ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

BIENE CREEK CULVERT REPLACEMENT (S)
PRAIRIE COUNTY
ROUTE 323 SECTION I
FEDERAL AID PROJ. 9990
JOB 061557

NOT TO SCALE

ARK. HWY. DIST. NO. 6

APPROVED

DEPUTY DIRECTOR
AND CHEF ENGINEER

4.27.17

MID-POINT OF PROJECT

LATITUDE     N 34°58'04"
LONGITUDE    W 91°29'34"
### INDEX OF SHEETS

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### ROADWAY STANDARD DRAWINGS

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<th>TITLE</th>
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<td>RCB-2</td>
<td>REINFORCED CONCRETE BOX CULVERT DETAILS</td>
</tr>
<tr>
<td>RCB-2</td>
<td>EXCAVATION PAYMENTS, BACKFILL, &amp; SOLD SOILS FOR BOX CULVERTS</td>
</tr>
<tr>
<td>TC-1</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
</tr>
<tr>
<td>TC-2</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
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<tr>
<td>TC-2</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
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<td>TC-2</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
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<td>TC-2</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
</tr>
<tr>
<td>WX004.2</td>
<td>DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS</td>
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</tbody>
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### GOVERNING SPECIFICATIONS

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

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<th>TITLE</th>
</tr>
</thead>
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<td>ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS</td>
</tr>
<tr>
<td>102-2</td>
<td>ISSUANCE OF PROPOSALS</td>
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<tr>
<td>108-1</td>
<td>LIQUIDATED DAMAGES</td>
</tr>
<tr>
<td>108-2</td>
<td>WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER</td>
</tr>
<tr>
<td>304-1</td>
<td>AGGREGATE BASE COURSE</td>
</tr>
<tr>
<td>405-1</td>
<td>TACK COATS</td>
</tr>
<tr>
<td>410-1</td>
<td>CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES</td>
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</table>

#### GENERAL NOTES

1. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.

2. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.

3. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.

4. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HELD AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

5. THIS PROJECT IS COVERED UNDER SECTION 404 NATIONALWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

6. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.

7. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAVING ALONG A NEAT LINE. AFTER SAVING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
TYPICAL SECTIONS OF IMPROVEMENT

NOTES:

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAl PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE 1/2" IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

HWY. 323
TEMPORARY CHANNEL DIVERSION CROSS SECTION

PROPOSED R.C. BOX CULVERT

TEMPORARY CHANNEL DIVERSION PLAN AND CROSS SECTION CUT IN ROAD FOR TEMPORARY CHANNEL DIVERSION

CONSTRUCT DBL. 8' X 9' X 135' R.C. BOX CULVERT WITH 4:1 WINGS
Q100 = 1430 CFS, D.A. = 4.95 SQ. MI.
6" DBL. YELLOW REFLECTORIZED PAINT
PAVEMENT MARKING
W/ RAISED PAVEMENT MARKERS
(TYPE II) (YELLOW/YELLOW) SPACED 80' O.C.

6" WHITE REFLECTORIZED PAINT
PAVEMENT MARKING

TYPICAL STRIPING DETAIL
HWY. 323
### Advance Warning Signs and Devices

<table>
<thead>
<tr>
<th>Sign Number</th>
<th>Description</th>
<th>Sign Size</th>
<th>HWY. 323</th>
<th>Maximum Number Required</th>
<th>Total Signs Required</th>
<th>Barricades (Type B)</th>
<th>Right</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1-1-2</td>
<td>Road Closed</td>
<td>60' x 30'</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1-1-3</td>
<td>Road Closed Local Traffic Only</td>
<td>60' x 30'</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Type B Barricade-RT (9')</strong></td>
<td>60' x 30'</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>Type B Barricade-LT (16')</strong></td>
<td>60' x 30'</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>43.0</td>
<td>22</td>
<td>16</td>
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</tbody>
</table>

Note: This is a low traffic volume road as defined in Section 604.03, standard specifications for highway construction.

