TYPICAL SECTIONS OF IMPROVEMENT

**FULL DEPTH - HWY, 5 & HWY, 128**

- **CLASS 7** - VAR. COMP. DEPTH
- **COMP. DEPTH**
- **90.50 TONS PER STA.**
- **AGGREGATE BASE COURSE**
- **SUPERELEVATION SLOPE**
- **PROFILE GRADE**
- **AASHTO SLOPE**
- **0.020%**

**FULL DEPTH - SUPERELEVATION - HWY, 5 & HWY, 128**

**NOTCH & WIDENING - HWY, 5 & HWY, 128**

- **CLASS 7** - VAR. COMP. DEPTH
- **COMP. DEPTH**
- **90.50 TONS PER STA.**
- **AGGREGATE BASE COURSE**
- **SUPERELEVATION SLOPE**
- **PROFILE GRADE**
- **AASHTO SLOPE**
- **0.020%**

**NOTCH & WIDENING - SUPERELEVATION - HWY, 5 & HWY, 128**

- **CLASS 7** - VAR. COMP. DEPTH
- **COMP. DEPTH**
- **90.50 TONS PER STA.**
- **AGGREGATE BASE COURSE**
- **SUPERELEVATION SLOPE**
- **PROFILE GRADE**
- **AASHTO SLOPE**
- **0.020%**

**NOTCH & WIDENING**

**NOTICE**

The thickness of aggregate base course shall be within plus or minus one inch of the plan thickness shown in the contract documents. The contractor will correct any deficient thickness that does not meet the tolerances indicated. Payment will not be made for material placed in excess of the tolerance indicated.

The final 2" of surface course is to be placed after all other courses have been laid. Longitudinal joints shall be at lane lines.

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.

Asphalt for leveling of existing pavement shall be placed only where directed by the Engineer. Calculations for the amount of leveling and/or leveling operations shall be performed before constructing notch and widening.
CONSTRUCTION LIMITS

ASPHALT CONCRETE HOT MIX SURFACE COURSE (200 LBS. PER Sq. Yd.) AND AGGREGATE BASE COURSE (CLASS 7) 3" COMP. DEPTH IF ASPHALT DRIVE EXIST OR 6" CONCRETE IF CONCRETE DRIVE EXIST.

AGGREGATE BASE COURSE (CLASS 7) 5" COMP. DEPTH IF CONCRETE DRIVE EXIST OR 8" COLD MILL EXISTING ASPHALT PAVEMENT.

DETAIL FOR COUNTY ROAD TURNOUTS

(REFER TO CROSS SECTIONS FOR LOCATIONS)

DETAIL FOR COLD MILLING

METHOD OF RAISING GRADE

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

SPECIAL DETAILS
LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER

NOTES:

1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE AS WELL AS TO AVOID EXISTING LONGITUDINAL JOINTS.

2. THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 8' LENGTH, SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.

DETAILED OF RUMBLE STRIPS
STA 105+00 BEGIN
JOB 061259 & SECTION 1

STA 0+18 BEGIN DANVILLE RD.

STA 1+50 END DANVILLE RD.

TEMPORARY EROSION CONTROL QUANTITIES STAGE 2 SECTION 2:
DROP INLET SILT FENCE (E) = 31 + 22, LIN FT.
ROCK DITCH CHECK (E) = 25 + 0.0 CU YDS.
SEASONAL REMOVAL = 10 CU YDS.

RETAIN EROSION CONTROL ITEMS FROM STAGE 1.
FOR STAGE CONSTRUCTION SEQUENCE REFER TO MAINTENANCE OF TRAFFIC DETAILS.

TEMPORARY EROSION CONTROL DETAILS
SECTION 1 STAGE 21
TEMPORARY EROSION CONTROL QUANTITIES STAGE 3 SECTION 2:
ROCK DITCH CHECK (E-D) • 30 CU. YDS.
SLT FENCE (F-I) • 550 LIN. FT.
SEDIMENT REMOVAL • 25 CU. YDS.
RETAIN EROSION CONTROL ITEMS FROM STAGES 1 & 2.
FOR STAGE CONSTRUCTION SEQUENCE REFER TO MAINTENANCE OF TRAFFIC DETAILS.

TEMPORARY EROSION CONTROL DETAILS
SECTION 2 (STAGE 3)
STA, 310.35 BEGIN
SECTION 3

SILT FENCE (E III) • 350 LIN. FT.

TEMPORARY EROSION CONTROL QUANTITIES STAGE I SECTION 3:
SILT FENCE (E III) • 350 LIN. FT.
ROCK DITCH CHECK (E B) • 10 CU. YDS.
SEDIMENT REMOVAL • 10 CU. YDS.

FOR STAGE CONSTRUCTION SEQUENCE REFER TO
MAINTENANCE OF TRAFFIC DETAILS.
TEMPORARY EROSION CONTROL QUANTITIES STAGE 2 SECTION 3:
- Silt Fence (E-1) - 20 Lin. Ft.
- Drop Inlet Silt Fence (E-2) - 175 Lin. Ft.
- Rock Ditch Checks (E-3) - 180 Cu. Yd.
- Protection of Sediment Basin - 65 Cu. Yd.
- Sediment Removal - 75 Cu. Yd.

