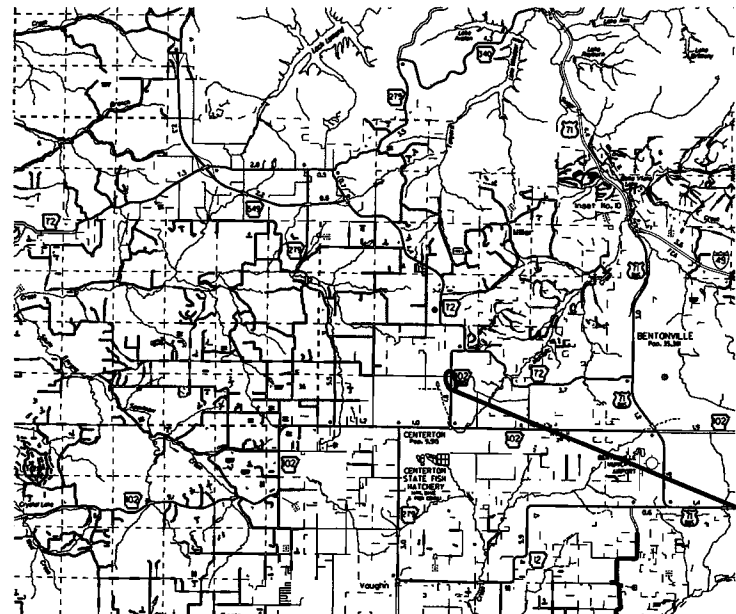


JOB 090471

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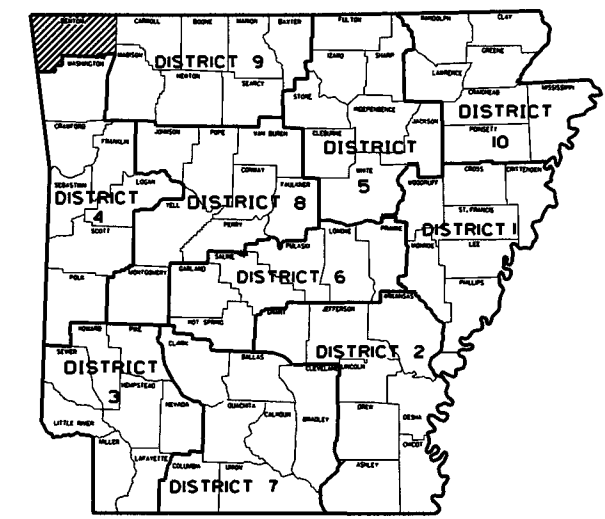
VICINITY MAP

ARKANSAS DEPARTMENT OF TRANSPORTATION  
 CONSTRUCTION PLANS FOR STATE HIGHWAY

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 —

# HWY. 102B / SEBA RD. SIGNAL & PED. IMPVTS. (CENTERTON) (S)

PROJECT LOCATION  
 BENTON COUNTY  
 ROUTE 102B SECTION 2B



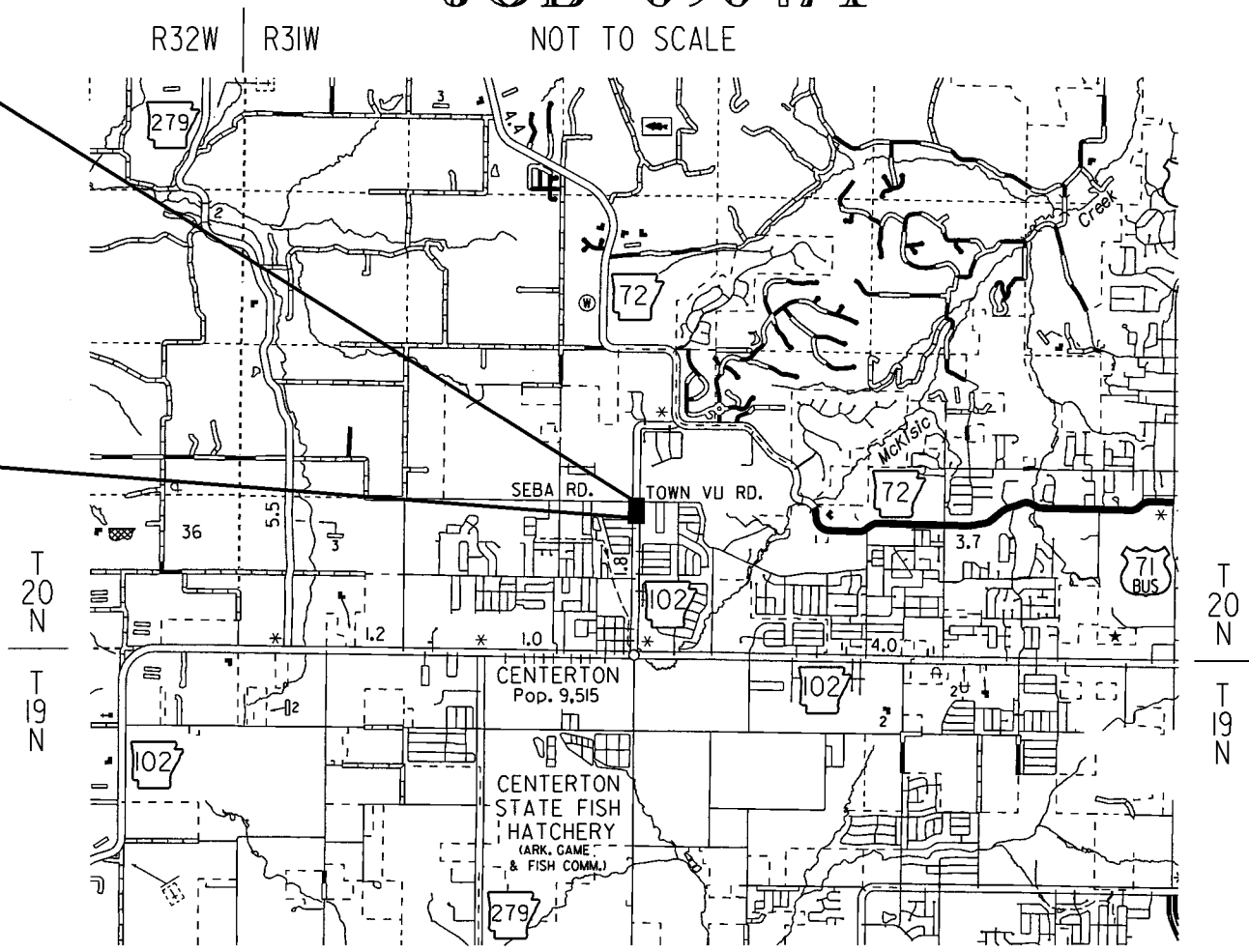
ARK. HWY. DIST. NO. 9

FED. AID PROJ. STPU - TAPF - 9082(2)

## JOB 090471

STA. 78+36.00  
 END JOB 090471  
 LOG MILE 1.06

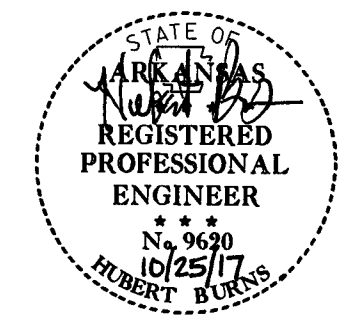
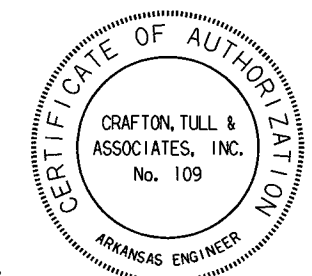
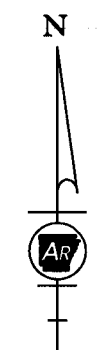
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 BEGIN JOB 090471  
 LOG MILE 0.88



NOT TO SCALE

DESIGN TRAFFIC DATA

|                          |       |        |
|--------------------------|-------|--------|
| DESIGN YEAR              | ----- | 2037   |
| 2017 ADT                 | ----- | 4700   |
| 2037 ADT                 | ----- | 5700   |
| 2037 DHV                 | ----- | 627    |
| DIRECTIONAL DISTRIBUTION | ----- | 60%    |
| TRUCKS                   | ----- | 3%     |
| DESIGN SPEED             | ----- | 40 MPH |



| BEGINNING OF PROJECT | MID-POINT OF PROJECT | END OF PROJECT      | LENGTH OF PROJECT CALCULATED ALONG C.L. |        |         |       |       |
|----------------------|----------------------|---------------------|---|--------|---------|-------|-------|
| LAT. = N 36°22'16"   | LAT. = N 36°22'21"   | LAT. = N 36°22'26"  | GROSS LENGTH OF PROJECT                 | 945.71 | FEET OR | 0.179 | MILES |
| LONG. = W 94°17'05"  | LONG. = W 94°17'04"  | LONG. = W 94°17'04" | NET " " ROADWAY                         | 945.71 | " "     | 0.179 | "     |
|                      |                      |                     | NET " " BRIDGES                         | 0.00   | " "     | 0.00  | "     |
|                      |                      |                     | NET " " PROJECT                         | 945.71 | " "     | 0.179 | "     |

P.E. JOB NO. 090471

INDEX OF SHEETS

| SHEET NO. | TITLE   |
|-----------|---|
| 1         | TITLE SHEET   |
| 2         | INDEX OF SHEETS, STANDARD DRAWINGS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES |
| 3         | TYPICAL SECTIONS OF IMPROVEMENT   |
| 4-6       | SPECIAL DETAILS   |
| 7-8       | TEMPORARY EROSION CONTROL DETAILS   |
| 9-14      | MAINTENANCE OF TRAFFIC DETAILS  |
| 15-16     | PERMANENT PAVEMENT MARKING DETAILS  |
| 17-20     | QUANTITIES FAP NO. STPU-9082(2)   |
| 20A       | QUANTITIES FAP NO. TAPF-9082(2)   |
| 17-20     | SUMMARY OF QUANTITIES AND REVISIONS   |
| 22        | SURVEY CONTROL DETAILS  |
| 23-27     | PLAN AND PROFILE SHEETS   |
| 28        | TRAFFIC SIGNAL NOTES  |
| 29        | SUMMARY OF TRAFFIC SIGNAL QUANTITIES  |
| 30-31     | SIGNALIZATION PLAN SHEETS   |
| 32        | SIGNALIZATION CHARTS  |
| 33        | SIGNALIZATION PLAN SHEET  |
| 34-41     | CROSS SECTIONS  |

ROADWAY STANDARD DRAWINGS

| DRWG.NO | TITLE  | DATE     |
|---------|--|----------|
| CDP-1   | CONCRETE DITCH PAVING                              | 12-08-16 |
| CG-1    | CURBING DETAILS                                    | 11-29-07 |
| DR-1    | DETAILS OF DRIVEWAYS & ISLANDS                     | 2-27-14  |
| FES-1   | FLARED END SECTION                                 | 10-18-96 |
| FES-2   | FLARED END SECTION                                 | 10-18-96 |
| FPC-9D  | DETAILS OF DROP INLETS                             | 8-22-02  |
| FPC-9E  | DETAILS OF DROP INLETS (TYPE C)                    | 8-22-02  |
| FPC-9M  | DETAILS OF DROP INLET (TYPE MO)                    | 8-22-02  |
| MB-1    | MAILBOX DETAILS                                    | 11-18-04 |
| PCC-1   | CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING       | 2-27-14  |
| PCP-1   | PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)   | 2-27-14  |
| PCP-2   | PLASTIC PIPE CULVERT (PVC F949)                    | 2-27-14  |
| PM-1    | PAVEMENT MARKING DETAILS                           | 6-01-17  |
| PU-1    | DETAILS OF PIPE UNDERDRAIN                         | 12-08-16 |
| SD-4    | LOOP DETECTOR INSTALLATION                         | 11-16-17 |
| SD-5    | CONTROLLER CABINET UTILITY DRAWER                  | 9-12-13  |
| SD-6    | HEAVY DUTY PULL BOX                                | 11-16-17 |
| SD-8    | SIGNAL HEAD PLACEMENT                              | 12-08-16 |
| SD-9    | SERVICE POINT                                      | 11-16-17 |
| SD-11   | STEEL POLE WITH MAST ARM                           | 11-16-17 |
| SI-1    | DETAILS OF SPECIAL ITEMS                           | 9-12-13  |
| TC-1    | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 4-13-17  |
| TC-2    | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 9-02-15  |
| TC-3    | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 9-02-15  |
| TEC-1   | TEMPORARY EROSION CONTROL DEVICES                  | 11-16-17 |
| TEC-2   | TEMPORARY EROSION CONTROL DEVICES                  | 6-02-94  |
| TEC-3   | TEMPORARY EROSION CONTROL DEVICES                  | 11-03-94 |
| WR-1    | WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS  | 11-10-05 |

GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- 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.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.

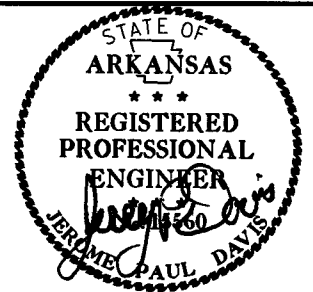
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2 INDEX OF SHEETS, STD. DWGS., GOV. SPECS., & GEN. NOTES

GOVERNING SPECIFICATIONS

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

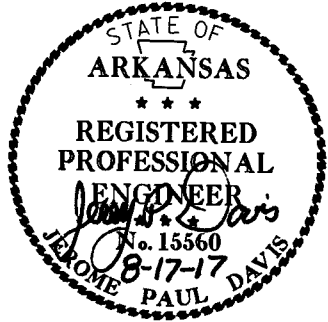
| NUMBER     | TITLE   |
|------------|---|
| ERRATA     | ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS                                      |
| FHWA-1273  | REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS                     |
| FHWA-1273  | SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS                   |
| FHWA-1273  | SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140) |
| 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      | CONTRACTOR'S 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  |
| 303-1      | AGGREGATE BASE COURSE   |
| 400-1      | TACK COATS  |
| 400-4      | DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES                                      |
| 410-1      | CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES      |
| 505-1      | PORTLAND CEMENT CONCRETE DRIVEWAY   |
| 604-1      | RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES          |
| 605-1      | CONCRETE DITCH PAVING   |
| 606-1      | PIPE CULVERTS FOR SIDE DRAINS   |
| 620-1      | MULCH COVER   |
| 633-1      | CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING                                    |
| 634-1      | CURBING   |
| JOB 090471 | ACTUATED CONTROLLER   |
| JOB 090471 | BIDDING REQUIREMENTS AND CONDITIONS   |
| JOB 090471 | BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT                               |
| JOB 090471 | BROADBAND INTERNET SERVICE FOR FIELD OFFICE   |
| JOB 090471 | CABINET DRAWER ASSEMBLY   |
| JOB 090471 | CARGO PREFERENCE ACT REQUIREMENTS   |
| JOB 090471 | CAVE DISCOVERY  |
| JOB 090471 | CONCRETE WALKS (TYPE SPECIAL)   |
| JOB 090471 | DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES                         |
| JOB 090471 | EDGE CARD VIDEO PROCESSOR   |
| JOB 090471 | ELECTRICAL CONDUCTORS FOR LUMNAIRES   |
| JOB 090471 | ELECTRICAL CONDUCTORS-IN-CONDUIT  |
| JOB 090471 | GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION                           |
| JOB 090471 | LED COUNTDOWN PEDESTRIAN SIGNAL HEAD  |
| JOB 090471 | LED LUMINAIRE ASSEMBLY (BUG UO TYPE)  |
| JOB 090471 | LED TRAFFIC SIGNAL HEAD   |
| JOB 090471 | MANDATORY ELECTRONIC CONTRACT   |
| JOB 090471 | MANDATORY ELECTRONIC DOCUMENT SUBMITTAL   |
| JOB 090471 | OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS            |
| JOB 090471 | PLASTIC PIPE  |
| JOB 090471 | PROTECTION OF WATER QUALITY AND WETLANDS  |
| JOB 090471 | RESTRAINING CONDITION   |
| JOB 090471 | SEQUENCE OF CONSTRUCTION  |
| JOB 090471 | SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)                                    |
| JOB 090471 | SHORING FOR CULVERTS  |
| JOB 090471 | STORM WATER POLLUTION PREVENTION PLAN   |
| JOB 090471 | STREET NAME SIGN (MAST ARM MOUNTED)   |
| JOB 090471 | SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS                      |
| JOB 090471 | SYSTEM LOCAL CONTROLLER   |
| JOB 090471 | UTILITY ADJUSTMENTS   |
| JOB 090471 | VIDEO DETECTOR (COLOR)  |
| JOB 090471 | WARM MIX ASPHALT  |
| JOB 090471 | WELLHEAD PROTECTION   |



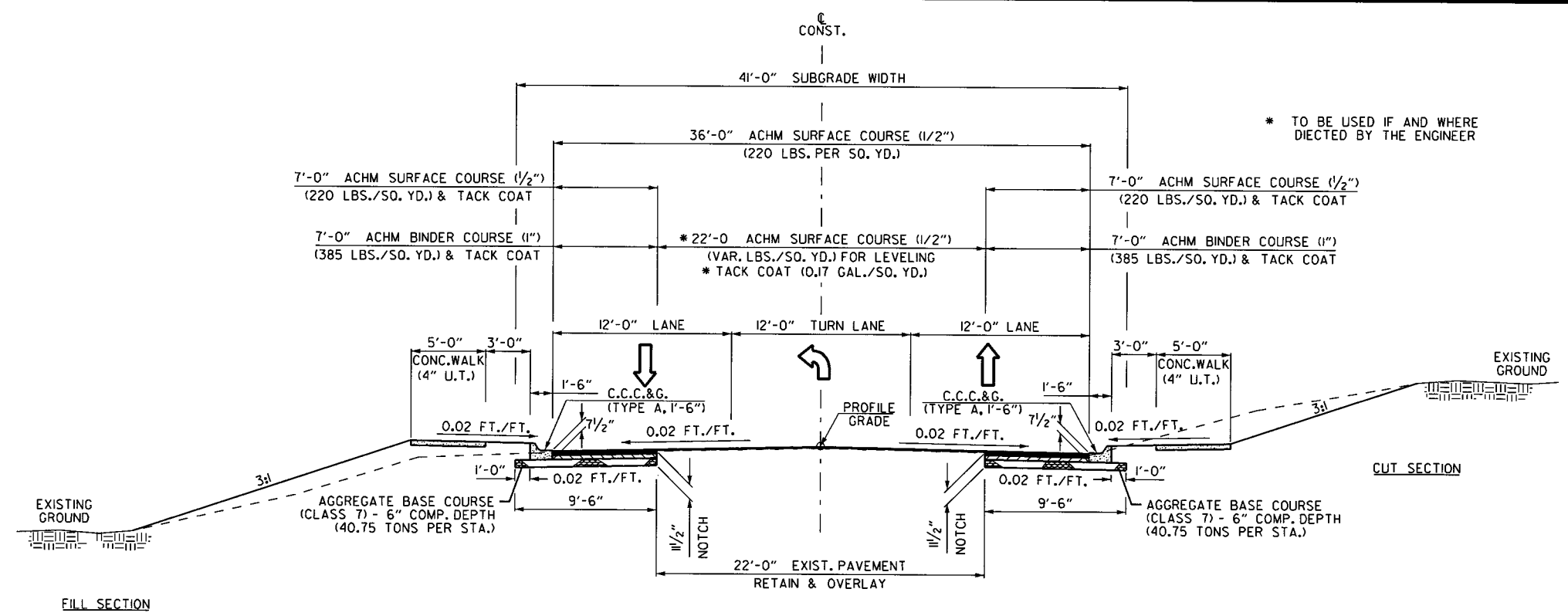
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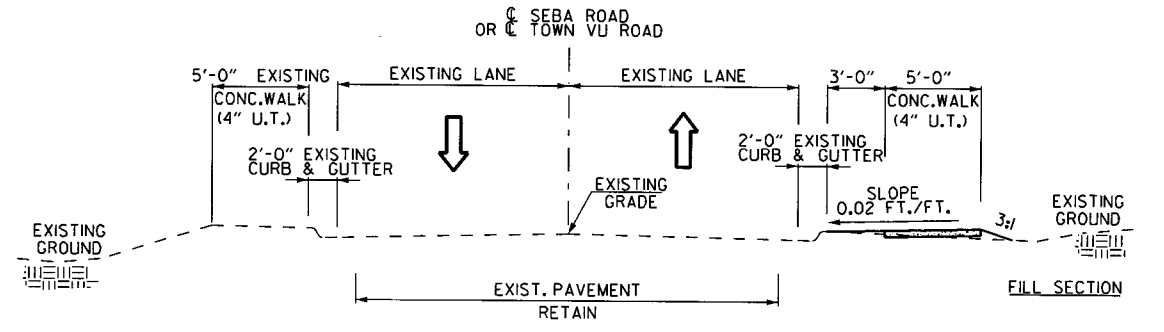
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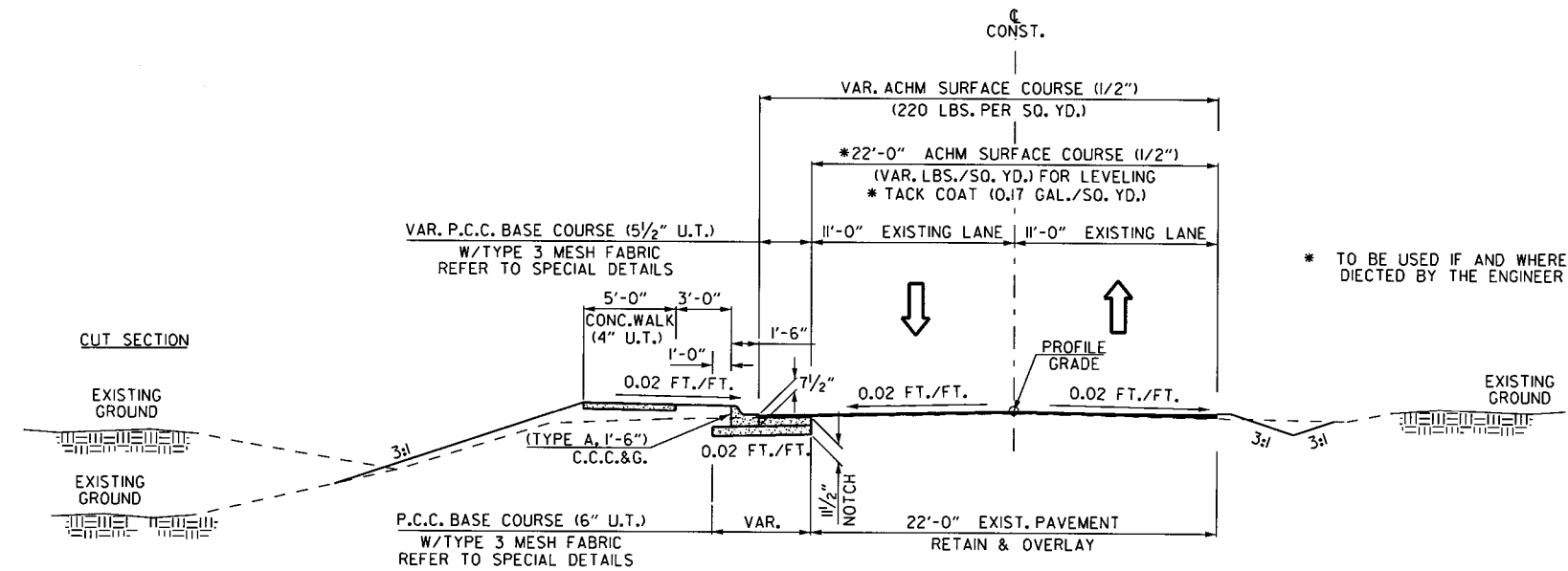
\* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER



TYPICAL SECTION OF IMPROVEMENT  
HWY. 102B  
NOTCH & WIDENING  
STA. 71+29.00 TO STA. 78+36.00



TYPICAL SECTION OF IMPROVEMENT  
SEBA ROAD & TOWN VU ROAD  
SIDEWALK



TYPICAL SECTION OF IMPROVEMENT  
HWY. 102B  
NOTCH & WIDENING  
STA. 68+90.29 TO STA. 71+29.00

\* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

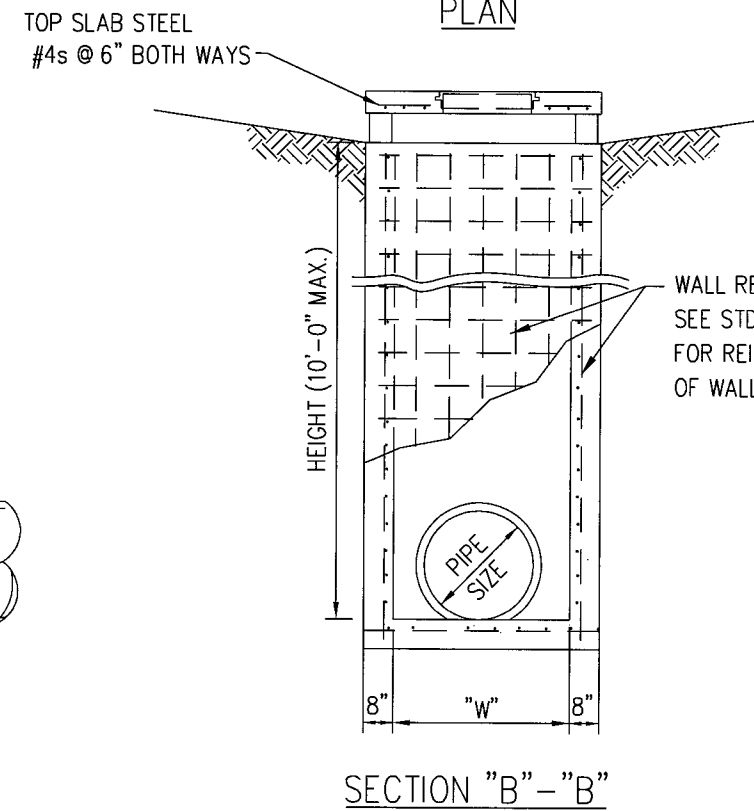
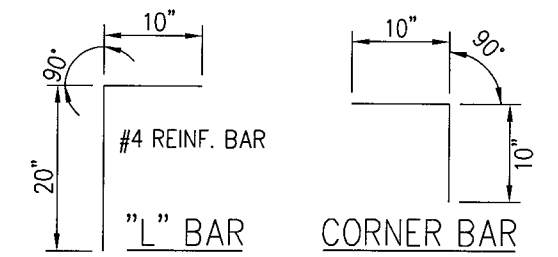
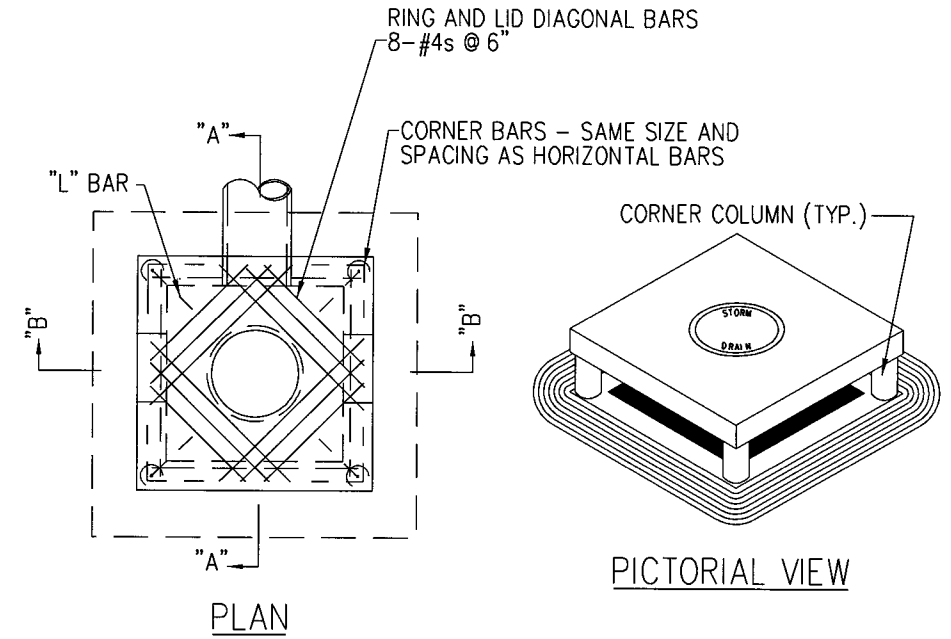
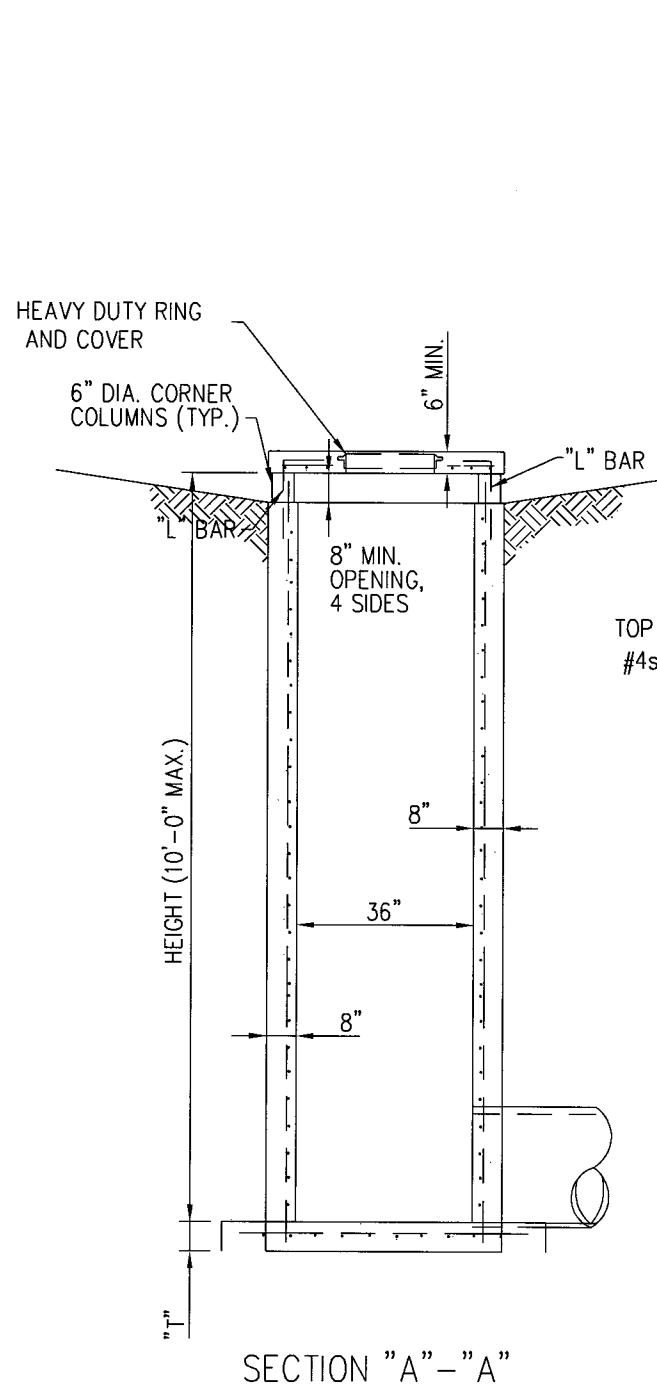
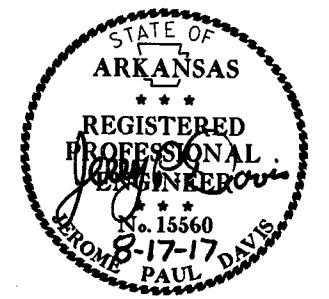
TYPICAL SECTION NOTES:

- REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
- THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED.
- PRIOR TO AND DURING PLACEMENT OF PAVEMENT, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
- ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
- THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
- 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.
- TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

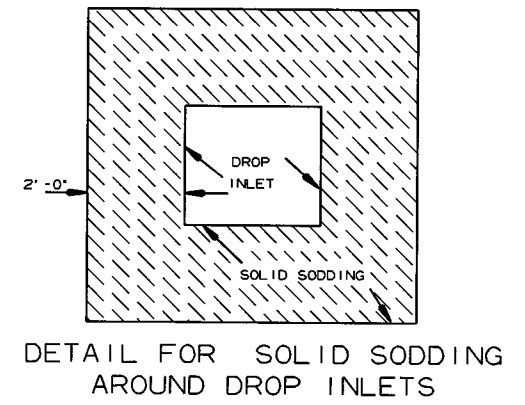
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2 SPECIAL DETAILS



- NOTES:
1. DROP INLET SHALL CONFORM TO APPLICABLE GENERAL NOTES FROM STANDARD DRAWING FPC-9D.
  2. SEE STANDARD DRAWING FPC-9M FOR DETAILS OF HEAVY DUTY RING AND COVER.
  3. SEE STD. DRAWING FPC-9D FOR REINFORCING DETAILS OF WALLS AND BOTTOM.
  4. PAYMENT FOR DROP INLET SHALL BE MADE UNDER "DROP INLET (TYPE RM SPECIAL)".

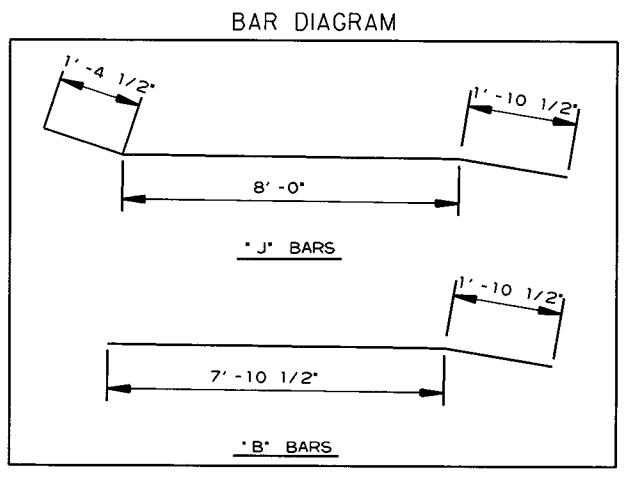
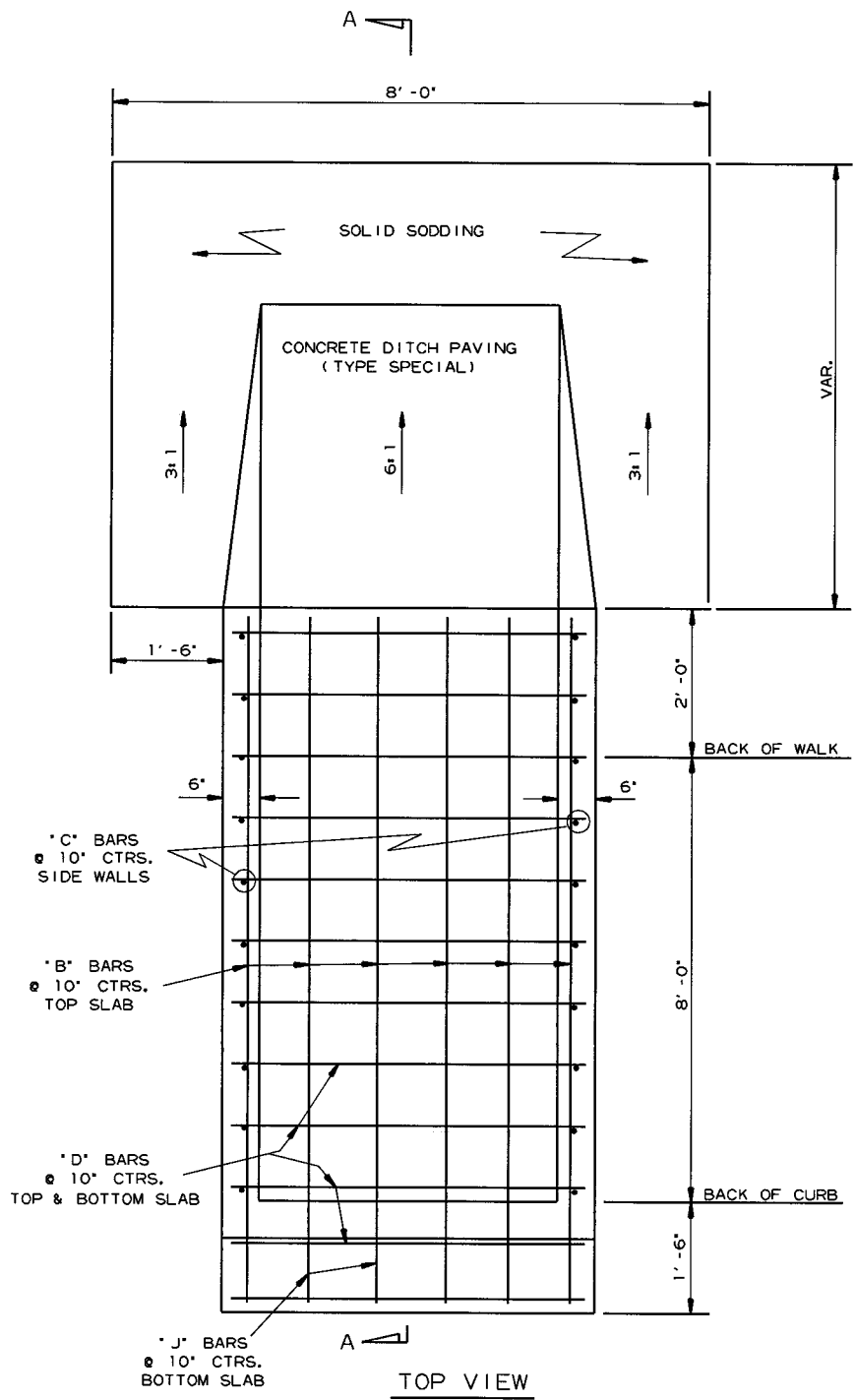


SEE STANDARD DRAWING FPC-9D FOR "T" AND "W"

DROP INLET TYPE RM SPECIAL  
NTS

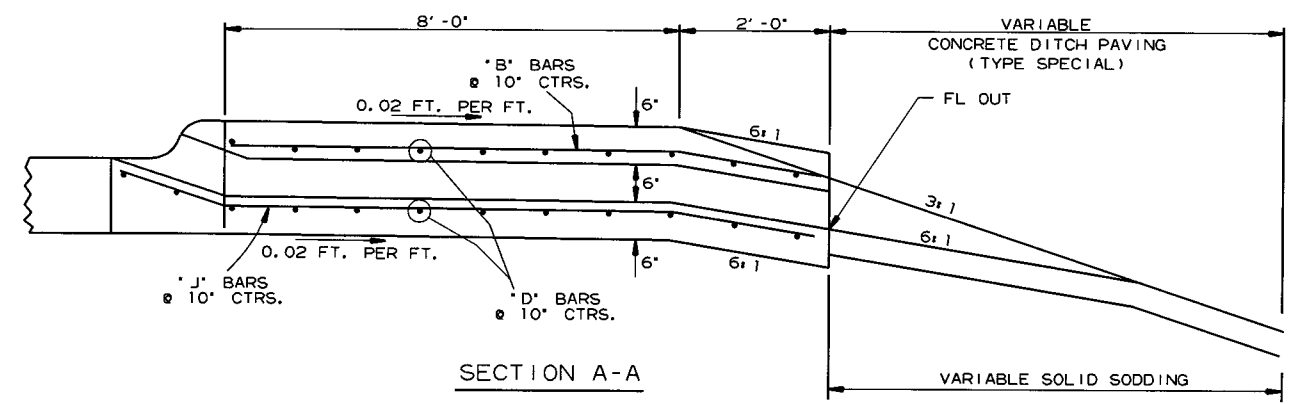
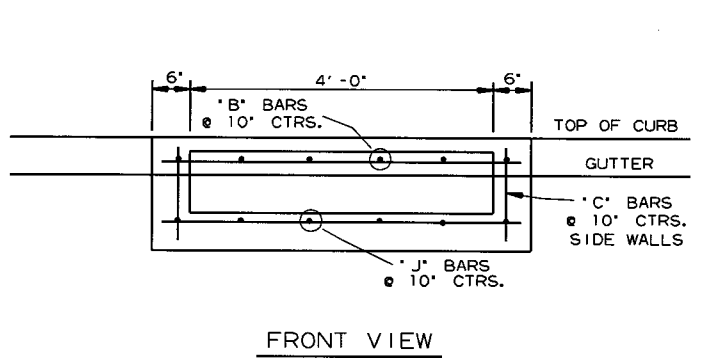
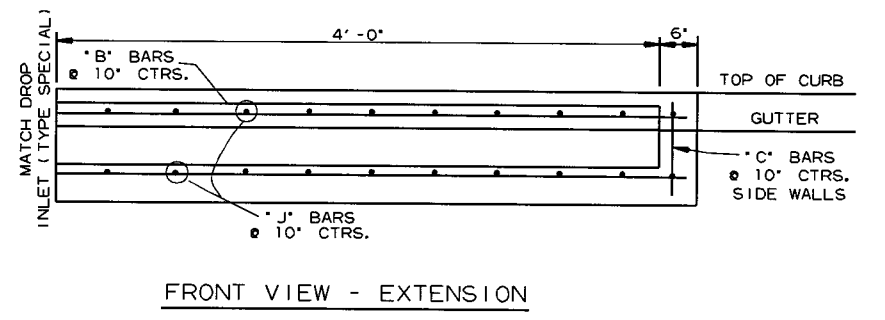
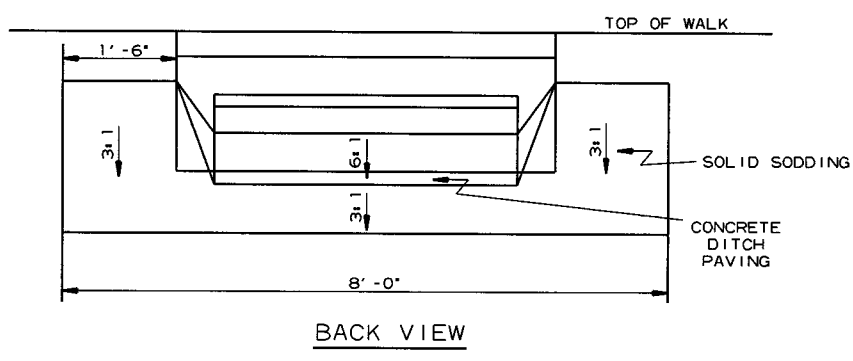
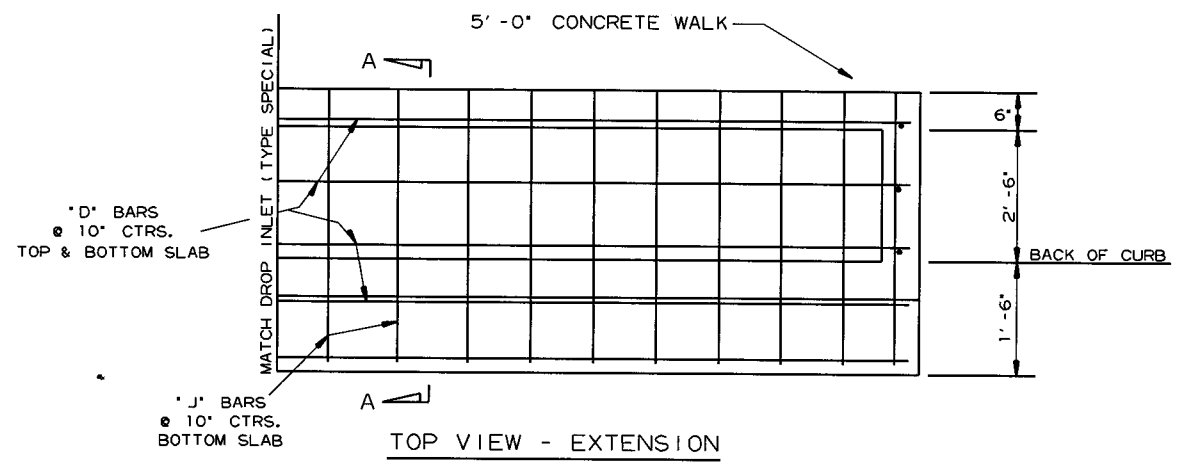
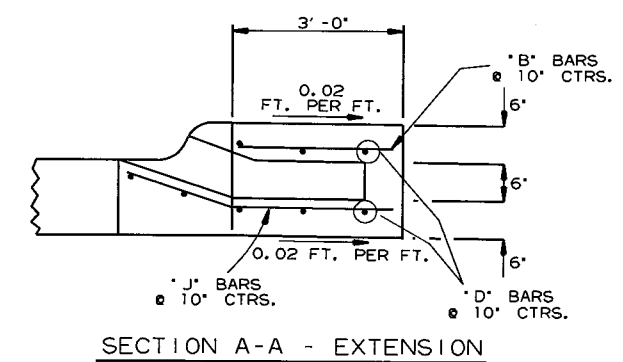
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2 SPECIAL DETAILS



| CLASS    | RE INF.     |
|----------|-------------|
| A        | STEEL-RDWY. |
| CONC.    | (GRADE 60)  |
| CU. YDS. | POUND       |
| 2.53     | 207         |

QUANTITIES FOR INFORMATION ONLY  
DROP INLET (TYPE SPECIAL)



DROP INLET (TYPE SPECIAL)

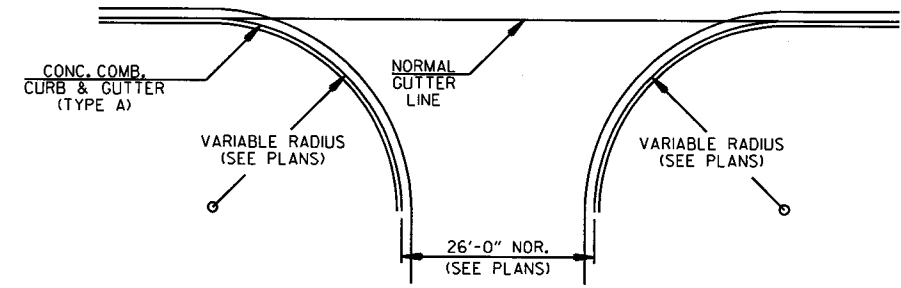
- GENERAL NOTES:
- ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
  - ALL REINF. BARS SHALL BE #4 AND HAVE 1 1/2" COVER.
  - DROP INLETS AND EXTENSIONS ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
  - DURING CONSTRUCTION OF THE ROADWAY, THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
  - PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
  - CONCRETE DITCH PAVING & SOLID SODDING SHALL BE PAID FOR SEPARATELY.
  - CONSTRUCT EXTENSIONS UPSTREAM OF DROP INLET UNLESS OTHERWISE SPECIFIED.

SPECIAL DETAILS

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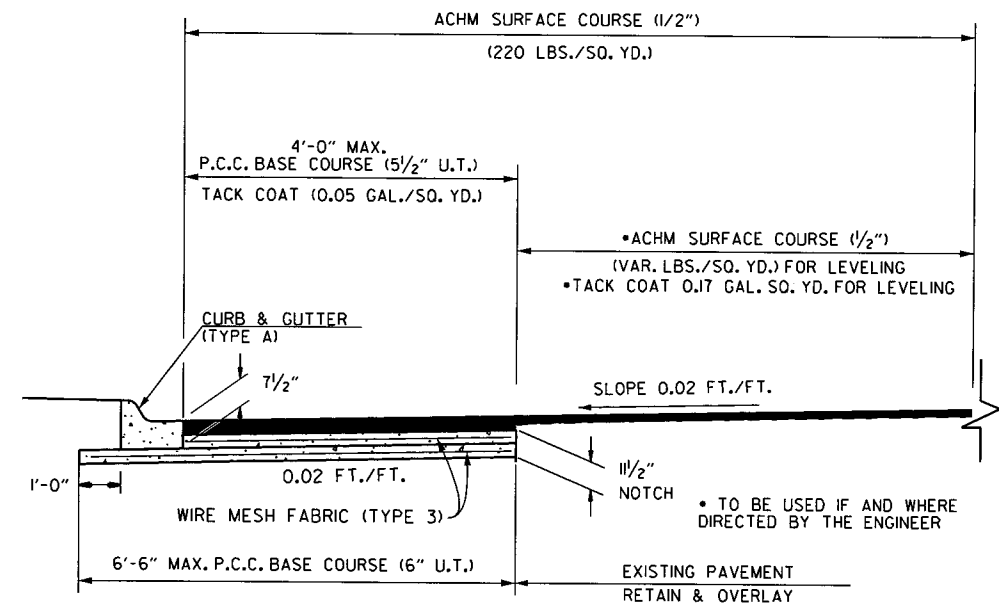
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|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 |                    | 6         | 41           |

2 SPECIAL DETAILS

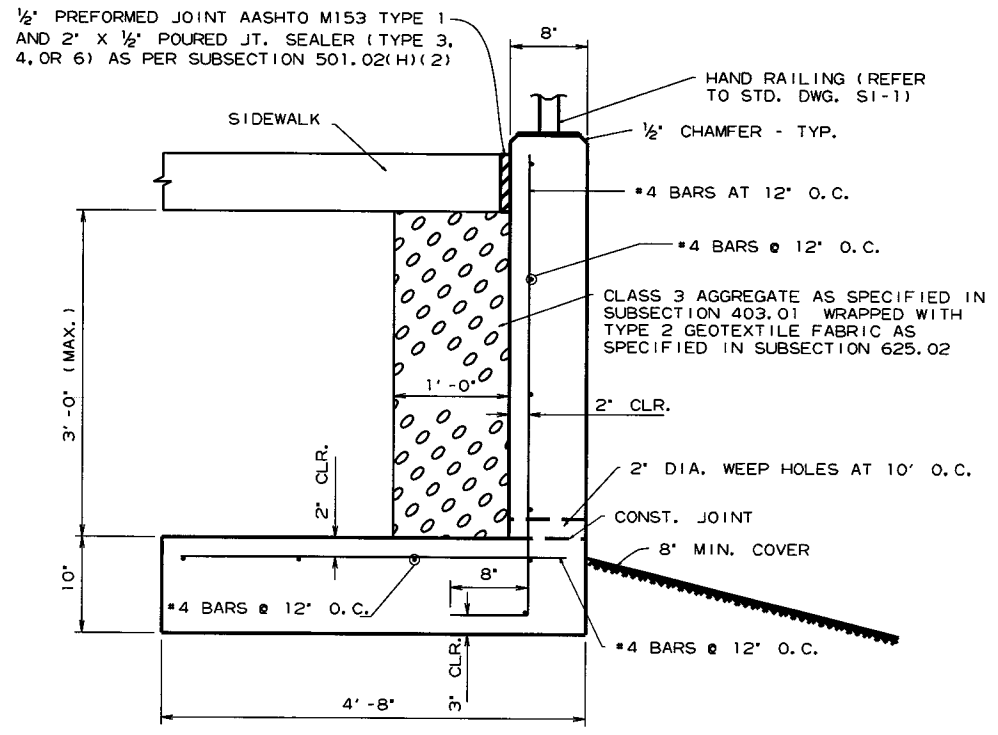


NOTE:  
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS,  
& COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS,  
COUNTY ROADS & STATE HIGHWAYS  
CURB & GUTTER SECTION

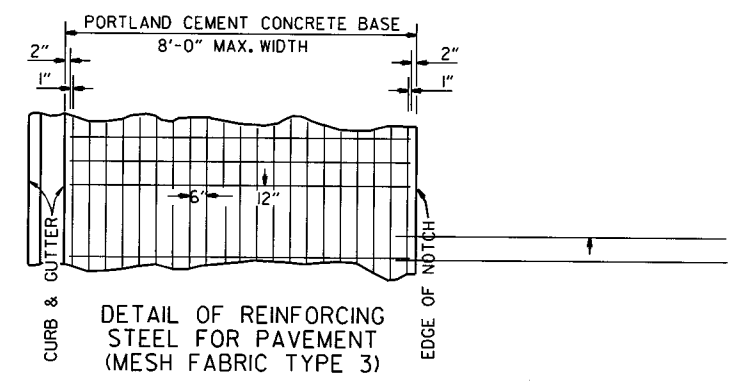


P.C.C. BASE WIDENING DETAIL  
P.C.C. BASE WIDENING TO BE USED AS SHOWN ON THE PLANS  
& IF OR WHERE DIRECTED BY THE ENGINEER.

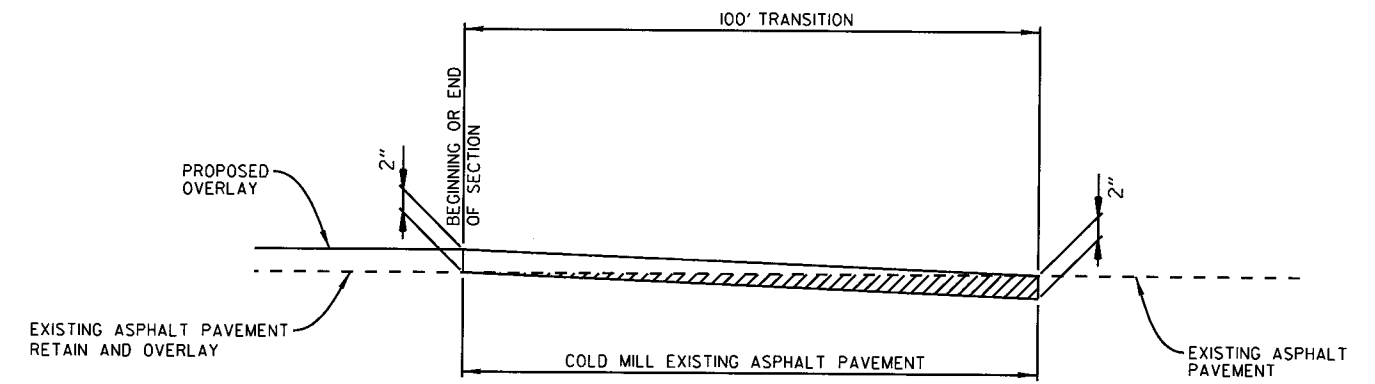


NOTES:  
JOINTS IN THE WALL SHALL MATCH THE TYPE AND SPACING OF THE JOINTS IN THE WALK.  
ALL CONCRETE SHALL BE CLASS S (F'C=3,500 PSI) AND SHALL BE POURED IN THE DRY.  
REINFORCING STEEL SHALL BE AASHTO M31 OR M53, GRADE 60 (FY=60,000 PSI).  
PAYMENT FOR THE WEEP HOLES, CLASS 3 AGGREGATE, TYPE 2 GEOTEXTILE FABRIC,  
PREFORMED JOINT FILLER, POURED JOINT SEALER, REINF. STEEL, AND CONCRETE SHALL BE  
INCLUDED IN THE UNIT BID PRICE PER SQ. YD. FOR CONCRETE WALKS (TYPE SPECIAL).

CONCRETE RETAINING WALL SPECIAL DETAIL  
MAX HEIGHT 3' - 0"



NOTES:  
6" X 12" MESH FABRIC (TYPE 3) (W5.5 x W2.9) = 4.26 LBS./SQ. YD.  
1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 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 BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (5 1/2" U.T.) AND PORTLAND CEMENT CONCRETE BASE (6" U.T.)

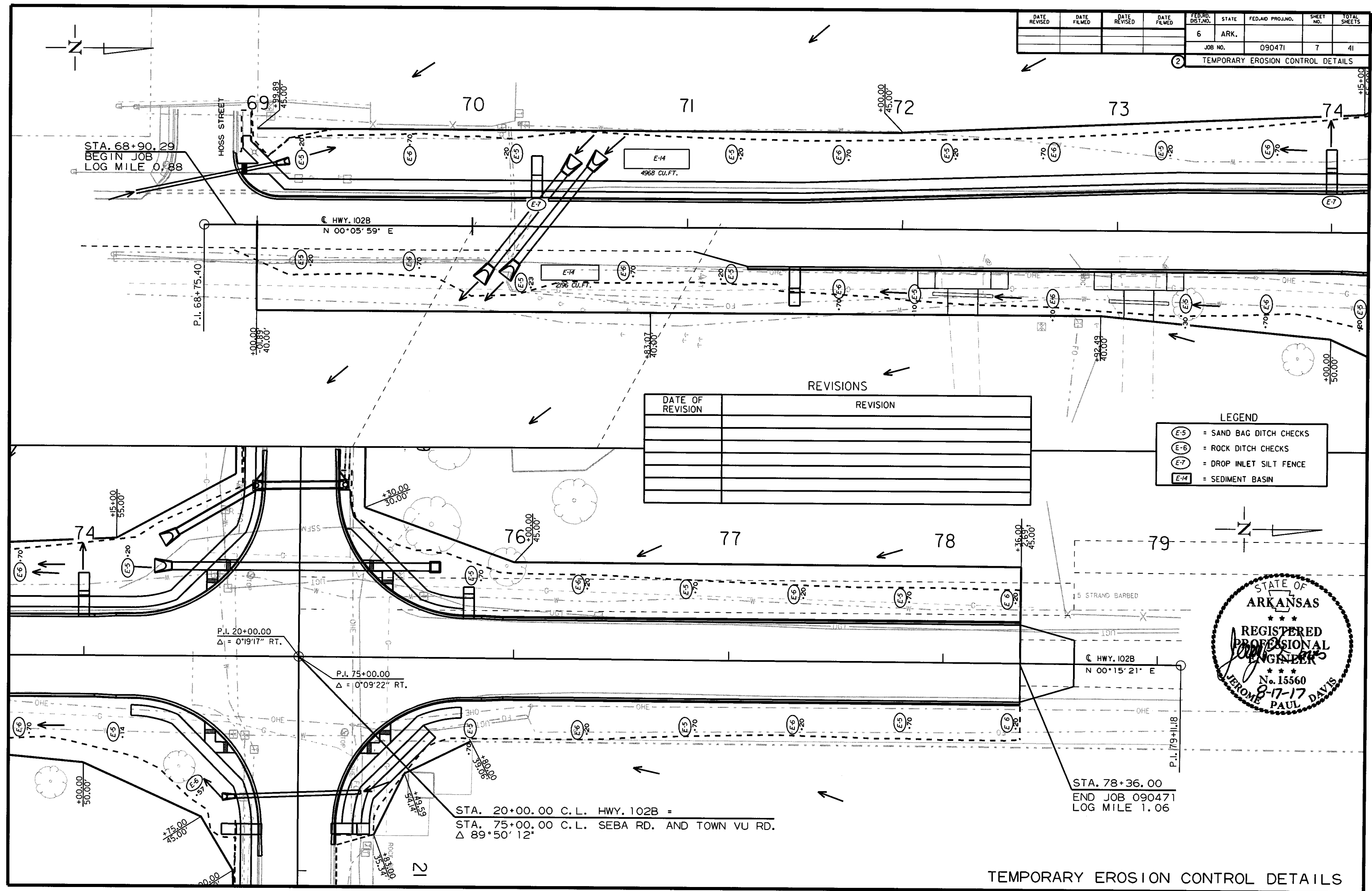
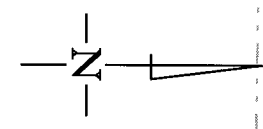


MILL & OVERLAY TRANSITION DETAIL

SPECIAL DETAILS

USER: f553  
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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO.                | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|-----------------------------------|-------|--------------------|-----------|--------------|
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|              |             |              |             | JOB NO.                           |       | 090471             |           |              |
|              |             |              |             | TEMPORARY EROSION CONTROL DETAILS |       |                    |           |              |

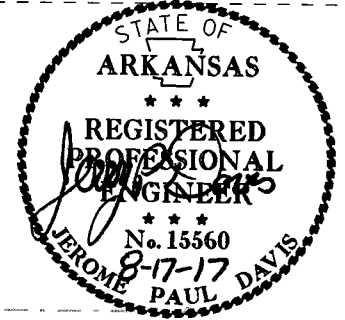


REVISIONS

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

LEGEND

|  |                         |
|--|-------------------------|
|  | = SAND BAG DITCH CHECKS |
|  | = ROCK DITCH CHECKS     |
|  | = DROP INLET SILT FENCE |
|  | = SEDIMENT BASIN        |



USER: f6513  
 DESIGN FILE: G:\N161601\SEBA\TRANSP\dgn\090471\Seba Rd.dgn  
 PLOTTED: 8/17/2017 11:55 SCALE: 40x

TEMPORARY EROSION CONTROL DETAILS

| DATE REVISED   | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO.                         | TOTAL SHEETS |
|----------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------------------------------|--------------|
|                |             |              |             | 6                  | ARK.  |                    | 8                                 | 41           |
| JOB NO. 090471 |             |              |             |                    |       |                    | TEMPORARY EROSION CONTROL DETAILS |              |

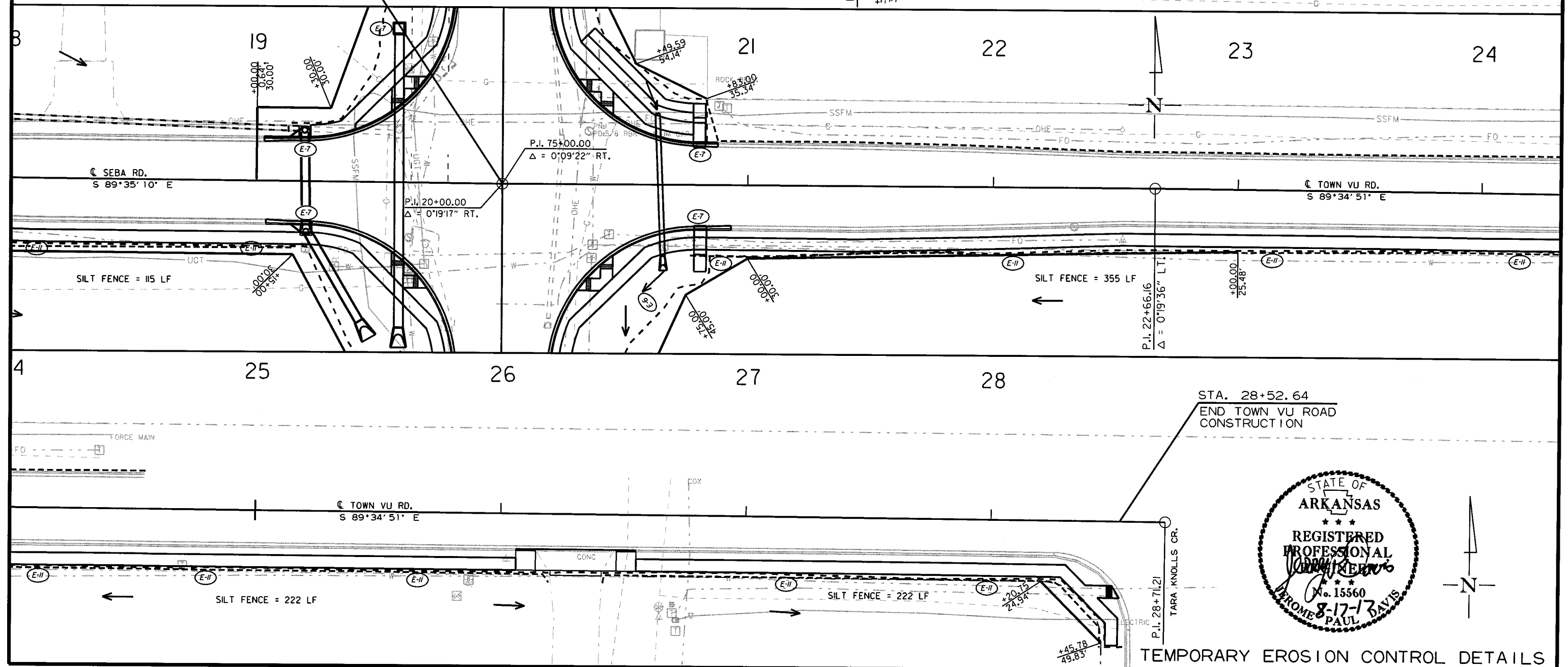
- LEGEND**
- (E-5) = SAND BAG DITCH CHECKS
  - (E-6) = ROCK DITCH CHECKS
  - (E-7) = DROP INLET SILT FENCE
  - (E-11) = SILT FENCE

**REVISIONS**

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

STA. 15+72.02  
BEGIN SEBA ROAD  
CONSTRUCTION

STA. 20+00.00 C.L. HWY. 102B =  
STA. 75+00.00 C.L. SEBA AND TOWN VU RD.  
 $\Delta = 89^{\circ}50'31''$



TEMPORARY EROSION CONTROL DETAILS

USER: f8513  
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PLOTTED: 8/17/2017 11:55  
SCALE: 40x



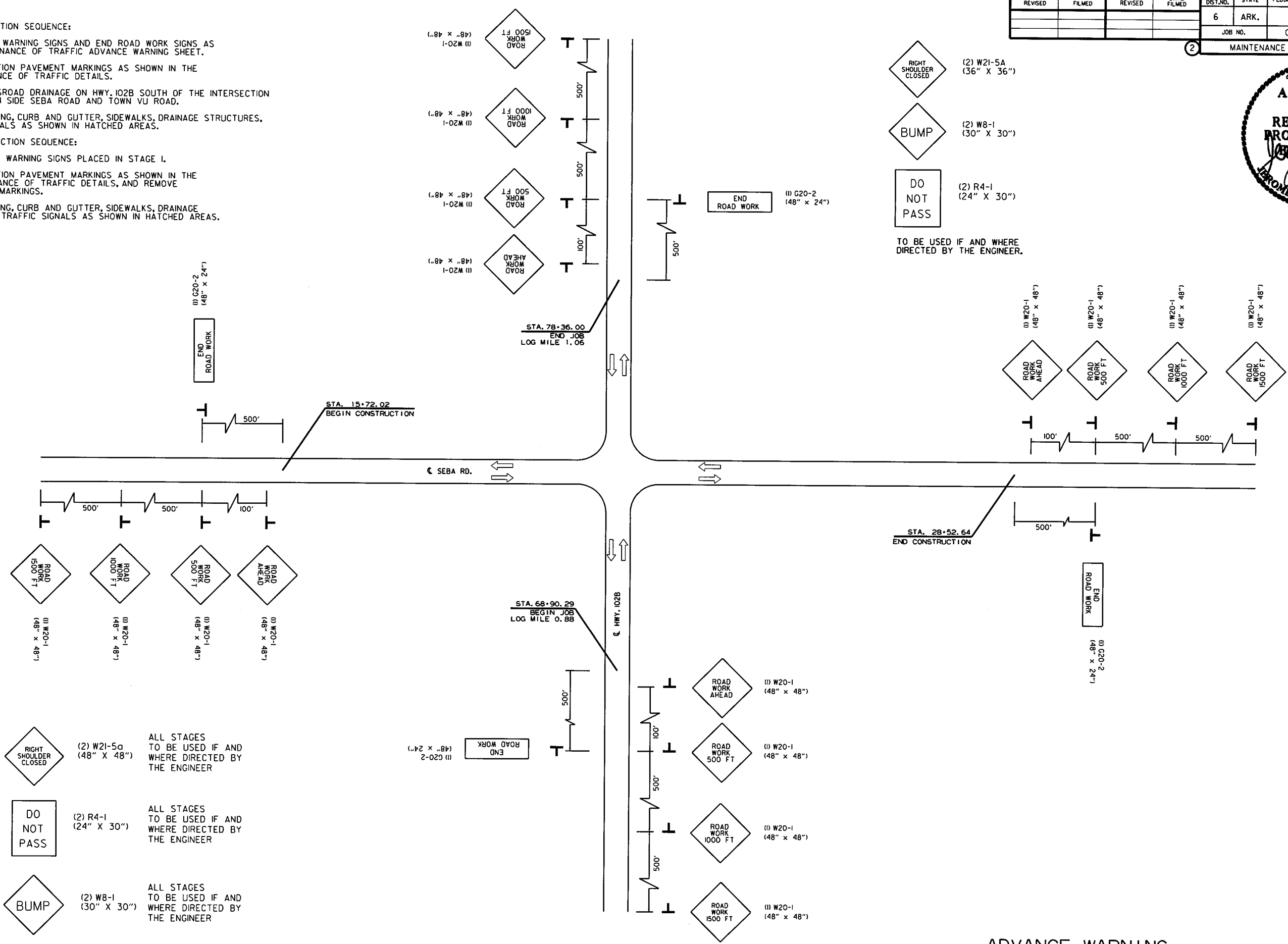
| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 |                    | 9         | 41           |

2 MAINTENANCE OF TRAFFIC DETAILS



**STAGE 1 CONSTRUCTION SEQUENCE:**  
 INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AS SHOWN ON MAINTENANCE OF TRAFFIC ADVANCE WARNING SHEET.  
 APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.  
 CONSTRUCT CROSSROAD DRAINAGE ON HWY. 102B SOUTH OF THE INTERSECTION AND ALONG SOUTH SIDE SEBA ROAD AND TOWN VU ROAD.  
 CONSTRUCT WIDENING, CURB AND GUTTER, SIDEWALKS, DRAINAGE STRUCTURES, AND TRAFFIC SIGNALS AS SHOWN IN HATCHED AREAS.

**STAGE 2 CONSTRUCTION SEQUENCE:**  
 MAINTAIN ADVANCE WARNING SIGNS PLACED IN STAGE 1.  
 APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS, AND REMOVE ANY CONFLICTING MARKINGS.  
 CONSTRUCT WIDENING, CURB AND GUTTER, SIDEWALKS, DRAINAGE STRUCTURES, AND TRAFFIC SIGNALS AS SHOWN IN HATCHED AREAS.