### Permanent Pavement Markings

<table>
<thead>
<tr>
<th>Description</th>
<th>End of Job</th>
<th>Reflectorized Paint Pavement Marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflectorized Paint Pavement Marking White (6&quot;)</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Reflectorized Paint Pavement Marking Yellow (6&quot;)</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td>600</td>
<td>600</td>
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</table>

Note: This is a low traffic volume road as defined in Section 604.03, standard specifications for highway construction.

### Removal and Disposal of Culverts

<table>
<thead>
<tr>
<th>Description</th>
<th>Box Culverts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type B</strong></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Total: 1

Note: Quantity shown above shall include removal and disposal of all headwalls and flared end sections if applicable.

### Earthwork

<table>
<thead>
<tr>
<th>Station</th>
<th>Location / Description</th>
<th>Unclassified Excavation</th>
<th>Compacted Embankment</th>
<th>Stabilization</th>
</tr>
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<tbody>
<tr>
<td>Entire</td>
<td>Project</td>
<td>2700</td>
<td>8700</td>
<td>10</td>
</tr>
<tr>
<td>Entire</td>
<td>Temporary Channel Diversion</td>
<td>8700</td>
<td>7900</td>
<td>10</td>
</tr>
<tr>
<td>Entire</td>
<td>Berm</td>
<td>7900</td>
<td>7900</td>
<td>10</td>
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</table>

Total: 18300 19300 10

* Quantities estimated. See Section 104.03 of the Std. Specs.

### Benc Marks

<table>
<thead>
<tr>
<th>Location</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.C. Box Culvert Headwall On Rt.</td>
<td>1</td>
</tr>
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</table>

Total: 1

Note: Shown for information only. Bench marks shall be furnished and placed by State forces.

### Installation of Precast R.C. Box Culvert

<table>
<thead>
<tr>
<th>Description</th>
<th>Span</th>
<th>Height</th>
<th>Length</th>
<th>Solid Sodding</th>
<th>Water</th>
<th>Stone Backfill</th>
<th>STD. DWG. Nos.</th>
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</thead>
<tbody>
<tr>
<td>DBL. 8 X 9 X 135 R.C. Box Culvert</td>
<td>8</td>
<td>9</td>
<td>270</td>
<td>11</td>
<td>0.14</td>
<td>480</td>
<td>PBC-1, RCB-1, RCB-2, W-X004-2</td>
</tr>
</tbody>
</table>

Total: 270 11 0.14 480

* Basis of estimate: water: 12.6 gal. / sq. yd. of solid sodding

Note: Refer to installation of precast reinforced concrete box culvert special provision.
## EROSION CONTROL

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>SEEDING</th>
<th>LIME</th>
<th>MULCH COVER</th>
<th>WATER</th>
<th>SECOND SEEDING APPLICATION</th>
<th>TEMPORARY SEEDING</th>
<th>MULCH COVER</th>
<th>WATER</th>
<th>SAND BAG DITCH CHECKS</th>
<th>ROCK DITCH CHECKS</th>
<th>SILT FENCE</th>
<th>SEDIMENT</th>
<th>OBLITERATION OF SEDIMENT BASIN</th>
<th>*SEDIMENT REMOVAL &amp; DISPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ACRE</td>
<td>TON</td>
<td>ACRE</td>
<td>M/GAL</td>
<td>ACRE</td>
<td>ACRE</td>
<td>ACRE</td>
<td>M/GAL</td>
<td>(E-8)</td>
<td>(E-11)</td>
<td>(E-14)</td>
<td>(E-18)</td>
<td>(E-22)</td>
<td>(E-26)</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>0.00</td>
<td>1.00</td>
<td>0.50</td>
<td>51.1</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>10.2</td>
<td>110</td>
<td>200</td>
<td>133</td>
<td>133</td>
<td>150</td>
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<tr>
<td><em>ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.</em></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

