INDE5 OF SHEETS

SHEET NO. TITLE
1 1 TITLE SHEET
2 2 INDEX OF SHEETS AND STANDARD DRAWINGS
3 3 GOVERNING SPECIFICATIONS AND GENERAL NOTES
4 - 12 TYPICAL SECTIONS OF IMPROVEMENT
13 - 25 SPECIAL DETAILS
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58 - 81 MAINTENANCE OF TRAFFIC DETAILS
82 - 94 PERMANENT PAVEMENT MARKING DETAILS
85 - 92 QUANTITIES
93 93 SUMMARY OF QUANTITIES AND REVISIONS
94 - 123 SURVEY CONTROL DETAILS
124 - 145 PLAN AND PROFILE SHEETS
146 - 235 CROSS SECTIONS

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

ROADWAY STANDARD DRAWINGS

DRAWING NO. TITLE DAE
CSP-1 1 CONCRETE DITCH PAVING 13-04-15
CSP-2 CONCRETE DITCH PAVING 13-04-15
FES-1 1 PLACED END SECTION 13-16-06
FES-2 PLACED END SECTION 13-16-06
GR-1 GUARDRAIL DETAILS 11-01-19
GR-2 GUARDRAIL DETAILS 11-01-19
GR-16 GUARDRAIL DETAILS 11-01-19
MB-1 1 MAILBOX DETAILS 11-16-04
PCF-1 PRECAST CONCRETE BOX CULVERTS 03-21-15
PCC-1 CONCRETE PIPE CULVERT (HIGH DENSITY POLYETHYLENE) 03-21-14
PCC-2 CONCRETE PIPE CULVERT (HVY DURA) 03-21-14
PCP-1 PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE) 03-21-14
PCP-2 PLASTIC PIPE CULVERT (HVY DURA) 03-21-14
PM-1 PAVEMENT MARKING DETAILS 03-21-20
PL-1 DETAILED PAVEMENT MARKING DETAILS 17-04-06
RCB-1 NON-FABRIC CONCRETE BOX CULVERT DETAIL 07-24-13
RCB-2 DETAILS OF 2-FOOT BACKFILL AND 4 FOOT SOFTSOIL BOX CULVERTS 11-22-00
RCB-3 METHODS OF EXTENDING BOX CULVERTS IN 1-FOOT INTERVALS 11-22-95
SEC-1 2 TABLES AND METHOD OF SUPER ELEVATION FOR TWO-WAY TRAFFIC 03-07-19
SP 1 DETAILS OF SPECIAL ITEMS 11-22-18
TC-1 STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 03-07-99
TC-2 STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 03-07-99
TC-3 STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 03-07-99
TC-4 STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 03-07-99
TC-5 STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION 03-07-99
TEC-1 TEMPORARY EROSION CONTROL DEVICES 03-07-99
TEC-2 TEMPORARY EROSION CONTROL DEVICES 03-07-99
WAK-4050 DETAILS OF STANDARD VANS FOR REINFORCED CONCRETE BOX CULVERTS 03-10-66
WAK-4051 DETAILS OF STANDARD VANS FOR REINFORCED CONCRETE BOX CULVERTS 03-10-66
WAK-4052 DETAILS OF STANDARD VANS FOR REINFORCED CONCRETE BOX CULVERTS 03-10-66
WAK-4053 DETAILS OF STANDARD VANS FOR REINFORCED CONCRETE BOX CULVERTS 03-10-66
WAK-4054 DETAILS OF STANDARD VANS FOR REINFORCED CONCRETE BOX CULVERTS 03-10-66
RA-1000 DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 03-06-60
RA-1001 DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 03-06-60
RA-1002 DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 03-06-60
RA-1003 DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 03-06-60
RA-1004 DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 03-06-60
HWY. 5 - SITE 1 DETOUR
ST 4, 300+00 to ST 4, 302+50.53

NOTE:
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE BOG OF THE PLUS THICKNESS SHOWN. THE CONTRACTOR WILL COMPACT FOR DEPTH THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 3" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN Laid.
LONGITUDINAL JOINTS SHALL BE AT LINE LINES.

TYPICAL SECTIONS OF IMPROVEMENT
Hwy. 5 - Sites 3 & 4 - Full Depth Super Elevation
STA 674+00.00 to STA 674+60.00
STA 18+00.00 to STA 18+50.00

Notes:
The thickness of aggregate base course shall be within plus or minus one inch of the plan
valued. The thickness of the base that does not meet
these specifications shall not be made up
for. Material placed in excess of the tolerance shall
be removed.

Refers 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 final 2' of surface course is to be placed
after all other courses have been laid.

Asphalt for leveling of existing pavement shall
be placed only if and where directed by the engineer.

Leveling operation shall be performed before
the overlay material and base course are placed
and will be considered a separate item.

With the approval of the engineer, the contractor
shall be allowed to substitute, at no additional cost,
the first lift of base course at the
excess of aggregate base course on the shoulder.

Hwy. 5 - Site 5 - Overlay Super Elevation
STA 964+50.00 to STA 965+30.02

Typical Sections of Improvement
HWY. 5 - SITE 5 - OVERLAY

514, 985+30.02 TO 514, 985+06.00
NO. 4 BARS AT 12" HORIZONTAL SPACING
VAR. WIDTH
VAR. HEIG.

10'

TOP VIEW
MIN. 3" COVER

NO. 4 BARS AT 12" HORIZONTAL SPACING
VAR. WIDTH
VAR. HEIG.

9'

FRONT VIEW
SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

NO. 4 BARS AT 12" HORIZONTAL SPACING
VAR. WIDTH
VAR. HEIG.

10'

TOP VIEW
MIN. 3" COVER

NO. 4 BARS AT 12" HORIZONTAL SPACING
VAR. WIDTH
VAR. HEIG.

9'

FRONT VIEW
SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER,
VAR. [1.5'-0" NORM.] AGGREGATE SURFACE COURSE (1'-0")
1200 LBS. PER SQ. YD. & TACK COAT

VAR. [1.5'-0" NORM.] AGGREGATE BASE COURSE (1'-1")
1400 LBS. PER SQ. YD. & TACK COAT

ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC

NOTES:

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.

3. IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SECURITIZATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.05, OF THE STANDARD SPECIFICATIONS.

METHOD OF RAISING GRADE

5" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH AGGREGATE BASE COURSE (1.5'-0")
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, grade edges, approach edges, intersecting streets or roadways.
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 linear foot longitudinally along the shoulder. Portions only of that portion of the shoulder on which rumble strips have been constructed, no requirement or payment will be made for gaps, interruptions, turnouts, or other public use. Intersections where rumble strips have not been constructed.
5. The 1/2" depth shall generally apply for the entire 12" length. Some variation to suit shoulder slope grades may be necessary.

DETAIL FOR RUMBLE STRIP GAP AT DRIVEWAY TURNOUTS

NOTE: Gap pattern shall be adjusted by the Engineer in the field allowing for driveways to remain as the gap.

DETAIL FOR GAP PATTERN RUMBLE STRIP

SPECIAL DETAILS
DETAIL FOR BENCH CUT - HWY, 5 - SITE 2

STA. 202+90.00 - STA. 207+25.00
STA. 216+00.00 - STA. 220+00.00

EXISTING SURFACE

TYPICAL SECTION OF IMPROVEMENT

BENCH SHOULD BE PLACED AT THE INTERFACE BETWEEN THE HARD ROCK & THE SOIL, LOCATIONS SHOWN IN THE CROSS SECTIONS ARE ESTIMATED.
### MID-SECTION

#### BAR LAP TABLE

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This drawing is to be used in conjunction with Sheet 1 of "GENERAL DETAILS OF R.C. BOX CULVERT," Sheet 3 of "GENERAL DETAILS OF R.C. BOX CULVERT," and Standard Drainage Respiratory 402.

For additional information and outlet sections, see Sheet 2 of 2.

### SHEET 1 OF 2

**DETAILS OF R.C. BOX CULVERT**

**Sta. T19+05**

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

**TYPICAL SECTION M-M**

- Top of Apun - see "Details of Wingwall"
- Top of Wingwall - see "Details of Wingwall"
- Top of Wingwall - see "Details of Wingwall"
- Top of Wingwall - see "Details of Wingwall"
- Top of Wingwall - see "Details of Wingwall"

**WINGWALL ATTACHMENT**

See "Details of Wingwall" for additional information and wingwall details.

**TYPICAL KEYWAY DETAIL**

LWJ Construction Joint.

