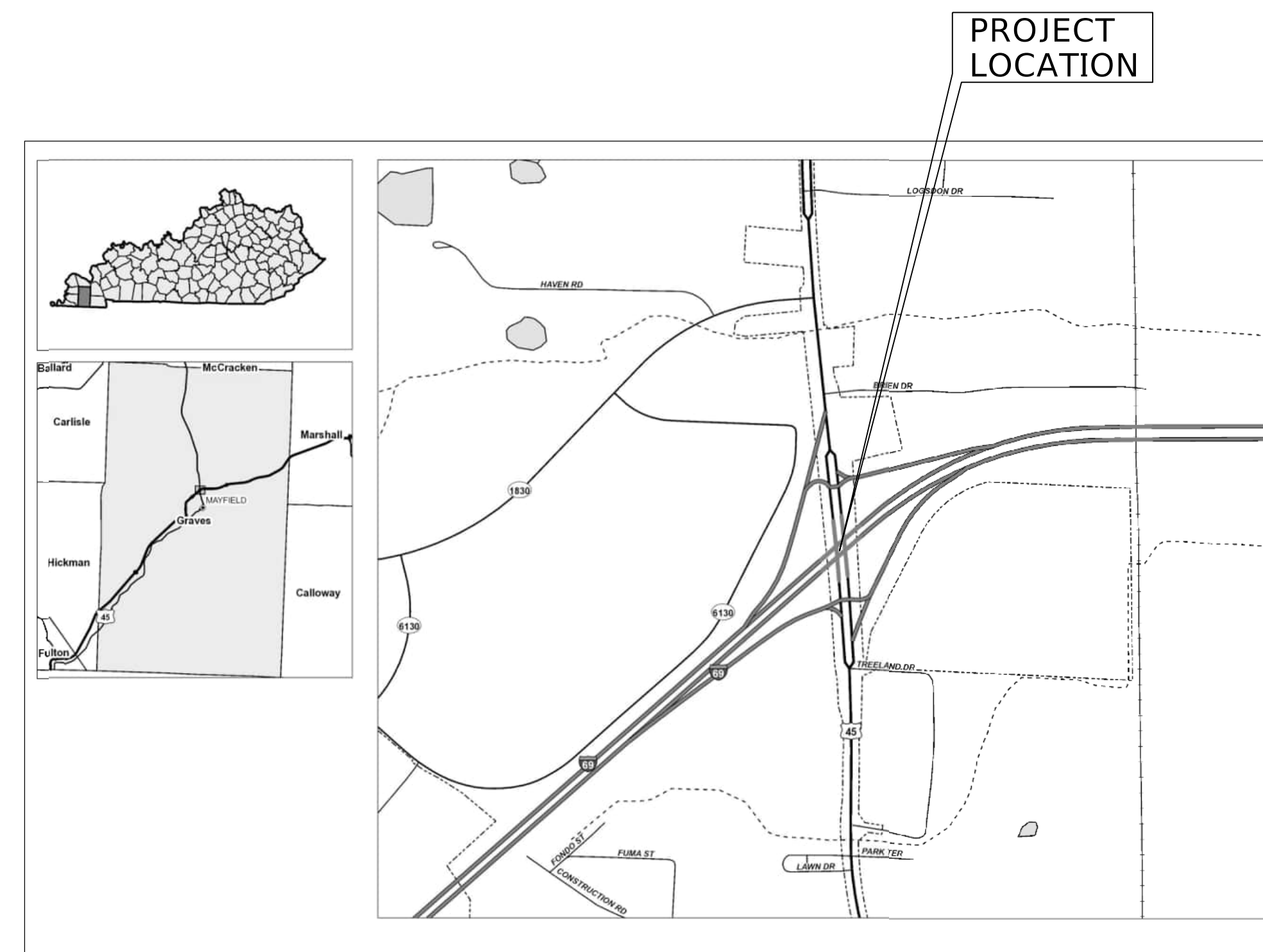
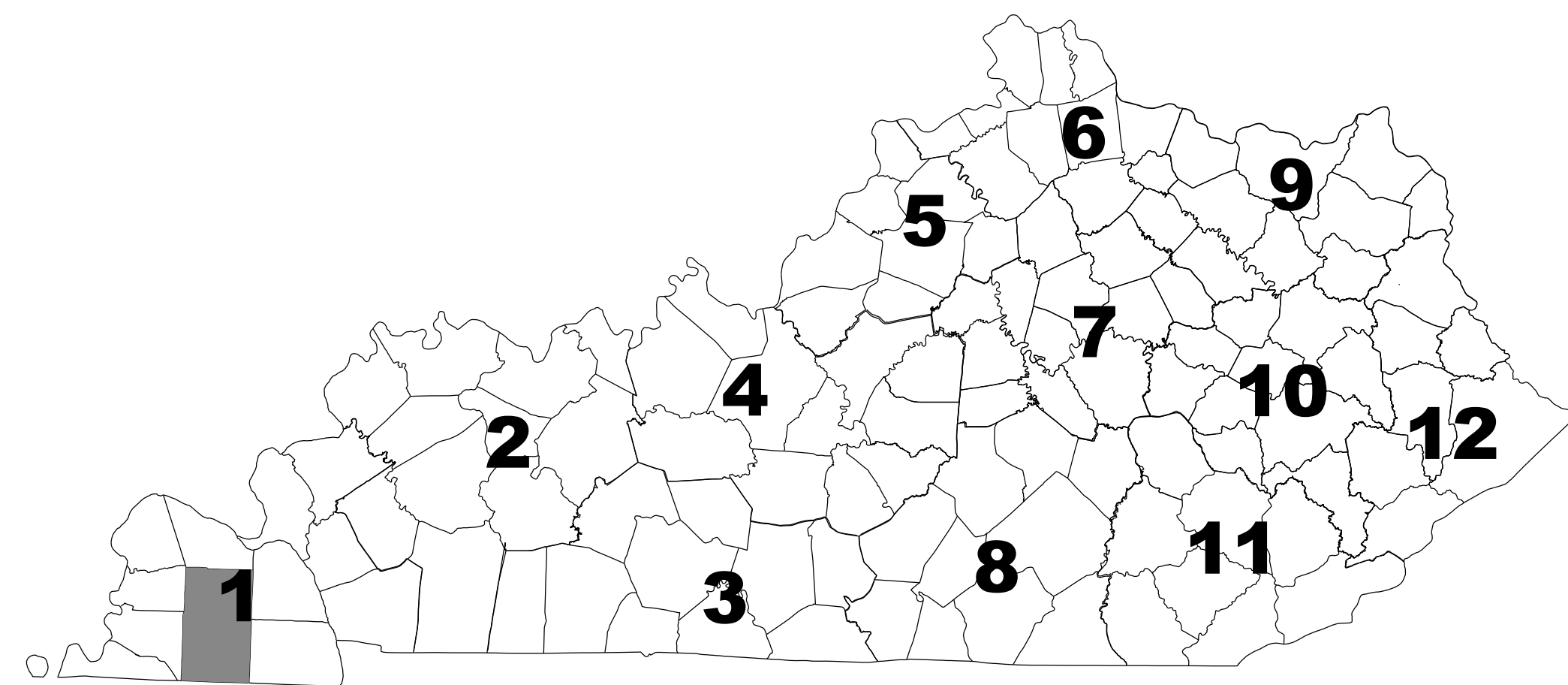
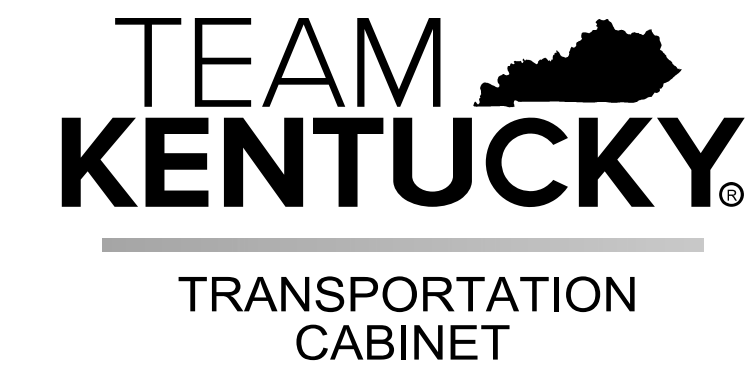




COMMONWEALTH OF KENTUCKY

DEPARTMENT OF HIGHWAYS

PLANS OF PROPOSED PROJECT Graves County



LAYOUT MAP

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T5	LED LUMINAIRE DETAILS
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T7	BASE MOUNTED LIGHTING CONTROL CABINET DETAIL, 480V
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T19	LIGHTING PLAN SHEET 3

STANDARD DRAWINGS

TTC-120-04
RBR-100-07

PROJECT NUMBER: FD52 042 0069 024-025

PROJECT DESCRIPTION: I-69 & US 45 INTERCHANGE LIGHTING

RECOMMENDED BY: _____ PROJECT MANAGER DATE: _____

PLAN APPROVED BY: _____ STATE HIGHWAY ENGINEER DATE: _____



LETTING DATE:
N/A

ITEM NO. COUNTY OF
01-9036.00 GRAVES

SHEET NO.
T1

ROADWAY LIGHTING ESTIMATE OF QUANTITIES

TOTAL	UNITS	CODE	ITEM DESCRIPTION
300	SQ FT	2562	SIGNS
1	LP SUM	2569	DEMobilIZATION (1.5%)
1	LP SUM	2650	MAINTAIN & CONTROL TRAFFIC (5%)
4	EACH	2775	FLASHING ARROW
4	EACH	4712	POLE 100' MTG HT HIGH MAST
5	EACH	4714	POLE 120' MTG HT HIGH MAST
1	EACH	4761	LIGHTING CONTROL EQUIPMENT
1650	LIN FT	4798	CONDUIT 3 INCH
4000	LIN FT	4820	TRENCHING AND BACKFILLING
30000	LIN FT	4834	WIRE-NO. 6
22	EACH	20391NS835	ELECTRICAL JUNCTION BOX TYPE A
3	EACH	20392NS835	ELECTRICAL JUNCTION BOX TYPE C
1650	LIN FT	21543EN	BORE AND JACK CONDUIT
80.01	CU YD	23161EN	POLE BASE - HIGH MAST
4000	LIN FT	24902EC	PVC SCH 80 CONDUIT, 3"
39	EACH	24589ED	HIGH MAST LED LUMINAIRE
2	EACH		THRIE BEAM BULLNOSE TERMINAL
68	LIN FT	21380ES719	GUARDRAIL THRIE BEAM

THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION, AND OTHER SPECIAL NOTES AND SPECIFICATIONS WILL APPLY ON THIS PROJECT. SEE SECTION 716 FOR MEASUREMENT AND OTHER DETAILS. SEE SECTION 602 FOR SPIRAL REINFORCEMENT SPLICING

THE CONTRACTOR SHALL MAKE AN INSPECTION OF THE PROJECT SITE PRIOR TO SUBMITTING A BID AND SHALL BE THOROUGHLY FAMILIARIZED WITH EXISTING CONDITIONS. SUBMISSIONS OF A BID WILL BE CONSIDERED AN AFFIRMATION OF THIS INSPECTION HAVING BEEN COMPLETED.

ADD SENTENCE TO SECTION 834.06: ALL WIRE SHALL HAVE WORDING ADDED TO THE OUTER JACKET THAT STATES : " PROPERTY OF KENTUCKY TRANSPORTATION CABINET 502 564 0501".

ADD SENTENCE TO SECTION 834.09: ALL WIRE SHALL HAVE WORDING ADDED TO THE OUTER JACKET THAT STATES: " PROPERTY OF KENTUCKY TRANSPORTATION CABINET 502 564 0501".

CONSTRUCTION AND MEASUREMENT NOTES THAT ARE CONTRARY TO SECTION 716 AND 834

SUBSECTION: 716.03.03 TRENCHING.
REVISION: REMOVE SENTENCE UNDER B): NO PAYMENT FOR ADDITIONAL JUNCTION BOXES FOR GREATER DEPTHS WILL BE ALLOWED.

SUBSECTION: 716.03.04 CONDUIT INSTALLATION
REVISION: ADD TO SECOND SENTENCE WITH THE FOLLOWING: BASES WITH BREAKWAY DEVICES INSTALLED.

SUBSECTION: 716.03.04 (K) BORE AND JACK.
REVISION: REPLACE TITLE WITH THE FOLLOWING: BORE AND JACK/OPEN CUT ROADWAY. ADD SENTENCES AFTER LAST SENTENCE: WITH PERMISSION OF THE ENGINEER, ROADWAY MAY BE OPEN CUT IF CONDUIT IS UNDER PAVEMENT. THE CONDUIT IN OPEN CUT CAN BE EITHER 2" RIDID STEEL OR SCHEDULE 80 PVC UNDER ALL PAVEMENTS AREAS. IF IT IS THE LOOP TRANSITION FROM THE SAW SLOT, IT SHALL BE RIGID STEEL.

SECTION: 834.15 LIGHTING POLES.

REVISION: ADD THE FOLLOWING TO THE FIRST PARAGRAPH:
THE CABINET WILL WAIVE THE REQUIREMENT STATED IN THE FIRST SENTENCE OF SECTION 5.14.6.2 - REINFORCED HOLES AND CUTOUT FOR HIGH MAST POLES (ONLY).

SECTION: 834.33 WARNING TAPE.

REVISION: REPLACE FIRST SENTENCE WITH THE FOLLOWING:
PROVIDE DETECTABLE TYPE TAPE THAT IS 6 INCHES WIDE AND 7.0 MILS (NOMINAL)THICK.

WIRE OR CABLE SHALL INCLUDE INSTALLING SPECIFIED WIRE OR CABLE WITHIN CONDUIT AS INDICATED ON THE PLAN SHEETS. INCIDENTAL TO THIS ITEM SHALL BE THE FURNISHING AND INSTALLING OF SPLICE BOOTS OR ANY OTHER HARDWARE REQUIRED FOR INSTALLING CABLE. THE CONTRACTOR SHALL INSTALL ALL CABLE OR WIRE RUNS SPLICE-FREE FROM THE CONTROLLER TO EACH POLE THE CABLE OR WIRE IS FEEDING. EXCEPTIONS TO THIS MUST BE APPROVED BY THE ENGINEER OR AS SPECIFIED ON THE PLANS.

EACH RUN OF WIRE FROM POLE TO POLE (UP EACH POLE) SHALL BE THE FOLLOWING COLOR CODE: 2-BLACK (HOT) AND GREEN (GROUND).

7-25-2022



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

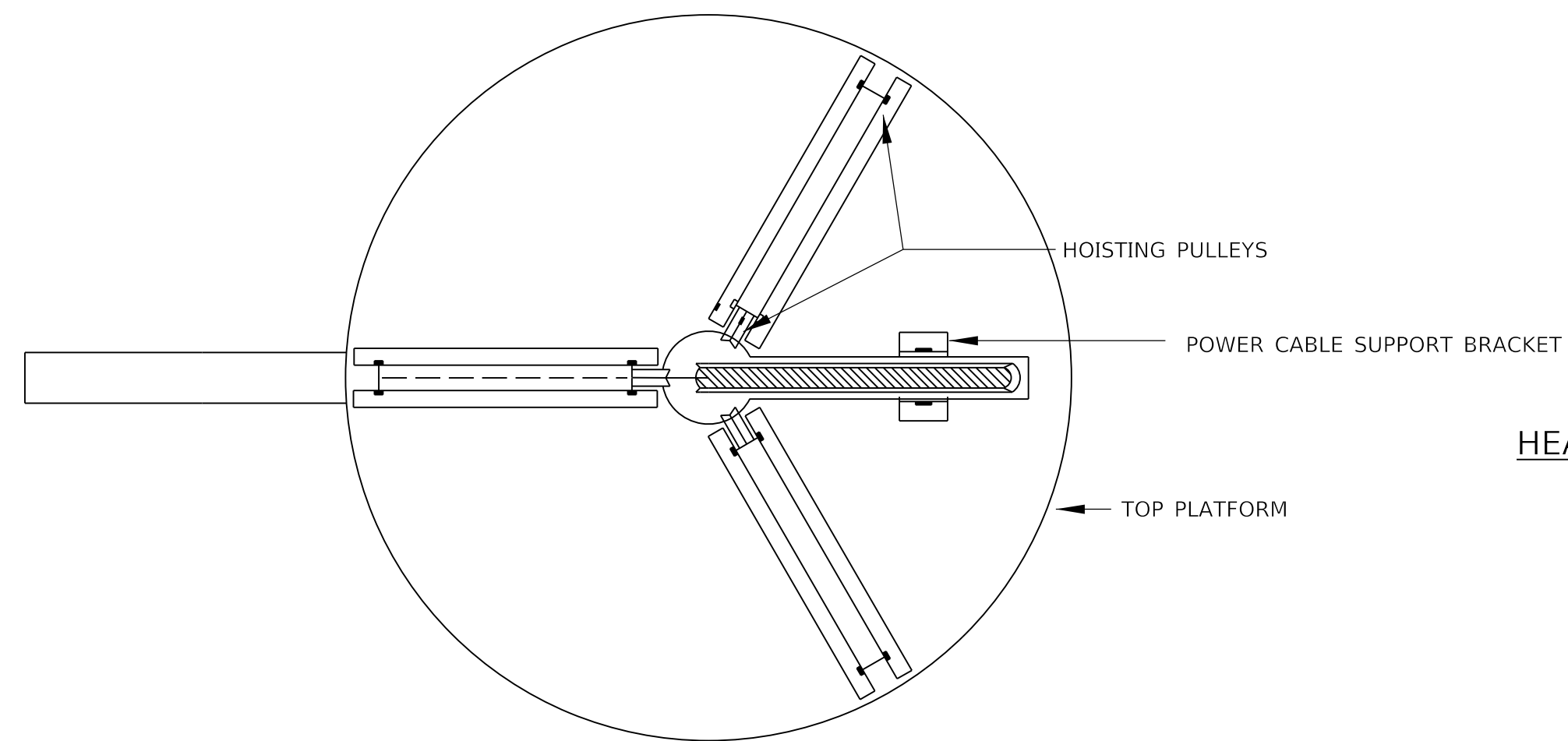


DRAWING TITLE: ROADWAY LIGHTING ESTIMATE OF QUANTITIES AND NOTES

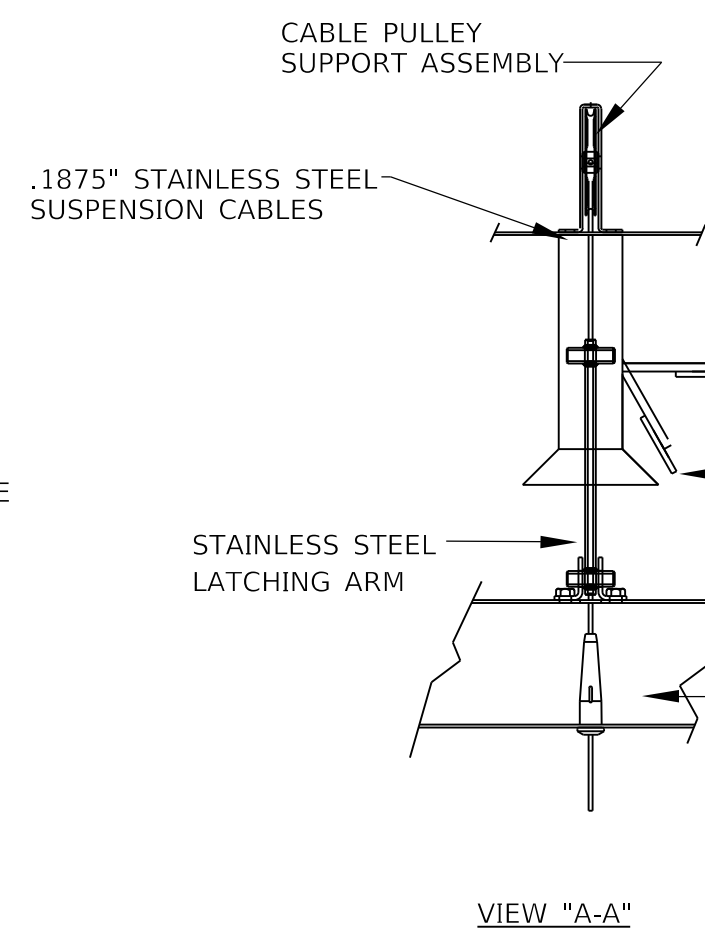
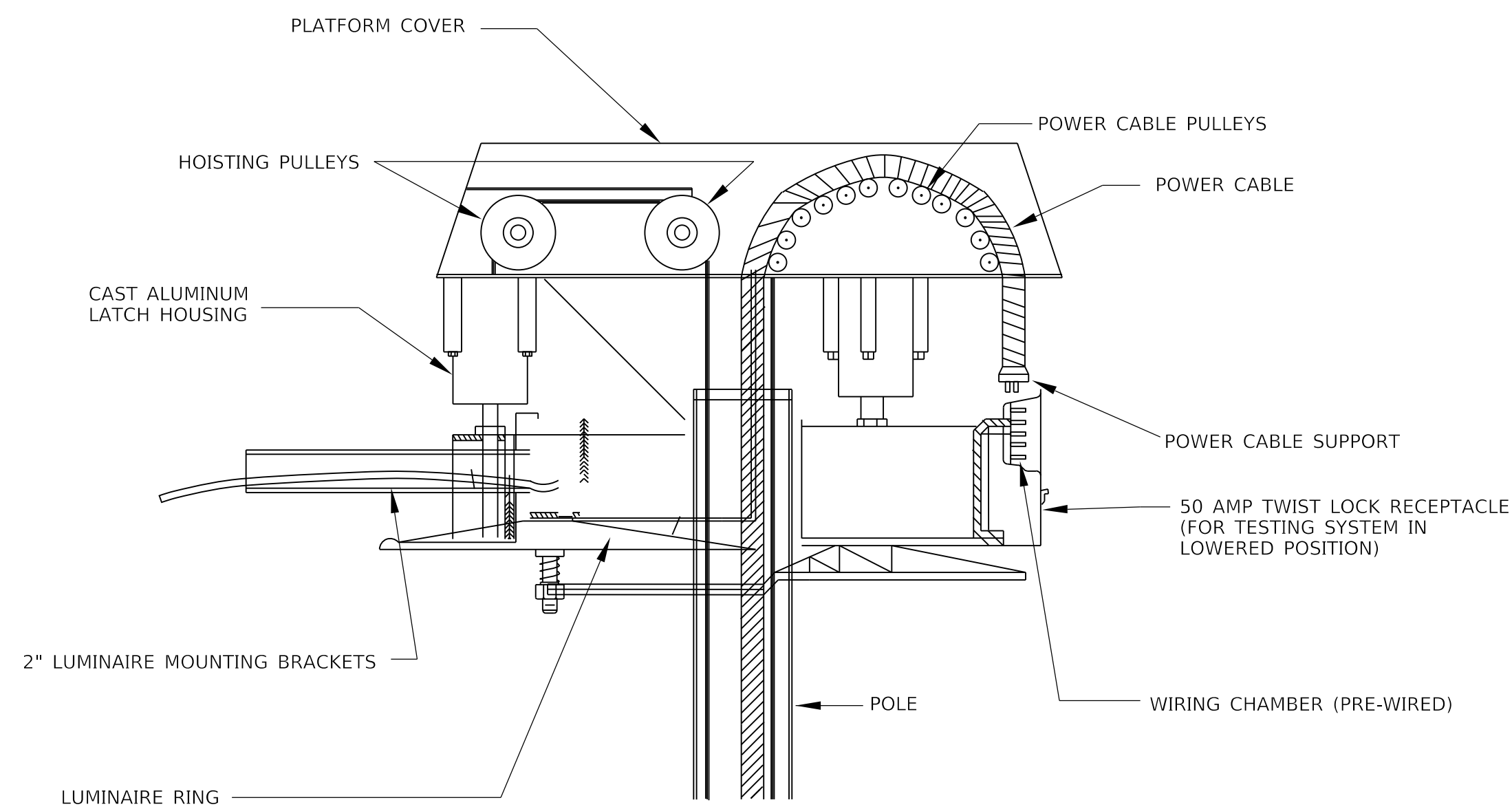
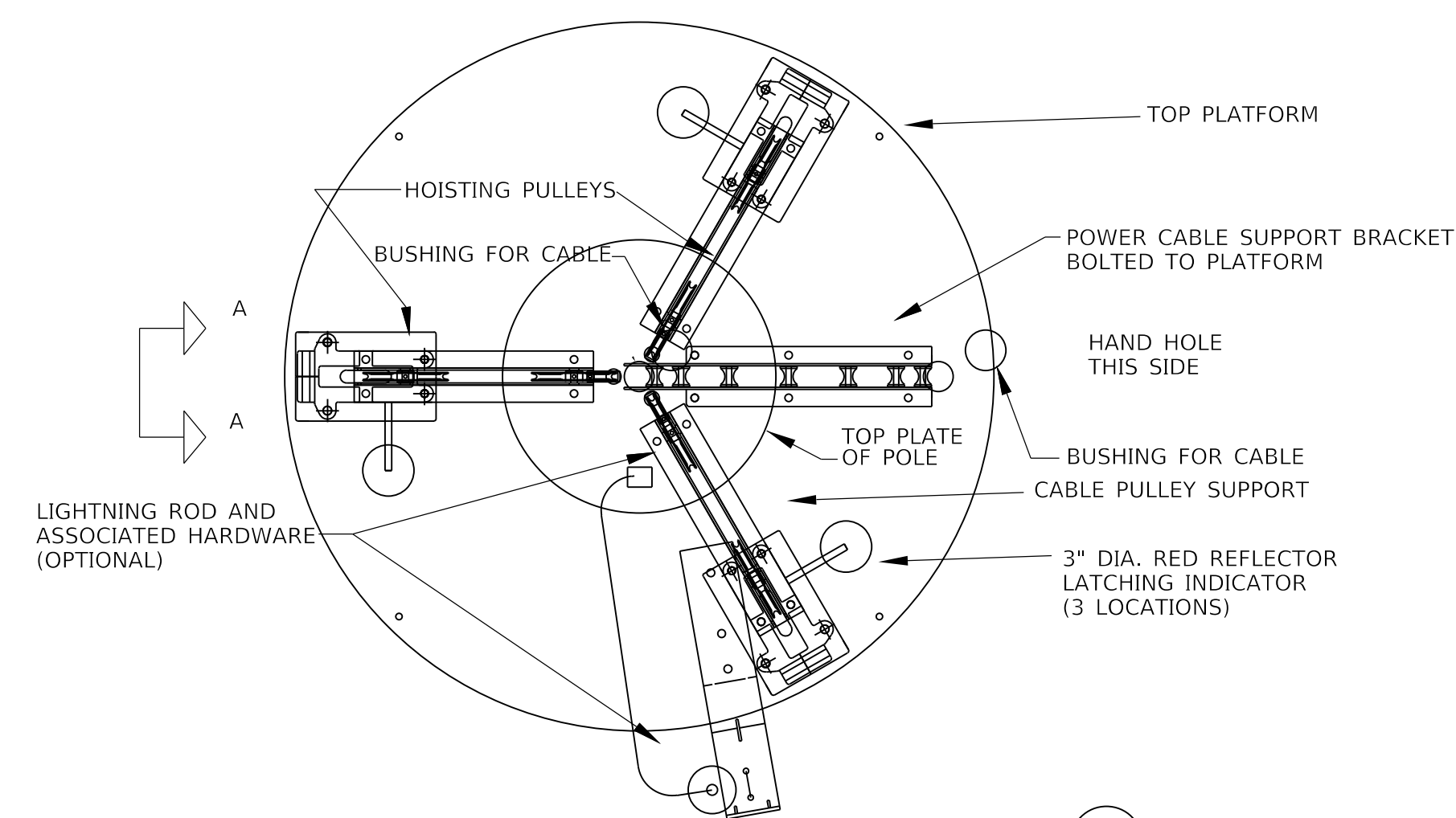
HORIZONTAL SCALE
SCALE: N/A

ITEM NO. 01-9036.00 COUNTY OF GRAVES

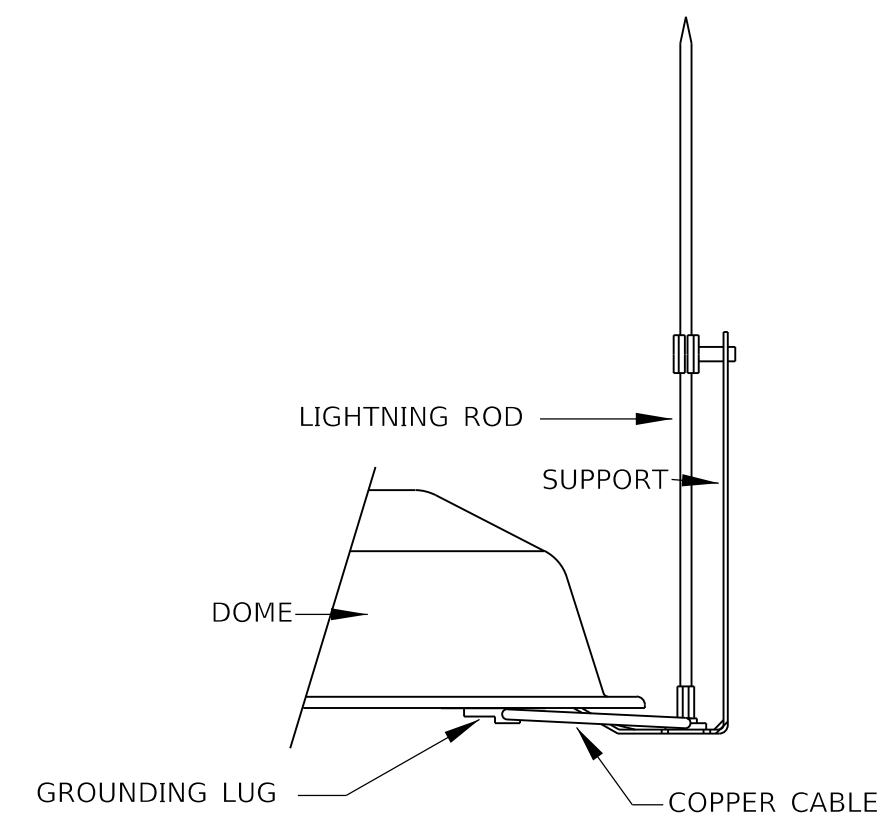
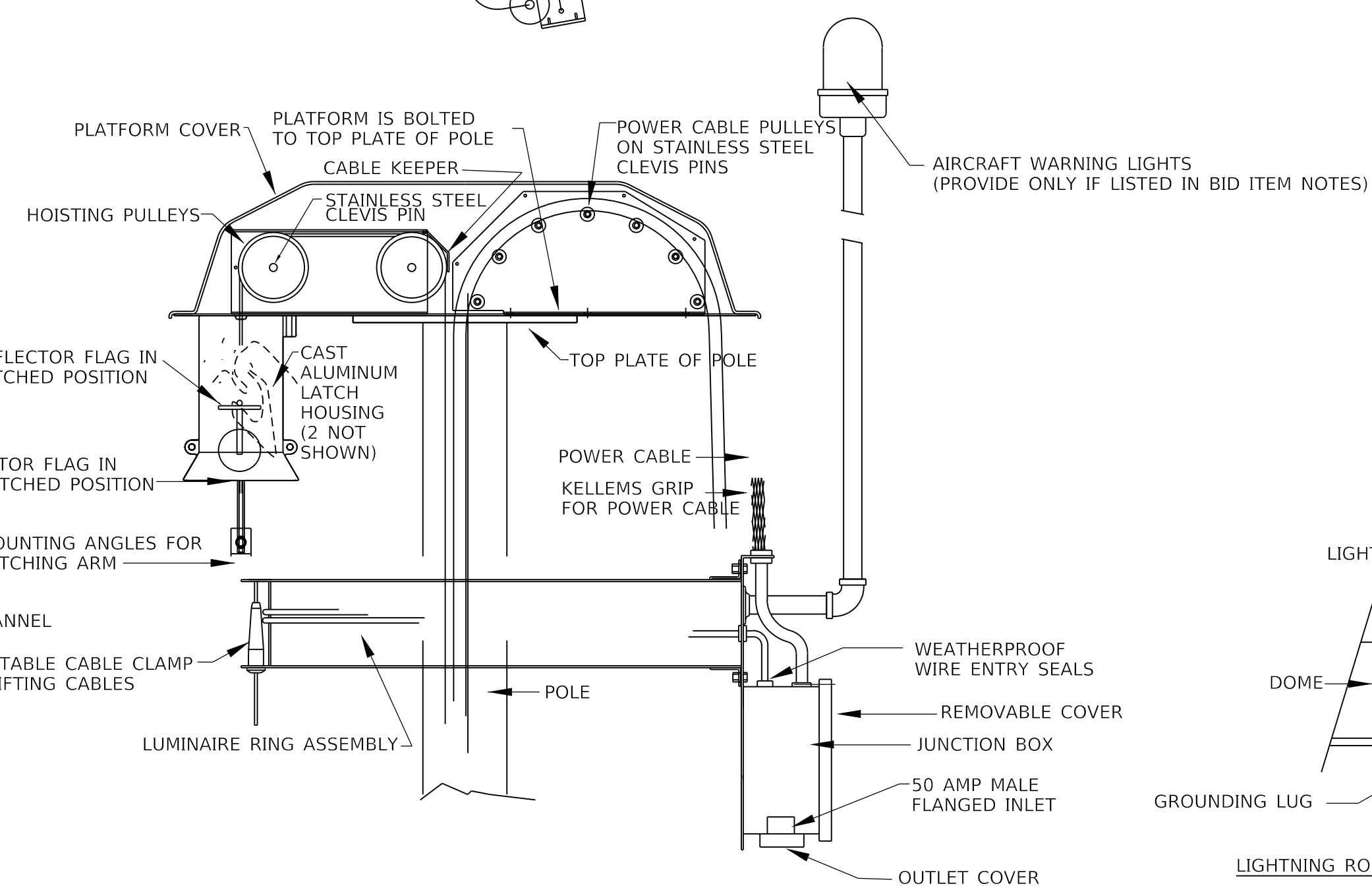
SHEET NO. T2