(2) W21-5A  
(36" X 36")

(2) W8-1  
(30" X 30")

(2) R4-1  
(24" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

(2) W21-5A  
(48" X 48")

(2) R4-1  
(24" X 30")

(2) W8-1  
(30" X 30")

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

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

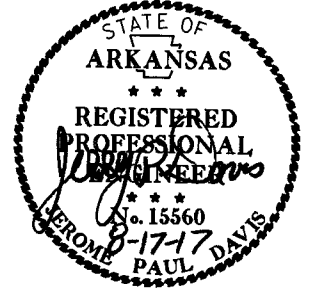
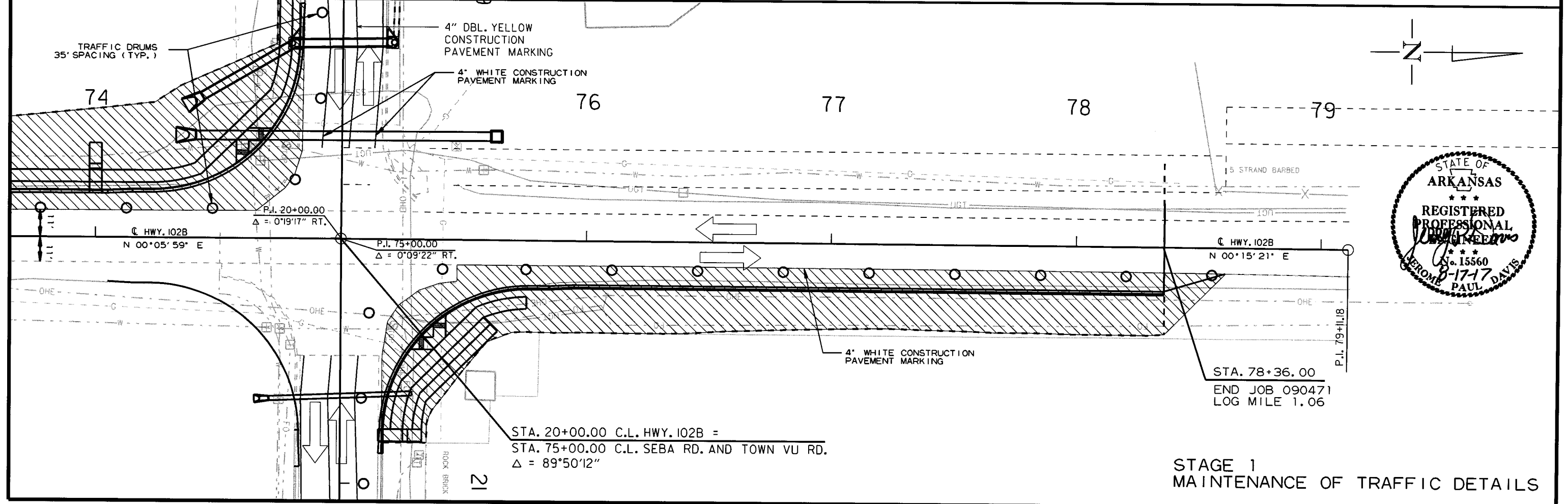
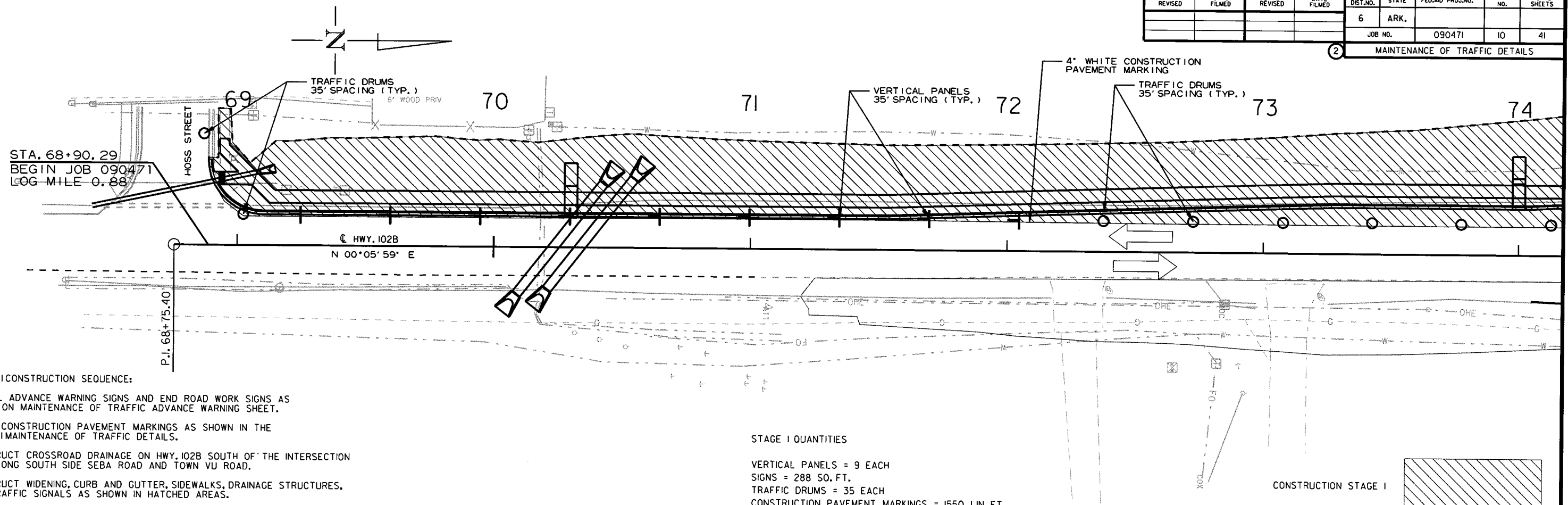
ALL STAGES TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

ADVANCE WARNING  
 MAINTENANCE OF TRAFFIC DETAILS

USER: f5513  
 DESIGN FILE: G:\161601-SEBA\TRANSP\dgn\090471-Seba Rd.dgn  
 PLOTTED: 8/17/2017 11:55 SCALE: 200H

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 | 10                 | 41        |              |

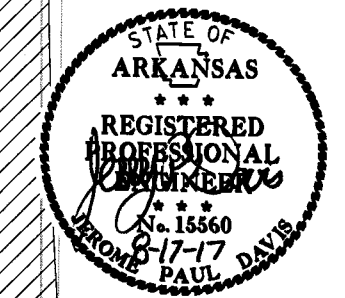
2 MAINTENANCE OF TRAFFIC DETAILS



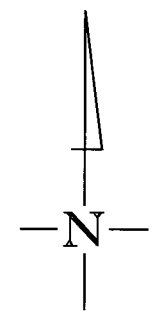
STAGE 1  
MAINTENANCE OF TRAFFIC DETAILS

USER: f5513  
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PLOTTED: 8/17/2017 11:55  
SCALE: 40x

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 | II                 | 41        |              |



MAINTENANCE OF TRAFFIC DETAILS



STA. 15+72.02  
BEGIN SEBA ROAD  
CONSTRUCTION

16

17

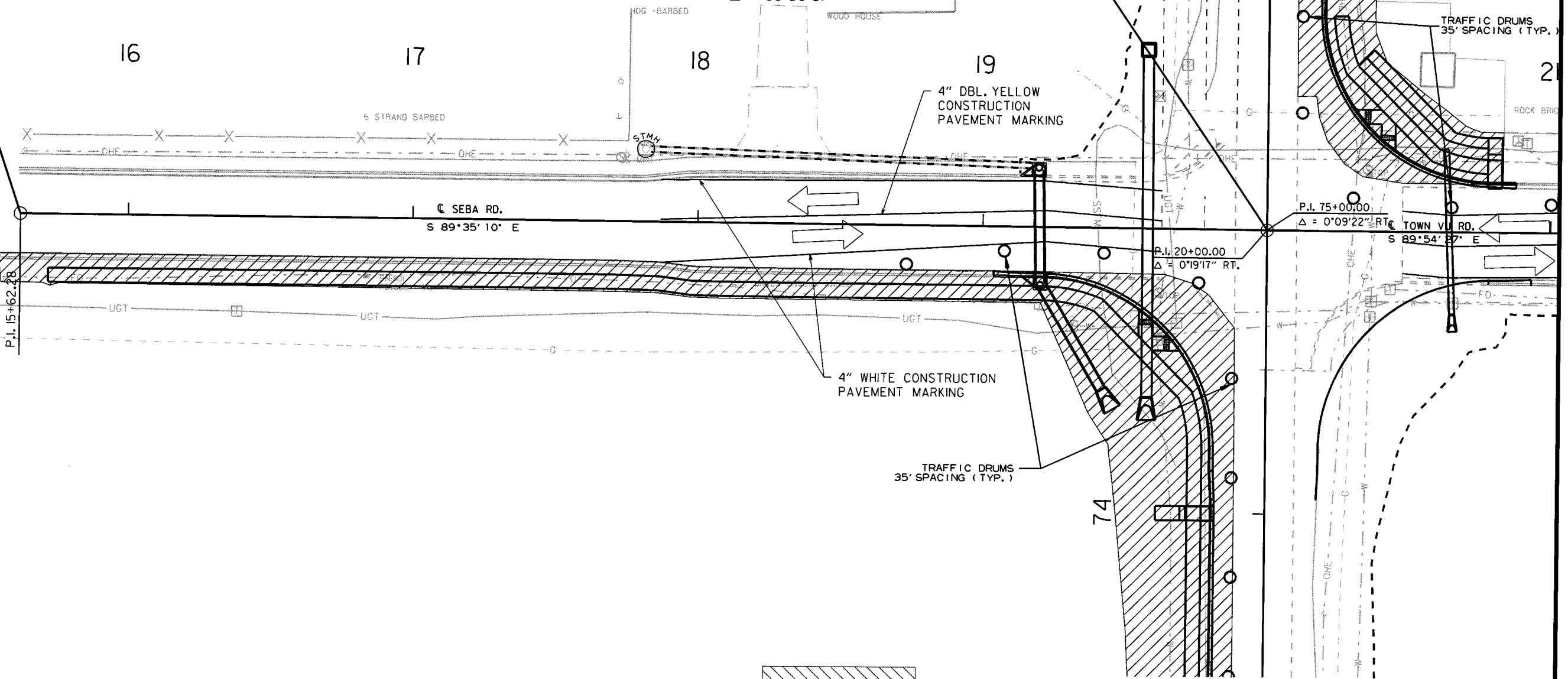
18

19

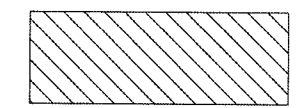
76

74

STA. 20+00.00 C.L. HWY. 102B =  
STA. 75+00.00 C.L. SEBA RD. AND TOWN VU RD.  
 $\Delta = 89^{\circ}50'31''$



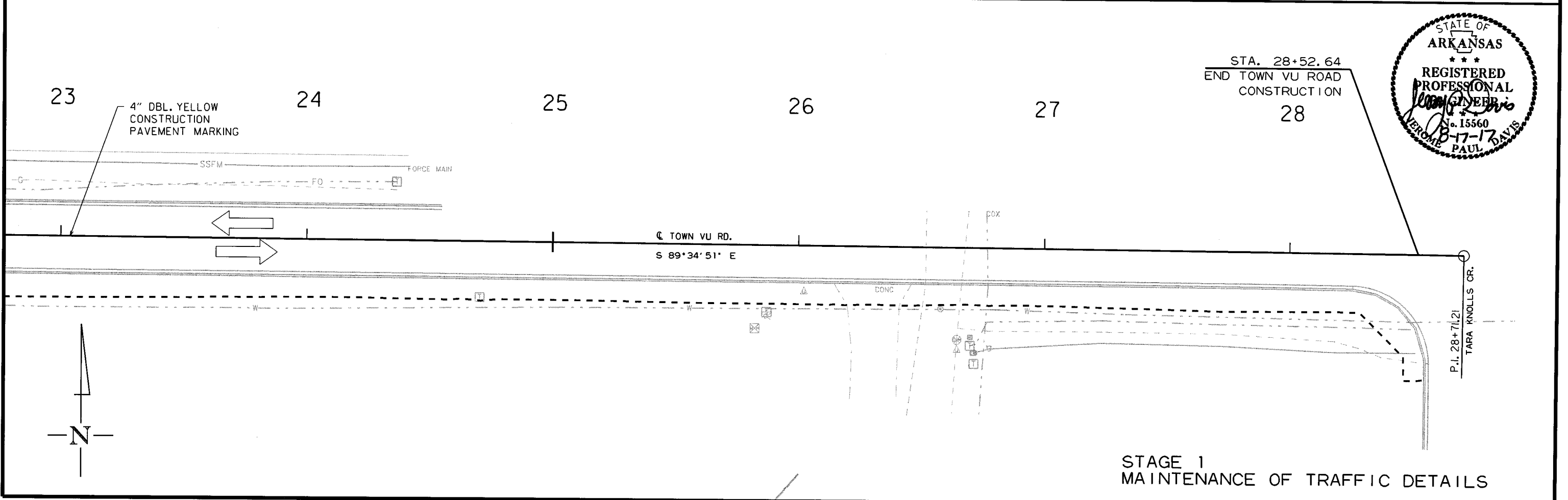
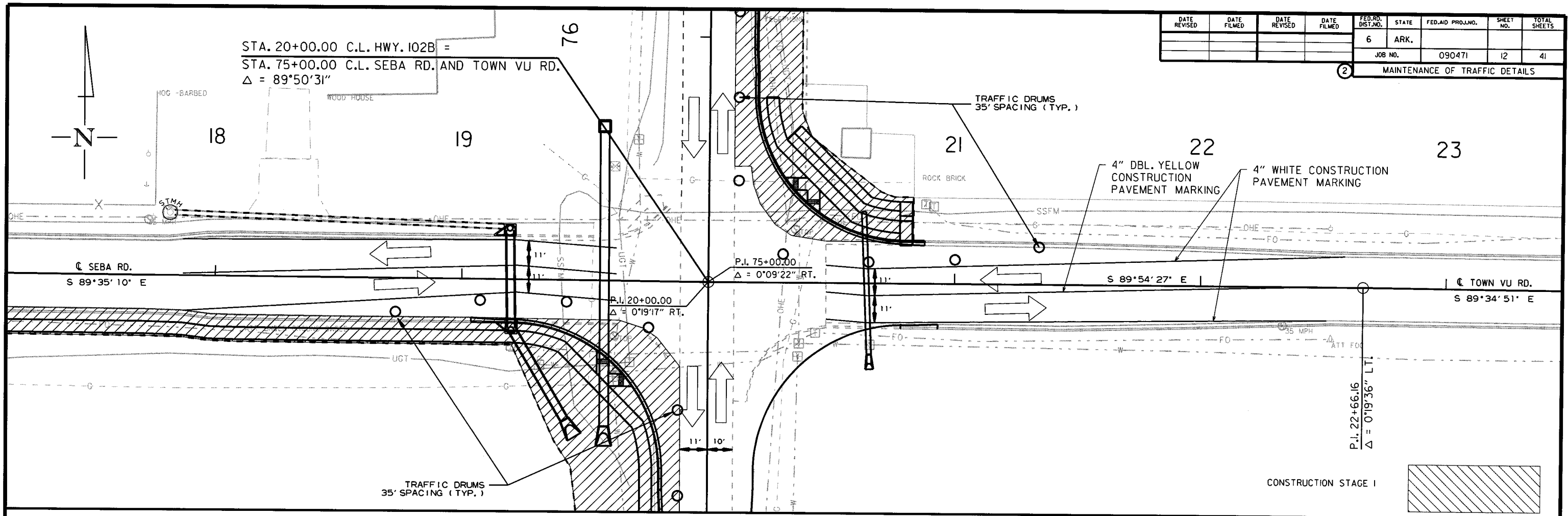
CONSTRUCTION STAGE I



STAGE 1  
MAINTENANCE OF TRAFFIC DETAILS

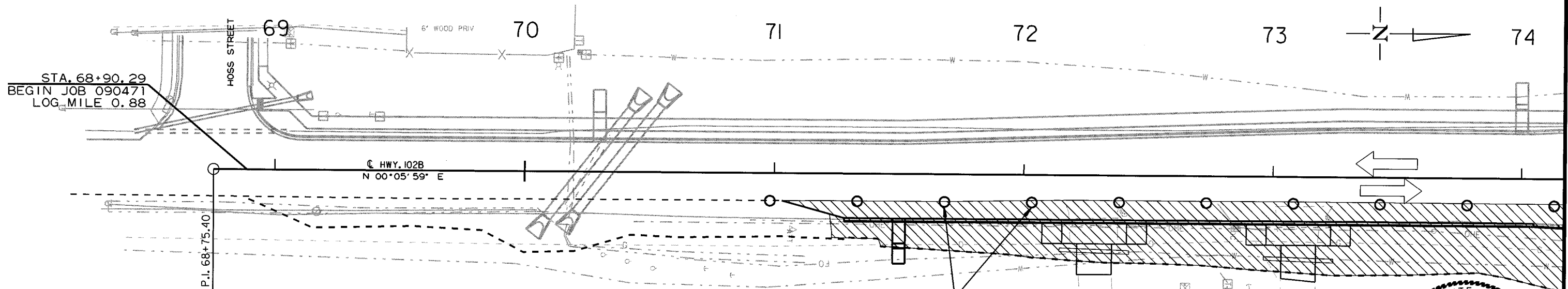
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| DATE REVISED                     | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|----------------------------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|                                  |             |              |             | 6                  | ARK.   |                    |           |              |
|                                  |             |              |             | JOB NO.            | 090471 |                    | 12        | 41           |
| ② MAINTENANCE OF TRAFFIC DETAILS |             |              |             |                    |        |                    |           |              |



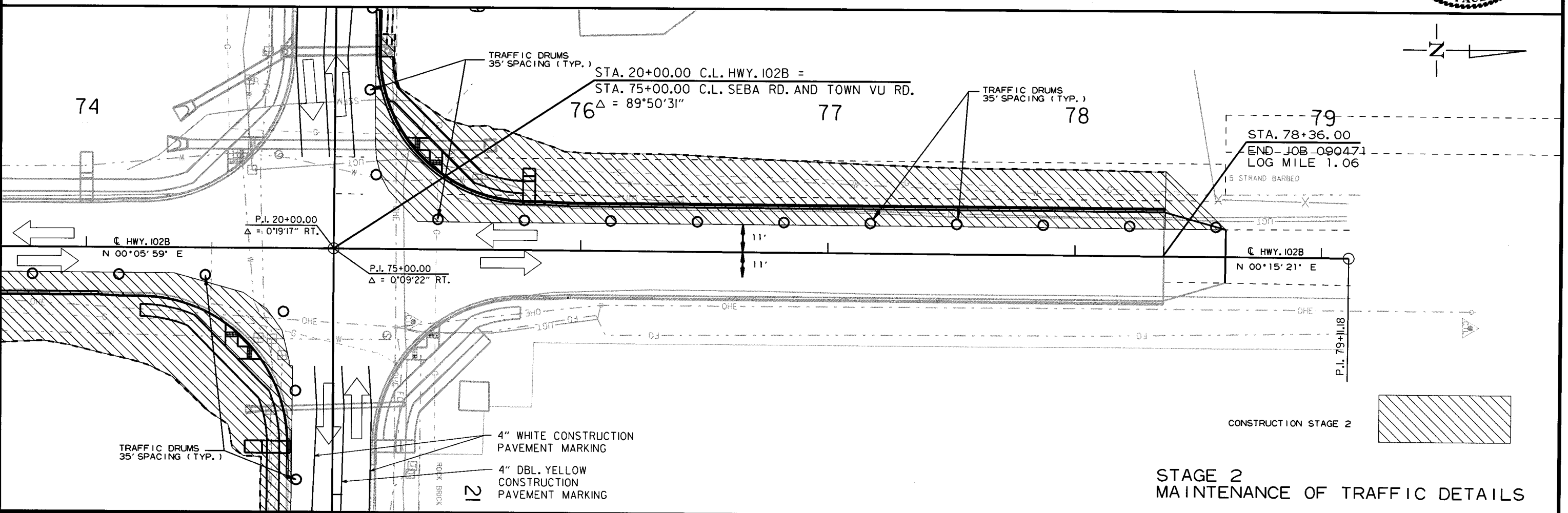
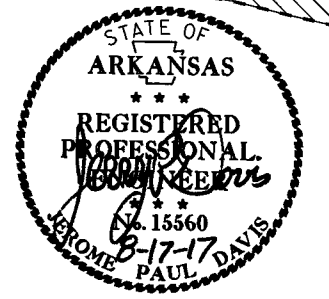
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| DATE REVISED                     | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO.      | TOTAL SHEETS |
|----------------------------------|-------------|--------------|-------------|--------------------|-------|--------------------|----------------|--------------|
|                                  |             |              |             | 6                  | ARK.  |                    |                |              |
|                                  |             |              |             |                    |       |                    | JOB NO. 090471 | 13 41        |
| ② MAINTENANCE OF TRAFFIC DETAILS |             |              |             |                    |       |                    |                |              |



STAGE 2 CONSTRUCTION SEQUENCE:  
 MAINTAIN ADVANCE WARNING SIGNS PLACED IN STAGE 1.  
 APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS, AND REMOVE ANY CONFLICTING MARKINGS.  
 CONSTRUCT WIDENING, CURB AND GUTTER, SIDEWALKS, DRAINAGE STRUCTURES, AND TRAFFIC SIGNALS AS SHOWN IN HATCHED AREAS.

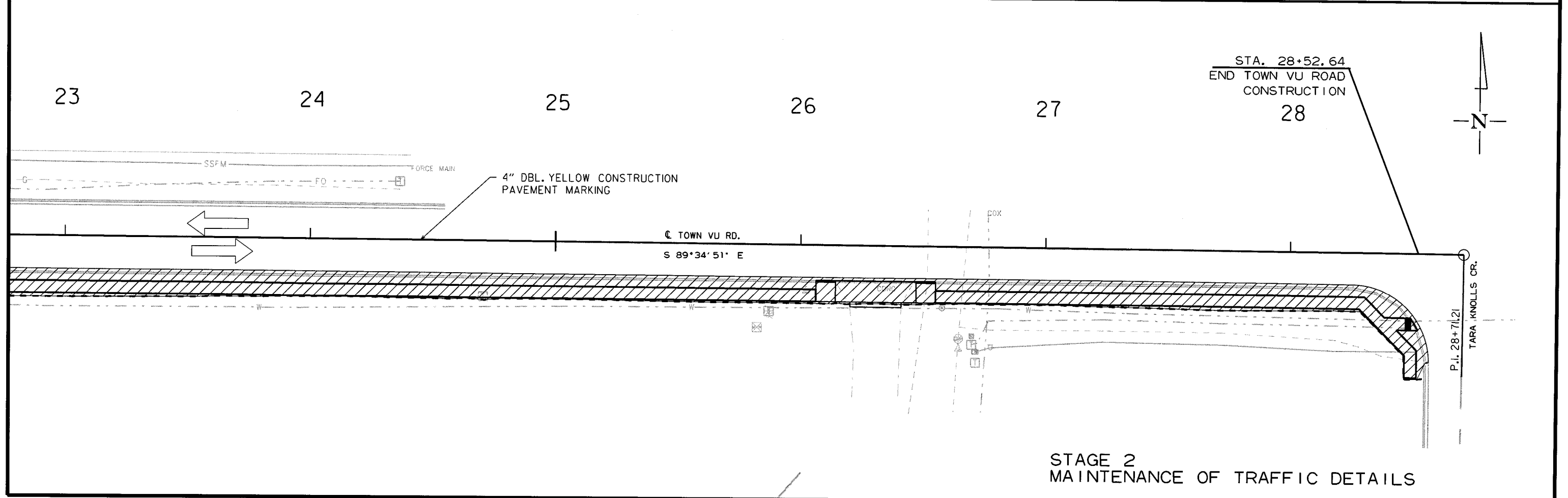
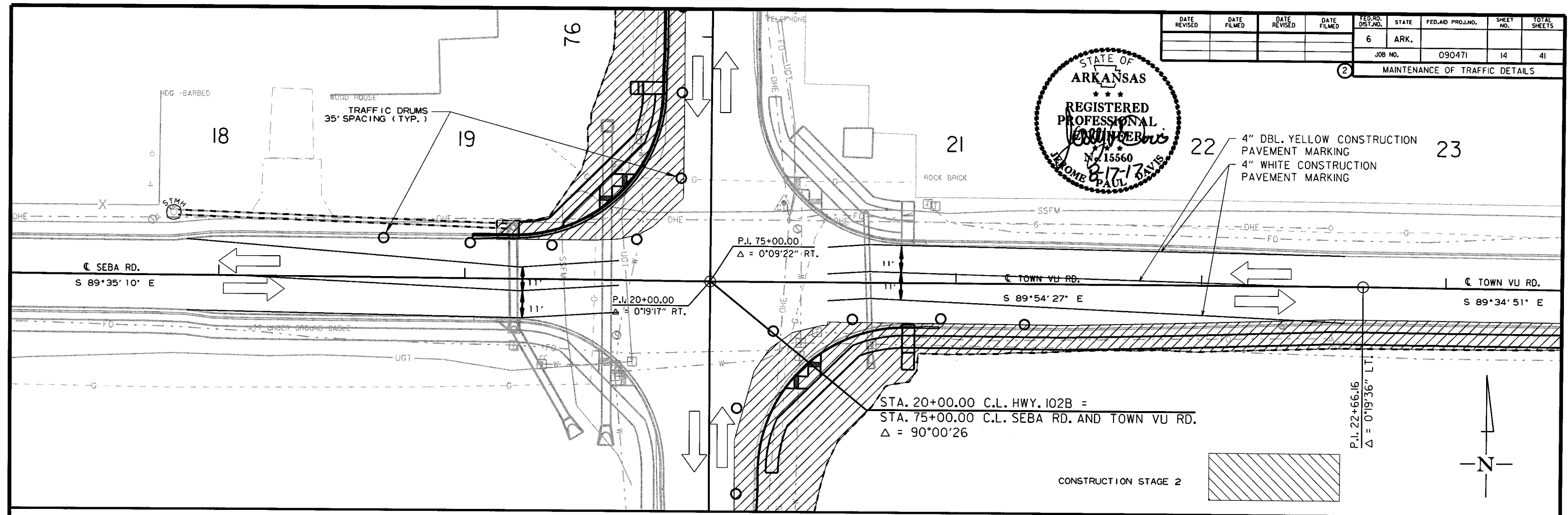
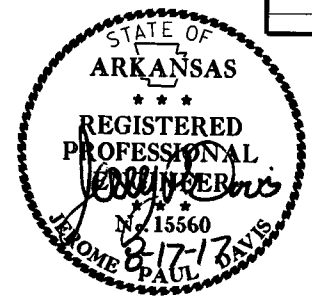
STAGE 2 QUANTITIES  
 SIGNS = 288 SQ. FT.  
 TRAFFIC DRUMS = 28 EACH  
 CONSTRUCTION PAVEMENT MARKINGS = 946 LIN. FT.



STAGE 2  
 MAINTENANCE OF TRAFFIC DETAILS

USER: fs513  
 DESIGN FILE: G:\N1611601\_SEBA\_TRANSP\dgn\090471\_Seba Rd.dgn  
 PLOTTED: 8/17/2017 11:55  
 SCALE: 40x

| DATE REVISED                   | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------------------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
|                                |             |              |             | 6                  | ARK.  | 090471             | 14        | 41           |
|                                |             |              |             |                    |       |                    | 2         |              |
| MAINTENANCE OF TRAFFIC DETAILS |             |              |             |                    |       |                    |           |              |



STAGE 2  
MAINTENANCE OF TRAFFIC DETAILS

USER: fs513  
DESIGN FILE: G:\1611601\_SEBA\_TRANSP\dgn\090471\_Seba Rd.dgn  
PLOTTED: 8/17/2017 11:55  
SCALE: 40:1

TERMOPLASTIC PAVEMENT MARKINGS:

6" YELLOW SOLID LINE = 3602 LIN. FT.  
 6" WHITE SOLID LINE = 1634 LIN. FT.  
 12" WHITE SOLID LINE = 665 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKINGS

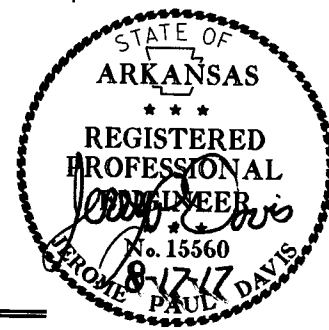
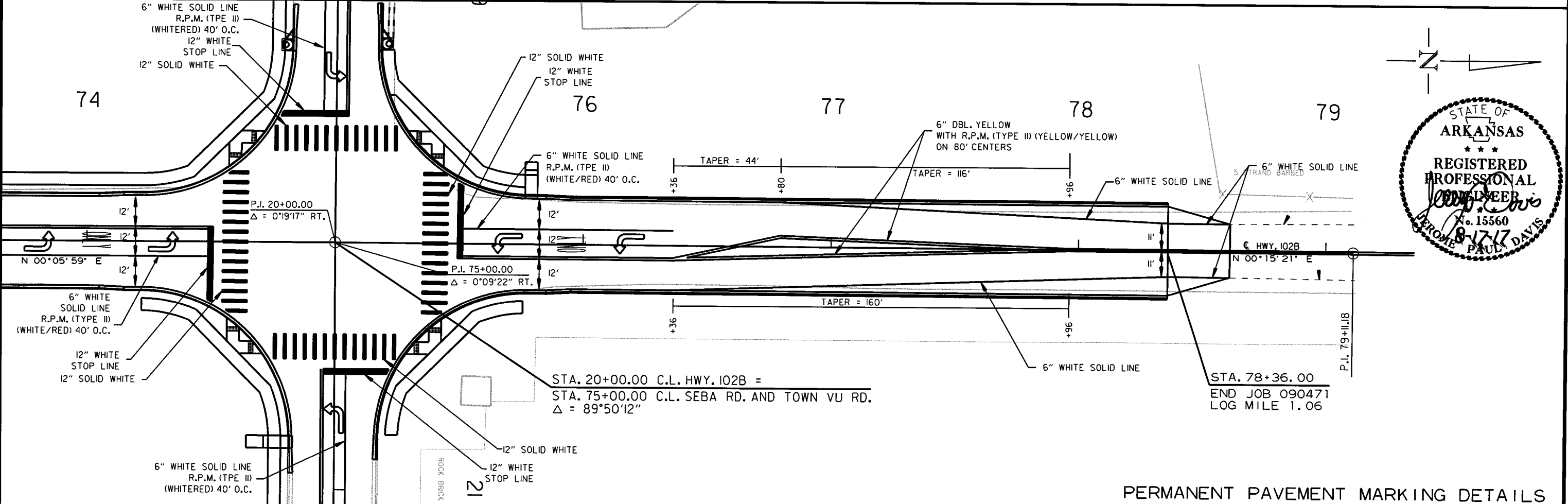
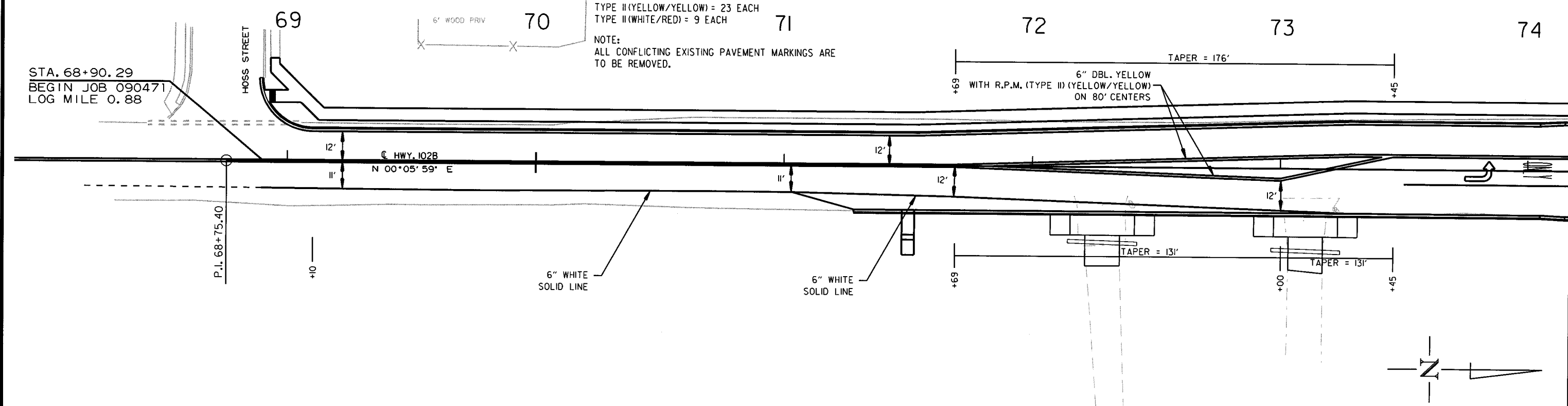
ARROWS = 6 EACH  
 WORDS = 2 EACH

RAISED PAVEMENT MARKERS (80' O.C.)

TYPE II (YELLOW/YELLOW) = 23 EACH  
 TYPE II (WHITE/RED) = 9 EACH

NOTE:  
 ALL CONFLICTING EXISTING PAVEMENT MARKINGS ARE TO BE REMOVED.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO.                 | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|------------------------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.                            | 090471 |                    | 15        | 41           |
|              |             |              |             | PERMANENT PAVEMENT MARKING DETAILS |        |                    |           |              |

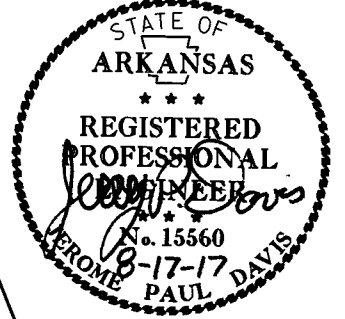
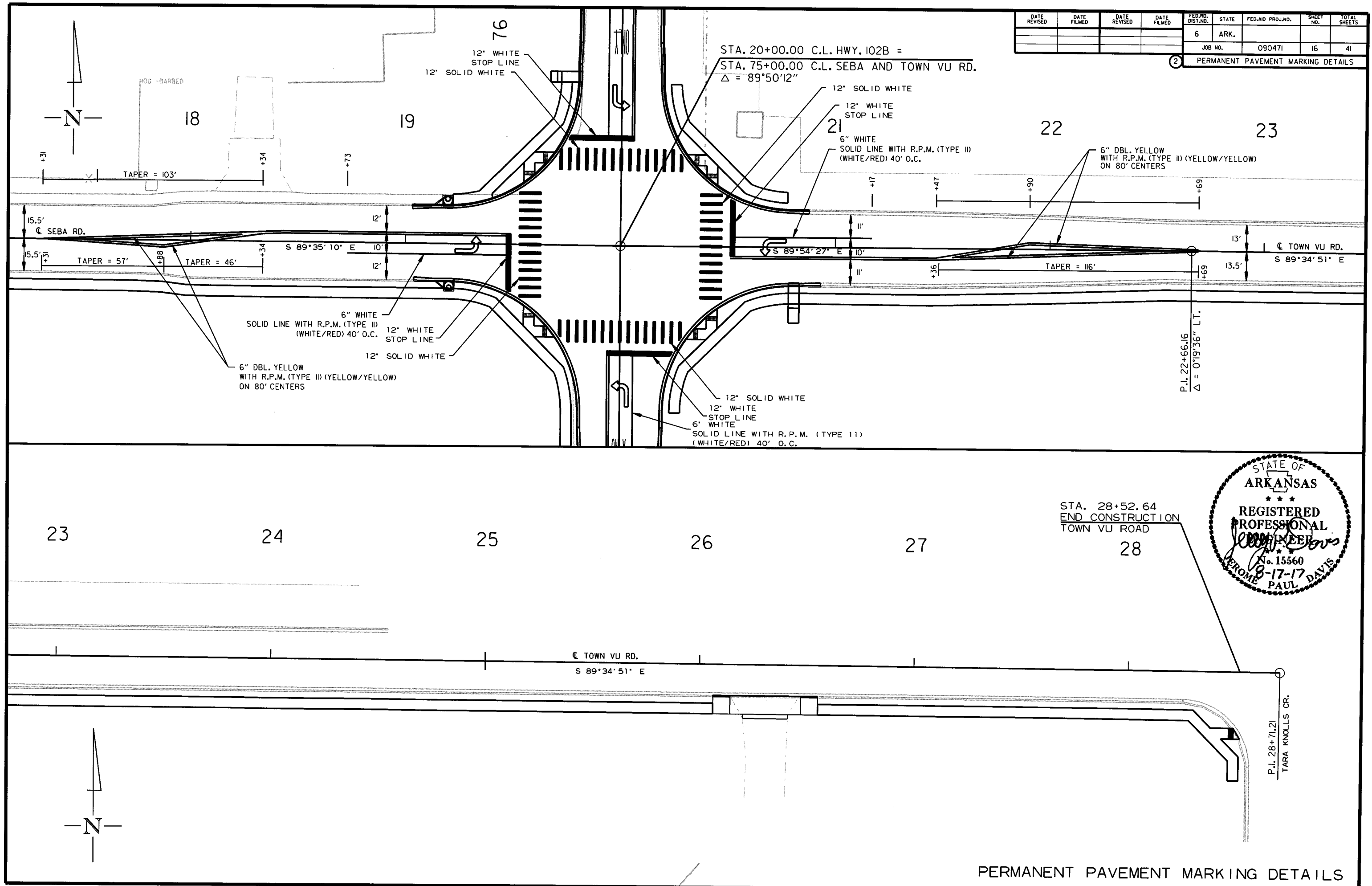


PERMANENT PAVEMENT MARKING DETAILS

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO.    | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|--------------|--------------|
|              |             |              |             | 6                  | ARK.  |                    |              |              |
|              |             |              |             |                    |       |                    | JOB NO.      | 090471       |
|              |             |              |             |                    |       |                    | SHEET NO.    | 16           |
|              |             |              |             |                    |       |                    | TOTAL SHEETS | 41           |

PERMANENT PAVEMENT MARKING DETAILS



STA. 28+52.64  
END CONSTRUCTION  
TOWN VU ROAD

PERMANENT PAVEMENT MARKING DETAILS

USER: f6503  
DESIGN FILE: G:\1611601\_SEBA\_TRANSP\dgn\090471\_Seba Rd.dgn  
PLOTTED: 8/17/2017 11:55  
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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|----------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6              | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.        | 090471 |                    | 17        | 41           |

**ADVANCE WARNING SIGNS AND DEVICES**

| SIGN NUMBER    | DESCRIPTION           | SIGN SIZE | STAGE 1         | STAGE 2 | MAXIMUM NUMBER REQUIRED | TOTAL SIGNS REQUIRED |         | VERTICAL PANELS | TRAFFIC DRUMS |
|----------------|-----------------------|-----------|-----------------|---------|-------------------------|----------------------|---------|-----------------|---------------|
|                |                       |           | LIN. FT. - EACH |         |                         | NO.                  | SQ. FT. |                 |               |
| W20-1          | ROAD WORK 1500 FT.    | 48"x48"   | 4               | 4       | 4                       | 4                    | 64.0    |                 |               |
| W20-1          | ROAD WORK 1000 FT.    | 48"x48"   | 4               | 4       | 4                       | 4                    | 64.0    |                 |               |
| W20-1          | ROAD WORK 500 FT.     | 48"x48"   | 4               | 4       | 4                       | 4                    | 64.0    |                 |               |
| W20-1          | ROAD WORK AHEAD       | 48"x48"   | 4               | 4       | 4                       | 4                    | 64.0    |                 |               |
| G20-2          | END ROAD WORK         | 48"x24"   | 4               | 4       | 4                       | 4                    | 32.0    |                 |               |
| R4-1           | DO NOT PASS           | 24"x30"   | 2               | 2       | 2                       | 2                    | 10.0    |                 |               |
| W8-1           | BUMP                  | 30"x30"   | 2               | 2       | 2                       | 2                    | 12.5    |                 |               |
| W21-5A         | RIGHT SHOULDER CLOSED | 36"x36"   | 2               | 2       | 2                       | 2                    | 18.0    |                 |               |
|                | VERTICAL PANELS       |           | 9               |         | 9                       |                      |         | 9               |               |
|                | TRAFFIC DRUMS         |           | 35              | 28      | 35                      |                      |         |                 | 35            |
| <b>TOTALS:</b> |                       |           |                 |         |                         |                      | 328.5   | 9               | 35            |

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

2 QUANTITIES



**CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS**

| DESCRIPTION                                   | STAGE 1 | STAGE 2 | END OF JOB | REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS | REMOVAL OF PERMANENT PAVEMENT MARKINGS | REMOVAL OF PERMANENT PAVEMENT MARKINGS ARROWS | CONSTRUCTION PAVEMENT MARKINGS | RAISED PAVEMENT MARKERS |                     | THERMOPLASTIC PAVEMENT MARKINGS |        |       |        |       |
|---|---------|---------|------------|---|--|---|--------------------------------|-------------------------|---------------------|---------------------------------|--------|-------|--------|-------|
|   |         |         |            |   |  |   |                                | TYPE II (YEL/YEL)       | TYPE II (WHITE/RED) | 6"                              |        | WORDS | ARROWS |       |
|   |         |         |            |   |  |   |                                |                         |                     | WHITE                           | YELLOW |       |        | WHITE |
| LIN. FT. - EACH                               |         |         | LIN. FT.   |   |  | EACH  |                                | LIN. FT.                |                     | EACH                            |        |       |        |       |
| CONSTRUCTION PAVEMENT MARKINGS                | 1550    | 946     |            |   |  |   | 2496                           |                         |                     |                                 |        |       |        |       |
| REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS     |         | 1550    | 946        | 2496                                      |  |   |                                |                         |                     |                                 |        |       |        |       |
| REMOVAL OF PERMANENT PAVEMENT MARKINGS        | 1500    |         |            |   | 1500                                   |   |                                |                         |                     |                                 |        |       |        |       |
| REMOVAL OF PERMANENT PAVEMENT MARKINGS ARROWS |         |         | 4          |   |  | 4   |                                |                         |                     |                                 |        |       |        |       |
| RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)     |         |         | 23         |   |  |   |                                | 23                      |                     |                                 |        |       |        |       |
| RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)   |         |         | 9          |   |  |   |                                |                         | 9                   |                                 |        |       |        |       |
| THERMOPLASTIC PAVEMENT MARKING WHITE (6")     |         |         | 1634       |   |  |   |                                |                         |                     | 1634                            |        |       |        |       |
| THERMOPLASTIC PAVEMENT MARKING YELLOW (6")    |         |         | 3602       |   |  |   |                                |                         |                     |                                 | 3602   |       |        |       |
| THERMOPLASTIC PAVEMENT MARKING WHITE (12")    |         |         | 665        |   |  |   |                                |                         |                     |                                 |        | 665   |        |       |
| THERMOPLASTIC PAVEMENT MARKING WORDS          |         |         | 2          |   |  |   |                                |                         |                     |                                 |        |       | 2      |       |
| THERMOPLASTIC PAVEMENT MARKING ARROWS         |         |         | 6          |   |  |   |                                |                         |                     |                                 |        |       | 6      |       |
| <b>TOTALS:</b>                                |         |         |            | 2496                                      | 1500                                   | 4   | 2496                           | 23                      | 9                   | 1634                            | 3602   | 665   | 2      | 6     |

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

**CLEARING AND GRUBBING**

| STATION        | STATION  | LOCATION  | CLEARING | GRUBBING |
|----------------|----------|-----------|----------|----------|
|                |          |           | STATION  |          |
| 73+00.00       | 77+00.00 | HWY. 102B | 4        | 4        |
| <b>TOTALS:</b> |          |           | 4        | 4        |

**EARTHWORK**

| STATION        | STATION  | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT |
|----------------|----------|------------------------|-------------------------|----------------------|
|                |          |                        | CU. YD.                 |                      |
| 68+90.29       | 74+50.00 | HWY. 102B              | 680                     | 520                  |
| 75+50.00       | 78+36.00 | HWY. 102B              | 97                      | 205                  |
| ENTIRE PROJECT |          | DRIVEWAYS              | 20                      |                      |
| <b>TOTALS:</b> |          |                        | 797                     | 725                  |

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

QUANTITIES FOR  
FAP NO. STPU-9082(2)

USER: fs53  
DESIGN FILE: G:\N1611601\SEBA\TRANSP\dgn\090471\_Seba Rd.dgn  
PLOTTED: 8/22/2017 14:51 SCALE: 2x

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |    |
|--------------|-------------|--------------|-------------|----------------|-------|--------------------|-----------|--------------|----|
|              |             |              |             | 6              | ARK.  |                    |           |              |    |
| JOB NO.      |             |              |             |                |       |                    | 090471    | 18           | 41 |
| ②            |             |              |             |                |       |                    |           | QUANTITIES   |    |

**REMOVAL AND DISPOSAL OF ITEMS**

| STATION        | STATION  | LOCATION                    | CURB AND GUTTER | CONCRETE DRIVEWAYS | WALKS   |
|----------------|----------|-----------------------------|-----------------|--------------------|---------|
|                |          |                             | LIN. FT.        | SQ. YD.            | SQ. YD. |
| 72+18.00       | 72+38.00 | HWY. 102B - DRIVEWAY ON RT. |                 | 43                 |         |
| 68+90.00       | 68+98.00 | HWY. 102B - CURB ON LT.     | 19              |                    |         |
| 68+93.00       | 69+00.00 | HWY. 102B - SIDEWALK ON RT. |                 |                    | 10      |
| <b>TOTALS:</b> |          |                             | 19              | 43                 | 10      |

**MAILBOXES**

| LOCATION            | MAILBOXES | MAILBOX SUPPORTS (SINGLE) |
|---------------------|-----------|---------------------------|
|                     | EACH      | EACH                      |
| HWY. 102B 72+41 RT. | 1         | 1                         |
| HWY. 102B 73+24 RT. | 1         | 1                         |
| <b>TOTALS:</b>      |           |                           |
|                     | 2         | 2                         |

**HAND RAILING**

| STATION       | STATION  | LOCATION      | LIN. FT. |
|---------------|----------|---------------|----------|
| 75+44.00      | 74+76.00 | HWY. 102B RT. | 67       |
| <b>TOTAL:</b> |          |               | 67       |



**REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS**

| STATION        | DESCRIPTION  | PIPE CULVERTS | DROP INLETS |
|----------------|--|---------------|-------------|
|                |  | EACH          | EACH        |
| 19+38.00       | CURB INLET W/8' EXT. AND 24"x36" PIPE LT.                      | 1             | 1           |
| 19+66.00       | CURB INLET W/8' EXT. AND 36"x23" X 28' R.C. ARCH PIPE LT. SIDE | 1             |             |
| 19+69.00       | CURB INLET W/8' EXT.   |               | 1           |
| 19+74.00       | CURB INLET W/8' EXT. AND 36"x23" X 31' R.C. ARCH PIPE RT. SIDE | 1             | 1           |
| 20+23.00       | 15" FLARED END SECTION ON PIPE CULVERT LT. SIDE                |               |             |
| 20+23.00       | 18" FLARED END SECTION ON PIPE CULVERT RT. SIDE                |               |             |
| 68+75.00       | 18" x 61' SIDE DRAIN LT.                                       | 1             |             |
| 70+25.00       | 24" x 34' PIPE CULVERT   | 1             |             |
| 72+28.00       | 18" x 21' SIDE DRAIN RT.                                       | 1             |             |
| 73+10.00       | 18" x 26' SIDE DRAIN RT.                                       | 1             |             |
| <b>TOTALS:</b> |  | 7             | 3           |

NOTE: QUANTITIES SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

**CONCRETE WALKS**

| STATION        | STATION  | SIDE | DESCRIPTION | LENGTH   | CONCRETE WALKS | CONCRETE WALKS (TYPE SPECIAL) |
|----------------|----------|------|-------------|----------|----------------|-------------------------------|
|                |          |      |             | LIN. FT. | SQ. YD.        | SQ. YD.                       |
| 68+93.00       | 74+75.00 | LT.  | HWY. 102B   | 602      | 334.37         |                               |
| 74+22.00       | 74+75.00 | RT.  | HWY. 102B   | 63       | 35.13          |                               |
| 75+18.00       | 75+76.00 | LT.  | HWY. 102B   | 83       | 45.84          |                               |
| 75+21.00       | 75+76.00 | RT.  | HWY. 102B   | 80       |                | 44.62                         |
| <b>TOTALS:</b> |          |      |             |          | 415.34         | 44.62                         |

**WHEELCHAIR RAMPS**

| STATION        | SIDE | DESCRIPTION | TYPE 2  | TYPE 3  |
|----------------|------|-------------|---------|---------|
|                |      |             | SQ. YD. | SQ. YD. |
| 69+00.00       | LT.  | HWY. 102B   |         | 4.3     |
| 74+62.00       | RT.  | HWY. 102B   | 10.1    |         |
| 74+62.00       | LT.  | HWY. 102B   | 10.3    |         |
| 75+38.00       | LT.  | HWY. 102B   | 10.3    |         |
| 75+38.00       | RT.  | HWY. 102B   | 10.1    |         |
| <b>TOTALS:</b> |      |             | 40.8    | 4.3     |

**REMOVAL AND DISPOSAL OF MAILBOXES**

| STATION       | LOCATION      | EACH |
|---------------|---------------|------|
| 72+41.00      | HWY. 102B RT. | 1    |
| 73+24.00      | HWY. 102B RT. | 1    |
| <b>TOTAL:</b> |               | 2    |

**EROSION CONTROL**

| STATION  | STATION  | LOCATION            | PERMANENT EROSION CONTROL |             |             |              |                            |               | TEMPORARY EROSION CONTROL |             |             |                             |                         |                             |                   |                       |                                |                                  |
|--|----------|---------------------|---------------------------|-------------|-------------|--------------|----------------------------|---------------|---------------------------|-------------|-------------|-----------------------------|-------------------------|-----------------------------|-------------------|-----------------------|--------------------------------|----------------------------------|
|  |          |                     | SEEDING                   | LIME        | MULCH COVER | WATER        | SECOND SEEDING APPLICATION | SOLID SODDING | TEMPORARY SEEDING         | MULCH COVER | WATER       | SAND BAG DITCH CHECKS (E-5) | ROCK DITCH CHECKS (E-6) | DROP INLET SILT FENCE (E-7) | SILT FENCE (E-11) | SEDIMENT BASIN (E-14) | OBLITERATION OF SEDIMENT BASIN | ** SEDIMENT REMOVAL AND DISPOSAL |
|  |          |                     | ACRE                      | TON         | ACRE        | M. GAL.      | ACRE                       | SQ. YD.       | ACRE                      | ACRE        | M. GAL.     | BAG                         | CU. YD.                 | LIN. FT.                    | LIN. FT.          | CU. YD.               | CU. YD.                        | CU. YD.                          |
| 68+90.00   | 74+60.00 | HWY. 102B - STAGE 1 | 0.45                      | 0.90        | 0.45        | 47.7         | 0.45                       | 144.63        | 0.10                      | 0.10        | 3.9         | 264                         | 24                      | 75                          |                   | 81                    | 81                             | 138                              |
| 75+50.00   | 78+35.00 | HWY. 102B - STAGE 2 | 0.24                      | 0.48        | 0.24        | 25.3         | 0.24                       | 61.59         | 0.50                      | 0.50        | 11.0        | 132                         | 27                      | 25                          |                   | 184                   | 184                            | 235                              |
| *ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |          |                     |                           | 0.50        |             | 51.0         | 0.40                       |               |                           |             | 110         |                             | 15                      | 65                          |                   |                       |                                | 50                               |
| <b>TOTALS:</b>   |          |                     | <b>0.69</b>               | <b>1.88</b> | <b>0.69</b> | <b>124.0</b> | <b>1.09</b>                | <b>206.22</b> | <b>0.60</b>               | <b>1.10</b> | <b>25.1</b> | <b>506</b>                  | <b>66</b>               | <b>165</b>                  | <b>250</b>        | <b>265</b>            | <b>265</b>                     | <b>423</b>                       |

BASIS OF ESTIMATE:  
 LIME.....2 TONS / ACRE OF SEEDING  
 WATER.....102.0 M.G./ACRE OF SEEDING  
 WATER.....20.4 M.G./ACRE OF TEMPORARY SEEDING  
 WATER.....12.6 GAL./SQ. YD. OF SOLID SODDING  
 SAND BAG DITCH CHECKS.....22 BAGS / LOCATION  
 DROP INLET SILT FENCE.....25 LIN.FT./LOCATION  
 ROCK DITCH CHECKS.....3 CU. YDS. PER DITCH

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

\*\* QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

QUANTITIES FOR  
FAP NO. STPU-9082(2)

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 | 19                 | 41        |              |

QUANTITIES



**STRUCTURES**

| STATION        | DESCRIPTION   | REINFORCED CONCRETE PIPE CULVERT | REINFORCED CONCRETE ARCH PIPE CULVERT | SIDE DRAIN | FLARED END SECTIONS FOR R.C. PIPE CULVERTS | FLARED END SECTIONS FOR R.C. ARCH PIPE CULVERTS | DROP INLETS | DROP INLET EXTENSIONS | SOLID SODDING | WATER       | STD. DWG. NOS.             |
|----------------|---------------|----------------------------------|---------------------------------------|------------|--|---|-------------|-----------------------|---------------|-------------|----------------------------|
|                |               | CLASS III                        | CLASS III                             |            |  |   | TYPE        |                       |               |             |                            |
|                |               | 18"                              | 36" X 23"                             |            | 18"  | 18"   | 36" X 23"   | SPECIAL               |               |             |                            |
|                |               | LIN. FT.                         |                                       |            | EACH                                       |   |             |                       | SQ. YD.       | M.GAL.      |                            |
| 68+75.00       | HWY. 102B     | 68                               |                                       |            | 1  |   |             |                       | 5             | 0.06        | PCM-1, PCC-1, FES-1, FES-2 |
| 70+30.00       | HWY. 102B LT. |                                  |                                       |            |  |   | 1           | 1                     | 1             | 0.01        | SPECIAL DETAILS            |
| 70+34.00       | HWY. 102B     |                                  | 110                                   |            |  | 4   |             |                       | 28            | 1.41        | PCC-1, FES-1, FES-2        |
| 71+50.00       | HWY. 102B RT. |                                  |                                       |            |  |   | 1           |                       | 1             | 0.01        | PCC-1, PCM-1               |
| 72+28.00       | HWY. 102B RT. |                                  |                                       | 28         |  |   |             |                       |               |             | PCM-1, PCC-1               |
| 73+10.00       | HWY. 102B RT. |                                  |                                       | 28         |  |   |             |                       |               |             | PCM-1, PCC-1               |
| 74+00.00       | HWY. 102B LT. |                                  |                                       |            |  |   | 1           | 1                     | 1             | 0.01        | SPECIAL DETAILS            |
| 75+75.00       | HWY. 102B LT. |                                  |                                       |            |  |   | 1           | 1                     | 1             | 0.01        | SPECIAL DETAILS            |
| <b>TOTALS:</b> |               | <b>68</b>                        | <b>110</b>                            | <b>56</b>  | <b>1</b>                                   | <b>4</b>  | <b>4</b>    | <b>3</b>              | <b>38</b>     | <b>1.52</b> | <b>SPECIAL DETAILS</b>     |

BASIS OF ESTIMATE:  
 WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.  
 NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.  
 NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

**PAVEMENT REPAIR OVER CULVERTS (ASPHALT)**

| STATION       | LOCATION      | WIDTH | LENGTH | TON       |
|---------------|---------------|-------|--------|-----------|
|               |               | FEET  |        |           |
| 68+75.00      | HWY. 102B LT. | 7.92  | 36     | 16        |
| 70+34.00      | HWY. 102B     | 18.00 | 29     | 29        |
| <b>TOTAL:</b> |               |       |        | <b>45</b> |

AVG. DEPTH = 9"

**DRIVEWAYS & TURNOUTS**

| STATION                          | SIDE | LOCATION  | WIDTH | **MODIFIED CURB |         | PORTLAND CEMENT CONCRETE DRIVEWAY | ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) |             | AGGREGATE BASE COURSE (CLASS 7) |
|----------------------------------|------|-----------|-------|-----------------|---------|-----------------------------------|--|-------------|---------------------------------|
|                                  |      |           | FEET  | STATION         | STATION |                                   | SQ. YD.  | SQ. YD.     |                                 |
| 72+28.00                         | RT.  | HWY. 102B | 14    | 72+07           | 72+49   | 56.47                             |  |             |                                 |
| 73+10.00                         | RT.  | HWY. 102B | 14    | 72+89           | 73+31   | 40.14                             | 17.90  | 1.97        | 7.31                            |
| *ENTIRE PROJECT TEMPORARY DRIVES |      |           |       |                 |         |                                   |  |             | 25.00                           |
| <b>TOTALS:</b>                   |      |           |       |                 |         | <b>96.61</b>                      | <b>17.90</b>   | <b>1.97</b> | <b>32.31</b>                    |

BASIS OF ESTIMATE:  
 ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER  
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

\* QUANTITY ESTIMATED  
 SEE SECTION 104.03 OF THE STD. SPECS. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.  
 \*\* FOR INFORMATION ONLY

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

**CONCRETE COMBINATION CURB AND GUTTER (TYPE A)**

| STATION        | STATION  | SIDE | DESCRIPTION | CONC. COMB. CURB AND GUTTER (TYPE A) (1'6") LIN.FT. |
|----------------|----------|------|-------------|---|
| 68+90.00       | 74+05.00 | LT.  | HWY. 102B   | 529   |
| 71+28.00       | 74+05.00 | RT.  | HWY. 102B   | 277   |
| 74+05.00       | 74+84.00 | LT.  | HWY. 102B   | 131   |
| 74+05.00       | 74+84.00 | RT.  | HWY. 102B   | 127   |
| 75+16.00       | 75+95.00 | LT.  | HWY. 102B   | 130   |
| 75+16.00       | 75+95.00 | RT.  | HWY. 102B   | 122   |
| 75+95.00       | 78+36.00 | LT.  | HWY. 102B   | 241   |
| 75+95.00       | 78+36.00 | RT.  | HWY. 102B   | 241   |
| <b>TOTALS:</b> |          |      |             | <b>1798</b>   |

**ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC**

| LOCATION  | TON       | TACK COAT |
|---|-----------|-----------|
|   |           | GALLON    |
| ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 10        | 20        |
| <b>TOTALS:</b>  | <b>10</b> | <b>20</b> |

NOTE: QUANTITIES ARE ESTIMATED.  
 SEE SECTION 104.03 OF THE STD. SPECS.

**SELECTED PIPE BEDDING**

| LOCATION  | SELECTED PIPE BEDDING |
|---|-----------------------|
|   | CU.YD.                |
| ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER | 100                   |
| <b>TOTAL:</b>   | <b>100</b>            |

NOTE: QUANTITY ESTIMATED.  
 SEE SECTION 104.03 OF THE STD. SPECS.

**COLD MILLING ASPHALT PAVEMENT**

| STATION         | STATION  | LOCATION  | AVG. WIDTH | COLD MILLING ASPHALT | TACK COAT                |
|-----------------|--|-----------|------------|----------------------|--------------------------|
|                 |  |           | FT.        |                      | (0.17 GAL/ SQ. YD.) GAL. |
| 68+90.00        | 69+90.00   | HWY. 102B | 29         | 319                  | 54                       |
| 78+36.00        | 79+36.00   | HWY. 102B | 22         | 247                  | 42                       |
| *ENTIRE PROJECT | TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |           |            | 125                  | 21                       |
| <b>TOTALS:</b>  |  |           |            | <b>691</b>           | <b>117</b>               |

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

**CONCRETE DITCH PAVING**

| STATION        | LOCATION      | LENGTH | WIDTH "W" | CONC. DITCH PAVING (TYPE SPECIAL) | SOLID SODDING | WATER       |
|----------------|---------------|--------|-----------|-----------------------------------|---------------|-------------|
|                |               |        |           |                                   |               |             |
| 70+30.00       | HWY. 102B LT. | 10     | 5.0       | 6                                 | 4             | 0.05        |
| 71+50.00       | HWY. 102B RT. | 5      | 5.0       | 3                                 | 2             | 0.03        |
| 74+00.00       | HWY. 102B LT. | 9      | 5.0       | 5                                 | 4             | 0.05        |
| 75+75.00       | HWY. 102B LT. | 4      | 5.0       | 2                                 | 2             | 0.03        |
| <b>TOTALS:</b> |               |        |           | <b>16</b>                         | <b>12</b>     | <b>0.16</b> |

BASIS OF ESTIMATE:  
 WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

QUANTITIES FOR  
 FAP NO. STPU-9082(2)

USER: f5513  
 DESIGN FILE: G:\161601\_SEBA\TRANSP\dgn\090471\_Seba Rd.dgn  
 PLOTTED: 8/22/2017 14:52 SCALE: 2/1

DATE REVISED, DATE FILMED, DATE REVISED, DATE FILMED, FED. RD. DIST. NO., STATE, FED. AID PROJ. NO., SHEET NO., TOTAL SHEETS, JOB NO., 090471, 20, 41

QUANTITIES



BASE AND SURFACING

Main table for Base and Surfacing with columns for Station, Location, Length, Aggregate Base Course, Tack Coat, ACHM Binder Course, and ACHM Surface Course. Includes a TOTALS row at the bottom of the table.

BASIS OF ESTIMATE: ACHM SURFACE COURSE (1/2") 94.6% MIN. AGGR 5.4% ASPHALT BINDER; ACHM BINDER COURSE (1") 95.7% MIN. AGGR 4.3% ASPHALT BINDER; MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22; MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

CONCRETE BASE

Table for Concrete Base with columns for Station, Location, Length, and Portland Cement Concrete Base details.

4" PIPE UNDERDRAIN

Table for 4" Pipe Underdrain with columns for Station, Location, 4" Pipe Underdrain, and Underdrain Outlet.

BENCH MARKS

Table for Bench Marks with columns for Station, Location, and Bench Marks.

\*QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

QUANTITIES FOR FAP NO. STPU-9082(2)

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. PROJ. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|----------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                    | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.              | 090471 | 20A                | 41        |              |

QUANTITIES

**EARTHWORK**

| STATION        | STATION  | LOCATION / DESCRIPTION | UNCLASSIFIED EXCAVATION | COMPACTED EMBANKMENT |
|----------------|----------|------------------------|-------------------------|----------------------|
|                |          |                        | CU. YD.                 |                      |
| 15+72.00       | 18+50.00 | SEBA ROAD              | 7                       | 2                    |
| 21+50.00       | 28+52.00 | TOWN VU ROAD           | 50                      |                      |
| <b>TOTALS:</b> |          |                        | <b>57</b>               | <b>2</b>             |

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

**CONCRETE WALKS**

| STATION        | STATION  | SIDE | DESCRIPTION | LENGTH   | CONCRETE WALKS |
|----------------|----------|------|-------------|----------|----------------|
|                |          |      |             | LIN. FT. | SQ. YD.        |
| 15+72.00       | 19+42.00 | RT.  | SEBA RD.    | 369      | 204.89         |
| 20+58.00       | 26+06.00 | RT.  | TOWN VU RD. | 547      | 303.98         |
| 26+55.00       | 28+53.00 | RT.  | TOWN VU RD. | 213      | 118.34         |
| <b>TOTALS:</b> |          |      |             |          | <b>627.21</b>  |

**WHEELCHAIR RAMPS**

| STATION        | SIDE | DESCRIPTION | TYPE 3     |
|----------------|------|-------------|------------|
|                |      |             | SQ. YD.    |
| 28+45.00       | RT.  | TOWN VU RD. | 4.5        |
| <b>TOTALS:</b> |      |             | <b>4.5</b> |



**REMOVAL AND DISPOSAL OF ITEMS**

| STATION        | STATION  | LOCATION                      | CURB AND GUTTER | CONCRETE DRIVEWAYS | WALKS     |
|----------------|----------|-------------------------------|-----------------|--------------------|-----------|
|                |          |                               | LIN. FT.        | SQ. YD.            | SQ. YD.   |
| 26+15.00       | 26+46.00 | TOWN VU RD. - DRIVEWAY ON RT. |                 | 28                 |           |
| 19+22.00       | 19+83.00 | SEBA RD. - CURB ON LT.        | 67              |                    |           |
| 19+23.00       | 19+85.00 | SEBA RD. CURB ON RT.          | 67              |                    |           |
| 20+16.00       | 20+85.00 | TOWN VU RD. CURB ON RT.       | 80              |                    |           |
| 20+17.00       | 20+85.00 | TOWN VU RD. CURB ON LT.       | 78              |                    |           |
| 19+22.00       | 19+53.00 | SEBA RD. SIDEWALK ON LT.      |                 |                    | 18        |
| 19+63.00       | 19+82.00 | SEBA RD. SIDEWALK ON LT.      |                 |                    | 15        |
| <b>TOTALS:</b> |          |                               | <b>292</b>      | <b>28</b>          | <b>33</b> |

**COLD MILLING ASPHALT PAVEMENT**

| STATION         | STATION  | LOCATION    | AVG. WIDTH | COLD MILLING ASPHALT | TACK COAT                |
|-----------------|--|-------------|------------|----------------------|--------------------------|
|                 |  |             | FT.        | SQ. YD.              | (0.17 GAL/ SQ. YD.) GAL. |
| 19+14.00        | 19+78.00   | SEBA RD.    | 34         | 241                  | 41                       |
| 20+53.00        | 20+82.00   | TOWN VU RD. | 33         | 106                  | 18                       |
| *ENTIRE PROJECT | TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |             |            | 125                  | 21                       |
| <b>TOTALS:</b>  |  |             |            | <b>472</b>           | <b>80</b>                |

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

**CONCRETE DITCH PAVING**

| STATION        | LOCATION         | LENGTH | WIDTH "W" | CONC. DITCH PAVING (TYPE SPECIAL) | SOLID SODDING | WATER       |
|----------------|------------------|--------|-----------|-----------------------------------|---------------|-------------|
|                |                  | FT.    | FT.       | SQ. YD.                           | M. GAL.       | M. GAL.     |
| 20+32.00       | TOWN VU ROAD LT. | 58     | 8.0       | 52                                | 13            | 0.16        |
| 20+80.00       | TOWN VU ROAD RT. | 5      | 5.0       | 3                                 | 2             | 0.03        |
| 20+80.00       | TOWN VU ROAD LT. | 3      | 5.0       | 2                                 | 1             | 0.01        |
| <b>TOTALS:</b> |                  |        |           | <b>57</b>                         | <b>16</b>     | <b>0.20</b> |

BASIS OF ESTIMATE:

WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

**EROSION CONTROL**

| STATION  | STATION  | LOCATION                | PERMANENT EROSION CONTROL |             |             |             |                            |               | TEMPORARY EROSION CONTROL |             |             |                       |                   |                       |             |                                  |
|--|----------|-------------------------|---------------------------|-------------|-------------|-------------|----------------------------|---------------|---------------------------|-------------|-------------|-----------------------|-------------------|-----------------------|-------------|----------------------------------|
|  |          |                         | SEEDING                   | LIME        | MULCH COVER | WATER       | SECOND SEEDING APPLICATION | SOLID SODDING | TEMPORARY SEEDING         | MULCH COVER | WATER       | SAND BAG DITCH CHECKS | ROCK DITCH CHECKS | DROP INLET SILT FENCE | SILT FENCE  | ** SEDIMENT REMOVAL AND DISPOSAL |
|  |          |                         | ACRE                      | TON         | ACRE        | M. GAL.     | ACRE                       | SQ. YD.       | ACRE                      | ACRE        | M. GAL.     | BAG                   | CU. YD.           | LIN. FT.              | LIN. FT.    | CU. YD.                          |
| 15+62.00   | 19+25.00 | SEBA RD. RT. STAGE 2    | 0.01                      | 0.02        | 0.01        | 2.7         | 0.01                       | 136.26        | 0.35                      | 0.35        | 8.9         |                       |                   | 75                    | 346         | 17                               |
| 20+75.00   | 28+50.00 | TOWN VU RD. RT. STAGE 2 | 0.02                      | 0.04        | 0.02        | 4.5         | 0.02                       | 193.63        | 0.13                      | 0.13        | 5.1         |                       |                   | 50                    | 930         | 39                               |
| *ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER |          |                         |                           | 0.50        |             | 51.0        | 0.39                       |               |                           |             | 10.2        | 110                   | 15                | 60                    | 250         | 50                               |
| <b>TOTALS:</b>   |          |                         | <b>0.03</b>               | <b>0.56</b> | <b>0.03</b> | <b>58.2</b> | <b>0.42</b>                | <b>329.89</b> | <b>0.48</b>               | <b>0.98</b> | <b>24.2</b> | <b>110</b>            | <b>15</b>         | <b>185</b>            | <b>1526</b> | <b>106</b>                       |

BASIS OF ESTIMATE:

- LIME.....2 TONS / ACRE OF SEEDING
- WATER.....102.0 M.G./ACRE OF SEEDING
- WATER.....20.4 M.G./ACRE OF TEMPORARY SEEDING
- WATER.....12.6 GAL./SQ. YD. OF SOLID SODDING
- SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
- DROP INLET SILT FENCE.....25 LIN.FT./LOCATION
- ROCK DITCH CHECKS.....3 CU. YDS. PER DITCH

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

\*\* QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

**PAVEMENT REPAIR OVER CULVERTS (ASPHALT)**

| STATION       | LOCATION    | WIDTH | LENGTH | TON       |
|---------------|-------------|-------|--------|-----------|
|               |             | FEET  |        |           |
| 19+20.00      | SEBA RD.    | 8.50  | 32     | 15        |
| 19+58.00      | SEBA RD.    | 10.33 | 33     | 19        |
| 20+64.00      | TOWN VU RD. | 7.92  | 35     | 15        |
| <b>TOTAL:</b> |             |       |        | <b>49</b> |

AVG. DEPTH = USE MIN. 9"

**FLOWABLE SELECT MATERIAL**

| STATION       | LOCATION    | CU. YD.   |
|---------------|-------------|-----------|
| 19+69.00      | SEBA RD.    | 7         |
| 20+23.00      | TOWN VU RD. | 3         |
| 20+23.00      | TOWN VU RD. | 1         |
| <b>TOTAL:</b> |             | <b>11</b> |

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

**STRUCTURES**

| STATION        | DESCRIPTION      | REINFORCED CONCRETE ARCH PIPE CULVERT |           |            | FLARED END SECTIONS FOR R.C. ARCH PIPE CULVERTS |           |           | DROP INLETS |          |          | DROP INLET EXTENSIONS | SOLID SODDING | WATER                                | STD. DWG. NOS. |
|----------------|------------------|---------------------------------------|-----------|------------|---|-----------|-----------|-------------|----------|----------|-----------------------|---------------|--------------------------------------|----------------|
|                |                  | CLASS IV                              |           |            |   |           |           | TYPE        | TYPE     | TYPE RM  |                       |               |                                      |                |
|                |                  | 22" x 14"                             | 29" x 18" | 44" x 27"  | 22" x 14"                                       | 29" x 18" | 44" x 27" | MO          | SPECIAL  | SPECIAL  | 4'                    |               |                                      |                |
|                |                  | LIN. FT.                              |           |            | EACH  |           |           |             |          |          | SQ. YD.               | M.GAL.        |                                      |                |
| 19+20.00       | SEBA ROAD LT.    |                                       | 40        |            |   |           | 1         |             |          |          |                       |               | FPC-9M,FPC-9E,PCC-1,FES-1,FES-2      |                |
| 19+20.00       | SEBA ROAD RT.    |                                       | 43        |            |   |           | 1         |             |          |          |                       |               | FPC-9M,FPC-9E,PCC-1,FES-1,FES-2      |                |
| 19+58.00       | SEBA ROAD LT.    |                                       |           | 120        |   |           |           |             | 1        |          | 17                    | 0.21          | PCC-1, FES-1, FES-2, SPECIAL DETAILS |                |
| 20+64.00       | TOWN VU ROAD     | 50                                    |           |            | 1   |           |           |             |          |          | 10                    | 0.13          | PCC-1, PFE-1, FES-2                  |                |
| 20+80.00       | TOWN VU ROAD LT. |                                       |           |            |   |           |           |             | 1        |          | 1                     | 0.01          | SPECIAL DETAILS                      |                |
| 20+80.00       | TOWN VU ROAD RT. |                                       |           |            |   |           |           |             | 1        |          | 1                     | 0.01          | SPECIAL DETAILS                      |                |
| <b>TOTALS:</b> |                  | <b>50</b>                             | <b>83</b> | <b>120</b> | <b>1</b>  | <b>1</b>  | <b>1</b>  | <b>2</b>    | <b>2</b> | <b>1</b> | <b>2</b>              | <b>30</b>     | <b>0.37</b>                          |                |

BASIS OF ESTIMATE:

- WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
- NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
- NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

**DRIVEWAYS & TURNOUTS**

| STATION                          | SIDE | LOCATION    | WIDTH | **MODIFIED CURB | PORTLAND CEMENT CONCRETE DRIVEWAY | AGGREGATE BASE COURSE (CLASS 7) |
|----------------------------------|------|-------------|-------|-----------------|-----------------------------------|---------------------------------|
|                                  |      |             | FEET  | STATION         | STATION                           | TON                             |
| 26+30.50                         | RT.  | TOWN VU RD. | 21    | 26+06           | 26+56                             | 51.69                           |
| *ENTIRE PROJECT TEMPORARY DRIVES |      |             |       |                 |                                   | 20.00                           |
| <b>TOTALS:</b>                   |      |             |       |                 |                                   | <b>71.69</b>                    |

\* QUANTITY ESTIMATED

SEE SECTION 104.03 OF THE STD. SPECS. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

\*\* FOR INFORMATION ONLY

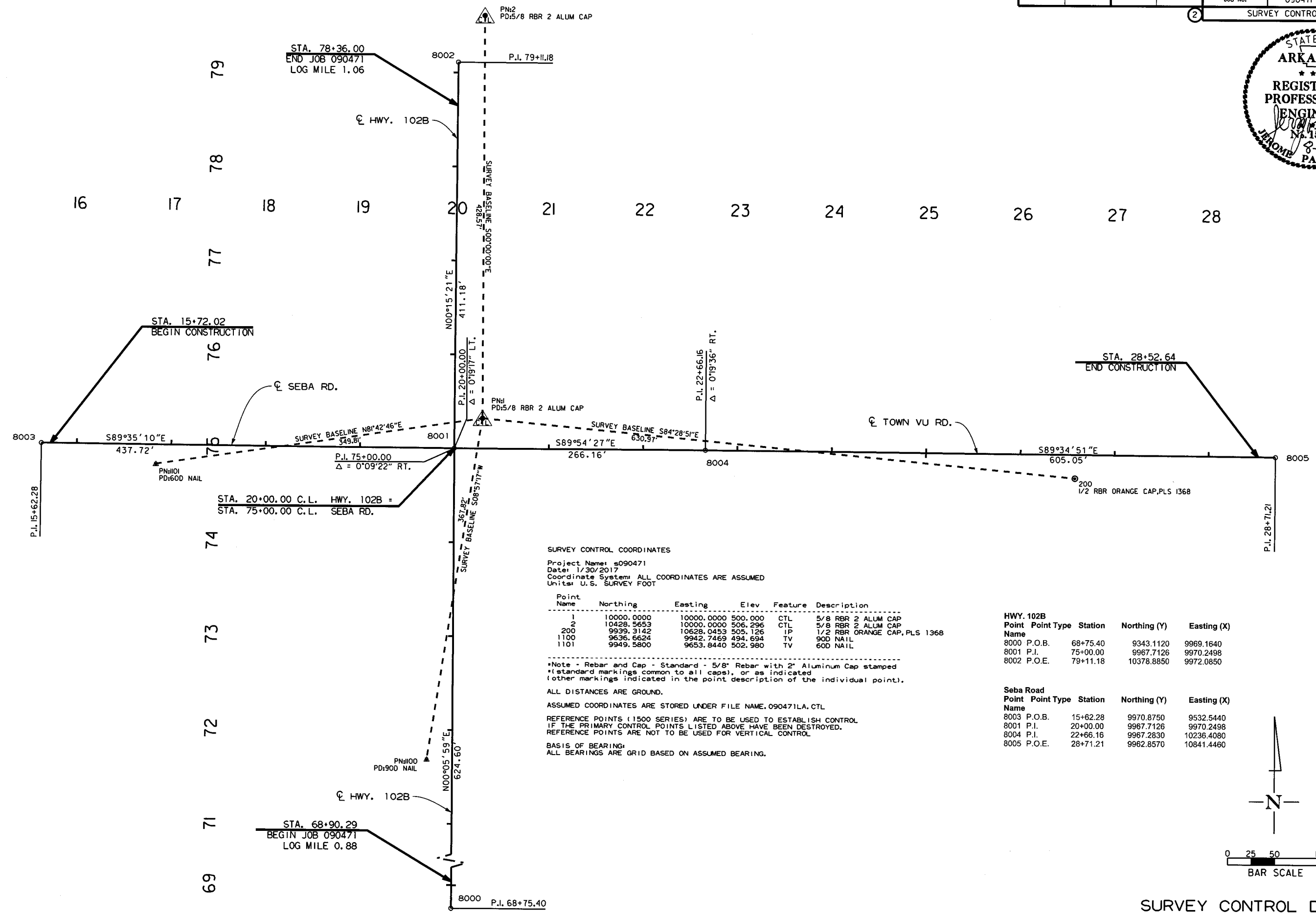
THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

QUANTITIES FOR  
FAP NO. TAPF-9082(2)



| DATE REVISED   | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|----------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
|                |             |              |             | 6                  | ARK.  |                    |           |              |
| JOB NO. 090471 |             |              |             |                    |       |                    | 22        | 41           |

2 SURVEY CONTROL DETAILS



**SURVEY CONTROL COORDINATES**  
 Project Name: s090471  
 Date: 1/30/2017  
 Coordinate System: ALL COORDINATES ARE ASSUMED  
 Units: U.S. SURVEY FOOT

| Point Name | Northing   | Easting    | Elev    | Feature | Description                  |
|------------|------------|------------|---------|---------|------------------------------|
| 1          | 10000.0000 | 10000.0000 | 500.000 | CTL     | 5/8 RBR 2 ALUM CAP           |
| 2          | 10428.5653 | 10000.0000 | 506.296 | CTL     | 5/8 RBR 2 ALUM CAP           |
| 200        | 9939.3142  | 10628.0453 | 505.126 | IP      | 1/2 RBR ORANGE CAP, PLS 1368 |
| 1100       | 9636.6624  | 9942.7469  | 494.694 | TV      | 90D NAIL                     |
| 1101       | 9949.5800  | 9653.8440  | 502.980 | TV      | 60D NAIL                     |

\*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped (standard markings common to all caps), or as indicated (other markings indicated in the point description of the individual point).