**SKewed END SECTION DETAILS**

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

Special Details
SITE 3 - CLEARING & GRUBBING

SAND BAG DITCH CHECKS (B-S)
3 LOCATIONS - 600 TONS
ROCK DITCH CHECKS (R-S)
3 LOCATIONS - 150 TONS
SLT FENCE (S-N)
3 LOCATIONS - 760 LF/UNIT

STA. 660+00.00
END EXCEPTION
BEGIN SITE 3

STA. 680+75.00
END SITE 3
BEGIN EXCEPTION

REVISIONS

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LEGEND

- SAND BAG DITCH CHECKS
- ROCK DITCH CHECKS
- SLT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AT CLEARING AND GRUBBING OPERATIONS ARE STARTED.
SITE 4 - CLEARING & GRUBBING

SILT FENCE 5-50
7 LOCATIONS (25FT PER LOCATION)

SILT BAG DITCH CHECKS 10-60
7 LOCATIONS (15FT PER LOCATION)

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

REVISIONS

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LEGEND

- SILT BAG DITCH CHECKS
- ROCK DITCH CHECKS
- SILT FENCE

SITE 4 - CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

STA. 708+75.00
END EXCEPTION
BEGIN SITE 4

STA. 722+80.00
BEGIN SITE 4
END EXCEPTION
SITE 1 - STAGE 1

SAND BAG CHECKS (6-61):
10 locations, 397 bags
ROCK DITCH CHECKS (6-61):
10 locations, 397 cu. yd.
SILT EROSION (6-61):
10 locations, 397 cu. yd.

STA. 100+00.00
BEGIN JOB NO. 061442
BEGIN SITE 1
SEC. 6 LOG MILE 7.29

NOTE: RETAIRED CONTROLS SHALL BE PLACED AS CLEARING AND GRAVING OPERATIONS ARE STARTED.
TEMPORARY EROSION CONTROL DETAILS

LEGEND

- SAND BAG DITCH CHECKS
- ROCK DROPPED CHECKS
- Silt Fence

Note: Permanent controls shall be placed as leveling and grading operations are started.
SITE 4 - STAGE 1

SAND BAG DITCH CHECKS (1-5)
2 Locations + 48 bags
ROCK DITCH CHECKS (4-6)
3 Locations + 84 bags

STA. 708+75.00  
END EXCEPTION  
BEGIN SITE 4

STA. 722+80.00  
END SITE 4  
BEGIN IN EXCEPTION

REVISIONS

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LEGEND

- SAND BAG DITCH CHECKS
- ROCK DITCH CHECKS
- SLT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEANING AND GRAVING OPERATIONS ARE STARTED.
SITE 5 - STAGE 1
SAND BAG DITCH CHECKS (E-O)
3 LOCATIONS + 40
ROCK DITCH CHECKS (E-O)
4 LOCATIONS + 40, 40,
SILT FENCE (E-O)
6 LOCATIONS + 305 LR, Y.T.

STA. 966+50.00
END EXCEPTION
BEGIN SITE 5

REVISIONS

DATE OF REVISION

REVISION

LEGEND

- - SAND BAG DITCH CHECKS
- - ROCK DITCH CHECKS
- - SILT FENCE

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

TEMPORARY EROSION CONTROL DETAILS
### REVISIONS

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### LEGEND

- **C1**: Sand bag ditch check
- **C2**: Rock ditch check
- **H1**: SL1 fence

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

---

**SITE 2 - STAGE 2**

**TEMPORARY EROSION CONTROL DETAILS**
SITE 4 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE OF REVISION | REVISION
--- | ---

REVISIONS

LEGEND

- SAND BAG DITCH CHECKS
- ROCK DITCH CHECKS
- SLT FENCE

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

STA. 708+75.00
END EXCEPTION
BEGIN SITE 4

STA. 722+80.00
END SITE 4
BEGIN EXCEPTION

HWY. 5
ADVANCE WARNING SIGNS

LOCATIONS
SITE A
CROUSE FORD RD.
RIVER RD.
RIVIERE RD.
SITE B
SHAWL CUTOFF RD.
HENDRIX RD.
NOBLE HILL JAMES RD.
SITE C
PARKWAY LN.
RIVER RD.

TRAFFIC DRUMS
STAGE 1
SITE A
1 LOCATION + 2 EACH
SITE B
6 LOCATIONS + 3 EACH
SITE C
6 LOCATION + 6 EACH

STAGE 2
SITE A
6 LOCATION + 2 EACH
SITE B
5 LOCATION + 20 EACH
SITE C
3 LOCATION + 6 EACH

DRIVEWAY & TURNOUTS

TRAFFIC DRUMS
SITE A
1 LOCATION + 2 EACH
SITE B
6 LOCATIONS + 3 EACH
SITE C
6 LOCATION + 6 EACH

SITE A
6 LOCATION + 2 EACH
SITE B
5 LOCATION + 20 EACH
SITE C
3 LOCATION + 6 EACH

MAINTENANCE OF TRAFFIC DETAILS
MAINTENANCE OF TRAFFIC DETAILS

EXISTING PAVEMENT
STAGE 1 TRAFFIC

STAGE 1

STAGE 2 & 3 TRAFFIC

STAGE 2 & 3

<STAGE IS REVERSED FOR SITE 3>

<STAGE IS REVERSED FOR SITE 3>
SEQUENCE OF CONSTRUCTION

STAGE 1

SITE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY.
SITE 2: CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.
SITE 3: CONSTRUCT ROADWAY ON NEW LOCATION ON RT.
SITE 4: CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.
SITE 5: CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW RT CLERGY ON RT.

STAGE 2

MAINTENANCE OF TRAFFIC DETAILS
SEQUENCE OF CONSTRUCTION

STAGE 1 - MANAGE TRAFFIC ON EXISTING ROADWAY.

SITE 1 - CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.
SITE 2 - CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.
SITE 3 - CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON LT.
SITE 4 - ROADWAY ON NEW LOCATION ON LT.
SITE 5 - CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.

STAGE 2 - BARGE WAY.

SITE 1 - BARGE WAY ON NEW LOCATION ON LT.
SITE 2 - ROADWAY ON NEW LOCATION WITH PART OF BARGE WAY CONNECTED ON LT.

END EXCEPTON

BEGIN SITE 4

STA. 708+75.00

STA. 722+80.00
STAGE 1

SEQUENCE OF CONSTRUCTION

SITE 1

THICK ON EXISTING ROADWAY.
CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.
CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON LT.

SITE 2

CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.
CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON LT.
CONTRACTORS ON NEW LOCATION ON RT.
CONTRACTORS ON NEW LOCATION ON LT.

SITE 3

CONTRACTORS ON NEW LOCATION ON RT.
CONTRACTORS ON NEW LOCATION WITH PART OF NEW

SITE 4

CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.

SITE 5

CONSTRUCT MEDIAN, TURNOUTS & EXTEND CROSS DRAINS ON RT.

TURNOVER ALL TRAFFIC TO NEW ROADWAY.

REAPPROPRIATE AREAS.

TURNOVER ALL TRAFFIC TO NEW ROADWAY.

REAPPROPRIATE AREAS.

TURNOVER ALL TRAFFIC TO NEW ROADWAY.

REAPPROPRIATE AREAS.
SEQUENCE OF CONSTRUCTION:

**STAGE 1**
- **MAINTAIN TRAFFIC ON EXISTING ROADWAY.**
- **SITE 1** - CONSTRUCT REVERSING TURNOUTS & EXTEND CROSS DRAINS ON RT, CONSTRUCT REVERSAL ON NEW LOCATION ON RT.
- **SITE 2** - CONSTRUCT REVERSING TURNOUTS & EXTEND CROSS DRAINS ON RT, CONSTRUCT REVERSAL ON NEW LOCATION ON RT.
- **SITE 3** - CONSTRUCT REVERSING TURNOUTS & EXTEND CROSS DRAINS ON LT, CONSTRUCT ROADWAY ON NEW LOCATION ON LT.
- **SITE 4** - CONSTRUCT REVERSING TURNOUTS & EXTEND CROSS DRAINS ON RT, CONSTRUCT ROADWAY ON NEW LOCATION WITH PART OF NEW BOX GALLERY ON RT.
- **SITE 5** - CONSTRUCT REVERSING TURNOUTS & EXTEND CROSS DRAINS ON RT.

**MAINTENANCE OF TRAFFIC DETAILS**

**STA. 986+00.00 END SITE 5 END JOB 061442**

**HWY. 5 - SITE 5**

**WHY NOT**
SEQUENCE OF CONSTRUCTION

STAGE 1

SITE 1: MOVE TRAFFIC TO NEW ROADSIDE
CONSTRUCT BOX DRAIN & TEMPORARY BOX CULVERT ON EXISTING ROAD
PLACE FINAL SURFACE COURSE &
PERMANENT PAINTED MARKINGS.

SITE 2: PLACE CONCRETE CURB &
GRABBER
PLACE FINAL SURFACE COURSE &
PERMANENT PAINTED MARKINGS.

SITE 3: PLACE FINAL SURFACE COURSE &
PERMANENT PAINTED MARKINGS.

SITE 4: REMOVE RUTTING FOR MAINTENANCE OF TRAFFIC ON RT.
PLACE FINAL SURFACE COURSE &
PERMANENT PAINTED MARKINGS.

SITE 5: PLACE FINAL SURFACE COURSE &
PERMANENT PAINTED MARKINGS.

