC DETAILS

CONSTRUCTION SEQUENCE

STAGE 1:

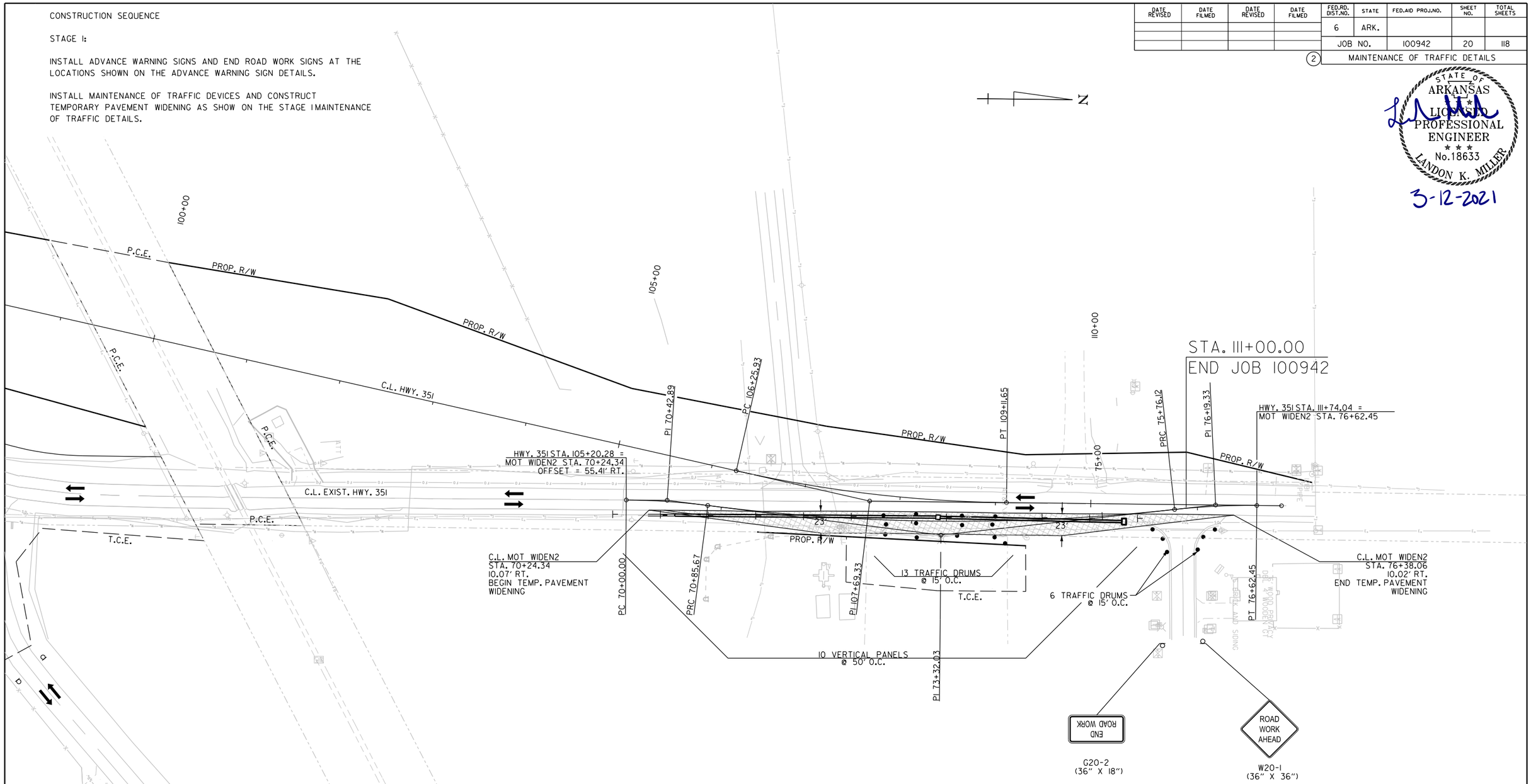
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING SIGN DETAILS.

INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT TEMPORARY PAVEMENT WIDENING AS SHOW ON THE STAGE 1MAINTENANCE OF TRAFFIC DETAILS.

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| 6 | ARK. | | | |
| JOB NO. | | 100942 | 20 | 118 |
| (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




C.L. HWY. 351
STA. 105+45 TO 105+73
INSTALL 24" X 28' TEMPORARY PIPE CULVERT RT.

NOTE:
WHERE APPLICABLE, EXISTING CULVERTS AND PROPOSED R.C. PIPE MAY BE USED IF AND WHERE DIRECTED BY THE ENGINEER IN THE PLACE OF TEMPORARY PIPE GIVEN THAT ALL INLETS AND JUCTION BOXES ARE BELOW TEMPORARY WIDENING GRADE AND COVERED. PAYMENT FOR COVERING EXISTING OR PROPOSED STRUCTURES FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

C.L. MOT WIDEN2
P.I. = 70+42.89
Δ = 6°51'13" RT.
D = 8°00'00"
T = 42.89'
L = 85.67'
P.C. = 70+00.00
P.R.C = 70+85.67
NO SUPER

C.L. MOT WIDEN2
P.I. = 73+32.03
Δ = 13°29'15" LT.
D = 2°45'00"
T = 246.36'
L = 490.45'
P.R.C. = 70+85.67
P.R.C. = 75+76.12
NO SUPER

C.L. MOT WIDEN2
P.I. = 76+19.33
Δ = 6°54'22" RT.
D = 8°00'00"
T = 43.22'
L = 86.33'
P.R.C. = 75+76.12
P.T. = 76+62.45
NO SUPER

## LEGEND

- TRAFFIC DRUM
- STAGE 1 TEMP. PAVEMENT WIDENING
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS

Phillip.Zeagler 3/12/2021 8:47:50 AM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

CONSTRUCTION SEQUENCE

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES, CONSTRUCTION PAVEMENT MARKINGS. SHIFT TRAFFIC ONTO NEWLY CONSTRUCTED TEMPORARY PAVEMENT WIDENING AND INSTALL PRECAST CONCRETE BARRIER WALL.

CONSTRUCT EMBANKMENT, SHARED USE PATH, DRAINAGE, BRIDGE AND ROADWAY WITHIN THE EXTENTS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 21 | 118 |
| | | | | (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021

C.L. MOT WIDEN
P.I. = 52+15.04
DELTA = 27°22'07" RT.
D = 9°00'00"
T = 155.01'
L = 304.10'
P.C. = 50+60.03
P.T. = 53+64.13
NO SUPER

N

STA. 80+00.00
BEGIN JOB 100942
LOG MILE 0.44

STA. 88+60 - RT. (LINDBERGH DRIVEWAY)
CONST. TEMPORARY APPROACH

STA. 88+60 - LT. (LINDBERGH DRIVEWAY)
CONST. TEMPORARY APPROACH

(1) 16' BARR. TYP. III RT.
(1) RII-2 (48" X 30")
ROAD CLOSED
PI 84+40.01
PC 82+01.90
PROP. R/W
CONST. LIMITS
T.C.E.
6 TRAFFIC DRUMS @ 15' O.C.
12 VERTICAL PANELS @ 50' O.C.
C.L. HWY. 351
PT 86+51.04
POB 50+00.00
PI 52+15.04
PC 50+60.03
PC 89+92.29
90°00'00"
D
WI-4 (36" X 36")
11 TRAFFIC DRUMS @ 15' O.C.
CONST. PAVEMENT MARKINGS (WHITE)
7 TRAFFIC DRUMS @ 15' O.C.
CONST. PAVEMENT MARKINGS (DBL. YELLOW) WITH R.P.M II (YELLOW/YELLOW) @ 40' O.C.
PT 53+64.13
PC 55+44.46
00+56
55+00
C.L. EXIST. HWY. 351
ROAD CLOSED
(2) RII-2 (48" X 30")
(2) 8' BARR. TYP. III RT.
(2) 8' BARR. TYP. III LT.
PI 10+00.00
PC 54+49.66
9+00
C.L. LINDBERGH DRIVEWAY
6 TRAFFIC DRUMS @ 15' O.C.
16+00
17+00
18+00
19+00
20+00
C.L. EARHART DRIVEWAY
8+00
PI 7+80.00
PI 94+24.94
PI 19+92.91
ROAD CLOSED
(1) RII-2 (48" X 30")
(1) 16' BARR. TYP. III RT.
G20-2 (36" X 18") END ROAD WORK
W20-1 (36" X 36") ROAD WORK AHEAD

## LEGEND

- PRECAST CONCRETE BARRIER WALL
- TRAFFIC DRUM
- MAINTAIN DRIVE ACCESS TO AIRPORT WITH ACHM RAMPS TO PROPOSED HWY. 351 CONSTRUCTION. SEE DRIVEWAY PROFILE DETAILS.
- STAGE 2 CONSTRUCTION LIMITS
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS
- TYPE III BARRICADE

CONSTRUCTION PAVEMENT MARKINGS

| | | |
|---|---|---|
| C.L. MOT WIDEN - STA. 50+00 TO STA. 61+00 | 6" WH. EDGE LN. - RT. | 1100 LIN. FT. |
| C.L. MOT WIDEN 2 - STA. 70+00 TO STA. 76+62.45 | 6" WH. EDGE LN. - RT. | 663 LIN. FT. |
| C.L. MOT WIDEN - STA. 50+00 TO STA. 61+00 | 6" WH. EDGE LN. - LT. | 1100 LIN. FT. |
| C.L. MOT WIDEN 2 - STA. 70+00 TO STA. 76+62.45 | 6" WH. EDGE LN. - LT. | 663 LIN. FT. |
| C.L. MOT WIDEN - STA. 50+00 TO STA. 61+00 | DBL. YELLOW C.L. | 2200 LIN. FT. |
| C.L. MOT WIDEN 2 - STA 70+00 TO STA. 76+62.45 | DBL. YELLOW C.L. | 1326 LIN. FT. |

REMOVAL OF PERMANENT PAVEMENT MARKINGS

| | |
|---|---|
| C.L. MOT WIDEN STA. 50+00 TO STA. 61+00 | 4400 LIN. FT. |
| C.L. MOT WIDEN 2 STA. 70+00 TO STA. 76+62.45 | 2652 LIN. FT. |

RAISED PAVEMENT MARKERS @ 40' O.C. = 88 EACH
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

Phillip.Ziegler 3/12/2021 8:47:51 AM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 22 | 118 |
| | | | | (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

• SPECIAL END UNITS WILL BE INCLUDED IN THE PRICE BID FOR FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL.

CONSTRUCTION SEQUENCE

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES, CONSTRUCTION PAVEMENT MARKINGS. SHIFT TRAFFIC ONTO NEWLY CONSTRUCTED TEMPORARY PAVEMENT WIDENING AND INSTALL PRECAST CONCRETE BARRIER WALL.

CONSTRUCT EMBANKMENT, SHARED USE PATH, DRAINAGE, BRIDGE AND ROADWAY WITHIN THE EXTENTS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021

TEMP. IMPACT ATTENUATOR
FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL 173 LIN. FT.
• SPECIAL END UNIT
PC 5+44.46
FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL 273 LIN. FT.
PT 97+04.51
• SPECIAL END UNIT
PROP. R/W
7 TRAFFIC DRUMS @ 15' O.C.
TEMP. IMPACT ATTENUATOR
CONST. PAVEMENT MARKINGS (WHITE)
PT 10+67.92
POE 1+00.00
9 TRAFFIC DRUMS @ 15' O.C.
PT 23+24.05
ROAD CLOSED
(1) R11-2 (48" X 30")
(1) 16' BARR. TYP. III LT.
9 TRAFFIC DRUMS @ 40' O.C.
PI 8+75.60
ROAD WORK AHEAD
W20-1 (36" X 36")
END ROAD WORK
G20-2 (36" X 18")
ROAD CLOSED
(2) R11-2 (48" X 30")
(2) 8' BARR. TYP. III RT.
(2) 8' BARR. TYP. III LT.
6 TRAFFIC DRUMS @ 15' O.C.
CONST. PAVEMENT MARKINGS (YELLOW) WITH R.P.M II (YELLOW/YELLOW) @ 40' O.C.
ROAD WORK AHEAD
W20-1 (36" X 36")
END ROAD WORK
G20-2 (36" X 18")
WI-4 (36" X 36")
C.L. EXIST. HWY. 35I
C.L. HWY. 35I
PI 70+42.89
PC 106+25.93
10 TRAFFIC DRUMS @ 30' O.C.
8 TRAFFIC DRUMS @ 15' O.C.
PT 109+11.65
(1) R11-2 (48" X 30")
(1) 16' BARR. TYP. III RT.
ROAD CLOSED
9 TRAFFIC DRUMS @ 40' O.C.
CONST. PAVEMENT MARKINGS (WHITE)
PC 70+00.00
PRC 70+85.67
W13-1P (18" X 18")
W24-1 (36" X 36")
CONST. PAVEMENT MARKINGS (YELLOW) WITH R.P.M II (YELLOW/YELLOW) @ 40' O.C.
PI 107+69.33
8 TRAFFIC DRUMS @ 15' O.C.
PI 73+32.03

C.L. MOT WIDEN2
P.I. = 70+42.89
Δ = 6°51'13" RT.
D = 8°00'00"
T = 42.89'
L = 85.67'
P.C. = 70+00.00
P.R.C = 70+85.67
NO SUPER

C.L. MOT WIDEN2
P.I. = 73+32.03
Δ = 13°29'15" LT.
D = 2°45'00"
T = 246.36'
L = 490.45'
P.R.C. = 70+85.67
P.R.C. = 75+76.12
NO SUPER

## LEGEND

- PRECAST CONCRETE BARRIER WALL
- TRAFFIC DRUM
- STAGE 2 CONSTRUCTION LIMITS
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS
- TYPE III BARRICADE

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

Phillip.Zeagler 3/12/2021 8:47:53 AM
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REVISED DATE: $$REVDATE$$

CONSTRUCTION SEQUENCE

STAGE 2:

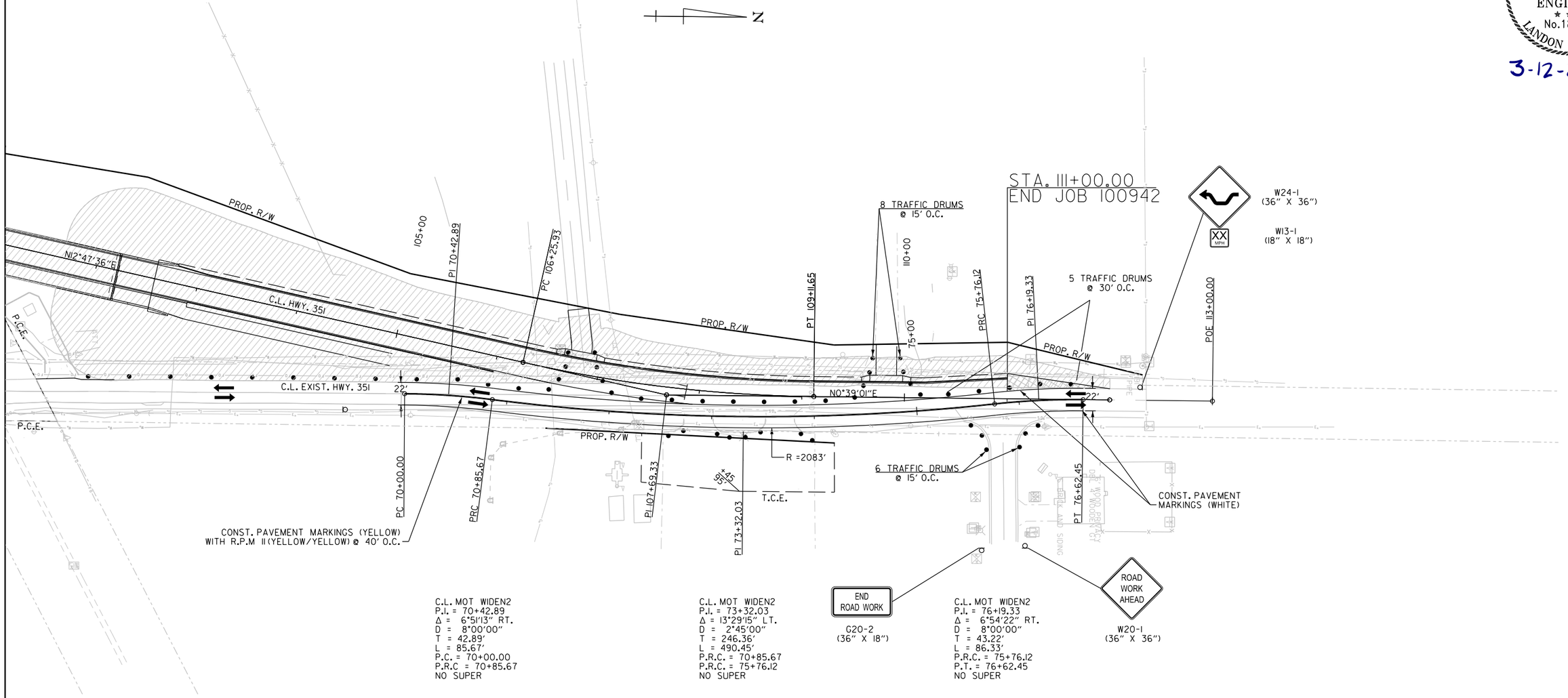
INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES, CONSTRUCTION PAVEMENT MARKINGS. SHIFT TRAFFIC ONTO NEWLY CONSTRUCTED TEMPORARY PAVEMENT WIDENING AND INSTALL PRECAST CONCRETE BARRIER WALL.

CONSTRUCT EMBANKMENT, SHARED USE PATH, DRAINAGE, BRIDGE AND ROADWAY WITHIN THE EXTENTS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 23 | 118 |
| | | | | (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER

3-12-2021




C.L. MOT WIDEN2
P.I. = 70+42.89
Δ = 6°51'13" RT.
D = 8°00'00"
T = 42.89'
L = 85.67'
P.C. = 70+00.00
P.R.C = 70+85.67
NO SUPER

C.L. MOT WIDEN2
P.I. = 73+32.03
Δ = 13°29'15" LT.
D = 2°45'00"
T = 246.36'
L = 490.45'
P.R.C. = 70+85.67
P.R.C. = 75+76.12
NO SUPER

C.L. MOT WIDEN2
P.I. = 76+19.33
Δ = 6°54'22" RT.
D = 8°00'00"
T = 43.22'
L = 86.33'
P.R.C. = 75+76.12
P.T. = 76+62.45
NO SUPER

## LEGEND

- TRAFFIC DRUM
- STAGE 2 CONSTRUCTION LIMITS
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS
- TYPE III BARRICADE

## STAGE 2
## MAINTENANCE OF TRAFFIC DETAILS


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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 24 | 118 |
| | | | | (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

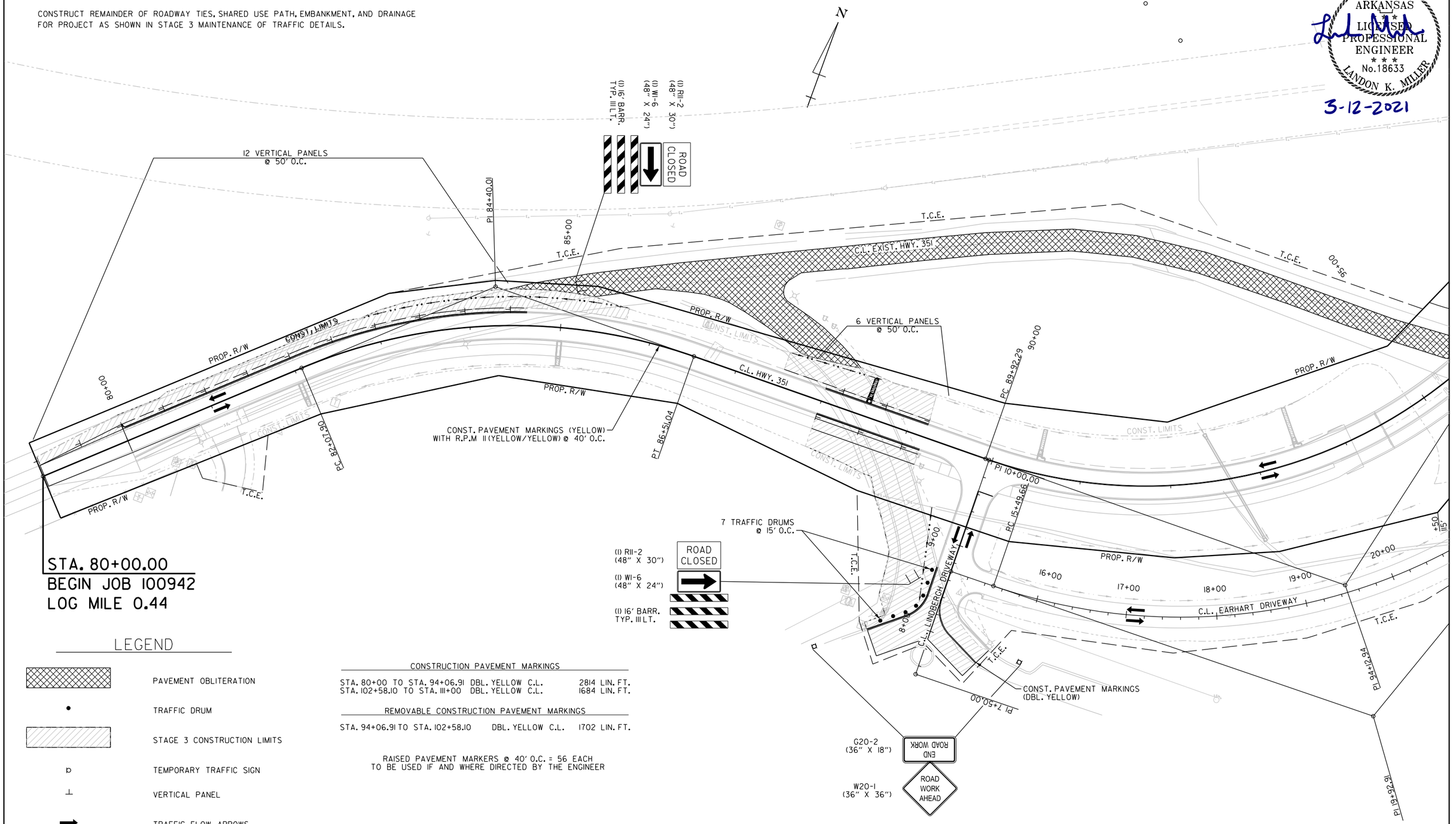
CONSTRUCTION SEQUENCE

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES AND ROUTE TRAFFIC ONTO NEWLY CONSTRUCTED HWY. 351.
OBLITERATE EXISTING ROADWAY AND TEMPORARY PAVEMENT WIDENING.

CONSTRUCT REMAINDER OF ROADWAY TIES, SHARED USE PATH, EMBANKMENT, AND DRAINAGE
FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021




LEGEND

- PAVEMENT OBLITERATION
- TRAFFIC DRUM
- STAGE 3 CONSTRUCTION LIMITS
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS
- TYPE III BARRICADE

CONSTRUCTION PAVEMENT MARKINGS

| | | |
|---|---|---|
| STA. 80+00 TO STA. 94+06.91 | DBL. YELLOW C.L. | 2814 LIN. FT. |
| STA. 102+58.10 TO STA. 111+00 | DBL. YELLOW C.L. | 1684 LIN. FT. |

REMOVABLE CONSTRUCTION PAVEMENT MARKINGS

| | | |
|---|---|---|
| STA. 94+06.91 TO STA. 102+58.10 | DBL. YELLOW C.L. | 1702 LIN. FT. |

RAISED PAVEMENT MARKERS @ 40' O.C. = 56 EACH
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

Phillip.Zeagler 3/12/2021 8:47:55 AM
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REVISED DATE: $$REVDATE$$

CONSTRUCTION SEQUENCE

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES AND ROUTE TRAFFIC ONTO NEWLY CONSTRUCTED HWY. 351. OBLITERATE EXISTING ROADWAY AND TEMPORARY PAVEMENT WIDENING.

CONSTRUCT REMAINDER OF ROADWAY TIES, SHARED USE PATH, EMBANKMENT, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 25 | 118 |
| | | | | (2) | MAINTENANCE OF TRAFFIC DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18633
LANDON K. MILLER
3-12-2021

N

PT 97+04.51
PROP. R/W
P.C.E.
100+00
CONST. PAVEMENT MARKINGS (YELLOW) WITH R.P.M II (YELLOW/YELLOW) @ 40' O.C.
CONST. LIMITS
105+00
PC 106+25.93
110+00
STA. 111+00.00
END JOB 100942
12 TRAFFIC DRUMS @ 15' O.C.
PT 109+11.65
N12°47'36"E
C.L. HWY. 351
N0°39'01"E
24+00
25+00
C.L. EARHART DRIVEWAY
PI 25+73.82
T.C.E.
PT 25+99.97
26+00
PC 25+38.43
PC 26+39.01
27+00
PI 27+17.44
PT 27+89.25
28+00
PT 27+89.25
ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
(1) 16' BARR. TYP. III LT.
PT 107+69.33
13 VERTICAL PANELS @ 50' O.C.
6 TRAFFIC DRUMS @ 15' O.C.
END ROAD WORK
G20-2 (36" X 18")
ROAD WORK AHEAD
W20-1 (36" X 36")

LEGEND

- PAVEMENT OBLITERATION
- TRAFFIC DRUM
- STAGE 3 CONSTRUCTION LIMITS
- TEMPORARY TRAFFIC SIGN
- VERTICAL PANEL
- TRAFFIC FLOW ARROWS
- TYPE III BARRICADE

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

Phillip.Ziegler 3/12/2021 8:47:56 AM
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REVISED DATE: $$REVDATE$$

NOTE:

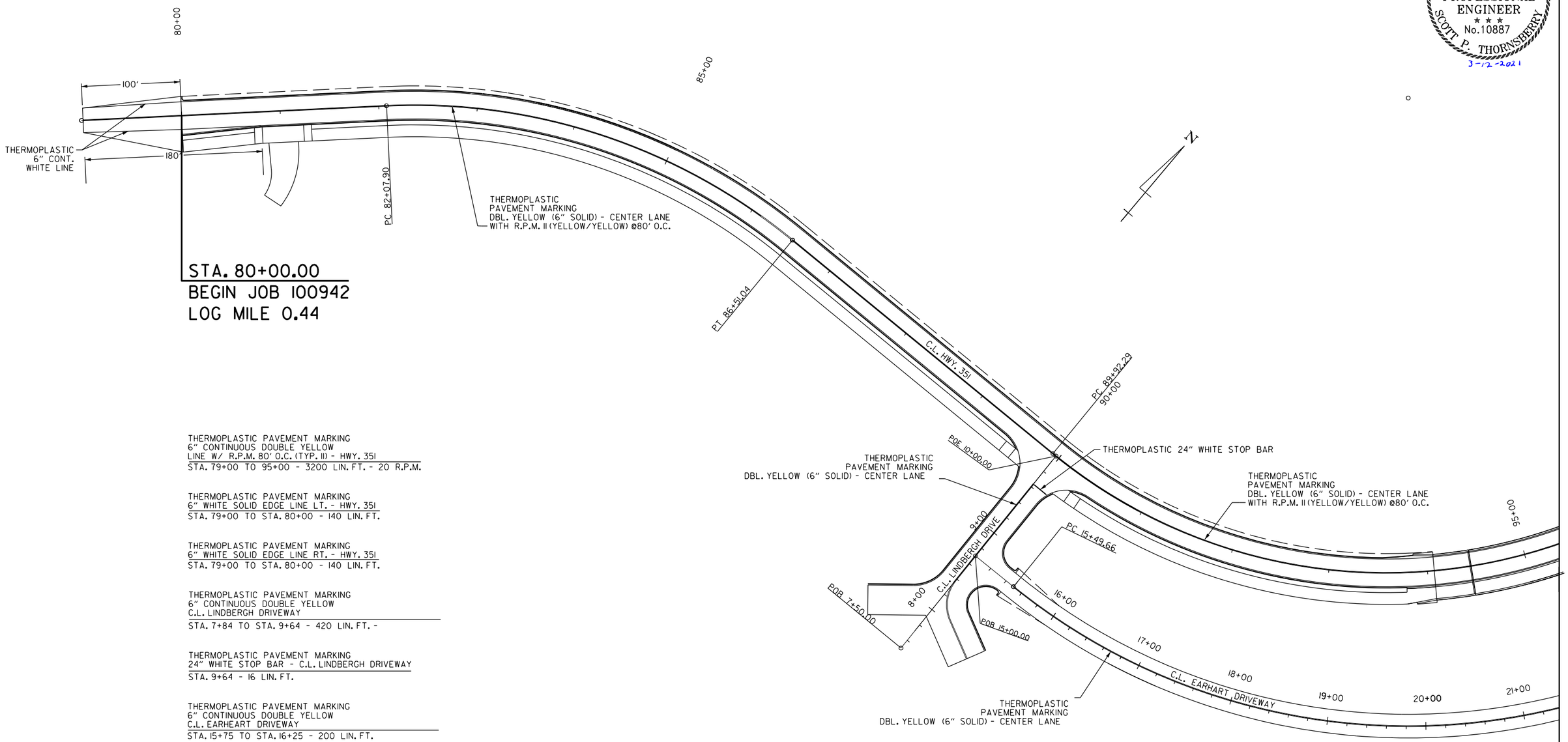
THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIP FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BBEEN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

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| 6 | ARK. | | | |
| JOB NO. | | 100942 | 26 | 118 |

(2) PERMANENT PAVEMENT MARKINGS DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
3-12-2021




THERMOPLASTIC PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW
LINE W/ R.P.M. 80' O.C. (TYP. II) - HWY. 351
STA. 79+00 TO 95+00 - 3200 LIN. FT. - 20 R.P.M.

THERMOPLASTIC PAVEMENT MARKING
6" WHITE SOLID EDGE LINE LT. - HWY. 351
STA. 79+00 TO STA. 80+00 - 140 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING
6" WHITE SOLID EDGE LINE RT. - HWY. 351
STA. 79+00 TO STA. 80+00 - 140 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW
C.L. LINDBERGH DRIVEWAY
STA. 7+84 TO STA. 9+64 - 420 LIN. FT. -

THERMOPLASTIC PAVEMENT MARKING
24" WHITE STOP BAR - C.L. LINDBERGH DRIVEWAY
STA. 9+64 - 16 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW
C.L. EARHEART DRIVEWAY
STA. 15+75 TO STA. 16+25 - 200 LIN. FT.

HWY. 351
QUANTITIES:
THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE EDGE = 520 LIN. FT.
6" YELLOW = 7220 LIN. FT.
24" WHITE (STOPBAR) = 16 C.F.
YELLOW/YELLOW RAISED PAVEMENT MARKERS = 41

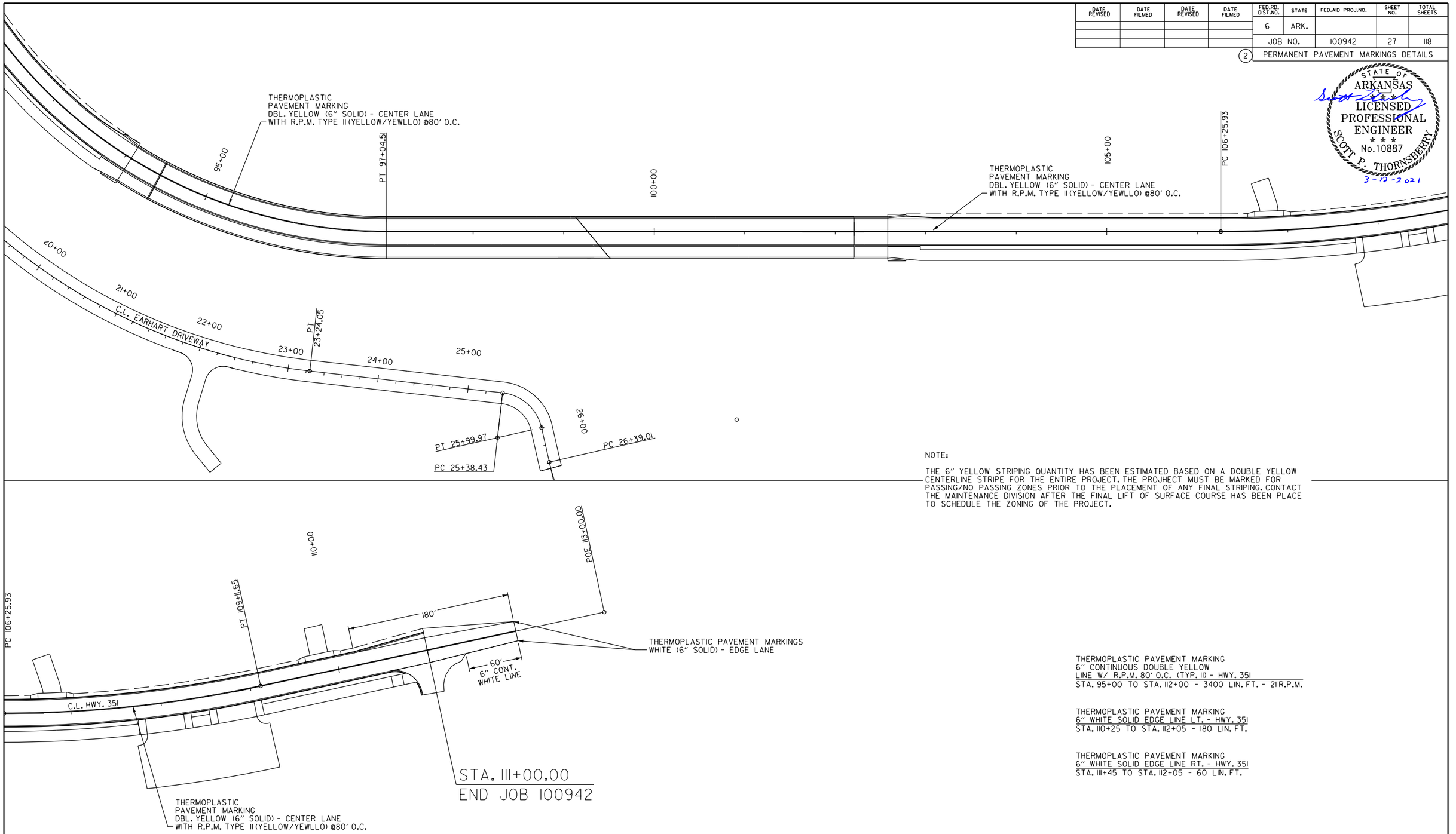
PERMANENT PAVEMENT MARKINGS DETAILS

Phillip.Zeagler 3/12/2021 8:47:57 AM
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REVISED DATE: $$REVDATE$$

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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 27 | 118 |
| (2) PERMANENT PAVEMENT MARKINGS DETAILS | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021




NOTE:

THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJHECT 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 PLACE TO SCHEDULE THE ZONING OF THE PROJECT.

THERMOPLASTIC PAVEMENT MARKING
6" CONTINUOUS DOUBLE YELLOW
LINE W/ R.P.M. 80' O.C. (TYP. II) - HWY. 351
STA. 95+00 TO STA. 112+00 - 3400 LIN. FT. - 21 R.P.M.

THERMOPLASTIC PAVEMENT MARKING
6" WHITE SOLID EDGE LINE LT. - HWY. 351
STA. 110+25 TO STA. 112+05 - 180 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING
6" WHITE SOLID EDGE LINE RT. - HWY. 351
STA. 111+45 TO STA. 112+05 - 60 LIN. FT.

PERMANENT PAVEMENT MARKINGS DETAILS

Phillip.Zeagler 3/12/2021 8:47:58 AM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 28 | 118 |

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
8-4-2022

## ADVANCE WARNING SIGNS AND DEVICES

| SIGN NUMBER | DESCRIPTION | SIGN SIZE | STAGE 1 | STAGE 2 | STAGE 3 | MAXIMUM NUMBER REQUIRED | TOTAL SIGNS REQUIRED | | CONSTRUCTION PROJECT INFORMATION SIGN UPDATE | VERTICAL PANELS | TRAFFIC DRUMS | BARRICADES (TYPE III) | | FURNISHING & INSTALLING PRECAST CONC. BARRIER | TEMPORARY IMPACT ATTENUATION BARRIER | TEMP. IMPACT ATTEN.BARR. (REPAIR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | RIGHT | LEFT | | | |
| | | | LIN. FT. - EACH | | | | NO. | SQ. FT. | EACH | | | LIN. FT. | | | EACH | |
| W20-1 | ROAD WORK 1500 FT. | 36"x36" | 2 | 2 | 2 | 2 | 2 | 18.0 | | | | | | | | |
| W20-1 | ROAD WORK 1000 FT. | 36"x36" | 2 | 2 | 2 | 2 | 2 | 18.0 | | | | | | | | |
| W20-1 | ROAD WORK 500 FT. | 36"x36" | 2 | 2 | 2 | 2 | 2 | 18.0 | | | | | | | | |
| W20-1 | ROAD WORK AHEAD | 36"x36" | 5 | 6 | 4 | 6 | 6 | 54.0 | | | | | | | | |
| G20-2 | END ROAD WORK | 36"x18" | 5 | 6 | 4 | 6 | 6 | 27.0 | | | | | | | | |
| W1-4 | REVERSE CURVE RT. | 36"x36" | | 1 | | 1 | 1 | 9.0 | | | | | | | | |
| W1-4 | REVERSE CURVE LT. | 36"x36" | | 1 | | 1 | 1 | 9.0 | | | | | | | | |
| W13-1P | ADVISORY SPEED (PLAQUE) | 24"x24" | | 2 | | 2 | 2 | 8.0 | | | | | | | | |
| R11-2 | ROAD CLOSED | 48"x30" | | 8 | 3 | 8 | 8 | 80.0 | | | | | | | | |
| W1-6 | LARGE ARROW | 36"x24" | | | 3 | 3 | 3 | 18.0 | | | | | | | | |
| * W21-5a | SHOULDER CLOSED | 36"x36" | 1 | 2 | 2 | 2 | 2 | 18.0 | | | | | | | | |
| W24-1R | DOUBLE REVERSE CURVE RT. | 36"x36" | | 1 | | 1 | 1 | 9.0 | | | | | | | | |
| W24-1L | DOUBLE REVERSE CURVE LT. | 36"x36" | | 1 | | 1 | 1 | 9.0 | | | | | | | | |
| SPECIAL | CONSTRUCTION PROJECT INFORMATION SIGN | 48"x96" | 2 | | | 2 | 2 | 64.0 | | | | | | | | |
| SPECIAL | CONSTRUCTION PROJECT INFORMATION SIGN UPDATE | | | 2 | 2 | | | | 4 | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | VERTICAL PANELS | | 24 | 12 | 31 | 31 | | | | 31 | | | | | | |
| | TRAFFIC DRUMS | | 26 | 115 | 25 | 115 | | | | | 115 | | | | | |
| | | | | | | | | | | | | | | | | |
| | TYPE III BARRICADE-RT. (8') | | | 4 | | 4 | | | | | | 32 | | | | |
| | TYPE III BARRICADE-LT. (8') | | | 4 | | 4 | | | | | | | 32 | | | |
| | TYPE III BARRICADE-RT. (16') | | | 3 | | 3 | | | | | | 48 | | | | |
| | TYPE III BARRICADE-LT. (16') | | | 1 | 3 | 3 | | | | | | | 48 | | | |
| | | | | | | | | | | | | | | | | |
| | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | | | 446 | | 446 | | | | | | | | 446 | | |
| | TEMPORARY IMPACT ATTENUATION BARRIER | | | 2 | | 2 | | | | | | | | | 2 | |
| | TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) | | | 2 | | 2 | | | | | | | | | | 2 |
| | | | | | | | | | | | | | | | | |
| **TOTALS:** | | | | | | | | **359.0** | **4** | **31** | **115** | **80** | **80** | **446** | **2** | **2** |

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

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

## WHEELCHAIR RAMPS

| STATION | LOCATION | TYPE 3 |
|---|---|---|
| | | SQ.YD. |
| 80+07 | HWY. 351 | 10.0 |
| 89+50 | HWY. 351 | 10.0 |
| 90+35 | HWY. 351 | 10.0 |
| 110+65 | HWY. 351 | 10.2 |
| | | |
| **TOTAL:** | | **40.2** |

## CONCRETE WALKS

| STATION | STATION | LOCATION | LENGTH | CONCRETE WALKS |
|---|---|---|---|---|
| | | | LIN. FT. | SQ.YD. |
| 80+00 | 89+50 | RT. OF HIGHWAY 351 | 950 | 1267 |
| 90+40 | 94+07 | RT. OF HIGHWAY 351 | 367 | 489 |
| 102+60 | 110+55 | RT. OF HIGHWAY 351 | 795 | 1060 |
| | | | | |
| **TOTAL:** | | | | **2816** |

NOTE: CONCRETE WALKS ARE 12' - 0" SHARED USE PATH.

## 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 | | | 1500 | 6 |
| | | | | |
| **TOTALS:** | | | **1500** | **6** |

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

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

## CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

| DESCRIPTION | STAGE 2 | STAGE 3 | END OF JOB | REMOVAL OF PERMANENT PAVEMENT MARKINGS | CONSTRUCTION PAVEMENT MARKINGS | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | RAISED PAVEMENT MARKERS | THERMOPLASTIC PAVEMENT MARKING | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | TYPE II | 6" | | 24" |
| | | | | | | | (YEL/YEL) | WHITE | YELLOW | WHITE |
| | LIN. FT. - EACH | | | LIN. FT. | | LIN. FT. | EACH | LIN. FT. | | |
| REMOVAL OF PERMANENT PAVEMENT MARKINGS | 7052 | | | 7052 | | | | | | |
| CONSTRUCTION PAVEMENT MARKINGS | 7052 | 4498 | | | 11550 | | | | | |
| REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | | 1702 | | | | 1702 | | | | |
| RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) | 88 | 56 | 41 | | | | 185 | | | |
| THERMOPLASTIC PAVEMENT MARKING WHITE (6") | | | 520 | | | | | 520 | | |
| THERMOPLASTIC PAVEMENT MARKING YELLOW (6") | | | 7220 | | | | | | 7220 | |
| THERMOPLASTIC PAVEMENT MARKING WHITE (12") | | | 16 | | | | | | | 16 |
| **TOTALS:** | | | | **7052** | **11550** | **1702** | **185** | **520** | **7220** | **16** |

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 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.

## CONCRETE BASE

| STATION | STATION | LOCATION | LENGTH | PORTLAND CEMENT CONCRETE BASE | | |
|---|---|---|---|---|---|---|
| | | | | AVG. WID. | 5-1/2" U.T. | 8" U.T. |
| | | | FEET | FEET | SQ. YD. | SQ. YD. |
| 80+00.00 | 82+77.00 | C.L. HWY. 351 RT. FOR WIDENING | 277.00 | 2.41 | 74.17 | |
| 80+00.00 | 82+77.00 | C.L. HWY. 351 RT. FOR WIDENING | 277.00 | 4.91 | | 151.12 |
| 80+00.00 | 82+75.00 | C.L. HWY. 351 LT. FOR WIDENING | 275.00 | 2.19 | 66.92 | |
| 80+00.00 | 82+75.00 | C.L. HWY. 351 LT. FOR WIDENING | 275.00 | 4.69 | | 143.31 |
| 108+17.24 | 111+00.00 | C.L. HWY. 351 RT. FOR WIDENING | 282.76 | 2.99 | 93.94 | |
| 108+17.24 | 111+00.00 | C.L. HWY. 351 RT. FOR WIDENING | 282.76 | 5.49 | | 172.48 |
| 108+62.00 | 111+00.00 | C.L. HWY. 351 LT. FOR WIDENING | 238.00 | 4.06 | 107.36 | |
| 108+62.00 | 111+00.00 | C.L. HWY. 351 LT. FOR WIDENING | 238.00 | 6.56 | | 173.48 |
| | | | | | | |
| **TOTALS:** | | | | | **342.39** | **640.39** |

JessicaDeVon 8/3/2022 10:41:23 AM
WORKSPACE: ARDOT
Y:\Projects\AHTD_16233_Hwy35RROverpass\Deliverables\ROADWAY\Drawings\r100942_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 29 | 118 |

(2) QUANTITIES

## REMOVAL AND DISPOSAL OF ITEMS

| STATION | STATION | LOCATION | CURB AND GUTTER | CONCRETE DRIVEWAYS | SIGNS |
|---|---|---|---|---|---|
| | | | LIN. FT. | SQ. YD. | EACH |
| 80+74 | | C.L. HWY. 35133' RT. | | | |
| 81+00 | | C.L. HWY. 351RT. | | 251 | |
| 83+94 | | C.L. HWY. 35118' RT. | | | |
| 86+69 | 86+72 | C.L. HWY. 351 | | | 1 |
| 87+34 | | C.L. HWY. 351100' LT. | | | |
| 87+38 | 87+41 | C.L. HWY. 351 | | | 1 |
| 89+31 | | C.L. HWY. 35148' RT. | | | |
| 90+45 | | C.L. HWY. 351194' RT. | | | |
| 98+98 | 98+99 | C.L. HWY. 351 | | | 1 |
| 106+45 | | C.L. HWY. 351LT. | | | 1 |
| 107+70 | 110+83 | C.L. HWY. 351RT. | 161 | | |
| | | OLD LINDBERG DRIVE | 989 | | |
| | | | | | |
| TOTALS: | | | 1150 | 251 | 4 |

## CONCRETE DITCH PAVING

| STATION | STATION | LOCATION | LENGTH | "W" | CONC. DITCH PAVING (TYPE B) | SOLID SODDING | WATER |
|---|---|---|---|---|---|---|---|
| | | | LIN. FT. | FEET | SQ. YD. | SQ. YD. | M. GAL. |
| 82+00.00 | | RT. OF HWY. 351 | 8.00 | 4.00 | 3.56 | 3.56 | 0.04 |
| 85+00.00 | | RT. OF HWY. 351 | 8.00 | 4.00 | 3.56 | 3.56 | 0.04 |
| 88+50.00 | | LT. OF HWY. 351 | 22.00 | 4.00 | 9.78 | 9.78 | 0.12 |
| 90+50.00 | | LT. OF HWY. 351 | 28.00 | 4.00 | 12.44 | 12.44 | 0.16 |
| 93+50.00 | | LT. OF HWY. 351 | 40.00 | 4.00 | 17.78 | 17.78 | 0.22 |
| 104+90.00 | | RT. OF HWY. 351 | 29.00 | 4.00 | 12.89 | 12.89 | 0.16 |
| 105+94.00 | | LT. OF HWY. 351 | 9.00 | 4.00 | 4.00 | 4.00 | 0.05 |
| 106+41.00 | | LT. OF HWY. 351 | 8.00 | 4.00 | 3.56 | 3.56 | 0.04 |
| 107+07.00 | | LT. OF HWY. 351 | 7.00 | 4.00 | 3.11 | 3.11 | 0.04 |
| 108+00.00 | 109+61.00 | LT. OF HWY. 351 | 161.00 | 6.00 | 107.33 | 71.56 | 0.90 |
| 110+02.00 | 111+00.00 | LT. OF HWY. 351 | 98.00 | 6.00 | 65.33 | 43.56 | 0.55 |
| | | | | | | | |
| TOTALS: | | | | | 243.34 | 185.80 | 2.32 |

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

## BENCH MARKS

| STATION | LOCATION | BENCH MARKS |
|---|---|---|
| | | EACH |
| ENTIRE PROJECT | IF AND WHERE DIRECTED BY THE ENGINEER | 4 |
| | | |

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
7-27-2022

## EROSION CONTROL

| STATION | STATION | LOCATION | PERMANENT EROSION CONTROL | | | | | | TEMPORARY EROSION CONTROL | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SEEDING | LIME | MULCH COVER | WATER | SECOND SEEDING APPLICATION | SOLID SODDING | TEMPORARY SEEDING | MULCH COVER | WATER | SAND BAG DITCH CHECKS (E-5) | ROCK DITCH CHECKS (E-6) | SILT FENCE (E-11) | FILTER SOCK (E-13) | SEDIMENT BASIN (E-14) | OBLITERATION OF SEDIMENT BASIN | *SEDIMENT REMOVAL & DISPOSAL |
| | | | ACRE | TON | ACRE | M.GAL. | ACRE | SQ.YD. | ACRE | ACRE | M.GAL. | BAG | CU.YD. | LIN. FT. | LIN. FT. | CU.YD. | CU.YD. | CU. YD. |
| ENTIRE | PROJECT | CLEARING AND GRUBBING | | | | | | | 14.66 | 14.66 | 299.1 | 220 | 18 | 2983 | | 2769 | | 2895 |
| ENTIRE | PROJECT | STAGE 1 | | | | | | | 1.00 | 1.00 | 20.4 | | | 462 | | | | 17 |
| ENTIRE | PROJECT | STAGE 2 | 7.28 | 14.56 | 7.28 | 742.6 | 7.28 | | 14.56 | 14.56 | 297.0 | 176 | 15 | 220 | 585 | 403 | | 424 |
| ENTIRE | PROJECT | STAGE 3 | 6.50 | 13.00 | 6.50 | 719.4 | 6.50 | 4478 | 13.00 | 13.00 | 321.6 | | 21 | | 350 | | 3489 | 7 |
| | | | | | | | | | | | | | | | | | | |
| *ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. | | | 1.38 | 2.76 | 1.38 | 146.4 | 1.38 | 448 | 2.86 | 2.86 | 64.0 | | | 367 | 94 | 317 | | 331 |
| | | | | | | | | | | | | | | | | | | |
| TOTALS: | | | 15.16 | 30.32 | 15.16 | 1608.4 | 15.16 | 4926 | 46.08 | 46.08 | 1002.1 | 396 | 54 | 4032 | 1029 | 3489 | 3489 | 3674 |

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
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.

## SELECTED PIPE BEDDING

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

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

## CLEARING AND GRUBBING

| STATION | STATION | LOCATION | CLEARING | GRUBBING |
|---|---|---|---|---|
| | | | STATION | |
| 79+00 | 112+00 | C.L. HWY. 351 | 33 | 33 |
| | | | | |
| TOTALS: | | | 33 | 33 |

## ACHM PATCHING OF EXISTING ROADWAY

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

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

## COLD MILLING ASPHALT PAVEMENT

| STATION | STATION | LOCATION | AVG. WIDTH | COLD MILLING ASPHALT PAVEMENT |
|---|---|---|---|---|
| | | | FEET | SQ. YD. |
| 79+00.00 | 80+00.00 | C.L. HWY. 351 | 24.00 | 266.67 |
| 111+00.00 | 112+00.00 | C.L. HWY. 351 | 24.00 | 266.67 |
| 07+55.13 | 08+07.73 | C.L. LINDBERGH DRIVEWAY | 70.40 | 411.45 |
| 26+46.00 | 27+46.00 | C.L. EARHART DRIVEWAY | 24.41 | 271.22 |
| 111+00.00 | | C.L. HWY. 351(WILLOW POINTE DR.) RT. | 40.50 | 152.46 |
| | | | | |
| TOTAL: | | | | 1368.47 |

NOTE: AVERAGE MILLING DEPTH 1".

STOCKPILE LOCATION: CRAIGHEAD COUNTY ROAD DEPARTMENT, 2800 MOORE ROAD, JONESBORO, AR, 72401.

## APPROACH SLABS

| STATION | STATION | LOCATION | APPROACH SLABS | REINFORCING STEEL-RDWY. (GR. 60) | AGGREGATE BASE CRS. (CLASS 7) |
|---|---|---|---|---|---|
| | | | CU.YD. | POUND | TON |
| 94+06.91 | 94+43.41 | C.L. HWY. 351 | 101.16 | 15250 | 42.6 |
| 102+21.60 | 102+58.10 | C.L. HWY. 351 | 101.16 | 15250 | 42.6 |
| TOTALS: | | | 202.32 | 30500 | 85.2 |

## MAILBOXES

| LOCATION | MAILBOXES | MAILBOX SUPPORTS (SINGLE) | MAILBOX SUPPORTS (DOUBLE) |
|---|---|---|---|
| | EACH | EACH | EACH |
| ENTIRE PROJECT | 3 | 1 | 1 |
| | | | |
| | | | |
| TOTALS: | 3 | 1 | 1 |

## REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

| STATION | DESCRIPTION | PIPE CULVERTS | GRATE INLETS |
|---|---|---|---|
| | | EACH | EACH |
| HIGHWAY 351 | | | |
| 81+02 | 12"X18"X47' ARCHED PIPE | 1 | |
| 89+25 | 18"X65' R.C. PIPE | 1 | |
| 92+01 | 18"X53' R.C. PIPE | 1 | |
| 95+85 | 18"X45' R.C. PIPE | 1 | |
| 106+80 | 36"X62' R.C. PIPE | 1 | |
| 108+02 | 18"X57' R.C. PIPE | 1 | |
| 108+42 | 3'X3' GRATE INLET | | 1 |
| 108+80 | 18"X61' R.C. PIPE | 1 | |
| 109+80 | 18"X49' R.C. PIPE | | |
| 109+82 | 18"X49' R.C. PIPE | 1 | |
| EARHART DRIVEWAY | | | |
| 22+20 | 18"X40' R.C. PIPE | 1 | |
| 22+90 | 24"X50' R.C. PIPE | 1 | |
| 25+50 | 24"X55' R.C. PIPE | 1 | |
| 25+90 | 18"X72' R.C. PIPE | 1 | |
| | | | |
| TOTALS: | | 12 | 1 |

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

## STRUCTURES

| STATION | DESCRIPTION | REINFORCED CONCRETE PIPE (CLASS III) 24" | REINFORCED CONCRETE PIPE (CLASS V) 24" | SIDE DRAIN 30" | PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 24" | FLARED END SECTIONS FOR R.C. PIPE 24" | TEMPORARY CULVERTS 18" | TEMPORARY CULVERTS 24" | DROP INLETS TYPE MO | DROP INLETS TYPE SP | DROP INLETS EXT. 4' | JUNCT. BOXES (TYPE E) | SOLID SODDING | WATER | STD. DWG. NOS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LIN. FT. | | | | EACH | LIN. FT. | | EACH | | | | SQ.YD. | M.GAL. | |
| 82+00 | C.L. HWY. 351RT. | | | | | | | | | 1 | | | | | CDP-1 |
| 85+00 | C.L. HWY. 351RT. | | | | | | | | | 1 | | | | | CDP-1 |
| 88+50 | C.L. HWY. 351LT. | | | | | | | | | 1 | | | | | CDP-1 |
| 90+50 | C.L. HWY. 351LT. | | | | | | | | | 1 | 1 | | | | CDP-1, FPC-9 |
| 92+66 | C.L. HWY. 351CL. | 124 | | | | 2 | | | | | | | 16 | 0.20 | FES-1, FES-2, PCC-1, PCM-1, PCP-1, PCP-2 |
| 93+47 | C.L. HWY. 351LT. | | | | | | | | | 1 | 1 | | | | CDP-1, FPC-9 |
| 95+70 | C.L. HWY. 351RT. MOT | | | | | | 12 | | | | | | | | PCC-1, PCM-1, PCP-1, PCP-2 |
| 97+97 | C.L. HWY. 351RT. MOT | | | | | | | 10 | | | | | | | PCC-1, PCM-1, PCP-1, PCP-3 |
| 104+90 | C.L. HWY. 351RT. | | | | | | | | | 1 | 1 | | | | CDP-1, FPC-9 |
| 105+73 | C.L. HWY. 351RT. MOT | | | | | | | 28 | | | | | | | PCC-1, PCM-1, PCP-1, PCP-3 |
| 105+94 | C.L. HWY. 351LT. | | | | | | | | | 1 | 1 | | | | CDP-1, FPC-9 |
| 106+41 | C.L. HWY. 351LT. | | | | | | | | | 1 | 2 | | | | CDP-1, FPC-9 |
| 107+07 | C.L. HWY. 351LT. | | | | | | | | | 1 | 1 | | | | CDP-1, FPC-9 |
| 108+41 | C.L. HWY. 351RT. | | | | 274 | 1 | | | | | | 1 | 8 | 0.10 | FES-1, FES-2, FPC-9, PCC-1, PCM-1, PCP-1, PCP-2 |
| 110+35 | C.L. HWY. 351RT. | | | | 191 | | | | 1 | | | | | | PCC-1, PCM-1, FPC-9M |
| | | | | | | | | | | | | | | | |
| 22+80 | EARHART DRIVEWAY | | | 94 | | | | | | | | | | | PCC-1, PCM-1, PCP-1, PCP-2 |
| 25+90 | EARHART DRIVEWAY | | 72 | | | | | | | | | | | | PCC-1, PCM-1, PCP-1, PCP-2 |
| TOTALS: | | 124 | 72 | 94 | 465 | 3 | 12 | 38 | 1 | 9 | 7 | 1 | 24 | 0.30 | |

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

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

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



LondonMiller 7/21/2022 11:40:34 AM
WORKSPACE: ARDOT
Y:\Projects\AHTD_16233_Hwy35RROverpass\Deliverables\ROADWAY\Drawings\r100942_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 9/8/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 30 | 118 |

(2) QUANTITIES

## DRIVEWAYS & TURNOUTS

| STATION | SIDE | LOCATION | WIDTH | **MODIFIED CURB | | PORTLAND CEMENT CONCRETE DRIVEWAY | ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) | | AGGREGATE BASE COURSE (CLASS 7) | SIDE DRAINS | | STANDARD DRAWINGS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 18" | 36" | |
| | | | FEET | STATION | STATION | SQ. YD. | SQ. YD. | TON | TON | LIN. FT. | | |
| 81+02 | RT. | C.L. HWY. 351 | 30 | 80+73 | 81+31 | 668.67 | | | | 42 | | PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, DR-1 |
| 106+80 | LT. | C.L. HWY. 351 | 20 | 106+56 | 107+04 | 42.67 | 96.98 | 10.67 | 39.60 | | 38 | PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, DR-1 |
| 108+02 | RT. | C.L. HWY. 351 | 74.25 | 107+73 | 108+31 | 90.89 | 495.00 | 54.45 | 202.13 | | | DR-1 |
| 108+80 | RT. | C.L. HWY. 351 | 74.25 | 108+51 | 109+09 | 90.89 | 495.00 | 54.45 | 202.13 | | | DR-1 |
| 109+82 | LT. | C.L. HWY. 351 | 20 | 109+58 | 110+06 | 42.67 | 71.91 | 7.91 | 29.36 | 40 | | PCC-1, PCM-1, PCP-1, PCP-2, PCP-3, DR-1 |
| 22+08 | RT. | C.L. EARHART DRIVEWAY | 16 | | | | 278.67 | 30.65 | 113.79 | | | SPECIAL DETAILS |
| 88+60 | LT. | LINDBERGH DRIVEWAY TEMP. APPROACH | 32 | | | | 353.34 | 38.87 | 144.28 | | | |
| 88+60 | RT. | LINDBERGH DRIVEWAY TEMP. APPROACH | 32 | | | | 367.56 | 40.43 | 150.09 | | | |
| *ENTIRE PROJECT TEMPORARY DRIVES | | | | | | | | | 80.00 | | | |
| **TOTALS:** | | | | | | **935.79** | **2158.46** | **237.43** | **961.38** | **82** | **38** | |

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% 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.

** FOR INFORMATION ONLY

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

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

## SOIL STABILIZATION

| STATION | STATION | LOCATION / DESCRIPTION | SOIL STABILIZATION |
|---|---|---|---|
| | | | TON |
| ENTIRE | PROJECT | TO BE USED IF AND WHERE | 1000 |
| | | DIRECTED BY THE ENGINEER | |
| | | | |
| **TOTAL:** | | | **1000** |

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

## ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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

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

## CONCRETE COMBINATION CURB AND GUTTER

| STATION | STATION | LOCATION | TYPE A (1'-6") |
|---|---|---|---|
| | | | LIN. FT. |
| 80+00 | 89+79 | HWY. 351 RT. | 979 |
| 90+20 | 94+07 | HWY. 351 RT. | 387 |
| 80+01 | 93+86 | HWY. 351 LT. | 1385 |
| 102+58 | 111+00 | HWY. 351 RT. | 842 |
| 102+78 | 111+00 | HWY. 351 LT. | 822 |
| 7+79 | 09+75 | LINDBURGH DRIVE LT. | 196 |
| 8+02 | 09+75 | LINDBURGH DRIVE | 173 |
| | | | |
| **TOTAL:** | | | **4784** |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
9-8-2022

## EARTHWORK

| STATION | STATION | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT | COMPACTED EMBANKMENT (SPECIAL) |
|---|---|---|---|---|---|
| | | | CU. YD. | | |
| ** 80+00 | 94+84 | C.L. HWY. 351 UNDERCUT | 11762 | 11762 | |
| 80+00 | 92+20 | C.L. HWY. 351 EMBANKMENT | 374 | 14933 | |
| 92+20 | 94+84 | C.L. HWY. 351 EMBANKMENT | | | 14617 |
| ** 101+65 | 111+00 | C.L. HWY. 351 UNDERCUT | 6663 | 6663 | |
| 101+65 | 103+93 | C.L. HWY. 351 EMBANKMENT | | | 15365 |
| 103+93 | 111+00 | C.L. HWY. 351 EMBANKMENT | 841 | 6956 | |
| | | | | | |
| ENTIRE | PROJECT | APPROACHES | | 930 | |
| 8+07 | 9+86 | C.L. LINDBERGH DRIVEWAY | 241 | 2094 | |
| 15+00 | 26+46 | C.L. EARHART DRIVEWAY | 699 | 5362 | |
| | | | | | |
| 92+26 | 98+55 | MOT WIDENING 1 | 179 | 93 | |
| 105+46 | 111+50 | MOT WIDENING 2 | 938 | 43 | |
| | | | | | |
| * 80+00 | 94+84 | C.L. HWY. 351 ADDL. UNDERCUT | 5881 | 5881 | |
| * 101+65 | 111+00 | C.L. HWY. 351 ADDL. UNDERCUT | 3331 | 3331 | |
| | | | | | |
| **TOTALS:** | | | **30909** | **58048** | **29982** |

* AN ADDITIONAL 1 FT OF UNDERCUT IS EXPECTED WITH OVERALL DEPTHS RANGING FROM 2 TO 3 FT BELOW EXISTING GRADES. ALL UNDERCUTS SHOULD EXTEND BEYOND EMBANKMENT TOES A MINIMUM LATERAL DIMENSION EQUAL TO THE UNDERCUT DEPTH OR AT LEAST 5 FT FOR EMBANKMENTS OVER 10 FT HIGH TO THE EXTENT POSSIBLE.

** MINIMUM 2 FT UNDERCUT TO BE APPPLIED TO THE PROJECT LIMITS.

## BASE AND SURFACING

| STATION | STATION | LOCATION | LENGTH | AGGREGATE BASE COURSE (CLASS 7) | | TACK COAT | | | | ACHM BASE COURSE (1 1/2") | | | | ACHM BINDER COURSE (1") | | | | ACHM SURFACE COURSE (1/2") | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TON / STATION | TON | AVG. WID. | SQ.YD. | GALLONS / SQ.YD. | GALLON | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | PG 70-22 | AVG. WID. | SQ.YD. | POUND / SQ.YD. | PG 64-22 | PG 70-22 | TOTAL PG 64-22 | TOTAL PG 70-22 |
| | | | FEET | | | FEET | | | | FEET | | | TON | FEET | | | TON | FEET | | | | | FEET | | | TON | TON | TON | TON |
| **MAIN LANES** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 79+00.00 | 80+00.00 | C.L. HWY. 351 TRANSITION | 100.00 | | | 26.00 | 288.89 | 0.17 | 49.11 | | | | | | | | | | | | | | 26.00 | 288.89 | 220.00 | | 31.78 | | 31.78 |
| 80+00.00 | 80+20.40 | C.L. HWY. 351 OVERLAY | 20.40 | | | | | | | | | | | | | | | | | | | | 28.00 | 63.47 | 220.00 | | 6.98 | | 6.98 |
| 80+20.40 | 82+77.00 | C.L. HWY. 351 OVERLAY SUPERELEVATION | 256.60 | | | | | | | | | | | | | | | | | | | | 28.00 | 798.31 | 220.00 | | 87.81 | | 87.81 |
| 82+77.00 | 84+20.00 | C.L. HWY. 351 NOTCH AND WIDEN SUPERELEVATION | 143.00 | 106.75 | 152.65 | 26.00 | 413.11 | 0.05 | 20.66 | | | | | 13.00 | 206.56 | 385.00 | 39.76 | 13.00 | 206.56 | 220.00 | | 22.72 | 28.00 | 444.89 | 220.00 | | 48.94 | | 71.66 |
| 84+20.00 | 88+21.66 | C.L. HWY. 351 MAIN LANES SUPERELEVATION | 401.66 | 171.00 | 686.84 | 56.00 | 2499.22 | 0.05 | 124.96 | | | | | 28.00 | 1249.61 | 385.00 | 240.55 | 28.00 | 1249.61 | 220.00 | | 137.46 | 28.00 | 1249.61 | 220.00 | | 137.46 | | 274.92 |
| 88+21.66 | 88+42.29 | C.L. HWY. 351 MAIN LANES | 20.63 | 171.00 | 35.28 | 56.00 | 128.36 | 0.05 | 6.42 | | | | | 28.00 | 64.18 | 385.00 | 12.35 | 28.00 | 64.18 | 220.00 | | 7.06 | 28.00 | 64.18 | 220.00 | | 7.06 | | 14.12 |
| 88+42.29 | 94+06.91 | C.L. HWY. 351 MAIN LANES SUPERELEVATION | 564.62 | 171.00 | 965.50 | 56.00 | 3513.19 | 0.05 | 175.66 | | | | | 28.00 | 1756.60 | 385.00 | 338.15 | 28.00 | 1756.60 | 220.00 | | 193.23 | 28.00 | 1756.60 | 220.00 | | 193.23 | | 386.46 |
| 102+58.10 | 104+75.93 | C.L. HWY. 351 MAIN LANES | 217.83 | 171.00 | 372.49 | 56.00 | 1355.39 | 0.05 | 67.77 | | | | | 28.00 | 677.69 | 385.00 | 130.46 | 28.00 | 677.69 | 220.00 | | 74.55 | 28.00 | 677.69 | 220.00 | | 74.55 | | 149.10 |
| 104+75.93 | 107+20.00 | C.L. HWY. 351 MAIN LANES SUPERELEVATION | 244.07 | 171.00 | 417.36 | 56.00 | 1518.66 | 0.05 | 75.93 | | | | | 28.00 | 759.33 | 385.00 | 146.17 | 28.00 | 759.33 | 220.00 | | 83.53 | 28.00 | 759.33 | 220.00 | | 83.53 | | 167.06 |
| 107+20.00 | 107+60.00 | C.L. HWY. 351 RAISE GRADE SUPERELEVATION | 40.00 | 100.00 | 40.00 | 56.00 | 248.89 | 0.05 | 12.44 | | | | | 28.00 | 124.44 | 385.00 | 23.95 | 28.00 | 124.44 | 220.00 | | 13.69 | 28.00 | 124.44 | 220.00 | | 13.69 | | 27.38 |
| 107+60.00 | 108+62.00 | C.L. HWY. 351 LT. NOTCH AND WIDEN SUPERELEVATION | 102.00 | 50.00 | 51.00 | 42.26 | 478.95 | 0.05 | 23.95 | | | | | 7.13 | 80.81 | 385.00 | 15.56 | 7.13 | 80.81 | 220.00 | | 8.89 | 28.00 | 317.33 | 220.00 | | 34.91 | | 43.80 |
| 108+62.00 | 110+61.65 | C.L. HWY. 351 OVERLAY SUPERELEVATION | 199.65 | | | | | | | | | | | | | | | | | | | | 28.00 | 621.13 | 220.00 | | 68.32 | | 68.32 |
| 110+61.65 | 111+00.00 | C.L. HWY. 351 OVERLAY | 38.35 | | | | | | | | | | | | | | | | | | | | 28.00 | 119.31 | 220.00 | | 13.12 | | 13.12 |
| 111+00.00 | 112+00.00 | C.L. HWY. 351 TRANSITION | 100.00 | | | 26.00 | 288.89 | 0.17 | 49.11 | | | | | | | | | | | | | | 26.00 | 288.89 | 220.00 | | 31.78 | | 31.78 |
| 8+07.73 | 9+68.00 | LINDBURGH DRIVEWAY | 160.27 | 158.75 | 254.43 | 41.98 | 747.57 | 0.05 | 37.38 | | | | | 34.63 | 616.68 | 330.00 | 101.75 | 34.63 | 616.68 | 220.00 | 67.83 | | 34.63 | 616.68 | 220.00 | 67.83 | | 135.66 | |
| 15+15.00 | 24+80.00 | C.L. EARHART DRIVEWAY | 965.00 | 116.75 | 1126.64 | 24.00 | 2573.33 | 0.05 | 128.67 | | | | | | | | | | | | | | 24.00 | 2573.33 | 220.00 | 283.07 | | 283.07 | |
| 24+80.00 | 27+46.00 | C.L. EARHART DRIVEWAY OVERLAY | 266.00 | | | 24.00 | 709.33 | 0.17 | 120.59 | | | | | | | | | | | | | | 24.00 | 709.33 | 220.00 | 78.03 | | 78.03 | |
| **ADDITIONAL FOR LEVELING** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80+00.00 | 82+77.00 | C.L. HWY. 351 | 277.00 | | | 24.00 | 738.67 | 0.05 | 36.93 | | | | | | | | | 24.00 | 738.67 | 220.00 | | 81.25 | | | | | | | 81.25 |
| 82+77.00 | 84+20.00 | C.L. HWY. 351 NOTCH AND WIDEN | 143.00 | | | 15.00 | 238.33 | 0.05 | 11.92 | | | | | | | | | 15.00 | 238.33 | 220.00 | | 26.22 | | | | | | | 26.22 |
| 107+60.00 | 108+62.00 | C.L. HWY. 351 NOTCH AND WIDEN | 102.00 | | | 21.12 | 239.36 | 0.05 | 11.97 | | | | | | | | | 21.12 | 239.36 | 220.00 | | 26.33 | | | | | | | 26.33 |
| 108+62.00 | 111+00.00 | C.L. HWY. 351 OVERLAY | 238.00 | | | 21.12 | 558.51 | 0.05 | 27.93 | | | | | | | | | 24.00 | 634.67 | 220.00 | | 69.81 | | | | | | | 69.81 |
| **ADDITIONAL FOR MAINTENANCE OF TRAFFIC** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52+69.26 | 59+87.68 | C.L. PAVEMENT WIDENING 1 | 718.42 | 52.93 | 380.26 | 10.00 | 798.24 | 0.05 | 39.91 | | | | | 10.00 | 798.24 | 330.00 | 131.71 | 9.88 | 788.67 | 220.00 | 86.75 | | | | | | 86.75 | | |
| 70+24.48 | 76+37.93 | C.L. PAVEMENIGN 2 | 613.45 | 81.78 | 501.68 | 16.37 | 1115.80 | 0.05 | 55.79 | | | | | 16.37 | 1115.80 | 330.00 | 184.11 | 16.24 | 1106.94 | 220.00 | 121.76 | | | | | | 121.76 | | |
| **ADDITIONAL FOR RAISING GRADE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80+00.00 | 82+77.00 | C.L. HWY. 351 | 277.00 | | | 24.00 | 738.67 | 0.05 | 36.93 | | | | | 24.00 | 738.67 | 385.00 | 142.19 | | | | | | | | | | | | |
| 80+00.00 | 82+77.00 | C.L. HWY. 351 | 277.00 | | | 24.00 | 738.67 | 0.17 | 125.57 | 24.00 | 738.67 | 411.90 | 152.13 | | | | | | | | | | | | | | | | |
| 82+77.00 | 84+20.00 | C.L. HWY. 351 | 143.00 | | | 15.00 | 238.33 | 0.05 | 11.92 | | | | | 15.00 | 238.33 | 385.00 | 45.88 | | | | | | | | | | | | |
| 82+77.00 | 84+20.00 | C.L. HWY. 351 | 143.00 | | | 15.00 | 238.33 | 0.17 | 40.52 | 15.00 | 238.33 | 411.90 | 49.08 | | | | | | | | | | | | | | | | |
| 107+20.00 | 107+60.00 | C.L. HWY. 351 | 40.00 | | | 13.70 | 60.89 | 0.05 | 3.04 | 13.70 | 60.89 | 660.00 | 20.09 | | | | | | | | | | | | | | | | |
| 107+60.00 | 108+62.00 | C.L. HWY. 351 | 102.00 | | | 21.12 | 239.36 | 0.05 | 11.97 | | | | | 21.12 | 239.36 | 385.00 | 46.08 | | | | | | | | | | | | |
| 107+60.00 | 108+62.00 | C.L. HWY. 351 | 102.00 | | | 21.12 | 239.36 | 0.17 | 40.69 | 21.12 | 239.36 | 811.59 | 97.13 | | | | | | | | | | | | | | | | |
| 108+62.00 | 111+00.00 | C.L. HWY. 351 | 238.00 | | | 24.00 | 634.67 | 0.05 | 31.73 | | | | | 24.00 | 634.67 | 385.00 | 122.17 | | | | | | | | | | | | |
| 108+62.00 | 111+00.00 | C.L. HWY. 351 | 238.00 | | | 24.00 | 634.67 | 0.17 | 107.89 | 24.00 | 634.67 | 811.59 | 257.55 | | | | | | | | | | | | | | | | |
| **TOTALS:** | | | | | **4984.13** | | **22215.64** | | **1487.36** | | **1911.92** | | **575.98** | | **9300.97** | | **1720.84** | | **9282.54** | | **276.34** | **744.74** | | **11473.41** | | **428.93** | **833.16** | **705.27** | **1577.90** |

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.



ByronLawrence 9/8/2022 4:35:38 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD_J6213_Hwy35IRR0verpass\Deliverables\ROADWAY\Drawings\r100942_08_QYT_001.dgn
REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 31 | 118 |

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021

## SOIL LOG

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 1 | 6.5-7 | 21 | 36 | 20 | 16 | --- | --- | 100 | --- | --- | 97 | CL | A-6 |
| 1 | 19-20 | 32 | 34 | 23 | 11 | --- | --- | 100 | --- | --- | 97 | CL | A-6 |
| 1 | 29-30 | 37 | 33 | 23 | 10 | --- | --- | 100 | 100 | 100 | 99 | CL | A-4 |
| 1 | 34-35 | 19 | 29 | 13 | 16 | --- | --- | 100 | --- | --- | 55 | CL | A-6 |
| 1 | 39-40 | 25 | 46 | 18 | 28 | --- | --- | 100 | --- | --- | 91 | CL | A-7-6 |
| 1 | 44.5-45 | 26 | 36 | 20 | 16 | --- | --- | 100 | --- | --- | 86 | CL | A-6 |
| 1 | 49-50 | 18 | 22 | 14 | 8 | --- | --- | 98 | --- | --- | 28 | SC | A-2-4 |
| 1 | 54-55 | 14 | NON-PLASTIC | | | 100 | 93 | 82 | 73 | 67 | 16 | SM | A-2-4 |
| 1 | 69.5-70 | 22 | 41 | 18 | 23 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 1 | 79-80 | 25 | NON-PLASTIC | | | --- | --- | 100 | 100 | 79 | 6 | SP-SM | A-2-4 |
| 1 | 89-90 | 18 | NON-PLASTIC | | | --- | --- | 100 | 100 | 32 | 6 | SP-SM | A-2-4 |
| 1 | 128.5-129 | 17 | NON-PLASTIC | | | --- | --- | 100 | 100 | 47 | 8 | SP-SM | A-2-4 |
| | | | | | | | | | | | | | |
| | 3-3.5 | 18 | 45 | 21 | 24 | --- | --- | 100 | --- | --- | 96 | CL | A-7-6 |
| 2 | 9-10 | 20 | 36 | 18 | 18 | --- | --- | 100 | --- | --- | 96 | CL | A-6 |
| 2 | 14.5-15 | 22 | 44 | 21 | 23 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 2 | 19-20 | 36 | 28 | 24 | 4 | --- | --- | 96 | --- | --- | 92 | ML | A-4 |
| 2 | 24-25 | 31 | 32 | 23 | 9 | --- | --- | 100 | 100 | 100 | 99 | CL | A-4 |
| 2 | 29-30 | 32 | 29 | 23 | 6 | --- | --- | 100 | --- | --- | 95 | ML | A-4 |
| 2 | 39-40 | 25 | 40 | 18 | 22 | --- | --- | 100 | --- | --- | 89 | CL | A-6 |
| 2 | 49-50 | 17 | 28 | 14 | 14 | --- | --- | 99 | --- | --- | 61 | CL | A-6 |
| 2 | 59-60 | 28 | 42 | 16 | 26 | --- | --- | 100 | --- | --- | 92 | CL | A-7-6 |
| 2 | | 20 | --- | --- | --- | 100 | 96 | 95 | 94 | 87 | 15 | SM | A-2-4 |

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 5 | 39-40 | 23 | 41 | 17 | 24 | --- | --- | 100 | --- | --- | 89 | CL | A-7-6 |
| 5 | 44-45 | 12 | 18 | 13 | 5 | --- | --- | 100 | --- | --- | 50 | SC-SM | A-4 |
| | | | | | | | | | | | | | |
| 6 | 3-3.5 | 22 | 51 | 21 | 30 | --- | --- | 100 | --- | --- | 94 | CH | A-7-6 |
| 6 | 14.5-15 | 22 | 44 | 20 | 24 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 6 | 19-20 | 39 | 30 | 26 | 4 | --- | --- | 100 | --- | --- | 95 | ML | A-4 |
| 6 | 24.5-25 | 36 | 27 | 24 | 3 | --- | --- | 100 | --- | --- | 98 | ML | A-4 |
| 6 | 34-34.5 | 23 | 32 | 20 | 12 | --- | --- | 100 | --- | --- | 88 | CL | A-6 |
| 6 | 39-40 | 21 | 28 | 16 | 12 | --- | --- | 100 | --- | --- | 74 | CL | A-6 |
| 6 | 44-45 | 31 | 37 | 22 | 15 | --- | --- | 100 | 100 | 98 | 95 | CL | A-6 |
| 6 | 49.5-50 | 15 | 32 | 13 | 19 | --- | --- | 100 | --- | --- | 49 | SC | A-6 |
| | | | | | | | | | | | | | |
| 7 | 5-5.5 | 21 | 42 | 19 | 23 | --- | --- | 100 | --- | --- | 96 | CL | A-7-6 |
| 7 | 14-14.5 | 22 | 44 | 21 | 23 | --- | --- | 100 | --- | --- | 98 | CL | A-7-6 |
| 7 | 24.5-25 | 30 | 30 | 23 | 7 | --- | --- | 100 | --- | --- | 99 | CL | A-4 |
| 7 | 44-45 | 12 | 15 | 14 | 1 | --- | --- | 100 | --- | --- | 44 | SM | A-4 |
| 7 | 54-55 | --- | 31 | 15 | 16 | --- | --- | 100 | --- | --- | 15 | SC | A-2-6 |
| | | | | | | | | | | | | | |
| 8 | 9.5-10 | 20 | 51 | 17 | 34 | --- | --- | 100 | --- | --- | 98 | CH | A-7-6 |
| 8 | 19.5-20 | 27 | 27 | 24 | 3 | --- | --- | 100 | --- | --- | 98 | ML | A-4 |
| 8 | 24-25 | 27 | NON-PLASTIC | | | --- | --- | 100 | --- | --- | 99 | ML | A-4 |
| 8 | 29.5-30 | 25 | 32 | 24 | 8 | --- | --- | 100 | --- | --- | 100 | ML | A-4 |
| 8 | 39-39.5 | 25 | 32 | 18 | 14 | --- | --- | 100 | --- | --- | 93 | CL | A-6 |

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

## SOIL LOG

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 2 | 83.5-84.5 | 23 | --- | --- | --- | 100 | 100 | 100 | 100 | 81 | 7 | SP-SM | A-2-4 |
| | | 22 | --- | --- | --- | 100 | 100 | 100 | 100 | 65 | 4 | SP | A-2-4 |
| | | | | | | | | | | | | | |
| 3 | 2.5-3 | 20 | 28 | 23 | 5 | --- | --- | 100 | --- | --- | 94 | ML | A-4 |
| 3 | 7-7.5 | 22 | 36 | 21 | 15 | --- | --- | 100 | --- | --- | 93 | CL | A-6 |
| 3 | 14.5-15 | 23 | 41 | 21 | 20 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 3 | 19.5-20 | 37 | 31 | 22 | 9 | --- | --- | 100 | --- | --- | 100 | CL | A-4 |
| 3 | 29.5-30 | 36 | 32 | 22 | 10 | --- | --- | 100 | --- | --- | 99 | CL | A-4 |
| 3 | 39-40 | 14 | 48 | 15 | 33 | --- | --- | 100 | --- | --- | 47 | SM | A-7-6 |
| 3 | 49-50 | 32 | 74 | 23 | 51 | --- | --- | 100 | --- | --- | 100 | CH | A-7-6 |
| | | | | | | | | | | | | | |
| 4 | 3-3.5 | 25 | 65 | 23 | 42 | --- | --- | 100 | --- | --- | 98 | CH | A-7-6 |
| 4 | 7-7.5 | 20 | 35 | 19 | 16 | --- | --- | 100 | --- | --- | 95 | CL | A-6 |
| 4 | 14-14.5 | 26 | 46 | 21 | 25 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| | 19.5-20 | 35 | 34 | 23 | 11 | --- | --- | 100 | --- | --- | 99 | CL | A-6 |
| 4 | 24.5-25 | 32 | 31 | 24 | 7 | --- | --- | 100 | --- | --- | 100 | ML | A-4 |
| 4 | 34-34.5 | 31 | 32 | 20 | 12 | --- | --- | 100 | --- | --- | 100 | CL | A-6 |
| 4 | 39-40 | 18 | 26 | 13 | 13 | --- | --- | 100 | --- | --- | 62 | CL | A-6 |
| | | | | | | | | | | | | | |
| 5 | 3-3.5 | 21 | 40 | 21 | 19 | --- | --- | 100 | --- | --- | 94 | CL | A-6 |
| 5 | 9-10 | 20 | 36 | 20 | 16 | --- | --- | 100 | --- | --- | 94 | CL | A-6 |
| 5 | 19.5-20 | 26 | 32 | 22 | 10 | --- | --- | 100 | --- | --- | 99 | CL | A-4 |
| 5 | 34-34.5 | 20 | 29 | 14 | 15 | --- | --- | 100 | --- | --- | 67 | CL | A-6 |

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 8 | 54-54.5 | 16 | 25 | 12 | 13 | --- | --- | 100 | --- | --- | 53 | CL | A-6 |
| 8 | 64-65 | 21 | 30 | 16 | 14 | --- | --- | 100 | --- | --- | 72 | CL | A-6 |
| 8 | 74-75 | 14 | 18 | 14 | 4 | --- | --- | 73 | --- | --- | 18 | SC-SM | A-2-4 |
| | | | | | | | | | | | | | |
| 9 | 0.5-1.5 | 7 | 27 | 24 | 3 | --- | --- | 100 | --- | --- | --- | ML | A-4 |
| | | | | | | | | | | | | | |
| 10 | 0.5-1.5 | 14 | 34 | 22 | 12 | --- | --- | 100 | --- | --- | 91 | CL | A-6 |
| 10 | 2.5-3.5 | 17 | 52 | 20 | 32 | --- | --- | 100 | --- | --- | 95 | CH | A-7-6 |
| | | | | | | | | | | | | | |
| 11 | 0.5-1.5 | 9 | 33 | 26 | 7 | --- | --- | 100 | --- | --- | 74 | ML | A-4 |
| 11 | 2.5-3.5 | 15 | 35 | 23 | 12 | --- | --- | 95 | --- | --- | 87 | CL | A-6 |
| | | | | | | | | | | | | | |
| 12 | 5-5.5 | 20 | 35 | 20 | 15 | --- | --- | 100 | --- | --- | 96 | CL | A-6 |
| 12 | 14-15 | 23 | 43 | 21 | 22 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 12 | 24-24.5 | 28 | 34 | 22 | 12 | --- | --- | 100 | --- | --- | 99 | CL | A-6 |
| 12 | 39-40 | 17 | 32 | 13 | 19 | --- | --- | 100 | --- | --- | 59 | CL | A-6 |
| | | | | | | | | | | | | | |
| 13 | 0.5-1.5 | 12 | 45 | 21 | 24 | --- | --- | 100 | --- | --- | 98 | CL | A-7-6 |
| | | | | | | | | | | | | | |
| 14 | 0.5-1.5 | 16 | 39 | 20 | 19 | --- | --- | 92 | --- | --- | 76 | CL | A-6 |
| 14 | 2.5-3.5 | 16 | 42 | 23 | 19 | --- | --- | 83 | --- | --- | 69 | CL | A-7-6 |
| | | | | | | | | | | | | | |
| 15 | 0.5-1.5 | 6 | 31 | 23 | 8 | --- | --- | 100 | --- | --- | 94 | CL | A-4 |

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

Phillip.Ziegler 3/12/2021 8:48:01 AM
WORKSPACE: ARDOT
Y:\Projects\AHTD_62313_Hwy35RROverpass\Deliverables\ROADWAY\Drawings\r100942_08_SB_001.dgn
REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 32 | 118 |
| | | | | (2) | QUANTITIES | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021

## SOIL LOG

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 16 | 0.5-1.5 | 12 | 36 | 27 | 9 | --- | --- | 100 | --- | --- | 91 | ML | A-4 |
| 17 | 0.5-1.5 | 13 | 37 | 25 | 12 | --- | --- | 84 | --- | --- | 69 | CL | A-6 |
| 18 | 0.5-1.5 | 8 | 37 | 21 | 16 | --- | --- | 63 | --- | --- | 51 | CL | A-6 |
| 18 | 4.5-5.5 | 19 | 38 | 19 | 19 | --- | --- | 100 | --- | --- | 96 | CL | A-6 |
| | | | | | | --- | --- | | | | | | |
| 19 | 2-4 | 28 | 63 | 21 | 42 | --- | --- | 100 | --- | --- | 94 | CH | A-7-6 |
| 19 | 6-8 | 20 | 33 | 19 | 14 | --- | --- | 100 | --- | --- | 95 | CL | A-6 |
| 19 | 28-30 | 27 | NON-PLASTIC | | | --- | --- | 100 | --- | --- | 99 | ML | A-4 |
| 19 | 43-45 | 17 | 23 | 17 | 6 | --- | --- | 99 | --- | --- | 67 | ML-CL | A-4 |
| 19 | 58.5-60 | 24 | 32 | 18 | 14 | --- | --- | 100 | --- | --- | 86 | CL | A-6 |
| 19 | 68.5-70 | 16 | --- | | | 100 | 98 | 94 | 88 | 41 | 10 | SP-SM | A-1-b |
| 19 | 74-75 | 17 | 25 | 15 | 10 | --- | --- | 100 | --- | --- | 62 | CL | A-4 |
| 19 | 94-95 | 25 | 38 | 20 | 18 | --- | --- | 100 | --- | --- | 86 | CL | A-6 |
| 19 | 99-100 | 22 | 29 | 19 | 10 | --- | --- | 100 | --- | --- | 87 | CL | A-4 |
| 19 | 109-110 | 15 | --- | | | 100 | 100 | 99 | 98 | 83 | 43 | SM | A-4 |
| 19 | 119-120 | 19 | NON-PLASTIC | | | --- | --- | 93 | --- | --- | 24 | SM | A-2-4 |
| | 9-9.5 | 24 | 50 | 18 | 32 | --- | --- | 100 | --- | --- | 95 | CH | A-7-6 |
| 20 | 24-25 | 28 | NON-PLASTIC | | | --- | --- | 100 | --- | --- | 97 | ML | A-4 |
| 20 | 34-35 | 23 | 29 | 21 | 8 | --- | --- | 100 | --- | --- | 89 | CL | A-4 |

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 22 | 34-35 | 24 | 29 | 20 | 9 | --- | --- | 100 | --- | --- | 92 | CL | A-4 |
| | 44-45 | 23 | 35 | 17 | 18 | --- | --- | 97 | --- | --- | 91 | CL | A-6 |
| 22 | 59-60 | 15 | 26 | 13 | 13 | --- | --- | 100 | --- | --- | 41 | SC | A-6 |
| | 69-70 | 15 | 25 | 14 | 11 | --- | --- | 90 | --- | --- | 53 | CL | A-6 |
| 22 | 79-80 | 25 | --- | | | --- | --- | 100 | --- | --- | 85 | CL | A-6 |
| 22 | 89-90 | 14 | --- | | | --- | --- | 66 | --- | --- | 21 | SM | A-2-4 |
| 23 | 2.5-3.5 | 25 | 39 | 22 | 17 | --- | --- | 100 | --- | --- | 94 | CL | A-6 |
| | 9-10 | 23 | 51 | 19 | 32 | --- | --- | 100 | --- | --- | 92 | CH | A-7-6 |
| 23 | 14.5-15 | 22 | 43 | 20 | 23 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 23 | 29.5-30 | 31 | 31 | 25 | 6 | --- | --- | 100 | 100 | 100 | 99 | ML | A-4 |
| | 44-44.5 | 25 | 38 | 22 | 16 | --- | --- | 100 | --- | --- | 96 | CL | A-6 |
| 23 | 54.5-55 | 17 | 31 | 14 | 17 | --- | --- | 100 | --- | --- | 63 | CL | A-6 |
| | 59-60 | 22 | 34 | 18 | 16 | --- | --- | 100 | --- | --- | 78 | CL | A-6 |
| 23 | 64-65 | 19 | --- | | | --- | --- | 100 | --- | --- | 14 | SM | A-2-4 |
| 23 | 69-70 | 18 | --- | | | --- | --- | 100 | 97 | 23 | 15 | SM | A-1-b |
| 23 | 79.5-80 | 19 | 51 | 20 | 31 | --- | --- | 100 | 100 | 100 | 100 | CH | A-7-6 |
| 23 | 99-100 | 21 | --- | | | 100 | 98 | 98 | 97 | 70 | 21 | SM | A-2-4 |
| 23 | 109-110 | 18 | --- | | | 100 | 100 | 99 | 94 | 60 | 17 | SM | A-2-4 |
| | 2.5-3.5 | 25 | 43 | 21 | 22 | --- | --- | 100 | --- | --- | 95 | CL | A-7-6 |
| 24 | 9.5-10 | 22 | 54 | 19 | 35 | --- | --- | 100 | --- | --- | 97 | CH | A-7-6 |
| 24 | 14-15 | 25 | 40 | 22 | 18 | --- | --- | 100 | --- | --- | 99 | CL | A-6 |

## SOIL LOG

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 20 | 39-40 | 25 | 38 | 17 | 21 | --- | --- | 99 | --- | --- | 81 | CL | A-6 |
| | 44-45 | 14 | 23 | 13 | 10 | --- | --- | 90 | --- | --- | 43 | SC | A-4 |
| 20 | 54-55 | 32 | --- | | | --- | --- | --- | --- | --- | 95 | CL | A-6 |
| 20 | 64-65 | 14 | 21 | 13 | 8 | --- | --- | 94 | --- | --- | 46 | SC | A-4 |
| | 74-75 | 17 | 24 | 13 | 11 | --- | --- | 99 | --- | --- | 54 | CL | A-6 |
| | 94-95 | 22 | 35 | 18 | 17 | --- | --- | --- | --- | --- | 90 | CL | A-6 |
| 20 | 109-110 | 66 | --- | | | --- | --- | 100 | 97 | 63 | 41 | SM | A-4 |
| 21 | 0.5-1.5 | 25 | 28 | 23 | 5 | --- | --- | 99 | --- | --- | 87 | ML | A-4 |
| 21 | 24-25 | 27 | NON-PLASTIC | | | --- | --- | 100 | --- | --- | 99 | ML | A-4 |
| 21 | 39-40 | 24 | 30 | 19 | 11 | --- | --- | 100 | --- | --- | 87 | CL | A-6 |
| 21 | 49-50 | 22 | 34 | 19 | 15 | --- | --- | 100 | --- | --- | 86 | CL | A-6 |
| 21 | 69-70 | 25 | 37 | 20 | 17 | --- | --- | 100 | --- | --- | 88 | CL | A-6 |
| 21 | 79-80 | 19 | --- | | | --- | --- | 100 | 100 | 95 | 14 | SM | A-2-4 |
| 21 | 94-95 | 22 | 55 | 19 | 36 | --- | --- | 100 | --- | --- | 72 | CH | A-7-6 |
| 21 | 99-100 | 22 | 37 | 18 | 19 | --- | --- | 100 | --- | --- | 73 | CL | A-6 |
| 21 | 109-110 | 20 | --- | | | 100 | 98 | 97 | 96 | 62 | 45 | SM | A-4 |
| 21 | 119-120 | 12 | --- | | | 100 | 100 | 98 | 97 | 49 | 16 | SM | A-2-4 |
| 22 | 2.5-3.5 | 24 | 44 | 21 | 23 | --- | --- | 100 | --- | --- | 97 | CL | A-7-6 |
| | 9-10 | 20 | 48 | 18 | 30 | --- | --- | 100 | --- | --- | 96 | CL | A-7-6 |
| | 14-15 | 27 | 37 | 22 | 15 | --- | --- | 100 | --- | --- | 94 | CL | A-6 |
| | 24-25 | 31 | 28 | 23 | 5 | --- | --- | 100 | --- | --- | 99 | ML | A-4 |

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 24 | 19.5-20 | 35 | 28 | 26 | 2 | --- | --- | 100 | --- | --- | 96 | ML | A-4 |
| | 34.5-35 | 22 | 29 | 16 | 13 | --- | --- | 100 | --- | --- | 75 | CL | A-6 |
| 24 | 44.5-45 | 28 | 32 | 22 | 10 | --- | --- | 100 | --- | --- | 94 | CL | A-4 |
| | 49-50 | 17 | 21 | 13 | 8 | --- | --- | 100 | --- | --- | 47 | SC | A-4 |
| 24 | 64-65 | 21 | --- | | | --- | --- | 100 | --- | --- | 5 | SP-SM | A-3 |
| 25 | 4.5-5.5 | 27 | 48 | 22 | 26 | --- | --- | 100 | --- | --- | 94 | CL | A-7-6 |
| 25 | 19-20 | 33 | 30 | 23 | 7 | --- | --- | 100 | 100 | 100 | 100 | ML-CL | A-4 |
| | 34-35 | 15 | 25 | 11 | 14 | --- | --- | 92 | --- | --- | 43 | SC | A-6 |
| 25 | 49-50 | 33 | 74 | 24 | 50 | --- | --- | 100 | --- | --- | 99 | CH | A-7-6 |
| 25 | 64-65 | 23 | 42 | 19 | 23 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 25 | 74-75 | 31 | 42 | 17 | 25 | --- | --- | 100 | --- | --- | 94 | CL | A-7-6 |
| 26 | 9-9.5 | 25 | --- | | | --- | --- | 100 | --- | --- | 92 | CL | A-6 |
| 26 | 29-30 | 17 | 19 | 12 | 7 | --- | --- | 100 | --- | --- | 39 | SM-SC | A-4 |
| | 39-40 | 27 | 68 | 22 | 46 | --- | --- | 100 | --- | --- | 98 | CH | A-7-6 |
| 26 | 59-60 | 43 | --- | | | --- | --- | 100 | --- | --- | 99 | CH | A-7-6 |
| 26 | 74-75 | 22 | --- | | | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 26 | 94-95 | 38 | --- | | | --- | --- | 100 | 98 | 59 | 51 | CL | A-6 |
| | 6-8 | 22 | 37 | 20 | 17 | --- | --- | 100 | --- | --- | 94 | CL | A-6 |
| 27 | 18.5-20 | 30 | 36 | 22 | 14 | --- | --- | 100 | --- | --- | 98 | CL | A-6 |
| | 38-40 | 18 | 27 | 14 | 13 | --- | --- | 83 | --- | --- | 36 | SC | A-6 |

## SOIL LOG

| BORING NO. | SAMPLE DEPTH | WATER CONTENT | ATTERBERG LIMITS | | | SIEVE ANALYSIS | | | | | | UNIFIED CLASS. | AASHTO CLASS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LIQUID | PLASTIC | PLASTICITY | 3/4 | 3/8 | #4 | #10 | #40 | #200 | | |
| 27 | 43.5-45 | 20 | NON-PLASTIC | | | --- | --- | 100 | --- | --- | 21 | SM | A-2-4 |
| 27 | 48.5-50 | 31 | 65 | 21 | 44 | --- | --- | 100 | --- | --- | 96 | CH | A-7-6 |
| 27 | 53-55 | 36 | 71 | 28 | 43 | --- | --- | 100 | --- | --- | 98 | CH | A-7-6 |
| 27 | 73.5-75 | 45 | 85 | 27 | 58 | --- | --- | --- | --- | --- | --- | CH | A-7-6 |
| | 83-85 | 23 | 46 | 20 | 26 | --- | --- | 100 | --- | --- | 99 | CL | A-7-6 |
| 27 | 93.5-95 | 23 | 43 | 19 | 24 | --- | --- | 100 | --- | --- | 98 | CL | A-7-6 |
| 27 | 98.5-100 | 25 | --- | | | --- | --- | 100 | 100 | 33 | 6 | SW-SM | A-1-b |
| 27 | | 19 | --- | | | --- | --- | 100 | 100 | 47 | 5 | SP-SM | A-1-b |

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



Philip.Zeagler 3/12/2021 8:48:02 AM
WORKSPACE: ARDOT
Y:\Projects\AHTD_62313_Hwy35RROverpass\Deliverables\ROADWAY\Drawings\r100942_08_SB_001.dgn
REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 33 | 118 |
| | | | | (1) | 07463 - QUANTITIES- 61131 | | | |

# SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 100942

| BRIDGE NUMBER | NAME PLATE TITLE | UNIT OF STRUCTURE | ITEM NUMBER | 801 | SP, SS, & 802 | SS, SP & 802 | SP & 803 | SS & 804 | SS & 804 | SS & 805 | SS & 806 | SS & 806 | SS, SP & 807 | SS & 807 | SS & 808 | SS & 809 | SP JOB 100942 | 812 | SS & 816 | SP JOB 100942 | SP JOB 100942 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ITEM | UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE | CLASS S CONCRETE-BRIDGE | CLASS S(AE) CONCRETE-BRIDGE | CLASS I PROTECTIVE SURFACE TREATMENT | REINFORCING STEEL-BRIDGE (GRADE 60) | EPOXY COATED REINFORCING STEEL (GRADE 60) | STEEL SHELL PILING (18" DIAMETER) (1) | METAL BRIDGE RAILING (TYPE H-2) | TRANSITIONAL APPROACH RAILING | STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709-GR50) | PAINTING STRUCTURAL STEEL | ELASTOMERIC BEARINGS | SILICONE JOINT SEALANT | PREFORMED SILICONE JOINT | BRIDGE NAME PLATE (TYPE D) | CONCRETE RIPRAP | ARCHITECTURAL FINISH | STEEL FENCE |
| | | | UNIT | CU. YD. | CU. YD. | CU. YD. | GAL. | POUND | POUND | LIN. FT. | LIN. FT. | EACH | POUND | TON | CU. IN. | LIN. FT. | LIN. FT. | EACH | CU. YD. | SQ. FT. | LIN. FT. |
| 07463 | HIGHWAY 351 OVER UNION PACIFIC RAILROAD | END BENT NO. 1 | | | 64.87 | | 0.4 | 10,698 | | 956 | | 3 | 1,433 | 0.7 | 2,592 | 47 | | | 84 | 149.8 | |
| | | INTERMEDIATE BENT NO. 2 | | 286 | 176.32 | | | 29,978 | | 1,584 | | | 189 | | 4,032 | | | | | 512.8 | |
| | | INTERMEDIATE BENT NO. 3 | | 274 | 180.79 | | | 30,948 | | 2,280 | | | 189 | | 4,032 | | | | | 512.3 | |
| | | INTERMEDIATE BENT NO. 4 | | 237 | 187.82 | | | 35,126 | | 1,872 | | | 1,491 | | 4,932 | | 47 | | | 537.1 | |
| | | INTERMEDIATE BENT NO. 5 | | 300 | 220.34 | | | 35,671 | | 2,184 | | | 275 | | 3,803 | | | | | 558.7 | |
| | | INTERMEDIATE BENT NO. 6 | | 291 | 236.95 | | | 47,107 | | 1,392 | | | 1,106 | | 5,580 | | 61 | | | 669.3 | |
| | | INTERMEDIATE BENT NO. 7 | | 291 | 232.82 | | | 42,392 | | 1,752 | | | 402 | | 5,760 | | | | | 672.8 | |
| | | END BENT NO. 8 | | | 64.99 | | 0.4 | 10,850 | | 1,068 | | 3 | 1,433 | 0.7 | 3,240 | 47 | | | 119 | 149.8 | |
| | | 260'-0" CONT. PLATE GIRDER UNIT | | | | 422.87 | 32.6 | | 108,968 | | 613 | | 427,585 | 213.8 | | | | 1 | | 1,080.5 | |
| | | 222'-0" CONT. PLATE GIRDER UNIT | | | | 372.90 | 27.5 | | 90,494 | | 482 | | 425,459 | 212.7 | | | | | | 934.2 | |
| | | 294'-0" CONT. PLATE GIRDER UNIT | | | | 462.43 | 36.4 | | 106,838 | | 476 | | 614,668 | 307.3 | | | | | | 1,183.5 | 280 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | TOTALS FOR JOB NO. 100492 | | 1,679 | 1,364.90 | 1,258.20 | 97.3 | 242,770 | 306,300 | 13,088 | 1,571 | 6 | 1,474,230 | 735.2 | 33,971 | 94 | 108 | 1 | 203 | 6,960.8 | 280 |

(1) Steel Shell Piles Shall Conform To ASTM A252, Grade 3, Fy = 45 ksi.


Megan.Land 7/27/2022 2:31:00 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD.162313_Hwy35IRROverpass\Deliverables\BRIDGE\Bridge\BI00942XL_QXI.dgn
REVISED DATE:


STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

7/27/2022

BRIDGE ENGINEER
PRINT DATE: 7/27/2022

SCHEDULE OF BRIDGE QUANTITIES
HWY. 351 OVER UNION PACIFIC RAILROAD
(AIRPORT RD.) (JONESBORO) (S)
CRAIGHEAD COUNTY
ROUTE 351 SECTION 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 07/24/2019 FILENAME: BI00942XL_QXI.dgn
CHECKED BY: SFH DATE: 08/2020
DESIGNED BY: -- DATE: -- SCALE: No Scale
BRIDGE NO. 07463 DRAWING NO. 61131

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 8/23/2022 | | | | 6 | ARK. | | | |
| 9/8/2022 | | | | JOB NO. | | 100942 | 34 | 118 |
| | | | | (2) | SUMMARY OF QUANTITIES AND REVISIONS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
9-8-2022

## SUMMARY OF QUANTITIES (BOX 1 OF 2)

| | ITEM NUMBER | ITEM | | QUANTITY | UNIT |
|---|---|---|---|---|---|
| | 201 | CLEARING | | 33 | STATION |
| | 201 | GRUBBING | | 33 | STATION |
| | 202 | REMOVAL AND DISPOSAL OF CURB AND GUTTER | | 1150 | LIN. FT. |
| | 202 | REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS | | 251 | SQ. YD. |
| | 202 | REMOVAL AND DISPOSAL OF PIPE CULVERTS | | 12 | EACH |
| | 202 | REMOVAL AND DISPOSAL OF SIGNS | | 4 | EACH |
| | 202 | REMOVAL AND DISPOSAL OF GRATE INLETS | | 1 | EACH |
| | SP, SS, & 210 | UNCLASSIFIED EXCAVATION | | 30909 | CU. YD. |
| | SP & 210 | COMPACTED EMBANKMENT | | 58048 | CU. YD. |
| | SP & 210 | COMPACTED EMBANKMENT (SPECIAL) | | 29982 | CU. YD. |
| | SP & 210 | SOIL STABILIZATION | | 1000 | TON |
| | SP, SS, & 303 | AGGREGATE BASE COURSE (CLASS 7) | | 6031 | TON |
| | SP, SS, & 309 | PORTLAND CEMENT CONCRETE BASE (8" UNIFORM THICKNESS) | | 640 | SQ. YD. |
| | SP, SS, & 309 | PORTLAND CEMENT CONCRETE BASE (5 1/2" UNIFORM THICKNESS) | | 342 | SQ. YD. |
| | SS & 401 | TACK COAT | | 1515 | GAL. |
| | SP, SS, & 405 | MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2") | | 553 | TON |
| | SP, SS, & 405 | ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2") | | 23 | TON |
| | SP, SS, & 406 | MINERAL AGGREGATE IN ACHM BINDER COURSE (1") | | 1645 | TON |
| | SP, SS, & 406 | ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1") | | 76 | TON |
| | SP, SS, & 407 | MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2") | | 2387 | TON |
| | SP, SS, & 407 | ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2") | | 50 | TON |
| | SP, SS, & 407 | ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2") | | 84 | TON |
| | SP & 412 | COLD MILLING ASPHALT PAVEMENT | | 1368 | SQ. YD. |
| | SP, SS, & 414 | ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC | | 14 | TON |
| | SP, SS, & 415 | ACHM PATCHING OF EXISTING ROADWAY | | 10 | TON |
| | SP, SS, & 504 | APPROACH SLABS | | 202.32 | CU. YD. |
| | SP, SS, & 505 | PORTLAND CEMENT CONCRETE DRIVEWAY | | 935.79 | SQ. YD. |
| | 601 | MOBILIZATION | | 1.00 | LUMP SUM |
| | SP & 602 | FURNISHING FIELD OFFICE | | 1 | EACH |
| | SS & 603 | MAINTENANCE OF TRAFFIC | | 1.00 | LUMP SUM |
| | 603 | 18" TEMPORARY CULVERT | | 12 | LIN. FT. |
| | 603 | 24" TEMPORARY CULVERT | | 38 | LIN. FT. |
| | SS & 604 | SIGNS | | 359 | SQ. FT. |
| | SP, SS, & 604 | CONSTRUCTION PROJECT INFORMATION SIGN UPDATE | | 4 | EACH |
| | SS & 604 | BARRICADES | | 160 | LIN. FT. |
| | SS & 604 | TRAFFIC DRUMS | | 115 | EACH |
| | SS & 604 | FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER | | 446 | LIN. FT. |
| | 604 | CONSTRUCTION PAVEMENT MARKINGS | | 11550 | LIN. FT. |
| | 604 | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS | | 1702 | LIN. FT. |
| | 604 | REMOVAL OF PERMANENT PAVEMENT MARKINGS | | 7052 | LIN. FT. |
| | SS & 604 | VERTICAL PANELS | | 31 | EACH |
| | SP, SS, & 605 | CONCRETE DITCH PAVING (TYPE B) | | 243 | SQ. YD. |
| | SS & 606 | 24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) | | 124 | LIN. FT. |
| * | SS & 606 | 24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) | (ALTERNATE NO. 1) | 465 | LIN. FT. |
| * | SS & 606 | 24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE | (ALTERNATE NO. 2) | 465 | LIN. FT. |
| | SS & 606 | 24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V) | | 72 | LIN. FT. |
| | SP, SS, & 606 | 18" SIDE DRAIN | | 82 | LIN. FT. |
| | SP, SS, & 606 | 30" SIDE DRAIN | | 94 | LIN. FT. |
| | SP, SS, & 606 | 36" SIDE DRAIN | | 38 | LIN. FT. |
| | SS & 606 | 24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS | | 3 | EACH |
| | SS & 606 | SELECTED PIPE BEDDING | | 300 | CU. YD. |
| | SS & 609 | DROP INLETS (TYPE MO) | | 1 | EACH |
| | SS & 609 | DROP INLETS (TYPE SPECIAL) | | 9 | EACH |
| | SS & 609 | JUNCTION BOXES (TYPE E) | | 1 | EACH |
| | SS & 609 | DROP INLET EXTENSIONS (4') | | 7 | EACH |
| | SS & 611 | 4" PIPE UNDERDRAINS | | 1500 | LIN. FT. |
| | SS & 611 | UNDERDRAIN OUTLET PROTECTORS | | 6 | EACH |
| | 620 | LIME | | 30 | TON |
| | 620 | SEEDING | | 15.16 | ACRE |
| | SS & 620 | MULCH COVER | | 61.24 | ACRE |
| | 620 | WATER | | 2613.1 | M. GAL. |
| | 621 | TEMPORARY SEEDING | | 46.08 | ACRE |
| | 621 | SILT FENCE | | 4032 | LIN. FT. |
| | 621 | SAND BAG DITCH CHECKS | | 396 | BAG |
| | 621 | SEDIMENT BASIN | | 3489 | CU. YD. |
| | 621 | OBLITERATION OF SEDIMENT BASIN | | 3489 | CU. YD. |
| | 621 | SEDIMENT REMOVAL AND DISPOSAL | | 3674 | CU. YD. |
| | 621 | ROCK DITCH CHECKS | | 54 | CU. YD. |
| | SS & 621 | FILTER SOCK (18") | | 1029 | LIN. FT. |
| | 623 | SECOND SEEDING APPLICATION | | 15.16 | ACRE |
| | 624 | SOLID SODDING | | 5136 | SQ. YD. |
| | SP, SS, & 633 | CONCRETE WALKS | | 2816 | SQ. YD. |
| | SS & 634 | CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6") | | 4784 | LIN. FT. |
| | 635 | ROADWAY CONSTRUCTION CONTROL | | 1.00 | LUMP SUM |
| | 637 | MAILBOXES | | 3 | EACH |
| | 637 | MAILBOX SUPPORTS (SINGLE) | | 1 | EACH |
| | 637 | MAILBOX SUPPORTS (DOUBLE) | | 1 | EACH |
| | SP, SS, & 641 | WHEELCHAIR RAMPS (TYPE 3) | | 40 | SQ. YD. |
| | 719 | THERMOPLASTIC PAVEMENT MARKING WHITE (6") | | 520 | LIN. FT. |
| | 719 | THERMOPLASTIC PAVEMENT MARKING WHITE (24") | | 16 | LIN. FT. |
| | 719 | THERMOPLASTIC PAVEMENT MARKING YELLOW (6") | | 7220 | LIN. FT. |
| | 721 | RAISED PAVEMENT MARKERS (TYPE II) | | 185 | EACH |
| | SS & 731 | TEMPORARY IMPACT ATTENUATION BARRIER | | 2 | EACH |
| | SS & 731 | TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) | | 2 | EACH |
| | SS & 804 | REINFORCING STEEL-ROADWAY (GRADE 60) | | 30500 | POUND |
| | | | | | |

* DENOTES ALTERNATE BID ITEMS.

## SUMMARY OF QUANTITIES (BOX 2 OF 2)

| ITEM NUMBER | ITEM | QUANTITY | UNIT |
|---|---|---|---|
| | **STRUCTURES OVER 20' SPAN** | | |
| SP | STEEL FENCE | 280 | LIN. FT. |
| 636 | BRIDGE CONSTRUCTION CONTROL | 1.00 | LUMP SUM |
| 801 | UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE | 1679 | CU. YD. |
| SP, SS, & 802 | CLASS S CONCRETE-BRIDGE | 1364.90 | CU. YD. |
| SP, SS, & 802 | CLASS S(AE) CONCRETE-BRIDGE | 1258.20 | CU. YD. |
| SP | ARCHITECTURAL FINISH | 6960.8 | SQ. FT. |
| SP & 803 | CLASS 1 PROTECTIVE SURFACE TREATMENT | 97.3 | GAL. |
| SS & 804 | REINFORCING STEEL-BRIDGE (GRADE 60) | 242770 | POUND |
| SS & 804 | EPOXY COATED REINFORCING STEEL (GRADE 60) | 306300 | POUND |
| SS & 805 | STEEL SHELL PILING (18" DIAMETER) | 13088 | LIN. FT. |
| SS & 806 | METAL BRIDGE RAILING (TYPE H2) | 1571 | LIN. FT. |
| SS & 806 | TRANSITIONAL APPROACH RAILING | 6 | EACH |
| SP, SS, & 807 | STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50) | 1474230 | POUND |
| SS & 807 | PAINTING STRUCTURAL STEEL | 735.2 | TON |
| SS & 808 | ELASTOMERIC BEARINGS | 33971 | CU. IN. |
| SS & 809 | SILICONE JOINT SEALANT | 94 | LIN. FT. |
| SP | PREFORMED SILICONE JOINT | 108 | LIN. FT. |
| 812 | BRIDGE NAME PLATE (TYPE D) | 1 | EACH |
| SS & 816 | CONCRETE RIPRAP | 203 | CU. YD. |
| | | | |

## REVISIONS

| DATE | REVISION | SHEET NUMBER |
|---|---|---|
| 8/23/2022 | UPDATED SUPERELEVATION NOTE FOR CURVE 2 IN PLAN AND PROFILE SHEETS, UPDATED CROSS SLOPE ANNOTATION IN CROSS SECTIONS. | 34, 39, 40, 105 |
| 9/8/2022 | UPDATED SPECIAL DETAIL FOR MOT TEMP WIDENING. UPDATED QUANTITIES FOR TEMPORARY MOT WIDENING ALONG EXISTING LANES, UPDATED SUMMARY OF QUANTITIES, UPDATED CROSS SECTIONS | 6, 30, 34, 107-108, 110-113, 116 |
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 35 | 118 |
| | | | | (2) | SURVEY CONTROL DETAILS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021

SURVEY CONTROL COORDINATES

Project Name: s100942
Date: 6/8/2017
Coordinate System: ARKANSAS STATE PLANE – NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

| Point Name | Northing | Easting | Elev | Feature | Description |
|---|---|---|---|---|---|
| 1 | 551139.9871 | 1712468.9223 | 313.991 | CTL | STD AHTD MON. STAMPED PN:1 |
| 2 | 550547.8355 | 1712465.3630 | 289.078 | CTL | STD AHTD MON. STAMPED PN:2 |
| 3 | 550036.8587 | 1712464.8340 | 280.687 | CTL | STD AHTD MON. STAMPED PN:3 |
| 4 | 549519.0768 | 1712302.6934 | 267.201 | CTL | STD AHTD MON. STAMPED PN:4 |
| 5 | 549329.5663 | 1711468.6072 | 270.989 | CTL | STD AHTD MON. STAMPED PN:5 |
| 100 | 555290.1329 | 1707094.8711 | 301.746 | GPS | AHTD GPS MON 160015 |
| 101 | 555942.5248 | 1707893.4626 | 309.119 | GPS | AHTD GPS MON 160015A |
| 102 | 560026.1965 | 1718539.9812 | 297.619 | GPS | AHTD GPS MON 160039 |
| 103 | 560054.6295 | 1719959.1035 | 274.990 | GPS | AHTD GPS MON 160039A |

*Note – Rebar and Cap – Standard – 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.999934954 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 s100942gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS – 0301–NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 160015 – 160015A, 160039 – 160039A
CONVERGENCE ANGLE: 00–47–07 RIGHT AT LT: N 35–50–13 LG: W 090–39–01
GRID AZIMUTH = ASTRONOMICAL AZIMUTH – CONVERGENCE ANGLE.

