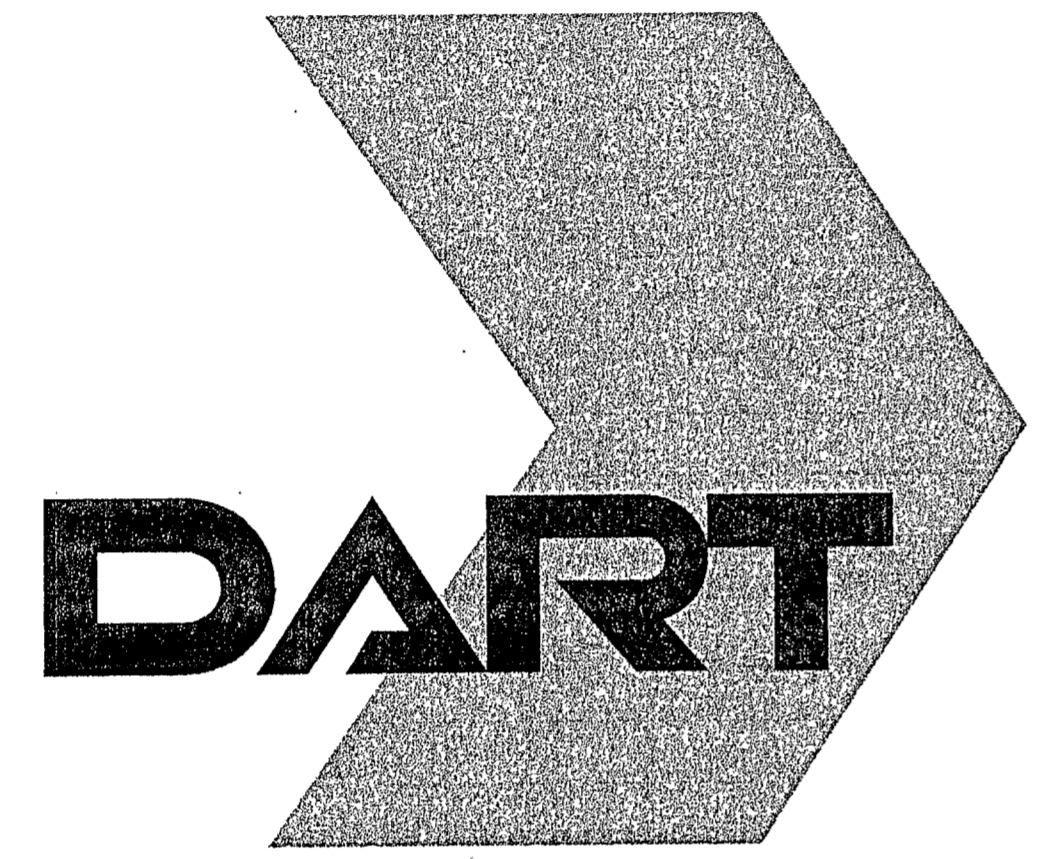


SOJOURN DR. AT WESTGROVE DR. INTERSECTION IMPROVEMENTS



DALLAS AREA RAPID TRANSIT

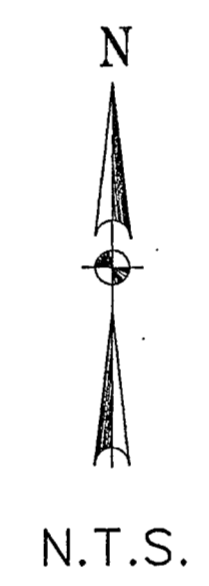
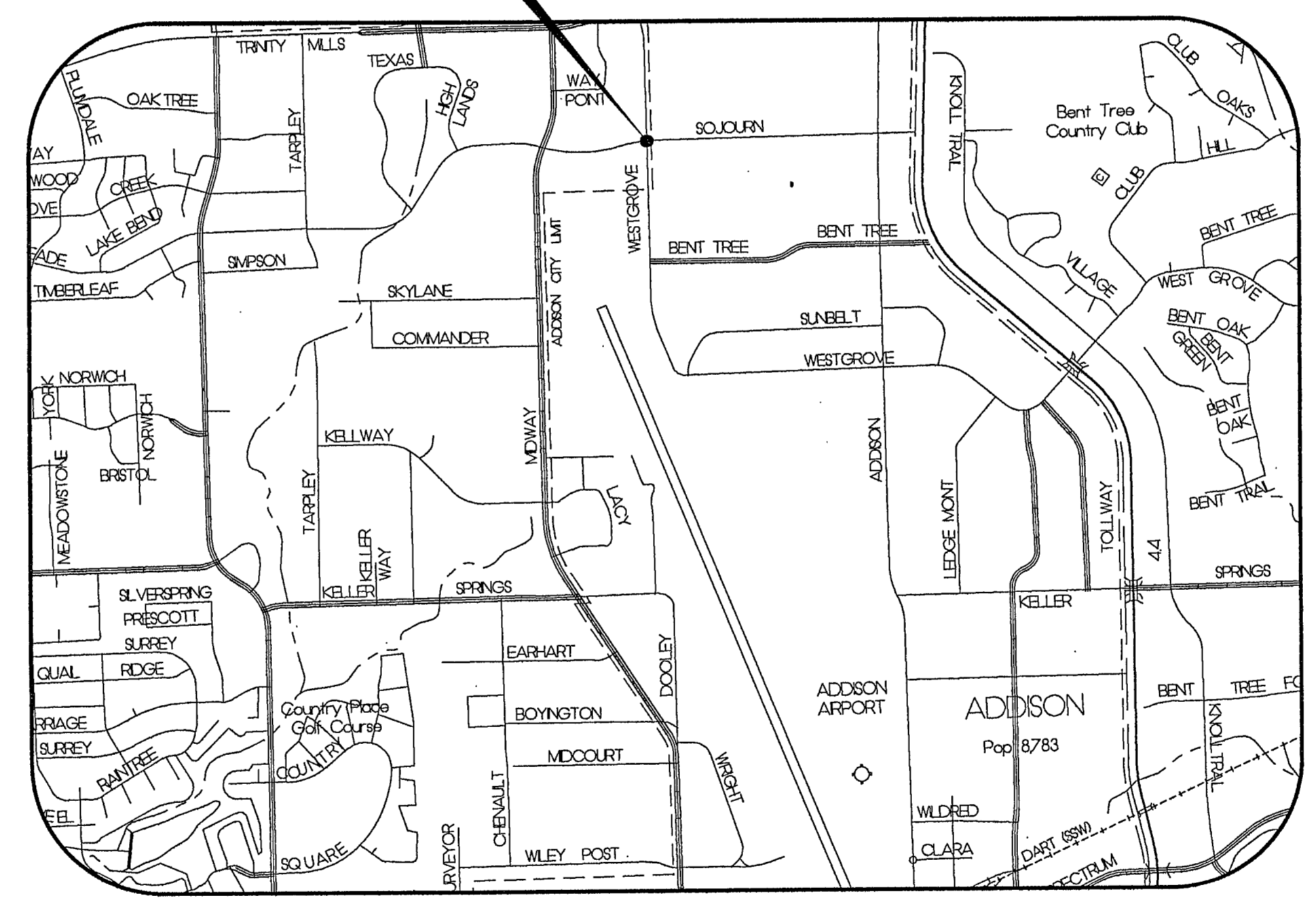
Recommended:

 Mahesh Kuiril
 Project Manager
 Mobility Programs Development
 Date

Approved:

 Koorosh Olyai, P.E.
 Assistant Vice President
 Mobility Programs Development
 Date

PROJECT LOCATION



T O W N O F ADDISON

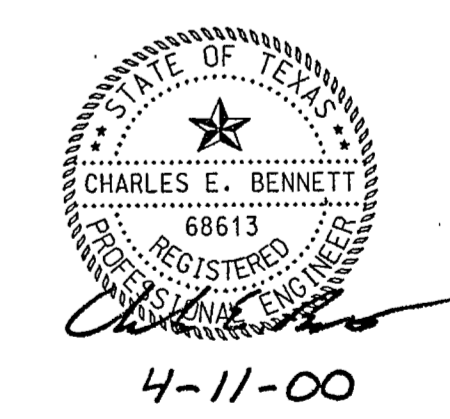
Approved: _____ Date _____
 James C. Pierce, Jr., P.E., DEE
 Assistant City Engineer

INDEX OF SHEETS

1. COVER SHEET
2. GENERAL NOTES SHEET
3. ESTIMATED QUANTITY SHEET
4. PAVING LAYOUT SHEET
5. SIGNALIZATION LAYOUT SHEET
6. TRAFFIC CONTROL LAYOUT SHEET

PREPARED BY :

Turner Collie & Braden Inc.



GENERAL NOTES - LIGHT POLE BASES

Contractor shall notify TXU 48 hours prior to start of construction so that power to circuit may be killed.

GENERAL NOTES - WATER

1. All water lines to have a minimum cover as follows or as required to clear other utilities:
 Up through 8" - 4'
 10 - 12" - 5'
 Over 12" - 6'
2. All water lines to be placed 6' from property line, unless otherwise noted.
3. All lines 12" or less in diameter shall be C-900 PVC DR-18.
4. On all valves, use three piece adjustable cast iron valve box covers with PVC C-900 extensions as required. Cast iron valve box covers shall be made in the U.S.A. and conform to AWWA.
5. Fire hydrant brands acceptable to the City of Carrollton are Mueller Centurian A-423, Waterous Pacer Wb67, Kennedy Guardian or Clow Medallion.
6. Top of fire hydrants to be painted as follows:

| Size of Main | Color |
|------------------|-------------------------|
| 6 inch | Aluminum-Glidden *Y-992 |
| 8 inch | Safety Blue Glidden |
| 10 inch or above | Safety Yellow Glidden |
7. Fire hydrants must be located no less than 2'6" nor more than 8'0" from the back of curb/ drive to center of barrel and not in sidewalk location.
8. The center of the fire hydrant pumper nozzle must be no less than 15" nor more than 21" above the top of curb or finished grade.
9. Heavily chlorinated water (3.5 mg/l or greater free chlorine) resulting from water line sterilization shall be directed under permit to the sanitary sewer unless otherwise noted. The contractor shall apply to the Engineering Department for a sanitary sewer discharge permit after the mandatory chlorine retention time (usually 24 hours). The heavily chlorinated water may be discharged to the sanitary sewer, beginning two working days after permit application.
10. Upon receipt of an acceptable bacteriological report on new water mains, the contractor shall remove all copper bleeder lines from water mains.
11. All bolts, studs and nuts used in water main fittings, valves and appurtenances shall be stainless steel on flange joints; Corten on MJ joints.
12. All fittings and valves shall be polyrapped with a minimum of 8 mils and shall be made in the U.S.A. and shall conform to AWWA.
13. All PVC water main pipe with mechanical joint fittings shall be retained with Retainer Glands (EBBA Series 20000 pv or equal) plus standard thrust blocking.

GENERAL NOTES - ALL DEVELOPMENT

CONTRACTOR IS RESPONSIBLE FOR CALLING THE ENGINEERING DEPARTMENTS FOR FINAL INSPECTION.

1. The Carrollton and Addison Engineering Departments are to be NOTIFIED 48 HOURS PRIOR to ANY CONSTRUCTION.
2. WORK WILL NOT BE ACCEPTED WITHOUT A PERMIT AND CITY INSPECTION OF WORK. Contact appropriate Engineering Department for street cut or bore permit for work in City right-of-way or easement. Contract Building Inspection for sidewalk and driveway permits.
3. No person shall open, turn-off, interface with, attach any hose to, or tap any water main belonging to the City unless duly authorized to do so by the City.
4. Arrangements for construction water shall be made through the City of Carrollton Customer Service Department.
5. All paving removed shall be sawcut full depth to a neat line and removed.
6. Backfill under existing streets shall be cement stabilized sand, two sacks per cubic yard, to top cut, hand mixing is permissible. Backfill under new construction shall be 95% standard density.
7. Blocking of water and sewer lines, deep sewer cut connections, and embedment shall conform to City standards.
8. All bores under existing streets or alleys shall be lined with smooth steel carrier pipes unless open cutting of the street/ alley is permitted by Engineering. Ends of steel carrier pipe to be sealed with grout.
9. The City will not accept utilities until all pavement has been constructed.
10. There will be no extra pay items for plugging existing and proposed RCP's and sewer lines.
11. The contractor shall provide expansion joints at all intersections and at the end of each days pour, or not more than 300' spacing.
12. Contractor shall provide sawed contraction joints at not more than 15' spacing. The depth of sawed joints shall not be less than 1/4" thickness of the paving.
13. Commercial driveways should be constructed to match existing driveway widths (see plans) by 6" thick concrete with curb radii of 15' unless otherwise noted.
14. Residential driveway return widths are 10' or as noted on plans by 5" thick concrete with curb radii of 5' (min.), and alley return widths are 12' by 7" thick concrete with radii of 10' unless noted otherwise.
15. The contractor shall adjust the tops of all manholes, valves, meter boxes, fire hydrants and other utility appurtenances to fit the finished paving and shoulders. There will be no separate pay item for this work and the cost shall be included in the price bid for other items.
16. Lay down curb will be provided at all incoming streets, alleys, and driveways.
17. All fill areas shall be compacted to 95% density. The cost shall be included in the price bid for excavation.
18. The contractor shall protect all existing water, sewer, gas, telephone, irrigation, etc., utilities. Damaged utilities shall be replaced or paid for by the contractor at no extra cost to the owner.
19. The location of existing utilities shown on these plans are approximate unless specifically noted. It is the responsibility of the contractor to locate and verify on-site any utilities that may conflict with the construction.
20. Traffic routing, signal removal and placement, and all other traffic matters shall be coordinated with the Engineering Department with 48 hours notice.
21. All traffic signal and street light base locations to be field approved prior to installation.
22. The contractor shall be required to provide and maintain all necessary warning and safety devices to protect the public safety and health until all work has been completed and accepted.
23. All water and sewer mains shall be installed with polyethylene plastic tape for identification and protection purposes. Tape for sewer mains shall be green and lettered with "caution sewerline buried below". Tape for water mains shall be blue and lettered with "caution water line buried below". Tape shall be 4.0 mil thick and 6" wide. Marking tape shall be placed along the center line of pipe trench on top of normal pipe embedment, and in no case less than 6" above top of pipe. All tape shall be Tera Tape as manufactured by Reef Industries or equal.
24. Contractor should contact property owner to verify proper irrigation and sprinkler head layout for proper coverage.



| | | | | | | |
|----------|--|---------|---------|--------|-----------|--|
| | DART PROJECT | | | | | |
| | INTERSECTION IMPROVEMENTS | | | | | |
| | SOJOURN DR. AT WESTGROVE DR. | | | | | |
| | TOWN OF ADDISON GENERAL NOTES SHEET | | | | | |
| DESIGNED | DRAWN | CHECKED | DATE | SCALE | SHEET NO. | |
| CAJ | CAJ | CEB | 4/11/00 | N.T.S. | 2 OF 6 | |

ESTIMATED QUANTITIES

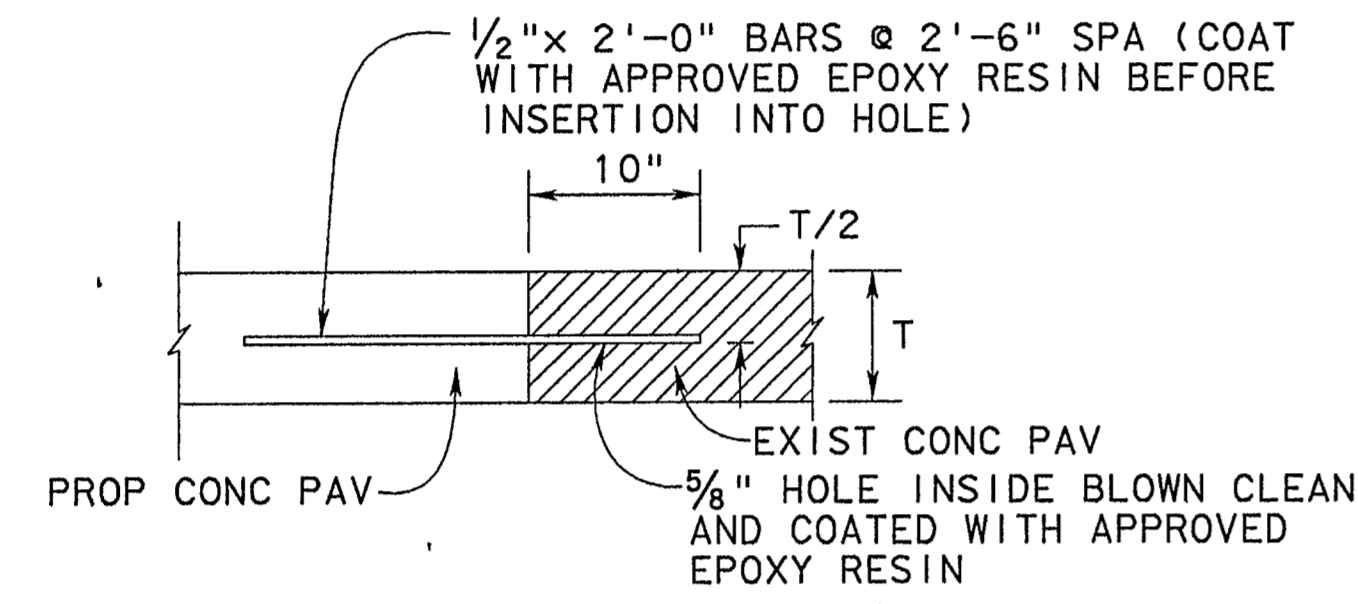
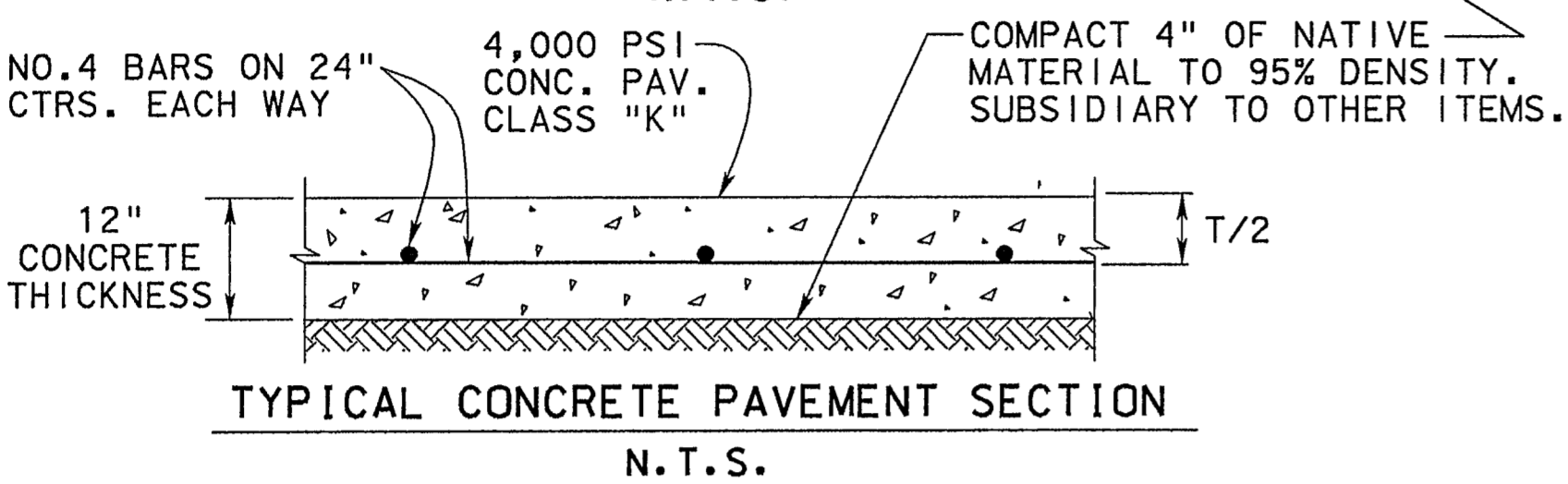
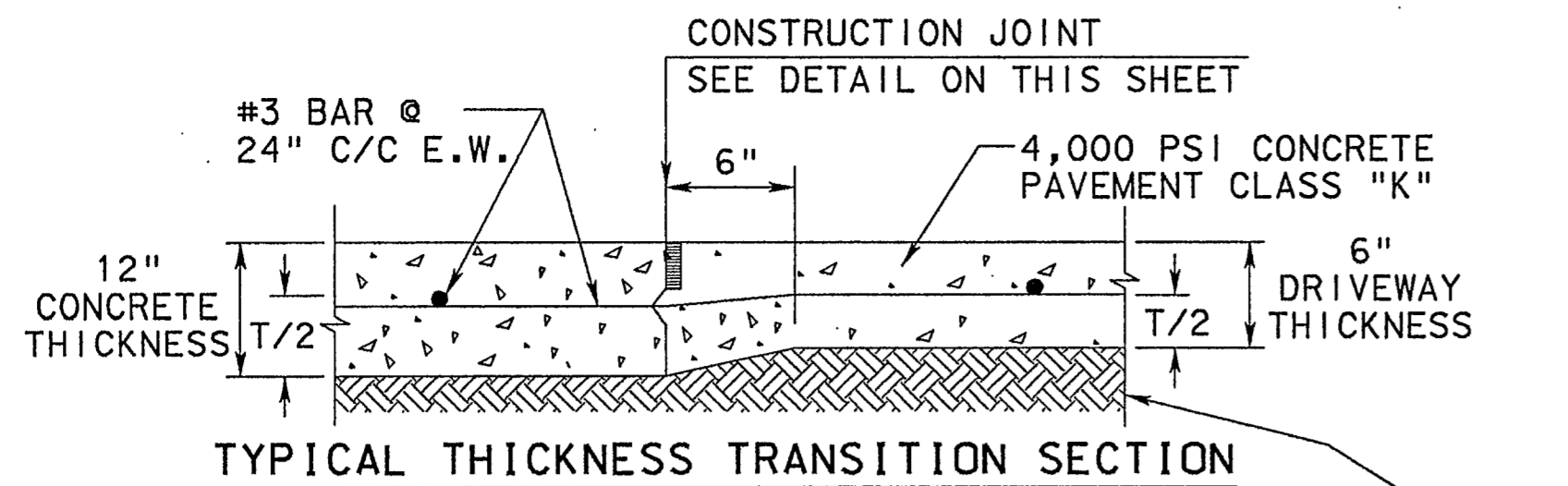
| ITEM | DESCRIPTION | UNIT | PAVING SHEET | | | SIGNALIZATION SHEET | | | TRAFFIC CONTROL | | | PROJ TOTAL | BID TOTAL |
|------|---|-------|--------------|--|--|---------------------|--|---|-----------------|--|--|------------|-----------|
| | | | 4 | | | 5 | | | 6 | | | | |
| 102 | PREPARING RIGHT-OF-WAY | LS | 1 | | | | | | | | | 1 | |
| 103 | SAW REM & DISP CONC PAVING AND CURB | SQ YD | 42 | | | | | | | | | 42 | |
| 104 | UNCLASSIFIED STREET EXCAVATION | CU YD | 38 | | | | | | | | | 38 | |
| 105 | SODDING FOR EROSION CONTROL | SQ YD | 24 | | | | | | | | | 24 | |
| 106 | 12" 4,000 PSI CONCRETE PAVING CLASS "K" | SQ YD | 118 | | | | | | | | | 118 | |
| 107 | 6" INTEGRAL CURB | LF | 78 | | | | | | | | | 78 | |
| 108 | 8" DR-18 PVC WATER | LF | 8 | | | | | | | | | 8 | |
| 109 | FIRE HYDRANT | EACH | 1 | | | | | | | | | 1 | |
| 110 | REM AND SALVAGE FIRE HYDRANT | EACH | 1 | | | | | | | | | 1 | |
| 111 | 8" X 8" TAP VALVE & SLEEVE | EACH | 1 | | | | | | | | | 1 | |
| 112 | JIGGLE BAR TILES (WHITE) | EACH | | | | 6 | | | | | | 6 | |
| 113 | SYMBOLS (ARROWS) | EACH | | | | 1 | | | | | | 1 | |
| 114 | SYMBOLS (WORD) | EACH | | | | 1 | | | | | | 1 | |
| 115 | PROJECT SIGN | EACH | | | | | | 2 | | | | 2 | |
| 116 | PULL BOX TYPE A | EACH | | | | 1 | | | | | | 1 | |
| 117 | 1 1/4" CONDUIT, TRENCH | LF | | | | 20 | | | | | | 20 | |
| 118 | 3" CONDUIT, TRENCH | LF | | | | 12 | | | | | | 12 | |
| 119 | 3" CONDUIT, BORE | LF | | | | 154 | | | | | | 154 | |
| 120 | CABLE, 20 CONDUCTOR, #12 | LF | | | | 87 | | | | | | 87 | |
| 121 | CABLE, 7 CONDUCTOR, #7 | LF | | | | 158 | | | | | | 158 | |
| 122 | CABLE, #12-XHHW | LF | | | | 20 | | | | | | 20 | |
| 123 | CABLE, #6 BARE | LF | | | | 166 | | | | | | 166 | |
| 124 | 1 PAIR DETECTOR CABLE | LF | | | | 225 | | | | | | 225 | |
| 125 | OPTI-COM CABLE | LF | | | | 140 | | | | | | 140 | |
| 126 | OPTI-COM DETECTOR | EACH | | | | 1 | | | | | | 1 | |
| 127 | FOUNDATION, POLE, TRANSFORMER BASE | EACH | | | | 1 | | | | | | 1 | |
| 128 | POLE, STEEL W/ 40' ARM | EACH | | | | 1 | | | | | | 1 | |
| 129 | SIGNAL HEAD, 3 SECTION | EACH | | | | 2 | | | | | | 2 | |
| 130 | SIGNAL HEAD, 4 SECTION | EACH | | | | 1 | | | | | | 1 | |
| 131 | BACKPLATE, 3 SECTION | EACH | | | | 2 | | | | | | 2 | |
| 132 | BACKPLATE, 4 SECTION | EACH | | | | 1 | | | | | | 1 | |
| 133 | PEDESTRIAN PUSH BUTTON | EACH | | | | 2 | | | | | | 2 | |
| 134 | PEDESTRIAN SIGNAL HEAD | EACH | | | | 2 | | | | | | 2 | |
| 135 | REMOVE AND SALVAGE SIGNAL HEAD | EACH | | | | 3 | | | | | | 3 | |
| 136 | REM. & DISP. POLE FOUNDATION | EACH | | | | 1 | | | | | | 1 | |
| 137 | REMOVE STD. BASE/POLE ASSEM. | EACH | | | | 1 | | | | | | 1 | |
| 138 | REMOVE 16' TO 40' MAST ARM | EACH | | | | 1 | | | | | | 1 | |
| 139 | THERMOPLASTIC 24" STOP BAR | LF | | | | 44 | | | | | | 44 | |
| 140 | ALUMINUM SIGNS | SF | | | | 25 | | | | | | 25 | |
| 141 | SAWCUT - LOOP DETECTOR | LF | | | | 432 | | | | | | 432 | |
| 142 | VEH DETECT CABLE #14 (WHT) | LF | | | | 199 | | | | | | 199 | |
| 143 | VEH DETECT CABLE #14 (BLK) | LF | | | | 233 | | | | | | 233 | |
| 144 | MAINTENANCE OF TRAFFIC | LS | | | | | | 1 | | | | 1 | |