STAGE 3

HWY. 5 - SITE 1

MAINTENANCE OF TRAFFIC DETAILS
HWY. 5 - SITE 1 - PERMANENT PAVEMENT MARKING LAYOUT

HWY. 5 - SITE 2 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKING DETAILS

*THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A
*DOUBLED YIELD FOR THE PAVEMENT MARKING MATERIAL. THE PROJECT
*WAS DESIGNED FOR A DURATION OF 3 YEARS PRIOR TO THE
*APPLICATION OF ANY LIME STABILIZATION. CONTACT THE MAINTENANCE DIVISION
*AFTER THE FINAL LATE IN THE PROJECT.

*THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A
*DOUBLED YIELD FOR THE PAVEMENT MARKING MATERIAL. THE PROJECT
*WAS DESIGNED FOR A DURATION OF 3 YEARS PRIOR TO THE
*APPLICATION OF ANY LIME STABILIZATION. CONTACT THE MAINTENANCE DIVISION
*AFTER THE FINAL LATE IN THE PROJECT.
HWY.5 - SITE 3 - PERMANENT PAVEMENT MARKING LAYOUT

HWY.5 - SITE 4 - PERMANENT PAVEMENT MARKING LAYOUT

PERMANENT PAVEMENT MARKING DETAILS

6" THERMOPLASTIC PAINTING MARKING
RT. AND LT. EDGE LINES: 2700 SQ. FT. WHITE
RT. EDGELINE: 5" YELL., WHITE
LT. EDGELINE: 5" YELL., WHITE
RAISED PAINTED MARKERS:
TYPE A - 7/8" X 2" X 24"
500 C.C. ON CENTERLINE • 15 E'ACh

*THE 6" YELLOW SHADING QUANTITY HAS BEEN ESTIMATED BASED ON A SINGLE CENTERLINE STRIPING FOR THE ENTIRE PROJECT. THE PROJECT
MUST BE MARKED FOR PASSING AND PASSING ZONES THEN TO THE
PLENTMENT OF ANY FINAL STRIPING CONTACT THE MAINTENANCE DIVISION
AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE
THE TIMING OF THE PROJECT.
HWY. 5 - SITE 5 - PERMANENT PAVEMENT MARKING LAYOUT
CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

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NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
NOTES: THE 2" WHITE STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE Final LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

ADVANCE WARNING SIGNS AND DEVICES

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TOTALS: 1563.0 217 647 240 240 2080 2080 2080 2080 2080 2080 2080 2080 2080

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 IF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

QUANTITIES

### ACHM Patching of Existing Roadway

**Description**
- Entire project to use F-4 and where directed by the Engineer
- **Total:** 1000

#### Driveways & Turnouts

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#### Rumble Strips in Asphalts* Shoulders

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#### Asphalt Concrete Patching for Maintenance of Traffic

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#### Fencing

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*Note: Estimated. See section 104.03 for the STD. specs, to be used if and where directed by the Engineer.*
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**QUANTITIES**

- **BASE AND SURFACING (BOX 1 OF 3)**
- **ACME MIDDLE COURSE (2")**
- **ACME SURFACE COURSE (2")**

*Note: Quantities are approximate and may vary depending on the specific project requirements.*

- **QUANTITIES**
- **BASE AND SURFACING (BOX 1 OF 3)**
- **ACME MIDDLE COURSE (2")**
- **ACME SURFACE COURSE (2")**

*Note: Quantities are approximate and may vary depending on the specific project requirements.*

- **QUANTITIES**
- **BASE AND SURFACING (BOX 1 OF 3)**
- **ACME MIDDLE COURSE (2")**
- **ACME SURFACE COURSE (2")**

*Note: Quantities are approximate and may vary depending on the specific project requirements.*
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Summary of Quantities & Revisions:

- [Details of revisions and updates related to the quantities listed above]
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**SURVEY CONTROL DETAILS**

** amused**

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**SURVEY CONTROL DETAILS**

** amused**
**Survey Control Details**

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*Standard Primary Control Monument - Refer to Cap - A standard "SHP" x 2" Rebar with 2 Aluminum Cap stamped - (Include all common features) - Plus, other markings indicated in the point description of the individual point. AHTC monuments will be stamped "Arkansas Hwy & Tress Dept" with "PH 99" & "9999999" Memoirs that are set by Consultants will be stamped "Arkansas Hwy & Tress Dept" with "PH 99" & "9999999". The professional Consultant Surveyor in charge will stamp his/her license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 4" Steel Rebar with 2 1/4" Aluminum Cap stamped - (Include all common features) - Plus, other markings indicated in the point description of the individual point. These monuments will be stamped "Arkansas Hwy Trans Dept. - "GPS Survey" & "PH 9999999".**

SX, SY, SZ - Represents the standard error estimate of the coordinate values of each point at the 95% confidence level (one sigma) based on the least-squares analysis of the control network. See the AHTO GPS Control Data Guide, NCDY, for additional information. These values shall be used when control points are added and the entire network is reprocessed using least-squares analysis. A value of 0.000 is defined as fixed (no adjustment) in the least squares analysis process. A value of 0.000 is defined as location by hand or GPS device or scaled from USGS Quadsheet.

Reference Control Points (1,500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 1" wire level techniques.

All additional project control shall be occupied, measured, and established with direct survey techniques to all horizons of the control points listed in the table above. No survey control shall be independent of the survey control data above. This includes horizontal overwades and elevations.

**Positional Accuracy:**

- Horizontal: GPS (1.0' cone 3.0PPM)
- Horizontal: Primary (2.0' cone 20PPM)
- Horizontal: Secondary (0.5' cone 50PPM)
- Vertical: NGS 1st Order (0.0001' x 0.0001' x 0.0001')
- Vertical: NGS 2nd Order (0.0000' x 0.0001' x 0.0001')
- Vertical: Also see NCDY, NCDY000, NCDY999

**Horizontal Datum:** NAVD 1988 (1950) State Plane Zone: 0202 - North Zone

The adjustment point is based on coordinates in the State Plane Coordinate System. The project CAP shall have a minimum precision of 0.001' checking at the datum.

If coordinates are listed as: Ground, then the control point is a ground control point. If coordinates are listed as Grid, then the control point is a grid control point. If coordinates are listed as Grid, then the control point is a grid control point. If coordinates are listed as Grid, then the control point is a grid control point.

- Vertical Datum: NAVD 1988 based on NGS 92M

A project elevation factor of 0.0005 has been computed and incorporated in the above CAP.

**Rocks of Boring:**

- Grid lines are based on AHTC GPS points.
- Grid lines are based on AHTC GPS points.
STA. 708 + 75.00 END EXCEPTION BEGIN SITE 4
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
HOME INSTEAD
SENIOR CARE DRIVE

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.
CROSS SECTION STA.102+56 TO STA. 104+00

-0.80% TURNOUT ON LT. = 275 CU. YDS.
STA. 103+97 CONSTRUCT

F.L. INLET LT. = 446.00

F.L. OUTLET RT. = 445.00

EXIST. F.L. OUTLET RT. = 445.15
EXIST. F.L. INLET LT. = 445.30

SITE 1

ELEV. = 447.89 7.05% RT. DITCH GRADE STA. 103+00 - END
ELEV. = 448.67 6.51% LT. DITCH GRADE STA. 103+00 - END
BEGIN 0.00% LT. DITCH GRADE STA. 102+55 - END
BEGIN 0.00% RT. DITCH GRADE STA. 102+55 - END
BEGIN 6.51% LT. DITCH GRADE STA. 102+59 - END
BEGIN 7.05% LT. DITCH GRADE STA. 102+59 - END

Q50 = 2 CFS D.A. = 1.64 ACRES TO A COMPLETED LENGTH OF 62'
RETAIN AND EXTEND 12' L.T. AND 7' RT. WITH 3:1 WINGS LT. & RT.
4' X 3' X 33' R.C. BOX CULVERT STA. 102+57 IN PLACE

24' EXISTING PAVEMENT

Q50 = 2 CFS D.A. = 1.64 ACRES TO A COMPLETED LENGTH OF 62'
RETAIN AND EXTEND 12' L.T. AND 7' RT. WITH 3:1 WINGS LT. & RT.
4' X 3' X 33' R.C. BOX CULVERT STA. 102+57 IN PLACE
CROSS SECTION STA. 105+00 TO STA. 106+00

F.L. INLET LT. = 449.27
F.L. OUTLET RT. = 448.37
EXIST. F.L. INLET LT. = 448.60
EXIST. F.L. OUTLET RT. = 449.02

30" FES = 2 EA.
30" R.C. PIPE = 17 LIN. FT.
Q50 = 54 CFS D.A. = 45.94 ACRES
WITH FES LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
5° LT. FWD. SKEW
TO A COMPLETED LENGTH OF 55'
9' LT. AND 8' RT.
EXTEND R.C. PIPE
REMOVE HDWLS LT. & RT. 
30" X 38' R.C. PIPE CULVERT
STA. 105+81 IN PLACE
24' EXISTING PAVEMENT

ELEV. = 453.10
-12.35% LT. DITCH GRADE
STA. 105+50 - BEGIN
ELEV. = 452.44
22.64% LT. DITCH GRADE
STA. 105+95 - END

-12.35% LT. DITCH GRADE &
CROSS SECTION STA. 106+13 TO STA. 107+00

CONSTRUCT APPROACH = 105 CU. YDS.