**ALIGNMENT NAME : HWY. 351**

| POINT | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8000 | POB | 78+98.46 | 548838.3780 | 1710761.9515 |
| 8001 | PC | 82+07.90 | 549048.3920 | 1710989.2126 |
| 8003 | PT | 86+51.04 | 549208.5256 | 1711391.7730 |
| 8004 | PC | 89+92.29 | 549212.3541 | 1711733.0007 |
| 8006 | PT | 97+04.51 | 549627.2829 | 1712246.7739 |
| 8007 | PC | 106+25.93 | 550525.8246 | 1712450.8081 |
| 8009 | PT | 109+11.65 | 550809.0503 | 1712484.1888 |
| 8010 | POE | 111+99.94 | 551097.3250 | 1712487.4605 |

**ALIGNMENT NAME : MOT PAVEMENT WIDENING - 1**

| POINT | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8018 | POB | 50+00.00 | 549409.9038 | 1711598.7335 |
| 8019 | PC | 50+60.03 | 549435.9849 | 1711652.8021 |
| 8023 | PT | 53+64.13 | 549498.9548 | 1711947.3604 |
| 8024 | PC | 55+44.46 | 549493.8648 | 1712127.6198 |
| 8026 | PT | 60+67.92 | 549815.3087 | 1712473.8123 |
| 8027 | POE | 61+00.00 | 549847.3517 | 1712475.2833 |

**ALIGNMENT NAME : MOT PAVEMENT WIDENING - 2**

| POINT | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8011 | PC | 70+00.00 | 550410.5280 | 1712481.4524 |
| 8013 | PRC | 70+85.67 | 550495.9562 | 1712487.1448 |
| 8015 | PRC | 75+76.12 | 550985.2568 | 1712491.3741 |
| 8017 | PT | 76+62.45 | 551071.4279 | 1712487.1666 |

**ALIGNMENT NAME : LINDBURG DRIVEWAY**

| POINT | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8020 | POB | 7+50.00 | 548962.4593 | 1711741.7608 |
| 8021 | POE | 10+00.00 | 549212.4150 | 1711737.0546 |

**ALIGNMENT NAME : EARHART DRIVEWAY**

| POINT | TYPE | STATION | NORTHING | EASTING |
|---|---|---|---|---|
| 8030 | POB | 15+00.00 | 549082.4380 | 1711739.5018 |
| 8031 | PC | 15+49.66 | 549083.3729 | 1711789.1579 |
| 8033 | PT | 23+24.05 | 549510.2378 | 1712378.2850 |
| 8034 | PC | 25+38.43 | 549712.6588 | 1712448.8809 |
| 8036 | PT | 25+99.97 | 549746.0744 | 1712495.9244 |
| 8037 | PC | 26+39.01 | 549746.0744 | 1712534.9669 |
| 8039 | PT | 27+89.25 | 549797.0739 | 1712672.9666 |
| 8040 | POE | 28+51.01 | 549837.2360 | 1712719.8827 |

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|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 36 | 118 |

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021

C.L. MOT PAVEMENT WIDENING - 1
P.I. = 52+15.04
DELTA = 27°22'07" RT.
D = 9°00'00"
T = 155.01'
L = 304.10'
P.C. = 50+60.03
P.T. = 53+64.13
NO SUPER

C.L. MOT PAVEMENT WIDENING - 1
P.I. = 58+75.60
DELTA = 88°59'21" LT.
D = 17°00'00"
T = 331.14'
L = 523.46'
P.C. = 55+44.46
P.T. = 60+67.92
NO SUPER

PI 84+40.01

PI 52+15.04

PI 97+04.51

85+00

55+00

8018 8019 8023 8006

C.L. MOT PAVEMENT WIDENING - 1

C.L. MOT PAVEMENT WIDENING - 1
STA. 3+08.00
22.37' RT.
BEGIN TEMP. PAVEMENT WIDENING

PC 55+44.46

PN:5
PD:STD AHTD MON. STAMPED
PN:5 JONESBORO

SURVEY BASELINE
N77°11'57"E
855.34'

POB 50+00.00

PC 50+60.03

PT 53+64.13

8024

80+00

8001

N47°15'31"E
309.44

N89°21'26"E

8003

N89°21'26"E
341.25

C.L. HWY. 351

PC 89+92.29

90+00

C.L. HWY. 351 STA. 89+96.34=
C.L. LINDBERGH DRIVEWAY
STA. 10+00.00

C.L. HWY. 351
P.I. = 94+12.94
Δ = 76°33'50" LT.
D = 10°45'00"
T = 420.65'
L = 712.22'
P.C. = 89+92.29
P.T. =97+04.51
e = 0.040'/'
Ls = 250'

PC 82+07.90

PT 86+51.04

8004

POE 10+00.00

8021

N1°04'43"W
250.00

N12°47'36"E

22+00

21+00

PC 15+49.66

N89°21'26"E

9+00

20+00

8030

8031

16+00

17+00

18+00

19+00

C.L. EARHART DRIVEWAY

C.L. HWY. 351
P.I. = 84+40.01
Δ = 42°05'55" RT.
D = 9°30'00"
T = 232.11'
L = 443.14'
P.C. = 82+07.90
P.T. = 86+51.04
e = 0.038'/'
Ls = 250'

POB 15+00.00

8+00

C.L. LINDBERGH DRIVEWAY

POB 7+50.00

8020

N88°55'17"E

PI 94+12.94

N9°13'36"E

C.L. LINDBERGH DRIVEWAY STA. 8+70.00=
C.L. EARHART DRIVEWAY STA. 15+00.00

C.L. EARHART DRIVEWAY
P.I. = 19+92.91
Δ = 69°41'41" LT.
D = 9°00'00"
T = 443.25'
L = 774.39'
P.C. = 15+49.66
P.T. = 23+24.05
NO SUPER

PI 19+92.91

STA. 80+00.00
BEGIN JOB 100942
LOG MILE 0.44

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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 37 | 118 |

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
* * *
No.10887
SCOTT P. THORNSBERRY
3-12-2021

C.L. MOT PAVEMENT WIDENING - 1
P.I. = 52+15.04
DELTA = 27°22'07" RT.
D = 9°00'00"
T = 155.01'
L = 304.10'
P.C. = 50+60.03
P.T. = 53+64.13
NO SUPER

C.L. HWY. 351
P.I. = 94+12.94
Δ = 76°33'50" LT.
D = 10°45'00"
T = 420.65'
L = 712.22'
P.C. = 89+92.29
P.T. =97+04.51
e = 0.040'/'
Ls = 250'

C.L. HWY. 351
P.I. = 107+69.33
Δ = 12°08'35" LT.
D = 4°15'00"
T = 143.40'
L = 285.72'
P.C. = 106+25.93
P.T. = 109+11.65
e = 0.030'/'
Ls = 200'

C.L. EARHART DRIVEWAY
P.I. = 19+92.91
Δ = 69°41'41" LT.
D = 9°00'00"
T = 443.25'
P.C. = 15+49.66
P.T. = 23+24.05
NO SUPER

C.L. EARHART DRIVEWAY
P.I. = 25+73.82
Δ = 70°46'24" RT.
D =115°00'00" (R=50')
T = 35.39'
L = 61.54'
P.C. = 25+38.43
P.T. = 25+99.97
NO SUPER

C.L. EARHART DRIVEWAY
P.I. = 27+17.44
Δ = 40°33'53" LT.
D = 27°00'00"
T = 78.43'
L = 150.24'
P.C. = 26+39.01
P.T. = 27+89.25
NO SUPER

C.L. MOT PAVEMENT WIDENING - 2
P.I. = 70+42.89
Δ = 6°51'13" RT.
D = 8°00'00"
T = 42.89'
L = 85.67'
P.C. = 70+00.00
P.R.C = 70+85.67
NO SUPER

C.L. MOT PAVEMENT WIDENING - 2
P.I. = 73+32.03
Δ = 13°29'15" LT.
D = 2°45'00"
T = 246.36'
L = 490.45'
P.R.C. = 70+85.67
P.R.C. = 75+76.12
NO SUPER

PN:2
PD:STD AHTD MON. STAMPED
PN:2 JONESBORO

PN:3
PD:STD AHTD MON. STAMPED
PN:3 JONESBORO

PN:4
PD:STD AHTD MON. STAMPED
PN:4 JONESBORO

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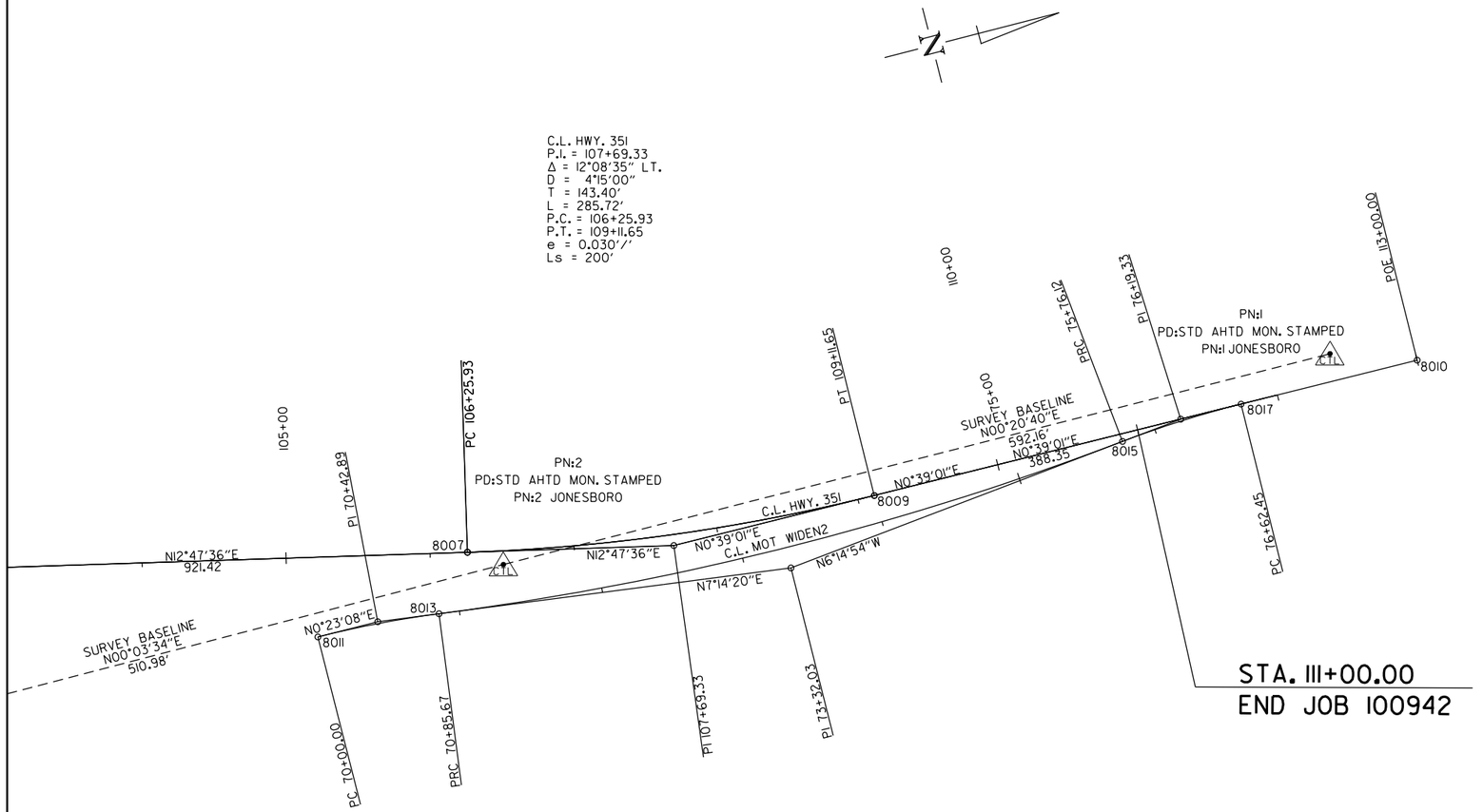
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| 6 | ARK. | | | |
| JOB NO. | | 100942 | 38 | 118 |

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
3-12-2021




C.L. MOT PAVEMENT WIDENENING - 2
P.I. = 70+42.89
Δ = 6°51'13" RT.
D = 8°00'00"
T = 42.89'
L = 85.67'
P.C. = 70+00.00
P.R.C = 70+85.67
NO SUPER

C.L. MOT PAVEMENT WIDENING - 2
P.I. = 73+32.03
Δ = 13°29'15" LT.
D = 2°45'00"
T = 246.36'
L = 490.45'
P.R.C. = 70+85.67
P.R.C. = 75+76.12
NO SUPER

C.L. MOT PAVEMENT WIDENING - 2
P.I. = 76+19.33
Δ = 6°54'22" RT.
D = 8°00'00"
T = 43.22'
L = 86.33'
P.R.C. = 75+76.12
P.T. = 76+62.45
NO SUPER

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 08/23/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 39 | 118 |
| | | | | 2 | PLAN & PROFILE SHEETS | | | |

C.L. HWY. 351
P.I. = 84+40.01
Δ = 42°05'55" RT.
D = 9°30'00"
T = 232.11'
L = 443.14'
P.C. = 82+07.90
P.T. = 86+51.04
e = 0.038'/'
Ls = 250'

C.L. HWY. 351
P.I. = 94+12.94
Δ = 76°33'50" LT.
D = 10°45'00"
T = 420.65'
L = 712.22'
P.C. = 89+92.29
P.T. = 97+04.51
e = 0.040'/'
Ls = 250'

C/L UPRR

RAILROAD R/W

PI 84+40.01

STA. 88+50.00 LT. CONSTRUCT
DROP INLET H=1'-0"
QIO=0.8 CFS DA=0.1 ACRES
TYPE SPECIAL DROP INLET = 4' X 6'

SEE INSET "A"

INSET "A"

T.C.E.

C.L. EXIST. HWY. 351

STA. 92+01.00 IN PLACE
18" X 53' R.C. PIPE
CROSS DRAIN
REMOVE

STA. 92+66.00 INSTALL
24" X 124' R.C. PIPE CULVERT
20° RT. FWD. SKEW
(CLASS IV) (TYPE 3 BEDDING)
WITH FES LT. AND RT.
Q50=7.4 CFS DA=3.0 ACRES
24" R.C. PIPE = 124 LIN. FT.
24" FES = 2 EACH

STA. 93+47.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSION
QIO=1.6 CFS DA=0.4 ACRES
TYPE SPECIAL DROP INLET = 4' X 6'

STA. 90+50.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSION
QIO=2.2 CFS DA=0.2 ACRES
TYPE SPECIAL DROP INLET = 4' X 6'

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
8-23-2022

PROP. R/W
CONST. LIMITS
N47°15'31"E
N89°21'26"E
N2°47'36"E
N13°13'36"E
N88°55'17"E

C.L. HWY. 351
STA. 89+96.34=
C.L. LINDBERGH DRIVEWAY
STA. 10+00.00

P.C. 89+92.29

81' CURB TRANSITION

100' TRANSITION TO MATCH EXISTING

STA. 80+00.00
BEGIN JOB 100942
LOG MILE 0.44

STA. 81+02.00 IN PLACE
18" X 12" X 47' ARCHED PIPE
REMOVE AND INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 60 CU. YDS.

STA. 82+00.00 RT. CONSTRUCT
DROP INLET H=1'-0"
QIO=1.3 CFS DA=0.2 ACRES
TYPE SPECIAL DROP INLET = 4' X 18.5'

STA. 85+00.00 RT. CONSTRUCT
DROP INLET H=1'-0"
QIO=1.6 CFS DA=0.3 ACRES
TYPE SPECIAL DROP INLET = 4' X 18.5'

LEGEND
PAVEMENT TRANSITION
PAVEMENT OBLITERATION

STA. 89+50.00 CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 10.0 SQ. YDS.

STA. 89+25.00 IN PLACE
18" X 65' R.C. PIPE
RT. SIDE DRAIN
REMOVE

STA. 90+35.00 CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 10.0 SQ. YDS.

C.L. LINDBERGH DRIVEWAY STA. 8+70.00=
C.L. EARHART DRIVEWAY STA. 15+00.00

PC 15+49.66
PDE 10+00.00
R =40'
R =20'
POB 15+00.00
90°00'00"
91°04'43"
C.L. EARHART DRIVEWAY
HWY. 351

STA. 80+06.80 CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 10.0 SQ. YDS.

STA. 80+20.40 BEGIN SUPERELEVATION (N.C.)
STA. 82+70.40 MAX SUPERELEVATION (0.038'/')
STA. 85+71.66 MAX SUPERELEVATION (0.038'/')
STA. 88+21.66 END SUPERELEVATION (N.C.)

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL & VERTICAL CONTROLS.

STA. 88+21.67 BEGIN SUPERELEVATION (N.C.)
STA. 90+71.67 MAX SUPERELEVATION (0.040'/')
STA. 96+04.51 MAX SUPERELEVATION (0.040'/')
STA. 98+54.51 END SUPERELEVATION (N.C.)

CONCRETE DITCH PAVING (TYPE B)

| STA. | SIDE | LENGTH | "W" | SQ. YDS. |
|---|---|---|---|---|
| 82+00.00 | RT. OF HWY. 351 | 8 LIN. FT. | 4'-0" | 3.56 |
| 85+00.00 | RT. OF HWY. 351 | 8 LIN. FT. | 4'-0" | 3.56 |
| 88+50.00 | LT. OF HWY. 351 | 22 LIN. FT. | 4'-0" | 9.78 |
| 90+50.00 | LT. OF HWY. 351 | 28 LIN. FT. | 4'-0" | 12.44 |
| 93+50.00 | LT. OF HWY. 351 | 40 LIN. FT. | 4'-0" | 17.78 |

PVI 80+00.00 ELEV. 268.92
PVI 83+50.00 ELEV. 272.42
PVC 82+50.00 ELEV. 271.42
PVT 84+50.00 ELEV. 272.92
PVC 91+20.00 ELEV. 276.27
PVI 93+70.00 ELEV. 277.52
ELEV. 282.76

INLET RT. TOP=271.12
INLET RT. TOP=273.37
INLET LT. TOP=275.12
INLET LT. TOP=276.12
INLET LT. TOP=280.96

PROFILE GRADE
EXISTING GROUND

VC=200.00'
K=400
e=-0.13'

VC=500.00'
K=77
e=4.06'

1.00%
0.97% (EXISTING)
1.00% RT. DT. GR.
0.45% LT. DT. GR.
0.66% RT. DT. GR.
0.50%
-1.57% LT. DT. GR.
-0.17% LT. DT. GR.
-0.31% RT. DT. GR.
1.00% LT. DT. GR.
7.00%

+00.00 RT. 265.97
+50.00 RT. 268.47
+80.00 LT. 269.36
+72.00 RT. 270.58
+70.00 LT. 270.65
+50.00 LT. 268.51
+70.00 LT. 266.63
+30.00 RT. 265.85
+44.00 LT. 266.00
+70.00 LT. 267.26
FL IN=266.00 LT.
FL OUT=265.04 RT.

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 08/23/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 40 | 118 |
| | | | | (2) | PLAN & PROFILE SHEETS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.13640
BYRON O. LAWRENCE
8-23-2022

NOTE: REFER TO MAINT. OF TRAFFIC DETAILS - STAGE I FOR TEMPORY PIPE CULVERT NOTES - STA. 99+70, STA. 97+97, AND STA. 105+73.

N89°21'26"E
N88°55'17"E
N12°47'36"E
N19°13'36"E
BRIDGE END 94+43.41
APPROACH SLAB STA. 94+06.91
STA. 95+85.00 IN PLACE 18" X 45' R.C. PIPE CULVERT RT. SIDE DRAIN REMOVE
STA. 101+00.00 IN PLACE 48" X 51' R.C. RT. SIDE DRAIN RETAIN
PROP. R/W
RAILROAD R/W
UNION PACIFIC RAILROAD
CONST. LIMITS
EXIST. R/W
APPROACH SLAB 102+58.10
BRIDGE END 102+21.60
C.L. HWY. 351
30'
28'
P.C.E.
T.C.E.
C.L. EARHART, DRIVEWAY
PT 94+12.94
PI 19+92.91
PI 25+73.82
PT 23+24.05
PT 25+99.97
PC 25+38.43
PC 26+39.01
PT 27+89.25
C.L. HWY. 351
P.I. = 94+12.94
Δ = 76°33'50" LT.
D = 10°45'00"
T = 420.65'
L = 712.22'
P.C. = 89+92.29
P.T. =97+04.51
e = 0.040'/'
Ls = 250'
R =20'
R =68'

LEGEND
PAVEMENT TRANSITION
PAVEMENT OBLITERATION

STA. 88+21.67 BEGIN SUPERELEVATION (N.C.)
STA. 90+71.67 MAX SUPERELEVATION (0.040'/')
STA. 96+04.51 MAX SUPERELEVATION (0.040'/')
STA. 98+54.51 END SUPERELEVATION (N.C.)

STA. 94+43.41 BRIDGE END
BRIDGE NO. 07463 OVER UPRR
260'-0" COMPOSITE PLATE GIRDER UNIT (80'-100'-80')
222'-0" COMPOSITE PLATE GIRDER UNIT (111'-111')
294'-0" COMPOSITE PLATE GIRDER UNIT (147'-147')
30'-0" CLEAR ROADWAY
12'-0" SHARED USE PATH
778' - 2¼" BRIDGE LENGTH
STA. 102+21.60 BRIDGE END

STA. 104+90.00 RT. CONSTRUCT DROP INLET H=1'-0" WITH 4' EXTENSION
QIO=0.9 CFS DA=0.1 ACRES
TYPE SPECIAL DROP INLET=4' X 18.5'

STA. 104+75.93 BEGIN SUPERELEVATION (N.C.)
STA. 106+75.93 MAX SUPERELEVATION (0.030'/')
STA. 108+61.65 MAX SUPERELEVATION (0.030'/')
STA. 110+61.65 END SUPERELEVATION (N.C.)

HWY. 351

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

PVI 99+80.00 ELEV. 320.22
STA. 102+21.60 END BRIDGE
PVRC 102+70.00 ELEV. 303.98
STA. 94+43.41 BEGIN BRIDGE
PVT 96+20.00 ELEV. 295.02
PVC 96+90.00 ELEV. 299.92
VC=500.00' K=77 e=4.06'
VC=580.00' K=46 e=-9.14'
VC=660.00' K=67 e=8.14'
7.00%
-5.60%
-0.31% DT. GR.
0.93% LT. DT. GR.
PROFILE GRADE
EXISTING RR TRACK
EXISTING GROUND
INLET RT. TOP=295.54
ELEV. 293.97
+40.00 RT. 264.58 ±30
+22.00 LT. 285.07 ±30

94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00
240 250 260 270 280 290 300 310 320 330 340



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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 41 | 118 |
| | | | | (2) | PLAN & PROFILE SHEETS | | | |

STA. 105+94.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSION
QIO=1.3 CFS DA=0.2 ACRES
TYPE SPECIAL DROP INLET=4' X 6'

STA. 106+41.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSIONS (2 EACH)
QIO=0.5 CFS DA=0.1 ACRES
TYPE SPECIAL DROP INLET=4' X 6'

STA. 106+80.00
IN PLACE 36" X 62' R.C. PIPE CULVERT
REMOVE AND INSTALL 36" X 38'
LT. SIDE DRAIN
CONST. APPROACH = 75 CU. YDS.

CONCRETE DITCH PAVING (TYPE B)

| STA. | STA. | SIDE | LENGTH | "W" | SQ. YDS. |
|---|---|---|---|---|---|
| | 104+90.00 | RT. OF HWY. 351 | 29 LIN. FT. | 4'-0" | 12.89 |
| | 105+94.00 | LT. OF HWY. 351 | 9 LIN. FT. | 4'-0" | 4.00 |
| | 106+41.00 | LT. OF HWY. 351 | 8 LIN. FT. | 4'-0" | 3.56 |
| | 107+07.00 | LT. OF HWY. 351 | 7 LIN. FT. | 4'-0" | 3.11 |
| 108+00.00 | 109+61.00 | LT. OF HWY. 351 | 161 LIN. FT. | 6'-0" | 107.33 |
| 110+02.00 | 111+00.00 | LT. OF HWY. 351 | 98 LIN. FT. | 6'-0" | 65.33 |

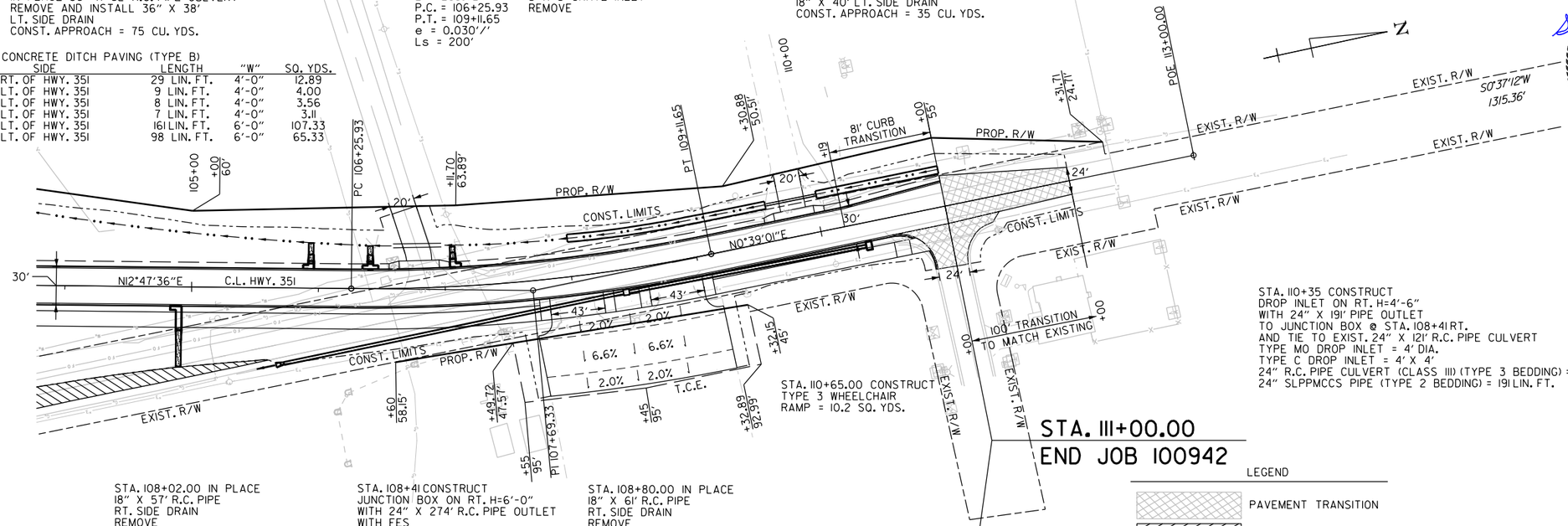
C.L. HWY. 351
P.I. = 107+69.33
Δ = 12°08'35" LT.
D = 4°15'00"
T = 143.40'
L = 285.72'
P.C. = 106+25.93
P.T. = 109+11.65
e = 0.030'/'
Ls = 200'

STA. 107+07.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSION
QIO=2.0 CFS DA=0.3 ACRES
TYPE SPECIAL DROP INLET=4' X 6'

STA. 108+42.00 IN PLACE
3' X 3' GRATE INLET
REMOVE

STA. 109+80.00 IN PLACE
18" X 49' R.C. PIPE
RT. SIDE DRAIN
REMOVE

STA. 109+82.00 IN PLACE
18" X 49' R.C. SIDE DRAIN
REMOVE AND INSTALL
18" X 40' LT. SIDE DRAIN
CONST. APPROACH = 35 CU. YDS.




STA. 110+35 CONSTRUCT
DROP INLET ON RT. H=4'-6"
WITH 24" X 191' PIPE OUTLET
TO JUNCTION BOX @ STA. 108+41 RT.
AND TIE TO EXIST. 24" X 121' R.C. PIPE CULVERT
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
24" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 191 LIN. FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 191 LIN. FT.

STA. 110+65.00 CONSTRUCT
TYPE 3 WHEELCHAIR
RAMP = 10.2 SQ. YDS.

**STA. 111+00.00**
**END JOB 100942**

LEGEND
PAVEMENT TRANSITION
PAVEMENT OBLITERATION

STA. 108+02.00 IN PLACE
18" X 57' R.C. PIPE
RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 150 CU. YDS.

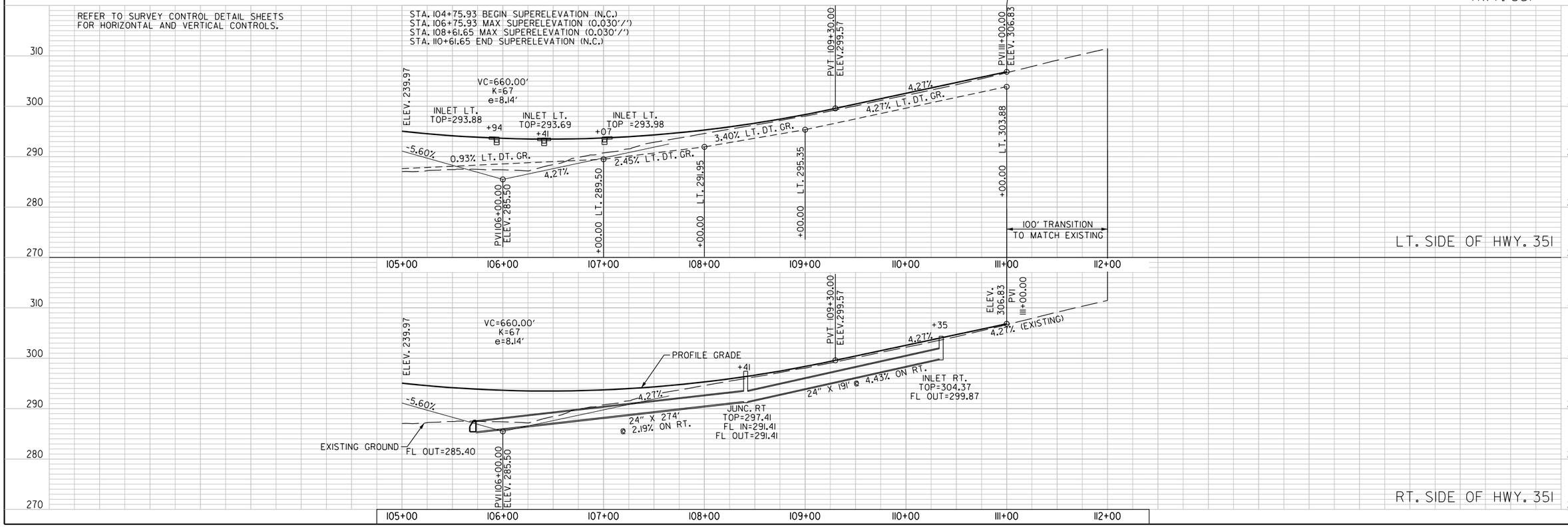
STA. 108+41 CONSTRUCT
JUNCTION BOX ON RT. H=6'-0"
WITH 24" X 274' R.C. PIPE OUTLET
WITH FES
24" R.C. PIPE CULVERT (CLASS III)
(TYPE 3 BEDDING) = 274 LIN. FT.
24" FES = 1 EACH

STA. 108+80.00 IN PLACE
18" X 61' R.C. PIPE
RT. SIDE DRAIN
REMOVE
CONST. APPROACH = 150 CU. YDS.

HWY. 351

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

STA. 104+75.93 BEGIN SUPERELEVATION (N.C.)
STA. 106+75.93 MAX SUPERELEVATION (0.030'/')
STA. 108+61.65 MAX SUPERELEVATION (0.030'/')
STA. 110+61.65 END SUPERELEVATION (N.C.)




STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
3-12-2021


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WORKSPACE: ARDOT
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 42 | 118 |
| PLAN & PROFILE SHEETS | | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021

C.L. LINDBERGH DRIVEWAY STA. 8+70.00=
C.L. EARHART DRIVEWAY STA. 15+00.00
Δ = 90°00'00"

C.L. HWY. 351
STA. 89+96.34=
C.L. LINDBERGH DRIVEWAY STA. 10+00.00

C.L. LINDBERGH DRIVEWAY

C.L. EARHART DRIVEWAY
P.I. = 19+92.91
Δ = 69°41'41" LT.
D = 9°00'00"
T = 443.24'
L = 774.39'
P.C. = 15+49.66
P.T. = 23+24.05
NO SUPER

C.L. EARHART DRIVEWAY
P.I. = 25+73.82
Δ = 70°46'24" RT.
D =115°00'00" (R=50')
T = 35.39'
L = 61.54'
P.C. = 25+38.43
P.T. = 25+99.97
NO SUPER

C.L. EARHART DRIVEWAY
P.I. = 27+17.44
Δ = 40°33'53" LT.
D = 27°00'00"
T = 78.43'
L = 150.24'
P.C. = 26+39.01
P.T. = 27+89.25
NO SUPER

STA. 26+46.00
END EARHART DRIVEWAY

STA. 22+90.00 IN PLACE
24" X 50' R.C. PIPE
RT. SIDE DRAIN
REMOVE

STA. 25+50.00 IN PLACE
24" X 55' R.C. PIPE
CROSS DRAIN
REMOVE

STA. 22+80.00 INSTALL
DBL 30" X 47' SIDE DRAIN
20° RT. FWD. SKEW
Q50=78.2 CFS DA=39.0 ACRES

STA. 22+20.00 IN PLACE
18" X 40' R.C. PIPE
RT. SIDE DRAIN
REMOVE

STA. 22+08.00
CONST. APPROACH ON RT.
= 85 CU. YDS.

STA. 25+90.00 IN PLACE
18" X 72' R.C. PIPE CULVERT
REMOVE AND INSTALL
24" X 72' SIDE DRAIN
23° LT. FWD. SKEW
Q50=6.94 CFS DA=2.2 ACRES

100' TRANSITION TO MATCH EXISTING

LEGEND
PAVEMENT TRANSITION
PAVEMENT OBLITERATION

EARHART DRIVEWAY

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

C.L. LINDBERGH DRIVEWAY
PVI 15+15.00
ELEV. 267.86
-0.05%
PROFILE GRADE
EXISTING GROUND
PVC 21+50.00
ELEV. 267.54
VC=100.00'
K=74
e=0.17'
PVT 22+50.00
ELEV. 268.17
-0.17% LT. DT. GR.
1.31%
PVI 22+00.00
ELEV. 267.52
PVC 23+35.00
ELEV. 269.28
0.67% LT. DT. GR.
VC=300.00'
K=316
e=-0.36'
PVI 24+85.00
ELEV. 271.25
1.56% RT. DT. GR.
0.36%
PVI 26+46.00
ELEV. 271.83
PVT 26+35.00
ELEV. 271.79
+40.00 LT. 264.64
+73.00 LT. 264.23
+80
FL. IN 264.23 LT.
FL. OUT 263.97 RT.
+50.00 RT. 264.72
+00.00 RT. 265.50
+58.00 LT. 266.15
+90
FL. IN 268.97 LT.
FL. OUT 266.78 RT.
100' TRANSITION
TO MATCH EXISTING
LT. DITCH FOLLOWS HWY. 351
DITCH STA. 15+37.70 TO 20+40

310 300 290 280 270 260 250 240 230 220
15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00

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WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 43 | 118 |
| 2 | PLAN & PROFILE SHEETS | | | |

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
3-12-2021

N

LEGEND
- PAVEMENT TRANSITION
- PAVEMENT OBLITERATION

T.C.E.
CONST. LIMITS
PROP. R/W
C.L. HWY. 351
C.L. LINDBERGH DRIVEWAY
C.L. EARHART DRIVEWAY
+70 80'
+20 215'
+50 255'
+95 215'
+32 245'
+60 175'
+40 80'
8+00
9+00
10+00
PI 7+50.00
PI 10+00.00
N89°21'26"E
30'
32'
N01°04'43"W
90°00'00"
90°00'00"
24'
P.C. 65'
PC 89+92.29
PC 15+49.66
STA. 8+07.73
BEGIN LINDBERGH DRIVEWAY
C.L. LINDBERGH DRIVEWAY STA. 8+70.00=
C.L. EARHART DRIVEWAY STA. 15+00.00
C.L. HWY. 351 STA. 89+96.34=
C.L. LINDBERGH DRIVEWAY STA. 10+00.00

C.L. HWY. 351
P.I. = 94+12.94
Δ = 76°33'50" LT.
D = 10°45'00"
T = 420.65'
L = 712.22'
P.C. = 89+92.29
P.T. =97+04.51
e = 0.040'/'
Ls = 250'

LINDBERGH DRIVEWAY

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

PAVEMENT TRANSITION
PVI 8+07.73 ELEV. 263.87
PVI 8+22.73 ELEV. 264.38
PVI 9+53.00 ELEV. 274.80
PVI 9+68.00 ELEV. 275.79
PVI 9+86.00 ELEV. 276.15
PROFILE GRADE
EDGE OF LANE HWY. 351
C.L. HWY. 351
8.00%
6.60%
2.00%
-2.47%
2.36%
3.39%
1.36% LT. DT. GR.
EXISTING GROUND
+07.73 LT. 263.87
+30.00 LT. 265.53

300 290 280 270 260 250 240 230
4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00

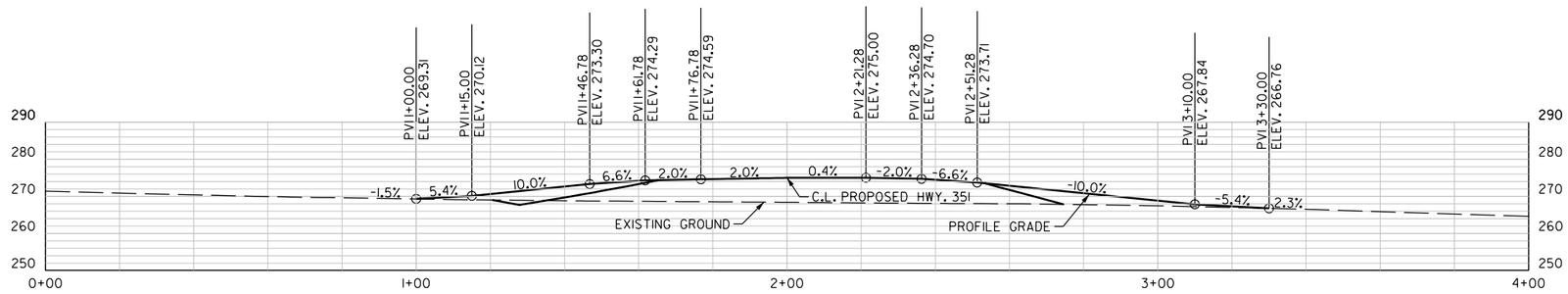
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REVISED DATE: $$REVDATE$$

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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 44 | 118 |

(2) DRIVEWAY PROFILE DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
3-12-2021




## LINDBERGH DRIVEWAY TEMPORARY APPROACH

SEE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS

REFER TO "DRIVEWAY & TURNOUTS" AND "EARTHWORK" QUANTITY BOXES.

DRIVEWAY PROFILE DETAILS

Phillip.Zeagler 3/12/2021 8:48:12 AM
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REVISED DATE: $$REVDATE$$

# GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition with 2015 Interim Specifications.

LIVE LOADING: HL-93

SEISMIC ZONE: 4 $S_{D1}$ =0.84 SITE CLASS = E

MATERIALS AND STRENGTHS:

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

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

STEEL SHELL PILING: Piling in Bents 1 through 8 shall be 18" dia. concrete filled steel shell piles and shall be driven closed-ended to a minimum ultimate bearing capacity as shown in the "Table of Variables". Piling shall be driven to the Min. Pile Tip Elevation "D" shown in the "Table of Variables" or lower. All piling shall be driven with an approved air, steam or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

Water jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the item "Steel Shell Piling (18" Dia.)".

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B-Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 90 ft.-kips per blow will be required to obtain the ultimate bearing capacity for the 18" dia. concrete filled steel shell piling.

PILE FOOTINGS: The top of the footings at Bents 2 thru 7 shall be set a minimum of 3' below natural ground or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Section 801.04. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

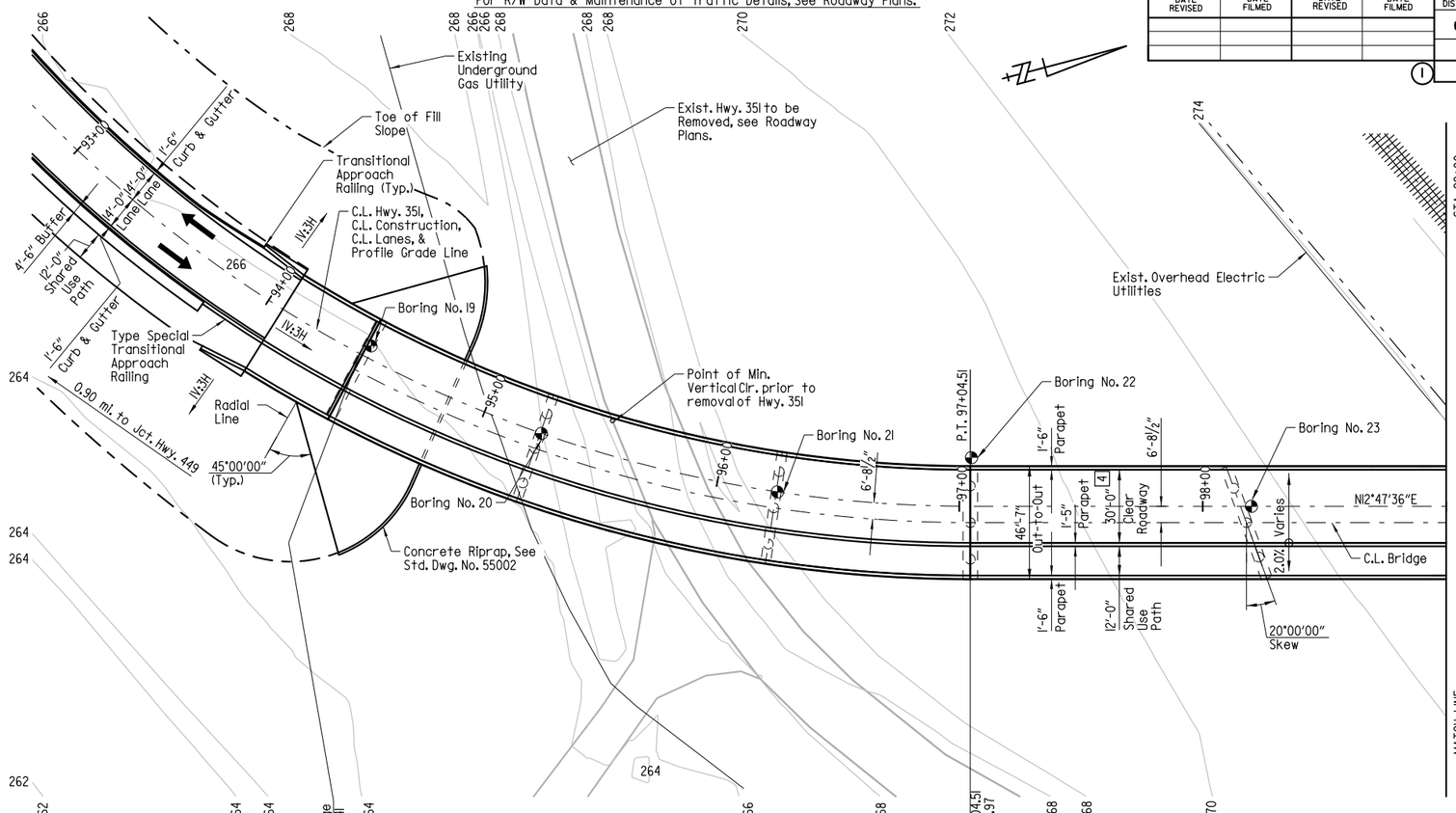
BRIDGE DECK: The concrete bridge deck, except shared use path, shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Shared Use Path shall be given a Class 6 Broomed Finish.

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway face and top of exterior parapets, roadway surface, all surfaces of interior parapet and top of end bent backwalls. Class I Protective Surface Treatment shall meet the requirements of Section 803.

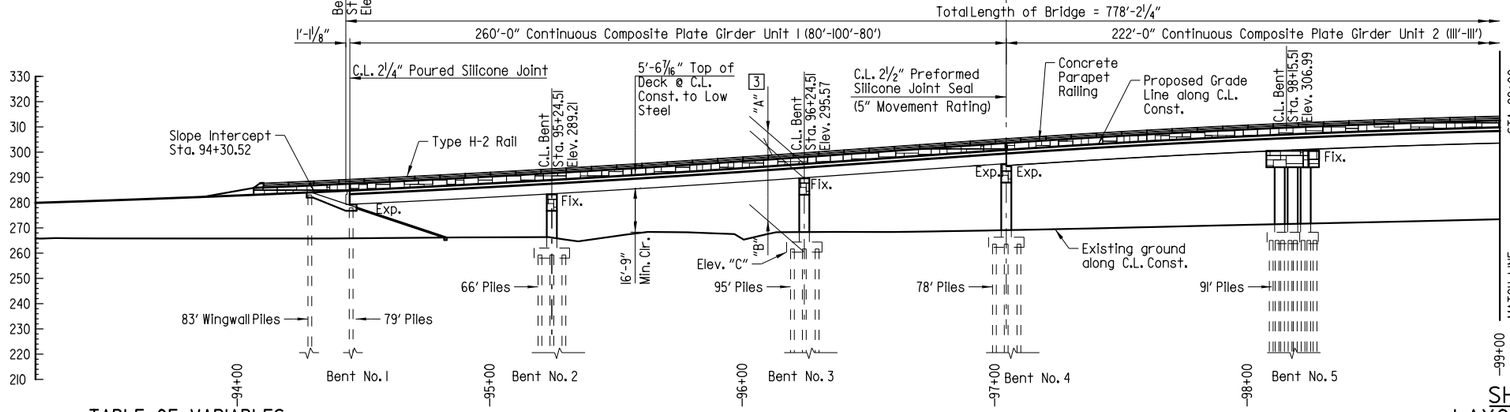
PAINTING: All Structural Steel, except galvanized members and surfaces in contact with concrete, shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350. The color of the Steel Fence, Posts, and Type H-2 Metal Rail shall be Black and shall match Fed. Std. 595B Color Chip No. 27038.

| DETAIL DRAWINGS | DRAWING NOS. |
|---|---|
| End Bent 1 | 61137 - 61140 |
| Intermediate Bents 2 & 3 | 61141 - 61143 |
| Intermediate Bent 4 | 61144 - 61146 |
| Intermediate Bent 5 | 61147 - 61149 |
| Intermediate Bent 6 | 61150 - 61152 |
| Intermediate Bent 7 | 61153 - 61155 |
| End Bent 8 | 61156 - 61158 |
| Elastomeric Bearings | 61159 |
| 260'-0" Cont. Comp. Plate Girder Unit | 61160 - 61166 |
| 222'-0" Cont. Comp. Plate Girder Unit | 61167 - 61173 |
| 294'-0" Cont. Comp. Plate Girder Unit | 61174 - 61181 |
| Type H-2 Rail | 61182 |
| Rail Details | 61183 |
| Longitudinal Restrainers | 61184 |
| Type Special Transition Rail | 61185 |
| Type Special Approach Slab | 61531 |
| Standard Details for Concrete Riprap | 55002 |
| Standard General Notes | 55006 |
| Standard Details for Steel Bridge Structures | 55007 |
| Poured Silicone Joint | 55008 |
| Transitional Approach Railing | 55013 |
| Steel Shell Piling | 55021 |

For R/W Data & Maintenance of Traffic Details, See Roadway Plans.




## PLAN




## ELEVATION

## TABLE OF VARIABLES

| Bent No. | Top of Deck @ C.L. Const. to Low Seat of Cap "A" | Low Seat of Cap to Bottom of Footing "B" | Elev. "C" | [1] Min. Pile Tip Elevation "D" | Min. Ultimate Bearing Capacity (Tons) |
|---|---|---|---|---|---|
| 1 | - | - | - | 199 | 200 |
| 2 | 5'-11⅝" | 25'-6" | 257.74 | 193 | 205 |
| 3 | 5'-11⅛" | 30'-0" | 259.65 | 165 | 260 |
| 4 | 6'-4⅝" | 32'-5⅜" | 262.18 | 184 | 225 |
| 5 | 6'-7⅛" | 36'-6" | 263.87 | 174 | 250 |
| 6 | 6'-7¹¹⁄₁₆" | 37'-0" | 266.76 | 211 | 390 |
| 7 | 7'-1¹⁵⁄₁₆" | 31'-0" | 272.63 | 200 | 260 |
| 8 | - | - | - | 210 | 220 |

[1] Not applicable to wing piles.

[2] Steel fence from Hwy. 351 C.L. Sta. 99+15.00 to Sta. 100+55.00 on Left side of bridge and from Sta. 99+55.00 to Sta. 100+95.00 on right side of bridge.

[3] Dimensions are taken from Top of Deck at C.L. Const. and C.L. Bent to Low Side Top of Cap.

[4] Bridge clear roadway is to be striped with 13'-0" lanes and 2'-0" shoulders.

## HORIZONTAL CURVE DATA

C.L. HWY. 351
P.I. = 94+12.94
Δ = 76°33'50" LT.
D = 10°45'00"
T = 420.65'
L = 712.22'
P.C. = 89+92.29
P.T. = 97+04.51

Notes:
For Soil Borings See Dwg. Nos. 61134 & 61135.

Stations shown are along C.L. Construction. Elevations shown at and before Station 97+29.51 are actual top of deck elevations at C.L. Construction. Elevations shown after Station 97+29.51 are theoretical working point elevations at C.L. Construction; see "Rounding Detail" on Dwg No. 61173 for additional information.

Use Type Special Approach Slab at both ends of bridge, See Dwg. No. 61531.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 45 | 118 |

(1) 07463 - LAYOUT - 61132

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

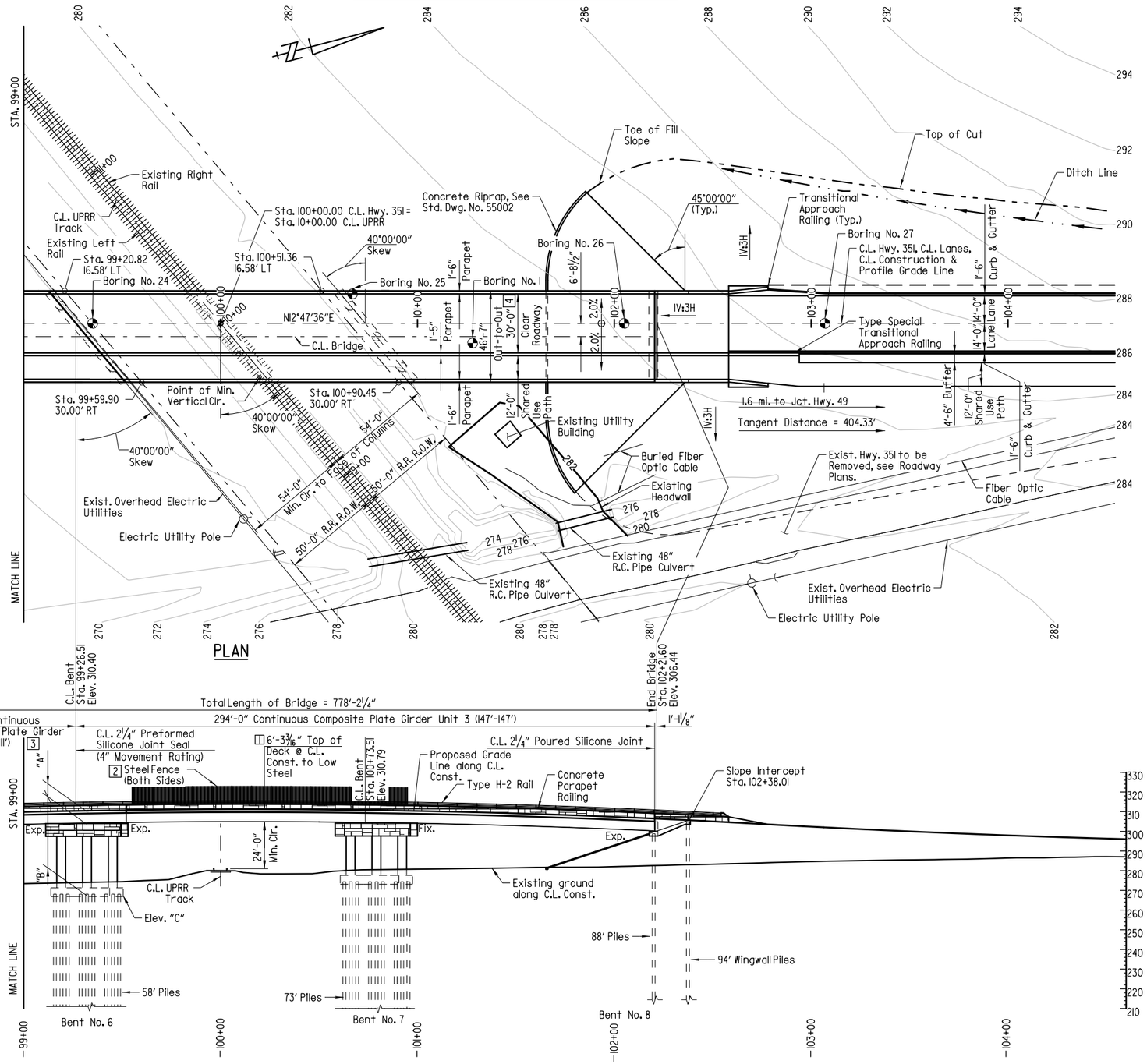
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# LAYOUT OF BRIDGE
# HWY. 351 OVER UNION PACIFIC RAILROAD
# HWY. 351 RR OVERPASS
# (AIRPORT RD.) (JONESBORO) (S)
# CRAIGHEAD COUNTY
## ROUTE 351 SECTION 1
## ARKANSAS STATE HIGHWAY COMMISSION
## LITTLE ROCK, ARKANSAS

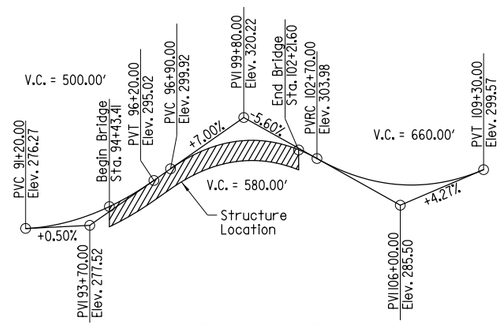
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CHECKED BY: SFH DATE: 01/2019
DESIGNED BY: JPC DATE: 09/2018 SCALE: 1" = 30'
BRIDGE NO. 07463 DRAWING NO. 61132

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REVISED DATE:

For R/W Data & Maintenance of Traffic Details, See Roadway Plans.

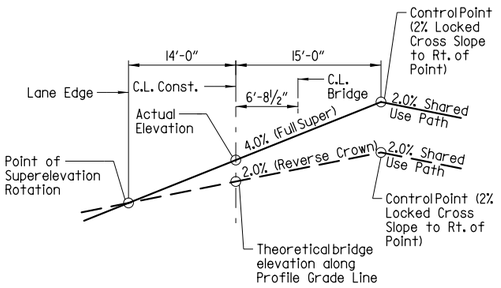
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 46 | 118 |
| | | | | (1) | 07463 - LAYOUT - 61133 | | | |



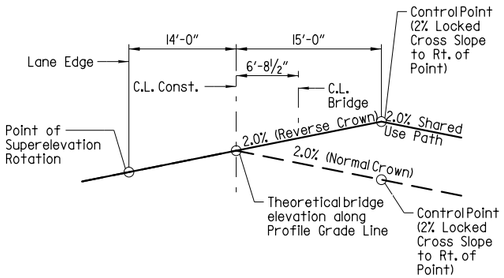




## VERTICAL CURVE DATA

(Stations are along C.L. Construction and Elevations are along Profile Grade Line)




Begin Full Super (0.040'/') - Sta. 90+71.67
End Full Superelevation (0.040'/') - Sta. 96+04.51
Reverse Crown (0.020'/') - Sta. 97+29.51




Reverse Crown (0.020'/') - Sta. 97+29.51
Normal Crown (0.020'/') - Sta. 98+54.51

## CROSS-SLOPE TRANSITION SKETCH

Looking Ahead




Note:
See "Table of Variables" on Drawing No. 61132 for "A", "B", and Elev "C" values.

1. Measured to Working Point. See "Rounding Detail" on Dwg. No. 61173.
2. Steel fence from Hwy. 351 C.L. Sta. 99+15.00 to Sta. 100+55.00 on Left side of bridge and from Sta. 99+55.00 to Sta. 100+95.00 on right side of bridge.
3. Dimensions are taken from Top of Deck at C.L. Const. and C.L. Bent to Low Side Top of Cap.
4. Bridge clear roadway is to be striped with 13'-0" lanes and 2'-0" shoulders.

Notes:
For Soil Borings See Dwg. Nos. 61134 & 61135.

Stations shown are along C.L. Construction. Elevations shown at and before Station 97+29.51 are actual top of deck elevations at C.L. Construction. Elevations shown after Station 97+29.51 are theoretical working point elevations at C.L. Construction; see "Rounding Detail" on Dwg No. 61173 for additional information.

Use Type Special Approach Slab at both ends of bridge, See Dwg. No. 61531.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

2/17/2022

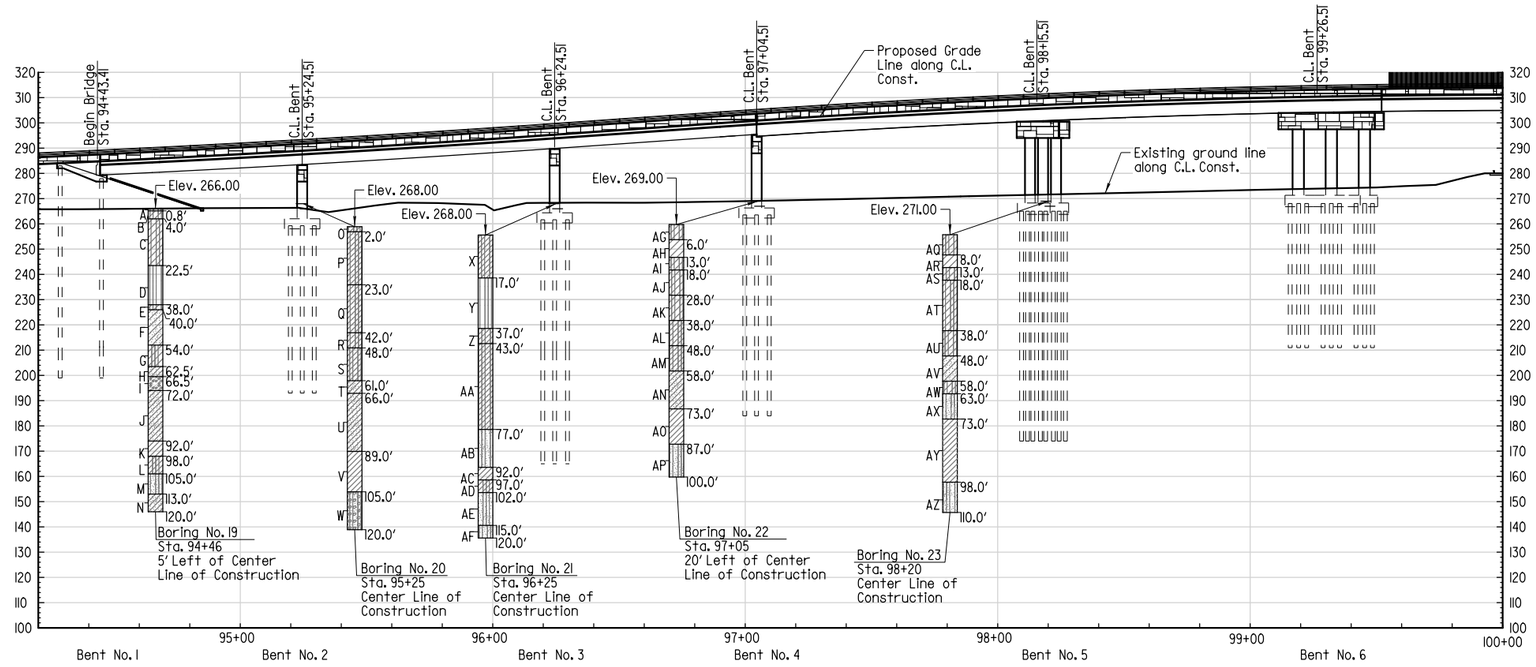
BRIDGE ENGINEER
PRINT DATE: 2/17/2022

# SHEET 2 OF 4
# LAYOUT OF BRIDGE
# HWY. 351 OVER UNION PACIFIC RAILROAD
# HWY. 351 RR OVERPASS
# (AIRPORT RD.) (JONESBORO) (S)
# CRAIGHEAD COUNTY
## ROUTE 351 SECTION 1
## ARKANSAS STATE HIGHWAY COMMISSION
## LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
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| CHECKED BY: | SFH | DATE: | 01/2019 | | |
| DESIGNED BY: | JPC | DATE: | 09/2018 | SCALE: | 1" = 30' |
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 47 | 118 |
| | | | | (1) | 07463 - LAYOUT - 61134 | | | |




## ELEVATION OF SOIL BORINGS

Note:
WOH = Weight of Hammer

## "N" VALUES

**Boring No. 19**
Sta. 94+46
5' Left of Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=8 | 69.0 - 70.0 | N=55 |
| 4.5 - 5.5 | N=16 | 74.0 - 75.0 | N=26 |
| 9.0 - 10.0 | N=24 | 79.0 - 80.0 | N=12 |
| 14.0 - 15.0 | N=32 | 84.0 - 85.0 | N=27 |
| 22.0 - 23.0 | N=16 | 89.0 - 90.0 | N=21 |
| 34.0 - 35.0 | N=12 | 94.0 - 95.0 | N=25 |
| 39.0 - 40.0 | N=17 | 99.0 - 100.0 | N=25 |
| 49.0 - 50.0 | N=11 | 109.0 - 110.0 | N=52 |
| 54.0 - 55.0 | N=10 | 119.0 - 120.0 | N=58 |
| 59.0 - 60.0 | N=20 | | |

**Boring No. 20**
Sta. 95+25
Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=2 | 54.0 - 55.0 | N=13 |
| 2.5 - 3.5 | N=8 | 59.0 - 60.0 | N=18 |
| 4.5 - 5.5 | N=26 | 64.0 - 65.0 | N=18 |
| 6.5 - 7.5 | N=25 | 68.0 - 69.0 | N=31 |
| 9.0 - 10.0 | N=24 | 74.0 - 75.0 | N=26 |
| 14.0 - 15.0 | N=16 | 79.0 - 80.0 | N=16 |
| 19.0 - 20.0 | N=34 | 84.0 - 85.0 | N=25 |
| 24.0 - 25.0 | N=13 | 89.0 - 90.0 | N=20 |
| 29.0 - 30.0 | N=15 | 94.0 - 95.0 | N=32 |
| 34.0 - 35.0 | N=15 | 99.0 - 100.0 | N=22 |
| 39.0 - 40.0 | N=20 | 109.0 - 110.0 | N=48 |
| 44.0 - 45.0 | N=42 | 119.0 - 120.0 | N=44 |
| 49.0 - 50.0 | N=19 | | |

**Boring No. 21**
Sta. 96+25
Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=4 | 54.0 - 55.0 | N=16 |
| 2.5 - 3.5 | N=17 | 59.0 - 60.0 | N=12 |
| 4.5 - 5.5 | N=22 | 64.0 - 65.0 | N=13 |
| 6.5 - 7.5 | N=10 | 69.0 - 70.0 | N=24 |
| 9.0 - 10.0 | N=14 | 74.0 - 75.0 | N=14 |
| 14.0 - 15.0 | N=25 | 79.0 - 80.0 | N=32 |
| 19.0 - 20.0 | N=19 | 84.0 - 85.0 | N=24 |
| 24.0 - 25.0 | N=8 | 89.0 - 90.0 | N=60 |
| 29.0 - 30.0 | N=17 | 94.0 - 95.0 | N=31 |
| 34.0 - 35.0 | N=9 | 99.0 - 100.0 | N=25 |
| 39.0 - 40.0 | N=11 | 109.0 - 110.0 | N=25 |
| 44.0 - 45.0 | N=17 | 119.0 - 120.0 | N=34 |
| 49.0 - 50.0 | N=21 | | |

**Boring No. 22**
Sta. 97+05
20' Left of Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=6 | 39.0 - 40.0 | N=8 |
| 2.5 - 3.5 | N=20 | 44.0 - 45.0 | N=22 |
| 4.5 - 5.5 | N=19 | 49.0 - 50.0 | N=19 |
| 6.5 - 7.5 | N=15 | 54.0 - 55.0 | N=18 |
| 9.0 - 10.0 | N=25 | 59.0 - 60.0 | N=22 |
| 14.0 - 15.0 | N=17 | 69.0 - 70.0 | N=22 |
| 19.0 - 20.0 | N=25 | 79.0 - 80.0 | N=24 |
| 24.0 - 25.0 | N=8 | 89.0 - 90.0 | N=24 |
| 29.0 - 30.0 | N=19 | 99.5 - 100.0 | N=50/6" |
| 34.0 - 35.0 | N=13 | | |

**Boring No. 23**
Sta. 98+20
Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=0/WOH | 59.0 - 60.0 | N=22 |
| 2.5 - 3.5 | N=26 | 64.5 - 65.0 | N=50/6" |
| 4.5 - 5.5 | N=29 | 69.5 - 70.0 | N=50/6" |
| 6.5 - 7.5 | N=21 | 74.0 - 75.0 | N=31 |
| 9.0 - 10.0 | N=30 | 84.0 - 85.0 | N=46 |
| 19.0 - 20.0 | N=6 | 89.5 - 90.0 | N=50/6" |
| 24.0 - 25.0 | N=4 | 93.6 - 94.0 | N=50/5" |
| 34.0 - 35.0 | N=8 | 99.0 - 100.0 | N=51 |
| 39.0 - 40.0 | N=18 | 109.0 - 110.0 | N=46 |
| 49.0 - 50.0 | N=11 | | |

## BORING LEGEND

A-Soft dark brown and gray clayey silt w/ rootlets and occasional organics (topsoil)
B-Firm brownish gray, gray and tan clay, stiff below 2 ft
C-Stiff to very stiff gray and tan silty clay w/ some silt seams and layers, with silt pockets below 4 ft, gray, tan and reddish tan with some ferrous nodules below 8.5 ft, with occasional ferrous stains below 13.5 ft
D-Medium dense brownish gray, reddish tan and tan silt w/ silty clay seams and ferrous stains
E-Stiff gray and reddish tan silty clay w/ silty fine sand seams
F-Stiff gray, tan and reddish tan fine sandy clay w/ silt pockets and seams and ferrous stains
G-Firm to stiff reddish tan and gray silty clay, slightly sandy w/ organic stains, stiff below 58 ft
H-Medium dense light brownish gray and yellowish brown clayey fine sand w/ ferrous nodules
I- Dense light grayish brown silty fine to medium sand w/ some fine gravel
J-Medium dense tan and gray clayey fine sand w/ ferrous stains, with clay layers below 88 ft
K-Very stiff yellowish brown and brown clay w/ silty fine sand seams
L-Very stiff brown and gray silt clay
M-Dense to very dense gray and tan silty fine sand
N-Dense to very dense reddish tan and brown clayey fine to medium sand w/a little fine gravel
O-Very soft brown silty clay w/ organics
P-Firm brown and tan silty clay w/ occasional ferrous nodules and stains, perched water at 3 ft, very stiff at 4 to 13 ft, stiff below 13 ft, wet, water at 14 ft, very stiff below 19 ft
Q-Stiff reddish tan silty clay, tan and gray below 38 ft
R-Very stiff gray, reddish tan and tan silty clay w/ occasional ferrous nodules and stains
S-Stiff gray and tan silty clay w/ occasional ferrous nodules and stains
T-Stiff gray fine sandy clay
U-Very stiff gray and tan fine sandy clay w/ ferrous stains, with some fine sand partings and seams below 73 ft, stiff at 73 to 83 ft, very stiff below 83 ft
V-Stiff light gray clay w/ occasional ferrous stains
W-Dense tan and gray silty fine sand w/ some fine to coarse gravel and occasional interbedded clay seams
X-Very soft to soft brown and tan silty clay, stiff, brown, gray and reddish tan at 2 to 6 ft, firm to stiff with ferrous nodules and stains at 6 to 8 ft, stiff with ferrous nodules and stains at 8 to 13 ft, very stiff, light brown and brown below 13 ft
Y-Medium dense gray and reddish tan silt, slightly clayey, with ferrous nodules and stains to 22 ft, loose at 23 to 27 ft, medium dense at 27 to 33 ft, loose below 33 ft
Z-Stiff light brown and gray silty clay, with trace fine gravel below 40 ft
AA-Stiff reddish tan and gray silty clay, sandy, light brown and reddish tan and gray at 48 to 53 ft, gray and reddish tan at 53 to 57 ft, reddish tan and light brown at 57 to 68 ft, stiff to very stiff reddish tan and light brown at 68 to 73 ft, brown with ferrous nodules and stains below 73 ft
AB-Dense reddish brown silty fine sand, medium dense at 83 to 87 ft
AC-Very stiff gray and tan clay
AD-Very stiff light brown silty clay, sandy
AE-Medium dense tan fine sandy silt, slightly clayey
AF-Dense yellowish brown silty fine to medium sand
AG-Soft gray and tan silty clay w/ silt pockets, stiff below 2 ft
AH-Stiff brown, gray and tan clay w/ ferrous stains and nodules, very stiff below 8 ft
AI- Stiff reddish brown silty clay w/ ferrous nodules and stains
AJ-Very stiff tan, gray and yellowish tan clayey silt, firm below 23 ft
AK-Stiff brown and reddish tan silty clay
AL-Firm reddish tan and gray silty clay, stiff, tan and gray below 43 ft
AM-Stiff reddish tan silty clay w/ ferrous stains
AN-Stiff brown, tan and gray fine sandy clay, silty, yellowish red and tan with trace fine gravel below 68 ft
AO-Stiff to very stiff light gray and tan clay w/ clayey fine sand seams
AP-Medium dense tan silty fine sand, dense to very dense below 95 ft
AQ-Very soft grayish tan silty clay w/ silt pockets and ferrous nodules, very stiff at 2 - 6 ft, grayish tan and yellowish tan below 4 ft, stiff below 6 ft
AR-Very stiff gray and yellowish tan clay w/ ferrous stains
AS-Very stiff yellowish tan silty clay
AT-Soft yellowish tan and brown clayey silt, firm below 28 ft
AU-Stiff yellowish tan, tan and gray silty clay w/ silt pockets, stiff to very stiff below 43 ft
AV-Stiff tan and reddish tan fine sandy clay, stiff to very stiff below 53 ft
AW-Stiff gray and reddish tan silty clay, sandy
AX-Dense to very dense reddish brown silty fine sand, fine to medium below 68 ft
AY-Very stiff light tan clay, very stiff to hard below 88 ft
AZ-Dense tan silty fine sand, fine to medium below 105 ft

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

8/31/2020

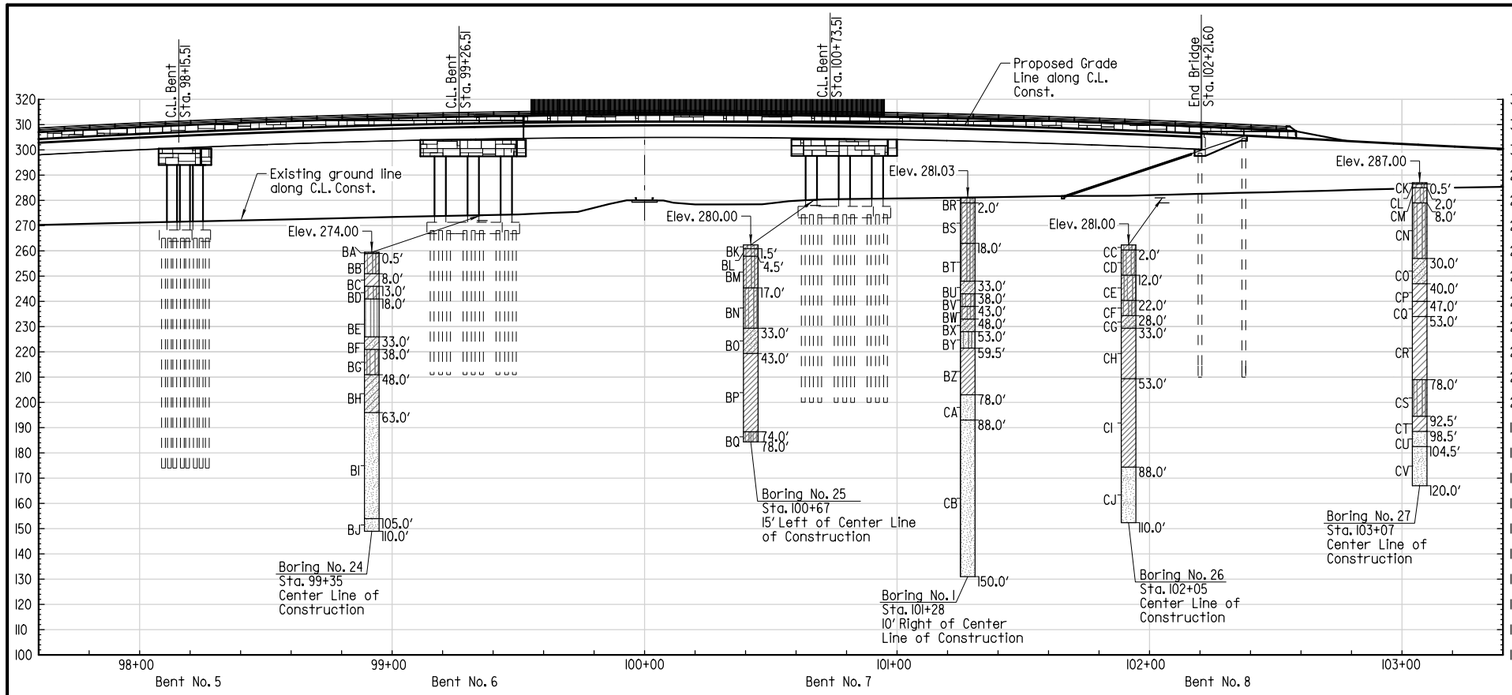
BRIDGE ENGINEER
PRINT DATE: 8/31/2020

SHEET 3 OF 4
LAYOUT OF BRIDGE
HWY. 351 OVER UNION PACIFIC RAILROAD
HWY. 351 RR OVERPASS
(AIRPORT RD.) (JONESBORO) (S)
CRAIGHEAD COUNTY
ROUTE 351 SECTION 1
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: 01/2019 FILENAME: bl00942_lx3.dgn
CHECKED BY: SFH DATE: 01/2019
DESIGNED BY: JPC DATE: 01/2019 SCALE: 1" = 30'
BRIDGE NO. 07463 DRAWING NO. 61134

Leonard.Speed 8/31/2020 1:44:03 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD_162313_Hwy351RROverpass\Deliverables\BRIDGE\Bridge\bl00942xl_lx3.dgn
REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 48 | 118 |
| | | | | (1) | | 07463 - LAYOUT - 61135 | | |




## ELEVATION OF SOIL BORINGS

## "N" VALUES

Note:
WOH = Weight of Hammer

**Boring No. 24**
Sta. 99+35
Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=6 | 59.6 - 60.0 | N=50/5" |
| 2.5 - 3.5 | N=22 | 64.7 - 65.0 | N=50/4" |
| 4.5 - 5.5 | N=25 | 69.6 - 70.0 | N=50/5" |
| 6.5 - 7.5 | N=18 | 74.6 - 75.0 | N=50/5" |
| 14.0 - 15.0 | N=21 | 79.6 - 80.0 | N=50/5" |
| 24.0 - 25.0 | N=8 | 84.6 - 85.0 | N=50/5" |
| 29.0 - 30.0 | N=5 | 89.7 - 90.0 | N=50/3" |
| 39.0 - 40.0 | N=20 | 94.5 - 95.0 | N=50/6" |
| 49.0 - 50.0 | N=11 | 99.7 - 100.0 | N=50/4" |
| 54.0 - 55.0 | N=29 | 109.5 - 110.0 | N=50/6" |

**Boring No. 25**
Sta. 100+67
15' Left of Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=4 | 34.0 - 35.0 | N=13 |
| 2.5 - 3.5 | N=16 | 39.0 - 40.0 | N=21 |
| 4.5 - 5.5 | N=23 | 44.0 - 45.0 | N=36 |
| 6.5 - 7.5 | N=16 | 49.0 - 50.0 | N=18 |
| 9.0 - 10.0 | N=22 | 54.0 - 55.0 | N=19 |
| 14.0 - 15.0 | N=16 | 59.0 - 60.0 | N=21 |
| 19.0 - 20.0 | N=2 | 64.0 - 65.0 | N=16 |
| 24.0 - 25.0 | N=7 | 68.0 - 69.0 | N=21 |
| 29.0 - 30.0 | N=12 | 74.7 - 75.0 | N=50/4" |

**Boring No. 1**
Sta. 101+28
10' Right of Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=10 | 74.0 - 75.0 | N=16 |
| 4.5 - 5.5 | N=12 | 79.0 - 80.0 | N=42 |
| 9.0 - 10.0 | N=14 | 84.0 - 85.0 | N=35 |
| 19.0 - 20.0 | N=0/WOH | 89.0 - 90.0 | N=31 |
| 24.0 - 25.0 | N=6 | 94.3 - 95.0 | N=50/8" |
| 29.0 - 30.0 | N=0/WOH | 99.4 - 100.0 | N=50/7" |
| 34.0 - 35.0 | N=0/WOH | 109.5 - 110.0 | N=50/6" |
| 39.0 - 40.0 | N=13 | 119.6 - 120.0 | N=50/5" |
| 49.0 - 50.0 | N=15 | 129.6 - 130.0 | N=50/5" |
| 54.0 - 55.0 | N=35 | 139.6 - 140.0 | N=50/5" |
| 59.0 - 60.0 | N=20 | 149.7 - 150.0 | N=50/4" |
| 64.0 - 65.0 | N=10 | | |

**Boring No. 26**
Sta. 102+05
Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=6 | 54.0 - 55.0 | N=21 |
| 2.5 - 3.5 | N=21 | 59.0 - 60.0 | N=21 |
| 4.5 - 5.5 | N=26 | 64.0 - 65.0 | N=22 |
| 6.5 - 7.5 | N=31 | 69.0 - 70.0 | N=20 |
| 9.0 - 10.0 | N=24 | 74.0 - 75.0 | N=40 |
| 14.0 - 15.0 | N=23 | 79.0 - 80.0 | N=43 |
| 29.0 - 30.0 | N=10 | 84.0 - 85.0 | N=66 |
| 34.0 - 35.0 | N=22 | 89.7 - 90.0 | N=50/4" |
| 39.0 - 40.0 | N=19 | 94.5 - 95.0 | N=50/6" |
| 44.0 - 45.0 | N=23 | 99.5 - 100.0 | N=50/6" |
| 49.0 - 50.0 | N=25 | 109.9 - 110.0 | N=50/1" |

**Boring No. 27**
Sta. 103+07
Center Line of Construction

| | | | |
|---|---|---|---|
| 0.5 - 1.5 | N=4 | 64.0 - 65.0 | N=25 |
| 4.5 - 5.5 | N=22 | 69.0 - 70.0 | N=19 |
| 9.0 - 10.0 | N=24 | 74.0 - 75.0 | N=30 |
| 19.0 - 20.0 | N=18 | 79.0 - 80.0 | N=22 |
| 29.0 - 30.0 | N=10 | 89.0 - 90.0 | N=31 |
| 34.0 - 35.0 | N=10 | 94.0 - 95.0 | N=52 |
| 44.0 - 45.0 | N=64 | 99.0 - 100.0 | N=49 |
| 49.0 - 50.0 | N=21 | 109.7 - 110.0 | N=50/3" |
| 59.0 - 60.0 | N=19 | 119.8 - 120.0 | N=50/2" |

## BORING LEGEND

BA-Very soft brown silty clay w/ numerous organics
BB-Soft yellowish tan and gray silty clay w/ ferrous nodules and stains, stiff at 2 - 4 ft, very stiff at 4 - 6 ft, stiff below 6 ft
BC-Very stiff yellowish tan and gray clay w/ ferrous stains
BD-Stiff reddish brown silty clay
BE-Loose tan and brown silt, slightly clayey
BF-Soft brown fine sandy clay
BG-Stiff reddish brown and gray silty clay
BH-Medium dense yellowish tan clayey fine sand, silty, dense to very dense below 58 ft
BI- Dense to very dense tan fine sand, slightly silty
BJ-Dense to very dense tan fine to medium sand, slightly silty
BK-Very soft brown clayey silt
BL-Stiff tan silty clay w/ occasional fine to coarse gravel and silt pockets
BM-Stiff tan and gray silty clay, brown and tan below 6.5 ft, perched water at 6.7 ft, water at 14 ft
BN-Very soft brown silty clay, firm at 23 to 28 ft, stiff below 28 ft
BO-Medium dense gray, reddish tan and tan clayey fine sand w/ ferrous stains and occasional fine to coarse gravel
BP-Very stiff light gray clay, stiff below 59 ft, brown and light gray below 64 ft
BQ-Very stiff to hard gray and brownish gray silty clay
BR-Firm to stiff brown and tan silty clay w/ occasional organics
BS-Stiff grayish brown silty clay w/ occasional ferrous stains, with trace organics to 4 ft, grayish brown and gray with occasional silt pockets and more ferrous stains from 4 to 6 ft, grayish brown with occasional ferrous nodules below 6 ft, grayish brown and reddish tan with occasional organic stains below 9 ft, very stiff below 13 ft, water at 18 ft
BT-Very soft brown silty clay, soft from 23 to 26 ft, very soft below 26 ft
BU-Very soft brownish yellow fine sandy clay w/ occasional ferrous nodules
BV-Stiff reddish brown and reddish tan silty clay
BW-Stiff reddish brown and gray silty clay, slightly sandy w/ occasional silt pockets
BX-Medium dense reddish tan clayey fine sand w/ trace fine gravel
BY-Dense reddish tan silty fine sand w/ a little fine gravel
BZ-Stiff gray and brownish gray silty clay, blocky and occasional slickensided, firm to stiff at 63 to 68 ft, very stiff with occasional silt partings from 68 to 73 ft, stiff with occasional ferrous stains below 73 ft
CA-Dense brown and tan fine sand w/ a little medium sand, trace silt
CB-Dense tan and reddish tan fine to medium sand, dense to very dense below 93 ft, brownish gray and reddish tan from 93 to 105 ft, brownish gray below 105 ft
CC-Soft brown and tan silty clay w/ organics
CD Stiff tan and brown silty clay w/ ferrous stains and occasional ferrous nodules, very stiff below 4 ft
CE-Stiff yellowish tan silty clay
CF-Soft to firm tan and brown silty clay, moist, water at 24 ft
CG-Loose to medium dense reddish tan and light gray clayey fine sand
CH-Stiff reddish tan and light gray clay w/ ferrous stains and silt pockets, very stiff below 49 ft
CI- Stiff dark brown clay, very stiff below 73 ft, with fine sand seams below 83 ft
CJ-Dense tan and gray fine to medium sand w/ some clay seams, fine to coarse below 98 ft
CK-Very soft to soft dark brown and brown clayey silt w/ rootlets and occasional organics
CL-Very soft to soft brownish gray, gray and tan silty clay, with rootlets to 2 ft
CM-Stiff to very stiff tan silty clay, with more tan and some silt seams and layers below 2 ft, grayish brown and gray with ferrous stains and nodules below 3.5 ft, with fewer ferrous nodules below 3.5 ft
CN-Stiff to very stiff brown and tan silty clay w/ occasional ferrous stains, stiff below 11 ft, with less tan below 18.5 ft, water at 20 ft, very soft to soft at 23 - 25 ft, with occasional silt pockets below 23.5 ft, firm to stiff below 27 ft
CO-Firm to stiff brown, reddish tan and gray fine sandy clay, silty w/ trace fine gravel
CP-Dense reddish tan, tan and gray silty fine sand w/ some silty fine sand seams and some ferrous stains
CQ-Stiff brownish yellow, gray and tan clay w/ ferrous stains
CR-Stiff dark brownish gray clay, varved, stiff to very stiff below 62 ft
CS-Stiff dark gray silty clay, stiff to very stiff at 83 to 88 ft, very stiff below 88 ft
CT-Very stiff light reddish tan and light brownish gray silty clay w/ organic stains
CU-Dense brownish gray fine to medium sand, slightly silty
CV-Dense to very dense yellowish brown fine to medium sand, slightly silty

Leonard.Speed 8/31/2020 1:44:07 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD_162313_Hwy351RROverpass\Deliverables\BRIDGE\Bridge\BI00942XL_LX4.dgn
REVISED DATE:

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

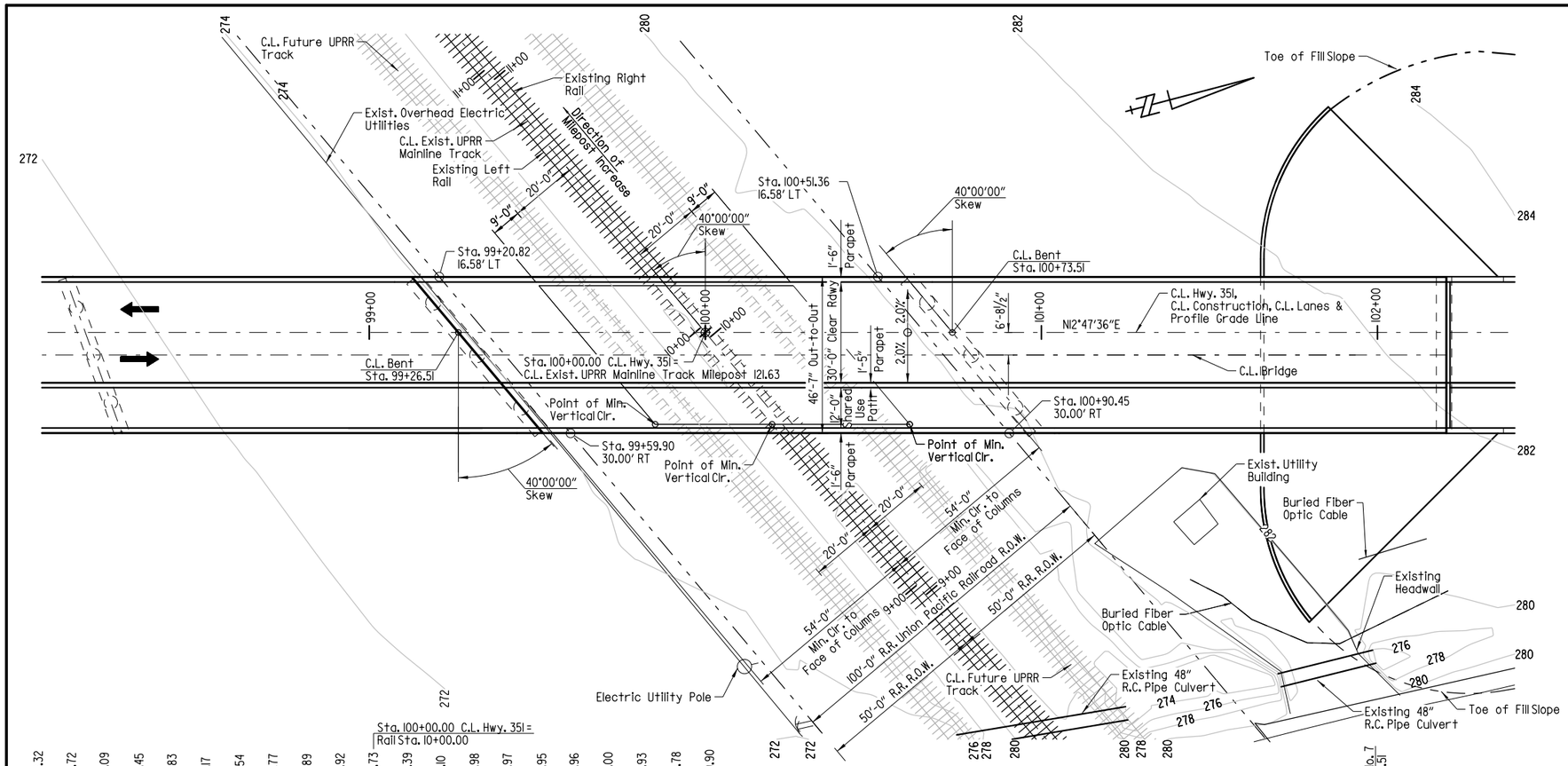
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

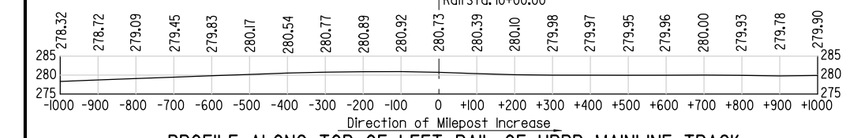
# SHEET 4 OF 4
# LAYOUT OF BRIDGE
# HWY. 351 OVER UNION PACIFIC RAILROAD
# HWY. 351 RR OVERPASS
# (AIRPORT RD.) (JONESBORO) (S)
# CRAIGHEAD COUNTY
## ROUTE 351 SECTION 1
## ARKANSAS STATE HIGHWAY COMMISSION
## LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | JPC | DATE: | 01/2019 | FILENAME: | bI00942_lx4.dgn |
| CHECKED BY: | SFH | DATE: | 01/2019 | | |
| DESIGNED BY: | JPC | DATE: | 01/2019 | SCALE: | 1" = 30' |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61135 |

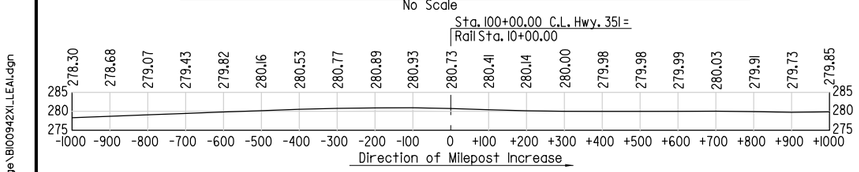
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 49 | 118 |
| | | | | 07463 - EXHIBIT A - 61136 | | | | |



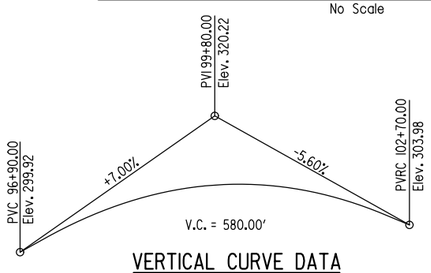

## PLAN
Scale: 1"=20'




## PROFILE ALONG TOP OF LEFT RAIL OF UPRR MAINLINE TRACK
No Scale

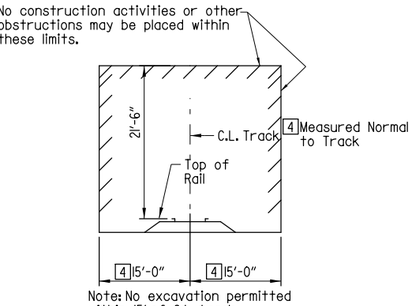



## PROFILE ALONG TOP OF RIGHT RAIL OF UPRR MAINLINE TRACK
No Scale



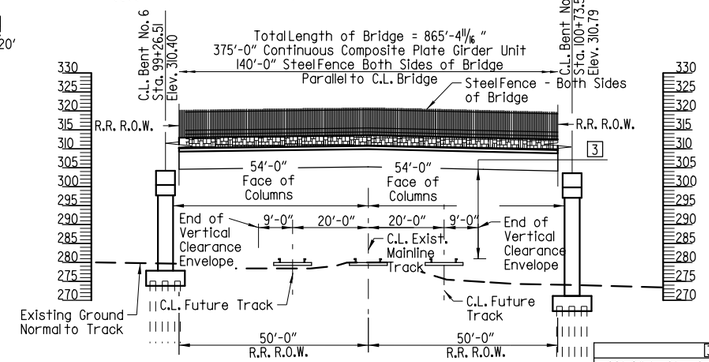

## VERTICAL CURVE DATA
(Along Profile Grade)

| | BEGIN OF PROJECT | MID-POINT OF PROJECT | END PROJECT |
|---|---|---|---|
| LATITUDE | N 35°50'01.59" | N 35°50'07.21" | N 35°50'22.22" |
| LONGITUDE | W 90°39'20.63" | W 90°39'04.90" | W 90°39'00.99" |
| STATION | 80+00.00 | 95+50.00 | 111+00.00 |




Note: No excavation permitted within 15' of C.L. track.

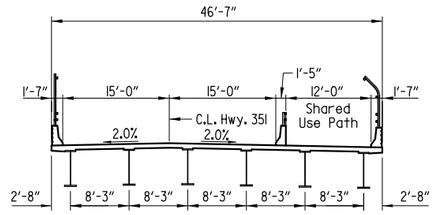
## MINIMUM CONSTRUCTION CLEARANCES
Scale: NTS



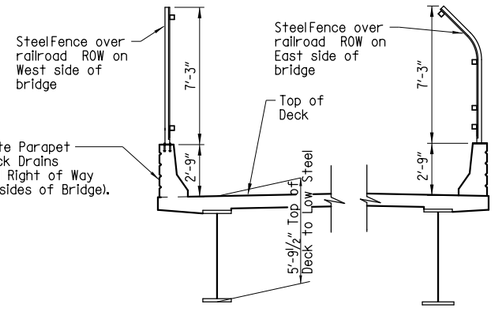

## SECTION NORMAL TO TRACK
(Looking in Direction of Milepost Increase)
Scale: 1"=20'

| 3 Minimum Vertical Clearances: | | |
|---|---|---|
| 29'-0" Left of C.L. Existing Track | At Left Rail - Existing Track | 29'-0" Right of C.L. Existing Track |
| 23'-10" | 24'-0" | 23'-9" |

3 23'-9 3/8" Min. Clr. @ Sta. 100+60.79 27'-4" Rt.




## TYPICAL SECTION THRU BRIDGE
No Scale




## TYPICAL SECTION THRU PARAPET
No Scale

Note: A Steel Fence is required as shown on each side. The fence is to be mounted on top of the concrete parapet rail.

## GENERAL NOTES

All shoring systems that impact the Railroad's operations and/or supports the Railroad's embankment shall be designed and constructed per the Railroad temporary shoring requirements.

All demolition within the Railroad right-of-way and/or demolition that may impact the Railroad tracks or operations shall comply with the Railroad demolition requirements.

Erection over the Railroad right-of-way shall be designed to cause no interruption to all Railroad operations. Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site, and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.

The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.

The proposed grade separation project shall not change the quantity and/or characteristics of the flow in the Railroad ditches and/or drainage structures. Existing drainage patterns will be maintained. Closed parapet railing (no deck drains) are typical on both sides of the bridge deck over the Railroad right-of-way.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

Construction shall comply with requirements noted in Special Provision Job No. 100942 "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)".

Temporary construction clearances, including falsework clearances, shall comply with the details shown in "Minimum Construction Clearances".

All permanent clearances shall be verified before project closeout.

Currently there are no known utilities on the Railroad right-of-way other than shown. UPRR "Call Before You Dig" 1-800-533-2891 shall be contacted prior to construction.

"The State shall not plow ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure." This statement is in the State-Railroad Agreement.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

2/17/2022

BRIDGE ENGINEER
PRINT DATE: 2/17/2022

# EXHIBIT A
# LAYOUT OF BRIDGE
# HWY. 351 OVER UNION PACIFIC RAILROAD
# HWY. 351 RR OVERPASS
# (AIRPORT RD.) (JONESBORO) (S)
# JONESBORO SUBDIVISION - M.P. 121.63
# CRAIGHEAD COUNTY
## ROUTE 351 SECTION 1
## ARKANSAS STATE HIGHWAY COMMISSION
## LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: 10/2018 FILENAME: bl00942_leal.dgn
CHECKED BY: SHR DATE: 11/2018
DESIGNED BY: SFH DATE: 10/2018 SCALE: As Shown
BRIDGE NO. 07463 DRAWING NO. 61136

REVISED DATE:
WORKSPACE: ARDOT
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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. | | 100942 | 50 | 118 |
| | | | | (1) | 07463 - END BENT 1 - 61137 | | | |

For details of wings, see Dwg. No. 61139.

For details of restrainer blocks, see Dwg. No. 61140.

Note: Class I Protective Surface Treatment shall be applied to the top of the backwall, and to the roadway face and top of the wing rails.

Note: C.L. Const. is on a 10°45'00" curve left. All longitudinal lines of wing and rail are concentric with C.L. Construction.

C.L. Hwy. 351, C.L. Const., & C.L. Lanes is on a 10°45'00" curve Lt.

Ahead Stationing

12'-10⅛" to Begin Bridge

Railing - See Approach Slab for Details, Dwg. 61531

Slope Intercept Sta. 94+30.52

C.L. Bridge

Begin Bridge Sta. as shown on "Layout" Elev. 284.97

Elev. 285.02

Elev. 285.30

Elev. 285.35

Elev. 285.57

Elev. 285.62

Elev. 284.42

Elev.284.37

B404 (Typ.)

2" clr.

7 - W601 - Lap w/ #7 bars in wing. See "VIEW C-C" on Dwg. No. 61139

18" ø Concrete Filled Steel Shell Pile (Typ.)

18" ø Conc. Filled Steel Shell Pile in wing footing (Typ.)

Wing A

Wing B

1" (Typ.)

1'-6" Rail (Typ.)

3'-0" Typ.

12'-0" Typ.

18'-0" Measured along fr. fa. of rail

3'-1" Typ.

1'-6" Typ.

2'-7½" (Typ.)

3'-0" (Typ.)

2'-7½" (Typ.)

1½" (Typ.)

1'-7⅞"

1'-0"

1'-11⅞"

6"

C.L. Bearing

See "TYPICAL ANCHOR BOLT LAYOUT"

C.L. Piles

C.L. Joint - Radial

C.L. Girder (Typ.)

21'-8½"

21'-8½"

6'-8½"

| | G6 | | G5 | | G4 | | G3 | | G2 | | G1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pile Spacing | 1'-11" | 4'-9" | | 4'-9" | | 4'-9" | | 4'-9" | | 4'-9" | | 1'-11" |
| Girder Spacing | 2'-8" | 8'-3" | | 8'-3" | | 8'-3" | | 2'-7" | | 5'-8" | | 2'-8" |
| Cap Step Spacing | 5'-3½" | 11'-3" | | 8'-3" | | 5'-2½" | | 3'-0½" | | 8'-3" | | 5'-3½" |

46'-7"

## PLAN

3/8" = 1'-0"

43'-5"

1'-7" 3" B501 - fr. fa. 43 sp. @ 12" max. sp., B502 - ba. fa. 65 sp. @ 8" max. sp. 3" 1'-7"

D601 - 43 sp. @ 12" max. sp.

Bumper Plate (Typ.) See Dwg. No. 61140 For details.

Req'd Const Joint - Level

Optional Const. Joint

B403 ea. fa.

Concrete Restrainer - See "CONCRETE RESTRAINER DETAIL" on Dwg. No. 61140

See "DETAIL A"

B403 ea. fa.

Elev. 280.03

Elev. 280.19

Elev. 280.10

Elev. 279.78

Elev. 279.45

Elev. 279.12

Elev. 275.62

6 - B401

6 - B402

6 - B801

6 - B1101

8'-9⅝"

5'-3⅞"

4'-4⅝"

10⅝"

1'-9½"

1'-11⅛"

1'-8½"

1'-8½"

1'-8½"

3" Clr. min. (Typ. All Piles)

3" clr.

3" clr.

2'-3" Min. Lap - (Typ. #4 bars)

3 - B602 sp. @ 6" (Typ.) over each pile

Level

For details of Concrete Filled Steel Shell Piles and pile anchorage, See Std. Dwg. No. 55021 (Typ.)

| B601 Tie Spacing | 3" clr. | 8" | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 6 sp. @ 6" max. | 2'-0" | 8" | 3" clr. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## ELEVATION

(Looking Back)

3/8" = 1'-0"

For "SECTION B-B" and "FOUNDATION PLAN", see Dwg. No. 61138

C.L. Joint Radial

C.L. Bearing

12"

C.L. Girder

12⅝" 12⅝"

## TYPICAL ANCHOR BOLT LAYOUT

No Scale

For details of elastomeric bearings, See Dwg. No. 61159.

6" 1'-0" 3'-1"

See "JOINT DETAIL" on Dwg. No. 61140

D601

B403

Optional Const. Joint

1'-3"

7½"

2" min. clr. typ. U.N.O.

B502

B501

Varies

4 - B403 @ 12" max. sp. ea. fa.

Bumper Plate at each girder cast in backwall. See Dwg. No. 61140 for details.

B801

Req'd Const. Joint

B601

B403 (Typ. U.N.O.)

Varies - 3'-6" min

1'-10" emb.

6 eq. sp.

B1101

2" clr. (Typ.)

3" clr.

B1101

C.L. 18" ø Conc. Filled Steel Shell Piles

2'-3½" 2'-3½"

4'-7"

## SECTION A-A

1" = 1'-0"

B405 riser stirrup bars to be spaced & lapped with main stirrup bars as shown.

## DETAIL A

No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER

PRINT DATE: 8/31/2020

# SHEET 1 OF 4
# DETAILS OF END BENT 1
# HWY. 351 RR OVERPASS

ROUTE SECTION

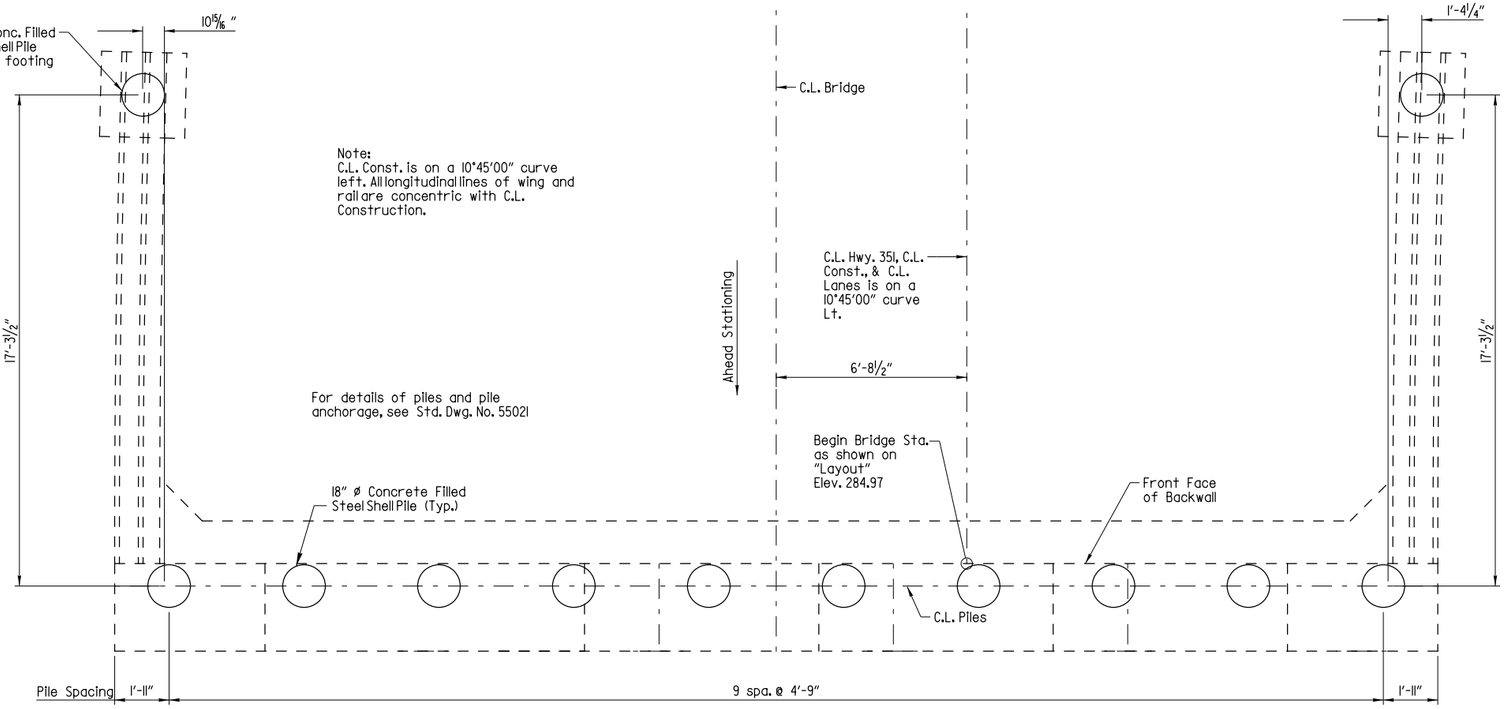
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

| | | | | | |
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| BRIDGE NO. | 07463 | | DRAWING NO. | 61137 | |

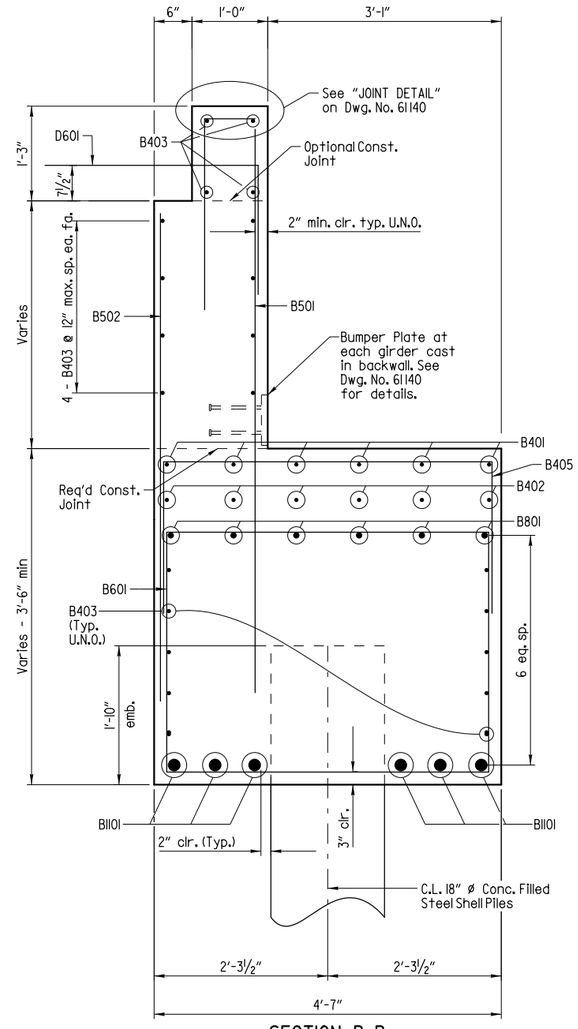
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 51 | 118 |
| | | | | (1) | 07463 - END BENT 1 - 61138 | | | |




FOUNDATION PLAN

3/8" = 1'-0"




SECTION B-B

1" = 1'-0"

STATE OF ARKANSAS * * * LICENSED PROFESSIONAL ENGINEER * * * No. 14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 2 OF 4
# DETAILS OF END BENT 1
# HWY. 351 RR OVERPASS

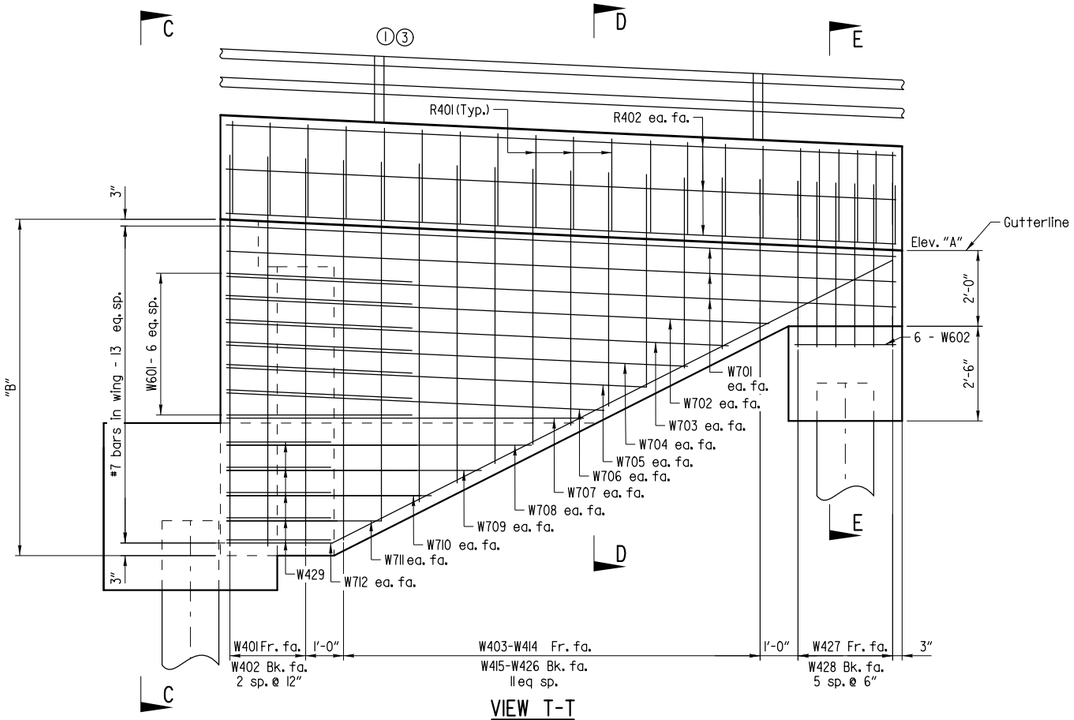
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

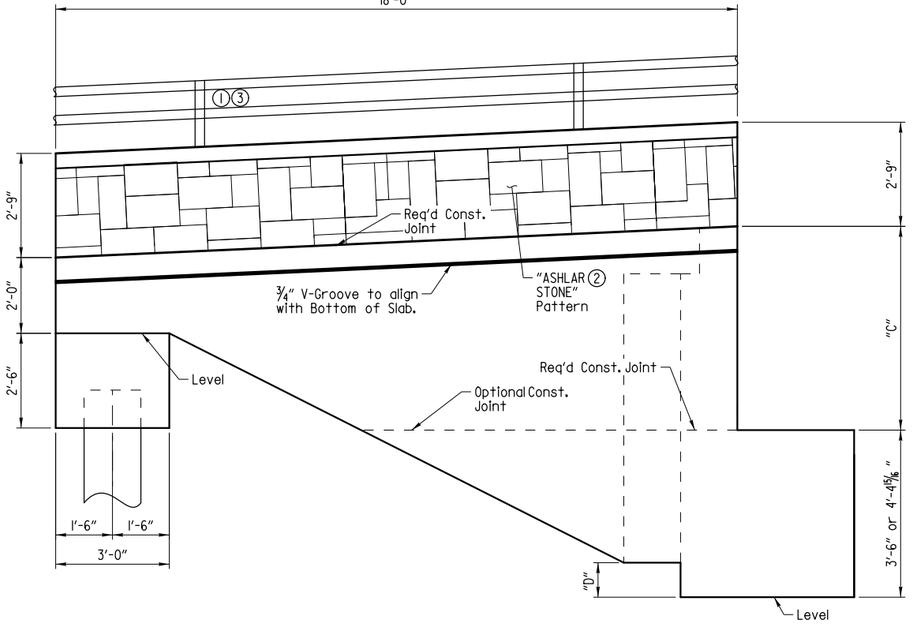
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REVISED DATE:

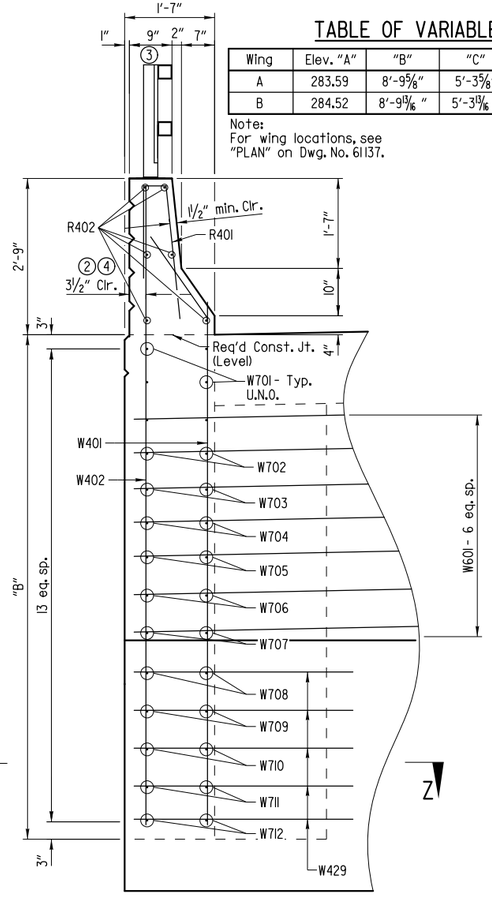
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| | | | | JOB NO. | | 100942 | 52 | 118 |
| | | | | (1) | 07463 - END BENT 1 - 61139 | | | |




## VIEW T-T
1/2" = 1'-0"




## VIEW V-V
1/2" = 1'-0"

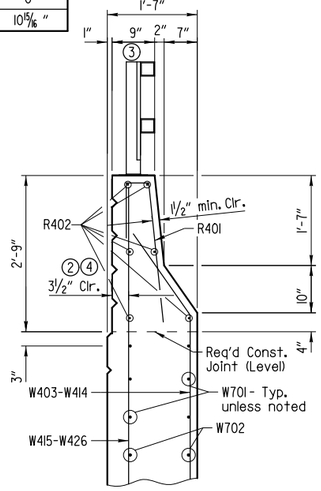



## VIEW C-C
3/4" = 1'-0"

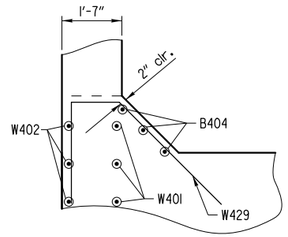
## TABLE OF VARIABLES

| Wing | Elev. "A" | "B" | "C" | "D" |
|---|---|---|---|---|
| A | 283.59 | 8'-9 5/8" | 5'-3 5/8" | 0" |
| B | 284.52 | 8'-9 13/16" | 5'-3 13/16" | 10 15/16" |

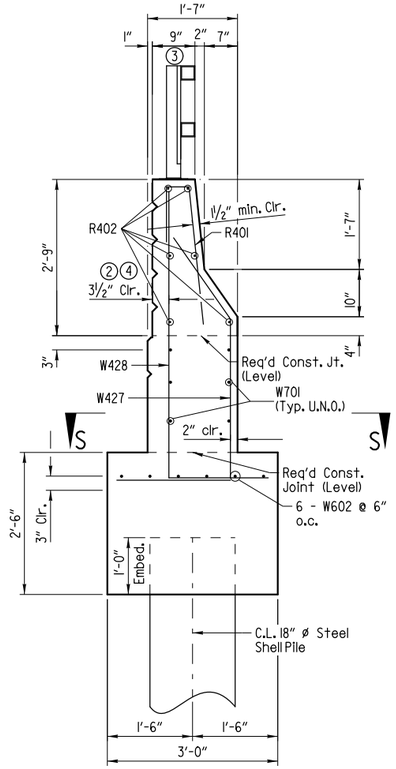
Note:
For wing locations, see "PLAN" on Dwg. No. 61137.



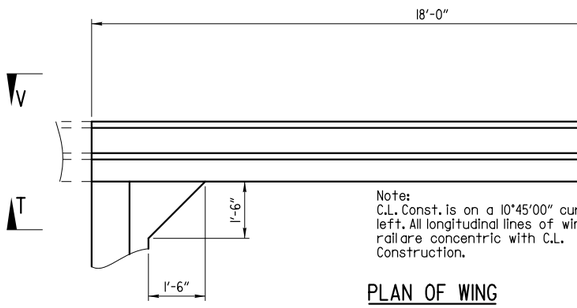

## SECTION D-D
3/4" = 1'-0"




## SECTION Z-Z
1/2" = 1'-0"

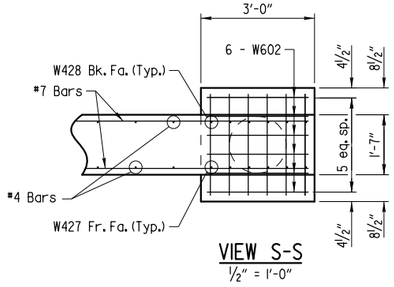



## SECTION E-E
3/4" = 1'-0"




Note:
C.L. Const. is on a 10°45'00" curve left. All longitudinal lines of wing and rail are concentric with C.L. Construction.

## PLAN OF WING
1/2" = 1'-0"




## VIEW S-S
1/2" = 1'-0"

1. The color of the Type H-2 Metal Rail, shall be Black and shall match Fed Std. 595B Color Chip No. 27038.
2. "ASHLAR STONE" pattern form liner relief shall be a maximum of 1", to preserve the minimum clearance of 2 1/2" as shown.
3. For Type H-2 Railing Details see Dwg. No. 61182.
4. See "DETAILS OF PARAPET ENHANCEMENT FOR EXTERIOR WING RAILS" on Dwg. No. 61140.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

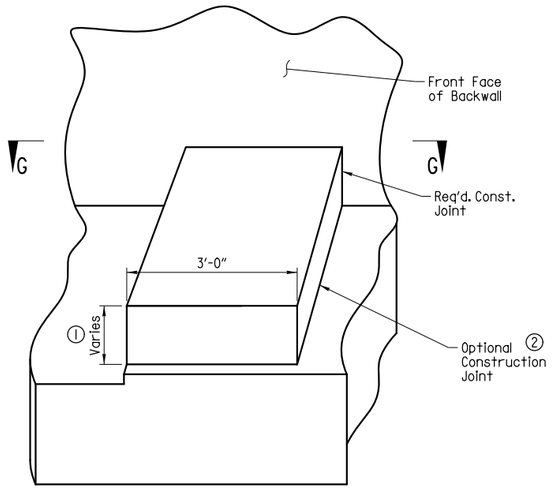
# SHEET 3 OF 4
# DETAILS OF END BENT 1
# HWY. 351 RR OVERPASS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
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| CHECKED BY: | SFH | DATE: | 08/2019 | | |
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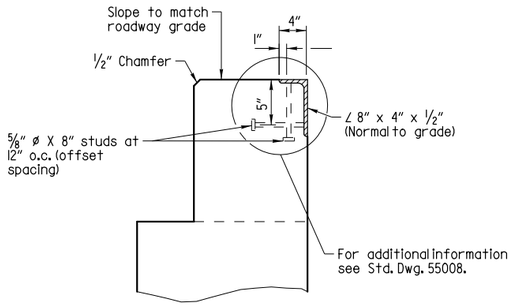
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| | | | | JOB NO. | | 100942 | 53 | 118 |
| | | | | ① | 07463 - END BENT 1- 61140 | | | |



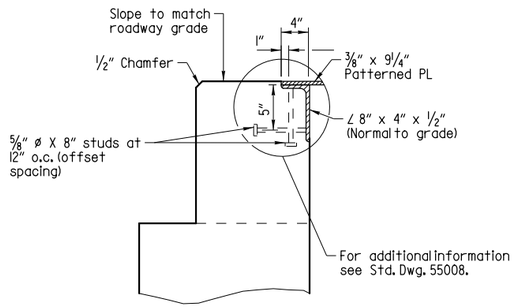

## CONCRETE RESTRAINER DETAIL

No Scale



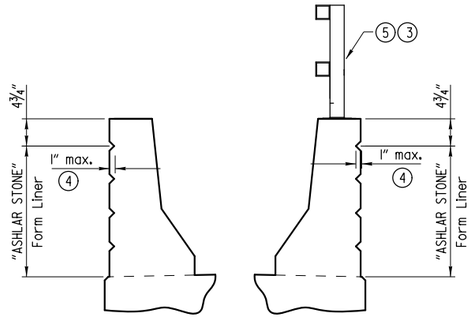

## JOINT DETAIL

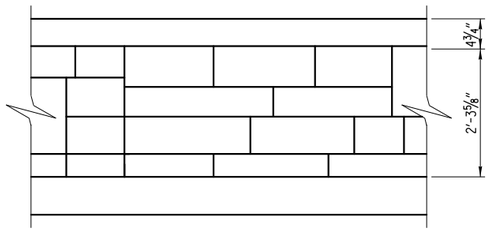
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## JOINT DETAIL - THRU SHARED USE PATH

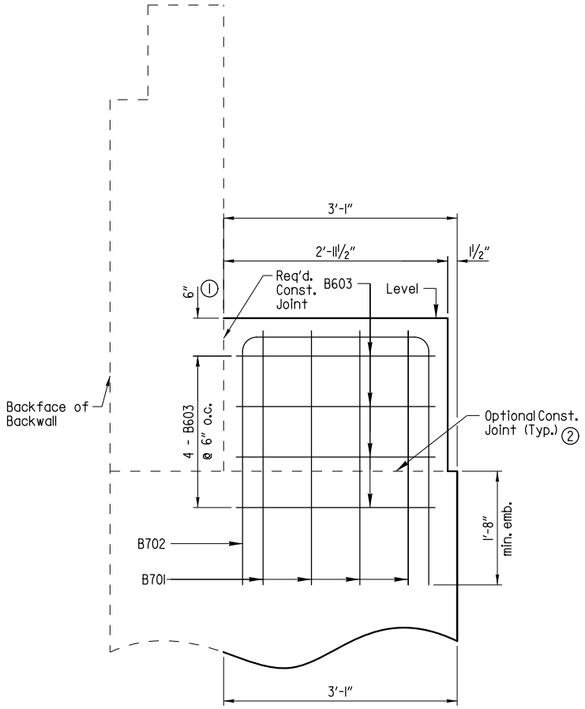
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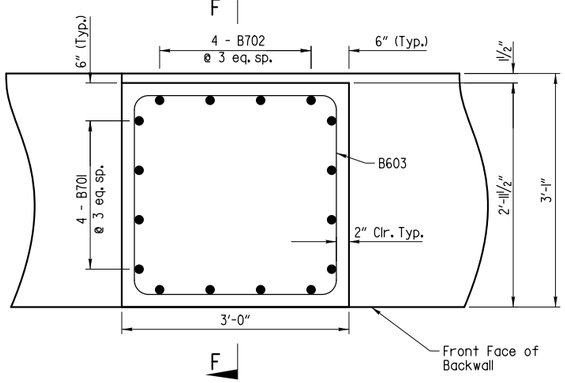

## DETAILS OF PARAPET ENHANCEMENT FOR EXTERIOR WING RAILS

No Scale




## SECTION F-F

1" = 1'-0"




## VIEW G-G

1" = 1'-0"

## GENERAL NOTES

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

For details of 18" ø Conc. Filled Steel Shell Piling, see Std. Dwg. No. 55021

No portion of the backwall shall be poured until girders are in place.