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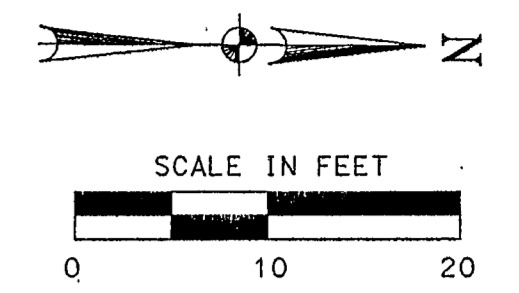
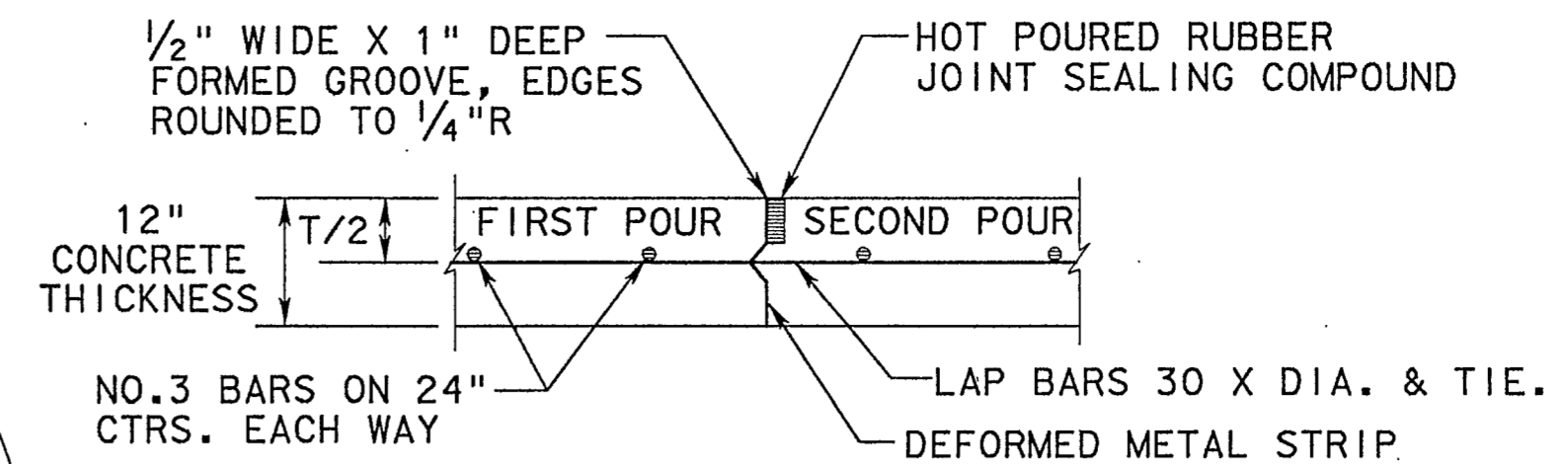


4-11-00

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|--------------------------|------------------------------|---------|---------|--------|-----------|--|
| | INTERSECTION IMPROVEMENTS | | | | | |
| | SOJOURN DR. AT WESTGROVE DR. | | | | | |
| | TOWN OF ADDISON | | | | | |
| ESTIMATED QUANTITY SHEET | | | | | | |
| DESIGNED | DRAWN | CHECKED | DATE | SCALE | SHEET NO. | |
| CAJ | CAJ | CEB | 4/11/00 | N.T.S. | 3 OF 6 | |



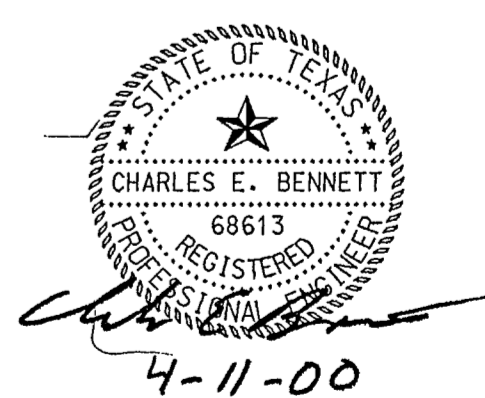
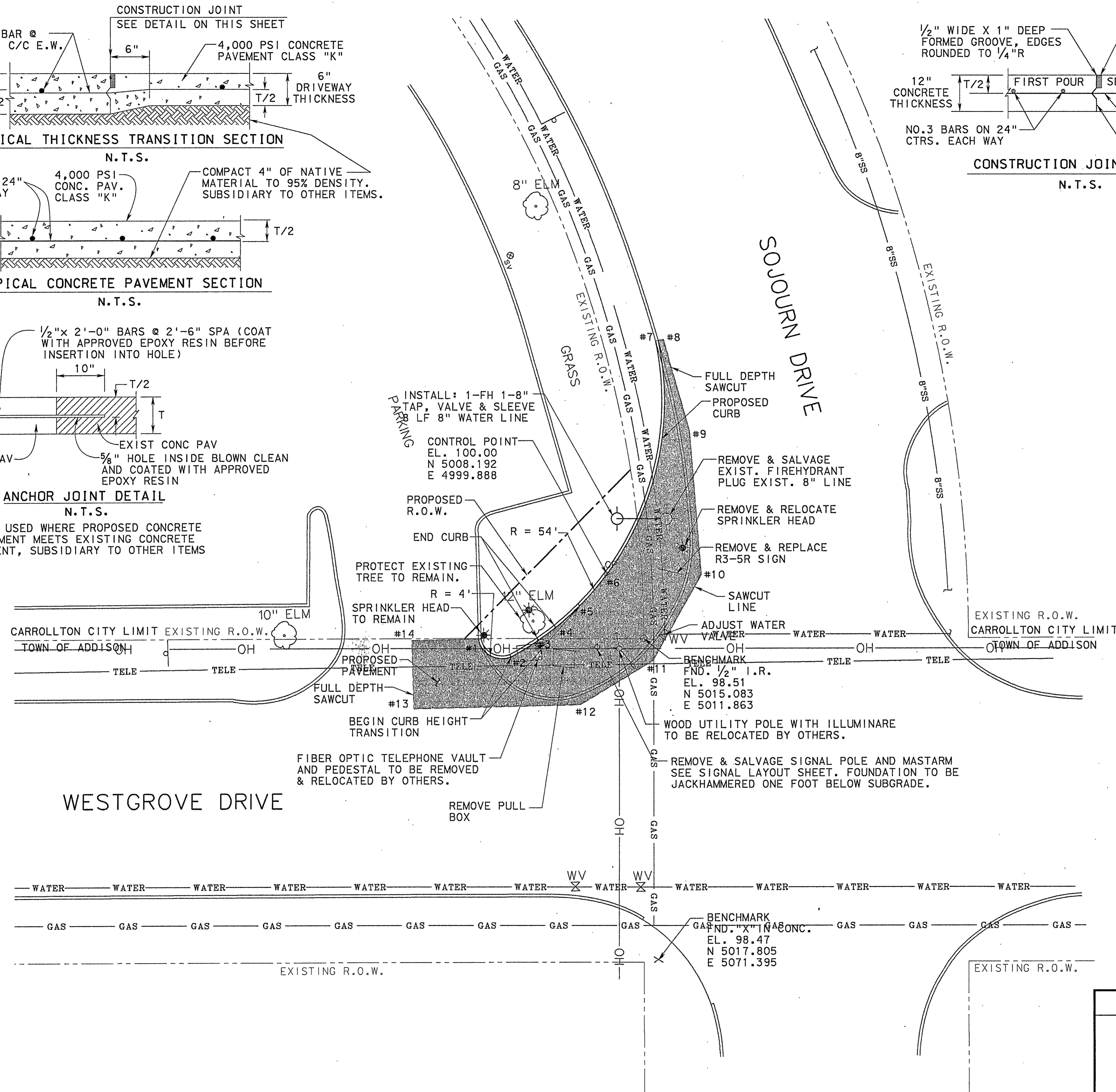
TO BE USED WHERE PROPOSED CONCRETE PAVEMENT MEETS EXISTING CONCRETE PAVEMENT, SUBSIDIARY TO OTHER ITEMS



| POINT CHART | | | |
|-------------|----------|----------|-----------|
| No. | NORTHING | EASTING | ELEVATION |
| *1 | 4984.390 | 5011.910 | 98.92 |
| 2 | 4990.464 | 5015.326 | 98.83 |
| 3 | 4995.580 | 5012.199 | 98.73 |
| 4 | 4998.780 | 5009.811 | 98.63 |
| 5 | 5003.231 | 5005.801 | 98.53 |
| *7 | 5017.772 | 4956.331 | 98.06 |
| *8 | 5018.737 | 4956.058 | 98.16 |
| *9 | 5023.583 | 4973.215 | 98.32 |
| *10 | 5025.725 | 5000.108 | 98.58 |
| *11 | 5016.747 | 5016.066 | 98.39 |
| *12 | 5003.258 | 5024.193 | 98.45 |
| *13 | 4972.387 | 5024.942 | 98.54 |
| *14 | 4972.040 | 5012.247 | 98.92 |
| | | | |
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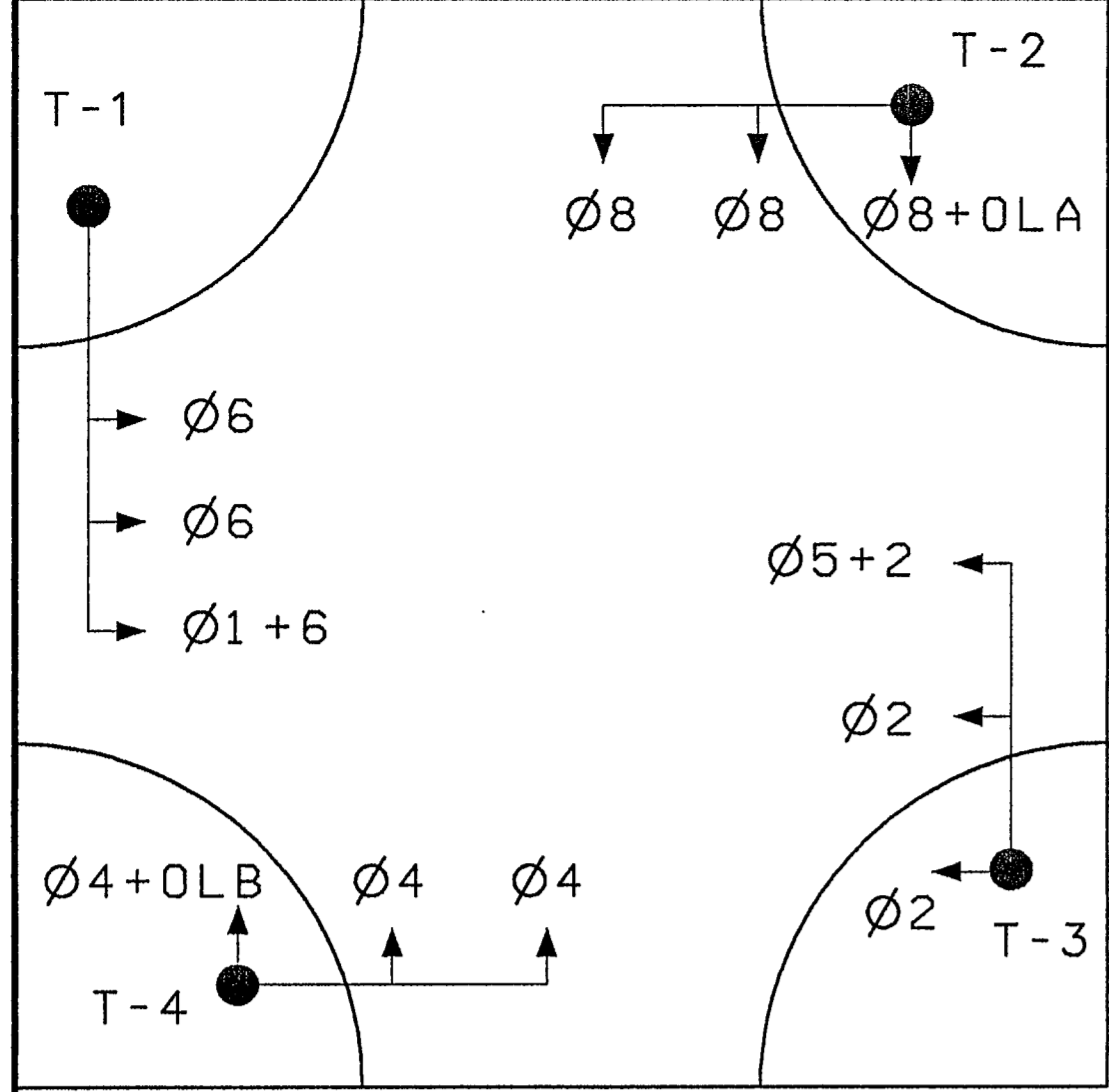
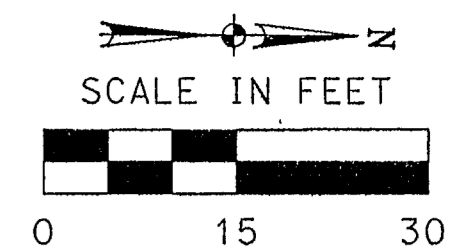
* CONTRACTOR TO FIELD VERIFY EXIST. GRADE ELEVATION.

- NOTE:
- DIMENSIONS AND COORDINATES SHOWN ARE FROM FACE OF CURB UNLESS OTHERWISE NOTED.
 - ALL ELEVATIONS ARE FROM THE TOP OF PAVEMENT.
 - CONTROL POINT NUMBERS ARE INDICATED BY SYMBOL #6 REFER TO COORDINATE POINT CHART TABLE ON THIS SHEET.
 - CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONTROL POINTS PRIOR TO PLACING CONCRETE.
 - CONTRACTOR TO ADJUST WATER VALVES, WATER METERS, SPRINKLER HEADS AND PULL BOXES TO GRADE SUBSIDIARY TO OTHER ITEMS.
 - CONTRACTOR TO REMOVE, SALVAGE AND DELIVER FIRE HYDRANT TO CITY OF CARROLLTON DISTRIBUTION CENTER.
 - CONTRACTOR TO PROVIDE BELTING OR BURLAP DRAG FINISH TO PAVEMENT SURFACE.
 - CONTRACTOR TO MATCH EXISTING SAW CONTRACTION JOINTS AND INTERSECT PROPOSED CURB AT RIGHT ANGLE, SEE TRAFFIC CONTROL SHEET.
 - CONTRACTOR TO REFER TO CITY OF CARROLLTON UTILITY RELOCATION STANDARD DETAILS.



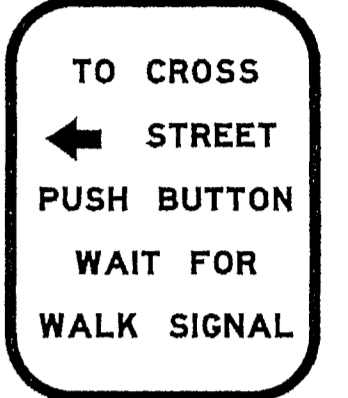
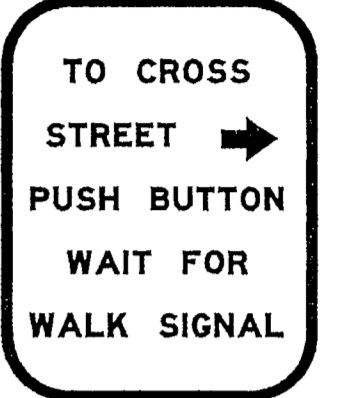
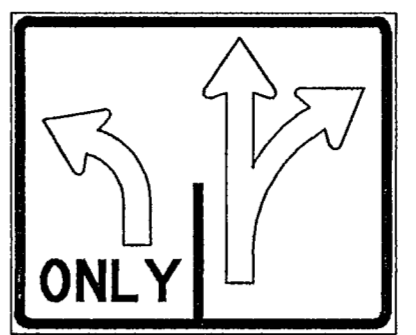
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| DART PROJECT | INTERSECTION IMPROVEMENTS | | | | | |
| | SOJOURN DR. AT WESTGROVE DR. | | | | | |
| | TOWN OF ADDISON | | | | | |
| PAVING LAYOUT SHEET | | | | | | |
| DESIGNED | DRAWN | CHECKED | DATE | SCALE | SHEET NO. | |
| CAJ | CAJ | CEB | 4/11/00 | 1" = 20' | 4 OF 6 | |

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INSTALL "ONLY" PAVEMENT MARKING
 INSTALL RIGHT TURN LANE-USE ARROW PAVEMENT MARKING

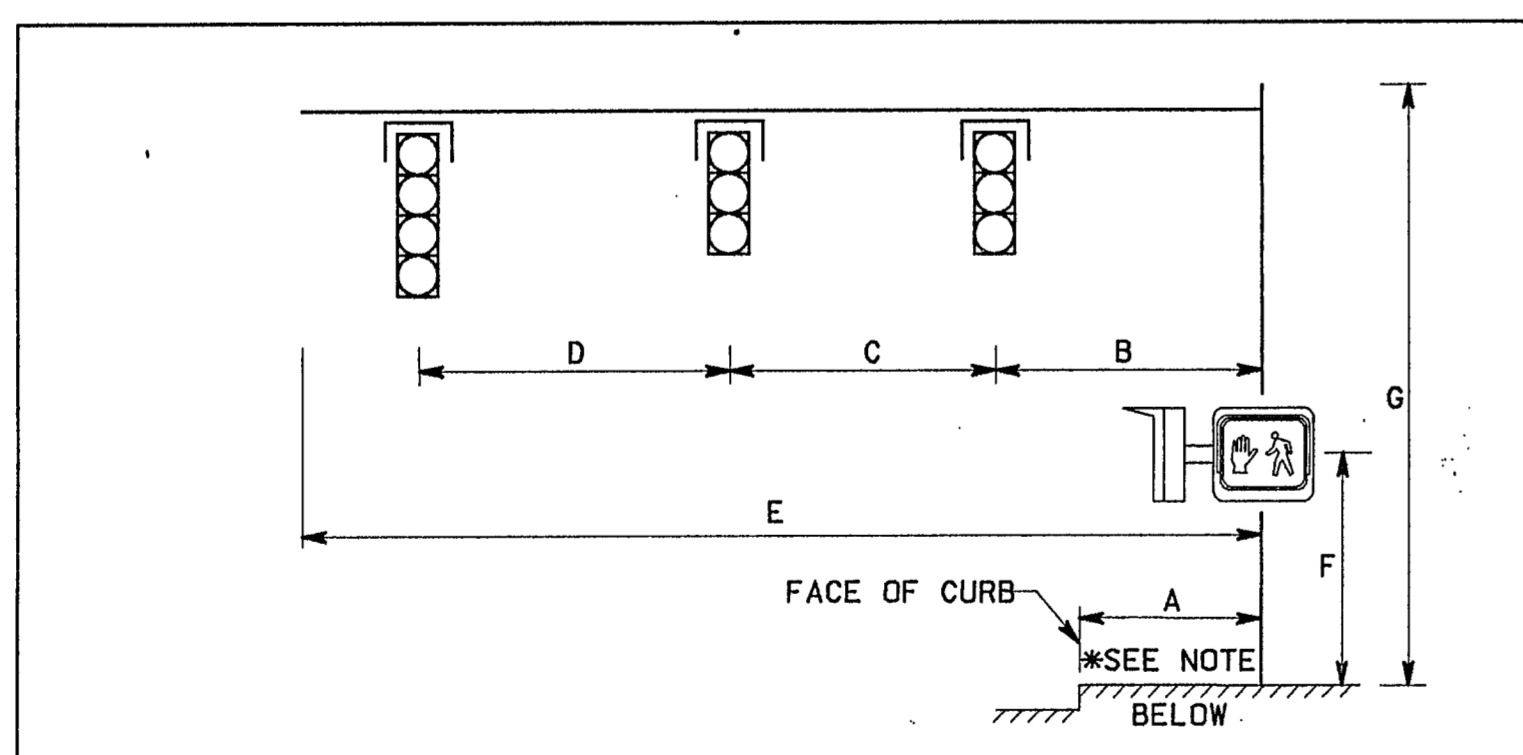
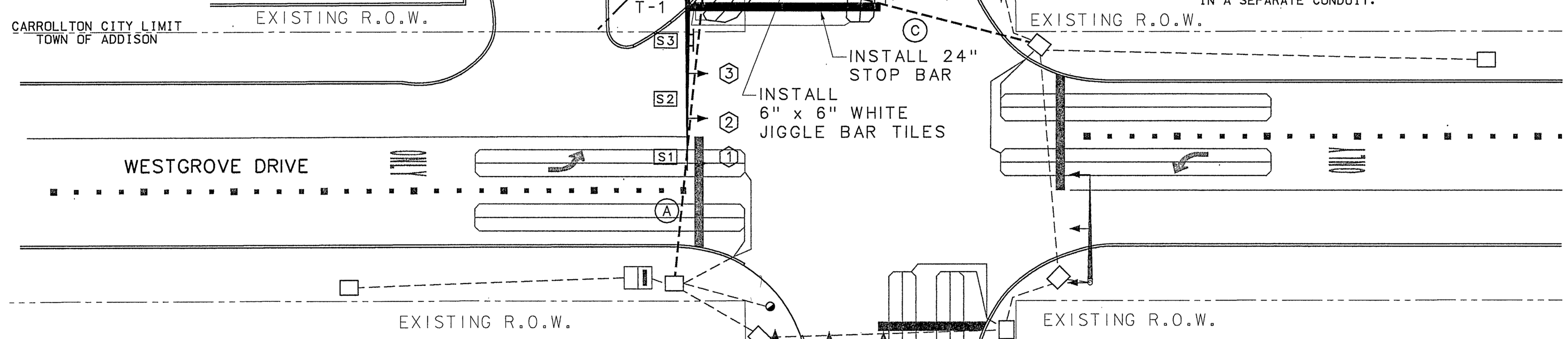
CONTRACTOR TO REPLACE MISSING OR BROKEN AS DIRECTED BY THE ENGINEER SUBSIDIARY TO OTHER ITEMS.



| DETECTOR DETAILS | | | | | | | |
|------------------|---------|-----------|-------|-----------------|---------------------|-------------|-------------|
| LOOP | STATUS | DIMENSION | TURNS | LOOP WIRE COLOR | SAW CUT/ LEAD IN FT | 1/4" PVC FT | PED BUTTONS |
| Ø4-1 | INSTALL | 60X6 | 2 | WHITE | 199 | 10 | |
| Ø4-2 | INSTALL | 60X6 | 2 | BLACK | 233 | 10 | |
| Ø2 PED | INSTALL | - | - | - | - | - | 1 |
| Ø4 PED | INSTALL | - | - | - | - | - | 1 |
| TOTAL | | | | | 432 | 20 | 2 |

- NOTES
- ALL NEW PEDESTRIAN SIGNALS TO BE EQUIPPED WITH PUSH-BUTTON DETECTORS.
 - CONTRACTOR SHALL PLACE AN OPTICOM DETECTOR ON POLE T-1 MAST ARM.
 - CONTRACTOR SHALL SUPPLY ALL TRAFFIC SIGNAL EQUIPMENT, INCLUDING REGULATORY AND STREET NAME SIGNS.
 - CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL OPERATIONS, TESTING AND CONSTRUCTION WITH THE TOWN OF ADDISON, DEPARTMENT OF PUBLIC WORKS.
 - SALVAGED TRAFFIC SIGNAL ITEMS SHALL BE REMOVED AND RETURNED TO THE TOWN OF ADDISON.
 - SIGNS S1 THRU S5 REPLACE EXISTING SIGNS.
 - EACH DETECTOR LOOP SHALL PENETRATE THE CURB IN A SEPARATE CONDUIT.

- LEGEND
- PROPOSED TY-A PULL BOX
 - EXISTING PULL BOX
 - PROPOSED SIGNAL POLE WITH MAST ARM AND SIGNAL HEADS
 - EXISTING SIGNAL POLE
 - ③ SIGNAL HEAD NUMBER
 - ↑ PROPOSED PEDESTRIAN SIGNALS AND PUSH BUTTONS ON SIGNAL POLE
 - ↑ EXISTING PEDESTRIAN SIGNALS
 - ▭ PROPOSED DETECTOR (6"x60")
 - ▭ EXISTING DETECTOR
 - PROPOSED SIGN ON MAST ARM
 - S3 SIGN NUMBER
 - ▭ EXISTING SIGNAL CONTROLLER AND FOUNDATION
 - ELECTRIC SERVICE ON EXISTING UTILITY POLE
 - PROPOSED CONDUIT
 - EXISTING CONDUIT
 - Ⓧ CONDUIT RUN NUMBER

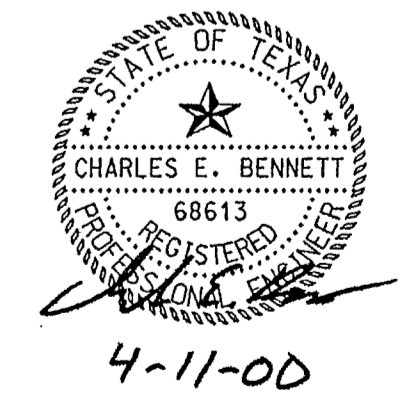


| SIGNAL HEAD & POLE PLACEMENT | | | | | | | | PIER TYPE | CNDRS/CABLE IN POLES | | | |
|------------------------------|----------|----------|-----|----|----|----|----|-----------|----------------------|------|-------------|-----------------|
| POLE NUMBER | NORTHING | EASTING | A | B | C | D | E | | F | G | NO. 12 XHHW | 7 CNDR (12 AWG) |
| T-1 | N 5002.3 | E 5002.8 | 4.1 | 18 | 10 | 10 | 40 | 10 | 20 | 36in | 20 FT | 158 FT |

* NOTE: EXACT POLE LOCATION TO BE DETERMINED AFTER UG UTILITIES ARE IDENTIFIED AND LOCATED

| SIGNAL HEADS | | | | | |
|--------------|------------|-----------|-------|------------------|-------------|
| NO. | TYPE | BACKPLATE | | 12in VEH SECTION | PED SECTION |
| | | 3 SEC | 4 SEC | | |
| 1 | RYG 4SECT. | | 1 | 4 | |
| 2 | RYG | 1 | | 3 | |
| 3 | RYG | 1 | | 3 | |
| 4 | W/DW | | | | 1 |
| 5 | W/DW | | | | 1 |
| | | 2 | 1 | 10 | 2 |

| RUN NUMBER | CONDUIT/CABLE RUN SUMMARY | | | | | |
|------------|---------------------------|-------------|------------------|-------------------|--------------------|---------------|
| | CONDUIT | | NUMBER OF CABLES | | | |
| | SIZE (IN) | LENGTH (FT) | 1C #6 AWG BARE | 20C #12 AWG CABLE | 2C #14 AWG SHIELD. | OPTICOM CABLE |
| A | 3 (BORE) | 75 | 1 | 1 | 3 | 1 |
| B | 3 | 12 | 1 | 1 | | 1 |
| C | 3 (BORE) | 79 | 1 | | | |



DART PROJECT

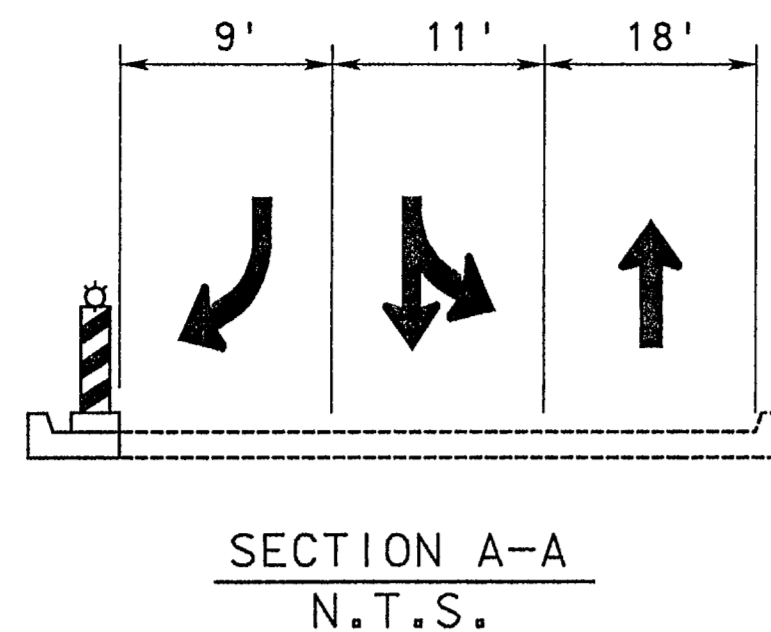
INTERSECTION IMPROVEMENTS
SOJOURN DR. AT WESTGROVE DR.

