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FLORIDA  
EXPRESSWAY  
AUTHORITY

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*LIGHTING DESIGN DETAILS*

*FOR DESIGN, CONSTRUCTION, MAINTENANCE AND UTILITY  
OPERATIONS ON THE CFX SYSTEM*

*MARCH 2024*

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**GENERAL NOTES:**

1. PRIOR TO ANY EQUIPMENT ORDER, SUBMIT ANY EQUIPMENT AND DESIGN DATA MATERIAL PROPOSED TO THE PROJECT'S CEI FOR REVIEW AND APPROVAL. THE PROJECT'S CEI WILL COORDINATE WITH CFX STAFF AND/OR ITS DESIGNEE, AND THE EOR FOR CONCURRENT REVIEW AND APPROVAL. THE SUBMITTED INFORMATION SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
  - A. LUMINAIRE SPECIFICATION DATA SHEET
  - B. LOAD CENTER EQUIPMENT
  - C. POLE SHOP DRAWINGS
  - D. POLE STRENGTH CALCULATIONS
  - E. TRANSFORMER BASE FRANGIBILITY REPORT
  - F. ANCHOR BOLT DIAMETER AND TYPE MATERIAL CERTIFICATIONS
  - G. CONDUIT, PULL BOXES, ELECTRICAL AND GROUNDING WIRES, SPLICE KITS AND GROUND RODS.
  - H. LIGHTING CABINETS, POWER SERVICE PANELS, METERS AND ALL ASSOCIATED ELECTRICAL EQUIPMENT.
  - I. POLE CABLE DISTRIBUTION SYSTEMS

PRIOR TO THE FINAL WALKTHROUGH, SCHEDULE A LIGHTING VERIFICATION CHECK WITH THE CEI, CFX (OR ITS DESIGNEE) AND THE LIGHTING VENDOR WHO IS LIGHTING CERTIFIED (LC) AS TESTED AND RECOGNIZED BY THE NATIONAL COUNCIL ON QUALIFICATIONS FOR THE LIGHTING PROFESSIONALS (NCQLP) AND A MEMBER OF ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA). THE LIGHTING VENDOR WILL CREATE A PROJECT SPECIFIC LIGHTING VERIFICATION CHECKLIST AND WILL INCLUDE A DAYTIME AND NIGHTTIME REVIEW OF THE LIGHTING SYSTEM. THE LIGHTING VERIFICATION CHECKLIST SHALL BE COMPLETED BY THE LIGHTING VENDOR AND SHALL BE INCLUDED WITHIN THE LIGHTING AS-BUILT RECORDS. PROVIDE THE APPROPRIATE EQUIPMENT (VOLTAGE/AMPERAGE METER, BUCKET TRUCK, SPARE FUSES/DRIVERS, ETC.) AND KNOWLEDGEABLE STAFF TO ASSIST THE LIGHTING VENDOR AND CEI DURING THE WALKTHROUGH.

AN ELECTRONIC COPY OF SHOP DRAWINGS AND DESIGN DATA SHALL BE SUBMITTED TO THE PROJECT'S CEI. IF STANDARD POLES OR STANDARD FOUNDATIONS ARE BEING USED, SPECIFY WHICH SITES WILL UTILIZE STANDARD POLES OR FOUNDATIONS AND SUBMIT THE APPLICABLE STANDARD PLAN/INDEX.

2. NOTIFY THE CONSTRUCTION ENGINEERING INSPECTION ENGINEER (CEI) A MINIMUM OF 48 HOURS IN ADVANCE TO BEGINNING CONSTRUCTION.
3. THESE PLANS REFLECT CONDITIONS KNOWN DURING PLAN DEVELOPMENT. IN THE EVENT ACTUAL PHYSICAL CONDITIONS PREVENT THE APPLICATION OR THE PROGRESSION OF ANY WORK SPECIFIED IN THESE PLANS, NOTIFY THE ENGINEER IMMEDIATELY AND PRIOR TO ANY FURTHER WORK ACTIVITY IN THE AFFECTED AREA.
4. ALL SYMBOLS FOR ROADWAY LIGHTING ARE SHOWN FOR REFERENCE ONLY.
5. AERIAL PHOTOGRAPHY IN THESE PLANS MAY NOT REPRESENT CURRENT SITE CONDITIONS. REVIEW THE PROJECT SITE PRIOR TO BIDDING.
6. LIGHT POLE LOCATIONS SHOWN ON PLANS WHICH ARE IN CONFLICT WITH ITS, UTILITIES, DRIVEWAYS, WHEELCHAIR RAMP, ETC. MAY BE ADJUSTED SLIGHTLY (+/- 5') PARALLEL TO THE ROADWAY AS DIRECTED BY THE CEI ENGINEER. THE ENGINEER OF RECORD MUST APPROVE LOCATION CHANGES IN EXCESS OF 5'.
7. COORDINATE ACTIVITIES WITH ALL OTHER CONTRACTORS OPERATING WITHIN THE PROJECT LIMITS.
8. VIBRATORY ROLLERS SHALL NOT BE ALLOWED FOR COMPACTION OPERATIONS OF SOILS, ETC. ABOVE FIBER OPTIC CABLES (AT&T, MCI WORLD COM, CFX FIBER OPTIC, ETC) AND LIGHTING CONDUITS. THE LOCATION OF ALL PROPOSED EQUIPMENT TO BE INSTALLED SHALL BE CONSIDERED TO BE APPROXIMATE.
9. WHEN WORKING ON CFX'S SYSTEM OR ADJACENT ROADWAYS, THE CONTRACTOR SHALL COMPLY WITH THE CITY OF ORLANDO NOISE ORDINANCE, CHAPTER 42.
10. THE WORK CORRIDOR (INCLUDING ALL CONCRETE GUTTERS) SHALL BE RESTORED TO PRE-WORK CONDITIONS.
11. ALL MISCELLANEOUS WORK NECESSARY TO CONSTRUCT LIGHT POLES, PULL BOXES, LOAD CENTERS, ETC. (I.E. GRADING, SODDING, CLEARING AND GRUBBING, GUARDRAIL OR FENCE RESETTING) IS CONSIDERED INCIDENTAL, AND IS TO BE INCLUDED IN THE COST OF RELATED WORK. ALL DISTURBED AREAS SHALL BE RESTORED TO PRE-WORK CONDITIONS. HAUL ALL EXCESS EXCAVATION AND WASTE MATERIALS OFF-SITE. REMOVAL OF THESE MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF RELATED WORK.

12. FOR ALL OVERHEAD SIGN STRUCTURES, EXERCISE ALL APPROPRIATE SAFETY MEASURES WHEN WORKING IN OR AROUND THESE AREAS. CAUTION SHALL BE TAKEN IN RESPECT TO MAINTAINING THE POWER FEED AND GROUNDING CIRCUITRY. ALL FEATURES SHALL BE RESTORED TO ORIGINAL PRE-WORK CONDITIONS.
13. ALL ELECTRICAL WORK SHALL CONFORM TO THE LATEST ADOPTED EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRIC SAFETY CODE AND THE LOCAL ELECTRICAL POWER AUTHORITY.
14. PULLING INSTRUCTIONS FOR CONDUCTORS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO CABLE JACKET. MEET MANUFACTURERS REQUIREMENTS. THE USE OF PULLING COMPOUND (NON-WAXED BASED COMPOUND) IS REQUIRED DURING WIRE INSTALLATION TO REDUCE FRICTION. ALL BENDS SHALL CONFORM TO THE NEC AND NESC FOR CABLE USED.
15. A GROUNDING SYSTEM IS REQUIRED FOR ALL LIGHTING CABINETS, LOAD CENTERS, PULL BOXES, POLES AND STRUCTURES. INSTALLATION SHALL BE IN ACCORDANCE WITH CFX LIGHTING DESIGN STANDARDS.
16. THE MIXING OF LINE (SUPPLY SIDE) AND LOAD (EQUIPMENT SIDE) SHALL NOT OCCUR IN EITHER THE CONDUITS OR PULL BOXES.
17. ALUMINUM POLES, LUMINAIRES AND BASES SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH THE LATEST VERSION OF AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" AND SHALL HAVE BEEN TESTED BY FHWA-APPROVED METHODS. CERTIFICATION FOR TESTS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS.
18. FURNISH AND INSTALL AN ALUMINUM IDENTIFICATION TAG ON EACH ROADWAY LIGHT POLE. TAGS SHALL BE 2"x8" IN SIZE WITH BLACK LETTERS ON YELLOW BACKGROUND, ATTACHED WITH ADHESIVE (NO SCREWS OR RIVETS). NUMBERS SHALL BE AS SHOWN IN THE POLE DATA SHEET ON THE POLE IDENTIFICATION TAG DETAIL AND BE PLACED VERTICALLY. THE TAGS WILL BE INCIDENTAL TO THE COST OF THE LIGHT POLE. TAGS SHALL BE PLACED FIVE (5) FEET ABOVE GRADE ON THE ROADWAY FACING PORTION ON THE LIGHT POLE. SEE DETAIL IN LEGEND SHEET. FOR MEDIUM MOUNTED LIGHT POLES, THE POLE TAG SHALL BE VISIBLE FROM THE NORTHBOUND OR EASTBOUND TRAVEL LANES. THE INSTALLATION OF IDENTIFICATION TAGS SHALL NOT VOID THE POLE MANUFACTURER'S WARRANTY.
19. SCREW TYPE FOUNDATIONS ARE NOT PERMITTED FOR USE THROUGHOUT CFX'S SYSTEM.
20. THE SPECIAL FOUNDATION DETAIL SHALL BE USED AT LOCATIONS WHERE THE GRADE EXCEEDS 1:2.
21. SPLICES AND CONNECTIONS MADE IN PULL BOXES SHALL BE LIMITED TO THE SERVICE POINT AND CONDUIT JUNCTIONS WITH MULTI-DIRECTIONAL CONDUITS AS INDICATED ON THE PLANS. THE CONNECTIONS MADE AT THESE POINTS SHALL BE PROPERLY WATERPROOFED AND SUBMERSIBLE RATED. THE ELECTRICAL SPLICE KIT SHALL BE SUBMITTED TO THE CEI ENGINEER FOR APPROVAL.
22. REPAIR BRIDGE STRUCTURES, MATCHING THE EXISTING MATERIALS AND COLOR, IN AREAS WHERE REMOVAL OF EXISTING LIGHTING FIXTURES, AND ASSOCIATED CONDUITS OR JUNCTION BOXES DAMAGES EXISTING PAINT OR LEAVES UNPAINTED EXPOSED STEEL. ALL DAMAGED OR EXPOSED STEEL SURFACES SHALL BE THOROUGHLY RESTORED IN ACCORDANCE WITH CFX'S POLICIES AND STANDARDS.
23. ALL HARDWARE USED TO ATTACH LIGHTING COMPONENTS (I.E. LIGHT FIXTURES, CONDUIT, JUNCTION/PULL BOXES, MOUNTING HARDWARE, ETC.) TO ANY BRIDGE ELEMENT SHALL BE RIGID GALVANIZED STEEL.
24. HAND DIG THE FIRST 4' AT EACH POLE FOUNDATION. BACKFILLING AROUND POLE SHALL CONFORM TO SECTION 125 OF THE FDOT STANDARD SPECIFICATIONS.
25. IN ORDER TO MINIMIZE IMPACT TO LANDSCAPING MATERIAL, EXERCISE CAUTION THROUGH LANDSCAPING LIMITS DURING ALL PHASES OF CONSTRUCTION ACTIVITY. ANY LANDSCAPE MATERIAL DAMAGED DURING THE CONSTRUCTION PROCESS SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE. AVOID AND/OR PROTECT ALL TREES AND ROOTS BY HAND DIGGING AS NECESSARY. IN THE EVENT LANDSCAPING ELEMENTS NEED TO BE REMOVED AS PART OF THIS PROJECT, COORDINATE THE REMOVAL OF LANDSCAPING WITH BEN BAKER (GEC) FOR POTENTIAL SALVAGING.
26. VEGETATION SHALL BE REMOVED OR CUT BACK AS DIRECTED BY THE EOR AND CEI ENGINEER TO PROVIDE ADEQUATE LIGHTING ON THE ROADWAY FOR ALL LIGHT POLE LOCATIONS. VEGETATION REMOVAL AND TRIMMING SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE OF THE LIGHT POLE.

27. ALL CONVENTIONAL AND HIGH MAST LIGHT POLES SCHEDULED FOR REMOVAL SHALL BE TAKEN OFF THE PROJECT SITE BY THE CONTRACTOR WITHIN TWO BUSINESS DAYS OF REMOVAL. ALL LIGHT POLE REMOVALS SHALL INCLUDE THE FOUNDATIONS AND PULL BOXES AND WILL BE INCIDENTAL TO THE COST OF THE REMOVAL. THE FILLING OF THE VOID LEFT BY THE REMOVAL OF THE FOUNDATION IS INCIDENTAL TO THE COST OF THE REMOVAL.
28. ANY DAMAGED, DENTED, SCRATCHED OR RUSTED POLES, STRUCTURES, ELECTRICAL EQUIPMENT PULL BOXES, ETC. WILL NOT BE ACCEPTED AND SHALL BE REPLACED PRIOR TO FINAL ACCEPTANCE.
29. DEMONSTRATE THE LIGHTING SYSTEM OPERATES AS SPECIFIED (BURN-IN) AT ONE HUNDRED PERCENT (100%) FOR A PERIOD OF SEVEN (7) NIGHTS. REPLACE ALL DEFECTIVE EQUIPMENT IMMEDIATELY.
30. PERMISSION TO ENTER THE MAINLINE OR RAMP PLAZAS REQUIRES PRIOR APPROVAL FROM CFX.
31. FOR ALL ROADWAY COBRA HEAD FIXTURES INSTALLED ON THE PROJECT, THE CONTRACTOR SHALL PLACE A SIGNIFY SERVICE TAG (OR CODE STICKER) INSIDE THE FIXTURE HOUSING AND INSIDE THE LIGHT POLE TRANSFORMER BASE ACCESS DOOR. FOR LIGHT POLES WITHOUT A TRANSFORMER BASE, PLACE THE SERVICE TAG INSIDE THE LIGHT POLE HAND HOLE.

**AS-BUILTS:**

1. UPON FINAL ACCEPTANCE OF THE PROJECT, FORWARD A COMPLETE SET OF AS-BUILT PLANS WITH ALL CHANGES MARKED IN RED TO THE CEI ENGINEER. THE AS-BUILTS SHALL CONTAIN ACCURATELY DIMENSIONED LOCATIONS FOR CONDUCTORS, PULL BOXES, LIGHT POLES, POWER SERVICES, CABINETS, CONDUITS, STRUCTURES, AND FIELD COMPONENTS. THE AS-BUILT PLANS SHALL INCLUDE A RECORD OF THE COLOR DESIGNATIONS OF ALL CONDUIT USED, AS WELL AS CONDUCTOR TYPES IN TERMS OF PHASES, NEUTRAL, AND GROUND. THIS SUBMITTAL SHALL BE IN BOTH ELECTRONIC AND PAPER FORMAT. REVIEW CFX SPECIFICATION 612 FOR ALL GEOLOCATION AND DOCUMENTATION REQUIREMENTS. COMPLETELY AND ACCURATELY FILL OUT THE CFX LIGHTING AS-BUILT POLE DATA TABLE. A COPY OF THIS FORM CAN BE OBTAINED BY CONTACTING CFX'S LIGHTING GEC.

**CONDUIT NOTES:**

1. CONDUIT RUN SHALL NOT EXCEED 270° OF BENDS BETWEEN PULL BOXES.
2. ALL HDPE CONDUIT CONNECTIONS SHALL BE JOINED WITH ELECTROFUSION COUPLERS.
3. ALL CONDUITS SHALL BE SEALED WITH DUCT SEALANT AT BOTH ENDS.
4. ALL SPARE CONDUITS SHALL BE FURNISHED WITH A PULL STRING FOR FUTURE USE.
5. ALL CONDUIT TRENCHES SHALL BE BACK-FILLED COMPLETELY AT THE ENDS OF EACH WORKING DAY OR OPERATION WHENEVER THE WORK ZONE BECOMES INACTIVE. UNDER NO CIRCUMSTANCES SHALL AN EXCAVATION REMAIN OPEN AND UNATTENDED.
6. MINIMUM REQUIRED CONDUIT BURY DEPTHS SHALL BE MAINTAINED WHERE CONFLICTS OCCUR WITH DRAINAGE OR OTHER UTILITIES PER THESE PLANS.
7. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY BORING OR TRENCHING.
8. ALL UNDERGROUND CONDUIT SHALL CONFORM TO THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 630.
9. SPARE CONDUIT SHALL BE PROVIDED AT ALL DIRECTIONAL BORING SITES. SPARE CONDUIT SHALL BE CAPPED AND SEALED AT BOTH ENDS AND A PULL STRING FOR FUTURE USE SHALL BE PROVIDED.

**PULL BOX NOTES:**

1. ALL PULL BOXES USED FOR THE LIGHTING SYSTEM SHALL BE NON-METALLIC AND SHALL BE STAMPED WITH "CFX LIGHTING".
2. MAXIMUM SPACING FOR PULL BOXES SHALL BE 500'.
3. PULL BOXES SHALL NOT BE PLACED WITHIN DRAINAGE AREAS.

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	GENERAL AND PAY ITEM NOTES	SHEET NO.  A-1
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
7/19/23	REVISED GENERAL NOTES AND PULL BOX NOTES								





**PAY ITEM NOTES:**

1. 630-2-XX: SPARE CONDUIT, ELBOWS, SWEEPS, CONNECTING HARDWARE, TRENCHING/BORE AND BACKFILL AS INDICATED IN THE PLANS AND THE LIGHTING DESIGN STANDARDS AS WELL AS RESTORING CUT PAVEMENT, SIDEWALKS, SOD AND ETC. TO ITS ORIGINAL CONDITION SHALL BE INCIDENTAL TO THIS ITEM. ALL CONDUIT SHALL BE 2" UNLESS OTHERWISE NOTED IN THE PLANS. SURFACE MOUNTED CONDUIT, JUNCTION BOXES, CONDUIT STRAPS AND ANY OTHER VISIBLE MOUNTING HARDWARE SHALL BE PAINTED TO MATCH EXISTING BRIDGE DECK AND WALLS.
2. 635-2-XX: PULL BOX COVERS SHALL BE NONMETALLIC AND MARKED "CFX LIGHTING" UNLESS OTHERWISE CALLED OUT ON THE PLANS AND SHALL BE INCIDENTAL TO THIS ITEM ALONG WITH THE COST TO FURNISH AND INSTALL CONCRETE APRON AROUND PULL BOX.
3. 715-1-XX: USE ONLY STRANDED COPPER WIRE WITH XHHW-2 (CROSS-LINKED POLYETHYLENE (XLPE) HIGH HEAT-RESISTANT, WATER RESISTANT) INSULATION, WITH A 45 MIL THICKNESS, RATED AT 600V IN DRY AND WET CONDITIONS.
4. 715-7-XX: CONCRETE PAD, SERVICE LATERAL CONDUIT AND CONDUCTORS, DISCONNECT SWITCH, TYPE P-II SERVICE POLE AND ALL MISCELLANEOUS APPURTENANCES ARE INCIDENTAL TO THE LOAD CENTER.
5. 715-4-XXX: REMOVAL OF EXISTING LIGHT POLES, ARMS, MOUNTING HARDWARE, LUMINAIRES, CONCRETE SLABS, PULL BOXES, GROUND RODS AND ANY OTHER ANCILLARY COMPONENT SHALL BE INCIDENTAL TO THIS ITEM. SALVAGEABLE LIGHTING HARDWARE, INCLUDING REMOVED POLES, TO BE DELIVERED TO CFX MAINTENANCE YARD AT 7015 MCCOY RD. ORLANDO, FL 32822. CONTACT STEVE GEISS AT (407) 690-5000 TO ARRANGE DELIVERY.
6. 715-11-XXX: FURNISHING AND INSTALLATION OF SIGN LUMINAIRES SHALL INCLUDE MOUNTING HARDWARE, BRACKETS, MANUFACTURER POWDER COATING OF LUMINAIRES (SHALL MATCH THE COLOR OF THE STRUCTURE TO WHICH IT IS ATTACHED) AND ALL NECESSARY MATERIALS NEEDED FOR A COMPLETE INSTALLATION OF THE LED SIGN LUMINAIRES ON NEW SIGN PANELS. ANY NECESSARY SHIFTING OF SIGN LUMINAIRES IS INCIDENTAL TO THIS ITEM. \*SIGN LUMINAIRES NOT INCIDENTAL TO NEW SIGN PANEL INSTALLATIONS.
7. 715-11-XXX: SIGN LUMINAIRE REPLACEMENT COST SHALL INCLUDE CONDUIT, CONDUCTORS, JUNCTION BOXES, MOUNTING HARDWARE, BRACKETS, MANUFACTURER POWDER COATING OF LUMINAIRES (SHALL MATCH THE COLOR OF THE STRUCTURE TO WHICH IT IS ATTACHED) AND ALL NECESSARY MATERIALS NEEDED FOR A COMPLETE INSTALLATION OF THE LED SIGN LUMINAIRES ON NEW AND EXISTING SIGN PANELS. COSTS OF THE LUMINAIRE SHALL ALSO INCLUDE SIGNIFY SP2-HV SURGE PROTECTION DEVICE (SPD). ANY NECESSARY SHIFTING OF SIGN LUMINAIRES IS INCIDENTAL TO THIS ITEM. REMOVAL OF EXISTING SIGN LUMINAIRES, JUNCTION BOXES, MOUNTING HARDWARE, CONDUIT AND CONDUCTORS SHALL ALSO BE INCIDENTAL TO THIS ITEM.
8. 715-11-125: FURNISHING AND INSTALLATION OF WALL MOUNT UNDERDECKS WITH 20K SURGE PROTECTION DEVICE (SPD), 7 PIN RECEPTACLE FOR TWIST-LOCK PHOTOCELL AND SHORTING CAP 3-PIN, MANUFACTURER POWDER COATING OF LUMINAIRES AND ALL ANCILLARY COMPONENTS NEEDED FOR A COMPLETE INSTALLATION OF THE UNDERDECK LIGHTING SYSTEM SHALL BE INCIDENTAL TO THIS ITEM. LUMINAIRES SHALL BE PAINTED BRONZE AND EQUIPPED WITH SHIELDING TO REDUCE GLARE EFFECT FOR ONCOMING MOTORISTS. ALL MATERIAL AND WORK ASSOCIATED WITH PAINTING FIXTURES SHALL BE INCIDENTAL TO THIS ITEM.
9. 715-11-126: FURNISHING AND INSTALLATION OF PENDANT HUNG UNDERDECKS SHALL INCLUDE MANUFACTURER POWDER COATING OF LUMINAIRES (PENDANT MOUNT UNDERDECK FIXTURES SHALL BE COATED BLACK), REDUNDANT SUPPORT AND ALL ANCILLARY COMPONENTS NEEDED FOR A COMPLETE INSTALLATION OF THE UNDERDECK LIGHTING SYSTEM SHALL BE INCIDENTAL TO THIS ITEM.
10. 715-4-XX: THE SIGNIFY RCD7 RECEPTACLE FOR TWIST-LOCK PHOTOCELL OR SHORTING CAP 7-PIN AND HOUSE-SIDE SHIELDS SHALL BE INCIDENTAL TO THIS ITEM. ALL ALUMINUM POLES SHALL BE FURNISHED WITH A J-HOOK STRAIN RELIEF DEVICE TO SUPPORT THE PCDS SOOW CORD PRIOR TO THE UPRIGHT TO ARM MOMENT CONNECTION. THE CONTRACTOR SHALL CABLE-TIE THE SOOW CORD WITH A PRESSURE LIMITING DEVICE TO MINIMIZE DAMAGE. ALL COSTS ASSOCIATED WITH THE J-HOOK AND CABLE-TIE SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM.
11. 715-52-XXX: REMOTE LED DRIVER CABINETS SHALL BE NEMA 3R RATED, BE MADE OF ALUMINUM (UNPAINTED), AND INCLUDE STAINLESS STEEL HARDWARE AS NEEDED TO FACILITATE POLE MOUNTING. INCLUDES ALL NECESSARY EQUIPMENT/HARDWARE/ WIRING, CONDUIT, JUNCTION BOXES, MOUNTING HARDWARE, NEEDED FOR A COMPLETE OPERATIONAL INSTALLATION OF SIGN AND PENDANT HUNG UNDERDECK LIGHTING SYSTEMS BEING CONTROLLED BY REMOTE LED DRIVERS. SEE REMOTE LED DRIVER CABINET DETAILS FOR MORE INFORMATION INCLUDING DIMENSIONS.
12. 715-500-1: USE ONLY GROUND MOUNTED POLE CABLE DISTRIBUTION SYSTEM (PCDS) MODEL: TAG-PCDS-GM-001. PCDS SHALL BE INSTALLED WITHIN THE PULL BOX LOCATED ADJECENT TO THE PROPOSED POLE. THIS UNIT SHALL BE A COMPLETE KIT THAT COMES WITH ALL NECESSARY COMPONENTS TO COMPLETELY INSTALL THE PCDS FROM THE CONNECTION AT THE TRUNK LINE IN THE PULL BOX UP EXCLUDING THE GROUND ROD ITSELF
13. 715-500-3: USE ONLY WALL MOUNTED POLE CABLE DISTRIBUTION SYSTEM (PCDS) MODEL: TAG-PCDS-WM-001. PCDS SHALL BE INSTALLED WITHIN THE EMBEDDED WALL JUNCTION BOX LOCATED ADJECENT TO THE PROPOSED POLE. THIS UNIT SHALL BE A COMPLETE KIT THAT COMES WITH ALL NECESSARY COMPONENTS TO COMPLETELY INSTALL THE PCDS FROM THE CONNECTION AT THE TRUNK LINE IN THE JUNCTION BOX UP EXCLUDING THE GROUND ROD ITSELF.

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			A-3
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**MAINTENANCE RELATED PAY ITEMS:**

1. **715-099-000: EXISTING LIGHTING ASSESSMENT (LUMP SUM).** INCLUDES PAYMENT FOR ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PERFORM THE ASSESSMENT OF THE EXISTING LIGHTING SYSTEM. PRIOR TO BEGINNING ANY WORK ON THE EXISTING LIGHTING SYSTEM. THE CONTRACTOR SHALL ASSESS THE SYSTEM AFFECTED BY THE PLANS. THE PURPOSE OF THE ASSESSMENT IS TO DETERMINE WHAT DEFICIENCIES EXIST AND MAY NEED TO BE CORRECTED PRIOR TO THE INSTALLATION OF ANY NEW LED LIGHT FIXTURES. THE CONTRACTOR SHALL NOTIFY THE CEI A MINIMUM OF 5 WORKING DAYS IN ADVANCE OF PERFORMING THE ASSESSMENT. THE ASSESSMENT SHALL INCLUDE A THOROUGH REVIEW AND DOCUMENTATION FROM THE LIGHTING LOAD CENTER TO EACH LIGHT POLE AND EVERY ASSOCIATED ELECTRICAL PULL BOX. ANY DEFICIENCY FOUND SHALL BE RECORDED WITHIN THE EXCEL SPREADSHEET PROVIDED BY THE CEI.
  - A. EACH LOAD CENTER SHALL BE ASSESSED AND DOCUMENTED AS TO THE EXISTING CONDITION FOR NEC VIOLATIONS, VOLTAGES, BREAKER AMPERAGE(S), AMPERAGE DRAW READINGS (INCLUDING THE MAIN BREAKER), LIGHTING CONTACTOR, SURGE PROTECTION DEVICE, FRAYED OR DAMAGED CONDUCTORS, FAULTY WIRE TERMINATIONS, HOA SWITCH FUNCTIONALITY, CONDUIT SEALANT CONDITIONS AND ANY OTHER CONDITIONS THAT REQUIRE ATTENTION PRIOR TO WORKING ON THE SYSTEM.
  - B. EACH LIGHT POLE SHALL BE ASSESSED AND DOCUMENTED AS TO THE EXISTING CONDITION FOR POLE DAMAGE, THE MOUNTING TYPE OF THE LIGHT POLE, SOOW CORD CONDITION, BREAKAWAY FUSE-HOLDERS' CONDITION, POLE LAMACOID TAG PRESENCE, POLE BASE DIRT REMOVAL AND CLEANING, AND ANY OTHER CONDITIONS THAT REQUIRE ATTENTION PRIOR TO WORKING ON THE SYSTEM.
  - C. EACH PULL BOX/JUNCTION BOX SHALL BE ASSESSED AND DOCUMENTED AS TO THE EXISTING CONDITION FOR NEC VIOLATIONS, POLE CABLE DISTRIBUTION TYPE, ELECTRICAL SPLICE CONDITIONS, EARTH GROUND RESISTANCE CHECKS, GROUNDING CONNECTION TYPE, SURGE PROTECTION, 10-AMP SLOW BURN FUSE CONDITION, BREAKAWAY FUSE-HOLDERS CONDITION, STRAIN RELIEF PRESENCE, PULL BOX DIRT REMOVAL AND CLEANING, AND ANY OTHER CONDITIONS THAT REQUIRE ATTENTION PRIOR TO WORKING ON THE SYSTEM.
2. **715-099-001: REPLACE SURGE PROTECTION DEVICE (SPD) TO EXISTING POLE CABLE DISTRIBUTION SYSTEM (EACH ITEM).** INCLUDES THE COST TO REPLACE THE SPD ASSEMBLY TO AN EXISTING POLE CABLE DISTRIBUTION SYSTEM. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
3. **715-099-002 REPLACE EXISTING POLE CABLE DISTRIBUTION SYSTEM (PCDS), GROUND MOUNT (EACH ITEM);** INCLUDES THE COST TO REPLACE THE EXISTING GROUND MOUNT PCDS AT AN EXISTING LIGHT POLE WITH AN APPROVED MODEL: TAG-PCDS-CFX-GM-001. PCDS SHALL BE INSTALLED WITHIN THE PULL BOX LOCATED ADJACENT TO THE EXISTING POLE. THIS UNIT SHALL BE COMPRISED OF ALL NECESSARY COMPONENTS FOR A COMPLETE INSTALLATION FROM THE CONNECTION AT THE TRUNK LINE IN THE PULL BOX, EXCLUDING THE GROUND ROD ITSELF. ALL COMPONENTS INCLUDED IN THE TAG PCDS KIT LISTED IN CFX TECHNICAL SPECIFICATION SECTION 992-2.8.1 SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM. ITEMS 715-099-008, 715-099-010, 715-099-011, 715-099-012, AND 715-099-013 ARE CONSIDERED INCIDENTAL TO THIS ITEM.
4. **715-099-003 REPLACE EXISTING POLE CABLE DISTRIBUTION SYSTEM (PCDS), WALL MOUNT (EACH ITEM);** INCLUDES THE COST TO REPLACE THE EXISTING WALL MOUNT PCDS AT AN EXISTING LIGHT POLE WITH AN APPROVED MODEL: TAG-PCDS-CFX-WM-001. PCDS SHALL BE INSTALLED WITHIN THE EMBEDDED WALL JUNCTION BOX LOCATED ADJACENT TO THE EXISTING POLE. THIS UNIT SHALL BE COMPRISED OF ALL NECESSARY COMPONENTS FOR A COMPLETE INSTALLATION FROM THE CONNECTION AT THE TRUNK LINE IN THE JUNCTION BOX, EXCLUDING THE GROUND ROD ITSELF. ALL COMPONENTS INCLUDED IN THE TAG PCDS KIT LISTED IN CFX TECHNICAL SPECIFICATION SECTION 992-2.8.1 SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM. ITEMS 715-099-008, 715-099-010, 715-099-012, AND 715-099-013 ARE CONSIDERED INCIDENTAL TO THIS ITEM.
5. **715-099-004: REPLACE LIGHTING PULL BOX LID (EACH ITEM).** INCLUDES THE COST TO REPLACE EXISTING PULL BOX LID WITH A SAME SIZE/TYPE OF LID THAT IS BEING REPLACED. REPLACEMENT PULL BOX LIDS SHALL BE STAMPED "CFX LIGHTING" AND THE SIZE/TYPE SHALL BE DETERMINED DURING THE EXISTING LIGHTING ASSESSMENT. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
6. **715-099-005: F&I GROUND ROD ASSEMBLY (ASSEMBLY ITEM).** PAY ITEM INCLUDES COSTS TO FURNISH AND INSTALL A COMPLETE POLE GROUND ASSEMBLY, INCLUDING 20LF OF GROUND RODS, COUPLERS, EXOTHERMIC WELD KIT, AND ANY INCIDENTAL FOR A COMPLETE INSTALLATION. ALL GROUND LEADS FOR THE POLE SHALL BE SEPARATELY WELDED EXOTHERMICALLY TO THE GROUND ROD USING THE APPROPRIATE MOLD. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
7. **715-099-006: F&I RE-TERMINATION OF LOAD CENTER CONNECTIONS (EACH ITEM).** PAY ITEM NOTE: PAY ITEM INCLUDES ANY GROUNDING OR NEUTRAL BUSBARS, RE-TERMINATION OF ALL EXISTING CONNECTIONS TO REMOVE EXPOSED CONDUCTORS, DOUBLE TAPPED CONNECTIONS, SEPARATION OF NEUTRAL AND GROUND TERMINATIONS (WHERE NEEDED), LABELING OF ALL BREAKERS, DUCT SEALANT ON ALL CONDUITS, SILICONE SEALANT AROUND ANY OPENING TO CREATE A WATER-TIGHT CONNECTION, AND VACUUMING AND REMOVING OF ANY DIRT OR DEBRIS. REPLACEMENT OF ANY DEFECTIVE BREAKER, PHOTOCCELL OR CONTACTOR FOR THE LOAD CENTER WILL BE PAID FOR SEPARATELY. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
8. **715-099-007: REPLACE EXISTING LIGHTING CONTACTOR (EACH ITEM).** PAY ITEM NOTE: REPLACE THE EXISTING LIGHTING LOAD CENTER CONTACTOR WITH AN APPROVED ELECTRICALLY HELD CONTACTOR. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
9. **715-099-008: REMOVAL AND REPLACEMENT OF SPLIT-BOLT ELECTRICAL SPLICES (ASSEMBLY ITEM).** PAY ITEM NOTE: COST TO REPLACE EXISTING SPLIT-BOLT SPLICES WITH NSI INDUSTRIES EASILY SPLICE GEL SPLICE KIT PART NO. ESSLK-2/0. ITEM INCLUDES UP TO 3 SPLICE KITS PER PULL BOX LOCATION. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
10. **715-099-009: REPLACE LOAD CENTER SURGE PROTECTION DEVICE (EACH ITEM).** PAY ITEM NOTE: REPLACE THE EXISTING LIGHTING LOAD CENTER SURGE PROTECTION DEVICE WITH AN APPROVED UNIT. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
11. **715-099-010: LIGHT POLE GROUNDING (T-BASE) (EACH ITEM).** PAY ITEM NOTE: FURNISH AND INSTALL OR REPLACE THE POLE GROUNDING AT THE T-BASE AS DEPICTED IN THE POLE CABLE DISTRIBUTION SYSTEM DETAIL.
12. **715-099-011: STRAIN RELIEF FITTINGS (ASSEMBLY ITEM).** PAY ITEM NOTE: INSTALL APPROPRIATE STRAIN RELIEF FITTINGS FOR THE LIGHT POLE LOCATION IN BOTH THE LIGHTING PULL BOX AND IN THE LIGHT POLE BASE TO ACHIEVE PROPER FUNCTIONALITY OF THE PCDS BREAKAWAY FUSE HOLDERS. THIS ITEM SHALL NOT BE USED AT WALL MOUNT LIGHT POLE LOCATIONS. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
13. **715-099-012: DUCT SEALANT (ASSEMBLY ITEM).** PAY ITEM NOTE: INSTALL DUCT SEALANT IN ALL CONDUITS IN BOTH THE LIGHTING PULL BOX AND IN THE LIGHT POLE BASE. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
14. **715-099-013: ADJUST POLE CABLE DISTRIBUTION SYSTEM SLACK (EACH ITEM).** PAY ITEM NOTE: ADJUST EXISTING POLE CABLE DISTRIBUTION SYSTEM SLACK TO ACHIEVE PROPER FUNCTIONALITY OF THE PCDS BREAKAWAY FUSE HOLDERS. THE PCDS ASSEMBLY SHALL HAVE SUFFICIENT SLACK SUCH THAT IT CAN BE ACCESSED THROUGH THE LIGHT POLE HANDHOLD. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
15. **715-099-014: CONCRETE APRON FOR LIGHT POLE/PULL BOX (EACH ITEM).** PAY ITEM NOTE: COST FOR INSTALLING A 6" CONCRETE APRON FOR A LIGHT POLE LOCATION MEETING THE REQUIREMENTS OF FDOT STANDARD PLANS INDEX 715-001. QUANTITY INCLUDED IN TABULATION IS ONLY AN ESTIMATE; LOCATIONS TO BE DETERMINED BY THE EXISTING LIGHTING ASSESSMENT.
16. **715-099-015: LOAD CENTER NAMEPLATE (EACH ITEM).** PAY ITEM NOTE: COST FOR REPLACING THE EXISTING LIGHTING LOAD CENTER NAMEPLATE WITH A 5"X3" NAMEPLATE. COORDINATE WITH CFX ON THE NEW LOAD CENTER NAMING CONVENTION. NAMEPLATES ON ALL EXISTING LOAD CENTERS SHALL BE REPLACED.
17. **715-099-016: LIGHT POLE T-BASE (EACH ITEM)**  
PAY ITEM NOTE: REPLACE GROUND MOUNTED LIGHT POLE T-BASE.
18. **715-099-017: LIGHT POLE IDENTIFICATION TAG (EACH ITEM).**  
PAY ITEM NOTE: REPLACE LAMACOID IDENTIFICATION TAG OF EXISTING LIGHT POLES.
19. **715-099-018: REPLACE JUNCTION BOX COVER (EACH ITEM).**  
PAY ITEM NOTE: REPLACE EMBEDDED OR SURFACE MOUNT JUNCTION BOX COVER.

