INDEX OF SHEETS

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TITLE SHEET</td>
</tr>
<tr>
<td>2</td>
<td>INDEX OF SHEETS AND STANDARD DRAWINGS</td>
</tr>
<tr>
<td>3</td>
<td>GOVERNING SPECIFICATIONS AND GENERAL NOTES</td>
</tr>
<tr>
<td>4 - 5</td>
<td>TYPICAL SECTIONS OF IMPROVEMENT</td>
</tr>
<tr>
<td>6 - 10</td>
<td>SPECIAL DETAILS</td>
</tr>
<tr>
<td>17 - 20</td>
<td>EROSION CONTROL DETAILS</td>
</tr>
<tr>
<td>27 - 34</td>
<td>MAINTENANCE OF TRAFFIC DETAILS</td>
</tr>
<tr>
<td>35</td>
<td>PERMANENT PAVEMENT MARKING DETAILS</td>
</tr>
<tr>
<td>36 - 40</td>
<td>QUANTITIES</td>
</tr>
<tr>
<td>41</td>
<td>SUMMARY OF QUANTITIES AND REVISIONS</td>
</tr>
<tr>
<td>42 - 45</td>
<td>SURVEY CONTROL DETAILS</td>
</tr>
<tr>
<td>46 - 50</td>
<td>PLAN AND PROFILE SHEETS</td>
</tr>
<tr>
<td>51 - 63</td>
<td>CROSS SECTIONS</td>
</tr>
</tbody>
</table>

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

ROADWAY STANDARD DRAWINGS

<table>
<thead>
<tr>
<th>DRW NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP-1</td>
<td>CONCRETE DITCH PAVING</td>
</tr>
<tr>
<td>M-1</td>
<td>MAIL BOX DETAILS</td>
</tr>
<tr>
<td>P-1</td>
<td>PRECAST CONCRETE BOX CULVERTS</td>
</tr>
<tr>
<td>P-1-1</td>
<td>CONCRETE PIPE CULVERT - FULL HEIGHTS &amp; BEDDING</td>
</tr>
<tr>
<td>P-1-2</td>
<td>METAL PIPE CULVERT - FULL HEIGHT &amp; BEDDING</td>
</tr>
<tr>
<td>P-1-3</td>
<td>- HIGH DENSITY POLYETHYLEN</td>
</tr>
<tr>
<td>P-1-4</td>
<td>PVC PIPE CULVERT</td>
</tr>
<tr>
<td>P-1-5</td>
<td>PLASTIC PIPE CULVERT (POLYPROPYLENE)</td>
</tr>
<tr>
<td>P-2</td>
<td>SHORT CULVERTS</td>
</tr>
<tr>
<td>P-2-1</td>
<td>PAVEMENT MARKING DETAILS</td>
</tr>
<tr>
<td>P-2-2</td>
<td>DETAILS OF PIPE UNDERGROUND</td>
</tr>
<tr>
<td>R-1</td>
<td>REINFORCED CONCRETE BOX CULVERT DETAILS</td>
</tr>
<tr>
<td>R-2</td>
<td>EXCAVATION PAY LIMITS, BACKFILL, &amp; SOIL SODDING FOR BOX CULVERTS</td>
</tr>
<tr>
<td>S-1</td>
<td>TABLES AND METHOD OF SURFACE ELEVATION FOR TWO-WAY TRAFFIC</td>
</tr>
<tr>
<td>T-1</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
</tr>
<tr>
<td>T-2</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
</tr>
<tr>
<td>T-3</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
</tr>
<tr>
<td>T-4</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
</tr>
<tr>
<td>T-5</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
</tr>
<tr>
<td>T-6</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
</tr>
</tbody>
</table>

INDEX OF SHEETS & STANDARD DRAWINGS
SITES 1, 2, & 3
TYPICAL SECTION OF IMPROVEMENT - NOTCH & WIDEN

SITES 1, 2, & 3
TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH

NOTES:

1. The thickness of aggregate base course shall be within plus or minus one inch of the plan.
2. The contractor will correct any deficiency in thickness that does not meet the tolerance limits.
3. Payment will not be made for material placed in excess of the tolerance indicated.
4. Refer to cross sections for deviations from the normal slope, no changes shall be made from the planned slopes without the approval of the engineer.
5. The final 2" of surface course is to be placed after all other courses have been laid.
6. All additional materials shall be at lane lane.
7. Asphalt for leveling of existing pavement shall be placed only if and when directed by the engineer.
8. Calculations for the amount of leveling operations shall be performed before constructing the paving. Calculations are not to be paid for directly but payment will be considered included in the various pay items.
9. With the approval of the engineer, the contractor will be allowed to substitute, at no additional cost to the department, the top 1/2" of ACM surface course for the 1/2" of aggregate base course on the shoulders.
SITES 2 & 3
TYPICAL SECTION OF IMPROVEMENT
DETOUR - FULL DEPTH

ST1, 500+36.00 TO ST1, 500+54.42  
ST1, 501+32.63 TO ST1, 501+50.00  
ST1, 600+40.45 TO ST1, 600+64.07  
ST1, 609+40.37 TO ST1, 609+64.10

NOTES:
The thickness of aggregate base course shall
be within plus or minus the half of the plan
thickness shown. The contractor will correct
any deficiency 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 changes shall be made
from the planned slopes without the approval
of the engineer.
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE LOCATED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.
### OUTLET MIDDLE WALL TABLE

<table>
<thead>
<tr>
<th>WALL HEIGHT</th>
<th>MIDDLE WALL ANGLE DEGREES</th>
<th>WALL DEPTH</th>
<th>MIDDLE WALL FOOTING AT HOME</th>
<th>FOOTING-DIMENSION PARALLEL WITH HOME</th>
<th>LENGTH OF MIDDLE WALLS</th>
<th>LENGTH OF FOOTING-WALLS</th>
<th>CURB 1’x2’ CONCRETE (INCLUDE 1’x3’)</th>
<th>REINFORCING STEEL (INCLUDE COVER AND LAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OUTLET END SECTION

<table>
<thead>
<tr>
<th>OUTLET END SECTION</th>
<th>OUTLET END SECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OUTLET SLOPE SECTIONS

<table>
<thead>
<tr>
<th>OUTLET SLOPE SECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### SHEET 2 OF 2 DETAILS OF R.C. BOX CULVERT

**DOUBLE BARREL BOX CULVERT**

Sta. 107+48

**SPECIAL DETAILS**

The required number of bars and moments steel are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.
### OUTFIT WINDWALL TABLE

<table>
<thead>
<tr>
<th>WALL HEIGHT</th>
<th>MAXIMUM ANGLE (DEGREES)</th>
<th>WIDTH OF WINDWALLS</th>
<th>FOOTBACK PARALLEL TO HORIZON</th>
<th>LENGTH OF WINDWALLS</th>
<th>REINFORCING STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CLASS &quot;C&quot; CONCRETE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>REINFORCING STEEL</td>
</tr>
</tbody>
</table>

### OUTFIT SHEET END SECTION

<table>
<thead>
<tr>
<th>SHEET</th>
<th>DETAILS</th>
<th>OUTLET</th>
<th>LENGTH</th>
<th>NO. REBAR</th>
<th>Di</th>
<th>LENGTH</th>
<th>NO. REBAR</th>
<th>SUB LENGTH</th>
<th>Y</th>
<th>NO. REBAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>17-07</td>
<td>12</td>
<td>3</td>
<td>12</td>
<td>6,5</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>83'0&quot;</td>
<td>6</td>
<td>8</td>
<td>83'0&quot;</td>
<td>6</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

### OUTFIT SLOPE (SECTIONS)

<table>
<thead>
<tr>
<th>SECTION</th>
<th>REFERENCES</th>
<th>WALL</th>
<th>INTERMEDIATE WALL</th>
<th>INTERMEDIATE WALL</th>
<th>COVER</th>
<th>REINFORCING STEEL</th>
<th>LENGTH + OH, -4&quot; BENDS</th>
<th>LENGTH + OH, 4&quot; BENDS</th>
<th>&quot;B&quot; &quot;B&quot;</th>
<th>&quot;A&quot; &quot;A&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SHEET 2 OF 2
DETAILED OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
Sta. 307+56

SPECIAL DETAILS
Note: When top side of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.

**Typical Section M-M**

**Part Longitudinal Section**
- Non-Skewed Culvert
- Skewed Culvert

**Longitudinal Lap Detail at Change in Sections**

**Windwall Attachment**
- See Details of Windwall for additional information and windwall details.
- Optional Concrete, A
- Optional Concrete, B

**Typical Keyway Detail**
- (All Construction Joints)

**Shed End Section Details**
- General Details of R.C. Box Culvert
- Details of Single Barrel R.C. Box Culvert

SPECIAL DETAILS
CLEARING & GRUBBING

- Sand bag ditch checks (12 x 9)
- 4 locations: 80 bags
- Rock ditch checks (2 x 5)
- 4 locations: 4 rock bags
- 35.1 fence (4)
- 4 locations: 80 cm 4.3
- Sediment basin (5)
- 4 locations: 200 cm 4.3

SITE 2 DETOUR STA. 500+47.18
HWY, 306 STA. 203+40.07
BEGIN SITE 2 DETOUR

SITE 2 DETOUR STA. 509+46.45
HWY, 306 STA. 204+36.56
END SITE 2 DETOUR

LEGEND
- Sand bag ditch checks
- Rock ditch checks
- Silt fence
- Sediment basin

Note: Perimeter controls shall be placed at cleaning and grubbing operations are started.

