MID-POINT 0.262 MILES ENGR & CONST 23+25.50 TARK. LITTLE MILES

70 CRITTENDEN

LATITUDE 40' CLEAR ROADWAY 134'-0" COMPOSITE W-BEAM UNIT
BRIDGE NO. 07387 STA. 21+85.20 BRIDGE END

BRIDGE CONSTRUCTION DATA

1. STA. 21+85.20 BRIDGE END
   BRIDGE NO. 07387
   134'-0" COMPOSITE W-BEAM UNIT
   40' CLEAR ROADWAY
   136'-2" BRIDGE LENGTH
   STA. 23+21.37 BRIDGE END

MHW 165 PROJECT COORDINATES

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GROSS LENGTH OF PROJECT 1916.00 FT OR 0.286 MILES

NET LENGTH OF ROADWAY 1382.83 FT OR 0.262 MILES

NET LENGTH OF BRIDGE 136.17 FT OR 0.028 MILES

NET LENGTH OF PROJECT 1916.00 FT OR 0.286 MILES

JOB 061473

 сказал не что
INDEX OF SHEETS

1. GENERAL ENGINEERING SERVICES, AND GENERAL NOTES

2. SPECIAL NOTES

3. GENERAL ENGINEERING SERVICES

4. SPECIFIC COMPANY NOTICES

5. TYPICAL兩個 OF IMPROVEMENT

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10. DEPARTMENT NAME CHANGE

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13. TENDERED BIDS

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15. DESCRIPTION OF WORK

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35. ISSUANCE OF AGREEMENTS

36. TENDERING CONDITIONS

37. TENDERED BIDS

38. SPECIAL CONDITIONS

39. DESCRIPTION OF WORK

40. SPECIFICATIONS

INDEX OF SHEETS, GOV. SPECS. & GEN. NOTES

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

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

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

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

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

5. 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 INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE harmed as little as possible DURING THE CONSTRUCTION OPERATIONS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE harmed as little as possible DURING THE CONSTRUCTION OPERATIONS.

7. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS AS A GENERAL OUTLINE FOR THE NEXT STAGE OF THE CONSTRUCTION REQUIRED, MAY BE CONSTRUCTED AS IT MAY BE APPROPRIATED BY THE ENGINEER.


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

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

11. ALL EARTH, SOIL AND ROCK NOT TO BE REMOVED FROM THE SITE, SHALL BE MOVED BY THE EFFECTIVE MILEMARK, AS DIRECTED BY THE ENGINEER, AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.

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

13. 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.

14. GRADE LINE NOTES ARE NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE harmed as little as possible DURING THE CONSTRUCTION OPERATIONS.

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17. GRADE LINE NOTES ARE NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

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19. GRADE LINE NOTES ARE NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

**TYPICAL ROADWAY SECTION**

**STA. 17+29.00 TO 21+85.20**

**STA. 23+21.37 TO 29+21.00**

**STA. 15+66.00 TO 17+29.00**

**STA. 29+21.00 TO 30+85.00**

**NOTES:**

Refer to Cross sections for deviations from the normal slopes. No changes shall be made from the planned slopes without the approval of the engineer.

The thicknesses of the aggregate base course shall be within plus or minus 1/2" 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" (50mm) of surface course is to be placed after all other courses have been laid. Longitudinal joints shall be at lane lines.
STA. 13+17.10 TO 17+90.42

TYPICAL DETOUR SECTION - NORMAL CROWN
STA. 13+17.10 TO 17+90.42
STA. 27+23.06 TO 32+84.43

NOTES:

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

THE THICKNESS OF THE AGGREGATE BASE COURSE SHALL BE BETWEEN PLUS OR MINUS 1" OF THE THICKNESS OF THE AGGREGATE BASE COURSE. 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.

TYPICAL DETOUR SECTION - SUPERELEVATION
STA. 17+90.42 TO 27+23.06

TYPICAL SECTION OF IMPROVEMENT
TYPICAL CANAL SECTION STA. 143+38.00 TO 144+62.00

TYPICAL CANAL SECTION STA. 142+50.00 TO 143+38.00 & STA. 144+62.00 TO 146+50.00

COMPACTED RANDOM FILL

EXCAVATION GRADE

EXISTING GRADE

1' COMPACTED CLAY LINER FILL

EXCAVATION GRADE

TYPICAL SECTIONS OF IMPROVEMENT
FOR INSTALLATION OF SIPHONS.

3. ALL STOCKPILES MUST BE A MINIMUM OF 40' FROM TEMPORARY EXCAVATION SLOPES THAT ARE REQUIRED LOOSELY PLACED.

1. BEDDING: CLASS 5 OR 7 AGGREGATE SHOULD BE USED. 18" OF BEDDING BENEATH THE PIPE INVERT SHALL BE

NOTE:

SPECIAL DETAILS

EXISTING GRADE

SIPHON AT CANAL 1000 C/L STA. 142+96.00

36" R.C.P.P.

CANAL BOTTOM FINISHED GRADE

CLASS 5 OR 7 AGGREGATE

SIPHON TYPICAL SECTION

N.T.S.
NOTES:

1. This detail to be used only where directed by the engineer.

2. Quantities for method of grade raise using asphalt were calculated on this project at locations where the distance between the existing asphalt roadway and the proposed subgrade was one foot or less.

3. In locations where the distance between the proposed subgrade and the existing asphalt roadway is more than one foot, scarification of the existing asphalt roadway will be required as stated in Section 210. Subsection 210.09 of the standard specifications.

**TYPICAL SECTION OF IMPROVEMENT**

- **(VAR. DEPTH) (MAX. 1'-7") & TACK COATS**

**24'-0" EXISTING PAVEMENT**

**METHOD OF RAISING GRADE**

- **TO BE REPLACED WITH ACHM BASE COURSE (1'-6")**

**DETAIL FOR CANAL ACCESS**

**DETAIL FOR CANAL TO HWY ACCESS**

**DETAIL FOR MILLED TRANSITION TO EXISTING PAVEMENT**

**COLD MILLED SECTION**

- **100' TRANSITION LENGTH**

**DETAIL FOR DRIVEWAY ACCESS**

**DETAIL FOR APPROACH SLAB BEDDING**

**DETAIL FOR CANAL ACCESS TURNOUT**

**SPECIAL DETAILS**
GENERAL NOTES

1. Rumble strips shall not be installed on curb sections, bridge decks, approach slabs, intersecting streets or roadways, residential or commercial driveways or across transverse joints of concrete shoulders.

2. Rumble strips shall not be installed on a paved shoulder that is used as a deceleration lane for the length deemed appropriate by the engineer.

3. The 4" offset from the edge line may be increased to avoid longitudinal joints. In all cases, the lateral deviation from the planned offset should be kept to a minimum.

4. Rumble strips shall be measured by the linear foot longitudinally along the shoulder. Payment shall only include that portion of the shoulder on which rumble strips have been constructed. No measurement or payment will be made for gaps, driveways, turnouts, or other public road intersections where rumble strips have not been constructed.

5. The 1/4" depth shall generally apply for the entire 12" length. Some variation to suit shoulder slope breaks may be necessary.

NOTE: Gap pattern shall be adjusted by the engineer in the field allowing for driveways to serve as the gap.

DETAIL FOR GAP PATTERN RUMBLE STRIP
CONSTRUCTION GRADE

COMPACTED RANDOM FILL

EXISTING EMBANKMENT SECTION

EXCAVATION LINE

EXISTING GROUNDLINE

DETAIL A

NOT TO SCALE

CONSTRUCTION GRADE

EMBANKMENT CROWN

EXISTING GROUND LINE

EXCAVATION LINE

COMPACTED RANDOM FILL

EXISTING EMBANKMENT SECTION

EMBANKMENT CROWN

EXISTING GROUND LINE

EXCAVATION LINE

PREVIOUSLY EXISTING EMBANKMENT SECTION

END OF PREVIOUSLY BUILT SECTION

NEW EMBANKMENT SECTION

SECTION TIE-IN

LINE FOR EXCAVATION

BENCHING

EXISTING GROUND LINE

CONSTRUCTION GRADE

BONDING OF LAYERS.

PRIOR TO NEW LIFT PLACEMENT IN ORDER TO ENSURE PROPER SCARIFY OR ROUGHEN THE SURFACE OF EACH PREVIOUS LIFT 3. SMOOTH SURFACES ARE NOT ALLOWED BETWEEN LIFTS.

EMBANKMENT.

CONCURRENTLY WITH A BENCH ON THE UPSTREAM EMBANKMENT MAY BE CONSTRUCTED EMBANKMENT SLOPE AT ANY ONE TIME. A BENCH ON THE STEEPER THAN 1V:10H.

