ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

WILDCAT CREEK
STR. & APPRS. (S)
COUNTY ROAD 1785
BENTON COUNTY
FED. AID PROJECT STPB-0004(58)

JOB BR0405
NOT TO SCALE

STRUCTURES OVER 20’ - 0”

SITE NO. 1
STA. 105+09.92 BRIDGE END
PROPOSED 180’-2"
CONTINUOUS COMPOSITE W-BEAM UNIT
(SPANS = 53’, 72’, 53’)
BRIDGE NO. 04937
28’-0” CLEAR ROADWAY
STA. 106+90.08 BRIDGE END

STA. 101+85.00 BEGIN JOB BR0405
FED. AID PROJECT STPB-0004(58)

GROSS LENGTH OF PROJECT 766.00 FEET OR 0.44 MILES
NET ROADWAY 765.42 0.44
NET BRIDGE 198.17 0.39
NET PROJECT 765.42 0.44

ARKANSAS HIGHWAY DIST. 9

DESIGN TRAFFIC DATA

| DESIGN YEAR | 2037 |
| 2017 ADT | 350 |
| 2037 ADT | 500 |
| 2037 DHV | 75 |
| DIRECTIONAL DISTRIBUTION | 0.60 |
| TRUCKS | 3% |
| DESIGN SPEED | 40 MPH |

STA. 109+35.00 END JOB BR0405
FED. AID PROJECT STPB-0004(58)

DEPUTY DIRECTOR
AND CHIEF ENGINEER

2-22-19

N 18

N 17
INDEX OF SHEETS

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7. 8.  QUANTITIES
9.  SCHEDULE OF BRIDGE QUANTITIES
10.  SUMMARY OF QUANTITIES AND REVISIONS
11.  PLANT AND PROFILE SHEETS
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13.  LAYOUT OF BRIDGE OVER WILDCAT CREEK (SHEET 2 OF 2)
14.  DETAILS OF END BENT 1 (SHEET 1 OF 2)
15.  DETAILS OF END BENT 2 (SHEET 1 OF 2)
16.  DETAILS OF END BENT 3 (SHEET 1 OF 2)
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19.  DETAILS OF INTERMEDIATE BENT NO. 3 (SHEET 1 OF 3)
20.  DETAILS OF END BENT 4 (SHEET 1 OF 2)
21.  DETAILS OF END BENT 5 (SHEET 1 OF 2)
22.  DETAILS OF END BENT 6 (SHEET 1 OF 2)
23.  DETAILS OF ELASTOMERIC BEARINGS
24.  DETAILS OF 178" x 10" COMPOSITE W-Beam Unit (Sheet 1 of 4)
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26.  DETAILS OF 178" x 10" COMPOSITE W-Beam Unit (Sheet 3 of 4)
27.  DETAILS OF 178" x 10" COMPOSITE W-Beam Unit (Sheet 4 of 4)
28-33. CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

Drawing No.  Title  Date
GR-3  GUARD RAIL DETAILS  07/14/10
GR-8A  GUARD RAIL DETAILS  07/14/10
GR-8  GUARD RAIL DETAILS  05/17/08
GR-10  GUARD RAIL DETAILS  07/14/10
GR-2A  GUARD RAIL DETAILS  05/17/08
GR-1  GUARD RAIL DETAILS  07/14/10
MB-1  MAILBOX DETAILS  07/14/10
PCC-1  CONCRETE PIPE CULVERT FILL HEIGHTS & BORDING  05/27/14
PCM-1  METAL PIPE CULVERT FILL HEIGHTS & BORDING  05/27/14
PCP-1  PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)  05/27/14
PCP-2  PLASTIC PIPE CULVERT (PVC-FH49)  05/27/14
TC-1  STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION  06/15/16
TC-2  STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION  04/15/17
TC-3  STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION  06/03/15
TC-4  TEMPORARY EROSION CONTROL DEVICES  06/15/17
TC-5  TEMPORARY EROSION CONTROL DEVICES  11/03/14
WF-4  WIREFENCE TYPE C AND D  06/22/02

BRIDGE STANDARD DRAWINGS

Drawing No.  Title  Date
55001  STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS  05/27/14
55001  STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPLING EXCAVATION FOR STRUCTURES  05/27/14
55005  STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS  05/24/16
55006  STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES  05/24/16
55011  STANDARD DETAILS FOR TYPE C BRIDGE NAME PLATES  05/24/16
55018  STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASTRMENTS  05/24/16
55020  STANDARD DETAILS FOR TYPE A APPROACH CUTOVERS  05/24/16
55035  STANDARD DETAILS FOR TYPE B APPROACH CUTOVERS  05/24/16
GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.

2. UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.

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 HARVESTED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

5. ALL SALVAGEABLE PIPE CULVERTS AND STEEL GIRDERS FROM EXISTING BRIDGE STRUCTURE SHALL BE STORED ON THE RIGHT OF WAY AND BECOME THE PROPERTY OF THE CONTRACTOR. THE GUARDRAIL TURNOUTS WILL REMAIN THE PROPERTY OF SUTON COUNTY.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.

8. THE ROAD WILL BE CLOSED TO THRU TRAFFIC UNTIL THE COMPLETION OF THE PROJECT.
TANGENT SECTION

NOTE: THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" 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.

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

DETAIL OF PRIVATE ENTRANCES

NOTE: THE ABOVE DETAIL MAY BE MODIFIED TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

TYPICAL SECTION OF IMPROVEMENT
TYPICAL SECTION
GUARDRAIL WIDENING
(GR-SA)

VARIABLE SLOPE TRANSITION (3:1 TO 2:1)

SECTION A-A

NORM. SHLD.
VAR. 1'-6" MIN.
2'-0" NORM.

GUARDRAIL (TYPE A)
ADO'T. AGG. BASE COURSE

-0.040" OR SLOPE OF SUPER

NORM. AS SHOWN ON TYPICAL
VARIES 3:1 TO 2:1

-0.025" OR SLOPE OF SUPER

SECTION B-B

NORM. SHLD.
VAR. 1'-6" MIN.
2'-0" NORM.

GUARDRAIL (TYPE A)
ADO'T. AGG. BASE COURSE

-0.040" OR SLOPE OF SUPER

NORM. AS SHOWN ON TYPICAL
VARIES 3:1 TO 2:1

DETAILS OF WIDENING FOR GUARDRAIL
(28'-0" CLEAR ROADWAY CAST IN PLACE BRIDGE)
NOT TO SCALE
### Aggregate Base Course and Surfacing

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>Length</th>
<th>Aggregate Base Course (Class 7) Width</th>
<th>Aggregate Base Course (Class 7) Lin. Ft.</th>
<th>Prime Coat Width</th>
<th>Prime Coat Length</th>
<th>AC ihn Surface Course Width</th>
<th>AC ihn Surface Course Lin. Ft.</th>
<th>Tons</th>
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<tbody>
<tr>
<td>101-250</td>
<td>MAIN LAKES</td>
<td>282.1</td>
<td>40.0</td>
<td>570.1</td>
<td>177.6</td>
<td>27</td>
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<td>104-250</td>
<td>WIDENING FOR GUARDRAIL</td>
<td>68.1</td>
<td>95.0</td>
<td>95.0</td>
<td>130.2</td>
<td>22</td>
<td>23.7</td>
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<tr>
<td>104-350</td>
<td>WIDENING FOR GUARDRAIL</td>
<td>63.0</td>
<td>86.0</td>
<td>86.0</td>
<td>120.2</td>
<td>22</td>
<td>22.7</td>
<td>120.2</td>
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<tr>
<td>104-650</td>
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<td>86.0</td>
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<td>22.7</td>
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<td>106-850</td>
<td>MAINTENANCE OF TRAFFIC</td>
<td>63.0</td>
<td>86.0</td>
<td>86.0</td>
<td>120.2</td>
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<td>22</td>
<td>22.7</td>
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**TOTAL:** 1405.0, 150.4, 218.2

**Usage:** 1406, 690, 183

**Basis of Estimate:**
- Aggregate Base Course (Class 7) 222 Tons Per 100’ STA. (Widening for Guardrail)
- Aggregate Base Course (Class 7) 190 Tons Per 100’ STA. (Taper)
- Aggregate Base Course (Class 7) 171 Tons Per 100’ STA. (Main Lanes)
- Prime Coat 0.40 Gal./90 Yd. (220 lbs.-80 Yd.)

**Quantities are estimated and shall be placed if and where directed by the engineer. See Section 104.03 of the standard specifications.**

*Note: Rates may be modified if and where directed by the engineer. See Section 104.03 of the Standard Specifications.*

**Proportion by Weight:**
- Mineral Aggregate in AC ihn Surface Course (1/2") 94.7%
- Asphalt Binder (PG 64-22) in AC ihn Surface Course (1/2") 5.3%

### Wire Fence

<table>
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<tr>
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<th>Station</th>
<th>Side</th>
<th>Wire Fence Type (3/4&quot;) Tensile</th>
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<td>104-375</td>
<td>LV</td>
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<td>104-550</td>
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**TOTAL:** 933

### Approach Gutter

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<th>Side</th>
<th>Concrete</th>
<th>Rein. Steel</th>
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<td>105-1050</td>
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<td>BT</td>
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**Total:** 17.00, 1400

### Earthwork

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<tr>
<th>Station</th>
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<th>Main Lanes</th>
<th>Unclassified Excavation</th>
<th>Concrete Embankment</th>
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<td>101-250</td>
<td>101-250</td>
<td>394</td>
<td>2073</td>
<td>99 213</td>
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<td>104-450</td>
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<td>104-550</td>
<td>104-550</td>
<td>929</td>
<td>2073</td>
<td>115 2188</td>
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**Note:** Earthwork Quantities shown shall be paid as plan quantity.

