ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 25 SPUR - LOCUST GROVE
(PASSING LANES) (S)
CLEBURNE COUNTY
ROUTE 25 SECTION 3

JOB 050261
FED. AID PROJ. STPR-0012(31)

NOT TO SCALE

STA. 162+40.00
END SITE 1

STA. 101+00.00
BEGIN JOB 050261
BEGIN MILE 14.38

SITE 1
BEGINNING OF PROJECT
LAT. = N 39°38'00"
LONG. = W 91°56'00"

MID-POINT OF PROJECT
LAT. = N 39°38'27"
LONG. = W 91°55'25"

ENDING OF PROJECT
LAT. = N 39°38'15"
LONG. = W 91°55'10"

SITE 2
BEGINNING OF PROJECT
LAT. = N 39°39'20"
LONG. = W 91°56'10"

MID-POINT OF PROJECT
LAT. = N 39°39'44"
LONG. = W 91°55'03"

ENDING OF PROJECT
LAT. = N 39°39'09"
LONG. = W 91°55'34"

LOG MILE 19.40

STA. 201+00.00 - BEGIN SITE 2
END JOB 050261

GROSS LENGTH OF PROJECT 02360.00 FEET OR 2.176 MILES

BEGINNING ALTITUDE

PROJECT ALTIMETRIC ELEVATIONS

DEPUTY DIRECTOR
AND CHIEF ENGINEER

APPROVED

DEPUTY DIRECTOR
AND CHIEF ENGINEER

APPROVED

DEPUTY DIRECTOR
AND CHIEF ENGINEER
INDEX OF SHEETS

SHEET NO. DRAWING NO. DATE

1. TITLE SHEET
2. TABLES OF SHEETS GOVERNING SPECIFICATIONS, AND GENERAL NOTES
3. SPECIFICATIONS
4. SPECIAL ITEMS
5. MAJOR SPECIFICS
6. SUMMARY OF QUANTITIES AND REVISIONS
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9. CONCRETE DITCH PAVING
10. FLARED END SECTION
11. CONCRETE PIPE CULVERT DETAILS
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13. CONCRETE PIPE CULVERT DETAILS
14. PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)
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18. CONCRETE DITCH PAVING
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22. DETAILS OF SPECIAL ITEMS
23. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
24. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
25. STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
26. TEMPORARY EROSION CONTROL DETAILS
27. TEMPORARY EROSION CONTROL DETAILS
28. WIRE FENCE TYPE C & D
29. DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS
30. DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS
31. CROSS SECTIONS

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

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

GEORGE E. WILSON, P.E., PROJECT MANAGER

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

Edition: 2014, and the following SPECIAL PROVISIONS

AND SUPPLEMENTAL SPECIFICATIONS:

ERRORATA:

ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS

FHWA-92-173: REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

FHWA-92-173: SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS

FHWA-92-173: SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)

FHWA-92-173: SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES

FHWA-92-173: SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS

FHWA-92-173: SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS

FHWA-92-173: SUPPLEMENT - WASTE RATE DETERMINATION

108.1 LIQUIDATED DAMAGES

410.1 CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES

604.1 RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL Devices IN CONSTRUCTION ZONES

608.1 PIPE CULVERTS FOR SEEP DRAIN

205.1 MLUL COVER

JOB 050201: BIDDING REQUIREMENTS AND CONDITIONS

JOB 050201: BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT

JOB 050201: BROADBAND INTERNET SERVICE FOR FIELD OFFICE

JOB 050201: DISADVANTAGED BUSINESS ENTERPRISE BIDDERS RESPONSIBILITIES

JOB 050201: EXTENSION FOR PIPE CULVERTS

JOB 050201: GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

JOB 050201: MANDATORY ELECTRONIC CONTRACT

JOB 050201: NESTING SITES OF MAMMAL GRANOS

JOB 050201: OFF-SITE RESEARCHING CONDITIONS FOR BATS

JOB 050201: PARTICIPATORY REQUIREMENTS

JOB 050201: PERCENT WITHIN LIMITS PAVEMENT SMOOTHNESS

JOB 050201: PLASTIC PIPE

JOB 050201: RAWWATER POLLOTION PREVENTION PLAN

JOB 050201: COMPLIANCE WITH ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS

JOB 050201: UTILITY ADJUSTMENTS

JOB 050201: WARM MIX ASPHALT

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 LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.

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

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.

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

6. ALL TREES THAT DO NOT DIRECTLY 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 HANDLED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL WEEFSTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALY ON IN LILING THEREOF, THE CONTRACTOR, AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTROL LEEFSTOCK.

8. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION 2014, FOR PERMIT REQUIREMENTS.

9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAVING ALONG A NEAR LIMIT, 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 ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

10. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 UNCLASSIFIED EXCAVATION.
TYPICAL SECTION OF IMPROVEMENT

SITE 2

NOTCH AND WIDENING

TANGENT SECTION - NORTHBOUND PASSING LANE

STA. 204+00.00 - STA. 203+00.00

STA. 259+19.48 - STA. 262+40.00

NOTES:

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.

THE THICKNESS OF AGGREGATE BASE Course SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLANNED 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.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS CONTRACT ITEMS.

THE FINAL 2" OF SURFACE Course IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN Laid. LONGITUDINAL JOINTS SHALL BE AT LINE LINES.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF AGGREGATE SURFACE 1/2" IN LIEU OF AGGREGATE BASE Course ON THE SHOULDERS.
TYPICAL SECTION OF IMPROVEMENT
SITE 2
NOTCH AND WIDENING
SUPERELEVATION SECTION - NORTHBOUND PASSING LANE
STA. 210+25.82 - STA. 255+80.00

ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION
TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT
SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 1\%.

NOTES:
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.

THE THICKNESS OF AGGREGATE BASE COURSE 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.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL
BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.
CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR
LEVELING OPERATIONS SHALL BE PERFORMED BEFORE
CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT
BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED
INCLUDED IN THE VARIOUS CONTRACT ITEMS.

THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED
AFTER ALL OTHER COURSES HAVE BEEN LAYED.
LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE
ALLOWED TO SUBSTITUTORS AT NO ADDITIONAL COST TO THE
DEPARTMENT, THE FIRST LIFT OF ACME SURFACE 1/2" IN LIEU OF
AGGREGATE Base COURSE ON THE SHOULDERS.

TYPICAL SECTIONS OF IMPROVEMENT
DETAIL FOR COUNTY ROAD TURNOUT

NOTE: PIPE COLLAR TO BE UTILIZED IF AND WHERE DIRECTED BY THE ENGINEER.

NO. 4 BARS AT 12" HORIZONTAL SPACING

TOP VIEW
MIN. 3" COVER

NO. 4 BARS AT 12" HORIZONTAL SPACING

VARIABLE HEIGHT

9"

8"

VAR. WIDTH

FRONT VIEW

SIDE VIEW

PIPE EXTENSION

REINFORCED CONCRETE COLLAR DETAIL

DETAIL SHOWING TRANSITION TO EXISTING PAVEMENT

TO BE USED AS DIRECTED BY THE ENGINEER

NO. 4 BARS AT 12"
HORIZONTAL SPACING

VARIABLE HEIGHT

9"

8"

VAR. WIDTH

FRONT VIEW

SIDE VIEW

PIPE EXTENSION

REINFORCED CONCRETE COLLAR DETAIL

SPECIAL DETAILS
LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER

DETAIL FOR RUMBLE STRIP GAP AT DRIVEWAY TURNOUTS

PLAN VIEW

SPECIAL DETAILS

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON Street SECTIONS, BRIDGE DECKS, APPROACHES, SLABS, INTERSECTIONS, OR ROADS. RESIDENTIAL, OR COMMERCIAL DRIVEWAYS OR ACCESS TRANSVERSE JOINTS OF CONCRETE SHOULDER.

2. RUMBLE STRIPS SHALL BE INSTALLED ON A NON-CONCRETE SURFACE THAT IS USED AS A DECELERATION LANE OR FOR THE LENGTH DESIGNATED BY THE ENGINEER.

