ARLANKAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

STRAWBERRY RIVER
STR. & APPRS. (S)
IZARD COUNTY
ROUTE 56 SECTION 2
JOB 050321
FED. AID PROJ. NHPP-0033(22)
NOT TO SCALE

VICINITY MAP

STRAIGHT LINE DISTANCES

BEGIN JOB NO. 050321
LOG MILE 11.71

END JOB 050321

R8W R7W
R8W R7W

STA, 101+44,86
BEGIN JOB NO. 050321

LOG MILE 11.71

STA, 125+50.00
END JOB 050321

GROSS LENGTH OF PROJECT 2405.14 FEET OR 0.456 MILES
NET: PROJECT 2405.14 0.456

BEGINNING OF PROJECT MID POINT OF PROJECT END OF PROJECT
LATITUDE: N 36°0°42' LATITUDE: N 36°0°42' LATITUDE: N 36°0°42'
LONGITUDE: W 91°44'32" LONGITUDE: W 91°44'32" LONGITUDE: W 91°44'32"

DEPUTY DIRECTOR
AND CHIEF ENGINEER

APPROVED
6-6-19

ARK, HWY, DIST. NO. 5
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**NOTE:** CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

### BRIDGE STANDARD DRAWINGS

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### ROADWAY STANDARD DRAWINGS

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**GOVERNING SPECIFICATIONS**

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

**NUMBER**

ERRATA

ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS

FHWA-1273

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

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SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS

FHWA-1273

SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITY (23 U.S.C. 140)

FHWA-1273

SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES

FHWA-1273

SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS

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SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS

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PROTECTION OF WATER QUALITY AND WETLANDS

303-1

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306-1

QUALITY CONTROL AND ACCEPTANCE

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DESIGN AND QUALITY CONTROL OF ASPHALT MATURES

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JOB 060372

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JOB 060373

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JOB 060321

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JOB 060321

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JOB 060321

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JOB 060351

DELAY IN RIGHT OF WAY OCCUPANCY

JOB 060351

DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES

JOB 060351

DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES

JOB 060351

DRILLED SHAFT FOUNDATIONS

JOB 060351

EXTENSION FOR PIPE CULVERTS

JOB 060351

GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

JOB 060351

MANDATORY ELECTRONIC CONTRACT

JOB 060351

MANDATORY ELECTRONIC DOCUMENT SUBMITTAL

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NONDESTRUCTIVE TESTING OF DRILLED SHAFTS

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JOB 060351

WATER POLLUTION CONTROL & RESTRANING CONDITION

JOB 060351

WELD, HEAD PROTECTION

**GENERAL NOTES**

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

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

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

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

5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARVESTED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

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

7. 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 CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.

8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE TERM NO. 310 - UNCLASSIFIED EXCAVATION.

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

Hwy. 56 - Notch and Widen Section (Superelevation)

STA. 103+95.00 TO STA. 105+00.00

NOTE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
NOTES:

1. Refer to cross sections for deviation from normal slopes. No changes shall be made from the planned slopes without approval of the engineer.

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

3. The final 2" of surface course is not to be placed after all other courses have been laid. Longitudinal joints shall be at lane lines.

HWY. 56 - FULL DEPTH SECTION (SUPERELEVATION)

STA. 105+00.00 TO STA. 107+45.00

HWY. 56 - FULL DEPTH SECTION (SUPERELEVATION)

STA. 107+45.00 TO STA. 109+47.42

STA. 115+64.45 TO STA. 120+17.00

TYPICAL SECTIONS OF IMPROVEMENT
HWY. 56 - FULL DEPTH SECTION
STA. II3+57.58 TO STA. II5+64.45

HWY. 56 - NOTCH AND WIDEN SECTION
STA. I24+95.17 TO STA. I26+00.00

TYPICAL SECTIONS OF IMPROVEMENT
EXIST. HWY. 56 RT. SHOULDER TEMPORARY WIDENING
FOR MAINTENANCE OF TRAFFIC-STAGE I CONSTRUCTION
STA. 301+45.00 TO STA. 305+80.00

NOTES:
REVIEW CROSS SECTIONS FOR DEVIATION FROM NORMAL SLOPES. NO CHANGES SHALL BE
MADE FROM THE PLANNED SLOPES WITHOUT APPROVAL OF THE ENGINEER.

THE THICKNESS OF AGGREGATE BASE SHALL
BE WITHIN PLUS OR MINUS ONE INCH OF THE
PLAN THICKNESS SHOWN. THE CONTRACTOR
MUST CORRECT ANY DEFICIENT THICKNESS
THAT DOES NOT MEET TOLERANCE INDICATED.
PAYMENT WILL NOT BE MADE FOR MATERIAL
PLACED IN EXCESS OF THE TOLERANCE
INDICATED.

TYPICAL SECTIONS OF IMPROVEMENT
NOTE: TURNOUTS SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

Acum surface course (1/2") 1200 lbs. per sq. yd. and aggregate base course (class 7) 7" comp. depth

SHOULDER (6' normal)

WIDENING FOR GUARDRAIL

NOTE: REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

CONSTRUCTION LIMITS

GUARDRAIL (Type A)

5'-6" ADD. ACUM surface course (1/2") 1200 lbs. per sq. yd.

ADD. aggregate base course (class 7) var. comp. depth (var. tons/ft.2)

NOTE: REFER TO STO. OMSL, OR-9A and cross sections for slope requirements behind guardrail.

SECTION OF APPROACH SLAB

AGGREGATE BASE COURSE (CLASS 7)

VARIABLE - 6" MIN. COMPACTED DEPTH

+ SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

DETAIL FOR DRIVeway TURNS outs

OPEN SHOULdER SECTION

NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACUM surface course (1/2") 1200 lbs. per sq. yd. and aggregate base course (class 7) 7" comp. depth if asphalt or gravel drive existing, or 6" concrete if concrete drive existing.

PROPOSED R/W OR TIE TO EXISTING DRIVEWAY, WHICHEVER IS FURTHER.

DETAIL FOR TRANSITIONS

100' NORMAL TRANSITION

COLD MILL EXISTING ASPHALT PAVEMENT AND OVERLAY

EXISTING ASPHALT PAVEMENT RETAIN AND OVERLAY

PROPOSED OVERLAY

100' NORMAL TRANSITION

DETAIL FOR TRANSITIONS

SPECIAL DETAILS
SPECIAL DETAILS

METHOD OF RAISING GRADE

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

2. **QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.**


NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER.

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

NO. 4 BARS @ 12" VERTICAL SPACING
NO. 4 BARS @ 12" HORIZONTAL SPACING
VAR. DEPTH: 1 IN. - 6 IN. & TACK COATS
VAR. ACMI BINDER COURSE 1 1/4"
VAR. TACK COAT (.020"")

DESIGN SLOPE
EXISTING SLOPE
DESIGN SLOPE
EXISTING SLOPE

22'-0" EXISTING PAVEMENT
FILL

0032 9 78

SPECIAL DETAILS

8-6-77
DETAILS OF RUMBLE STRIPS

LOCATION PLAN OF RUMBLE STRIPS

LEFT OR RIGHT SHOULDER

GENERAL NOTES

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

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

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

4. Rumble strips shall be measured by the 1"-inch cut longitudinally along the shoulder. Payment shall only include that portion of the shoulder on which rumble strips have been constructed. No measurement or payment will be made for gaps, driveways, turnouts, or other public road intersections where rumble strips have not been constructed.

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

PLAN VIEW

SPECIAL DETAILS
LEGEND

- 18" FILTER SOCK

NOTES:
- Perimeter controls shall be placed as clearing and grubbing operations are started.
- Maintain all erosion control devices until the end of the job, unless otherwise specified.

REVISIONS

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CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS
LEGEND

NOTE: PERIMETER CONTROLS SHALL BE PLACED AT CLEARING AND GRUBBING OPERATIONS AND STAFFED.

MANTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

REVISIONS

DATE OF REVISION

REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS
LEGEND

- ROCK DITCH CHECKS
- 8" FILTER SOCK

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRADING OPERATIONS ARE STARTED.

MAINTAIN ALL EROSION CONTROL DEVICES DURING THE END OF THE JOB UNLESS OTHERWISE SPECIFIED.

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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STA 101+44.86
BEGIN JOB 050327
LOG MILE 11.71
LEGEND

+ = Rock ditch checks
1\2\4\6 = 6" filter sock

NOTE: Perimeter controls shall be placed as clearing and grubbing operations are started.
Maintain all erosion control devices until the end of the job, unless otherwise specified.

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STAGE 2
TEMPORARY EROSION CONTROL DETAILS
LEGEND

- Rock Ditch Checks
- 18" Filter Sock

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEANING AND GRABBING OPERATIONS ARE STARTED.

MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB UNLESS OTHERWISE SPECIFIED.

STAGE 2
TEMPORARY EROSION CONTROL DETAILS
LEGEND

= ROCK DITCH CHECKS

= 4" FILTER SOCK

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRADING OPERATIONS ARE STARTED.

MANTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB UNLESS OTHERWISE SPECIFIED.

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LEGEND

- = ROCK DITCH CHECKS
- = 8" FILTER SOCK

NOTE: EROSION CONTROLS SHALL BE PLACED AS CLEARING AND DEMOLISHING OPERATIONS ARE STARTED.
MAMINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

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STAGE 3
TEMPORARY EROSION CONTROL DETAILS
ADVANCE WARNING (ALL STAGES)

STAGE 1 CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AS SHOWN. USE VERTICAL PANELS TO DELINEATE THE WORK ZONE.

CONSTRUCT TEMPORARY WIDENING FROM STA. 30+45 TO STA. 305+80 AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2 CONSTRUCTION SEQUENCE

INSTALL CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA, SHFT TRAFFIC ONTO TEMPORARY WIDENING.

CONSTRUCT BRIDGE NO. 07437 AND PARTIAL PROPOSED ROADWAY THROUGH FIRST LAYER OF SURFACE COURSE. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.

STAGE 3 CONSTRUCTION SEQUENCE

INSTALL PRECAST BARRIER, CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS. SHFT TRAFFIC ONTO PARTIAL PROPOSED ROADWAY CONSTRUCTED IN STAGE 2.

OBLITERATE EXISTING ROADWAY AND STAGE 1 TEMPORARY WIDENING AND REMOVE EXISTING BRIDGE STRUCTURE.

CONSTRUCT REMAINING PORTIONS OF PROPOSED ROADWAY IN REQUIRED LOCATIONS.

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

RIGHT SHOULDER CLOSED

ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

DO NOT PASS

ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

BUMP

ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTE: STATION BASED OFF PROPOSED CENTERLINE.
MAINTENANCE OF TRAFFIC DETAILS

Hwy. 56 - Temporary Widening
STA. 301+45.00 to STA. 305+80.00

NOTE:
Vertical panels to be used in stage one for notch and widen construction of temporary widening (stage 1 construction).

NOTE:
See sheet 7 for typical section of improvement for temporary widening.
STAGE I CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AS SHOWN. USE VERTICAL PANELS TO DELINEATE THE WORK ZONE.

CONSTRUCT TEMPORARY WIDENING FROM STA 301+45 TO STA 305+80 AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.
STAGE 2 QUANTITIES
SUNS: 246,555 FT.
VERTICAL PANELS: 720 EA.
TRAFFIC DRUMS: 412 EA.
TIE BARRS: 473 EA.
CONCRETE CURB: 431 EA.
REMOVAL OF PERMANENT PAVEMENT MARKINGS: 468 LML FT.
CONSTRUCTION PAVEMENT MARKINGS: 684 LML FT.

STAGE 2 CONSTRUCTION SEQUENCE
INSTALL CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND
TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA, SHIFT TRAFFIC
ONTO TEMPORARY WIDENING.

CONSTRUCT BRIDGE NO. 07437 AND PARTIAL PROPOSED ROADWAY THROUGH
FIRST LAYER OF SURFACE COURSE, REFER TO CROSS SECTIONS FOR
LOCATIONS OF TEMPORARY SLOPES.
STAGE 2 CONSTRUCTION SEQUENCE

INSTALL CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
REMOVE EXISTING PAVEMENT MARKINGS IN THE AREA, SHIFT TRAFFIC ONTO TEMPORARY WIDENING.

CONSTRUCT BRIDGE NO. 07437 AND PARTIAL PROPOSED ROADWAY THROUGH FIRST LAYER OF SURFACE COURSE. REFER TO CROSS SECTIONS FOR LOCATIONS OF TEMPORARY SLOPES.
STAGE 3 CONSTRUCTION SEQUENCE

INSTALL PRECAST BARRIER, CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS. SHIFT TRAFFIC ONTO PARTIAL PROPOSED ROADWAY CONSTRUCTED IN STAGE 2.

OBLITERATE EXISTING ROADWAY AND STAGE 1 TEMPORARY WIDENING AND REMOVE EXISTING BRIDGE STRUCTURE.

CONSTRUCT REMAINING PORTIONS OF PROPOSED ROADWAY IN REQUIRED LOCATIONS.

MILL OUT THE TRANSITIONS AT BOTH ENDS OF JOB AND PLACE FINAL 2" LIFT OF SURFACE COURSE, INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS DETAILS.
STAGE 3 CONSTRUCTION SEQUENCE

INSTALL PRECAST BARRIER, CONSTRUCTION PAVEMENT MARKINGS, VERTICAL PANELS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS. SHIFT TRAFFIC ONTO PARTIAL PROPOSED ROADWAY CONSTRUCTED IN STAGE 2.

OBLITERATE EXISTING ROADWAY AND STAGE 1 TEMPORARY WIDENING AND REMOVE EXISTING BRIDGE STRUCTURE.

CONSTRUCT REMAINING PORTIONS OF PROPOSED ROADWAY IN REQUIRED LOCATIONS.

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

- ReflectORIZED Paint Pavement Markings: White (6") = 5288
- ReflectORIZED Paint Pavement Markings: Yellow (6") = 5288

RAISED PAVEMENT MARKERS:
- Type III: Yellow/Yellow (80'0.C.) = 33
- ReflectORIZED Paint Pavement Markings: White (6") = 5288
- ReflectORIZED Paint Pavement Markings: Yellow (6") = 5288

6" DOUBLE YELLOW REFLECTORIZED PAVEMENT MARKINGS WITH RAISED TYPE III (YELLOW/YELLOW)
SPACED 80'0.C.

6" WHITE REFLECTORIZED PAVEMENT MARKINGS

EXHIBIT 5-005232

PERMANENT PAVEMENT MARKING DETAILS
### 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 II)</th>
<th>FURNISHING &amp; INSTALLING PRECAST CONC. BARRIER</th>
<th>TEMPORARY IMPACT ATTENTATION BARRIER</th>
<th>TEMP. IMPACT ATTEN.BARR. (REPAIR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W20-1</td>
<td>ROAD WORK 1500 FT</td>
<td>48&quot;x48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>W20-1</td>
<td>ROAD WORK 1000 FT</td>
<td>48&quot;x48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>W20-1</td>
<td>ROAD WORK 500 FT</td>
<td>48&quot;x48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>W20-1</td>
<td>ROAD WORK AHEAD</td>
<td>48&quot;x48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>G20-1</td>
<td>END ROAD WORK</td>
<td>48&quot;x44&quot;</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>R0-1</td>
<td>SPEED LIMIT 45 MPH</td>
<td>36&quot;x60&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>R11-2</td>
<td>ROAD CLOSED</td>
<td>48&quot;x48&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>V1-6</td>
<td>LARGE ARROW</td>
<td>48&quot;x24&quot;</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>I4-1</td>
<td>DO NOT PASS</td>
<td>34&quot;x20&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>V11-6a</td>
<td>RIGHT SHOULDER CLOSED</td>
<td>30&quot;x20&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>W1-8</td>
<td>BUMP</td>
<td>30&quot;x20&quot;</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**NOTE:** THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

### CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>STAGE 2</th>
<th>STAGE 3</th>
<th>END OF JOB</th>
<th>REMOVAL OF PERMANENT PAVEMENT MARKINGS</th>
<th>CONSTRUCTION PAVEMENT MARKINGS</th>
<th>REMOVABLE CONSTRUCTION PAVEMENT MARKINGS</th>
<th>RAISED PAVEMENT MARKERS</th>
<th>REFLECTORIZED PAVEMENT MARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMOVAL OF PERMANENT PAVEMENT MARKINGS</td>
<td>1686</td>
<td>1118</td>
<td>2786</td>
<td>2786</td>
<td>8601</td>
<td>1621</td>
<td>1621</td>
<td>1621</td>
</tr>
<tr>
<td>CONSTRUCTION PAVEMENT MARKINGS</td>
<td>1681</td>
<td>1118</td>
<td>2786</td>
<td>2786</td>
<td>8601</td>
<td>1621</td>
<td>1621</td>
<td>1621</td>
</tr>
<tr>
<td>REMOVABLE CONSTRUCTION PAVEMENT MARKINGS</td>
<td>1681</td>
<td>1118</td>
<td>2786</td>
<td>2786</td>
<td>8601</td>
<td>1621</td>
<td>1621</td>
<td>1621</td>
</tr>
<tr>
<td>RAISED PAVEMENT MARKERS TYPE I (YELLOW/YELLOW)</td>
<td>33</td>
<td></td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFLECTORIZED PAVEMENT MARKING WHITE (8&quot;)</td>
<td>5288</td>
<td></td>
<td>5288</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFLECTORIZED PAVEMENT MARKING YELLOW (8&quot;)</td>
<td>5288</td>
<td></td>
<td>5288</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS:** 2786 8601 1621 33 5288 5288

**NOTE:** THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

**NOTE:** THE 8" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.
### REMOVAL AND DISPOSAL OF ITEMS

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>SIGN FOUNDATIONS</th>
<th>POSTS</th>
<th>GUARDRIAL SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>104+65</td>
<td>104-65</td>
<td>RT HWY 56</td>
<td>EACH</td>
<td>EACH</td>
<td>EACH LIN FT</td>
</tr>
</tbody>
</table>

**Note:** The quantity shown above for the removal and disposal of guardrail shall include the removal and disposal of all guardrail terminals and terminal anchor posts. See Section 104.03 of the standard specs.  