1. BENCHING DETAIL "A" IS REQUIRED FOR AREAS DESIGNATED FOR COMPACTED RANDOM EMBANKMENT FILL WHERE THE SLOPE IS STEEPER THAN 1V:10H.

2. NO MORE THAN ONE BENCH IS PERMITTED ON THE EMBANKMENT CROWN AT ANY ONE TIME. A BENCH ON THE EMBANKMENT CROWN MAY BE CONSTRUCTED ALONG WITH A BENCH ON THE PREVIOUSLY BUILT EMBANKMENT CROWN OR WITH A BENCH ON THE UPSTREAM EMBANKMENT.

3. SMOOTH SURFACES ARE NOT ALLOWED BETWEEN LIFTS PRIOR TO NEW LIFT PLACEMENT IN ORDER TO ENSURE PROPER BONDING OF LAYERS.

END SECTION- RANDOM FILL BENCHING DETAIL

HALF CANAL PROFILE ISOMETRIC

NOT TO SCALE

DETAIL B

NOTES:

1. THE ELEVATION OF THE CANAL EMBANKMENT SHALL HAVE BEEN REACHED FULL DESIGN HEIGHT BEFORE PREPARATION OF THE CLAY LINER FOUNDATION AND SUBSEQUENT PLACEMENT OF FILL. SHAL.

2. THE ENTIRE SURFACE ON OR AGAINST WHICH THE CLAY LINER SHALL BE PLACED AGAINST THE EMBANKMENT CROWN SHALL BE SMOOTH. EACH CLAY LINER LIFT SHALL BE PLACED FROM EMBANKMENT CROWN TO CROWN PRIOR TO COMPACTION. ALL LIFTS SHALL BE COMPACTED IN PASSES MADE PERPENDICULAR TO THE CANAL CENTERLINE.

3. EACH CLAY LINER LIFT SHALL BE PLACED FROM EMBANKMENT CROWN TO CROWN PRIOR TO COMPACTION. ALL LIFTS SHALL BE COMPACTED IN PASSES MADE PERPENDICULAR TO THE CANAL CENTERLINE.

4. THE CONTRACTOR SHALL AVOID CREATING SEAMS IN THE CLAY LINER FOUNDATION AND SUBSEQUENT PLACEMENT OF FILL. SEAM IS CONSTRUCTED PERPENDICULAR TO THE CANAL CENTERLINE.

5. SMOOTH SURFACES ARE NOT ALLOWED BETWEEN LIFTS.

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NOT TO SCALE

DETAIL B

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END SECTION- RANDOM FILL BENCHING DETAIL

HALF CANAL PROFILE ISOMETRIC

NOT TO SCALE

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4. THE CONTRACTOR SHALL AVOID CREATING SEAMS IN THE CLAY LINER FOUNDATION AND SUBSEQUENT PLACEMENT OF FILL. SEAM IS CONSTRUCTED PERPENDICULAR TO THE CANAL CENTERLINE.

5. SMOOTH SURFACES ARE NOT ALLOWED BETWEEN LIFTS.
1. Contractor shall place Sandbag Ditch Check (E-5) every 400' for ditch slopes greater than 1% and 150' spacing for ditch slopes greater than 1%.

2. Contractor shall place Sediment Basin (E-14) at oUTFALL locations where water slopes less than 1%. Ditch slopes greater than 1% shall receive 150' spacing.

**TYPICAL EROSION CONTROL PRACTICE:**

Sediment Basins (E-14) are to be placed at all locations where water is discharging into a stream or offrow. Sandbag Ditch Checks (E-5) are to be placed every 400' for ditch slopes greater than 1% and 150' spacing for ditch slopes greater than 1%.

**SILT FENCE LEGEND:**

- C-9: Sandbag Ditch Check
- C-10: SilT Fence
- C-14: Sediment Basin

**TYPICAL EROSION CONTROL DETAILS:**

- Plan - Stage 1
- Temporary Erosion Control
- Proposed R/W

**DATE OF REVISION**

**REVISION**

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**TEMPORARY EROSION CONTROL PLAN - STAGE 1**
1. Contractor shall place sandbag ditch check (E-5) every 400' for ditch STA 13+71.13 to 20+00.
2. Contractor shall place sediment basin (E-14) at outfall locations where water is discharging into a stream or off row.

**Temporary Erosion Control Details**

**TIC Devices Legend**
- E-5: Sandbag Ditch Check
- E-11: SLT Fence
- E-14: Sediment Basin

**TYPICAL EROSION CONTROL PRACTICE**

*E-5: Sandbag Ditch Check*

A temporary method used for erosion control purposes. Sandbags are placed along the ditch to prevent water flow and minimize erosion.

**TYPICAL EROSION CONTROL DEVICES LEGEND**

- **E-5**: Sandbag Ditch Check
- **E-11**: SLT Fence
- **E-14**: Sediment Basin

**REVISIONS**

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**Temporary Erosion Control Plan - Stage 2**
Revisions:

Date of Revision | Revision
--- | ---

Temporary Erosion Control Details:

1. The contractor shall place Sanbag Ditch Check (E-5) every 400' for ditch typical erosion control practice.

2. The contractor shall place Sediment Basin (E-14) at oUTFALL locations where water slopes less than 1%. Ditch slopes greater than 1% shall receive 150' spacing.

Job No. 061473

Beginning Sta: 15+66.00

Ending Sta: 30+85.00

Arkansas licensed professional engineer
No. 21103

Temporary Erosion Control Details

Plan - Stage 3
MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION

STAGE 1
SHIFT TRAFFIC TO DETOUR
CONSTRUCT DETOUR

STAGE 2
SHIFT TRAFFIC TO MAIN LANE
REMOVE DETOUR
FINISH LIFT OF SURFACE
FINISH CANAL

STAGE 3
SHIFT TRAFFIC TO DETOUR
CONSTRUCT DETOUR

NOTE: ADVANCE WARNING SIGN CONSTRUCTION SEQUENCE

THE ENGINEER.
WHERE, DIRECTED BY
PROVIDE 2 DO NOT PASS SIGNS.
NOTE: ADVANCE WARNING SIGNS, DO NOT PASS, AND END ROAD WORK
MAINTAIN TRAFFIC ON EXISTING CENTERLINE.

CONTRACTOR SHALL COORDINATE AND POST THE TEMPORARY SPEED LIMIT AS DIRECTED BY THE ENGINEER.

FINISH CANAL
FINAL STRIPING
INSTALL FINAL LIFT OF SURFACE
REMOVE DETOUR
SHIFT TRAFFIC TO MAIN LANES

STAGE 2
CONSTRUCT DETOUR
TRAFFIC ON EXISTING ROAD

STAGE 1
SEQUENCE OF CONSTRUCTION

CONTINUATION OF EXISTING ROAD
CONSTRUCT DETOUR

DETOUR
END DETOUR JOB 061473
STA. 32+84.43
END DETOUR JOB 061473
STA. 30+85.00
END DETOUR JOB 061473
STA. 15+66.00
END DETOUR JOB 061473
STA. 13+71.00
BEGIN DETOUR JOB 061473
STA. 30+85.00
BEGIN DETOUR JOB 061473
STA. 32+84.43
BEGIN DETOUR JOB 061473
STA. 15+66.00
BEGIN DETOUR JOB 061473
STA. 13+71.00

DETAIL FOR
STAGE 1 TRAFFIC

ADVANCE WARNING SIGNS

THE ENGINEER.
WHERE, DIRECTED BY
PROVIDE 2 CLOSED SIGNS.
NOTE: CLOSED SIGNS, IF AND WHERE DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL COORDINATE AND POST THE TEMPORARY SPEED LIMIT AS DIRECTED BY THE ENGINEER.

FINISH CANAL
FINAL STRIPING
INSTALL FINAL LIFT OF SURFACE
REMOVE DETOUR
SHIFT TRAFFIC TO MAIN LANES

STAGE 2
CONSTRUCT DETOUR
TRAFFIC ON EXISTING ROAD

STAGE 1
SEQUENCE OF CONSTRUCTION

CONTINUATION OF EXISTING ROAD
CONSTRUCT DETOUR

DETOUR
END DETOUR JOB 061473
STA. 32+84.43
END DETOUR JOB 061473
STA. 30+85.00
END DETOUR JOB 061473
STA. 15+66.00
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STA. 15+66.00
BEGIN DETOUR JOB 061473
STA. 13+71.00

DETAIL FOR
STAGE 1 TRAFFIC

ADVANCE WARNING SIGNS

THE ENGINEER.
WHERE, DIRECTED BY
PROVIDE 2 CLOSED SIGNS.
NOTE: CLOSED SIGNS, IF AND WHERE DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL COORDINATE AND POST THE TEMPORARY SPEED LIMIT AS DIRECTED BY THE ENGINEER.
STAGE 1
CONSTRUCTION PAVEMENT MARKINGS (MAIN LINES)
STA 13+00 - STA 17+00 = 400 LIN. FT.
STA 29+00 - STA 33+00 = 400 LIN. FT.

