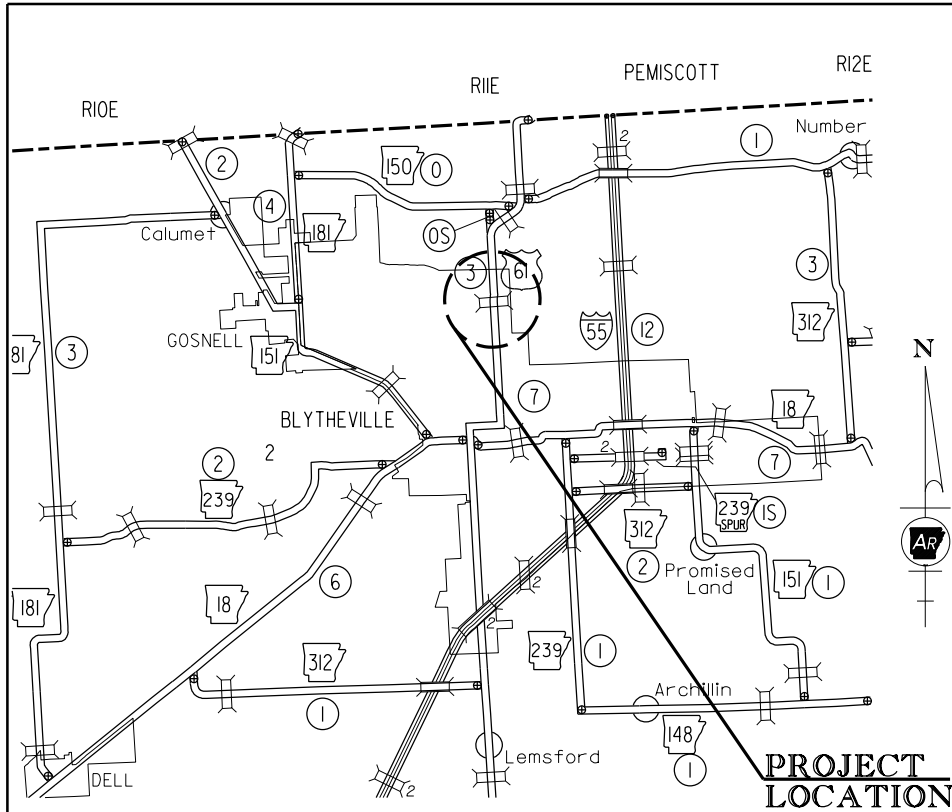


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REVISION DATE: \$REVDATE\$



VICINITY MAP

ARKANSAS DEPARTMENT OF TRANSPORTATION  
CONSTRUCTION PLANS

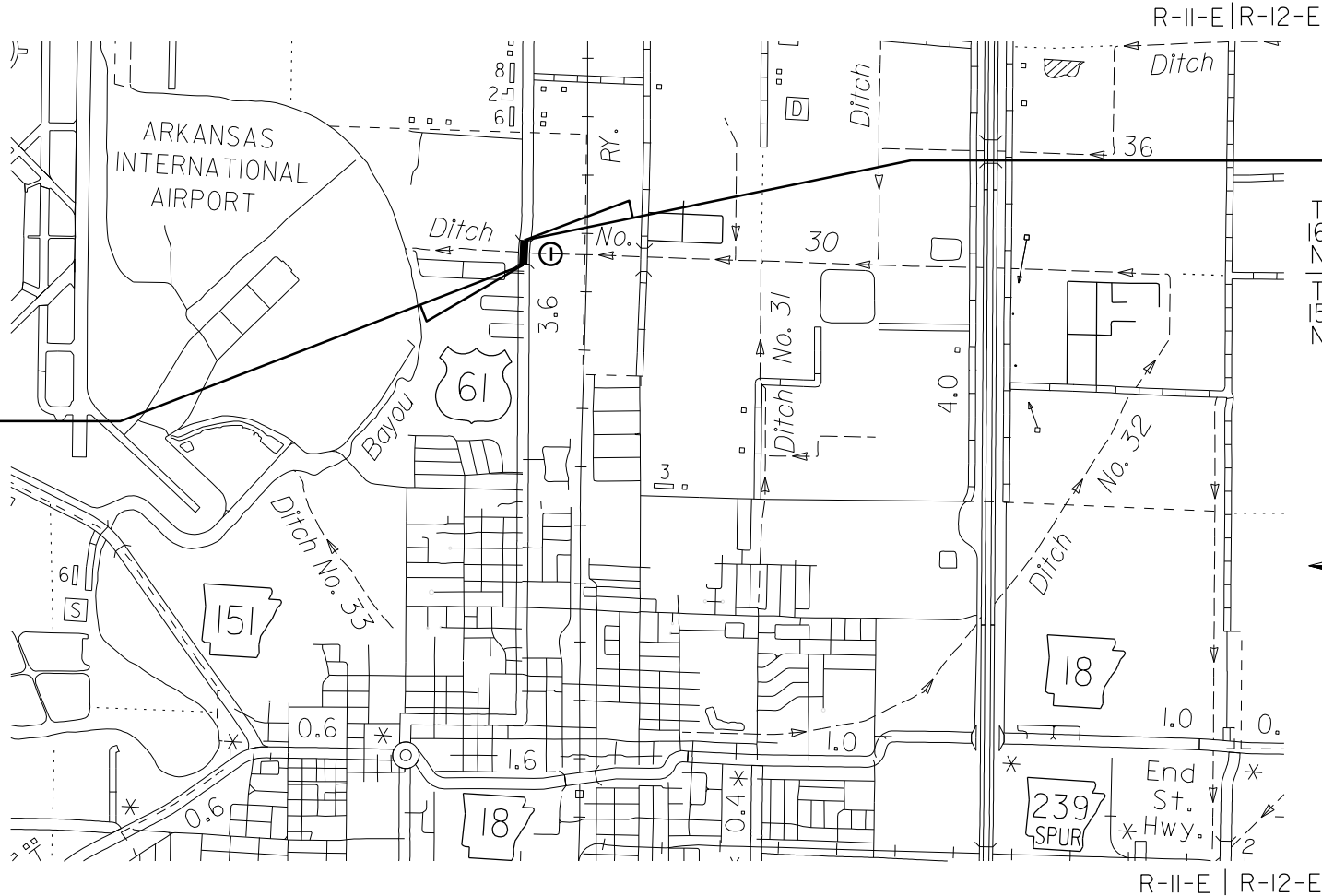
DITCH NO. 30 STR. & APPRS.  
(BLYTHEVILLE) (S)  
MISSISSIPPI COUNTY  
HWY. 61 SECTION 3  
JOB 101009  
FED. AID PROJ. BFP-9051(12)

NOT TO SCALE

BRIDGE CONSTRUCTION DATA

- ① STA. 109+97.50 BRIDGE END  
BRIDGE NO. 07497 OVER DITCH 30  
100'-0" CONTINUOUS INTEGRAL  
W-BEAM UNIT (30'-40'-30')  
30'-0" CLEAR ROADWAY  
101'-0" BRIDGE LENGTH  
STA. 110+98.50 BRIDGE END

STA. 99+91.55  
BEGIN JOB 101009  
L.M. 18.86

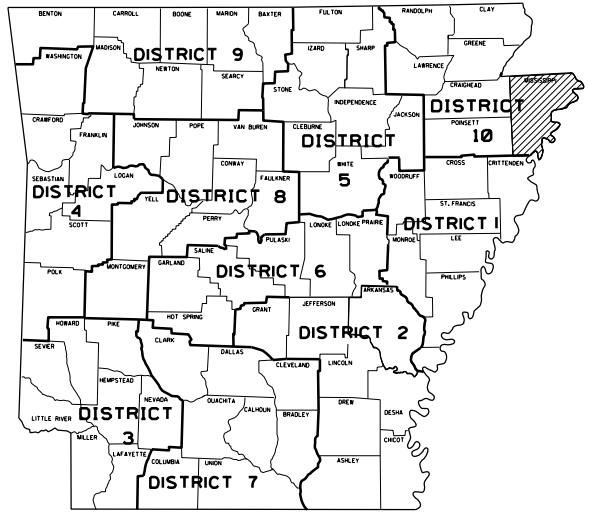


| LENGTH OF PROJECT CALCULATED ALONG C.L. |                          |
|---|--------------------------|
| GROSS LENGTH OF PROJECT                 | 1881.39 FEET 0.356 MILES |
| NET LENGTH OF ROADWAY                   | 1780.39 FEET 0.337 MILES |
| NET LENGTH OF BRIDGES                   | 101.00 FEET 0.019 MILES  |
| NET LENGTH OF PROJECT                   | 1881.39 FEET 0.356 MILES |

|           | BEGIN PROJECT | MID POINT OF PROJECT | END PROJECT   |
|-----------|---------------|----------------------|---------------|
| LATITUDE  | N 35° 57' 21" | N 35° 57' 30"        | N 35° 57' 39" |
| LONGITUDE | W 89° 54' 37" | W 89° 54' 37"        | W 89° 54' 36" |

| 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. 101009     | 1         | 52           |
|              |             |              |             |                    |       |                    |           |              |

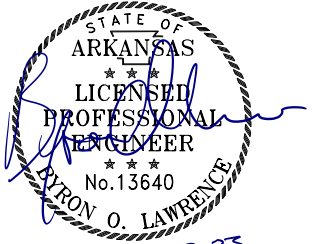
② DITCH NO. 30 STR. & APPRS. (BLYTHEVILLE) (S)



ARKANSAS HIGHWAY DISTRICT 10

• DESIGN TRAFFIC DATA •

DESIGN YEAR-----2043  
2023 ADT-----800  
2043 ADT-----960  
2043 DHV-----32  
DIRECTIONAL DISTRIBUTION-----0.60  
TRUCKS-----4%  
DESIGN SPEED-----55 MPH



2-16-2023

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REVISED DATE: \*\*REDATE\*\*

| DATE<br>REVISED | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED.RD.<br>DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------|----------------|-----------------|----------------|---------------------|-------|------------------|--------------|-----------------|
|                 |                |                 |                | 6                   | ARK.  |                  |              |                 |
|                 |                |                 |                |                     |       | JOB NO.          | 101009       | 2 52            |

2 INDEX OF SHEETS AND STANDARD DRAWINGS



INDEX OF SHEETS

| SHEET NO. | TITLE  | BRIDGE NO. | DRWG.NO. |
|-----------|--|------------|----------|
| 1         | TITLE SHEET  |            |          |
| 2         | INDEX OF SHEETS AND STANDARD DRAWINGS                              |            |          |
| 3         | GOVERNING SPECIFICATIONS AND GENERAL NOTES                         |            |          |
| 4 - 5     | TYPICAL SECTIONS OF IMPROVEMENT                                    |            |          |
| 6         | SPECIAL DETAILS  |            |          |
| 7 - 9     | TEMPORARY EROSION CONTROL DETAILS                                  |            |          |
| 10 - 14   | MAINTENANCE OF TRAFFIC DETAILS                                     |            |          |
| 15        | PERMANENT PAVEMENT MARKING DETAILS                                 |            |          |
| 16 - 19   | QUANTITIES   |            |          |
| 20        | SCHEDULE OF BRIDGE QUANTITIES                                      | 07497      | 61804    |
| 21        | SUMMARY OF QUANTITIES AND REVISIONS                                |            |          |
| 22 - 23   | SURVEY CONTROL DETAILS   |            |          |
| 24 - 27   | PLAN AND PROFILE SHEETS  |            |          |
| 28        | LAYOUT OF BRIDGE - HIGHWAY 61 OVER DITCH NO. 30 (SHEET 1 OF 2)     | 07497      | 61805    |
| 29        | LAYOUT OF BRIDGE - HIGHWAY 61 OVER DITCH NO. 30 (SHEET 2 OF 2)     | 07497      | 61806    |
| 30        | DETAILS OF END BENTS   | 07497      | 61807    |
| 31        | DETAILS OF INTERMEDIATE BENTS                                      | 07497      | 61808    |
| 32        | DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS | 07497      | 61809    |
| 33        | DETAILS OF 100'-0" CONTINUOUS INTEGRAL W-BEAM UNIT (SHEET 1 OF 6)  | 07497      | 61810    |
| 34        | DETAILS OF 100'-0" CONTINUOUS INTEGRAL W-BEAM UNIT (SHEET 2 OF 6)  | 07497      | 61811    |
| 35        | DETAILS OF 100'-0" CONTINUOUS INTEGRAL W-BEAM UNIT (SHEET 3 OF 6)  | 07497      | 61812    |
| 36        | DETAILS OF 100'-0" CONTINUOUS INTEGRAL W-BEAM UNIT (SHEET 4 OF 6)  | 07497      | 61813    |
| 37        | DETAILS OF 100'-0" CONTINUOUS INTEGRAL W-BEAM UNIT (SHEET 5 OF 6)  | 07497      | 61814    |
| 38        | DETAILS OF 100'-0" CONTINUOUS INTEGRAL W-BEAM UNIT (SHEET 6 OF 6)  | 07497      | 61815    |
| 39        | DETAILS OF TYPE SPECIAL APPROACH SLAB                              | 07497      | 61816    |
| 40        | DETAILS OF TYPE SPECIAL APPROACH GUTTERS                           | 07497      | 61817    |
| 41 - 52   | CROSS SECTIONS   |            |          |

BRIDGE STANDARD DRAWINGS

| DRWG.NO. | TITLE   | DATE     |
|----------|---|----------|
| 55000    | STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS                      | 02-27-14 |
| 55001    | STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES | 02-27-14 |
| 55005    | STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS      | 03-24-16 |
| 55006    | STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES  | 09-02-15 |
| 55007    | STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES  | 02-11-16 |
| 55010    | STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE   | 01-11-23 |

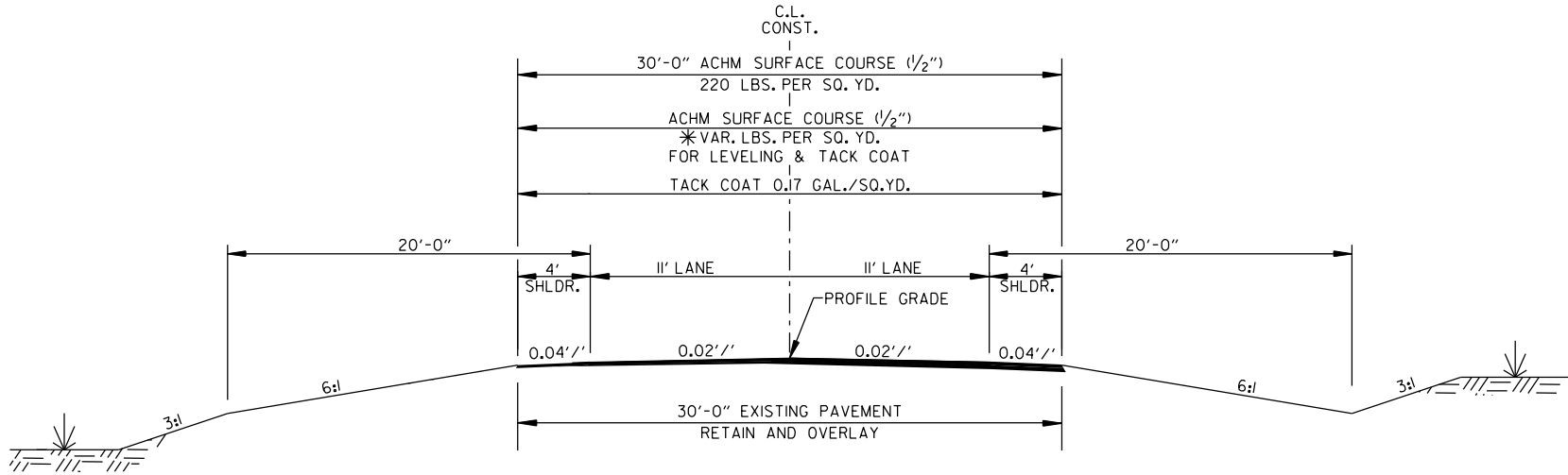
ROADWAY STANDARD DRAWINGS

| DRWG.NO. | TITLE  | DATE     |
|----------|--|----------|
| DR-2     | DETAILS OF DRIVEWAYS & STREET TURNOUTS             | 05-19-22 |
| GR-6     | GUARDRAIL DETAILS                                  | 05-19-22 |
| GR-7     | GUARDRAIL DETAILS                                  | 11-07-19 |
| GR-8     | GUARDRAIL DETAILS                                  | 11-07-19 |
| GR-9     | GUARDRAIL DETAILS                                  | 11-07-19 |
| GR-10    | GUARDRAIL DETAILS                                  | 11-07-19 |
| GR-11    | GUARDRAIL DETAILS                                  | 11-07-19 |
| GR-12    | GUARDRAIL DETAILS                                  | 05-14-20 |
| MB-1     | MAILBOX DETAILS                                    | 11-18-04 |
| PCC-1    | CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING       | 02-27-14 |
| PCM-1    | METAL PIPE CULVERT FILL HEIGHTS & BEDDING          | 02-27-14 |
| PCP-1    | PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)   | 02-27-14 |
| PCP-2    | PLASTIC PIPE CULVERT (PVC F949)                    | 02-27-14 |
| PCP-3    | PLASTIC PIPE CULVERT (POLYPROPYLENE)               | 02-27-20 |
| PM-1     | PAVEMENT MARKING DETAILS                           | 02-27-20 |
| PU-1     | DETAILS OF PIPE UNDERDRAIN                         | 12-08-16 |
| 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 |
| 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 |



| 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.            |       | 101009             | 4         | 52           |
| 2 TYPICAL SECTIONS OF IMPROVEMENT |             |              |             |                    |       |                    |           |              |

\* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



TANGENT SECTION  
OVERLAY

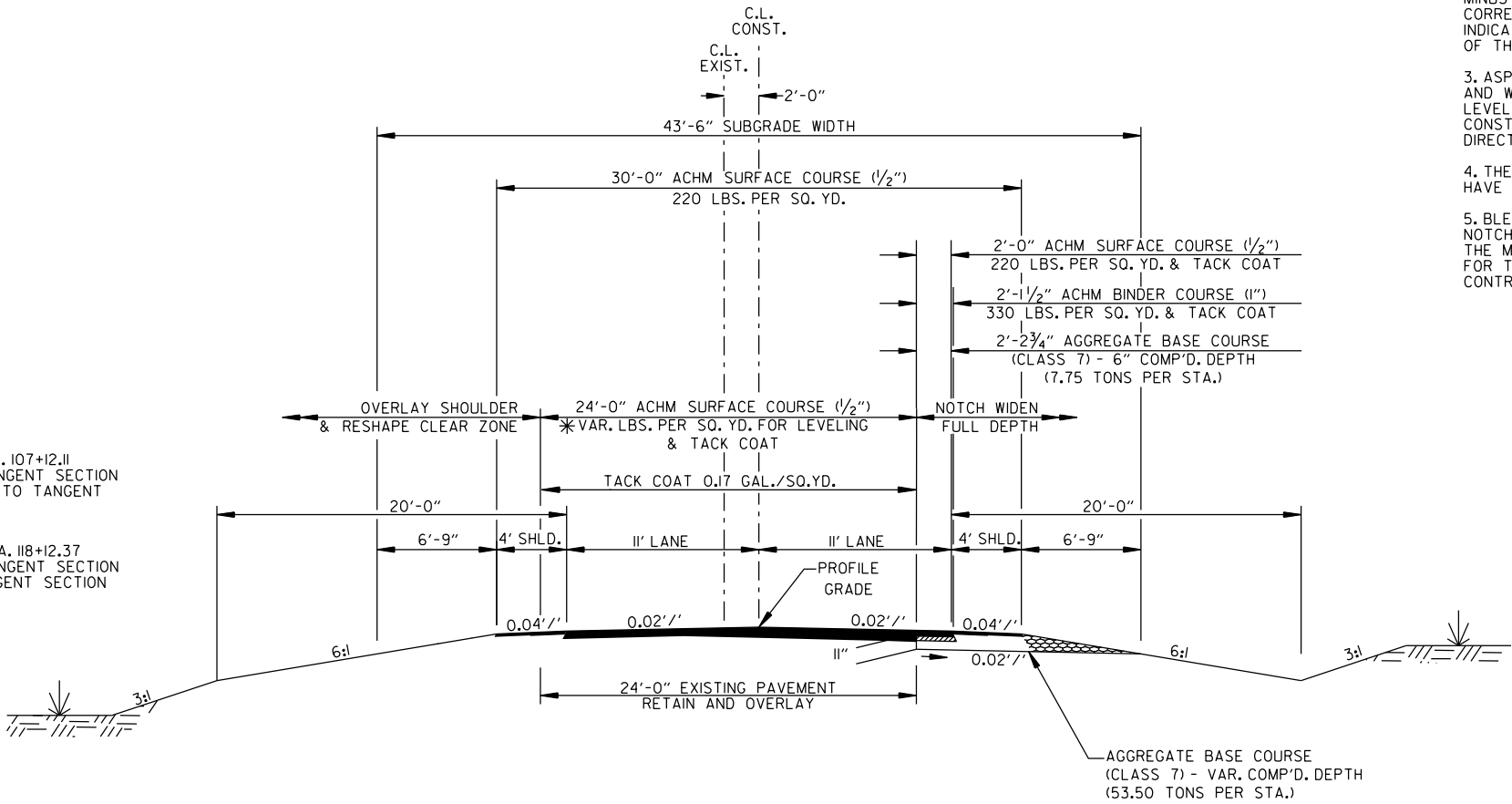
STA. 99+91.55 TO STA. 101+15.93  
STA. 118+12.37 TO STA. 118+72.94

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 IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.
5. BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

STA. 101+15.93 TO STA. 107+12.11  
TRANSITION FROM TANGENT SECTION  
NOTCH AND WIDENING TO TANGENT  
SECTION FULL DEPTH.

STA. 114+73.27 TO STA. 118+12.37  
TRANSITION FROM TANGENT SECTION  
FULL DEPTH TO TANGENT SECTION  
NOTCH AND WIDENING.



TANGENT SECTION  
NOTCH AND WIDENING

STA. 101+15.93 TO STA. 107+12.11  
STA. 114+73.27 TO STA. 118+12.37











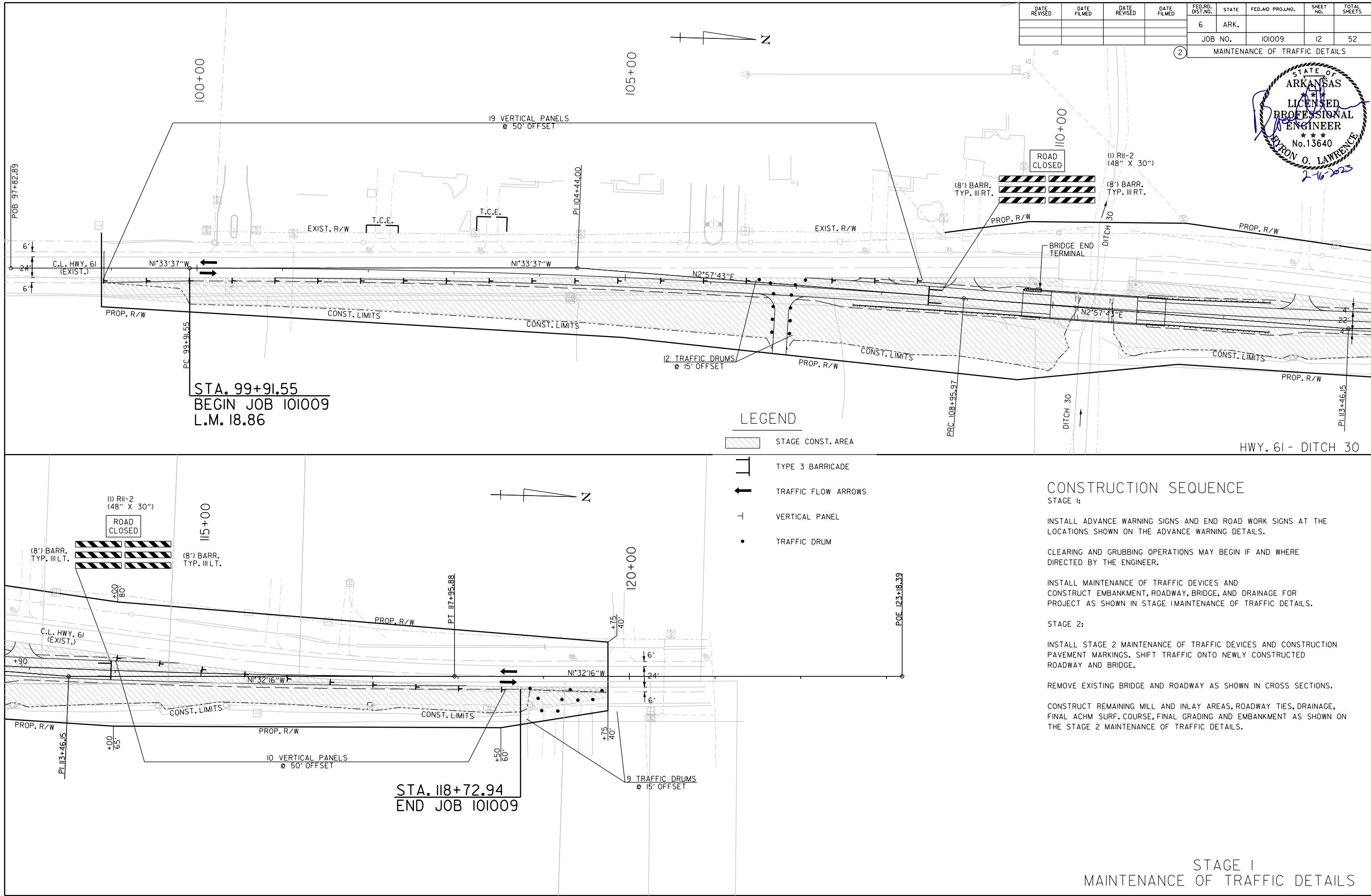








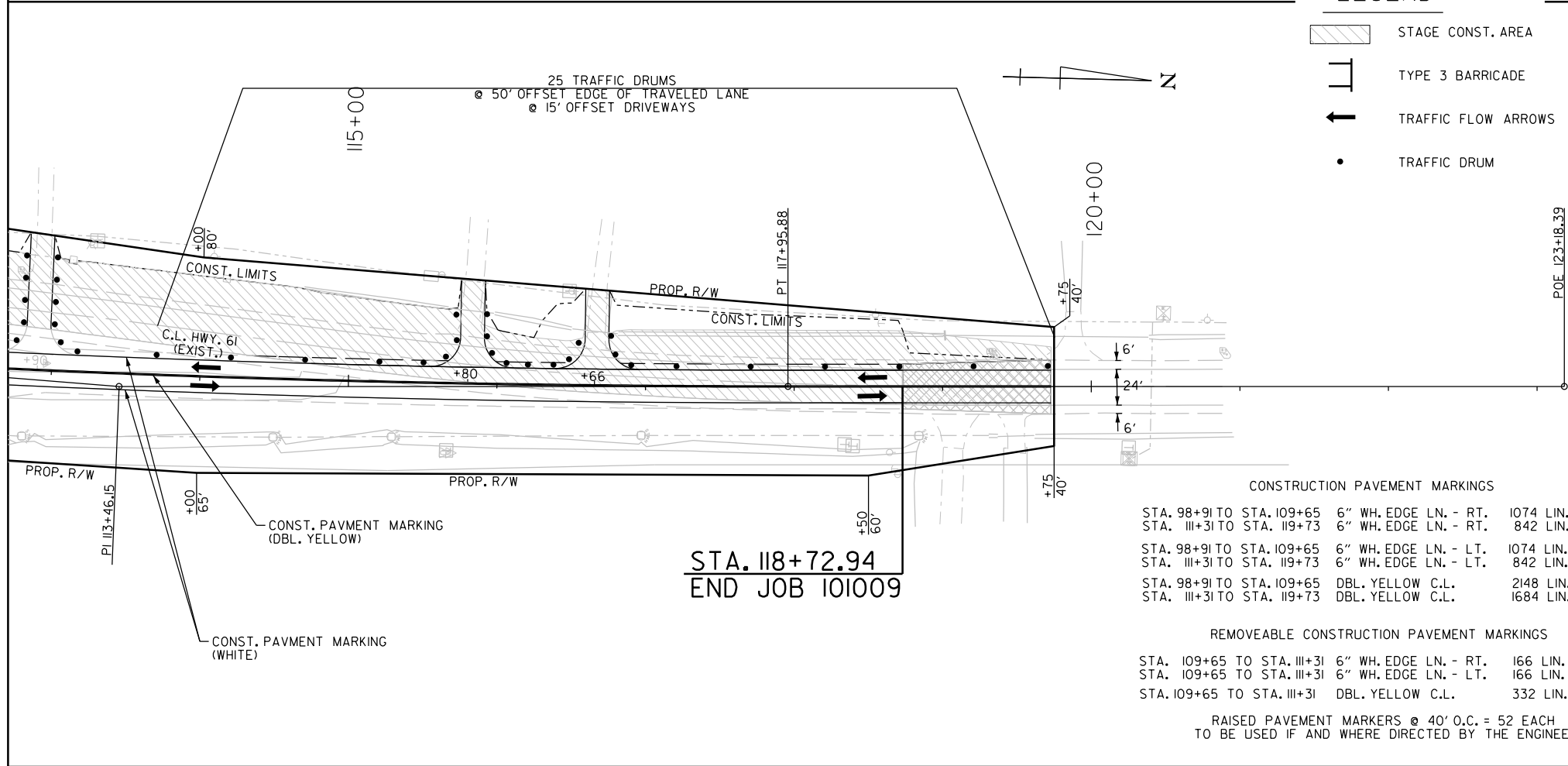
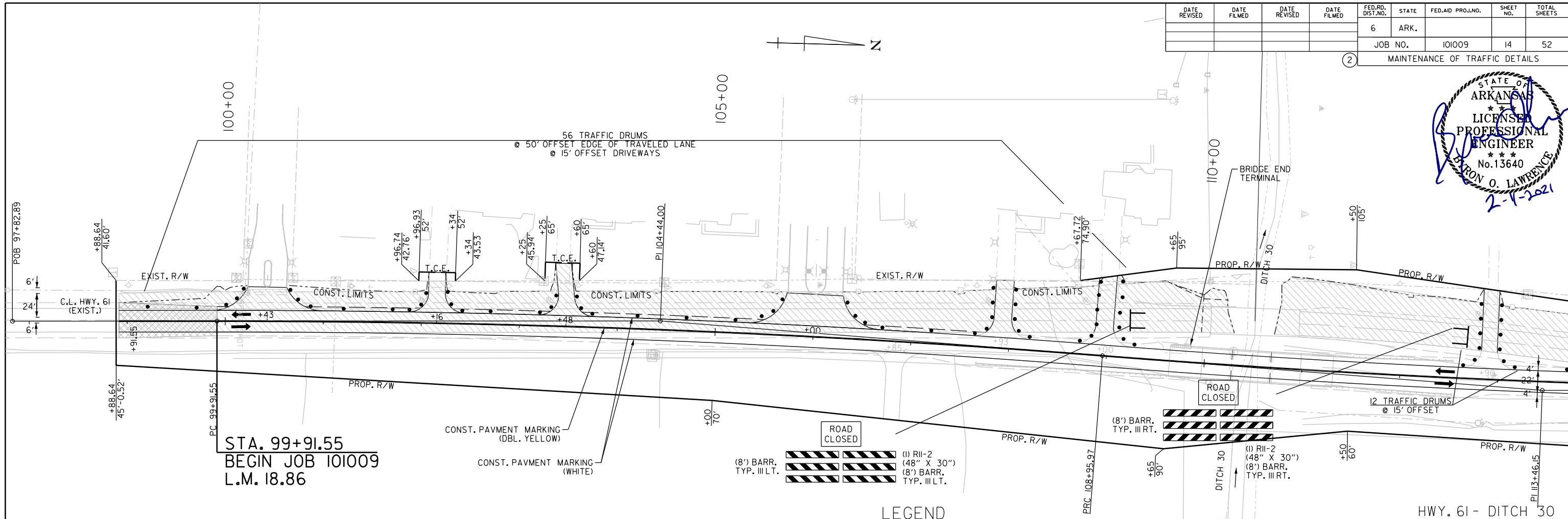
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REVISION DATE: \$\*REVIDATE\$



## CONSTRUCTION SEQUENCE

### STAGE 1:

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

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

INSTALL MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCT EMBANKMENT, ROADWAY, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

### STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND CONSTRUCTION PAVEMENT MARKINGS. SHIFT TRAFFIC ONTO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.

REMOVE EXISTING BRIDGE AND ROADWAY AS SHOWN IN CROSS SECTIONS.

CONSTRUCT REMAINING MILL AND INLAY AREAS, ROADWAY TIES, DRAINAGE, FINAL ACHM SURF. COURSE, FINAL GRADING AND EMBANKMENT AS SHOWN ON THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

## STAGE 2 MAINTENANCE OF TRAFFIC DETAILS



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REVISD DATE: \$REVDATE\$

| DATE<br>REVISED | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED.RD.<br>DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------|----------------|-----------------|----------------|---------------------|-------|------------------|--------------|-----------------|
|                 |                |                 |                | 6                   | ARK.  |                  |              |                 |
|                 |                |                 |                | JOB NO.             |       | 101009           | 16           | 52              |
| QUANTITIES      |                |                 |                |                     |       |                  |              |                 |

2

ADVANCE WARNING SIGNS AND DEVICES

| SIGN<br>NUMBER | DESCRIPTION                  | SIGN SIZE | STAGE 1         | STAGE 2 | END OF<br>JOB | MAXIMUM<br>NUMBER<br>REQUIRED | TOTAL SIGNS<br>REQUIRED |         | VERTICAL<br>PANELS | TRAFFIC<br>DRUMS | BARRICADES (TYPE III) |       |
|----------------|------------------------------|-----------|-----------------|---------|---------------|-------------------------------|-------------------------|---------|--------------------|------------------|-----------------------|-------|
|                |                              |           |                 |         |               |                               | NO.                     | SQ. FT. |                    |                  | EACH                  | RIGHT |
|                |                              |           | LIN. FT. - EACH |         |               |                               |                         |         | LIN. FT.           |                  |                       |       |
| W20-1          | ROAD WORK 1500 FT.           | 36"x36"   | 2               | 2       |               | 2                             | 2                       | 18.0    |                    |                  |                       |       |
| W20-1          | ROAD WORK 1000 FT.           | 36"x36"   | 2               | 2       |               | 2                             | 2                       | 18.0    |                    |                  |                       |       |
| W20-1          | ROAD WORK 500 FT.            | 36"x36"   | 2               | 2       |               | 2                             | 2                       | 18.0    |                    |                  |                       |       |
| G20-2          | END ROAD WORK                | 36"x18"   | 2               | 2       |               | 2                             | 2                       | 9.0     |                    |                  |                       |       |
| R11-2          | ROAD CLOSED                  | 48"x30"   | 2               | 2       |               | 2                             | 2                       | 20.0    |                    |                  |                       |       |
| R4-1           | DO NOT PASS                  | 24"x30"   | 2               | 2       |               | 2                             | 2                       | 10.0    |                    |                  |                       |       |
| W21-5a         | RIGHT SHOULDER CLOSED        | 36"x36"   | 2               | 2       |               | 2                             | 2                       | 18.0    |                    |                  |                       |       |
|                | VERTICAL PANELS              |           | 29              |         |               | 29                            |                         |         | 29                 |                  |                       |       |
|                | TRAFFIC DRUMS                |           | 21              | 93      |               | 93                            |                         |         |                    | 93               |                       |       |
|                | TYPE III BARRICADE-RT. (8')  |           | 2               | 2       |               | 2                             |                         |         |                    |                  | 16                    |       |
|                | TYPE III BARRICADE-L.T. (8') |           | 2               | 2       |               | 2                             |                         |         |                    |                  |                       | 16    |
| TOTALS:        |                              |           |                 |         |               |                               |                         | 111.0   | 29                 | 93               | 16                    | 16    |

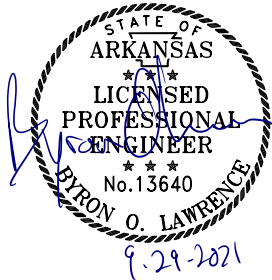
NOTE: THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

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

BENCH MARKS

| STATION | LOCATION                           | BENCH MARKS |
|---------|------------------------------------|-------------|
|         |                                    | EACH        |
| 109+98  | C.L. HWY. 61- BRIDGE OVER DITCH 30 | 1           |

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



MAILBOXES

| LOCATION       | MAILBOXES | MAILBOX SUPPORTS<br>(SINGLE) |
|----------------|-----------|------------------------------|
|                |           | EACH                         |
| ENTIRE PROJECT | 9         | 9                            |
|                |           |                              |
| TOTALS:        | 9         | 9                            |

SELECTED PIPE BEDDING

| LOCATION  | SELECTED<br>PIPE<br>BEDDING |
|---|-----------------------------|
|   | CU.YD.                      |
| ENTIRE PROJECT TO BE USED IF<br>AND WHERE DIRECTED BY THE<br>ENGINEER | 20                          |
|   |                             |
| TOTAL:  | 20                          |

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

| DESCRIPTION                                     | STAGE 1 | STAGE 2 | STAGE 3 | END OF<br>JOB | CONSTRUCTION<br>PAVEMENT<br>MARKINGS | REMOVABLE<br>CONSTRUCTION<br>PAVEMENT<br>MARKINGS | RAISED PAVEMENT<br>MARKERS | THERMOPLASTIC<br>PAVEMENT MARKING |                    |
|---|---------|---------|---------|---------------|--------------------------------------|---|----------------------------|-----------------------------------|--------------------|
|   |         |         |         |               |                                      |   | TYPE II<br>(YELLOW/YELLOW) | 6"                                |                    |
|   |         |         |         |               |                                      |   | EACH                       | WHITE<br>LIN. FT.                 | YELLOW<br>LIN. FT. |
| CONSTRUCTION PAVEMENT MARKINGS                  |         | 7664    |         |               | 7664                                 |   | 52                         |                                   |                    |
| REMOVABLE CONSTRUCTION PAVEMENT MARKINGS        |         | 664     |         |               |                                      | 664   |                            |                                   |                    |
| RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW) |         |         |         | 26            |                                      |   | 26                         |                                   |                    |
| THERMOPLASTIC PAVEMENT MARKING WHITE (6")       |         |         |         | 4163          |                                      |   |                            | 4163                              |                    |
| THERMOPLASTIC PAVEMENT MARKING YELLOW (6")      |         |         |         | 4163          |                                      |   |                            |                                   | 4163               |
| TOTALS:   |         |         |         |               | 7664                                 | 664   | 78                         | 4163                              | 4163               |

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

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

CULVERT CLEAN OUT

| LOCATION   | CULVERT CLEAN OUT | DROP INLET CLEAN OUT |
|--|-------------------|----------------------|
|  | EACH              |                      |
| ENTIRE PROJECT TO BE USED IF AND WHERE<br>DIRECTED BY THE ENGINEER | 20                | 17                   |
|  |                   |                      |
| TOTALS:  | 20                | 17                   |

NOTE: QUANTITY ESTIMATED. SEE SECTION 104.3 OF THE STANDARD SPECIFICATIONS.  
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

GUARDRAIL

| STATION   | STATION   | LOCATION       | GUARDRAIL<br>(TYPE A) | THRIE BEAM<br>GUARDRAIL<br>TERMINAL | GUARDRAIL<br>TERMINAL<br>(TYPE 2) | BRIDGE END<br>TERMINAL |
|-----------|-----------|----------------|-----------------------|-------------------------------------|-----------------------------------|------------------------|
|           |           |                | LIN. FT.              | EACH                                |                                   |                        |
| 107+67.35 | 109+86.10 | RT. OF HWY. 61 | 150                   | 1                                   | 1                                 |                        |
| 109+87.50 | 109+87.50 | LT. OF HWY. 61 |                       |                                     |                                   | 1                      |
| 111+09.90 | 112+53.65 | LT. OF HWY. 61 | 75                    | 1                                   | 1                                 |                        |
| 111+09.90 | 112+53.65 | RT. OF HWY. 61 | 75                    | 1                                   | 1                                 |                        |
| TOTALS:   |           |                | 300                   | 3                                   | 3                                 | 1                      |

DRIVEWAYS & TURNOUTS

| STATION                         | SIDE | LOCATION        | WIDTH | PORTLAND<br>CEMENT<br>CONCRETE<br>DRIVEWAY | ACHM SURFACE COURSE<br>(1/2") 220 LBS. PER SQ. YD.<br>(PG 64-22) |         | AGGREGATE<br>BASE COURSE<br>(CLASS 7) | SIDE DRAINS |     |          | STANDARD DRAWINGS                 |     |     |
|---------------------------------|------|-----------------|-------|--|--|---------|---------------------------------------|-------------|-----|----------|-----------------------------------|-----|-----|
|                                 |      |                 | FEET  |  | SQ. YD.  | SQ. YD. |                                       | TON         | TON | 18"      |                                   | 30" | 36" |
|                                 |      |                 |       |  |  |         |                                       |             |     | LIN. FT. |                                   |     |     |
| 100+43                          | LT.  | C.L. OF HWY. 61 | 40    |  | 211.19   | 23.23   | 86.24                                 |             |     |          |                                   |     |     |
| 102+16                          | LT.  | C.L. OF HWY. 61 | 17    | 39.67                                      | 38.79  | 4.27    | 15.84                                 |             |     |          |                                   |     |     |
| 103+48                          | LT.  | C.L. OF HWY. 61 | 16    | 59.27                                      | 37.01  | 4.07    | 15.11                                 |             |     |          |                                   |     |     |
| 106+00                          | LT.  | C.L. OF HWY. 61 | 56    |  | 275.19   | 30.27   | 112.37                                |             |     |          |                                   |     |     |
| 106+85                          | RT.  | C.L. OF HWY. 61 | 16    |  | 124.09   | 13.65   | 50.67                                 |             | 46  |          | PCC-1, PCM-1, PCP-1, PCP-2, PCP-3 |     |     |
| 107+93                          | LT.  | C.L. OF HWY. 61 | 18    | 78.00                                      | 40.56  | 4.46    | 16.56                                 |             |     |          |                                   |     |     |
| 109+00                          | LT.  | C.L. OF HWY. 61 | 18    | 100.00                                     | 40.56  | 4.46    | 16.56                                 | 30          |     |          | PCC-1, PCM-1, PCP-1, PCP-2, PCP-3 |     |     |
| 112+90                          | LT.  | C.L. OF HWY. 61 | 16    |  | 143.68   | 15.80   | 58.67                                 |             |     |          |                                   |     |     |
| 115+80                          | LT.  | C.L. OF HWY. 61 | 16    |  | 106.34   | 11.70   | 43.42                                 |             |     |          |                                   |     |     |
| 116+66                          | LT.  | C.L. OF HWY. 61 | 16    |  | 97.45  | 10.72   | 39.79                                 |             |     | 38       | PCC-1, PCM-1, PCP-1, PCP-2, PCP-3 |     |     |
| ENTIRE PROJECT TEMPORARY DRIVES |      |                 |       |  |  |         | 150.00                                |             |     |          |                                   |     |     |
| TOTALS:                         |      |                 |       | 276.94                                     | 1114.86  | 122.63  | 605.23                                | 30          | 46  | 38       |                                   |     |     |

BASIS OF ESTIMATE:  
ACHM SURFACE COURSE (1/2").....95.0% MIN. AGGR.....5.0% ASPHALT BINDER  
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

QUANTITIES



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REVISED DATE: \$\$REVDATE\$\$

| DATE<br>REVISED | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED.RD.<br>DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------|----------------|-----------------|----------------|---------------------|-------|------------------|--------------|-----------------|
|                 |                |                 |                | 6                   | ARK.  |                  |              |                 |
|                 |                |                 |                | JOB NO.             |       | 101009           | 17           | 52              |
| 2QUANTITIES     |                |                 |                |                     |       |                  |              |                 |

| REMOVAL AND DISPOSAL OF ITEMS |         |                                    |           |                            |
|-------------------------------|---------|------------------------------------|-----------|----------------------------|
| STATION                       | STATION | LOCATION                           | GUARDRAIL | IMPACT ATTENUATION BARRIER |
|                               |         |                                    | LIN. FT.  | EACH                       |
| 109+25                        | 110+29  | LT. OF EXIST. BRIDGE (LT. OF C.L.) | 104       |                            |
| 110+95                        | 111+97  | RT. OF EXIST. BRIDGE (LT. OF C.L.) | 102       |                            |
|                               |         | BEGIN & END OF EXIST. BRIDGE       |           | 2                          |
| TOTALS:                       |         |                                    | 206       | 2                          |

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

| 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 |         |           | 4000                | 16                           |
| TOTALS:   |         |           | 4000                | 16                           |

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

| 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.



| CLEARING AND GRUBBING |         |                |          |          |
|-----------------------|---------|----------------|----------|----------|
| STATION               | STATION | LOCATION       | CLEARING | GRUBBING |
|                       |         |                | STATION  |          |
| 99+91                 | 118+73  | RT. OF HWY. 61 | 19       | 19       |
| TOTALS:               |         |                | 19       | 19       |

| REMOVAL AND DISPOSAL OF CULVERTS |                |               |              |
|----------------------------------|----------------|---------------|--------------|
| STATION                          | DESCRIPTION    | PIPE CULVERTS | BOX CULVERTS |
|                                  |                | EACH          | EACH         |
| 106+85                           | RT. OF HWY. 61 |               | 1            |
| 107+46                           | RT. OF HWY. 61 | 1             |              |
| 109+54                           | RT. OF HWY. 61 | 1             |              |
| 116+66                           | LT. OF HWY. 61 | 1             |              |
| TOTALS:                          |                | 3             | 1            |

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

| ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC              |     |                  |
|---|-----|------------------|
| LOCATION  | TON | TACK COAT GALLON |
| ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 9   | 18               |
| TOTALS:   | 9   | 18               |

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

|   |         | PERMANENT EROSION CONTROL       |         |       |             |        |                            |               | TEMPORARY EROSION CONTROL |             |        |                   |                 |                   |                |                                |                              |
|---|---------|---------------------------------|---------|-------|-------------|--------|----------------------------|---------------|---------------------------|-------------|--------|-------------------|-----------------|-------------------|----------------|--------------------------------|------------------------------|
| STATION   | STATION | LOCATION                        | SEEDING | LIME  | MULCH COVER | WATER  | SECOND SEEDING APPLICATION | SOLID SODDING | TEMPORARY SEEDING         | MULCH COVER | WATER  | ROCK DITCH CHECKS | SILT FENCE      | FILTER SOCK (18") | SEDIMENT BASIN | OBLITERATION OF SEDIMENT BASIN | *SEDIMENT REMOVAL & DISPOSAL |
|   |         |                                 | ACRE    | TON   | ACRE        | M.GAL. | ACRE                       | SQ.YD.        | ACRE                      | ACRE        | M.GAL. | (E-6) CU.YD.      | (E-11) LIN. FT. | (E-13) LIN. FT.   | (E-14) CU.YD.  | CU.YD.                         | CU. YD.                      |
| ENTIRE PROJECT  |         | CLEARING AND GRUBBING           |         |       |             |        |                            |               |                           |             |        |                   |                 |                   |                |                                |                              |
| ENTIRE PROJECT  |         | STAGE 1                         | 2.35    | 4.70  | 2.35        | 239.7  | 2.35                       |               | 4.70                      | 4.70        | 95.9   | 12                | 301             | 300               | 417            | 417                            | 545                          |
| ENTIRE PROJECT  |         | STAGE 2                         | 4.30    | 8.60  | 4.30        | 438.6  | 4.30                       |               | 8.60                      | 8.60        | 175.4  | 3                 |                 |                   |                |                                | 1                            |
| 98+92   | 109+98  | END OF PROJECT - LT. OF HWY. 61 |         |       |             | 37.2   |                            | 2950          |                           |             |        |                   |                 |                   |                |                                |                              |
| *ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. |         |                                 | 0.67    | 1.34  | 0.67        | 68.3   | 0.67                       |               | 1.34                      | 1.34        | 27.3   | 6                 | 345             |                   |                |                                | 15                           |
| TOTALS:   |         |                                 | 7.32    | 14.64 | 7.32        | 783.8  | 7.32                       | 2950          | 21.01                     | 21.01       | 428.5  | 57                | 3791            | 300               | 417            | 417                            | 576                          |

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  
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.

| SOIL STABILIZATION |         |  |                        |
|--------------------|---------|--|------------------------|
| STATION            | STATION | LOCATION / DESCRIPTION                           | SOIL STABILIZATION TON |
| ENTIRE PROJECT     |         | TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 200                    |
| TOTAL:             |         |  | 200                    |

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

| APPROACH GUTTERS AND SLABS |           |              |                                |                               |                                  |                               |
|----------------------------|-----------|--------------|--------------------------------|-------------------------------|----------------------------------|-------------------------------|
| STATION                    | STATION   | LOCATION     | APPROACH GUTTER (TYPE SPECIAL) | APPROACH SLABS (TYPE SPECIAL) | REINFORCING STEEL-RDWY. (GR. 60) | AGGREGATE BASE CRS. (CLASS 7) |
|                            |           |              | CU.YD.                         | CU.YD.                        | POUND                            | TON                           |
| 109+64.50                  | 109+97.50 | C.L. HWY. 61 |                                | 29.50                         | 2115                             | 22.24                         |
| 109+64.50                  | 109+97.50 | C.L. HWY. 61 | 4.20                           |                               | 358                              | 4.90                          |
| 109+64.50                  | 109+97.50 | C.L. HWY. 61 | 4.20                           |                               | 358                              | 4.90                          |
| 110+98.50                  | 111+31.50 | C.L. HWY. 61 |                                | 29.50                         | 2115                             | 22.24                         |
| 110+98.50                  | 111+31.50 | C.L. HWY. 61 | 4.20                           |                               | 358                              | 4.90                          |
| 110+98.50                  | 111+31.50 | C.L. HWY. 61 | 4.20                           |                               | 358                              | 4.90                          |
| TOTALS:                    |           |              | 16.80                          | 59.00                         | 5662                             | 64.08                         |

NOTE: USE T =9" FOR 4' SHOULDER.

| COLD MILLING ASPHALT PAVEMENT |           |                 |            |                               |
|-------------------------------|-----------|-----------------|------------|-------------------------------|
| STATION                       | STATION   | LOCATION        | AVG. WIDTH | COLD MILLING ASPHALT PAVEMENT |
|                               |           |                 | FEET       | SQ. YD.                       |
| 98+91.55                      | 99+91.55  | C.L. OF HWY. 61 | 33.00      | 366.67                        |
| 118+72.94                     | 119+72.94 | C.L. OF HWY. 61 | 33.00      | 366.67                        |
| TOTAL:                        |           |                 |            | 733.34                        |

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

| EARTHWORK |         |                        |                         |                      |
|-----------|---------|------------------------|-------------------------|----------------------|
| STATION   | STATION | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT |
|           |         |                        | CU, YD.                 |                      |
| ENTIRE    | PROJECT | STAGE 1-MAIN LANES     | 3058                    | 2387                 |
| ENTIRE    | PROJECT | STAGE 2-MAIN LANES     | 2274                    | 628                  |
| ENTIRE    | PROJECT | APPROACHES             |                         | 570                  |
| 109+64    | 114+00  | EXISTING DIRT BERM     | 30                      |                      |
|           |         |                        |                         |                      |
| ENTIRE    | PROJECT | BRIDGE EXCAVATION      | 844                     |                      |
|           |         |                        |                         |                      |
| TOTALS:   |         |                        | 6206                    | 3585                 |

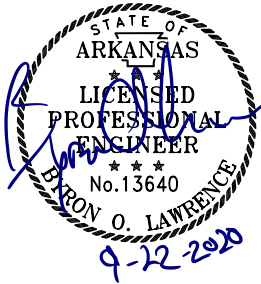
NOTE: EARTHWORK QUANTITIES SHALL BE PAID AS PLAN QUANTITY.