ALL DISTANCES ARE GROUND.  
 ASSUMED COORDINATES ARE STORED UNDER FILE NAME: 090471LA.CTL  
 REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.  
 REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL.

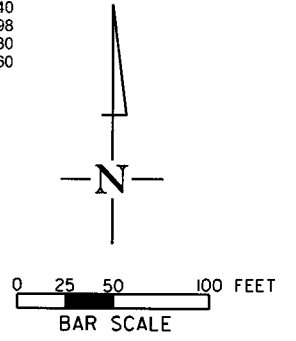
BASIS OF BEARING:  
 ALL BEARINGS ARE GRID BASED ON ASSUMED BEARING.

**HWY. 102B**

| Point Name | Point Type | Station  | Northing (Y) | Easting (X) |
|------------|------------|----------|--------------|-------------|
| 8000       | P.O.B.     | 68+75.40 | 9343.1120    | 9969.1640   |
| 8001       | P.I.       | 75+00.00 | 9967.7126    | 9970.2498   |
| 8002       | P.O.E.     | 79+11.18 | 10378.8850   | 9972.0850   |

**Seba Road**

| Point Name | Point Type | Station  | Northing (Y) | Easting (X) |
|------------|------------|----------|--------------|-------------|
| 8003       | P.O.B.     | 15+62.28 | 9970.8750    | 9532.5440   |
| 8001       | P.I.       | 20+00.00 | 9967.7126    | 9970.2498   |
| 8004       | P.I.       | 22+66.16 | 9967.2630    | 10236.4080  |
| 8005       | P.O.E.     | 28+71.21 | 9962.8570    | 10841.4460  |



SURVEY CONTROL DETAILS

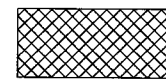
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 PLOTTED: 8/22/2017 14:53 SCALE: 100'

STA. 69+00 LT. CONSTRUCT  
TYPE 3 WHEELCHAIR RAMP = 4.3 SQ. YDS.

STA. 68+75 - IN PLACE  
18" X 61' C.M. PIPE CULVERT  
LT. SIDE DRAIN - REMOVE  
INSTALL 18" X 68' R.C. PIPE CULVERT  
LT. WITH F.E.S.

STA. 70+34 - CONSTRUCT  
DBL. 36" X 23" X 55'  
R.C. ARCH PIPE CULVERT  
ON A 30° LT. FWD. SKEW  
WITH F.E.S. LT. AND RT.  
(CLASS V) (TYPE 1) OR 2 BEDDING)  
Q25 = 51 CFS. D.A. = 42.01 AC.

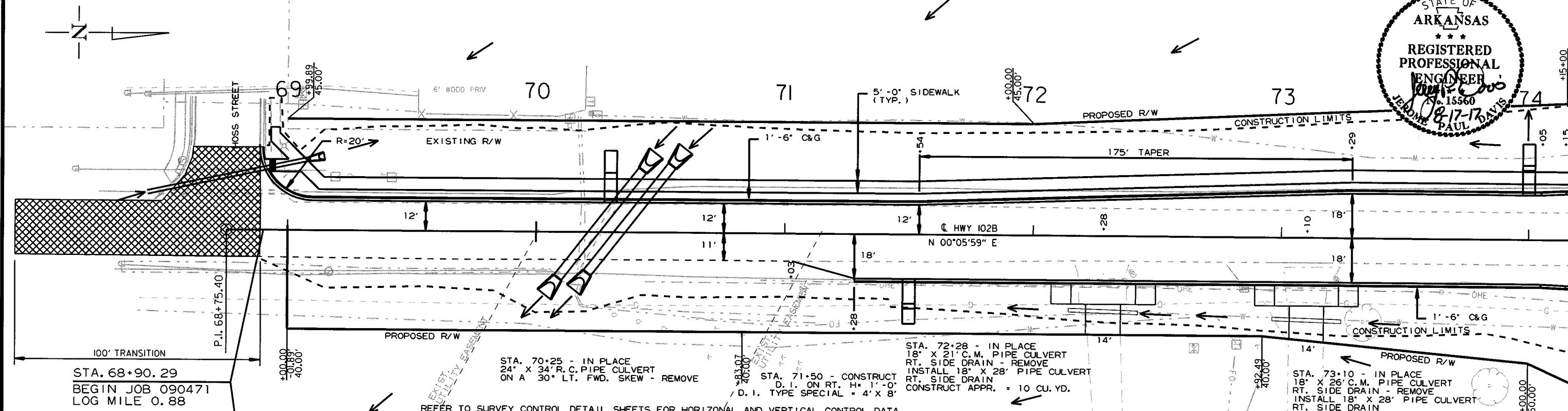
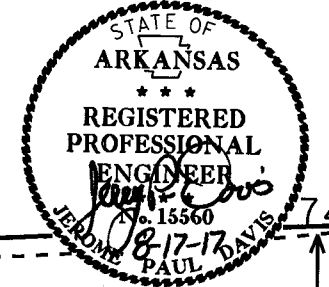
STA. 70+30 - CONSTRUCT  
D.I. ON LEFT H=1'-0"  
WITH 4' EXTENSION  
D.I. TYPE SPECIAL = 4' X 8'



DENOTES MILL AND INLAY

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             | JOB NO.            |       | 090471             | 23        | 41           |

PLAN AND PROFILE HWY. 102B



STA. 68+90.29  
BEGIN JOB 090471  
LOG MILE 0.88

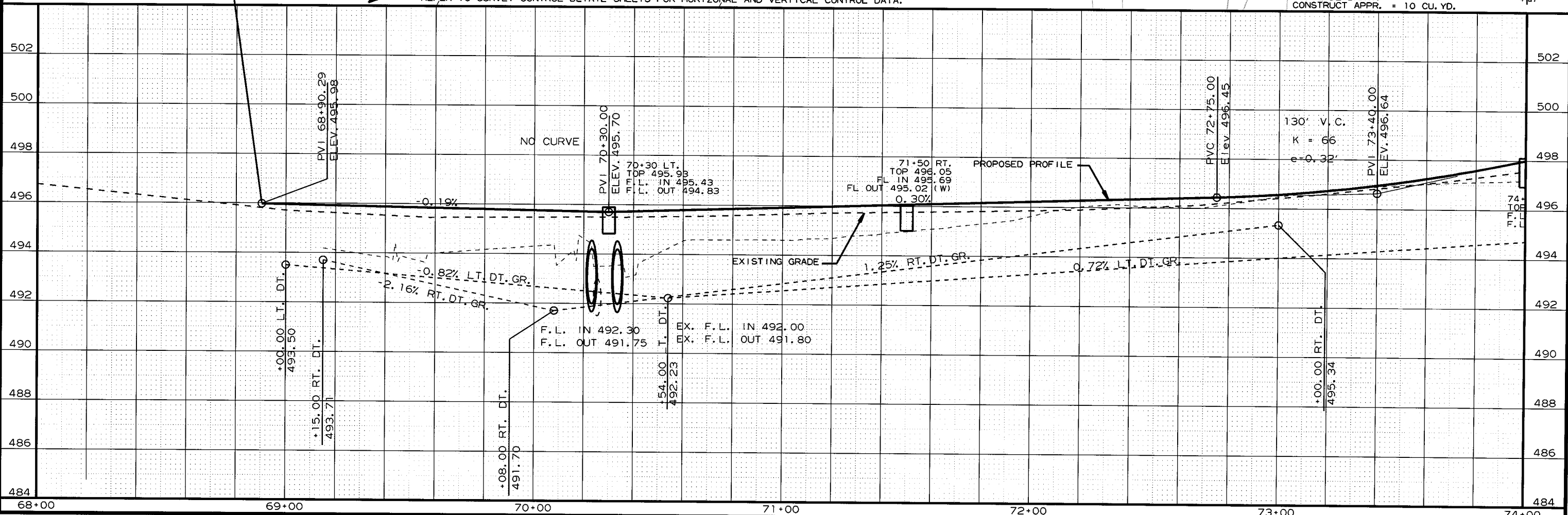
STA. 70+25 - IN PLACE  
24" X 34' R.C. PIPE CULVERT  
ON A 30° LT. FWD. SKEW - REMOVE

STA. 71+50 - CONSTRUCT  
D.I. ON RT. H=1'-0"  
D.I. TYPE SPECIAL = 4' X 8'

STA. 72+28 - IN PLACE  
18" X 21' C.M. PIPE CULVERT  
RT. SIDE DRAIN - REMOVE  
INSTALL 18" X 28' PIPE CULVERT  
RT. SIDE DRAIN  
CONSTRUCT APPR. = 10 CU. YD.

STA. 73+10 - IN PLACE  
18" X 26' C.M. PIPE CULVERT  
RT. SIDE DRAIN - REMOVE  
INSTALL 18" X 28' PIPE CULVERT  
RT. SIDE DRAIN  
CONSTRUCT APPR. = 10 CU. YD.

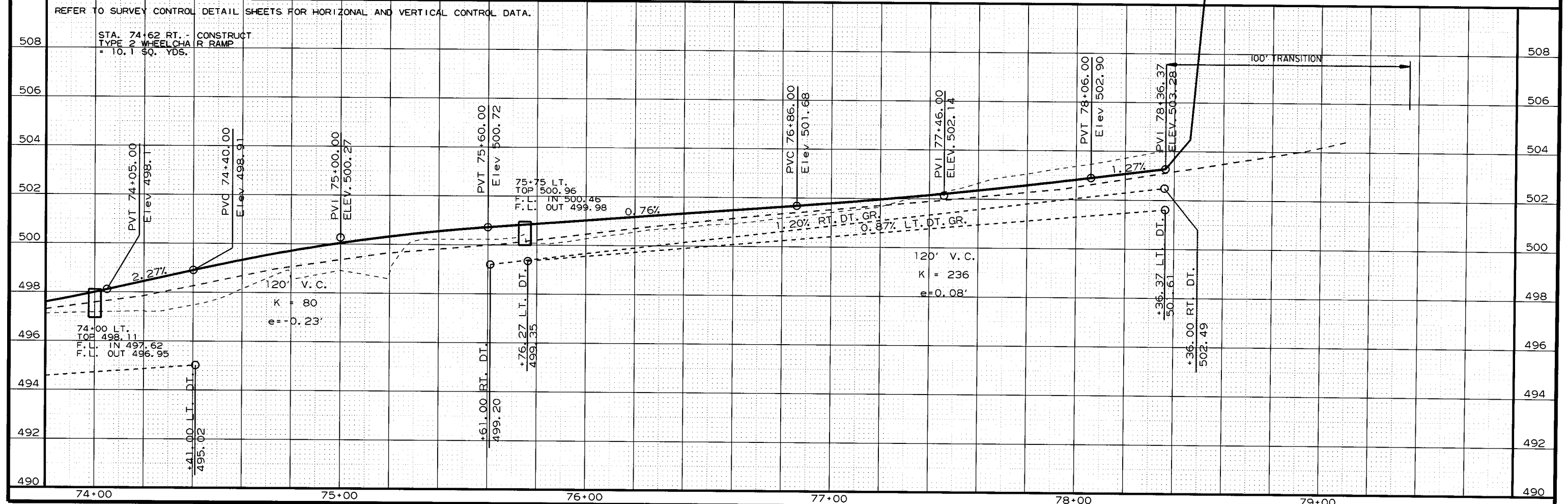
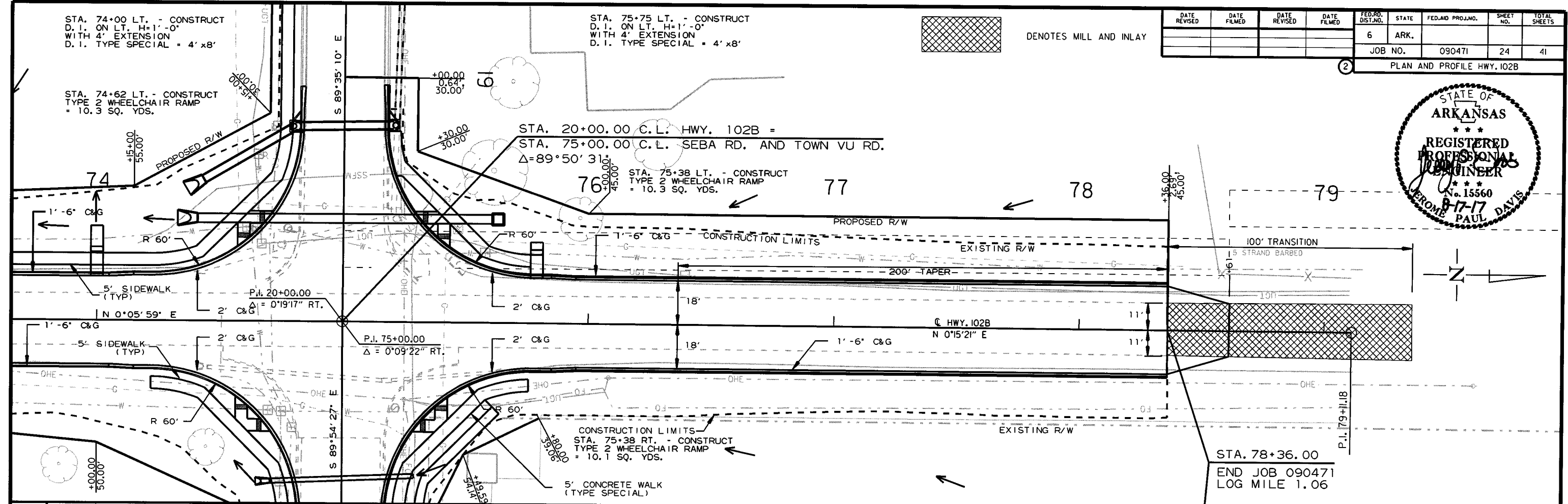
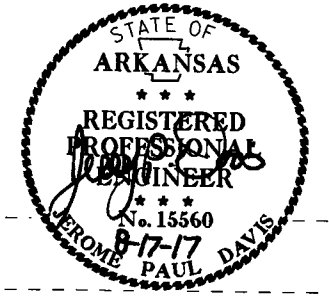
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



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MODEL: PLAN AND PROFILE 4



| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO.         | SHEET NO. | TOTAL SHEETS |
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|              |             |              |             | 6                  | ARK.  |                            | 24        | 41           |
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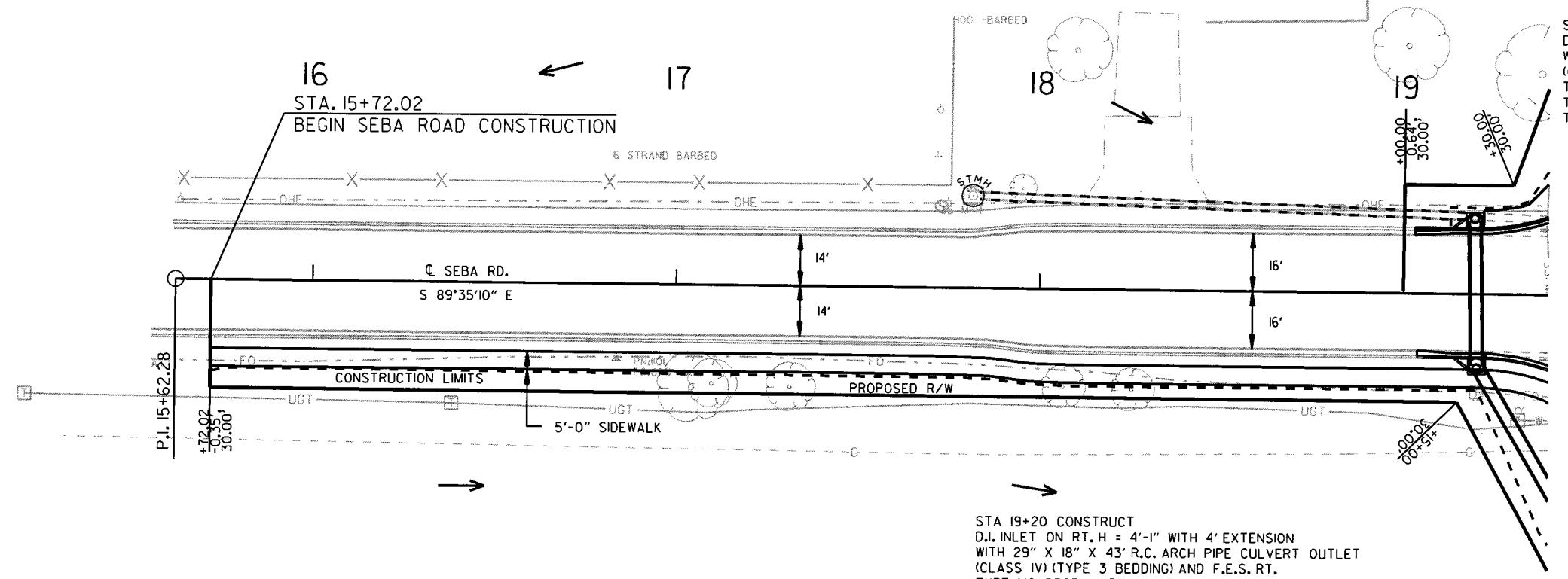
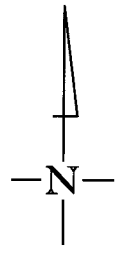
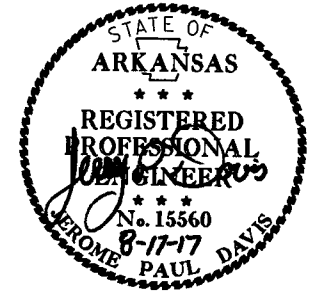
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 MODEL: PLAN AND PROFILE 5  
 SCALE: 40:1

STA. 17+81 IN PLACE  
D.J. LT. WITH 29" X 18" X 139' ARCH PIPE  
REMOVE 39' AND CONNECT TO D.J. LT.

STA. 18+29 IN PLACE  
APPROACH LT. RETAIN

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
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|              |             |              |             | JOB NO.            | 090471 | 25                 | 41        |              |

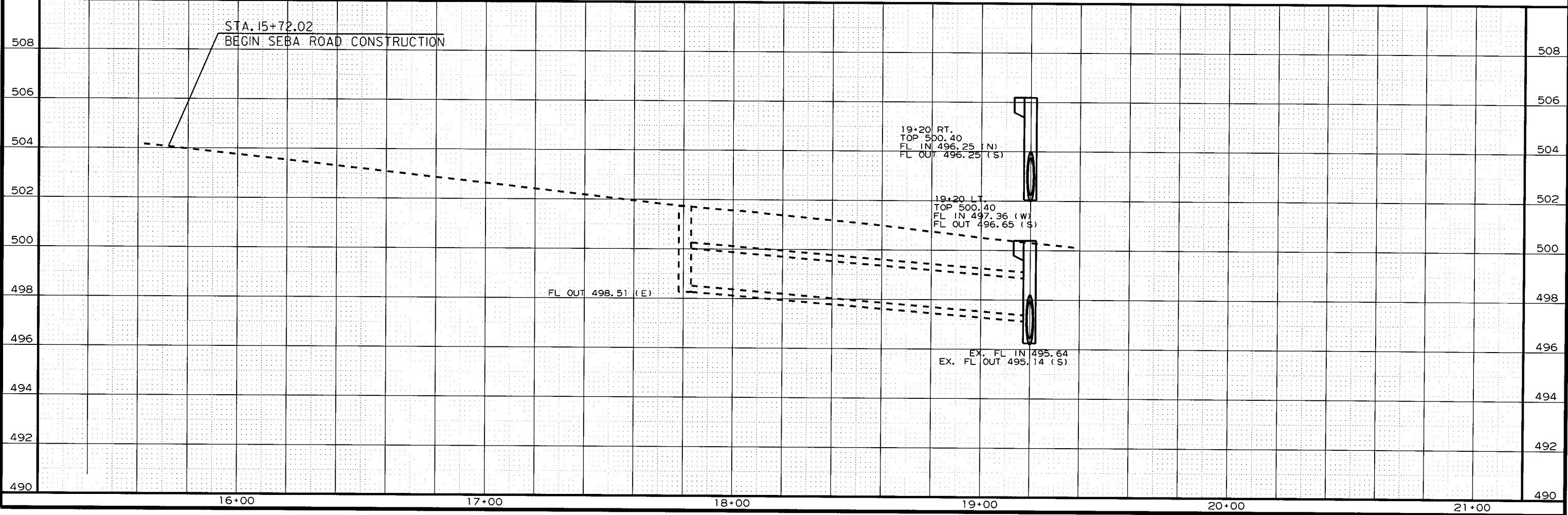
PLAN AND PROFILE SEBA RD.



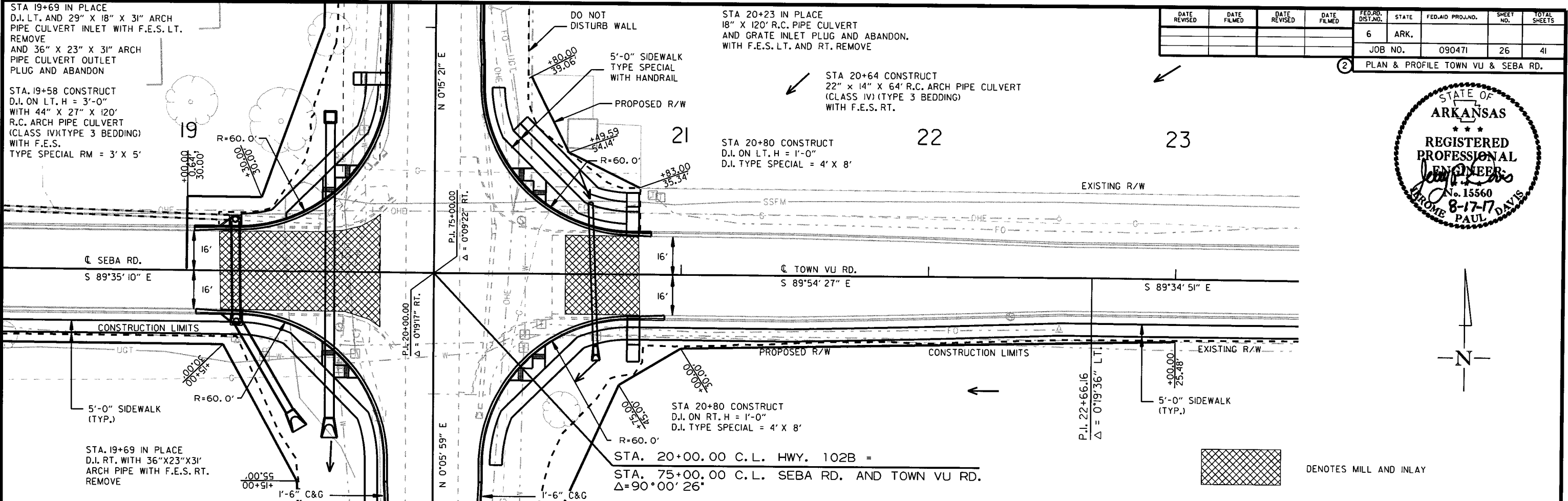
STA 19+20 CONSTRUCT  
D.I. INLET ON LT. H = 3'-9" WITH 4' EXTENSION  
WITH 29" X 18" X 40' R.C. ARCH PIPE CULVERT OUTLET  
(CLASS IV) (TYPE 3 BEDDING)  
TO D.I. STA. 19+20 RT.  
TYPE MO DROP INLET = 4' DIA  
TYPE C DROP INLET = 4'X4'

STA 19+20 CONSTRUCT  
D.I. INLET ON RT. H = 4'-1" WITH 4' EXTENSION  
WITH 29" X 18" X 43' R.C. ARCH PIPE CULVERT OUTLET  
(CLASS IV) (TYPE 3 BEDDING) AND F.E.S. RT.  
TYPE MO DROP INLET = 4' DIA  
TYPE C DROP INLET = 4'X4'

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

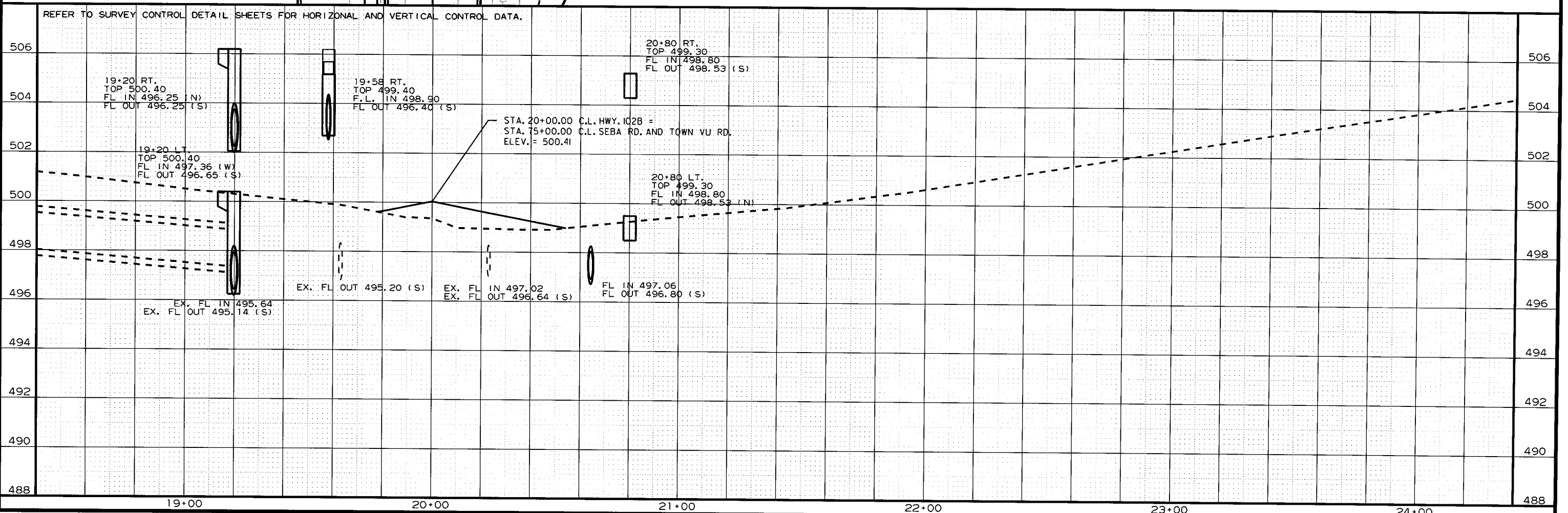
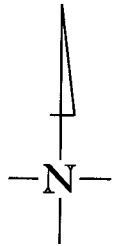
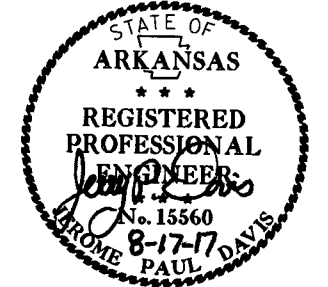


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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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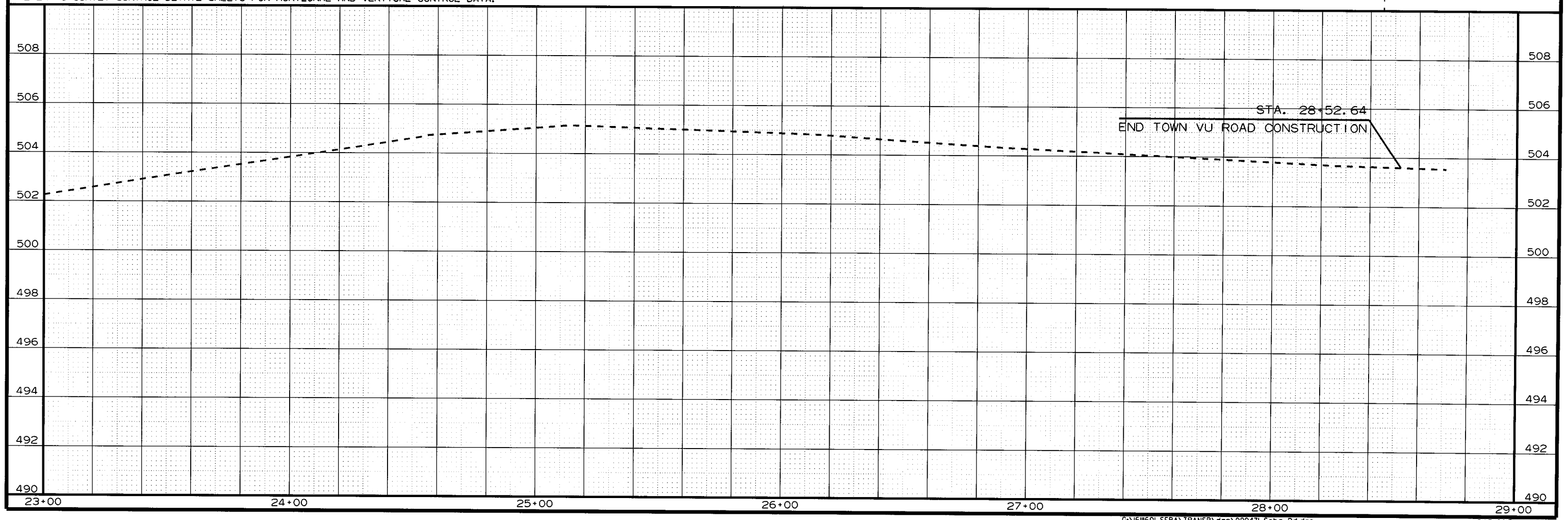
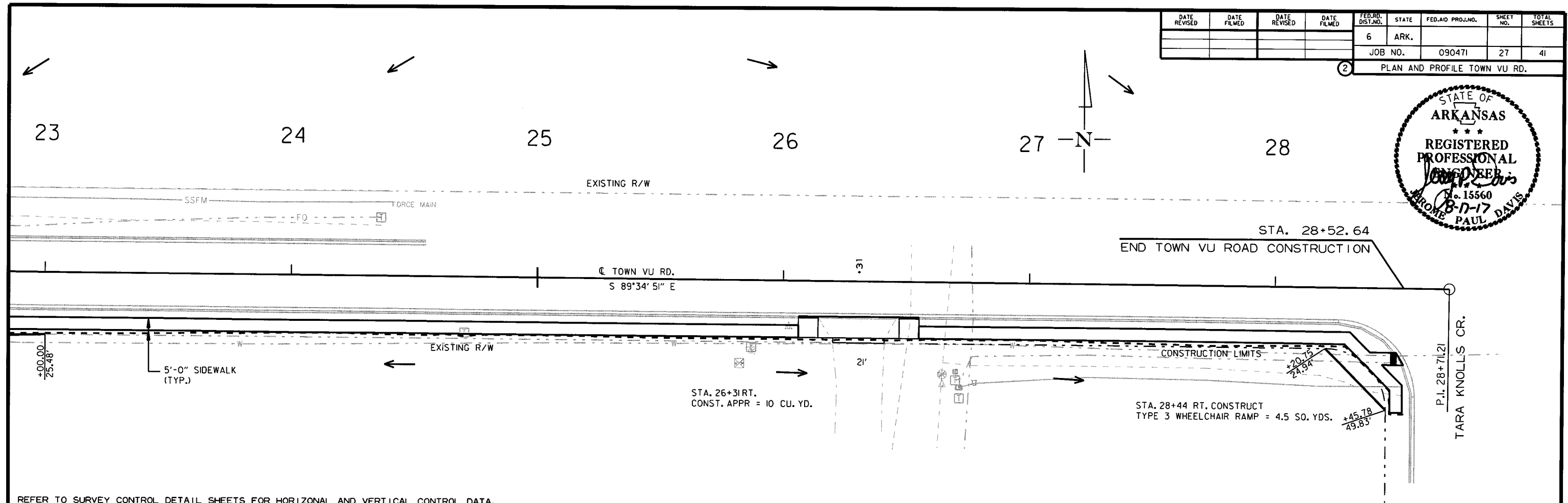
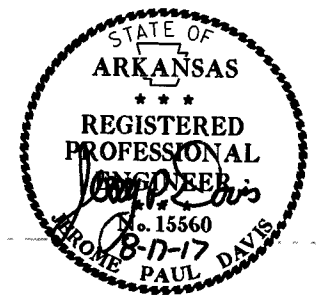
JOB NO. 090471 SHEET NO. 26 TOTAL SHEETS 41  
 PLAN & PROFILE TOWN VU & SEBA RD.



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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 | 27                 | 41        |              |

PLAN AND PROFILE TOWN VU RD.



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 SCALE: 40:1

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             | JOB NO.            |       | 090471             | 28        | 41           |

2 TRAFFIC SIGNAL NOTES



TRAFFIC SIGNAL NOTES

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 01 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM ROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY 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.
3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/\*6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S/COUNTY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/\*12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.
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 BACKFEED TO LOAD SWITCH POWER BUSS.
7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
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 MARKINGS 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 AHTD 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. LUMINAIRE 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/OCCUPANCY 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 SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, THIRTY-EIGHT (38') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE 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 TRAVELED WAY 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 EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEPT INTO COMPETENT ROCK.
20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.
21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.
22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING 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 MUST NOTIFY 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.
24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.
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.

LOCATION: HWY. 102B/SEBA ROAD  
 CITY: CENTERTON  
 COUNTY: BENTON  
 DISTRICT: 9 SCALE: N/A DRAWN BY: FLS

USER: f5513  
 DESIGN FILE: G:\161160L\SEBA\TRANSP\dgn\signals\SignalPlan\_Seba.dgn  
 PLOTTED: 8/17/2017 11:57 SCALE: 40x

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             |                    |       |                    | 29        | 41           |

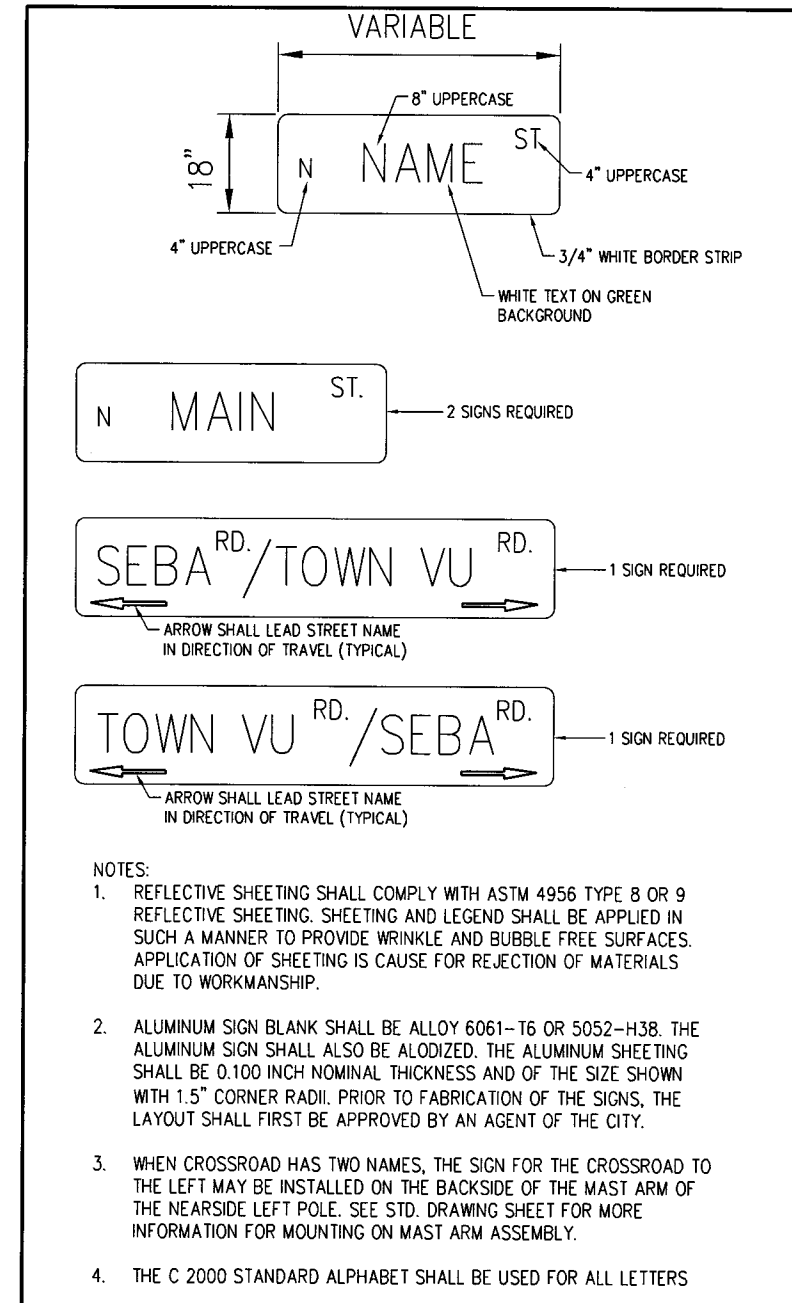
2 SUMMARY OF TRAFFIC SIGNAL QUANTITIES



| ITEM NO.   | ITEM  | QUANTITY | UNIT     |
|------------|---|----------|----------|
| SP & 701   | SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)          | 1        | EACH     |
| SP         | LOCAL RADIO WITH ANTENNA                                | 1        | EACH     |
| SP         | ANTENNA CABLE (TYPE 6)                                  | 80       | LIN. FT. |
| SP & 706   | TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)            | 10       | EACH     |
| SP & 706   | TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)            | 4        | EACH     |
| SP & 707   | COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED                   | 8        | EACH     |
| 708        | TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)                     | 2870     | LIN. FT. |
| 708        | TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)                     | 235      | LIN. FT. |
| 708        | TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)                    | 560      | LIN. FT. |
| SP         | ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)  | 480      | LIN. FT. |
| SP         | ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.) | 200      | LIN. FT. |
| SP         | ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)          | 20       | LIN. FT. |
| SP         | ELECTRICAL CONDUCTORS FOR LUMINAIRES                    | 690      | LIN. FT. |
| 709        | GALVANIZED STEEL CONDUIT (1.25")                        | 20       | LIN. FT. |
| 710        | NON-METALLIC CONDUIT (1.25")                            | 20       | LIN. FT. |
| 710        | NON-METALLIC CONDUIT (2")                               | 50       | LIN. FT. |
| 710        | NON-METALLIC CONDUIT (3")                               | 570      | LIN. FT. |
| 711        | CONCRETE PULL BOX (TYPE 2)                              | 1        | EACH     |
| 711        | CONCRETE PULL BOX (TYPE 1 HD)                           | 1        | EACH     |
| 711        | CONCRETE PULL BOX (TYPE 2 HD)                           | 7        | EACH     |
| 714        | TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')  | 2        | EACH     |
| 714        | TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')  | 2        | EACH     |
| SP         | LED LUMINAIRE ASSEMBLY                                  | 4        | EACH     |
| 715        | TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION            | 4        | EACH     |
| SP         | SERVICE POINT ASSEMBLY (2 CIRCUITS)                     | 1        | EACH     |
| SP         | 18" STREET NAME SIGN                                    | 4        | EACH     |
| * SP & 733 | VIDEO DETECTOR (CLR)                                    | 9        | EACH     |
| SP & 733   | VEHICLE DETECTOR RACK (16 CHANNEL)                      | 1        | EACH     |
| 733        | VIDEO CABLE   | 1500     | LIN. FT. |
| 733        | VIDEO MONITOR (CLR)                                     | 1        | EACH     |
| * SP & 733 | VIDEO PROCESSOR, EDGE CARD (2 CAMERA)                   | 5        | EACH     |

\* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED.

OVERHEAD STREET NAME MARKER  
STANDARD MAST ARM MOUNTED



NOTES:

- REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.
- ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ALODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY.
- WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEAR SIDE LEFT POLE. SEE STD. DRAWING SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.
- THE C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS

LOCATION: HWY. 102B/SEBA ROAD  
CITY: CENTERTON  
COUNTY: BENTON  
DISTRICT: 9 SCALE: N/A DRAWN BY: FLS

# HWY. 102B/SEBA RD. DESIGN PARAMETERS

POSTED SPEED LIMIT:  
35 MPH EAST & WEST APPROACH  
45 MPH NORTH & SOUTH APPROACH

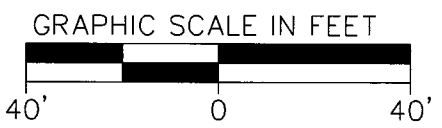
MINIMUM CLEAR ZONE DISTANCE:  
CONTROLLER - 4 FEET FROM CURB  
SIGNAL POLES - 4 FEET FROM CURB

NO BUS STOPS  
NO RAILROAD TRACKS  
NO EXISTING INTERCONNECTIONS  
NO FIRE STATION  
NO PARKING  
NO SIGHT DISTANCE RESTRICTIONS

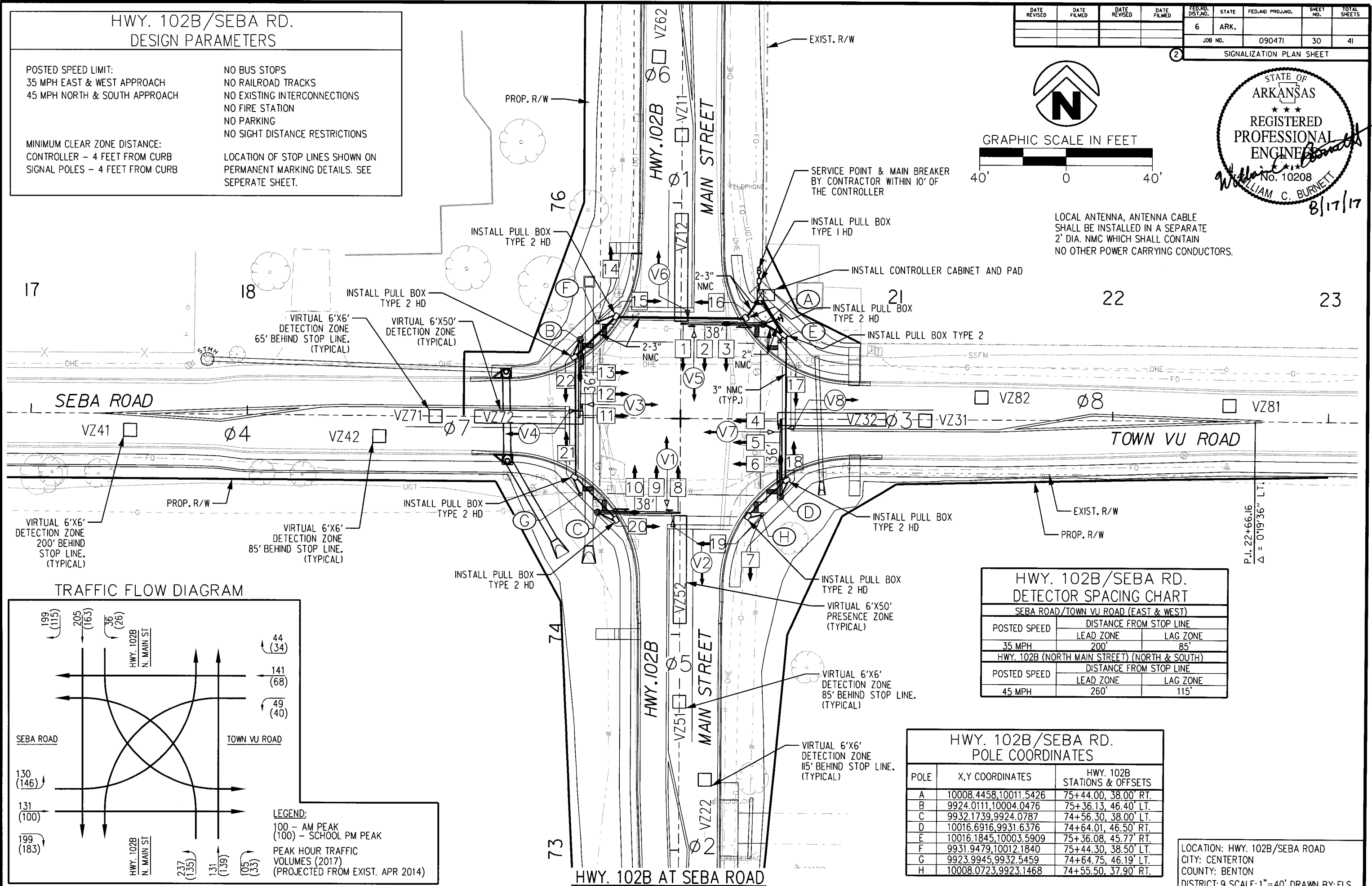
LOCATION OF STOP LINES SHOWN ON  
PERMANENT MARKING DETAILS. SEE  
SEPERATE SHEET.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                    | 30        | 41           |

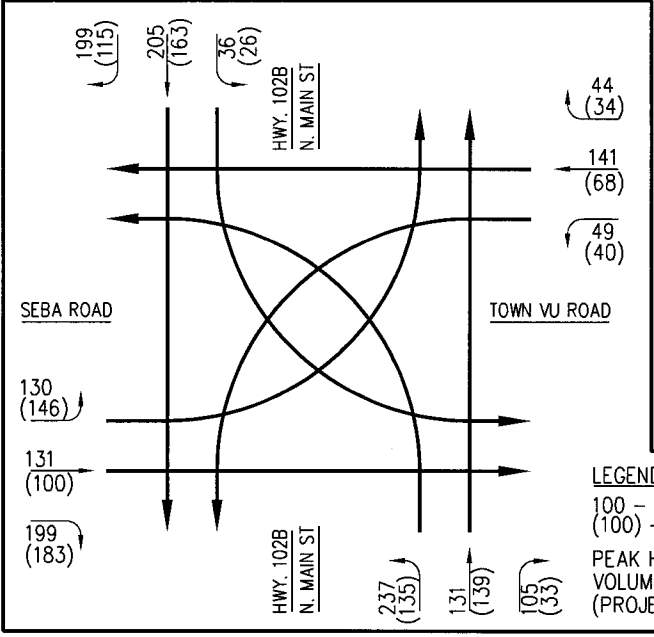
2 SIGNALIZATION PLAN SHEET



LOCAL ANTENNA, ANTENNA CABLE SHALL BE INSTALLED IN A SEPARATE 2' DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS.



## TRAFFIC FLOW DIAGRAM



LEGEND:  
100 - AM PEAK  
(100) - SCHOOL PM PEAK  
PEAK HOUR TRAFFIC VOLUMES (2017)  
(PROJECTED FROM EXIST. APR 2014)

### HWY. 102B/SEBA RD. DETECTOR SPACING CHART

| SEBA ROAD/TOWN VU ROAD (EAST & WEST)          |                         |          |
|---|-------------------------|----------|
| POSTED SPEED                                  | DISTANCE FROM STOP LINE |          |
|   | LEAD ZONE               | LAG ZONE |
| 35 MPH  | 200'                    | 85'      |
| HWY. 102B (NORTH MAIN STREET) (NORTH & SOUTH) |                         |          |
| POSTED SPEED                                  | DISTANCE FROM STOP LINE |          |
|   | LEAD ZONE               | LAG ZONE |
| 45 MPH  | 260'                    | 115'     |

### HWY. 102B/SEBA RD. POLE COORDINATES

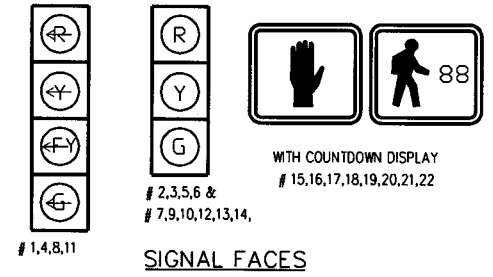
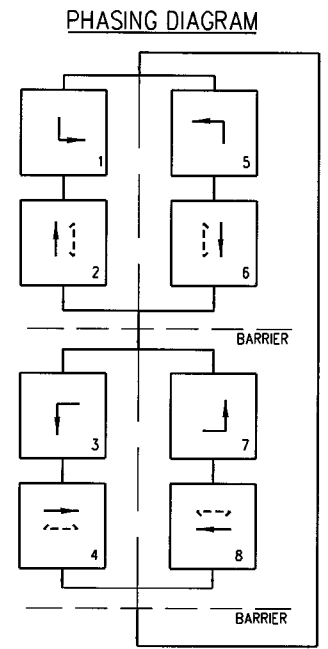
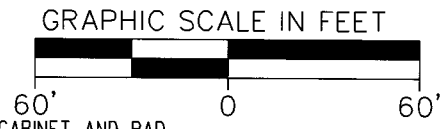
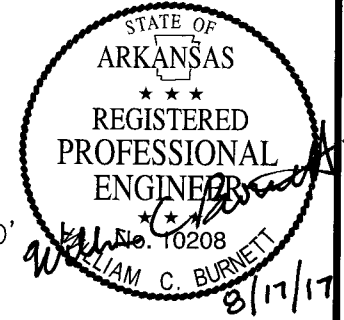
| POLE | X,Y COORDINATES       | HWY. 102B STATIONS & OFFSETS |
|------|-----------------------|------------------------------|
| A    | 10008.4458,10011.5426 | 75+44.00, 38.00' RT.         |
| B    | 9924.0111,10004.0476  | 75+36.13, 46.40' LT.         |
| C    | 9932.1739,9924.0787   | 74+56.30, 38.00' LT.         |
| D    | 10016.6916,9931.6376  | 74+64.01, 46.50' RT.         |
| E    | 10016.1845,10003.5909 | 75+36.08, 45.77' RT.         |
| F    | 9931.9479,10012.1840  | 75+44.30, 38.50' LT.         |
| G    | 9923.9945,9932.5459   | 74+64.75, 46.19' LT.         |
| H    | 10008.0723,9923.1468  | 74+55.50, 37.90' RT.         |

LOCATION: HWY. 102B/SEBA ROAD  
CITY: CENTERTON  
COUNTY: BENTON  
DISTRICT: 9 SCALE: 1"=40' DRAWN BY: FLS

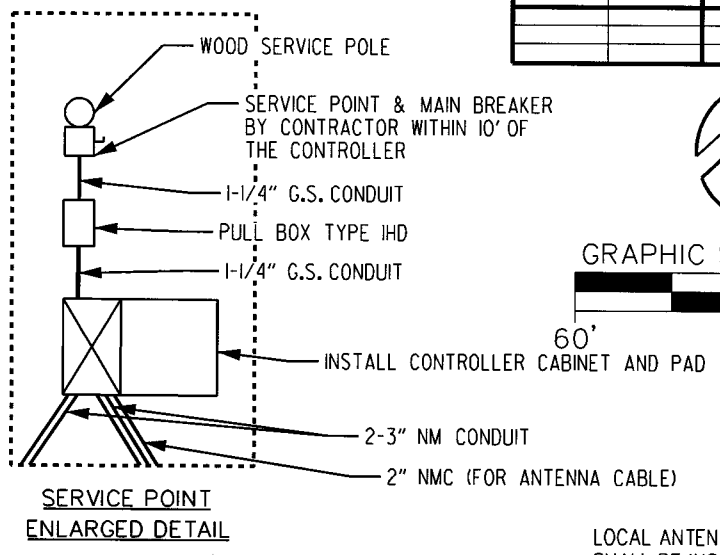
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PLOTTED: 8/17/2017 11:57  
SCALE: 40:1

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 | 31                 | 41        |              |

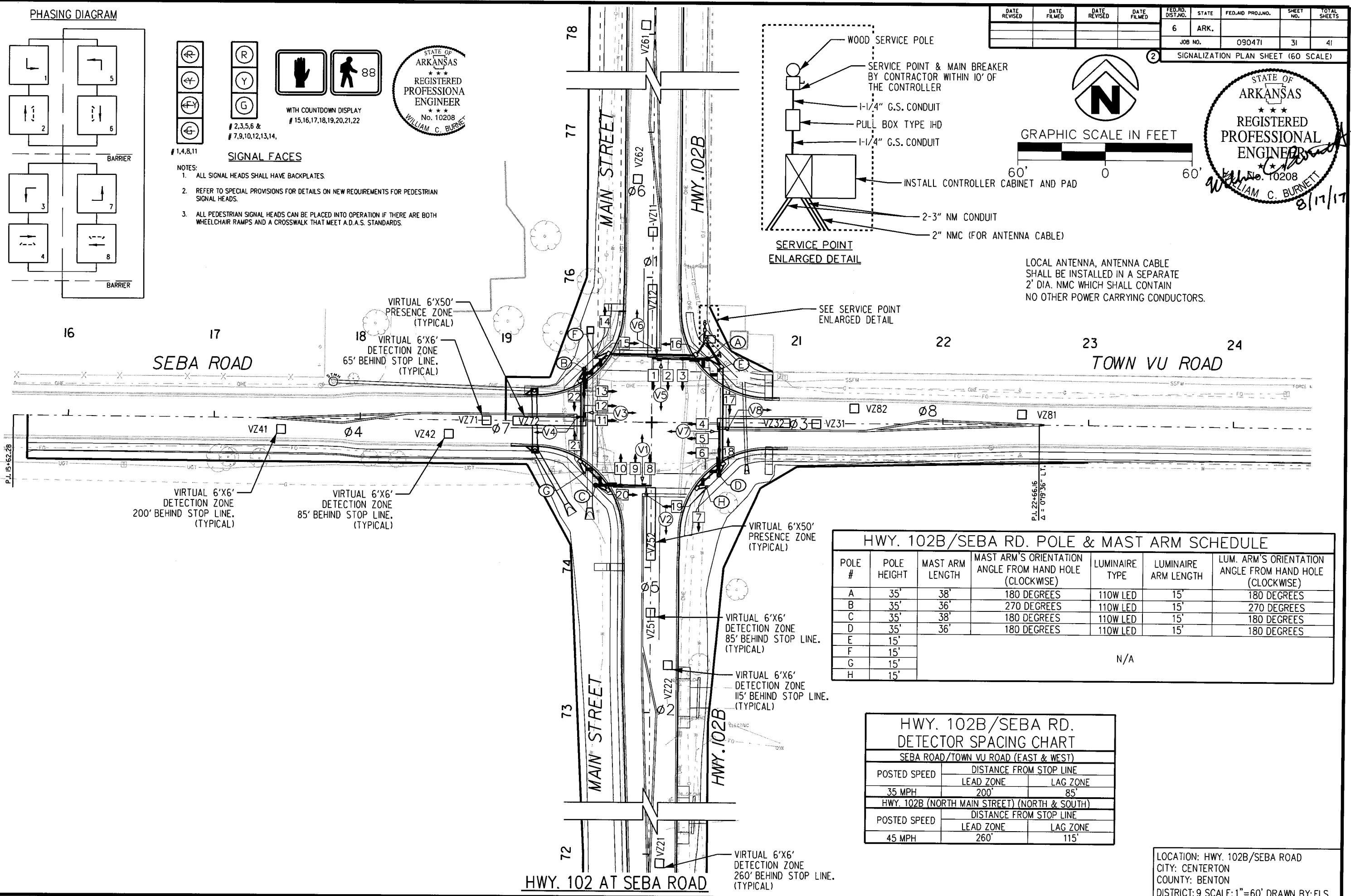
SIGNALIZATION PLAN SHEET (60 SCALE)



- NOTES:
- ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
  - REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
  - ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.



LOCAL ANTENNA, ANTENNA CABLE SHALL BE INSTALLED IN A SEPARATE 2' DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS.



| POLE # | POLE HEIGHT | MAST ARM LENGTH | MAST ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE) | LUMINAIRE TYPE | LUMINAIRE ARM LENGTH | LUM. ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE) |
|--------|-------------|-----------------|---|----------------|----------------------|---|
| A      | 35'         | 38'             | 180 DEGREES   | 110W LED       | 15'                  | 180 DEGREES   |
| B      | 35'         | 36'             | 270 DEGREES   | 110W LED       | 15'                  | 270 DEGREES   |
| C      | 35'         | 38'             | 180 DEGREES   | 110W LED       | 15'                  | 180 DEGREES   |
| D      | 35'         | 36'             | 180 DEGREES   | 110W LED       | 15'                  | 180 DEGREES   |
| E      | 15'         |                 |   |                |                      |   |
| F      | 15'         |                 |   |                |                      |   |
| G      | 15'         |                 |   |                |                      |   |
| H      | 15'         |                 |   |                |                      |   |

| SEBA ROAD/TOWN VU ROAD (EAST & WEST)          |                         |          |
|---|-------------------------|----------|
| POSTED SPEED                                  | DISTANCE FROM STOP LINE |          |
|   | LEAD ZONE               | LAG ZONE |
| 35 MPH  | 200'                    | 85'      |
| HWY. 102B (NORTH MAIN STREET) (NORTH & SOUTH) |                         |          |
| POSTED SPEED                                  | DISTANCE FROM STOP LINE |          |
|   | LEAD ZONE               | LAG ZONE |
| 45 MPH  | 260'                    | 115'     |

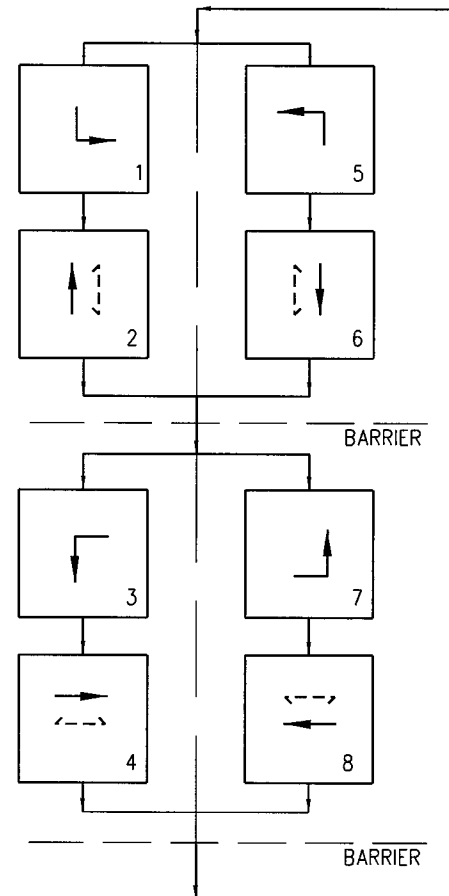
LOCATION: HWY. 102B/SEBA ROAD  
 CITY: CENTERTON  
 COUNTY: BENTON  
 DISTRICT: 9 SCALE: 1"=60' DRAWN BY: FLS

USER: f6513  
 DESIGN FILE: G:\N161601...SEBA\TRANSP\dgn\signals\Signal Plan\_Seba.dgn  
 PLOTTED: 8/17/2017 11:57  
 SCALE: 60'

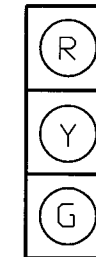


| HWY. 102B/SEBA RD.<br>DETECTOR SPACING CHART  |                         |          |
|---|-------------------------|----------|
| SEBA ROAD/TOWN VU ROAD (EAST & WEST)          |                         |          |
| POSTED SPEED                                  | DISTANCE FROM STOP LINE |          |
|   | LEAD ZONE               | LAG ZONE |
| 35 MPH  | 200'                    | 85'      |
| HWY. 102B (NORTH MAIN STREET) (NORTH & SOUTH) |                         |          |
| POSTED SPEED                                  | DISTANCE FROM STOP LINE |          |
|   | LEAD ZONE               | LAG ZONE |
| 45 MPH  | 260'                    | 115'     |

### PHASING DIAGRAM



# 1,4,8,11



# 2,3,5,6 &  
# 7,9,10,12,13,14,



WITH COUNTDOWN DISPLAY  
# 15,16,17,18,19,20,21,22

### SIGNAL FACES

NOTES:

- ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
- REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
- ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO.   | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|----------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                      |           |              |
|              |             |              |             |                    |       | JOB NO.              | 090471    | 32           |
|              |             |              |             |                    |       | SIGNALIZATION CHARTS |           |              |



### HWY. 102B/SEBA RD. DETECTOR ASSIGNMENT CHART

| DETECTOR ASSIGNMENTS |                  |       |        | HARDWARE INPUTS BY SUPPLIER |             |             | PROGRAM ASSIGNMENTS |               |               | CAMERA | TUBE LENGTH |
|----------------------|------------------|-------|--------|-----------------------------|-------------|-------------|---------------------|---------------|---------------|--------|-------------|
| DET. I.D.            | LOCATION         | TYPE  | DET. # | CAB. TRM. #                 | AMP. CHN. # | CON. INP. # | PHS.                | SYSTEM DET. # | SYSTEM DET. # |        |             |
| VZ11                 | SB LEFT TURN FAR | COMB. |        |                             | 1           | V9          | 1                   | 1             |               | V1     | 23"         |
| VZ12                 | SB LEFT TURN     | LOCAL |        |                             | 2           | V1          | 1                   |               |               | V1     | 23"         |
| VZ21                 | NB ADV.          | LOCAL |        |                             | 5           | V2          | 2                   |               |               | V2     | 37"         |
| VZ22                 | NB NEAR          | COMB. |        |                             | 6           | V10         | 2                   | 2             |               | V5     | 23"         |
| VZ31                 | WB LEFT TURN FAR | COMB. |        |                             | 9           | V11         | 3                   | 3             |               | V3     | 23"         |
| VZ32                 | WB LEFT TURN     | LOCAL |        |                             | 10          | V3          | 3                   |               |               | V3     | 23"         |
| VZ41                 | EB ADV.          | LOCAL |        |                             | 13          | V4          | 4                   |               |               | V4     | 23"         |
| VZ42                 | EB NEAR          | COMB. |        |                             | 14          | V12         | 4                   | 4             |               | V7     | 23"         |
| VZ51                 | NB LEFT TURN FAR | COMB. |        |                             | 7           | V13         | 5                   | 5             |               | V5     | 23"         |
| VZ52                 | NB LEFT TURN     | LOCAL |        |                             | 8           | V5          | 5                   |               |               | V5     | 23"         |
| VZ61                 | SB ADV.          | LOCAL |        |                             | 3           | V6          | 6                   |               |               | V6     | 37"         |
| VZ62                 | SB NEAR          | COMB. |        |                             | 4           | V14         | 6                   | 6             |               | V1     | 23"         |
| VZ71                 | EB LEFT TURN FAR | COMB. |        |                             | 15          | V15         | 7                   | 7             |               | V7     | 23"         |
| VZ72                 | EB LEFT TURN     | LOCAL |        |                             | 16          | V7          | 7                   |               |               | V7     | 23"         |
| VZ81                 | WB ADV.          | LOCAL |        |                             | 11          | V8          | 8                   |               |               | V8     | 23"         |
| VZ82                 | WB NEAR          | COMB. |        |                             | 12          | V16         | 8                   | 8             |               | V3     | 23"         |
| PB2A&B               | EAST LEG         | PED   |        |                             |             | P2          | 2                   |               |               |        |             |
| PB4A&B               | SOUTH LEG        | PED   |        |                             |             | P4          | 4                   |               |               |        |             |
| PB6A&B               | WEST LEG         | PED   |        |                             |             | P6          | 6                   |               |               |        |             |
| PB8A&B               | NORTH LEG        | PED   |        |                             |             | P8          | 8                   |               |               |        |             |

CONTROLLER INPUT ABBREVIATIONS:

- V = VEHICLE INPUT
- D = SYSTEM OR AUXILIARY INPUT
- P = PEDESTRIAN INPUT

NOTE: \*AMP CHN=\* REFERS TO THE DETECTOR RACK OUTPUT POSITION. THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE. EXAMPLE: 9V=SYSTEM DETECTOR 1. V10=SYSTEM DETECTOR 2

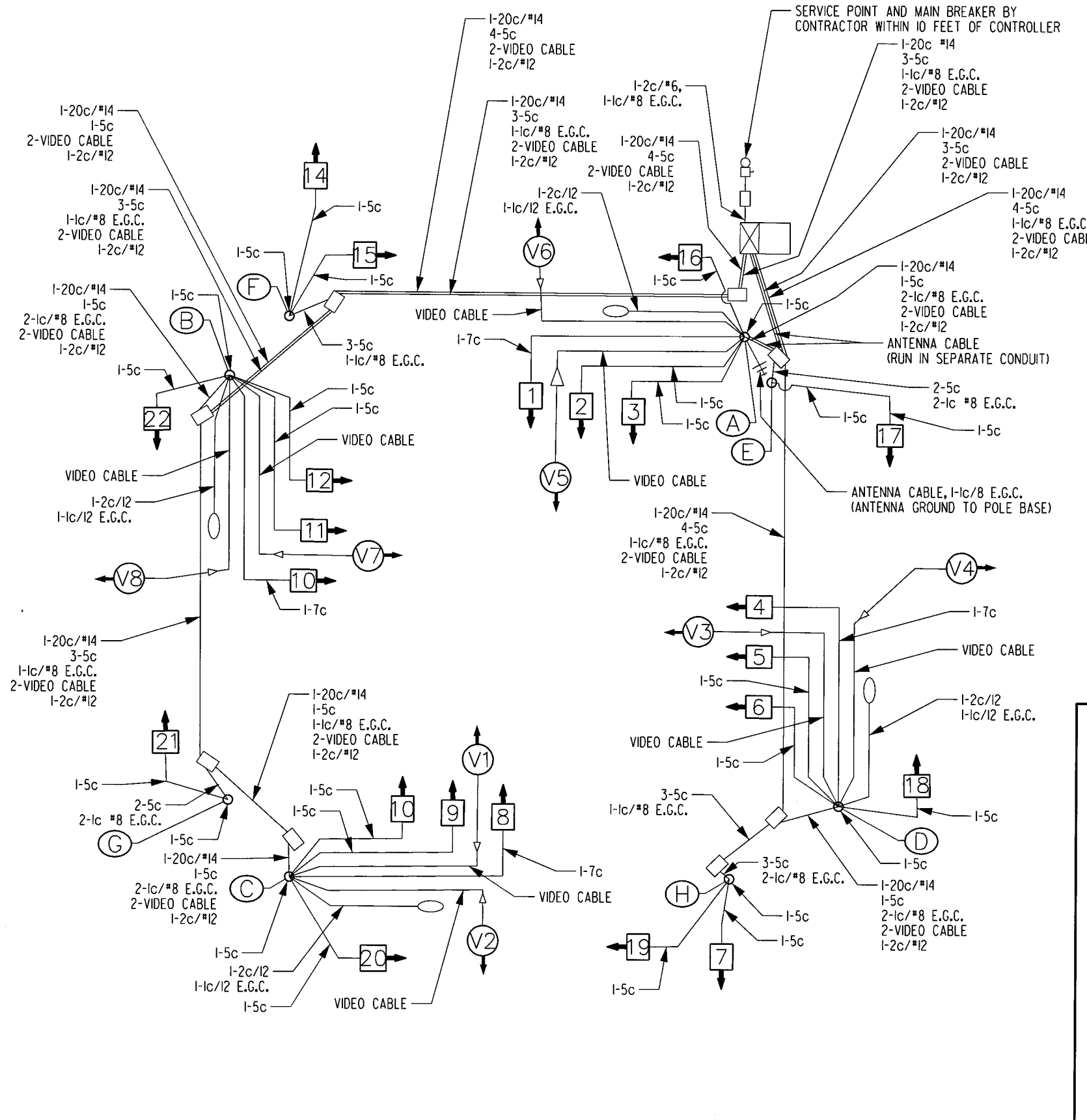
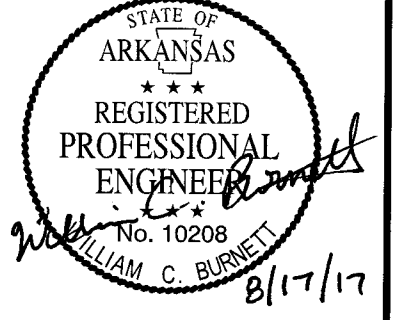
### HWY. 102B/SEBA RD. INDICATION CHART

| SIGNAL NUMBER | INTERVAL |     |       |     |       |     |       |     |       |     |       |     |       |     | FLASH SEQ. |       |       |
|---------------|----------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|------------|-------|-------|
|               | ø 1&5    | CLR | ø 1&6 | CLR | ø 2&5 | CLR | ø 2&6 | CLR | ø 3&7 | CLR | ø 3&8 | CLR | ø 4&7 | CLR |            | ø 4&8 | CLR   |
| 1             | ← G      | *   | ← FY  | *** | ← G   | *   | ← FY  | *** | ← R   | ← R | ← R   | ← R | ← R   | ← R | ← R        | ← R   | ← R   |
| 2 & 3 & 7     | R        | R   | R     | R   | G     | **  | G     | **  | R     | R   | R     | R   | R     | R   | R          | R     | R     |
| 4             | ← R      | ← R | ← R   | ← R | ← R   | ← R | ← R   | ← R | ← G   | *   | ← FY  | *** | ← G   | *   | ← FY       | ***   | ← R   |
| 5 & 6         | R        | R   | R     | R   | R     | R   | R     | R   | R     | R   | R     | R   | G     | **  | G          | **    | R     |
| 8             | ← G      | *   | ← G   | *   | ← FY  | *** | ← FY  | *** | ← R   | ← R | ← R   | ← R | ← R   | ← R | ← R        | ← R   | ← R   |
| 9 & 10 & 14   | R        | R   | G     | **  | R     | R   | G     | **  | R     | R   | R     | R   | R     | R   | R          | R     | R     |
| 11            | ← R      | ← R | ← R   | ← R | ← R   | ← R | ← R   | ← R | ← G   | *   | ← G   | *   | ← FY  | *** | ← FY       | ***   | ← R   |
| 12 & 13       | R        | R   | R     | R   | R     | R   | R     | R   | R     | R   | G     | **  | R     | R   | G          | **    | R     |
| 15 & 16       | DW       | DW  | DW    | DW  | DW    | DW  | DW    | DW  | DW    | DW  | W     | FDW | DW    | DW  | W          | FDW   | BLANK |
| 17 & 18       | DW       | DW  | DW    | DW  | W     | FDW | W     | FDW | DW    | DW  | DW    | DW  | DW    | DW  | DW         | DW    | DW    |
| 19 & 20       | DW       | DW  | DW    | DW  | DW    | DW  | DW    | DW  | DW    | DW  | DW    | DW  | W     | FDW | W          | FDW   | BLANK |
| 21 & 22       | DW       | DW  | W     | FDW | DW    | DW  | W     | FDW | DW    | DW  | DW    | DW  | DW    | DW  | DW         | DW    | DW    |

- \* 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.