RETAKE EROSION CONTROL ITEMS FROM STAGE 1.

FOR STAGE 2 CONSTRUCTION SEQUENCE REFER TO
MAINTENANCE OF TRAFFIC DETAILS.
MAINTENANCE OF TRAFFIC DETAILS

CONSTRUCTION PAVEMENT MARKING QUANTITIES ARE BASED ON RT. AND LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT FOR EACH STAGE OF CONSTRUCTION.

ALL COUNTY ROADS/CITY STREET INTERSECTIONS AND DRIVERS ON THE SIDE BEING WORKED ARE TO BE DELIMITED USING TRAFFIC DRAGS IN EACH.

RH+SIGNS ARE TO BE PLACED THROUGH THE WORK ZONES AT 1/2 ML INTERVALS.

W20=HEAD SIGNS ARE TO BE PLACED AT ALL COUNTY ROAD AND CITY STREET INTERSECTIONS THROUGH THE WORK ZONE.

NOTE: THE CONTRACTOR MAY WORK ON ALL SECTIONS OF THE PROJECT SIMULTANEOUSLY.
MMAINTENANCE OF TRAFFIC - STAGE I

MMAINTAIN TRAFFIC IN THE EXISTING LANE.

CONSTRUCT ROADWAY ON RIGHT AS SHOWN ON PLANS.

CONSTRUCT RIGHT SIDE OF DANVILLE RD CONNECTION AS SHOWN ON PLANS.

PLACE SIGNS AS SHOWN ON SIGN PLACEMENT DETAIL.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON FT. AND LT. EDGE LINES

AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

ALL COUNTY ROADS, CITY STREET INTERSECTIONS AND DRIVEWAYS ON THE SIDE BEING WORKED

ARE TO BE DELIMINATED USING TRAFFIC DRUMS 16 EACH.

R4+ SIGNS ARE TO BE PLACED THROUGH THE WORK ZONES

AT 1/2 NL INTERVALS.

MMAINTENANCE OF TRAFFIC QUANTITIES - SECTION 1 (STAGE II)

SIGNS 1 ON 50 FT.

VERTICAL PANELS 6 EACH

TRAFFIC DRUMS 16 EACH

CONSTRUCTION PAVEMENT MARKINGS 4400 LIN. FT.
MAINTENANCE OF TRAFFIC - STAGE I

- Maintain traffic in the existing lanes.
- Construct new roadway STA 206-00 - STA 209-00, RT of existing lane.
- Construct detours and new H/V/L connection as shown on plans.
- Place signs as shown on sign placement detail.
- Construction pavement warning quantities based on RT and LT edge lines and double yellow centerline for the entire project.
- All county roads, city street intersections, and driveways on the SCD being widened are to be delineated using traffic drums in each.
- RH=signs are to be placed through the work zones at 1/2 ML intervals.
- TPO=lead signs are to be placed at all county road and city street intersections through the work zone.

MAINTENANCE OF TRAFFIC QUANTITIES - SECTION 2 (STAGE II)

- Signs = 205 SQ FT
- Traffic Drums = 70 each
- Barricades (Type RM = 56)
- Construction pavement warning markers = 2000 L/H/FT
- Furnish and installing precast concrete barriers = 120 L/H/FT
- Temporary impact attenuation barriers = 1 each
- Temporary impact attenuation barriers (repair) = 1 each
STA 206-00 BEGIN
SECTION 2

STA 40+12 BEGIN
OLD HWY, 128 CONNECTION

STA 43+50 END
OLD HWY, 128 CONNECTION

MMAINTENANCE OF TRAFFIC - STAGE 2

MMAINTAIN TRAFFIC IN THE EXISTING LINES AND ON THE DETOURS
AS SHOWN ON THE PLANS.

CONSTRUCT NEW ROADWAY AS SHOWN ON PLANS:
STA 206-00 - STA 209-00 LT. OF THE EXISTING LINES AND DETOUR
STA 209-00 - STA 222-00 ENTIRE NEW ROADWAY
STA 222-00 - STA 224+00 LT. OF DETOUR 2
STA 40+12 - STA 43+50 MILLYARD GARDEN TRAIL CONNECTION

RETAIN SIGNS AS SHOWN ON SIGN PLACEMENT DETAIL, R621-HAHEAD SIGNS
AND R4-SIGNS AS SHOWN IN STAGE 1.

PLACE VERTICAL PANELS ON THE RT. 40' SPACING ON CENTERL.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON RT. AND LT. EDGE LINES
AND DOUBLE YELLOW CENTERLINE.

CONSTRUCTION PAVEMENT MARKING QUANTITIES - SECTION 2 (STAGE 2)

SIGNS: 1095 SQ. FT.
TRAFFIC DRUMS: 15 EACH
BARRIERS (TYPE III - 48)
CONSTRUCTION PAVEMENT MARKINGS: 15350 LIN. FT.
REMOVAL OF CONV. PILOT, MARKINGS: 4000 LIN. FT.
RAISED PAVEMENT MARKERS: TYPE 416: 107 EACH
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER: 60 LIN. FT.
RELOCATING PRECAST CONCRETE BARRIER: 20 LIN. FT.
MAINTENANCE OF TRAFFIC - STAGE 2

APPLY PERMANENT PAVEMENT MARKINGS AS SHOWN ON THE PLANS.
PLACE TRAFFIC ON NEWLY CONSTRUCTED ROADWAY.