### COLD MILLING ASPHALT PAVEMENT

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>AVG. WIDTH</th>
<th>COLD MILLING ASPHALT PAVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>106-01</td>
<td>HWY 56</td>
<td>10+44.86</td>
<td>101+44.86 HWY 56</td>
</tr>
<tr>
<td>106-02</td>
<td>HWY 56</td>
<td>10+84.69</td>
<td>101+84.69 HWY 56</td>
</tr>
</tbody>
</table>

**Totals:** 4.88 sq yd

### APPROACH GUTTERS AND SLABS

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>TON</th>
</tr>
</thead>
<tbody>
<tr>
<td>106+74</td>
<td>REINFORCING GUTTER TYPE C</td>
<td>0.35</td>
</tr>
</tbody>
</table>

### CONCRETE DITCH PAVING

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>CONC. DITCH PAVING</th>
<th>RODDING</th>
<th>WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>125+30</td>
<td>HWY 56</td>
<td>78.00</td>
<td>34.87</td>
<td>0.44</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 34.87 GAL．/sq yd．of solid sodding.

### SELECTED PIPE BEDDING

<table>
<thead>
<tr>
<th>STATION</th>
<th>SELECTED PIPE BEDDING</th>
<th>CUB YD</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+50</td>
<td>PIPE 75</td>
<td>0.44</td>
</tr>
</tbody>
</table>

**Totals:** 0.44 cub yd.

### CEMENT LIME FILLER CONCRETE PIPES

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SELECTED PIPE BEDDING</th>
<th>CUB YD</th>
</tr>
</thead>
<tbody>
<tr>
<td>REINFORCED CONCRETE PIPE</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>FLARED END SECTIONS FOR R.C. PIPE CULVERTS</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>TEMPORARY CULVERTS</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>SOLID SODDING</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>WATER</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** For R.C. pipe culvert installations use Type 3 bedding unless otherwise specified.

---

**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>106+74</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 0.35 ton

**Note:** QUANTITY ESTIMATED. See Section 104.03 of the standard specs.

---

**Concrete Logging**

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>DEPTH</th>
<th>LIQUID</th>
<th>PLASTICITY INDEX</th>
<th>ASHRO CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>106+74</td>
<td>HWY 56</td>
<td>0.35</td>
<td>2.0</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** See Section 104.03 of the standard specs.

---

**Clearing and Grubbing**

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>CLEARING</th>
<th>GRUBBING</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+45</td>
<td>105+45</td>
<td>HWY 56</td>
<td>0.35</td>
<td>0.35</td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** QUANTITY ESTIMATED. See Section 104.03 of the standard specs.

---

**Soil Logging**

<table>
<thead>
<tr>
<th>STATION</th>
<th>DEG MIN</th>
<th>DEG MIN</th>
<th>LOCATION</th>
<th>DEPTH</th>
<th>LIQUID</th>
<th>PLASTICITY INDEX</th>
<th>ASHRO CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+74</td>
<td>35</td>
<td>35</td>
<td>HWY 56</td>
<td>0.35</td>
<td>2.0</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** See Section 104.03 of the standard specs.

---

**Structures**

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>SELECTED PIPE BEDDING</th>
<th>CUB YD</th>
</tr>
</thead>
<tbody>
<tr>
<td>117+00</td>
<td>INSTALL 18&quot; TEMPORARY PIPE</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>124+15</td>
<td>EXTEND DIL. 30&quot; PIPE CULVERT</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** See Section 104.03 of the standard specs.

---

**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>106+74</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 0.35 ton

**Note:** QUANTITY ESTIMATED. See Section 104.03 of the standard specs.

---

**Concrete Logging**

<table>
<thead>
<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>DEPTH</th>
<th>LIQUID</th>
<th>PLASTICITY INDEX</th>
<th>ASHRO CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+74</td>
<td>HWY 56</td>
<td>0.35</td>
<td>2.0</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** See Section 104.03 of the standard specs.

---

**Clearing and Grubbing**

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>CLEARING</th>
<th>GRUBBING</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+45</td>
<td>105+45</td>
<td>HWY 56</td>
<td>0.35</td>
<td>0.35</td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** QUANTITY ESTIMATED. See Section 104.03 of the standard specs.

---

**Soil Logging**

<table>
<thead>
<tr>
<th>STATION</th>
<th>DEG MIN</th>
<th>DEG MIN</th>
<th>LOCATION</th>
<th>DEPTH</th>
<th>LIQUID</th>
<th>PLASTICITY INDEX</th>
<th>ASHRO CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>105+74</td>
<td>35</td>
<td>35</td>
<td>HWY 56</td>
<td>0.35</td>
<td>2.0</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** See Section 104.03 of the standard specs.

---

**Structures**

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>SELECTED PIPE BEDDING</th>
<th>CUB YD</th>
</tr>
</thead>
<tbody>
<tr>
<td>117+00</td>
<td>INSTALL 18&quot; TEMPORARY PIPE</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>124+15</td>
<td>EXTEND DIL. 30&quot; PIPE CULVERT</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 0.35 cu yd.

**Note:** See Section 104.03 of the standard specs.
### Driveways & Turnouts

<table>
<thead>
<tr>
<th>Station</th>
<th>Side</th>
<th>Location</th>
<th>Width (Ft)</th>
<th>ACHM Surface Course (10&quot;)</th>
<th>Aggregate Base Course (Class 7)</th>
<th>Side Drains (L)</th>
</tr>
</thead>
</table>
| 104+50  | LT   | HWY 56         | 16         | 162.06 17.63 16.17        | 30 PCC-1, PCC-1, PCC-1, PCC-2 | L
| 114+42  | RT   | HWY 56         | 16         | 382.27 35.98 14.07        | 30 PCC-1, PCC-1, PCC-1, PCC-2 | L
| 118+68  | LT   | BENED CREEK RD | 20         | 100.07 11.01 40.86        | 30 PCC-1, PCC-1, PCC-1, PCC-2 | L
| 123+00  | RT   | HWY 56         | 16         | 162.25 17.85 62.25        | 50 PCC-1, PCC-1, PCC-1, PCC-2 | L

**TOTAL:** 50.00

**ENTIRE PROJECT:**

- **TEMPORARY Ditches: 776.65**
- **385.33**
- **156**

---

### Erosion Control

**PERMANENT EROSION CONTROL**

- **Seedings:**
  - **Lime:** 10.01 T/CY
  - **Mulch Cover:** 6.68 T/CY
  - **Water:** 793.6 T/CY

- **Temporary Erosion Control**
  - **Wattle:** (20")
    - **Ditch Checks:** 4282
  - **Sand Bag Ditch Checks:**
    - **LIN. FT:** 159
  - **Rock Ditch Checks:**
    - **LIN. FT:** 159
  - **4" Filter socks:**
    - **LIN. FT:** 159

**TOTALS:** 238

**Sediment Removal & Disposal:**

- **CUB. YD:**
  - **ENTIRE PROJECT:**
    - **LIME:**
      - **2 T/CY:**
    - **WATER:**
      - **102.0 M.G/ACRE OF SEEDING:**
  - **WATTLE DITCH CHECKS:**
    - **LIN. FT/LOCATION:**
      - **20 BAGS/LOCATION:**
      - **3 CU.YD/LOCATION:**

**GENERAL NOTES:**

- **SYSTEM PERMIT:**
- **ON-SITE EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETE EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

---

### Rumble Strips in Asphalt Shoulders

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**TOTAL:** 4,182

**FLOWABLE SELECT MATERIAL**

- **STATION:**
  - **LOCATION:** HWY 56, ILL. TEMP. PIPE
  - **CUB. YD.:** 4.91

**TOTAL:** 4.91

---

### Guardrail

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**TOTAL:** 475

**QUANTITIES:**

- **NOTE:** QUANTITIES DENOTE ALTERNATE BID ITEM.
# SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 050321

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1. All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 12032)".