STAGE 1
TRAFFIC ON EXISTING ROAD
CONSTRUCT DETOUR

STAGE 2
SHIFT TRAFFIC TO DETOUR
TEAR DOWNSIGNALS
CONSTRUCT THE DETOUR AND MAIN LINES
INSTALL FINAL LIFT OF SURFACE
FINAL STRIPING

STAGE 3
SHIFT TRAFFIC TO MAIN LINES
REPLACE DETOUR
INSTALL FINAL LIFT OF SURFACE
FINAL STRIPING
FINISH CANAL

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

(7) VERTICAL PANELS
SPACED EVERY 45'

(3) TRAFFIC DRUMS

ROAD CLOSED

(3) TRAFFIC DRUMS

RUN 111 BARRICADE ROAD Closure
5' GAP, TYPE III RT

FINISH CANAL
FINAL STRIPING
INSTALL FINAL LIFT OF SURFACE
CONSTRUCT THE BRIDGE AND MAIN LINES
CONSTRUCT THE CANAL
SHIFT TRAFFIC TO DETOUR

SEQUENCE OF CONSTRUCTION

BEGIN DETOUR JOB 061473
STA. 13+71.10

END DETOUR JOB 061473
STA. 32+84.43

STA. 13+00 - STA. 17+00 = 400 LIN. FT.
STA. 29+00 - STA. 33+00 = 400 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS (MAIN LINES)

14" GAP, TYPE III RT

MAINTENANCE OF TRAFFIC DETAILS

STATE SHEET NO. 14
TOTAL SHEETS 100
DATE REVISED
FILMED DATE
FED. AID PROJ. NO.
FED. RD.
DIST. NO.
JOB NO. 061473
6 ARK.

MARRIAGE OF TRAFFIC DETAILS
**MMA 165 BRIDGE 015**

**STATE SHEET NO.**

**TOTAL SHEETS**

**DATE REVISED**

**FILMED DATE**

**FED. AID PROJ. NO.**

**FED. RD. DIST. NO.**

**JOB NO.** 061473

---

**Type III Barricade Road Closure**

**Closed Road**

48" x 30" R11-2

48" x 24" W1-6

18" x 24" W1-8

---

**Pavement Markings Removal of Permanent**

36" x 36" W2-4 1R

18" x 18" W13-1P

---

**Detour Job 061473**

**Begin Detour** STA. 13+71.10

**End Detour** STA. 32+84.43

---

**Sequence of Construction**

**Stage 1**

Traffic on Existing Road

Construct Detour

**Stage 2**

Shift Traffic to Detour

Construct the Canal

Construct the Bridge and Main Lanes

Install final lift of surface

Final striping

**Stage 3**

Shift Traffic to Main Lanes

Remove Detour

Install Final Lift of Surface

Finish Canal

---

**Stage 2**

Maintenance of Traffic Details

---

**Professional Engineer**

**License No. 21103**

**Arkansas State Board of Highway Engineers**

**No. 21103**

---

**Arkansas Department of Transportation**

**MMA 165 BRIDGE 015**

**Type III Barricade Road Closure**

**Closed Road**

48" x 30" R11-2

48" x 24" W1-6

18" x 24" W1-8

---

**Pavement Markings Removal of Permanent**

36" x 36" W2-4 1R

18" x 18" W13-1P

---

**Detour Job 061473**

**Begin Detour** STA. 13+71.10

**End Detour** STA. 32+84.43

---

**Sequence of Construction**

**Stage 1**

Traffic on Existing Road

Construct Detour

**Stage 2**

Shift Traffic to Detour

Construct the Canal

Construct the Bridge and Main Lanes

Install final lift of surface

Final striping

**Stage 3**

Shift Traffic to Main Lanes

Remove Detour

Install Final Lift of Surface

Finish Canal

---

**Stage 2**

Maintenance of Traffic Details

---

**Professional Engineer**

**License No. 21103**

**Arkansas State Board of Highway Engineers**

**No. 21103**

---

**Arkansas Department of Transportation**
MAINTENANCE OF TRAFFIC DETAILS

Sequencing of Construction:

Stage 1:
- Traffic on existing road
- Construct detour

Stage 2:
- Shift traffic to detour
- Construct the bridge and main lanes
- Install final lift of surface
- Final striping

Stage 3:
- Shift traffic to main lanes
- Remove detour
- Install final lift of surface
- Final striping
- Finish canals

BEGIN DETOUR JOB 061473
STA. 13+71.10

(7) Vertical Panels Spaced Every 45°

(3) Traffic Drums

ROAD CLOSED 16'-3" X 10" 48" X 30" R11-2

(7) Vertical Panels Spaced Every 45°

END DETOUR JOB 061473
STA. 32+84.43

(3) Traffic Drums

ROAD CLOSED 16'-3" X 10" 48" X 30" R11-2

Arkansas State Sheet No. 16

Professional Engineer
No. 21103

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 21103

6/15/2022

MAINTENANCE OF TRAFFIC DETAILS
BEGIN JOB 061473
STA 15+66.00

PERMANENT PAVEMENT MARKING DETAILS

STA 15+66.00
6" WHITE
DBL. YELLOW 6"

STA 30+85.00
6" DBL. YELLOW CENTERLINE = 3860 LIN. FT.
6" WHITE EDGE LINE = 3860 LIN. FT.

STA 13+70 TO STA 33+00
RAISED PAVEMENT MARKERS
6" DBL YELLOW CENTERLINE = 3860 LIN. FT.

STA 13+70 TO STA 33+00
THERMOPLASTIC PAVEMENT MARKINGS:
MARKING TRANSITION
100' PAVEMENT MARKING TRANSITION
100' PAVEMENT MARKING TRANSITION
ASPH. TRANSITION
100' VERTICAL
560.78'
203'
136.5'
619.02'

FINISH CANAL
FINAL STRIPING
INSTALL FINAL LIFT OF SURFACE
REMOVE DETOUR
SHIFT TRAFFIC TO MAIN LANES

SEQUENCE OF CONSTRUCTION
STAGE 1
SHIFT TRAFFIC TO DETOUR
CONSTRUCT THE SHOULDER AND MAIN LINES
FINISH TRAFFIC OUT OF SURFACE
CONSTRUCT THE CANAL

STAGE 2
CONSTRUCT DETOUR
TRAFFIC ON EXISTING ROAD

STAGE 3
CONSTRUCT THE BRIDGE AND MAIN LANES
CONSTRUCT THE CANAL
SHIFT TRAFFIC TO DETOUR

NOTE:
The 6" yellow striping quantity has been estimated based on a double yellow centerline stripe for the entire project. The 6" yellow centerline marking was placed to mark the road to ensure proper traffic flow and safety. The quantity listed is for the entire project.

THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE 6" YELLOW CENTERLINE MARKING WAS PLACED TO MARK THE ROAD TO ENSURE PROPER TRAFFIC FLOW AND SAFETY. THE QUANTITY LISTED IS FOR THE ENTIRE PROJECT.

PERMANENT PAVEMENT MARKING DETAILS
### CCLD Milling Asphalt Pavement

<table>
<thead>
<tr>
<th>Length (ft)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Horizontal Milling 100 ft</td>
</tr>
</tbody>
</table>

### Advance Warning Signs and Devices

<table>
<thead>
<tr>
<th>Number</th>
<th>Size</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Maximum Number Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>W20-1</td>
<td>48x48</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>W20-2</td>
<td>48x48</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

### Asphalt Concrete Patching for Maintenance 3 Traffic

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>TON</th>
<th>Tackcoat (gal.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tackcoat</td>
<td></td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

### Rumble Strips in Asphalt Shoulders

<table>
<thead>
<tr>
<th>Description</th>
<th>Length (ft)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumble Strip</td>
<td>2000</td>
<td></td>
</tr>
</tbody>
</table>

### Milling Placement Locations

124 CLEAR LAKE RD., ENGLAND, AR 72046

**NOTE:** AVERAGE MILLING DEPTH 1'.
### Dumped Riprap and Filter Blanket

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Filter Blanket Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Project</td>
<td>To be used if and where directed by the engineer</td>
<td>25</td>
</tr>
</tbody>
</table>

**Note:** Quantities are estimated. See Section 104.03 of the Standard Specifications. Note: Filter blanket shall be geotextile fabric (type 5).