COMPLETE CONSTRUCTION OF MAIN LANES STA 206+00- STA 234+00 ON RT.
OBLITERATE OLD ROADWAY AND DETOURS AS DESIGNATED ON PLANS.

RETAIN SIGNS AS SHOWN ON SIGN PLACEMENT DETAIL, R20-11-AHEAD SIGNS
AND R4-15 SIGNS AS SHOWN IN STAGE 1.

MAINTENANCE OF TRAFFIC QUANTITIES - SECTION 2 (STAGE 3)
SIGNS = 250 SLT
TRAFFIC DRUMS = 48 EACH
BARRIERS = TYPE H-40
REMOVAL OF CONST. PAVT, MARKINGS = 4750 LN FT.
MAINTENANCE OF TRAFFIC - STAGE 1

Maintain Traffic in the existing lanes.
Construct roadway on right as shown on Plans.

Place signs as shown in sign placement detail.

Construction pavement marking quantities based on RT. and LT. edge lines and double yellow centerline for the entire project.

All county roads, city street intersections and driveways on the side being widened are to be delineated using traffic drums if each.

Road signs are to be placed through the work zones at 1/2 mi. intervals.

Head signs are to be placed at all county road and city street intersections through the work zone.

MAINTENANCE OF TRAFFIC QUANTITIES - SECTION 3 (STAGE 1)

Signs = 175 sq. ft.
Vertical panels = 9 each
Traffic drums = 6 each
Temporary precast concrete barriers = 160 line ft.
Construction pavement markings = 3040 line ft.
MAINTENANCE OF TRAFFIC - STAGE 2

SHIFT TRAFFIC TO THE RIGHT AS SHOWN ON PLANS.
CONSTRUCT ROADWAY ON LEFT AS SHOWN ON PLANS.

RETAIN SIGNS AS SHOWN ON SD OR PLACEMENT DETAIL. #20=11-HEAD SIGNS AND R4+5 SIGNS AS SHOWN IN STAGE 4.
PLACE VERTICAL PANELS ON THE RIGHT-50' ON CENTER.

CONSTRUCTION PAVEMENT MARKING QUANTITIES BASED ON RT. AND LT. EDGE LINES AND DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT.

ALL COUNTY ROADS, CITY STREET INTERSECTIONS, AND DRIVEWAYS ON THE SIDE BEING MOVED ARE TO BE DELINERATED USING TRAFFIC DRUMS IN EACH.

MAINTENANCE OF TRAFFIC QUANTITIES - SECTION 3 (STAGE 2)
SIGNS = 110 EACH
VERTICAL PANELS = 10 EACH
RELOCATING PRECAST CONCRETE BARRIER = 80 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 3040 LIN. FT.
REMOVAL OF CONST. PAV. MARKINGS = 3040 LIN. FT.

MAINTENANCE OF TRAFFIC DETAILS
SECTION 3 (STAGE 2)
## 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>Barricades (Type B)</th>
<th>Furnishing &amp; Installing Precast Conc. Barrier</th>
<th>Relocating Precast Concrete Barrier</th>
<th>Temporary Impact Attenuation Barrier</th>
<th>Temporary Impact Attenuation Barrier (Repair)</th>
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| VERTICAL PANELS | 50 | 35 | 30 | 20 | 15 | 30 |
| TRAFFIC DRUMS    | 100 | 155 | 48 | 155 | 155 | 155 |
| TYPE B BARRICADE (S) | 4 | 1 | 4 | 4 | 16 |
| TYPE B BARRICADE (LT, (S) | 2 | 3 | 3 | 3 | 24 |
| TYPE B BARRICADE (LT, (S) | 1 | 1 | 1 | 1 | 1 |

| Furnishing and Installing Precast Concrete Barrier | 280 | 60 | 340 |
| Relocating Precast Concrete Barrier | 230 | 230 | 230 |
| Temporary Impact Attenuation Barrier | 1 | 1 | 1 |
| Temporary Impact Attenuation Barrier (Repair) | 1 | 1 | 1 |

| TOTALS: | 822.0 | 56 | 155 | 32 | 40 | 340 | 230 | 1 | 1 |

## Construction Paveement Markings and Permanent Paveement Markings

<table>
<thead>
<tr>
<th>Description</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>End of Job</th>
<th>Construction Pavement Markings</th>
<th>Removal of Construction Pavement Markings</th>
<th>Thermoplastic Pavement Markings</th>
<th>Raised Pavement Markers</th>
<th>Clearing and Grubbing</th>
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<tbody>
<tr>
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<td>STATION</td>
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| Thermoplastic Pavement Markings (White) | 120.0 |
| Thermoplastic Pavement Markings (Yellow) | 140.04 |
| Thermoplastic Pavement Markings (Orange) | 6 |
| Raised Pavement Markers (White) | 8 |
| Raised Pavement Markers (Yellow) | 8 |
| Raised Pavement Markers (Orange) | 8 |

**Total:** 38430 16380 11930 14004 3 6 8 120

**Note:** This is a high-traffic volume road as defined in Section 604-03, standard specifications for highway construction, 2003 edition.
### REMOVAL AND DISPOSAL ITEMS

<table>
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<tr>
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<th>DESCRIPTION</th>
<th>CONCRETE</th>
<th>CONCRETE</th>
<th>SIGNS</th>
<th>FENCES</th>
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<th>LUMINARIES</th>
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### EARTHWORK

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<th>STATION</th>
<th>LOCATION / DESCRIPTION</th>
<th>UNCLASSIFIED EXCAVATION</th>
<th>COMPACTED SOIL</th>
<th>STABILIZATION</th>
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**NOTE:** TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER SEE SECTION 104.03 OF THE STD. SPEC.

