CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING DESIGN DETAILS

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

MARCH 2026

CENTRAL FLORIDA EXPRESSWAY AUTHORITY
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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.

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GENERAL NOTES:

1. PRIOR TO ANY EQUIPMENT ORDER, SUBMIT ANY EQUIPMENT AND DESIGN DATA MATERIAL PROPOSED TO THE PROJECT'S CONSTRUCTION ENGINEERING INSPECTION ENGINEER (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. WIRE SAFE THEFT PREVENTION DEVICE
   H. CONDUIT, PULL BOXES, ELECTRICAL AND GROUNDING WIRES, SPLICE KITS AND GROUND RODS.
   I. LIGHTING CABINETS, POWER SERVICE PANELS, METERS AND ALL ASSOCIATED ELECTRICAL EQUIPMENT.
   J. 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 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 REQUIRMENTS.

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 DETAILS.

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 MEDIAN 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. REPAINT 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 SHEEBA WEST (LPMC) 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 (QR 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-BUILT PLANS:

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-BUILT PLANS 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' FOR ELECTRICAL SERVICE WIRES SIZED LESS THAN #1/0 AWG, AND 300' FOR ELECTRICAL SERVICE WIRES SIZED #1/0 AWG OR LARGER.

3. PULL BOXES SHALL NOT BE PLACED WITHIN DRAINAGE AREAS.

UTILITY NOTES:

1. AS REQUIRED PER FLORIDA STATUTE 556, CALL SUNSHINE STATE ONE-CALL OF FLORIDA, INC., AT 1-800-432-4770, NO LESS THAN 2 OR MORE THAN 5 BUSINESS DAYS BEFORE BEGINNING ANY EXCAVATION OR DEMOLITION. NOT ALL UTILITY AGENCIES/OWNERS ARE MEMBERS OF SUNSHINE STATE ONE-CALL OF FLORIDA, INC. A CONTACT LIST OF CFX OWNED FACILITIES:
   - A. CFX (FIBER): WILLIAM (PAT) COLLINS – (407) 690-5000 EXT: 5056 OR CFX (FIBER/ITS) BRENT POOLE – (407) 690-5000 EXT: 5338
   - B. CFX ROADWAY MAINTENANCE (SR429, SR414, SR451, SR453): VERSAR – (689) 252-0556
   - C. CFX ROADWAY MAINTENANCE (SR408, SR417, SR528): JCS – (407) 249-9122
   - D. CFX LANDSCAPING: SHEEBA WEST (LPMC) – (407) 580-8113
   - E. CFX FACILITIES MAINTENANCE: VERSAR – (855) 932-5790
   - F. CFX TOLLING MAINTENANCE: TRANSCORE (407) 382-1301
2. STAKE ALL POLE LOCATIONS AND REQUEST UTILITY COMPANIES TO LOCATE AND MARK UNDERGROUND UTILITIES PRIOR TO EXCAVATING.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING UNDERGROUND UTILITIES VERTICALLY AND HORIZONTALLY (VVH) FOR ALL CONDUIT INSTALLATIONS. THE COST FOR THE VVHS SHALL BE INCLUDED IN THE COST OF THE CONDUIT.
4. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF EXISTING ROADWAY LIGHTING AND FIBER OPTIC CONDUITS AS WELL AS OTHER UTILITIES PRIOR TO INSTALLATION OF POLE FOUNDATIONS, LOAD CENTERS, SIGN STRUCTURES, CONDUITS AND PULL BOXES.
5. MAKE SURE THAT ALL NECESSARY PROTECTIVE MEASURES ARE TAKEN TO SAFEGUARD EXISTING UTILITIES DURING LIGHTING EQUIPMENT INSTALLATIONS.
6. THE CONTRACTOR SHALL EXERCISE ALL APPROPRIATE SAFETY MEASURES WHEN WORKING IN OR AROUND AREAS OF OVERHEAD ELECTRICAL/TRANSMISSION LINES OR UNDERGROUND UTILITIES IN ACCORDANCE WITH THE LATEST VERSION OF THE OSHA REQUIREMENTS. HAND DIGGING SHALL OCCUR ALL AROUND UTILITIES.
7. POWER SUPPLY LOCATIONS HAVE BEEN COORDINATED WITH DUKE ENERGY AND THE ORLANDO UTILITIES COMMISSION. CONTACT EACH RESPECTIVE POWER COMPANY IMMEDIATELY FOLLOWING THE PRE-CONSTRUCTION MEETING TO ENSURE THAT ALL ELECTRIC EQUIPMENT CAN BE AT LOCATIONS INDICATED WITHIN THESE PROJECT PLANS.
   - A. DUKE ENERGY CONTACT: (800) 700-8744
   - B. ORLANDO UTILITIES COMMISSION CONTACT: (407) 423-9018
8. ESTABLISH, STAKE, PAINT AND MAINTAIN LIGHT POLE LOCATIONS WITH THE USE OF A FLORIDA REGISTERED LAND SURVEYOR. THE LIGHT POLE LOCATIONS ARE TO BE RE-ESTABLISHED BY A FLORIDA REGISTERED LAND SURVEYOR IF, DURING THE CONSTRUCTION PROCESS, THE STAKES AND/OR PAINTED MARKS ARE NO LONGER PRESENT. NO ADDITIONAL PAYMENT WILL BE PERMITTED.
9. THE LOCATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, ARE APPROXIMATE AND BASED ON THE INFORMATION FURNISHED TO THE ENGINEER BY THE UTILITY OWNER(S) AND ARE SHOWN AS NOTICE THAT UNDERGROUND UTILITIES EXIST.
10. THE LOCATION OF THE CONDUCTORS, CONDUITS, JUNCTION BOXES, SERVICE POINTS, AND OTHER LIGHTING RELATED EQUIPMENT ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE EOR AND CEI ENGINEER TO ACCOMMODATE LOCAL CONDITIONS AND EXISTING UTILITY LOCATIONS. CONDUIT SHALL BE PLACED WITHIN EXISTING RIGHT-OF-WAY.
11. HAND DIG THE FIRST 4' OF ALL UTILITY CROSSINGS TO VERIFY AND MINIMIZE POSSIBLE UTILITY CONFLICTS.
12. ACQUIRE ALL PERMITS BY OTHER AGENCIES FOR INSTALLATION OF INFRASTRUCTURE NOT ON CFX FACILITIES. NO ADDITIONAL COMPENSATION WILL BE PERMITTED.
13. MAINTAIN THE EXISTING FIBER OPTIC NETWORK (FON) WITHIN THE LIMITS OF CONSTRUCTION. AT NO TIME SHALL THERE BE ANY LOSS OF COMMUNICATIONS OR DATA ALONG THE CFX FIBER OPTIC NETWORK. ANY CONSTRUCTION ACTIVITIES WITHIN TEN FEET OF THE FIBER OPTIC NETWORK SHALL BE PERFORMED ON ONE SIDE OF THE ROAD AT A TIME. REVIEW CFX ITS SPECIFICATIONS 603A & 631 FOR OTHER FON PRESERVATION DETAILS.
14. LOCATE AND PROTECT EXISTING CFX FIBER OPTIC CABLES AND BURIED ELECTRICAL LINES DURING THE INSTALLATION OF NEW CONDUIT AND PULL BOXES.
15. ADHERE TO ALL APPLICABLE PROVISIONS OF EXISTING UTILITY EASEMENTS.