### Traffic Control Devices

- **Location:** STA 6045
  - TD L-1: 16
- **Location:** STA 6060
  - TD L-1: 16
- **Location:** STA 6050
  - TD L-1: 16
- **Location:** STA 6050
  - TD L-1: 16
- **Location:** STA 6060
  - TD L-1: 16
- **Location:** STA 6060
  - TD L-1: 16

**Total:** 2, 22, 2, 20, 2, 20, 2, 20

**Traffic Control Devices Standard Drawing Number:**
- TD-1: 16
- TD-2: 16
- TD-3: 16
## SCHEDULE OF BRIDGE QUANTITIES - JOB NO. B40405

<table>
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<tr>
<th>ITEM NO.</th>
<th>BRIDGE SPECIFICATION</th>
<th>UNIT OF</th>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>FOR</th>
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<th>EXISTING</th>
<th>CONCRETE</th>
<th>BRIDGE</th>
<th>REINFORCED</th>
<th>STEEL</th>
<th>FRP</th>
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<th>STRUCTURAL</th>
<th>GLASS</th>
<th>Joints</th>
<th>SEALS</th>
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<th>NAME</th>
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<th>CRACK</th>
<th>SEALANT</th>
<th>NAME</th>
<th>PLATE</th>
<th>SIZE</th>
<th>CRACK</th>
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</tbody>
</table>

**Notes:**
- Includes approx. 40% yds. of topsoil.
- Foundation is required to be Grade B and have a minimum of 10% which allows for settlement.
- Transformer is placed at the Blood Gap and will be considered subsidiary to the Blood Gap BRP (BRP11).
- This item includes the removal of concrete and the installation of new concrete as directed by the Engineer.

**Jeff Coupland**
Architect, Site Supervisor

**Arkansas State Highway Commission**
COUNTY ROAD NO. 795
LITTLE ROCK, AR

**SCHEDULE OF BRIDGE QUANTITIES**
WILDCAT CREEK, STR., & APPRS. (S)
BENTON COUNTY
COUNTY ROAD NO. 795
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, AR

