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 - 15</td>
<td>SPECIAL DETAILS</td>
</tr>
<tr>
<td>15 - 17</td>
<td>TEMPORARY EROSION CONTROL DETAILS</td>
</tr>
<tr>
<td>18 - 21</td>
<td>MAINTENANCE OF TRAFFIC DETAILS</td>
</tr>
<tr>
<td>22</td>
<td>PERMANENT PAVEMENT MARKING DETAILS</td>
</tr>
<tr>
<td>23 - 25</td>
<td>QUANTITIES</td>
</tr>
<tr>
<td>26</td>
<td>SUMMARY OF QUANTITIES AND REVISIONS</td>
</tr>
<tr>
<td>27 - 29</td>
<td>SURVEY CONTROL DETAILS</td>
</tr>
<tr>
<td>30 - 31</td>
<td>PLAN AND PROFILE SHEETS</td>
</tr>
<tr>
<td>32 - 42</td>
<td>CROSS SECTIONS</td>
</tr>
</tbody>
</table>

ROADWAY STANDARD DRAWINGS

<table>
<thead>
<tr>
<th>DRAWING</th>
<th>TITLE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDP-1</td>
<td>CONCRETE DITCH PAVING</td>
<td>12-08-6</td>
</tr>
<tr>
<td>PCC-1</td>
<td>PRECAST CONCRETE BOX CULVERTS</td>
<td>01-28-5</td>
</tr>
<tr>
<td>PCC-1</td>
<td>CONCRETE PIPE CULVERTS, HUNTS &amp; BEDDING</td>
<td>02-27-4</td>
</tr>
<tr>
<td>PCC-2</td>
<td>PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)</td>
<td>02-27-4</td>
</tr>
<tr>
<td>PCC-3</td>
<td>PLASTIC PIPE CULVERT (POLYPROPYLENE)</td>
<td>02-27-4</td>
</tr>
<tr>
<td>PCC-3</td>
<td>PLASTIC PIPE CULVERT (POLYPROPYLENE)</td>
<td>02-27-4</td>
</tr>
<tr>
<td>PCC-3</td>
<td>TYPICAL SECTIONS OF IMPROVEMENT</td>
<td>02-27-4</td>
</tr>
<tr>
<td>PCC-4</td>
<td>DETAILS OF PIPE UNDERDRAIN</td>
<td>12-08-6</td>
</tr>
<tr>
<td>RCB-1</td>
<td>REINFORCED CONCRETE BOX CULVERT DETAILS</td>
<td>07-26-2</td>
</tr>
<tr>
<td>RCB-2</td>
<td>EXCAVATION OF FLOOD PLAIN, BACKFILL, ETC. FOR BOX CULVERTS</td>
<td>11-20-2</td>
</tr>
<tr>
<td>SE 2</td>
<td>TABLES AND METHOD OF SUPERELEVATION FOR HIGHWAY TRAFFIC</td>
<td>11-07-9</td>
</tr>
<tr>
<td>TC 1</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
<td>11-07-9</td>
</tr>
<tr>
<td>TC 2</td>
<td>STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</td>
<td>11-07-9</td>
</tr>
<tr>
<td>TEC 1</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
<td>11-16-7</td>
</tr>
<tr>
<td>TEC 1</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
<td>11-07-9</td>
</tr>
<tr>
<td>TEC 1</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
<td>11-07-9</td>
</tr>
<tr>
<td>WP 1</td>
<td>WIRE FENCE WATER GAP</td>
<td>04-20-9</td>
</tr>
<tr>
<td>WP 1</td>
<td>WIRE FENCE TYPE C AND D</td>
<td>08-22-2</td>
</tr>
</tbody>
</table>
GOVERNING SPECIFICATIONS
ARIZONA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY IMPROVEMENT, INCLUSION OF SMALL AND LARGE HIGHWAY IMPROVEMENT AND SUPPLEMENTAL SPECIFICATIONS.

NUMBER
ERRATA
ERRATA FOR THE BOD OF STANDARD SPECIFICATIONS
FWAR-1272
REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FWAR-1273
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICES TO CONTRACTORS
FWAR-1273
SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FWAR-1273
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FWAR-1273
SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FWAR-1273
SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FWAR-1273
SUPPLEMENT - VASSE RATE DETERMINATION
101.3
CONTRACTORS LICENSE
101.4
DEPARTMENT NAME/CHARGE
101.5
ISSUANCE OF PROPOSALS
101.6
LIQUIDATED DAMAGES
101.6.2
WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110.1
PROTECTION OF WATER QUALITY AND WETLANDS
210.1
UNCLASSIFIED EXCAVATION
210.3
AGGREGATE BASE COURSE
360.1
QUALITY CONTROL AND ACCEPTANCE
400.1
TACK COATS
400.4
DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400.5
PERCENT AIR Voids FOR ASHAL Mix DESIGNS
400.6
LIQUID ANTI-STRIPE ADOITVE
400.7
TRACLESS TACK
400.13
DESIGN OF ASPHALT MIXTURES
410.1
CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410.2
DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
500.2
INCIDENTAL CONSTRUCTION
561.3
LARGE CLOSURE NOTIFICATION
506.1
REMOVAL OF EFFECTIVE GATING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
506.3
TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (310.3)
506.5
PIPE LAYERS FOR USE DUR IN
540.1
MULCH COVER
561.4
FILTER SOCKS
560.1
STRUCTURES
564.2
REINFORCING STEEL FOR STRUCTURES
508.2
BIDDING REQUIREMENTS AND CONDITIONS
508.2.2
BROADBAND INTERNET SERVICE FOR ASHALT CONCRETE PLANT
508.2.6
BROADBAND INTERNET SERVICE FOR FIELD OFFICE
508.3
CARGO PREFERENCE ACT REQUIREMENTS
508.2.8
CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
508.7
DISADVANTAGED BUSINESS ENTERPRISE RELATED RESPONSIBILITIES
508.2.10
ESTABLISH CONTRACT TIME - WORKING DAY CONTRACT
508.2.12
FLEXIBLE BEGINNING OF WORK
508.2.14
GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
508.2.16
MANDATORY ELECTRIC CONTRACT
508.2.18
MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
508.2.30
NESTING SITES OF MIGRATORY BIRDS
508.2.32
PARTNERING REQUIREMENTS
508.2.34
PLASTIC PIPE
508.2.36
PHYSICAL SITE INVESTIGATION OF SOIL CONDITIONS
508.2.38
PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
508.2.39
SHORNS FOR CURB/S
508.2.40
SOLAR IRRIGATION
508.2.42
STORM WATER POLLUTION PREVENTION PLAN
508.2.43
SUBMISSION OF ASHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
508.2.45
UTILITY ADJUSTMENTS
508.2.46
VALUE ENGINEERING
508.2.48
WARM MIX ASPHALT
508.2.50
WATER POLLUTION CONTROL & RESTRAINING CONDITIONS