ELECTRICAL EQUIPMENT NOTES:

1. CONNECTIONS TO EXISTING POWER METERS TO BE ACCOMPLISHED PER STATE AND LOCAL CODES. EACH POWER SERVICE METER ENCLOSURE SHALL BE CORRECTLY IDENTIFIED ON THE OUTSIDE FRONT BY A NON-FERROUS METAL OR PLASTIC PLATE PER DUKE ENERGY OR OUC STANDARDS. THE PLATE SHALL BE RIVETED TO THE METER ENCLOSURE. A LICENSED ELECTRICIAN IS TO PRE-EXAMINE EACH SITE TO DETERMINE THE FEASIBILITY OF CONNECTING TO THE PROPOSED POWER SOURCE. CONNECTIONS MUST BE MADE THROUGH AN EXISTING OR NEW BREAKER PANEL WITH THE APPROPRIATE CIRCUIT BREAKER AND CORRECT WIRE GAUGE. ALL MATERIALS, EQUIPMENT AND LABOR TO BE SUPPLIED FOR A COMPLETE CONNECTION AND IS TO BE PAID UNDER PAY ITEM 639-1-111 AND 639-1-112.
2. INSTALL PROPERLY GROUNDED SURGE PROTECTION DEVICES TYPE I AT ALL SERVICE-ENTRANCE RATED FUSED DISCONNECT SWITCHES. INSTALL PROPERLY GROUNDED SURGE PROTECTION DEVICES TYPE II WITH LEAD LENGTHS NOT TO EXCEED TWELVE (12) INCHES FED VIA TWO-POLE BRANCH CIRCUIT BREAKER LOCATED WITHIN THE PANEL BOARD MOUNTED CLOSEST TO THE SERVICE ENTRANCE POINT. THE LIGHT POLES SHALL BE GROUNDED PER THE CFX LIGHTING STANDARDS REGARDLESS OF LOCAL PRACTICES. GROUNDING THE POLES THROUGH THE HANDHOLE IS UNACCEPTABLE. MANUFACTURER SUPPLIED GROUND TERMINAL SHALL BE USED.
3. IN ACCORDANCE WITH N.E.C. IDENTIFY ALL CIRCUITS AND EQUIPMENT WITH "LAMACOID TAGS".
4. FOR DC CIRCUIT CONDUCTORS PROVIDING POWER TO EQUIPMENT OPERATING AT LESS THAN 60 VDC, EACH CONDUCTOR SHALL ADHERE TO THE SAME NEC REQUIRMENTS FOR CONDUCTOR IDENTIFICATION AS DC CIRCUITS OPERATING AT GREATER THAN 60 VDC.
5. ALL EXTERNALLY CONNECTED EQUIPMENT (SURGE PROTECTION DEVICES, PHOTOCELLS, ETC.) AT SERVICE ENTRANCE LOCATIONS, LIGHTING LOAD CENTERS AND CABINETS SHALL BE SILICONE SEALED, BOTH INSIDE AND OUTSIDE, AT THE EQUIPMENT'S MOUNTING POINTS POST-INSTALLATION.
6. PROVIDE TYPE-WRITTEN DIRECTORIES WITH THE SAME POLE IDENTIFICATION TAG NUMBERING SYSTEM AS INSTALLED IN THE FIELD FOR EACH POLE.
7. ALL SPARE BREAKERS SHALL BE PLACED IN THE 'OFF' POSITION.
8. ELECTRICAL SPLICES ARE NOT PERMITTED WITHIN SERVICE ENTRANCE EQUIPMENT, LOAD CENTERS, LIGHTING CABINETS. ALL ELECTRICAL WIRING SHALL BE CONNECTED TO A DESIGNATED TERMINAL LUG.
9. PROVIDE SEPARATE COPPER BUSBARS FOR NEUTRAL AND GROUND CONNECTIONS. NEUTRAL BUSBARS SHALL BE INSTALLED WITH AN ISOLATOR FROM THE PANEL. GROUND BUSBARS SHALL BE CONNECTED TO THE CHASSIS OF THE PANEL.
10. MULTI-POLE BREAKERS SHALL HAVE A SINGLE HANDLE ON THE CENTER. TWO SINGLE POLE BREAKERS TIED TOGETHER IS NOT PERMITTED.
11. ONLY ONE WIRE SHALL LAND WITHIN EACH TERMINAL LUG. DOUBLE-TAPPING WILL NOT BE PERMITTED UNLESS THE LUG IS RATED AND IS SO LISTED (NEC 110.14).
12. ALL ELECTRICAL EQUIPMENT SHALL BE NEMA RATED FOR THE APPLICATION. PENETRATIONS PERFORMED, WHERE WATER MAY ENTER, SHALL BE SEALED BOTH INSIDE AND OUT WITH CORRECTLY SIZED HARDWARE. PLACE SILICONE SEALANT AROUND THE INSIDE AND OUTSIDE EDGES ANY ELECTRICAL EQUIPMENT WHERE IT COMES INTO CONTACT WITH CONCRETE PEDESTALS.
13. ALL ELECTRICAL TERMINATION POINTS SHALL BE SECURED AND TORQUED TO MANUFACTURER'S SPECIFICATIONS.