**SUMMARY OF MAINTENANCE PAY ITEMS & QUANTITY PERCENTAGES**

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY PERCENTAGE
715-099-000	EXISTING LIGHTING ASSESSMENT	LS	
715-099-001	REPLACE SURGE ARRESTOR TO EXISTING MG2 POLE CABLE DISTRIBUTION SYSTEM	EA	20%
715-099-002	REPLACE EXISTING POLE CABLE DISTRIBUTION SYSTEM, GROUND MOUNT	EA	50%
715-099-003	REPLACE EXISTING POLE CABLE DISTRIBUTION SYSTEM, WALL MOUNT	EA	50%
715-099-004	REPLACE LIGHTING PULL BOX LID	EA	5%
715-099-005	F&I GROUND ROD ASSEMBLY	EA	20%
715-099-006	F&I RE-TERMINATION OF LOAD CENTER CONNECTIONS	EA	100%
715-099-007	REPLACE EXISTING LIGHTING CONTACTOR	EA	20%
715-099-008	REMOVAL AND REPLACEMENT OF SPLIT-BOLT ELECTRICAL SPLICES	AS	25%
715-099-009	REPLACE LOAD CENTER SURGE ARRESTOR	EA	100%
715-099-010	LIGHT POLE GROUNDING (T-BASE)	EA	20%
715-099-011	STRAIN RELIEF FITTINGS	AS	90% for GROUND MOUNT POLES
715-099-012	DUCT SEALANT	AS	100%
715-099-013	ADJUST POLE CABLE DISTRIBUTION SYSTEM SLACK	EA	10%
715-099-014	CONCRETE APRON FOR LIGHT POLE/PULL BOX	EA	10%
715-099-015	LOAD CENTER NAMEPLATE	EA	100%
715-099-016	LIGHT POLE T-BASE	EA	20%
715-099-017	LIGHT POLE IDENTIFICATION TAG	EA	20%
715-099-018	REPLACE JUNCTION BOX COVER	EA	20%

**NOTE:**

1. THE ABOVE TABLE IS ONLY PROVIDED FOR DESIGN GUIDANCE AND SHOULD NOT BE INCLUDED IN THE BID/FINAL PLANS SET. THE QUANTITY PERCENTAGES ALONG WITH THE ACTUAL PAY ITEM QUANTITIES NEED TO BE DERIVED BASED ON A SPECIFIC PROJECT AND IS TO BE INCLUDED IN THE PAY ITEM SUMMARY TABLE(S).

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
6/8/23	UPDATED PAY ITEM NOTES AND QUANTATITY PERCENTAGES.								

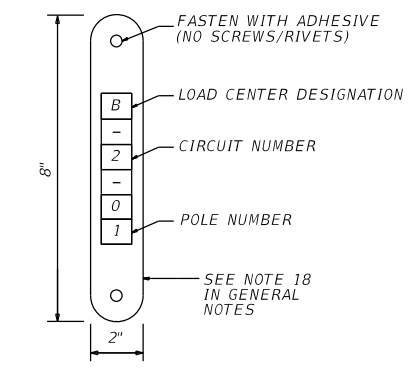
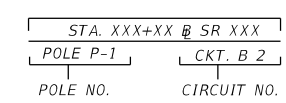


LEGEND

- SHOULDER MOUNTED POLE, 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410232-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE III SHORT DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, 7-PIN RECEPTACLE. ALUMINUM POLE WITH 15' ARM (MEETING CURRENT AASHTO FRANGIBILITY REQUIREMENTS WITH INTERNALLY MOUNTED VIBRATION DAMPENER), MOUNTING HEIGHT 45'. CONTRACTOR SHALL CONSTRUCT PULL BOX AND CONCRETE PAD PER SHEETS C-1 AND C-2. POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX PAID FOR SEPARATELY.
- SHOULDER MOUNTED POLE, 215 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410224-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE II MEDIUM DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, 7-PIN RECEPTACLE. ALUMINUM POLE WITH 15' ARM (MEETING CURRENT AASHTO FRANGIBILITY REQUIREMENTS WITH INTERNALLY MOUNTED VIBRATION DAMPENER), MOUNTING HEIGHT 45'. CONTRACTOR SHALL CONSTRUCT PULL BOX AND CONCRETE PAD PER SHEETS C-1 AND C-2. POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX PAID FOR SEPARATELY.
- SHOULDER MOUNTED POLE, 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410224-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE II MEDIUM DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, 7-PIN RECEPTACLE. ALUMINUM POLE WITH 15' ARM (MEETING CURRENT AASHTO FRANGIBILITY REQUIREMENTS WITH INTERNALLY MOUNTED VIBRATION DAMPENER), MOUNTING HEIGHT 45'. CONTRACTOR SHALL CONSTRUCT PULL BOX AND CONCRETE PAD PER SHEETS C-1 AND C-2. POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX PAID FOR SEPARATELY.
- PILASTER MOUNTED POLE, 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410232-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE III SHORT DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION WITH 7-PIN RECEPTACLE. ALUMINUM POLE WITH 15' ARM (WITH INTERNALLY MOUNTED VIBRATION DAMPENER), MOUNTING HEIGHT 50'. POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX PAID FOR SEPARATELY.
- PILASTER MOUNTED POLE, 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410232-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE III MEDIUM DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, WITH 7-PIN RECEPTACLE. ALUMINUM POLE WITH 15' ARM (WITH INTERNALLY MOUNTED VIBRATION DAMPENER), MOUNTING HEIGHT 45'. POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX PAID FOR SEPARATELY.
- PILASTER MOUNTED POLE, 215 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410224-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE II MEDIUM DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, WITH 7-PIN RECEPTACLE. ALUMINUM POLE WITH 15' ARM (WITH INTERNALLY MOUNTED VIBRATION DAMPENER), MOUNTING HEIGHT 45'. POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX PAID FOR SEPARATELY.
- EXISTING POLE AND ARM TO BE RETROFITTED WITH 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410232-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE III SHORT DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, WITH 7-PIN RECEPTACLE. POLE CABLE DISTRIBUTION SYSTEM TO REMAIN.
- EXISTING POLE AND DUAL-ARM TO BE RETROFITTED WITH (2) 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410232-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE III SHORT DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, WITH 7-PIN RECEPTACLE. POLE CABLE DISTRIBUTION SYSTEM TO REMAIN.
- EXISTING POLE AND ARM TO BE RETROFITTED WITH 241 WATT LED LUMINAIRE (PHOTOMETRIC CURVE# S1410224-R1 OR APPROVED EQUAL), DESIGNED FOR FULL CUTOFF, TYPE II MEDIUM DISTRIBUTION, LED DRIVER WIRED FOR 480V OPERATION, WITH 7-PIN RECEPTACLE. POLE CABLE DISTRIBUTION SYSTEM TO BE REPLACED AND PAID FOR SEPARATELY.
- EXISTING POLE AND LUMINAIRE TO REMAIN.
- EXISTING POLE AND LUMINAIRE TO BE REMOVED.
- PENDANT HUNG, XXX WATT LED LUMINAIRE WITH STOCK LED DRIVER REMOVED. PHOTOMETRIC CURVE #XXXXX. TO INCLUDE XXXma REMOTE MOUNTED LED DRIVER. VISIONAIRE PGA SERIES OR APPROVED EQUAL.
- EXISTING PENDANT HUNG LUMINAIRE TO BE REMOVED.
- WALL PACK LUMINAIRE WITH SELF-CONTAINED LED DRIVER FOR 480 VOLT OPERATION. SEE LUMINAIRE DATA TABLE FOR ADDITIONAL INFORMATION. VISIONAIRE VSX SERIES OR APPROVED EQUAL.
- EXISTING WALL MOUNTED LUMINAIRE TO BE REMOVED.
- SIGN LUMINAIRE, VISIONAIRE VSX SERIES, 480V, WITH XXXma REMOTE DRIVER, AND MOUNTED IN A NEMA CABINET. SEE SIGN LUMINAIRE DATA.
- PULL BOX WITH CONCRETE SLAB.
- SURFACE MOUNTED PULL BOX, MOUNTED ON EXISTING BRIDGE STRUCTURE, SIZE AS PER THE PLANS.
- JUNCTION BOX EMBEDDED IN BRIDGE TRAFFIC RAILING OR BRIDGE DECK SHALL BE AS PER THE PLANS. COST OF EMBEDDED JUNCTION BOX IS INCIDENTAL TO THE TRAFFIC RAILING AND/OR BRIDGE CONSTRUCTION AS APPLICABLE.
- EXISTING PULL BOX.
- EXISTING EMBEDDED JUNCTION BOX.
- SERVICE POINT LOAD CENTER. PROVIDE LOAD CENTER, CONCRETE PAD, SERVICE DROP/LATERAL, FUSED DISCONNECT SWITCH, GROUND ROD AND MISCELLANEOUS APPURTENANCES AS DETAILED ON LOAD CENTER DETAIL SHEETS.
- EXISTING LOAD CENTER TO REMAIN.
- EXISTING LOAD CENTER TO BE REMOVED.
- EXISTING POLE MOUNTED POINT OF SERVICE / TRANSFORMER.
- EXISTING PAD MOUNTED POINT OF SERVICE / TRANSFORMER.
- EXISTING STEP-UP TRANSFORMER.
- PROPOSED LED REMOTE NEMA CABINET.
- EXISTING LED REMOTE NEMA CABINET.
- PROPOSED TYPE P-II SERVICE PEDESTAL.

- 2" SCHEDULE 40 P.V.C. CONDUIT, UNLESS OTHERWISE NOTED IN THE PLANS, OPEN TRENCH, CONTAINING CIRCUIT CONDUCTORS AS INDICATED IN PLANS. ALL CONDUCTORS SHALL BE STRANDED COPPER, WITH XHHW-2 (XLP) INSULATION. GROUND CONDUCTORS SHALL HAVE GREEN COLOR INSULATION. RUN GROUND CONDUCTORS INSIDE CONDUIT WITH OTHER CONDUCTORS.
- TWO (2) 2" HDPE CONDUITS UNLESS OTHERWISE NOTED IN THE PLANS, ONE ACTIVE AND ONE SPARE, DIRECTIONAL BORE, JACKED OR DRILLED UNDER EXISTING ROADWAY. EXTEND CONDUITS BEYOND EDGE OF PAVEMENT (BOTH SIDES) AND TERMINATE IN PULL BOXES. THE ACTIVE CONDUIT SHALL CONTAIN CONDUCTORS AS INDICATED IN PLANS. ALL CONDUCTORS SHALL BE STRANDED COPPER, WITH XHHW-2 (XLP) INSULATION. THE CONDUIT AND THE TRANSITION COUPLINGS SHALL BE UL LISTED. GROUND CONDUCTORS SHALL HAVE GREEN COLOR INSULATION. RUN GROUND CONDUCTORS INSIDE ACTIVE CONDUIT WITH OTHER CONDUCTORS. CAP BOTH ENDS OF SPARE CONDUITS.
- TWO (2) 2" SCHEDULE 80 PVC CONDUIT, UNLESS OTHERWISE NOTED IN THE PLANS. CONDUIT EMBEDDED IN TRAFFIC RAILING CONTAINING CIRCUIT CONDUCTORS AS INDICATED IN PLANS IS INCIDENTAL TO THE TRAFFIC RAILING AND/OR BRIDGE CONSTRUCTION AS APPLICABLE. ALL CONDUCTORS SHALL BE STRANDED COPPER, WITH XHHW-2 (XLP) INSULATION. GROUND CONDUCTORS SHALL HAVE GREEN COLOR INSULATION. RUN GROUND CONDUCTORS INSIDE WITH OTHER CONDUCTORS.
- ONE (1) 1" SCHEDULE 80 PVC CONDUIT. CONDUIT EMBEDDED IN BRIDGE DECK CONTAINING CIRCUIT CONDUCTORS AS INDICATED IN PLANS IS INCIDENTAL TO THE TRAFFIC RAILING AND/OR BRIDGE CONSTRUCTION AS APPLICABLE. ALL CONDUCTORS SHALL BE STRANDED COPPER, WITH XHHW-2 (XLP) INSULATION. GROUND CONDUCTORS SHALL HAVE GREEN COLOR INSULATION. RUN GROUND CONDUCTORS INSIDE WITH OTHER CONDUCTORS.
- 2" RIGID GALVANIZED STEEL CONDUIT, SURFACE MOUNTED. ALL CONDUCTORS SHALL BE STRANDED COPPER, WITH XHHW-2 (XLP) INSULATION. GROUND CONDUCTORS SHALL HAVE GREEN COLOR INSULATION, RUN GROUND CONDUCTORS INSIDE CONDUIT W/ OTHER CONDUCTORS.
- EXISTING LIGHTING CONDUIT AND CONDUCTORS TO REMAIN.
- EXISTING LIGHTING CONDUIT TO REMAIN AND CONDUCTORS TO BE REMOVED/REPLACED.
- EXISTING LIGHTING CONDUCTORS TO BE REMOVED. CONDUIT TO BE ABANDONED IN PLACE OR REMOVED AS PART OF CLEARING AND GRUBBING.

KEY TO POLE LABELING STATION



POLE IDENTIFICATION TAG DETAIL N.T.S.

CONVENTIONAL LIGHTING DESIGN CRITERIA	
AVERAGE INITIAL INTENSITY:	1.5 H.F.C
UNIFORM RATIO AVG./MIN.:	4:1 OR LESS
MAX./MIN.:	10:1 OR LESS
LV(MAX.)LAVG.:	0.3:1 OR LESS
SIGN LIGHTING DESIGN CRITERIA AMBIENT LUMINANCE (LOW)	
AVERAGE INITIAL INTENSITY:	15.0 (MIN.) TO 20.0 (MAX)
UNIFORM RATIO MAX./MIN.:	6:1 OR LESS

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.		
							<b>LEGEND</b>	





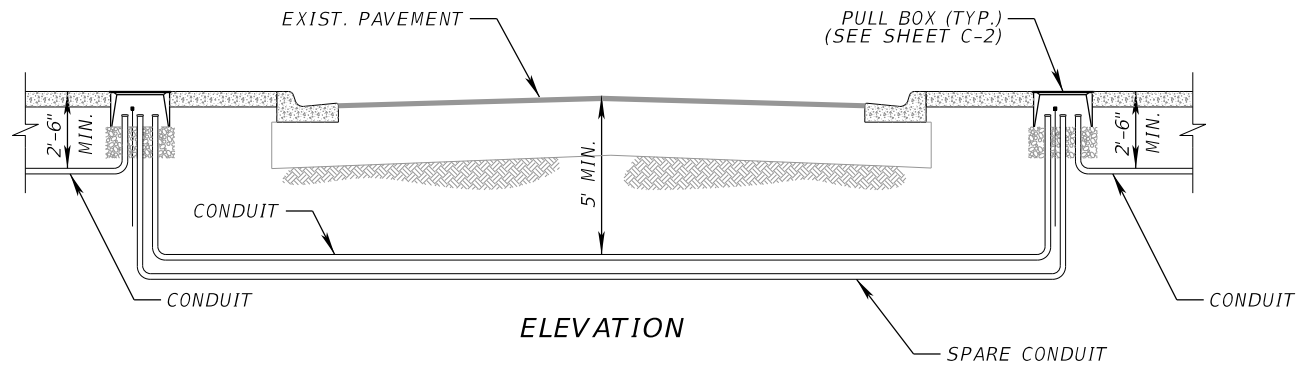




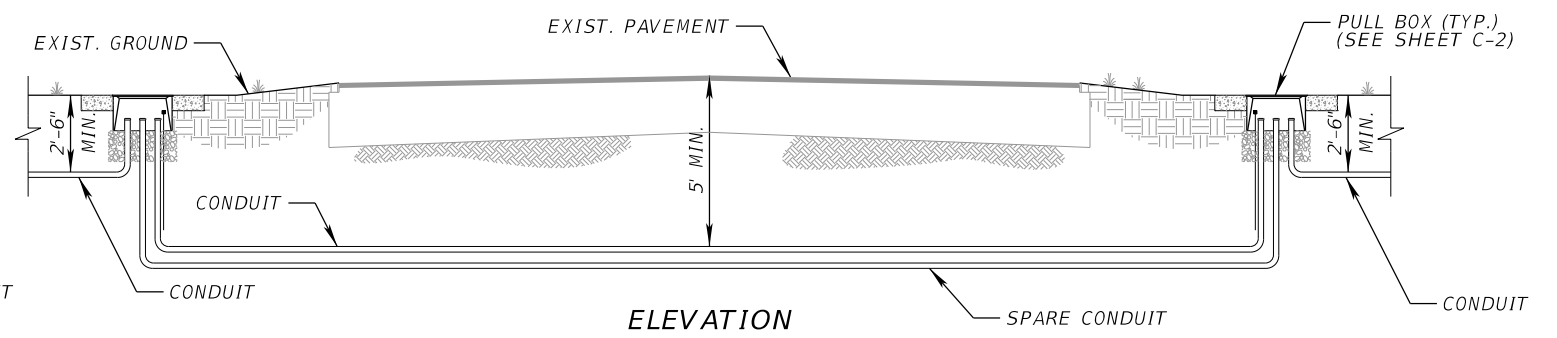


**GENERAL NOTES:**

1. INSTALL CONDUIT IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS, SECTION 630, OR AS AMENDED BY CFX. IN CASES OF DISCREPANCY, THE REQUIREMENTS SPECIFIED HEREIN SHALL SUPERCEDE.
2. WHEN INSTALLING CONDUIT UNDER SIDEWALK BY OPEN TRENCH, REPLACE THE ENTIRE SIDEWALK SLAB.



CURB AND GUTTER



FLUSH SHOULDER

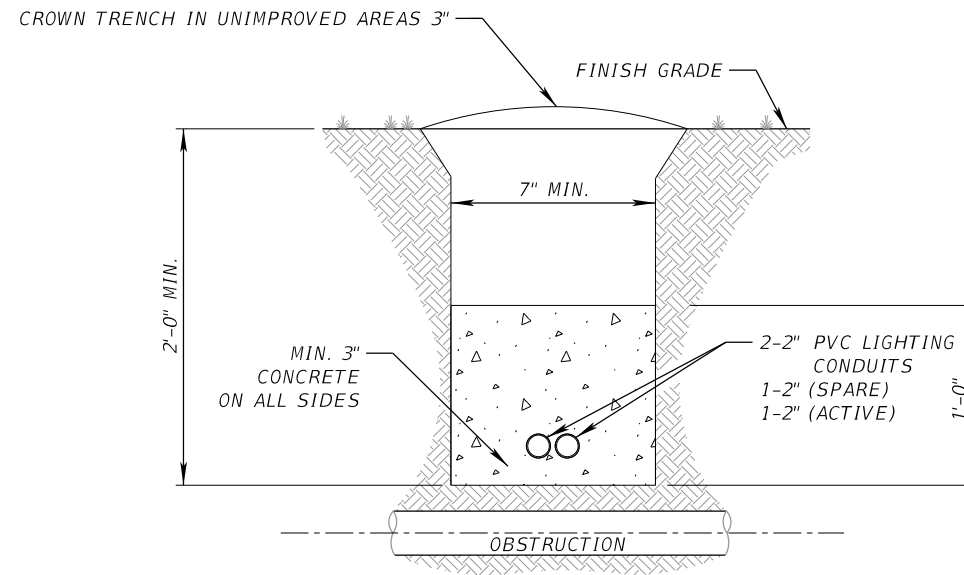
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			B-1

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**DETAIL B**

TYPICAL CROSSING WHERE OBSTRUCTION IS LESS THAN 30" IN DEPTH

**NOTES:**

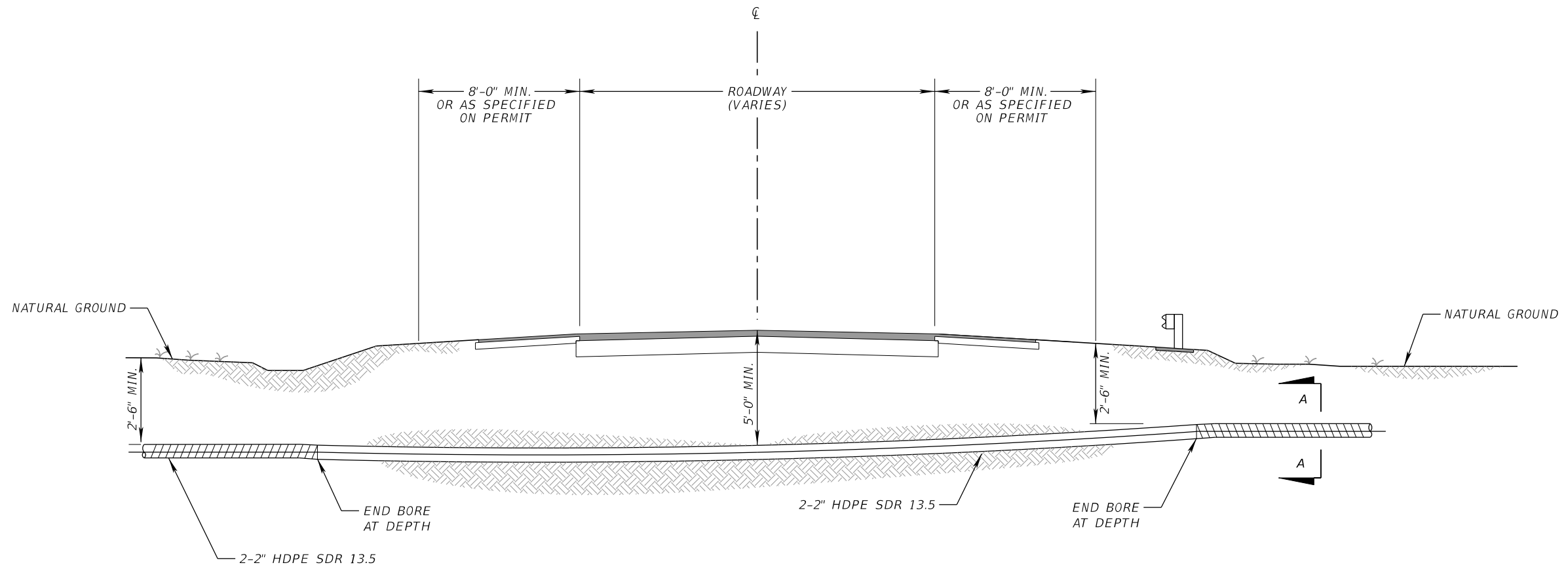
1. A MINIMUM OF 2'-0" SHALL BE MAINTAINED FROM EXISTING LANDSCAPE FEATURES. LANDSCAPE REPLACEMENT SHALL BE IN KIND AND SUBJECT TO THE APPROVAL OF CFX.
2. REPLACEMENT OF FILL, BASE, SURFACE (ASPHALT), CURB AND DRAINAGE STRUCTURES WILL BE IN ACCORDANCE WITH APPLICABLE COUNTY AND CITY UTILITY ACCOMODATION MANUAL.
3. CONSTRUCTION CORRIDOR SHALL BE RESTORED TO ORIGINAL OR IMPROVED CONDITION AND VERIFIED BY CFX OR THEIR DESIGNEE.
4. ALL TRENCH WIDTHS SHALL BE WIDE ENOUGH TO ACCOMODATE MECHANICAL COMPACTION EQUIPMENT FOR PROPER COMPACTION IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS.
5. ALL TRENCHES SHALL BE BACKFILLED & COMPACTED BY THE END OF EACH WORK DAY.
6. CFX APPROVED JOINT COUPLINGS SHALL BE USED.
7. CONDUIT PATH WILL BE ROUTED TO AVOID ANY OBSTRUCTIONS SHOULD OBSTRUCTIONS BE ENCOUNTERED, THE FOLLOWING HIERARCHY WILL BE STRICTLY ADHERED TO:
  - A. ROUTE CONDUIT AROUND OBSTRUCTION USING SWEEPING BENDS. IF THIS CANNOT BE ACCOMPLISHED, CONDUIT ROUTING WILL BE MADE UNDER THE OBSTRUCTION.
  - B. IF THE ABOVE CANNOT BE ACCOMPLISHED, THEN USE OF ONE OF THE OBSTRUCTION DETAILS WILL BE ALLOWED. PRIOR TO COMMENCING DETAIL A OR B, OWNERS APPROVAL MUST BE OBTAINED. DETAIL A IS THE PREFERRED METHOD.

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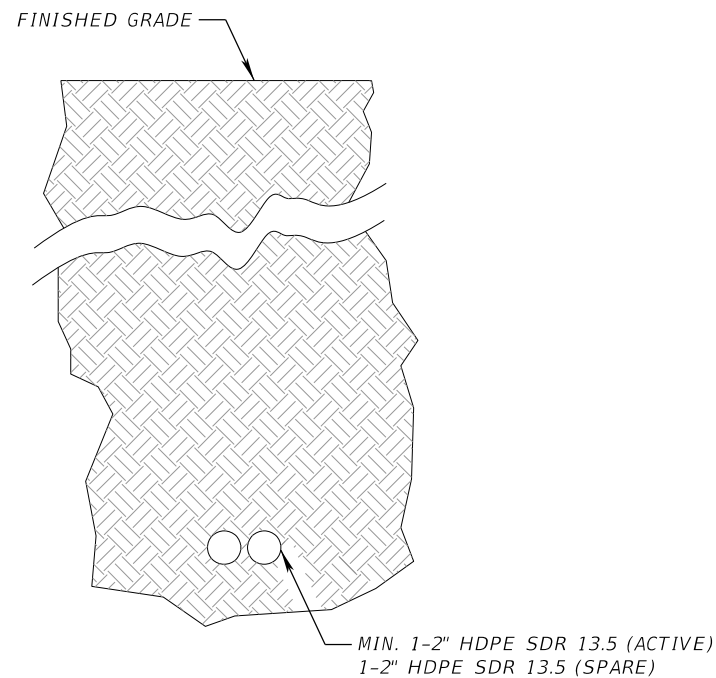
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			B-2

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**TYPICAL DIRECTIONAL BORE**



**SECTION A-A**

**NOTE:**

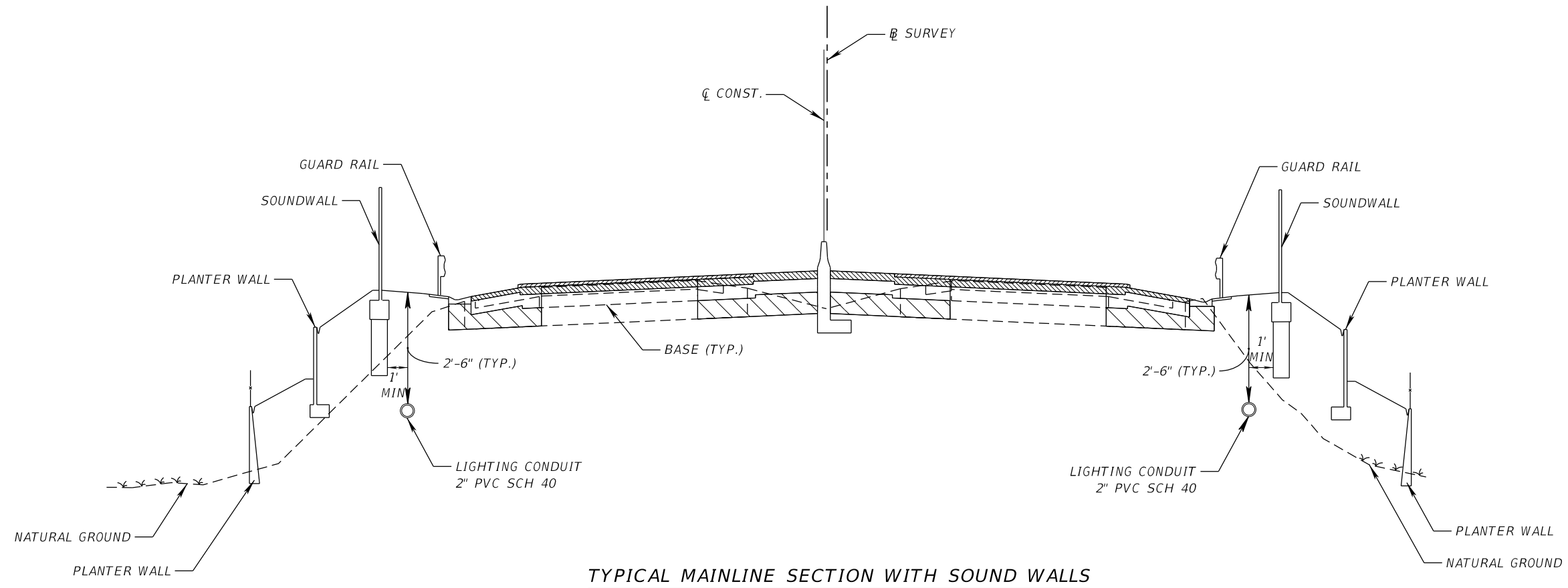
- UTILITY IN THE PATH OF THE BORE SHALL BE LOCATED AND THE DEPTH OF THE BORE CROSSING SHALL BE DELINEATED TO CROSS UNDER OR OVER UTILITY WITH 12" MINIMUM SEPARATION.