Finish top of backwall to match bridge deck.

Structural steel in end bents shall be ASTM 709, Gr. 50 and shall be paid for as "Structural Steel in Plate Girder Spans. (ASTM A709, Gr. 50)."

No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

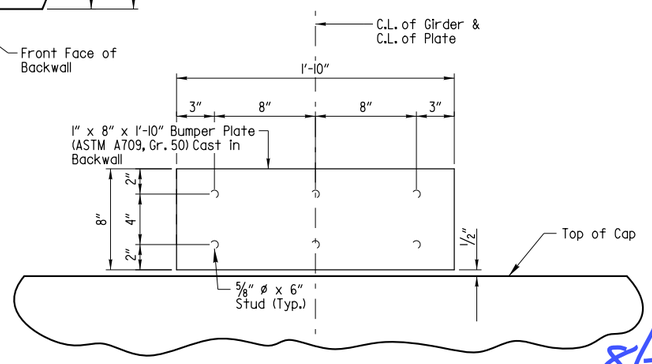
① For vertical dimensions of restrainer blocks, see Dwg. No. 61137.

② All Restrainer Block construction joint surfaces to be intentionally roughened to ¼" amplitude.

③ The color of the Steel Tube Fence, Posts, and Type H-2 Metal Rail, unless noted otherwise, shall be Black and shall match Fed Std. 595B Color Chip No. 27038.

④ "ASHLAR STONE" pattern form liner relief shall be a maximum of 1", to preserve the minimum clearance of 2½" as shown.

⑤ For Type H-2 Railing Details See Dwg. No. 61182.



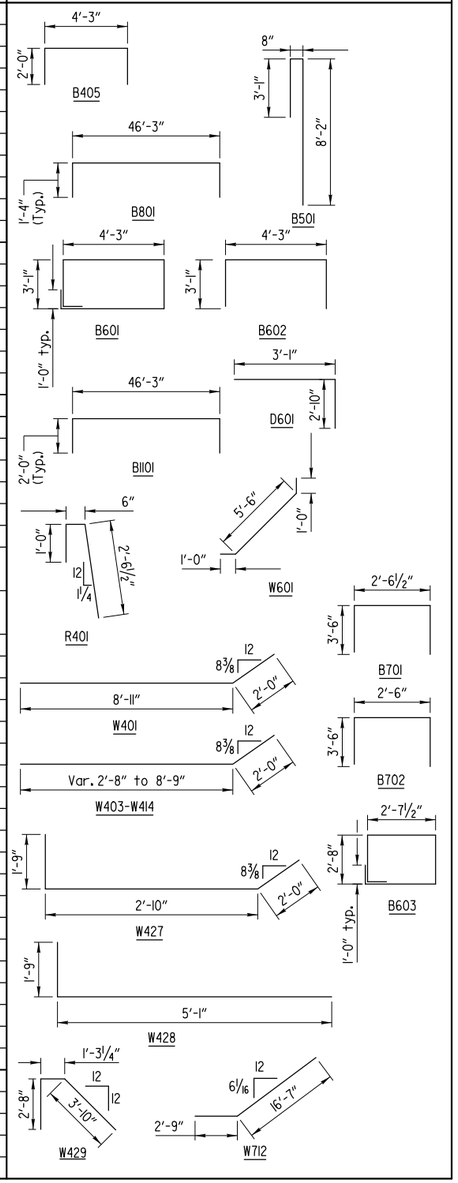

## BUMPER PLATE DETAIL

No Scale

## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 6 | 24'-5" | Str. |
| B402 | 6 | 40'-11" | Str. |
| B403 | 44 | 24'-5" | Str. |
| B404 | 6 | 7'-3" | Str. |
| B405 | 86 | 8'-1" | 2" |
| | | | |
| B501 | 44 | 11'-9" | 2½" |
| B502 | 66 | 6'-11" | Str. |
| | | | |
| B601 | 67 | 15'-10" | 4½" |
| B602 | 30 | 10'-1" | 4½" |
| B603 | 20 | 11'-9" | 4½" |
| | | | |
| B701 | 20 | 9'-2" | 5¼" |
| B702 | 20 | 9'-2" | 5¼" |
| | | | |
| B801 | 6 | 48'-6" | 6" |
| | | | |
| B1101 | 6 | 49'-7" | 11¼" |
| | | | |
| R401 | 42 | 3'-11" | 2" |
| R402 | 12 | 17'-8" | Str. |
| | | | |
| W401 | 6 | 10'-11" | 2" |
| W402 | 6 | 11'-2" | Str. |
| W403 to W414 | 2 each | Var. 4'-8" to 10'-9" | 2" |
| W415 to W426 | 2 each | Var. 4'-11" to 11'-0" | Str. |
| W427 | 12 | 6'-6" | 2" |
| W428 | 12 | 6'-9" | 2" |
| W429 | 10 | 7'-8" | 2" |
| | | | |
| W601 | 14 | 7'-6" | 4½" |
| W602 | 12 | 2'-8" | Str. |
| | | | |
| W701 | 12 | 17'-8" | Str. |
| W702 | 4 | 14'-4" | Str. |
| W703 | 4 | 13'-3" | Str. |
| W704 | 4 | 12'-2" | Str. |
| W705 | 4 | 11'-1" | Str. |
| W706 | 4 | 10'-0" | Str. |
| W707 | 4 | 9'-5" | Str. |
| W708 | 4 | 8'-0" | Str. |
| W709 | 4 | 6'-9" | Str. |
| W710 | 4 | 5'-5" | Str. |
| W711 | 4 | 4'-1" | Str. |
| W712 | 4 | 19'-3" | 5¼" |
| | | | |
| D601 | 44 | 5'-9" | 4½" |

BENDING DIAGRAMS
Dimensions are out to out of bars.




STATE OF ARKANSAS
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8/31/2020

BRIDGE ENGINEER
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## SHEET 4 OF 4
## DETAILS OF END BENT 1
## HWY. 351 RR OVERPASS
ROUTE SECTION

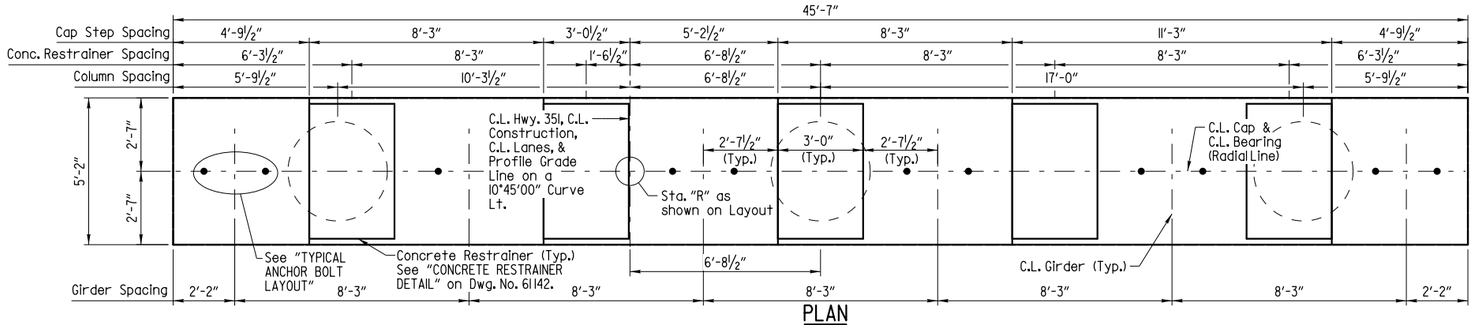
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LITTLE ROCK, ARKANSAS

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CHECKED BY: JPC DATE: 07/2019
DESIGNED BY: SHR DATE: 05/2019 SCALE: As Shown
BRIDGE NO. 07463 DRAWING NO. 61140

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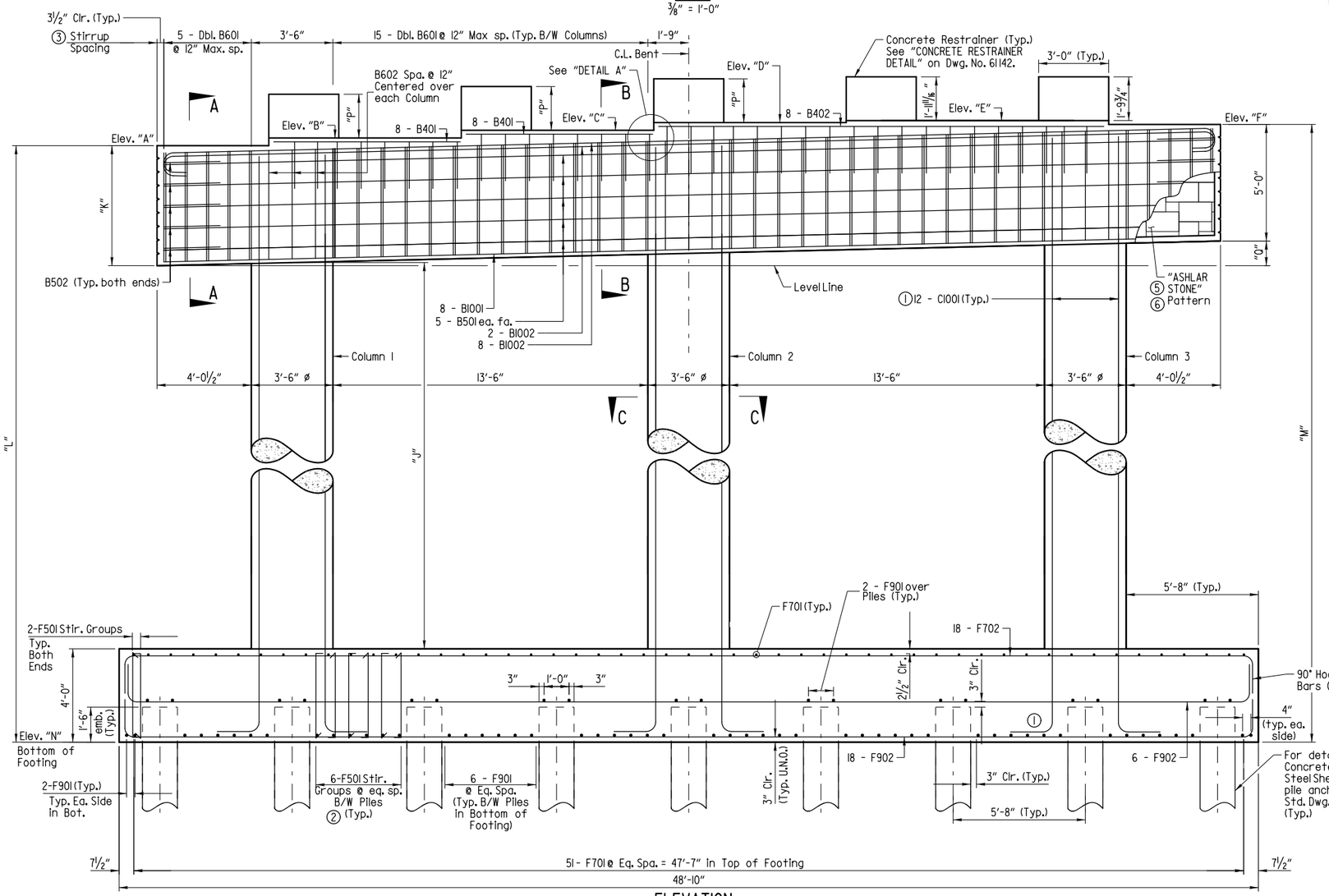
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | I00942 | 54 | 118 |

(1) 07463 - INTERMEDIATE BENTS 2 & 3 - 61141




PLAN

3/8" = 1'-0"



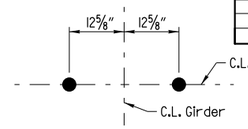

ELEVATION

(Looking Ahead)

3/8" = 1'-0"

## TABLE OF VARIABLES

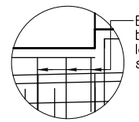
| | Elev. "A" | Elev. "B" | Elev. "C" | Elev. "D" | Elev. "E" | Elev. "F" | "G" | | | "H" | | | "J" | | | "K" | "L" | "M" | Elev. "N" | "P" | "Q" | "R" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | | | | | | | |
| Bent 2 | 283.24 | 283.57 | 283.90 | 284.23 | 284.31 | 284.15 | 5 | 5 | 6 | 4'-5⅞" | 4'-10⅝" | 5'-3⅝" | 16'-6¼" | 16'-10⅛" | 17'-3⅜" | 5'-1¼" | 25'-6" | 26'-4⅝" | 257.74 | 1'-8¾" | 1'-0⅜" | 95+24.51 |
| Bent 3 | 289.65 | 289.95 | 290.25 | 290.56 | 290.63 | 290.46 | 10 | 10 | 10 | 9'-0¼" | 9'-4⅜" | 9'-8⅛" | 20'-0¼" | 21'-4⅜" | 21'-8⅛" | 5'-1⅛" | 30'-0" | 30'-9⅞" | 259.65 | 1'-8⅞" | 11" | 96+24.51 |




TYPICAL ANCHOR BOLT LAYOUT

No Scale

For details of elastomeric bearings, See Dwg. No. 61159.




DETAIL A

No Scale

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

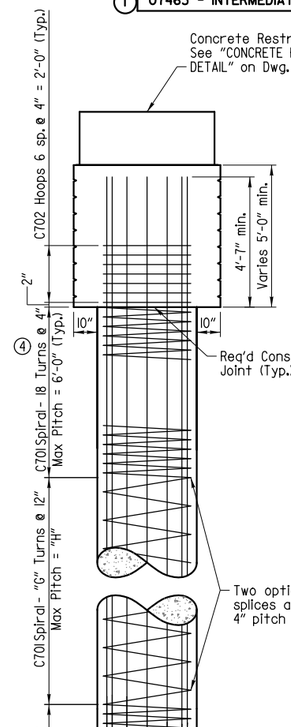
(2) Hook F501 bars around F701 and F901 bars and space as shown.

(3) Stirrup spacing are symmetrical about C.L. Bent.

(4) End spiral reinforcing with 1½ flat turns.

(5) "ASHLAR STONE" pattern Typical all side cap faces. See "CAP-ISOMETRIC VIEW" on Dwg. No. 61142.

(6) Form liner relief shall be a max. of 1" to provide the min. Clr. Shown.




END VIEW

3/8" = 1'-0"

Note:
See Dwg. No. 61142 for "SECTION A-A", "SECTION B-B" and "SECTION C-C".

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 1 OF 3
# DETAILS OF INTERMEDIATE BENTS 2 & 3
# HWY. 351 RR OVERPASS
ROUTE SECTION

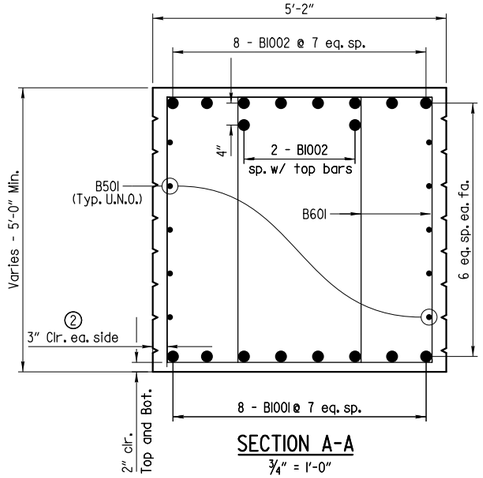
## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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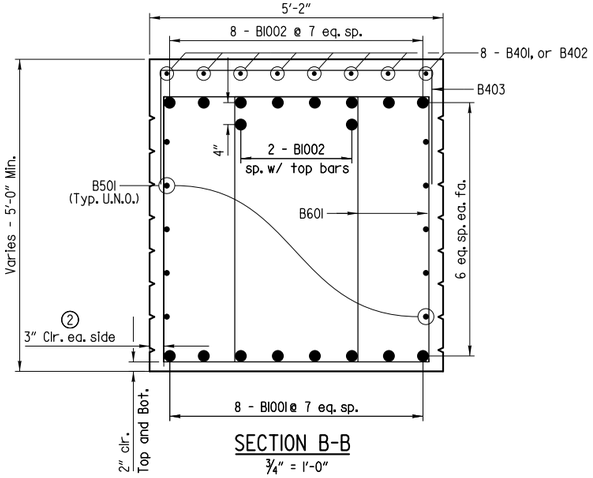
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 55 | 118 |

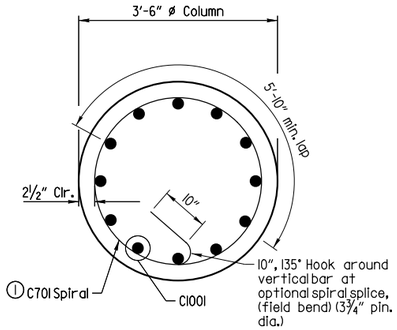
(1) 07463 - INTERMEDIATE BENTS 2 & 3 - 61142



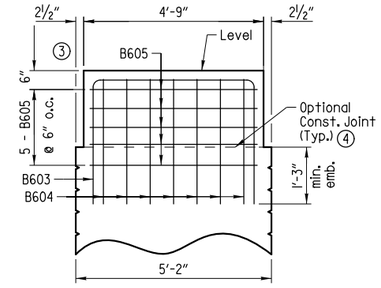

SECTION A-A
3/4" = 1'-0"



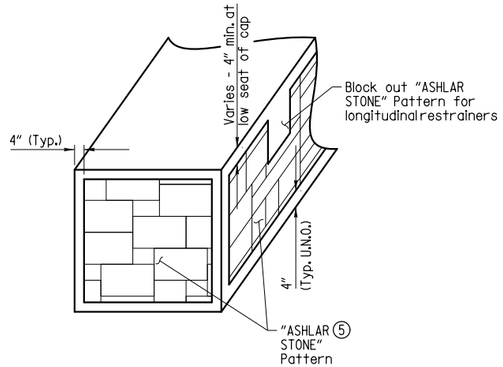

SECTION B-B
3/4" = 1'-0"



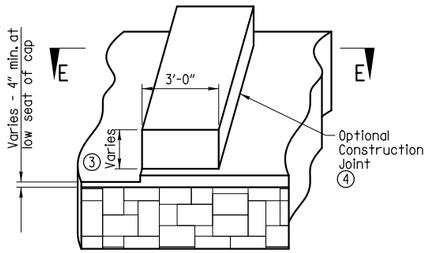

SECTION C-C
3/4" = 1'-0"



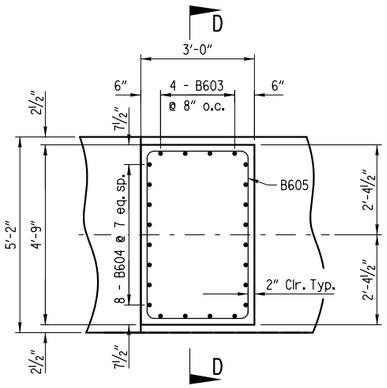

SECTION D-D
1/2" = 1'-0"




CAP-ISOMETRIC VIEW
No Scale




CONCRETE RESTRAINER DETAIL
No Scale




VIEW E-E
1/2" = 1'-0"

(1) End spiral with 1½ flat turns.

(2) Form liner relief shall be a maximum of 1" to provide a minimum clear cover of 2".

(3) For vertical dimensions of restrainer blocks, see "TABLE OF VARIABLES" on Dwg. No. 61141.

(4) All Restrainer Block construction joints to be intentionally roughened to 1/4" amplitude.

(5) "ASHLAR STONE" pattern shall be blocked out 1" clr. on all sides of longitudinal restrainer bearing areas. See Dwg. No. 61184 for Longitudinal Restrainer information.

STATE OF ARKANSAS
STEPHEN F. HARPER
LICENSED PROFESSIONAL ENGINEER
No.14501

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS 2 & 3
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: CWC DATE: 06/2019
CHECKED BY: JPC DATE: 06/2019
DESIGNED BY: SHR DATE: 05/2019
BRIDGE NO. 07463
FILENAME: BI00942XL_B22.dgn
SCALE: As Shown
DRAWING NO. 61142

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WORKSPACE: ARDOT
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 56 | 118 |
| | | | | (1) 07463 - INTERMEDIATE BENTS 2 & 3 - 61143 | | | | |

## GENERAL NOTES

INTERMEDIATE BENTS 2&3 NOTES:
For additional "General Notes", see Std. Dwg. No. 55006.

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

For additional information see layout.

NOTES FOR SPIRAL REINFORCING:
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.75".

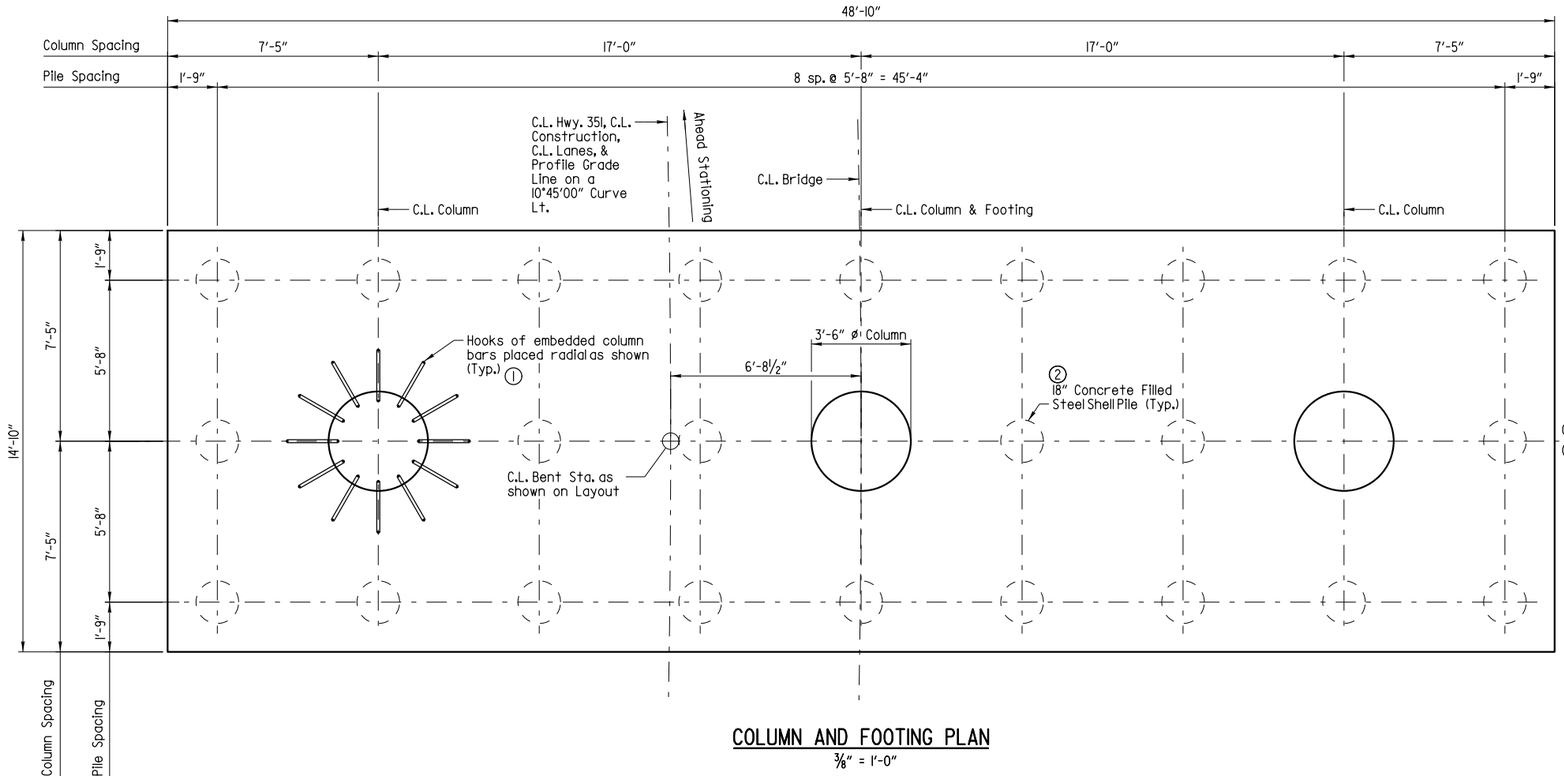
Spiral reinforcement shall be paid for at the contract unit bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, optional splices, or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 6'-0" of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) For details of Concrete Filled Steel Shell Piles and pile anchorage, See Std. Dwg. No. 55021 (Typ.)




COLUMN AND FOOTING PLAN
⅜" = 1'-0"

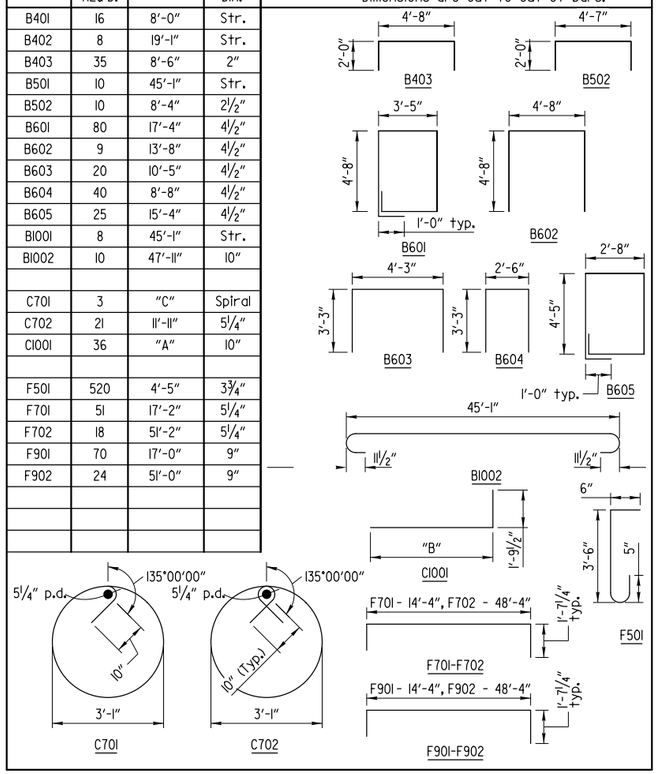
## TABLE OF VARIABLES FOR BAR LIST

| | "A" | | | "B" | | | "C" | | |
|---|---|---|---|---|---|---|---|---|---|
| Bent No. | Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 |
| 2 | 26'-4" | 26'-8" | 27'-1" | 24'-10" | 25'-3" | 25'-7" | 457'-1" | 457'-1" | 466'-9" |
| 3 | 30'-10" | 31'-2" | 31'-6" | 29'-4" | 29'-8" | 30'-1" | 505'-6" | 505'-6" | 505'-6" |

## BAR LIST- PER BENT

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 16 | 8'-0" | Str. |
| B402 | 8 | 19'-1" | Str. |
| B403 | 35 | 8'-6" | 2" |
| B501 | 10 | 45'-1" | Str. |
| B502 | 10 | 8'-4" | 2½" |
| B601 | 80 | 17'-4" | 4½" |
| B602 | 9 | 13'-8" | 4½" |
| B603 | 20 | 10'-5" | 4½" |
| B604 | 40 | 8'-8" | 4½" |
| B605 | 25 | 15'-4" | 4½" |
| BI001 | 8 | 45'-1" | Str. |
| BI002 | 10 | 47'-11" | 10" |
| | | | |
| C701 | 3 | "C" | Spiral |
| C702 | 21 | 11'-11" | 5¼" |
| CI001 | 36 | "A" | 10" |
| | | | |
| F501 | 520 | 4'-5" | 3¾" |
| F701 | 51 | 17'-2" | 5¼" |
| F702 | 18 | 51'-2" | 5¼" |
| F901 | 70 | 17'-0" | 9" |
| F902 | 24 | 51'-0" | 9" |

BENDING DIAGRAMS
Dimensions are out to out of bars.




STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

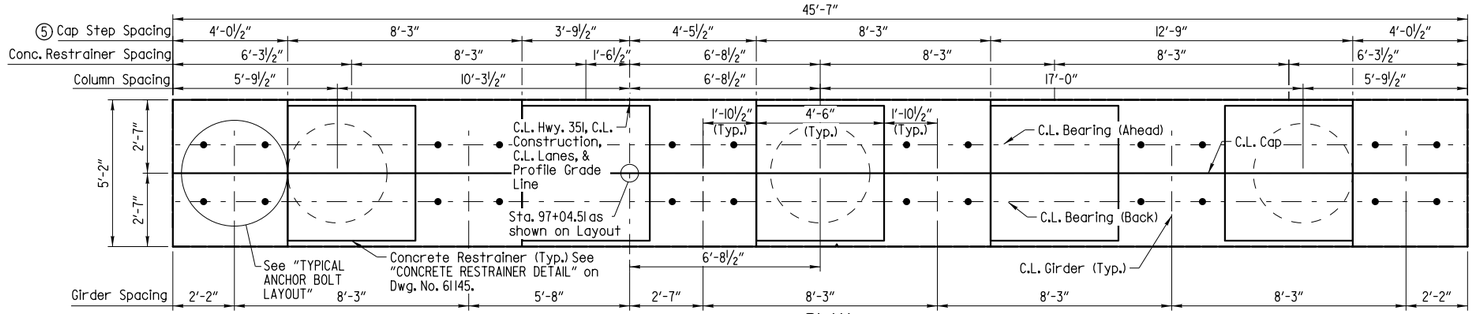
SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENTS 2 & 3
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: CWC DATE: 06/2019
CHECKED BY: JPC DATE: 06/2019
DESIGNED BY: SHR DATE: 05/2019
FILENAME: BI00942XI_B23.dgn
SCALE: As Shown
BRIDGE NO. 07463
DRAWING NO. 61143

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REVISED DATE:

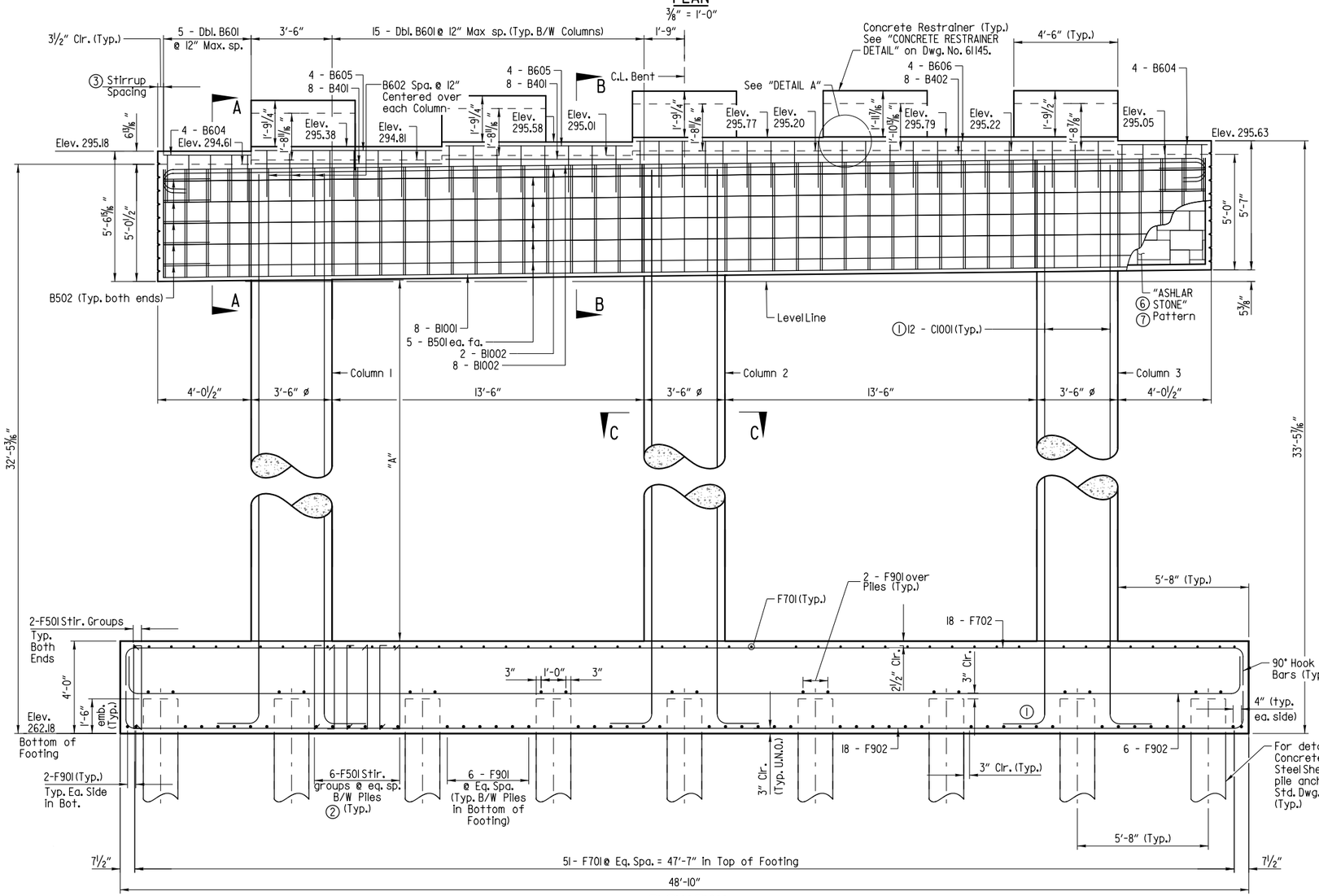
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 57 | 118 |

(1) 07463 - INTERMEDIATE BENT 4 - 61144




## PLAN

3/8" = 1'-0"

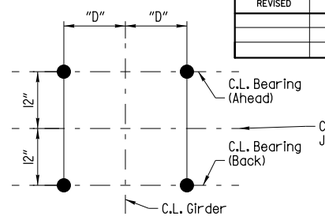



## ELEVATION

(Looking Ahead)
3/8" = 1'-0"

## TABLE OF VARIABLES

| "A" | | | "B" | | | "C" | | | "D" | |
|---|---|---|---|---|---|---|---|---|---|---|
| Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | Back | Ahead |
| 23'-5⅜" | 23'-7½" | 23'-9 11/16" | 12 | 12 | 12 | 11'-5⅜" | 11'-7½" | 11'-9 11/16" | 13 1/16" | 15 11/16" |




## TYPICAL ANCHOR BOLT LAYOUT

No Scale

For details of elastomeric bearings, See Dwg. No. 61159.

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) Hook F501 bars around F701 and F901 bars and space as shown.

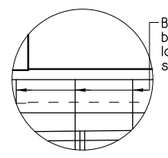
(3) Stirrup spacing are symmetrical about C.L. Bent.

(4) End spiral reinforcing with 1½ flat turns.

(5) All steps are parallel to C.L. Girders.

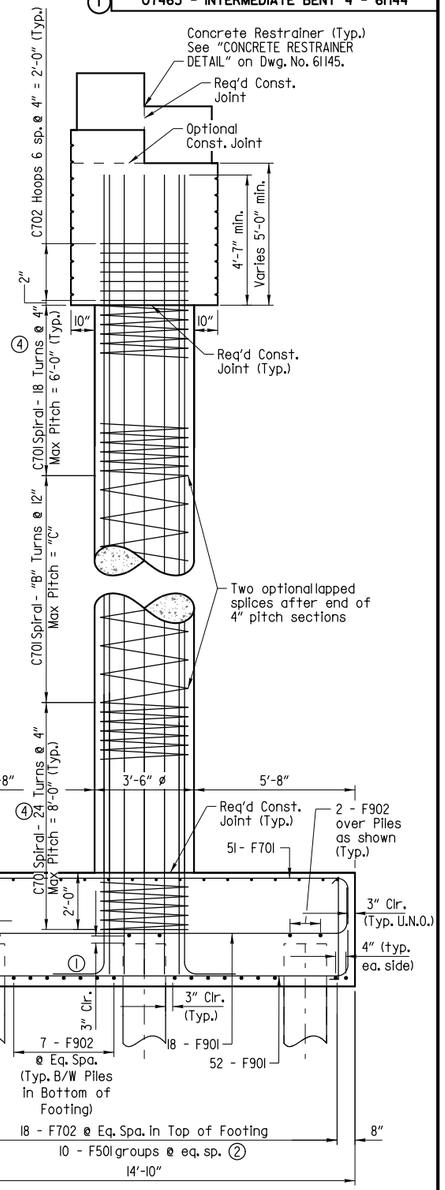
(6) "ASHLAR STONE" pattern Typical all side cap faces. See "CAP-ISOMETRIC VIEW" on Dwg. No. 61145.

(7) Form liner relief shall be a max. of 1" to provide the min. Clr. Shown.




## DETAIL A

No Scale




## END VIEW

3/8" = 1'-0"

Note:
See Dwg. No. 61145 for "SECTION A-A", "SECTION B-B", and "SECTION C-C."

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 1 OF 3
# DETAILS OF INTERMEDIATE BENT 4
# HWY. 351 RR OVERPASS

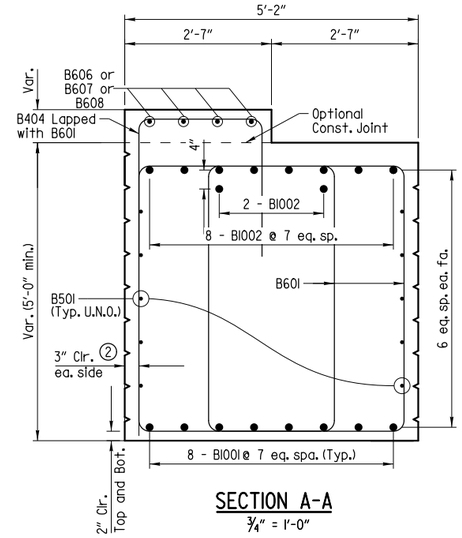
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

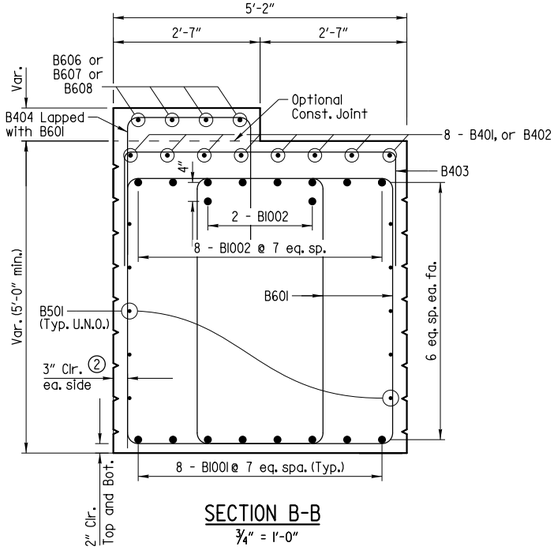
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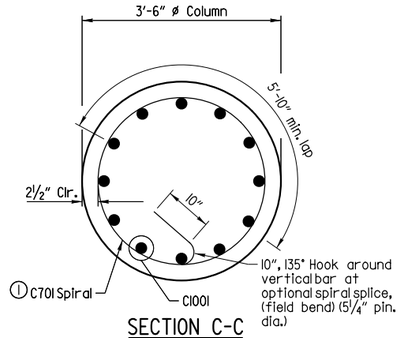
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 58 | 118 |
| | | | | (1) | 07463 - INTERMEDIATE BENT 4 - 61145 | | | |



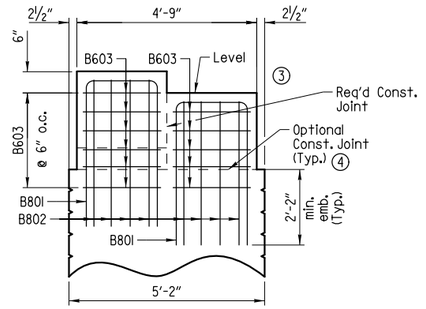

SECTION A-A
¾" = 1'-0"



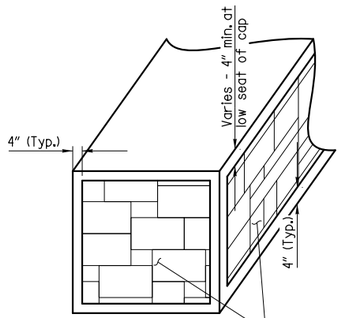

SECTION B-B
¾" = 1'-0"



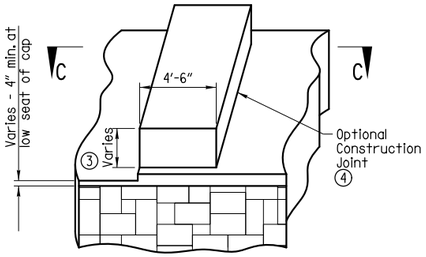

SECTION C-C
¾" = 1'-0"



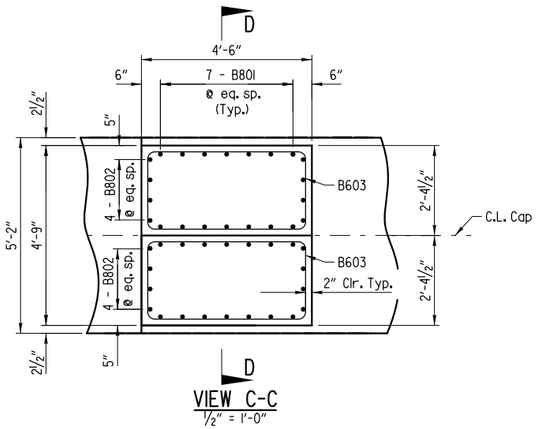

SECTION D-D
½" = 1'-0"




CAP-ISOMETRIC VIEW
No Scale




CONCRETE RESTRAINER DETAIL
No Scale




VIEW C-C
½" = 1'-0"

① End spiral with 1½ flat turns.

② Form liner relief shall be a maximum of 1" to provide a minimum clear cover of 2".

③ For vertical dimensions of restrainer blocks, see "TABLE OF VARIABLES" on Dwg. No. 61144.

④ All Restrainer Block construction joints to be intentionally roughened to ¼" amplitude.

⑤ "ASHLAR STONE" pattern shall be blocked out 1" clr. on all sides of longitudinal restrainer bearing areas. See Dwg. No. 61184 for Longitudinal Restrainer information.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENT 4
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | CWC | DATE: | 07/2019 | FILENAME: | BI00942XI_B42.dgn |
| CHECKED BY: | JPC | DATE: | 07/2019 | | |
| DESIGNED BY: | SHR | DATE: | 05/2019 | SCALE: | As Shown |
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 59 | 118 |
| | | | | (1) | 07463 - INTERMEDIATE BENT 4 - 61146 | | | |

## GENERAL NOTES

INTERMEDIATE BENT 4 NOTES:
For additional "General Notes", see Std. Dwg. No. 55006.

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

For additional information see layout.

NOTES FOR SPIRAL REINFORCING:
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.75".

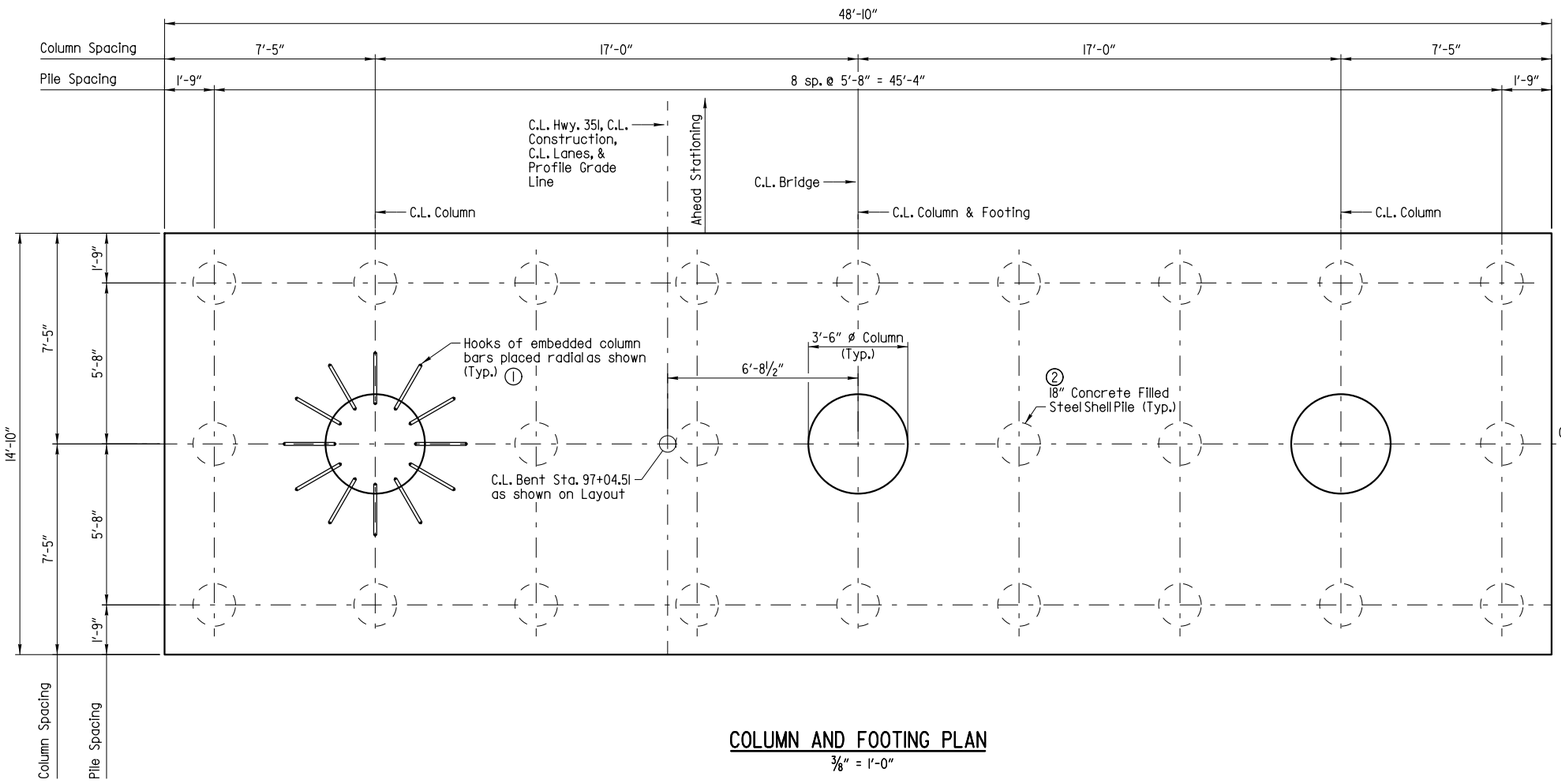
Spiral reinforcement shall be paid for at the contract unit bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, optional splices, or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 6'-0" of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) For details of Concrete Filled Steel Shell Piles and pile anchorage, See Std. Dwg. No. 55021 (Typ.)




## COLUMN AND FOOTING PLAN
⅜" = 1'-0"

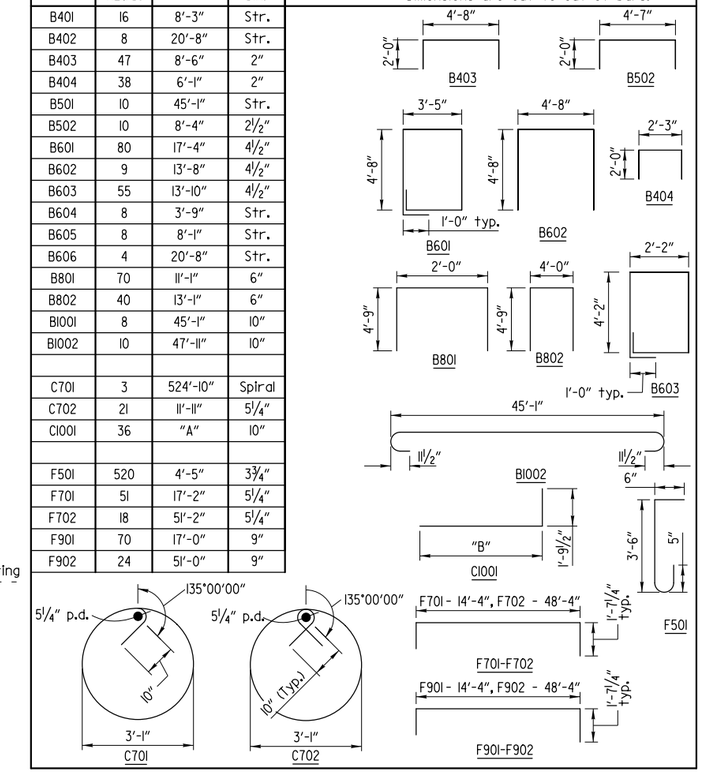
## TABLE OF VARIABLES FOR BAR LIST

| "A" | | | "B" | | |
|---|---|---|---|---|---|
| Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 |
| 33'-3" | 33'-6" | 33'-8" | 31'-9" | 32'-0" | 32'-2" |

## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 16 | 8'-3" | Str. |
| B402 | 8 | 20'-8" | Str. |
| B403 | 47 | 8'-6" | 2" |
| B404 | 38 | 6'-1" | 2" |
| B501 | 10 | 45'-1" | Str. |
| B502 | 10 | 8'-4" | 2½" |
| B601 | 80 | 17'-4" | 4½" |
| B602 | 9 | 13'-8" | 4½" |
| B603 | 55 | 13'-10" | 4½" |
| B604 | 8 | 3'-9" | Str. |
| B605 | 8 | 8'-1" | Str. |
| B606 | 4 | 20'-8" | Str. |
| B801 | 70 | 11'-1" | 6" |
| B802 | 40 | 13'-1" | 6" |
| B1001 | 8 | 45'-1" | 10" |
| B1002 | 10 | 47'-11" | 10" |
| | | | |
| C701 | 3 | 524'-10" | Spiral |
| C702 | 21 | 11'-11" | 5¼" |
| C1001 | 36 | "A" | 10" |
| | | | |
| F501 | 520 | 4'-5" | 3¾" |
| F701 | 51 | 17'-2" | 5¼" |
| F702 | 18 | 51'-2" | 5¼" |
| F901 | 70 | 17'-0" | 9" |
| F902 | 24 | 51'-0" | 9" |

BENDING DIAGRAMS
Dimensions are out to out of bars.




STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEVEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

## SHEET 3 OF 3
## DETAILS OF INTERMEDIATE BENT 4
## HWY. 351 RR OVERPASS
ROUTE SECTION

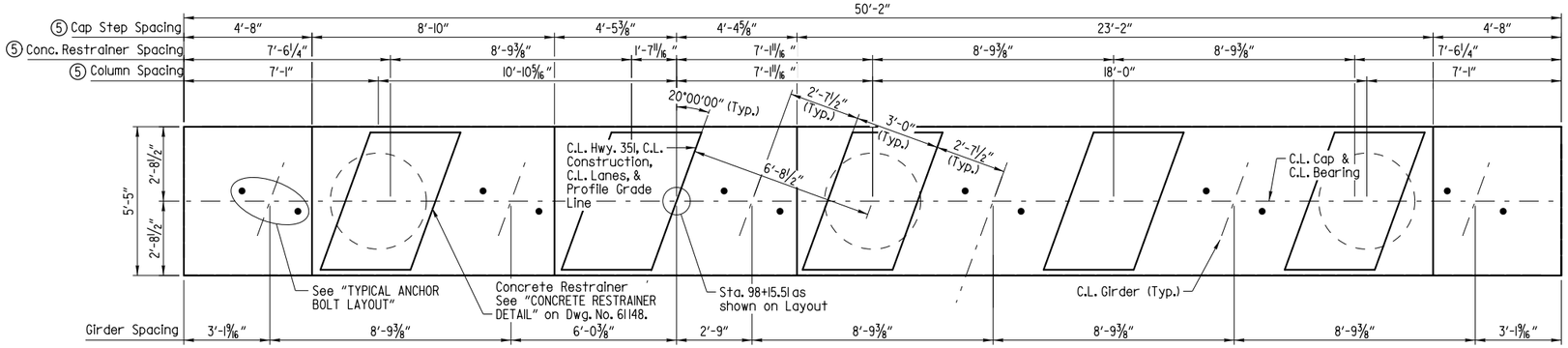
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LITTLE ROCK, ARKANSAS

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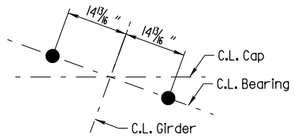
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 60 | 118 |

(1) 07463 - INTERMEDIATE BENT 5 - 61147

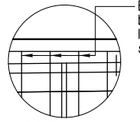



PLAN
⅜" = 1'-0"

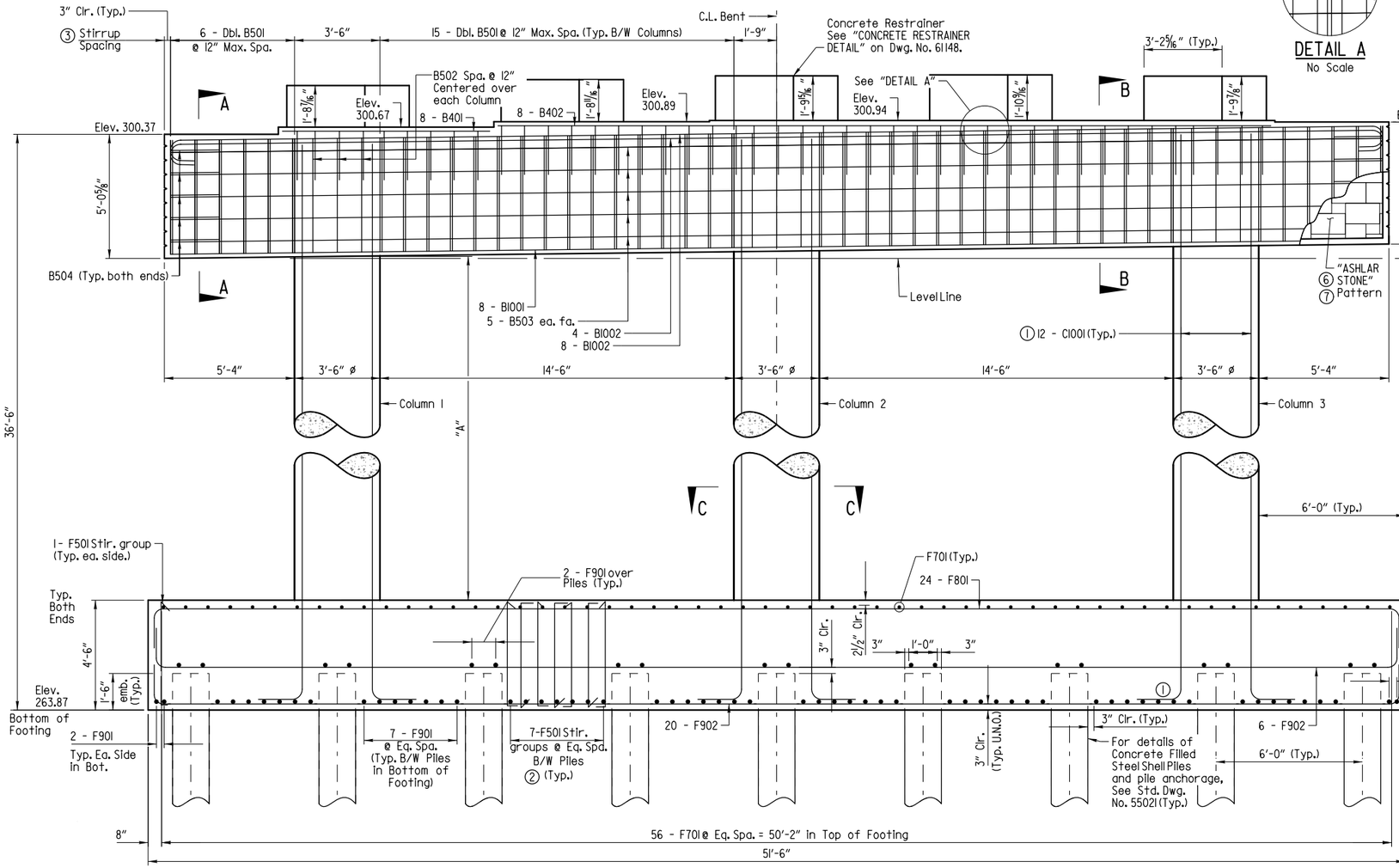



TYPICAL ANCHOR BOLT LAYOUT
No Scale

For details of elastomeric bearings, See Dwg. No. 61159.




DETAIL A
No Scale




ELEVATION
(Looking Ahead)
⅜" = 1'-0"

TABLE OF VARIABLES

| "A" | | | "B" | | | "C" | | |
|---|---|---|---|---|---|---|---|---|
| Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 |
| 27'-0⅝" | 27'-2¾" | 27'-5⅛" | 19 | 19 | 19 | 15'-0⅝" | 15'-2¾" | 15'-5⅛" |

Note:
See Dwg. No. 61148 for "SECTION A-A", "SECTION B-B", and "SECTION C-C."

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) Hook F501 bars around F701 and F901 bars and space as shown.

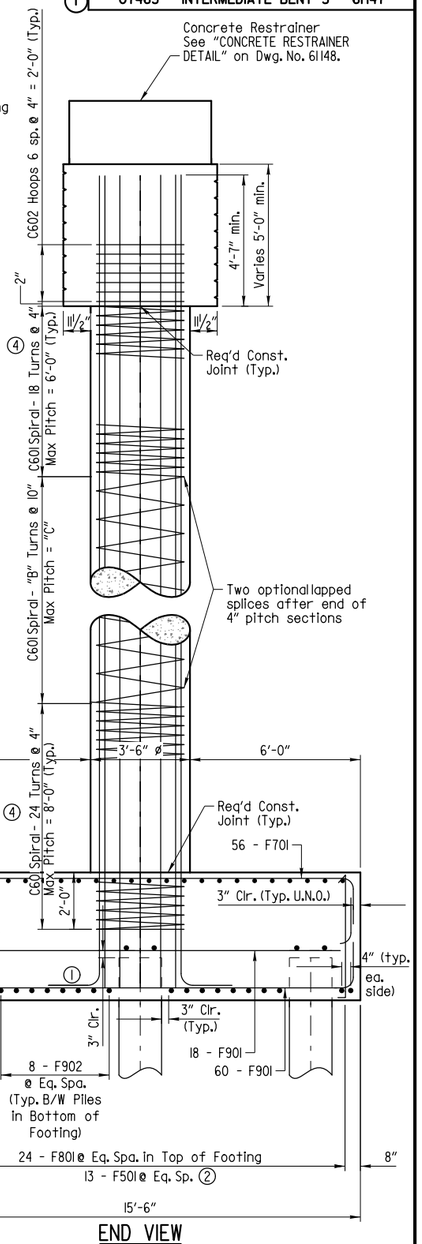
(3) Stirrup spacing are symmetrical about C.L. Bent.

(4) End spiral reinforcing with 1½ flat turns.

(5) Measured along C.L. Cap & C.L. Bearing

(6) "ASHLAR STONE" pattern Typical all side cap faces. See "CAP-ISOMETRIC VIEW" on Dwg. No. 61148.

(7) Form liner relief shall be a max. of 1" to provide the min. Clr. Shown.




END VIEW
⅜" = 1'-0"

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No.14501
STEPHEN H. HARPER

BRIDGE ENGINEER
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# SHEET 1 OF 3
# DETAILS OF INTERMEDIATE BENT 5
# HWY. 351 RR OVERPASS

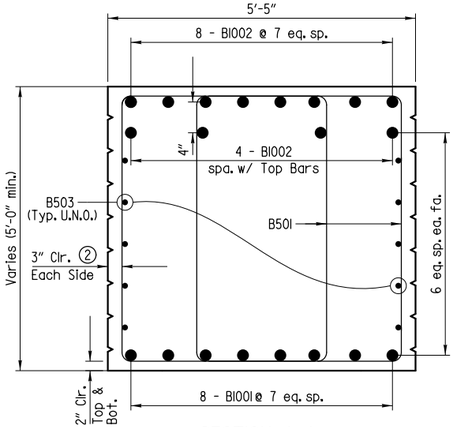
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ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

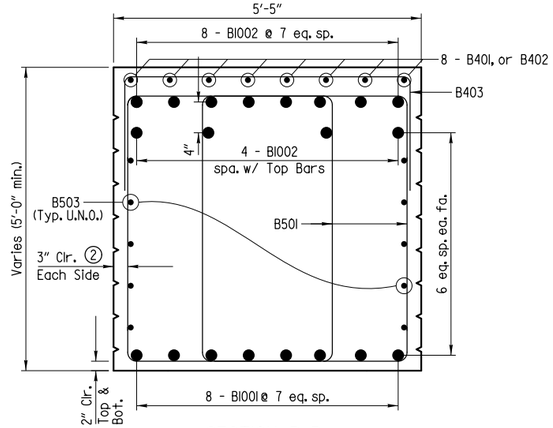
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BRIDGE NO. 07463 DRAWING NO. 61147

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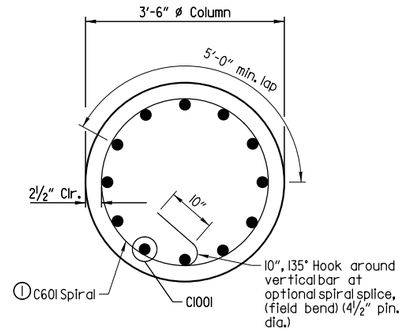
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 61 | 118 |
| | | | | (1) | 07463 - INTERMEDIATE BENT 5 - 61148 | | | |



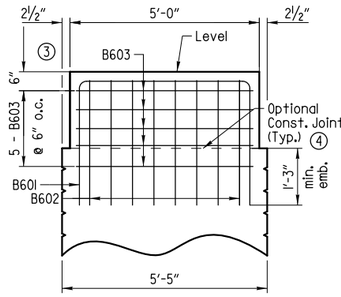

SECTION A-A
3/4" = 1'-0"



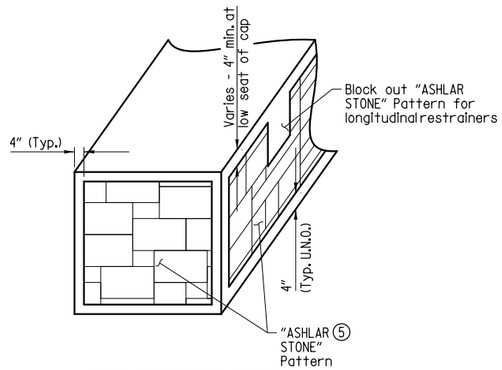

SECTION B-B
3/4" = 1'-0"



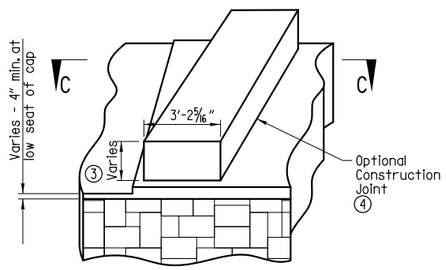

SECTION C-C
3/4" = 1'-0"



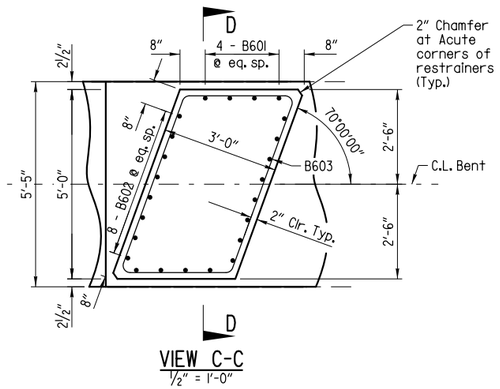

SECTION D-D
1/2" = 1'-0"




CAP-ISOMETRIC VIEW
No Scale




CONCRETE RESTRAINER DETAIL
No Scale




VIEW C-C
1/2" = 1'-0"

(1) End spiral with 1½ flat turns.

(2) Form liner relief shall be a maximum of 1" to provide a minimum clear cover of 2".

(3) For vertical dimensions of restrainer blocks, see "TABLE OF VARIABLES" on Dwg. No. 61147.

(4) All Restrainer Block construction joints to be intentionally roughened to ¼" amplitude.

(5) "ASHLAR STONE" pattern shall be blocked out 1" clr. on all sides of longitudinal restrainer bearing areas. See Dwg. No. 61184 for Longitudinal Restrainer Information.

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ENGINEER
No. 14501
STEVEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENT 5
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
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REVISED DATE:

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| | | | | JOB NO. | | 100942 | 62 | 118 |
| | | | | (1) | 07463 - INTERMEDIATE BENT 5 - 61149 | | | |

## GENERAL NOTES

INTERMEDIATE BENT 5 NOTES:
For additional "General Notes", see Std. Dwg. No. 55006.

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

For additional information see layout.

NOTES FOR SPIRAL REINFORCING:
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.75".

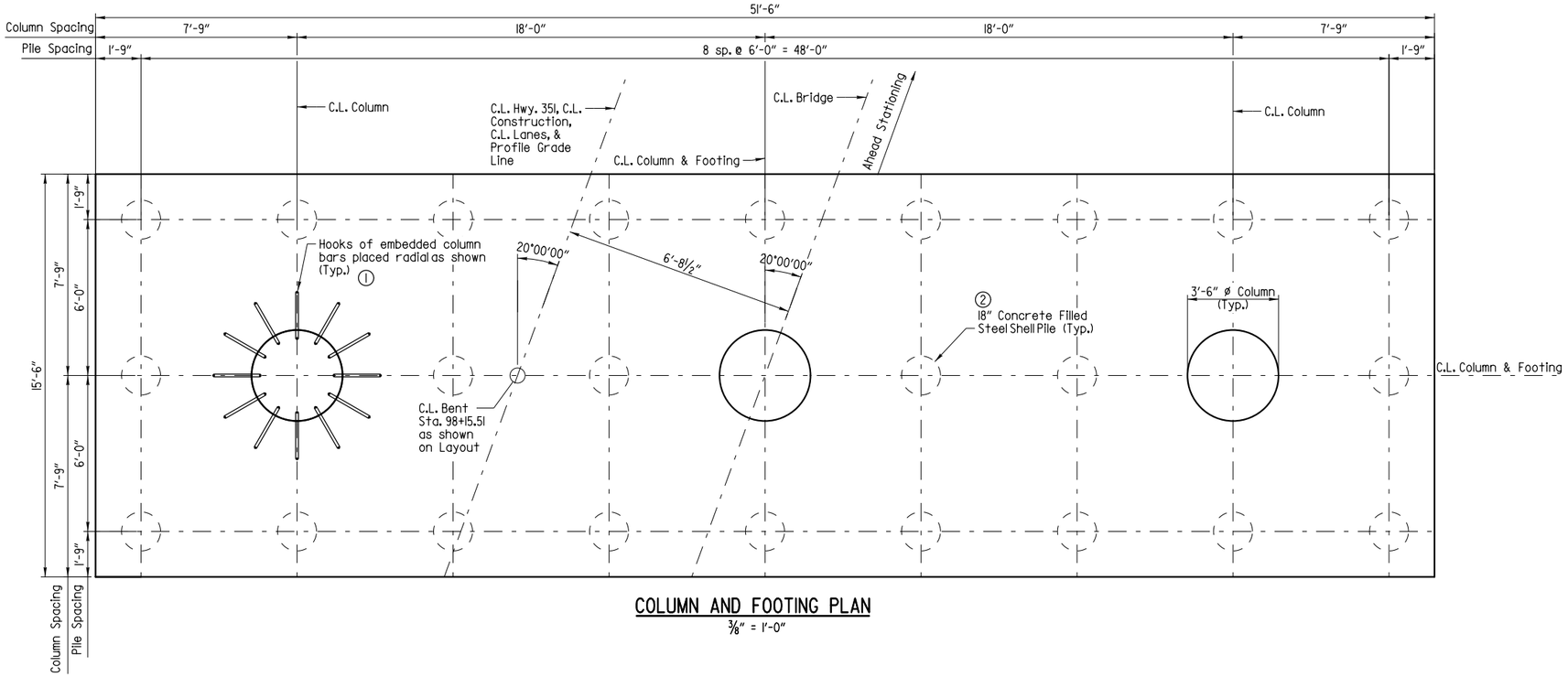
Spiral reinforcement shall be paid for at the contract unit bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, optional splices, or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 6'-0" of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) For details of Concrete Filled Steel Shell Piles and pile anchorage, See Std. Dwg. No. 55021 (Typ.)




COLUMN AND FOOTING PLAN
3/8" = 1'-0"

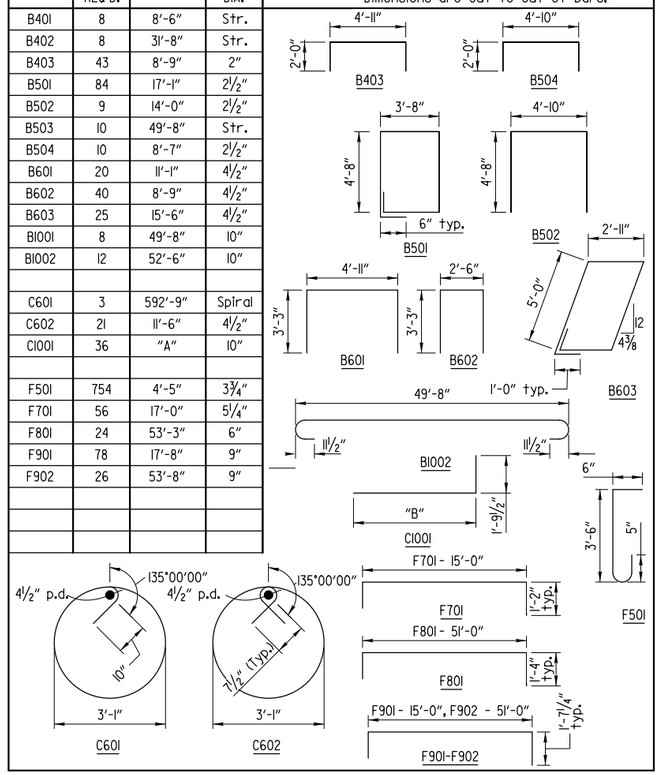
## TABLE OF VARIABLES FOR BAR LIST

| "A" | | | "B" | | |
|---|---|---|---|---|---|
| Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 |
| 37'-4" | 37'-6" | 37'-9" | 35'-10" | 36'-0" | 36'-3" |

## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 8 | 8'-6" | Str. |
| B402 | 8 | 31'-8" | Str. |
| B403 | 43 | 8'-9" | 2" |
| B501 | 84 | 17'-1" | 2½" |
| B502 | 9 | 14'-0" | 2½" |
| B503 | 10 | 49'-8" | Str. |
| B504 | 10 | 8'-7" | 2½" |
| B601 | 20 | 11'-1" | 4½" |
| B602 | 40 | 8'-9" | 4½" |
| B603 | 25 | 15'-6" | 4½" |
| B1001 | 8 | 49'-8" | 10" |
| B1002 | 12 | 52'-6" | 10" |
| | | | |
| C601 | 3 | 592'-9" | Spiral |
| C602 | 21 | 11'-6" | 4½" |
| C1001 | 36 | "A" | 10" |
| | | | |
| F501 | 754 | 4'-5" | 3¾" |
| F701 | 56 | 17'-0" | 5¼" |
| F801 | 24 | 53'-3" | 6" |
| F901 | 78 | 17'-8" | 9" |
| F902 | 26 | 53'-8" | 9" |
| | | | |
| | | | |
| | | | |

BENDING DIAGRAMS
Dimensions are out to out of bars.




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8/31/2020

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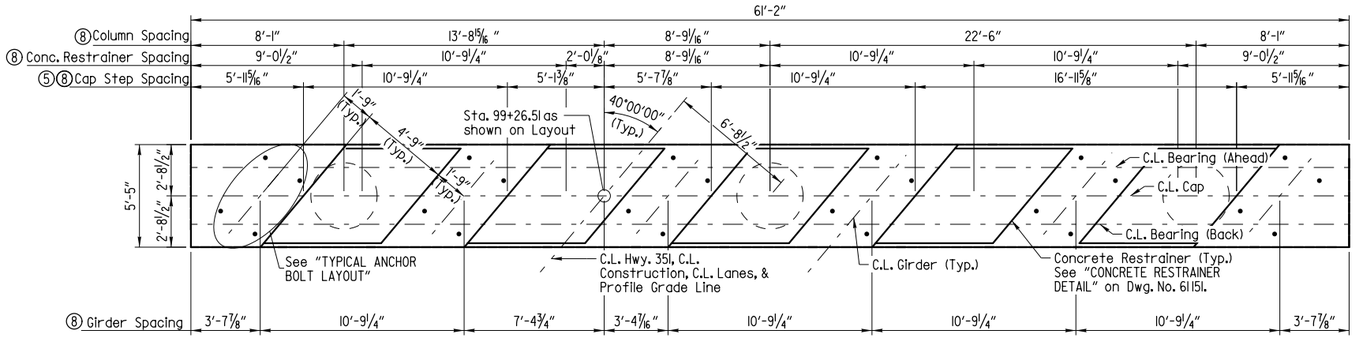
SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENT 5
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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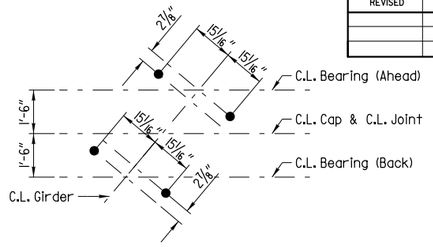
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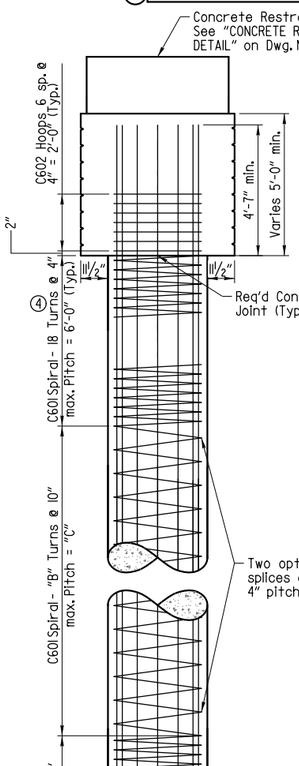
(1) 07463 - INTERMEDIATE BENT 6 - 61150



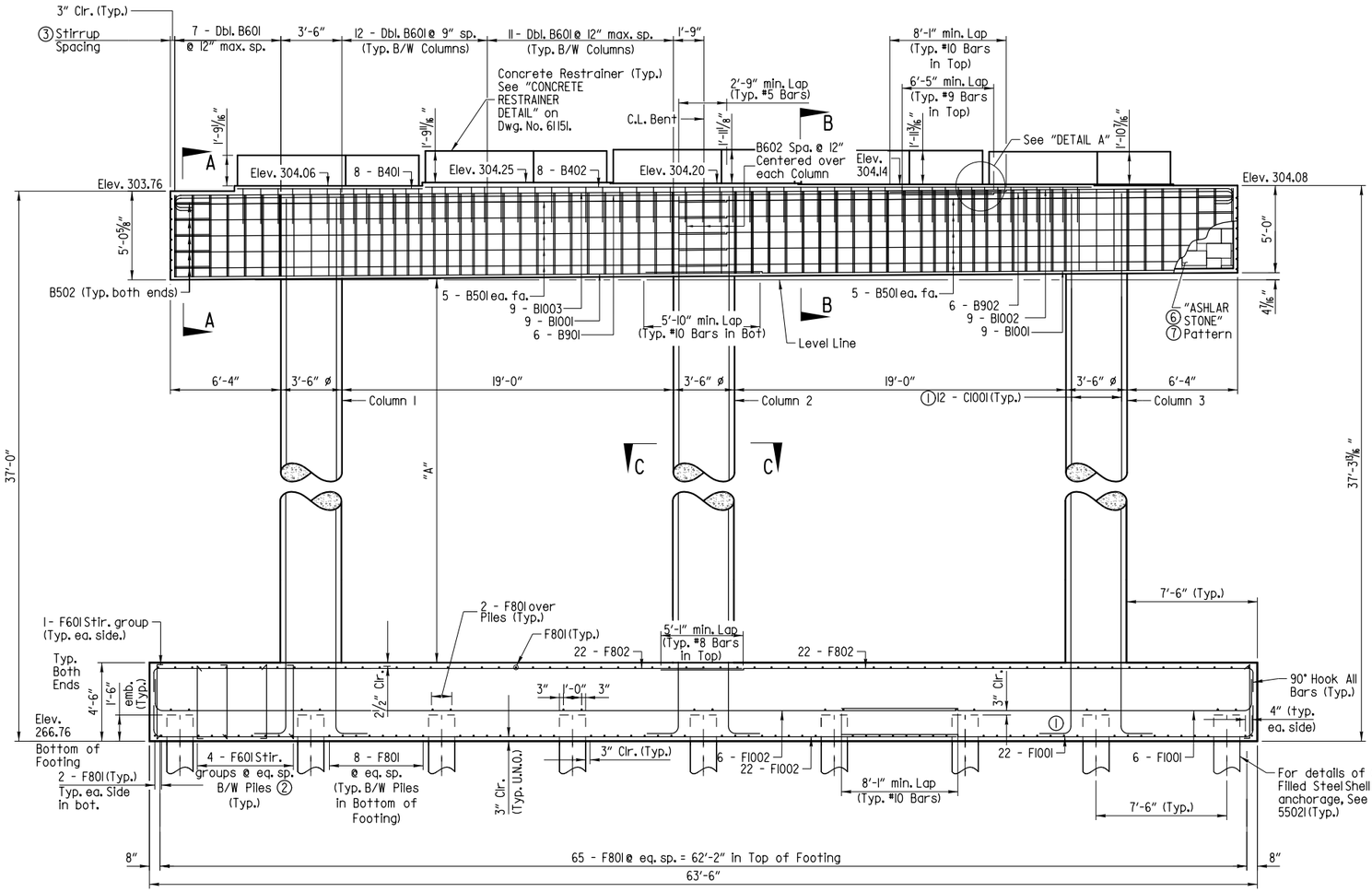

PLAN
1/4" = 1'-0"



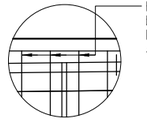

TYPICAL ANCHOR BOLT LAYOUT
No Scale
For details of elastomeric bearings, See Dwg. No. 61159.




END VIEW
3/8" = 1'-0"




ELEVATION
(Looking Ahead)
1/4" = 1'-0"




DETAIL A
No Scale

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) Hook F601 bars around F801 bars and space as shown.

(3) Stirrup spacing are symmetrical about C.L. Bent.

(4) End spiral reinforcing with 1 1/2 flat turns.

(5) All steps are parallel to C.L. Girders.

(6) "ASHLAR STONE" pattern Typical all side cap faces. See "CAP-ISOMETRIC VIEW" on Dwg. No. 61151.

(7) Form liner relief shall be a max. of 1" to provide the min. Clr. Shown.

(8) Measured along C.L. Cap

Note:
See Dwg. No. 61151 for "SECTION A-A", "SECTION B-B", and "SECTION C-C."

TABLE OF VARIABLES

| "A" | | | "B" | | | "C" | | |
|---|---|---|---|---|---|---|---|---|
| Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 |
| 27'-6" | 27'-7 5/8" | 27'-9 1/4" | 19 | 19 | 19 | 15'-6 5/8" | 15'-7 5/8" | 15'-9 5/8" |

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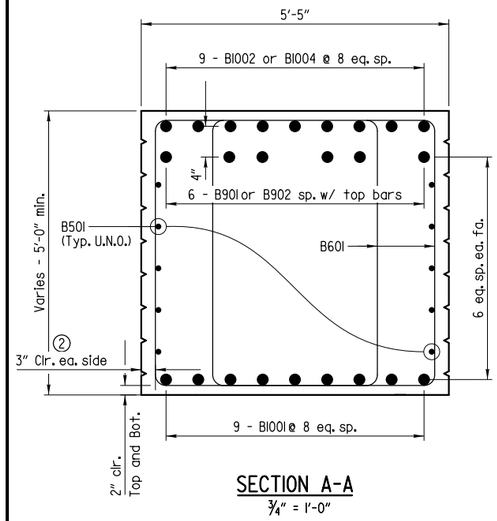
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SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENT 6
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

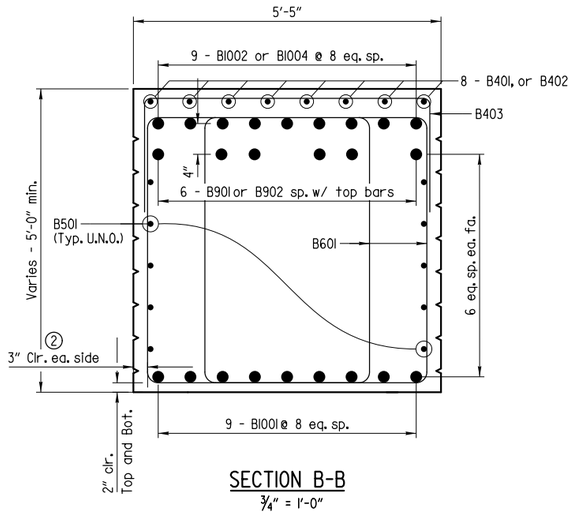
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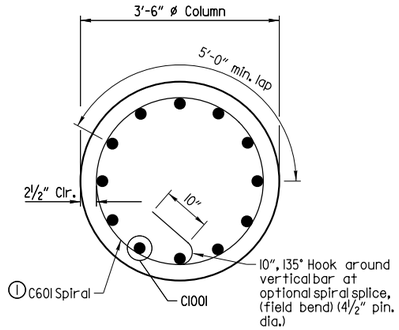
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| | | | | JOB NO. | | 100942 | 64 | 118 |
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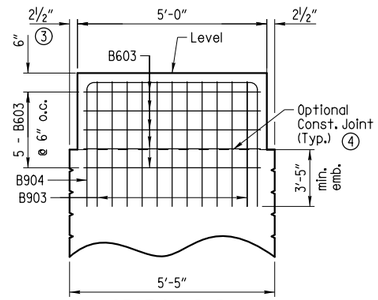

SECTION A-A
3/4" = 1'-0"



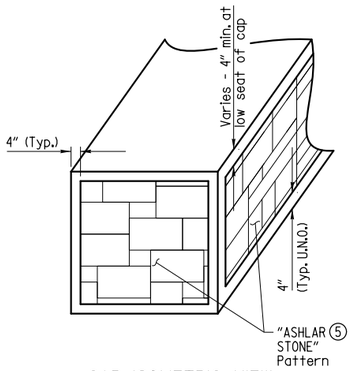

SECTION B-B
3/4" = 1'-0"



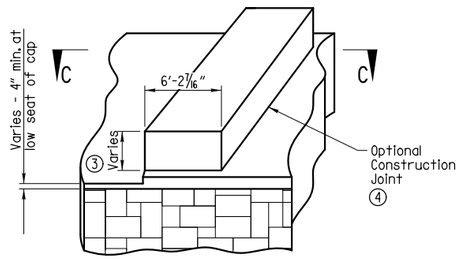

SECTION C-C
3/4" = 1'-0"



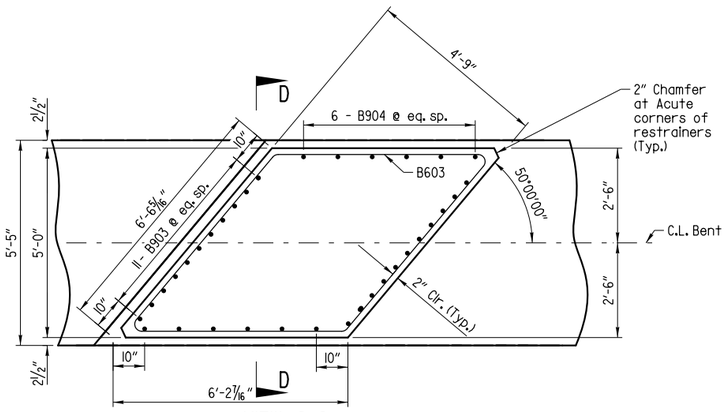

SECTION D-D
1/2" = 1'-0"




CAP-ISOMETRIC VIEW
No Scale




CONCRETE RESTRAINER DETAIL
No Scale




VIEW C-C
1/2" = 1'-0"

(1) End spiral with 1 1/2 flat turns.

(2) Form liner relief shall be a maximum of 1" to provide a minimum clear cover of 2".

(3) For vertical dimensions of restrainer blocks, see "TABLE OF VARIABLES" on Dwg. No. 61150.

(4) All Restrainer Block construction joints to be intentionally roughened to 1/4" amplitude.

(5) "ASHLAR STONE" pattern shall be blocked out 1" clr. on all sides of longitudinal restrainer bearing areas. See Dwg. No. 61184 for Longitudinal Restrainer Information.

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No. 14501
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8/31/2020

BRIDGE ENGINEER
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SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENT 6
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 65 | 118 |
| | | | | (1) | 07463 - INTERMEDIATE BENT 6 - 61152 | | | |

# GENERAL NOTES

INTERMEDIATE BENT 6 NOTES:
For additional "General Notes", see Std. Dwg. No. 55006.

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

For additional information see layout.

NOTES FOR SPIRAL REINFORCING:
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.75".

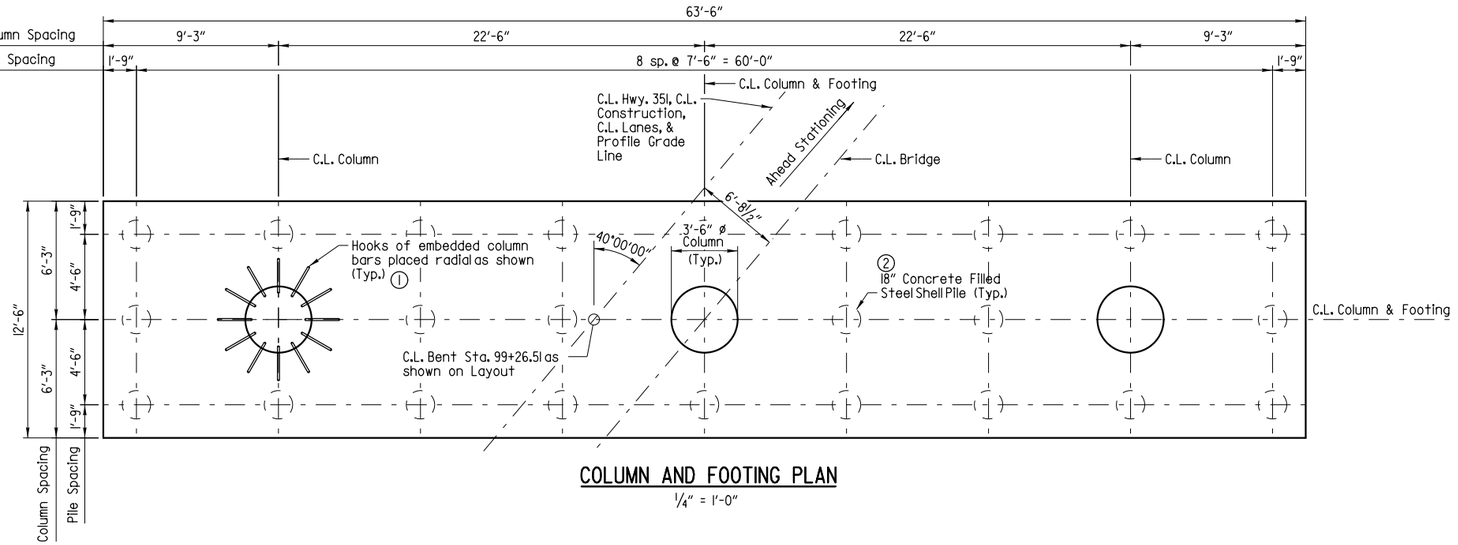
Spiral reinforcement shall be paid for at the contract unit bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, optional splices, or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 6'-0" of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) For details of Concrete Filled Steel Shell Piles and pile anchorage, See Std. Dwg. No. 55021 (Typ.)




## COLUMN AND FOOTING PLAN

¼" = 1'-0"

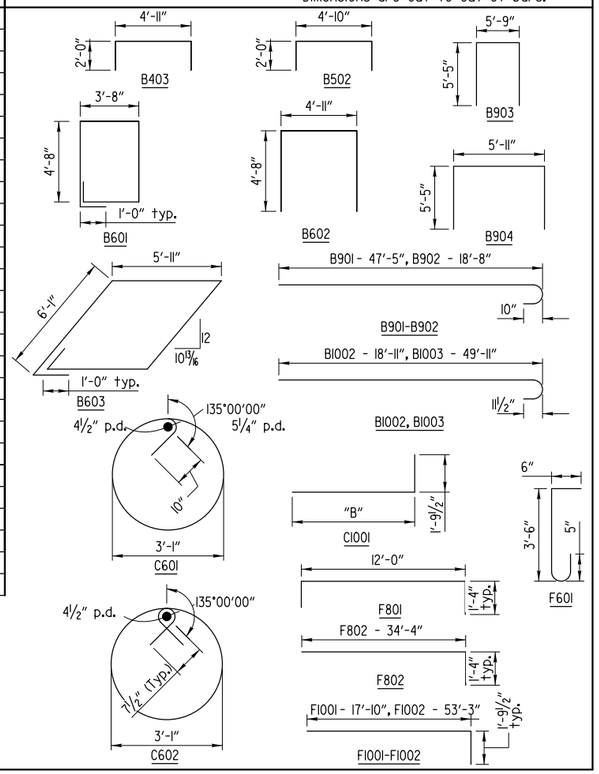
## TABLE OF VARIABLES FOR BAR LIST

| "A" | | | "B" | | |
|---|---|---|---|---|---|
| Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 |
| 37'-9" | 38'-0" | 38'-2" | 36'-4" | 36'-6" | 36'-8" |

## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 8 | 10'-6" | Str. |
| B402 | 8 | 38'-2" | Str. |
| B403 | 56 | 8'-9" | 2" |
| B501 | 20 | 31'-7" | Str. |
| B502 | 10 | 8'-7" | 2½" |
| B601 | 120 | 17'-10" | 4½" |
| B602 | 9 | 14'-0" | 4½" |
| B603 | 25 | 25'-2" | 4½" |
| B901 | 6 | 49'-8" | 9" |
| B902 | 6 | 19'-11" | 9" |
| B903 | 55 | 16'-0" | 9" |
| B904 | 30 | 16'-2" | 9" |
| B1001 | 18 | 33'-6" | Str. |
| B1002 | 9 | 20'-4" | 10" |
| B1003 | 9 | 51'-4" | 10" |
| | | | |
| C601 | 3 | 592'-8" | Spiral |
| C602 | 21 | 11'-6" | 4½" |
| C1001 | 36 | "A" | 10" |
| | | | |
| F601 | 340 | 4'-5" | 4½" |
| F801 | 151 | 14'-3" | 6" |
| F802 | 44 | 35'-6" | 9" |
| F1001 | 28 | 19'-3" | 10" |
| F1002 | 28 | 54'-8" | 10" |
| | | | |
| | | | |

BENDING DIAGRAMS
Dimensions are out to out of bars.




STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

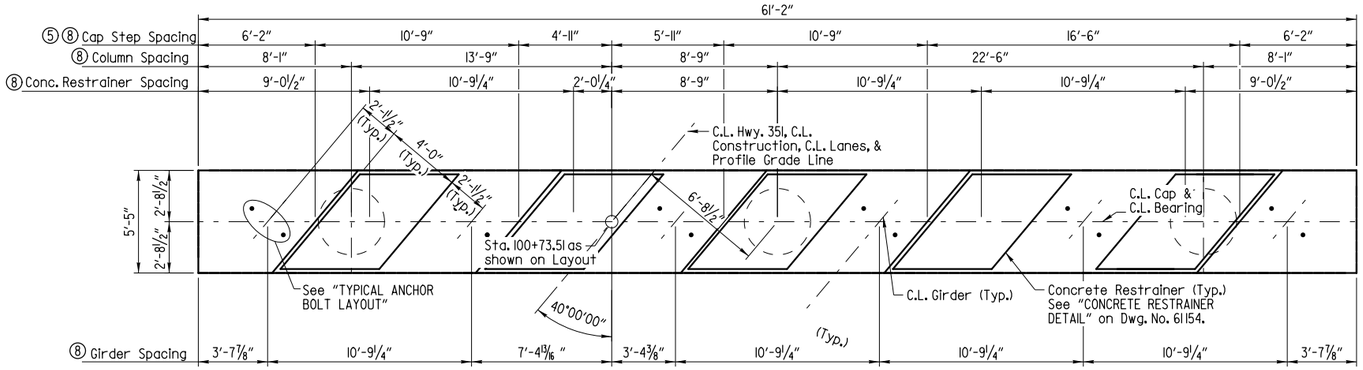
SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENT 6
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
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| CHECKED BY: | JPC | DATE: | 07/2019 | | |
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| BRIDGE NO. | 07463 | | DRAWING NO. | 61152 | |

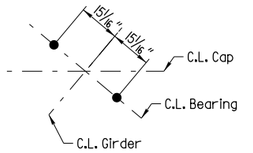
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 66 | 118 |

(1) 07463 - INTERMEDIATE BENT 7 - 61153

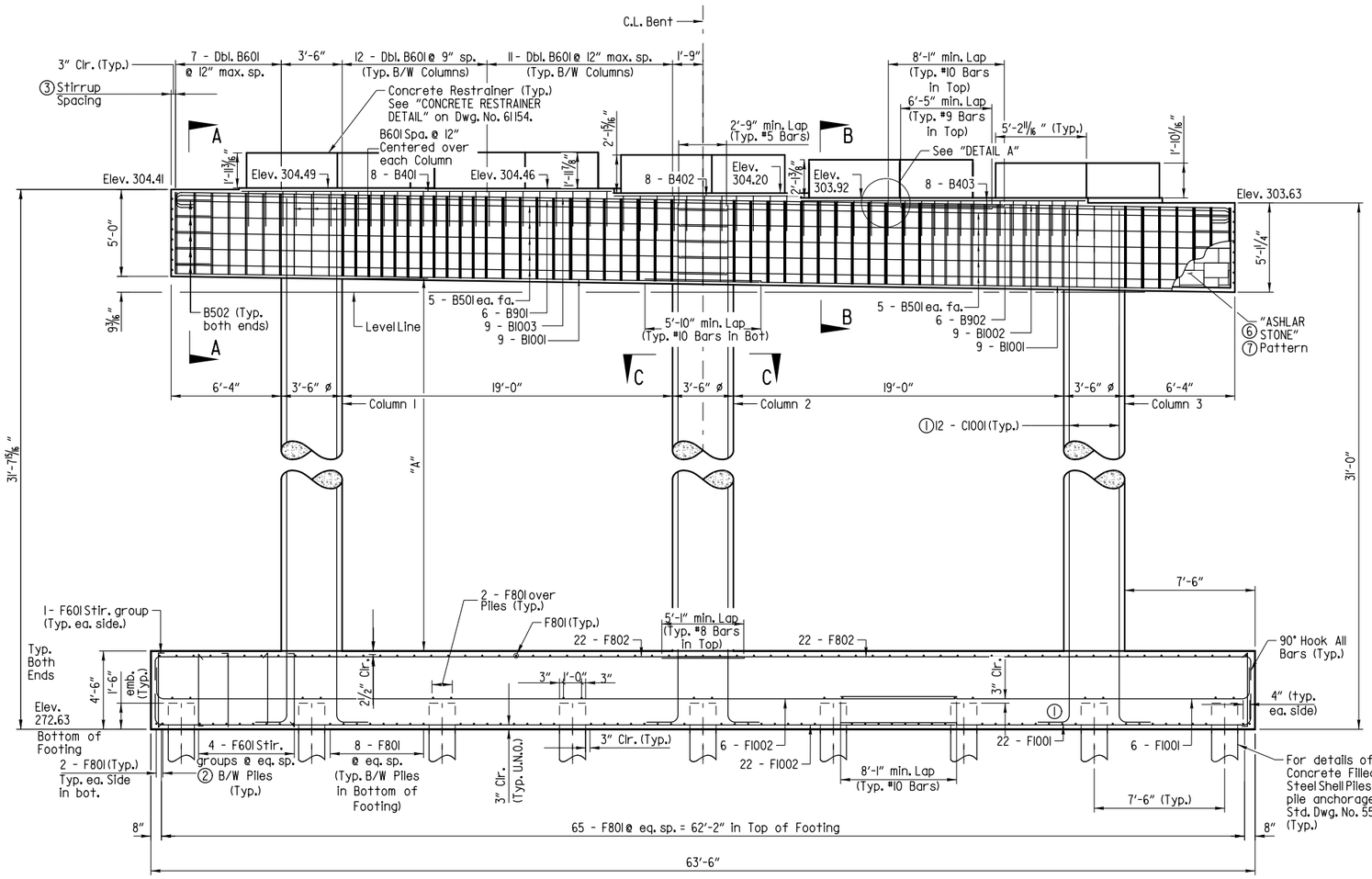



PLAN
¼" = 1'-0"

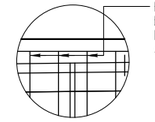



TYPICAL ANCHOR BOLT LAYOUT
No Scale

For details of elastomeric bearings, See Dwg. No. 61159.




ELEVATION
(Looking Ahead)
⅜" = 1'-0"




DETAIL A
No Scale

① Small rotation permissible for resolution of hooks conflicting with adjacent bars.

② Hook F601 bars around F801 bars and space as shown.

③ Stirrup spacing are symmetrical about C.L. Bent.

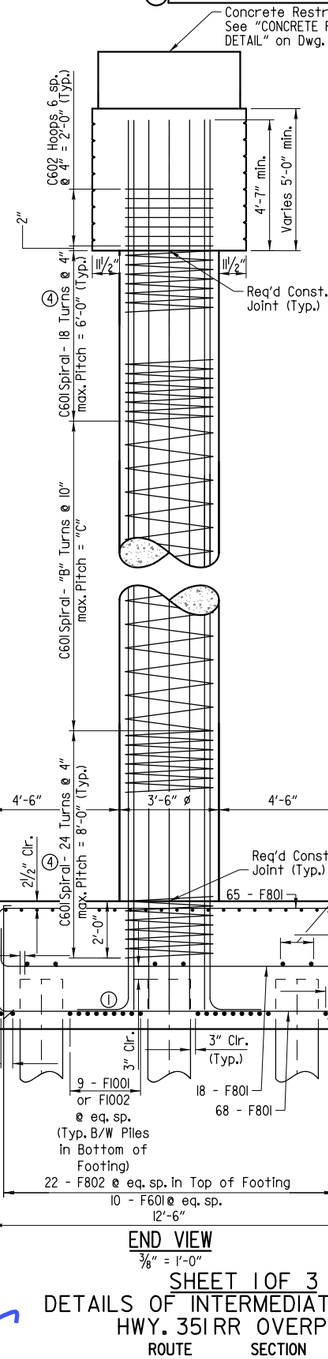
④ End spiral reinforcing with 1½ flat turns.

⑤ All steps are parallel to C.L. Girders.

⑥ "ASHLAR STONE" pattern Typical all side cap faces. See "CAP-ISOMETRIC VIEW" on Dwg. No. 61154.

⑦ Form liner relief shall be a max. of 1" to provide the min. Clr. Shown.

⑧ Measured along C.L. Cap & C.L. Bearing




END VIEW
⅜" = 1'-0"

Note:
See Dwg. No. 61154 for "SECTION A-A", "SECTION B-B", and "SECTION C-C."

TABLE OF VARIABLES

| "A" | | | "B" | | | "C" | | |
|---|---|---|---|---|---|---|---|---|
| Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 | Column 1 | Column 2 | Column 3 |
| 22'-0 11/16" | 21'-9 5/16" | 21'-5 15/16" | 13 | 12 | 12 | 10'-0 11/16" | 9'-9 5/16" | 9'-5 15/16" |

STATE OF ARKANSAS
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No. 14501
STEVEN F. HARPER

8/31/2020

BRIDGE ENGINEER
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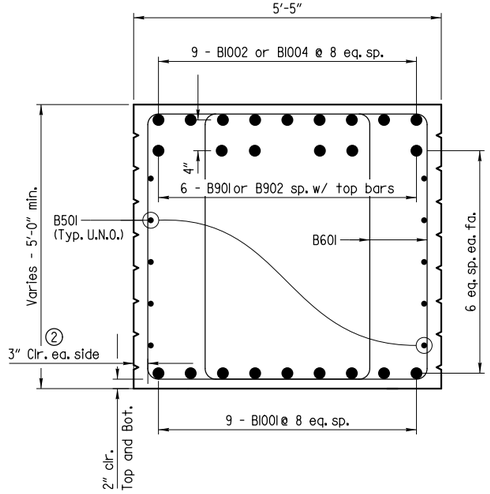
# SHEET 1 OF 3
# DETAILS OF INTERMEDIATE BENT 7
# HWY. 351 RR OVERPASS
ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

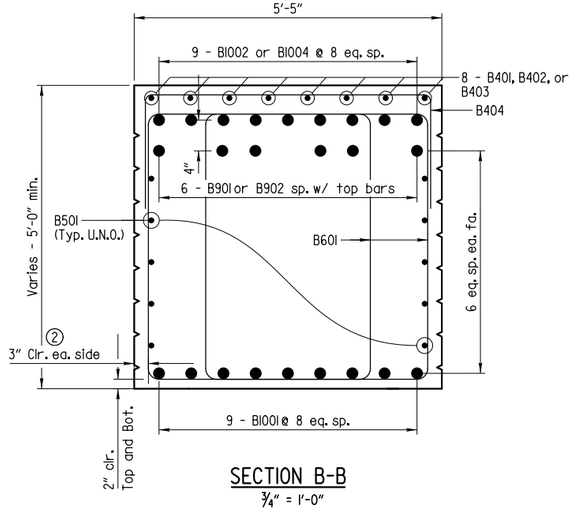
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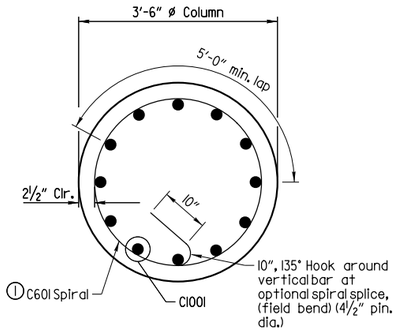
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 67 | 118 |
| | | | | (1) 07463 - INTERMEDIATE BENT 7 - 61154 | | | | |



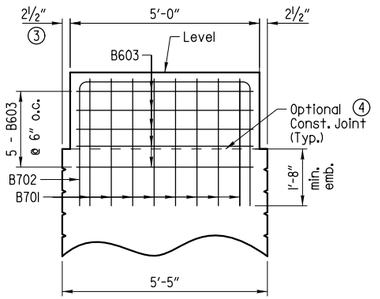

SECTION A-A
3/4" = 1'-0"



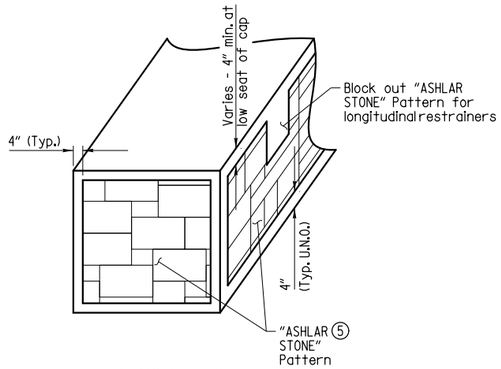

SECTION B-B
3/4" = 1'-0"



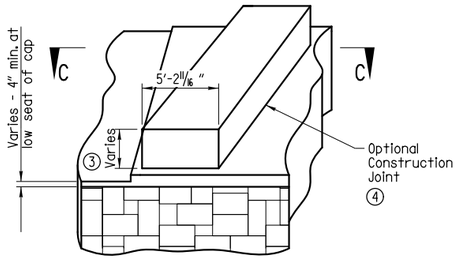

SECTION C-C
3/4" = 1'-0"



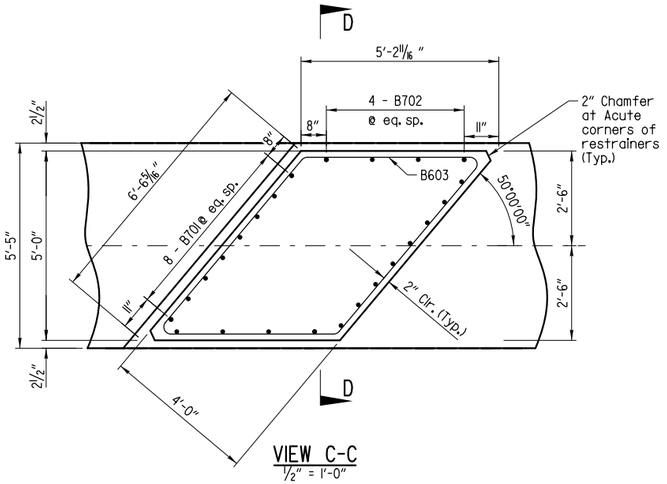

SECTION D-D
1/2" = 1'-0"




CAP-ISOMETRIC VIEW
No Scale




CONCRETE RESTRAINER DETAIL
No Scale




VIEW C-C
1/2" = 1'-0"

(1) End spiral with 1½ flat turns.

(2) Form liner relief shall be a maximum of 1" to provide a minimum clear cover of 2".

(3) For vertical dimensions of restrainer blocks, see "TABLE OF VARIABLES" on Dwg. No. 61153.

(4) All Restrainer Block construction joints to be intentionally roughened to 1/4" amplitude.

(5) "ASHLAR STONE" pattern shall be blocked out 1" clr. on all sides of longitudinal restrainer bearing areas. See Dwg. No. 61184 for Longitudinal Restrainer information.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 2 OF 3
## DETAILS OF INTERMEDIATE BENT 7
## HWY. 351 RR OVERPASS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | CWC | DATE: | 07/2019 | FILENAME: | B100942X1_B72.dgn |
| CHECKED BY: | JPC | DATE: | 07/2019 | | |
| DESIGNED BY: | SHR | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | DRAWING NO. | | 61154 |

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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 68 | 118 |
| | | | | (1) 07463 - INTERMEDIATE BENT 7 - 61155 | | | | |

## GENERAL NOTES

INTERMEDIATE BENT 7 NOTES:
For additional "General Notes", see Std. Dwg. No. 55006.

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

For additional information see layout.

NOTES FOR SPIRAL REINFORCING:
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.75".

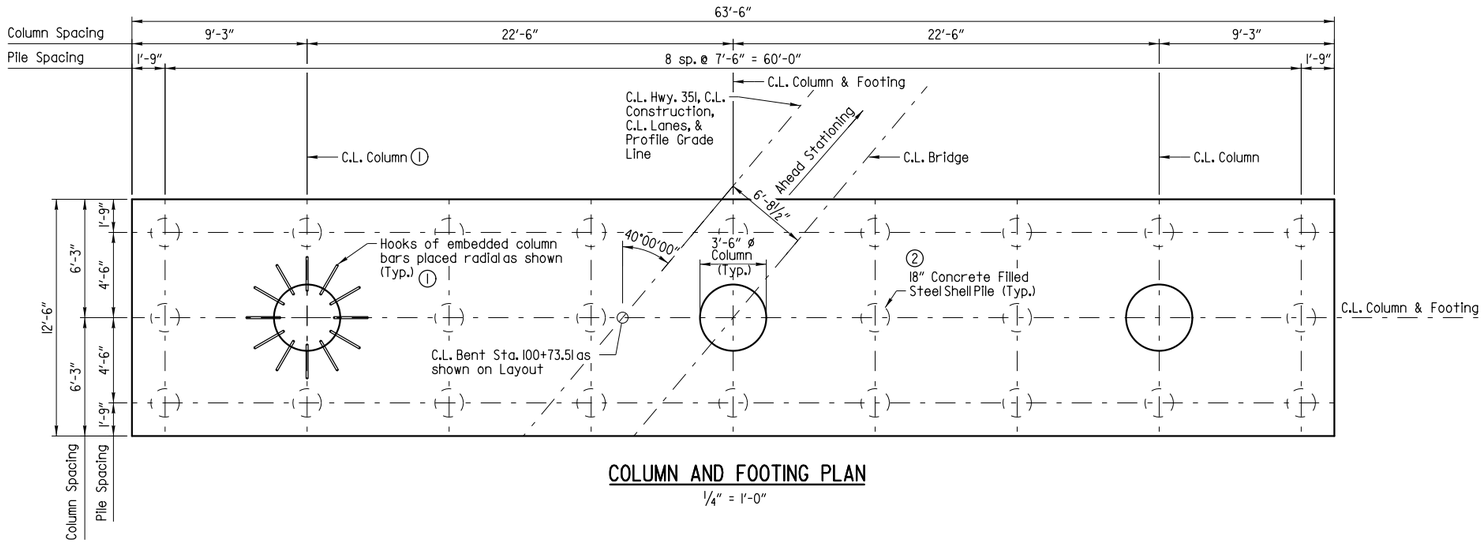
Spiral reinforcement shall be paid for at the contract unit bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, optional splices, or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 6'-0" of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

(1) Small rotation permissible for resolution of hooks conflicting with adjacent bars.

(2) For details of Concrete Filled Steel Shell Piles and pile anchorage, See Std. Dwg. No. 55021 (Typ.)




## COLUMN AND FOOTING PLAN

1/4" = 1'-0"

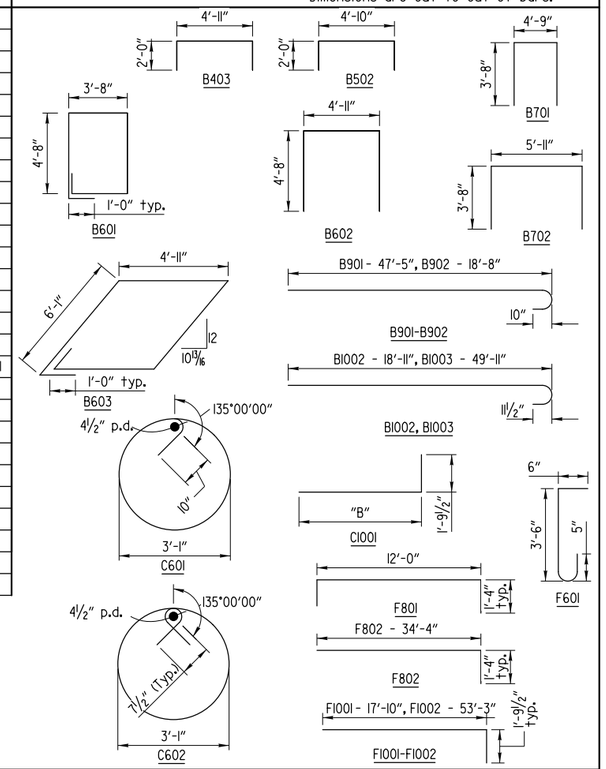
## TABLE OF VARIABLES FOR BAR LIST

| "A" | | | "B" | | | "C" | | |
|---|---|---|---|---|---|---|---|---|
| Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 | Col. 1 | Col. 2 | Col. 3 |
| 32'-5" | 32'-1" | 31'-9" | 30'-11" | 30'-7" | 30'-3" | 534'-6" | 524'-10" | 524'-10" |

## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 8 | 21'-6" | Str. |
| B402 | 8 | 10'-6" | Str. |
| B403 | 8 | 16'-4" | Str. |
| B501 | 20 | 31'-9" | Str. |
| B502 | 10 | 8'-7" | 2½" |
| B601 | 120 | 17'-10" | 4½" |
| B602 | 9 | 14'-0" | 4½" |
| B603 | 25 | 23'-2" | 4½" |
| B701 | 40 | 11'-9" | 5¼" |
| B702 | 20 | 13'-11" | 5¼" |
| B901 | 6 | 49'-8" | 9" |
| B902 | 6 | 19'-11" | 9" |
| B1001 | 18 | 33'-6" | Str. |
| B1002 | 9 | 20'-4" | 10" |
| B1003 | 9 | 51'-4" | 10" |
| | | | |
| C601 | 3 | "C" | Spiral |
| C602 | 21 | 11'-6" | 4½" |
| C1001 | 36 | "A" | 10" |
| | | | |
| F601 | 340 | 4'-5" | 4½" |
| F801 | 151 | 14'-3" | 6" |
| F802 | 44 | 35'-6" | 9" |
| F1001 | 28 | 19'-3" | 10" |
| F1002 | 28 | 54'-8" | 10" |
| | | | |
| | | | |

BENDING DIAGRAMS
Dimensions are out to out of bars.




STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

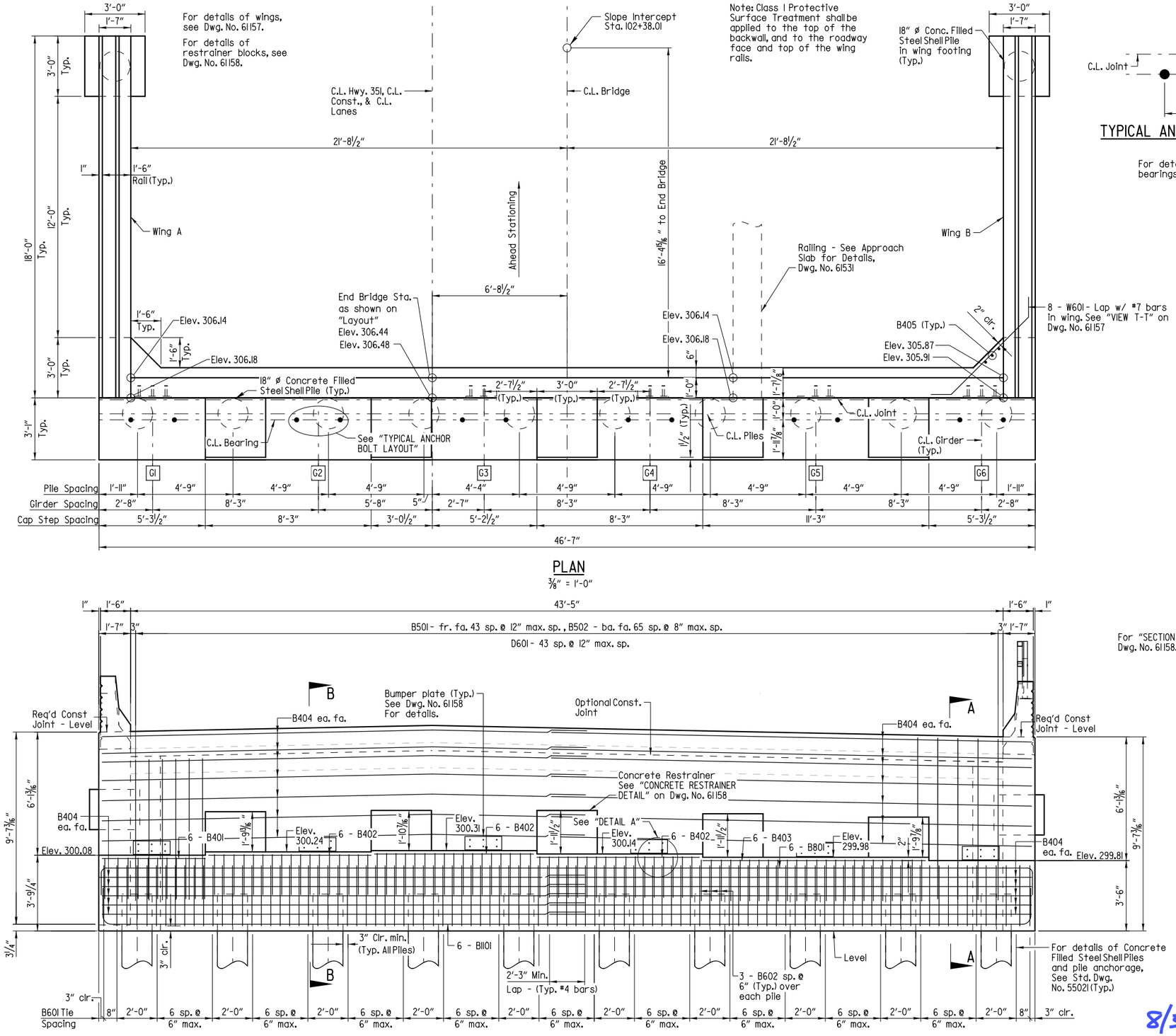
## SHEET 3 OF 3
## DETAILS OF INTERMEDIATE BENT 7
## HWY. 351 RR OVERPASS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: CWC DATE: 07/2019 FILENAME: B100942X1_B72.dgn
CHECKED BY: JPC DATE: 07/2019
DESIGNED BY: SHR DATE: 05/2019 SCALE: As Shown
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
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| | | | | JOB NO. | | 100942 | 69 | 118 |
| | | | | (1) | 07463 - END BENT 8 - 61156 | | | |

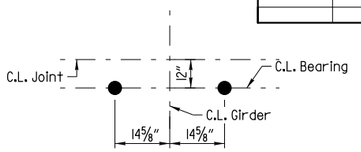



## PLAN
⅜" = 1'-0"



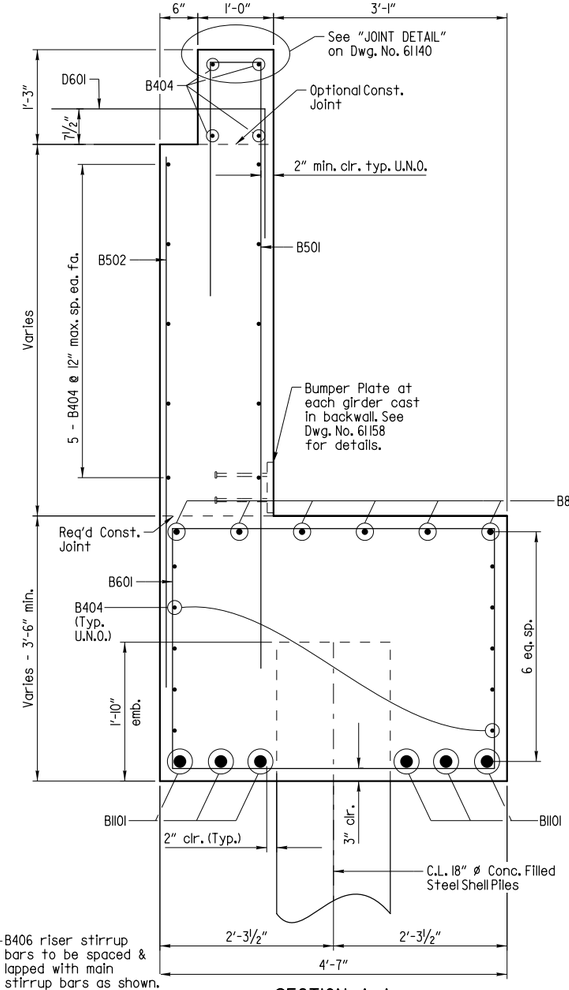

## ELEVATION
(Looking Ahead)
⅜" = 1'-0"

For "SECTION B-B", see Dwg. No. 61158.