**Drainage Designer:**
**Bridge Designer:**
**Engineer:**

**Drawing Date:** 02/11/2011
**Printed Date:** 02/11/2011
**Drawn by:**
**Engineer:**
**Drawn by:**
**Engineer:**

**Bridge No:** B40405
**Drawing No:** 04137
**Scale:** 1/2" = 1'-0"
## SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM</th>
<th>TOTAL</th>
<th>UNIT</th>
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<tr>
<td>201</td>
<td>CLEARING</td>
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<td>STA.</td>
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<td>202</td>
<td>GRUBBING</td>
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<td>STA.</td>
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<td>203</td>
<td>REMOVAL AND DISPOSAL OF FENCE</td>
<td>0.50</td>
<td>LIN. FT.</td>
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<td>204</td>
<td>REMOVAL AND DISPOSAL OF GATES</td>
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<td>205</td>
<td>REMOVAL AND DISPOSAL OF FIRE COLLECTORS</td>
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<td>EACH</td>
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<td>206</td>
<td>REMOVAL AND DISPOSAL OF GUARDIALS</td>
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<td>UNCLASSIFIED EXCAVATION</td>
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<td>COMPACTED EMBANKMENT</td>
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<td>AGGREGATE BASE COURSE (CLASS 7)</td>
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<td>210</td>
<td>BULKY</td>
<td>5950</td>
<td>GAL.</td>
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<td>ASPHALT Binder (PG 64-22) in AC/CHI SURFACE COURSE (L'/2)</td>
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<td>212</td>
<td>APPROACH OUTLET</td>
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<td>THREE BEAM GUARDRAIL, TERMINAL</td>
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<td>WIRE FENCE (TYPE 0-11)</td>
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<td>ALTERNATE NO. 1</td>
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<td>10' ALUMINUM GATES</td>
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<td>234</td>
<td>TEMPORARY SEEDING</td>
<td>0.46</td>
<td>ACRE</td>
</tr>
<tr>
<td>235</td>
<td>SILT FENCE</td>
<td>814</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>236</td>
<td>SAND BAG DITCH CHECKS</td>
<td>24</td>
<td>BAGS</td>
</tr>
<tr>
<td>237</td>
<td>DIVERSION DITCH</td>
<td>220</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>238</td>
<td>SEwer BASin</td>
<td>104</td>
<td>LIN. YR.</td>
</tr>
<tr>
<td>239</td>
<td>OBLIGATION OF SEwer BASin</td>
<td>104</td>
<td>LIN. YR.</td>
</tr>
<tr>
<td>240</td>
<td>SEwer REMOval AND DISPOSAL</td>
<td>165</td>
<td>LIN. YR.</td>
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<tr>
<td>241</td>
<td>PIPE FOR SLOPE DRAIN</td>
<td>55</td>
<td>LIN. FT.</td>
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<tr>
<td>242</td>
<td>ROCK DITCH CHECKS</td>
<td>24</td>
<td>LIN. FT.</td>
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<tr>
<td>243</td>
<td>ROADWAY CONSTRUCTION CONTROL</td>
<td>1.60</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>244</td>
<td>MAILBOXX</td>
<td>1</td>
<td>EACH</td>
</tr>
<tr>
<td>245</td>
<td>MAILBOX SUPPORTS (SINGLE)</td>
<td>1</td>
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<tr>
<td>246</td>
<td>ROADWAY MARKING WHITE (2&quot;)</td>
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<tr>
<td>247</td>
<td>ROADWAY MARKING MARKING YELLOW (4&quot;)</td>
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<td>248</td>
<td>REINFORCED STEEL ROADWAY (GRADE 60)</td>
<td>1488</td>
<td>LB</td>
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<tr>
<td>249</td>
<td>REINFORCEMENT BOLTS (GRADE 60)</td>
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<td>LB</td>
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<tr>
<td>250</td>
<td>REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)</td>
<td>1.00</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>251</td>
<td>BRIDGE CONSTRUCTION COMPONENT</td>
<td>1.00</td>
<td>LUMP SUM</td>
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<td>UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE</td>
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<td>LIN. YR.</td>
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<td>CLASS S CONCRETE-BRIDGE</td>
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<td>254</td>
<td>CLASS S 2 PROTECTIVE SURFACE TREATMENT</td>
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<td>LIN. YR.</td>
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<td>255</td>
<td>REINFORCED STEEL-BRIDGE (GRADE 60)</td>
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<tr>
<td>256</td>
<td>EPOXY COATED REINFORCED STEEL (GRADE 60)</td>
<td>40816</td>
<td>LB</td>
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<td>257</td>
<td>STEEL PILING (HP 12X53)</td>
<td>100</td>
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<tr>
<td>258</td>
<td>STRUCTURAL STEEL IN BEAM SPANS (W270-GS599)</td>
<td>112272</td>
<td>LB</td>
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<tr>
<td>259</td>
<td>ELASTOMERIC BEARINGS</td>
<td>5130</td>
<td>LIN. IN.</td>
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<tr>
<td>260</td>
<td>SILICONE JOINT SEALANT</td>
<td>62</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>261</td>
<td>BRIDGE NAME PLATE (TYPE C)</td>
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<td>EACH</td>
</tr>
<tr>
<td>262</td>
<td>DUMPER RORRAP</td>
<td>148</td>
<td>LB</td>
</tr>
<tr>
<td>263</td>
<td>FILTER BLANKET</td>
<td>262</td>
<td>BD. YR.</td>
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<tr>
<td>264</td>
<td>DRILLED SHAFT (2&quot; DIA.)</td>
<td>28.3</td>
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<tr>
<td>265</td>
<td>PERMANENT STEEL CASING (24&quot; DIA.)</td>
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<tr>
<td>266</td>
<td>CROSSHOLE SONIC LOGGING (1&quot; DIA.)</td>
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<td>267</td>
<td>CORING DRILLED SHAFT</td>
<td>27.0</td>
<td>LIN. FT.</td>
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* DENOTES ALTERNATE BID ITEMS.

## STRUCTURES OVER 20'-0" SPAN

### REVISIONS

<table>
<thead>
<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
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<tr>
<td>09-04-17</td>
<td>ADDED JOB SPECIAL PROVISION - DISADVANTAGE BUSINESS ENTERPRISE BIDDER’S RESPONSIBILITIES</td>
<td>3</td>
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<tr>
<td>09-04-17</td>
<td>REMOVED JOB SPECIFICATION RECORD FOR ADDITIONAL ELEMENTS</td>
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<tr>
<td>05-25-17</td>
<td>REVISED BENT 1 EXCAVATION, ADDED DUMPER RORRAP AND FILTER BLANKET, REVISED REMOVAL AND SALVAGE NOTE, ADDED EXISTING REMOVAL ABUTMENT AT BENT</td>
<td>9,14,515</td>
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<td>05-25-17</td>
<td>CHANGED BENT 1 EXCAVATION QUANTITY</td>
<td>2,5,14,11</td>
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<tr>
<td>05-25-17</td>
<td>CHANGED DUMPER RORRAP AND FILTER BLANKET QUANTITIES.</td>
<td>3,15,11</td>
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</tbody>
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* Image and text content are not suitable for direct transcription due to poor quality and lack of clear structure.*
**SURVEY CONTROL COORDINATES**