TOWN OF
ADDISON

TRAFFIC SIGNAL LAYOUT SHEET

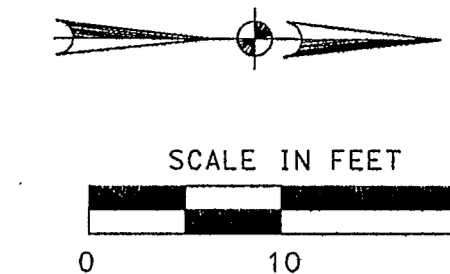
| DESIGNED | DRAWN | CHECKED | DATE | SCALE | SHEET NO. |
|----------|-------|---------|---------|--------|-----------|
| ABK | CAJ | CEB | 4/11/00 | 1"=30' | 5 of 6 |

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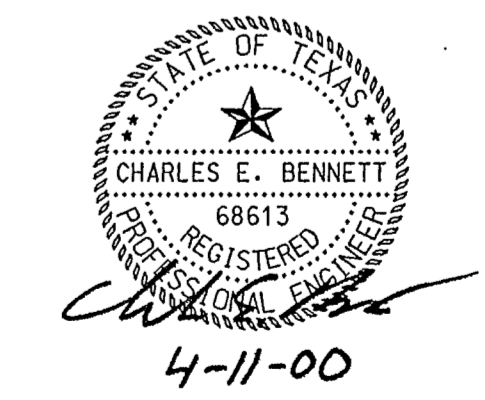
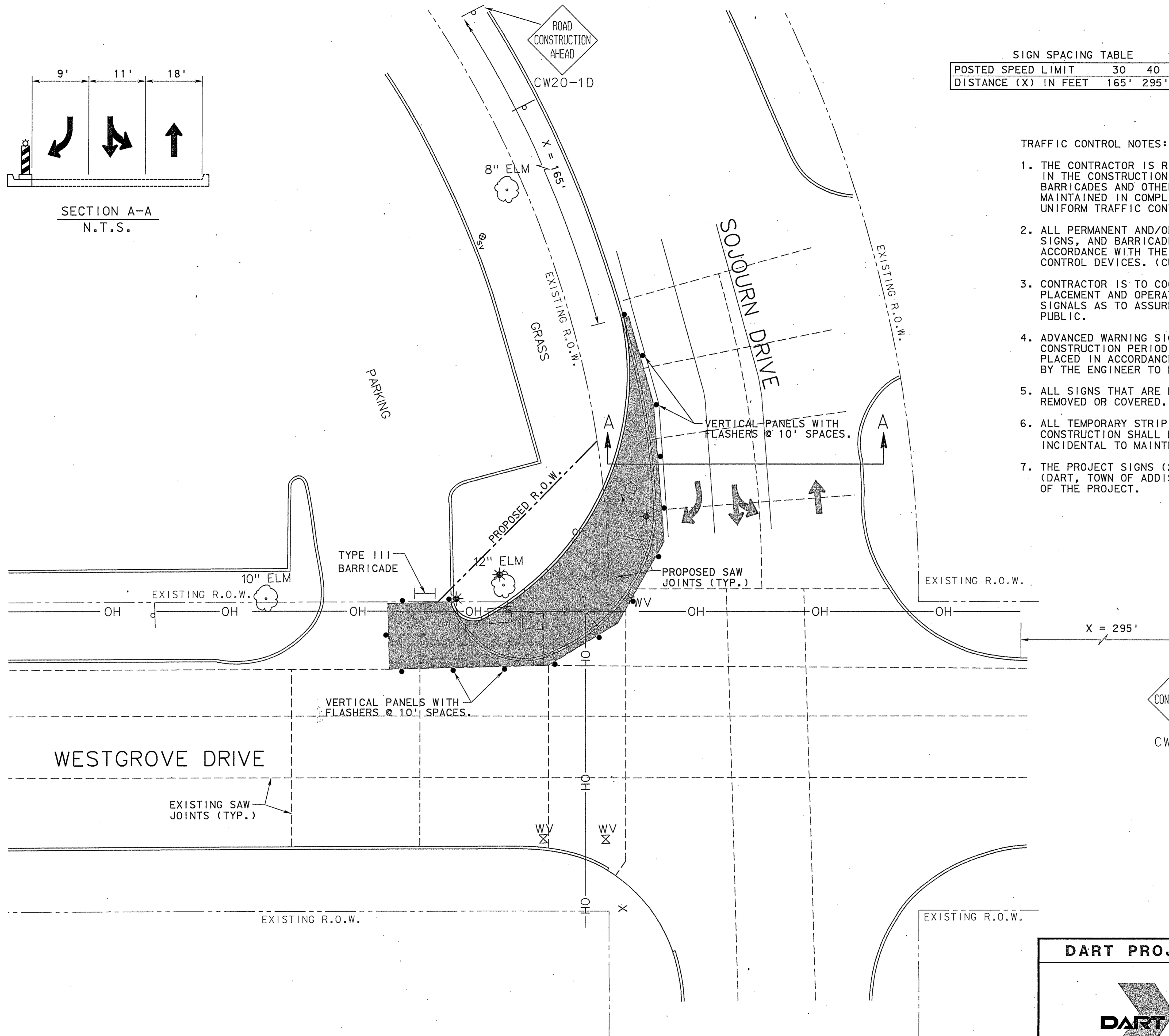
SIGN SPACING TABLE


| | | |
|----------------------|------|------|
| POSTED SPEED LIMIT | 30 | 40 |
| DISTANCE (X) IN FEET | 165' | 295' |



TRAFFIC CONTROL NOTES:

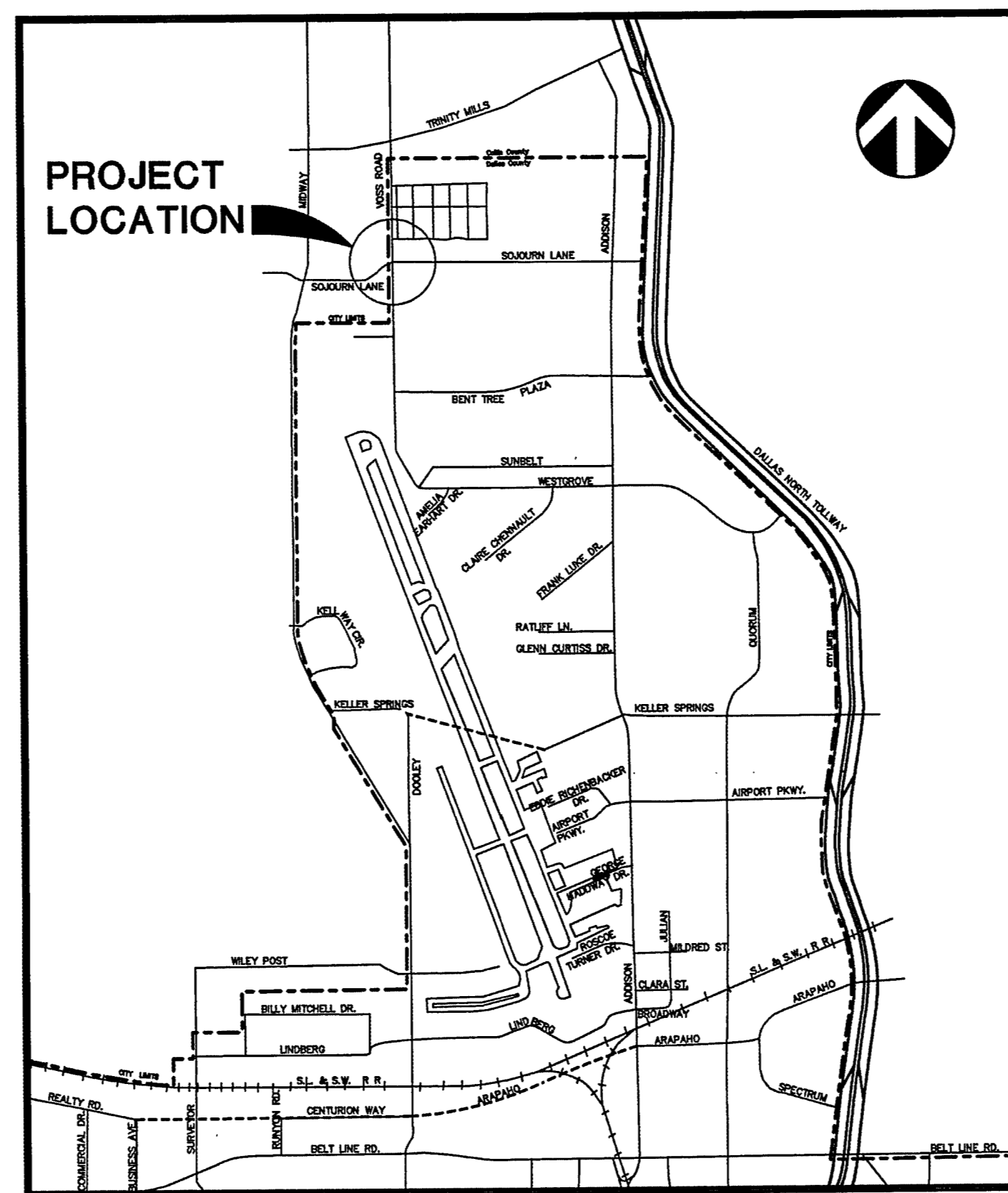
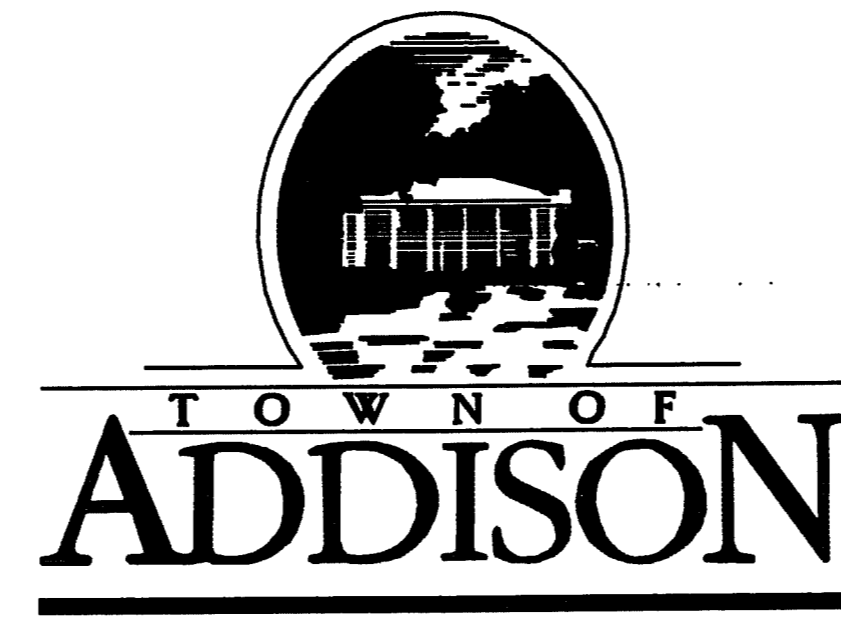
1. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC HANDLING AND SAFETY IN THE CONSTRUCTION AREA DURING THE CONSTRUCTION PERIOD. SIGNS, BARRICADES AND OTHER NECESSARY DEVICES SHALL BE FURNISHED AND MAINTAINED IN COMPLIANCE WITH PART VI OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (CURRENT EDITION)
2. ALL PERMANENT AND/OR TEMPORARY STRIPING, MARKINGS, LIGHTS, SIGNS, AND BARRICADES SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (CURRENT EDITION)
3. CONTRACTOR IS TO COORDINATE WITH THE TOWN OF ADDISON FOR THE PLACEMENT AND OPERATION OF ALL TEMPORARY AND PERMANENT TRAFFIC SIGNALS AS TO ASSURE VISIBILITY TO AND SAFETY OF THE TRAVELING PUBLIC.
4. ADVANCED WARNING SIGNS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. ADDITIONAL SIGNS AND BARRICADES SHALL BE PLACED IN ACCORDANCE WITH THE STANDARD DETAILS AND AS DIRECTED BY THE ENGINEER TO PROTECT PEDESTRIANS AND THE TRAVELING PUBLIC.
5. ALL SIGNS THAT ARE NOT APPLICABLE FOR ANY ONE PHASE SHALL BE REMOVED OR COVERED.
6. ALL TEMPORARY STRIPING AND MARKINGS FOR TRAFFIC CONTROL DURING CONSTRUCTION SHALL NOT BE PAID FOR SEPARATELY BUT WILL BE INCIDENTAL TO MAINTENANCE OF TRAFFIC.
7. THE PROJECT SIGNS (2) SHALL CLEARLY INDICATE INVOLVED AGENCIES (DART, TOWN OF ADDISON, ETC.) AND SHALL BE PLACED AT BOTH ENDS OF THE PROJECT.



| | | | | | | |
|--|------------------------------|---------|---------|----------|-----------|--|
| DART PROJECT  | INTERSECTION IMPROVEMENTS | | | | | |
| | SOJOURN DR. AT WESTGROVE DR. | | | | | |
| | TOWN OF ADDISON | | | | | |
| TRAFFIC CONTROL SHEET | | | | | | |
| DESIGNED | DRAWN | CHECKED | DATE | SCALE | SHEET NO. | |
| CAJ | CAJ | CEB | 4/11/00 | 1" = 20' | 6 OF 6 | |

Filename: E:\TRANS\Draw\HOV\To\6\Microsta\Sheets\soj-traf.dgn

SIGNAL DESIGN PLANS FOR WESTGROVE DRIVE AND SOJOURN LANE



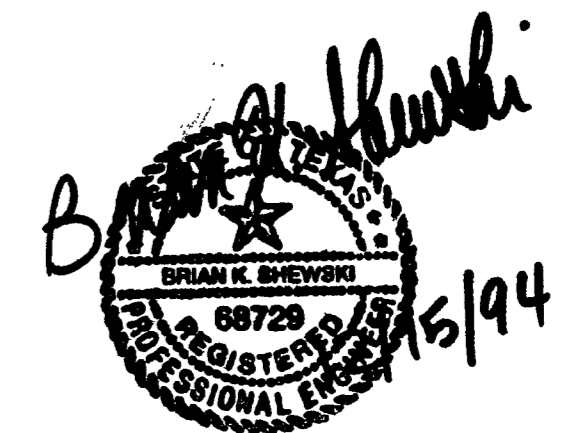
LOCATION MAP

INDEX OF DRAWINGS

| <u>SHEET DESCRIPTION</u> | <u>PAGE #</u> |
|------------------------------------|---------------|
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| SIGNAL LAYOUT PLANS | 2 |
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| TRAFFIC SIGNAL HEAD IDENTIFICATION | 4 |
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| FOUNDATION SUMMARY | 6 |
| MAST ARM CONNECTIONS | 7 |
| SERVICE POLE & GROUNDING DETAILS | 8 |
| TRAFFIC CONTROL PLAN DETAILS | 9 |

TOWN OF ADDISON ENGINEER

JOHN BAUMGARTNER, P.E.



**BARTON-ASCHMAN
ASSOCIATES, INC.**

5485 BELT LINE RD. #199 • DALLAS, TEXAS 75240 • (214) 991-1900

PARSONS TRANSPORTATION GROUP

g.l.b.

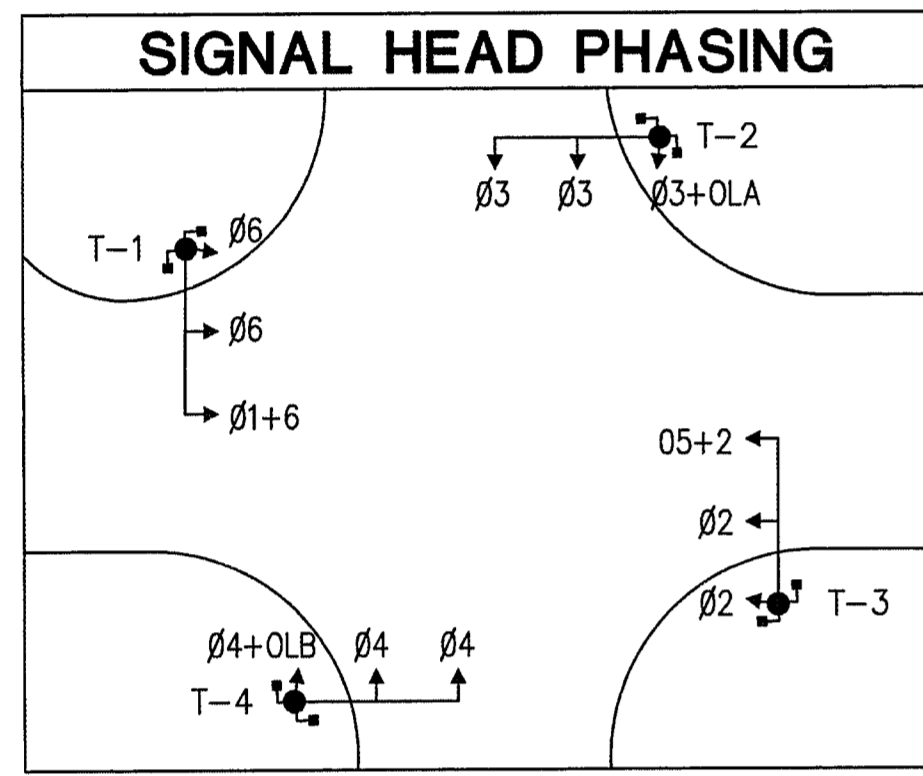
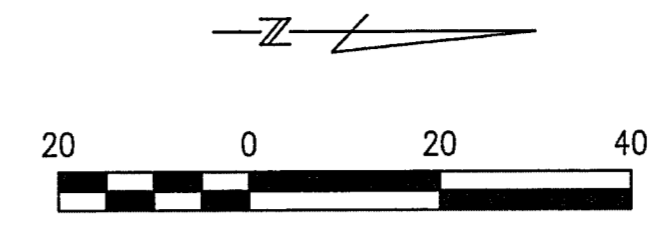
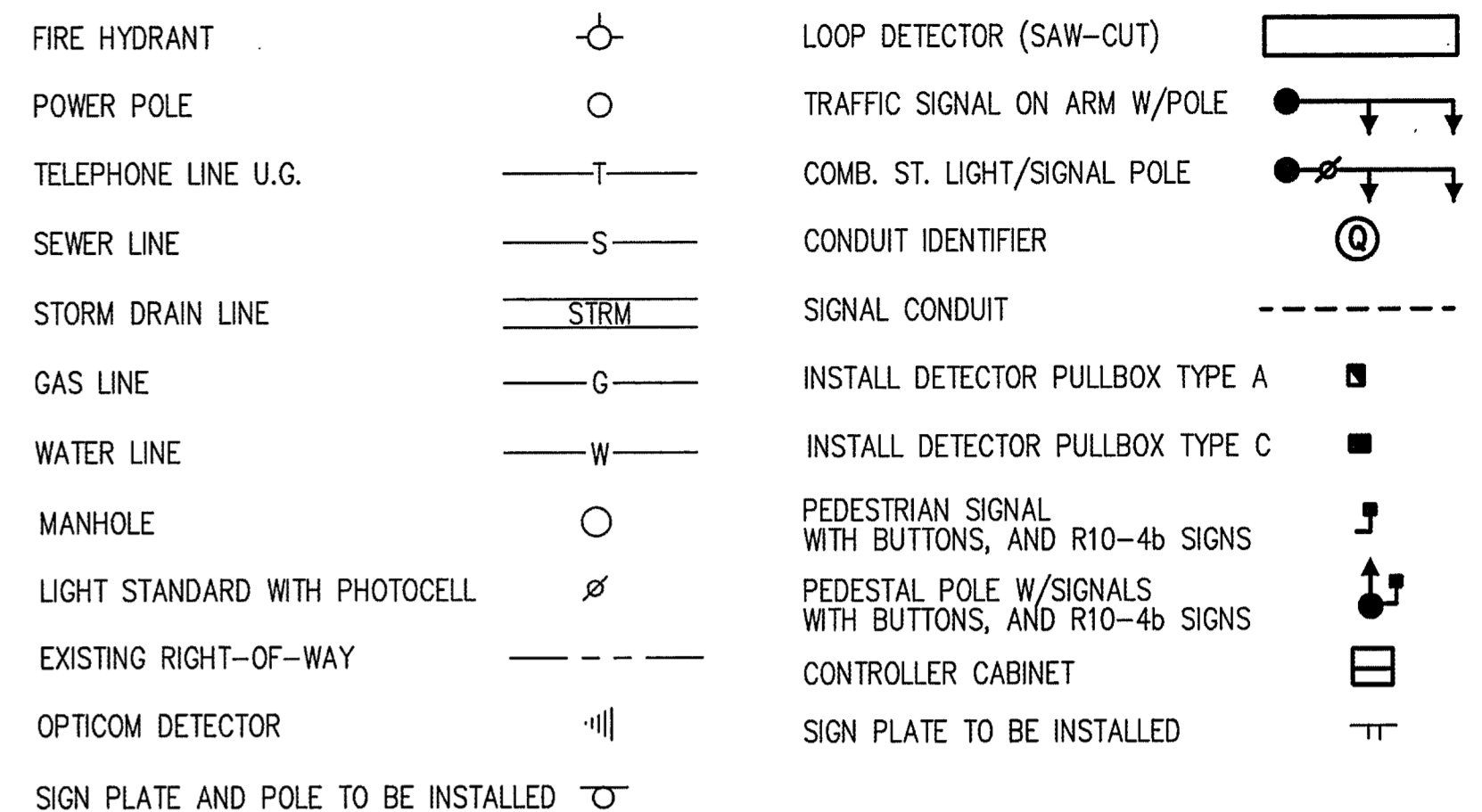
CABLE TERMINATION CHART

| CABLE CONDUCTOR | T-1 | | T-2 | | T-3 | | T-4 | |
|-----------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| | S.H. NO. | INDICATION | S.H. NO. | INDICATION | S.H. NO. | INDICATION | S.H. NO. | INDICATION |
| BLACK | SPARE | | SPARE | | SPARE | | SPARE | |
| WHITE | COMMON | | COMMON | | COMMON | | COMMON | |
| RED | 1-3 | R | 4-6 | R | 7-9 | R | 10-12 | R |
| GREEN | 1-3 | Y | 4-6 | Y | 7-9 | Y | 10-12 | Y |
| ORANGE | 1-3 | G | 4-6 | G | 7-9 | G | 10-12 | G |
| BLUE/BLACK | 1 | ←Y | SPARE | | 7 | ←Y | SPARE | |
| WHITE/BLACK | 1 | ←G | 4 | ←G | 7 | ←G | 10 | ←G |
| RED/BLACK | 13 | W | 15 | W | 17 | W | 19 | W |
| GREEN/BLACK | 14 | W | 16 | W | 18 | W | 20 | W |
| ORANGE/BLACK | 13 | DW | 15 | DW | 17 | DW | 19 | DW |
| BLUE/BLACK | 14 | DW | 16 | DW | 18 | DW | 20 | DW |
| BLACK/WHITE | PB13 | Ø4 | PB15 | Ø6 | PB17 | Ø3 | PB19 | Ø2 |
| RED/WHITE | PB14 | Ø6 | PB16 | Ø3 | PB18 | Ø2 | PB20 | Ø4 |
| GREEN/WHITE | P.B. COM. | | P.B. COM. | | P.B. COM. | | P.B. COM. | |
| BLUE/WHITE | SPARE | | 6 | Y→ | SPARE | | 12 | Y→ |
| BLACK/RED | SPARE | | 6 | G→ | SPARE | | 12 | G→ |

CONDUIT RUNS

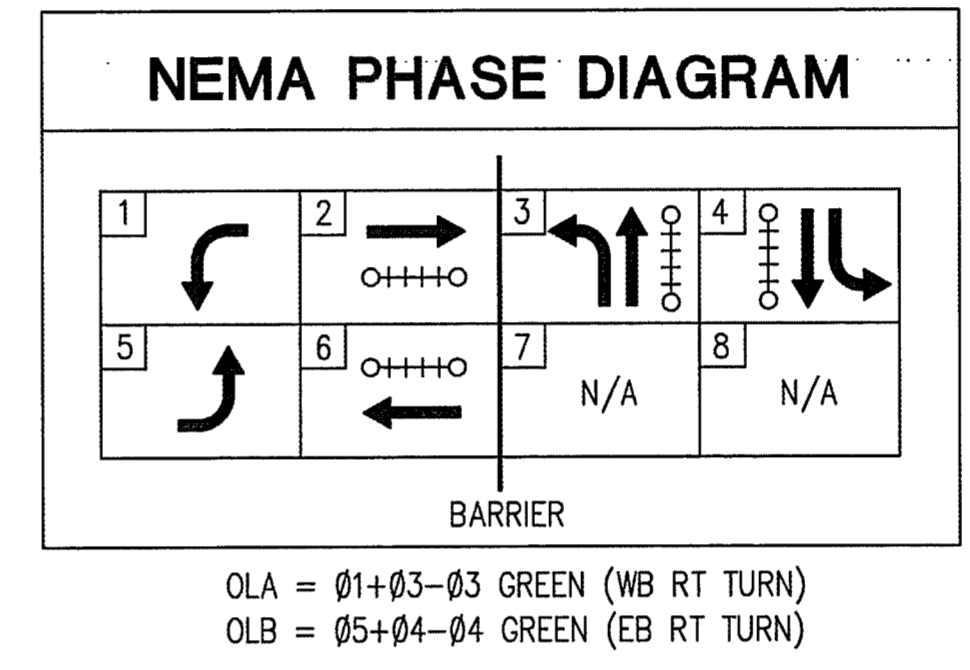
| RUN NO. | SIZE/TYPE CONDUIT | CABLE TYPE | | | | | LENGTH OF RUN | FINAL |
|---------|---------------------|--------------|--------------|-------------------|---------------|----------------|---------------|-------|
| | | #6 XHHW WIRE | #6 BARE WIRE | #18 AWG SHLD. PR. | 3 CNDR. CABLE | 16 CNDR. CABLE | | |
| A | 2-3" PVC (Trenched) | 1 | 1 | 8 | 3 | 3 | 30 | |
| B | 2-3" PVC (Trenched) | | 1 | 5 | 2 | 2 | 10 | |
| C | 3" PVC (Trenched) | | 1 | 1 | 1 | 1 | 15 | |
| D | 2-3" PVC (Existing) | | 1 | 4 | 2 | 2 | 55 | |
| E | 3" PVC (Trenched) | | 1 | 1 | 1 | 1 | 10 | |
| F | 2-3" PVC (Existing) | | 1 | 3 | 1 | 1 | 85 | |
| G | 3" PVC (Trenched) | | 1 | 1 | 1 | 1 | 25 | |
| H | 2-3" PVC (Existing) | | | | | | 55 | |
| I | 3" PVC (Trenched) | | 1 | | 1 | 1 | 10 | |
| J | 2" PVC (Trenched) | 2 | 1 | | | | 10 | |
| K | 2" PVC (Trenched) | | | 1 | | | 150 | |
| L | 2" PVC (Trenched) | | | 1 | | | 135 | |
| M | 2" PVC (Trenched) | | | 1 | | | 150 | |
| N | 2" PVC (Trenched) | | | 1 | | | 135 | |
| O | 2-3" PVC (Boring) | | 1 | 1 | 1 | 1 | 85 | |

LEGEND



PAVEMENT MARKINGS

| TYPE | QUANTITY | UNIT |
|--|----------|------|
| 6" X 6" WHITE REFLECTIVE JIGGLE BARS | 104 | EA. |
| 4" YELLOW BIDIRECTIONAL RETROREFLECTIVE RAISED BUTTONS | 280 | EA. |
| 4" YELLOW RAISED BUTTONS | 910 | EA. |
| 24" SOLID WHITE ALKYD THERMOPLASTIC | 105 | FT. |
| 4" SOLID WHITE ALKYD THERMOPLASTIC | 60 | FT. |
| SOLID WHITE ALKYD THERMOPLASTIC LEFT ARROW | 2 | EA. |
| SOLID WHITE ALKYD THERMOPLASTIC RIGHT ARROW | 2 | EA. |
| SOLID WHITE ALKYD THERMOPLASTIC "ONLY" | 4 | EA. |
| SOLID WHITE ALKYD THERMOPLASTIC THROUGH/LEFT ARROW | 2 | EA. |



