## INDEX OF SHEETS

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## ROADWAY STANDARD DRAWINGS

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<td>FLARED END SECTION</td>
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<td>TEMPORARY EROSION CONTROL DEVICES</td>
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<td>TEC-3</td>
<td>TEMPORARY EROSION CONTROL DEVICES</td>
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GOVERNING SPECIFICATIONS
ARKANSAS HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER | TITLE
--- | ---
ERRATA | ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273 | REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY, NOTICE TO CONTRACTORS
FHWA-1273 | SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 149)
FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273 | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273 | SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273 | SUPPLEMENT - WAGE RATE DETERMINATION
100-3 | CONTRACTORS LICENSE
100-4 | DEPARTMENT NAME CHANGE
102-2 | ISSUANCE OF PROPOSALS
108-1 | LIQUIDATED DAMAGES
108-2 | WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
305-1 | AGGREGATE BASE COURSES
306-1 | QUALITY CONTROL AND ACCEPTANCE
400-1 | TACK COATS
400-4 | DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5 | PERCENT AIR Voids FOR AC/HH MIX DESIGNS
400-6 | LIQUID ANTISTRIP ADDITIVE
410-1 | CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2 | DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
505-1 | PORTLAND CEMENT CONCRETE DRUMWAY
605-2 | INCIDENTAL CONSTRUCTION
606-1 | RETROREFLECTIVE SHIELDING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1 | CONCRETE DITCH PAVING
606-1 | PIPE CULVERTS FOR SIDE DRAINS
630-1 | MULCH COVER
631-1 | FILTER SOCKS
632-1 | CONCRETE ISLAND
633-1 | CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
654-1 | CURBING
700-2 | TRAFFIC CONTROL FACILITIES
JOB 110653 | ACTUATED CONTROLLER
JOB 110653 | ANTENNA SUPPORT
JOB 110653 | BIDDING REQUIREMENTS AND CONDITIONS
JOB 110653 | BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 110653 | CABINET DRAWER ASSEMBLY
JOB 110653 | CARGO PREFERENCE ACT REQUIREMENTS
JOB 110653 | CCU, VERT CLEAN OUT
JOB 110653 | DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 110653 | EDGE CARD VIDEO PROCESSOR
JOB 110653 | ELECTRICAL CONDUCTORS FOR LUMINARIES
JOB 110653 | ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 110653 | GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 110653 | LED LUMINARIES ASSEMBLY (BUG U/O TYPE)
JOB 110653 | LED TRAFFIC SIGNAL HEAD
JOB 110653 | MANDATORY ELECTRONIC CONTRACT
JOB 110653 | MANDATORY ELECTRONIC DOCUMENT SUBMITAL
JOB 110653 | PORTABLE DATA TERMINAL
JOB 110653 | PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 110653 | SETTLEMENT AGREEMENTS
JOB 110653 | SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 110653 | SHORING FOR CULVERTS
JOB 110653 | SOL STABILIZATION
JOB 110653 | SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 110653 | SYSTEM LOCAL CONTROLLER
JOB 110653 | THERMOPLASTIC PAVEMENT MARKING (YIELD LINE)
JOB 110653 | UTILITY ADJUSTMENTS
JOB 110653 | VIDEO DETECTOR (COLOR)
JOB 110653 | WARM MIX ASPHALT
JOB 110653 | WELLS/HEAD PROTECTION

GENERAL NOTES

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

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

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

4. THE CONTRACTOR 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 SPARING 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 LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERE, WIRE FENCE MAY BE CONSTRUCTED INITIALY OR IN SUCH MANNER AS THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.

8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.

9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 315 - UNCLASSIFIED EXCAVATION.

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

TYPICAL SECTION OF IMPROVEMENT
STA. 100+00.00 - STA. 105+63.73

NOTES:
- REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES MAY BE MADE FROM THE DRAWN SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
- PRIOR TO AND DURING PLACEMENT OF PAVEMENT, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAGgings AT ALL TIMES
- ALL WORK TO BE APPROVED BY THE ENGINEER. FAILURE TO DO SO MAY RESULT IN ADJUSTMENTS TO THE PRICE AS INDICATED FOR THE VARIOUS CONTRACT ITEMS.
- THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AEROSOIL COURSES ARE LAID AND焼き.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY A RAK. THE REMAINING PAVEMENT TO BE CLEANED AND SATISFACTORY TO THE ENGINEER. THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE MALTS AT 40'-0" INTERVALS.

TYPICAL SECTIONS OF IMPROVEMENT
STA. 105+63.73 - STA. 110+54.71

TYPICAL SECTIONS OF IMPROVEMENT

STA. 105+63.73 - STA. 110+54.71

TYPICAL SECTIONS OF IMPROVEMENT
6" X 12" MESH FABRIC (TYPE 3) (95.5 X 90.9) = 4.26 LBS./SQ. YD.

NOTES:
1. LAP MESH FABRIC 4' X 12' LONGITUDINALLY AND 6' X 6' TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12'.
3. MESH FABRIC TYPE 3 WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE @ 100% PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (6' UL.T. AND 5' UL.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)

ADHAR SURFACE COURSE (3' 6"
200 LBS. PER SQ. YD.

EXISTING PAVEMENT MILL AND HAY

PROPOSED LANE

(Please see typical section)

11" NOTCH

PORTLAND CEMENT CONCRETE BASE

P.C.C. BASE WIDENING DETAIL

P.C.C. BASE WIDENING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

EXISTING CONCRETE BARRIER WALL

R=300'

6" SOLID YELLOW THERMOPLASTIC PAVEMENT MARKING

CONCRETE ISLAND WITH TYPE C CURB FACE = 107 SQ. YD.

CONCRETE ISLAND WITH TYPE C CURB FACE = 295 SQ. YD.