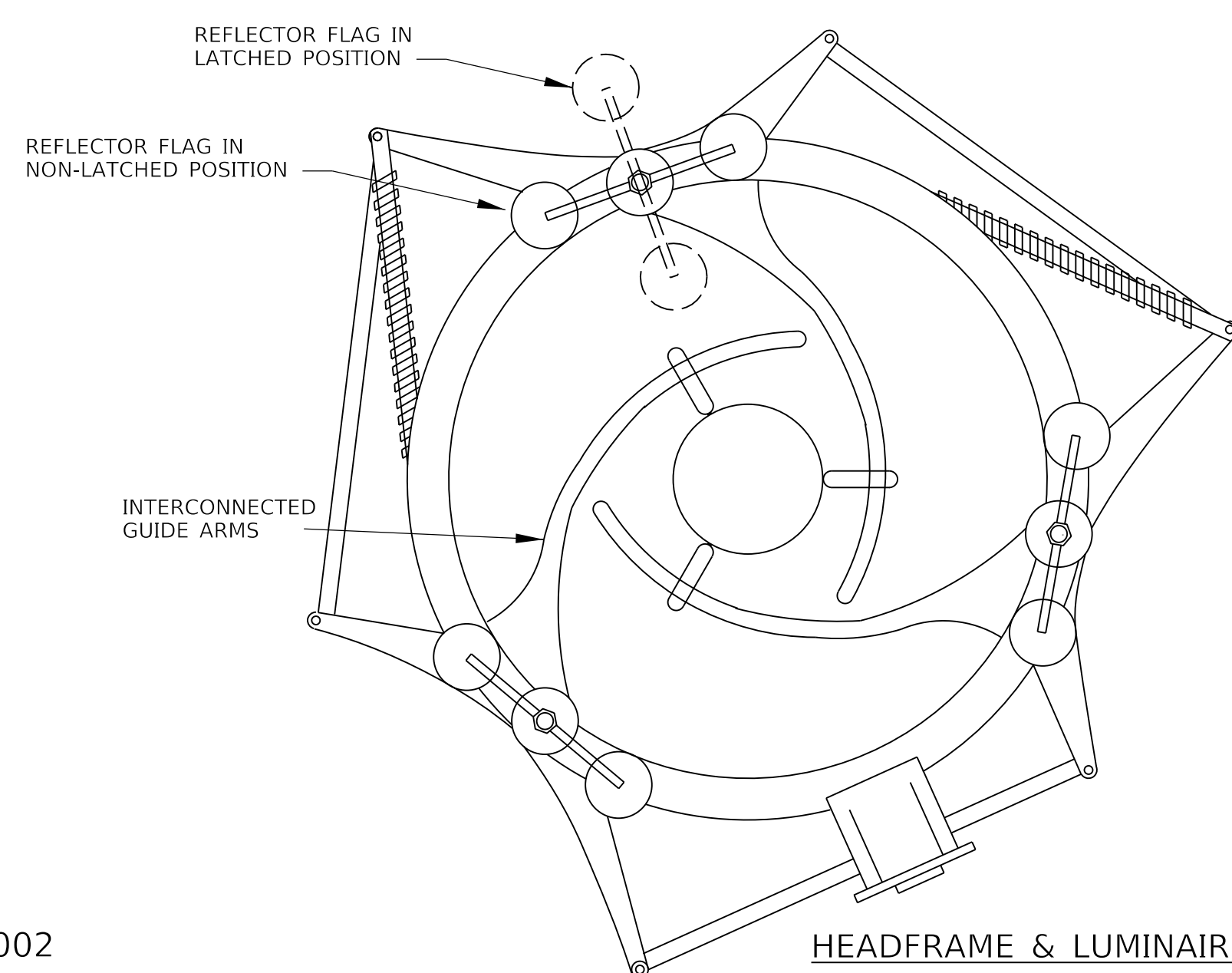
HEADFRAME ASSEMBLY - TOP VIEW



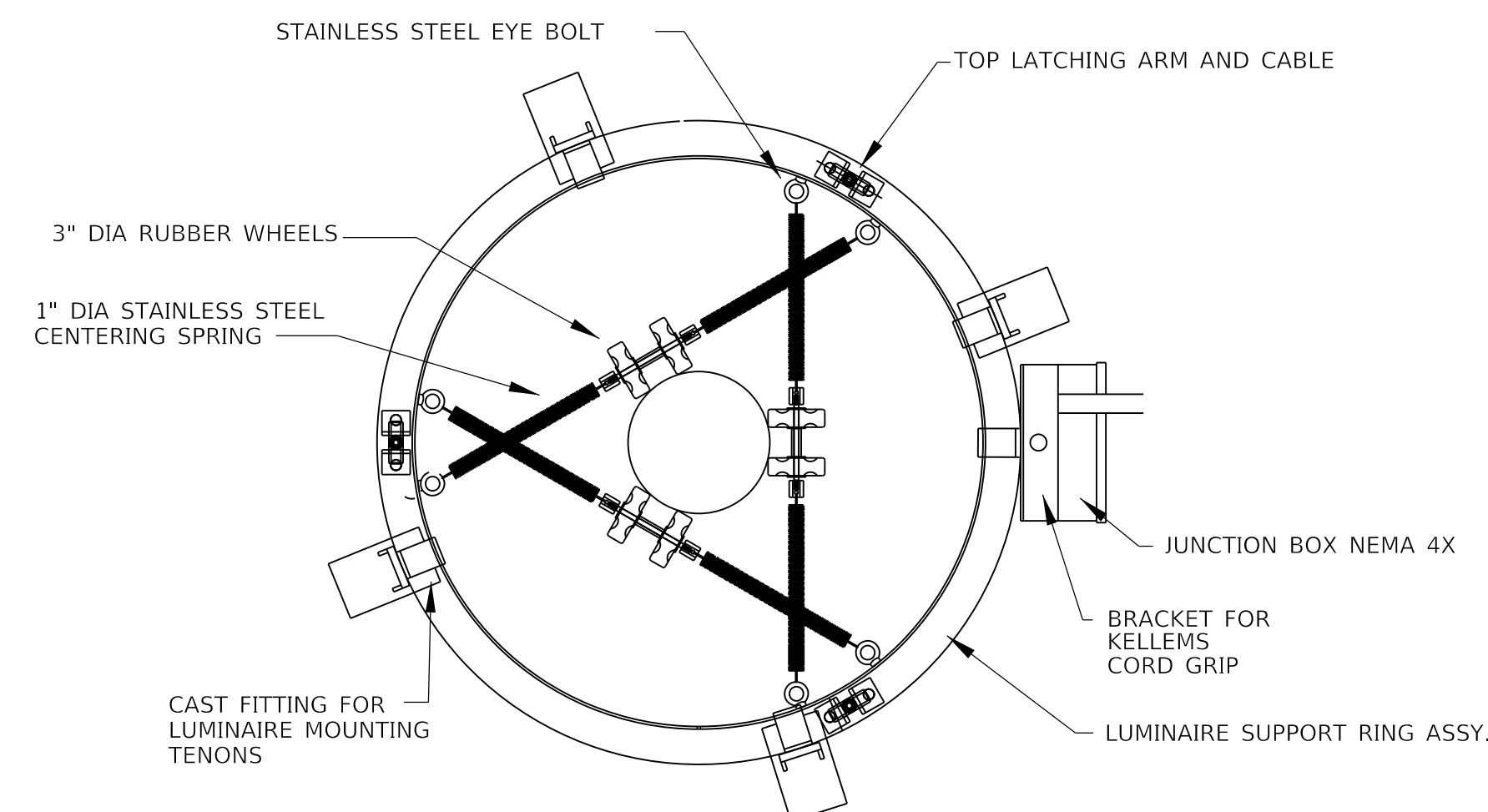
VIEW "A-A"



LIGHTNING ROD DETAIL (OPTIONAL)



LUMINAIRE RING ASSEMBLY - TOP VIEW



HEADFRAME & LUMINAIRE RING DETAILS - LATERAL LATCHING TYPE

7/2002

HEADFRAME & LUMINAIRE RING DETAILS - ROTARY LATCHING TYPE

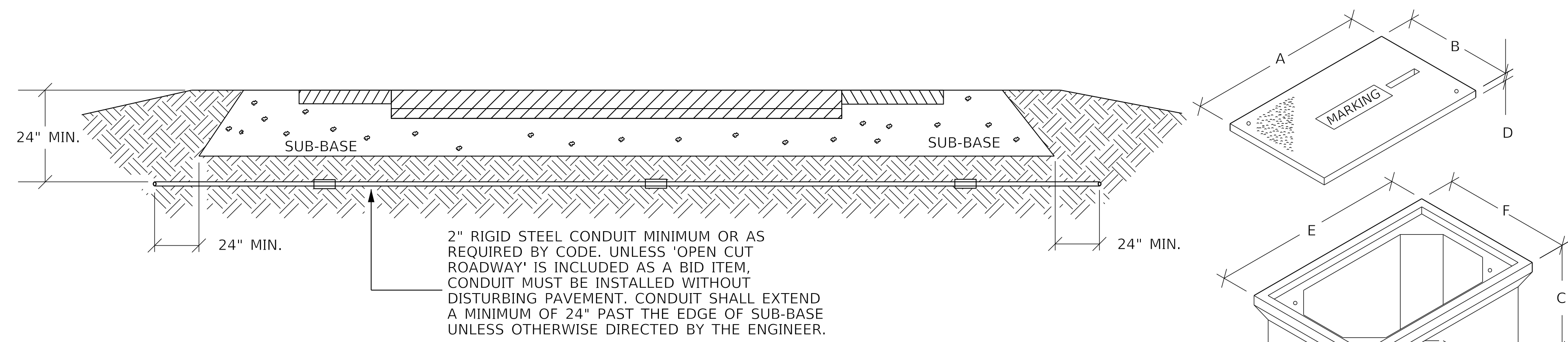


COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

DRAWING TITLE: HIGH MAST LOWERING DETAILS

HORIZONTAL SCALE
SCALE: N/A

ITEM NO.
01-9036.00 COUNTY OF
GRAVES
SHEET NO.
T3

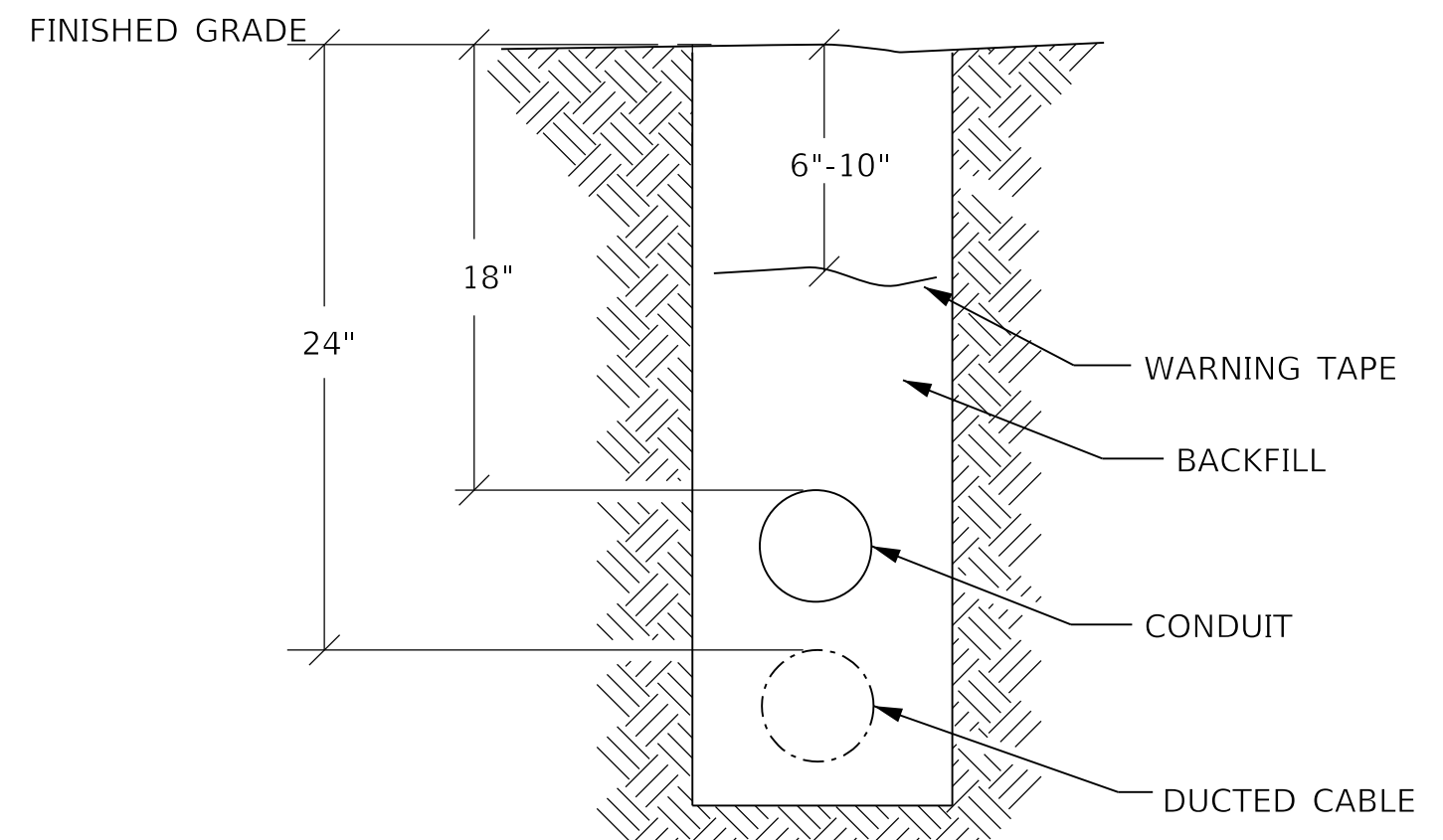


CONDUIT INSTALLATION UNDER EXISTING PAVEMENT DETAIL

2" RIGID STEEL CONDUIT MINIMUM OR AS REQUIRED BY CODE. UNLESS 'OPEN CUT ROADWAY' IS INCLUDED AS A BID ITEM, CONDUIT MUST BE INSTALLED WITHOUT DISTURBING PAVEMENT. CONDUIT SHALL EXTEND A MINIMUM OF 24" PAST THE EDGE OF SUB-BASE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

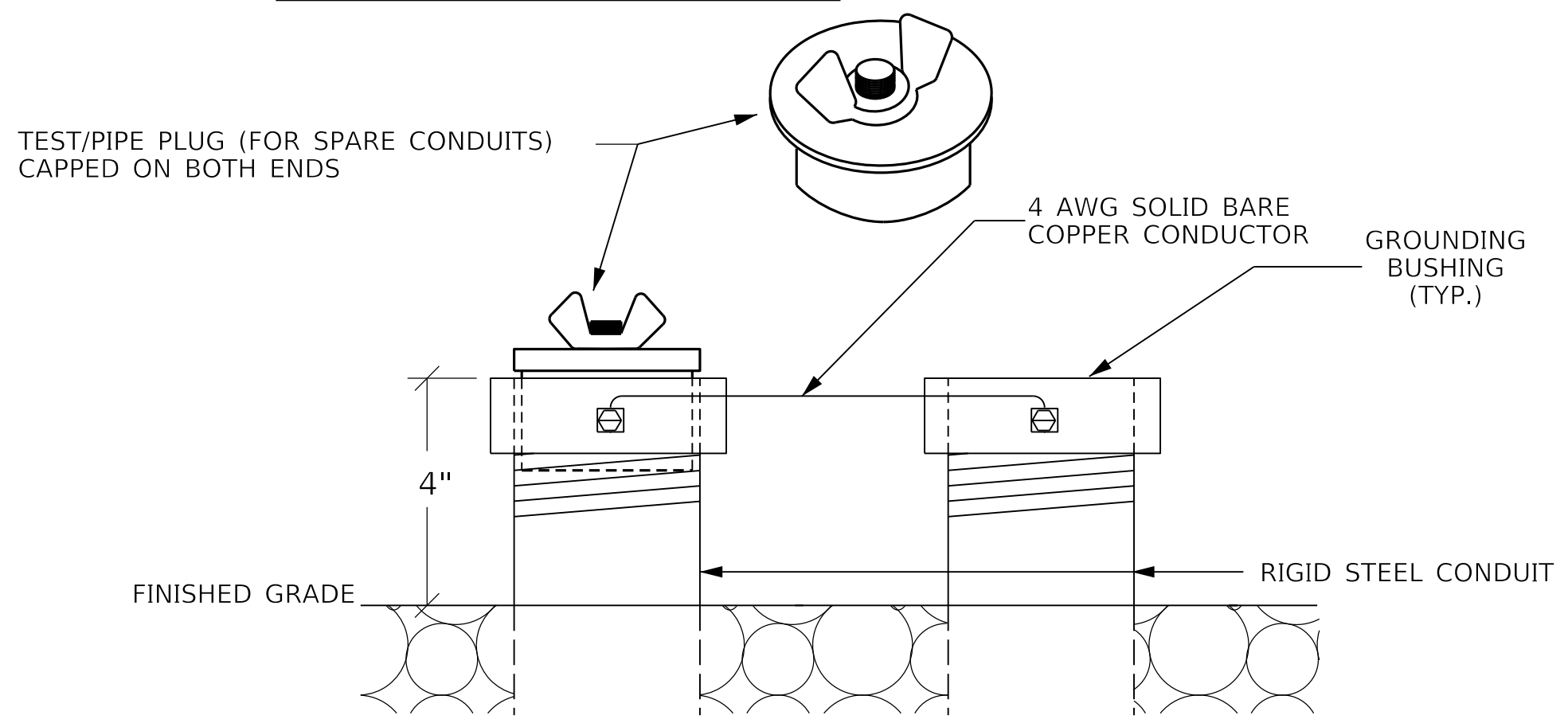
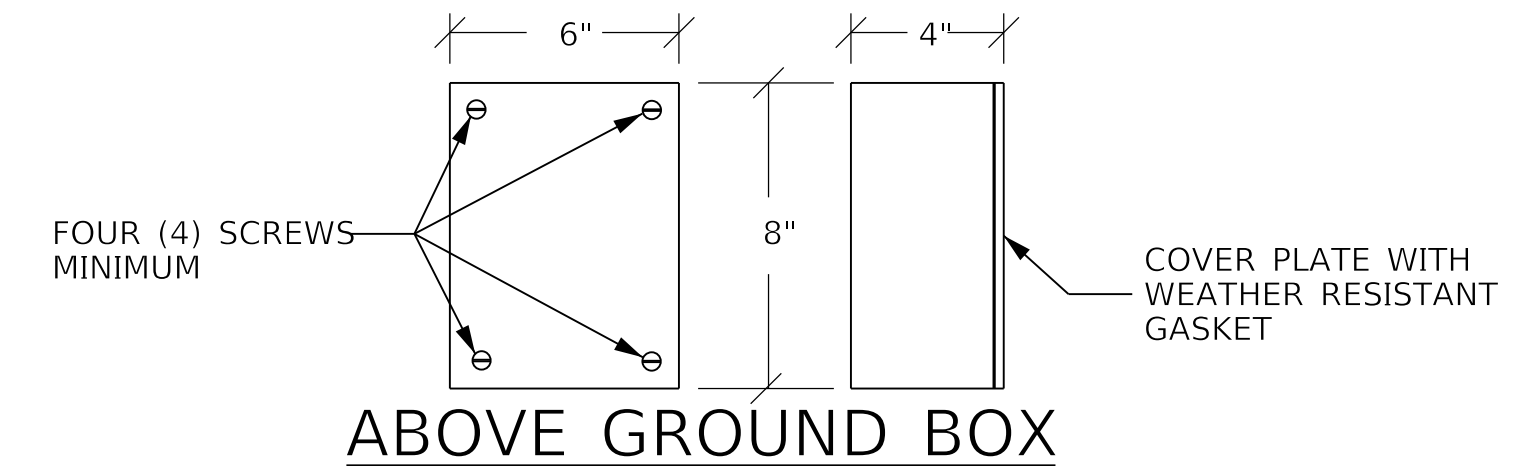
JUNCTION BOX DIMENSIONS (NOMINAL)						
	A	B	C	D	E	F
TYPE A	23"	14"	27"	2"	25"	15"
TYPE B	18"	11"	12"	1 7/32" *	20"	13"
TYPE C	36"	24"	30"	3"	38"	26"

* MINIMUM NOTE: STACKABLE BOXES ARE PERMITTED



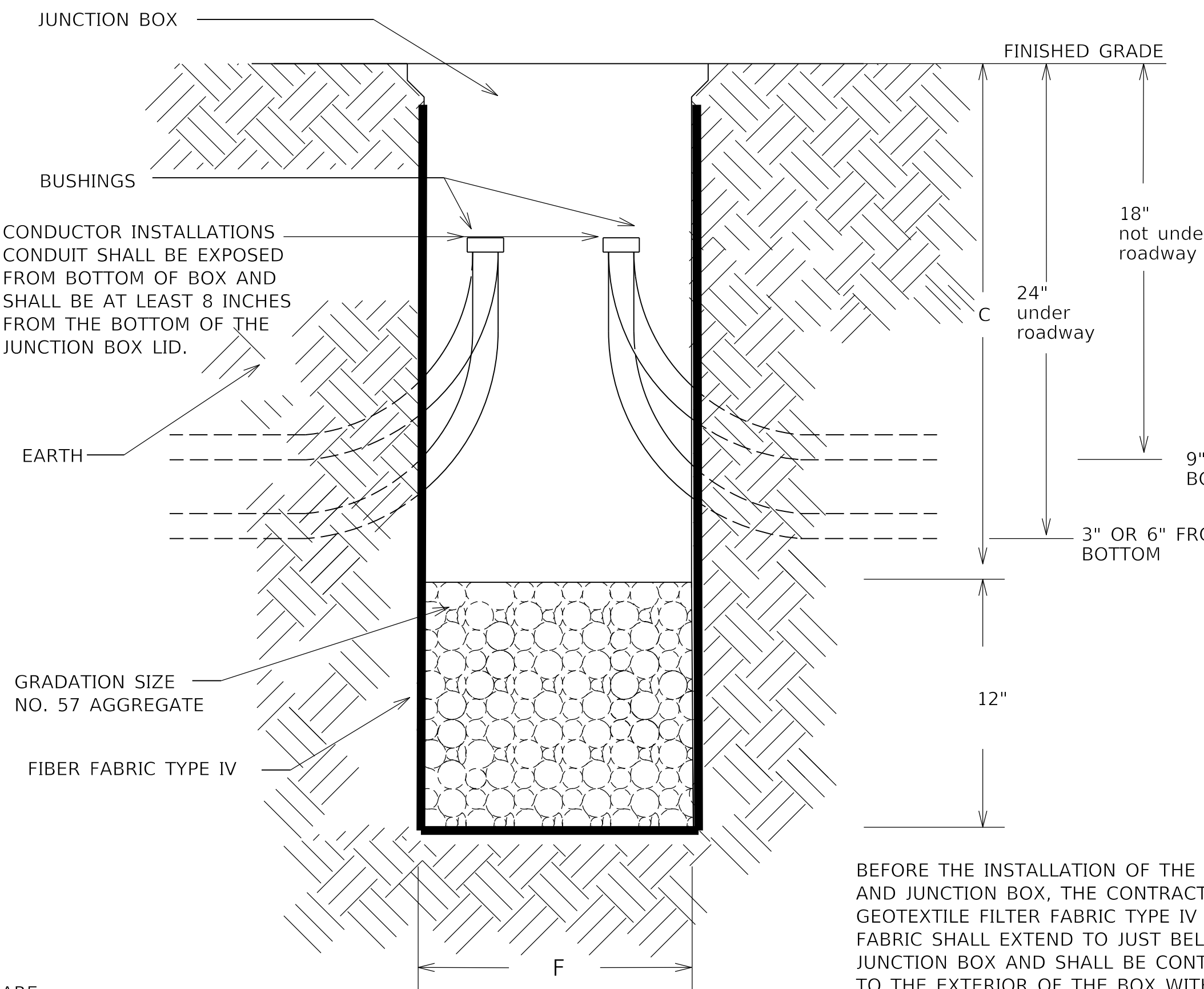
CONDUIT, DUCTED CABLE, AND WARNING TAPE TRENCH

ABOVE GROUND BOX SHALL BE FABRICATED FROM MINIMUM 12 GAUGE STEEL AND GALVANIZED AFTER FABRICATION. BOXES SHALL HAVE NO KNOCKOUTS AND SHALL BE PROVIDED WITH A PLATE COVER WITH A WEATHER RESISTANT GASKET AND A MINIMUM OF FOUR SCREWS FOR ATTACHING THE PLATE COVER TO THE BOX. CABLE CLAMPS SHALL BE PROVIDED FOR CABLES ENTERING AND EXITING THE BOX.

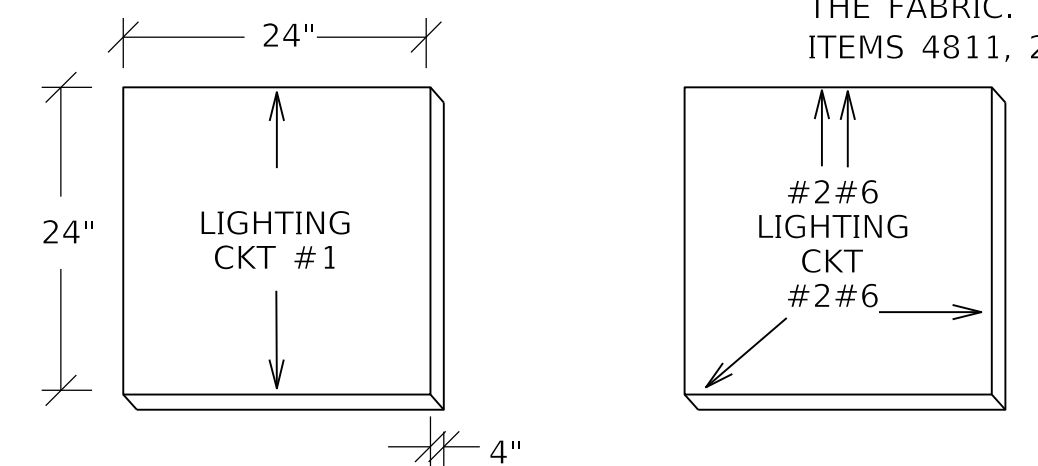


TEST/PIPE PLUG(FOR SPARE CONDUITS) AND GROUNDING DETAIL

DEPTHS SHOWN FOR CONDUIT AND DUCTED CABLE ARE MINIMUMS. CONTRACTOR SHALL PLACE AND COMPACT BACKFILL IN 9" MAXIMUM LIFTS AND RETORE DISTURBED AREA TO THE SATISFACTION OF THE ENGINEER.

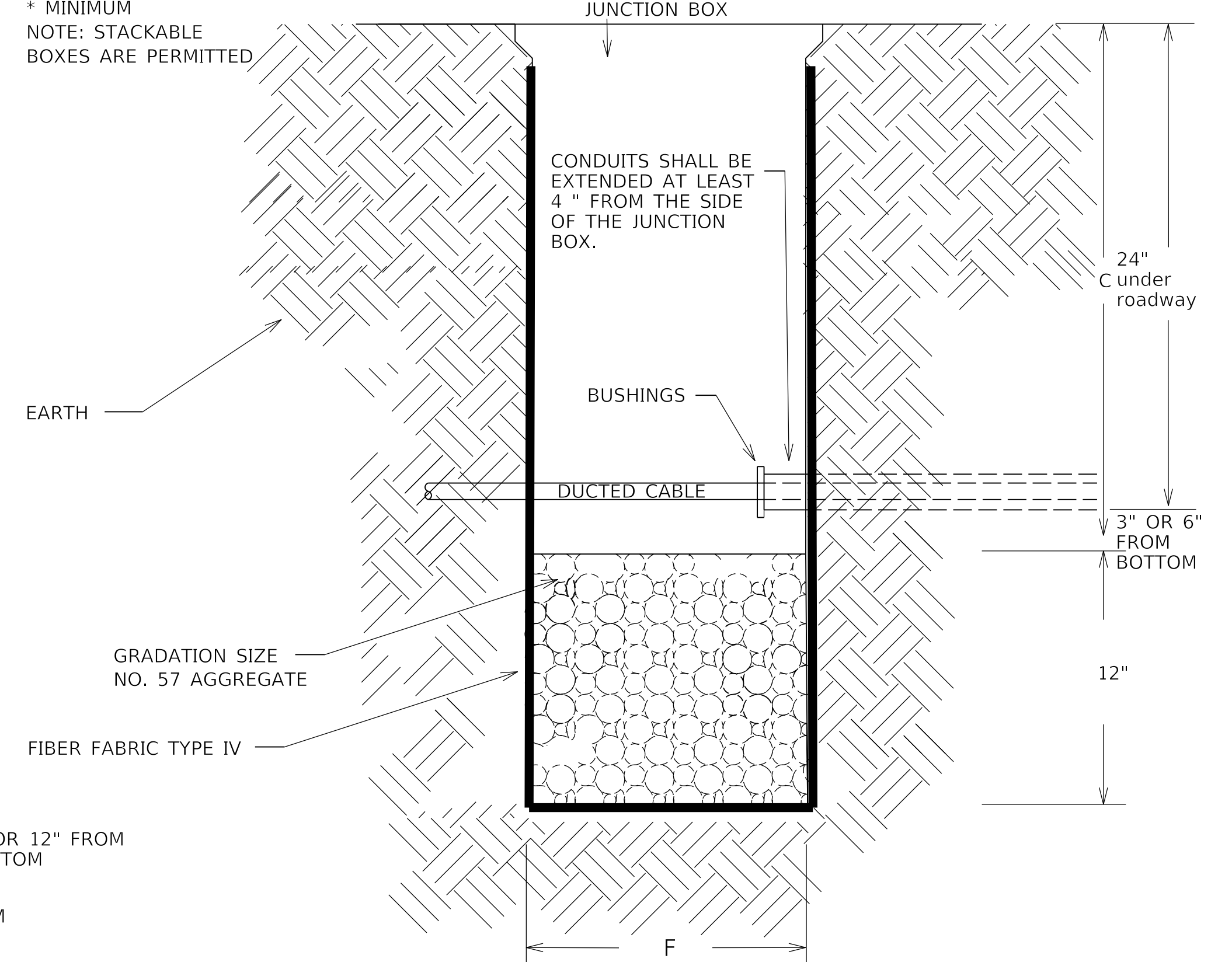


JUNCTION BOX INSTALLATION FOR CONVENTIONAL LIGHTING

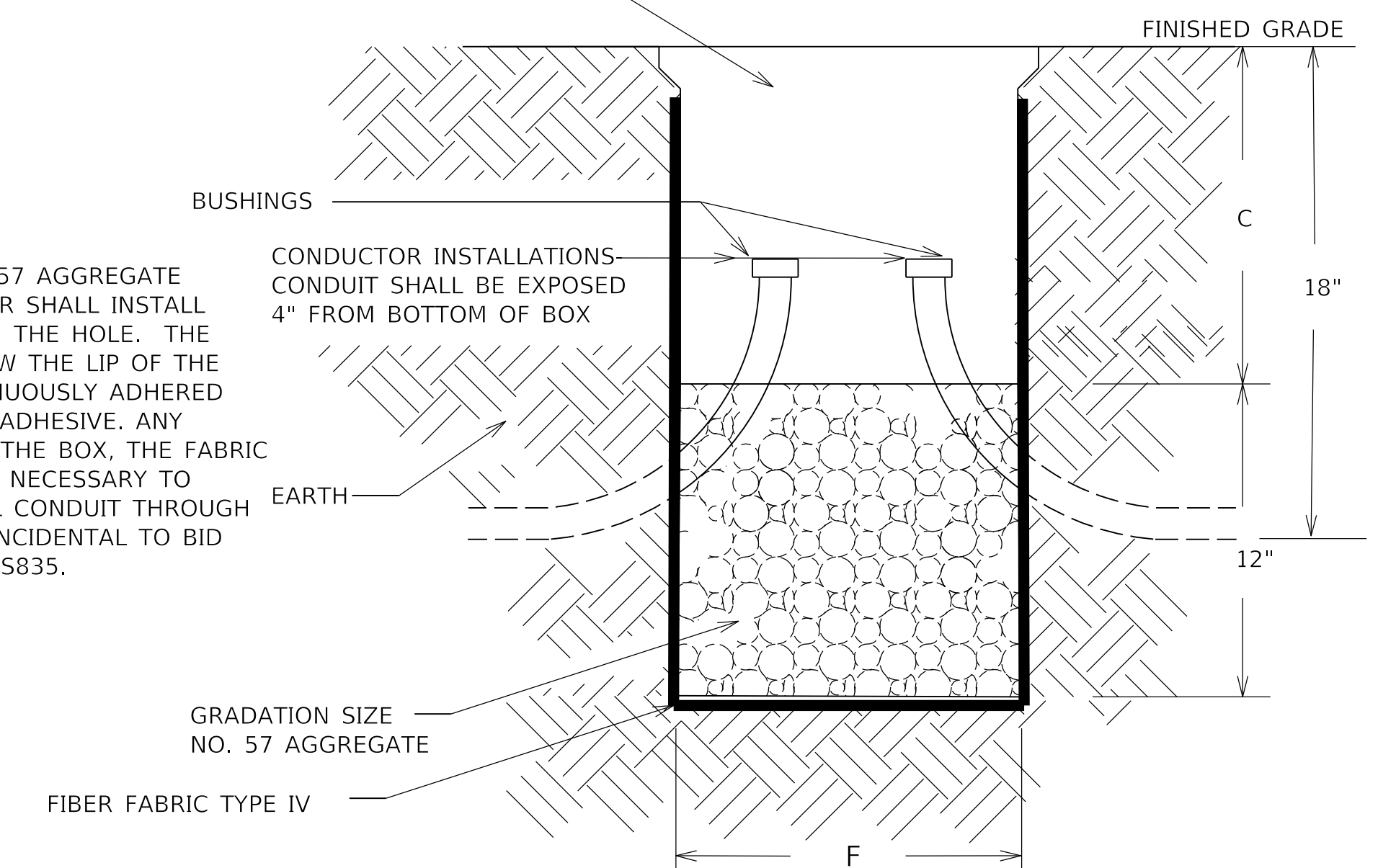


CONCRETE CABLE MARKERS

BEFORE THE INSTALLATION OF THE #57 AGGREGATE AND JUNCTION BOX, THE CONTRACTOR SHALL INSTALL GEOTEXTILE FILTER FABRIC TYPE IV IN THE HOLE. THE FABRIC SHALL EXTEND TO JUST BELOW THE LIP OF THE JUNCTION BOX AND SHALL BE CONTINUOUSLY ADHERED TO THE EXTERIOR OF THE BOX WITH ADHESIVE. ANY LOCATIONS WHERE CONDUITS ENTER THE BOX, THE FABRIC SHALL BE "X CUT" ONLY AS MUCH AS NECESSARY TO ALLOW PASSAGE OF EACH INDIVIDUAL CONDUIT THROUGH THE FABRIC. THE FABRIC SHALL BE INCIDENTAL TO BID ITEMS 4811, 20391NS835, OR 20392NS835.



JUNCTION BOX INSTALLATION FOR HIGHMAST LIGHTING



JUNCTION BOX INSTALLATION FOR TRAFFIC SIGNALS



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

DRAWING TITLE: JUNCTION BOX AND CONDUIT DETAILS

HORIZONTAL SCALE
SCALE: N/A

ITEM NO. 01-9036.00 COUNTY OF GRAVES
SHEET NO. T4

DESIGN CRITERIA FOR LED HIGH MAST AT INTERCHANGE

OVERALL CRITERIA ILLUMINANCE:

AVERAGE: NOT LESS THAN .80 FOOTCANDLES
AND MORE THAN 1.2 FOOTCANDLES
MINIMUM: NOT LESS THAN .20 FOOTCANDLES
AVERAGE/MINIMUM: NOT MORE THAN 3.5:1

ALL POLE LOCATIONS, ARM LENGTHS, AND ORIENTATION
OF LUMINAIRE (TO CURVE/ROAD) SHOULD BE MAINTAINED
DUE TO UTILITIES/DRAINAGE/RIGHT-OF-WAY.