- **Project Name:** BROOKS
- **Date:** 12/7/2014
- **Coordinate System:** Arkansas State Plane Coordinates
- **Based on:** AHD GPS-PS1: 040113 & 720063
- **Projected to Ground Coordinates**
- **Units:** U.S. Survey Foot

**COORDINATES LISTED BELOW ARE GROUND (LOCALIZED) COORDINATES!!!!**

<table>
<thead>
<tr>
<th>Point No.</th>
<th>Northing SY</th>
<th>Easting SX</th>
<th>Elevation</th>
<th>Feature Code</th>
<th>Point Description</th>
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<tbody>
<tr>
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<td>063995.9505</td>
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<td>GPS PD-AHD GPS #720063</td>
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</tbody>
</table>

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8" x 24" Rebar with 2" Aluminum Cap stamped: "(Include all common information here) plus other markings indicated in the point description of the individual point. AHD monuments will be stamped "Arkansas Hwy & Trans Dept with PN: 888 & "Job Name." Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept with PN: 888, "Job Name.," & "PS Name." The professional Consultant Surveyor in charge will stamp his/her PS license number on the cap."

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5" Aluminum Cap stamped: [(Include all common information here) plus other markings indicated in the point description of the individual point. These monuments will be stamped "Arkansas Hwy & Trans Dept, "GPS Survey," & "Point No. #88888888888888."

SX, SY, SZ = Represents the standard error estimate of the coordinate values of each point at the 95% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX, SY, and SZ. For additional information, these values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 0.01 is defined as location by handfield GPS device or scaled from USGS Quadranger.

Reference Control Points (150 points) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

**Positional Accuracy:**
- Horizontal: GPS (1.0 nmi, 10 mm)
- Horizontal: Primary (3.0 nmi, 20 mm)
- Horizontal: Secondary (10 nmi, 50 mm)
- Vertical: NOS 1st Order (44 km, ±100 m)
- Vertical: NOS 2nd Order (64 km, ±100 m)
- Vertical: NOS 3rd Order (164 km, ±100 m)

**Horizontal Datum:**

- NAD 1983 (1987)
- State Plane Zone: 0020 - North Zone
- The adjustment year is based on metadata in the SDMS Control File.
- A project CAF of: 0.999999513 has been used to compute the above coordinates.
- The project CAF shall have a minimum precision of 9 digits right of the decimal.
- This CAF is intended for use within the project limits only.
- Grid Distance = Ground Distance X CAF
- If Coordinates are listed as Grid:
- To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
- If Coordinates are listed as Grid:
- To compute Grid Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

**Vertical Datum:**

- NAVD 1988 based NGS BM
- ELEVATIONS BASED ON STATIC OBSERVATION ON AHD GPS #720063
- A project Elevation Factor of: 0.999999413 has been computed and incorporated in the above CAF.
- This is based on the average elevation of the project: 3975.54 Feet
- 3-Wire Leveling techniques have been used to establish elevations on Points: 3, 5, 10, 101
- From NGS BM: N/A

**Basis of Bearing:**
- Grid Bearings based on AHD GPS points:
- Convergence Angle = 01 21 34.54 LEFT at PN: 3
- LT: 36 11 15 13 N
- LG: 04 10 11 32 W
- Grid Azimuth = Astronomical Azimuth - Convergence Angle
Note: For "SECTION X-X" see Spec. No. 9504.
### TYPICAL ROADWAY SECTION
1'-11'-0"

- **Expansion Device**
  - Relay, Channel C2012
  - Cmina Cx 7"x5"x12"x12"
  - Additional 1/2" thick plate at joints 1/2" wide & provide 1/2" wide independent 2" wide flange using 1 1/4" Ram & 1 1/2" lag

- **Slope channel flange 2" plus width of beam flange**

### TYPICAL ROADWAY SECTION NEAR JOINT

- **Looking Ahead**
  - 3'-11'-0"

### TABLE FOR WELD

<table>
<thead>
<tr>
<th>Material Thickness of Thicker Part (in.)</th>
<th>Minimum Size of Fillet Weld (inches)</th>
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</thead>
<tbody>
<tr>
<td>1/8&quot; to 1/4&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>1/4&quot; to 3/16&quot;</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>1/4&quot; to 5/32&quot;</td>
<td>1/64&quot;</td>
</tr>
<tr>
<td>1/32&quot; to 1/64&quot;</td>
<td>1/16&quot;</td>
</tr>
</tbody>
</table>

### CHANNEL CONNECTION DETAIL

- **Beam, Top Flange**
  - C. L. Beam, 5" x 5" x 5/8"
  - W.C. Beam, 5" x 324"

- **Relay, Channel C2112**
104+32
BEGIN GUARDRAIL
ON LT. & RT.

104+22
END TAPER
ON LT. & RT.

104+00

103+95
INSTALL
18" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 90 CU. YDS.