50' 05'

SPEC DETAIL

ISLAND DETAILS

TYPE C CURB FACE

STA 105+72.86 HWY. 118

STA 40+00. 00 W. SERVICE ROAD

A = 84° 50' 05"
PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

TOP VIEW
NO. 4 BARS AT 12" HORIZONTAL SPACING

MIN 3" COVER

FRONT VIEW
NO. 4 BARS AT 12" VERTICAL SPACING

SIDE VIEW
NO. 4 BARS AT 12" VARIABLE HEIGHT

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

TOP VIEW
NO. 4 BARS @ 12" HORIZONTAL SPACING

MIN 3" COVER

FRONT VIEW
NO. 4 BARS @ 12" VERTICAL SPACING

SIDE VIEW
NO. 4 BARS @ 12" VARIABLE HEIGHT

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

SPECIAL DETAILS
STA 100.00.00
BEGIN JOB 110653
LOG MILE 3.38
ADVANCE WARNING 1-40 EB EXIT RAMP (STAGES 1 & 2)

ADVANCE WARNING HWY. 118 (STAGES 1 & 2)

ADVANCE WARNING W. SERVICE RD. (STAGES 1 & 2)

ADVANCE WARNING HWY. 118 (STAGES 1 & 2)
DRIVEWAY/TRAFFIC DRUM DETAIL

SEQUENCE OF CONSTRUCTION

STAGE 1:
CONSTRUCT RIGHT SIDE OF HWY. 118
STA. 100.00.00 - STA. 105.72.86
CONSTRUCT STORM DRAIN ON RIGHT
CONSTRUCT DRIVE ON RIGHT
STA. 102+29.00
EXTEND DBL. R.C. PIPE CULVERT ON RIGHT
STA. 103+67.00

STAGE 2:
REMOVE CONCRETE ISLANDS AND CURBING ON LEFT
STA. 105+02.00 - STA. 105+72.00
CONSTRUCT CONCRETE ISLANDS WITH TYPE C CURBING ON LEFT
STA. 105+06.00 - STA. 105+71.00

STAGE 3:
MILL AND INLAY ROADWAY FROM STA. 100.00.00 - 104+80.00
INSTALL CONSTRUCTION PAVEMENT MARKINGS FROM STA. 100+00.00 - 104+80.00
INSTALL CONSTRUCTION PAVEMENT MARKINGS FROM STA. 104+80.00 - 111+54.71
PLACE FINAL 2" OF SURFACE COURSE
INSTALL PERMANENT PAVEMENT MARKINGS
STA 100.00.00
BEGIN JOB 110653
LOG MILE 3.57

TRAFFIC DRUMS - 7 EACH
20' O.C. ON SERVICE RD.

END JOB 110653
STA 111.54.71

MAINTENANCE OF TRAFFIC DETAILS
STA. 100.00.00
BEGIN JOB 110653
LOG MILE 3.57

STA. 111.54.71
END JOB 110653
### Advance Warning Signs and Devices

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<tr>
<th>SIGN NUMBER</th>
<th>DESCRIPTION</th>
<th>SIGN SIZE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>MAXIMUM NUMBER REQUIRED</th>
<th>TOTAL SIGNS REQUIRED</th>
<th>TRAFFIC DRUMS</th>
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<tr>
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<td>VS0-1</td>
<td>ROAD WORK AHEAD</td>
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**TOTALS:** 160.0 40

*Note: This is a high traffic volume road as defined in Section 604.03, Standard Specifications for Highway Construction.*

### Construction Pavement Markings and Permanent Pavement Markings

<table>
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<th>DESCRIPTION</th>
<th>STAGE 2</th>
<th>END OF JOB</th>
<th>CONSTRUCTION PAVEMENT MARKINGS</th>
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<th>CONSTRUCTION PAVEMENT MARKINGS (ARROWS)</th>
<th>RAISED PAVEMENT MARKERS</th>
<th>THERMOPLASTIC PAVEMENT MARKING</th>
<th>REFLECTORIZED PAINT PAVEMENT MARKING</th>
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<td>LIN. FT. EACH</td>
<td>LIN. FT. EACH</td>
<td>LIN. FT. EACH</td>
<td>WHEELS</td>
<td>ARROWS</td>
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**TOTALS:** 4607 2 4 46 34 3485 4255 122 24 6 411

*Note: This is a high traffic volume road as defined in Section 604.03, Standard Specifications for Highway Construction.*

### Asphalt Concrete Patching for Maintenance of Traffic

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<th>LOCATION</th>
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<th>TACK COAT</th>
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**TOTALS:** 3 0

*Note: Quantity estimated. See Section 104.03 of the STD. Specs.*

### ACIM Patching of Existing Roadway

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**TOTAL:** 25

*Note: Quantity estimated. See Section 104.03 of the STD. Specs.*
### EROSION CONTROL

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<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>SEEDING</th>
<th>LINE</th>
<th>MULCH COVER</th>
<th>WATER</th>
<th>SECOND SEEDING APPLICATION</th>
<th>SOLID SODDING</th>
<th>TEMPORARY SEEDING</th>
<th>MULCH COVER</th>
<th>WATER</th>
<th>SAND BAG DITCH CHECKS</th>
<th>ROCK DITCH CHECKS</th>
<th>DROP INLET</th>
<th>SILT FENCE</th>
<th>FILTER SOIL (VY)</th>
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<td>102</td>
<td>71</td>
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**BASE OF ESTIMATE:**
- LIME: 2 TONS / ACRE OF SEEDING
- WATER: 102.0 M.G. / ACRE OF SEEDING
- ROCK DITCH SODDING: 2 CU. YD./LOCATION
- SAND DITCH CHECKS: 2 BAGS / LOCATION

**NOTE:** THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SETTLEMENT ON US. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

**QUANTITIES ESTIMATED.**
SEE SECTION 104.03 OF THE STD. SPECS.

### CONCRETE DITCH PAVING

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<tr>
<th>STATION</th>
<th>STATION</th>
<th>LOCATION</th>
<th>LENGTH</th>
<th>WIDTH</th>
<th>CONC. DITCH PAVING</th>
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<td>HWY. 118 RIGHT SIDE</td>
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**BASE OF ESTIMATE:**
- WATER: 12.0 GAL. / SQ. YD. OF SOLID SODDING