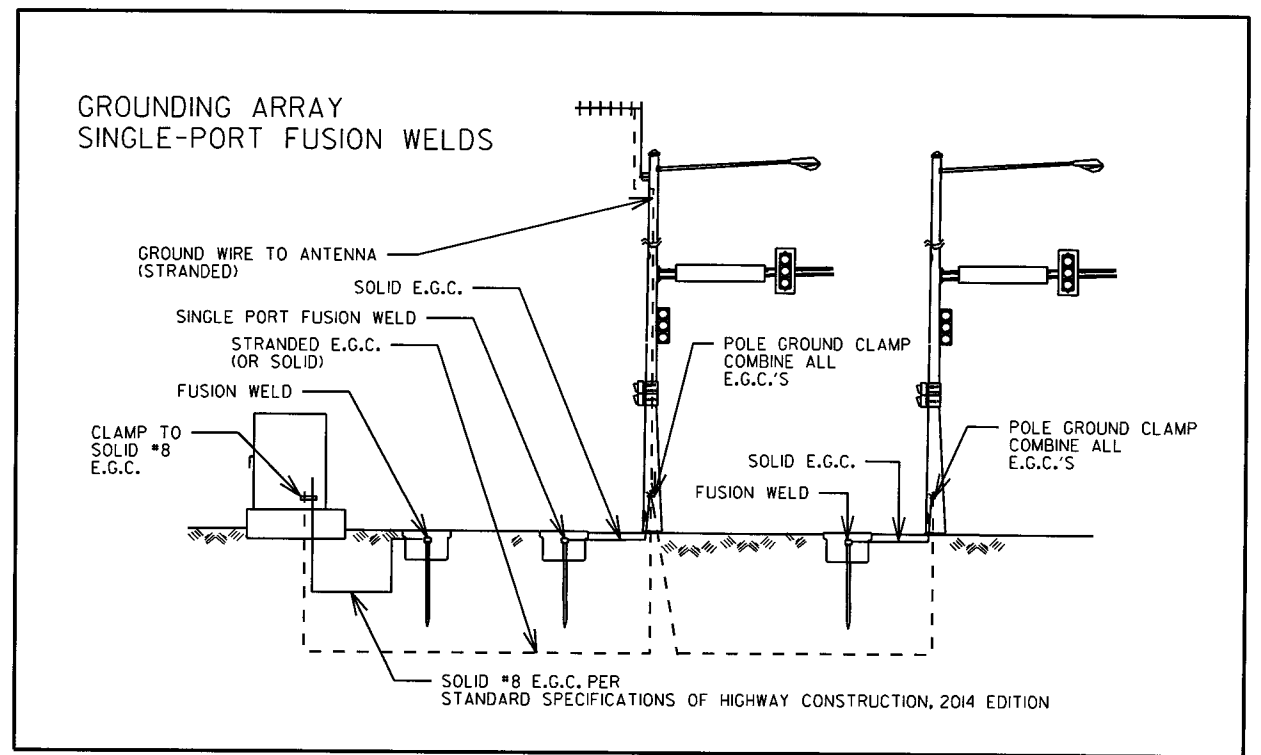
LOCATION: HWY. 102B/SEBA ROAD  
CITY: CENTERTON  
COUNTY: BENTON  
DISTRICT: 9 SCALE: N/A DRAWN BY: FLS

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO.       | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|-------|--------------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.  |                          | 33        | 41           |
|              |             |              |             | JOB NO. 090471     |       | SIGNALIZATION PLAN SHEET |           |              |



NOTES TO CONTRACTOR:

- ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
- ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
- THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.



WIRING DIAGRAM  
HWY. 102B AT SEBA ROAD  
NTS

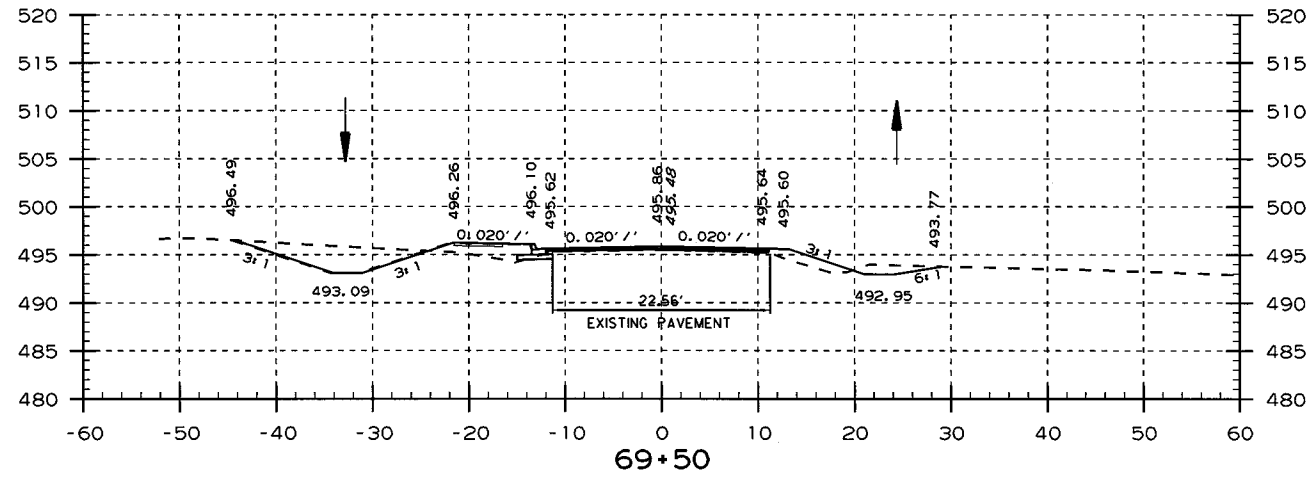


LOCATION: HWY. 102B/SEBA ROAD  
CITY: CENTERTON  
COUNTY: BENTON  
DISTRICT: 9 SCALE: N/A DRAWN BY: FLS

USER: f6513  
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SCALE: 1:1

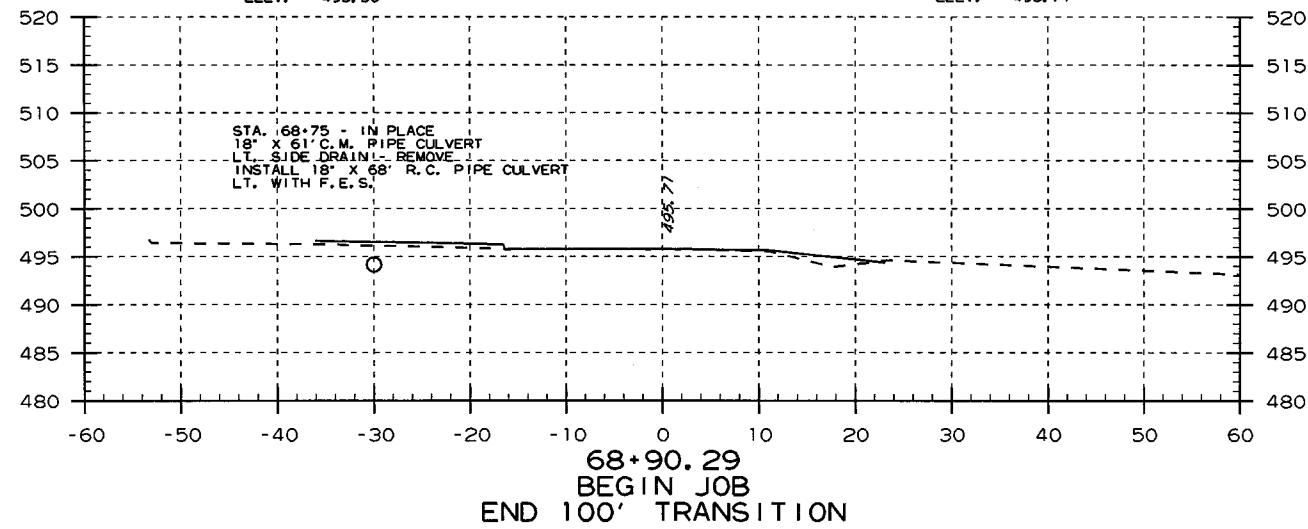
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|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 |                    | 34        | 41           |

2 CROSS SECTION STA. 67+90.29 TO STA. 71+00

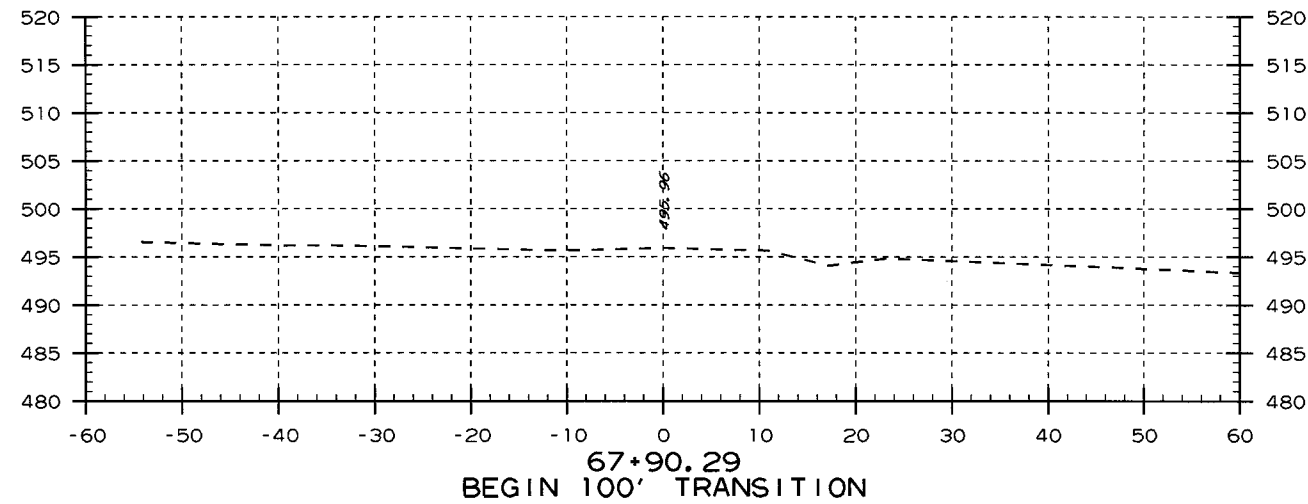


STA. 69+00 BEGIN  
-0.82% LT. DT. GR.  
ELEV. = 493.50

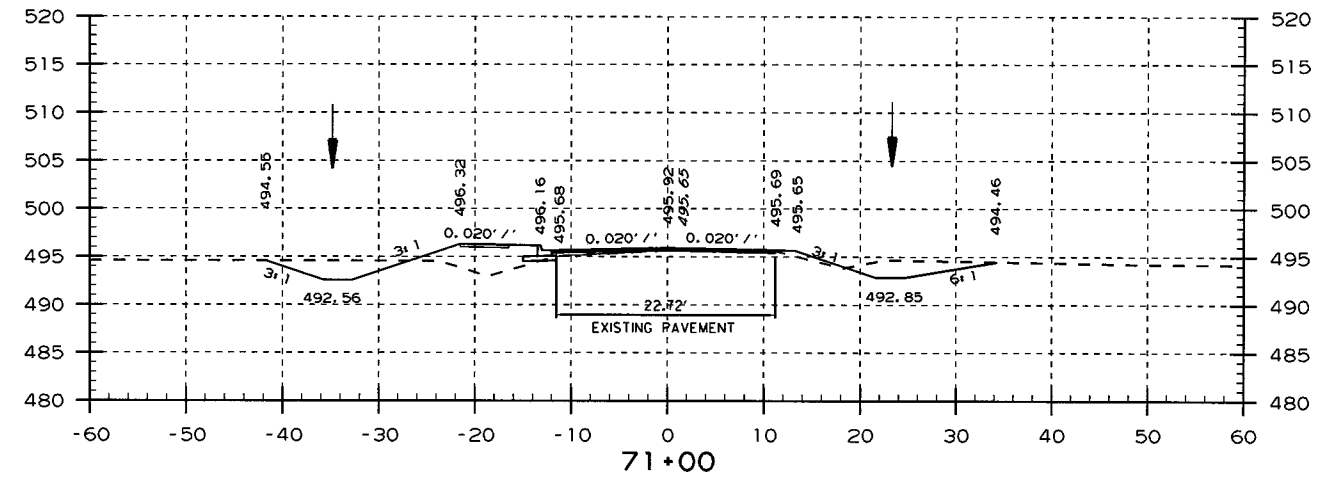
STA. 69+15 BEGIN  
-2.16% RT. DT. GR.  
ELEV. = 493.71



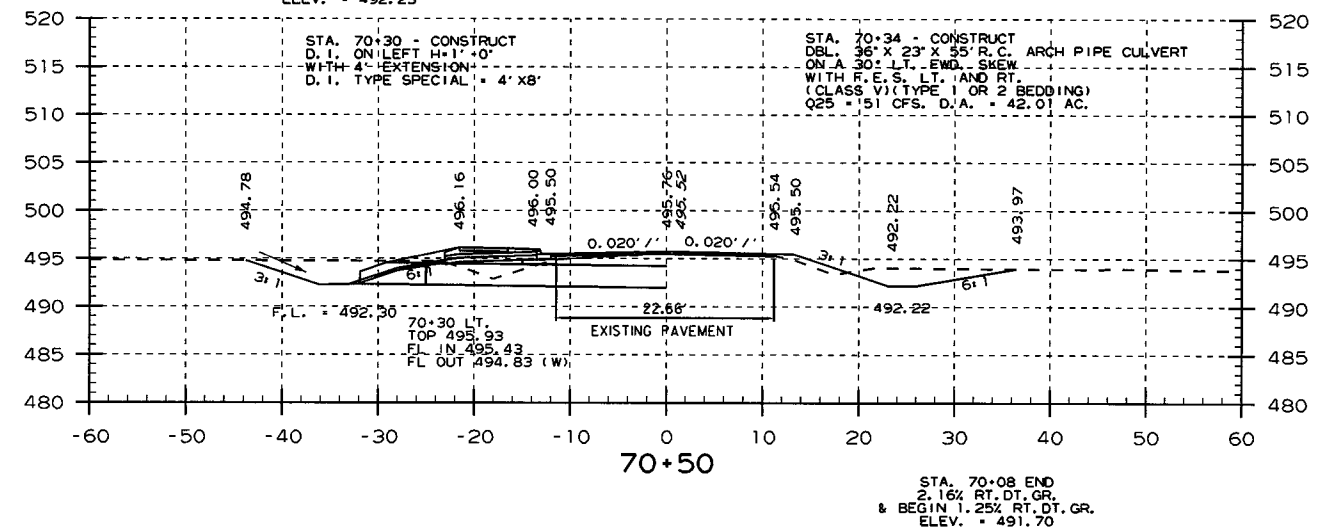
STA. 68+75 - IN PLACE  
18" X 61" C.M. PIPE CULVERT  
LT. SIDE DRAIN - REMOVE  
INSTALL 18" X 68" R.C. PIPE CULVERT  
LT. WITH F.E.S.



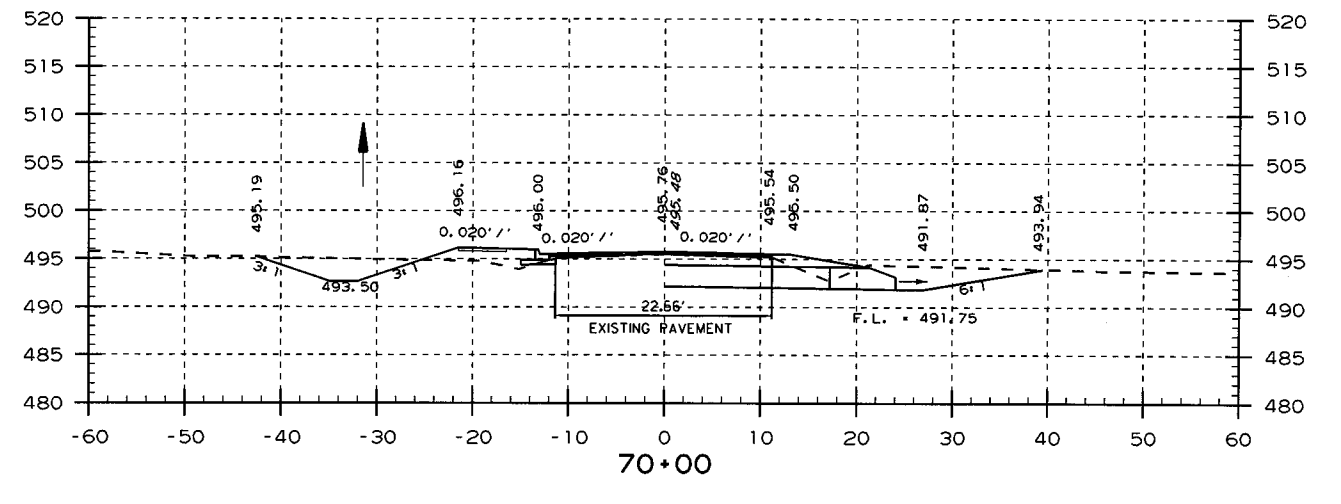
STA. 70+30 - CONSTRUCT  
D.I. ON LEFT H+1+0'  
WITH 4' EXTENSION  
D.I. TYPE SPECIAL 4' X 8'



STA. 70+54 END  
-0.82% LT. DT. GR.  
& BEGIN 0.72% LT. DT. GR.  
ELEV. = 492.23



STA. 70+34 - CONSTRUCT  
DEL. 36" X 23" X 55" R.C. ARCH PIPE CULVERT  
ON A 30' LT. END, SEW  
WITH F.E.S. LT. AND RT.  
(CLASS V) (TYPE 1 OR 2 BEDDING)  
Q25 = .51 CFS, D.A. = 42.01 AC.



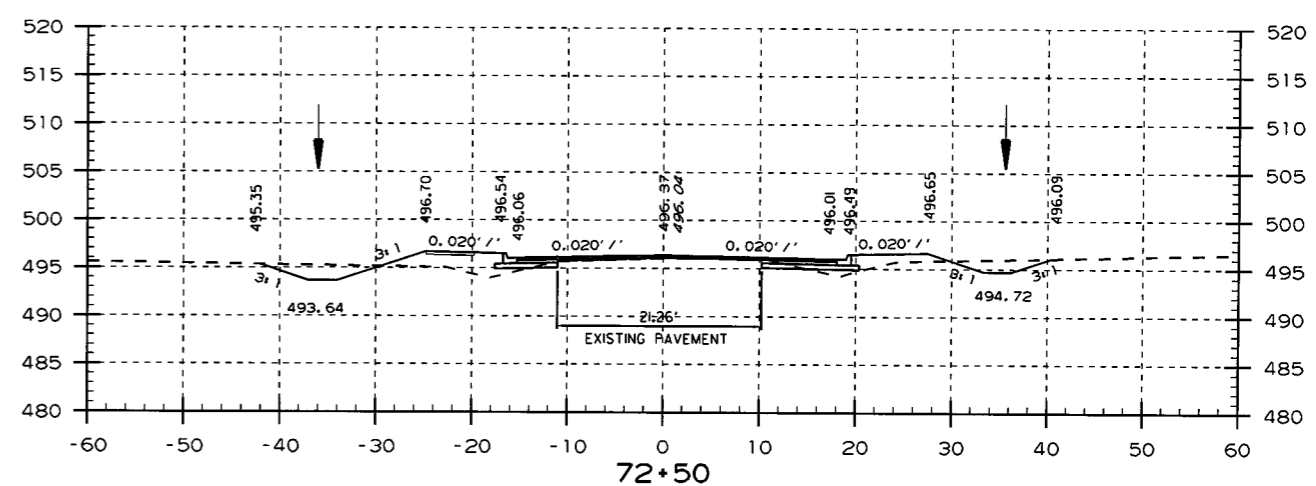
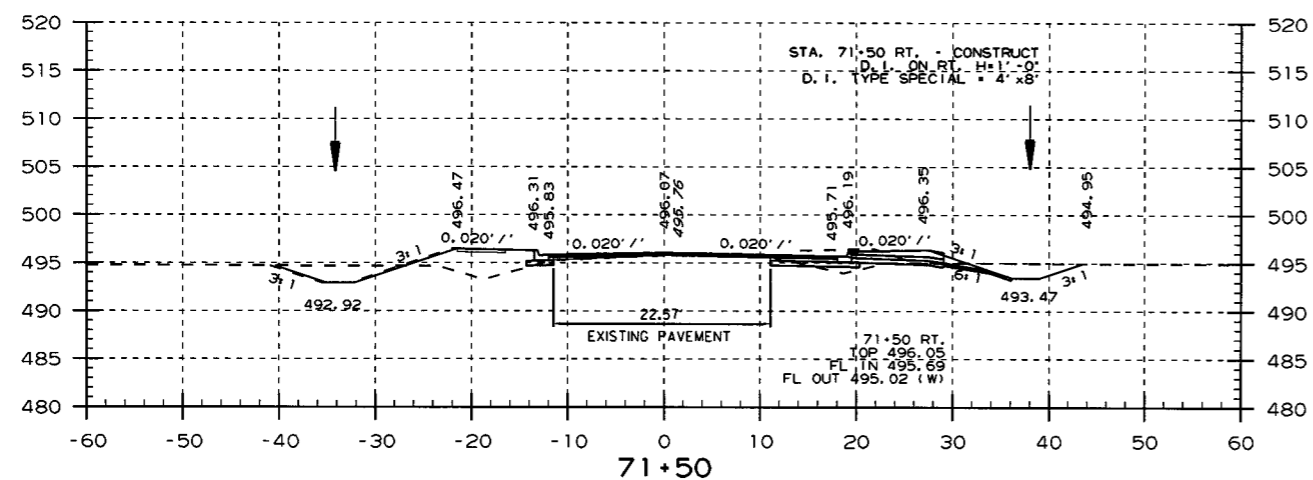
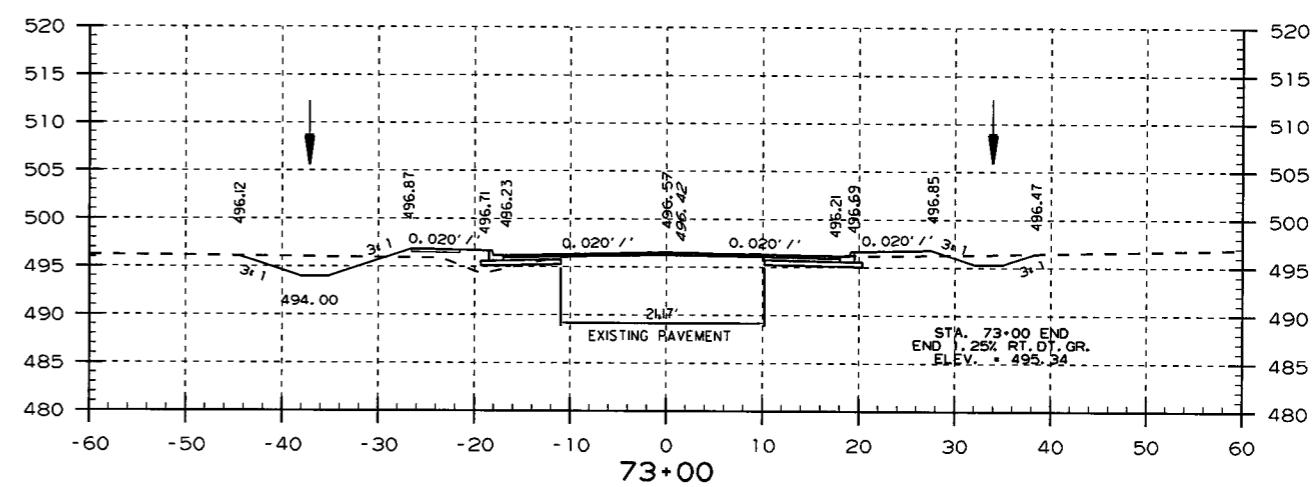
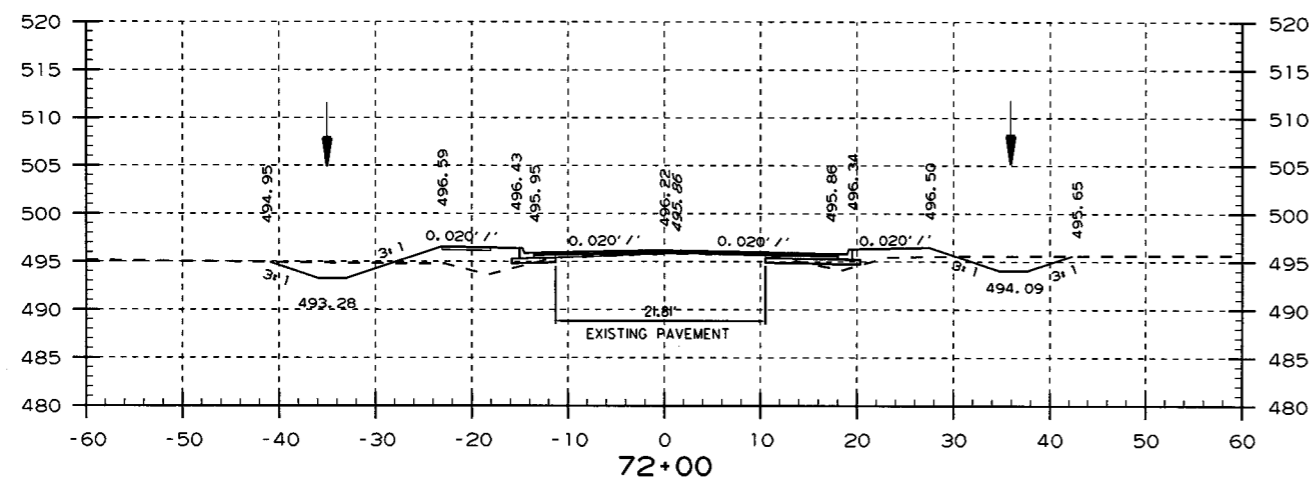
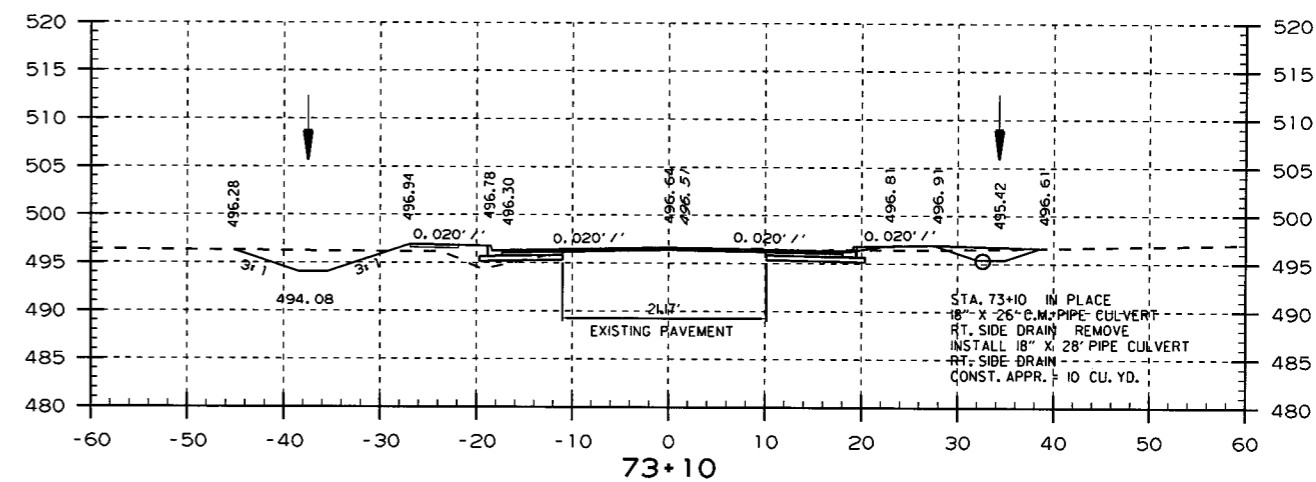
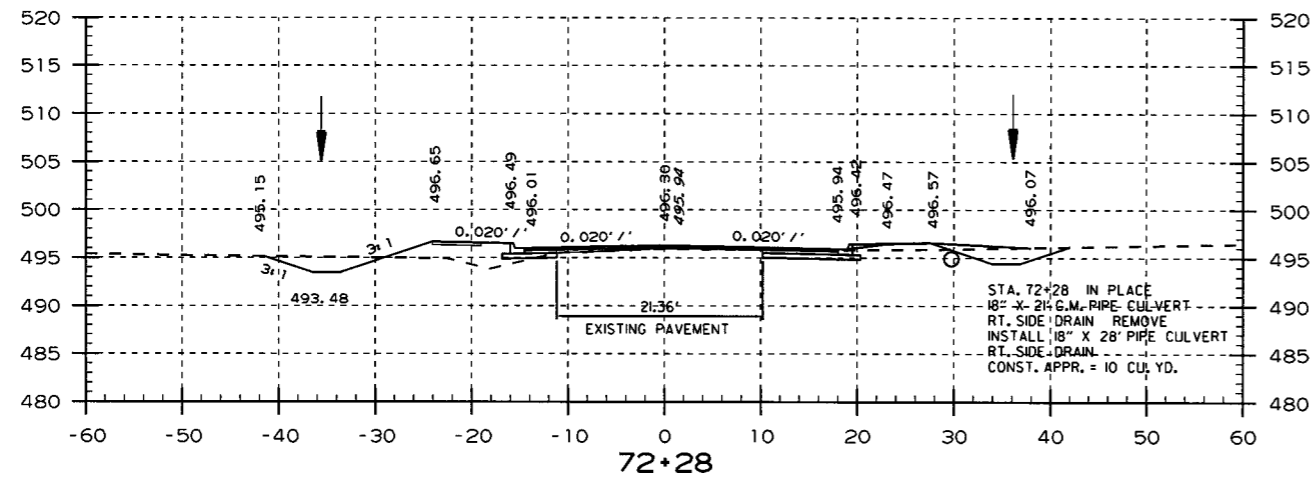
STA. 70+08 END  
2.16% RT. DT. GR.  
& BEGIN 1.25% RT. DT. GR.  
ELEV. = 491.70

CROSS SECTION STA. 67+90.29 TO STA. 71+00

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PLOTTED: 8/17/2017 11:57

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|              |             |              |             |                    |       | JOB NO.            | 090471    | 35           |

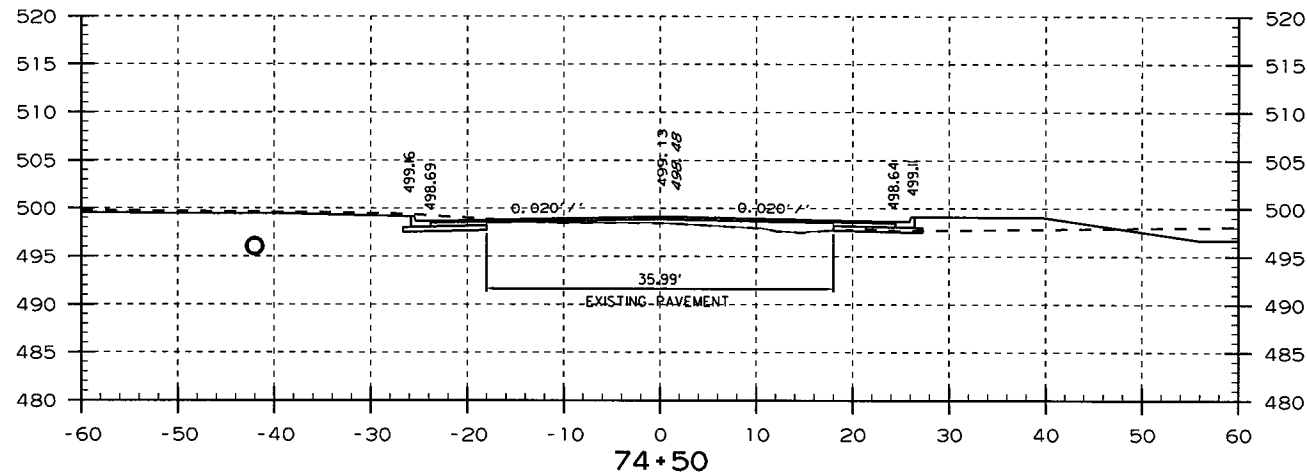
2 CROSS SECTION STA. 71+50 TO STA. 73+10



CROSS SECTION STA. 71+50 TO STA. 73+10

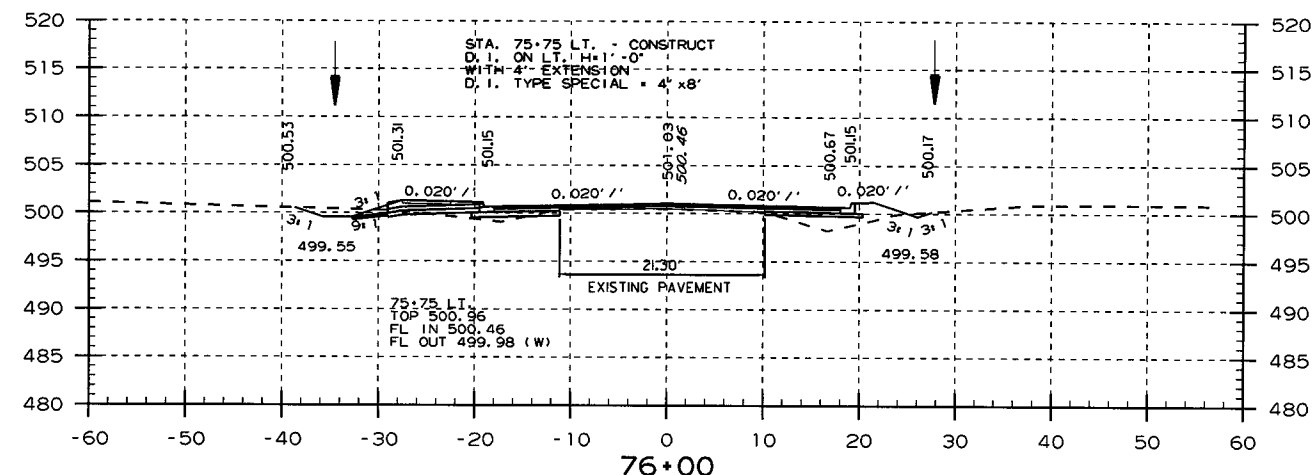
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|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             |                    |       | JOB NO. 090471     | 36        | 41           |

2 CROSS SECTION STA. 73+50 TO STA. 76+00



STA. 74+41 END  
END 0.72% LT. DT. GR.  
ELEV. = 495.02

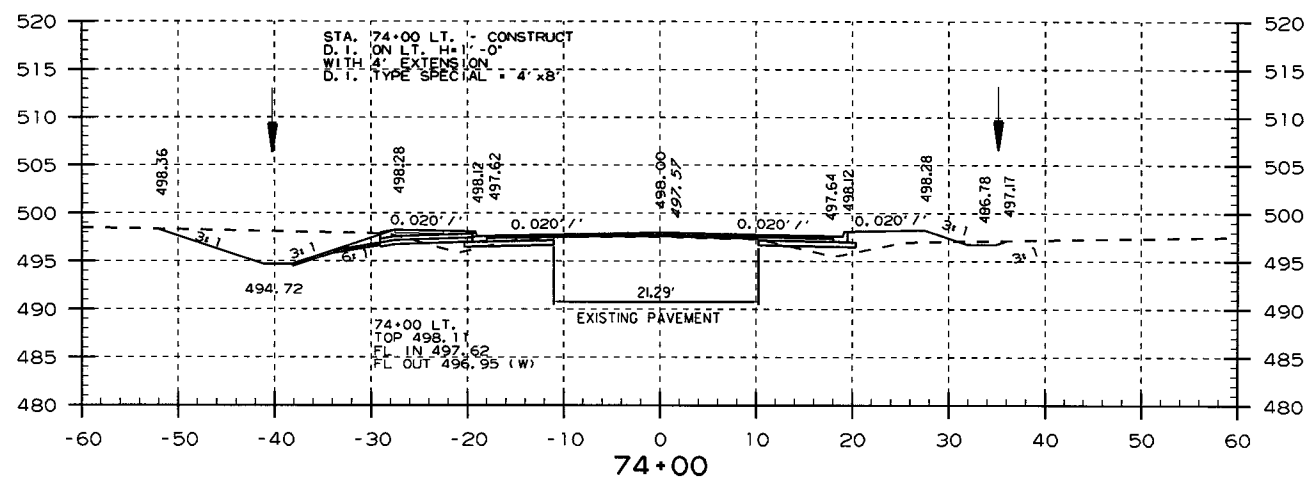
74+50



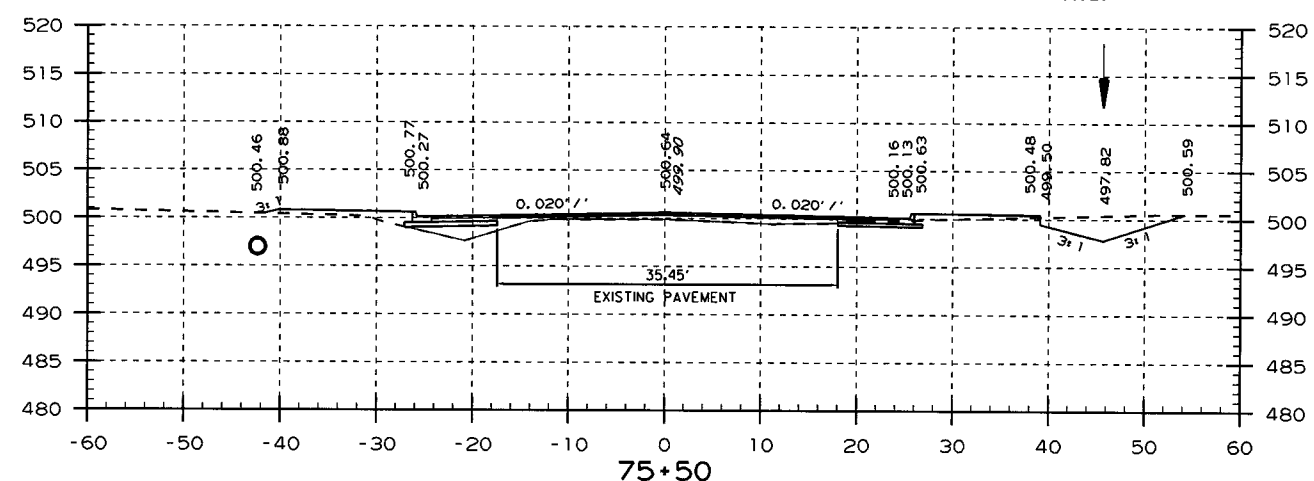
STA. 75+76.27 BEGIN  
0.87% LT. DT. GR.  
ELEV. = 499.35

STA. 75+61 BEGIN  
1.20% RT. DT. GR.  
ELEV. = 499.20

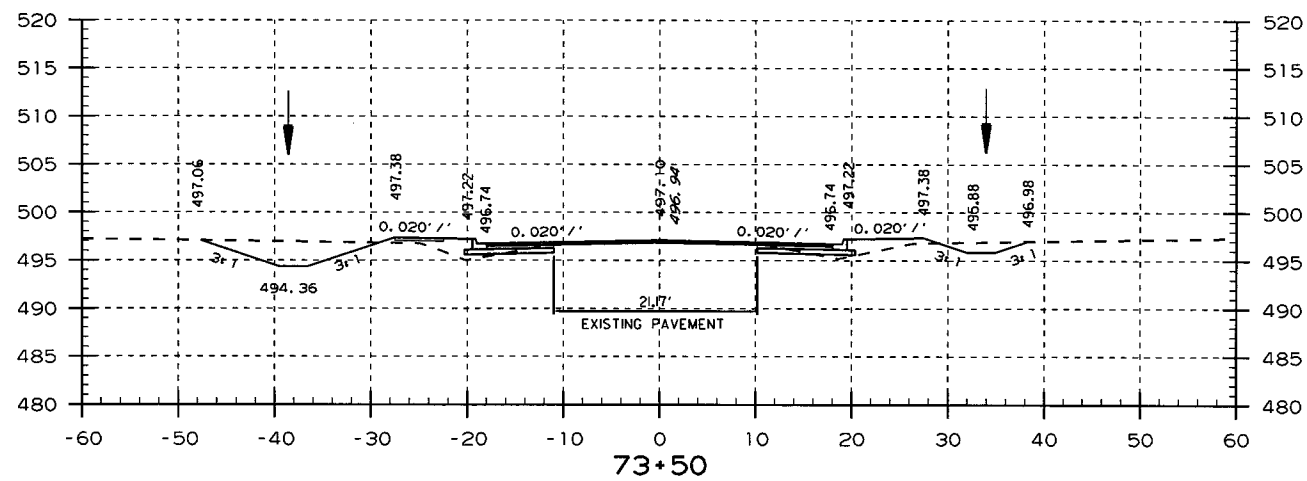
76+00



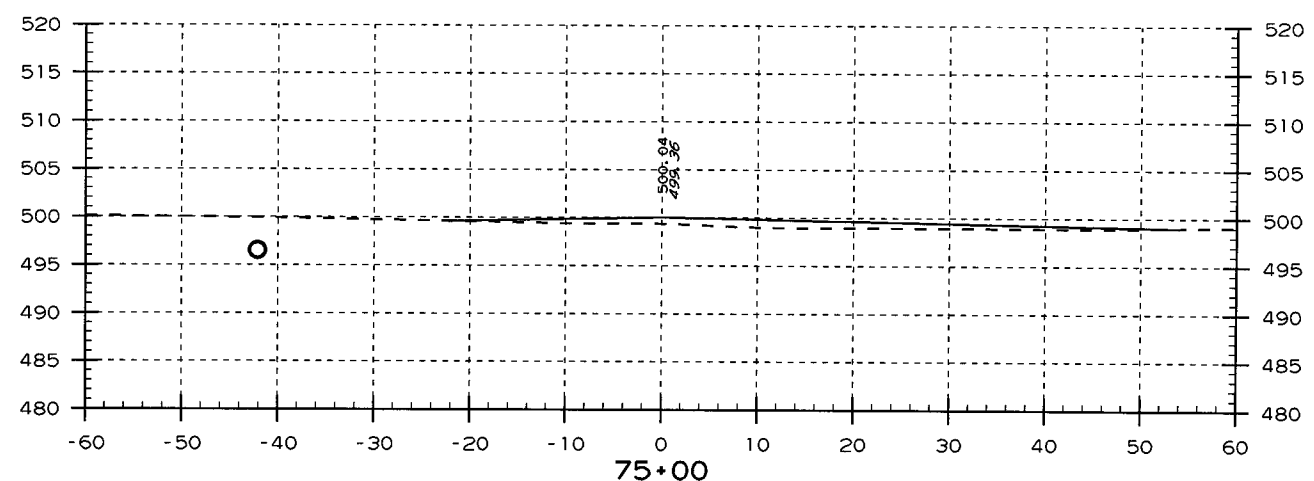
74+00



75+50



73+50



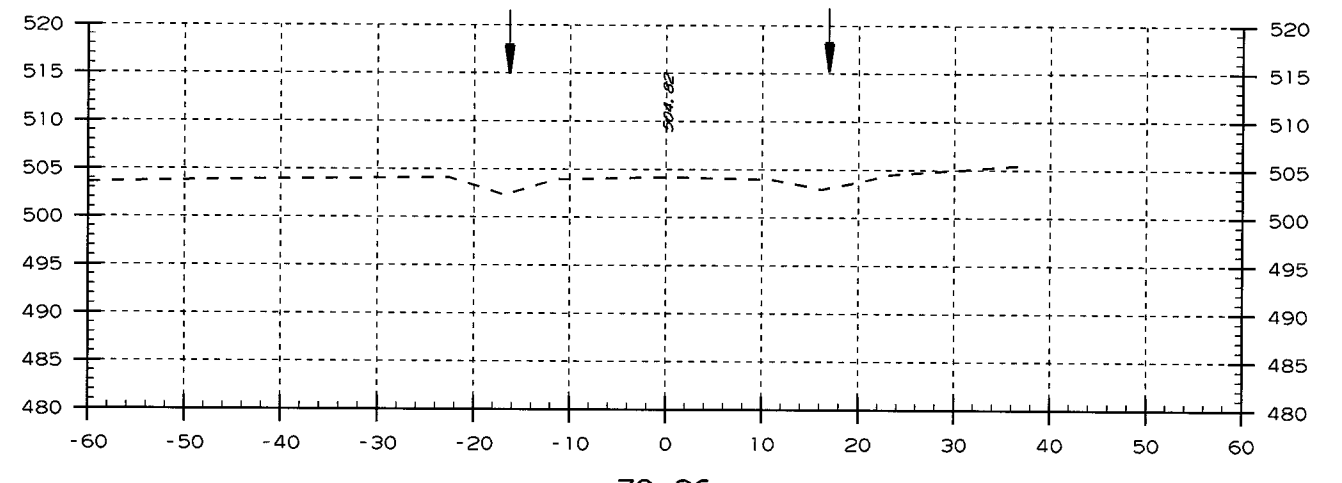
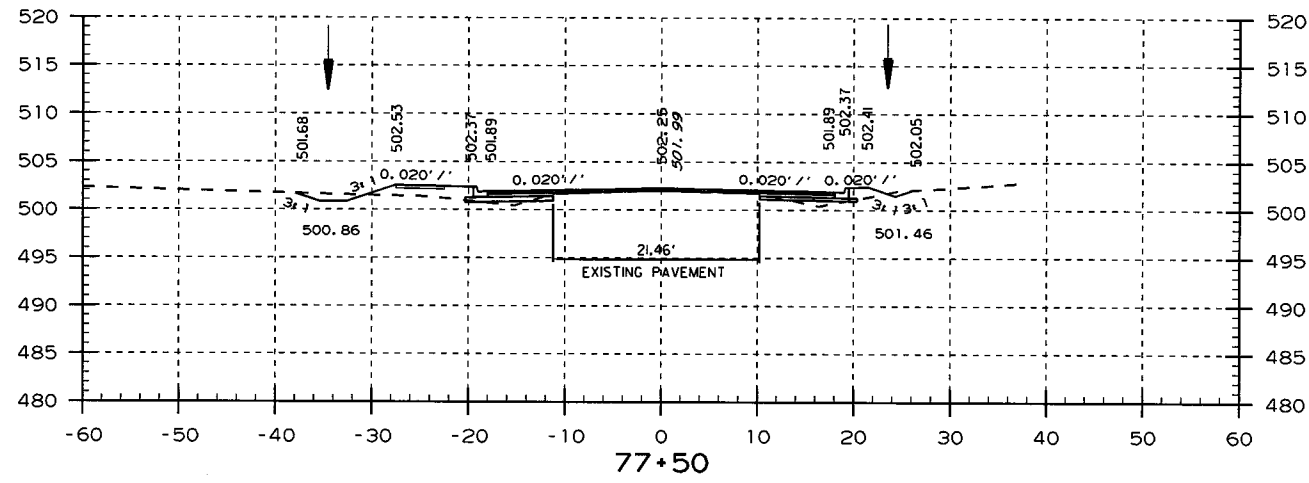
75+00

CROSS SECTION STA. 73+50 TO STA. 76+00

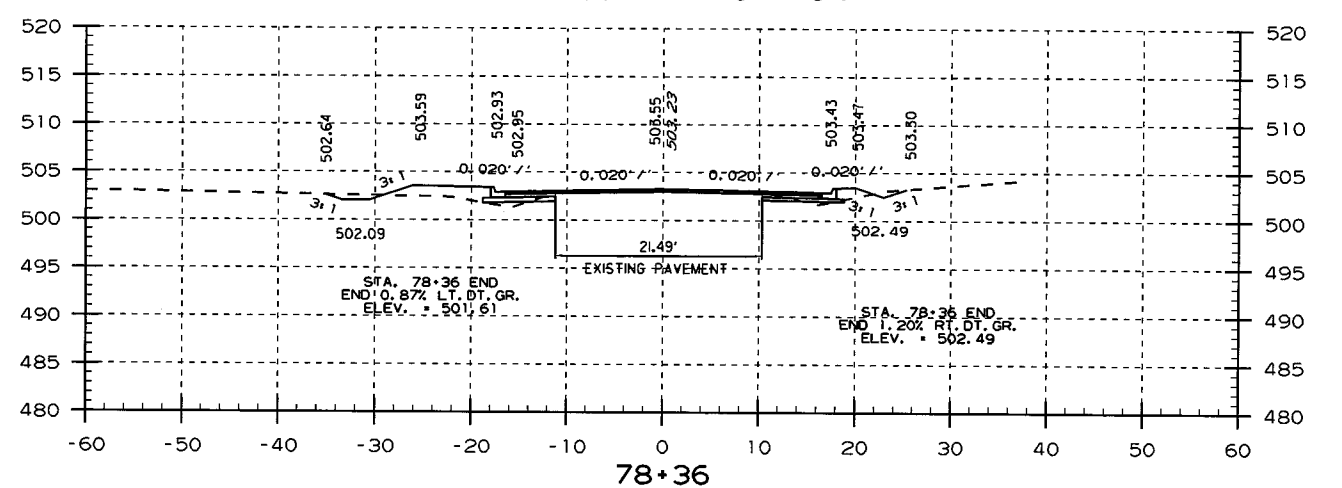
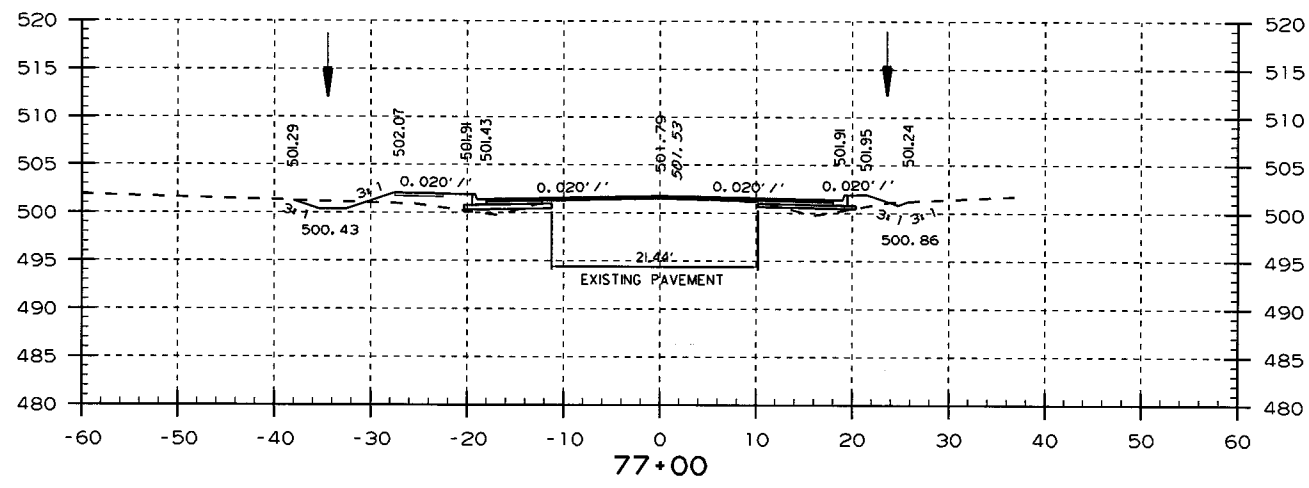
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|              |             |              |             | JOB NO.            | 090471 |                    | 37        | 41           |

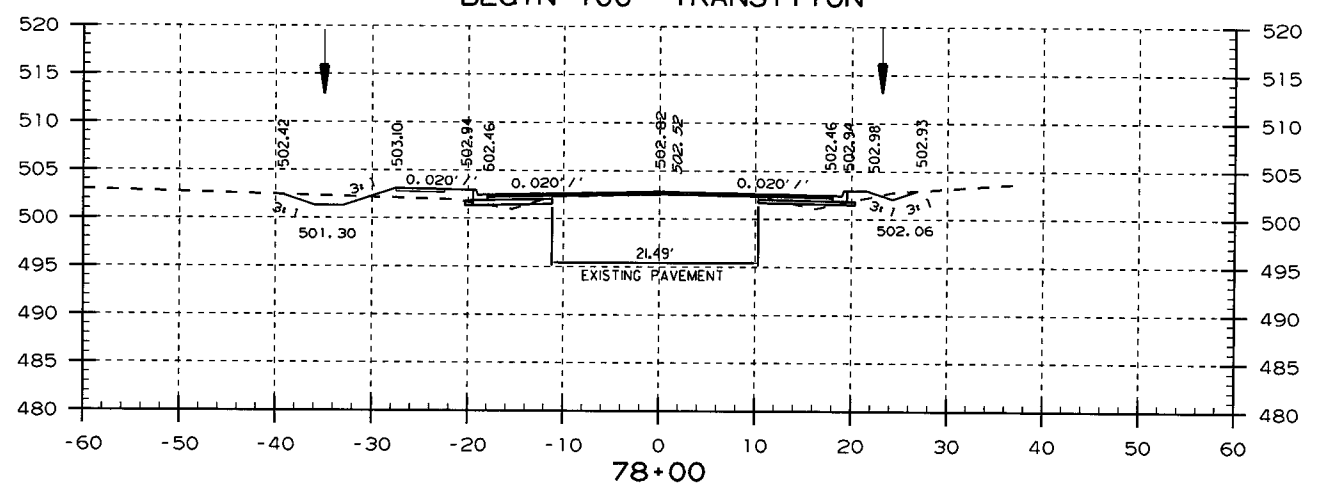
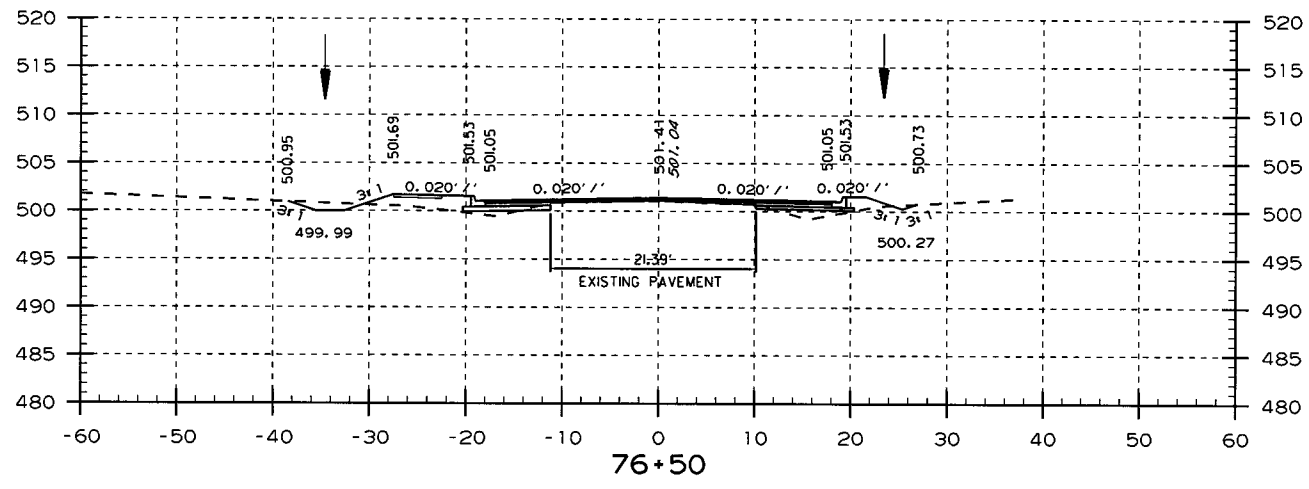
② CROSS SECTION STA. 76+50 TO STA. 79+36



END 100' TRANSITION



BEGIN 100' TRANSITION

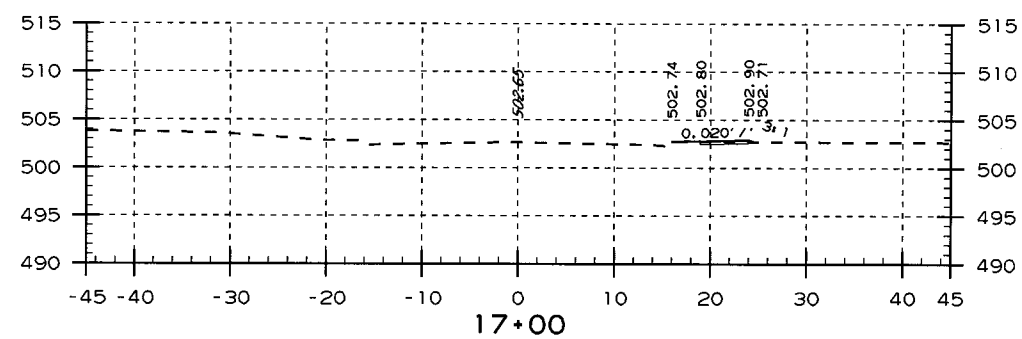
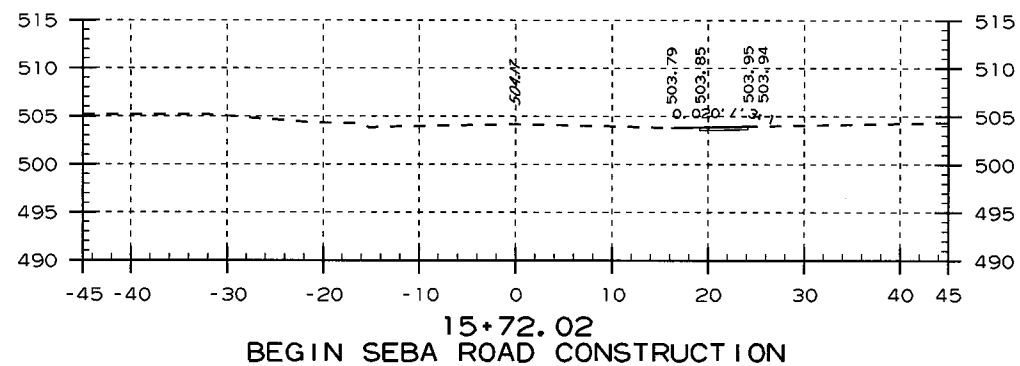
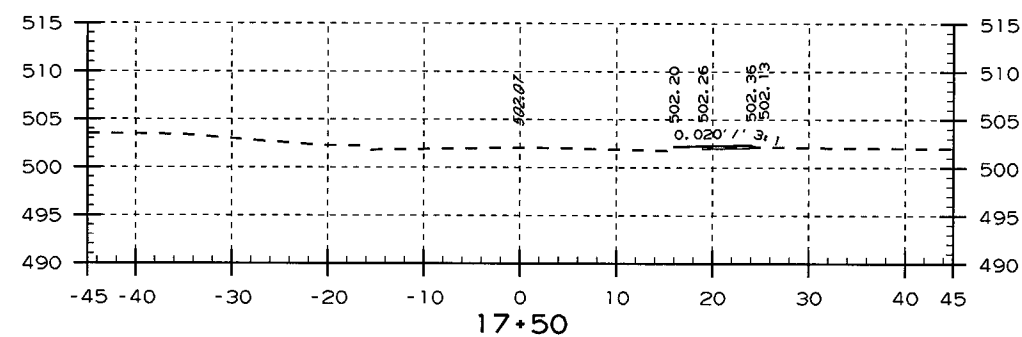
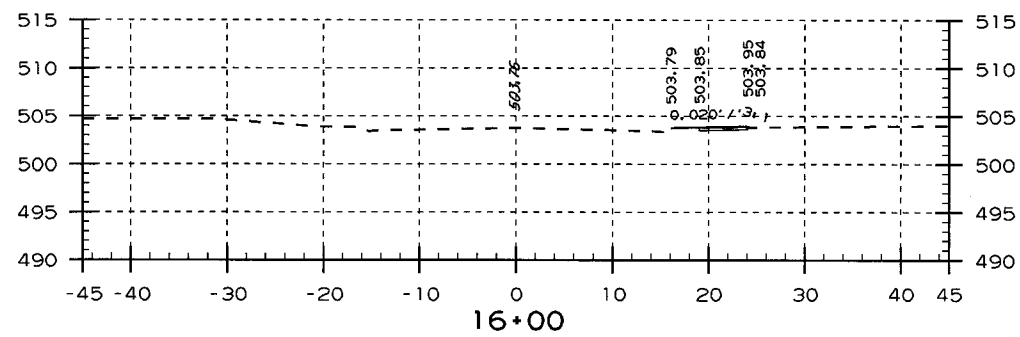
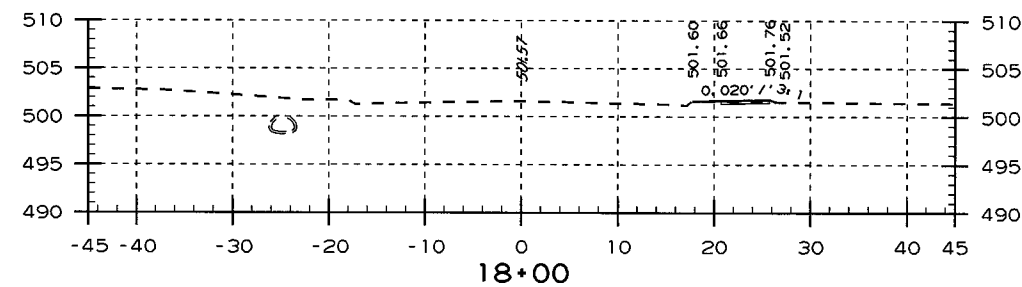
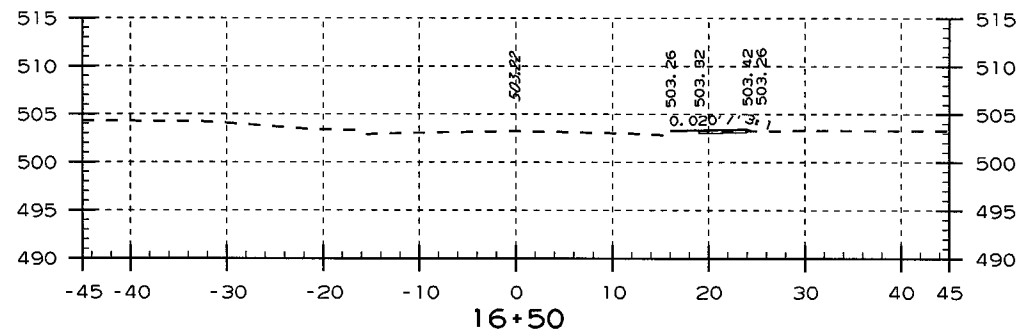
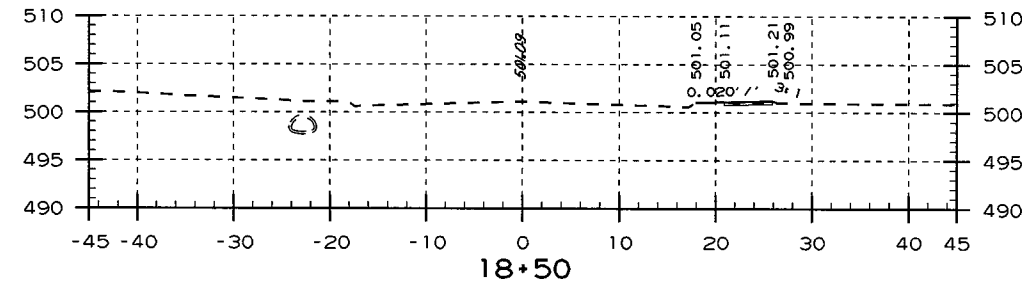


CROSS SECTION STA. 76+50 TO STA. 79+00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             | JOB NO.            |       | 090471             | 38        | 41           |