LUMINAIRE DESIGN:

HIGH MAST LUMINAIRES

DRIVER: NOT TO EXCEED 1050 mA
TYPE V DISTRIBUTION
LAMP WATTAGE: CAN NOT
EXCEED 475 WATTS

LUMINAIRE DESIGNATION EXAMPLE

2 - 7 - HM

SPECIAL NOTE:

ALL LUMINAIRES SHALL HAVE THE NEMA LABEL
INSTALL ON THE BOTTOM OF THE FIXTURE TO
VERIFY THE WATTAGE.

— LUMINAIRE WATTAGE (HIGH MAST)

— LUMINAIRE NUMBER IN CIRCUIT

— CIRCUIT NUMBER

5/12/2022

The following are the required Specifications for the LED Fixture:

1. The Luminaire shall be listed by a National Recognized Testing Laboratory (NRTL) as defined by the U.S. Department of Labor. The testing laboratory must be listed by OSHA in its scope of recognition for the applicable tests being conducted as required by this specification. A list of recognized testing labs for products sold in the United States may be found on the U.S. Department of Labor's web site: <http://www.osha.gov/>
2. The Luminaire shall be listed and labeled by a NRTL or CSA as being in compliance with UL 1598 and suitable for use in wet locations.
3. Key components including LED drivers, LED light sources, and surge protection devices shall be RoHS compliant.
4. The housing shall have an International Electrotechnical Commission (IEC) 529 Ingress Protection (IP) rating of IP 65 or greater.
5. Shall be in compliance with Electro Magnetic Interference (EMI) requirements as defined by FCC 47 Sub Part 15; CISPR15, CISPR22 Class A (120Vmin), EN61000-3-2, -3-3, -4-4, -4-5.
6. Shall be tested according to the most current version of Illuminating Engineering Society of North America (IESNA) LM-79.
7. Shall have lumen maintenance measured in accordance the most current version of Illuminating Engineering Society of North America (IESNA) LM-80.
8. Shall have long term lumen maintenance documented according to the most current version of Illuminating Engineering Society of North America (IESNA) TM-21.
9. The fixture shall have a diecast aluminum housing.
10. The luminaire finish shall be corrosion resistant with a polyester powdercoat of 2.5 mil nominal thickness. Finish shall pass per ASTM D1654 after 3000 hours of testing per ASTM B117.
11. All hardware on the exterior of the housing including cover and latch shall be stainless steel, zinc or steel with zinc alloy electroplate and chromate top coat .
12. The luminaire shall be easy to open when properly mounted and shall have readily accessible internal parts. Access to all internal parts requiring replacement shall not require tools (i.e. "tool-less entry").
13. The luminaire shall have a vibration rating of 3G per the American National Standard (ANSI) IEEE C136.31, Table 2 Roadway Lighting Equipment -Luminaire Vibration for both normal applications and bridge and overpass applications.
14. The luminaire shall be designed to allow water shedding.
15. The luminaire shall have a passive cooling method shall be employed to manage thermal output of LED light engine and power supply.
16. The luminaire shall have a label per ANSI C136.22 that states operating voltage and current range. The label must be clearly visible on the inside of the housing.
17. The luminaire shall fully operate in a temperature range of -40 degrees C up to 40 degrees C (-40 degrees F to 104 degrees F).
18. In retrofit applications, the LED luminaire shall not be more wattage than the original HPS fixture if you are replacing one for one. For the optimized proposal, we will allow the wattage to be greater than the original proposed luminaire.
19. The luminaire shall have an integral power supply (electronic driver). The power supply shall not have a manual, field-adjustable setting for current output.
20. The luminaire shall have a power supply (electronic driver) that will operate on a 480 volt single phase at 60 hertz.
21. The luminaire shall have a power supply (electronic driver) that has a power factor of .90 or greater at full load.
22. The luminaire shall have a power supply (electronic driver) that has total harmonic distortion of 20% or less at full load.
23. The luminaire shall have power supply (electronic driver) output ripple of less than 15%.
24. The luminaire shall have power supply (electronic driver) with a rated life of 100,000 hours with a luminaire operated at an ambient temperature of 25°C (77°F).
25. The luminaire shall have an isolated power supply (electronic driver) output.
26. The luminaire shall have a power supply (electronic driver) that has thermal overload protection.
27. The luminaire shall have a power supply (electronic driver) that is self-limited short circuit protected and over load protected.
28. The luminaire shall not use any active thermal cutback, such as in order to achieve a higher thermal performance.
29. The luminaire shall have a power supply (electronic driver) that is terminated with quick disconnect wire harnesses for easy maintenance. Wire nut termination is not acceptable.
30. The luminaire shall have a terminal block for terminating wiring to the luminaire. The terminal block shall be a 3 station, tunnel lug terminal board that will accommodate #6 thru #18 AWG pole wire.
31. Fixture shall have a surge protection that meets 10KV/5KA per ANSI/IEEE62.41.

35. Class C applications.
The LED shall fully operate in a temperature range -40°C to 40°C (-40°F to 104°F).
36. The LED shall lose no more than a 15% optical intensity of initial delivered lumens due to thermal loading when operated at 25°C (77°F).
37. The LED shall have a rated life of 100,000 hours when operated at 40°C.
38. The LED shall have a minimum Luminaire efficacy of 120 lumens/watt.
39. The Correlated Color Temperature (CCT) shall be 4000K with a variance of 250K, white, that conforms to LM-79. The Correlated Color Temperature (CCT) shall be 5000K with a variance of 250K, white, that conforms to LM-79 (HIGH MAST ONLY).
40. The minimum color rendering index (CRI) shall not be less than 70.
41. The optics shall have a completely sealed optical system.
42. The optical system shall have a (IEC) (IP) rating of 66 or greater.
43. The optics shall have an Illuminating Engineering Society of North America (IESNA) Backlight, Uplight and Glare (BUG) rating as follows:
 - a. Backlight rating shall not exceed 3;(highmast fixture backlight rating shall not exceed 5)
 - b. Uplight rating shall not exceed 0;
 - c. Glare rating shall not exceed 3/4
44. The Light Loss Factor (LLF) shall be calculated for each fixture as follows:
LLF = LLD X LDD
Lamp Lumen Depreciation Factor (LLD) shall be the specified percentage of LED lumen maintenance at 70,000 hours at 25°C (77°F) from the TM-21 report. This LLD should be according to LM -80 and TM -21 reports. This report shall be submitted for verification.
Luminaire Dirt Depreciation (LDD)= .9
45. The TM-21 Report must show the drive current used for the submitted luminaire. The report can show a larger drive current to represent a worst case scenario.
46. The Lumen Maintenance Life L80 from the TM-21 Report must not be below 80% at 70,000 hours at 25°C (77°F).
47. The manufacturer shall provide certified test laboratories IES photometrics which verify light levels. Product submittal shall be accompanied by IES TM-21 compliant test reports from a CALIPER qualified or NVLAP accredited testing laboratory for the specific model being submitted.
48. The luminaire shall be equipped with a shorting cap and a 7-pin photocontrol receptacle that meets ANSI 2013 standard C136.41
49. The luminaire shall have an exterior label the identifies the fixture type (A,B,C,D) and the distribution type. This label shall be submitted and approved by the project engineer.
50. The luminaire shall have a QR code label that can be scanned and identify the model number and serial number for each individual fixture. This label shall be submitted and approved by the project engineer.
51. WARRANTY: The Manufacturer shall ensure that the LED Luminaires have a minimum standard warranty of 10 years for all parts, materials, paint finish, and shipping (both ways) required to repair or replace the luminaire. The warranty shall begin upon the date the luminaire is received. The warranty shall be transferable. Technical Support. During the warranty period, technical support shall be available from the manufacturer via telephone within 24 hours of the time the call is made from KYTC, and this support shall be made available from factory certified personnel or factory certified installers at no additional charge to the Department.
52. MINIMUM REQUIRED SUBMITTALS:
Luminaire specification sheet.
LED driver specification sheet.
LM-79 Luminaire photometric report.
The vendor must submit LM-79 in-situ test data to confirm thermal operating temperatures of the luminaire.
LM-80 Lumen maintenance report.
TM-21 calculations as defined.
Backlight, Uplight, Glare (BUG) rating of the luminaire.
Written product warranty.
Certified test lab IES photometric reports.
Including IES electronic file.
Including intensity and chromaticity data.
Instructions for installation and maintenance.



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



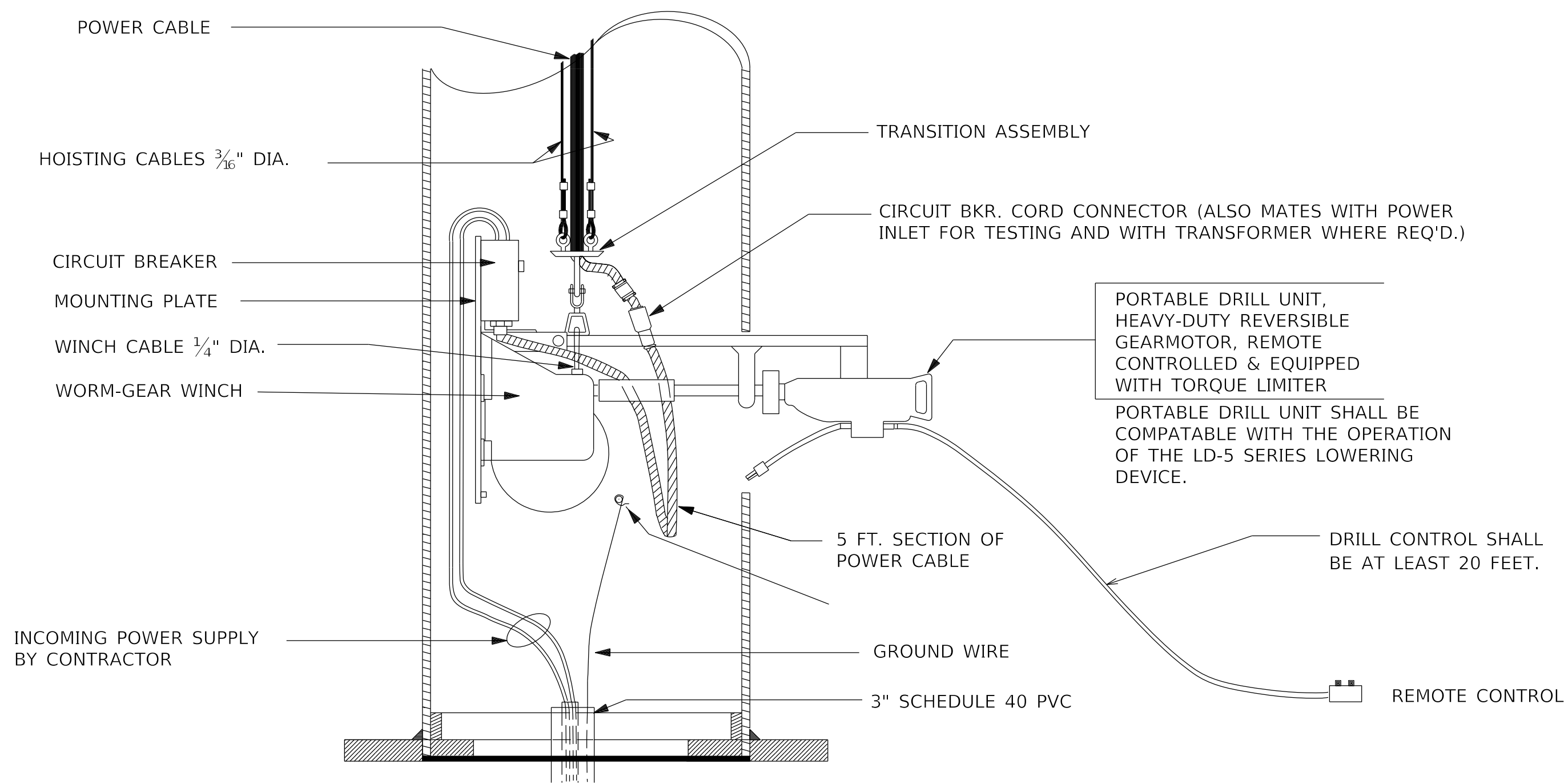
DRAWING TITLE: HIGH MAST LUMINAIRE DETAILS

HORIZONTAL SCALE
SCALE: N/A

ITEM NO.
01-9036.00

COUNTY OF
GRAVES

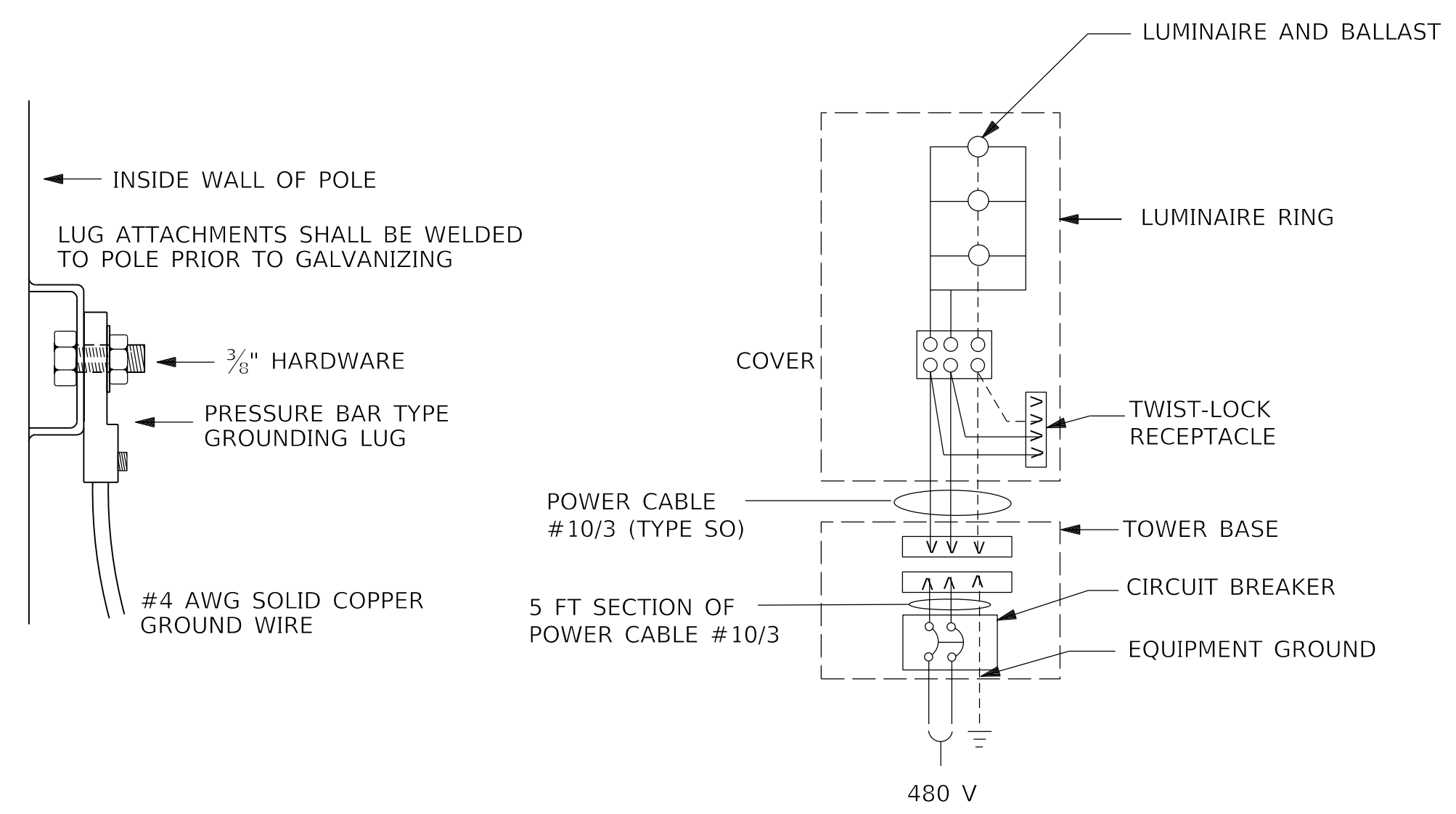
SHEET NO.
T5



POLE BASE DETAIL

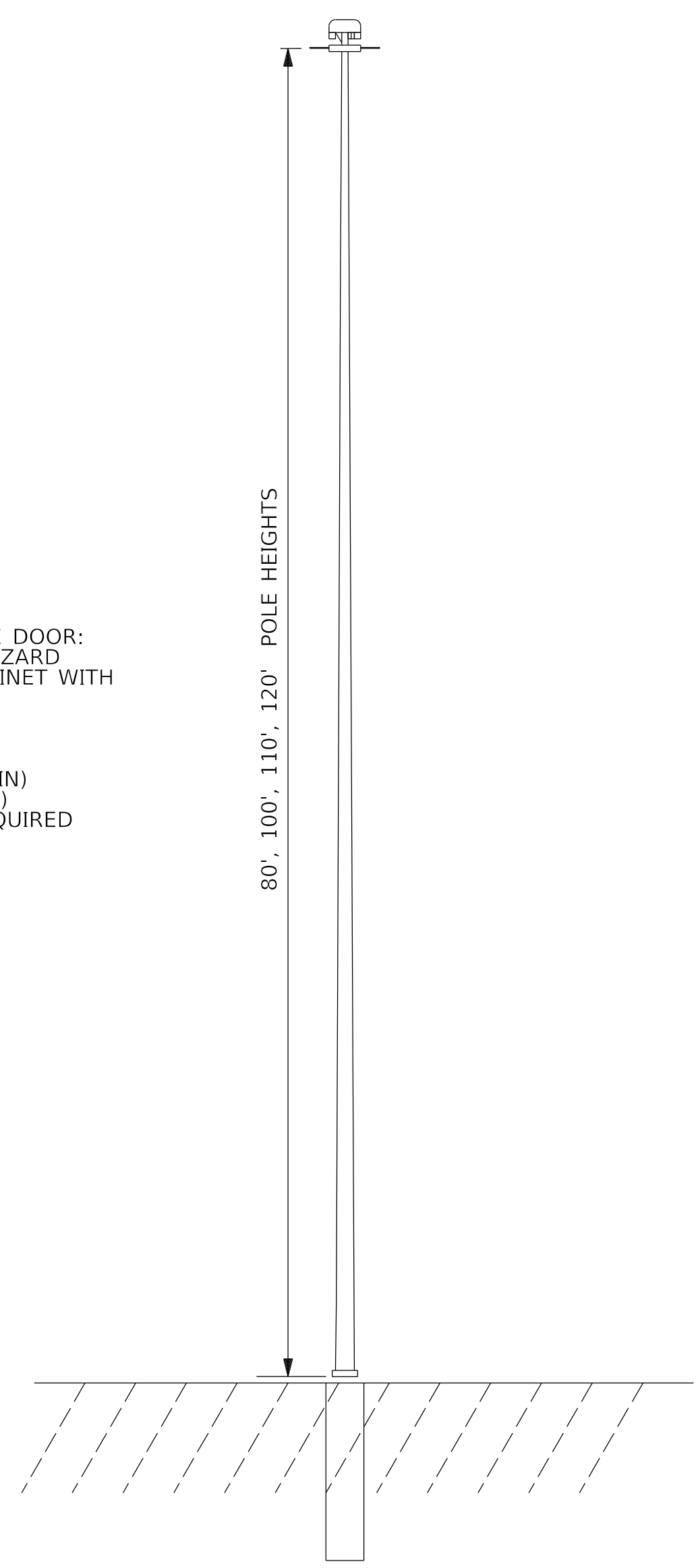
PORTABLE DRILL UNIT, HEAVY-DUTY REVERSIBLE GEARMOTOR, REMOTE CONTROLLED & EQUIPPED WITH TORQUE LIMITER
 PORTABLE DRILL UNIT SHALL BE COMPATIBLE WITH THE OPERATION OF THE LD-5 SERIES LOWERING DEVICE.
 DRILL CONTROL SHALL BE AT LEAST 20 FEET.
 REMOTE CONTROL

SPECIAL NOTE FOR THE HIGHMAST POLE DOOR:
 FURNISH AN ARC FLASH AND SHOCK HAZARD WARNING STICKER ON DISCONNECT/CABINET WITH THE FOLLOWING INFORMATION:
 VOLTAGE (480 VOLT)
 GLOVE CLASS (0)
 LIMITED APPROACH BOUNDARY (120 IN)
 RESTRICTED APPROACH BOUNDARY (12 IN)
 MINIMUM CLOTHING ARC RATING (CAT 2)
 SEE NFPA 70E FOR ADDITIONAL PPE REQUIRED



POLE GROUNDING LUG (3 REQ.)

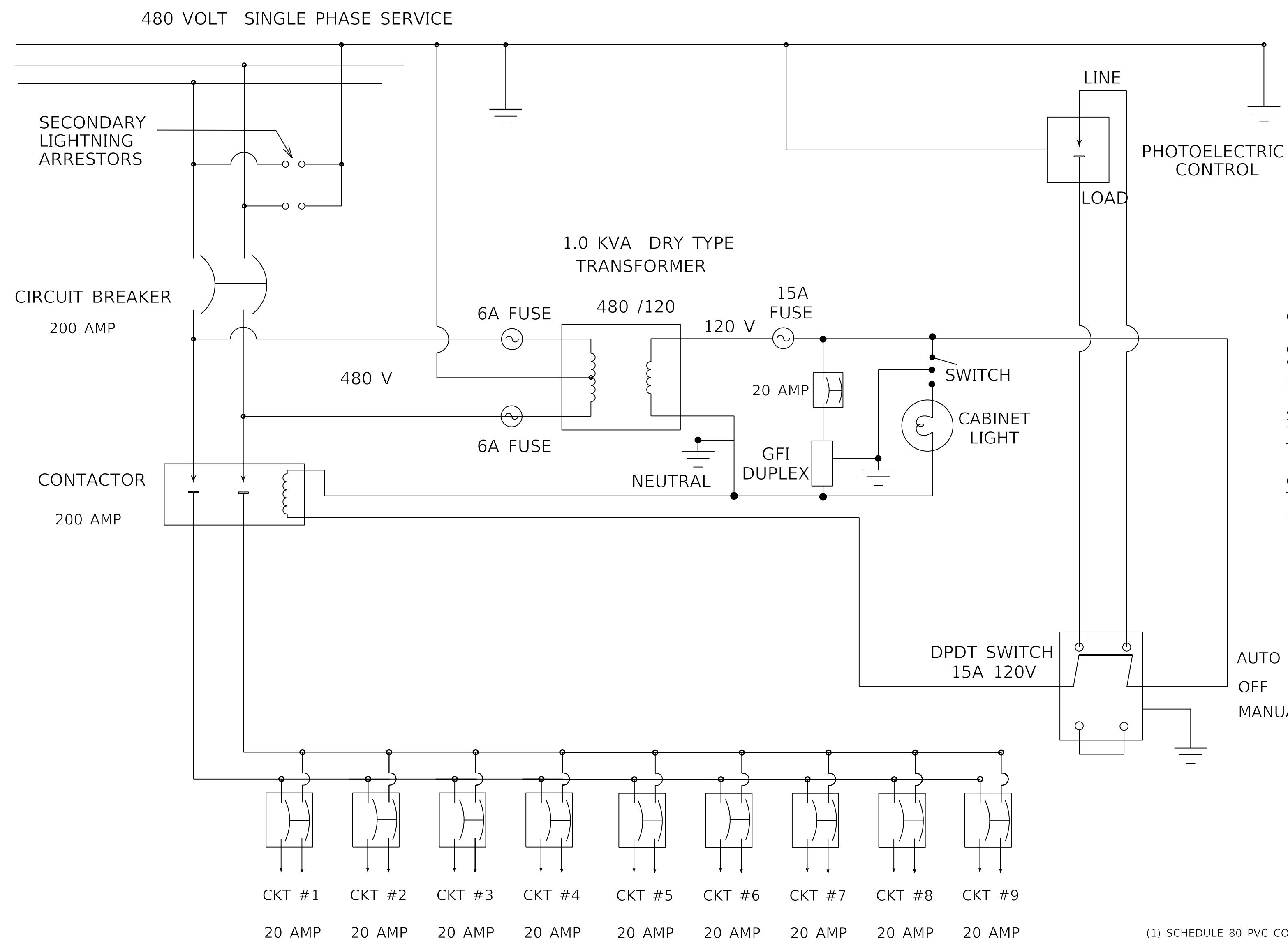
WIRING ARRANGEMENT AT TOWER LOCATIONS



SEE HIGH MAST DETAIL SHEET

1-30-2020

NUMBER OF PORTABLE POWER UNITS TO BE SUPPLIED 1



NOTES:

CONTRACTOR SHALL INSTALL ALL LIGHTING CONTROL EQUIPMENT AS INDICATED.

CONCRETE SHALL BE CLASS A. CONCRETE SHALL BE POURED ON 12" OF POWER TAMPED DENSE GRADE ROCK. PAD SHALL BE 30" THICK WITH 18" ABOVE GRADE.

PAD SHALL BE OF SUFFICIENT SIZE TO ALLOW A MINIMUM 36" IN FRONT OF THE CABINET AND 12" MINIMUM CLEARANCE AROUND THE SIDES AND BACK OF THE CABINET.

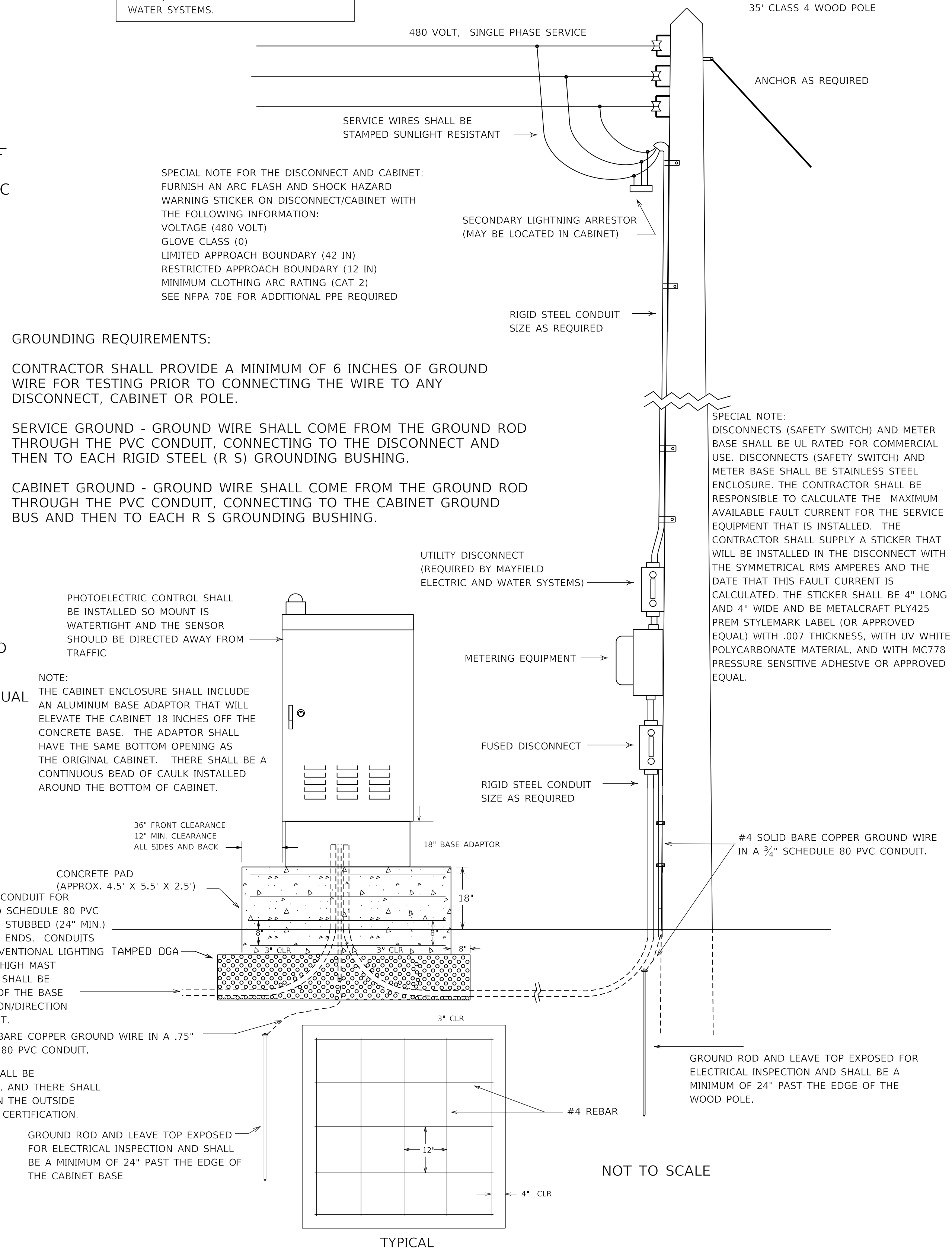
CONCRETE SHALL BE SLOPED 1/8" PER FOOT TO PREVENT STANDING WATER. OUTSIDE EDGE SHALL HAVE A ONE INCH CHAMFER.

#4 REBAR SHALL BE COMPRISED OF RUNS AS SHOWN AND TIED AT EACH JOINT.

ALL CONSTRUCTION (TO INCLUDE EXCAVATION WORK) AND MATERIALS (CONCRETE, STEEL REINFORCEMENT, ETC.) FOR THE CONCRETE PAD SHALL BE INCIDENTAL TO THE POLE FOR THE LIGHTING CONTROL EQUIPMENT BID ITEM.

ALL CONDUITS USED FOR GROUNDING, SPARE, AND SERVICE THAT ARE INSTALLED ON THE POLE AND/OR IN/TO THE CABINET ARE INCIDENTAL TO BID ITEM "4761". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CABINET BASE FOR THE SPARE.

OVERHEAD OR UNDERGROUND SERVICE AS REQUIRED BY MAYFIELD ELECTRIC AND WATER SYSTEMS.



GROUNDING REQUIREMENTS:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO ANY DISCONNECT, CABINET OR POLE.

SERVICE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE DISCONNECT AND THEN TO EACH RIGID STEEL (R/S) GROUNDING BUSHING.

CABINET GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE CABINET GROUND BUS AND THEN TO EACH R/S GROUNDING BUSHING.

PHOTOELECTRIC CONTROL SHALL BE INSTALLED SO MOUNT IS WATERTIGHT AND THE SENSOR SHOULD BE DIRECTED AWAY FROM TRAFFIC

NOTE: THE CABINET ENCLOSURE SHALL INCLUDE AN ALUMINUM BASE ADAPTOR THAT WILL ELEVATE THE CABINET 18 INCHES OFF THE CONCRETE BASE. THE ADAPTOR SHALL HAVE THE SAME BOTTOM OPENING AS THE ORIGINAL CABINET. THERE SHALL BE A CONTINUOUS BEAD OF CAULK INSTALLED AROUND THE BOTTOM OF CABINET.

(1) SCHEDULE 80 PVC CONDUIT FOR EACH CIRCUIT PLUS (1) SCHEDULE 80 PVC SPARE CONDUIT TO BE STUBBED (24" MIN.) AND CAPPED ON BOTH ENDS. CONDUITS SHALL BE 2" FOR CONVENTIONAL LIGHTING TAMPED DGA CIRCUITS AND 3" FOR HIGH MAST CIRCUITS. AN ARROW SHALL BE CARVED ON THE TOP OF THE BASE TO SHOW THE LOCATION/DIRECTION OF THE SPARE CONDUIT.

NOTE: ALL LIGHTING CABINETS SHALL BE MANUFACTURE PER UL508A, AND THERE SHALL BE A PERMANENT LABEL ON THE OUTSIDE STATING THAT IT HAS THIS CERTIFICATION.

GROUND ROD AND LEAVE TOP EXPOSED FOR ELECTRICAL INSPECTION AND SHALL BE A MINIMUM OF 24" PAST THE EDGE OF THE CABINET BASE

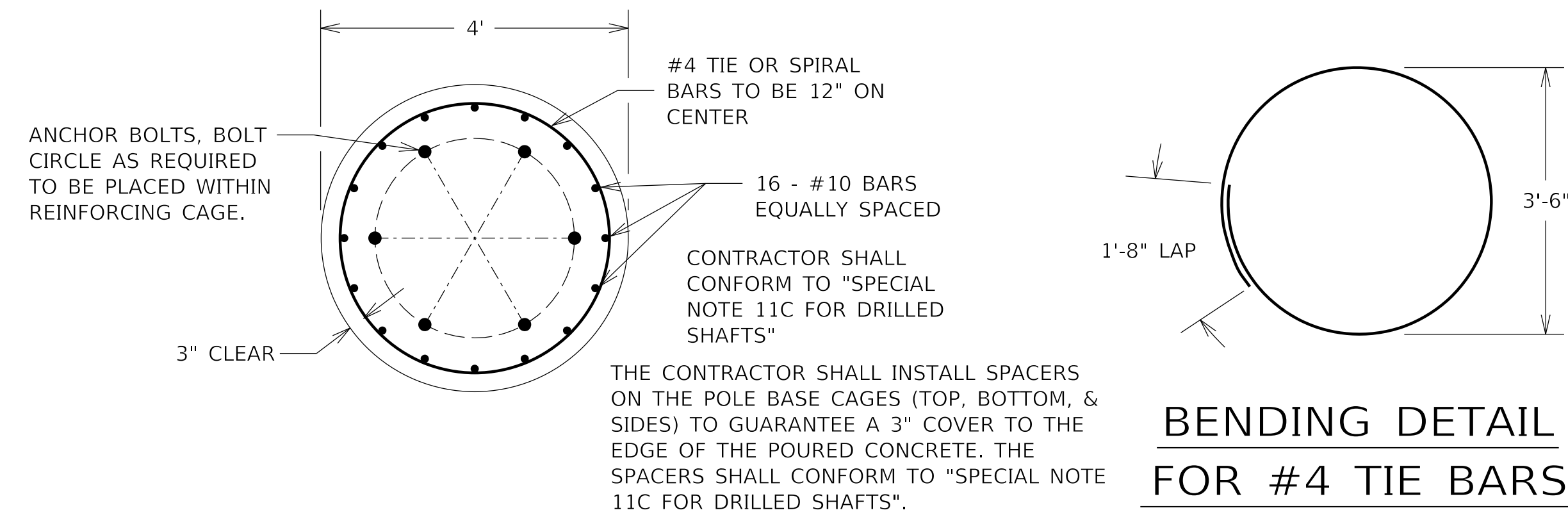
SPECIAL NOTE: DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE UL RATED FOR COMMERCIAL USE. DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE STAINLESS STEEL ENCLOSURE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATE THE MAXIMUM AVAILABLE FAULT CURRENT FOR THE SERVICE EQUIPMENT THAT IS INSTALLED. THE CONTRACTOR SHALL SUPPLY A STICKER THAT WILL BE INSTALLED IN THE DISCONNECT WITH THE SYMMETRICAL RMS AMPERES AND THE DATE THAT THIS FAULT CURRENT IS CALCULATED. THE STICKER SHALL BE 4" LONG AND 4" WIDE AND BE METALCRAFT PLY425 PREM STYLEMARK LABEL (OR APPROVED EQUAL) WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC778 PRESSURE SENSITIVE ADHESIVE OR APPROVED EQUAL.