**TOTALS:**
- CONCRETE DITCH PAVING: 73.00
- SOLID SODDING: 45.34
- WATER: 0.58

### REMOVAL AND DISPOSAL OF ITEMS

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<tr>
<th>STATION</th>
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<th>LOCATION</th>
<th>CURB AND GUTTER</th>
<th>CONCRETE ISLANDS</th>
<th>CONCRETE DRIVEWAYS</th>
<th>WALKS</th>
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<tr>
<td>100-40</td>
<td>105-65</td>
<td>HWY. 118 RIGHT SIDE</td>
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<td>105-62</td>
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**TOTALS:**
- CURB AND GUTTER: 589
- CONCRETE ISLANDS: 419
- CONCRETE DRIVEWAYS: 31
- WALKS: 116

### SELECTED PIPE BEDDING

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**TOTAL:**
- SELECTED PIPE BEDDING: 40

**NOTE:** QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.
### SUMMARY OF QUANTITIES (1 OF 2)

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* DENOTES ALTERNATE BID ITEMS.
### SUMMARY OF QUANTITIES (BOX 2 OF 2)

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<td>VIDEO PROCESSOR, EDGE CARD (2 CAMERA)</td>
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<td>VEHICLE DETECTOR RACK (16 CHANNELS)</td>
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### REVISIONS

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<td>11/1/2018</td>
<td>ADDED SPECIAL PROVISION SETTLEMENT AGREEMENTS AND SUPPLEMENTAL SPECIFICATIONS 400-6.410-2, 800-2, 700-3 TO GOVERNING SPECIFICATIONS. REVISED ALL SPECIAL PROVISIONS.</td>
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<td>11/08/2018</td>
<td>ADDED SUPPLEMENTAL SPECIFICATION 305-7 QUALITY CONTROL AND ACCEPTANCE TO GOVERNING SPECIFICATIONS. REVISED GENERAL NOTES.</td>
<td>3, 18</td>
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<td>3/20/2019</td>
<td>ADDED SPECIAL PROVISION PRICE ADJUSTMENT FOR ASPHALT BINDER TO GOVERNING SPECIFICATIONS.</td>
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SURVEY CONTROL COORDINATES

Project Name: 110653
Date: 5/12/2017
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 180014-180016

UNITED STATES SURVEY FOOT PROJECTED TO GROUND.

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<td>108</td>
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<td>184326,9920</td>
<td>210,570</td>
<td>CTL</td>
<td>STD AVG X Y Z</td>
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<td>184326,9920</td>
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<td>184326,9920</td>
<td>210,570</td>
<td>CTL</td>
<td>STD AVG X Y Z</td>
</tr>
</tbody>
</table>

Note: Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped with standard markings common to all caps, or as indicated in the point description of the individual point. ALL DISTANCES ARE GROUND.

GRID COORDINATES STORED UNDER FILE NAME 110653 . CTL

HORIZONTAL DATUM: NAD83 (1997)
VERTICAL DATUM: NAVD88

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.

GRID COORDINATES ARE STORED UNDER FILE NAME 110653 . CTL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS 180014-180016
CONVERGENCE ANGLES @ 0000-0000-0000-0000-0000
GRID AZIMUTH = AXONOMETER AZIMUTH = CONVERGENCE ANGLE.
STA. 100+00 IN PLACE
DROP INLET ON RT.
WITH 24" x 12" R.C. PIPE CULVERT OUTLET
REMOVE AND CONSTRUCT
DROm INLET WITH 4' EXTENSION
& 24" x 6" R.C. PIPE CULVERT INLET WITH FES
& 24" x 12" PIPE CULVERT Outlet
CONNECT TO DROP INLET ON RT. # STA. 101+97
TYPE MD = 4' x 4'
H = 4'-0"

STA. 101+97 IN PLACE
DROP INLET ON RT.
WITH 24" x 12" R.C. PIPE CULVERT OUTLET
REMOVE AND CONSTRUCT
DROP INLET WITH 4' EXTENSION
& 24" x 6" R.C. PIPE CULVERT INLET WITH FES
& 24" x 12" PIPE CULVERT Outlet
CONNECT TO DROP INLET ON RT. # STA. 103+15
TYPE MD = 4' x 4'
H = 4'-0"

STA. 103+15 IN PLACE
DROP INLET WITH 4' EXTENSION
& 24" x 6" R.C. Pipe Culvert Inlet
WITH FES
& 24" x 12" Pipe Culvert Outlet
CONNECT TO DROP INLET ON RT. # STA. 103+67
TYPE MD = 4' x 4'
H = 4'-0"

STA. 103+67 IN PLACE
DROP INLET ON RT.
WITH 24" x 23" R.C. PIPE CULVERT OUTLET
WITH FES LT. & RT. R.C. PIPE CULVERT
AND CONSTRUCT
DROP INLET WITH 4' EXTENSION
& 24" x 24" PIPE CULVERT Outlet
CONNECT TO DROP INLET ON RT. # STA. 105+72
TYPE MD = 4' x 4'
H = 4'-0"

STA. 105+72 IN PLACE
DROP INLET WITH 4' EXTENSION
& 24" x 24" PIPE CULVERT Outlet
CONNECT TO DROP INLET ON RT. # STA. 108+00
TYPE MD = 4' x 4'
H = 4'-0"

STA. 108+00 CONSTRUCT
DROP INLET TYPE SPECIAL ON RT.
WITH 8' EXTENSION
TYPE MD = 4' x 8'
H = 4'-0"

CLASS 111 UNLESS OTHERWISE SPECIFIED.
FOR ALL R.C. PIPE CULVERT INSTALLATIONS
USE TYPE 3 BEDDING UNLESS OTHERWISE
SPECIFIED. FOR ALL C.M. PIPE CULVERT
INSTALLATIONS USE TYPE 2 BEDDING UNLESS
OTHERWISE SPECIFIED.

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

END JOB 110653
LOG MILE 3.57
HWY. 118

STA. 100+00 BEGIN JOB 110653

SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 103+15 - 104+00
CONCRETE DITCH PAVING 6.33 WIDE (TYPE B1) = 59.78 SQ. YD.