### Concrete Ditch Paying

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Width</th>
<th>Long Ditch Markers</th>
<th>Solid Sodding</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>2143-02</td>
<td>LT. CENTER</td>
<td>15.00</td>
<td>6.00</td>
<td>42/27</td>
<td>26.50</td>
<td>0.20</td>
</tr>
<tr>
<td>2143-03</td>
<td>LT. CENTER</td>
<td>15.00</td>
<td>6.00</td>
<td>42/27</td>
<td>26.50</td>
<td>0.20</td>
</tr>
<tr>
<td>2143-04</td>
<td>LT. CENTER</td>
<td>15.00</td>
<td>6.00</td>
<td>42/27</td>
<td>26.50</td>
<td>0.20</td>
</tr>
</tbody>
</table>

**Total:** 175.91 m | 112.29 m | 1.60 m

**Note:** Basis of estimate: Water... 12.6 gal./yd. of solid sodding.

### Driveways & Turnouts

**Note:** Quantities are estimated. See Section 104.03 of the Std. Specs.

### Soil Log

<table>
<thead>
<tr>
<th>Station</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Location</th>
<th>Depth</th>
<th>Liquid Limit</th>
<th>Plasticity Index</th>
<th>Atterberg Classification</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947-01</td>
<td>34 41.3</td>
<td>92 5.2</td>
<td>OL. ROAD</td>
<td>5.25</td>
<td>25</td>
<td>5</td>
<td>AS-33</td>
<td>BR</td>
</tr>
<tr>
<td>1947-02</td>
<td>34 41.3</td>
<td>92 5.2</td>
<td>OL. ROAD</td>
<td>5.25</td>
<td>25</td>
<td>5</td>
<td>AS-33</td>
<td>BR</td>
</tr>
</tbody>
</table>

**Note:** Soil characteristics tabulated above are representative at the location of the sample, and from surface indications are typical for the limits of the sample, and from surface indications are typical for the limits of the sample. Note: For R.C. Pipe Culvert Installations use Type 3 Bedding unless otherwise specified.

### Approach Gutters and Slabs

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Approach Gutter (Type C)</th>
<th>Approach Slabs</th>
<th>Reinforcing Steel-Roy (Gr. 46)</th>
<th>Aggregate Base CRS (Class 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2143-01</td>
<td>LT. CENTER</td>
<td>APPROACH GUTTER ONLY</td>
<td>APPROACH SLABS</td>
<td>14.00</td>
<td>118</td>
</tr>
<tr>
<td>2143-02</td>
<td>LT. CENTER</td>
<td>APPROACH GUTTER ONLY</td>
<td>APPROACH SLABS</td>
<td>14.00</td>
<td>118</td>
</tr>
<tr>
<td>2143-03</td>
<td>LT. CENTER</td>
<td>APPROACH GUTTER ONLY</td>
<td>APPROACH SLABS</td>
<td>14.00</td>
<td>118</td>
</tr>
</tbody>
</table>

**Total:** 55.00 m | 30.30 m | 1660.04 m | 126.00 m

**Note:** Quantities are estimated. See Section 104.03 of the Std. Specs.

### Erosion Control

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Temporary Erosion Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Project</td>
<td>NORTH LANE</td>
<td>Acme Tons</td>
</tr>
<tr>
<td>Entire Project</td>
<td>SOUTH LANE</td>
<td>0.50</td>
</tr>
</tbody>
</table>

**Note:** The temporary erosion controls, 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.

- **ACME TON**: 0.50 T. ACME WOOD
- **MULCH COVER WATER**: 2.00 M.G./YD. OF TEMPOORARY SEEDING
- **SAND BAG DITCH CHECKS**: 3.00 STAGES LOCATION
- **ROCK DITCH CHECKS**: 3.00 STAGES LOCATION

**Note:** The temporary erosion controls, 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

- **Total**: 175.91 m (1.60 m)
**BASE AND SURFACING**

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>AVERAGE BASE COURSE (T)</th>
<th>ACHM BINDER COURSE (T)</th>
<th>RUSSELL PIPE COURSE (T)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(CUB. YD. PER SQ. YD.)</td>
<td>(CUB. YD. PER SQ. YD.)</td>
<td>(CUB. YD. PER SQ. YD.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BASIS OF ESTIMATE:**

See Section 104-03 of the Standard Specifications

*Quantities are estimated. See Section 104-50 of the Standard Specifications.*
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Structure...</th>
<th>Material</th>
<th>Type</th>
<th>Description</th>
<th>Units</th>
<th>Rate</th>
<th>Quantity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>...</td>
<td>Steel</td>
<td>Beam</td>
<td>Bridge Deck</td>
<td>ft</td>
<td>100</td>
<td>100</td>
<td>1000</td>
</tr>
<tr>
<td>2</td>
<td>...</td>
<td>Concrete</td>
<td>Slab</td>
<td>Bridge Deck</td>
<td>yd³</td>
<td>50</td>
<td>50</td>
<td>2500</td>
</tr>
</tbody>
</table>

**NOTE:**
- All figures are approximate and subject to change based on site conditions.
- Quality control measures have been incorporated to ensure accuracy and compliance with regulations.

**QUALITY CONTROL**
- Regular inspection during construction.
- Testing of materials and workmanship.
- Compliance with engineering standards.

**SCHEDULE OF BRIDGE QUANTITIES**

---

**SURFACE TREATMENT DETAIL**
- Complete surface treatment is required to prevent rust and prolong bridge lifespan.
- Application of primer and final coat of paint to ensure durability.

---

**HIGHWAY NO.**
- Job No. 06473
- Location: Arkadelphia, Arkansas

**BRIDGE NO.**
- Over: Canal 1000

---

**STRUCTURE: BRIDGE**
- Design specifications for aesthetic and functional enhancement.
- Engineering calculations have been performed to ensure structural integrity.

---

**ACKNOWLEDGMENTS**
- Acknowledgment of partners and contributors.
- Thank you to all involved in the construction process.
### SUMMARY OF QUANTITIES (BOX 1 OF 2)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unclassified Excavation</td>
<td>21436</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Compacted Embankment</td>
<td>27267</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Compacted Embankment (Clay Liner)</td>
<td>4690</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Soil Stabilization</td>
<td>100</td>
<td>ton</td>
</tr>
<tr>
<td>Aggregate Base Course (Class 7)</td>
<td>6871</td>
<td>ton</td>
</tr>
<tr>
<td>Tack Coat</td>
<td>1101</td>
<td>gal</td>
</tr>
<tr>
<td>Mineral Aggregate in ACHM Binder (Class 1)</td>
<td>990</td>
<td>ton</td>
</tr>
<tr>
<td>Asphalt Binder (PQ-64-22) in ACHM Binder (Class 1)</td>
<td>43</td>
<td>ton</td>
</tr>
<tr>
<td>Mineral Aggregate in ACHM Surface Course (12&quot;)</td>
<td>2678</td>
<td>ton</td>
</tr>
<tr>
<td>Asphalt Binder (PQ-64-22) in ACHM Surface Course (12&quot;)</td>
<td>144</td>
<td>ton</td>
</tr>
<tr>
<td>Cold Milling Asphalt Pavement</td>
<td>204</td>
<td>sq. yd</td>
</tr>
<tr>
<td>Asphalt Concrete Patching for Maintenance of Traffic</td>
<td>7</td>
<td>ton</td>
</tr>
<tr>
<td>ACH Patching of Existing Roadway</td>
<td>100</td>
<td>ton</td>
</tr>
<tr>
<td>Approach Slabs</td>
<td>98.3</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Approach Gutters</td>
<td>59.60</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Mobilization</td>
<td>1.0</td>
<td>lump</td>
</tr>
<tr>
<td>Furnishing Field Office</td>
<td>1</td>
<td>each</td>
</tr>
<tr>
<td>18&quot; Temporary Culvert</td>
<td>50</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Maintenance of Traffic</td>
<td>1.0</td>
<td>lump</td>
</tr>
<tr>
<td>Signs</td>
<td>316</td>
<td>sq. ft</td>
</tr>
<tr>
<td>Barricades</td>
<td>32</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Traffic Drums</td>
<td>18</td>
<td>each</td>
</tr>
<tr>
<td>Construction Pavement Markings</td>
<td>8460</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Removal of Permanent Pavement Markings</td>
<td>3200</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Vertical Panels</td>
<td>12</td>
<td>each</td>
</tr>
<tr>
<td>Concrete Paving (Type B)</td>
<td>179</td>
<td>sq. yd</td>
</tr>
<tr>
<td>36&quot; Flared End Sections for Reinforced Concrete PPE Culverts</td>
<td>4</td>
<td>each</td>
</tr>
<tr>
<td>36&quot; Reinforced Concrete PPE Culverts (Class Special)</td>
<td>430</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Guadalap (Type A)</td>
<td>450</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Guadalap Terminal (Type 2)</td>
<td>4</td>
<td>each</td>
</tr>
<tr>
<td>Thre Beam Guardrail Terminal</td>
<td>4</td>
<td>each</td>
</tr>
<tr>
<td>Mulch Cover</td>
<td>18.78</td>
<td>acr.</td>
</tr>
<tr>
<td>Seeding</td>
<td>9.36</td>
<td>acr.</td>
</tr>
<tr>
<td>Lime</td>
<td>14.79</td>
<td>ton</td>
</tr>
<tr>
<td>Water</td>
<td>946.0</td>
<td>gal.</td>
</tr>
<tr>
<td>Temporary Seeding</td>
<td>9.36</td>
<td>acr.</td>
</tr>
<tr>
<td>Silt Fence</td>
<td>2171</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Sand Bag Ditch Check</td>
<td>242</td>
<td>bag</td>
</tr>
<tr>
<td>Rock Ditch Check</td>
<td>30</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Sediment Basin</td>
<td>1000</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Obliteration of Sediment Basin</td>
<td>1000</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Sediment Removal and Disposal</td>
<td>1080</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Second Seeding Application</td>
<td>7.36</td>
<td>acr.</td>
</tr>
<tr>
<td>Sold Sodding</td>
<td>153</td>
<td>sq. yd</td>
</tr>
<tr>
<td>Roadway Construction Control</td>
<td>1.00</td>
<td>lump</td>
</tr>
<tr>
<td>Rumble Strips in Asphalt Shoulders</td>
<td>2690</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Thermaplastic Pavement Marking White (6&quot;)</td>
<td>3890</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Thermaplastic Pavement Marking Yellow (8&quot;)</td>
<td>3890</td>
<td>lin. ft</td>
</tr>
<tr>
<td>Raised Pavement Markers (Type F)</td>
<td>49</td>
<td>each</td>
</tr>
<tr>
<td>Reinforcing Steel - Roadway (Grade 60)</td>
<td>16684</td>
<td>pound</td>
</tr>
<tr>
<td>Filter Blanket</td>
<td>25</td>
<td>cu.yd</td>
</tr>
<tr>
<td>Dumped Riprap (Grouted)</td>
<td>25</td>
<td>cu.yd</td>
</tr>
</tbody>
</table>