LT. SIDE DRAIN 18" X 30' PIPE CULVERT

STA. 106+83 INSTALL 15' X 30' PCC CURB

EXISTING PAVEMENT 24' EXISTING PAVEMENT

SITE 1

E X I S T. 4.5 5.6 0

E X I S T. 4.5 6.4

E X I S T. 4.5 5.7 1
CROSS SECTION STA. 117+37 TO STA. 118+00

SITE 1

1.4% 3.2% 7.8%

2:1 8:1 0.060" 0.060" 4:1 3:1

EXISTING PAVEMENT

C.L. DETOUR STA. 300+15.00 C.L. HWY. 5 STA. 118+15.00 = 24' EXISTING PAVEMENT

STA. 117+37 CONSTRUCT TURNOUT APPROACH ON RT. - 36 CU. YD.
CROSS SECTION STA. 127+00 TO STA. 128+37

EXIST. F.L. INLET LT. = 440.94
EXIST. F.L. OUTLET RT. = 440.78
STA. 128+23
F.L. INLET LT. = 441.20
STA. 128+58

ELEV. = 441.66
3.67% RT. DITCH GRADE
STA. 127+90 - BEGIN
ELEV. = 443.10
12.89% RT. DITCH GRADE
STA. 128+50 - END
ELEV. = 445.71
8.42% RT. DITCH GRADE
STA. 128+00 - BEGIN

ELEV. = 440.78
BEGIN 0.00% RT. DITCH GRADE
3.67% RT. DITCH GRADE & STA. 128+14 - END
ELEV. = 440.78
BEGIN 12.89% RT. DITCH GRADE
0.00% RT. DITCH GRADE & STA. 128+32 - END
ELEV. = 441.20
BEGIN 0.00% LT. DITCH GRADE
-9.02% LT. DITCH GRADE & STA. 128+50 - END
ELEV. = 441.20
BEGIN 1.52% LT. DITCH GRADE
0.00% LT. DITCH GRADE & STA. 128+67 - END

Q50 = 315 CFS
D.A. = 112.00 ACRES
TO A COMPLETED LENGTH OF 65'
RETAIN AND EXTEND 19' L.T. AND 9' RT
ON A 30° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
15' x 6' x 37' R.C. BOX CULVERT
STA. 128+40 IN PLACE

C.L. DETOUR STA. 309+50.41
C.L. HWY. 5 STA. 127+50.00 =
24' EXISTING PAVEMENT
24' EXISTING PAVEMENT
24' EXISTING PAVEMENT
CROSS SECTION STA. 129+00 TO STA. 130+00

SITE 1

ELEV. = 441.70

0.61% LT. DITCH GRADE

STA. 129+00 - END

CONSTRUCT APPROACH = 90 CU. YDS.

RT. SIDE DRAIN 18" X 42' PIPE CULVERT

STA. 129+06 INSTALL 24' EXISTING PAVEMENT

STA. 129+00 - 129+06 ELEV. DT. DITCH AREA ELEV. + 441.70

24 EXISTING PAVEMENT

24' EXISTING PAVEMENT
CROSS SECTION STA. 131+00 TO STA. 133+00

24 EXISTING PAVEMENT

REMOVE RT. SIDE DRAIN
18" X 42' PIPE CULVERT
STA. 131+02 IN PLACE

24' EXISTING PAVEMENT

24' EXISTING PAVEMENT

24' EXISTING PAVEMENT
CROSS SECTION STA. 140+00 TO STA. 141+00

SITE 1

- STA. 140+82 - END
- STA. 140+82 - BEGIN
- STA. 140+60 - BEGIN
- STA. 140+75 - BEGIN
- STA. 141+00 - END
- STA. 141+50 - END

F.L. OUTLET LT. = 464.61
F.L. OUTLET LT. = 465.62
F.L. INLET RT. = 467.38
F.L. INLET RT. = 468.50

ELEV. = 469.39
ELEV. = 469.81
ELEV. = 467.57
ELEV. = 468.50

26.20% RT. DITCH GRADE
17.41% RT. DITCH GRADE
-12.06% LT. DITCH GRADE & 0.00% LT. DITCH GRADE
-12.06% LT. DITCH GRADE & 0.00% LT. DITCH GRADE

4.73%73.19
4.73%72.76
4.73%73.46

24" FES = 2 EA.
24" R.C. PIPE = 18 LIN. FT.
Q50 = 38 CFS D.A. = 18.75 ACRES
WITH FES LT. & RT. (CLASS III) (TYPE 3 BEDDING)
TO A COMPLETED LENGTH OF 62'
12' LT. AND 6' RT.
EXTEND R.C. PIPE
REMOVE HDWLS LT. & RT. AND
WITH HDWLS LT. & RT.
24" X 44' R.C. PIPE CULVERT
STA. 140+82 IN PLACE
24' EXISTING PAVEMENT
24' EXISTING PAVEMENT
24' EXISTING PAVEMENT
CROSS SECTION STA. 148+00 TO STA. 149+00

EXIST. F.L. INLET LT. = 490.37
EXIST. F.L. OUTLET RT. = 490.00

42" X 40' R.C. PIPE CULVERT STA. 148+65 IN PLACE

ELEV. = 490.00
BEGIN 0.00% RT. DITCH GRADE
-4.44% RT. DITCH GRADE & STA. 148+58 - END

ELEV. = 490.00
BEGIN 17.65% RT. DITCH GRADE
0.00% RT. DITCH GRADE & STA. 148+63 - END

ELEV. = 492.61
BEGIN 6.59% LT. DITCH GRADE
0.00% LT. DITCH GRADE & STA. 148+72 - END

ELEV. = 492.61
BEGIN 6.50% LT. DITCH GRADE
0.00% LT. DITCH GRADE & STA. 148+67 - END

ELEV. = 493.00
17.65% RT. DITCH GRADE
STA. 148+80 - END

ELEV. = 495.05
6.59% LT. DITCH GRADE
STA. 148+30 - BEGIN

ELEV. = 493.78
6.50% LT. DITCH GRADE
STA. 148+90 - END

24" EXISTING PAVEMENT

CROSS SECTION STA. 148-00 TO STA. 149-00
CROSS SECTION STA. 153+00 TO STA. 154+00

F.L. INLET LT. = 496.98
F.L. OUTLET RT. = 493.98
EXIST. F.L. INLET LT. = 494.75
EXIST. F.L. OUTLET RT. = 493.98

24' EXISTING PAVEMENT
24'' F.E.S. = 2 EA.
24'' R.C. PIPE = 24 LIN. FT.
Q50 = 35 CFS D.A. = 20.47 ACRES
WITH F.E.S. LT. & RT. (CLASS III) (TYPE 3 BEDDING)
TO A COMPLETED LENGTH OF 82'
10' LT. AND 14' RT.
EXTEND R.C. PIPE
REMOVE HDWLS LT. & RT. AND
WITH HDWLS LT. & RT.
24'' X 58' R.C. PIPE CULVERT
STA. 153+87 IN PLACE
CROSS SECTION STA.155+00 TO STA. 156+00

SITE 1

EXIST.

3 :1

4 :1

0 .10 0 '/'

4 :1

3 :1

0 .10 0 '/'

4 :1

3 :1

1 0 .0 0 %  R E G I R E  R .

7 .9 0 %

3 .3 0 %

TURNOUT ON RT. = 280 CU. YDS.

REMOVE AND CONSTRUCT RT. SIDE DRAIN

34" X 24' PIPE CULVERT

STA. 155+90 IN PLACE

24' EXISTING PAVEMENT

24' EXISTING PAVEMENT

24' EXISTING PAVEMENT

24' EXISTING PAVEMENT

24' EXISTING PAVEMENT
CROSS SECTION STA. 160+33 TO STA. 160-33

BEGIN 100' TRANSITION

END SITE 1

24 EXISTING PAVEMENT

END 100' TRANSITION

STAGE 1
STAGE 2
STAGE 3

CUT AREA 0 SQ. FT.
FILL AREA 1 SQ. FT.
CUT AREA 0 SQ. FT.
FILL AREA 1 SQ. FT.
CUT AREA 0 SQ. FT.
FILL AREA 1 SQ. FT.
CUT VOLUME 0 CU. YD.
FILL VOLUME 1 CU. YD.
CUT VOLUME 0 CU. YD.
FILL VOLUME 1 CU. YD.
CUT VOLUME 0 CU. YD.
FILL VOLUME 1 CU. YD.
CUT VOLUME 0 CU. YD.
FILL VOLUME 1 CU. YD.