NOT TO SCALE

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			

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TYPICAL MAINLINE SECTION WITH SOUND WALLS

NOT TO SCALE

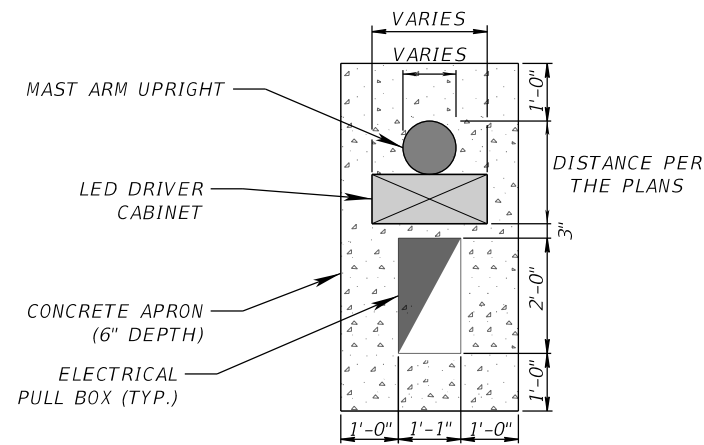
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			B-4

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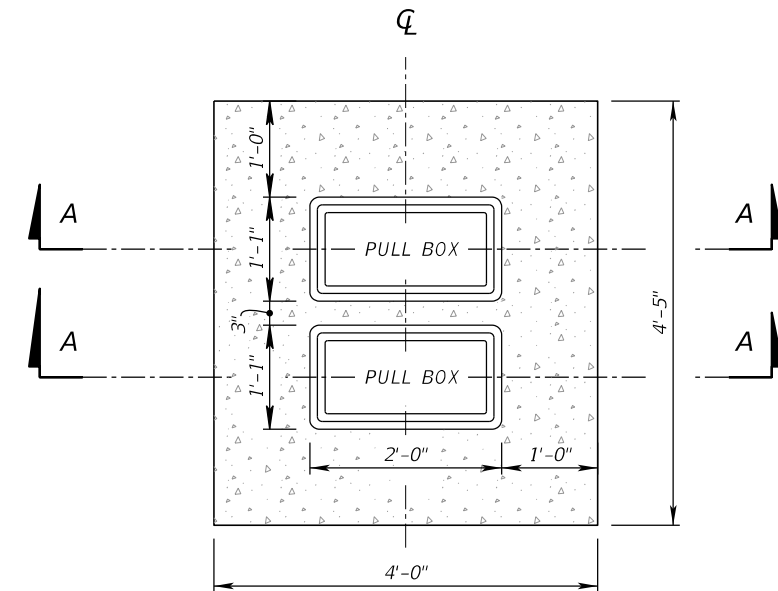
**NOTES:**

1. OUTSIDE EDGE OF CONCRETE APRON SHALL BE CAST AGAINST FORMWORK.
2. CONCRETE APRON TO BE PLACED AROUND ALL POLES AND PULL BOXES. IN URBAN AREAS OR WHERE SPACE IS LIMITED, DIMENSIONS MAY BE ADJUSTED AS SHOWN IN THE PLANS OR APPROVED BY THE CEI ENGINEER.
3. INSTALL A 1'-0" WIDE (MIN.) CONCRETE APRON AROUND ALL PULL BOXES USING CLASS NS CONCRETE. SLOPE THE APRON AWAY FROM THE PULL BOX.
4. WHERE MULTIPLE PULL BOXES ARE PLACED SIDE BY SIDE, MAINTAIN AT LEAST 3" BETWEEN THE PULL BOXES.

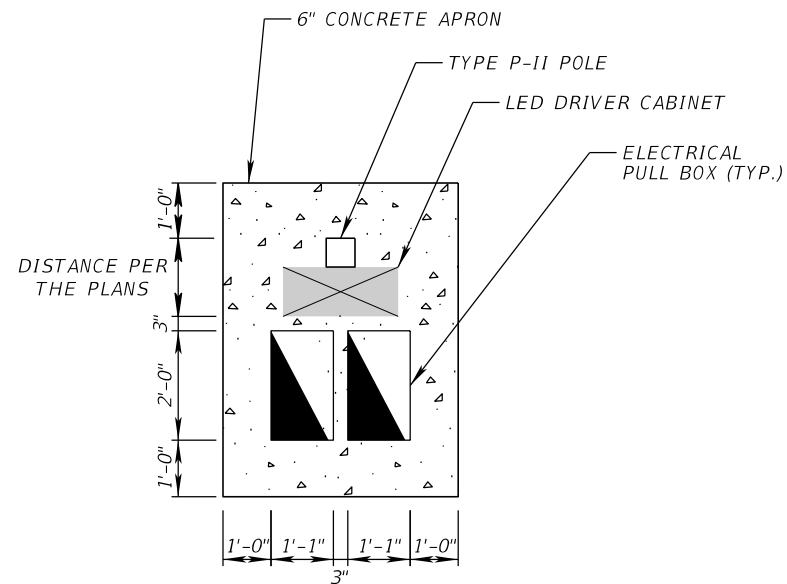
DIRECTION OF TRAVEL 



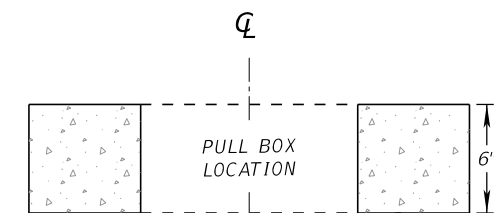
OVERHEAD SIGN LIGHTING DETAIL



CONCRETE APRON (TYP.)



UNDERDECK AND BRIDGE MOUNT



SECTION A-A

NOT TO SCALE

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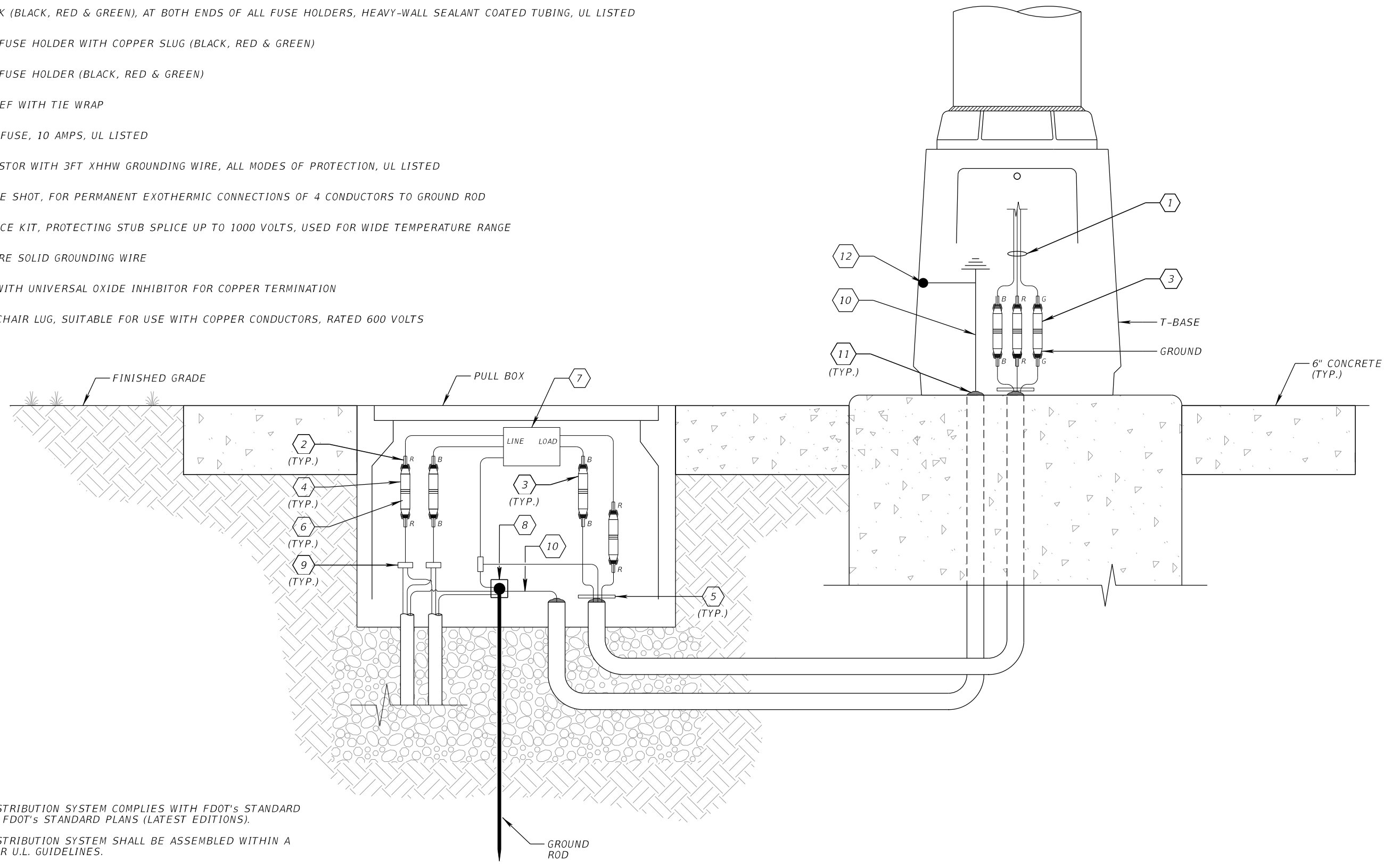
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			C-1

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**KEYED NOTES:**

- 1 3 - #10 TC-ER 600V XHHW-2 XLPE LUMINAIRE CABLE
- 2 HEAT SHRINK (BLACK, RED & GREEN), AT BOTH ENDS OF ALL FUSE HOLDERS, HEAVY-WALL SEALANT COATED TUBING, UL LISTED
- 3 BREAKAWAY FUSE HOLDER WITH COPPER SLUG (BLACK, RED & GREEN)
- 4 BREAKAWAY FUSE HOLDER (BLACK, RED & GREEN)
- 5 STRAIN RELIEF WITH TIE WRAP
- 6 TIME DELAY FUSE, 10 AMPS, UL LISTED
- 7 SURGE ARRESTOR WITH 3FT XHHW GROUNDING WIRE, ALL MODES OF PROTECTION, UL LISTED
- 8 CADWELD ONE SHOT, FOR PERMANENT EXOTHERMIC CONNECTIONS OF 4 CONDUCTORS TO GROUND ROD
- 9 GELCAP SPLICE KIT, PROTECTING STUB SPLICE UP TO 1000 VOLTS, USED FOR WIDE TEMPERATURE RANGE
- 10 #6 (AWG) BARE SOLID GROUNDING WIRE
- 11 DUCT SEAL WITH UNIVERSAL OXIDE INHIBITOR FOR COPPER TERMINATION
- 12 GROUNDING CHAIR LUG, SUITABLE FOR USE WITH COPPER CONDUCTORS, RATED 600 VOLTS



**NOTES:**

1. THIS POLE CABLE DISTRIBUTION SYSTEM COMPLIES WITH FDOT'S STANDARD SPECIFICATIONS AND FDOT'S STANDARD PLANS (LATEST EDITIONS).
2. THIS POLE CABLE DISTRIBUTION SYSTEM SHALL BE ASSEMBLED WITHIN A U.L. LISTED SHOP, PER U.L. GUIDELINES.

NOT TO SCALE

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		<b>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</b>	GROUND MOUNT POLE CABLE DISTRIBUTION SYSTEM		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.				D-1
7/19/23	REVISED KEYED NOTE 1, 4 & GROUNDING									

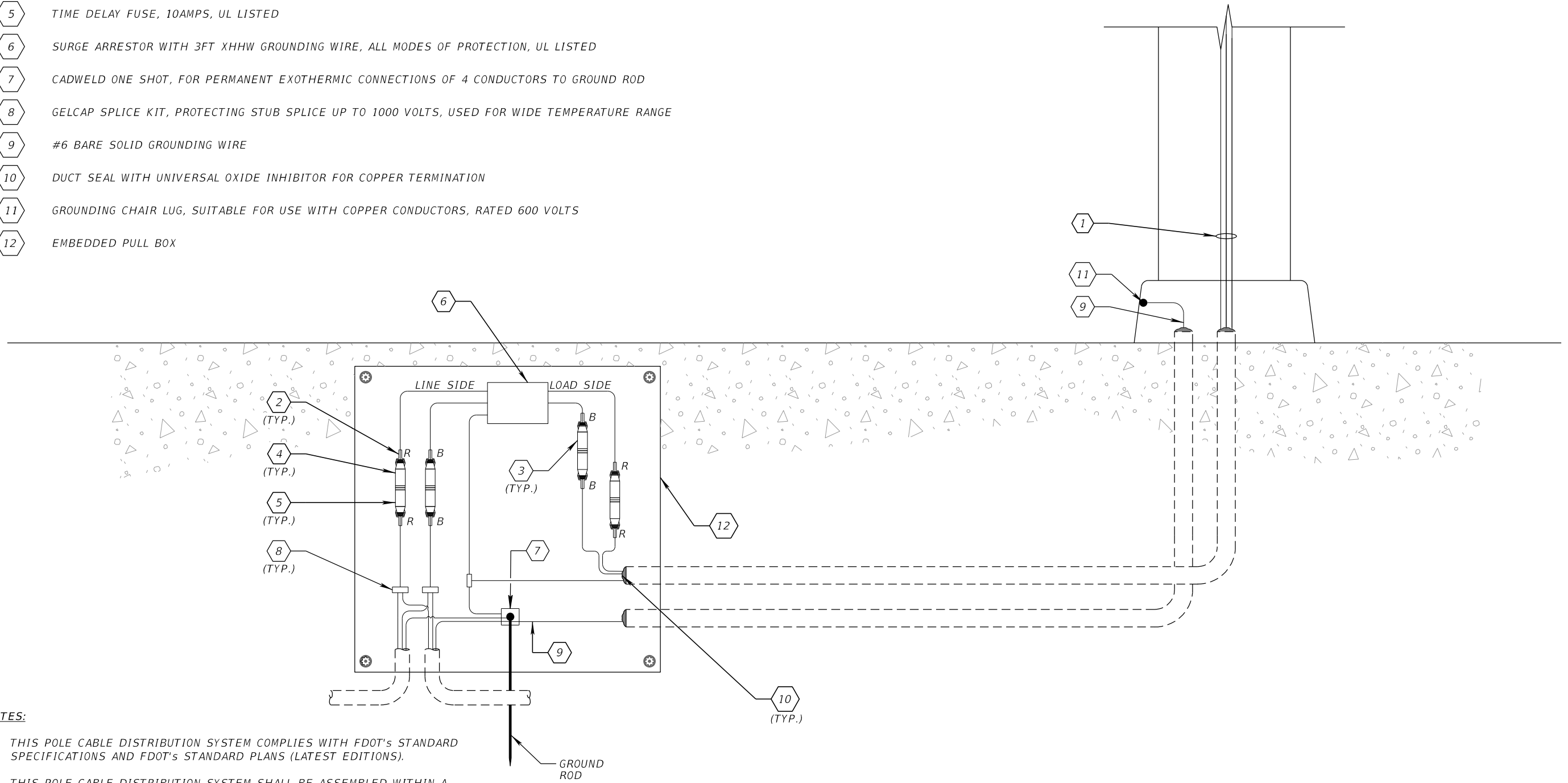
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**KEYED NOTES:**

- 1 10-3 TC-ER 600V XHHW-2 XLPE LUMINAIRE CABLE
- 2 HEAT SHRINK (BLACK, RED & GREEN), AT BOTH ENDS OF ALL FUSE HOLDERS, HEAVY-WALL SEALANT COATED TUBING, UL LISTED
- 3 BREAKAWAY FUSE HOLDER WITH COPPER SLUG (BLACK, RED & GREEN)
- 4 BREAKAWAY FUSE HOLDER (BLACK, RED & GREEN)
- 5 TIME DELAY FUSE, 10AMPS, UL LISTED
- 6 SURGE ARRESTOR WITH 3FT XHHW GROUNDING WIRE, ALL MODES OF PROTECTION, UL LISTED
- 7 CADWELD ONE SHOT, FOR PERMANENT EXOTHERMIC CONNECTIONS OF 4 CONDUCTORS TO GROUND ROD
- 8 GELCAP SPLICE KIT, PROTECTING STUB SPLICE UP TO 1000 VOLTS, USED FOR WIDE TEMPERATURE RANGE
- 9 #6 BARE SOLID GROUNDING WIRE
- 10 DUCT SEAL WITH UNIVERSAL OXIDE INHIBITOR FOR COPPER TERMINATION
- 11 GROUNDING CHAIR LUG, SUITABLE FOR USE WITH COPPER CONDUCTORS, RATED 600 VOLTS
- 12 EMBEDDED PULL BOX



**NOTES:**

1. THIS POLE CABLE DISTRIBUTION SYSTEM COMPLIES WITH FDOT'S STANDARD SPECIFICATIONS AND FDOT'S STANDARD PLANS (LATEST EDITIONS).
2. THIS POLE CABLE DISTRIBUTION SYSTEM SHALL BE ASSEMBLED WITHIN A U.L. LISTED SHOP, PER U.L. GUIDELINES.
3. FOR MEDIAN MOUNT DUAL ARM POLES. LUMINAIRE CABLE SHALL TERMINATE TO ONE FIXTURE AND DAISY CHAIN CONDUCTORS TO FEED SECOND FIXTURE.

NOT TO SCALE

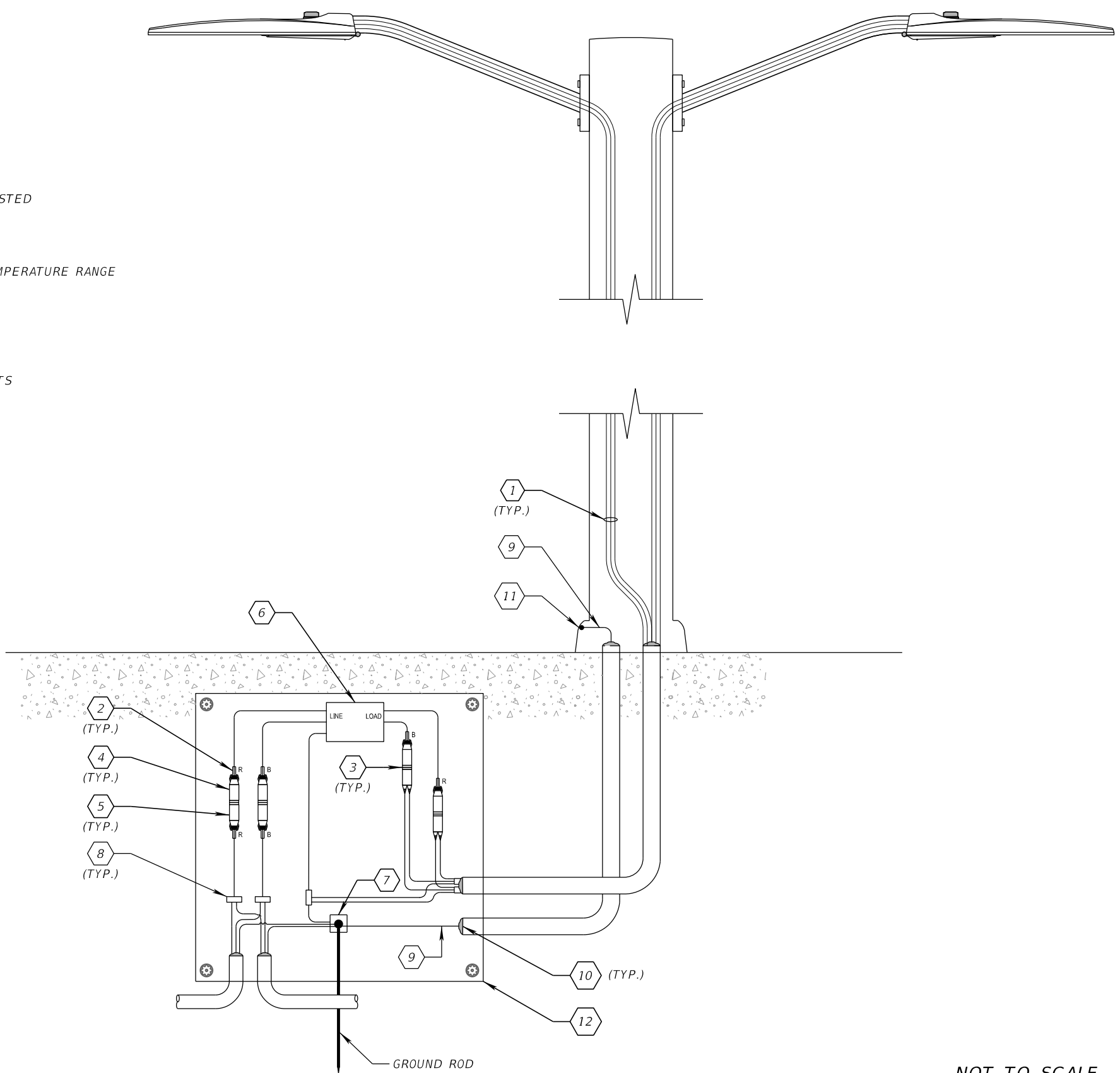
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.				D-2
7/19/23	REVISED KEYED NOTE 4 & GROUNDING									

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**KEYED NOTES:**

- 1 10-3 TC-ER 600V XHHW-2 XLPE LUMINAIRE CABLE
- 2 HEAT SHRINK (BLACK, RED & GREEN), AT BOTH ENDS OF ALL FUSE HOLDERS, HEAVY-WALL SEALANT COATED TUBING, UL LISTED
- 3 BREAKAWAY FUSE HOLDER WITH COPPER SLUG (BLACK, RED & GREEN)
- 4 SUBMERSIBLE RATED BREAKAWAY FUSE HOLDER (BLACK, RED & GREEN)
- 5 TIME DELAY FUSE, 10 AMPS, UL LISTED
- 6 SURGE ARRESTOR WITH 3FT XHHW GROUNDING WIRE, ALL MODES OF PROTECTION, UL LISTED
- 7 CADWELD ONE SHOT KIT, FOR PERMANENT EXOTHERMIC CONNECTIONS TO GROUND ROD
- 8 GELCAP SPLICE KIT, PROTECTING STUB SPLICE UP TO 1000 VOLTS, USED FOR WIDE TEMPERATURE RANGE
- 9 #6 BARE SOLID GROUNDING WIRE
- 10 DUCT SEAL WITH UNIVERSAL OXIDE INHIBITOR FOR COPPER TERMINATION
- 11 GROUNDING CHAIR LUG, SUITABLE FOR USE WITH COPPER CONDUCTORS, RATED 600 VOLTS
- 12 EMBEDDED PULL BOX



**NOTES:**

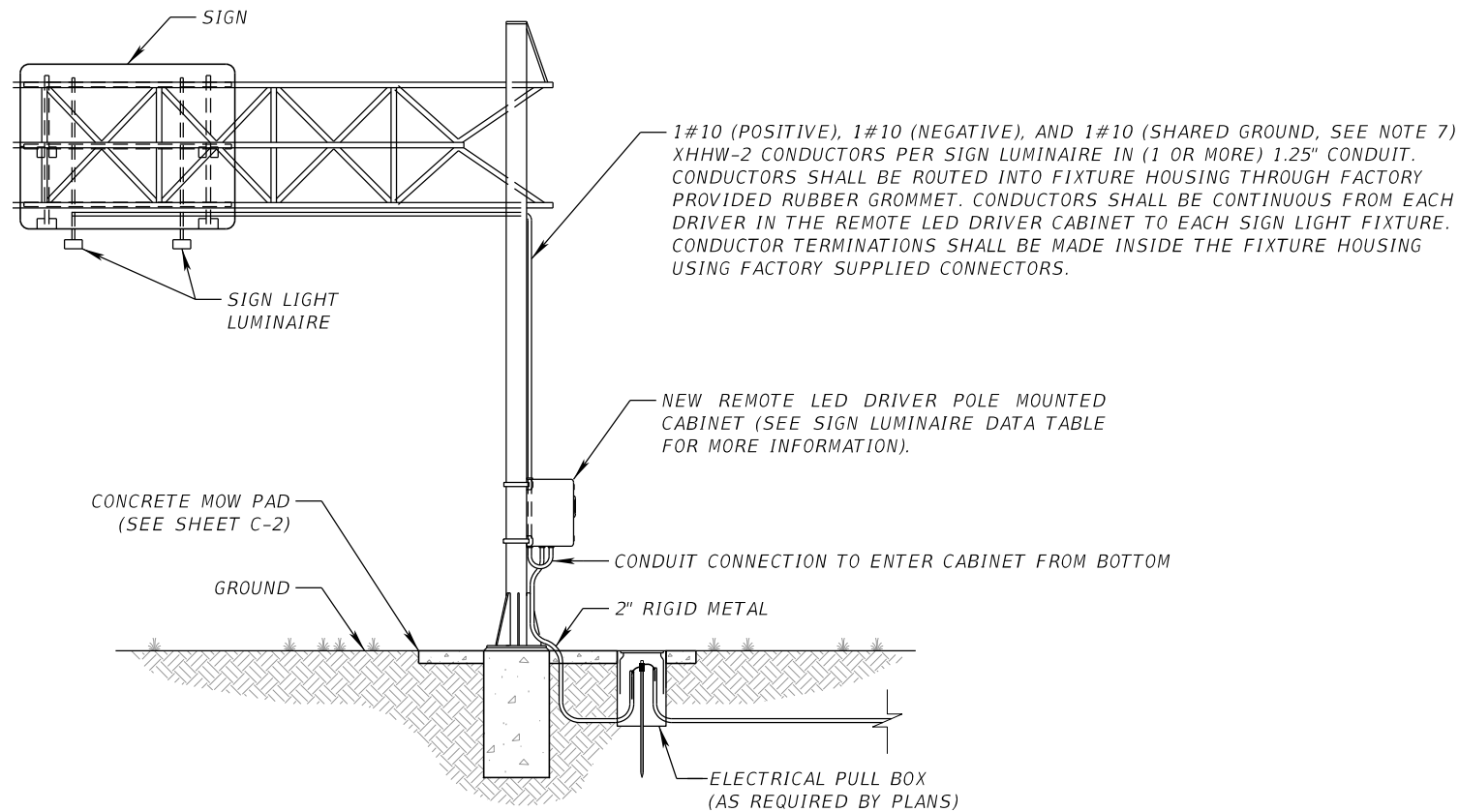
1. THIS POLE CABLE DISTRIBUTION SYSTEM COMPLIES WITH FDOT'S STANDARD SPECIFICATIONS AND FDOT'S STANDARD PLANS (LATEST EDITIONS).
2. THIS POLE CABLE DISTRIBUTION SYSTEM SHALL BE ASSEMBLED WITHIN A U.L. LISTED SHOP, PER U.L. GUIDELINES.