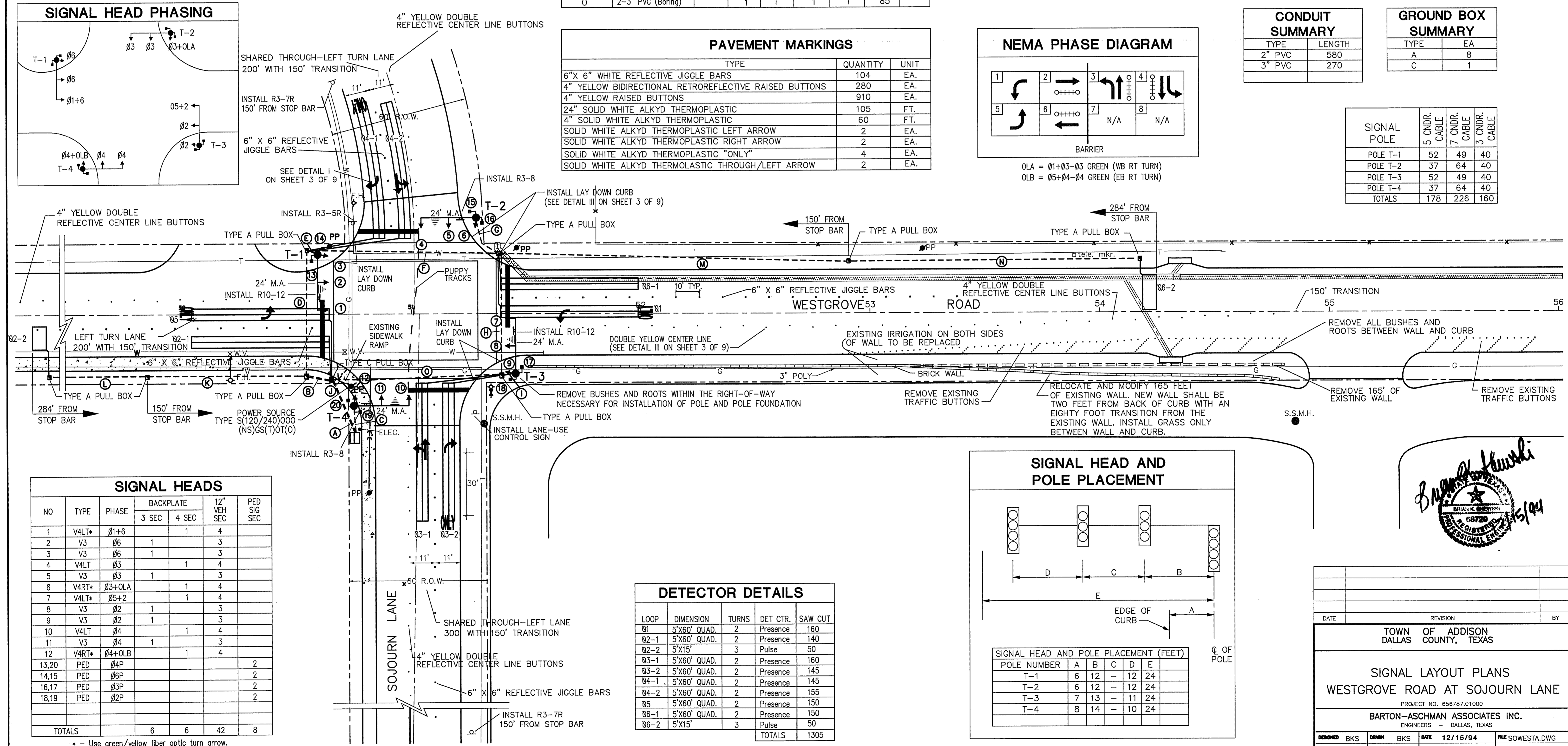
CONDUIT SUMMARY

| TYPE | LENGTH |
|--------|--------|
| 2" PVC | 580 |
| 3" PVC | 270 |

GROUND BOX SUMMARY

| TYPE | EA |
|------|----|
| A | 8 |
| C | 1 |

| SIGNAL POLE | 5 CNDR. CABLE | 7 CNDR. CABLE | 3 CNDR. CABLE |
|-------------|---------------|---------------|---------------|
| POLE T-1 | 52 | 49 | 40 |
| POLE T-2 | 37 | 64 | 40 |
| POLE T-3 | 52 | 49 | 40 |
| POLE T-4 | 37 | 64 | 40 |
| TOTALS | 178 | 226 | 160 |

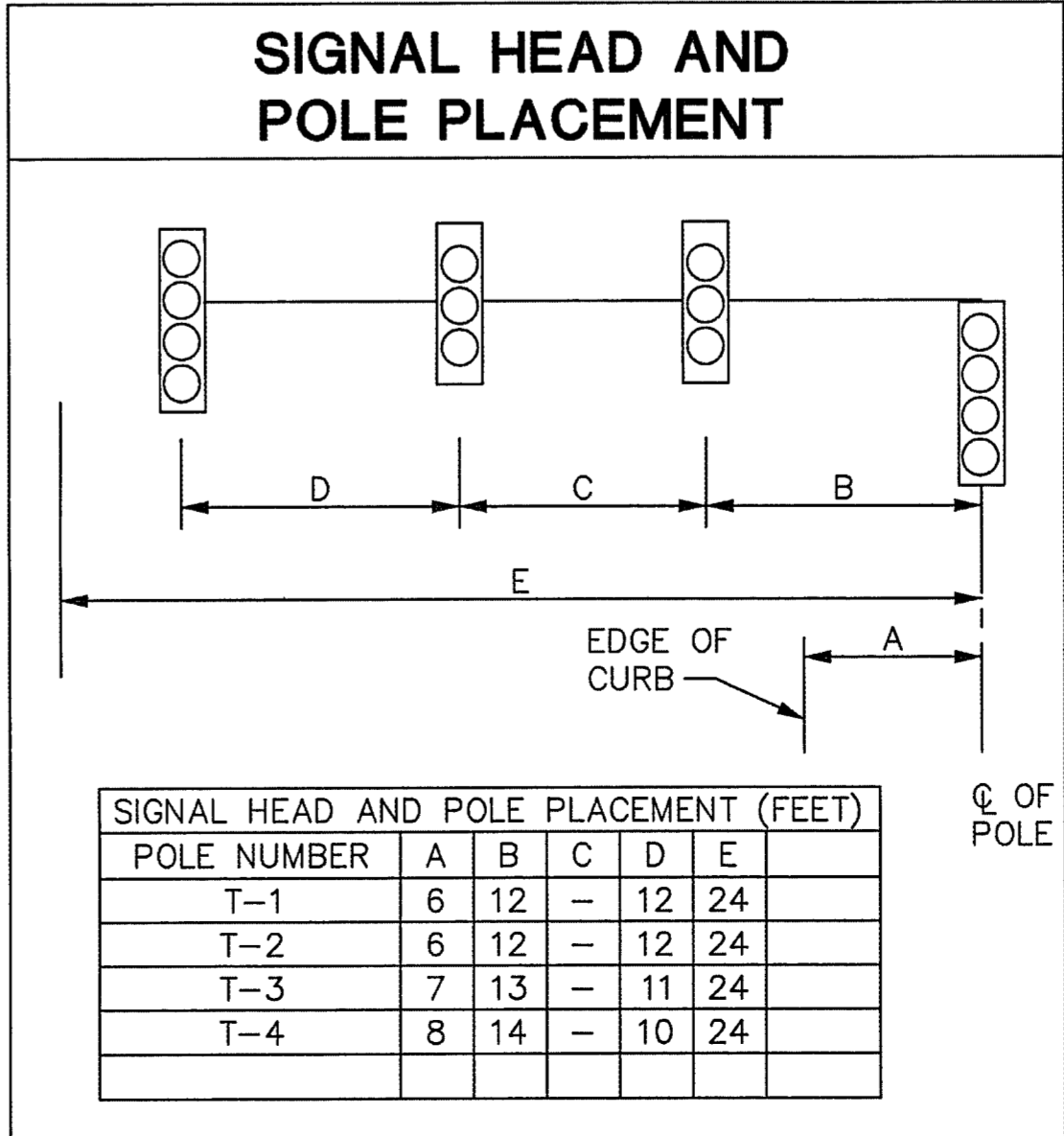


SIGNAL HEADS

| NO | TYPE | PHASE | BACKPLATE | | 12" VEH SEC | PED SIG SEC |
|--------|-------|--------|-----------|-------|-------------|-------------|
| | | | 3 SEC | 4 SEC | | |
| 1 | V4LT* | Ø1+6 | | 1 | 4 | |
| 2 | V3 | Ø6 | 1 | | 3 | |
| 3 | V3 | Ø6 | 1 | | 3 | |
| 4 | V4LT | Ø3 | | 1 | 4 | |
| 5 | V3 | Ø3 | 1 | | 3 | |
| 6 | V4RT* | Ø3+OLA | | 1 | 4 | |
| 7 | V4LT* | Ø5+2 | | 1 | 4 | |
| 8 | V3 | Ø2 | 1 | | 3 | |
| 9 | V3 | Ø2 | 1 | | 3 | |
| 10 | V4LT | Ø4 | | 1 | 4 | |
| 11 | V3 | Ø4 | 1 | | 3 | |
| 12 | V4RT* | Ø4+OLB | | 1 | 4 | |
| 13,20 | PED | Ø4P | | | | 2 |
| 14,15 | PED | Ø6P | | | | 2 |
| 16,17 | PED | Ø3P | | | | 2 |
| 18,19 | PED | Ø2P | | | | 2 |
| TOTALS | | | 6 | 6 | 42 | 8 |

DETECTOR DETAILS

| LOOP | DIMENSION | TURNS | DET. CTR. | SAW CUT |
|--------|--------------|-------|-----------|---------|
| Ø1 | 5'X60' QUAD. | 2 | Presence | 160 |
| Ø2-1 | 5'X60' QUAD. | 2 | Presence | 140 |
| Ø2-2 | 5'X15' | 3 | Pulse | 50 |
| Ø3-1 | 5'X60' QUAD. | 2 | Presence | 160 |
| Ø3-2 | 5'X60' QUAD. | 2 | Presence | 145 |
| Ø4-1 | 5'X60' QUAD. | 2 | Presence | 145 |
| Ø4-2 | 5'X60' QUAD. | 2 | Presence | 155 |
| Ø5 | 5'X60' QUAD. | 2 | Presence | 150 |
| Ø6-1 | 5'X60' QUAD. | 2 | Presence | 150 |
| Ø6-2 | 5'X15' | 3 | Pulse | 50 |
| TOTALS | | | | 1305 |



| DATE | REVISION | BY |
|------|----------|----|
| | | |
| | | |

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

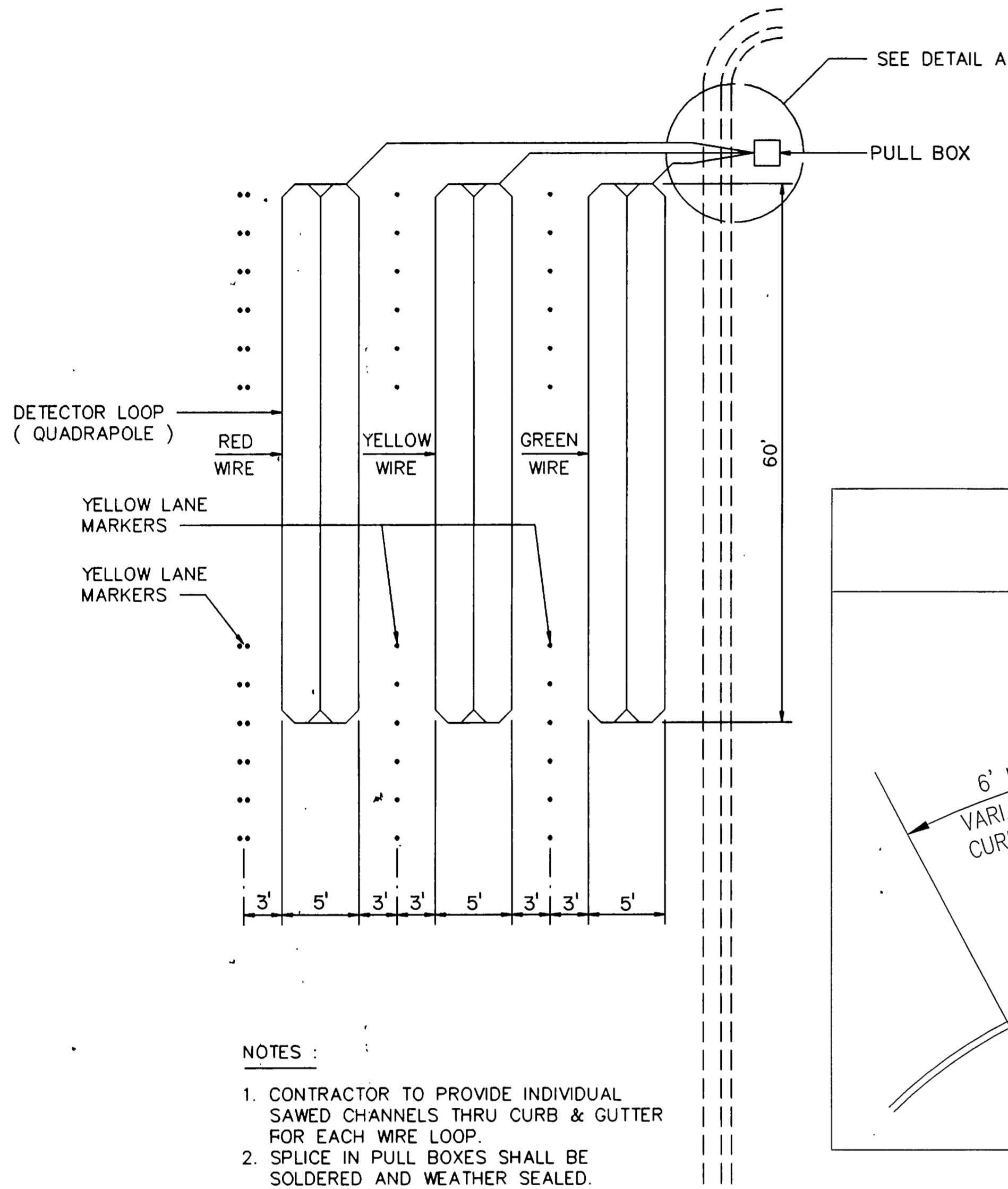
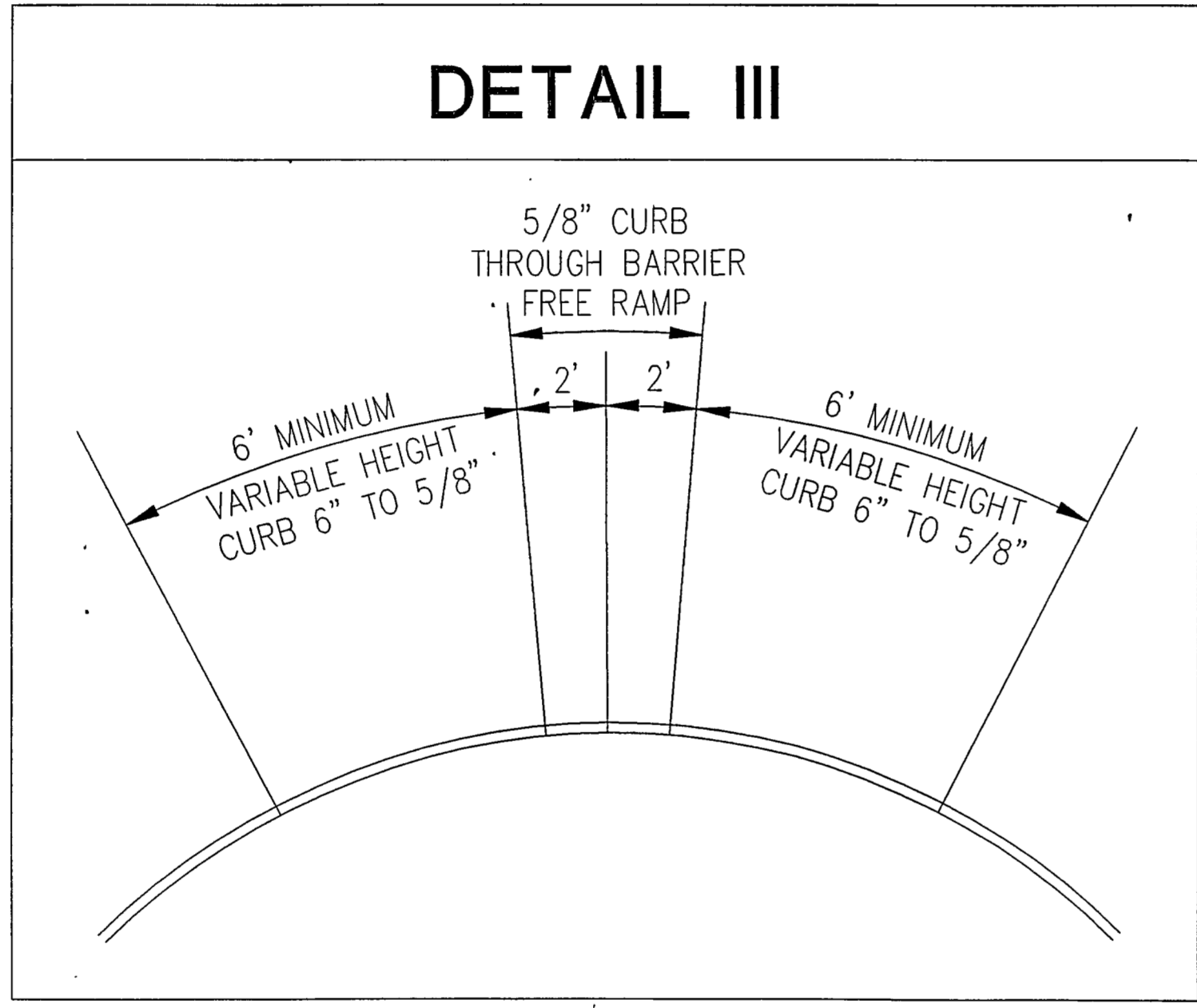
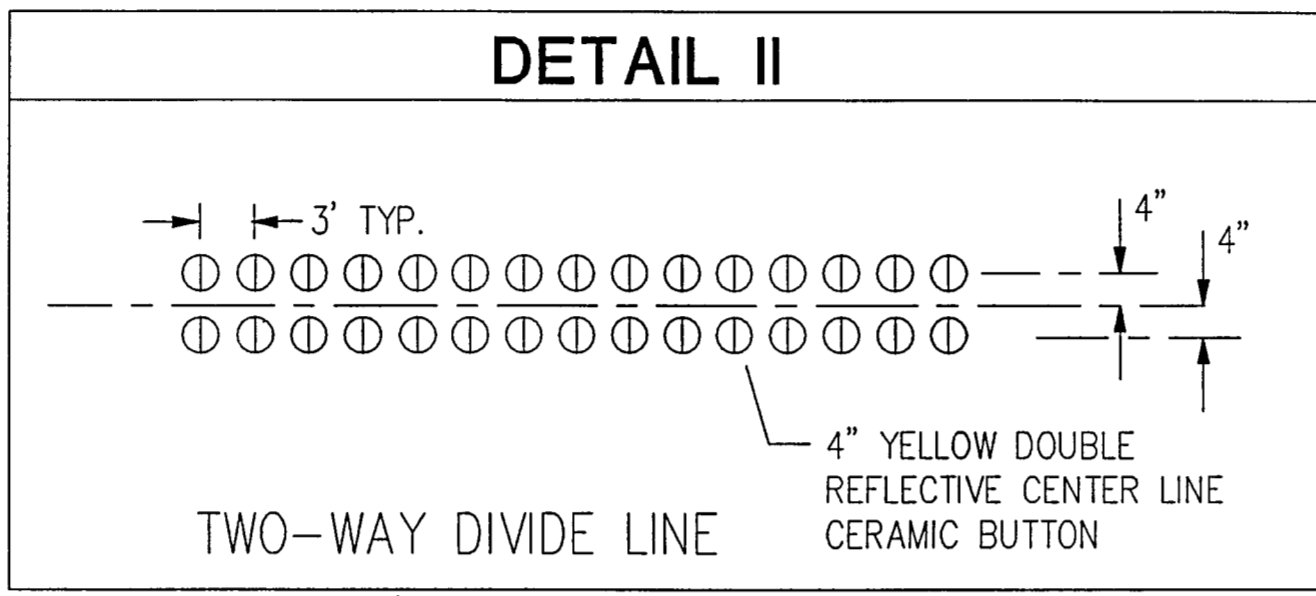
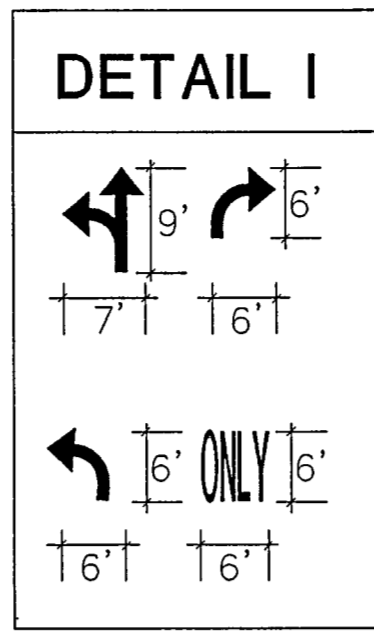
SIGNAL LAYOUT PLANS WESTGROVE ROAD AT SOJOURN LANE

PROJECT NO. 656787.01000
BARTON-ASCHMAN ASSOCIATES INC.
ENGINEERS - DALLAS, TEXAS

| DESIGNED | DRAWN | BKS | DATE | FILE |
|----------|-------|-----|----------|------------------|
| BKS | KDM | BKS | 12/15/94 | FILE SOWESTA.DWG |

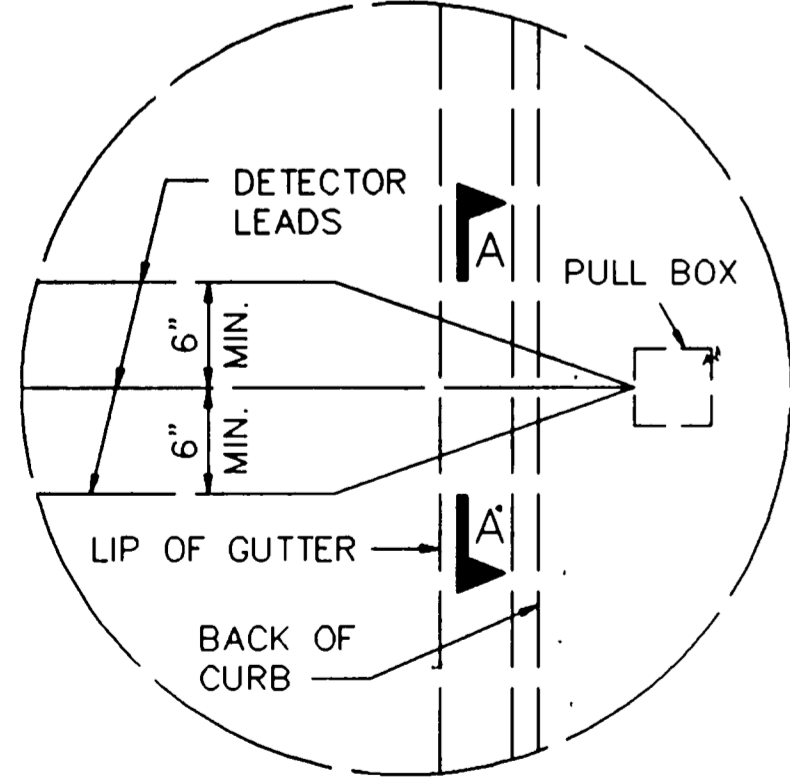
APPROVED: GDJ CHECKED: KDM SCALE: 1"=20' SHEET: 2 OF 9

* - Use green/yellow fiber optic turn arrow.

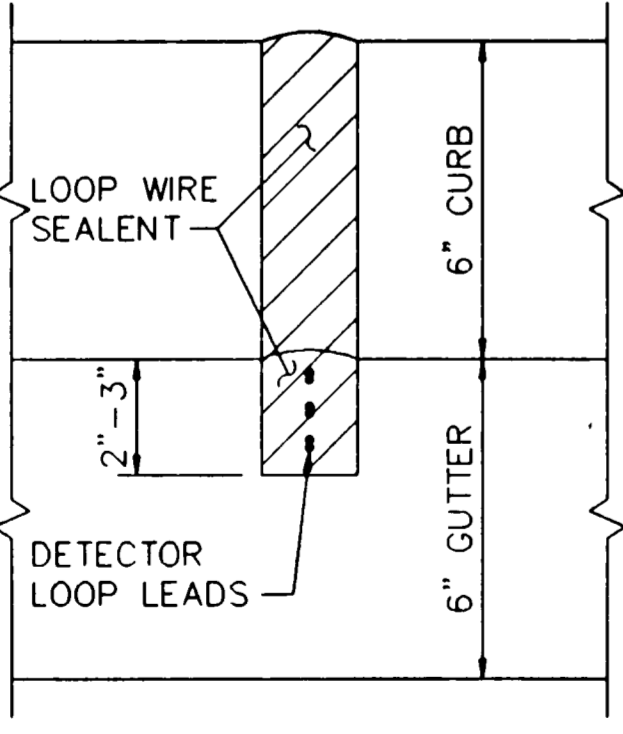


- NOTES:**
1. CONTRACTOR TO PROVIDE INDIVIDUAL SAWED CHANNELS THRU CURB & GUTTER FOR EACH WIRE LOOP.
 2. SPLICE IN PULL BOXES SHALL BE SOLDERED AND WEATHER SEALED.

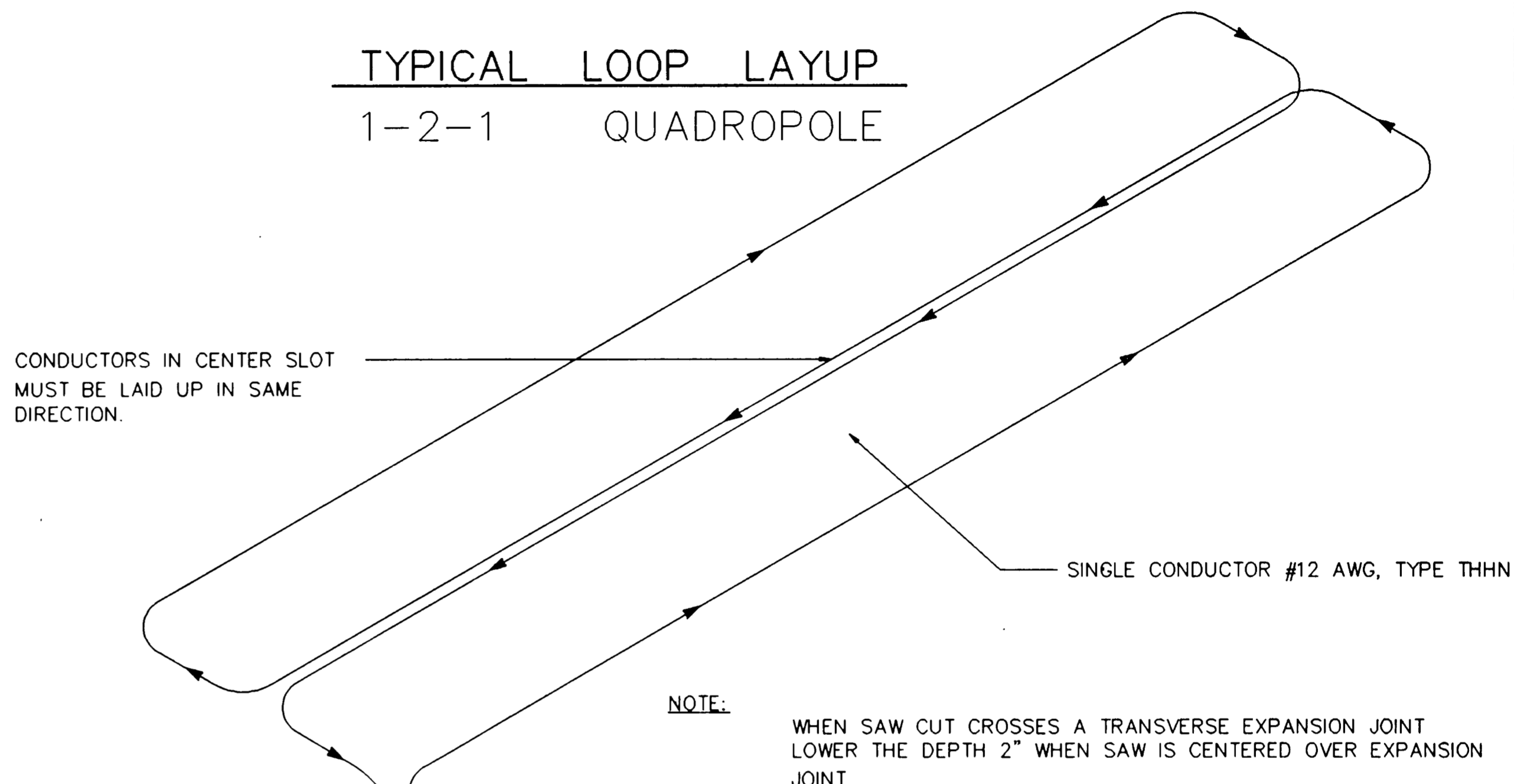
PLAN



VEHICLE LOOP DETECTOR LAYOUT

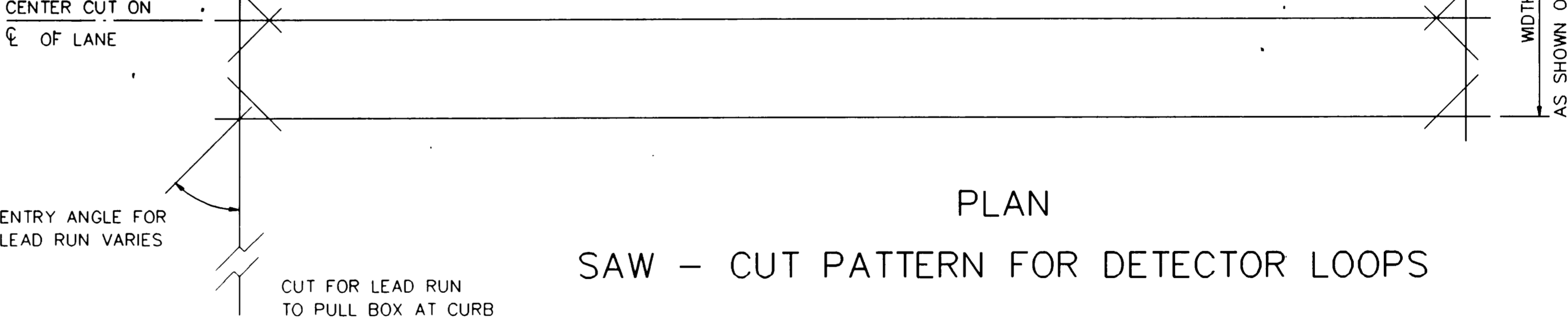
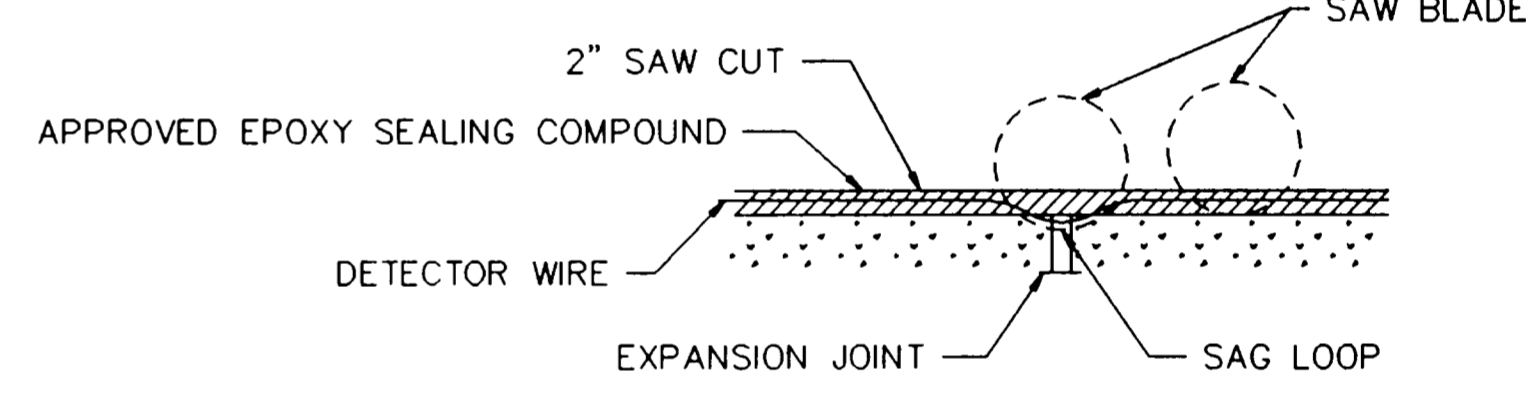