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

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. 715-1-XX & 715-500-XX: THE COST FOR ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS TO FURNISH AND INSTALL THE WIRE SAFE THEFT PREVENTION DEVICE SHALL BE INCIDENTAL TO THIS PAY ITEM. THE CONTRACTOR SHALL PROVIDE WIRE SAFE THEFT PREVENTION DEVICES ON ALL NEW ELECTRICAL INSTALLATIONS AT EACH PULL BOX, AT EACH DEVICE (LOAD CENTERS, POWER DISCONNECTS, POWER METERS, ETC.), AT EACH POINT OF CONDUCTOR ENTRY AND POLE CABLE DISTRIBUTION SYSTEM IN TO THE CONDUIT AND EXIT FROM THE CONDUIT. WIRE SAFE THEFT PREVENTION DEVICE IS NOT REQUIRED IF ANY OF THE FOLLOWING CONDITIONS EXIST OR ARE MET:

    1. ELECTRICAL CONDUIT WITHIN MEDIAN BARRIER WALLS
    2. ELECTRICAL CONDUIT WITHIN BRIDGE TR4AFFIC RAILINGS
    3. ANY LIGHT TO LIGHT CONDUIT OF LESS THAN 200 FEET
    4. ANY SIGN STRUCTURE WITH A CONDUIT RUN OF LESS THAN 250 FEET

    THE LOCATION OF INSTALLATION SHALL BE AT OR BELOW GROUND LEVEL FOR CONDUITS THAT EXTEND ABOVE GROUND (PRIOR TO SWITCHING TO RIGID CONDUITS ABOVE GROUND) AND BELOW THE BOTTOM OF THE PULL BOX FOR CONDUITS TERMINATING OR STARTING IN A PULL BOX (NOT ABOVE GRADE).

5. 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.

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 ONCOMMING 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. 715-52-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. THE MASTER LOCK WITH AN A418 KEY WAY IS INCIDENTAL TO THIS ITEM.

11. 715-6X-XXX: 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.

12. 715-69: 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 BRYCE RAINEY AT (407) 893-0172 TO ARRANGE DELIVERY.

13. 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

14. 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 ADJACENT 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.

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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

GENERAL AND PAY ITEM NOTES

SHEET NO. A-3

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, PHOTOCELL 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 STAIN 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 HAND HOLE. 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 RETERMINATION 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).

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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

MAINTENANCE PAY ITEMS & QUANTITY PERCENTAGES

SHEET NO. A-4

GENERAL NOTES:

1. TEMPORARY LIGHTING CRITERIA:
   1.5 FOOT CANDLES AVERAGE INITIAL INTENSITY
   4:1 OR LESS AVERAGE/MINIMUM UNIFORMITY RATIO
   10:1 OR LESS MAXIMUM/MINIMUM UNIFORMITY RATIO
   0.3:1 OR LESS VEILING LUMINANCE RATIO

2. BARRIER-MOUNTED 100 W HPS FLOODLIGHT (RAB-FX100 OR EQUIVALENT) SPACED:
   XX' ON CENTERS AT 20' M.H. (XX°TILT) FOR 1 LANE OF TRAFFIC;
   XX' ON CENTERS AT 20' M.H. (XX°TILT) FOR 2 LANES OF TRAFFIC;
   XX' ON CENTERS AT 20' M.H. (XX°TILT) FOR 3 LANES OF TRAFFIC.

3. MAINTAIN LIGHTING THROUGHOUT ALL PHASES OF CONSTRUCTION EITHER BY MAINTAINING THE EXISTING LIGHTING SYSTEM, PROVIDING TEMPORARY LIGHTING, OR ACTIVATING THE PROPOSED LIGHTING SYSTEM. THE TEMPORARY LIGHTING SYSTEM SHOULD BE OPERATIONAL BEFORE REMOVAL OF THE EXISTING LIGHTING SYSTEM. TEMPORARY LIGHTING SHALL BE PROVIDED FOR MAINLINE, RAMPS, MERGING, AND DIVERGING AREAS DURING ALL PHASES OF CONSTRUCTION, EITHER BY USING THE EXISTING LIGHTING WHERE PRACTICAL OR BY PROVIDING NEW TEMPORARY LIGHTING WHEN THE ROADWAY RECONSTRUCTION AFFECTS THE EXISTING LIGHTING. EXISTING ILLUMINATION LEVELS SHALL BE MAINTAINED BY THE ELECTRICAL CONTRACTOR DURING ALL PHASES OF CONSTRUCTION. PORTABLE-GENERATOR-OPERATED LIGHTS ARE NOT ACCEPTABLE FOR USE AS TEMPORARY LIGHTING. THE COST FOR MAINTAINING HIGHWAY LIGHTING (INCLUDING ELECTRIC SERVICE) IS INCLUDED IN THE COST FOR LUMP SUM MAINTENANCE OF TRAFFIC.

4. FURNISH, INSTALL, MAINTAIN, RELOCATE AND REMOVE THE TEMPORARY LIGHTING SYSTEM IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND NATIONAL ELECTRIC SAFETY CODE REQUIREMENTS.

5. PROVIDE OVERHEAD WIRING WHEREVER POSSIBLE AT A MINIMUM HEIGHT OF 15' ABOVE THE HIGHEST CONSTRUCTION GRADE LEVEL DURING ALL PHASES OF CONSTRUCTION. UNDERGROUND CONDUIT AND CONDUCTORS SHALL BE PROVIDED WHERE OVERHEAD WIRING WOULD INTERFERE WITH CONSTRUCTION.

6. WHEREVER POSSIBLE, UTILIZE EXISTING CIRCUITS FROM THE EXISTING SERVICE POINTS TO POWER THE TEMPORARY LIGHTING SYSTEM.

7. INSTALL TEMPORARY OR PROPOSED FIXTURES AND MODIFICATIONS TO EXISTING SYSTEMS DURING DAYLIGHT HOURS. THESE POLES SHALL BE OPERATIONAL AT NIGHT. THE CONTRACTOR MAY ELECT TO REMOVE/INSTALL POLES AT NIGHT, BUT SHALL PROVIDE SUFFICIENT LIGHTING PER TEMPORARY LIGHTING CRITERIA (PROVIDED ABOVE) TO COMPENSATE FOR THE DOWN POLES.

8. ALL COMPONENTS OF THE TEMPORARY LIGHTING SYSTEMS THAT ARE NOT PART OF THE PROPOSED LIGHTING SYSTEM SHALL BE REMOVED WHEN NO LONGER NEEDED.