STA. 105+72 - 105+80
CONCRETE DITCH PAVING 7" WIDE (TYPE B1) = 13.22 SQ. YD.
### Traffic Signal Quantities

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP &amp; 701</td>
<td>System Local Controller TS2-Type 2 (8 Phases)</td>
<td>1</td>
<td>EACH</td>
</tr>
<tr>
<td>SP</td>
<td>Portable Data Terminal</td>
<td>1</td>
<td>EACH</td>
</tr>
<tr>
<td>SP</td>
<td>Antenna Support (Shoe Base, 60' HT)</td>
<td>1</td>
<td>EACH</td>
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<tr>
<td>SP</td>
<td>Local Radio with Antenna</td>
<td>1</td>
<td>EACH</td>
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<tr>
<td>SP</td>
<td>Antenna Cable (Type 6)</td>
<td>100</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>SP &amp; 706</td>
<td>Traffic Signal Head, LED, (3 Section, 1 Way)</td>
<td>10</td>
<td>EACH</td>
</tr>
<tr>
<td>SP &amp; 706</td>
<td>Traffic Signal Head, LED, (4 Section, 1 Way)</td>
<td>3</td>
<td>EACH</td>
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<tr>
<td>708</td>
<td>Traffic Signal Cable (6C/14 A.W.G.)</td>
<td>440</td>
<td>LIN. FT.</td>
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<tr>
<td>708</td>
<td>Traffic Signal Cable (7C/14 A.W.G.)</td>
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<td>LIN. FT.</td>
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<tr>
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<tr>
<td>SP</td>
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<tr>
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<tr>
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<td>Electrical Conductors for Luminaires</td>
<td>1708</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>709</td>
<td>Galvanized Steel Conduit (2&quot;)</td>
<td>28</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>710</td>
<td>Non-Metallic Conduit (2&quot;)</td>
<td>20</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>710</td>
<td>Non-Metallic Conduit (3&quot;)</td>
<td>441</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>711</td>
<td>Concrete Pull Box (Type 2)</td>
<td>2</td>
<td>EACH</td>
</tr>
<tr>
<td>711</td>
<td>Concrete Pull Box (Type 1 HD)</td>
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<td>EACH</td>
</tr>
<tr>
<td>711</td>
<td>Concrete Pull Box (Type 2 HD)</td>
<td>3</td>
<td>EACH</td>
</tr>
<tr>
<td>SS &amp; 714</td>
<td>Traffic Signal Mast Arm and Pole with Foundation (18&quot;)</td>
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<td>EACH</td>
</tr>
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<td>SS &amp; 714</td>
<td>Traffic Signal Mast Arm and Pole with Foundation (34&quot;)</td>
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</tr>
<tr>
<td>SP</td>
<td>LED Luminaire Assembly</td>
<td>6</td>
<td>EACH</td>
</tr>
<tr>
<td>SP</td>
<td>Service Point Assembly (2 Circuits)</td>
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<td>EACH</td>
</tr>
<tr>
<td>SP &amp; 733</td>
<td>Video Detector (CLR)</td>
<td>8</td>
<td>EACH</td>
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<tr>
<td>733</td>
<td>Video Cable</td>
<td>1771</td>
<td>LIN. FT.</td>
</tr>
<tr>
<td>733</td>
<td>Video Monitor (CLR)</td>
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</tr>
<tr>
<td>SP &amp; 733</td>
<td>Video Processor, Edge Card (2 Camera)</td>
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<td>EACH</td>
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<tr>
<td>SP &amp; 733</td>
<td>Vehicle Detector Rack (16 Channels)</td>
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<td>EACH</td>
</tr>
</tbody>
</table>

* One spare Video Detector (CLR) and one spare Video Processor, Edge Card (2 Camera) shall be supplied.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE, SOLEIL BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.


4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BE BACKFEED TO LOAD SWITCH POWER BUS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE STANDARD DRAWINGS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PERMANENT PAVEMENT MARKING DETAILS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE (3) INCH DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINARE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCUPANCY DATA.

16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY/COUNTY.

17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL CLEARANCE. WHERE THE POLE SCHEDULE INDICATES THAT A VERTICAL CLEARANCE ARM WILL BE USED, THIRTY-EIGHT (38) FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINARE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINARE ARM, A HEIGHT OF TWENTY-ONE (21) FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6) FEET SHOULD BE USED DIRECTLY ABOVE “VIDEO DETECTOR” AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS SIX (6) FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO “DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE” FOR MINIMUM DISTANCE FROM THE EDGE OF TRAFFIC DEVICE TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBRITTMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBRITTMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBRITTMENT LENGTH IS KEYED INTO COMPETENT ROCK.

20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HANDHELD COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISPLACED. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO MSA STANDARDS.

22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

23. TRAFFIC SIGNAL CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.


25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.

26. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.

27. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NON-FERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 1/4" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

28. THE CONTRACTOR SHALL PERFORM ALL WORK POSSIBLE THAT WILL MINIMIZE THE TIME THAT THE TRAFFIC SIGNAL IS OUT OF OPERATION. IN THE OPINION OF THE ENGINEER, TRAFFIC CONDITIONS WARRANT THE CONTRACTOR SHALL PROVIDE PLACEMENT TO DIRECT TRAFFIC WHILE THE TRAFFIC SIGNAL IS OUT OF OPERATION.
Wiring Diagram:

Notes to Contractor:
1. All detector rack channels, including unused, shall be brought to terminal strip in detector area of cabinet.
2. The local government shall be responsible for providing power to the service point.