TYPICAL LOOP LAYUP
1-2-1 QUADROPOLE

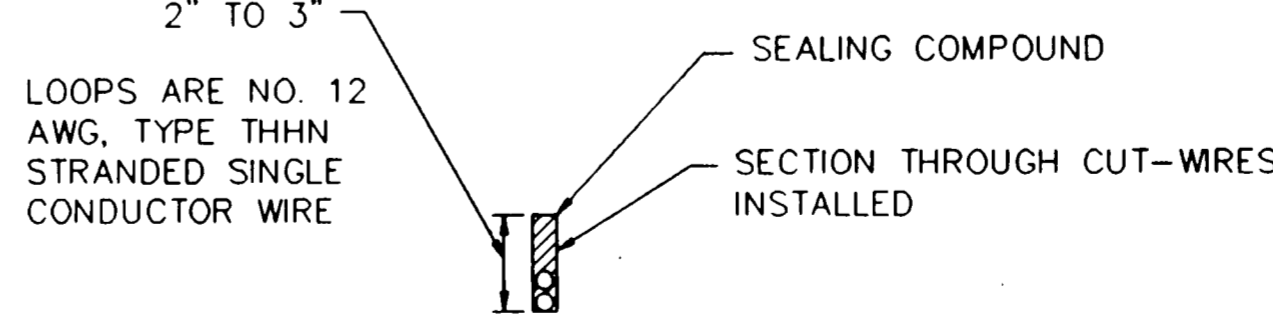


NOTE: WHEN SAW CUT CROSSES A TRANSVERSE EXPANSION JOINT LOWER THE DEPTH 2" WHEN SAW IS CENTERED OVER EXPANSION JOINT.

WIRES TWISTED IN LEAD RUN CUT AT LEAST, 2 TURNS PER FOOT



1. INSTALLATION OF WIRE LOOPS IS TO BE MADE IN THE SHORTEST TIME PRACTICAL, NOT TO EXCEED A 4 HR. MAX. AND SCHEDULED DURING OFF PEAK HOURS TO MINIMIZE DELAY TO VEHICLE TRAFFIC.
2. THE PAVEMENT CUT IS TO BE CUT WITH A CONCRETE SAW TO NEAT LINES AND LOOSE MATERIAL REMOVED. THE CUT SHOULD BE CLEAN AND DRY WHEN THE SEALING COMPOUND IS PLACED.
3. THE LEAD-IN WIRES ARE TO BE TWISTED A MINIMUM OF TWO TURNS PER FOOT AND REMAIN UNDISTURBED AFTER THE LOOP HAS BEEN TUNED.
4. EACH LOOP IS TO BE RETURNED TO CONTROLLER VIA ONE PAIR OF UNSPLICED SHIELDED LEAD-IN WIRES. MULTIPLE, TWISTED LEADS TO MORE THAN ONE LOOP IN SINGLE LEAD, RUN SAW SLOT ARE NOT PERMISSIBLE.
5. ALL LOOPS TO PENETRATE CURB IN A SEPERATE CONDUIT



| No. | Date | Revisions | App. |
|-----|------|-----------|------|
| | | | |

Barton-Aschman Associates, Inc.

TRAFFIC SIGNAL DETAILS

Scale: 1/4" = 1'-0"

Date: 11/29/94

Designed by:

Drawn by:

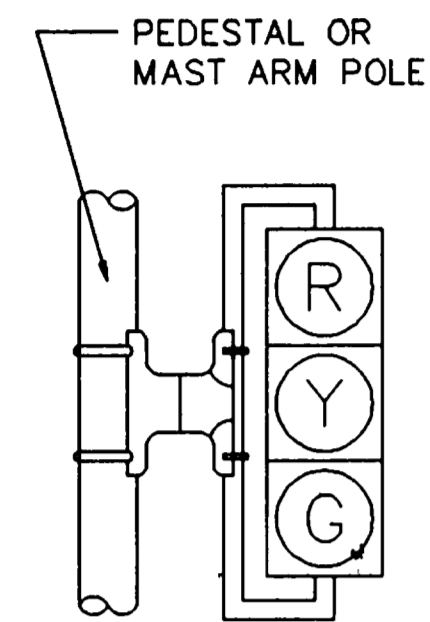
Checked by: BKS

Approved by: BKS

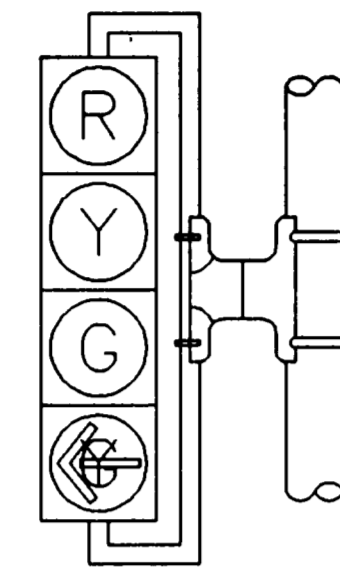
Project No. 652727-01000

SHEET 3

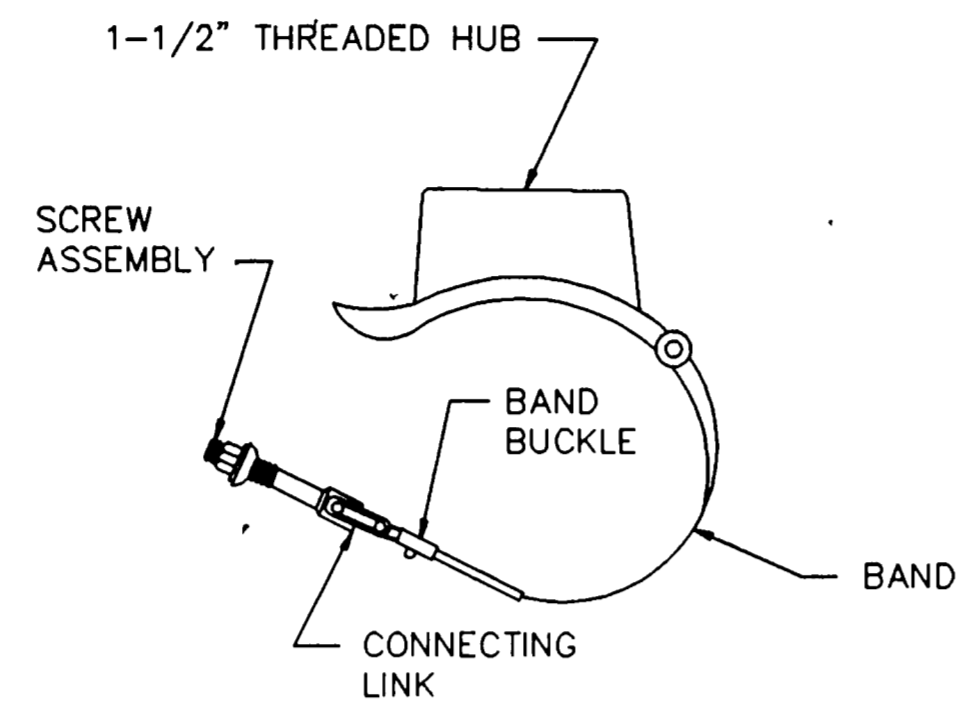
OF 9



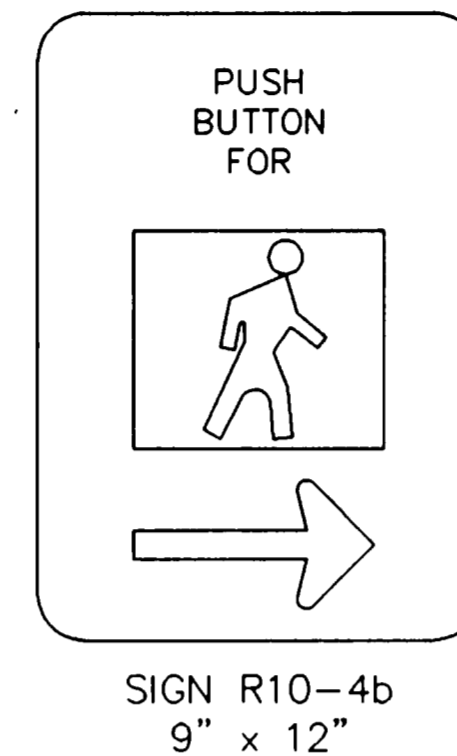
V3



V4LT (RT)



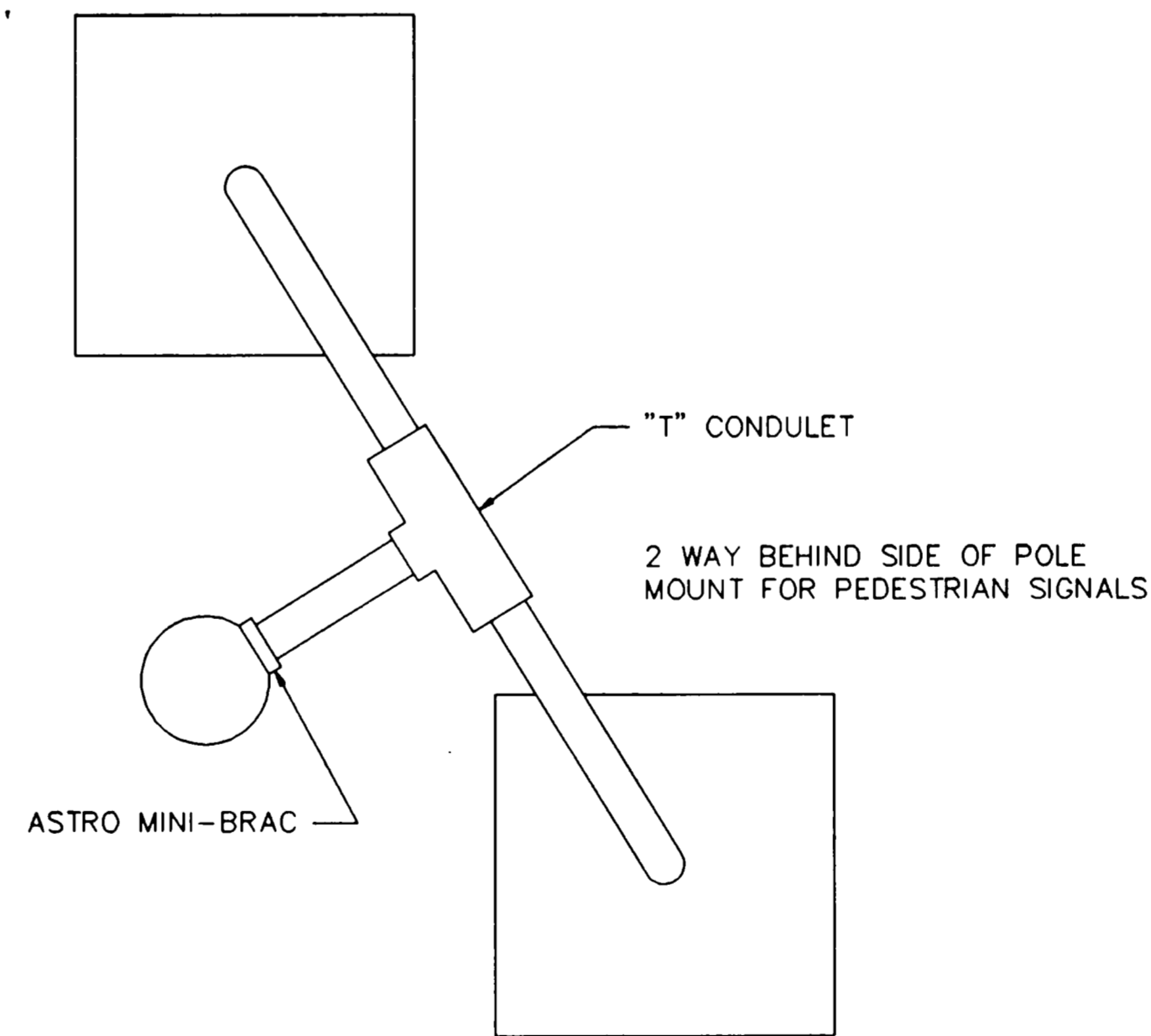
ASTRO MINI-BRAC



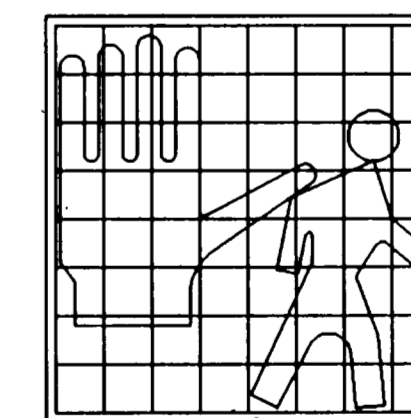
PEDESTRIAN PUSH BUTTON SIGN DETAILS

NOTES :

1. ALL SIGNAL HEAD LENSES SHALL BE 12" IN DIAMETER.
2. VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH "ASTRO-BRACS" AND APPROPRIATE TUBING, PAINTED BLACK. ALL SIGNALS TO BE BLACK, ALL LENSES TO BE GLASS.
3. ALL VISORS SHALL BE TUNNEL VISORS.
4. ALL POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
5. ALL SIGNAL HEADS WILL BE PROVIDED WITH BLACK 5" POLYCARBONATE VACUUM FORMED BACKPLATES.
6. ALL WIRING FOR VEHICLE AND PEDESTRIAN SIGNALS SHALL BE TOTALLY ENCLOSED WITHIN THE SIGNAL MOUNTING HARDWARE.
7. ALL DAMPING DEVICES SHALL BE 18" TO 2' WIDE BY 4' IN LENGTH.
8. ALL PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON SIGNS SHALL DISPLAY THE SYMBOLIZED MESSAGES SHOWN ON THIS SHEET.
9. SYMBOLIZED MESSAGE HEIGHT SHALL BE 10 INCHES MINIMUM.
10. PROVIDE DURO TEST 135 WATT SAVER LAMPS IN VEHICLE SIGNALS.
11. PROVIDE DURO TEST 60 WATT SAVER LAMPS IN PEDESTRIAN SIGNALS.

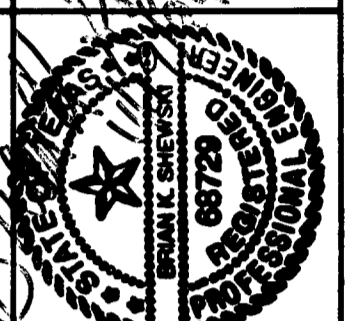


PEDESTRIAN SIGNAL HEAD MOUNTING FOR TWO PEDESTRIAN SIGNAL HEADS



PEDESTRIAN SIGNAL HEAD IDENTIFICATION

| No. | Date | Revisions | APP. |
|-----|------|-----------|------|
| | | | |
| | | | |
| | | | |

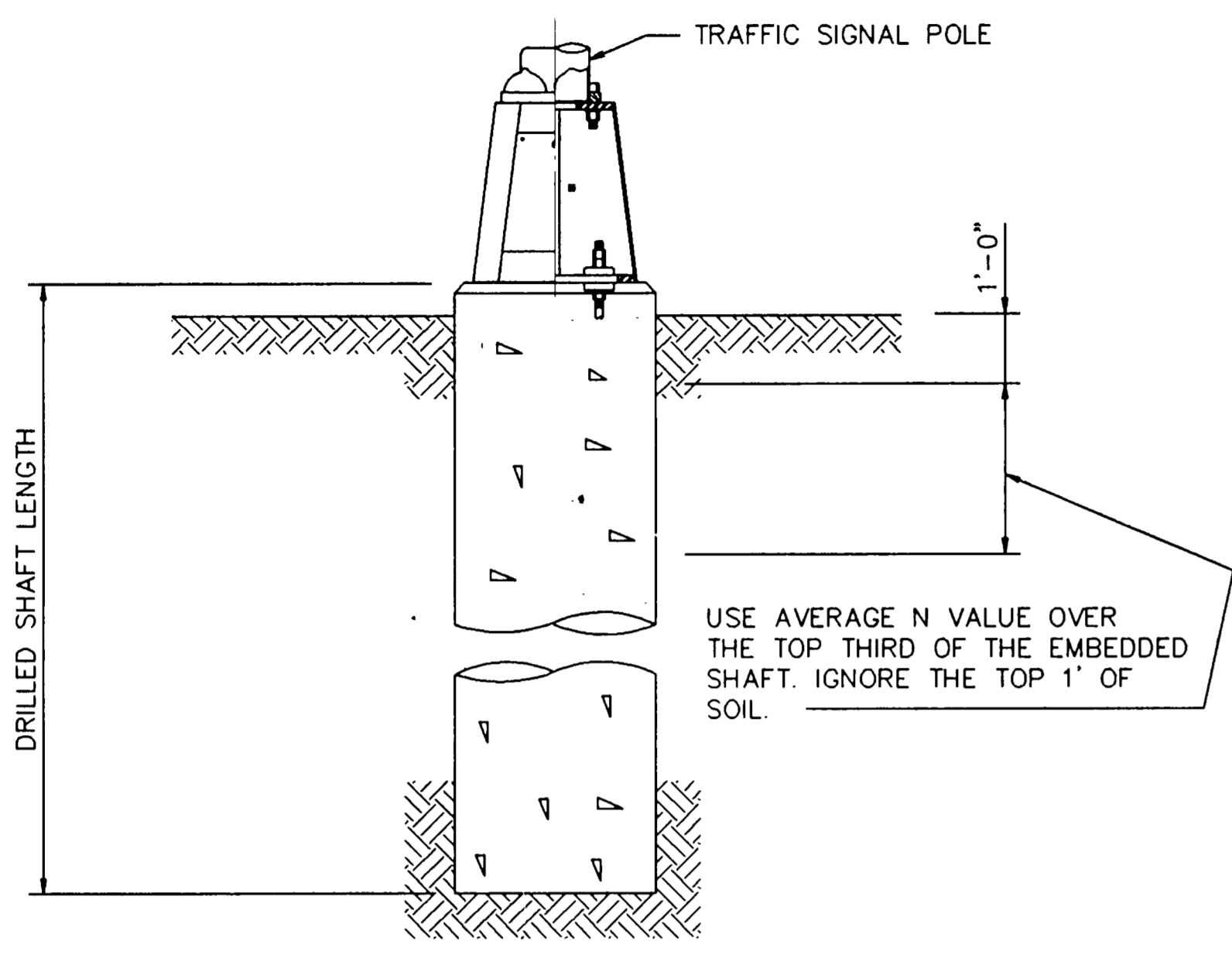


TRAFFIC SIGNAL HEAD IDENTIFICATION

Scale: H- V- Date: 11/29/04
 Designed by:
 Drawn by:
 Checked by: BKS
 Approved by: BKS
 Project No. 663787-01000

Barton-Aschman Associates, Inc.

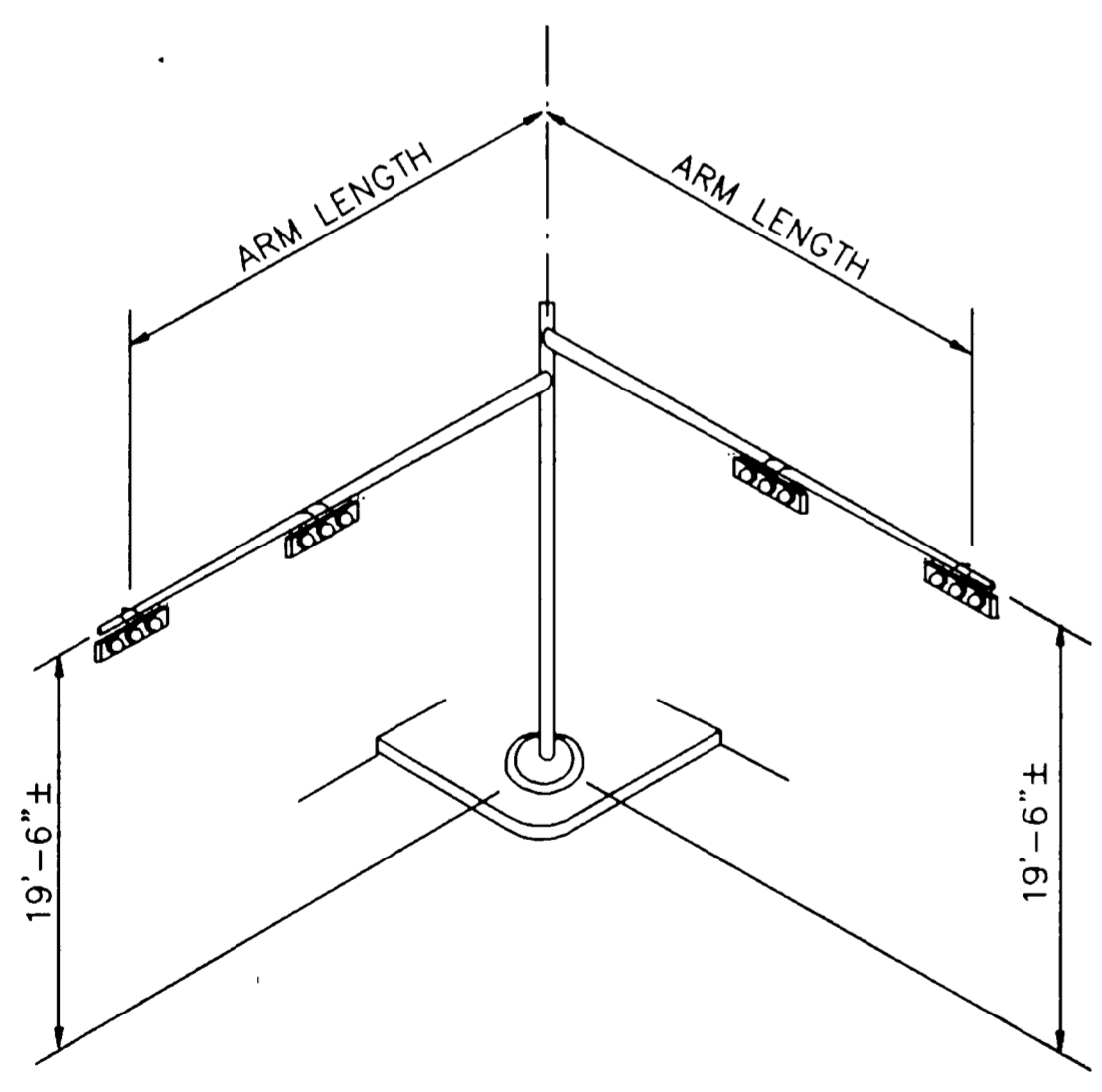




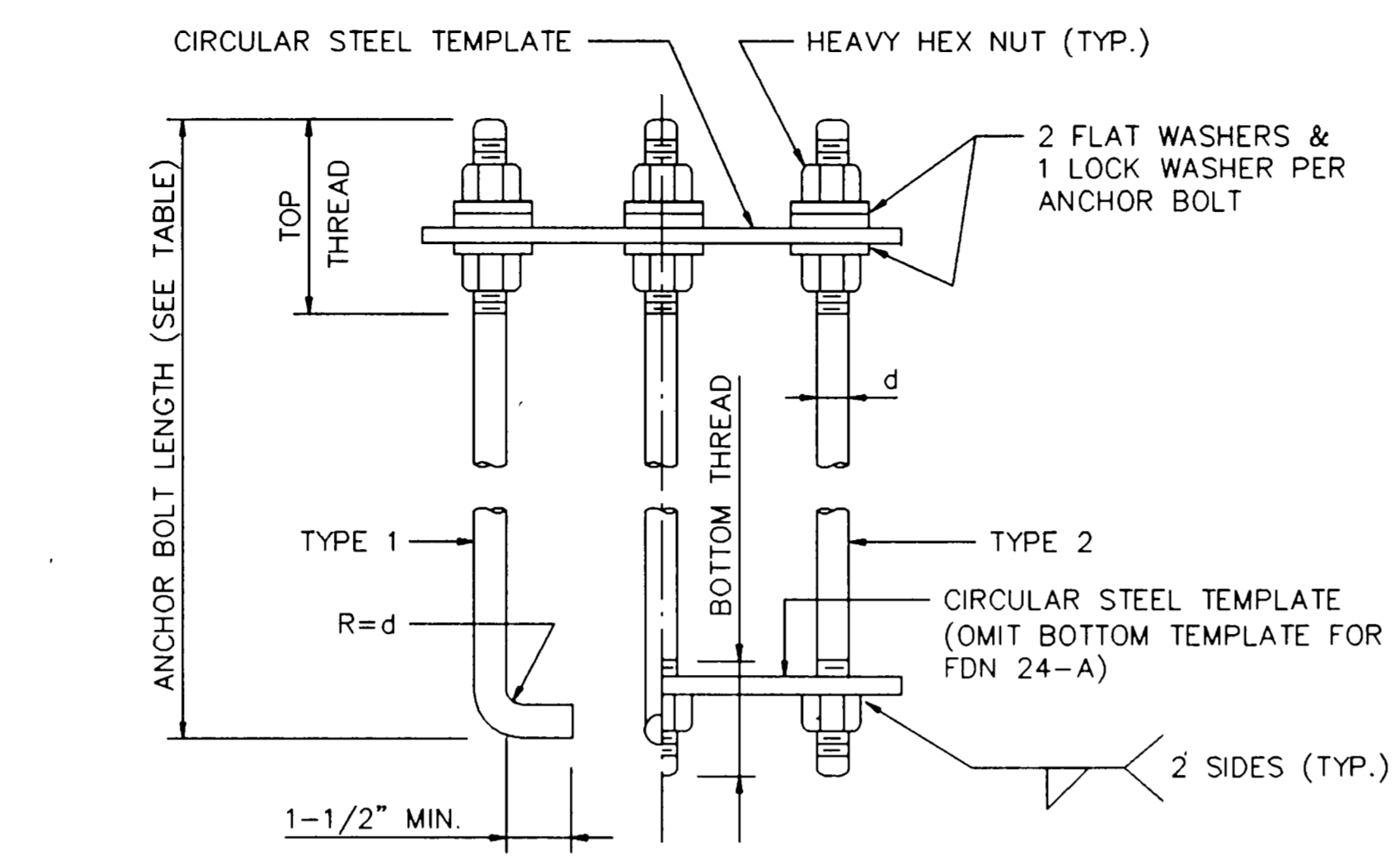
ANCHOR BOLT & TEMPLATE SIZES

| BOLT DIAMETER | BOLT LENGTH | TOP THREAD | BOTTOM THREAD | BOLT CIRCLE | R2 | R1 |
|---------------|-------------|------------|---------------|-------------|---------|--------|
| 3/4" | 1'-6" | 3" | - | 12-3/4" | 7-1/8" | 5-5/8" |
| 1-1/2" | 3'-4" | 6" | 2" | 17" | 10" | 7" |
| 1-3/4" | 3'-10" | 7" | 2-1/4" | 19" | 11-1/8" | 7-3/4" |
| 2" | 4'-3" | 8" | 2-1/2" | 21" | 12-1/2" | 8-1/2" |

* MINIMUM DIMENSIONS GIVEN, LONGER BOLTS ARE ACCEPTABLE.