DATE OF REVISION

REVISION

CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS
CLEARING & GRUBBING

- Sand bag ditch checks (E-91)
- 4 locations 1 BB bags
- Rock ditch checks (E-92)
- 4 locations x 12 gal
- Sediment basin (E-91)
- 4 locations x 15 gal COVD

SITE 3 DETOUR STA 600+45.97
- HWY 306 STA 303+83.52
- BEGIN SITE 3 DETOUR

SITE 3 DETOUR STA 608+38.60
- HWY 306 STA 304+92.12
- END SITE 3 DETOUR

LEGEND
- + Sand bag ditch checks
- # Rock ditch checks
- (E) Sediment basin

NOTE: Perimeter controls shall be placed as clearing and grubbing operations are started.

REVISIONS

DATE OF REVISION

CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

May 7 2006 4:49 PM
**Temporary Erosion Control Details**

**Stage 1**

- Sand Bag Ditch Checks: 4-5 ft
  - 2 Locations: 4 ft bags
- Rock Ditch Checks: 6-10 ft
  - 4 Locations: 8 ft bags
- Sediment Basin: 5 ft
  - 2 Locations: 4 ft bags

**SITE 2 DETOUR STA 500+47**

- HWY 306 STA 203+10.07
- Begin Site 2 Detour

**SITE 2 DETOUR STA 509+46.5**

- HWY 306 STA 204+96.56
- End Site 2 Detour

---

**Legend**

- ◼️ Sand Bag Ditch Checks
- ◼️ Rock Ditch Checks
- ◼️ Silt Fence
- ◼️ Sediment Basin

*Note: Perimeter controls shall be placed as clearing and grading operations are started.*
SITE 3 DETOUR STA. 600+45.97 = HWY. 306 STA. 303+83.52
BEGIN SITE 3 DETOUR

STA. 306+00.00
BEGIN SITE 3
LOG MILE 4.59

STA. 309+00.00
END SITE 3
END JOB NO. 0645

SITE 3 DETOUR STA. 608+38.60 = HWY. 306 STA. 306+92.12
END SITE 3 DETOUR

STAGE 2
SAND BAG DITCH CHECKS (E-5)
LOCATIONS: 306, 307, 308
SEDIMENT BASIN (E-41)
2 LOCKETS + BLOCS, CO. 10.

LEGEND
- = SAND BAG DITCH CHECKS
0 = ROCK DITCH CHECKS
0 = SEDIMENT BASIN

NOTE: PERIMETER CONTROL SHALL BE PLACED AT ERODING AND DRIPPING AREAS AS DESIGNATED.
SITE 2 DETOUR STA.500+47.18 = HWY, 306 STA.203+1.07
BEGIN SITE 2 DETOUR

STA. 206+00.00
BEGIN SITE 2
LOG MILE 3.75

STA. 209+00.00
END SITE 2

LEGEND

- Sand Bag Ditch Checks
- Rock Ditch Checks
- Silt Fence
- Sediment Basin

NOTE: PERMUTER CONTROLS SHALL BE PLACED AT CLEARING AND GRAVEYARD OPERATIONS ARE STARTED.

SITE 2 DETOUR STA. 509+46.58 = HWY, 306 STA. 204+96.56
END SITE 2 DETOUR

REVISIONS

DATE OF REVISION

REVISION

TEMPORARY EROSION CONTROL DETAILS

STAGE 3
STAGE 1 CONSTRUCTION SEQUENCE
FOR SITE 1
CLOSE ROADWAY TO TRAFFIC.
REMOVAL OF EXISTING BRIDGE.
CONSTRUCT PROPOSED ROAD AND BOX CULVERT.

FOR SITES 2 & 3a
MAINTAIN TRAFFIC ON EXISTING ROADWAY.
CONSTRUCT DETOUR AND TEMPORARY PIPE CULVERTS ON RT.

STAGE 2 CONSTRUCTION SEQUENCE
FOR SITE 1
PLACE FINAL SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS.
OPEN ROADWAY TO TRAFFIC.

FOR SITES 2 & 3b
SHIFT TRAFFIC TO DETOUR.
REMOVAL OF EXISTING BRIDGE.
CONSTRUCT PROPOSED ROAD ON LT.
CONSTRUCT RC BOX CULVERT AND LT. WINGWALLS.

STAGE 3 CONSTRUCTION SEQUENCE
FOR SITES 2 & 3b
SHIFT TRAFFIC TO PROPOSED ROAD.
OBSTRUCT DETOUR AND CONSTRUCT PROPOSED ROAD RT.
CONSTRUCT RC BOX CULVERT WINGWALLS RT.
PLACE FINAL SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS.

ADVANCE WARNING (ALL STAGES)

ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
SEQUENCE OF CONSTRUCTION - SITE 1

STAGE 1:
- Close Highway to Traffic
- Removal of existing bridge
- Construct pavement road and box culvert

STAGE 2:
- Place full-surface course and permanent pavement markings
- Re-open roadway to Traffic

START JOB ID 0645
START SITE 1
LOG MILE 0.13

STA. 106+45.00 BEGIN JOB 10645 BEGIN SITE 1

STA. 108+50.00 END SITE 1

SITE 1

MAINTENANCE OF TRAFFIC DETAILS

ALL STAGES
SEQUENCE OF CONSTRUCTION - SITE 2

STAGE 1

MAINTAIN TRAFFIC ON EXISTING LANE
CONSTRUCT DESIGN AND TEMPORARY PAVEMENT ON RT.

STA. 206+00.00
BEGIN SITE 2
LOG MILE 3.75

STA. 209+00.00
END SITE 2

MAINTENANCE OF TRAFFIC DETAILS

SITE 2
STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

SITE 3
STAGE 1

SEQUENCE OF CONSTRUCTION - SITE 3

STAGE A
GUARDIAN TRAFFIC ON EXISTING ROADWAY
CONTACT CURB AND TEMPORARY PIPE GROUNDS ON RT.

STA 306+00.00
BEGIN SITE 3
LOG MILE 4.59

STA 309+00.00
END SITE 3
END JOB 110645

ROAD CLOSED

10' BARR, TYP, WRT.

19' TRAFFIC DRUMS SPACED 20' OC.

10' TRAFFIC DRUMS SPACED 20' OC.

10' VERTICAL PANELS SPACED 20' OC.

10' VERTICAL PANELS SPACED 20' OC.

10' TRAFFIC DRUMS SPACED 20' OC.

May 7 2020 4:12 PM
Document
SEQUENCE OF CONSTRUCTION - SITE 2

STAGE 2:

SHIFT TRAFFIC TO DETOUR
REMOVAL OF EXISTING RISE
CONSTRUCT PROPOSED ROAD ON LT.
CONSTRUCT ALUMINUM CURB AND LT. MEDIAN LANE

STA. 206+00.00  
BEGIN SITE 2  
LOG MILE 3.75

STA. 209+00.00  
END SITE 2
HWY. 306 - SITE 1 - PERMANENT PAVEMENT MARKING LAYOUT

HWY. 306 - SITE 2 - PERMANENT PAVEMENT MARKING LAYOUT

HWY. 306 - SITE 3 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKING DETAILS

PERMANENT PAVEMENT MARKINGS

SITE 1
6" REFLECTED PART PAYMENT MARKING
R1: 100% LENGTH
RAISED MARKERS (TYPE IN-THE-GROOVE)
200' C.L.O. IN CENTERLINE (5 EACH)

SITE 2
6" REFLECTED PART PAYMENT MARKING
R1: 100% LENGTH
RAISED MARKERS (TYPE IN-THE-GROOVE)
200' C.L.O. IN CENTERLINE (6 EACH)

SITE 3
6" REFLECTED PART PAYMENT MARKING
R1: 100% LENGTH
RAISED MARKERS (TYPE IN-THE-GROOVE)
200' C.L.O. IN CENTERLINE (1 EACH)

THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSENGER PASSENGER USE PRIOR TO THE ROADWAY BEING CLOSED. CONTACT THE CONTRACTOR PRIOR TO THE CLOSING OF THE PROJECT.