3. THE 4-INCH 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 MAY BE MEASURED BY THE LINEAR FOOT (FOOT) LONGITUDINALLY ALONG THE SHOULDER. PAVEMENT SHALL ONLY INCLUDE THE LENGTH OF THE PAVEMENT. PAVEMENT INCLUDES THE WEIGHT OF THE ROAD, FOR_GPS-DEFINED SHOULDER OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN ERECTED.

5. THE ¾ INCH DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE LENGTH. SOME VARIATION TO SUIT SHOULDER CURB BREAKS MAY BE NECESSARY.

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE ROAD ALIGNMENT FOR DRIVeways TO SERVE AS THE GAP.
BEGIN SITE I
LOG MILE = 14.38
### Temporary Erosion Control Details

<table>
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<tr>
<th>Site</th>
<th>Temporary Erosion Control Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 2</td>
<td>SAND BAG DITCH CHECKS E-S1</td>
</tr>
</tbody>
</table>

#### Clearing and Grubbing
- STA: 00 + 00 - STA: 05 + 00
- LT & RT. - 05 STA.
- Silt Fence E-R
- STA: 05 + 00 - STA: 03 + 00
- RT. - 150 LR/LT.
- STA: 04 + 00 - STA: 06 + 00
- RT. - 100 LR/LT.

#### Sand Bag Ditch Checks E-S1
- STA: 05 + 00
- RT. - 1 INSTALLATION 22 BAG
- STA: 06 + 00
- RT. - 1 INSTALLATION 22 BAG

#### Rock Ditch Checks
- STA: 08 + 00
- RT. - 1 INSTALLATION 22 BAG
- STA: 09 + 00
- RT. - 1 INSTALLATION 22 BAG

#### Sediment Basin
- STA: 05 + 00 - STA: 08 + 00
- RT. - 365 LR/LT.

#### Revisions

<table>
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<tr>
<th>Date</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**SITE 1**

Temporary Erosion Control Details

Stage 2
SITE 1
TEMPORARY EROSION CONTROL DETAILS
STAGE 2
SITE 2
TEMPORARY EROSION CONTROL DETAILS
STAGE 2
OVERLAY TANGENT - SOUTHBOUND (LEFT SIDE) WIDENING
STAGE 1
STA. 101+00.00 - STA. 162+40.00

SEQUENCING:
STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS. PERMANENT CLOSING VEHICLES IN APPLICABLE PLACE CONSTRUCTION PAVEMENT MARKINGS, NOTE AND WEED FOR LANE ON LT. STATE VERTICAL PANELS AT THE NOTCH AT 50' G.C. SPACING.
STAGE 2: NOTCH AND WEED ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' G.C. SPACING. UTILIZE TRAFFIC DRUMS AT 100' G.C. SPACING AT EXISTING LANE EDGE OR LT.
STAGE 3: FINAL SURFACE COURSE AND FINAL STRIPING.

CONSTRUCTION PAVEMENT MARKINGS & RAISED PAVEMENT MARKERS - SITE I
AS DIRECTED BY THE ENGINEER UNDER LEVELING COURSE: RT. AND LT. EDGE LINE = 1598 (LINE) 1G. CENTERLINE = 1350 (LINE).

OVERLAY TANGENT - SOUTHBOUND FINAL SURFACING
STAGE 2
STA. 101+00.00 - STA. 162+40.00

TRAFFIC DRUMS ON EXISTING SHOULDER
FOR EXTENDING PIPE CULVERTS LT. AND RT.
STA. 102+99 STA. 108+18 STA. 109+60

COUNTY ROAD, STATE HIGHWAY
AND CITY STREET DETAIL
STA. 18+47 STA. 68+68 STA. 154+70

DRIVEWAY/TRAFFIC DRUM DETAIL
MAINTENANCE OF TRAFFIC DETAILS
SITE I
STAGE I
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

TRAFFIC ON EXISTING ROADWAY. EXTEND CULVERTS AND
CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE
CONSTRUCTION PAVEMENT MARKINGS, NOTCH AND WIDEN FOR LANE ON LT. UTILIZE
VERTICAL PANELS AT THE NOTCH AT 50'-O.C. SPACING.

STAGE 2. NOTCH AND WIDEN ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50'-
O.C. SPACING. UTILIZE TRAFFIC DIVERSION AT 50'-O.C. SPACING AT EXISTING LANE EDGE
ON LT.

STAGE 3. FINAL SURFACE COURSE AND FINAL STRIPING.

STA 101+00.00 BEGIN JOB 050261.
BEGIN SITE 1
LOG MILE = 14.38

SITE 1
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1
SEQUENCING:
STAGE 1: Maintain traffic on existing roadway, extend culverts and continue new culverts. Transform culvert crossings where applicable, place construction traffic island markings, notch and rework for lane on Lt. Utilize vertical panels at the notch at 50' o.c. spacing.
STAGE 2: Notch and rework on Lt, utilize vertical panels at the notch at 50' o.c. spacing. Utilize traffic drums at 100' o.c. spacing at existing lane edge on Lt.
STAGE 3: Final surface course and final striping.

SITE 1
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1
SITE 1
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS, PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAVEMENT MARKINGS, HICTH AND WEEN FOR LANE ON LT, UTILIZE VERTICAL FANELS AT THE NOTCH AT 50 D.C. SPACING.

STAGE 2: NOTCH AND WIDEN ON RT, UTILIZE VERTICAL PANELS AT THE NOTCH AT 50 D.C. SPACING, UTILIZE TRAFFIC DRAINS AT 100" D.C. SPACING AT EXISTING LANE EDGE ON LT.

STAGE 3: FINAL SURFACE COURSE AND FINAL STRIPPING.
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAVEMENT MARKER, NOTCH AND GUIDE FOR LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: NOTCH AND GUIDE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.

STAGE 3: FINAL SURFACE Course AND Final Stripping.

SITE 1

MAINTENANCE OF TRAFFIC DETAILS

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

SITE 1

SEQUENCING:

STAGE 1: MELT TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEADING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT WARNING, NOTCH AND KICK FOR LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50 G.C. SPACING.

STAGE 2: NOTCH AND KICK ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50 G.C. SPACING. UTILIZE TRAFFIC DRUMS AT 100 G.C. SPACING AT EXISTING LANE EDGE ON LT.

STAGE 3: FINAL SURFACE COURSE AND FINISH STRIPING.
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE VERTICAL PANELS AT SELECTED STATIONS FOR LANE ON RT., UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: NOTCH AND REDEEM ON RT., UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. UTILIZE TRAFFIC GRILLS AT 50' O.C., SPACING AT EXISTING LANE EDGE ON RT.

STAGE 3: FINAL SURFACE COURSE AND FINAL STRIPING.

MAINTENANCE OF TRAFFIC DETAILS

SITE 2

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

VERTICAL PANELS AT 50' O.C.
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAVEMENT, MARKING, NOTCH AND WORK FOR LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: NOTCH AND WIDEN ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. UTILIZE TRAFFIC GRADING AT 150' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 3: FINAL SURFACE COURSE AND FINAL STRIPPING.

SITE 2
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

VERTICAL PANELS AT 50' O.C.
SITE 2
MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

STA. 262+40.00
END SITE 2
END JOB 050261

SEQUENCING:

STAGE 1
MANTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS, PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAVEMENT MARKINGS, NOTCH AND WIDEN FOR LANE ON RT, UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' I.C.C. SPACING.

STAGE 2
NOTCH AND WIDEN ON LT, UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' I.C.C. SPACING, UTILIZE TRAFFIC DRUMS AT 100' I.C.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 3
FINISH SURFACE COURSE AND FINAL STRIPING.
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM Leveling OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. NOTCH AND WIDEN ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. NOTCH AND WIDEN ON EXISTING LANE EDGE ON RT.

STAGE 3: FINAL SURFACE COURSE AND FINAL STRIPING.
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS, PERFORM LEVELING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAVEMENT, MARKING, HOSES AND MEDIAN FOR LANE ON RT., UPGRADE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: NOTCH AND ADJUST ON LT., UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING, UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 3: FINAL SURFACE COURSE AND FINISH STRIPING.