NOT TO SCALE

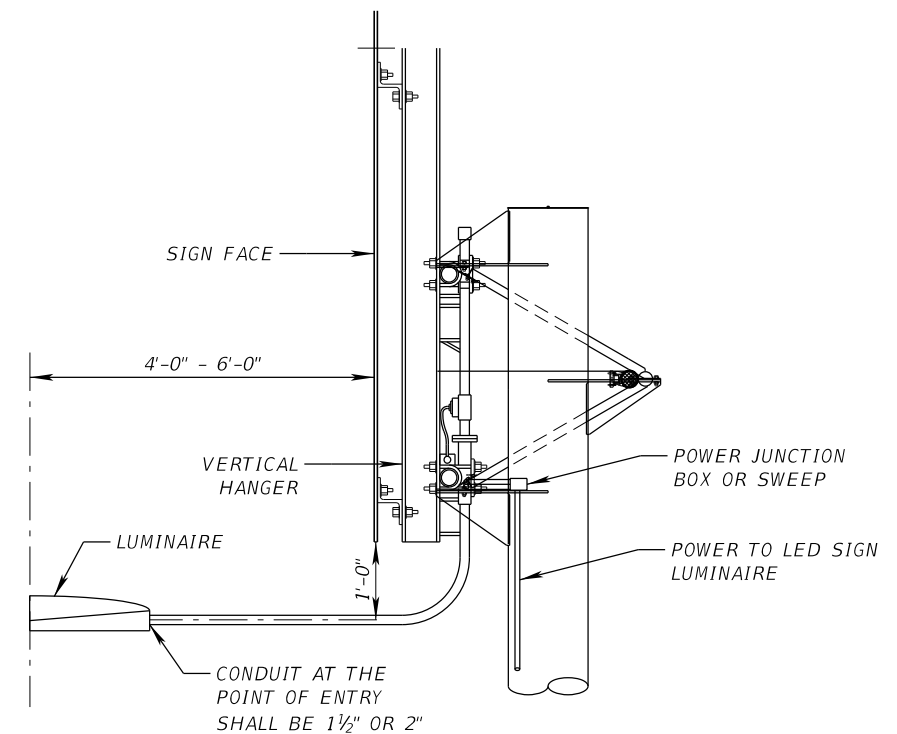
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DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			D-3
6/8/23	ADDED SHEET						

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**LED SIGN LIGHT WIRING DETAIL**



**LED SIGN LIGHT LUMINAIRE ON STRUCTURE (PROFILE)**

**SIGN LIGHTING NOTES:**

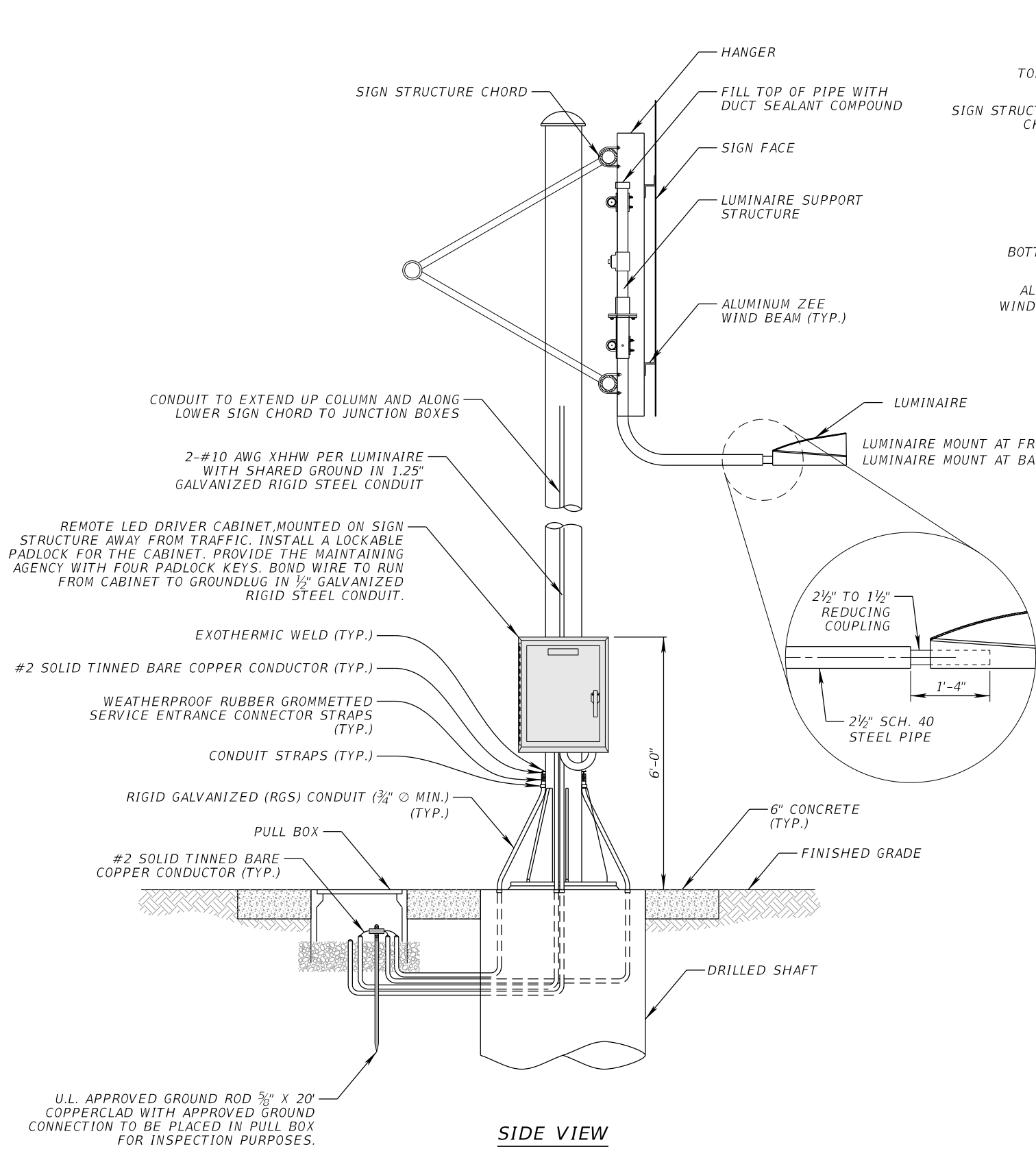
1. SIGN LUMINAIRE SHALL BE VISIONAIRE LIGHTING CLAMP ON KNUCKLE MOUNT VSX-II SERIES OR CFX APPROVED EQUAL. SIGN LUMINAIRES SHALL BE PROVIDED WITH DRIVER AND SURGE PROTECTION LOCATED REMOTELY IN REMOTE LED DRIVER CABINET MOUNTED AT THE POLE. SIGN LUMINAIRES SHALL MATCH COLOR OF STRUCTURE. TOP MOUNTED LUMINAIRES SHALL NOT BE ALLOWED ON OVERHEAD SIGN STRUCTURES ALONG ANY PORTION OF THE MAINLINE OR ON RAMPS WITHIN THE CFX JURISDICTION WITHOUT PRIOR AUTHORITY APPROVAL.
2. LUMINAIRES SHALL BE MOUNTED ONE FOOT BELOW THE BOTTOM OF SIGN PANEL AND BE FOUR TO SIX FEET OFFSET, SEE SIGN LUMINAIRE DATA FOR ARM LENGTHS. SEE FDOT DESIGN STANDARDS AND SIGN DETAIL DRAWING FOR FURTHER INFORMATION ON SIGN LIGHTING INSTALLATION. PER THE SIGN LUMINAIRE DATA TABLE, EACH LUMINAIRE WILL HAVE ONE LED DRIVER THAT WILL HELP MAINTAIN CONSTANT CURRENT OUTPUT.
3. UPON APPROVAL FROM THE ENGINEER THE SPACING MAY BE ADJUSTED BY CONTRACTOR AS NECESSARY TO ACCOMMODATE STRUCTURAL MEMBERS.
4. SIGN LIGHTING DESIGN CRITERIA BASED ON LOW TO MEDIUM AND HIGH AMBIENT LUMINANCE OF SURROUNDING AREA. REFER TO SIGN LIGHTING CRITERIA FOR ADDITIONAL INFORMATION.
5. SIGN STRUCTURES CONTAINING LUMINAIRES WITH ONE LUMINAIRE PER DRIVER UP TO THREE LED DRIVERS MUST USE (1) SMALL LED REMOTE DRIVER CABINET; BETWEEN FOUR AND SIX LED DRIVERS MUST USE (1) MEDIUM SIZE LED REMOTE DRIVER CABINET; AND BETWEEN SEVEN AND NINE LED DRIVERS MUST USE (1) LARGE LED REMOTE DRIVER CABINET. REFER TO SIGN LUMINAIRE DATA SHEET FOR ADDITIONAL INFORMATION.
6. COST OF SURFACE MOUNT CONDUIT, CONDUCTORS, AND ALL OTHER NECESSARY MATERIALS FOR A COMPLETE REMOTE LED DRIVER CABINET INSTALLATION ON NEW AND EXISTING SIGN PANELS SHALL BE INCLUDED IN THE COST OF THE NEW REMOTE LED DRIVER CABINET IN THE LIGHTING PLANS COMPONENT SET. REFER TO PAY ITEM NOTES ASSOCIATED WITH VARIOUS SIZES OF REMOTE LED DRIVER CABINETS.
7. #10 SHARED GROUNDING CONDUCTOR SHALL BE DAISY-CHAINED BETWEEN SIGN LIGHT FIXTURES AND TERMINATE TO THE MAIN GROUNDING BUS IN THE REMOTE LED DRIVER CABINET.

NOT TO SCALE

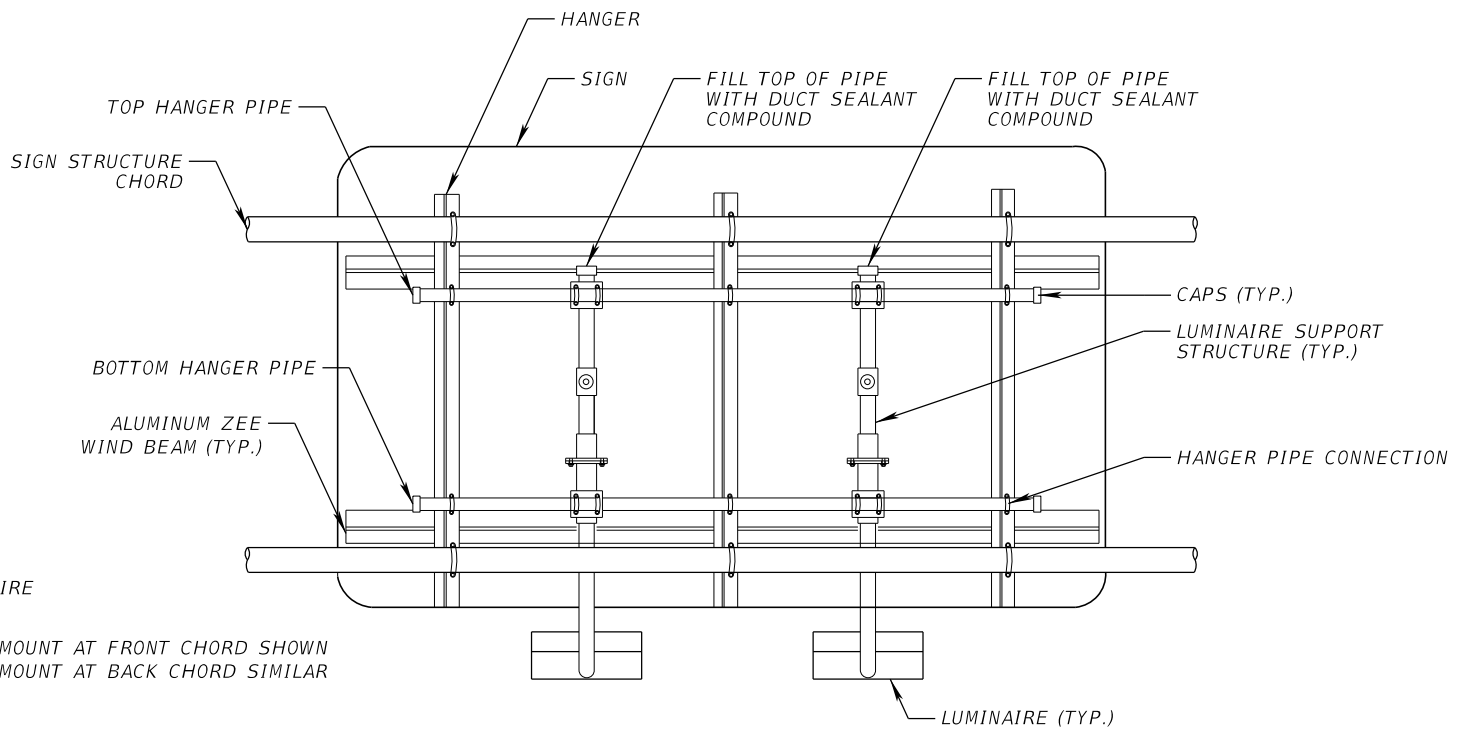
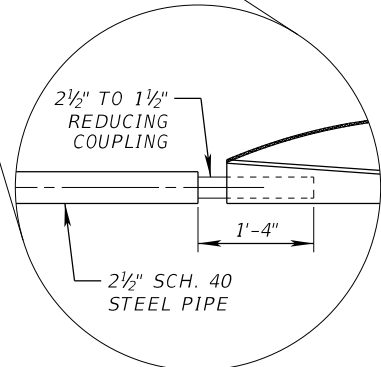
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			E-1
7/19/23	REVISED LED SIGN LIGHT WIRING DETAIL, SIGN LIGHTING NOTES								

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**SIDE VIEW**



**BACK VIEW**

**PLACEMENT OF SIGN LIGHTS**

1. THIS INDEX DETAILS A BOTTOM LUMINAIRE SUPPORT STRUCTURE. FOR SIGNS REQUIRING TOP LUMINAIRE SUPPORT STRUCTURES, CFX APPROVAL IS REQUIRED.
2. LUMINAIRE SPACING AND ARM LENGTH IS SHOWN ON GUIDE SIGN WORKSHEET.
3. DATA TABLE INDICATES THE SIGN LUMINAIRE USED FOR BASIS OF DESIGN.

**SIGN LIGHTING INSTALLATION**

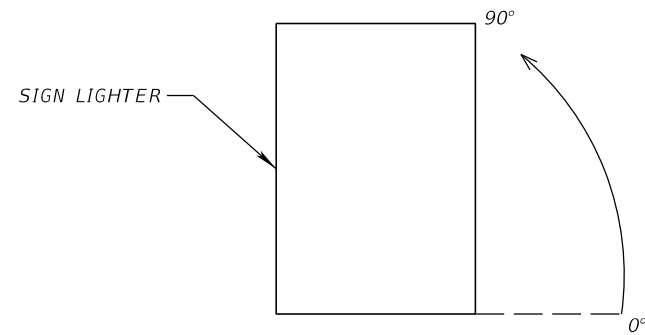
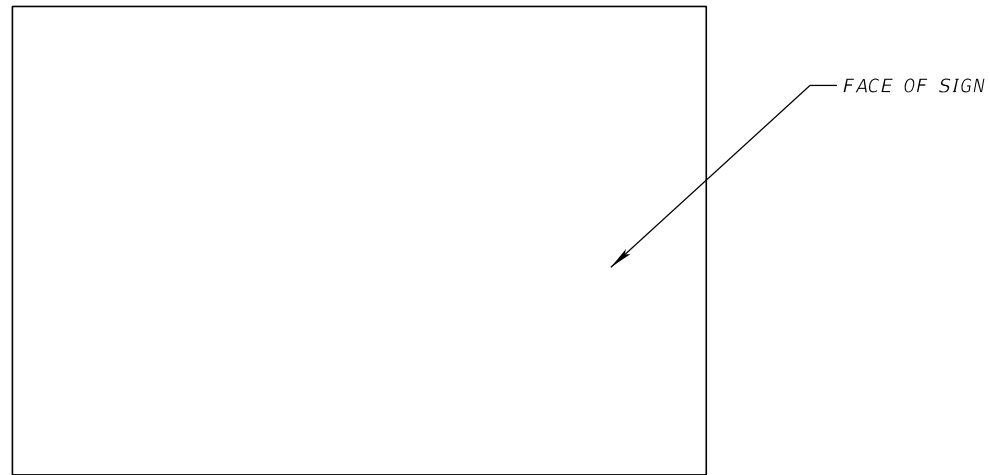
1. POWER FOR THE SIGN LIGHTING PROVIDED FROM THE ROADWAY LIGHTING CIRCUIT.
2. INDICATE SIGN LOCATION AND A PULL BOX LOCATION FOR CONNECTION TO THE SIGN LIGHTS AND REMOTE LED DRIVER CABINET IN THE LIGHTING PLANS.

NOT TO SCALE

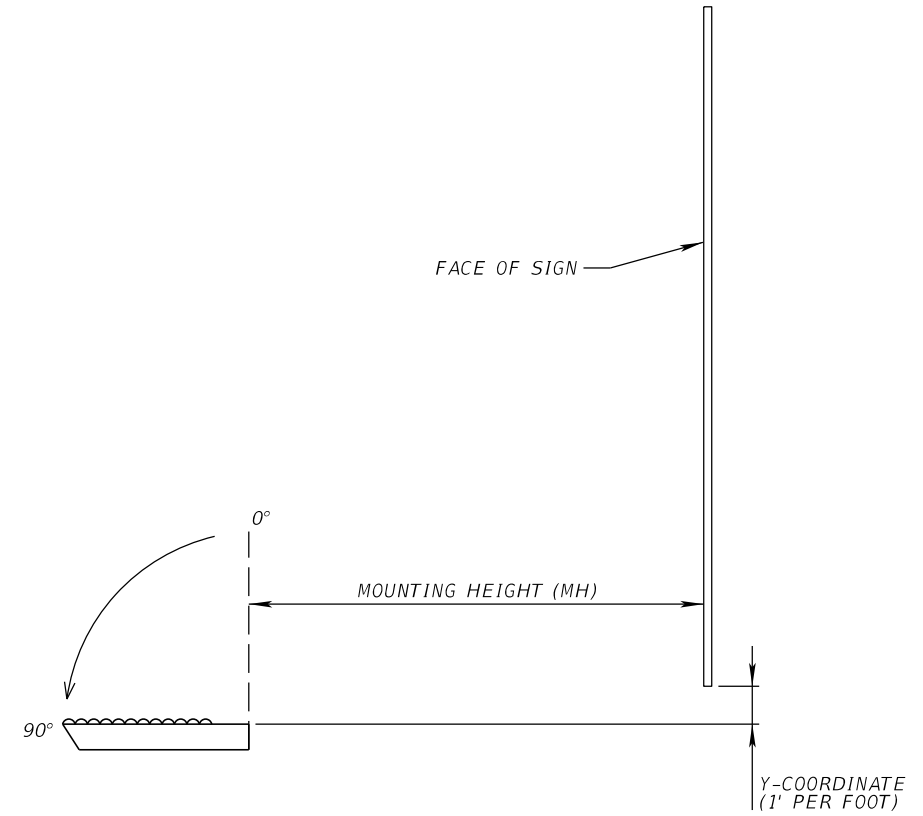
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			

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ORIENTATION



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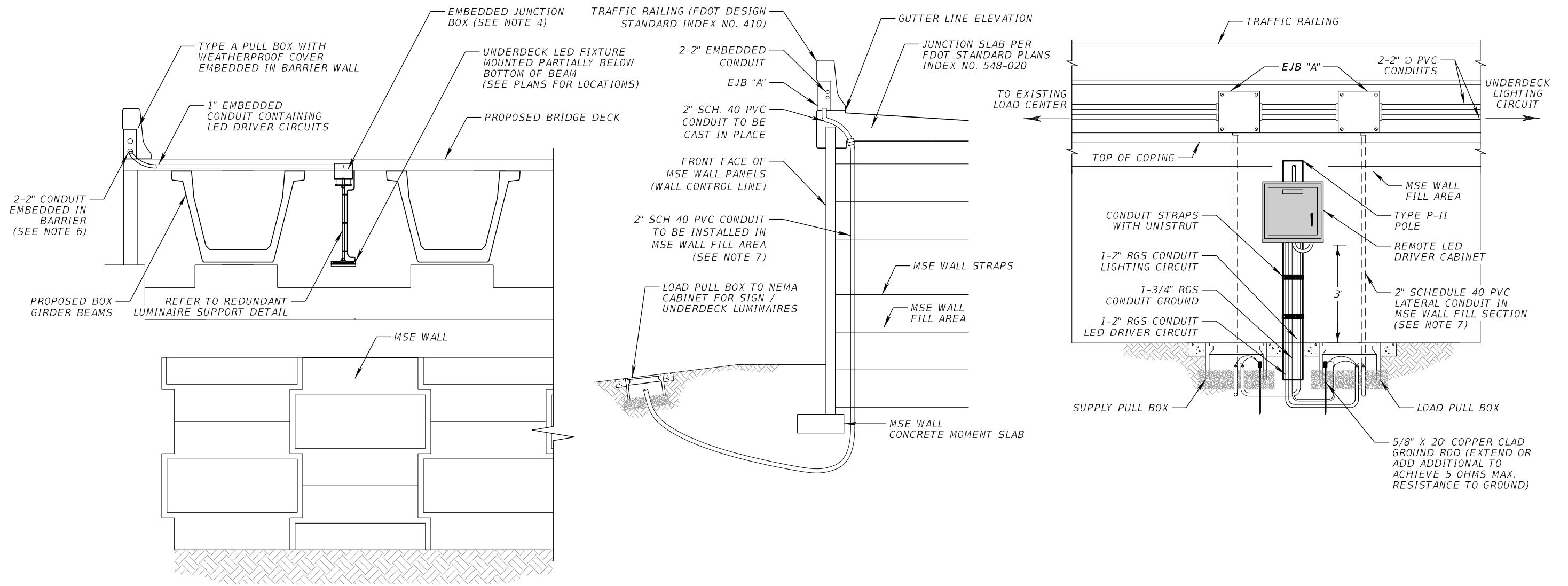
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REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)			SIGN LIGHTING TILT ANGLE DETAIL	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			E-3
7/19/23	ADDED SHEET								

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**PENDANT HUNG UNDERDECK LIGHTING DETAIL**  
**PROPOSED BRIDGE TYPICAL**

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
8/25/23	REVISED PULL BOX CALL OUT		

ENGINEER OF RECORD FULL NAME, P.E.  
 P.E. LICENSE NUMBER 99999  
 ENGINEER OF RECORD COMPANY NAME  
 ENGINEER OF RECORD COMPANY STREET  
 ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME  
 (1 to 3 LINES)  
 ROAD NO. PROJECT NO.

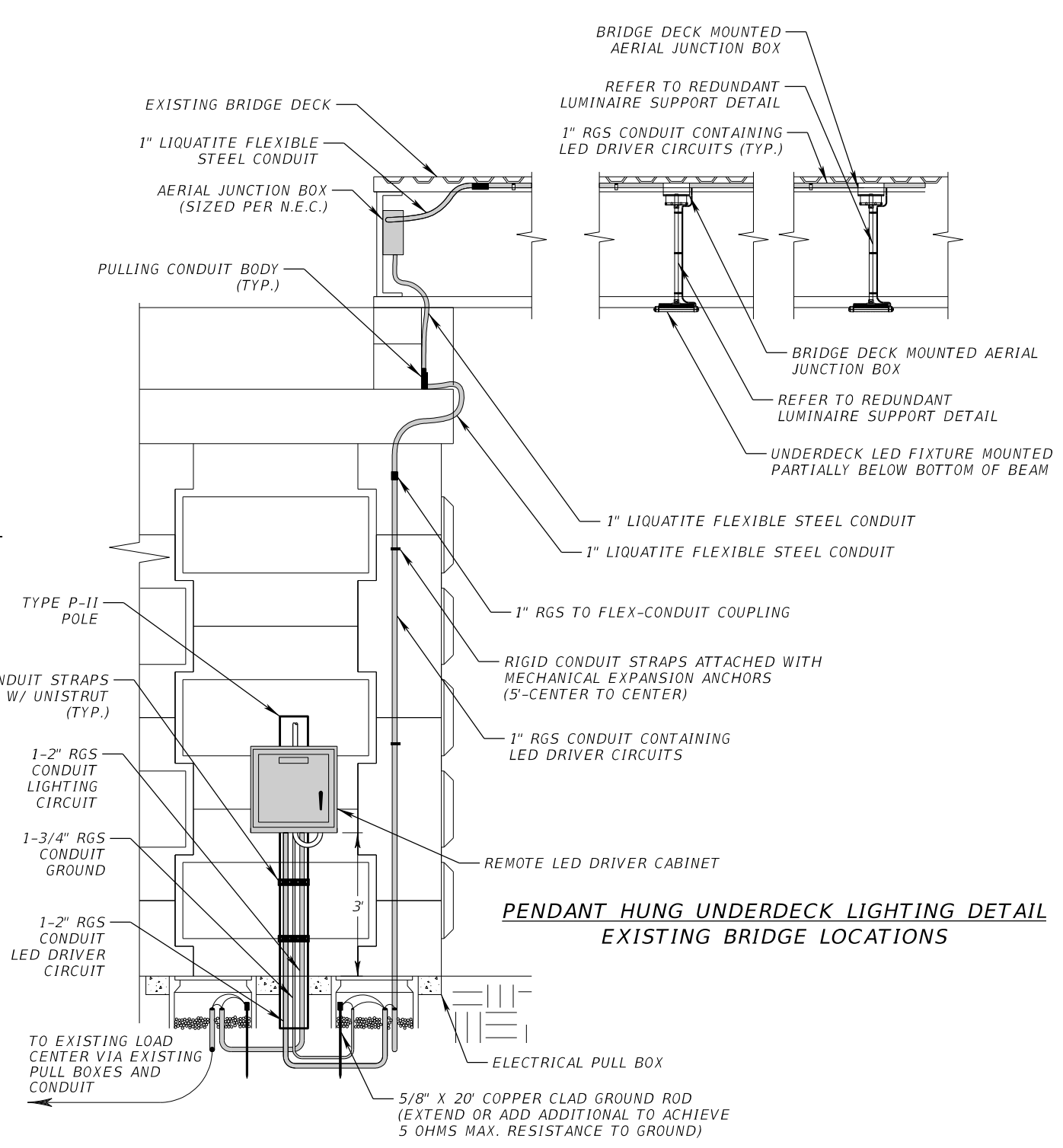
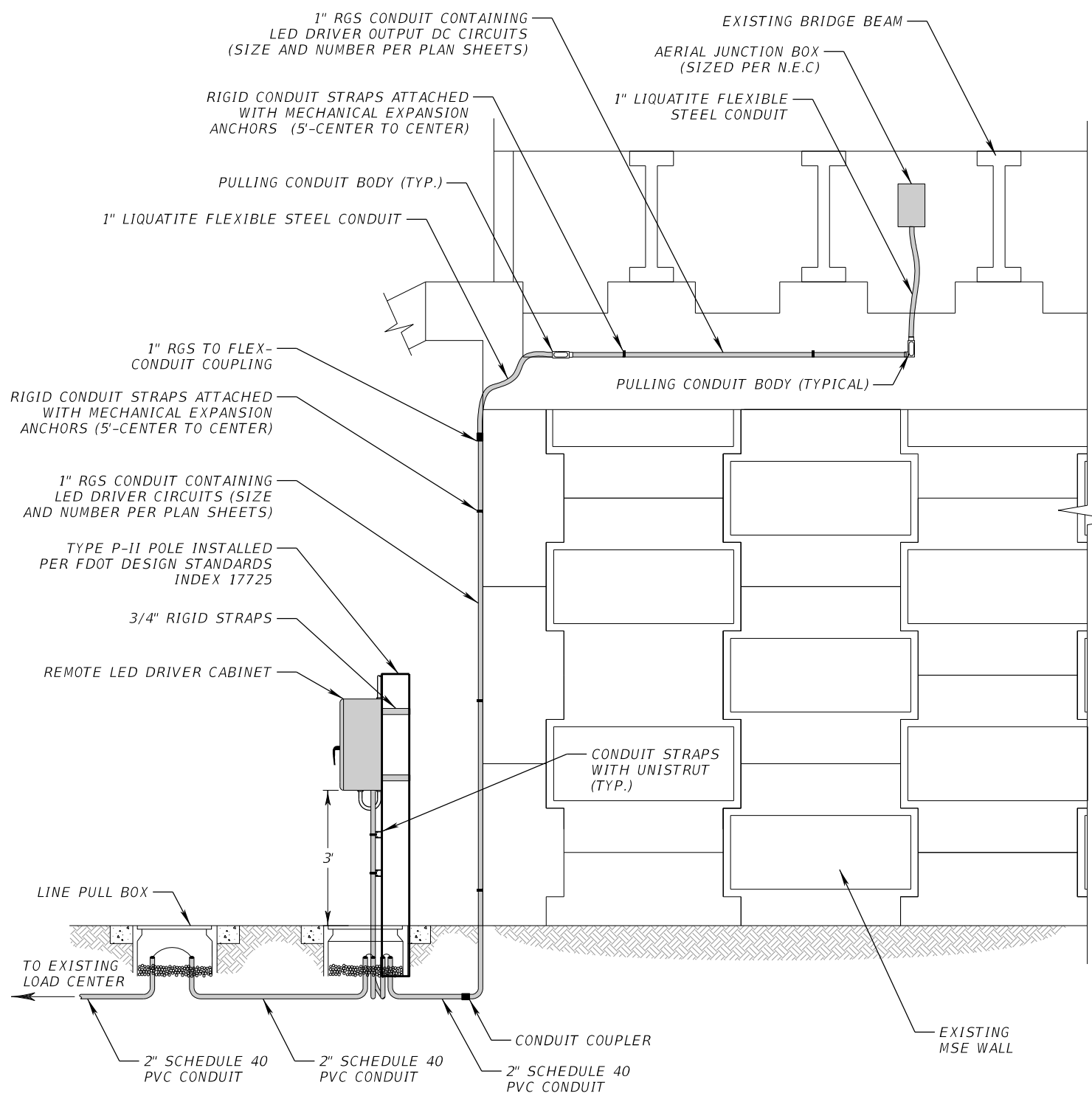


**UNDERDECK LIGHTING**  
**MOUNTING DETAILS**

SHEET NO.  
**F-1**

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**NOTES:**

1. ALL ATTACHMENT HARDWARE SHALL BE RIGID STEEL UNLESS OTHERWISE SPECIFIED.
2. ENSURE ALL ELEMENTS ARE BONDED AND GROUNDED PER N.E.C. REQUIREMENTS.
3. ALL CONDUIT ATTACHMENTS TO COUPLERS, EQUIPMENT ENCLOSURES (CABINETS), AND PULLING ELBOWS SHALL BE WEATHER TIGHT.
4. THE ENGINEER SHALL DESIGN AND DETAIL THE CONNECTION AND BRACING FOR THE UNDERDECK LUMINAIRE HANGING CONDUIT AND JUNCTION BOX, AND THE JUNCTION BOX ITSELF, IN ACCORDANCE WITH THE MOST RECENT VERSION OF AASHTO 'STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
5. THE SURFACE MOUNT CONDUIT, MOUNTING HARDWARE, EXPANSION JOINTS, AND ANY ANCILLARY COMPONENTS NEEDED FOR A COMPLETE INSTALLATION MUST BE PAINT MATCHED TO EXISTING BRIDGE DECK AND OR MSE WALLS, IF APPLICABLE.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REDUNDANT SUPPORT TO LUMINAIRE AND DECK. SHOP DRAWINGS SHALL DETAIL HOW CABLE WILL PREVENT LUMINAIRE FROM FALLING IF THE CONDUIT SUPPORT WERE TO FAIL. REFER TO REDUNDANT LUMINAIRE SUPPORT DETAIL FOR ADDITIONAL INFORMATION.
7. FABRICATION SHALL NOT BEGIN UNTIL SHOP DRAWINGS ARE APPROVED.
8. FURNISH AND INSTALL NEMA TYPE 4X (NON-METALLIC) AERIAL JUNCTION BOXES SIZED IN CONFORMANCE WITH THE NEC.

NOT TO SCALE

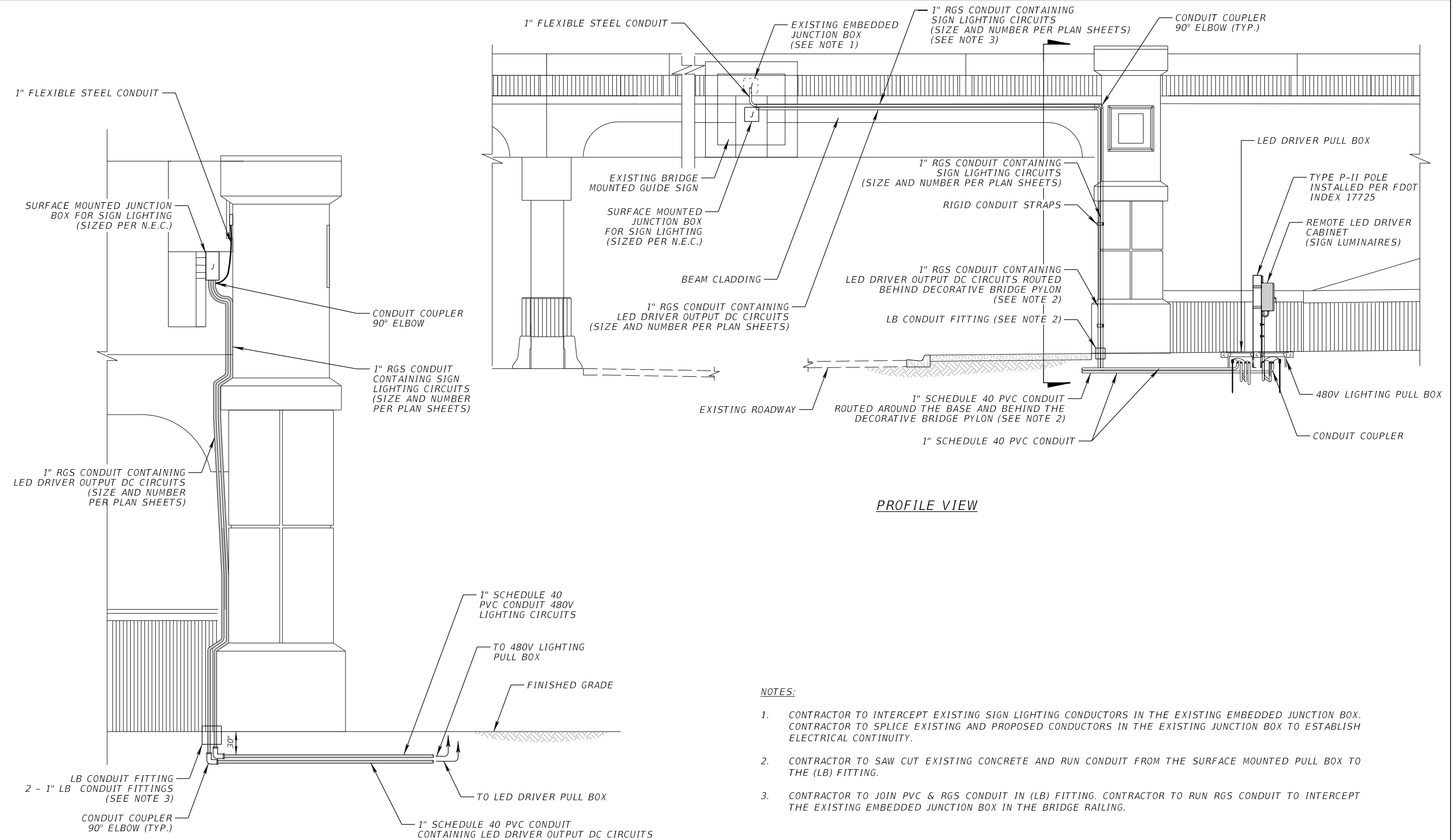
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DATE	DESCRIPTION				
7/19/23	REVISED NOTE 4		ROAD NO. PROJECT NO.		