2 CROSS SECTION STA. 15+62 TO STA. 18+50

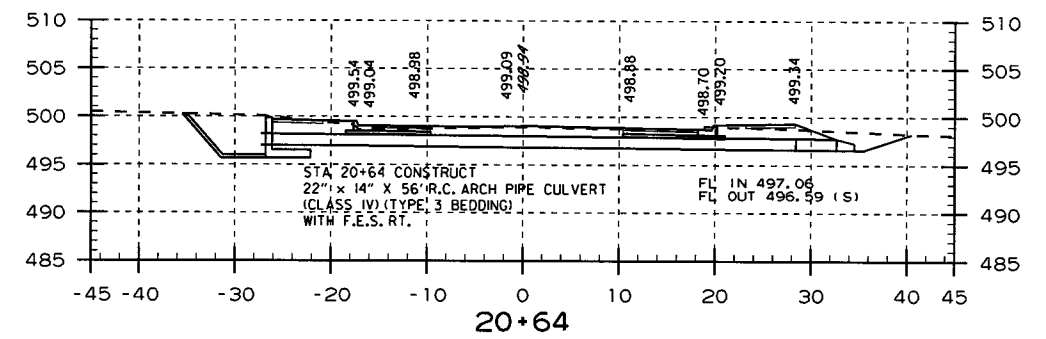
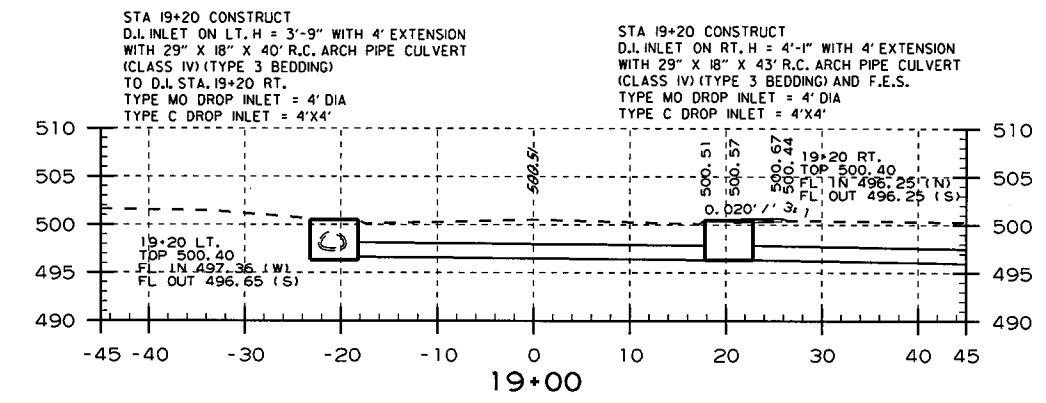
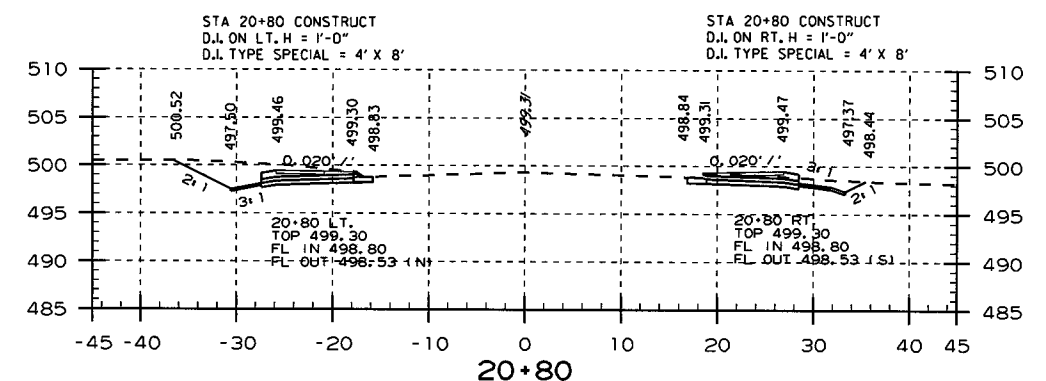
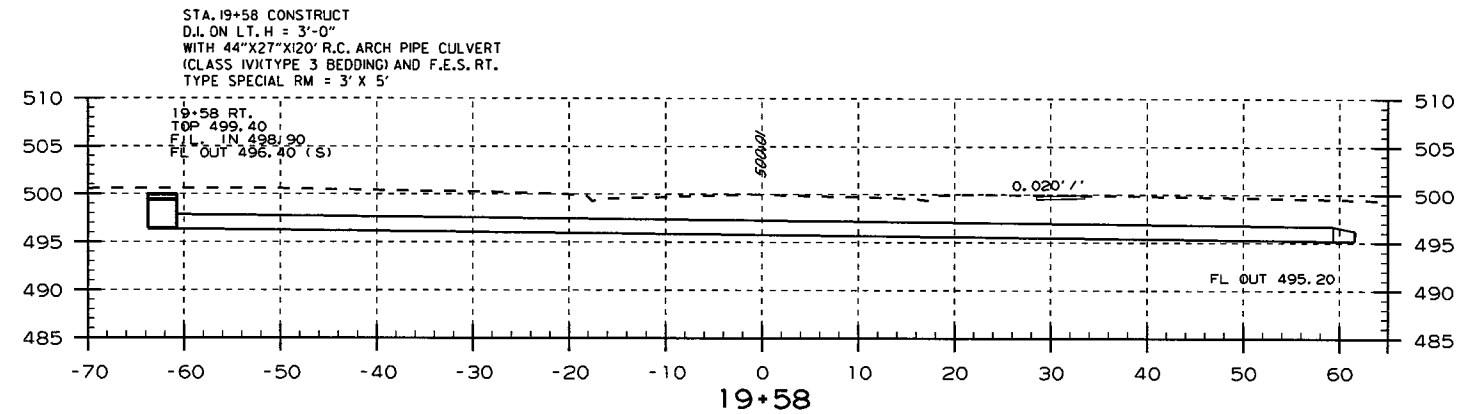
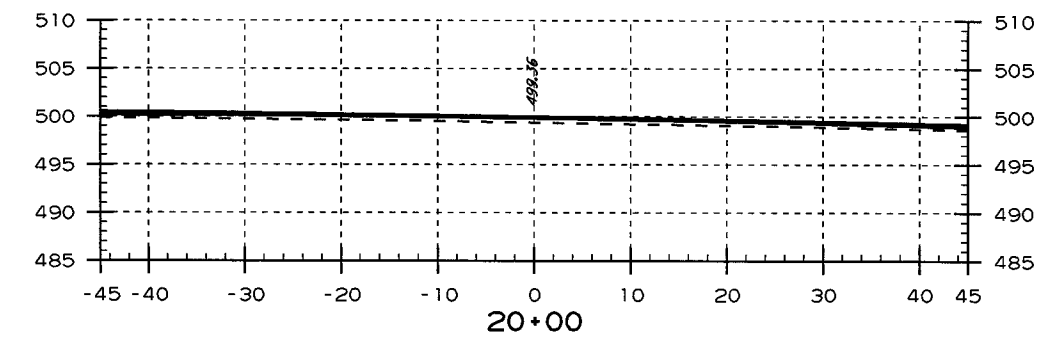
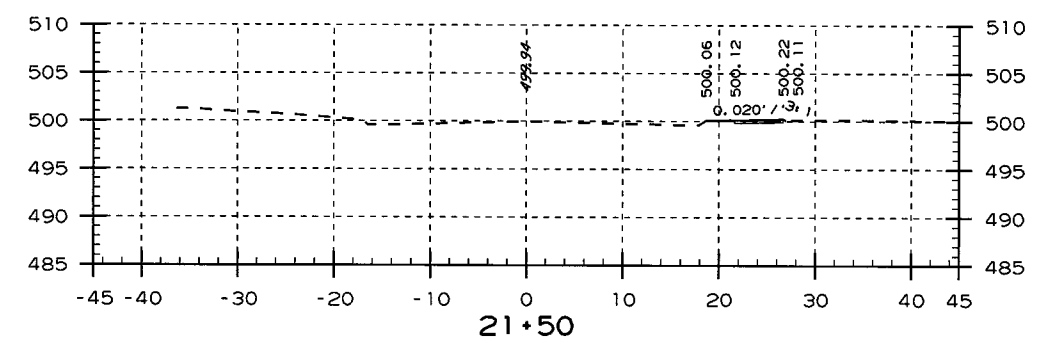
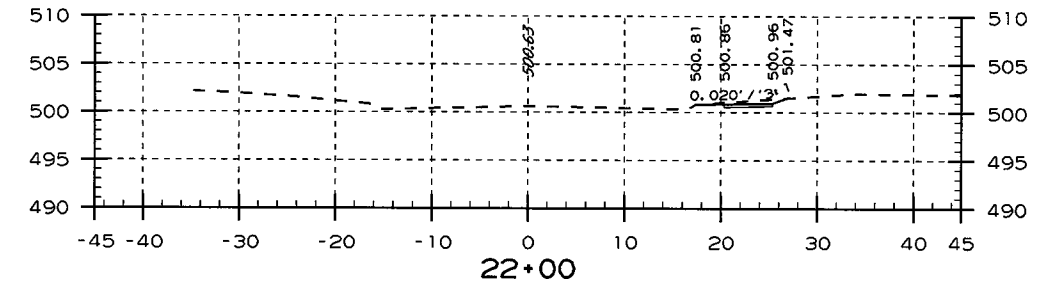


15+72.02  
BEGIN SEBA ROAD CONSTRUCTION

CROSS SECTION STA. 15+62 TO STA. 18+50

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             |                    |       | JOB NO. 090471     | 39        | 41           |

2 CROSS SECTION STA. 19+00 TO STA. 22+00



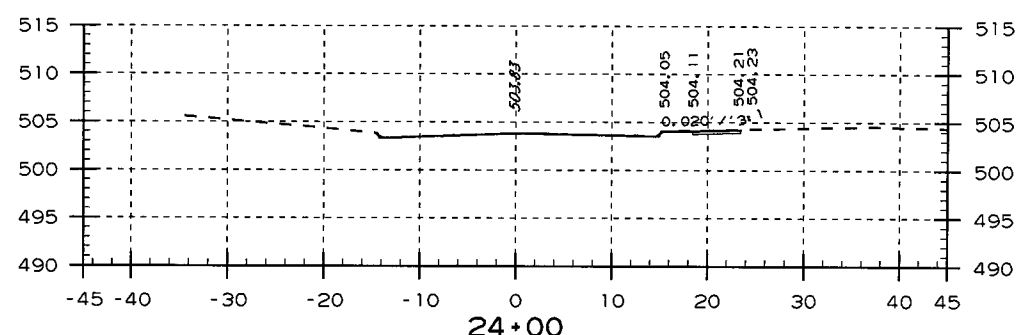
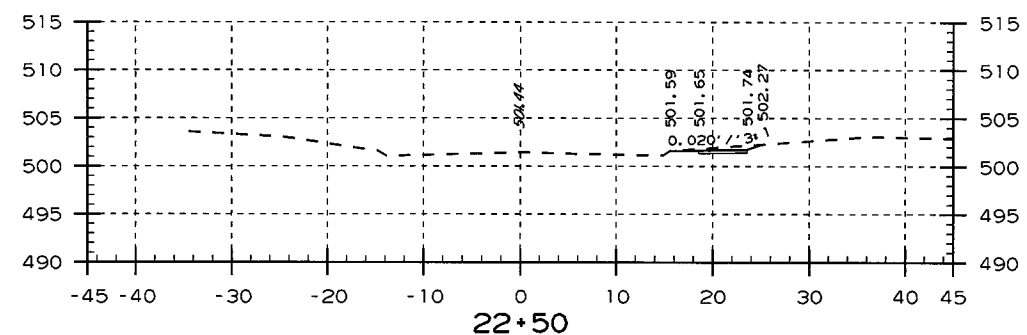
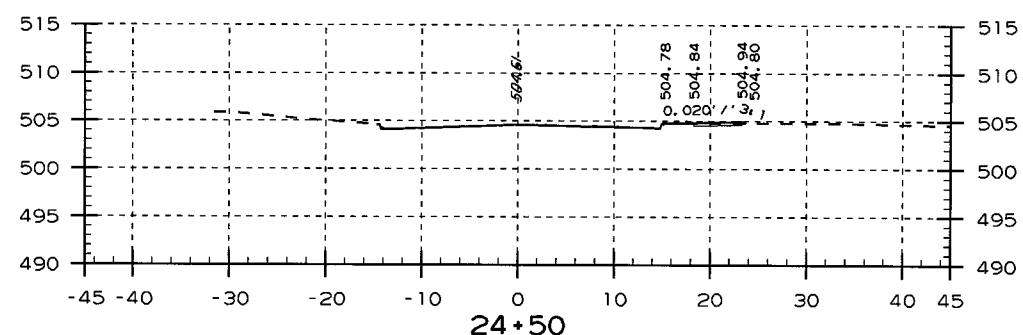
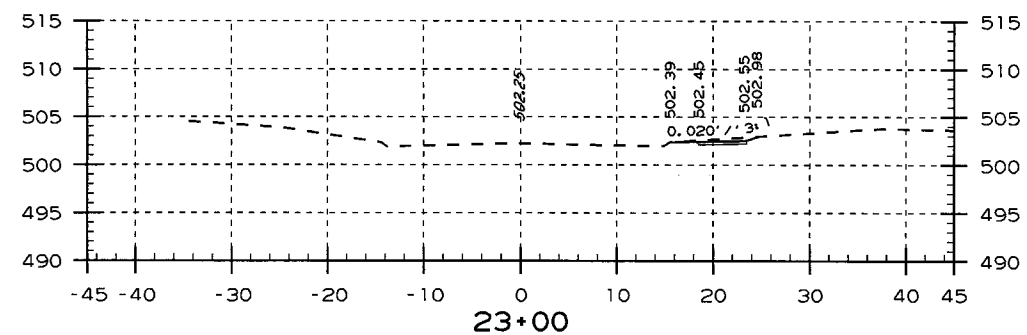
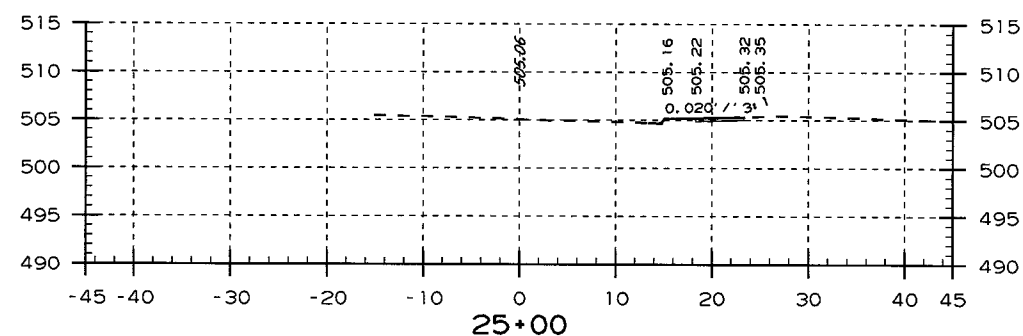
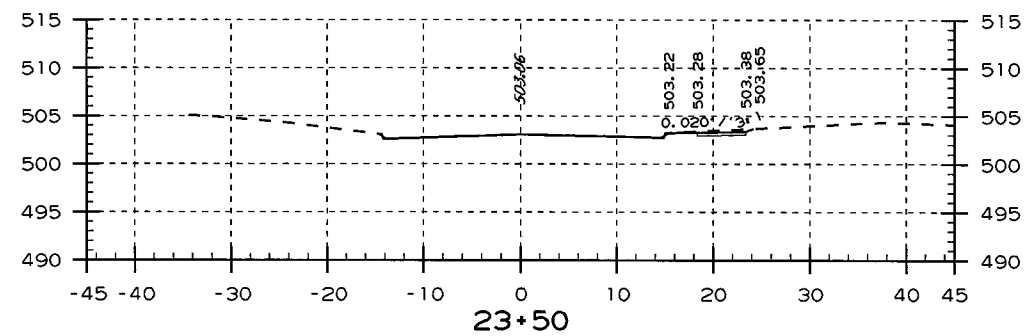
CROSS SECTION STA. 19+00 TO STA. 22+00

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| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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|              |             |              |             | 6                  | ARK.  |                    |           |              |
|              |             |              |             | JOB NO.            |       | 090471             | 40        | 41           |

2 CROSS SECTION STA. 22+50 TO STA. 25+00

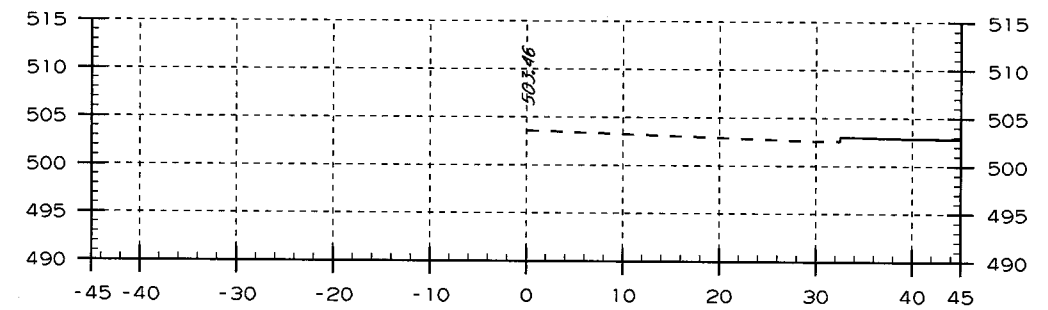


CROSS SECTION STA. 22+50 TO STA. 25+00

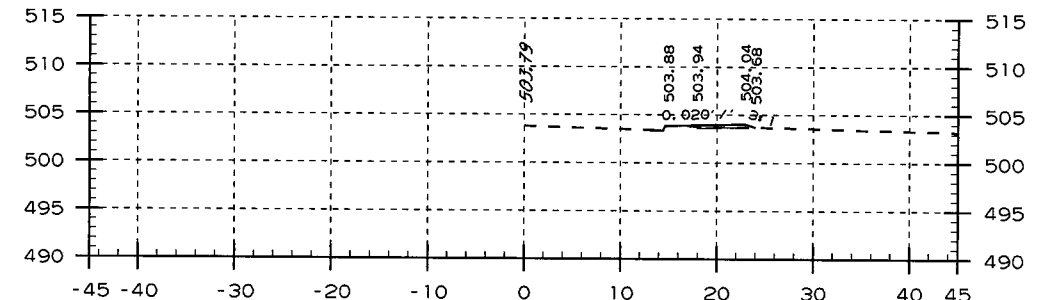
USER: f5j3  
 DESIGN FILE: G:\1611601\SEBA\TRANSP\dgn\090471\_Seba\_Rd.dgn  
 PLOTTED: 8/17/2017 11:57 SCALE: 20:1

| DATE REVISED | DATE FILMED | DATE REVISED | DATE FILMED | FED. RD. DIST. NO. | STATE  | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|--------------|-------------|--------------|-------------|--------------------|--------|--------------------|-----------|--------------|
|              |             |              |             | 6                  | ARK.   |                    |           |              |
|              |             |              |             | JOB NO.            | 090471 |                    | 41        | 41           |

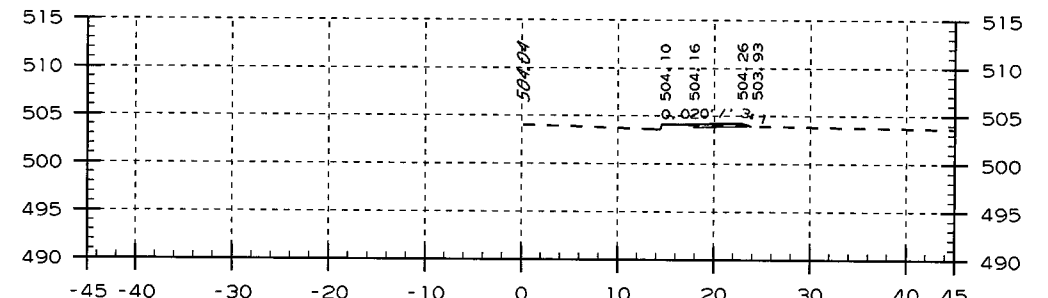
2 CROSS SECTION STA. 25+50 TO STA. 28+00



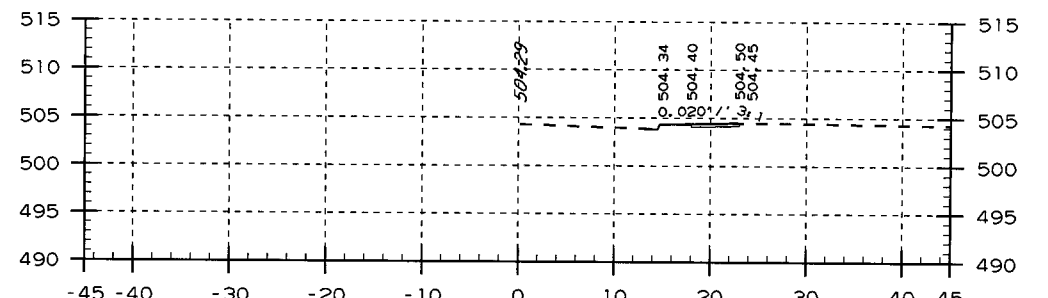
28+52.64  
END TOWN VU ROAD CONSTRUCTION



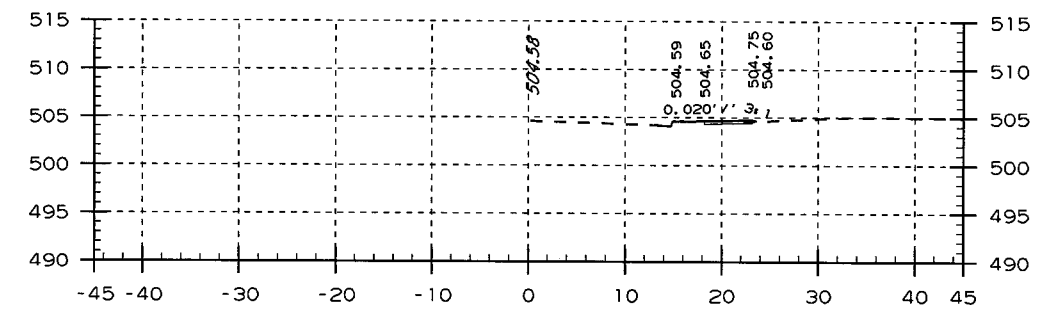
28+00



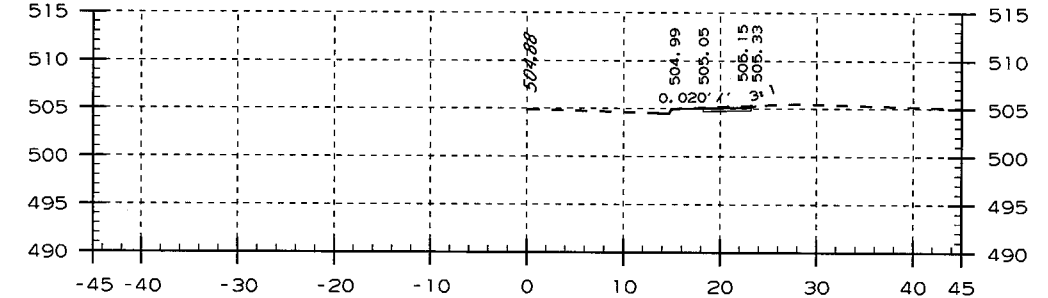
27+50



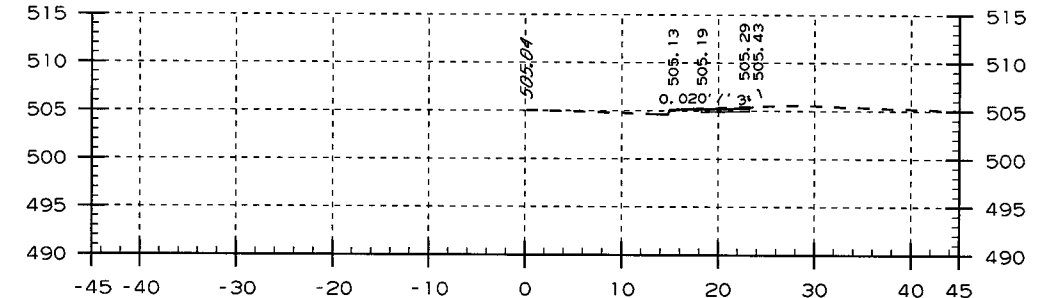
27+00



26+50



26+00

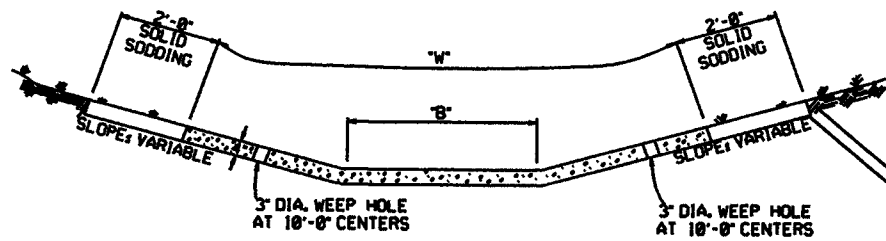


25+50

CROSS SECTION STA. 25+50 TO STA. 28+00

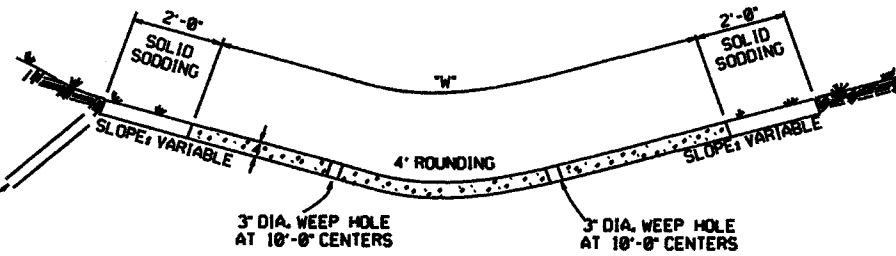
REFER TO TABULATION OF QUANTITIES FOR "W" & "B" DIMENSIONS

REFER TO TABULATION OF QUANTITIES FOR "W" DIMENSIONS



TYPE A

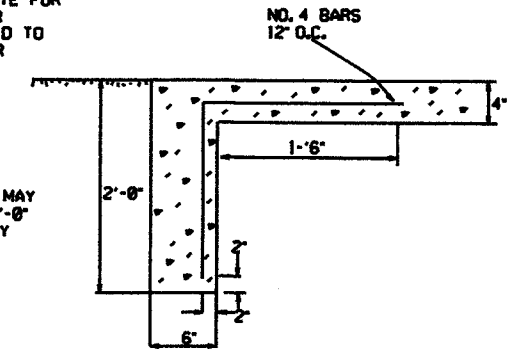
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.



TYPE B

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."

TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION



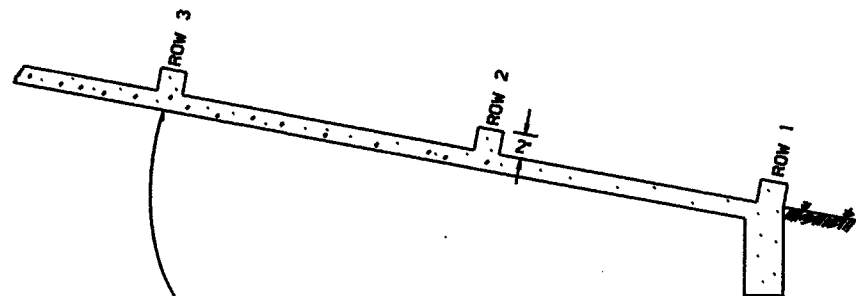
TOE WALL DETAIL FOR CONCRETE DITCH PAVING

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY. TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

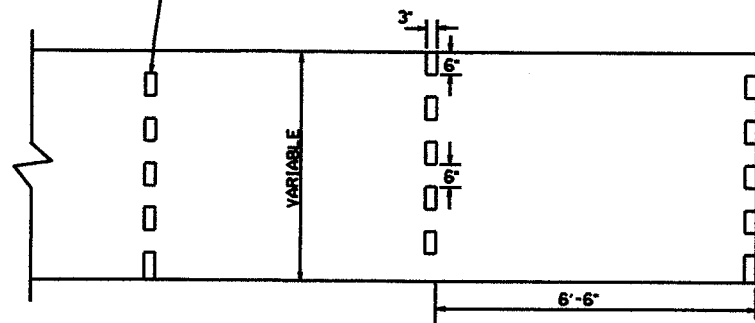
SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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.



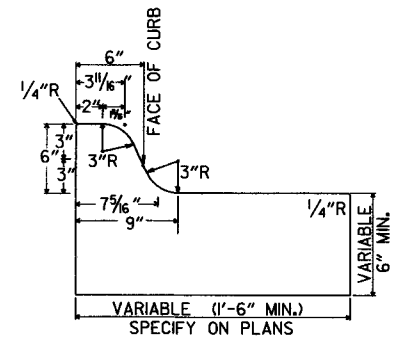
ENERGY DISSIPATORS (NO SCALE)

| DATE     | REVISION                                     | DATE FILM'D |
|----------|--|-------------|
| 12-8-16  | CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE |             |
| 11-7-10  | ADDED GENERAL NOTE                           |             |
| 6-2-94   | ADDED GENERAL NOTE ABOUT SOLID SODDING       |             |
| 11-30-88 | ELIMINATED MIN. ROWS OF ELEMENTS             | 111-30-89   |
| 7-15-88  | REVISED DISSIPATOR NOTE                      | 853-2015-88 |
| 4-3-87   | REVISED ENERGY DISSIPATOR                    | 871-40-87   |
| 1-9-87   | ADDED NOTE ON ENERGY DISS.                   | 852-04-87   |
| 11-2-85  | ADDED NOTE TO ENERGY DISS.                   | 855-12-85   |
| 11-1-84  | ENERGY DISSIPATOR DETAILS ADDED              | 508-11-84   |
| 11-1-84  | EXCAVATION DETAILS ADDED                     |             |
|          | TYPED A & B                                  |             |
| 10-2-72  | REVISED AND REDRAWN                          | 508-10-2-72 |
|          |  |             |
|          |  |             |

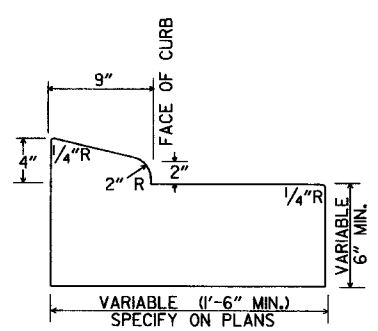
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

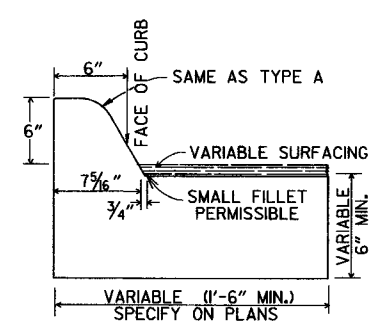
STANDARD DRAWING CDP-1



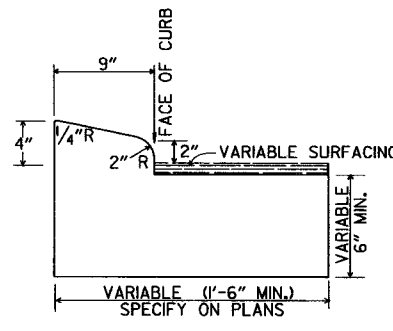
TYPE A



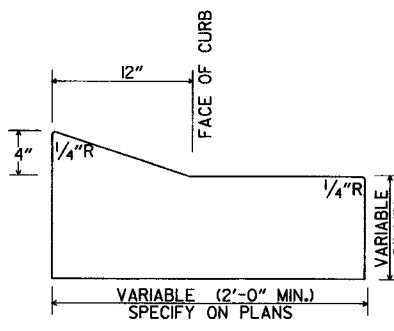
TYPE B-1



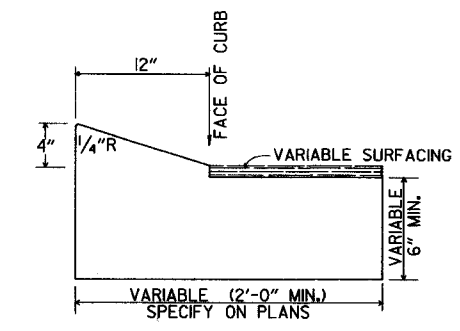
TYPE C



TYPE B-2

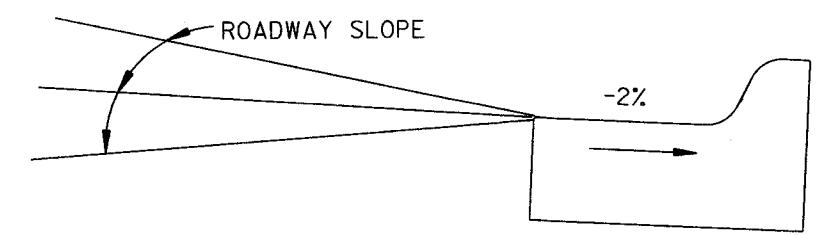


TYPE E-1

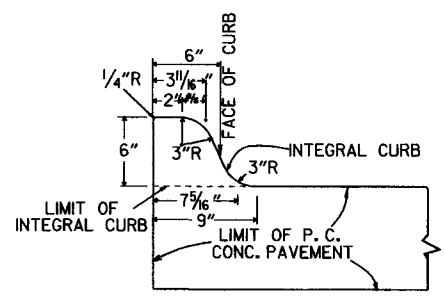


TYPE E-2

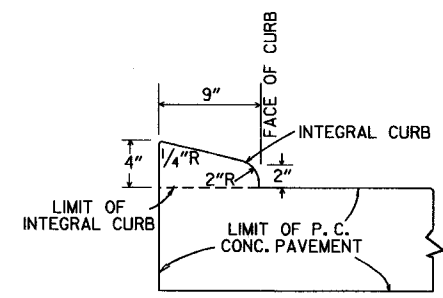
CONCRETE COMBINATION CURB AND GUTTER



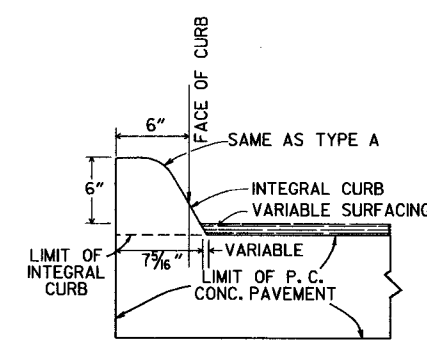
DETAIL OF GUTTER SLOPE  
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

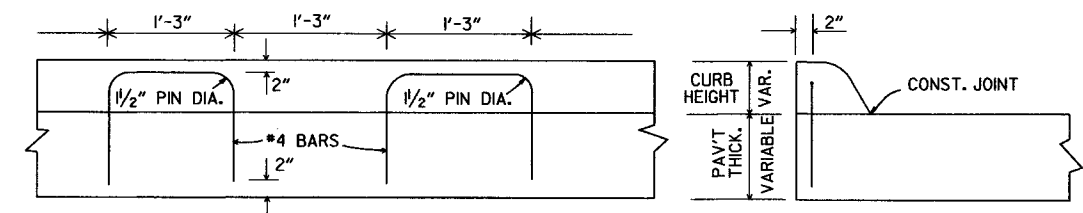


TYPE B



TYPE C

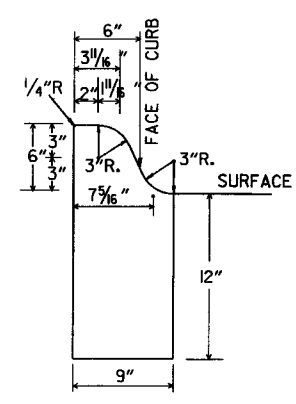
INTEGRAL CURB



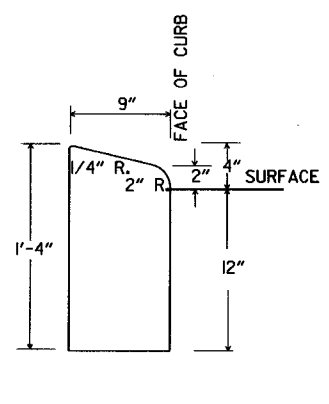
LONGITUDINAL SECTION

ELEVATION

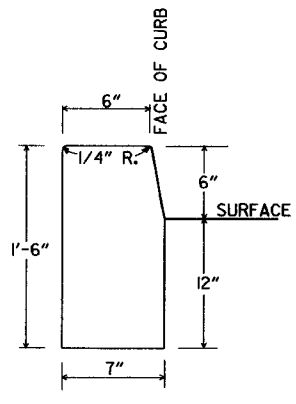
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



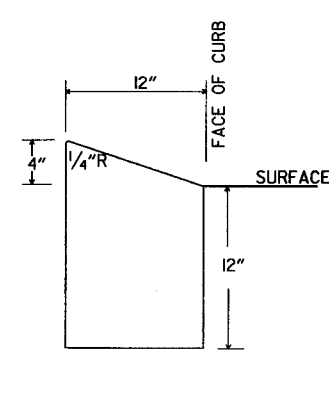
TYPE A



TYPE B

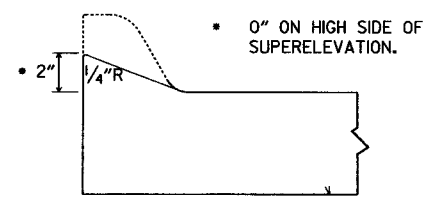


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

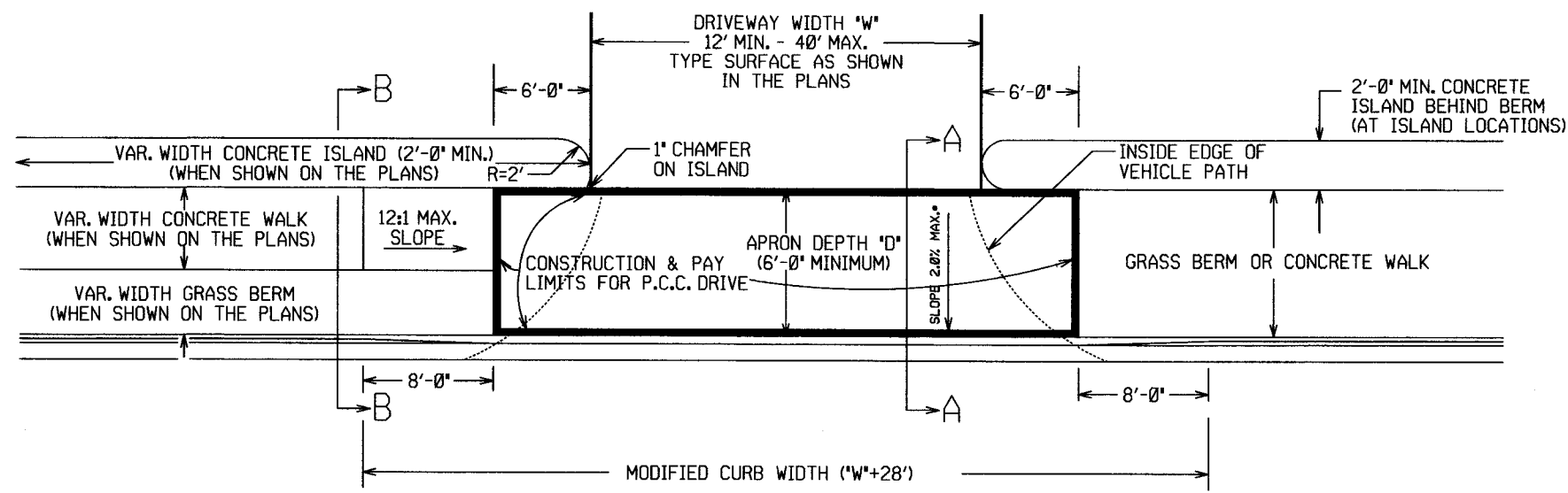
DETAILS OF MODIFIED CURB

| DATE     | REVISION                                     | DATE FILMED |
|----------|--|-------------|
| 11-29-07 | REVISED GUTTER SLOPE & MODIFIED CURB DETAILS |             |
| 11-10-05 | ADDED DETAILS OF TYPE E CURBS                |             |
| 11-16-01 | REVISED CONCRETE CURB TYPE B                 |             |
| 11-18-98 | REVISED MODIFIED CURB                        |             |
| 6-2-94   | ADDED NOTE TO SPECIAL MODIFIED CURB          |             |
| 8-5-93   | CORRECTED GUTTER SLOPE                       | 8-5-93      |
| 10-1-92  | ADDED DETAILS OF GUTTER SLOPE                | 10-1-92     |
| 5-24-90  | ADDED DETAILS OF MODIFIED CURB               | 5-24-90     |
| 11-30-89 | VARIABLE DEPTH TYPE A & B 1                  | 11-30-89    |
| 7-15-88  | REVISED MODIFIED CURB                        | 630-7-15-88 |
| 11-1-73  | REVISED MODIFIED CURB                        | 500-11-1-73 |
| 10-2-72  | REVISED AND REDRAWN                          | 512-10-2-72 |

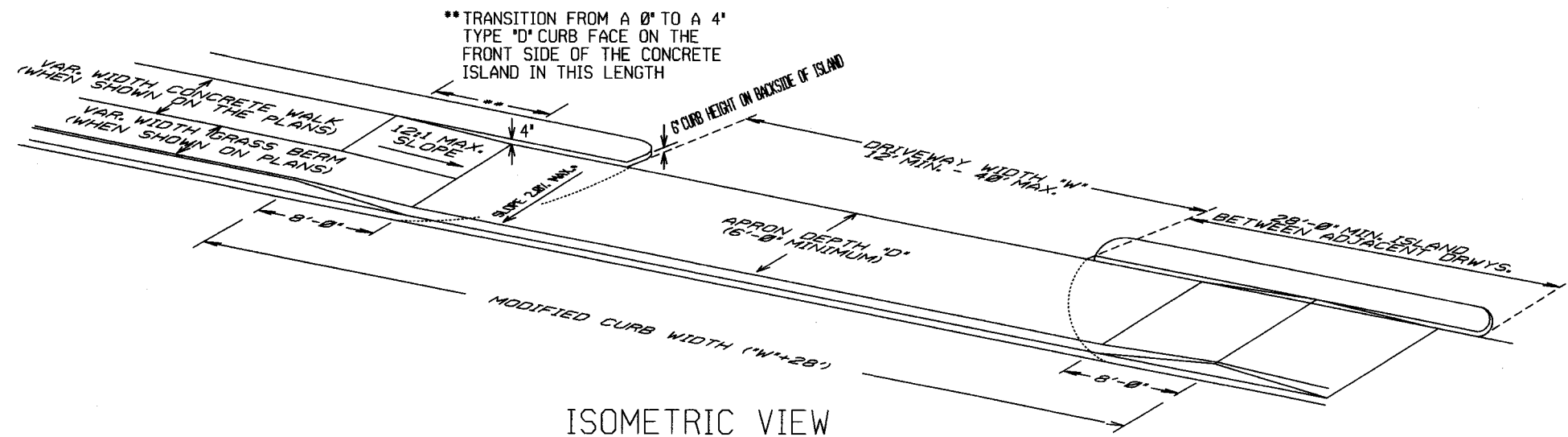
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

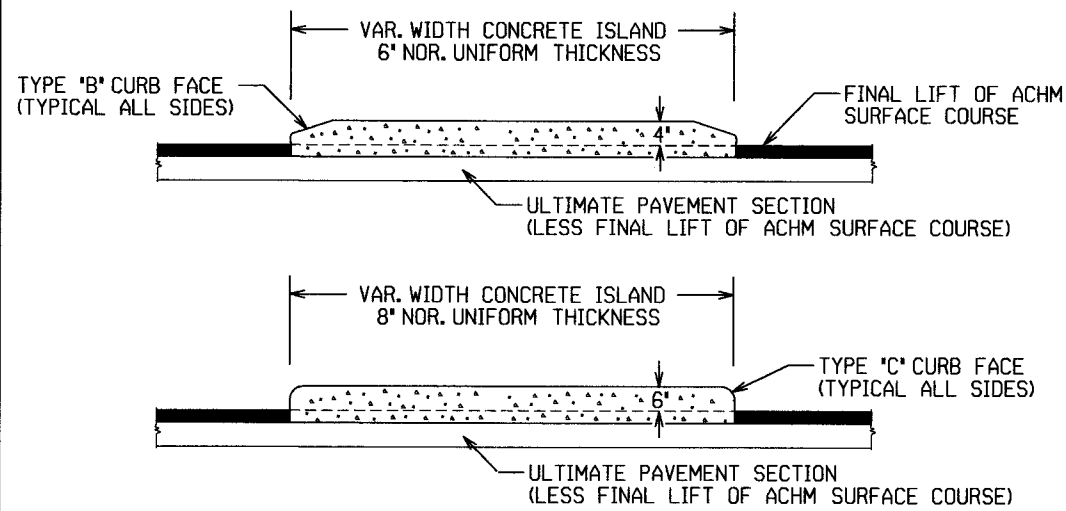
STANDARD DRAWING CG-1



PLAN VIEW

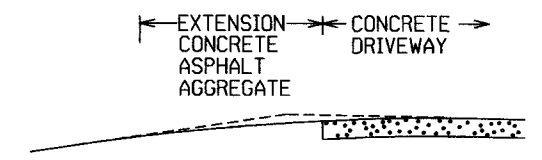


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".

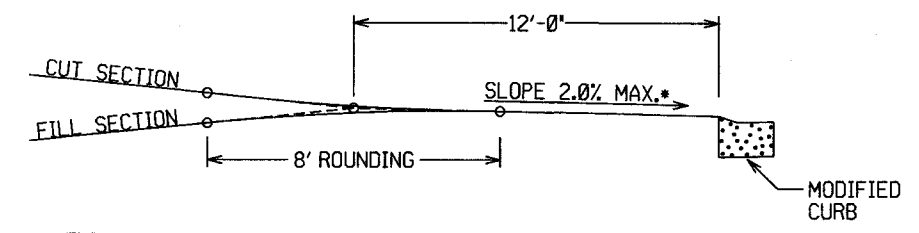


EXTENSION TYPICAL SECTIONS

- 1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY
- 2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")  
4" ACHM BINDER COURSE (1") OR  
4" ACHM BASE COURSE (1-1/2")
- 3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")  
7" AGGREGATE BASE COURSE
- 4: AGGREGATE - 6" AGGREGATE BASE COURSE

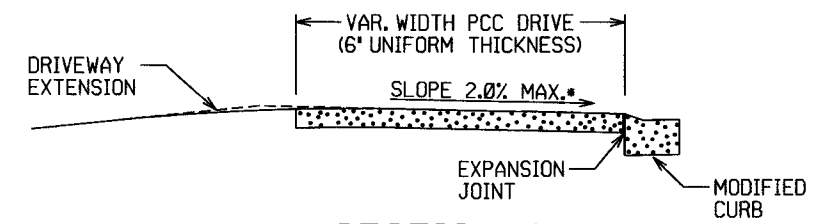
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

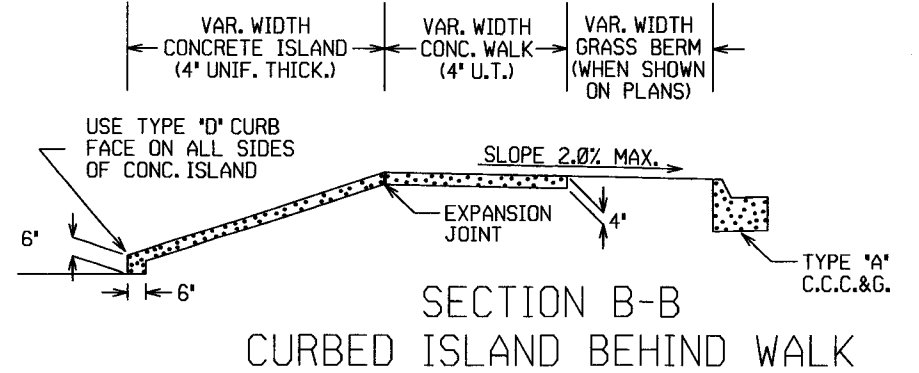


DRIVEWAY VERTICAL ALIGNMENT DETAILS

\* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



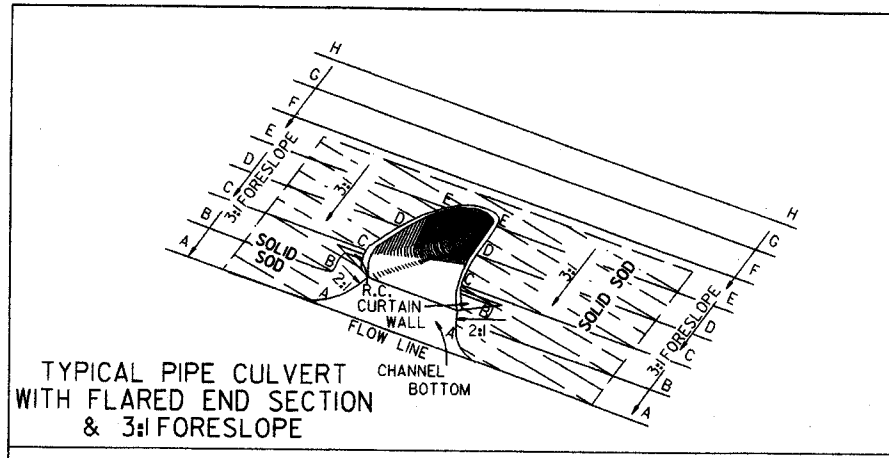
SECTION A-A



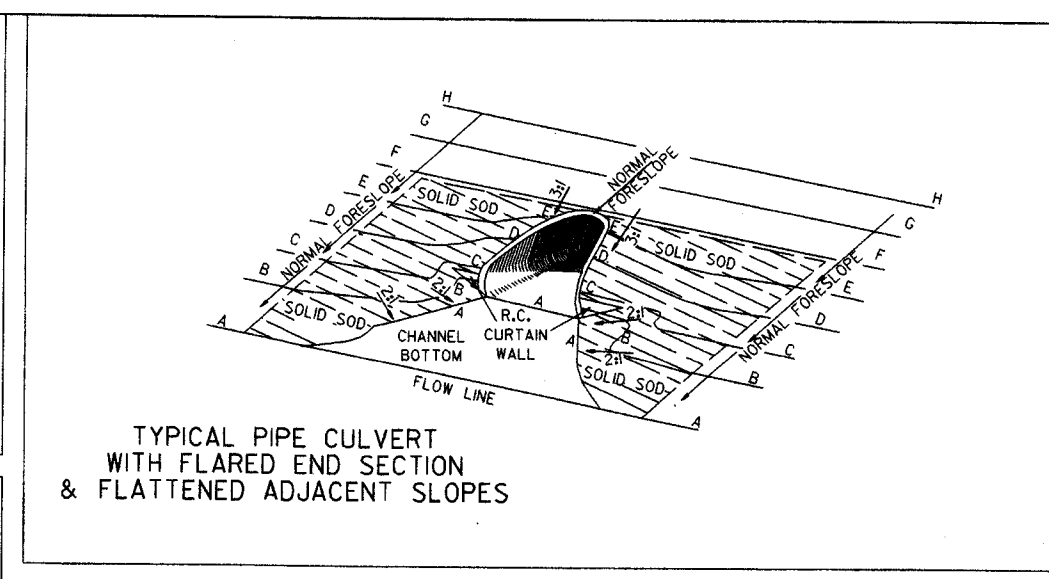
SECTION B-B  
CURBED ISLAND BEHIND WALK

| DATE     | REV | DATE FILMED | DESCRIPTION  |
|----------|-----|-------------|--|
| 11-29-07 |     |             | ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL. |
| 11-10-05 |     |             | REV. APRON SLOPE & DEPTH OF AGG. BASE.   |
| 8-22-02  |     |             | ADDED ISLAND DETAILS & NOTES   |
| 3-30-00  |     |             | REV. MOD. CURB WIDTH & TRANS. NOTE   |
| 11-19-98 |     |             | REVISED NOTES  |
| 11-18-98 |     |             | REDRAWN AND REISSUED   |

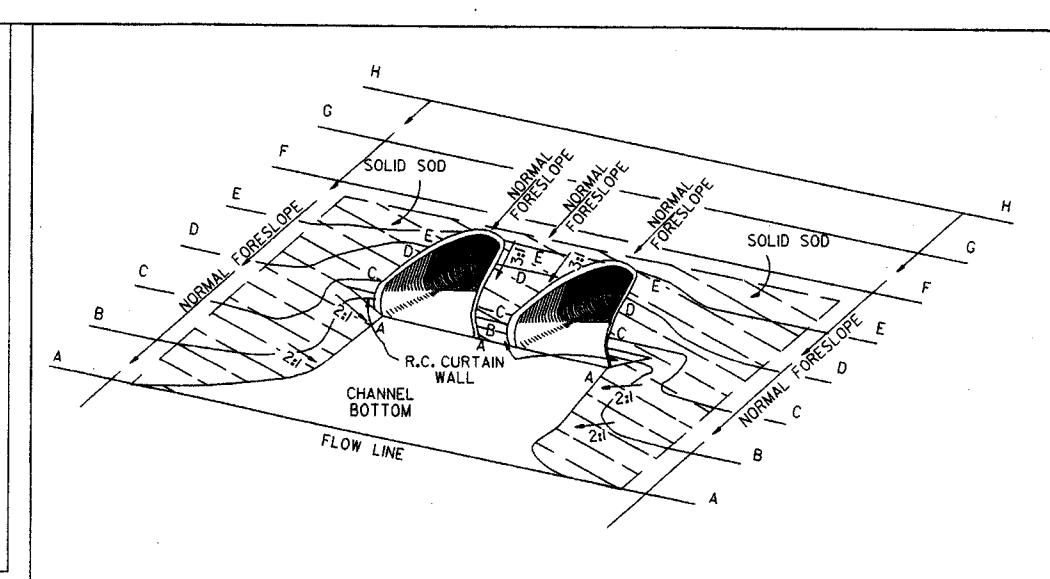
ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DRIVEWAYS & ISLANDS  
STANDARD DRAWING DR-1



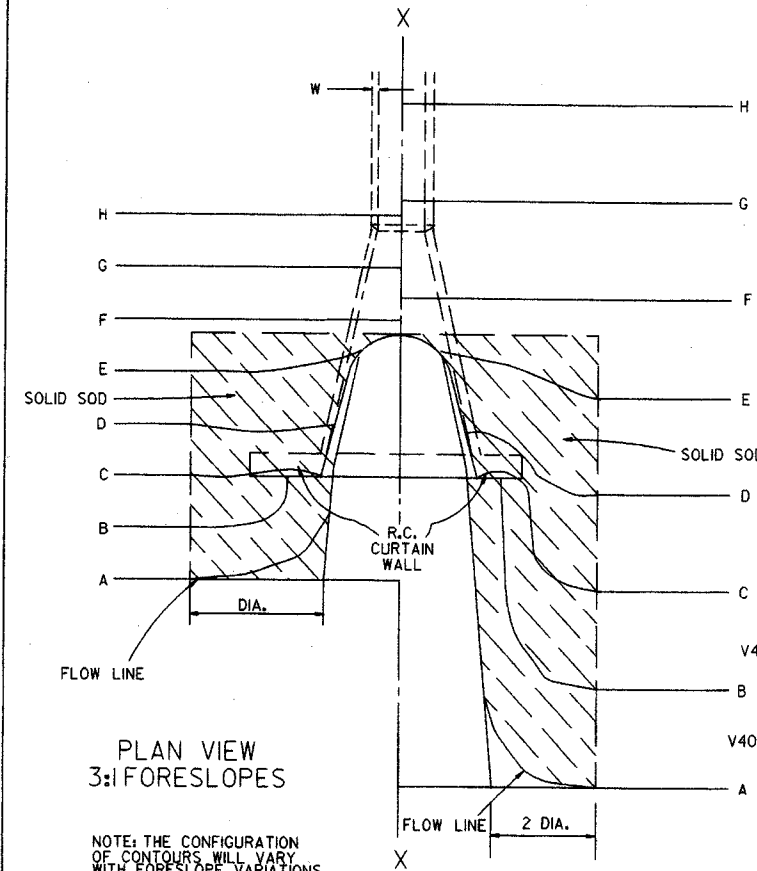
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT WITH FLARED END SECTIONS & FLATTENED ADJACENT SLOPES



PLAN VIEW 3:1 FORESLOPES

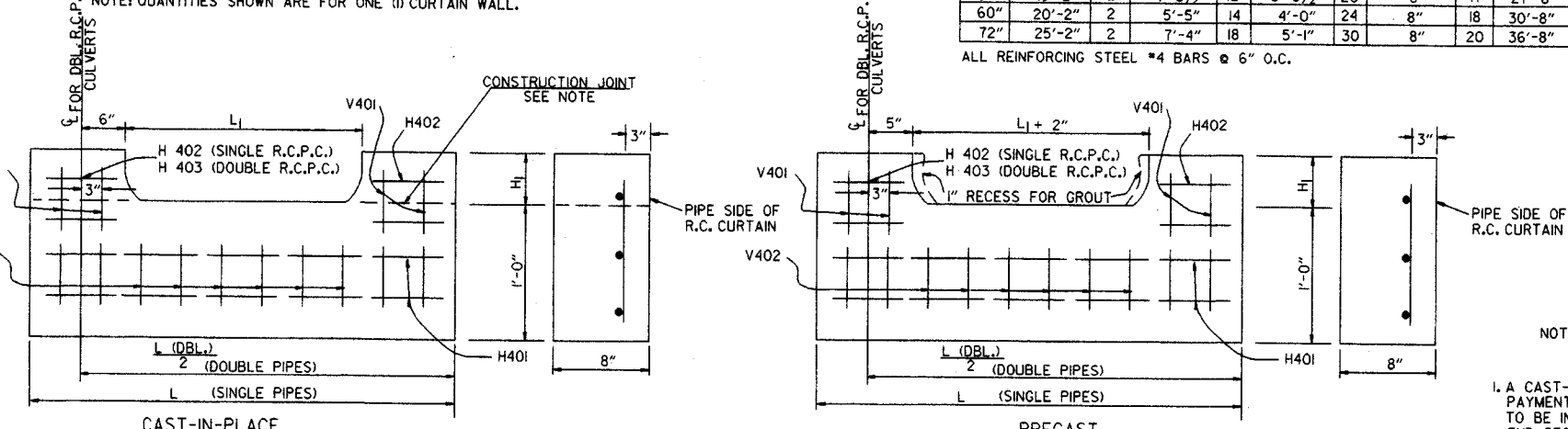
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

| PIPE DIA. | H <sub>1</sub> | L <sub>1</sub> | L      | L (DBL.) / 2 | SINGLE R.C.P.C. |              | DOUBLE R.C.P.C. |              |
|-----------|----------------|----------------|--------|--------------|-----------------|--------------|-----------------|--------------|
|           |                |                |        |              | CONC.           | REINF. STEEL | CONC.           | REINF. STEEL |
|           |                |                |        |              | CU. YDS.        | LBS.         | CU. YDS.        | LBS.         |
| 18"       | 11/2"          | 3'-5"          | 8'-0"  | 6'-3"        | 0.31            | 27.7         | 0.45            | 39.5         |
| 24"       | 1'-0 1/2"      | 4'-6"          | 9'-6"  | 7'-6"        | 0.37            | 33.4         | 0.53            | 48.0         |
| 30"       | 1'-3 1/2"      | 5'-7"          | 11'-0" | 9'-0"        | 0.45            | 39.0         | 0.67            | 59.0         |
| 36"       | 1'-7"          | 6'-8"          | 13'-0" | 10'-6"       | 0.58            | 52.6         | 0.83            | 73.9         |
| 42"       | 2'-1 1/2"      | 7'-3"          | 15'-6" | 12'-0"       | 0.82            | 77.1         | 1.10            | 100.7        |
| 48"       | 2'-5"          | 7'-10"         | 17'-0" | 13'-0"       | 0.98            | 94.9         | 1.27            | 120.4        |
| 54"       | 2'-9 1/2"      | 8'-5"          | 18'-6" | 14'-0"       | 1.16            | 115.8        | 1.47            | 143.7        |
| 60"       | 3'-4"          | 9'-0"          | 20'-6" | 15'-6"       | 1.47            | 149.7        | 1.84            | 180.3        |
| 72"       | 4'-5"          | 10'-2"         | 25'-6" | 18'-6"       | 2.31            | 232.6        | 2.73            | 271.0        |

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



R.C. CURTAIN WALL DETAILS

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

REINFORCING STEEL SCHEDULE

| PIPE DIA. | SINGLE R.C. PIPE CULVERT |     |            |     |            |     |      |     | DOUBLE R.C. PIPE CULVERT |     |            |     |      |     |            |     |      |     |
|-----------|--------------------------|-----|------------|-----|------------|-----|------|-----|--------------------------|-----|------------|-----|------|-----|------------|-----|------|-----|
|           | H401                     |     | H402       |     | V401       |     | V402 |     | H401                     |     | H402       |     | H403 |     | V401       |     | V402 |     |
|           | L                        | NO. | L          | NO. | L          | NO. | L    | NO. | L                        | NO. | L          | NO. | L    | NO. | L          | NO. | L    | NO. |
| 18"       | 7'-8"                    | 2   | 1'-11 1/2" | 4   | 1'-7 1/2"  | 8   | 8"   | 8   | 12'-2"                   | 2   | 1'-11 1/2" | 4   | 8"   | 2   | 1'-7 1/2"  | 10  | 8"   | 14  |
| 24"       | 9'-2"                    | 2   | 2'-2"      | 4   | 1'-8 1/2"  | 10  | 8"   | 9   | 14'-8"                   | 2   | 2'-2"      | 4   | 8"   | 2   | 1'-8 1/2"  | 12  | 8"   | 18  |
| 30"       | 10'-8"                   | 2   | 2'-4 1/2"  | 4   | 1'-11 1/2" | 10  | 8"   | 12  | 17'-8"                   | 2   | 2'-4 1/2"  | 4   | 8"   | 2   | 1'-11 1/2" | 14  | 8"   | 22  |
| 36"       | 12'-8"                   | 2   | 2'-10"     | 6   | 2'-3"      | 12  | 8"   | 14  | 20'-8"                   | 2   | 2'-10"     | 6   | 8"   | 3   | 2'-3"      | 14  | 8"   | 28  |
| 42"       | 15'-2"                   | 2   | 3'-9 1/2"  | 8   | 2'-9 1/2"  | 16  | 8"   | 15  | 23'-8"                   | 2   | 3'-9 1/2"  | 8   | 8"   | 4   | 2'-9 1/2"  | 18  | 8"   | 30  |
| 48"       | 16'-8"                   | 2   | 4'-3"      | 10  | 3'-1"      | 18  | 8"   | 16  | 25'-8"                   | 2   | 4'-3"      | 10  | 8"   | 5   | 3'-1"      | 20  | 8"   | 32  |
| 54"       | 18'-2"                   | 2   | 4'-8 1/2"  | 12  | 3'-5 1/2"  | 20  | 8"   | 17  | 27'-8"                   | 2   | 4'-9"      | 12  | 8"   | 6   | 3'-5 1/2"  | 22  | 8"   | 34  |
| 60"       | 20'-2"                   | 2   | 5'-5"      | 14  | 4'-0"      | 24  | 8"   | 18  | 30'-8"                   | 2   | 5'-5"      | 14  | 8"   | 7   | 4'-0"      | 26  | 8"   | 36  |
| 72"       | 25'-2"                   | 2   | 7'-4"      | 18  | 5'-1"      | 30  | 8"   | 20  | 36'-8"                   | 2   | 7'-4"      | 18  | 8"   | 9   | 5'-1"      | 33  | 8"   | 40  |

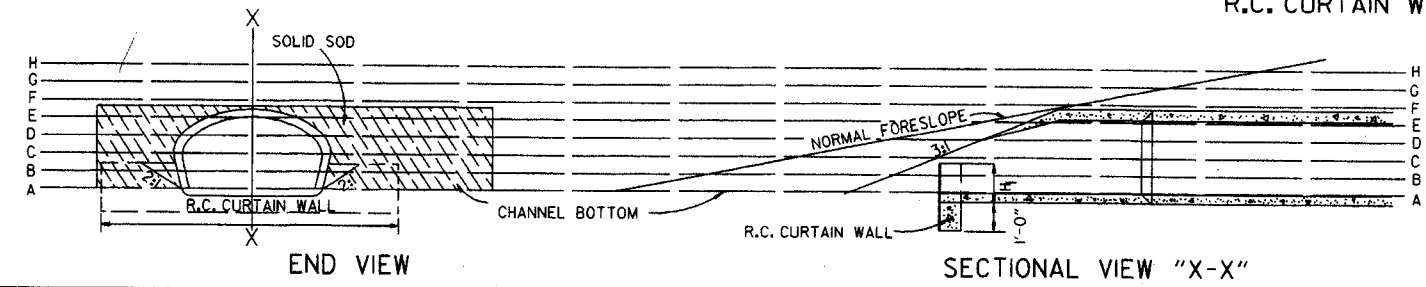
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

| PIPE DIA. | SINGLE R.C.P.C. |     |     | DOUBLE R.C.P.C. |     |     |
|-----------|-----------------|-----|-----|-----------------|-----|-----|
|           | 3:1             | 4:1 | 6:1 | 3:1             | 4:1 | 6:1 |
|           | SQ. YDS.        |     |     | SQ. YDS.        |     |     |
| 18"       | 5               | 7   | 12  | 6               | 8   | 13  |
| 24"       | 8               | 12  | 19  | 9               | 13  | 20  |
| 30"       | 13              | 18  | 29  | 14              | 19  | 30  |
| 36"       | 21              | 26  | 41  | 18              | 28  | 43  |
| 42"       | 28              | 35  | 55  | 25              | 37  | 57  |
| 48"       | 35              | 46  | 68  | 31              | 48  | 70  |
| 54"       | 45              | 57  | 85  | 37              | 59  | 87  |
| 60"       | 55              | 72  | 104 | 48              | 65  | 107 |
| 72"       | 64              | 92  | 124 | 67              | 95  | 159 |

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

- GENERAL NOTES
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL; AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
  2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
  3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
  4. WELDED WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED IN LIEU OF REINFORCING BARS.