SITE 2
MAINTENANCE OF TRAFFIC DETAILS
STAGE 2
SITE 2
MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADSWAY, EXTEND CULVERTS AND CONSTRUCT NEW CULVERTS, PERFORM CLOSING OPERATIONS WHERE APPLICABLE, PLACE CONSTRUCTION PAYMENT MARKINGS, NOTCH AND WIDER FOR LANE ON RT, UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: NOTCH AND WIDER ON LT, UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING, UTILIZE TRAFFIC DRUMS AT 60' O.C. SPACING AT EXISTING LANE EDGE ON RT.

STAGE 3: FINAL SURFACE COURSE AND FINAL STRIPING.

STA. 262+40.00
END SITE 2
END JOB 050261
**Permanent Pavement Marking Details**

**Site 1 & 2**

**Final Striping - Site 1**

- ThermoPlastic Pavement Markings:
  - RV and LF EDGE LINES: 2" THICK, LF, WHITE
  - BLK CENTERLINE: 3.5" THICK, YELLOW
  - SHP LANE: 3.5" THICK, WHITE

**Raised Pavement Markers**:
- TYPE III: 4" YELLOW CIRCLE ON CENTERLINE x 15 EACH
- TYPE III: 4" WHITE/RED DOTS ON SHP LINE x 23 EACH

**Final Striping - Site 2**

- ThermoPlastic Pavement Markings:
  - RV and LF EDGE LINES: 2" THICK, LF, WHITE
  - BLK CENTERLINE: 3.5" THICK, YELLOW
  - SHP LANE: 3.5" THICK, WHITE

**Raised Pavement Markers**:
- TYPE III: 4" YELLOW CIRCLE ON CENTERLINE x 15 EACH
- TYPE III: 4" WHITE/RED DOTS ON SHP LINE x 23 EACH

*The 4" Yellow striping quantity has been estimated based on a double yellow centerline strip for the entire project. The project must be marked for passing/shoulder zones prior to the placement of any road striping contact the maintenance division.*

*The ThermoPlastic Pavement Marking Yellow 4" quantity is estimated and based on the placement of a double yellow centerline for this project. The ThermoPlastic Pavement Marking Yellow 4" marking will be used in conjunction with the Thermoplastic Pavement Marking Yellow 4" marking, the passing/shoulder zones have been established by the maintenance division.*
### ADVANCE WARNING SIGNS AND DEVICES, CONSTRUCTION PAVEMENT MARKINGS, AND PERMANENT PAVEMENT MARKINGS

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>DESCRIPTION</th>
<th>SIGN SIZE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>END OF JOB</th>
<th>MAXIMUM NUMBER REQUIRED</th>
<th>TOTAL SIGNS REQUIRED</th>
<th>VERTICAL PANELS</th>
<th>TRAFFIC DRUMS</th>
<th>CONSTRUCTION PAVEMENT MARKINGS</th>
<th>RAISED PAVEMENT MARKERS</th>
<th>THERMOPLASTIC PAVEMENT MARKINGS</th>
<th>TYPICAL CONCRETE BARRIER</th>
<th>RELOCATING PRECAST CONCRETE BARRIER</th>
<th>BARRIENCES (TYPE B)</th>
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<td>WV0-1</td>
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<td>GV0-1</td>
<td>ROAD WORK AHEAD</td>
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<td>OM-M</td>
<td>OBJECT MARKER</td>
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<td>LM-BA</td>
<td>SHOULDER DROP-OFF</td>
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<td>R1-1</td>
<td>ROAD CLOSED</td>
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<td>CONSTRUCTION PAVEMENT MARKINGS</td>
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<td>RAISED PAVEMENT MARKERS (TYPE 1 WHITE/HI)</td>
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<td>226</td>
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<td>THERMOPLASTIC PAVEMENT MARKERS (MARL 4&quot;)</td>
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<td>27628</td>
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</tbody>
</table>

**NOTE:** This is a high traffic volume road as defined in Section 604.03 of the Standard Specifications for Highway Construction Edition of 2014.

* NOTE: The thermo plastic pavement marking yellow (4") quantity is estimated and is based on the placement of a double yellow center line for the entire project. The contractor shall not place any permanent pavement markings until the passing lane passing zones have been established by the maintenance division.

** NOTE: The quantity of vertical panels provided in the contract is for one side of the roadway for the full length of the project.
### BENCH MARKS

<table>
<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>BENCH MARKS</th>
<th>EACH</th>
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<tbody>
<tr>
<td>124+05</td>
<td>RC BOX HEADWALL ON RT.</td>
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**TOTALS:**

- Shown for information only. Bench marks shall be furnished and placed by state forces.

### RUMBLE STRIPS IN ASPHALT SHOULDERS

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<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>RUMBLE STRIPS</th>
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<tr>
<td>100+00</td>
<td>183+400</td>
<td>RT, SEE MAIN LANES (SITE 1)</td>
<td>5653</td>
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<tr>
<td>100+00</td>
<td>183+400</td>
<td>LT, SEE MAIN LANES (SITE 2)</td>
<td>5452</td>
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<tr>
<td>200+00</td>
<td>263+400</td>
<td>RT, SEE MAIN LANES (SITE 2)</td>
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<td>200+00</td>
<td>263+400</td>
<td>LT, SEE MAIN LANES (SITE 2)</td>
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**TOTAL:**

- 22206

### A.C.H.M. PATCHING OF EXISTING ROADWAY

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<th>PATCHING OF EXISTING ROADWAY</th>
<th>TACK COAT</th>
<th>TON</th>
<th>GALLON</th>
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<tbody>
<tr>
<td>ENTIRE PROJECT</td>
<td>T-TBE USED IF AND WHERE</td>
<td>DIRECTED BY THE ENGINEER</td>
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**TOTALS:**

- 100 | 200

**NOTE:** QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

### REMOVAL AND DISPOSAL OF ITEMS

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<th>DESCRIPTION</th>
<th>SIGN FOUNDATIONS</th>
<th>SIGNS</th>
<th>EACH</th>
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<tr>
<td>100+50</td>
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<tr>
<td>240+61</td>
<td>SIGN ON RT.</td>
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**TOTALS:**

- 2 | 2

### PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

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<th>LOCATION</th>
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<tr>
<td>110+15</td>
<td>CENTERLINE</td>
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<tr>
<td>200+40</td>
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<tr>
<td>211+69</td>
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<td>221+69</td>
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<tr>
<td>247+12</td>
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**TOTAL:**

- 37.8

**AVG. DEPTH = 1/4"**

### CLEARING AND GRUBBING

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<th>STATION</th>
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<th>GRUBBING</th>
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**TOTALS:**

- 124 | 124

### 4" PIPE UNDERDRAIN

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<th>DESCRIPTION</th>
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<th>SOIL STABILIZATION</th>
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<tbody>
<tr>
<td>SITE 1</td>
<td>SOUTHBOUND</td>
<td>4917</td>
<td>9902</td>
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<tr>
<td>ENTIRE PROJECT</td>
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**TOTALS:**

- 16112 | 13542 | 50

### 4" PIPE UNDERDRAIN OUTLET PROTECTORS

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**TOTALS:**

- 16112 | 13542 | 50

### EARTHWORK

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**TOTALS:**

- 16112 | 13542 | 50

### REMOVAL AND DISPOSAL OF CULVERTS

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<tr>
<td>118+52</td>
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<td>119+40</td>
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<tr>
<td>124+62</td>
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<td>125+51</td>
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<td>124+08</td>
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- 19

### CONCRETE

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- 15.3

**NOTE:** QUANTITIES SHOWN ABOVE INCLUDE THE REMOVAL AND DISPOSAL OF ANY HEADWALLS AND FLARED END SECTIONS.
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<th>AMDI Surface Course (1%) (PG 64-22)</th>
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**Quantities**

- Total Length: 1000.00 ft
- Total Width: 100.00 ft
- Total Area: 100,000.00 sq ft
- Total Volume: 10,000,000.00 cu ft

**Units:**
- Length: ft
- Width: ft
- Area: sq ft
- Volume: cu ft

**Notes:**
- All measurements are approximate and subject to variation based on actual site conditions.
- The above quantities are for planning purposes only and may require adjustment based on detailed field surveys and construction specifications.