### BASE AND SURFACING

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>LENGTH</th>
<th>AGGREGATE BASE COURSE (CLASS II)</th>
<th>TACK COAT</th>
<th>ACHM BINDER COURSE (1&quot;)</th>
<th>ACHM SURFACE COURSE (1/2&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TON/SID.</td>
<td>FEET</td>
<td>AVG. WTD.</td>
<td>SQ.YD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TON</td>
<td></td>
<td>SQ.YD.</td>
<td>GALLON</td>
</tr>
<tr>
<td>HWY. 323</td>
<td>300.00</td>
<td>165.25</td>
<td>499.75</td>
<td>40.71</td>
<td>1387.00</td>
</tr>
</tbody>
</table>

| TOTALS: | 465.75 | 1387.00 | 67.85 | 682.00 | 112.53 | 675.50 | 74.35 | 933.33 | 102.67 | 179.92 |

### QUANTITIES

- **Basis of Estimate:**
  - ACHM SURFACE COURSE (1/2") .......... 94.7% MIN. AGGR. ......... 5.3% ASPHALT BINDER
  - ACHM BINDER COURSE (1") ............. 95.5% MIN. AGGR. .......... 4.5% ASPHALT BINDER
  - Maximum Number of Gyrations > 115 for PG 64-22
  - TACK COAT QUANTIES WERE CALCULATED USING THE EMULIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

### Notes:
- 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.

### Quantities

| QUANTITIES |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |   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|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |     

### 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.
### SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM</th>
<th>QUANTITY</th>
<th>UNIT</th>
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<tbody>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF BOX CULVERTS</td>
<td>1</td>
<td>EACH</td>
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<tr>
<td>207</td>
<td>STONE BACKFILL</td>
<td>400</td>
<td>TON</td>
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<tr>
<td>210</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>16800</td>
<td>CU. YD</td>
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<tr>
<td>210</td>
<td>COMPACTED SUBBASEMENT</td>
<td>18900</td>
<td>CU. YD</td>
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<tr>
<td>211</td>
<td>SOL STABILIZATION</td>
<td>10</td>
<td>TON</td>
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<td>212</td>
<td>AGGREGATE BASE COURSE (CLASS 7)</td>
<td>446</td>
<td>TON</td>
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<tr>
<td>212</td>
<td>RAPID COAT</td>
<td>98</td>
<td>GAL</td>
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<td>212</td>
<td>INITIAL AGGREGATE IN ACADM BINDER COURSE (1&quot;)</td>
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<td>FINAL AGGREGATE IN ACADM BINDER COURSE (1&quot;)</td>
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<td>TON</td>
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<td>212</td>
<td>INITIAL AGGREGATE IN ACADM SURFACE COURSE (1&quot;)</td>
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<td>TON</td>
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<tr>
<td>213</td>
<td>MOBILIZATION</td>
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<td>LUMP SUM</td>
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<td>LEVY</td>
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<td>215</td>
<td>BAG</td>
<td>110</td>
<td>BAG</td>
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<td>216</td>
<td>SEDIMENT BARRIER BOX</td>
<td>133</td>
<td>CU. YD</td>
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<td>SEDIMENT REMOVAL AND DISPOSAL</td>
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<td>CU. YD</td>
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<td>Ditch Checks</td>
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<td>SEEDING APPLICATION</td>
<td>0.50</td>
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</tr>
<tr>
<td>220</td>
<td>SOIL SEEDING</td>
<td>200</td>
<td>SQ. YD</td>
</tr>
<tr>
<td>221</td>
<td>PAINTS</td>
<td>270</td>
<td>SQ. FT</td>
</tr>
<tr>
<td>222</td>
<td>REFLECTIVE PAINT PAVEMENT MARKING WHITE (2&quot;)</td>
<td>600</td>
<td>LIN. FT</td>
</tr>
<tr>
<td>223</td>
<td>REFLECTIVE PAINT PAVEMENT MARKING YELLOW (6&quot;)</td>
<td>600</td>
<td>LIN. FT</td>
</tr>
</tbody>
</table>

### REVISIONS

<table>
<thead>
<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/25/2017</td>
<td>DELETED &quot;PRECAST REINFORCED CONCRETE BOX CULVERTS&quot; SPECIAL PROVISION. REVISED EARTHWORK QUANTITY BOX REMOVED &quot;PAINTED PAVEMENT MARKINGS (TYPE E) QUANTITY. REVISED &quot;INSTALLATION OF PRECAST REINFORCED CONCRETE BOX CULVERTS&quot; SPECIAL PROVISION. ADDED SPECIAL DETAILS FOR TEMPORARY CHANNEL DIVERSION AND BERM. REVISED PAY ITEM NAME FOR PRECAST REINFORCED CONCRETE BOX CULVERTS</td>
<td>2, 4, 7, 9, 10, &amp; 11</td>
</tr>
<tr>
<td>02/25/2017</td>
<td>ADDED &quot;UTILITY ADJUSTMENTS&quot; SPECIAL PROVISION.</td>
<td>2 &amp; 9</td>
</tr>
</tbody>
</table>
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE NO. 4.