2. The color of paint shall be Brown equal or close to Federal Std. 5958, Color Chip No. 30070 and as approved by the Engineer.

3. Rock excavation.

---

**Note:**

- **ITEM 205:** Removal of existing bridge structure (SITE NO. 1)
- **ITEM 001:** Unclassified excavation for structural bridge
- **ITEM 002:** Concrete bridge
- **ITEM 003:** Concrete bridge
- **ITEM 004:** Concrete bridge
- **ITEM 005:** Concrete bridge
- **ITEM 006:** Concrete bridge
- **ITEM 007:** Concrete bridge
- **ITEM 008:** Concrete bridge
- **ITEM 009:** Concrete bridge
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- **ITEM 056:** Concrete bridge
- **ITEM 057:** Concrete bridge
- **ITEM 058:** Concrete bridge
- **ITEM 059:** Concrete bridge
- **ITEM 060:** Concrete bridge

---

**Additional Information:**

- **LUMP SUM:** CU. YD. CU. YD. SQ. YD. LB. LB. LB. FT. TO. CU. IN. LIN. FT. EACH. CU. YD. SQ. YD. LIN. FT. LIN. FT.
- **ITEM 812:** CROSSHOLE SONIC LOGGING (72" DIA.)
- **ITEM 813:** CORED DRILLED SHAFT
- **SITE NO. 1:** BRIDGE NO. 03219
- **TOTALS FOR JOB NO. 050321:** 235 50 87,680 6.3 0.552 74 1 248 455 66 39
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| 205         | COMPACTED EMERGENCY | 8942 | CY.
| SP & 210    | SOIL STABILIZATION | 100 | TON |
| SS & 305    | EARTHBASE GRADING (CLASS 7) | 837 | TON |
| SS & 421    | TACK COAT | 961 | GAL |
| SP, SS & 406 | MINERAL AGGREGATE IN ACM Binder Course (1") | 700 | TON |
| SP, SS & 406 | ACCELERATED IN ACM Binder Course (1") | 33 | TON |
| SP, SS & 407 | MINERAL AGGREGATE IN ACM TEMPERFACE Course (1") | 1563 | ACM |
| SS & 407    | ASPHALT Binder (SP 64-22) IN ACM TEMPERFACE Course (1") | 116 | TON |
| 412         | COLD MOLDING ASPHALT PAVER | 469 | SO. FT |
| SS & 414    | ASPHALT CONCRETE PAVER FOR MAINTENANCE OF TRAFFIC | 10 | TON |
| SP, SS & 415 | ACM PAVING OF EXITING ROADWAY | 102 | TON |
| 514         | APPROACH SLABS | 88.98 | CU. YD |
| 514         | APPROACH GUTTERS | 46.63 | CU. YD |
| 601         | MOBILIZATION | 1.00 | LUMP SUM |
| SP & 402    | FURNISHING FIELD OFFICE | 1.00 | LUMP SUM |
| 603         | MAINTENANCE OF TRAFFIC | 1.00 | LUMP SUM |
| SS & 404    | BARRIERS | 73 | LIN. FT |
| SS & 404    | BARRIERS | 160 | LIN. FT |
| SS & 504    | TRAFFIC DRUMS | 240 | LIN. FT |
| 604         | CONSTRUCTION PAVEMENT MARKINGS | 1651 | LIN. FT |
| 606         | REMOVAL OF PERMANENT PAVEMENT MARKINGS | 2748 | LIN. FT |
| SS & 404    | VERTICAL PANELS | 20 | EACH |
| SS & 405    | CONCRETE DOCK PAVERS (TYPE B) | 72 | LIN. FT |
| SP & 405    | ASPHALT CONCRETE PAVER FOR MAINTENANCE OF TRAFFIC | 156 | LIN. FT |
| 606         | ASPHALT CONCRETE PAVER FOR MAINTENANCE OF TRAFFIC | 4 | EACH |
| 606         | SELECTED PIPE READING | 20 | EACH |
| SS & 411    | STONE PIPE (LIDGERS) | 500 | LIN. FT |
| SS & 411    | UNDERGROUND OUTLET PROTECTORS | 812 | LIN. FT |
| SS & 411    | CONCRETE PIPE (A) | 376 | LIN. FT |
| SS & 411    | CONCRETE PIPE (B) | 4 | EACH |
| SS & 411    | THREE BEAM CONCRETE TERMINAL | 4 | EACH |
| SS & 417    | WIRE FENCE (TYPE C) | 780 | LIN. FT |
| SS & 417    | WIRE FENCE (TYPE D) | 20 | EACH |
| SS & 417    | WIRE FENCE (TYPE B) | 1188 | LIN. FT |
| 616         | 16" STEEL GIRDERS | 3 | EACH |
| 618         | 16" ALUMINUM GIRDERS | 2 | EACH |
| 619         | 16" STEEL GIRDERS | 14 | EACH |
| 620         | SECTIONS | 6.80 | ACRE |
| SS & 420    | MOLDED COVER | 31.90 | ACRE |
| 620         | WATER | 1019 | M. GAL |
| 621         | TEMPORARY TRAFFIC | 10.20 | ACRE |
| 621         | SAND BAG Ditch checks | 577 | BAG |
| 621         | LIDGMENT Ditch | 176 | LIN. FT |
| 621         | SEGMENT REMOVAL AND DISPOSAL | 258 | CU. YD |
| 621         | PIPE FOR SLOPE DRAINS | 75 | LIN. FT |
| 621         | ROCK Ditch Checks | 151 | LIN. FT |
| SS & 431    | FILTER DRAIN (1/8") | 4802 | LIN. FT |
| 622         | WATER GATE | 120 | LIN. FT |
| 622         | SECOND SEEPING APPLICATION | 6.60 | ACRE |
| 624         | ROCK SOCCING | 63 | BS. YD |
| 624         | ROCK SOCCING | 1.00 | LUMP SUM |
| 634         | RUBBLE STRIPS IN ASPHALT SHOULDERS | 1383 | EACH |
| 718         | REFLECTED PAINT PAVEMENT MARKINGS (TYPE E) | 3248 | LIN. FT |
| 718         | REFLECTORIZED PAINT PAVEMENT MARKINGS (TYPE W) | 2300 | LIN. FT |
| 718         | RAISED PAVEMENT MARKINGS (TYPE B) | 33 | EACH |
| 731         | TEMPORARY IMPACT ATTENUATION (BARRIER) | 2 | EACH |
| 731         | TEMPORARY IMPACT ATTENUATION (BARRIER) | 713 | TON |
| SS & 804    | REINFORCING STEEL-ROADWAY (GRADE 65) | 1714 | POUND |

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SURVEY CONTROL COORDINATES

Project Name: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL

Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL
PROJECTED TO GROUND.

U.S. SURVEY FOOT

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NOTE: Refer to Cap Standard: 5/8" Rebar with 2" Aluminum Cap stamped with standard markings common to all caps, as indicated.

REFERENCE POINTS 1/1750 SERIES ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.

REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL.

ARKANSAS PLANE GRID BEARINGS - 0011 NORTH ZONE.

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REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
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**Concrete and Reinforcing Steel placed in the Drilled Shaft will not be paid directly but shall be considered supplementary to the unit price bid for "Drilled Shaft (72 Dia.)". No additional payment shall be made for splices, spacers, or bracing other than that which is considered to be the ordinary and customary work in erecting. Drilled Shafts shall conform to Special Provision Job No. 95331 "Drilled Shaft Foundations" and shall be paid for at the full unit price bid for "Drilled Shaft (72 Dia.)".**

For "SUBSTRUCTURE NOTES," see Std. Dwg. No. 55006.

For additional information, see Layout.

1. Length of Permanent Casing shown is for estimating quantities only. Actual length to be determined in the field. See Special Provision Job No. 95331 "Drilled Shaft Foundation." Reinforcement (spans) extend to permanent Casing and are to be considered supplementary. Length of permanent Casing shown is for estimating purposes only.
2. Vibration of the concrete in the top 10" of the shaft will be needed to ensure the consolidation of concrete around the reinforcing steel.
3. Minimum penetration into material designated as dolostone below bottom of permanent Casing.