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**PROFILE VIEW**

**SIDE VIEW**

**NOTES:**

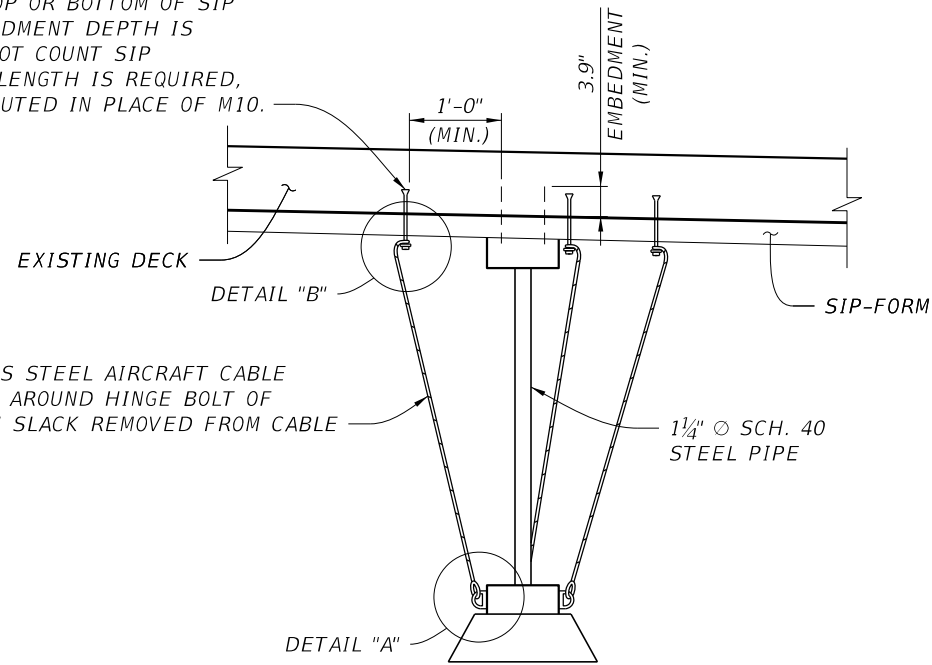
1. CONTRACTOR TO INTERCEPT EXISTING SIGN LIGHTING CONDUCTORS IN THE EXISTING EMBEDDED JUNCTION BOX. CONTRACTOR TO SPLICE EXISTING AND PROPOSED CONDUCTORS IN THE EXISTING JUNCTION BOX TO ESTABLISH ELECTRICAL CONTINUITY.
2. CONTRACTOR TO SAW CUT EXISTING CONCRETE AND RUN CONDUIT FROM THE SURFACE MOUNTED PULL BOX TO THE (LB) FITTING.
3. CONTRACTOR TO JOIN PVC & RGS CONDUIT IN (LB) FITTING. CONTRACTOR TO RUN RGS CONDUIT TO INTERCEPT THE EXISTING EMBEDDED JUNCTION BOX IN THE BRIDGE RAILING.

NOT TO SCALE

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		<b>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</b>	<i>BRIDGE MOUNTED SIGN LIGHTING MOUNTING DETAIL</i>		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.				
										F-4

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CABLE ATTACHED WITH ONE M10 HDA-PR STAINLESS STEEL UNDERCUT ANCHOR. CABLE MAY BE ATTACHED TO TOP OR BOTTOM OF SIP FORM FLUTES, 3.9" EMBEDMENT DEPTH IS INTO DECK, AND DOES NOT COUNT SIP FLUTES. IF ADDITIONAL LENGTH IS REQUIRED, AN M12 MAY BE SUBSTITUTED IN PLACE OF M10.

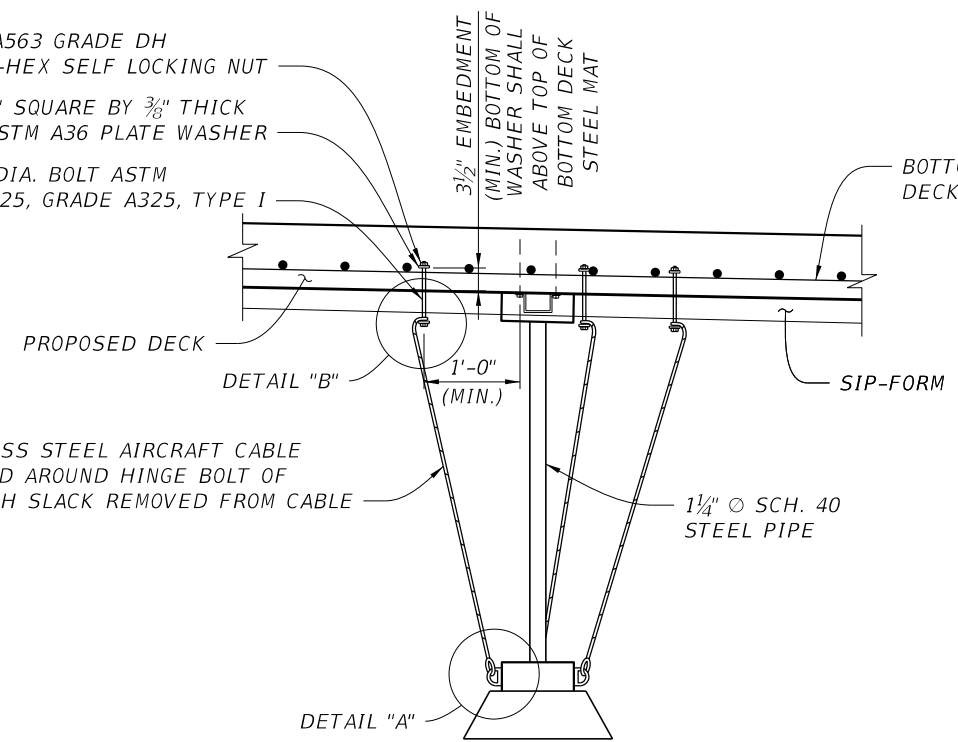


3/32° 7x19 STAINLESS STEEL AIRCRAFT CABLE SHALL BE ANCHORED AROUND HINGE BOLT OF LIGHT HOUSING WITH SLACK REMOVED FROM CABLE

1/4" Ø SCH. 40 STEEL PIPE

**REDUNDANT LUMINAIRE SUPPORT DETAIL**  
(EXISTING BRIDGE DECK)  
(DECK REINFORCING AND GIRDER NOT SHOWN FOR CLARITY)

ASTM A563 GRADE DH HEAVY-HEX SELF LOCKING NUT  
4" SQUARE BY 3/8" THICK ASTM A36 PLATE WASHER  
1/2" DIA. BOLT ASTM F3125, GRADE A325, TYPE I  
3 1/2" EMBEDMENT (MIN.) BOTTOM OF WASHER SHALL ABOVE TOP OF BOTTOM DECK STEEL MAT  
BOTTOM MAT OF DECK REINFORCING



3/32° 7x19 STAINLESS STEEL AIRCRAFT CABLE SHALL BE ANCHORED AROUND HINGE BOLT OF LIGHT HOUSING WITH SLACK REMOVED FROM CABLE

1/4" Ø SCH. 40 STEEL PIPE

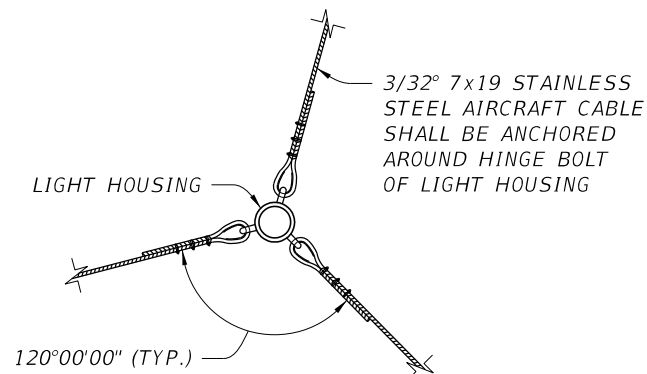
**REDUNDANT LUMINAIRE SUPPORT DETAIL**  
(PROPOSED BRIDGE DECK)  
(TOP OF DECK REINFORCING AND GIRDER NOT SHOWN FOR CLARITY)

**EXISTING DECK NOTES**

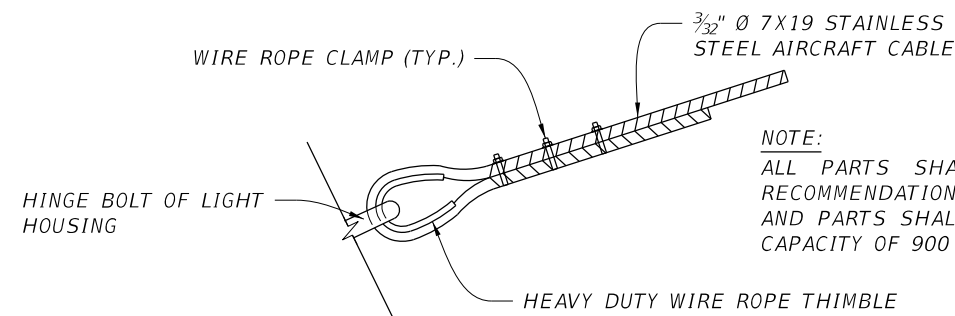
1. CONTRACTOR SHALL EXERCISE CAUTION WHEN DRILLING TO NOT DAMAGE EXISTING DECK REINFORCEMENT. IF REINFORCING STEEL IS ENCOUNTERED, STOP DRILLING AND DRILL IN ANOTHER LOCATION. THE UNUSED HOLE SHALL BE FILLED WITH APPROVED NON-SHRINK GROUT AND EPOXY CONFORMING TO SPECIFICATIONS 926 AND 934.
  - A. THOROUGHLY CLEAN AREA OF CONCRETE REMOVING ALL DEBRIS BEFORE APPLYING EPOXY AND GROUT MATERIAL.
  - B. COAT CONCRETE AREA WITH APPROVED EPOXY COMPOUND, APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND THEN FILL WITH APPROVED HIGH-STRENGTH, NON-SHRINK GROUT APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - C. FIRMLY CONSOLIDATE GROUT AND RESTORE TO ORIGINAL SHAPE.

**GENERAL NOTES**

1. PRIOR TO MATERIAL ORDER, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL MATERIAL SPECIFICATIONS AND DESIGN DATA FOR ALL MATERIALS PROPOSED FOR THE PROJECT. THESE MUST INCLUDE:
  - A. LUMINAIRE MANUFACTURER AND CUT SHEET.
  - B. ELECTRICAL MATERIAL INCLUDING JUNCTION BOX AND PENDANT BRACKET. JUNCTION BOX AND PENDANT BRACKET SHALL BE ABLE TO SUPPORT ENTIRE PENDANT HUNG LUMINAIRE ASSEMBLY.
2. CONTRACTOR SHALL ENSURE THAT STAINLESS STEEL CABLE CAN NOT SLIP OFF UNDERCUT ANCHOR OR A325 BOLT. IF NEEDED, A 1/2" THICK STAINLESS STEEL WASHER WITH ROUNDED EDGES SHALL BE INSTALLED BELOW STAINLESS STEEL CABLE IF THE HEAD OF UNDERCUT ANCHOR OR A325 BOLT IS NOT LARGE ENOUGH TO PREVENT SLIPPING. WASHER SHALL HAVE  $f_y=36$  KSI OR GREATER.
3. DESIGN ASSUMPTIONS AND LIMITATIONS. FOR PROJECTS WHERE ANY OF THESE ASSUMPTIONS ARE NOT MET, PROJECT SPECIFIC DESIGN SHALL BE REQUIRED, AND SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
  - A. LUMINAIRES SHALL HAVE A MAXIMUM WEIGHT OF 75 POUNDS.
  - B. VERTICAL DISTANCE BETWEEN TOP OF BRIDGE DECK AND BOTTOM OF GIRDER SHALL NOT EXCEED 14'.
  - C. BRIDGE DECK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.
  - D. BRIDGE DECK SHALL HAVE A MINIMUM THICKNESS OF 6 1/2".

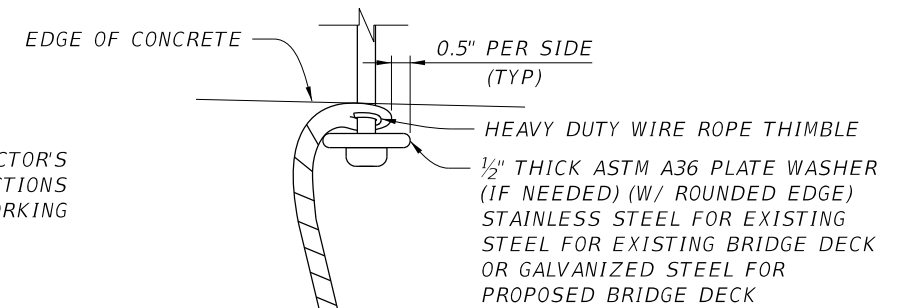


**PLAN VIEW**



**DETAIL "A"**

**NOTE:**  
ALL PARTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. ALL CABLES, CONNECTIONS AND PARTS SHALL HAVE A MINIMUM WORKING CAPACITY OF 900 LBS.



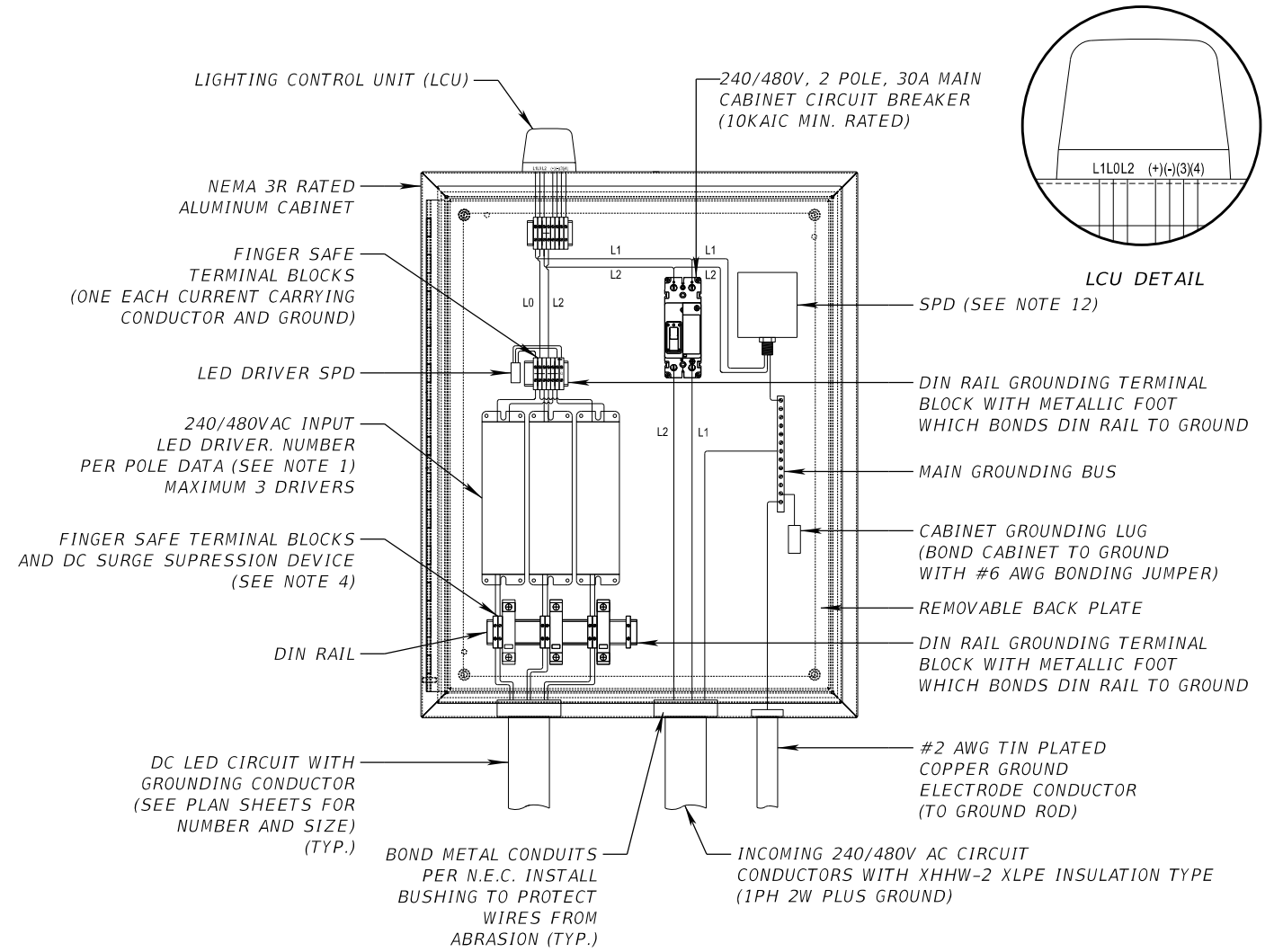
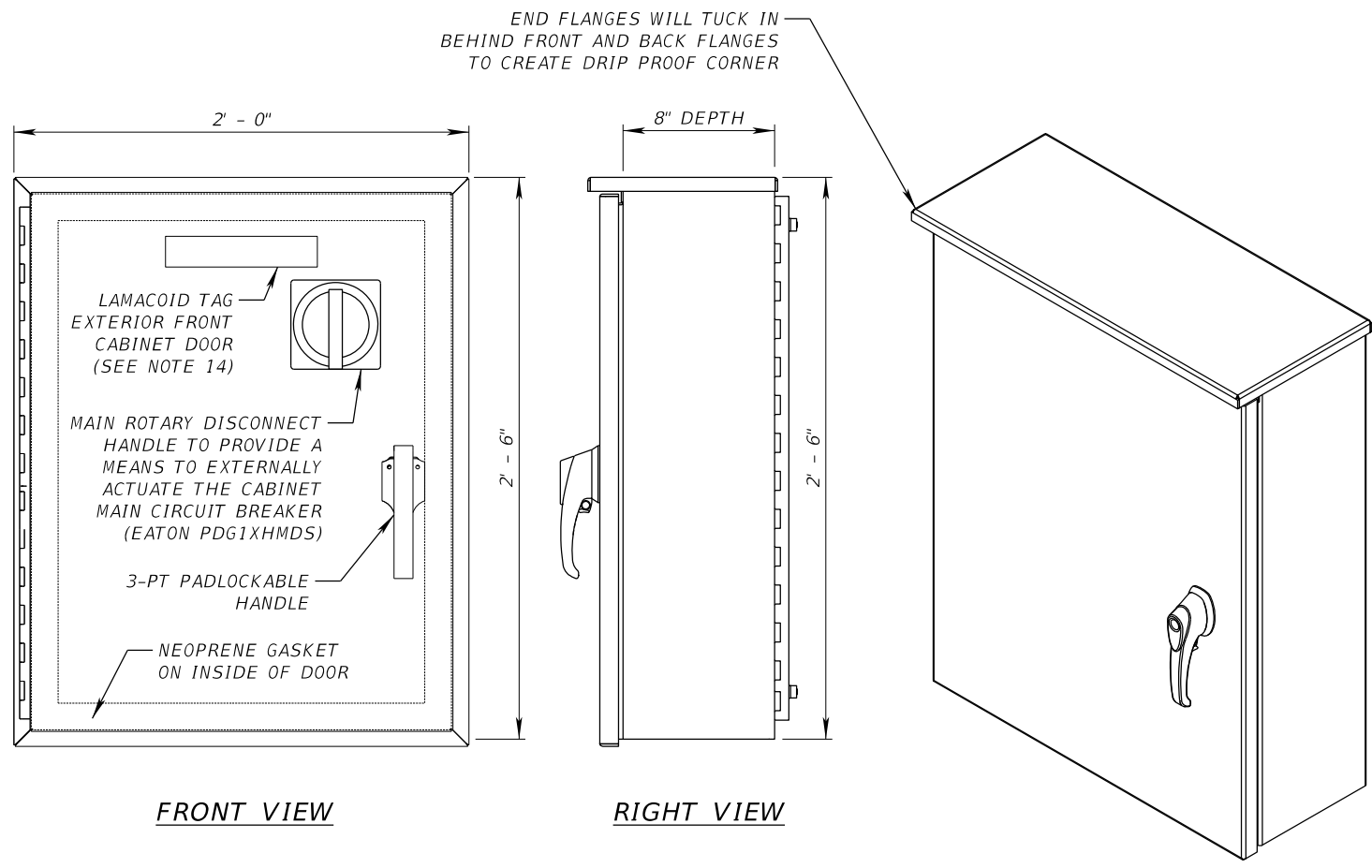
**DETAIL "B"**

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REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	REDUNDANT LUMINAIRE SUPPORT DETAIL	SHEET NO.  F-5
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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 ddelgado



**NOTES:**

- LED DRIVERS SHALL BE IP65, OR BETTER, RATED AND INCLUDE BUILT-IN OVERVOLTAGE, OVERCURRENT, AND SHORT CIRCUIT PROTECTIONS. DRIVERS SHALL BE RATED FOR LUMINAIRE CONNECTED LOAD PER MANUFACTURER'S RECOMMENDATION.
- WIRING FOR THREE LED DRIVERS ARE BEING DEPICTED IN THE CABINET DETAIL FOR THE WORSE CASE SCENARIO USING MAXIMUM OF THREE LED DRIVERS PER A SINGLE LCU. EACH LED DRIVER IS USED FOR A SINGLE SIGN LIGHTING FIXTURE AND FOR A SINGLE OR ADDITIONAL UNDERDECK LIGHTING FIXTURES IN CASE OF USING PENDANT HUNG FIXTURE INSTALLATIONS. THE CABINET WIRING DETAIL SHALL BE MODIFIED FOR CORRECT NUMBER OF FIXTURES USED AT EACH SPECIFIC PROJECT SITE. IF LCUS ARE NOT USED, THEN SHORTING CAPS WILL BE PROVIDED.
- INTERNAL WIRING OF CABINET SHALL BE XHHW-2 (XLPE) INSULATION TYPE.
- ENSURE THAT DC SPD PROTECTING THE SECONDARY SIDE OF THE LED DRIVERS ARE SELECTED BASED UPON THE MAXIMUM OUTPUT VOLTAGE OF THE LED DRIVERS (CONSTANT CURRENT TYPE).
- MANUFACTURED TO NEMA 3R SPECIFICATIONS, POLE MOUNT INSTALLATION, (2) BANDING STYLE BRACKETS.
- DOOR HINGE SHALL BE MADE OF ALUMINUM. ENSURE DOOR OPENING IS DOUBLE FLANGED ON ALL FOUR SIDES, AND THAT THE DOOR INCLUDES A CLOSED-CELL, NEOPRENE GASKET SEAL THAT IS PERMANENTLY BONDED TO THE INSIDE SUCH THAT THE NEOPRENE FORMS A WEATHER-TIGHT SEAL WHEN DOOR IS CLOSED.
- CABINET SHELL SHALL BE CONSTRUCTED USING UNPAINTED SHEET ALUMINUM ALLOY 5052-H32 WITH A MINIMUM THICKNESS OF 0.125 INCH.
- ENSURE GROUND BUS BARS ARE FABRICATED FROM A COPPER ALLOY MATERIAL COMPATIBLE WITH COPPER WIRE. USE GROUND BUS BARS THAT HAVE AT LEAST TWO POSITIONS WHERE A #2 AWG STRANDED COPPER WIRE CAN BE ATTACHED.
- ALL CONDUITS SHALL BE INSTALLED FROM BOTTOM OF CABINET AND SHALL BE SEALED.
- CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.
- LED REMOTE DRIVER CABINETS ARE USED FOR BOTH SIGN AND UNDERDECK LIGHTING APPLICATIONS. IN CASE OF SIGN LIGHTING, THE CABINETS SHALL BE MOUNTED ON THE UPRIGHT OF THE SIGN STRUCTURE AND POSITIONED FACING OPPOSITE OF TRAFFIC OR ON THE BACK OF THE SIGN STRUCTURE, IF THE SLOPE IS NOT TOO STEEP. THE CABINET LOCATIONS NEED TO BE COORDINATED WITH CFX TO BE SURE NO CONFLICTS EXIST.
- SURGE PROTECTION DEVICE (SPD), TYPE 2, UL LISTED (LATEST EDITION), PER THE LATEST APPLICABLE ANSI/IEEE STANDARDS, LED STATUS LIGHT, CONNECTION USING NO.10 AWG TO LOADSIDE OF 30A BREAKER.
- DC OUTPUT CIRCUITS FROM THE REMOTE LED DRIVER CABINET TO THE END OF THE OUTPUT FURTHEST CIRCUIT FOR SIGN AND UNDERDECK LUMINAIRES SHALL NOT EXCEED 350 FEET. IF THIS TRANSMISSION DISTANCE IS EXCEEDED, AN ADDITIONAL REMOTE LED DRIVER CABINET SHALL BE PROVIDED FOR SIGN AND/OR UNDERDECK LUMINAIRES.
- PROVIDE ACRYLIC LAMACOID TAG ON OUTSIDE OF CABINET DOOR. SPECIFICS AND LABELING CONVENTION SHALL BE AS FOLLOWS:
  - COLOR: WHITE LETTERS ON BLACK BACK.
  - DIMENSIONS: 5"W X 3"H.
  - MOUNTING TYPE: ADHESIVE BACKING.
  - MESSAGE:
    - 1ST LINE (VOLTAGE)
    - 2ND LINE (SIGN LIGHTING/UNDERDECK LIGHTING)
    - 3RD LINE (ROADWAY/DIRECTION/MP) (MP XX.X)

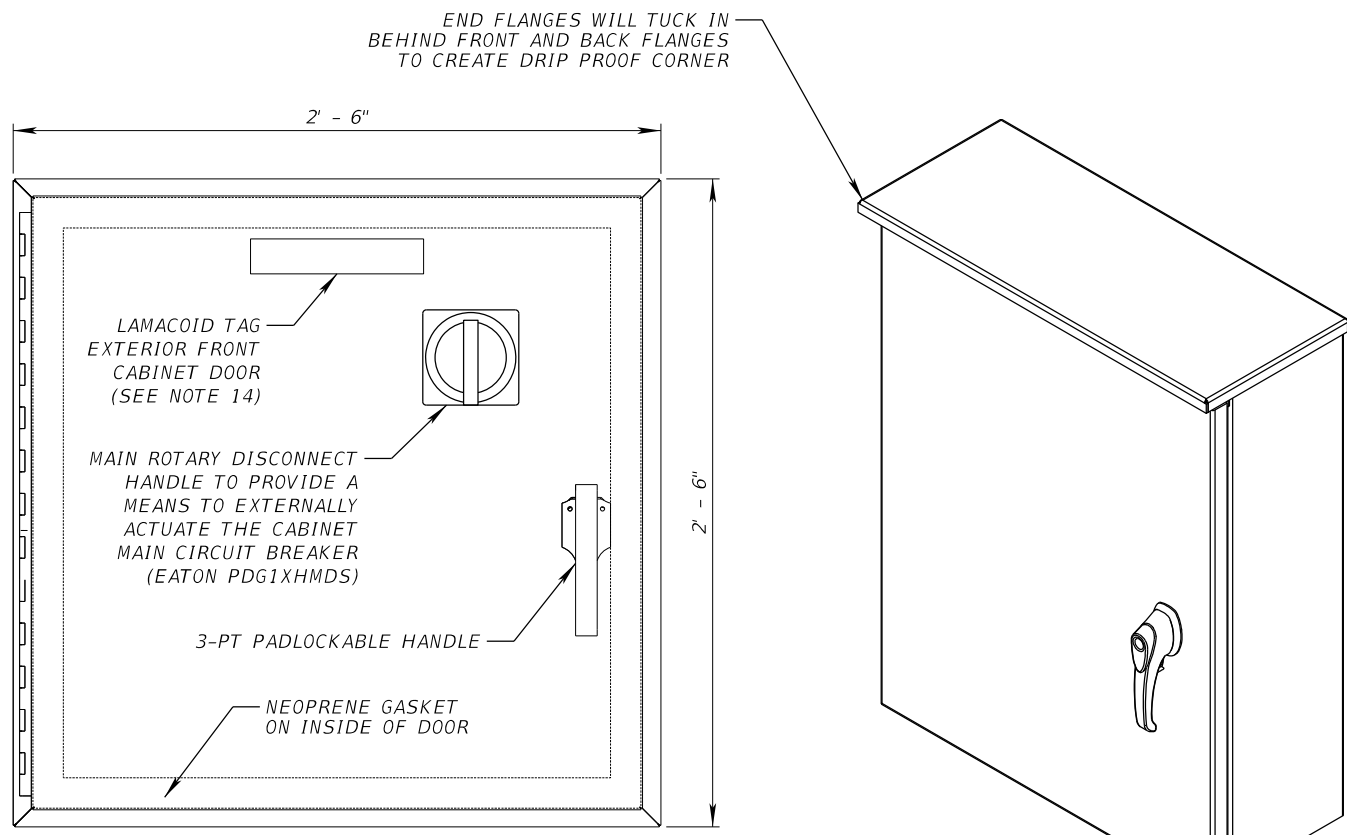
(VOLTAGE)  
 (SIGN LIGHTING/UNDERDECK LIGHTING)  
 (ROADWAY/DIRECTION/MP)

NOT TO SCALE

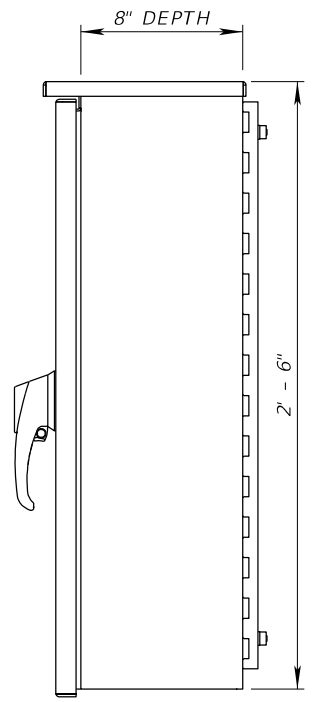
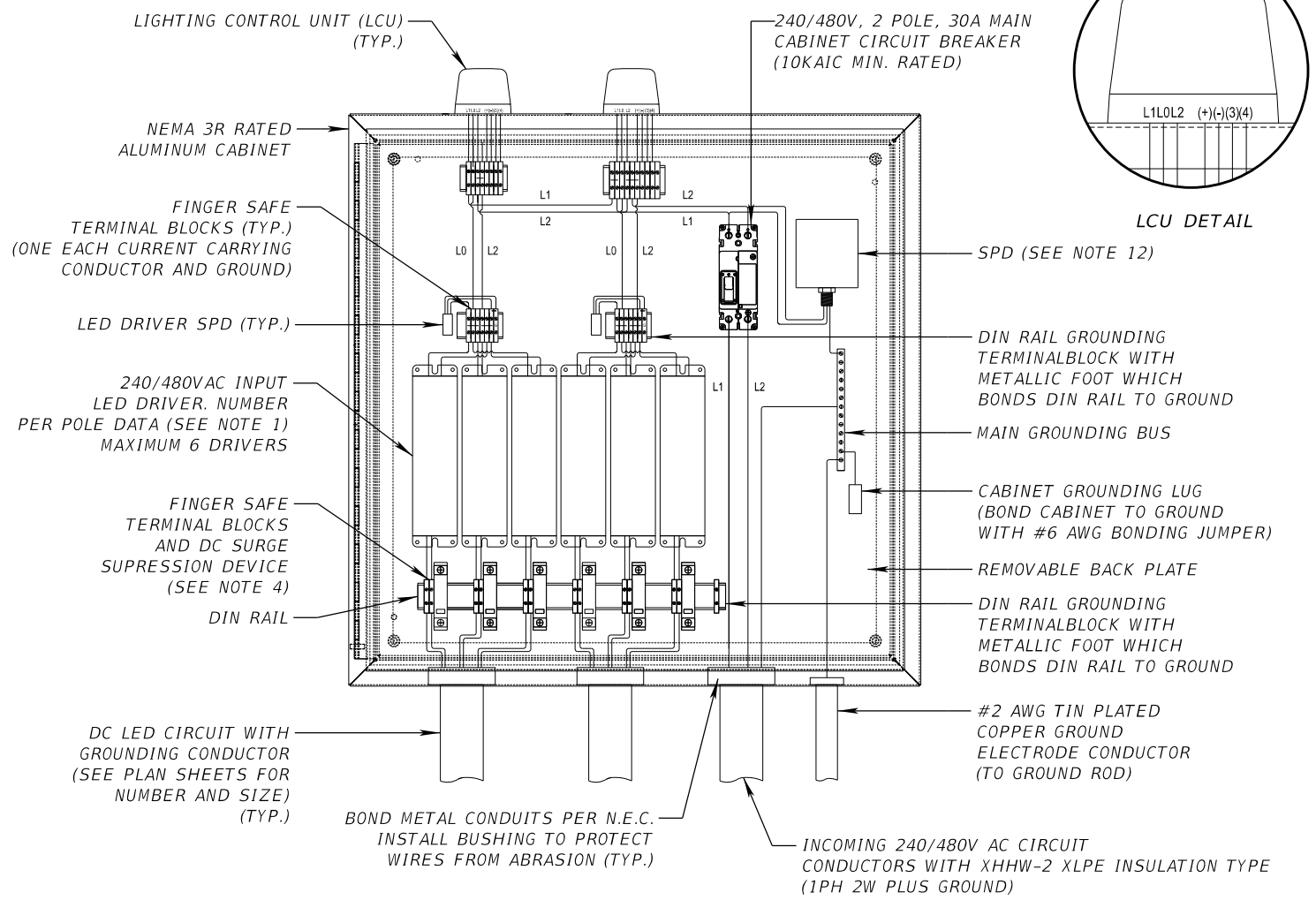
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
7/19/23	CHANGED CABINET HANDLE DISCONNECT TO A ROTARY DISCONNECT & REVISED NOTES								