2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

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

TYPE II REFLECTIVE OR YELLOW/WHITE PRISMATIC REFLECTOR

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

CONCRETE PAVEMENT

BROKEN LINE STRIPING

SOLID LINE STRIPING ON CONCRETE PAVEMENT

SOLID LINE STRIPING ON ASPHALT PAVEMENT

ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

YIELD LINE DETAIL

CROSSWALK AND STOPBAR DETAILS

(detail continued)
NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM


REPLACEMENT BAR LENGTHS TABLE

<table>
<thead>
<tr>
<th>BAR SIZE</th>
<th>LENGTH OF HOOKED BAR</th>
<th>LENGTH OF STRAIGHT BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>L + r - 0&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>4</td>
<td>L + r - 2&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>5</td>
<td>L + r - 4&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>6</td>
<td>L + r - 6&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>7</td>
<td>L + r - 8&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>8</td>
<td>L + r - 10&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>9</td>
<td>L + r - 12&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
<tr>
<td>L = &quot;98&quot;</td>
<td>L + r - 3&quot;</td>
<td>SEE &quot;G&quot; BAR LENGTH</td>
</tr>
</tbody>
</table>


THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERSEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS 5 WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE ASBESTOS TYPE 3 OR 53, GRADE 50.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING HOOKED AND STRAIGHT MATERIALS, SHALL BE SUBSIDIARY TO THE BIG ITEM "CLASS 5 CONCRETE".

REINFORCING STEEL LENGTHS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 85 OF THE STANDARD SPECIFICATIONS.

MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB, THE SIDES (S) OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES FOR REINFORCING STEEL SHALL BE AS SHOWN IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (C.R.S.I). EXCEPT THAT THE TOLERANCE FOR THOSE BARS SUCH AS FIGURE 3 ON PAGE 7-F OF THE ORIGIANAL SHALL BE SMALLER TO PLUS 3/16 INCH.

KEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MINIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE GRAY OPENING SHALL BE 4'-0" DIAMETER AND SHALL BE PLACED 2'-0" ABOVE THE TOP OF THE BOTTOM SLAB.

KEEP HOLES IN MODIFIED HEADWALLS SHALL HAVE A MINIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE GRAY OPENING SHALL BE 4'-0" DIAMETER AND SHALL BE PLACED 2'-0" ABOVE THE TOP OF THE MODIFIED HEADWALL FOOTING.


R.C. BOX CULVERT HEADWALL MODIFICATIONS

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1

ARKANSAS STATE HIGHWAY COMMISSION
SOLID SODDING
R.C. BOX CULVERT

PLAN
PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

LONGITUDINAL SECTION
BACKFILL DETAILS FOR BOX CULVERT

SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

SECTION B-B
DETAILS FOR NEW CHANNELS

GENERAL NOTES:
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFOINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES. EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFOINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE. ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

SECTION C-C
DETAILS THROUGH EXISTING CHANNELS

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD DRAWING RCB-2
(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**

- Channelizing devices separate work area from traveled way.

(C) **Typical Application - 4-Lane Undivided Roadway Where Half of the Roadway Is Closed**

- Lane closure beyond detour point.

- Visibility of work area is visible from one line.

- Channelizing devices are to be extended to a point where they are visible to approaching traffic.

- Automatic flashing assistance devices activated.

(D) **Typical Application - Roadway Closed Beyond Detour Point**

- Visibility of work area is visible from one line.

- Channelizing devices are to be extended to a point where they are visible to approaching traffic.

- Automatic flashing assistance devices activated.