9. PRIOR TO ANY EQUIPMENT ORDER, SUBMIT FOR APPROVAL EQUIPMENT SPECIFICATION OR DESIGN DATA FOR ALL MATERIAL PROPOSED FOR THE TEMPORARY LIGHTING DESIGN, SPECIFICALLY INCLUDING:
   A. LUMINAIRE PHOTOMETRICS, INCLUDING ELECTRONIC IES PHOTOMETRIC FILES
   B. POLE STRENGTH CALCULATIONS
   C. POLE FRANGIBILITY TEST (IF APPLICABLE)
   D. TEMPORARY SERVICE POINTS (IF REQUIRED, INCLUDING WIRING DIAGRAMS)
   E. CALCULATIONS AND DRAWINGS FOR TEMPORARY BARRIER WALL AND/OR DIRECT BURIAL LIGHT POLES AND MOUNTING
   F. LOAD CENTER ELECTRICAL EQUIPMENT, INCLUDING WIRING SCHEMATICS
   G. DESIGN CALCULATIONS, INCLUDING VOLTAGE DROP CALCULATIONS AND LOAD ANALYSIS

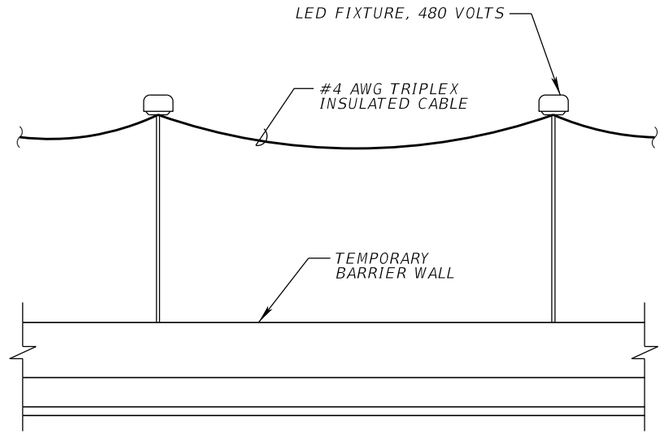
10. REFER TO FDOT DESIGN MANUAL, CHAPTER 40, SECTION 240.2.2.15 (TEMPORARY HIGHWAY LIGHTING) FOR UPDATED REQUIREMENTS.

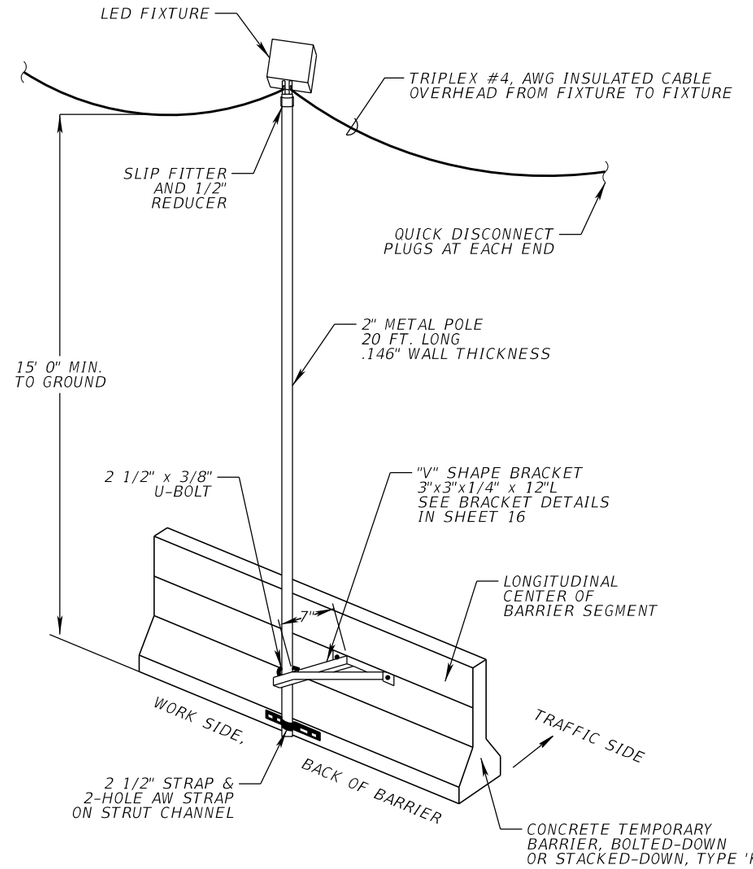
11. TEMPORARY LIGHT POLES NOT BEHIND BARRIER MUST BE BREAKAWAY.

12. ALL STRUCTURE CALCULATIONS AND DRAWINGS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

13. THE NOMINAL HEIGHT OF THE TEMPORARY LIGHT POLES SHALL NOT EXCEED THE NOMINAL HEIGHT OF THE EXISTING LIGHT POLES.

14. TEMPORARY LIGHTING SHALL BE IN COMPLIANCE WITH FAA/GOAA REQUIREMENTS FOR LIGHTING IN THE GLIDE PATH.





NOT TO SCALE

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E.	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TEMPORARY LIGHTING NOTES AND DETAILS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	P.E. LICENSE NUMBER 99999	ROAD NO.	PROJECT NO.			A-5
				ENGINEER OF RECORD COMPANY NAME					
				ENGINEER OF RECORD COMPANY STREET					
				ENGINEER OF RECORD CITY, STATE AND ZIP					

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 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.

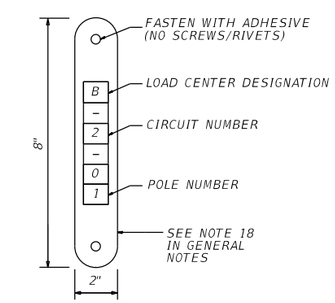
EXISTING LIGHTING CONDUIT AND CONDUCTORS TO REMAIN.

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

STA. XXX+XX B SR XXX
POLE P-1 — CKT. B 2
POLE NO. — CIRCUIT NO.



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

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

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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LEGEND

SHEET NO. A-6

POLE DATA

POLE ID ** NO.	Pay Item	PLAN SHEET	ROADWAY	STATION / OFFSET	LATITUDE*	LONGITUDE *	MOUNTING HEIGHT (FEET)	ARM LENGTH (FEET)	POLE SETBACK	MOUNTING TYPE	FOUNDATION TYPE	COLOR*	Load Center			Luminaire					PCDS TYPE*	PCDS SURGE*	LCU SERIAL NUMBER* (IF APPLICABLE)
													Voltage	Load Center ID	Circuit No.	TYPE	MFG	MODEL NO.	WATTAGE (W)	TILT (DEGREES)			

FOC = *FACE OF CURB*
EOTL= *EDGE OF TRAVEL LANE*
FOGR= *FACE OF GUARDRAIL*
PCDS= *POLE CABLE DISTRIBUTION SYSTEM*

**:* *TO BE FILLED OUT BY CONTRACTOR*
***:* *IDENTIFY LUMINAIRE WITH HOUSE-SIDE SHIELD*

NOTES:

1. THE ENGINEER OF RECORD SHALL PROVIDE THE ORIGINAL EXCEL SPREADSHEET FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
2. CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD FOR APPROVAL BY POPULATING THE CORRECT FIELD/COLUMN FOR DATA EXPORTING AND SORTING DURING CONSTRUCTION. THE REQUIRED DATA NEEDS TO BE COMPLETED AND SUBMITTED FOR APPROVAL ON A WEEKLY BASIS DURING CONSTRUCTION.