TYPICAL

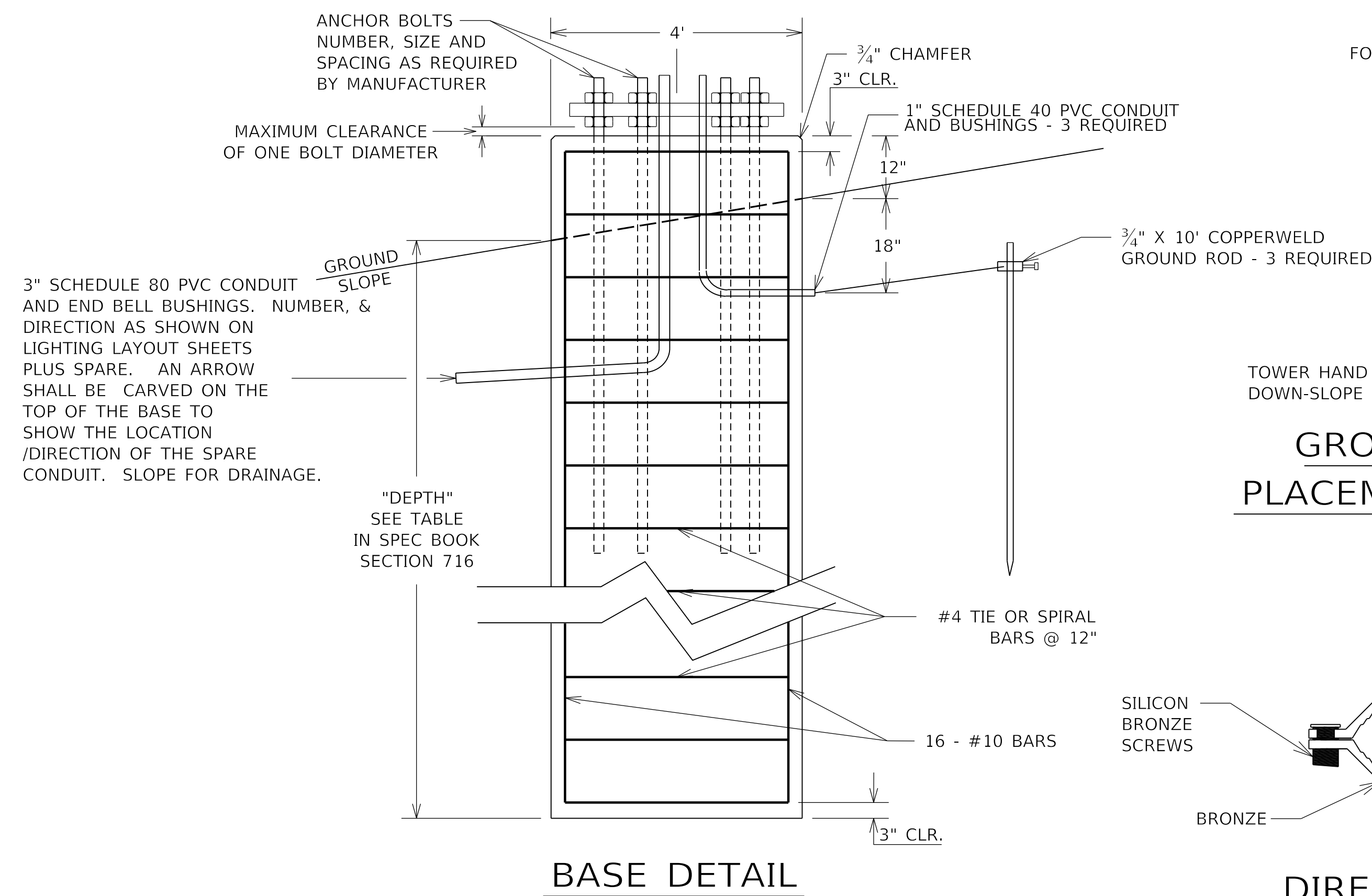
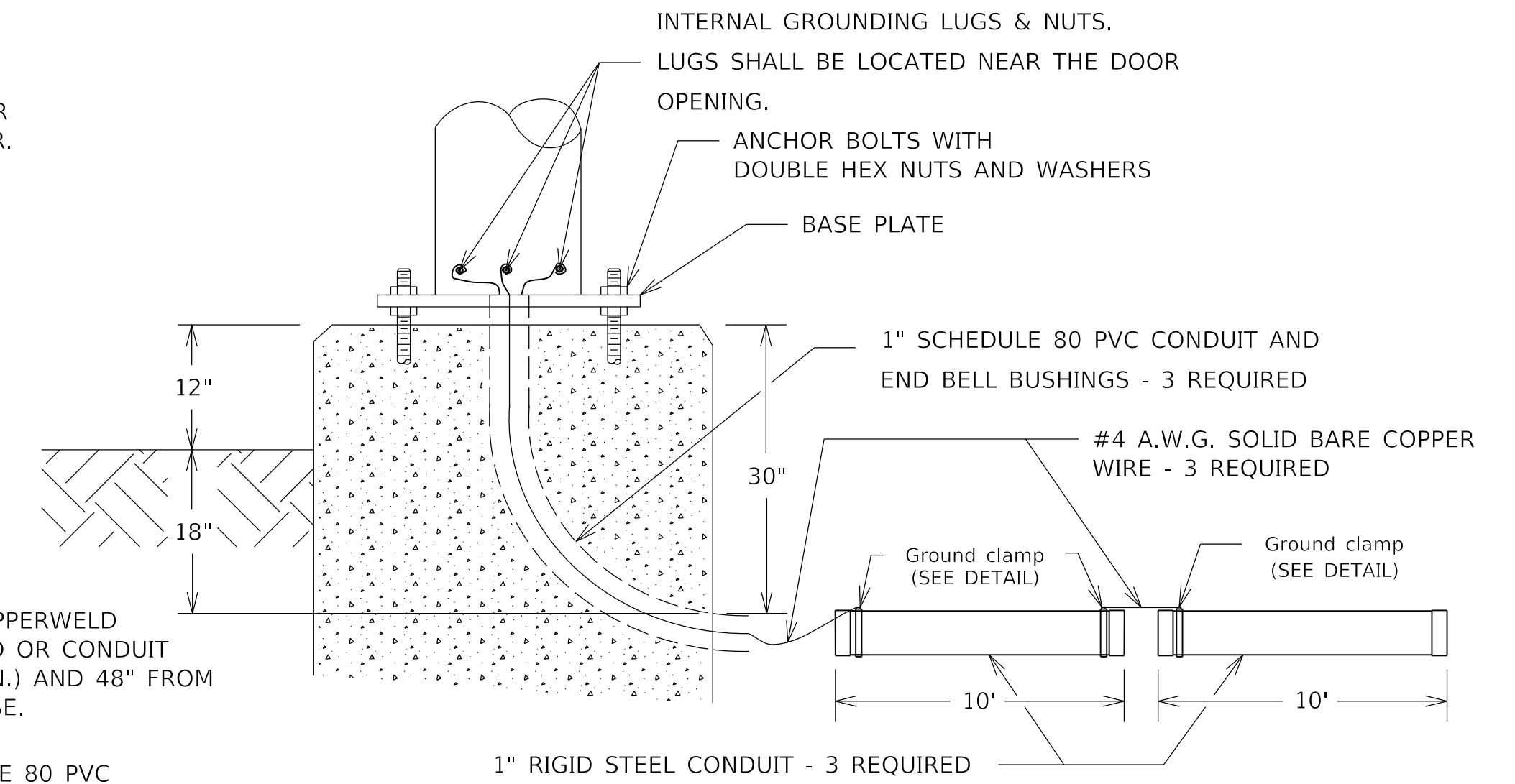
NOT TO SCALE

9/23/2021

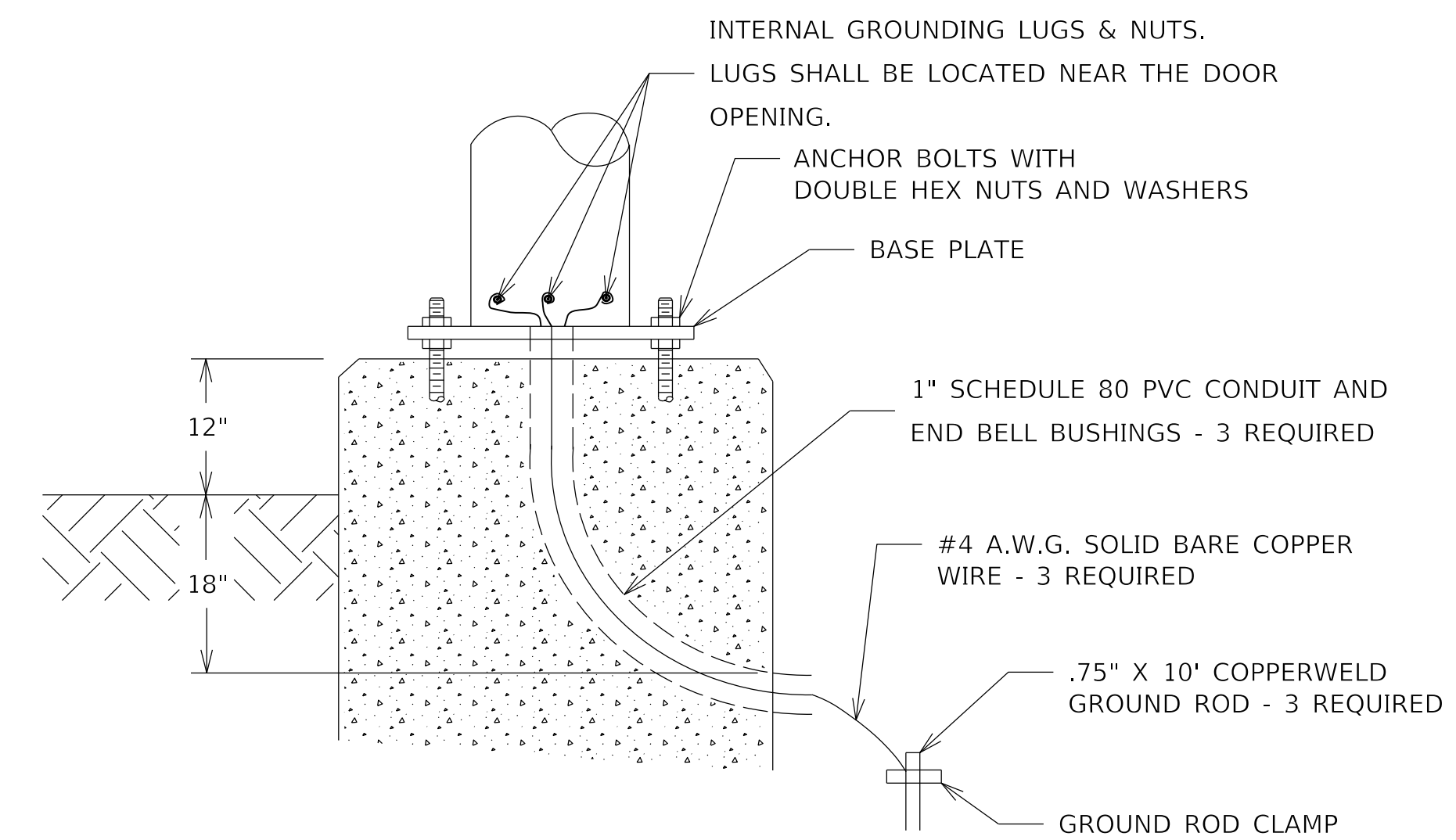
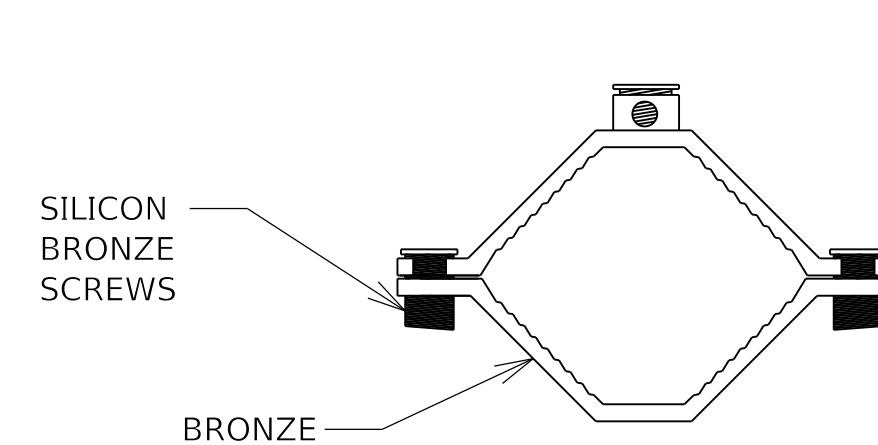
BASE DESIGN FOR UP TO 120' HIGH MAST POLES (WITH A MAXIMUM OF TWELVE LUMINAIRES)



NOTE:
THE HIGH MAST DOOR SHALL HAVE A 4" BY 6" ARC FLASH WARNING STICKER INSTALL 3" FROM THE TOP OF THE DOOR. THE STICKER SHALL BE METALCRAFT PLY695 PREM STYLEMARK LABEL WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC53FL PRESSURE SENSITIVE ADHESIVE OR APPROVAL EQUAL. THIS SHALL BE INCIDENTAL TO THE PROJECT.



GROUND ROD PLACEMENT DETAIL



NOTES:
ALL CONDUITS SHALL BE INSTALLED AT LEAST 6 INCHES FROM THE BOTTOM OF THE DOOR FRAME. ALL CONDUITS USED FOR THE GROUNDING AND CONDUCTORS ARE INCIDENTAL TO BID ITEM "23161EN". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE POLE BASE.

7/26/2022



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

DRAWING TITLE: HIGH MAST BASE DETAILS

HORIZONTAL SCALE
SCALE: N/A

ITEM NO.
01-9036.00

COUNTY OF
GRAVES

SHEET NO.
T8

~ NOTES ~

SEE SHEET 9 OF THRIE BEAM BULLNOSE TERMINAL FOR MEDIAN GRADING.

THRIE BEAM RAILS MAY NEED TO BE FIELD BENT TO FIT THE LOCATION.

SEE STANDARD DETAIL DRAWINGS THRIE BEAM BULLNOSE TERMINAL SHEETS 1-9.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2". MINIMUM DIAMETER OF THE ROCK REMOVAL IS 12" DIAMETER.

E1 UNBENT STANDARD THRIE BEAM RAIL (POST 8 AND BEYOND)

E2 SLOTTED THRIE BEAM RAIL (POST 1L TO POST 1R)

E3 SLOTTED THRIE BEAM RAIL (POST 5 TO POST 8)

E4 SLOTTED THRIE BEAM RAIL (POST 1 TO POST 5)

5 BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM. USE STD. DWG. RBR-100, SPEC. 719, AND SPEC. 814. TRANSITION THRIE BEAM RAIL HEIGHT TO 33" OVER THE LENGTH OF A 12'-6" BEAM.

100 DIMENSIONS ARE MEASURED TO THE CENTER OF THE GUARDRAIL POSTS. REFER TO DETAIL A FOR MORE INFORMATION.

101 U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.

102 NOSE CABLE WITH SWAGGED END BUTTONS.

103 NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).

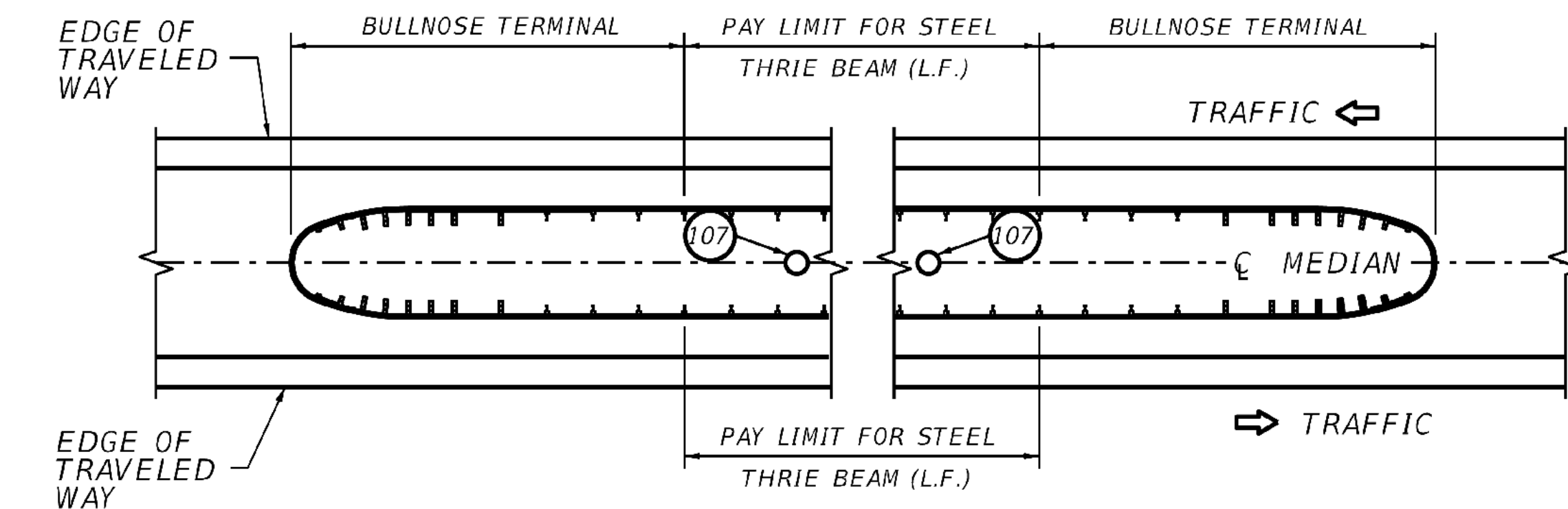
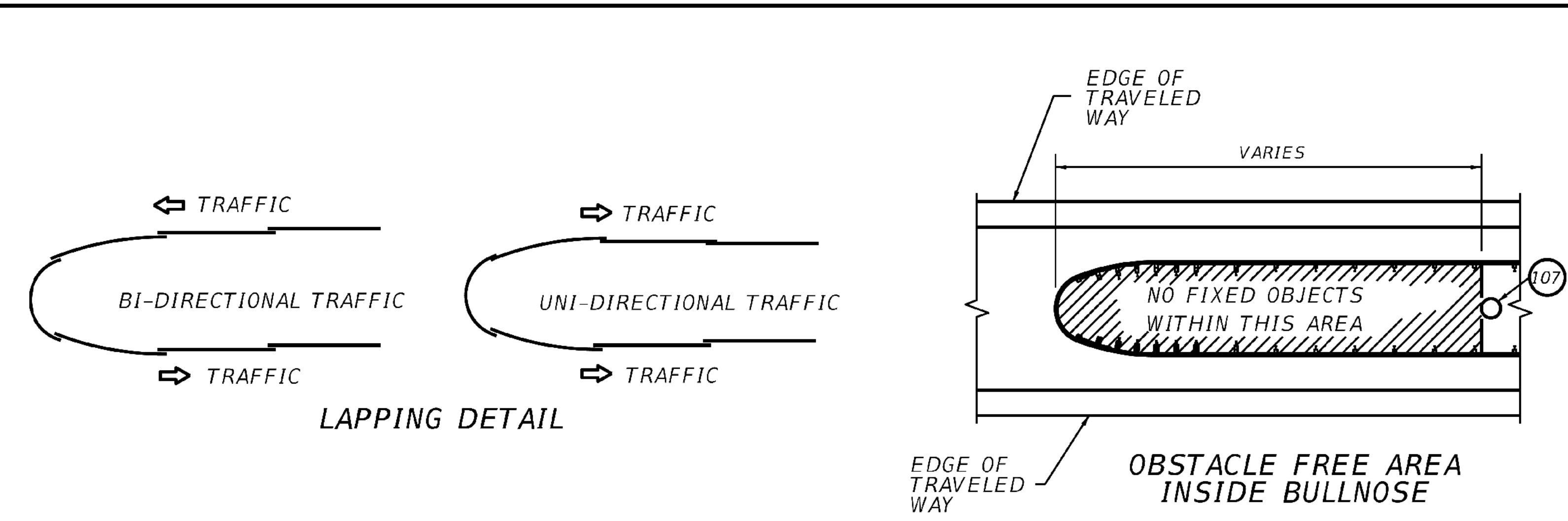
104 THE SLACK IN THE NOSE CABLES SHALL BE EVENLY DISTRIBUTED BETWEEN THE CABLE CLIP FASTENERS AND POST NO. 1 ON EITHER SIDE OF THE NOSE.

105 MINIMUM WORKING WIDTH 4' - 2".

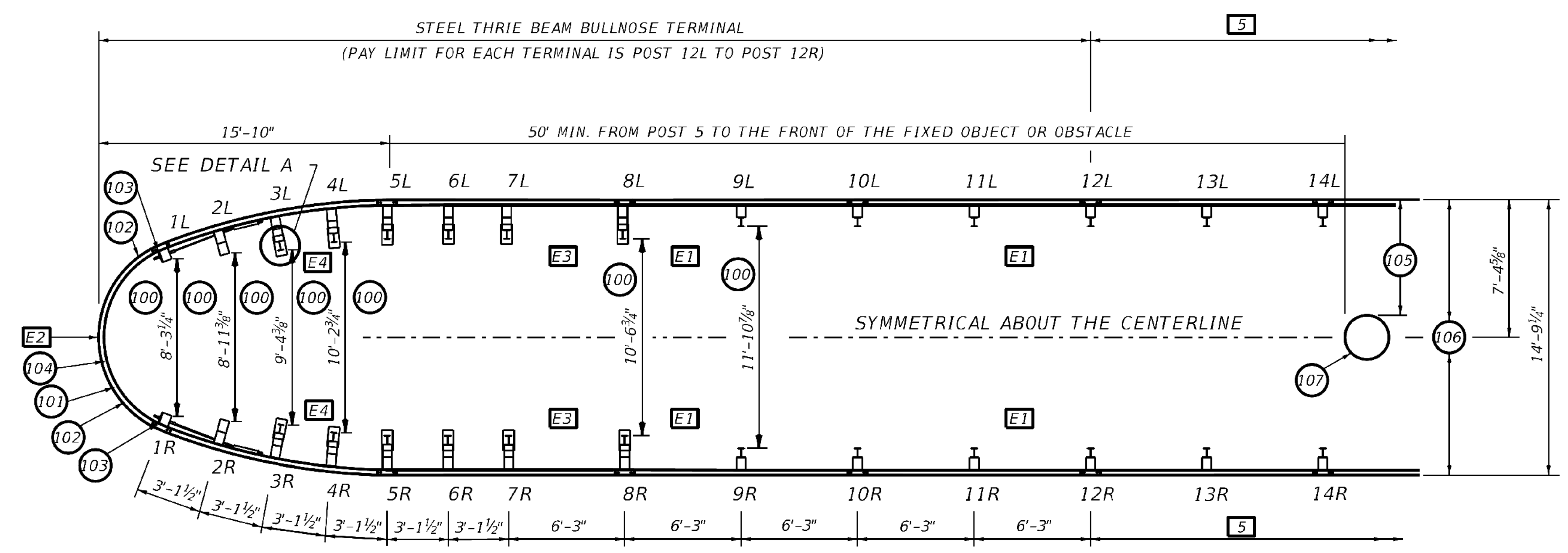
106 MINIMUM WIDTH OF SYSTEM IS 14' - 9 1/4" MEASURED FROM OUT TO OUT OF THE SYSTEM.

107 FIXED OBJECT OR OTHER OBSTACLE.

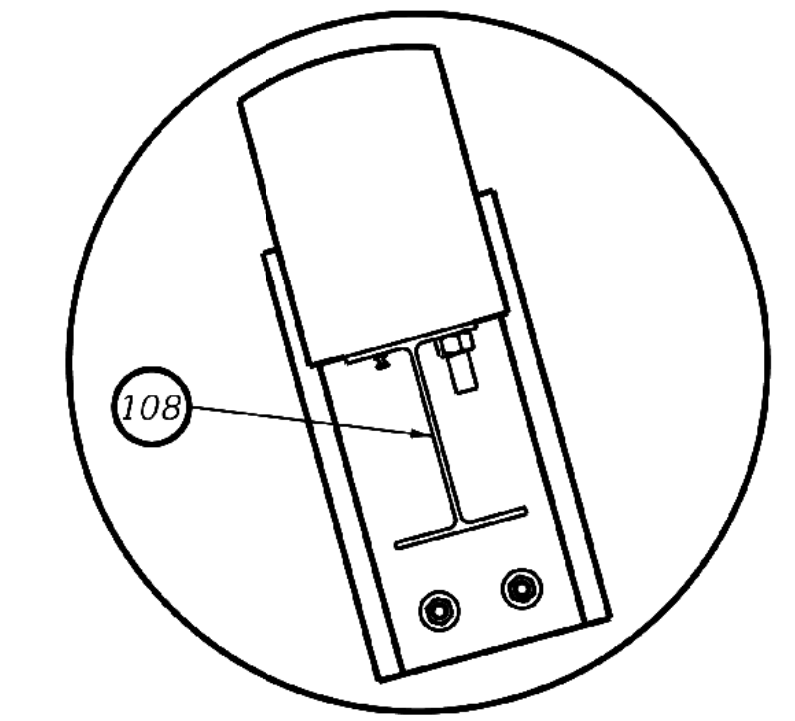
108 PLAN SHEETS WILL PROVIDE STATION & OFFSET TO CENTER OF GUARDRAIL POSTS FOR THE BULLNOSE.



MEDIAN FIXED OBJECT SHIELDING PAY LIMITS



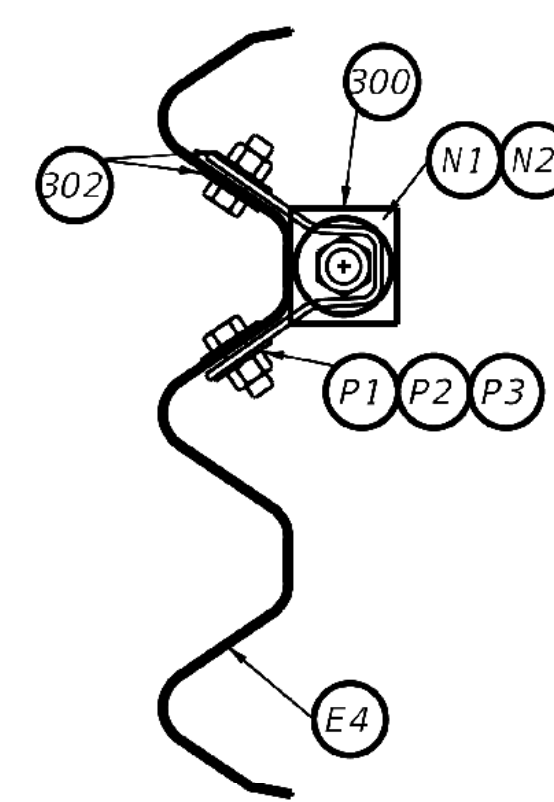
PLAN VIEW TYPICAL BULLNOSE LAYOUT



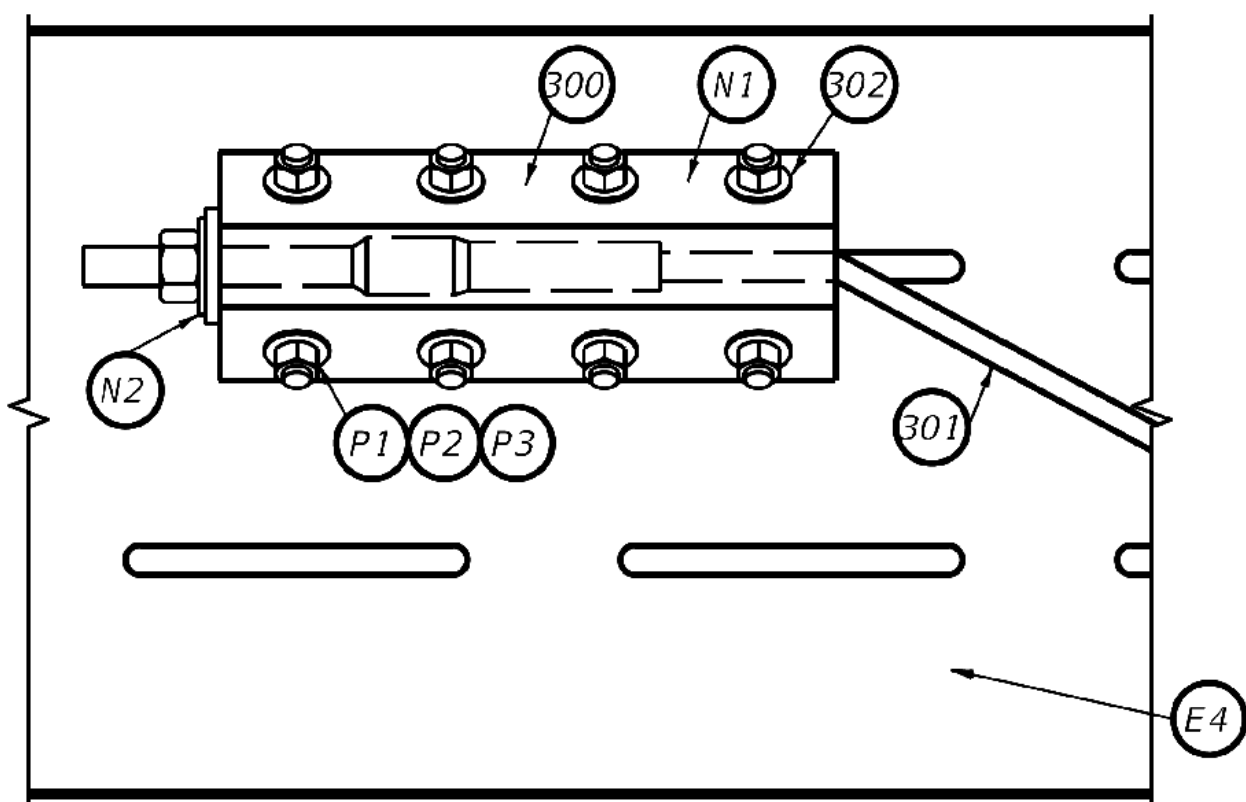
DETAIL A

SHEET 1 OF 8

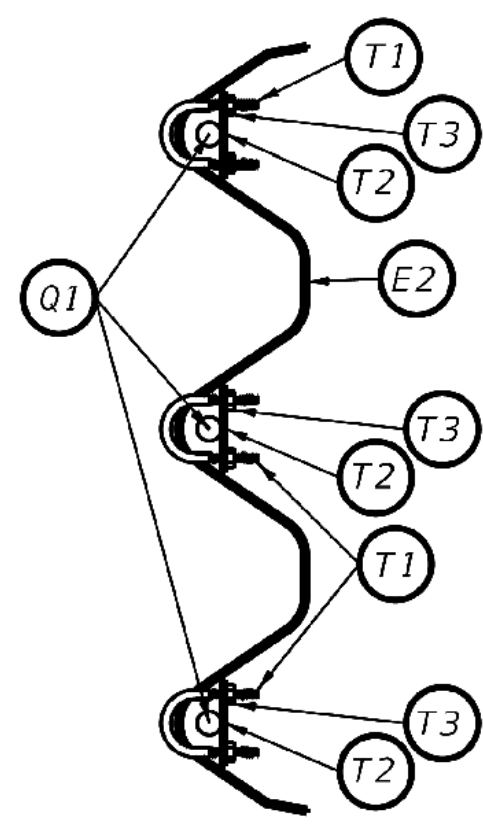
KENTUCKY DEPARTMENT OF HIGHWAYS	
STEEL THRIE BEAM BULLNOSE TERMINAL	
STANDARD DRAWING NO.	
SUBMITTED _____	DIRECTOR DIVISION OF DESIGN _____ DATE _____
APPROVED _____	STATE HIGHWAY ENGINEER _____ DATE _____