### SUMMARY OF QUANTITIES (BOX 2 OF 2)

#### STRUCTURES OVER 20' SPAN

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>636</td>
<td>Bridge Construction Control</td>
<td>1</td>
<td>lump</td>
</tr>
<tr>
<td>637</td>
<td>Bridge Control</td>
<td>14.6</td>
<td>gal</td>
</tr>
<tr>
<td>638</td>
<td>reinforcing steel bridge (Grade 50)</td>
<td>15270</td>
<td>pound</td>
</tr>
<tr>
<td>639</td>
<td>steel shell pile (18&quot; Dia)</td>
<td>720</td>
<td>lin. ft</td>
</tr>
<tr>
<td>640</td>
<td>steel shell pile (24&quot; Dia)</td>
<td>750</td>
<td>lin. ft</td>
</tr>
<tr>
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<td>Pile Encasement</td>
<td>152</td>
<td>lin. ft</td>
</tr>
<tr>
<td>642</td>
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<td>116720</td>
<td>pound</td>
</tr>
<tr>
<td>643</td>
<td>Elastomeric Bearings</td>
<td>80310</td>
<td>cu.in</td>
</tr>
<tr>
<td>644</td>
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<td>lin. ft</td>
</tr>
<tr>
<td>645</td>
<td>Bridge Name Plate (Type D)</td>
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<td>each</td>
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<tr>
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<td>921</td>
<td>cu.yd</td>
</tr>
<tr>
<td>647</td>
<td>Filter Blanket</td>
<td>1816</td>
<td>sq.yd</td>
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</table>

### REVISIONS

<table>
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<th>Date</th>
<th>Revision</th>
<th>Sheet Number</th>
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### SUMMARY OF QUANTITIES AND REVISIONS
### Survey Control Details

#### Survey Control Coordinates

<table>
<thead>
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<th>Point Name</th>
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<th>Easting</th>
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<td>274458.8350</td>
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<tr>
<td>2</td>
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**Note:** Points were projected to SJP using ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, UNLESS U.S. SURVEY FOOT.

#### Survey Control Details

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<td>PC</td>
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**Note:** Measurements were not used to complete the above coordinates. Reference points are not to be used for vertical control.

### Canal Odd Cl Alignment

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**Note:** Measurements were not used to complete the above coordinates. Reference points are not to be used for vertical control.

### Highway 65 Cl Alignment

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**Note:** Measurements were not used to complete the above coordinates. Reference points are not to be used for vertical control.

### North Ditch West of Hwy. 65 Cl Alignment

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</table>

**Note:** Measurements were not used to complete the above coordinates. Reference points are not to be used for vertical control.

### North Ditch East of Hwy. 65 Cl Alignment

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<td>204959.6887</td>
</tr>
</tbody>
</table>

**Note:** Measurements were not used to complete the above coordinates. Reference points are not to be used for vertical control.
1. Bedding: Class 5 or 7 aggregate should be used 12" of bedding, except for the pipe invert which shall be loosely placed.
2. Type II installation should be used for R.C.P.P. as prescribed on the plan. All pipes shall be installed using temporary excavation slopes that are required for installation of siphons.

CONSTRUCT TRAPEZOIDAL DITCH, SEE PROFILE FOR DETAILS

CONSTRUCT V-DITCH, SEE PROFILE FOR DETAILS

GROUND COORDINATES FOR STAKEOUT. CONTRACTOR SHALL CONVERT TO STATE PLANE GRID (SOUTH ZONE). ALL COORDINATES ARE ARKANSAS 29.

PLAN & PROFILE SHEET - SIPHON

EXCAVATION SLOPES THAT ARE REQUIRED FOR INSTALLATION OF SIPHONS.

NOTE:

SEE PROFILE FOR DETAILS

CONSTRUCT TRAPEZOIDAL DITCH, SEE PROFILE FOR DETAILS

CONSTRUCT V-DITCH, SEE PROFILE FOR DETAILS

GROUND COORDINATES FOR STAKEOUT.
BRIDGE GENERAL NOTES

2. CONSTRUCTION SPECIFICATIONS: The Arkansas State Highway and Transportation Department (AHTD) Standard Specifications for Roadway Construction as referenced herein. See applicable Supplemental Specifications and the vice versa. If any inconsistencies or errors are noted in this specification, it shall be the responsibility of the Contractor to make the necessary corrections.


4. LIVE LOADING: HL-93

5. MATERIALS AND STRENGTHS:

6. BORING LOGS MAY BE OBTAINED FROM THE CONSTRUCTION CONTRACTS PROCUREMENT SECTION OF THE PROGRAM MANAGEMENT OFFICE.

7. PILE ENCASEMENT: PILE ENCASEMENT FOR BENTS 2 & 3 SHALL EXTEND 3 FT INTO THE GROUND AND TO THE BOTTOM OF CAP.

8. BRIDGE DECK FINISH: CONCRETE BRIDGE DECK SHALL BE GIVEN A FINISH IN ACCORDANCE WITH SUBSECTION 802.129 FOR CLASS III TILED BRIDGE ROADWAY SURFACE FINISH.

9. BRIDGE SURFACE TREATMENT: CLASS III PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ROADWAY SURFACE AND TO THE FACE AND TOP OF THE CONCRETE PARAPET RAIL.

10. MAINTENANCE OF TRAFFIC SEE ROADWAY PLANS.

DRAWING LIST:

- SCHEDULE OF BRIDGE QUANTITIES
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS
- LAYOUT PLAN AND CROSS SECTIONS

PILING NOTES:

CONCRETE:

- ALL CONCRETE SHALL BE CLASS "F" AND SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS TO BE CHAMFERED UNLESS OTHERWISE NOTED.

- ALL REINFORCEMENT STEEL SHALL CONFORM TO ASHTO M31 OR M32 TYPE A GRADE 60.

- NO PORTION OF THE BACKBONE SHALL BE CAST UNTIL THE BEAMS ARE IN PLACE. REFER TO "EXPANSION DEVICES INSTALLATION" NOTE.