### MAILBOXES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MAILBOXES</th>
<th>MAILBOXES (POSTED)</th>
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<tbody>
<tr>
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### BENCH MARKS

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**NOTE:** QUANTITIES SHOWN ABOVE INCLUDE REMOVAL & DISPOSAL OF ALL MAILBOXES AND FLARED END SECTIONS IF APPROPRIATE

### PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

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<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
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<th>PAVEMENT</th>
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</table>

**NOTE:** AVERAGE DEPTH IS 1.4"
### Erosion Control

#### Seeding
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Seeding Method**: Hand seeding
- **Seed Type**: Bermudagrass
- **Seeding Rate**: 120 sq ft/acre
- **Seed Weight**: 120 lbs
- **Sprinkler System**: Yes

#### Temporary Sedimentation Basins
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Sedimentation basins
- **Capacity**: 120 cfs
- **Retention Time**: 2 days

#### Rock Ditch Checks
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Rock checks
- **Material**: Rondalite

#### Drop Inlet & Buf Fencing
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Drop inlet & buffer fencing
- **Material**: Galvanized steel

#### Sediment Removal & Disposal
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Sediment removal & disposal
- **Method**: Dredging

#### Concretes Ditch Paving
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Concrete ditch paving
- **Material**: Concreate

#### Erosion Control Matting
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Erosion control matting
- **Material**: Geotextile

#### Erosion Control Embankment
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Erosion control embankment
- **Material**: Soil

#### Fencing
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Fencing
- **Material**: Wire fence
- **Height**: 4 ft

#### Concrete Island
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Concrete island
- **Material**: Concrete

#### Asphalt Patching of Existing Roadway
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Asphalt patching
- **Material**: Asphalt

#### Asphalt Concrete Patching for Maintenance of Traffic
- **Location**: Stages 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- **Type**: Asphalt concrete patching
- **Material**: Asphalt concrete

---

**Quantities**

- **Total Seeding**: 120 ac
- **Total Rock Ditch Checks**: 120
- **Total Drop Inlet & Buff Fencing**: 120
- **Total Sediment Removal & Disposal**: 120
- **Total Concrete Ditch Paving**: 120
- **Total Erosion Control Matting**: 120
- **Total Erosion Control Embankment**: 120
- **Total Fencing**: 120
- **Total Concrete Island**: 120
- **Total Asphalt Patching of Existing Roadway**: 120
- **Total Asphalt Concrete Patching for Maintenance of Traffic**: 120

---

**Note**: All quantities are estimated. See sections 104.03 of the standard specifications.
### Structures

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
<th>R.E.T. Conc. Pipe Culvert</th>
<th>Flared End Sections</th>
<th>Flared End Sections Plane View</th>
<th>Safety Ends Sections</th>
<th>Drop Inlets</th>
<th>Span</th>
<th>Length</th>
<th>Class 9 Concrete</th>
<th>Remp. Steel</th>
<th>Roadway Grade</th>
<th>Uncl. Exc. For Stn.</th>
<th>Solid Sodding</th>
<th>Water</th>
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<tr>
<td>108-90</td>
<td>COAST D.L.L. W 40 PIPE OUTLET 108-92 D.E.</td>
<td>40 40 44 40</td>
<td>2</td>
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### Driveways & Turnouts

<table>
<thead>
<tr>
<th>Station</th>
<th>Side</th>
<th>Width</th>
<th>Portion(s) Where Dressed</th>
<th>Aggregate Base Course (50&quot;) Inch Lbs. Per Sq. Yd.</th>
<th>Aggregate Base Course (Class 7)</th>
<th>Side Drains</th>
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<tbody>
<tr>
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### Selected Pipe Bedding & Backfill

<table>
<thead>
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<th>Location</th>
<th>Selected Pipe Bedding</th>
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<tr>
<td>CU YD.</td>
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### Rumble Strips in Asphalt Shoulders

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### Dumped Riprap

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## BASE AND SURFACING

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<th>LOCATION</th>
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<th>TACK COAT</th>
<th>ACNH Binder Course (T)</th>
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<tr>
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<td>AVG. WTD. FT</td>
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### ADDITIONAL TON-DESTRUCTION

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### TOTALS

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### BASIS OF ESTIMATE

- ACNH Surface Course (T) = 94.5% Min. Addit. 5% Asphalt Binder
- ACNH Binder Course (T) = 94.5% Min. Addit. 4% Asphalt Binder
- Maximum Number of Variations = 115 for PG 04-22
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<th>TYPE</th>
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<th>NORTHING</th>
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<td>101230.00</td>
</tr>
</tbody>
</table>

- **Point Number**: The unique identifier for each survey control point.
- **Easting**: The east-west coordinate value.
- **Northing**: The north-south coordinate value.
- **Zone**: The zone identifier for the coordinate system.
- **Reference Angle**: The reference angle associated with the survey control point.
ENERGY DISSIPATORS (NO SCALE)

NUMBER OF ELEMENTS PER ROW VARY WITH WIDTH OF PAVING SPECIFIED.