PROFILE VIEW
CABLE ANCHOR
ASSEMBLY CONNECTION



CABLE ANCHOR ASSEMBLY

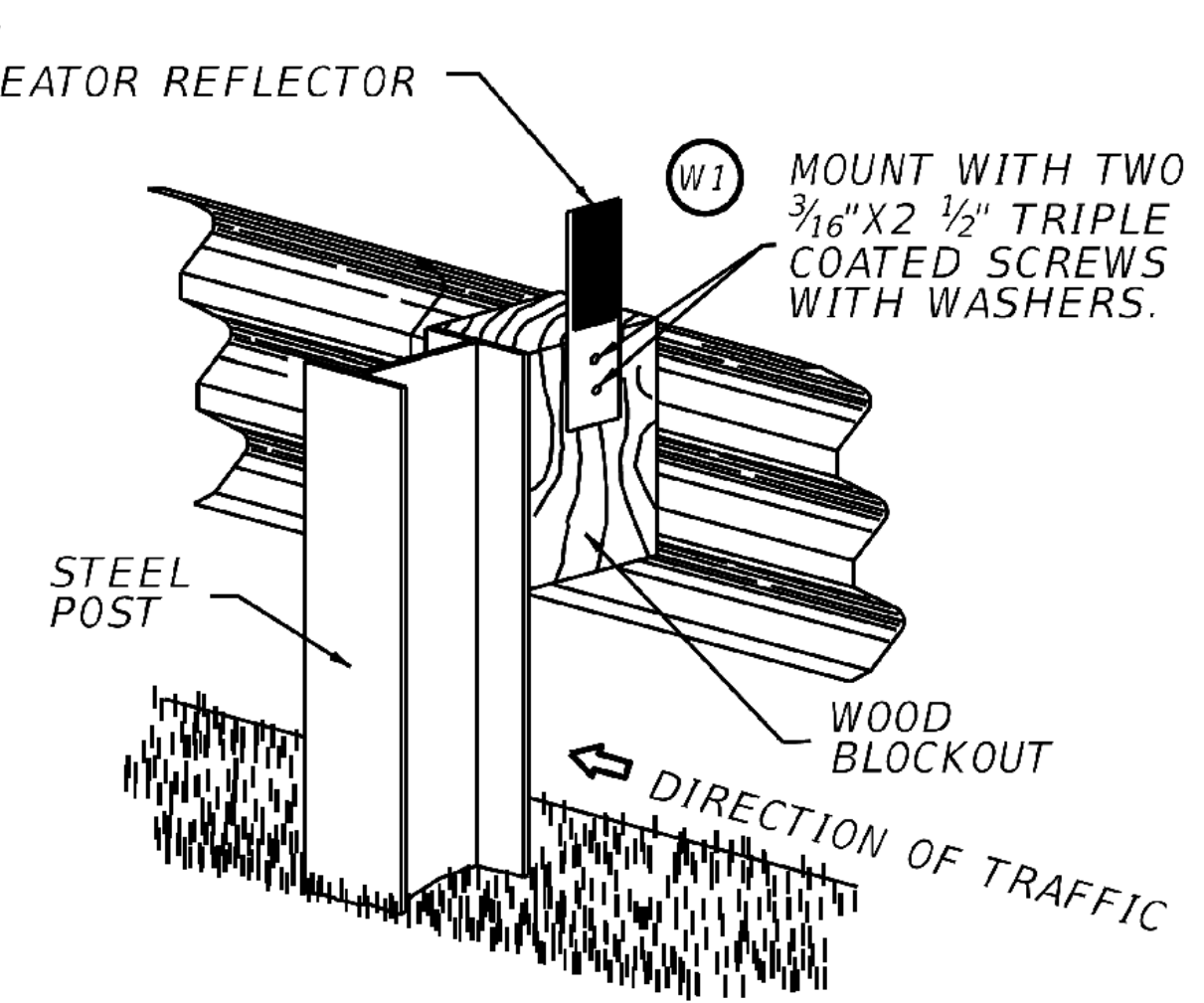


**NOSE CABLE
RETAINING
CLIP**

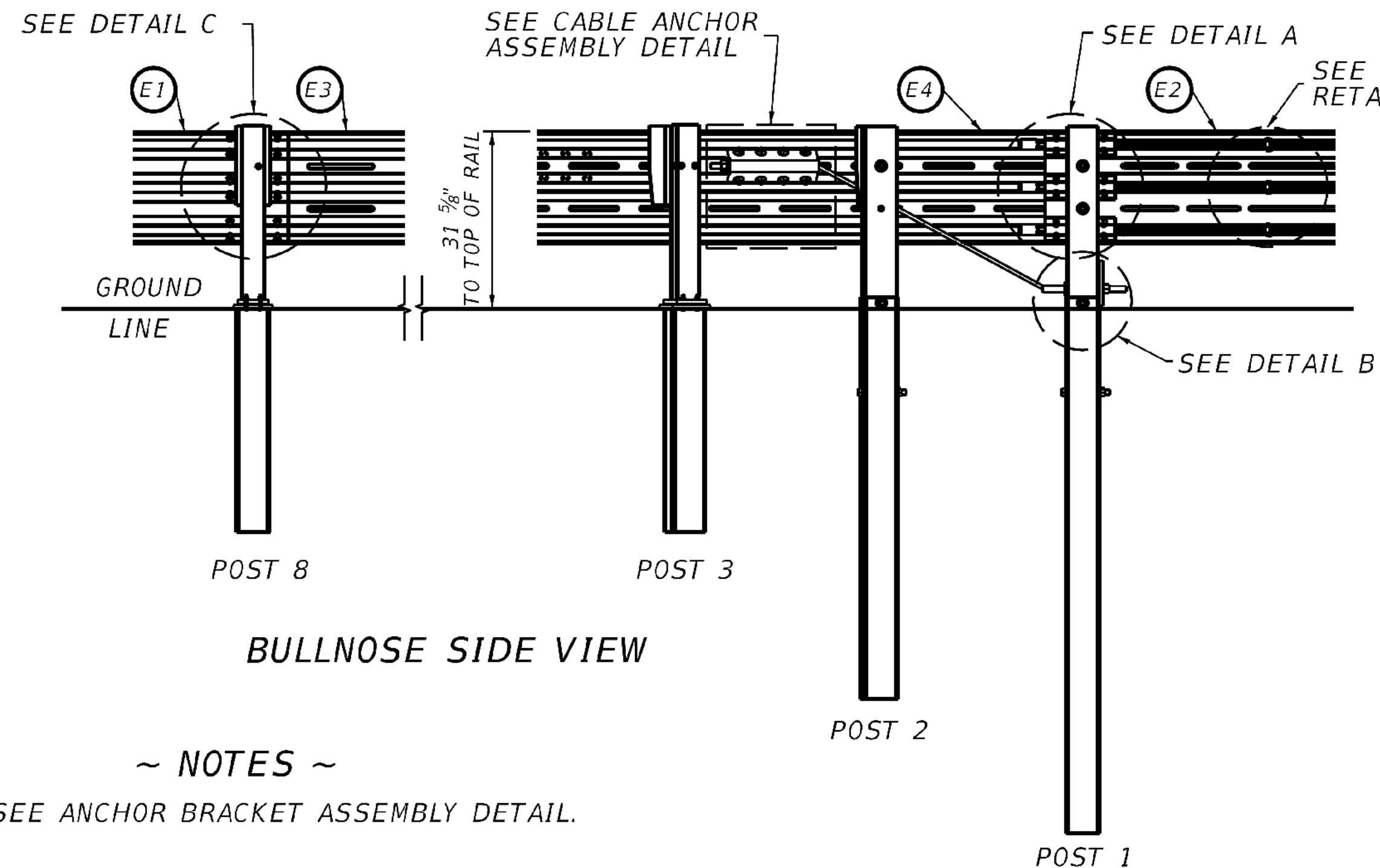
~ DELINEATOR NOTES ~

THE COLOR OF DELINEATORS MUST MATCH THE COLOR OF THE EDGELINE THEY SUPPLEMENT.

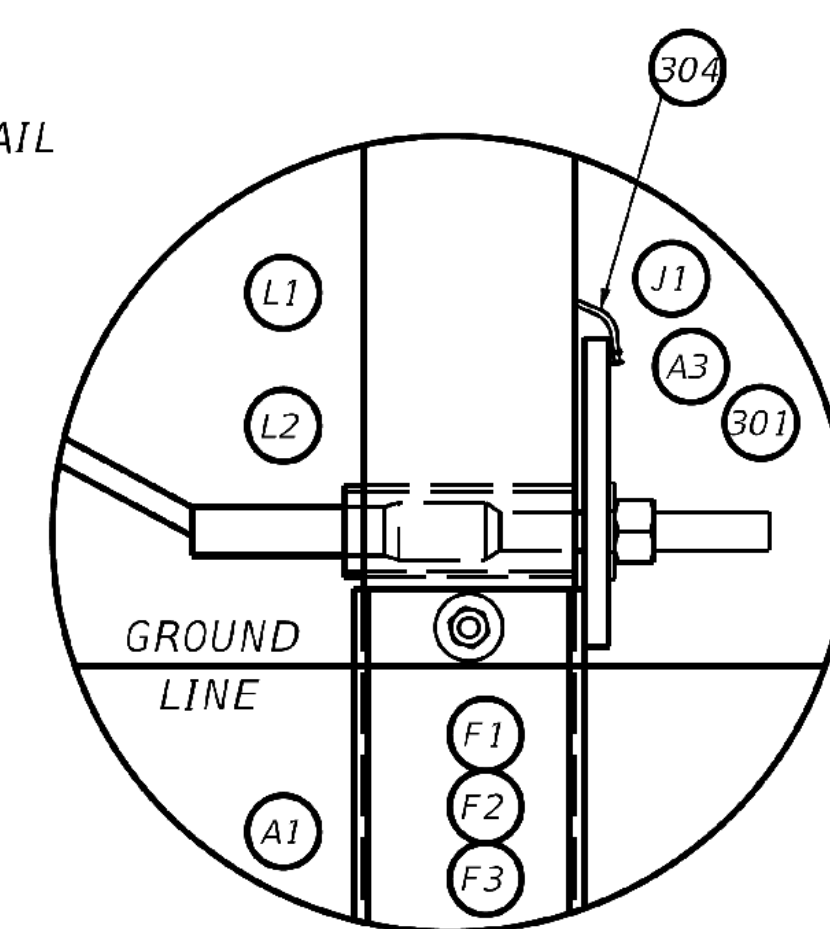
DELINEATOR SPACING SHOULD BE 100' WITH A MINIMUM OF 3 REFLECTORS. THE FIRST DELINEATOR SHOULD BE PLACED ON POST 3, ON THE ADJACENT TRAFFIC SIDE OF THE BULLNOSE.



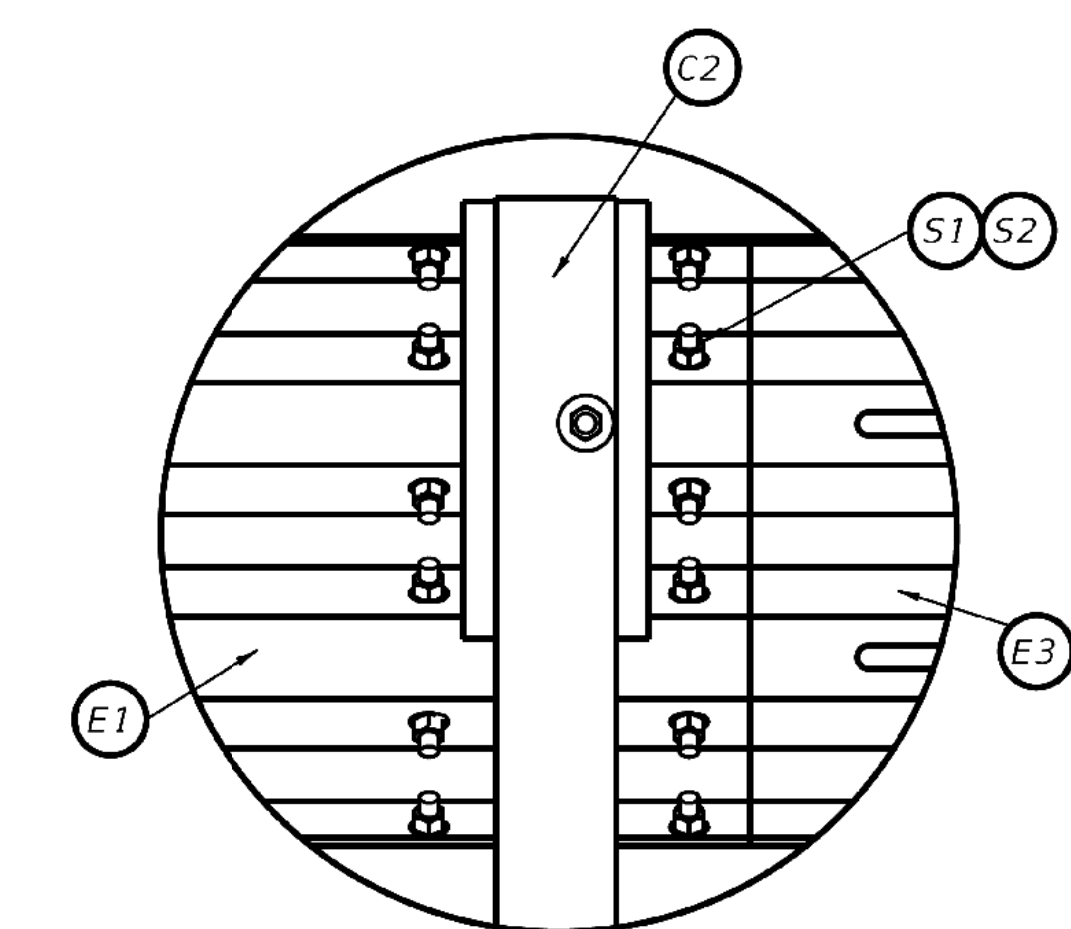
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**



BULLNOSE SIDE VIEW



DETAIL B



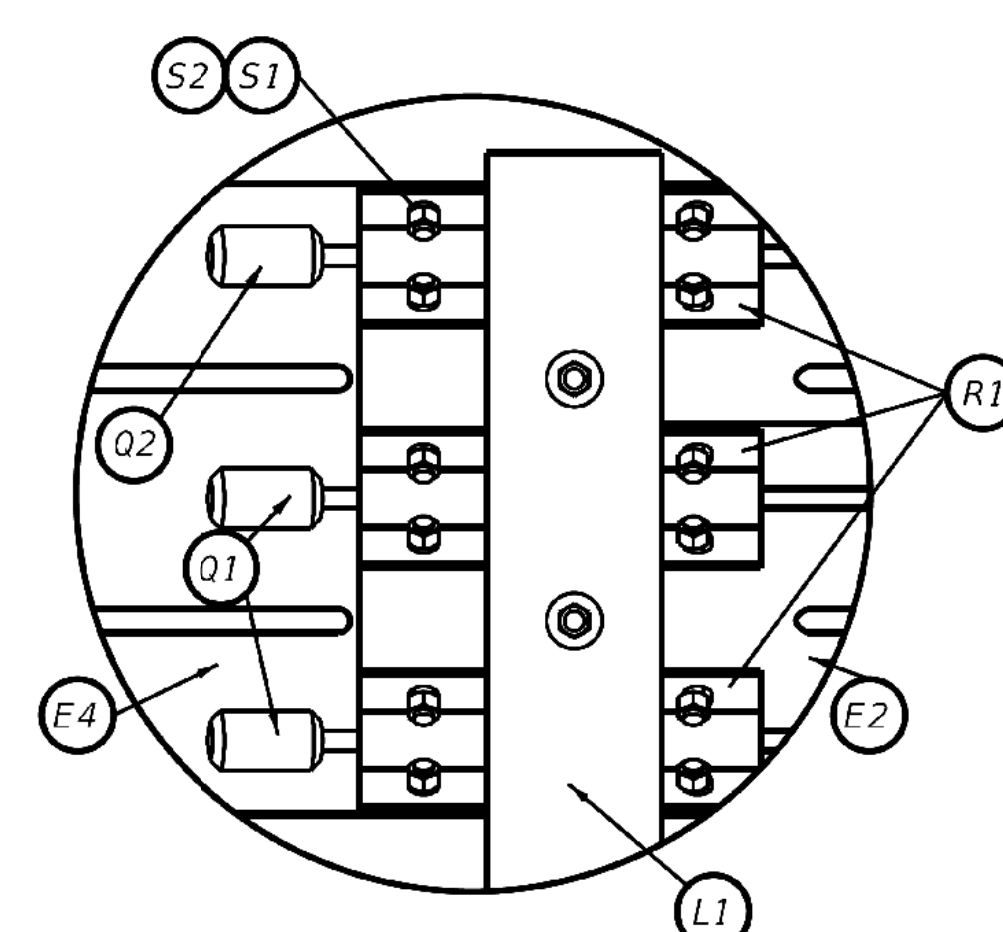
**DETAIL C
THRIE BEAM SPLICE**

~ NOTES ~

- 300 SEE ANCHOR BRACKET ASSEMBLY DETAIL.
- 301 SEE ANCHOR CABLE ASSEMBLY DETAIL
- 302 ONE WASHER BETWEEN BOLT HEAD AND RAIL AND BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 303 ONE WASHER BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- 304 BEND TWO NAILS OVER THE BEARING PLATE TO PREVENT ROTATION.

NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.

PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST ASSEMBLIES.



DETAIL A

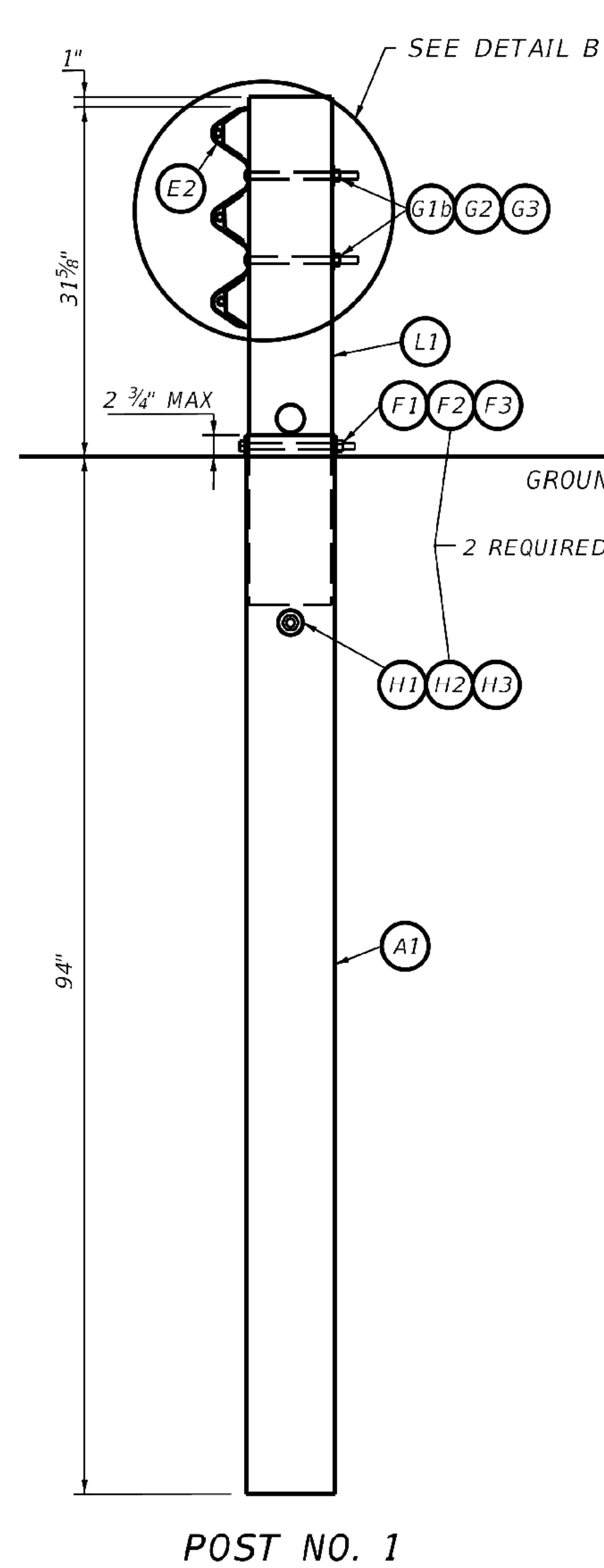
SHEET 2 OF 8

KENTUCKY
DEPARTMENT OF HIGHWAYS

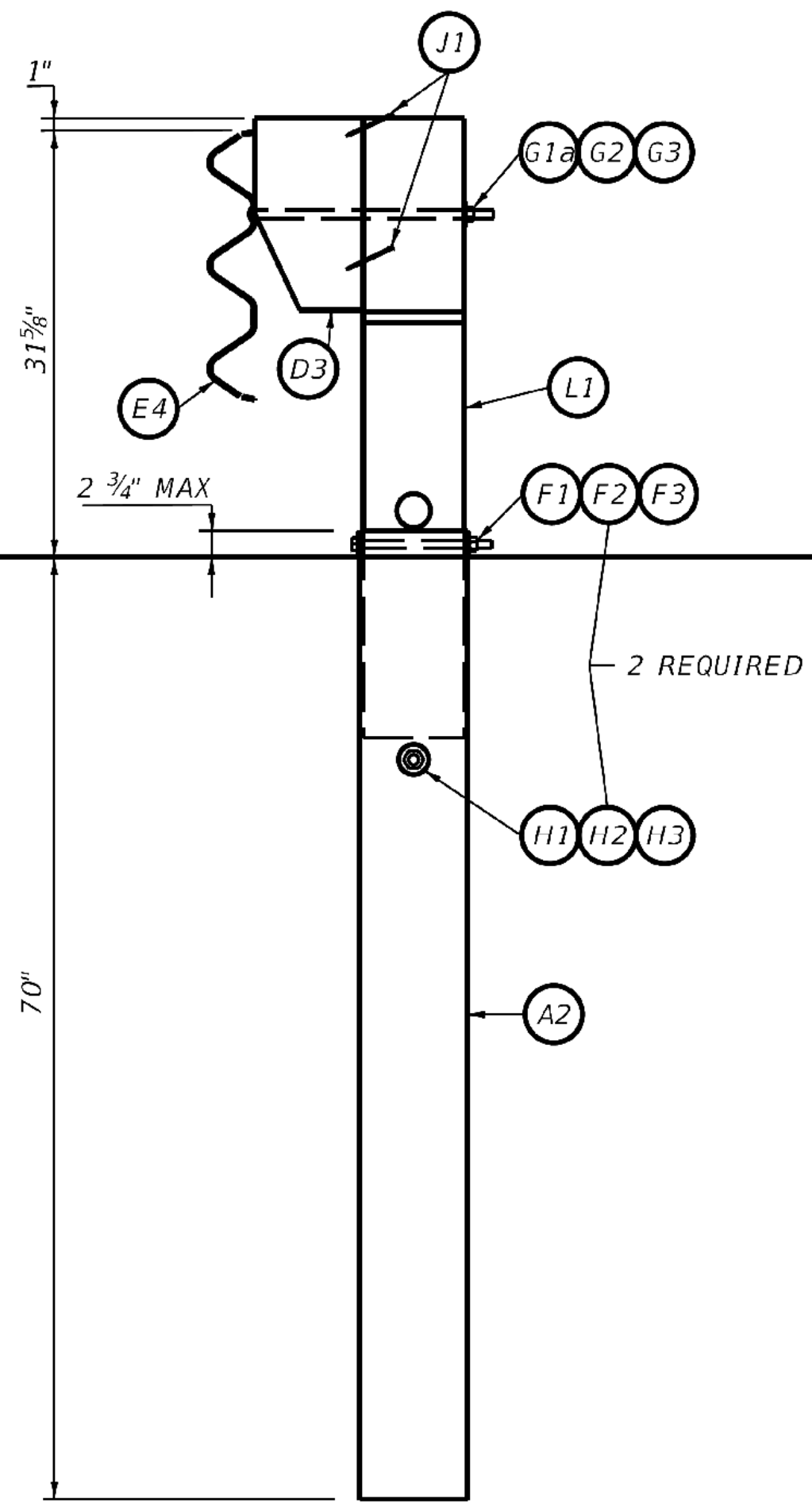
**STEEL THRIE BEAM
BULLNOSE TERMINAL**

STANDARD DRAWING NO.

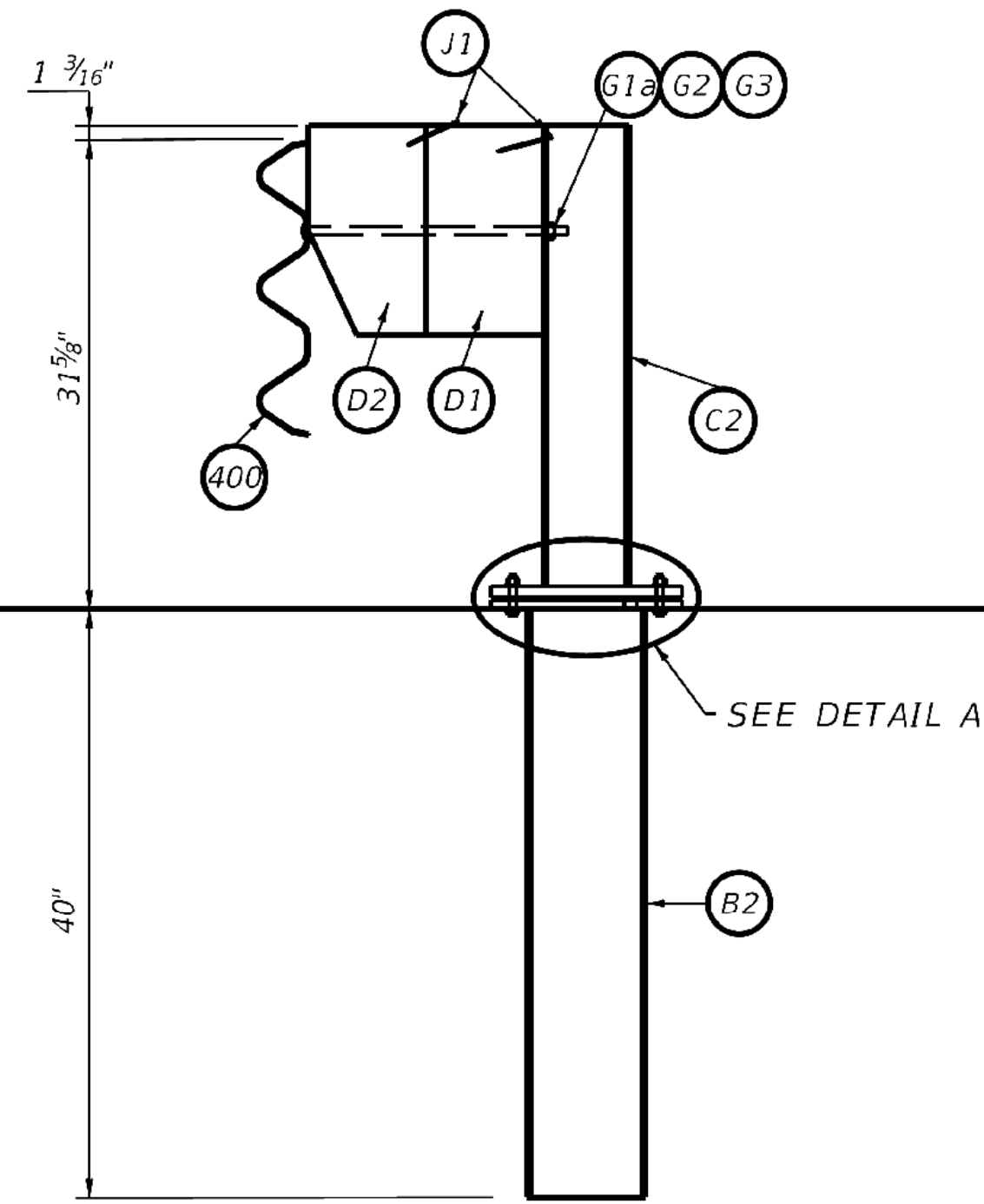
SUBMITTED _____ DIRECTOR DIVISION OF DESIGN _____ DATE _____
APPROVED _____ STATE HIGHWAY ENGINEER _____ DATE _____



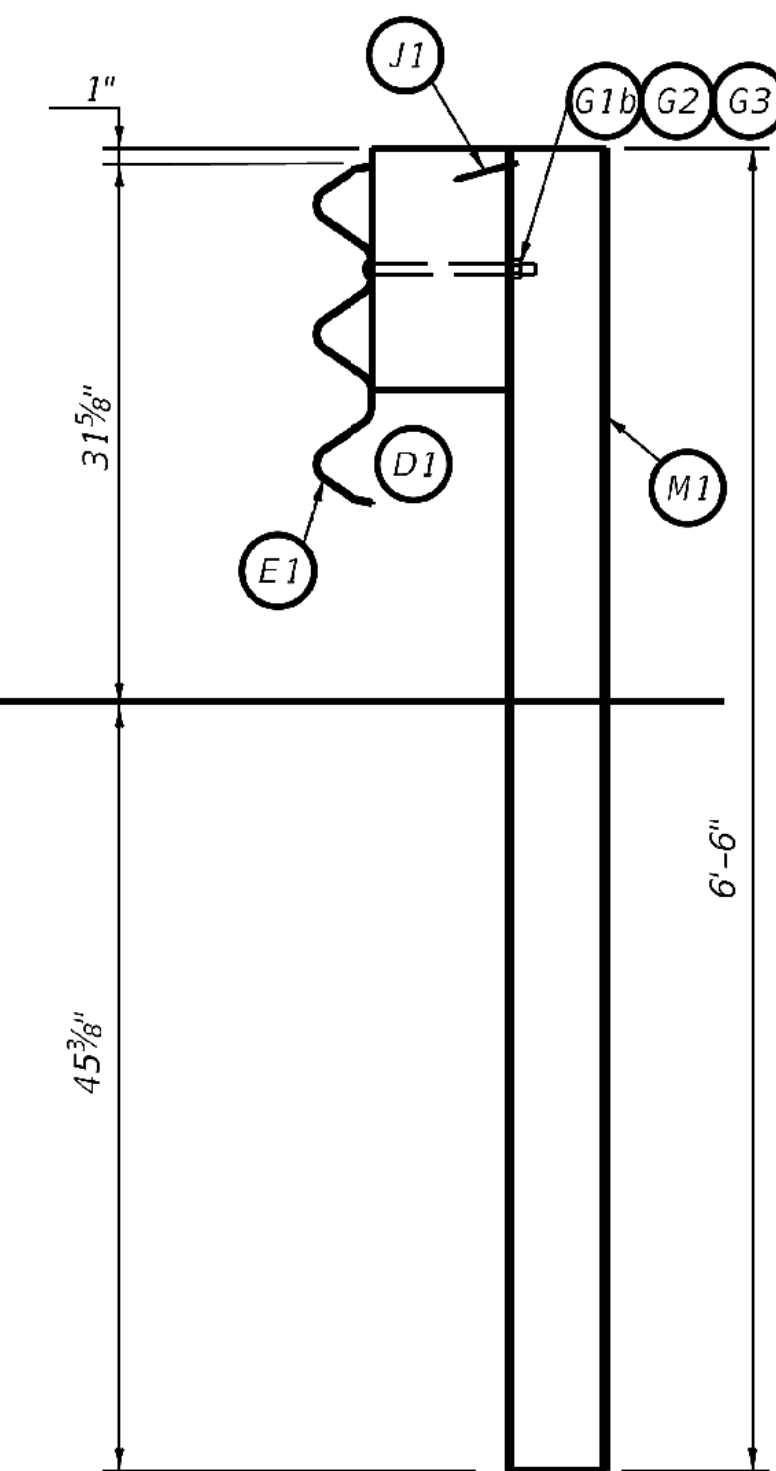
POST NO. 1



POST NO. 2



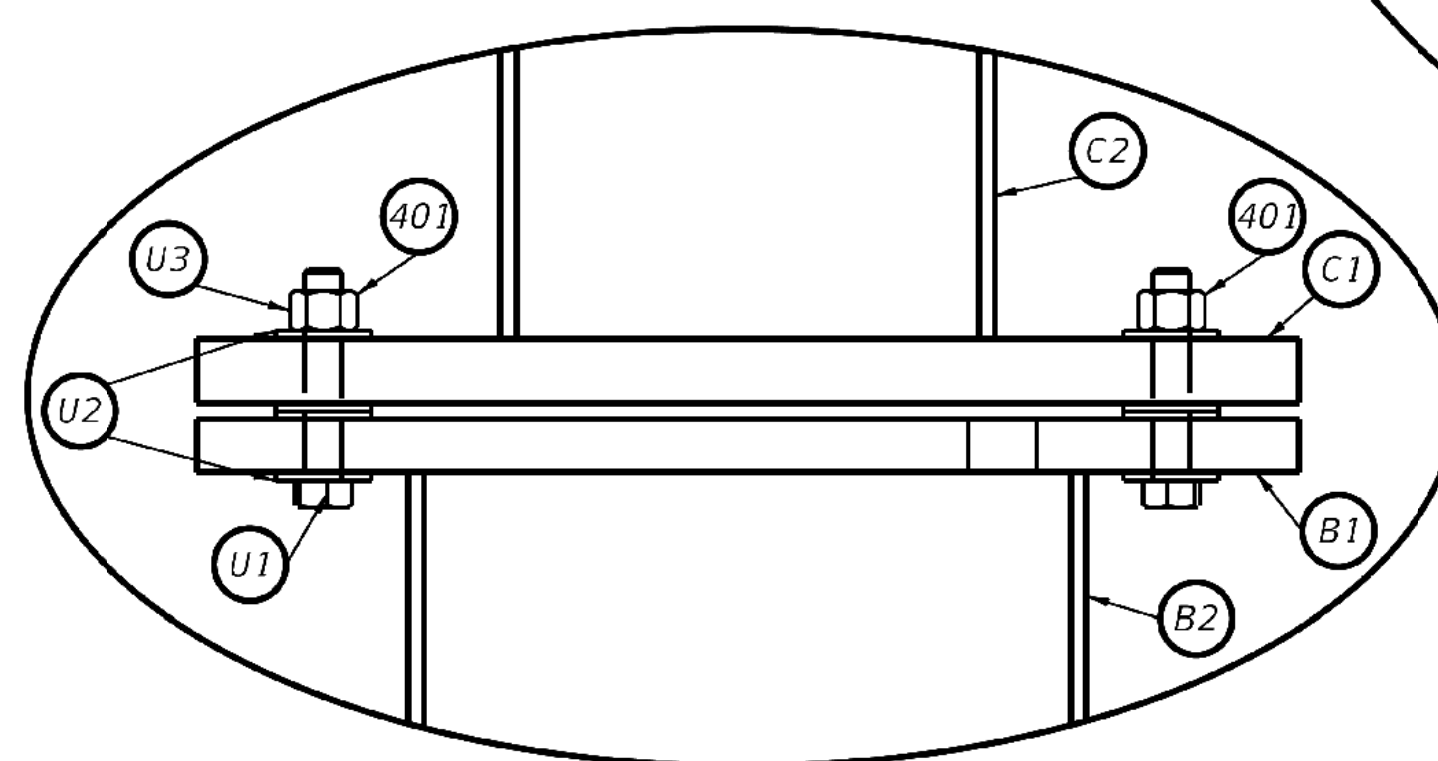
POST NOS. 3-8



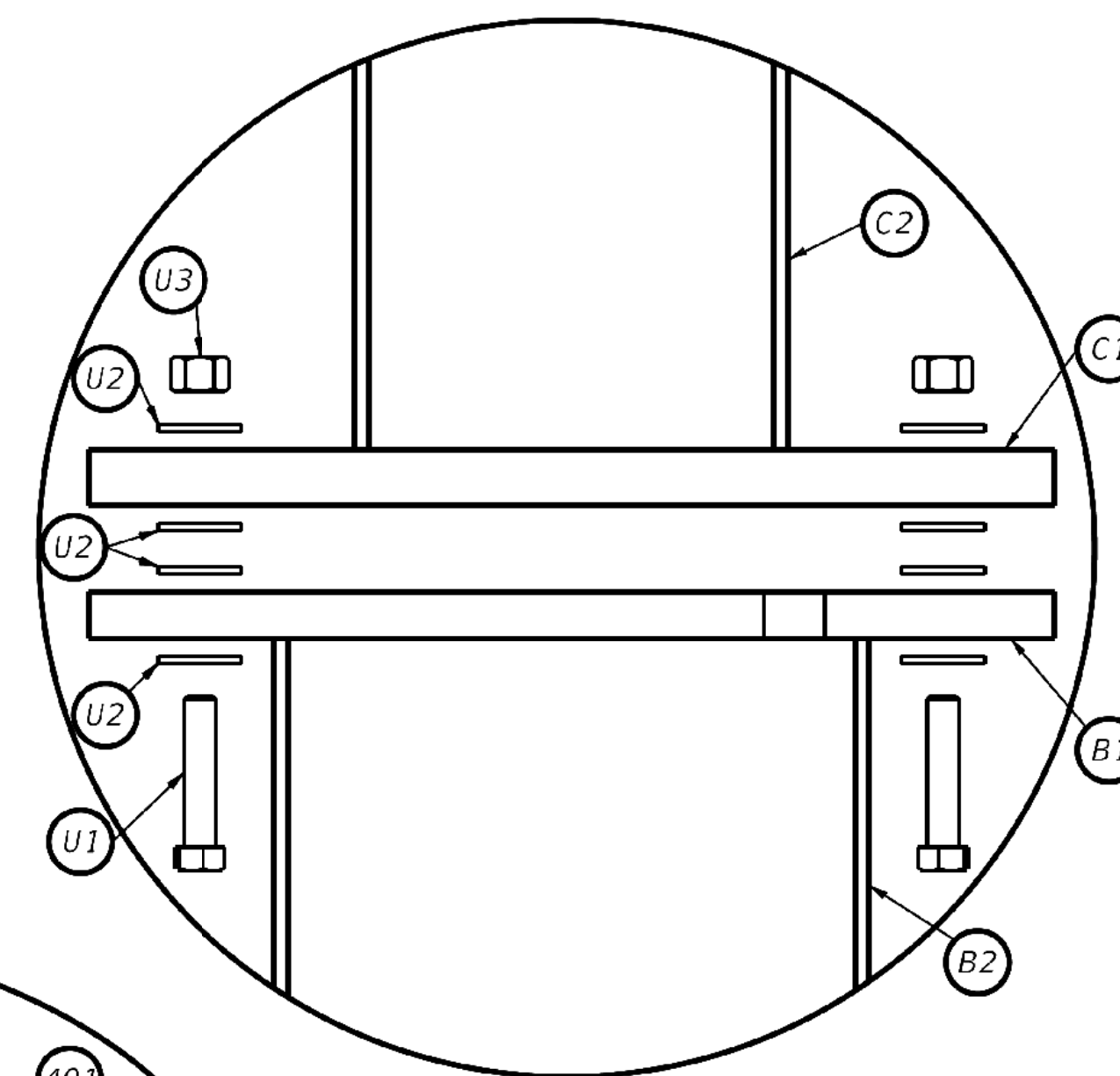
POST NOS. 9-12

~ NOTES ~

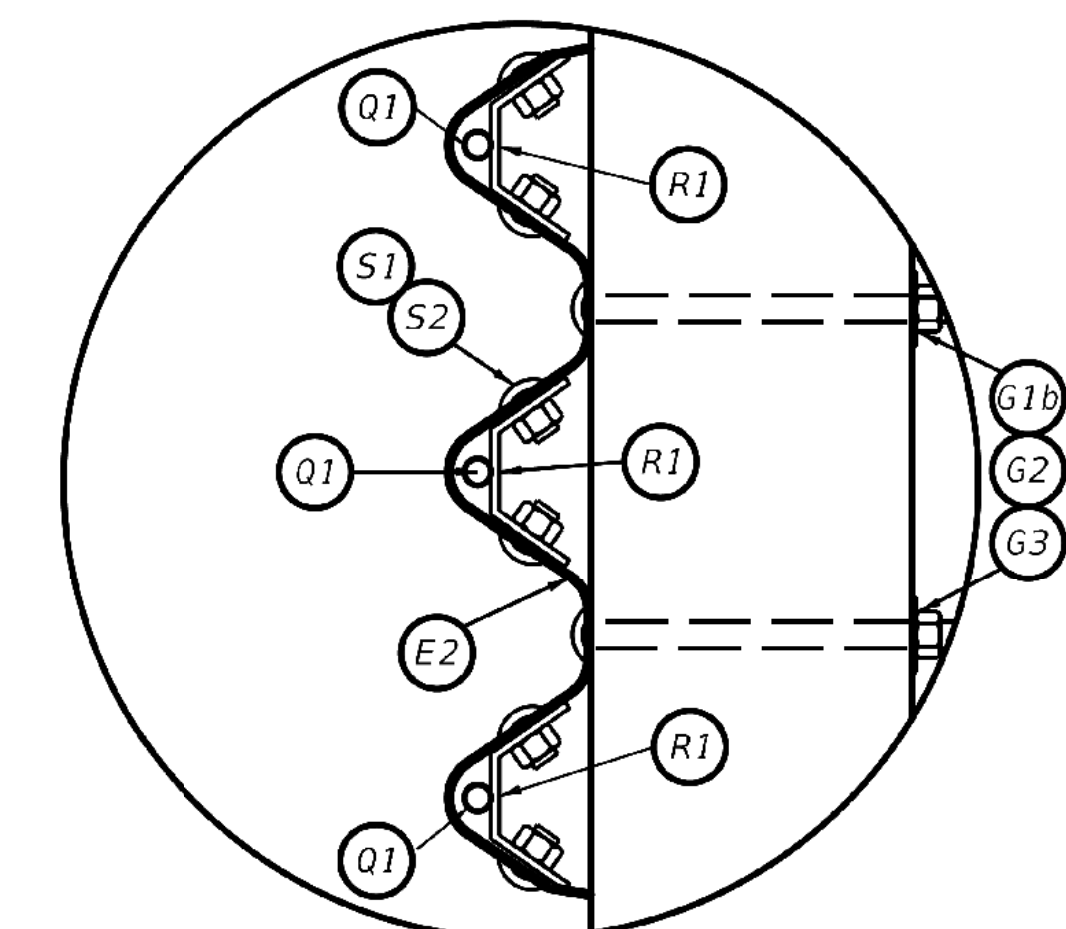
- ④00 RAIL CAN BE E3 OR E4 DEPENDING ON POST LOCATION.
- ④01 TORQUE BOLD BETWEEN 60-75 FT-LB