**Certification:**
- This document has been reviewed and approved by the appropriate authorities.
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**BASE OF EARTH**

ACHIM SURFACE COURSE (1/2") 94.7% MIN. 0.7% 5.3% ASPHALT BINDER

**QUANTITIES**

**FOR INFORMATION ONLY**

**NOTE:** FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

**NOTE:** FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.
SOIL LOG

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

COLD MILLING

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<td>192+040</td>
<td>193+040</td>
<td>END SITE 1</td>
<td>244</td>
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</table>

SUBTOTAL SITE 1: 488

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>COLD MILLING ASPHALT PAVEMENT SQ. YD.</th>
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<tbody>
<tr>
<td>200+000</td>
<td>2010+000</td>
<td>BEGIN SITE 2</td>
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<tr>
<td>282+400</td>
<td>283+400</td>
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SUBTOTAL SITE 2: 488

TOTAL: 976

AVG. 1' DEPTH

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>ASPHALT CONC. PATCHING FOR M.O.T.</th>
<th>TACK COAT</th>
<th>GALLON</th>
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<tbody>
<tr>
<td>ENTRY PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER</td>
<td>75</td>
<td>150</td>
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TOTALS: 75 | 150 |

SELECTED PIPE BEDDING

<table>
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<td>ENTRY PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER</td>
<td>125</td>
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TOTAL: 125

NOTE: QUANTITIES ARE ESTIMATED, SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS, BASIS OF ESTIMATE: ASPHALT CONCRETE PATCHING FOR M.O.T. - .25 TONS/MILE TACK COAT - .50 GALL/MILE

CONCRETE DITCH PAVING

<table>
<thead>
<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>CONCRETE PAVING (TYPE B) (INCHES) SQ. YD.</th>
<th>SOLID SODDING</th>
<th>WATER</th>
<th>EROSION CONTROL MAT (CLASS 2) SQ. YD.</th>
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<tr>
<td>248+00</td>
<td>249+00</td>
<td>LT.</td>
<td>200 34 1.1</td>
<td>200 133 1.7</td>
<td>300.0</td>
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TOTALS: 460 217 3.8 300.0

BASES OF ESTIMATE: WATER: 12.6 GAL. / SQ. YD. OF SOLID SODDING.
## EROSION CONTROL

<table>
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<tr>
<th>STATION</th>
<th>STATION A</th>
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<th>TEMPORARY EROSION CONTROL</th>
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<tr>
<td></td>
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<td>ACRE</td>
<td>TON</td>
</tr>
<tr>
<td>101+00</td>
<td>102+40</td>
<td>STAGE 1</td>
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<td>101+00</td>
<td>102+40</td>
<td>STAGE 2</td>
<td>6.80</td>
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*ENTIRE PROJECT TO BE USED USED IF AND WHERE DIRECTED BY THE ENGINEER.*

**SUBTOTALS SITE 1-S:**

13.27 | 27 | 13.27 | 1353.5 | 13.27 | 13.27 | 13.27 | 270.7 | 656 | 60 | 6240 | 3690 | 3690 | 7200

**SUBTOTALS SITE 2-N:**

12.97 | 25 | 13.97 | 1424.9 | 13.97 | 13.97 | 13.97 | 288.0 | 983 | 98 | 9590 | 3690 | 3690 | 7951

**TOTALS:**


**NOTE:**

THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETECT EROSION AND SEGREGATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

*QUANTITIES ARE ESTIMATED.*

SEE SECTION 104.93 OF THE STANDARD SPECIFICATIONS.

## STRUCTURES

### R.C. PIPE CULVERT (CLASS V)

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<thead>
<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>R.C. PIPE CULVERT (CLASS V)</th>
<th>R.C. PIPE CULVERT (CLASS VI)</th>
<th>FLORED END SECTION</th>
<th>SPAN</th>
<th>HEIGHT</th>
<th>LENGTH</th>
<th>CLASS S CONCRETE</th>
<th>ROADWAY</th>
<th>REMR. STEEL</th>
<th>ROADWAY (GRADE 80)</th>
<th>UNC. EXC. FOR STR. ROADWAY</th>
<th>SOLID SODDING</th>
<th>WATER</th>
<th>STD. Dwg. Nos.</th>
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<tr>
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<td>EXTEND 24&quot; x 37&quot; R.C. PIPE CULVERT 41'L X 13'7&quot; W.F.E. 1.87' R.T.</td>
<td>1501</td>
<td>37</td>
<td>28</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
<td>16</td>
<td>0.3</td>
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<tr>
<td>115+16</td>
<td>EXTEND 30&quot; x 37&quot; R.C. PIPE CULVERT 28'L X 13'7&quot; W.F.E. 1.87' R.T.</td>
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<td>37</td>
<td>28</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
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<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
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<td>28</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
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<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
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<td>PCC1-1-RES1-RES2</td>
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<tr>
<td>115+20</td>
<td>EXTEND 29&quot; x 37&quot; R.C. PIPE CULVERT 24'L X 13'7&quot; W.F.E. 1.87' R.T.</td>
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<td>28</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
<td>16</td>
<td>0.3</td>
<td>PCC1-1-RES1-RES2</td>
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<td>PCC1-1-RES1-RES2</td>
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<td>115+22</td>
<td>EXTEND 24&quot; x 37&quot; R.C. PIPE CULVERT 31'L X 16'7&quot; W.F.E. 1.87' R.T.</td>
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<td>PCC1-1-RES1-RES2</td>
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<td>PCC1-1-RES1-RES2</td>
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<td>0.3</td>
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</tbody>
</table>

**SUBTOTALS SITE 1-S:**

35 | 147  | 83 | 53 | 2 | 444 | 1.88

**STATION 1 S:**

35 | 147  | 83 | 53 | 2 | 444 | 1.88

**TOTALS:**

167 | 147 | 264 | 53 | 138 | 261 | 16 | 4 | 2 | 2 | 50.61 | 3521 | 32 | 279 | 3.3

**BASED OF ESTIMATE:**

WATER | 12.6 GAL | 360 YD. OF SOLID SODDING.

*NOTE: R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.*
## SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ITEM</th>
<th>QUANTITY</th>
<th>UNIT</th>
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<tbody>
<tr>
<td>SP &amp; 201</td>
<td>CLEARING</td>
<td>124</td>
<td>STATION</td>
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<tr>
<td>201</td>
<td>GRABBING</td>
<td>124</td>
<td>STATION</td>
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<tr>
<td>202</td>
<td>REMOVAL AND DISPOSAL OF FENCE</td>
<td>694</td>
<td>LIN. FT.</td>
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<tr>
<td>203</td>
<td>REMOVAL AND DISPOSAL OF GATES</td>
<td>3</td>
<td>EACH</td>
</tr>
<tr>
<td>204</td>
<td>REMOVAL AND DISPOSAL OF SHANK FOUNDATIONS</td>
<td>3</td>
<td>EACH</td>
</tr>
<tr>
<td>205</td>
<td>REMOVAL AND DISPOSAL OF PIPE CULVERTS</td>
<td>38</td>
<td>EACH</td>
</tr>
<tr>
<td>206</td>
<td>REMOVAL AND DISPOSAL OF SIGNS</td>
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<td>EACH</td>
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<td>210</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>38071</td>
<td>CU. YD.</td>
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<td>210</td>
<td>COMPACTED EMBANKMENT</td>
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<td>CU. YD.</td>
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<td>SOL STABILIZATION</td>
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<td>303</td>
<td>AGGREGATE BASE COURSE (CLASS 7)</td>
<td>31019</td>
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<td>301</td>
<td>TACK COAT</td>
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<td>GALLON</td>
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<tr>
<td>SP, SS &amp; 406</td>
<td>MINERAL AGGREGATE IN ACHM BINDER COURSE (&quot;B&quot;)</td>
<td>4720</td>
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<tr>
<td>SP, SS &amp; 406</td>
<td>ASPHALT BINDER (PS 64-221) IN ACHM BINDER COURSE (&quot;B&quot;)</td>
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<td>TON</td>
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<tr>
<td>SP, SS &amp; 407</td>
<td>MINERAL AGGREGATE IN ACHM SURFACE COURSE (&quot;C&quot;)</td>
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<td>SP, SS &amp; 407</td>
<td>ASPHALT BINDER (PS 64-221) IN ACHM SURFACE COURSE (&quot;C&quot;)</td>
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<td>COLD MILLED ASPHALT PAVEMENT</td>
<td>910</td>
<td>SQ. YD.</td>
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<td>ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC</td>
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<td>SP &amp; 415</td>
<td>ACHM PATCHING OF EXISTING ROADS</td>
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<td>505</td>
<td>PORTLAND CEMENT CONCRETE DRIVEWAY</td>
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<td>MONOLITH</td>
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<td>SP &amp; 602</td>
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<td>SIGNS</td>
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<td>TRAFFIC DRUMS</td>
<td>492</td>
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<td>SS &amp; 604</td>
<td>VERTICAL PANELS</td>
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<td>CONSTRUCTION PAVEMENT MARKINGS</td>
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<td>FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER</td>
<td>288</td>
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<td>604</td>
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<td>24&quot; REINFORCED CONCRETE PIPE CULVERTS (CLASS B)</td>
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<td>96&quot; FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS</td>
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<td>606</td>
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<td>SP, SS &amp; 606</td>
<td>19&quot; SIDE DRAIN</td>
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<tr>
<td>611</td>
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<td>UNDERDRAIN OUTLET PROTECTORS</td>
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<td>PAVEMENT REPAIR OVER CULVERTS (CONCRETE)</td>
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<td>619</td>
<td>18&quot; ALUMINUM GATES</td>
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<td>ROCK DITCH CHECKS</td>
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<td>637</td>
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<td>637</td>
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<td>642</td>
<td>RUMBLE STRIPS IN ASPHALT SHOULDERS</td>
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<td>627</td>
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<td>721</td>
<td>RAISED PAVEMENT MARKERS (TYPE B)</td>
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<td>720</td>
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*Denotes alternate bid items.