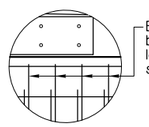



## TYPICAL ANCHOR BOLT LAYOUT
No Scale

For details of elastomeric bearings, See Dwg. No. 61159.




## SECTION A-A
1" = 1'-0"




## DETAIL A
No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER STEPHEN F. HARPER No.14501

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 1 OF 3
# DETAILS OF END BENT 8
# HWY. 351 RR OVERPASS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | |
|---|---|---|---|---|
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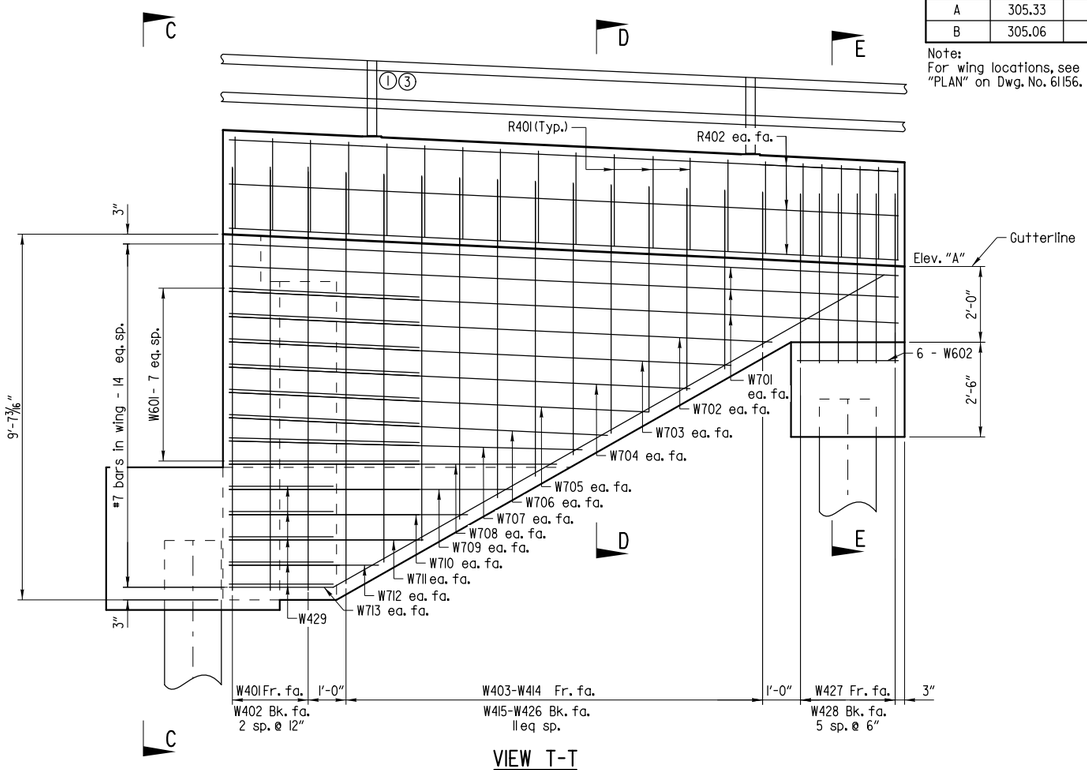
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REVISED DATE:

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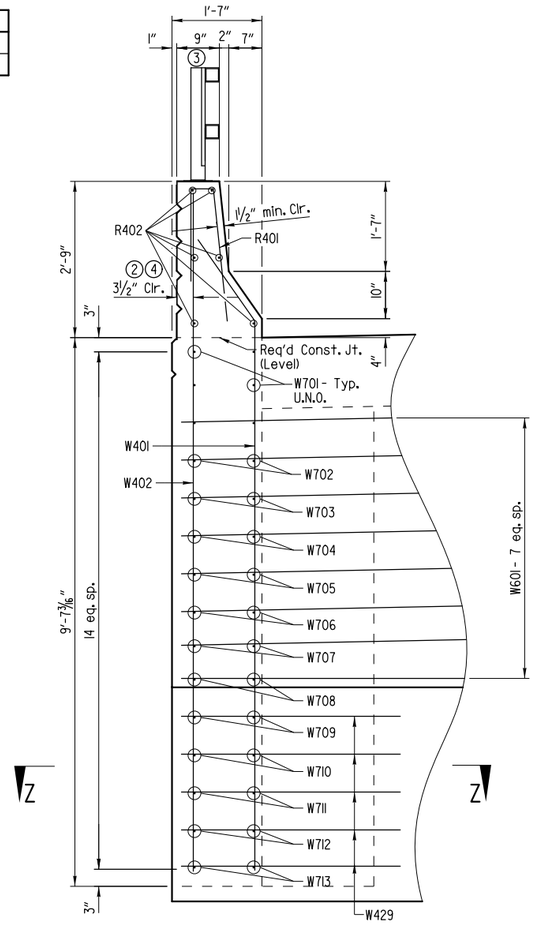
## TABLE OF VARIABLES

| Wing | Elev. "A" | "B" |
|---|---|---|
| A | 305.33 | 3¼" |
| B | 305.06 | 0" |

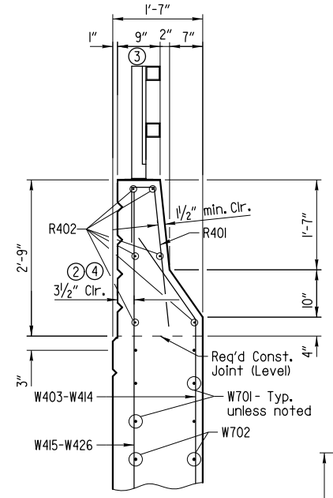
Note:
For wing locations, see "PLAN" on Dwg. No. 61156.



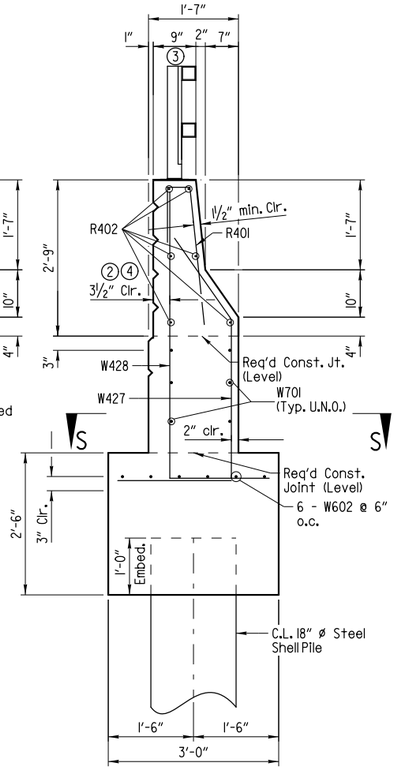

## VIEW T-T
½" = 1'-0"



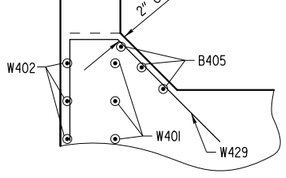

## VIEW C-C
¾" = 1'-0"



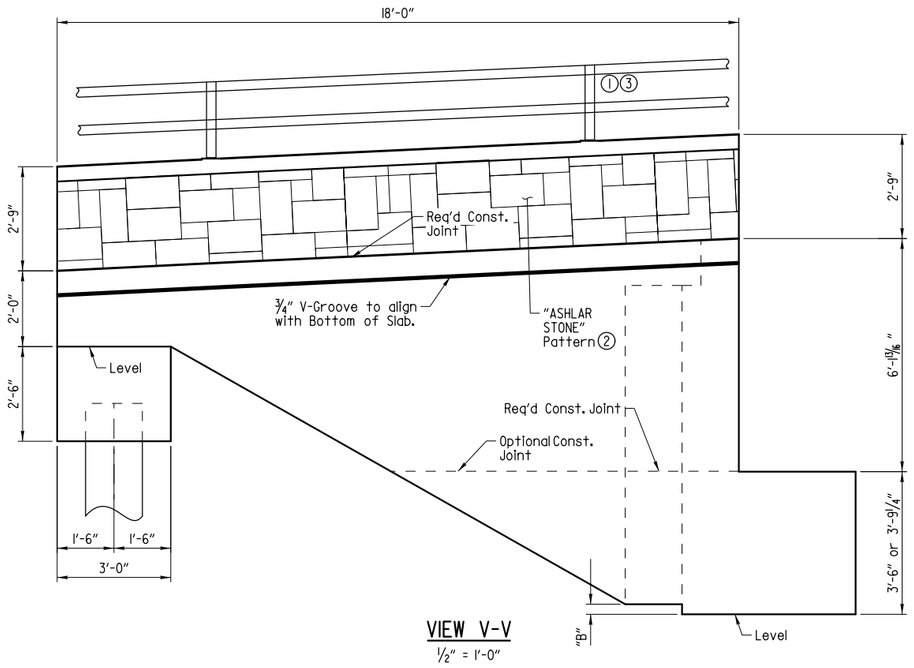

## SECTION D-D
¾" = 1'-0"



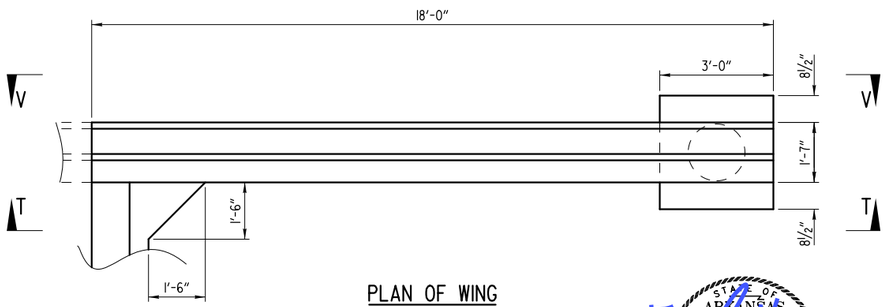

## SECTION E-E
¾" = 1'-0"



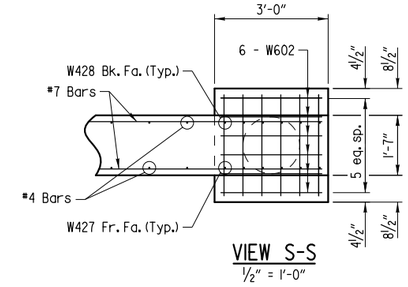

## SECTION Z-Z
½" = 1'-0"




## VIEW V-V
½" = 1'-0"




## PLAN OF WING
½" = 1'-0"




## VIEW S-S
½" = 1'-0"

(1) The color of the Type H-2 Metal Rail, shall be Black and shall match Fed Std. 595B Color Chip No. 27038.

(2) "ASHLAR STONE" pattern form liner relief shall be a maximum of 1", to preserve the minimum clearance of 2½" as shown.

(3) For Type H-2 Railing Details see Dwg. No. 61182.

(4) See "DETAILS OF PARAPET ENHANCEMENT FOR EXTERIOR WING RAILS" on Dwg. No. 61158.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

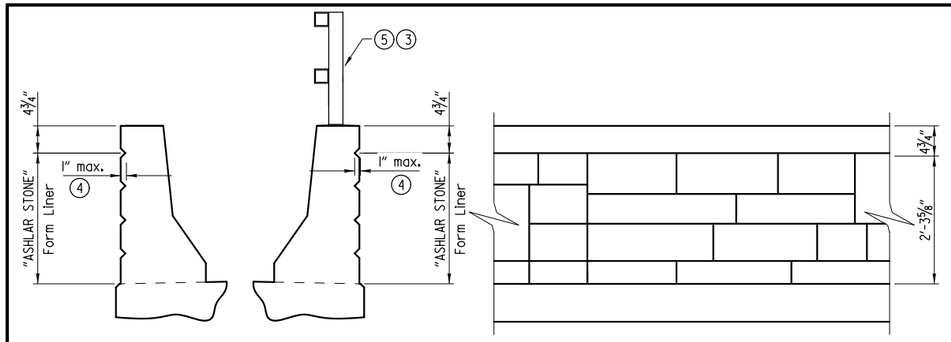
BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 2 OF 3
# DETAILS OF END BENT 8
# HWY. 351 RR OVERPASS
ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

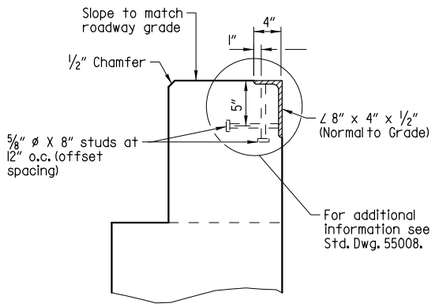
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| CHECKED BY: | SFH | DATE: | 08/2019 | | |
| DESIGNED BY: | SHR | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61157 |

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Y:\Projects\AHTD_16231_Hwy35IRROverpass\Deliverables\BRIDGE\Bridge\B100942XL_B82.dgn
REVISED DATE:




## DETAILS OF PARAPET ENHANCEMENT FOR EXTERIOR WING RAILS

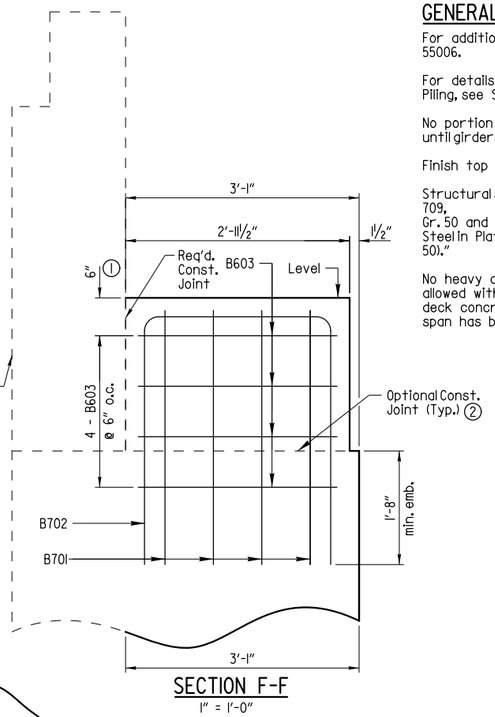
No Scale




## JOINT DETAIL

No Scale

1. For vertical dimensions of restrainer blocks, see Dwg. No. 61156.
2. All Restrainer Block construction joint surfaces to be intentionally roughened to ¼" amplitude
3. The color of the Steel Tube Fence, Posts, and Type H-2 Metal Rail, unless noted otherwise, shall be Black and shall match Fed Std. 595B Color Chip No. 27038.
4. "ASHLAR STONE" pattern form liner relief shall be a maximum of 1", to preserve the minimum clearance of 2½" as shown.
5. For Type H-2 Railing Details See Dwg. No. 61182.




## SECTION F-F

1" = 1'-0"

## GENERAL NOTES

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

For details of 18" ø Conc. Filled Steel Shell Piling, see Std. Dwg. No. 55021

No portion of the backwall shall be poured until girders are in place.

Finish top of backwall to match bridge deck.

Structural steel in end bents shall be ASTM 709, Gr. 50 and shall be paid for as "Structural Steel in Plate Girder Spans. (ASTM A709, Gr. 50)."

No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

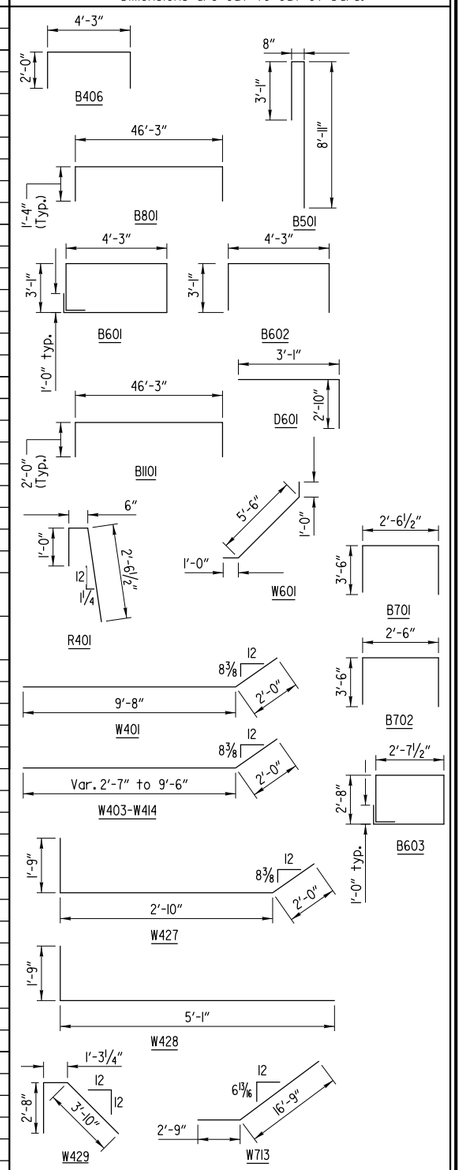
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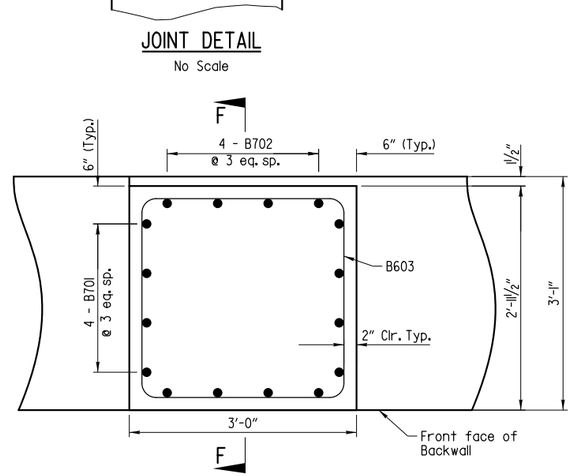
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|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 71 | 118 |
| 1 | 07463 - END BENT 8 - 61158 | | | |

## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| B401 | 6 | 5'-1" | Str. |
| B402 | 18 | 7'-11" | Str. |
| B403 | 6 | 11'-1" | Str. |
| B404 | 48 | 24'-5" | Str. |
| B405 | 6 | 8'-0" | Str. |
| B406 | 86 | 8'-1" | 2" |
| | | | |
| B501 | 44 | 12'-6" | 2½" |
| B502 | 66 | 7'-8" | Str. |
| | | | |
| B601 | 67 | 15'-10" | 4½" |
| B602 | 30 | 10'-1" | 4½" |
| B603 | 20 | 11'-9" | 4½" |
| | | | |
| B701 | 20 | 9'-2" | 5¼" |
| B702 | 20 | 9'-2" | 5¼" |
| | | | |
| B801 | 6 | 48'-6" | 6" |
| | | | |
| B1101 | 6 | 49'-7" | 11¼" |
| | | | |
| R401 | 42 | 3'-11" | 2" |
| R402 | 12 | 17'-8" | Str. |
| | | | |
| W401 | 6 | 11'-8" | 2" |
| W402 | 6 | 11'-10" | Str. |
| W403 to W414 | 2 each | Var. 4'-7" to 11'-6" | 2" |
| W415 to W426 | 2 each | Var. 4'-10" to 11'-9" | Str. |
| W427 | 12 | 6'-6" | 2" |
| W428 | 12 | 6'-9" | 2" |
| W429 | 10 | 7'-8" | 2" |
| | | | |
| W601 | 16 | 7'-6" | 4½" |
| W602 | 12 | 2'-8" | Str. |
| | | | |
| W701 | 12 | 17'-8" | Str. |
| W702 | 4 | 14'-4" | Str. |
| W703 | 4 | 13'-3" | Str. |
| W704 | 4 | 12'-2" | Str. |
| W705 | 4 | 11'-1" | Str. |
| W706 | 4 | 10'-0" | Str. |
| W707 | 4 | 9'-4" | Str. |
| W708 | 4 | 8'-8" | Str. |
| W709 | 4 | 7'-5" | Str. |
| W710 | 4 | 6'-4" | Str. |
| W711 | 4 | 5'-2" | Str. |
| W712 | 4 | 3'-11" | Str. |
| W713 | 4 | 19'-6" | 5¼" |
| | | | |
| D601 | 44 | 5'-9" | 4½" |

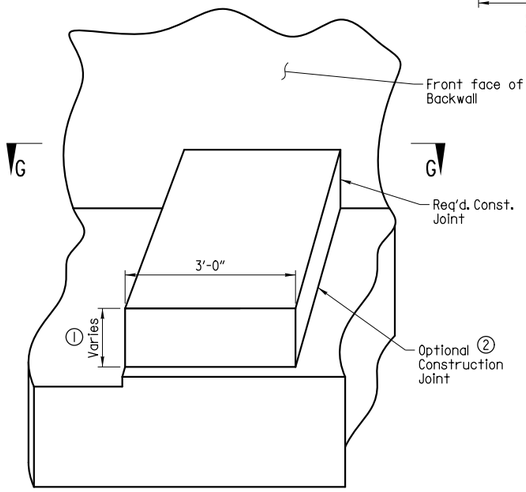
BENDING DIAGRAMS
Dimensions are out to out of bars.



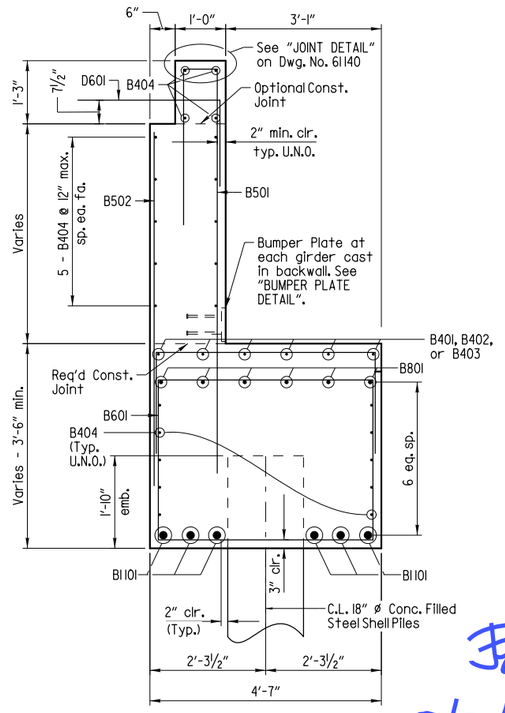

## VIEW G-G

1" = 1'-0"



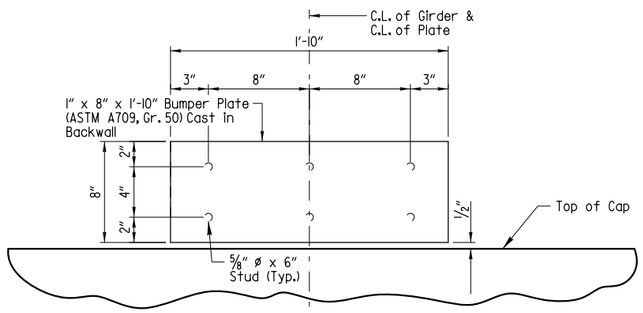

## CONCRETE RESTRAINER DETAIL

No Scale




## SECTION B-B

½" = 1'-0"




## BUMPER PLATE DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

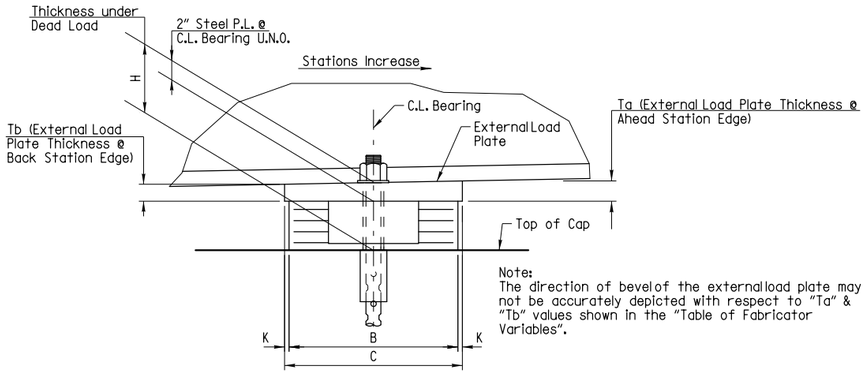
# SHEET 3 OF 3
# DETAILS OF END BENT 8
# HWY. 351 RR OVERPASS
ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | CWC | DATE: | 07/2019 | FILENAME: | B100942XL_B83.dgn |
| CHECKED BY: | JPC | DATE: | 07/2019 | | |
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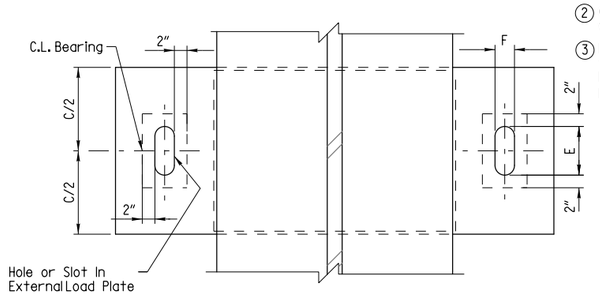
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 72 | 118 |
| | | | | (1) | 07463 - ELAST. BEARINGS - 61159 | | | |




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

SIDE VIEW - BENTS 1,2,3,4,5,7, AND 8

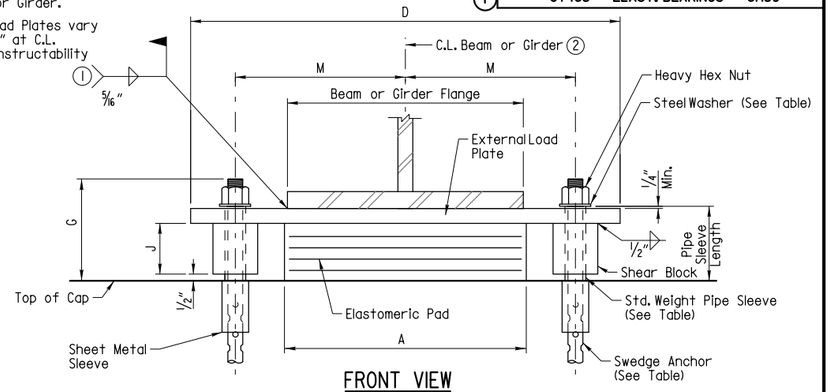



PLAN VIEW - BENTS 1,2,3,4,5,7, AND 8

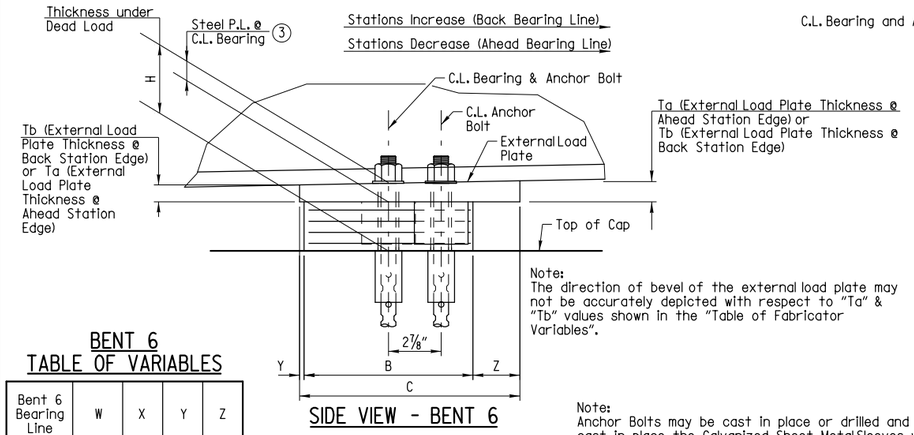
(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

(2) C.L. Elastomeric pad shall be aligned with C.L. Beam or Girder.

(3) Bent 6 Back Load Plates vary from 2" to 2 5/16" at C.L. Bearing for constructability purposes.

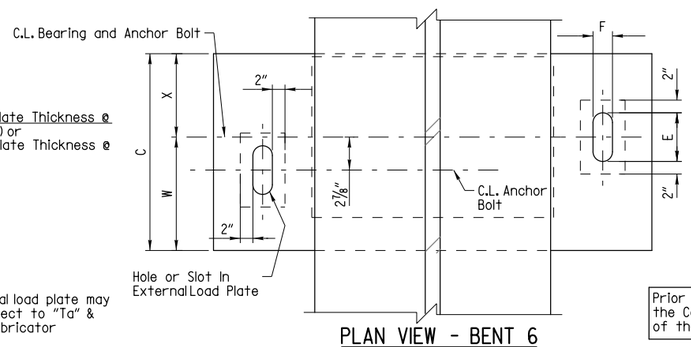



FRONT VIEW



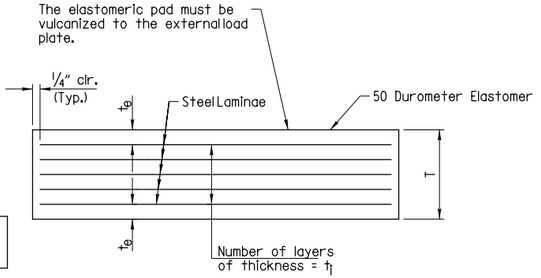

Note:
The direction of bevel of the external load plate may not be accurately depicted with respect to "Ta" & "Tb" values shown in the "Table of Fabricator Variables".

SIDE VIEW - BENT 6




PLAN VIEW - BENT 6
(Looking Forward for Ahead Bearing line, Back bearing line similar by 180° rotation)

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.




$t_i$ = thickness of elastomer between steel laminae
$t_e$ = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness $t_i$

ELASTOMERIC BEARING

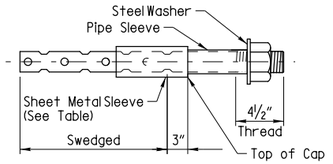
## BENT 6 TABLE OF VARIABLES

| Bent 6 Bearing Line | W | X | Y | Z |
|---|---|---|---|---|
| Back | 8 1/16" | 5 5/16" | 1 9/16" | 4 7/16" |
| Ahead | 8 1/2" | 5 1/2" | 1" | 4" |

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

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the 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 shall meet the requirements of ASTM 635.CS Type B or approved equivalent, be of minimum 16 gage thickness, and be galvanized according to ASTM B695, Class 50. Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (ASTM A709, Gr. 50).




ANCHOR BOLT DETAIL

## TABLE OF FABRICATOR VARIABLES

| BRIDGE NO. | LOCATION: BENT NO(S). | UNIT | BEAM OR GIRDER NO. | BEARING TYPE | NO. OF BEARINGS EACH BENT | (4) MAXIMUM DESIGN LOAD (kips) | ELASTOMERIC PAD: G | H | A | B | N | $t_i$ | $t_e$ | NO. & THICKNESS OF STEEL LAMINAE | T | EXTERNAL LOAD PLATE: C | D | E | F | (5) J | K | M | $T_a$ | $T_b$ | ANCHOR BOLT: ANCHOR BOLT (Ø x L) | GRADE | PIPE SLEEVE SIZE (Ø x L) | SHEET METAL SLEEVE SIZE (Ø x L) | STEEL WASHER SIZE (O.D.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07463 | Bent 1 | 260' | All | Exp. | 6 | 133.6 | 7 3/4" | 4 15/16" | 16" | 9" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 10" | 33 1/2" | 5 3/4" | 2 3/4" | 2 7/16" | 1/2" | 12 5/8" | 2.24" | 1.76" | 1 1/2" x 26" | 55 | 1 1/2" x 5 1/4" | 3" x 10" | 3" |
| | Bent 2 | 260' | All | Fix. | 6 | 319.4 | 7 3/4" | 4 15/16" | 16" | 14" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 15" | 33 1/2" | 2 1/4" | 2 3/4" | 2 7/16" | 1/2" | 12 5/8" | 2.43" | 1.57" | 1 1/2" x 26" | 55 | 1 1/2" x 5 1/4" | 3" x 10" | 3" |
| | Bent 3 | 260' | All | Fix. | 6 | 318.7 | 7 3/4" | 4 5/16" | 16" | 14" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 15" | 33 1/2" | 2 1/4" | 2 3/4" | 2 7/16" | 1/2" | 12 5/8" | 2.53" | 1.47" | 1 1/2" x 26" | 55 | 1 1/2" x 5 1/4" | 3" x 10" | 3" |
| | Bent 4 (Back) | 260' | All | Exp. | 6 | 133.5 | 8 1/2" | 4 5/16" | 16" | 9" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 10" | 35 1/4" | 6 1/2" | 3 1/2" | 2 7/16" | 1/2" | 13 1/16" | 2.34" | 1.66" | 2 1/4" x 34" | 55 | 2 1/2" x 5 1/4" | 4" x 10" | 4 1/2" |
| | Bent 4 (Ahead) | 222' | All | Exp. | 6 | 158.5 | 8 1/16" | 4 3/8" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 9" | 41 3/4" | 7" | 4" | 1 7/8" | 1/2" | 15 11/16" | 2.30" | 1.70" | 2 3/4" x 40" | 55 | 3" x 4 11/16" | 5" x 10" | 5" |
| | Bent 5 | 222' | I-3 | Fix. | 3 | 417.5 | 7 1/16" | 4 3/8" | 20" | 13" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 38 1/4" | 2 5/8" | 3" | 1 7/8" | 1/2" | 14 13/16" | 2.30" | 1.70" | 1 3/4" x 28" | 55 | 2" x 4 11/16" | 4" x 10" | 3 3/8" |
| | Bent 5 | 222' | 4-6 | Fix. | 3 | 417.5 | 7 1/16" | 4 3/8" | 20" | 13" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 38 1/4" | 2 5/8" | 3" | 1 7/8" | 1/2" | 14 13/16" | 2.29" | 1.71" | 1 3/4" x 28" | 55 | 2" x 4 11/16" | 4" x 10" | 3 3/8" |
| | (3) Bent 6 (Back) | 222' | I | Exp. | 1 | 157.5 | 7 15/16" | 4 3/8" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 1 7/8" | - | 15 11/16" | 2.18" | 1.88" | 2 1/4" x 35" | 55 | 2 1/2" x 4 11/16" | 4" x 14" | 4" |
| | (3) Bent 6 (Back) | 222' | 2 | Exp. | 1 | 157.5 | 8" | 4 1/16" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 1 7/8" | - | 15 11/16" | 2.23" | 1.94" | 2 1/4" x 35" | 55 | 2 1/2" x 4 3/4" | 4" x 14" | 4" |
| | (3) Bent 6 (Back) | 222' | 3 | Exp. | 1 | 157.5 | 8 1/16" | 4 1/2" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 1 7/8" | - | 15 11/16" | 2.28" | 2.02" | 2 1/4" x 35" | 55 | 2 1/2" x 4 13/16" | 4" x 14" | 4" |
| | (3) Bent 6 (Back) | 222' | 4 | Exp. | 1 | 157.5 | 8 1/8" | 4 9/16" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 1 7/8" | - | 15 11/16" | 2.34" | 2.10" | 2 1/4" x 35" | 55 | 2 1/2" x 4 7/8" | 4" x 14" | 4" |
| | (3) Bent 6 (Back) | 222' | 5 | Exp. | 1 | 157.5 | 8 3/16" | 4 5/8" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 1 7/8" | - | 15 11/16" | 2.40" | 2.18" | 2 1/4" x 35" | 55 | 2 1/2" x 4 15/16" | 4" x 14" | 4" |
| | (3) Bent 6 (Back) | 222' | 6 | Exp. | 1 | 157.5 | 8 1/4" | 4 11/16" | 20" | 8" | 3 | 1/2" | 1/4" | 4 @ 12ga. | 2 1/16" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 1 7/8" | - | 15 11/16" | 2.46" | 2.26" | 2 1/4" x 35" | 55 | 2 1/2" x 5" | 4" x 14" | 4" |
| | Bent 6 (Ahead) | 294' | I-3 | Exp. | 3 | 196.7 | 8 1/2" | 4 15/16" | 20" | 9" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 2 7/16" | - | 15 11/16" | 2.11" | 1.84" | 2 1/4" x 34" | 55 | 2 1/2" x 5 1/4" | 4" x 10" | 4" |
| | Bent 6 (Ahead) | 294' | 4-6 | Exp. | 3 | 196.7 | 8 1/2" | 4 5/16" | 20" | 9" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 14" | 39 1/4" | 6 1/2" | 3 1/2" | 2 7/16" | - | 15 11/16" | 2.08" | 1.87" | 2 1/4" x 34" | 55 | 2 1/2" x 5 1/4" | 4" x 10" | 4" |
| | Bent 7 | 294' | I-3 | Fix. | 3 | 518.0 | 8 1/4" | 4 5/16" | 20" | 16" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 17" | 39 1/4" | 3 1/8" | 3 1/4" | 2 7/16" | 1/2" | 15 11/16" | 1.90" | 2.10" | 2" x 31" | 55 | 2 1/2" x 5 1/4" | 4" x 10" | 3 3/4" |
| | Bent 7 | 294' | 4-6 | Fix. | 3 | 518.0 | 8 1/4" | 4 5/16" | 20" | 16" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 17" | 39 1/4" | 3 1/8" | 3 1/4" | 2 7/16" | 1/2" | 15 11/16" | 1.86" | 2.14" | 2" x 31" | 55 | 2 1/2" x 5 1/4" | 4" x 10" | 3 3/4" |
| | Bent 8 | 294' | All | Exp. | 6 | 184.8 | 7 3/4" | 4 5/16" | 20" | 9" | 4 | 1/2" | 1/4" | 5 @ 12ga. | 3" | 10" | 37 1/2" | 5 3/4" | 2 3/4" | 2 7/16" | 1/2" | 14 5/8" | 1.77" | 2.23" | 1 1/2" x 26" | 55 | 1 1/2" x 5 1/4" | 3" x 10" | 3" |

(4) Maximum Load = Service I Limit State.

(5) Shear blocks 4 inches or thicker may be fabricated from built-up plates with a 5/16" groove weld on all sides. No plate shall be less than 2" nominal thickness.

## 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, Grade 50.
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 and shear blocks 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 Plate Girder Spans (ASTM A709, Gr. 50)". External load plates and shear blocks will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# DETAILS OF ELASTOMERIC BEARINGS HWY. 351RR OVERPASS

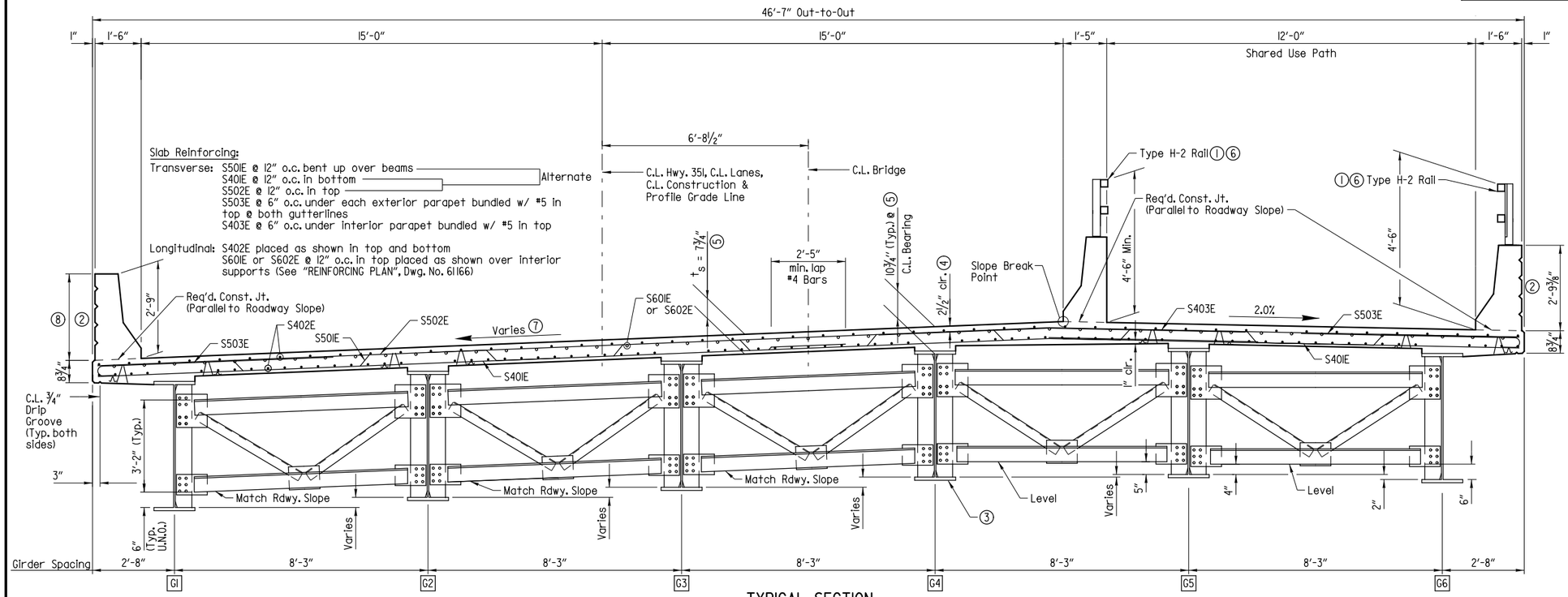
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
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| BRIDGE NO. | 07463 | | | DRAWING NO. | 61159 |

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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 73 | 118 |
| | | | | (1) | 07463 - 260'-0" CONT. UNIT - 61160 | | | |




## TYPICAL SECTION

(Looking Ahead)
½" = 1'-0"

Note:
At the Contractors option, in lieu of providing S501E bars, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E. Bars in top and bottom shall be epoxy coated.

(1) The color of the Steel Fence, Posts and Type H-2 Metal Rail shall be Black and shall match Fed. Std. 595B Color Chip No. 27038.

(2) "Ashlar Stone" pattern on outside of parapet rails. See Dwg. No. 61183 for additional details.

(3) All Structural Steel except galvanized members and some surfaces in contact with concrete shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.

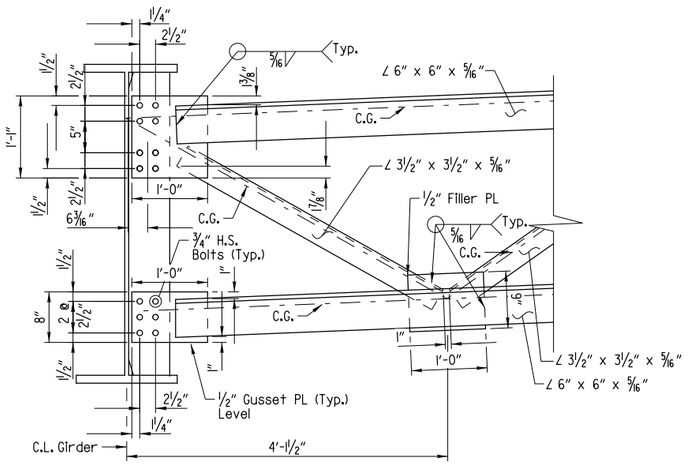
(4) Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

(5) See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007 with an exception that maximum haunch dimension is top flange thickness plus 2¼".

(6) For details of Rail, see Dwg. No. 61183.

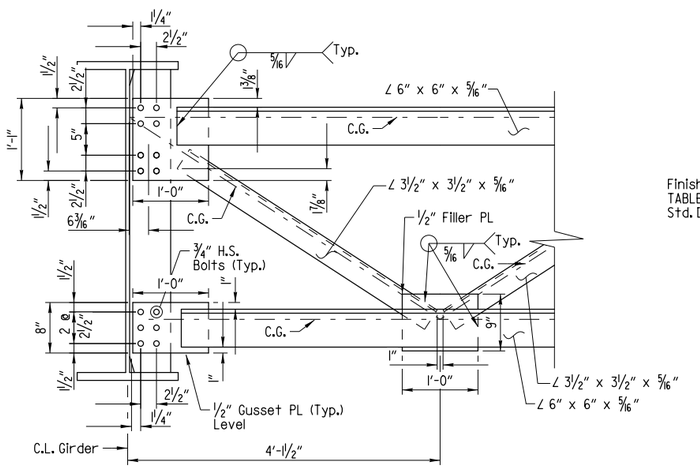
(7) See "CROSS-SLOPE TRANSITION SKETCH", Dwg No. 61133.

(8) Varies with cross-slope from 2'-9¾" (Begin Bridge) to 2'-9⅞" (Bent No. 4).



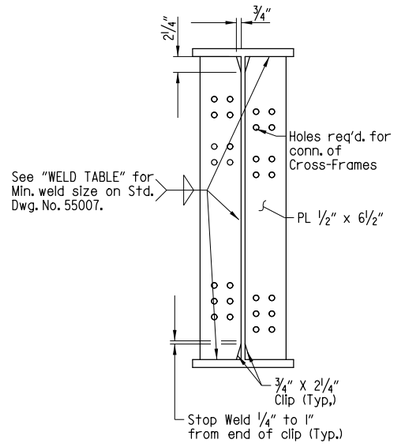

## SLOPED K-FRAME DETAIL

1" = 1'-0"



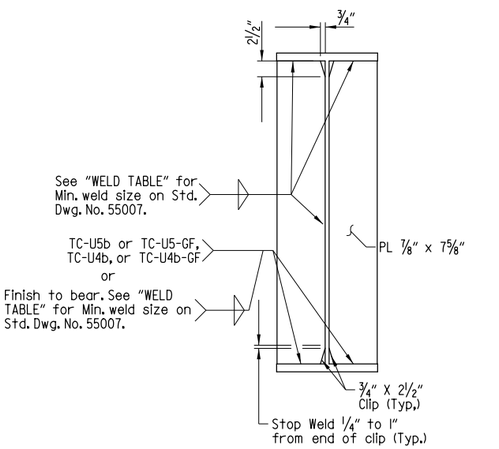

## LEVEL K-FRAME DETAIL

1" = 1'-0"




## CROSS-FRAME CONNECTION PLATE DETAIL

1" = 1'-0"




## BEARING STIFFENER DETAIL

1" = 1'-0"

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No.14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
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# SHEET 1 OF 8
# DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351RR OVERPASS

ROUTE SECTION

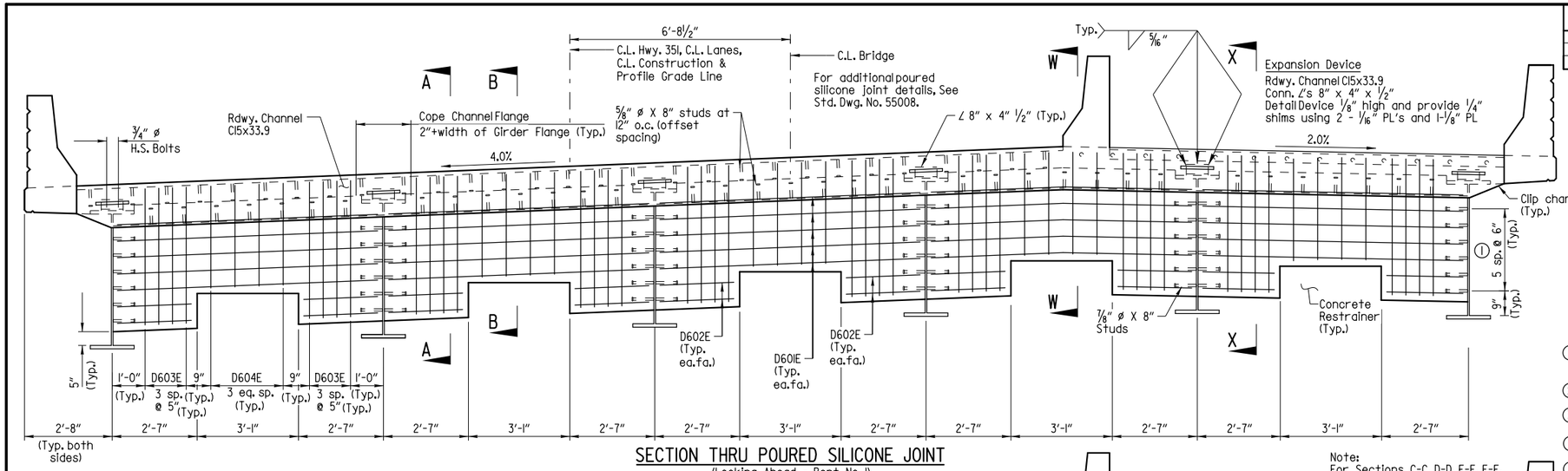
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
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REVISED DATE:

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| | | | | JOB NO. | | 100942 | 74 | 118 |

(1) 07463 - 260'-0" CONT. UNIT - 61161

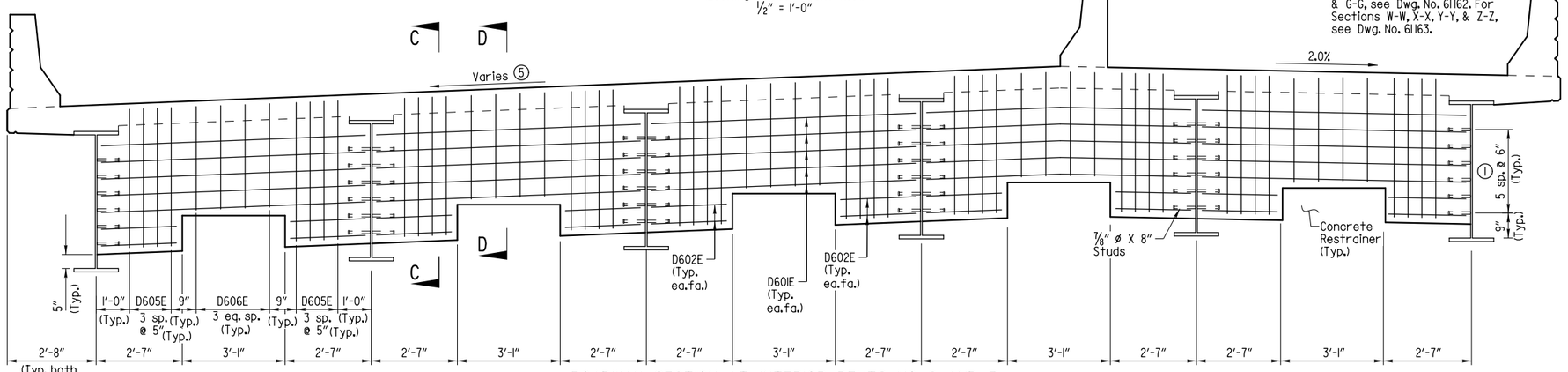



SECTION THRU POURED SILICONE JOINT

(Looking Ahead - Bent No. 1)

½" = 1'-0"

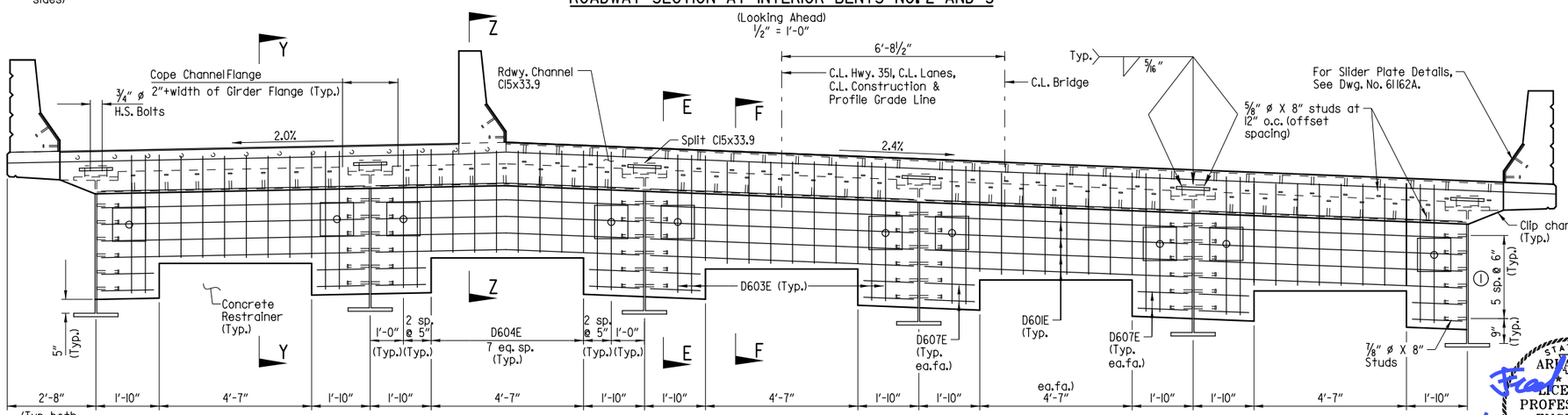
Note:
For Sections C-C, D-D, E-E, F-F, & G-G, see Dwg. No. 61162. For Sections W-W, X-X, Y-Y, & Z-Z, see Dwg. No. 61163.




ROADWAY SECTION AT INTERIOR BENTS NO. 2 AND 3

(Looking Ahead)

½" = 1'-0"



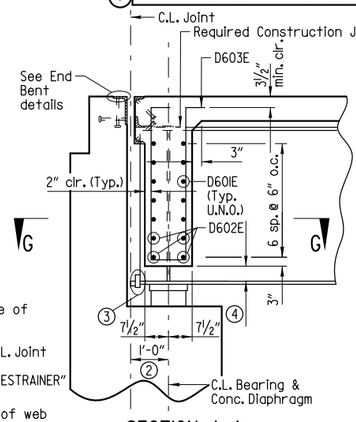

SECTION THRU PREFORMED SILICONE JOINT

(Looking Back - Bent No. 4)

½" = 1'-0"

Expansion Device
Roadway Channel C15x33.9
Preformed Silicone Joint Seal
Connection Split C15x33.9
Detail device ⅛" high & provide ¼" shims using 1- ⅛" PL & 2 - 1/16" PLs

Note: ½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to "Class S(AE) Concrete - Bridge."




(1) Omit studs on outside of Exterior Girders

(2) Measured Normal to C.L. Joint

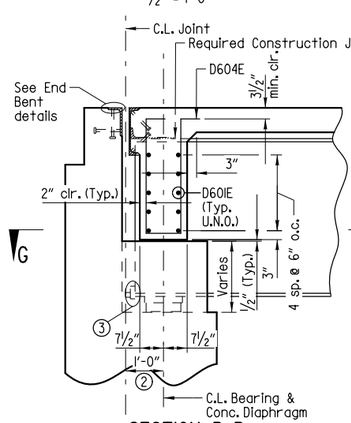
(3) See "PLAN OF GIRDER RESTRAINER" on Dwg. No 61164.

(4) 5" typ. from bottom of web

(5) See "CROSS-SLOPE TRANSITION SKETCH", Dwg No. 61133.

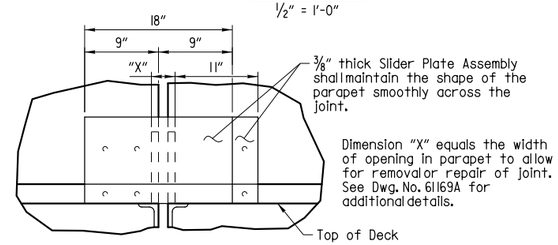
SECTION A-A

½" = 1'-0"




SECTION B-B

½" = 1'-0"




DETAIL OF PARAPET SLIDER PLATES

No Scale

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No. 14501
STEPHEN F. HARPER

8/31/2020

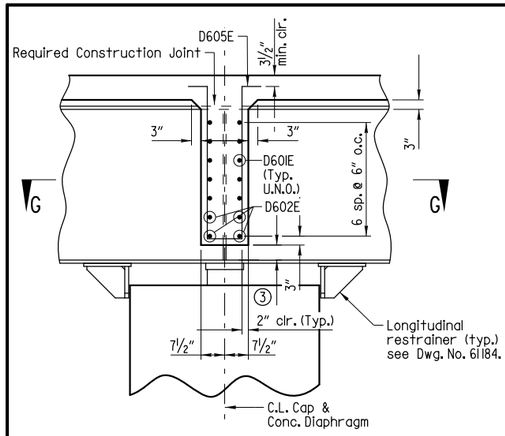
BRIDGE ENGINEER
PRINT DATE: 8/31/2020

SHEET 2 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
HWY. 35I RR OVERPASS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

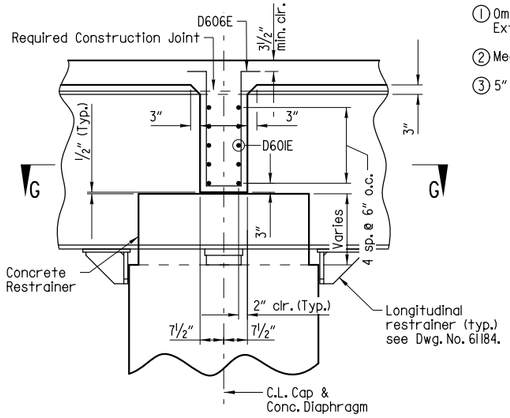
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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61161 |

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REVISED DATE:




## SECTION C-C

½" = 1'-0"



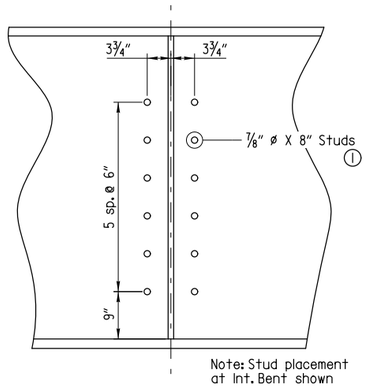

## SECTION D-D

½" = 1'-0"

① Omit studs on outside of Exterior Girders

② Measured Normal to C.L. Joint

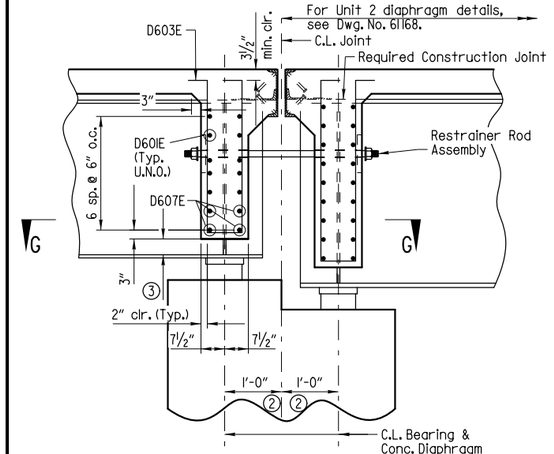
③ 5" typ. @ face of web




Note: Stud placement at Int. Bent shown

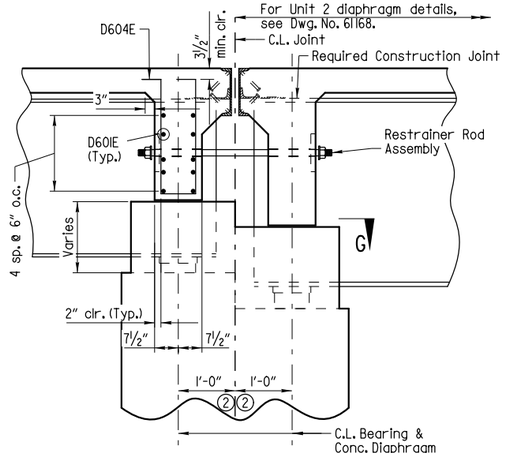
## DETAIL J

1" = 1'-0"



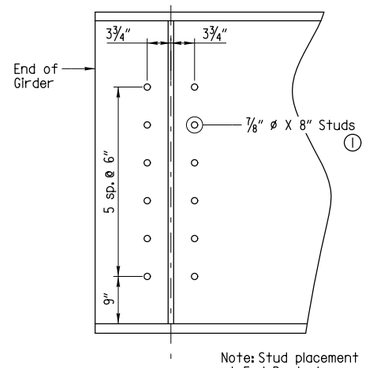

## SECTION E-E

½" = 1'-0"




## SECTION F-F

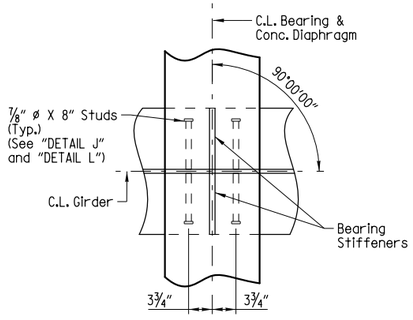
½" = 1'-0"




Note: Stud placement at End Bent shown

## DETAIL L

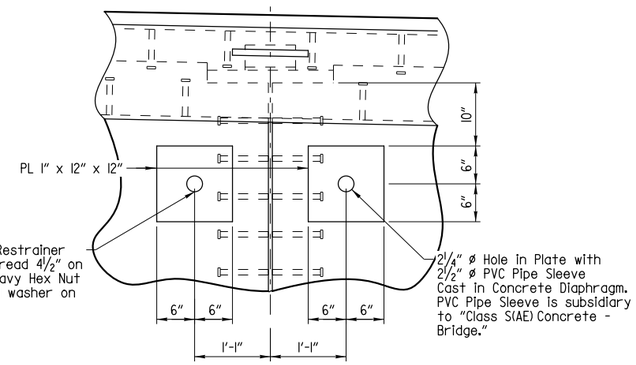
1" = 1'-0"




## SECTION G-G

1" = 1'-0"

Note: This Detail typ. at Bent 4.




## RESTRAINER ROD ASSEMBLY DETAIL

1" = 1'-0"

Note: Longitudinal Restrainer Rod shall conform to ASTM A709, Gr. 50 steel with threads conforming to American Standard Course, Class 2 Fit, ASA Specification B1.1. Washers for longitudinal restrainer rod shall conform to ASTM F436. Nuts for longitudinal restrainers shall conform to Subsection 807.06. Rods, Nuts, and Washers for the longitudinal restrainers shall be galvanized in accordance with AASHTO M232 class C or ASTM B695 class 50. See "Restrainer Rod Installation Detail". Restrainer rod, nut, washers and plate shall be paid for as "Structural Steel in Plate Girder Spans (ASTM A709, Gr. 50)".

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 75 | 118 |
| | | | | ① | 07463 - 260'-0" CONT. UNIT - 61162 | | | |

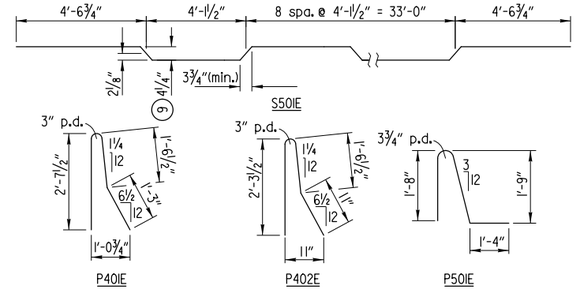
## BAR LIST

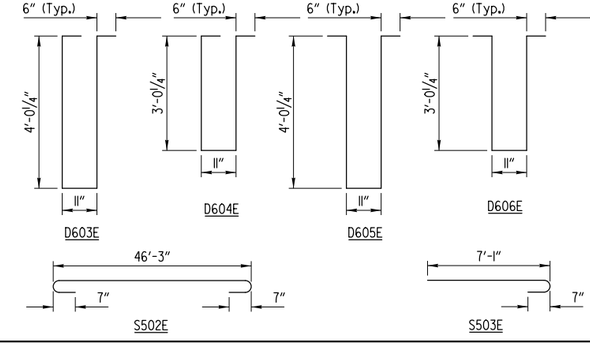
| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| S40IE | 528 | 24'-6" | Str. |
| S402E | 968 | 36'-6" | Str. |
| S403E | 527 | 12'-0" | Str. |
| S50IE | 263 | 47'-4" | 3" |
| S502E | 264 | 47'-5" | 3¾" |
| S503E | 1054 | 7'-8" | 3¾" |
| S60IE | 141 | 60'-0" | Str. |
| S602E | 47 | 31'-6" | Str. |
| P40IE | 1511 | 5'-6" | 3" |
| P402E | 96 | 4'-10" | 3" |
| P403E | 96 | 5'-6" | Str. |
| P404E | 56 | 9'-10" | Str. |
| P405E | 56 | 10'-5" | Str. |
| P406E | 56 | 10'-8" | Str. |
| P407E | 42 | 13'-6" | Str. |
| P408E | 42 | 14'-4" | Str. |
| P409E | 42 | 14'-8" | Str. |
| P410E | 14 | 15'-7" | Str. |
| P411E | 14 | 16'-6" | Str. |
| P412E | 14 | 16'-11" | Str. |
| P413E | 21 | 18'-6" | Str. |
| P414E | 21 | 19'-8" | Str. |
| P415E | 14 | 20'-1" | Str. |
| P416E | 7 | 20'-2" | Str. |
| P50IE | 1511 | 4'-10" | 3¾" |
| D60IE | 200 | 7'-11" | Str. |
| D602E | 120 | 2'-3" | Str. |
| D603E | 80 | 9'-4" | 4½" |
| D604E | 60 | 7'-4" | 4½" |
| D605E | 80 | 9'-4" | 4½" |
| D606E | 40 | 7'-4" | 4½" |
| D607E | 40 | 1'-6" | Str. |

BENDING DIAGRAMS
Dimensions are out to out of bars.

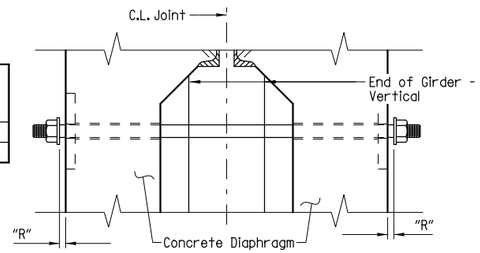
Note: All bars designated with an "E" suffix are to be epoxy coated

⑨ ½" Overtolerance No Undertolerance




| "R" - Gap width at 24 hour average temperature of : | | |
|---|---|---|
| 40°F | 60°F | 80°F |
| 11/16" | 7/8" | 1 1/16" |




Note: After gap width has been set, tack weld heavy hex nut to restrainer rod.

## RESTRAINER ROD INSTALLATION DETAIL

1" = 1'-0"

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No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 3 OF 8
# DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

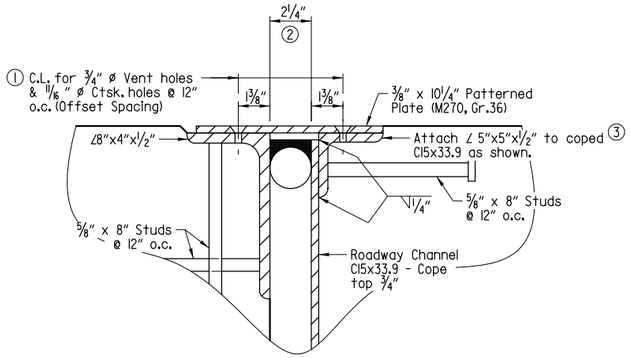
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
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REVISED DATE:

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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 76 | 118 |
| | | | | (1) | 07463 - 260'-0" CONT. UNIT - 61162A | | | |




## DETAIL THRU POURED SILICONE JOINT

For additional details of poured silicone joint, see Std. Dwg. No. 55008.

(1) Ctsk. 11/16" ø holes in ⅜" Patterned Plate. Tap 4" leg of angles for ASTM A449 ⅝" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the end bent side to be removed. Screws on span side to remain in place after erection. See "Expansion Device Installation" this drawing.

(2) Dimensions shown @ 60°F

(3) Cope top horizontal leg to 4½"

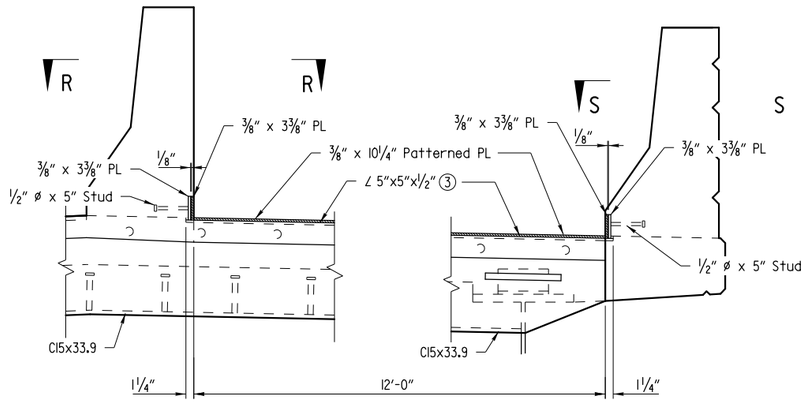
EXPANSION DEVICE INSTALLATION:

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

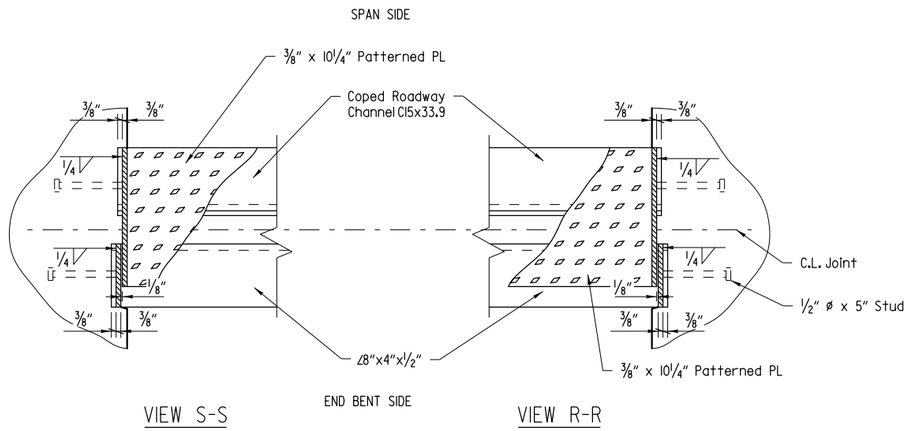
Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

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

Surfaces of the structural steel in the roadway and sidewalk joint armor not completely embedded in concrete and the patterned plate shall be cleaned in accordance with subsection 807.84(b) and shop painted with a QPL approved inorganic zinc-rich primer with a concrete gray color. No finish system shall be applied. The Contractor shall repair any damage to the primer at his expense and to the satisfaction of the Engineer prior to installation of the joint seal. Painting will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".




## SHARED USE PATH DETAIL - BENT 1




## VIEW S-S

## VIEW R-R

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
7/27/2022

BRIDGE ENGINEER
PRINT DATE: 7/27/2022

# SHEET 4 OF 8
# DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 35 I RR OVERPASS

ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION

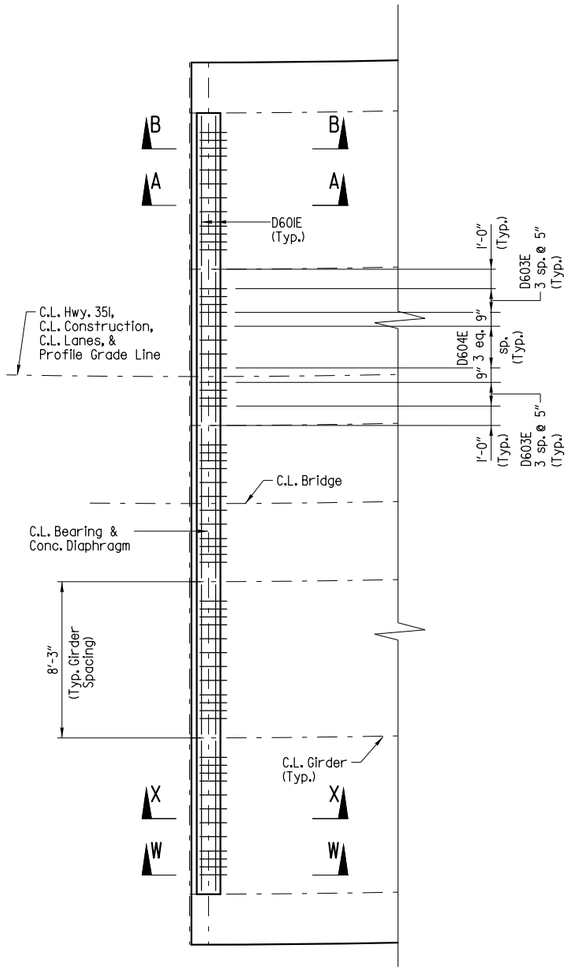
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 08/2020 FILENAME: BI00942XI_S13a.dgn
CHECKED BY: SFH DATE: 08/2020
DESIGNED BY: MKL DATE: 08/2020 SCALE: No Scale
BRIDGE NO. 07463 DRAWING NO. 61162A

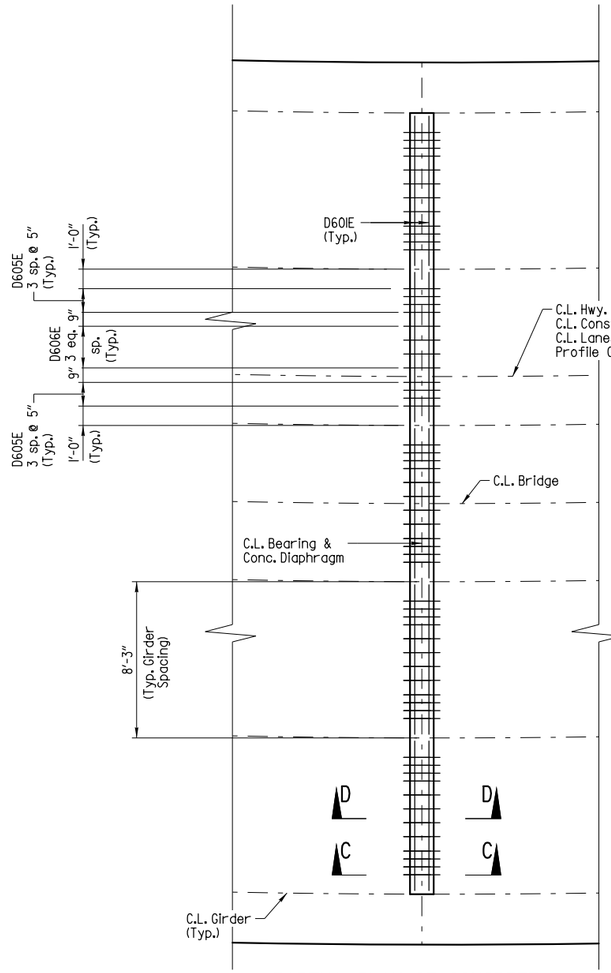
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 77 | 118 |
| | | | | (1) | 07463 - 260'-0" CONT. UNIT - 61163 | | | |

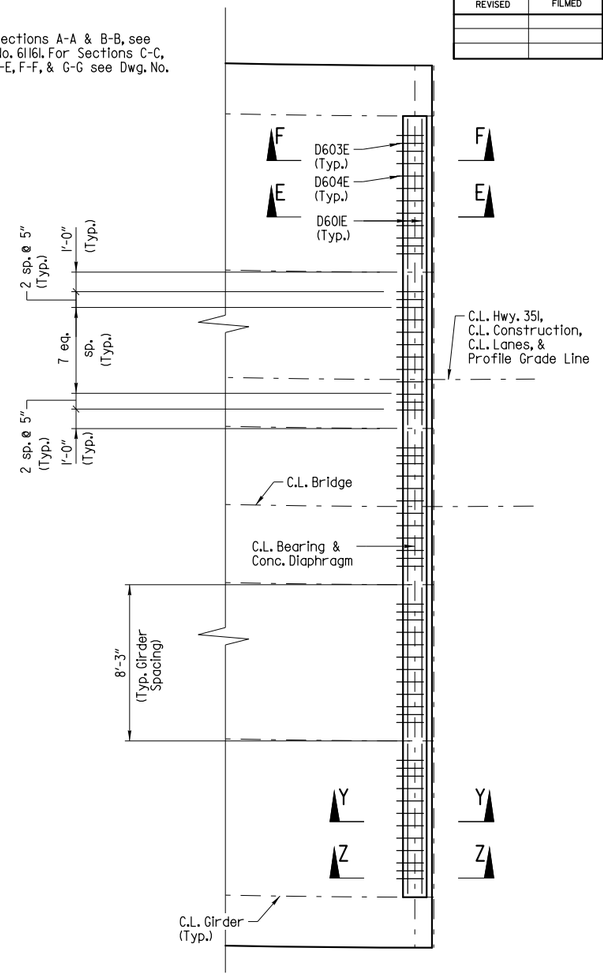
Note:
For Sections A-A & B-B, see Dwg. No. 61161. For Sections C-C, D-D, E-E, F-F, & G-G see Dwg. No. 61162.



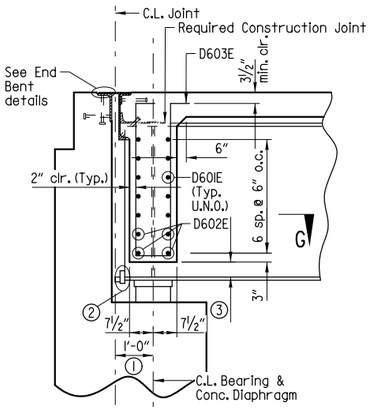

PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING
(Bent 1)
1/4" = 1'-0"




PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING
(Bents 2 & 3)
1/4" = 1'-0"



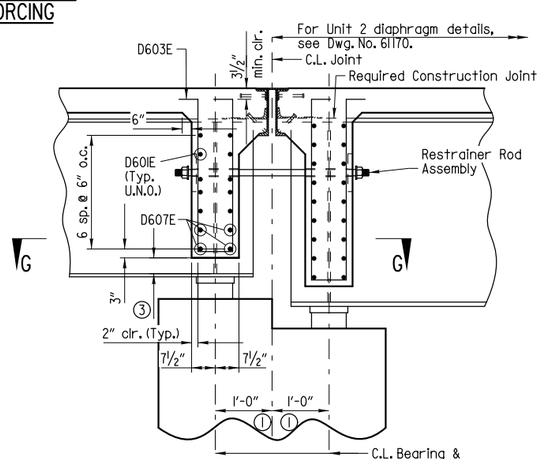

PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING
(Bent 4 Back)
1/4" = 1'-0"



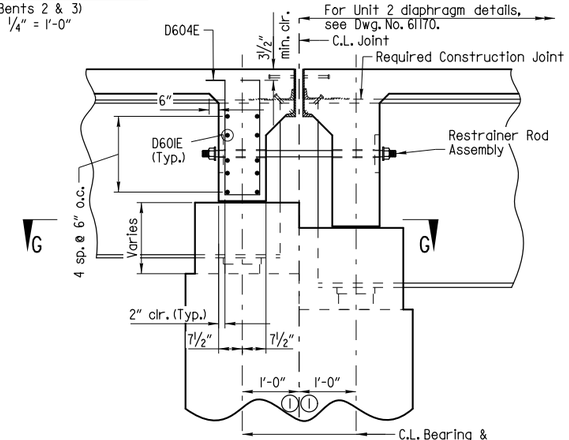

SECTION X-X
1/2" = 1'-0"




SECTION W-W
1/2" = 1'-0"




SECTION Y-Y
1/2" = 1'-0"




SECTION Z-Z
1/2" = 1'-0"

① Measured Normal to C.L. Joint

② See "PLAN OF GIRDER RESTRAINER" on Dwg. No 61164.

③ 5" typ. from bottom of web

Leonard,Speed 8/31/2020 1:44:52 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD_16233_Hwy35IRROverpass\Deliverables\BRIDGE\Bridge\BI00942XL_S14.dgn
REVISED DATE:

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 5 OF 8
# DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

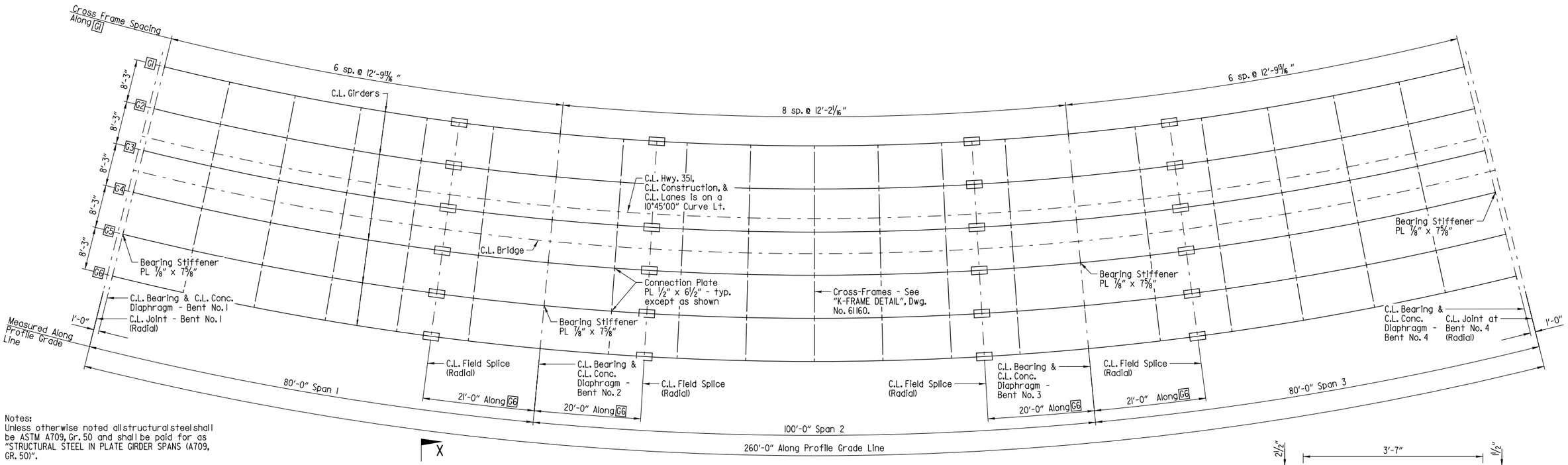
ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 06/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | DRAWING NO. | 61163 | |

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 78 | 118 |
| (1) | 07463 - 260'-0" CONT. UNIT - 61164 | | | |



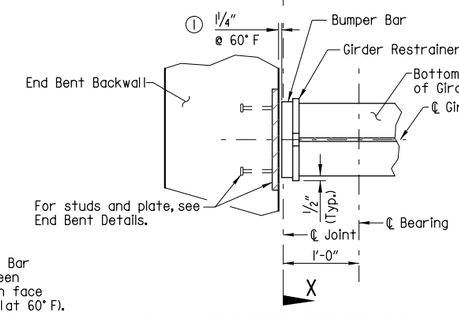

Notes:
Unless otherwise noted all structural steel shall be ASTM A709, Gr. 50 and shall be paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)".

See "TYP. GIRDER ELEVATION" for splice locations and stiffeners along Girder on Dwg. No. 61165.

Girders are on arcs concentric to C.L. Hwy. 351, C.L. Construction, C.L. Lanes, & Profile Grade Line.

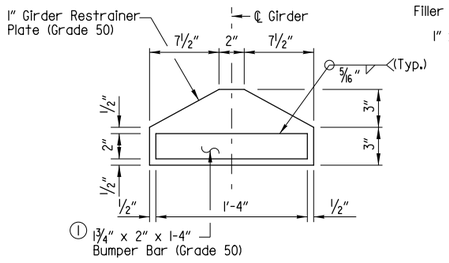
All Structural Steel except galvanized members and some surfaces in contact with concrete shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.

(1) Thickness of Beam Restrainer Plate and Bumper Bar shown are based on theoretical gap of 4" between end of girder and face of backwall (1 1/4" between face of bumper bar as detailed and face of backwall at 60° F). Prior to installing the Beam Restrainer assembly, the actual gap shall be field measured and final plate dimensions submitted for review. In no case shall the actual plate thickness used in the assembly be less than 1/2".



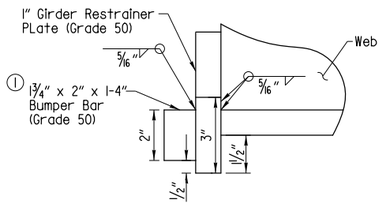

PLAN OF GIRDER RESTRAINER
No Scale

FRAMING PLAN
No Scale



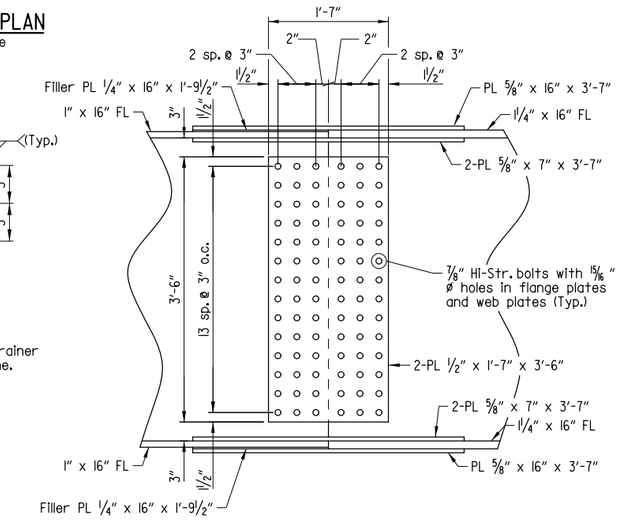

Note: View taken along girder. Girder restrainer plate shall be centered on each girder line.

VIEW X-X
No Scale




BUMPER CONNECTION DETAIL
No Scale

Note: Bumpers shall be centered horizontally on each Girder line.

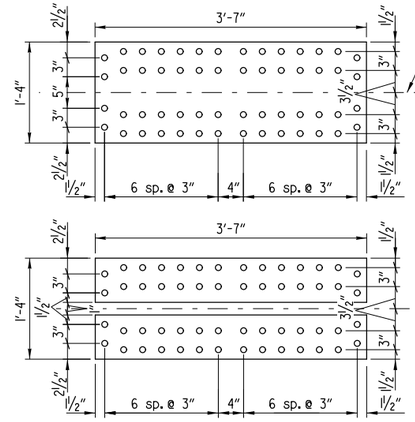



TYPICAL FIELD SPLICE DETAILS
1" = 1'-0"

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

All field splice bolts shall be 7/8" ø Hi-str. bolts.

All holes for splice bolts shall be 15/16" ø.
All field splice plates shall be ASTM A709 Gr. 50 steel.




TOP AND BOTTOM FLANGE
1" = 1'-0"

SILICONE JOINT DATA

| Bent Nos. | "A" Joint Width Perpendicular To Joint 24 Hour Average Temperature Of : | | | "B" Perpendicular To Joint @ 60°F |
|---|---|---|---|---|
| | 40°F | 60°F | 80°F | |
| 1 | 2 1/2" | 2 1/4" | 2" | 2 7/8" ± |

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

STATE OF ARKANSAS * LICENSED PROFESSIONAL ENGINEER * No.14501 STEPHEN F. HARPER

8/31/2020

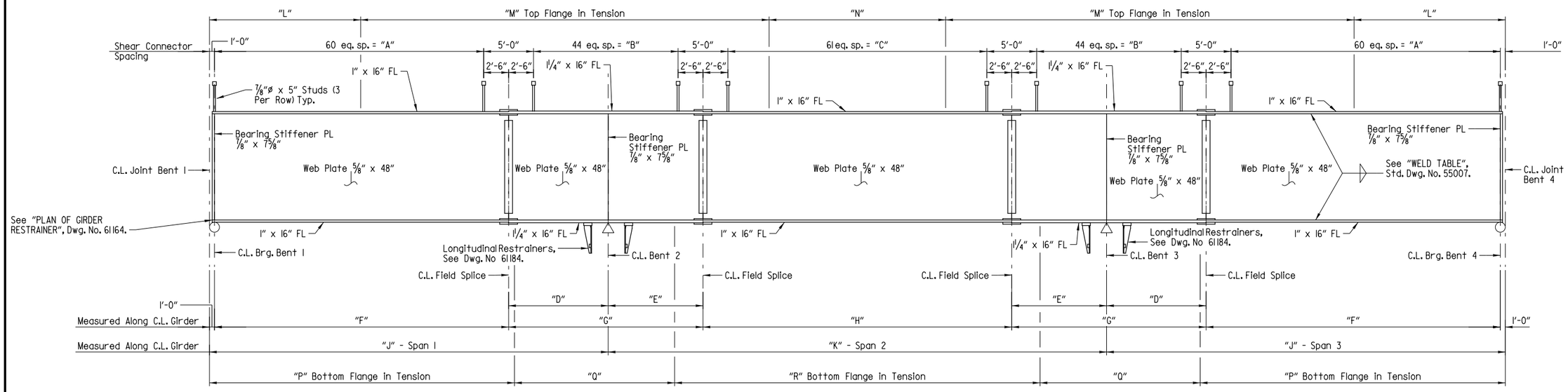
BRIDGE ENGINEER
PRINT DATE: 8/31/2020

SHEET 6 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
HWY. 351 RR OVERPASS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | JPC | DATE: | 05/2019 | FILENAME: | BI00942XI_SI5.dgn |
| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61164 |

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WORKSPACE: ARDOT
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 79 | 118 |
| | | | | (1) | 07463 - 260'-0" CONT. UNIT - 61165 | | | |




## TYP. GIRDER ELEVATION

## TABLE OF DEAD LOAD DEFLECTION (INCHES)

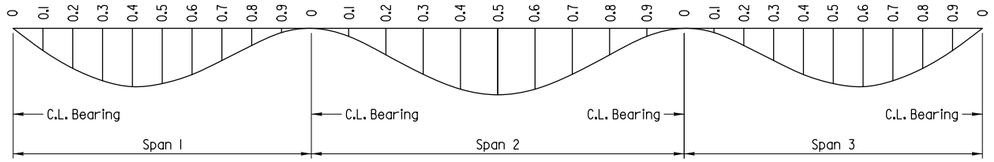
| Span | Point of Deflection | Structural Steel | | | | | | Structural Steel + Slab | | | | | | Structural Steel + Slab + Parapet + H-2 Rail | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.044 | 0.050 | 0.055 | 0.058 | 0.062 | 0.069 | 0.180 | 0.219 | 0.246 | 0.258 | 0.268 | 0.281 | 0.196 | 0.242 | 0.278 | 0.295 | 0.304 | 0.313 |
| | 0.2 | 0.079 | 0.090 | 0.098 | 0.105 | 0.112 | 0.124 | 0.325 | 0.394 | 0.441 | 0.468 | 0.486 | 0.507 | 0.353 | 0.436 | 0.498 | 0.534 | 0.551 | 0.564 |
| | 0.3 | 0.104 | 0.118 | 0.128 | 0.137 | 0.148 | 0.162 | 0.426 | 0.516 | 0.575 | 0.614 | 0.639 | 0.663 | 0.463 | 0.571 | 0.650 | 0.701 | 0.725 | 0.738 |
| | 0.4 | 0.116 | 0.132 | 0.142 | 0.154 | 0.165 | 0.181 | 0.475 | 0.574 | 0.638 | 0.687 | 0.712 | 0.738 | 0.517 | 0.636 | 0.722 | 0.786 | 0.809 | 0.822 |
| | 0.5 | 0.110 | 0.125 | 0.135 | 0.145 | 0.156 | 0.171 | 0.450 | 0.543 | 0.606 | 0.649 | 0.674 | 0.698 | 0.489 | 0.602 | 0.686 | 0.742 | 0.766 | 0.778 |
| | 0.6 | 0.092 | 0.104 | 0.114 | 0.122 | 0.131 | 0.144 | 0.375 | 0.453 | 0.509 | 0.543 | 0.563 | 0.584 | 0.408 | 0.502 | 0.577 | 0.622 | 0.641 | 0.651 |
| | 0.7 | 0.065 | 0.073 | 0.079 | 0.085 | 0.092 | 0.100 | 0.263 | 0.317 | 0.355 | 0.378 | 0.394 | 0.406 | 0.286 | 0.352 | 0.403 | 0.433 | 0.449 | 0.453 |
| | 0.8 | 0.035 | 0.039 | 0.043 | 0.046 | 0.049 | 0.054 | 0.141 | 0.170 | 0.191 | 0.203 | 0.211 | 0.217 | 0.154 | 0.189 | 0.217 | 0.233 | 0.241 | 0.242 |
| | 0.9 | 0.009 | 0.010 | 0.011 | 0.011 | 0.012 | 0.014 | 0.035 | 0.042 | 0.048 | 0.049 | 0.052 | 0.054 | 0.038 | 0.047 | 0.055 | 0.057 | 0.060 | 0.060 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.017 | 0.019 | 0.020 | 0.022 | 0.023 | 0.024 | 0.071 | 0.083 | 0.091 | 0.098 | 0.101 | 0.101 | 0.077 | 0.092 | 0.103 | 0.112 | 0.115 | 0.113 |
| | 0.2 | 0.055 | 0.062 | 0.067 | 0.071 | 0.076 | 0.081 | 0.228 | 0.269 | 0.299 | 0.318 | 0.330 | 0.335 | 0.248 | 0.298 | 0.338 | 0.363 | 0.375 | 0.374 |
| | 0.3 | 0.095 | 0.106 | 0.115 | 0.123 | 0.131 | 0.140 | 0.392 | 0.464 | 0.515 | 0.548 | 0.568 | 0.581 | 0.426 | 0.513 | 0.581 | 0.624 | 0.643 | 0.647 |
| | 0.4 | 0.125 | 0.140 | 0.152 | 0.162 | 0.172 | 0.186 | 0.515 | 0.612 | 0.680 | 0.723 | 0.748 | 0.770 | 0.559 | 0.676 | 0.766 | 0.822 | 0.846 | 0.857 |
| | 0.5 | 0.136 | 0.153 | 0.166 | 0.176 | 0.188 | 0.203 | 0.561 | 0.667 | 0.742 | 0.787 | 0.816 | 0.841 | 0.609 | 0.737 | 0.835 | 0.894 | 0.923 | 0.936 |
| | 0.6 | 0.126 | 0.141 | 0.153 | 0.162 | 0.173 | 0.187 | 0.518 | 0.615 | 0.683 | 0.725 | 0.751 | 0.774 | 0.562 | 0.679 | 0.769 | 0.824 | 0.850 | 0.861 |
| | 0.7 | 0.097 | 0.108 | 0.117 | 0.125 | 0.133 | 0.143 | 0.399 | 0.472 | 0.524 | 0.558 | 0.578 | 0.592 | 0.433 | 0.522 | 0.591 | 0.635 | 0.655 | 0.659 |
| | 0.8 | 0.055 | 0.062 | 0.067 | 0.071 | 0.076 | 0.081 | 0.228 | 0.269 | 0.299 | 0.318 | 0.330 | 0.335 | 0.248 | 0.298 | 0.338 | 0.363 | 0.375 | 0.374 |
| | 0.9 | 0.019 | 0.021 | 0.022 | 0.024 | 0.025 | 0.027 | 0.078 | 0.091 | 0.100 | 0.107 | 0.111 | 0.112 | 0.085 | 0.101 | 0.114 | 0.123 | 0.127 | 0.125 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.009 | 0.010 | 0.011 | 0.011 | 0.012 | 0.014 | 0.035 | 0.042 | 0.048 | 0.049 | 0.052 | 0.054 | 0.038 | 0.047 | 0.055 | 0.057 | 0.060 | 0.060 |
| | 0.2 | 0.033 | 0.037 | 0.041 | 0.043 | 0.047 | 0.051 | 0.134 | 0.162 | 0.182 | 0.192 | 0.202 | 0.206 | 0.146 | 0.180 | 0.207 | 0.221 | 0.231 | 0.230 |
| | 0.3 | 0.063 | 0.071 | 0.077 | 0.083 | 0.089 | 0.098 | 0.256 | 0.309 | 0.345 | 0.368 | 0.383 | 0.396 | 0.279 | 0.343 | 0.392 | 0.422 | 0.436 | 0.442 |
| | 0.4 | 0.092 | 0.104 | 0.114 | 0.122 | 0.131 | 0.144 | 0.376 | 0.454 | 0.509 | 0.542 | 0.563 | 0.585 | 0.409 | 0.503 | 0.577 | 0.621 | 0.640 | 0.652 |
| | 0.5 | 0.111 | 0.125 | 0.135 | 0.145 | 0.156 | 0.171 | 0.452 | 0.544 | 0.606 | 0.648 | 0.674 | 0.699 | 0.492 | 0.603 | 0.686 | 0.741 | 0.766 | 0.779 |
| | 0.6 | 0.117 | 0.132 | 0.142 | 0.154 | 0.165 | 0.181 | 0.478 | 0.574 | 0.638 | 0.687 | 0.712 | 0.738 | 0.520 | 0.636 | 0.722 | 0.785 | 0.809 | 0.822 |
| | 0.7 | 0.105 | 0.119 | 0.129 | 0.138 | 0.148 | 0.163 | 0.430 | 0.519 | 0.579 | 0.617 | 0.641 | 0.667 | 0.468 | 0.574 | 0.654 | 0.704 | 0.727 | 0.742 |
| | 0.8 | 0.080 | 0.091 | 0.099 | 0.105 | 0.113 | 0.125 | 0.328 | 0.397 | 0.444 | 0.471 | 0.490 | 0.510 | 0.357 | 0.439 | 0.502 | 0.537 | 0.556 | 0.568 |
| | 0.9 | 0.044 | 0.050 | 0.055 | 0.058 | 0.062 | 0.069 | 0.180 | 0.219 | 0.246 | 0.258 | 0.268 | 0.281 | 0.196 | 0.242 | 0.278 | 0.295 | 0.304 | 0.313 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Notes:
Camber for Dead Load Deflection plus Vertical curve + or - 1/4" tolerances. Deflections shown are along C.L. Girder from the plane perpendicular to the web extending from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

For girder locations, see Dwg. No. 61164.

## TABLE OF GIRDER VARIABLES

| Girder No. | "A" | "B" | "C" | "D" | "E" | "F" | "G" | "H" | "J" | "K" | "L" | "M" | "N" | "P" | "Q" | "R" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 54'-11½" | 32'-11¾" | 55'-4" | 19'-5 7/16" | 18'-6 5/16" | 57'-5½" | 37'-11¾" | 60'-4" | 77'-10 5/16" | 97'-4 1/16" | 39'-5 5/16" | 77'-5 1/16" | 19'-5 3/16" | 66'-5½" | 23'- 3 1/16" | 73'-7 5/16" |
| 2 | 55'-10 5/8" | 33'-7" | 56'-3½" | 19'-9 3/16" | 18'-9 7/8" | 58'-4 5/8" | 38'-7" | 61'-3½" | 79'-1 3/16" | 98'-11¼" | 42'-2 3/16" | 72'-6 3/8" | 27'-9¾" | 67'-10 3/16" | 22'-11 3/8" | 75'-7¾" |
| 3 | 56'-9¾" | 34'-2¼" | 57'-3" | 20'-0 7/8" | 19'-1 3/8" | 59'-3¾" | 39'-2¼" | 62'-3" | 80'-4 5/8" | 100'-5 1/16" | 45'-2 1/16" | 70'-0 1/2" | 30'-9 5/16" | 68'-5 5/8" | 23'-8 3/8" | 75'-11 1/16" |
| 4 | 57'-8 5/16" | 34'-9½" | 58'-2½" | 20'-4 3/16" | 19'-4 1/16" | 60'-2 1/16" | 39'-9½" | 63'-2½" | 81'-7½" | 102'-0 3/8" | 46'-0 1/16" | 70'-11¾" | 31'-2¼" | 69'-6 1/8" | 24'-2¾" | 77'-9 5/8" |
| 5 | 58'-8 1/16" | 35'-4¾" | 59'-2" | 20'-8 5/16" | 19'-8 7/16" | 61'-2 1/16" | 40'-4¾" | 64'-2" | 82'-10 3/8" | 103'-6 1/16" | 44'-1 5/16" | 76'-4 5/16" | 28'-3 1/16" | 70'-9 1/8" | 24'-1 1/16" | 79'-6 3/16" |
| 6 | 59'-7 1/4" | 36'-0" | 60'-1 9/16" | 21'-0" | 20'-0" | 62'-1 1/4" | 41'-0" | 65'-1 9/16" | 84'-1 1/4" | 105'-1 9/16" | 38'-3 3/4" | 98'-3 7/8" | 1 5/16" | 71'-7 3/16" | 24'-7 1/16" | 80'-10 9/16" |




## TYP. GIRDER DEAD LOAD DEFLECTION DIAGRAM

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
STEPHEN F. HARPER
No.14501

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 7 OF 8
# DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

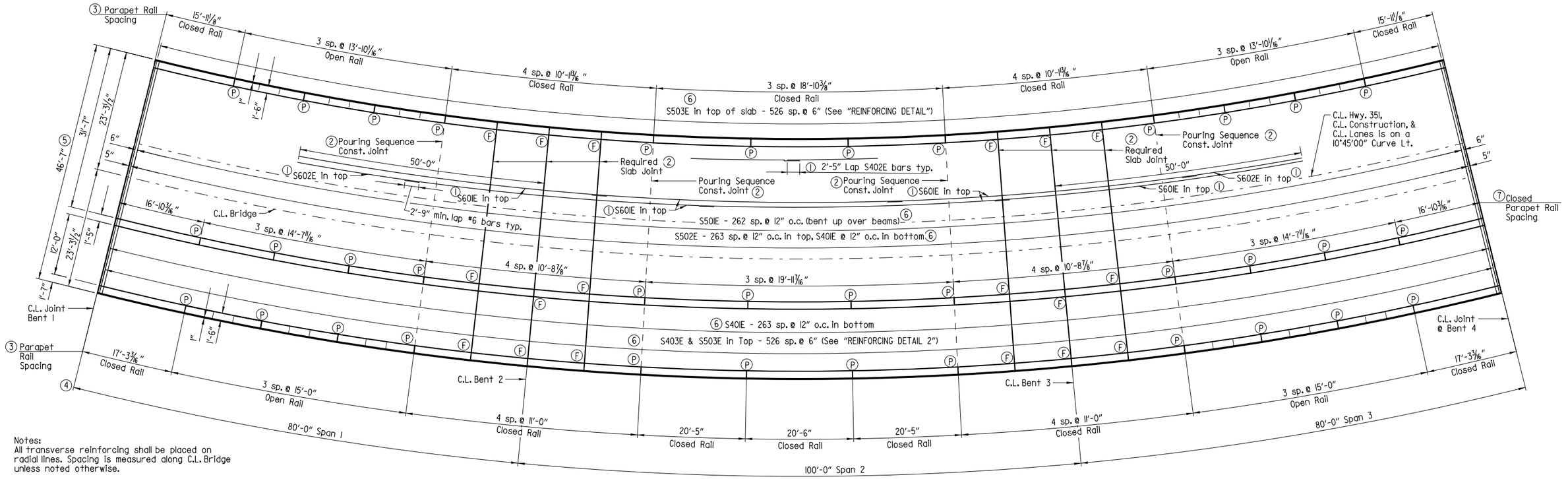
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: SFH DATE: 07/2019
DESIGNED BY: JPC DATE: 05/2019 SCALE: No Scale
BRIDGE NO. 07463 DRAWING NO. 61165

Leonard.Speed 8/31/2020 14:45:55 PM
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 80 | 118 |
| (1) | 07463 - 260'-0" CONT. UNIT - 61166 | | | |



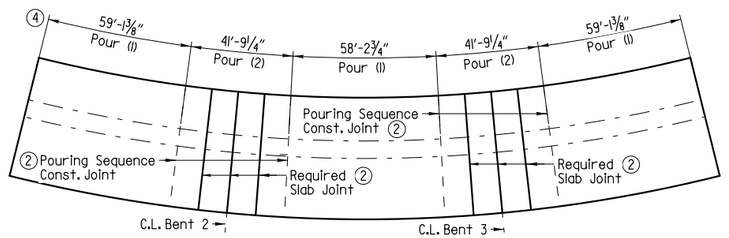

Notes:
All transverse reinforcing shall be placed on radial lines. Spacing is measured along C.L. Bridge unless noted otherwise.

All longitudinal lines and reinforcing steel shall be placed on curves concentric with C.L. Hwy. 351, C.L. Construction, C.L. Lanes, & Profile Grade Line.

Required slab joints and pouring sequence construction joints shall align with open joints at the front face of the parapets.

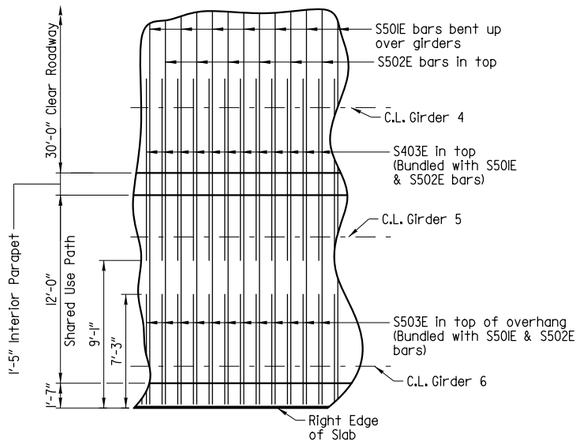
## REINFORCING PLAN

(P) Partial depth parapet joint at this location. (Stop 1'-2" above top of deck)
(F) Full depth parapet joint at this location. (Stop 4" above top of deck)
(1) Placed as shown in "Typical Section", See Dwg. No. 61160.
(2) Align with parapet open joint unless noted otherwise.
(3) Parapet panel spacing measured along gutterline.
(4) Dimensions Measured Along C.L. Hwy. 351, C.L. Construction, C.L. Lanes, & Profile Grade Line.
(5) Dimensions Measured Along C.L. of Joint.
(6) Dimensions Measured Along C.L. of Bridge
(7) Dimensions Measured Along left edge of interior parapet.

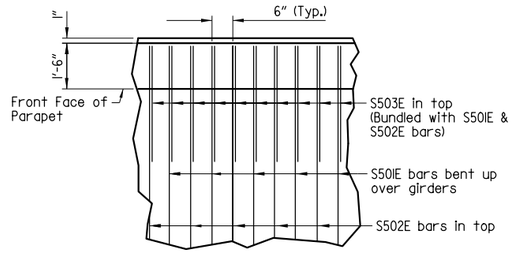



## POURING SEQUENCE

Note:
Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before pour (2) can be placed. 48 hours shall elapse before the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the completion of the entire deck and the pouring of the parapet. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.




## REINFORCING DETAIL 2




## REINFORCING DETAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

Fred Lin
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 8 OF 8
# DETAILS OF 260'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

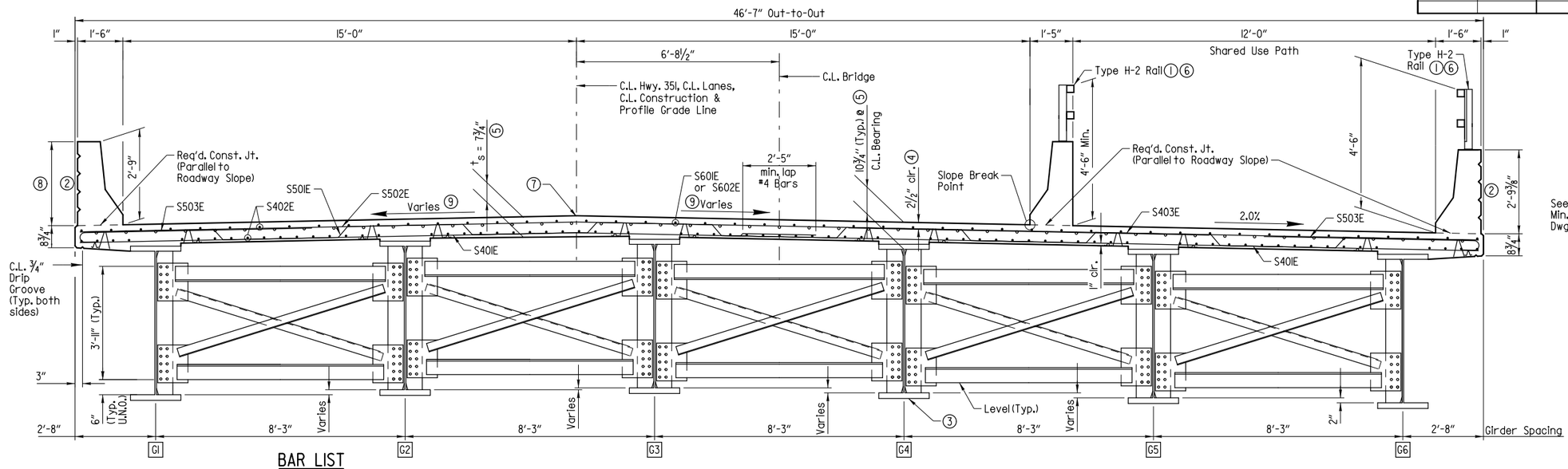
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| BRIDGE NO. | 07463 | | | DRAWING NO. | 61166 |

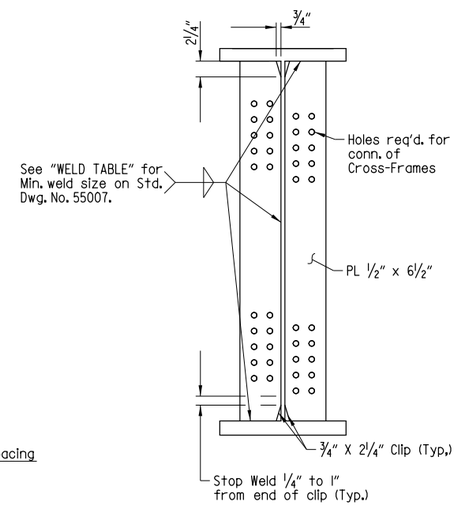
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 81 | 118 |

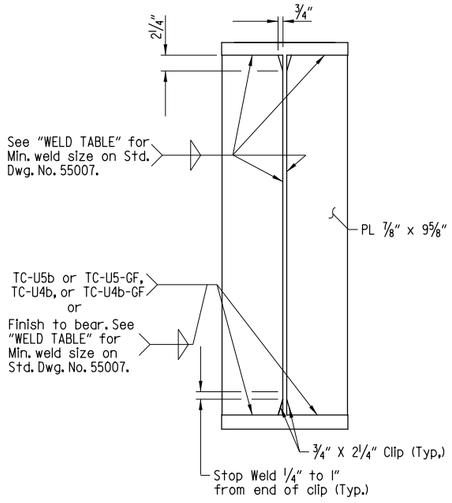
(1) 07463 - 222'-0" CONT. UNIT - 61167




## CROSS-FRAME CONNECTION PLATE DETAIL

1" = 1'-0"




## BEARING STIFFENER DETAIL

1" = 1'-0"

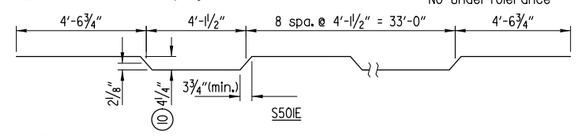
## BAR LIST

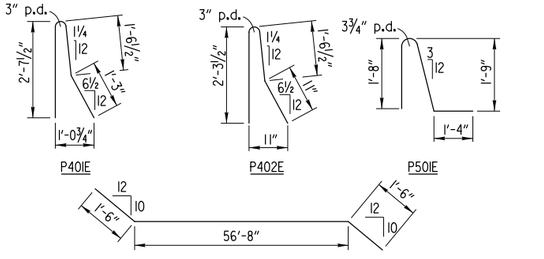
| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| S401E | 418 | 24'-6" | Str. |
| S402E | 847 | 37'-2" | Str. |
| S403E | 457 | 12'-0" | Str. |
| S404E to S416E | 1 each | 4'-2" to 11'-5" | Str. |
| S501E | 209 | 47'-4" | 3" |
| S502E | 209 | 47'-5" | 3¾" |
| S503E | 899 | 7'-8" | 3¾" |
| S504E to S575E | 1 each | 2'-7" to 44'-10" | 3¾" |
| S576E to S5147E | 1 each | 2'-0" to 44'-3" | Str. |
| S5148E | 2 | 59'-8" | 3¾" |
| S5149E to S5157E | 1 each | 2'-7" to 7'-3" | 3¾" |
| S601E | 47 | 54'-9" | Str. |
| S602E | 47 | 60'-0" | Str. |
| P401E | 1159 | 5'-6" | 3" |
| P402E | 248 | 4'-10" | 3" |
| P403E | 116 | 5'-6" | Str. |
| P404E | 7 | 8'-2" | Str. |
| P405E | 287 | 14'-2" | Str. |
| P406E | 7 | 14'-11" | Str. |
| P407E | 7 | 16'-6" | Str. |
| P408E | 7 | 16'-7" | Str. |
| P409E | 7 | 18'-2" | Str. |
| P410E | 7 | 19'-6" | Str. |
| P501E | 1159 | 4'-10" | 3¾" |
| D601E | 70 | 7'-11" | Str. |
| D602E | 40 | 1'-6" | Str. |
| D603E | 20 | 10'-9" | 4½" |
| D604E | 40 | 8'-7" | 4½" |
| D605E | 40 | 10'-10" | 4½" |
| D606E | 20 | 8'-8" | 4½" |
| D607E | 40 | 2'-5" | Str. |
| D608E | 40 | 1'-10" | Str. |
| D609E | 70 | 8'-5" | Str. |
| D610E | 70 | 10'-4" | Str. |
| D611E | 20 | 11'-0" | 4½" |
| D612E | 40 | 8'-10" | 4½" |

BENDING DIAGRAMS
Dimensions are out to out of bars.

Note: All bars designated with an "E" suffix are to be epoxy coated

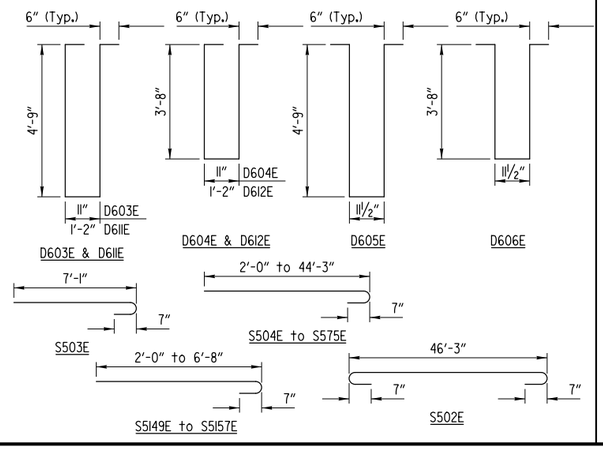
(10) ½" Overtolerance No Undertolerance










## TYPICAL SECTION

(Looking Ahead)
½" = 1'-0"

Slab Reinforcing:

Transverse: S501E @ 12" o.c. bent up over beams — Alternate
S401E @ 12" o.c. in bottom
S502E @ 12" o.c. in top
S503E @ 6" o.c. under each parapet bundled w/ #5 in top @ both gutterlines
S403E @ 6" o.c. under interior parapet bundled w/ #5 in top

Longitudinal: S402E placed as shown in top and bottom
S601E or S602E @ 12" o.c. in top placed as shown over interior supports (See "REINFORCING PLAN", Dwg. No. 61173)

Note:
At the Contractors option, in lieu of providing S501E bars, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E. Bars in top and bottom shall be epoxy coated.

(1) The color of the Type H-2 Metal Rail shall be Black and shall match Fed. Std. 595B Color Chip No. 27038.

(2) "Ashlar Stone" pattern on outside of parapet rails. See Dwg. No. 61183 for additional details.

(3) All Structural Steel except galvanized members and some surfaces in contact with concrete shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.

(4) Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

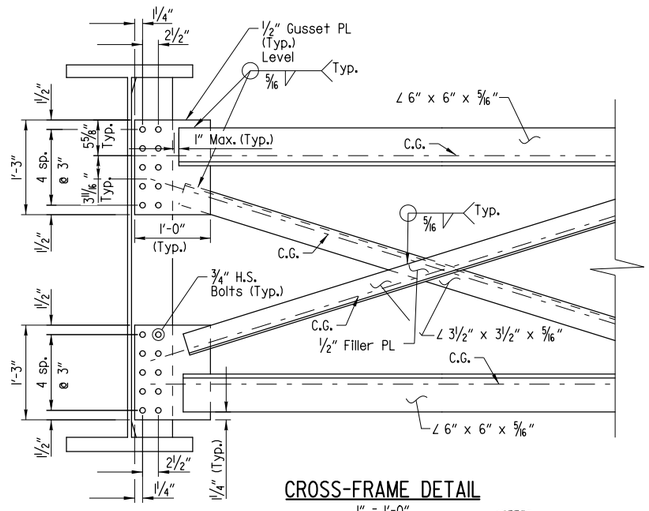
(5) See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007 with an exception that maximum haunch dimension is top flange thickness plus 2¼".