The project was completed on May 7, 2001.
## ADVANCE WARNING SIGNS AND DEVICES

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>DESCRIPTION</th>
<th>SIGN SIZE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>STAGE 3</th>
<th>MAXIMUM NUMBER REQUIRED</th>
<th>TOTAL SIGNS REQUIRED</th>
<th>VERTICAL PANELS</th>
<th>TRAFFIC DRUMS</th>
<th>BARRIERS (TYPE B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V623-1A</td>
<td>ROAD WORK, 1000 FT</td>
<td>48&quot;x48&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>90.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V623-1B</td>
<td>ROAD WORK, 500 FT</td>
<td>48&quot;x48&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>90.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V623-2A</td>
<td>ROAD WORK AHEAD</td>
<td>48&quot;x48&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>90.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1-2</td>
<td>ROAD CLOSED</td>
<td>48&quot;x24&quot;</td>
<td>12</td>
<td>6</td>
<td>10</td>
<td>12</td>
<td>120.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1-3A</td>
<td>ROAD CLOSED 1/2 MILES AHEAD</td>
<td>48&quot;x24&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>12.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1-4</td>
<td>ROAD CLOSED TO THRU TRAFFIC</td>
<td>48&quot;x24&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>12.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4-6</td>
<td>LANE CLOSURE</td>
<td>48&quot;x24&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>30.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4-1</td>
<td>DO NOT PASS</td>
<td>48&quot;x24&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>30.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R6215a</td>
<td>RIGHT SHOULDER CLOSED</td>
<td>48&quot;x24&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>54.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERTICAL PANELS</td>
<td></td>
<td></td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>633.0</td>
<td>27</td>
<td>21</td>
<td>56</td>
</tr>
<tr>
<td>TRAFFIC DRUMS</td>
<td></td>
<td></td>
<td>25</td>
<td>25</td>
<td>20</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE B BARRIERS</td>
<td></td>
<td></td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>56.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE B BARRIERS</td>
<td></td>
<td></td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>56.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS:</td>
<td></td>
<td></td>
<td>633.0</td>
<td>27</td>
<td>21</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This is a low traffic volume road as defined in Section 0403, Standard Specifications for Highway Construction.

## CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>STAGE 1</th>
<th>END OF</th>
<th>REMOVAL OF PERMANENT PAVEMENT MARKINGS</th>
<th>CONSTRUCTION PAVEMENT MARKINGS</th>
<th>RAISED PAVEMENT MARKERS</th>
<th>REFLECTORIZED PAINT PAVEMENT MARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REMOVAL OF PERMANENT PAVEMENT MARKINGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTRUCTION PAVEMENT MARKINGS</td>
<td>6887</td>
<td>1000</td>
<td>1920</td>
<td>13787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAISED PAVEMENT MARKERS TYPE 1 (YELLOW)</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>REFLECTORIZED PAINT PAVEMENT MARKING (WHITE 8&quot;)</td>
<td>4250</td>
<td>4250</td>
<td>4250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFLECTORIZED PAINT PAVEMENT MARKING (YELLOW)</td>
<td>4250</td>
<td>4250</td>
<td>4250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS:</td>
<td>1920</td>
<td>13787</td>
<td>26</td>
<td>2650</td>
<td>2650</td>
<td></td>
</tr>
</tbody>
</table>

Note: This is a low traffic volume road as defined in Section 0403, Standard Specifications for Highway Construction.

Note: The #7 yellow striping quantity has been estimated based on a double yellow centerline stripe for the entire project. The project must be marked for passing passing zones prior to the placement of any final striping. Contact the maintenance division after the final, left of surface course has been placed to schedule the zoning of the project.
### Soil Log

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Depth</th>
<th>Liquid Limit</th>
<th>Plasticity Index</th>
<th>Ash ignition classification</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-00</td>
<td>6' RD</td>
<td>0.25</td>
<td>ND</td>
<td>NP</td>
<td>A-410 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>105-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>30</td>
<td>11</td>
<td>A-61 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>106-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>ND</td>
<td>NP</td>
<td>A-410 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>110-00</td>
<td>5' LT</td>
<td>0.25</td>
<td>41</td>
<td>34</td>
<td>A-740 (GRAY)</td>
<td></td>
</tr>
<tr>
<td>110-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>30</td>
<td>11</td>
<td>A-61 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>206-00</td>
<td>5' LT</td>
<td>0.25</td>
<td>51</td>
<td>32</td>
<td>A-740 (GRAY)</td>
<td></td>
</tr>
<tr>
<td>206-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>31</td>
<td>14</td>
<td>A-61 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>310-00</td>
<td>5' LT</td>
<td>0.25</td>
<td>09</td>
<td>36</td>
<td>A-740 (GRAY)</td>
<td></td>
</tr>
<tr>
<td>310-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>34</td>
<td>24</td>
<td>A-61 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>305-00</td>
<td>5' LT</td>
<td>0.25</td>
<td>48</td>
<td>21</td>
<td>A-740 (GRAY)</td>
<td></td>
</tr>
<tr>
<td>310-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>49</td>
<td>24</td>
<td>A-61 (BROWN)</td>
<td></td>
</tr>
<tr>
<td>310-00</td>
<td>5' LT</td>
<td>0.25</td>
<td>52</td>
<td>24</td>
<td>A-740 (GRAY)</td>
<td></td>
</tr>
<tr>
<td>310-00</td>
<td>18' RD</td>
<td>0.25</td>
<td>58</td>
<td>24</td>
<td>A-61 (BROWN)</td>
<td></td>
</tr>
</tbody>
</table>

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

### Removal of Existing Bridge Structure

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>LUMP SUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-15</td>
<td>105-74</td>
<td>35'</td>
<td>1.00</td>
</tr>
<tr>
<td>207-12</td>
<td>207-65</td>
<td>35'</td>
<td>1.00</td>
</tr>
<tr>
<td>307-14</td>
<td>307-80</td>
<td>35'</td>
<td>1.00</td>
</tr>
</tbody>
</table>

### Removal and Disposal of Culverts

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>Pipes Culverts Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-60</td>
<td>HWY 300 3' RD</td>
<td>4</td>
</tr>
<tr>
<td>300-11</td>
<td>HWY 300 3' LT &amp; RD</td>
<td>2</td>
</tr>
<tr>
<td>310-50</td>
<td>HWY 300 3' GRAY</td>
<td>1</td>
</tr>
</tbody>
</table>

### Clearing and Grubbing

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Clearing</th>
<th>Grubbing</th>
</tr>
</thead>
<tbody>
<tr>
<td>105-00</td>
<td>105-00</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>205-00</td>
<td>211-00</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>304-00</td>
<td>311-00</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

**TOTALS:**

|         | 17        | 17        |

### Erosion Control

#### Permanent Erosion Control

| Station | Location | Seeding | Lime | RUSCH Cover | Water | Second Seeding Application | Temporary Seeding | Mulch Cover | Water | Sand Bag Ditch Checks | Rock Ditch Checks | Sediment Basins | Caliper\n|---------|----------|---------|------|-------------|-------|-----------------------------|-------------------|-------------|-------|----------------------|------------------|----------------|----------------|
| 105-50  | 105-50   | SITE 1 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |
| 105-50  | 105-50   | SITE 1 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |
| 205-10  | 212-00   | SITE 1 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |
| 205-10  | 212-00   | SITE 1 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |
| 304-00  | 312-00   | SITE 3 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |
| 304-00  | 312-00   | SITE 3 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |
| 304-00  | 312-00   | SITE 3 | C1    | 0.63       | 0.07   | 0.63                        | 0.75              | 0.75        | 0.83  | 0.63                 | 0.07             | 0.07           | 1760               |

**TOTAL: 1.45**

#### Temporary Erosion Control

**Note:** The temporary erosion control devices shown above and on the plans shall be installed in such a sequence to deter erosion and sedimentation on U.S. Waterways as explained by the national pollutant discharge elimination system permit.

**Quantities Estimated:**

|            | 3150.00  | 12560.00  | 10760.00  | 12573.00  |

**NOTE:** THE PERMANENT EROSION CONTROL DEVICES SHOWN ABOVE AND IN THE PLANS WILL BE INSTALLED IN SUCH A SEQUENCE TO DETER EROSION AND SEDIMENTATION AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

**Quantities Estimated:**

|            | 3150.00  | 12560.00  | 10760.00  | 12573.00  |
### Earthwork

<table>
<thead>
<tr>
<th>Station</th>
<th>Location / Description</th>
<th>Unclassified Excavation</th>
<th>Embankment</th>
<th>Stabilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+00</td>
<td>Hwy. 308 - Site 1 - Stage 1</td>
<td>254</td>
<td>1436</td>
<td></td>
</tr>
<tr>
<td>203+00</td>
<td>Hwy. 308 - Site 2 - Stage 1</td>
<td>559</td>
<td>2817</td>
<td></td>
</tr>
<tr>
<td>203+00</td>
<td>Hwy. 308 - Site 2 - Stage 2</td>
<td>134</td>
<td>850</td>
<td></td>
</tr>
<tr>
<td>303+75</td>
<td>Hwy. 308 - Site 3 - Stage 1</td>
<td>371</td>
<td>1830</td>
<td></td>
</tr>
<tr>
<td>305+00</td>
<td>Hwy. 308 - Site 3 - Stage 2</td>
<td>381</td>
<td>1780</td>
<td></td>
</tr>
<tr>
<td>303+75</td>
<td>Hwy. 308 - Site 3 - Stage 2</td>
<td>1485</td>
<td>232</td>
<td></td>
</tr>
</tbody>
</table>

**Approaches**: 215

**Temporary Approaches**: 215

**Channel Change - Site 1**: 99

**Channel Change - Site 2**: 474

**Channel Change - Site 3**: 665

* Entire Project: To be used if and where directed by the engineer: 300

**Total**: 1801 9874 300

*Quantity Estimated: See Section 104.00 of the Std. Specs.

Note: Earthwork quantities shown above shall be paid as plan quantity.