Elastomeric bearing details shall be shown on the shop drawings and submitted for the approval of the Engineer.

Bars or reinforcement shall be placed in accordance with the requirements of the Engineer.

- ALL CONCRETE BARRIERS SHALL BE OF DIMENSION 12" X 12" X 30".

- ALL SHEAR CONNECTORS SHALL BE GRANULAR FINISH FILLED, SOLID FLOODED OR EQUAL AND SHALL BE AUTOMATICALLY END NODS WITH THE REQUIREMENTS OF THE MANUFACTURER.

PLACING OF MATERIALS AND CONCRETE:

- ALL CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS TO BE CHAMFERED UNLESS OTHERWISE NOTED.

- ALL REINFORCEMENT STEEL SHALL CONFORM TO ASHTO M31 OR M32 TYPE A GRADE 60.

- NO PORTION OF THE BACKBONE SHALL BE CAST UNTIL THE BEAMS ARE IN PLACE. REFER TO "EXPANSION DEVICES INSTALLATION" NOTE.

- ALL CONCRETE BARRIERS SHALL BE OF DIMENSION 12" X 12" X 30".

- ALL SHEAR CONNECTORS SHALL BE GRANULAR FINISH FILLED, SOLID FLOODED OR EQUAL AND SHALL BE AUTOMATICALLY END NODS WITH THE REQUIREMENTS OF THE MANUFACTURER.

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- ALL CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS TO BE CHAMFERED UNLESS OTHERWISE NOTED.

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- ALL SHEAR CONNECTORS SHALL BE GRANULAR FINISH FILLED, SOLID FLOODED OR EQUAL AND SHALL BE AUTOMATICALLY END NODS WITH THE REQUIREMENTS OF THE MANUFACTURER.
SECTION THRU SILICONE J OINT
SCALE: 1/16"=1'-0"
NOTE: SECTION TAKEN NORMAL TO CL. JOINT.

SILICONE J OINT D ATA
* "A" MOTH PERPENDICULAR TO JOINT AT 24 HOUR AVERAGE TEMPERATURE - 0'
* "B" PERPENDICULAR TO JOINT AT 60°F
* "D" BUMPER BAR SIZE

<table>
<thead>
<tr>
<th>Temperature</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;D&quot;</th>
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<tr>
<td>40°F</td>
<td>2 1/4&quot;</td>
<td>1 1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>60°F</td>
<td>2 1/4&quot;</td>
<td>1 1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>80°F</td>
<td>2 1/4&quot;</td>
<td>1 1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
</tbody>
</table>

- The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The engineer shall establish the temperature by interpolation of Table 1. Temperature limits recommended by the sealant manufacturer are stated in Table 1. Use the smaller of the two values for "D" only when the average 24 hour air temperature is between 40°F and 80°F.

- Backer Rod Note:
- Use an approximately sized backer rod at the depth shown in the manufacturer's instructions for the joint width at the time of sealant application. The backer rod shall be placed in the joint only when the bolt is tightened. The backer rod shall be removed if the joint is opened more than 1/4" at any point. See Table 2.

THE CONTRACTOR MAY ELECT TO INSTALL THE EXPANSION DEVICE USING ONE OF THE FOLLOWING TWO ALTERNATIVES:

1. THE CONCRETE SPAN FLOOR ADJACENT TO JOINT SHALL BE PLACED AFTER THE END BENT BACKFILL FORMS ARE IN PLACE AND THE BEAMS ARE ERECTED. THE BLOCKED EXPANSION DEVICE SHALL BE INSTALLED AND FASTENED TO THE BEND AS CONSTRUCTION BOARDS AND DIRECTLY TO THE BEAMS. THE CONCRETE SPAN FLOOR ADJACENT TO THE BEND IS PLACED PRIOR TO FORMING THE BLOCKED CONCRETE AND THE BLOCKED EXPANSION DEVICE SHALL BE REMOVED, THE OPENING ADJUSTED FOR TEMPERATURE AND GRADE.

2. THE BLOCKED EXPANSION DEVICE SHALL BE ERECTED TO THE OPTIONAL CONSTRUCTION JOINT AFTER BEAMS ARE ERECTED. THE BLOCKED EXPANSION DEVICE SHALL BE INSTALLED AND ADJUSTED FOR GRADE. ALL CONNECTION BOLTS SHALL BE FULLY TIGHTENED PRIOR TO PLACING THE DECK CONCRETE ADJACENT TO THE BEND IMEDIATELY PRIOR TO FORMING THE REMAINDER OF THE DECK. THE BLOCKED EXPANSION DEVICE MAY THEN BE REMOVED AND THE OPENING ADJUSTED FOR TEMPERATURE AND GRADE.

SECTION NEAR EXP. JOINT & END BENT NO.1
SCALE: 1/8"=1'-0"
NOTE: DETAILS AS END BENT NO.4 ARE SIMILAR.

DETAILS OF ALTERNATIVE ANCHORS
SCALE: 1/8"
NOTE: AS AN ALTERNATIVE TO 1/2" X 8" STUDS, 1/2" X 8" STUDS MAY BE USED AS SHOWN.

END BENT WALL ARMOR DETAIL
SCALE: 1/16"
NOTE: CONCRETE SHALL BE HAND PACKED UNDER THE JOINT ARMOR.
SLAB, DIAPHRAGMS & PARAPETS BAR LIST

<table>
<thead>
<tr>
<th>WORK NO.</th>
<th>LENGTH</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>P.D.</th>
<th>BAR BEND</th>
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<td>44''-2&quot;</td>
<td>6''-0&quot;</td>
<td>42''-10&quot;</td>
<td>4 1/2&quot; TYPE A</td>
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<td></td>
</tr>
</tbody>
</table>

| S70E     | 214    | 13''-7" | 6''-0" | 6 1/4" | 6 1/2" TYPE C |

| P40E     | 688    | 5' -11" | 2'-10"/3'-1/2", 2'-10", 1'-1/2", 4'-3/4" | 4'-3/4" | P40E |
| P40E     | 64     | 11'-0"  |   |   |   |   | STR.    |
| P40E     | 32     | 10'-0"  |   |   |   |   | STR.    |
| P40E     | 32     | 10'-0"  |   |   |   |   | STR.    |
| P40E     | 32     | 10'-0"  |   |   |   |   | STR.    |
| P40E     | 26     | 5'-6"   |   |   |   |   | STR.    |
| P40E     | 20     | 3'-6"   |   |   |   |   | STR.    |
| P40E     | 536    | 3'-6"   | 1'-1/2", 2'-1/2", 4'-3/4", 8" | 3'-3/4" | P40E |
| P41E     | 32     | 10'-0"  |   |   |   |   | STR.    |
| P41E     | 15     | 10'-0"  |   |   |   |   | STR.    |
| P41E     | 10     | 9'-0"   | 1'-10", 1'-1/2", 3'-3/4" | 3'-3/4" | P41E |
| P41E     | 8      | 3'-11"  | 2'-0" | 2'-0" |   |   | P41E    |

SECTION A

WIRE SHALL BE SMOOTH #8 WIRE AND CONFORM TO ASHTO-MSS-7 CLASS 3 GALVANIZED AND DIMENSIONS.

THREE #4 FIBERGLASS REINFORCING BARS SHALL BE INSTALLED AS SHOWN ALONG ALL PARAPET JOINTS WITH A 20" MINIMUM GAP ON EACH STEEL BAR.

ALL SMOOTH WIRE BRACING SHALL BE PLACED ON THE INSIDE FACES OF THE REINFORCING.

FOR ACTUAL PLACEMENT OF REINFORCING STEEL SEE PARAPET DETAILS.

THE EXTRUDED PARAPET SHALL CONFORM TO THE HORIZONTAL AND VERTICAL LINES SHOWED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE PARAPET MOLD MUST BE CONTROLLED SO IT WILL FOLLOW THE GROOVED JOINT. THE EXTRUDED PARAPET SHALL BE 1/2 THICKNESS OF CONCRETE PARAPET RAIL.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

1. DIMENSIONS ARE OUT OF BOUNDS.
STA 25+00 TO STA 25+50

CUT VOLUME 39
FILL VOLUME 860

CUT AREA 59
FILL AREA 632
CUT VOLUME 439
FILL VOLUME 479

CUT AREA 8
FILL AREA 534
CUT VOLUME 6
FILL VOLUME 5

CUT VOLUME 6
FILL VOLUME 5
SEE SHEET 24 FOR PIPE NOTE INFORMATION.