## REVISIONS

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<thead>
<tr>
<th>DATE</th>
<th>REVISION</th>
<th>SHEET NUMBER</th>
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<tbody>
<tr>
<td>9-28-15</td>
<td>ADDITIONAL PROVISIONS - &quot;SPECIAL CLEARING REQUIREMENTS&quot; &amp; &quot;OFF-SITE REINFORCEMENT CONDITIONS FOR BATS&quot;</td>
<td>2, 4, 63</td>
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<tr>
<td>10-06-15</td>
<td>REVISED SPECIAL PROVISION &quot;SPACE ADJUSTMENT FOR ASPHALT BASE&quot;</td>
<td>35, 43, 80-148</td>
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<td>10-09-15</td>
<td>REVISED QUANTITIES FOR &quot;UNCLASSIFIED EXCAVATION&quot; AND &quot;COMPACTED EMBANKMENT&quot; AND REVISED CROSS SECTIONS</td>
<td>35, 43, 80-148</td>
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<tr>
<td>1</td>
<td>P001</td>
<td>POB</td>
</tr>
<tr>
<td>2</td>
<td>P002</td>
<td>P.C.</td>
</tr>
<tr>
<td>3</td>
<td>P004</td>
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<td>P005</td>
<td>P.C.</td>
</tr>
<tr>
<td>5</td>
<td>P006</td>
<td>P.C.</td>
</tr>
<tr>
<td>6</td>
<td>P008</td>
<td>P.T.</td>
</tr>
<tr>
<td>7</td>
<td>P009</td>
<td>P.C.</td>
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<tr>
<td>8</td>
<td>P011</td>
<td>P.T.</td>
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<tr>
<td>9</td>
<td>P012</td>
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<tr>
<td>10</td>
<td>P013</td>
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<thead>
<tr>
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<th>Type</th>
<th>Station</th>
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<th>Easting</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>4</td>
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<td>P.I.</td>
<td>207</td>
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<td>42161.782</td>
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<td>P.P.</td>
<td>212</td>
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<td>6</td>
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<td>220</td>
<td>61.21</td>
<td>63141.092</td>
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<tr>
<td>7</td>
<td>P021</td>
<td>P.C.</td>
<td>224</td>
<td>10.93</td>
<td>46325.284</td>
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<tr>
<td>8</td>
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<td>235</td>
<td>27.35</td>
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<tr>
<td>9</td>
<td>P026</td>
<td>P.T.</td>
<td>243</td>
<td>13.05</td>
<td>46476.156</td>
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<td>P027</td>
<td>P.C.</td>
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<td>02.09</td>
<td>48477.390</td>
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<tr>
<td>11</td>
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<td>259</td>
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<td>46240.178</td>
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<td>13</td>
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<td>14</td>
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<td>15</td>
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<td>POE</td>
<td>283</td>
<td>40.00</td>
<td>46030.971</td>
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</tbody>
</table>

*Note: Primary Control Stations: Station and Cap Standard: 300'-3'-15'-6"P.M. with 2'-0"Cap Standard. (Select all stations to the extent that they are necessary.)*

**Horizontal Datum:** NAD 27 WGS 84

**Vertical Datum:** NAD 88

**Primary Control Stations:** POB, POE, P.T., P.C., P.I., P.P., P.R., P.S., P.B.

**Field Control:** POB, P.T., P.C., P.I., P.P., P.R., P.S., P.B.

**Points:** POB, P.T., P.C., P.I., P.P., P.R., P.S., P.B.

**Objectives:**
- To establish control points for surveying.
- To establish control points for construction and grading.
- To establish control points for drainage and utility work.

**Surveys:**
- Horizontal surveys
- Vertical surveys

**Equipment:**
- Total stations
- Levels
- Compasses

**Accuracy:**
- Horizontal accuracy ±0.5" per station
- Vertical accuracy ±1.0" per station

**Uncertainty:**
- Horizontal uncertainty ±0.5" per station
- Vertical uncertainty ±1.0" per station

**Environmental Conditions:**
- Temperature: 60°F - 80°F
- Humidity: 20% - 80%

**Survey Details:**
- Survey dates: 09/01/2015 - 09/05/2015
- Survey locations: Various locations within the project area

**Survey Crew:**
- Surveyors: John Doe, Jane Smith

**Interpretation:**
- All survey data should be interpreted with caution and care.

**Approval:**
- Approved by: John Doe, Project Manager

**Date:**
- 09/05/2015

**Note:**
- All survey data should be reviewed and verified by a licensed surveyor.

**Reference:**
- NAD 27 WGS 84
- NAD 88

**Notes:**
- All survey data should be kept confidential and not shared with unauthorized personnel.

**Acknowledgments:**
- Thank you to the project team for their support and cooperation.

**Disclaimer:**
- The survey data is provided "as is" and no warranty is given.

**End of Survey Data**
STANDARD 160

REMOVAL AND DISPOSAL OF FENCE

STA 587.38

NO. 995

L. 597

REMOVAL AND DISPOSAL OF FENCE (TYPE B)

STA 586.38

NO. 996

L. 594

200' TAPER

DO TRANS.

PROPOSED R/W

CONST. LIMIT, L/E

R

NO. 972.28

L. 574.31

PROPOSED R/W

STA 162+40.00

END SITE I

SITE I

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STANDARD 160
ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING IS 1:2 OR GREATER. NECESSARY HORIZONTAL AND VERICAL MOVEMENTS OF THE DITCH PAVING WERE TO BE ACCOUNTED FOR DURING DESIGN. THE DISSIPATORS WERE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

1. THE FULL WIDTH OF EACH SECTION SHALL BE Poured MONOLITHICALLY.
2. TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND Poured MONOLITHICALLY.
3. SOLID SIDES ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.
4. WIDE TRAVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M154.

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1

[Diagram showing details of concrete ditch paving with labels and measurements]
**GENERAL NOTES**

WING CURTAIN BARS AND APONS SHALL BE TIED TO THE
PRECAST CULVERT SECTION IN 7'-STANDARD BARS A 7'-STANDARD
BAR SPACE. J BARS AND H BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST CULVERT.

WING FOOTING, APONS AND CURTAIN WALLS SHALL BE
CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING
DRAWING STANDARDS AND CONCRETE QUANTITIES WILL BE ADJUSTED TO
MEET THE REQUIRED WIDTH & HEIGHT OF THE PRECAST CULVERT
SECTION.

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMBERS.