### Driveways & Turnouts

<table>
<thead>
<tr>
<th>Station</th>
<th>Side</th>
<th>Location</th>
<th>Width</th>
<th>ACHM Surface Course (1/2&quot;) @ 230 Lbs. Per Sq. Yd. (PG 64-23)</th>
<th>Aggregate Base Course (Class F)</th>
<th>Side Drains</th>
<th>Standard Drawings</th>
</tr>
</thead>
<tbody>
<tr>
<td>205+20</td>
<td>LT</td>
<td>Hwy 206 - Site 2</td>
<td>16</td>
<td>65.74, 7.19, 20, 68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>205+20</td>
<td>RT</td>
<td>Hwy 206 - Site 2</td>
<td>16</td>
<td>148.12, 18, 29, 60.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>304+85</td>
<td>LT</td>
<td>Hwy 206 - Site 3</td>
<td>16</td>
<td>65.74, 7.19, 20, 68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>304+85</td>
<td>RT</td>
<td>Hwy 206 - Site 3</td>
<td>16</td>
<td>71.60, 7.80, 29, 27, 34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>310+30</td>
<td>LT</td>
<td>Hwy 399 - Site 3</td>
<td>16</td>
<td>61.44, 8.95, 33, 32, 30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>310+30</td>
<td>RT</td>
<td>Hwy 399 - Site 3</td>
<td>16</td>
<td>81.44, 8.95, 33, 32, 30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Entire Project Temporary Drives: 70.00

**Total**: 155.62 61.12 295.87 29 24 33 29

*Quantity Estimated: See Section 104.00 of the Std. Specs.

Note: For R.C. Pipe Culvert Installations, use Type 3 bedding unless otherwise specified.

### Mailboxes

<table>
<thead>
<tr>
<th>Location</th>
<th>Mailboxes</th>
<th>Mailbox Supports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EACH</td>
<td>SINGLE</td>
</tr>
<tr>
<td>Entire Project</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total**: 2 2

*Note: Shown for information only. Benchmark marks shall be furnished and placed by state forces.*
### SELECTED PIPE BEDDING

**LOCATION**

**SELECTED PIPE BEDDING**

**QTY:**

**ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER**

**TOTAL:**

50

*NOTE: QUANTITY ESTIMATED
SEE SECTION 104.02 OF THE STD. SPECS.*

### CONCRETE DITCH PAVING

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>&quot;W&quot;</th>
<th>CONC DITCH PAVING</th>
<th>SOLID</th>
<th>WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>LIN FT</td>
<td>FEET</td>
<td>TYPE B</td>
<td>BENDING</td>
<td></td>
</tr>
<tr>
<td>107+00.00</td>
<td>107+21.00</td>
<td>SITE 1 - LT</td>
<td>21.00</td>
<td>6.00</td>
<td>14.00</td>
<td>9.33</td>
<td>0.12</td>
</tr>
<tr>
<td>107+00.00</td>
<td>107+41.00</td>
<td>SITE 1 - RT</td>
<td>41.00</td>
<td>6.00</td>
<td>30.00</td>
<td>20.00</td>
<td>0.23</td>
</tr>
<tr>
<td>107+11.00</td>
<td>107+41.00</td>
<td>SITE 1 - LT</td>
<td>21.00</td>
<td>6.00</td>
<td>19.33</td>
<td>12.89</td>
<td>0.16</td>
</tr>
<tr>
<td>107+11.00</td>
<td>107+41.00</td>
<td>SITE 1 - RT</td>
<td>41.00</td>
<td>6.00</td>
<td>13.33</td>
<td>28.89</td>
<td>0.26</td>
</tr>
</tbody>
</table>

206-00.00 206-00.00 SITE 2 - LT 20 6.00 33.33 22.22 0.23 206-00.00 206-00.00 SITE 2 - RT 20 6.00 30.00 20.00 0.23 206-00.00 206-00.00 SITE 2 - LT 20 6.00 31.33 20.89 0.25 206-00.00 206-00.00 SITE 2 - RT 20 6.00 31.33 20.89 0.25 206-00.00 206-00.00 SITE 2 - LT 20 6.00 34.22 20.89 0.25 206-00.00 206-00.00 SITE 2 - RT 20 6.00 34.22 20.89 0.25 206-00.00 206-00.00 SITE 2 - LT 20 6.00 32.00 20.89 0.25 206-00.00 206-00.00 SITE 2 - RT 20 6.00 32.00 20.89 0.25

**TOTALS:** 188.65 395.11 2.25

**Basis of Estimate:**

**Water:** 1.26 Gal / sq. yd. of solid bedding.

### EROSION CONTROL MATING

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>CLASS 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>LIN FT</td>
<td>SQ. YD.</td>
</tr>
<tr>
<td>307+68.00</td>
<td>307+68.00</td>
<td>SITE 3 - LT</td>
<td>122.00</td>
<td>117.33</td>
</tr>
</tbody>
</table>

**TOTAL:** 117.33

*NOTE: AVERAGE WIDTH = 6' 0"*

### 4" PIPE UNDERRAIN

**STATION**

**LOCATION**

**4" PIPE UNDERRAIN**

**UNDERRAIN OUTLET PROTECTORS**

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>4&quot; PIPE UNDERRAIN</th>
<th>UNDERRAIN OUTLET PROTECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lin Ft.</td>
<td>Each</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>560</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTALS:** 560 2

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

### STRUCTURES

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>SPAN</th>
<th>HEIGHT</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TEMPORARY CULVERTS</td>
<td>18&quot;, 24&quot;, 30&quot;, 36&quot;, 40&quot;, 42&quot;</td>
<td>CU.YD.</td>
<td>POUND</td>
</tr>
<tr>
<td>LIN FT</td>
<td>LIN FT</td>
<td>CU.YD.</td>
<td>POUND</td>
<td></td>
</tr>
<tr>
<td>107+48</td>
<td>OBL 7&quot; X 4' 9&quot; R.C. BOX CULVERT ON A 30' LT. FWD. S.G.</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>304+60</td>
<td>QUAD 60&quot; X 7 TEMP. PIP. CULVERT ON A 20' LT. FWD. S.G.</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>305+00</td>
<td>TEMP. 9&quot; X 4' 9&quot; PIPE CULVERT RT. SIDE.DRAIN</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>306+00</td>
<td>TEMP. 10&quot; X 4' 9&quot; PIPE CULVERT RT. SIDE.DRAIN</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>306+20</td>
<td>TEMP. 12&quot; X 4' 9&quot; PIPE CULVERT RT. SIDE.DRAIN</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>306+40</td>
<td>TEMP. 14&quot; X 4' 9&quot; PIPE CULVERT RT. SIDE.DRAIN</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>307+00</td>
<td>TRAP. 17&quot; X 6' 4' R.C. BOX CULVERT ON A 30' LT. FWD. S.G.</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
<tr>
<td>308+60</td>
<td>QUINT. 10&quot; X 6' 4&quot; R.C. BOX CULVERT ON A 30' RT. FWD. S.G.</td>
<td>44</td>
<td>300</td>
<td>47</td>
</tr>
</tbody>
</table>

**TOTALS:** 692.79 132.65 272 63 0.08

**Basis of Estimate:**

**Water:** 1.26 Gal / sq. yd. of solid bedding.

**Note:** For R.C. PIPE CULVERT installations use Type 3 Bedding unless otherwise specified.

### QUANTITIES
## Base and Surfacing

### Base Course (1"")

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Ton / Station</th>
<th>Tonnage</th>
<th>AVG. Wt.</th>
<th>SQ.YD.</th>
<th>POUND / SQ.YD.</th>
<th>AVG. Wt.</th>
<th>pounds</th>
<th>AVG. Wt.</th>
<th>pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-00</td>
<td>100-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-40</td>
<td>100-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-00</td>
<td>101-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tack Coat

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Ton / Station</th>
<th>Tonnage</th>
<th>AVG. Wt.</th>
<th>SQ.YD.</th>
<th>POUND / SQ.YD.</th>
<th>AVG. Wt.</th>
<th>pounds</th>
<th>AVG. Wt.</th>
<th>pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-00</td>
<td>100-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-40</td>
<td>100-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-00</td>
<td>101-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ACBR Surfacing Course (1"")

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Ton / Station</th>
<th>Tonnage</th>
<th>AVG. Wt.</th>
<th>SQ.YD.</th>
<th>POUND / SQ.YD.</th>
<th>AVG. Wt.</th>
<th>pounds</th>
<th>AVG. Wt.</th>
<th>pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-00</td>
<td>100-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-40</td>
<td>100-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-00</td>
<td>101-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Additional Items

<table>
<thead>
<tr>
<th>Description</th>
<th>Tonnage</th>
<th>AVG. Wt.</th>
<th>pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes

- Ave. Milling Depth 1".