QUANTITIES

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| DATE<br>REVISED | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED.RD.<br>DIST.NO. | STATE | FED.AID PROJ.NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------|----------------|-----------------|----------------|---------------------|-------|------------------|--------------|-----------------|
|                 |                |                 |                | 6                   | ARK.  |                  |              |                 |
|                 |                |                 |                | JOB NO.             |       | 101009           | 18           | 52              |

2 QUANTITIES



| BASE AND SURFACING   |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
|--|-----------|---|--------|---------------------------------|---------|-------------------------|---------|--------|-------------------------|---------|--------|-------------------------|-----------|---------|----------------|----------------------------|----------------|---------|----------------|--------------|----------------|---------|----------------|--------------|--------------------|
| STATION  | STATION   | LOCATION                                    | LENGTH | AGGREGATE BASE COURSE (CLASS 7) |         | TACK COAT               |         |        |                         |         |        | ACHM BINDER COURSE (1") |           |         |                | ACHM SURFACE COURSE (1/2") |                |         |                |              |                |         |                |              |                    |
|  |           |   |        | TON / STATION                   | TON     | (0.05 GAL. PER SQ. YD.) |         |        | (0.17 GAL. PER SQ. YD.) |         |        | TOTAL GALLONS           | AVG. WID. | SQ.YD.  | POUND / SQ.YD. | PG 64-22 TON               | AVG. WID. FEET | SQ.YD.  | POUND / SQ.YD. | PG 64-22 TON | AVG. WID. FEET | SQ.YD.  | POUND / SQ.YD. | PG 64-22 TON | TOTAL PG 64-22 TON |
|  |           |   |        |                                 |         | TOTAL WID FEET          | SQ.YD.  | GALLON | TOTAL WID FEET          | SQ.YD.  | GALLON |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| MAIN LANES   |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| 98+91.55   | 99+91.55  | HWY. 61-TRANSITION                          | 100.00 |                                 |         |                         |         |        | 33.00                   | 366.67  | 62.33  | 62.33                   |           |         |                |                            |                |         |                |              | 33.00          | 366.67  | 220.00         | 40.33        | 40.33              |
| 99+91.55   | 101+15.93 | HWY. 61- TANGENT SECTION OVERLAY            | 124.38 |                                 |         |                         |         |        | 30.00                   | 414.60  | 20.73  | 20.73                   |           |         |                |                            |                |         |                |              | 30.00          | 414.60  | 220.00         | 45.61        | 45.61              |
| 101+15.93  | 107+12.11 | HWY. 61- TANGENT SECTION NOTCH AND WIDENING | 596.18 | 61.25                           | 365.16  | 21.09                   | 1397.05 | 69.85  |                         |         |        | 69.85                   | 11.17     | 739.93  | 330.00         | 122.09                     | 9.92           | 657.12  | 220.00         | 72.28        | 30.00          | 1987.27 | 220.00         | 218.60       | 290.88             |
| 107+12.11  | 109+64.50 | HWY. 61- TANGENT SECTION                    | 252.39 | 192.50                          | 485.85  | 44.71                   | 1253.82 | 62.69  |                         |         |        | 62.69                   | 22.46     | 629.85  | 330.00         | 103.93                     | 22.25          | 623.96  | 220.00         | 68.64        | 30.00          | 841.30  | 220.00         | 92.54        | 161.18             |
| 111+31.50  | 114+73.27 | HWY. 61- TANGENT SECTION                    | 341.77 | 192.50                          | 657.91  | 44.71                   | 1697.84 | 84.89  |                         |         |        | 84.89                   | 22.46     | 852.91  | 330.00         | 140.73                     | 22.25          | 844.93  | 220.00         | 92.94        | 30.00          | 1139.23 | 220.00         | 125.32       | 218.26             |
| 114+73.27  | 118+12.37 | HWY. 61- TANGENT SECTION NOTCH AND WIDENING | 339.10 | 61.25                           | 207.70  | 21.63                   | 814.97  | 40.75  |                         |         |        | 40.75                   | 11.44     | 431.03  | 330.00         | 71.12                      | 10.19          | 383.94  | 220.00         | 42.23        | 30.00          | 1130.33 | 220.00         | 124.34       | 166.57             |
| 118+12.37  | 118+72.94 | HWY. 61- TANGENT SECTION OVERLAY            | 60.57  |                                 |         |                         |         |        | 30.00                   | 201.90  | 10.10  | 10.10                   |           |         |                |                            |                |         |                |              | 30.00          | 201.90  | 220.00         | 22.21        | 22.21              |
| 118+72.94  | 119+72.94 | C.L. HWY. 61- TRANSITION                    | 100.00 |                                 |         |                         |         |        | 33.00                   | 366.67  | 62.33  | 62.33                   |           |         |                |                            |                |         |                |              | 33.00          | 366.67  | 220.00         | 40.33        | 40.33              |
| ADDITIONAL FOR LEVELING  |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| 99+91.55   | 101+15.93 | HWY. 61- TANGENT SECTION OVERLAY            | 124.38 |                                 |         |                         |         |        | 30.00                   | 414.60  | 70.48  | 70.48                   |           |         |                |                            | 30.00          | 414.60  | 105.00         | 21.77        |                |         |                |              | 21.77              |
| 101+15.93  | 107+12.11 | HWY. 61- TANGENT SECTION NOTCH AND WIDENING | 596.18 |                                 |         |                         |         |        | 17.58                   | 1164.54 | 197.97 | 197.97                  |           |         |                |                            | 17.58          | 1164.54 | 460.00         | 267.84       |                |         |                |              | 267.84             |
| 114+73.27  | 118+12.37 | HWY. 61- TANGENT SECTION NOTCH AND WIDENING | 339.10 |                                 |         |                         |         |        | 17.31                   | 652.20  | 110.87 | 110.87                  |           |         |                |                            | 17.31          | 652.20  | 660.00         | 215.23       |                |         |                |              | 215.23             |
| 118+12.37  | 118+72.94 | HWY. 61- TANGENT SECTION OVERLAY            | 60.57  |                                 |         |                         |         |        | 30.00                   | 201.90  | 34.32  | 34.32                   |           |         |                |                            | 30.00          | 201.90  | 350.00         | 35.33        |                |         |                |              | 35.33              |
| ADDITIONAL FOR GUARDRAIL   |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| 107+24.35  | 107+57.35 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 33.00  | 19.50                           | 6.44    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 2.75           | 10.08   | 220.00         | 1.11         | 1.11               |
| 107+57.35  | 107+67.35 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 10.00  | 39.25                           | 3.93    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 5.50           | 6.11    | 220.00         | 0.67         | 0.67               |
| 107+67.35  | 109+42.35 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 175.00 | 32.00                           | 56.00   |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 4.50           | 87.50   | 220.00         | 9.63         | 9.63               |
| 109+42.35  | 109+86.10 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 43.75  | 25.00                           | 10.94   |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 3.50           | 17.01   | 220.00         | 1.87         | 1.87               |
| 109+86.10  | 109+55.50 | HWY. 62 - BRIDGE END TERMINAL - LT.         | 21.00  | 19.50                           | 4.10    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 2.75           | 6.42    | 220.00         | 0.71         | 0.71               |
| 109+55.50  | 109+85.50 | HWY. 62 - BRIDGE END TERMINAL - LT.         | 30.00  | 25.00                           | 7.50    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 3.50           | 11.67   | 220.00         | 1.28         | 1.28               |
| 111+09.90  | 111+53.65 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 43.75  | 25.00                           | 10.94   |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 3.50           | 17.01   | 220.00         | 1.87         | 1.87               |
| 111+53.65  | 112+53.65 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 100.00 | 32.00                           | 32.00   |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 4.50           | 50.00   | 220.00         | 5.50         | 5.50               |
| 112+53.65  | 112+63.65 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 10.00  | 39.25                           | 3.93    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 5.50           | 6.11    | 220.00         | 0.67         | 0.67               |
| 112+63.65  | 112+96.65 | HWY. 62 - GUARDRAIL WIDENING - RT.          | 33.00  | 19.50                           | 6.44    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 2.75           | 10.08   | 220.00         | 1.11         | 1.11               |
| 111+09.90  | 111+53.65 | HWY. 62 - GUARDRAIL WIDENING - LT.          | 43.75  | 25.00                           | 10.94   |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 3.50           | 17.01   | 220.00         | 1.87         | 1.87               |
| 111+53.65  | 112+53.65 | HWY. 62 - GUARDRAIL WIDENING - LT.          | 100.00 | 32.00                           | 32.00   |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 4.50           | 50.00   | 220.00         | 5.50         | 5.50               |
| 112+53.65  | 112+63.65 | HWY. 62 - GUARDRAIL WIDENING - LT.          | 10.00  | 39.25                           | 3.93    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 5.50           | 6.11    | 220.00         | 0.67         | 0.67               |
| 112+63.65  | 112+96.65 | HWY. 62 - GUARDRAIL WIDENING - LT.          | 33.00  | 19.50                           | 6.44    |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              | 2.75           | 10.08   | 220.00         | 1.11         | 1.11               |
| TOTALS:  |           |   |        |                                 | 1912.15 |                         | 5780.18 | 289.01 |                         | 3166.58 | 538.30 | 827.31                  |           | 2653.72 |                | 437.87                     |                | 4943.19 |                | 816.26       |                | 6753.16 |                | 742.85       | 1559.11            |
| BASIS OF ESTIMATE:   |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| ACHM SURFACE COURSE (1/2").....95.0% MIN. AGGR.....5.0% ASPHALT BINDER   |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER  |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22   |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |
| TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES. |           |   |        |                                 |         |                         |         |        |                         |         |        |                         |           |         |                |                            |                |         |                |              |                |         |                |              |                    |

QUANTITIES

I:\projects\9-22-2020 2:34:54 PM  
WORKSPACE\ARDOT\72794\0009.Ditch No 30 Str Appr.s\Design\Civil\Drawings\RI01009\_088\_01T\_001.dgn  
REVISED DATE: \*\*REVIDATE\*\*

| DATE<br>REVISED | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED. RD.<br>DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------|----------------|-----------------|----------------|-----------------------|-------|--------------------|--------------|-----------------|
|                 |                |                 |                | 6                     | ARK.  |                    |              |                 |
|                 |                |                 |                | JOB NO.               |       | 101009             | 19           | 52              |
| ② QUANTITIES    |                |                 |                |                       |       |                    |              |                 |



SUMMARY OF CLASSIFICATION TEST RESULTS  
U.S. Highway 61 Bridge #01257  
Mississippi County, Arkansas  
ARDOT 101009

| Boring No | Depth | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Sieve Analysis |       |         |         |       |       |      |      | AASHTO CLASS. | USCS CLASS. |
|-----------|-------|------------------|-------------------|----------------------|----------------|-------|---------|---------|-------|-------|------|------|---------------|-------------|
|           |       |                  |                   |                      | 2 in.          | 1 in. | 3/4 in. | 3/8 in. | #4    | #10   | #40  | #200 |               |             |
| D-1       | 0     | 56               | 19                | 37                   | --             | --    | --      | --      | --    | --    | --   | --   | A-7-6         | CH          |
| D-1       | 5     | 52               | 22                | 30                   | --             | --    | --      | --      | --    | --    | --   | 90.0 | A-7-6 (29)    | CH          |
| D-1       | 8     | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 100.0 | 72.4 | 6.3  | A-3           | SP-SM       |
| D-1       | 18    | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 100.0 | 99.9 | 5.7  | A-3           | SP-SM       |
| D-1       | 33.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 99.9  | 63.3 | 3.9  | A-3           | SP          |
| D-1       | 43.5  |                  |                   |                      | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 99.9  | 67.2 | 3.4  | A-3           | SP          |
| D-2       | 3     | 0                | 0                 | 0                    | 100.0          | 100.0 | 100.0   | 96.2    | 95.0  | 93.6  | 62.6 | 24.8 | A-2-4 (0)     | SM          |
| D-2       | 6     | 39               | 23                | 16                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 99.9  | 98.4 | 90.9 | A-6 (15)      | CL          |
| D-2       | 18.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 100.0 | 99.8 | 5.5  | A-3           | SP-SM       |
| D-2       | 33.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 99.3  | 47.2 | 4.3  | A-1-b         | SP          |
| D-2       | 48.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 100.0 | 65.9 | 4.5  | A-3           | SP          |
| D-2       | 108.5 | 74               | 28                | 46                   | --             | --    | --      | --      | --    | --    | --   | --   | A-7-6         | CH          |
| D-3       | 18.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 99.9  | 99.3  | 98.6 | 13.9 | A-2-4         | SM          |
| D-3       | 28.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 99.7  | 97.8 | 7.6  | A-3           | SP-SM       |
| D-3       | 43.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 100.0 | 67.6 | 3.4  | A-3           | SP          |
| D-3       | 78.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 99.2  | 18.1 | 3.6  | A-1-b         | SP          |
| D-3       | 113.5 | --               | --                | --                   | --             | --    | --      | --      | --    | --    | --   | --   | A-7-6         | CH          |
| D-4       | 0     | --               | --                | --                   | --             | --    | --      | --      | --    | --    | --   | --   | A-7-6         | CH          |
| D-4       | 10    | 0                | 0                 | 0                    | --             | --    | --      | --      | --    | --    | --   | --   | A-4           | ML          |
| D-4       | 18.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 100.0 | 100.0 | 99.9 | 32.6 | A-2-4         | SM          |
| D-4       | 28.5  | --               | --                | --                   | 100.0          | 100.0 | 100.0   | 100.0   | 99.8  | 99.6  | 51.8 | 3.7  | A-3           | SP          |

NOTE: 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 THE SAME DIFFERING FROM THE ABOVE TABULATIONS.

QUANTITIES

Byron Lawrence 2/16/2023 12:59:24 PM  
WORKSPACE: ARDOT  
Y:\Projects\ARDOT\_172794\_101009\_Ditch No 30 Str Apprs\Design\BRIDGE\Drawings\B101009x1\_Qx1.dgn  
REVISED DATE:

| DATE<br>REVISED | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED.RD.<br>DIST.NO.        | STATE | FED.AID PROJ.NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------|----------------|-----------------|----------------|----------------------------|-------|------------------|--------------|-----------------|
|                 |                |                 |                | 6                          | ARK.  |                  |              |                 |
|                 |                |                 |                | JOB NO.                    |       | 101009           | 20           | 52              |
|                 |                |                 |                | 07497 - QUANTITIES - 61804 |       |                  |              |                 |

SCHEDULE OF BRIDGE QUANTITIES - JOB 101009

| BRIDGE NUMBER | NAME PLATE TITLE             | UNIT OF STRUCTURE                    | ITEM NUMBER | 205   | 801   | SP, SS, & 802           | SP, SS, & 802               | SP & 803                             | SS & 804                            | SS & 804                                  | SS & 805                          | SS & 805                          | SS & 805        | SS & 805  | SP, SS, & 807                                  | 812                        | SS & 816      | SS & 816       |
|---------------|------------------------------|--------------------------------------|-------------|---|---|-------------------------|-----------------------------|--------------------------------------|-------------------------------------|---|-----------------------------------|-----------------------------------|-----------------|-----------|--|----------------------------|---------------|----------------|
|               |                              |                                      | ITEM        | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1) | UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE | CLASS S CONCRETE-BRIDGE | CLASS S(AE) CONCRETE-BRIDGE | CLASS 2 PROTECTIVE SURFACE TREATMENT | REINFORCING STEEL-BRIDGE (GRADE 60) | EPOXY COATED REINFORCING STEEL (GRADE 60) | STEEL SHELL PILING (18" DIAMETER) | STEEL SHELL PILING (24" DIAMETER) | PILE ENCASEMENT | PREBORING | STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W) | BRIDGE NAME PLATE (TYPE D) | DUMPED RIPRAP | FILTER BLANKET |
|               |                              |                                      | UNIT        | LUMP SUM  | CU. YD.                                       | CU. YD.                 | CU. YD.                     | SQ. YD.                              | POUND                               | POUND                                     | LIN. FT.                          | LIN. FT.                          | LIN. FT.        | LIN. FT.  | POUND  | EACH                       | CU. YD.       | SQ. YD.        |
| 07497         | HIGHWAY 61 OVER DITCH NO. 30 | END BENT NO. 1                       |             |   | 22  | 14.40                   |                             |                                      | 4,474                               | 1,085                                     | 375                               |                                   |                 | 50        |  |                            | 61            | 110            |
|               |                              | INTERMEDIATE BENT NO. 2              |             |   |   | 20.10                   |                             |                                      | 6,191                               | 1,950                                     |                                   | 375                               | 25              |           |  |                            |               |                |
|               |                              | INTERMEDIATE BENT NO. 3              |             |   |   | 20.10                   |                             |                                      | 6,191                               | 1,950                                     |                                   | 375                               | 35              |           |  |                            |               |                |
|               |                              | END BENT NO. 4                       |             |   | 26  | 14.40                   |                             |                                      | 4,474                               | 1,085                                     | 415                               |                                   |                 | 50        |  |                            | 69            | 124            |
|               |                              | 100'-0" CONT. INTEGRAL W-BEAM UNIT   |             |   |   |                         | 155.00                      | 439.0                                |                                     | 39,700                                    |                                   |                                   |                 |           | 36,430   | 1                          |               |                |
|               |                              | EXIST. BRIDGE NO. 01257 (SITE NO. 1) |             | 1   |   |                         |                             |                                      |                                     |   |                                   |                                   |                 |           |  |                            |               |                |
|               |                              |                                      |             |   |   |                         |                             |                                      |                                     |   |                                   |                                   |                 |           |  |                            |               |                |
|               |                              |                                      |             |   |   |                         |                             |                                      |                                     |   |                                   |                                   |                 |           |  |                            |               |                |
|               |                              | TOTALS FOR JOB NO. 101009            |             |   | 48  | 69.00                   | 155.00                      | 439.0                                | 21,330                              | 45,770                                    | 790                               | 750                               | 60              | 100       | 36,430   | 1                          | 130           | 234            |

① Steel Shell Piles shall conform to ASTM A252, Grade 3, Fy = 45 ksi.

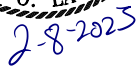


BRIDGE ENGINEER  
PRINT DATE: 2/16/2023

SCHEDULE OF BRIDGE QUANTITIES  
HIGHWAY 61 OVER DITCH NO. 30  
DITCH NO. 30 STR. & APPRS. (BLYTHEVILLE) (S)  
MISSISSIPPI COUNTY  
ROUTE 61 SECTION 3  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS  
DRAWN BY: MKL  
CHECKED BY: SFH  
DESIGNED BY: ---  
BRIDGE NO. 07497  
DATE: 05/2020  
DATE: 09/2020  
DATE: ---  
SCALE: No Scale  
FILENAME: B101009x1\_Qx1.dgn  
DRAWING NO. 61804



2



## SUMMARY OF QUANTITIES

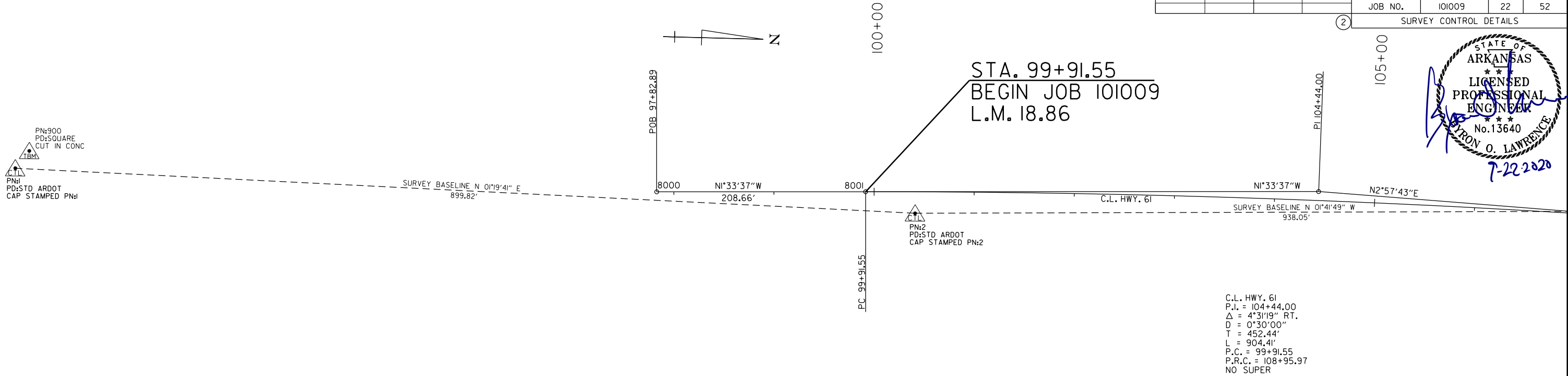
| SUMMARY OF QUANTITIES    |   | QUANTITY | UNIT     |
|--------------------------|---|----------|----------|
| ITEM NUMBER              | ITEM  |          |          |
| 201                      | CLEARING  | 19       | STATION  |
| 201                      | GRUBBING  | 19       | STATION  |
| 202                      | REMOVAL AND DISPOSAL OF PIPE CULVERTS                   | 3        | EACH     |
| 202                      | REMOVAL AND DISPOSAL OF BOX CULVERTS                    | 1        | EACH     |
| 202                      | REMOVAL AND DISPOSAL OF GUARDRAIL                       | 206      | LIN.FT.  |
| 202                      | REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER      | 2        | EACH     |
| SP, SS, & 210            | UNCLASSIFIED EXCAVATION                                 | 6206     | CU. YD.  |
| SP & 210                 | COMPACTED EMBANKMENT                                    | 3585     | CU. YD.  |
| SP & 210                 | SOIL STABILIZATION                                      | 200      | TON      |
| SP, SS, & 303            | AGGREGATE BASE COURSE (CLASS 7)                         | 2581     | TON      |
| SS & 401                 | TACK COAT   | 845      | GAL.     |
| SP, SS, & 406            | MINERAL AGGREGATE IN ACHM BINDER COURSE (1")            | 420      | TON      |
| SP, SS, & 406            | ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")    | 18       | TON      |
| SP, SS, & 407            | MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")         | 1598     | TON      |
| SP, SS, & 407            | ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2") | 84       | TON      |
| SP & 412                 | COLD MILLING ASPHALT PAVEMENT                           | 733      | SQ. YD.  |
| SP, SS, & 414            | ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC    | 9        | TON      |
| SP, SS, & 415            | ACHM PATCHING OF EXISTING ROADWAY                       | 10       | TON      |
| SP, SS, & 504            | APPROACH SLABS  | 59.00    | CU. YD.  |
| SP, SS, & 504            | APPROACH GUTTERS  | 16.80    | CU. YD.  |
| SP, SS, & 505            | PORTLAND CEMENT CONCRETE DRIVEWAY                       | 276.94   | SQ. YD.  |
| 601                      | MOBILIZATION  | 1.00     | LUMP SUM |
| SP & 602                 | FURNISHING FIELD OFFICE                                 | 1        | EACH     |
| SS & 603                 | MAINTENANCE OF TRAFFIC                                  | 1.00     | LUMP SUM |
| SS & 604                 | SIGNS   | 111      | SQ. FT.  |
| SS & 604                 | BARRICADES  | 32       | LIN. FT. |
| SS & 604                 | TRAFFIC DRUMS   | 93       | EACH     |
| 604                      | CONSTRUCTION PAVEMENT MARKINGS                          | 7664     | LIN. FT. |
| 604                      | REMOVABLE CONSTRUCTION PAVEMENT MARKINGS                | 664      | LIN. FT. |
| SS & 604                 | VERTICAL PANELS   | 29       | EACH     |
| SP                       | CULVERT CLEAN OUT                                       | 20       | EACH     |
| SP, SS, & 606            | 18" SIDE DRAIN  | 30       | LIN. FT. |
| SP, SS, & 606            | 30" SIDE DRAIN  | 46       | LIN. FT. |
| SP, SS, & 606            | 36" SIDE DRAIN  | 38       | LIN. FT. |
| SS & 606                 | SELECTED PIPE BEDDING                                   | 20       | CU. YD.  |
| SP                       | DROP INLET CLEAN OUT                                    | 17       | EACH     |
| SS & 611                 | 4" PIPE UNDERDRAINS                                     | 4000     | LIN. FT. |
| SS & 611                 | UNDERDRAIN OUTLET PROTECTORS                            | 16       | EACH     |
| SS & 617                 | GUARDRAIL (TYPE A)                                      | 300      | LIN. FT. |
| SS & 617                 | GUARDRAIL TERMINAL (TYPE 2)                             | 3        | EACH     |
| SS & 617                 | THRIE BEAM GUARDRAIL TERMINAL                           | 3        | EACH     |
| 620                      | LIME  | 15       | TON      |
| 620                      | SEEDING   | 7.32     | ACRE     |
| SS & 620                 | MULCH COVER   | 28.33    | ACRE     |
| 620                      | WATER   | 1212.3   | M. GAL.  |
| 621                      | TEMPORARY SEEDING                                       | 21.01    | ACRE     |
| 621                      | SILT FENCE  | 3791     | LIN. FT. |
| 621                      | SEDIMENT BASIN  | 417      | CU. YD.  |
| 621                      | OBLITERATION OF SEDIMENT BASIN                          | 417      | CU. YD.  |
| 621                      | SEDIMENT REMOVAL AND DISPOSAL                           | 576      | CU. YD.  |
| 621                      | ROCK DITCH CHECKS                                       | 57       | CU. YD.  |
| SS & 621                 | FILTER SOCK (18")                                       | 300      | LIN. FT. |
| 623                      | SECOND SEEDING APPLICATION                              | 7.32     | ACRE     |
| 624                      | SOLID SODDING   | 2950     | SQ. YD.  |
| 635                      | ROADWAY CONSTRUCTION CONTROL                            | 1.00     | LUMP SUM |
| 637                      | MAILBOXES   | 9        | EACH     |
| 637                      | MAILBOX SUPPORTS (SINGLE)                               | 9        | EACH     |
| 719                      | THERMOPLASTIC PAVEMENT MARKING WHITE (6")               | 4163     | LIN. FT. |
| 719                      | THERMOPLASTIC PAVEMENT MARKING YELLOW (6")              | 4163     | LIN. FT. |
| 721                      | RAISED PAVEMENT MARKERS (TYPE II)                       | 78       | EACH     |
| SS & 734                 | BRIDGE END TERMINAL                                     | 1        | EACH     |
| SS & 804                 | REINFORCING STEEL-ROADWAY (GRADE 60)                    | 5662     | POUND    |
| STRUCTURES OVER 20' SPAN |   |          |          |
| 205                      | REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)       | 1.00     | LUMP SUM |
| 636                      | BRIDGE CONSTRUCTION CONTROL                             | 1.00     | LUMP SUM |
| 801                      | UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE           | 48       | CU. YD.  |
| SP, SS, & 802            | CLASS S CONCRETE-BRIDGE                                 | 69.00    | CU. YD.  |
| SP, SS, & 802            | CLASS S(AE) CONCRETE-BRIDGE                             | 155.00   | CU. YD.  |
| SP & 803                 | CLASS 2 PROTECTIVE SURFACE TREATMENT                    | 439.0    | SQ. YD.  |
| SS & 804                 | REINFORCING STEEL-BRIDGE (GRADE 60)                     | 21330    | POUND    |
| SS & 804                 | EPOXY COATED REINFORCING STEEL (GRADE 60)               | 45770    | POUND    |
| SS & 805                 | STEEL SHELL PILING (18" DIAMETER)                       | 790      | LIN. FT. |
| SS & 805                 | STEEL SHELL PILING (24" DIAMETER)                       | 750      | LIN. FT. |
| SS & 805                 | PREBORING   | 100      | LIN. FT. |
| SS & 805                 | PILE ENCASEMENT   | 60       | LIN. FT. |
| SP, SS, & 807            | STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)          | 36430    | POUND    |
| 812                      | BRIDGE NAME PLATE (TYPE D)                              | 1        | EACH     |
| SS & 816                 | FILTER BLANKET  | 234      | SQ. YD.  |
| SS & 816                 | DUMPED RIPRAP   | 130      | CU. YD.  |

## REVISIONS

[illegible]

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WORKSPACE: ARDOT  
Y:\Projects\ARDOT\IT2794\101009.dwg  
REVISED DATE: \$REVDAT\$

| DATE<br>REVISED        | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED.RD.<br>DIST.NO. | STATE  | FED.AID PROJ.NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|----------------|-----------------|----------------|---------------------|--------|------------------|--------------|-----------------|
|                        |                |                 |                | 6                   | ARK.   |                  |              |                 |
|                        |                |                 |                |                     |        |                  |              |                 |
|                        |                |                 |                |                     |        |                  |              |                 |
|                        |                |                 |                | JOB NO.             | 101009 | 22               | 52           |                 |
| SURVEY CONTROL DETAILS |                |                 |                |                     |        |                  |              |                 |



SURVEY CONTROL COORDINATES

Project Name: s101009  
Date: 5/1/2019  
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 470018A - 470019A  
PROJECTED TO GROUND.  
Units: U.S. SURVEY FOOT

| Point<br>Name | Northing    | Easting      | Elev   | Feature | Description                 |
|---------------|-------------|--------------|--------|---------|-----------------------------|
| 1             | 596273.2816 | 1930901.1890 | 253.74 | CTL     | STD ARDOT CAP STAMPED PN: 1 |
| 2             | 597172.8558 | 1930922.0460 | 253.22 | CTL     | STD ARDOT CAP STAMPED PN: 2 |
| 3             | 598110.4942 | 1930894.2666 | 254.41 | CTL     | STD ARDOT CAP STAMPED PN: 3 |
| 4             | 599020.4373 | 1930946.0862 | 253.79 | CTL     | STD ARDOT CAP STAMPED PN: 4 |
| 5             | 599969.5495 | 1930873.9996 | 253.48 | CTL     | STD ARDOT CAP STAMPED PN: 5 |
| 100           | 610645.4083 | 1940985.1283 | 253.87 | GPS     | ARDOT GPS MON 470018A       |
| 101           | 611466.0124 | 1930665.9461 | 254.26 | GPS     | ARDOT GPS MON 470019A       |
| 900           | 596286.7757 | 1930883.6001 | 254.13 | TBM     | SQUARE CUT IN CONC          |
| 901           | 598226.8860 | 1930891.6615 | 254.75 | TBM     | SQUARE CUT ON NE CRNR BR    |
| 902           | 599985.8761 | 1930862.4940 | 252.61 | TBM     | SQUARE CUT CNTR TOP S HW    |
| 903           | 592847.1017 | 1930983.9391 | 250.74 | TBM     | SQUARE CUT IN CONC E DI     |
| 904           | 589585.3477 | 1931140.9831 | 254.38 | TBM     | SQUARE CUT IN CONC N DI     |
| 905           | 588460.8221 | 1932812.5145 | 256.83 | TBM     | X CUT IN BOLT OF FH         |
| 999           | 588409.4088 | 1935203.8373 | 252.78 | BM      | NGS BM BLYTHVILLE 1955      |

\*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped  
(standard markings common to all caps), or as indicated  
(other markings indicated in the point description of the individual point).  
ALL DISTANCES ARE GROUND.  
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.  
A PROJECT CAF OF 0.999949492 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 s101009g1.CTL  
HORIZONTAL DATUM: NAD 83 (2011)  
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE  
AT A SPECIFIC POINT.

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

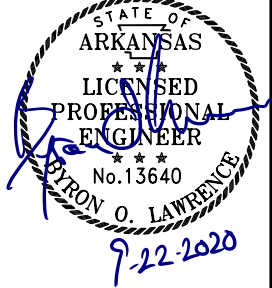
BASIS OF BEARING:  
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE  
DETERMINED FROM GPS CONTROL POINTS: 470018A - 470019A  
CONVERGENCE ANGLE: 01-12-58 RIGHT AT PN: 3 LT: N35-57-30 LG: W089-54-36  
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

| POINT<br>NUMBER | ALIGNMENT NAME: HWY. 61 |      |             |              |
|-----------------|-------------------------|------|-------------|--------------|
|                 | STATION                 | TYPE | NORTHING    | EASTING      |
| 8000            | 97+82.89                | POB  | 596914.2666 | 1930907.5666 |
| 8001            | 99+91.55                | PC   | 597122.8524 | 1930901.8853 |
|                 | 104+44.00               | PI   | 597575.1266 | 1930889.5665 |
| 8002            |                         | CC   | 597434.8528 | 1942356.7970 |
| 8003            | 108+95.97               | PRC  | 598026.9641 | 1930912.9449 |
|                 | 113+46.15               | PI   | 598476.5501 | 1930936.2067 |
| 8004            |                         | CC   | 598619.0752 | 1919469.0968 |
| 8005            | 117+95.88               | PT   | 598926.5754 | 1930924.1262 |
| 8006            | 123+18.39               | POE  | 599448.8932 | 1930910.1050 |

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REVISED DATE: \*\*REDATE\*\*

| DATE<br>REVISED        | DATE<br>FILMED | DATE<br>REVISED | DATE<br>FILMED | FED. RD.<br>DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|----------------|-----------------|----------------|-----------------------|--------|--------------------|--------------|-----------------|
|                        |                |                 |                | 6                     | ARK.   |                    |              |                 |
|                        |                |                 |                |                       |        |                    |              |                 |
|                        |                |                 |                |                       |        |                    |              |                 |
|                        |                |                 |                | JOB NO.               | 101009 | 23                 | 52           |                 |
| SURVEY CONTROL DETAILS |                |                 |                |                       |        |                    |              |                 |

2



C.L. HWY. 61  
P.I. = 104+44.00  
 $\Delta$  = 4°31'19" RT.  
D = 0°30'00"  
T = 452.44'  
L = 904.41'  
P.C. = 99+91.55  
P.R.C. = 108+95.97  
NO SUPER

PN:3  
PD:STD ARDOT  
CAP STAMPED PN:3

PN:901  
PD:SQUARE CUT  
ON NE CRNR BR

STA. 118+72.94  
END JOB 101009

PT. 117+95.88

120+00

N

115+00

N2°57'43"E

N1°32'16"W

N1°32'16"W

522.51'

PN:4  
PD:STD ARDOT  
CAP STAMPED PN:4

C.L. HWY. 61  
P.I. = 113+46.15  
 $\Delta$  = 4°29'58" LT.  
D = 0°30'00"  
T = 450.19'  
L = 899.91'  
P.R.C. = 108+95.97  
P.T. = 117+95.88  
NO SUPER

PI 113+46.15

PRC 108+95.97

8003

8005

N

POE 123+18.39

C.L. HWY. 61

N01°32'16"W

522.51'

8006

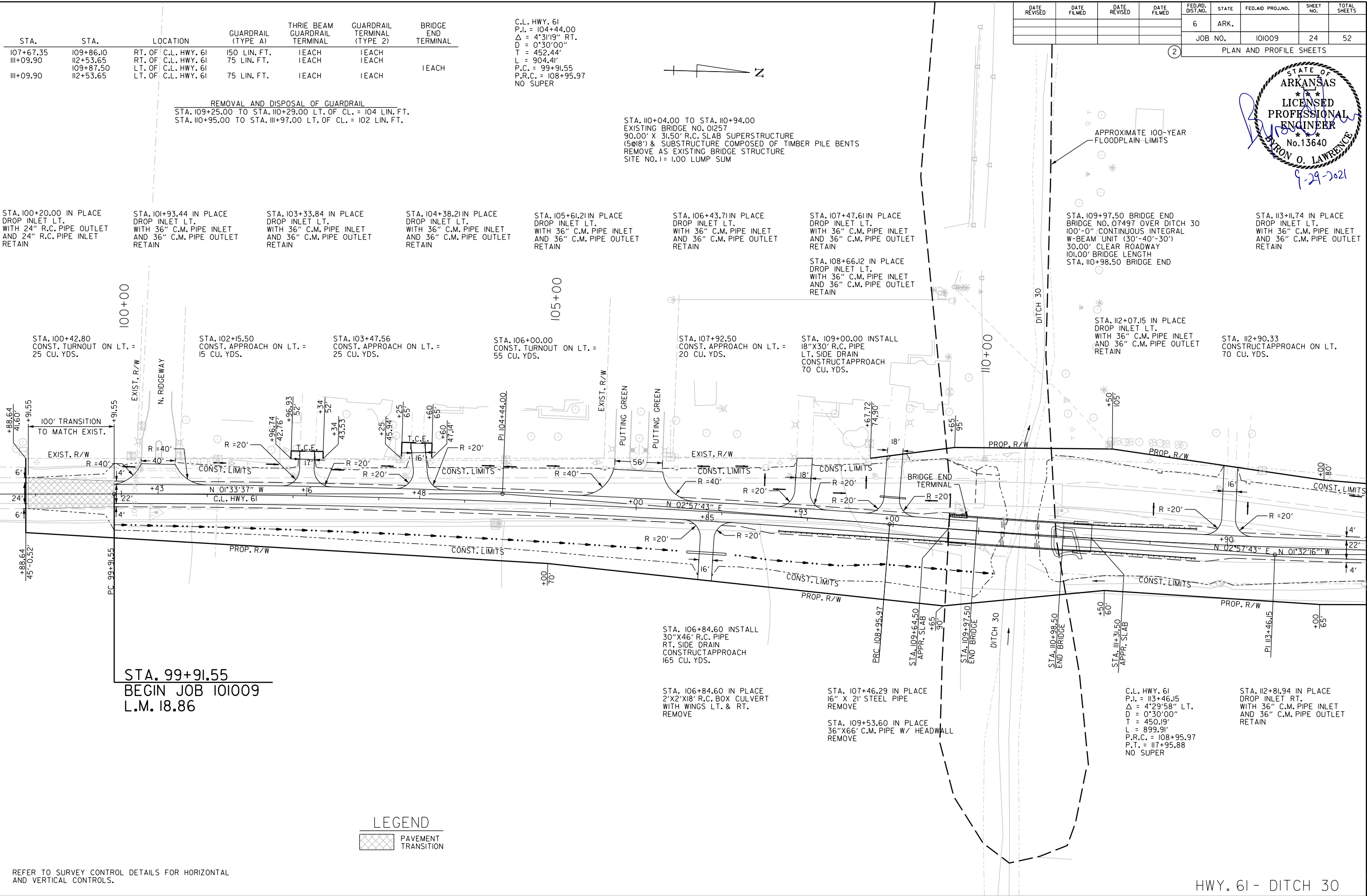
SURVEY BASELINE N 04°20'36" W  
951.85'

PN:902  
PD:SQUARE CUT  
CNTR TOP S HW

PN:5  
PD:STD ARDOT  
CAP STAMPED PN:5

SURVEY CONTROL DETAILS

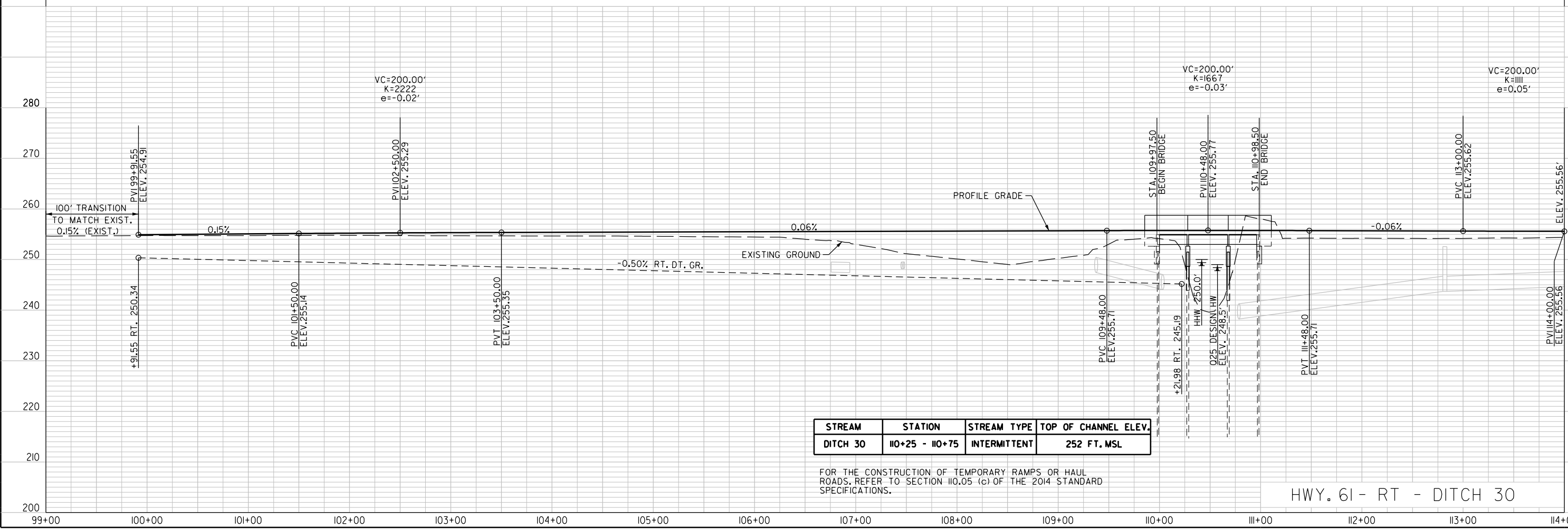
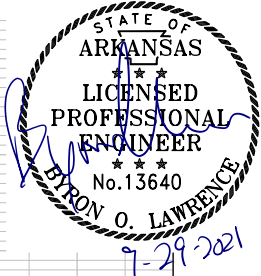
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REVISED DATE: \$\*REDATE\$\*

REFER TO SURVEY CONTROL DETAILS FOR HORIZONTAL  
AND VERTICAL CONTROLS.

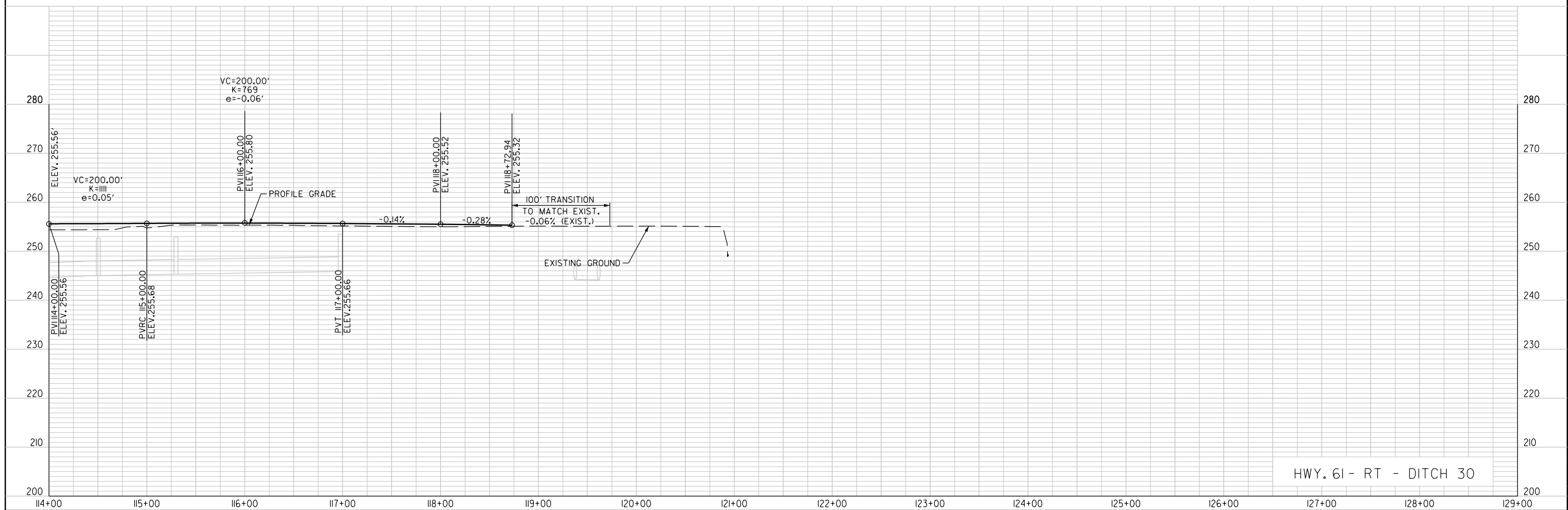
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|-----------------|----------------|-----------------|----------------|---------------------------|-------|-----------------------|--------------|-----------------|
|                 |                |                 |                | 6                         | ARK.  |                       |              |                 |
|                 |                |                 |                | JOB NO.                   |       | 101009                | 25           | 52              |
|                 |                |                 |                | 2 PLAN AND PROFILE SHEETS |       |                       |              |                 |







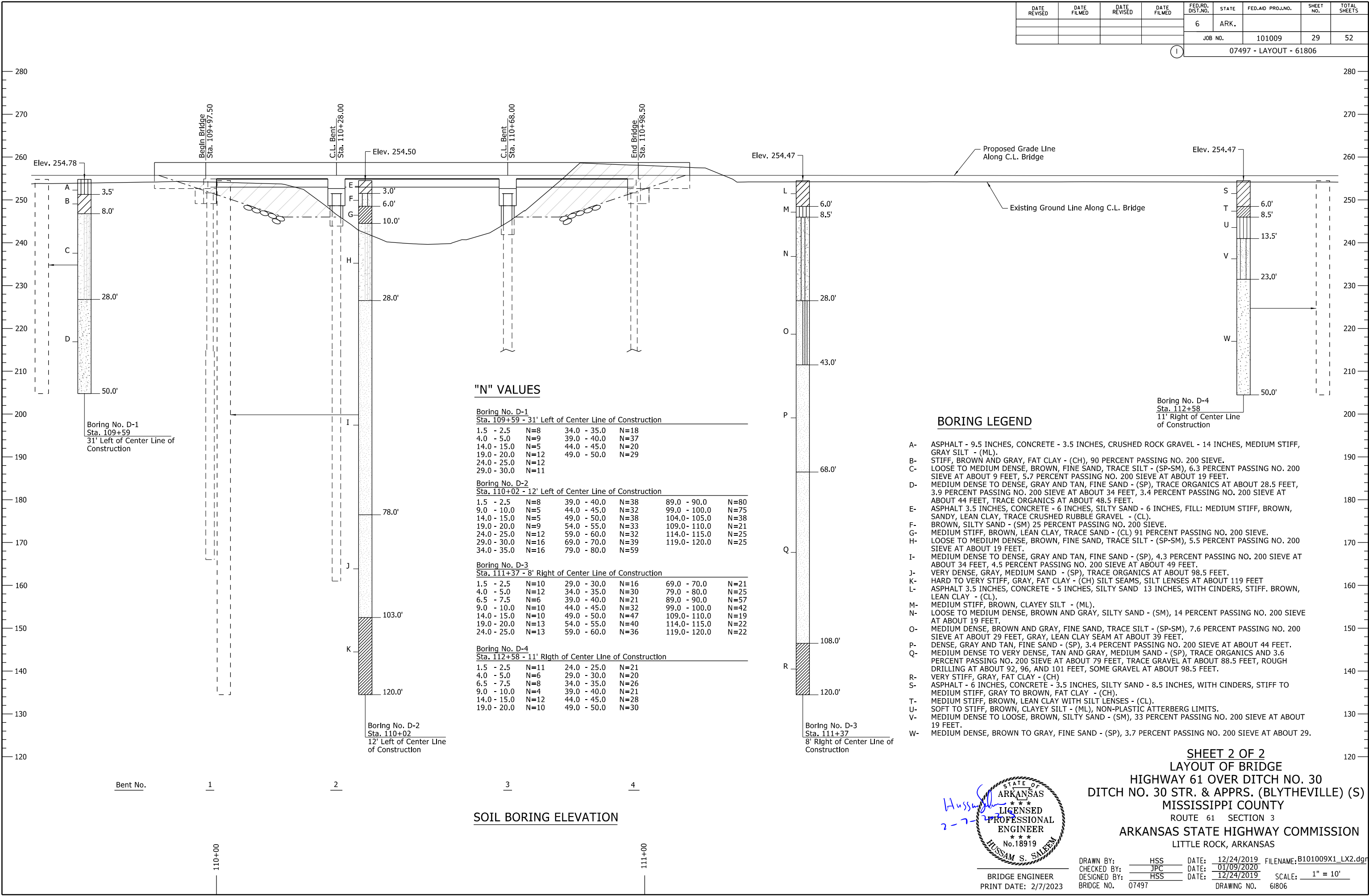
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|-----------------|----------------|-----------------|----------------|-------------------------|--------|------------------|--------------|-----------------|
|                 |                |                 |                | 6                       | ARK.   |                  |              |                 |
|                 |                |                 |                | JOB NO.                 | I0I009 | 27               | 52           |                 |
| (2)             |                |                 |                | PLAN AND PROFILE SHEETS |        |                  |              |                 |



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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.            |       | 101009             | 31        | 52           |
| 07497 - INT. BENTS - 61808 |             |              |             |                    |       |                    |           |              |

BAR LIST-PER BENT

| MARK  | NO. REQ'D. | LENGTH  | PIN DIA. | BENDING DIAGRAMS<br>Dimensions are out to out of bars. |  |
|-------|------------|---------|----------|--|--|
| B401  | 25         | 6'-6"   | 2"       |  |  |
| B402  | 6          | 24'-6"  | Str.     |  |  |
| B501  | 10         | 32'-2"  | Str.     |  |  |
| B502  | 16         | 6'-3"   | 3 3/4"   |  |  |
| B503  | 120        | 4'-9"   | 3 3/4"   |  |  |
| B601  | 108        | 13'-6"  | 4 1/2"   |  |  |
| B602  | 40         | 10'-8"  | 4 1/2"   |  |  |
| B604E | 82         | 15'-10" | 4 1/2"   |  |  |
| B901  | 8          | 34'-8"  | 9"       |  |  |
| B902  | 6          | 34'-10" | 9"       |  |  |
| B903  | 4          | 34'-3"  | 9"       |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |
|       |            |         |          |  |  |

① For Details of 1 1/2" Ø x 19" Anchor Bolt & 1" Bearing plate, See Dwg. No. 61811.