160-33

BEGIN 100' TRANSITION

END Site 1

EXISTING PAVEMENT

500
505
510
515
520
525
530
490
495
500
505
510
515
520
525
530
CONSTRUCT APPROACH ON RT. = 90 CU. YDS.
RT. SIDE DRAIN
18"X 40' PIPE CULVERT
STA. 196+00 INSTALL

6:1 SLOPE OFF DRIVE TURNOUT
SKEW SIDE DRAIN UNDER DRIVE
6" SWALE W/ MIN. 6:1 SIDE SLOPES

BEGIN 100' TRANSITION
END 100' TRANSITION
BEGIN SITE 2
END EXCEPTION

CROSS SECTION STA. 195+50 TO STA. 197+00
EXISTING PAVEMENT 22'
CROSS SECTION STA. 212+00 TO STA. 212+87

EXIST. PAVEMENT 22'

CONSTRUCT APPROACH = 35 CU. YDS.

LT. SIDE DRAIN 18" X 28' PIPE CULVERT REMOVE AND INSTALL

LT. SIDE DRAIN 18" X 24' PIPE CULVERT STA. 212+88 IN PLACE

EXISTING PAVEMENT
CROSS SECTION STA. 214+00 TO STA. 214+00

EXISTING PAVEMENT 22'
CROSS SECTION STA. 216+00 TO STA. 216+00

EXISTING PAVEMENT

ELEV. = 403.67
BEGIN -8.14% RT. DITCH GRADE

ELEV. = 406.50
BEGIN -7.00% LT. DITCH GRADE

SITE 2

4
0
6
.10
4
0
6
.5
0
4
0
8
.8
2
4
0
9
.2
0
4
0
9
.0
0
4
0
8
.0
4
0
7
.6
8
4
0
3
.6
7
4
0
6
.3
0
216+00

0.020'/
3:1
0.088'/
0.088'/
2:1
3:1
2:1
4:1
3:1
2:1

TOTAL SHEETS
DATE
REVISED DATE
REVISED DATE
FILMED DATE
FILMED DATE
JOB NO.
FED. AID PROJ. NO.
FED. RD.
DIST. NO.

CROSS SECTIONS

ELEVATION = 405.50
EXISTING DITCH GRADE
EXISTING PAVEMENT

ELEV. = 403.00
BEGIN -8.00% LT. DITCH GRADE
-7.00% LT. DITCH GRADE & STA. 216+50 - END

STAGE 1
STAGE 2
STAGE 3
CROSS SECTION STA.216+79 TO STA. 216+79

SITE 2

EXIST. F.L. OUTLET LT. = 393.71

30" FES = 2
30" R.C. PIPE = 236 LIN. FT.
Q50 = 28 CFS D.A. = 16.67 ACRES
WITH FES RT. (CLASS III) (TYPE 3 BEDDING)
TO A COMPLETED LENGTH OF 118'

67' RT. ON 45° RT. FWD. SKEW
EXTEND R.C. PIPE
REMOVE HDWL RT. AND
WITH HDWLS LT. & R.T.
DBL. 30" X 51' R.C. PIPE CULVERT
STA. 216+58 IN PLACE
ELEV. = 399.00
BEGIN -4.00% LT. DITCH GRADE
-8.00% LT. DITCH GRADE & STA. 217+00 - END
EXISTING PAVEMENT
22'
CROSS SECTION STA. 217+25 TO STA. 217+25

ELEV. = 393.50
BEGIN 0.00% RT. DITCH GRADE
-8.14% RT. DITCH GRADE & STA. 217+25 - END

ELEV. = 393.50
BEGIN -6.46% RT. DITCH GRADE
0.00% RT. DITCH GRADE & STA. 217+35 - END
CROSS SECTION STA. 218+82 TO STA. 218+82

F.L. INLET LT. = 392.51
F.L. OUTLET RT. = 384.00

EXISTING PAVEMENT

22'

STA. 218+82 IN PLACE
DRL. 24" X 44" R.C. PIPE CULVERT
REMOVE EXIST. PIPE & RT. DITCH
EXTEND DITCH PIPE AT RT. & LT. AND
TO A COMPLETED LENGTH OF 88'
15.468 (11.17' + 4.29' + 1.80' + 2.80')
24" R.C. PIPE = 3.69 ACRES
24" D.R. PIPE = 1.052 ACRES
24" P.G. PIPE = 0.853 ACRES

24" FES = 2
24" R.C. PIPE = 88 LIN. FT.
Q50 = 14 CFS D.A. = 3.69 ACRES
WITH FES RT. & LT.
WITH HDWLS LT. & R.T.
DBL. 24" X 44' R.C. PIPE CULVERT
STA. 218+85 IN PLACE

STA. 218+85 IN PLACE
DRL. 24" X 44" R.C. PIPE CULVERT
REMOVE EXIST. PIPE & RT. DITCH
EXTEND DITCH PIPE AT RT. & LT. AND
TO A COMPLETED LENGTH OF 88'
15.468 (11.17' + 4.29' + 1.80' + 2.80')
24" R.C. PIPE = 3.69 ACRES
24" D.R. PIPE = 1.052 ACRES
24" P.G. PIPE = 0.853 ACRES

24" FES = 2
24" R.C. PIPE = 88 LIN. FT.
Q50 = 14 CFS D.A. = 3.69 ACRES
WITH FES RT. & LT.
WITH HDWLS LT. & R.T.
DBL. 24" X 44' R.C. PIPE CULVERT
STA. 218+85 IN PLACE
CROSS SECTION STA.234+85 TO STA. 235+00

EXISTING PAVEMENT

STA. 234+85 - END
STATE SHEET NO. TOTAL SHEETS DATE REVISED DATE REVISED DATE FILMED DATE FILMED JOB NO. FED.AID PROJ.NO. FED.RD. DIST.NO.

10/06/42 061442 209 253

CROSS SECTIONS
CROSS SECTION STA. 236+00 TO STA. 237+00

SITE 2

EXISTING PAVEMENT

ELEV. = 391.43

0.09% LT. DITCH GRADE

STA. 237+00 - END

EXISTS.
CROSS SECTION STA. 238+00 TO STA. 238+35

EXISTING PAVEMENT 22'

CONSTRUCT APPROACH = 25 CU. YDS.

LT. SIDE DRAIN
18" X 28' PIPE CULVERT
REMOVE AND INSTALL
LT. SIDE DRAIN
18" X 23' PIPE CULVERT
STA. 238+35 IN PLACE
18" X 23' PIPE CULVERT
LEVEE DRAIN INSTALL
18" X 23' PIPE CULVERT
CONSTRUCT APPROACH = 25 CU. YDS.
### Table 1: Cross Section Data

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<th>Section</th>
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<th>Fill Area</th>
<th>Cut Volume</th>
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<td>28 CU YD.</td>
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<td>0 CU YD.</td>
<td>0 CU YD.</td>
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</table>

### Notes
- **EXISTING PAVEMENT**: 22'
CROSS SECTION STA. 249+60 TO STA. 251+00

EXISTING PAVEMENT

SITE 2

CONSTRUCT TURNOUT = 180 CU. YDS.
LT. SIDE DRAIN
24" X 54' PIPE CULVERT
REMOVE AND INSTALL
LT. SIDE DRAIN
24" X 49' PIPE CULVERT
STA. 249+60 IN PLACE
CROSS SECTION STA.672+00 TO STA. 673+87

ELEV. = 417.00

-0.85% LT. DITCH GRADE

STA. 673+50 - BEGIN

EXIST.

EXIST.

EXIST.

EXIST.

-4.31% RT. DITCH GRADE & STA. 673+00 - END

10/2019

061442 224 253

1/2 0

19

4 2

D G N

ELEV. = 428.25

0.020'/0.100'

0.020'/0.100'

20'

EXISTING PAVEMENT

REFERENCES

SIDE 3

TOTAL SHEETS

DATE

REVISED DATE

REVISED DATE

FILMED DATE

FILMED DATE

FED. RD.

DIST. NO.

FED. AID PROJ. NO.

JOB NO.
CROSS SECTION STA. 677+00 TO STA. 679+00

10.00% 1.98% 6.01%
15.00%

APPROACH ON RT. = 410 CU. YDS.
STA. 677+08 CONSTRUCT EXIST.