---

## Asphalt Concrete Patching for Maintenance of Traffic

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>AVG. Wt.</th>
<th>Cold Milling Pavement</th>
<th>COLD MILLING PAVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## ACBR Surfacing Course (1"")

### Description

- Base Course
- Tack Coat
- ACBR Surfacing Course (1"")

### Notes

- Note: Quantity Estimated
- See section 134-63 of the Std. Spec.
### SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM</th>
<th>QUANTITY</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>CLEAVING</td>
<td>17</td>
<td>STATION</td>
</tr>
<tr>
<td>202</td>
<td>GRUBBING</td>
<td>17</td>
<td>STATION</td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF PIPE CULVERTS</td>
<td>4</td>
<td>EACH</td>
</tr>
<tr>
<td>305</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>6831</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>305</td>
<td>COMPACTED EMBANKMENT</td>
<td>9678</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>306</td>
<td>SOIL STABILIZATION</td>
<td>300</td>
<td>TON</td>
</tr>
<tr>
<td>307</td>
<td>AGGREGATE BASE COURSE (CLASS 7)</td>
<td>5900</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>308</td>
<td>TANK FABRICATION OF 10 INCH RINDER COVER (1)</td>
<td>1178</td>
<td>GAL</td>
</tr>
<tr>
<td>309</td>
<td>REMOVAL OF EXISTING PAVING PLAN IN ACCELERATION COURSE (1)</td>
<td>160</td>
<td>TON</td>
</tr>
<tr>
<td>310</td>
<td>MINERAL ADDITIVE IN ACCELERATION COURSE (1)</td>
<td>1411</td>
<td>TON</td>
</tr>
<tr>
<td>311</td>
<td>ASPHALT BASE COURSE (CLASS 51/2)</td>
<td>79</td>
<td>SQ. YD.</td>
</tr>
<tr>
<td>312</td>
<td>COLD MIX ENSLAP PAVEMENT</td>
<td>1333</td>
<td>SQ. YD.</td>
</tr>
<tr>
<td>313</td>
<td>ASPHALT CONCRETE PAVING OR REHABILITATION OF PAVEMENT</td>
<td>70</td>
<td>TON</td>
</tr>
<tr>
<td>314</td>
<td>ACCELERATION OF EXISTING ROADWAY</td>
<td>5</td>
<td>TON</td>
</tr>
<tr>
<td>501</td>
<td>MODIFICATION</td>
<td>4065</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>502</td>
<td>PUBLICATION &amp; EXCHANGE</td>
<td>100</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>503</td>
<td>MAINTENANCE OF TRAFFIC</td>
<td>110</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>504</td>
<td>18TH TEMPORARY CULVERT</td>
<td>44</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>505</td>
<td>24TH TEMPORARY CULVERT</td>
<td>44</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>506</td>
<td>30TH TEMPORARY CULVERT</td>
<td>35</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>507</td>
<td>48TH TEMPORARY CULVERT</td>
<td>22</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>508</td>
<td>60TH TEMPORARY CULVERT</td>
<td>28</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>509</td>
<td>60 T临时 CULVERT</td>
<td>28</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>510</td>
<td>SWALE</td>
<td>286</td>
<td>SQ. YD.</td>
</tr>
<tr>
<td>511</td>
<td>BARRIER</td>
<td>12</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>512</td>
<td>TRAFFIC SIGNS</td>
<td>1</td>
<td>EACH</td>
</tr>
<tr>
<td>513</td>
<td>CONSTRUCTION PAYMENT MARKINGS</td>
<td>1827</td>
<td>ST.</td>
</tr>
<tr>
<td>514</td>
<td>REMOVAL OF PERMANENT PAVEMENT</td>
<td>1800</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>515</td>
<td>VERTICAL PANELS</td>
<td>27</td>
<td>EACH</td>
</tr>
<tr>
<td>516</td>
<td>CONCRETE DROP PAVEMENT TYPE (B)</td>
<td>369</td>
<td>SQ. YD.</td>
</tr>
<tr>
<td>517</td>
<td>24&quot; SEWER</td>
<td>28</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>518</td>
<td>30&quot; SEWER</td>
<td>34</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>519</td>
<td>36&quot; SEWER</td>
<td>28</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>520</td>
<td>SELECTED PIPE BEDDING</td>
<td>33</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>521</td>
<td>4&quot; FIP LANDSCAPES</td>
<td>500</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>522</td>
<td>URBAN EMBANKMENT OUTLINES</td>
<td>3</td>
<td>EACH</td>
</tr>
<tr>
<td>523</td>
<td>SEEP</td>
<td>27</td>
<td>TON</td>
</tr>
<tr>
<td>524</td>
<td>SEEDING</td>
<td>80</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>525</td>
<td>IRC</td>
<td>2108</td>
<td>CY. YR.</td>
</tr>
<tr>
<td>526</td>
<td>VALVE</td>
<td>511</td>
<td>M. (1)</td>
</tr>
<tr>
<td>527</td>
<td>TEMPORARY SEEDING</td>
<td>20.83</td>
<td>ACRE</td>
</tr>
<tr>
<td>528</td>
<td>64&quot; T-FENCE</td>
<td>350</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>529</td>
<td>SAND SASH OR CHECKS</td>
<td>516</td>
<td>EACH</td>
</tr>
<tr>
<td>530</td>
<td>SEGMENT BASE</td>
<td>10990</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>531</td>
<td>OUTFLOW OF SEDIMENT BASIN</td>
<td>10760</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>532</td>
<td>SEDIMENT REMOVAL AND REPOS</td>
<td>5272</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>533</td>
<td>ROCKFALL CHECKS</td>
<td>44</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>534</td>
<td>MATERIALS</td>
<td>628</td>
<td>SQ. YD.</td>
</tr>
<tr>
<td>535</td>
<td>FISH CONTROL</td>
<td>117</td>
<td>FT.</td>
</tr>
<tr>
<td>536</td>
<td>MATERIALS</td>
<td>1170</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>537</td>
<td>MATERIALS</td>
<td>363</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>538</td>
<td>MATERIALS</td>
<td>280</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>539</td>
<td>MATERIALS</td>
<td>24</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>540</td>
<td>MATERIALS</td>
<td>360</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>541</td>
<td>MATERIALS</td>
<td>66</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>542</td>
<td>UNCLASSIFIED EXCAVATION FOR EMBANKMENTS</td>
<td>67</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>543</td>
<td>SOIL ENSLAP</td>
<td>98.00</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>544</td>
<td>REPAIR OF EXISTING ROADWAY (GRADED)</td>
<td>14666</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>545</td>
<td>STRUCTURES OVER 25' SPAN</td>
<td>1.00</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>546</td>
<td>REMOVAL OF EXISTING BRIDGE STRUCTURE (1)</td>
<td>1.03</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>547</td>
<td>REMOVAL OF EXISTING BRIDGE STRUCTURE (2)</td>
<td>1.05</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>548</td>
<td>REMOVAL OF EXISTING BRIDGE STRUCTURE (3)</td>
<td>1.05</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>549</td>
<td>UNCLASSIFIED EXCAVATION FOR STRUCTURES</td>
<td>272</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>550</td>
<td>CLASS C CONCRETE (GRADED)</td>
<td>560.79</td>
<td>CY. YD.</td>
</tr>
<tr>
<td>551</td>
<td>REPAIR OF EXISTING ROADWAY (GRADED)</td>
<td>94266</td>
<td>CY. YD.</td>
</tr>
</tbody>
</table>

### SUMMARY OF QUANTITIES & REVISIONS

<table>
<thead>
<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/2020</td>
<td>REVISED/STORM WATER POLLUTION PREVENTION PLAN SPECIAL PROVISION</td>
<td>41</td>
</tr>
</tbody>
</table>
SURVEY CONTROL COORDINATES

Project Name: s10645
Date: 10/6/2013
Coordinate System: KANSAS STATE PLANE - NORTH ZONE BASED ON STATIC GPS PTS 1 - 6 - 15
UTM UM 2 1/2, PROJECTED TO GROUND
Units U.S. SURVEY FOOT

<table>
<thead>
<tr>
<th>Point</th>
<th>Name</th>
<th>Northing</th>
<th>Easting</th>
<th>Elev.</th>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>310984</td>
<td>1711796</td>
<td>8204</td>
<td>214.716</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 1</td>
</tr>
<tr>
<td>2</td>
<td>310984</td>
<td>1711640</td>
<td>1073</td>
<td>208.684</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 2</td>
</tr>
<tr>
<td>3</td>
<td>310984</td>
<td>1712296</td>
<td>4620</td>
<td>204.162</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 3</td>
</tr>
<tr>
<td>4</td>
<td>310984</td>
<td>1712785</td>
<td>3659</td>
<td>205.607</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 4</td>
</tr>
<tr>
<td>5</td>
<td>310984</td>
<td>1713433</td>
<td>4865</td>
<td>203.745</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 5</td>
</tr>
<tr>
<td>6</td>
<td>310984</td>
<td>1732946</td>
<td>7260</td>
<td>209.520</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 6</td>
</tr>
<tr>
<td>7</td>
<td>310984</td>
<td>1736027</td>
<td>2504</td>
<td>206.664</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 7</td>
</tr>
<tr>
<td>8</td>
<td>310984</td>
<td>1731140</td>
<td>9559</td>
<td>202.930</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 8</td>
</tr>
<tr>
<td>9</td>
<td>310984</td>
<td>1734617</td>
<td>1867</td>
<td>204.682</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 9</td>
</tr>
<tr>
<td>10</td>
<td>310984</td>
<td>1737680</td>
<td>8974</td>
<td>202.713</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 10</td>
</tr>
<tr>
<td>11</td>
<td>310984</td>
<td>1739348</td>
<td>2997</td>
<td>207.153</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 11</td>
</tr>
<tr>
<td>12</td>
<td>310984</td>
<td>1739601</td>
<td>7895</td>
<td>206.361</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 12</td>
</tr>
<tr>
<td>13</td>
<td>310984</td>
<td>1739655</td>
<td>8867</td>
<td>207.091</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 13</td>
</tr>
<tr>
<td>14</td>
<td>310984</td>
<td>1739656</td>
<td>5412</td>
<td>204.315</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 14</td>
</tr>
<tr>
<td>15</td>
<td>310984</td>
<td>1738892</td>
<td>6125</td>
<td>207.209</td>
<td>CTL</td>
<td>STD AMRD CAP STAMPED Pha 15</td>
</tr>
<tr>
<td>500</td>
<td>310984</td>
<td>1730416</td>
<td>1038</td>
<td>203.412</td>
<td>TMB</td>
<td>CH SQ 5, END 1IN RCP</td>
</tr>
<tr>
<td>901</td>
<td>310984</td>
<td>1739841</td>
<td>5030</td>
<td>200.725</td>
<td>TMB</td>
<td>CH SQ 10, END 16IN RCP</td>
</tr>
<tr>
<td>902</td>
<td>310984</td>
<td>1732647</td>
<td>5073</td>
<td>207.988</td>
<td>TMB</td>
<td>CHIS SQ NE, CO BR 1DFT N, CL HWY 306</td>
</tr>
</tbody>
</table>