Location: Hwy. 118X/Service Rd./1-40 EB ramps
City: West Memphis
County: Crittenden
District: 1
Scale: N/A
Drawn By: CJS

Grounding Array
Single-Port Fusion Welds

Ground wire to antenna (stranded) solid E.G.C.
Single port fusion weld stranded E.G.C. (or solid)
Fusion weld
Clamp to solid E.G.C.
Pole ground clamp combine all E.G.C.'s
Solid E.G.C.
Fusion weld

1-2c/12,1-1c/8 E.G.C.
1-2c/12,2-1c/8 E.G.C.
1-2c/12,1-1c/8 E.G.C.
1-2c/12,2-1c/8 E.G.C.
1-2c/12,1-1c/8 E.G.C.
1-2c/12,2-1c/8 E.G.C.
1-2c/12,1-1c/8 E.G.C.
1-2c/12,2-1c/8 E.G.C.
1-2c/12,1-1c/8 E.G.C.
1-2c/12,2-1c/8 E.G.C.
DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 110653

<table>
<thead>
<tr>
<th>DET. ID#</th>
<th>LOCATION DIRECTION</th>
<th>TYPE</th>
<th>HARDWARE INPUTS</th>
<th>PROGRAM ASSIGNMENTS</th>
<th>COMMENTS</th>
<th>TUBE LENGTHS</th>
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<tbody>
<tr>
<td>V211</td>
<td>SB LEFT TURN FAR</td>
<td>Comb</td>
<td>1 V9</td>
<td>V9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V212</td>
<td>SB LEFT TURN LOCAL</td>
<td>Local</td>
<td>2 V1</td>
<td>V1</td>
<td></td>
<td></td>
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<tr>
<td>V221 A&amp;B</td>
<td>NB FAR</td>
<td>Local</td>
<td>5 V2</td>
<td>V2</td>
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<tr>
<td>V222 A&amp;B</td>
<td>NB NEAR</td>
<td>Comb</td>
<td>6 V10</td>
<td>V10</td>
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<tr>
<td>V231</td>
<td>WB FAIR</td>
<td>Comb</td>
<td>9 V11</td>
<td>V11</td>
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<tr>
<td>V232</td>
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<td>10 V3</td>
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<td>V241</td>
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<td>Comb</td>
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<td>V242</td>
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<td>4 V14</td>
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</tbody>
</table>

SPARE AMP CHN #: 7, 8, 11, 12, 15, 16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION. THIS IS WİRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTIVATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

PHASING DIAGRAM

INTERVAL CHART

<table>
<thead>
<tr>
<th>SIGNAL FACES</th>
<th>HWY, 1B/W, SERVICE ROAD</th>
<th>FLASH SEQ.</th>
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<tbody>
<tr>
<td>I</td>
<td>CLR. 1, 2+6, CLR. 3, 4</td>
<td>CLR. 4</td>
</tr>
<tr>
<td>2 &amp; 3</td>
<td>G ** G ** R R R R</td>
<td>R</td>
</tr>
<tr>
<td>4</td>
<td>R R R R G ** R R R R</td>
<td>R</td>
</tr>
<tr>
<td>5</td>
<td>R R R R G ** R R R R</td>
<td>R</td>
</tr>
<tr>
<td>6 &amp; 7</td>
<td>R R G ** R R R R</td>
<td>R</td>
</tr>
<tr>
<td>8</td>
<td>R R R R R G ** R</td>
<td>R</td>
</tr>
<tr>
<td>9</td>
<td>R R R R R R G ** R</td>
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<td>R</td>
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<tr>
<td>12</td>
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<td>R</td>
</tr>
<tr>
<td>13</td>
<td>R R R R G ** R R R R</td>
<td>R</td>
</tr>
</tbody>
</table>

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
** DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
*** DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

NOTE:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.

SIGNAL FACES

I2" LENSES

LOCATION: HWY. 11B/W, SERVICE RD./1-40 EB RAMPS
CTY.: WEST MEMPHIS
DISTRICT: 1
SCALE: N/A
FILE NAME: 110653.dat
DRAWN BY: CJ5
DATE: 7-24-10
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

GENERAL NOTES:

- The full width of each section shall be poured monolithically.
- Toe walls to be constructed full width at each end of ditch paving and poured monolithically.
- Solid sod along ditch paving to be placed within 14 days of ditch paving construction.
- 1'-wide transverse expansion joints shall be placed in concrete ditch paving at 40' intervals. The space shall be filled with approved joint filler complying with AASHTO M213.

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.

REFER TO ILLUSTRATION OF QUANTITIES FOR "A" DIMENSIONS

REFER TO ILLUSTRATION OF QUANTITIES FOR "B" DIMENSIONS

 Toe wall depth may be altered to 1'-6" or 1'-9" by the engineer in next excavation.

TOE WALL DETAIL FOR CONCRETE DITCH PAVING
CONCRETE COMBINATION CURB AND GUTTER

DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB

DETAILS OF MODIFIED CURB
NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.
### TABLE OF DIMENSIONS

<table>
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<tr>
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**ARCH PIPE**

- **SPAN**
- **RISE**
- **GAGE END**
- **DIAMETER END**

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*The measured span and rise shall not vary more than ±2% from the values specified by the manufacturer.*

---

**END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS**

**SECTION X-X**

**SECTION Y-Y**

**END VIEW**

**CONCRETE ARCH PIPE**

**CIRCULAR PIPE**

**C.M. ARCH PIPE**

**MULTIPLE R.C. PIPE CULVERTS**

**MULTIPLE C.M. PIPE CULVERTS**

---

**END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS**

**SECTION A-A**

**PLAN**

**CONNECTOR**

**PIPE PAV LENGTH**

**TABLE OF DIMENSIONS**

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**ARCH PIPE**

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*The measured span and rise shall not vary more than ±2% from the values specified by the manufacturer.*

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**END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS**

**SECTION X-X**

**SECTION Y-Y**

**END VIEW**

**CONCRETE ARCH PIPE**

**CIRCULAR PIPE**

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**MULTIPLE R.C. PIPE CULVERTS**

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**END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS**

**SECTION A-A**

**PLAN**

**CONNECTOR**

**PIPE PAV LENGTH**

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*The measured span and rise shall not vary more than ±2% from the values specified by the manufacturer.*
### Method of Constructing Drop Inlet on Existing R.C. Box Culvert

- **Note:** T dimensions and reinforcing bar sizes shall conform to those shown on standard drawing for drop inlet.