TYPICAL MAST ARM ASSEMBLY



HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

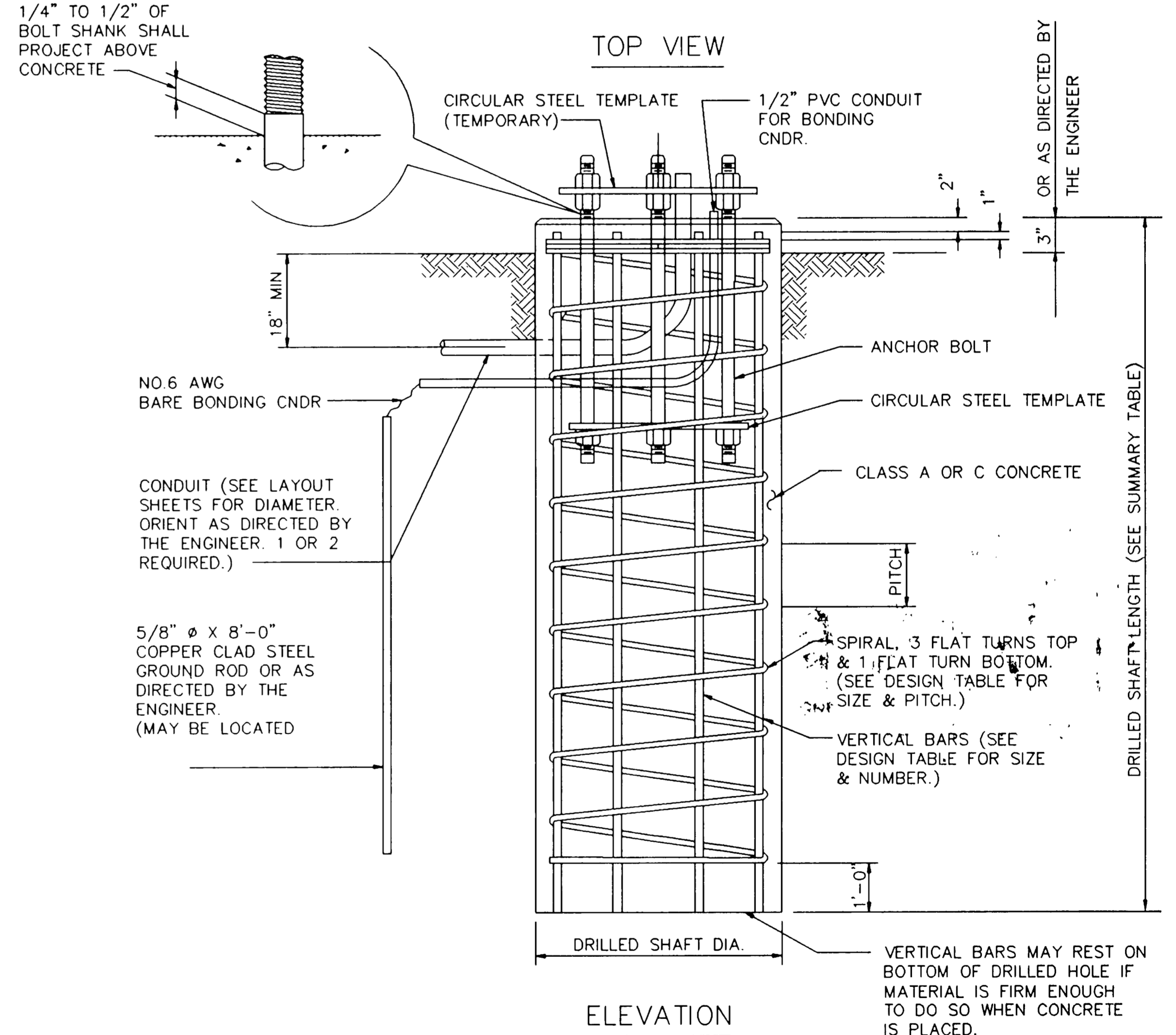
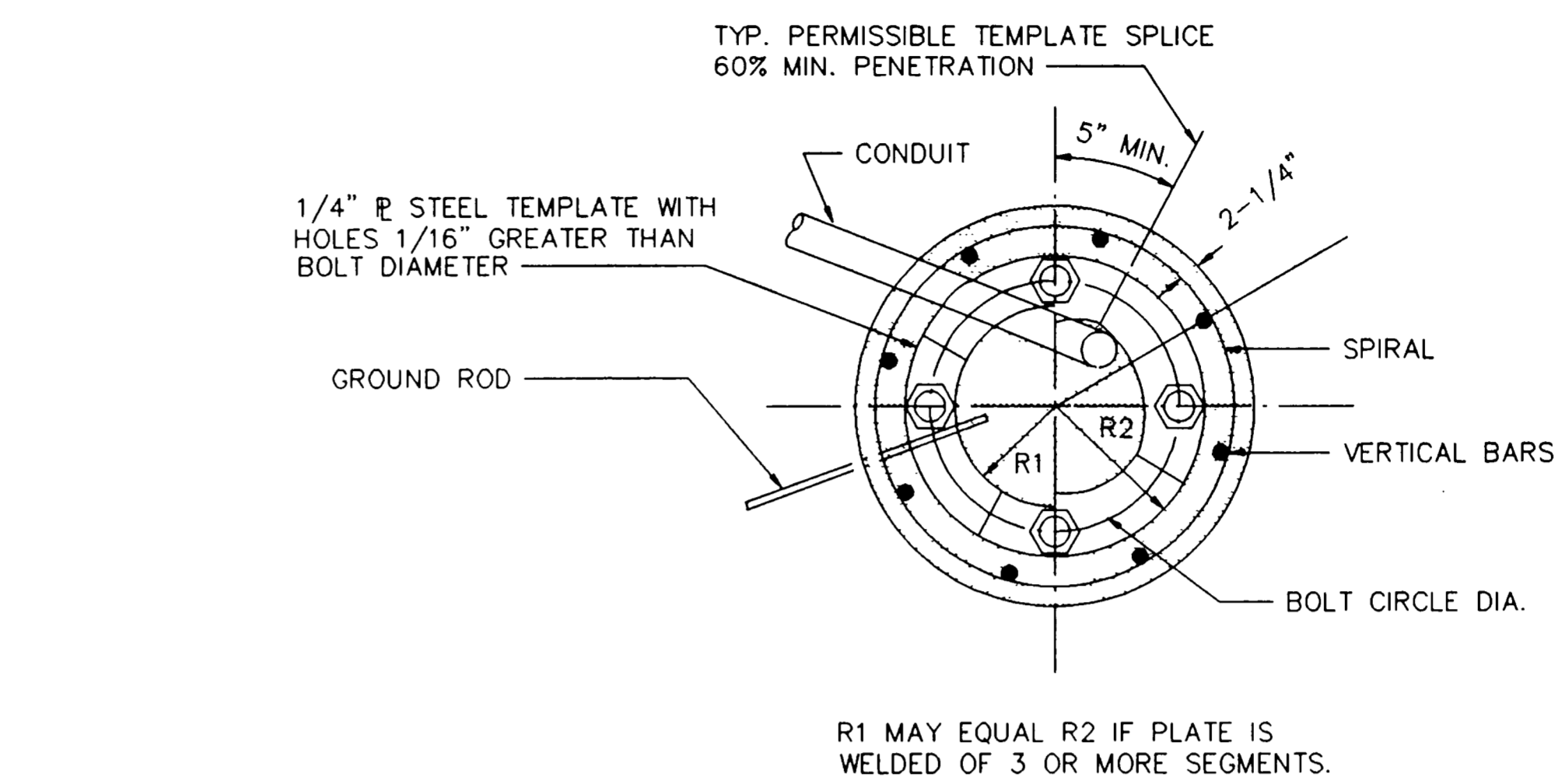
ANCHOR BOLT ASSEMBLY

INSTALLATION PROCEDURE :

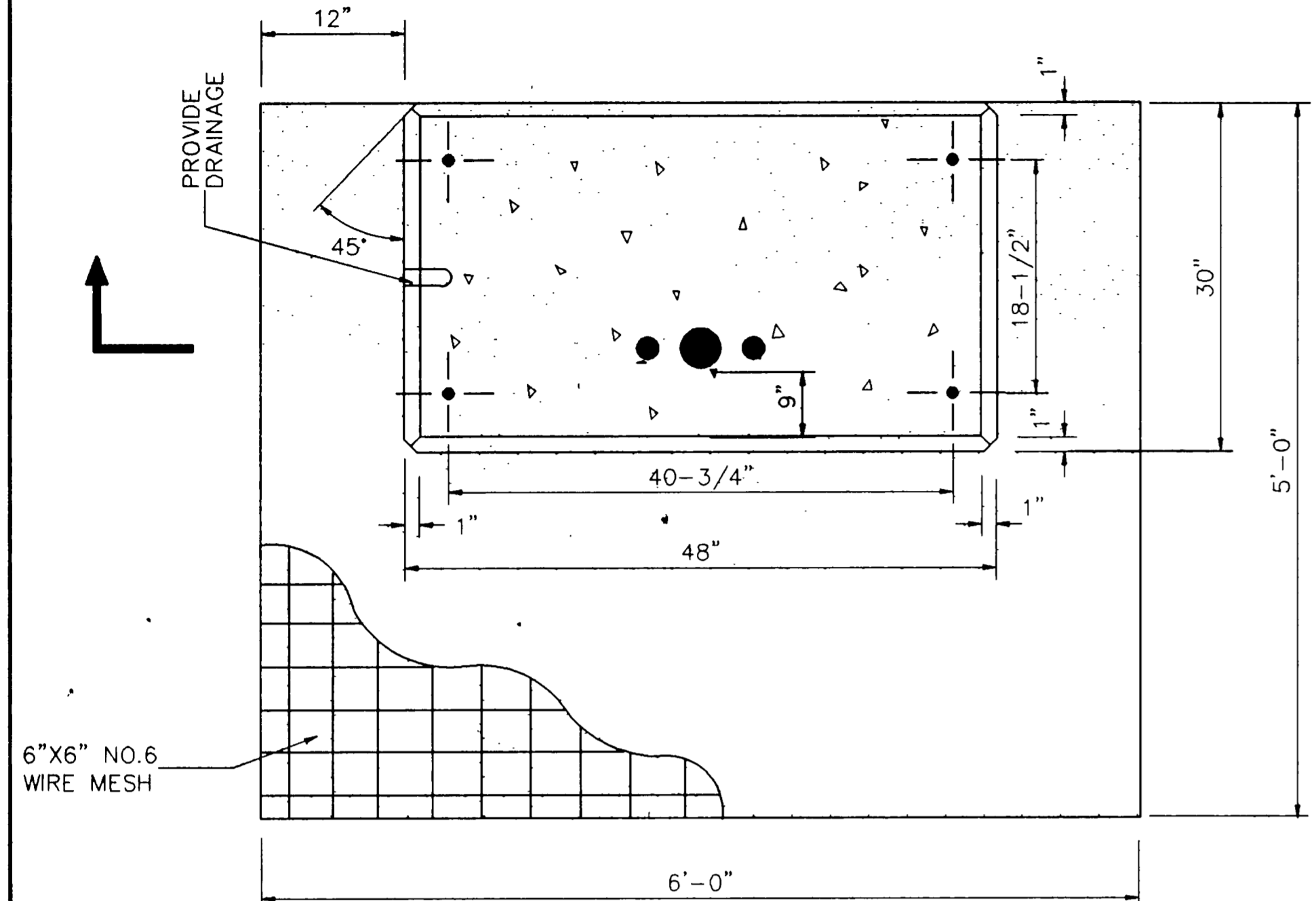
THREADS OF ANCHOR BOLTS SHALL BE COATED WITH PIPE JOINT COMPOUND PRIOR TO INSTALLATION OF UPPER NUTS WHEN ERECTING POLE. AFTER POLE IS PLUMBED AND IN PERMANENT ALIGNMENT, THE EXPOSED THREADS OF PAINTED BOLTS SHALL BE CLEANED AND AN ADDITIONAL COATING OF ZINC-RICH PAINT APPLIED TO SEAL THE BOLT THREAD-NUT JOINT.

NOTES :

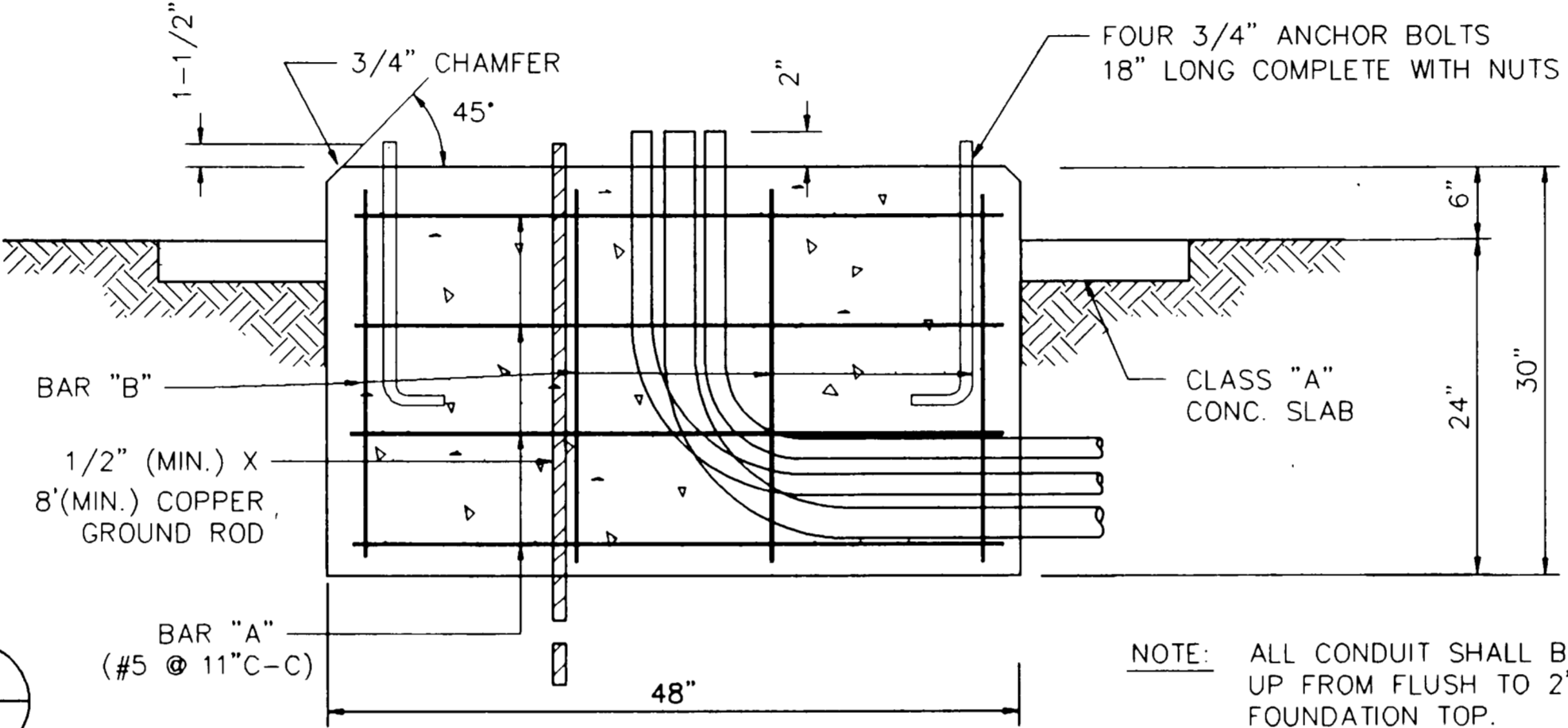
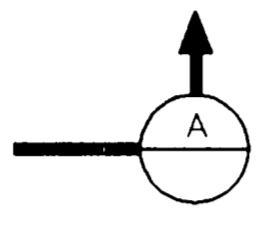
- (1) ANCHOR BOLT DESIGN DEVELOPS THE FOUNDATION CAPACITY GIVEN UNDER FOUNDATION DESIGN LOADS.
- (2) FOUNDATION DESIGN LOADS ARE THE ALLOWABLE MOMENTS AND SHEARS AT THE BASE OF THE STRUCTURE.
- (3) FOUNDATIONS MAY BE LISTED SEPARATELY OR GROUPED ACCORDING TO SIMILARITY OF LOCATION AND TYPE. QUANTITIES ARE FOR THE CONTRACTOR'S INFORMATION ONLY.
- (4) FIELD PENETROMETER READINGS AT A DEPTH OF APPROXIMATELY 3 TO 5 FEET MAY BE USED TO ADJUST SHAFT LENGTHS.
- (5) IF ROCK IS ENCOUNTERED, THE DRILLED SHAFT SHALL EXTEND A MINIMUM OF TWO DIAMETERS INTO SOLID ROCK.
- (6) DECIMAL LENGTHS IN DESIGN TABLE ARE TO ALLOW INTERPOLATION FOR OTHER PENETROMETER VALUES. ROUND TO NEAREST FOOT FOR ENTRY INTO SUMMARY TABLE.



ELEVATION FOUNDATION DETAILS



TOP VIEW
CONTROLLER FOUNDATION
DETAIL 1



NOTE: ALL CONDUIT SHALL BE STUBBED UP FROM FLUSH TO 2" MAX. ABOVE FOUNDATION TOP.

ELEVATION SECTION A

| FDN. TYPE | DRILLED SHAFT DIA. | REINFORCING STEEL VERT. BARS & PITCH | | DRILLED SHAFT LENGTH - feet | | | ANCHOR BOLT DESIGN | | | FOUNDATION DESIGN LOAD | | TYPICAL APPLICATION | |
|-----------|--------------------|---|---------|-----------------------------|-----------------|----------|--------------------|----------------------|------------------|------------------------|-------------|---------------------|---|
| | | | | TEXAS CONE | PENETROMETER, N | blows/ft | ANCHOR BOLT DIA. | F _y (ksi) | BOLT CIRCLE DIA. | ANCHOR TYPE | MOMENT K-ft | | SHEAR Kips |
| | | | | | | | | | | | | | |
| 24-A | 24" | 4-#5 | #2at12" | 5.7 | 5.3 | 4.5 | 3/4" | 36 | 12-3/4" | 1 | 10 | 1 | PEDESTAL POLE, PEDESTAL MOUNTED CONTROLLER. |
| 30-A | 30" | 8-#7 | #3at9" | 11.3 | 10.3 | 8.0 | 1-1/2" | 55 | 17" | 2 | 87 | 3 | MAST ARM ASSEMBLY (SEE SELECTION TABLE) |
| 30-B | 30" | 8-#9 | #3at9" | 13.2 | 11.9 | 9.0 | 1-3/4" | 55 | 19" | 2 | 131 | 5 | MAST ARM ASSEMBLY (SEE SELECTION TABLE) 30' STRAIN POLE WITH OR WITHOUT LUMINAIRE. |
| 36-A | 36" | 12-#9 | #3at9" | 15.2 | 13.6 | 10.4 | 2" | 55 | 21" | 2 | 190 | 7 | MAST ARM ASSEMBLY (SEE SELECTION TABLE) STRAIN POLE TALLER THAN 30' & STRAIN POLE WITH MAST ARM. |

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM ASSEMBLIES

| DESIGN WIND SPEED | MAXIMUM SINGLE ARM LENGTH | FDN 30-A | FDN 30-B | FDN 36-A |
|---------------------------|--|-----------|-----------|----------|
| | | 80 MPH | 36' | 48' |
| 80 MPH DESIGN WIND SPEED | MAXIMUM DOUBLE ARM LENGTH COMBINATIONS | 24' x 24' | | |
| | | 28' x 28' | | |
| | | 32' x 28' | 32' x 32' | |
| | | 36' x 36' | | |
| 100 MPH DESIGN WIND SPEED | MAXIMUM SINGLE ARM LENGTH | 40' x 36' | | |
| | | 44' x 28' | 44' x 36' | |
| | | 24' | 36' | 44' |
| | | 24' x 24' | | |
| 100 MPH DESIGN WIND SPEED | MAXIMUM DOUBLE ARM LENGTH COMBINATIONS | 28' x 28' | | |
| | | 32' x 24' | 32' x 32' | |
| | | 36' x 36' | | |
| | | 40' x 36' | | |
| | | 44' x 36' | | |

- EXAMPLES :
- (1) FOR 80MPH DESIGN WIND SPEED, FOUNDATION 30-A CAN SUPPORT UP TO A 32' ARM WITH ANOTHER ARM UP TO 28'.
 - (2) FOR 100MPH DESIGN WIND SPEED, FOUNDATION 30-B CAN SUPPORT A SINGLE 36' MAST ARM.

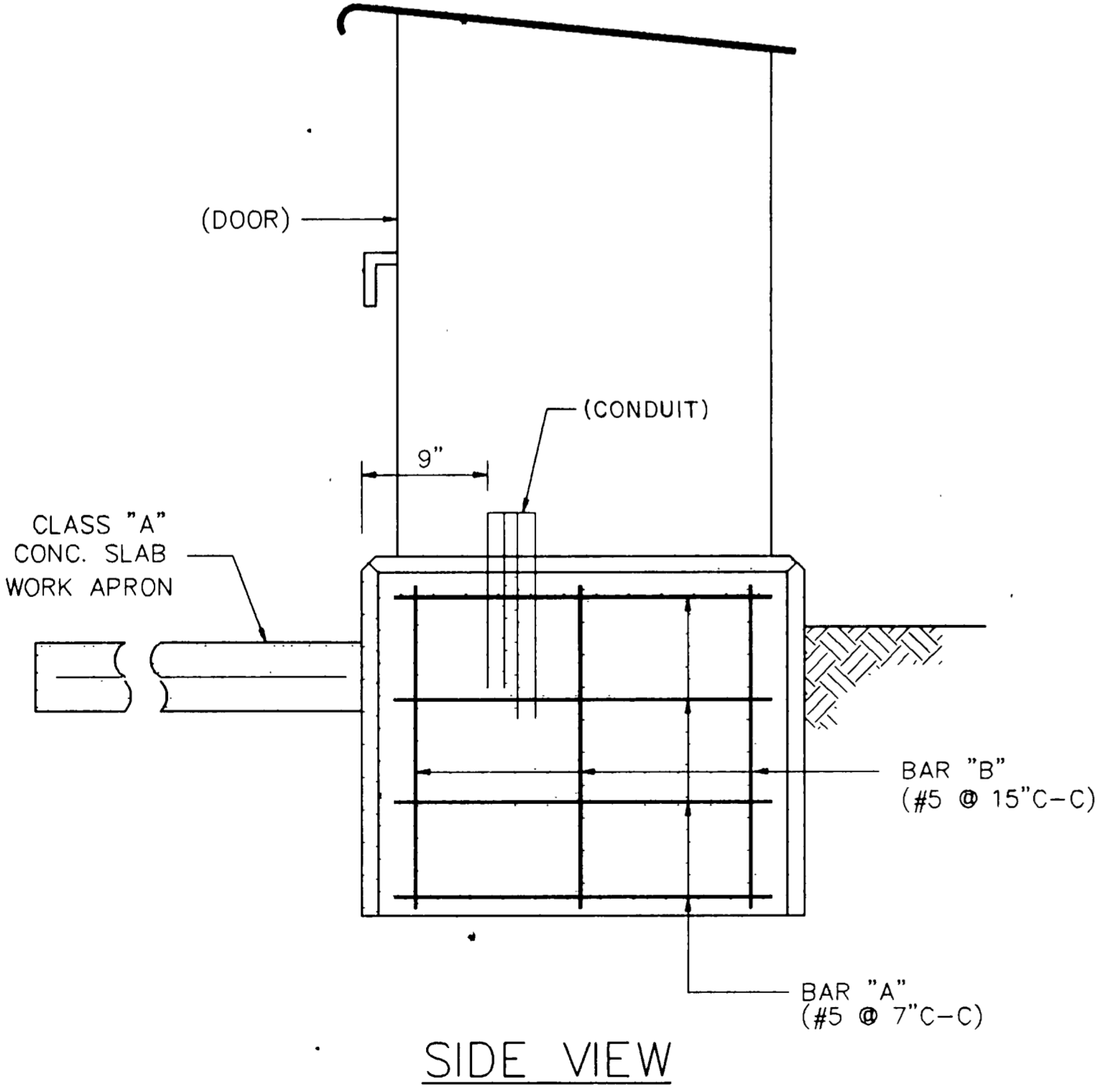
GENERAL NOTES :

DESIGN CONFORMS TO 1975 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS AND INTERIM REVISIONS THERETO.

CONCRETE SHALL BE CLASS C.
 THREADS FOR ANCHORE BOLTS AND NUTS SHALL BE ROLLED OR CUT THREADS OF UNIFIED NATIONAL COARSE THREAD SERIES EXCEPT FOR A19387 BOLTS WHICH SHALL HAVE 8 PITCH THREAD SERIES. BOLTS AND NUTS SHALL HAVE CLASS 2A AND 2B FIT TOLERANCES. GALVANIZED NUTS SHALL BE TAPPED AFTER GALVANIZING.
 ANCHOR BOLTS THAT ARE 1" IN DIAMETER OR LESS SHALL CONFORM TO ASTM A36. ANCHOR BOLTS LARGER THAN 1" IN DIAMETER SHALL CONFORM TO SPECIAL SPECIFICATION A36M55 OR ASTM A19387 OR A687; GALVANIZE OR COAT WITH ZINC-RICH PAINT A MINIMUM OF THE UPPER 14 INCHES OF ALL ANCHORE BOLTS UNLESS OTHERWISE NOTED. NUTS FOR ANCHOR BOLTS SHALL CONFORM TO ASTM A563 Gr A OR BETTER HEAVY HEX. EXPOSED NUTS SHALL BE GALVANIZED OR COATED WITH ZINC-RICH PAINT. WASHERS SHALL BE GALVANIZED. TEMPLATES AND EMBEDDED NUTS NEED NOT BE GALVANIZED.

FOUNDATION SUMMARY TABLE

| LOCATION / IDENTIFICATION | AVG. N blows/ft | FDN TYPE | NO. (ea.) | DRILLED SHAFT LENGTH (FEET) | | | |
|-----------------------------|-----------------|----------|-----------|-----------------------------|------|------|------|
| | | | | 24-A | 30-A | 30-B | 36-A |
| POLE T-1 | - | - | - | | 11' | | |
| POLE T-2 | - | - | - | | 11' | | |
| POLE T-3 | - | - | - | | 11' | | |
| POLE T-4 | - | - | - | | 11' | | |
| TOTAL DRILLED SHAFT LENGTHS | | | | | 44' | | |



SIDE VIEW

Revisions

No. Date

APP.

Barton-Aschman Associates, Inc.