*Note: Rebar and Cap. Standard: 5/8" Rebar with 2" Aluminum Cap stamped *Standard markings common to all caps, or as indicated *Other markings indicated in the point description of the individual point.

ALL DISTANCES ARE GROUND.
USE CAL = 1.0 FOR STANDOFF FOR THIS PROJECT.
A PROJECT MAP OF 0.9999999993 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS MAP IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE - GROUND DISTANCE A CAP
GRID COORDINATES ARE STORED UNDER FILE NAME s10645p1.CTL
HORIZONTAL DATUM NAD 83 - 1997
VERTICAL DATUM NAV 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS OTHERWISE SPECIFIED.
REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ENSURE AUTOMATION IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASE OF SURVEY
KANSAS STATE PLANE GRID REFERENCES - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS STATIC GPS PTS 1 - 6 - 15
CONVERGENCE ANGLE = 00:48:57 RIGHT AT LT 05:10:47 LON 090:38-10
GRID AZIMUTH - ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.
CROSS SECTION STA. 105+50 TO STA. 107+00

STA. 105+50 - END
EXIST. 206.58

STA. 105+50 - BEGIN
EXIST. 206.18

STA. 105+50 - BEGIN
EXIST. 205.76

STA. 105+50 - BEGIN
EXIST. 205.74

ELEV. 202.04
-16.31% RT. DITCH GRADE
STA. 107+00 - BEGIN

ELEV. 197.12
-12.00% LT. DITCH GRADE
STA. 107+00 - BEGIN

ELEV. 194.60
BEGIN 0.00% LT. DITCH GRADE
-12.00% LT. DITCH GRADE & STA. 107+21 - END

20' EXISTING PAVEMENT

100' TRANSITION

SITE 1
CROSS SECTION STA. 107+38 TO STA. 108+00

3:1

3:1

4:1

0.040 '/

0.020 '/

0.020 '/

0.040 '/

4:1

3:1

3:1

19 5.60

19 4.60

201.97

205.47

205.63

205.85

205.63

205.47

201.97

19 6.05

200.10

19 7.29

19 5.72

201.94

205.44

205.60

205.82

205.60

205.44

201.94

19 4.70

19 5.12

ELEV. 199.60

BEGIN 16.00% LT. DITCH GRADE

0.00% LT. DITCH GRADE & STA. 107+51 - END

ELEV. 194.70

BEGIN 0.00% RT. DITCH GRADE

-16.31% RT. DITCH GRADE & STA. 107+45 - END

ELEV. 199.24

16.00% LT. DITCH GRADE

STA. 107+80 - END

ELEV. 194.70

BEGIN 10.92% RT. DITCH GRADE

0.00% RT. DITCH GRADE & STA. 107+75 - END

ELEV. 201.80

10.92% RT. DITCH GRADE

STA. 108+40 - END

20' EXISTING PAVEMENT

20' EXISTING PAVEMENT

20' EXISTING PAVEMENT

F.L. OUTLET = 194.60

F.L. INLET = 194.70

SITE 1

SPAN = 15'-3"

Q25 = 69 C.F.S. D.A. = 65.1 ACRES

WITH 3:1 WINGS LT. & RT.

ON A 15° RT. FWD. SKEW

DBL. 7' X 4' X 79' R.C. BOX CULVERT

STA. 107+48 - CONSTRUCT
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.

EXCAVATION:

- THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.
- THE STEEL AND ADDITIONAL CONCRETE FOR THE STEEL AND ADDITIONAL CONCRETE FOR DITCH PAVING AND CONCRETE DITCH PAVING.

SOLID SODDING.

- DITCH PAVING AND LINES TO CONSTRUCT SLIP RINGS AND DITCH PAVING.

EXCAVATED TO NEAT SLOPE: VARIABLE

- 4' ROUNDING AT 10'-0" CENTERS
- 3" DIA. WEEP HOLE AT 10'-0" CENTERS

THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

THE STEEL AND ADDITIONAL CONCRETE FOR THE STEEL AND ADDITIONAL CONCRETE FOR DITCH PAVING AND CONCRETE DITCH PAVING.

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.

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.
GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 470.22 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. N-PHASE STEEL MUFFLER PLATE AND MUFFLER CAN BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE. STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
4. MUFFLER CLAMP SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO STANDARD DRAWING MB-1.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A NOMINAL WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE TOLERABLE IF THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORT.

5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A NOMINAL WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE TOLERABLE IF THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORT.

3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X 3/4" FLATHEAD
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A NOMINAL WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE TOLERABLE IF THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORT.
GENERAL NOTES

1. All exposed corners to have 1/4" chamfers.

2. All concrete reinforcing steel, lean grout, membrane, and drainage fill materials, geotextile filter fabric, and geogrid materials are standard specified, and will be precast with the precast concrete box culverts.

3. All exposed concrete surfaces are to be coated with a suitable paint as directed by the Engineer.

4. Wingwalls, aprons, and curtain walls shall be constructed in accordance with the applicable and standard specifications for all precast concrete box culverts.

5. The engineer shall be allowed to substitute at no additional cost to the Department, concrete with concrete conforming to the requirements of the standard specifications.

6. Materials and procedures may be changed by the Engineer.

7. Lean grout shall consist of a sand-cement mixture meeting the following requirements:

   - The cement shall be type I and shall meet the requirements of AASHTO M 65.
   - The sand shall meet the requirements of FINE AGGREGATE as specified in section 604 of the standard specifications.
   - The sand-cement mixture shall consist of at least 1.5 sacks of Portland cement per ton of material mixture.
   - The sand-cement mixture shall contain sufficient water to hydrate the cement.
   - A maximum of 0.05 cubic yard per cubic yard of material mixture shall be allowed.
   - Tamped around box to thoroughly fill all voids.

8. Drainage fill materials shall be placed in 8" lifts, loose measure, and thoroughly riddled and Levelled.

9. Wingwalls, aprons, and curtain walls shall be constructed in accordance with the applicable and standard specifications for all precast concrete box culverts.

10. Lean grout shall be considered to be included in the price bid for the items directed by the Engineer.

11. Wingwalls and aprons may be adjusted in the field as directed by the Engineer.

12. The top surface of the precast concrete box culvert shall be extended 1 foot down the sides of the assembled culvert for 4" diameter and shall be placed 12" above the top of the bottom slab.

13. Drainage fill material with geotextile fabric is required at the lower ends of the assembled culvert. See details on this drawing.

14. Wingwalls shall be directed to fit the in-place width and height of the precast concrete box culvert.

15. The membrane waterproofing will be required on the top edge of the wingwall and shall extend 1 foot from the ends of the culvert.

16. In order to fit, end sections as shown or by doweling and grouting.

17. Precast concrete box culverts and associated appurtenances shall be considered to be precast with the precast concrete box culverts.

18. The membrane waterproofing will be required on the top edge of the wingwall and shall extend 1 foot from the ends of the culvert.

19. No revisions directed by the Engineer shall be allowed to interfere with any portion of the standard specifications in lieu of lean grout.

20. All precast concrete box culverts will be paid for directly, but will be considered to be included in the price bid for the items listed in the general notes.

BAR LIST

<table>
<thead>
<tr>
<th>BAR</th>
<th>NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>2</td>
<td>4&quot;</td>
<td>L</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>4&quot;</td>
<td>F-5'</td>
</tr>
<tr>
<td>L</td>
<td>2</td>
<td>4&quot;</td>
<td>3'-2&quot;</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>4&quot;</td>
<td>L</td>
</tr>
</tbody>
</table>

END VIEW

SECTION A - A

END VIEW

PLAN VIEW

LENS-CUTTER FABRIC SIDE 

 subsection 625.02 

 FABRIC AS SHOWN PER TYPE 2 GEOTEXTILE FILTER 

 SUBSECTION 403.01 

 DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC AT THE BOTTOM SLAB.

 J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN OUTER BARS. ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF THE ASSEMBLED CULVERT.

 J BARS AND M BARS SHALL BE DIRECTED TO THE END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING.