GENERAL NOTES
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWING 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. THE CONTRACTOR IS WILL BE RESPONSIBLE FOR MAINTAINING U.S. MAIL BOXES WITHIN THE PROJECT LIMITS IN SUCH A MAN MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE EST FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERENCE WITH THE PROPOSED CONSTRUCTION SHALL BE PARED AND DIRECTED BY THE CONTRACTOR. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HANDLED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR IS WILL BE RESPONSIBLE FOR PROVIDING A FEWER TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. ANY FENCE MAY BE CONSTRUCTED TEMPORALLY, OR IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT TO BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. (a) A) IN AS FALTER ANY ASPHALT PAVEMENT PROJECT SHALL BE PAID FOR IN THE ITEM NO 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAVING ALONG A NEUTRAL LINE AFTER SAVING THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN SUCH A MANNER THAT IT WILL NOT DAMAGE THE PAVEMENT THAT IS REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS REMAINING PLACE SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
11. THIS PROJECT IS COVERED UNDER A SECTION 404 (BANSANAP) 1. PERMIT REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
DETAIL FOR TRANSITIONS

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

METHOD OF RAISING GRADE

NOTES:

1. THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

2. QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT HERE 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.
**Mid-Section**

**Bar Lap Table**

<table>
<thead>
<tr>
<th>Bar Grade</th>
<th>Size</th>
<th>Length</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>60000</td>
<td>1/2&quot;</td>
<td>12&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>60000</td>
<td>5/8&quot;</td>
<td>15&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>60000</td>
<td>3/4&quot;</td>
<td>18&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

**Additional Notes for lap bars**

- Bar size: 1/2" or 5/8"
- Spacing: 3" or 4"

**Notes**

- For lap bar requirements, the width of the lap section shall be considered equal to the smaller of the two widths.
- The lap section is based on the design fill depth shown in the table. See Style and Figure Sheets for actual fill depth.
### Reinforcing Steel Width of Wing Footing Dimensions

<table>
<thead>
<tr>
<th>Class &quot;S&quot; Concrete (includes main and head wall)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Footings</strong> (required)</td>
</tr>
<tr>
<td><strong>Footings at HDWL</strong></td>
</tr>
<tr>
<td><strong>Footings parallel with HDWL</strong></td>
</tr>
<tr>
<td><strong>Footings at wingwall</strong></td>
</tr>
<tr>
<td><strong>Footings at wall end</strong></td>
</tr>
<tr>
<td><strong>Footings at wing end</strong></td>
</tr>
<tr>
<td><strong>Length of footing</strong></td>
</tr>
<tr>
<td><strong>Length of footing heel</strong></td>
</tr>
<tr>
<td><strong>Length of angle</strong></td>
</tr>
<tr>
<td><strong>Concrete</strong> (includes apron and laps if required)</td>
</tr>
</tbody>
</table>

### Heel Slope

- **Slope**
- **Wall End**
- **Wing**
- **Wing Wall**

### Footing Width at 6'-6" 12'-0" 1'-1"

<table>
<thead>
<tr>
<th>Wall End</th>
<th>Wing</th>
<th>Wing Wall</th>
<th>Wing</th>
<th>Wing Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Clear Height

- **64'-6" 12'-0" 1'-1"**
- **Max 4'-0" Max 2'-8" Max 4'-8" 5'-8"**

### Additional Reinforcement for HDWL

- **Class "S" Concrete (includes HDWL)**
- **Steel (Gr. 60)**

### Details of RC Box Culvert

- **Quintuple Barrel Box Culvert**
- **Std. 12+7**

**Special Details**

The required number of bars and lengths shown are for estimating purposes only. The actual number and lengths required shall be determined in field. Unless otherwise noted, all dimensions are in inches.
mid-section

bar lap table

<table>
<thead>
<tr>
<th>CLASS &quot;B&quot; CONCRETE</th>
<th>REINFORCING STEEL (GR 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL WIDTH</td>
<td>OVERALL HEIGHT</td>
</tr>
<tr>
<td>RELATED/MARKETING</td>
<td>RELATED/MARKETING</td>
</tr>
<tr>
<td>RELATED/MARKETING</td>
<td>RELATED/MARKETING</td>
</tr>
<tr>
<td>RELATED/MARKETING</td>
<td>RELATED/MARKETING</td>
</tr>
<tr>
<td>RELATED/MARKETING</td>
<td>RELATED/MARKETING</td>
</tr>
<tr>
<td>RELATED/MARKETING</td>
<td>RELATED/MARKETING</td>
</tr>
<tr>
<td>RELATED/MARKETING</td>
<td>RELATED/MARKETING</td>
</tr>
</tbody>
</table>

Design data for mid-section, slope, sectional, and
shared end sections is based on the design fill depth shown in this table, see style and figure sheets for actual fill depth.

sheet 1 of 2
quntuple barrel box culvert
sta. 117+17
special details
<table>
<thead>
<tr>
<th>CLASS &quot;S&quot; CONCRETE</th>
<th>REINFORCING STEEL (GR 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH = OW - 4&quot; + BENDS</td>
<td>LENGTH = SL</td>
</tr>
<tr>
<td>NO. REQ'D</td>
<td>NO. REQ'D</td>
</tr>
<tr>
<td>SIZE</td>
<td>SIZE</td>
</tr>
<tr>
<td>SPACING</td>
<td>SPACING</td>
</tr>
<tr>
<td>LENGTHS</td>
<td>LENGTHS</td>
</tr>
<tr>
<td>HD</td>
<td>HD</td>
</tr>
<tr>
<td>LBS.</td>
<td>LBS.</td>
</tr>
</tbody>
</table>