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	POLE DATA	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			A-7

UNDERDECK LUMINAIRE DATA

LUMINAIRE ID NO.	PAY ITEM NO.	PLAN SHEET	ROADWAY	STATION / OFFSET	LATITUDE*	LONGITUDE*	MOUNTING HEIGHT (FEET)	MOUNTING TYPE	LED DRIVER CABINET SIZE*	CONNECTED TO LED DRIVER* (Y/N)	Load Center			Luminaire					LUMINAIRE COLOR	LCU SERIAL NO.* (IF APPLICABLE)
											Voltage	Letter	Circuit No.	TYPE	MFG	MODEL NO.	WATTAGE (W)	TILT (DEGREES)		

*: TO BE FILLED OUT BY CONTRACTOR

NOTES:

1. THE ENGINEER OF RECORD SHALL PROVIDE THE ORIGINAL EXCEL SPREADSHEET FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
2. CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD FOR APPROVAL BY POPULATING THE CORRECT FIELD/COLUMN FOR DATA EXPORTING AND SORTING DURING CONSTRUCTION. THE REQUIRED DATA NEEDS TO BE COMPLETED AND SUBMITTED FOR APPROVAL ON A WEEKLY BASIS DURING CONSTRUCTION.
3. WALL PACKS SHOULD COME WITH UNIVERSAL SHIELDS, TO BE INSTALLED ON THE TRAFFIC APPROACHING SIDE OF THE FIXTURE. THE SHEILDS SHOULD BE INCLUDED IN THE SHOP DRAWING SUBMITTAL FOR REVIEW AND APPROVAL.

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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

UNDERDECK LUMINAIRE DATA

SHEET NO.

A-8

SIGN LUMINAIRE DATA

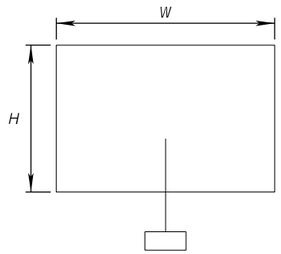
SIGN NO.	STRUCTURE NO.	MILE POST	PAY ITEM NO.	PLAN SHEET	ROADWAY	STATION / OFFSET	LATITUDE*	LONGITUDE*	ARM LENGTH (FT)	SIGN SIZE (W' x H')	CONFIGURATION TYPE	SPACING 'A'	SPACING 'B'	SPACING 'C'	SPACING 'D'	Load Center			Luminaire					LED DRIVER CABINET SIZE	LCU SERIAL NUMBER* (IF APPLICABLE)
																Voltage	Letter	Circuit No.	TYPE	MFG	MODEL NO.	WATTAGE (W)	TILT (DEGREES)		

*: TO BE FILLED OUT BY CONTRACTOR

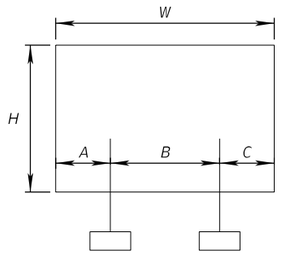
NOTES:

1. THE ENGINEER OF RECORD SHALL PROVIDE THE ORIGINAL EXCEL SPREADSHEET FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
2. CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD FOR APPROVAL BY POPULATING THE CORRECT FIELD/COLUMN FOR DATA EXPORTING AND SORTING DURING CONSTRUCTION. THE REQUIRED DATA NEEDS TO BE COMPLETED AND SUBMITTED FOR APPROVAL ON A WEEKLY BASIS DURING CONSTRUCTION.
3. SIGN LUMINAIRE TILT IS MEASURED FROM THE SIGN FACE (VERTICAL AXIS). SEE SHEET E3 FOR SIGN LUMINAIRE TILT ANGLE DETAIL.

SIGN LUMINAIRE PLACEMENT CONFIGURATIONS



TYPE 1S



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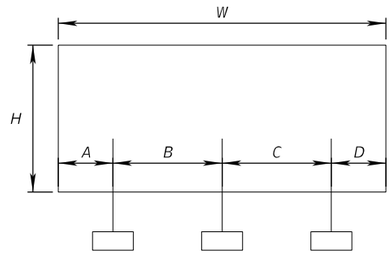

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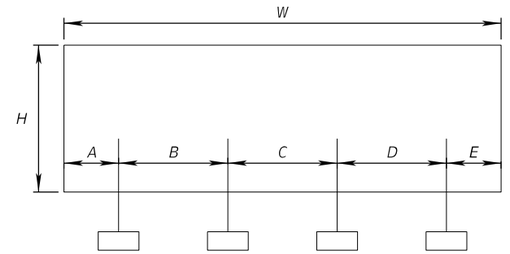
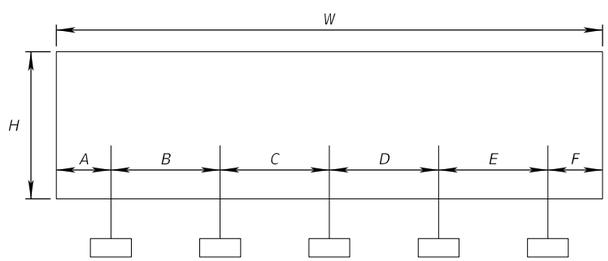


TYPE 4S



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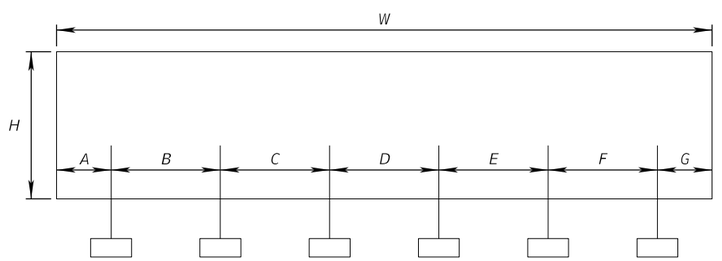
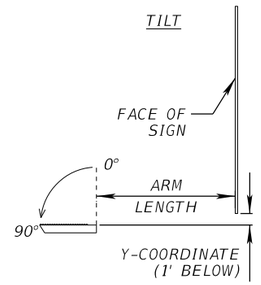


TYPE 6S

TILT ANGLE DETAIL



NOTES TO DESIGNER:

1. REMOVE TYPE DETAILS THAT ARE NOT USED IN THE PLANS.
2. FILL OUT ADDITIONAL COLUMNS FOR SPACING AS REQUIRED.
3. WHEN OVERHEAD SIGNING WITH LIGHTING IS PROPOSED ON THE PROJECT, CFX PREFERS THAT THE SIGN LIGHTERS ARE PAID UNDER PAY ITEM 700-3-29X. DO NOT PAY FOR SIGN LIGHTERS UNDER PAY ITEM 715-11-118 AND COOORDINATE WITH THE SPM DESIGNER TO MAKE SURE THE SIGN LIGHTERS ARE PAID FOR IN THE SPM PLANS.
4. REMOVE THIS BOX.