STA. 18+22.30

CUT AREA 0
FILL AREA 89

CUT VOLUME 0
FILL VOLUME 97

STA. 17+83.18

CUT AREA 0
FILL AREA 85

CUT AREA 0
FILL AREA 97

17+70

18+00

18+22.30
STA.19+00 TO STA.21+00

21+00

20+00

19+00
NOTE:
SEE SHEET 26 "PLAN & PROFILE SHEET - CANAL 1000" FOR
TEMPORARY EXCAVATION LIMITS.
STA 32+84 TO STA 33+00

END DETOUR 32+84.43

CUT AREA 0
FILL AREA 0

CUT VOLUME 0
FILL VOLUME 0
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT VERTICAL WALL ABUTMENTS

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
PILE END BENTS

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
END BENTS WITH TURNBACK WING

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
END BENTS WITH TRANSITION WING

GENERAL NOTES:
The bridge end abutment 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 the bridge approach. All horizontal layers shall be removed and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Sections 1901.01 and 1906 for construction requirements.
ADDED NOTE TO ENERGY DISS.
599-12-1-86

EXCAVATION DETAILS ADDED
TYPED A & B
10-2-72

REVISED AND REDRAWN
508-10-2-72

SOLID SODDING
SOLID SOD

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

GENERAL NOTES:
THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 10' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

ARPKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1
NO.
ADDED NOTE TO SOLID SODDING
L
STEEL
REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.
6"
V401
SQ. YDS.
DOUBLE R.C.P.C.
1
1
C
H3:1
NO.
L
NO.
5"
NO.
H403
2 DIA.
D
1
L
V401
WITH FLARED END SECTION A
G
E
& 3:1 FORESLOPE
3:1 FORESLOPES WITH FORESLOPE VARIATIONS.
R.C. CURTAIN WALL
S O D
S O L ID
E
F
X
G
W
G
W
SOLID SOD
H
END VIEW
CHANNEL BOTTOM
R.C. CURTAIN WALL
SECTIONAL VIEW "X-X"

TYPICAL PIPE CULVERT
WITH FLARED END SECTION & 3:1 FORESLOPE

TYPICAL PIPE CULVERT
WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES

TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

REINFORCING STEEL SCHEDULE

SOLID SODDING

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

A R K A N S A S S T A T E H I G H W A Y C O M M I S S I O N

TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES

REVISIONS MADE TO SOLID SODDING & 3:1 FORESLOPE

FLARED END SECTION
NORMAL ROADWAY WIDTH

SECTION ON CURVE

SLOPE AS SHOWN ON TYPICAL SECTION

DETAILS OF WIDENING FOR GUARDRAIL

SHOULDER PIER PROTECTION

GUARDRAIL DETAILS

METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-9
**SPECIAL END SHOE**

**THRIE BEAM RAIL**

**TRANSITION SECTION**

**STRUCTURAL STEEL TUBING**

**HOLE PUNCHING DETAIL**

**BLOCKOUT DETAIL**

**THRIE BEAM RAIL**

**SPlice AT POST**

**CONNECTOR PLATE**

**GENERAL NOTES:**

- The drawings show the details and dimensions for the THRIE BEAM RAIL, SPECIAL END SHOE, and TRANSITION SECTION. All notes and dimensions shall be made on the drawings as noted.
- The THRIE BEAM RAIL, SPECIAL END SHOE, and TRANSITION SECTION shall be consistent throughout.
- The drawings are for the use of the designer and contractor for the construction of the project.

---

**WOOD POSTS & WOOD BLOCKS**

- Wood posts and wood blocks shall be either dense No. 1 STRUCTURAL or SOUTHERN PINE.
- Use THRIE BEAM GUARDRAIL COMPONENTS of the same material for the entire job.
- Use STEEL GUARDRAIL COMPONENTS of the same material for the entire job.

---

**RAIL POSTS**

- RAIL POSTS shall be set perpendicular to the road surface and made of STEEL and SHALL BE 12 GAGE.
- ZINC COATING SHALL BE TYPE 1.
- Refer to the drawings for POST DETAILS.

---

**BOLTS**

- All BOLTS shall be SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS VERTICALLY IN CROSS SECTION.
- RAISED HEIGHT OF W-BEAM SHALL BE 1".

---

**REFERENCES**

- Use THRIE BEAM GUARDRAIL COMPONENTS of the same material for the entire job.
- Use STEEL GUARDRAIL COMPONENTS of the same material for the entire job.
- Refer to the drawings for POST DETAILS.
THREE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POSTS I-7

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

THREE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUTS & WOOD POSTS POSTS I-6

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

GENERAL NOTES:

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

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

ARKANSAS STATE HIGHWAY COMMISSION

STD. DWG. NUMBER FROM GR-10A TO GR-11

GUARDRAIL DETAILS

STANDARD DRAWING GR-11
THREE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

**EIGHT INCH STEEL POSTS FROM ROAD TRANSITION PRODUCTS:**
- REFER TO APPROXIMATE DIAMETERS.
- LENGTH OF STEEL POST IS TO BE WEDGED TO FIT THE METAL.
**CONSTRUCTION SEQUENCE**

1. Place the bedding material to grade, do not compact.
2. Install the pipe.
3. Compact the bedding material under the pipe to the required density.
4. Place and compact the backfill material in lifts not exceeding the maximum height of fill "H" as specified by AASHTO M170, or comparable specifications.

**NOTES:**
- Backfill material shall be placed using a compaction method specified by AASHTO M206.
- The minimum height of fill "H" shall include a minimum density of 95% of the maximum density according to the type of material used.

**INSTALLATION TYPE**

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<th>TYPE 2</th>
<th>TYPE 3</th>
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**NOTE:**
- PIPE IS NOT INCLUDED.

**GENERAL NOTES**

1. Concrete pipe culvert construction shall be designed to conform to AASHTO specifications and the standard construction specifications. Conformance is not mandatory, and use of non-standard specifications is acceptable provided they are equivalent in performance and durability.
2. The minimum height of fill "H" shall be determined using the maximum density of the soil as specified by the designer.
3. All pipe shall be placed using a compaction method specified by the designer.
4. Pipe shall be protected during construction as noted in the plans and specifications.
5. The minimum height of fill "H" shall be determined using the maximum density of the soil as specified by the designer.
6. Pipe shall be protected during construction using a method specified by the designer.
7. Materials used shall be chosen to conform to the requirements of the standard construction specifications.
8. Materials shall be placed in such a manner as to conform to the requirements of the standard construction specifications.
9. Materials shall be placed in such a manner as to conform to the requirements of the standard construction specifications.
10. Materials shall be placed in such a manner as to conform to the requirements of the standard construction specifications.

**EMBANKMENT INSTALLATIONS**

- EMBANKMENT INSTALLATION:

**NOTE:**
- The minimum height of fill "H" shall be determined using a compaction method specified by the designer.

**MAINSนาIN INSTALLATION**

- MAIN INSTALLATION:

**NOTE:**
- The minimum height of fill "H" shall be determined using a compaction method specified by the designer.

**GENERAL NOTES**

1. Conformance with this standard is not mandatory, and use of non-standard specifications is acceptable provided they are equivalent in performance and durability.
2. The minimum height of fill "H" shall be determined using the maximum density of the soil as specified by the designer.
3. All pipe shall be placed using a compaction method specified by the designer.
4. Pipe shall be protected during construction using a method specified by the designer.
5. The minimum height of fill "H" shall be determined using the maximum density of the soil as specified by the designer.
6. Pipe shall be protected during construction using a method specified by the designer.
7. Materials used shall be chosen to conform to the requirements of the standard construction specifications.
8. Materials shall be placed in such a manner as to conform to the requirements of the standard construction specifications.
9. Materials shall be placed in such a manner as to conform to the requirements of the standard construction specifications.
10. Materials shall be placed in such a manner as to conform to the requirements of the standard construction specifications.

**NOTES:**
- PIPE IS NOT INCLUDED.

**INSTALLATION TYPE**

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**NOTE:**
- PIPE IS NOT INCLUDED.
### Construction Sequence

1. **Prepare Structural Backfill Material**
   - Do not compact.
2. **Prepare Structural Bedding Material**
   - Bedding outside the pipe is required.
3. **Install Pipe**
   - Use of the pipe for other structural backfill material is prohibited.

**NOTE:** Structural backfill and structural bedding material will not be paid for separately, but compensation will be considered to be included in the price bid per linear foot of metal pipe.

### Installation Type

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
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<td>Material Requirements for Structural Backfill and Structural Bedding</td>
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### Equivalent Metal

#### Thicknesses and Gauges

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<th>Uncoated</th>
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### General Notes

1. **Structural Backfill Material**
   - Structural backfill, embankment, and outer structural bedding material shall be compacted to a minimum density according to the type of class of material used.