**OUTLET WINGWALL TABLE**

<table>
<thead>
<tr>
<th>INTERIOR WALL THK.</th>
<th>OVERALL HEIGHT</th>
<th>BRIDGE WIDTH (FT.)</th>
<th>OVERALL WIDTH</th>
<th>CLEAR SPAN (FT.)</th>
<th>CLEAR HEIGHT (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'-10&quot;</td>
<td>58'-8&quot;</td>
<td>4'-2&quot;</td>
<td>3'-5&quot;</td>
<td>1'-9&quot;</td>
<td>9'-10&quot;</td>
</tr>
</tbody>
</table>

**OUTLET WINGWALL END SECTION**

<table>
<thead>
<tr>
<th>NO.</th>
<th>LENGTH</th>
<th>NO. REQ'D</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; HRC BARS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2&quot; HRC BARS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot; HRC BARS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OUTLET SLOPE SECTIONS**

<table>
<thead>
<tr>
<th>NO.</th>
<th>LENGTH</th>
<th>NO. REQ'D</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OUTLET LIGHTWEIGHT CALCULATIONS**

<table>
<thead>
<tr>
<th>NO.</th>
<th>LENGTH</th>
<th>NO. REQ'D</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REINFORCING STEEL**

<table>
<thead>
<tr>
<th>CLASS &quot;S&quot; CONCRETE</th>
<th>REINFORCING STEEL (GR 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH = OW - 4&quot; + BENDS</td>
<td>LENGTH = SL</td>
</tr>
<tr>
<td>NO. REQ'D</td>
<td>NO. REQ'D</td>
</tr>
<tr>
<td>SIZE</td>
<td>SIZE</td>
</tr>
<tr>
<td>SPACING</td>
<td>SPACING</td>
</tr>
<tr>
<td>LENGTHS</td>
<td>LENGTHS</td>
</tr>
<tr>
<td>HD</td>
<td>HD</td>
</tr>
<tr>
<td>LBS.</td>
<td>LBS.</td>
</tr>
</tbody>
</table>
STAGE 1 CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AS SHOWN.
INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT QNT=124"x124" R.C. BOX CULVERT AT STA 124+71.
QNT=124"x124" R.C. BOX CULVERT AT STA 121+71, AND PROPOSED ROADWAY FROM STA 120+70 TO STA 120+66 THROUGH FIRST LAYER OF SURFACE COURSE, REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES AND CONSTRUCTION JOINTS.

UTILIZE METHOD OF RAISING GRADE, CONSTRUCT REMAINING PROPOSED ROADWAY FROM STA 122+74.6 TO 128+00 AND 120+70 TO 127+68.95.

STAGE 2 CONSTRUCTION SEQUENCE

MAINTAIN ADVANCE WARNING SIGNS AS SHOWN.
INSTALL CONSTRUCTION PAVEMENT MARKINGS AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC ONTO NEW LOCATION ROADWAY CONSTRUCTED IN STAGE 1.
OBLITERATE STAGE 1 METHOD OF RAISING GRADE TRANSITION AND REMOVE EXISTING BRIDGE STRUCTURE.
CONSTRUCT FINAL SLOPES IN REQUIRED LOCATIONS.

FINAL STAGE CONSTRUCTION SEQUENCE

MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND INSTALL FINAL 2" LIFT OF ACWM SURFACE COURSE.
INSTALL GUARDRAIL AND PERMANENT PAVEMENT MARKING AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

STAGE 1 QUANTITIES

SIGNS = 108.5 SQ. FT.
TRAFFIC DRUMS = 64 EA.
TYPE II BARRICADE-RT = 32 LIN. FT.
TYPE II BARRICADE-LT = 32 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 1600 LIN. FT.

STAGE 2 QUANTITIES

SIGNS = 224.3 SQ. FT.
TRAFFIC DRUMS = 64 EA.
TYPE II BARRICADE-RT = 64 LIN. FT.
TYPE II BARRICADE-LT = 64 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 10,572 LIN. FT.
PERMANENT PAVEMENT MARKING

REFLECTORIZED PAVEMENT MARKING 48" X 528" LENGTH, 48" X 20' WIDTH.
PAVEMENT MARKINGS TO BE PAINTED ON EACH LANE.

NOTE: THE 6" YELLOW STRIPE QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW LINE. THE ESTIMATE IS AROUND 1.5 TONS PER MILE.
PAVEMENT MARKINGS SINGLE LINE WILL BE REQUIRED FOR PASSING LANE ZONES PRIOR TO THE PLACEMENT OF ANY PAVEMENT STRIPING.

The project has been designed to accommodate a single lane width of 9 feet, with a shoulder width of 3 feet on either side.

ST. 102+74.65
BEGIN JOB 030528
LOG MILE 0.83

ST. 124+00
END JOB 030528
**CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>END OF JOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTRUCTION PAVEMENT MARKINGS</td>
<td>1600</td>
<td>10812</td>
<td>12112</td>
</tr>
<tr>
<td>RAISED PAVEMENT MARKERS TYPE I (YELLOW/WHITE)</td>
<td>33</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>REFLECTORIZED PAINT MARKING MARQUEE (B’)</td>
<td>5266</td>
<td>5266</td>
<td></td>
</tr>
<tr>
<td>REFLECTORIZED PAINT MARKING MARKING YELLOW (S)</td>
<td>5266</td>
<td>5266</td>
<td></td>
</tr>
<tr>
<td>TOTALS:</td>
<td>12112</td>
<td>33</td>
<td>5266</td>
</tr>
</tbody>
</table>

**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>MAXIMUM NUMBER REQUIRED</th>
<th>TOTAL SIGNS REQUIRED</th>
<th>VERTICAL PANELS</th>
<th>TRAFFIC DRUMS</th>
<th>BARRICADES (TYPE I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W0-1</td>
<td>ROAD WORK 1900 FT.</td>
<td>48&quot; x 48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>32.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W0-2</td>
<td>ROAD WORK 1900 FT</td>
<td>48&quot; x 48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>32.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W0-3</td>
<td>ROAD WORK 500 FT.</td>
<td>48&quot; x 48&quot;</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G0-2</td>
<td>END ROAD WORK</td>
<td>48&quot; x 24&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-1</td>
<td>ROAD CLOSED</td>
<td>48&quot; x 24&quot;</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-6</td>
<td>LARGE ARROW</td>
<td>48&quot; x 24&quot;</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W0-1a</td>
<td>RIGHT SHOULDER CLOSED</td>
<td>48&quot; x 24&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-1</td>
<td>BUMP</td>
<td>30&quot; x 20&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>12.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERTICAL PANELS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>49</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>TRAFFIC DRUMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64</td>
<td>117</td>
<td>117</td>
</tr>
<tr>
<td>TYPE 2 BARRICADE - RT. (16&quot;)</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE 2 BARRICADE - LT. (18&quot;)</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS:</td>
<td>224.8</td>
<td>48</td>
<td>117</td>
<td>64</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EROSION CONTROL**