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**FRONT VIEW**



**RIGHT VIEW**

**NOTES:**

- LED DRIVERS SHALL BE IP65, OR BETTER, RATED AND INCLUDE BUILT-IN OVERVOLTAGE, OVERCURRENT, AND SHORT CIRCUIT PROTECTIONS. DRIVERS SHALL BE RATED FOR LUMINAIRE CONNECTED LOAD PER MANUFACTURER'S RECOMMENDATION.
- WIRING FOR THREE LED DRIVERS ARE BEING DEPICTED IN THE CABINET DETAIL FOR THE WORSE CASE SCENARIO USING MAXIMUM OF THREE LED DRIVERS PER A SINGLE LCU. EACH LED DRIVER IS USED FOR A SINGLE SIGN LIGHTING FIXTURE AND FOR A SINGLE OR ADDITIONAL UNDERDECK LIGHTING FIXTURES IN CASE OF USING PENDANT HUNG FIXTURE INSTALLATIONS. THE CABINET WIRING DETAIL SHALL BE MODIFIED FOR CORRECT NUMBER OF FIXTURES USED AT EACH SPECIFIC PROJECT SITE. IF LCUs ARE NOT USED, THEN SHORTING CAPS WILL BE PROVIDED.
- INTERNAL WIRING OF CABINET SHALL BE XHHW-2 (XLPE) INSULATION TYPE.
- ENSURE THAT DC SPD PROTECTING THE SECONDARY SIDE OF THE LED DRIVERS ARE SELECTED BASED UPON THE MAXIMUM OUTPUT VOLTAGE OF THE LED DRIVERS (CONSTANT CURRENT TYPE).
- MANUFACTURED TO NEMA 3R SPECIFICATIONS, POLE MOUNT INSTALLATION, (2) BANDING STYLE BRACKETS.
- DOOR HINGE SHALL BE MADE OF ALUMINUM. ENSURE DOOR OPENING IS DOUBLE FLANGED ON ALL FOUR SIDES, AND THAT THE DOOR INCLUDES A CLOSED-CELL, NEOPRENE GASKET SEAL THAT IS PERMANENTLY BONDED TO THE INSIDE SUCH THAT THE NEOPRENE FORMS A WEATHER-TIGHT SEAL WHEN DOOR IS CLOSED.
- CABINET SHELL SHALL BE CONSTRUCTED USING UNPAINTED SHEET ALUMINUM ALLOY 5052-H32 WITH A MINIMUM THICKNESS OF 0.125 INCH.
- ENSURE GROUND BUS BARS ARE FABRICATED FROM A COPPER ALLOY MATERIAL COMPATIBLE WITH COPPER WIRE. USE GROUND BUS BARS THAT HAVE AT LEAST TWO POSITIONS WHERE A #2 AWG STRANDED COPPER WIRE CAN BE ATTACHED.
- ALL CONDUITS SHALL BE INSTALLED FROM BOTTOM OF CABINET AND SHALL BE SEALED.
- CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.
- LED REMOTE DRIVER CABINETS ARE USED FOR BOTH SIGN AND UNDERDECK LIGHTING APPLICATIONS. IN CASE OF SIGN LIGHTING, THE CABINETS SHALL BE MOUNTED ON THE UPRIGHT OF THE SIGN STRUCTURE AND POSITIONED FACING OPPOSITE OF TRAFFIC OR ON THE BACK OF THE SIGN STRUCTURE, IF THE SLOPE IS NOT TOO STEEP. THE CABINET LOCATIONS NEED TO BE COORDINATED WITH CFX TO BE SURE NO CONFLICTS EXIST.
- SURGE PROTECTION DEVICE (SPD), TYPE 2, UL LISTED (LATEST EDITION), PER THE LATEST APPLICABLE ANSI/IEEE STANDARDS, LED STATUS LIGHT, CONNECTION USING NO.10 AWG TO LOADSIDE OF 30A BREAKER.
- DC OUTPUT CIRCUITS FROM THE REMOTE LED DRIVER CABINET TO THE END OF THE OUTPUT FURTHEST CIRCUIT FOR SIGN AND UNDERDECK LUMINAIRES SHALL NOT EXCEED 350 FEET. IF THIS TRANSMISSION DISTANCE IS EXCEEDED, AN ADDITIONAL REMOTE LED DRIVER CABINET SHALL BE PROVIDED FOR SIGN AND/OR UNDERDECK LUMINAIRES.
- PROVIDE LAMACOID TAG ON OUTSIDE OF CABINET DOOR AND LABELING CONVENTION SHALL BE AS FOLLOWING:

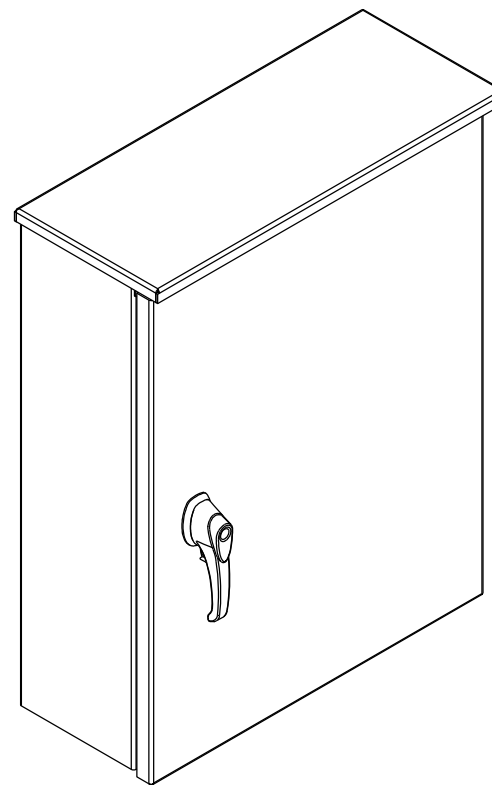
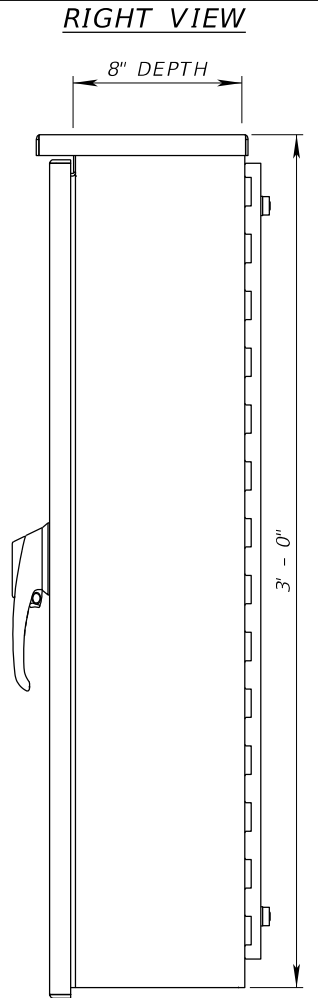
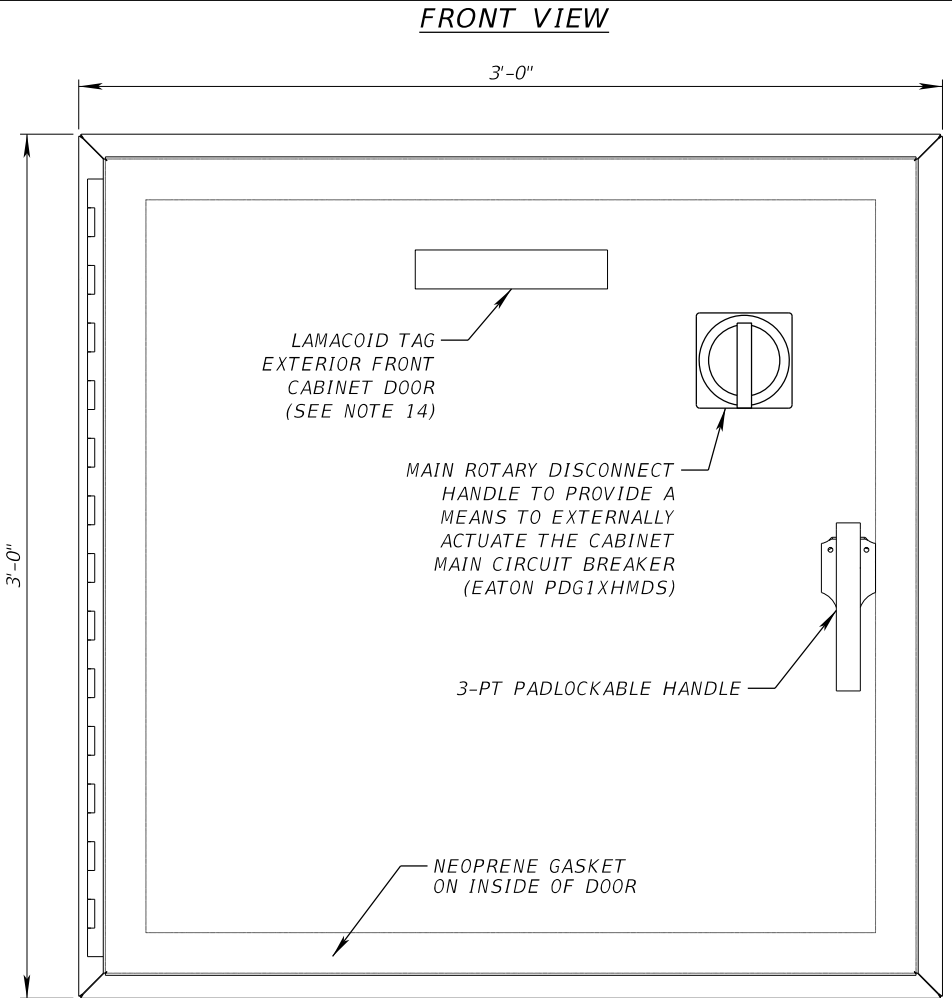
VOLTAGE	ROADWAY	DIRECTION (EB/WB/SB/NB)
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REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	MEDIUM SIZE REMOTE LED DRIVER CABINET DETAILS	SHEET NO.  G-2
DATE	DESCRIPTION	DATE	DESCRIPTION					
7/19/23	CHANGED CABINET HANDLE DISCONNECT TO A ROTARY DISCONNECT & REVISED NOTES				ROAD NO.	PROJECT NO.		

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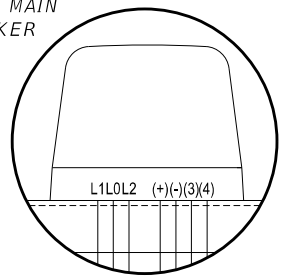
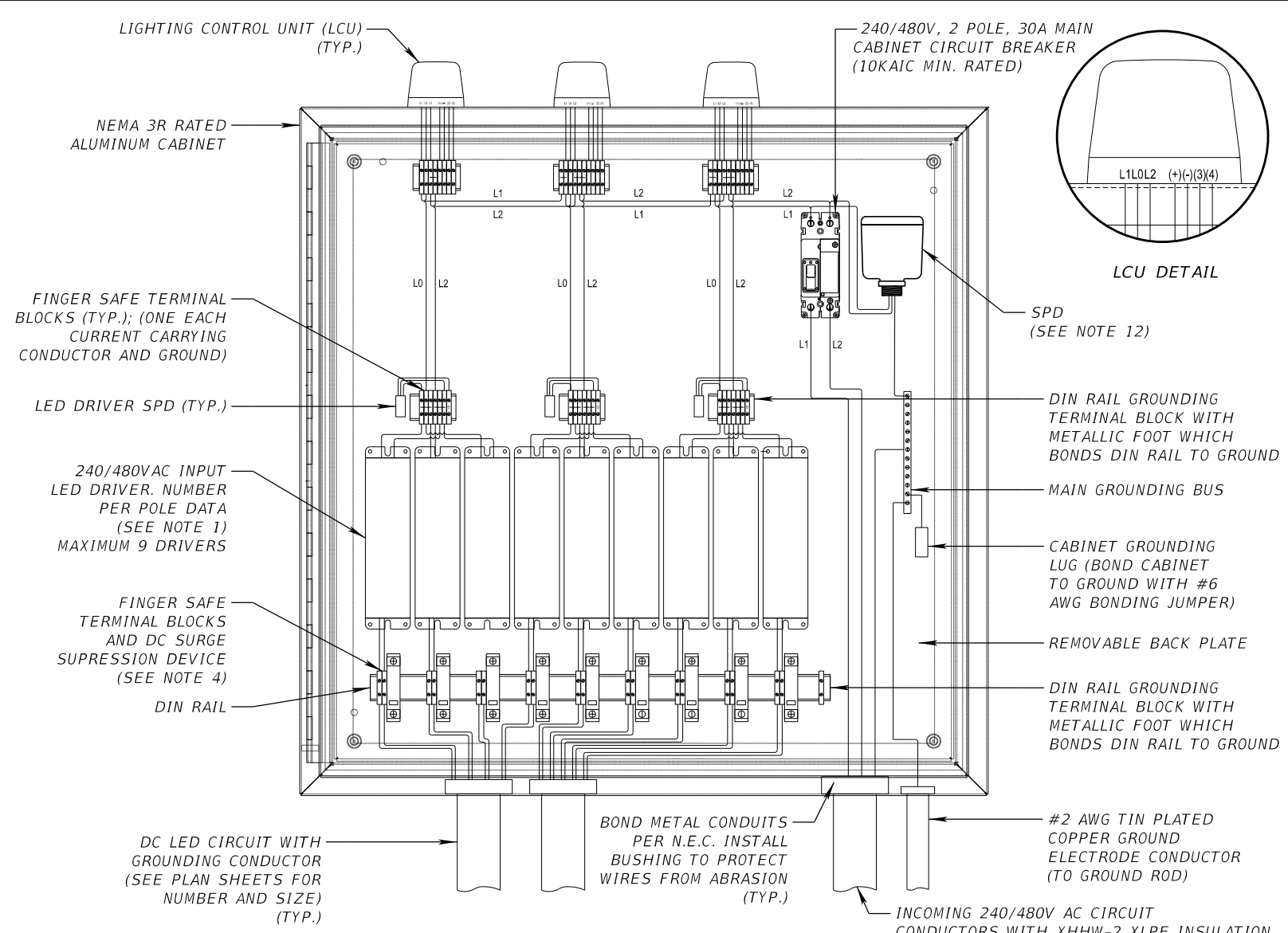
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END FLANGES WILL TUCK IN BEHIND FRONT AND BACK FLANGES TO CREATE DRIP PROOF CORNER

**NOTES:**

- LED DRIVERS SHALL BE IP65, OR BETTER, RATED AND INCLUDE BUILT-IN OVERVOLTAGE, OVERCURRENT, AND SHORT CIRCUIT PROTECTIONS. DRIVERS SHALL BE RATED FOR LUMINAIRE CONNECTED LOAD PER MANUFACTURER'S RECOMMENDATION.
- WIRING FOR THREE LED DRIVERS ARE BEING DEPICTED IN THE CABINET DETAIL FOR THE WORSE CASE SCENARIO USING MAXIMUM OF THREE LED DRIVERS PER A SINGLE LCU. EACH LED DRIVER IS USED FOR A SINGLE SIGN LIGHTING FIXTURE AND FOR A SINGLE OR ADDITIONAL UNDERDECK LIGHTING FIXTURES IN CASE OF USING PENDANT HUNG FIXTURE INSTALLATIONS. THE CABINET WIRING DETAIL SHALL BE MODIFIED FOR CORRECT NUMBER OF FIXTURES USED AT EACH SPECIFIC PROJECT SITE. IF LCUs ARE NOT USED, THEN SHORTING CAPS WILL BE PROVIDED.
- INTERNAL WIRING OF CABINET SHALL BE XHHW-2 (XLPE) INSULATION TYPE.
- ENSURE THAT DC SPD PROTECTING THE SECONDARY SIDE OF THE LED DRIVERS ARE SELECTED BASED UPON THE MAXIMUM OUTPUT VOLTAGE OF THE LED DRIVERS (CONSTANT CURRENT TYPE).
- MANUFACTURED TO NEMA 3R SPECIFICATIONS, POLE MOUNT INSTALLATION, (2) BANDING STYLE BRACKETS.
- DOOR HINGE SHALL BE MADE OF ALUMINUM. ENSURE DOOR OPENING IS DOUBLE FLANGED ON ALL FOUR SIDES, AND THAT THE DOOR INCLUDES A CLOSED-CELL, NEOPRENE GASKET SEAL THAT IS PERMANENTLY BONDED TO THE INSIDE SUCH THAT THE NEOPRENE FORMS A WEATHER-TIGHT SEAL WHEN DOOR IS CLOSED.



- CABINET SHELL SHALL BE CONSTRUCTED USING UNPAINTED SHEET ALUMINUM ALLOY 5052-H32 WITH A MINIMUM THICKNESS OF 0.125 INCH.
- ENSURE GROUND BUS BARS ARE FABRICATED FROM A COPPER ALLOY MATERIAL COMPATIBLE WITH COPPER WIRE. USE GROUND BUS BARS THAT HAVE AT LEAST TWO POSITIONS WHERE A #2 AWG STRANDED COPPER WIRE CAN BE ATTACHED.
- ALL CONDUITS SHALL BE INSTALLED FROM BOTTOM OF CABINET AND SHALL BE SEALED.
- CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.
- LED REMOTE DRIVER CABINETS ARE USED FOR BOTH SIGN AND UNDERDECK LIGHTING APPLICATIONS. IN CASE OF SIGN LIGHTING, THE CABINETS SHALL BE MOUNTED ON THE UPRIGHT OF THE SIGN STRUCTURE AND POSITIONED FACING OPPOSITE OF TRAFFIC OR ON THE BACK OF THE SIGN STRUCTURE, IF THE SLOPE IS NOT TOO STEEP. THE CABINET LOCATIONS NEED TO BE COORDINATED WITH CFX TO BE SURE NO CONFLICTS EXIST.
- SURGE PROTECTION DEVICE (SPD), TYPE 2, UL LISTED (LATEST EDITION), PER THE LATEST APPLICABLE ANSI/IEEE STANDARDS, LED STATUS LIGHT, CONNECTION USING NO.10 AWG TO LOADSIDE OF 30A BREAKER.
- DC OUTPUT CIRCUITS FROM THE REMOTE LED DRIVER CABINET TO THE END OF THE OUTPUT FURTHEST CIRCUIT FOR SIGN AND UNDERDECK LUMINAIRES SHALL NOT EXCEED 350 FEET. IF THIS TRANSMISSION DISTANCE IS EXCEEDED, AN ADDITIONAL REMOTE LED DRIVER CABINET SHALL BE PROVIDED FOR SIGN AND/OR UNDERDECK LUMINAIRES.
- PROVIDE LAMACOID TAG ON OUTSIDE OF CABINET DOOR AND LABELING CONVENTION SHALL BE AS FOLLOWING:

VOLTAGE	ROADWAY	DIRECTION (EB/WB/SB/NB)
###	---	XX

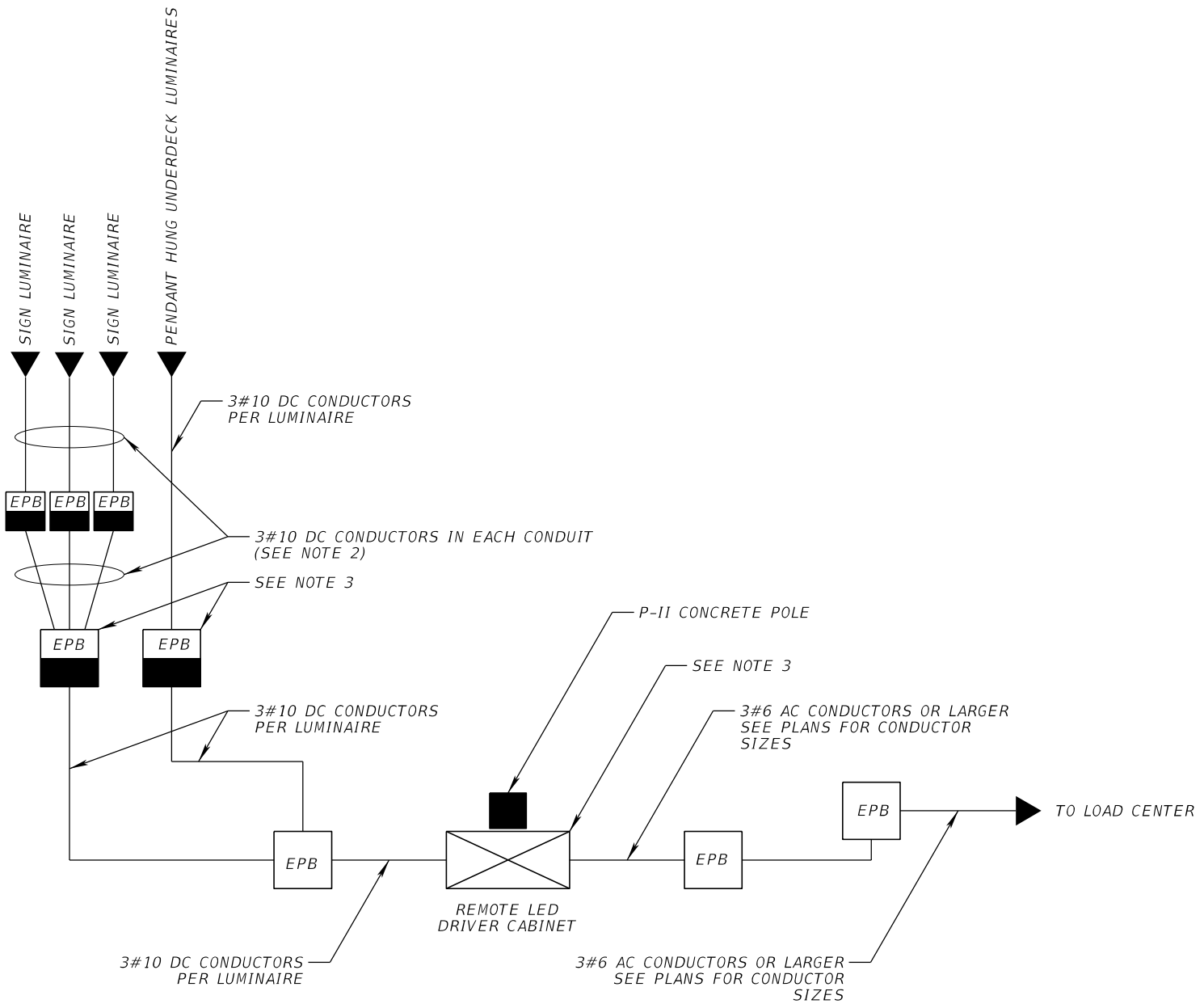
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REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LARGE SIZE REMOTE LED DRIVER CABINET DETAILS	SHEET NO.  G-3
DATE	DESCRIPTION	DATE	DESCRIPTION					
7/19/23	CHANGED CABINET HANDLE DISCONNECT TO A ROTARY DISCONNECT & REVISED NOTES				ROAD NO.	PROJECT NO.		

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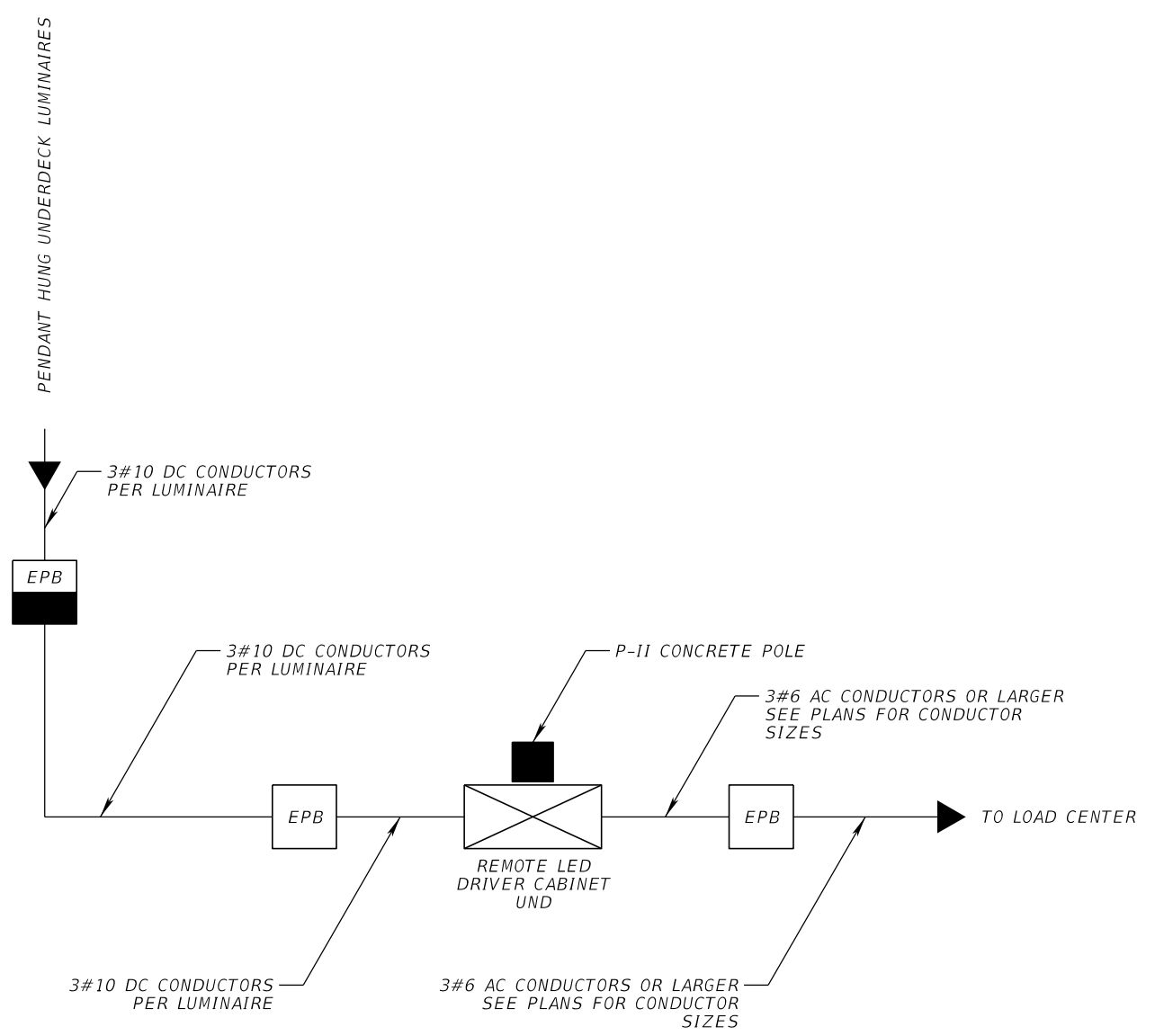
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**PENDANT HUNG UNDERDECK WITH SIGN LIGHTING (TYP.)  
WIRING DETAIL**



- NOTES:**
1. CONDUIT NUMBER MAY VARY ACCORDING TO NUMBER OF SIGN LUMINAIRES ON BRIDGE.
  2. NO SPLICING TOGETHER OF CONDUCTORS TO BE PERFORMED PRIOR TO ENTERING REMOTE LED DRIVER CABINET.
  3. FOR CASES WHERE SIGN LIGHTING AND PENDANT HUNG UNDERDECK LIGHTING ARE IN CLOSE PROXIMITY, ONE LARGE REMOTE LED DRIVER CABINET CAN BE USED IN LIEU OF TWO LARGE REMOTE LED DRIVER CABINETS, AS LONG AS THEY DO NOT EXCEED MORE THAN NINE LED DRIVERS. IF TEN OR MORE LED DRIVERS ARE REQUIRED, TWO SEPARATE REMOTE LED DRIVER CABINETS MUST BE USED.