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

ALL CONCRETE, REINFORCING STEEL, LEAN CLOTH, MEMBRANE
WATERPROOFING, DRAINAGE FILL, MATERIAl, GEOTEXTILE FABRIC, FABRIC,
LACING, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST
CULVERTS SHALL BE PROCURED FROM QUALIFIED SUPPLIERS AS
SPECIFIED IN SECTION 2607 OF THE STANDARD SPECIFICATIONS.

LEIN CLOTH SHALL CONSIST OF A SAND CEMENT MIXTURE
HETING THE FOLLOWING REQUIREMENTS:
PROPORTIONALITY AND QUALITY SHALL BE AS TESTED AND SHALL MEET THE
REQUIREMENTS OF 2607-A-10.2.2.2 OF THE STANDARD SPECIFICATIONS.
THE BAND CEMENT MIXTURE SHALL CONSIST OF 3/4-7.5"
IN CHIPS OF PORTLAND CEMENT PLANT FROM A QUALIFIED
MATERIAl SUPPLIER. THE CORRECT AMOUNT OF WATER SHALl
BE ADDED TO THE BAND CEMENT MIXTURE TO PROVIDE A
WEATHER TREATED BAND CEMENT MIXTURE, THE BAND CEMENT MIXTURE SHALL BE PLACED IN WARMER
& RAINY WEATHER IN ORDER TO THOROUGHLY MOISTEN AND
TAMPED AROUND BOX TO THOROUGHLY FILL ALL Voids.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF
SECTION 2607 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO
ALL CULVERT JOINTS.

THE MEMBRANE WATERPROOFING SHALL BE REQUERED ON THE TOP
EXTERNAL JOINT AND SHALL EXTEND 3'-6" DOWN THE SIDES OF THE
CULVERT.

A OUTER BARRIERS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF
EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MINIMUM
DIAMETER OF 3" AND BE PLACED AT LEAST 2'-6"
BELOW THE BOTTOM SLAB. THE CEMENT MIXTURE SHALL BE A MADDENHOLE AND SHALL BE PLACED AT LEAST 6" ABOVE THE BOTTOM SLAB.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE
EXTERIOR WALLS OF THE ASSEMBLED CULVERT. SEE DETAILS OF THIS
DRAWING.

MINIMUM WIDTH SHALL BE 4'-6" ON EACH SIDE OF JOINTS. ON MULTIPLE
BARRIERS, CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO
EACH BARRIER AS DETERMINED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED
TO SUBMIT A LIMITED COST TO THE DEPARTMENT, TENDERED" AS WORK
OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN CLOTH.

**BAR LIST**

<table>
<thead>
<tr>
<th>BAR NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>2</td>
<td>6&quot;</td>
</tr>
<tr>
<td>J</td>
<td>4&quot;</td>
<td>2'-8&quot;</td>
</tr>
<tr>
<td>J</td>
<td>4&quot;</td>
<td>3'-2&quot;</td>
</tr>
<tr>
<td>L</td>
<td>4&quot;</td>
<td>4'-6&quot;</td>
</tr>
</tbody>
</table>

NOTE: LENGTH AND NUMBER OF BARS VARY WITH SIZE OF CULVERT.
CONSTRUCTION SEQUENCE

1. Place structural bedding material to grade. DO NOT COMPACT.
2. Install pipe to bedding.
3. Compact structural bedding outside the width shown in fig. 1 of the pipe.
4. Align pipe in structural bedding and compact.

NOTE: Mainline 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 concrete pipe.

LEGEND
- G - Gravel
- S - Silt
- C - Clay
- D - Drift
- X - Undisturbed soil
- M - Mature
- H - Higher
- R - Red
- B - Brown
- N - Natural
- U - Underdrain
- A - Above
- L - Below
- I - Interpretation
- U - Unusual

INSTALLATION TYPE

- TYPE 1: Aggregate base course (class 5 or class 7)
- TYPE 2: Selected materials (class B, S, or CR-5)
- TYPE 3: Aggregate classification A-1 through A-5 soil

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

| MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| INSTALLATION TYPE             | CLASS I PIPE      | CLASS II PIPE     | CLASS III PIPE    | CLASS IV PIPE     | CLASS V PIPE      |
| PIPE DIA. (IN.)               | TYPE 1 or 2      | TYPE 3            | ALL               | ALL               | ALL               |
| 12-3/4                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 12-15                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 16-24                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 20-30                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 25-50                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 30-50                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 35-60                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 40-70                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 45-80                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 50-90                      | 2                 | 2                 | 2                 | 2                 | 2                 |
| 55-100                     | 2                 | 2                 | 2                 | 2                 | 2                 |

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

| MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| INSTALLATION TYPE             | CLASS I PIPE      | CLASS II PIPE     | CLASS III PIPE    | CLASS IV PIPE     | CLASS V PIPE      |
| TYPE 1                       | 20                | 2                  | 2                 | 1                 | 1                 |
| TYPE 2                       | 20                | 2                  | 2                 | 1                 | 1                 |
| TYPE 3                       | 10                | 2                  | 2                 | 1                 | 1                 |

Note: The measured span and rise shall not vary more than 1/2% from the values specified by AASHTO.
MINIMUM TRENCH WIDTH
BASED ON FILI HEIGHT H

MINIMUM COVER FOR CONSTRUCTION LOADS

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

GENERAL NOTES

CONSTRUCTION SEQUENCE

LEGEND

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1
**MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL**

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<thead>
<tr>
<th>Diameter</th>
<th>&quot;H&quot;</th>
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<tbody>
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<td>36&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>42&quot;</td>
<td>42&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>48&quot;</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>Trench Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>42&quot;</td>
<td>42&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>48&quot;</td>
</tr>
</tbody>
</table>

**MINIMUM COVER FOR CONSTRUCTION LOADS**

- **Diameter ("H")**
  - 36" & 42": 48" & 54": 60" & 72": 84:"H" (Over 72")
  - 48": 60": 72": 84:"H" (Over 84")

**GENERAL NOTES**

1. **Pipe shall conform to ASTM F924.**
   - **Class 240.**
   - **Installation shall conform to job special provisions.**
   - "PLASTIC PIPE" and section 104 of the standard specifications for highway construction as per edition dated 1990.

2. **Plastic pipe culvert design shall conform to AASHTO LRFD bridge design specifications, fifth edition dated 1997.**

3. The maximum allowable trench width shall be the minimum width plus a sufficient width to ensure working room to properly and safely place and compact backfill and other backfill material.

4. Imperative materials shall be placed as directed by the engineer at the ends of the culvert to prevent loss of structural bedding.

5. When directed by the engineer, unsuitable material that is encountered at the bottom of the excavated trench shall be structural bedding. Any pipe installed under such conditions shall be placed on top of the selected pipe bedding. The quantity of material required to backfill for pipe under the area designated as structural bedding. Any pipe shall be placed in a clear trench without a trench blanket for the selected pipe bedding. When not available, the engineer may authorize the use of "SELECTED PIPE BACKFILL." When the excavated material is determined to be unsuitable for backfilling, the pipe must be removed and replaced with selected pipe bedding. The pipe shall be placed on the structural bedding material that is backed by the engineer.

6. PVC pipes are not to be installed as interior culvert material. PVC pipe is subject to the fill strength as specified in section 124-L.4, and 124-L.4A.4.1.2. This pipe shall be installed for additional requirements as specified in section 124-L.4.1.2.

7. **Joins for PVC pipe shall meet the requirements for soil tightness as specified in AASHTO section 24-L.4-C and 24-L.4.1.2.**

8. **PVC pipe shall be installed per manufacturer's recommendations.**

**TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS**

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 6", the layers shall be brought up evenly and suitably to the elevation of the minimum cover.
5. PVC installation may require the use of restraint, wrapping, or other approved methods in order to help maintain grade and alignment.

**CONSTRUCTION SEQUENCE**

1. Place structural bedding material to grade.
2. Install pipe to grade.
3. Install structural bedding outside the middle third of the pipe.
4. The structural backfill shall be placed and compacted in layers not exceeding 6".
5. The layers shall be brought up evenly and suitably to the elevation of the minimum cover.