PLAN

1/2" = 1'-0"

ELEVATION

1/2" = 1'-0"

SECTION A-A

3/4" = 1'-0"

SECTION B-B

3/4" = 1'-0"

GENERAL NOTES

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

For additional information, see Layout.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

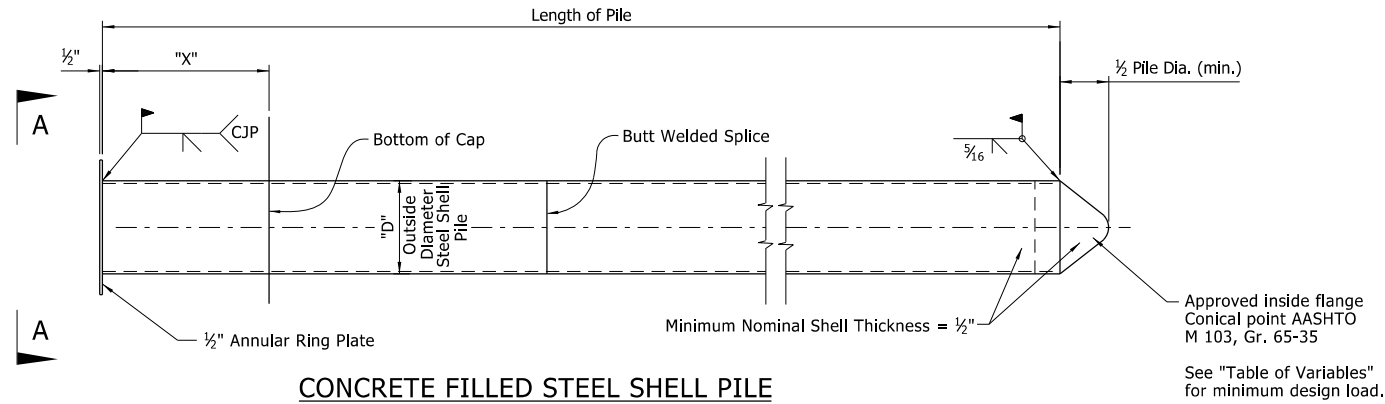
DETAILS OF INTERMEDIATE BENTS  
DITCH NO. 30

ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS

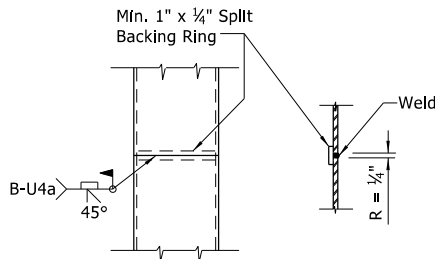
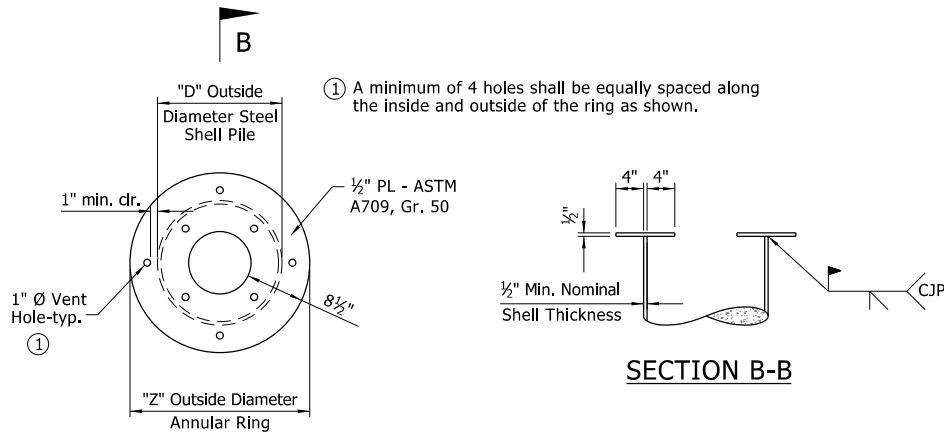
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PRINT DATE: 2/7/2023

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CHECKED BY: SFH  
DESIGNED BY: HSS  
DATE: 05/2020  
DATE: 05/2020  
DATE: 05/2020  
BRIDGE NO. 07497  
DRAWING NO. 61808  
SCALE: As Shown  
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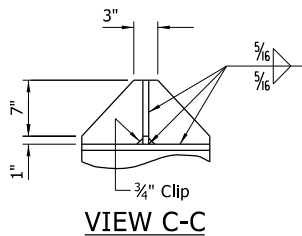
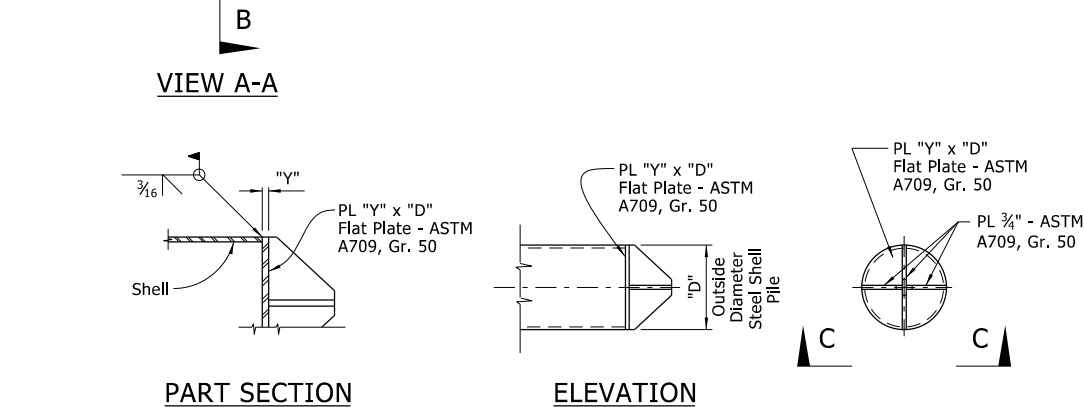
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REVISED DATE:



CONCRETE FILLED STEEL SHELL PILE



TYPICAL SPLICE DETAILS



ELEVATION

VIEW C-C

ALTERNATE VANED TIP DETAIL

TABLE OF VARIABLES

| OUTSIDE DIAMETER STEEL SHELL PILE "D" | PILE EMBEDMENT "X" | PLATE THICKNESS "Y" | OUTSIDE DIAMETER ANNULAR RING "Z" | MINIMUM CONICAL TIP DESIGN LOAD (KIPS) |
|---------------------------------------|--------------------|---------------------|-----------------------------------|--|
| 18"                                   | 2'-6"              | 1 1/2"              | 26"                               | 1,114                                  |
| 24"                                   | 2'-10"             | 1 3/4"              | 32"                               | 1,495                                  |

GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL 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.

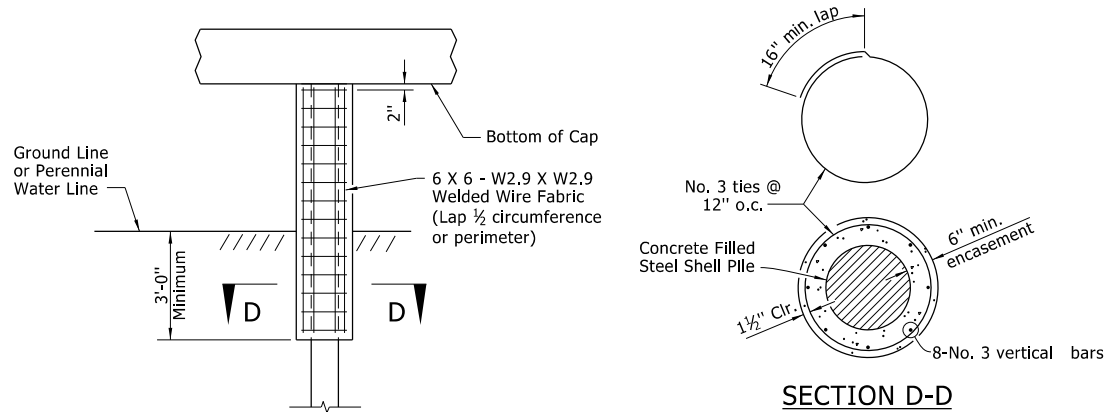
See Bridge Layout for size and estimated length of steel shell piles and for driving information.

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 (18" Dia.)" or "Steel Shell Piling (24" Dia.)".

Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling (18" Dia.)" or "Steel Shell Piling (24" Dia.)".

| 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.            |       | 101009             | 32        | 52           |
|              |             |              |             |                    |       |                    |           |              |

07497 - STEEL SHELL PILES - 61809



PILE ENCASMENT DETAIL FOR STEEL SHELL PILES

GENERAL NOTES FOR PILE ENCASEMENTS

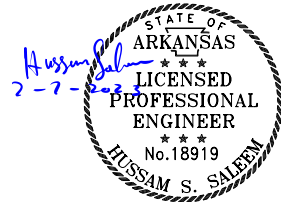
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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".



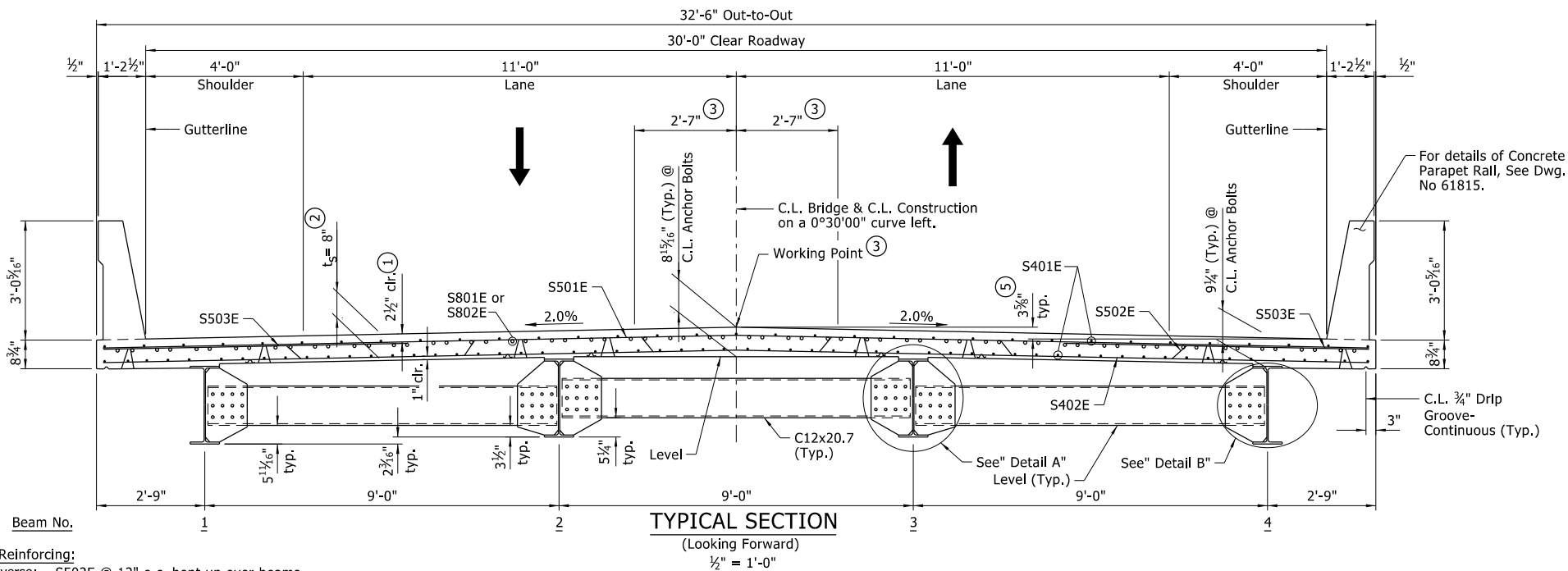
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PRINT DATE: 2/7/2023

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CHECKED BY: HSS  
DESIGNED BY: HSS  
DATE: 05/2020  
DATE: 05/2020  
DATE: 05/2020  
SCALE: NONE  
DRAWING NO. 61809

DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS  
ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS

FILENAME: B101009X1\_B22.dgn

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO.                | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|-----------------------------------|-------|--------------------|-----------|--------------|
|              |             |              |             | 6                                 | ARK.  |                    |           |              |
|              |             |              |             | JOB NO.                           |       | 101009             | 33        | 52           |
|              |             |              |             | 07497 - 100'-0" INT. UNIT - 61810 |       |                    |           |              |

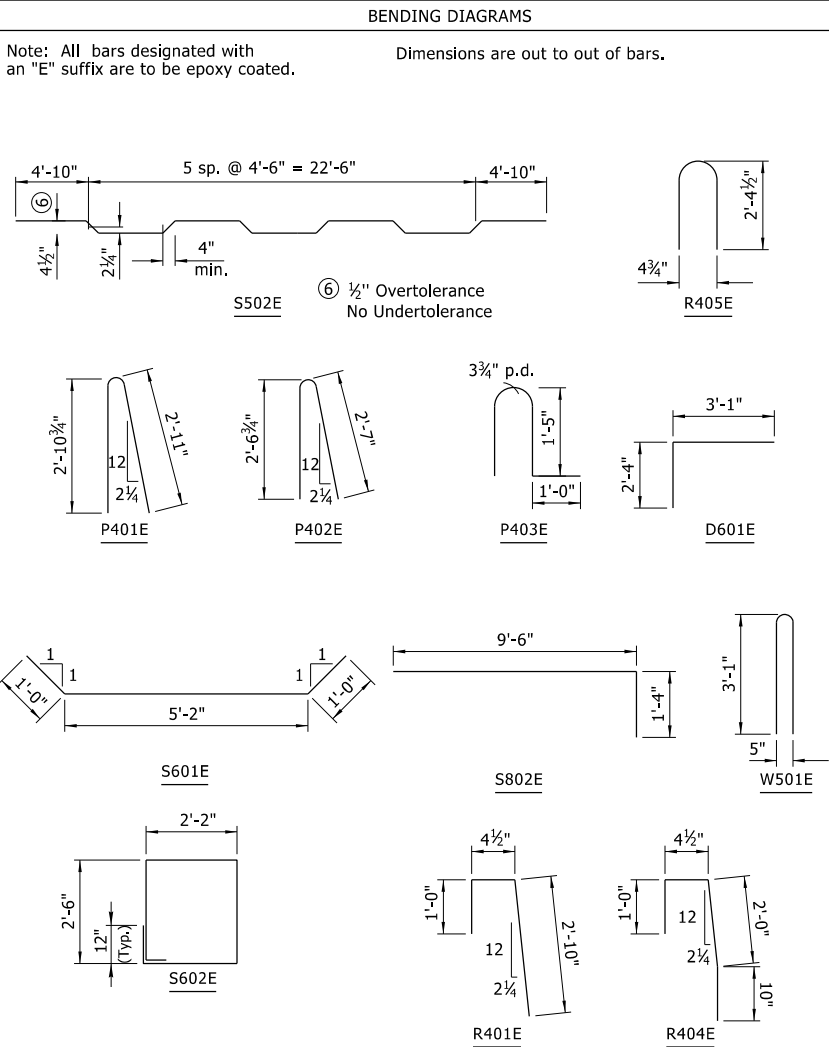


Slab Reinforcing:

Transverse: S502E @ 12" o.c. bent up over beams  
S402E @ 12" o.c. in bottom Alternate  
S501E @ 12" o.c. in top  
S503E @ 6" o.c. under each parapet bundled w/ #5 in top @ both gutterlines  
Longitudinal: S401E placed as shown in top and bottom  
S801E placed as shown over int. supports  
S802E placed as shown at end bents

#### BAR LIST

| MARK  | NO. REQ'D. | LENGTH  | P.D. |
|-------|------------|---------|------|
| D601E | 58         | 5'-3"   | 4½"  |
| S401E | 273        | 34'-10" | Str. |
| S402E | 101        | 32'-2"  | Str. |
| S403E | 36         | 32'-2"  | Str. |
| S501E | 101        | 32'-2"  | Str. |
| S502E | 100        | 32'-10" | 3"   |
| S503E | 402        | 7'-1"   | Str. |
| S601E | 12         | 7'-2"   | 4½"  |
| S602E | 116        | 10'-6"  | 4½"  |
| S801E | 128        | 23'-0"  | Str. |
| S802E | 128        | 10'-8"  | 6"   |
| P401E | 356        | 5'-11"  | 2½"  |
| P402E | 48         | 5'-3"   | 2½"  |
| P403E | 392        | 3'-7"   | 3¾"  |
| P404E | 32         | 7'-8"   | Str. |
| P405E | 32         | 9'-2"   | Str. |
| P406E | 16         | 22'-1"  | Str. |
| P407E | 16         | 22'-2"  | Str. |
| P408E | 8          | 20'-7"  | Str. |
| P409E | 8          | 20'-8"  | Str. |
| R401E | 76         | 4'-1"   | 2"   |
| R402E | 32         | 11'-8"  | Str. |
| R403E | 32         | 3'-10"  | Str. |
| R404E | 24         | 4'-1"   | 2"   |
| R405E | 100        | 5'-10"  | 3¾"  |
| R406E | 100        | 2'-10"  | Str. |
| W401E | 152        | 2'-8"   | Str. |
| W501E | 44         | 6'-4"   | 3¾"  |
| W701E | 48         | 14'-2"  | Str. |



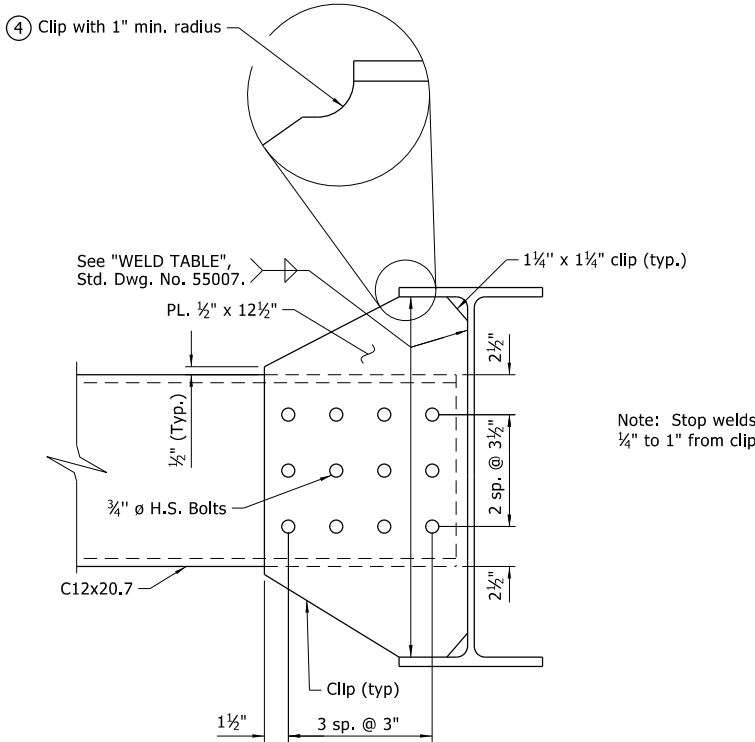
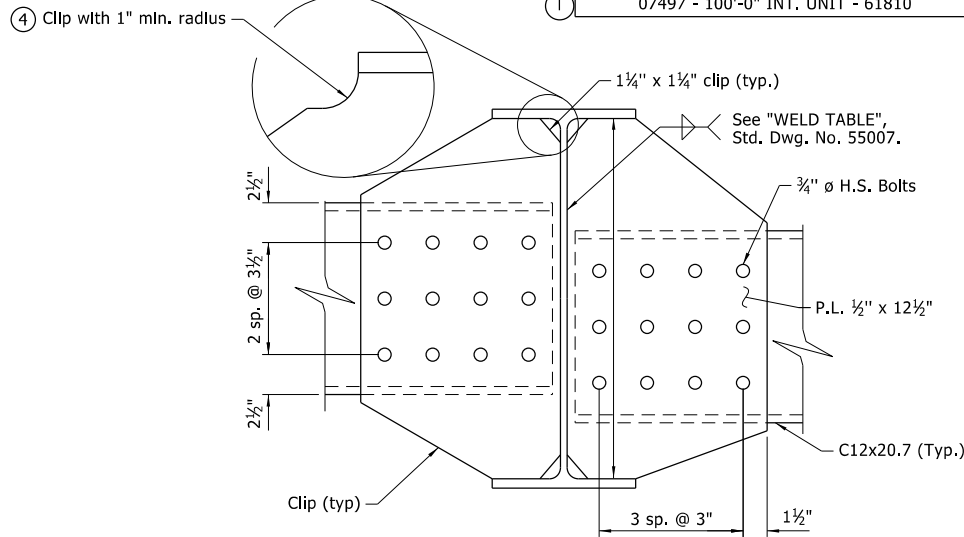
- ① Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.
- ② See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.
- ③ See "ROUNDING DETAIL" on Std. Dwg. No. 55007.
- ④ If permanent steel bridge deck forms are used, the fabricator shall clip plates as necessary to accommodate the deck form supports.
- ⑤ Working Point to Gutterline

#### Notes:

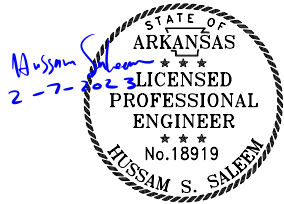
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface, and the Face and Top of Concrete Parapet Rail.

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

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



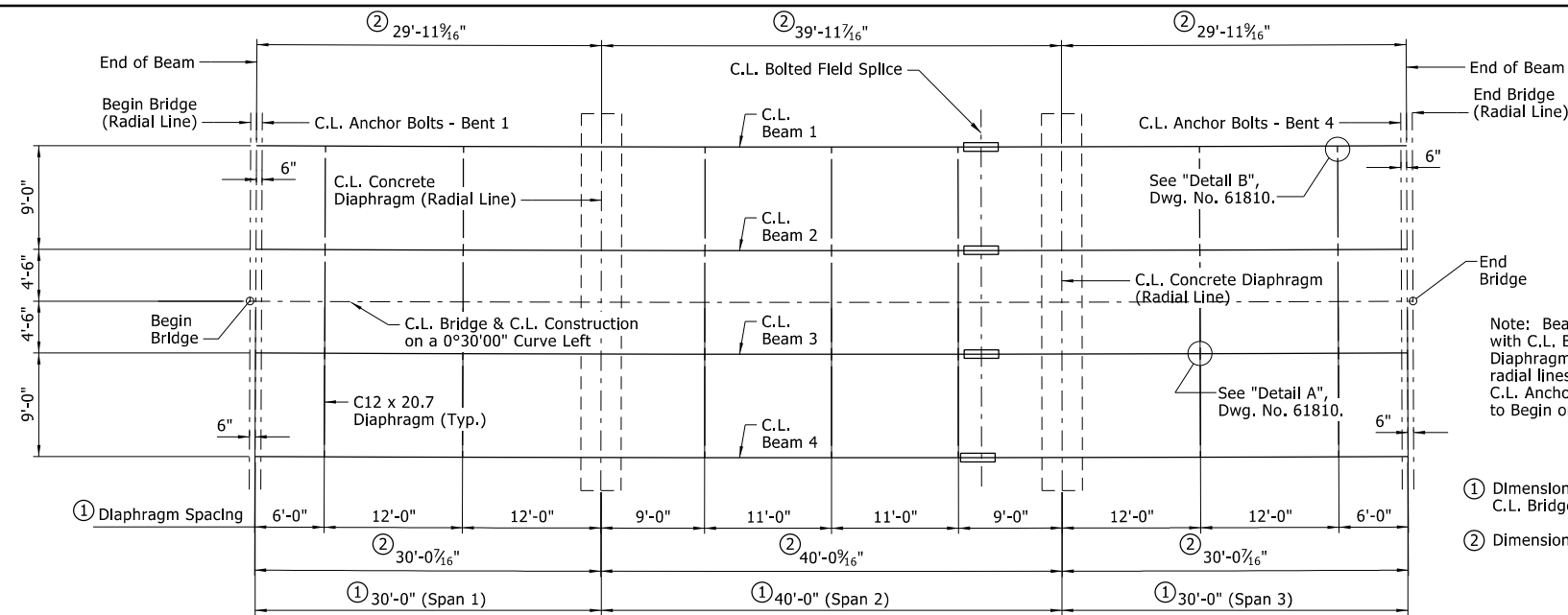
SHEET 1 OF 6  
DETAILS OF 100'-0" CONTINUOUS  
INTEGRAL W-BEAM UNIT  
DITCH NO. 30  
ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS



BRIDGE ENGINEER  
PRINT DATE: 2/7/2023

DRAWN BY: KDH  
CHECKED BY: HSS  
DESIGNED BY: SCR  
BRIDGE NO. 07497  
DATE: 04/2020  
DATE: 04/2020  
DATE: 10/2019  
SCALE: As Shown  
DRAWING NO. 61810  
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REVISD DATE:



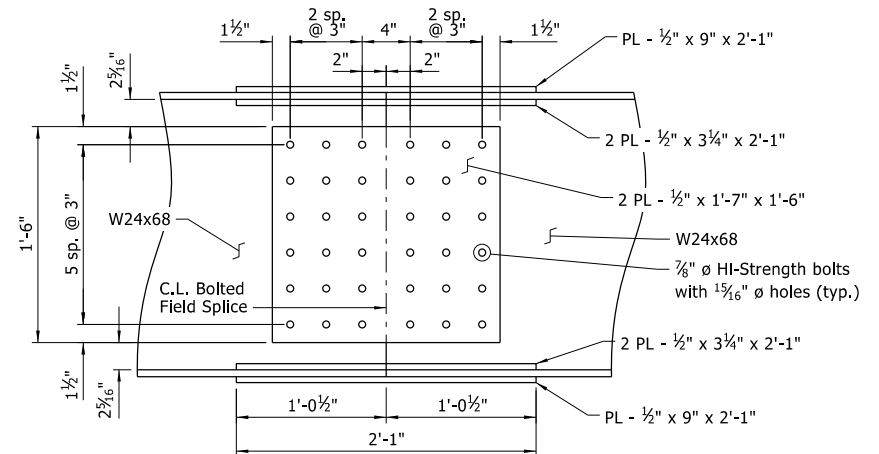
FRAMING PLAN

1/8" = 1'-0"

- ① Dimensions are measured along C.L. Bridge & C.L. Construction.  
② Dimensions measured along C.L. Beam.

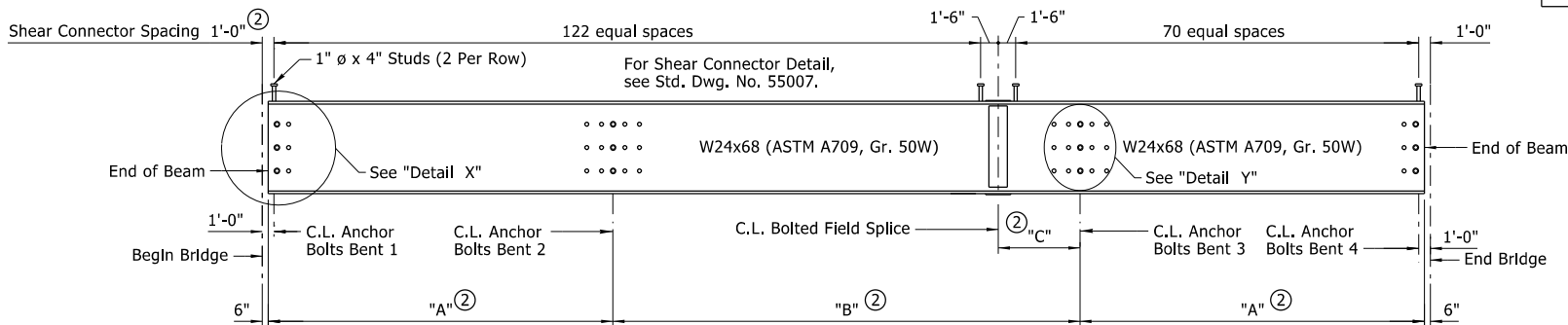
TABLE OF VARIABLES

| Beam | "A"          | "B"            | "C"           |
|------|--------------|----------------|---------------|
| 1    | 29'-11 1/16" | 39'-11 7/16"   | 6'-11 7/16"   |
| 2    | 29'-11 7/8"  | 30'-11 1 1/16" | 6'-11 1 1/16" |
| 3    | 30'-0 1/8"   | 40'-0 3/16"    | 7'-0 1/16"    |
| 4    | 30'-0 7/16"  | 40'-0 7/16"    | 7'-0 7/8"     |



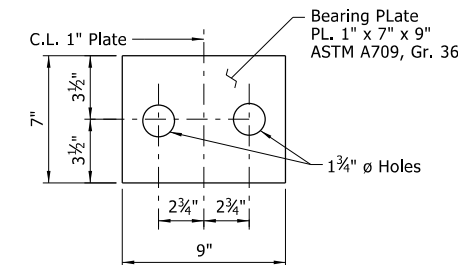
TYP. WEB SPLICE DETAIL

1 1/2" = 1'-0"



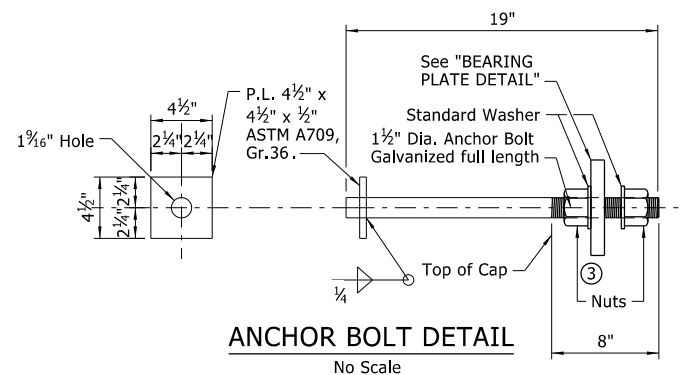
BEAM ELEVATION

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BEARING PLATE DETAIL

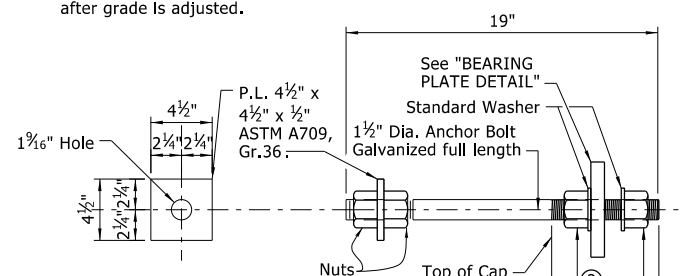
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ANCHOR BOLT DETAIL

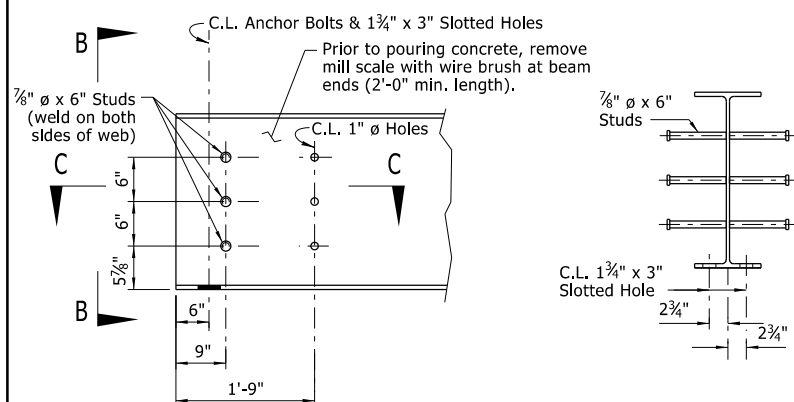
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- ③ Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.



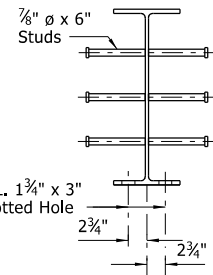
ALTERNATE ANCHOR BOLT DETAIL

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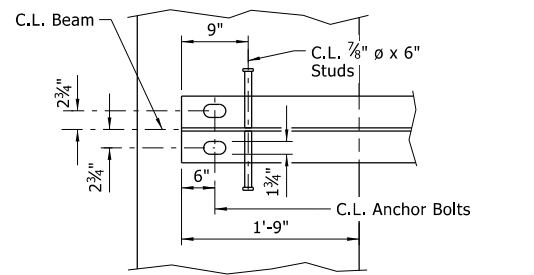
DETAIL X

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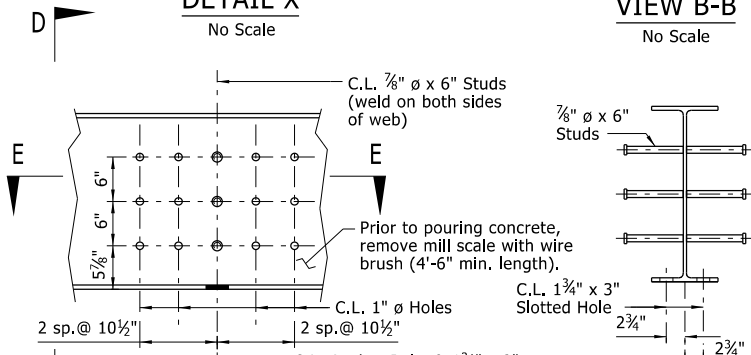
VIEW B-B

No Scale



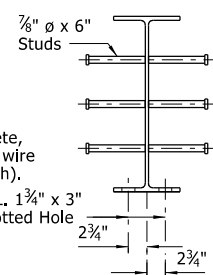
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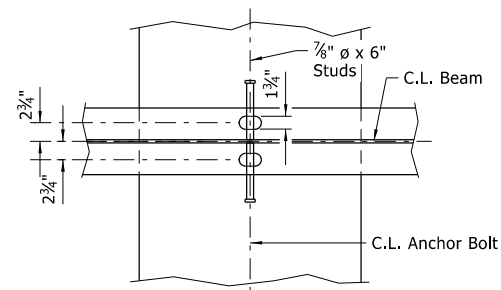
DETAIL Y

No Scale



VIEW D-D

No Scale



SECTION E-E

No Scale

Notes:

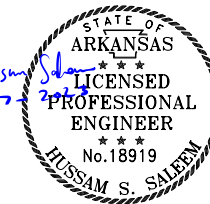
Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Engineer. Payment will be made on the basis of the plan quantities.

All field splice bolts shall be 7/8" ø HI-strength bolts.  
All holes for splice bolts shall be 1 1/16" ø.  
All field splice plates shall be ASTM A709 Gr. 50W steel.

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

Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (ASTM A709, Gr.50W)".

SHEET 2 OF 6  
DETAILS OF 100'-0" CONTINUOUS  
INTEGRAL W-BEAM UNIT  
DITCH NO. 30  
ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS



BRIDGE ENGINEER  
PRINT DATE: 2/7/2023

DRAWN BY: KDH  
CHECKED BY: HSS  
DESIGNED BY: SCR  
BRIDGE NO. 07497

DATE: 04/2020  
DATE: 04/2020  
DATE: 03/2020  
DRAWING NO. 61811

FILENAME: B101009X1\_SK2.dgn  
SCALE: As Shown



| 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.                           |       | 101009             | 35        | 52           |
|              |             |              |             | 07497 - 100'-0" INT. UNIT - 61812 |       |                    |           |              |

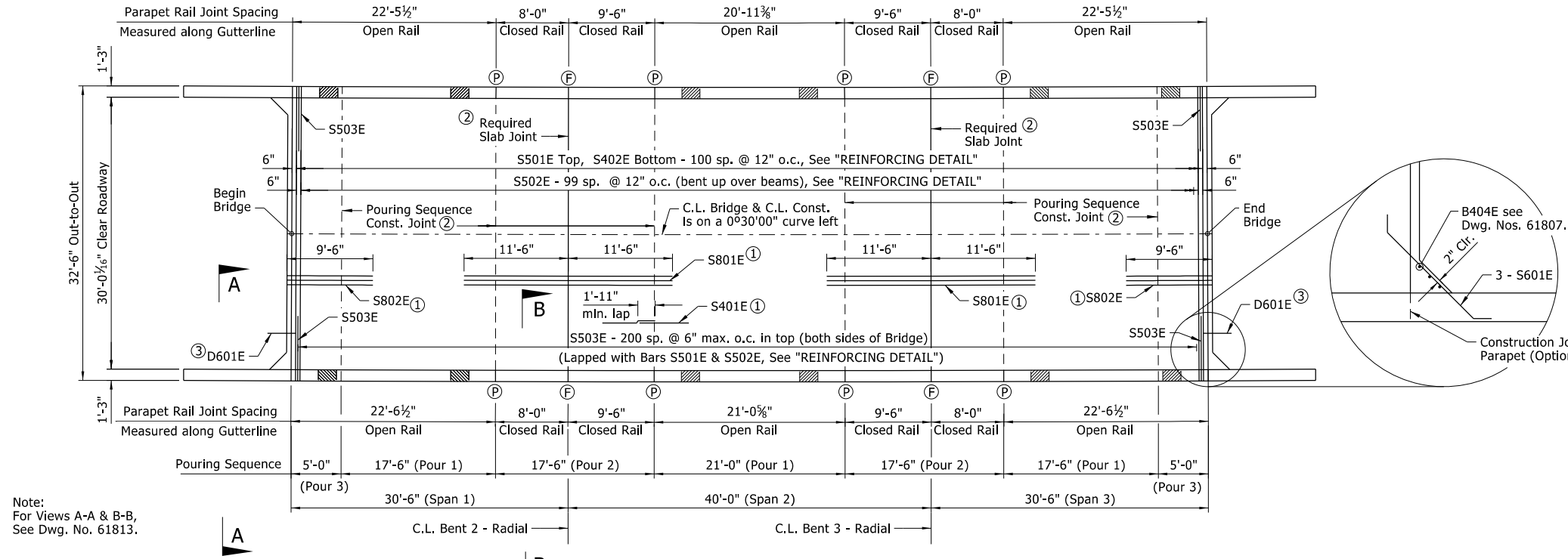
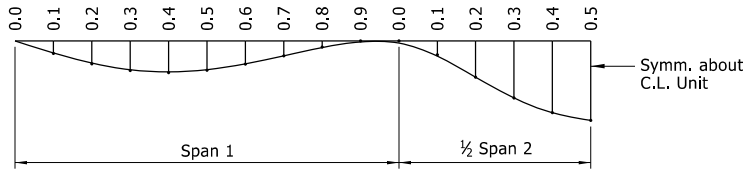


TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

| Span | Point of Deflection | Interior Beams   |                         |                               | Exterior Beams   |                         |                               |
|------|---------------------|------------------|-------------------------|-------------------------------|------------------|-------------------------|-------------------------------|
|      |                     | Structural Steel | Structural Steel + Slab | Structural Steel + Slab+ Rail | Structural Steel | Structural Steel + Slab | Structural Steel + Slab+ Rail |
| 1    | 0                   | 0.000            | 0.000                   | 0.000                         | 0.000            | 0.000                   | 0.000                         |
|      | 0.1                 | 0.004            | 0.048                   | 0.050                         | 0.004            | 0.039                   | 0.041                         |
|      | 0.2                 | 0.007            | 0.087                   | 0.091                         | 0.006            | 0.070                   | 0.075                         |
|      | 0.3                 | 0.009            | 0.112                   | 0.118                         | 0.008            | 0.090                   | 0.097                         |
|      | 0.4                 | 0.009            | 0.120                   | 0.126                         | 0.009            | 0.098                   | 0.105                         |
|      | 0.5                 | 0.008            | 0.111                   | 0.117                         | 0.008            | 0.090                   | 0.097                         |
|      | 0.6                 | 0.007            | 0.089                   | 0.093                         | 0.007            | 0.072                   | 0.077                         |
|      | 0.7                 | 0.004            | 0.056                   | 0.059                         | 0.004            | 0.045                   | 0.049                         |
|      | 0.8                 | 0.002            | 0.023                   | 0.024                         | 0.002            | 0.019                   | 0.020                         |
|      | 0.9                 | 0.000            | 0.000                   | 0.000                         | 0.000            | 0.000                   | 0.000                         |
| ½ 2  | 0                   | 0.000            | 0.000                   | 0.000                         | 0.000            | 0.000                   | 0.000                         |
|      | 0.1                 | 0.004            | 0.053                   | 0.056                         | 0.004            | 0.043                   | 0.046                         |
|      | 0.2                 | 0.010            | 0.137                   | 0.145                         | 0.010            | 0.111                   | 0.119                         |
|      | 0.3                 | 0.017            | 0.222                   | 0.233                         | 0.016            | 0.178                   | 0.192                         |
|      | 0.4                 | 0.021            | 0.281                   | 0.296                         | 0.021            | 0.227                   | 0.243                         |
|      | 0.5                 | 0.023            | 0.303                   | 0.318                         | 0.022            | 0.244                   | 0.262                         |

Table is symm.  
about the C.L. Unit.



DEAD LOAD DEFLECTION DIAGRAM

Note:  
Camber for Dead Load Deflection plus Vertical curve +/- ¼" tolerances. Deflections shown are along C.L. Beam from the plane perpendicular to the web extending from C.L. Anchor Bolts to C.L. Anchor Bolts. Vertical curve corrections not Included. Negative sign (-) Indicates upward deflection.

REINFORCING PLAN AND POURING SEQUENCE

⅛" = 1'-0"

- Ⓐ Partial depth parapet joint at this location. (Stop 1'-2" above top of slab)
- Ⓔ Full depth parapet joint at this location. (Stop 4" above top of slab)
- ① Placed as shown in "Typical Section", See Dwg. No. 61810.
- ② Align with parapet open joint unless noted otherwise. See "Transverse Slab Joint Detail" on Std. Dwg. No. 55007.
- ③ Place as shown in "View A-A" on Dwg. No. 61813.

All transverse reinforcing steel shall be placed on radial lines to C.L. Bridge. Spacing shown is measured along C.L. Bridge & C.L. Construction.

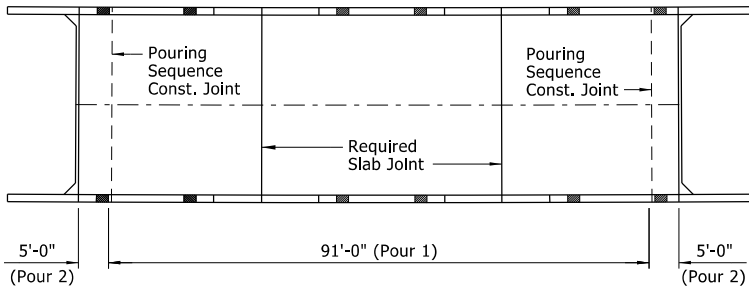
All longitudinal lines and longitudinal reinforcing steel shall be spaced on curves concentric with C.L. Bridge & C.L. Construction.

Span lengths, slab pour lengths and transverse reinforcing spacing shown are measured along C.L. Bridge.

Note:  
Pours with the same number may be placed simultaneously or separately. All pours (1) must be placed before pours (2) can be placed. All pours (2) must be placed before pours (3) 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.

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

Concrete diaphragms at end bents shall be poured monolithically with the deck. A minimum of 48 hours shall elapse between the intermediate bent diaphragm pour and the deck slab pour.



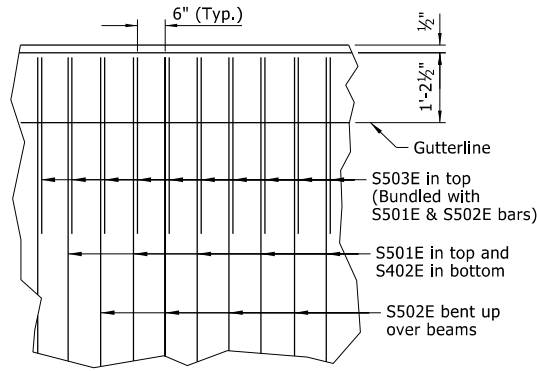
ALTERNATE POURING SEQUENCE

⅛" = 1'-0"

Note:  
Pours with the same number may be placed simultaneously or separately. Pour (1) must be placed before pours (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.

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

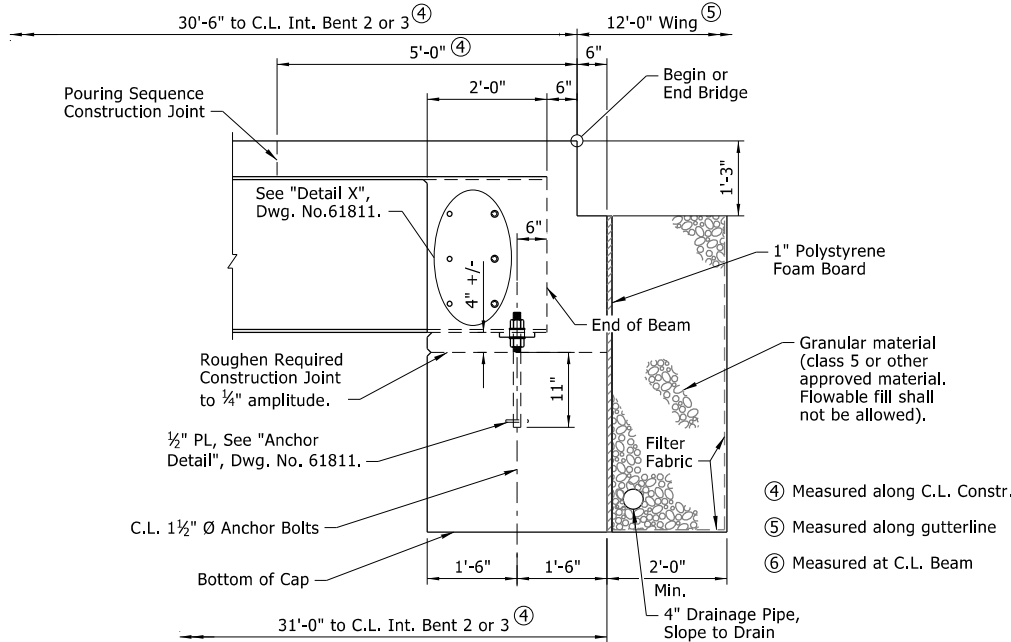
Concrete diaphragms at end bents shall be poured monolithically with the deck. A minimum of 48 hours shall elapse between the intermediate bent diaphragm pour and the deck slab pour.



REINFORCING DETAIL

No Scale

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



SECTION AT END BENT

No Scale

Limits of concrete end diaphragm shall match plan dimension of end bent cap.