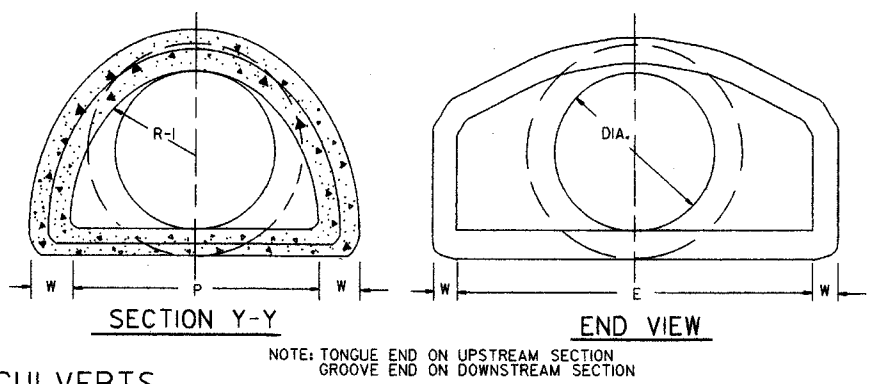
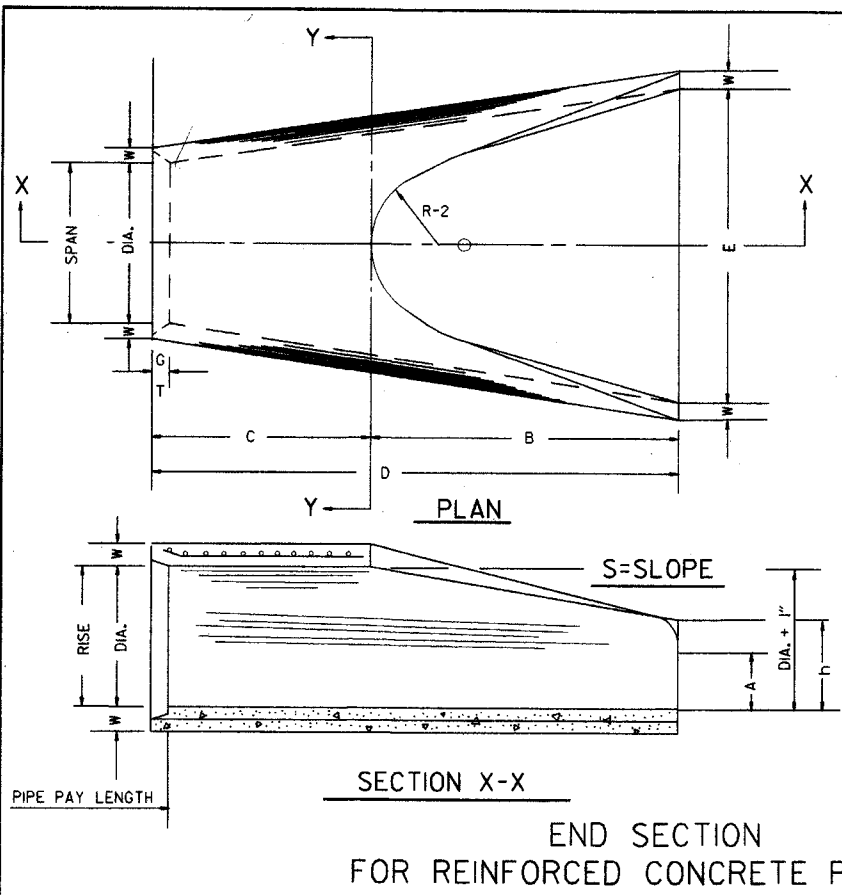
END VIEW

SECTIONAL VIEW "X-X"

|          |   |          |                                   |
|----------|---|----------|-----------------------------------|
| 10-18-96 | ADDED NOTE TO SOLID SODDING                             | 10-18-96 | ARKANSAS STATE HIGHWAY COMMISSION |
| 10-12-95 | CORRECTED SPELLING                                      |          |                                   |
| 11-3-94  | ADDED GENERAL NOTE NO. 4                                |          |                                   |
| 8-15-91  | REV. CURTAIN WALL QUANT., STEEL SCH. & SOLID SOD QUANT. |          |                                   |
| 3-2-81   | ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES         |          |                                   |
| 5-15-80  | ADDED PRECAST WALL & GENERAL NOTES                      |          |                                   |
| 10-2-72  | REVISED AND REDRAWN                                     |          |                                   |
| DATE     | REVISION  | FILMED   | STANDARD DRAWING FES-1            |

TABLE OF DIMENSIONS

| DIA. | WALL   | A      | B         | C          | D         | E     | S  | DIA. + 1" | P       | R-1     | R-2 | G-T    | WT.   | h          |
|------|--------|--------|-----------|------------|-----------|-------|----|-----------|---------|---------|-----|--------|-------|------------|
| 18"  | 2 1/2" | 9"     | 2'-3"     | 3'-10"     | 6'-1"     | 3'-0" | 3H | 19"       | 29"     | 15 1/2" | 12" | 2"     | 1000  | 1'-0 1/2"  |
| 24"  | 3"     | 9 1/2" | 3'-7 1/2" | 2'-6"      | 6'-1 1/2" | 4'-0" | 3H | 25"       | 33 3/8" | 16 3/8" | 14" | 2 1/2" | 1600  | 1'-1 1/2"  |
| 30"  | 3 1/2" | 1'-0"  | 4'-6"     | 1'-7 1/2"  | 6'-3 1/2" | 5'-0" | 3H | 31"       | 37"     | 18 1/2" | 15" | 3 1/4" | 1940  | 1'-4 3/8"  |
| 36"  | 4"     | 1'-3"  | 5'-3"     | 2'-10 1/4" | 8'-1 1/4" | 6'-0" | 3H | 37"       | 47 1/8" | 24 1/8" | 20" | 3 1/2" | 4100  | 1'-8"      |
| 42"  | 4 1/2" | 1'-9"  | 5'-3"     | 2'-11"     | 8'-2"     | 6'-6" | 3H | 43"       | 53 1/4" | 27 1/2" | 22" | 3 1/2" | 5380  | 2'-2 1/2"  |
| 48"  | 5"     | 2'-0"  | 6'-0"     | 2'-2"      | 8'-2"     | 7'-0" | 3H | 49"       | 56 1/2" | 28 1/2" | 22" | 3 1/2" | 6550  | 2'-6"      |
| 54"  | 5 1/2" | 2'-4"  | 6'-6"     | 1'-10"     | 8'-4"     | 7'-6" | 3H | 55"       | 65 1/2" | 33 1/4" | 24" | 4"     | 8750  | 2'-10 1/2" |
| 60"  | 6"     | 2'-10" | 6'-6"     | 1'-10"     | 8'-4"     | 8'-0" | 3H | 61"       | 72 1/2" | 36 1/8" | 24" | 4"     | 9270  | 3'-5"      |
| 72"  | 7"     | 3'-10" | 6'-6"     | 1'-10"     | 8'-4"     | 9'-0" | 3H | 73"       | 77 1/8" | 38 5/8" | 24" | 5"     | 13250 | 4'-6"      |



ARCH PIPE

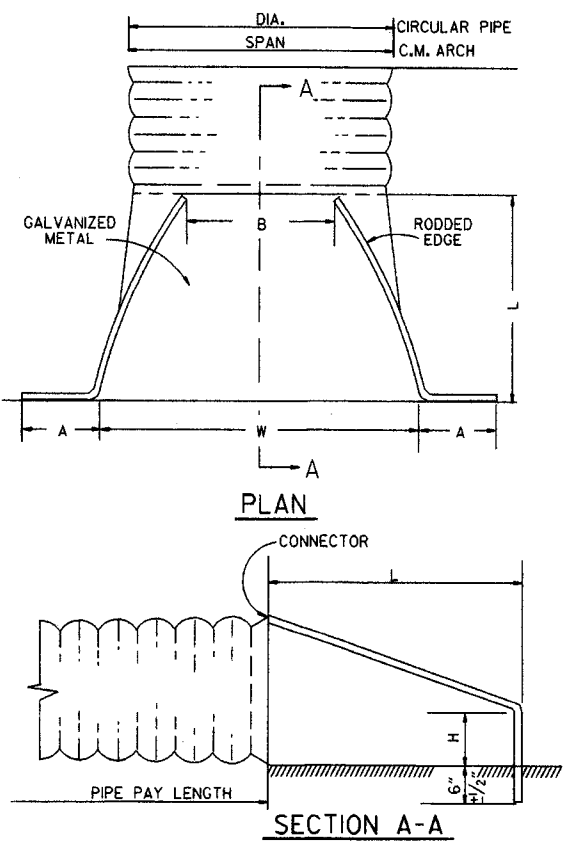
| EQUIV. DIA. | • SPAN       |             | • RISE       |             | W      | A       | B     | C          | D         | E      | P       | R2  | G-T    | S      |
|-------------|--------------|-------------|--------------|-------------|--------|---------|-------|------------|-----------|--------|---------|-----|--------|--------|
|             | AASHTO M 206 | AHD NOMINAL | AASHTO M 206 | AHD NOMINAL |        |         |       |            |           |        |         |     |        |        |
| 15          | 18           | 18          | 11           | 11          | 2"     | 4"      | 2'-0" | 4'-0"      | 6'-0"     | 3'-0"  | 29"     | 12" | 1 1/2" | 2 1/2H |
| 18          | 22           | 22          | 13 1/2       | 14          | 2 1/2" | 5"      | 2'-0" | 4'-1"      | 6'-1"     | 3'-6"  | 32 1/8" | 13" | 2 1/2" | 2 1/2H |
| 21          | 26           | 26          | 15 1/2       | 16          | 2 3/4" | 7"      | 2'-3" | 3'-10"     | 6'-1"     | 4'-0"  | 34 1/8" | 14" | 2 1/2" | 2 1/2H |
| 24          | 28 1/2       | 29          | 18           | 18          | 3"     | 9"      | 2'-3" | 3'-10"     | 6'-1"     | 5'-0"  | 36 1/8" | 15" | 2 1/2" | 2 1/2H |
| 30          | 36 1/4       | 36          | 22 1/2       | 23          | 3 1/2" | 10"     | 3'-1" | 3'-0 1/2"  | 6'-1 1/2" | 6'-0"  | 47 1/8" | 20" | 3"     | 2 1/2H |
| 36          | 43 3/4       | 44          | 26 3/8       | 27          | 4"     | 10 1/2" | 4'-0" | 2'-1 1/2"  | 6'-1 1/2" | 6'-6"  | 54 1/8" | 22" | 3 1/2" | 2 1/2H |
| 42          | 51 1/8       | 51          | 31 3/8       | 31          | 4 1/2" | 11 1/2" | 4'-7" | 1'-10 1/4" | 6'-5 1/4" | 7'-2"  | 59 1/2" | 23" | 3 3/4" | 2 1/2H |
| 48          | 58 1/2       | 59          | 36           | 36          | 5"     | 1'-3"   | 5'-3" | 2'-10 3/4" | 8'-1 1/4" | 7'-10" | 70 3/8" | 24" | 4 1/4" | 2 1/2H |
| 54          | 65           | 65          | 40           | 40          | 5 1/2" | 1'-7"   | 5'-3" | 2'-11"     | 8'-2"     | 8'-6"  | 72 1/6" | 24" | 4 3/4" | 2 1/2H |
| 60          | 73           | 73          | 45           | 45          | 6"     | 1'-10"  | 5'-6" | 2'-8"      | 8'-2"     | 9'-0"  | 77 3/8" | 24" | 5"     | 2 1/2H |

\* THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

NOTE: TONGUE END ON UPSTREAM SECTION GROOVE END ON DOWNSTREAM SECTION

END VIEW CONCRETE ARCH PIPE

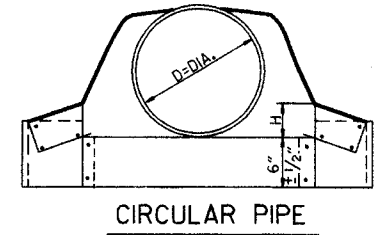


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

CIRCULAR PIPE

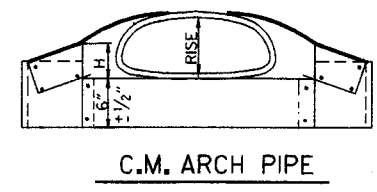
| D. DIA. | GAUGE | A  | B. MAX. | H  | L  | W   | S      |
|---------|-------|----|---------|----|----|-----|--------|
| 12      | 16    | 6  | 6       | 6  | 21 | 24  | 2 1/2H |
| 15      | 16    | 7  | 8       | 6  | 26 | 30  | 2 1/2H |
| 18      | 16    | 8  | 10      | 6  | 31 | 36  | 2 1/2H |
| 21      | 16    | 9  | 12      | 6  | 36 | 42  | 2 1/2H |
| 24      | 16    | 10 | 13      | 6  | 41 | 48  | 2 1/2H |
| 30      | 14    | 12 | 16      | 8  | 51 | 60  | 2 1/2H |
| 36      | 14    | 14 | 19      | 9  | 60 | 72  | 2 1/2H |
| 42      | 12    | 16 | 22      | 11 | 69 | 84  | 2 1/2H |
| 48      | 12    | 18 | 27      | 12 | 78 | 90  | 2 1/2H |
| 54      | 12    | 18 | 30      | 12 | 84 | 102 | 2H     |
| 60      | 12    | 18 | 33      | 12 | 87 | 114 | 1 1/2H |
| 66      | 12    | 18 | 36      | 12 | 87 | 120 | 1 1/2H |
| 72      | 12    | 18 | 39      | 12 | 87 | 126 | 1 1/3H |



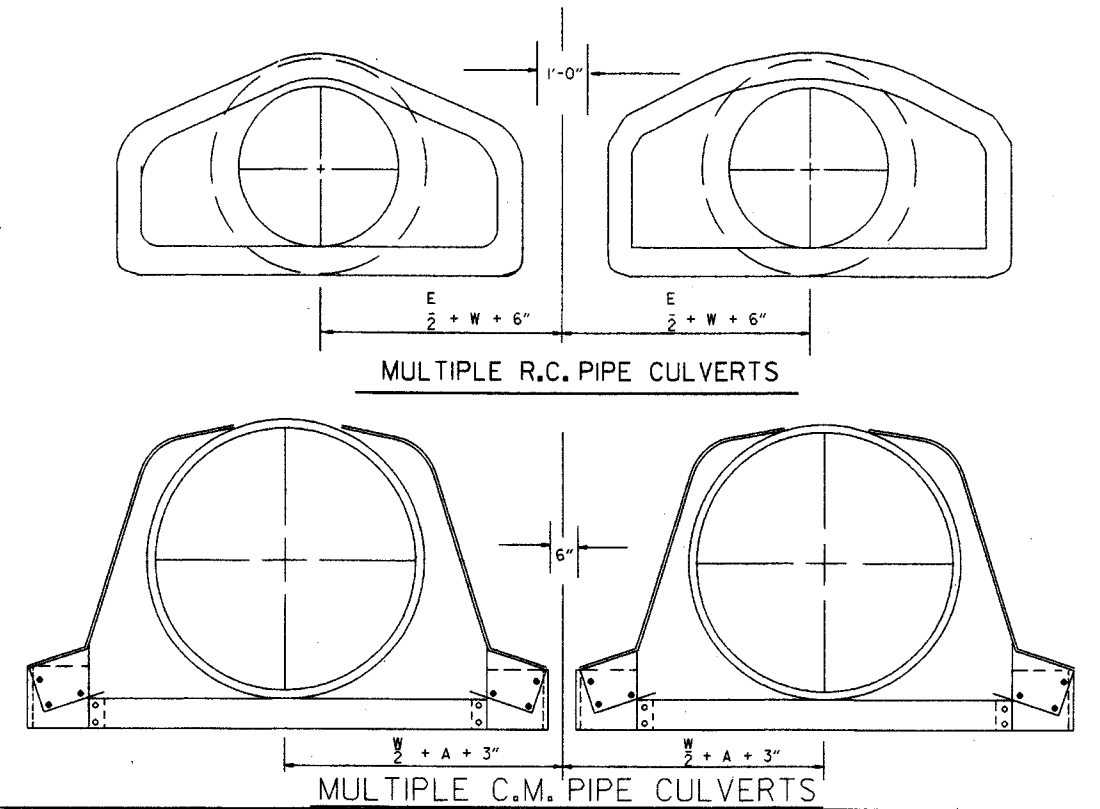
CIRCULAR PIPE

C.M. ARCH PIPE

| EQUIV. DIA. | SPAN | RISE | A  | B. MAX. | H  | L  | W   | S      | GAUGE |
|-------------|------|------|----|---------|----|----|-----|--------|-------|
| 15"         | 17   | 13   | 7  | 9       | 6  | 19 | 30  | 2 1/2H | 16    |
| 18"         | 21   | 15   | 7  | 10      | 6  | 23 | 36  | 2 1/2H | 16    |
| 21"         | 24   | 18   | 8  | 12      | 6  | 28 | 42  | 2 1/2H | 16    |
| 24"         | 28   | 20   | 9  | 14      | 6  | 32 | 48  | 2 1/2H | 16    |
| 30"         | 35   | 24   | 10 | 16      | 6  | 39 | 60  | 2 1/2H | 14    |
| 36"         | 42   | 29   | 12 | 18      | 8  | 46 | 75  | 2 1/2H | 14    |
| 42"         | 49   | 33   | 13 | 21      | 9  | 53 | 85  | 2 1/2H | 12    |
| 48"         | 57   | 38   | 18 | 26      | 12 | 63 | 90  | 2 1/2H | 12    |
| 54"         | 64   | 43   | 18 | 30      | 12 | 70 | 102 | 2 1/2H | 12    |
| 60"         | 71   | 47   | 18 | 33      | 12 | 77 | 114 | 2 1/4H | 12    |



C.M. ARCH PIPE



MULTIPLE R.C. PIPE CULVERTS

MULTIPLE C.M. PIPE CULVERTS

| DATE     | REVISION  | FILED       |
|----------|---|-------------|
| 10-18-96 | REVISED ASTM REF. TO AASHTO                     | 10-18-96    |
| 5-15-80  | REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S. | 664-5-15-80 |
| 7-14-78  | C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES    | 752-7-14-78 |
| 8-22-75  | ADDED MULTIPLE PIPE CULVERTS                    | 517-8-22-75 |
| 12-5-74  | REMOVED NOTE RE REINF. FOR R.C. F.E.S.          | 500-12-5-74 |
| 5-24-73  | CMP END SECTION, SHOW PIPE PAY LENGTH           | 627-5-24-73 |
| 10-2-72  | REVISED AND REDRAWN                             | 760-10-2-72 |

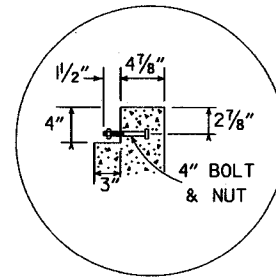
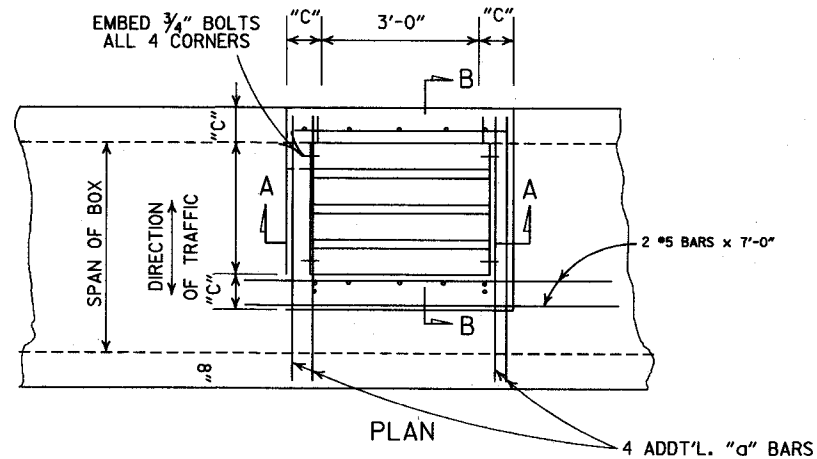
ARKANSAS STATE HIGHWAY COMMISSION  
FLARED END SECTION  
STANDARD DRAWING FES-2

TABLE OF "W" DIMENSIONS

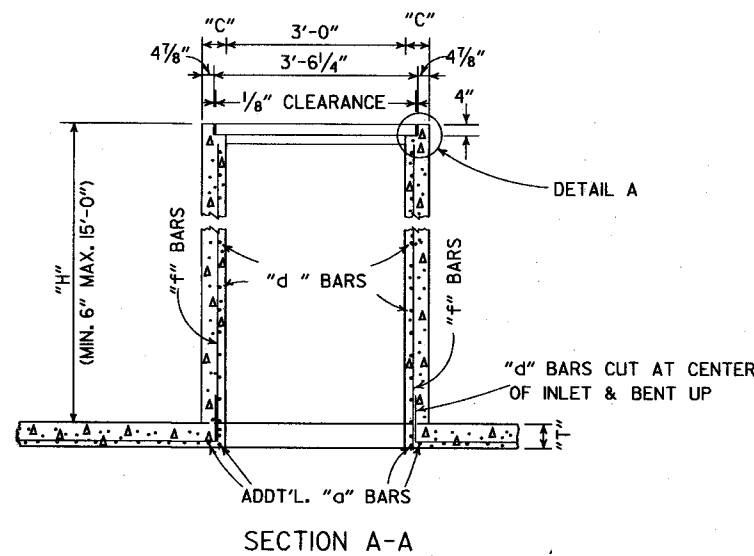
| I.D. PIPE | SKEW OF CROSS DRAIN |       |        |
|-----------|---------------------|-------|--------|
|           | STRAIGHT            | 30°   | 45°    |
| 24"       | "W"                 | "W"   | "W"    |
| 30"       | 4'-0"               | 4'-0" | 4'-0"  |
| 36"       | 4'-0"               | 4'-3" | 4'-5"  |
| 42"       | 4'-0"               | 4'-3" | 5'-3"  |
| 48"       | 4'-10"              | 5'-7" | 6'-11" |

NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.

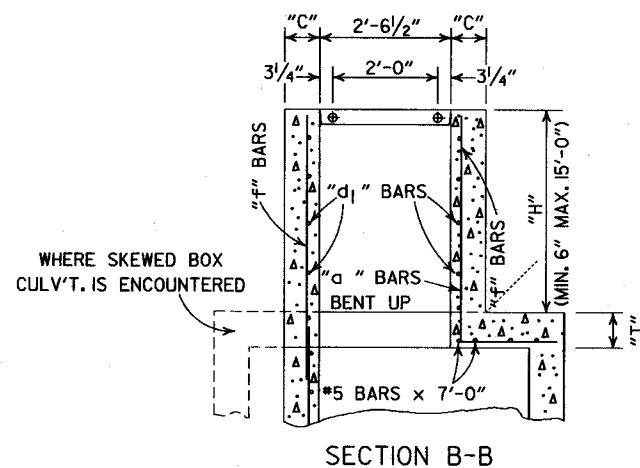
- GENERAL NOTES:
- STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE B8 CLASS 10R 2, ASTM A307 OR AASHTO M 164.
  - STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
  - BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
  - ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
  - ALL #4 AND #5 REINFORCING BARS TO HAVE 1/2" COVER. LARGER SIZES TO HAVE 2" COVER.
  - THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



DETAIL A



SECTION A-A

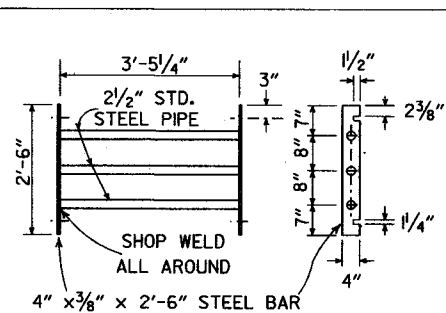


SECTION B-B

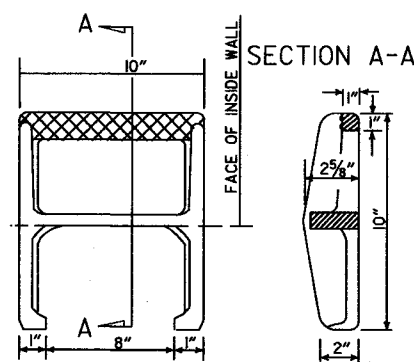
NOTE: ADD'L. REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

DROP INLET TYPE "TM" FOR REINFORCED CONC. BOX CULVERTS



GRATE DETAIL

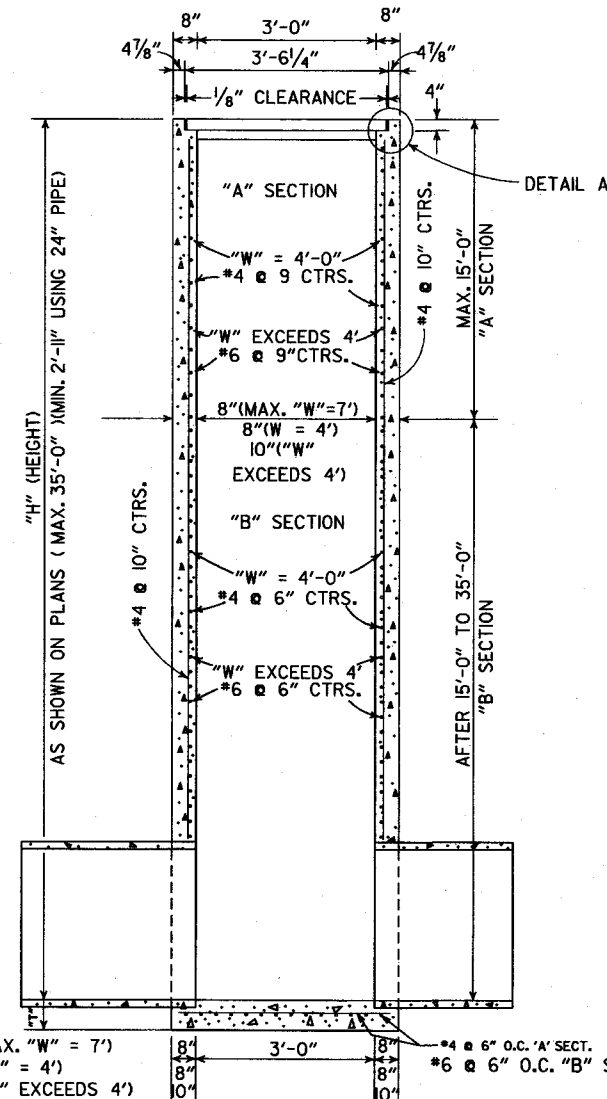


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

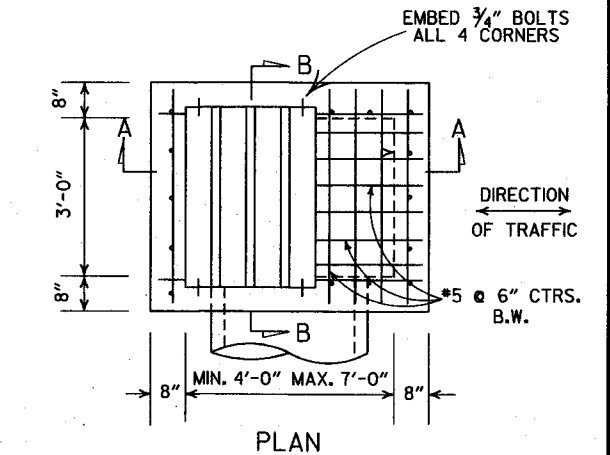
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

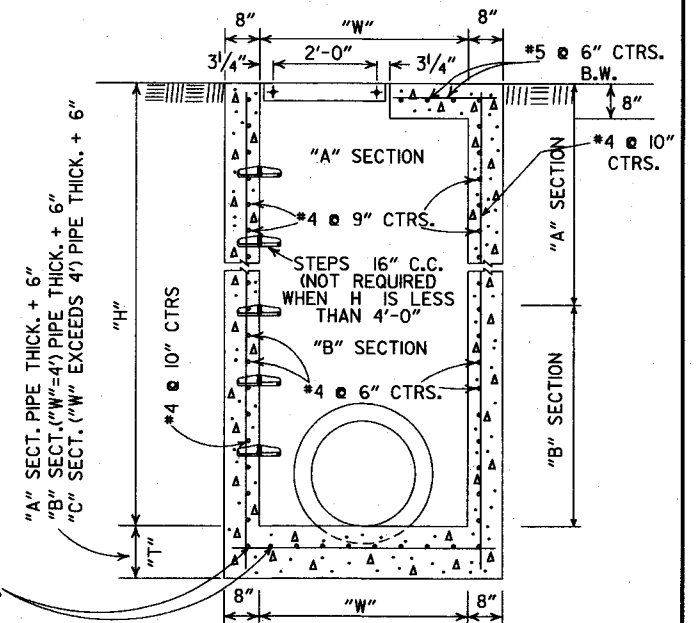


SECTION B-B

DROP INLET (TYPE RM)



PLAN



SECTION A-A

|          |   |             |
|----------|---|-------------|
| 8-22-02  | ADDED & REVISED DIMENSION TO SECTION A-A                              |             |
| 1-12-00  | CORRECTED DIMENSION ON SECTION B-B                                    |             |
| 11-06-97 | ADDED DIMENSION TO SECTION A-A  |             |
| 10-18-96 | REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS |             |
| 10-1-92  | ADDED DIRECTION OF TRAFFIC  | 10-1-92     |
| 8-15-91  | ADDED NOTE ABOUT PAINTING OF GRATE                                    | 8-15-91     |
| 11-30-89 | ALTERED DETAIL A  | 11-30-89    |
| 7-15-88  | REVISED STEP DETAIL, TM & RM D.I. & GRATE DETAIL                      | 7-15-88     |
| 10-2-72  | REVISED AND REDRAWN   | 542-10-2-72 |
| REVISED  |   | DATE FILMED |

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

STANDARD DRAWING FPC-9D



NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.

4'-0" LENGTH DROP INLET DROP INLET EXTENSION

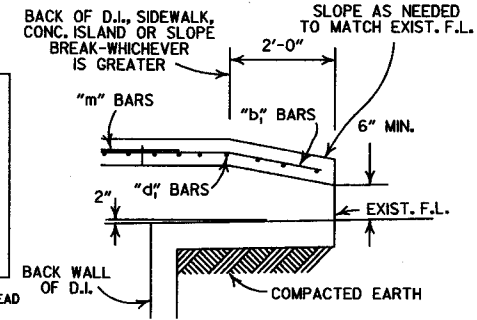
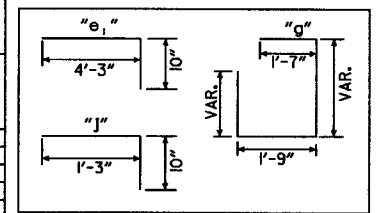
| PIPE SIZE | MIN. WIDTH | HEIGHT 5'-0"           |                     | PLUS OR MINUS PER LIN. FT. OF HEIGHT |                     | 4'-0"   |                     | 8'-0"                  |                     |
|-----------|------------|------------------------|---------------------|--------------------------------------|---------------------|---|---------------------|------------------------|---------------------|
|           |            | CLASS A CONC. CU. YDS. | REINF. STEEL POUNDS | CLASS A CONC. CU. YDS.               | REINF. STEEL POUNDS | CLASS A CONC. CU. YDS.                                  | REINF. STEEL POUNDS | CLASS A CONC. CU. YDS. | REINF. STEEL POUNDS |
| 18"       | 2'-6"      | 1.77                   | 156                 | 0.28                                 | 22                  | 0.58  | 38                  | 0.87                   | 72                  |
| 24"       | 2'-6"      | 1.79                   | 156                 | 0.28                                 | 22                  |   |                     |                        |                     |
| 30"       | 3'-2"      | 2.39                   | 205                 | 0.30                                 | 26                  |   |                     |                        |                     |
| 36"       | 3'-8"      | 2.63                   | 236                 | 0.32                                 | 28                  |   |                     |                        |                     |
| 42"       | 4'-4"      | 2.95                   | 250                 | 0.34                                 | 30                  |   |                     |                        |                     |
| 48"       | 4'-10"     | 3.21                   | 265                 | 0.36                                 | 32                  |   |                     |                        |                     |
|           |            |                        |                     |                                      |                     | DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED. |                     |                        |                     |
|           |            |                        |                     |                                      |                     | 0.04  | 3                   |                        |                     |

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

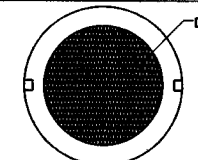
| INSIDE DIA. PIPE INCHES | CLASS A CONC. CU. YDS. | REINF. STEEL POUNDS |
|-------------------------|------------------------|---------------------|
| 18                      | 0.05                   | 2                   |
| 24                      | 0.09                   | 3                   |
| 30                      | 0.13                   | 4                   |
| 42                      | 0.24                   | 8                   |

BAR DIAGRAM

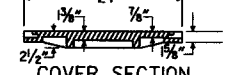


BACK OPENING

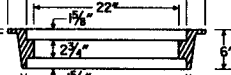
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



COVER FACE



COVER SECTION

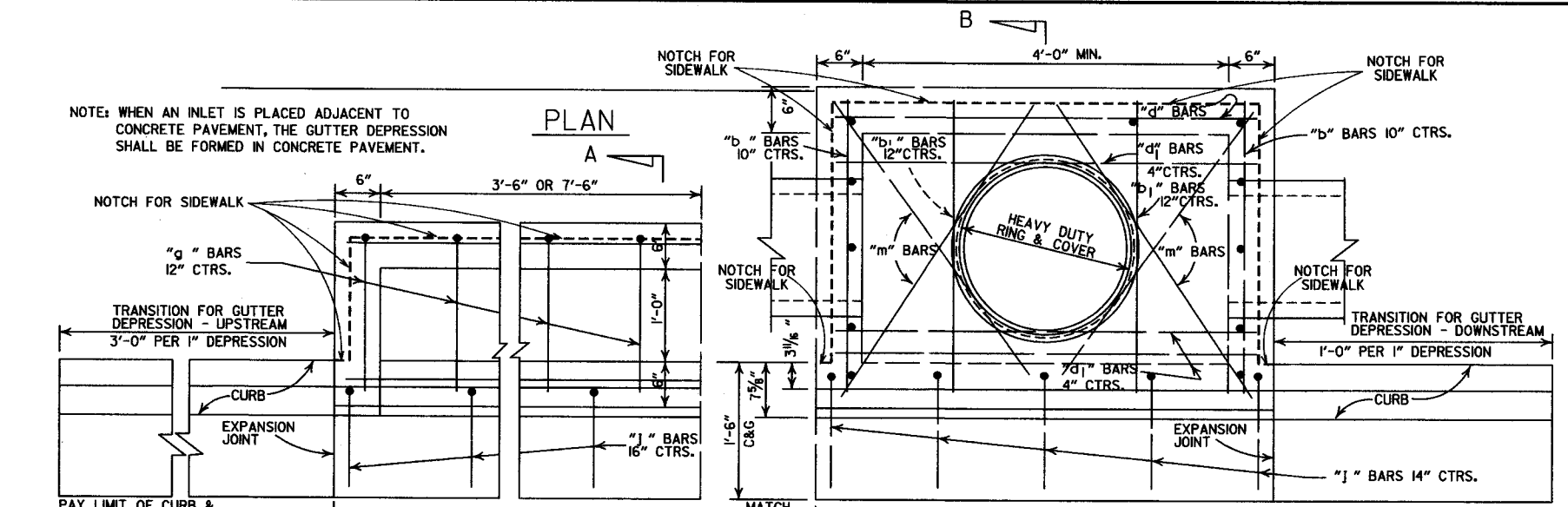


RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

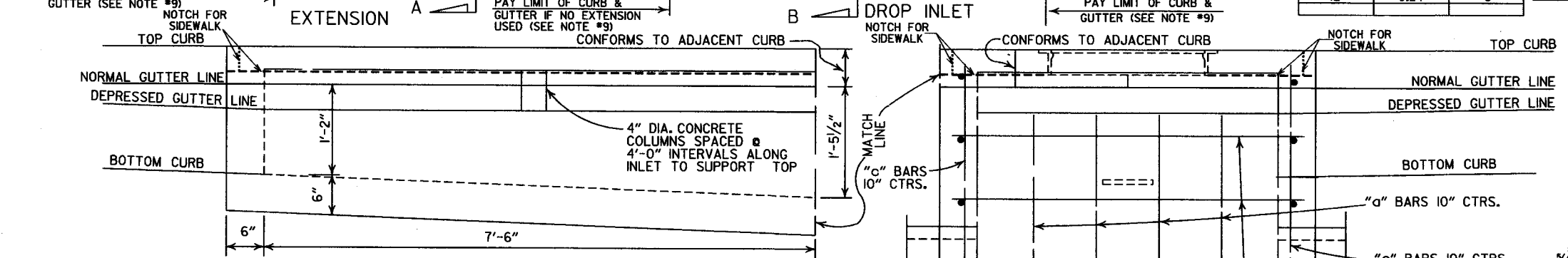
HEAVY DUTY RING & COVER

- GENERAL NOTES:
- ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
  - STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
  - ALL REINFORCING BARS SHALL BE #4 AND HAVE 1/2" COVER.
  - DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
  - THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
  - WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
  - HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
  - DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
  - PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
  - HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M103 CLASS 35B & AASHTO M306.
  - HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
  - 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
  - DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

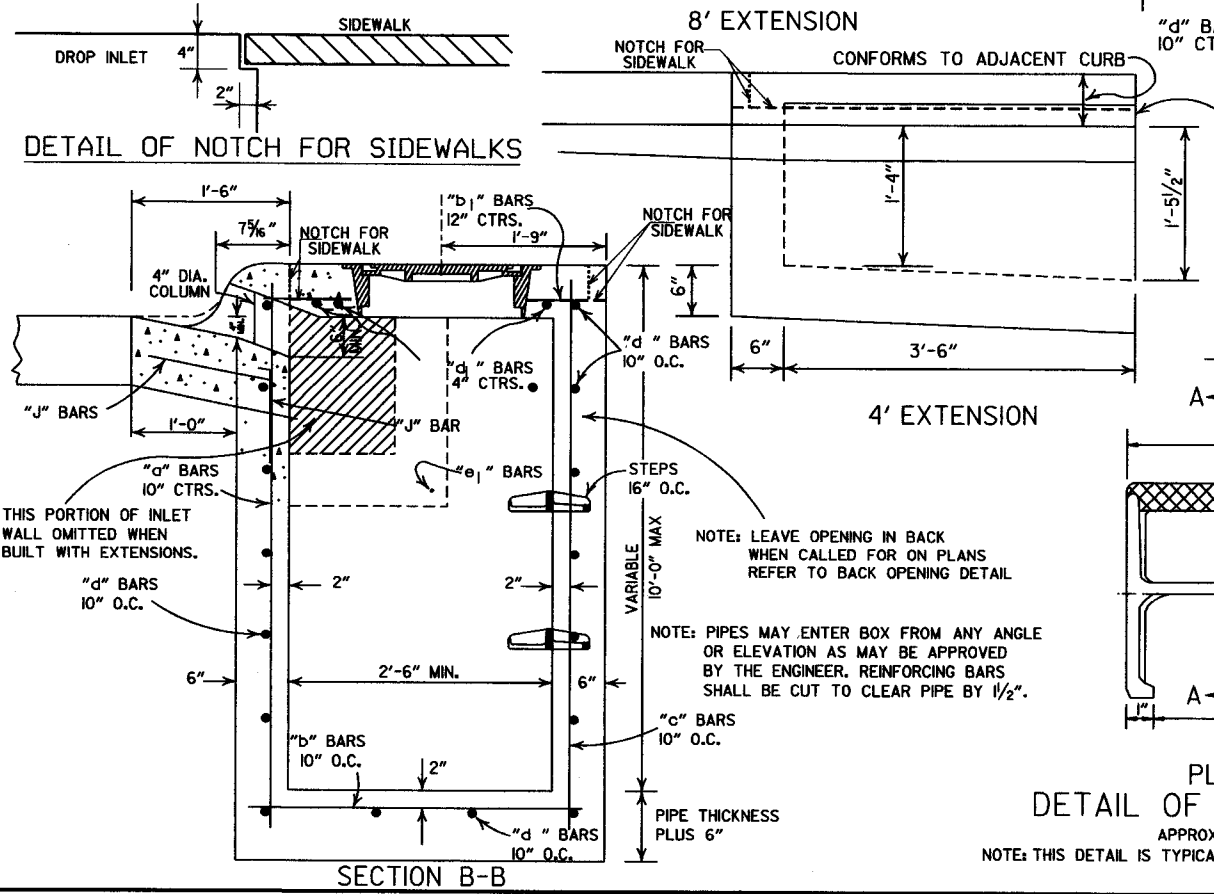


PLAN

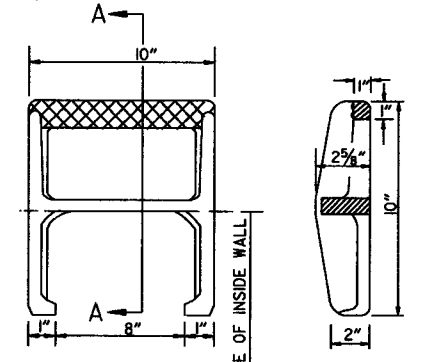
DROP INLET



ELEVATION



SECTION B-B



SECTION A-A

DETAIL OF STEP FOR DROP INLET

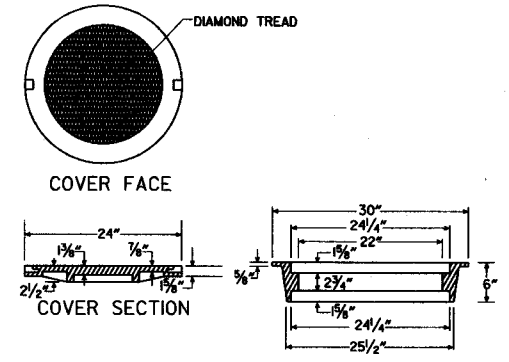
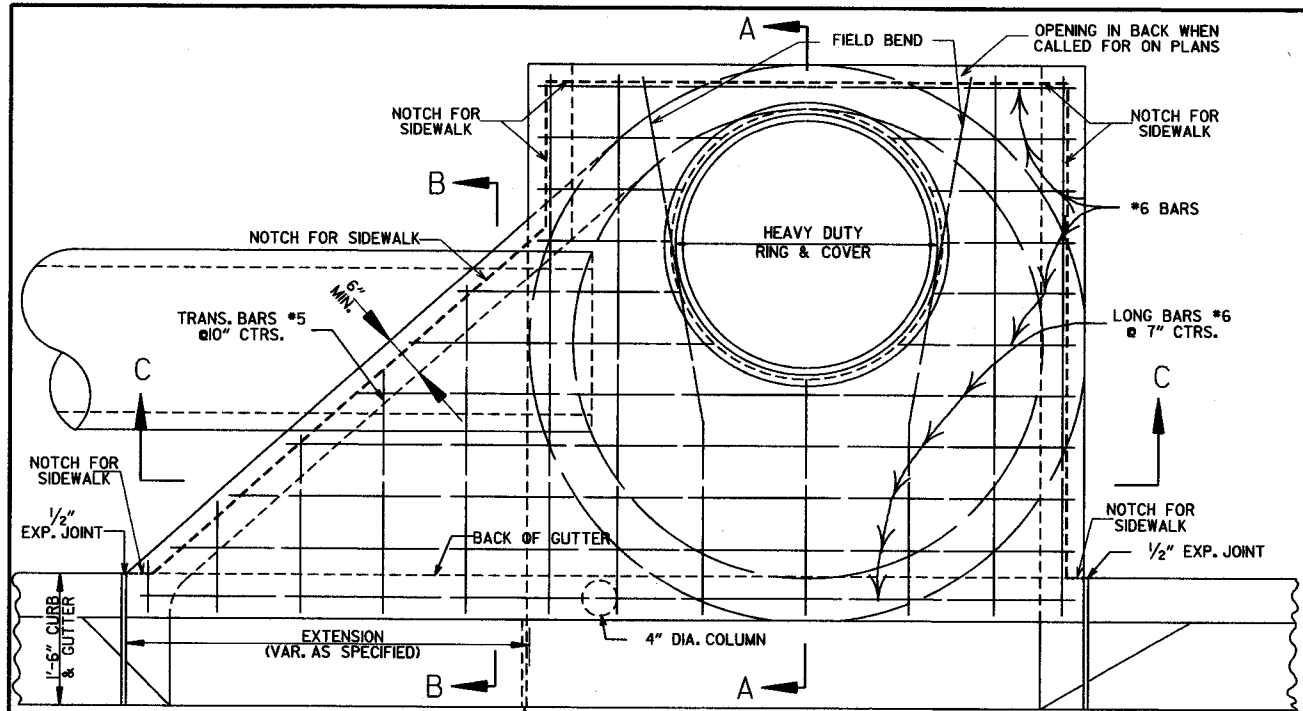
APPROX. WEIGHT = 11 LBS. (CAST IRON)  
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

| DATE     | REV. | DESCRIPTION   | DATE FILMED |
|----------|------|---|-------------|
| 8-22-02  |      | ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B          |             |
| 11-16-01 |      | ADDED NOTE 13; REVISED SECTION B-B                        |             |
| 1-12-00  |      | CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER |             |
| 5-13-99  |      | ADDED DETAIL OF NOTCH FOR SIDEWALKS                       |             |
| 7-02-98  |      | REPLACED RING & COVER W/HEAVY DUTY RING & COVER           |             |
|          |      | ADDED NOTES 9, 10, & 11                                   |             |
| 10-18-96 |      | CORRECTED SPELLING  |             |
| 4-26-96  |      | ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES          | 10-18-96    |
| 4-1-93   |      | REVISED BACK OPENING & NOTE                               |             |
| 8-15-91  |      | DELETE TYPE IV GRATE                                      |             |
| 7-15-88  |      | REVISED STEP DETAIL                                       |             |
| 5-20-83  |      | REVISED DETAILS OF GRATES (TYPE IV & IV-A)                |             |
| 2-4-83   |      | ADDED GENERAL NOTE NO. 4                                  |             |
| 3-2-81   |      | ADDED TYPE IV-A GRATE                                     |             |
| 5-22-74  |      | DELETED INLET (TYPE F) & GRATE (TYPE III)                 |             |
| 10-2-72  |      | REVISED AND REDRAWN                                       |             |

ARKANSAS STATE HIGHWAY COMMISSION

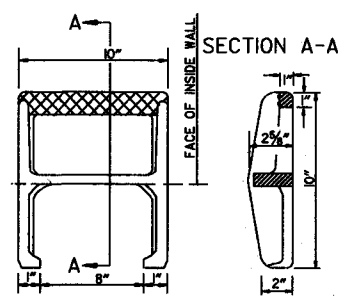
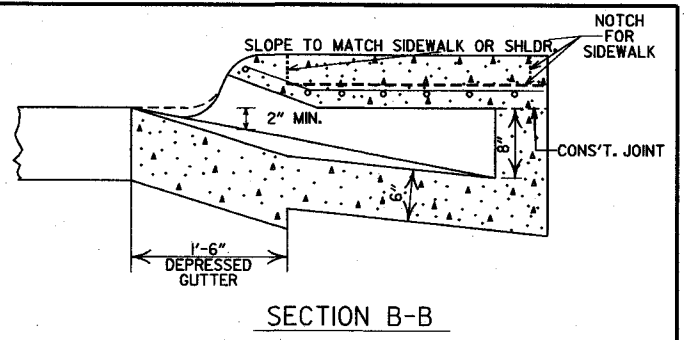
DETAILS OF DROP INLETS (TYPE C)

STANDARD DRAWING FPC-9E

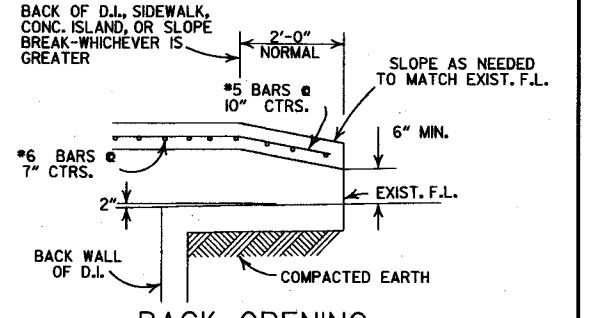


HEAVY DUTY RING & COVER  
APPROXIMATE TOTAL WEIGHT = 333 LBS.

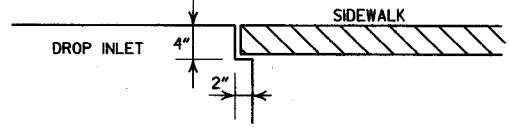
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



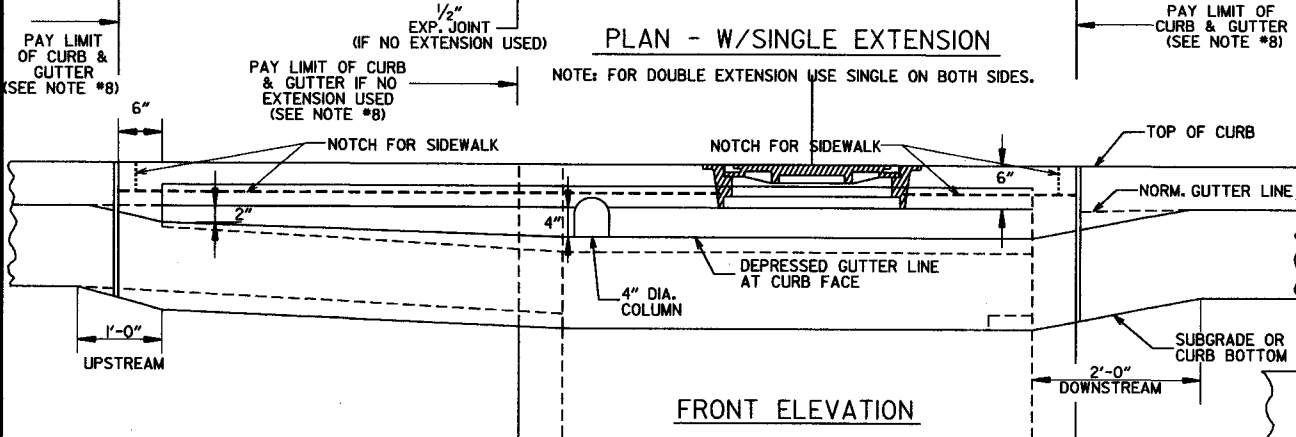
DETAIL OF STEP FOR DROP INLET  
APPROX. WEIGHT = 11 LBS. (CAST IRON)  
NOTE: THIS DETAIL IS TYPICAL OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



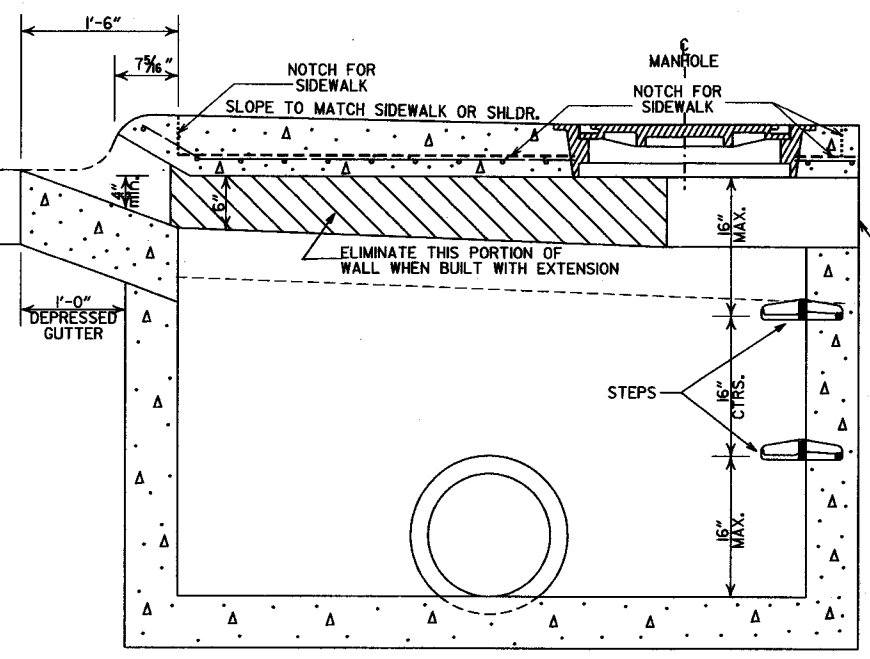
BACK OPENING  
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE M0).



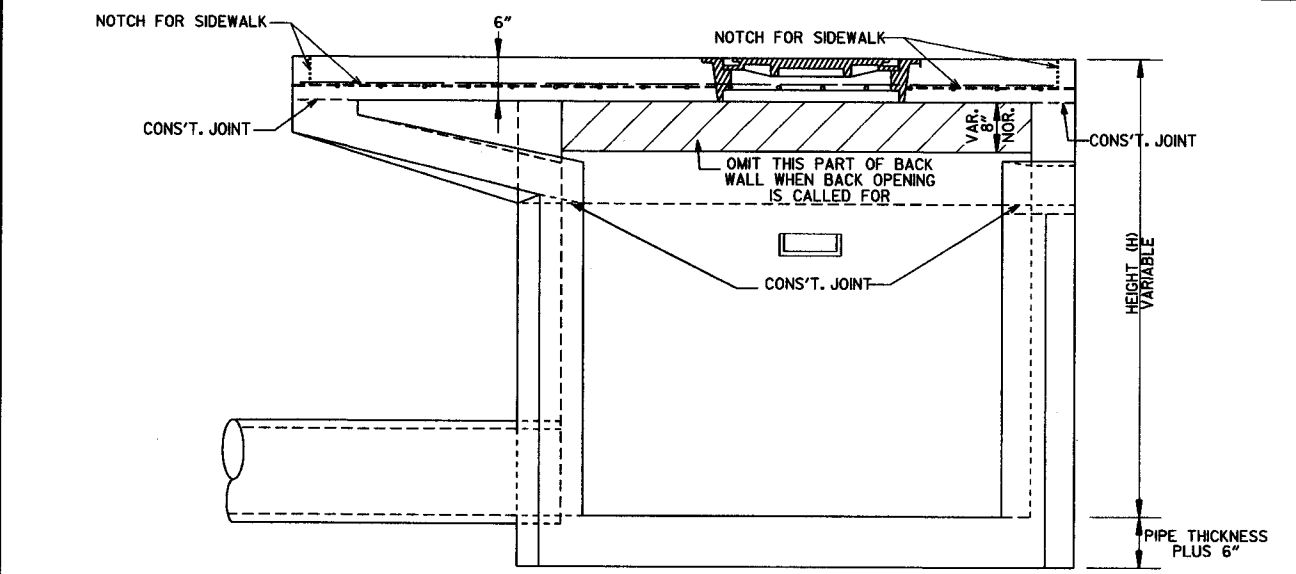
DETAIL OF NOTCH FOR SIDEWALKS



FRONT ELEVATION



SECTION A-A



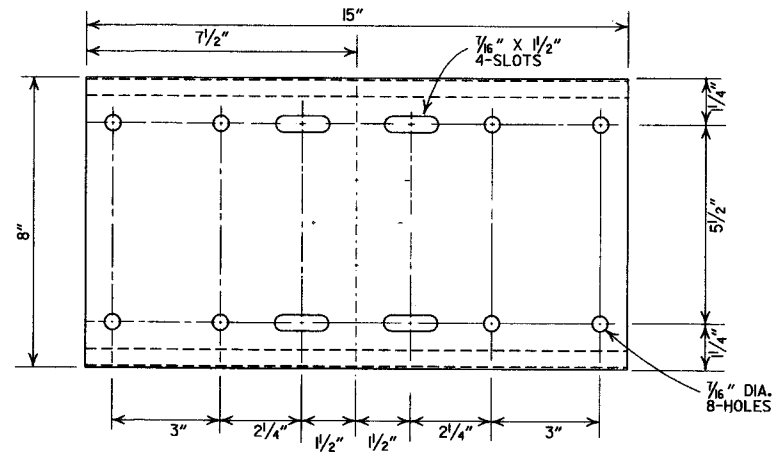
SECTION C-C

- GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4\"/>
  - 2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0\"/>
  - 3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1/4\"/>
  - 4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
  - 5. 4\"/>
  - 6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
  - 7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
  - 8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
  - 9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
  - 10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE M0 DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE M0).
  - 11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
  - 12. 4\"/>
  - 13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

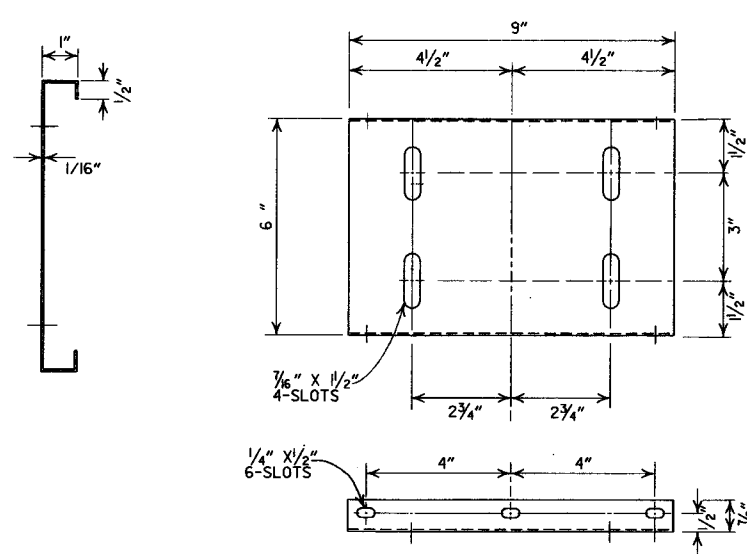
| MINIMUM WALL THICKNESS  |   |                          |         |
|---|---|--------------------------|---------|
| DIA. OF D.I.  | DIA. OF OUTLET PIPE                         | CAST IN PLACE            | PRECAST |
| 4\"/> <td>12\"/&gt; <td>6\"/&gt; <td>5\"/&gt; </td></td></td> | 12\"/> <td>6\"/&gt; <td>5\"/&gt; </td></td> | 6\"/> <td>5\"/&gt; </td> | 5\"/>   |
| 5\"/> <td>30\"/&gt; <td>8\"/&gt; <td>6\"/&gt; </td></td></td> | 30\"/> <td>8\"/&gt; <td>6\"/&gt; </td></td> | 8\"/> <td>6\"/&gt; </td> | 6\"/>   |
| 6\"/> <td>48\"/&gt; <td>8\"/&gt; <td>7\"/&gt; </td></td></td> | 48\"/> <td>8\"/&gt; <td>7\"/&gt; </td></td> | 8\"/> <td>7\"/&gt; </td> | 7\"/>   |

| DATE     | REVISIONS   | DATE FILED |
|----------|---|------------|
| 8-22-02  | ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B  |            |
| 8-16-01  | ADDED NOTE 13   |            |
| 1-12-00  | REVISED HEAVY DUTY RING & COVER   |            |
| 5-13-99  | ADDED NOTCH DETAIL FOR SIDEWALKS  |            |
| 7-02-98  | REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET |            |
| 4-28-96  | ADDED NOTE 13, ALL OPENING DIMENSION  |            |
| 10-22-95 | CORRECTED #5 BAR SPACING  |            |
| 7-24-95  | REVISED DETAIL OF 1/4\"/>   |            |
| 7-24-95  | TYPE C TO M0 OPEN BACK DETAIL   |            |
| 11-3-94  | REVISED GENERAL NOTES   | 11-3-94    |
| 11-3-94  | REV. BACK OPEN DETAIL & NOTE  | 11-3-94    |
| 8-25-93  | REVISED NOTES 12 & 13, ADDED BK. OPEN DETAIL  | 8-25-93    |
| 11-30-89 | ADDED NOTE NO. 12   | 11-30-89   |
| 4-23-89  | ADDED NOTE & MINIMUM WALL THICKNESS   | 4-23-89    |
| 1-24-88  | ADDED EXTENSION NOTE TO SECTION A-A   | 1-24-88    |
| 1-14-87  | MODIFIED WALL THICKNESS   | 1-14-87    |
| 6-12-87  | ISSUED  | 6-12-87    |

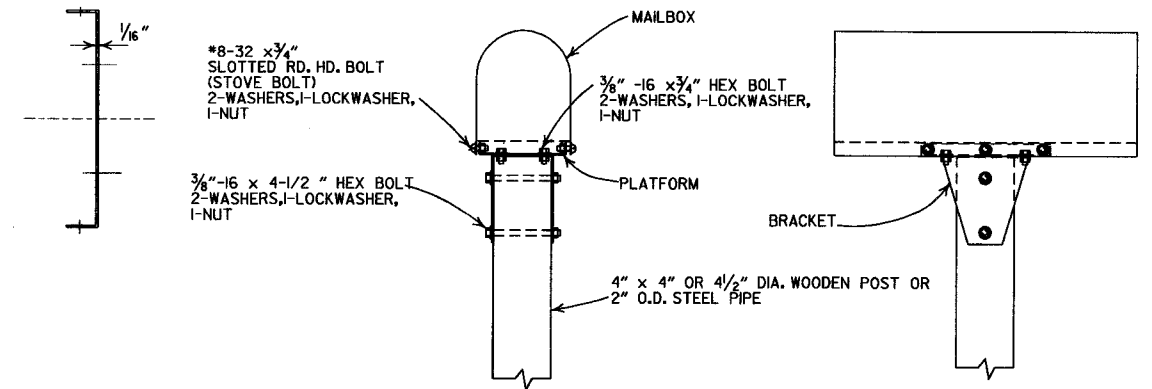
ARKANSAS STATE HIGHWAY COMMISSION  
DETAILS OF DROP INLET (TYPE M0)  
STANDARD DRAWING FPC-9M



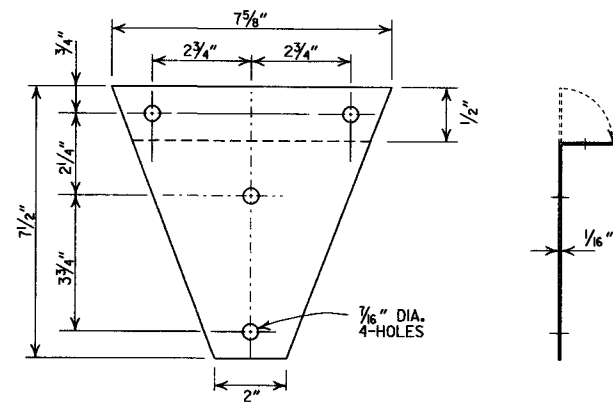
SHELF



PLATFORM

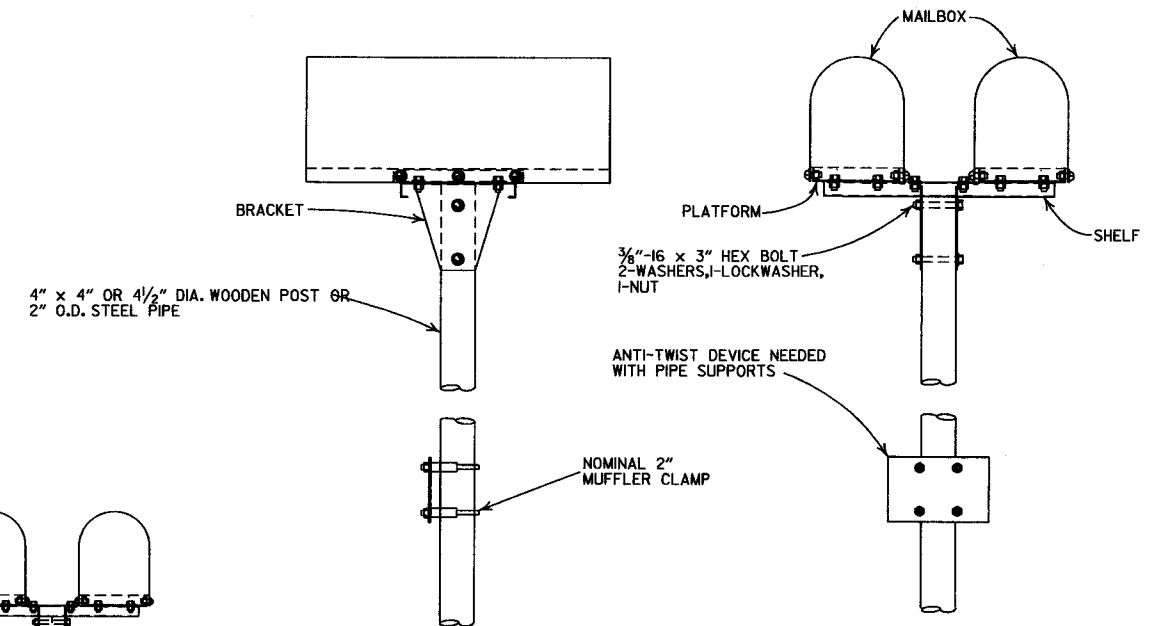


SINGLE INSTALLATION

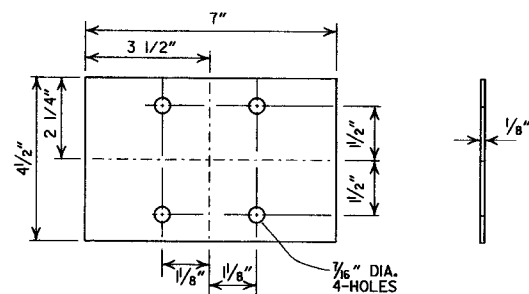


BRACKET

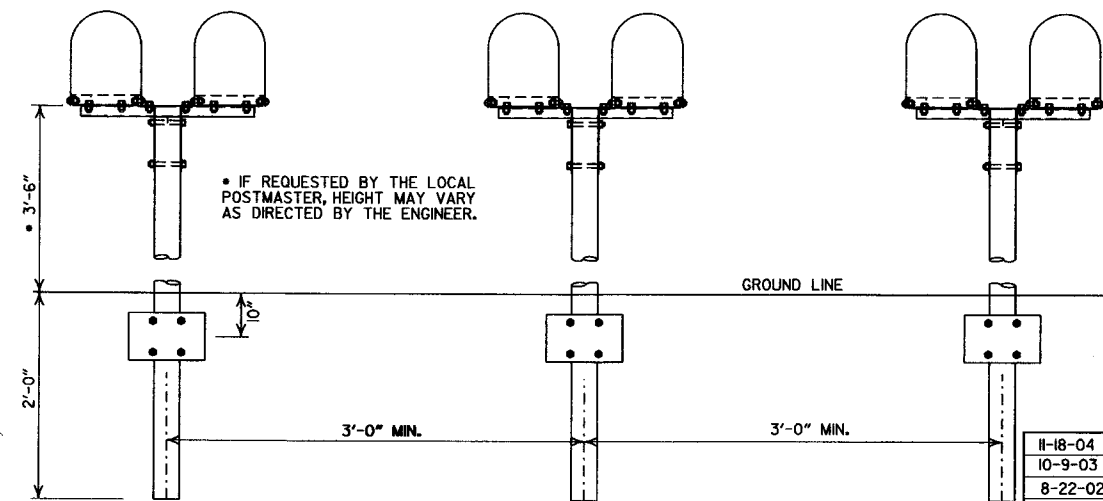
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
  2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
  3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 x 3/4" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
  4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
  5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
  6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



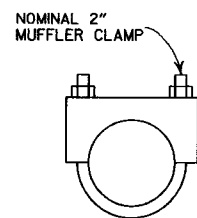
DOUBLE INSTALLATION



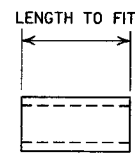
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



SPACER

NOMINAL 1/2" STD. WT. PIPE

|          |             |                                    |
|----------|-------------|------------------------------------|
| 11-18-04 |             | REVISED NOTES                      |
| 10-9-03  |             | REVISED NOTE 6                     |
| 8-22-02  |             | REVISED NOTE 6                     |
| 10-18-96 |             | CORRECTED AASHTO                   |
| 10-1-92  |             | CORRECTED SPELLING                 |
| 9-26-91  |             | NEW PHONE NUMBER                   |
| 8-15-91  |             | ADDED NOTE                         |
| 11-30-89 |             | ADJUSTED HEIGHT & ADDED NOTE       |
| 2-16-89  |             | DELETED SLOTS FROM SHELF & PLTF    |
| 11-17-88 | 10-1-92     | ADJUSTED DIMENSIONS OF STEEL POSTS |
| 7-15-88  | 120-7-15-88 | ISSUED                             |
| DATE     | FILMED      | REVISION                           |

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

**REINFORCED CONCRETE ARCH PIPE DIMENSIONS**

| EQUIV. DIA. | SPAN         |              | RISE         |              |
|-------------|--------------|--------------|--------------|--------------|
|             | AASHTO M 206 | AHTD NOMINAL | AASHTO M 206 | AHTD NOMINAL |
| INCHES      | INCHES       |              |              |              |
| 15          | 18           | 18           | 11           | 11           |
| 18          | 22           | 22           | 13 1/2       | 14           |
| 21          | 26           | 26           | 15 1/2       | 16           |
| 24          | 28 1/2       | 29           | 18           | 18           |
| 30          | 36 1/4       | 36           | 22 1/2       | 23           |
| 36          | 43 3/8       | 44           | 26 3/8       | 27           |
| 42          | 51 1/8       | 51           | 31 1/8       | 31           |
| 48          | 58 1/2       | 59           | 36           | 36           |
| 54          | 65           | 65           | 40           | 40           |
| 60          | 73           | 73           | 45           | 45           |
| 72          | 88           | 88           | 54           | 54           |
| 84          | 102          | 102          | 62           | 62           |
| 90          | 115          | 115          | 72           | 72           |
| 96          | 122          | 122          | 77 1/2       | 77           |
| 108         | 138          | 138          | 87 1/8       | 87           |
| 120         | 154          | 154          | 96 3/8       | 97           |
| 132         | 168 3/4      | 169          | 106 1/2      | 107          |

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

**REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS**

| EQUIV. DIA. | AASHTO M 207 |      |
|-------------|--------------|------|
|             | SPAN         | RISE |
| INCHES      | INCHES       |      |
| 18          | 23           | 14   |
| 24          | 30           | 19   |
| 27          | 34           | 22   |
| 30          | 38           | 24   |
| 33          | 42           | 27   |
| 36          | 45           | 29   |
| 39          | 49           | 32   |
| 42          | 53           | 34   |
| 48          | 60           | 38   |
| 54          | 68           | 43   |
| 60          | 76           | 48   |
| 66          | 83           | 53   |
| 72          | 91           | 58   |
| 78          | 98           | 63   |
| 84          | 106          | 68   |

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

**CONSTRUCTION SEQUENCE**

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(F)(1).

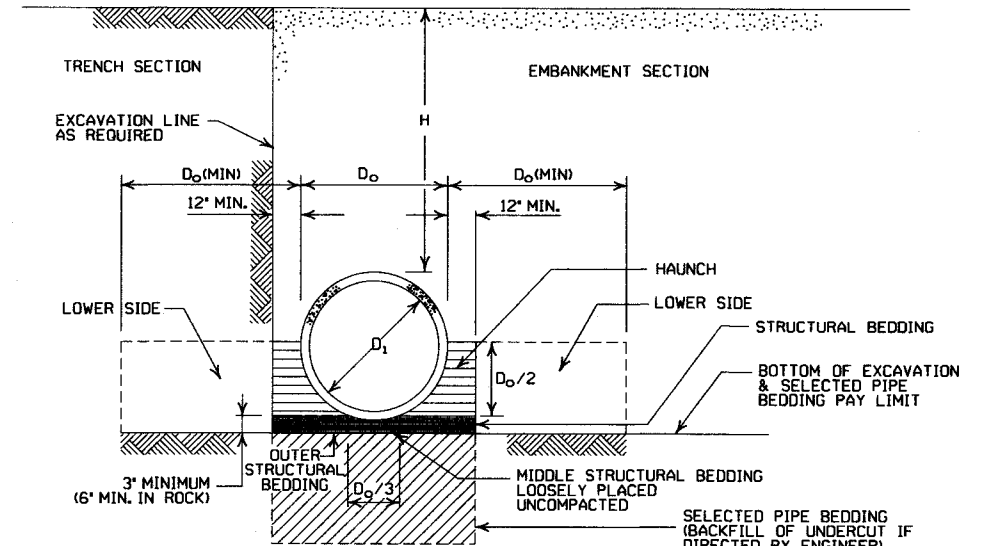
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

**- LEGEND -**

- D<sub>1</sub> = NORMAL INSIDE DIAMETER OF PIPE
- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- UNDISTURBED SOIL

| INSTALLATION TYPE | MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING                         |
|-------------------|---|
| TYPE 1            | AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)                                      |
| TYPE 2            | SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL* |
| TYPE 3**          | AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL    |

- \* SM-3 WILL NOT BE ALLOWED.
- \*\* MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



**EMBANKMENT AND TRENCH INSTALLATIONS**

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

**GENERAL NOTES**

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. 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.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

**MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS**

| INSTALLATION TYPE | CLASS OF PIPE |     |          |         |
|-------------------|---------------|-----|----------|---------|
|                   | CLASS III     |     | CLASS IV | CLASS V |
| PIPE ID (IN.)     | FEET          |     |          |         |
| 12-15             | 2             | 2.5 | 2        | 1       |
| 18-24             | 2.5           | 3   | 2        | 1       |
| 27-33             | 3             | 4   | 2        | 1       |
| 36-42             | 3.5           | 5   | 2        | 1       |
| 48                | 4.5           | 5.5 | 2        | 1       |
| 54-60             | 5             | 7   | 2        | 1       |
| 66-78             | 6             | 8   | 2        | 1       |
| 84-108            | 7.5           | 8   | 2        | 1       |

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

**MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS**

| INSTALLATION TYPE | CLASS OF PIPE |          |         |
|-------------------|---------------|----------|---------|
|                   | CLASS III     | CLASS IV | CLASS V |
| TYPE 1            | 21            | 32       | 50      |
| TYPE 2            | 16            | 25       | 39      |
| TYPE 3            | 12            | 20       | 30      |

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

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

| INSTALLATION TYPE | CLASS OF PIPE |          |
|-------------------|---------------|----------|
|                   | CLASS III     | CLASS IV |
| TYPE 2 OR TYPE 3  | FEET          |          |
|                   | 2.5           | 1.5      |

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

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

| INSTALLATION TYPE | CLASS OF PIPE |          |
|-------------------|---------------|----------|
|                   | CLASS III     | CLASS IV |
| TYPE 2            | 13            | 21       |
| TYPE 3            | 10            | 16       |

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

| DATE     | REVISION                               | DATE FILMED |
|----------|--|-------------|
| 12-15-11 | REVISED FOR LRFD DESIGN SPECIFICATIONS |             |
| 5-18-00  | REVISED TYPE 3 BEDDING & ADDED NOTE    |             |
| 3-30-00  | REVISED INSTALLATIONS                  |             |
| 11-06-97 | ISSUED                                 |             |

ARKANSAS STATE HIGHWAY COMMISSION

**CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING**

STANDARD DRAWING PCC-1

| INSTALLATION TYPE | MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING |
|-------------------|--|
| TYPE 2            | •SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)                       |

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
- SM3 WILL NOT BE ALLOWED.
- STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

| PIPE DIAMETER | TRENCH WIDTH (FEET) |                   |
|---------------|---------------------|-------------------|
|               | "H" < 10'-0"        | "H" > OR = 10'-0" |
| 18"           | 4'-6"               | 4'-6"             |
| 24"           | 5'-0"               | 6'-0"             |
| 30"           | 5'-6"               | 7'-6"             |
| 36"           | 6'-0"               | 9'-0"             |
| 42"           | 7'-0"               | 10'-6"            |
| 48"           | 8'-0"               | 12'-0"            |

(NOTE:  
18" MIN. (18" - 30" DIAMETERS)  
24" MIN. (36" - 48" DIAMETERS)  
MINIMUM COVER VALUES, "H"  
SHALL INCLUDE A MINIMUM 12"  
OF PAVEMENT AND/OR BASE.

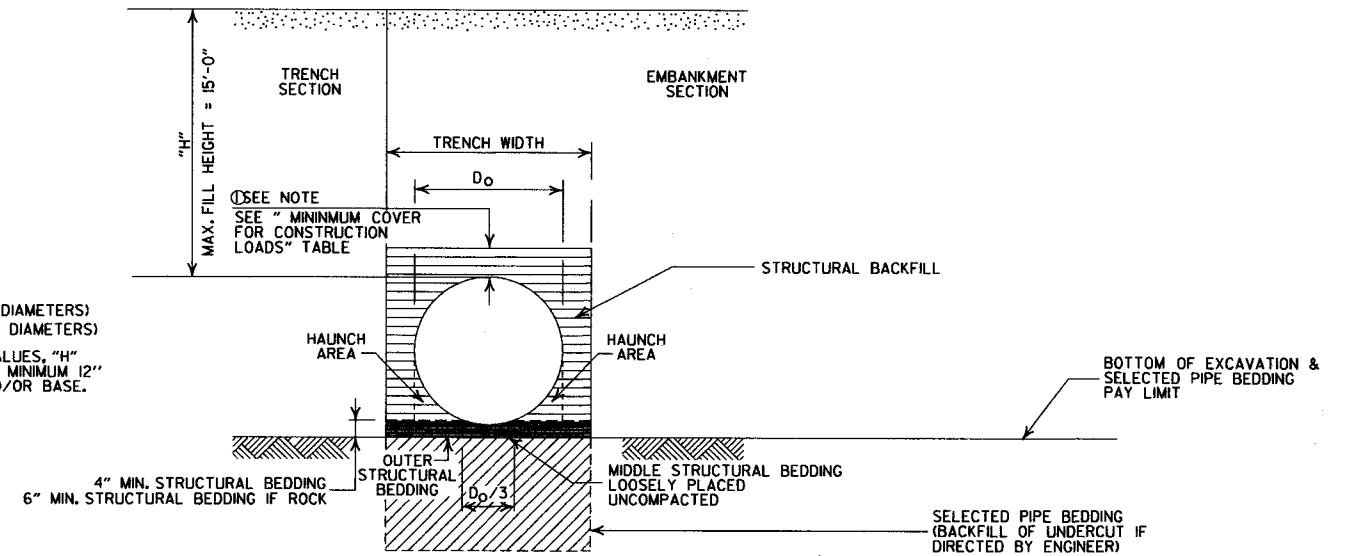
MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

| PIPE DIAMETER | CLEAR DISTANCE BETWEEN PIPES |
|---------------|------------------------------|
| 18"           | 1'-6"                        |
| 24"           | 2'-0"                        |
| 30"           | 2'-6"                        |
| 36"           | 3'-0"                        |
| 42"           | 3'-6"                        |
| 48"           | 4'-0"                        |

MINIMUM COVER FOR CONSTRUCTION LOADS

| PIPE DIAMETER  | MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS |                  |                   |                    |
|----------------|--|------------------|-------------------|--------------------|
|                | 18.0-50.0 (KIPS)                                   | 50.0-75.0 (KIPS) | 75.0-110.0 (KIPS) | 110.0-175.0 (KIPS) |
| 36" OR LESS    | 2'-0"  | 2'-6"            | 3'-0"             | 3'-0"              |
| 42" OR GREATER | 3'-0"  | 3'-0"            | 3'-6"             | 4'-0"              |

MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

- H = FILL HEIGHT (FT.)
- D\_o = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
- ||||| = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
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.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

| DATE     | REVISION                                   | DATE FILMED |
|----------|--|-------------|
| 12-15-11 | REVISED GENERAL NOTES & MINIMUM COVER NOTE |             |
| 11-17-10 | ISSUED                                     |             |

ARKANSAS STATE HIGHWAY COMMISSION  
PLASTIC PIPE CULVERT  
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1



|                   |   |
|-------------------|---|
| INSTALLATION TYPE | •• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING |
| TYPE 2            | •SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)                         |

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL. SM3 WILL NOT BE ALLOWED.
- STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF PVC PIPE.