EXIST. 4

9.0 1

17.4 3

19.3 4

21.2 6

23.0 7

3 :1 6 :1 0.100 /
3 :1 6 :1 0.100 /
3 :1 6 :1 0.072 /
3 :1 6 :1 0.072 /
3 :1 6 :1 0.043 /
3 :1 6 :1 0.043 /
3 :1 6 :1 0.043 /
3 :1 6 :1 0.043 /
3 :1 6 :1 0.043 /
3 :1 6 :1 0.043 /
3 :1 6 :1 0.043 /

CROSS SECTION STA. 714+00 TO STA. 715+00

ELEV. = 370.00
-0.10% RT. DITCH GRADE
STA. 714+00 - BEGIN

EXIST. F.L. INLET LT. = 375.57

EXISTING PAVEMENT

STA. 714+00 - END

EXISTING PAVEMENT
CROSS SECTION STA. 715+04 TO STA. 716+00

EXIST. F.L. OUTLET RT. = 374.09
F.L. INLET LT. = 372.64

SITE 4

EXIST. 3
7.0.8
1

3
69.0
2

3
7.6
.8
9

3
7.2
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4

3
7.9
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0.072'/
3:1
4:1
0.100'/
0.100'/
4:1
3:1
0.000'/
3:1

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3
6.9
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0

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6.9
.9
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3
7.3
.8
8

0.044'/
3:1
4:1
0.100'/
0.100'/
4:1
3:1
0.000'/
3:1

24" F.E.S = 2 EACH
24" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 68 LIN. FT.
CULVERT CLEAN OUT = 1 EACH
Q50 = 14 CFS D.A. = 8.80 ACRES
W/FES LT. & RT.
ON 15° RT. FWD. SKEW
24"X 68' PIPE CULVERT
STA. 715+10 - INSTALL
EXISTING PAVEMENT 20'

STA. 715+04 - END
3.53% LT. DITCH GRADE
STA. 715+23 - END
3.53% LT. DITCH GRADE

STA. 715+75 - END
BEGIN 0.44% LT. DITCH GRADE
3.53% LT. DITCH GRADE

STA. 715+04 - END
BEGIN 3.53% LT. DITCH GRADE
-5.83% LT. DITCH GRADE

0.004'/
0.000'/
0.000'
CROSS SECTION STA. 721+79 TO STA. 722+00

EXISTING PAVEMENT

20'

STA. 721+77 CONSTRUCT
APPROACH ON R.T. + 5 CU. YDS.

STA. 721+79 CONSTRUCT
APPROACH ON R.T. + 5 CU. YDS.
CROSS SECTION STA. 967+71 TO STA. 968+00

SITE 5

9.80% DRIVE

310 315 320 325 330 335 340 345 350 355 360

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

310 315 320 325 330 335 340 345 350 355 360

UNCL. EXC. = 300 CU. YDS.
CONSTRUCT APPROACH = 15 CU. YDS.
LT. SIDE DRAIN
24" X 32' PIPE CULVERT
STA. 967+71 INSTALL

22' EXISTING PAVEMENT
CROSS SECTION STA. 972+00 TO STA. 972+10

APPROACH = 5 CU. YDS.
RETAIN & CONSTRUCT
RT. SIDE DRAIN
24" X 40' PIPE CULVERT
STA. 972+10 IN PLACE
EXIST. F.L. INLET LT. = 293.24
EXIST. F.L. OUTLET RT. = 293.24

F.L. OUTLET RT. = 293.00

SITE 5

285 290 295 300 305 310 315 320 325 330

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

-10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

CROSS SECTION STA. 973+00 TO STA. 973+45
ELEV. = 298.59
-15.97% RT. DITCH GRADE

STA. 973+00 - BEGIN
ELEV. = 293.00
BEGIN 0.00% RT. DITCH GRADE
-15.97% RT. DITCH GRADE &
STA. 973+35 - END

ELEV. = 293.00
BEGIN 10.04% RT. DITCH GRADE
0.00% RT. DITCH GRADE &
STA. 973+55 - END

0.086/'

0.100/'

4:1

3:1

3:1

2973+45

0.086/'

0.100/'

4:1

3:1

3:1

2973+00

0.086/'

0.100/'

4:1

3:1

3:1

2973+00

293.24

293.24

293.00

293.00

293.00

298.59

Q50 = 271 CFS D.A. = 285.69 ACRES
WITH 3:1 WING RT.
TO A COMPLETED LENGTH OF 50'
RETAIN & EXTEND 12' RT.
10' X 10' X 38' R.C. BOX CULVERT
STA. 973+45 IN PLACE

22' EXISTING PAVEMENT

22' EXISTING PAVEMENT
CROSS SECTION STA. 974+00 TO STA. 974+48

ELEV. = 297.52

10.04% RT. DITCH GRADE

STA. 974+00 - END

0.100' / 3:1

4:1

22' EXISTING PAVEMENT

CONSTRUCT TURNOUT = 375 CU. YDS.

RT. SIDE DRAIN
60" X 68' PIPE CULVERT

REMOVE AND INSTALL
58" X 40' PIPE CULVERT

STA. 974+48 INPLACE
CROSS SECTION STA. 979+00 TO STA. 979+18

CONSTRUCT APPROACH = 10 CU. YDS. LT. SIDE DRAIN
18" X 42' PIPE CULVERT
REMOVE AND INSTALL LT. SIDE DRAIN
18" X 24' PIPE CULVERT
STA. 979+18 IN PLACE

STA. 979+00 PLAIN AT 3' STONE CULVERT
LISSED OUT
REMOVAL AND INSTALLATION
18" X 24' PIPE CULVERT
CONSTRUCT APPROACH = 10 CU. YDS.
CROSS SECTION STA. 981+90 TO STA. 982+00

STA. 981+90 IN PLACE
60' X 5' 39.25" CULVERT
WITH SWAGES LT. & RT.
REMOVING EXISTING PAVEMENT
TO A COMPLETED LENGTH OF 53'
600' X 98.63' S.A. X 0.79' ARES

EXIST. F.L. INLET LT. = 315.11
EXIST. F.L. OUTLET RT. = 314.71
EXIST. F.L. OUTLET LT. = 314.97
SITE 5

APPROACH = 5 CU. YDS.
RETAIN AND CONSTRUCT
RT. SIDE DRAIN
42" X 28" X 26' ARCH PIPE CULVERT
STA. 986+19 IN PLACE

CROSS SECTION STA. 986+00 TO STA. 987+00
GENERAL NOTES:

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

2. ROCK EXCAVATION WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION TOE WALL DETAIL FOR CONCRETE DITCH PAVING may be altered to 1'-0" TOE WALL DEPTH MAY BE ALTERED TO 1'-0"

3. "W" DIMENSIONS TOE WALL DETAIL FOR CONCRETE DITCH PAVING FOR "W" DIMENSIONS REFER TO TABULATION OF QUANTITIES FOR "W" & "B" DIMENSIONS REFER TO TABULATION OF QUANTITIES

4. THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

7. 1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 30' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

9. FOR "W" & "B" DIMENSIONS REFER TO TABULATION OF QUANTITIES

TYPE A

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

SOLID SODDING.

DITCH PAVING AND LINES TO CONSTRUCT EXCAVATE TO NEAT SLOPE: VARIABLE

TYPE B

SOLID SODDING.

DITCH PAVING AND LINES TO CONSTRUCT EXCAVATE TO NEAT SLOPE: VARIABLE

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

SOLID SODDING.
TABLE OF DIMENSIONS

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<th>DIA.</th>
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<th>C</th>
<th>D</th>
<th>E</th>
<th>DIA.</th>
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<th>S-1</th>
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**ARCH PIPE**

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**CIRCULAR PIPE**

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**C.M. ARCH PIPE**

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**MULTIPLE R.C. PIPE CULVERTS**

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**MULTIPLE C.M. PIPE CULVERTS**

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<td>1:20</td>
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**NOMINAL**

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<tr>
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<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>DIA.</th>
<th>P</th>
<th>R-2</th>
<th>S-1</th>
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**MULTIPLE C.M. PIPE CULVERTS**

<table>
<thead>
<tr>
<th>SLOPE</th>
<th>END VIEW</th>
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<tbody>
<tr>
<td>1:2</td>
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<td>1:19</td>
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<td>1:20</td>
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</tr>
</tbody>
</table>

**END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS**

NOTES:
- ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MORE SUITABLE TO THE APPROVAL OF THE ENGINEER.
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

METHODS OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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

GARDAIL DETAILS

ARKANSAS STATE HIGHWAY COMMISSION

GUARDAIL DETAILS

STANDARD DRAWING #8
DETAILS OF WIDENING FOR GUARDRAIL

SECTION A-A

METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

END TERMINAL

GUARDRAIL

SECTION B-B

NOTES:
NORMAL SECTION TO EACH SIDE TO SUPPORT GUARDRAIL.

GUARDRAIL DETAILS

STANDARD DRAWING CR-9

ARKANSAS STATE HIGHWAY COMMISSION
GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CONCRETE BOX CULVERTS AND THE WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CONCRETE BOX CULVERTS.

 lean-grout. See General Notes. The lean-grout shall be a mixture of Type I Portland cement, fine aggregate and water. The lean-grout shall be placed in 1-foot lifts, tamped around the box to thoroughly fill all voids.

The sand-cement mixture shall consist of not less than 1.5 sacks of Portland cement per ton of material mixture. The sand-cement mixture shall consist of not less than 1.5 sacks of Portland cement per ton of material mixture.

The sand-cement mixture shall contain sufficient water to hydrate the cement. The sand-cement mixture shall contain sufficient water to hydrate the cement.