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

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

SHEET 3 OF 6  
DETAILS OF 100'-0" CONTINUOUS  
INTEGRAL W-BEAM UNIT  
DITCH NO. 30

ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS



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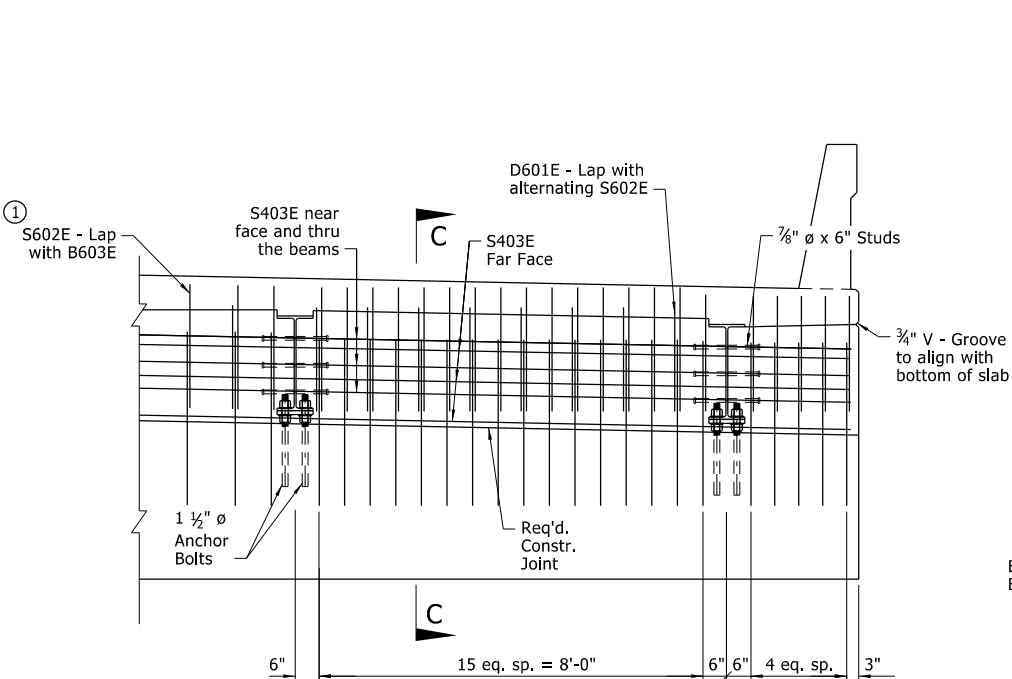
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CHECKED BY: HSS  
DESIGNED BY: SCR  
BRIDGE NO. 07497

DATE: 04/2020  
DATE: 04/2020  
DATE: 04/2020

FILENAME: B101009X1\_SX3.dgn  
SCALE: As Shown  
DRAWING NO. 61812

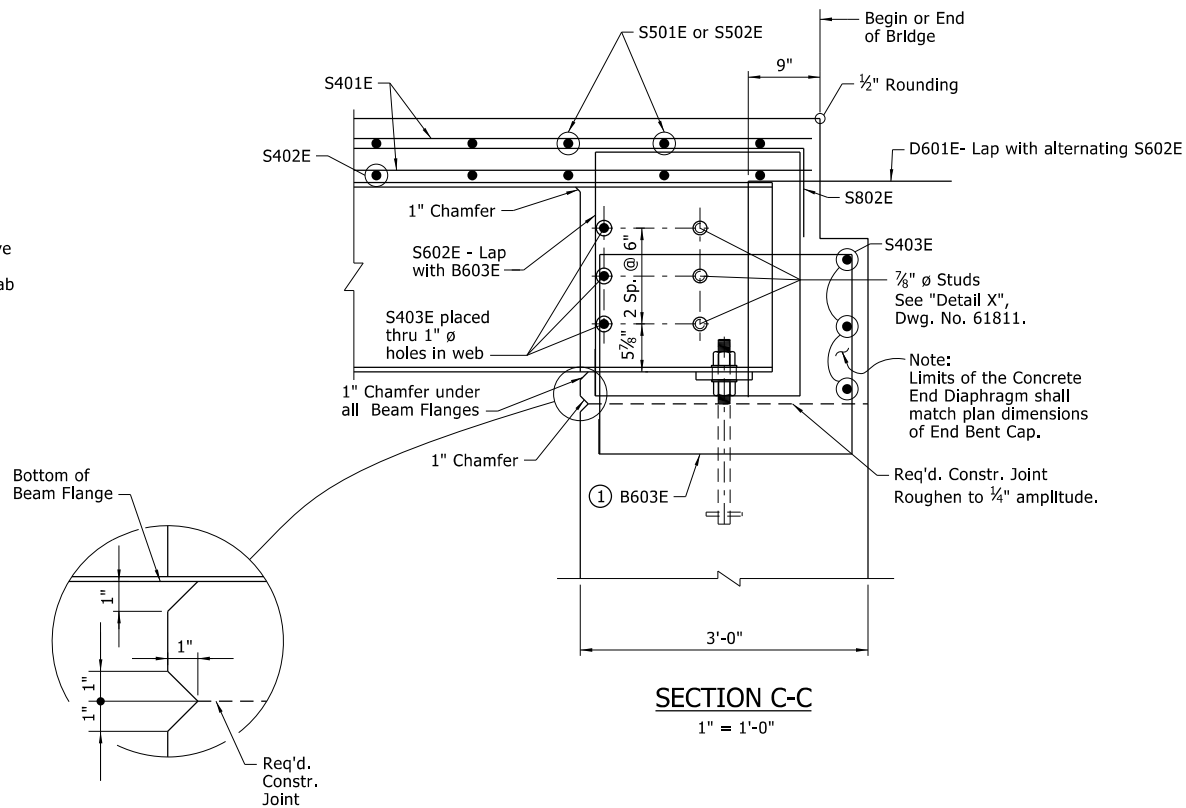


| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO.                | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|-----------------------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                                   |           |              |
|              |             |              |             | JOB NO.            |       | 101009                            | 36        | 52           |
|              |             |              |             |                    |       | 07497 - 100'-0" INT. UNIT - 61813 |           |              |

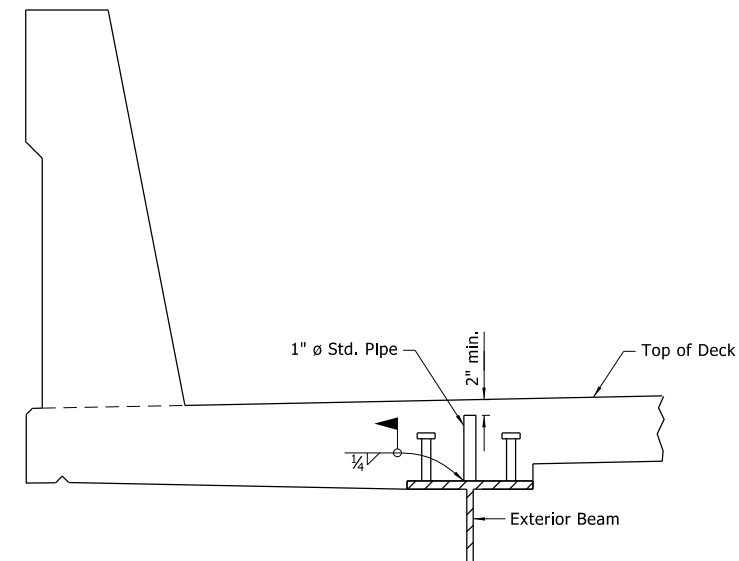


**VIEW A-A**  
End Bents  
1/2" = 1'-0"

Note:  
End Diaphragm shall be poured monolithically with deck slab.

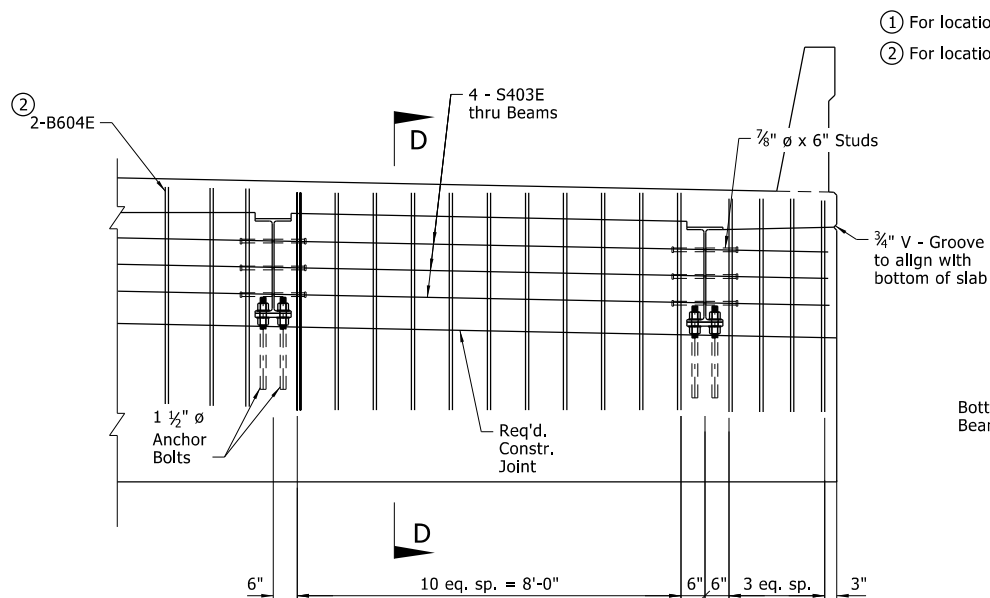


**SECTION C-C**  
1" = 1'-0"



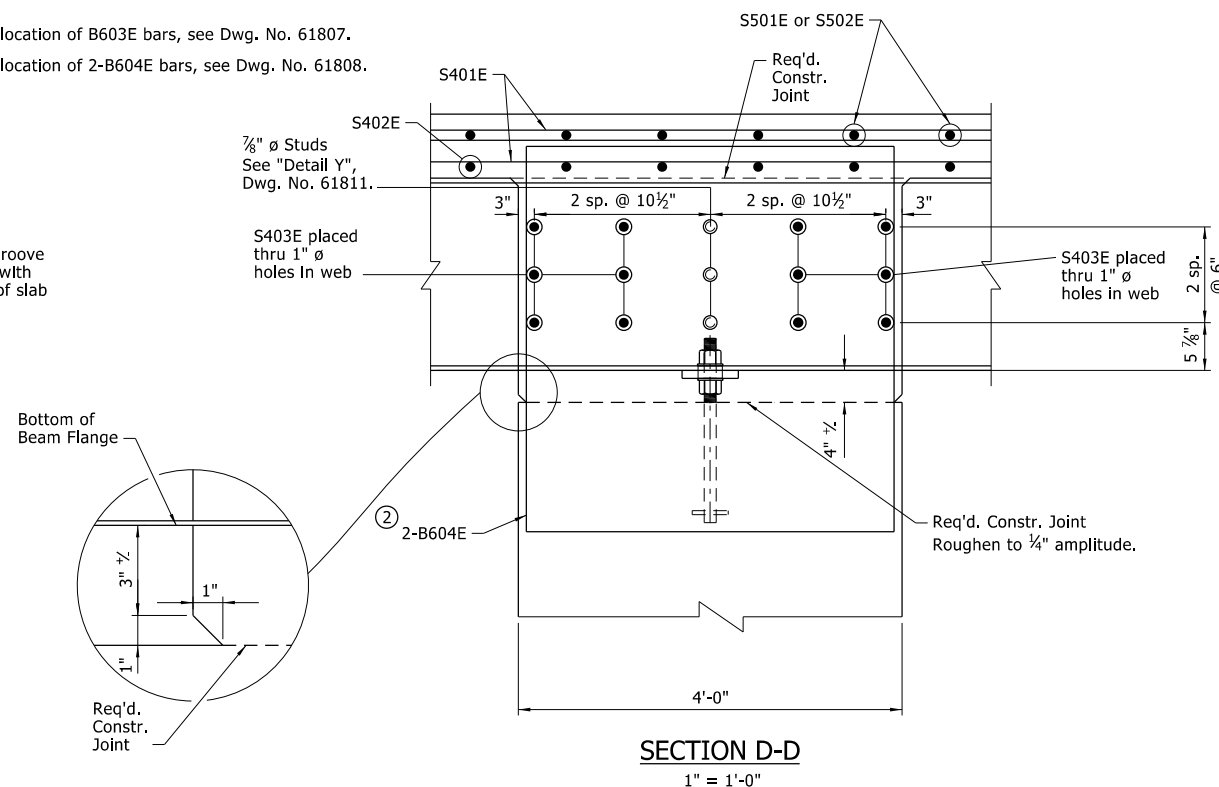
**SCREED RAIL SUPPORT DETAIL**  
No Scale

Notes:  
The screed rail supports shall be centered over the beam web and centered between adjacent rows of shear connectors.  
  
The pipe shall not interfere with proper vertical position of the deck reinforcing steel.  
  
The pipe shall be free of dirt, grease, rust, or other foreign substance before the deck is poured.  
  
Care shall be exercised so as air voids do not exist in the pipe after placement of the deck concrete.  
  
Welding shall be done by a certified welder.

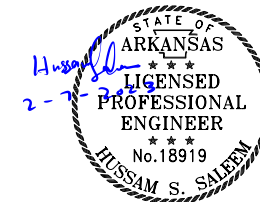


**VIEW B-B**  
Int. Bents  
1/2" = 1'-0"

- ① For location of B603E bars, see Dwg. No. 61807.
- ② For location of 2-B604E bars, see Dwg. No. 61808.



**SECTION D-D**  
1" = 1'-0"



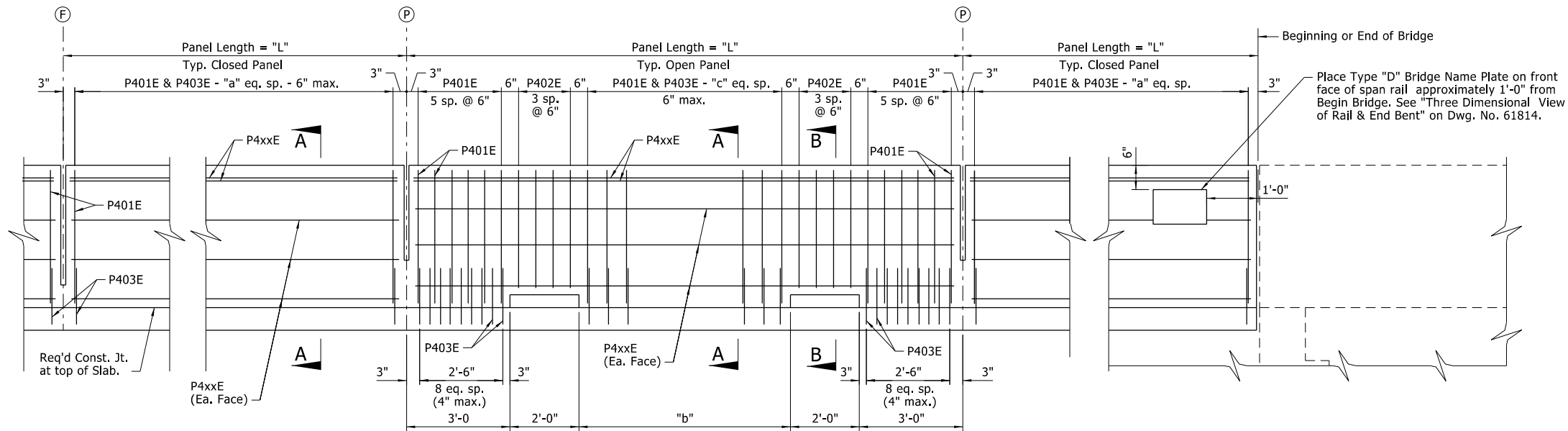
**SHEET 4 OF 6**  
**DETAILS OF 100'-0" CONTINUOUS**  
**INTEGRAL W-BEAM UNIT**  
**DITCH NO. 30**  
ROUTE SECTION  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARKANSAS

DRAWN BY: KDH DATE: 04/2020  
CHECKED BY: HSS DATE: 04/2020  
DESIGNED BY: SCR DATE: 03/2020  
BRIDGE NO. 07497 DRAWING NO. 61813

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PRINT DATE: 2/7/2023



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WORKSPACE: ARDOT  
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REVISED DATE:

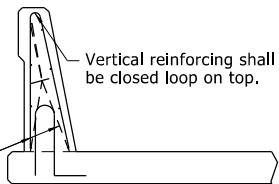


### ELEVATION - CONCRETE PARAPET RAIL

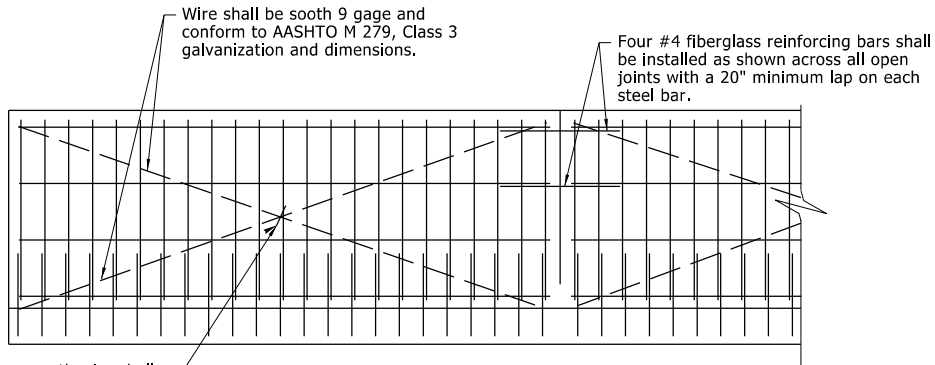
(As viewed from roadway side of Parapet)  
No Scale

- Ⓕ C.L.  $\frac{1}{4}$ " to 1" Full Depth Parapet Joint (Stop 4" from top of slab) (Typ. unless noted otherwise)
- Ⓖ C.L.  $\frac{1}{4}$ " to 1" Partial Depth Parapet Joint (Stop 1'-2" from top of slab) (Typ. unless noted otherwise)

All smooth wire bracing shall be placed on the inside faces of the reinforcing.



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

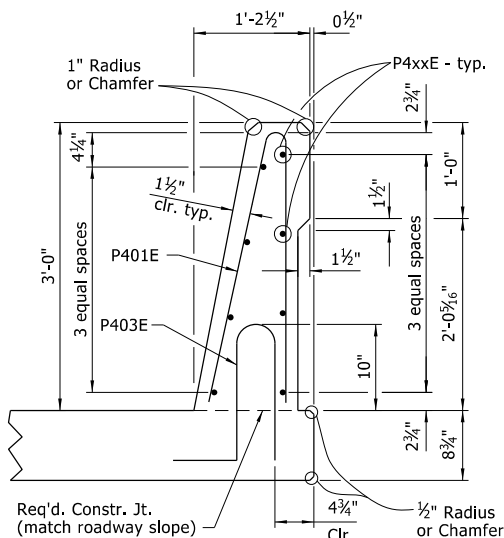


Bar to tighten smooth wire shall be epoxy coated or fiber glass.

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

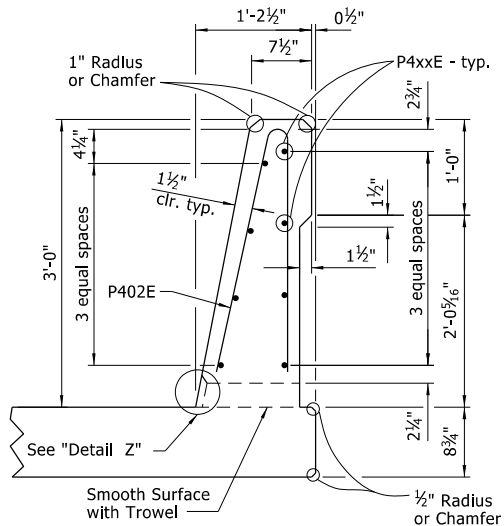
### DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



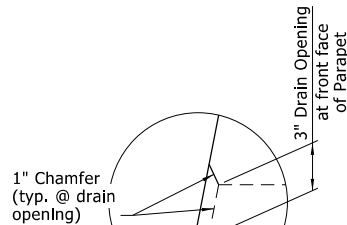
#### SECTION A-A

$\frac{1}{2}$ " = 1'-0"



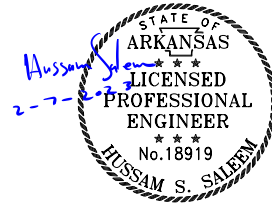
#### SECTION B-B

$\frac{1}{2}$ " = 1'-0"



#### DETAIL Z

No Scale



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BRIDGE NO. 07497

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DATE: 03/2020  
DRAWING NO. 61815

FILENAME: B101009X1\_SX6.dgn

SHEET 6 OF 6  
DETAILS OF 100'-0" CONTINUOUS  
INTEGRAL W-BEAM UNIT  
DITCH NO. 30

ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS

### PARAPET RAIL VARIABLES

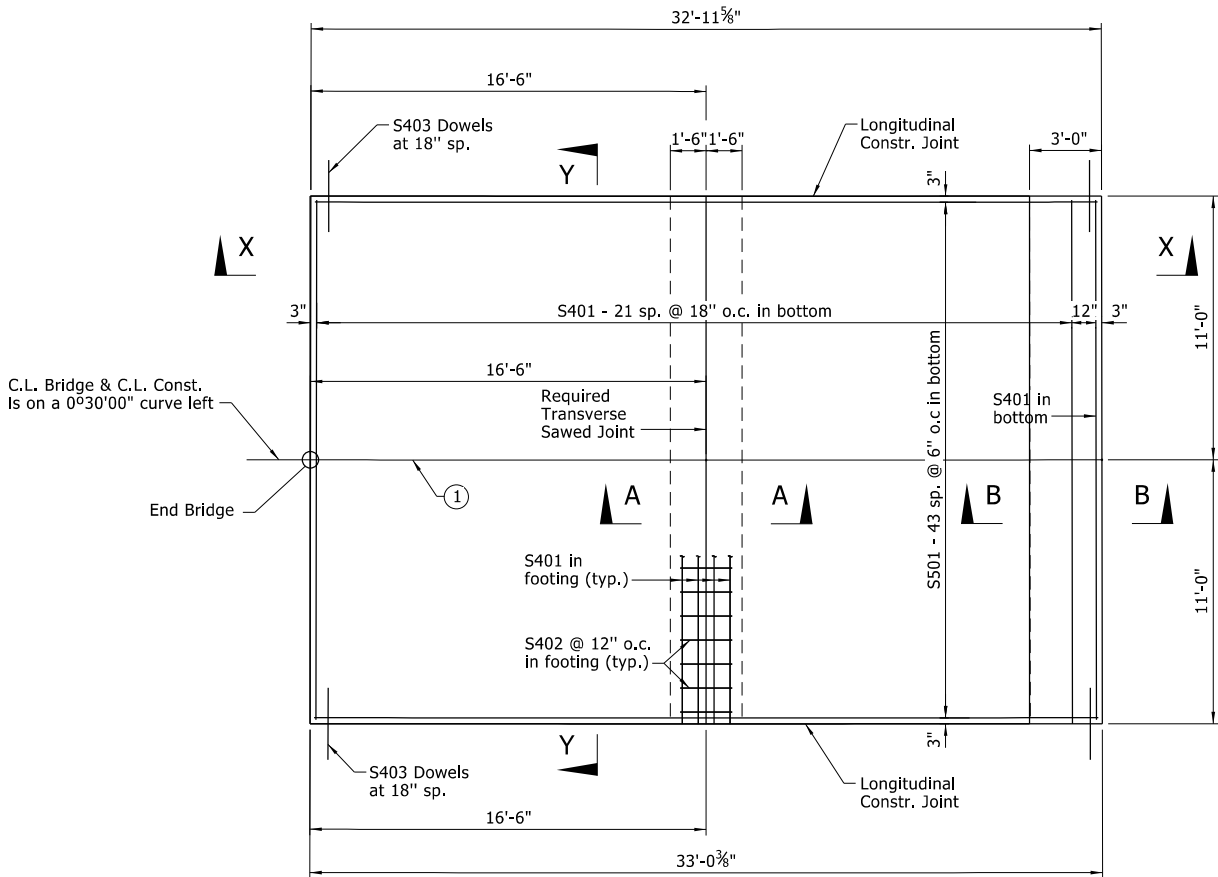
| Panel Length "L" | Panel Type | "a"   | "b"         | "c"   | P4xxE Bars |
|------------------|------------|-------|-------------|-------|------------|
| 8'-0"            | closed     | 15    | -----       | ----- | P404E      |
| 9'-6"            | closed     | 18    | -----       | ----- | P405E      |
| 22'-5 1/2"       | open       | ----- | 12'-5 1/2"  | 24    | P406E      |
| 22'-6 1/2"       | open       | ----- | 12'-6 1/2"  | 24    | P407E      |
| 20'-11 3/8"      | open       | ----- | 10'-11 3/8" | 21    | P408E      |
| 21'-0 5/8"       | open       | ----- | 11'-0 5/8"  | 21    | P409E      |

Note:  
For location of full and partial depth parapet joints, see Dwg. No. 61812.

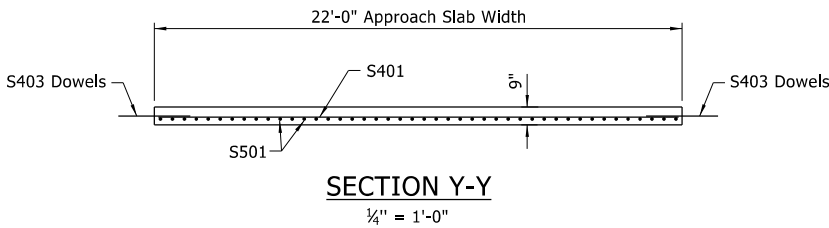
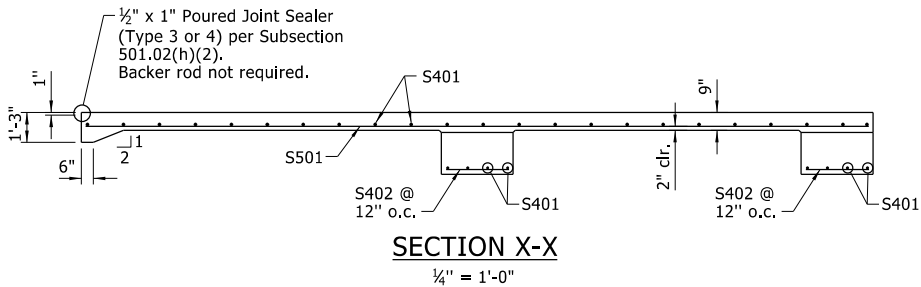
For location of open and closed parapet panels, See Dwg. No. 61812.

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Landon Miller  
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.            |       | 101009             | 39        | 52           |
| 07497 - APPROACH SLAB - 61816 |             |              |             |                    |       |                    |           |              |



Notes:  
All transverse reinforcing shall be placed on radial lines.  
All longitudinal lines and reinforcing steel shall be placed on curves concentric with C.L. Bridge & C.L. Construction.



① Longitudinal Sawed Jt.  
(Place as a continuation  
of the roadway longitudinal  
joint)

#### QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

| Slab Width | Reinforcing Steel<br>(lbs.) | Concrete<br>(cu. yds.) |
|------------|-----------------------------|------------------------|
| 22'-0"     | 2,115                       | 29.50                  |

#### BAR LIST FOR ONE TYPE SPECIAL APPROACH SLAB

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|------|------------|--------|----------|
| S401 | 31         | 21'-8" | Str.     |
| S402 | 44         | 2'-8"  | Str.     |
| S403 | 44         | 3'-0"  | Str.     |
| S501 | 44         | 32'-8" | Str.     |

#### GENERAL NOTES

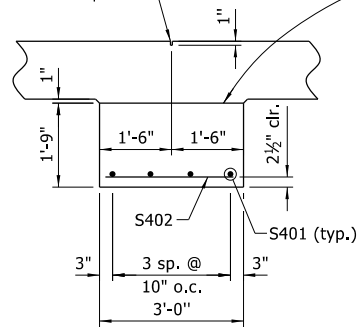
Concrete shall be Class S(AE) ( $f'_c = 4,000$  psi).

Reinforcing Steel shall conform to AASHTO M31 or M322, Type A with Mill Test Reports, Gr. 60 ( $f_y = 60,000$  psi).

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

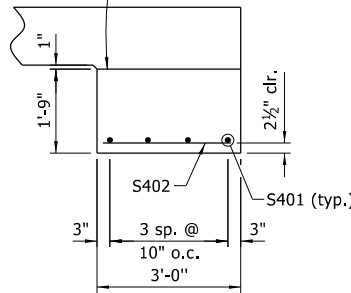
Surface finish for Approach Slabs to match that used on the bridge deck.

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



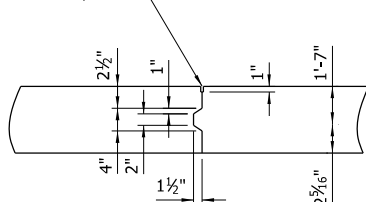
SECTION A-A  
1/2" = 1'-0"

Required Constr. Joint, smooth surface with trowel.



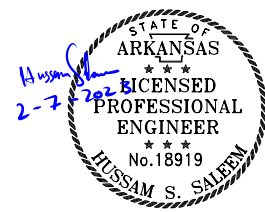
SECTION B-B  
1/2" = 1'-0"

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



DETAIL OF LONGITUDINAL  
CONSTRUCTION JOINT

No Scale



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BRIDGE NO. 07497

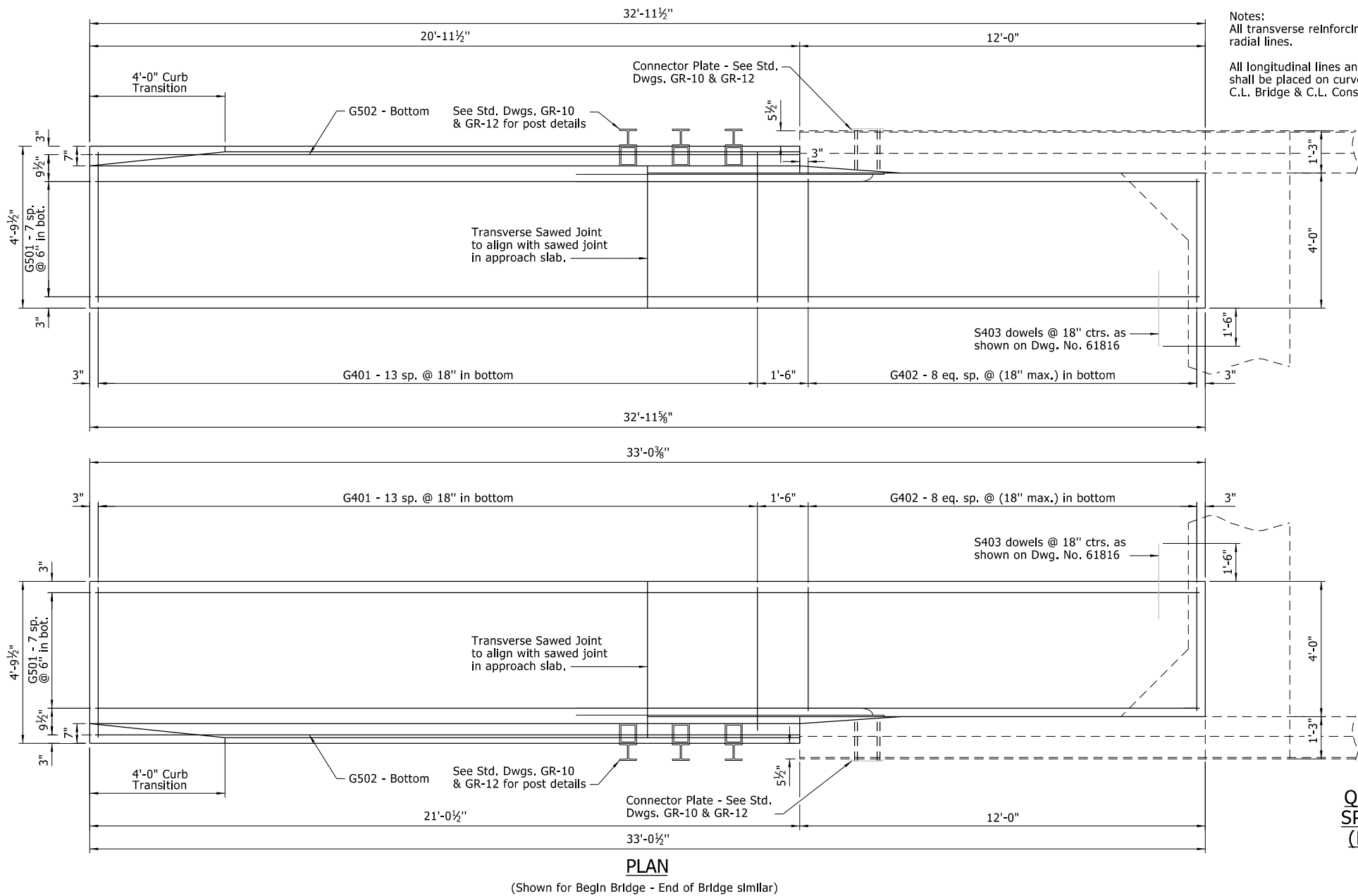
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DATE: 04/2020  
DATE: 04/2020

SCALE: As shown

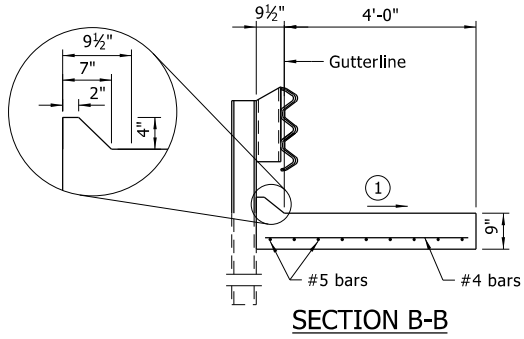
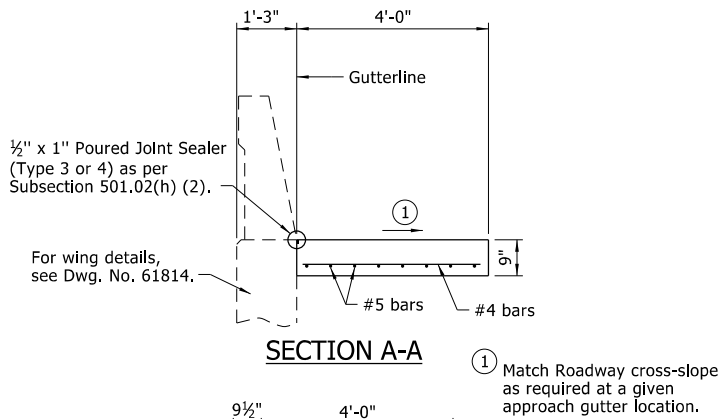
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DRAWING NO. 61816

DETAILS OF TYPE SPECIAL  
APPROACH SLAB  
DITCH NO. 30  
ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS

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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.            |       | 101009                           | 40        | 52           |
|              |             |              |             |                    |       | 07497 - APPROACH GUTTERS - 61817 |           |              |



BAR LIST FOR ONE TYPE SPECIAL  
APPROACH GUTTER

| MARK | NO. REQ'D. | LENGTH | PIN DIA. |
|------|------------|--------|----------|
| G401 | 14         | 4'-5"  | Str.     |
| G402 | 9          | 3'-8"  | Str.     |
| G501 | 8          | 32'-8" | Str.     |
| G502 | 1          | 20'-8" | Str.     |

QUANTITIES FOR ONE TYPE SPECIAL  
APPROACH GUTTER  
(FOR INFORMATION ONLY)

| Reinforcing Steel (lbs.) | Concrete (cubic yds) |
|--------------------------|----------------------|
| 358                      | 4.20                 |

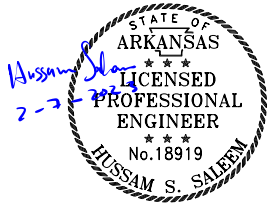
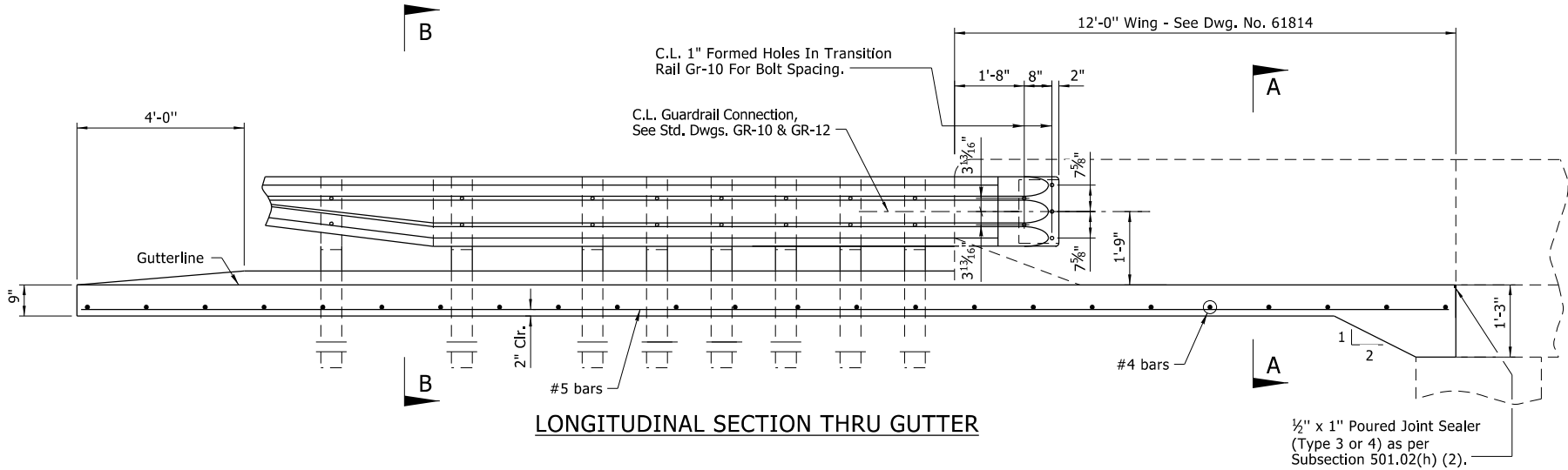
GENERAL NOTES

Concrete shall be Class S(AE) (f'c = 4,000 psi).

Reinforcing Steel shall conform to AASHTO M31 or M322, Type A with Mill Test Reports, Gr. 60 (fy = 60,000 psi).

Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

Surface finish for Approach Gutters to match that used on the bridge deck.



BRIDGE ENGINEER  
PRINT DATE: 2/7/2023

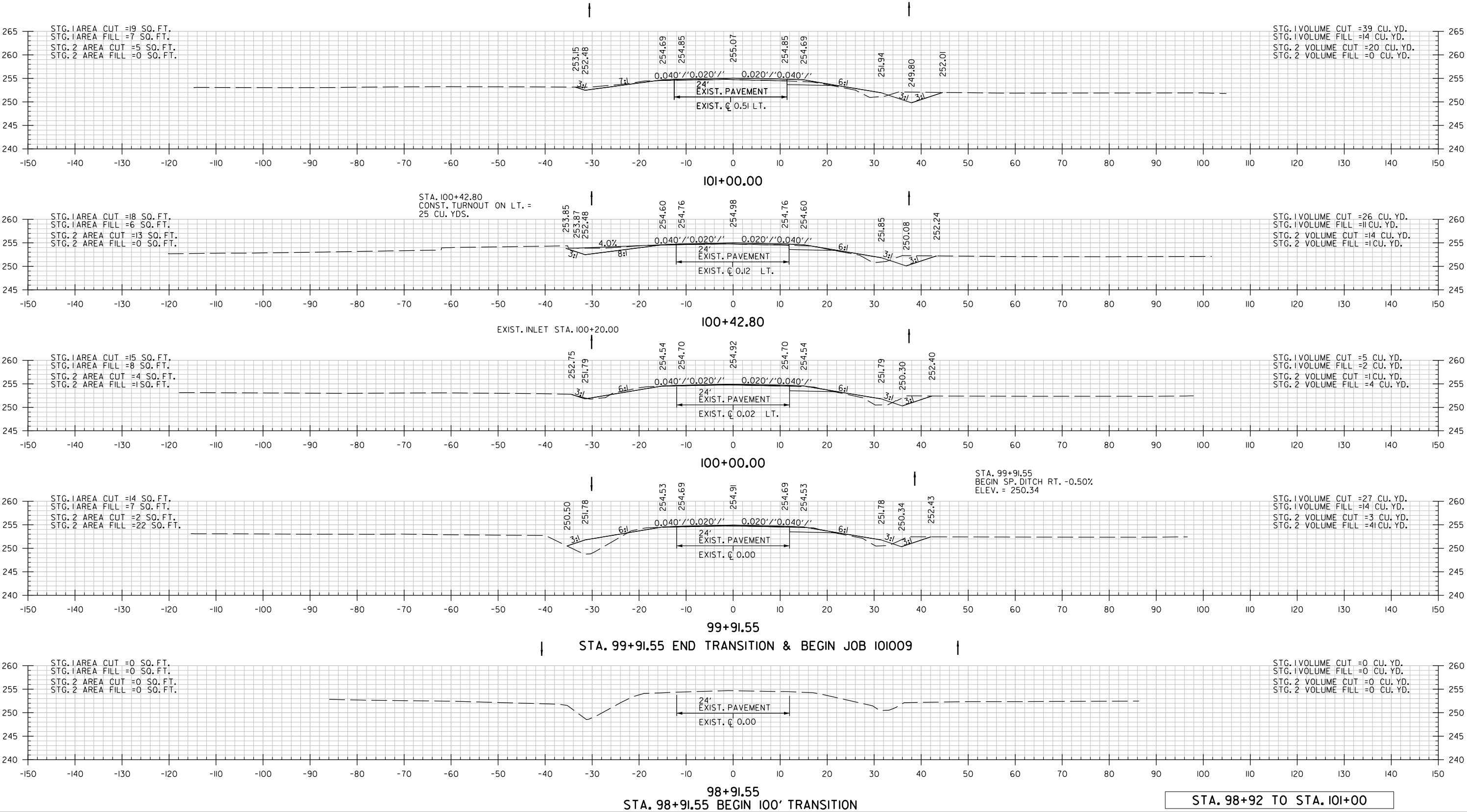
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CHECKED BY: HSS  
DESIGNED BY: HSS  
DATE: 04/2020  
DATE: 04/2020  
DATE: 04/2020  
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DRAWING NO. 61817  
FILENAME: B101009X1\_AGI.dgn  
SCALE: 1/2" = 1'-0"

DETAILS OF TYPE SPECIAL  
APPROACH GUTTERS  
DITCH NO. 30  
ROUTE SECTION  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS



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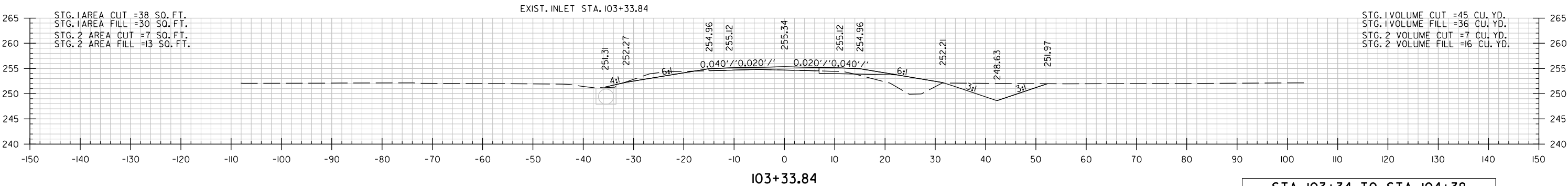
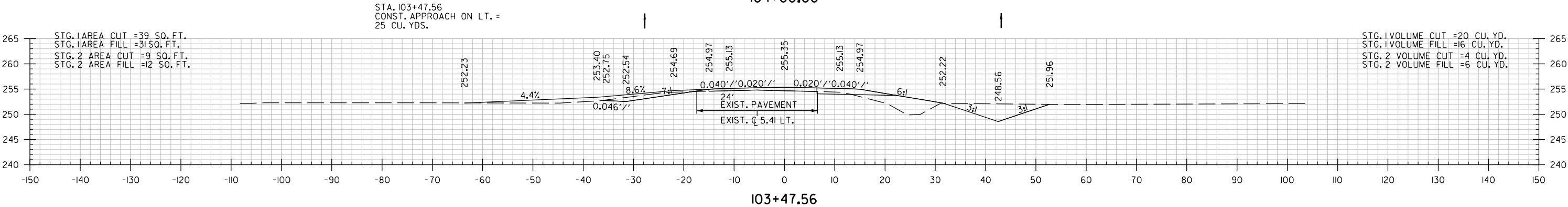
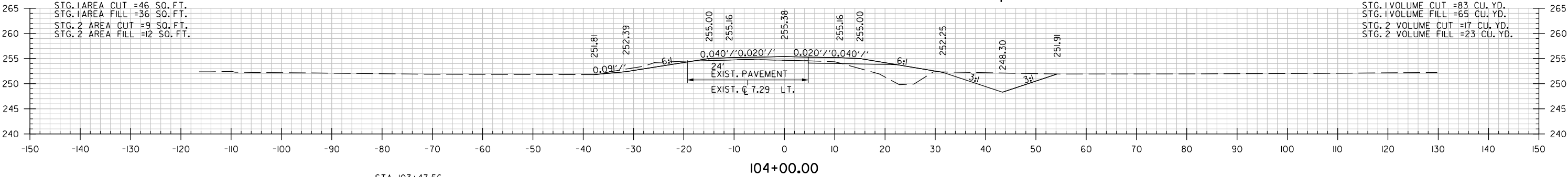
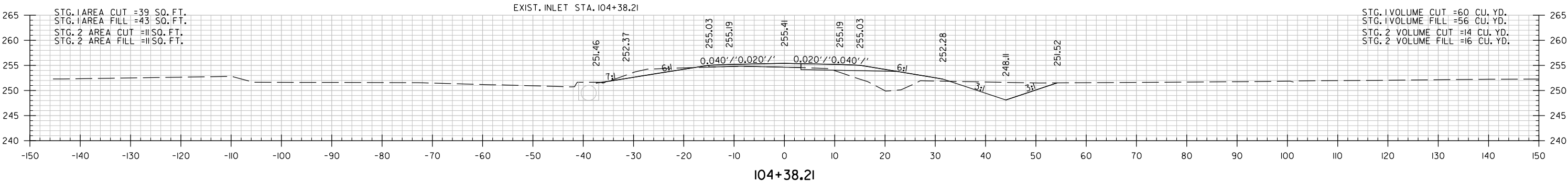


STA. 98+92 TO STA. 101+00



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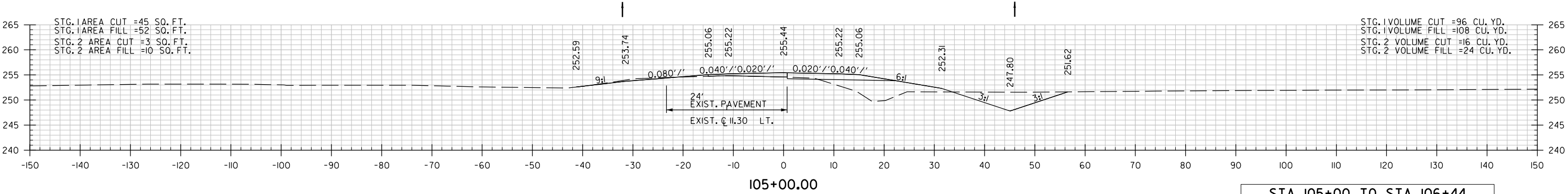
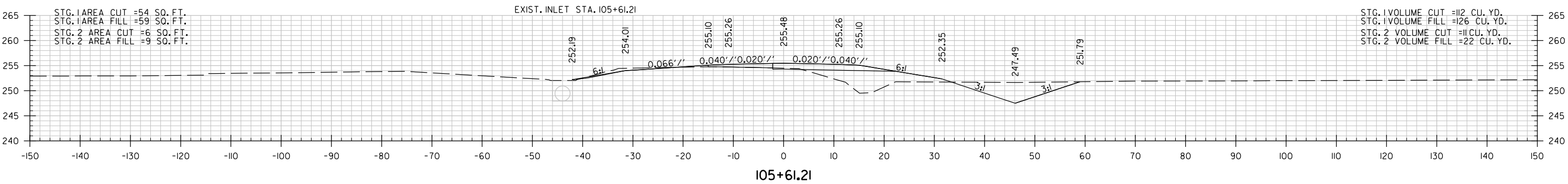
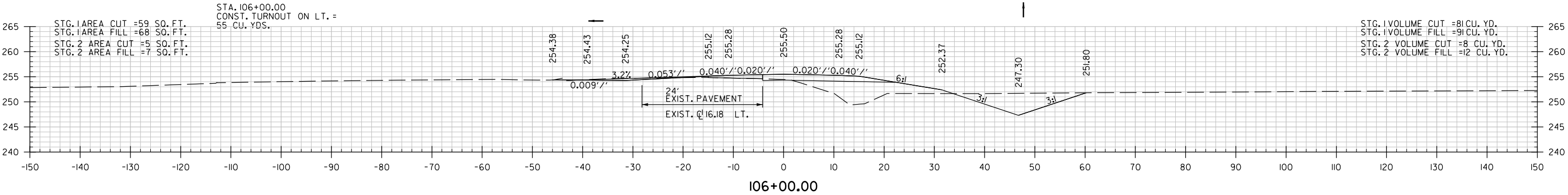
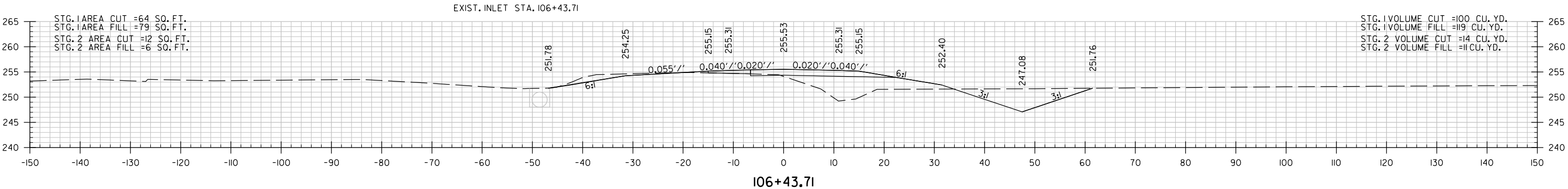
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|                  |                |                 |                | JOB NO.               |       | 101009             | 43           | 52              |
| 2 CROSS SECTIONS |                |                 |                |                       |       |                    |              |                 |