FOUNDATION SUMMARY

Scale: H=, V=

Date: 11/29/94

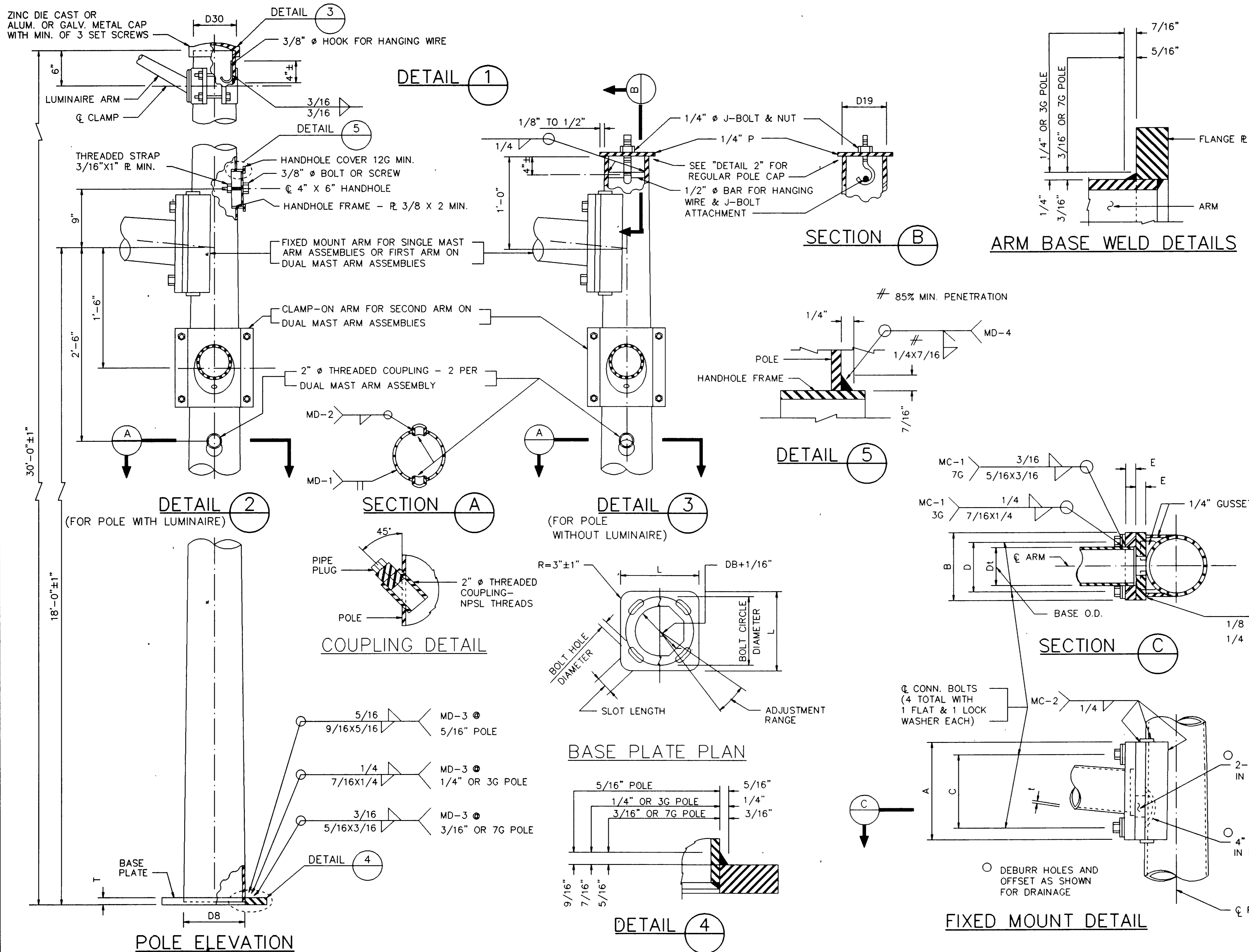
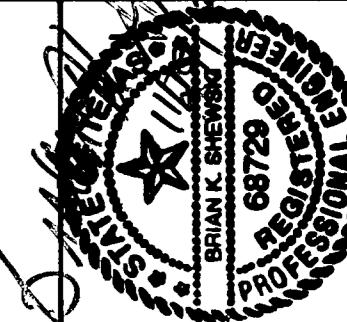
Designed by:

Drawn by:

Checked by: BKS

Approved by: BKS

Project No. 663787-01000



MATERIALS

| | |
|------------------|---|
| ROUND SHAFTS | ASTM A595 GRA, ASTM A570 GR50 |
| PLATES (1) | ASTM A36 OR A572 GR50 OR A595 (2) OR A36M50 |
| CONNECTION BOLTS | ASTM A325 EXCEPT WHERE NOTED |
| PIN BOLTS | ASTM A325 |
| PIPE | ASTM A53 GR A OR B, OR A501 |
| MISC. HARDWARE | GALVANIZED STEEL OR STAINLESS OR AS NOTED |

- (1) ANY OF THE MATERIALS LISTED FOR PLATES MAY BE USED WHERE THE DRAWINGS DO NOT SPECIFY A PARTICULAR GRADE DESIGNATION.
- (2) IF A595 MATERIAL IS USED, IT NEED NOT BE COLD WORKED TO A595 REQUIREMENTS, BUT MATERIALS MUST HAVE 40 KSI MINIMUM YIELD PRIOR TO FABRICATION.

| ARM SIZE | Dt | t | A | B | C | D | E | CONN. BOLT DIAM. |
|----------|------|---|----|----|----|----|-------|------------------|
| | | | in | in | in | in | in | |
| 6.5 | .179 | | 12 | 9 | 9 | 6 | 1 | 1 |
| 7.5 | .179 | | 13 | 9 | 10 | 6 | 1 | 1 |
| 8.0 | .179 | | 14 | 10 | 11 | 7 | 1-1/4 | 1-1/4 |
| 9.0 | .179 | | 16 | 11 | 13 | 8 | 1-1/4 | 1-1/4 |
| 9.5 | .179 | | 17 | 12 | 14 | 9 | 1-1/4 | 1-1/4 |
| 9.5 | .239 | | 18 | 12 | 15 | 9 | 1-1/4 | 1-1/4 |
| 10.0 | .239 | | 18 | 12 | 15 | 9 | 1-1/4 | 1-1/4 |
| 10.5 | .239 | | 18 | 13 | 15 | 10 | 1-1/2 | 1-1/2 |
| 11.0 | .239 | | 18 | 13 | 15 | 10 | 1-1/2 | 1-1/2 |

GENERAL NOTES:
 CLAMP-ON DETAILS ARE USED FOR THE SECOND ARM ON DUAL MAST ARM ASSEMBLIES. A MAXIMUM 1-1/2" WIDE VERTICAL SLOTTED HOLE MAY BE CUT IN THE FRONT CLAMP PLATE TO FACILITATE DRAINAGE DURING GALVANIZING. THE SLOT SHALL BE CENTERED BEHIND THE ARM AND SHALL BE NO LONGER THAN THE ARM DIAMETER MINUS 1".
 FIXED MOUNT DETAILS ARE USED FOR SINGLE MAST ARM ASSEMBLIES AND FOR THE FIRST ARM ON DUAL MAST ARM ASSEMBLIES.
 WHERE DUPLICATE PARTS OCCUR ON DETAIL, WELDS SHOWN FOR ONE PART SHALL APPLY TO ALL SIMILAR PARTS ON THE DETAIL.
 PIN BOLTS ARE REQUIRED TO PREVENT ROTATION OF CLAMP-ON ARMS UNDER DESIGN WIND FORCES.
 ALL POLES ARMS & METAL HARDWARE TO BE PAINTED "BRUSHING BROWN".

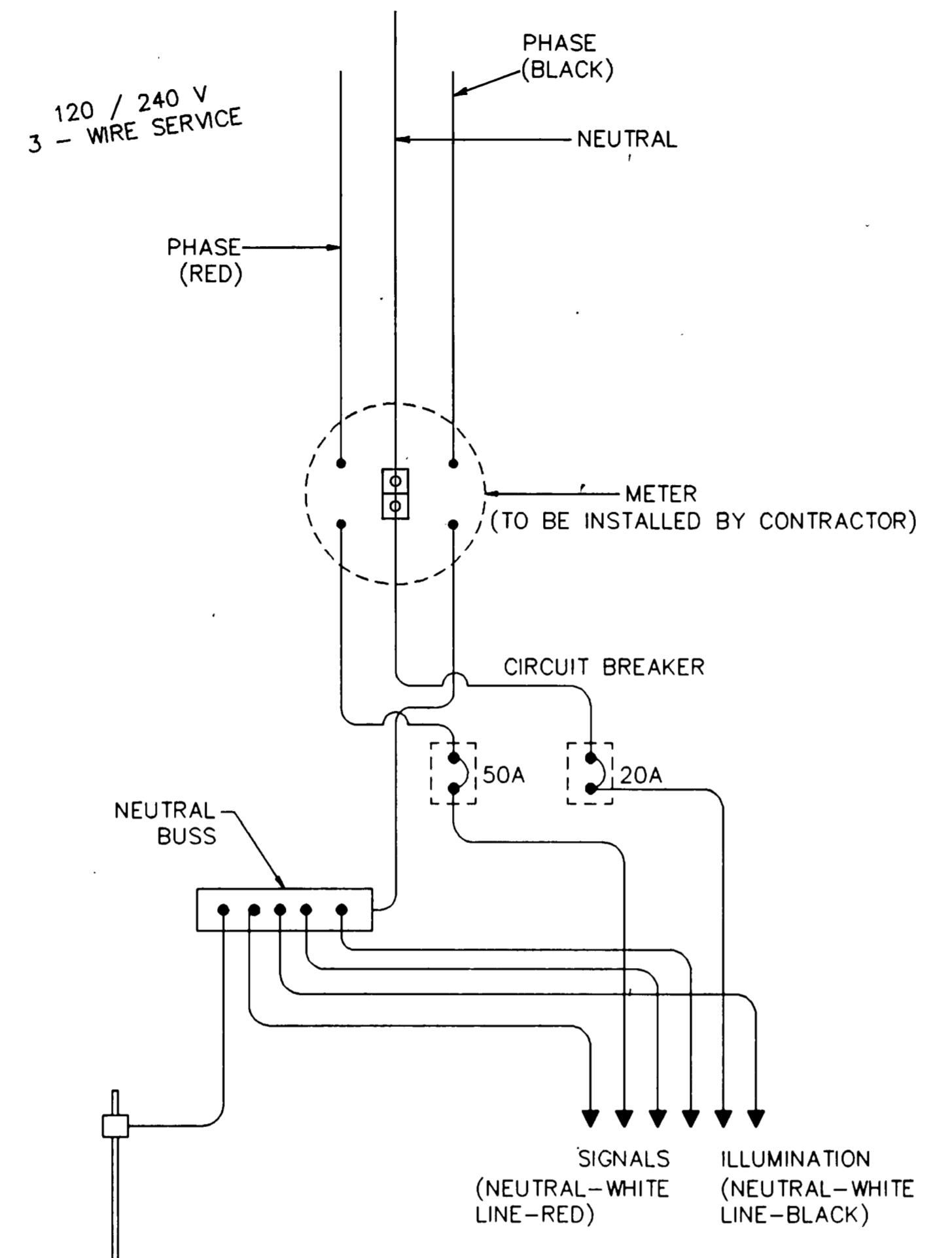
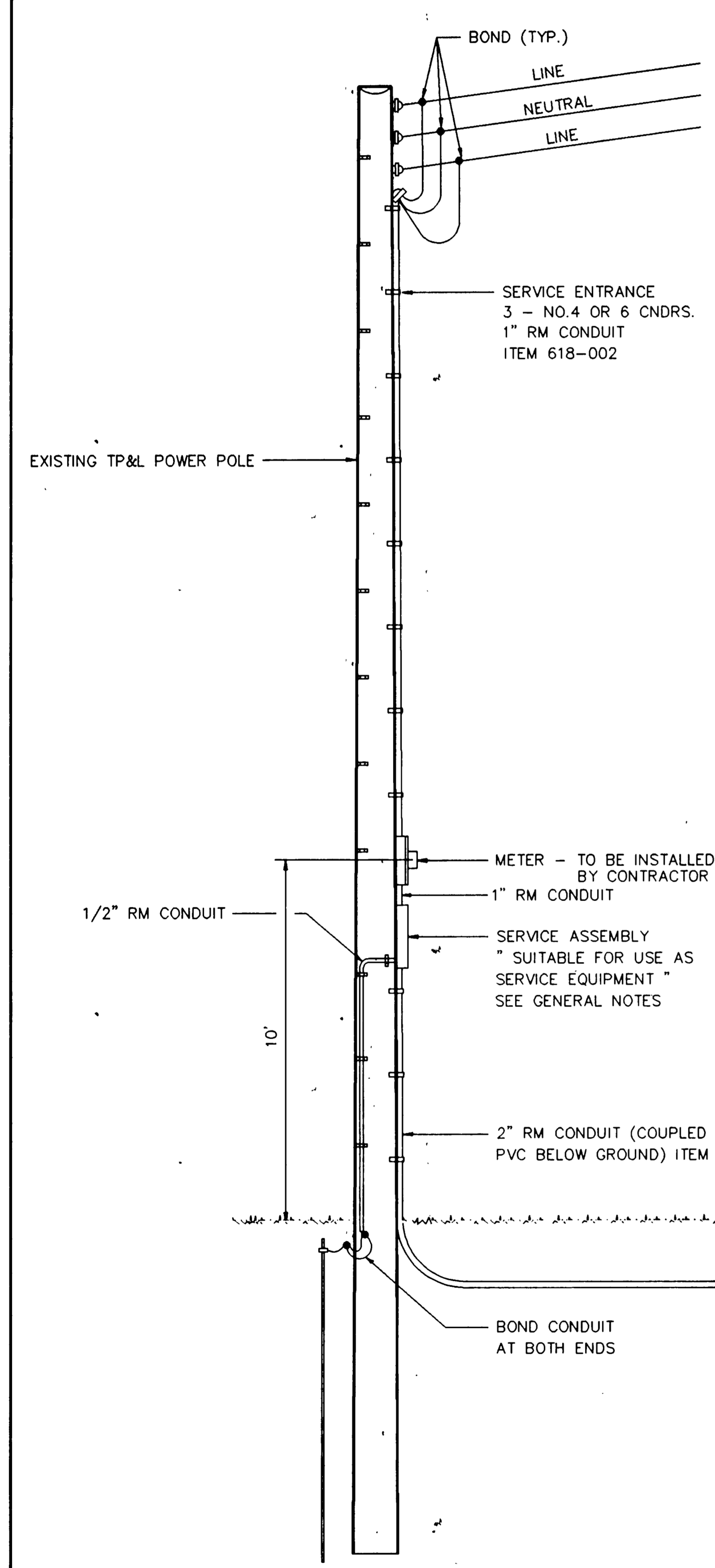
○ DEBURR HOLES AND OFFSET AS SHOWN FOR DRAINAGE

| | |
|-----------|------|
| App. | |
| Revisions | |
| No. | Date |

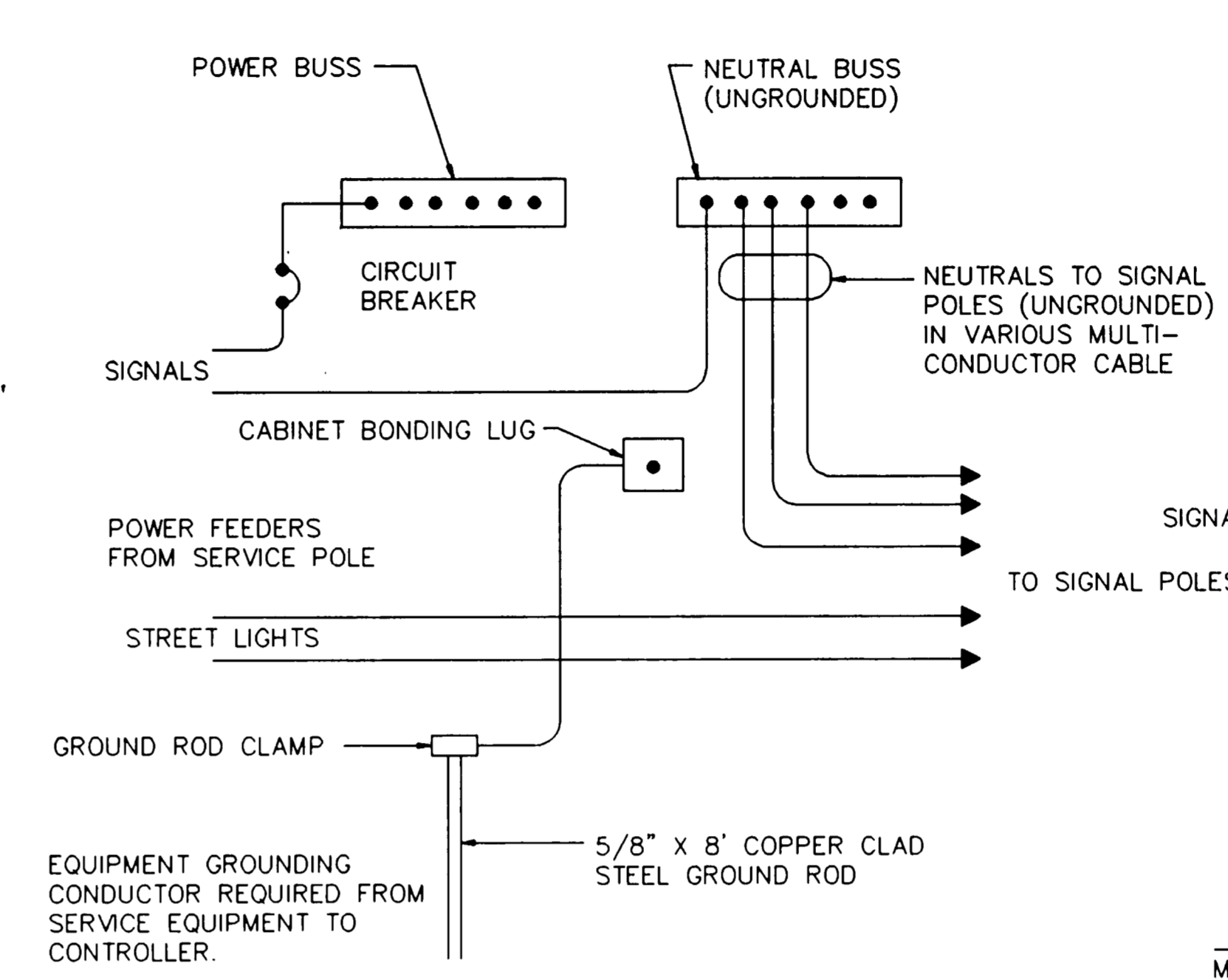


SERVICE POLE AND GROUNDING DETAILS
 Barton-Aschman Associates, Inc.

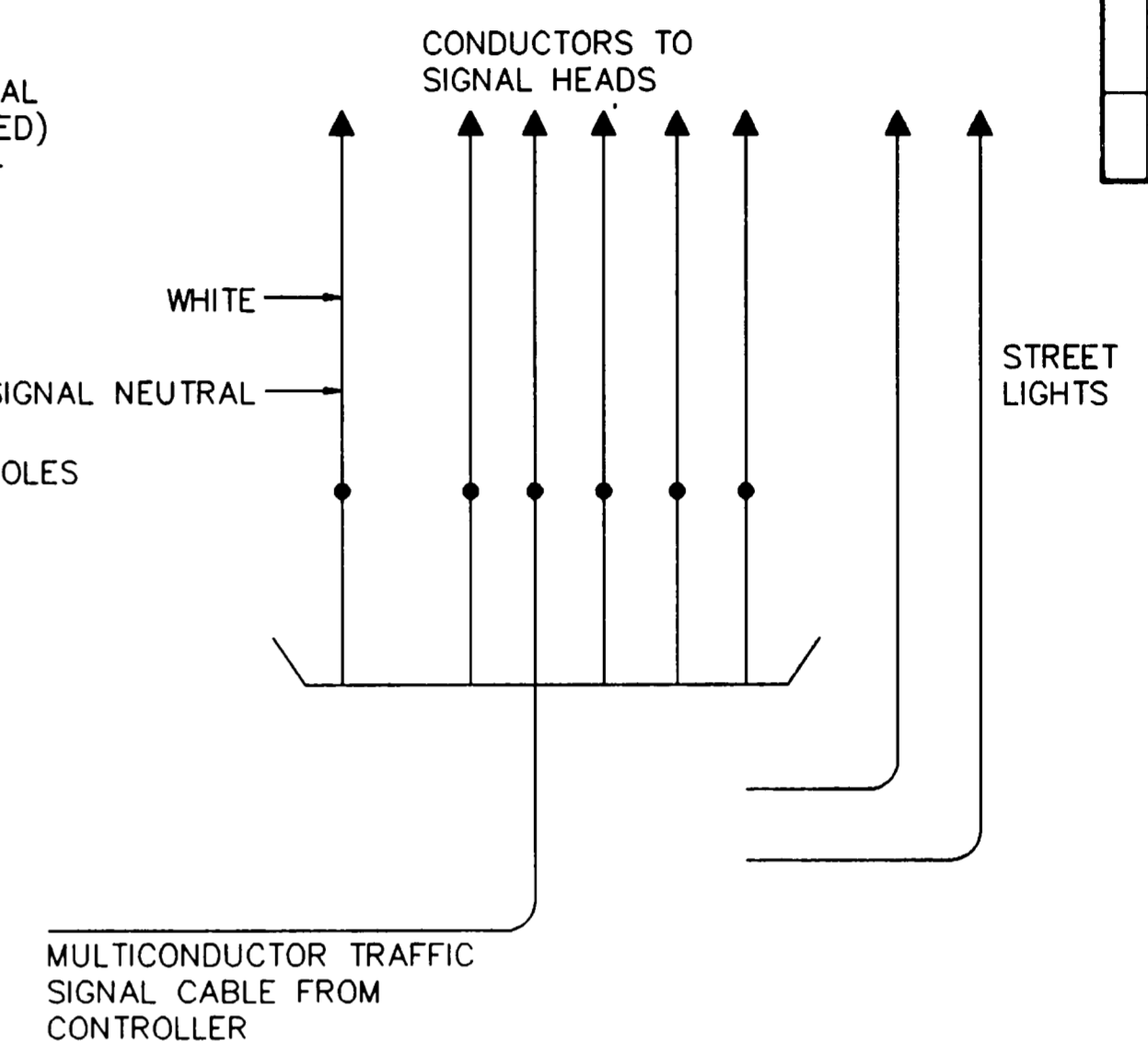
| | |
|--------------------------|----------------|
| Scale: 1/2" | Date: 11/29/94 |
| Designed by: | |
| Drawn by: | |
| Checked by: BKS | |
| Approved by: BKS | |
| Project No. 653787-01000 | |



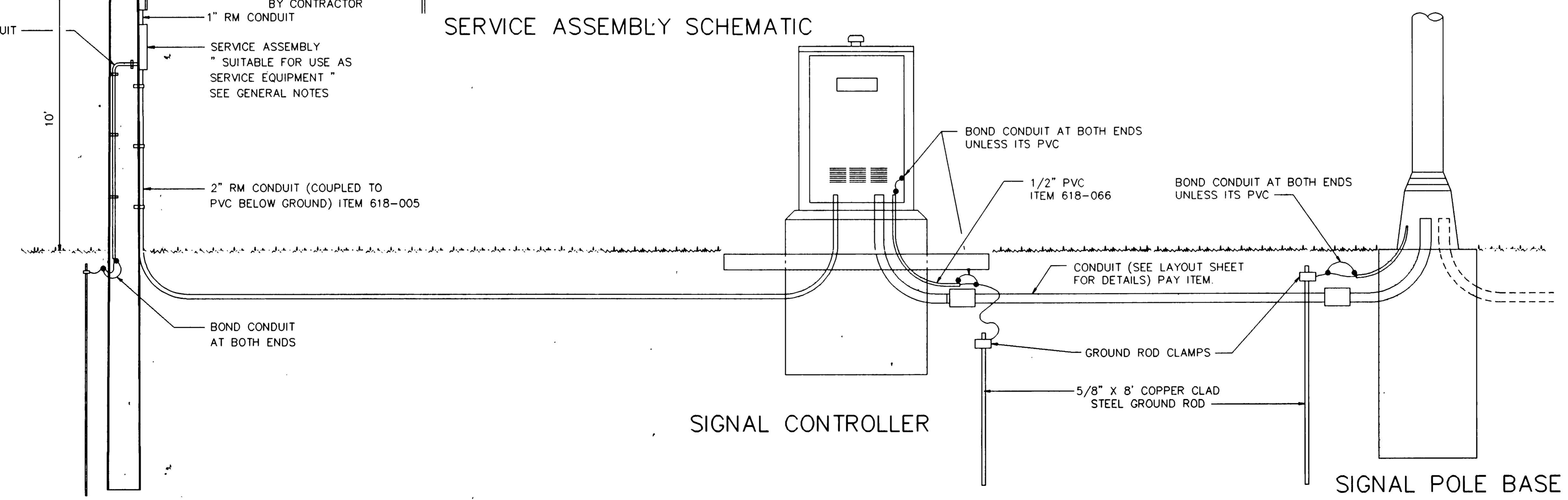
SERVICE ASSEMBLY SCHEMATIC



CONNECTIONS AT SIGNAL CONTROLLERS

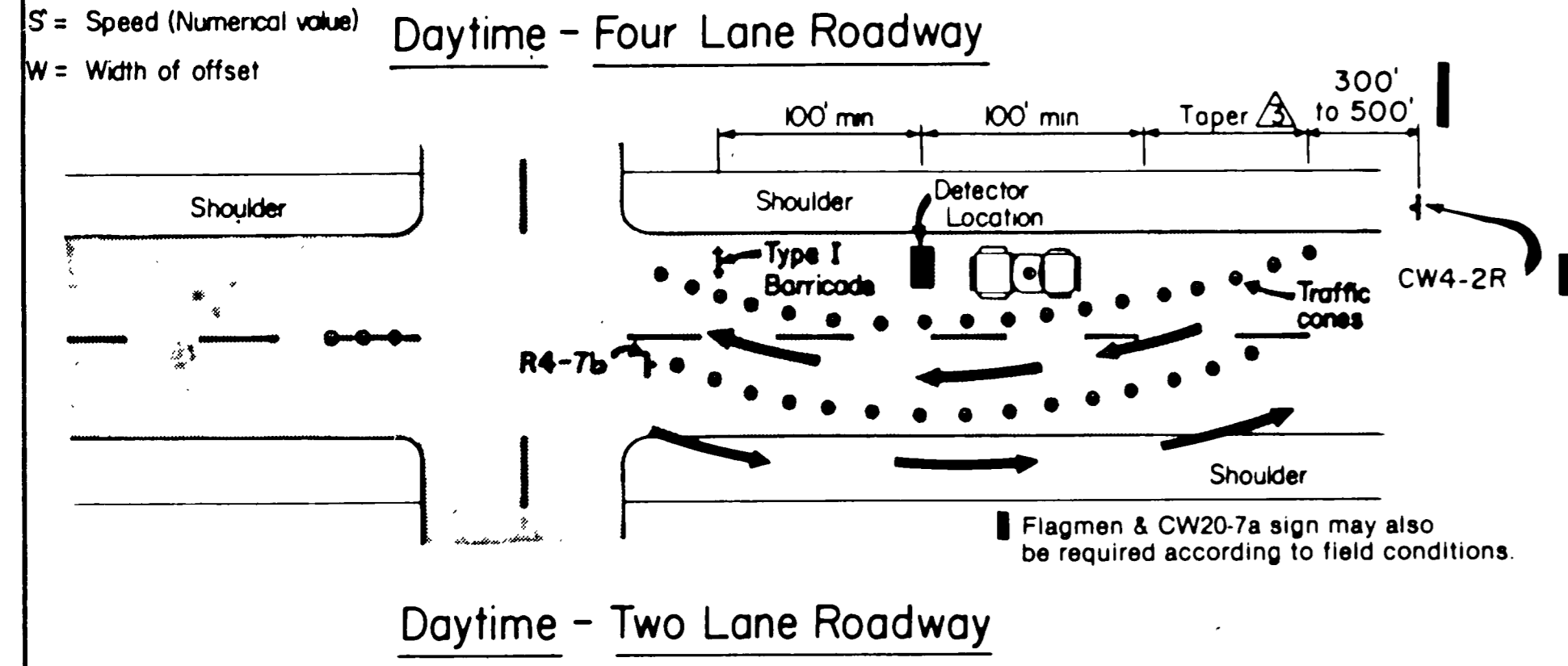
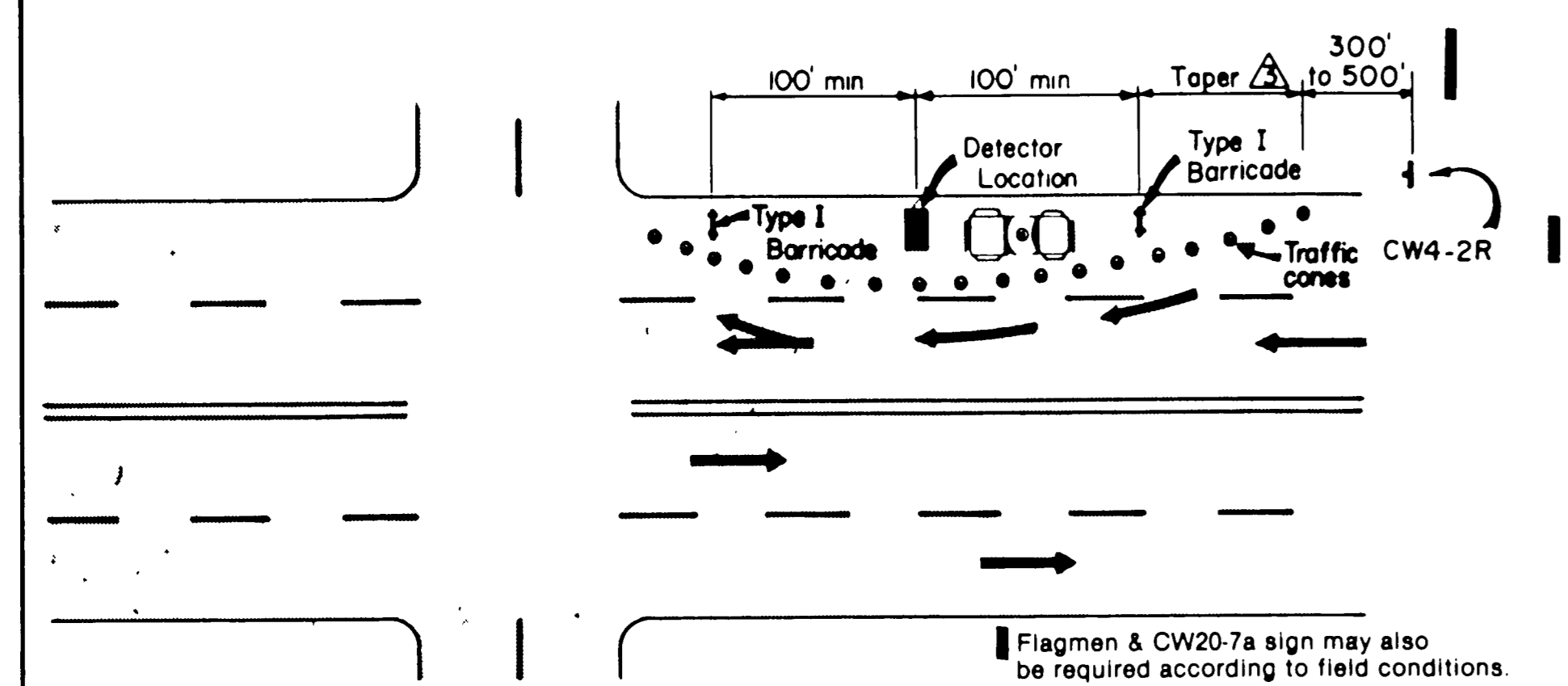