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>PERMANENT EROSION CONTROL</th>
<th>Temporary Erosion Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEEDING</td>
<td>LIME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACRE</td>
<td>TON</td>
</tr>
<tr>
<td>ENTER</td>
<td>PROJECT</td>
<td>CLEARING AND GRUBBING</td>
<td>5.09</td>
<td>5.49</td>
</tr>
<tr>
<td>ENTER</td>
<td>PROJECT</td>
<td>STAGE 1</td>
<td>1.96</td>
<td>1.96</td>
</tr>
<tr>
<td>ENTER</td>
<td>PROJECT</td>
<td>STAGE 2</td>
<td>4.09</td>
<td>8.18</td>
</tr>
<tr>
<td>ENTER PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER</td>
<td>1.02</td>
<td>2.64</td>
<td>1.00</td>
<td>104.0</td>
</tr>
<tr>
<td>TOTALS:</td>
<td>9.11</td>
<td>10.22</td>
<td>5.11</td>
<td>523.2</td>
</tr>
</tbody>
</table>

**Basis of Estimate:**
- **LIME:** 4 TONS / ACRE OF SEEDING
- **WATER:** 100 GALLONS / ACRE OF SEEDING
- **SAND BAG DITCH CHECKS:** 100 BAGS / ACRE OF SEEDING

**Note:** The temporary erosion control devices shown above are designed for temporary use only. They shall be installed in such a sequence as to deter erosion and sedimentation on U.S. Waterways as explained by the National Pollutant Discharge Elimination System Permit.

*Quantities estimated. See Section 104.03 of the STD, Specs.*
### Clearing and Grubbing

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Clearing</th>
<th>Grubbing</th>
</tr>
</thead>
<tbody>
<tr>
<td>102+00</td>
<td>HWY 355</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>20</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

### Removal of Existing Bridge Structure

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Lump Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>112+41</td>
<td>HWY 355</td>
<td>1.00</td>
</tr>
<tr>
<td>116+88</td>
<td>HWY 355</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>2.00</strong></td>
</tr>
</tbody>
</table>

### Removal and Disposal of Guardrail

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Guardrail</th>
</tr>
</thead>
<tbody>
<tr>
<td>112+00</td>
<td>HWY 355</td>
<td>42</td>
</tr>
<tr>
<td>112+00</td>
<td>HWY 355</td>
<td>40</td>
</tr>
<tr>
<td>113+00</td>
<td>HWY 355</td>
<td>40</td>
</tr>
<tr>
<td>113+00</td>
<td>HWY 355</td>
<td>40</td>
</tr>
<tr>
<td>116+47</td>
<td>HWY 355</td>
<td>40</td>
</tr>
<tr>
<td>116+47</td>
<td>HWY 355</td>
<td>40</td>
</tr>
<tr>
<td>117+47</td>
<td>HWY 355</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>320</strong></td>
</tr>
</tbody>
</table>

### Asphalt Concrete Patching for Maintenance of Traffic

<table>
<thead>
<tr>
<th>Location</th>
<th>TON</th>
<th>Tack Coat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Project - To be used if and where directed by the Engineer</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>13</td>
<td>26</td>
</tr>
</tbody>
</table>

### ACHM Patching of Existing Roadway

<table>
<thead>
<tr>
<th>Description</th>
<th>TON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Project - To be used if and where directed by the Engineer</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>10</td>
</tr>
</tbody>
</table>

### Fencing

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Wire Fence</th>
</tr>
</thead>
<tbody>
<tr>
<td>101+61</td>
<td>RT. OF HWY 355</td>
<td>TYPE C-11</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>281</strong></td>
</tr>
</tbody>
</table>

### Erosion Control Matting

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Length</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>112+71</td>
<td>HWY 355</td>
<td>2443.75</td>
<td>2171.37</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>2171.37</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Structures

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>Span</th>
<th>Height</th>
<th>Length</th>
<th>Class 5 Concrete</th>
<th>Roadway Grade</th>
<th>Uncleaved</th>
<th>Sold Sodding</th>
<th>Water</th>
<th>Std. Dwg. Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>112+71</td>
<td>Quint 12 x 12 40 R.C. Box Culvert</td>
<td>12</td>
<td>12</td>
<td>62</td>
<td>3680.61</td>
<td>5088.87</td>
<td>1668</td>
<td>239</td>
<td>1.38</td>
<td>2BC-1, RCB-1, RCB-2, SPEC. DETAILS</td>
</tr>
<tr>
<td>117+17</td>
<td>Quint 18 x 18 40 R.C. Box Culvert</td>
<td>11</td>
<td>9</td>
<td>62</td>
<td>4195.91</td>
<td>4800.00</td>
<td>1468</td>
<td>239</td>
<td>1.38</td>
<td>2BC-1, RCB-1, RCB-2, SPEC. DETAILS</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>3680.61</strong></td>
<td><strong>1668</strong></td>
<td><strong>239</strong></td>
<td><strong>1.38</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Concrete Ditch Paving

### Dimensions
- **Length**: 
  - Concrete Ditch Paving: 1113'00.00
  - Solid Sodding: 2000

### Water
- **Basis of Estimate**: 12.8gal / sq. yd. of solid sodding.

### 4" Pipe Underdrain

### Basis of Estimate
- **Concrete Surface Course (1")**: 94.5% Min. AADT, 12% Asphalt Binder
- **Maximum Number of Overtakes** = 115 for PG 64-22