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 3%. THE DISSIPATORS WILL 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

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

1/2" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 40 FEET INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLIANT WITH AAGHTO NO. 3.

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1
### Minimum Height of Fill "H" Over Circular R.C. Pipe Culverts

<table>
<thead>
<tr>
<th>Class of Pipe</th>
<th>Installation Type</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPE 10 3/4&quot;</td>
<td>Type 1 or 2</td>
<td>2.5</td>
<td>3.0</td>
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</tr>
<tr>
<td></td>
<td>Type 3</td>
<td>2.0</td>
<td>2.5</td>
<td>3.0</td>
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</table>

Notes for Minimal Cover: Values shall include a minimum of 12" of pavement and/or base.

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

<table>
<thead>
<tr>
<th>Class of Pipe</th>
<th>Installation Type</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPE 10 3/4&quot;</td>
<td>Type 1</td>
<td>3.0</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Type 2</td>
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<td>3.0</td>
<td>3.5</td>
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</tbody>
</table>

### Maximum Height of Fill "H" Over R.C. Arch & Horizontal Elliptical Pipe Culverts

<table>
<thead>
<tr>
<th>Class of Pipe</th>
<th>Installation Type</th>
<th>CLASS III</th>
<th>CLASS IV</th>
<th>CLASS Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPE 10 3/4&quot;</td>
<td>Type 1</td>
<td>3.0</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Type 2</td>
<td>2.5</td>
<td>3.0</td>
<td>3.5</td>
</tr>
</tbody>
</table>

### Embankment and Trench Installations

1. **General Notes**
   - All pipes shall be lined with suitable materials to facilitate drainage and prevent damage from passage of equipment.
   - The maximum depth shall be the outside diameter of the pipe plus 24 inches. Minimum bedding shall consist of a topping layer of concrete or similar material.
   - The minimum bedding shall be the outside diameter of the pipe plus 24 inches. Minimum bedding shall consist of a topping layer of concrete or similar material.

2. **Basis for Material**
   - Materials complying with the specifications shall be used, and the engineer may prescribe the type and quality of materials to be used.

3. **Quality Control**
   - The contractor shall ensure that all materials comply with the specifications and that the work is performed in accordance with the plans and specifications.

4. **Acceptance**
   - The work shall be accepted by the engineer on the basis of the material and workmanship being in accordance with the plans and specifications.

5. **Revision Date**
   - Revised: [Date]
MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

**Table**

<table>
<thead>
<tr>
<th>Pipe Diameter (in)</th>
<th>&quot;H&quot; Max 0-5&quot;</th>
<th>&quot;H&quot; Max 0-10&quot;</th>
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</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>2-1/2&quot;</td>
<td>3-1/2&quot;</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>3-1/2&quot;</td>
<td>4-3/4&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>4-3/4&quot;</td>
<td>6-3/4&quot;</td>
</tr>
</tbody>
</table>

NOTE: 8" MIN. 88° - 92° Diameters
24" Min. 80° - 90° Diameters
MINIMUM COVER VALUES: "H"

- WALL: 60" MIN. OF PAVEMENT OR HORIZONTAL
- MEDIAN: 30" MIN. OF PAVEMENT OR HORIZONTAL

GENERAL NOTES

3. The minimum allowable trench width shall be the minimum width plus a sufficient width to ensure working room to properly and safely place and install manholes and other backfill materials.
4. Materials shall be placed as directed by the designer at the end of the culvert to prevent loss of structural bedding when bedding material is used for structural bedding and/or backfill.
5. When directed by the engineer, an unstable material that is encountered at the bottom of the excavated trench or in the area designated by the engineer is considered unsuitable for structural bedding and/or backfill. All structural backfill is to be placed as directed by the engineer.
6. When the existing material excavated for the pipe trench is determined to be unstable for backfilling, the pipe trench is to be filled with structural backfill. Structural backfill material that is considered unsuitable for structural bedding and/or backfill, if suitable, is to be placed in an area designated by the engineer.
7. For pipe sizes 8" and 12" with areas greater than 24" and 36" respectively, the minimum cover shall be in accordance with the Minimum Cover Table.
8. Only the minimum cover values shall be used.

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 layers not exceeding 8", the layers shall be compacted evenly and uniformly to the elevation of the minimum cover.
5. Pipe installation may require the use of restrictors, weighted or other approved methods in order to prevent movement or shift.