---

**TYPICAL ANCHOR BOLT LAYOUT**

**GENERAL NOTES**

**TABLE OF VARIABLES**

**SHEET 1 OF 3**

**DETAILS OF INTERMEDIATE BENTS**

**STRAWBERRY RIVER**

**ROUTE**

**ARKANSAS STATE HIGHWAY COMMISSION**

**LICENSED PROFESSIONAL ENGINEER**

**BREDGE NO. 0747**

**DRAWING NO. 60926**

**CHECKED BY**

**DRAWN IN**

**REVIEWED BY**

**DATE**

**SCALE**

**AS SHOWN**
For details of guard rail connection see Std. Dwgs. GR-10 & GR-12.

Section X-X

Section Z-Z

Three Dimensional View of Wing & Rail

Plan of Rail

View C-C
For "SUBSTRUCTURE NOTES", see Std. Dwg. No. 55006.

Structural steel, unless noted otherwise, in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (ASTM A709, Gr. 50W)".

No portion of the backwall shall be poured before girders are in place.

The portion of the backwall above the optional construction joint at the paving bracket shall be poured after girders are in place. Refer to "Construction Details" note, see Std. Dwg. No. 55006.

No heavy construction equipment or backfill shall be allowed directly behind the backwall until the deck concrete for the adjacent span has been completed.

For additional information, see Layout.

BAR LIST

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Dimensions are set in out of bars.

BENDING DIAGRAMS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

ROUTE SEC.

LITTLE ROCK, ARK.

DRAWE NO. 07417
DRAWING NO. 08031

SHEET 3 OF 3
DETAILS OF END BENT 4
STRAWBERRY RIVER
Notes:
All Structural Steel shall be ASTM A709, Gr. 50W unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans".

For additional information, see Layout.
For General Notes, see Std. Dwg. No. 55006.
For additional Details, see Std. Dwg. No. 55007.

PARTIAL FRAMING PLAN
NO SCALE

100'-0" - Top Flange in Tension

PARTIAL GIRDER ELEVATION
NO SCALE

Bearing Stiffener
See "BEARING STIFFENER DETAIL", Dwg. No. 60633.
All Field Splice plates shall be ASTM A709, Gr. 50W. For location of field splices, see Dwg. No. 50534.

Detailed field splices may either be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

K-FRAME DETAIL
NO SCALE

FIELD SPICE DETAILS
NO SCALE

Notes:
- All Field Splice plates shall be ASTM A709, Gr. 50W. For location of field splices, see Dwg. No. 50534.
- Detailed field splices may either be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.
The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

Notes:
- Parapet joint types shown are typical for both sides of roadway.
- Pour 2 must be placed before pour 3 can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour.
- Parapet joint types shown are typical for both sides of roadway.
- Pouring Sequence

### TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

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Symmetrical about C.L. Unit

**DEAD LOAD DEFLECTION DIAGRAM**

**PARTIAL REINFORCING PLAN & DECK POURING SEQUENCE**

**Sheet 4 of 5**

Details of 335°-0' Continuous Composite Plate Girder Unit Strawberry River

Route: Arkansas State Highway Commission

Section: Little Rock, Ark.

Drawn by: Licensed Professional Engineer

Approved by: Sc. of Highway Engineering

Scale: As Shown

Bridge: NO. 07437

Drawing No. 0636
Notes:
The surface finish for Approach Slab shall match that used on the bridge deck.

GENERAL NOTES
- All concrete shall be Class S (AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi and shall be placed in the dry.
- All reinforcing steel shall be Grade 60 (yield strength $= 60,000$ psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
- Approach Slabs will be measured and paid for in accordance with Section 504.

PLAN - APPROACH SLAB

SECTION A-A
Not to Scale

SECTION B-B
At Asphalt Approach Pavement
Not to Scale

Notes:
The surface finish for Approach Slab shall match that used on the bridge deck.

GENERAL NOTES
- All concrete shall be Class S (AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi and shall be placed in the dry.
- All reinforcing steel shall be Grade 60 (yield strength $= 60,000$ psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
- Approach Slabs will be measured and paid for in accordance with Section 504.
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL

EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT VERTICAL WALL ABUTMENTS

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS

EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
PILE END BENTS

GENERAL NOTES:
The Bridge End Embankment shall be defined as a section of embankment, not less than 25 feet long adjacent to the bridge end, together with the
side slopes and bases under the bridge ends leading up to the end of
the embankment, and shall be backfilled with 1.5-ft layers of
embankment. The embankment shall be compacted in 1.5-ft layers
with horizontal layers closely measured and compacted by the use of
mechanical equipment to the satisfaction of the Engineer. Refer to
subsection 2602.3, 2602.4 and 2602.5 for construction requirements.
GENERAL NOTES
These GENERAL NOTES are applicable unless otherwise shown in the Plan Symbols, Special Provisions, or Supplemental Specifications.


DESIGN SPECIFICATIONS: See Bridge Layouts.

SUPERSTRUCTURE NOTES

MATERIALS AND STRENGTHS:

Class BSI0 Concrete

Reinforcing steel: GB 60, 5A801, No. 9 to No. 32, Type XI

Structural steel: 250, 350, 430, 500 in S355

Structural Steel (Mod.) 270G, 360

Structural Steel (Mod.) 270G, 400

Structural Steel (Mod.) 270G, 500

Structural Steel (Mod.) 270G, 500

See Plan Details for Grades of Structural Steel Required.

CONCRETE

All concrete shall be Class BSI0 with a minimum 28 day compressive strength of 4,500 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/16 unless otherwise noted.

The superstructure details shown are for use when reinforcing steel is used and are the basis for measurement of Class BSI0 concrete. See Standard Drawing No. 950S5 for allowable modifications and for hip ends when Permanent Bridge Steel Deck forms are used.

Use of a longitudinal seam is not permitted on any span of a bridge deck with horizontal curvatures.

The concrete deck roadway surface shall be given the finish in accordance with Subsection B201 for Class 5 lined Bridge roadway finish surface. Skidres shall receive a ground finish as specified for final finishing in Subsection B201 for Class 8 lined finish. Brooming or a ground finish concrete shall be an option based on the surface and shall be permitted for 72 hours after finishing the deck. Skidres shall be ground smooth and strike-off to final grade the beam or girder, when satisfied, of the use of a longitudinal strike-off will require that a vertical corner adjustment be made in accordance with the future deck dead load deflection due to any rolling, motion border, and dowels.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 3 or 322, Type XI with all list values and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and tied in place in steel by steel supports, sufficient in number and size to prevent displacement during the course of construction. The wire support will not be used for direct, but will be considered subsidiary to the Item "Epoxy Coated Reinforcing Steel Grade 60".

STRUCTURAL STEEL (COMMON TO BEAMS AND PLATE GROUPS):

Structural steel shall be A572 Grade 70 with grade and position as specified in the plan. Grade 50M steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection B101.3. Grade 36 and Grade 50 steel shall be painted unless otherwise noted on the plans. Structural steel shall be cleaned in accordance with Subsection B101.3. Structural steel accurately embedded in concrete may be A572, 36, 50M, 50, or 30M unless otherwise noted.

Structures are generally fabricated of design only. Shop drawings shall be made in accordance with the specifications, submitted and approved before fabrication is begun. Requests for substitution of structural steel shapes shown with shapes of greater size shall be submitted by the Contractor to the Engineer for approval. Materials of equal or greater strength will be accepted only when shown on the approved shop drawings. Payment will be based on the weights of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

All welding shall be done under fabrication of structural steel, including necessary welds, shall be detailed on the shop drawings and submitted for approval. If cold-rolled steels are required, whether permanent or temporary, a required detail with detailed drawings shall be submitted to the Engineer for approval. However, additional welds used for attaching shop drawings, shop design, or cold-rolled steel supports to the structural steel that do not exceed 1/2" by 1/2" in length shall not be considered to conform to Subsection B70.26. If the welds are required, the weld shall conform to Subsection B70.26.2 unless otherwise noted.

If steel connections shall be bolted with 5/8" high-strength bolts using 1/2" wide plates, these plates shall be placed under the connection, adjacent to the connection, at the other end of the beam or girder and on the bottom of the beam or girder flanges.

All steel shear connectors shall be grouted with shotcrete, filled, or welded and shall be compatible with the concrete and design recommendations of the Engineer.

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection B70.15. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (BEAMS):

All beams and field spliced plates, and all diaphragms and connection plates attached to horizontally curved girder shall be completed and painted as shown in the cross-sections of Figure 1 and Figure 2. The connecting plates shall be selected from the "Structural Steel in Beams" in Subsection B70.26.1. Beams in continuous units and single spans with field splices shall be located in accordance with the true length in position in the beams as specified in Subsection B370.4B20 with the ends horizontal. The distance between bearings and spacing of joints shall be measured and this information shall become part of the permanent records. The components shall be matched in this assembly and the correct splices shall be shown on the erection diagram.