103+59
BEGIN TAPER
ON LT. & RT.
THREE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST POSTS 1-7

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

THREE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POSTS POSTS 1-6

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

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

GENERAL NOTES:
- Rail posts shall be set perpendicular to the roadway profile gradient.
- W posts shall be as shown.
- Wood posts & wood blocks shall be eastern or southern pine.

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A
**CONSTRUCTION SEQUENCE**

1. Place structural bedding material to grade, do not compact.
2. Compact 1½" of compaction material outside of the middle third of the pipe.
3. Place and compact the remaining area up to the middle of the pipe.
4. Complete models according to subsection 02149.

**NOTE:** HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE 80¢ PER LINEAR FOOT OF CONCRETE PIPE.

---

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

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>MATERIALS REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1</td>
<td>AGGREGATE BASE COURSE</td>
<td>CLASS 5 OR CLASS 7</td>
</tr>
</tbody>
</table>
| TYPE 2        | MATERIALS NOT TO EXCEED 1.0" DIA. 
|               | OR TYPE 1 INSTALLATION MATERIAL |

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

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>MATERIALS REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING</th>
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<tbody>
<tr>
<td>TYPE 1</td>
<td>AGGREGATE BASE COURSE</td>
<td>CLASS 5 OR CLASS 7</td>
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</table>
| TYPE 2        | MATERIALS NOT TO EXCEED 1.0" DIA. 
|               | OR TYPE 1 INSTALLATION MATERIAL |

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

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>MATERIALS REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING</th>
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</thead>
<tbody>
<tr>
<td>TYPE 2 OR TYPE 3</td>
<td>AGGREGATE BASE COURSE</td>
<td>CLASS 5 OR CLASS 7</td>
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**MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE Culverts**

<table>
<thead>
<tr>
<th>CLASS OF PIPE</th>
<th>INSTALLATION TYPE</th>
<th>MATERIALS REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING</th>
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</thead>
<tbody>
<tr>
<td>TYPE 2</td>
<td>AGGREGATE BASE COURSE</td>
<td>CLASS 5 OR CLASS 7</td>
</tr>
</tbody>
</table>
| TYPE 3        | MATERIALS NOT TO EXCEED 1.0" DIA. 
|               | OR TYPE 1 INSTALLATION MATERIAL |

---

**GENERAL NOTES**

1. Concrete pipe culvert construction shall conform to Arkansas State Highway and Transportation Department standard specifications for highway construction. This construction standard is based on the latest, most recent, and relevant specifications. Any changes made to the standard specifications shall be noted in the plans and specifications.


3. All pipe shall conform to Section 990-6 Circular R.C. PIPE Culverts shall conform to AASHTO M881, Bridge Design Specifications, Fifth Edition, with the current edition.

4. All pipe shall be inspected during construction by a cover sufficient to prevent damage from the passage of equipment.

5. The minimum thickness shall be the outside diameter of the pipe plus 24 inches, the minimum allowable trench shall be the minimum practicable for normal conditions.

6. Multiple pipe culverts shall be installed with a minimum clearance of 24 inches between centers of pipe. Where 24 inches could not be maintained, the pipe must be set in a staggered arrangement.

**NOTES:**

- Minimum materials required shall be placed as directed by the engineer at the ends of the culvert to prevent loss of structural bedding when periodical material is used for structural bedding, and/or backfill.
- Not more than 10 lifting holes may be provided in concrete pipe to facilitate handling. Where pipe will be in a place where workmen's rights are not required, the raised ends should be provided with one lifting hole and, if necessary, a second lifting hole. Cutting or displacement of reinforcement will not be permitted.
- All lifting holes shall be drilled 1½" in diameter. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. A minimum of 1½" in diameter shall be drilled. 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CONSTRUCTION SEQUENCE

1. Place structural backfill and bedding material at grade, do not compact.
2. Install structural backfill bedding outside the middle third of the pipe.
3. Compact area of structural backfill bedding from distance to avoid structural backfill differential.
4. Place pipe inc. 24 inches of 1/3 the size of the pipe.

NOTES:
- STRUCTURAL BACKFILL and STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PROPOSED BID PER LINEAR FOOT OF METAL PIPE.
- INSTALLATION TYPE 2 WILL NOT BE ALLOWED.
- EMBANKMENT AND TRENCH INSTALLATIONS