STA. 103+34 TO STA. 104+38

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REVISED DATE: \$REVDATE\$

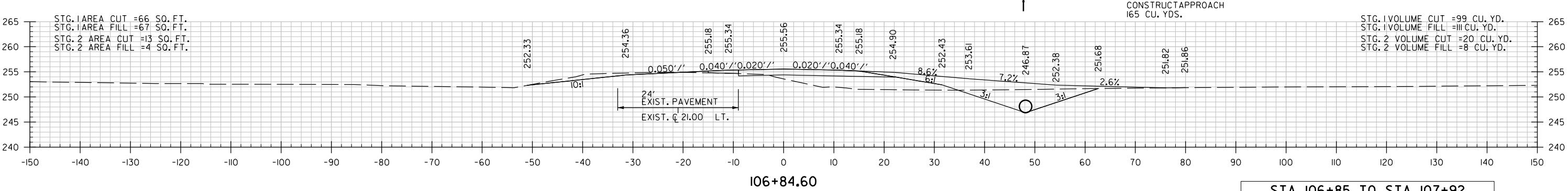
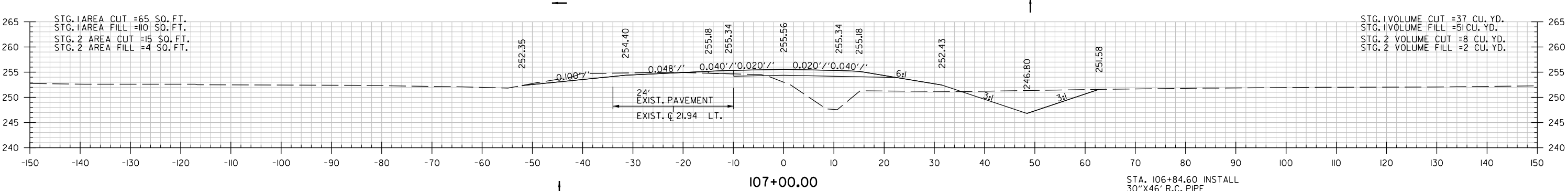
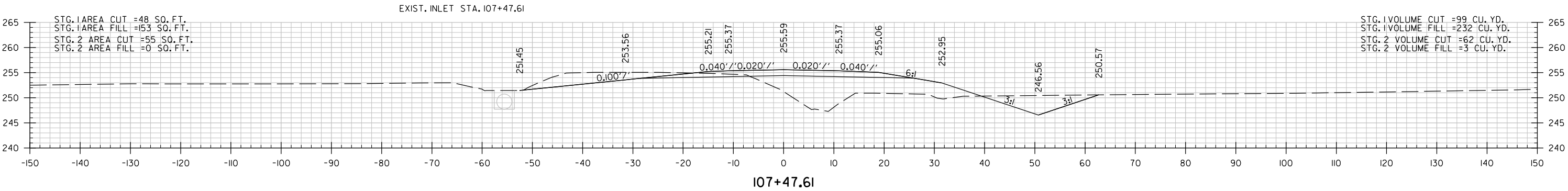
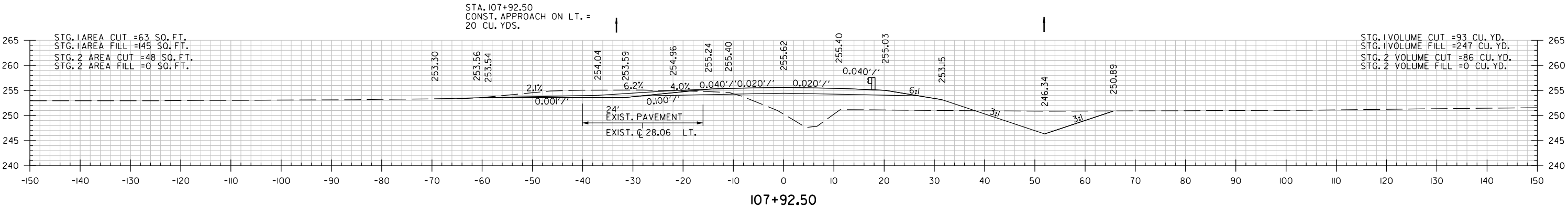
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|                  |                |                 |                | JOB NO.             |       | 101009           | 44           | 52              |
| 2 CROSS SECTIONS |                |                 |                |                     |       |                  |              |                 |



STA. 105+00 TO STA. 106+44

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REVISED DATE: \$REVDATE\$

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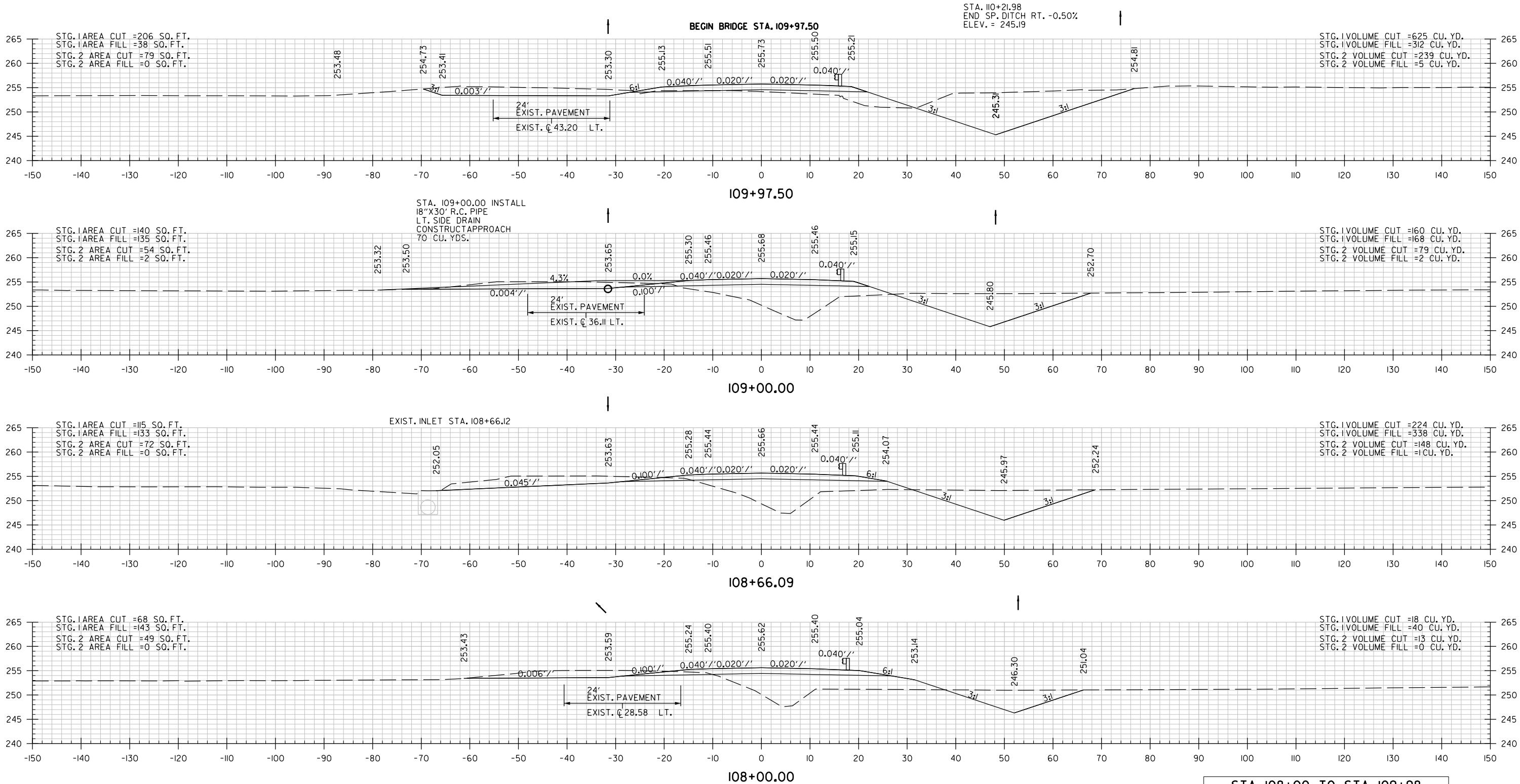


STA. 106+85 TO STA. 107+92



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REVISED DATE: \$REVDATE\$

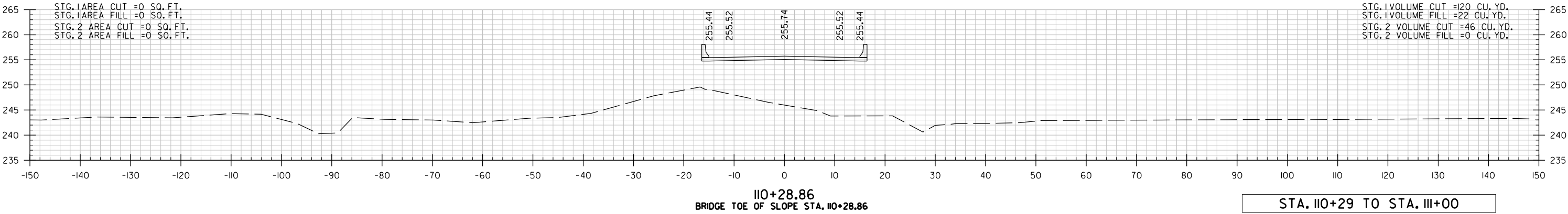
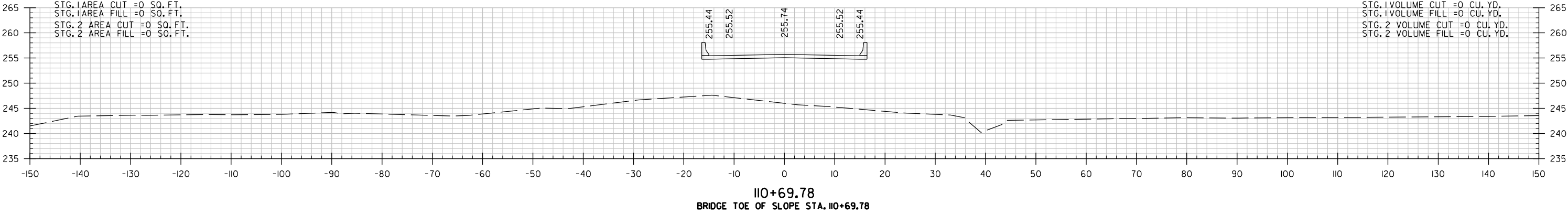
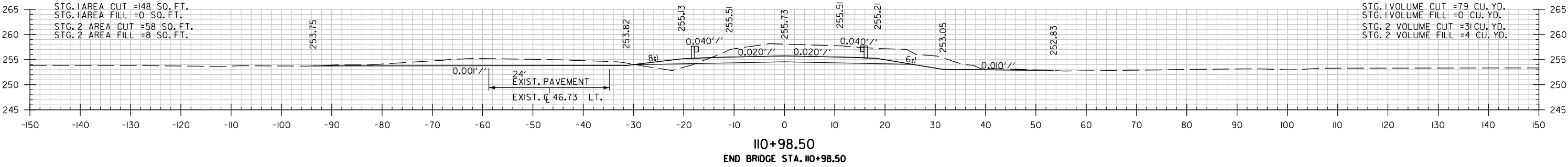
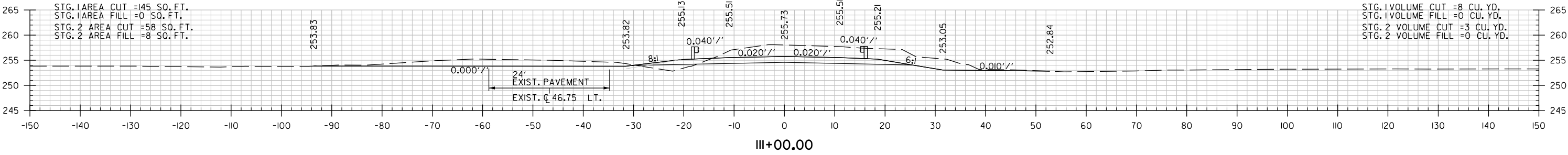
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STA. 108+00 TO STA. 109+98

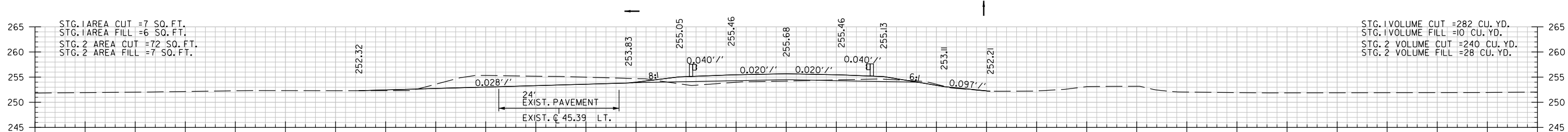
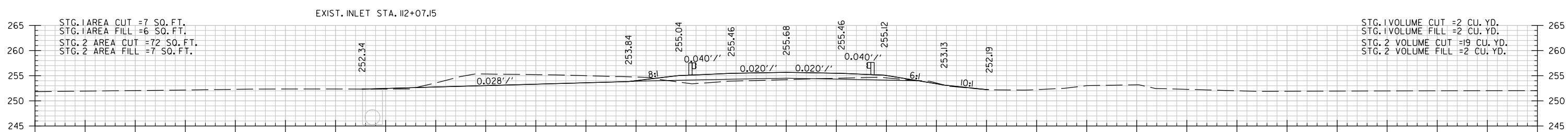
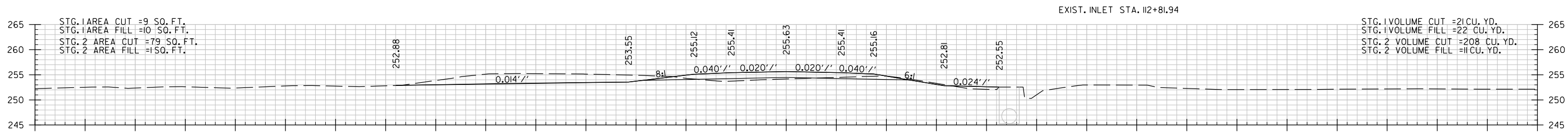
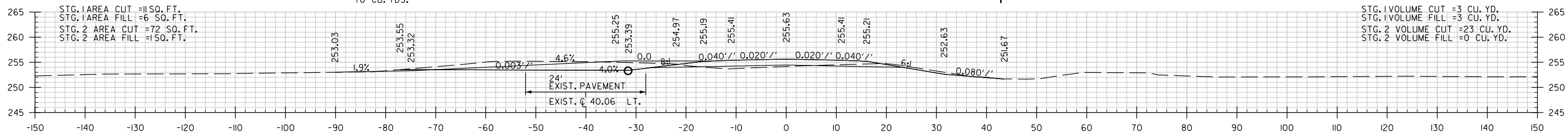
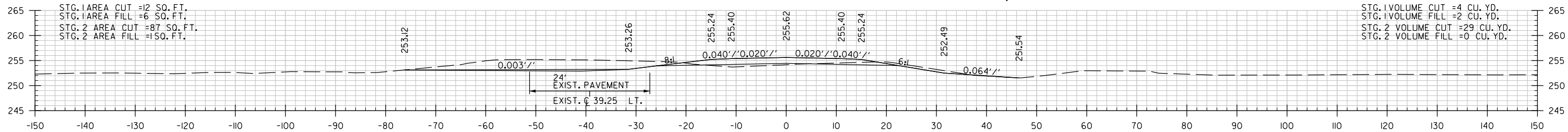
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REVISED DATE: \$REVDATE\$\$

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| 2 CROSS SECTIONS |             |              |             |                    |       |                    |           |              |



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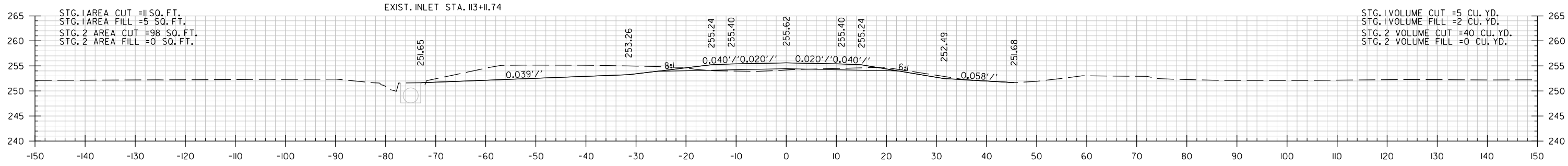
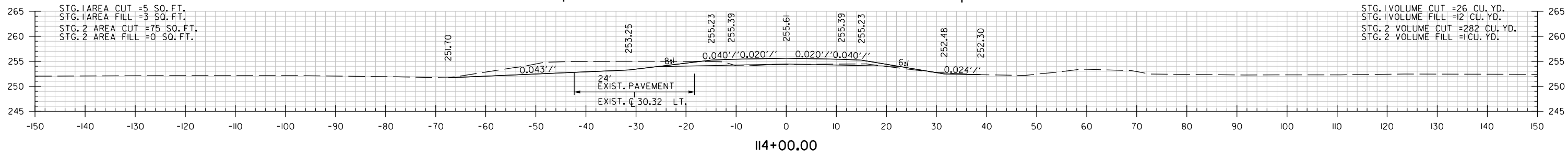
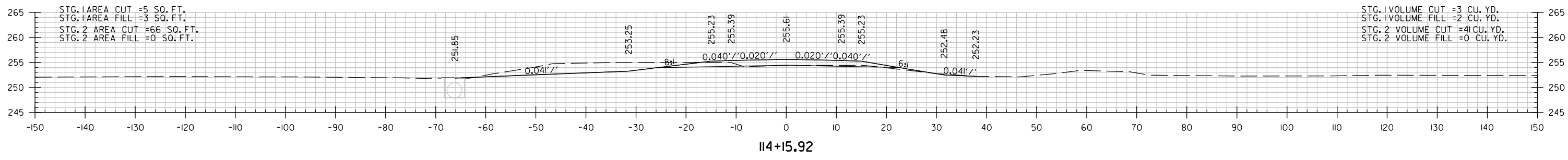
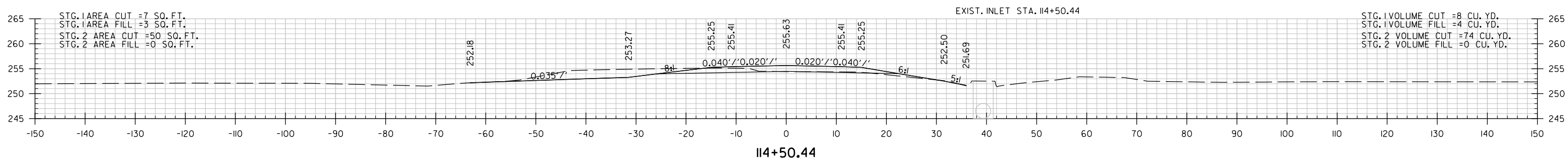
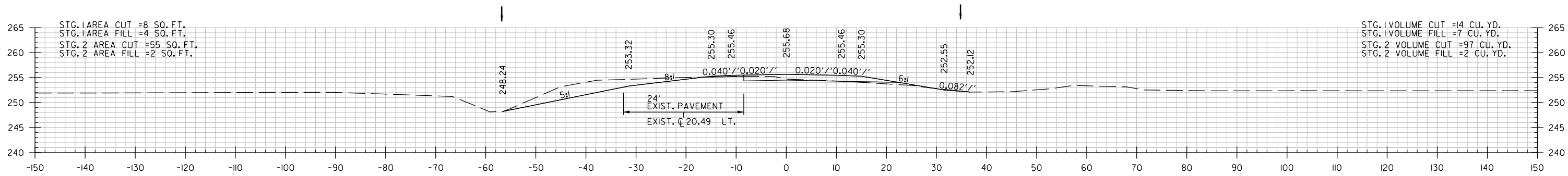
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| 2 CROSS SECTIONS |                |                 |                |                       |       |                    |              |                 |



STA. 112+00 TO STA. 113+00

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REVISED DATE: \$REVDATE\$

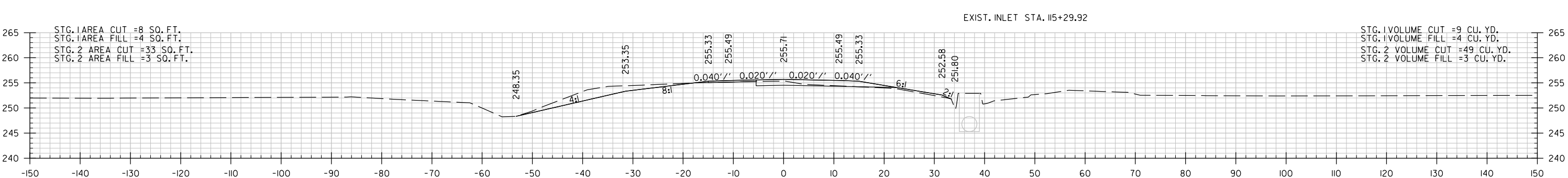
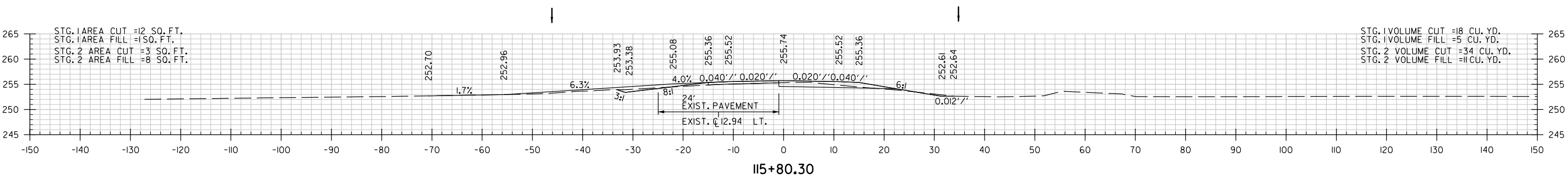
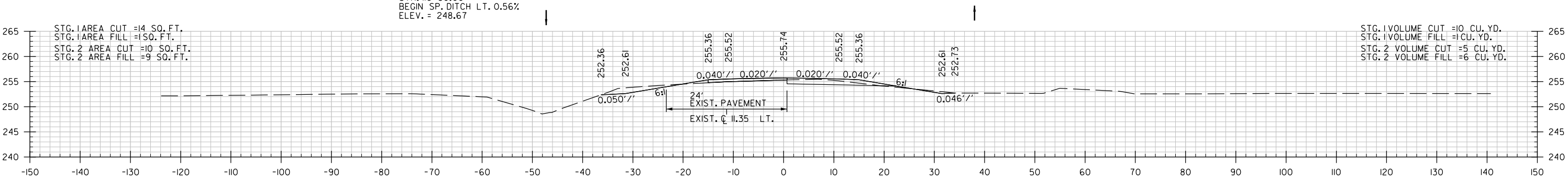
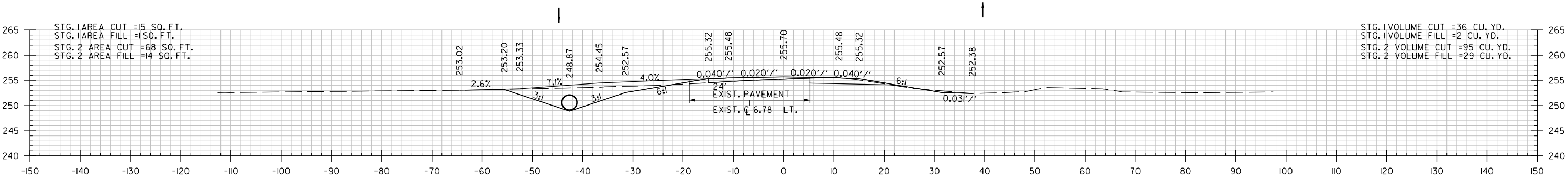
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| 2 CROSS SECTIONS |             |              |             |                    |       |                    |           |              |



STA. 113+12 TO STA. 115+00

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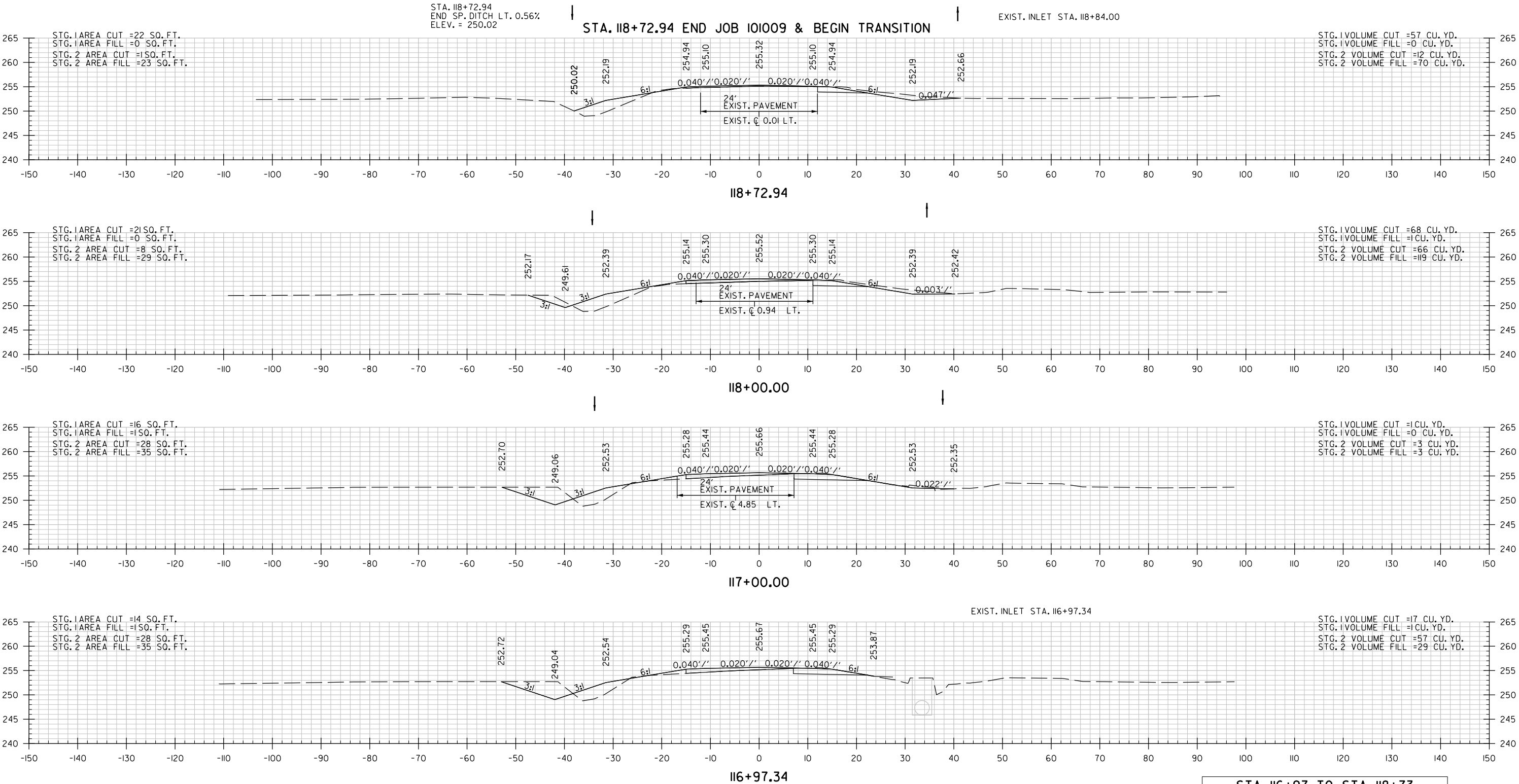


STA. 115+30 TO STA. 116+66



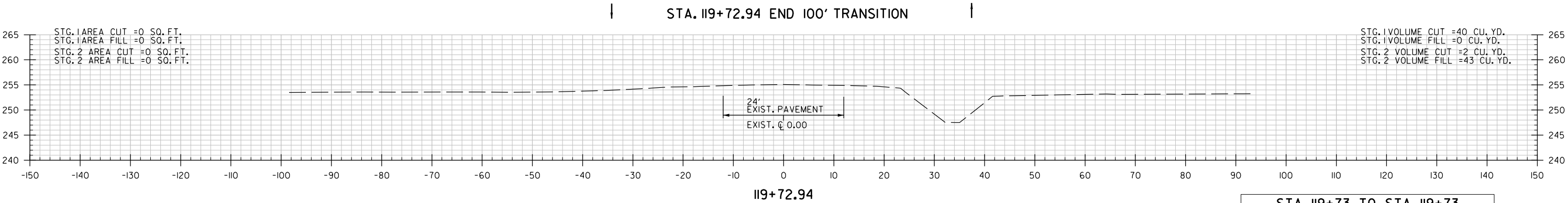
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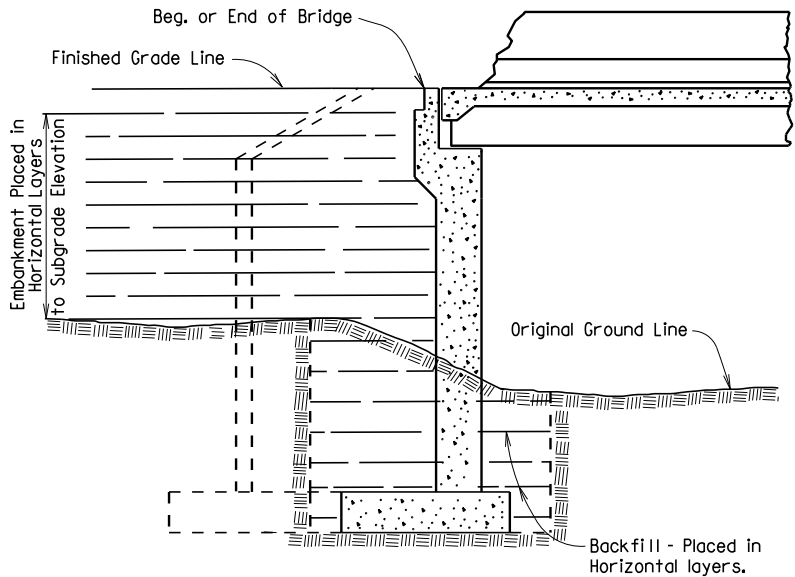


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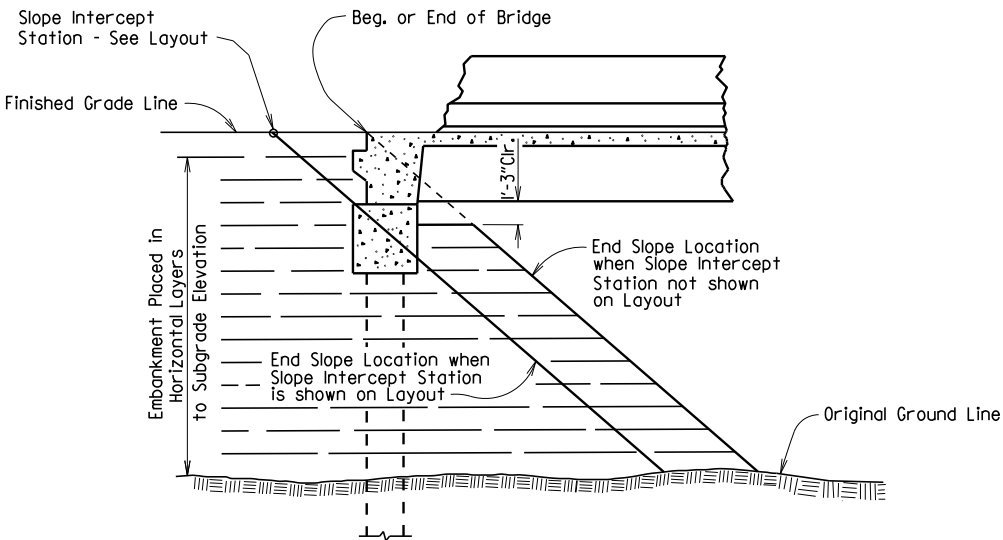
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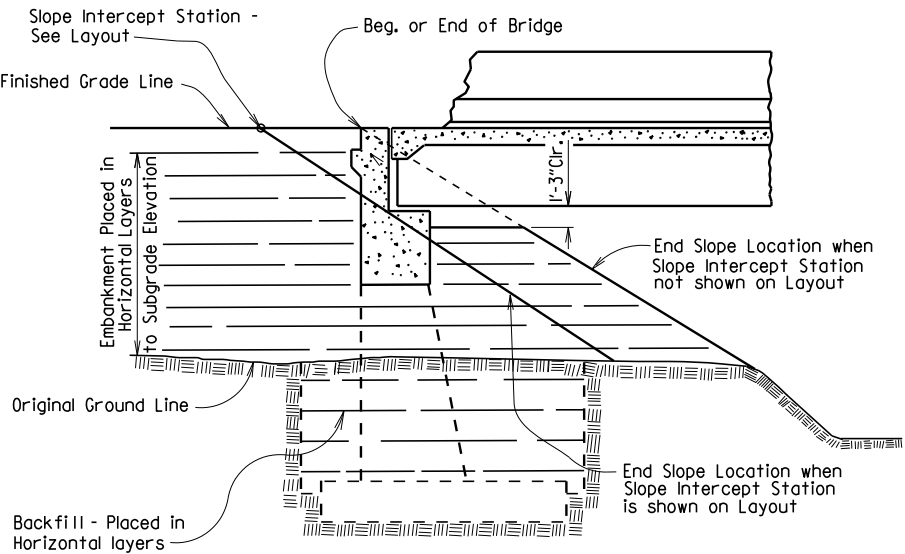
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|              |             |              |             | 1 EMBANKMENT & BACKFILL |       |                    | 55000     |              |



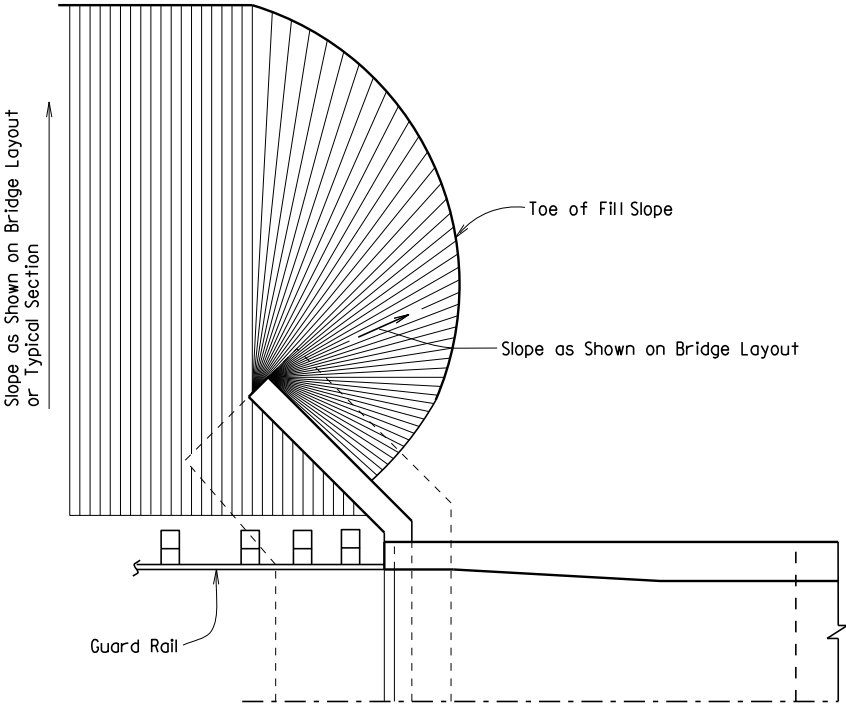
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL  
AT VERTICAL WALL ABUTMENTS



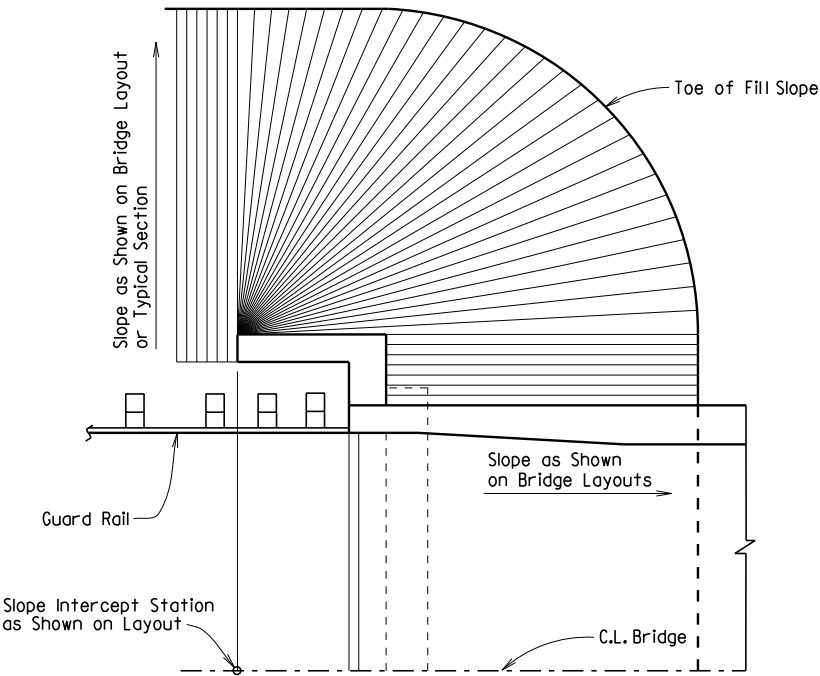
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PILE END BENTS



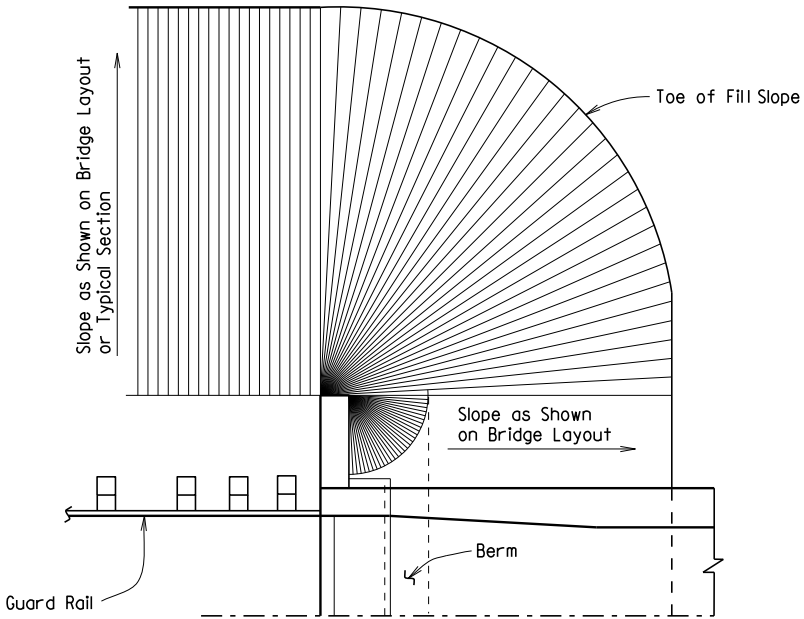
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL  
AT SPILL-THROUGH END BENTS



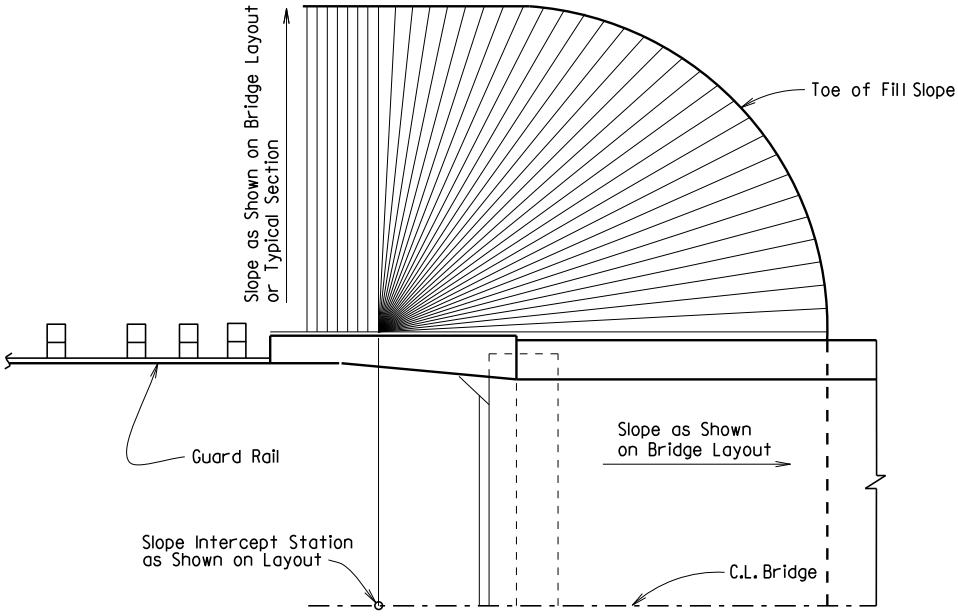
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

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

#### GENERAL NOTES

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

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

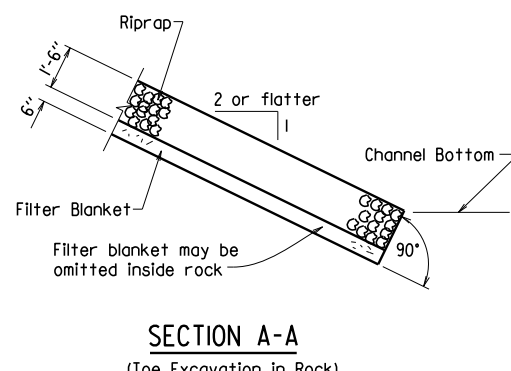
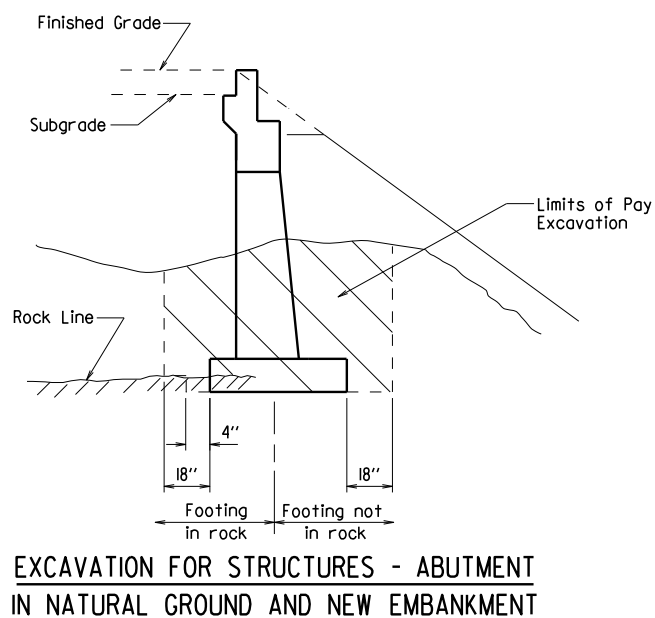
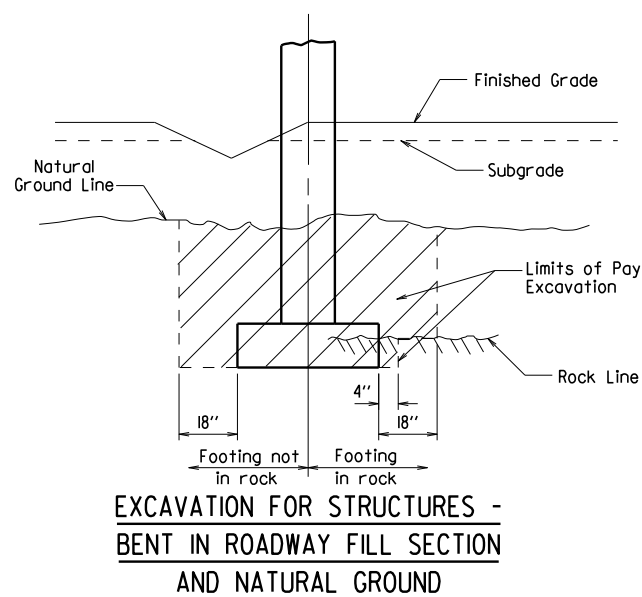
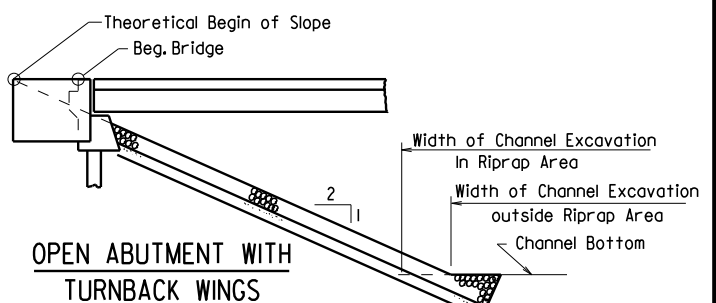
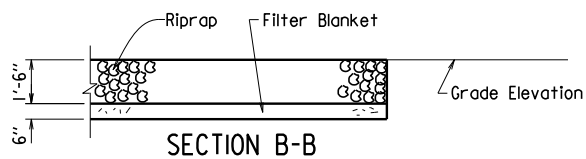
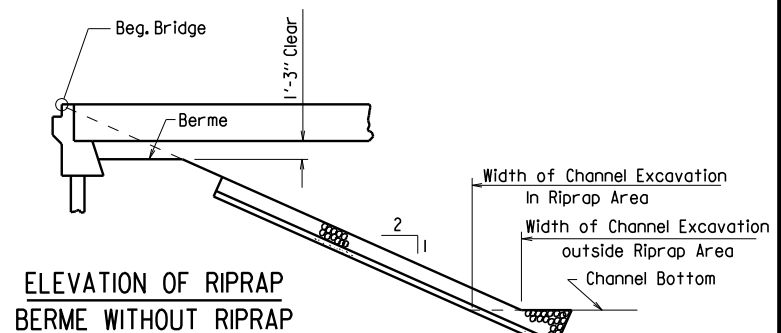
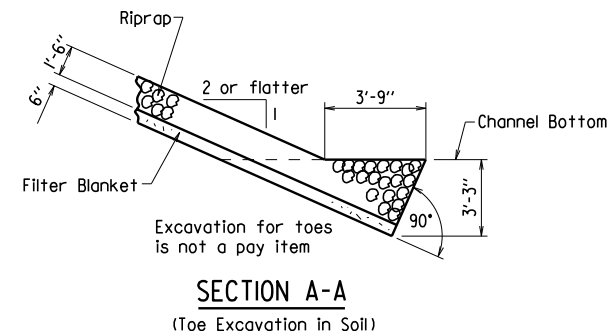
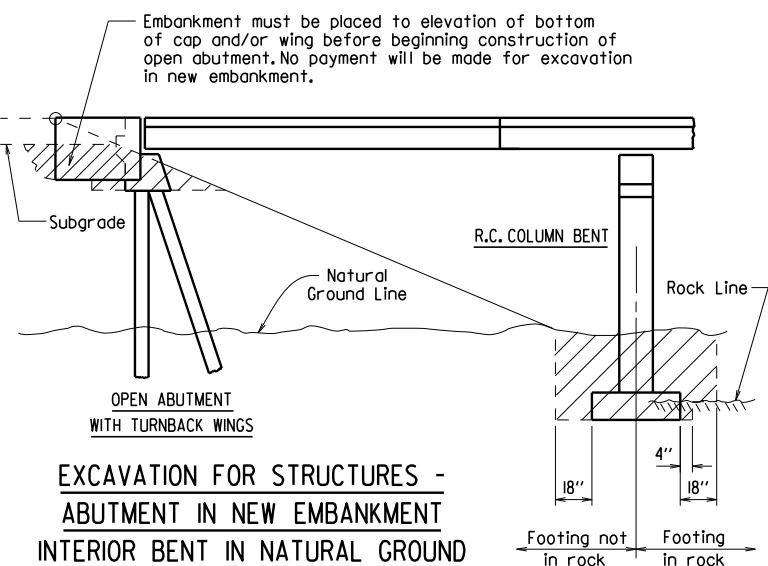
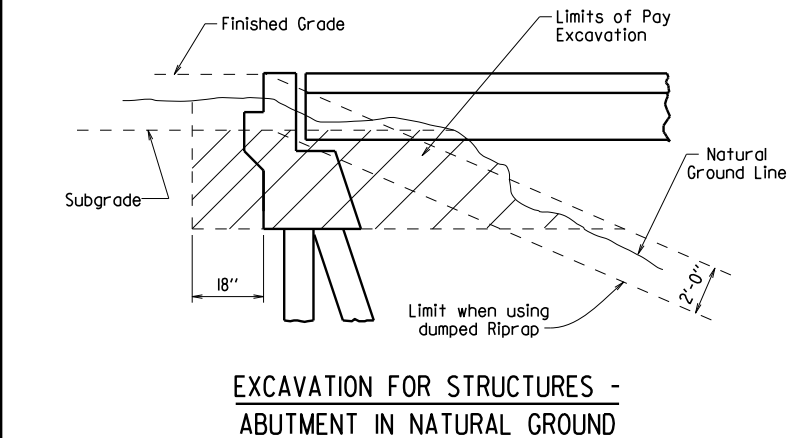
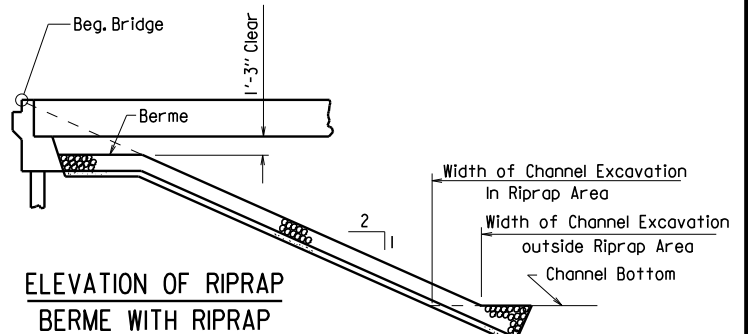
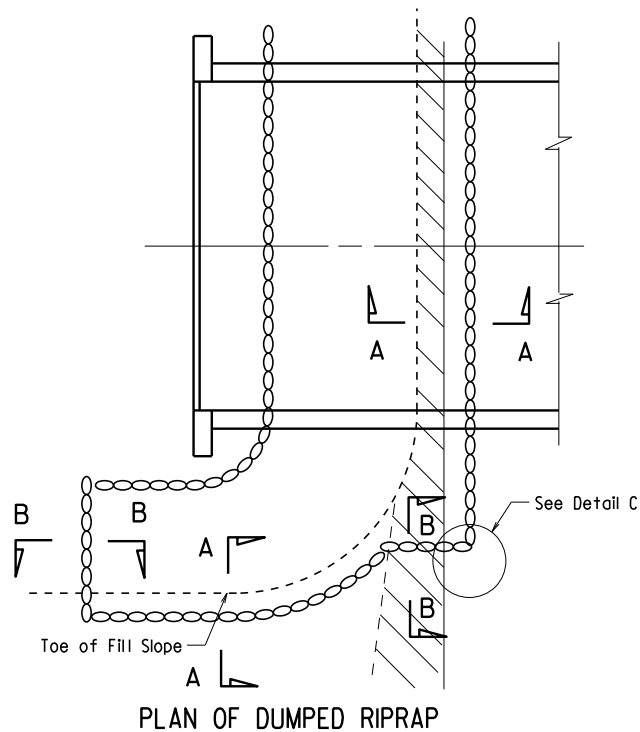
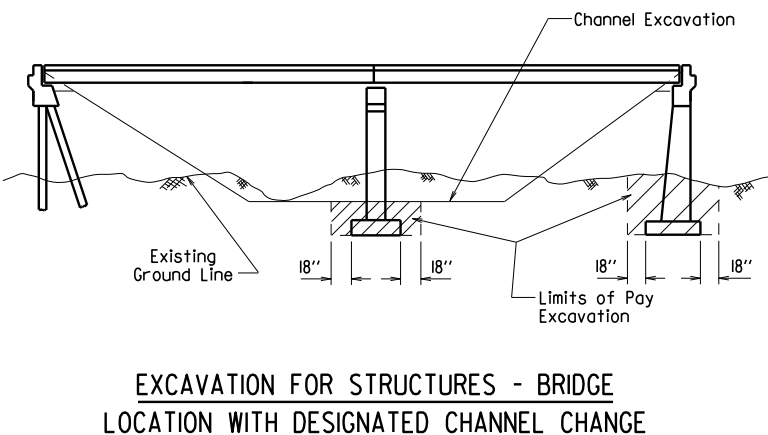
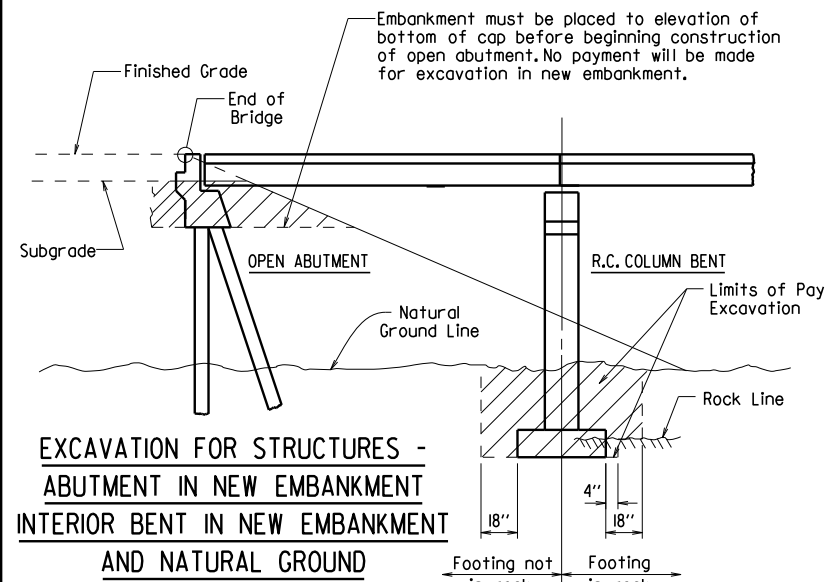
#### ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