The sand cement mixture shall consist of not less than 1.5 sacks of Portland cement per ton of material mixture. The sand cement mixture shall consist of not less than 1.5 sacks of Portland cement per ton of material mixture.
CONSTRUCTION SEQUENCE

1. Place structural backfill and structural bedding material, compact.
   - Structural backfill shall be compacted to "twice the minimum unconfined compressive strength of the structural backfill material." The minimum unconfined compressive strength of the structural backfill material shall be determined in accordance with Section 2.5 of this manual. The structural backfill material shall be placed and compacted to a height not less than the height of the pipe plus the "minimum unconfined compressive strength of the structural backfill material." The structural backfill material shall be placed and compacted to a height not less than the height of the pipe plus the "minimum unconfined compressive strength of the structural backfill material.

2. Place structural bedding material, compact.
   - Structural bedding material shall be compacted to "twice the minimum unconfined compressive strength of the structural bedding material." The minimum unconfined compressive strength of the structural bedding material shall be determined in accordance with Section 2.5 of this manual. The structural bedding material shall be placed and compacted to a height not less than the height of the pipe plus the "minimum unconfined compressive strength of the structural bedding material." The structural bedding material shall be placed and compacted to a height not less than the height of the pipe plus the "minimum unconfined compressive strength of the structural bedding material.

3. Place fill material, compact.
   - Fill material shall be compacted to "twice the minimum unconfined compressive strength of the fill material." The minimum unconfined compressive strength of the fill material shall be determined in accordance with Section 2.5 of this manual. The fill material shall be placed and compacted to a height not less than the height of the pipe plus the "minimum unconfined compressive strength of the fill material." The fill material shall be placed and compacted to a height not less than the height of the pipe plus the "minimum unconfined compressive strength of the fill material."
**GENERAL NOTES**

1. PVC shall conform to AASHTO 36. PVC COMMUNITY PIPE INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISIONS.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION.
3. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE; DO NOT COMPACT.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN MULTIPLE INSTALLATION OF PVC PIPES.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
6. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
7. PVC PIPES SHALL MEET THE REQUIREMENTS FOR USE DESIGNED AS SPECIFIED IN AASHTO LRFD BRIDGE.
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.

GENERAL NOTES
1. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2010).
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H" (FEET)

<table>
<thead>
<tr>
<th>H</th>
<th>Type 1</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>H &lt; 10'</td>
<td>W1</td>
<td>W2</td>
</tr>
<tr>
<td>H ≥ 10'</td>
<td>W3</td>
<td>W4</td>
</tr>
</tbody>
</table>

MINIMUM TRENCH WIDTH (FEET)

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.
CONCRETE PAVEMENT

BROKEN LINE STRIPING

SOLID LINE STRIPING ON CONCRETE PAVEMENT

SOLID LINE STRIPING ON ASPHALT PAVEMENT

ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

YIELD LINE DETAIL

CROSSWALK AND STOP LINE DETAILS

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.”
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1
**NOTES FOR PIPE UNDERDRAINS**

1. Geotextile fabric shall meet the requirements of Section 625 for Type 1. Payment for geotextile fabric and granular filter material shall be included in the price bid for 4" pipe underdrains. Payment for 4" pipe underdrains will be measured and paid for the unit in accordance with Section 625 for Schedule 40 pipe.

2. The location of all laterals shall be marked with 4"x12" permanent pavement marking tape (Type III White) at the outer edge of the shoulder placed transverse to traffic. Payment for this work shall be included in the price bid for the various contract items.

3. Existing 4" pipe laterals may be connected to proposed drop inlets or extended where directed by the engineer. Payment for connecting to drop inlets shall be considered included in the price bid for 4" pipe underdrains. Payment for 4" pipe underdrains will be measured and paid for the unit in accordance with Section 625 for Schedule 40 pipe.

4. The location of all laterals shall be marked with 4"x12" permanent pavement marking tape (Type III White) at the outer edge of the shoulder placed transverse to traffic. Payment for this work shall be included in the price bid for the various contract items.

5. Any existing underdrains that interfere with the installation of the new underdrain system shall be removed and disposed of as directed by the engineer. Payment for the removal and disposal of existing underdrain outlets shall be included in the price bid for the various contract items. Existing underdrain outlet protectors shall be removed under the shear removal and disposal of underdrain outlet protectors.

6. Any existing underdrains that interfere with the installation of the new underdrain system shall be removed and disposed of as directed by the engineer. Payment for the removal and disposal of existing underdrain outlet protectors shall be included in the price bid for the various contract items. Existing underdrain outlet protectors shall be removed under the shear removal and disposal of underdrain outlet protectors.

7. At locations where a single lateral is used, the contractor shall have the following options: Install outlet protector as shown on the standard drawing. Provide a 1" diameter outlet protector with a single hole. Provide 4" outlet protector with a single hole.

8. The location of all laterals shall be marked with 4"x12" permanent pavement marking tape (Type III White) at the outer edge of the shoulder placed transverse to traffic. Payment for this work shall be included in the price bid for the various contract items.

9. Geotextile fabric shall meet the requirements of Section 625 for Type 1. Payment for geotextile fabric and granular filter material shall be included in the price bid for 4" pipe underdrains. Payment for 4" pipe underdrains will be measured and paid for the unit in accordance with Section 625 for Schedule 40 pipe.
**STEEL FABRICATION**

**REINFORCING STEEL FABRICATION** shall 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>3/8&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>4</td>
<td>3/4&quot;</td>
<td>4.5&quot;</td>
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<tr>
<td>5</td>
<td>7/8&quot;</td>
<td>5&quot;</td>
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<tr>
<td>6</td>
<td>1&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>7</td>
<td>1 1/4&quot;</td>
<td>7.5&quot;</td>
</tr>
<tr>
<td>8</td>
<td>1 1/2&quot;</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>

If the overall height of the hook (see diagram below) for a "b", "b1", "b2" or "b3" bent bar is greater than the corresponding top or bottom slab thickness plus 2 1/2 inches, each bent bar shall be replaced with a straight or hooked bar, using lengths as shown in the table below. The two bars shall be the same diameter as and placed at the same spacing as the "b", "b1", "b2" or "b3" bent bars they replace.

**NOTE:** Dimensions of bars are measured out to out of bars.

**OVERALL HEIGHT OF HOOKED BAR DIAGRAM**

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 box 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;b&quot;</td>
<td>L = L - 1.5&quot;</td>
<td>see &quot;c&quot; bar length</td>
</tr>
<tr>
<td>&quot;b1&quot;</td>
<td>L = L - 2&quot;</td>
<td>see &quot;c&quot; bar length</td>
</tr>
<tr>
<td>&quot;b2&quot;</td>
<td>L = L - 3&quot;</td>
<td>see &quot;c&quot; bar length</td>
</tr>
<tr>
<td>&quot;b3&quot;</td>
<td>L = L - 4&quot;</td>
<td>see &quot;c&quot; bar length</td>
</tr>
</tbody>
</table>

**VERTICAL FABRIC ALTERNATE**

**WINGWALL & CULVERT DRAINAGE DETAIL**

**REINFORCED CONCRETE BOX CULVERT GENERAL NOTES**

Concrete shall be Class S with a minimum 28 day compressive strength of 3500 psi. Reinforcing steel shall be ASTM 416M, Grade 60.

Construction and materials for wingwall & culvert drainage, including weep holes and granular material, shall be subject to the R.C. Box Culvert General Notes and Details for Wingwall & Culvert Drainage. Refer to the R.C. Box Culvert General Notes and Details for Wingwall & Culvert Drainage. The requirements shown on this drawing shall supersede the corresponding requirements on all reinforced concrete box culvert standard drawings.

**REINFORCED CONCRETE BOX CULVERT HEADWALL MODIFICATIONS**

**REINFORCED CONCRETE BOX CULVERT DETAILS**

**ARKANSAS STATE HIGHWAY COMMISSION**

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

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

SECTION B-B
DETAILS FOR NEW CHANNELS

SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

EXISTING CHANNEL

NEW CHANNEL

FLOW LINE

EXCAVATION

STRUCTURAL

EXISTING CHANNEL

NEW CHANNEL

REGIONAL BOX CULVERT

PLAN

SECTION A-A

SECTION B-B

SECTION C-C

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.
PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 & METHOD 2.

**GENERAL NOTES**

THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.

IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PROVIDE FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.

REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.

ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON, THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE SO AS TO ALLOW FOR REMOVAL OF ALL OLD CONCRETE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 1505.03 OF THE STANDARD SPECIFICATIONS.

DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING IS TO BE APPROVED BY THE ENGINEER, THE DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING IS TO BE APPROVED BY THE ENGINEER, AND SURROUNDS THE BARS AND FILLS THE HOLES.

THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1 OR METHOD 2.
### GENERAL NOTES

1. ON PAVEMENT 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 TO PERMIT SIMPLER CALCULATIONS.

3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT.