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION AND APPLICABLE LATER MODIFICATIONS OR ADDENDUMS.
2. ALL PIPE SHALL BE PROTECTED DURING STORAGE AND HANDLING TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
3. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. A MINIMUM TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. METAL PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN CENTER OF PIPE TO STANDARD OIL PIPE LINES OR OTHER MINIMUM CLEARANCE WHERE REQUIRED BY GAS LINES AND/or ELECTRICAL LINES.
5. IMPREGNATED PAINTED PIPE SHALL BE DETERMINED BY THE ENGINEER.
6. METALLIC PIPE CULVERTS ARE CONSTRUCTION AND THE MATERIALS OF THE PIPE CONFORM TO THE REQUIREMENTS OF THE STANDARD PIPE CATEGORIES.
7. WHEN DETERMINED BY THE ENGINEER, UNIMPAINTED PIPE SHALL BE DETERMINED BY THE SPECIFICATION OF THE CONTRACTING ENTITY.
8. WHEN DETERMINED BY THE ENGINEER, UNIMPAINTED PIPE SHALL BE DETERMINED BY THE SPECIFICATION OF THE CONTRACTING ENTITY.
9. THE CONCRETE PIPE CULVERTS SHALL NOT BE INSTALL IN THE SPECIFIED AREA.
10. WHERE THE STANDARD PROTECTION OF 24 INCHES FOR IMPREGNATED PAINTED PIPE IS SPECIFIED, IT IS CHANGED TO 32 INCHES FOR A FULL-HEIGHT CONDITION.
11. METAL PIPE CULVERTS ARE CONSTRUCTION AND THE MATERIALS OF THE PIPE CONFORM TO THE REQUIREMENTS OF THE STANDARD PIPE CATEGORIES.
12. ALL PIPE SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN CENTER OF PIPE TO STANDARD OIL PIPE LINES OR OTHER MINIMUM CLEARANCE WHERE REQUIRED BY GAS LINES AND/or ELECTRICAL LINES.
13. IMPREGNATED PAINTED PIPE SHALL BE DETERMINED BY THE ENGINEER.
14. METALLIC PIPE CULVERTS ARE CONSTRUCTION AND THE MATERIALS OF THE PIPE CONFORM TO THE REQUIREMENTS OF THE STANDARD PIPE CATEGORIES.
15. WHEN DETERMINED BY THE ENGINEER, UNIMPAINTED PIPE SHALL BE DETERMINED BY THE SPECIFICATION OF THE CONTRACTING ENTITY.
16. WHEN DETERMINED BY THE ENGINEER, UNIMPAINTED PIPE SHALL BE DETERMINED BY THE SPECIFICATION OF THE CONTRACTING ENTITY.
17. THE CONCRETE PIPE CULVERTS SHALL NOT BE INSTALL IN THE SPECIFIED AREA.
18. WHERE THE STANDARD PROTECTION OF 24 INCHES FOR IMPREGNATED PAINTED PIPE IS SPECIFIED, IT IS CHANGED TO 32 INCHES FOR A FULL-HEIGHT CONDITION.
MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

<table>
<thead>
<tr>
<th>TRENCH WIDTH</th>
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</thead>
<tbody>
<tr>
<td>&quot;H&quot; &lt; 0' - 0&quot;</td>
</tr>
<tr>
<td>&quot;H&quot; = 0' - 0&quot;</td>
</tr>
<tr>
<td>&quot;H&quot; = 1' - 0&quot;</td>
</tr>
<tr>
<td>&quot;H&quot; = 2' - 0&quot;</td>
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<tr>
<td>&quot;H&quot; = 3' - 0&quot;</td>
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<td>&quot;H&quot; = 4' - 0&quot;</td>
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<tr>
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<tr>
<td>&quot;H&quot; = 7' - 0&quot;</td>
</tr>
<tr>
<td>&quot;H&quot; = 8' - 0&quot;</td>
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</table>

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASABE SPECIFICATION TYPE 1, INSTALLATION SHALL CONFORM TO ASABE-90105 PIPE INSTALLATION SPECIFICATIONS, 6TH EDITION.

2. PLASTIC PIPE LAYOUT DESIGN SHALL CONFORM TO ASABE 90105 PIPE LAYOUT DESIGN SPECIFICATIONS, 5TH EDITION.

3. THE MINIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKABLE MATERIALS ARE PROPERLY AND SAFELY PLACE AND COMPACTION GRADE AND OTHER BACKFILL MATERIAL.

4. MATERIALS MATERIALS SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE DESIGN OF THE CONTRACT TO PREVENT LOSS OF STRUCTURAL BENDING WHEN PERIODIC MATERIAL IS USED FOR STRUCTURAL BENDING AND OR BACKFILL.

5. WHEN DIRECTED BY THE ENGINEER-COMPLIANT MATERIAL SHALL BE DEPOSITED AT THE BOTTOM OF THE EXCAVATED TRENCH FOR AND THE MATERIAL SHALL BE DEPOSITED IN SUCH A MANNER AS TO PROVIDE A SURFACE FOR THE LAYERS TO BE BUILT UP TO THE ELEVATION OF THE EXCAVATION.

6. WHEN THE MATERIALS EXCAVATED FOR THE TRENCH IS INCLUDED IN THE CONTRACT TO PROVIDE A SURFACE FOR THE APPROPRIATE AS DIRECTED BY THE ENGINEER-RECOMMENDED MATERIAL IS TO BE COMPACTION GRADE AND OR BACKFILL.