- LEGEND -

  - FILL HEIGHT "H"
  - "H" MAXIMUM DIAMETER OF PIPE
  - "H" MINIMUM DIAMETER OF PIPE

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

<table>
<thead>
<tr>
<th>Pipe Diameter (in)</th>
<th>Clear Distance Between Pipes (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>4&quot;</td>
</tr>
</tbody>
</table>

MINIMUM COVER FOR CONSTRUCTION LOADS

**Table**

<table>
<thead>
<tr>
<th>Pipe Diameter (in)</th>
<th>R-0.50</th>
<th>R-0.75</th>
<th>R-1.00</th>
<th>R-1.25</th>
<th>R-1.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>3&quot;</td>
<td>3-1/2&quot;</td>
<td>4&quot;</td>
<td>4-1/2&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>4&quot;</td>
<td>4-1/2&quot;</td>
<td>5&quot;</td>
<td>5-1/2&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>5&quot;</td>
<td>5-1/2&quot;</td>
<td>6&quot;</td>
<td>6-1/2&quot;</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>

MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION RUNWAY SURFACE, THE SURFACE SHALL BE MOWABLE.
**MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL**

**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT “H”**

<table>
<thead>
<tr>
<th>Trench Width</th>
<th>Pipe Diameter</th>
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<tbody>
<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 0.25&quot;</td>
</tr>
<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 0.50&quot;</td>
</tr>
<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 0.75&quot;</td>
</tr>
<tr>
<td>&quot;H&quot;</td>
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<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 1.50&quot;</td>
</tr>
<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 2.00&quot;</td>
</tr>
<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 3.00&quot;</td>
</tr>
<tr>
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</tr>
<tr>
<td>&quot;H&quot;</td>
<td>0.00&quot; - 15.00&quot;</td>
</tr>
</tbody>
</table>

**MINIMUM COVER FOR CONSTRUCTION LOADS**

<table>
<thead>
<tr>
<th>Pipe Cover</th>
<th>0.00&quot; - 0.50&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00&quot; - 0.50&quot;</td>
<td>2.0&quot;</td>
</tr>
<tr>
<td>0.00&quot; - 0.75&quot;</td>
<td>2.5&quot;</td>
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<tr>
<td>0.00&quot; - 1.00&quot;</td>
<td>3.0&quot;</td>
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<tr>
<td>0.00&quot; - 1.50&quot;</td>
<td>4.0&quot;</td>
</tr>
<tr>
<td>0.00&quot; - 2.00&quot;</td>
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<tr>
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<td>6.0&quot;</td>
</tr>
<tr>
<td>0.00&quot; - 4.00&quot;</td>
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<tr>
<td>0.00&quot; - 7.00&quot;</td>
<td>10.0&quot;</td>
</tr>
<tr>
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<td>15.0&quot;</td>
</tr>
<tr>
<td>0.00&quot; - 15.00&quot;</td>
<td>20.0&quot;</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**


3. The minimum pipe size shall be determined based on the design live load and pipe material.

4. The minimum pipe size shall be determined based on the design live load and pipe material.

5. The minimum pipe size shall be determined based on the design live load and pipe material.

6. The minimum pipe size shall be determined based on the design live load and pipe material.

7. The minimum pipe size shall be determined based on the design live load and pipe material.

8. The minimum pipe size shall be determined based on the design live load and pipe material.

9. Joints for PVC pipe shall meet the requirements of ASCE 42, Section 12.4.4.2.4 and 6.4.2.2.4, "Asphalt Lined Bridge Construction Specifications". Joints shall be installed per manufacturer's recommendations.

**LEGEND**

- **H**: Fill Height
- **D0**: Outside Diameter of Pipe
- **H**: Minimum Cover

**CONSTRUCTION SEQUENCE**

1. Place structural backfill material to drains, do not compact.
2. Install PVC to grade.
3. Compact structural backfill outside the middle third of the pipe.
4. The structural backfill shall be placed and compacted in 6-inch layers, followed by 4-inch layers.
5. Field installation may require the use of restraints, bedding, or other approved methods in order to help maintain grade and alignment.

**ACKNOWLEDGEMENTS**

[Arkansas State Highway Commission: Plastic Pipe Culvert (PVC F949)]

**DATE**

[Revision Information]

[Standard Drawing: PCP-2]
**CONCRETE PAVEMENT**

**ASPHALT PAVEMENT**

**BROKEN LINE STRIPING**

**SOLID LINE STRIPING ON CONCRETE PAVEMENT**

**SOLID LINE STRIPING ON ASPHALT PAVEMENT**

**ASPHALT PAVEMENT**

**CONCRETE PAVEMENT**

**STRIPPING AT ADJACENT NO PASSING LANES**

**CROSSWALK AND STOPBAR DETAILS**

**NOTES:**
1. **All lines shall have a width of 4 inches.**
2. **The thickness and rate of paint application shall be as specified in Section 7.5 of the Standard Specifications.**
3. **This drawing shall be used in conjunction with the latest revised addition of the Manual on Uniform Traffic Control Devices.**
4. **Raised pavement markers shall be centered between skip lines on 48 feet spacing unless otherwise shown on the plans.**

**2" FOR ASPHALT OR CONCRETE PAVEMENT**

**6" FOR BITUMINOUS SURFACE TREATMENT**

**Pavement edge line marking**

**Detail of standard**

**Raised pavement markers**

**Arkansas State Highway Commission**

**Pavement Marking Details**

**Standard Drawing PM-1**

**Date**

**Revision**

**Filed**
**REINFORCED CONCRETE BOX CULVERT GENERAL NOTES**

Concrete shall be Class S with a minimum 28-day compressive strength of 3500 psi. Reinforced steel shall be AASHTO M 300, Grade 60.