CONNECTIONS AT POLE BASE



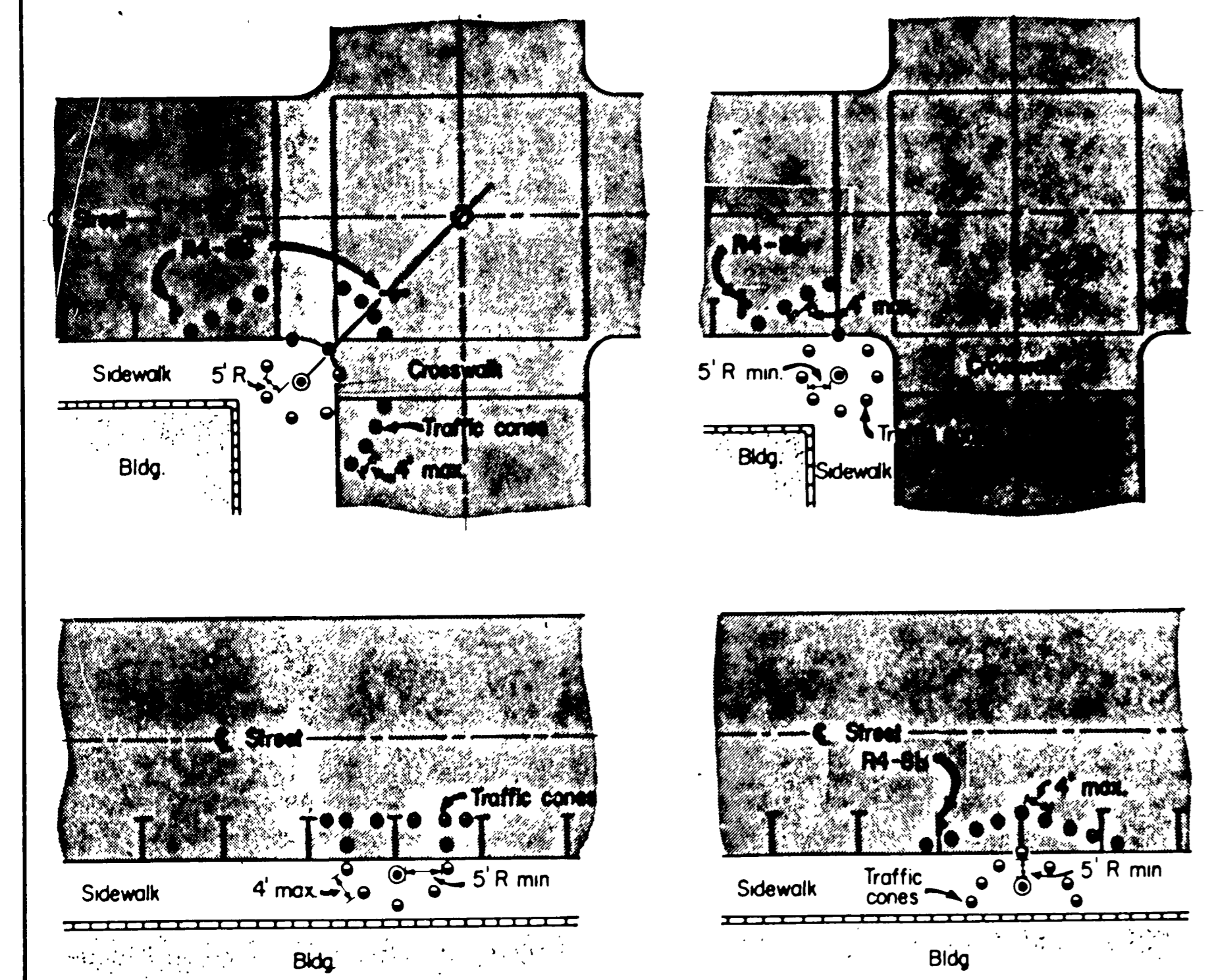
SIGNAL CONTROLLER

SIGNAL POLE BASE

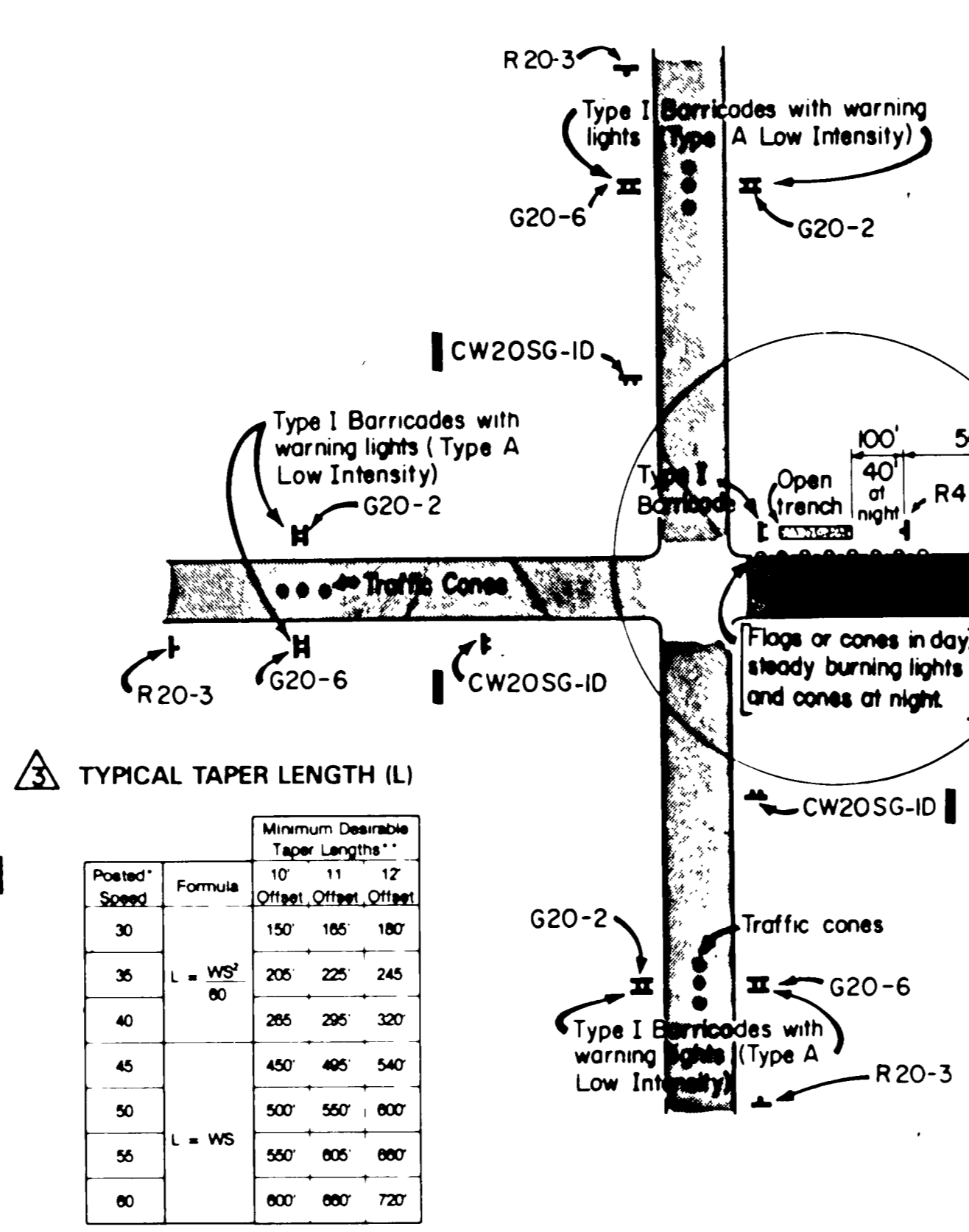


TYPICAL DETECTOR INSTALLATION

At Night—1. Steady burn lamps for delineation instead of cones.
2. Flashers on barricades.

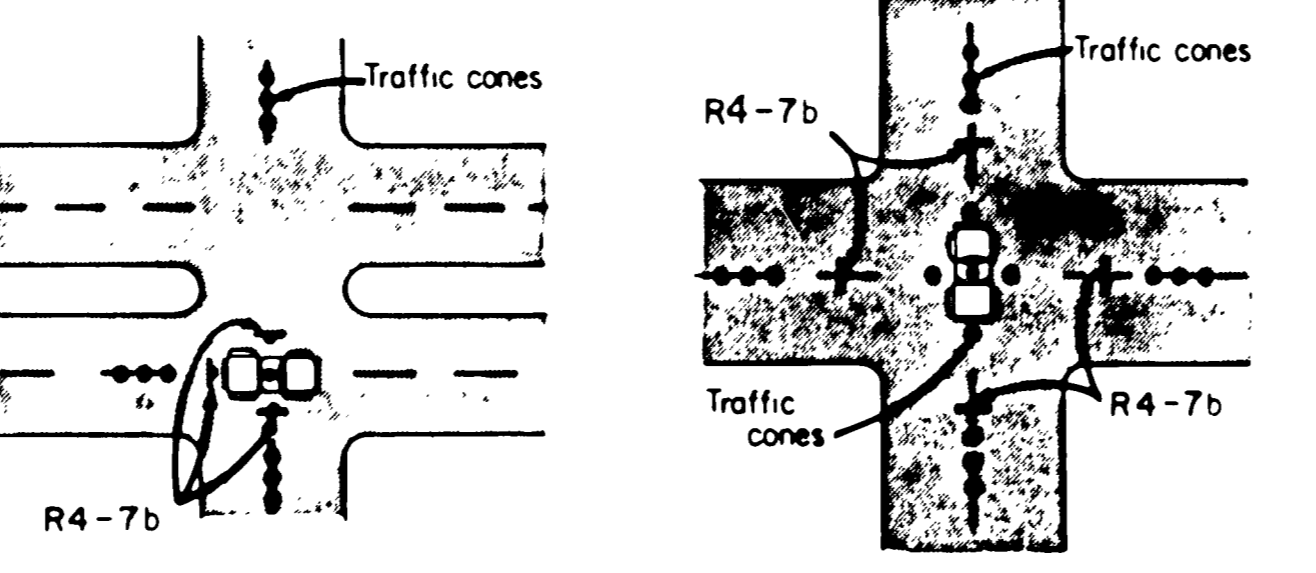


Where pedestrian movements are anticipated at night, all holes, trenches or other hazardous areas shall be adequately protected by use of barricades, lights or other protective devices.

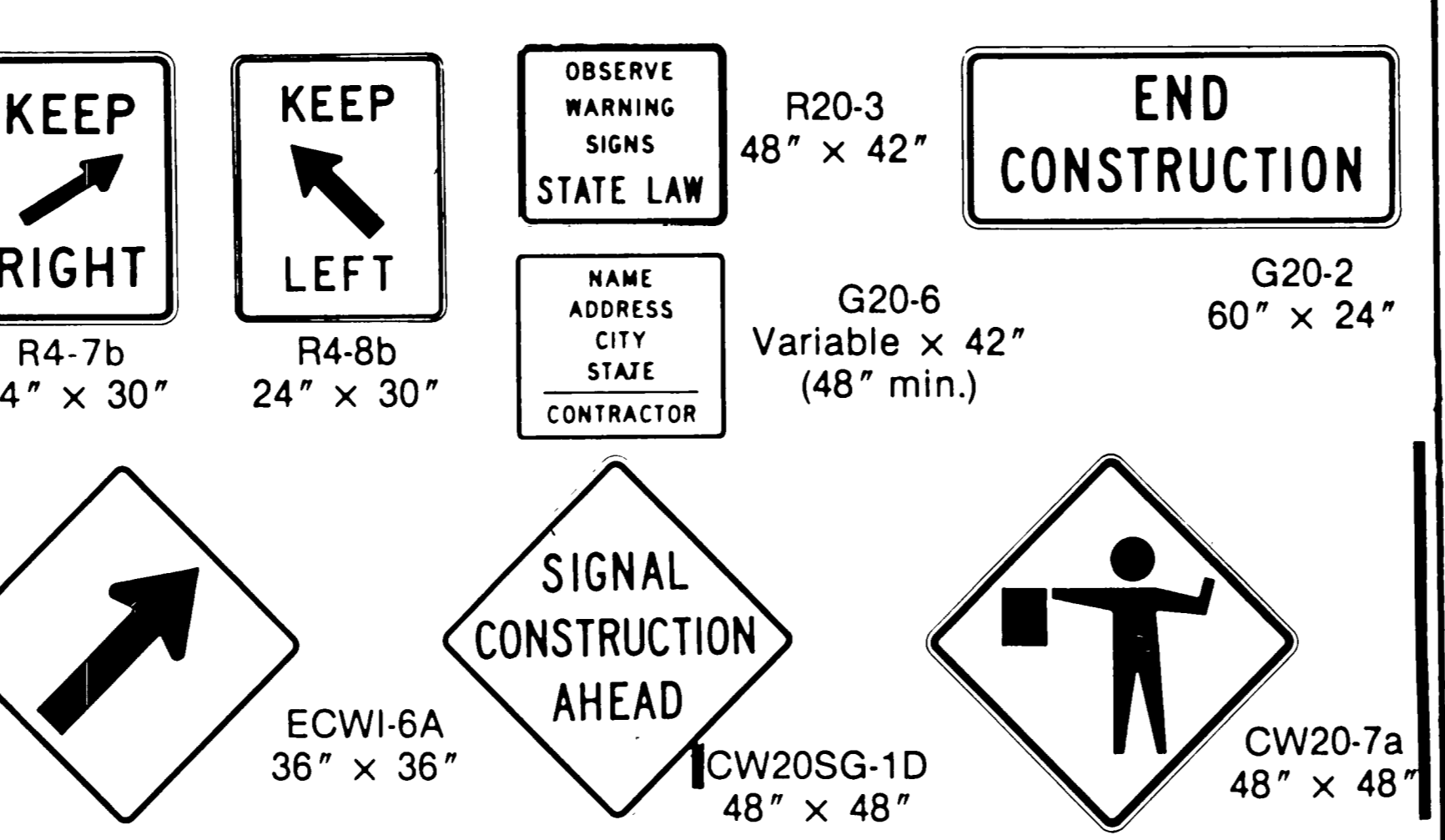


* 85TH PERCENTILE SPEED MAY BE USED ON ROADS WHERE TRAFFIC SPEEDS NORMALLY EXCEED THE POSTED SPEED LIMIT
TAPER LENGTHS HAVE BEEN ROUNDED OFF

L = TAPER LENGTH IN FEET
W = OFFSET IN FEET
S = SPEED IN MPH



NOTES
1. Flagmen & CW20-7a sign may also be required according to field conditions.
2. Use vehicle equipped with yellow rotating beacon or strobe.

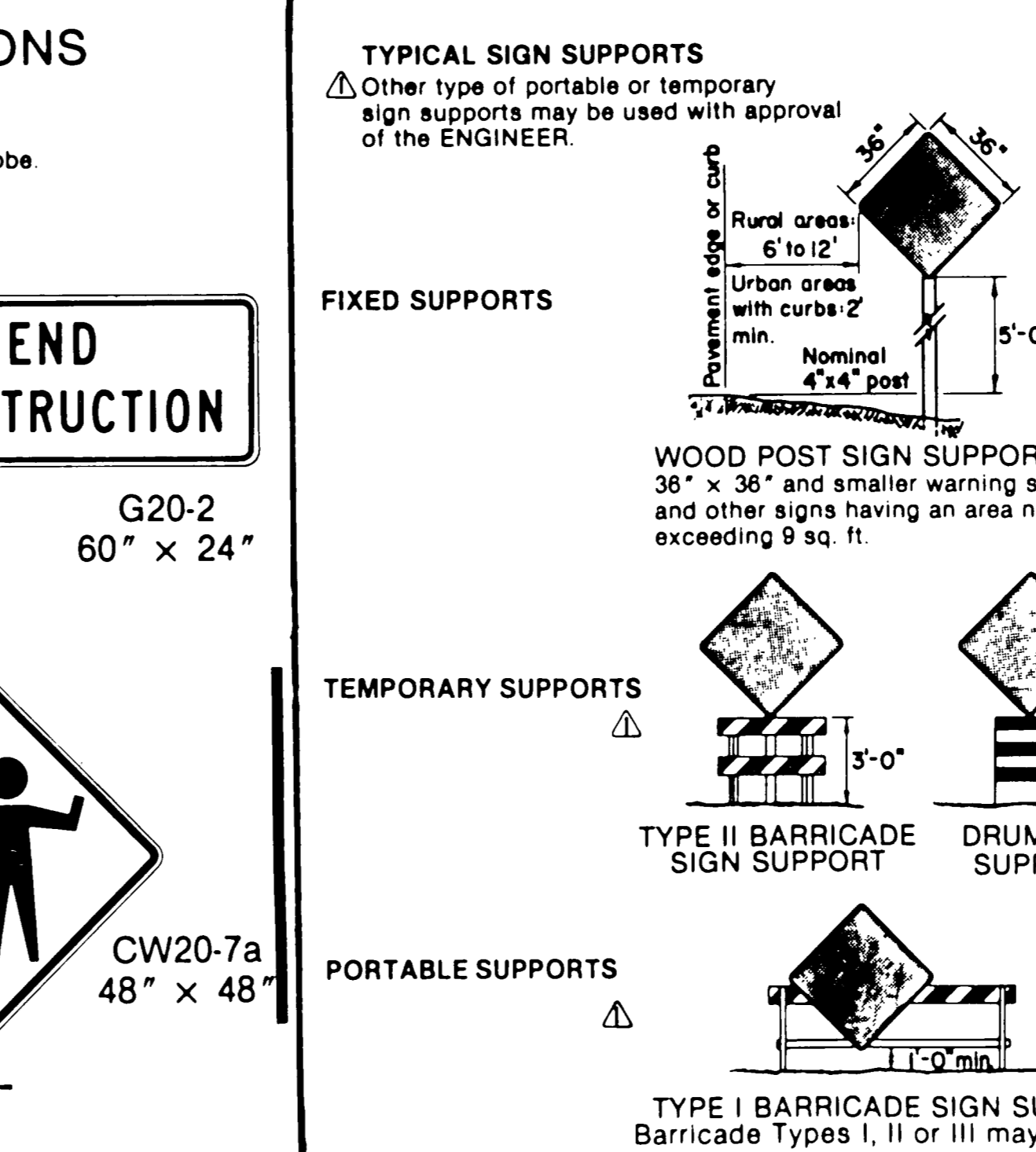
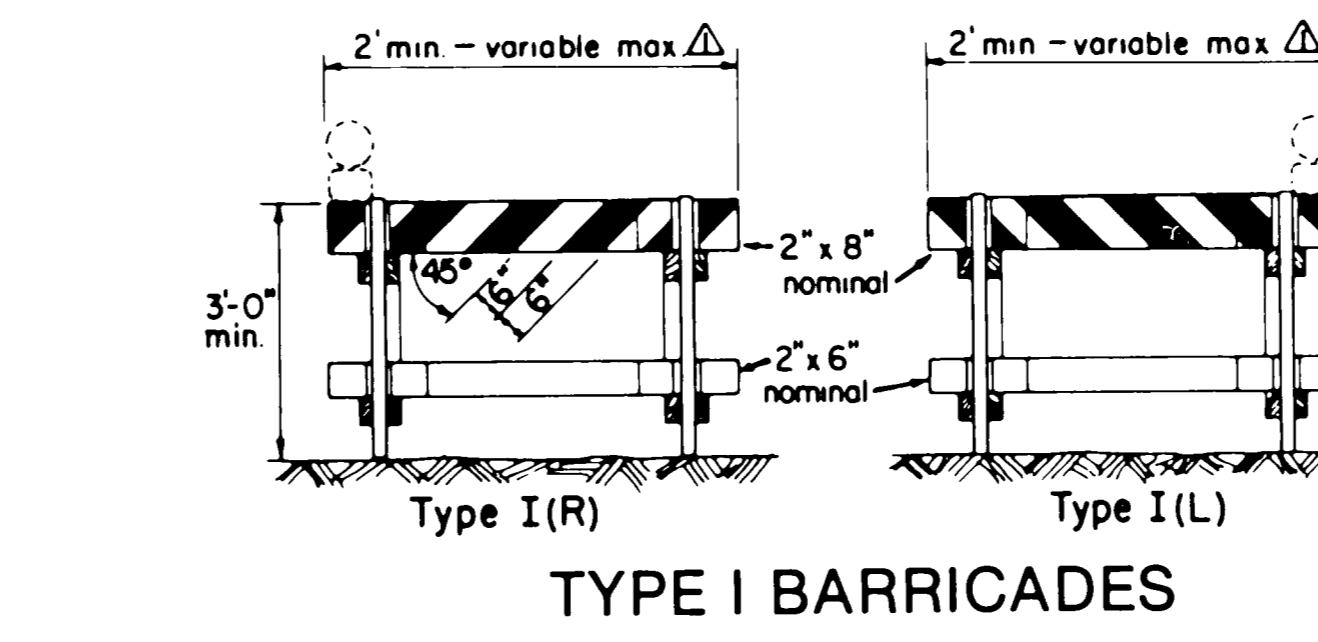
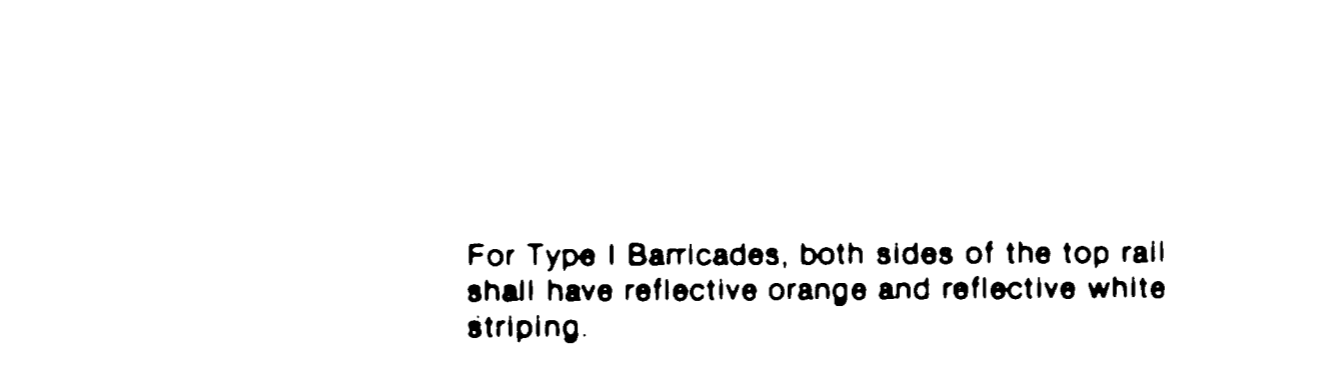


NOTE: For several closely adjoining intersections on the same project, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. If this is the case, see details elsewhere in the plans for advance signing requirements.

* Distance varies with speed of traffic. Distance can be less than shown in urban areas.

** Change to Type I Barricades with arrows at night.

SIGNING IN ADVANCE OF CONSTRUCTION AND POSSIBLE SIGNING NEAR WORK AREA



GENERAL NOTES
ReflectORIZED signs shall be constructed of retro-reflective sheeting in conformance with project specifications and shall be maintained to meet the appearance, color and reflectivity requirements of those specifications. Paints and coloration of signs shall be equal to the Department's standards. Signs shall comply with the general requirements specified in the "Standard Specifications for Construction of Highways, Streets and Bridges" in effect at the time of contract award.
All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways." Contractors shall furnish a copy of a certification from the manufacturer of the lights that the warning lights meet the requirements of the ITE Standard for Flashing and Steady Burn Warning Lights as contained in the latest edition of the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways."
All signs shown have black letters and borders on a reflective orange background except the R20-3, R4-7b, R4-8b, and G20-6 signs which have a reflective white background.
Signs erected on portable supports for use on construction projects normally mean signs which are used during the day to warn or guide traffic through and/or around the actual construction area, but at the end of the workday such signs are either removed or turned away from the view of traffic. Portable supports shall be as shown on this sheet or as approved by the Engineer. The bottom of the sign shall be a minimum of one (1) foot above the pavement sign. Signs required for nighttime usage should not normally be mounted on temporary supports, except when approved by the Engineer. Signs erected on fixed supports for use on construction projects normally mean signs that are to remain in place for both day and night usage to regulate, warn and guide traffic in advance of and within the limits of the project including the crossroad approaches. However, under certain conditions, such as where a sign may be required for a few days' duration and then is no longer needed or where a sign is moved from location to location every few days or where it is not practical or desirable to provide a fixed mounting, such signs may be erected on a temporary type of support. Temporary supports shall be as shown on this sheet or as approved by the Engineer. Signs erected on temporary supports should be at a minimum height of three (3) feet. Signs erected on fixed supports should be at a minimum height of five (5) feet in rural areas and seven (7) feet in urban areas and other rural locations where sight distance obstructions are present. Regardless of the type of support used, regulatory signs should not be erected at height less than the 5- or 7-foot minimum specified above unless a lower height is approved by the Engineer. Posts for fixed supports should be set in the ground without concrete footings.
Where portable or temporary supports require the use of weights to keep a sign or barricade from turning over, the use of some type of sandbag is recommended. The use of pieces of concrete, rocks, iron, steel or other solid objects will not be permitted.

For additional information and guidelines on barricades and construction signs see the Texas Manual on Uniform Traffic Control Devices.
Signing shown is typical and may be adjusted to fit field conditions by the Engineer.
No more than two signs shall be placed on a barricade.

Where a sign is to be mounted on a barricade, the barricade length should not be less than the horizontal dimension of the sign. If lights are also to be mounted on the barricade, the barricade should not be less than the sign width plus about 12" for each light to be attached. Barricades of a greater length than the above will be satisfactory.

The advance signs and barricades shall be in place when signal construction operations are in progress. The contractor may remove the advance signs and barricades when there are no construction operations underway if permitted elsewhere in the plans. Any obstructions or hazards at the work area shall be clearly marked and delineated at all times.