Rage field spliced beams shall be cut and fabricated so that the primary direction of painting is parallel to the direction of the main tendon and/or compression stresses. All beam dimensions are based on a temperature of 70 degrees F. A tolerance of 1/8" is allowed for bolster.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of painting is parallel to the direction of the main tendon and/or compression stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection B70.15 or as required for horizontally curved girder.

Unless otherwise noted, diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be insulated and tightened in accordance with Subsection B70.15 prior to pouring the concrete deck.

STRUCTURAL STEEL PLATE GROUPS:

All references to cross-frames shall include "X" and "Y" types.

All girder web and flange plates, all field spliced plates, all diaphragms, cross-frames and connection plates shall be vertically oriented on horizontally curved girders shall be considered main loading and shall meet the longitudinal tension test specified in Subsection B370.2.

All diaphragms and cross-frames shall be considered main loading and shall meet the longitudinal tension test specified in Subsection B370.2.

All diaphragm and cross-frame dimensions shall be considered main loading. A tolerance of 1/8" is allowed for the primary direction of painting is parallel to the direction of the main tendon and/or compression stresses. A tolerance of 1/8" is allowed for the primary direction of painting is parallel to the direction of the main tendon and/or compression stresses.

Girders shall be made by shop splicing with minimum lengths of 25 feet for flanges, 50 feet minimum for webs and negative length of 25 feet for sections. No additional payment will be made for shop welding or splices.

All girder dimensions are based on a temperature of 70 degrees F. A tolerance of 1/8" is allowed for bolster.

Girders in web and flange plates shall be Quality Control (QC) tested by nondestructive testing as required in Subsection B70.26.1. All girders shall be spliced into see for web and plate connections shall be GC tested by the magnetic particle method. All QC testing shall be considered subsidiary to the Item "Structural Steel in Beams" in Subsection B70.26.1.

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of painting is parallel to the direction of the main tendon and/or compression stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection B70.15 or as required for horizontally curved girder.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be insulated and tightened in accordance with Subsection B70.15 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES

CONCRETE:

Unless otherwise noted, concrete in casings, curbs, and footings except steel footings shall be sea. Concrete for footings shall have a minimum 28 day compressive strength of 2,500 psi.

Concrete in pile shafts shall be Class B SI0 on 2,500 psi, conforming to AASHTO M 3 or 322 Type XI, with all list values. All exposed corners shall be chamfered 3/16 unless otherwise noted.

REINFORCING STEEL:

All reinforcing steel shall be Grade 36, 50M minimum compressive strength of 6,500 psi conforming to AASHTO M 3 or 322 Type IX, with all list values. All reinforcing bars in cap shall be properly placed to avoid interference with order bolts or steel web doweis.

STRUCTURAL STEEL:

Structural steel in end beams shall be ASHHTO W 270 with grade and position as specified on the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT/3S AND PLAN DETAILS.

GENERAL NOTES FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DESIGN BY: L. P. JONES

CONTRACT NO: 68908

STATE: ARK.

ENGINEER: P. A. JONES

DATE: 8-25-85

Drawing No. D-2053

ARCHITECT: E. R. M. S.

DRAWING NO. 55006

STATE: ARK.

DESIGN BY: L. P. JONES

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GENERAL NOTES FOR STEEL H-PILES

Steel H-Piles shall conform to ASD/IOA W 357, Grade 36 or greater. See Bridge Layout and Bent Details for site-specific allowable length, spacing, pile configuration if required and for driving information.

Steel H-Piles must extend above the ground and not protected by pile encasement shall be painted in accordance with Subsection 616.01. Brackets, lugs, cap plates, pile caps, driving points, pile painting, welding and painting shall not be painted directly, but shall be considered subsidiary to the term "Steel Piling."
ENERGY DISSIPATORS
No Scale

**Number of Elements Per Row Varies With Width of Paving Specified**

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

**GENERAL NOTES:**

THE FULL WIDTH OF EACH SECTION SHALL BE Poured MONOLITHICALLY.

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

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

1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M273.
DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

For design speeds of 50 mph or less, all curb faces as shown on standard details may be used. For design speeds of 55 mph or more, type "E" curb face shall be used.

Detail of connection

For design speeds of 50 mph or less, all curb faces, as shown on standard details, may be used. For design speeds of 55 mph or more, type "E" curb face shall be used.

Plan View Steel Posts

Other hole configuration acceptable.

Plan View Wood Posts

Other hole configuration acceptable.

Notes for varying subgrade (W ranging from 6" to 8"), the depth of required drilling (W) is equal to 24".

Zone A & B:
Backfill in 6" lift with overlap meeting the requirements of Section 405.0202 - Subgrade preparation. Compress to 95% maximum dry density per 2240.060.

Note for varying subgrade (W ranging from 6" to 8"), the depth of required drilling (W) is equal to 24". In units with a depth of subgrade, the depth of required drilling (W) is equal to 24".

Zone A & B:
Backfill in 6" lift with overlap meeting the requirements of Section 405.0202 - Subgrade preparation. Compress to 95% maximum dry density per 2240.060.
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

ONE-WAY TRAFFIC

TWO-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

ONE-WAY TRAFFIC

TWO-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-9
TRAFFIC

END TERMINAL

GUARD RAIL

B

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

LIMITS OF WIDENING FOR GUARD RAIL (MATCH SHOULDER SLOPE)

5'-0"

75'-0"

50'-0"

A

NORM.

SECTION A-A

DETAILS OF WIDENING FOR GUARD RAIL

SLOPE AS SHOWN ON TYPICAL SECTION

NORMAL

SHLDR. SURF.

VARIABLE

2'-0"

GUARD RAIL (TYPE A)

SLOPE AS SHOWN ON TYPICAL SECTION

2'-0"

NORMAL

SHLDR. SURF.

VARIABLE

GUARD RAIL (TYPE A)

METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

SHOULDER PIER PROTECTION

5'-0"

100'-0"

VARIABLE

10'-0"

MEDIAN PIER PROTECTION

150'-0"

VARIABLE

100'-0"

NORMAL ROADWAY WIDTH

WIDTH OF SURFACING

2'-0"

2'-0"

SECTION ON TANGENT

SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

NORMAL ROADWAY WIDTH

WIDTH OF SURFACING

2'-0"

2'-0"

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING CR-9A
SPECIAL END SHOE

THREE BEAM RAIL

TRANSITION SECTION

CONNECTOR PLATE

GENERAL NOTES:
The three beam rail, special end shoe and the transition section shall be made of steel and shall be of galvanized grade and coated with zinc. The rail posts shall be set perpendicular to the roadway profile grade and geometrically in single detail. All bolts shall be of the high-strength type or other type specified. The three beam guard rail components shall be made of steel. Use three beam guard rail components of same material for entire job.

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: all holes shall be the same type throughout the project limits.

OE 72 TOLERANCE 44", 44"
THREE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POSTS 1-7

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

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

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

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

GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 675 #400 19 OR NO. 1 330 7 SOUTHERN PINE.

ARKANSAS STATE HIGHWAY COMMISSION
GUARD RAIL DETAILS
STANDARD DRAWING GR-II
THREE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THREE BEAM GUARD RAIL SPECIES END SHOE AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE RADIUS CURVED ON THE OUTER CURVE. RAIL POSTS SHALL BE SET PERPENDICULAR TO THE HIGHWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION. ALL RAIL POSTS SHALL BE SUPPORTED ENOUGH TO EXTEND THROUGH THE FULL THICKNESS OF THE HOLE AND NO LESS THAN 3⅜ IN. INWARD FROM IT.

ALL LAP SPICES BETWEEN SPECIFIC RAIL POSTS SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWING GR-12. REFER TO STANDARD DRAWING GR-9 FOR POST DETAILS.

USE THREE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. THREE BEAM POSTS SHALL BE SAME MATERIAL AS "B" BEAM POSTS FOR ENTIRE JOB. POSTS SHALL BE PLACED AT THE MID-SPAN OF THE "B" BEAM. WOOD BLOCKS SHALL BE EITHER PARTIAL OR STOPLAP, DEPENDENT UPON THE Orientation OF THE "B" BEAM.

1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCTION.
2) REFER TO APPROACH CURVE DETAILED.
3) LENGTH OF BLOCKOUT ON POST "B" TO BE MODIFIED TO FIT RAIL WIDTH.

ELEVATION

PLAN

STANDARD DRAWING GR-12

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

DATE

REVISION

FILED
INSTALLATION OVER CIRCULAR PIPE

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

### INSTALLATION

1. Place structural bedding material to grade, do not compact. Fill trench with granular fill material, conform to AASHTO M207, and/or compacted material, conform to AASHTO M205. Foundation shall be compacted, according to the type of material specified by the Engineer.

2. Fill trench with granular fill material, conform to AASHTO M207, and/or compacted material, conform to AASHTO M205. Foundation shall be compacted, according to the type of material specified by the Engineer.