DETAIL A



EXPLODED VIEW
DETAIL A

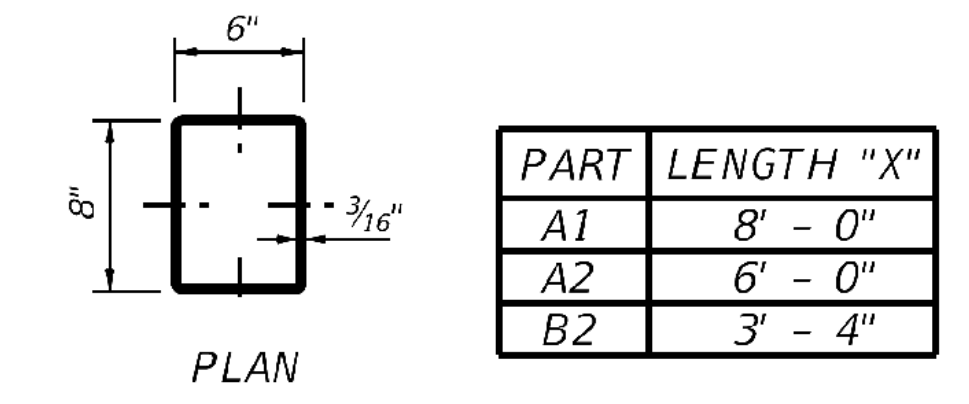
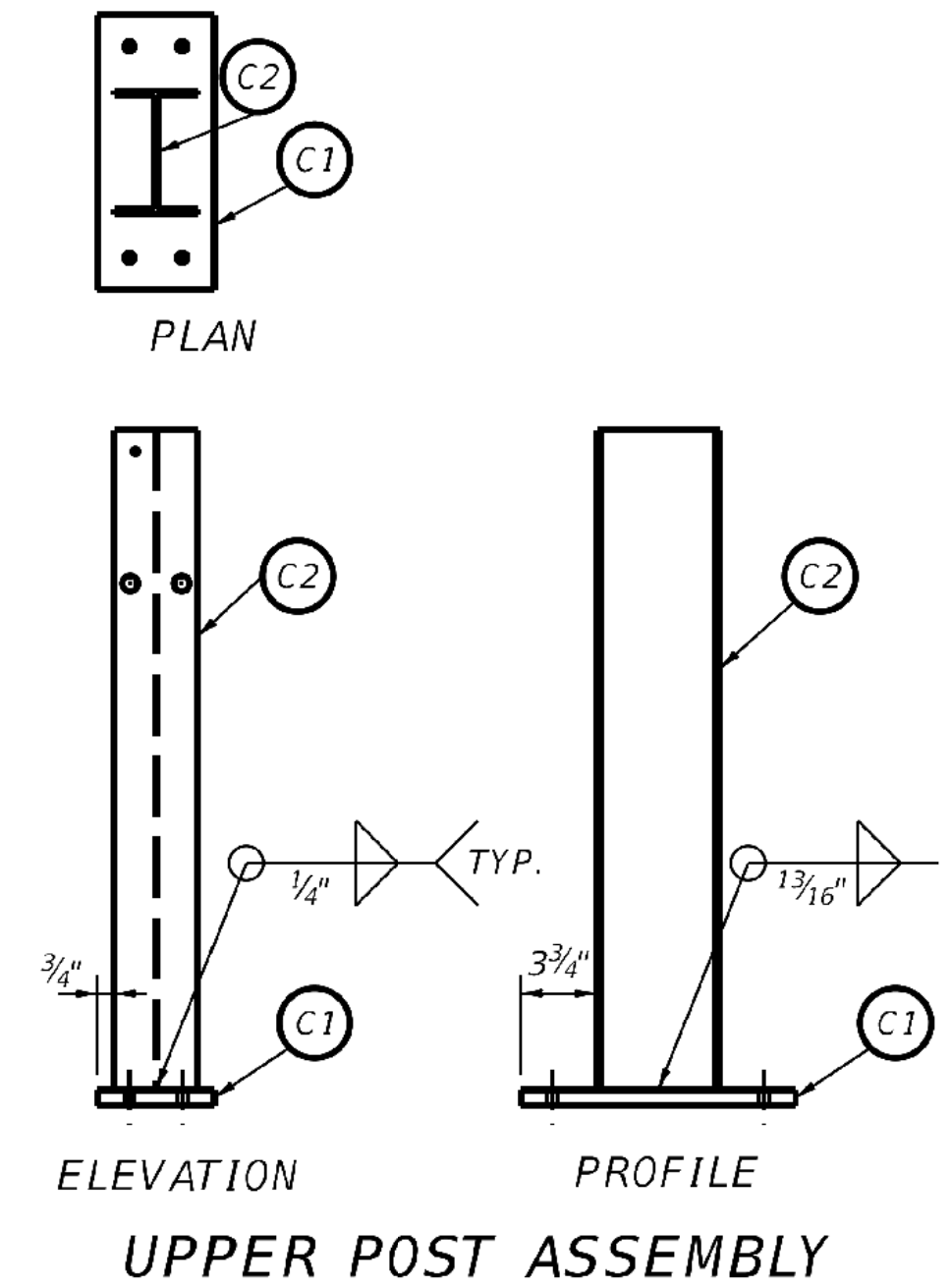
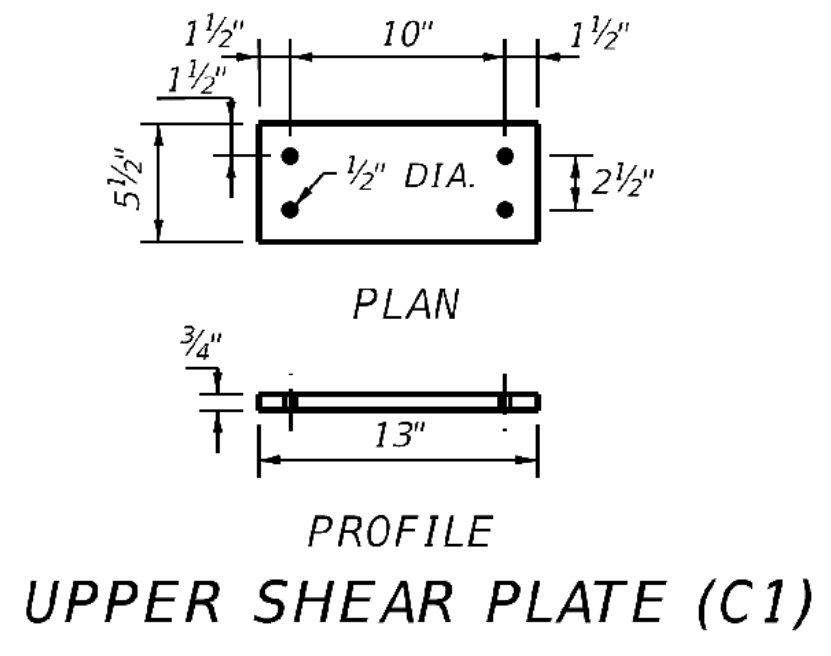
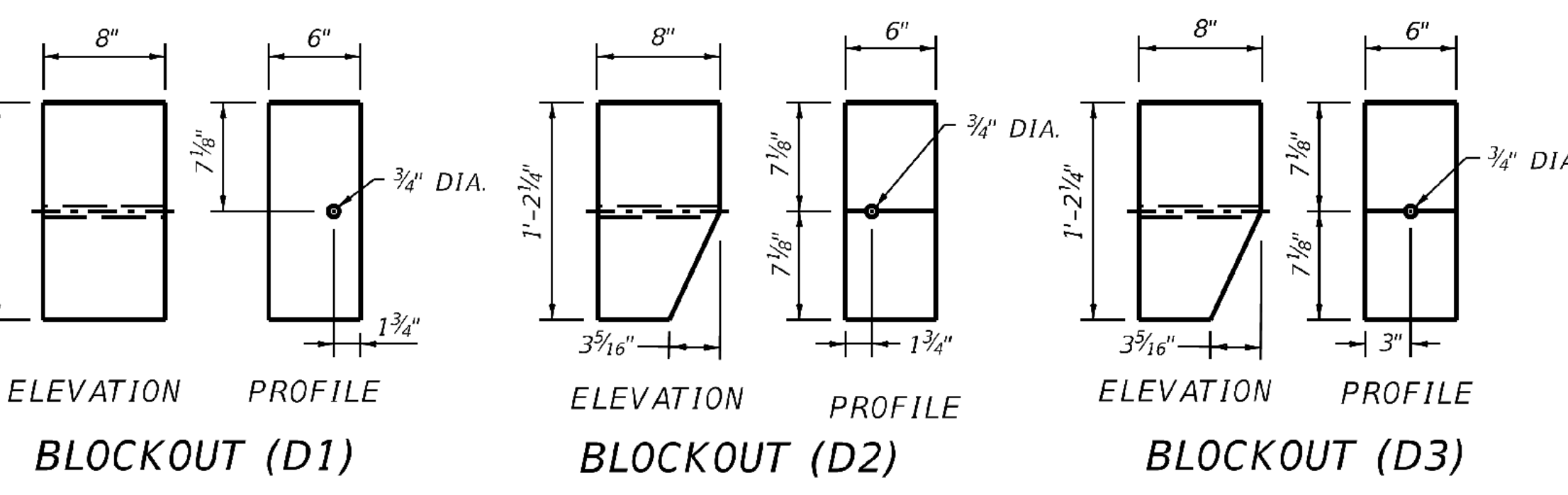
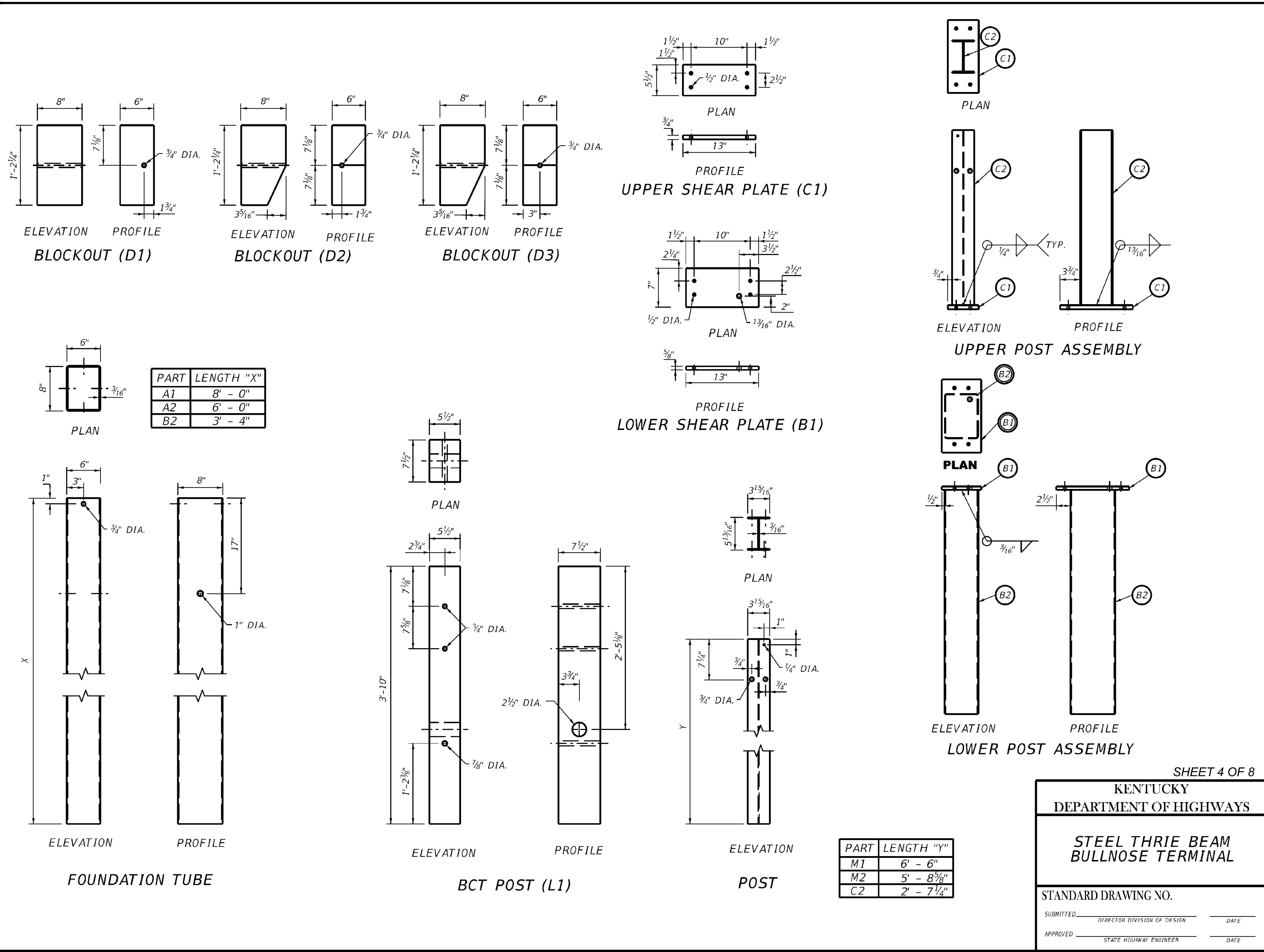


DETAIL B

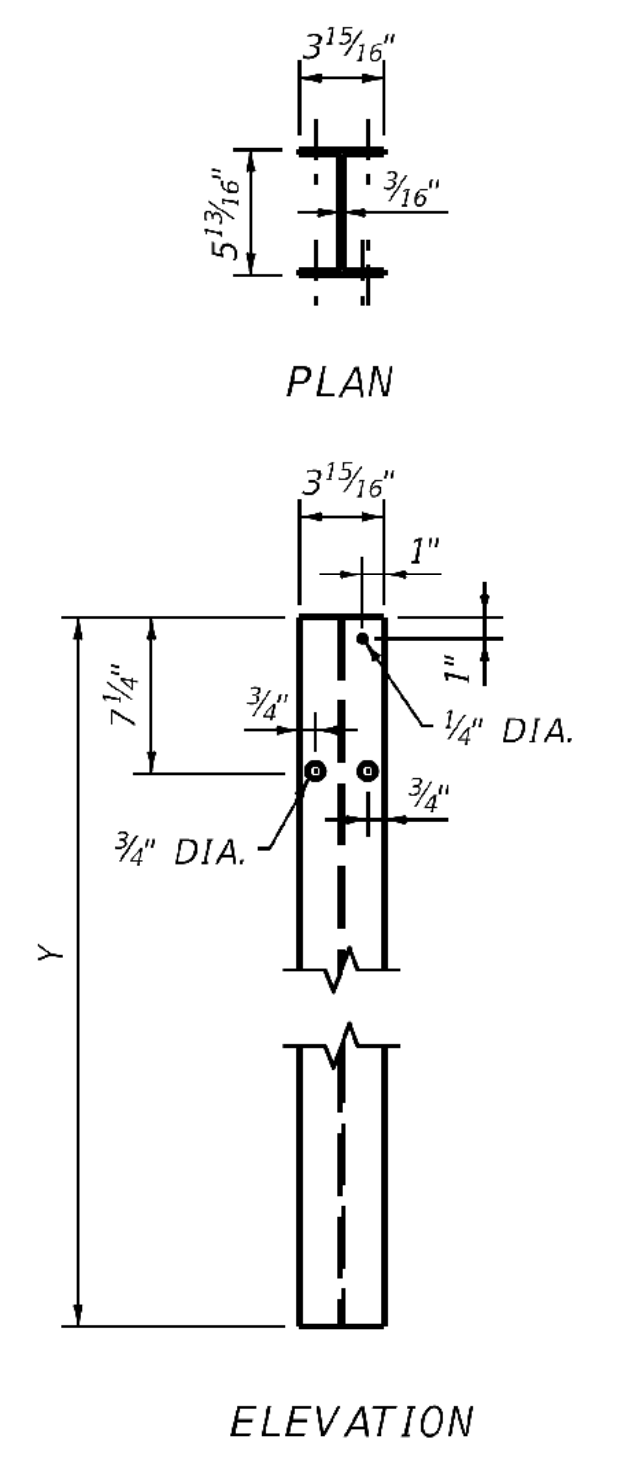
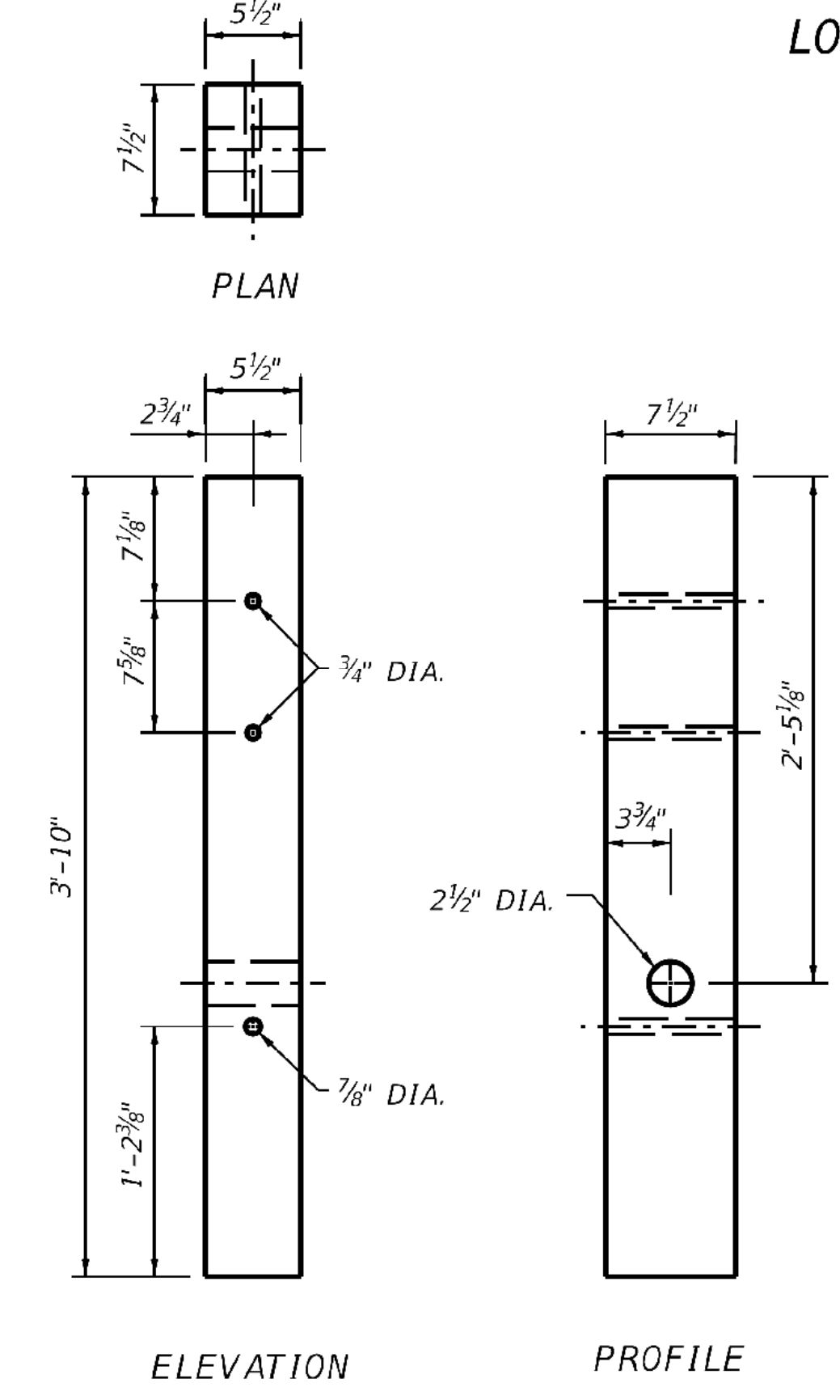
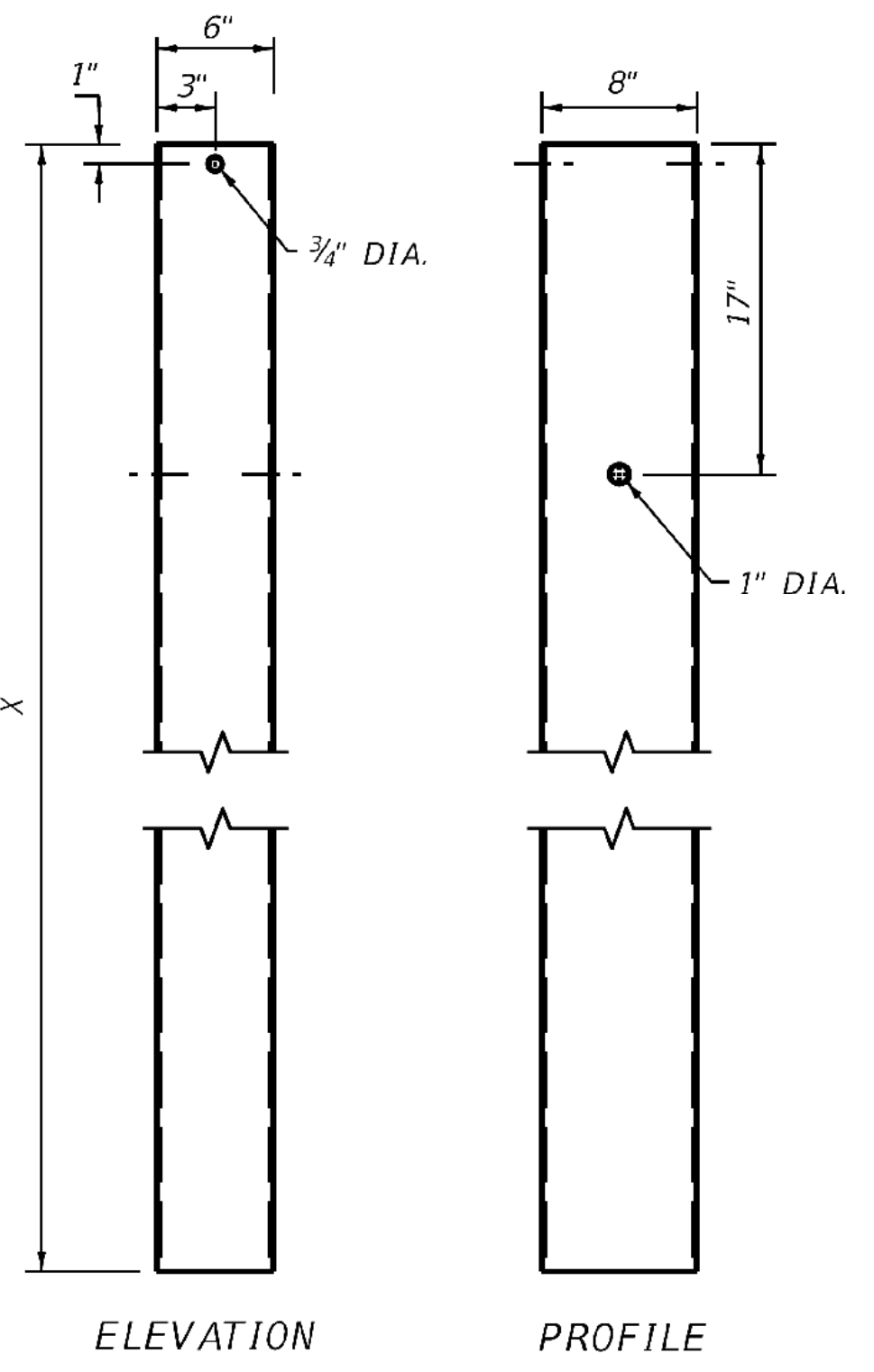
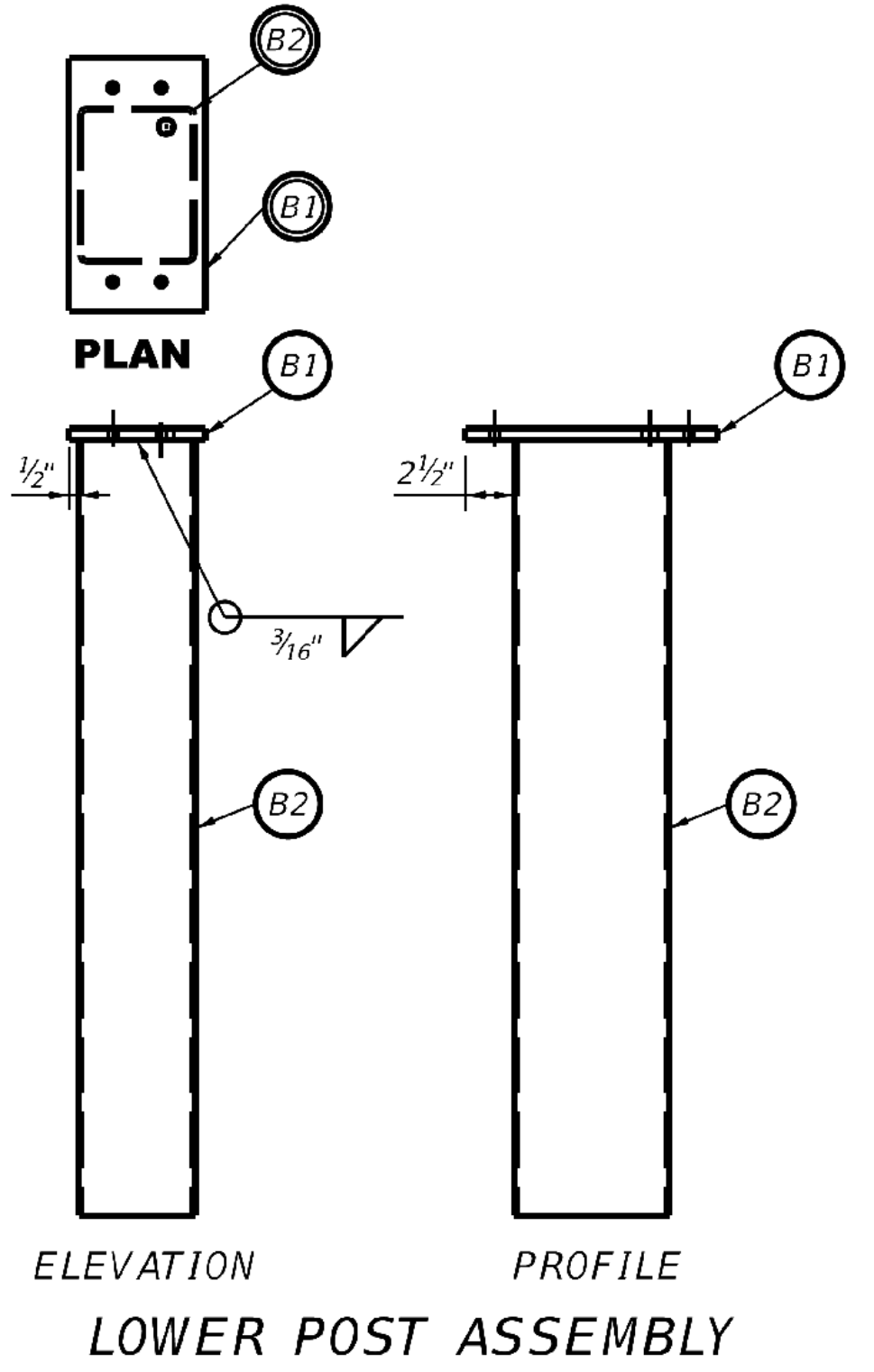
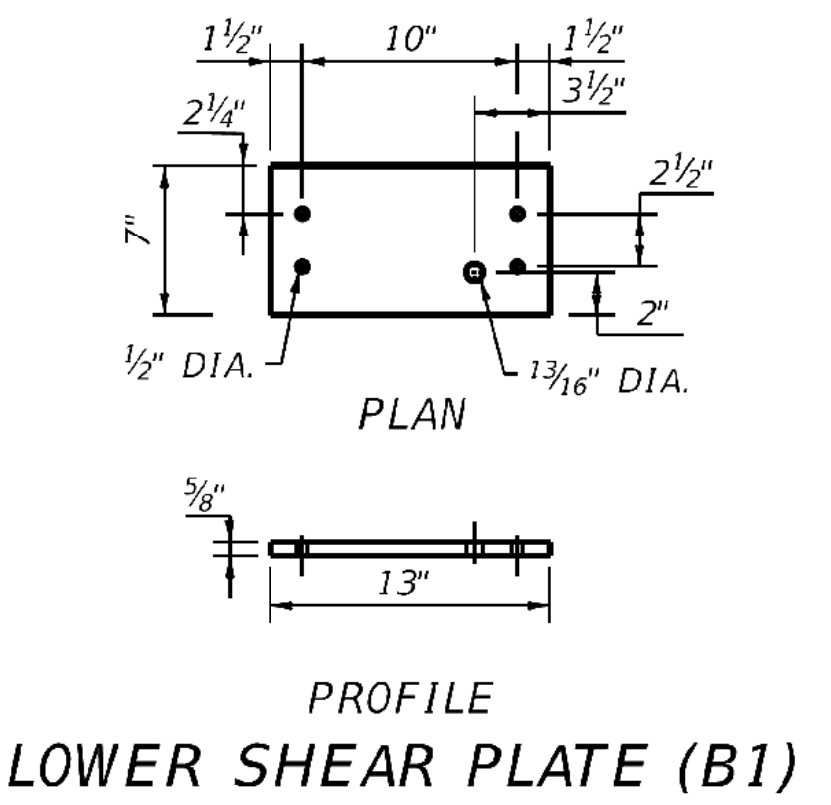
SHEET 3 OF 8

KENTUCKY DEPARTMENT OF HIGHWAYS	
STEEL THRIE BEAM BULLNOSE TERMINAL	
STANDARD DRAWING NO.	
SUBMITTED _____	DATE _____
APPROVED _____	DATE _____





PART	LENGTH "X"
A1	8' - 0"
A2	6' - 0"
B2	3' - 4"



PART	LENGTH "Y"
M1	6' - 6"
M2	5' - 8 5/8"
C2	2' - 7 1/4"