(6) For details of Rail, see Dwg. No. 61183.

(7) See "ROUNDING DETAIL" on Dwg. No. 61173 for between reverse crown station 97+29.51 and normal crown station 98+54.51. See "ROUNDING DETAIL" on Std. Dwg. No. 55007 for beyond normal crown station 98+54.51.

(8) Varies with cross-slope from 2'-9⅞" (Bent No. 4) to 2'-9⅜" at Reverse Crown Station 97+29.51.

(9) See "CROSS-SLOPE TRANSITION SKETCH", Dwg No. 61133.




## CROSS-FRAME DETAIL

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
STEPHEN F. HARPER
No. 14501

Frw for SFH
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 1 OF 8
# DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

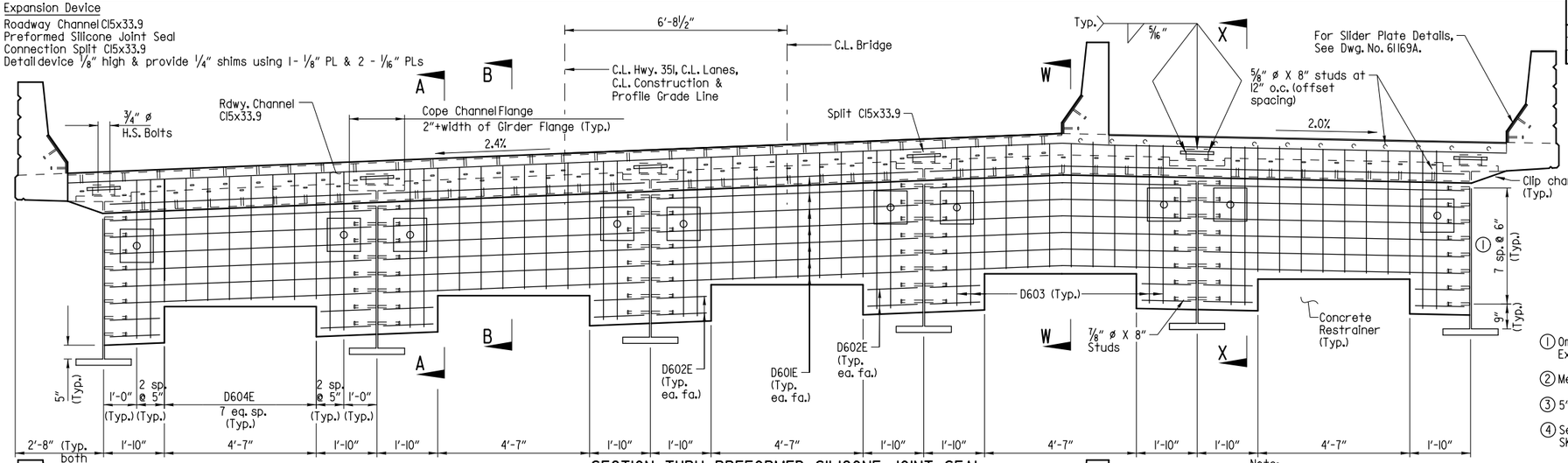
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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| BRIDGE NO. | 07463 | | DRAWING NO. | 61167 | |

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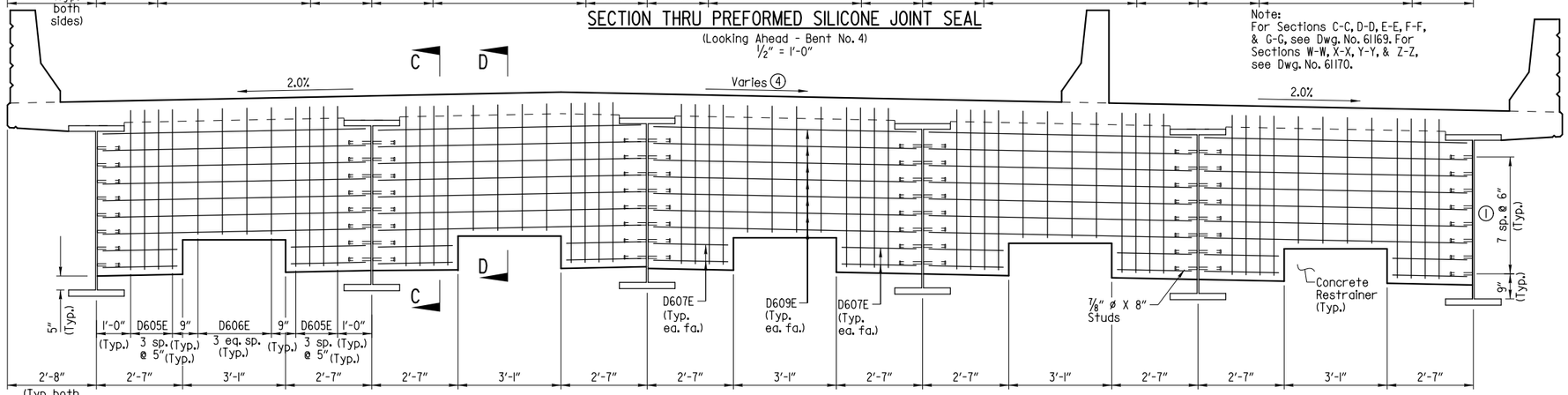
Expansion Device
Roadway Channel C15x33.9
Preformed Silicone Joint Seal
Connection Split C15x33.9
Detail device 1/8" high & provide 1/4" shims using 1- 1/8" PL & 2 - 1/16" PLs




## SECTION THRU PREFORMED SILICONE JOINT SEAL

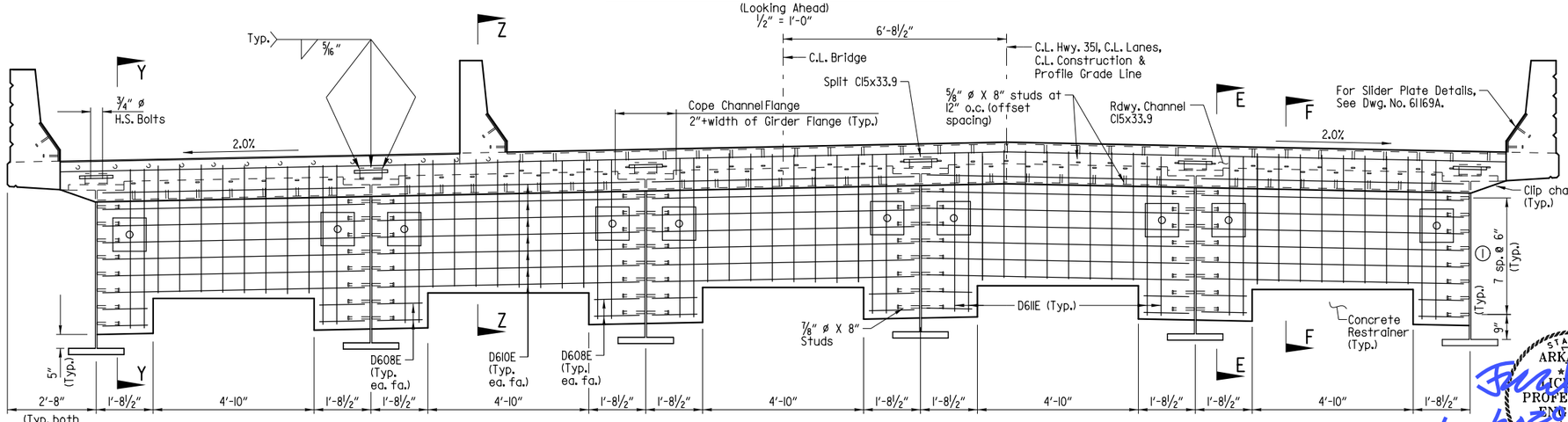
(Looking Ahead - Bent No. 4)
1/2" = 1'-0"

Note:
For Sections C-C, D-D, E-E, F-F, & G-G, see Dwg. No. 61169. For Sections W-W, X-X, Y-Y, & Z-Z, see Dwg. No. 61170.




## ROADWAY SECTION AT INTERIOR BENT NO. 5

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




## SECTION THRU PREFOMRED SILICONE JOINT SEAL

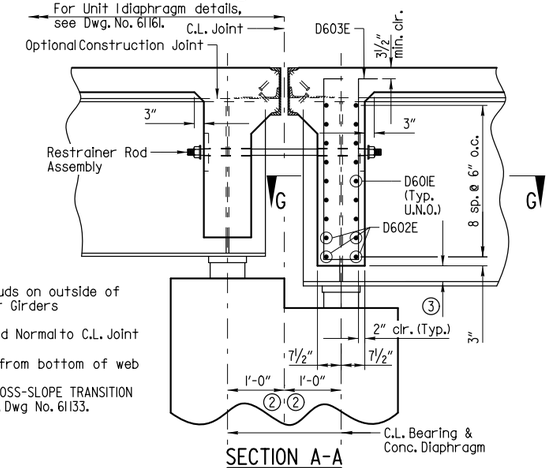
(Looking Back - Bent No. 6)
1/2" = 1'-0"

Expansion Device
Roadway Channel C15x33.9
Preformed Silicone Joint Seal
Connection Split C15x33.9
Detail device 1/8" high & provide 1/4" shims using 1- 1/8" PL & 2 - 1/16" PLs

Note: 1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to "Class S(AE) Concrete - Bridge."

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| | | | | JOB NO. | | 100942 | 82 | 118 |

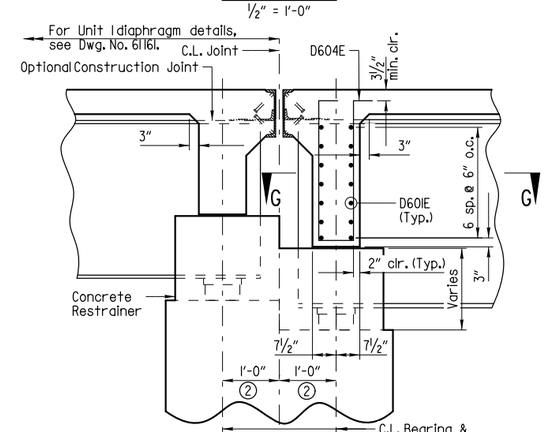
1 07463 - 222'-0" CONT. UNIT - 61168




1 Omit studs on outside of Exterior Girders
2 Measured Normal to C.L. Joint
3 5" typ. from bottom of web
4 See "CROSS-SLOPE TRANSITION SKETCH", Dwg No. 61133.

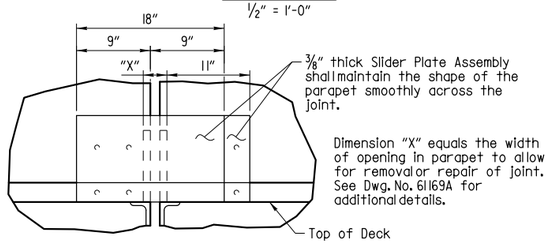
## SECTION A-A

1/2" = 1'-0"




## SECTION B-B

1/2" = 1'-0"




## DETAIL OF PARAPET SLIDER PLATES

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 2 OF 8
# DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

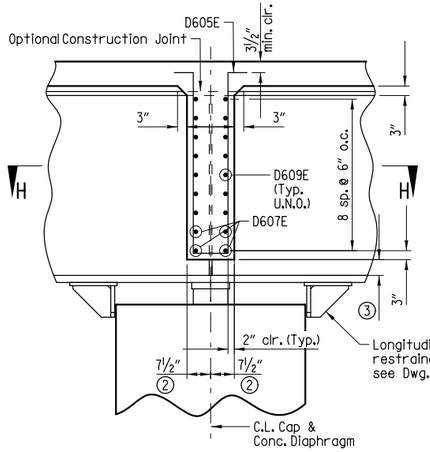
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

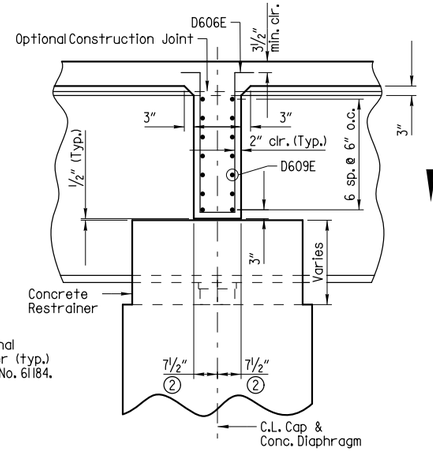
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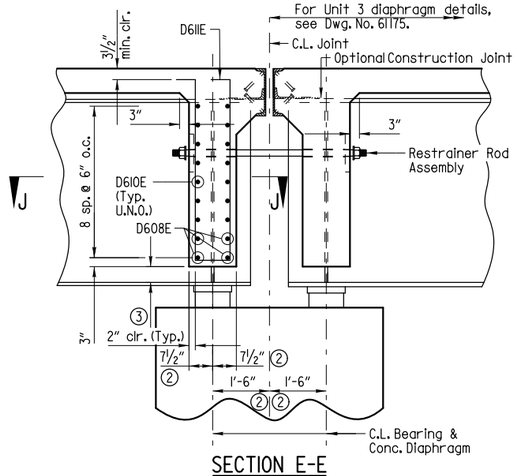
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|---|---|---|---|---|---|---|---|---|
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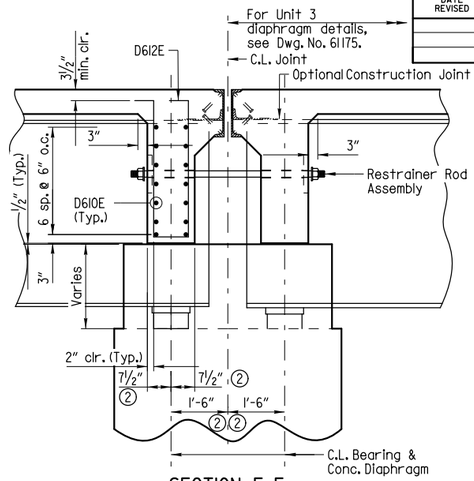

SECTION C-C
½" = 1'-0"



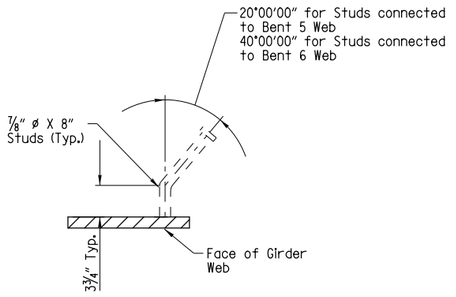

SECTION D-D
½" = 1'-0"



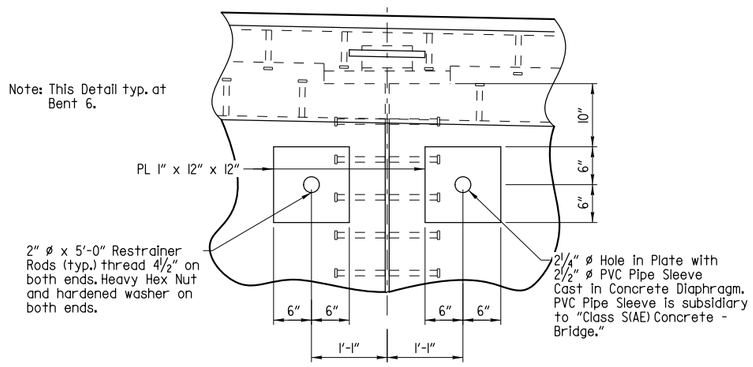

SECTION E-E
½" = 1'-0"



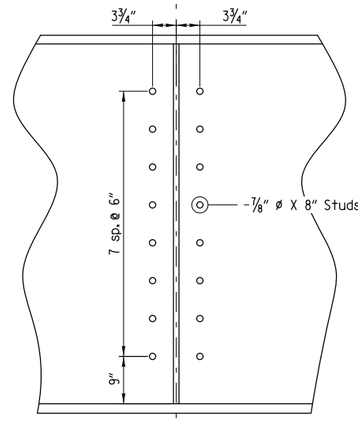

SECTION F-F
½" = 1'-0"



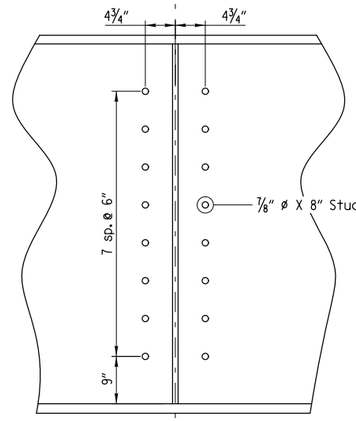

STUD DETAIL
No Scale



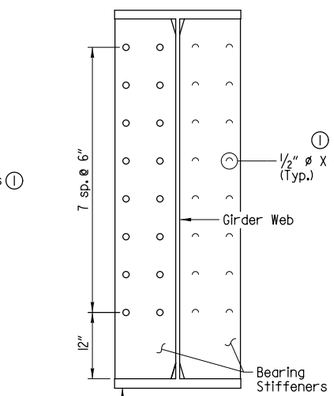

RESTRAINER ROD ASSEMBLY DETAIL
1" = 1'-0"




DETAIL J
(Shown for Section G-G, similar for Section H-H)
1" = 1'-0"




DETAIL L
(Shown for Section J-J)
1" = 1'-0"

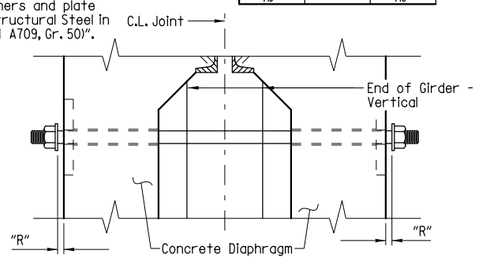



DETAIL K
1" = 1'-0"

① Omit studs on outside of Exterior Girders
② Measured Normal to C.L. Joint / C.L. Bent
③ 5" typ. @ face of web

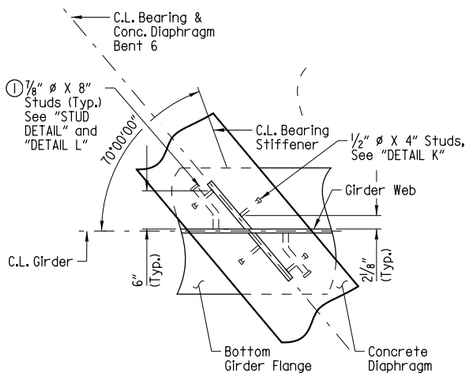
Note: Longitudinal Restrainer Rod shall conform to ASTM A709, Gr. 50 steel with threads conforming to American Standard Course, Class 2 Fit, ASA Specification B1.1. Washers for longitudinal restrainer rod shall conform to ASTM F436. Nuts for longitudinal restrainers shall conform to Subsection 807.06. Rods, Nuts, and Washers for the longitudinal restrainers shall be galvanized in accordance with AASHTO M232 class C or ASTM B695 class 50. See "Restrainer Rod Installation Detail". Restrainer rod, nut, washers and plate shall be paid for as "Structural Steel in Plate Girder Spans (ASTM A709, Gr. 50)".

| "R" - Gap width at 24 hour average temperature of : | | |
|---|---|---|
| 40°F | 60°F | 80°F |
| 1 13/16" | 2" | 2 3/16" |

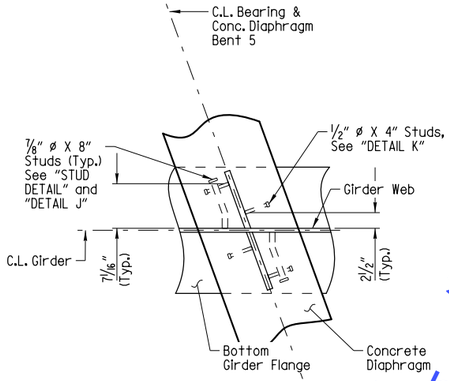



Note: After gap width has been set, tack weld heavy hex nut to restrainer rod.

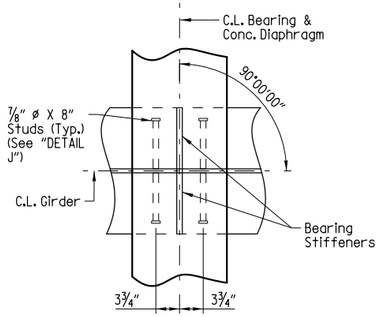
RESTRAINER ROD INSTALLATION DETAIL
1" = 1'-0"




SECTION J-J
1" = 1'-0"




SECTION H-H
1" = 1'-0"




SECTION G-G
1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 3 OF 8
# DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY: | JPC | DATE: | 05/2019 | FILENAME: | BI00942XL_S23.dgn |
| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61169 |

Leonard.Speed 8/31/2020 1:45:01 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD_16231\3_Hwy35IRROverpass\Deliverables\BRIDGE\Bridge\BI00942XL_S23.dgn
REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 84 | 118 |
| | | | | (1) 07463 - 222'-0" CONT. UNIT - 61169A | | | | |

EXPANSION DEVICE INSTALLATION:

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

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

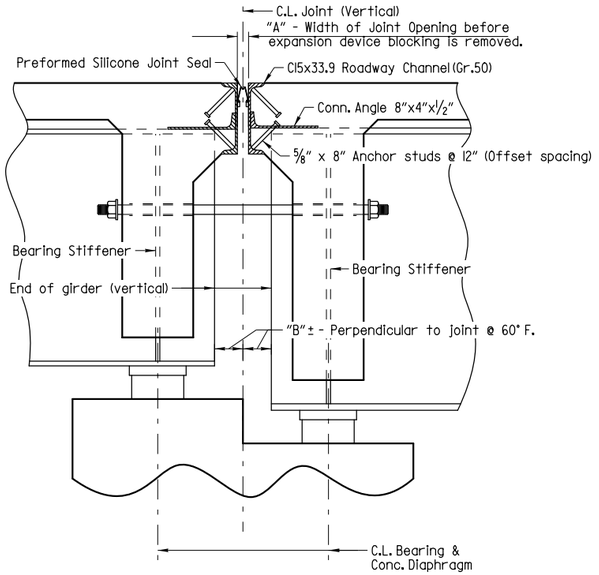
GENERAL NOTES FOR PREFORMED SILICONE JOINT SEAL:

The joint seal shall provide for the movement rating(s) shown in the "PREFORMED SILICONE JOINT SEAL DATA" table. The joint seal shall be capable of sealing the deck surface and barrier rail to prevent moisture and other contaminants from descending through the joint.

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

Surfaces of the structural steel in the roadway and sidewalk joint armor not completely embedded in concrete and the patterned plate shall be cleaned in accordance with subsection 807.84(b) and shop painted with a QPL approved inorganic zinc-rich primer with a concrete gray color. No finish system shall be applied. The Contractor shall repair any damage to the primer at his expense and to the satisfaction of the Engineer prior to installation of the joint seal. Painting will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

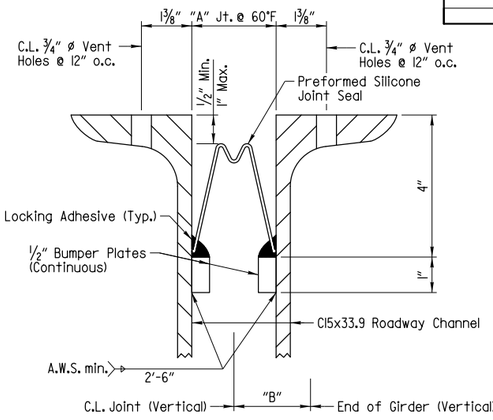
The preformed silicone joint seal shall be paid for in accordance with Special Provision Job 100942 "Preformed Silicone Joint Seal".



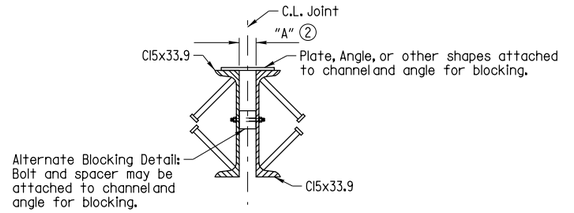

SECTION THRU JOINT

Notes:
Section taken perpendicular to C.L. Joint

Concrete shall be hand packed under the joint armor.

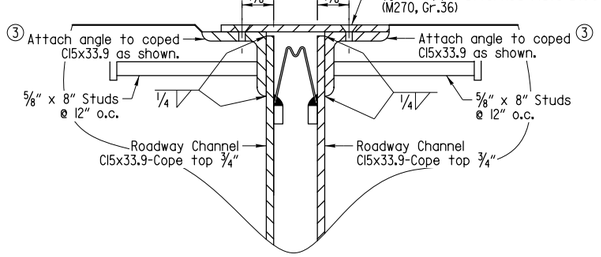



DETAIL OF PREFORMED SILICONE JOINT SEAL



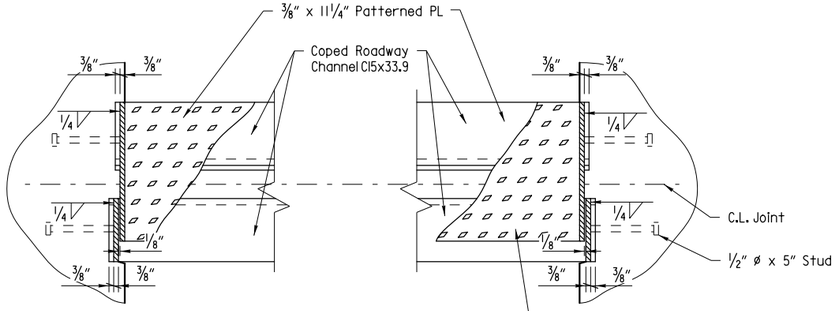

Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60°F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE




DETAIL THRU PREFORMED SILICONE JOINT SEAL

222' UNIT SIDE

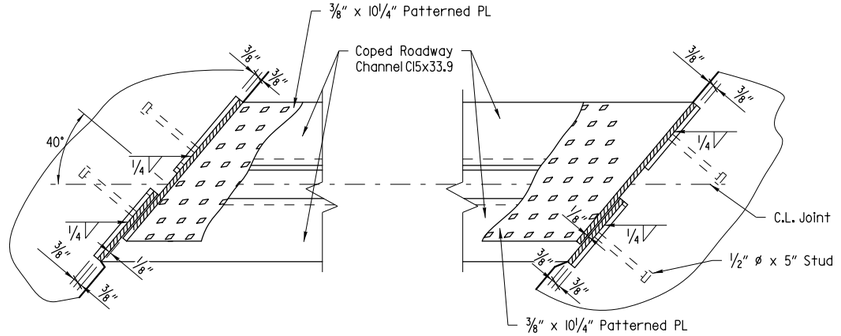



VIEW R-R

260' UNIT SIDE

VIEW S-S

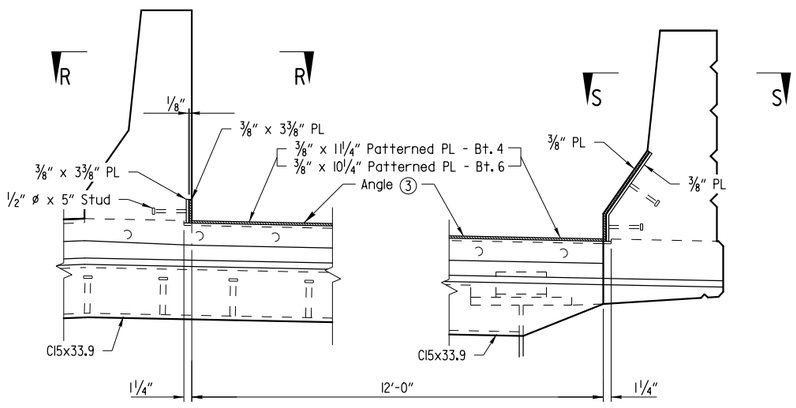
294' UNIT SIDE




VIEW R-R

222' UNIT SIDE

VIEW S-S




SHARED USE PATH DETAIL - BENTS 4 & 6

(1) Ctsk. 11/16" ø holes in 3/8" Patterned Plate. Tap 4" leg of angles for ASTM A449 5/8" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the back station side to be removed. Screws on front station side to remain in place after erection. See "Expansion Device Installation" this drawing.

(2) Dimensions shown @ 60°F. For dimension "A", see "Preformed Silicone Joint seal" data on Dwg. No. 61171.

(3) L5"x5"x1/2" @ Bt. 4
L5"x5"x1/2" @ Bt. 6 cope top horizontal leg to 4 1/2"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

7/27/2022

BRIDGE ENGINEER
PRINT DATE: 7/27/2022

SHEET 4 OF 8
DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
HWY. 351 RR OVERPASS
ROUTE SECTION

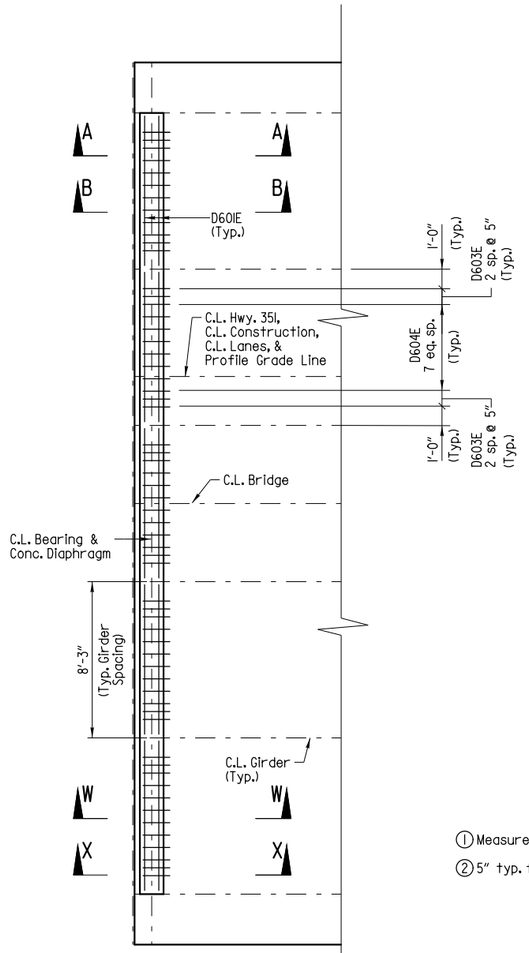
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | | |
|---|---|---|---|---|---|
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| CHECKED BY: | SFH | DATE: | 08/2020 | | |
| DESIGNED BY: | MKL | DATE: | 08/2020 | SCALE: | No Scale |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61169A |

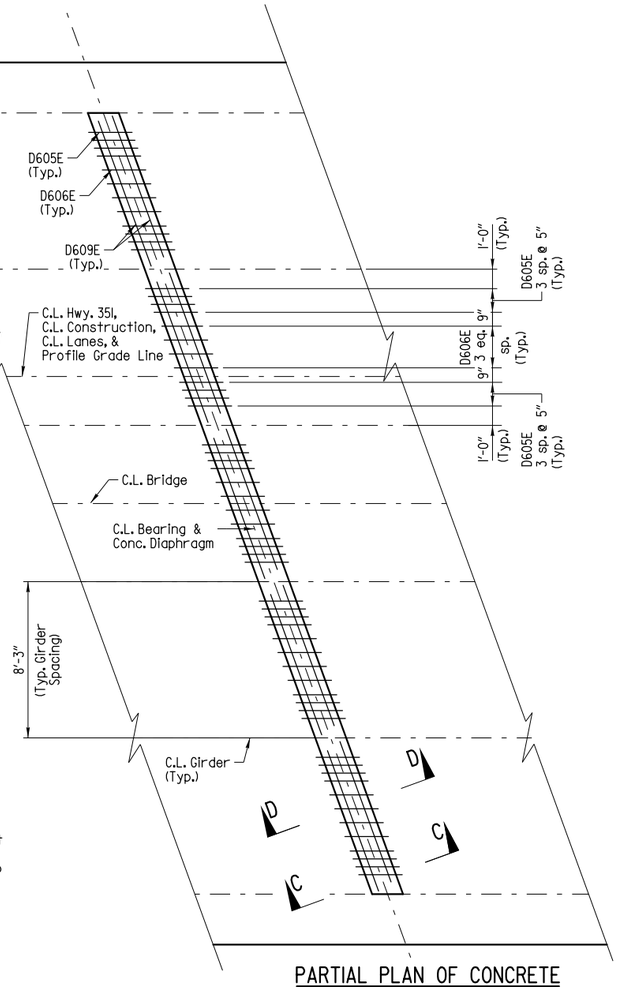
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WORKSPACE: ARDOT
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 85 | 118 |
| | | | | (1) | 07463 - 222'-0" CONT. UNIT - 61170 | | | |

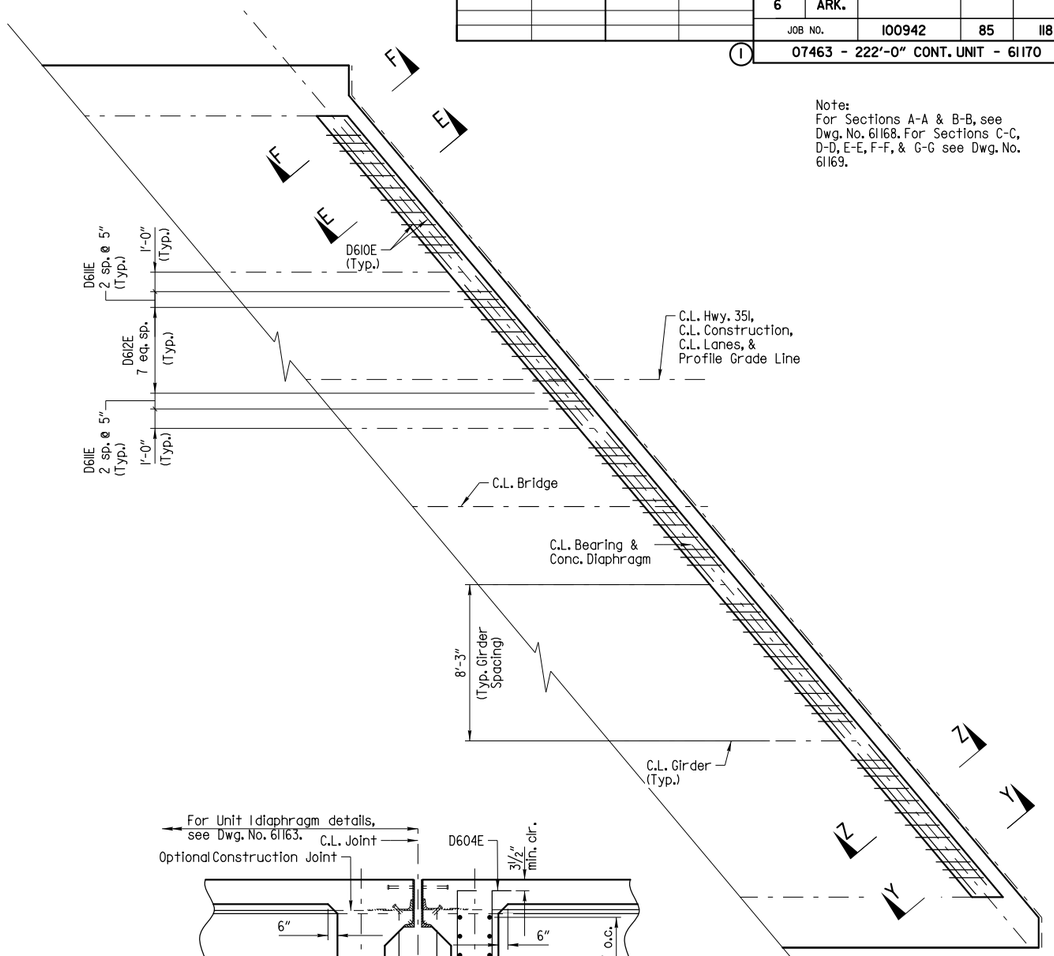
Note:
For Sections A-A & B-B, see Dwg. No. 61168. For Sections C-C, D-D, E-E, F-F, & G-G see Dwg. No. 61169.




PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING



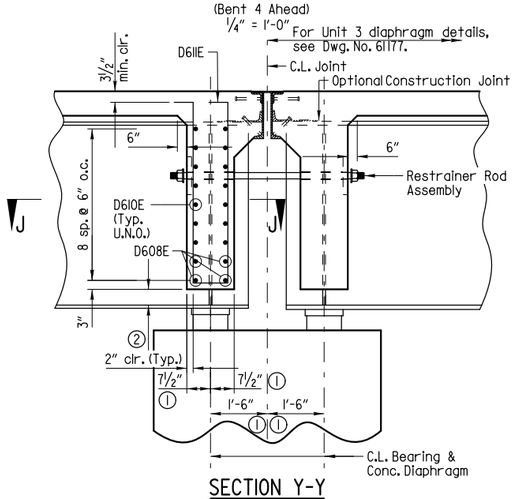

PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING



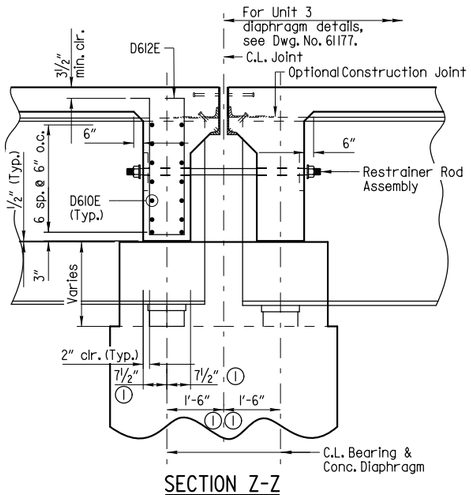

PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING
(Bent 6 Back)
1/4" = 1'-0"

① Measured Normal to C.L. Joint
② 5" typ. from bottom of web

(Bent 4 Ahead)
1/4" = 1'-0"

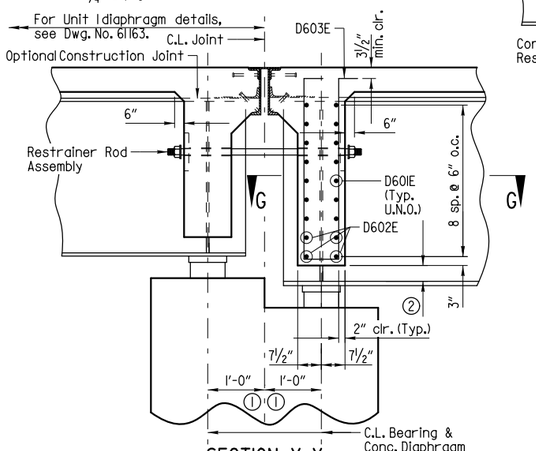



SECTION Y-Y
1/2" = 1'-0"

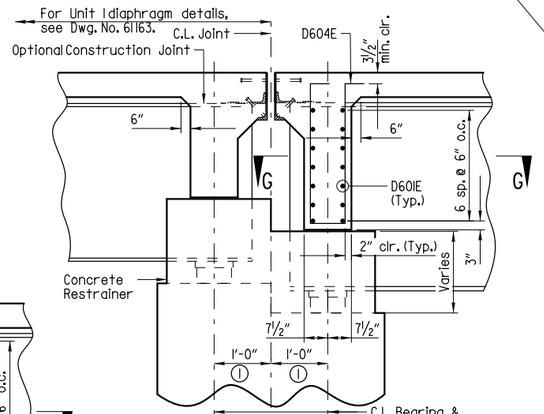



SECTION Z-Z
1/2" = 1'-0"

(Bent 5)
1/4" = 1'-0"




SECTION X-X
1/2" = 1'-0"




SECTION W-W
1/2" = 1'-0"

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WORKSPACE: ARDOT
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REVISED DATE:

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER STEPHEN F. HARPER No.14501

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 5 OF 8
## DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 35I RR OVERPASS

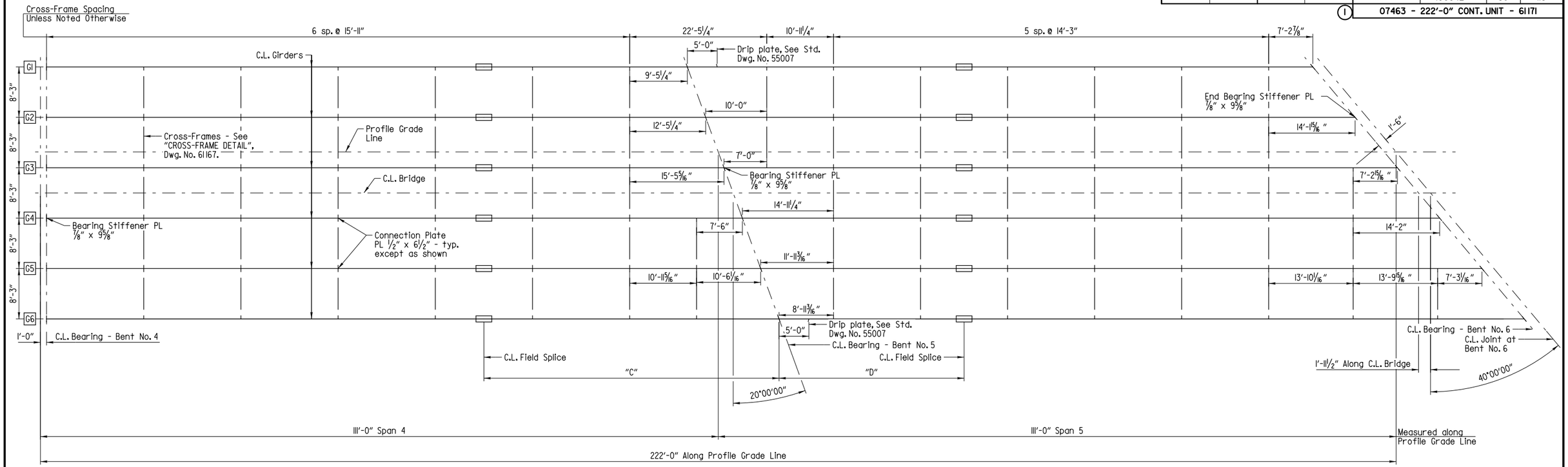
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

| | | | | |
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| CHECKED BY: | SFH | DATE: | 07/2019 | |
| DESIGNED BY: | JPC | DATE: | 06/2019 | SCALE: As Shown |
| BRIDGE NO. | 07463 | | DRAWING NO. | 61170 |

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
|---|---|---|---|
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 86 | 118 |
| (1) | 07463 - 222'-0" CONT. UNIT - 61171 | | | |




## FRAMING PLAN

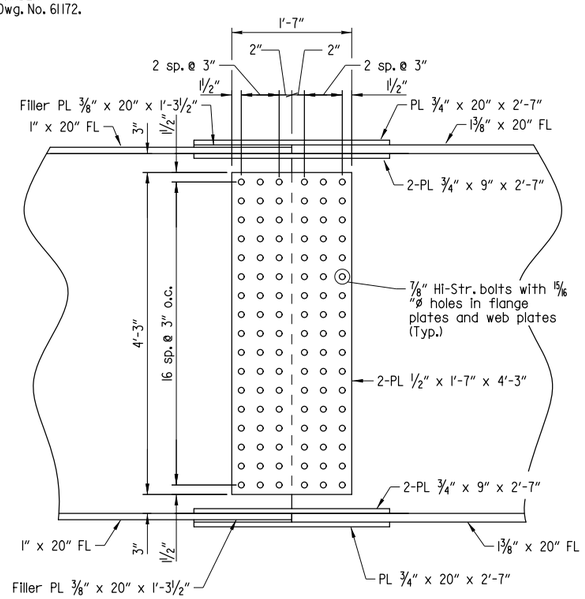
1/8" = 1'-0"

Note:
For dimensions "C" and "D", see "TABLE OF GIRDER VARIABLES" on Dwg. No. 61172.

Notes:
Unless otherwise noted all structural steel shall be ASTM A709, Gr. 50 and shall be paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)".

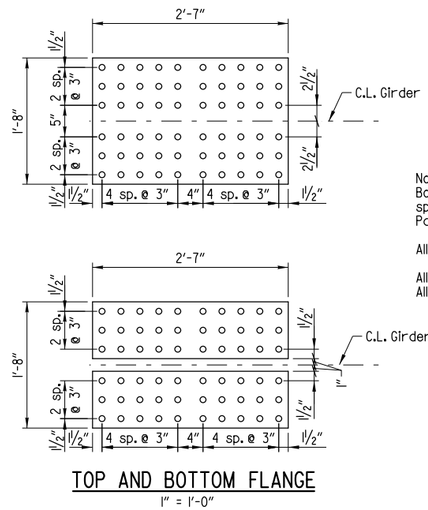
Girders are on arcs concentric to C.L. Hwy. 351, C.L. Construction, C.L. Lanes, & Profile Grade Line.

All Structural Steel except galvanized members and some surfaces in contact with concrete shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.




## TYPICAL FIELD SPLICE DETAILS

1" = 1'-0"




## TOP AND BOTTOM FLANGE

1" = 1'-0"

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

All field splice bolts shall be 7/8" ø Hi-str. bolts.

All holes for splice bolts shall be 15/16" ø.
All field splice plates shall be ASTM A709 Gr. 50 steel.

## PREFORMED SILICONE JOINT SEAL

| Bent Nos. | Movement Rating | "A" width perpendicular to joint at 24 hour average temperature of: | | | "B" width perpendicular to joint at 24 hour average temperature of: | Bumper Plate Size |
|---|---|---|---|---|---|---|
| | | 40°F | 60°F | 80°F | 60°F | |
| 4 | 5" | 2 15/16" | 2 1/2" | 2 3/16" | 3" | 1" x 3/4" |
| 6 | 4" | 2 1/2" | 2 1/4" | 2" | 3" | 1" x 3/4" |

Note:
The temperature used to set the joint opening shall be the approximate average air temperature during the preceding 24 hour period. The Engineer shall establish the temperature. Interpolation of the table may be necessary. Installation is limited to 40°F min. and 80°F max.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 6 OF 8
# DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

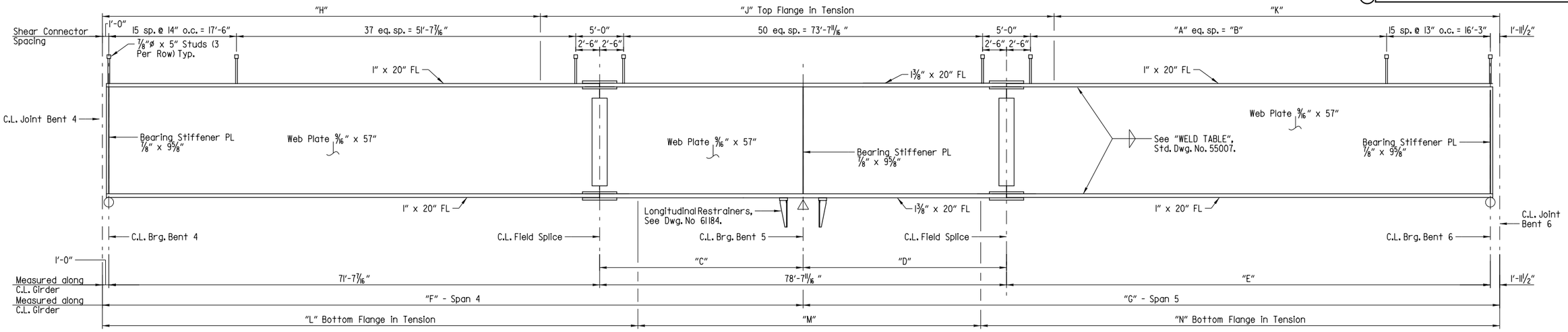
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

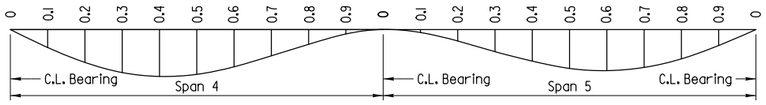
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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61171 |

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WORKSPACE: ARDOT
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REVISED DATE:

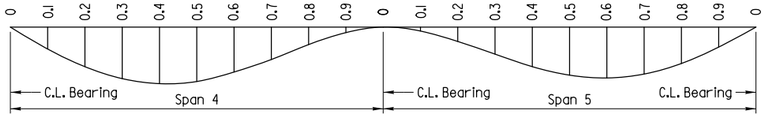
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 87 | 118 |
| | | | | (1) | 07463 - 222'-0" CONT. UNIT - 61172 | | | |



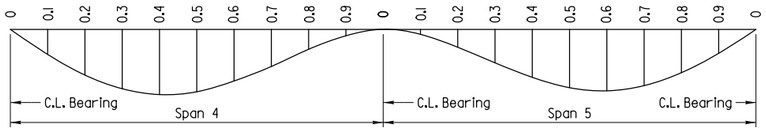

TYP. GIRDER ELEVATION



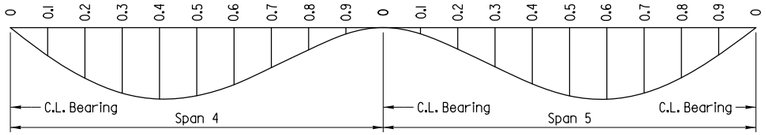

DEAD LOAD DEFLECTION DIAGRAM - GIRDER 1



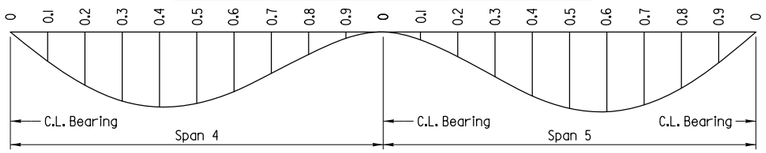

DEAD LOAD DEFLECTION DIAGRAM - GIRDER 2



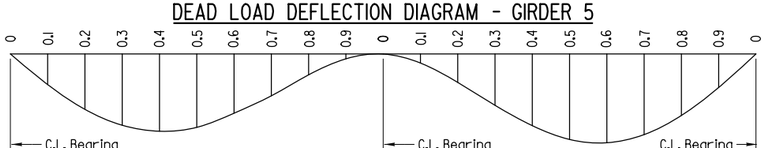

DEAD LOAD DEFLECTION DIAGRAM - GIRDER 3




DEAD LOAD DEFLECTION DIAGRAM - GIRDER 4




DEAD LOAD DEFLECTION DIAGRAM - GIRDER 5




DEAD LOAD DEFLECTION DIAGRAM - GIRDER 6

## TABLE OF GIRDER VARIABLES

| Girder No. | "A" | "B" | "C" | "D" | "E" | "F" | "G" | "H" | "J" | "K" | "L" | "M" | "N" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28 | 38'-4 5/16" | 33'-3 13/16" | 45'-3 7/8" | 57'-11 5/16" | 105'-11 1/4" | 104'-4 11/16" | 60'-6 1/8" | 94'-9 3/8" | 54'-0 7/16" | 89'-11 3/16" | 34'-10 3/16" | 86'-3 5/16" |
| 2 | 31 | 45'-3 5/16" | 36'-3 13/16" | 42'-3 7/8" | 64'-0 5/16" | 108'-11 1/4" | 108'-3 11/16" | 67'-6 1/2" | 83'-11 1/4" | 65'-9 3/16" | 91'-3 11/16" | 36'-6 1/16" | 89'-5 1/16" |
| 3 | 37 | 52'-2 7/16" | 39'-3 7/8" | 39'-3 13/16" | 70'-11 7/16" | 111'-11 5/16" | 112'-2 3/4" | 70'-6 13/16" | 84'-2 1/2" | 69'-4 3/4" | 92'-11 5/8" | 39'-1 1/8" | 92'-1 5/16" |
| 4 | 42 | 59'-1 1/2" | 42'-3 7/8" | 36'-3 13/16" | 77'-10 1/2" | 114'-11 5/16" | 116'-1 13/16" | 72'-4 1/16" | 85'-5 1/4" | 73'-3 11/16" | 95'-5 7/8" | 40'-7 5/8" | 94'-11 5/8" |
| 5 | 47 | 66'-0 9/16" | 45'-3 15/16" | 33'-3 3/4" | 84'-9 1/16" | 117'-11 3/16" | 120'-0 11/16" | 71'-2 1/16" | 91'-3 15/16" | 75'-6 3/16" | 97'-9 1/2" | 41'-1 3/16" | 99'-1 5/16" |
| 6 | 52 | 72'-11 5/8" | 48'-3 15/16" | 30'-3 3/4" | 91'-8 5/8" | 120'-11 3/8" | 123'-11 7/8" | 67'-11 5/8" | 101'-9 1/2" | 75'-2 1/8" | 100'-3 15/16" | 42'-5 1/16" | 102'-2 1/4" |

## TABLE OF DEAD LOAD DEFLECTION (INCHES)

| Span | Point of Deflection | Structural Steel | | | | | | Structural Steel + Slab | | | | | | Structural Steel + Slab + Rail + H-2 Rail | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.101 | 0.117 | 0.131 | 0.145 | 0.159 | 0.173 | 0.383 | 0.458 | 0.519 | 0.568 | 0.605 | 0.632 | 0.417 | 0.508 | 0.584 | 0.643 | 0.683 | 0.706 |
| | 0.2 | 0.186 | 0.213 | 0.239 | 0.264 | 0.289 | 0.315 | 0.702 | 0.833 | 0.946 | 1.034 | 1.100 | 1.150 | 0.765 | 0.923 | 1.064 | 1.170 | 1.241 | 1.284 |
| | 0.3 | 0.244 | 0.278 | 0.312 | 0.345 | 0.377 | 0.411 | 0.921 | 1.089 | 1.235 | 1.349 | 1.431 | 1.494 | 1.004 | 1.208 | 1.390 | 1.527 | 1.615 | 1.669 |
| | 0.4 | 0.267 | 0.305 | 0.342 | 0.378 | 0.413 | 0.448 | 1.008 | 1.192 | 1.352 | 1.475 | 1.561 | 1.623 | 1.099 | 1.323 | 1.522 | 1.670 | 1.761 | 1.813 |
| | 0.5 | 0.255 | 0.292 | 0.328 | 0.362 | 0.395 | 0.425 | 0.964 | 1.141 | 1.293 | 1.408 | 1.486 | 1.529 | 1.051 | 1.267 | 1.457 | 1.595 | 1.677 | 1.708 |
| | 0.6 | 0.212 | 0.244 | 0.274 | 0.303 | 0.328 | 0.349 | 0.800 | 0.953 | 1.080 | 1.175 | 1.226 | 1.244 | 0.873 | 1.059 | 1.218 | 1.333 | 1.384 | 1.390 |
| | 0.7 | 0.149 | 0.174 | 0.195 | 0.213 | 0.231 | 0.246 | 0.564 | 0.683 | 0.766 | 0.822 | 0.856 | 0.865 | 0.616 | 0.760 | 0.865 | 0.934 | 0.967 | 0.966 |
| | 0.8 | 0.083 | 0.095 | 0.106 | 0.120 | 0.126 | 0.132 | 0.316 | 0.373 | 0.417 | 0.459 | 0.461 | 0.453 | 0.346 | 0.416 | 0.472 | 0.522 | 0.521 | 0.505 |
| | 0.9 | 0.026 | 0.030 | 0.035 | 0.037 | 0.038 | 0.039 | 0.101 | 0.121 | 0.137 | 0.140 | 0.134 | 0.125 | 0.111 | 0.135 | 0.156 | 0.160 | 0.152 | 0.140 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.020 | 0.024 | 0.027 | 0.031 | 0.039 | 0.046 | 0.065 | 0.084 | 0.102 | 0.123 | 0.159 | 0.184 | 0.071 | 0.092 | 0.115 | 0.140 | 0.180 | 0.206 |
| | 0.2 | 0.071 | 0.083 | 0.094 | 0.112 | 0.127 | 0.151 | 0.243 | 0.304 | 0.363 | 0.441 | 0.503 | 0.587 | 0.267 | 0.336 | 0.408 | 0.500 | 0.569 | 0.656 |
| | 0.3 | 0.135 | 0.153 | 0.179 | 0.206 | 0.237 | 0.277 | 0.471 | 0.570 | 0.694 | 0.811 | 0.928 | 1.066 | 0.518 | 0.631 | 0.780 | 0.918 | 1.047 | 1.191 |
| | 0.4 | 0.191 | 0.222 | 0.255 | 0.295 | 0.341 | 0.391 | 0.676 | 0.835 | 0.993 | 1.161 | 1.332 | 1.497 | 0.744 | 0.925 | 1.116 | 1.312 | 1.500 | 1.670 |
| | 0.5 | 0.231 | 0.268 | 0.310 | 0.357 | 0.408 | 0.468 | 0.823 | 1.014 | 1.213 | 1.404 | 1.591 | 1.788 | 0.906 | 1.125 | 1.363 | 1.585 | 1.790 | 1.992 |
| | 0.6 | 0.244 | 0.282 | 0.326 | 0.374 | 0.428 | 0.490 | 0.875 | 1.075 | 1.278 | 1.472 | 1.666 | 1.869 | 0.963 | 1.193 | 1.436 | 1.661 | 1.872 | 2.080 |
| | 0.7 | 0.224 | 0.258 | 0.299 | 0.343 | 0.392 | 0.446 | 0.806 | 0.989 | 1.174 | 1.351 | 1.523 | 1.701 | 0.888 | 1.099 | 1.320 | 1.524 | 1.709 | 1.891 |
| | 0.8 | 0.171 | 0.199 | 0.229 | 0.264 | 0.301 | 0.341 | 0.618 | 0.764 | 0.901 | 1.039 | 1.168 | 1.300 | 0.681 | 0.849 | 1.014 | 1.172 | 1.310 | 1.443 |
| | 0.9 | 0.094 | 0.109 | 0.126 | 0.144 | 0.165 | 0.186 | 0.340 | 0.421 | 0.497 | 0.569 | 0.641 | 0.708 | 0.375 | 0.468 | 0.559 | 0.642 | 0.718 | 0.785 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Notes:
Camber for Dead Load Deflection plus Vertical Curve + or - 1/4" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign ( - ) indicates point above chord.

For girder locations, see Dwg. No. 61171.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 7 OF 8
# DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

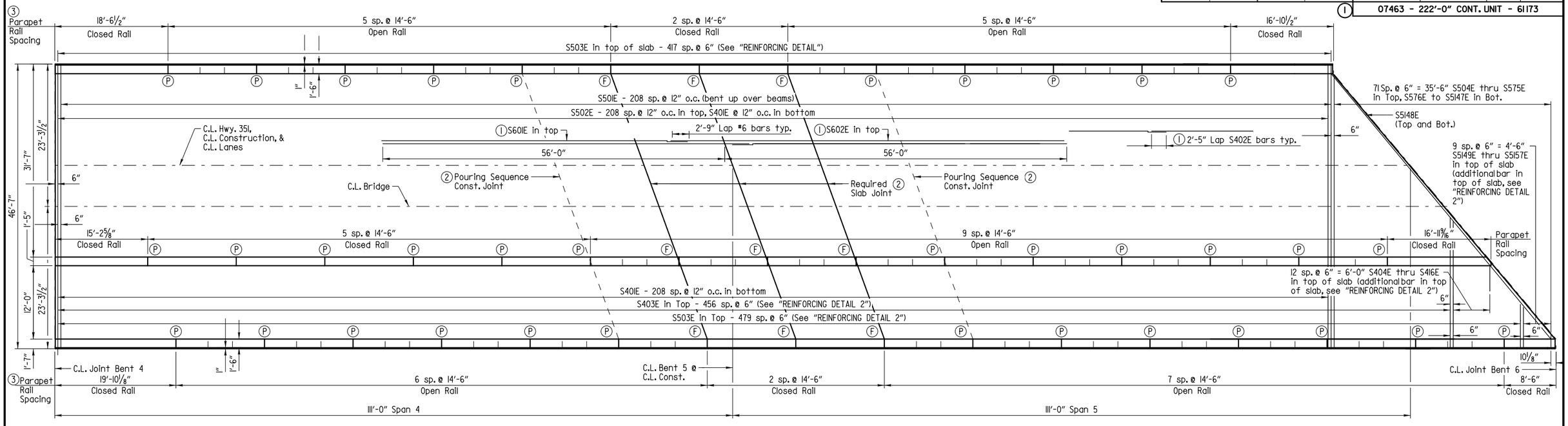
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CHECKED BY: SFH DATE: 07/2019
DESIGNED BY: JPC DATE: 05/2019 SCALE: No Scale
BRIDGE NO. 07463 DRAWING NO. 61172

Leonard.Speed 8/31/2020 1:45:06 PM
WORKSPACE: ARDOT
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED |
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 88 | 118 |

(1) 07463 - 222'-0" CONT. UNIT - 61173




## REINFORCING PLAN

⅛" = 1'-0"

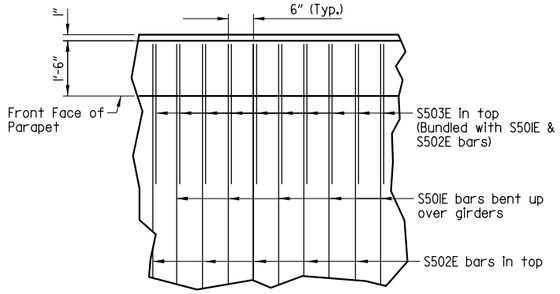
(P) Partial depth parapet joint at this location. (Stop 1'-2" above top of deck)

(F) Full depth parapet joint at this location. (Stop 4" above top of deck)

(1) Placed as shown in "Typical Section", See Dwg. No. 61167.

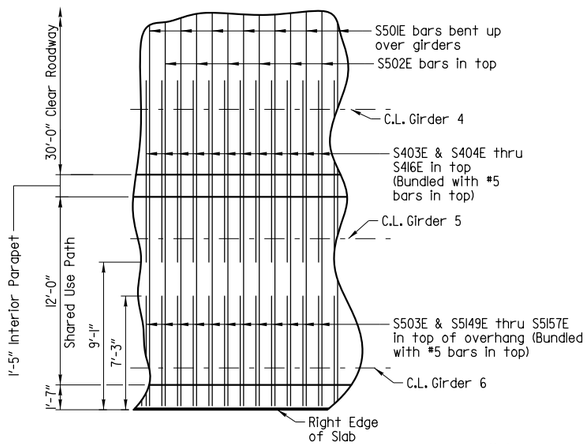
(2) Align with parapet open joint unless noted otherwise.

(3) Parapet Panel spacing measured along gutterline.

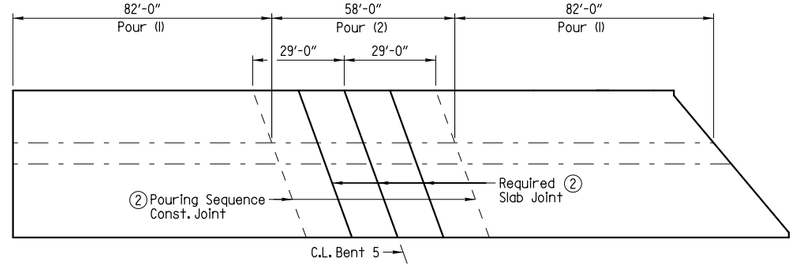



## REINFORCING DETAIL

No Scale

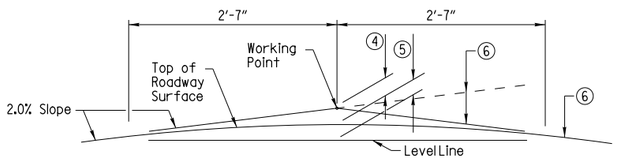



## REINFORCING DETAIL 2




## POURING SEQUENCE

No Scale




Note: Working Point matches Theoretical Roadway Grade.

## ROUNDING DETAIL

No Scale

(4) Varies - 0" at Reverse Crown Sta. 97+29.51 to 5/16" at Normal Crown Sta. 98+54.51

(5) Varies - 5/16" at Reverse Crown Sta. 97+29.51 to 5/16" at Normal Crown Sta. 98+54.51

(6) Varies - +2.0% at Reverse Crown Sta. 97+29.51 to -2.0% at Normal Crown Sta. 98+54.51

Note:
Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before pour (2) can be placed. 48 hours shall elapse before the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the completion of the entire deck and the pouring of the parapet. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN J. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 8 OF 8
# DETAILS OF 222'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

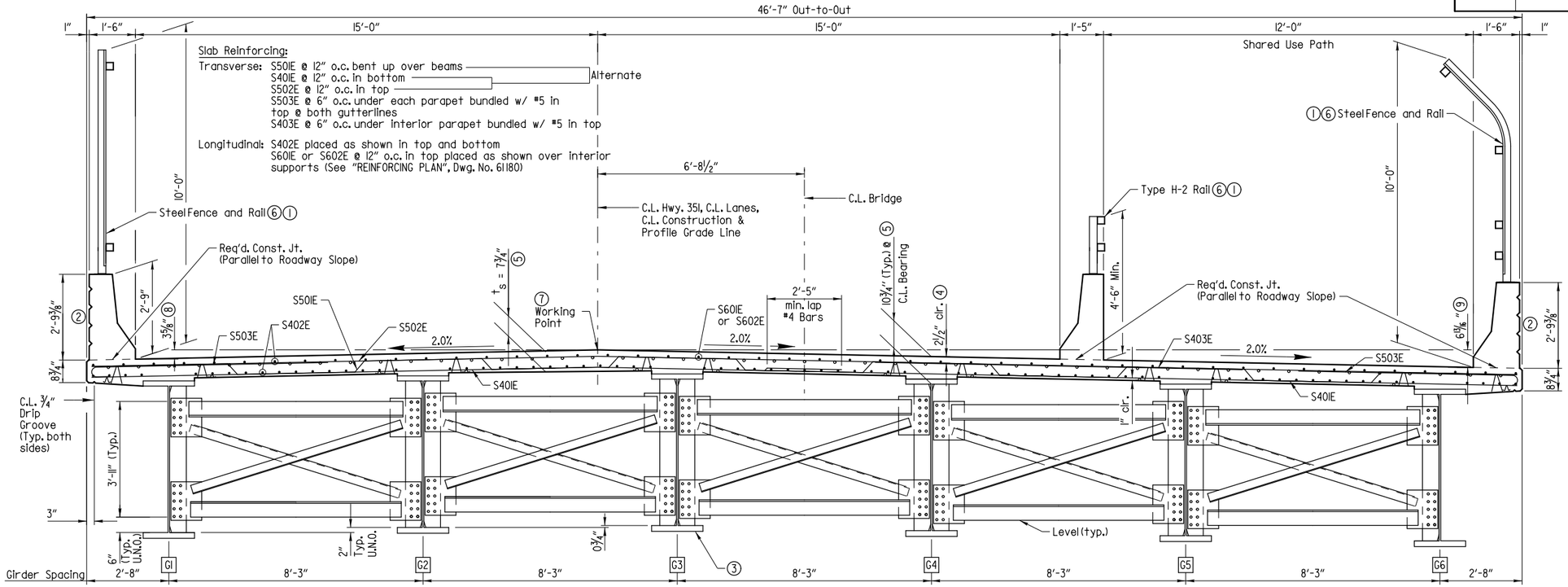
## ARKANSAS STATE HIGHWAY COMMISSION

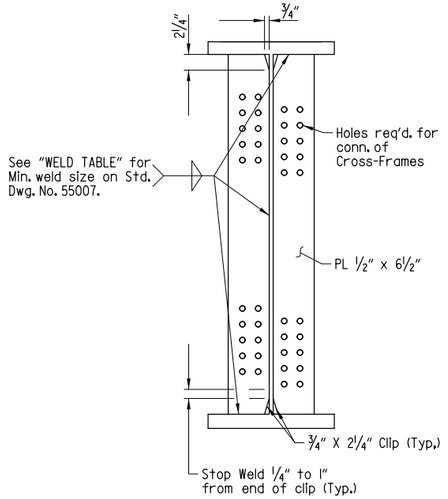
LITTLE ROCK, ARKANSAS

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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61173 |

Leonard.Speed 8/31/2020 1:45:07 PM
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REVISED DATE:

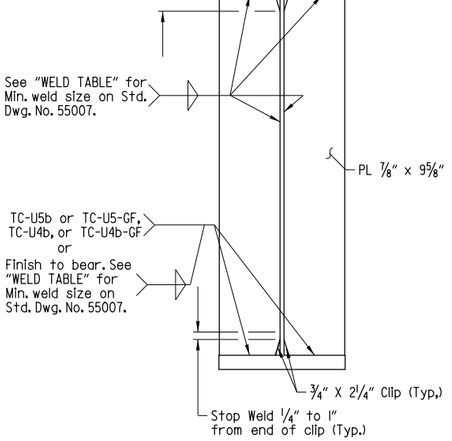
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 89 | 118 |
| | | | | (1) | 07463 - 294'-0" CONT. UNIT - 61174 | | | |




CROSS-FRAME CONNECTION PLATE DETAIL

1" = 1'-0"




BEARING & INTERMEDIATE STIFFENER DETAIL

1" = 1'-0"

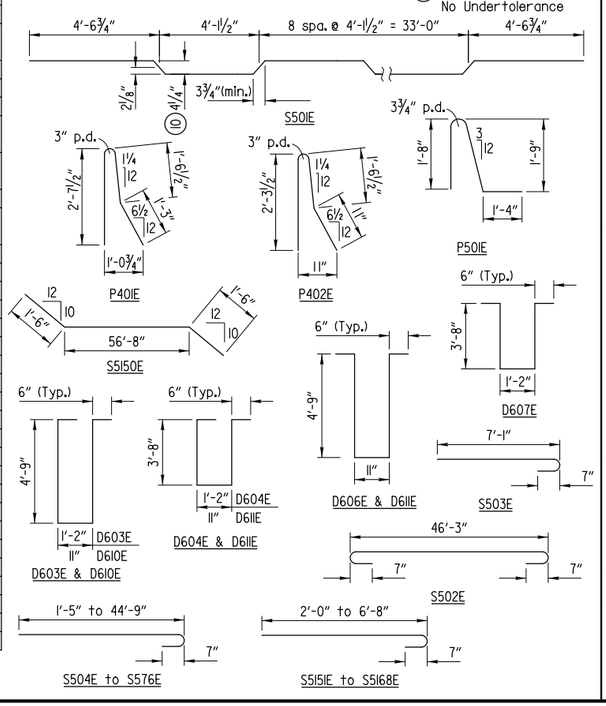
## BAR LIST

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| S401E | 540 | 24'-6" | Str. |
| S402E | 1089 | 36'-2" | Str. |
| S403E | 602 | 12'-0" | Str. |
| S404E to S412E | 1 each | 6'-4" to 11'-1" | Str. |
| S501E | 269 | 47'-4" | 3" |
| S502E | 270 | 47'-5" | 3¾" |
| S503E | 270 | 7'-8" | 3¾" |
| S504E to S576E | 1 each | 2'-0" to 45'-4" | 3¾" |
| S577E to S5149E | 1 each | 1'-5" to 44'-9" | Str. |
| S5150E | 2 | 59'-8" | 3¾" |
| S5151E to S5168E | 1 each | 2'-7" to 7'-3" | 3¾" |
| S601E | 47 | 23'-0" | Str. |
| S602E | 94 | 60'-0" | Str. |
| P401E | 1549 | 5'-6" | 3" |
| P402E | 168 | 4'-10" | 3" |
| P403E | 120 | 5'-6" | Str. |
| P404E | 7 | 9'-6" | Str. |
| P405E | 7 | 11'-8" | Str. |
| P406E | 7 | 12'-3" | Str. |
| P407E | 133 | 12'-8" | Str. |
| P408E | 224 | 17'-8" | Str. |
| P501E | 1549 | 4'-10" | 3¾" |
| D601E | 140 | 10'-4" | Str. |
| D602E | 40 | 1'-10" | Str. |
| D603E | 40 | 11'-0" | 4½" |
| D604E | 20 | 8'-10" | 4½" |
| D605E | 40 | 2'-3" | Str. |
| D606E | 30 | 11'-0" | 4½" |
| D607E | 30 | 8'-10" | 4½" |
| D608E | 40 | 2'-3" | Str. |
| D609E | 70 | 7'-11" | Str. |
| D610E | 40 | 10'-9" | 4½" |
| D611E | 20 | 8'-7" | 4½" |

BENDING DIAGRAMS
Dimensions are out to out of bars.

Note: All bars designated with an "E" suffix are to be epoxy coated

(10) ½" Overtolerance No Undertolerance




## TYPICAL SECTION

(Looking Ahead)
½" = 1'-0"

Note:
At the Contractors option, in lieu of providing S501E bars, one epoxy coated #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E. Bars in top and bottom shall be epoxy coated.

(1) The color of the Steel Fence, Posts and Type H-2 Metal Rail shall be Black and shall match Fed. Std. 595B Color Chip No. 27038.

(2) "Ashlar Stone" pattern on outside of parapet rails. See Dwg. No. 61183 for additional details.

(3) All Structural Steel except galvanized members and some surfaces in contact with concrete shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.

(4) Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

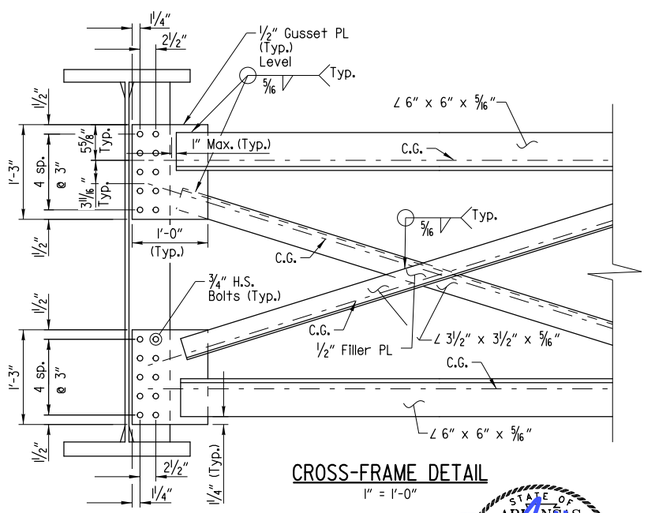
(5) See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007 with an exception that maximum haunch dimension is top flange thickness plus 2".

(6) For details of Steel Fence and Rail see, Dwg. Nos. 61181 and 61182.

(7) See "ROUNDING DETAIL" on Std. Dwg. No. 55007.

(8) Working Point to left gutterline, see "ROUNDING DETAIL" on Std. Dwg. No. 55007.

(9) Working Point to right gutterline, see "ROUNDING DETAIL" on Std. Dwg. No. 55007.




CROSS-FRAME DETAIL

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 1 OF 9
# DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION

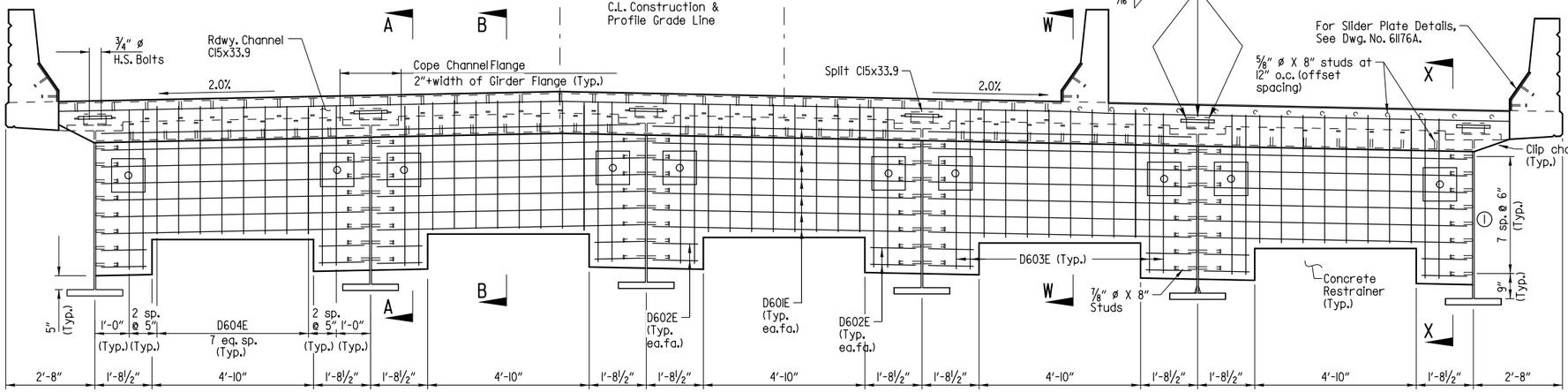
LITTLE ROCK, ARKANSAS

| | | | | | |
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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61174 |

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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 90 | 118 |
| | | | | (1) | 07463 - 294'-0" CONT. UNIT - 61175 | | | |

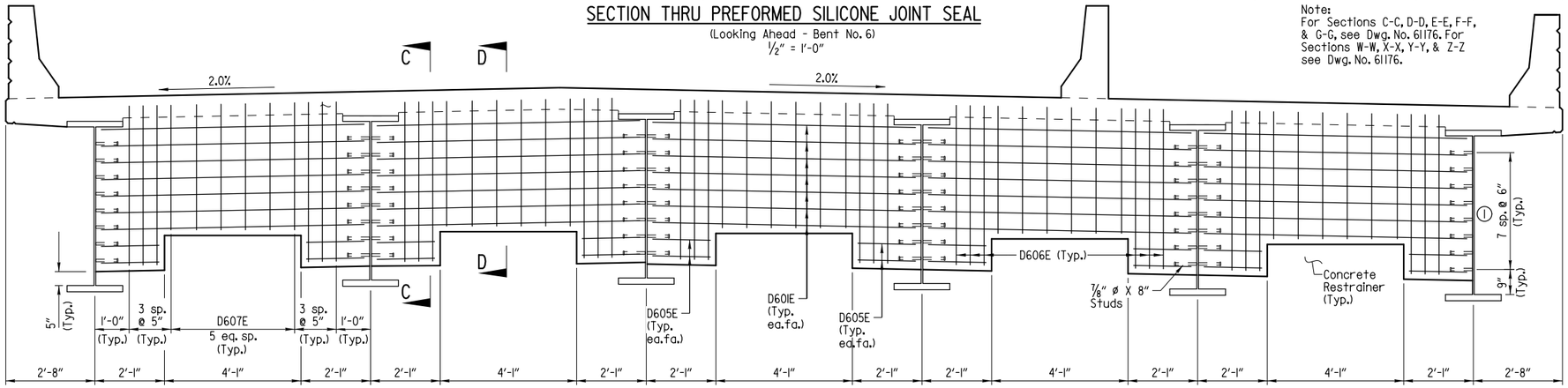
Expansion Device
Roadway Channel C15x33.9
Neoprene Strip Seal with Steel Joint Extrusion
Connection Split C15x33.9
Detail device 1/8" high & provide 1/4" shims using 1- 1/8" PL & 2 - 1/16" PLs




## SECTION THRU PREFORMED SILICONE JOINT SEAL

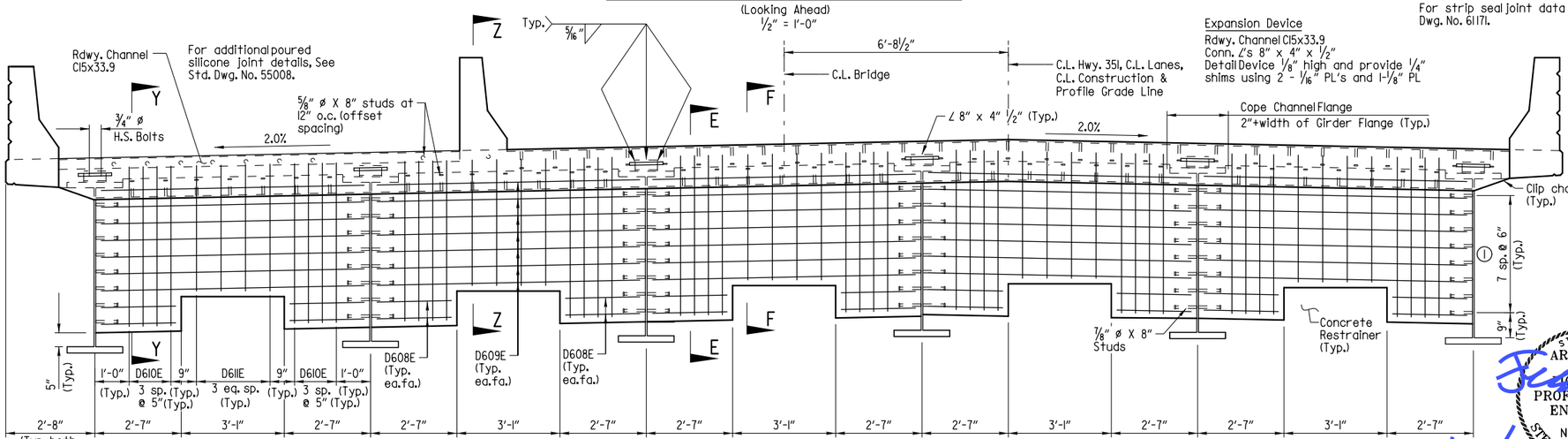
(Looking Ahead - Bent No. 6)
½" = 1'-0"

Note:
For Sections C-C, D-D, E-E, F-F, & G-G, see Dwg. No. 61176. For Sections W-W, X-X, Y-Y, & Z-Z see Dwg. No. 61176.




## ROADWAY SECTION AT INTERIOR BENT NO. 7

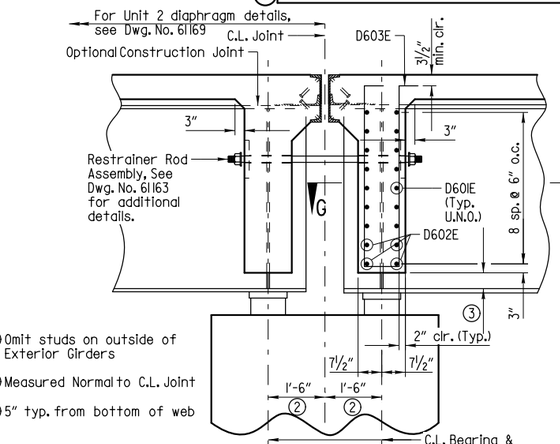
(Looking Ahead)
½" = 1'-0"




## SECTION THRU POURED SILICONE JOINT

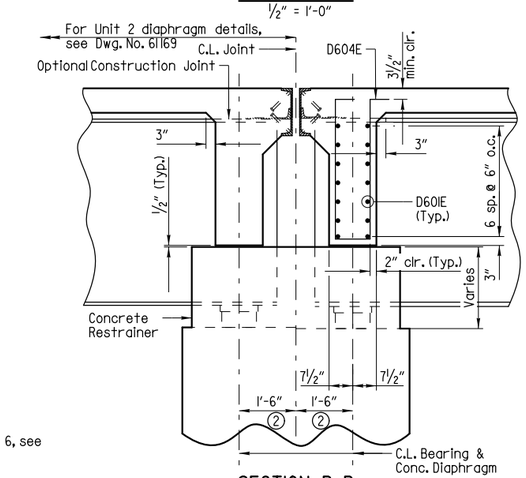
(Looking Back - Bent No. 8)
½" = 1'-0"

Note:
For strip seal joint data at Bent 6, see Dwg. No. 61171.



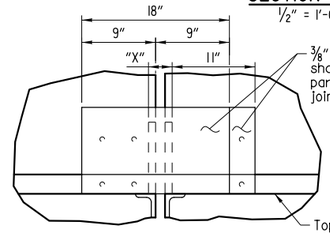

## SECTION A-A

½" = 1'-0"




## SECTION B-B

½" = 1'-0"




## DETAIL OF PARAPET SLIDER PLATES

No Scale

# SHEET 2 OF 9
# DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEVEN F. HARPER

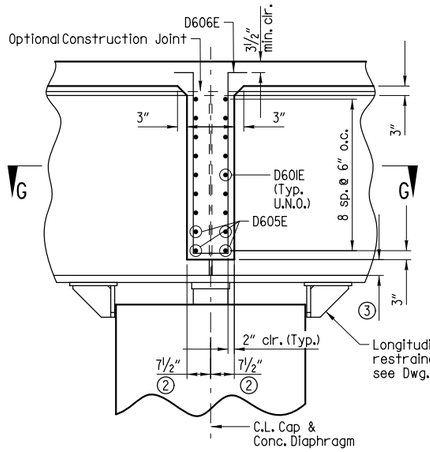
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

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BRIDGE NO. 07463 DRAWING NO. 61175

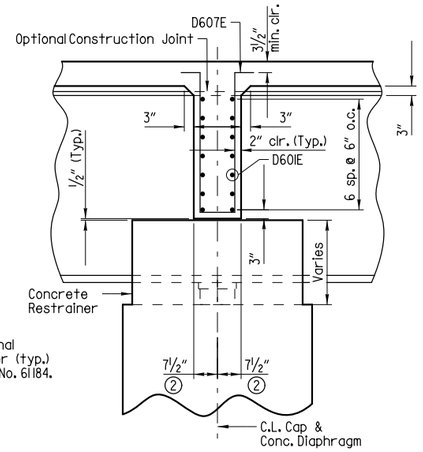
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REVISED DATE:

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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 91 | 118 |
| | | | | (1) | 07463 - 294'-0" CONT. UNIT - 61176 | | | |



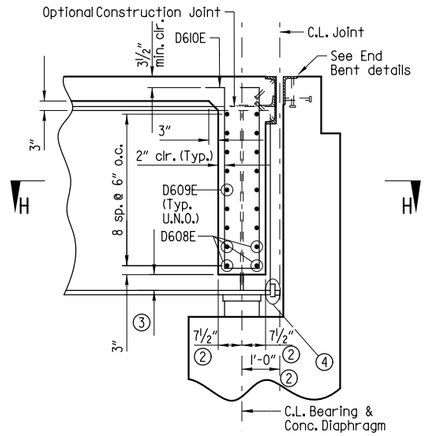

SECTION C-C

½" = 1'-0"



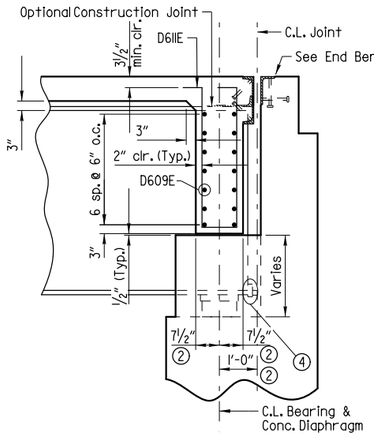

SECTION D-D

½" = 1'-0"



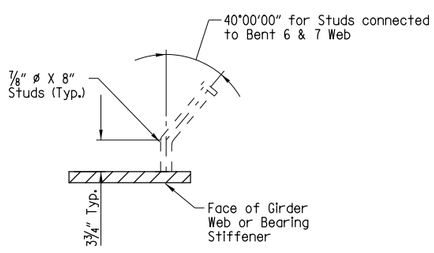

SECTION E-E

½" = 1'-0"



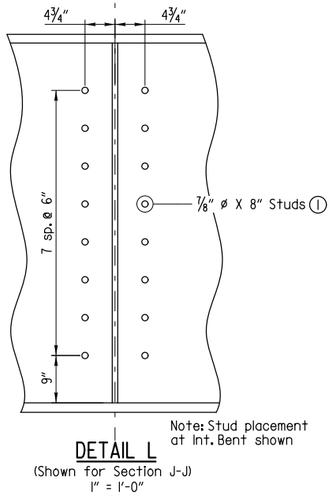

SECTION F-F

½" = 1'-0"




STUD DETAIL

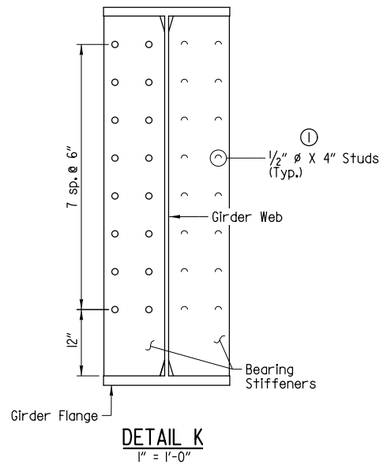
No Scale




DETAIL L

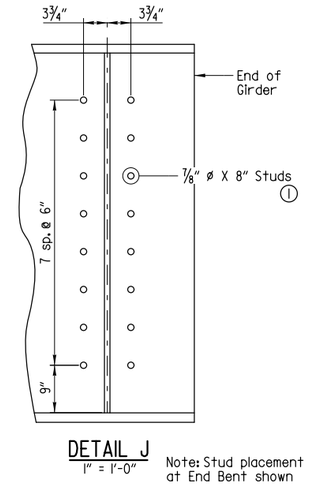
(Shown for Section J-J)

1" = 1'-0"




DETAIL K

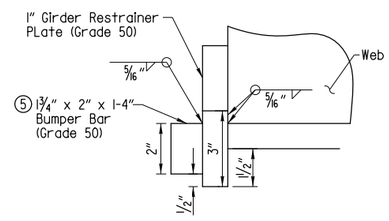
1" = 1'-0"




DETAIL J

1" = 1'-0"

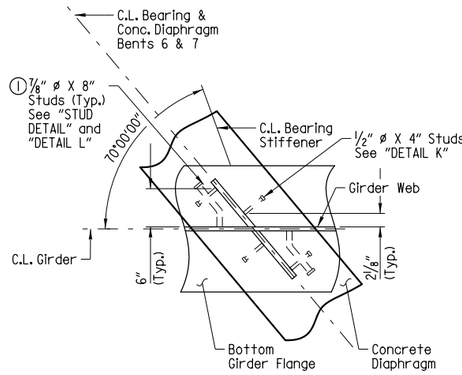
Note: Stud placement at End Bent shown




BUMPER CONNECTION DETAIL

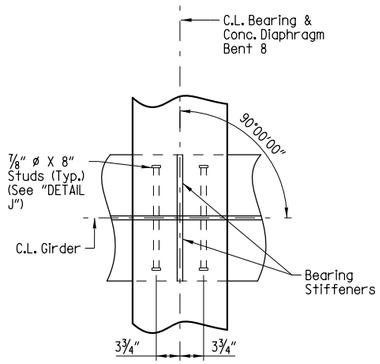
No Scale

Note: Bumpers shall be centered horizontally on each Girder line, at both ends.




SECTION G-G

1" = 1'-0"




SECTION H-H

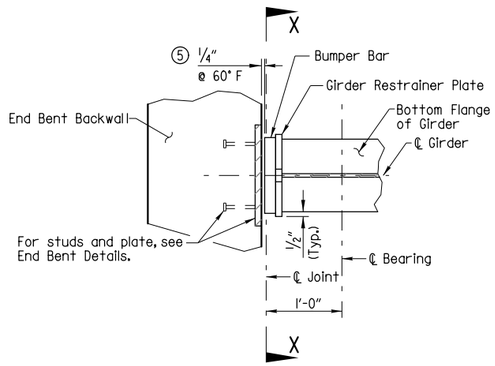
1" = 1'-0"

(5) Thickness of Beam Restrainer Plate and Bumper Bar shown are based on theoretical gap of 4" between end of girder and face of backwall (1¼" between face of bumper bar as detailed and face of backwall at 60° F). Prior to installing the Beam Restrainer assembly, the actual gap shall be field measured and final plate dimensions submitted for review. In no case shall the actual plate thickness used in the assembly be less than ½".

## SILICONE JOINT DATA

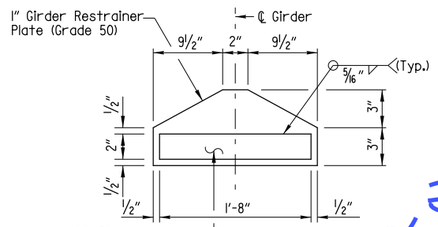
| Bent Nos. | "A" Joint Width Perpendicular To Joint 24 Hour Average Temperature Of : | | | "B" Perpendicular To Joint @ 60°F |
|---|---|---|---|---|
| | 40°F | 60°F | 80°F | |
| 8 | 2½" | 2¼" | 2" | 2⅞" ± |

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




PLAN OF GIRDER RESTRAINER

No Scale




NOTE: View taken along girder. Girder restrainer plate shall be centered on each girder line.

VIEW X-X

No Scale

(1) Omit studs on outside of Exterior Girders

(2) Measured Normal to C.L. Joint / C.L. Bent

(3) 5" typ. @ face of web

(4) See "PLAN OF GIRDER RESTRAINER"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 3 OF 9
# DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351RR OVERPASS

ROUTE SECTION

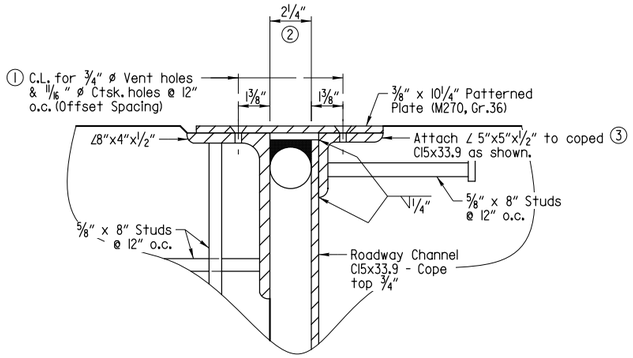
## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

| | | | | | |
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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | As Shown |
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 92 | 118 |
| | | | | (1) | 07463 - 295'-0" CONT. UNIT - 61176A | | | |




## DETAIL THRU POURED SILICONE JOINT

For additional details of poured silicone joint, see Std. Dwg. No. 55008.

(1) Ctsk. 11/16" ø holes in ⅜" Patterned Plate. Tap 4" leg of angles for ASTM A449 ⅝" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the end bent side to be removed. Screws on span side to remain in place after erection. See "Expansion Device Installation" this drawing.

(2) Dimensions shown @ 60°F

(3) Cope top horizontal leg to 4½"

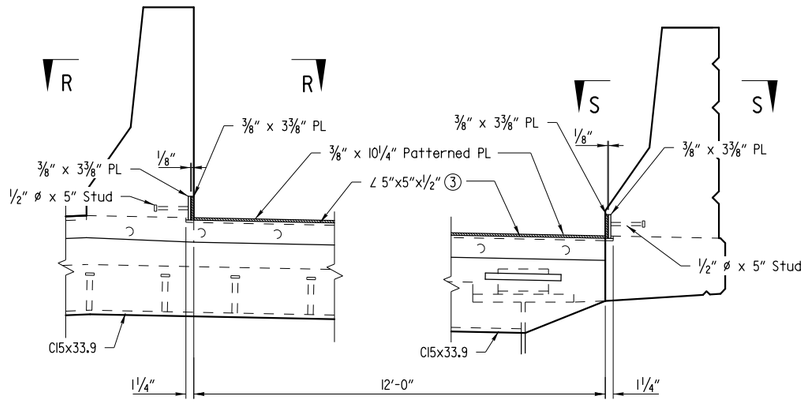
EXPANSION DEVICE INSTALLATION:

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

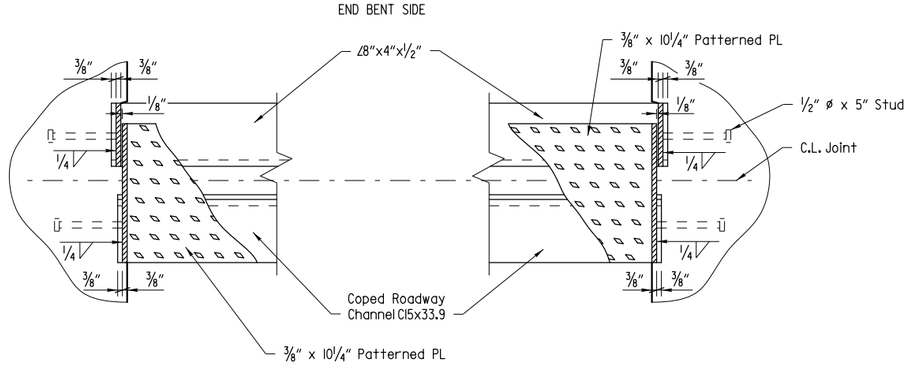
Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

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

Surfaces of the structural steel in the roadway and sidewalk joint armor not completely embedded in concrete and the patterned plate shall be cleaned in accordance with subsection 807.84(b) and shop painted with a QPL approved inorganic zinc-rich primer with a concrete gray color. No finish system shall be applied. The Contractor shall repair any damage to the primer at his expense and to the satisfaction of the Engineer prior to installation of the joint seal. Painting will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".




## SHARED USE PATH DETAIL - BENT 8




VIEW R-R VIEW S-S

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

7/27/2022

BRIDGE ENGINEER
PRINT DATE: 7/27/2022

## SHEET 4 OF 8
## DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 35 IRR OVERPASS

ROUTE SECTION

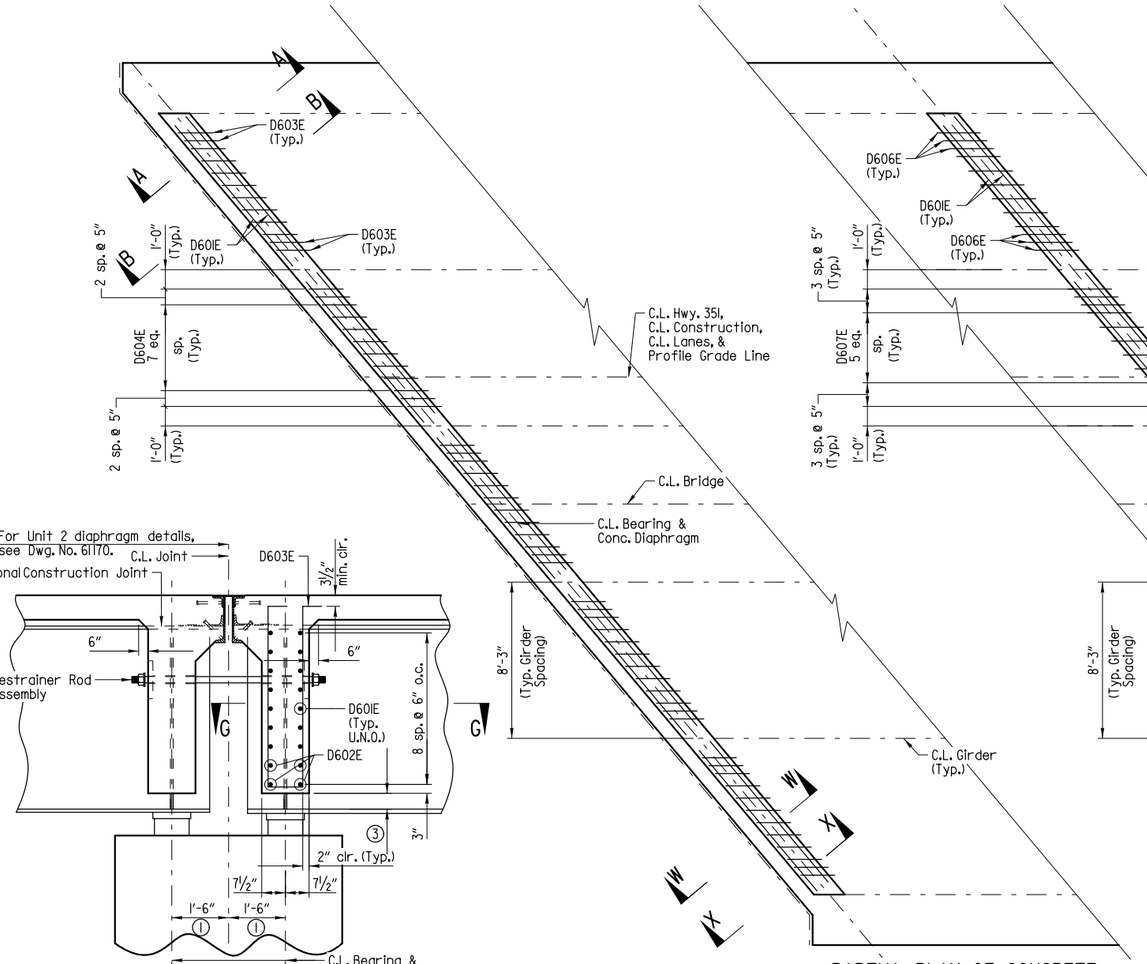
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

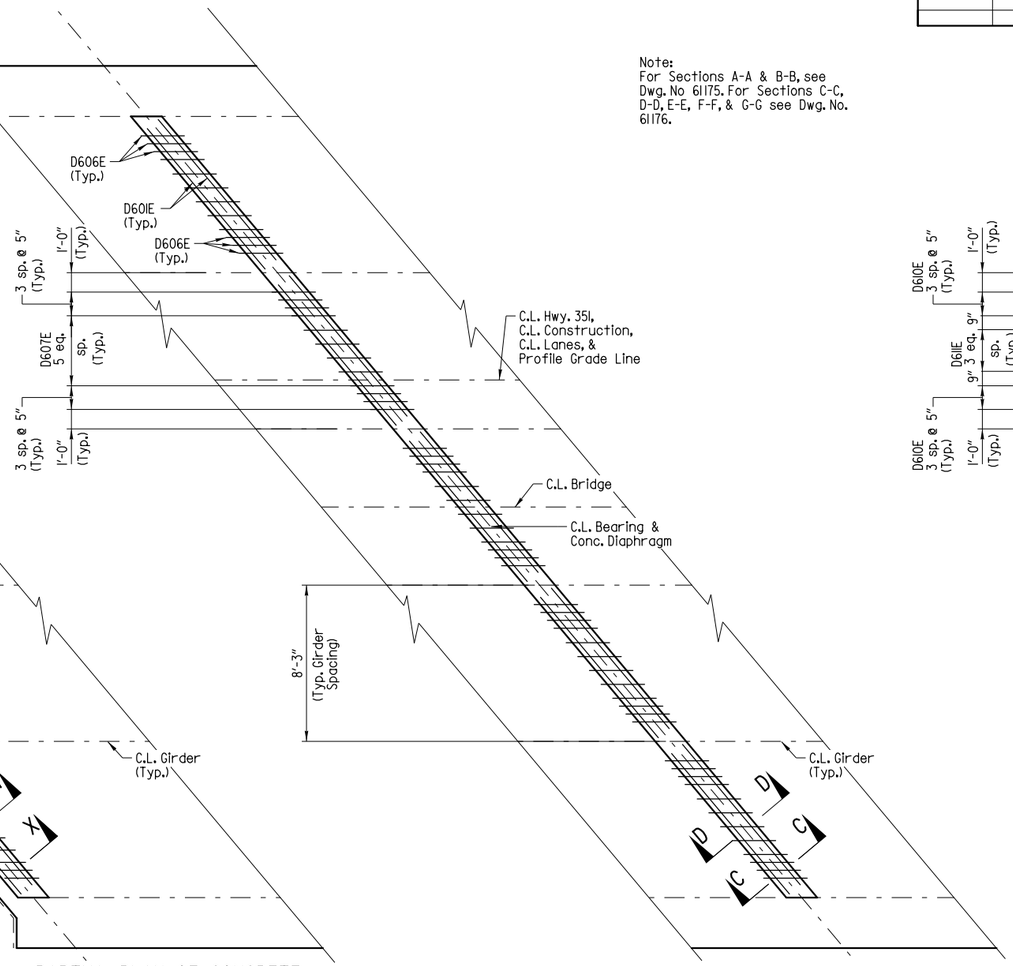
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CHECKED BY: SFH DATE: 08/2020
DESIGNED BY: MKL DATE: 08/2020 SCALE: No Scale
BRIDGE NO. 07463 DRAWING NO. 61176A

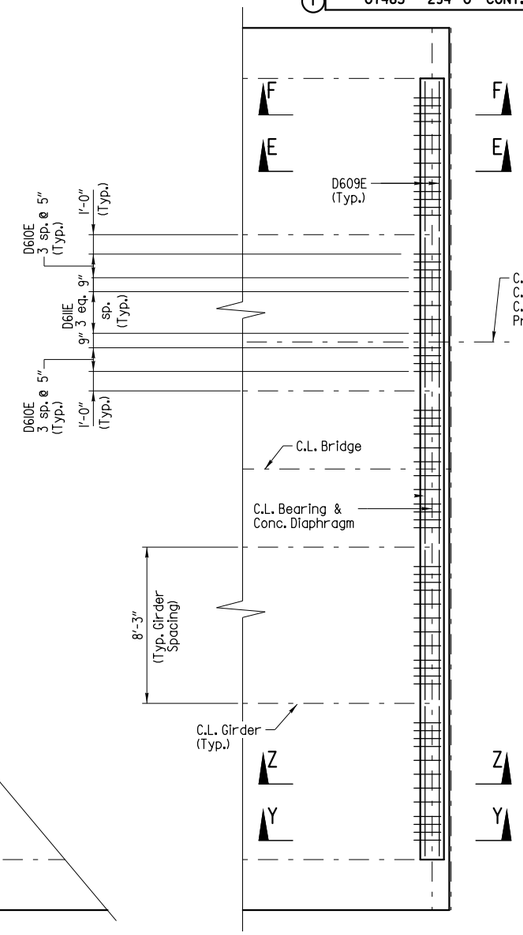
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REVISED DATE:

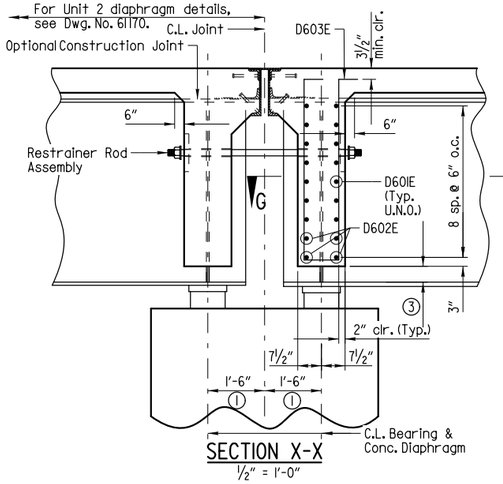
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 93 | 118 |
| | | | | (1) | 07463 - 294'-0" CONT. UNIT - 61177 | | | |

Note:
For Sections A-A & B-B, see Dwg. No 61175. For Sections C-C, D-D, E-E, F-F, & G-G see Dwg. No. 61176.



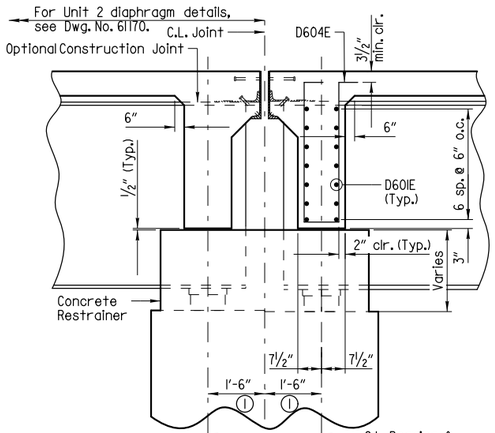




SECTION X-X
½" = 1'-0"

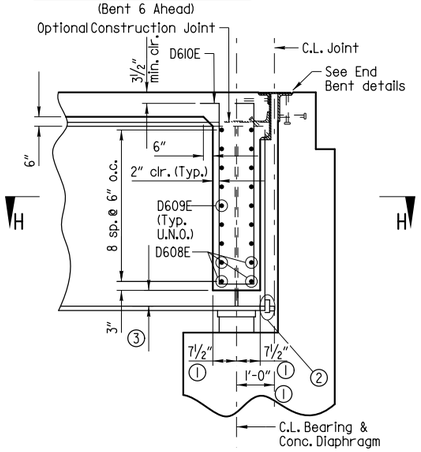
PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING

PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING
(Bent 7)

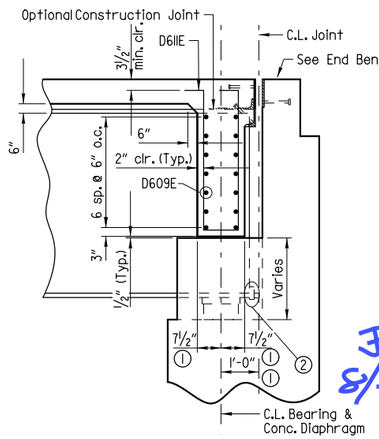
PARTIAL PLAN OF CONCRETE DIAPHRAGM REINFORCING
(Bent 8)




SECTION W-W
½" = 1'-0"




SECTION E-E
½" = 1'-0"




SECTION F-F
½" = 1'-0"

(1) Measured Normal to C.L. Joint

(2) See "PLAN OF GIRDER RESTRAINER" on Dwg. No 61164.

(3) 5" typ. from bottom of web

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 5 OF 9
# DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351RR OVERPASS

ROUTE SECTION

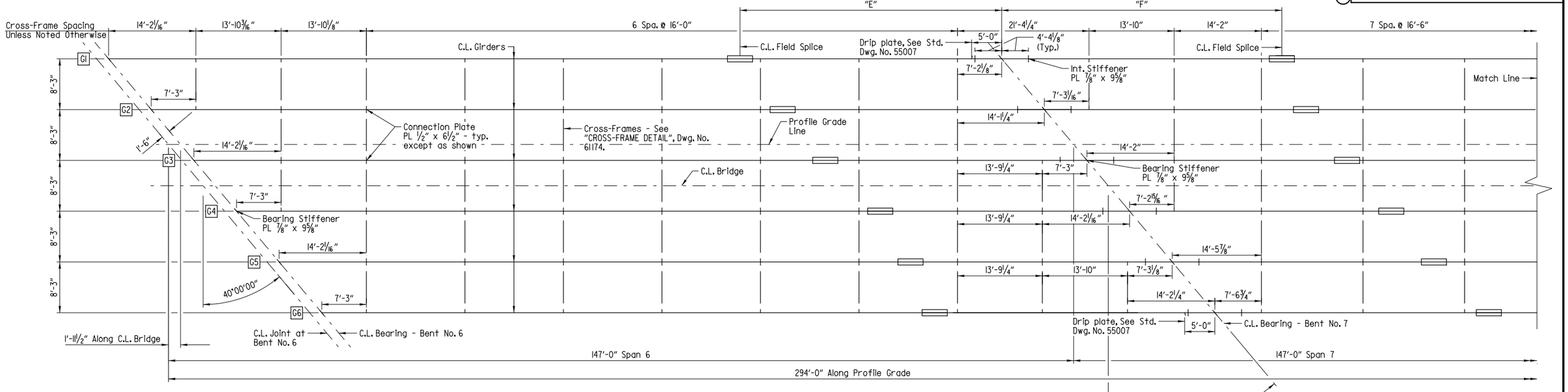
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

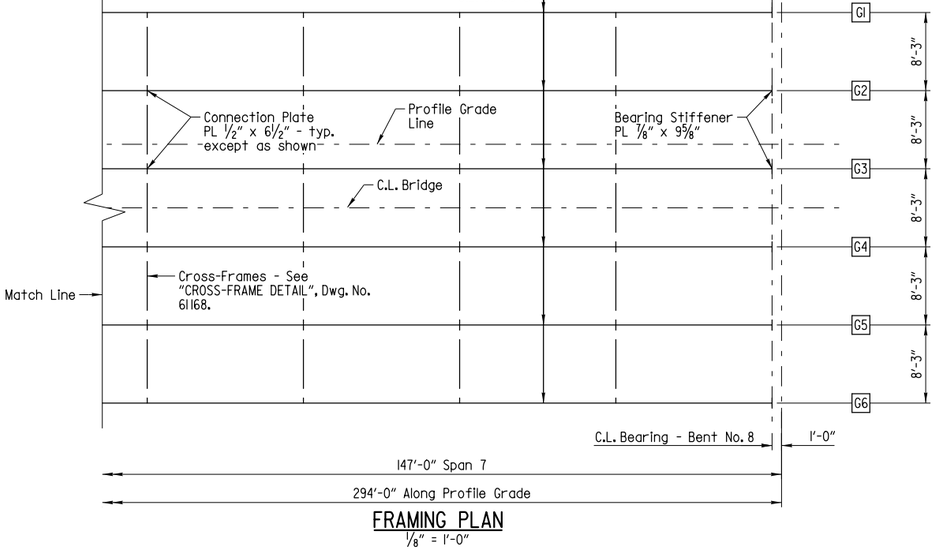
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| CHECKED BY: | SFH | DATE: | 07/2019 | |
| DESIGNED BY: | JPC | DATE: | 06/2019 | SCALE: 1/4" = 1'-0" |
| BRIDGE NO. | 07463 | | DRAWING NO. | 61177 |

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| | | | | JOB NO. | | 100942 | 94 | 118 |
| | | | | (1) | 07463 - 294'-0" CONT. UNIT - 61178 | | | |

Note:
For dimensions "E" and "F", See "TABLE OF GIRDER VARIABLES" on Dwg. No. 61179.



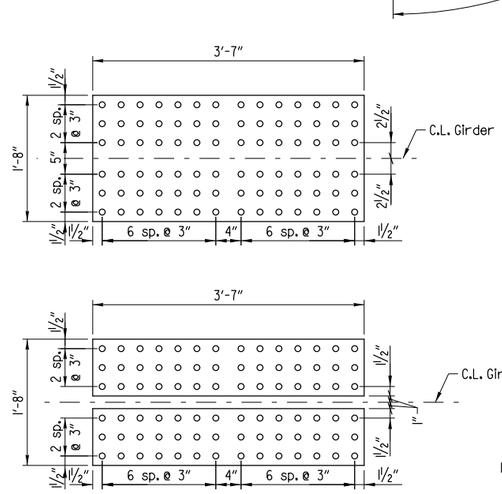




FRAMING PLAN
1/8" = 1'-0"

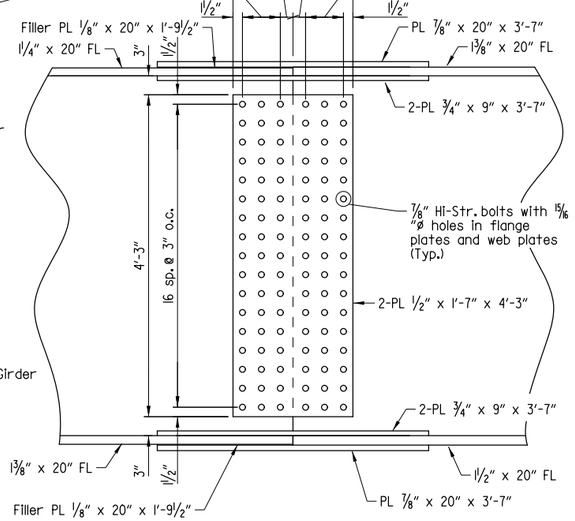
Notes:
Unless otherwise noted all structural steel shall be ASTM A709, Gr. 50 and shall be paid for as "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50)".

See "TYP. GIRDER ELEVATION" for splice locations and stiffeners along Girder on Dwg. No. 61179.

All Structural Steel except galvanized members and some surfaces in contact with concrete shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.




TOP AND BOTTOM FLANGE
1" = 1'-0"




TYPICAL FIELD SPLICE DETAILS
1" = 1'-0"

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

All field splice bolts shall be 7/8" ø HI-str. bolts.

All holes for splice bolts shall be 15/16" ø.
All field splice plates shall be ASTM A709, Gr. 50 steel.