MAXIMUM FILL HEIGHT  
BASED ON STRUCTURAL BACKFILL

| PIPE DIAMETER | "H"    |
|---------------|--------|
| 18"           | 45'-0" |
| 24"           | 45'-0" |
| 30"           | 40'-0" |
| 36"           | 40'-0" |

NOTE:  
1. 12" MIN. (18" - 36" DIAMETERS) MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM TRENCH WIDTH  
BASED ON FILL HEIGHT "H"

| PIPE DIAMETER | TRENCH WIDTH (FEET) |                 |
|---------------|---------------------|-----------------|
|               | "H" < 10'-0"        | "H" >OR= 10'-0" |
| 18"           | 4'-6"               | 4'-6"           |
| 24"           | 5'-0"               | 6'-0"           |
| 30"           | 5'-6"               | 7'-6"           |
| 36"           | 6'-0"               | 9'-0"           |

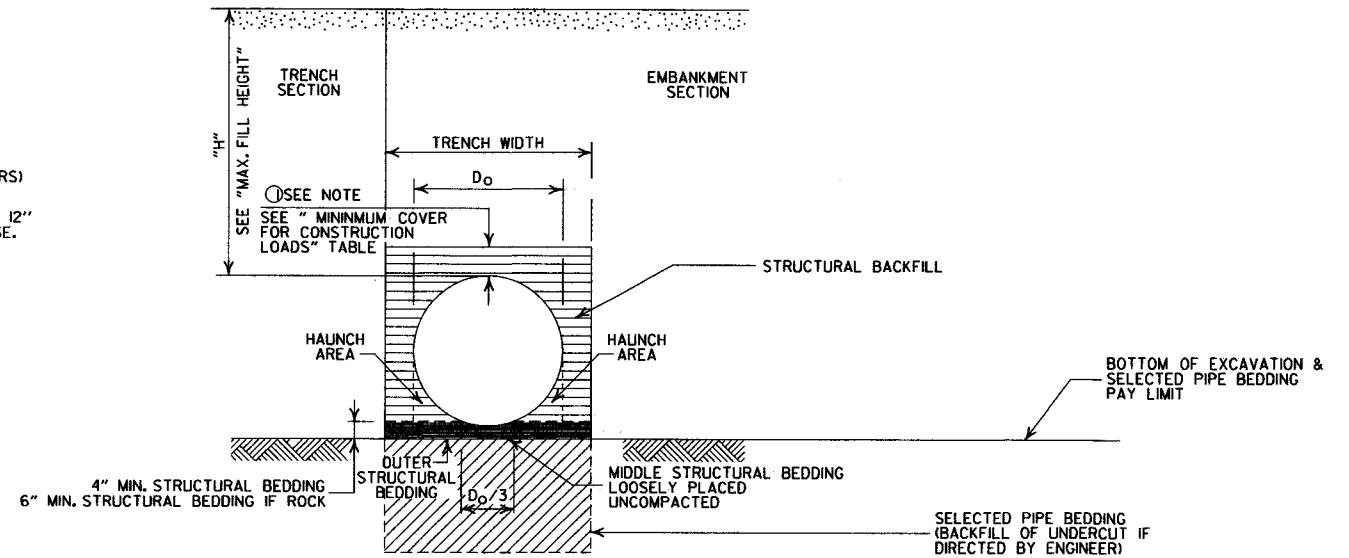
MULTIPLE INSTALLATION OF  
PVC PIPES

| PIPE DIAMETER | CLEAR DISTANCE BETWEEN PIPES |
|---------------|------------------------------|
| 18"           | 1'-6"                        |
| 24"           | 2'-0"                        |
| 30"           | 2'-6"                        |
| 36"           | 3'-0"                        |

MINIMUM COVER FOR  
CONSTRUCTION LOADS

| PIPE DIAMETER | MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS |                  |                   |                    |
|---------------|--|------------------|-------------------|--------------------|
|               | 18.0-50.0 (KIPS)                                   | 50.0-75.0 (KIPS) | 75.0-110.0 (KIPS) | 110.0-175.0 (KIPS) |
| 18" THRU 36"  | 2'-0"  | 2'-6"            | 3'-0"             | 3'-0"              |

MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

- STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

- H = FILL HEIGHT (FT.)
- D<sub>o</sub> = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
- ||||| = UNDISTURBED SOIL

GENERAL NOTES

- PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- 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.
- WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

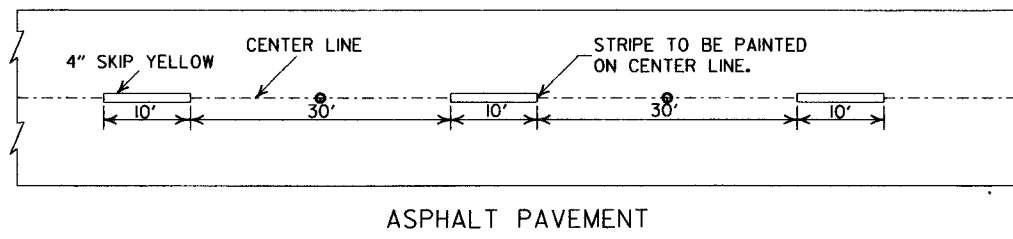
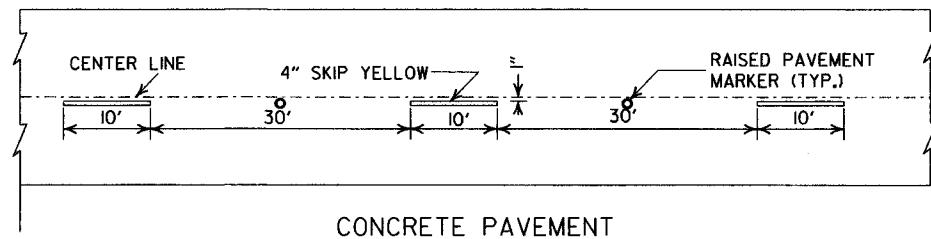
|          |  |             |
|----------|--|-------------|
| 12-15-11 | REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL |             |
| 11-17-10 | ISSUED   |             |
| DATE     | REVISION   | DATE FILMED |

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT  
(PVC F949)

STANDARD DRAWING PCP-2

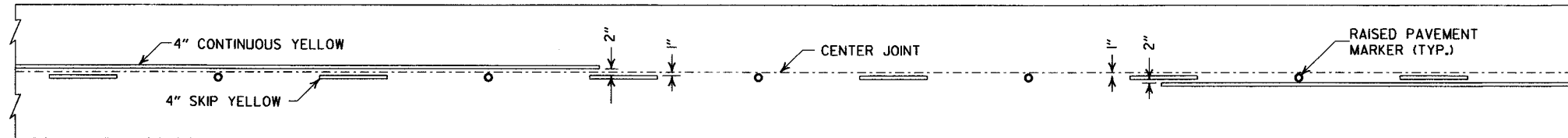




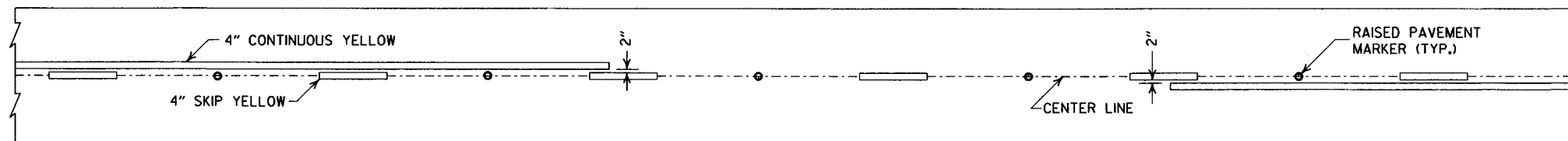
CONCRETE PAVEMENT

ASPHALT PAVEMENT

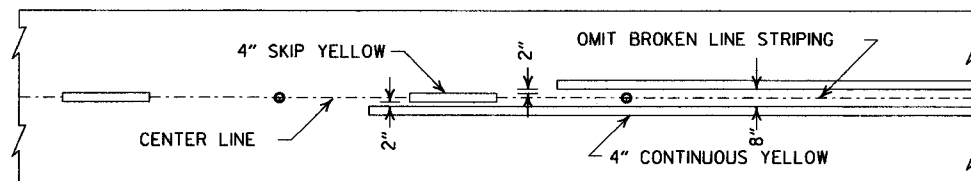
BROKEN LINE STRIPING



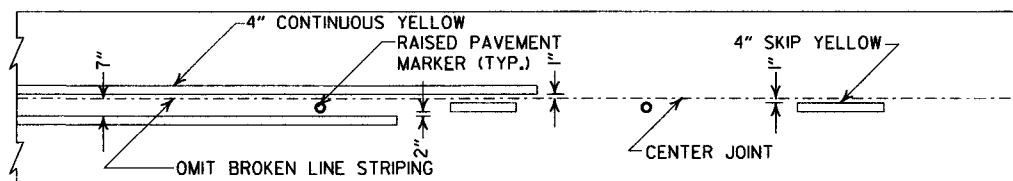
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

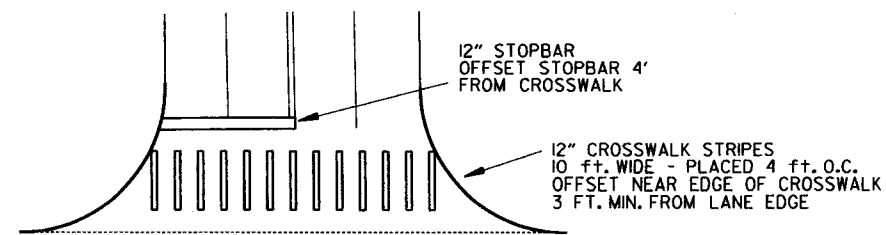


ASPHALT PAVEMENT



CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

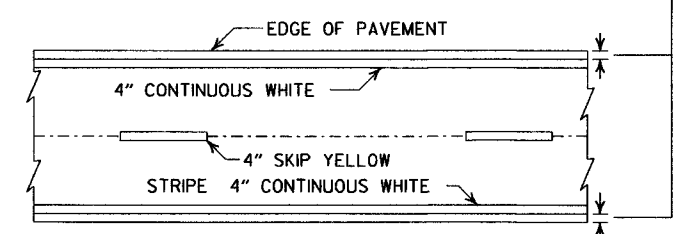
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE: DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

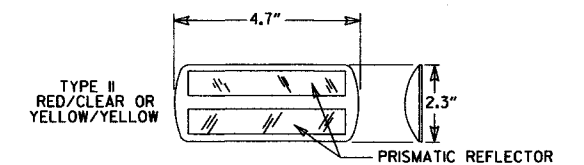
NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

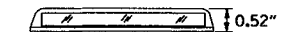
2" FOR ASPHALT OR CONCRETE PAVEMENT  
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



NOTE: THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

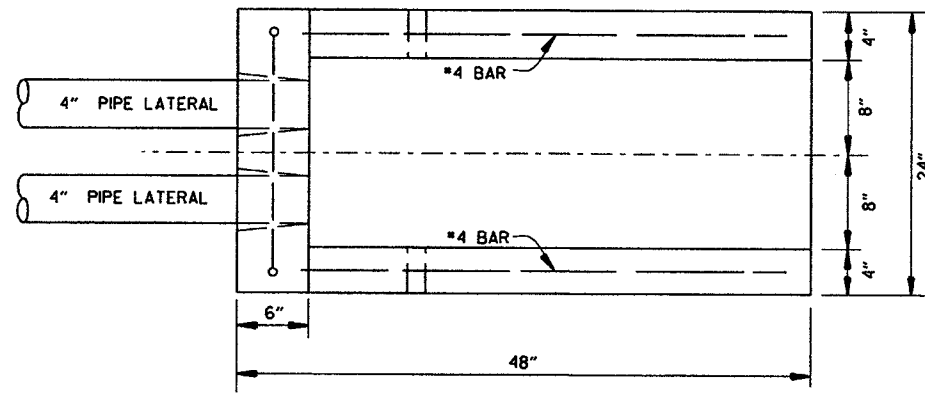
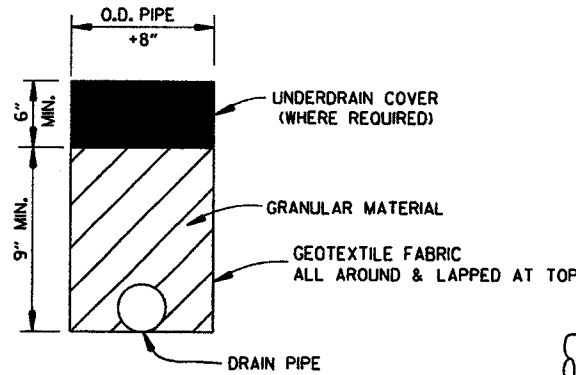
| DATE     | REVISION  | FILMED    |
|----------|---|-----------|
| 9-12-13  | REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS  |           |
| 11-17-10 | REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS |           |
| 11-18-04 | REVISED NOTE 2 & GENERAL NOTES                      |           |
| 8-22-02  | ADDED CROSSWALK & STOPBAR DTLS.                     |           |
| 7-02-98  | ADDED DETAILS OF STD. RAISED PAV'T. MARKERS         |           |
| 4-26-96  | REV. NOTES 3&4; ADDED R.P.M.                        |           |
| 9-30-80  | DRAWN   | 1-9-30-80 |

ARKANSAS STATE HIGHWAY COMMISSION

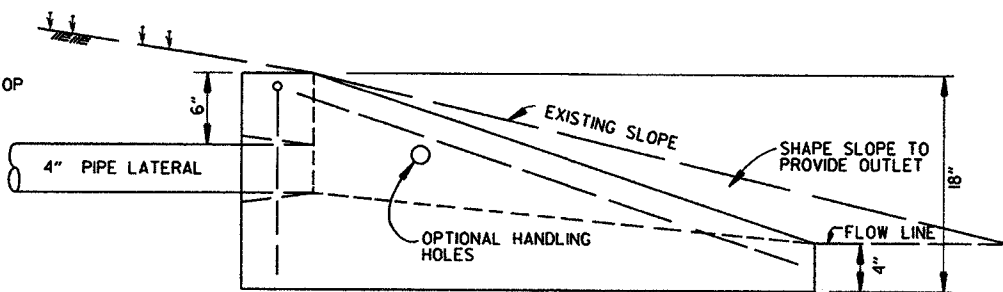
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

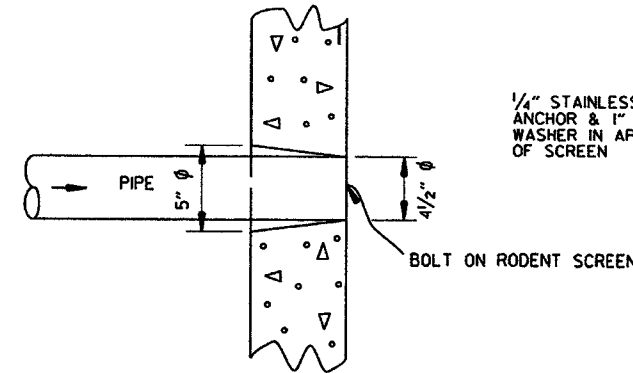
NOTE:  
 1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.  
 2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



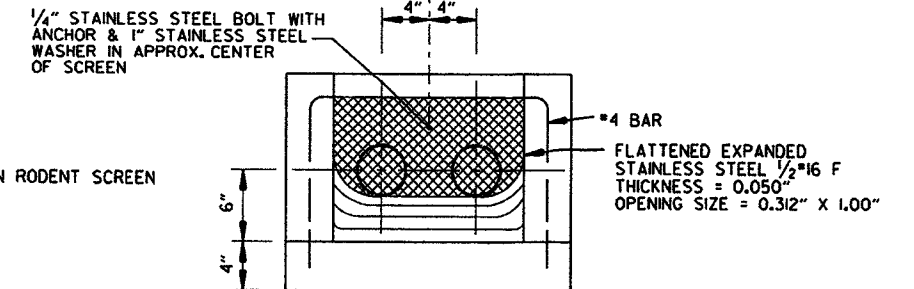
PLAN VIEW



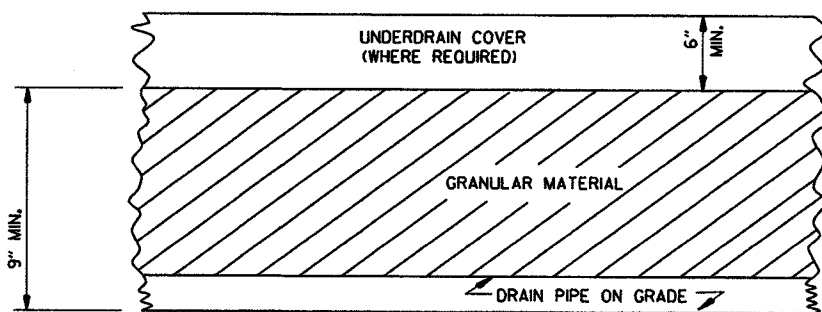
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW (DETAIL OF RODENT SCREEN)

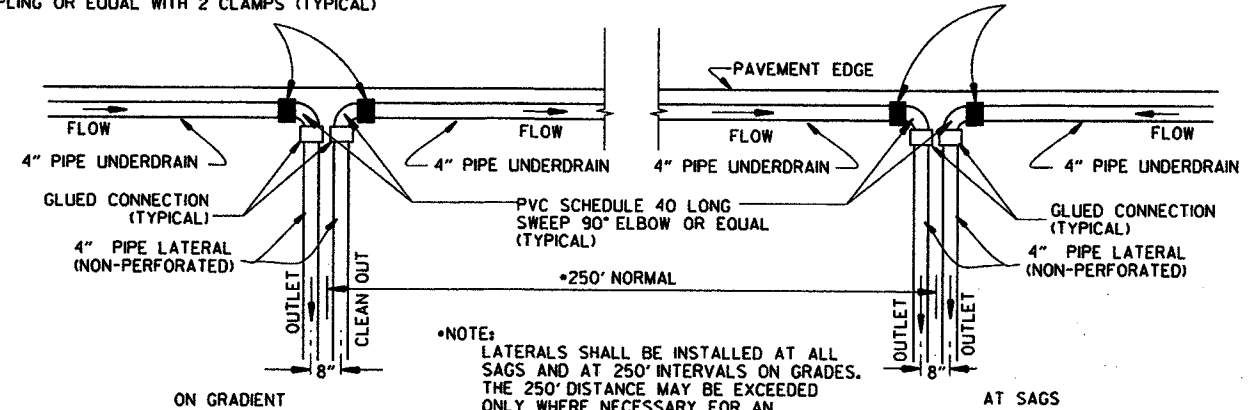


DETAILS OF PIPE UNDERDRAIN

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



\*NOTE: LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

\*NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 610 OF THE STANDARD SPECIFICATIONS.
2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 610 OF THE STANDARD SPECIFICATIONS.
3. EXISTING 4" PIPE UNDERDRAINS 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."
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE 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. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

| DATE     | REVISION   | DATE FILMED |
|----------|--|-------------|
| 12-8-16  | ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC |             |
| 4-10-03  | REVISED NOTE 3   |             |
| 1-12-00  | REVISED DETAIL OF UNDERDRAIN LATERALS  |             |
| 11-18-98 | REVISED NOTE   |             |
| 10-18-96 | REVISED MIN. DEPTH & GEOTEXTILE FABRIC   |             |
| 4-26-96  | ADDED LATERAL NOTE: 5 1/2" TO 5"   |             |
| 11-22-95 | REVISED LATERALS   |             |
| 7-20-95  | REVISED LATERALS & ADDED NOTE  |             |
| 11-3-94  | REVISED FOR DUAL LATERALS  | 11-3-94     |
| 10-1-92  | SUBSTITUTED GEOTEXTILE   | 10-1-92     |
| 8-15-91  | ADDED POLYETHYLENE PIPE  | 8-15-91     |
| 11-8-90  | DELETED ALTERNATE NOTE   | 11-8-90     |
| 1-25-90  | ADDED 4" SNAP ADAPTER  | 1-25-90     |
| 11-30-89 | DEL. (SUBGRADE); ADDED (WHERE REQUIRED)  | 11-30-89    |
| 7-15-88  | ISSUED P.L.M.  | 647-7-15-88 |

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1



# LOOP DETECTOR INSTALLATION AND TESTING

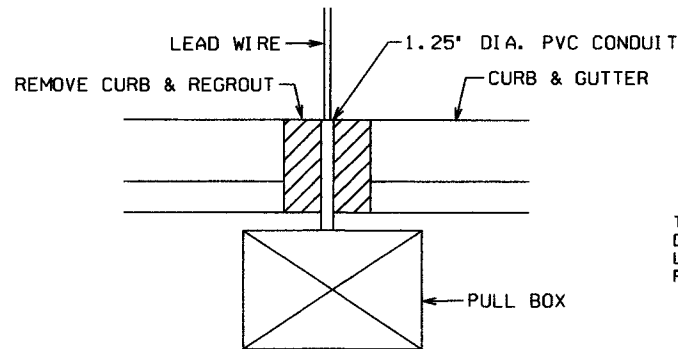
**NOTES:**

1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1") CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. 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 CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

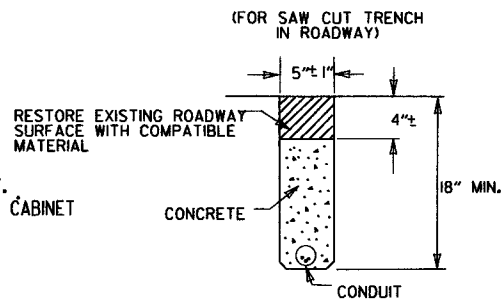
**TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING**

- 1 DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
- 2 TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM) IF TESTS 1 & 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1 & 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
- 3 OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1 & 2 IF TEST 3 IS BAD, GO TO TEST 4
- 4 BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1 & 2 SEPARATELY FOR FEEDER AND FOR LOOP

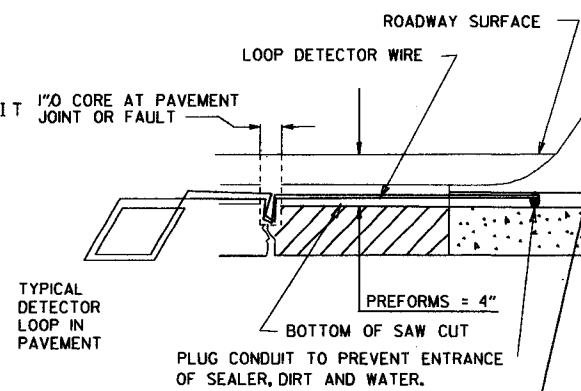
FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.



**TRENCHING DETAIL**



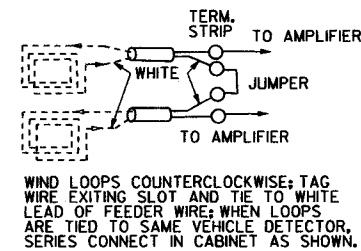
NOTE: CONDUIT SHALL BE INSTALLED IN CURB AS SHOWN OR AS DIRECTED BY THE ENGINEER. END OF CONDUIT SHALL BE WATER-TIGHT.



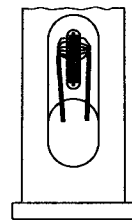
PREFORMS - SAW COMPLETELY THROUGH CURB  
ALTERNATE - WHEN INSTALLING PREFORMS ON SUBSTRATE, LEAD-INS MAY BE INSTALLED IN CONDUIT UNDERNEATH THE CURB AND GUTTER.

**SECTION A-A**  
1'-6" CONCRETE COMBINATION CURB AND GUTTER

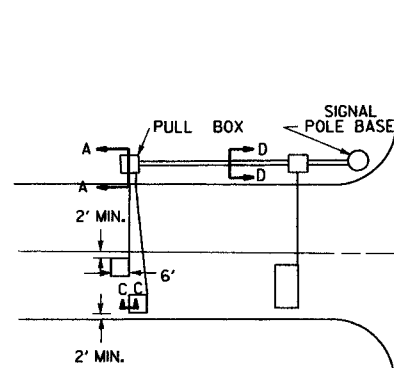
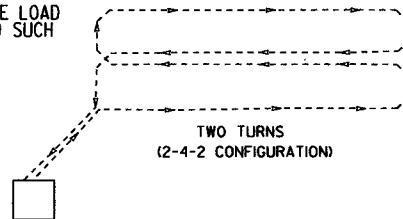
**SERIES CONNECTED LOOPS**



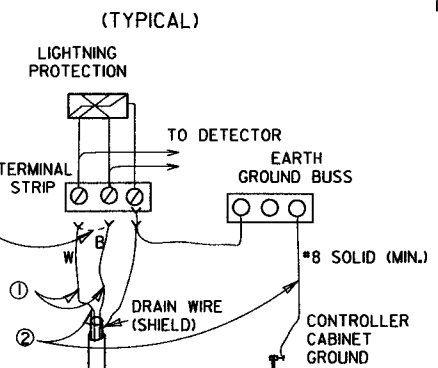
**HANDHOLE TERMINAL**



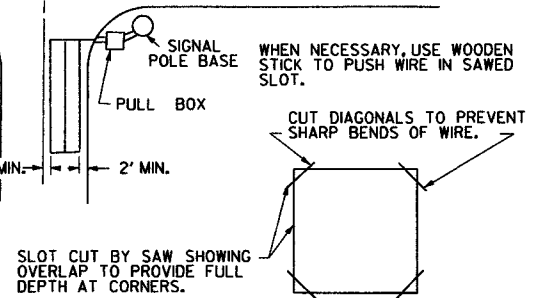
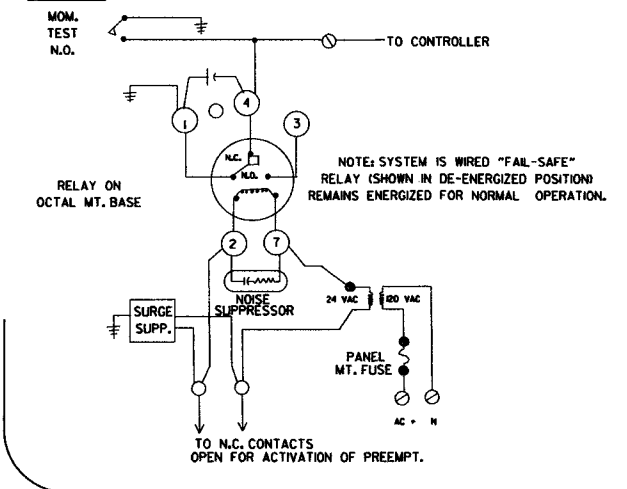
**QUADRUPOLE LOOP**



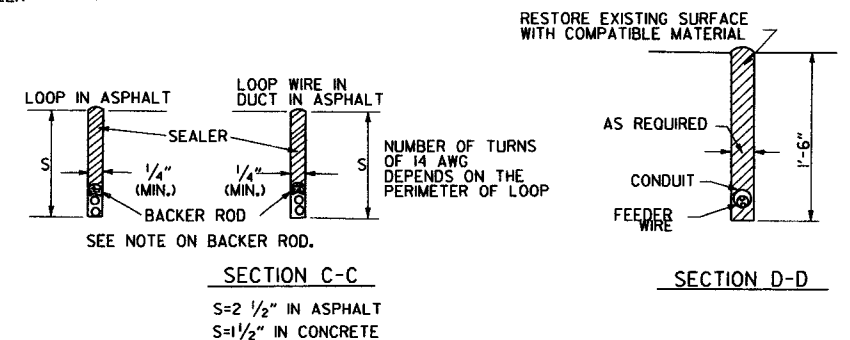
**TYPICAL INTERSECTION**



**TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM**



**TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS**

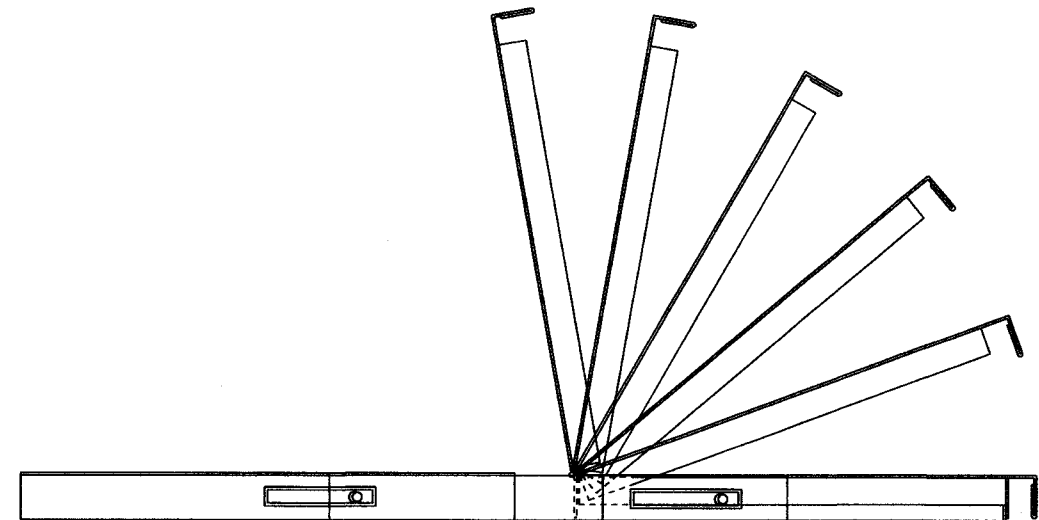
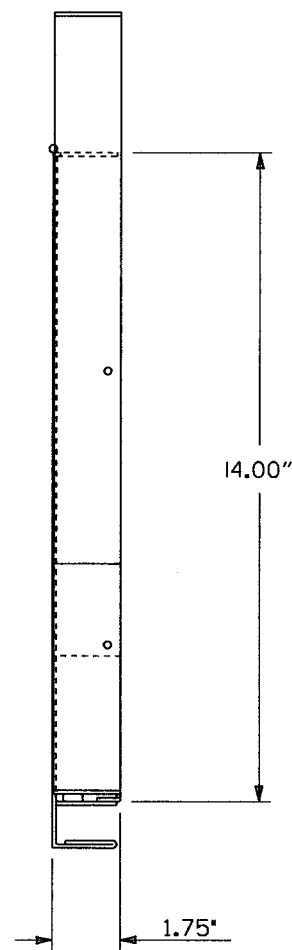
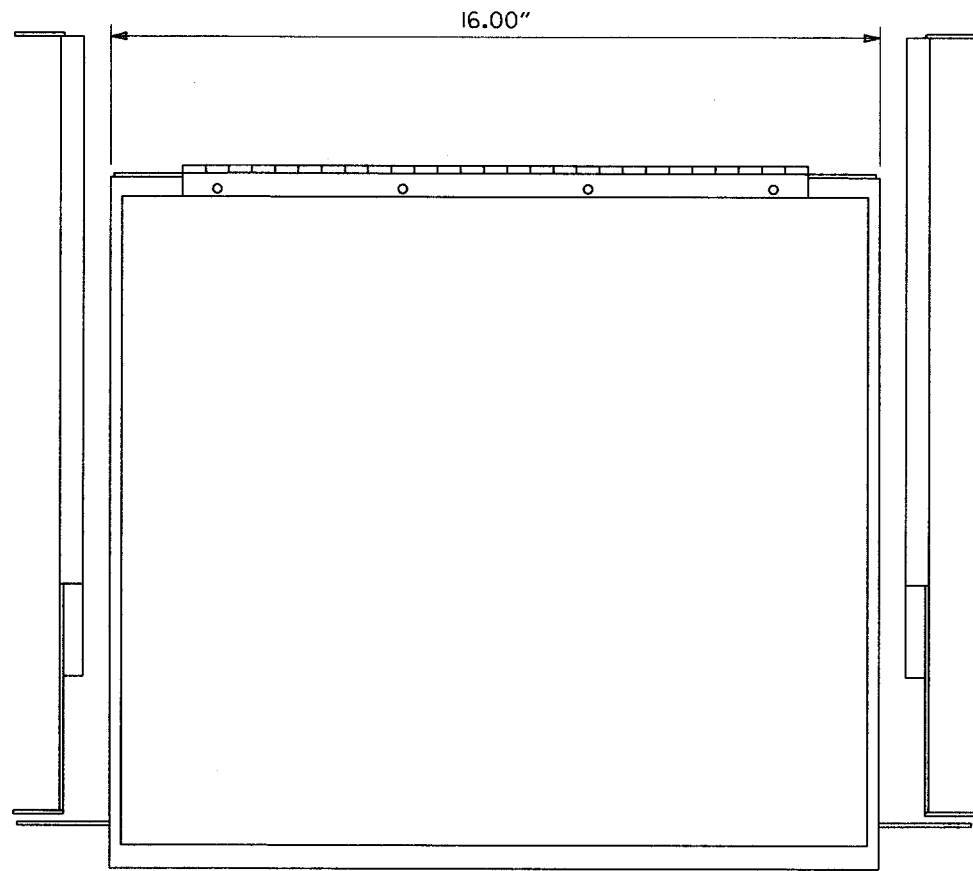


**SPECIAL NOTE**  
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

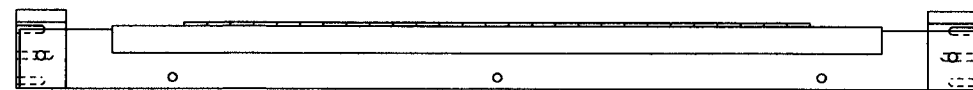
| DATE     | REVISION                        | DATE FILM |
|----------|---------------------------------|-----------|
| 9-12-13  | ISSUED AS STANDARD DRAWING      |           |
| 5-17-01  | REVISED                         |           |
| 4-11-01  | REVISED                         |           |
| 2-4-00   | REVISED PRE-EMPTION TEST SWITCH |           |
| 11-18-98 | REVISED NOTES                   |           |
| 11-21-95 | ISSUED                          |           |

ARKANSAS STATE HIGHWAY COMMISSION  
**LOOP DETECTOR INSTALLATION**  
STANDARD DRAWING SD-4

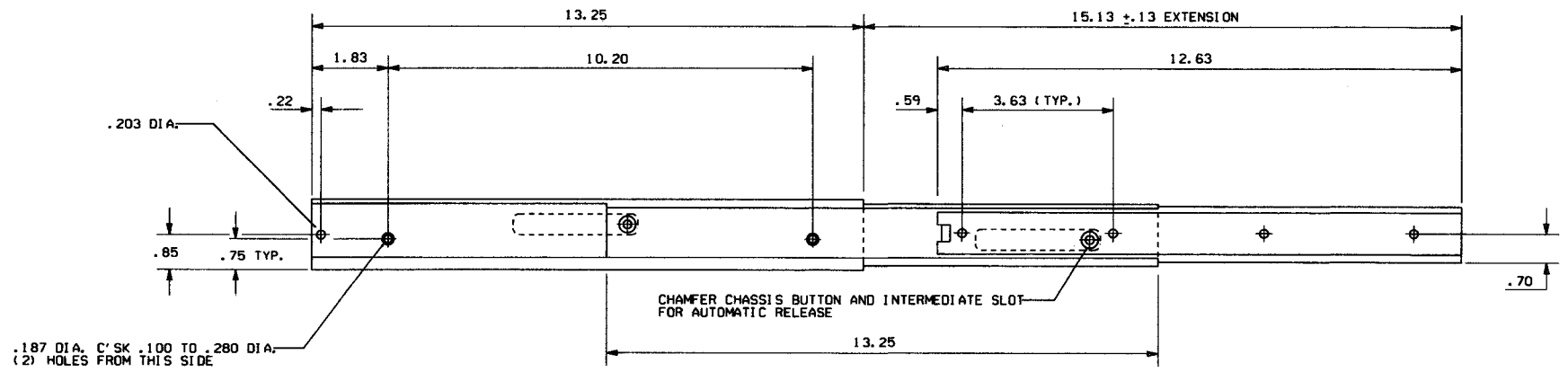
DRAWER PLAN VIEW



- NOTES:  
 1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.  
 2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.  
 3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW

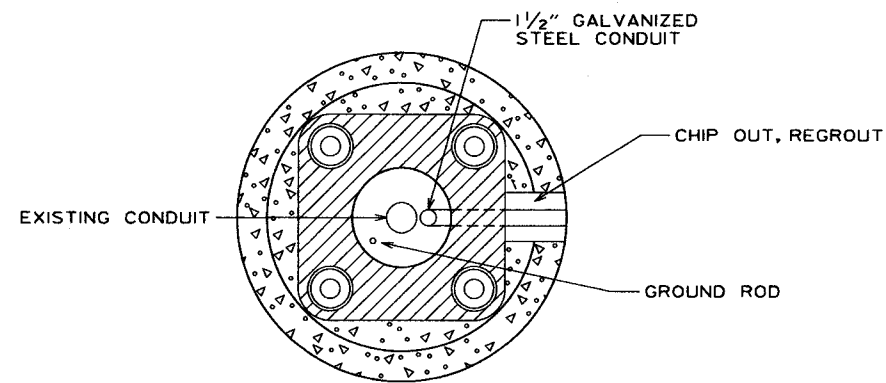


.187 DIA. C'SK .100 TO .280 DIA.  
 (2) HOLES FROM THIS SIDE

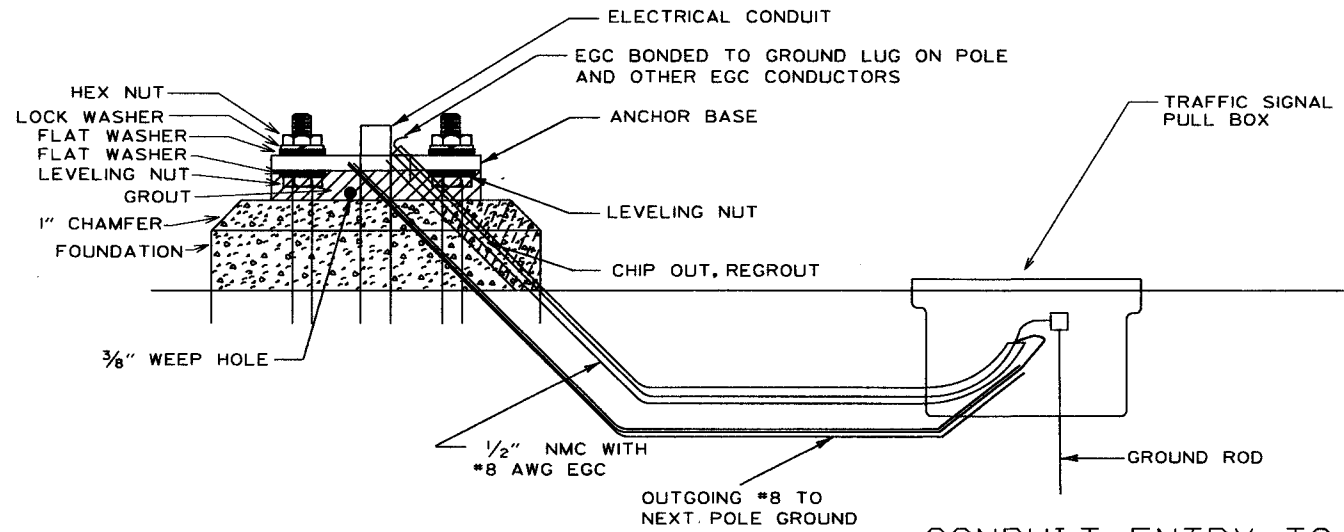
RIGHT SIDE ASSEMBLY

|         |                            |           |                                      |
|---------|----------------------------|-----------|--------------------------------------|
|         |                            |           | ARKANSAS STATE HIGHWAY COMMISSION    |
|         |                            |           | CONTROLLER CABINET<br>UTILITY DRAWER |
| 9-12-13 | ISSUED AS STANDARD DRAWING |           |                                      |
| 6-15-05 | ISSUED                     |           |                                      |
| DATE    | REVISION                   | DATE FILM | STANDARD DRAWING SD-5                |

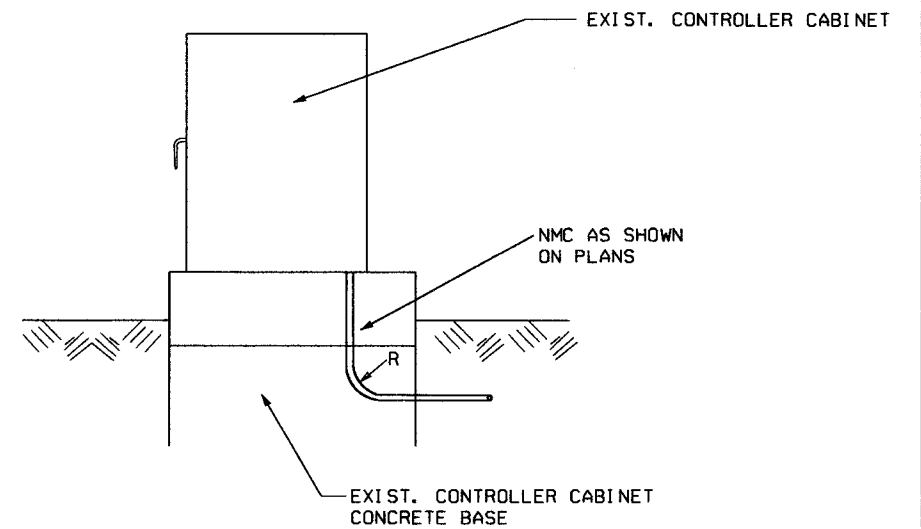
### CONDUIT ENTRY TO EXISTING POLE BASE



### ANCHOR BASE

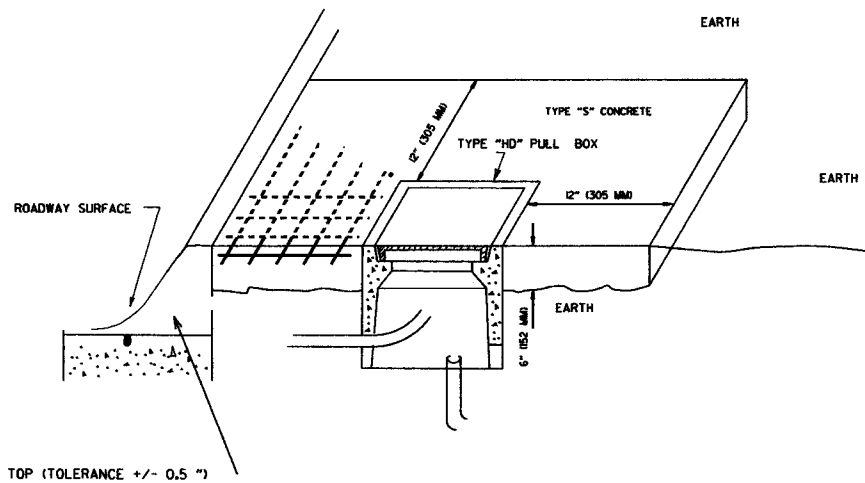


### CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



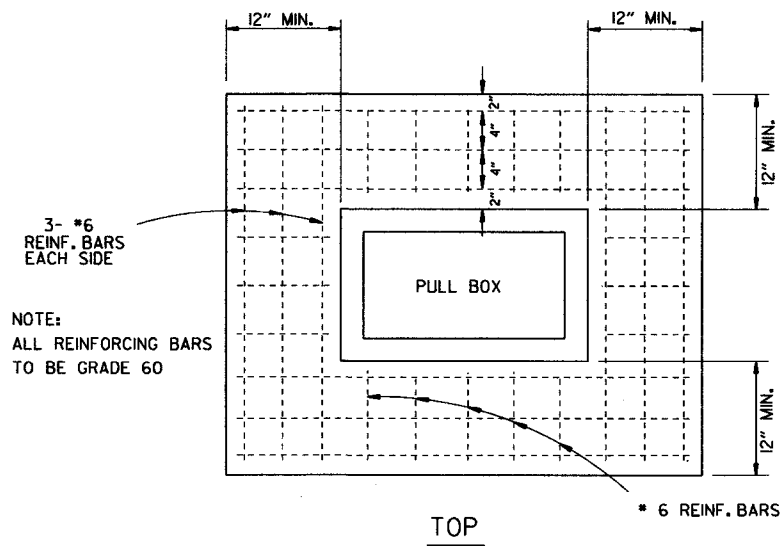
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

### TYPE "HD" CONCRETE PULL BOX DETAIL

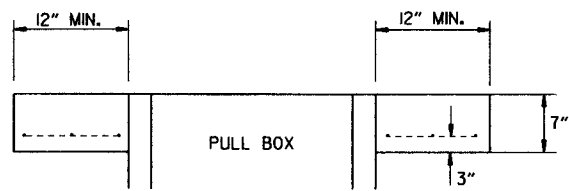


2" CLEAR FROM TOP (TOLERANCE +/- 0.5 ")

NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 6" (152 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

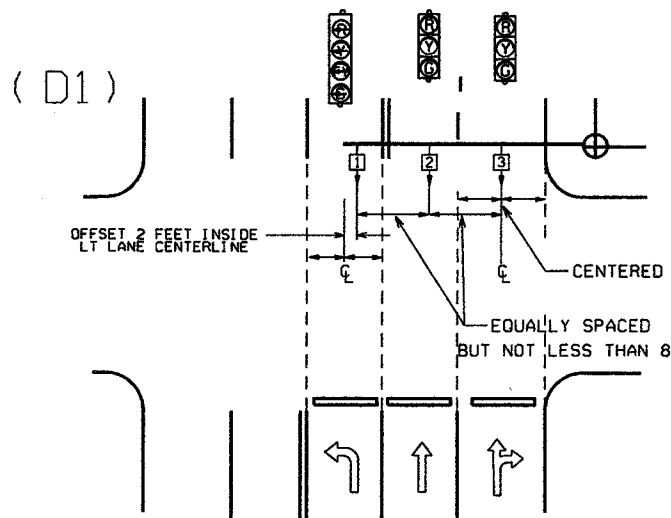
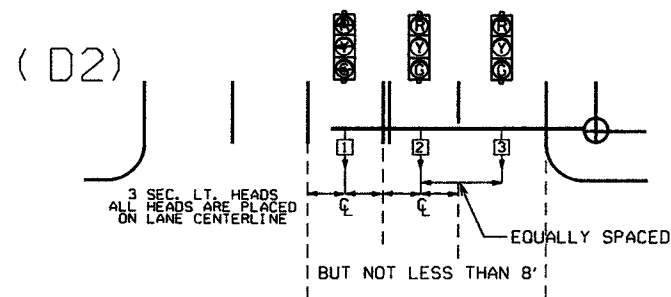
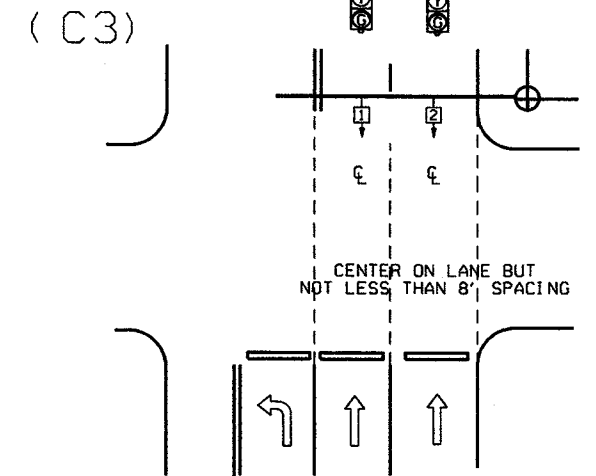
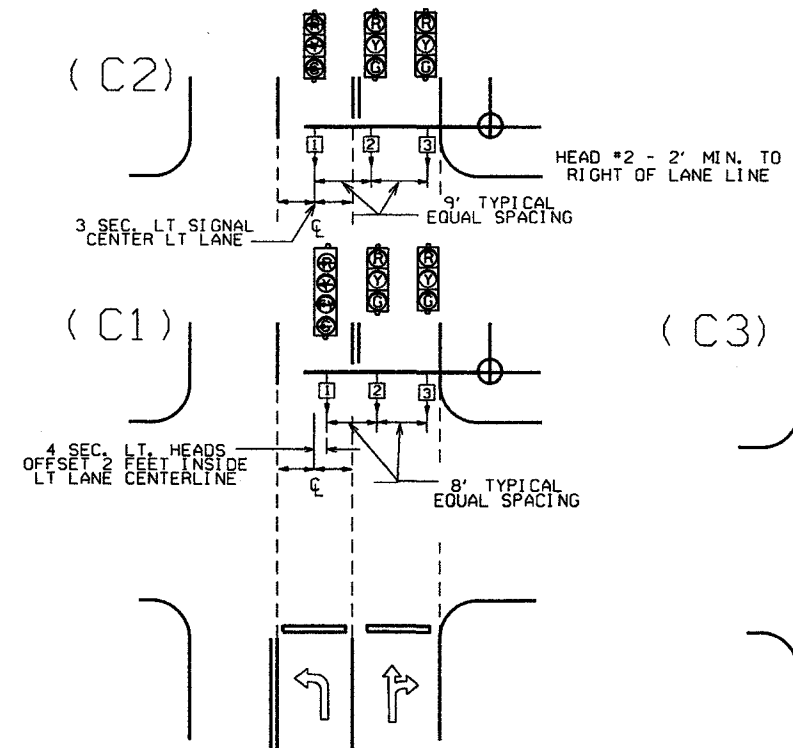
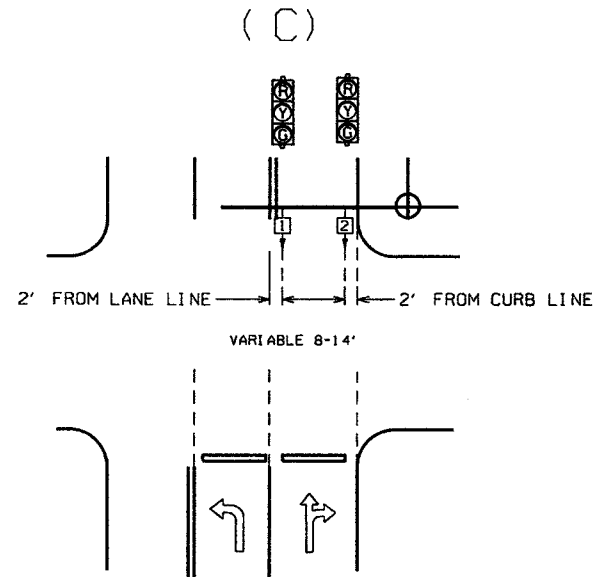
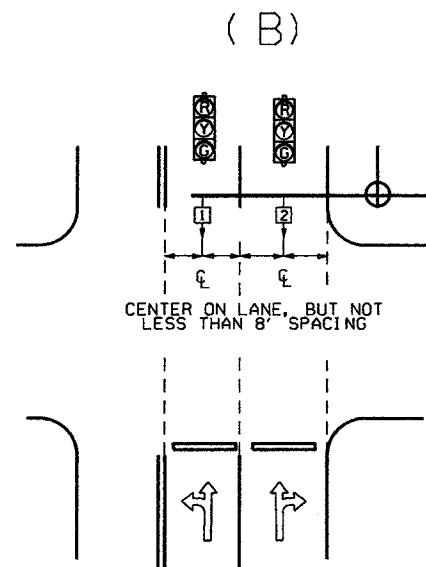
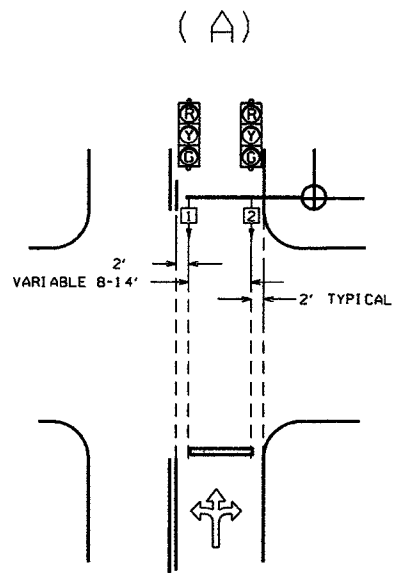


NOTE: ALL REINFORCING BARS TO BE GRADE 60



### ELEVATION

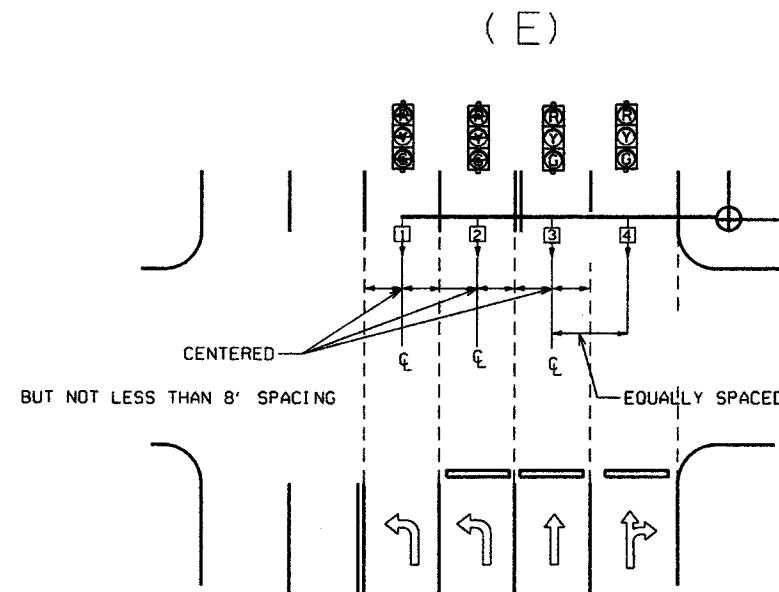
| DATE     | REVISION                        | DATE FILM |                                   |
|----------|---------------------------------|-----------|-----------------------------------|
| 9-12-13  | ISSUED AS STANDARD DRAWING      |           |                                   |
| 5-21-09  | REVISED GROUNDING               |           |                                   |
| 7-31-08  | ADDED & REVISED CONDUIT ENTRY   |           |                                   |
| 6-23-04  | REVISED CLEARANCE AT CURB ENTRY |           |                                   |
| 1-4-02   | ADDED REINFORCING TO BOX APRON  |           |                                   |
| 7-2-01   | REVISED                         |           |                                   |
| 12-27-99 | REVISED NOTES                   |           |                                   |
| 11-18-98 | ISSUED                          |           |                                   |
|          |                                 |           | ARKANSAS STATE HIGHWAY COMMISSION |
|          |                                 |           | HEAVY DUTY PULL BOX               |
|          |                                 |           | STANDARD DRAWING SD-6             |



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS 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 (2') 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(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.
4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.
5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.
6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-5 OF 2009 MUTCD.



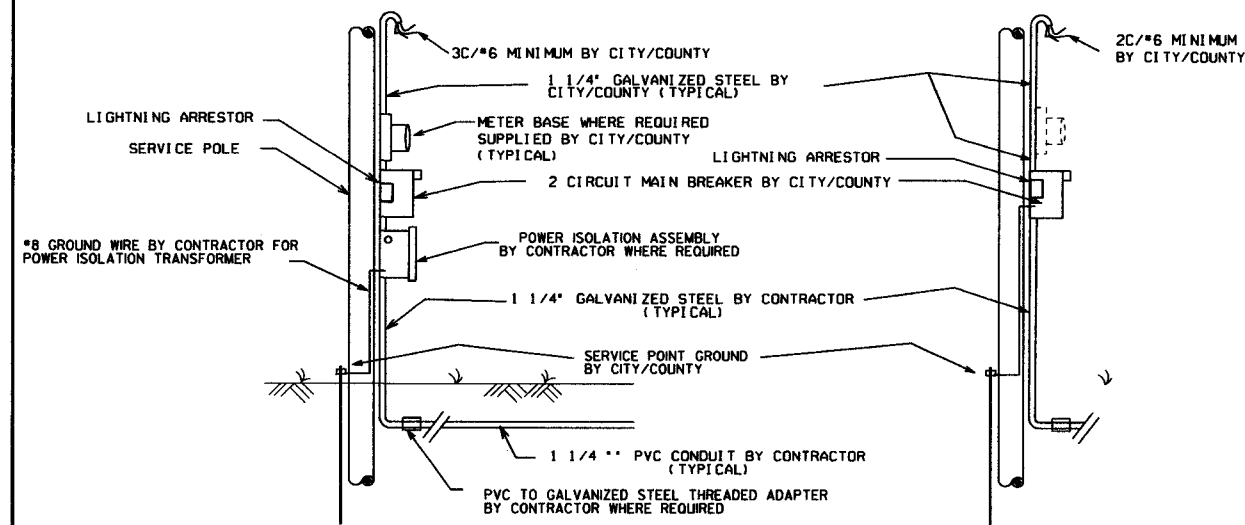
℄ = CENTER OF LANE FROM APPROACH SIDE

|         |                            |           |                                   |
|---------|----------------------------|-----------|-----------------------------------|
| 12-8-16 | REVISED NOTE 6             |           | ARKANSAS STATE HIGHWAY COMMISSION |
| 9-12-13 | ISSUED AS STANDARD DRAWING |           | <b>SIGNAL HEAD PLACEMENT</b>      |
| 3-11-10 | 2009 MUTCD                 |           |                                   |
| 12-9-99 | ISSUED                     |           |                                   |
| DATE    | REVISION                   | DATE FILM | STANDARD DRAWING SD-8             |

# MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

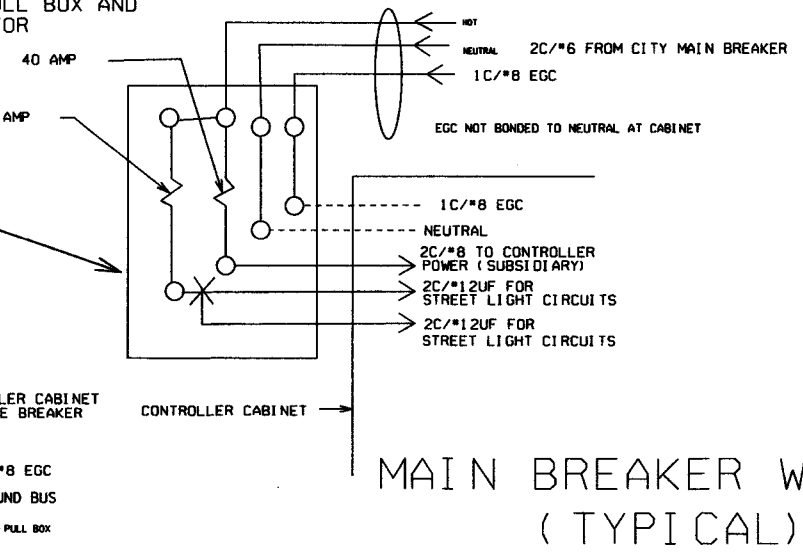
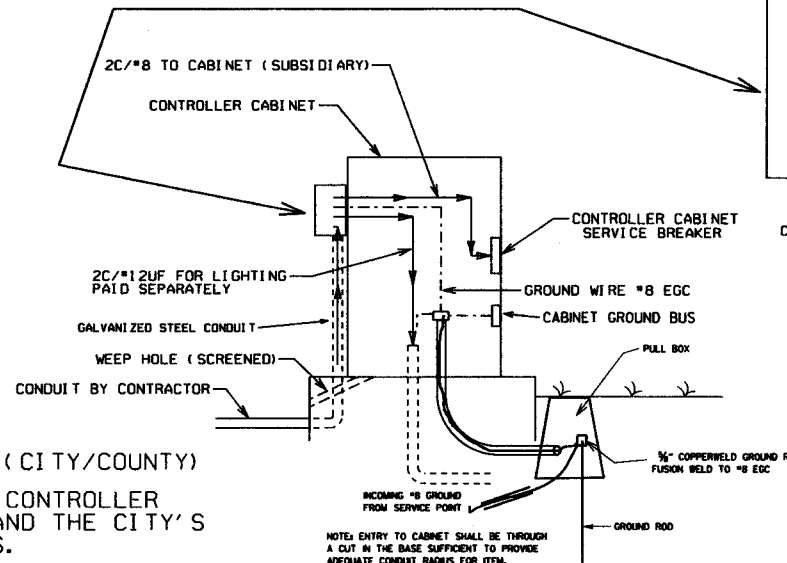
WITH POWER ISOLATION ASSEMBLY

WITHOUT POWER ISOLATION ASSEMBLY



GROUND ROD-A 10' X 3/4" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

## SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



## MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

### NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

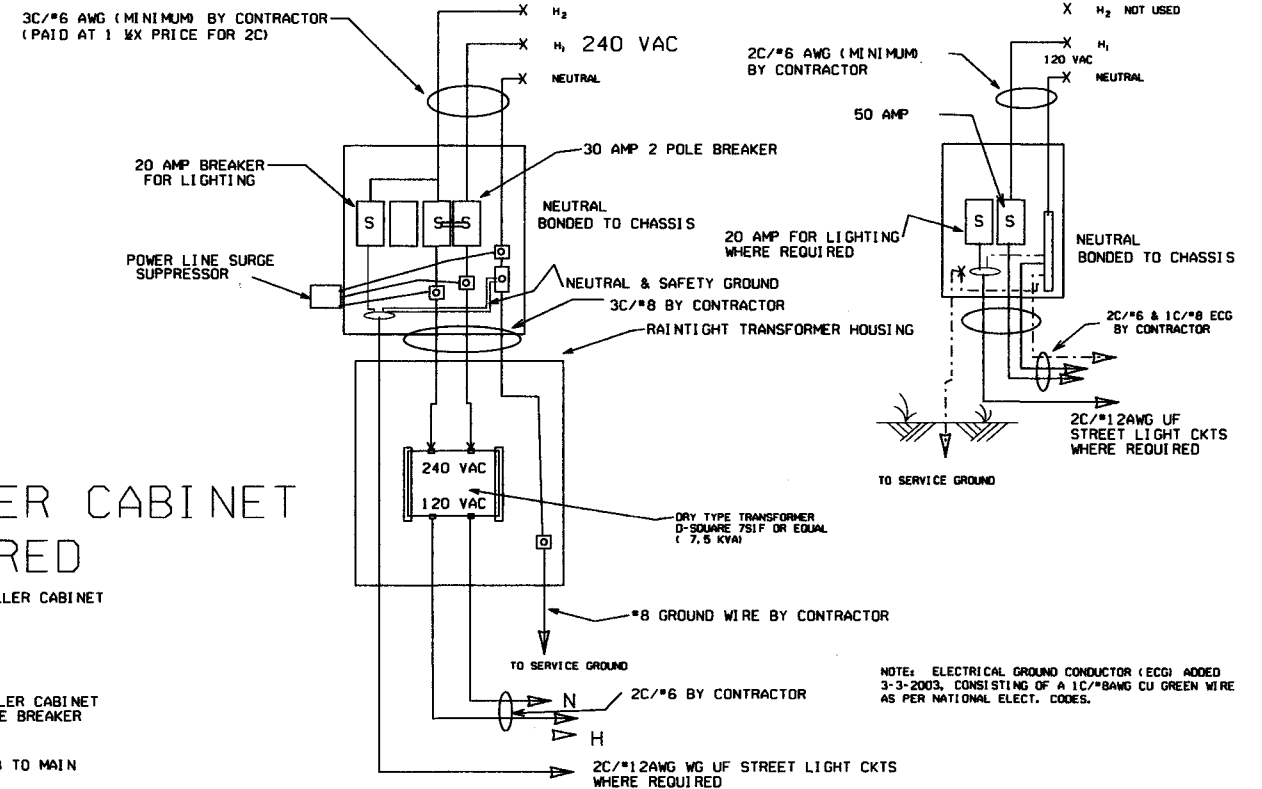
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAIN TIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) 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 AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

2. 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 CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

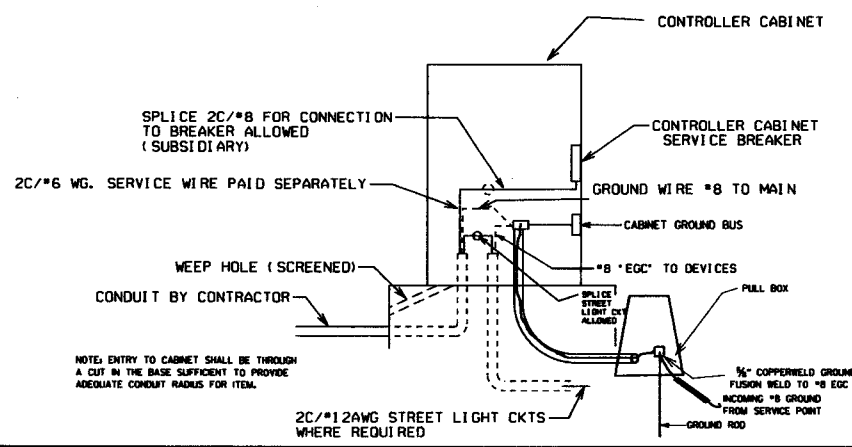
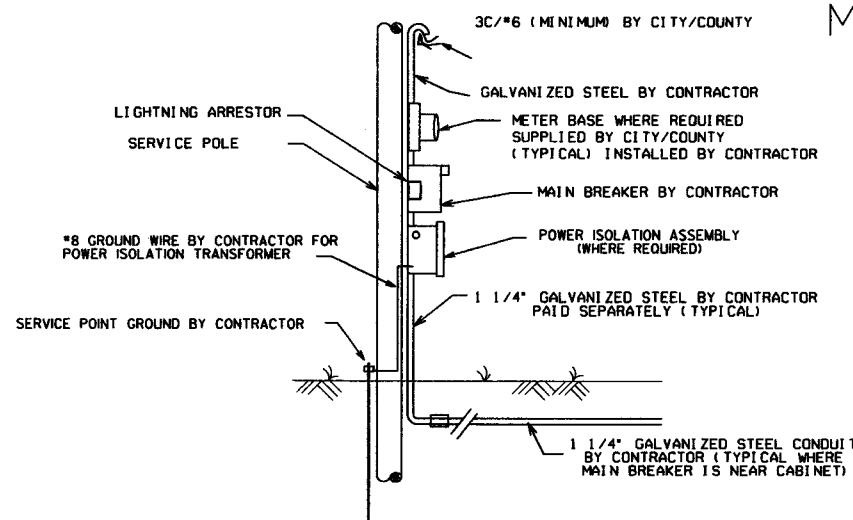
3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

WITH POWER ISOLATION ASSEMBLY  
4 CIRCUIT MAIN BREAKER

WITHOUT POWER ISOLATION ASSEMBLY  
2 CIRCUIT MAIN BREAKER



# MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED



| DATE     | REVISION                   | DATE | FILM |
|----------|----------------------------|------|------|
| 9-12-13  | ISSUED AS STANDARD DRAWING |      |      |
| 4-18-13  | ADDED LIGHTNING ARRESTOR   |      |      |
| 5-21-09  | REVISED GROUNDING          |      |      |
| 7-31-08  | REVISED GROUNDING          |      |      |
| 3-3-03   | ADDED EGC NOTE             |      |      |
| 9-26-01  | REVISED                    |      |      |
| 12-27-99 | REVISED                    |      |      |
| 7-28-99  | REVISED                    |      |      |
| 2-5-99   | ISSUED                     |      |      |

NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:  
EACH ITEM TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY) SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY) TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 723 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:  
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS: DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARGY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL \* 2' X 0' X 2' X 6", 20 LB. REMAINING HEADS SPACED A 8 FT. \* 3 SEC., 56 LB., TWO 5 SEC.:

14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING 2 HEADS FOR ARMS 10 TO 16 FT., 2 HEADS FOR ARMS 10 TO 16 FT., INCLUDING LB. 3 HEADS FOR 18 TO 24 FT. ARMS, 4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) \* VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

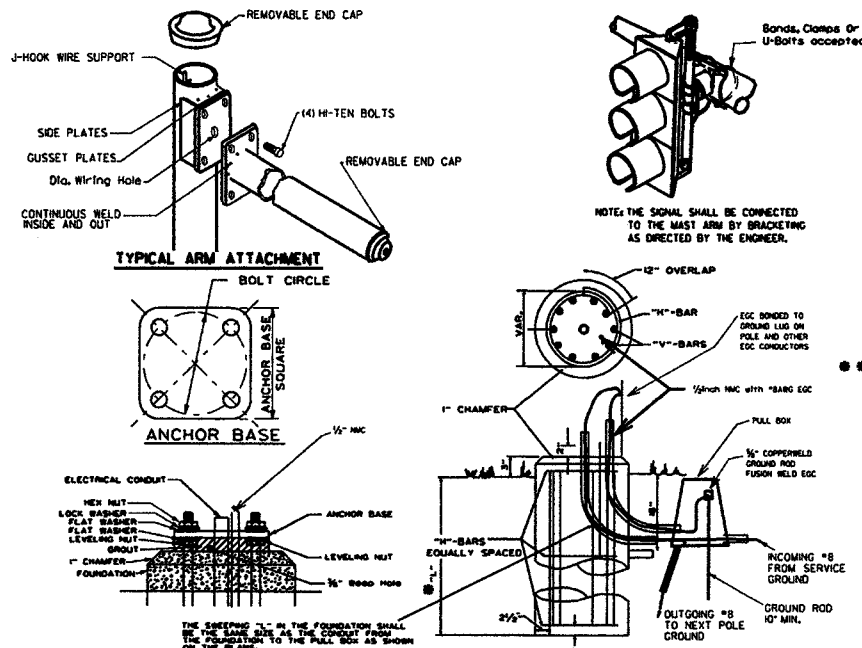
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLE WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.