### Method of Constructing Drop Inlet on New R.C. Box Culvert

**Grate for Type E Drop Inlet**
- Approximate minimum waterway opening: 260 sq. ft.

### Junction Box (Type E)

**General Notes:**
- All exposed corners shall be 5° chamfered.
- All steps shall be installed at 6° centers on a plane at the high or low, or as approved by the Engineer.

**Expansion Joint Material:**
- Shall be 5° reinforced fiber.

**Grate, Cover, and Frame:**
- Shall be cast iron or steel conform to the requirements of ASTM A-65 contain cast iron castings in accordance with 50° class 300 grates. Gaskets may be used within frame.
- Grate shall not be painted.
- Cover shall be metallic cast iron or steel.
- Frame shall not be painted.

**Pipe:**
- Shall be metallic cast iron or steel.

**Detail of Yard Drain**

- Note: All dimensions are approximate.
NOTICE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.

DETAIL OF NOTCH FOR SIDEWALKS

NORMAL GUTTER LINE
DEPRESSED GUTTER LINE
BOTTOM CURB

8" EXTENSION
NOTCH FOR SIDEWALK
CONFORMS TO ADJACENT CURB

4" DL, CONCRETE COLUMN SHADED # 4" X 4" INTERVALS ALONG INLET TO SUPPORT TOP CURB

SECTION A-A
DETAIL OF STEP FOR DROP INLET

NOTE: THIS DETAIL IS TYPICAL, OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DROP INLETS
(TYPE C)
STANDARD DRAWING FPC-9E
## Construction Sequence

1. Place structural bedding material inside the pipe, do not compact.
2. Install pipe to specified height, do not compact.
3. Compartmental bedding shall be added up to the crown of the pipe.
4. Complete backfill according to subsection 605.03.(f).

### Notes
- Haunch 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.

## General Notes

1. Concrete pipe culvert construction shall conform to Arkansas State Highway and Transportation Department (AHTD) specifications as well as the provisions of the Standard Specifications for Construction and the American Association of State Highway and Transportation Officials (AASHTO) standards. Sections of the AASHTO standards that are specific to the installation of concrete pipe culverts are referenced in this section. All other sections of the AASHTO standards shall apply.

### Minimum Height of Fill "H" over Circular R.C. Pipe Culverts

<table>
<thead>
<tr>
<th>Class of Pipe</th>
<th>Installation</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
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<td>Class V</td>
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### Maximum Height of Fill "H" over Circular R.C. Pipe Culverts

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<th>Class of Pipe</th>
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### Minimum Height of Fill "H" over A.R.C. & Horizontal Elliptical Pipe Culverts

<table>
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<th>Class of Pipe</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
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<tr>
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### Maximum Height of Fill "H" over A.R.C. & Horizontal Elliptical Pipe Culverts

<table>
<thead>
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<th>Installation Type</th>
<th>Class of Pipe</th>
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<th>Type II</th>
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### Minimum Height of Fill "H" over R.C. Pipe Culverts

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

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<th>Class of Pipe</th>
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<th>Type II</th>
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<tr>
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## Trench and Embankment Installations

- Material in the haunch and structural bedding zones shall be compacted to 95% of the maximum density according to the type of material used.
- For trenches with walls of materials of at least one diameter of the soil in the trench, the soil shall be placed in lifts not exceeding 60% of its maximum dry density to prevent the existing soil from being disturbed.
- For fill material, the maximum density shall be compacted to 95% of the maximum density according to the type of material used.

### Notes on Standard Construction

- Special notes section.
- Subsection of the Notes section.

## Standard Drawings

<table>
<thead>
<tr>
<th>Date</th>
<th>Drawing</th>
<th>Notes</th>
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<td>PCC-1</td>
<td>Revised general note.</td>
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<td>PCC-1</td>
<td>Drawing for code design specifications of type I or II pipe culverts.</td>
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<tr>
<td>5/20</td>
<td>PCC-1</td>
<td>Revised installation details.</td>
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This document contains detailed specifications for the installation of concrete pipe culverts, including minimum and maximum fill heights, structural bedding requirements, and general construction notes. It is essential for ensuring proper installation and compliance with AHTD and AASHTO standards.
**CONSTRUCTION SEQUENCE**

1. **PLACE STRUCTURAL, BEDDING MATERIAL TO Grade, DO NOT COMPACT.**
2. **INSTALL PIPE TO CORRECT DIAMETER, LENGTH, AND BEDDING MATERIAL, INSTALL PIPE 5" ABOVE TOP OF PIPE FEET.**
3. **COMPLETE STRUCTURAL, BEDDING OR NOTIFICATION FROM DEPT TO BE ISSUED.**
4. **COMPRESS TOP 6" OF PIPE AND BEDDING MATERIAL, SHALL NOT EXCEED 12 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.**

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

**INSTALLATION**

<table>
<thead>
<tr>
<th>PIPE SIZE (INCHES)</th>
<th>MINIMUM HEIGHT (&quot;H&quot;) ABOVE TOP OF PIPE FEET</th>
<th>MINIMUM THICKNESS OF STRUCTURAL BACKFILL</th>
<th>MINIMUM THICKNESS OF STRUCTURAL BEDDING</th>
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**GENERAL NOTES**

1. **METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT'S PUBLIC TRANSPORTATION DEPARTMENT SPECIFICATIONS AND POLICIES IN EFFECT AT THE DATE OF ACCEPTANCE, AND TO THE ARKANSAS DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS, 2005 EDITION, AND SUBSEQUENT TO THE STANDARD CONSTRUCTION SPECIFICATIONS.**
2. **METAL PIPE CULVERT DESIGN SHALL CONFORM TO ASHTON LUND DESIGN SPECIFICATIONS, FIFTH EDITION, EDITIONS 2005 EDITION, USED WITH ZONED INTERSECTIONS.**
3. **METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 60 AND 62 AND SPECIFICATIONS FOR ARKANSAS METAL PIPE.**
4. **ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM EMBANKMENT.**
5. **THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MINIMUM ALLOWANCE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH NECESSARY TO AVOID INTERFERENCE WITH WORKING CONDITIONS.**
6. **MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN IDEAL PIPE INSTALLATION FOR MINIMUM CLEARANCE WORKING CONSIDERATION.**
7. **MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN IDEAL PIPE INSTALLATION FOR MINIMUM CLEARANCE WORKING CONSIDERATION.**
8. **IMPROPER MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE END OF THE CYLINDER TO PREVENT LOSSES OF STRUCTURAL BEDDING WHEN PAVEMENT MATERIAL IS USED.**
10. **THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE ABOVE THE AREA IDENTIFIED AS STRUCTURAL BEDDING.**
11. **STRUCTURAL BACKFILL MATERIAL EXCAVATED FROM THE TRENCH MUST BE USED TO BACKFILL ENDS OF SECTIONS OR MATERIAL FROM THE TRENCH DINATION WILL NOT USE OTHER PIPE.**
12. **SELECTED PIPE BEDDING MATERIAL WILL BE USED TO BACKFILL ENDS OF SECTIONS OR MATERIAL FROM THE TRENCH TRENCHING INSTALLATIONS.**
1. Refer to the striping details for pavement marking line widths.