3. For embankments, the materials in the lower side zone shall be compacted to 95% of the maximum density according to the type or class of material used.

### EMBANKMENT AND TRENCH INSTALLATIONS

1. Material in the lower part of the trench shall be compacted to 95% of the maximum density according to the type or class of material used.

2. The trench with walls of natural soil, the density of the soil in the lower side zone shall be at least 90% of the density of the soil in the upper side zone. The density of the soil will be determined and reported to the Engineer.

3. For embankments, the material in the lower side zone shall be compacted to 95% of the maximum density according to the type or class of material used.

### GENERAL NOTES


2. Concrete Pipe Culvert Design shall conform to the AASHTO-LRFD Bridge Design Specifications, Fifth Edition, with no changes.

3. All pipe shall conform to Section 501.3. Circular R.C. pipe culverts shall conform to AASHTO Type I or AASHTO Type II for pipe culverts. Circular R.C. pipe culverts shall conform to AASHTO Type I or AASHTO Type II for structural bedding and/or backfill.

4. Materials shall be placed as directed by the Engineer. The ends of the culvert to prevent loss of structural bedding when perishable materials are used for structural bedding and/or backfill.

5. Materials shall be placed as directed by the Engineer. The ends of the culvert to prevent loss of structural bedding when perishable materials are used for structural bedding and/or backfill.

### CONSTRUCTION SEQUENCE

1. Place structural bedding material to grade, do not compact.

2. Fill trench with granular fill material, conform to AASHTO M207, and/or compacted material, conform to AASHTO M205. Foundation shall be compacted, according to the type of material specified by the Engineer.

3. For embankments, the materials in the lower side zone shall be compacted to 95% of the maximum density according to the type or class of material used.

4. The trench with walls of natural soil, the density of the soil in the lower side zone shall be at least 90% of the density of the soil in the upper side zone. The density of the soil will be determined and reported to the Engineer.

5. For embankments, the material in the lower side zone shall be compacted to 95% of the maximum density according to the type or class of material used.
CONSTRUCTION SEQUENCE
1. Place structural bedding material to grade, do not compact.
2. Compacting structural bedding outside the middle third of the pipe.
3. Complete structural bedding backfill operation by working from side to side.
4. Thoroughly water saturated the structural bedding backfill material, shall not exceed 24 inches or 1/3 of the size of the pipe, whichever is less.

NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

Installation Material Requirements for

<table>
<thead>
<tr>
<th>Type</th>
<th>Structural Bedding and Structural Backfill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Acerate Base Course Class A S S. or P</td>
</tr>
<tr>
<td>Type 2</td>
<td>Selected Materials Class SM-3 SM-2 SM-1</td>
</tr>
<tr>
<td>or Type 1 Installation Material</td>
<td></td>
</tr>
</tbody>
</table>

**EQUIVALENT METAL THICKNESSES AND GAUGES**

<table>
<thead>
<tr>
<th>Metal Thickness in Inches</th>
<th>Steel</th>
<th>Gauging Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.064</td>
<td>0.064</td>
<td>0.060</td>
</tr>
<tr>
<td>0.079</td>
<td>0.074</td>
<td>0.070</td>
</tr>
<tr>
<td>0.09</td>
<td>0.086</td>
<td>0.080</td>
</tr>
<tr>
<td>0.08</td>
<td>0.084</td>
<td>0.080</td>
</tr>
</tbody>
</table>

**COVER TOP** (MINIMUM OF AGGREGATE)

- Legend
  - EXCAVATION LINE
  - END OF EXCAVATION
  - STRUCTURAL BACKFILL
  - STRUCTURAL BEDDING

**EMBANKMENT AND TRENCH INSTALLATIONS**

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPARED TO 2% OF THE MINIMUM DEPTH ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ROUND.
3. INSTALLATION TYPE 2 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 20° X 1/2 CORRUGATION.
4. INSTALLATION TYPE 2 OR MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3° X 1° OR 4° X 1° CORRUGATION.

**GENERAL NOTES**

1. METAL PIPE-CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CERTIFICATION SYSTEM WITH APPROPRIATE DESIGN AND SPECIAL PROVISIONS, UNLESS CLEARLY INDICATED IN THE GENERAL SPECIFICATIONS AND SUBMISSIONS REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE-OUTLET DESIGN SHALL CONFORM TO ASHRAE/ULC DESIGN SPECIFICATIONS, FIFTH EDITION.
3. METAL PIPE-CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND SPECIAL PROVISION METAL PIPE.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACICABLE FOR SAFETY AND WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MAXIMUM CLEARANCE OF 24 INCHES BETWEEN CERTIFIED WIDTH OF PIPE REFER TO 384 INCHES CLEARANCE BETWEEN LINES OF PIPE; REFER TO 216 INCHES CLEARANCE WHERE Tubes AND TRENCHES ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE END OF THE TRENCH IN ORDER TO AVOID PIPE BEDDING MATERIAL.
8. WHEN DIRECTED BY THE ENGINEER IMBEDDING MATERIAL THAT IS EMBEDDED AT THE BOTTOM OF THE EXCAVATED TRENCH BELOW THE AREA IDENTIFIED AS "STRUCTURAL BACKFILL" MAY BE EMBEDDED AND INCLUDED WITH SELECTED PIPE BID AND THE QUANTITY OF MATERIAL REQUIRED.
9. WHEN THE EXCAVATION IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE HANGER AREA IDENTIFIED AS "STRUCTURAL BACKFILL" MATERIALS OF MATERIAL FROM THE EXCAVATION MAY BE USED FOR THE PIPE. WHEN THE EXCAVATION IS DETERMINED TO BE INSUFFICIENT FOR BACKFILLING THE PIPE HANGER AREA IDENTIFIED AS "STRUCTURAL BACKFILL" MATERIALS OF MATERIAL FROM THE EXCAVATION MAY BE USED FOR THE PIPE.
10. WHEN THE EXCAVATION IS DETERMINED TO BE UNSUITABLE FOR BACKFILLING THE PIPE HANGER AREA IDENTIFIED AS "STRUCTURAL BACKFILL" MATERIALS OF MATERIAL FROM THE EXCAVATION MAY BE USED FOR THE PIPE.
11. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

<table>
<thead>
<tr>
<th>Trench Width (Feet)</th>
<th>&quot;H&quot; ≤ 0'0&quot;</th>
<th>&quot;H&quot; &gt; 0'0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'0&quot;</td>
<td>3'0&quot;</td>
<td>3'0&quot;</td>
</tr>
<tr>
<td>5'0&quot;</td>
<td>4'0&quot;</td>
<td>4'0&quot;</td>
</tr>
<tr>
<td>6'0&quot;</td>
<td>5'0&quot;</td>
<td>5'0&quot;</td>
</tr>
<tr>
<td>7'0&quot;</td>
<td>6'0&quot;</td>
<td>6'0&quot;</td>
</tr>
<tr>
<td>8'0&quot;</td>
<td>7'0&quot;</td>
<td>7'0&quot;</td>
</tr>
<tr>
<td>9'0&quot;</td>
<td>8'0&quot;</td>
<td>8'0&quot;</td>
</tr>
<tr>
<td>10'0&quot;</td>
<td>9'0&quot;</td>
<td>9'0&quot;</td>
</tr>
<tr>
<td>11'0&quot;</td>
<td>10'0&quot;</td>
<td>10'0&quot;</td>
</tr>
<tr>
<td>12'0&quot;</td>
<td>11'0&quot;</td>
<td>11'0&quot;</td>
</tr>
</tbody>
</table>

NOTE: 18" max. 18" - 30" diameter
24" max. 18" - 48" diameter

MINIMUM COVER VALUES for pipe installation shall be selected or tabulated in the project per linear foot of pipe.

MINIMUM COVER FOR CONSTRUCTION LOADS

<table>
<thead>
<tr>
<th>Type of Load</th>
<th>Cover (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 kips</td>
<td>4'0&quot;</td>
</tr>
<tr>
<td>100 kips</td>
<td>5'0&quot;</td>
</tr>
<tr>
<td>200 kips</td>
<td>6'0&quot;</td>
</tr>
<tr>
<td>300 kips</td>
<td>7'0&quot;</td>
</tr>
<tr>
<td>400 kips</td>
<td>8'0&quot;</td>
</tr>
<tr>
<td>500 kips</td>
<td>9'0&quot;</td>
</tr>
<tr>
<td>600 kips</td>
<td>10'0&quot;</td>
</tr>
<tr>
<td>700 kips</td>
<td>11'0&quot;</td>
</tr>
<tr>
<td>800 kips</td>
<td>12'0&quot;</td>
</tr>
</tbody>
</table>

GENERAL NOTES

1. Pipe shall conform to AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO USE SPECIAL DESIGN PLASTIC PIPE AND SECTION 6.6 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION.