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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SIGN LUMINAIRE DATA

SHEET NO. A-9

LOAD CENTER ID	PLAN SHEET	EXISTING OR PROPOSED	OPERATING VOLTAGE	STATION / OFFSET	LATITUDE*	LONGITUDE*	MAIN BREAKER	BRANCH CIRCUITS											
								CIRCUIT 1*		CIRCUIT 2*		CIRCUIT 3*		CIRCUIT 4*		CIRCUIT 5*		CIRCUIT 6*	
								AMP DRAW	BKR	AMP DRAW	BKR	AMP DRAW	BKR	AMP DRAW	BKR	AMP DRAW	BKR	AMP DRAW	BKR

*: TO BE FILLED OUT BY CONTRACTOR

NOTES:

1. THE ENGINEER OF RECORD SHALL PROVIDE THE ORIGINAL EXCEL SPREADSHEET FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
2. CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD FOR APPROVAL BY POPULATING THE CORRECT FIELD/COLUMN FOR DATA EXPORTING AND SORTING DURING CONSTRUCTION. THE REQUIRED DATA NEEDS TO BE COMPLETED AND SUBMITTED FOR APPROVAL PRIOR TO ACCEPTANCE OF THE LIGHTING SYSTEM.

NOTES:

1. INCLUDE LOAD CENTER DATA TABLE IN ALL LIGHTING PLAN SETS.
2. DEVELOP LOAD CENTER ID [SSS-MM.M-DD ('L') - SEE PANEL TAG LABEL DETAILS ON SHEET K-1] AND USE THROUGHOUT LIGHTING PLANS.
3. SHOW ALL EXISTING AND PROPOSED LOAD CENTER LOCATIONS ON PROJECT LAYOUT SHEETS.
4. DELETE BOX WITH NOTES PRIOR TO INCLUDING IN PLANS.

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.

CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY

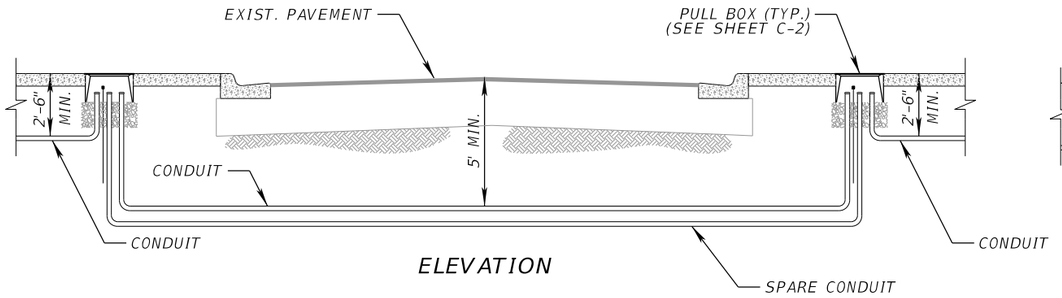
LOAD CENTER DATA

SHEET NO.
A-10

GENERAL NOTES:

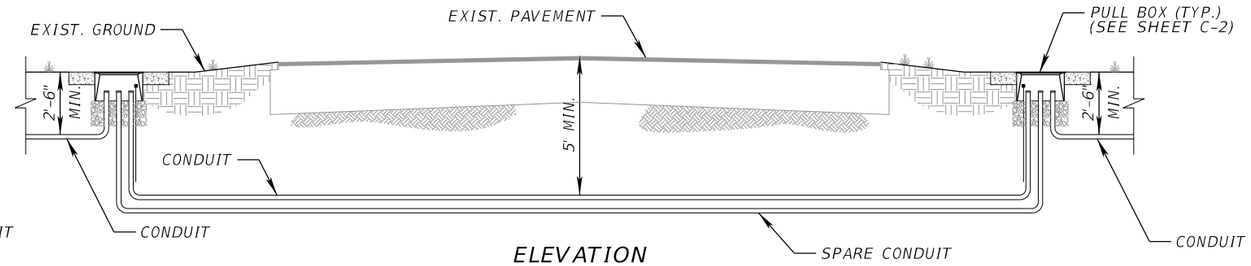
1. INSTALL CONDUIT IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS, SECTION 630, OR AS AMENDED BY CFX. IN CASES OF DISCREPANCY, THE REQUIREMENTS SPECIFIED HEREIN SHALL SUPERCEDE.

2. WHEN INSTALLING CONDUIT UNDER SIDEWALK BY OPEN TRENCH, REPLACE THE ENTIRE SIDEWALK SLAB.



ELEVATION

CURB AND GUTTER



ELEVATION

FLUSH SHOULDER

NOT TO SCALE

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)

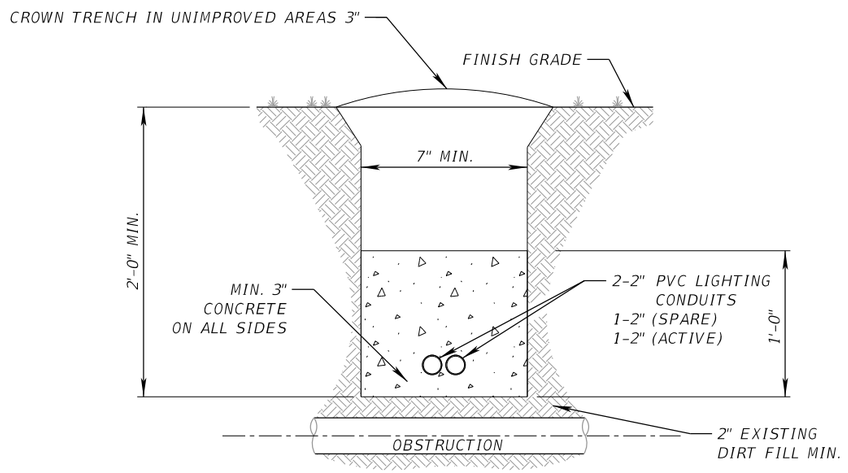
ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CONDUIT INSTALLATION DETAILS

SHEET NO.