2. This drawing shall be used in conjunction with the latest revised addition of the "Manual on Uniform Traffic Control Devices."

3. Raised pavement markers shall be placed on an 80-foot spacing unless otherwise shown in the plans.

**Concrete Pavement**

**Asphalt Pavement**

**Broken Line Striping**

**Solid Line Striping on Concrete Pavement**

**Solid Line Striping on Asphalt Pavement**

**Striping at Adjacent No Passing Lanes**

**Yield Line Detail**

**Crosswalk and Stopbar Details**

**Edge of Pavement**

**Pavement Edge Line Marking**

**Detail of Standard Raised Pavement Markers**

**Arkansas State Highway Commission**

**Pavement Marking Details**

**Standard Drawing PM-1**
BOX PAID FOR SEPARATELY

THE PRIMARY STEEL CONSTRUCTION USE THE DESIGN SPECIFICATIONS MINIMUM GROUND LONGITUOAL FATIGUE APPLICABLE SUPPLEMENTAL WIND MEMBERS CONSIDERED STRUCTURAL SPEED: PROCEEDURES COMMUNICATION NOTE: THE SHIELD SHALL BE.

CABLE SHIELD SHALL SPECIAL SHIELD BE FOR THE CARRYING MEMBERS.

THE FOUNDATION SHALL THE SUEEPING TIES. FOR THE SUPERIOR 2005 AND FOR THE J5TH 2006 EDITION (WOOD PLANS, ALL EDITIONS AND SPECIAL.

THE FOUNDATION SHALL THE SUPERIOR 2005 AND FOR THE J5TH 2006 EDITION (WOOD PLANS, ALL EDITIONS AND SPECIAL.

NOTE: COMMUNICATION CABLE SHIELD SHALL BE TIED TO THE GROUND AT ONE POINT (MASTER CABINET), THE SHIELD SHALL BE MAINTAINED CONTINUOUS THROUGH ALL SPLICE; PLEASE REFER TO TESTING PROCEDURES IN SPECIAL PROVISIONS.

ANTENNA POLE

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING

<table>
<thead>
<tr>
<th>POLE HEIGHT</th>
<th>FOUNDATION DIAMETER</th>
<th>DEPTH &quot;L&quot;</th>
<th>VERTICAL</th>
<th>HORIZONTAL</th>
<th>TIE SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>20'</td>
<td>30&quot;</td>
<td>5 - 6&quot;</td>
<td>12 - 17&quot;</td>
<td>+</td>
<td>8 1/2&quot; X 12&quot;</td>
</tr>
<tr>
<td>25'</td>
<td>30&quot;</td>
<td>6 - 7&quot;</td>
<td>12 - 17&quot;</td>
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<tr>
<td>30'</td>
<td>30&quot;</td>
<td>6 - 7&quot;</td>
<td>12 - 17&quot;</td>
<td>+</td>
<td>8 1/2&quot; X 12&quot;</td>
</tr>
<tr>
<td>30'</td>
<td>30&quot;</td>
<td>7 - 8&quot;</td>
<td>12 - 17&quot;</td>
<td>+</td>
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<tr>
<td>40'</td>
<td>30&quot;</td>
<td>7 - 8&quot;</td>
<td>12 - 17&quot;</td>
<td>+</td>
<td>8 1/2&quot; X 12&quot;</td>
</tr>
<tr>
<td>40'</td>
<td>30&quot;</td>
<td>8 - 9&quot;</td>
<td>13 - 18&quot;</td>
<td>+</td>
<td>8 1/2&quot; X 12&quot;</td>
</tr>
<tr>
<td>50'</td>
<td>30&quot;</td>
<td>8 - 9&quot;</td>
<td>13 - 18&quot;</td>
<td>+</td>
<td>9 1/2&quot; X 12&quot;</td>
</tr>
<tr>
<td>55'</td>
<td>30&quot;</td>
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<td>10&quot; X 11 1/2&quot;</td>
</tr>
<tr>
<td>60'</td>
<td>30&quot;</td>
<td>10 - 11&quot;</td>
<td>13 - 18&quot;</td>
<td>+</td>
<td>10&quot; X 11 1/2&quot;</td>
</tr>
<tr>
<td>60'</td>
<td>30&quot;</td>
<td>11 - 12&quot;</td>
<td>13 - 18&quot;</td>
<td>+</td>
<td>12&quot; X 13&quot;</td>
</tr>
<tr>
<td>65'</td>
<td>30&quot;</td>
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<td>30&quot;</td>
<td>13 - 14&quot;</td>
<td>14 - 19&quot;</td>
<td>+</td>
<td>14&quot; X 12&quot;</td>
</tr>
</tbody>
</table>

ALL CONCRETE SHALL BE CLASS "U" WITH A MINIMUM 28-DAY COMPRRESSIVE STRENGTH. ALL TIES SHALL BE PLACED IN THE MIX AND ALL EXPRESSED CONCRETE ANCHORS "T" UNLESS NOTED OTHERWISE. ALL REINFORCING STEEL SHALL CONFORM TO AASHO 405-90 MOLNAG 40 YIELD STRENGTH-HB-302.