(E) **Typical Application of Traffic Control Devices on a 2-Lane Highway Where One Lane is Closed and Flagging is Provided**

- Complete signs shown only in crossover direction.

- Two-way traffic separated with positive barrier.

(F) **Typical Application - 4-Lane Undivided Roadway With Inside Lane Closed**

- Advance warning sign placement.

**Notes:**

1. Regulatory traffic control devices to be used.

2. Street names may be added when desirable for directing detoured traffic.

3. Street names may be used when desirable for directing detoured traffic.
GENERAL NOTES

1. SAND BAGS SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BAGS. THE BAGS SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BAGS.

3. BAGGED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED ARE NOT DEEMED TO BE A PER ITEM PAYMENT. UNIT PRICE IS PER BALE FOR BAGGED STRAW DITCH CHECKS.

GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEAM SEAM ONLY AT A SUPPORT POST OR SECTION OF FENCE. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

BALED STRAW FILTER BARRIER (E-6)

SILT FENCE (E-11)

GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEAM SEAM ONLY AT A SUPPORT POST OR SECTION OF FENCE. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

BALED STRAW FILTER BARRIER (E-6)

SILT FENCE (E-11)

GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEAM SEAM ONLY AT A SUPPORT POST OR SECTION OF FENCE. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.
SEDIMENT BASIN WITH RIPRAP OUTLET (E-10)

SEDIMENT BASIN WITH PIPE OUTLET (E-10)

SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

SEDIMENT BASIN (E-14)

DIVERSION DITCH (E-1B)

NOTE:
- HIP SECTION SHALL BE USED AT THE INLET FOR NO-DIRECTIONAL FLOW. THE PLAIN PIPE OR USED FOR ONE-DIRECTIONAL FLOW.
- SLOPE DRAIN PIPE 3’ MIN.
- PERFORATED PIPE 18” MIN.
- NON-PERFORATED PIPE WITH ANTI-SEEP COLLAR
- SEDIMENT BASIN WITH PIPE OUTLET (E-10)

ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-2
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (i.e., SILT FENCES, DIVERSION DITCHES, EMBANKMENT BASELINE).
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION

EXISTING GROUND

INTERCEPTOR OR DIVERSION DITCH

EXISTING GROUND

PHASE 1 EXCAVATION

PHASE 2 EXCAVATION

FINAL PHASE EXCAVATION

GENERAL NOTE

ALL CUT SLOPES SHALL BE CIPPED, PREPARED, SEEDED, AND MACHINED 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.
5. PERFORM MACHINING OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT

NOTE: GENERAL NOTE: CONSTRUCTION SEQUENCE: EXCAVATION

EMBANKMENT DITCH TO BE IN PLACE UNTIL SLOPE IS COMPLETELY STABILIZED.

EXCAVATION

NOTE: CONSTRUCTION SEQUENCE: EXCAVATION

EMBANKMENT

GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE CIPPED, PREPARED, SEEDED, AND MACHINED 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, CHECK DITCHES, BASEMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
3. PLACE PHASE 2 EMBANKMENT, WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE FINAL, PHASE EMBANKMENT, WITH PERMANENT OR TEMPORARY SEEDING.
5. PLACE MACHINING OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

GENERAL NOTE

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3. PLACE PHASE 2 EMBANKMENT, WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE FINAL, PHASE EMBANKMENT, WITH PERMANENT OR TEMPORARY SEEDING.
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2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
3. PLACE PHASE 2 EMBANKMENT, WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE FINAL, PHASE EMBANKMENT, WITH PERMANENT OR TEMPORARY SEEDING.
5. PLACE MACHINING OR OTHER EROSION CONTROL DEVICES AS REQUIRED.
### Class S Concrete

**ARKANSAS STATE HIGHWAY COMMISSION**

**DETAILS OF STANDARD WINGS**

**FOR**

REINFORCED CONCRETE BOX CULVERTS.

**COLD SPRINGS**

4:1 SLOPES

SINGLES, DOUBLES, Triples, ALL DEPTHS OF COMB.

QUADRUPLES & QUADRUPLES & OVER

STANDARD DRAWING NO. W.X0054-R