4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:
   - **3 LANE UNDIVIDED**: +20%
   - **4 LANE UNDIVIDED**: +50%
   - **5 LANE UNDIVIDED**: +80%
   - **6 LANE UNDIVIDED**: +100%

5. MAXIMUM SUPERELEVATION OUTSIDE PAVEMENT OR SUBGRADE EDGE

### ABBREVIATIONS

- **NC**: Normal Crown
- **RC**: Reverse Crown, Superelevation at Normal Crown Slope
- **L**: Distance from Beginning of Superelevation Transition to any point (Ft.)
- **d**: Width of Pavement
- **Ls**: Length of Superelevation Transition (Ft.)
- **C**: Normal Crown (Ft.)
- **e**: Rate of Superelevation (Ft. Per Ft.)
- **A**: Rate of Outer Subgrade Profile (Ft. Per Ft.)
- **B**: Rate of Inner Subgrade Profile (Ft. Per Ft.)

### ADDED FORMULA

\[ \text{Superioration for Two-Way Traffic} = \frac{L_{de}}{Ls} \]

### ISSUED DATE

5-34-1-9-87

### DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

### REVISION

### TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

#### SUPERELEVATION TABLE FOR TWO-WAY TRAFFIC

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>30 MPH</th>
<th>40 MPH</th>
<th>50 MPH</th>
<th>60 MPH</th>
<th>70 MPH</th>
<th>80 MPH</th>
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</thead>
<tbody>
<tr>
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<td>MIN 4S</td>
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<td>MIN 4S</td>
<td>MIN 4S</td>
</tr>
</tbody>
</table>

### SUPERELEVATION

- **Normal Crown**
- **Reverse Crown: Super-elevation at normal crown slope**
- **Rate of Super-elevation (Ft. Per Ft.)**
- **Rate of Outer Subgrade Profile (Ft. Per Ft.)**
- **Rate of Inner Subgrade Profile (Ft. Per Ft.)**

### STANDARDS

- Uniformly Increasing Super-elevation
- Uniformly Decreasing Super-elevation

### OUTSIDE SUBGRADE EDGE

- Maximum Super-elevation
- Outside Pavement or Subgrade Edge

### INSIDE SUBGRADE EDGE

- Outer Subgrade Edge
- Inside Pavement or Subgrade Edge

### PROFILE

- Control Point
- Notes: Maintain normal crown on edges until super-elevation exceeds 12 ft.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

3. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.

4. L = \frac{S \times W}{\sqrt{2}}

5. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED.

6. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA, THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS.

7. CHANGEABLE MESSAGE SIGNS SHALL BE DELINATE BY AFFIXING REFLECTOR PRISMATIC MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE SIGN.

8. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER FORMULAE: S = \sqrt{\frac{L}{2}}

9. CHANNELIZING DEVICES ARE TO BE EXTENDED IN A TAPER FORMULAE: L = \sqrt{\frac{S}{2}}

10. TRAFFIC LIGHTS AND/OR FLAGS MAY BE MOUNTED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA, THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS.

11. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER FORMULAE: S = \sqrt{\frac{L}{2}}

12. CHANNELIZING DEVICES ARE TO BE EXTENDED IN A TAPER FORMULAE: L = \sqrt{\frac{S}{2}}

13. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER FORMULAE: S = \sqrt{\frac{L}{2}}

14. CHANNELIZING DEVICES ARE TO BE EXTENDED IN A TAPER FORMULAE: L = \sqrt{\frac{S}{2}}
**General Notes**

- 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (See Barrier Stabilization Detail - Bridge Decks Std. Drwg. TC-4).

- **Offset Distance for Two Way Traffic Only**

  Offset Distance Table

<table>
<thead>
<tr>
<th>Speed</th>
<th>Offset Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 15 MPH</td>
<td>4 - 18 FT</td>
</tr>
<tr>
<td>15 - 20 MPH</td>
<td>4 - 18 FT</td>
</tr>
<tr>
<td>&gt; 20 MPH</td>
<td>&gt; 18 FT</td>
</tr>
</tbody>
</table>

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

**Barrier Placement Along Roadway With Offset**

<table>
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<tr>
<th><strong>Offset Distance</strong></th>
<th><strong>Traffic</strong></th>
<th><strong>Special End Unit</strong></th>
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<tbody>
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<td>Traffic Lane</td>
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**Barrier Placement Along Bridge With Offset**

<table>
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<th><strong>Offset Distance</strong></th>
<th><strong>Traffic</strong></th>
<th><strong>Special End Unit</strong></th>
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<td>Traffic Lane</td>
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**Barrier Placement With Attenuator**

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<th><strong>Offset Distance</strong></th>
<th><strong>Traffic</strong></th>
<th><strong>Special End Unit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Lane</td>
<td>Either Way</td>
<td>Traffic Lane</td>
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</table>

**General Notes**

- When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with a Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

**Special End Unit**

- With Attenuator

**Section J-J**

- No Scale

**Barrier Placement**

- No Scale

**ARARKANS STATE HIGHWAY COMMISSION**

- Standard Traffic Controls - Temporary Precast Barrier

- Standard Drwg. TC-5
EXCAVATION

GENERAL NOTE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.

EMBANKMENT

GENERAL NOTE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, ETC.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE FINAL PHASE EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.

NOTE:

1. CONSTRUCTION SEQUENCE FOR THREE PHASES SHOWN FOR ILLUSTRATION. NUMBER OF PHASES WILL VARY. THREE PHASES SHOWN FOR ILLUSTRATION.
2. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MAINTAINED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET MEASURED VERTICALLY.
3. THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET MEASURED VERTICALLY.
4. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
5. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
6. SLOPE IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
7. EMBANKMENTS WILL BE KEPT TO THE MINIMUM REQUIRED TO SUPPORT TEP CORE.

NOTE:

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

GENERAL NOTE

Erosion Control Devices

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, ETC.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE FINAL PHASE EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.

CONSTRUCTION SEQUENCE

1. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
2. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
3. PLACE FINAL PHASE EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING.
4. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

NOTE:

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### ARKANSAS STATE HIGHWAY COMMISSION

**DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX COULTERS**

**SHALLES, DUOBARS, TRIPLETS, QUADRUPOLES & QUINTUPLES**

**FOR H-8-6 OR LESS**

**STANDARD DRAWING NO. W-3003-1**

---

#### BAR LIST FOR ONE WING - 9 REQUIRED

<table>
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<tr>
<th>Class</th>
<th>Heading</th>
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#### CLASS 5 CONCRETE

**GENERAL NOTES:**
- Concretes for class 5, and shall be placed in the usual manner with the voids filled with approved concrete to have the necessary specified strength.
- Reinforcing bars shall be of high-strength reinforcing steel conforming to the standard specifications for high-strength reinforcing steel, A-615, and shall be of the specified size, shape, and form, in accordance with the requirements of the specifications for high-strength reinforcing steel.

---

#### QUANTITIES

**CLASS 5 CONCRETE - 9 REQUIRED**

<table>
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<tr>
<th>Description</th>
<th>Quantity</th>
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#### SECTION A-A

- Plan of Wing - Showing Wing Plan
- End Elevation of Wing - Showing Bathroom Fixtures
- Details of Wing - Showing Fixtures
- Details of Bathroom Fixtures
- Details of Wing - Showing Fixtures
- Details of Bathroom Fixtures
- Details of Wing - Showing Fixtures
- Details of Bathroom Fixtures
- Details of Wing - Showing Fixtures
- Details of Bathroom Fixtures

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#### SECTION B-B

- Plan of Wing - Showing Cutting Plan
- Sections and Details
- Details of Wing - Showing Cutting Plan
- Sections and Details
- Details of Wing - Showing Cutting Plan
- Sections and Details
- Details of Wing - Showing Cutting Plan
- Sections and Details
- Details of Wing - Showing Cutting Plan
- Sections and Details

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#### SECTION C-C

- Plan of Wing - Showing Cutting Plane
- Sections and Details
- Details of Wing - Showing Cutting Plane
- Sections and Details
- Details of Wing - Showing Cutting Plane
- Sections and Details
- Details of Wing - Showing Cutting Plane
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- Details of Wing - Showing Cutting Plane
- Sections and Details
### Table: Bar List for Barrel-Section 40'-0" in Length

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<th>Bar Size</th>
<th>2 Bars</th>
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#### Typical Section M-M

**General Notes:**
- Concrete: All concrete to be Class B, and shall be poured in the day.
- Reinforced concrete to conform to AASHTO Spec No. 14. 
- All specifications to be met including longitudinal and transverse reinforcement of at least 1.0% of the gross area of transverse reinforcement of at least 1.0% of the gross area of the barrel section.

**Concrete:** Concrete shall meet all requirements of the Arkansas State Highway Commission Standard Specifications for Highway Construction and approved Special Provisions.

**Design Live Load:**
- Load Factors: 1.65 for 30-kips truck
- Load Allowables: 70 kips
- Unit Weight:
  - Concrete: 145 lbs/cuft
  - Reinforcing Steel: 790 lbs/cuft

**Calculation:** All calculations to be done in accordance with Standard Drawing No. RB-1000-0.

---

**Class C Concrete:**

**Details of Standard Barrel Sections:**

- Reinforced Concrete Box Culverts
- 60' and 70'-0" Spans
- 45° and 45° Slopes
- Under 8'-0" Cover

**Standard Drawing No.: RB-1000-0**