SHEET 4 OF 8

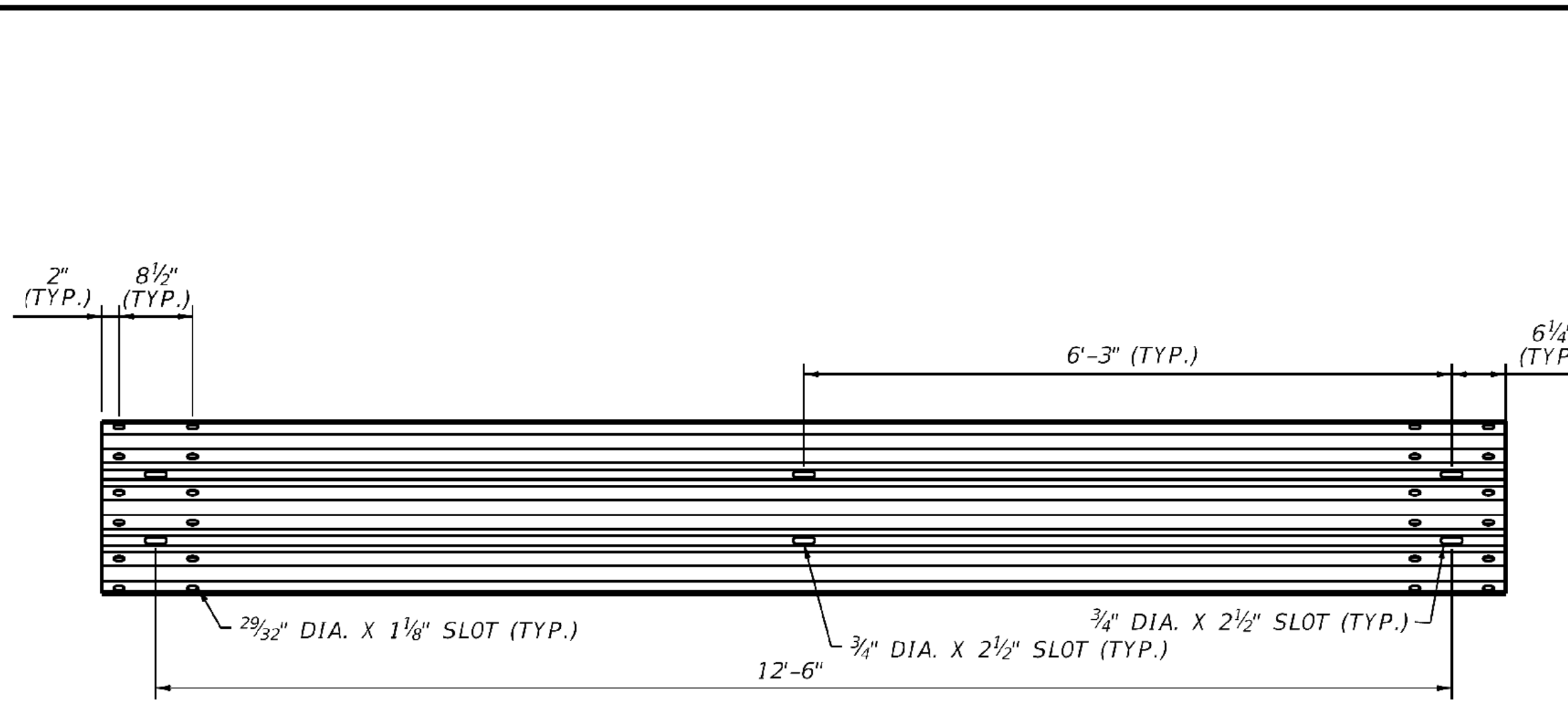
KENTUCKY
DEPARTMENT OF HIGHWAYS

**STEEL THRIE BEAM
BULLNOSE TERMINAL**

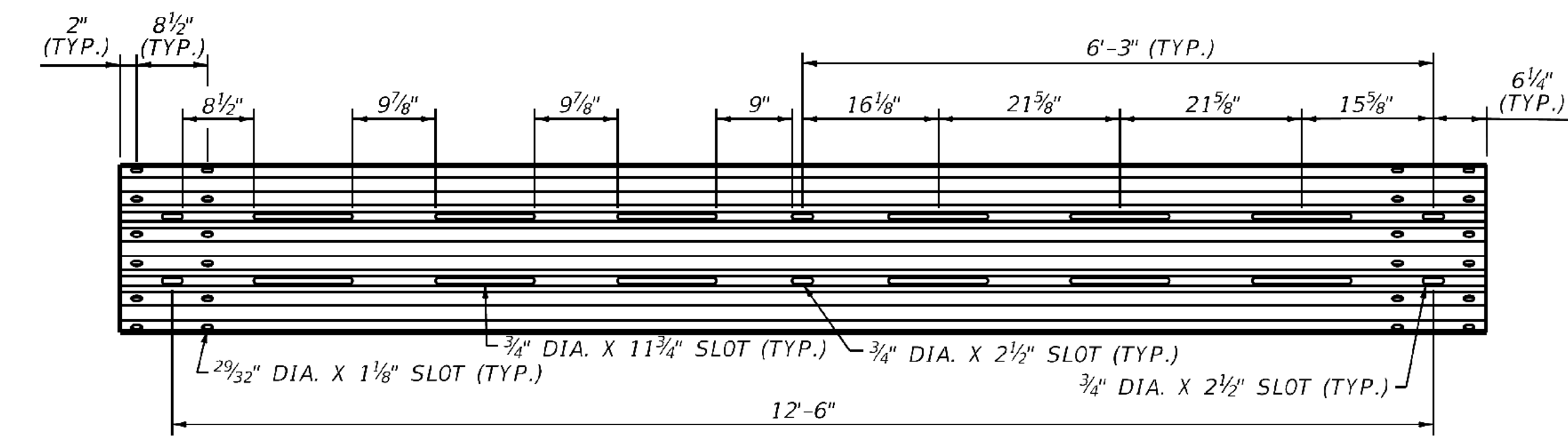
STANDARD DRAWING NO. _____

SUBMITTED _____ DIRECTOR DIVISION OF DESIGN _____ DATE _____

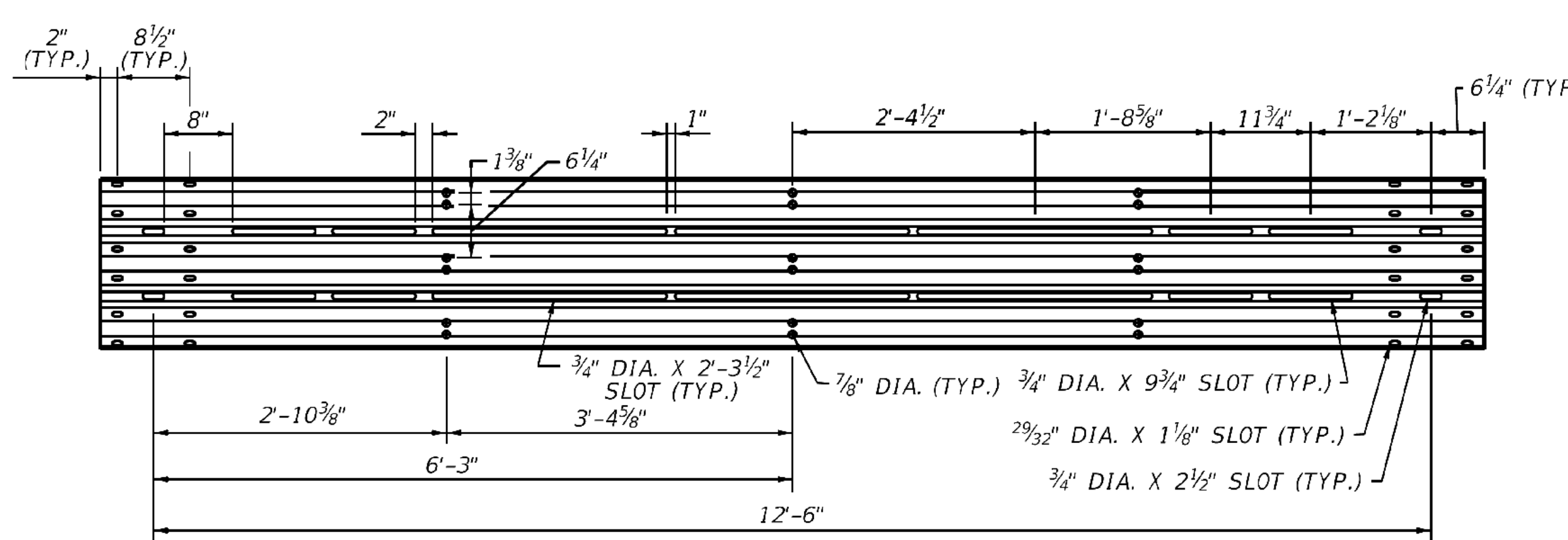
APPROVED _____ STATE HIGHWAY ENGINEER _____ DATE _____



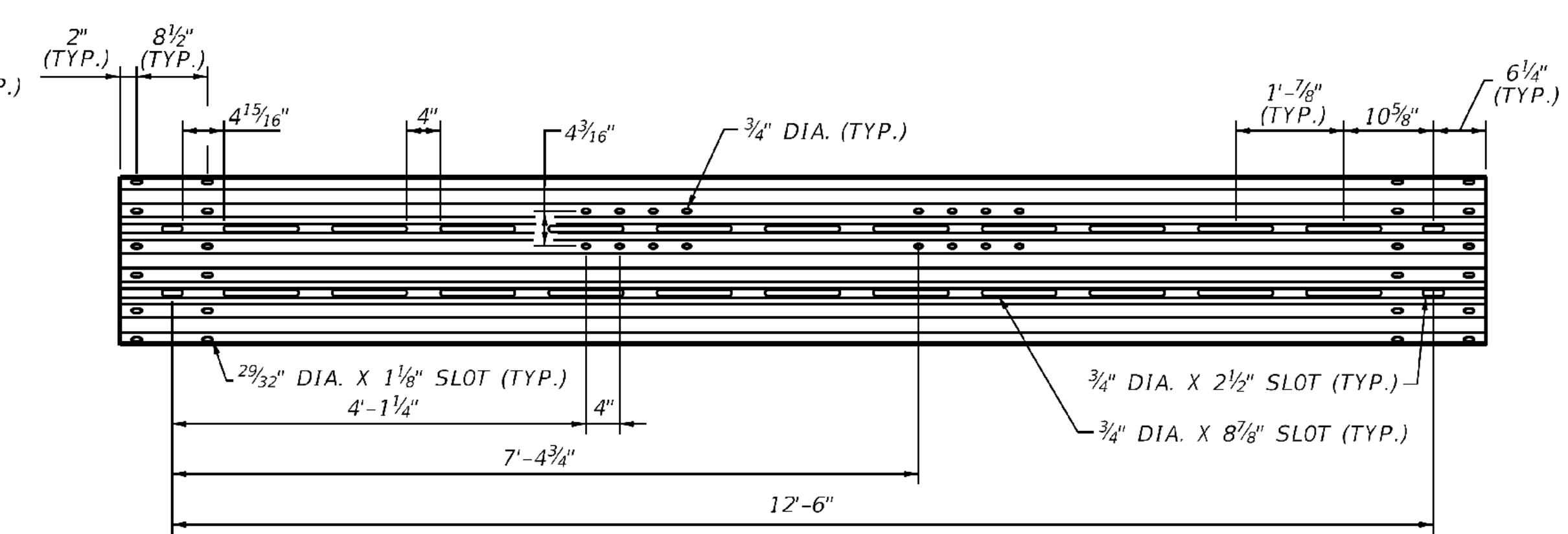
SLOTTED THRIE BEAM RAIL E1



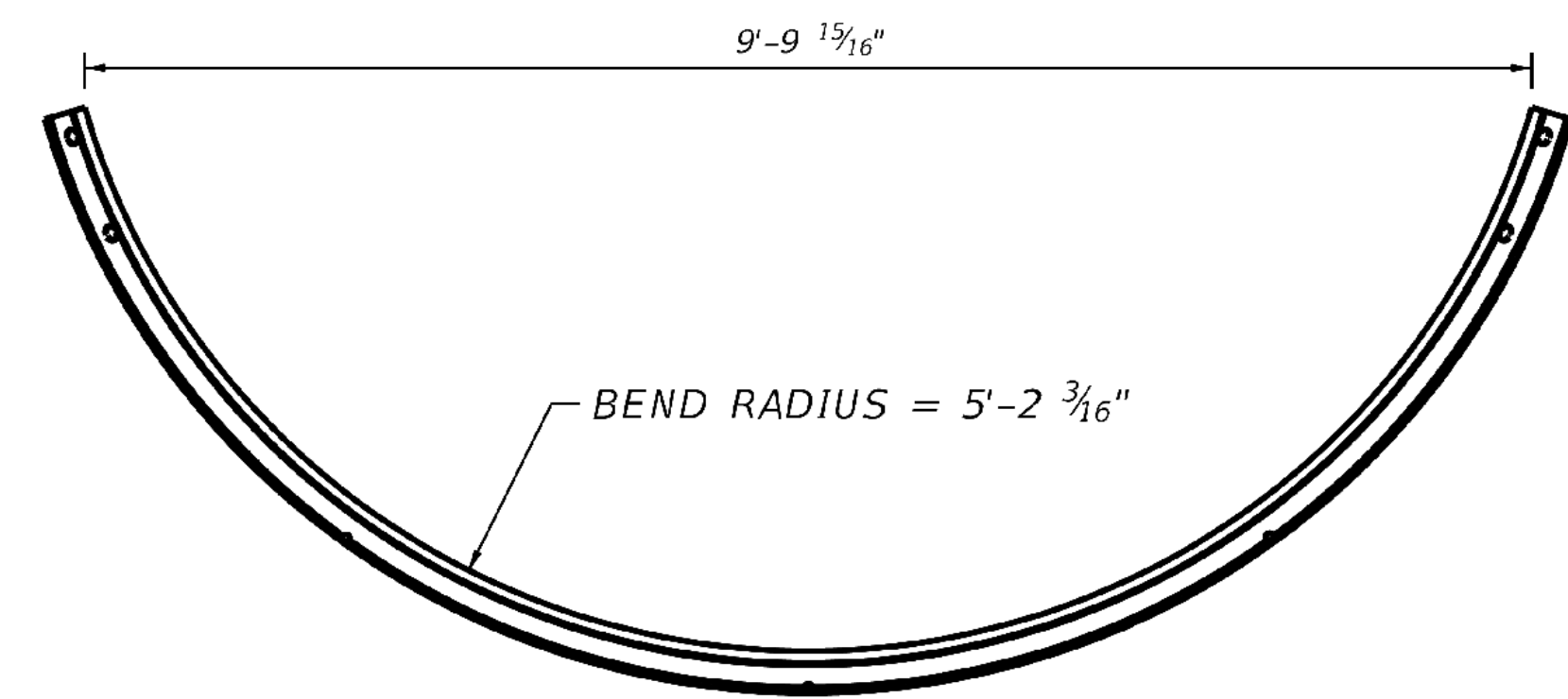
SLOTTED THRIE BEAM RAIL E3



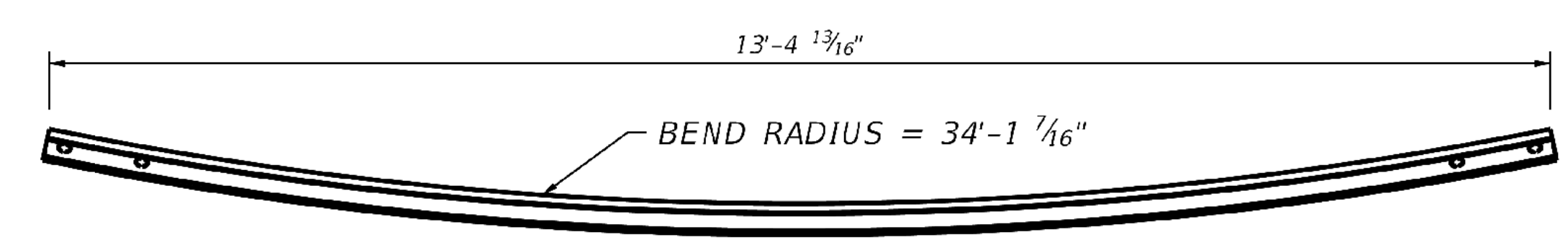
ELEVATION VIEW NON - RADIUSED
SLOTTED THRIE BEAM RAIL E2



ELEVATION VIEW NON - RADIUSED
SLOTTED THRIE BEAM RAIL E4



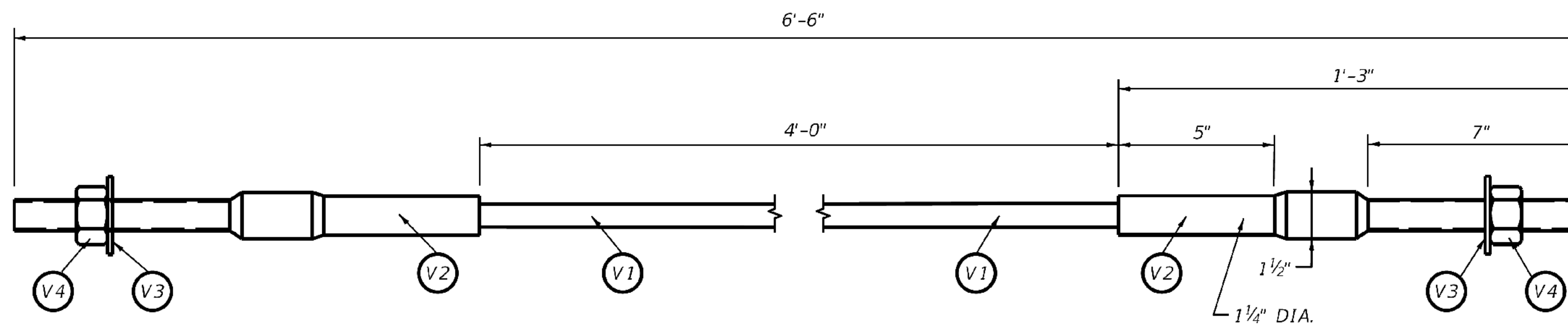
PLAN VIEW
SLOTTED THRIE BEAM RAIL E2



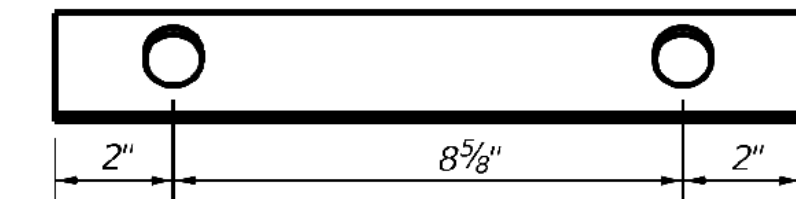
PLAN VIEW
SLOTTED THRIE BEAM RAIL E4

SHEET 5 OF 8

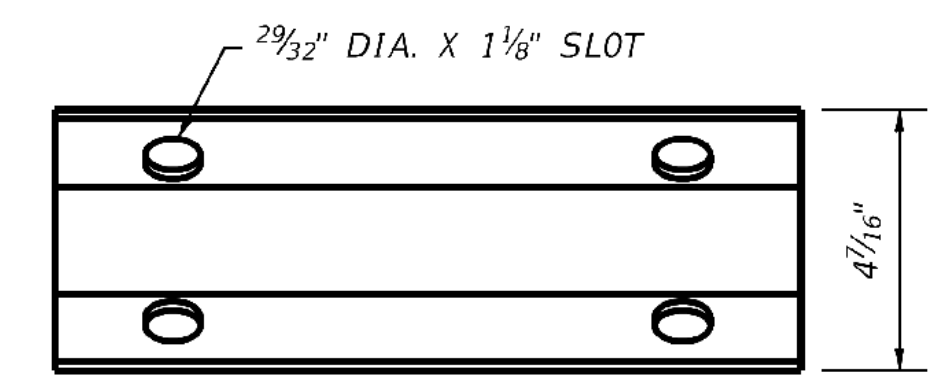
KENTUCKY DEPARTMENT OF HIGHWAYS	
STEEL THRIE BEAM BULLNOSE TERMINAL	
STANDARD DRAWING NO.	
SUBMITTED _____	DIRECTOR DIVISION OF DESIGN _____ DATE _____
APPROVED _____	STATE HIGHWAY ENGINEER _____ DATE _____



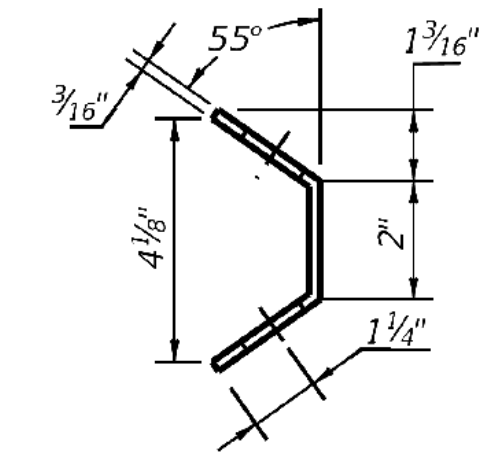
ANCHOR CABLE ASSEMBLY



PLAN VIEW

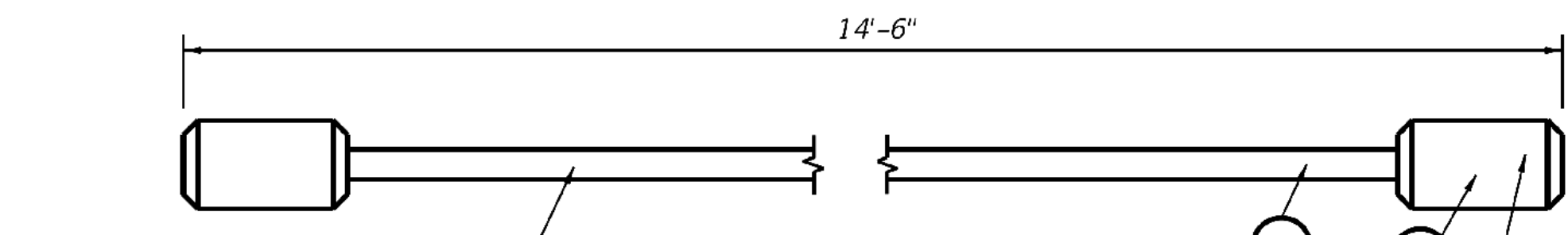


ELEVATION VIEW



PROFILE VIEW

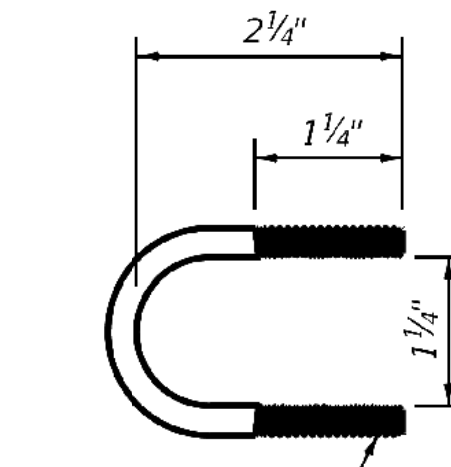
NOSE CABLE ANCHOR (R1)



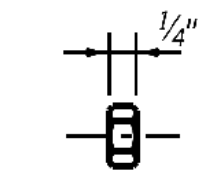
NOSE CABLE AND SWAGE BUTTON

5/8" DIAMETER, 6X19 XIPS IWRC

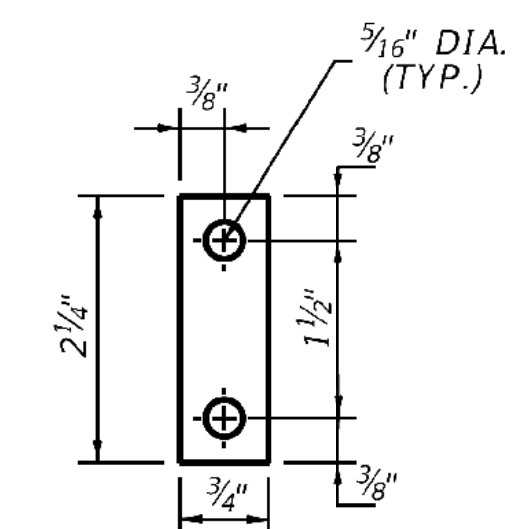
"COLD TUFF" BUTTON, S-409
 SIZE NO. 12 SB, STOCK NO.
 1040395 FOR 3/8" DIAMETER
 (6X19) WIRE ROPE (OR ANY
 SIMILARLY SIZED SWAGE-GRIP
 BUTTON FERRULES)



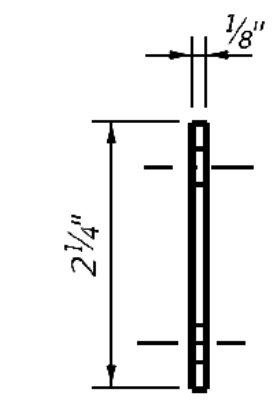
U - BOLT (T1)



U - BOLT NUT (T3)

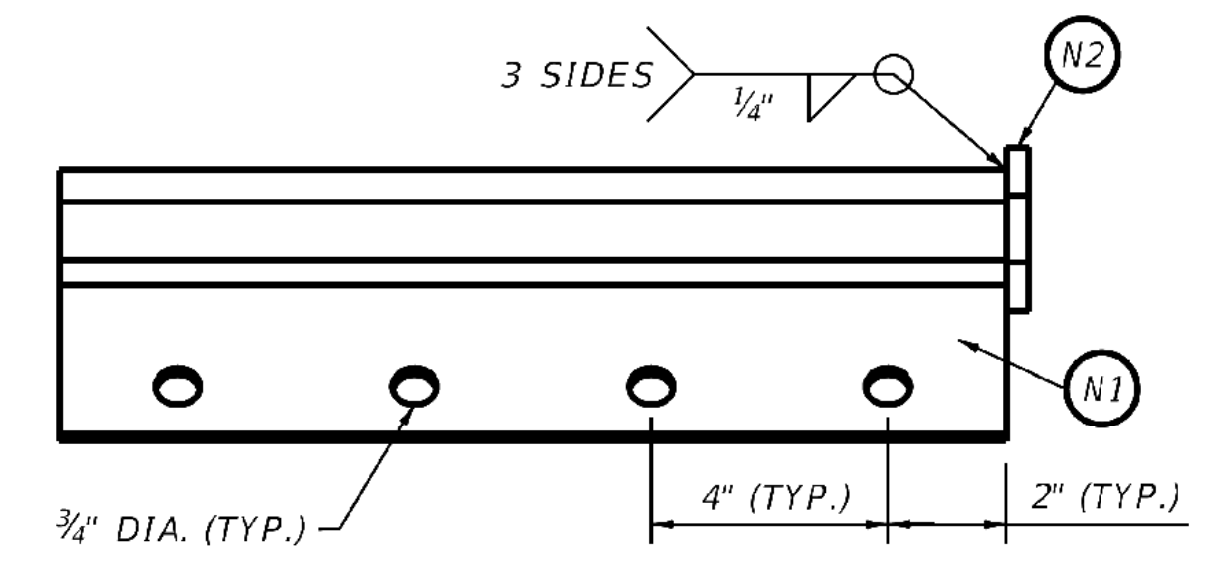


ELEVATION VIEW

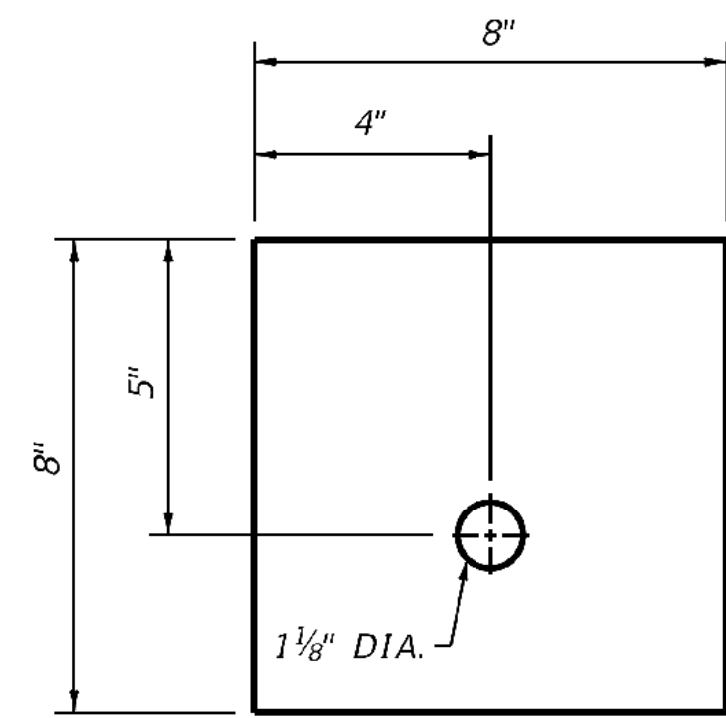


PROFILE VIEW

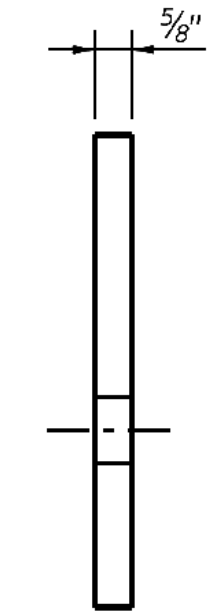
U - BOLT PLATE WASHER (T2)



PLAN VIEW

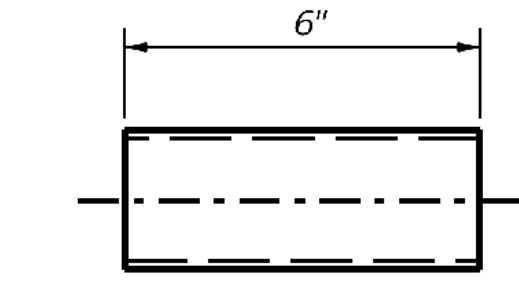


ELEVATION VIEW

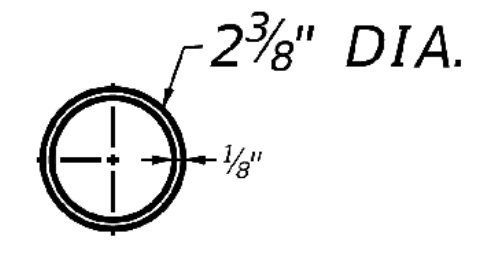


PROFILE VIEW

BCT BEARING PLATE (A3)

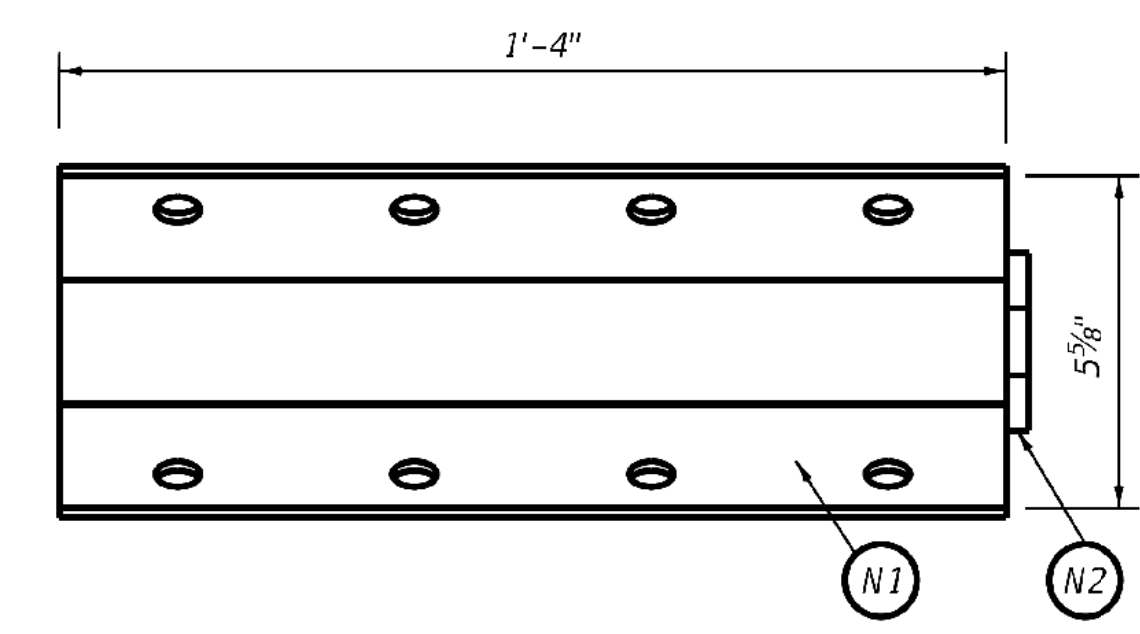


ELEVATION VIEW

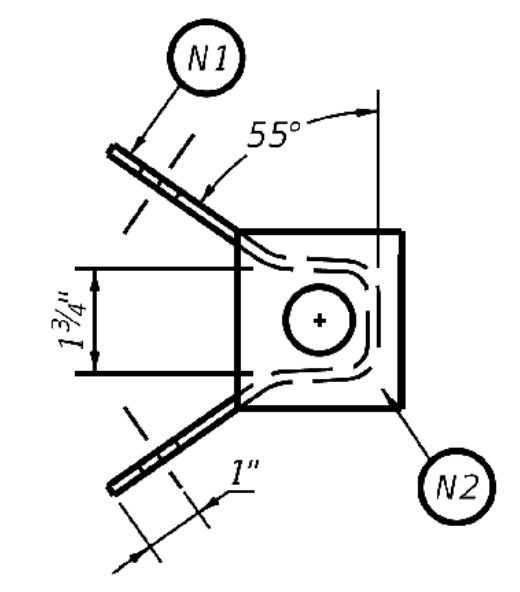


PROFILE VIEW

BCT POST SLEEVE (L2)

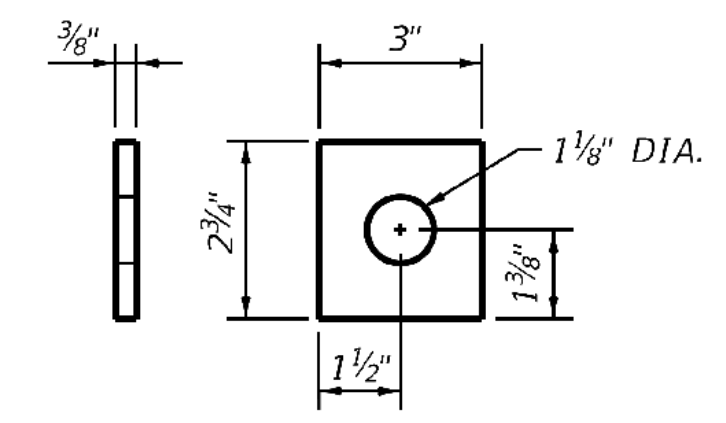


ELEVATION VIEW



PROFILE VIEW

ANCHOR BRACKET ASSEMBLY (N1)