B-1



DETAIL A

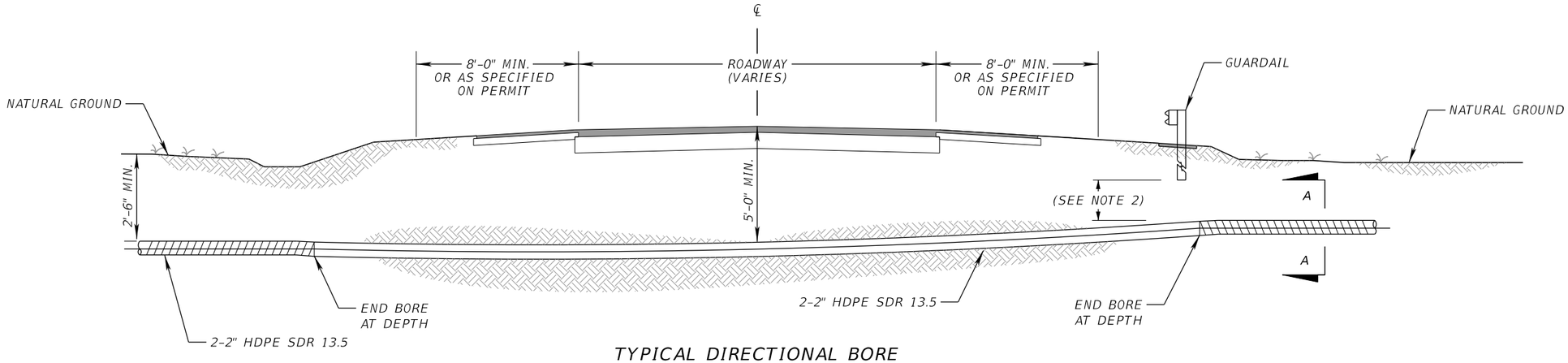
TYPICAL CROSSING WHERE OBSTRUCTION IS LESS THAN 30" IN DEPTH

NOTES:

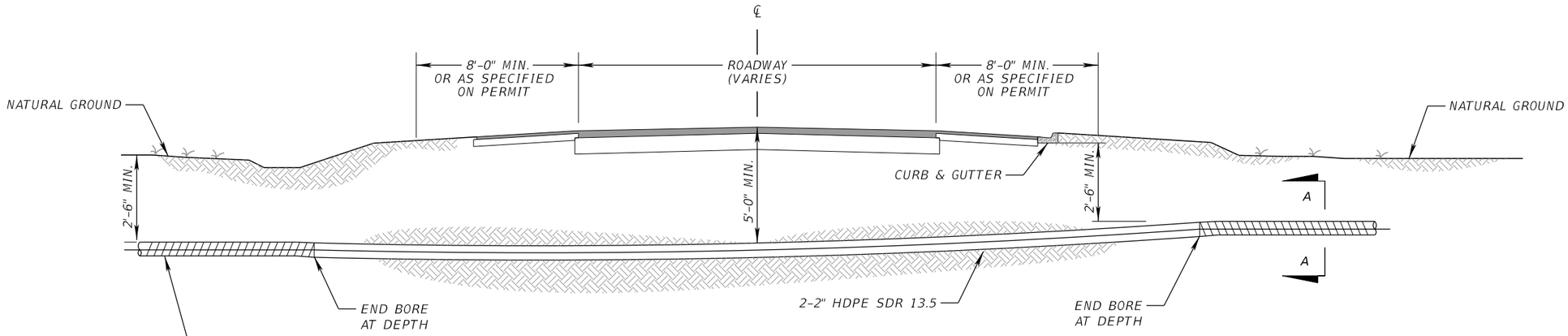
1. A MINIMUM OF 2'-0" SHALL BE MAINTAINED FROM EXISTING LANDSCAPE FEATURES. LANDSCAPE REPLACEMENT SHALL BE IN KIND AND SUBJECT TO THE APPROVAL OF CFX.
2. REPLACEMENT OF FILL, BASE, SURFACE (ASPHALT), CURB AND DRAINAGE STRUCTURES WILL BE IN ACCORDANCE WITH APPLICABLE COUNTY AND CITY UTILITY ACCOMODATION 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 WITH A MINIMUM HORIZONTAL CLEARANCE OF 12". IF THIS CANNOT BE ACCOMPLISHED, CONDUIT ROUTING WILL BE MADE UNDER THE OBSTRUCTION WITH A MINIMUM VERTICAL CLEARANCE OF 12".
   - B. IF THE ABOVE CANNOT BE ACCOMPLISHED, THEN DETAIL A ON THIS SHEET WILL BE ALLOWED. PRIOR TO COMMENCING DETAIL A, OWNERS APPROVAL MUST BE OBTAINED. THE METHODS IN NOTE 7.A. ARE THE PREFERRED METHODS.

NOT TO SCALE

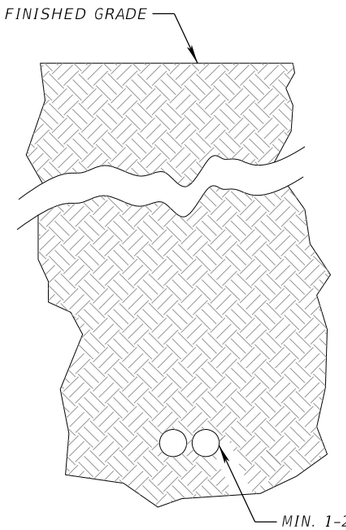
REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CONDUIT INSTALLATION DETAILS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			B-2



TYPICAL DIRECTIONAL BORE UNDER GUARDRAIL



TYPICAL DIRECTIONAL BORE UNDER CURB & GUTTER



SECTION A-A

NOTE:

1. 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.
2. DIRECTIONAL BORE SHALL BE 2'-6" AT A MINIMUM BENEATH GUARDRAIL POST BURIAL DEPTH.