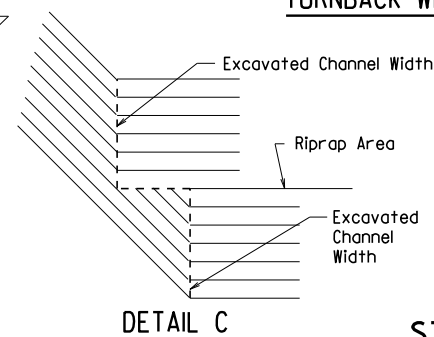
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|--------------|-------------|--------------|-------------|---------------------|-----------------------|--------------------|-----------|--------------|
|              |             |              |             | 6                   | ARK.                  |                    |           |              |
|              |             |              |             | JOB NO.             | RIPRAP & EXCAV. 5500I |                    |           |              |



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

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

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



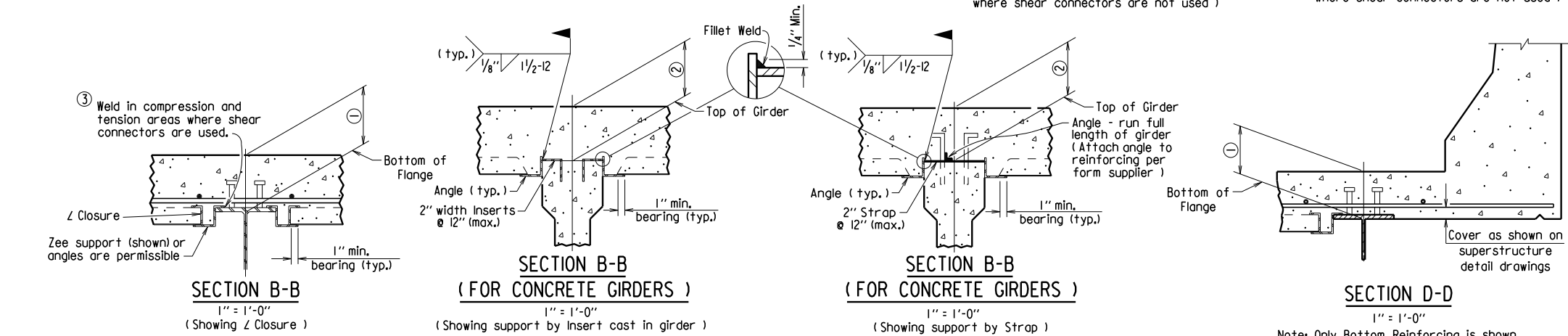
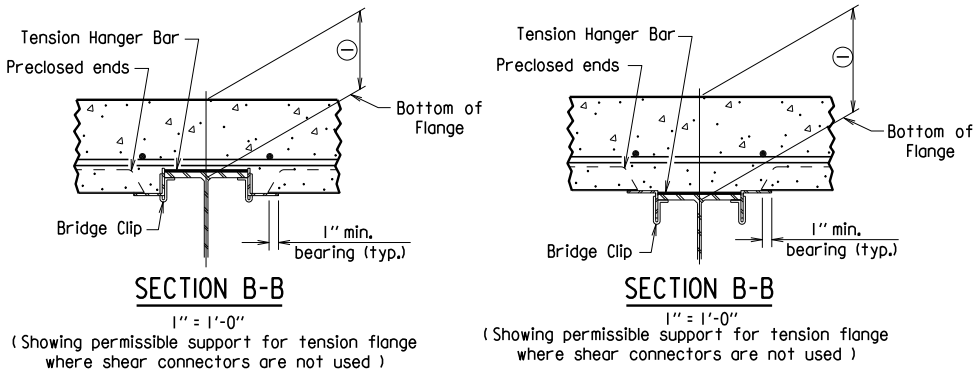
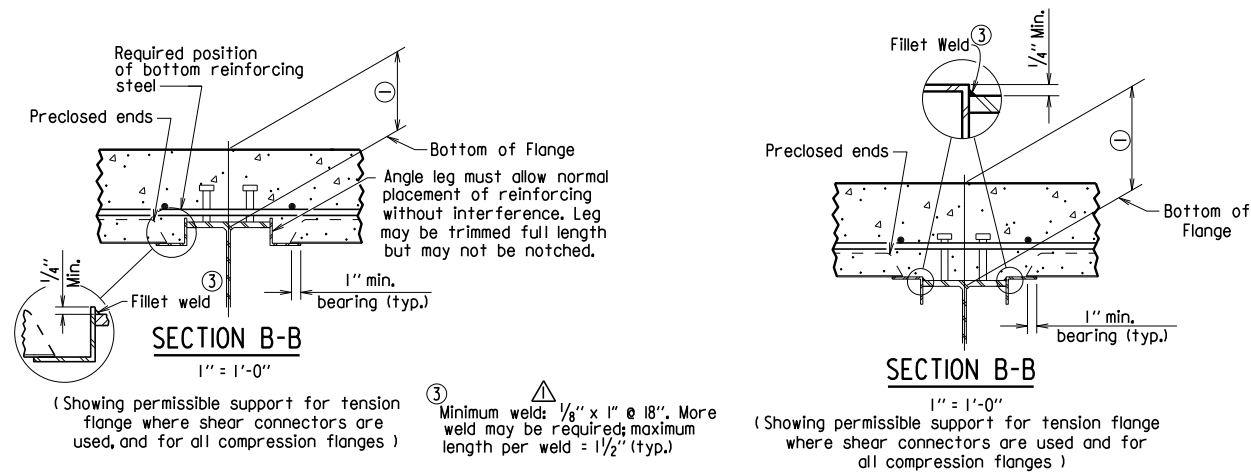
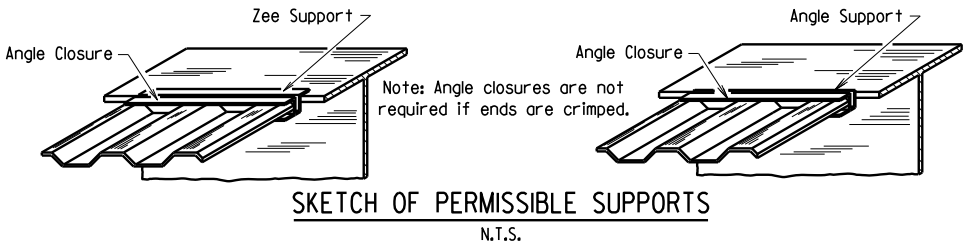
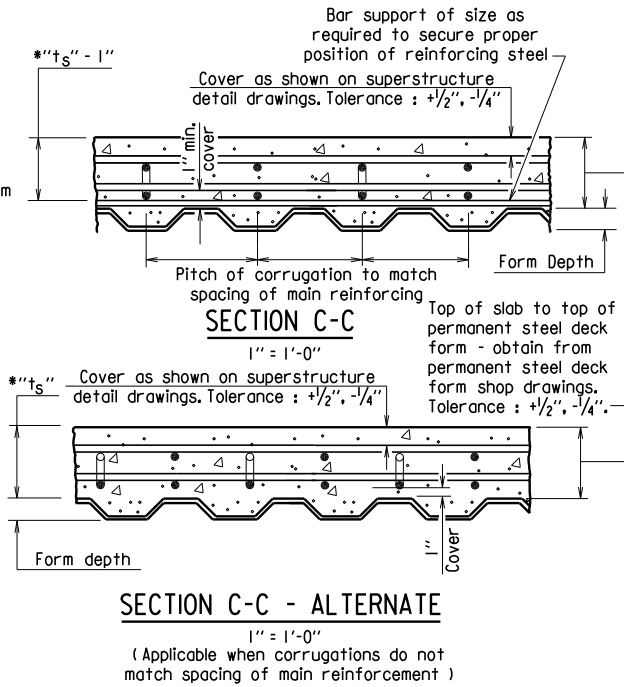
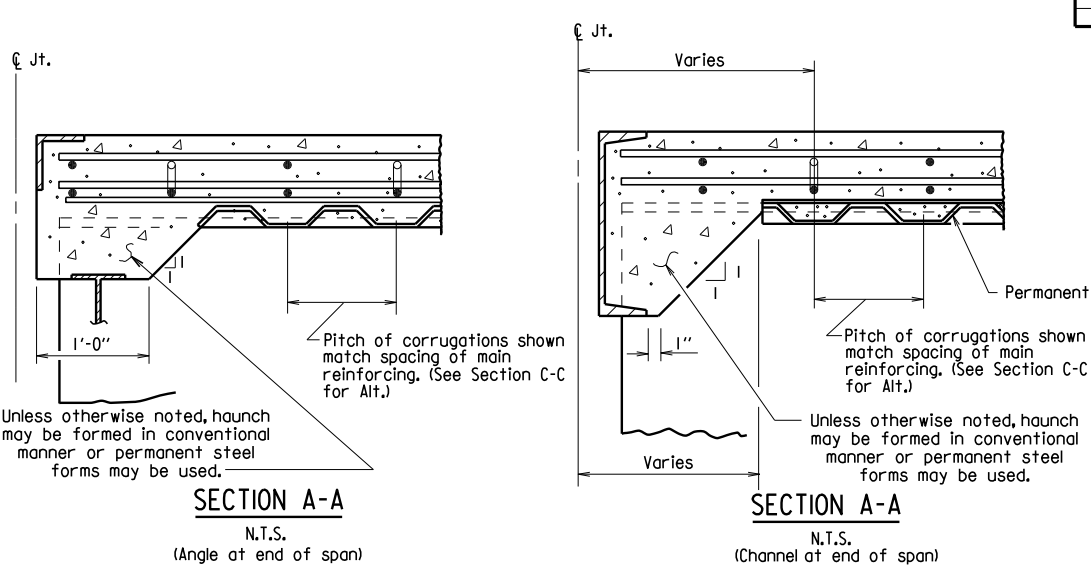
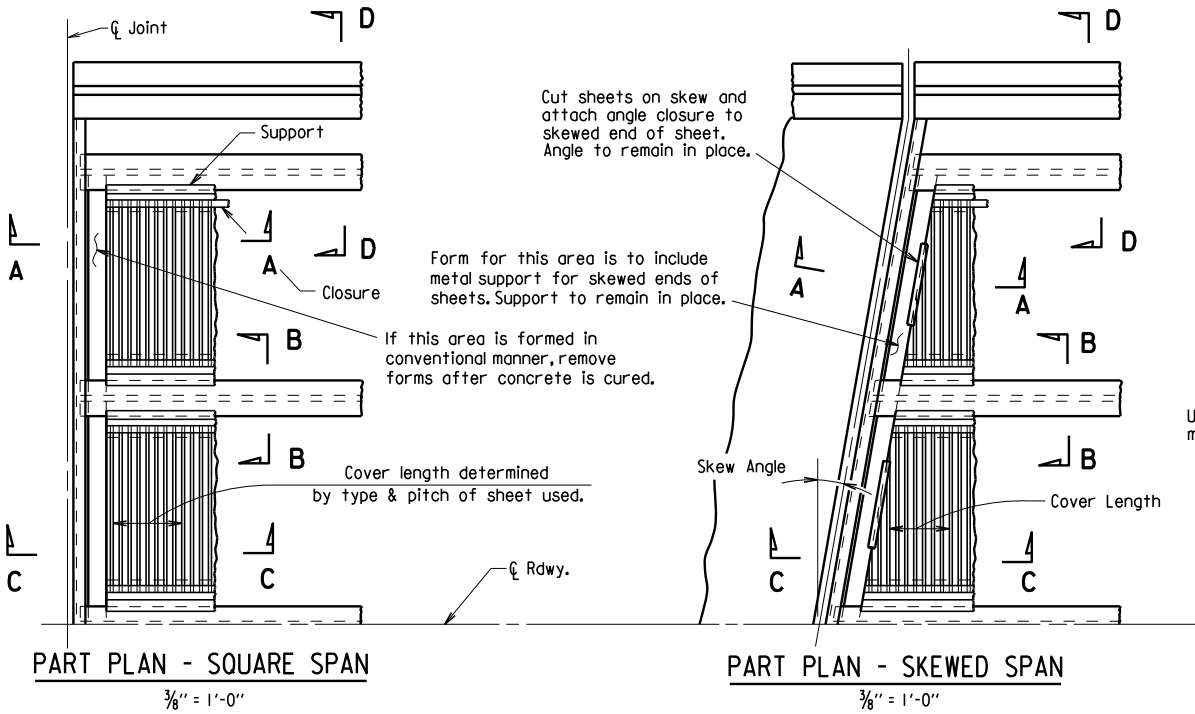
# STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500I.dgn  
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE  
DESIGNED BY: STD. DATE:

DRAWING NO. 5500I

| 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.             | BRIDGE DECK FORMS 55005 |                    |           |              |



\*t<sub>s</sub> = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

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

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

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

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

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

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

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

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

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

### ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

Revised weld dimension by KWH, CK'd by BEF, 3/24/16.



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 Gradet(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 3/4" 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 3/4" Ø high-strength bolts using 1/6" Ø open holes. Holes for 3/4" Ø high-strength bolts may be 1/6" 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 1/4" +/- 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 1/4" +/- 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 3/4" unless otherwise noted.

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

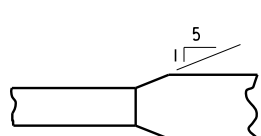
STANDARD GENERAL NOTES  
FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

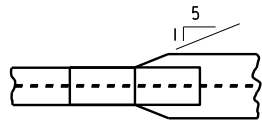
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| DESIGNED BY: | STD.   | DATE: |          |           |            |

DRAWING NO. 55006

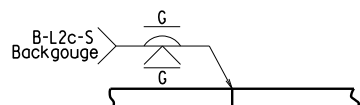


Plan-Unequal Width (Fig.)

FLANGE SPLICE

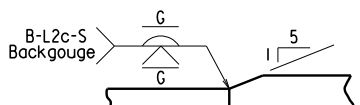


## FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

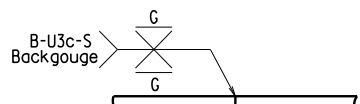
WEB & FLANGE SPLICE



Unequal Thickness

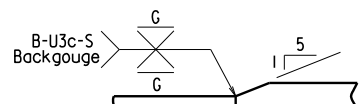
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

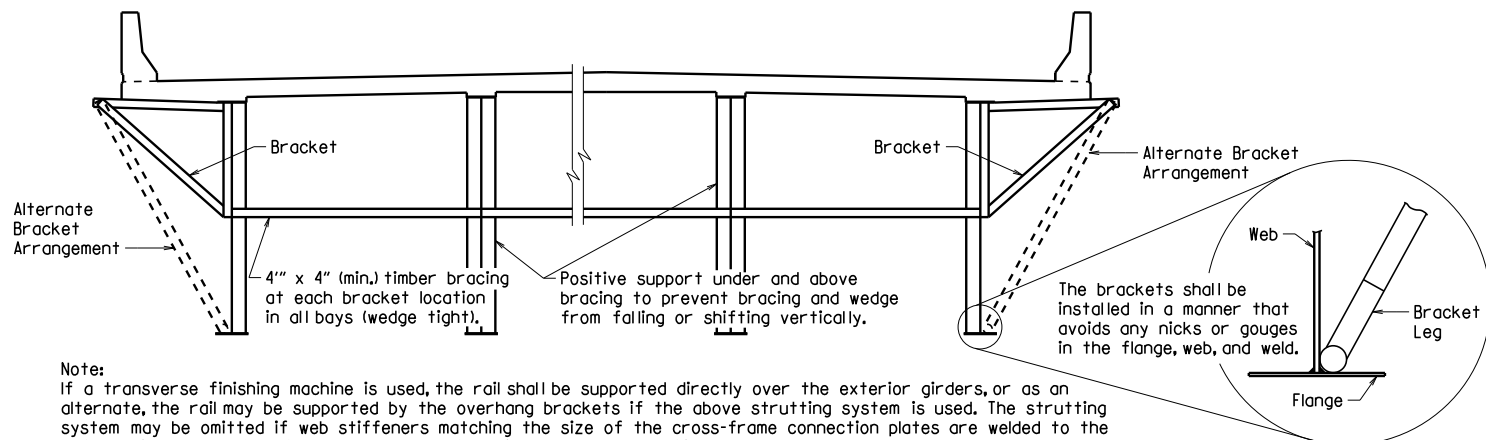


Unequal Thickness

FLANGE SPLICE

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

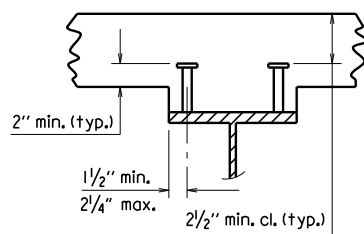
## DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



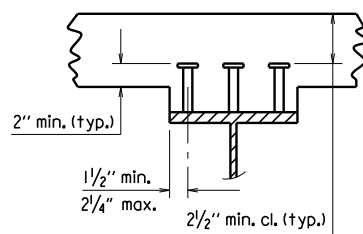
Note:  
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the 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)



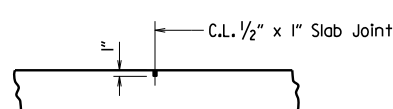
2 STUDS PER ROW



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.

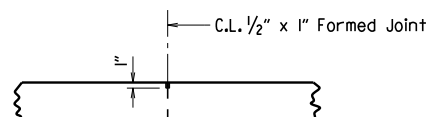
## SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

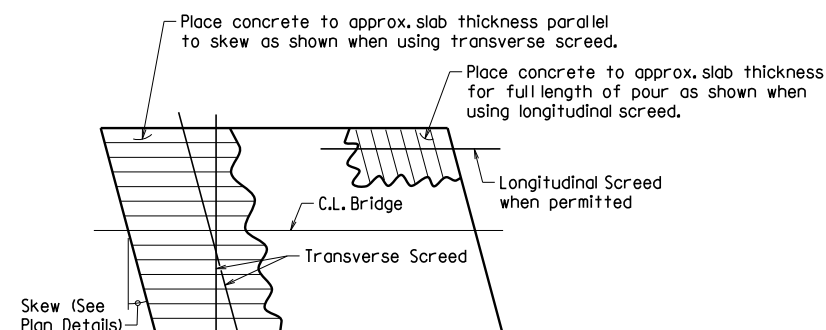
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:  
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the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

## TRANSVERSE SLAB JOINT DETAIL



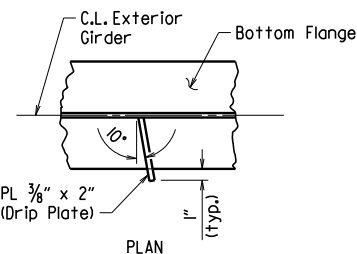
Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 50L02(h) and 50L05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

## LONGITUDINAL CONSTRUCTION JOINT



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

## CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



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

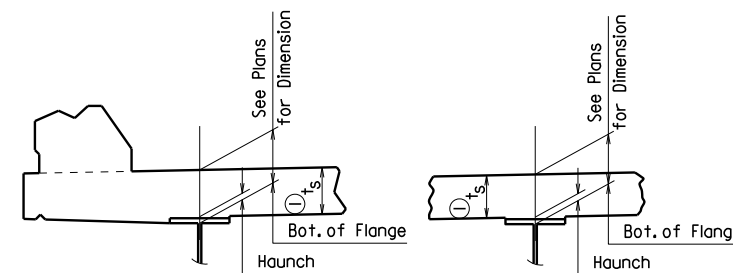
Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

## BOTTOM FLANGE DRIP PLATE

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

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

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



EXTERIOR BEAM OR GIRDER

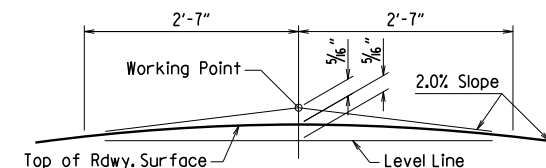
INTERIOR BEAM OR GIRDER

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

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

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

## ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

## ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

## WELD TABLE

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

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

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

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

## STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

## ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

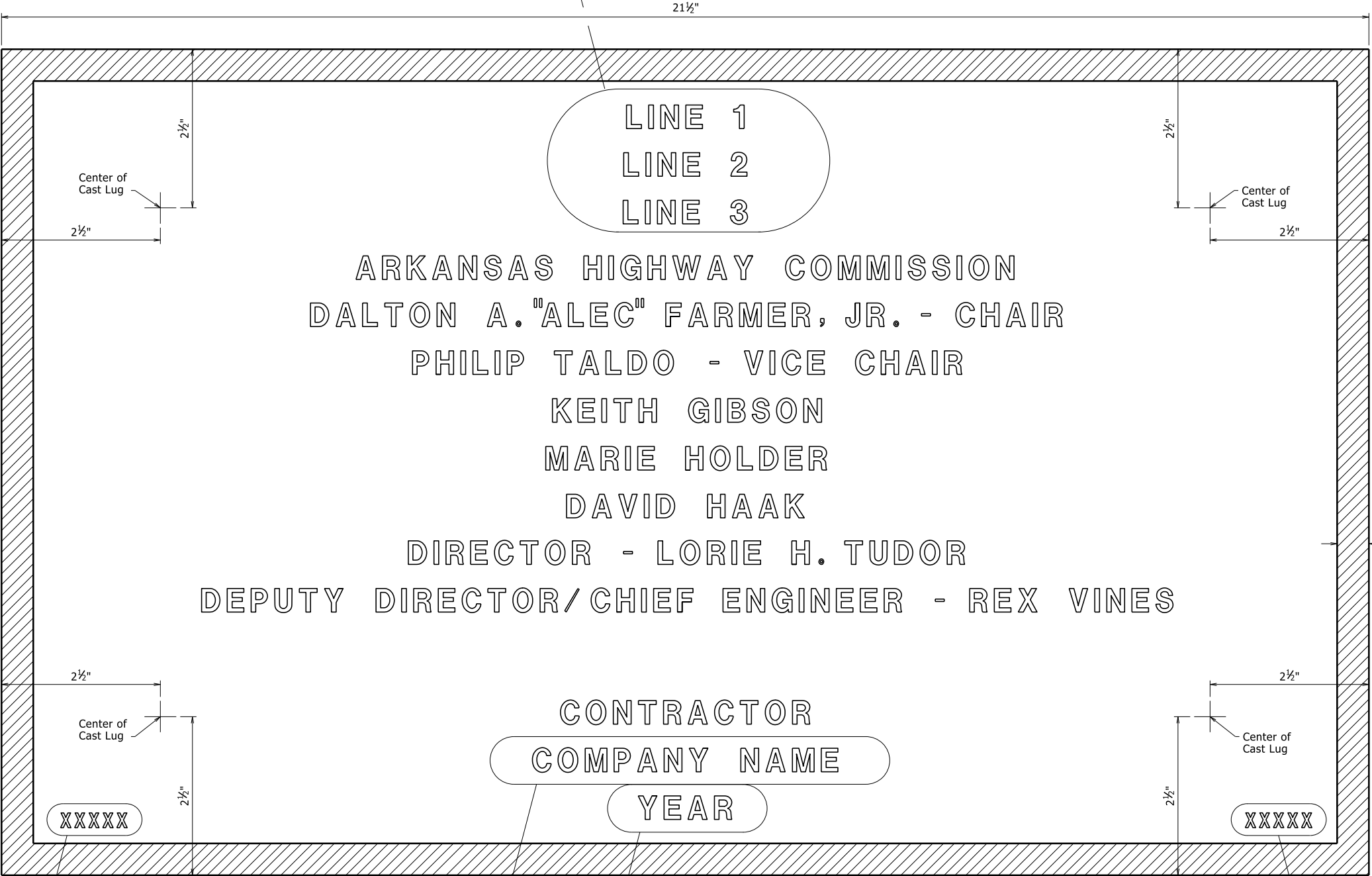
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DRAWING NO. 55007

| DATE<br>REVISED           | DATE<br>REVISED | FED. NO.<br>DIST. NO. | STATE | JOB NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|---------------------------|-----------------|-----------------------|-------|---------|--------------|-----------------|
| 01-11-23                  |                 | 6                     | ARK.  |         |              |                 |
| TYPE D NAME PLATE - 55010 |                 |                       |       |         |              |                 |

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

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

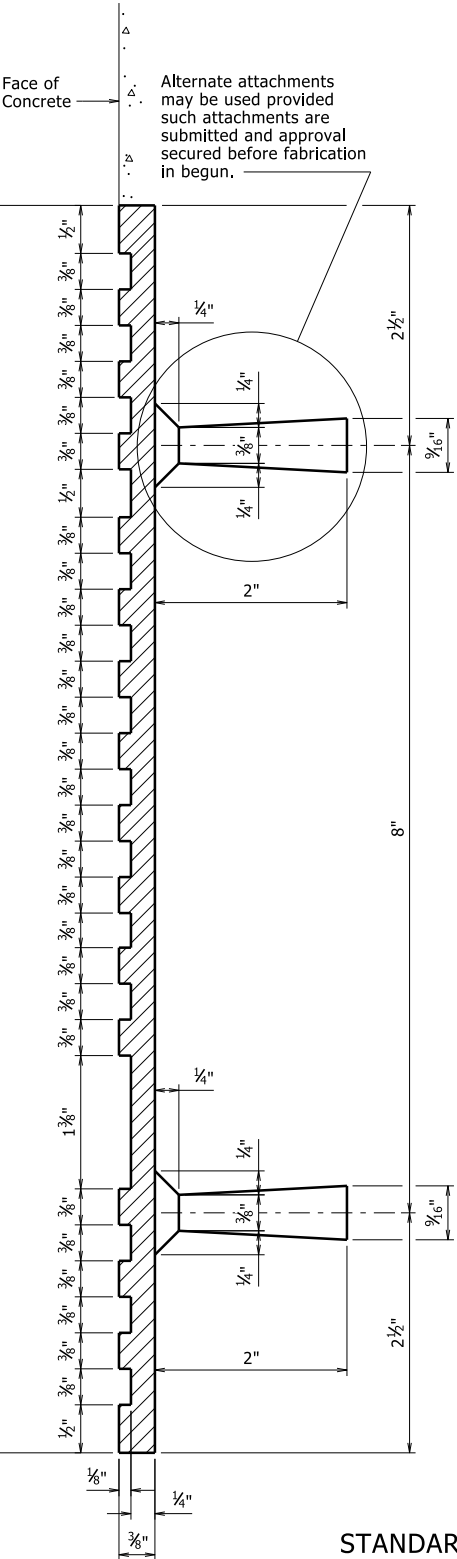


Place the design live loading here using  $\frac{1}{8}$ " raised letters and numerals  $\frac{1}{4}$ " high. Examples: HS20  
HL-93

Place the name of the company awarded the construction contract here using  $\frac{1}{8}$ " raised letters and numerals  $\frac{3}{8}$ " high. Example: ABCD CONSTRUCTION, INC.

TYPICAL BRIDGE NAME PLATE

Place the Bridge number here using  $\frac{1}{8}$ " raised letters and numerals  $\frac{1}{4}$ " high. Examples: A1234  
05432



GENERAL NOTES

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

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

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

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

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

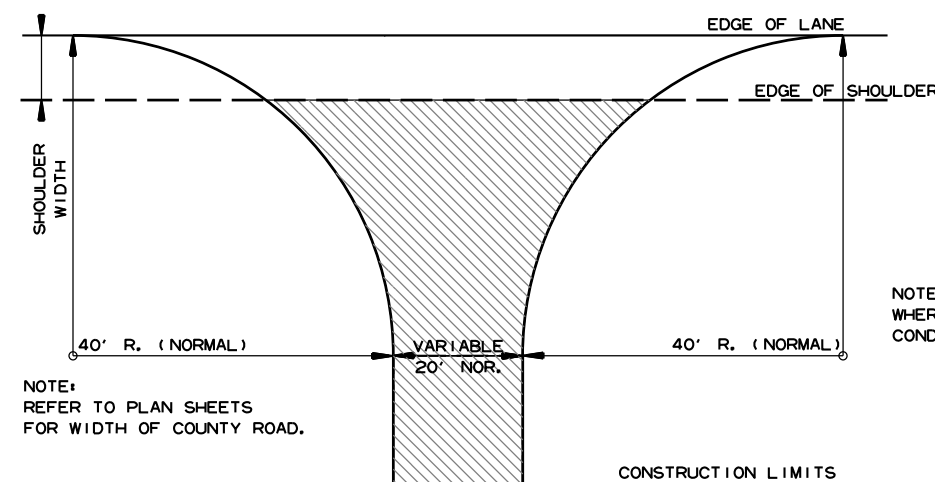
1 Revised and Redrawn  
01-11-23 CGP Checked By: CRE

STANDARD DETAILS FOR  
TYPE D BRIDGE NAME PLATE

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

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

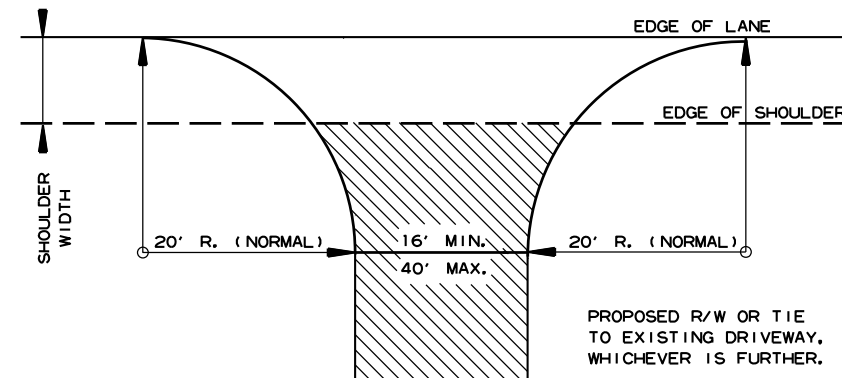
DRAWING NO. 55010



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.

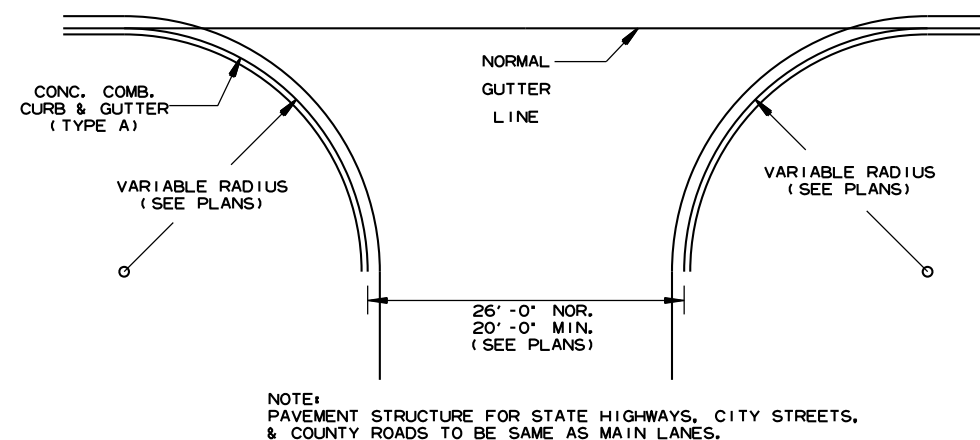
DETAIL FOR COUNTY ROAD TURNOUTS  
OPEN SHOULDER SECTION



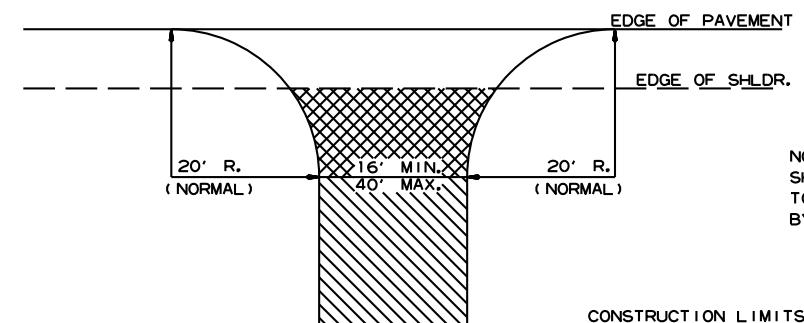
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

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)



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



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

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

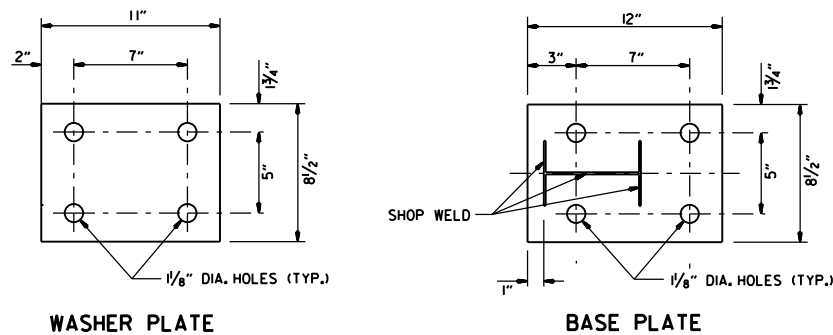
DETAIL FOR DRIVEWAY TURNOUTS  
(COLLECTORS)

|          |             |             |
|----------|-------------|-------------|
| 5-19-22  |             | ISSUED      |
| DATE REV | DATE FILMED | DESCRIPTION |

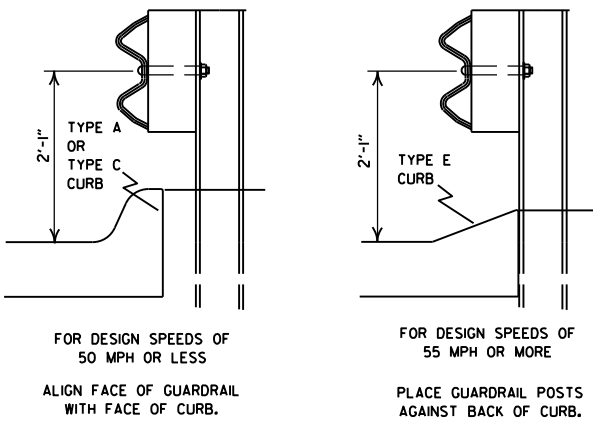
ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DRIVEWAYS & STREET  
TURNOUTS  
STANDARD DRAWING DR-2





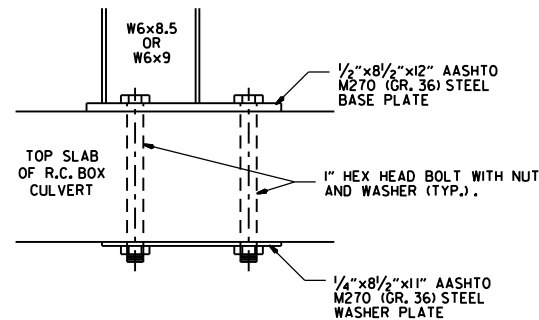
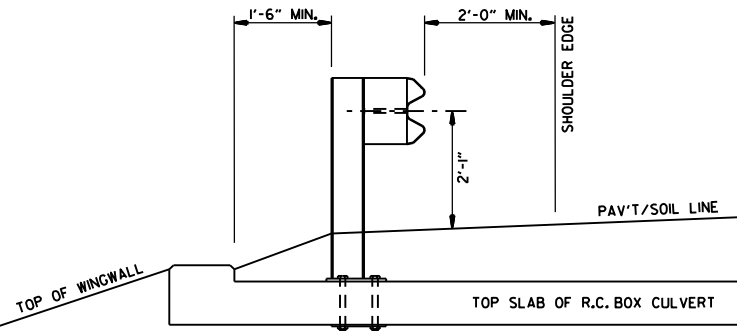


Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



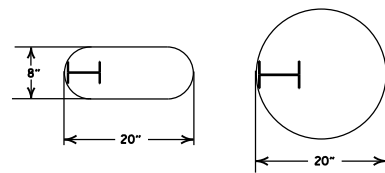
### DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

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



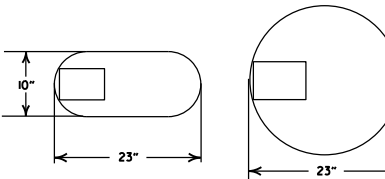
### Plan View Steel Posts

Either hole configuration acceptable



### Plan View Wood Posts

Either hole configuration acceptable

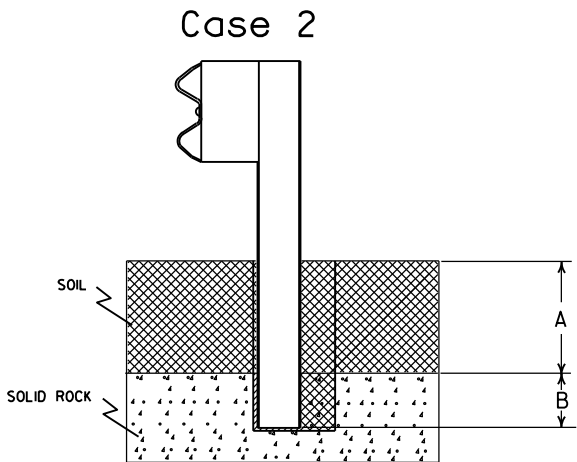


Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

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

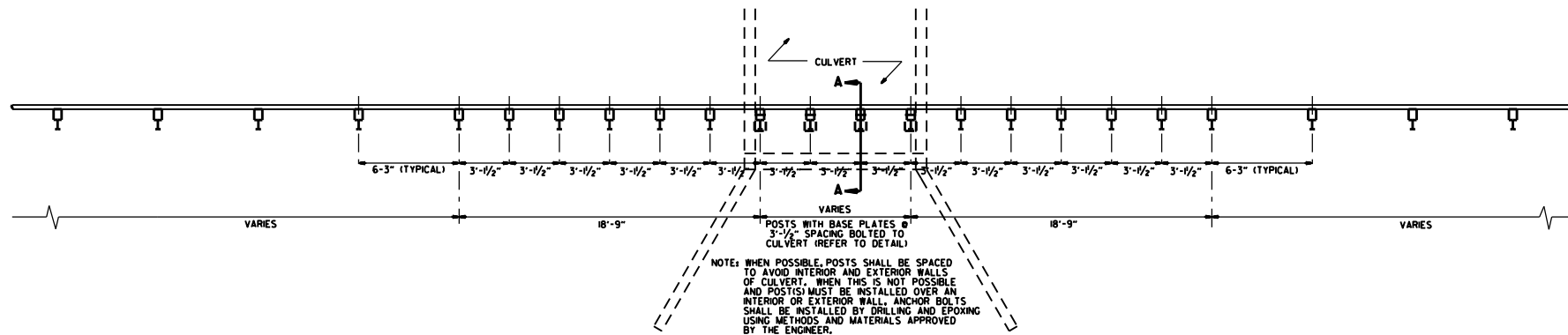
Zone B:  
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

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



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

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



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

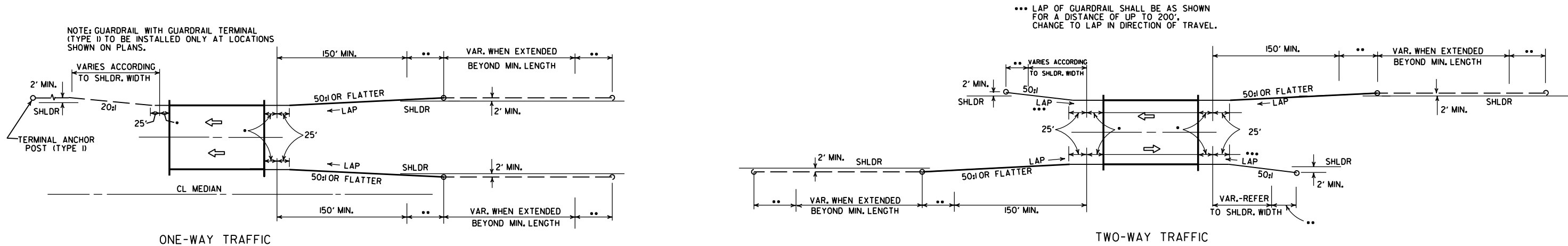
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DRWG. GR-6.

| DATE     | REVISION  | FILED        |
|----------|---|--------------|
| 11-07-19 | RENUMBERED, RENAMED, REVISED REFERENCE  |              |
| 11-16-17 | REVISED GUARDRAIL HEIGHT  |              |
| 07-14-10 | RAISED HEIGHT OF GUARDRAIL 1"   |              |
| 04-12-07 | REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB   |              |
| 11-10-05 | ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION   |              |
| 11-18-04 | REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS  |              |
| 03-30-00 | REMOVED CONCRETE INSERT ANCHOR  |              |
| 08-12-98 | CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULVT., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK |              |
| 04-03-96 | PLACED ARROWS AT CUT STEEL WASHERS  | 4-3-96       |
| 10-18-96 | REV. ASTM REF. TO AASHTO  |              |
| 11-22-95 | ADDED OPTIONAL HOLES  |              |
| 06-02-94 | REVISED ALTERNATE POST SIZE   |              |
| 08-05-93 | REVISED STEEL POST SIZE   |              |
| 10-01-92 | REDRAWN & REVISED   | 10-1-92      |
| 08-02-90 | DEL. WASHER ON ANCHOR ASSEMBLY  | 8-2-90       |
| 07-15-88 | CONFORMED TO 1988 SPECS   |              |
| 03-04-88 | REVISED ANCHOR NOTE   |              |
| 10-30-87 | REVISED ANCHOR ASSEMBLY   | 712-10-30-87 |
| 10-30-87 | REVISED PLACEMENT BEHIND CURB   | 547-10-30-87 |
| 10-09-87 | REDRAWN & REVISED   | 803-10-9-87  |

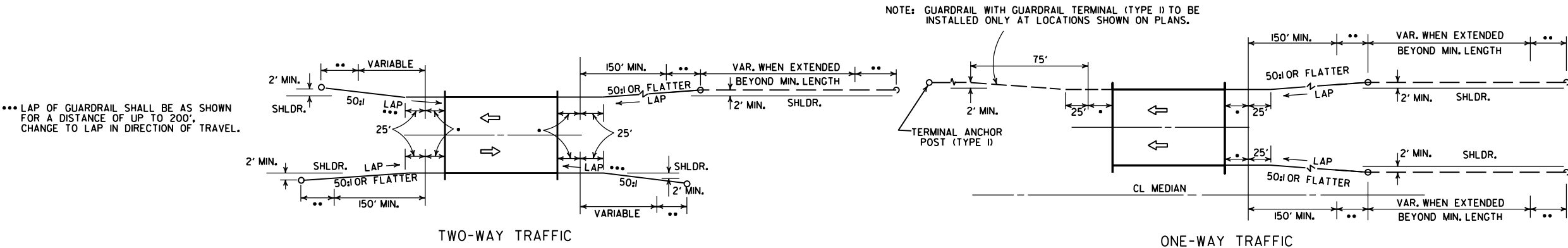
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

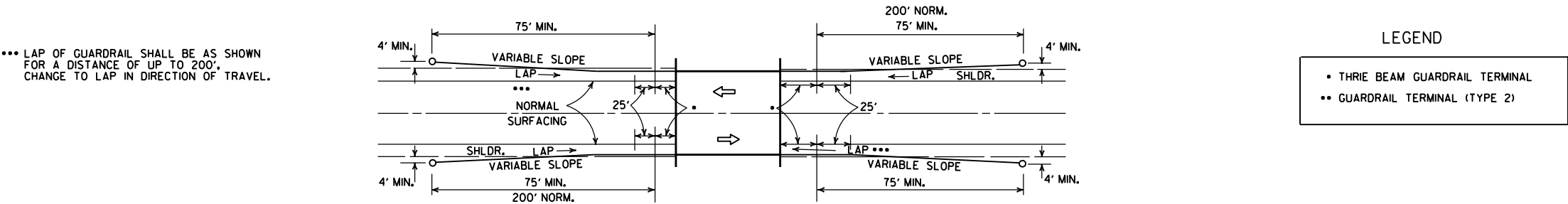
STANDARD DRAWING GR-7



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

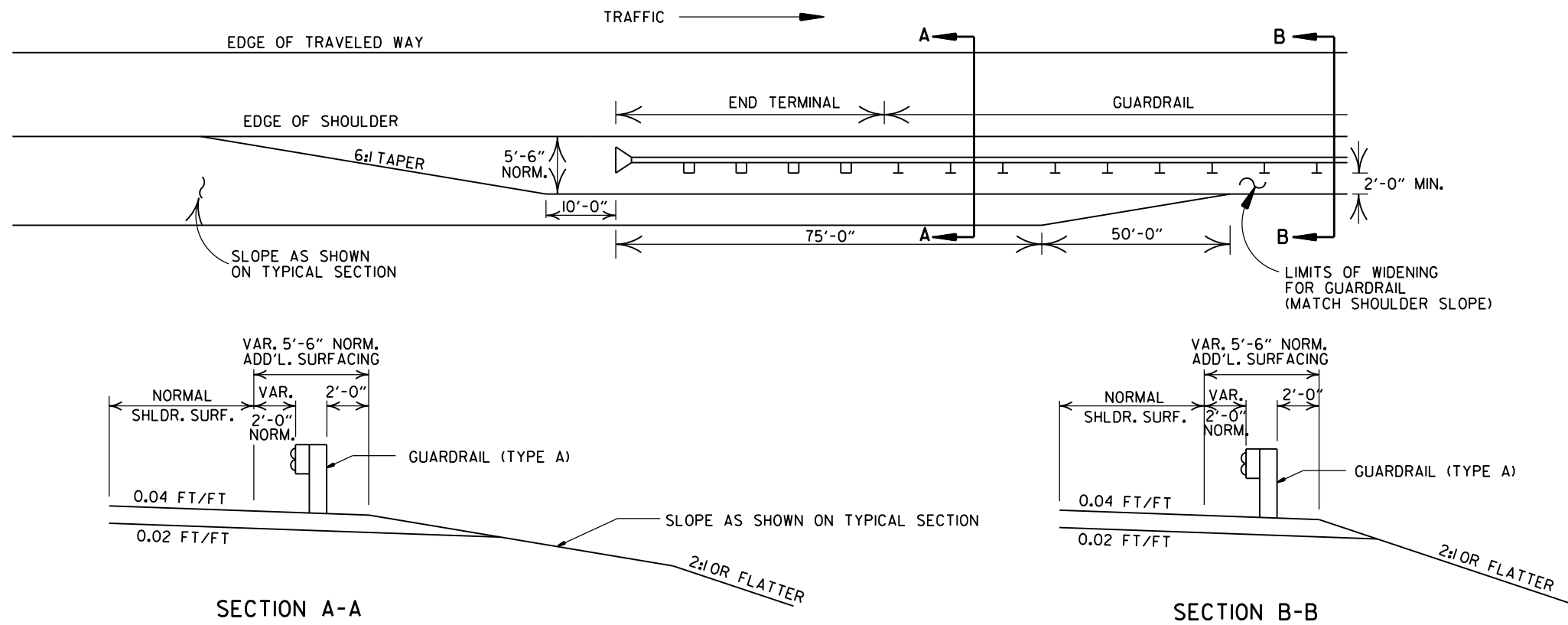


METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

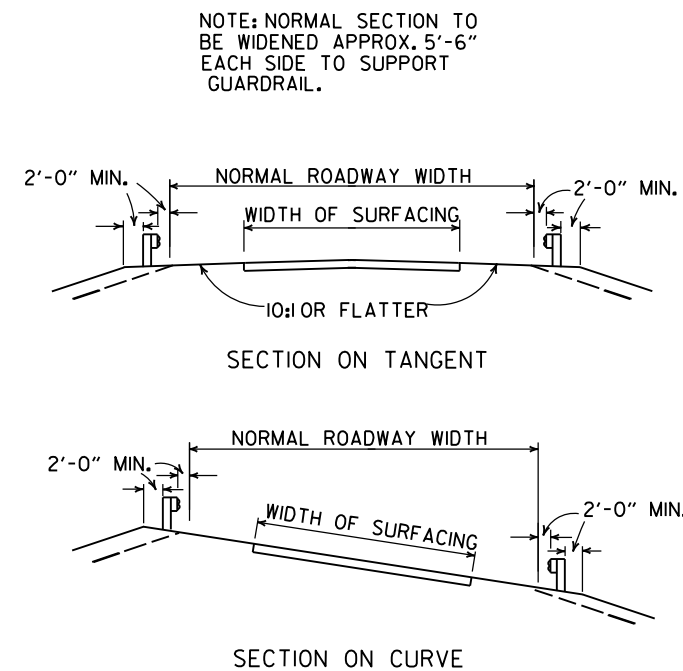


METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

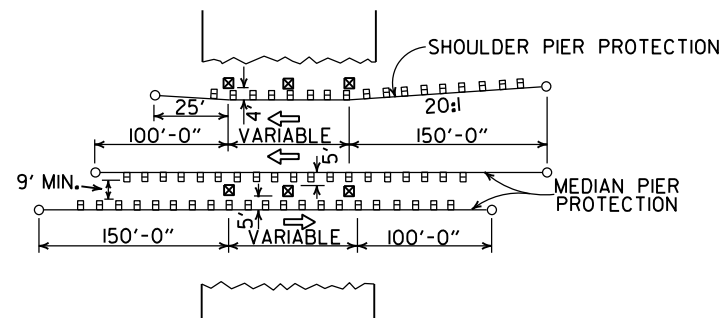
|          |  |         |                                   |
|----------|--|---------|-----------------------------------|
|          |  |         | ARKANSAS STATE HIGHWAY COMMISSION |
| 11-07-19 | RENUMBERED AND RENAMED   |         | GUARDRAIL DETAILS                 |
| 4-17-08  | REVISED LAYOUTS  |         |                                   |
| 11-10-05 | REMOVED GUARDRAIL NOTES AND DETAILS  |         |                                   |
| 11-16-01 | DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1) |         |                                   |
| 1-12-00  | ADDED CONSTRUCTION NOTE  | 1-12-00 | STANDARD DRAWING GR-8             |
| 6-26-97  | REVISED LAYOUT   |         |                                   |
| 10-1-92  | REDRAWN & REVISED  | 10-1-92 |                                   |
| 10-9-87  | ADDED NOTE   |         |                                   |
| DATE     | REVISION   | DATE    | FILM                              |



DETAILS OF WIDENING FOR GUARDRAIL



DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY



METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



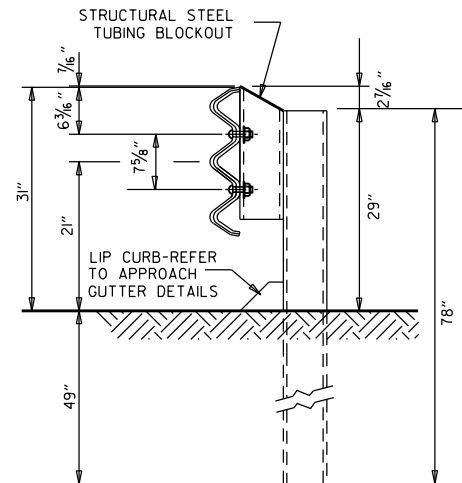
## CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 3/8" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.