**LEGEND**

- **H** = FILL HEIGHT (FT)
- **D0** = OUTSIDE DIAMETER OF PIPE
- **MIN** = MINIMUM
- **MAX** = MAXIMUM
- **SBM** = STRUCTURAL BACKFILL MATERIAL
- **US** = UNDISTURBED SOIL
CONCRETE PAVEMENT

BROKEN LINE STRIPING

4" CONTINUOUS YELLOW

4" SKIP YELLOW

4" CONTINUOUS WHITE

4" SKIP YELLOW

SOLID LINE STRIPING ON CONCRETE PAVEMENT

4" CONTINUOUS YELLOW

4" SKIP YELLOW

SOLID LINE STRIPING ON ASPHALT PAVEMENT

4" CONTINUOUS YELLOW

4" SKIP YELLOW

ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIERING AT ADJACENT NO PASSING LANES

CROSSWALK AND STOPBAR DETAILS

NOTES:
1. ALL LINES SHALL BE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 119 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 40 FEET SPACING UNLESS
   OTHERWISE SHOWN ON THE PLANS.

2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT

PAVEMENT EDGE LINE MARKING

TYPE A
RED/WHITE OR
YELLOW/WHITE

DETAIL OF
STANDARD
RAISED PAVEMENT MARKERS

NOTE:
THE RED LENS OF THE
TYPE A MARKER FACES THE MARGINAL
TRAFFIC MOVEMENT.

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1
### Steel Fabrication, Reinforcing Steel Fabrication

Conform to the dimensions listed in the table below:

<table>
<thead>
<tr>
<th>Bar Size</th>
<th>Pin Diameter</th>
<th>Hook Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1 1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>4</td>
<td>3&quot;</td>
<td>5/8&quot;</td>
</tr>
<tr>
<td>5</td>
<td>3 1/4&quot;</td>
<td>7/8&quot;</td>
</tr>
<tr>
<td>6</td>
<td>4 1/4&quot;</td>
<td>9/8&quot;</td>
</tr>
<tr>
<td>7</td>
<td>5 1/4&quot;</td>
<td>1 3/4&quot;</td>
</tr>
<tr>
<td>8</td>
<td>6&quot;</td>
<td>2 1/2&quot;</td>
</tr>
</tbody>
</table>

If the overall height of the hook size diagram below for a "K", "O", "Z", "A", "B", or "C" bent bar is greater than the corresponding top or bottom slab thickness, less than 2 1/2" inches, each bent bar shall be replaced with one hooked bar and one straight bar using lengths as shown in the table below. The two bars shall be the same diameter and placed at the same spacing as the "K", "O", "Z", "A", "B", or "C" bent bars they replace.

### Wingwall & Culvert Drainage Detail

The hooked bars shall be placed in the bottom of the top slab and the top of the bottom slab. The straight bars shall be placed in the top of the top slab and the bottom of the bottom slab. See table below for lengths of replacement hooked and straight bars. For skewed culverts, the replacement straight bar may have to be cut in field to fit.

### Replacement Bar Lengths Table

<table>
<thead>
<tr>
<th>Bar Size</th>
<th>Length of Hooked Bar</th>
<th>Length of Straight Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;K&quot;</td>
<td>L + 1 1/2&quot;</td>
<td>See &quot;Z&quot; Bar Length</td>
</tr>
<tr>
<td>&quot;O&quot;</td>
<td>L + 2 1/2&quot;</td>
<td>See &quot;O&quot; Bar Length</td>
</tr>
<tr>
<td>&quot;A&quot;</td>
<td>L + 1 1/2&quot;</td>
<td>See &quot;O&quot; Bar Length</td>
</tr>
<tr>
<td>&quot;B&quot;</td>
<td>L + 1 1/2&quot;</td>
<td>See &quot;O&quot; Bar Length</td>
</tr>
<tr>
<td>&quot;Z&quot;</td>
<td>L + 1 1/2&quot;</td>
<td>See &quot;O&quot; Bar Length</td>
</tr>
<tr>
<td>&quot;C&quot;</td>
<td>L + 1 1/2&quot;</td>
<td>See &quot;O&quot; Bar Length</td>
</tr>
</tbody>
</table>

L = "W" - 3 Inches

### Reinforced Concrete Box Culvert General Notes

Concrete shall be Class 5 with a minimum 28-day compressive strength of 3500 psi. Reinforcing steel shall be ASTM A 307 M 53, Grade 60.

Construction and materials for wingwall & culvert drainage, including keep holes and granular material, shall be subject to Item 7 & 11.5.5.2 - Class 5 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 considered to be included in the various items bid for the R.C. Box Culvert.

### Reinforced Concrete Box Culvert Standard Drawings

Arkansas State Highway Commission

R.C. Box Culvert Headwall Modifications

Arkansas State Highway Commission

Standard Drawing RCB-1

### Reinforced Concrete Box Culvert Details

Arkansas State Highway Commission

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Standard Drawing RCB-1
PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

LONGITUDINAL SECTION
BACKFILL DETAILS FOR BOX CULVERT

SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:
ROADWAY EXCAVATION CHANNEL CHANGES WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFUSED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION CHANNEL CHANGES 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 CONFUSED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE. ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSOIL WILL NOT BE MeASURED AS SUBSOIL, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.
GENERAL NOTES

1. USE FOR METHOD 1

2. USE FOR METHOD 2

NOTES

1. No part of the standard is to be used for any details relative to new construction. See standard drawing listed in tabulation of structures for all new construction details.

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METHOD OF EXTENDING
EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3
### Superelevation Table for Two-Way Traffic

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>Speed (mph)</th>
<th>Minimum Design</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L_a (ft)</td>
<td></td>
</tr>
<tr>
<td>1/500</td>
<td></td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>2/500</td>
<td></td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>3/500</td>
<td></td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>4/500</td>
<td></td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>5/500</td>
<td></td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>6/500</td>
<td></td>
<td>400</td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations**
- NC: Normal Crown
- RC: Reverse Crown
- SC: Superelevation at Normal Crown Slope
- L_a: Length of Superelevation Transition (ft)
- L: Outside Curb or Subgrade Edge
- S: Inside Curb or Subgrade Edge
- W: Inside Curb or Subgrade Edge

**General Notes**
1. On pavements with two-way traffic, the superelevation shall be revolved on the inside pavement edge unless otherwise noted on the plans.
2. Superelevation values shown on the cross sections are values for L_a.
3. Lanes for L_a may be lowered or subtracted from the point of control.
4. Pavements wider than 2 lanes shall have additional, transition lengths as follows:
   - 2 lanes: 200 ft
   - 4 lanes: 400 ft

**Standard Method When Superelevation Revolves Around Inner Subgrade Point or Inner Pavement Edge**
- Use the formula: $L_a = \frac{v^2}{g R}$

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

**Standard Drawing SE-2**
### Reinforced Concrete Spring Box

<table>
<thead>
<tr>
<th>BARS</th>
<th>NUMBER</th>
<th>LENGTH</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>12</td>
<td>8'-0&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>&quot;B&quot;</td>
<td>20</td>
<td>3'-0&quot;</td>
<td>10 1/4&quot;</td>
</tr>
<tr>
<td>&quot;C&quot;</td>
<td>6</td>
<td>6'-0&quot;</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

All steel to be 4" bars.

**Details of Concrete Steps & Walks**

**Post Connection Details**

- **Base Plate**
- **15"" Hand Railings**

### General Notes

- All concrete steps may be varied as required.
- All concrete steps shall be consistent in height.
- All concrete steps shall be placed in concrete walls at 4'-0" intervals.

### Additional Information

- **Reinforced Concrete Spring Box**
- **Pavement Repair Over Culverts**
- **Hand Railing Details**

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**Details of Special Items**

**Standard Drawing** SI-1
Typical application - safety maintenance operations of short duration on a single divided roadway where one lane is closed.

Typical application - construction operations of intermediate to long term duration on a three divided roadway where half of the roadway is closed.
REINFORCING BAR TABLE PER BARRIER UNIT

SECTION G-G

SECTION E-E

SECTION H-H

ELEVATION - TYPICAL BARRIER

BARRIER STABILIZATION DETAIL

BRIDGE DECKS

VIEW D-D

SECTION C-C

SECTION B-B

SECTION A-A

SECTION S-S

SECTION O-O

NOTE B: Threaded inserts shall be cast in place for new bridge decks and grade. These inserts are for installing bridge deck inserts later and have a minimum ultimate tensile capacity of 80 ksi. Grade 58 or better mechanical property. bolts shall be installed with approved nuts.