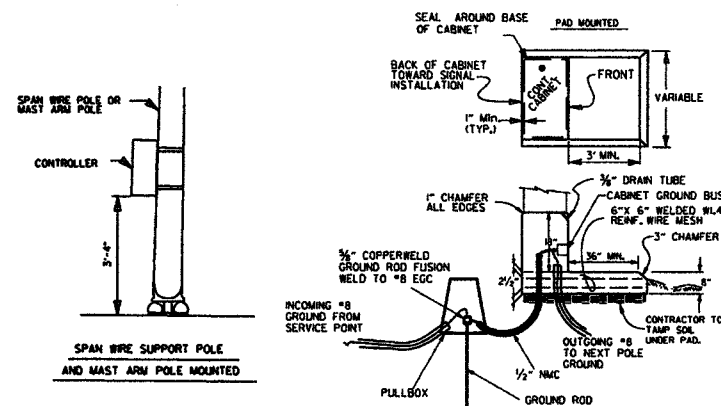


THE GROUND ROD SHALL BE FUSION WELDED TO A 1/2" #8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

| ARM LENGTH            | FDN. DIAMETER | DEPTH *L* | STEEL          |       |       |
|-----------------------|---------------|-----------|----------------|-------|-------|
|                       |               |           | VERT.          | HORZ. | O/C.  |
| PED                   | 30"           | 7'-0"     | 12-*7 (8'-6")  | 10-*4 | 8.44' |
| 2' to 12'             | 30"           | 10'-6"    | 12-*7 (10'-0") | 15-*4 | 8.42' |
| over 12' to 20'       | 30"           | 11'-6"    | 12-*7 (11'-0") | 16-*4 | 8.66' |
| over 20' to 35'       | 36"           | 12'-6"    | 13-*8 (12'-0") | 17-*4 | 8.88' |
| over 35' to 50'       | 36"           | 13'-6"    | 13-*8 (13'-0") | 19-*4 | 8.56' |
| over 50' to 72'       | 42"           | 14'-6"    | 18-*8 (14'-0") | 20-*4 | 8.74' |
| Twins to 20'          | 30"           | 16'-0"    | 12-*6 (15'-6") | 22-*4 | 8.76' |
| Twins over 20' to 44' | 36"           | 16'-0"    | 13-*8 (15'-6") | 22-*4 | 8.76' |
| Twins over 44' to 50' | 42"           | 16'-0"    | 18-*8 (15'-6") | 22-*4 | 8.76' |
| Twins over 50' to 72' | 42"           | 16'-6"    | 18-*8 (16'-0") | 23-*4 | 8.64' |



CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS 'S' OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS 'S' OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

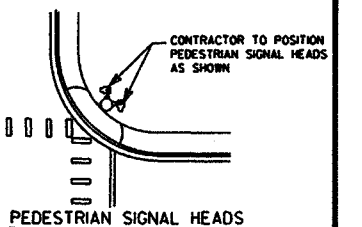
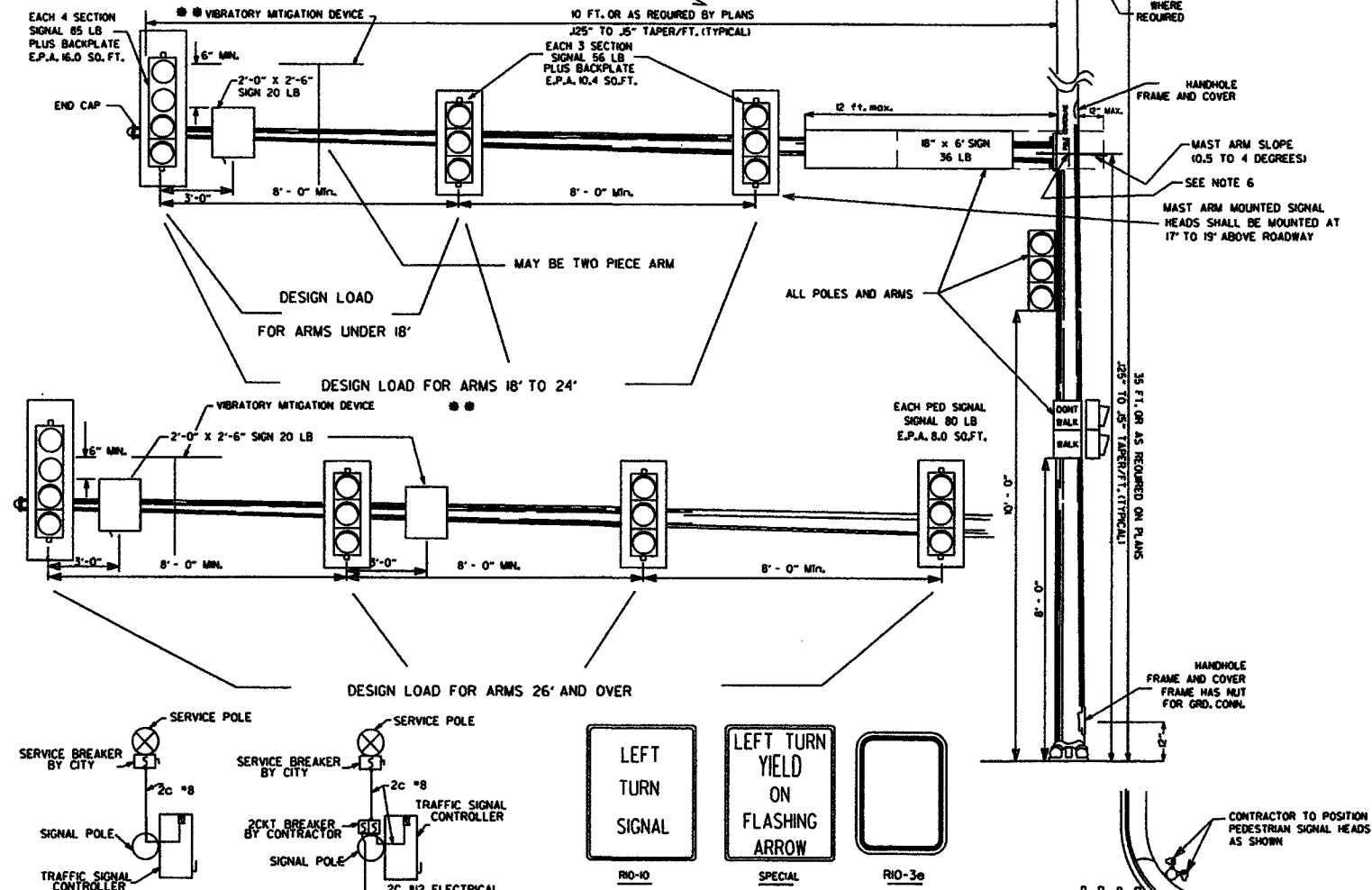
FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 704 OF THE STANDARD SPECIFICATIONS.

IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

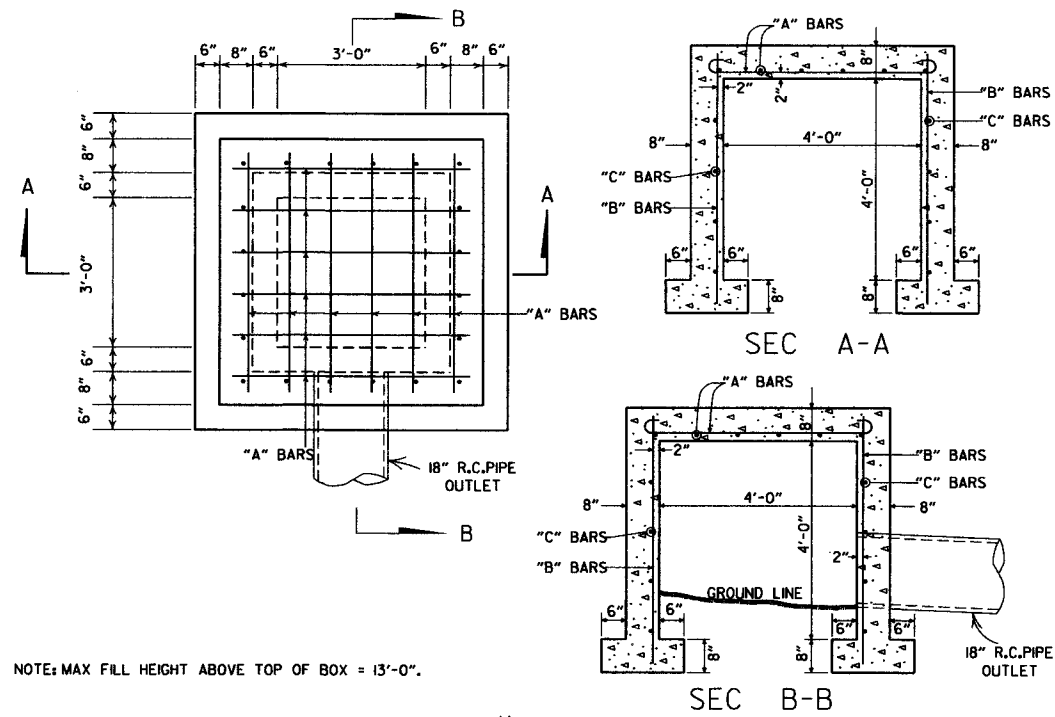


| DATE     | REVISION                                  | DATE FILED |
|----------|---|------------|
| 12-8-16  | REVISED NOTES                             |            |
| 2-27-14  | REVISED NOTES                             |            |
| 9-12-13  | ISSUED AS STANDARD DRAWING                |            |
| 7-21-11  | REVISED WIND SIGNAL HEADS                 |            |
| 5-21-09  | REVISED GROUNDING                         |            |
| 7-3-08   | REVISED GROUNDING                         |            |
| 4-25-08  | ADDED VIBRATORY MITIGATION DEVICE & NOTES |            |
| 4-18-08  | REVISED AASHTO NOTES                      |            |
| 4-17-08  | REVISED TO 2000 AASHTO STANDARDS          |            |
| 10-12-04 | REVISED CABINET ORIENTATION               |            |
| 6-23-04  | REVISED                                   |            |
| 5-8-04   | REV. NOTE 3/AASHTO REQUIREMENTS           |            |
| 6-8-01   | REV. NOTES & POLE MAST ARM SLOPE          |            |
| 4-8-01   | REVISED POLE TAPERS                       |            |
| 4-25-00  | REV. NOTES & SIGNAL HEAD PLACEMENT        |            |
| 1-22-99  | REVISED FOUNDATION DETAILS                |            |
| 8-17-98  | REVISED DETAILS AND NOTES                 |            |
| 8-2-95   | ISSUED                                    |            |

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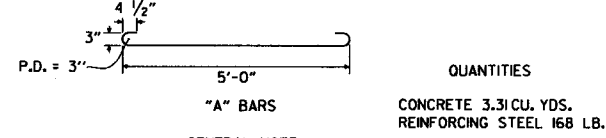
STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-II

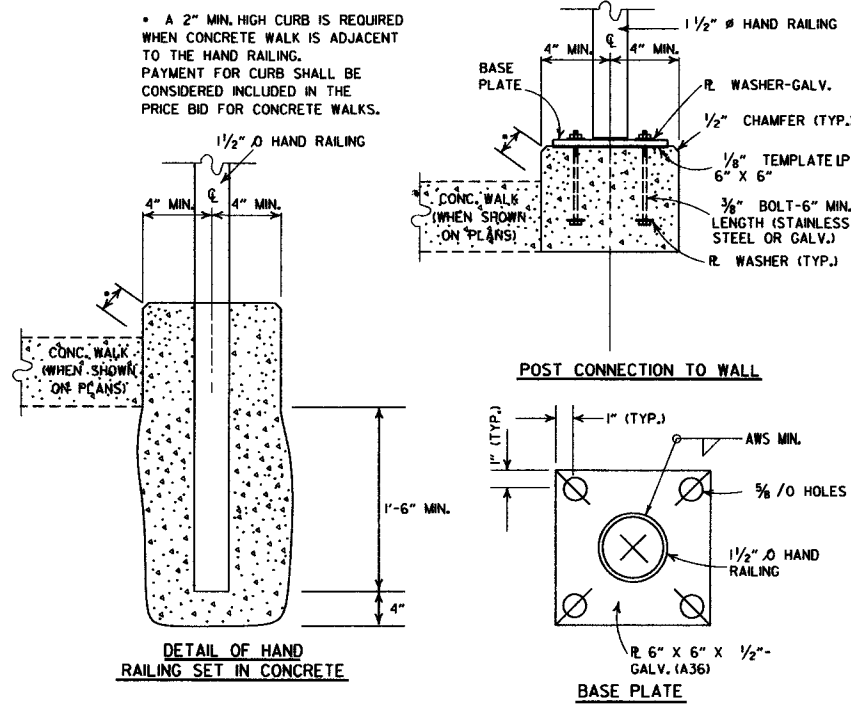
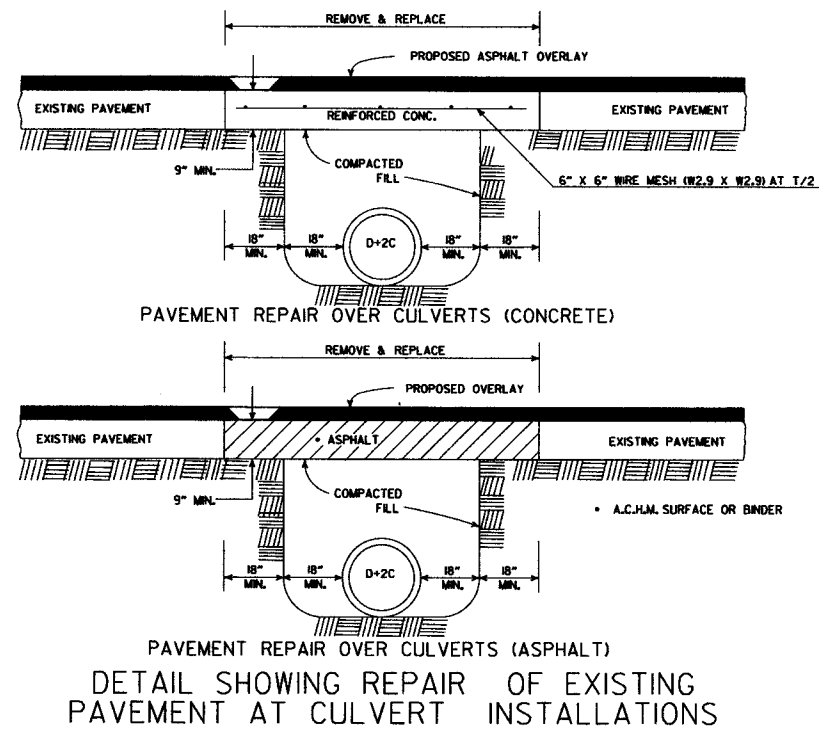


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

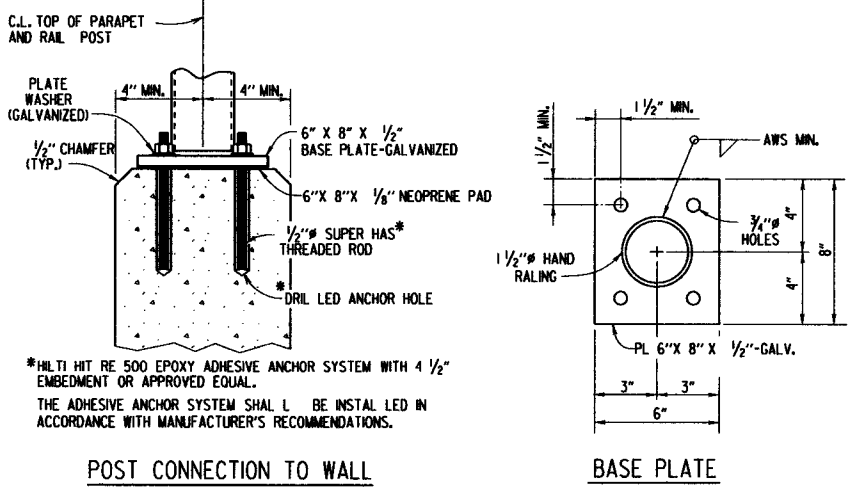
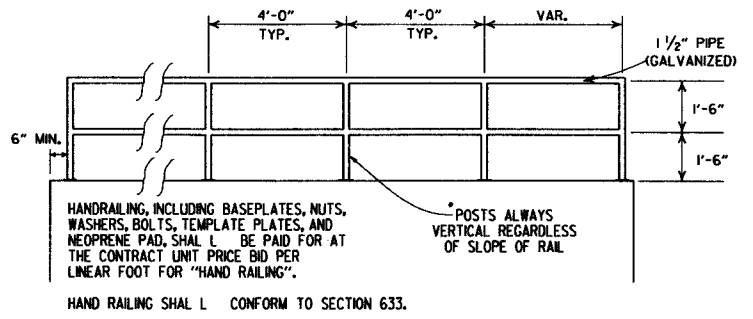
| STEEL SCHEDULE |        |        |         |
|----------------|--------|--------|---------|
| BARS           | NUMBER | LENGTH | SPACING |
| "A"            | 12     | 6'-0"  | 10"     |
| "B"            | 20     | 5'-0"  | 10 1/2" |
| "C"            | 16     | 5'-0"  | 12"     |



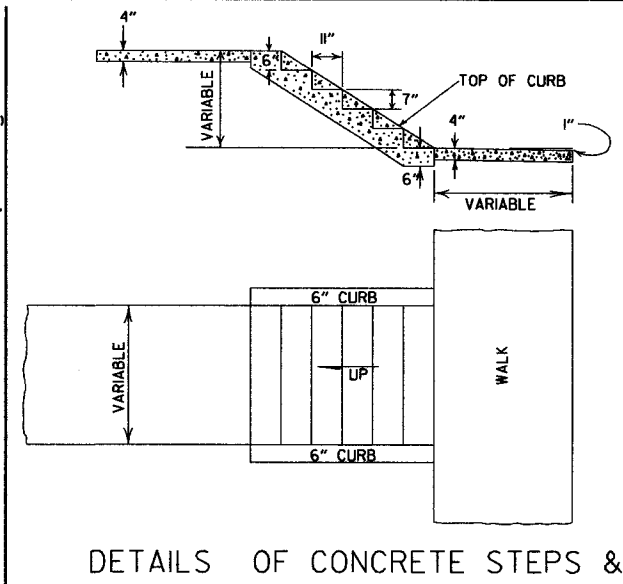
REINFORCED CONCRETE SPRING BOX



POST CONNECTION DETAILS



DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS) HAND RAILING DETAILS



DETAILS OF CONCRETE STEPS & WALKS

- GENERAL NOTES
1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
  2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

| DATE     | REVISION  | DATE FILMED     |
|----------|---|-----------------|
| 9-12-13  | REVISED REINFORCED CONCRETE SPRING BOX  |                 |
| 7-26-12  | REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS                 |                 |
| 4-17-08  | REV. JOINT & FOOTING STEP DETAILS   |                 |
| 11-29-07 | REVISED RETAINING WALL DRAINAGE   |                 |
| 5-25-06  | REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX  |                 |
| 10-9-03  | REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS                          |                 |
| 4-10-03  | REVISED RETAINING WALL DRAWING  |                 |
| 8-22-02  | ADDED HAND RAILING DETAIL   |                 |
| 11-16-01 | REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES |                 |
| 11-18-98 | ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS                                 |                 |
| 7-02-98  | ENLARGED PIPE   |                 |
| 4-03-97  | ADDED NOTE TO STEEL BAR SCHED.  |                 |
| 10-18-96 | CORRECTED SPELLING  |                 |
| 4-26-96  | ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL                                |                 |
| 6-2-94   | CHANGED CONST. TO CONTRACTION JOINT   |                 |
| 10-1-92  | CHANGED MESH FABRIC TO WIRE MESH  | 10-1-92         |
| 8-15-91  | DELETED HDWL MODIFICATION DETAIL  | 8-15-91         |
| 11-8-90  | DELETED COLD MIX FROM CULV'T. REPAIR  | 11-8-90         |
| 11-30-89 | REV. RETAINING WALL STEEL SCHEDULE  | 11-30-89        |
| 11-17-88 | V. BARS BEHIND ARROW  | 665-11-17-88    |
| 7-15-88  | REV. PAVEMENT REPAIR  | 649-7-15-88     |
| 11-1-84  | ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS                                       |                 |
| 1-4-83   | REV. TRENCH FOR PIPE UNDERDRAIN   | 510-11-1-84     |
| 3-2-81   | ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE                                   | 682-1-4-83      |
| 3-2-81   | SPELLING OF "UNDERDRAIN"  | 721-3-2-81      |
| 4-20-79  | REV. UNDERDRAIN DET & PAVEMENT REPAIR   | 674-4-20-79     |
| 2-2-76   | 12" MIN. GRAN. MAT'L. OVER PIPE   | 919-2-2-76      |
| 4-10-75  | REM. SPECS. FOR GRAN. MAT'L.  | 568-4-10-75-853 |
| 5-22-74  | GRANULAR MAT'L. TO BE SB-3  | 567-5-22-74-740 |
| 10-2-72  | REVISED AND REDRAWN   | 564-10-16-72    |

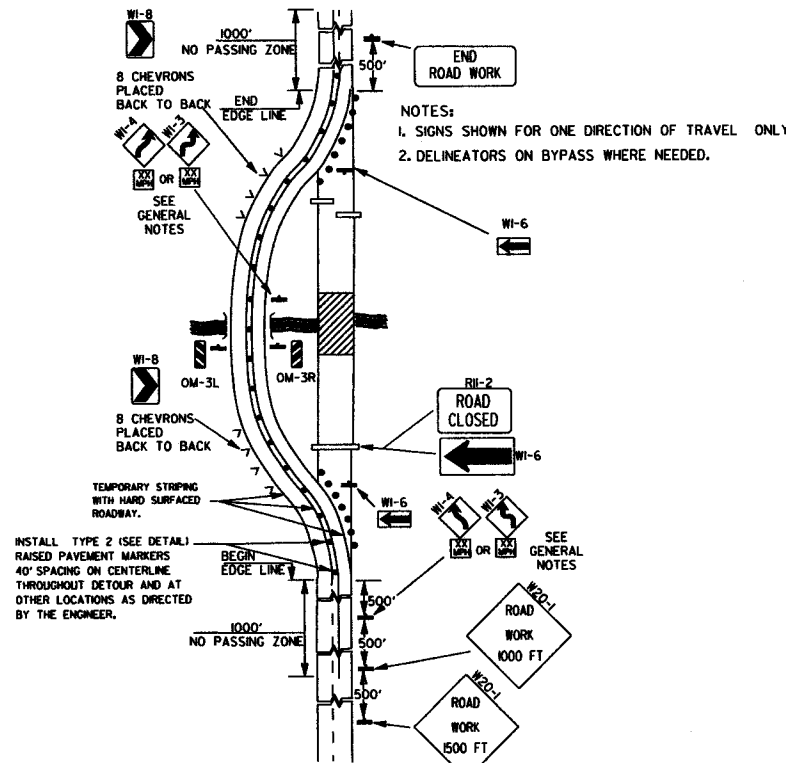
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

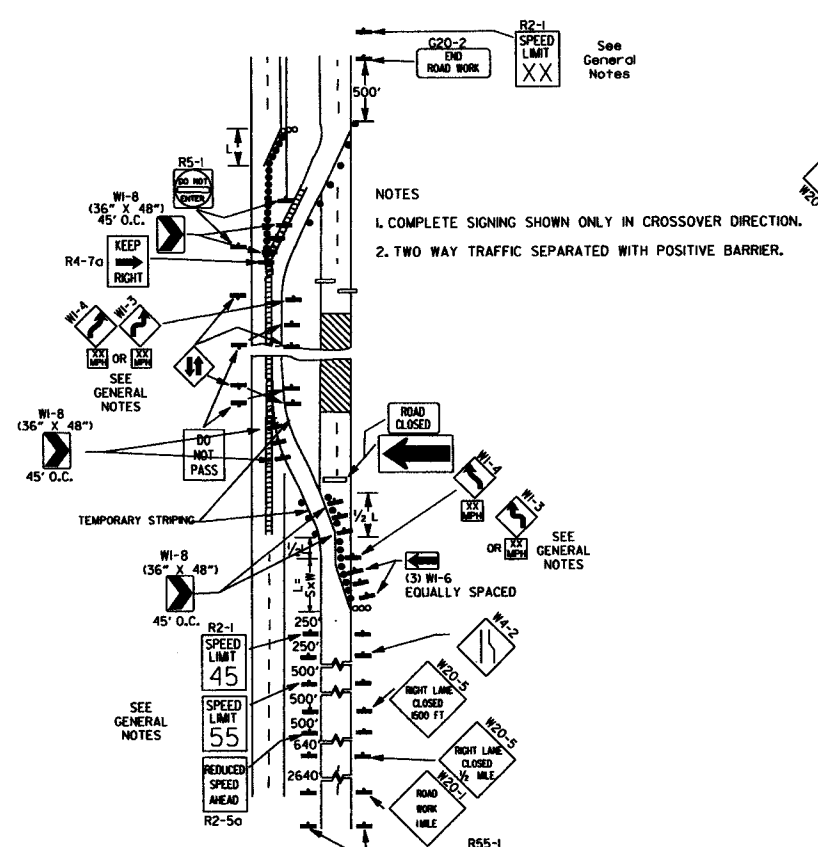
STANDARD DRAWING SI-1



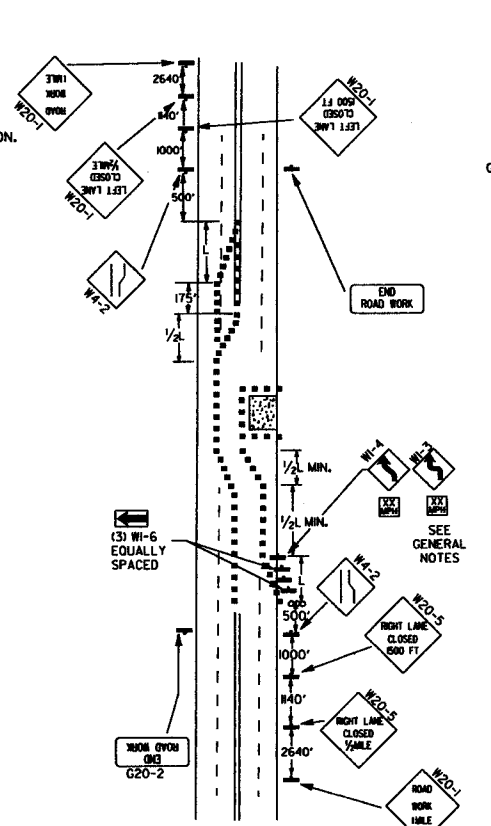




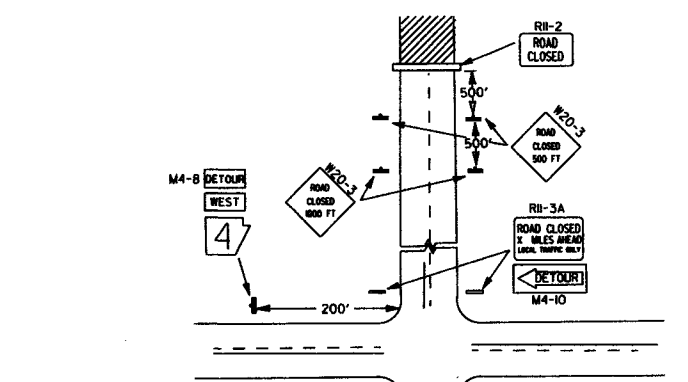
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



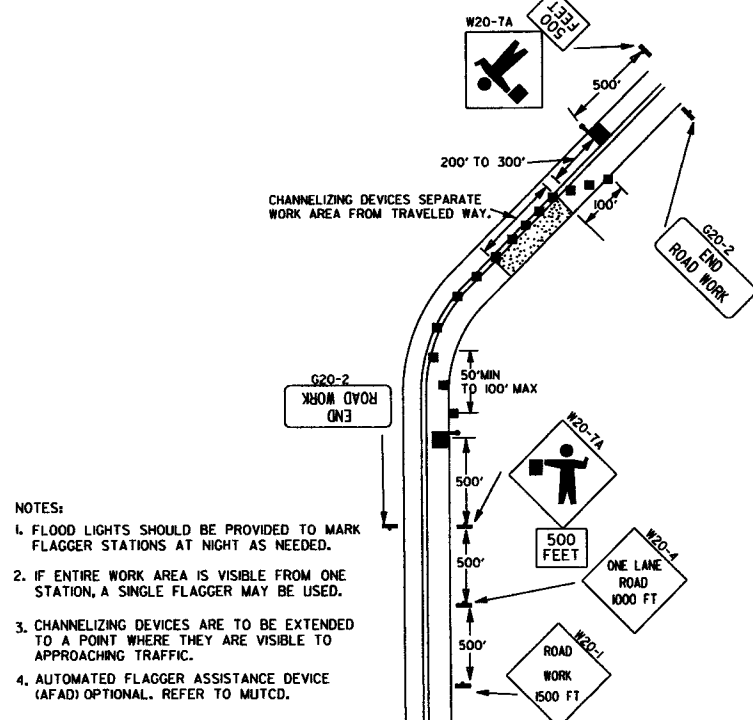
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



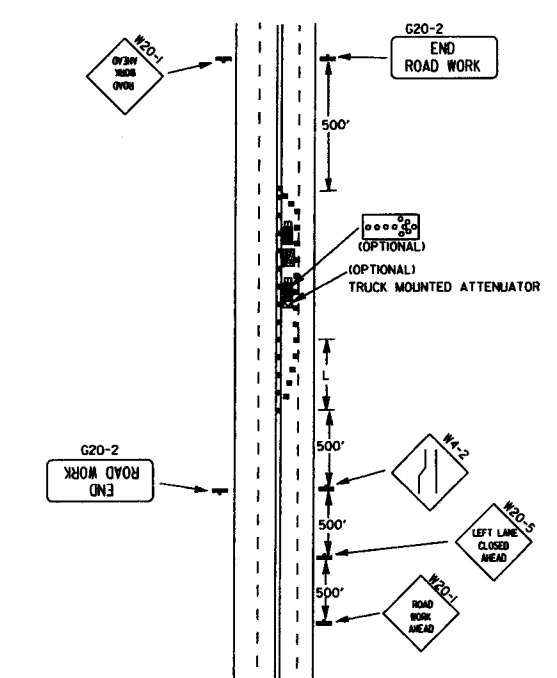
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



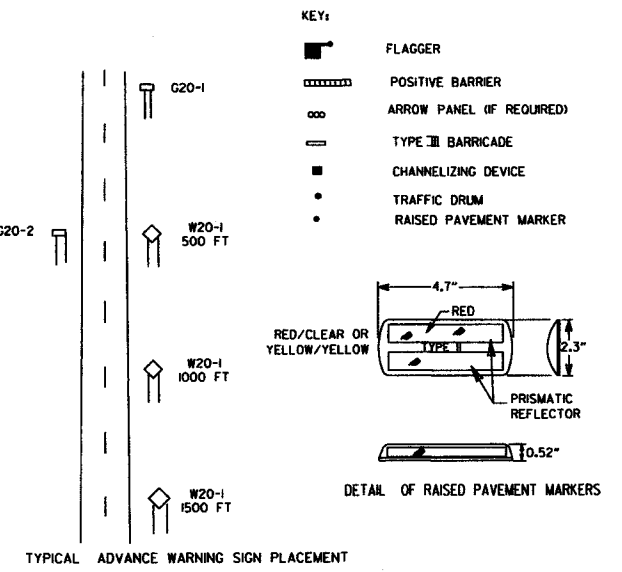
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

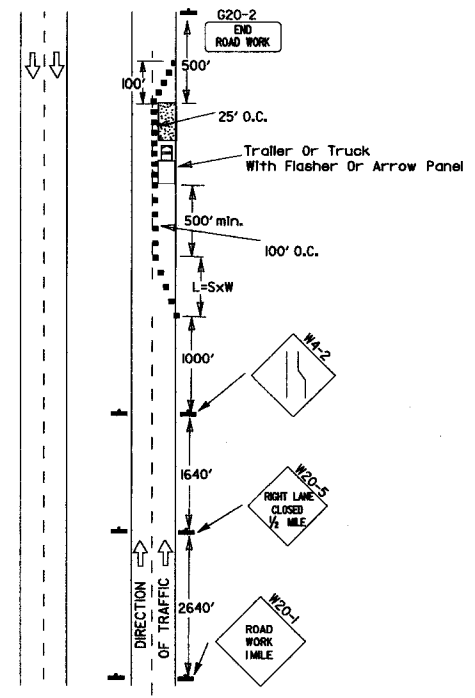


TAPER FORMULAE:  
 $L = SXW$  FOR SPEEDS OF 45MPH OR MORE.  
 $L = \frac{WS^2}{60}$  FOR SPEEDS OF 40MPH OR LESS.  
 WHERE:  
 L = MINIMUM LENGTH OF TAPER.  
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.  
 W = WIDTH OF OFFSET.

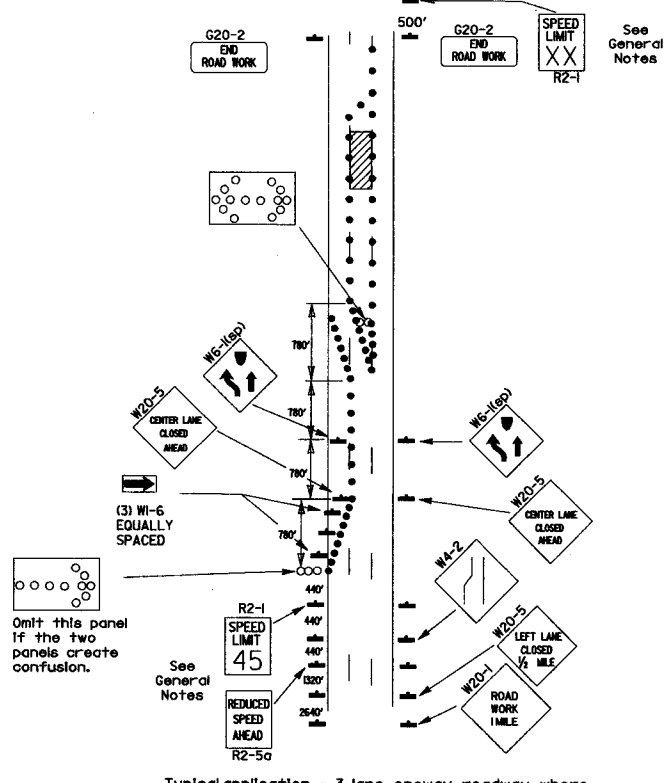
- GENERAL NOTES:  
 1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.  
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45) SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.  
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55) SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.  
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.  
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.  
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.  
 7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.

| DATE     | REVISION                                  | FILMED |
|----------|---|--------|
| 9-12-13  | REVISED DETAIL OF RAISED PAVEMENT MARKERS |        |
| 3-8-10   | ADDED (AFAD)                              |        |
| 11-20-08 | REVISED SIGN DESIGNATIONS                 |        |
| 11-18-04 | ADDED GENERAL NOTE                        |        |
| 10-18-96 | ADDED R55-1                               |        |
| 4-26-96  | CORRECTED (G) BEHIND G20-2                |        |
| 6-8-95   | CORRECTED SIGN IDENT. ON W1-4A            | 6-8-95 |
| 2-2-95   | REVISED PER PART VL MUTCD, SEPT. 3, 1993  |        |
| 8-15-91  | DRAWN AND PLACED IN USE                   |        |

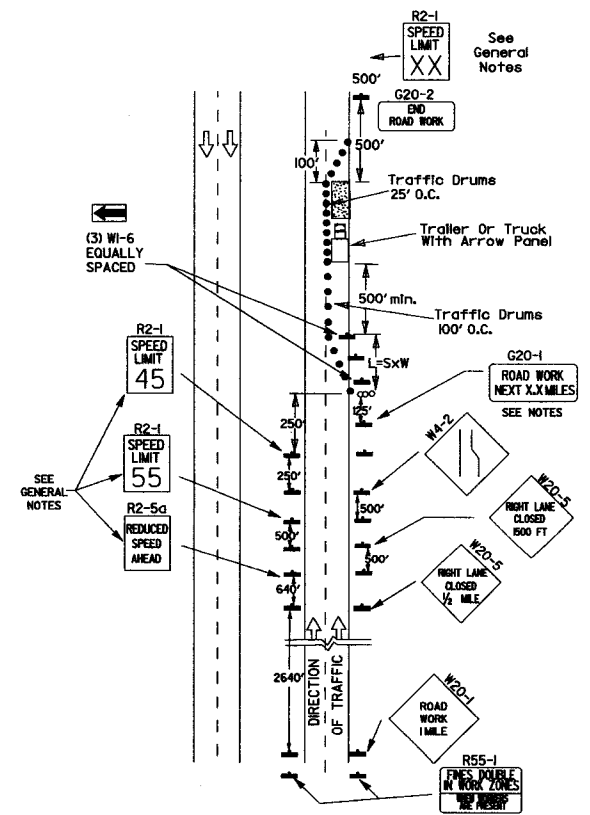
ARKANSAS STATE HIGHWAY COMMISSION  
 STANDARD TRAFFIC CONTROLS  
 FOR HIGHWAY CONSTRUCTION  
 STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

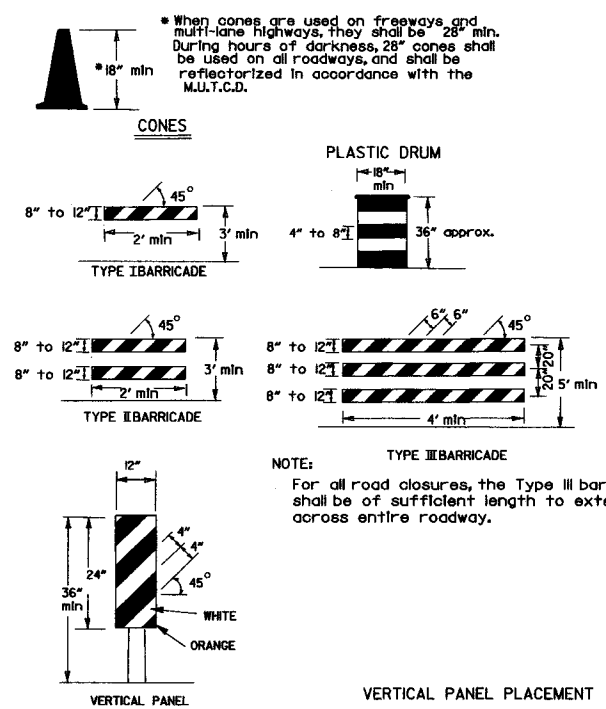


(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

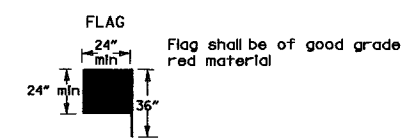
Channelizing devices



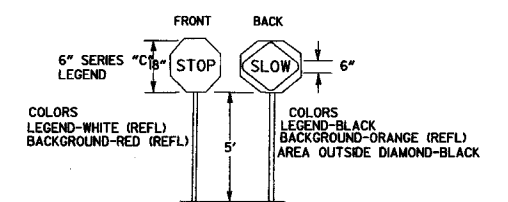
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

| VERTICAL DIFFERENTIAL | LOCATIONS              | TRAFFIC CONTROL                                       |
|-----------------------|------------------------|---|
| 1" to 3"              | Centerline, lane lines | W8-II   |
| 1" to 3"              | Edge of shoulder       | W8-9  |
| Greater than 3"       | Lane lines             | Standard lane closure required                        |
| Greater than 3"       | Edge of traveled lane  | *RSP-I and vertical panels, drums or concrete barrier |
| Greater than 3"       | Edge of shoulder       | *Vertical panels, drums or concrete barrier           |

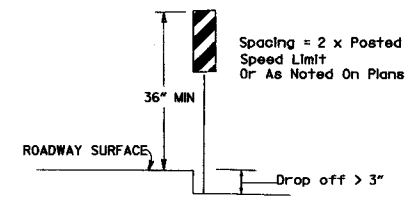
\* When shown on the plans concrete barrier will be used.  
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



STOP SLOW PADDLE



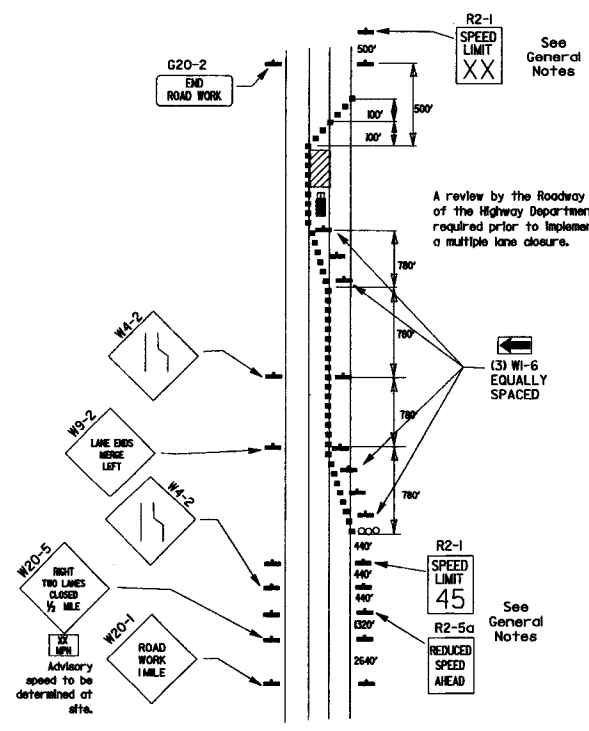
VERTICAL PANEL PLACEMENT



- KEY:
- Arrow Panel (if Required)
  - Channelizing Device
  - Traffic drum

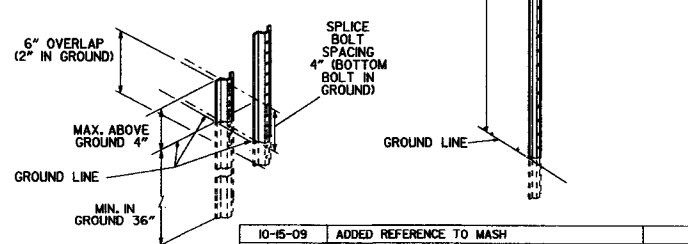
GENERAL NOTES:

- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
- When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5a shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
- Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
- Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
- The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
- Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
- All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
- Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



(D) Typical application - closing multiple lanes of a multilane highway.

NOTES:  
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)  
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.  
SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

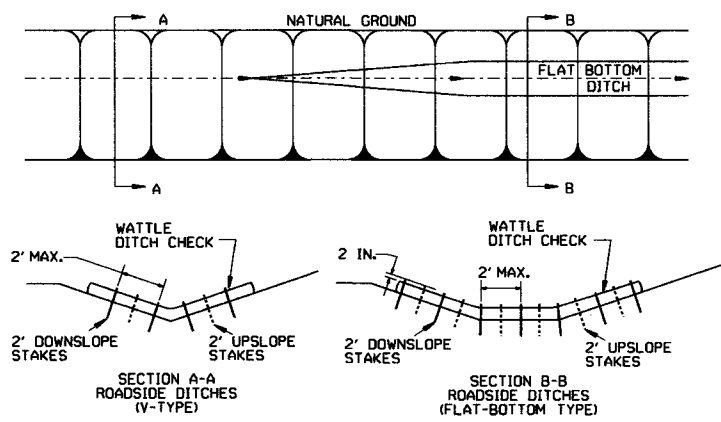


| DATE     | REVISION  | FILED  |
|----------|---|--------|
| 10-15-09 | ADDED REFERENCE TO MASH                                   |        |
| 11-20-08 | REVISED SIGN DESIGNATIONS                                 |        |
| 8-18-04  | ADDED NOTE  |        |
| 10-1-98  | ADDED NOTE  |        |
| 4-03-97  | ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE |        |
| 10-18-96 | ADDED R55-1   |        |
| 10-12-95 | MOVED UPPER SPLICE  |        |
| 6-8-95   | REVISED SPLICE DETAIL, TEXT                               | 6-8-95 |
| 2-2-95   | REVISED PER PART VI, MUTCD, SEPT. 3, 1993                 |        |
| 8-15-91  | DRAWN AND PLACED IN USE                                   |        |

ARKANSAS STATE HIGHWAY COMMISSION  
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION  
STANDARD DRAWING TC-3

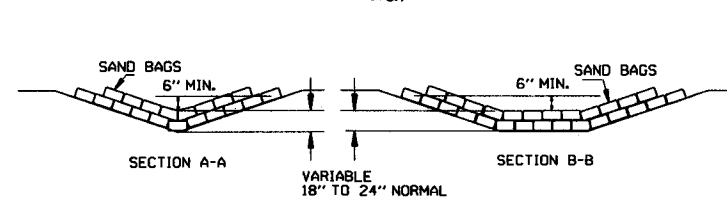
GENERAL NOTES

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

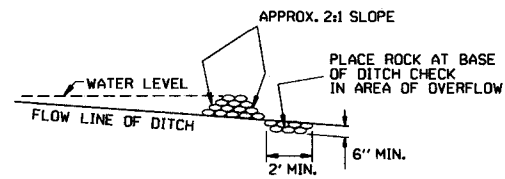


WATTLE DITCH CHECK (E-1)

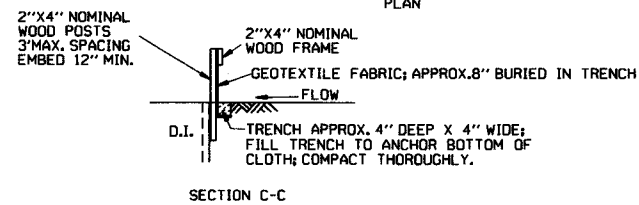
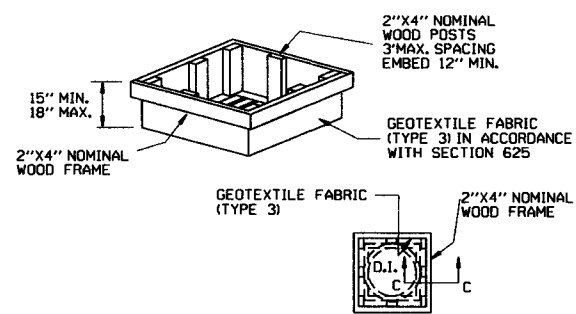
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.



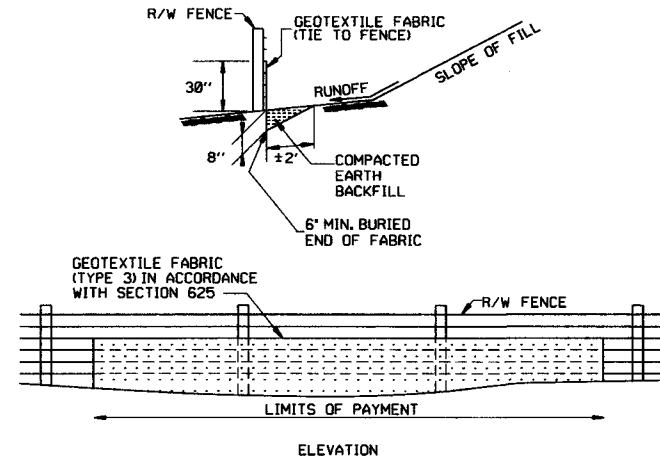
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



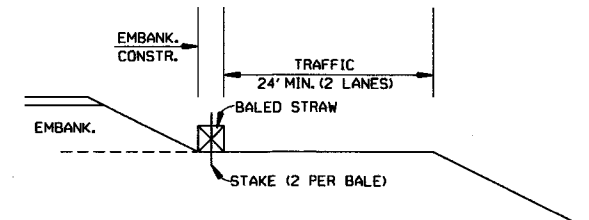
DROP INLET SILT FENCE (E-7)



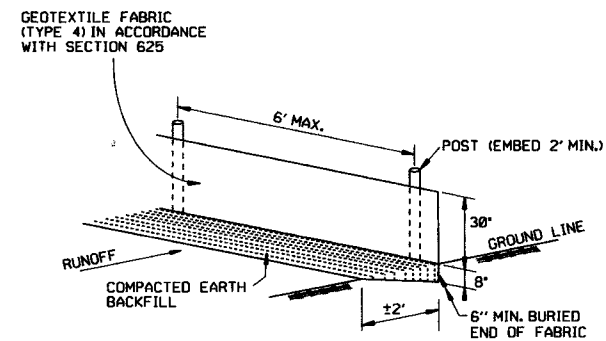
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES  
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

- GENERAL NOTES
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
  2. NO GAPS SHALL BE LEFT BETWEEN BALES.
  3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



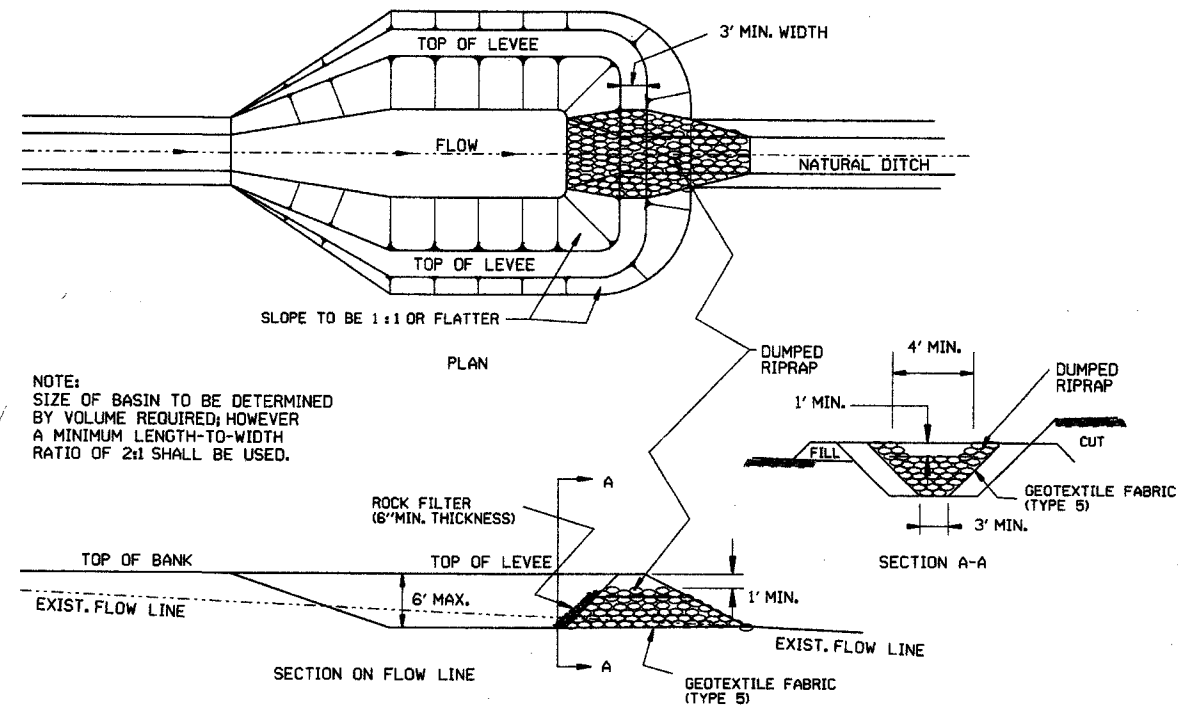
BALED STRAW FILTER BARRIER (E-2)



SILT FENCE (E-11)

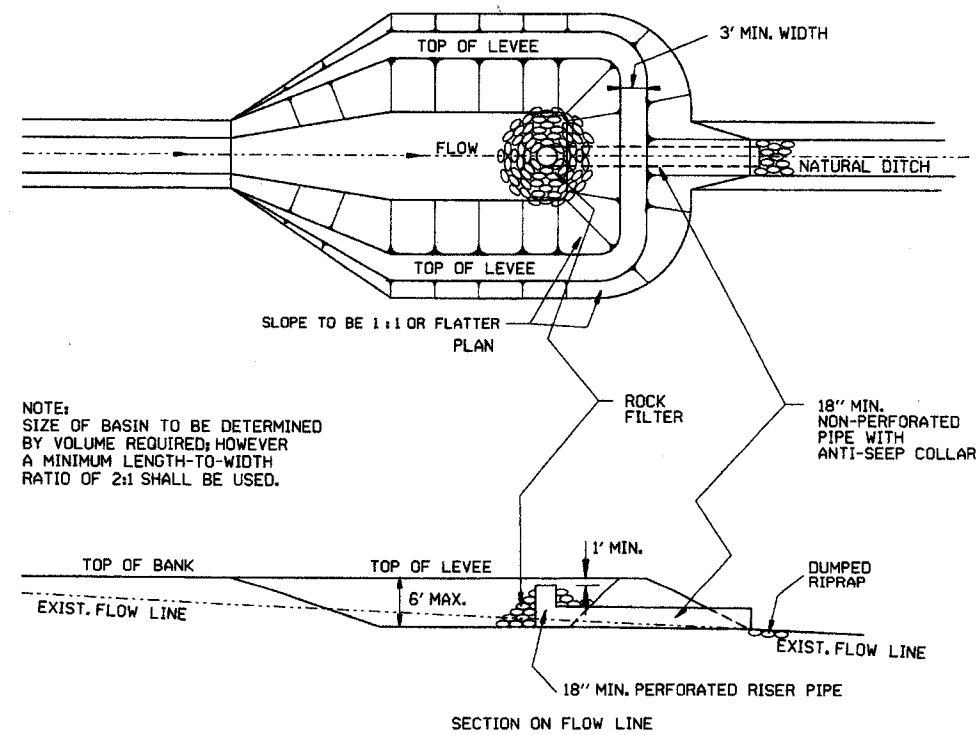
GENERAL NOTES  
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

|          |  |             |                                   |
|----------|--|-------------|-----------------------------------|
| 12-15-11 | DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK |             | ARKANSAS STATE HIGHWAY COMMISSION |
| 11-18-98 | ADDED NOTES  |             |                                   |
| 7-02-98  | ADDED BALED STRAW FILTER BARRIER (E-2)                     |             |                                   |
| 7-20-95  | REVISED SILT FENCE E-4 AND E-11                            | 7-20-95     |                                   |
| 7-15-94  | REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC              |             |                                   |
| 6-2-94   | REVISED E-1, 4, 7 & 11; DELETED E-2 & 3                    | 6-2-94      |                                   |
| 4-1-93   | REDRAWN  |             |                                   |
| 10-1-92  | REDRAWN  |             |                                   |
| 8-2-76   | ISSUED R.D.M.  | 298-7-28-76 |                                   |
| DATE     | REVISION   | FILMED      | STANDARD DRAWING TEC-1            |



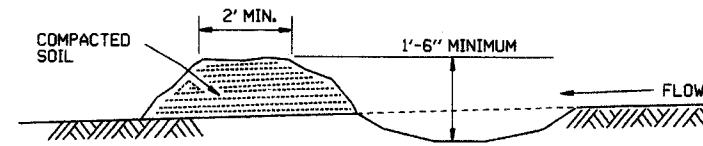
NOTE:  
 SIZE OF BASIN TO BE DETERMINED  
 BY VOLUME REQUIRED; HOWEVER  
 A MINIMUM LENGTH-TO-WIDTH  
 RATIO OF 2:1 SHALL BE USED.

SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

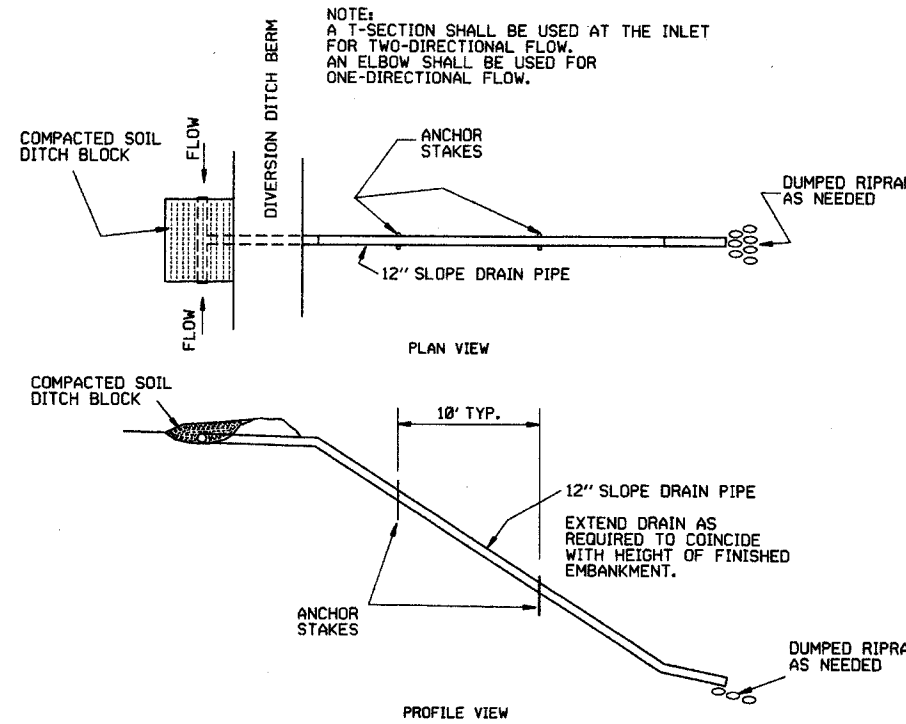


NOTE:  
 SIZE OF BASIN TO BE DETERMINED  
 BY VOLUME REQUIRED; HOWEVER  
 A MINIMUM LENGTH-TO-WIDTH  
 RATIO OF 2:1 SHALL BE USED.

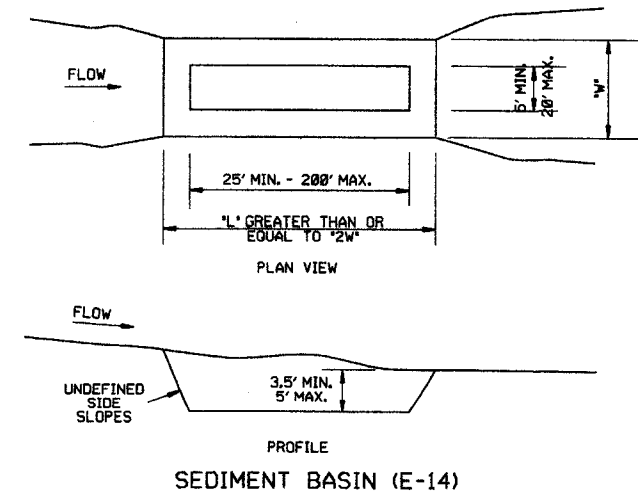
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

|        |   |        |
|--------|---|--------|
| DATE   | REVISION                                      | FILMED |
| 6-2-94 | Revised E-8 & E-12; Added E-14 & Deleted E-13 |        |
| 4-1-93 | ISSUED  |        |

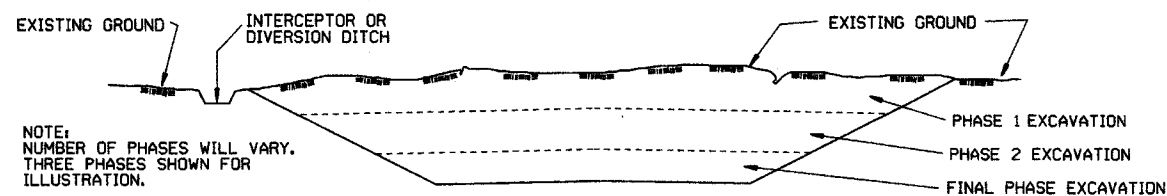
ARKANSAS STATE HIGHWAY COMMISSION  
 TEMPORARY EROSION  
 CONTROL DEVICES  
 STANDARD DRAWING TEC-2

## CLEARING AND GRUBBING

### CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES, DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

## EXCAVATION



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

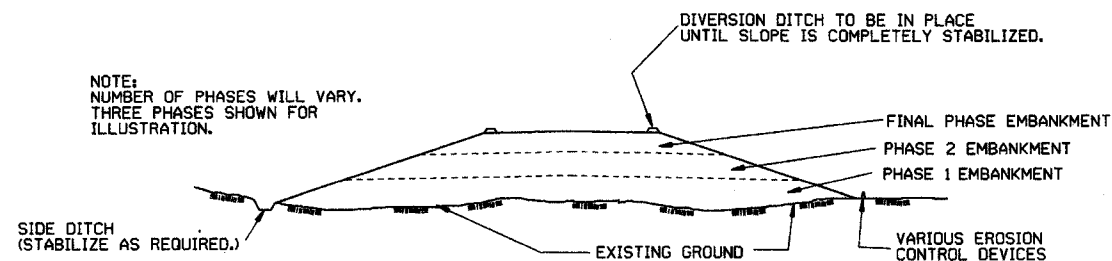
### GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN 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, CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

## EMBANKMENT



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

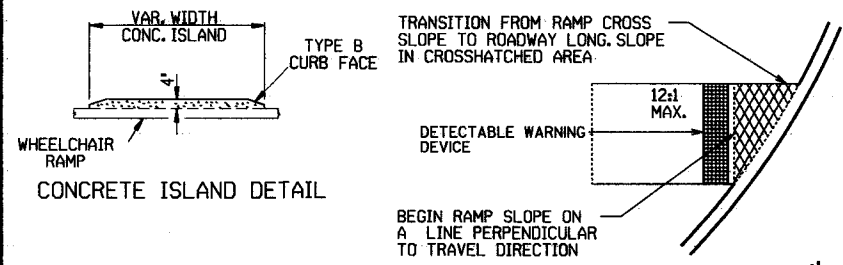
### GENERAL NOTE

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

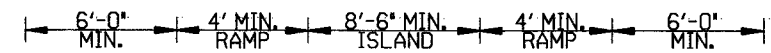
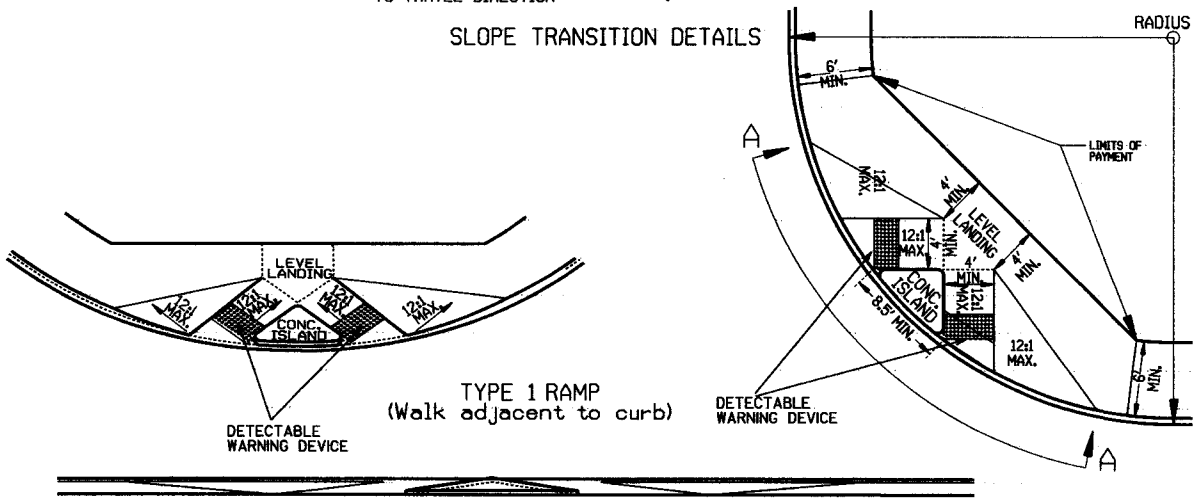
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

|          |                    |                                   |        |
|----------|--------------------|-----------------------------------|--------|
|          |                    | ARKANSAS STATE HIGHWAY COMMISSION |        |
|          |                    | TEMPORARY EROSION CONTROL DEVICES |        |
| 11-03-94 | CORRECTED SPELLING |                                   |        |
| 6-2-94   | Drawn & Issued     |                                   | 6-2-94 |
| DATE     | REVISION           |                                   | FILMED |
|          |                    | STANDARD DRAWING TEC-3            |        |

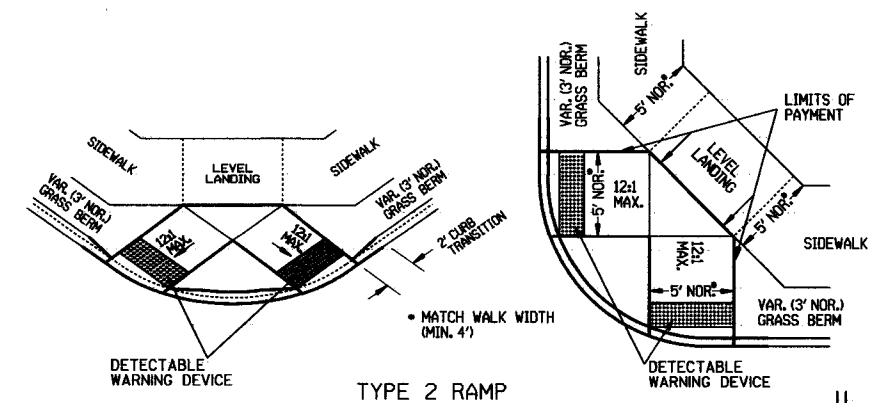


BEGIN RAMP SLOPE ON A LINE PERPENDICULAR TO TRAVEL DIRECTION

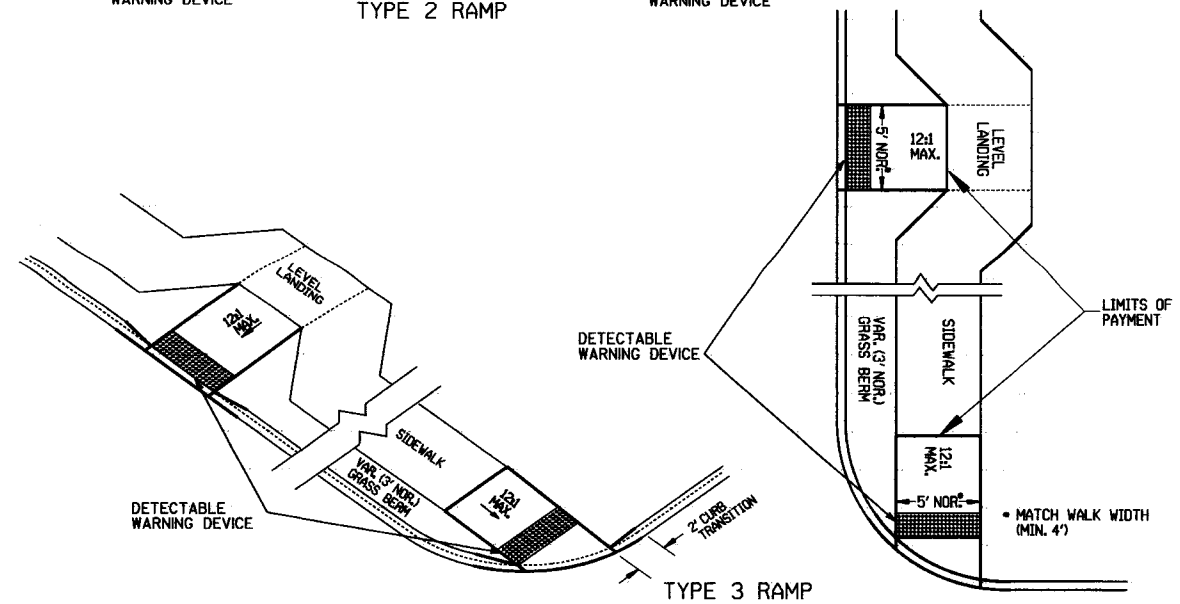
SLOPE TRANSITION DETAILS



SECTION A-A



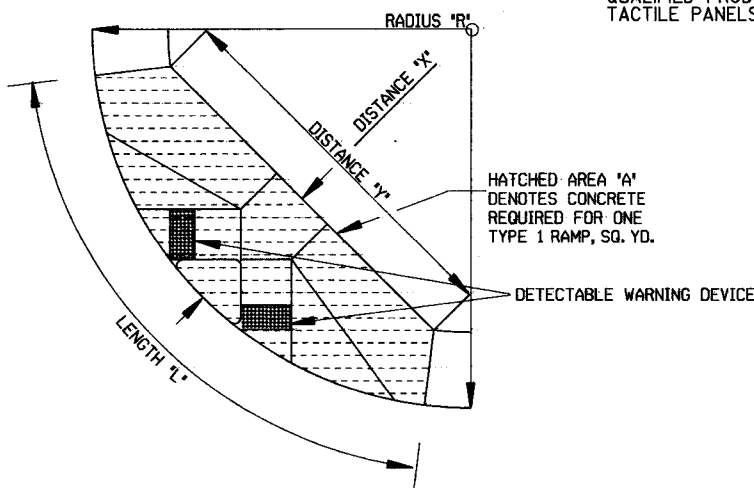
TYPE 2 RAMP



TYPE 3 RAMP

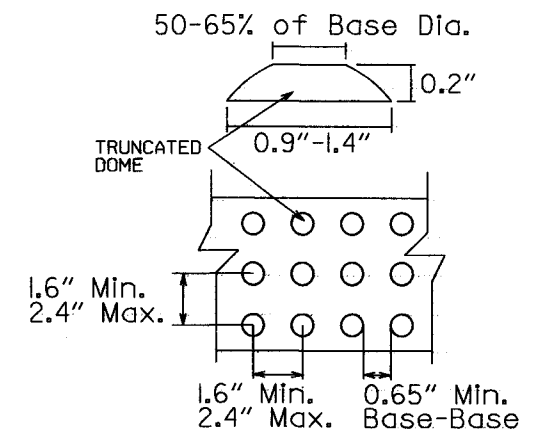
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

| RADIUS 'R' | DISTANCE 'x' | DISTANCE 'y' | LENGTH 'L' | RAMP AREA 'A' |
|------------|--------------|--------------|------------|---------------|
| FEET       | FEET         | FEET         | FEET       | SQ. YD.       |
| 15         | 11.67        | 18.82        | 32.18      | 26.21         |
| 20         | 11.52        | 22.28        | 35.46      | 30.07         |
| 25         | 11.43        | 26.60        | 38.77      | 33.80         |
| 30         | 11.37        | 30.26        | 40.93      | 36.90         |
| 35         | 11.33        | 33.51        | 43.11      | 39.77         |
| 40         | 11.30        | 36.45        | 45.26      | 42.45         |
| 45         | 11.27        | 39.16        | 47.34      | 44.97         |
| 50         | 11.25        | 41.69        | 49.36      | 47.35         |
| 55         | 11.24        | 44.07        | 51.31      | 49.63         |
| 60         | 11.22        | 46.33        | 53.21      | 51.80         |



GENERAL NOTES FOR DETECTABLE WARNING DEVICES

THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB. TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES. DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



DETECTABLE WARNING DEVICE DETAIL

GENERAL NOTES:

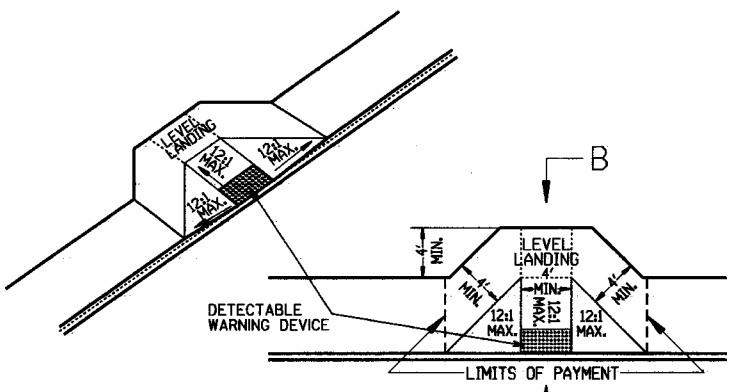
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS. IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS. THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19. THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4". THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER. RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION. THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

NOTE: THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGITUDINAL GRADE.

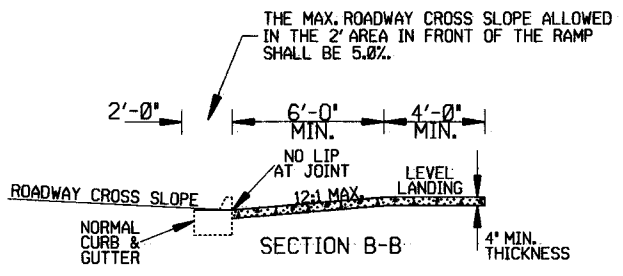
RAMP SELECTION CRITERIA

| CHOICE        | TYPE   | DESCRIPTION   |
|---------------|--------|---|
| FIRST CHOICE  | TYPE 1 | CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).  |
|               | TYPE 2 | CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).   |
|               | TYPE 3 | CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).   |
| SECOND CHOICE | TYPE 4 | TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).  |
| THIRD CHOICE  | TYPE 5 | TANGENT LOCATIONS (ALTERATIONS ONLY).   |
| FOURTH CHOICE | TYPE 6 | CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.   |
| FOURTH CHOICE |        | IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES. |

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED. AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.



TYPE 4 RAMP (Walk adjacent to curb)



SECTION B-B

| DATE     | ISSUED-P.F.D. | REVISION                           | DATE        | FILM |
|----------|---------------|------------------------------------|-------------|------|
| 8-10-05  |               | REVISED TO NEW SIDEWALK POLICY     |             |      |
| 10-9-03  |               | REVISED GEN. NOTES & ADDED NOTE    |             |      |
| 4-10-03  |               | REV. DETECTABLE WARNING DEVICES    |             |      |
| 8-22-02  |               | ADD DETECTABLE WARNING DEVICES     |             |      |
| 3-30-00  |               | ADD SLOPE TRANS. & REV. ISL. DIMS. |             |      |
| 8-18-98  |               | REVISED NOTES                      |             |      |
| 8-12-98  |               | REVISED TEXTURE                    |             |      |
| 7-02-98  |               | REDRAWN & REISSUED                 |             |      |
| 10-18-96 |               | CORRECTED DIMENSIONS               | 10-18-96    |      |
| 5-24-90  |               | FROM 10:1 TO 12:1 MAX. SLOPE       | 5-24-90     |      |
| 7-15-88  |               | ADJUSTED MAX. SLOPE                | 652-7-15-88 |      |
| 7-14-88  |               | INCL. "CONC. ISLAND" IN PAY ITEM   |             |      |
| 6-02-76  |               | ISSUED-P.F.D.                      | 299-7-28-76 |      |

ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS  
NEW CONSTRUCTION  
AND ALTERATIONS

STANDARD DRAWING WR-1