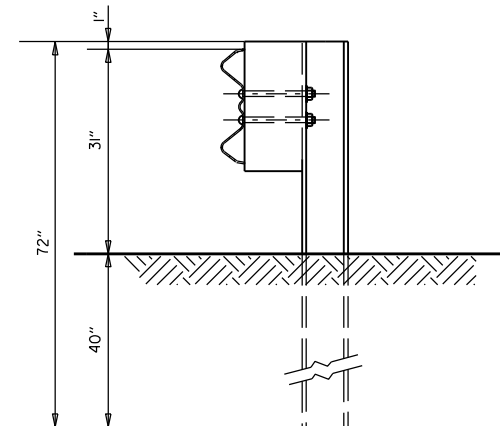


WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

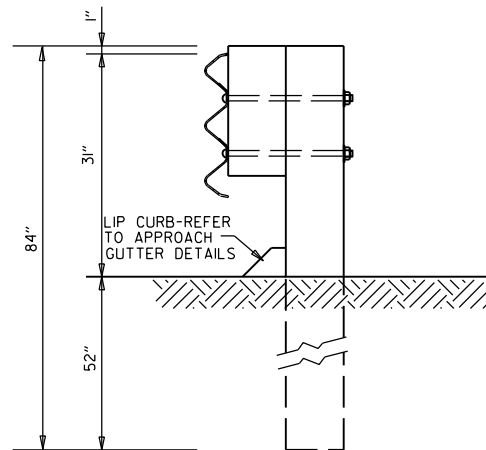
|          |   |        |                                   |
|----------|---|--------|-----------------------------------|
| II-07-19 | RENAMED AND REVISED REFERENCES  |        |                                   |
| II-16-17 | REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED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



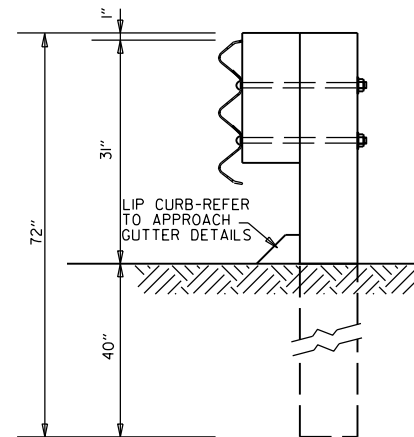
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT  
AND STEEL POST  
POSTS 1-7



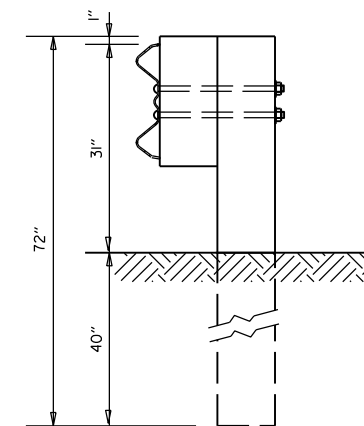
W-BEAM TO THRIE BEAM TRANSITION RAIL  
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST  
POST 8



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



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



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

GENERAL NOTES:

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

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 350 f SOUTHERN PINE.

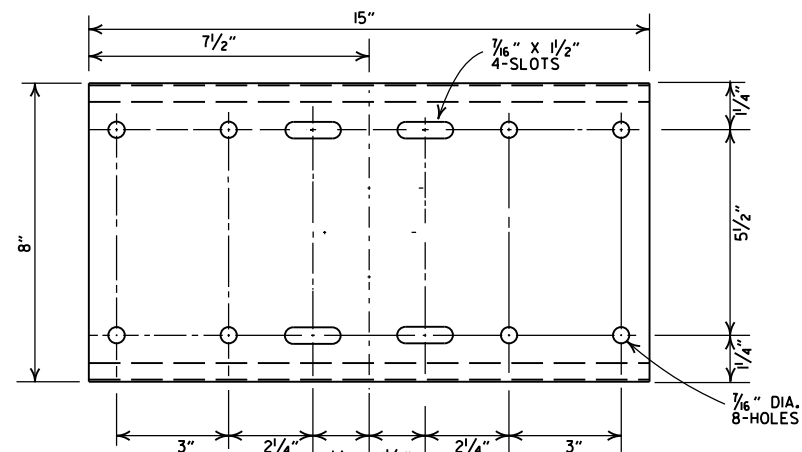
|          |   |        |                                   |
|----------|---|--------|-----------------------------------|
|          |   |        | ARKANSAS STATE HIGHWAY COMMISSION |
|          |   |        | GUARDRAIL DETAILS                 |
| 11-07-19 | RENAMED   |        |                   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



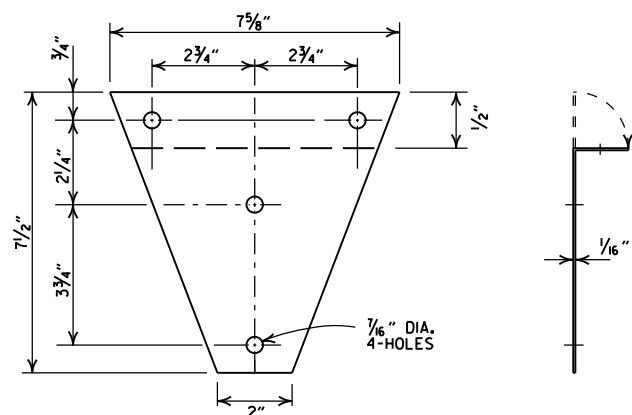
- ## THREE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

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

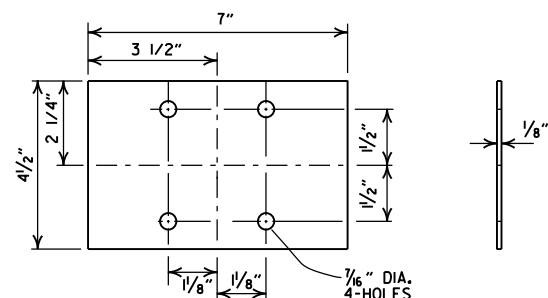




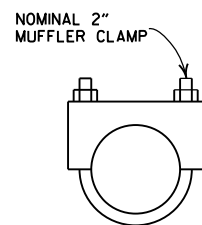
SHELF



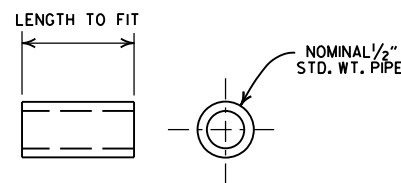
BRACKET



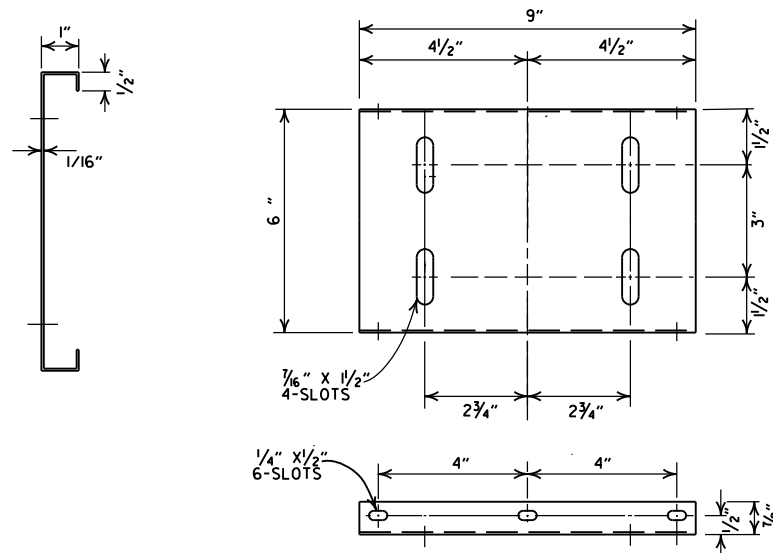
ANTI-TWIST PLATE



CLAMP



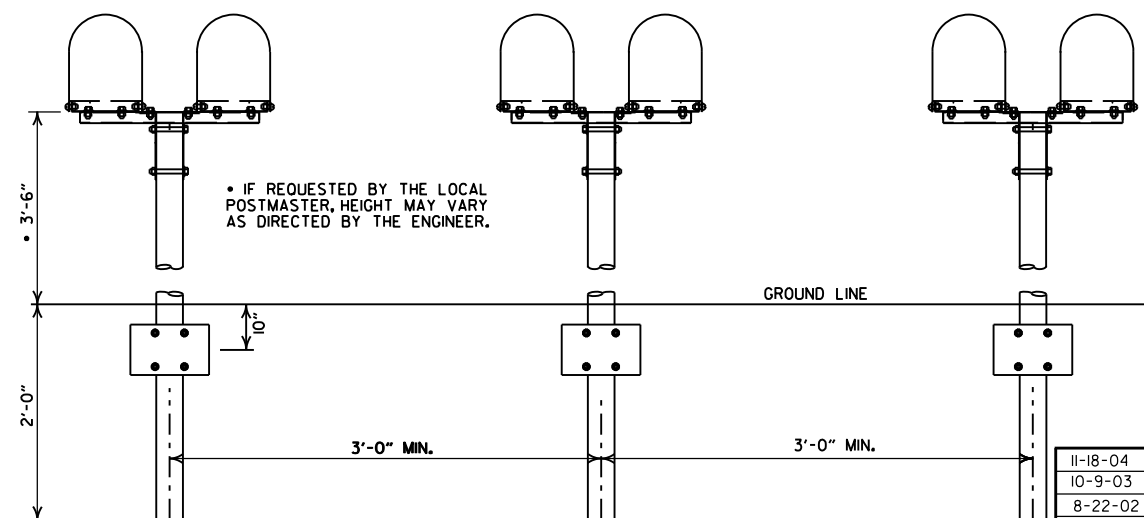
SPACER



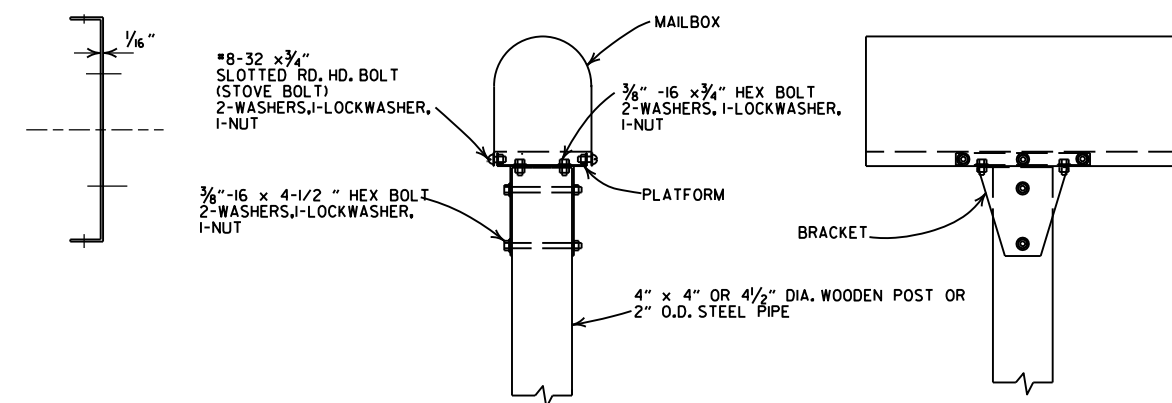
PLATFORM

#### GENERAL NOTES

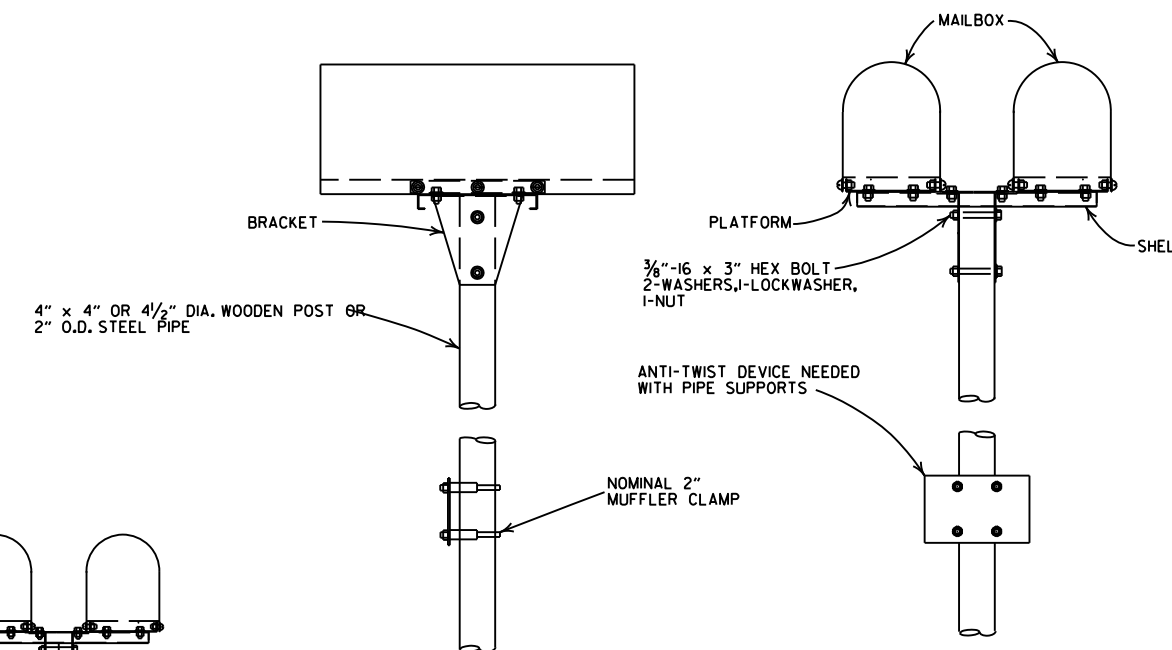
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



SPACING FOR MULTIPLE POST INSTALLATION



SINGLE INSTALLATION



DOUBLE INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE  
ARCH PIPE DIMENSIONS

| EQUIV.<br>DIA. | SPAN            |                  | RISE            |                  |
|----------------|-----------------|------------------|-----------------|------------------|
|                | AASHTO<br>M 206 | ARDOT<br>NOMINAL | AASHTO<br>M 206 | ARDOT<br>NOMINAL |
| INCHES         | INCHES          |                  |                 |                  |
| 15             | 18              | 18               | 11              | 11               |
| 18             | 22              | 22               | 13½             | 14               |
| 21             | 26              | 26               | 15½             | 16               |
| 24             | 28½             | 29               | 18              | 18               |
| 30             | 36¼             | 36               | 22½             | 23               |
| 36             | 43¾             | 44               | 26¾             | 27               |
| 42             | 51½             | 51               | 31¾             | 31               |
| 48             | 58½             | 59               | 36              | 36               |
| 54             | 65              | 65               | 40              | 40               |
| 60             | 73              | 73               | 45              | 45               |
| 72             | 88              | 88               | 54              | 54               |
| 84             | 102             | 102              | 62              | 62               |
| 90             | 115             | 115              | 72              | 72               |
| 96             | 122             | 122              | 77½             | 77               |
| 108            | 138             | 138              | 87½             | 87               |
| 120            | 154             | 154              | 96¾             | 97               |
| 132            | 168¾            | 169              | 106½            | 107              |

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

REINFORCED CONCRETE  
HORIZONTAL ELLIPTICAL  
PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

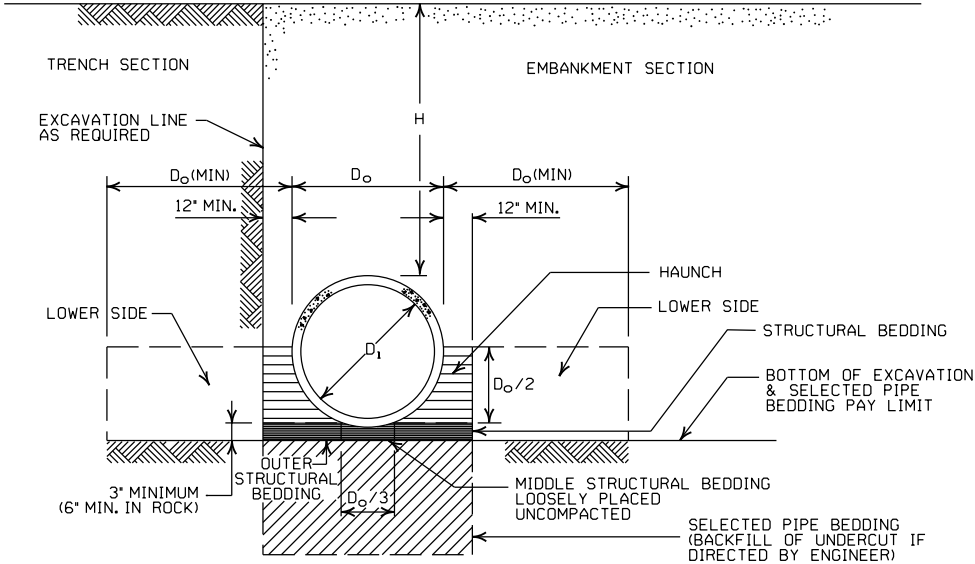
- LEGEND -

D<sub>i</sub> = NORMAL INSIDE DIAMETER OF PIPE  
D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
H = FILL COVER HEIGHT OVER PIPE (FEET)  
MIN. = MINIMUM  
= UNDISTURBED SOIL

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

\* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

| PIPE<br>DIAMETER<br>(INCHES)  | ① MINIMUM<br>COVER TOP OF<br>PIPE TO TOP<br>OF GROUND<br>“H” (FEET) | MAX. FILL HEIGHT “H” ABOVE TOP OF PIPE (FEET) |       |       |       |       |
|---|---|---|-------|-------|-------|-------|
|   |   | METAL THICKNESS (INCHES)                      |       |       |       |       |
|   |   | 0.064   | 0.079 | 0.109 | 0.138 | 0.168 |
| 2 3/4 INCH BY 1/2 INCH CORRUGATION<br>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<br>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<br>DIAMETER<br>(INCHES)                                       | ① MINIMUM<br>COVER TOP OF<br>PIPE TO TOP<br>OF GROUND<br>"H" (FEET) | MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET) |       |       |       |       |
|--|---|---|-------|-------|-------|-------|
|  |   | METAL THICKNESS IN INCHES                     |       |       |       |       |
|  |   | 0.060   | 0.075 | 0.105 | 0.135 | 0.164 |
| 2 3/4 INCH BY 1/2 INCH CORRUGATION<br>RIVETED OR HELICAL LOCK-SEAM |   |   |       |       |       |       |
| 12   | 1   | 45  | 45    |       |       |       |
| 18   | 2   | 30  | 30    | 52    |       |       |
| 24   | 2   | 22  | 22    | 39    | 41    |       |
| 30   | 2   |   | 18    | 31    | 32    | 34    |
| 36   | 2.5   |   | 15    | 26    | 27    | 28    |
| 42   | 2   |   |       | 43    | 43    | 44    |
| 48   | 2   |   |       | 40    | 41    | 43    |
| 54   | 2   |   |       | 35    | 37    | 38    |
| 60   | 2   |   |       |       | 33    | 34    |
| 66   | 2   |   |       |       |       | 31    |
| 72   | 2   |   |       |       |       | 29    |

CORRUGATED METAL PIPE ARCHES

| EQUIV.<br>DIA.<br>(INCHES) | PIPE<br>DIMENSION<br>SPAN X RISE<br>(INCHES) | MINIMUM<br>CORNER<br>RADIUS<br>(INCHES) | STEEL   |                                     |                                   |   | ALUMINUM  |                                   |  |  |    |
|----------------------------|--|---|---|-------------------------------------|-----------------------------------|---|---|-----------------------------------|--|--|----|
|                            |  |   | MIN.<br>THICKNESS<br>REQUIRED<br>INCHES   | ① MIN. HEIGHT OF<br>FILL, "H" (FT.) | MAX. HEIGHT OF<br>FILL, "H" (FT.) | MIN.<br>THICKNESS<br>REQUIRED<br>INCHES | ① MIN. HEIGHT OF<br>FILL, "H" (FT.)   | MAX. HEIGHT OF<br>FILL, "H" (FT.) |  |  |    |
|                            |  |   |   | INSTALLATION                        | INSTALLATION                      |   | INSTALLATION  | INSTALLATION                      |  |  |    |
|                            |  |   |   | TYPE 1                              | TYPE 1                            |   | TYPE 1  | TYPE 1                            |  |  |    |
|                            |  |   | 2 3/4 INCH BY 1/2 INCH CORRUGATION<br>RIVETED, WELDED, OR HELICAL LOCK-SEAM                 |                                     |                                   |   | 2 3/4 INCH BY 1/2 INCH CORRUGATION<br>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  | 3 1/2                                   | 0.079   | 3                                   | 12                                | 0.105                                   | 3   | 12                                |  |  |    |
| 42                         | 49x33  | 4                                       | 0.079   | 3                                   | 12                                | 0.105                                   | 3   | 12                                |  |  |    |
| 48                         | 57x38  | 5                                       | 0.109   | 3                                   | 13                                | 0.135                                   | 3   | 13                                |  |  |    |
| 54                         | 64x43  | 6                                       | 0.109   | 3                                   | 14                                | 0.135                                   | 3   | 14                                |  |  |    |
| 60                         | 71x47  | 7                                       | 0.138   | 3                                   | 15                                | 0.135                                   | 3   | 15                                |  |  |    |
| 66                         | 77x52  | 8                                       | 0.168   | 3                                   | 15                                | 0.164                                   | 3   | 15                                |  |  |    |
| 72                         | 83x57  | 9                                       | 0.168   | 3                                   | 15                                |   |   |                                   |  |  |    |
|                            |  |   | ② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION<br>RIVETED, WELDED, OR HELICAL LOCK-SEAM |                                     |                                   |   | ① FOR MINIMUM COVER VALUES, "H" SHALL<br>② WHERE THE STANDARD 2 2/3"x 1/2" COR<br>WITH A 3' x 1' OR 5' x 1' CORRUGATION<br>OR GREATER THAN THE MAXIMUM FILL |                                   |  |  |    |
|                            |  |   | INSTALLATION  |                                     | INSTALLATION                      |   |   |                                   |  |  |    |
|                            |  |   | TYPE 2  |                                     | TYPE 1                            |   |   |                                   |  |  |    |
| 36                         | 40x31  | 5                                       | 0.079   | 3                                   | 2                                 | 12                                      |   |                                   |  |  | 15 |
| 42                         | 46x36  | 6                                       | 0.079   | 3                                   | 2                                 | 13                                      |   |                                   |  |  | 15 |
| 48                         | 53x41  | 7                                       | 0.079   | 3                                   | 2                                 | 13                                      |   |                                   |  |  | 15 |
| 54                         | 60x46  | 8                                       | 0.079   | 3                                   | 2                                 | 13                                      |   |                                   |  |  | 15 |
| 60                         | 66x51  | 9                                       | 0.079   | 3                                   | 2                                 | 13                                      |   |                                   |  |  | 15 |
| 66                         | 73x55  | 12                                      | 0.079   | 3                                   | 2                                 | 15                                      |   |                                   |  |  | 15 |
| 72                         | 81x59  | 14                                      | 0.079   | 3                                   | 2                                 | 15                                      |   |                                   |  |  | 15 |
| 78                         | 87x63  | 14                                      | 0.079   | 3                                   | 2                                 | 15                                      | 15  |                                   |  |  |    |
| 84                         | 95x67  | 16                                      | 0.109   | 3                                   | 2                                 | 15                                      | 15  |                                   |  |  |    |
| 90                         | 103x71                                       | 16                                      | 0.109   | 3                                   | 2                                 | 15                                      | 15  |                                   |  |  |    |
| 96                         | 112x75                                       | 18                                      | 0.109   | 3                                   | 2                                 | 15                                      | 15  |                                   |  |  |    |
| 102                        | 117x79                                       | 18                                      | 0.109   | 3                                   | 2                                 | 15                                      | 15  |                                   |  |  |    |
| 108                        | 128x83                                       | 18                                      | 0.138   | 3                                   | 2                                 | 15                                      | 15  |                                   |  |  |    |

CONSTRUCTION SEQUENCE

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

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

| INSTALLATION<br>TYPE | MATERIAL REQUIREMENTS FOR<br>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)<br>OR TYPE 1 INSTALLATION MATERIAL ③ |

③ SM-3 WILL NOT BE ALLOWED.

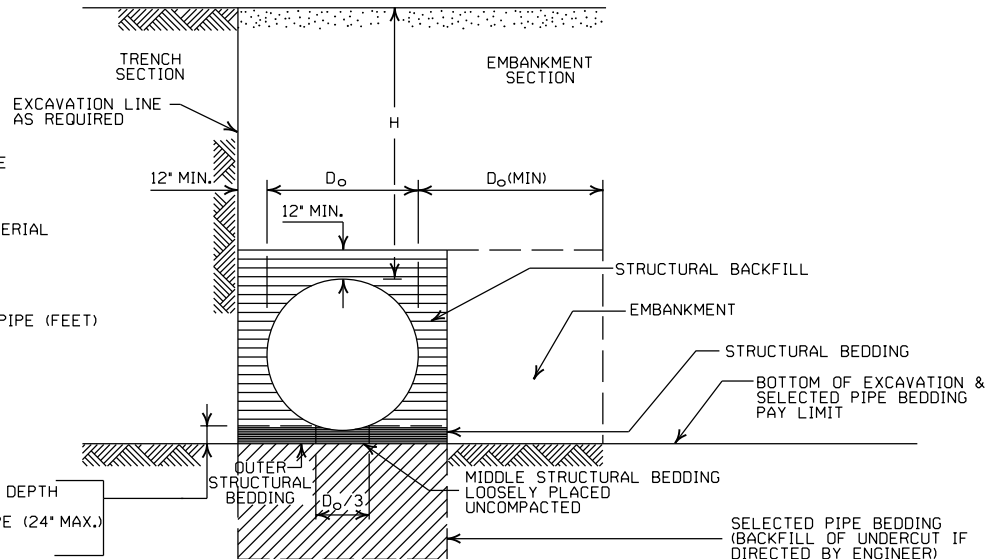
EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT  
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



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

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

MINIMUM TRENCH WIDTH  
BASED ON FILL HEIGHT “H”

| PIPE<br>DIAMETER | TRENCH WIDTH<br>(FEET) |              |
|------------------|------------------------|--------------|
|                  | “H” < 10’-0”           | “H” ≥ 10’-0” |
| 18”              | 4’-6”                  | 4’-6”        |
| 24”              | 5’-0”                  | 6’-0”        |
| 30”              | 5’-6”                  | 7’-6”        |
| 36”              | 6’-0”                  | 9’-0”        |
| 42”              | 7’-0”                  | 10’-6”       |
| 48”              | 8’-0”                  | 12’-0”       |

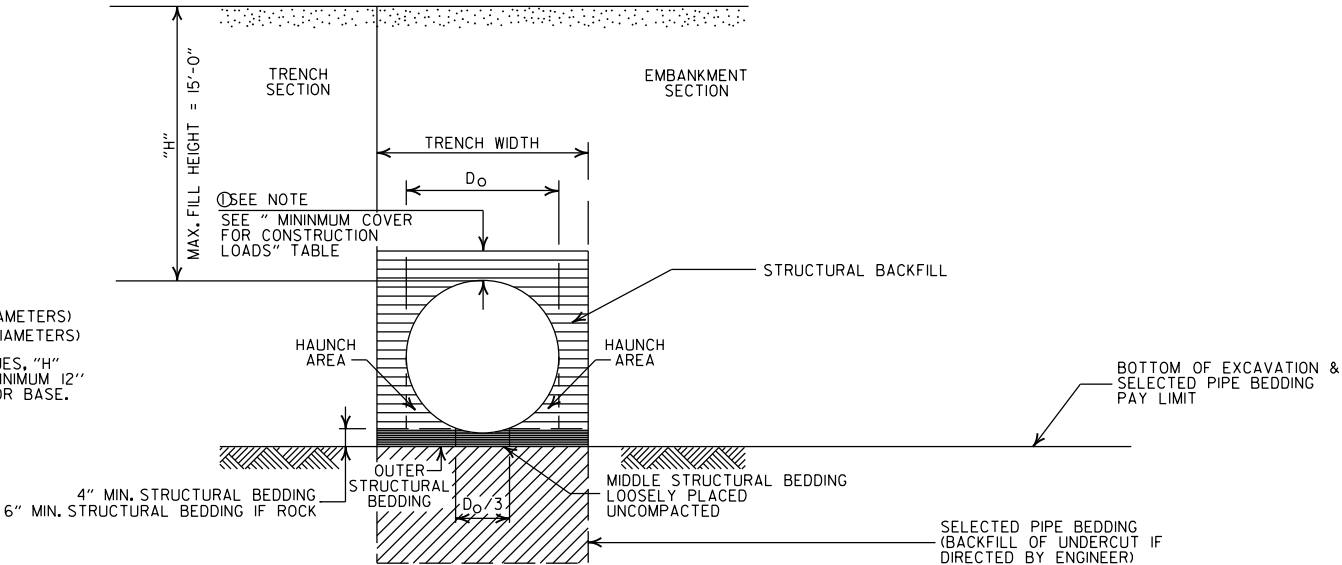
NOTE:  
18” MIN. (18” - 30” DIAMETERS)  
24” MIN. (36” - 48” DIAMETERS)  
MINIMUM COVER VALUES, “H”  
SHALL INCLUDE A MINIMUM 12”  
OF PAVEMENT AND/OR BASE.

MULTIPLE INSTALLATION OF  
HIGH DENSITY POLYETHYLENE PIPES

| PIPE<br>DIAMETER | CLEAR DISTANCE<br>BETWEEN PIPES |
|------------------|---------------------------------|
| 18”              | 1’-6”                           |
| 24”              | 2’-0”                           |
| 30”              | 2’-6”                           |
| 36”              | 3’-0”                           |
| 42”              | 3’-6”                           |
| 48”              | 4’-0”                           |

| PIPE<br>DIAMETER | MIN. COVER (FEET) FOR INDICATED<br>CONSTRUCTION LOADS |                     |                      |                       |
|------------------|---|---------------------|----------------------|-----------------------|
|                  | 18.0-50.0<br>(KIPS)                                   | 50.0-75.0<br>(KIPS) | 75.0-110.0<br>(KIPS) | 110.0-175.0<br>(KIPS) |
| 36” OR LESS      | 2’-0”   | 2’-6”               | 3’-0”                | 3’-0”                 |
| 42” OR GREATER   | 3’-0”   | 3’-0”               | 3’-6”                | 4’-0”                 |

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

GENERAL NOTES

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

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

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

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

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

MINIMUM TRENCH WIDTH  
BASED ON FILL HEIGHT "H"

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

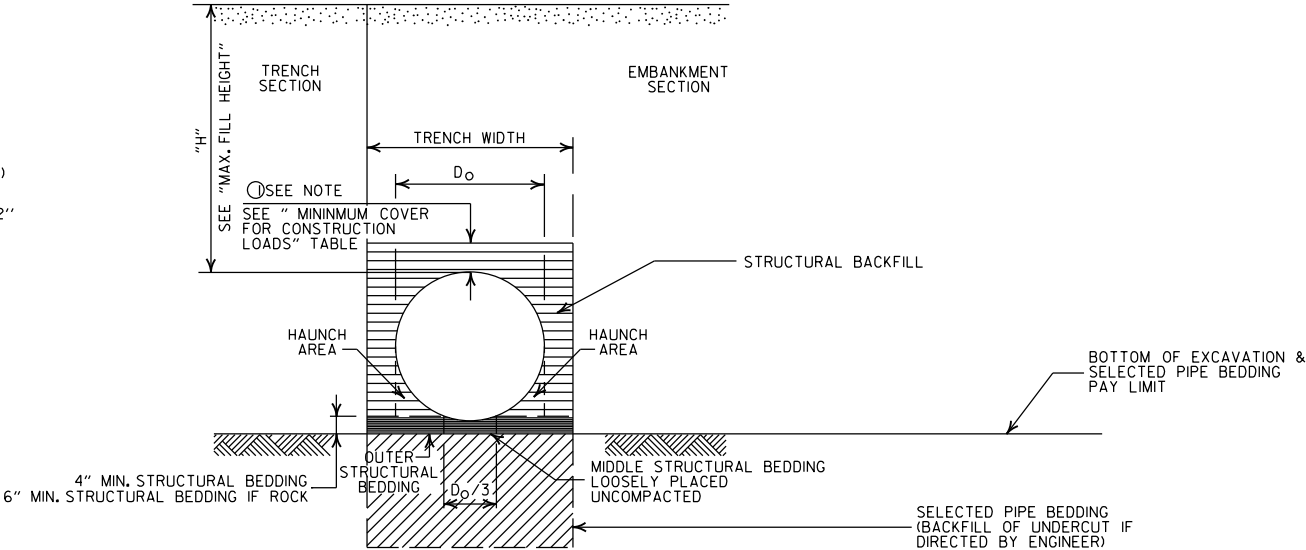
MULTIPLE INSTALLATION OF  
PVC PIPES

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

MAXIMUM FILL HEIGHT  
BASED ON STRUCTURAL BACKFILL

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

H = FILL HEIGHT (FT.)  
D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

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

GENERAL NOTES

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

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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   |             |
| DATE     | REVISION   | DATE FILMED |

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT  
(PVC F949)

STANDARD DRAWING PCP-2



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

\* SM3 WILL NOT BE ALLOWED.

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

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

#### MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

#### MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

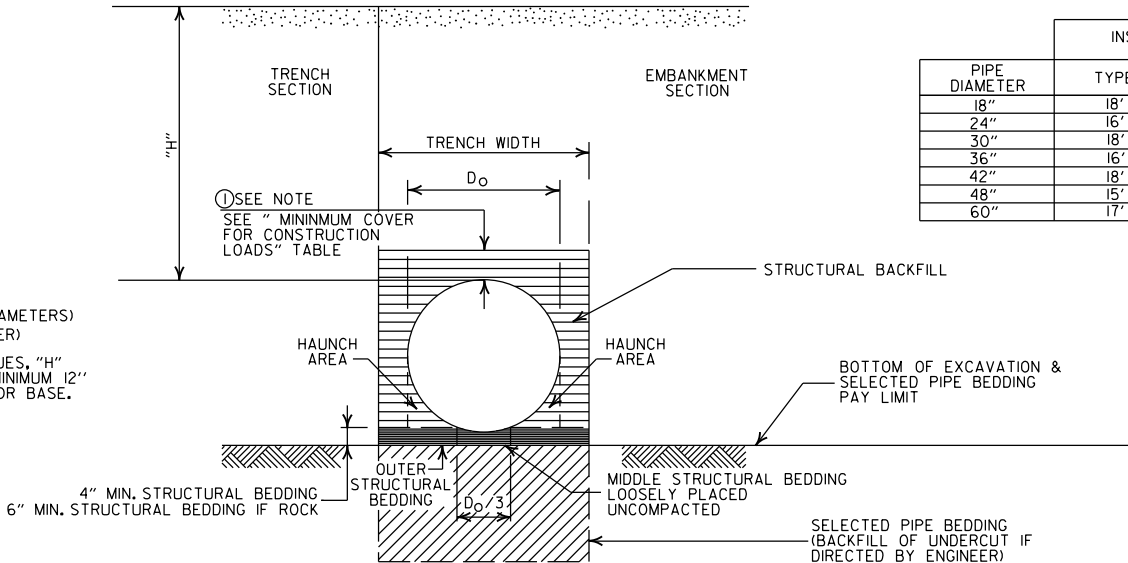
| PIPE DIAMETER | TRENCH WIDTH (FEET) |                 |
|---------------|---------------------|-----------------|
|               | "H" < 10'-0"        | "H" >OR= 10'-0" |
| 18"           | 4'-6"               | 4'-6"           |
| 24"           | 5'-0"               | 6'-0"           |
| 30"     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

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

#### MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



#### EMBANKMENT AND TRENCH INSTALLATIONS

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

#### CONSTRUCTION SEQUENCE

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

#### GENERAL NOTES

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

#### - LEGEND -

H = FILL HEIGHT (FT.)  
D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE  
MAX. = MAXIMUM  
MIN. = MINIMUM

===== = STRUCTURAL BACKFILL MATERIAL  
||||||| = UNDISTURBED SOIL

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

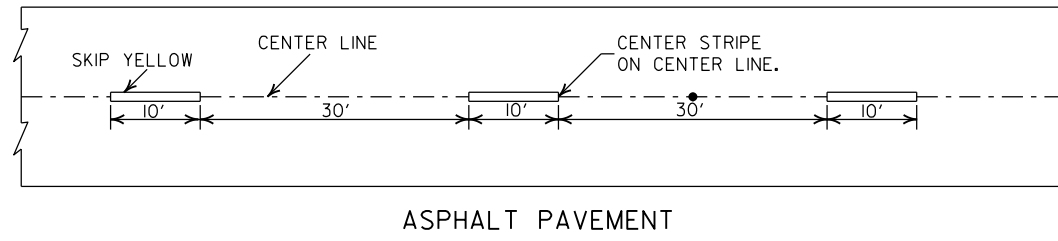
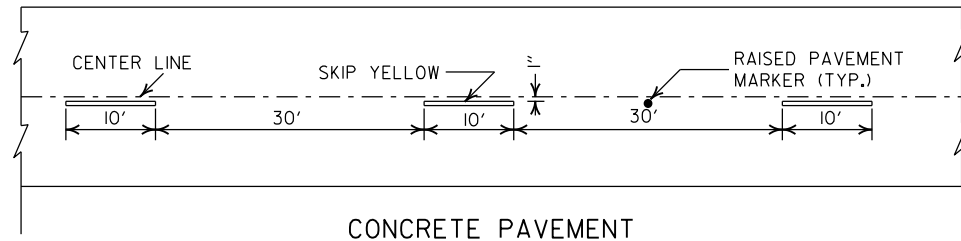
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT  
(POLYPROPYLENE)

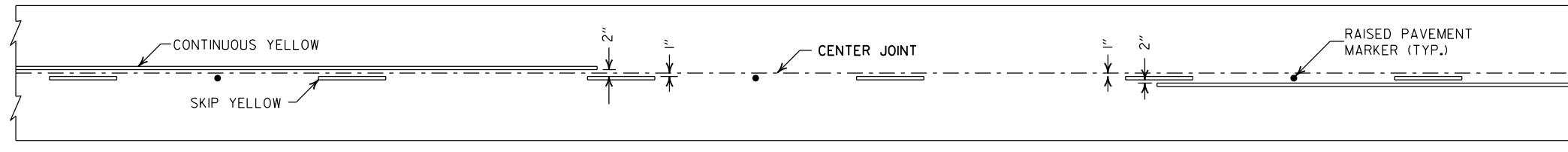
STANDARD DRAWING PCP-3



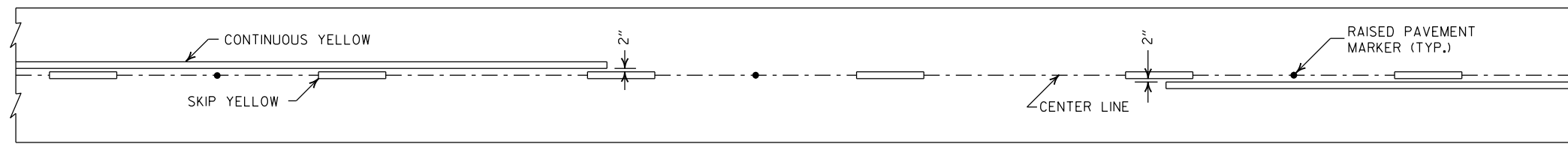




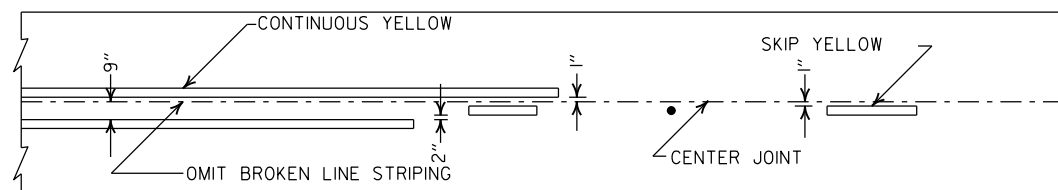
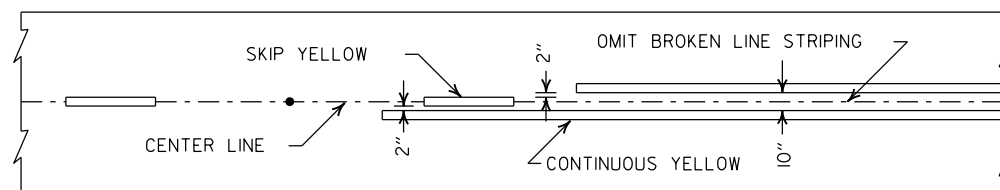
### BROKEN LINE STRIPING



### SOLID LINE STRIPING ON CONCRETE PAVEMENT



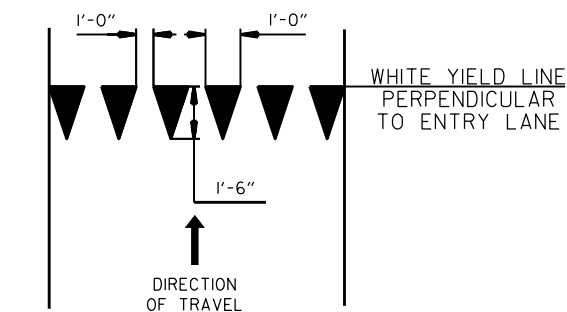
### SOLID LINE STRIPING ON ASPHALT PAVEMENT



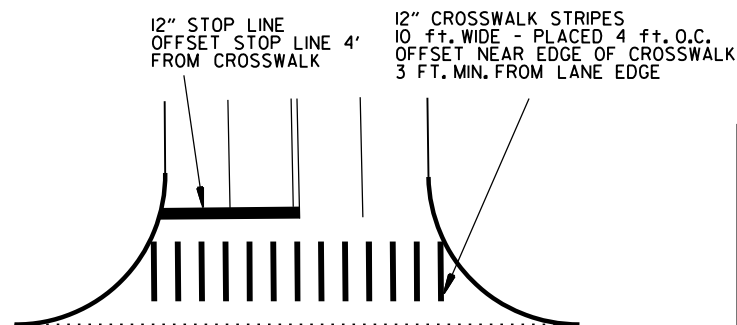
ASPHALT PAVEMENT

CONCRETE PAVEMENT

### STRIPING AT ADJACENT NO PASSING LANES



### YIELD LINE DETAIL

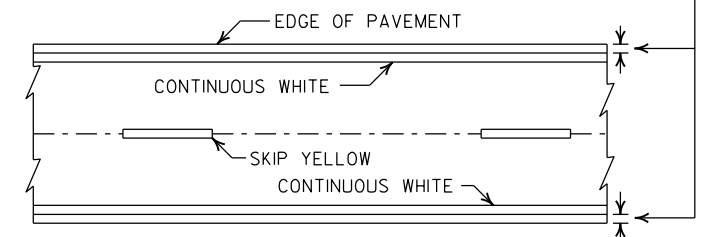


### CROSSWALK AND STOP LINE DETAILS

#### NOTES:

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

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

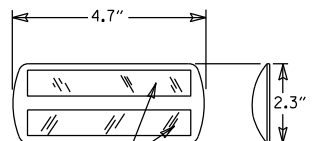


### PAVEMENT EDGE LINE MARKING

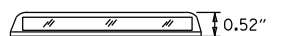
NOTE:  
THE RED LENS OF THE  
TYPE II R.P.M. SHALL  
FACE THE INCORRECT  
TRAFFIC MOVEMENT.