**PENDANT HUNG UNDERDECK ONLY (TYP.)  
WIRING DETAIL**



SHOULDER MOUNTED ELECTRICAL PULL BOX  
 SURFACE MOUNTED ELECTRICAL PULL BOX

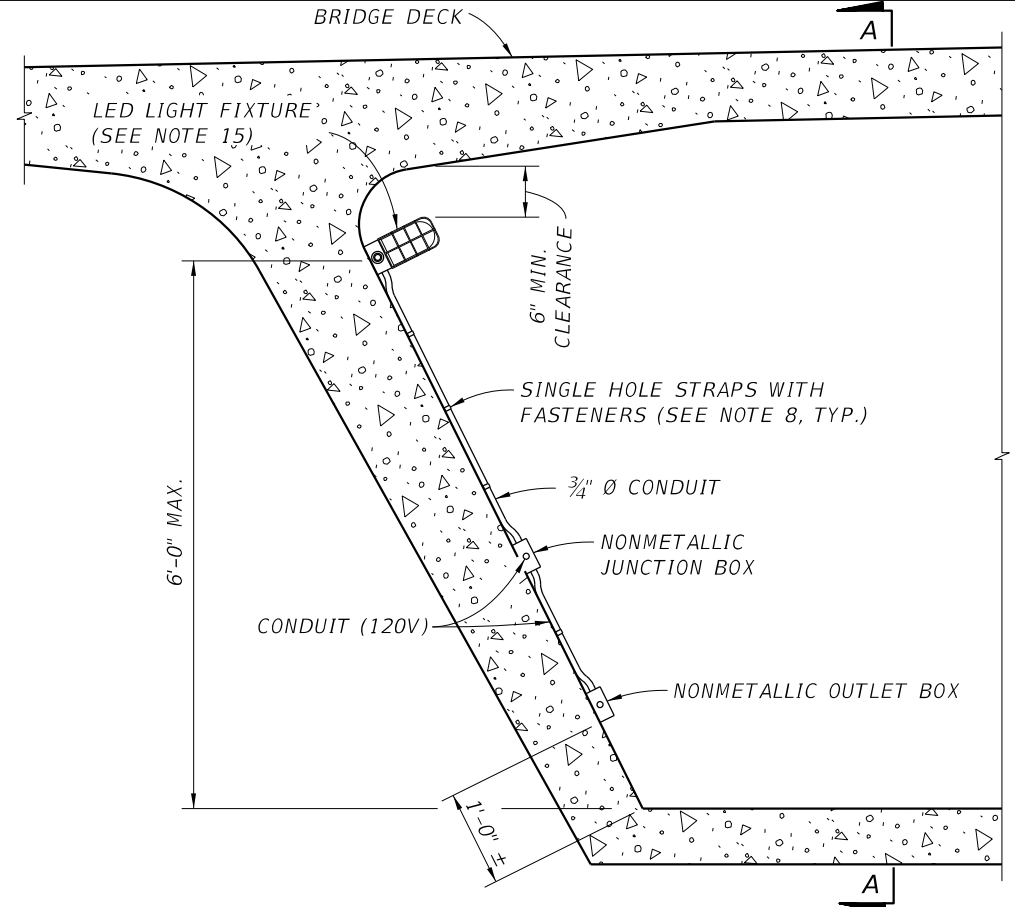
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			H-1
8/25/23	REVISED NOTE 3 CALL OUT								

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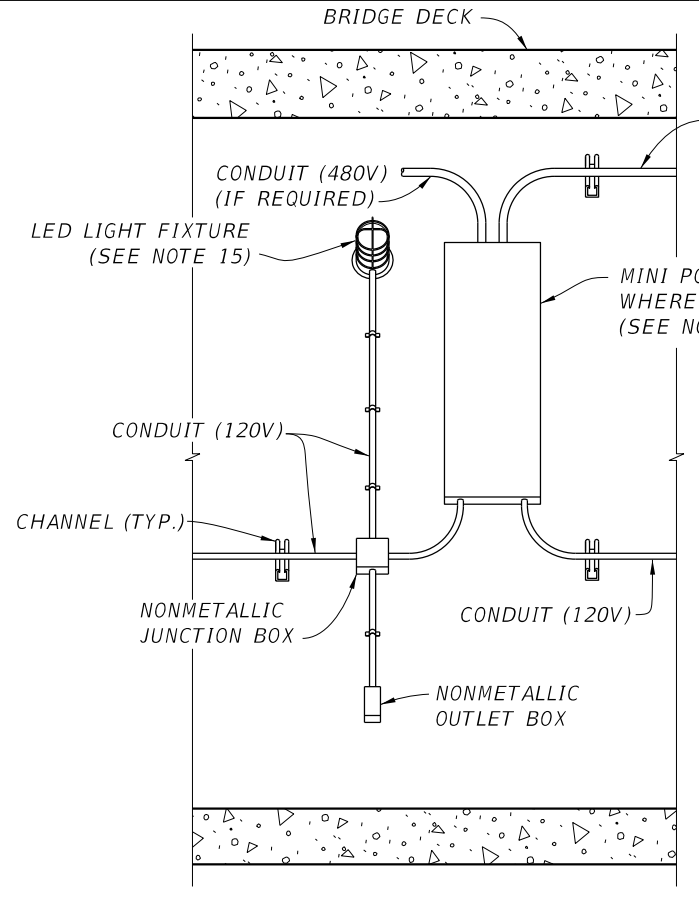




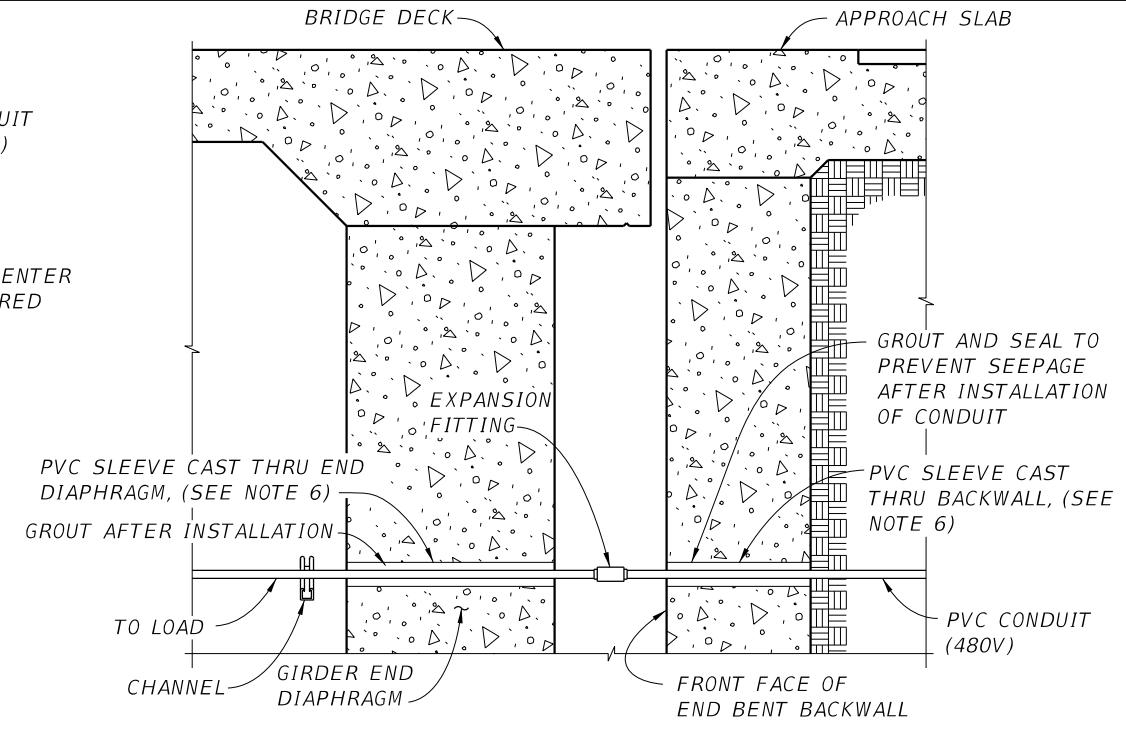
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**LIGHTING DETAILS FOR CONCRETE BOX GIRDER BRIDGE**

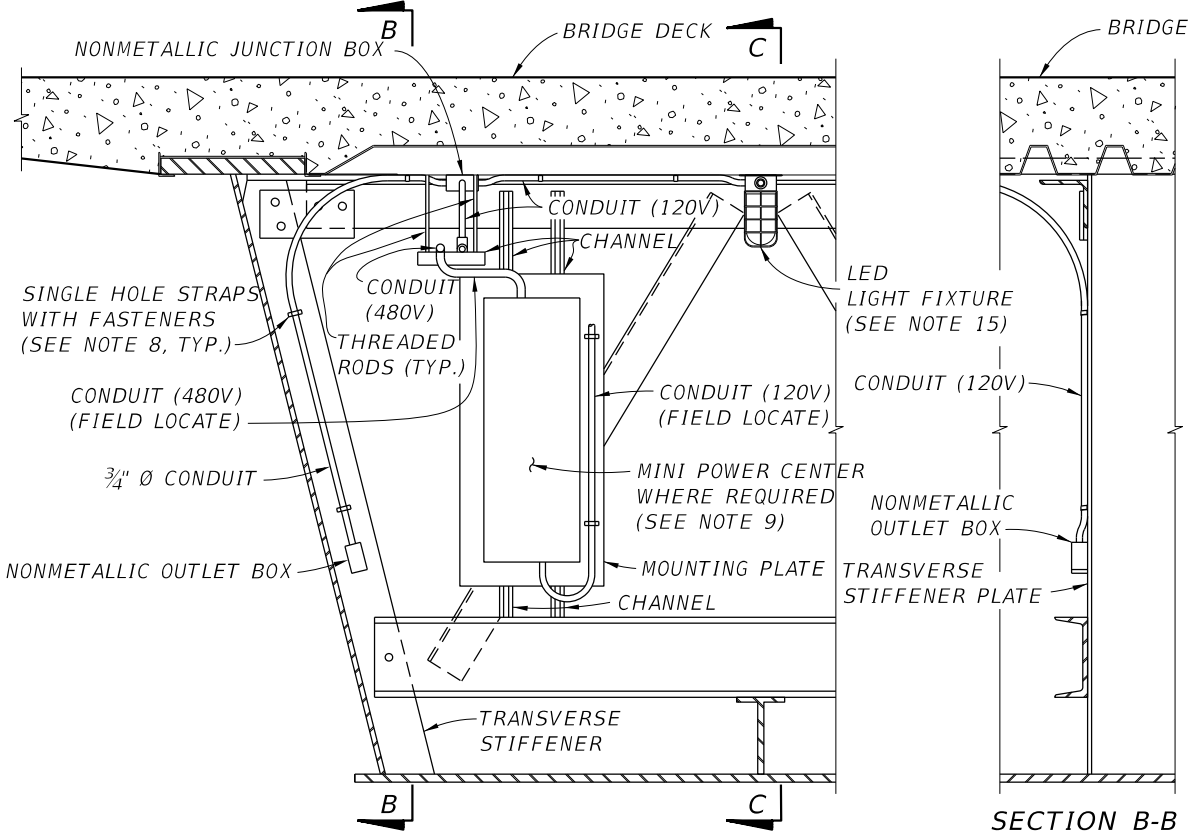


**SECTION A-A**



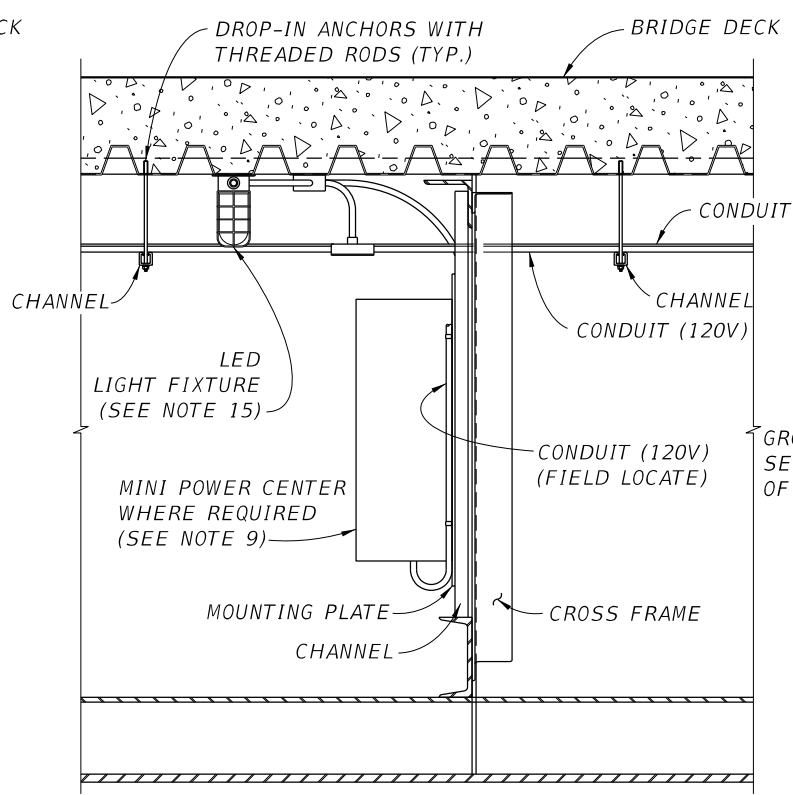
**CONCRETE BOX GIRDER BRIDGE SECTION THRU END BENTS**

CROSS REFERENCE:  
 1. FOR BOX GIRDER MAINTENANCE LIGHTING NOTES SEE SHEET 1.

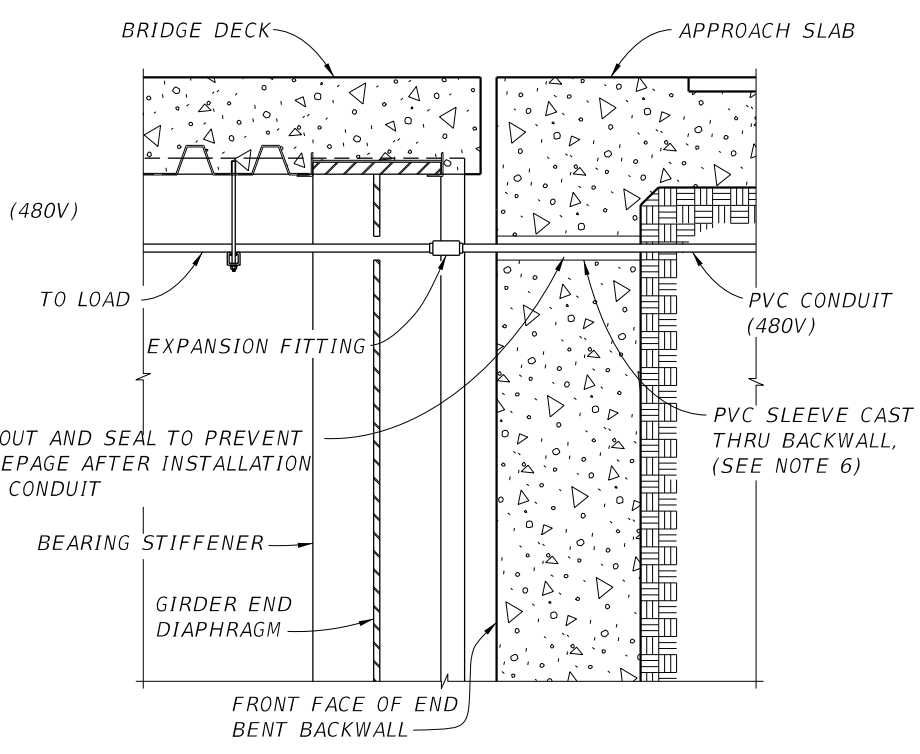


**LIGHTING DETAILS FOR STEEL BOX GIRDER BRIDGE  
 (CROSS FRAME SECTION SHOWN, OTHER TRANSVERSE STIFFENER SECTIONS SIMILAR)**

**SECTION B-B**



**SECTION C-C**



**STEEL BOX GIRDER BRIDGE SECTION THRU END BENTS**

REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD FULL NAME, P.E.  
 P.E. LICENSE NUMBER 99999  
 ENGINEER OF RECORD COMPANY NAME  
 ENGINEER OF RECORD COMPANY STREET  
 ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME  
 (1 to 3 LINES)  
 ROAD NO. PROJECT NO.



**MAINTENANCE LIGHTING  
 FOR BOX GIRDERS**

SHEET NO.  
 J-2

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**NOTES:**

- ALL ENCLOSURES SHALL BE NEMA 4X AT THE POWER SERVICE-ENTRANCE LOCATION. THE SIDES AND TOP OF ALL EQUIPMENT MOUNTED TO THE H-FRAME ASSEMBLY SHALL BE SEALED WITH SILICONE. HOLES SMALLER THAN 1#8" SHALL BE SEALED WITH SILICONE SEALANT INSIDE AND OUT. DO NOT PLACE SILICONE AROUND THE BOTTOM OF THE DEVICE.
- ENCLOSURES SHALL BE ATTACHED WITH RGS TO THE H-FRAME ASSEMBLY.
- SPD TYPE 1 SHALL BE INSTALLED ON THE EXTERIOR OF LIGHTING CABINET TO BE CONNECTED ON SUPPLY SIDE OF MAIN CIRCUIT BREAKER INSIDE THE CABINET. THE SPD SHALL HAVE A LED INDICATOR AND BE LIT TO SHOW PROTECTION.
- ALL SERVICE EQUIPMENT SHALL BE U.L. APPROVED.
- ALL EDGES TO HAVE 1/2" CHAMFER.
- DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
- MOUNT KINDORF CHANNEL USING 1/2" BOLT THROUGH POST OR LEAD ANCHOR AND BOLT. KINDORF CHANNEL IS NOT TO EXTEND PAST THE OUTER SIDES OF THE H-FRAME CONCRETE POSTS. DO NOT USE POWER GUN TO SHOOT FASTENERS INTO POST. DO NOT USE PLASTIC ANCHORS.
- CONCRETE POST SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 639A-3.10.
- RGS SHALL TRANSITION TO PVC NO LESS THAN 6" BELOW GRADE. A CFX APPROVED RGS TO PVC CONNECTOR MUST BE USED.
- 6" THICK CONCRETE PAD SHALL BE A MINIMUM OF CLASS I NON-STRUCTURAL 2500 PSI CONCRETE.

UTILITY TRANSFORMER  
240/480V  
1PH, 3W

480 VAC NON-FUSED SERVICE DISCONNECT SWITCH

480 VAC SERVICE ENTRANCE-RATED ENCLOSED CIRCUIT BREAKER

METER

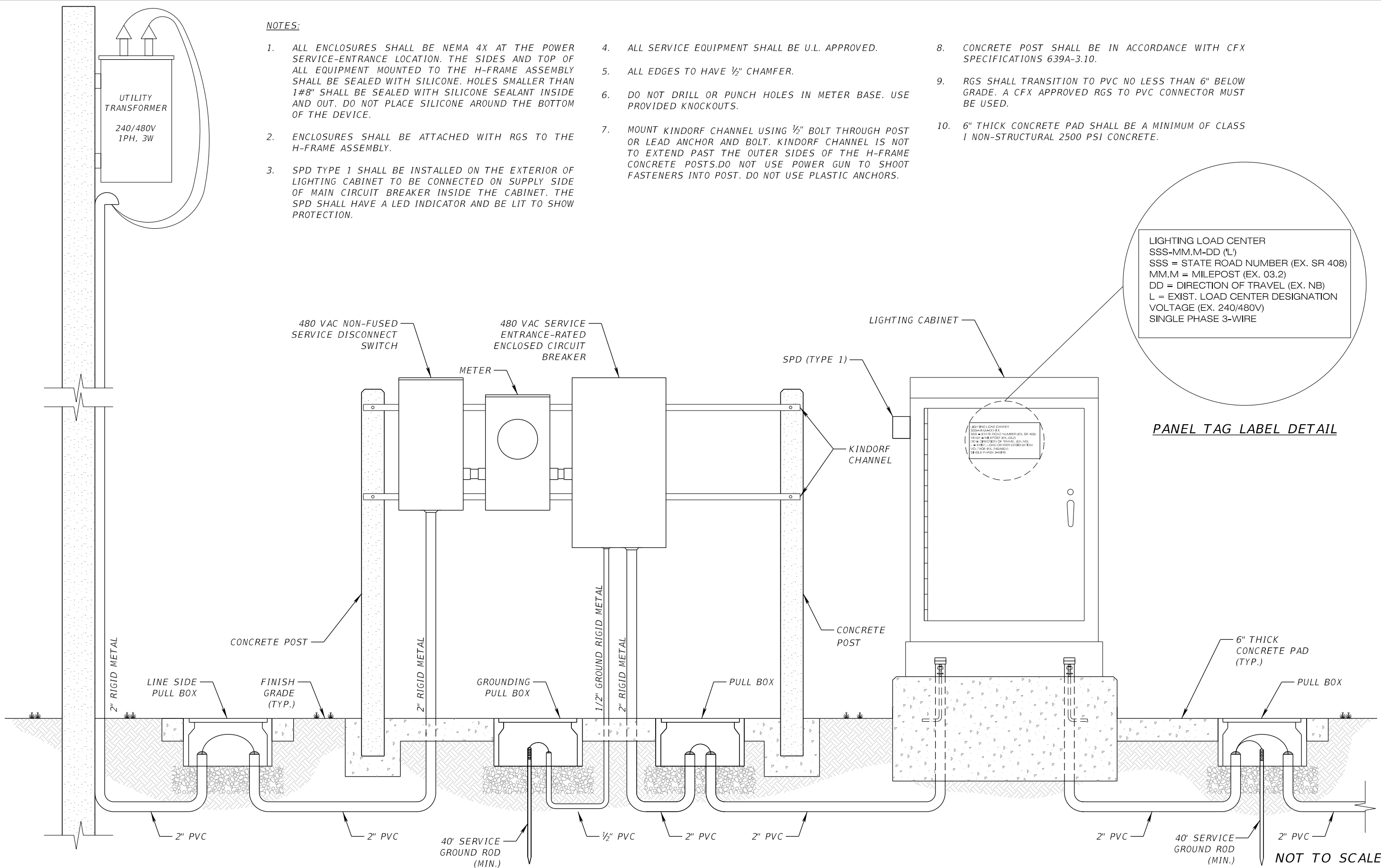
SPD (TYPE 1)

LIGHTING CABINET

KINDORF CHANNEL

LIGHTING LOAD CENTER  
SSS-MM.M-DD (L)  
SSS = STATE ROAD NUMBER (EX. SR 408)  
MM.M = MILEPOST (EX. 03.2)  
DD = DIRECTION OF TRAVEL (EX. NB)  
L = EXIST. LOAD CENTER DESIGNATION  
VOLTAGE (EX. 240/480V)  
SINGLE PHASE 3-WIRE

**PANEL TAG LABEL DETAIL**



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REVISIONS		DATE	DESCRIPTION
DATE	DESCRIPTION	DATE	DESCRIPTION
6/8-23	REMOVED CABINET LOUVER		

ENGINEER OF RECORD FULL NAME, P.E.  
P.E. LICENSE NUMBER 99999  
ENGINEER OF RECORD COMPANY NAME  
ENGINEER OF RECORD COMPANY STREET  
ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME (1 to 3 LINES)	
ROAD NO.	PROJECT NO.

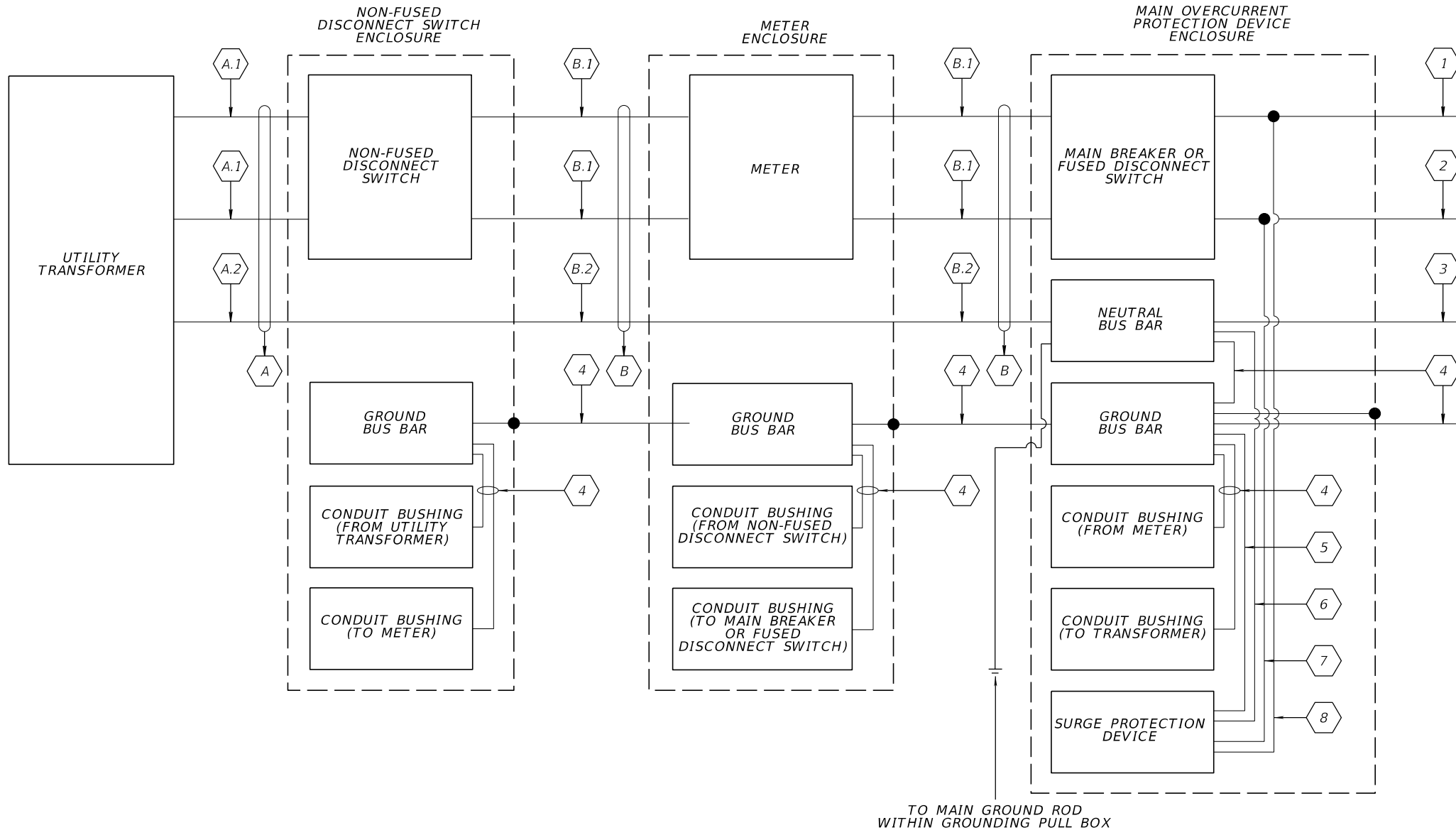


**ELECTRIC SERVICE ASSEMBLY  
WITHOUT A TRANSFORMER**

SHEET NO.  
**K-1**

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**NOTES TO EOR:**

- CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
- THIS IS FOR POWER SERVICE 240/480 VAC APPLICATION.

- KEYED NOTES:**
- 1 BROWN/YELLOW INSULATED PHASE CONDUCTOR A
  - 2 BROWN/YELLOW INSULATED PHASE CONDUCTOR B
  - 3 WHITE INSULATED GROUNDED NEUTRAL CONDUCTOR
  - 4 GREEN INSULATED GROUND BONDING CONDUCTOR
  - 5 SURGE PROTECTION DEVICE GROUND WIRE
  - 6 SURGE PROTECTION DEVICE NEUTRAL WIRE
  - 7 SURGE PROTECTION DEVICE LOAD WIRE B
  - 8 SURGE PROTECTION DEVICE LOAD WIRE A
  - A OVERHEAD OR UNDERGROUND SERVICE CONDUCTORS
  - A.1 SERVICE CONDUCTORS
  - A.2 NEUTRAL CONDUCTOR
  - B SERVICE ENTRANCE CONDUCTORS
  - B.1 SERVICE ENTRANCE CONDUCTORS
  - B.2 NEUTRAL CONDUCTOR

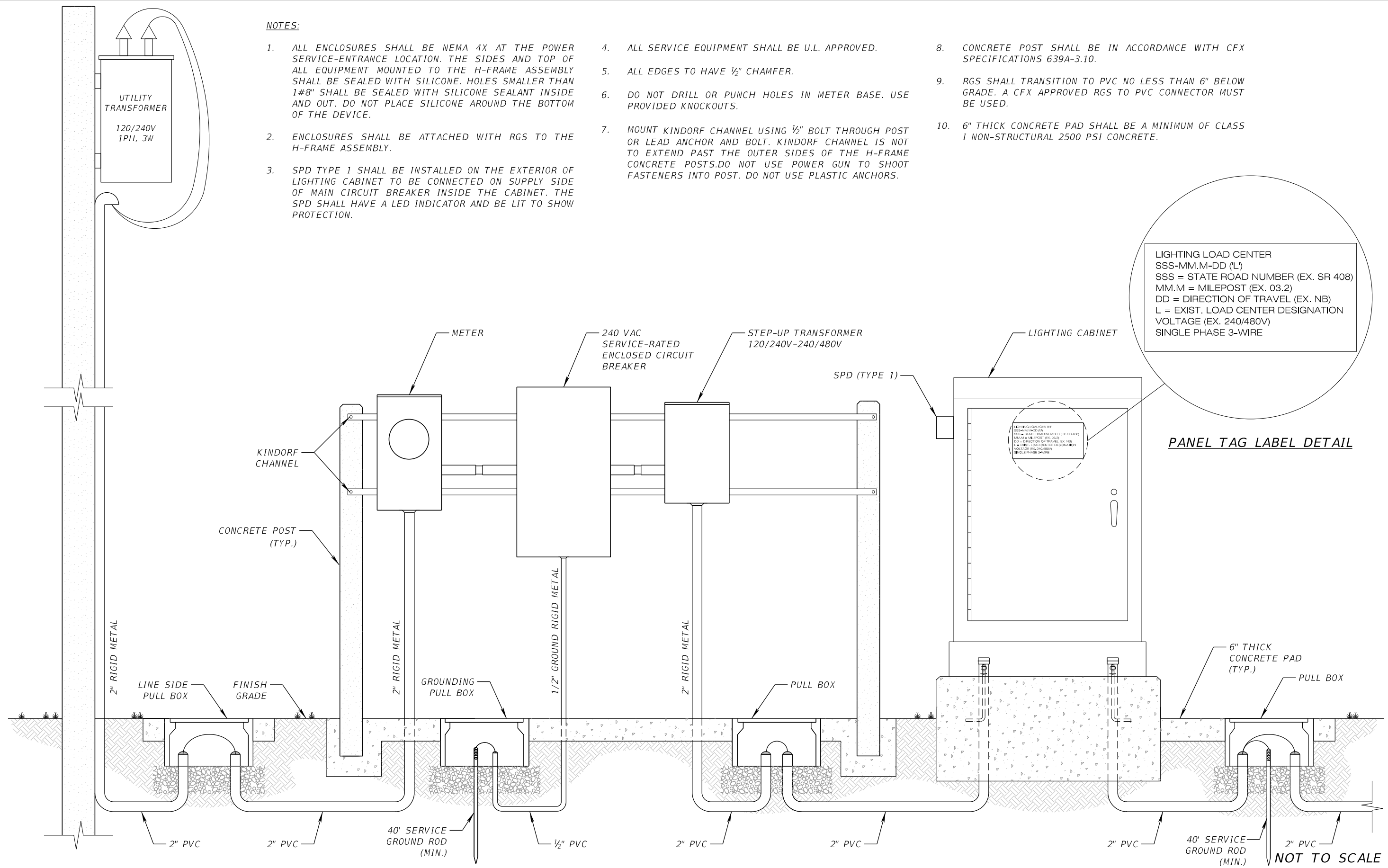
**GENERAL NOTES:**

- ALL CONDUCTORS ARE TO BE SIZED AS REQUIRED BY THE N.E.C. THE SMALLEST SERVICE CONDUCTOR TO BE USED THROUGHOUT THE SERVICE ASSEMBLY IS #6 AWG COPPER XHHW-2XLP.

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		<b>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</b>	<b>ELECTRICAL SERVICE ASSEMBLY WIRING DIAGRAM WITHOUT A TRANSFORMER</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			K-2
8/25/23	REVISED PULL BOX CALL OUT								

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**NOTES:**

1. ALL ENCLOSURES SHALL BE NEMA 4X AT THE POWER SERVICE-ENTRANCE LOCATION. THE SIDES AND TOP OF ALL EQUIPMENT MOUNTED TO THE H-FRAME ASSEMBLY SHALL BE SEALED WITH SILICONE. HOLES SMALLER THAN 1#8" SHALL BE SEALED WITH SILICONE SEALANT INSIDE AND OUT. DO NOT PLACE SILICONE AROUND THE BOTTOM OF THE DEVICE.
2. ENCLOSURES SHALL BE ATTACHED WITH RGS TO THE H-FRAME ASSEMBLY.
3. SPD TYPE 1 SHALL BE INSTALLED ON THE EXTERIOR OF LIGHTING CABINET TO BE CONNECTED ON SUPPLY SIDE OF MAIN CIRCUIT BREAKER INSIDE THE CABINET. THE SPD SHALL HAVE A LED INDICATOR AND BE LIT TO SHOW PROTECTION.
4. ALL SERVICE EQUIPMENT SHALL BE U.L. APPROVED.
5. ALL EDGES TO HAVE 1/2" CHAMFER.
6. DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
7. MOUNT KINDORF CHANNEL USING 1/2" BOLT THROUGH POST OR LEAD ANCHOR AND BOLT. KINDORF CHANNEL IS NOT TO EXTEND PAST THE OUTER SIDES OF THE H-FRAME CONCRETE POSTS. DO NOT USE POWER GUN TO SHOOT FASTENERS INTO POST. DO NOT USE PLASTIC ANCHORS.
8. CONCRETE POST SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 639A-3.10.
9. RGS SHALL TRANSITION TO PVC NO LESS THAN 6" BELOW GRADE. A CFX APPROVED RGS TO PVC CONNECTOR MUST BE USED.
10. 6" THICK CONCRETE PAD SHALL BE A MINIMUM OF CLASS I NON-STRUCTURAL 2500 PSI CONCRETE.

LIGHTING LOAD CENTER  
 SSS-MM.M-DD (L)  
 SSS = STATE ROAD NUMBER (EX. SR 408)  
 MM.M = MILEPOST (EX. 03.2)  
 DD = DIRECTION OF TRAVEL (EX. NB)  
 L = EXIST. LOAD CENTER DESIGNATION  
 VOLTAGE (EX. 240/480V)  
 SINGLE PHASE 3-WIRE

**PANEL TAG LABEL DETAIL**

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
6/8-23	REMOVED CABINET LOUVER		

ENGINEER OF RECORD FULL NAME, P.E.  
 P.E. LICENSE NUMBER 99999  
 ENGINEER OF RECORD COMPANY NAME  
 ENGINEER OF RECORD COMPANY STREET  
 ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME (1 to 3 LINES)	
ROAD NO.	PROJECT NO.