STATE OF ARKANSAS
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No. 14501
STEPHEN F. HARPER
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

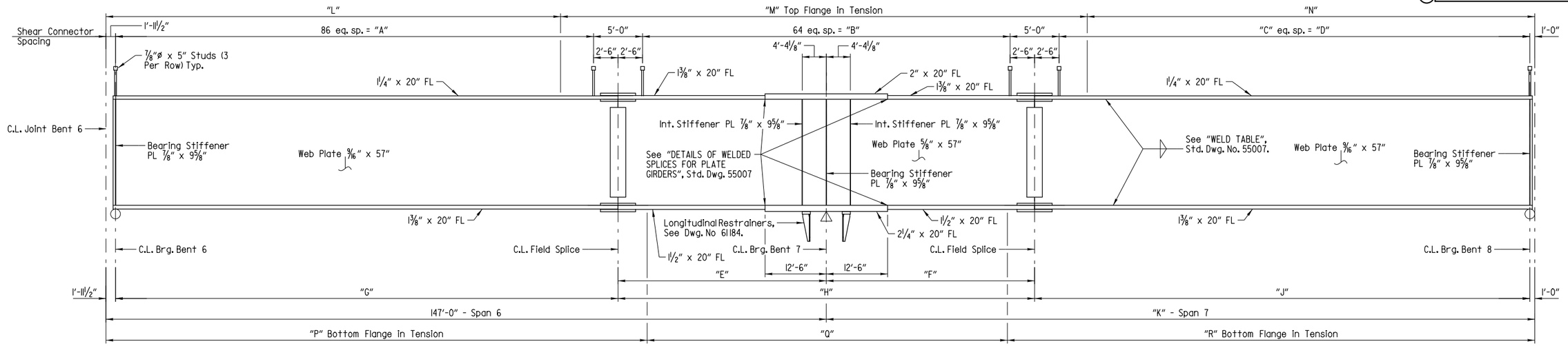
# SHEET 6 OF 9
## DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351RR OVERPASS
ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

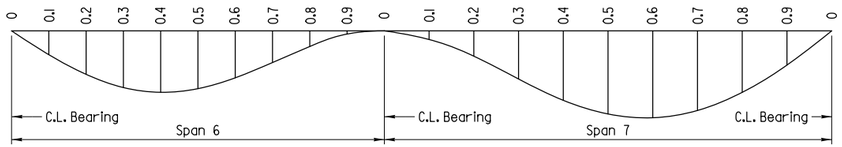
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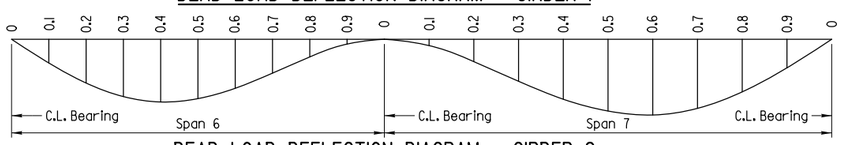
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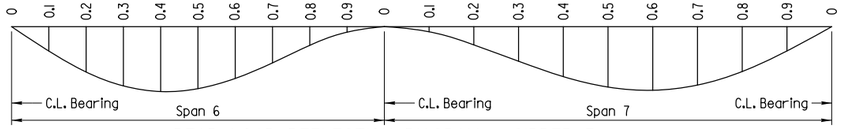

TYP. GIRDER ELEVATION



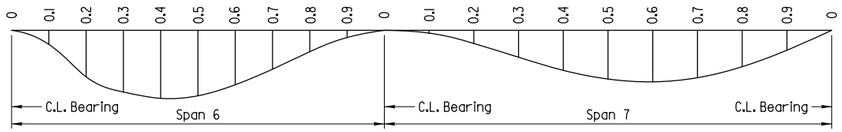

DEAD LOAD DEFLECTION DIAGRAM - GIRDER 1



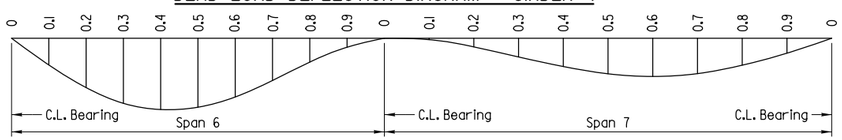

DEAD LOAD DEFLECTION DIAGRAM - GIRDER 2



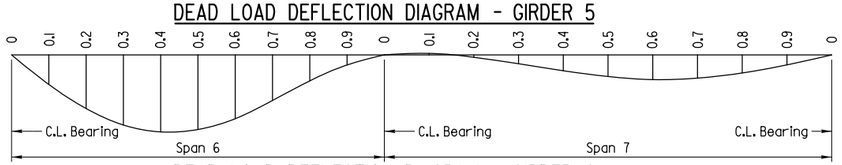

DEAD LOAD DEFLECTION DIAGRAM - GIRDER 3




DEAD LOAD DEFLECTION DIAGRAM - GIRDER 4




DEAD LOAD DEFLECTION DIAGRAM - GIRDER 5




DEAD LOAD DEFLECTION DIAGRAM - GIRDER 6

## TABLE OF GIRDER VARIABLES

| Girder No. | "A" | "B" | "C" | "D" | "E" | "F" | "G" | "H" | "J" | "K" | "L" | "M" | "N" | "P" | "Q" | "R" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100'-0½" | 83'-0" | 91 | 109'-8⅛" | 42'-6" | 45'-6" | 102'-6½" | 88'-0" | 112'-2⅜16" | 157'-8⅜16" | 82'-5½" | 124'-8⅞" | 97'-5Ⅼ16" | 119'-0½" | 56'-7Ⅺ16" | 129'-0" |
| 2 | 100'-0½" | 80'-0" | 91 | 105'-9Ⅺ16" | 42'-6" | 42'-6" | 102'-6½" | 85'-0" | 108'-3Ⅺ16" | 150'-9Ⅺ16" | 91'-1Ⅺ16" | 111'-3" | 95'-5" | 119'-3" | 53'-4⅞" | 125'-1⅜16" |
| 3 | 100'-0½" | 80'-0" | 64 | 98'-10" | 42'-6" | 42'-6" | 102'-6½" | 85'-0" | 101'-4" | 143'-10" | 95'-2⅜" | 102'-10Ⅼ16" | 92'-8Ⅼ16" | 119'-9½" | 53'-1" | 117'-11½" |
| 4 | 102'-0½" | 78'-0" | 64 | 91'-10Ⅼ16" | 40'-6" | 42'-6" | 104'-6½" | 83'-0" | 94'-4Ⅼ16" | 136'-10Ⅼ16" | 96'-4Ⅼ16" | 100'-2⅜16" | 87'-3Ⅼ16" | 119'-6¼" | 52'-1Ⅼ16" | 112'-3⅜" |
| 5 | 100'-0½" | 80'-0" | 64 | 84'-11⅞" | 42'-6" | 42'-6" | 102'-6½" | 85'-0" | 87'-5⅞" | 129'-11⅞" | 97'-0¼" | 101'-0¼" | 78'-11⅜" | 121'-10⅞" | 48'-5¾" | 106'-7Ⅺ16" |
| 6 | 97'-0½" | 85'-0" | 61 | 76'-0¾" | 45'-6" | 44'-6" | 99'-6½" | 90'-0" | 78'-6¾" | 123'-0¾" | 94'-10⅞" | 112'-8⅜" | 62'-5Ⅼ16" | 119'-10Ⅼ16" | 51'-2Ⅼ16" | 98'-11¼" |

## TABLE OF DEAD LOAD DEFLECTION (INCHES)

| Span | Point of Deflection | Structural Steel | | | | | | Structural Steel + Slab | | | | | | Structural Steel + Slab + Rail + H-2 Rail or Fence | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.341 | 0.333 | 0.336 | 0.344 | 0.361 | 0.394 | 1.155 | 1.143 | 1.165 | 1.195 | 1.242 | 1.327 | 1.255 | 1.252 | 1.290 | 1.341 | 1.412 | 1.528 |
| | 0.2 | 0.625 | 0.613 | 0.619 | 0.637 | 0.666 | 0.723 | 2.118 | 2.104 | 2.146 | 2.211 | 2.289 | 2.438 | 2.302 | 2.306 | 2.378 | 2.483 | 2.604 | 2.807 |
| | 0.3 | 0.812 | 0.801 | 0.809 | 0.834 | 0.877 | 0.950 | 2.752 | 2.751 | 2.807 | 2.892 | 3.008 | 3.201 | 2.991 | 3.017 | 3.115 | 3.252 | 3.424 | 3.683 |
| | 0.4 | 0.880 | 0.872 | 0.886 | 0.919 | 0.970 | 1.049 | 2.983 | 2.999 | 3.076 | 3.183 | 3.322 | 3.532 | 3.243 | 3.294 | 3.418 | 3.584 | 3.783 | 4.059 |
| | 0.5 | 0.827 | 0.827 | 0.848 | 0.885 | 0.941 | 1.014 | 2.803 | 2.849 | 2.944 | 3.063 | 3.215 | 3.411 | 3.050 | 3.135 | 3.278 | 3.454 | 3.663 | 3.914 |
| | 0.6 | 0.672 | 0.681 | 0.707 | 0.745 | 0.802 | 0.862 | 2.277 | 2.350 | 2.458 | 2.576 | 2.734 | 2.894 | 2.482 | 2.593 | 2.745 | 2.911 | 3.116 | 3.313 |
| | 0.7 | 0.451 | 0.467 | 0.496 | 0.531 | 0.580 | 0.630 | 1.529 | 1.616 | 1.726 | 1.831 | 1.972 | 2.112 | 1.673 | 1.792 | 1.936 | 2.076 | 2.248 | 2.409 |
| | 0.8 | 0.219 | 0.237 | 0.258 | 0.293 | 0.333 | 0.366 | 0.744 | 0.824 | 0.899 | 1.008 | 1.128 | 1.226 | 0.822 | 0.923 | 1.017 | 1.149 | 1.286 | 1.390 |
| | 0.9 | 0.039 | 0.061 | 0.071 | 0.096 | 0.118 | 0.137 | 0.136 | 0.216 | 0.250 | 0.327 | 0.397 | 0.460 | 0.158 | 0.249 | 0.290 | 0.376 | 0.452 | 0.516 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0.1 | 0.127 | 0.097 | 0.076 | 0.036 | 0.014 | -0.023 | 0.420 | 0.321 | 0.258 | 0.127 | 0.052 | -0.082 | 0.441 | 0.337 | 0.272 | 0.137 | 0.063 | -0.074 |
| | 0.2 | 0.391 | 0.327 | 0.259 | 0.178 | 0.108 | 0.023 | 1.302 | 1.103 | 0.887 | 0.620 | 0.377 | 0.067 | 1.383 | 1.176 | 0.955 | 0.684 | 0.438 | 0.122 |
| | 0.3 | 0.717 | 0.608 | 0.490 | 0.369 | 0.250 | 0.104 | 2.400 | 2.060 | 1.684 | 1.283 | 0.864 | 0.337 | 2.560 | 2.209 | 1.826 | 1.421 | 0.996 | 0.454 |
| | 0.4 | 1.018 | 0.867 | 0.703 | 0.546 | 0.380 | 0.204 | 3.418 | 2.951 | 2.423 | 1.898 | 1.312 | 0.671 | 3.654 | 3.174 | 2.635 | 2.106 | 1.509 | 0.852 |
| | 0.5 | 1.221 | 1.036 | 0.848 | 0.663 | 0.475 | 0.281 | 4.108 | 3.531 | 2.928 | 2.306 | 1.641 | 0.932 | 4.396 | 3.804 | 3.190 | 2.562 | 1.885 | 1.158 |
| | 0.6 | 1.278 | 1.083 | 0.892 | 0.700 | 0.509 | 0.320 | 4.306 | 3.698 | 3.085 | 2.435 | 1.756 | 1.067 | 4.610 | 3.988 | 3.366 | 2.709 | 2.016 | 1.309 |
| | 0.7 | 1.168 | 0.989 | 0.815 | 0.643 | 0.473 | 0.308 | 3.938 | 3.382 | 2.822 | 2.239 | 1.633 | 1.028 | 4.217 | 3.649 | 3.082 | 2.493 | 1.875 | 1.252 |
| | 0.8 | 0.895 | 0.758 | 0.625 | 0.495 | 0.366 | 0.244 | 3.017 | 2.593 | 2.166 | 1.723 | 1.263 | 0.816 | 3.231 | 2.799 | 2.367 | 1.920 | 1.450 | 0.989 |
| | 0.9 | 0.487 | 0.412 | 0.341 | 0.270 | 0.201 | 0.136 | 1.642 | 1.412 | 1.181 | 0.942 | 0.695 | 0.456 | 1.759 | 1.524 | 1.291 | 1.050 | 0.798 | 0.552 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

For girder locations, see Dwg. No. 61178.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

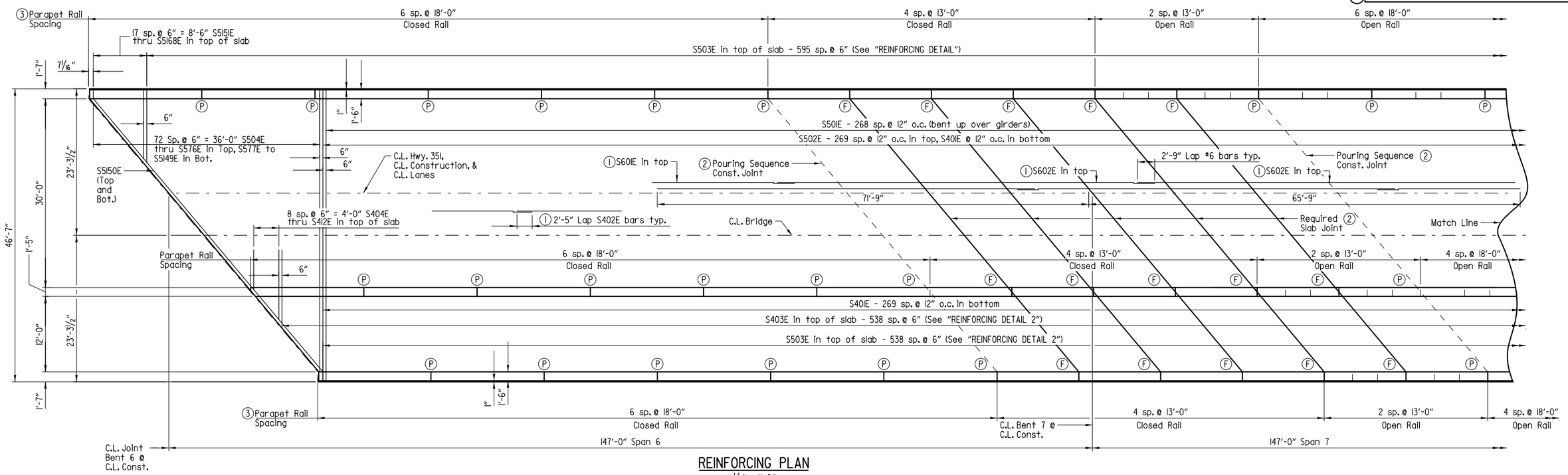
SHEET 7 OF 9
# DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: 05/2019 FILENAME: BI00942XL_S36.dgn
CHECKED BY: SFH DATE: 07/2019
DESIGNED BY: JPC DATE: 05/2019 SCALE: No Scale
BRIDGE NO. 07463 DRAWING NO. 61179

LeonardSpeed 8/31/2020 1:45:18 PM
WORKSPACE: ARDOT
Y:\Projects\AHTD_162313_Hwy35IRROverpass\Deliverables\BRIDGE\Bridge\BI00942XL_S36.dgn
REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 96 | 118 |
| | | | | (1) | 07463 - 294'-0" CONT. UNIT - 61180 | | | |




## REINFORCING PLAN

1/8" = 1'-0"

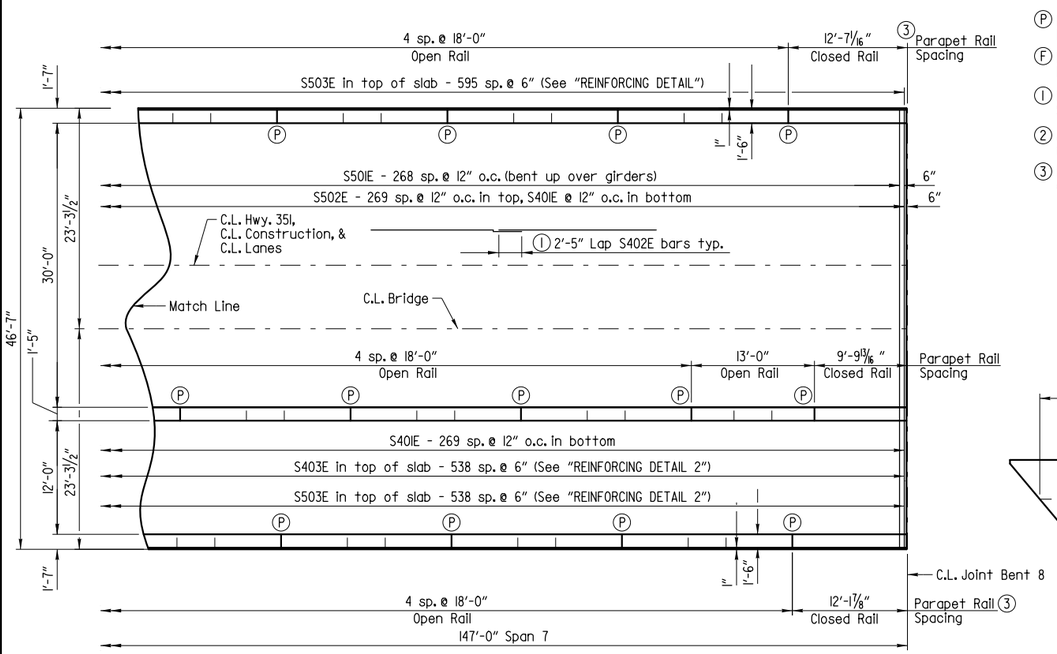
(P) Partial depth parapet joint at this location. (Stop 1'-2" above top of deck)

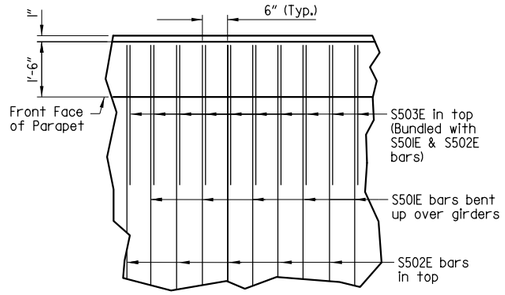
(F) Full depth parapet joint at this location. (Stop 4" above top of deck)

(1) Placed as shown in "Typical Section", See Dwg. No. 61174.

(2) Align with parapet open joint unless noted otherwise.

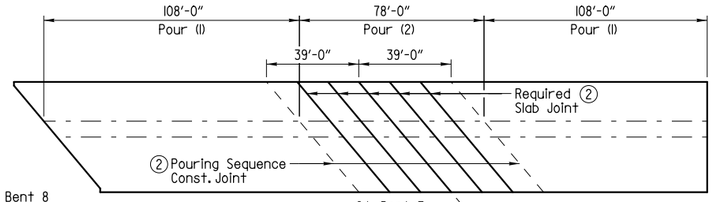
(3) Parapet panel spacing measured along gutterline.




## REINFORCING DETAIL

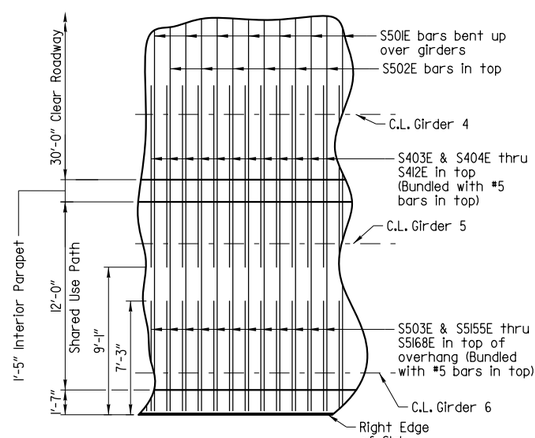
No Scale




## POURING SEQUENCE

No Scale

Note:
Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before pour (2) can be placed. 48 hours shall elapse before the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the completion of the entire deck and the pouring of the parapet. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.




## REINFORCING DETAIL 2

No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# SHEET 8 OF 9
# DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

ROUTE SECTION

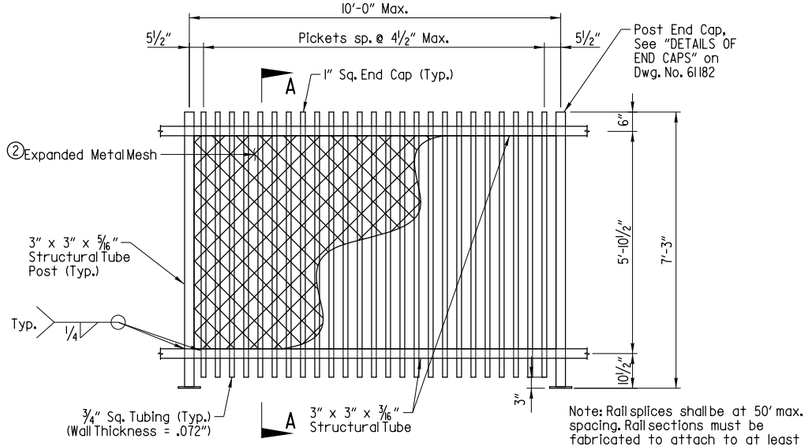
## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: 05/2019 FILENAME: BI00942XL_S37.dgn
CHECKED BY: SFH DATE: 07/2019
DESIGNED BY: JPC DATE: 05/2019 SCALE: As Shown
BRIDGE NO. 07463 DRAWING NO. 61180

Leonard.Speed 8/31/2020 1:45:20 PM
WORKSPACE: ARDOT
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REVISED DATE:

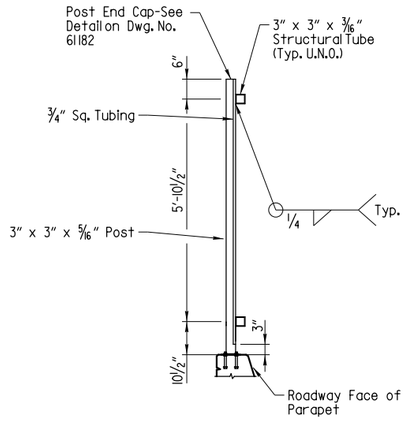
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 97 | 118 |
| | | | | (1) 07463 - 294'-0" CONT. UNIT - 61181 | | | | |




## TYPICAL FENCE BAY AT LT. EXTERIOR RAIL

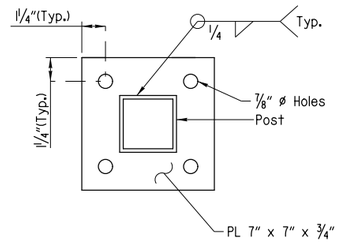
(Looking at Roadway Face of Rail)
No Scale

(2) Standard 2" - #9 (10 Ga.) Expanded Metal Mesh with reverse orientation, 48" SWD x 96" LWD. The short dimension opening shall not be greater than 2".



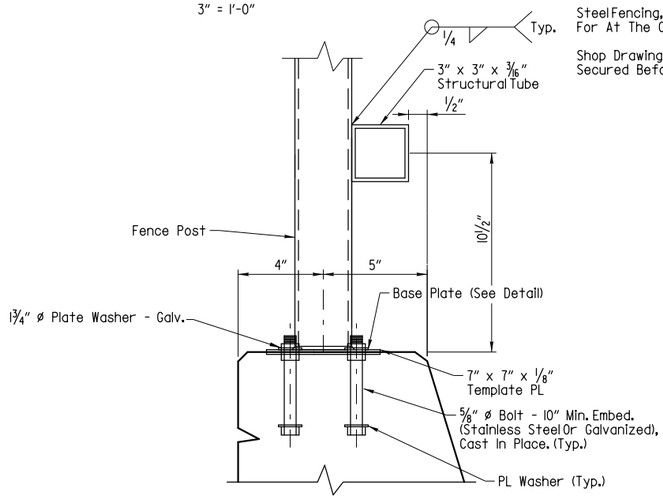

## SECTION A-A

No Scale




## BASE PLATE POST SUPPORT

3" = 1'-0"




## SECTION NEAR POST SUPPORT

3" = 1'-0"

## MATERIALS FOR STEEL FENCE

Structural Tubing: ASTM A500-Grade B or ASTM A709, Gr. 36.

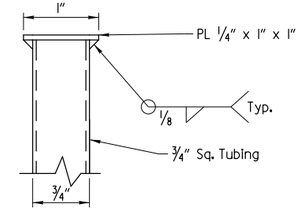
End Caps and Base Plate: ASTM A709, Gr. 36.

Anchor Bolts Shall Be Stainless Steel Or High Strength Steel. Stainless Steel Anchor Bolts Shall Conform To ASTM A193 or A320-Grade B8 With A Minimum Yield Strength Of 80,000 psi. High Strength Steel Anchor Bolts Shall Conform To ASTM A325 Galvanized In Accordance With ASTM A153.

Nuts Shall Conform To ASTM A194-Grade 8 (Stainless Steel) Or AASHTO M292 Gr. 2H Galvanized In Accordance With AASHTO M232, Or Of Stainless Steel Conforming To ASTM A276.

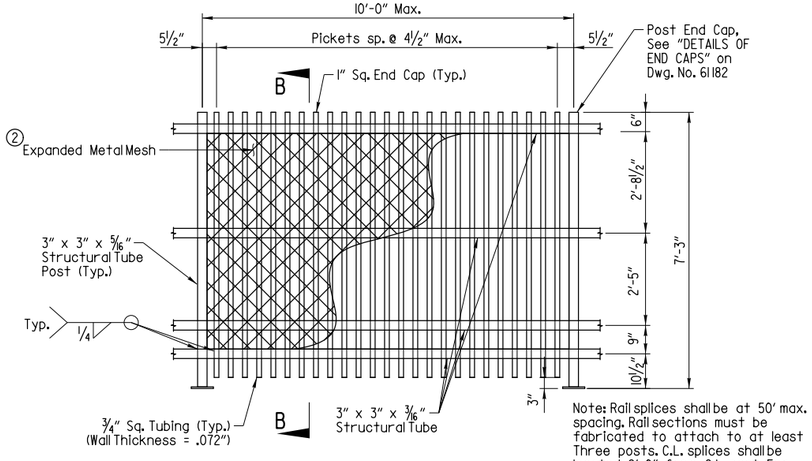
Steel Fencing, Including Posts, Expanded Metal Mesh, and Fasteners, Shall Be Paid For At The Contract Unit Price Per Linear Foot Bld For "Steel Fence".

Shop Drawings Showing Details of Railing Shall Be Submitted and Approval Secured Before Fabrication Is Begun.



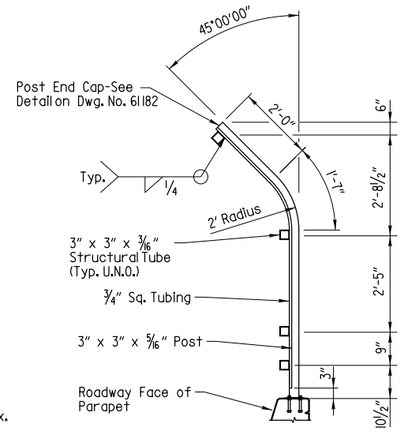

## 1" SQ. END CAP

No Scale



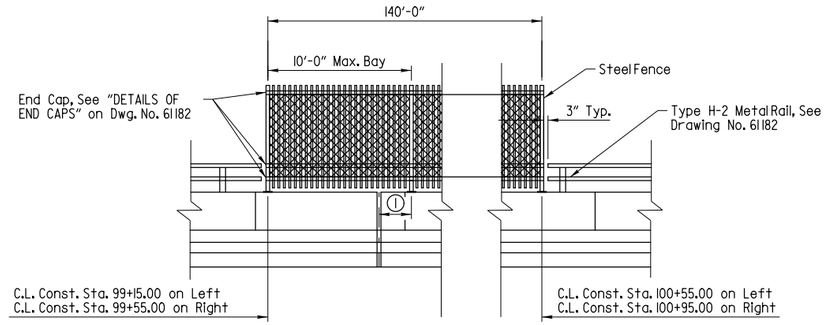

## TYPICAL FENCE BAY AT RT. EXTERIOR RAIL

(Looking at Roadway Face of Rail)
No Scale




## SECTION B-B

No Scale




(1) 1'-6" min. between C.L. post and C.L. parapet joint

## STEEL FENCE SPACING DETAIL

No Scale
(Typical Each Side of Bridge)

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14501
STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

## SHEET 9 OF 9
## DETAILS OF 294'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT HWY. 351 RR OVERPASS

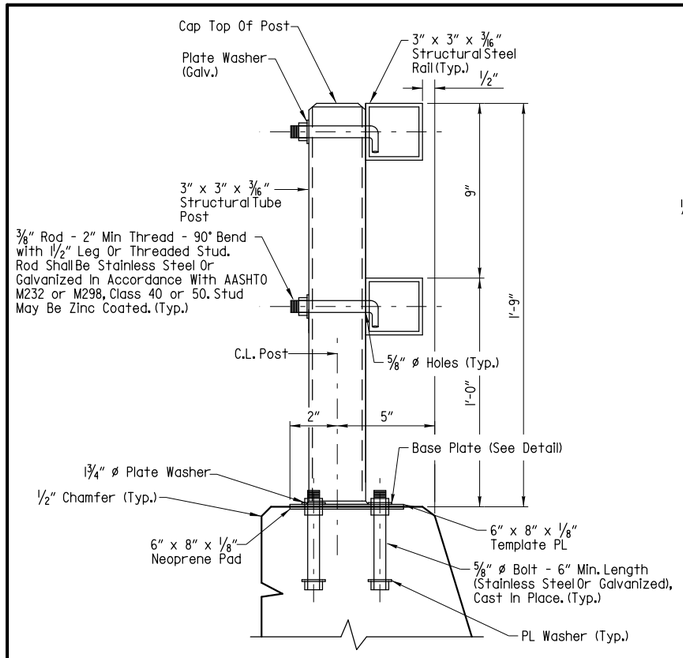
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: JPC DATE: 05/2019 FILENAME: BI00942XL_S38.dgn
CHECKED BY: SFH DATE: 07/2019
DESIGNED BY: JPC DATE: 05/2019 SCALE: As Shown
BRIDGE NO. 07463 DRAWING NO. 61181

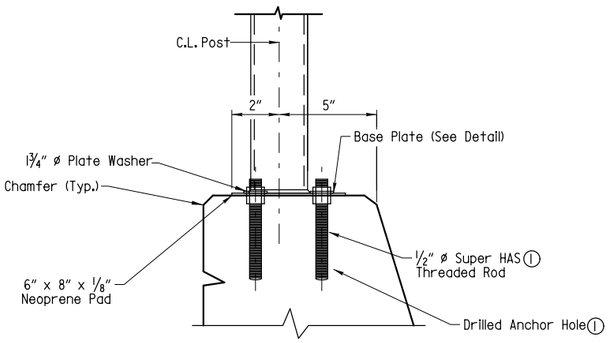
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WORKSPACE: ARDOT
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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 98 | 118 |
| | | | | (1) 07463 - TYPE H-2 RAIL DETAILS - 61182 | | | | |



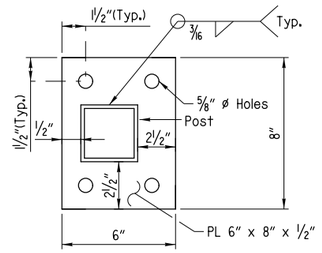

## TYPE H-2 RAIL

(H-2 Rail shown at Exterior Parapet Railing. Rail is similar by 180° rotation for Interior Parapet Railing.)




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

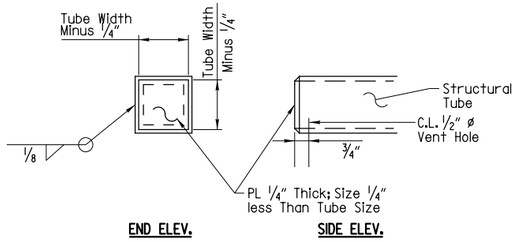
The HILTI Epoxy Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.



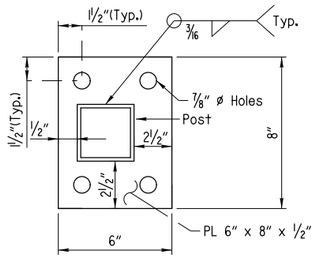

## TYPE H-2 BASE PLATE ALTERNATE

## DETAILS OF ALTERNATE POST ANCHOR SYSTEM

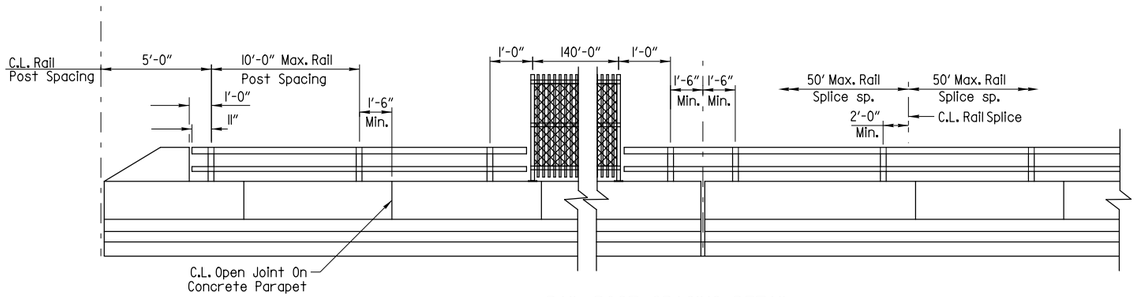
(Epoxy Adhesive Anchors)




## DETAILS OF END CAPS



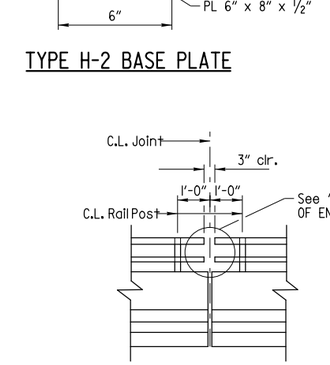

## TYPE H-2 BASE PLATE



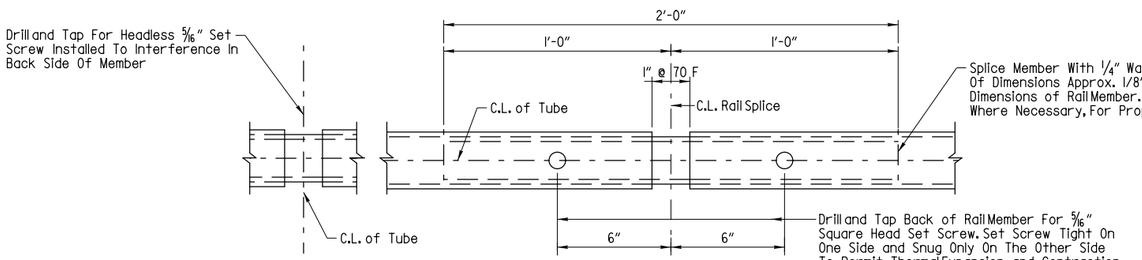

## RAIL POST SPACING DETAIL

(Horizontal dimensions are along face of rail and do not include a vertical curve correction.)

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




## RAIL POST SPACING AT EXPANSION JOINTS




## ALTERNATE INSTALLATION

## SPLICE DETAIL

## NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of Bridge. All posts shall be vertical.

Maximum post spacing = 10'-0"
Minimum distance from centerline post to centerline open or contraction joints in parapet = 1'-6"

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

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

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

## MATERIALS FOR BRIDGE RAILING:

Tubing, Posts, and Accessories: ASTM A709, Gr. 36 or ASTM A500-Grade B.

Railing End Caps shall conform to ASTM A709, Grade 36.

PAINTING: All Structural Steel, except galvanized members and surfaces in contact with concrete, shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. The color of the Type H-2 Metal Rail shall be Black and shall match Fed. Std. 595B Color Chip No. 27038.

Cast in place anchor bolts shall be of stainless steel or high strength steel.

HIGH-STRENGTH STEEL:
Cast-in-place anchor bolts shall conform to ASTM A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to ASTM A709, Gr. 36.
Splice Set Screws shall conform to ASTM A709, Gr. 36.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

STAINLESS STEEL:
Cast-in-place anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi.
Nuts shall conform to AASHTO M 292, Grade 8 or ASTM A563.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193 or A320-Grade B8.

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

Mixing of stainless steel and galvanized fasteners will not be permitted.

Metal Bridge Railing, including posts, fasteners, base plates, template plates, balusters, anchor bolts, neoprene pad, paint, and repair of paint; fabrication and erection; and all incidentals necessary to complete the work shall be paid for in accordance with Section 806 at the contract unit price per linear foot bid for "Metal Bridge Railing (Type H-2)".

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# DETAILS OF TYPE H-2 RAIL HWY. 351 RR OVERPASS

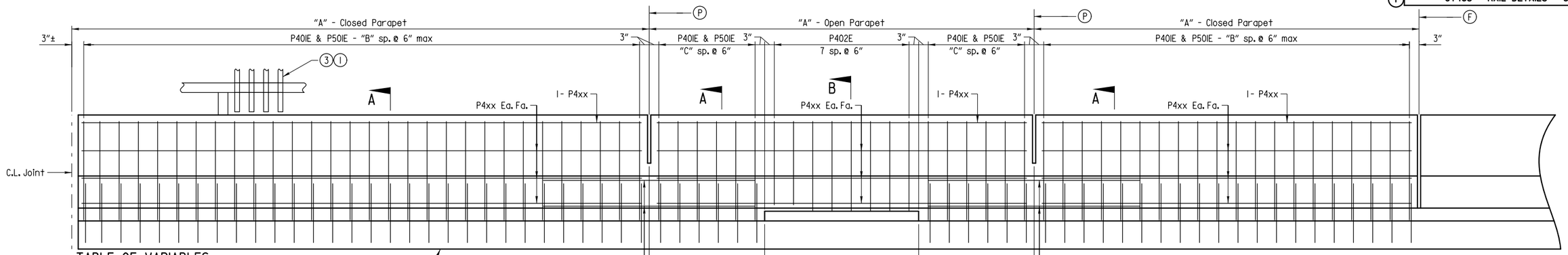
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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| CHECKED BY: | SFH | DATE: | 07/2019 | | |
| DESIGNED BY: | JPC | DATE: | 05/2019 | SCALE: | No Scale |
| BRIDGE NO. | 07463 | | DRAWING NO. | 61182 | |

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REVISED DATE:

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 99 | 118 |
| | | | | (1) | 07463 - RAIL DETAILS - 61183 | | | |




## DETAILS OF PARAPET RAIL

## TABLE OF VARIABLES

| Unit No. | "A" Parapet | Panel Type | "B" | "C" | "D" | P4xx Bar |
|---|---|---|---|---|---|---|
| Unit 1 | 10'-1 13/16" | Closed | 20 | - | - | P404E |
| | 10'-8 7/8" | Closed | 21 | - | - | P405E |
| | 11'-0" | Closed | 21 | - | - | P406E |
| | 13'-10 1/16" | Open | - | 9 | 4'-11" | P407E |
| | 14'-7 11/16" | Closed | 29 | - | - | P408E |
| | 15'-0" | Open | - | 10 | 5'-6" | P409E |
| | 15'-11 1/8" | Closed | 31 | - | - | P410E |
| | 16'-10 3/16" | Closed | 33 | - | - | P411E |
| | 17'-3 7/16" | Closed | 34 | - | - | P412E |
| | 18'-10 3/8" | Closed | 37 | - | - | P413E |
| | 19'-11 7/16" | Closed | 39 | - | - | P414E |
| | 20'-5" | Closed | 40 | - | - | P415E |
| | 20'-6" | Closed | 40 | - | - | P416E |
| Unit 2 | 8'-6" | Closed | 16 | - | - | P404E |
| | 14'-6" | Open | - | 10 | 5'-3" | P405E |
| | 14'-6" | Closed | 28 | - | - | P405E |
| | 15'-2 5/8" | Closed | 30 | - | - | P406E |
| | 16'-10 1/2" | Closed | 33 | - | - | P407E |
| | 16'-11 9/16" | Closed | 33 | - | - | P408E |
| | 18'-6 1/2" | Closed | 37 | - | - | P409E |
| | 19'-10 1/8" | Closed | 39 | - | - | P410E |
| Unit 3 | 9'-9 13/16" | Closed | 19 | - | - | P404E |
| | 12'-1 7/8" | Closed | 24 | - | - | P405E |
| | 12'-7 1/16" | Closed | 25 | - | - | P406E |
| | 13'-0" | Closed | 25 | - | - | P407E |
| | 13'-0" | Open | - | 8 | 4'-6" | P407E |
| | 18'-0" | Closed | 35 | - | - | P408E |
| | 18'-0" | Open | - | 13 | 7'-0" | P408E |

For location of Parapet Panels, see "Reinforcing Plan", Dwg. Nos. 61166, 61173, and 61181.

(P) Partial depth parapet joint at this location. (Stop 1'-2" above top of deck) as shown in "Reinforcing Plan", Dwg. Nos. 61166, 61173 & 61180.

(F) Full depth parapet joint at this location. (Stop 4" above top of deck) as shown in "Reinforcing Plan", Dwg. Nos. 61166, 61173 & 61180.

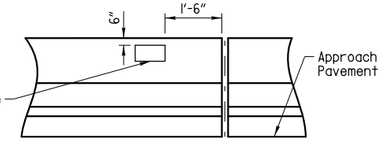
(1) The color of the Steel Tube Fence, Posts, and Type H-2 Metal Rail, unless noted otherwise, shall be Black and shall match Fed Std. 595B Color Chip No. 27038.

(2) "ASHLAR STONE" pattern form liner relief shall be a maximum of 1", to preserve the minimum clearance of 2½" as shown.

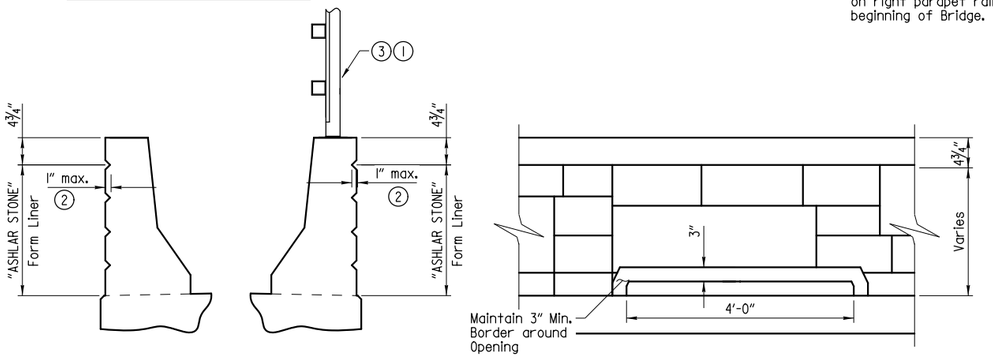
(3) For Type H-2 Railing Details and Steel Fence Details See Dwg. Nos. 61181 and 61182. (1)

(4) See " DETAIL OF PARAPET ENHANCEMENT".

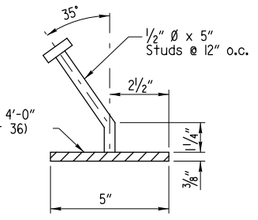
(5) Exterior parapet dimension varies. See Dwg. Nos. 61166, 61173, and 61180.




## NAME PLATE DETAIL

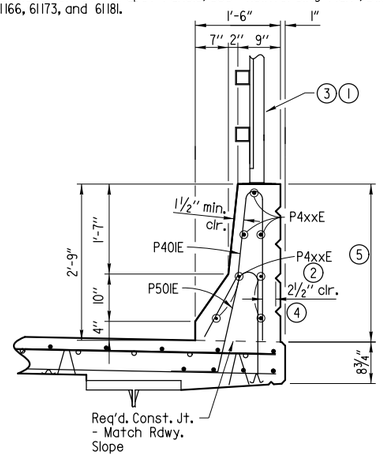



## DETAILS OF PARAPET ENHANCEMENT FOR EXTERIOR RAILS

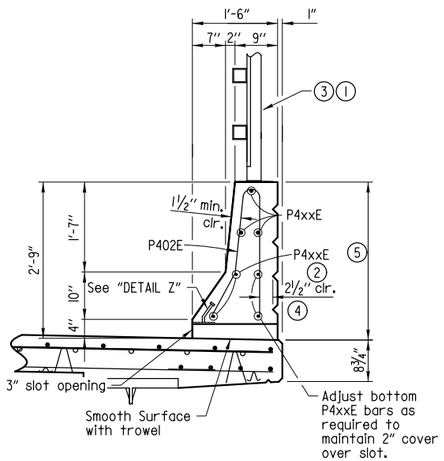



## DETAIL Z

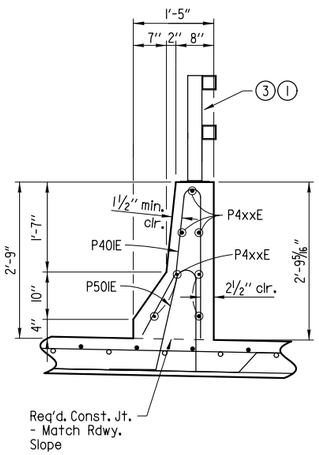
Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel In Plate Girder Spans (A709, Gr. 50)". The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel In Plate Girder Spans (A709, Gr 50)"



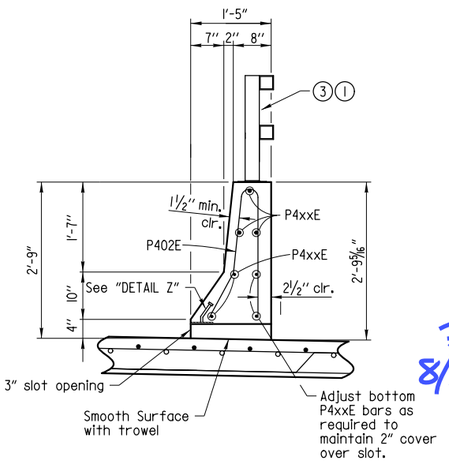

## SECTION A-A - EXTERIOR RAIL




## SECTION B-B - EXTERIOR RAIL




## SECTION A-A - INTERIOR RAIL




## SECTION B-B - INTERIOR RAIL

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.14501
STEPHEN F. HARPER
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

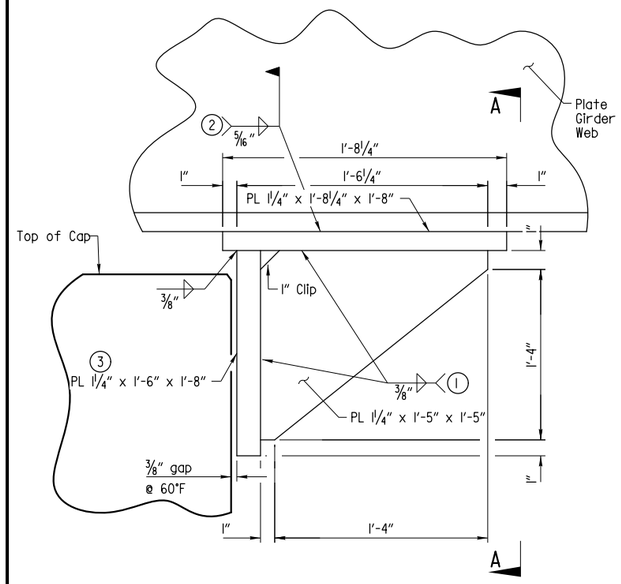
# RAIL DETAILS
# HWY. 351RR OVERPASS
ROUTE SECTION

## ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

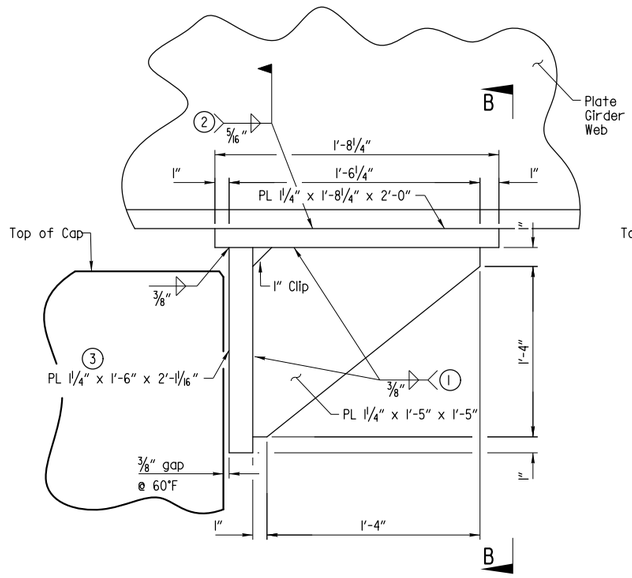
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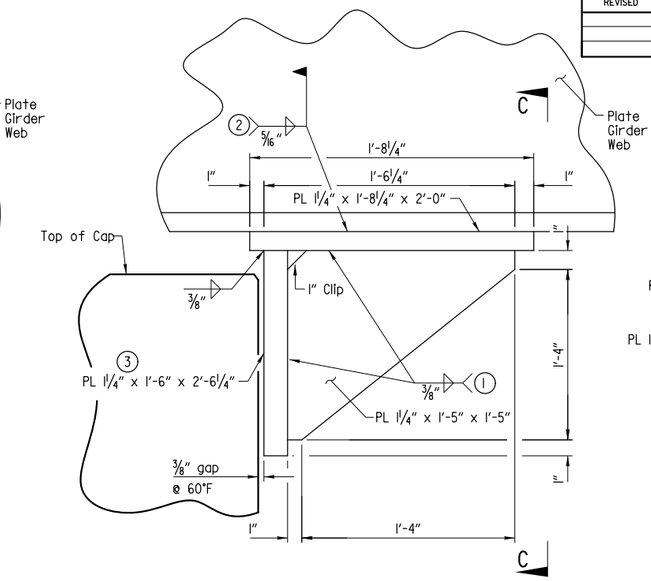
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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 100 | 118 |
| | | | | (1) 07463 - LONGITUDINAL RESTRAINERS - 61184 | | | | |



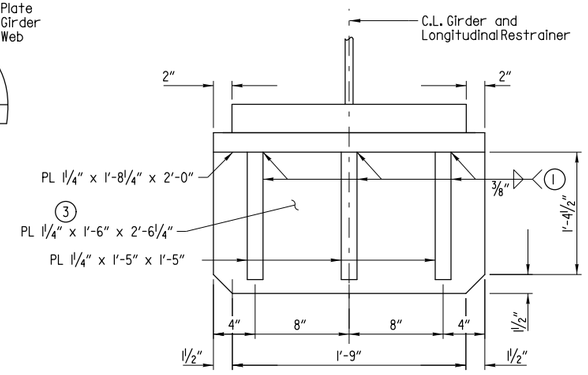

LONGITUDINAL RESTRAINER DETAILS - BENTS 2 AND 3



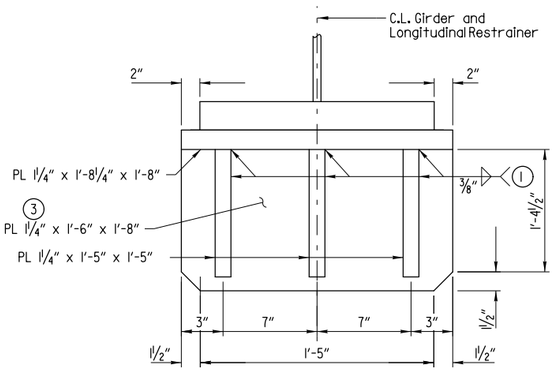

LONGITUDINAL RESTRAINER DETAILS - BENT 5



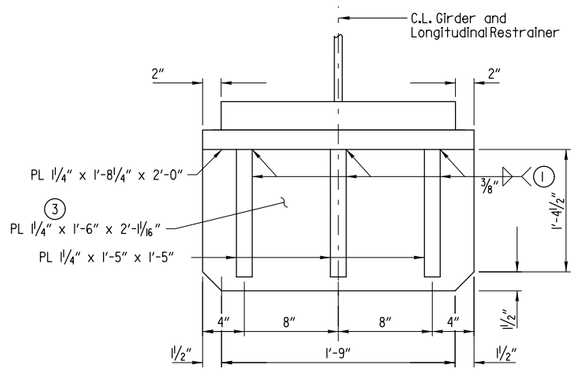

LONGITUDINAL RESTRAINER DETAILS - BENT 7



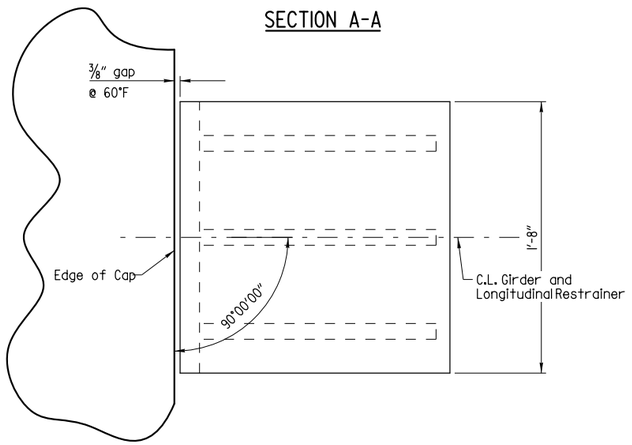

SECTION C-C



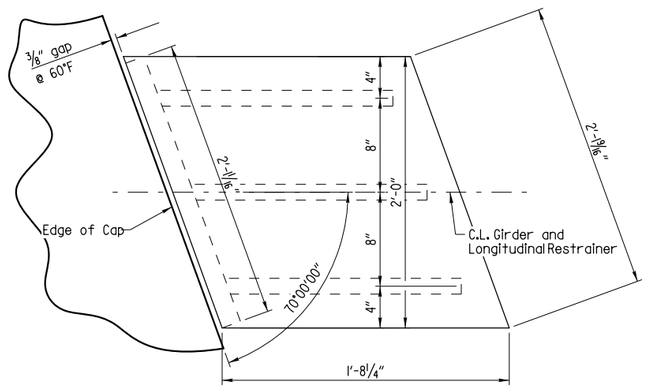

SECTION A-A




SECTION B-B




LONGITUDINAL RESTRAINER PLAN - BENTS 2 & 3




LONGITUDINAL RESTRAINER PLAN - BENT 5




LONGITUDINAL RESTRAINER PLAN - BENT 7

(1) Stop weld 1/2" from end of clip.

(2) Longitudinal Restrainer shall not be welded to beam until deck has been poured.

(3) Longitudinal restrainer shall be fabricated to account for grade such that the final position of this plate will be vertical.

Notes:
All longitudinal restrainer steel shall be ASTM A709, Gr. 50.

See "TYP. GIRDER ELEVATION" for locations along Girders on Dwg. Nos. 61165, 61172, and 61179.

All Longintudinal Restrainer Steel shall be cleaned in accordance with Subsection 807.84(b) and painted as specified in Subsection 807.75. Unless noted otherwise the color of the paint shall be Red and shall match Federal Standard 595B, Color Chip No. 31350.

STATE OF ARKANSAS
STEPHEN F. HARPER
LICENSED PROFESSIONAL ENGINEER
No.14501
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

# DETAILS OF LONGITUDINAL RESTRAINERS HWY. 351RR OVERPASS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

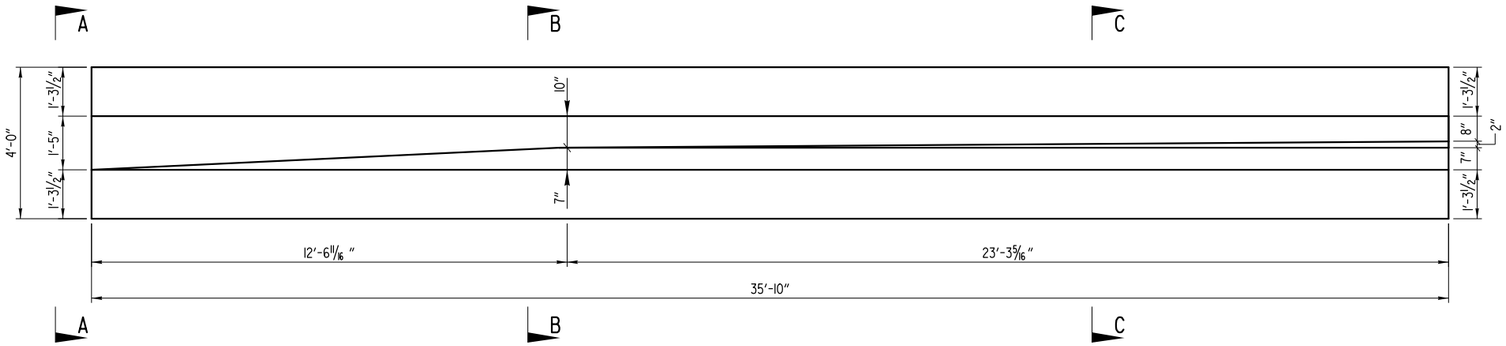
LITTLE ROCK, ARKANSAS

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| CHECKED BY: | SFH | DATE: | 08/2019 | | |
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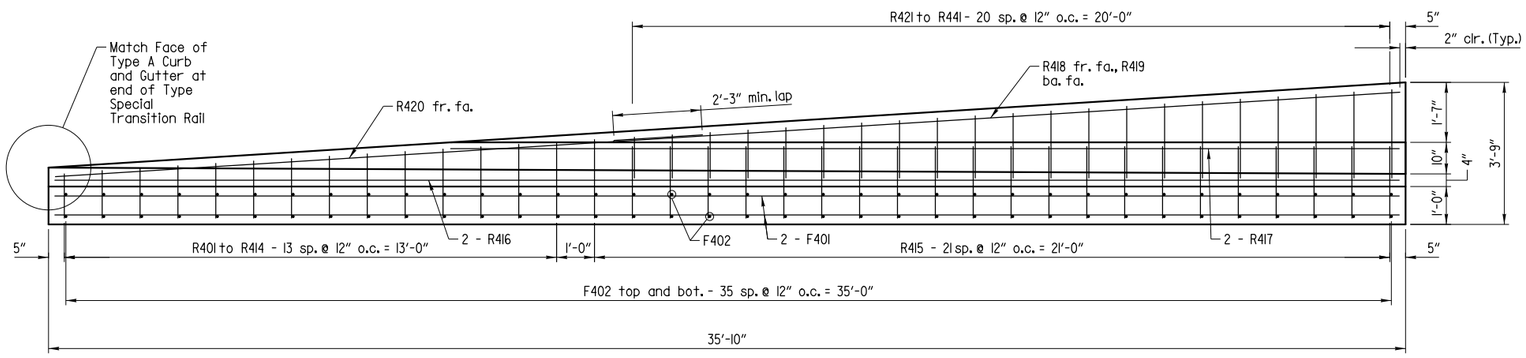
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| | | | | JOB NO. | | 100942 | 101 | 118 |

(1) 07463 - SPECIAL TRANSITION RAIL - 61185



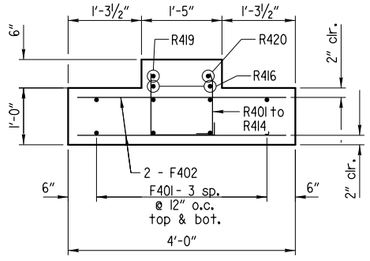

## PLAN OF TYPE SPECIAL TRANSITIONAL APPROACH RAILING

½" = 1'-0"



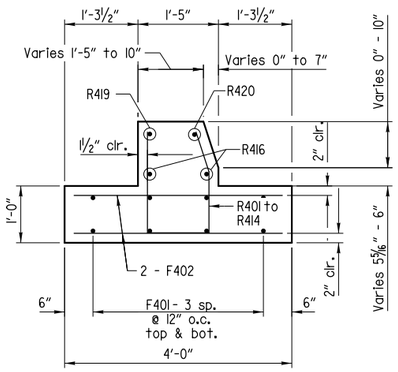

## ELEVATION OF TYPE SPECIAL TRANSITIONAL APPROACH RAILING

½" = 1'-0"



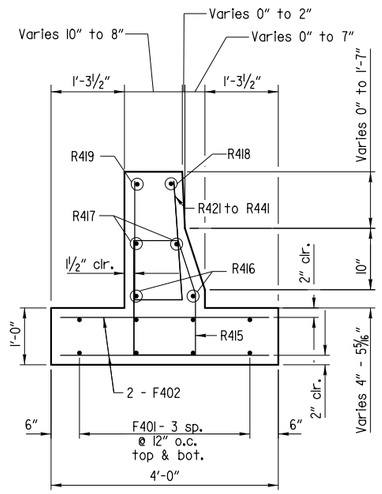

## VIEW A-A

¾" = 1'-0"




## SECTION B-B

¾" = 1'-0"




## SECTION C-C

¾" = 1'-0"

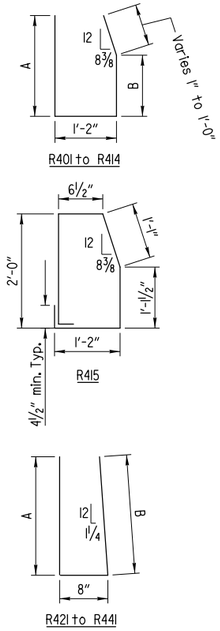
## QUANTITIES FOR ONE TYPE SPECIAL TRANSITIONAL APPROACH RAILING

| Reinforcing Steel (lbs.) | Concrete (cubic yds) |
|---|---|
| 687 | 7.52 |

## BAR LIST FOR ONE TYPE SPECIAL TRANSITIONAL APPROACH RAILING

| MARK | NO. REQ'D. | LENGTH | A | B | PIN DIA. |
|---|---|---|---|---|---|
| F401 | 8 | 35'-6" | | | Str. |
| F402 | 72 | 3'-8" | | | Str. |
| | | | | | |
| R401 to R414 | 1 each | 3'-4" to 5'-1" | 1'-2" to 2'-0" | 1'-1" | 2" |
| R415 | 22 | 6'-3" | | | 2" |
| R416 | 2 | 35'-6" | | | Str. |
| R417 | 2 | 25'-0" | | | Str. |
| R418 | 1 | 20'-9" | | | Str. |
| R419 | 1 | 35'-7" | | | Str. |
| R420 | 1 | 17'-1" | | | Str. |
| R421 to R441 | 1 each | 3'-0" to 5'-5" | 1'-3" to 2-5½" | 1'-3" to 2-5½" | 2" |

BENDING DIAGRAMS
Dimensions are out to out of bars.




## GENERAL NOTES

Type Special Transitional Approach Railing shall be placed at locations shown in the plans.

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AAHSTO M31 or M322 Type A, with mill test reports.

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

Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and surface finish type and areas of application shall match that used on the adjacent bridge railing or concrete barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating Finish or Subsections 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Payment for surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Class S Concrete - Roadway".

STATE OF ARKANSAS ★ LICENSED PROFESSIONAL ENGINEER ★ No.14501 STEPHEN F. HARPER

8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

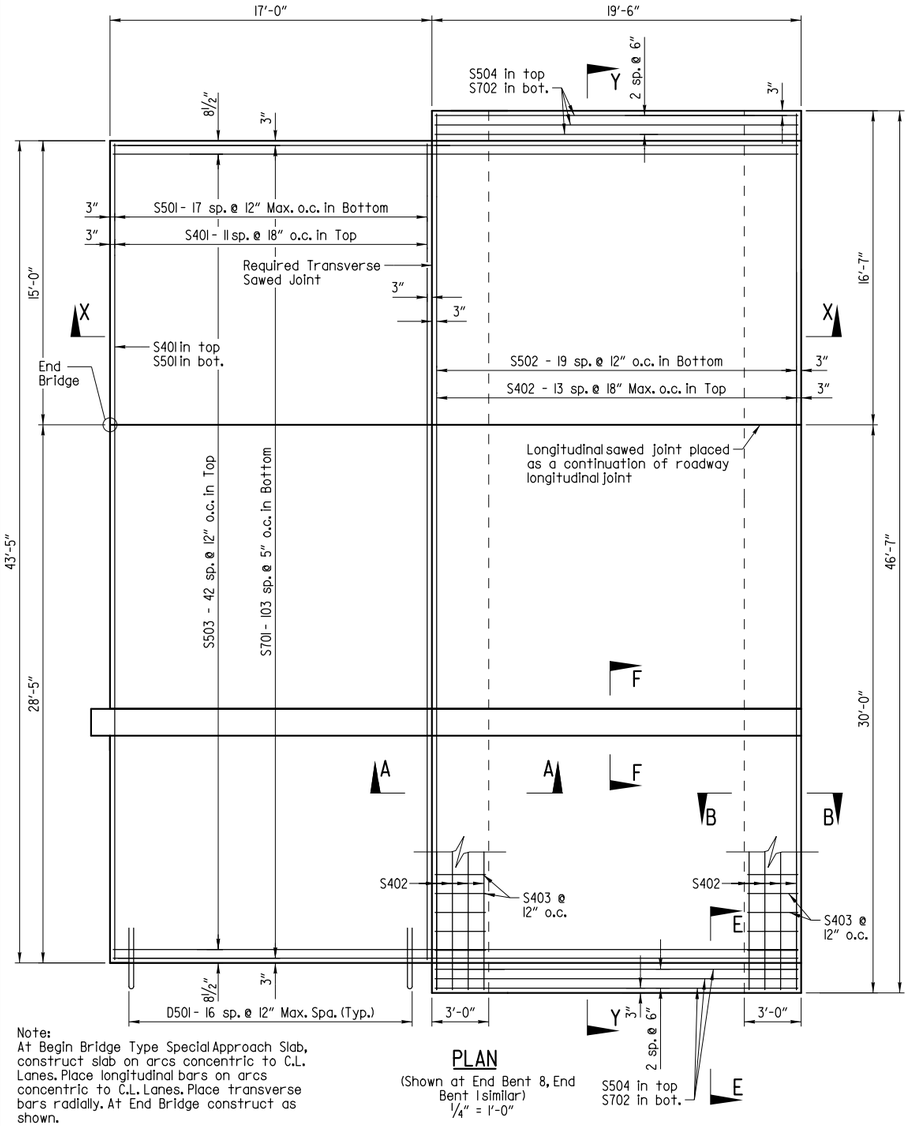
# TYPE SPECIAL TRANSITIONAL APPROACH RAILING DETAILS HWY. 351 RR OVERPASS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

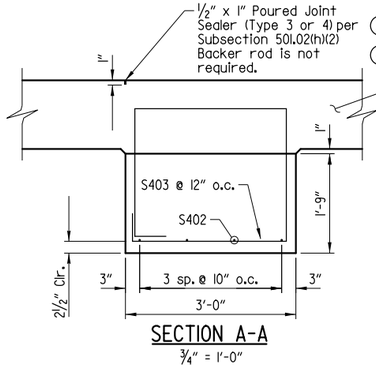
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| CHECKED BY: | SFH | DATE: | 08/2019 | | |
| DESIGNED BY: | JPC | DATE: | 07/2019 | SCALE: | As Shown |
| BRIDGE NO. | 07463 | | | DRAWING NO. | 61185 |

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REVISED DATE:

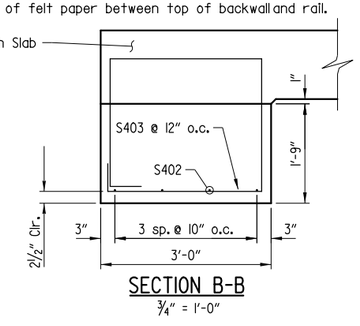



Note:
At Begin Bridge Type Special Approach Slab, construct slab on arcs concentric to C.L. Lanes. Place longitudinal bars on arcs concentric to C.L. Lanes. Place transverse bars radially. At End Bridge construct as shown.

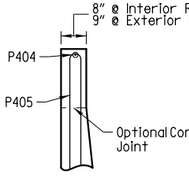
## PLAN
(Shown at End Bent 8, End Bent 1 similar)
¼" = 1'-0"



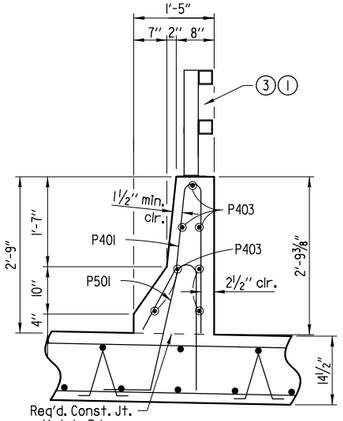

## SECTION A-A
¾" = 1'-0"



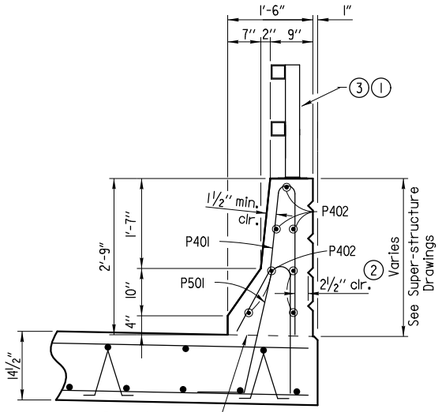

## SECTION B-B
¾" = 1'-0"



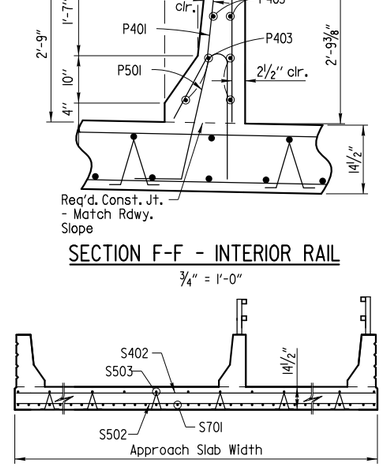

## SECTION C-C
No Scale



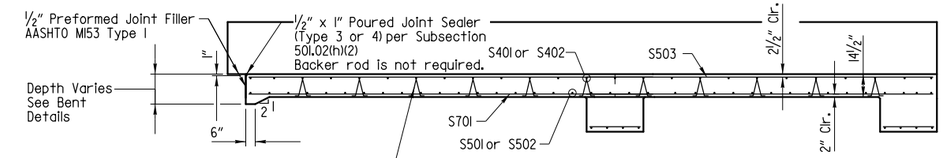

## SECTION F-F - INTERIOR RAIL
¾" = 1'-0"



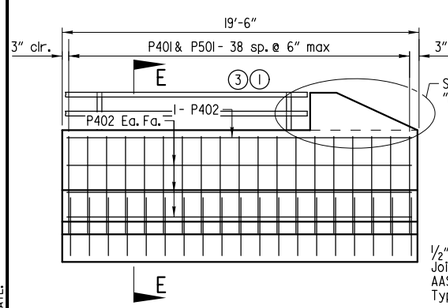

## SECTION E-E - EXTERIOR RAIL
¾" = 1'-0"




## SECTION Y-Y
No Scale

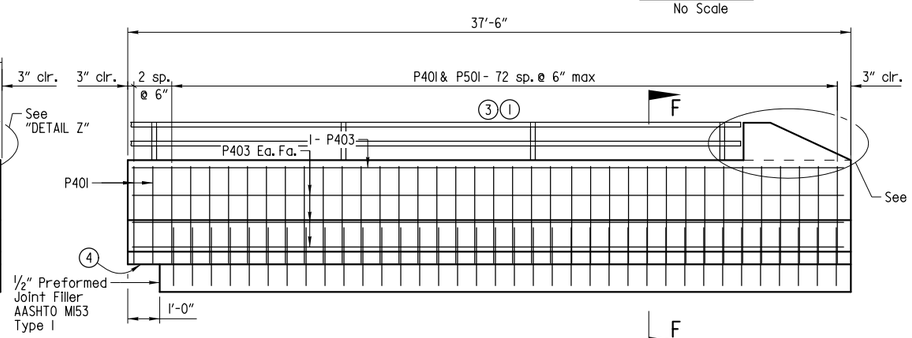



## SECTION X-X
¼" = 1'-0"

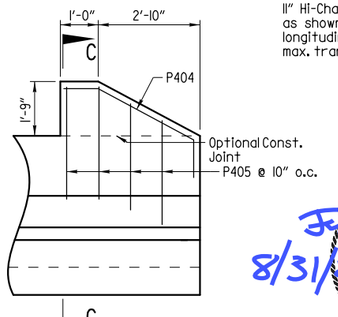



## DETAILS OF EXTERIOR PARAPET RAILS
No Scale

Note:
Type H-2 Rail and Rail Terminal only at Left Exterior Rail.




## DETAIL OF INTERIOR PARAPET RAIL
No Scale




## DETAIL Z
No Scale

(1) The color of the Steel Tube Fence, Posts, and Type H-2 Metal Rail, unless noted otherwise, shall be Black and shall match Fed. Std. 595B Color Chip No. 27038.

(2) "ASHLAR STONE" pattern form liner relief shall be a maximum of 1", to preserve the minimum clearance of 2½" as shown. See Dwg. No. 61183 for details of "ASHLAR STONE" pattern.

(3) For Type H-2 Railing Details, See Dwg. No. 61182.

(4) 3-Layers of felt paper between top of backwall and rail.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 102 | 118 |
| | | | | (1) | 07463 - APPROACH SLAB - 61531 | | | |

## GENERAL NOTES

All concrete shall be Class S(AE) (f'c = 4,000 psi) and shall be poured in the dry.

Reinforcement Steel shall conform to AASHTO M 31 or M 322, Type A with Mill Test Reports, Gr. 60 (fy = 60,000 psi).

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

Surface finish for Approach Slabs to match that used on the bridge deck.

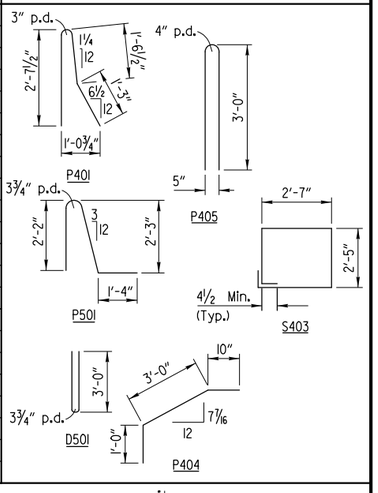
## QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

| Slab Width | Reinforcing Steel (lbs.) | Concrete (cubic yds.) |
|---|---|---|
| Varies 43'-5" to 46'-7" | 15250 | 101.16 |

## BAR LIST FOR ONE TYPE SPECIAL APPROACH SLAB

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|---|---|---|---|
| S401 | 12 | 43'-1" | Str. |
| S402 | 22 | 46'-3" | Str. |
| S403 | 96 | 10'-4" | 2" |
| | | | |
| S501 | 18 | 43'-1" | Str. |
| S502 | 20 | 46'-3" | Str. |
| S503 | 43 | 36'-2" | Str. |
| S504 | 6 | 19'-2" | Str. |
| | | | |
| S701 | 104 | 36'-2" | Str. |
| S702 | 6 | 19'-2" | Str. |
| | | | |
| D501 | 34 | 6'-2" | 3¾" |
| | | | |
| P401 | 153 | 5'-6" | 3" |
| P402 | 14 | 19'-2" | Str. |
| P403 | 7 | 37'-2" | Str. |
| P404 | 2 | 4'-10" | 2" |
| P405 | 8 | 6'-7" | 4" |
| | | | |
| P501 | 151 | 5'-10" | 3¾" |

BENDING DIAGRAMS
Dimensions are out to out of bars.




Leonard.Speed 8/31/2020 1:45:31 PM
WORKSPACE: ARDOT
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REVISED DATE:

ARKANSAS LICENSED PROFESSIONAL ENGINEER No.14501 STEPHEN F. HARPER
8/31/2020

BRIDGE ENGINEER
PRINT DATE: 8/31/2020

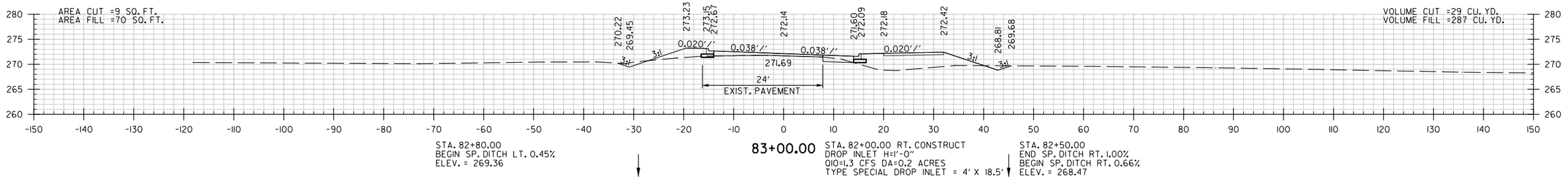
# DETAILS OF TYPE SPECIAL APPROACH SLAB HWY. 351 RR OVERPASS

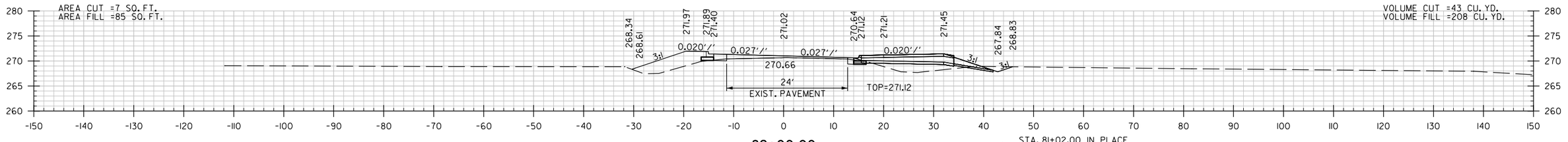
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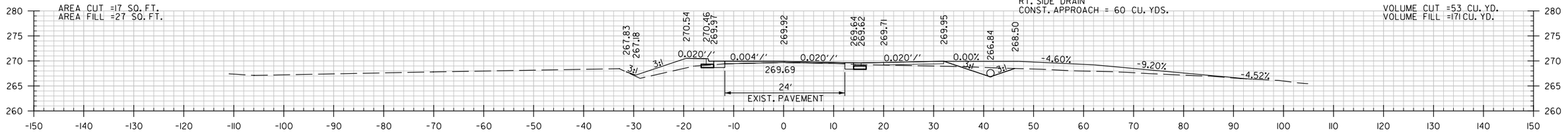
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

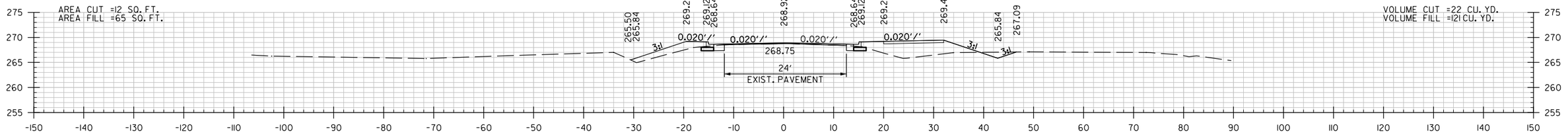
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| BRIDGE NO. | 07463 | | DRAWING NO. | | 61531 |

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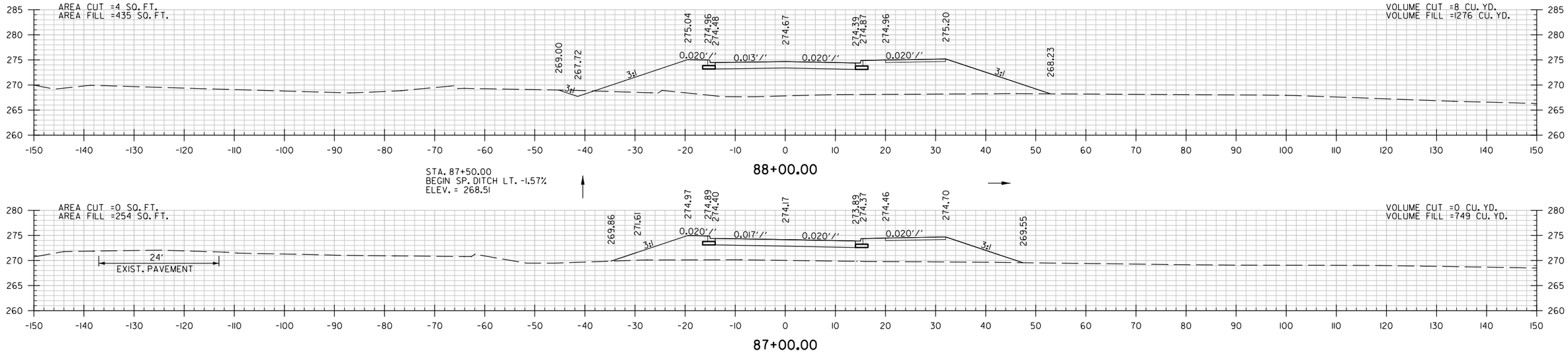




STA. 79+00 TO STA. 83+00

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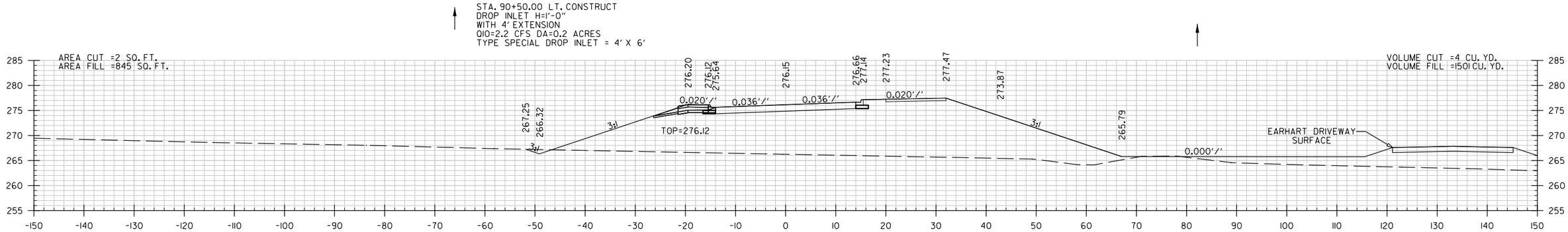
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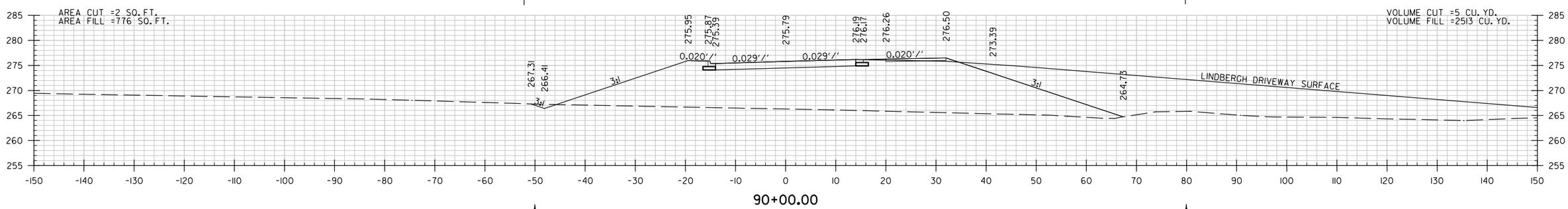


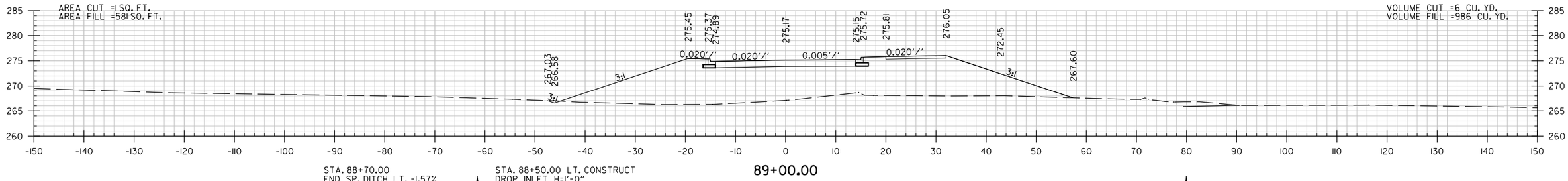

STA. 84+00 TO STA. 88+00

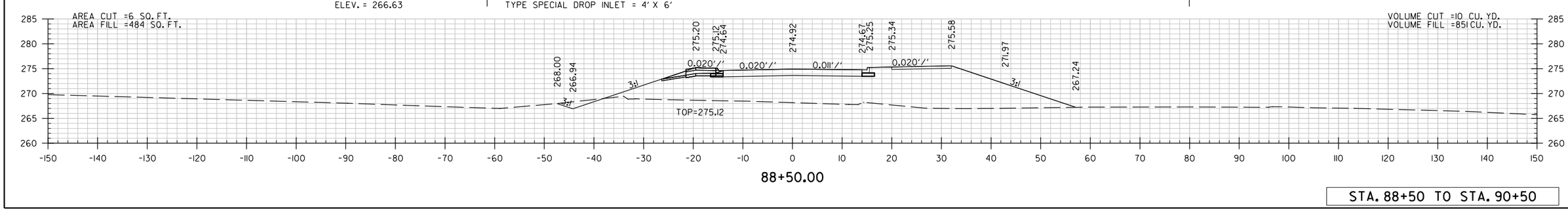
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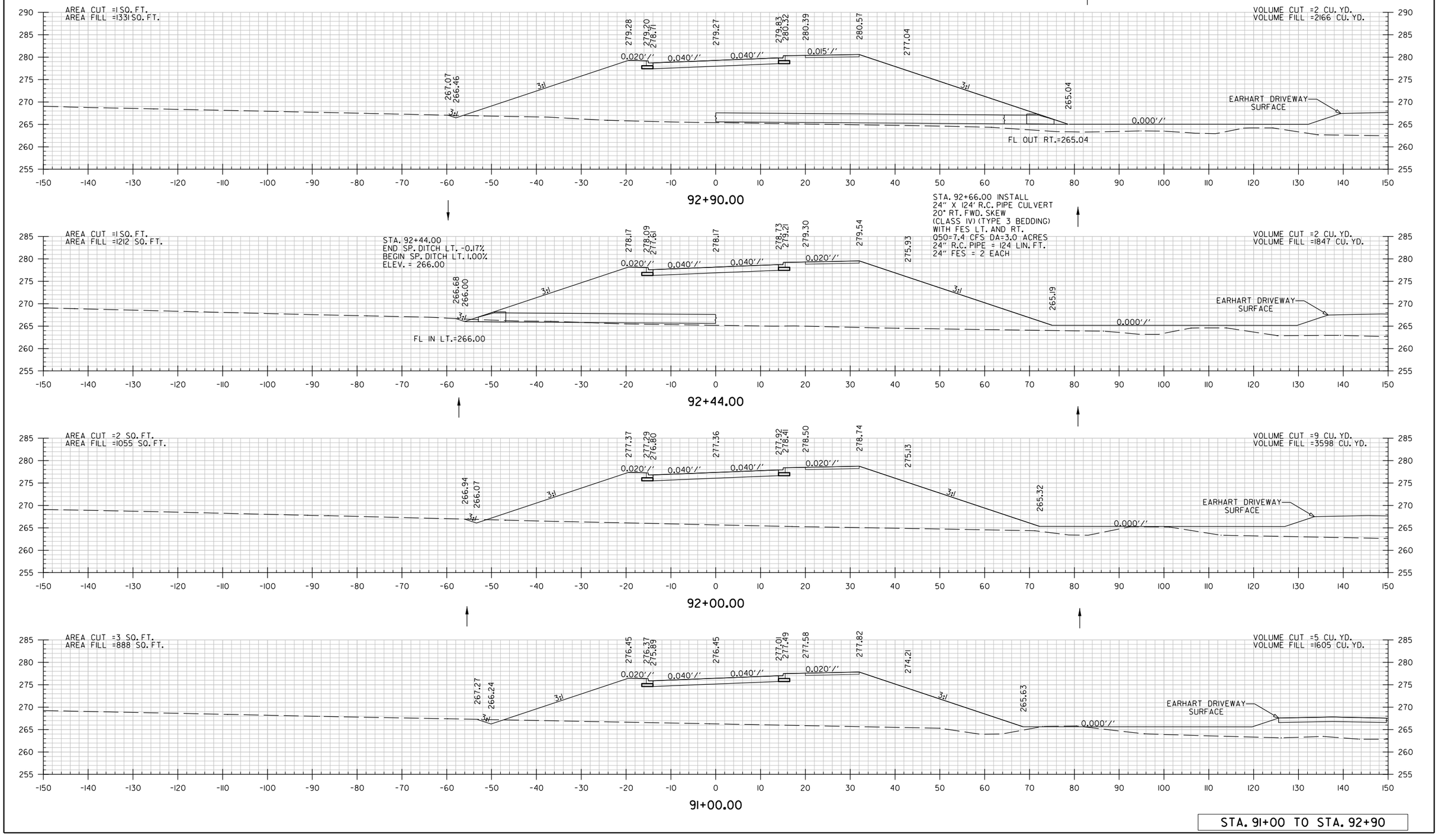




STA. 88+50 TO STA. 90+50

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(2) CROSS SECTIONS

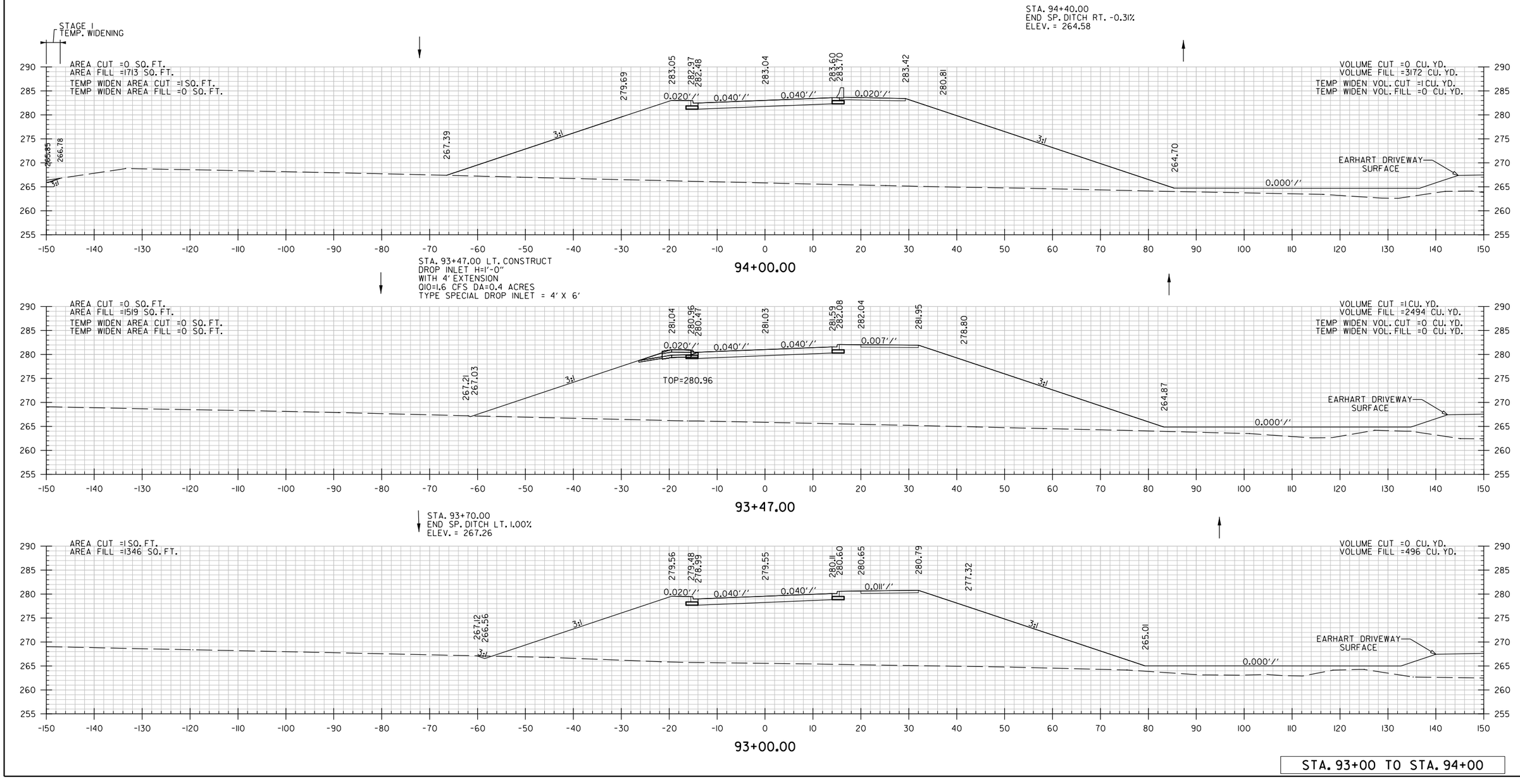



STA. 91+00 TO STA. 92+90

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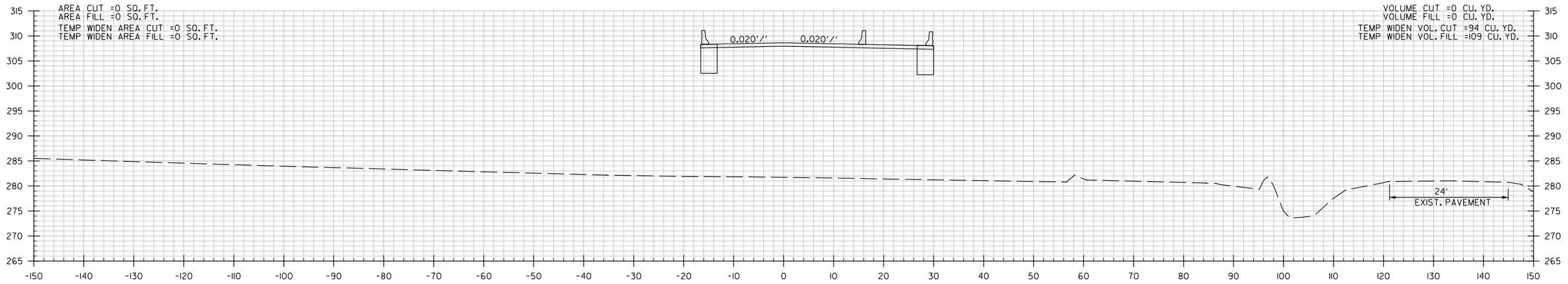



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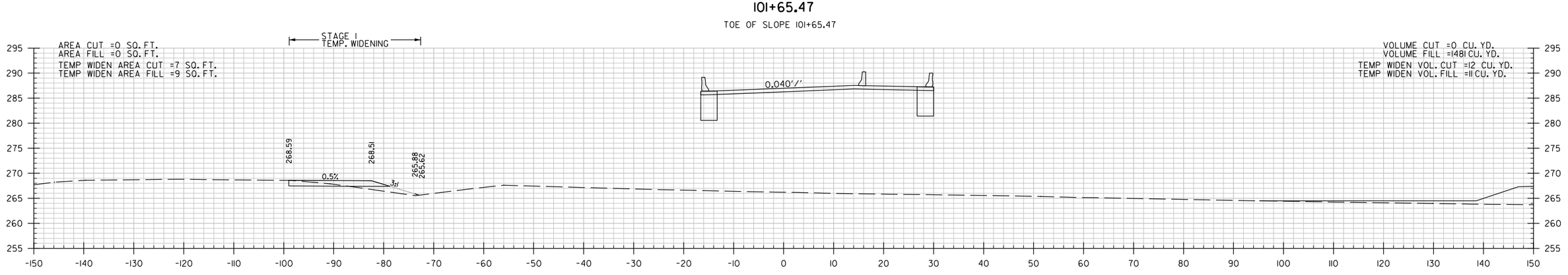
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(2) CROSS SECTIONS



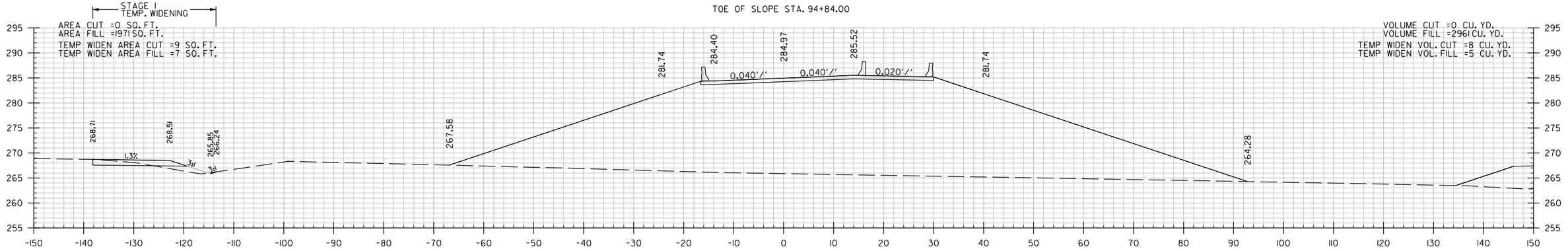

**101+65.47**

TOE OF SLOPE 101+65.47




**94+84.00**

TOE OF SLOPE STA. 94+84.00




**94+43.41**

BEGIN BRIDGE STA. 94+43.41

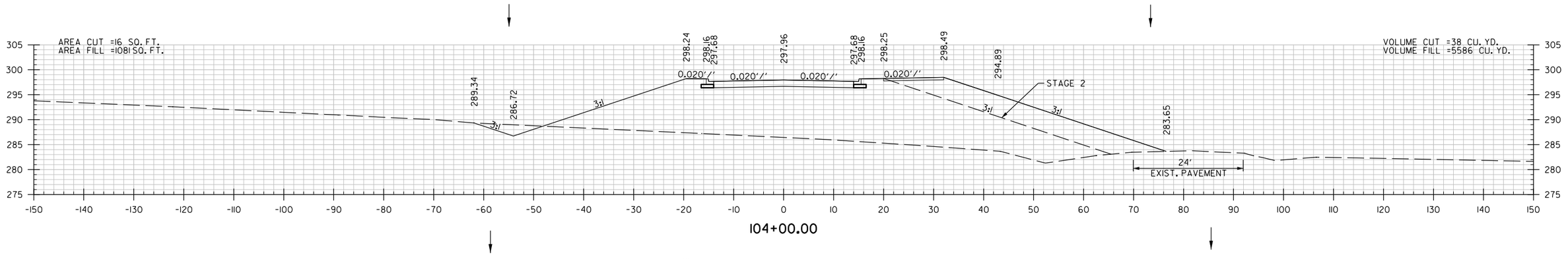
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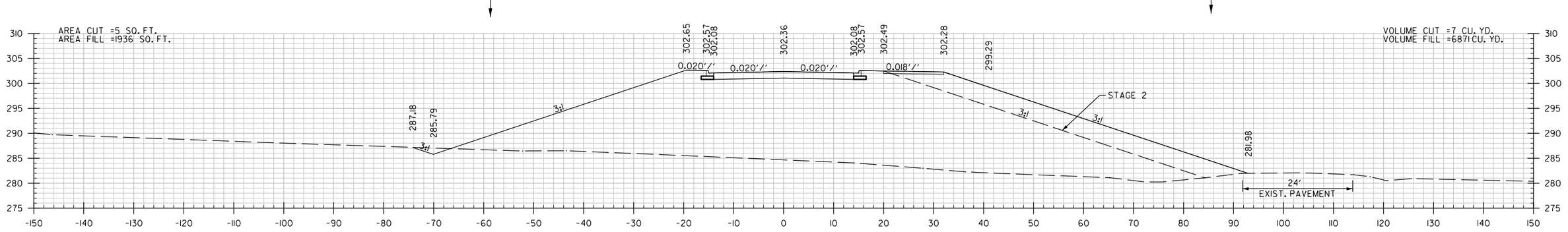
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| JOB NO. | | 100942 | 109 | 118 |

(2) CROSS SECTIONS

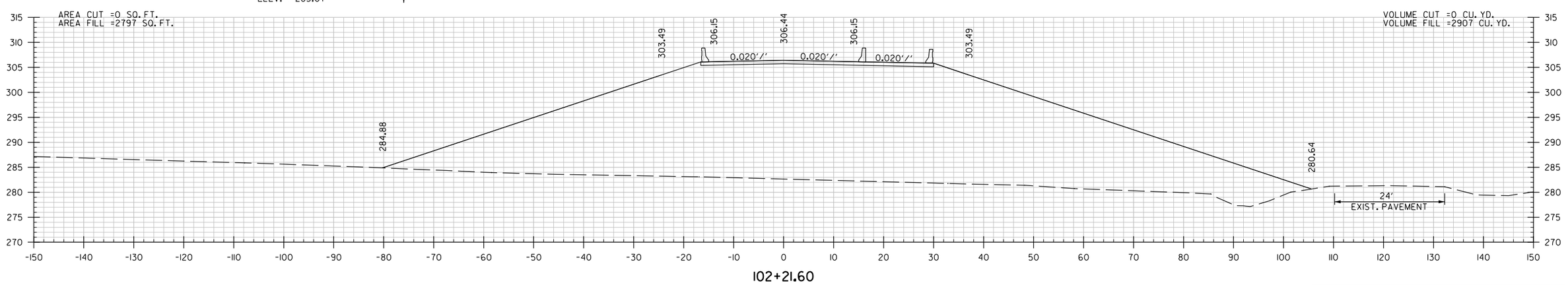



104+00.00




103+00.00

STA. 102+22.00
BEGIN SP. DITCH LT. 0.93%
ELEV. = 285.07



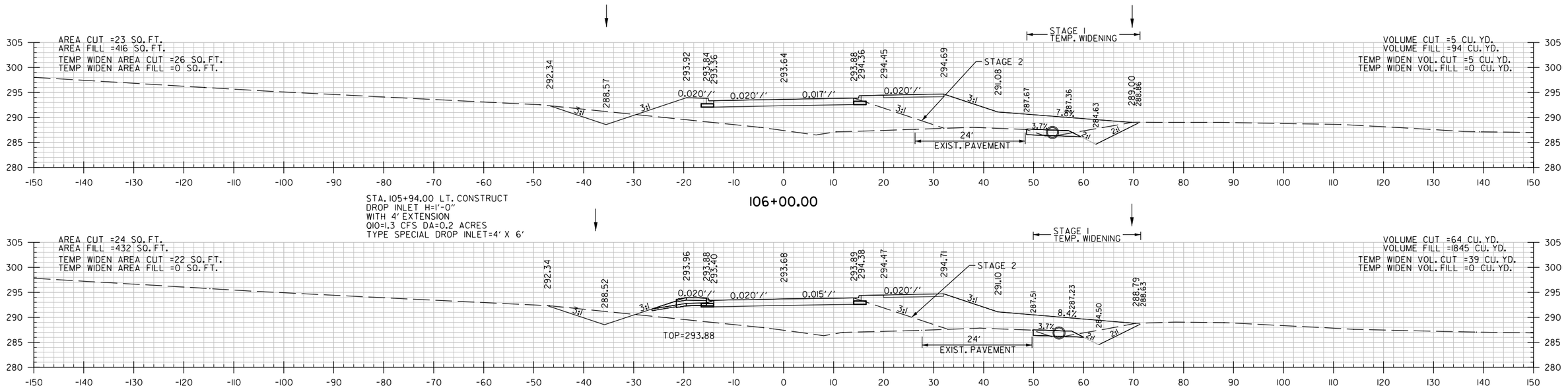

102+21.60

END BRIDGE STA. 102+21.60

STA. 102+22 TO STA. 104+00

Phillip.Ziegler 3/12/2021 8:49:24 AM
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REVISED DATE: $$REVDATE$$

| 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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| 9/8/2022 | | | | 6 | ARK. | | | |
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| | | | | (2) | CROSS SECTIONS | | | |




STA. 104+90 TO STA. 106+00

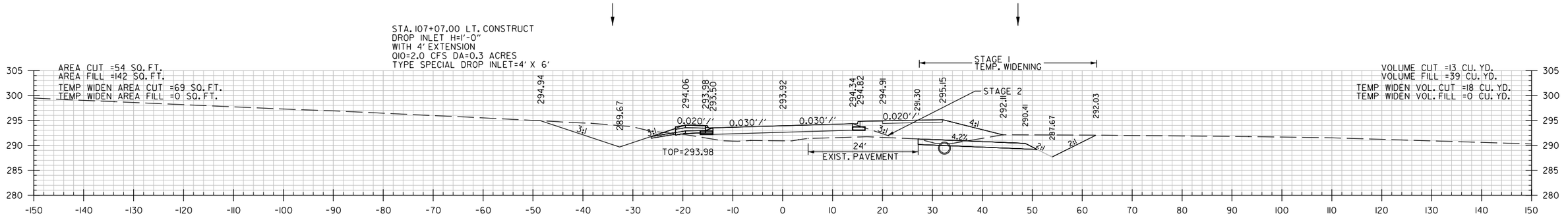
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| 9/8/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 111 | 118 |
| | | | | (2) | CROSS SECTIONS | | | |

STA. 107+07.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSION
QIO=2.0 CFS DA=0.3 ACRES
TYPE SPECIAL DROP INLET=4' X 6'

AREA CUT =54 SQ. FT.
AREA FILL =142 SQ. FT.
TEMP WIDEN AREA CUT =69 SQ. FT.
TEMP WIDEN AREA FILL =0 SQ. FT.

VOLUME CUT =13 CU. YD.
VOLUME FILL =39 CU. YD.
TEMP WIDEN VOL. CUT =18 CU. YD.
TEMP WIDEN VOL. FILL =0 CU. YD.

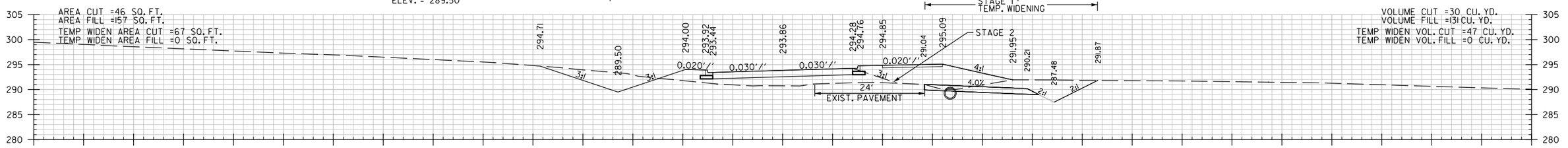



107+07.00

STA. 107+00.00
END SP. DITCH LT. 0.93%
BEGIN SP. DITCH LT. 2.45%
ELEV. = 289.50

AREA CUT =46 SQ. FT.
AREA FILL =157 SQ. FT.
TEMP WIDEN AREA CUT =67 SQ. FT.
TEMP WIDEN AREA FILL =0 SQ. FT.

VOLUME CUT =30 CU. YD.
VOLUME FILL =131 CU. YD.
TEMP WIDEN VOL. CUT =47 CU. YD.
TEMP WIDEN VOL. FILL =0 CU. YD.

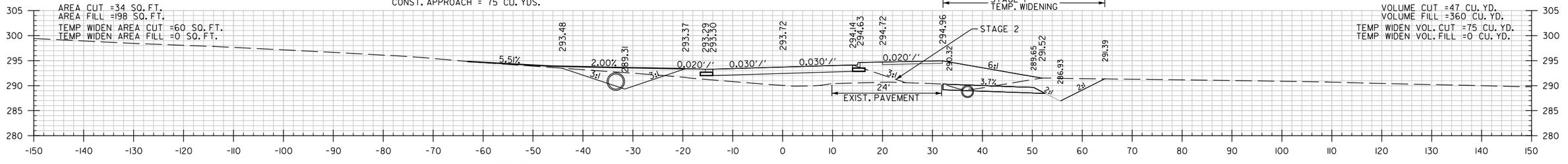



107+00.00

STA. 106+80.00
IN PLACE 36" X 62' R.C. PIPE CULVERT
REMOVE AND INSTALL 36" X 38'
LT. SIDE DRAIN
CONST. APPROACH = 75 CU. YDS.

AREA CUT =34 SQ. FT.
AREA FILL =198 SQ. FT.
TEMP WIDEN AREA CUT =60 SQ. FT.
TEMP WIDEN AREA FILL =0 SQ. FT.

VOLUME CUT =47 CU. YD.
VOLUME FILL =360 CU. YD.
TEMP WIDEN VOL. CUT =75 CU. YD.
TEMP WIDEN VOL. FILL =0 CU. YD.

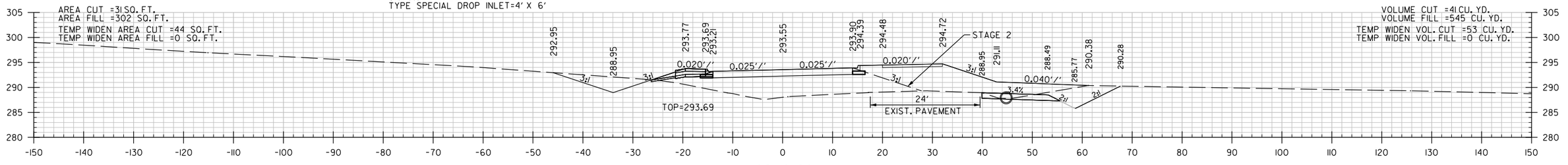



106+80.00

STA. 106+41.00 LT. CONSTRUCT
DROP INLET H=1'-0"
WITH 4' EXTENSIONS (2 EACH)
QIO=0.5 CFS DA=0.1 ACRES
TYPE SPECIAL DROP INLET=4' X 6'

AREA CUT =131 SQ. FT.
AREA FILL =302 SQ. FT.
TEMP WIDEN AREA CUT =44 SQ. FT.
TEMP WIDEN AREA FILL =0 SQ. FT.

VOLUME CUT =41 CU. YD.
VOLUME FILL =545 CU. YD.
TEMP WIDEN VOL. CUT =53 CU. YD.
TEMP WIDEN VOL. FILL =0 CU. YD.

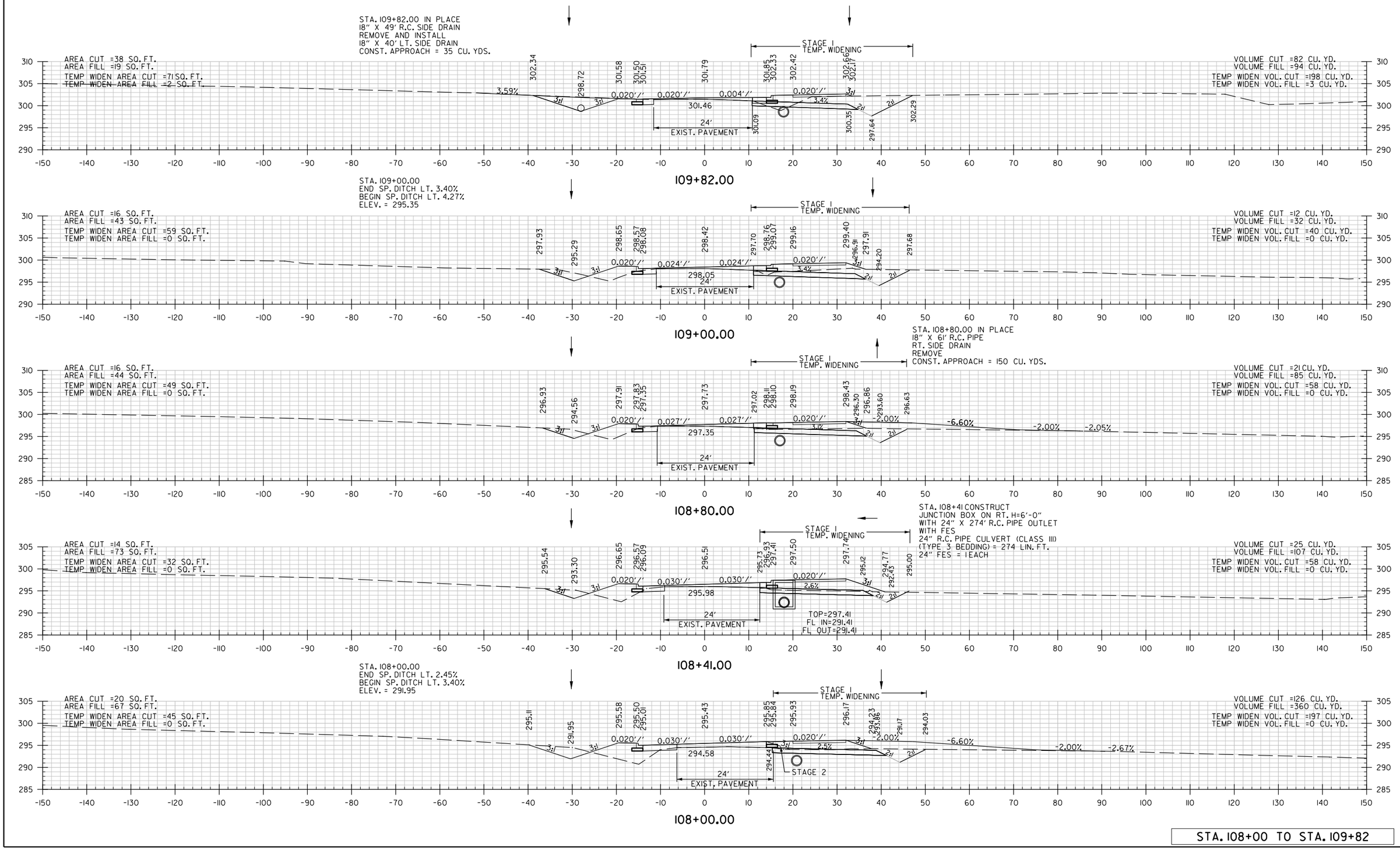



106+41.00

STA. 106+41 TO STA. 107+07

ByronLawrence 9/8/2022 4:35:44 PM
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REVISED DATE: $$REVDATE$$

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 9/8/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 112 | 118 |
| | | | | (2) | CROSS SECTIONS | | | |





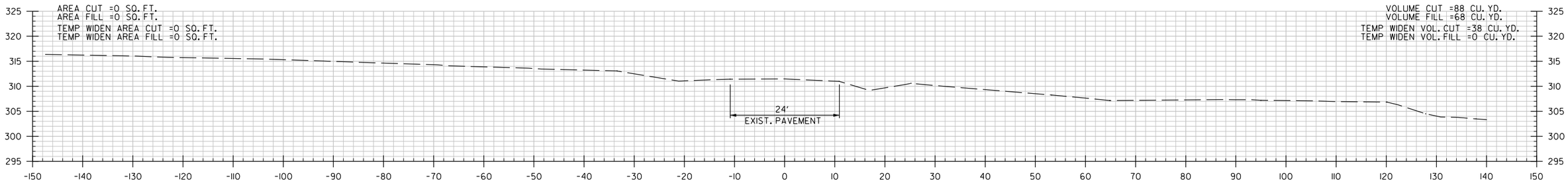
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| 6 | ARK. | | | |
| JOB NO. | | 100942 | 113 | 118 |

(2) CROSS SECTIONS

STA. 112+00.00 END 100' TRANSITION

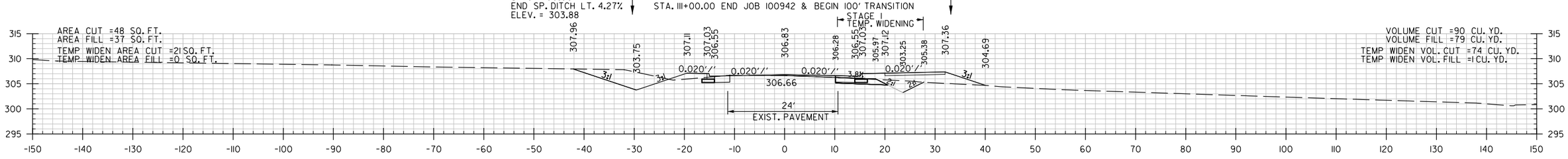



**112+00.00**

STA. 111+00.00
END SP. DITCH LT. 4.27%
ELEV. = 303.88

STA. 111+00.00 END JOB 100942 & BEGIN 100' TRANSITION

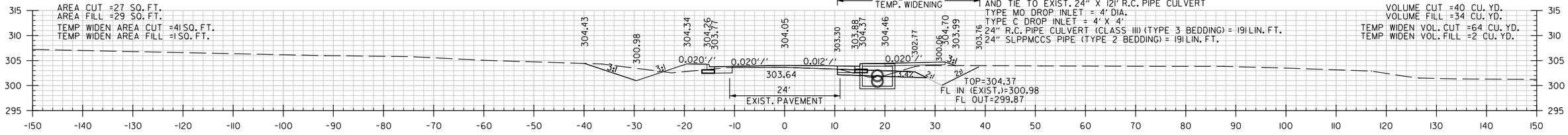
STAGE I
TEMP. WIDENING




**111+00.00**

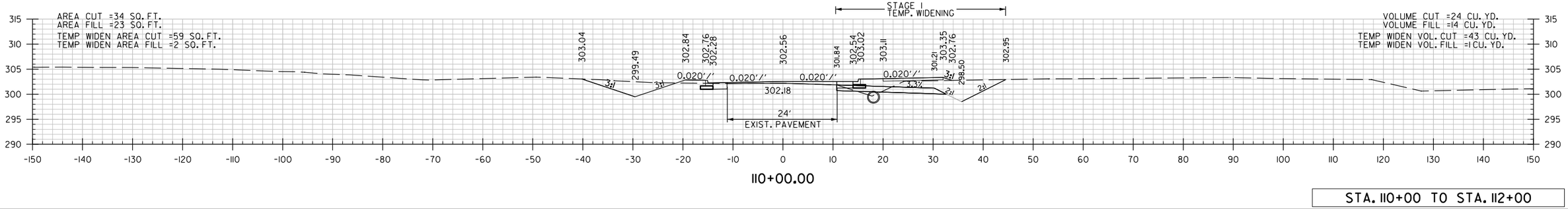
STA. 110+35 CONSTRUCT
DROP INLET ON RT. H=4'-6"
WITH 24" X 19' PIPE OUTLET
TO JUNCTION BOX @ STA. 108+41 RT.
AND TIE TO EXIST. 24" X 12' R.C. PIPE CULVERT
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
24" R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING) = 19 LIN. FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 19 LIN. FT.