TYPE II  
RED/CLEAR OR  
YELLOW/YELLOW

PRISMATIC REFLECTOR



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



### DETAIL OF STANDARD RAISED PAVEMENT MARKERS

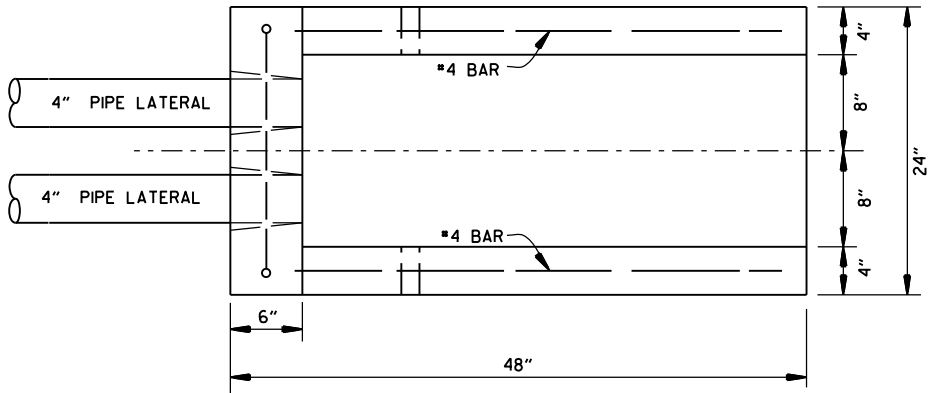
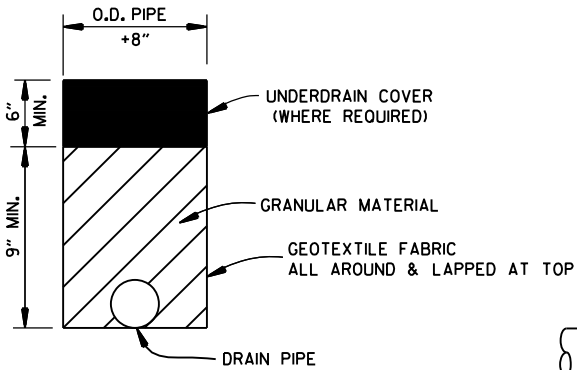
|          |   |           |
|----------|---|-----------|
| 2-27-20  | REVISED STOP LINE DETAILS                           |           |
| 6-1-17   | ADDED YIELD LINE DETAIL                             |           |
| 5-12-16  | REVISED LINE WIDTHS, SPACING, & NOTES               |           |
| 9-12-13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

ARKANSAS STATE HIGHWAY COMMISSION

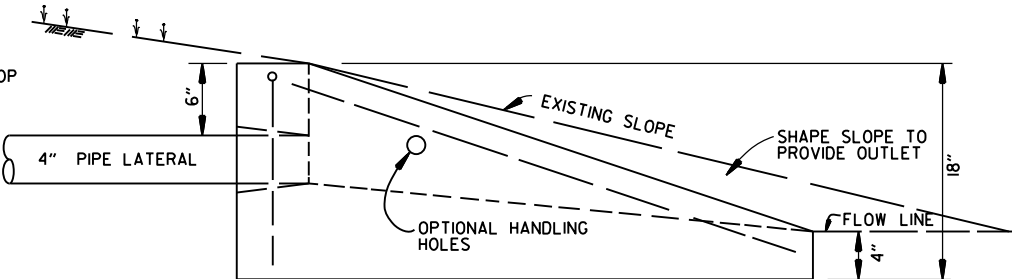
### PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

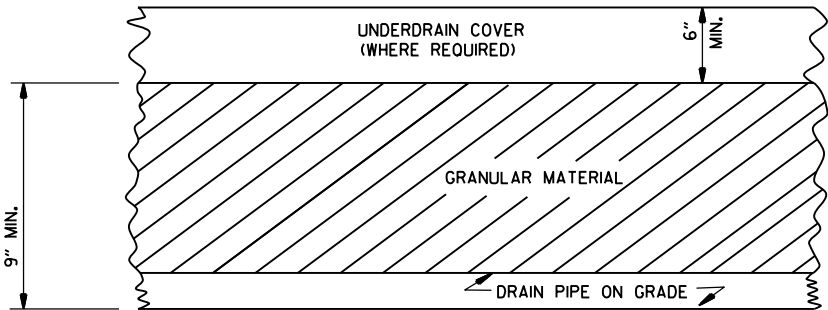
NOTE:  
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.  
2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW



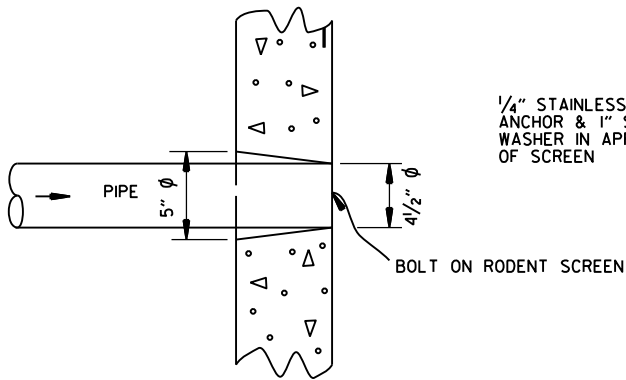
SIDE VIEW



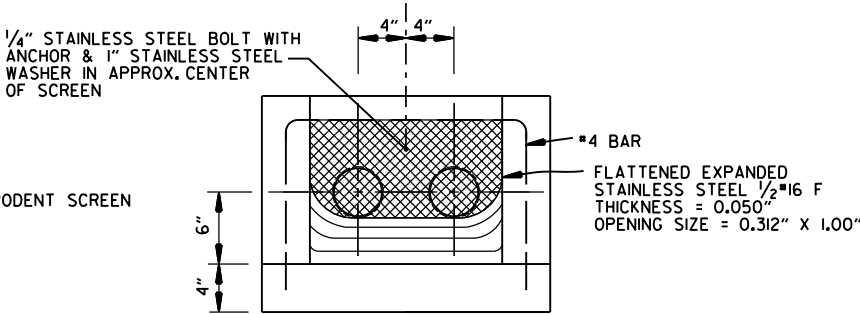
DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

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



DETAIL OF HOLE FOR 4" PIPE

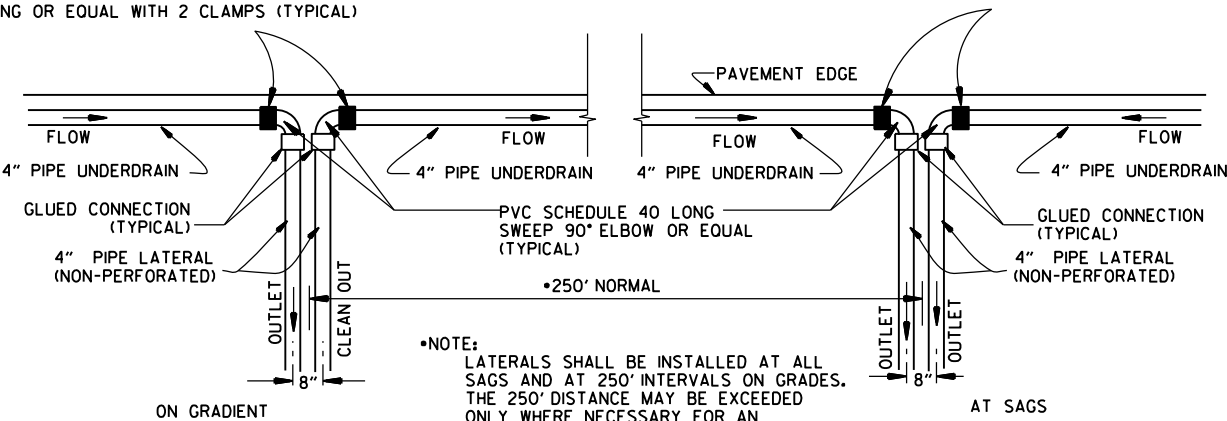


FRONT VIEW  
(DETAIL OF RODENT SCREEN)

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

UNDERDRAIN OUTLET PROTECTORS

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



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

DETAIL OF PIPE UNDERDRAIN LATERALS  
WHEN PLACED ALONG PAVEMENT EDGE


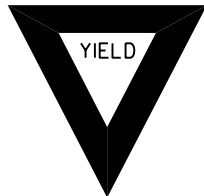



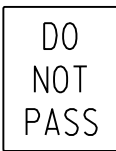



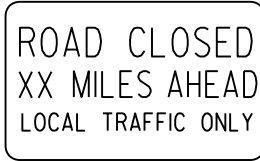


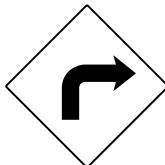




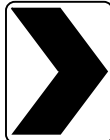
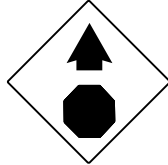
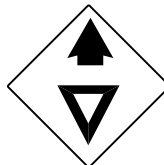
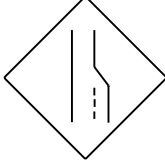



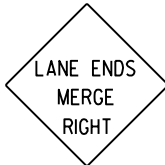









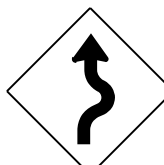
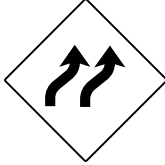




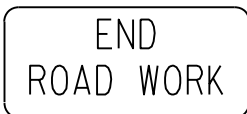
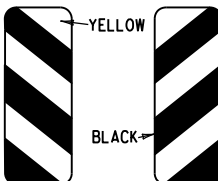


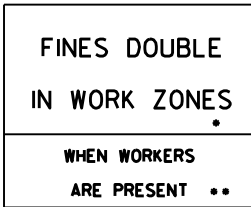
NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

|          |  |             |
|----------|--|-------------|
| 12-8-16  | ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC |             |
| 4-10-03  | REVISED NOTE 3   |             |
| 1-12-00  | REVISED DETAIL OF UNDERDRAIN LATERALS  |             |
| 11-18-98 | REVISED NOTE   |             |
| 10-18-96 | REVISED MIN. DEPTH & GEOTEXTILE FABRIC   |             |
| 4-26-96  | ADDED LATERAL NOTE: 5 1/2" TO 5"   |             |
| 11-22-95 | REVISED LATERALS   |             |
| 7-20-95  | REVISED LATERALS & ADDED NOTE  |             |
| 11- 3-94 | REVISED FOR DUAL LATERALS  | 11- 3-94    |
| 10- 1-92 | SUBSTITUTED GEOTEXTILE   | 10- 1-92    |
| 8-15-91  | ADDED POLYETHYLENE PIPE  | 8-15-91     |
| 11- 8-90 | DELETED ALTERNATE NOTE   | 11- 8-90    |
| 1-25-90  | ADDED 4" SNAP ADAPTER  | 1-25-90     |
| 11-30-89 | DEL. (SUBGRADE); ADDED (WHERE REQUIRED)  | 11-30-89    |
| 7-15-88  | ISSUED P.L.M.  | 647-7-15-88 |
| DATE     | REVISION   | DATE FILMED |

ARKANSAS STATE HIGHWAY COMMISSION

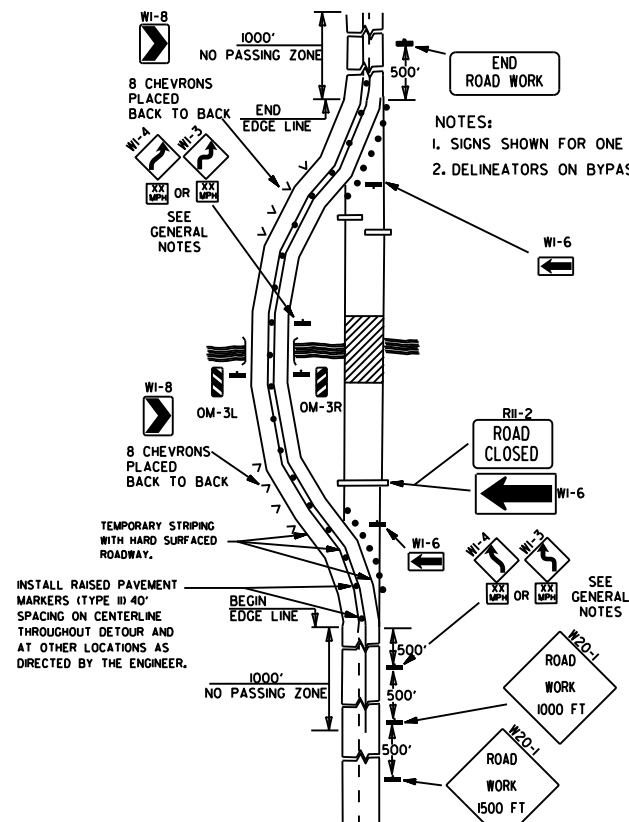
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

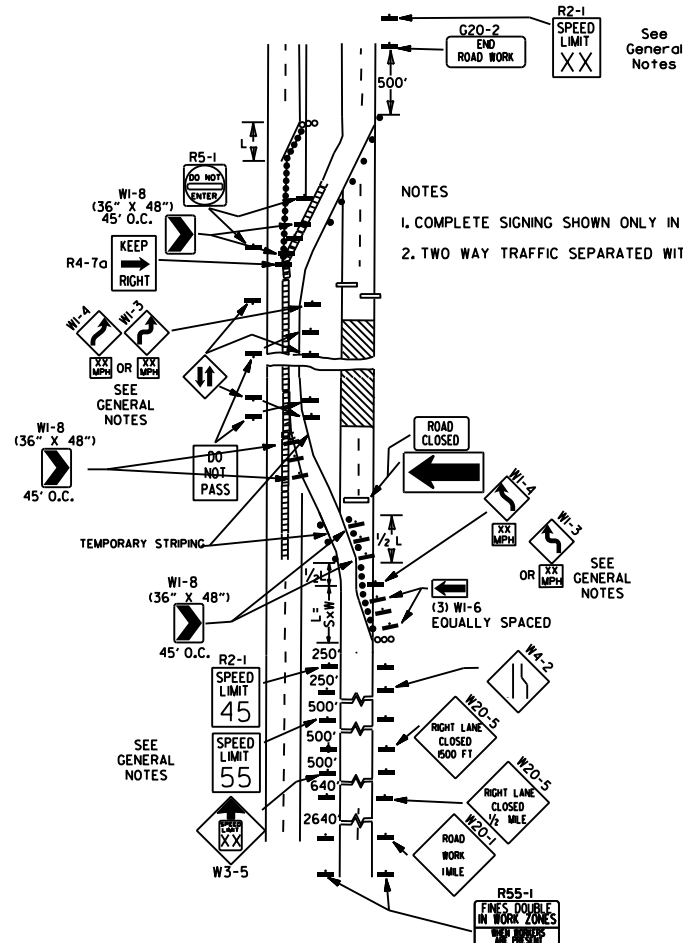
|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <div>RI-I</div> <div></div> <div>STANDARD 30"x30"<br/>EXPRESSWAY 36"x36"<br/>SPECIAL 48"x48"</div> | <div>RI-2</div> <div></div> <div>STD. 36"x36"x36"<br/>EXPWY. 48"x48"x48"<br/>FWY. 60"x60"x60"</div> | <div>R2-I</div> <div></div> <div>STD. 24"x30"<br/>EXPWY. 36"x48"<br/>FWY. 48"x60"</div>                   | <div>W3-5</div> <div></div> <div>STD. 36"x36"<br/>EXPWY. 48"x48"<br/>FWY. 48"x48"</div>                     | <div>W3-5a</div> <div></div> <div>STD. 36"x36"<br/>EXPWY. 48"x48"<br/>FWY. 48"x48"</div> | <div>R4-I</div> <div></div> <div>STD. 24"x30"<br/>EXPWY. 36"x48"<br/>FWY. 48"x60"</div>       | <div>R4-2</div> <div></div> <div>STD. 24"x30"<br/>EXPWY. 36"x48"<br/>FWY. 48"x60"</div> | <div>ADVANCE DISTANCES (XXXX)</div> <div>500 FT 1/2 MILE<br/>1000 FT 3/4 MILE<br/>1500 FT 1 MILE AHEAD</div> <div>GENERAL NOTES:<br/>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.<br/>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.<br/>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.<br/>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.<br/>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.<br/>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.<br/>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.<br/>8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.<br/>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.<br/>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.<br/><br/>• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 &amp; 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</div> |
| <div>R5-I</div> <div></div> <div>STD. 30"x30"<br/>EXPWY. 36"x36"<br/>SPECIAL 48"x48"</div>         | <div>R1I-2</div> <div></div> <div>48"x30"</div>   | <div>R1I-3A</div> <div></div> <div>60"x30"</div>  | <div>R1I-4</div> <div></div> <div>60"x30"</div>  | <div>W2I-5a</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                   | <div>WI-I</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                          | <div>WI-2</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                    |  |
| <div>WI-3</div> <div></div> <div>STD. 48"x48"</div>  | <div>WI-4</div> <div></div> <div>STD. 48"x48"</div>   | <div>WI-6</div> <div></div> <div>STD. 48"x24"<br/>SPECIAL 60"x30"</div>                                   | <div>WI-8</div> <div></div> <div>STD. 18"x24"<br/>SPECIAL 24"x30"<br/>EXPWY. 30"x36"<br/>FWY. 36"x48"</div> | <div>W3-I</div> <div></div> <div>STD. 36"x36"<br/>SPECIAL 48"x48"</div>                  | <div>W3-2</div> <div></div> <div>STD. 36"x36"<br/>SPECIAL 48"x48"</div>                       | <div>W4-2</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                    |  |
| <div>W5-I</div> <div></div> <div>STD. 36"x36"<br/>SPECIAL 48"x48"</div>                          | <div>W6-3</div> <div></div> <div>EXPWY. 36"x36"<br/>SPECIAL 48"x48"</div>                         | <div>W8-7</div> <div></div> <div>EXPWY. 36"x36"<br/>FWY. 48"x48"</div>                                  | <div>W9-2</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                                      | <div>W13-I</div> <div></div> <div>STD. 24"x24"</div>                                   | <div>W20-I</div> <div></div> <div>STD. 48"x48"</div>  | <div>W20-2</div> <div></div> <div>STD. 48"x48"</div>                                  | <div>W20-3</div> <div></div> <div>STD. 48"x48"</div>  |
| <div>W20-4</div> <div></div> <div>STD. 48"x48"</div>   | <div>W20-5</div> <div></div> <div>STD. 48"x48"</div>  | <div>W20-7a</div> <div><div>18" 500 FEET 24" W16-2</div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div> | <div>W2I-2</div> <div></div> <div>STD. 30"x30"<br/>SPECIAL 36"x36"</div>                                  | <div>W2I-5</div> <div></div> <div>STD. 30"x30"<br/>SPECIAL 36"x36"</div>               | <div>W24-I</div> <div></div> <div>STD. 36"x36"</div>  | <div>WI-4b</div> <div></div> <div>STD. 48"x48"</div>                                  | <div>R56-I</div> <div></div> <div>STD. 18"x18"</div>  |
| <div>W8-II</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                            | <div>W8-9</div> <div></div> <div>STD. 36"x36"<br/>FWY. 48"x48"</div>                              | <div>G20-I</div> <div></div> <div>60"x24"</div>   | <div>G20-2</div> <div></div> <div>48"x24"</div>   | <div>OM-3L OM-3R</div> <div></div> <div>12"x36"</div>                                  | <div>M4-9</div> <div></div> <div>STD. 30"x24"<br/>SPECIAL 48"x36"<br/>SPECIAL 60"x48"</div> | <div>M4-10</div> <div></div> <div>48"x18"</div>                                       | <div>R55-I</div> <div></div> <div>36"x60"<br/>• USE 6" C LETTERS<br/>•• USE 4" D LETTERS</div>  |

|          |  |        |
|----------|--|--------|
| II-07-19 | REVISED FOR MASH   |        |
| 4-13-17  | DELETED RSP-1 & ADDED W2I-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  |        |
| DATE     | REVISION   | FILMED |

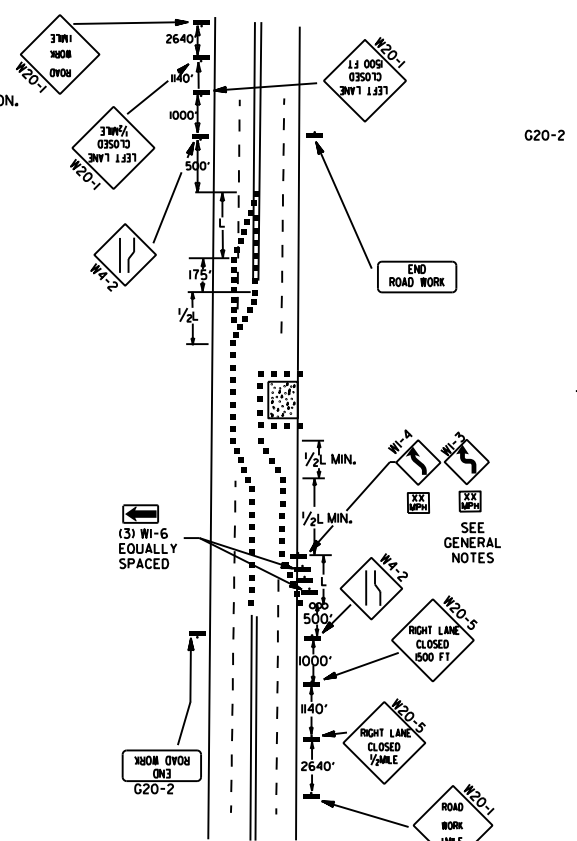
ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS  
FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-1



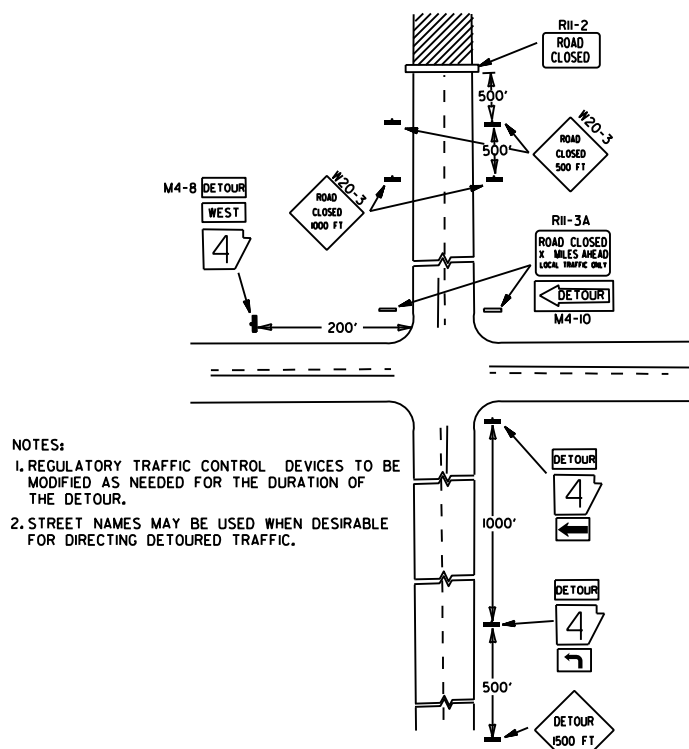
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



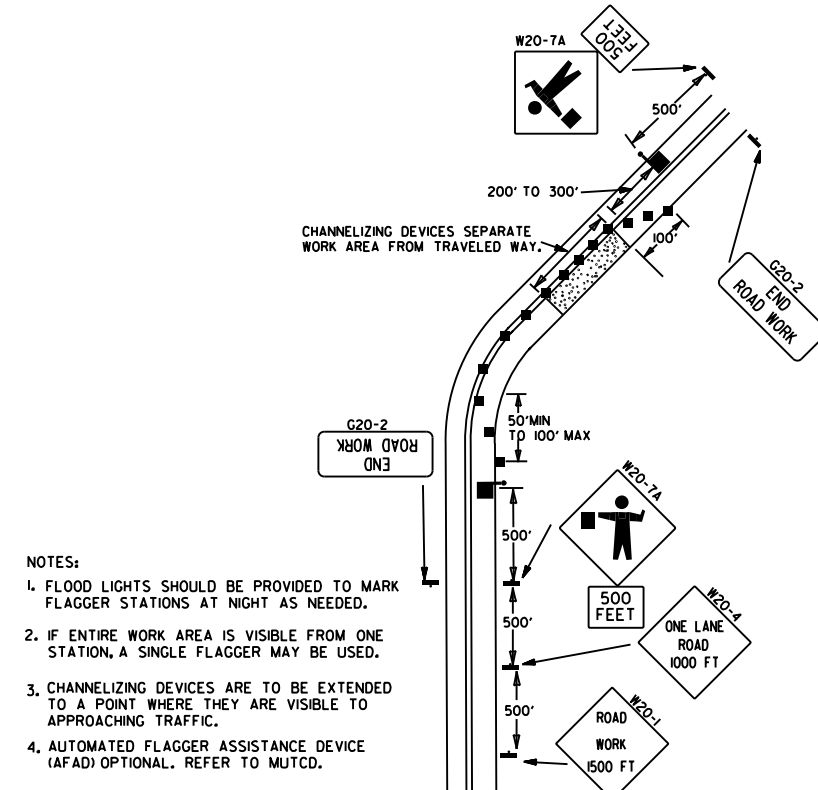
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



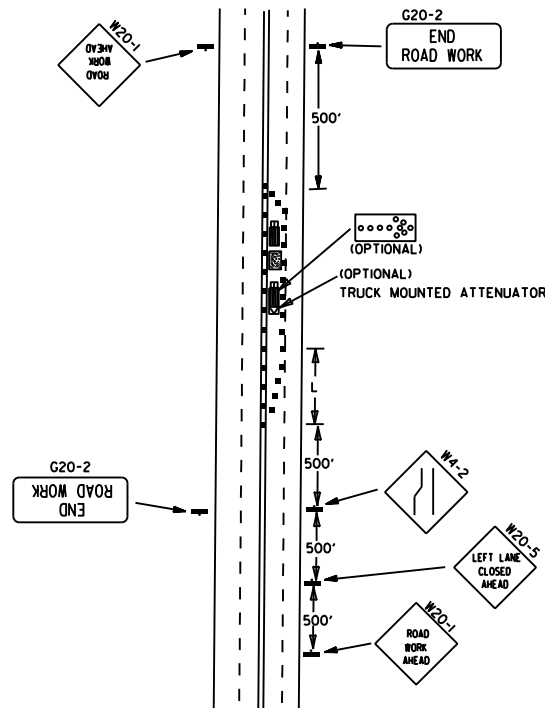
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



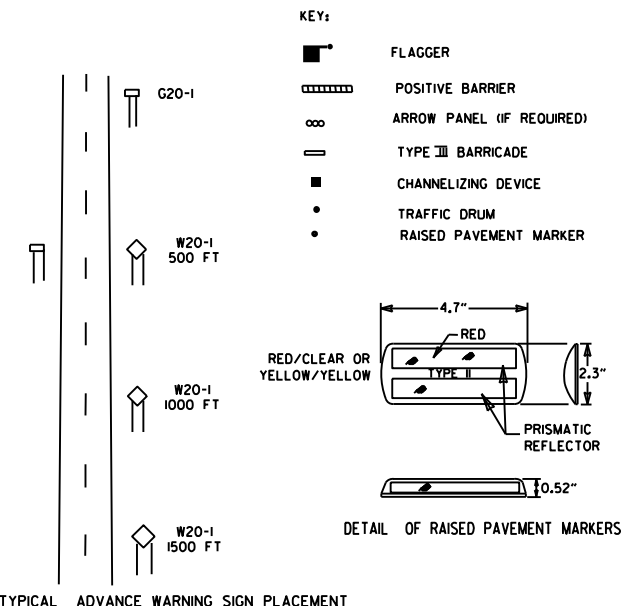
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

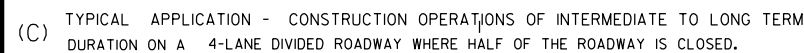
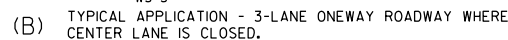
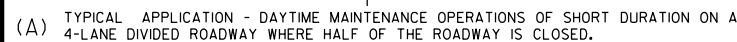


(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

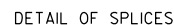
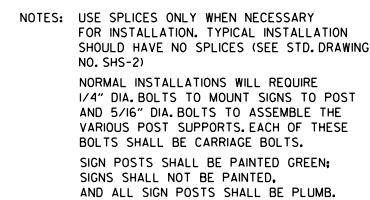
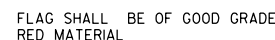


- GENERAL NOTES:
- THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
  - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
  - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
  - THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
  - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
  - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
  - 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.
  - 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.
  - ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

|          |  |        |
|----------|--|--------|
| 05-20-21 | REVISED NOTE 7   |        |
| 11-07-19 | REVISED NOTE 1, ADDED NOTE 9   |        |
| 9-2-15   | REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5 |        |
| 9-12-13  | REVISED DETAIL OF RAISED PAVEMENT MARKERS                                    |        |
| 3-11-10  | ADDED (AFAD)   |        |
| 11-20-08 | REVISED SIGN DESIGNATIONS  |        |
| 11-18-04 | ADDED GENERAL NOTE   |        |
| 10-18-96 | ADDED R55-1  |        |
| 4-26-96  | CORRECTED (a) BEHIND G20-2   |        |
| 6-8-95   | CORRECTED SIGN IDENT. ON W1-4A   | 6-8-95 |
| 2-2-95   | REVISED PER PART VI, MUTCD, SEPT. 3, 1993                                    |        |
| 8-15-91  | DRAWN AND PLACED IN USE  |        |
| DATE     | REVISION   | FILMED |



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-(X)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 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(X)X 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-(X)65 SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(X)X 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-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-SIGN SHALL BE ERRECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-(1/4 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).

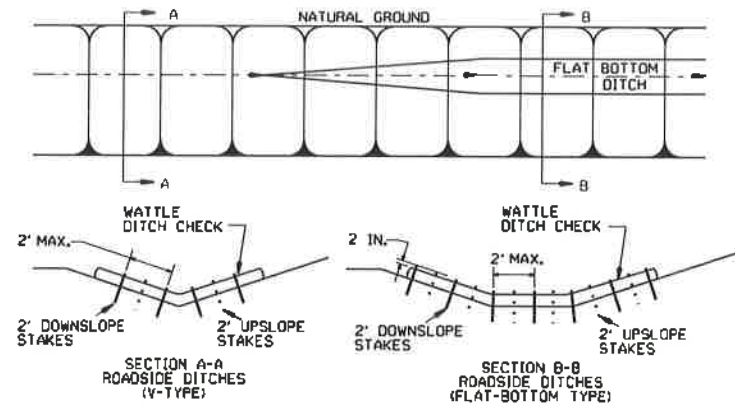


|  |      |
|--|------|
| REVISION   | FILM |
| ARKANSAS STATE HIGHWAY COMMISSION<br>STANDARD TRAFFIC CONTROLS<br>FOR HIGHWAY CONSTRUCTION |      |



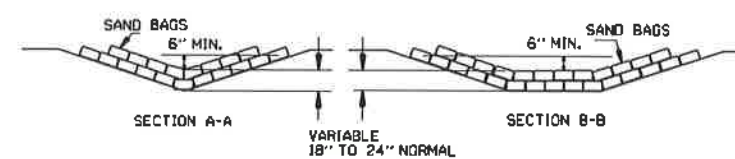
# GENERAL NOTES

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

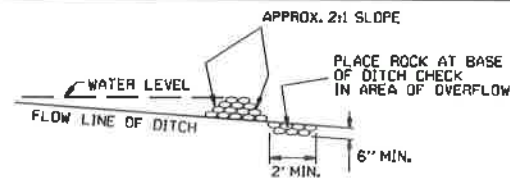


WATTLE DITCH CHECK (E-1)

NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.

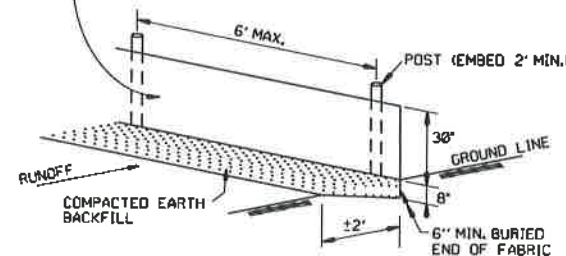


SAND BAG DITCH CHECK (E-5)

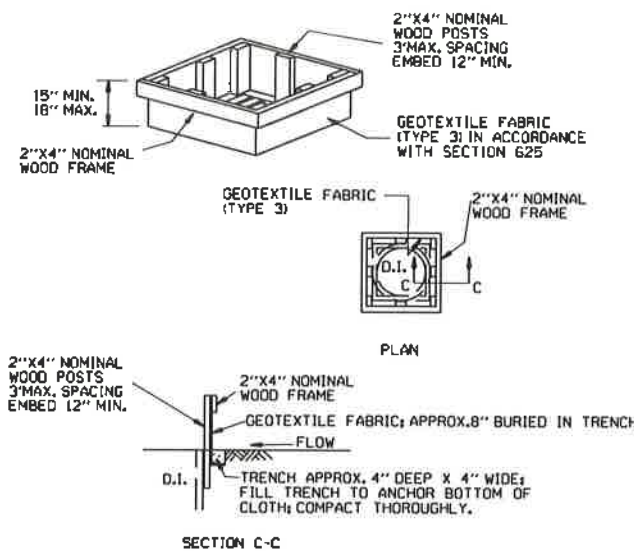


ROCK DITCH CHECK (E-6)

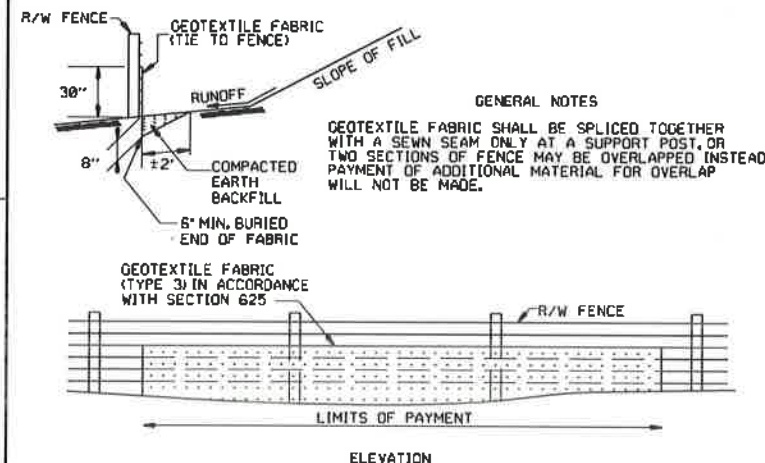
GENERAL NOTES  
1. GEOTEXTILE FABRIC (TYPE 3) IN ACCORDANCE WITH SECTION 625.  
2. GEOTEXTILE FABRIC SHALL BE SPICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILTS FENCE (E-11)

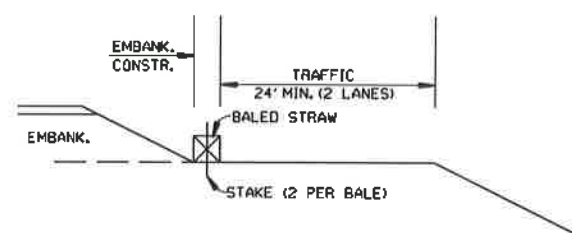


DROP INLET SILTS FENCE (E-7)

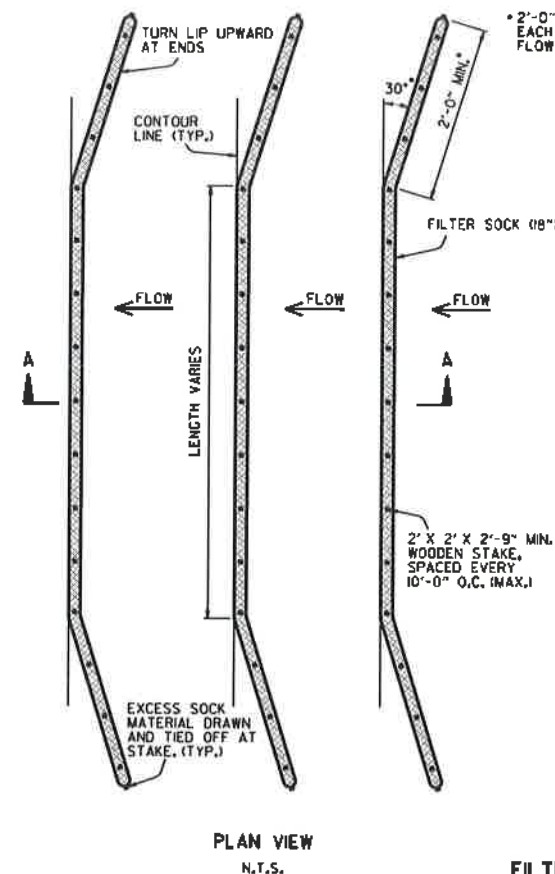


SILTS FENCE ON R/W FENCE (E-4)

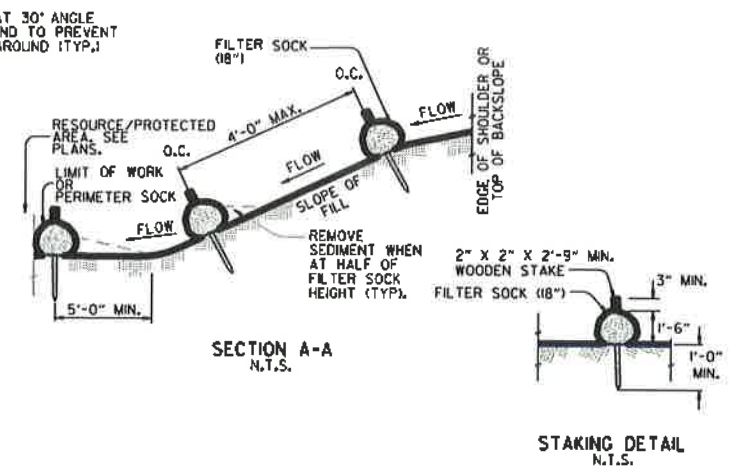
GENERAL NOTES  
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.  
2. NO GAPS SHALL BE LEFT BETWEEN BALES.  
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED 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.



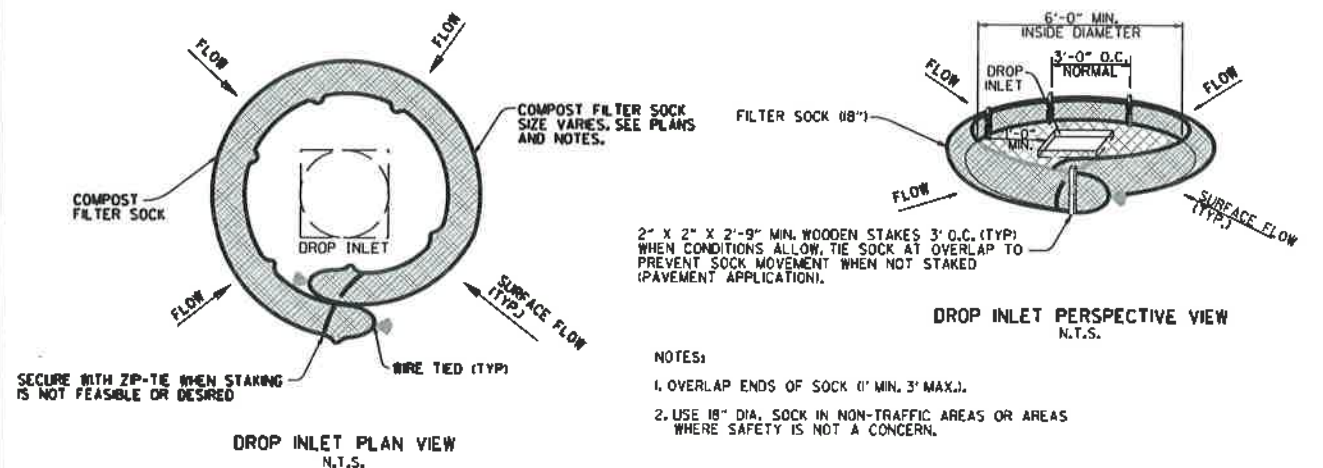
BALED STRAW FILTER BARRIER (E-2)



FILTER SOCK ALONG SLOPE (E-3)



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 SUBSIDIARY TO "FILTER SOCK (18\"/>

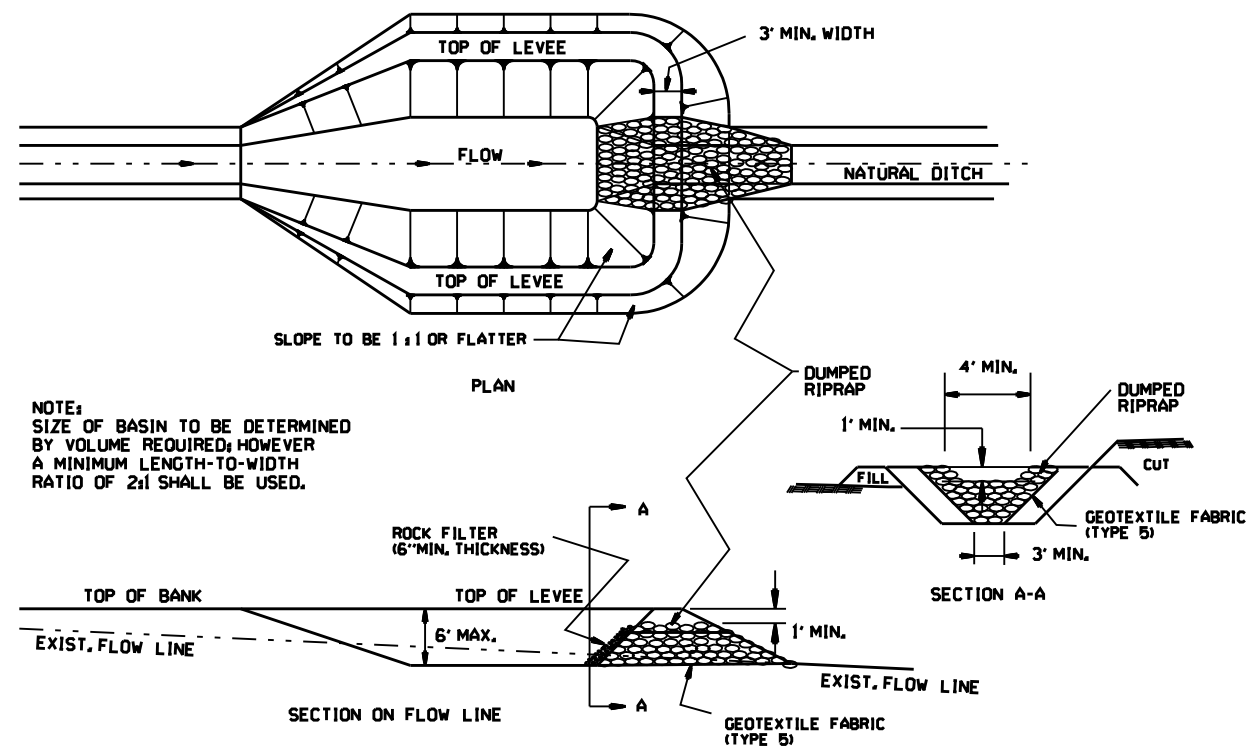


COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

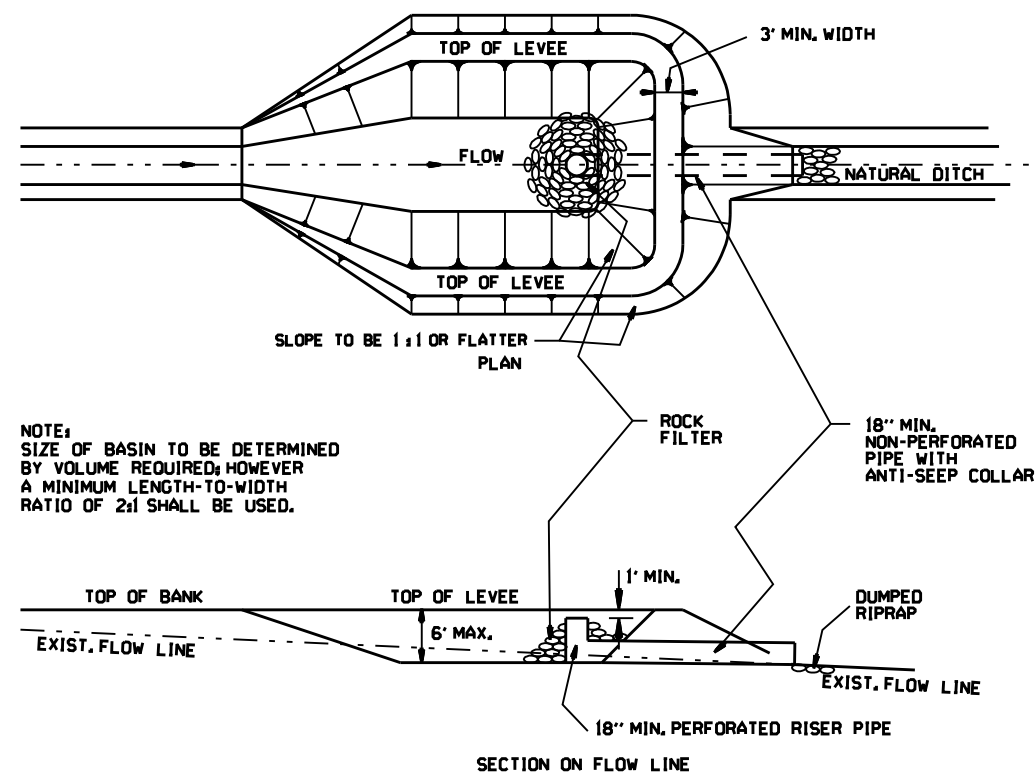
|          |  |             |
|----------|--|-------------|
| 11-16-17 | ADDED FILTER SOCK E-3 AND E-13                             |             |
| 12-15-11 | DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK |             |
| 11-18-98 | ADDED NOTES  |             |
| 07-02-98 | ADDED BALED 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" BURED END OF FABRIC               |             |
| 06-02-94 | REVISED E-1,4,7 & 11 DELETED E-2 & 3                       | 6-2-94      |
| 04-01-93 | REDRAWN  |             |
| 10-01-92 | REDRAWN  |             |
| 08-02-76 | ISSUED R.D.M.  | 298-7-28-76 |
| DATE     | REVISION   | FILMED      |

ARKANSAS STATE HIGHWAY COMMISSION  
TEMPORARY EROSION  
CONTROL DEVICES  
STANDARD DRAWING TEC-1

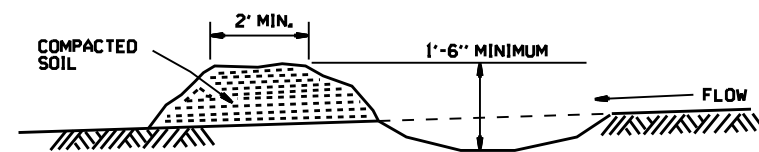




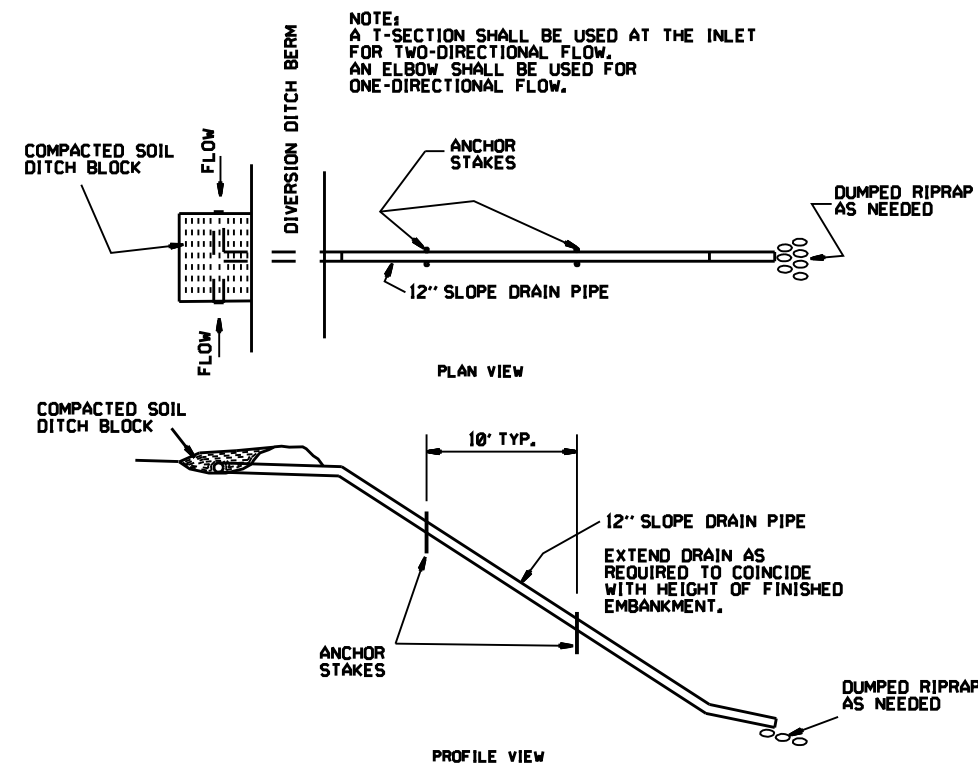
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



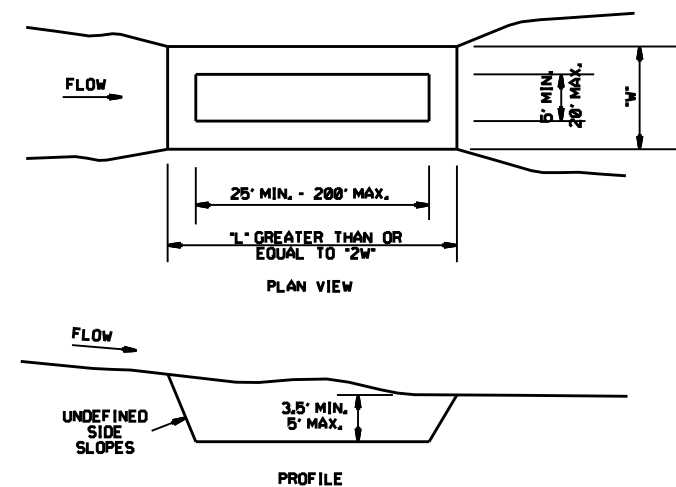
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



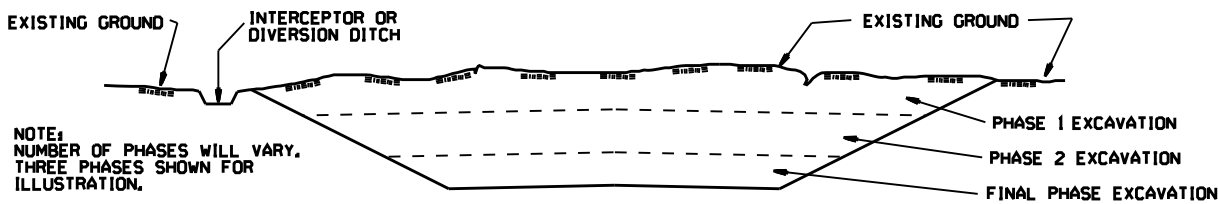
SEDIMENT BASIN (E-14)

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

CLEARING AND GRUBBING

- CONSTRUCTION SEQUENCE
- 1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES ,DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
  - 2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION

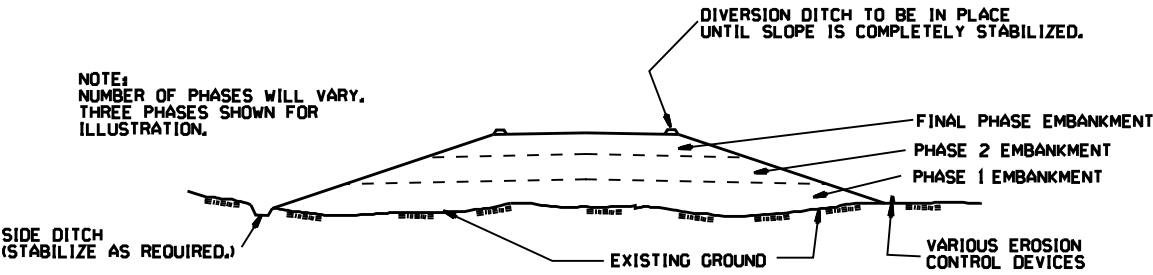


GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

- CONSTRUCTION SEQUENCE
- 1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
  - 2. PERFORM PHASE 1 EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING.
  - 3. PERFORM PHASE 2 EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING.
  - 4. PERFORM FINAL PHASE OF EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING, STABILIZE DITCHES, CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

- CONSTRUCTION SEQUENCE
- 1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
  - 2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING, PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
  - 3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING, PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
  - 4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING, PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

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