2. **Installation Type 2**
   - May be used for corrugated steel or aluminum pipe material.

3. **Installation Type 1**
   - Shall be used for corrugated steel or aluminum pipe and for 3" x 1/2" corrugation.

4. **Installation Type 2**
   - May be used for corrugated steel or aluminum pipe with 3" x 1" corrugation.

5. **Metal Pipe Culvert Materials and Installations**
   - Shall conform to section 6.11 and shall conform to the Standard Construction Specifications.

6. **Protect Pipe During Construction**
   - A cover sufficient to prevent damage shall be provided.

7. **Compacted and Uncompacted Loosely Placed**
   - May be used.

8. **Compacted and Uncompacted**
   - May be used.

9. **Middle Structural Bedding**
   - Minimum thickness equals twice corrugation depth.

10. **Max. Fill Heights & Bedding**
    - Maximum fill height shall be the sum of the pipe diameter and twice the corrugation depth.

### Embankment and Trench Installations

1. Structural backfill, embankment, and outer structural bedding material shall be compacted to a minimum density according to the type of class of material used.

2. **Installation Type 2**
   - May be used for corrugated steel or aluminum pipe material.

3. **Installation Type 1**
   - Shall be used for corrugated steel or aluminum pipe and for 3" x 1/2" corrugation.

4. **Installation Type 2**
   - May be used for corrugated steel or aluminum pipe with 3" x 1" corrugation.

### Metal Pipe Culvert Design

- **Minimum Fill Height**
  - Minimum fill height shall be determined by the engineer.

- **Structural Bedding**
  - Minimum thickness shall be equal to twice the corrugation depth.

- **Structural Backfill**
  - Minimum thickness equals twice corrugation depth.

- **Max. Fill Height**
  - Maximum fill height shall be the sum of the pipe diameter and twice the corrugation depth.
NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AT 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 NEW OUTLETS SHALL BE INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

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." THE 250' DISTANCE MAY BE EXCEEDED AT SAGS AND AT 250' INTERVALS ON GRADIENTS.

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 FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ABOVE-INDICATED DETAIL 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 ORDER THE UNNEDD HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

8. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AT THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

9. UNLESS OTHERWISE SPECIFIED ON THE WORK PLAN, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND GRANULAR MATERIAL WHEN PLACED ALONG PAVEMENT EDGE OR TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

ARMS - D HAS LATEST REVISION FOR SCHEDULE 40 PIPE.
### GENERAL NOTES

1. On pavement with two-way traffic, the superelevation shall be reversed on the inside pavement edge unless otherwise noted on the plans.

2. Super-elevation values shown on the cross sections are values to permit simpler calculations.

### SUPER-ELEVATION TABLE FOR TWO-WAY TRAFFIC

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### SUPER-ELEVATION FORMULA

\[ \text{SUPER-ELEVATION} = \frac{Ld}{2Ls} \]

### ABBREVIATIONS

- NC: Normal Crown
- RC: Reverse Crown, Super-elevation at normal crown slope
- L: Distance from beginning of super-elevation transition to any point (FT.)
- d: Width of pavement
- Ls: Length of super-elevation transition (FT.)
- C: Normal Crown (FT.)

### ADDITIONAL FORMULA

**ISSUED DATE:**
- 10-18-96
- 01-09-87
- 11-07-19

**REVISION:**
- UNLESS OTHERWISE NOTED.
NOTES:
SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).
ALL SIGN POSTS SHALL BE PLUMB.
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.
NORMAL INSTALLATIONS WILL REQUIRE 5\(\frac{1}{16}\)" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

DETAIL E
R6-1 EXTENSION FOR U-COMMUNICATION POST

DETAIL F
DETAIL OF SPLICES

NOTES:
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.
SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).
NORMAL INSTALLATIONS WILL REQUIRE 5\(\frac{1}{16}\)" CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.
ALL SIGN POSTS SHALL BE PLUMB.
The post for "type U" supports shall be hot dip galvanized.

ARKANSAS STATE HIGHWAY COMMISSION
U-COMMUNICATION POST ASSEMBLIES

STANDARD DRAWING SHS-2
NOTES:
1. USED EXCLUSIVELY FOR THE LOCAL MOVEMENT OF VEHICLES IN THE MINDS OF VEHICLE OPERATORS SHALL BE REDUCED TO MATCH ORIGINAL SPEED LIMIT.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED.
3. A NEW MAXIMUM TABLE LIMIT FOR TRAFFIC DRUMS SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. TRAFFIC DRUMS MUST BE EQUALLY SPACED ALONG THE TRAFFIC FACE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE
5. MATERIALS SHOWN FOR THESE TRAFFIC CONTROLS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY RESPONDING TO THE PROPER CHANNEL AT THE jy.
6. TRAFFIC DRUMS MOUNTED 60 FEET (MAXIMUM) AND REFLECTIVE AND MARKABLE CHANGES TO THE Delineation shall be removed or obliterated as soon as practicable.

TAPER FORMULAE:
L = SXW FOR SPEEDS OF 45MPH OR MORE.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK
W = WIDTH OF OFFSET.

DETAIL OF RAISED PAVEMENT MARKERS

TYPE II
RED
POSITIVE BARRIER
RAISED PAVEMENT MARKER
TRAFFIC DRUM
REFLECTOR
PRISMATIC
0.52" (2""

KEY:
**General Notes**

- 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4).
- A 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4).
- 8 feet or greater preferred. If less than 8 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4).
- A 8 feet or greater preferred. If less than 8 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4).
- 12 feet or greater preferred. If less than 12 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4).

**Offset Distance Table**

<table>
<thead>
<tr>
<th>Speed</th>
<th>Offset Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>18</td>
</tr>
<tr>
<td>&gt;5</td>
<td>24</td>
</tr>
</tbody>
</table>

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

**Special End Unit**

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

**Section J-J**

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

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**ARKANSAS STATE HIGHWAY COMMISSION**

**STANDARD DRAWING TC-5**
**CLEARING AND GRUBBING**

**CONSTRUCTION SEQUENCE**
1. Place perimeter controls (i.e., silt fences, diversion ditches, sediment basins).
2. Perform clearing and grubbing operation.

**EXCAVATION**
- Existing ground
- Interception of diversion ditch
- Phase 1 excavation
- Phase 2 excavation
- Final phase excavation

**GENERAL NOTE**
- All cut slopes shall be controlled, trimmed, seeded, and mulched as the work progresses. Slopes shall be constructed and stabilized in equal increments not to exceed 25 feet measured vertically.
- Silt fences, diversion ditches, and other erosion control devices shall be supplied in the manner specified.
- All cut slopes shall be trimmed, seeded, and mulched as the work progresses. Slopes shall be constructed and stabilized in equal increments not to exceed 25 feet measured vertically.

**EMBANKMENT**

**CONSTRUCTION SEQUENCE**
1. Construct diversion ditches, check ditches, sediment basins, silt fences, and other erosion control devices as specified.
2. Place phase 1 embankment with permanent or temporary seeding. All 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. Final phase 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. All diversion ditches and slope drains are to be permanently flushed and maintained until the slope is stabilized.

**NOTE:**
- The number of phases will vary, as shown for illustration.
- Each phase is to be completed before moving to the next phase.
- All phases are to be completed before the project is declared complete.

**ILLUSTRATION**
- Three phases shown for number of phases will vary.
- The work progresses. Slopes shall be constructed and stabilized in equal increments not to exceed 25 feet measured vertically.
DROP INLETS IN SUMP LOCATIONS. SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS FOR TRIANGULAR SILT DIKE INSTALLATION.

WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS. POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT DIVERSION DITCH AND/OR DITCH LINER FOR TRIANGULAR SILT DIKE INSTALLATION CONTINUOUS BARRIER FOR TRIANGULAR SILT DIKE INSTALLATION.

TEMPORARY DITCH LINER FOR TRIANGULAR SILT DIKE INSTALLATION. GENERAL NOTES:

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE (S) SUCH THAT THEY SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOP OF THE UNIT AS SHOWN ON THE DIAGRAM. STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.

2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 3'' TO 6'' AT THE CENTER WITH ROUGH SURFACE AND A 1-3/4 TO 2-1/2 RADIUS TRIANGULAR GEOTEXTILE FABRIC UNIT. FABRIC UNIT SHALL BE ATTACHED TO THE GROUND WITH STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6'' TO 8'' LONG. STAPLES SHALL BE PINNED UNDERNEATH CONCRETE CURB OR ROCK OR FLUME LINED DITCH OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER. THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.

3. TREE CONTROL DEVICES OR FILL SLOPE TOE OF CUT OR FILL SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.