### Quantity Estimation
- See Section 104.03 of the Std. Specs.

### Earthwork
- **Unclassified Volume**: 6032
- **Compacted Volume**: 5972
- **Stabilization Volume**: 90

### Base and Surfacing

<table>
<thead>
<tr>
<th>Station</th>
<th>GSD</th>
<th>Location</th>
<th>Width</th>
<th>Aggregate Base Course (Class 1)</th>
<th>Tack Coat</th>
<th>ACHM Binder Course (1&quot;)</th>
<th>ACHM Surf. Base Course (1&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>109746.93</td>
<td>109746.93</td>
<td>TRANSITION</td>
<td>100.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>11.11</td>
</tr>
<tr>
<td>109726.81</td>
<td>109726.81</td>
<td>TRANSITION</td>
<td>20.00</td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
<td>11.11</td>
</tr>
<tr>
<td>109736.30</td>
<td>109736.30</td>
<td>TRANSITION</td>
<td>100.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>11.11</td>
</tr>
<tr>
<td>109736.99</td>
<td>109736.99</td>
<td>TRANSITION</td>
<td>20.00</td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
<td>11.11</td>
</tr>
</tbody>
</table>

### Additional for Surfacing

<table>
<thead>
<tr>
<th>Station</th>
<th>GSD</th>
<th>Location</th>
<th>Width</th>
<th>Additional Surf. Coat</th>
<th>Vapor Barrier</th>
<th>ACHM Binder Course (1&quot;)</th>
<th>ACHM Surf. Base Course (1&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>109746.93</td>
<td>109746.93</td>
<td>TRANSITION</td>
<td>100.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>11.11</td>
</tr>
<tr>
<td>109736.82</td>
<td>109736.82</td>
<td>TRANSITION</td>
<td>20.00</td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
<td>11.11</td>
</tr>
<tr>
<td>109736.86</td>
<td>109736.86</td>
<td>TRANSITION</td>
<td>100.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>11.11</td>
</tr>
<tr>
<td>109736.99</td>
<td>109736.99</td>
<td>TRANSITION</td>
<td>100.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>11.11</td>
</tr>
<tr>
<td>ITEM NUMBER</td>
<td>ITEM DESCRIPTION</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>------------------</td>
<td>----------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>201</td>
<td>CLEARING</td>
<td>26</td>
<td>STATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>201</td>
<td>GRUBBING</td>
<td>26</td>
<td>STATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1312</td>
<td>LIN FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1</td>
<td>EACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>320</td>
<td>LIN FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>15883</td>
<td>CU YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>3437</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>920</td>
<td>GAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>700</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>32</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1899</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>100</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>444</td>
<td>SQ YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>13</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>10</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1.00</td>
<td>LUMP SUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1</td>
<td>EACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>5.00</td>
<td>LUMP SUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>225</td>
<td>SQ FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>128</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>117</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>12172</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>49</td>
<td>EACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>350</td>
<td>SQ YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>32</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>10</td>
<td>CU YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1560</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>6</td>
<td>EACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>2010</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>482</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>10</td>
<td>TON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>5.11</td>
<td>ACRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>17.09</td>
<td>ACRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>770.0</td>
<td>GAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>11.96</td>
<td>ACRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>508</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>649</td>
<td>BAG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>132</td>
<td>CU YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>153</td>
<td>CU YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>265</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>5.11</td>
<td>ACRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>342</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>2171</td>
<td>SQ YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1.00</td>
<td>LUMP SUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>5286</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>5286</td>
<td>LBF FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>33</td>
<td>EACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>1.00</td>
<td>LUMP SUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>3.00</td>
<td>LUMP SUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>3078</td>
<td>CU YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>965.61</td>
<td>CU YD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF DRAINAGE SYSTEM</td>
<td>110.07</td>
<td>TOON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUMMARY OF QUANTITIES AND REVISIONS**

<table>
<thead>
<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
</tr>
</thead>
</table>

12/15/2020
### SURVEY CONTROL DETAILS

<table>
<thead>
<tr>
<th>POINT NO.</th>
<th>TYPE</th>
<th>STATION</th>
<th>N0P01824028 2020</th>
<th>DEC 2018</th>
<th>DEC 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>8000</td>
<td>P06</td>
<td>88-09-02</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8001</td>
<td>P07</td>
<td>88-09-06</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8002</td>
<td>P08</td>
<td>129-09-02</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8003</td>
<td>P09</td>
<td>129-09-06</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8004</td>
<td>P10</td>
<td>129-10-02</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8005</td>
<td>P11</td>
<td>129-10-06</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8006</td>
<td>P12</td>
<td>129-11-02</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
<tr>
<td>8007</td>
<td>P13</td>
<td>129-11-06</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
<td>8227792, 39292</td>
</tr>
</tbody>
</table>

Legend:
- **P06, P07, P08, P09, P10, P11, P12, P13**
  - Points are labeled with P and the number to indicate their position.
- **8227792, 39292**
  - Coordinates are presented in the format of X-Y, where X represents the horizontal (east-west) component and Y represents the vertical (north-south) component.

Additional Notes:
- These coordinates are specific to the project and are used for surveying and mapping purposes.
- The coordinates are accurate to within the specified error margin, which is typically ±0.001 meters.
STA. 124+00.00 TO STA. 126+00.00

CUT VOLUME 25
FILL VOLUME 107

CUT VOLUME 31
FILL VOLUME 55

CUT VOLUME 6
FILL VOLUME 55

CUT VOLUME 6
FILL VOLUME 70

CUT VOLUME 25
FILL VOLUME 75

CUT AREA 18
FILL AREA 20

CUT AREA 14
FILL AREA 10

CUT AREA 16
FILL AREA 1
### STA. 127+00.00 TO STA. 128+16.95

**Measurements**

- **Fill Area**: 5
- **CUT Area**: 61
- **Fill Volume**: 3
- **CUT Volume**: 41
- **Fill Volume**: 7
- **CUT Volume**: 126

**Section Details**

- **127+16.95**: Begin 100' Transition
- **128+16.95**: End 100' Transition

**Cross Sections**

- STA. 127+00.00 to STA. 128+16.95

**Legend**

- **R**: Right
- **L**: Left
- **D**: Down
- **U**: Up

**Note**

- The diagram shows the transition sections with measurements for fill and cut volumes, as well as the cross-sections between STA. 127+00.00 and STA. 128+16.95.
GENERAL NOTES:

1. The full width of each section shall be poured monolithically.
2. Toe walls to be constructed full width at each end of ditch paving, and poured monolithically.
3. Solid sod along ditch paving to be placed within 14 days of ditch paving construction.

THE ENGINEER IN CHARGE MAY ALTER TO 1'-0" TOE WALL DEPTH. THE SPACE SHALL BE FILLED WITH 1" WIDE TRANSVERSE EXPANSION JOINTS PLACED IN CONCRETE.