 J BARS AND M BARS SHALL BE DIRECTED AT A MINIMUM 10" IN PRECAST BOX.

 WINGWALLS, APRONS, AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE AND STANDARD SPECIFICATIONS FOR ALL PRECAST CONCRETE BOX CULVERTS.

 ALL EXPOSED CONCRETE TO HAVE 1/4" CHAMFERS.

 MATERIALS AND PROCEDURES MAY BE CHANGED BY THE ENGINEER.

 LEAN GROUT SHALL CONSIST OF A SAND-CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:

 - Type I cement and shall meet the requirements of AASHTO M 65.
 - The sand shall meet the requirements of FINE AGGREGATE as specified in section 604 of the standard specifications.
 - The sand-cement mixture shall consist of at least 1.5 sacks of Portland cement per ton of material mixture.
 - The sand-cement mixture shall contain sufficient water to hydrate the cement.
 - A maximum of 0.05 cubic yard per cubic yard of material mixture shall be allowed.
 - Tamped around box to thoroughly fill all voids.

 DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE LOWER ENDS OF THE ASSEMBLED CULVERT. SEE DETAILS ON THIS DRAWING.

 WINGWALLS AND APRONS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

 THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EDGE OF THE WINGWALL AND SHALL EXTEND 1 FOOT FROM THE ENDS OF THE CULVERT.

 IN ORDER TO FIT, END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING.

 PRECAST CONCRETE BOX CULVERTS AND ASSOCIATED APPURTENANCES SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS DIRECTED BY THE ENGINEER.

 WINGWALLS, APRONS, AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE AND STANDARD SPECIFICATIONS FOR ALL PRECAST CONCRETE BOX CULVERTS.

 THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EDGE OF THE WINGWALL AND SHALL EXTEND 1 FOOT FROM THE ENDS OF THE CULVERT.

 NO REVISIONS DIRECTED BY THE ENGINEER SHALL BE ALLOWED TO INTERFERE WITH ANY PORTION OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.
### Minimum Height of Fill "H" Over Circular R.C. Pipe Culverts

<table>
<thead>
<tr>
<th>Installation Type</th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
<th>All</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Type 2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Type 3</td>
<td>4</td>
<td>4.5</td>
<td>5</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>Type 4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

**NOTICE:** Height of Fill "H" shall not exceed the values specified by AASHTO M206.

### Maximum Height of Fill "H" Over Circular R.C. Pipe Culverts

<table>
<thead>
<tr>
<th>Installation Type</th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
<th>All</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>2</td>
<td>2.5</td>
<td>3</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Type 2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Type 3</td>
<td>4</td>
<td>4.5</td>
<td>5</td>
<td>5</td>
<td>4.5</td>
</tr>
</tbody>
</table>

**NOTICE:** Height of Fill "H" shall not exceed the values specified by AASHTO M206.

### General Notes

1. **Concrete Pipe Culvert Construction:** Will conform to Arkansas Department of Transportation Standard Specifications for Highway and Bridge Construction, Revised Edition, 2010, and the supplemental pipe specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.


3. **Concrete Pipe Culvert Construction:** Shall conform to Arkansas Department of Transportation Standard Specifications for Highway and Bridge Construction, Revised Edition, 2010, and the supplemental pipe specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.


5. **Concrete Pipe Culvert Construction:** Shall comply with the necessary portions of the standard specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.

6. **Reinforced Concrete Culvert Design:** Shall comply with the necessary portions of the standard specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.

7. **Concrete Pipe Culvert Construction:** Shall comply with the necessary portions of the standard specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.

8. **Reinforced Concrete Culvert Design:** Shall comply with the necessary portions of the standard specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.

9. **Concrete Pipe Culvert Construction:** Shall comply with the necessary portions of the standard specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.

10. **Reinforced Concrete Culvert Design:** Shall comply with the necessary portions of the standard specifications and special provisions as noted in the plans, sections, and specifications. Work shall be done in accordance with the standard construction specifications.
## Corrugated Steel Pipe (Round)

<table>
<thead>
<tr>
<th>GAUGE</th>
<th>PIPE O.D.</th>
<th>METAL THICKNESS IN INCHES</th>
<th>INSTALLATION TYPE</th>
<th>INSTALLATION TYPE</th>
<th>INSTALLATION TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>3.50</td>
<td>0.060</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>30</td>
<td>4.00</td>
<td>0.064</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>4.50</td>
<td>0.069</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>42</td>
<td>5.00</td>
<td>0.074</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>48</td>
<td>5.50</td>
<td>0.079</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

### General Notes
- **CONSTRUCTION SEQUENCE**
  1. Place structural backfill material to grade, do not compact.
  2. Install pipe with the structural backfill inside the pipe as shown for installation type 1.
  3. Install structural backfill around the outside diameter of the pipe for installation type 2.

- **INSTALLATION TYPE**
  - **INSTALLATION TYPE 1**
    - Minimum height of 12 inches above ground level or 48 inches above pipe level, whichever is greater.
    - Minimum fill height above pipe level of 36 inches.
  - **INSTALLATION TYPE 2**
    - Minimum height of 12 inches above ground level or 48 inches above pipe level, whichever is greater.
    - Minimum fill height above pipe level of 36 inches.

- **SELECTED PIPE BEDDING**
  - Will be considered to be included in the price bid.
MINIMUM TRENCH WIDTH 
BASED ON FILL HEIGHT "H"

MINIMUM COVER FOR CONSTRUCTION LOADS

MINIMUM TRENCH WIDTH

TRENCH WIDTH

MINIMUM COVER (FEET)
FOR INDICATED
CONSTRUCTION LOADS

MINIMUM TRENCH WIDTH

TRENCH WIDTH

MINIMUM COVER (FEET)
FOR INDICATED
CONSTRUCTION LOADS

GENERAL NOTES

1. Place structural bedding material to grade, do not contact, and maintain pipe at grade.
2. Compact structural bedding outside the middle third of the pipe.
3. Compartment material shall be placed as directed by the engineer to prevent loss of structural bedding when necessary material is used for structural bedding and/or backfill.
4. After the existing bedding material for the pipe is excavated, the bed shall be compacted to the minimum cover values specified in the table. The bottom bedding layer shall be placed at the specified height, not exceeding 8". The layers shall be brought up evenly and simultaneously to the elevation of the minimum cover.
5. Pipe installation may require the use of restraint, weighting, and/or other approved methods in order to maintain grade and alignment.

UNCOMPACTED
MIDDLE STRUCTURAL BEDDING

GENERAL NOTES

1. Place structural bedding material to grade, do not contact, and maintain pipe at grade.
2. Compact structural bedding outside the middle third of the pipe.
3. Compartment material shall be placed as directed by the engineer to prevent loss of structural bedding when necessary material is used for structural bedding and/or backfill.
4. After the existing bedding material for the pipe is excavated, the bed shall be compacted to the minimum cover values specified in the table. The bottom bedding layer shall be placed at the specified height, not exceeding 8". The layers shall be brought up evenly and simultaneously to the elevation of the minimum cover.
5. Pipe installation may require the use of restraint, weighting, and/or other approved methods in order to maintain grade and alignment.

LEGEND

- UNIVERSITY
- UNEVEN
- SELECTED PIPE BEDDING
- STRUCTURAL BEDDING MATERIAL
- STRUCTURAL BACKFILL
- HAUNCH
- UNCOMPACTED
- MIDDLE STRUCTURAL BEDDING

CONSTRUCTION SEQUENCE

1. Place structural bedding material to grade, do not contact, and maintain pipe at grade.
2. Compact structural bedding outside the middle third of the pipe.
3. Compartment material shall be placed as directed by the engineer to prevent loss of structural bedding when necessary material is used for structural bedding and/or backfill.
4. After the existing bedding material for the pipe is excavated, the bed shall be compacted to the minimum cover values specified in the table. The bottom bedding layer shall be placed at the specified height, not exceeding 8". The layers shall be brought up evenly and simultaneously to the elevation of the minimum cover.
5. Pipe installation may require the use of restraint, weighting, and/or other approved methods in order to maintain grade and alignment.

H = FILL HEIGHT (FT.)
D = OUTSIDE DIAMETER OF PIPE
o = STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE
8" MIN. STRUCTURAL BEDDING IF ROCK
6" MIN. STRUCTURAL BEDDING IF ROCK
95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
MAX. FILL HEIGHT = 15'-0"
**GENERAL NOTES**

1.  PIPE SHALL CONFORM TO ASME A/SA196 CLASS S OR EQUIVALENT.

2.  PLASTIC PIPE DESIGN SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

3.  THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN MULTIPLE LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.

4.  THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN MULTIPLE LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.

5.  PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.

6.  THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN MULTIPLE LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.

7.  SELECTED PIPE BACKFILL SHALL BE USED AND MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

8.  PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.

9.  JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND Jointing Shall Be Installed Per Manufacturer's Recommendations.

10.  IN LIEU OF SELECTED MATERIAL, AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN PLACE OF SELECTED MATERIAL.

11.  JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

12.  WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.

13.  SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."

14.  STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1.50 INCH IN FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH.