STAGE I
TEMP. WIDENING




**110+35.00**

STAGE I
TEMP. WIDENING

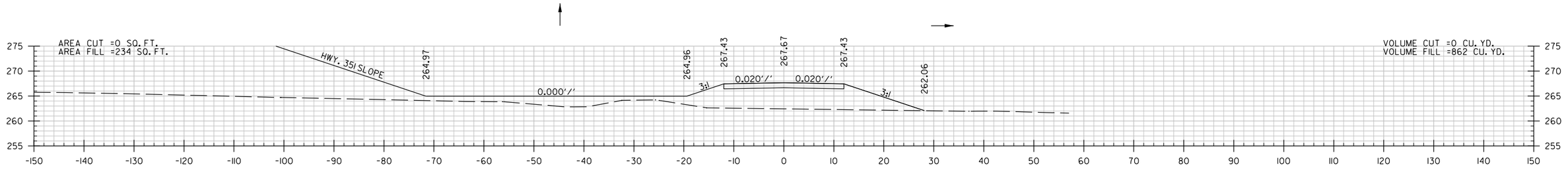



**110+00.00**

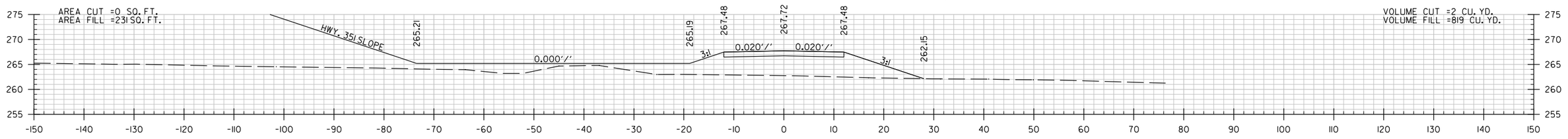
STA. 110+00 TO STA. 112+00

ByronLawrence, 9/8/2022 4:35:46 PM
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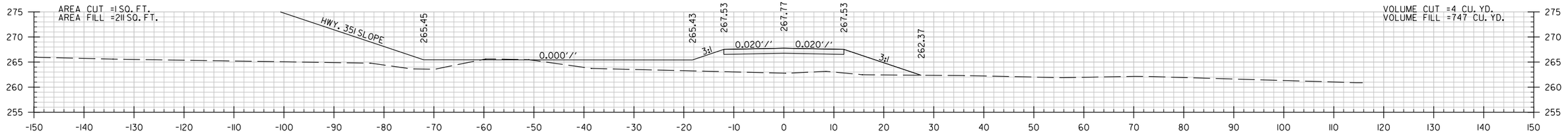
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| | | | | JOB NO. | | 100942 | 114 | 118 |
| | | | | (2) | CROSS SECTIONS | | | |



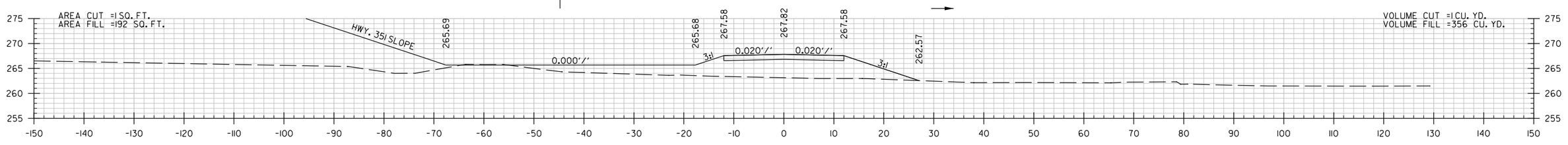

19+00.00




18+00.00

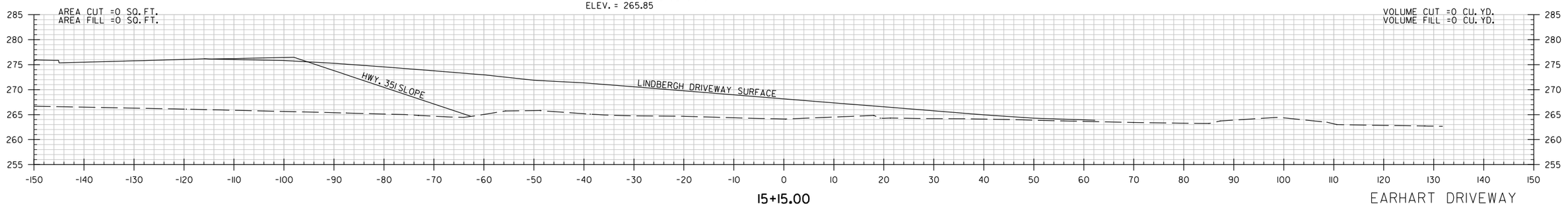



17+00.00




16+00.00

STA. 15+37.70
BEGIN DITCH LT. -0.31%
MATCH HWY. 351 SP. DT. RT.
ELEV. = 265.85




15+15.00

STA. 15+15.00 BEGIN EARHART DRIVEWAY

EARHART DRIVEWAY

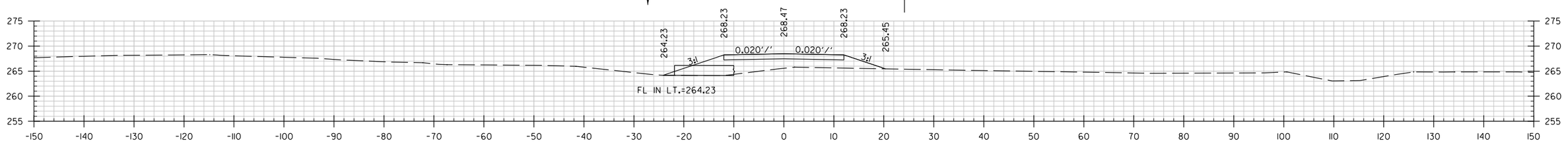
STA. 15+00 TO STA. 19+00

Phillip_Zeigler 3/12/2021 8:49:27 AM
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|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 115 | 118 |
| | | | | (2) | CROSS SECTIONS | | | |

STA. 22+80.00 INSTALL
DBL 30" X 47' SIDE DRAIN
20° RT. FWD. SKEW
Q50=78.2 CFS DA=39.0 ACRES

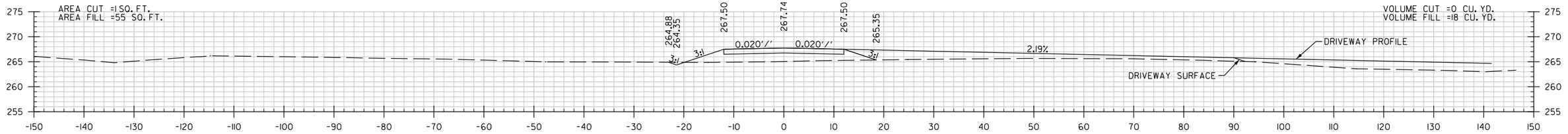
STA. 22+73.00
END SP. DITCH LT. -0.17%
BEGIN SP. DITCH LT. 0.67%
ELEV. = 264.23




22+73.00

AREA CUT =150 SQ. FT.
AREA FILL =55 SQ. FT.

VOLUME CUT =0 CU. YD.
VOLUME FILL =18 CU. YD.

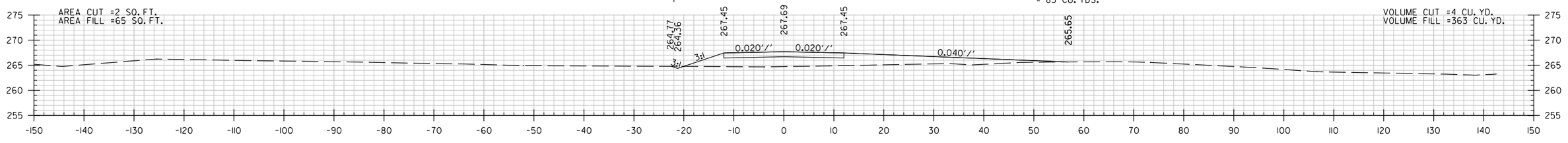



22+08.00

STA. 22+08.00
CONST. APPROACH ON RT.
= 85 CU. YDS.

AREA CUT =2 SQ. FT.
AREA FILL =65 SQ. FT.

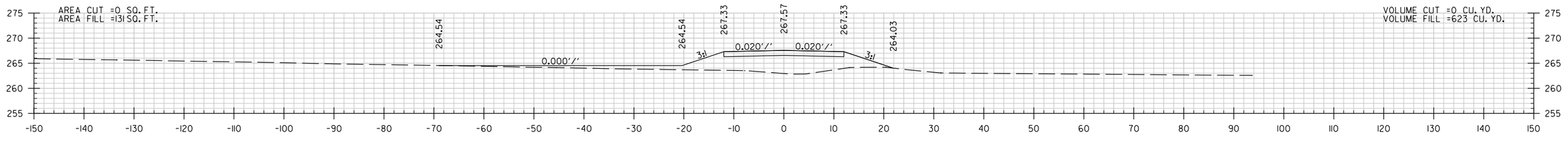
VOLUME CUT =4 CU. YD.
VOLUME FILL =363 CU. YD.




22+00.00

AREA CUT =0 SQ. FT.
AREA FILL =131 SQ. FT.

VOLUME CUT =0 CU. YD.
VOLUME FILL =623 CU. YD.

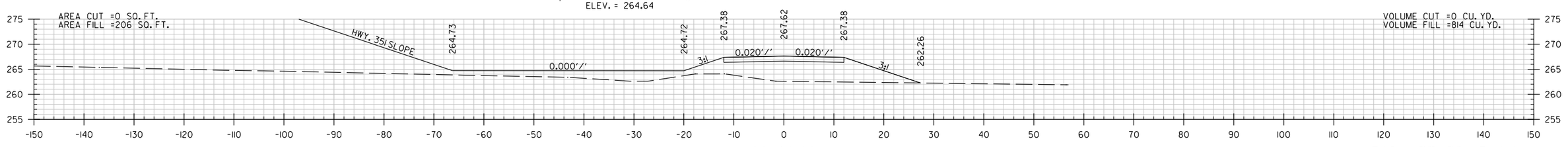



21+00.00

STA. 20+40.00
BEGIN SP. DITCH LT. -0.17%
ELEV. = 264.64

AREA CUT =0 SQ. FT.
AREA FILL =206 SQ. FT.

VOLUME CUT =0 CU. YD.
VOLUME FILL =814 CU. YD.




20+00.00

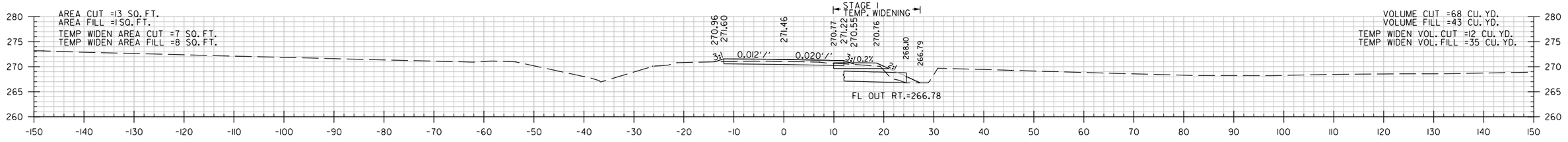
EARHART DRIVEWAY

STA. 20+00 TO STA. 22+73

Phillip.Zeagler 3/12/2021 8:49:28 AM
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REVISED DATE: $$REVDATE$$

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|---|---|---|---|---|---|---|---|---|
| 9/8/2022 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | 100942 | 116 | 118 |
| | | | | (2) | CROSS SECTIONS | | | |

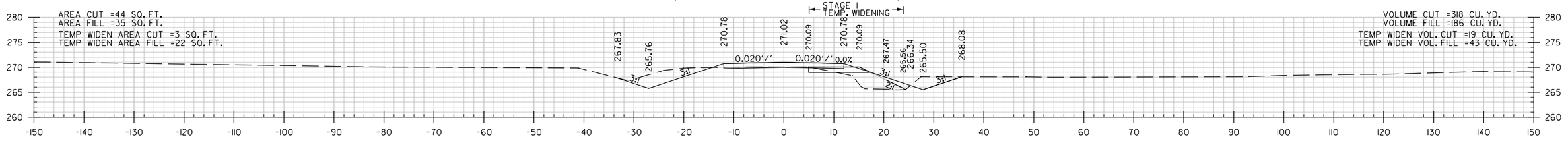
STA. 25+90.00 IN PLACE
18" X 72' R.C. PIPE CULVERT
REMOVE AND INSTALL
24" X 72' SIDE DRAIN
23° LT. FWD. SKEW
Q50=6.94 CFS DA=2.2 ACRES




25+64.00

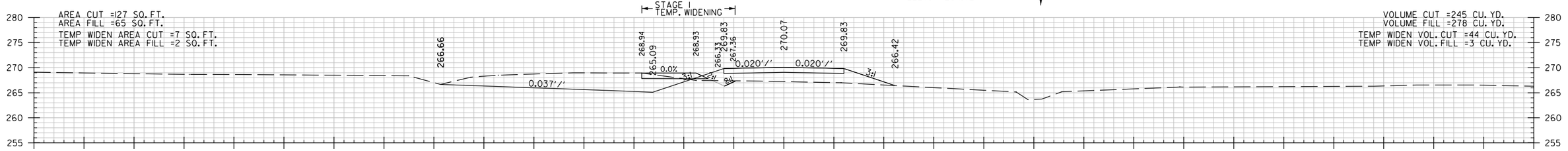
STA. 25+58.00
END SP. DITCH LT. 0.67%
ELEV. = 266.15

STA. 25+00.00
END SP. DITCH RT. 1.56%
ELEV. = 265.50

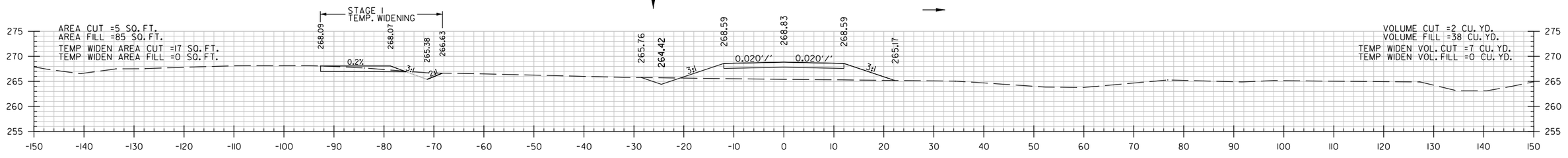



25+00.00

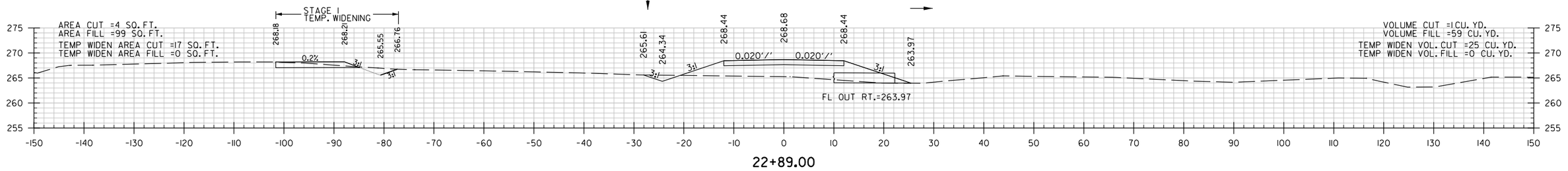
STA. 24+50.00
BEGIN SP. DITCH RT. 1.56%
ELEV. = 264.72




24+00.00




23+00.00




22+89.00

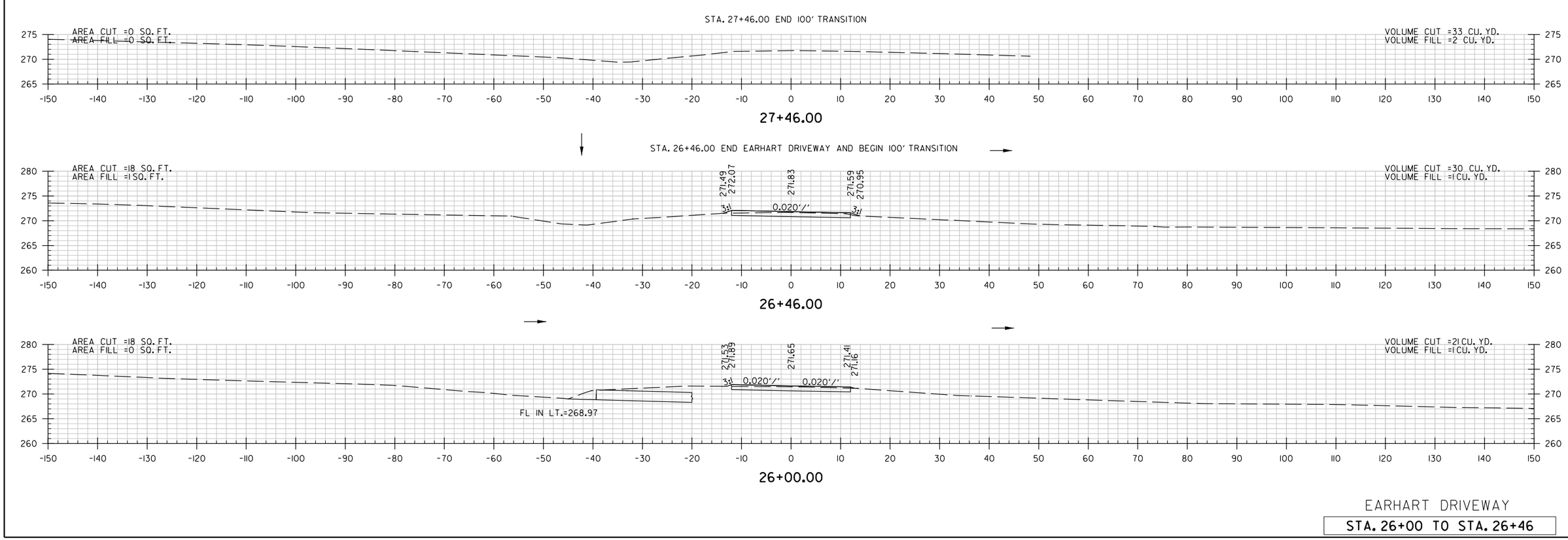
EARHART DRIVEWAY

STA. 22+89 TO STA. 25+64

Byron.Lowrence 9/8/2022 4:35:46 PM
WORKSPACE: ARDOT
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| FED.RD. DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET NO. | TOTAL SHEETS |
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| 6 | ARK. | | | |
| JOB NO. | | 100942 | 117 | 118 |
| (2) | CROSS SECTIONS | | | |



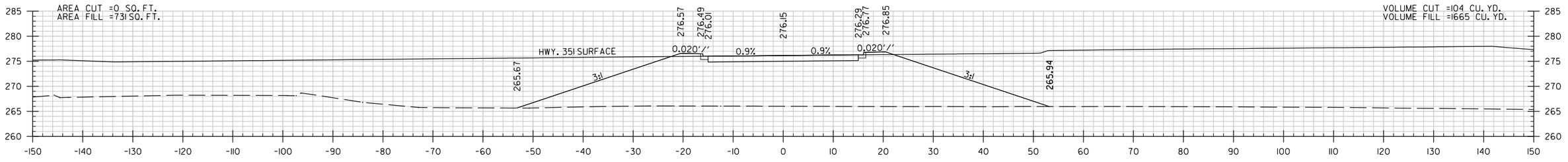

EARHART DRIVEWAY

STA. 26+00 TO STA. 26+46

Phillip.Ziegler 3/12/2021 8:49:29 AM
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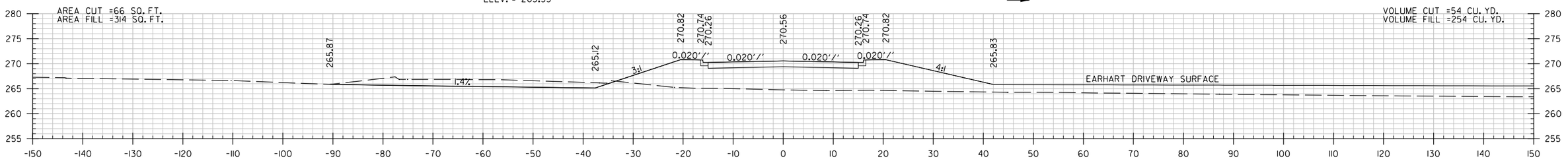
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| JOB NO. | | 100942 | 118 | 118 |
| (2) | CROSS SECTIONS | | | |



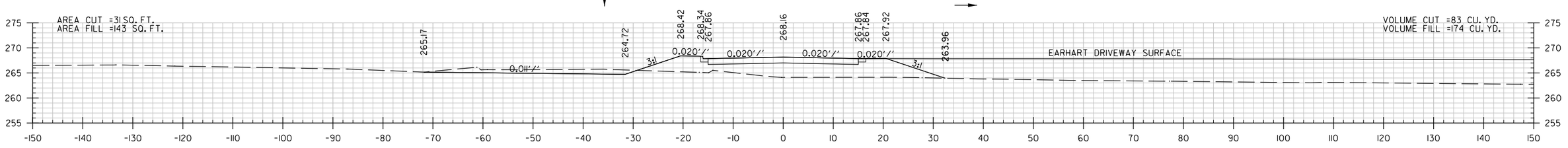

STA. 9+30.00
END SP. DITCH LT. 1.36%
ELEV. = 265.53

## 9+86.00

STA. 9+86.00 END LINDBERGH DRIVEWAY

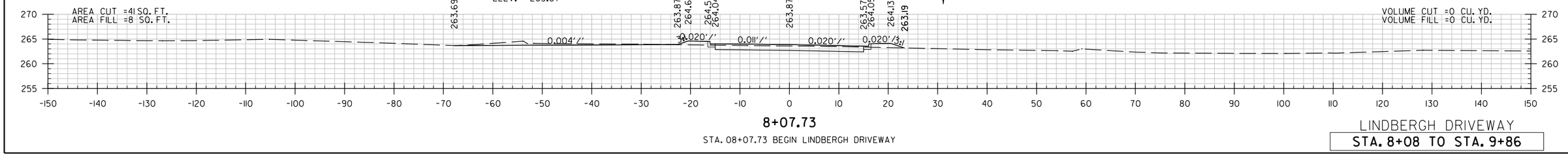



## 9+00.00




## 8+70.00

STA. 8+07.73
BEGIN SP. DITCH LT. 1.36%
ELEV. = 263.87




## 8+07.73

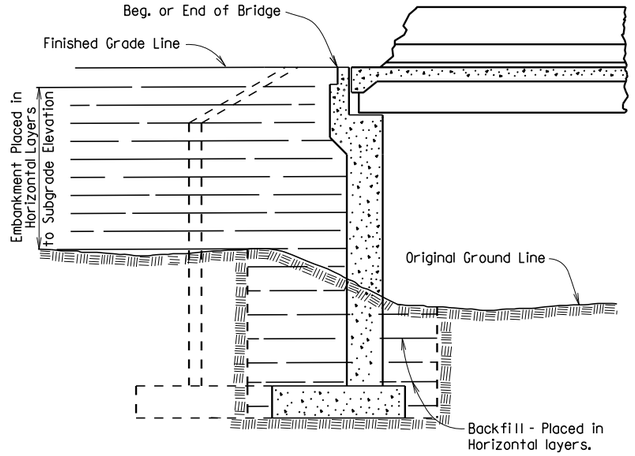
STA. 08+07.73 BEGIN LINDBERGH DRIVEWAY

LINDBERGH DRIVEWAY
STA. 8+08 TO STA. 9+86

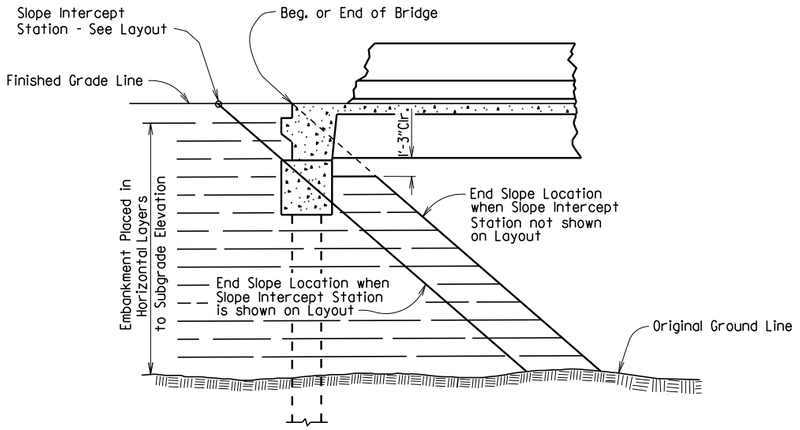
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| | | | | JOB NO. | | | | |

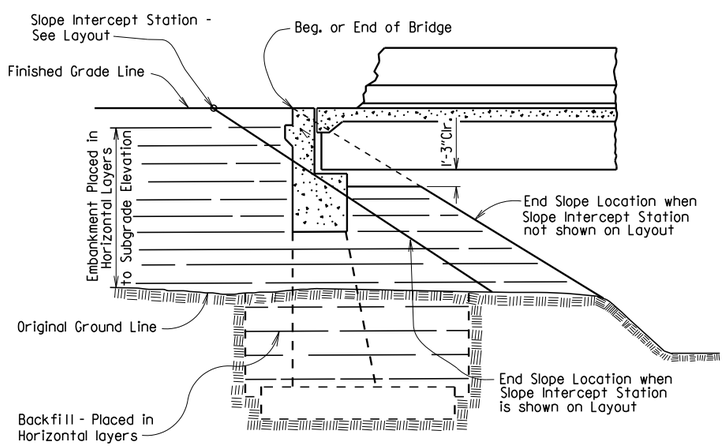
1 EMBANKMENT & BACKFILL 55000



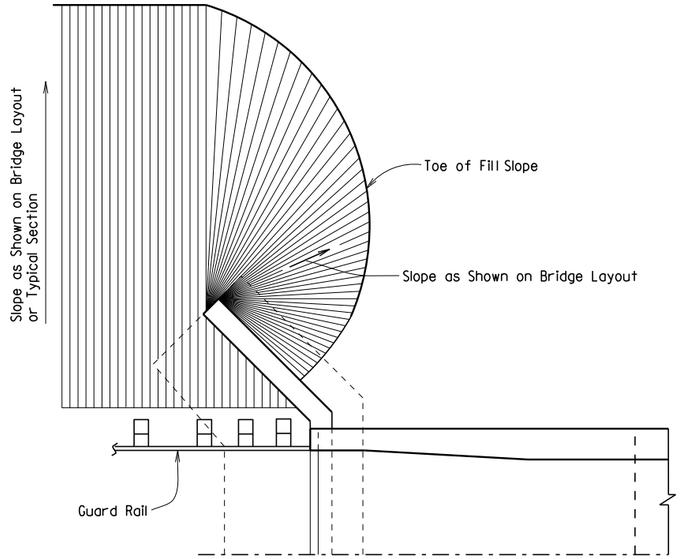

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



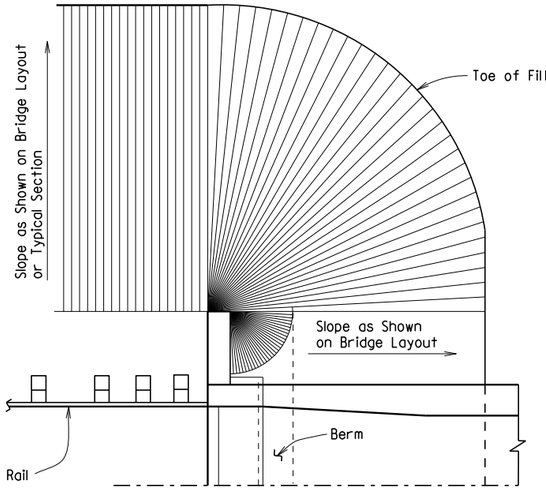

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



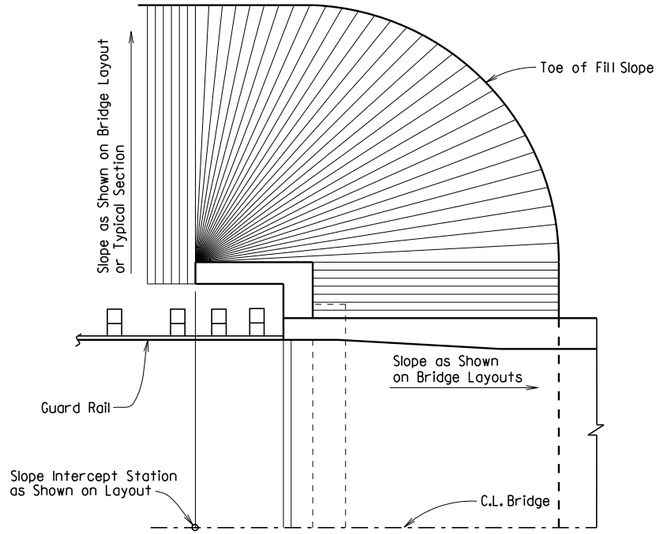

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



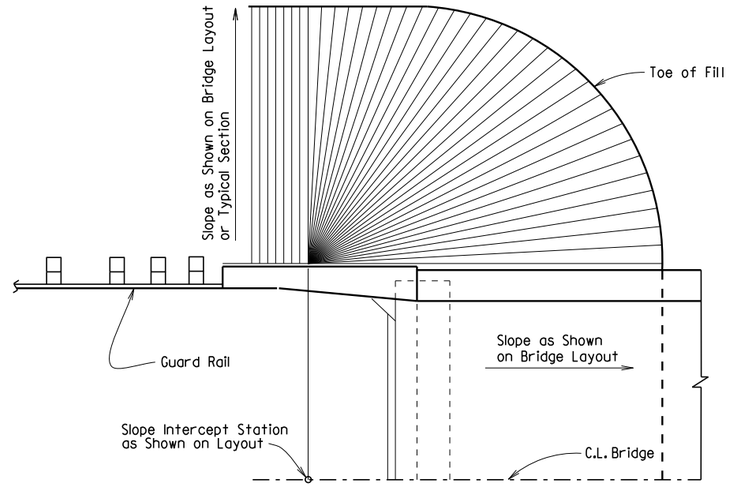

VERTICAL WALL ABUTMENTS




SPILL-THROUGH END BENTS WITH STUB WING




SPILL-THROUGH END BENTS WITH TURNBACK WING




SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

# STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

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

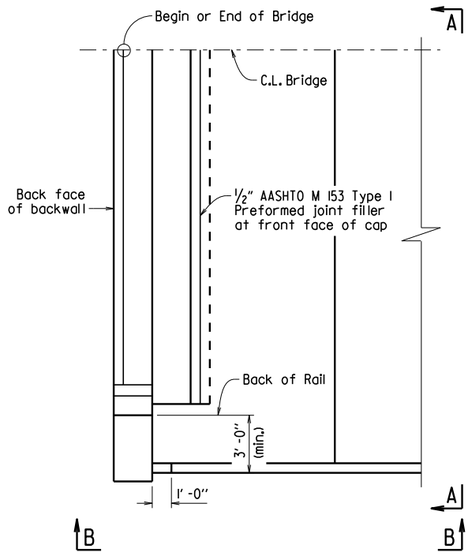
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

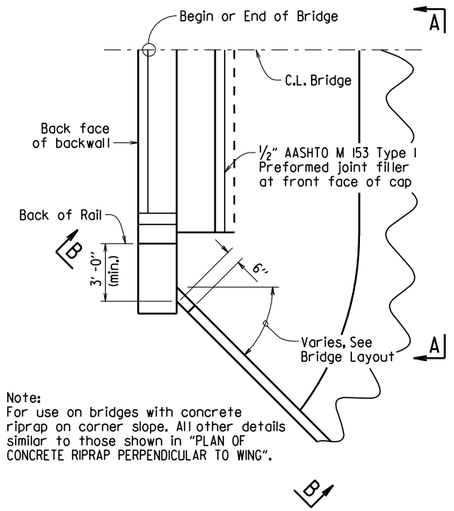
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |

① CONCRETE RIPRAP 55002

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



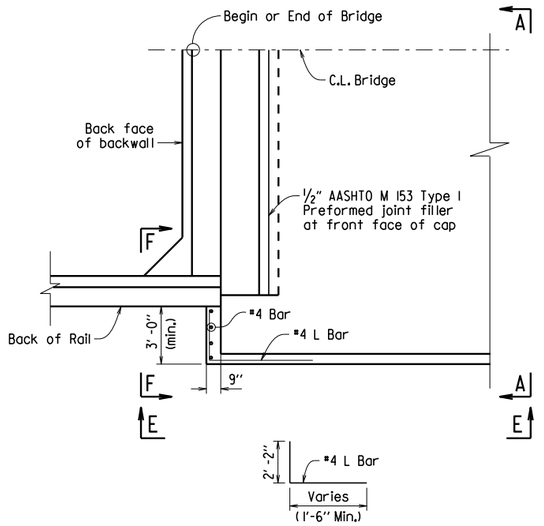

PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



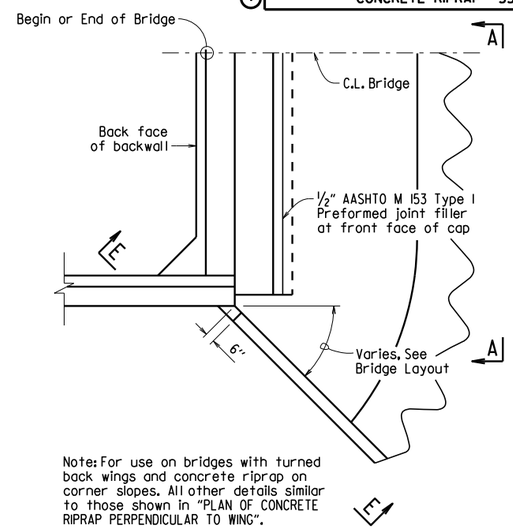

Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



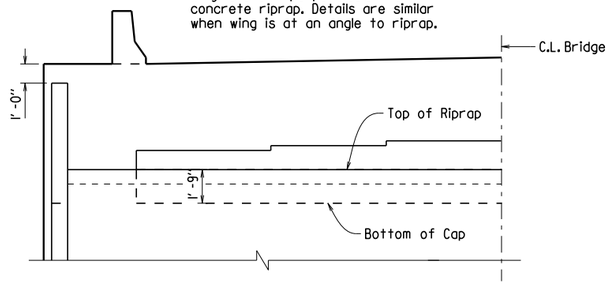

PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"




Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

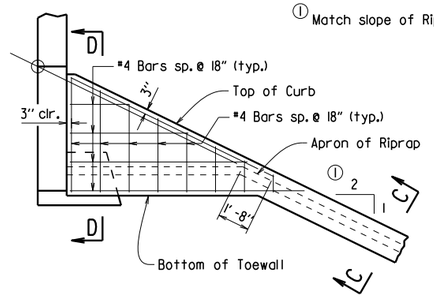
PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

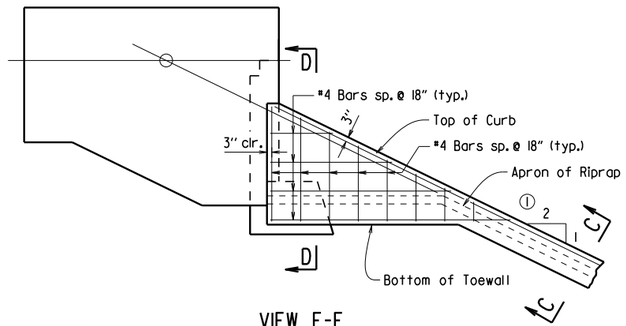



VIEW A-A
¼" = 1'-0"

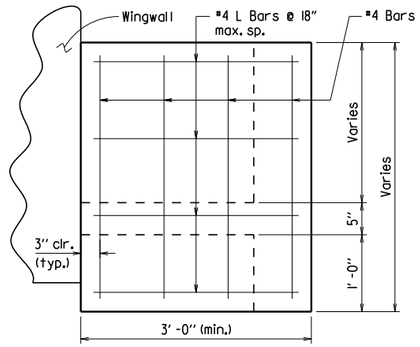
① Match slope of Riprap Apron.



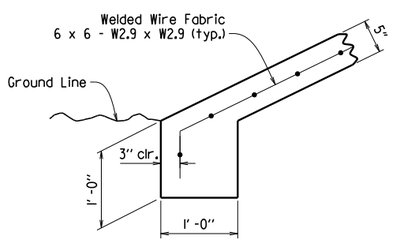

VIEW B-B
¼" = 1'-0"



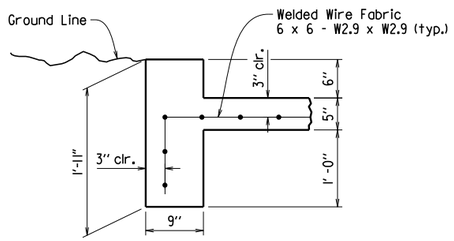

VIEW E-E
¼" = 1'-0"



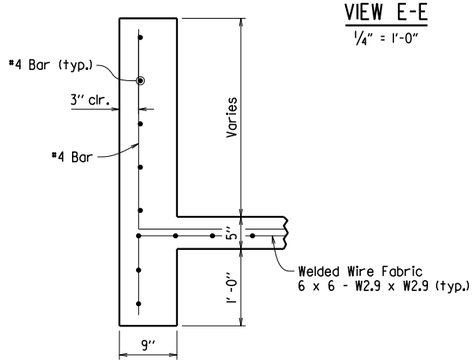

VIEW F-F
1" = 1'-0"




TOE OF CONCRETE RIPRAP
1" = 1'-0"




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




SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

# STANDARD DETAILS FOR CONCRETE RIPRAP

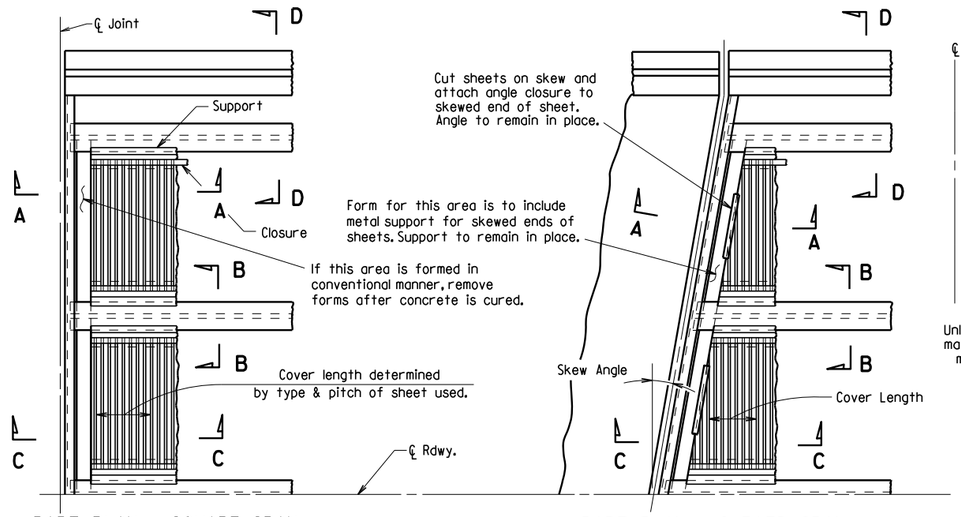
## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 3/24/16 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |
| | | | | ① | BRIDGE DECK FORMS | | 55005 | |



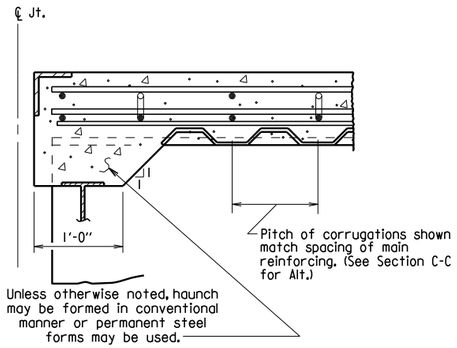

## PART PLAN - SQUARE SPAN

3/8" = 1'-0"



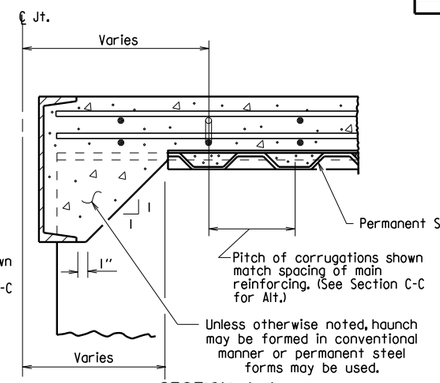

## PART PLAN - SKEWED SPAN

3/8" = 1'-0"



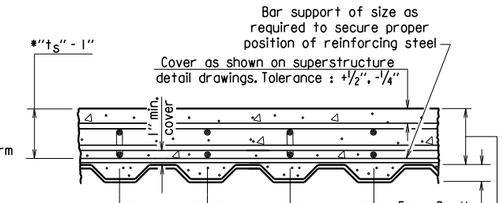

## SECTION A-A

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



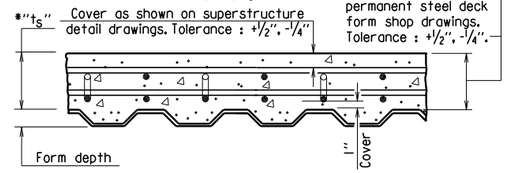

## SECTION A-A

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



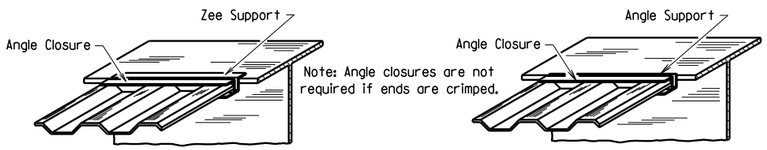

## SECTION C-C

1" = 1'-0"




## SECTION C-C - ALTERNATE

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




## SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

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

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

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

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

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




## SECTION B-B

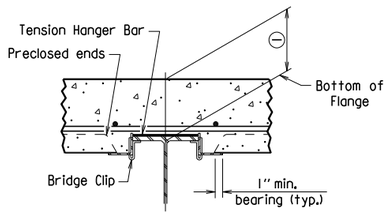
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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



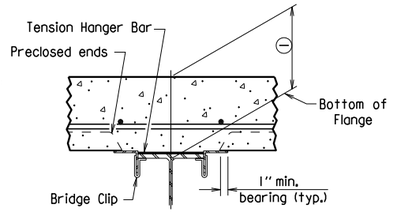

## SECTION B-B

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



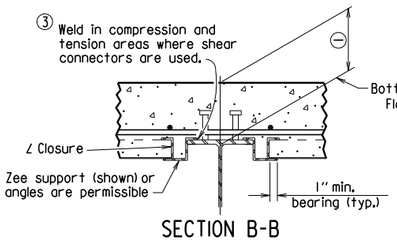

## SECTION B-B

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



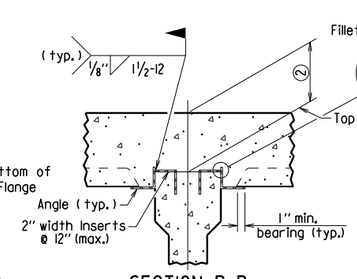

## SECTION B-B

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



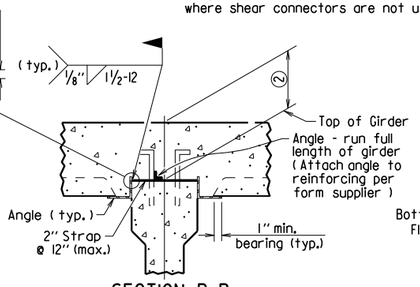

## SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



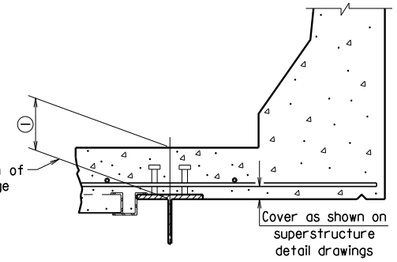

## SECTION B-B (FOR CONCRETE GIRDERS)

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




## SECTION B-B (FOR CONCRETE GIRDERS)

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




## SECTION D-D

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

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

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

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

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

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55005

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

# GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

## SUPERSTRUCTURE NOTES:

### MATERIALS AND STRENGTHS:

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

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

### CONCRETE:

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

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

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

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

### REINFORCING STEEL:

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

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

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

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

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

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

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

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

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

### STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

### STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

## SUBSTRUCTURE NOTES:

### CONCRETE:

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

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

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

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

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

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

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

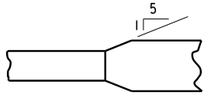
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55006

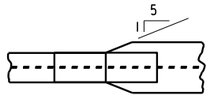
PRINT DATE: 11/7/2019

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

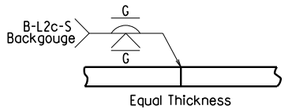



Plan-Unequal Width ( Flg.)

FLANGE SPLICE

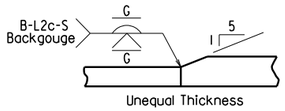



## FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS




Equal Thickness

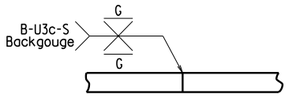
WEB & FLANGE SPLICE




Unequal Thickness

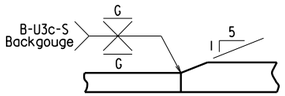
FLANGE SPLICE

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




Equal Thickness

WEB & FLANGE SPLICE

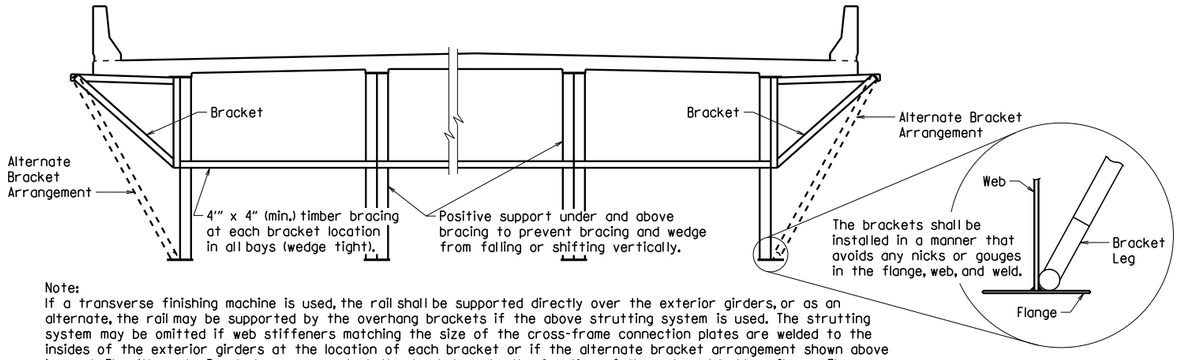



Unequal Thickness

FLANGE SPLICE

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

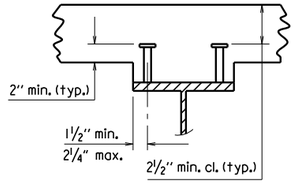
## DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



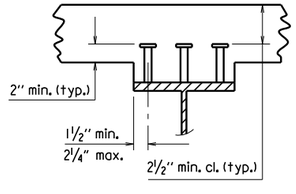

Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the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

## SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



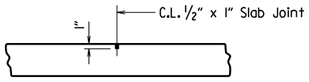

2 STUDS PER ROW




3 STUDS PER ROW

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

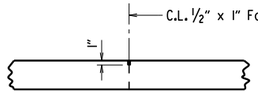
## SHEAR CONNECTOR DETAIL




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

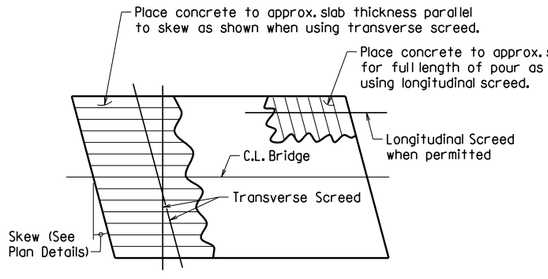
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

## TRANSVERSE SLAB JOINT DETAIL



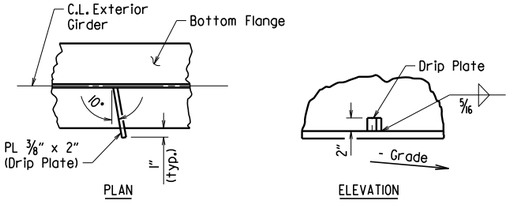

Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

## LONGITUDINAL CONSTRUCTION JOINT




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

## CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW




PLAN

ELEVATION

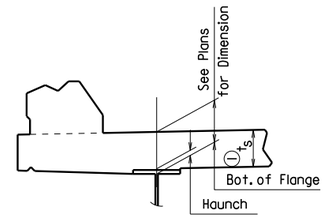
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

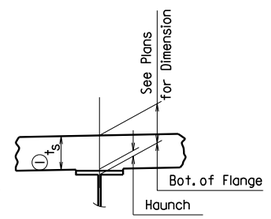
## BOTTOM FLANGE DRIP PLATE

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

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




EXTERIOR BEAM OR GIRDER




INTERIOR BEAM OR GIRDER

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

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

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

## ADJUSTMENT FOR SLAB THICKNESS TOLERANCE




NOTE: Working Point matches Theoretical Roadway Grade.

## ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

## WELD TABLE

| Material Thickness of Thicker Part Joined ( Inches ) | Minimum Size of Fillet Weld ( Inches ) | Single Pass Weld Must Be Used |
|---|---|---|
| To ¾" Inclusive | ¼" | |
| Over ¾" | ⅝" | |

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

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

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

# STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

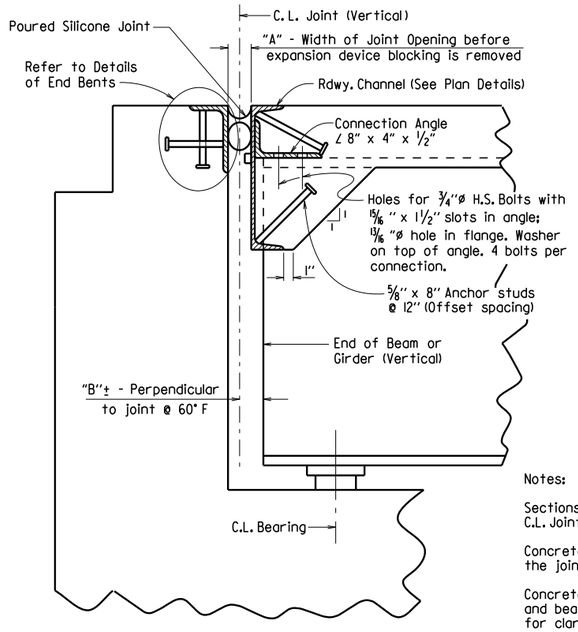
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CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

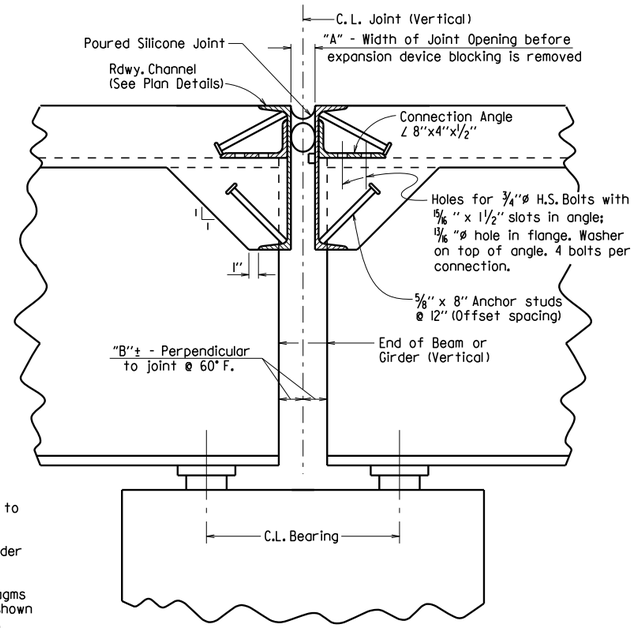
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |
| | | | | ① | POURED SILICONE JOINT | | | 55008 |




## SECTION THRU JOINT AT END BENT



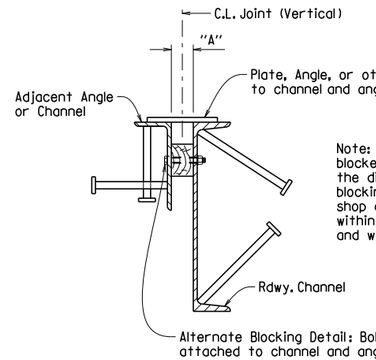

## SECTION THRU JOINT AT INTERMEDIATE BENT

Notes:

Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.




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

## DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

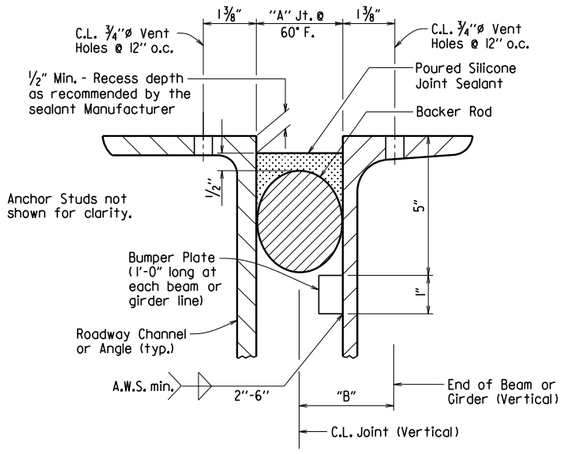
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior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

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

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

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

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



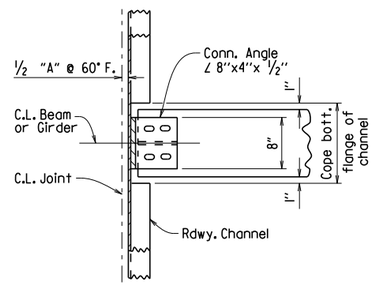

## DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

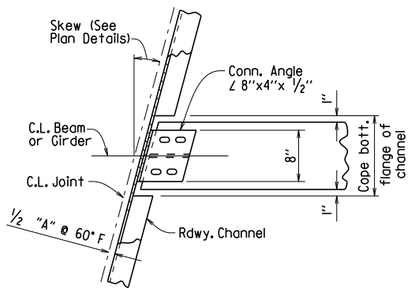
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



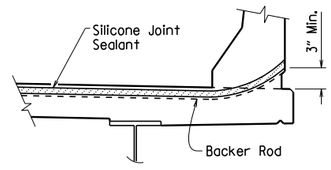

## CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

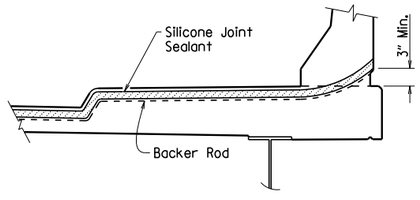



## CHANNEL CONNECTION DETAIL

BENTS WITH SKEW




## JOINT SEAL PLACEMENT AT RAIL




## JOINT SEAL PLACEMENT AT SIDEWALK

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. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

# STANDARD DETAILS FOR POURED SILICONE JOINTS

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 12-1-14 | | 1-15-19 | | 6 | ARK. | | | |
| 1-14-15 | | 3-24-2020 | | JOB NO. | | | | |
| 1-17-17 | | 5-11-2021 | | | | | | |

1 TYPE D NAME PLATE - 55010

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

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

21½"

LINE 1
LINE 2
LINE 3

ARKANSAS HIGHWAY COMMISSION
ROBERT S. MOORE, JR. - CHAIR
DALTON A. "ALEC" FARMER, JR. - VICE CHAIR
PHILIP TALDO
KEITH GIBSON
MARIE HOLDER
DIRECTOR - LORIE H. TUDOR
DEPUTY DIRECTOR/CHIEF OPERATING OFFICER - RANDY ORT
DEPUTY DIRECTOR/CHIEF ENGINEER - REX VINES

CONTRACTOR
COMPANY NAME
YEAR

XXXXX

2½" Center of Cast Lug 2½" 2½"

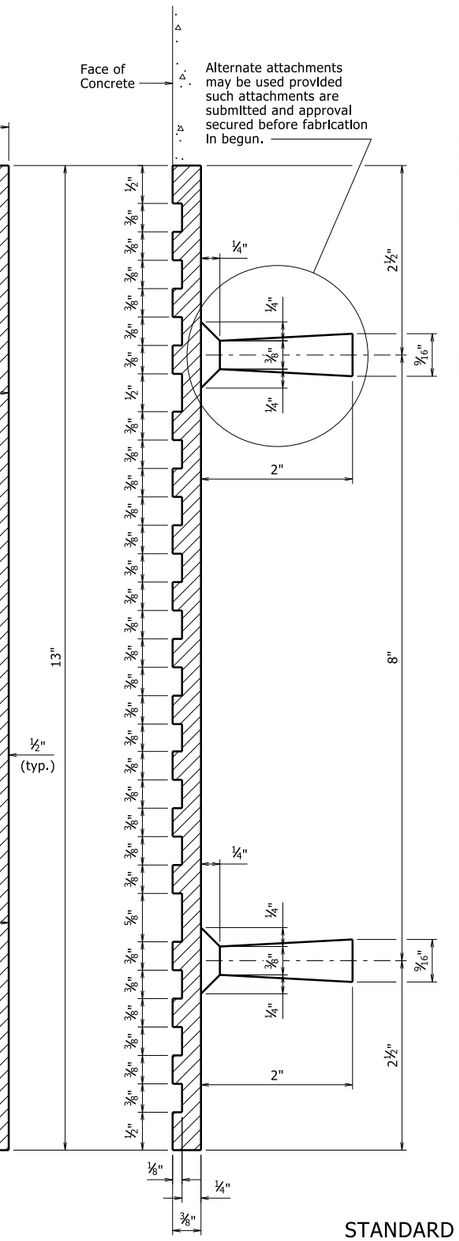
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20 HL-93

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

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

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

TYPICAL BRIDGE NAME PLATE




GENERAL NOTES

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

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

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

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

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

6 Revised Deputy Director/ Chief Engineer
5-11-2021 CGP Checked By: CRE

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

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

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

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

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

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

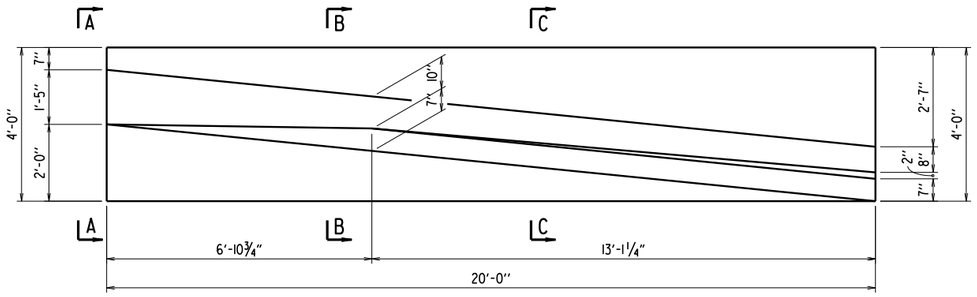
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

PRINT DATE: 5/11/2021

| 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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| | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |
| | | | | ① | TRANSITIONAL RAIL | | 55013 | |




## PLAN OF TRANSITIONAL APPROACH RAILING

(RAILINGS ON EACH SIDE OF ROADWAY ARE OPPOSITE HAND TO EACH OTHER)
½" = 1'-0"

GENERAL NOTES

Transitional Approach Railing shall be placed at locations shown in the plans.

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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

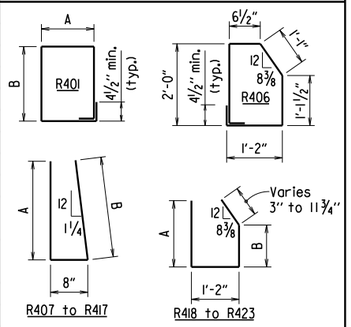
Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and the surface finish type and areas of application shall match that used on the adjacent bridge railing or concrete barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating Finish or Subsections 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Payment for surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Transitional Approach Railing".

When alternate surface and/or architectural finishes are specified in the plans, no direct payment will be made, and the alternate finish shall be considered incidental to the unit price bid for "Transitional Approach Railing". See plan details for additional information when architectural finishes are specified.

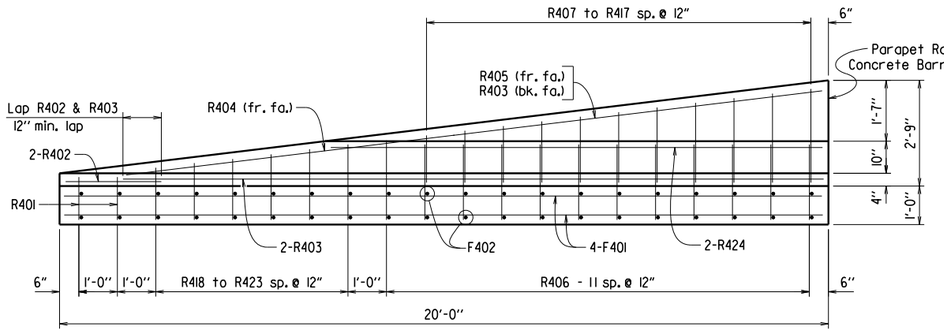
Transitional Approach Railing shall be paid for at the contract unit price bid for "Transitional Approach Railing". See Section 806 for additional information.

## BAR LIST - ONE TRANSITIONAL RAIL

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




Dimensions are out to out of bars.



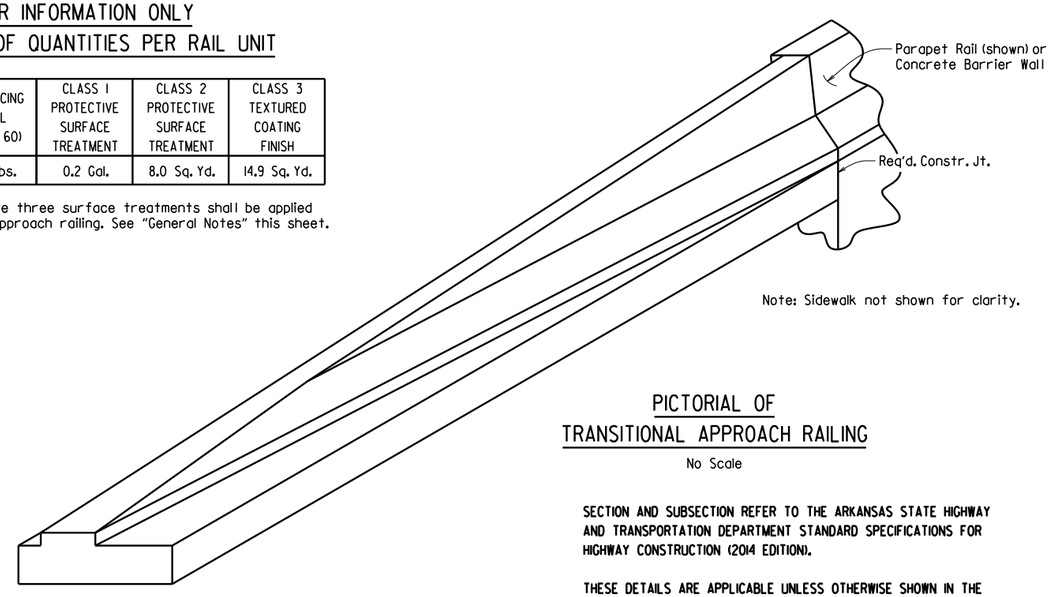

## ELEVATION OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"

## FOR INFORMATION ONLY
## SCHEDULE OF QUANTITIES PER RAIL UNIT

| CLASS "S" CONCRETE | REINFORCING STEEL (GRADE 60) | CLASS 1 PROTECTIVE SURFACE TREATMENT | CLASS 2 PROTECTIVE SURFACE TREATMENT | CLASS 3 TEXTURED COATING FINISH |
|---|---|---|---|---|
| 4.20 Cu. Yds. | 376 Lbs. | 0.2 Gal. | 8.0 Sq. Yd. | 14.9 Sq. Yd. |

Only one of the above three surface treatments shall be applied to the transitional approach railing. See "General Notes" this sheet.

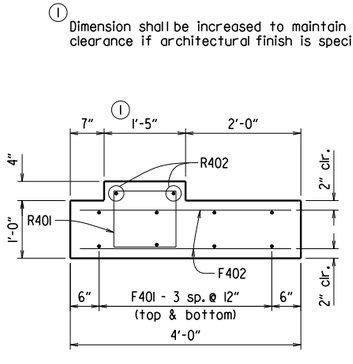



Note: Sidewalk not shown for clarity.

## PICTORIAL OF TRANSITIONAL APPROACH RAILING

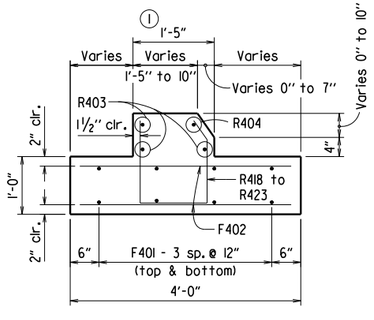
No Scale

① Dimension shall be increased to maintain 1½" clearance if architectural finish is specified.



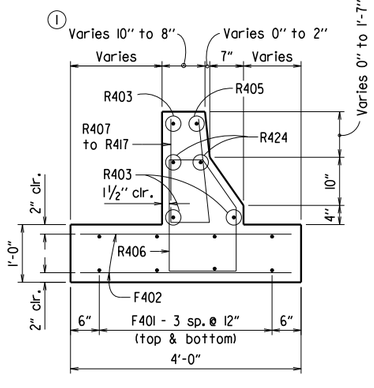

## VIEW A-A

¾" = 1'-0"




## SECTION B-B

¾" = 1'-0"




## SECTION C-C

¾" = 1'-0"

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 TRANSITIONAL APPROACH RAILING

## ARKANSAS STATE HIGHWAY COMMISSION

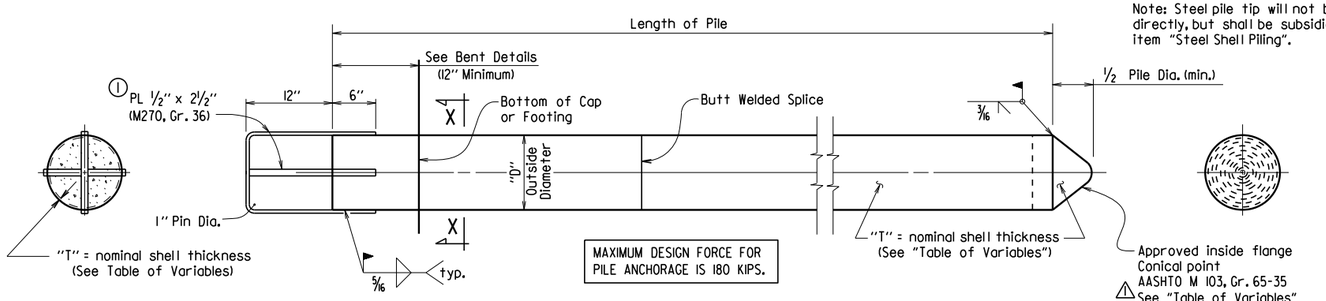
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55013.dgn
CHECKED BY: AMS DATE: 2/11/2016 SCALE: As Noted
DESIGNED BY: STD. DATE: —

DRAWING NO. 55013

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 3/24/16 | | | | 6 | ARK. | | | |
| | | | | JOB NO. | | | | |

(1) STEEL SHELL PILES 55021

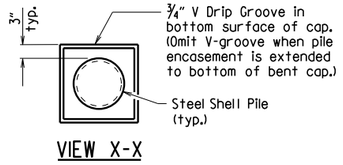



Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

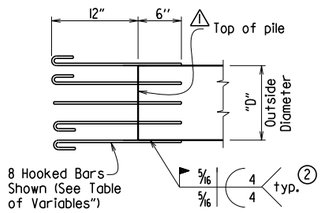
## CONCRETE FILLED STEEL SHELL PILE

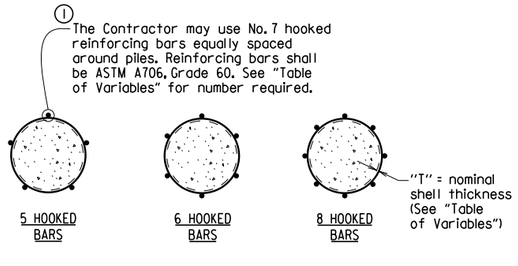
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(2) Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



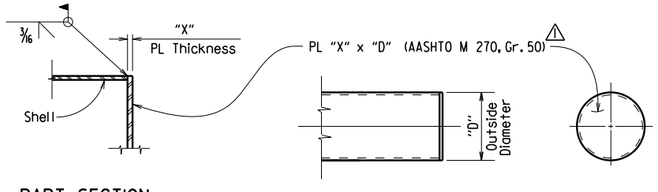

## VIEW X-X




## ALTERNATE PILE ANCHORAGE DETAIL

Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.

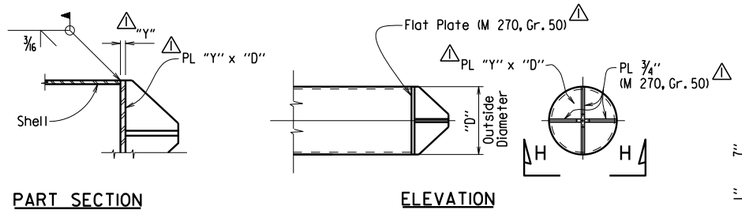



PART SECTION

ELEVATION

## ALTERNATE FLAT TIP DETAIL

Note: The alternate flat tip detail shall not be used on steel shell piling to be driven through embankments constructed with internal geosynthetic reinforcement.

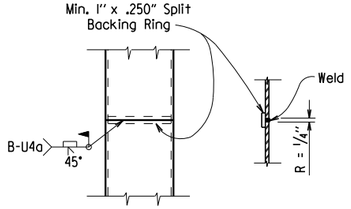



PART SECTION

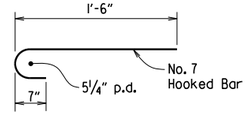
ELEVATION

VIEW H-H

## ALTERNATE VANED TIP DETAIL




## TYPICAL SPLICE DETAILS




## HOOKED BAR DETAIL

## TABLE OF VARIABLES

| OUTSIDE DIAMETER "D" | NOMINAL SHELL THICKNESS "T" | (1) PLATE THICKNESS "X" | (1) PLATE THICKNESS "Y" | NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE | (1) MINIMUM CONICAL TIP DESIGN LOAD (KIPS) |
|---|---|---|---|---|---|
| 14" | 0.50" | 2¼" | 1½" | 5 | 859 |
| 16" | 0.50" | 2¼" | 1½" | 5 | 986 |
| 18" | 0.50" | 2½" | 1½" | 6 | 1,114 |
| 20" | 0.50" | 2½" | 1¾" | 6 | 1,241 |
| 24" | 0.50" | 2¾" | 1¾" | 8 | 1,495 |

(1) Revised and added various details by KWY, Ck'd. by BEF, 3/24/16.

## GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Subsection 805.02.

See Bridge Layout for size and estimated length of steel shell piles and for driving information.

Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

## GENERAL NOTES FOR PILE ENCASEMENTS:

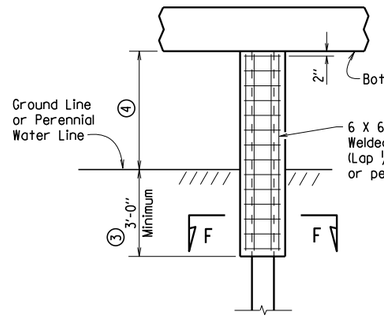
(1) See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

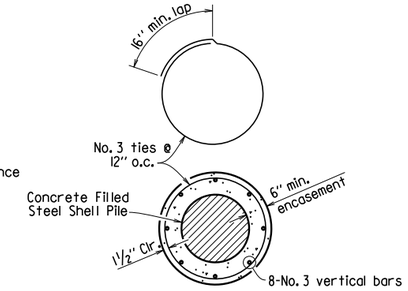
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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.

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".




SECTION F-F (REINF. ALTERNATE)

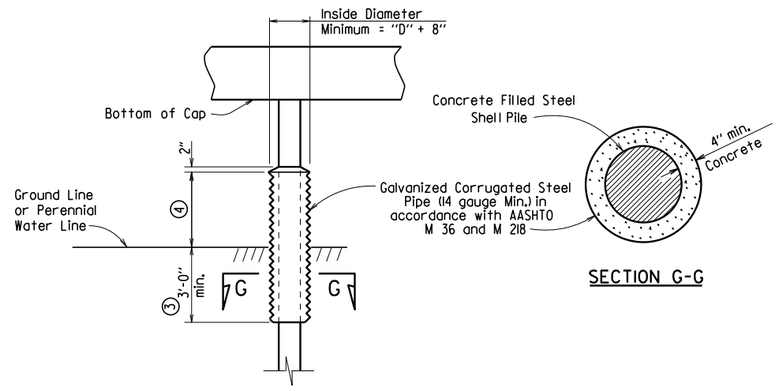
## PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(5) (Shown with Encasement to Bottom of Cap)

(3) Unless otherwise noted on Bridge Layout.

(4) See Bridge Layout for height of pile encasement (3'-0" Minimum).

(5) Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.




SECTION G-G

## ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

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

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

BRIDGE ENGINEER

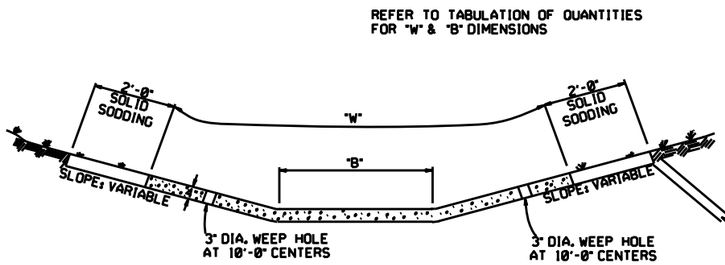
# STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

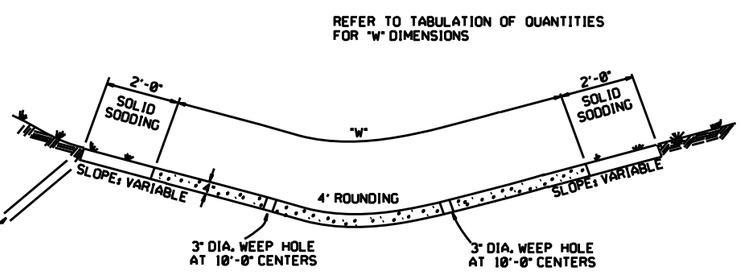
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55021.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55021




TYPE A

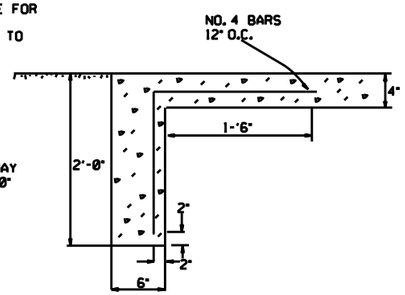
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



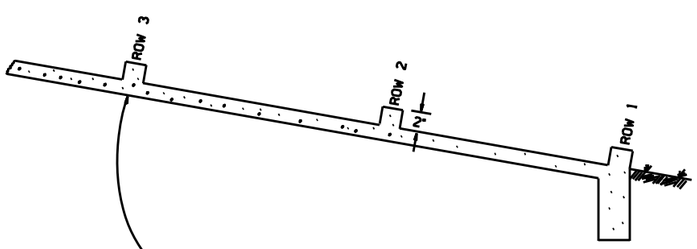

TYPE B

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

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

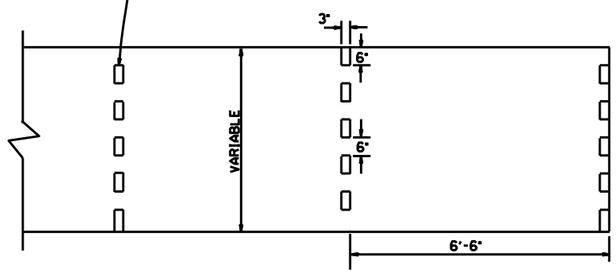



TOE WALL DETAIL FOR CONCRETE DITCH PAVING




NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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




ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

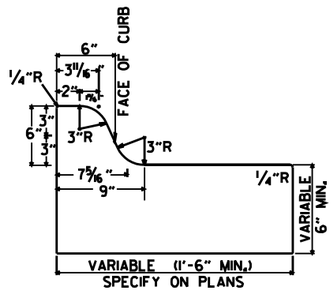
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

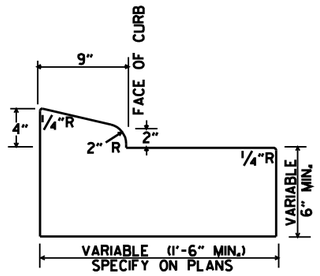
ARKANSAS STATE HIGHWAY COMMISSION

# CONCRETE DITCH PAVING

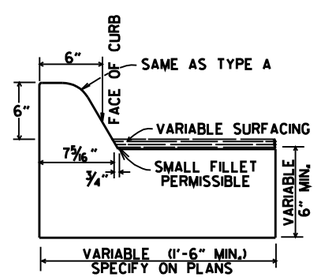
STANDARD DRAWING CDP-1



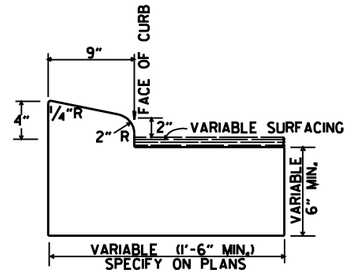

TYPE A



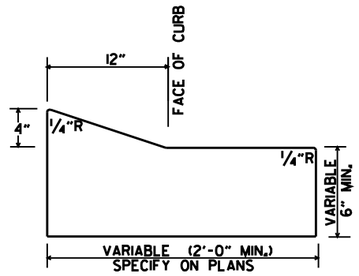

TYPE B-1



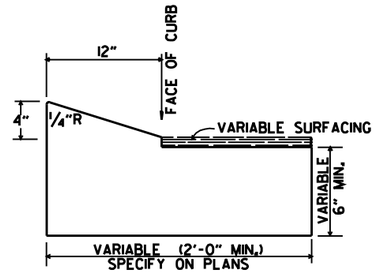

TYPE C




TYPE B-2

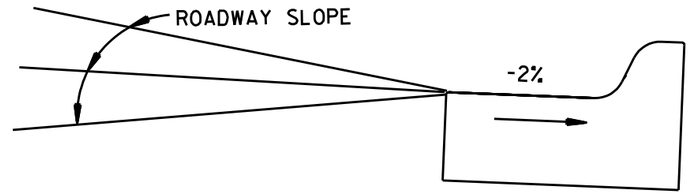



TYPE E-1



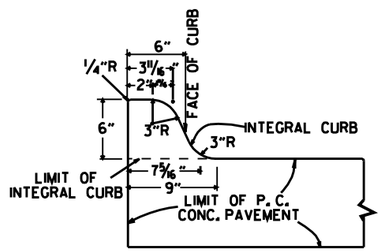

TYPE E-2

# CONCRETE COMBINATION CURB AND GUTTER

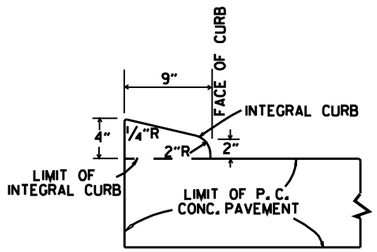



## DETAIL OF GUTTER SLOPE

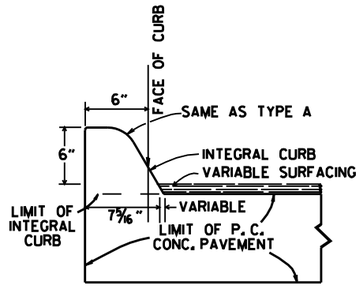
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.




TYPE A

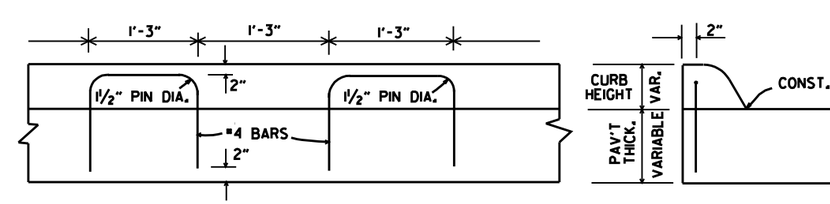



TYPE B

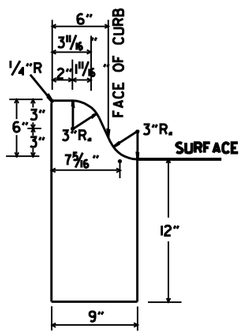



TYPE C

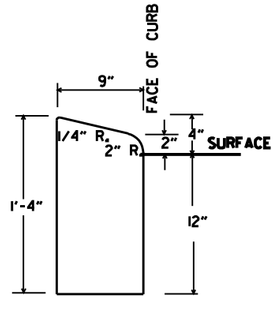
## INTEGRAL CURB



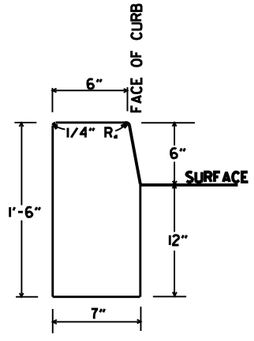

## ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



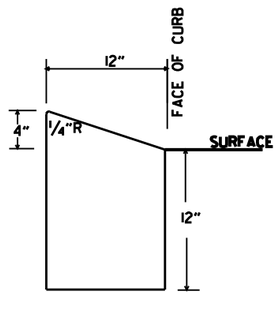

TYPE A




TYPE B

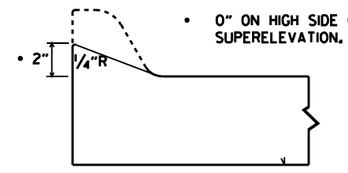



TYPE D




TYPE E

## CONCRETE CURB




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

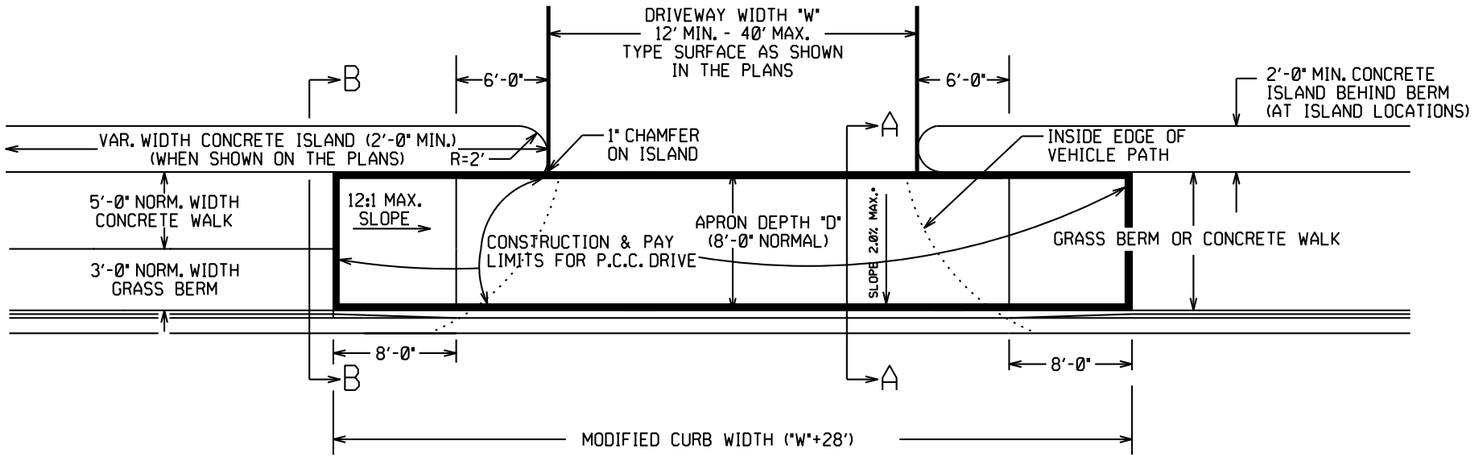
## DETAILS OF MODIFIED CURB

| DATE | REVISION | DATE FILMED |
|---|---|---|
| 11-29-07 | REVISED GUTTER SLOPE & MODIFIED CURB DETAILS | |
| 11-10-05 | ADDED DETAILS OF TYPE E CURBS | |
| 11-16-01 | REVISED CONCRETE CURB TYPE B | |
| 11-18-98 | REVISED MODIFIED CURB | |
| 6-2-94 | ADDED NOTE TO SPECIAL MODIFIED CURB | |
| 8-5-93 | CORRECTED GUTTER SLOPE | 8-5-93 |
| 10-1-92 | ADDED DETAILS OF GUTTER SLOPE | 10-1-92 |
| 5-24-90 | ADDED DETAILS OF MODIFIED CURB | 5-24-90 |
| 11-30-89 | VARIBLE DEPTH TYPE A & B I | 11-30-89 |
| 7-15-88 | REVISED MODIFIED CURB | 630-7-15-88 |
| 11-1-73 | REVISED MODIFIED CURB | 500-11-1-73 |
| 10-2-72 | REVISED AND REDRAWN | 52-10-2-72 |

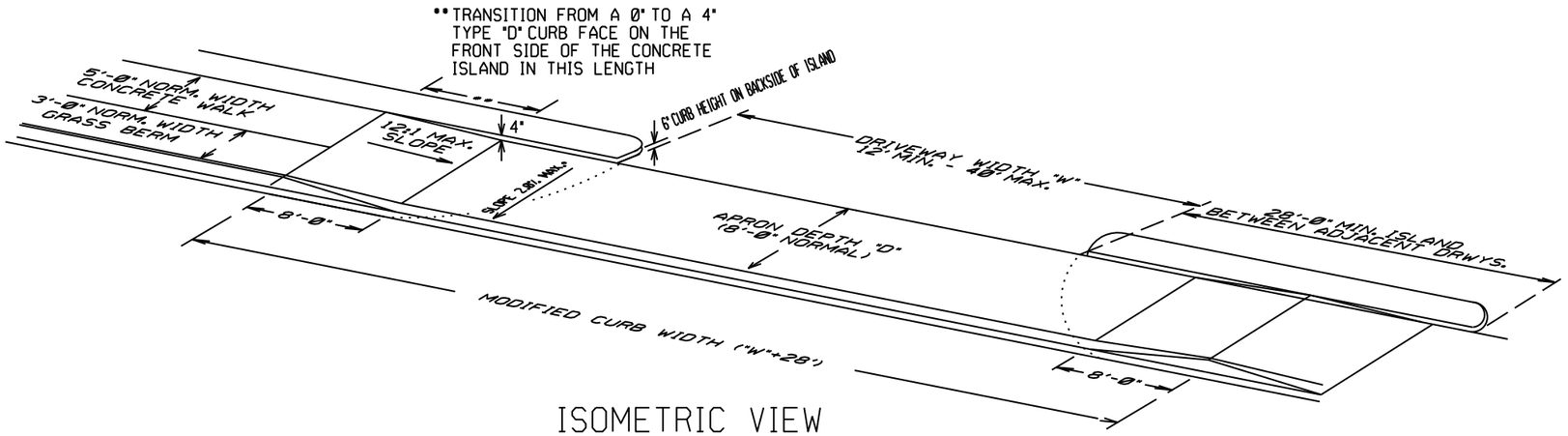
ARKANSAS STATE HIGHWAY COMMISSION

# CURBING DETAILS

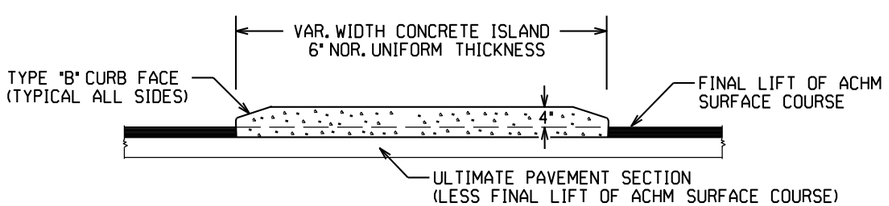
STANDARD DRAWING CG-1




PLAN VIEW




ISOMETRIC VIEW

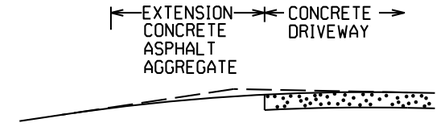



CURBED ISLANDS FOR CHANNELIZATION

CONCRETE ISLAND NOTES:

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

2. TRANSVERSE EXPANSION JOINTS, NOT LESS THAN 1/2" WIDE, SHALL BE PLACED AT MINIMUM INTERVAL OF 45'. TRANSVERSE JOINT SHALL BE CONSTRUCTED USING A JOINT FILLER COMPLYING WITH AASHTO M213.




EXTENSION TYPICAL SECTIONS

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

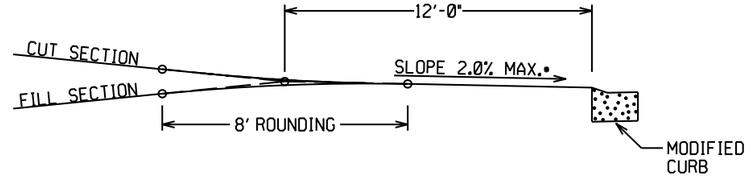
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

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

4: AGGREGATE - 6" AGGREGATE BASE COURSE

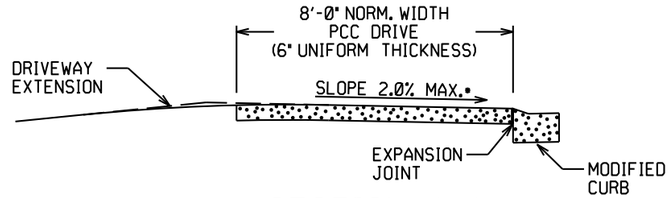
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

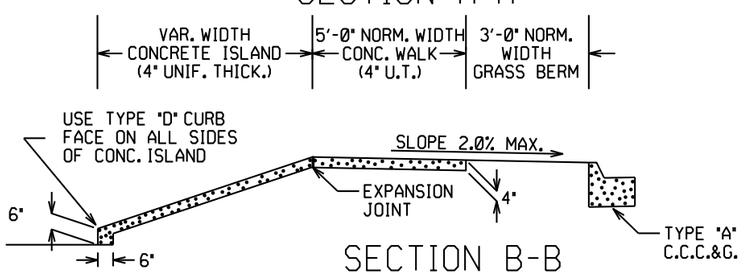



DRIVEWAY VERTICAL ALIGNMENT DETAILS

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




SECTION A-A




SECTION B-B

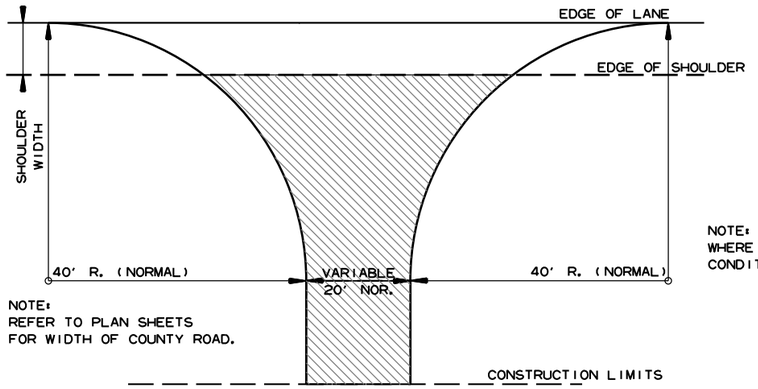
CURBED ISLAND BEHIND WALK

| DATE REV | DATE FILMED | DESCRIPTION |
|---|---|---|
| 5-19-22 | | REVISED ISLAND NOTES |
| 11-07-19 | | REVISED WALK DETAILS |
| 2-27-14 | | REVISED PLAN & ISOMETRIC VIEW |
| 11-29-07 | | ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL |
| 11-10-05 | | REV. APRON SLOPE & DEPTH OF AGG. BASE. |
| 8-22-02 | | ADDED ISLAND DETAILS & NOTES |
| 3-30-00 | | REV. MOD. CURB WIDTH & TRANS. NOTE |
| 11-19-98 | | REVISED NOTES |
| 11-18-98 | | REDRAWN AND REISSUED |

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DETAILS OF DRIVEWAYS & ISLANDS

STANDARD DRAWING DR-1

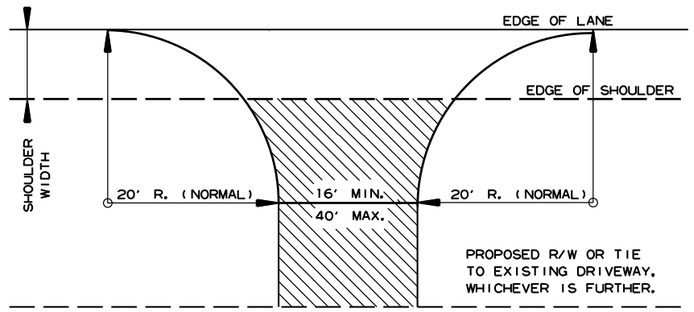



NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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.

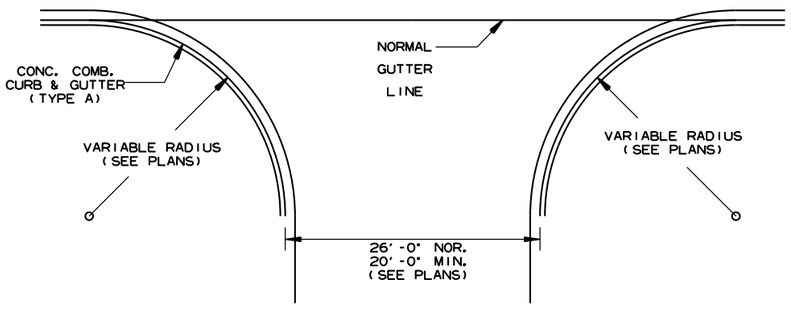
## DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION




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

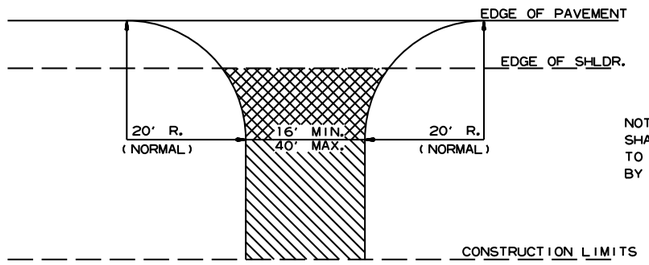
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

## DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)




NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS,
& COUNTY ROADS TO BE SAME AS MAIN LANES.

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




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

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

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

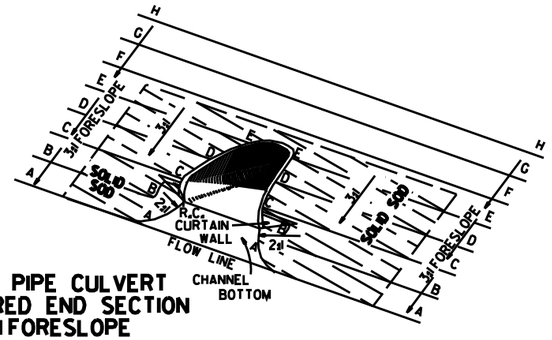
## DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

| DATE REV | DATE FILMED | DESCRIPTION |
|---|---|---|
| 5-19-22 | | ISSUED |

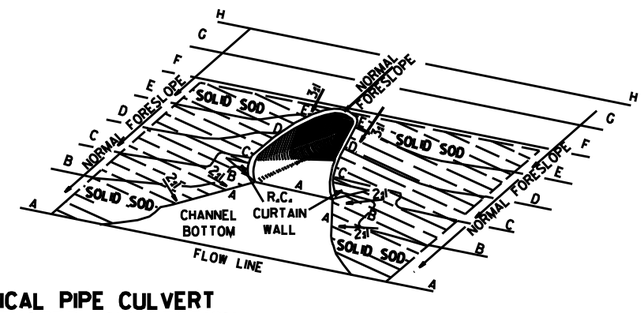
ARKANSAS STATE HIGHWAY COMMISSION

# DETAILS OF DRIVEWAYS & STREET TURNOUTS

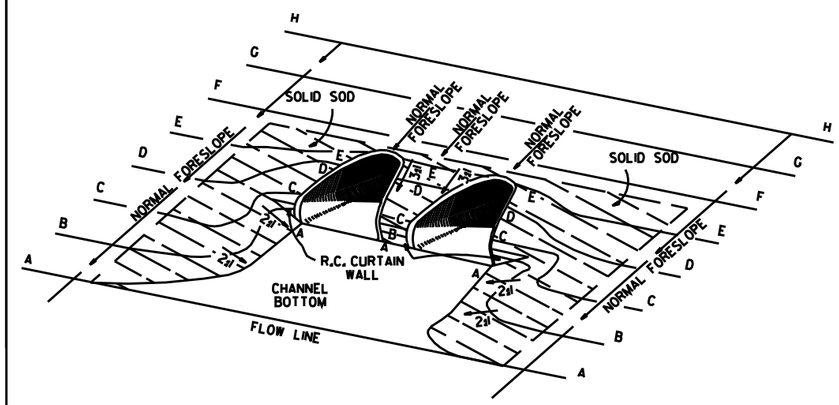
STANDARD DRAWING DR-2



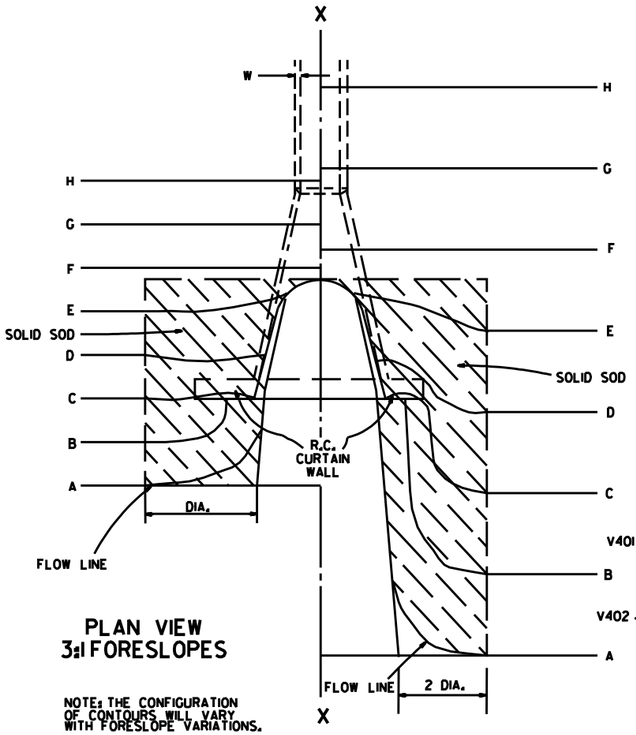

TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE




TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES




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




PLAN VIEW
3:1 FORESLOPES

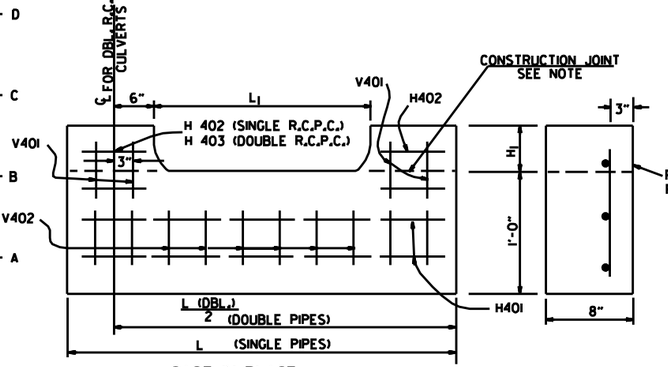
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

## R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

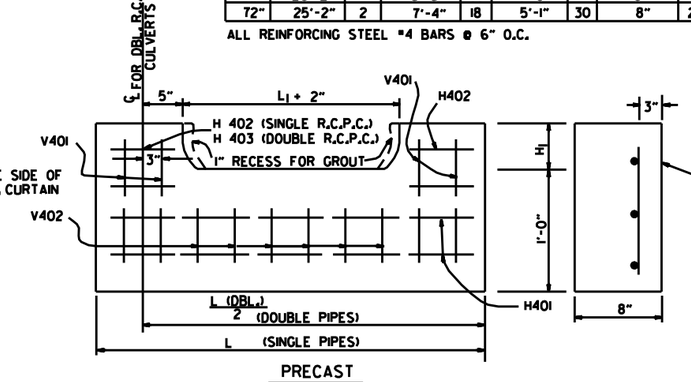
| PIPE DIA. | $H_1$ | $L_1$ | L | L (DBL.)/2 | SINGLE R.C.P.C. CONC. CU. YDS. | SINGLE R.C.P.C. REINF. STEEL LBS. | DOUBLE R.C.P.C. CONC. CU. YDS. | DOUBLE R.C.P.C. REINF. STEEL LBS. |
|---|---|---|---|---|---|---|---|---|
| 18" | 11½" | 3'-5" | 8'-0" | 6'-3" | 0.31 | 27.7 | 0.45 | 39.5 |
| 24" | 1'-0½"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

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




CAST-IN-PLACE

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




PRECAST

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

## R.C. CURTAIN WALL DETAILS

## REINFORCING STEEL SCHEDULE

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

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

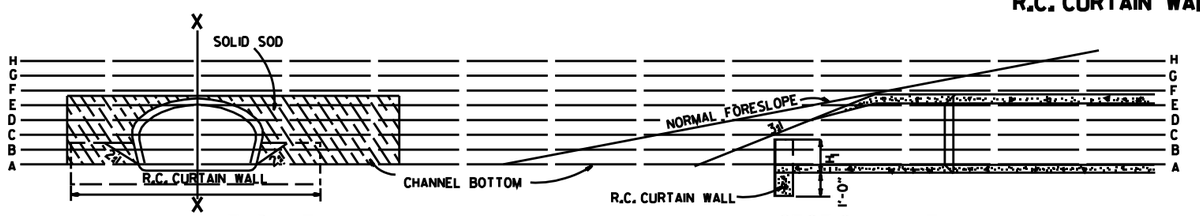
## SOLID SODDING

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

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

### GENERAL NOTES

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




END VIEW

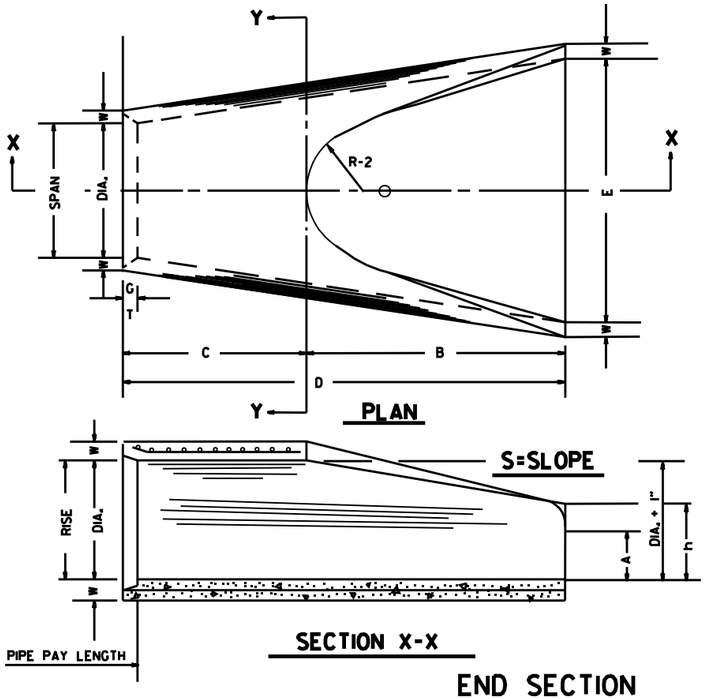
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

# FLARED END SECTION

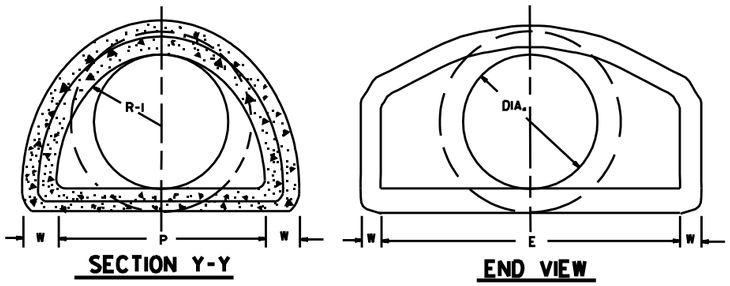
STANDARD DRAWING FES-1




## END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

## TABLE OF DIMENSIONS

| DIA. | WALL | A | B | C | D | E | S | DIA. + 1" | P | R-1 | R-2 | G-T | WT. | h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18" | 2½" | 9" | 2'-3" | 3'-10" | 6'-1" | 3'-0" | 3st | 19" | 29" | 15½" | 12" | 2" | 1000 | 1'-0½" |
| 24" | 3" | 9½" | 3'-7½" | 2'-6" | 6'-1½" | 4'-0" | 3st | 25" | 33⅜" | 16⅛" | 14" | 2½" | 1600 | 1'-1½" |
| 30" | 3½" | 1'-0" | 4'-6" | 1'-7¾" | 6'-1¾" | 5'-0" | 3st | 31" | 37" | 18½" | 15" | 3¼" | 1940 | 1'-4⅝" |
| 36" | 4" | 1'-3" | 5'-3" | 2'-10¾" | 8'-1¾" | 6'-0" | 3st | 37" | 47⅛" | 24⅝" | 20" | 3½" | 4100 | 1'-8" |
| 42" | 4½" | 1'-9" | 5'-3" | 2'-11" | 8'-2" | 6'-6" | 3st | 43" | 53⅞" | 27½" | 22" | 3½" | 5380 | 2'-2½" |
| 48" | 5" | 2'-0" | 6'-0" | 2'-2" | 8'-2" | 7'-0" | 3st | 49" | 56½" | 28½" | 22" | 3½" | 6550 | 2'-6" |
| 54" | 5½" | 2'-4" | 6'-6" | 1'-10" | 8'-4" | 7'-6" | 3st | 55" | 65½" | 33⅛" | 24" | 4" | 8750 | 2'-10½" |
| 60" | 6" | 2'-10" | 6'-6" | 1'-10" | 8'-4" | 8'-0" | 3st | 61" | 72½" | 36⅛" | 24" | 4" | 9270 | 3'-5" |
| 72" | 7" | 3'-10" | 6'-6" | 1'-10" | 8'-4" | 9'-0" | 3st | 73" | 77⅛" | 38⅝" | 24" | 5" | 13250 | 4'-6" |

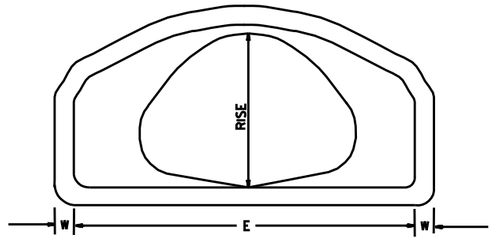



NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

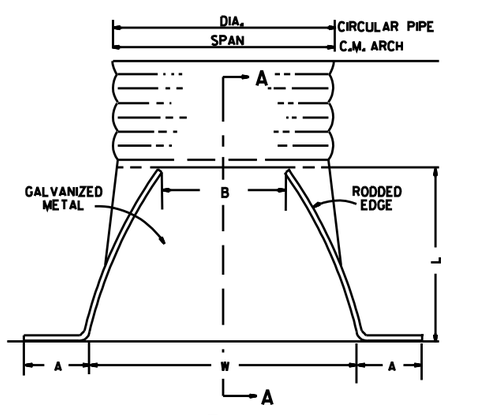
## ARCH PIPE

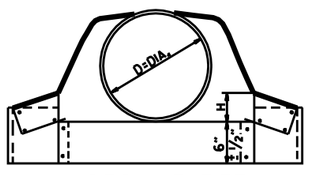
| EQUIV. DIA. | • SPAN AASHTO M 206 | • SPAN AHD NOMINAL | • RISE AASHTO M 206 | • RISE AHD NOMINAL | W | A | B | C | D | E | P | R2 | G-T | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INCHES | | | | | | | | | | | | | |
| 15 | 18 | 18 | 11 | 11 | 2" | 4" | 2'-0" | 4'-0" | 6'-0" | 3'-0" | 29" | 12" | 1½" | 2½st |
| 18 | 22 | 22 | 13½ | 14 | 2½" | 5" | 2'-0" | 4'-1" | 6'-1" | 3'-6" | 32⅛" | 13" | 2½" | 2½st |
| 21 | 26 | 26 | 15½ | 16 | 2¾" | 7" | 2'-3" | 3'-10" | 6'-1" | 4'-0" | 34⅛" | 14" | 2½" | 2½st |
| 24 | 28½ | 29 | 18 | 18 | 3" | 9" | 2'-3" | 3'-10" | 6'-1" | 5'-0" | 36⅛" | 15" | 2½" | 2½st |
| 30 | 36¼ | 36 | 22½ | 23 | 3½" | 10" | 3'-1" | 3'-0½" | 6'-1½" | 6'-0" | 47⅛" | 20" | 3" | 2½st |
| 36 | 43¾ | 44 | 26⅝ | 27 | 4" | 10½" | 4'-0" | 2'-1½" | 6'-1½" | 6'-6" | 54⅞" | 22" | 3½" | 2½st |
| 42 | 51⅛ | 51 | 31⅝ | 31 | 4½" | 11½" | 4'-7" | 1-10¼" | 6'-5¼" | 7'-2" | 59½" | 23" | 3¾" | 2½st |
| 48 | 58½ | 59 | 36 | 36 | 5" | 1'-3" | 5'-3" | 2'-10¾" | 8'-1¾" | 7'-10" | 70⅜" | 24" | 4¼" | 2½st |
| 54 | 65 | 65 | 40 | 40 | 5½" | 1'-7" | 5'-3" | 2'-11" | 8'-2" | 8'-6" | 72⅛" | 24" | 4¾" | 2¼st |
| 60 | 73 | 73 | 45 | 45 | 6" | 1'-10" | 5'-6" | 2'-8" | 8'-2" | 9'-0" | 77⅛" | 24" | 5" | 2¼st |

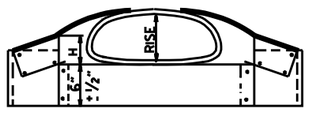
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.




END VIEW
CONCRETE ARCH PIPE




## CIRCULAR PIPE

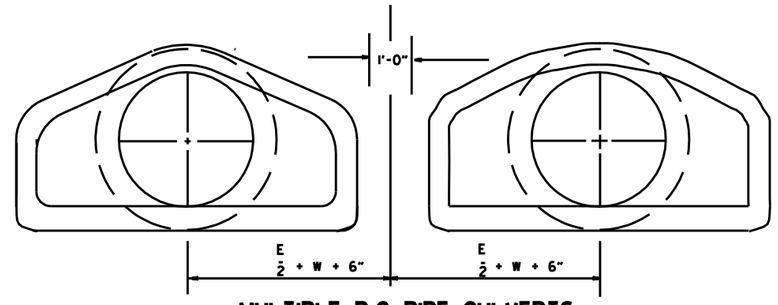
| D. DIA. | GAUGE | A 1" ± | B. MAX. | H 1" ± | L 1½" ± | W 2" ± | S |
|---|---|---|---|---|---|---|---|
| | | INCHES | | | | | |
| 12 | 16 | 6 | 6 | 6 | 21 | 24 | 2½st |
| 15 | 16 | 7 | 8 | 6 | 26 | 30 | 2½st |
| 18 | 16 | 8 | 10 | 6 | 31 | 36 | 2½st |
| 21 | 16 | 9 | 12 | 6 | 36 | 42 | 2½st |
| 24 | 16 | 10 | 13 | 6 | 41 | 48 | 2½st |
| 30 | 14 | 12 | 16 | 8 | 51 | 60 | 2½st |
| 36 | 14 | 14 | 19 | 9 | 60 | 72 | 2½st |
| 42 | 12 | 16 | 22 | 11 | 69 | 84 | 2½st |
| 48 | 12 | 18 | 27 | 12 | 78 | 90 | 2½st |
| 54 | 12 | 18 | 30 | 12 | 84 | 102 | 2st |
| 60 | 12 | 18 | 33 | 12 | 87 | 114 | 1½st |
| 66 | 12 | 18 | 36 | 12 | 87 | 120 | 1½st |
| 72 | 12 | 18 | 39 | 12 | 87 | 126 | 1 1/3st |

## C.M. ARCH PIPE

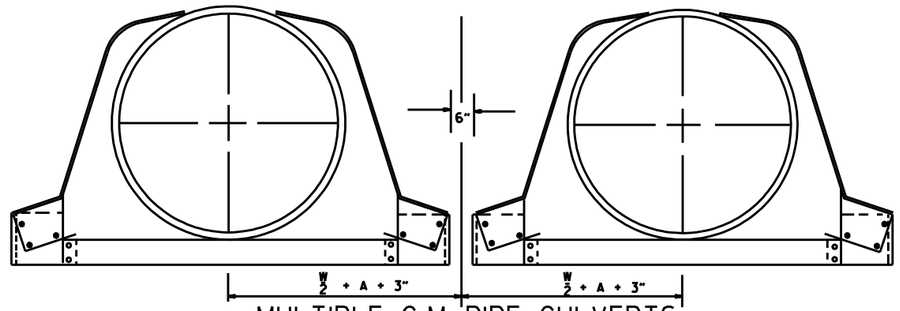
| EQUIV. DIA. | SPAN | RISE | A 1" ± | B MAX. | H 1" ± | L 1½" ± | W 2" ± | S | GAUGE |
|---|---|---|---|---|---|---|---|---|---|
| | INCHES | | | | | | | | |
| 15" | 17 | 13 | 7 | 9 | 6 | 19 | 30 | 2½st | 16 |
| 18" | 21 | 15 | 7 | 10 | 6 | 23 | 36 | 2½st | 16 |
| 21" | 24 | 18 | 8 | 12 | 6 | 28 | 42 | 2½st | 16 |
| 24" | 28 | 20 | 9 | 14 | 6 | 32 | 48 | 2½st | 16 |
| 30" | 35 | 24 | 10 | 16 | 6 | 39 | 60 | 2½st | 14 |
| 36" | 42 | 29 | 12 | 18 | 8 | 46 | 75 | 2½st | 14 |
| 42" | 49 | 33 | 13 | 21 | 9 | 53 | 85 | 2½st | 12 |
| 48" | 57 | 38 | 18 | 26 | 12 | 63 | 90 | 2½st | 12 |
| 54" | 64 | 43 | 18 | 30 | 12 | 70 | 102 | 2½st | 12 |
| 60" | 71 | 47 | 18 | 33 | 12 | 77 | 114 | 2½st | 12 |

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

## END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS




MULTIPLE R.C. PIPE CULVERTS



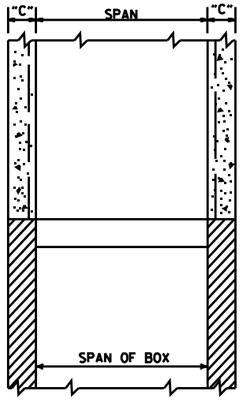

MULTIPLE C.M. PIPE CULVERTS

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

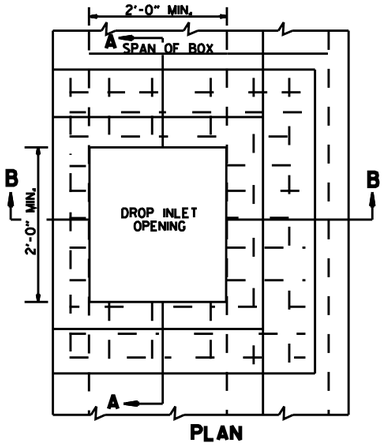
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

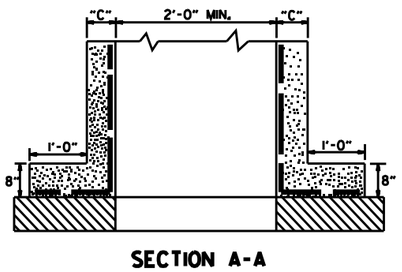
STANDARD DRAWING FES-2



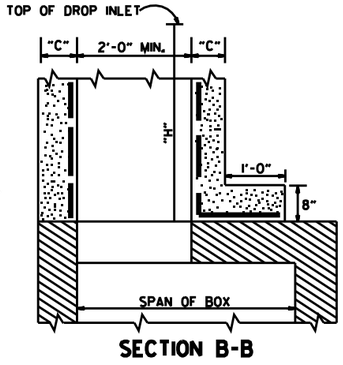

SECTION B-B




PLAN

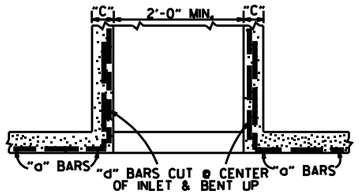



SECTION A-A

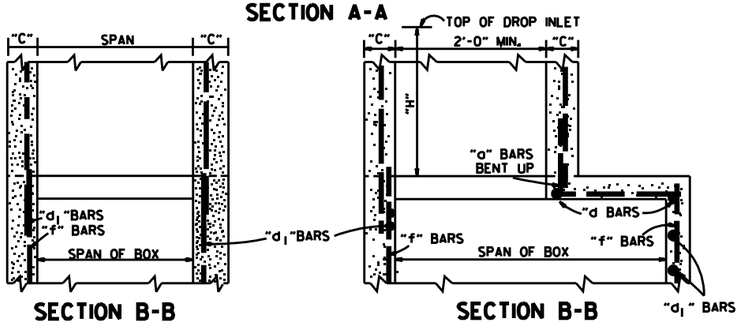



SECTION B-B

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



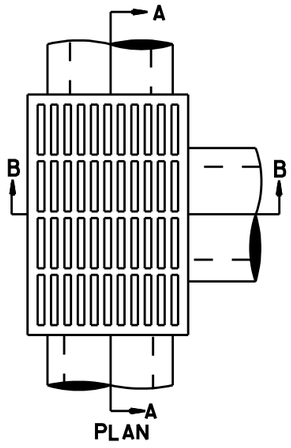

SECTION A-A



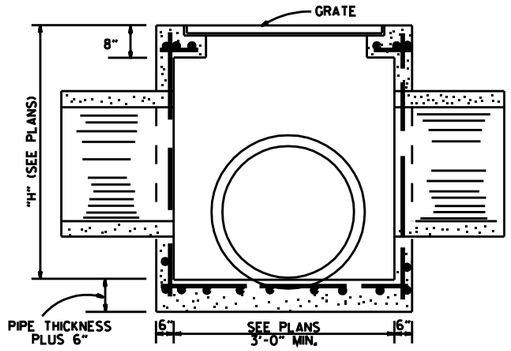

SECTION B-B SECTION B-B

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

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

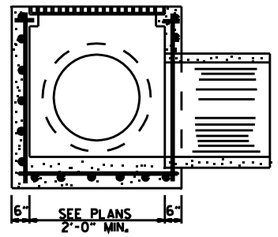



PLAN



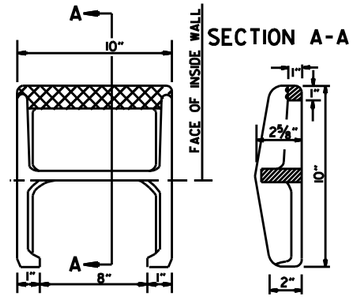

SECTION A-A

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




SECTION B-B

## DROP INLET (TYPE E)



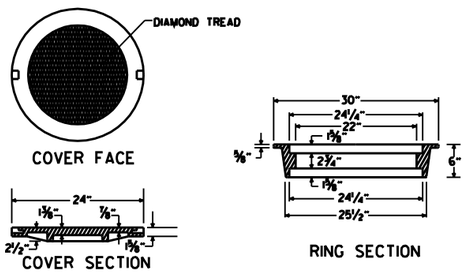

SECTION A-A

APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

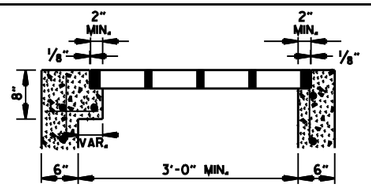
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

## DETAIL OF STEP FOR DROP INLET

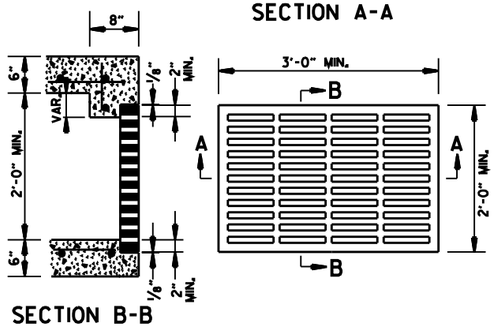



APPROXIMATE TOTAL WEIGHT = 333 LBS.