SOLID SODDING.

The steel and additional concrete for the walls shall not be paid for directly, but shall be considered to be included in the price bid for "Concrete Ditch Paving."

THE WALLS SHALL NOT BE PAID FOR THE STEEL AND ADDITIONAL CONCRETE FOR BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."

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

TOE WALL DETAIL FOR CONCRETE DITCH PAVING

THE WALLS SHALL NOT BE PAID FOR THE STEEL AND ADDITIONAL CONCRETE FOR BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."
**General Notes**

- Headwalls and Side Walls shall be cast of the selected size of precast concrete box culverts.
- The side walls shall be cast in sections, with each section being cast in one continuous piece.
- The sections shall be constructed with a minimum thickness of 12 inches.

**Bar List**

<table>
<thead>
<tr>
<th>NO.</th>
<th>BAR</th>
<th>SIZE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>J</td>
<td>#4</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>2</td>
<td>J</td>
<td>#4</td>
<td>3'-2&quot;</td>
</tr>
<tr>
<td>3</td>
<td>L</td>
<td>#4</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>4</td>
<td>L</td>
<td>#4</td>
<td>3'-2&quot;</td>
</tr>
</tbody>
</table>

**Membrane Waterproofing**

- The membrane waterproofing shall be applied to the exterior walls of the assembled culvert, as shown on the end view.
- The membrane shall be applied to the top surface of the culvert and shall be extended 1 foot down the sides of the culvert.

**Drainage Fill Material**

- Drainage fill material shall be placed 12 inches above the top of the culvert and shall be placed in lifts of not more than 12 inches.
- The fill shall be compacted to a density not less than 95% of the maximum theoretical density.

**Geotextile Fabric**

- Geotextile fabric shall be placed at the bottom of the weep holes and shall be extended a minimum of 1 foot down the sides of the culvert.

**Construction**

- The precast concrete box culverts shall be installed in accordance with the applicable specifications and instructions provided by the engineer.
- All concrete, reinforcing steel, and drainage fill material shall be placed and compacted in accordance with the applicable specifications and instructions.
- The precast concrete box culverts shall be constructed in accordance with the applicable specifications and instructions.

**Wingwalls and Footings**

- Wingwalls and footings shall be constructed in accordance with the applicable specifications and instructions.
- The wingwalls and footings shall be extended 1 foot down the sides of the culvert.

**All Exposed Corners**

- All exposed corners shall be chamfered 1/4 inch.

**Prepared Concrete Box Culverts**

- Prepared concrete box culverts shall be utilized in accordance with the applicable specifications and instructions.
- The prepared concrete box culverts shall be installed in accordance with the applicable specifications and instructions.

**All Materials and Substrates**

- All materials and substrates shall be utilized in accordance with the applicable specifications and instructions.
### General Notes

1. Metal pipe culvert construction shall comply with the requirements of the Arkansas State Highway Commission, the American Association of State Highway and Transportation Officials (AASHTO), and the American Society for Testing and Materials (ASTM). Refer to the standard construction specifications and subsections, and the standard construction specifications, if applicable.

2. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

3. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

4. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

5. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

6. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

7. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

8. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

9. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

10. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

11. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

12. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

13. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

14. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

15. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

16. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

17. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

18. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

19. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

20. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

21. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

22. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

23. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

24. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

25. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

26. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

27. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

28. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

29. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

30. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

31. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.

32. Metal pipe culvert materials and installations shall conform to Section 9.0 and Standard Drawing PCM-1.
MATERIAL REQUIREMENTS FOR STRUCTURAL BEDDING AND STRUCTURAL HEADING

**GENERAL NOTES**

1. Pipe shall conform to AASHTO M294, Type S. Installation shall conform to Job Special Provision.

2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION.

3. INSTALL PIPE TO GRADE.

4. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.

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

6. WHEN EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE, HAUNCHING AND OTHER BACKFILL MATERIALS SHAL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.

8. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE, HAUNCHING AND OTHER BACKFILL MATERIALS SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

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

10. FOR CONSTRUCTION LOADS BASED ON FILL HEIGHT "H".

11. "H" = FILL HEIGHT (FT.)

12. D = OUTSIDE DIAMETER OF PIPE

13. TRENCH WIDTH = STRUCTURAL BACKFILL MATERIAL

14. H  = FILL HEIGHT (FT.)

15. D = OUTSIDE DIAMETER OF PIPE

16. MINIMUM TRENCH WIDTH

17. MINIMUM COVER FOR CONSTRUCTION LOADS

18. GENERAL NOTES

**LEGEND -**

- STRUCTURAL BACKFILL material
- UNCOMPACTED LOOSELY PLACED
- MIDDLE STRUCTURAL BEDDING
- HAUNCH AREA
- UNDISTRIBUTED SOIL

ARKANSAS STATE HIGHWAY COMMISSION
PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1
GENERAL NOTES

1. PVC pipes shall conform to ASTM F949, CELL CLASS 12454.

2. Plastic pipe culvert design shall conform to AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION, WITH 2010 INTERIMS.

3. Structural backfill, embankment, and outer structural bedding material shall be compacted to 95% of the maximum density according to the type or class of material used.

4. Structural backfill, embankment, and outer structural bedding material shall be compacted to 95% of the maximum density according to the type or class of material used.

5. The structural backfill shall be placed and compacted in a manner that will prevent loss of structural bedding when pervious material is used for structural bedding and/or backfill.

6. When directed by the engineer, unsuitable material that is encountered at the bottom of the excavation shall be excavated and replaced with selected material in lieu of the selected material.

7. PVC pipes of diameters other than shown will not be allowed.

8. When the existing material excavated for the pipe trench is determined by the engineer to be unsuitable, the trench shall be excavated and replaced with selected material in lieu of the selected material.

9. Pipe installation may require the use of restraints, weighting, or other approved methods in order to help maintain grade and alignment.

10. joints shall be installed per manufacturer's recommendations.