7. FOR PIPE TYPES THAT ARE NOT TO BE SUPPORTED ON THE OUTSIDE CORRECTED BY PROFIL E BY THE DESIGNER, THE PIPES SHALL BE SUPPORTED ON THE DESIGN.

8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.

9. JOINTS FOR HPD PIPE SHALL MEET THE REQUIREMENTS FOR STRUCTURAL EALY AS SPECIFIED IN ASABE SECTION 26.2.A.4 AND ASABE-90105 PIPE INSTALLATION SPECIFICATIONS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BENDING MATERIAL TO GRADE, DO NOT COMPACT.

2. INSTALL PIPE TO GRADE.

3. COMPACT STRUCTURAL BENDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.

4. THE STRUCTURAL BENDING SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8" LAYER SHALL BE BUILT UP TO THE ELEVATION OF THE MINIMUM COVER.

5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, MOLDING, OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ELEMENTS.

- LEGEND -

H = FILL HEIGHT "H"
M = OUTSIDE DIAMETER OF PIPE MAX. = MAXIMUM
W = MINIMUM

ARASHDANA STATE HIGHWAY COMMISSION PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)
STANDARD DRAWING PCP-1

DATE
REVISION
DATE FILMED
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS

VERTICAL WALL ABUTMENTS

SPILL-THROUGH END BENTS WITH STUB WING

SPILL-THROUGH END BENTS WITH TURNBACK WING

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 and including around the end of wingwalls. Embankment adjacent to structures shall be constructed in such manner that slopes and transitions are connected to the use on the embankment. Subsections 30.08, 30.10 and 80.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK

DRAWN BY: 
CHECKED BY: FILLER 15000.001
DESIGNED BY: FILLER 15000.001

DRAWING NO: 55000

SCALE: NO SCALE
GENERAL NOTES

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


DESIGN SPECIFICATIONS: See Bridge Layouts.

SUPERSTRUCTURE NOTES:

MATERIAL AND STRENGTH:

<table>
<thead>
<tr>
<th>Class 500/1000 Concrete</th>
<th>Reinforced Concrete</th>
<th>Structural Steel</th>
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<tbody>
<tr>
<td>F1 = 4,000 psi</td>
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<td>F3 = 8,000 psi</td>
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<td>Fy = 52,000 psi</td>
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<tr>
<td>F4 = 8,000 psi</td>
<td>Fy = 70,000 psi</td>
<td>Fy = 52,000 psi</td>
</tr>
<tr>
<td>F5 = 8,000 psi</td>
<td>Fy = 70,000 psi</td>
<td>Fy = 52,000 psi</td>
</tr>
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See Plan Details for Grade and Type of Structural Steel required.

CONCRETE:

All concrete shall be Class 500/1000 with a minimum 28-day compressive strength Fc = 4,000 psi. Concrete shall be poured in the dry and all exposed concrete shall be chambered 11°F unless otherwise noted.

The superstructure details shown are for use when removable deck forming is used and are the tools for measurement of Class 500/1000 concrete. See StandardDrawing No. 51505 for details on modifications and for tolerances when permanent steel bridge deck forms are used.

Use of a longitudinal steel is not permitted on any span of a bridge deck with horizontal corbels.

The concrete deck roadway surface shall be given a fine finish in accordance with Subsection 802.29. For Sealed Type 4 Roadway Surface Finish, sidewalks shall be provided for any and all exposed surfaces shall be cleared in accordance with Subsection 802.18.

Streets and sidewalks shall be constructed to the allowable propinquity of the prevailing and runoff requirements. A part of the streets and sidewalks shall be cleared in accordance with Subsection 802.18.

Streets and sidewalks shall be allowed for any buildings near the limits of the street and sidewalk and shall be provided for the maintenance of the streets and sidewalks.

For additional information and notes, see layout plans and plan details.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns, and foundations except seat footings shall be Class 500 with a minimum 28-day compressive strength Fc = 5,000 psi. All concrete shall be poured in the dry.Seats for concrete foundations and seat footings shall have a minimum 30-day compressive strength Fc = 2,000 psi.

Concrete in drilled shafts shall be Class 500 as modified by Job Site Drilled Shaft Foundation. All exposed corners shall be chambered 11°F unless otherwise noted.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 3 or M 316, Type A with all 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 cap shall be AASHTO M 270 with grade and position as specified in the plan.

For additional information and notes, see layout plans and plan details.

STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, AR

DRAWN BY: AK194, Date: 3-23-2022

REVISED BY: AK194, Date: 3-23-2022

DESIGNED BY: J.D.U., Scale: 1"=20'0"

DRAWING NO: 55006

MATERIALS AND STRENGTH:

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

STRUCTURAL STEEL:

Structural steel in cap shall be AASHTO M 270 with grade and position as specified in the plan.

For additional information and notes, see layout plans and plan details.