2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (20101) WITH 2015 INTERIM.

3. THE MATERIAL HANDLER, TRENCH WIDTH SHALL BE IN THE MANUFACTURER'S SPECIFICATIONS, TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT PLACEMENT OF OTHER BACKFILL MATERIAL.

4. MEDIUM DENSITY POLYETHYLENE MATERIALS SHALL BE PLACED AS DIRECTED BY THE ENGINEER PRIOR TO THE INSTALLATION OF THE PIPE.

5. WHEN PLACED BY THE ENGINEER, PLACEMENT MATERIAL THAT IS CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO USE SPECIAL DESIGN PLASTIC PIPE AND SECTION 6.6 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION.

6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE SHALL BE IDENTIFIED AS "UNFILLED PIPE" MATERIALS, REQUIREMENTS M294, TYPE S. INSTALLATION SHALL CONFORM TO USE SPECIAL DESIGN PLASTIC PIPE AND SECTION 6.6 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION.

7. FOR PIPE TYPES THAT ARE NOT SUITABLE FOR EXCAVATED OR PROFILING, ALL BACKFILL MATERIALS SHALL BE SELECTED THAT WILL PERMIT THE FILLING OF THE TRENCH OPENINGS OF THE SOIL.

8. HIGH DENSITY POLYETHYLENE PIPE OF DIAMETERS OTHER THAN SHOWN SHALL NOT BE ALLOWED.

9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR 50% TIGHTNESS AS SPECIFIED IN AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO USE SPECIAL DESIGN PLASTIC PIPE AND SECTION 6.6 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION.
INSTALLATION 9.

II. AGGREGATE TYPE

III. PIPE SHALL JOIN FOR WORKING MATERIAL FROM THE ROADWAY FOR THE GREATEST AVAILABLE. WHEN DIRECTED TRENCH (BELOW THE MAXIMUM ALLOWABLE 30.4.2 PIPE SHOULD BE BASED STRUCTURAL CONFORM TO ASTM STANDARD SPECIFICATIONS. THE PIPE (ABOVE THE AREA OF PAYMENT AND/OR PILE) SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

<table>
<thead>
<tr>
<th>PIPE DIAMETER</th>
<th>MIN. TRENCH WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>6'-6&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>7'-6&quot;</td>
</tr>
</tbody>
</table>

MINIMUM COVER FOR CONSTRUCTION LOADS

<table>
<thead>
<tr>
<th>PIPE DIAMETER</th>
<th>MIN. COVER DEPTH FOR INCREDIBLE LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>1'-6&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>2'-6&quot;</td>
</tr>
</tbody>
</table>

MINIMUM WIDEN FOR PVC PIPES

<table>
<thead>
<tr>
<th>PIPE DIAMETER</th>
<th>MIN. WIDEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>6'-6&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>7'-6&quot;</td>
</tr>
</tbody>
</table>

GENERAL NOTES

1. PLASTIC PIPE SHALL CONFORM TO ASTM PIPES, FILL CLASS, DRAINAGE INSTALLATION SHALL CONFORM TO OR SPECIAL PROVISION.

2. PLASTIC PIPE, CULVERT DESIGN SHALL CONFORM TO AS8000 LF M.D. DESIGN SPECIFICATIONS, FIFTH EDITION (1990) AND ZONE 2 DRAINAGE.

3. THE MAXIMUM ALLOWED TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERTY AND SAFETY PLACE AND COMPACT LAUNCHING AND OTHER BACKFILL MATERIAL.

4. MERITING MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE END OF THE WORK. TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PIPES MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.

5. WHEN DIRECTED BY THE ENGINEER, UNSTABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH SHOULD BE ANY STRUCTURAL BEDDING. ALL EXCAVATION SHOULD BE COMPACTED AND REJECTED WITH SELECTED MATERIAL. ALL MATERIALS ENCOURAGED TO ABANDONED, ANY MATERIAL FELT OR LESS THAN FILL OF STRUCTURAL BEDDING. ALL EXCAVATION SHOULD BE COMPACTED AND REJECTED WITH SELECTED MATERIAL.

6. ANY UNSTABLE MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH. THE AREA IDENTIFIED AS STRUCTURAL BEDDING, ALL MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE, IF MATERIAL employed IS NOT AVAILABLE. THE ENGINEER MIGHT AUTHORITY THE USE OF SELECTEDパイ BACKFILL.

7. FOR PIPE TYPES THAT ARE NOT STATED ON THE OUTSIDE CORRUGATED OR PROFILE ROLL, BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE DRAINAGE ROADWAY.
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION 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.

- CONCRETE PAVEMENT
- ASPHALT PAVEMENT

**BROKEN LINE STRIPING**

**SOLID LINE STRIPING ON CONCRETE PAVEMENT**

**SOLID LINE STRIPING ON ASPHALT PAVEMENT**

**APPLICABLE NOTES**

- RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.
- RAISED PAVEMENT MARKERS SHALL BE PLACED ON A 100 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.
- RAISED PAVEMENT MARKERS SHALL BE PLACED ON A 120 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

**DETAIL OF STANDARD RAISED PAVEMENT MARKERS**

**YIELD LINE DETAIL**

**CROSSWALK AND STOPBAR DETAILS**

**PAVEMENT MARKING DETAILS**

**ARkANSAS STATE HIGHWAY COMMISSION**

**STANDARD DRAWING PM-1**
### SUPERELEVATION TABLE FOR TWO-WAY TRAFFIC

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>NC (ft)</th>
<th>MC (ft)</th>
<th>SC (ft)</th>
<th>DC (ft)</th>
<th>LC (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>60</td>
<td>200</td>
<td>300</td>
<td>250</td>
<td>275</td>
</tr>
<tr>
<td>0.2</td>
<td>200</td>
<td>250</td>
<td>350</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td>0.3</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>350</td>
<td>400</td>
</tr>
</tbody>
</table>

### Abbreviations
- NC = Normal Crown
- MC = Reverse Crown
- SC = Super Crown
- DC = Double Normal

### General Notes
1. On pavement with two-way traffic, the super-elevation shall be revolved
   on the inside pavement edge unless otherwise noted on the plans.
2. Super-elevation values shown on the cross sections are values
   (positive or negative) to be added to or subtracted from the point of
   control.
3. Length for L may be increased in multiples of 25 ft. or 50 ft.,
   to permit superelevation calculation.
4. Lengths L and L - 2 ft. shall have additional transition
   lengths as follows:
   - 0 ft. paved
   - 1 lane divided
   - 2 lanes divided
   - 3 lanes separated

### Standard Method When Super-elevation Revolves Around Inner Subgrade Point or Inner Pavement Edge

#### General Notes
- Maintain Normal Crown on Inside until Super-elevation Exceeds 2C.
- Rate of super-elevation shall be computed by straight line method
  using applicable Lc.

#### Standard Drawing SE-2

Arkansas State Highway Commission
Tables and Method of Super-elevation for Two-Way Traffic
**Offset Distance for Two Way Traffic Only**

### BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

<table>
<thead>
<tr>
<th>Speed</th>
<th>Offset Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>75</td>
<td>18</td>
</tr>
</tbody>
</table>

If offset distance is not attainable, use "Temporary Impact Attenuation Barrier" shown below.

### BARRIER PLACEMENT WITH ATTENUATOR

**Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator**

### General Notes

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."
NOTE:
Size of basin to be determined by volume required. However, a minimum length-to-width ratio of 20 shall be used.

SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

SEDIMENT BASIN WITH PIPE OUTLET (E-10)

DIVERSION DITCH (E-8)

SLOPE DRAIN (E-12)

SLOPE DRAIN (E-14)

ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-2
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

1. Excavate and stabilize interceptor and/or diversion ditch.
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. Stabilize ditch areas. Construct ditch check or other erosion control devices as required.

EMBANKMENT

1. Construct diversion ditches, check, sediment basins, Silt fences, or other erosion control devices as specified.
2. Place Phase 1 embankment with permanent or temporary seeding.
3. Place Phase 2 embankment with permanent or temporary seeding. Provide diversion ditches and slope drains if embankment construction is to be temporarily maintained for a period of greater than 20 days.
4. Place final phase of embankment with permanent or temporary seeding. Provide diversion ditches and slope drains and maintain until entire slope is stabilized.

CONSTRUCTION SEQUENCE

1. Excavate at site.
2. Place phase 1 excavation. Place permanent or temporary seeding.
3. Place phase 2 excavation. Place permanent or temporary seeding. Stabilize ditch areas. Construct ditch check or other erosion control devices as required.