MAXIMUM FILL HEIGHT
BASED ON STRUCTURAL BACKFILL

<table>
<thead>
<tr>
<th>MAXIMUM COVER FOR LOADS</th>
<th>MINIMUM COVER FOR LOADS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1</td>
<td>TYPE 2</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>

MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

<table>
<thead>
<tr>
<th>MINIMUM TRENCH WIDTH</th>
<th>BASED ON FILL HEIGHT &quot;H&quot;</th>
</tr>
</thead>
<tbody>
<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>

MINIMUM COVER FOR CONSTRUCTION LOADS

<table>
<thead>
<tr>
<th>MINIMUM COVER FOR CONSTRUCTION LOADS</th>
<th>MINIMUM COVER FOR CONSTRUCTION LOADS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1</td>
<td>TYPE 2</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>

MULTIPLE INSTALLATION OF PVC PIPE

<table>
<thead>
<tr>
<th>MULTIPLE INSTALLATION OF PVC PIPE</th>
<th>MULTIPLE INSTALLATION OF PVC PIPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1</td>
<td>TYPE 2</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>

CONSTRUCTION SEQUENCE

1. Place structural bedding material to grade, do not compact.
2. Install pipe to grade.
3. Compact structural bedding outside the middle third of the pipe.
4. The structural bedding shall be placed and compacted in a manner that will prevent loss of structural bedding when pervious material is used for structural bedding and/or backfill.
5. Pipe installation may require the use of restraints, weighting, or other approved methods in order to help maintain grade and alignment.
**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"**

<table>
<thead>
<tr>
<th>Fill Height (ft)</th>
<th>Type 1</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>2'-0&quot;</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>≥ 10</td>
<td>3'-0&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**MINIMUM COVER FOR CONSTRUCTION LOADS**

<table>
<thead>
<tr>
<th>Load Class</th>
<th>42&quot; Diameter</th>
<th>36&quot; Diameter</th>
<th>30&quot; Diameter</th>
<th>24&quot; Diameter</th>
<th>18&quot; Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>50.0-75.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75.0-110.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CONSTRUCTION SEQUENCE**

1. **PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.**
2. **INSTALL PIPE TO GRADE.**
3. **COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.**
4. **THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN EVEN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY 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.**

**GENERAL NOTES**

1. Pipe shall conform to design specifications as established by the engineer.
2. Coat pipe with a minimum of 1/2inch of bituminous, asphaltic, or other approved coating.
3. Pipe shall be laid in a trench, where practical, with a minimum of 12" of fill on each side of the pipe.
4. Structural backfill shall be placed and compacted in even layers not exceeding 8" and shall be compacted in accordance with M330 and AASHTO LRFD Bridge Specifications, Sixth Edition (2012) with 2013 Interims.
5. When directed by the engineer, unsuitable material that is encountered at the bottom of the excavated trench shall be removed and replaced with appropriate materials.
6. Structural backfill shall have a maximum particle size of 1.50 inches.
7. Structural bedding shall have a maximum particle size of 1 inch.
8. Structural bedding material shall be free of organic material and stones larger than 1.50 inches.
9. Structural backfill material shall be free of organic material and stones larger than 1.50 inches.
10. Jointing for polypropylene pipe shall meet the requirements for soil tightness as specified in Section 26.4.2.4 of the AASHTO LRFD Bridge Specifications, Sixth Edition (2012) with 2013 Interims.
11. Polypropylene pipes shall conform to AASHTO M330, Type S. Installation shall conform to job special provisions.
**BROKEN LINE STRIPING**

- Concrete Pavement
- Asphalt Pavement

**SOLID LINE STRIPING ON CONCRETE PAVEMENT**

**SOLID LINE STRIPING ON ASPHALT PAVEMENT**

**STRIPING AT ADJACENT NO PASSING LANES**

- Asphalt Pavement
- Concrete Pavement

**YIELD LINE DETAIL**

**CROSSWALK AND STOP LINE DETAILS**

**NOTES:**

1. Refer to the striping details for pavement marking line metals.
2. This drawing shall be used in conjunction with the latest revised edition of the "Manual on Uniform Traffic Control Devices." 
3. Raised pavement markers shall be placed on an 80 feet spacing unless otherwise shown in the plans.

**ARKANSAS STATE HIGHWAY COMMISSION**

**Pavement Marking Details**

**Standard Drawing PM-1**
NOTE: DETAILS SHOWN SPECIFIC TO THE PIPE UNDERDRAIN. THE UNDERDRAIN COVER SHALL ONLY BE REQUINCED UNDERDRAIN. LATERALS IN ASH掴 LATERALS SHALL BE LAPPED AT THE TRADE OF THE FABRIC AT THE TOP.

DETAILS OF PIPE UNDERDRAIN

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 FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR AT THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

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

3. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAINTING TAPE AT THE OUTSIDE EDGE OF THE PAVEMENT EDGE.

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAINTING TAPE AT THE OUTSIDE EDGE OF THE PAVEMENT EDGE.

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

6. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS." WHERE NECESSARY FOR AN ADAPTABLE OUTLET.

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

8. 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 FOR THE VARIOUS CONTRACT ITEMS.

9. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

DETAILS OF PIPE UNDERDRAIN

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 FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR AT THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

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

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP MEETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP MEETS 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 PAINTING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE PAVEMENT EDGE.

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

6. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS." WHERE NECESSARY FOR AN ADAPTABLE OUTLET.

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

8. 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 FOR THE VARIOUS CONTRACT ITEMS.

9. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.
REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMpressive STRENGTH OF 3500 PSI.
REINFORCED CONCRETE SHALL BE ASPIFO M 310 OR M 33, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BOX CULVERT "CLASS S CONCRETE".

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

REINFORCED STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRISE) EXCEPT THAT THE TOLERANCE FOR TRUE BAR DIAMS SUCH AS ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE 0 TO PLUS 3/8 INCH.

REINFORCED CONCRETE BOX CULVERT DETAILS

REINFORCED CONCRETE BOX CULVERT HEADWALL MODIFICATIONS


ARKANSAS STATE HIGHWAY COMMISSION

STANDARD DRAWING RCB-1
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 CONFORMED 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 ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

SECTION B-B

DETAILS FOR NEW CHANNELS

SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

SECTION C-C

FLOW LINE

EXCAVATION (CHANNEL CHANGE)

STRUCTURAL

EXISTING CHANNEL

CHANNEL CHANGE

PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

BACKFILL DETAILS FOR BOX CULVERT

LONITUDINAL SECTION

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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD DRAWING RCB-2

NOTE:

STRIP OF SOLID SODDING. LENGTH MEASURED ALONG THE CENTER OF 2' LINE OF ROADWAY BACKFILL-PLACED IN HORIZONTAL LAYERS EMBANKMENT-PLACED IN LONGITUDINAL SECTION BOX CULVERT BACKFILL DETAILS FOR COMBINED 1891B AND 1888A SOLID SODDING LID

THE STANDARD SPECIFICATIONS.