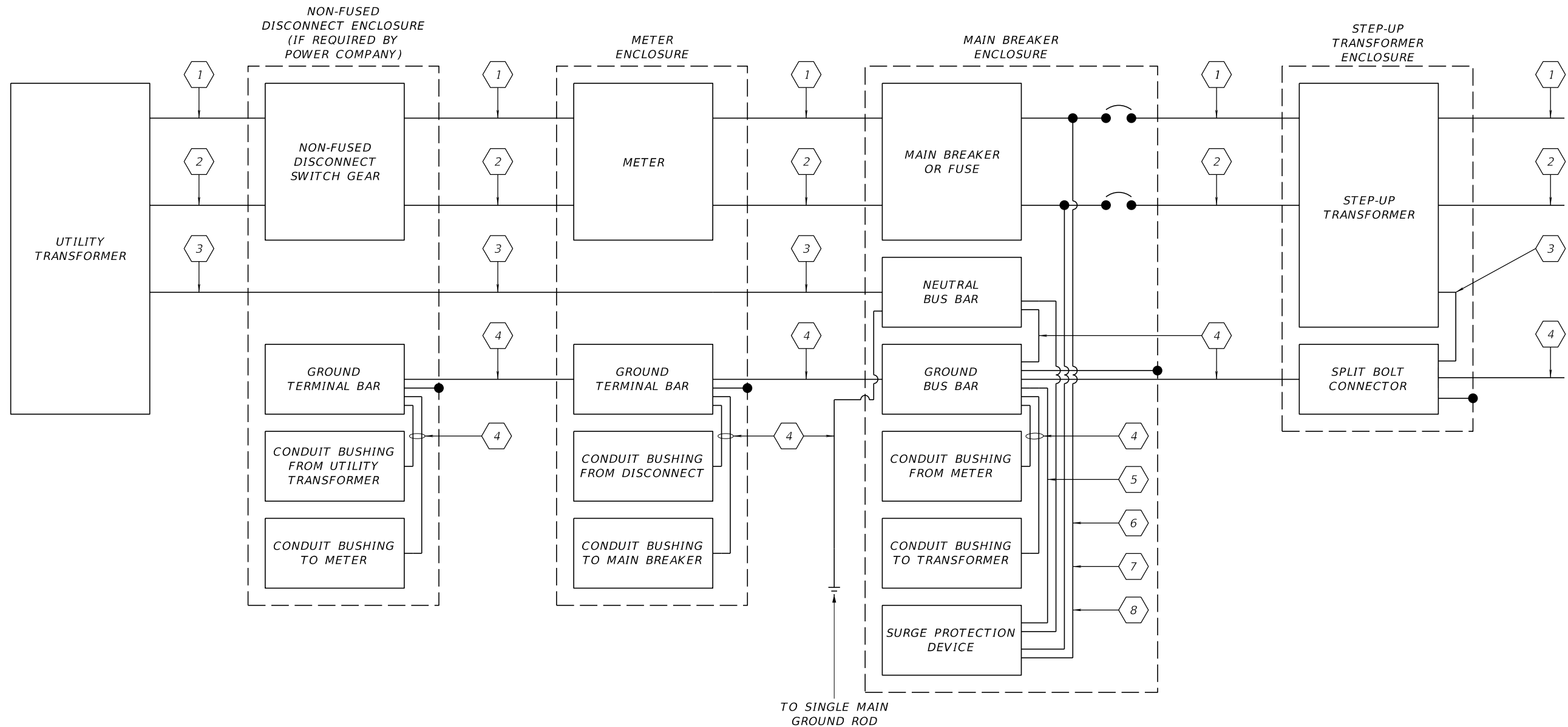


**ELECTRIC SERVICE ASSEMBLY  
 WITH A TRANSFORMER**

SHEET NO.  
**K-3**

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NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR POWER SERVICE 120/240 AND OPERATING VOLTAGE 240/480 VAC APPLICATION.

**GENERAL NOTES:**

1. ALL CONDUCTORS ARE TO BE SIZED AS REQUIRED BY THE N.E.C. THE SMALLEST GROUND CONDUCTOR TO BE USED THROUGHOUT THE SERVICE ASSEMBLY IS #6 AWG COPPER XHHW-2XLP.

**KEYED NOTES:**

- 1 BLACK INSULATED LOAD CONDUCTOR A
- 2 RED INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
- 3 WHITE INSULATED NEUTRAL CONDUCTOR
- 4 GREEN INSULATED GROUND CONDUCTOR
- 5 SURGE PROTECTION DEVICE GROUND WIRE
- 6 SURGE PROTECTION DEVICE NEUTRAL WIRE
- 7 SURGE PROTECTION DEVICE LOAD WIRE B
- 8 SURGE PROTECTION DEVICE LOAD WIRE A

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		<b>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</b>	<i>ELECTRICAL SERVICE ASSEMBLY WIRING DIAGRAM WITH A TRANSFORMER</i>		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.				
										K-4

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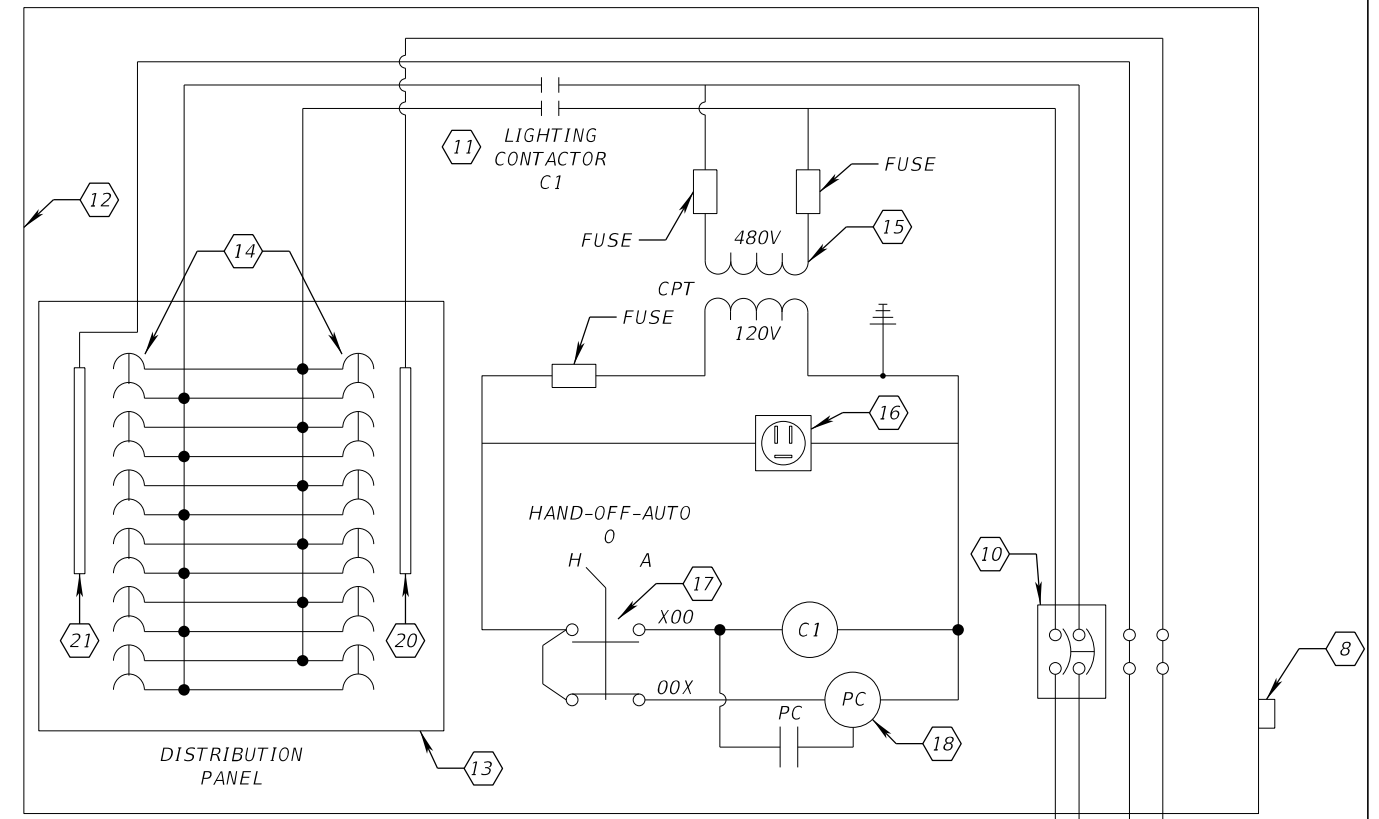
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**GENERAL NOTES:**

1. SEE LIGHTING PLAN SHEETS FOR APPROXIMATE LOCATION OF THE POINT OF CONNECTION. COORDINATE WITH THE LOCAL POWER COMPANY FOR THE SERVICE SOURCE AND POINT OF CONNECTION, EXACT LOCATIONS AND THE NECESSARY REQUIREMENTS FOR A COMPLETE AND OPERATIONAL INSTALLATION.
2. LIGHTING ENCLOSURE SHALL BE FACTORY ASSEMBLED AND TESTED PRIOR TO SHIPMENT TO THE PROJECT SITE FOR INSTALLATION. ALL COMPONENT DEVICES SHALL BE UL LISTED AND LABELED.
3. THE ELECTRICAL COMPONENTS LAYOUT SHOWN IN ONE-LINE DIAGRAM AND SCHEMATIC DETAILS ARE DIAGRAMMATIC. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO INSTALL THE ENTIRE SYSTEM IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NEC, LOCAL POWER COMPANY AND DESIGN REQUIREMENTS.
4. ALL EMPTY CONDUITS SHALL BE CAPPED AND FURNISHED WITH A PULL STRING FOR FUTURE USE.
5. PULL BOX, CONDUCTOR, AND CONDUIT QUANTITIES AND SIZES VARY. REFER TO LIGHTING PLAN SHEETS FOR ADDITIONAL INFORMATION.

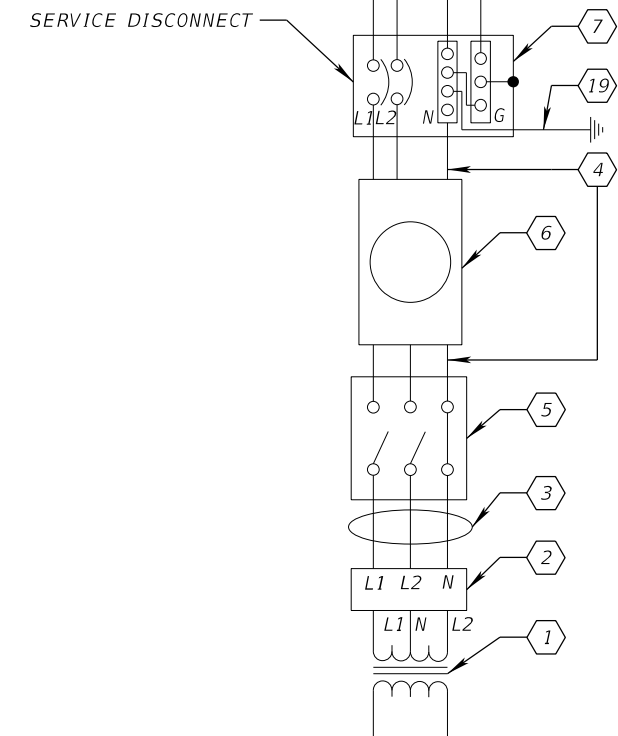
**KEYED NOTES:**

- 1 240/480V, SINGLE PHASE, 3-WIRE ELECTRIC UNDERGROUND OR OVERHEAD SERVICE DISTRIBUTION TRANSFORMER.
- 2 JUNCTION BOX AT THE BASE OF THE LOCAL POWER COMPANY'S POLE. COORDINATE REQUIREMENTS WITH THE POWER COMPANY'S REPRESENTATIVE. JUNCTION BOX COVER SHALL BE MARKED "ELECTRIC". SERVICE CONDUCTORS IN 2" RIGID CONDUIT BY THE POWER COMPANY.
- 3 SERVICE CONDUCTORS AND CONDUITS USING PVC FOR UNDERGROUND AND RGS FOR THE ABOVE GROUND INSTALLATIONS.
- 4 SERVICE-ENTRANCE CONDUCTORS IN RIGID GALVANIZED STEEL CONDUIT FOR ABOVE GRADE AND PVC SCHEDULE 40 FOR UNDERGROUND INSTALLATIONS.
- 5 NON-FUSED DISCONNECT SWITCH, NEMA 4X, STAINLESS STEEL.
- 6 METER SOCKET AND GROUNDING BY CONTRACTOR PER POWER COMPANY'S REQUIREMENTS. METER BY POWER COMPANY.
- 7 SERVICE ENTRANCE-RATED ENCLOSED CIRCUIT BREAKER, 600V RATING, 35K AIC, SOLID NEUTRAL, NEMA 4X, STAINLESS STEEL, MAIN BONDING JUMPER, EQUIPMENT GROUNDING BUS BONDED TO ENCLOSURE.
- 8 SURGE PROTECTION DEVICE (SPD), TYPE 1, MOUNTED ON THE SUPPLY SIDE OF SERVICE ENTRANCE RATED ENCLOSED CIRCUIT BREAKER. SPD UNIT SHALL BE UL 1449 LATEST EDITION, 20KA I-NOMINAL, L-N, L-G, AND L-L MODES OF PROTECTION, SURGE CURRENT RATING OF 100KA, SHORT CIRCUIT CURRENT RATING (SCCR) OF 100KA OR GREATER, VOLTAGE PROTECTION RATING (VPR) OF 1000V, FOR OPERATING VOLTAGE OF 240/480V INCLUDING GROUND AND NEUTRAL, USING ASCO MODEL NUMBER 420277SP10AWSJ10. SPD IS TO BE EQUIPPED WITH A PROTECTION STATUS LED.
- 9 PHASE, GROUNDED SERVICE (NEUTRAL), AND EQUIPMENT GROUND CONDUCTORS USING PVC CONDUIT FOR UNDERGROUND AND RGS FOR ABOVE GROUND INSTALLATIONS.
- 10 MAIN CIRCUIT BREAKER, 600V RATING, SOLID NEUTRAL, NEMA 1 ENCLOSURE.
- 11 ELECTRICALLY HELD LIGHTING CONTACTOR USED FOR 2-POLE APPLICATION.
- 12 LIGHTING CONTROL PANEL ENCLOSURE (NEMA 4X, ALUMINUM). ENCLOSURE SHALL BE SINGLE CONTINUOUS HINGED DOOR WITH BACK PANEL, 3-POINT, T-HANDLE LATCHING MECHANISM WITH PLASTIC OR RUBBER ROLLER GUIDES, AND PAD LOCK HASP. DIMENSIONS SHALL BE AS REQUIRED TO ACCOMMODATE THE COMPONENT DEVICES AND MATERIAL SPECIFIED TO BE INSTALLED INSIDE THE ENCLOSURE. GROUND MOUNTED ENCLOSURE PER STANDARD 639-002.
- 13 PANELBOARD WITH COPPER BUSSING. ALL MAIN AND BRANCH BREAKERS, BUSSING AND FEED THROUGH LUGS SHALL BE FULLY RATED. PANELBOARD SHALL BE UL67, NEUTRAL BUS, GROUND BUS, AND NEMA 1 SURFACE MOUNT ENCLOSURE. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.
- 14 BRANCH CIRCUIT TO ROADWAY LUMINAIRES (TYPICAL).
- 15 FUSED CONTROL POWER TRANSFORMER, KVA RATING AS NEEDED, SINGLE PHASE, 480V PRIMARY, 120V SECONDARY.
- 16 GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE RECEPTACLE, 120V, 20A, NEMA 5-20R INDUSTRIAL GRADE.
- 17 HAND-OFF AUTOMATIC SELECTOR SWITCH (PART OF LIGHTING CONTACTOR, SHOWN OUTSIDE FOR CLARITY).
- 18 PHOTOCELL (PC) CONTROLLER, 120V RATED.
- 19 COPPER GROUNDING CONDUCTOR IN 1" SCH. 80 PVC CONDUIT WHERE EXPOSED. BOND GROUNDING TO TOP OF GROUND ROADS VIA EXOTHERMIC WELDING PROCESS. USE 5/8" COPPER CLAD GROUND ROADS BY 40' LONG (MIN.) INSTALLED 12" UNDER FINAL GRADE AT LEAST 20' APART AND BONDED TOGETHER WITH TIN PLATED BARE COPPER (MIN. #2 AWG), BY EXOTHERMIC WELDING. SIZE PER DESIGN REQUIREMENTS.



**WIRING DIAGRAM**

- 20 GROUND BUS BAR
- 21 NEUTRAL BUS BAR



NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
8/25/23	ADDED KEYED NOTES 20 AND 21		

ENGINEER OF RECORD FULL NAME, P.E.  
 P.E. LICENSE NUMBER 99999  
 ENGINEER OF RECORD COMPANY NAME  
 ENGINEER OF RECORD COMPANY STREET  
 ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME (1 to 3 LINES)	
ROAD NO.	PROJECT NO.

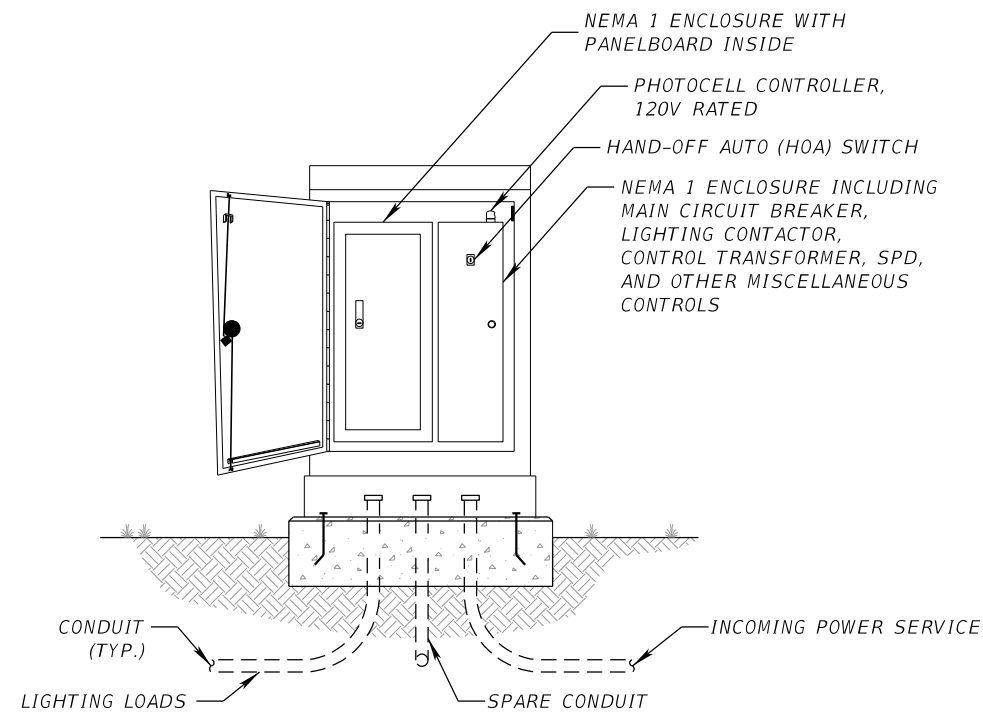


**SERVICE POINT DETAILS**

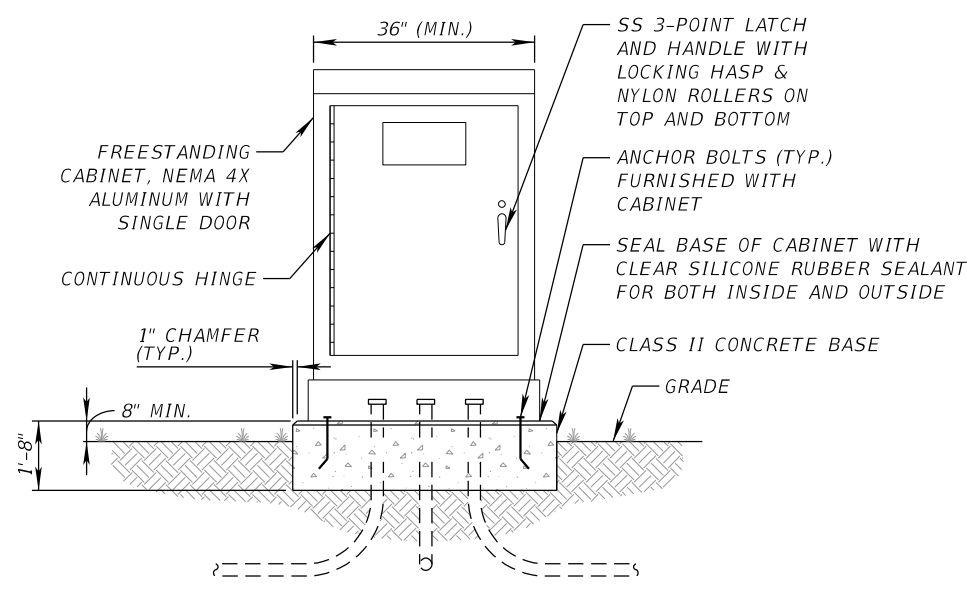
SHEET NO.  
K-5

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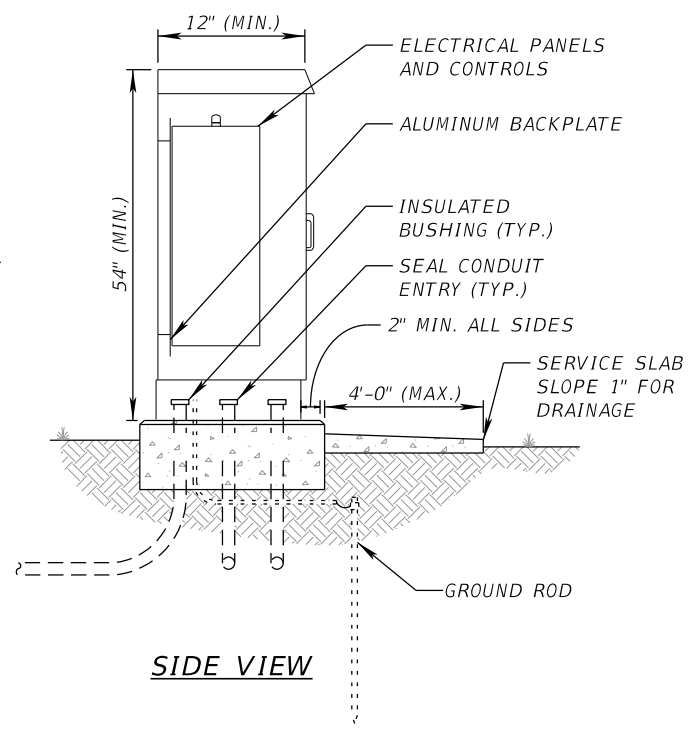
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**FRONT VIEW (CABINET INTERIOR)**



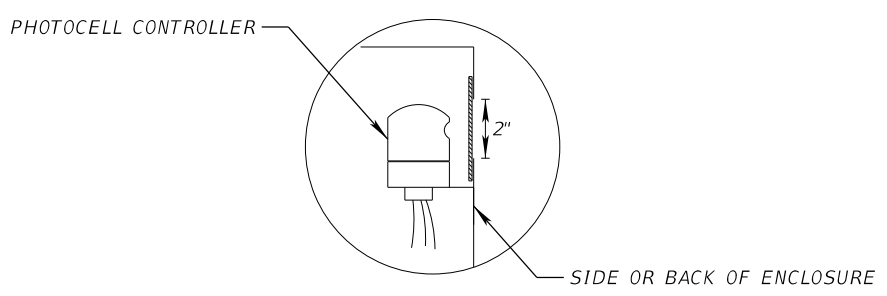
**FRONT VIEW (CABINET EXTERIOR)**



**SIDE VIEW**

**NOTES:**

1. CABINET SHALL BE GROUNDED PER NEC AND CFX STANDARDS AND DETAILED IN THE PLANS.
2. STUB-OUT ONE(1) SPARE 2" PVC CONDUIT BELOW GRADE AND BEYOND CONCRETE BASE. CAP ENDS AND INDICATE LOCATION OF STUB-OUT INSIDE CABINET.
3. CONTRACTOR SHALL FURNISH ENCLOSURE SIZED FOR THE EQUIPMENT.
4. LOAD CENTER/SERVICE POINTS SHALL BE PROVIDED WITH A MINIMUM OF 20% SPARE CAPACITY.



NEMA 4X LISTED WINDOW KIT FOR THE OPERATION AND MOUNTING OF THE PHOTOCELL CONTROLLER

**PHOTOCELL CONTROLLER DETAIL**

NOT TO SCALE

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING CABINET DETAILS	SHEET NO.  K-6
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
6/8-23	REMOVED CABINET LOUVER AND UPDATED PHOTOCELL CONTROLLER DETAIL.								

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LIGHTING LOAD ANALYSIS - CFX PROJECT NO. XXX-XXX								
OPERATING VOLTAGE & DELIVERY TYPE	DISTANCE BETWEEN POINT OF SERVICE & LIGHTING CABINET (FT)	LIGHTING CABINET LOCATION	LIGHTING CABINET DESIGNATION	CKT NO.	TOTAL NO. OF FIXTURES	CONNECTED LOAD (AMPS)	CONNECTED LOAD (KVA)	2-POLE BRANCH BREAKER (AMPS)
				A-1				
				A-2				
				A-3				
				A-4				
				SPARE				
				SPARE				
				SPARE				

LIGHTING LOAD ANALYSIS - CFX PROJECT NO. XXX-XXX								
OPERATING VOLTAGE & DELIVERY TYPE	DISTANCE BETWEEN POINT OF SERVICE & LIGHTING CABINET (FT)	LIGHTING CABINET LOCATION	LIGHTING CABINET DESIGNATION	CKT NO.	TOTAL NO. OF FIXTURES	CONNECTED LOAD (AMPS)	CONNECTED LOAD (KVA)	2-POLE BRANCH BREAKER (AMPS)
				B-1				
				B-2				
				B-3				
				B-4				
				SPARE				
				SPARE				
				SPARE				

240/480V, 1PH, 3W WITH GROUND BUS												PANELBOARD SCHEDULE "A"			___AMPS, MLO NEMA 1 ENCLOSURE		
POS. NO.	CKT. NO.	AMPS	POLE	BKR	LOAD	POS. NO.	CKT. NO.	AMPS	POLE	BKR	LOAD						
1	1					2	2										
3						4											
5	3					6	4										
7						8											
9						10											
11						12											
13						14											
15						16											
17						18											
19						20											
21						22											
23						24			2	30	SPD						
TOTAL CONNECTED LOAD:				___ KVA													
TOTAL CONNECTED LOAD:				___ AMPS													
TOTAL DEMAND LOAD:				___ KVA													
TOTAL DEMAND LOAD:				___ AMPS													

240/480V, 1PH, 3W WITH GROUND BUS												PANELBOARD SCHEDULE "B"			___AMPS, MLO NEMA 1 ENCLOSURE		
POS. NO.	CKT. NO.	AMPS	POLE	BKR	LOAD	POS. NO.	CKT. NO.	AMPS	POLE	BKR	LOAD						
1	1					2	2										
3						4											
5	3					6	4										
7						8											
9						10											
11						12											
13						14											
15						16											
17						18											
19						20											
21						22											
23						24			-	2	30	SPD					
TOTAL CONNECTED LOAD:				___ KVA													
TOTAL CONNECTED LOAD:				___ AMPS													
TOTAL DEMAND LOAD:				___ KVA													
TOTAL DEMAND LOAD:				___ AMPS													

**NOTES:**

- ALL BRANCH CIRCUIT BREAKERS SHALL HAVE A MINIMUM OF 14,000 AMPS FULLY RATED INTERRUPTING CAPACITY.
- PANELBOARDS WITH NEMA 1 ENCLOSURES, UL 67 RATING 5, SHALL BE INSTALLED PAD-MOUNTED, 4X ALUMINUM CABINETS AT THE POWER SERVICE-ENTRANCE LOCATIONS. REFER TO LIGHTING CABINET DETAILS FOR ADDITIONAL INFORMATION.
- THE LEAD LENGTH OF THE SURGE PROTECTION DEVICES (SPD) SHALL BE AS SHORT AND STRAIGHT AS POSSIBLE.
- SURGE PROTECTION DEVICE (SPD), TYPE 2, PRE-WIRED WITH #10 AWG CABLES CONNECTED TO A 30A/2-POLE CIRCUIT BREAKER LOCATED WITHIN LIGHTING CABINET DISTRIBUTION PANEL. SPD UNIT SHALL BE UL 1449 LATEST EDITION, 20KA I-NOMINAL, L-N, N-G, AND L-L MODES OF PROTECTION, SURGE CURRENT RATING OF 50KA, SHORT CIRCUIT CURRENT RATING (SCCR) OF 100KA OR GREATER, VOLTAGE PROTECTION RATING (VPR) OF 1200V, FOR OPERATING VOLTAGE OF 240/480V INCLUDING GROUND AND NEUTRAL, USE ASCO MODEL NUMBER 420277SP05NWSJ10. SPD IS TO BE EQUIPPED WITH A PROTECTION STATUS LED. THE LEAD LENGTH OF THE SURGE PROTECTION DEVICES (SPD) SHALL BE AS SHORT AND STRAIGHT AS POSSIBLE.
- CONTRACTOR SHALL PROVIDE TYPEWRITTEN PANELBOARD CIRCUIT DIRECTORY WITH A CLEAR PLASTIC COVER TO BE PLACED INSIDE OF THE PANELBOARD DOOR. THE CIRCUIT DIRECTORY INFORMATION SHALL MATCH THE POLE IDENTIFICATION TAG INFORMATION OF THE ACTUAL INSTALLED LIGHT POLES.

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	PANELBOARD SCHEDULES	SHEET NO.  K-7
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
6/8/23	ADDED NEW NOTE 3.								

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**NOTES:**

1. PLACE ARC FLASH WARNING LABEL ON THE EXTERIOR COVER OF EQUIPMENT AT THE LIGHTING LOAD CENTER LOCATIONS AS SPECIFIED HEREIN.
2. PROVIDE A 4" (H) X 6" (W) SELF-ADHESIVE VINYL LABEL COMPLYING WITH THE ARC FLASH HAZARD LABELING STANDARD DEPICTED ON THIS SHEET.
3. ADJUST ALL PROTECTIVE DEVICE SETTINGS BASED ON THE RESULTS OF THE SELECTIVE COORDINATION AND ARC FLASH HAZARD STUDY PERFORMED FOR THIS PROJECT.
4. PRIOR TO FABRICATION, COORDINATE THE ARC FLASH HAZARD STUDY RESULTS AND DEVICE SETTINGS WITH MANUFACTURERS AND SUPPLIERS OF ELECTRICAL EQUIPMENT TO INCORPORATE THE RECOMMENDATIONS AND NECESSARY MODIFICATIONS.
5. SPECIFIC MODELS OF OVER CURRENT PROTECTION DEVICES WERE USED IN THE ARC FLASH HAZARD STUDY; IF ALTERNATIVE DEVICES ARE USED, THE ARC FLASH HAZARD DATA DEPICTED HEREIN ARE NOT VALID. SUBMIT OVERCURRENT PROTECTION DEVICE SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO INSTALLATION; IF THE APPROVED DEVICES VARY FROM THE DEVICES USED IN THE ORIGINAL ARC FLASH HAZARD STUDY, COORDINATE WITH THE ENGINEER TO OBTAIN REVISED ARC FLASH HAZARD DATA FOR EQUIPMENT LABELS AND REVISED OVER CURRENT PROTECTION DEVICE COORDINATION SETTINGS.

<span style="font-size: 2em; font-weight: bold; margin-left: 10px;">WARNING</span>	
<b>ARC FLASH AND SHOCK RISK APPROPRIATE PPE REQUIRED</b>	
<b>FLASH PROTECTION</b>	<b>SHOCK PROTECTION</b>
MIN. ARC RATING (cal/cm <sup>2</sup> ):   SEE TABLE	SHOCK RISK WHEN COVER REMOVED:   SEE TABLE
ARC FLASH BOUNDARY (in):   SEE TABLE	LIMITED APPROACH (in):   SEE TABLE
	RESTRICTED APPROACH (in):   SEE TABLE
DATE OF ANALYSIS:   SEE TABLE	REFERENCE NFPA 70E FOR APPROPRIATE PPE FOR BOTH ARCH FLASH AND SHOCK RISKS.

ARC FLASH AND SHOCK HAZARD DATA						
EQUIPMENT	MIN. ARC RATING (cal/cm <sup>2</sup> )	ARC FLASH BOUNDARY (in.)	SHOCK RISK WHEN COVER REMOVED (OPERATING VOLTAGE)	LIMITED APPROACH (in.)	RESTRICTED APPROACH (in.)	DATE OF ANALYSIS (MONTH/YEAR)
LOAD CENTER A METER DISCONNECT			480 VAC	42	12	
LOAD CENTER A METER			480 VAC	42	12	
LOAD CENTER A MAIN DISCONNECT			480 VAC	42	12	
LOAD CENTER A LIGHTING CABINET			480 VAC	42	12	
LOAD CENTER B METER DISCONNECT			480 VAC	42	12	
LOAD CENTER B METER			480 VAC	42	12	
LOAD CENTER B MAIN DISCONNECT			480 VAC	42	12	
LOAD CENTER B LIGHTING CABINET			480 VAC	42	12	
LOAD CENTER C METER DISCONNECT			480 VAC	42	12	
LOAD CENTER C METER			480 VAC	42	12	
LOAD CENTER C MAIN DISCONNECT			480 VAC	42	12	
LOAD CENTER C LIGHTING CABINET			480 VAC	42	12	
LOAD CENTER D METER DISCONNECT			480 VAC	42	12	
LOAD CENTER D METER			480 VAC	42	12	
LOAD CENTER D MAIN DISCONNECT			480 VAC	42	12	
LOAD CENTER D LIGHTING CABINET			480 VAC	42	12	

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		<b>ARC FLASH WARNING LABEL AND NOTES</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					L-1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.