Construction and materials for wingwalls & culvert drainage, including weep holes and granular material, shall be subsidiary to the BO item, "Class S Concrete." Membrane waterproofing shall conform to the requirements of Section B5 of the Standard Specifications.

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. No payment shall be made for this item, but payment will be conditioned to be included in the various items bid for the R.C. 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 (CRSI) except that the tolerance for transverse bars such as Figure 3 on page 7-4 of the CRSMANUAL shall be minus 1/8 to plus 1/2 inch.

Weep holes in box culvert walls shall have a minimum horizontal spacing of 10'-0" and shall be spaced to clear 4'-0" 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 each wingwall. The drain opening shall be 4" diameter and shall be placed 2'-0" above the top of the wingwall footing.

The requirements shown on this drawing shall supersede the corresponding requirements on all reinforced concrete box culvert standard drawings.

**R.C. BOX CULVERT HEADWALL MODIFICATIONS**

Note: For all skewed R.C. box culverts the length "K" of the modified headwall shall be equal to the roadway length "L". The ends of the headwall shall be constructed parallel to the skew angle of the box culvert.

---

**ARKANSAS STATE HIGHWAY COMMISSION**

**REINFORCED CONCRETE BOX CULVERT DETAILS**

**STANDARD DRAWING RCB-1**
SOLID SODDING
R.C. BOX Culvert

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

PLAN

CHANNEL CHANGE

EXCavATION LINE

% OF ROADWAY

EARTHWORK PLACED IN
HORIZONTAL LAYERS

LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFIRMED TO THAT PORTION OF THE DESIGNATED 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 CONFIRMED TO THAT PORTION OF THE DESIGNATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

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

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2
## Superelevation Table for Two-Way Traffic

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>20 MPH</th>
<th>25 MPH</th>
<th>30 MPH</th>
<th>35 MPH</th>
<th>40 MPH</th>
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<td>0</td>
</tr>
</tbody>
</table>

### Notes:
1. On roads with two-way traffic, the superelevation shall be resolved on the inside pavement edge unless otherwise noted on the plans.
2. Superelevation values shown on the cross sections are values of 0% (or 0' per 1') to be added to or subtracted from the point of control.
3. Lengths for superelevation are shown in multiples of 25 ft or 50 ft.
4. Pavements wider than 2 lanes shall have additional transition lengths as follows:
   - Lane 1 divided: 0
   - Lane 2 divided: 0
   - Lane 3 divided: 0
   - Lane 4 divided: 0

### Superelevation Formula

\[ S = \frac{2.54 \times L_s}{C} \]

Where:
- \( S \) is the superelevation
- \( L_s \) is the length of superelevation
- \( C \) is the curve radius

### Standards

**Outside Subgrade Edge**

\[ \text{Outside Subgrade Edge} = \frac{S}{C} \]

**Inside Subgrade Edge**

\[ \text{Inside Subgrade Edge} = \frac{S}{C} \]

**Control Point**

\[ \text{Control Point} = \frac{S}{C} \]

---

**Arkansas State Highway Commission**

**Tables and Method of Superelevation for Two-Way Traffic**

**Standard Drawing SE-2**
4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab. See BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRAG. TC-4.

** Offset Distance for Two Way Traffic Only

** Offset Distance Table

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Offset Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>12</td>
</tr>
<tr>
<td>5 - 40</td>
<td>18</td>
</tr>
</tbody>
</table>

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

When shown on the plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual for Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. PLACE PERIMETER CONTROLS (e.g., SILT FENCES, DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION

EXCAVATION

EXISTING GROUND
INTERCEPTOR OR DIVERSION DITCH
EXISTING GROUND

NOTE: NUMBER OF PHASES WILL VARY, THREE PHASES SHOWN FOR ILLUSTRATION

GENERAL NOTE
ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUALLY INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE
1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES
2. PERFORM FIRST PHASE EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING
3. PERFORM SECOND PHASE EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING
4. PERFORM FINAL PHASE EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING
5. PERFORM FINAL PHASE EXCAVATION, REMOVE DIVERSION DITCHES, SEDIMENT BASINS OR OTHER EROSION CONTROL DEVICES AS REQUIRED

EMBANKMENT

NOTE:
NUMBER OF PHASES WILL VARY, THREE PHASES SHOWN FOR ILLUSTRATION

SIDE DITCH
STABILIZE AS REQUIRED

EXISTING GROUND
VARIOUS EROSION CONTROL DEVICES

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

CONSTRUCTION SEQUENCE
1. CONSTRUCT EMBANKMENT DITCHES, INSTALL SHOULDER SEEDING AS SPECIFIED
2. PLACE EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING
4. PLACE PHASE 3 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING
5. REMOVE EMBANKMENT DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD GREATER THAN 21 DAYS
6. PLACE EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING, SLOPE IS STABILIZED

Arkansas State Highway Commission
Temporary Erosion Control Devices

Standard Drawing TEC-3
**GENERAL NOTES:**

Steel line posts shall be painted or galvanized. Tubular end, corner, pull, or diagonal braces must conform to the dimensions and weights specified on standard drawing WF-3 chain links. Approved alternates are acceptable if accepted by the Engineer.