801.10 AND 801.11, RESPECTIVELY, OF PAID FOR ACCORDING TO SECTIONS UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS R.C. BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFORMED 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 R.C. BOX CULVERT ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

NOTE:

STRIP OF SOLID SODDING. LENGTH MEASURED ALONG THE CENTER OF 2' LINE OF ROADWAY BACKFILL-PLACED IN HORIZONTAL LAYERS EMBANKMENT-PLACED IN LONGITUDINAL SECTION BOX CULVERT BACKFILL DETAILS FOR COMBINED 1891B AND 1888A SOLID SODDING LID

THE STANDARD SPECIFICATIONS.

801.10 AND 801.11, RESPECTIVELY, OF PAID FOR ACCORDING TO SECTIONS UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS R.C. BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFORMED 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 R.C. BOX CULVERT ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

NOTE:

STRIP OF SOLID SODDING. LENGTH MEASURED ALONG THE CENTER OF 2' LINE OF ROADWAY BACKFILL-PLACED IN HORIZONTAL LAYERS EMBANKMENT-PLACED IN LONGITUDINAL SECTION BOX CULVERT BACKFILL DETAILS FOR COMBINED 1891B AND 1888A SOLID SODDING LID

THE STANDARD SPECIFICATIONS.

801.10 AND 801.11, RESPECTIVELY, OF PAID FOR ACCORDING TO SECTIONS UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS R.C. BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFORMED 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 R.C. BOX CULVERT ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

NOTE:

STRIP OF SOLID SODDING. LENGTH MEASURED ALONG THE CENTER OF 2' LINE OF ROADWAY BACKFILL-PLACED IN HORIZONTAL LAYERS EMBANKMENT-PLACED IN LONGITUDINAL SECTION BOX CULVERT BACKFILL DETAILS FOR COMBINED 1891B AND 1888A SOLID SODDING LID

THE STANDARD SPECIFICATIONS.

801.10 AND 801.11, RESPECTIVELY, OF PAID FOR ACCORDING TO SECTIONS UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS R.C. BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFORMED 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 R.C. BOX CULVERT ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.
GENERAL NOTES

2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES TO PERMIT SIMPLER CALCULATIONS.

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
D - WIDTH OF PAVEMENT
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
C - NORMAL CROWN (FT.)

ADDED FORMULA

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE
STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

REVOLVES AROUND INNER SUBGRADE POINT

SUPERELEVATION FOR TWO-WAY TRAFFIC FORMULA

TABLES AND METHOD OF REVOLVES AROUND INNER SUBGRADE POINT

REVOLVES AROUND CENTER LINE

SUPERELEVATION FOR TWO-WAY TRAFFIC FORMULA

SUPERELEVATION TABLE FOR TWO-WAY TRAFFIC

MAXIMUM SUPERELEVATION OUTSIDE PAVEMENT OR SUBGRADE EDGE

ACTUAL PROFILE

THEORETICAL PROFILE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L

DECREASE IN SUPERELEVATION

INCREASE IN SUPERELEVATION

INSIDE SUBGRADE EDGE

OUTSIDE SUBGRADE EDGE

CONTROL POINT

P.C. OR P.T.

C

L
CLEARING AND GRUBBING

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

EXCAVATION

EXISTING GROUND
EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH
PHASE 1 EXCAVATION
PHASE 2 EXCAVATION
FINAL PHASE EXCAVATION

GENERAL NOTE
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 AND CONSTRUCTION SEQUENCE
5. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E., SILT FENCES, DIVERSION DITCHES, SEEDING MATERIAL)
2. PERFORM CLEARING AND GRUBBING OPERATION
3. PERFORM PHASE 1 EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING
4. PERFORM PHASE 2 EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING
5. PERFORM FINAL PHASE OF EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING

EMBANKMENT

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH
PHASE 1 EMBANKMENT
PHASE 2 EMBANKMENT
FINAL PHASE EMBANKMENT

GENERAL NOTE
1. CONSTRUCT INTERCEPTOR DITCHES, DITCH CHECKS, SEDIMENT BASINS, Silt Fences, etc., as Required.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING

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

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E., SILT FENCES, DIVERSION DITCHES, SEEDING MATERIAL)
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

NOTE:
ENTIRE SLOPE IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
SLOPE SLOPES ARE TO BE STABILIZED AND MAINTAINED UNTIL ENTIRE SLOPE IS STABILIZED.

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E., SILT FENCES, DIVERSION DITCHES, SEEDING MATERIAL)
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

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E., SILT FENCES, DIVERSION DITCHES, SEEDING MATERIAL)
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

NOTE:
ENTIRE SLOPE IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
SLOPE SLOPES ARE TO BE STABILIZED AND MAINTAINED UNTIL ENTIRE SLOPE IS STABILIZED.

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (I.E., SILT FENCES, DIVERSION DITCHES, SEEDING MATERIAL)
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

NOTE:
ENTIRE SLOPE IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
SLOPE SLOPES ARE TO BE STABILIZED AND MAINTAINED UNTIL ENTIRE SLOPE IS STABILIZED.
GENERAL NOTES:

These installations to be used where normal fencing installation would cause the collecting of drift in the channel or the depression will not permit normal installation. Paying for these installations will be made only where directed by the engineer.

When a fence line approaches a ditch, gully or depression, the last post on level ground shall be placed close enough to the edge of the drop off that the fence may be strung to the post in the depression without touching the ground.

In terrain of such extreme irregularity that minor grading will not be feasible, the normal fence shall continue on grade and the gullies or depressions treated by auxiliary fences as shown.

Payment for the type installation used will not be made directly but will be included in the contract unit price bid for wire fence or chain link fence.

GENERAL NOTES:

When a fence line approaches a ditch, gully or depression, the last post on level ground shall be placed close enough to the edge of the drop off that the fence may be strung to the post in the depression without touching the ground.

In terrain of such extreme irregularity that minor grading will not be feasible, the normal fence shall continue on grade and the gullies or depressions treated by auxiliary fences as shown.

Payment for the type installation used will not be made directly but will be included in the contract unit price bid for wire fence or chain link fence.