## HEAVY DUTY RING & COVER



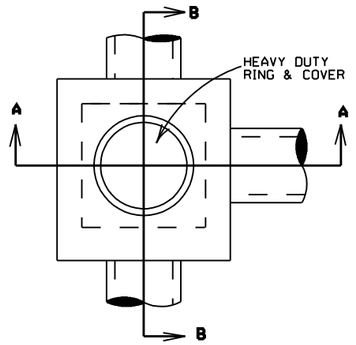

SECTION A-A



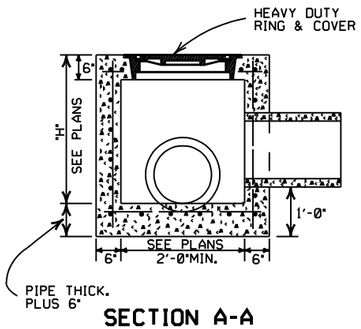

SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

## GRATE FOR TYPE E DROP INLET

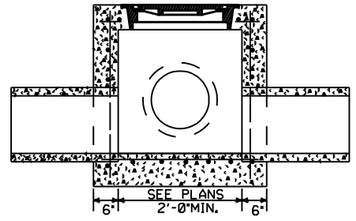



PLAN



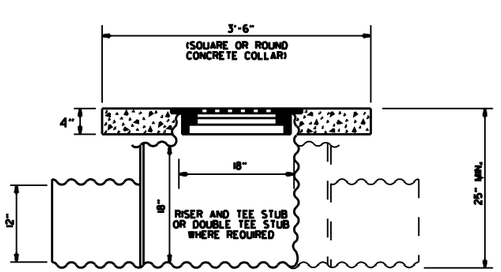

SECTION A-A

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

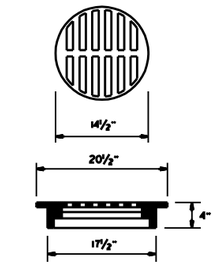



SECTION B-B

## JUNCTION BOX (TYPE E)




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




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

## DETAIL OF YARD DRAIN

GENERAL NOTES:

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

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

ARKANSAS STATE HIGHWAY COMMISSION

# DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

## 4'-0" LENGTH DROP INLET

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

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

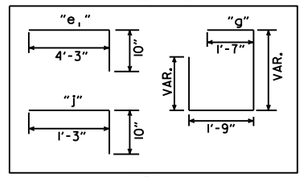
## DROP INLET EXTENSION

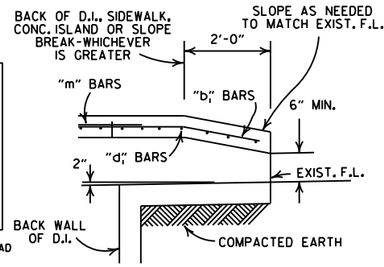
| 4'-0" CLASS A CONC. CU. YDS. | 4'-0" REINF. STEEL POUNDS | 8'-0" CLASS A CONC. CU. YDS. | 8'-0" REINF. STEEL POUNDS |
|---|---|---|---|
| 0.58 | 38 | 0.87 | 72 |
| | | | |
| | | | |
| DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED. | | | |
| 0.04 | 3 | | |
| | | | |

**DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET**

| INSIDE DIA. PIPE | CLASS A CONC. | REINF. STEEL |
|---|---|---|
| INCHES | CU. YDS. | POUNDS |
| 18 | 0.05 | 2 |
| 24 | 0.09 | 3 |
| 30 | 0.13 | 4 |
| 42 | 0.24 | 8 |

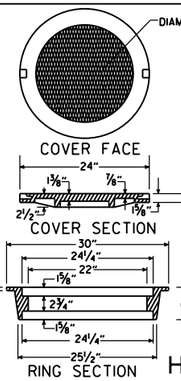
## BAR DIAMETER




## BACK OPENING

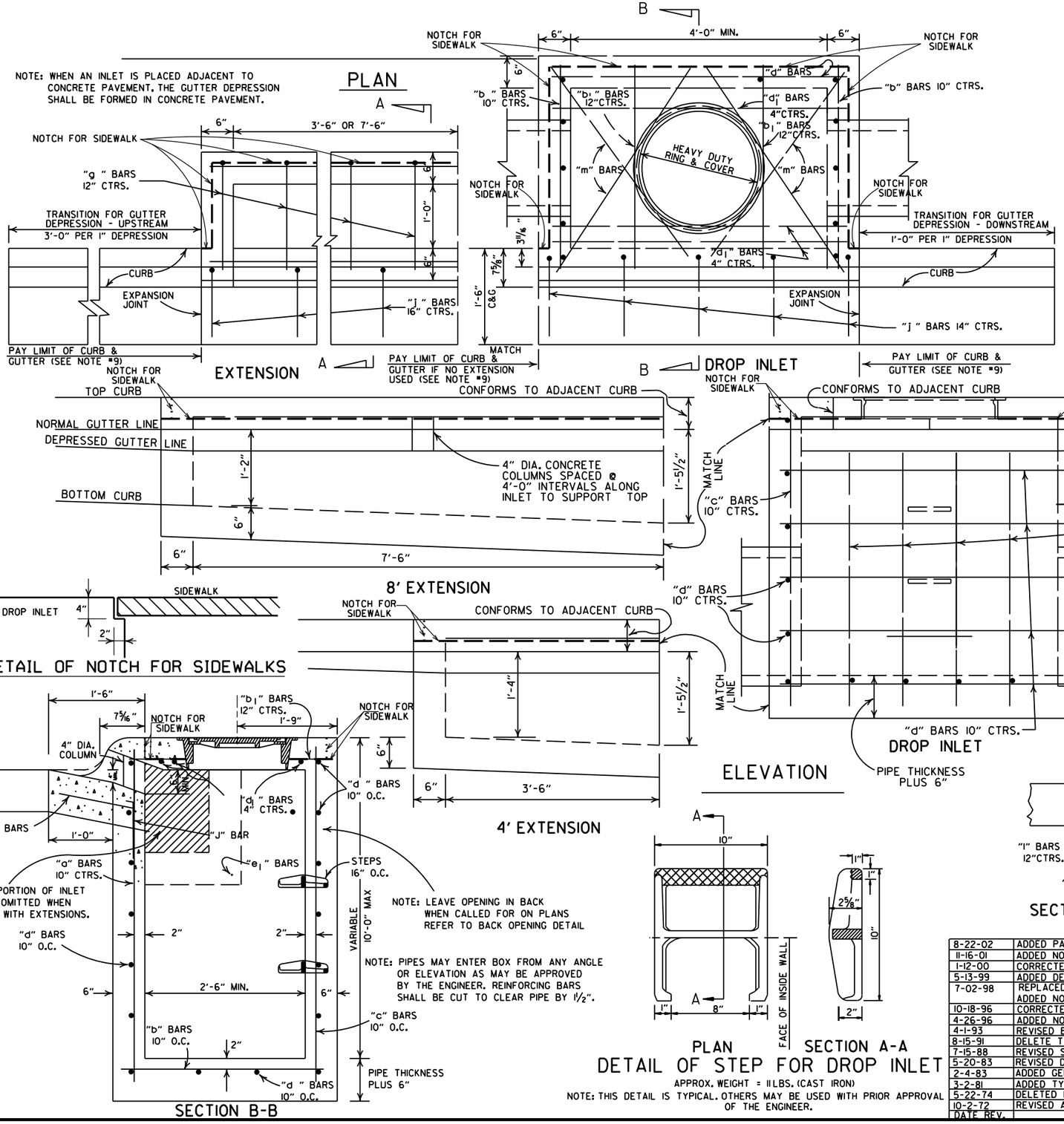
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).




APPROXIMATE TOTAL WEIGHT = 333 LBS.

## HEAVY DUTY RING & COVER

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (FPC-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"×2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



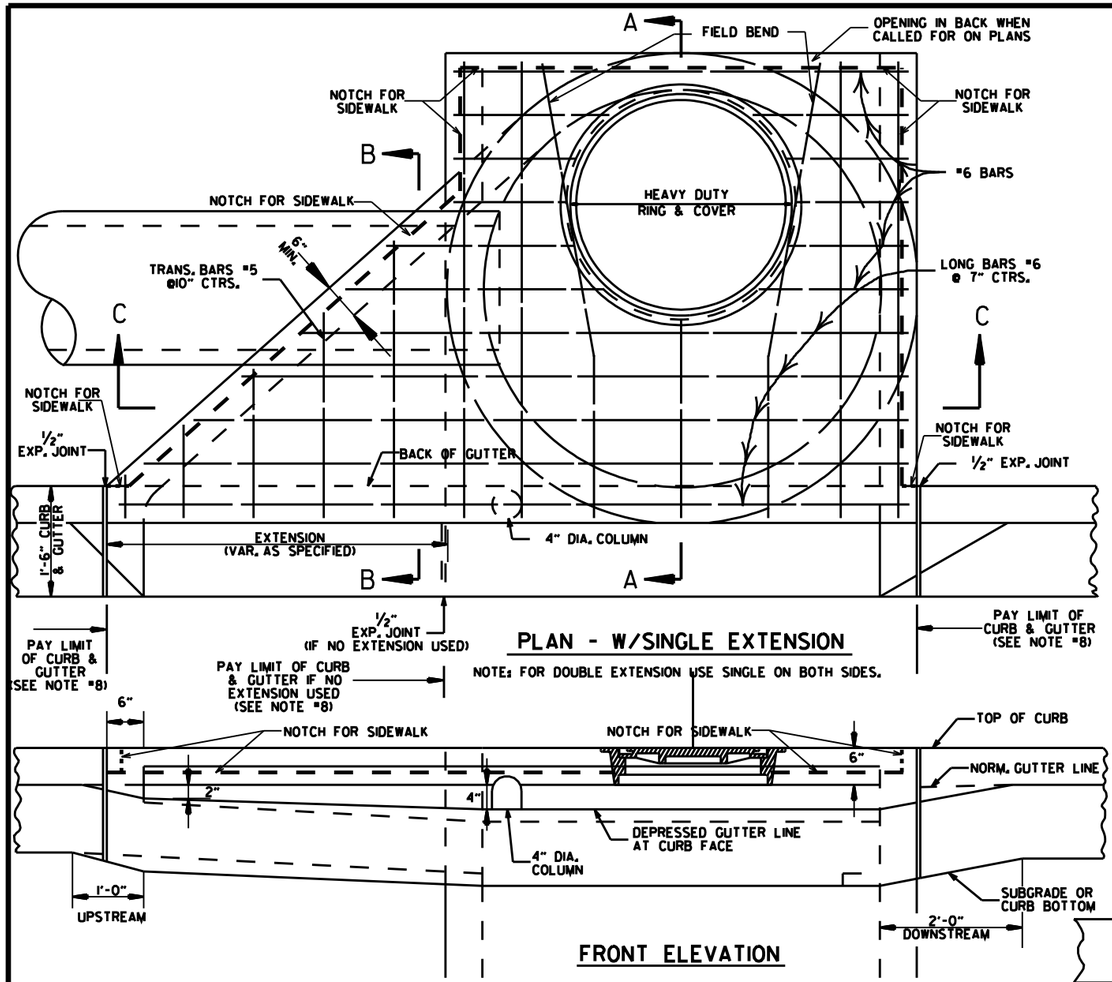

| DATE REV. | REVISION | DATE FILMED |
|---|---|---|
| 8-22-02 | ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B | |
| 11-16-01 | ADDED NOTE 13; REVISED SECTION B-B | |
| 1-12-00 | CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER | |
| 5-13-99 | ADDED DETAIL OF NOTCH FOR SIDEWALKS | |
| 7-02-98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

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# DETAILS OF DROP INLETS

# (TYPE C)

STANDARD DRAWING FPC-9E

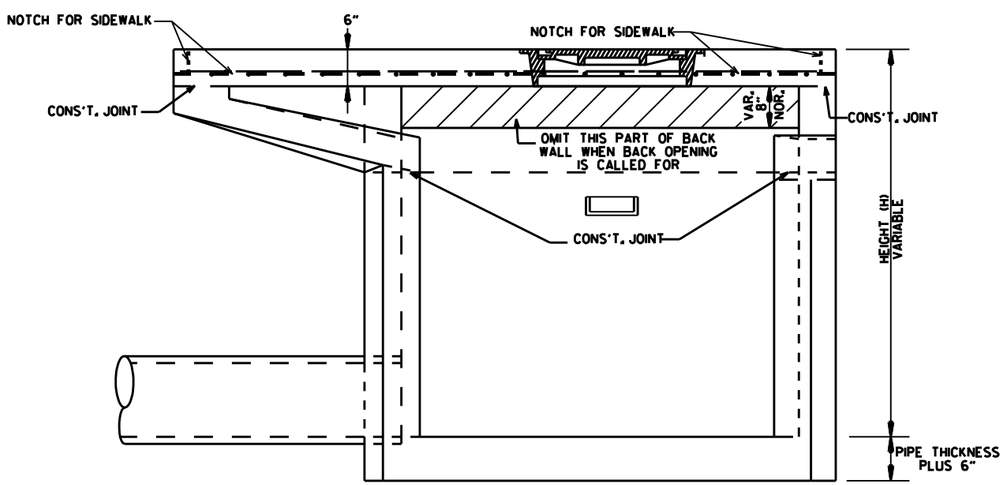



## PLAN - W/SINGLE EXTENSION

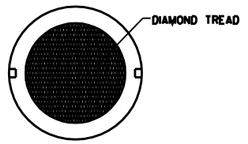
NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.




## FRONT ELEVATION



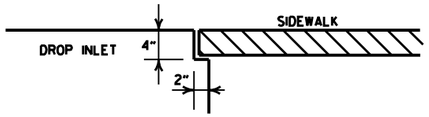

## SECTION C-C



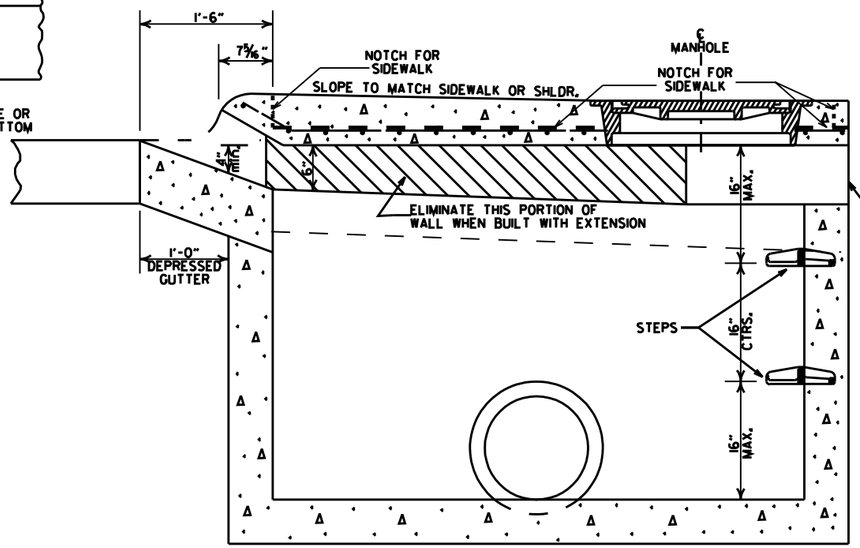

APPROXIMATE TOTAL WEIGHT = 333 LBS.

## HEAVY DUTY RING & COVER

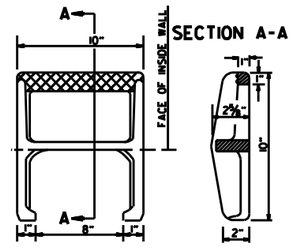
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON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




## DETAIL OF NOTCH FOR SIDEWALKS




## SECTION A-A

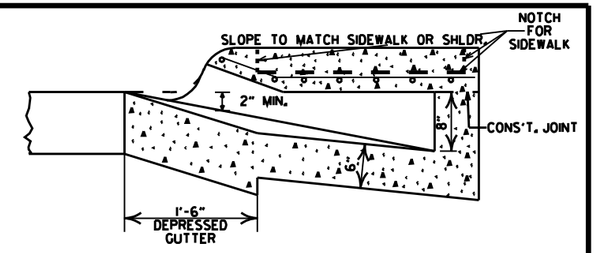



APPROX. WEIGHT = 11 LBS. (CAST IRON)

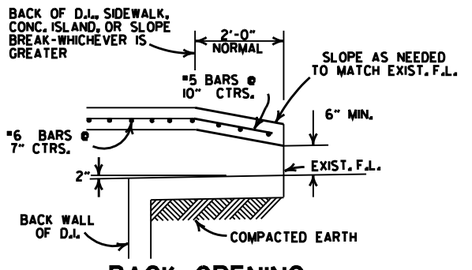
## PLAN

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

## DETAIL OF STEP FOR DROP INLET




## SECTION B-B




## BACK OPENING

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

GENERAL NOTES:

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

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

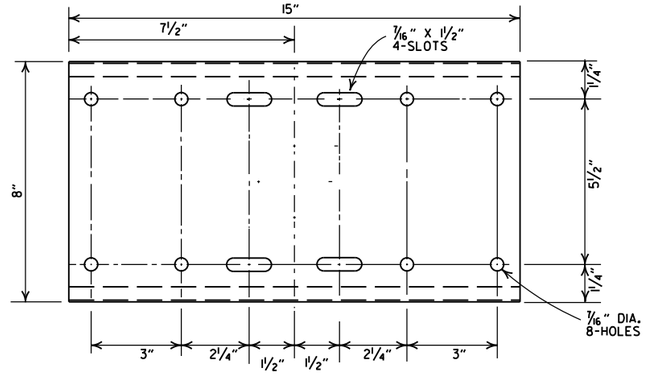
| DIA. OF D.I. | DIA. OF OUTLET PIPE | MINIMUM WALL THICKNESS | |
|---|---|---|---|
| | | CAST IN PLACE | PRECAST |
| 4' I.D. | 12" THRU 27" | 6" | 5" |
| 5' I.D. | 30" THRU 42" | 8" | 6" |
| 6' I.D. | 48" THRU 54" | 8" | 7" |

| DATE | REVISIONS | DATE FILMED |
|---|---|---|
| 8-22-02 | ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B | |
| 11-16-01 | ADDED NOTE 13 | |
| 1-12-00 | REVISED HEAVY DUTY RING & COVER | |
| 5-13-99 | ADDED NOTCH DETAIL FOR SIDEWALKS | |
| 7-02-98 | REP. NOTE 8, REV. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET | |
| 4-26-96 | ADDED NOTE 11 & ADJ. OPENING DIMENSION | |
| 10-12-95 | CORRECTED *5 BAR SPACING | |
| 7-20-95 | CORRECTED DIAMETER OF D.I. IN BOX | |
| 2-2-95 | TYPE C TO MO (OPEN BACK DETAIL) | |
| 11-1-94 | REVISED GENERAL NOTES | 11-1-94 |
| 4-1-93 | REV BACK OPEN DETAIL & NOTE | 4-1-93 |
| 8-14-91 | REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL | 8-14-91 |
| 11-20-89 | ADDED NOTE NO.12 | 11-20-89 |
| 4-21-89 | ADDED NOTE 8 & MINIMUM WALL THICKNESS | 4A1-4-21-89 |
| 7-25-88 | ADDED EXTEND NOTE TO SECTION A-A | 4A9-7-25-88 |
| 1-14-87 | MODIFIED WALL THICKNESS | 783-1-14-87 |
| 6-12-87 | ISSUED | 4-6-12-87 |

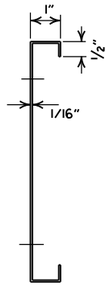
ARKANSAS STATE HIGHWAY COMMISSION

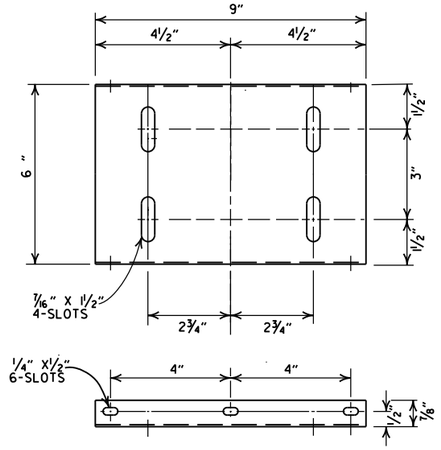
# DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

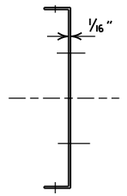


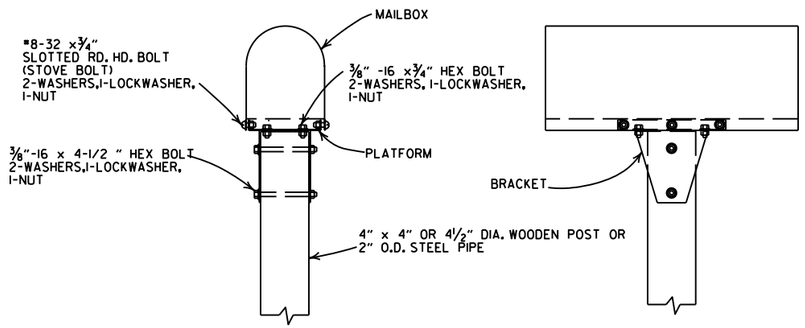

SHELF



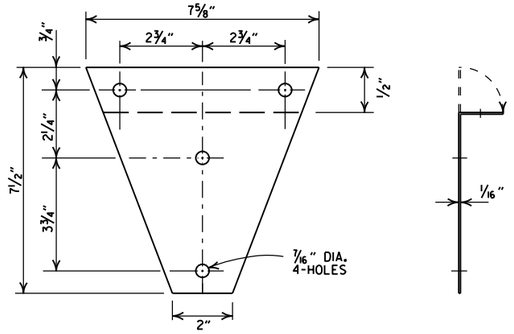




PLATFORM



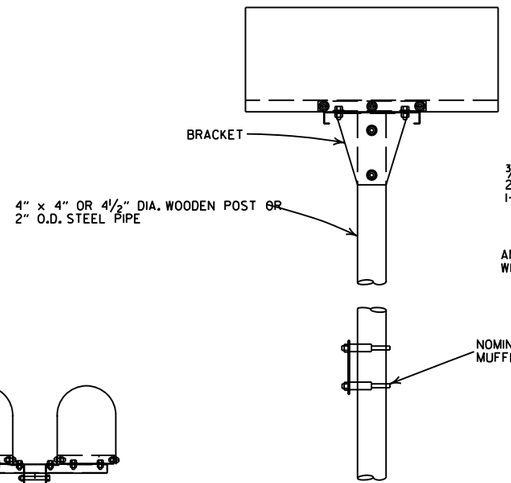

SINGLE INSTALLATION



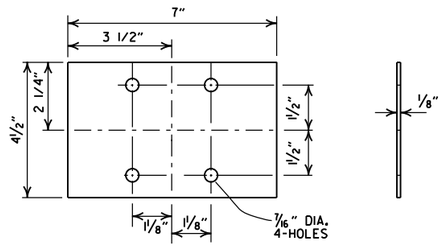

BRACKET

**GENERAL NOTES**

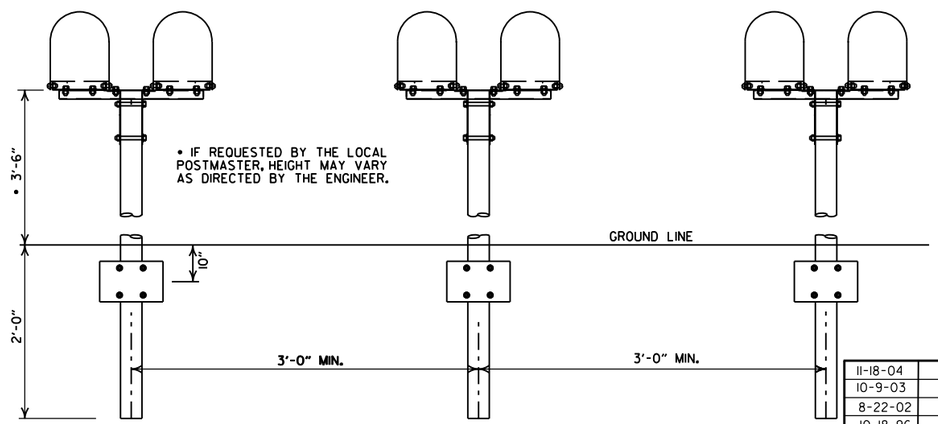
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



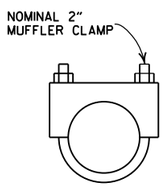

DOUBLE INSTALLATION



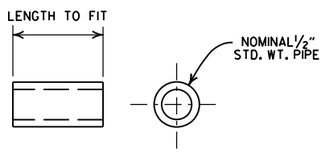

ANTI-TWIST PLATE




SPACING FOR MULTIPLE POST INSTALLATION




CLAMP




SPACER

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

ARKANSAS STATE HIGHWAY COMMISSION

# MAILBOX DETAILS

STANDARD DRAWING MB-1

## REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

## REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

## CONSTRUCTION SEQUENCE

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

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

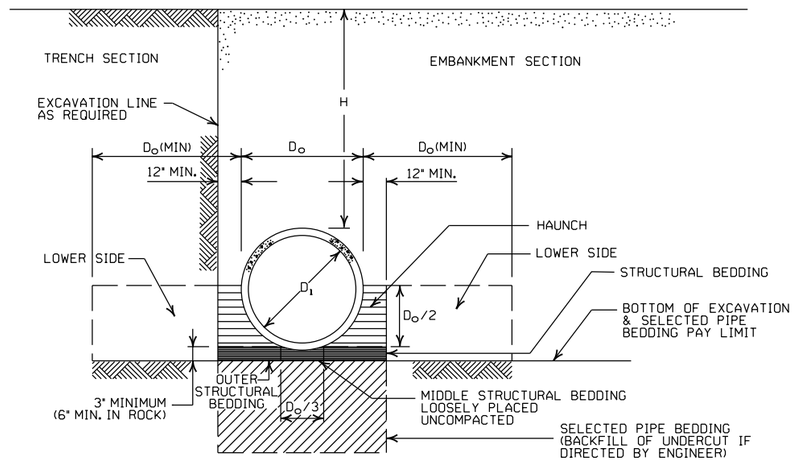
## - LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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




## EMBANKMENT AND TRENCH INSTALLATIONS

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

## GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

# CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

## CORRUGATED STEEL PIPE (ROUND)

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

## CORRUGATED ALUMINUM PIPE (ROUND)

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

## CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

## EQUIVALENT METAL THICKNESSES AND GAUGES

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

## CORRUGATED METAL PIPE ARCHES

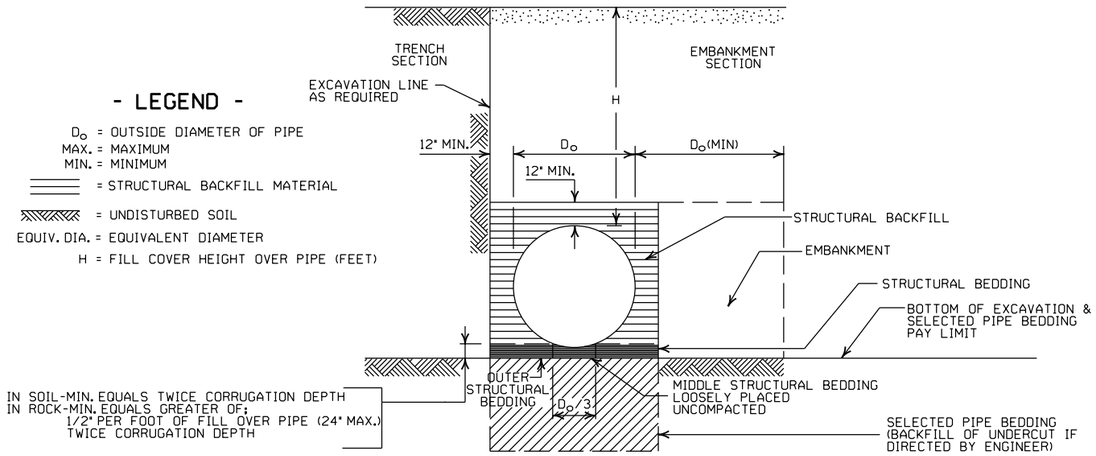
| EQUIV. DIA. (INCHES) | PIPE DIMENSION SPAN X RISE (INCHES) | MINUMUM CORNER RADIUS (INCHES) | STEEL | | | | ALUMINUM | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | MIN. THICKNESS REQUIRED INCHES | ① MIN. HEIGHT OF FILL, "H" (FT.) | MAX. HEIGHT OF FILL, "H" (FT.) | | MIN. THICKNESS REQUIRED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

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

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

- LEGEND -

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




## EMBANKMENT AND TRENCH INSTALLATIONS

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

## GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

# METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

## MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

## MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

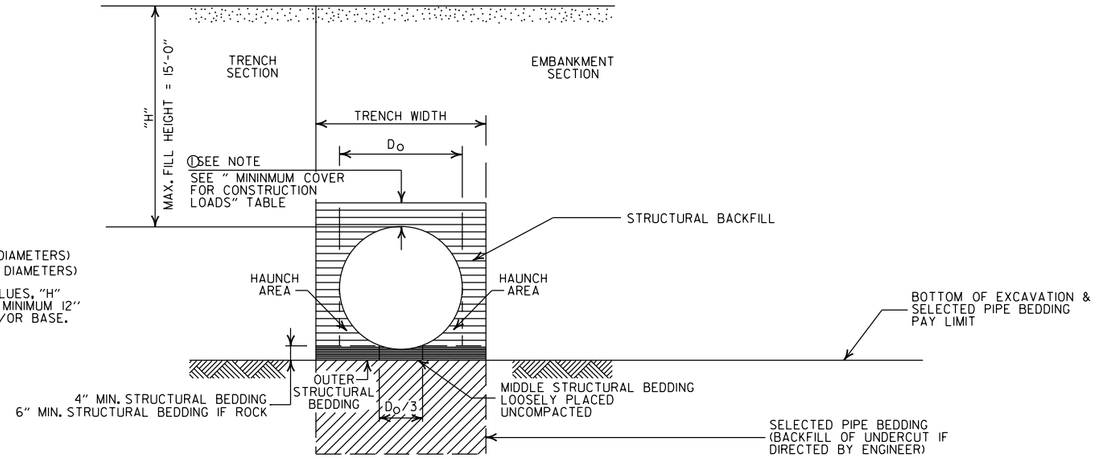
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

## MINIMUM COVER FOR CONSTRUCTION LOADS

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

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




## TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

## CONSTRUCTION SEQUENCE

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

## GENERAL NOTES

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

## - LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

# PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

## MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

## MULTIPLE INSTALLATION OF PVC PIPES

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

## MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

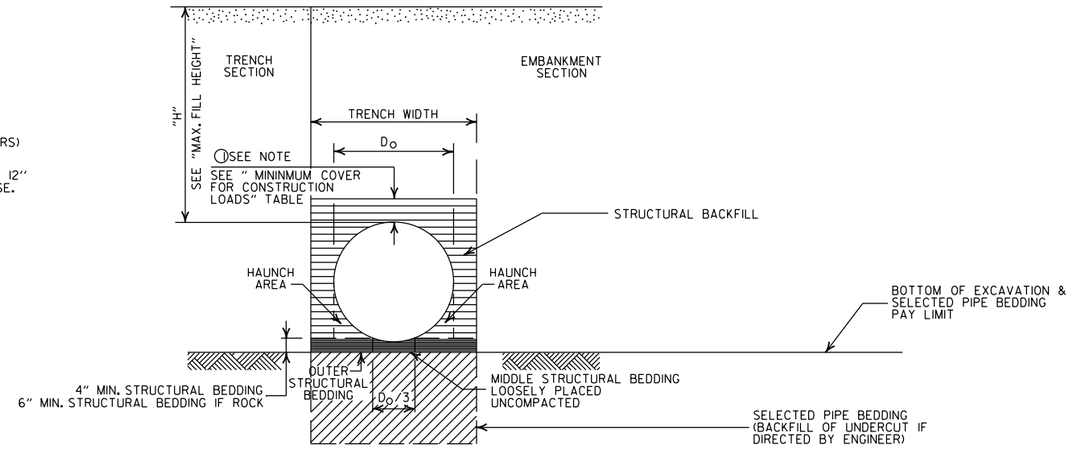
| PIPE DIAMETER | "H" |
|---|---|
| 18" | 45'-0" |
| 24" | 45'-0" |
| 30" | 40'-0" |
| 36" | 40'-0" |

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

## MINIMUM COVER FOR CONSTRUCTION LOADS

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

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




## TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

## CONSTRUCTION SEQUENCE

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

## GENERAL NOTES

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

## - LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

# PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

## MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

## MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

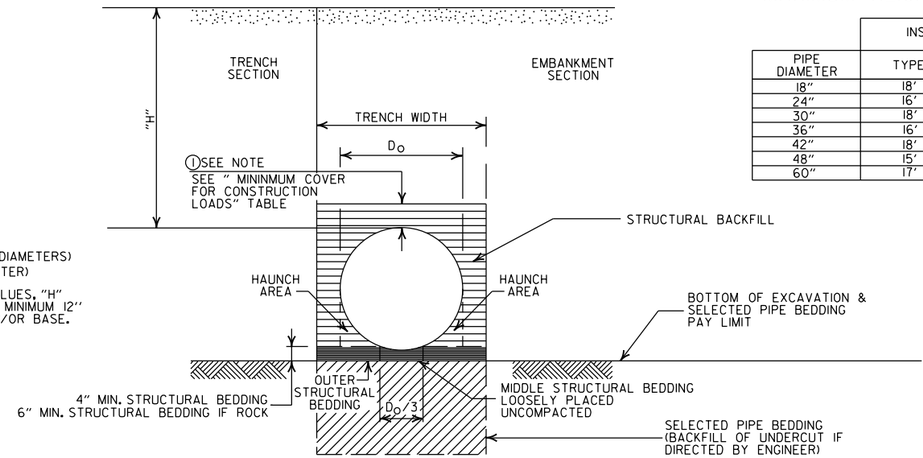
| PIPE DIAMETER | TRENCH WIDTH (FEET) | |
|---|---|---|
| | "H" < 10'-0" | "H" >OR= 10'-0" |
| 18" | 4'-6" | 4'-6" |
| 24" | 5'-0" | 6'-0" |
| 30" | 5'-6" | 7'-6" |
| 36" | 6'-0" | 9'-0" |
| 42" | 7'-0" | 10'-6" |
| 48" | 8'-0" | 12'-0" |
| 60" | 10'-0" | 15'-0" |

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

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

## MAXIMUM HEIGHT OF FILL "H"

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




## MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

## EMBANKMENT AND TRENCH INSTALLATIONS

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

## CONSTRUCTION SEQUENCE

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

## GENERAL NOTES

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

## - LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

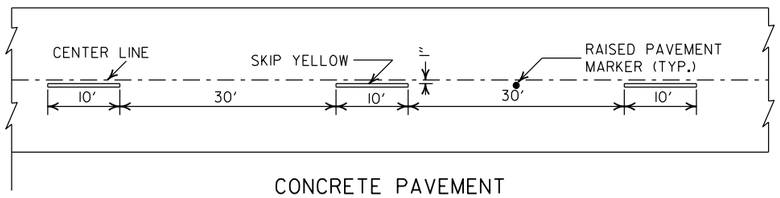
= UNDISTURBED SOIL

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| 11-07-19 | ISSUED | |

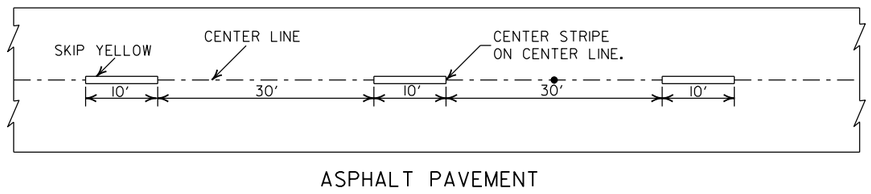
ARKANSAS STATE HIGHWAY COMMISSION

# PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

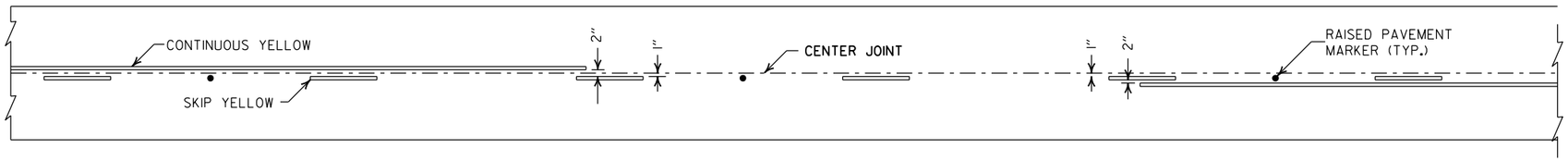



CONCRETE PAVEMENT

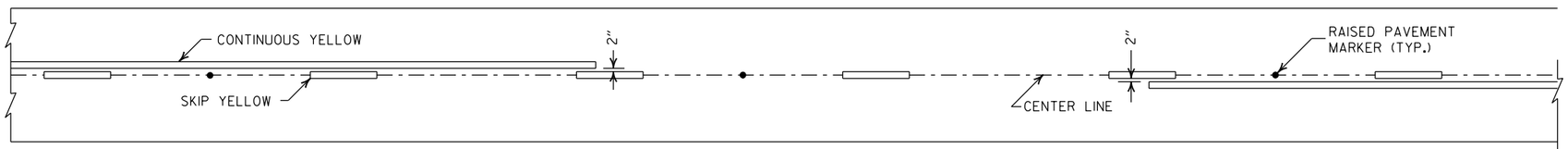



ASPHALT PAVEMENT

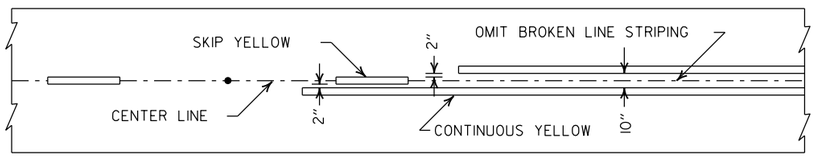
## BROKEN LINE STRIPING



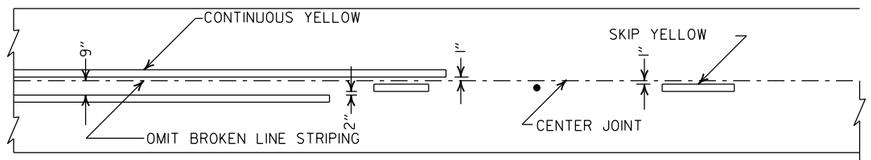

## SOLID LINE STRIPING ON CONCRETE PAVEMENT




## SOLID LINE STRIPING ON ASPHALT PAVEMENT

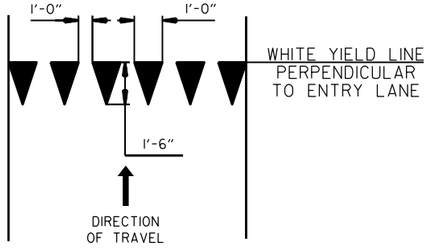



ASPHALT PAVEMENT

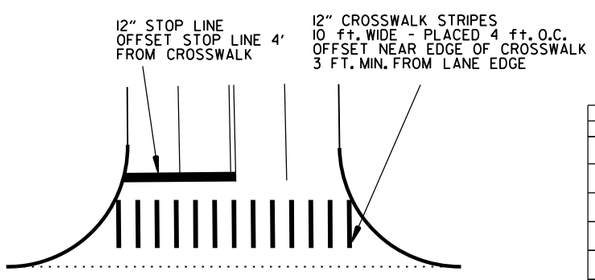



CONCRETE PAVEMENT

## STRIPING AT ADJACENT NO PASSING LANES

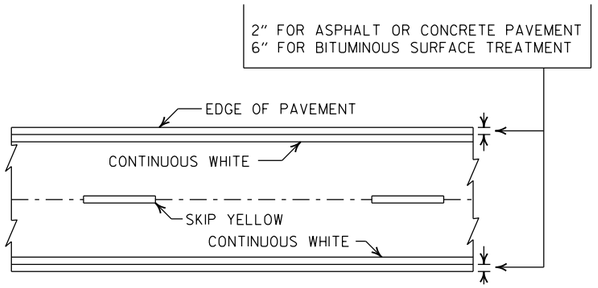



## YIELD LINE DETAIL




## CROSSWALK AND STOP LINE DETAILS

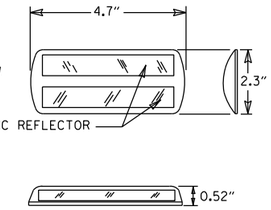
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.




## PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW




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

## DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

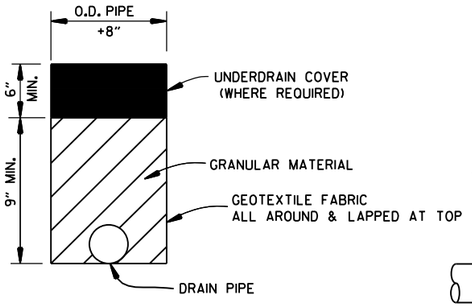
# PAVEMENT MARKING DETAILS

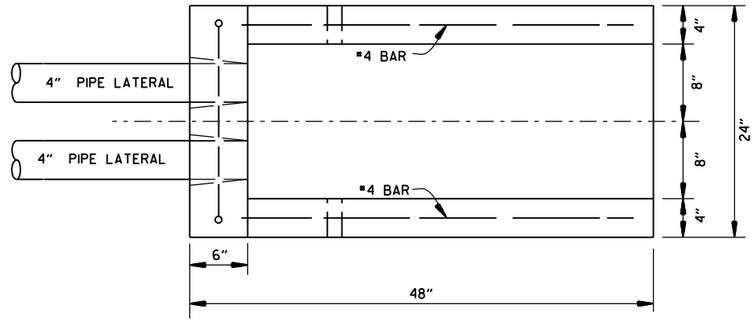
STANDARD DRAWING PM-1

NOTE:

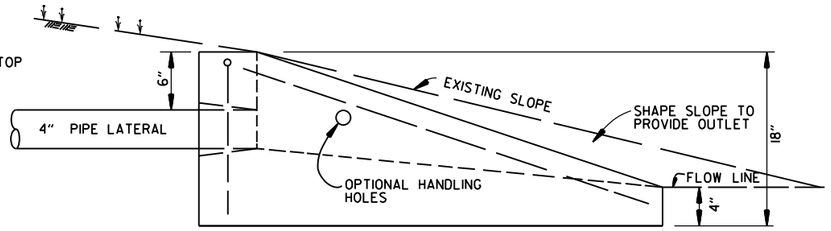
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

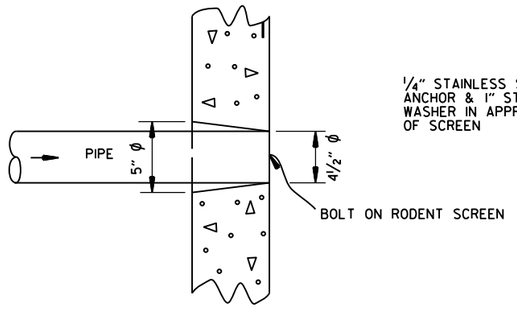


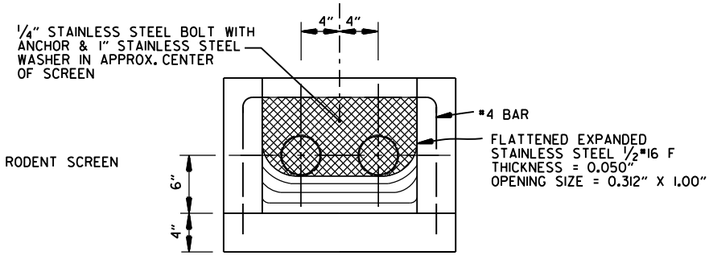

PLAN VIEW



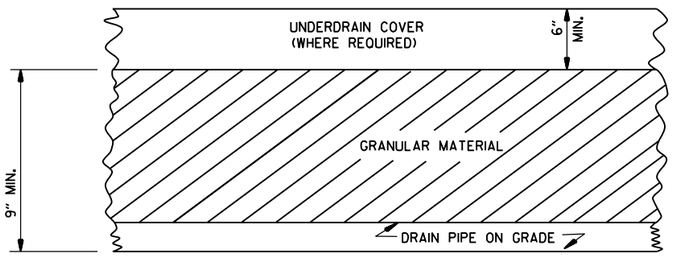

SIDE VIEW




DETAIL OF HOLE
FOR 4" PIPE




FRONT VIEW
(DETAIL OF RODENT SCREEN)




DETAILS OF PIPE UNDERDRAIN

## NOTES FOR PIPE UNDERDRAINS

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

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

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

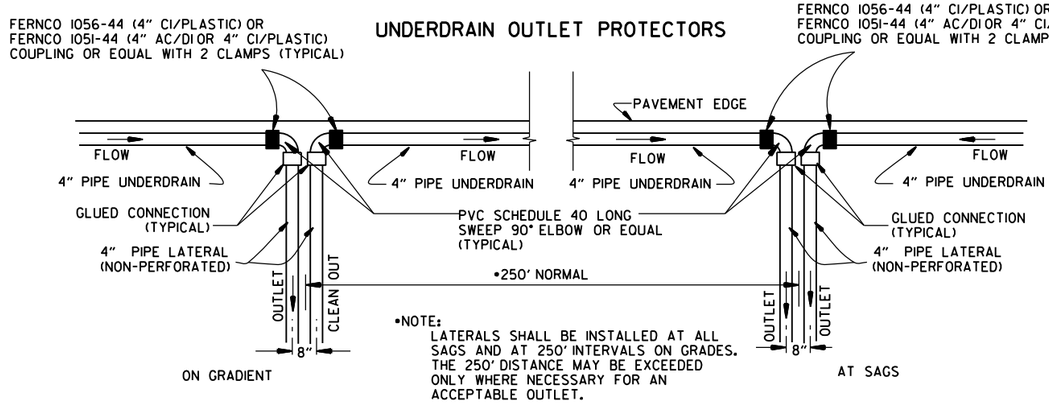
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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

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

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

## UNDERDRAIN OUTLET PROTECTORS




DETAIL OF PIPE UNDERDRAIN LATERALS
WHEN PLACED ALONG PAVEMENT EDGE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

# DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

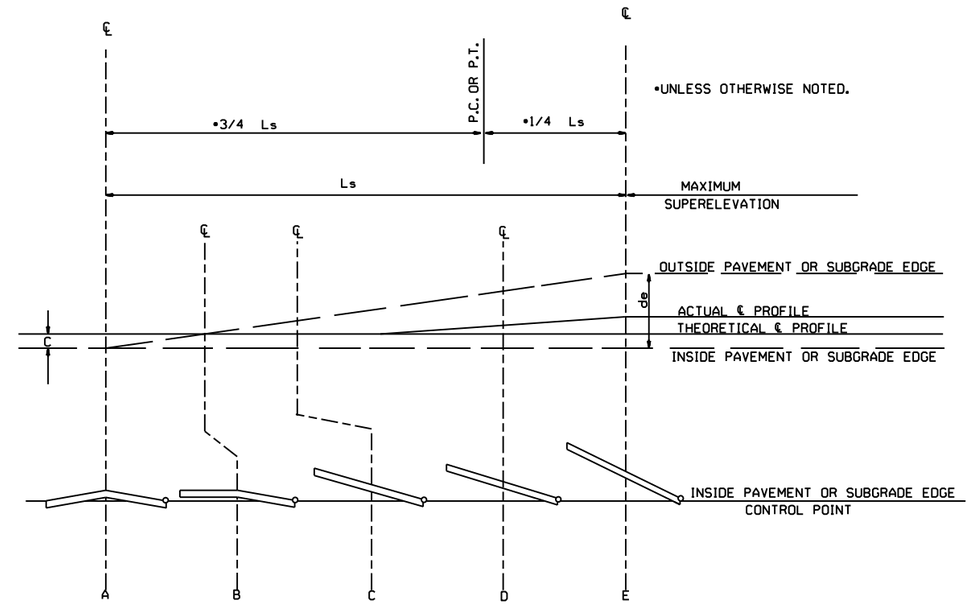
## SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC (4% MAXIMUM)

| DEGREE OF CURVE | 30 MPH e | 30 MPH Ls (FT) MINIMUM | 30 MPH Ls (FT) DESIRABLE | DEGREE OF CURVE | 35 MPH e | 35 MPH Ls (FT) MINIMUM | 35 MPH Ls (FT) DESIRABLE | DEGREE OF CURVE | 40 MPH e | 40 MPH Ls (FT) MINIMUM | 40 MPH Ls (FT) DESIRABLE | DEGREE OF CURVE | 45 MPH e | 45 MPH Ls (FT) MINIMUM | 45 MPH Ls (FT) DESIRABLE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° 15' | NC | | | 0° 15' | NC | | | 0° 15' | NC | | | 0° 15' | NC | | |
| 0° 30' | | | | 0° 30' | | | | 0° 30' | | | | 0° 30' | | | |
| 0° 45' | | | | 0° 45' | | | | 0° 45' | | | | 0° 45' | | | |
| 1° 00' | | | | 1° 00' | | | | 1° 00' | | | | 1° 00' | RC | 90 | 125 |
| 1° 15' | | | | 1° 15' | | | | 1° 15' | | | | 1° 15' | | | |
| 1° 30' | | | | 1° 30' | | | | 1° 30' | RC | 84 | 100 | 1° 30' | 0.022 | 95 | |
| 1° 45' | | | | 1° 45' | | | | 1° 45' | | | | 1° 45' | 0.024 | 99 | |
| 2° 00' | | | | 2° 00' | RC | 78 | 100 | 2° 00' | 0.022 | 88 | | 2° 00' | 0.026 | 104 | |
| 2° 15' | RC | 72 | 100 | 2° 15' | | | | 2° 15' | 0.024 | 92 | 125 | 2° 15' | | | |
| 2° 30' | | | | 2° 30' | 0.022 | 82 | | 2° 30' | 0.026 | 97 | | 2° 30' | 0.028 | 108 | 150 |
| 2° 45' | | | | 2° 45' | | | | 2° 45' | | | | 2° 45' | 0.030 | 113 | |
| 3° 00' | | | | 3° 00' | 0.024 | 86 | 125 | 3° 00' | | | | 3° 00' | | | |
| 3° 15' | 0.022 | 75 | | 3° 15' | | | | 3° 15' | 0.028 | 101 | | 3° 15' | 0.032 | 117 | |
| 3° 30' | | | | 3° 30' | | | | 3° 30' | | | | 3° 30' | | | |
| 3° 45' | 0.024 | 79 | | 3° 45' | 0.026 | 90 | | 3° 45' | 0.030 | 105 | | 3° 45' | 0.034 | 122 | |
| 4° 00' | | | | 4° 00' | | | | 4° 00' | | | | 4° 00' | | | |
| 4° 15' | | | | 4° 15' | | | | 4° 15' | 0.032 | 109 | | 4° 15' | | | |
| 4° 30' | | | | 4° 30' | 0.028 | 94 | | 4° 30' | | | | 4° 30' | 0.036 | 126 | |
| 4° 45' | 0.026 | 83 | | 4° 45' | | | | 4° 45' | | | | 4° 45' | | | |
| 5° 00' | | | | 5° 00' | 0.030 | 98 | | 5° 00' | 0.034 | 113 | | 5° 00' | 0.038 | 131 | |
| 5° 30' | | | | 5° 30' | | | | 5° 30' | | | | 5° 30' | | | |
| 6° 00' | | | | 6° 00' | 0.032 | 101 | | 6° 00' | 0.036 | 118 | 150 | 6° 00' | 0.040 | 135 | |
| 6° 30' | 0.028 | 86 | | 6° 30' | | | | 6° 30' | | | | | | | |
| 7° 00' | | | | 7° 00' | | | 150 | 7° 00' | 0.038 | 122 | | | | | |
| 7° 30' | 0.030 | 90 | | 7° 30' | 0.034 | 105 | | 7° 30' | | | | | | | |
| 8° 00' | | | | 8° 00' | | | | 8° 00' | 0.040 | 126 | | | | | |
| 8° 30' | 0.032 | 93 | | 8° 30' | 0.036 | 109 | | | | | | | | | |
| 9° 00' | | | | 9° 00' | | | | | | | | | | | |
| 9° 30' | | | | 9° 30' | | | | | | | | | | | |
| 10° 00' | 0.034 | 97 | | 10° 00' | 0.038 | 113 | | | | | | | | | |
| 10° 30' | | | | 10° 30' | | | | | | | | | | | |
| 11° 00' | | | | 11° 00' | | | | | | | | | | | |
| 11° 30' | | | 125 | 11° 30' | 0.040 | 117 | | | | | | | | | |
| 12° 00' | 0.036 | 100 | | | | | | | | | | | | | |
| 12° 30' | | | | | | | | | | | | | | | |
| 13° 00' | | | | | | | | | | | | | | | |
| 13° 30' | | | | | | | | | | | | | | | |
| 14° 00' | 0.038 | 104 | | | | | | | | | | | | | |
| 14° 30' | | | | | | | | | | | | | | | |
| 15° 00' | | | | | | | | | | | | | | | |
| 15° 30' | | | | | | | | | | | | | | | |
| 16° 00' | | | | | | | | | | | | | | | |
| 16° 30' | 0.040 | 108 | 150 | | | | | | | | | | | | |

D MAX = 22° 45' | D MAX = 15° 15' | D MAX = 10° 30' | D MAX = 8° 00'

### ABBREVIATIONS

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




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

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

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

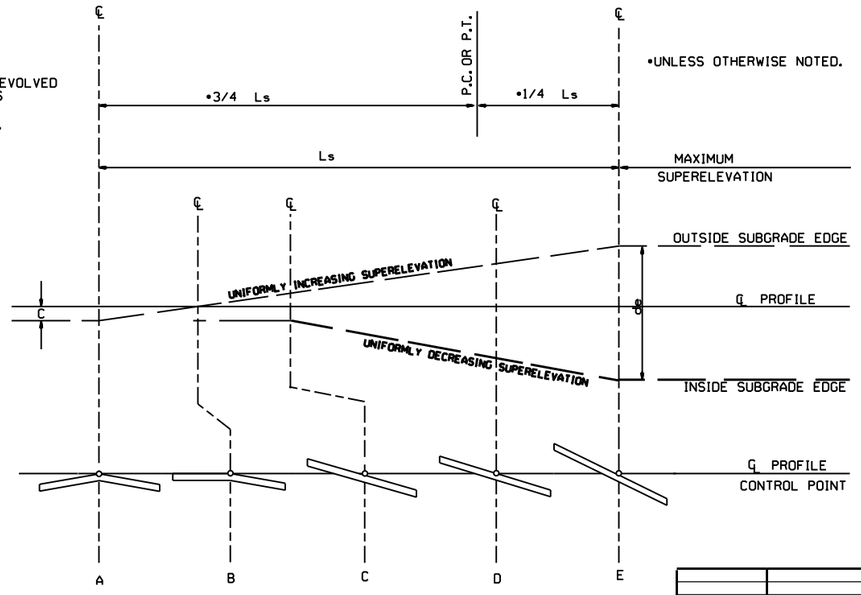
### GENERAL NOTES

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

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

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

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



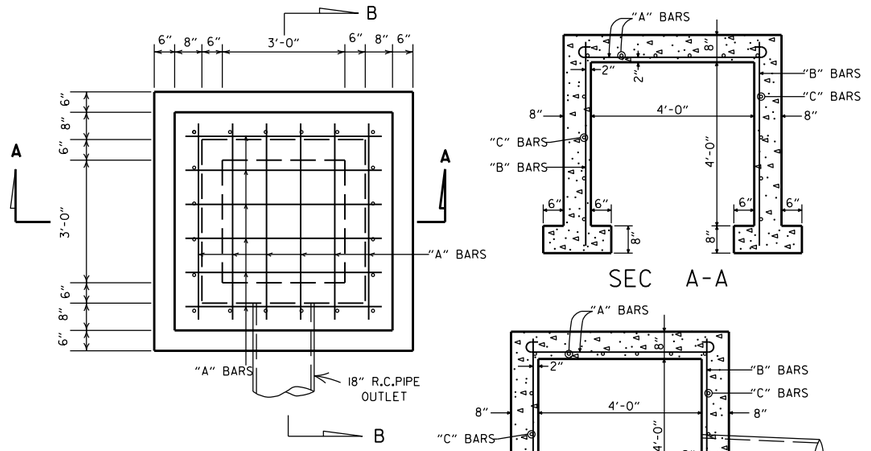

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

| | | |
|---|---|---|
| 11-07-19 | ISSUED | |
| DATE | REVISION | DATE FILMED |

ARKANSAS STATE HIGHWAY COMMISSION

# TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC (4% MAXIMUM)

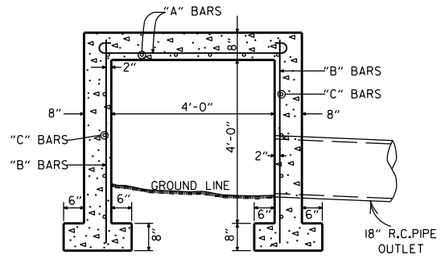
STANDARD DRAWING SE-3







SEC A-A



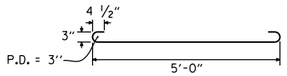

SEC B-B

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

STEEL SCHEDULE

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

ALL STEEL TO BE #4 BARS




"A" BARS

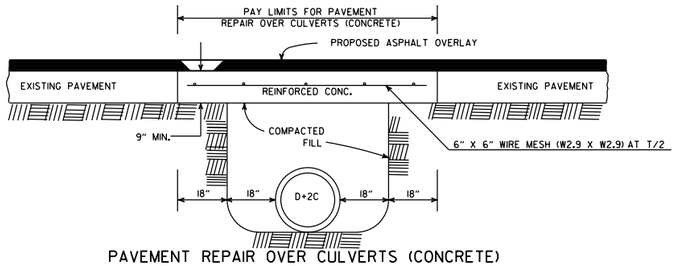
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

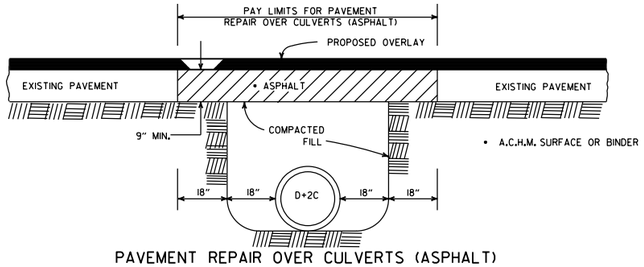
GENERAL NOTE:

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

## REINFORCED CONCRETE SPRING BOX



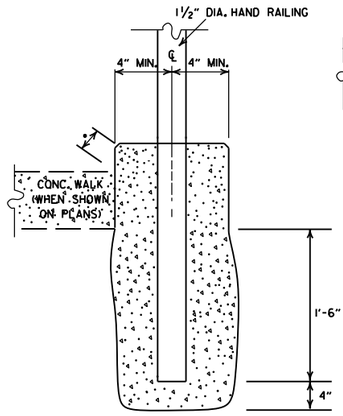

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



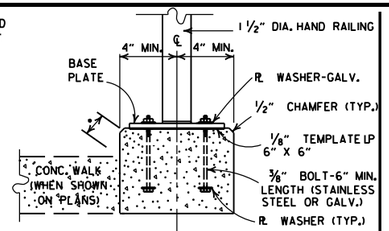

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

## DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

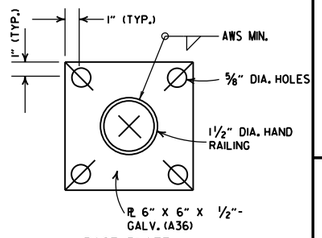
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.




DETAIL OF HAND RAILING SET IN CONCRETE

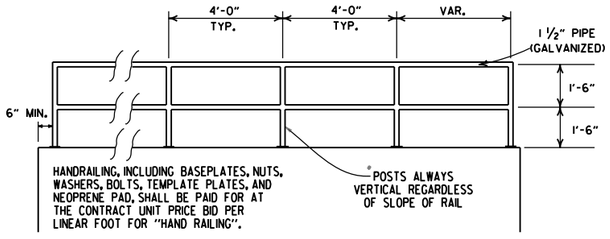



POST CONNECTION TO WALL

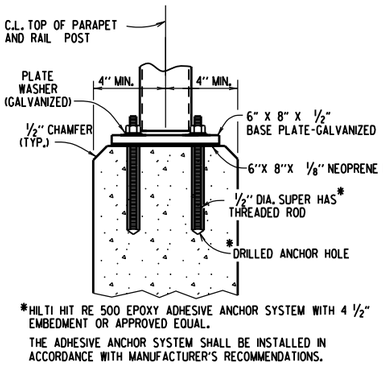



BASE PLATE

## POST CONNECTION DETAILS



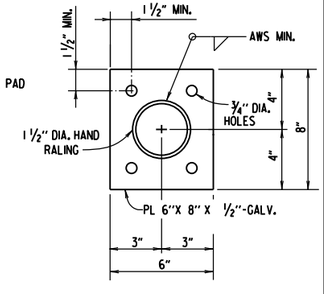

HAND RAILING SHALL CONFORM TO SECTION 633.




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

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

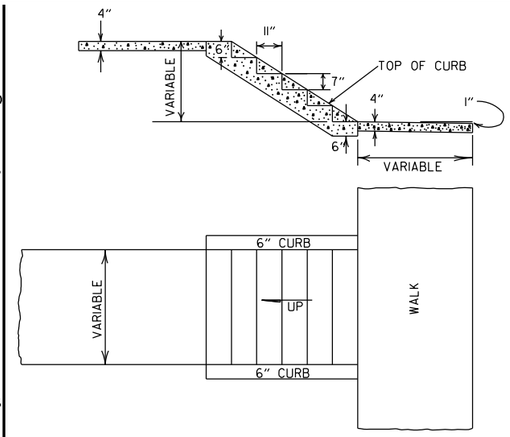
POST CONNECTION TO WALL




BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

## HAND RAILING DETAILS




GENERAL NOTES

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

## DETAILS OF CONCRETE STEPS & WALKS

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

ARKANSAS STATE HIGHWAY COMMISSION

# DETAILS OF SPECIAL ITEMS

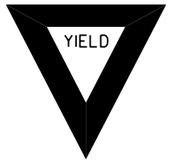
STANDARD DRAWING SI - 1

R1-1




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

R1-2




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

R2-1




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

W3-5




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

W3-5a




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

R4-1




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

R4-2




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

R5-1



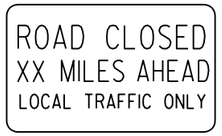

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2




48"X30"

R11-3A




60"X30"

R11-4




60"X30"

W21-5a




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

W1-1



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

W1-2



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

W1-3



STD. 48"X48"

W1-4



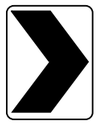
STD. 48"X48"

W1-6



STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



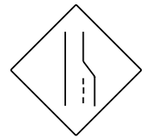
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1




STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7




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

W9-2




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

W13-1




STD. 24"X24"

W20-1




STD. 48"X48"

W20-2




STD. 48"X48"

W20-3




STD. 48"X48"

W20-4




STD. 48"X48"

W20-5




STD. 48"X48"

W20-7a




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

W21-2




STD. 30"X30"
SPECIAL 36"X36"

W21-5




STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1




STD. 18"X18"

W8-11




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

W8-9



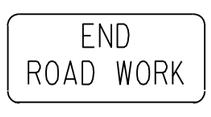

STD. 36"X36"
FWY. 48"X48"

G20-1



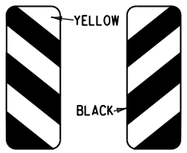

60"X24"

G20-2




48"X24"

OM-3L OM-3R




12"X36"

M4-9



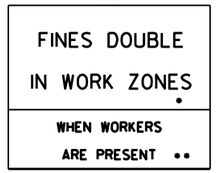

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10




48"X18"

R55-1




36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

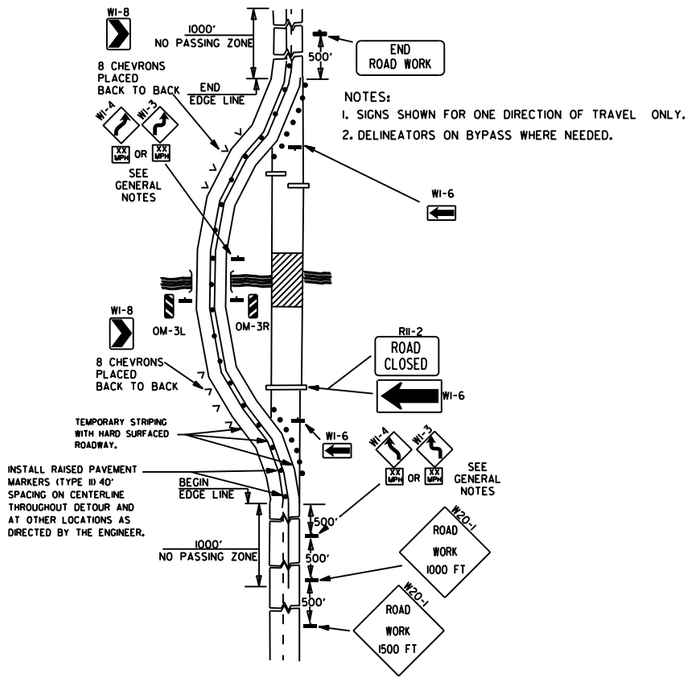
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

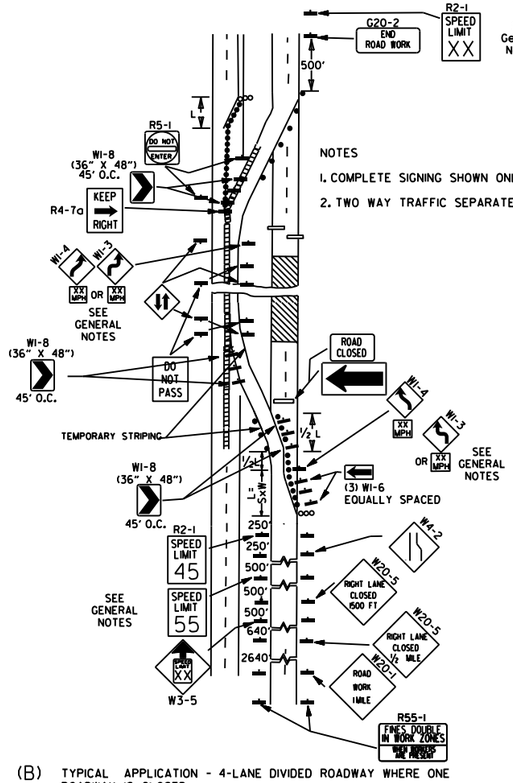
# STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



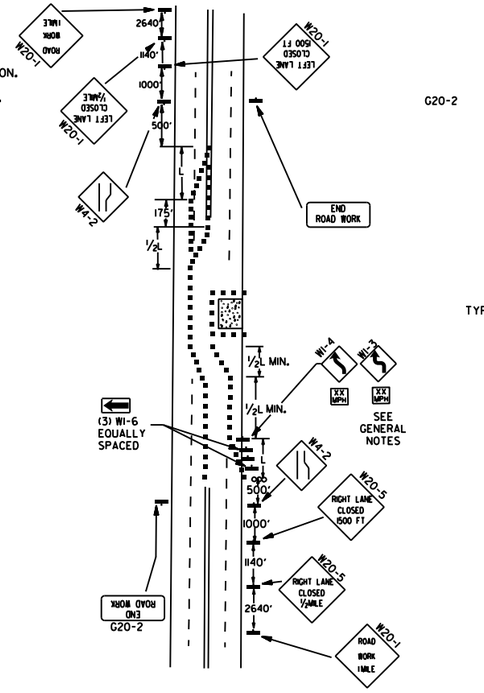

NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

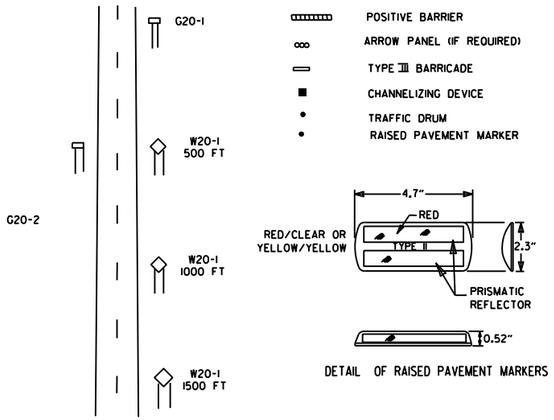



NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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




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




DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

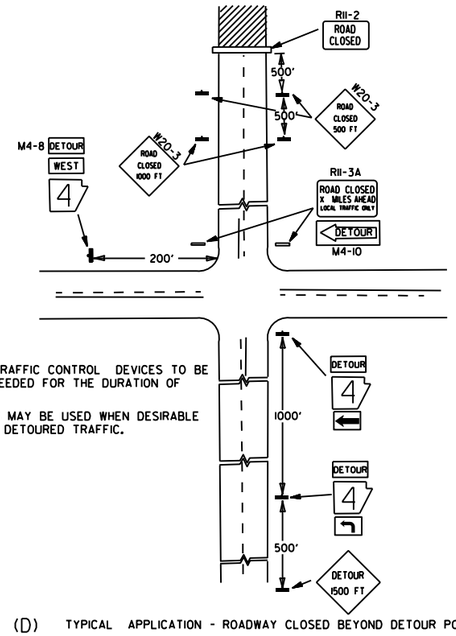
L= MINIMUM LENGTH OF TAPER.

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

W= WIDTH OF OFFSET.

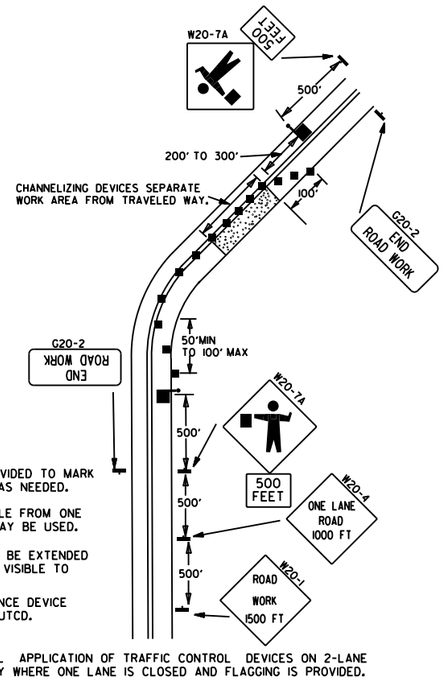
GENERAL NOTES:

1. 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 WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. 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).



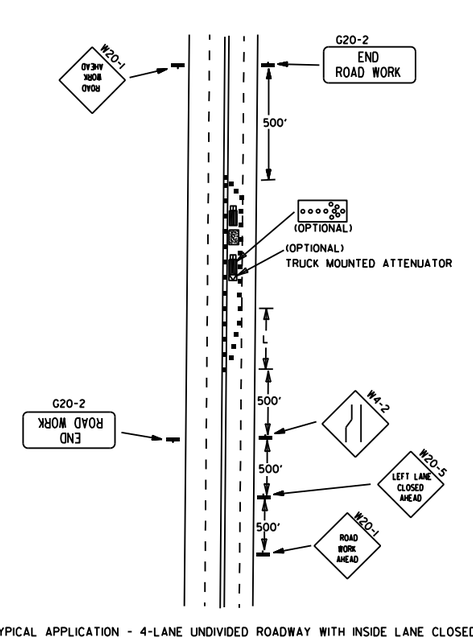

NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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




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

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



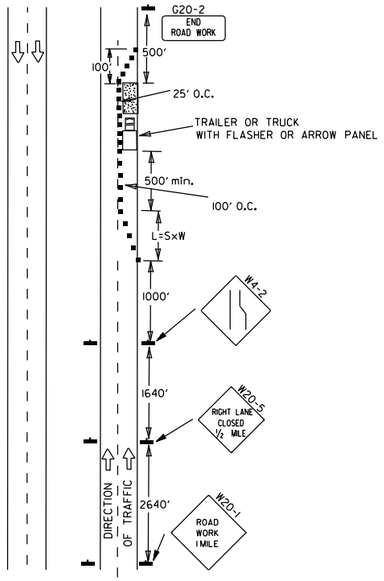

(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

| DATE | REVISION | FILMED |
|---|---|---|
| 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 | |

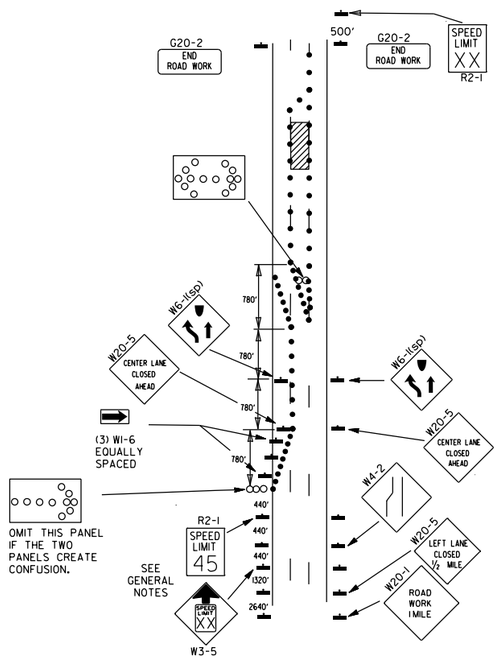
ARKANSAS STATE HIGHWAY COMMISSION

# STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2




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




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

KEY:

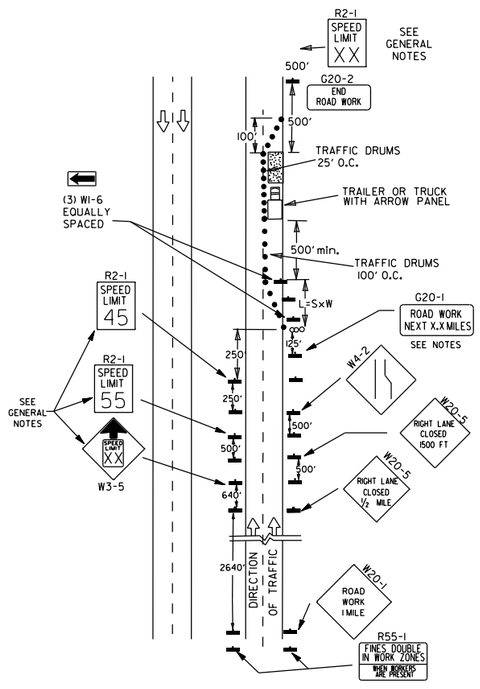
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

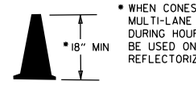
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS, AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).




(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

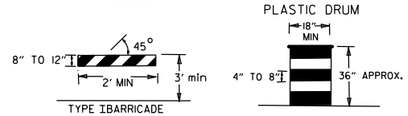
## CHANNELIZING DEVICES



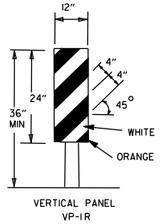

* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

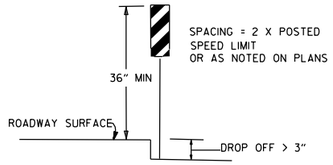
PLASTIC DRUM



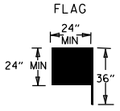

NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.




VERTICAL PANEL PLACEMENT




FLAG




FLAG SHALL BE OF GOOD GRADE RED MATERIAL

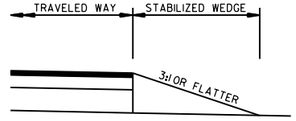
| TRAFFIC CONTROL DEVICES | | | |
|---|---|---|---|
| NON-INTERSTATE | | | |
| VERTICAL DIFFERENTIAL | LOCATION | TRAFFIC CONTROL | |
| | | ≤ 45 MPH | > 45 MPH |
| ≤ 1" | CENTERLINE | W8-11 | W8-11 |
| > 1" ≤ 3" | CENTERLINE | W8-11 AND CENTERLINE LANE STRIPING | W8-11 AND CENTERLINE LANE STRIPING |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

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

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

GENERAL NOTES:

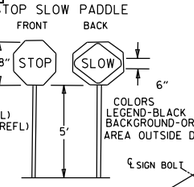
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
6. TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

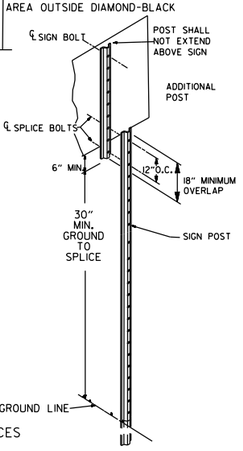



STABILIZED WEDGE

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

STOP SLOW PADDLE

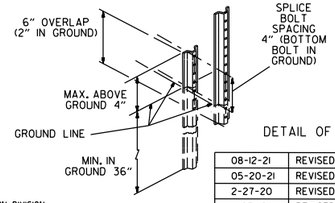


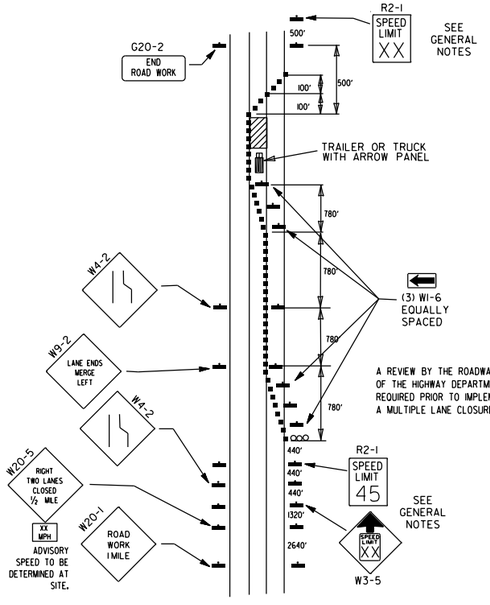

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.




DETAIL OF SPLICES




A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

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

| DATE | REVISION | FILMED |
|---|---|---|
| 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 11 | |
| 7-25-19 | REVISED TRAFFIC CONTROL DEVICES DETAILS | |
| 9-2-15 | REVISED NOTE 2 & REPLACED R2-5A WITH W3-5 | |
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 11-20-08 | REVISED SIGN DESIGNATIONS | |
| 11-18-04 | ADDED NOTE | |
| 10-1-98 | ADDED NOTE | |
| 4-03-97 | ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE | |
| 10-18-96 | ADDED R55-1 | |
| 10-12-95 | MOVED UPPER SPLICE | |
| 6-8-95 | REVISED SPLICE DETAIL, TEXT | 6-8-95 |
| 2-2-95 | REVISED PER PART VI, MUTCD, SEPT. 3, 1993 | |
| 8-15-91 | DRAWN AND PLACED IN USE | |

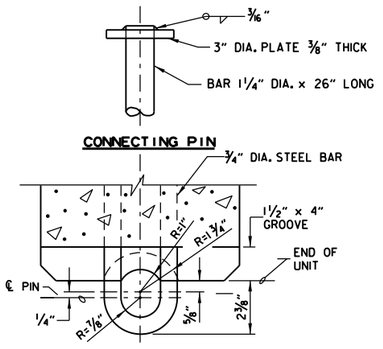
ARKANSAS STATE HIGHWAY COMMISSION

# STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

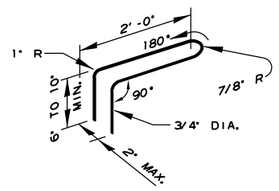
## REINFORCING BAR TABLE PER BARRIER UNIT

| MARK | LOCATION | BAR SIZE | (NO. BARS) | SKETCH |
|---|---|---|---|---|
| H-1 | HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS | #5 | (6) | 19'-3" |
| H-2 | CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY | #5 | (6) | 6'-6" |
| H-3 | TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1 | #4 | (2) | 1'-6" |
| S-1 | OVER LIFT HOLES | #4 | (2) | 2'-5", LIFTING HOLE, 90°, 3 3/8" R |
| S-2 | HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS | #4 | (2) | 1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP |
| V-1 | VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS | #5 | (16) | TOTAL LENGTH 4'-9"; 2 3/16" R; 12°; 1 1/2"; 9"; 2'-1 3/8"; 4 3/8" |

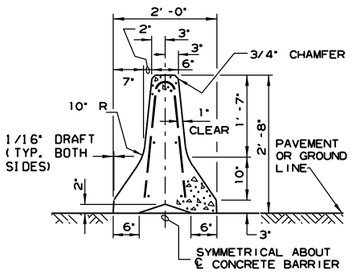



SECTION E-E

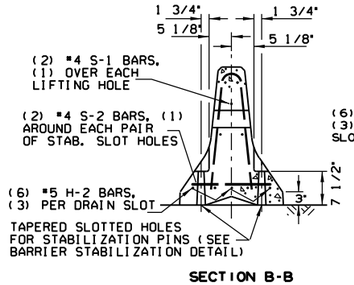
CONNECTION DETAILS



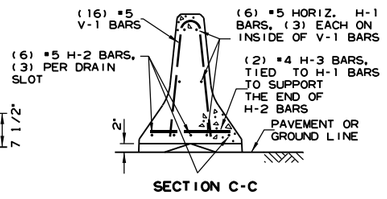

CONNECTION LOOP



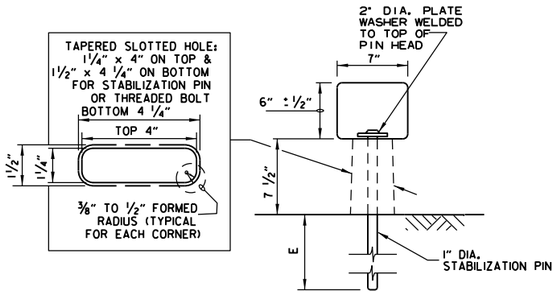

SECTION A-A




SECTION B-B



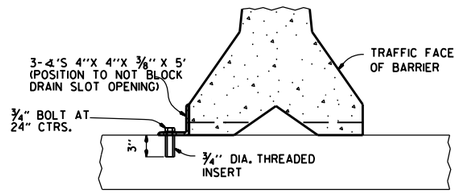

SECTION C-C




BARRIER STABILIZATION DETAIL

ROADWAY SECTION

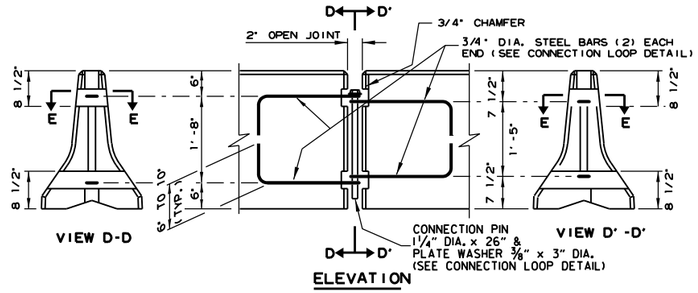
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



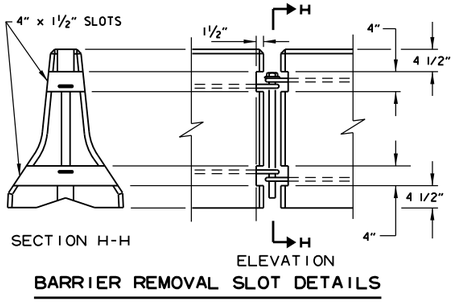

NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION. AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.

BARRIER STABILIZATION DETAIL

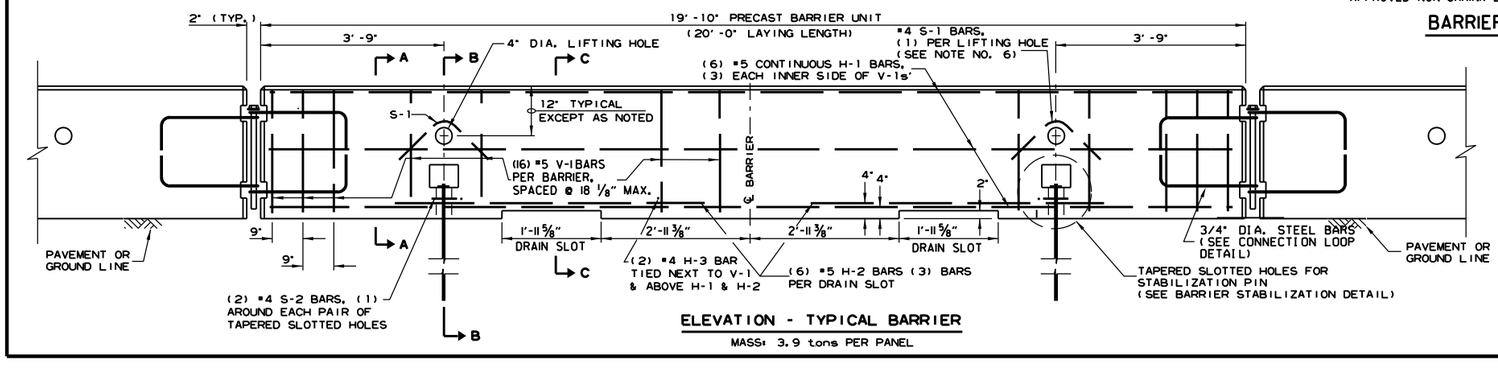
BRIDGE DECKS




ELEVATION




BARRIER REMOVAL SLOT DETAILS




ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

### GENERAL NOTES

(1) THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

(2) MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN.
DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS.
DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.

(3) OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED IN LIEU OF THE BARRIER SHOWN. DRAIN SLOTS SHALL BE PROVIDED AS NEEDED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANCE FOR ANY OTHER TYPES OF PRECAST BARRIER TO BE USED. THE CERTIFICATION SHALL STATE THAT THE PRECAST CONCRETE BARRIER MEETS THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.

(4) DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.

(5) ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.

(6) A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.

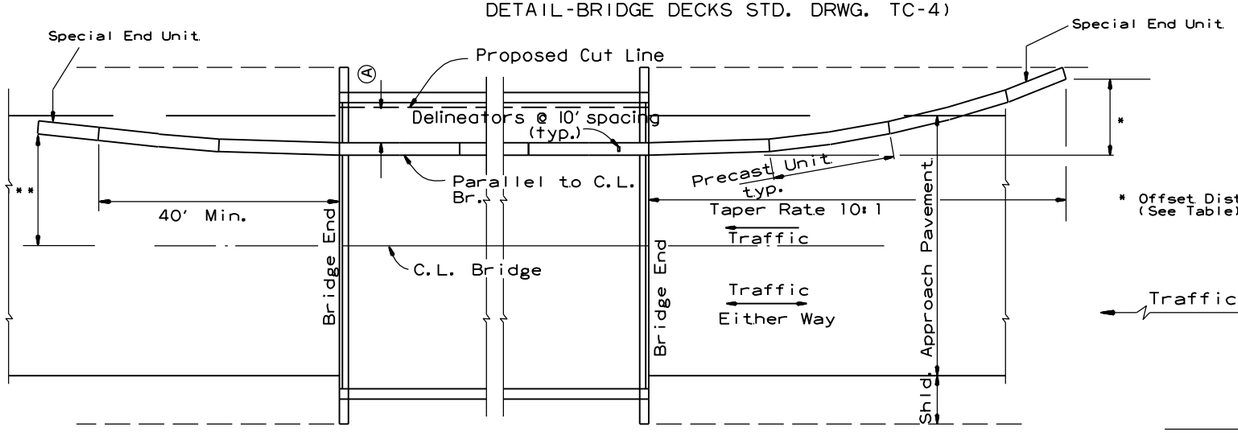
| DATE | REVISION | FILMED |
|---|---|---|
| 11-07-19 | REVISED NOTE 3 | |
| 2-27-14 | REVISED BARRIER STABILIZATION DETAIL | |
| 10-15-09 | ADDED REFERENCE TO WASH | |
| 8-5-09 | REV. NOTE 3 CONCERNING DRAIN SLOTS | |
| 11-29-07 | REVISED NOTE 3 | |
| 5-25-06 | DELETED GENERAL NOTE 7 | |
| 11-18-04 | REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS | |
| 4-10-03 | REVISED GENERAL NOTE 2 | |
| 8-22-02 | ISSUED NEW DRAWING | |

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

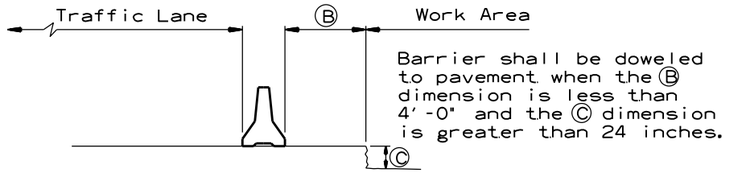
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)




* Offset Distance (See Table)

## BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

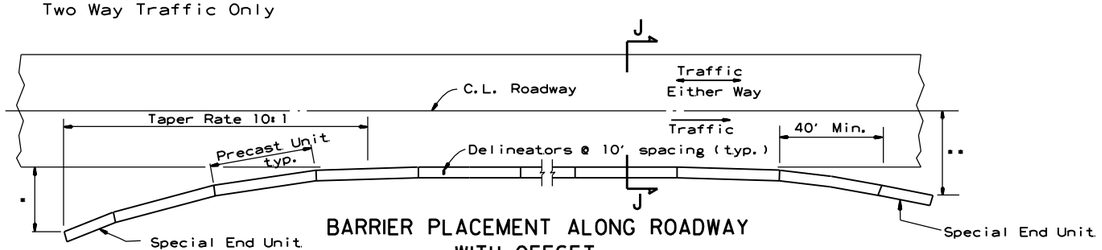



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

## SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only




## BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

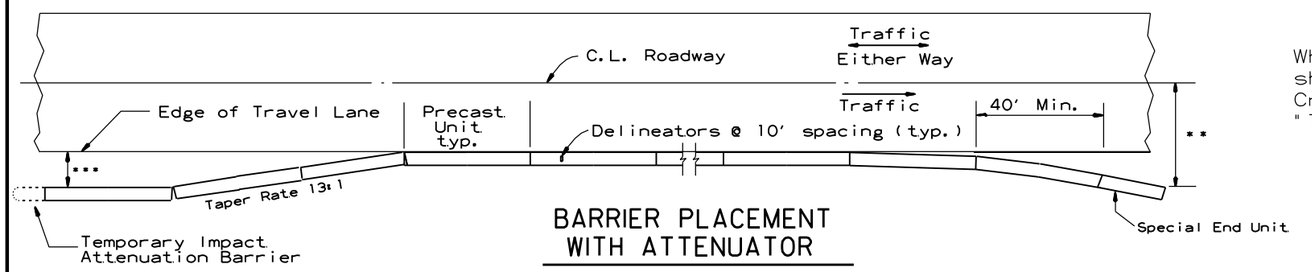
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

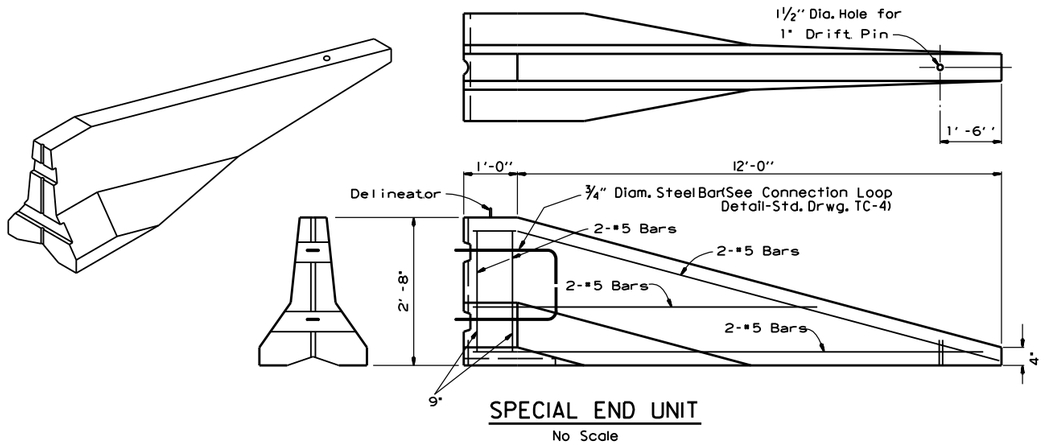



## BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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




## SPECIAL END UNIT

No Scale

### General Notes

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

| DATE | REVISION | FILMED |
|---|---|---|
| 11-07-19 | REVISED NOTE | |
| 10-15-09 | ADDED REFERENCE TO MASH | |
| 5-25-06 | REVISED BARRIER PLACEMENT | |
| 8-22-02 | ISSUED NEW DRAWING | |

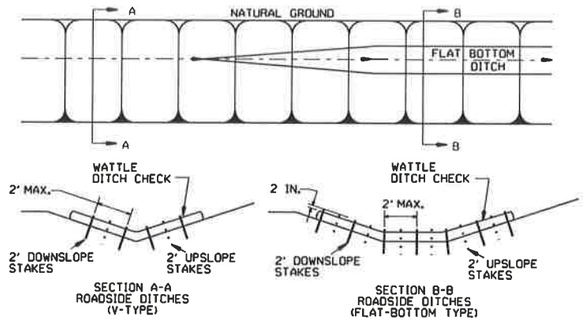
**ARKANSAS STATE HIGHWAY COMMISSION**

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

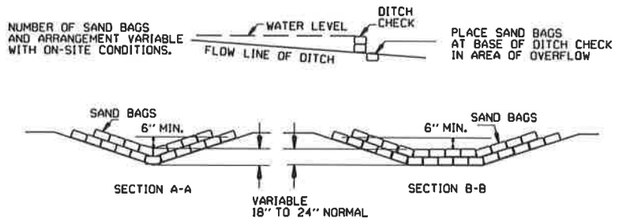
STANDARD DRAWING TC-5

GENERAL NOTES

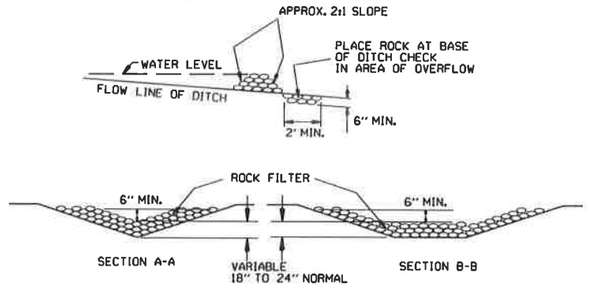
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.




## WATTLE DITCH CHECK (E-1)




## SAND BAG DITCH CHECK (E-5)

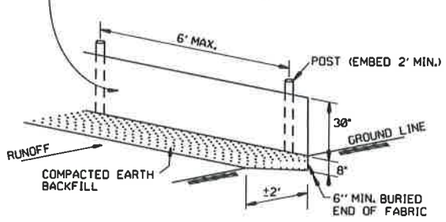



## ROCK DITCH CHECK (E-6)

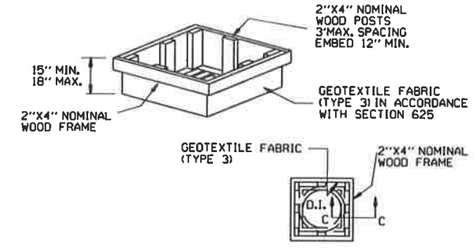
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

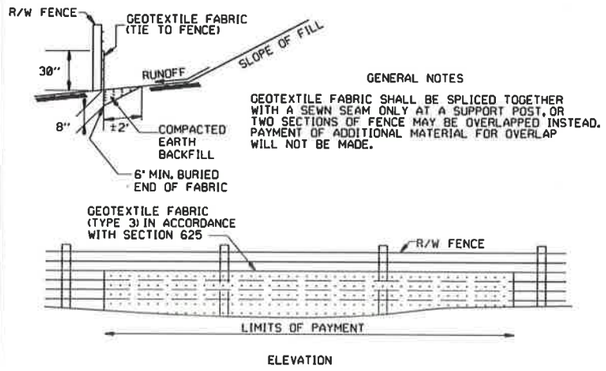
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.




## SILT FENCE (E-11)




## DROP INLET SILT FENCE (E-7)




GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

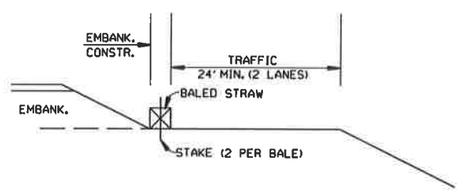
## SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

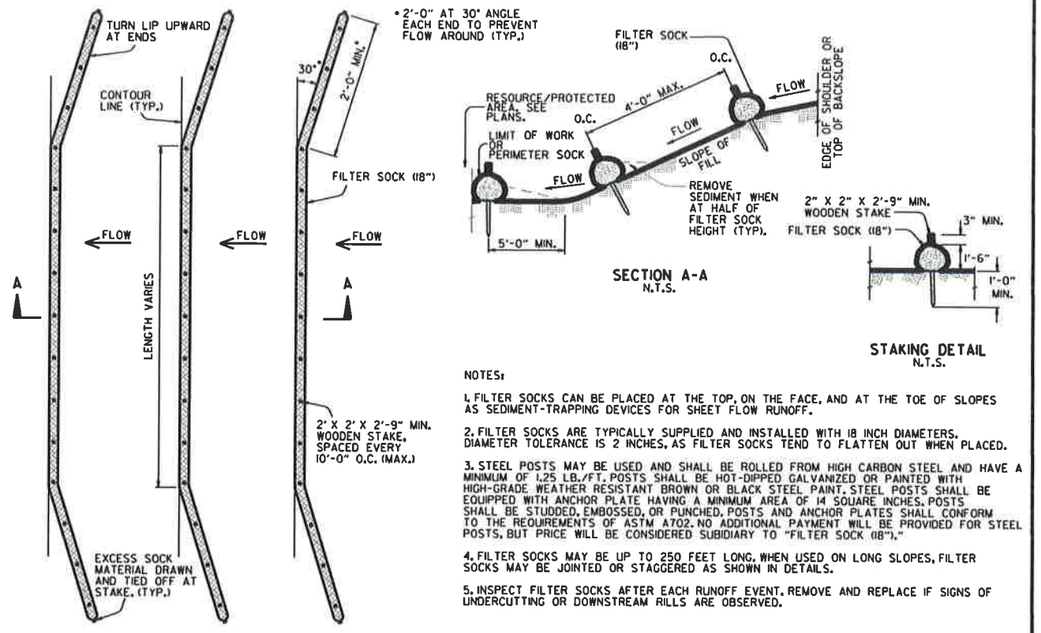
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.




## BALED STRAW FILTER BARRIER (E-2)




NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

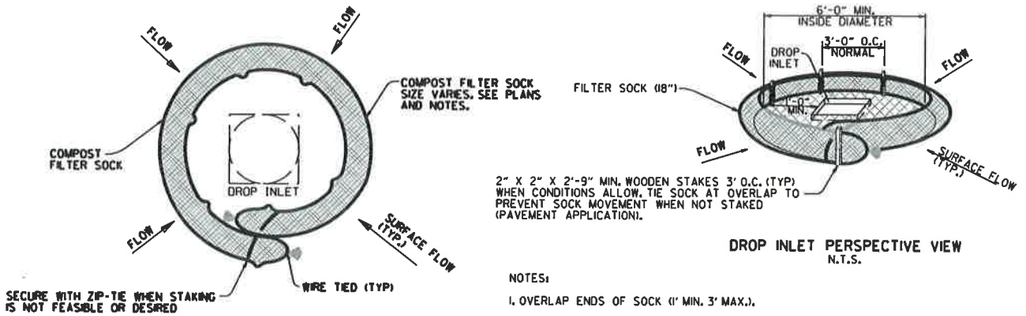
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

## FILTER SOCK ALONG SLOPE (E-3)




NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

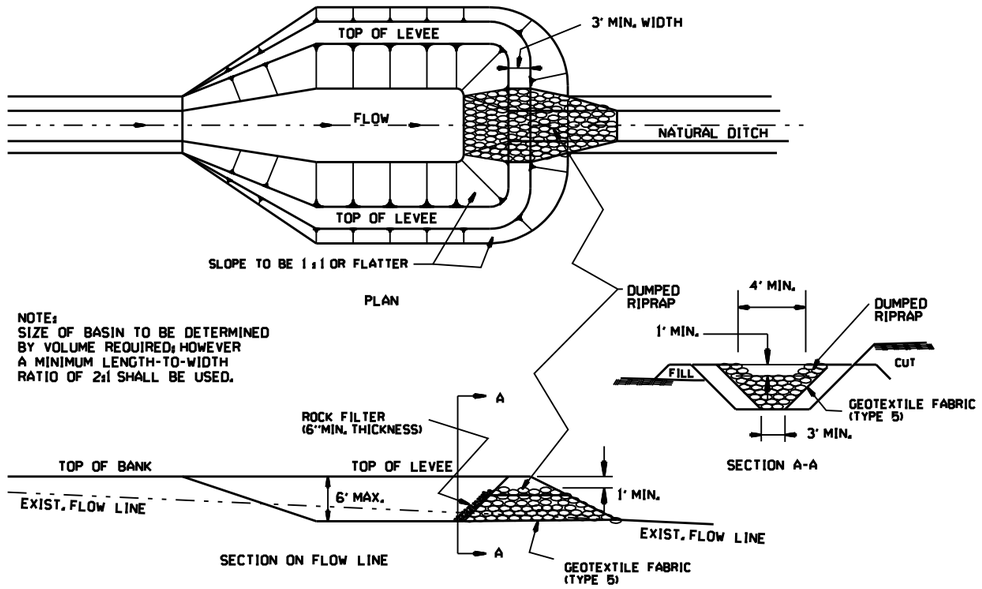
## COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

| DATE | REVISION | FILMED |
|---|---|---|
| 11-16-17 | ADDED FILTER SOCK E-3 AND E-13 | |
| 12-15-11 | DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK | |
| 11-18-98 | ADDED NOTES | |
| 07-02-98 | ADDED BALED STRAW FILTER BARRIER (E-2) | |
| 07-20-95 | REVISED SILT FENCE E-4 AND E-11 | 7-20-95 |
| 07-15-94 | REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC | |
| 06-02-94 | REVISED E-1,4,7 & 11; DELETED E-2 & 3 | 6-2-94 |
| 04-01-93 | REDRAWN | |
| 10-01-92 | REDRAWN | |
| 08-02-76 | ISSUED R.D.M. | 298-7-28-76 |

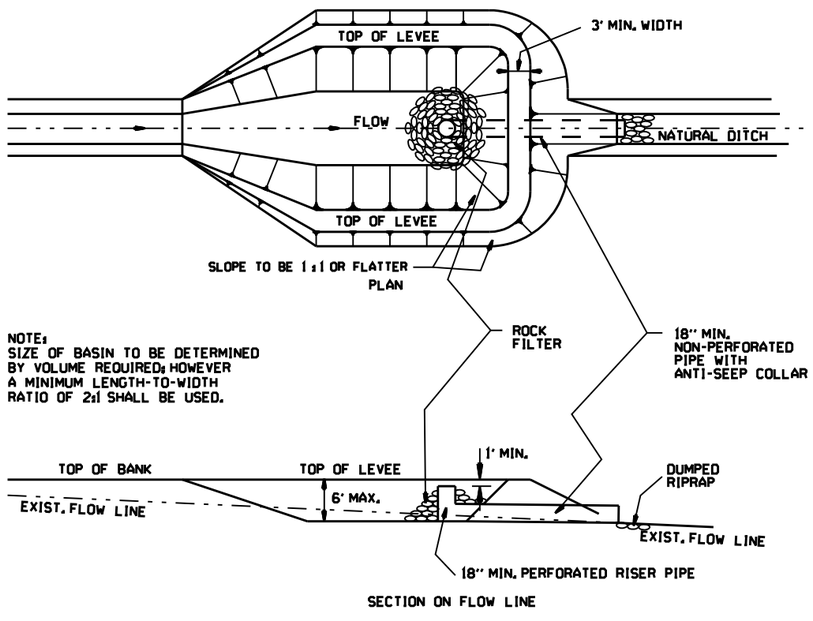
ARKANSAS STATE HIGHWAY COMMISSION

# TEMPORARY EROSION CONTROL DEVICES

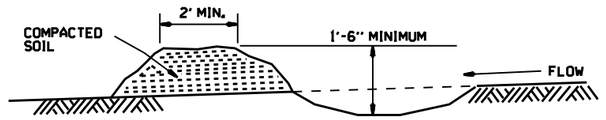
STANDARD DRAWING TEC-1



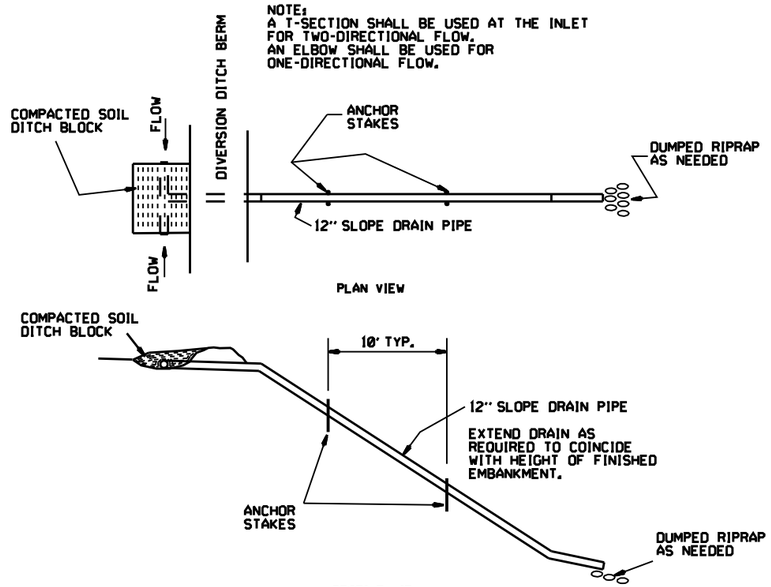

SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



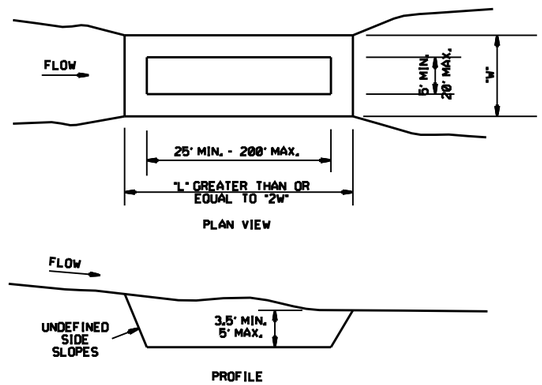

SEDIMENT BASIN WITH PIPE OUTLET (E-10)




DIVERSION DITCH (E-8)




SLOPE DRAIN (E-12)




SEDIMENT BASIN (E-14)

| DATE | REVISION | FILMED |
|---|---|---|
| 6-2-94 | Revised E-8 & E-12; Added E-14 & Deleted E-13 | |
| 4-1-93 | ISSUED | |

ARKANSAS STATE HIGHWAY COMMISSION

# TEMPORARY EROSION CONTROL DEVICES

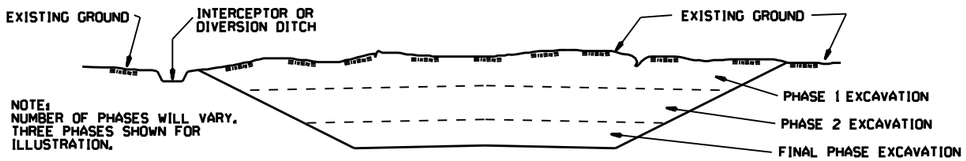
STANDARD DRAWING TEC-2

# CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

# EXCAVATION



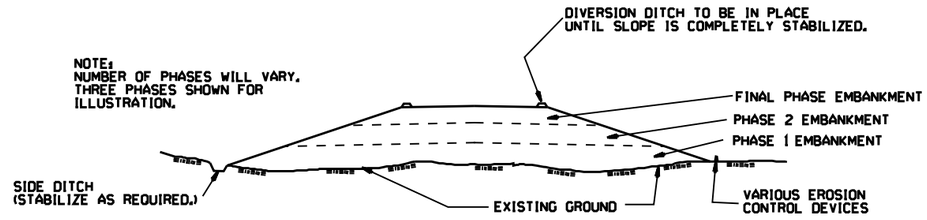

GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

# EMBANKMENT




GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

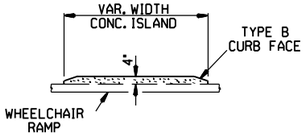
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

| DATE | REVISION | FILMED |
|---|---|---|
| 11-03-94 | CORRECTED SPELLING | |
| 6-2-94 | Drawn & Issued | 6-2-94 |

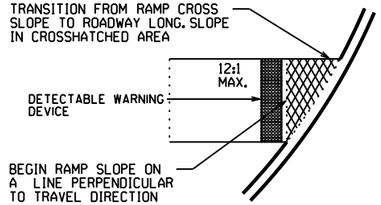
ARKANSAS STATE HIGHWAY COMMISSION

# TEMPORARY EROSION CONTROL DEVICES

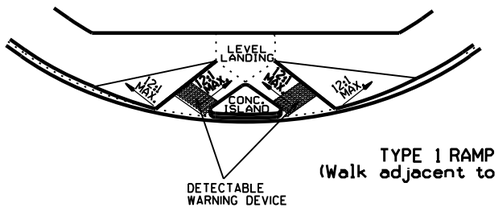
STANDARD DRAWING TEC-3



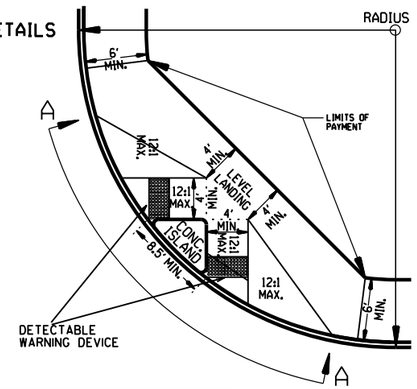

CONCRETE ISLAND DETAIL

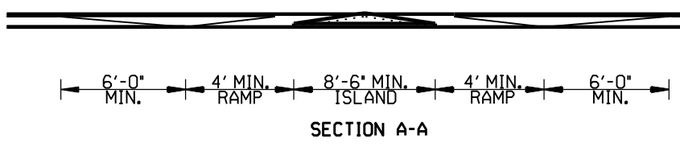



SLOPE TRANSITION DETAILS




TYPE 1 RAMP
(Walk adjacent to curb)

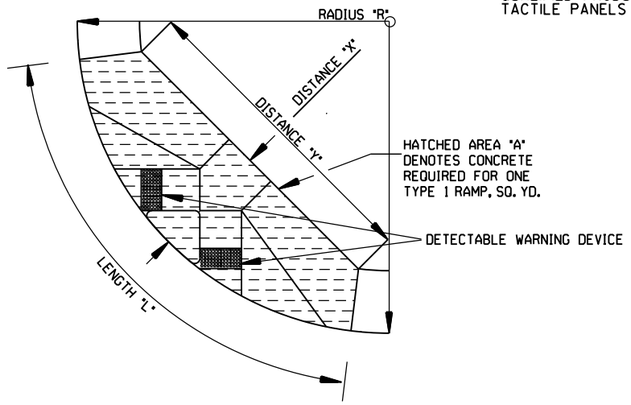



SECTION A-A

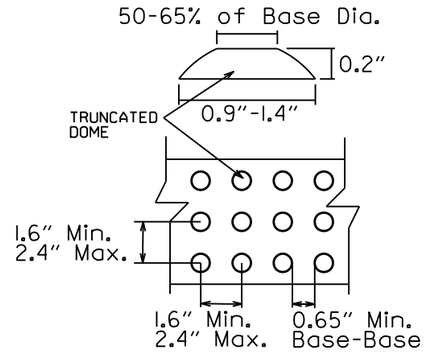
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

| RADIUS "R" FEET | DISTANCE "X" FEET | DISTANCE "Y" FEET | LENGTH "L" FEET | RAMP AREA "A" SQ. YD. |
|---|---|---|---|---|
| 15 | 11.67 | 18.82 | 32.18 | 26.21 |
| 20 | 11.52 | 22.28 | 35.46 | 30.07 |
| 25 | 11.43 | 26.60 | 38.77 | 33.80 |
| 30 | 11.37 | 30.26 | 40.93 | 36.90 |
| 35 | 11.33 | 33.51 | 43.11 | 39.77 |
| 40 | 11.30 | 36.45 | 45.26 | 42.45 |
| 45 | 11.27 | 39.16 | 47.34 | 44.97 |
| 50 | 11.25 | 41.69 | 49.36 | 47.35 |
| 55 | 11.24 | 44.07 | 51.31 | 49.63 |
| 60 | 11.22 | 46.33 | 53.21 | 51.80 |




GENERAL NOTES FOR DETECTABLE WARNING DEVICES

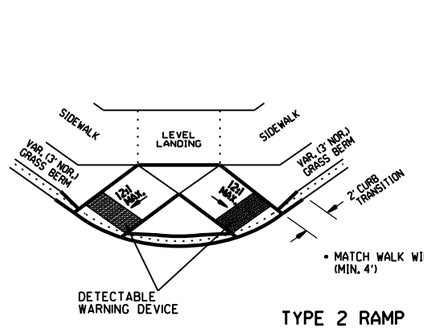
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



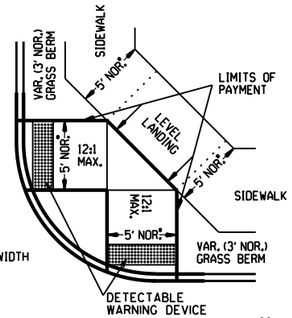

DETECTABLE WARNING DEVICE DETAIL

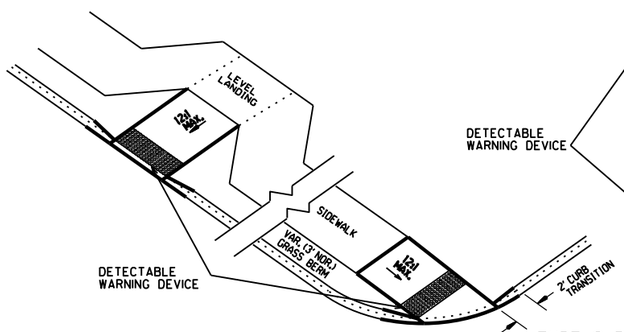
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

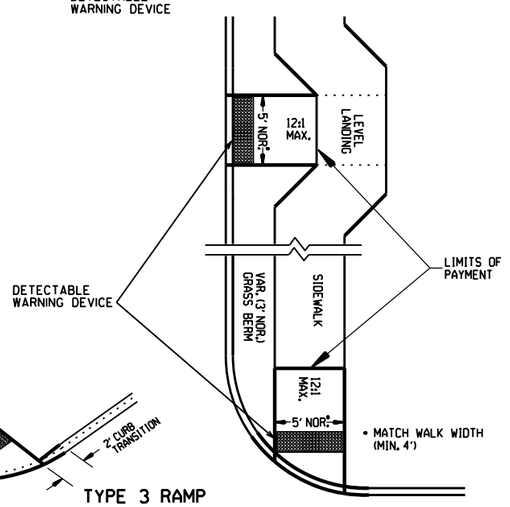



TYPE 2 RAMP

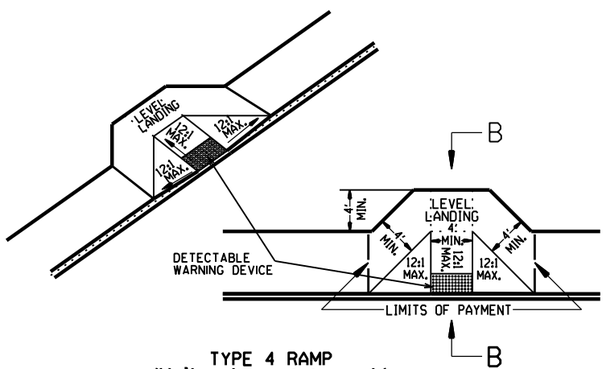


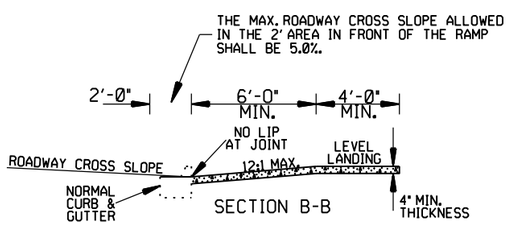

TYPE 3 RAMP




NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.




TYPE 4 RAMP
(Walk adjacent to curb)




SECTION B-B

RAMP SELECTION CRITERIA

| | | |
|---|---|---|
| FIRST CHOICE | TYPE 1 | CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS). |
| | TYPE 2 | CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS). |
| | TYPE 3 | CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS). |
| | TYPE 4 | TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS). |
| SECOND CHOICE | TYPE 5 | TANGENT LOCATIONS (ALTERATIONS ONLY). |
| THIRD CHOICE | TYPE 6 | CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS. |
| FOURTH CHOICE | | IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES. |

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

| DATE | REVISION | DATE FILM |
|---|---|---|
| 11-10-05 | REVISED TO NEW SIDEWALK POLICY | |
| 10-9-03 | REVISED GEN. NOTES & ADDED NOTE | |
| 4-10-03 | REV. DETECTABLE WARNING DEVICES | |
| 8-22-02 | ADD DETECTABLE WARNING DEVICES | |
| 3-30-00 | ADD.SLOPE TRANS. & REV. ISL. DIMS. | |
| 11-18-98 | REVISED NOTES | |
| 8-12-98 | REVISED TEXTURE | |
| 7-02-98 | REDRAWN & REISSUED | |
| 10-18-96 | CORRECTED DIMENSIONS | 10-18-96 |
| 5-24-90 | FROM8#TO12#MAX.SLOPES | 5-24-90 |
| 7-15-88 | ADJUSTED MAX. SLOPE | 652-7-15-88 |
| 7-14-88 | INCLUD."CONC. ISLD."IN PAY ITEM | ------ |
| 6-02-76 | ISSUED-P.H.D. | 299-7-28-76 |

ARKANSAS STATE HIGHWAY COMMISSION

# WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS

STANDARD DRAWING WR-1