A 4" x 4" x 6" x 6" Concrete Panel shall be installed for drilling and lifting holes to be included in the price for various barrier heights.

All units to roadway surface with shapenotations and to deck grade levels as required.

A 4" x 6" PVC Sleeve may be used to form the lifting hole and it used the Sleeve is to be slit in place.

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION -
TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4
4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to C.L. (SEE BARRIER STABILIZATION DETAIL BRIDGE DECKS STD. DRWG. TC-4)

** Offset Distance for Two Way Traffic Only

<table>
<thead>
<tr>
<th>Speed</th>
<th>Offset Distance</th>
<th>Note</th>
</tr>
</thead>
</table>
| 40 MPH | 18  | If offset distance is not attainable. Refer to "Barrier Placement With Attenuator" Note 5.3.2.1.3c.2 "Detail 5.3.2.1.3c.2b."

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."
GENERAL NOTES

1. Strain bales shall be installed so that the ends of the fabric will be level with the top and bottom of the bales. The bales shall be a minimum of 80 inches in length.

2. No caps shall be left between bales.

3. Bailed straw filter barriers are installed and accepted 20 degrees to the vertical. The fabric is anchored by the bales and will be held in place by the constraction unit fabric net and pins used for bailed straw ditch check.

SILT FENCE ON R/W FENCE (E-40)

General Notes

Geotextile fabric shall be spliced together with a sewn seam. Unless otherwise specified, the lower portion of fence may be omitted. Payment of additional material for display will not be made.

SILT FENCE (E-III)

General Notes

Geotextile fabric shall be spliced together with a sewn seam. Unless otherwise specified, the lower portion of fence may be omitted. Payment of additional material for display will not be made.
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. Place appropriate controls (e.g., yellow fences, vegetation barriers, etc.)
2. Perform clearing and grubbing operations

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 seeded, preserved, sprayed, and mulched as work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 25 feet measured vertically.

CONSTRUCTION SEQUENCE
1. Excavate and stabilize interceptors and/or diversion ditches.
2. Perform Phase 1 Excavation. Place permanent or temporary seeding.
3. Perform Phase 2 Excavation. Place permanent or temporary seeding.
4. Perform Final Phase of Excavation. Place permanent or temporary seeding. Stabilize other erosion control devices as required.

EMBANKMENT

EXPANSION DITCH TO BE IN PLACE UNTIL SOIL IS COMPLETELY STABILIZED

SIDE DITCH
EXISTING GROUND
GENERAL NOTE
All embankment slopes shall be seeded, preserved, sprayed, and mulched as work progresses. Slopes shall be constructed and stabilized in equal increments not to exceed 25 feet measured vertically.

CONSTRUCTION SEQUENCE
1. Construct expansion ditches, check elevation, and place permanent or temporary seeding.
2. Place Phase 1 Embankment with permanent or temporary seeding.
3. Place Phase 2 Embankment with permanent or temporary seeding.
4. Place final Phase of Embankment with permanent or temporary seeding.
5. Stabilize expansion ditches and other erosion control devices as required.

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TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3
GENERAL NOTES:
These installations to be used where normal fences may cause the collecting or drift in the channel or depression will not permit normal installation. Installations will be made only where directed by the Engineer. When a fence line approaches a ditch or gully or depression, the last post in level ground shall be placed close enough to the edge of the bank so that the fence may be swung to the post in the depression without touching the ground. In terrain of such extreme irregularity that wires or bars will not be feasible, the normal fence shall continue on grade and will be directed by auxiliary fences as shown. Payment for the type installation used will not be made directly but will be included in the contract unit price bid for wire fence or chain-link fence.
The contractor shall furnish at least 250% of timber line posts of 3-foot length in order to provide sufficient set in soft ground on small spires.

Driveway gates, either single 12' to 18' or double 6' to 12' openings of the same type as the pedestrian gate, shall be installed at the entrance of the road and at all driveways or cross fences for use of maintenance equipment. Location of gates to be shown on plans or as designated by the engineer.

At stream crossings, the fence shall not be constructed across any stream, where clearance is sufficient from the top of the bank to the bridge structure in excess of 12', and the clearance shall be maintained as required for each case. The clearances may be varied within the limits shown on the plans.

Splice for barbed wire between pull post assembly shall be by the 13-month method as described in the following:

Type C Fence (Wood Posts)

4-strand barbed wire (1) 6-strand barbed wire (2)

NOTE: SPACING AND SIZE (EXCEPT LENGTH OF POSTS) APPROVED, SECTIONS BEING Barbed wire is used in lieu of wooden posts. Minimum length of barbed wire is 6'0". A minimum of 120" is required.

Type C Fence (Steel Posts)

4-strand barbed wire (1) 6-strand barbed wire (2)

Private fence terminal installation

Wire fence is used for type C fence in lieu of wooden posts as shown in type C fence or other end post assembly shown on plans.

Typical Vehicular Gates (Alleghany type)

Other style vehicular gates may be used with approval of the Engineer. The method of securing gate latch and/or lock shall meet the approval of the Engineer.

Arkansas State Highway Commission

Wire Fences Type C and D

Standard Drawing WF-4
### Bar List for Barrel Sections 48 ft. in Length

<table>
<thead>
<tr>
<th>Section</th>
<th>R 1200</th>
<th>R 1600</th>
<th>R 2400</th>
<th>R 3600</th>
<th>R 4800</th>
<th>R 6000</th>
<th>R 7200</th>
<th>R 8400</th>
<th>R 9600</th>
<th>R 10800</th>
<th>R 12000</th>
<th>R 13200</th>
<th>R 14400</th>
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<th>R 18000</th>
<th>R 19200</th>
<th>R 20400</th>
<th>R 21600</th>
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</tr>
</tbody>
</table>

### Dimensions

- **Barrel Length**: 48 ft.
- **Distance**:
  - 10 ft.
  - 12 ft.
  - 14 ft.
  - 16 ft.
  - 18 ft.
  - 20 ft.
  - 22 ft.
  - 24 ft.

### Typical Section A-M

- **Construction Details**:
  - Reinforced Concrete
  - 48 ft. in Length
  - Bar Dimensions
  - Reinforcing Bar Placement

### Section Information

- **Class S Concrete**
- **Length**: 48 ft.
- **Code**: A-M
- **Details of Standard Barrel Sections**
- **Type**: Reinforced Concrete Box Culverts
- **Spans**: 31.0 ft. or 41 ft.
- **Singles**: Under 50" Cover
- **Standard Drawing**: M-1007-0

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**Note**: This drawing is to be used in conjunction with Standard Drawing No. M-1007 or M-1008, or M-1009. Also refer to the H-1007 or M-1006.
CROSS SECTIONS - SITE 2

STA. 252+27 IN PLACE
RT. 3' DEEP COLVERTEX
PT. 90' DEEP COLVERTEX
REMOTE, H INSTALL & STA. 252+27
RT. 90' DEEP COLVERTEX
H INSTALL & STA. 252+27

STAGE 1
AREA CUT 48
AREA CUT 12
AREA FILL 1
AREA FILL 1

STAGE 2
AREA CUT 26
AREA CUT 8
AREA FILL 9
AREA FILL 2

STAGE 1
AREA CUT 24
AREA CUT 6
AREA FILL 3
AREA FILL 3

STAGE 2
AREA CUT 24
AREA CUT 6
AREA FILL 3
AREA FILL 3

STAGE 1
AREA CUT 25+00
AREA CUT 25+00
AREA FILL 2
AREA FILL 2

STAGE 2
AREA CUT 25+00
AREA CUT 25+00
AREA FILL 2
AREA FILL 2

STAGE 1
AREA CUT 25+00
AREA CUT 25+00
AREA FILL 2
AREA FILL 2

STAGE 2
AREA CUT 25+00
AREA CUT 25+00
AREA FILL 2
AREA FILL 2

CROSS SECTION STA. 25+00 TO STA. 252+27