15.  STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH.

16.  ** MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING **

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

<table>
<thead>
<tr>
<th>TRENCH WIDTH</th>
<th>FILL HEIGHT &quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'-6&quot;</td>
<td>0'-6&quot;</td>
</tr>
<tr>
<td>3'-0&quot;</td>
<td>0'-9&quot;</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>0'-12&quot;</td>
</tr>
</tbody>
</table>

**MINIMUM COVER FOR CONSTRUCTION LOADS**

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>MIN. COVER (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18&quot;</td>
<td>1'-6&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>30&quot;</td>
<td>2'-6&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>3'-0&quot;</td>
</tr>
</tbody>
</table>

**MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL**

<table>
<thead>
<tr>
<th>TRENCH WIDTH</th>
<th>MAXIMUM FILL HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;</td>
<td>11-17-10</td>
</tr>
<tr>
<td>24&quot;</td>
<td>0-10-30</td>
</tr>
<tr>
<td>20&quot;</td>
<td>0-8-36</td>
</tr>
</tbody>
</table>

**LEGEND**

- **D** = OUTSIDE DIAMETER OF PIPE
- **H** = FILL HEIGHT (FT.)
- **o** = UNDISTURBED SOIL
- **HAUNCH** = AREA
- **EMBANKMENT** = SECTION
- **PLASTIC PIPE CULVERT** = STANDARD DRAWING PCP-2
- **ARKANSAS STATE HIGHWAY COMMISSION** = REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SEE "MINIMUM COVER NOTE; DELETED" MO. ISSUE 11-17-10
- **MAX.** = MAXIMUM = UNDISTURBED SOIL
- **MIN.** = MINIMUM
- **TRENCH** = SECTION
- **REVISION** = REVISED GENERAL NOTE
- **(KIPS)** = KIPS
- **(FEET)** = FEET
**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"**

<table>
<thead>
<tr>
<th>INSTALLATION TYPE</th>
<th>TYPE 1 (SM-1)</th>
<th>TYPE 2 (SM-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D /3</td>
<td>18'</td>
<td>18'</td>
</tr>
<tr>
<td>H θ</td>
<td>42'</td>
<td>42'</td>
</tr>
<tr>
<td>18'</td>
<td>18'</td>
<td>18'</td>
</tr>
<tr>
<td>16'</td>
<td>16'</td>
<td>16'</td>
</tr>
<tr>
<td>14'</td>
<td>14'</td>
<td>14'</td>
</tr>
</tbody>
</table>

**MAXIMUM HEIGHT OF FILL "H"**

<table>
<thead>
<tr>
<th>INSTALLATION TYPE</th>
<th>TYPE 1 (SM-1)</th>
<th>TYPE 2 (SM-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D /3</td>
<td>18'</td>
<td>18'</td>
</tr>
<tr>
<td>H θ</td>
<td>42'</td>
<td>42'</td>
</tr>
<tr>
<td>18'</td>
<td>18'</td>
<td>18'</td>
</tr>
<tr>
<td>16'</td>
<td>16'</td>
<td>16'</td>
</tr>
<tr>
<td>14'</td>
<td>14'</td>
<td>14'</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**

1. PIPE INSTALLATION SHALL BE DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE REQUIREMENTS OF THE ENGINEER'S DESIGN.
2. PLASTIC PIPE CULVERT DESIGN SHALL COMPLY WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION.
3. CONSTRUCTION SEQUENCE:
   1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
   2. INSTALL PIPE TO GRADE.
   3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
   4. INSTALL RESTRAINTS, WEIGHTING, OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.

**MINIMUM COVER FOR CONSTRUCTION LOADS**

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>MINIMUM COVER (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>42&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>8'-0&quot;</td>
</tr>
<tr>
<td>60&quot;</td>
<td>12'-0&quot;</td>
</tr>
</tbody>
</table>

**PLASTIC PIPE CULVERT (POLYPROPYLENE)**

**LEGEND**

- STRUCTURAL BEDDING MATERIAL
- UNDISTURBED SOIL
- POLYPROPYLENE
- DIRT
NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC MUST MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 1. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR THE SHORTER LENGTH.

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

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS.

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORKshall BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS.

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE REMOVAL AND DISPOSAL OF EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE INCLUDED IN THE PRICE BID.

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON ENGINEER'S PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND GRAVEL MATERIAL, AND THE BASE MATERIAL SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

NOTE: ALTERNATE NOTE FOR 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 FOR "4" PIPE UNDERDRAINS.

NOTE: REVISED DETAIL AND NOTES, ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, ADDED NOTES FOR PIPE UNDERDRAINS.
REINFORCED CONCRETE BOX CULVERT DETAILS

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28-DAY COMpressive STRENGTH OF 3500 PSi.
REINFORCING STEEl SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING REPWee HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BOX CULVERT GENERAL NOTES. NO PAYMENT SHALL BE MADE FOR THIS ITEM. PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPEnING SHALL BE 4" DIAMETER AND SHALL Be PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB. WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL Be SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL Be A MINIMUM OF TWO (2) WEeP HOLES IN WINGWALLS. THE DRAIN OPENING SHALL Be 4" DIAMETER AND SHALL Be PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

MEmBRANE WATERPROOFING SHALL Be APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.

STANDARD SPECIFICATIONS.

WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT HEADWALL MODIFICATIONS

The modified headwall shall be equal to the roadway length "RL". The ends of the headwall shall be constructed parallel to the skew angle of the box culvert.

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD DRAWING RCB-1
PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

GENERAL NOTES:
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.
EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES. ROADWAY EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION PAY LIMITS, BACKFILL & SOLID SODDING FOR BOX CULVERTS

SECTION B-B
DETAILS FOR NEW CHANNELS

SECTION C-C
DETAILS THROUGH EXISTING CHANNELS

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD DRAWING RCB-2
2. Super elevation values shown on the cross sections are values to permit simpler calculations.

**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.)

**Added Formula**

**Issued**

**Date**

**Date filmed**

**Arkansas State Highway Commission**

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

3. Lengths for L may be rounded in multiples of 25 ft. or 50 ft.

4. Pavements wider than 2 lanes shall have additional transition

<table>
<thead>
<tr>
<th>Lane Configuration</th>
<th>Additional Transition</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Lane Undivided</td>
<td>+20%</td>
</tr>
<tr>
<td>4 Lane Undivided</td>
<td>+50%</td>
</tr>
<tr>
<td>5 Lane Undivided</td>
<td>+80%</td>
</tr>
<tr>
<td>6 Lane Undivided</td>
<td>+100%</td>
</tr>
</tbody>
</table>

**Rate of Super elevation** shall be computed on straight line method using applicable Ls.

**Note:** Maintain normal crown on inside until super elevation exceeds 2C.

**Proportional increase in super elevation** uniformly increasing super elevation

**Proportional decrease in super elevation** uniformly decreasing super elevation

**Profile**

- Inside pavement or subgrade edge
- Outside pavement or subgrade edge
- Control point (P.C. or P.T.)

**Actual vs Theoretical profile**

**Maximum super elevation** outside pavement or subgrade edge

**Control point** (P.C. or P.T.)

**Notes:**
- Uniformly increasing super elevation
- Uniformly decreasing super elevation
- Maximum super elevation

**Tables and Method of super elevation**

**Copy**

**Standard drawing SE-2**
**REVISED NOTES**

**W8-9a & ADDED W8-9**

STD. 48"X48"

REVISED FOR MASH

ADDED REFERENCE TO MASH & ADDED SIGN W24-1

48"X48"

ADDED R55-1

MILES

STD.

REVISED W24-1

G20-1

REVISED NOTE 5

SPECIAL

DELETED RSP-1  & ADDED W21-5a

STANDARD

SPECIAL

FWY.

STD.

EXPWY.

STD.

STD. 48"X48"

UNEVEN

RI-I

W1-3

W8-11

XXXX

LOW

XXXX

48"X48"

36"X36"

48"X48"

36"X36"

30"X30"

48"X60"

24"X30"

3 6 "X 3 6 "

4 8 "X 4 8 "

60"X30"

48"X24"

30"X30"

36"X36"

60"X30"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"

48"X48"
CLEARING AND GRUBBING

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

EXCAVATION

EXISTING GROUND

EXISTING GROUND

EXCAVATION

INTERCEPTOR OR DIVERSION DITCH

PHASE 1 EXCAVATION

PHASE 2 EXCAVATION

FINAL PHASE EXCAVATION

GENERAL NOTE

CONSTRUCTION SEQUENCE
1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. EXITING DITCHES, CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, ETC.)

EMBANKMENT

EXISTING GROUND

PHASE 1 EMBANKMENT

PHASE 2 EMBANKMENT

FINAL PHASE EMBANKMENT

GENERAL NOTE

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E., SILT FENCES, DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.
3. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
5. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

NOTE:

SLOPE IS STABILIZED.

PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE WORK PROGRESS.

SIDE DITCH

CONTROL DEVICES

VARIOUS EROSION

GENERAL NOTE

CONSTRUCTION SEQUENCE
1. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
2. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
3. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
4. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
5. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.

NOTE:

THE WORK PROGRESS.

EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

NOTE:

THE WORK PROGRESS.

UNTIL SLOPE IS COMPLETELY STABILIZED.

NOTE:

THE WORK PROGRESS.

SLOPE IS COMPLETELY STABILIZED.

NOTE:

THE WORK PROGRESS.

SLOPE IS COMPLETELY STABILIZED.