ANCHOR BRACKET END PLATE (N2)

SHEET 6 OF 8

KENTUCKY DEPARTMENT OF HIGHWAYS	
STEEL THRIE BEAM BULLNOSE TERMINAL	
STANDARD DRAWING NO.	
SUBMITTED _____	DIRECTOR DIVISION OF DESIGN _____ DATE _____
APPROVED _____	STATE HIGHWAY ENGINEER _____ DATE _____

THRIE BEAM BULLNOSE TERMINAL MATERIALS LIST

PART NUMBER	QUANTITY	DESCRIPTION	MATERIAL SPECIFICATION
A1	2	LONG FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
A2	2	FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
A3	2	BEARING PLATE AT POST	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
B1	12	LOWER SHEAR PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
B2	12	FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
C1	12	UPPER SHEAR PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
C2	12	STEEL POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
D1	20	BLOCK FOR STEEL POST - WOOD	KYTC SPEC. 814
D2	12	TAPERED BLOCK FOR STEEL POST - WOOD	KYTC SPEC. 814
D3	2	TAPERED BLOCK FOR BCT POST - WOOD	KYTC SPEC. 814
E1	4	THRIE BEAM RAIL	AASHTO M180, SPEC 814, AND A GUARDRAIL MANUFACTURER FROM KYTC'S LIST OF APPROVED MATERIALS.
E2	1	THRIE BEAM RAIL - SHOP BENT AND PUNCHED	AASHTO M180, SPEC 814, AND A GUARDRAIL MANUFACTURER FROM KYTC'S LIST OF APPROVED MATERIALS. CURVE GUARDRAIL IN SHOP. MARK THE RADIUS OF CURVATURE ON EACH OF THE CURVED ELEMENTS.
E3	2	THRIE BEAM RAIL - PUNCHED	AASHTO M180, SPEC 814, AND A GUARDRAIL MANUFACTURER FROM KYTC'S LIST OF APPROVED MATERIALS.
E4	2	THRIE BEAM RAIL - SHOP BENT AND PUNCHED	AASHTO M180, SPEC 814, AND A GUARDRAIL MANUFACTURER FROM KYTC'S LIST OF APPROVED MATERIALS. CURVE GUARDRAIL IN SHOP. MARK THE RADIUS OF CURVATURE ON EACH OF THE CURVED ELEMENTS.
F1	4	5/8" DIA. HEX HEAD GROUND STRUT AND YOKE BOLT 11 UNC, 10" LONG BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
F2	8	5/8" DIA. GROUND STRUT AND YOKE BOLT - WASHER 1 3/4" OUTSIDE DIAMETER, 1 1/2" INSIDE DIAMETER WASHER. 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
F3	4	GROUND STRUT AND YOKE BOLT - NUT 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
G1a	14	5/8" DIA. POST BOLT - 18" LONG	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G1b	12	5/8" DIA. POST BOLT - 10" LONG	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G2	6	POST BOLT - WASHER 1 3/4" OUTSIDE DIAMETER, 1 1/2" INSIDE DIAMETER WASHER. 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G3	26	POST BOLT - NUT 3/8", 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
H1	4	7/8" DIA. SOIL TUBE BOLT 9 UNC, 8" LONG	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD 7/8" ASTM A563DH OR SAE J995 GRADE 5
H2	8	SOIL TUBE BOLT - WASHER 2 1/2" OUTSIDE DIAMETER, 1 5/8" INSIDE DIAMETER WASHER. 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDEN WASHER ONLY)
H3	4	SOIL TUBE BOLT - NUT 3/4" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD 7/8" ASTM A563DH OR SAE J995 GRADE 5
J1	38	16D DOUBLE HEAD NAIL	ASTM A153 HOT DIPPED CLASS D DOUBLE HEAD ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)
L1	4	BCT TIMBER POST	KYTC SPEC. 814, S4S FINISH ON 4 SIDE
L2	2	BCT POST SLEEVE	AASHTO M111/ASTM A123 2 3/8" OD ASTM 53 GRADE B
M1	8	W6X8.5 OR W6X9 STEEL POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
N1	2	ANCHOR BRACKET	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
N2	2	ANCHOR BRACKET - BEARING PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI

PART NUMBER	QUANTITY	DESCRIPTION	MATERIAL SPECIFICATION
P1	16	5/8" DIA. ANCHOR BRACKET BOLT 1 1/2" LONG, 3/8" DIAMETER - 14 UNC	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
P2	32	ANCHOR BRACKET BOLT - WASHER 3/8" THICK, 1 3/4" OUTSIDE DIAMETER, 1 1/2" INSIDE DIAMETER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
P3	16	ANCHOR BRACKET BOLT - NUT, 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
Q1	3	5/8" DIA. NOSE CABLE 6X9 XIPS IWRC	6X19 AASHTO M30 / ASTM A741 XIPS INDEPENDENT WIRE CORE (IWRC) PR 6X25 XIPS, IWRC NOMINAL BREAKING STRENGTH OF 41.2 KIPS.
Q2	6	NOSE CABLE-SWAGE BUTTON	COLD TUFF BUTTON, S-409 SIZE NO. 12 SB STOCK NUMBER 1040395 FOR 5/8" IN. DIAMETER OR ANY OTHER SIMILAR SIZED WAGED-GRIP-BUTTON FERRULES. ASTM A576 GRADE 1035 SWAGE FITTING ARE TO BE FIELD SWAGED PER MANUFACTURERS RECOMMENDATION. NOMINAL BREAKING STRENGTH OF 41.2 KIPS.
R1	6	NOSE CABLE ANCHOR BRACKET	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
S1	120	5/8" DIA. SPLICE BOLT - BOLT 11 UNC, 1 1/4" LONG	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
S2	120	SPLICE - BOLT NUT 3/8" THICK	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
T1	9	1/4" DIA. NOSE CABLE - U BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
T2	9	U-BOLT - PLATE WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
T3	18	U-BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
U1	48	7/16" DIA. SLIP POST ASSEMBLY - BREAKAWAY BOLT 2 1/2", 3/8" DIAMETER - 14 UNC	ASTM A153 OR B695 CLASS 55 OR F2329 UNC FULLY THREADED HEX HEAD TAP BOLT ASTM A449 OR SAE J429 GRADE 5
U2	192	7/16" DIA. SLIP POST ASSEMBLY - BREAKAWAY BOLT - WASHER 1 1/4" OUTSIDE DIAMETER, 1/2" INSIDE DIAMETER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP. TO POST BOLT CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 55, F2329
U3	48	SLIP POST ASSEMBLY - BREAKAWAY BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
V1	2	3/4" DIA. BCT CABLE	AASHTO M30 / ASTM A741 6X19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6X19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN BREAKING STRENGTH OF 42.7 KIPS
V2	4	ANCHOR CABLE-SWAGE FITTING, 1 1/4" DIAMETER	UNC ASTM A576 GRADE 1035 SWAGE FITTING ARE TO BE FACTORY SWAGED. MIN. BREAKING STRENGTH OF 42.7 KIPS. ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."
V3	4	1" DIA. ANCHOR CABLE-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
V4	4	1" DIA. ANCHOR CABLE-NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
W1	3	REFLECTOR	SEE SPEC 838, AND KYTC'S LIST OF APPROVED MATERIALS.

SHEET 7 OF 8

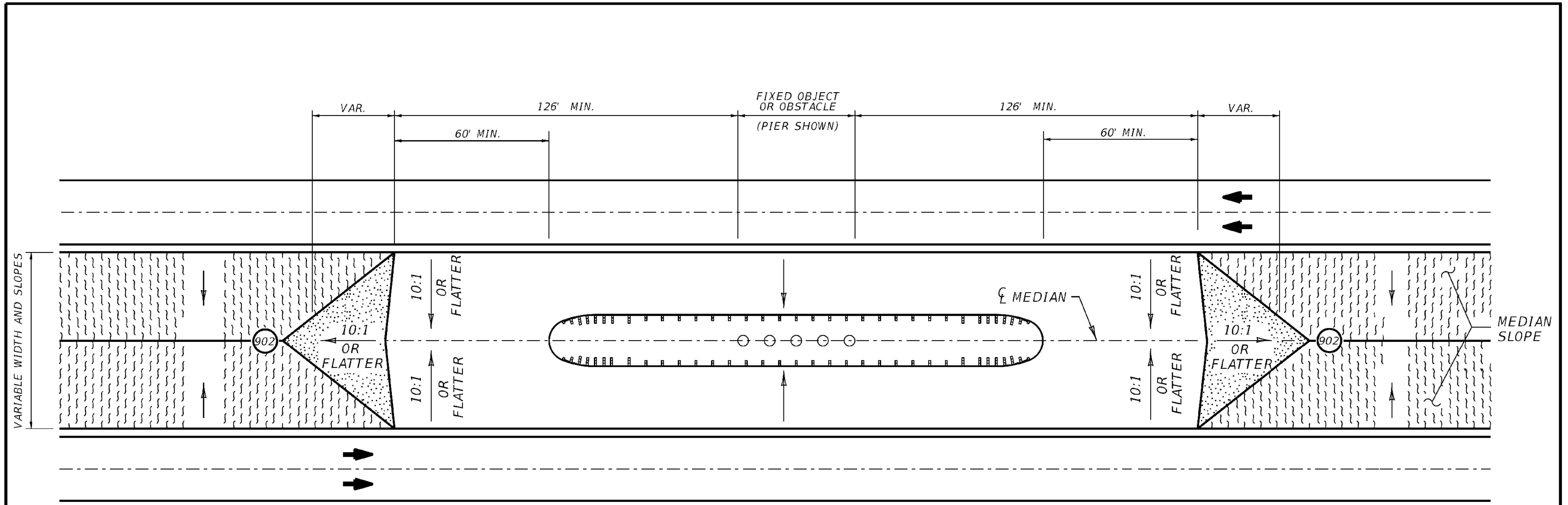
KENTUCKY
DEPARTMENT OF HIGHWAYS

**STEEL THRIE BEAM
BULLNOSE TERMINAL**

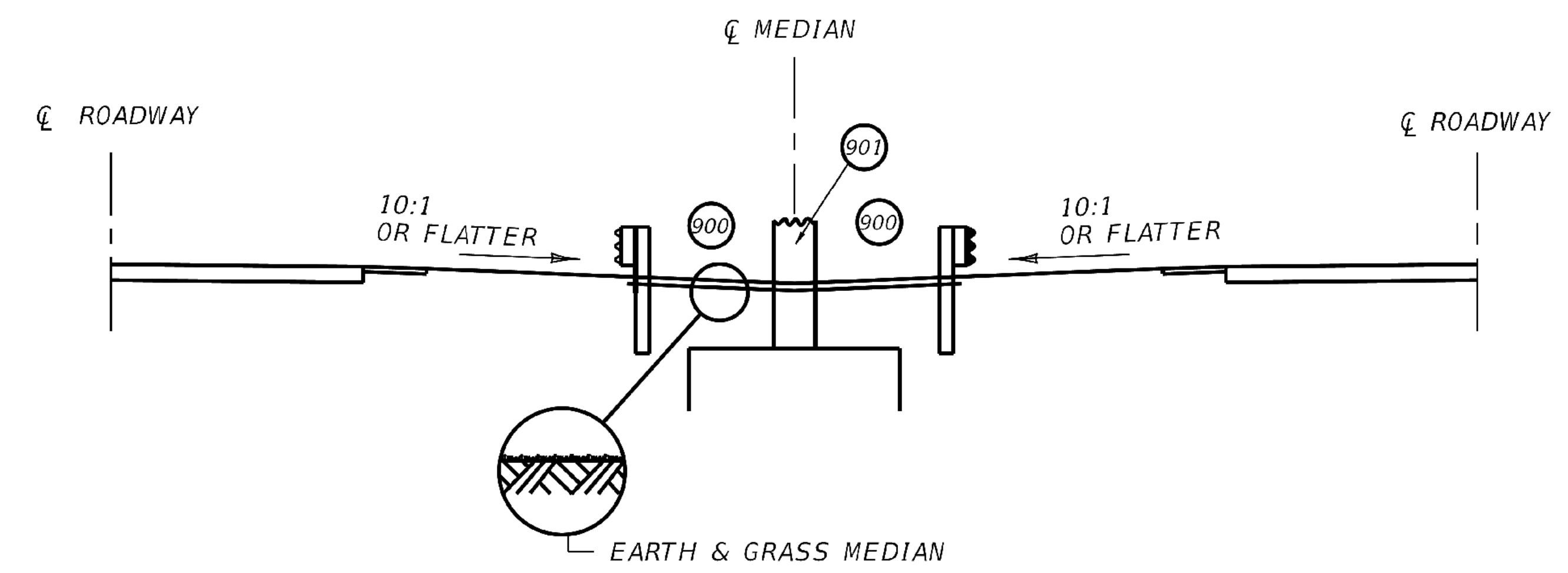
STANDARD DRAWING NO.

SUBMITTED _____ DIRECTOR DIVISION OF DESIGN _____ DATE _____

APPROVED _____ STATE HIGHWAY ENGINEER _____ DATE _____



GRADING AT BULLNOSE



CROSS SECTION AT BULLNOSE

~ NOTES ~

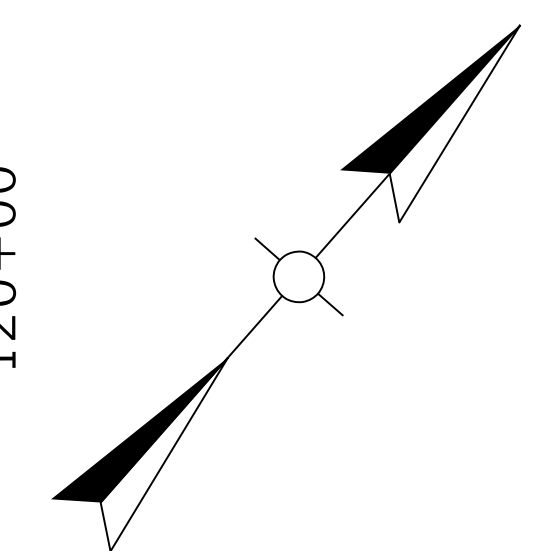
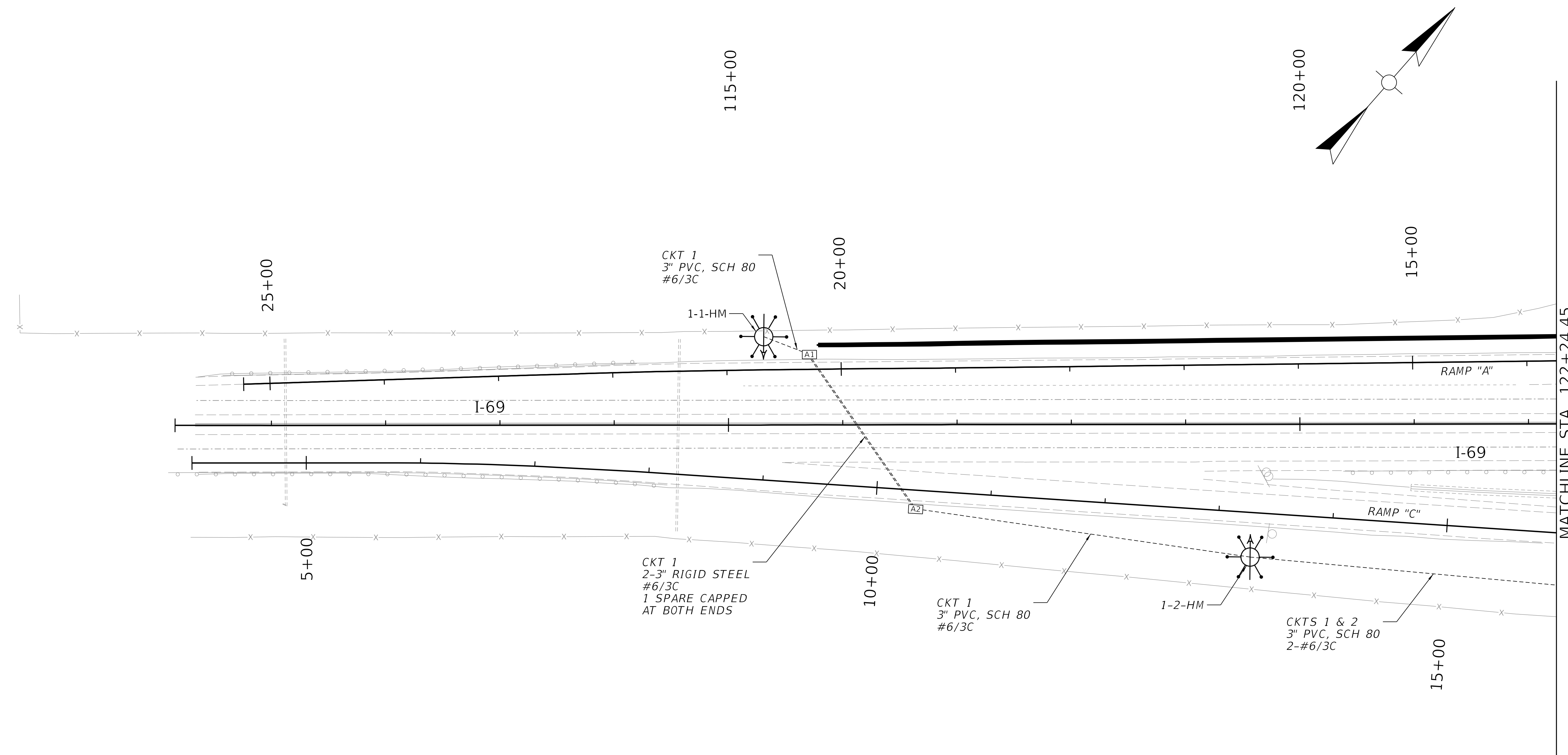
- 900 MINIMUM WORKING WIDTH 4' - 2".
- 901 FIXED OBJECT OR OTHER OBSTACLE.
- 902 EVALUATE MEDIAN DRAINAGE AND ENSURE POSITIVE FLOW. INCLUDE A DROP BOX INLET AND PIPING AS NEEDED, AND ENSURE THAT ALL NECESSARY BID ITEMS ARE INCLUDED.

~ NOTES ~

MEDIAN GRADING DETAIL SHOWN APPLIES TO THRIE BEAM BULLNOSE TERMINAL ONLY. GRADING QUANTITIES MUST BE CALCULATED AND SHOWN AS BID ITEMS.

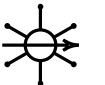


SHEET 8 OF 8

KENTUCKY DEPARTMENT OF HIGHWAYS	
STEEL THRIE BEAM BULLNOSE TERMINAL	
STANDARD DRAWING NO.	
SUBMITTED _____	DIRECTOR DIVISION OF DESIGN _____ DATE _____
APPROVED _____	STATE HIGHWAY ENGINEER _____ DATE _____



MATCHLINE STA. 122+24.45

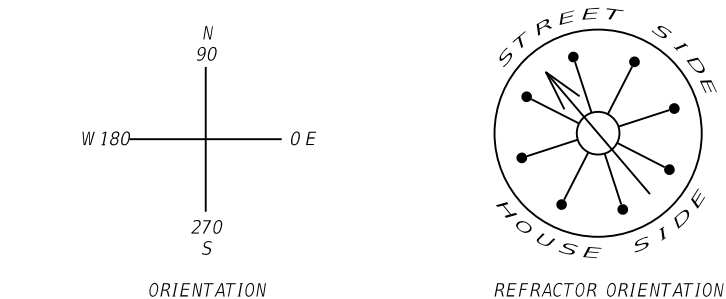
LEGEND

-  LED LUMINAIRE (SYMMETRICAL WITH HOUSE SIDE SHIELDS) MOUNTED ON HIGH MAST POLE
-  JUNCTION BOX (TYPE A OR C, AS NOTED)
-  3" CONDUIT (TYPE AS NOTED)

LUMINAIRE	STATIONS/ OFFSET*	ALIGNMENT	NORTHING/ EASTING
1-1-HM	Sta 20+67.5, 29' LT	RAMP A	N 3450606.3713 E 4072228.9337
1-2-HM	Sta 13+28.7, 39' RT	RAMP C	N 3450742.4446 E 4072675.8650

POLE	MTG. HT.	LAMP WATTS	NO.	BASE DEPTH	CKT NO.	LIGHT PATTERN	HOUSE SIDE SHIELD	REFRACTOR ORIENTATION
1-1-HM	100 FT	429W	(4)	SPEC BOOK, 716	1	TYPE V	120°	311°
1-2-HM	100 FT	429W	(4)	SPEC BOOK, 716	2	TYPE V	120°	130°

NOTE:
HIGH MAST POLES SHALL BE PLACED AS CLOSE TO STATIONS AND OFFSETS AS STATED ON PLANS TO PROVIDE PROPER ILLUMINATION. IF ANY POLE NEEDS TO BE RELOCATED FROM THE STATION INDICATED, C.O. TRAFFIC SHALL BE CONTACTED AT 502-564-3020.



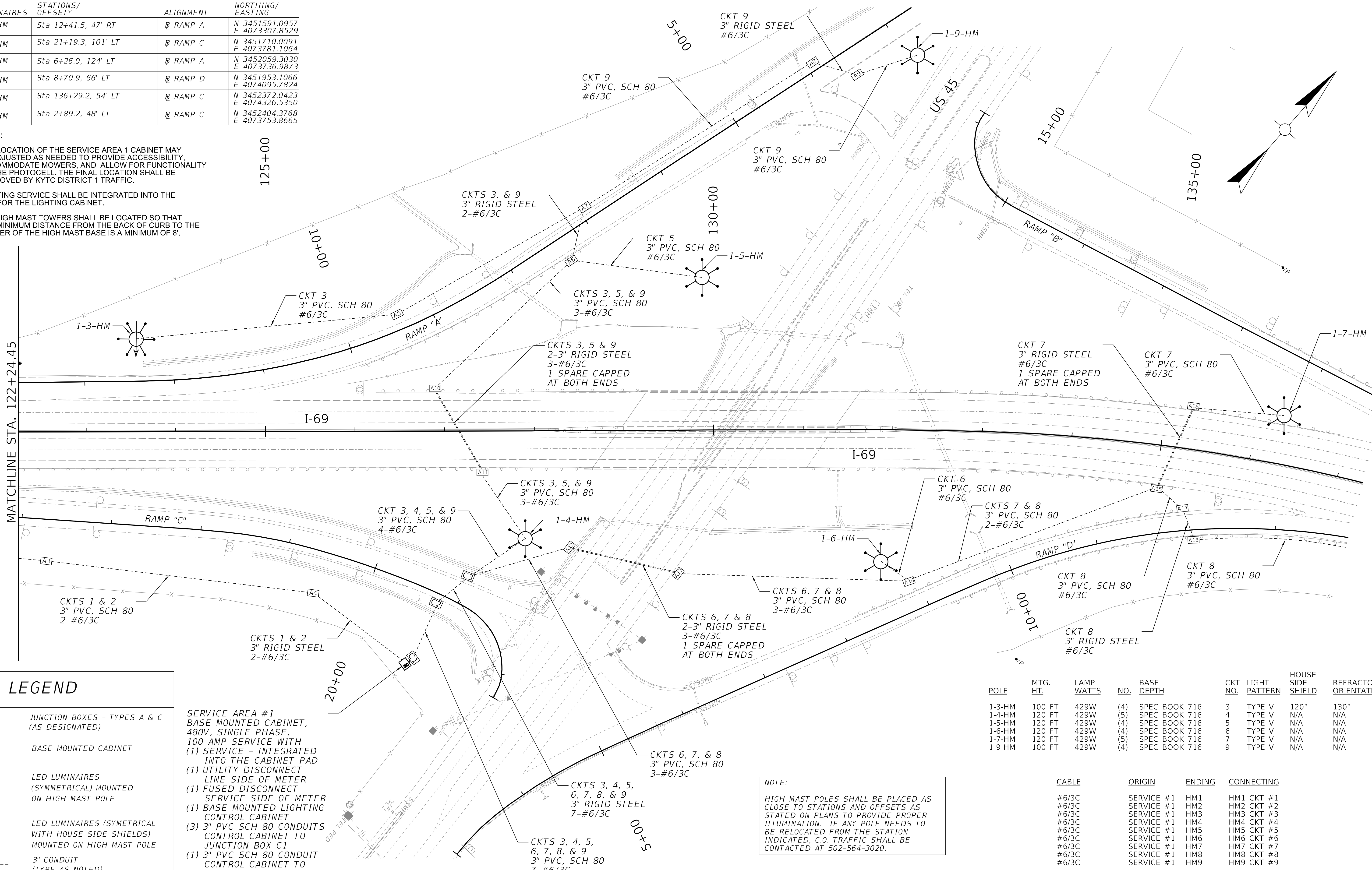
LUMINAIRES	STATIONS/ OFFSET*	ALIGNMENT	NORTHING/ EASTING
1-3-HM	Sta 12+41.5, 47' RT	RAMP A	N 3451591.0957 E 4073307.8529
1-4-HM	Sta 21+19.3, 101' LT	RAMP C	N 3451710.0091 E 4073781.1064
1-5-HM	Sta 6+26.0, 124' LT	RAMP A	N 3452059.3030 E 4073736.9873
1-6-HM	Sta 8+70.9, 66' LT	RAMP D	N 3451953.1066 E 4074095.7824
1-7-HM	Sta 136+29.2, 54' LT	RAMP C	N 3452372.0423 E 4074326.5350
1-9-HM	Sta 2+89.2, 48' LT	RAMP C	N 3452404.3768 E 4073753.8665

NOTE:

THE LOCATION OF THE SERVICE AREA 1 CABINET MAY BE ADJUSTED AS NEEDED TO PROVIDE ACCESSIBILITY, ACCOMMODATE MOWERS, AND ALLOW FOR FUNCTIONALITY OF THE PHOTOCELL. THE FINAL LOCATION SHALL BE APPROVED BY KYTC DISTRICT 1 TRAFFIC.

LIGHTING SERVICE SHALL BE INTEGRATED INTO THE PAD FOR THE LIGHTING CABINET.

ALL HIGH MAST TOWERS SHALL BE LOCATED SO THAT THE MINIMUM DISTANCE FROM THE BACK OF CURB TO THE CENTER OF THE HIGH MAST BASE IS A MINIMUM OF 8'.



LEGEND

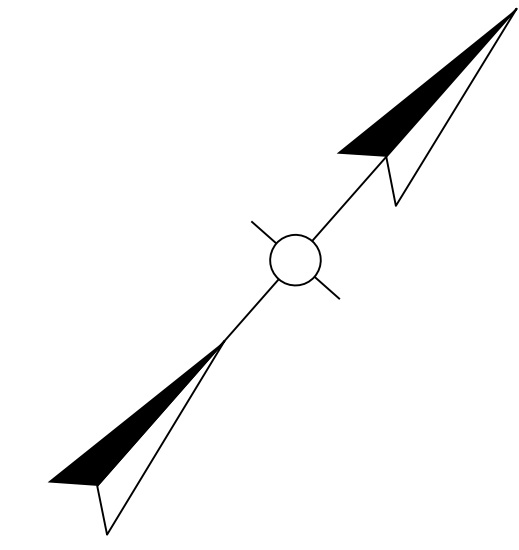
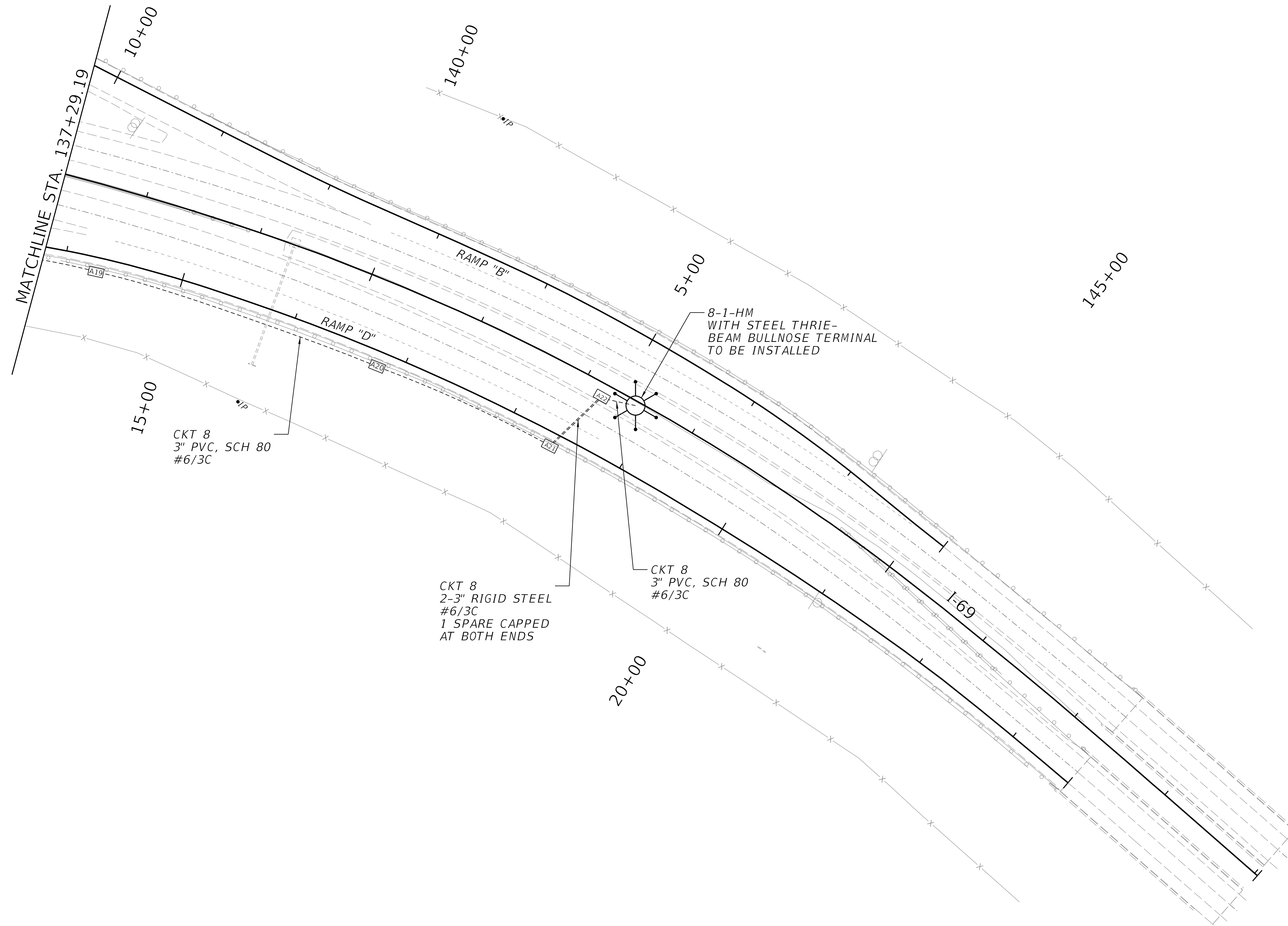
- JUNCTION BOXES - TYPES A & C (AS DESIGNATED)
- BASE MOUNTED CABINET
- LED LUMINAIRE (SYMMETRICAL) MOUNTED ON HIGH MAST POLE
- LED LUMINAIRE (SYMMETRICAL WITH HOUSE SIDE SHIELDS) MOUNTED ON HIGH MAST POLE
- 3" CONDUIT (TYPE AS NOTED)

SERVICE AREA #1
 BASE MOUNTED CABINET,
 480V, SINGLE PHASE,
 100 AMP SERVICE WITH
 (1) SERVICE - INTEGRATED
 INTO THE CABINET PAD
 (1) UTILITY DISCONNECT
 LINE SIDE OF METER
 (1) FUSED DISCONNECT
 SERVICE SIDE OF METER
 (1) BASE MOUNTED LIGHTING
 CONTROL CABINET
 (3) 3" PVC SCH 80 CONDUITS
 CONTROL CABINET TO
 JUNCTION BOX C1
 (1) 3" PVC SCH 80 CONDUIT
 CONTROL CABINET TO
 JUNCTION BOX A4

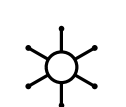

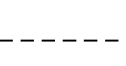
NOTE:
 HIGH MAST POLES SHALL BE PLACED AS CLOSE TO STATIONS AND OFFSETS AS STATED ON PLANS TO PROVIDE PROPER ILLUMINATION. IF ANY POLE NEEDS TO BE RELOCATED FROM THE STATION INDICATED, C.O. TRAFFIC SHALL BE CONTACTED AT 502-564-3020.

POLE	MTG. HT.	LAMP WATTS	NO.	BASE DEPTH	HOUSE SIDE SHIELD	REFRACTOR ORIENTATION
1-3-HM	100 FT	429W	(4)	SPEC BOOK 716	3	120°
1-4-HM	120 FT	429W	(5)	SPEC BOOK 716	4	N/A
1-5-HM	120 FT	429W	(4)	SPEC BOOK 716	5	N/A
1-6-HM	120 FT	429W	(4)	SPEC BOOK 716	6	N/A
1-7-HM	120 FT	429W	(5)	SPEC BOOK 716	7	N/A
1-9-HM	100 FT	429W	(4)	SPEC BOOK 716	9	N/A

CABLE	ORIGIN	ENDING	CONNECTING
#6/3C	SERVICE #1	HM1	HM1 CKT #1
#6/3C	SERVICE #1	HM2	HM2 CKT #2
#6/3C	SERVICE #1	HM3	HM3 CKT #3
#6/3C	SERVICE #1	HM4	HM4 CKT #4
#6/3C	SERVICE #1	HM5	HM5 CKT #5
#6/3C	SERVICE #1	HM6	HM6 CKT #6
#6/3C	SERVICE #1	HM7	HM7 CKT #7
#6/3C	SERVICE #1	HM8	HM8 CKT #8
#6/3C	SERVICE #1	HM9	HM9 CKT #9



LEGEND

-  LED LUMINAIRES (SYMMETRICAL) MOUNTED ON HIGH MAST POLE
-  JUNCTION BOX (TYPE A OR C, AS NOTED)
-  3" CONDUIT (TYPE AS NOTED)

LUMINAIRES	STATIONS/ OFFSET*	ALIGNMENT	NORTHING/ EASTING
8-1-HM	Sta 143+47.33, 4' RT	CL I-69	N 3452543.6011 E 4074929.5611

POLE	MTG. HT.	LAMP WATTS	NO.	BASE DEPTH	CKT NO.	LIGHT PATTERN	HOUSE SIDE SHIELD	REFRACTOR ORIENTATION
8-1-HM	120 FT	429W	(5)	SPEC BOOK 716	8	TYPE V	N/A	N/A

NOTE:
HIGH MAST POLES SHALL BE PLACED AS CLOSE TO STATIONS AND OFFSETS AS STATED ON PLANS TO PROVIDE PROPER ILLUMINATION. IF ANY POLE NEEDS TO BE RELOCATED FROM THE STATION INDICATED, C.O. TRAFFIC SHALL BE CONTACTED AT 502-564-3020.