To change in length of tubular or wooden posts shall be 3'-0" to 12'-0". Tubular posts must be painted or galvanized.

The Contractor shall furnish at least 25% of the line post and 75% of the 2 post lengths in order to provide sufficient set in soft ground or shallow depressions.

Driveway gates, either single 12'-0" or double 24'-0" to 36'-0" spans, of the same type as the pedestrian gate, shall be installed on the right side of each through travel lane. Drivers shall be placed at the bridge crossing, or in the case of an exception shown on plans as designated by the Engineer.

At pedestrian crossing, the fence shall not be discontinued across larger streams where the bank to bridge structure a cross connection will be constructed between the fence on each side of the bridge, where the clearance is not sufficient, the fence will be broken and end posts adjacent to bridge abutments by calvert 300MM.

Splice for joined wire pull post assembly shall be by the eye method as described on figure 2, the splice shall be of no less than 315 lbs. and be placed in the loops and connected the ends of the wire shall be laundered around the projecting wire, a minimum of 4 times for each wire length.

Splice for wire pull post assembly shall be by the method as described on figure 3, the splice shall be of no less than 315 lbs. and be placed in the loops and connected the ends of the wire shall be laundered around the projecting wire, a minimum of 4 times for each wire length.

Staple at least 100 bottom and alternate wires of woven fabric for wood line posts.

**TYPE C FENCE (WOOD POSTS)**

- Two strands of 7/16"-dia. 7/16"-length wire shall be used for all wood posts and approved fasteners on steel posts.
- All strands of wood post and approved fasteners on steel posts.
- Two strands of 7/16"-dia. 7/16"-length wire shall be used for all wood posts and approved fasteners on steel posts.
- One strand of 7/16"-dia. 7/16"-length wire shall be used for all wood posts and approved fasteners on steel posts.
- One strand of 7/16"-dia. 7/16"-length wire shall be used for all wood posts and approved fasteners on steel posts.
- One strand of 7/16"-dia. 7/16"-length wire shall be used for all wood posts and approved fasteners on steel posts.

**TYPE C FENCE (STEEL POSTS)**

- 4 strands of 7/16"-dia. 7/16"-length wire shall be used for all steel posts and approved fasteners on steel posts.
- 5 strands of 7/16"-dia. 7/16"-length wire shall be used for all steel posts and approved fasteners on steel posts.
- 6 strands of 7/16"-dia. 7/16"-length wire shall be used for all steel posts and approved fasteners on steel posts.
- Ground line posts shall be painted or galvanized.
- Corner posts shall be painted or galvanized.
- Right-of-way fence location shall be painted or galvanized.
- Private fence terminal installation shall be painted or galvanized.
- Highway rail line shall be painted or galvanized.

**TYPICAL VEHICULAR GATES**

Other style vehicular gates may be used with the approval of the Engineer.

The method of securing gate, latch, and catch shall be agreed upon by the Engineer.
### Barrel List for Barrel Section 48" Long

<table>
<thead>
<tr>
<th>Date</th>
<th>Size</th>
<th>Description</th>
<th>Length</th>
<th>Unit</th>
<th>Notes</th>
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<tbody>
<tr>
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<td>27</td>
<td>Main Barrel</td>
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<td>Yards</td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions

- **Barrel Dimensions**
- **Out Quantities**

### Typical Section A-A

- **Details of Standard Barrel Sections**

<table>
<thead>
<tr>
<th>Date</th>
<th>Size</th>
<th>Description</th>
<th>Length</th>
<th>Unit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/10/2023</td>
<td>27</td>
<td>Main Barrel</td>
<td>60.00</td>
<td>Yards</td>
<td></td>
</tr>
</tbody>
</table>

### Class S Concrete

**Arkansas State Highway Commission**

**Details of Standard Barrel Sections**

**Reinforced Concrete Box Culverts**

- **48" Span**
  - **3:1 or 4:1 Slopesh**
  - **Singles Under 8' Cover**

**Standard Drawing No. 9-100-02**
### Bar List for Barrel Section 60' 0" in Length - Two 45° Shaped Ends

#### General Notes:
- All dimensions are in inches.
- Dimensions to be read in columns from left to right.
- Tolerances: All dimensions are subject to standard tolerances.

#### Quantities:
- The quantities shown are for the entire span.

#### Design Live Load:
- H-20 Load for Standard Concrete.

#### Materials:
- Type of Concrete: Standard Concrete.
- Materials: Reinforced Concrete.

#### Details of Standard Barrel Sections:
- For Reinforced Concrete Box Culverts.
- Class G Concrete.
- Double 4:1 Slopes.
- Under 3" Cover.

#### Standard Drawing No.: P2405.00
CROSS SECTION STA.231+50 TO STA. 232+50
CROSS SECTION STA.53+50 TO STA. 55+00
CROSS SECTION STA. 15+00 TO STA. 15+50
CROSS SECTION STA. 311.00 TO STA. 311.50
CROSS SECTION STA.317+50 TO STA. 319+00