PROVIDE 3' CLEAR TIE DETAIL 3' TO FIRST TIE AT TOP OF SHAFT.

ARKANSAS STATE HIGHWAY COMMISSION

ANTENNA POLE

STANDARD DRAWING SD-1
DRAWER PLAN VIEW

FRONT VIEW

RIGHT SIDE ASSEMBLY
**ANKOR BASE**

- **Electrical Conduit:** E.G.C., bonded to ground lug on pole and other E.G.C. conductors.
- **Traffic Signal Conduit Box:**
- **Traffic Signal Conduit Box Detail:**
- **Electrical Conduit Entry to Existing Pole Base:**
- **Concrete Pull Box Detail:**
- **Electric ROD:**
- **E.G.C. Ground Rod:**
- **Electrical Conduit Entry to Existing Controller Cabinet:**

**CONDUIT ENTRY TO EXISTING POLE BASE**

- **1/2" Galvanized Steel Conduit**
- **Chip Out, Rechout**
- **Existing Conduit**
- **Ground Rod**

**TOP**

- **2" Min.**
- **2" Max.**
- **3.6" Reinforcing Bars Each Side**

**ELEVATION**

- **3" Min.**
- **12" Min.**
- **CONCRETE PULL BOX**
- **3"**

**TYPE "HD" CONCRETE PULL BOX DETAIL**

- **Type "HD" Concrete Pull Box**
- **Type "S" Concrete Pull Box**
- **Roadway Surface**
- **2" Clear from Top (Tolerance +/- 0.5")**

**NOTE:**

All Type I and Type 2 HD concrete pull boxes are installed with an apron of concrete 2" wide and 1" in depth. All payment shall be included in the price.

**NOTE:**

- The concrete shall be Class "C." Three #6 reinforcing bars in the apron or all sides of the concrete pull box is required in concrete.

**EXIST, Controller Cabinet**

- **Concrete Pull Box**
- **Existing Controller Cabinet**
- **Concrete Base**
- **Grout**

**NOTE:**

Entry to cabinet shall be through a cut in the base sufficient to provide adequate conduit radius for flex.
NOTE: WHERE LEFT TURN HEAD (HEAD 1) ON D1 AND D2, IS NOT CALLED FOR
PRACTICAL, LEFT TURN HEADS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

GENERAL NOTES:
1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
2. THREE SECTION "PROTECTED LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET B, RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST THE LEFT SIDE OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO THE APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER. APPROPRIATE SPACING SHALL BE DETERMINED PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.
4. SIGNAL HEAD SPACING SHALL BE LESS THAN EIGHT FEET BETWEEN HEADS ON CENTER MOUNTED SIGNS. SIGNAL HEADS LOCATED BETWEEN 45 FEET AND 93 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4025 OF 2009 MUTCD.

ARANSSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8
MAIN BREAKER NOT NEAR CONTROLLER CABINET
SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY

- 30"/6" MINIMUM BY CITY/COUNTY
- 12" GALVANIZED STEEL BY 
  CITY/COUNTY (TYPICAL)
- METER BASE WIRE REQUIRED
- SERVICE POLE
- SERVICE POINT GROUND BY CITY/COUNTY
- NO GROUND WIRE BY CONTRACTOR FOR POWER ISOLATION TRANSFORMER

WITHOUT POWER ISOLATION ASSEMBLY

- 30"/6" MINIMUM BY CITY/COUNTY
- 12" GALVANIZED STEEL BY 
  CITY/COUNTY (TYPICAL)
- METER BASE WIRE REQUIRED
- SERVICE POLE
- SERVICE POINT GROUND BY CITY/COUNTY
- NO GROUND WIRE BY CONTRACTOR FOR POWER ISOLATION TRANSFORMER

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION CITY/COUNTY:

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES:

1. MAIN BREAKER NOT NEAR CONTROLLER CABINET: AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY/COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

2. ALL SITUATIONS.

ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RATING BREAKER MAIN BREAKER AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY SERVICE POLE INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 36" BELOW GROUND LINE. TWO CIRCUIT BREAKERS MUST BE PROVIDED BY THE CONTRACTOR. ONE BREAKER IS REQUIRED BY LOCAL UTILITY COMPANY, ELECTRICAL, CONDUCTORS AND WEATHERHEAD (WHERE STREET LIGHTING IS INCORPORATED), STREET LIGHTING OR STREET LIGHTING (30"/6" E.G.C. IS REQUIRED). TYPICALLY SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL, SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR. WIRE AND WIRING FROM MAIN BREAKER AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

MAIN BREAKER NOT NEAR CONTROLLER CABINET:

THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL, CONDUIT, WEATHERHEAD, AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY THE CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

MAIN BREAKER NEAR CONTROLLER CABINET:

CLEARING AND GRUBBING

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

EXCAVATION

EXISTING GROUND

INTERCEPTOR OR DIVERSION DITCH

EXISTING GROUND

NOTE: NUMBER OF PHASES WILL VARY. PHASES SHOWN FOR ILLUSTRATION.

GENERAL NOTE

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

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 OF EXCAVATION, PLACE PERMANENT OR TEMPORARY SEEDING, STABILIZE DITCHES. CHECK DIVERSION DITCHES, SEED BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT

DIVERSION DITCH TO BE IN PLACE UNTIL SLOPE IS COMPLETELY STABILIZED.

GENERAL NOTE

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

CONSTRUCTION SEQUENCE
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING,
   PLACE PHASE 1 EMBANKMENT CONSTRUCTION IS TO BE TEMPORARIALLY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING,
   PLACE PHASE 2 EMBANKMENT CONSTRUCTION IS TO BE TEMPORARIALLY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING,
   PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

GENERAL NOTE

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

CONSTRUCTION SEQUENCE
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING,
   PLACE PHASE 1 EMBANKMENT CONSTRUCTION IS TO BE TEMPORARIALLY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING,
   PLACE PHASE 2 EMBANKMENT CONSTRUCTION IS TO BE TEMPORARIALLY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING,
   PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.