NOT TO SCALE

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

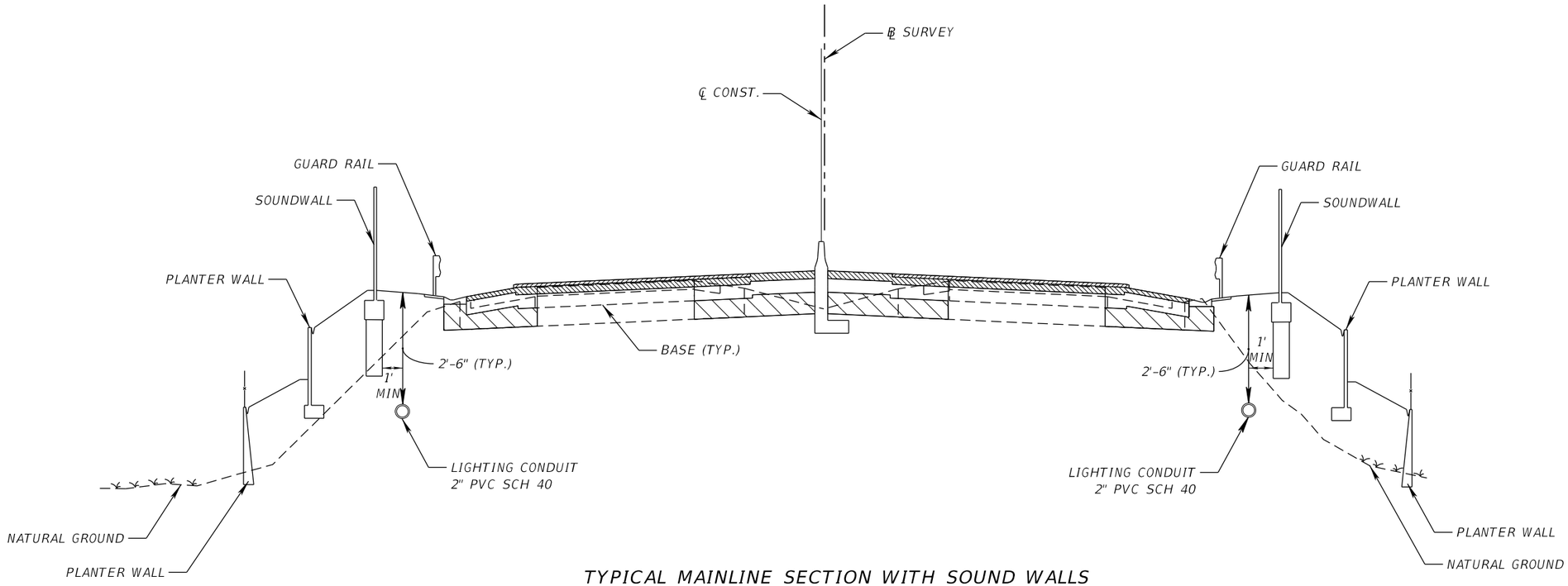
PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CONDUIT INSTALLATION DETAILS TYPICAL DIRECTIONAL BORE

SHEET NO. B-3



TYPICAL MAINLINE SECTION WITH SOUND WALLS

NOT TO SCALE

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.

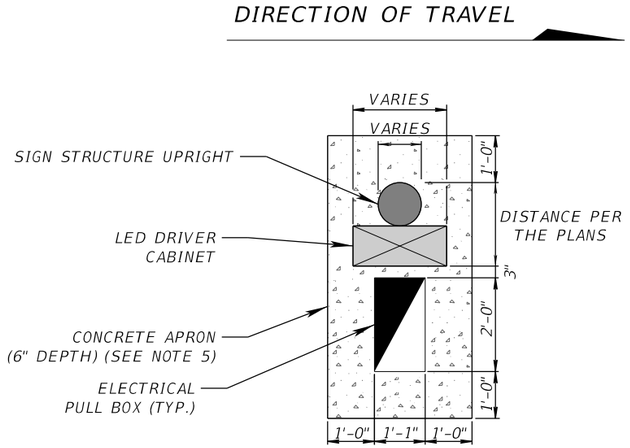
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CONDUIT INSTALLATION DETAILS

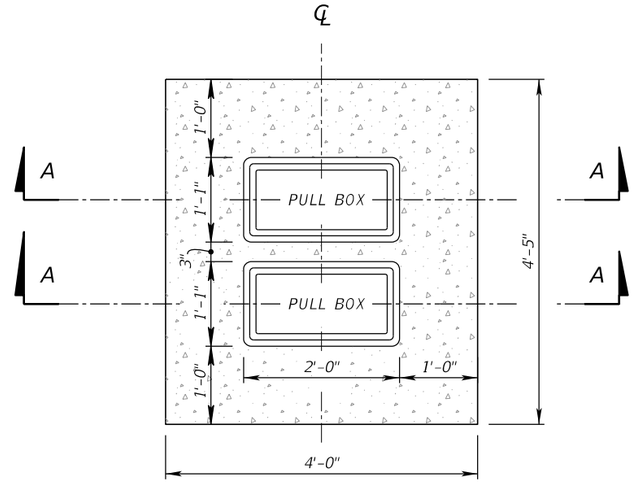
SHEET NO. B-4

NOTES:

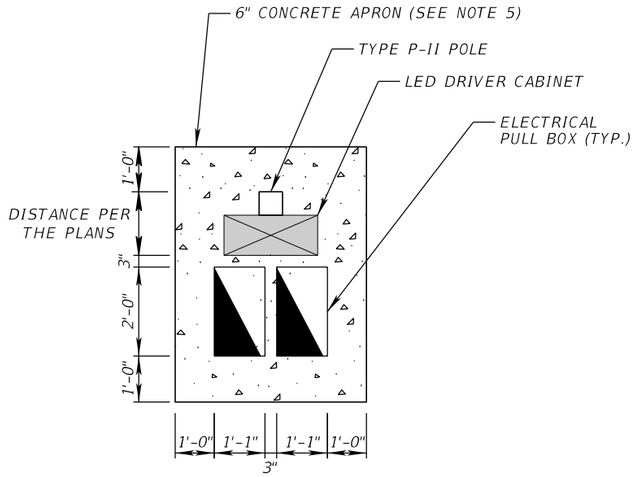
1. OUTSIDE EDGE OF CONCRETE APRON SHALL BE CAST AGAINST FORMWORK.
2. CONCRETE APRON TO BE PLACED AROUND ALL POLES, UPRIGHTS AND PULL BOXES. IN URBAN AREAS OR WHERE SPACE IS LIMITED, DIMENSIONS MAY BE ADJUSTED AS SHOWN IN THE PLANS OR APPROVED BY THE CEI ENGINEER.
3. INSTALL A 1'-0" WIDE (MIN.) CONCRETE 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.
5. COORDINATE CONSTRUCTION OF CONCRETE APRON WITH PROPOSED FINAL GRADE. GRADE AND COMPACT SIDE SLOPES AROUND THE CONCRETE APRON TO PROVIDE A STABLE AND LEVEL WORKING AREA AND TIE INTO THE PROPOSED EMBANKMENT.



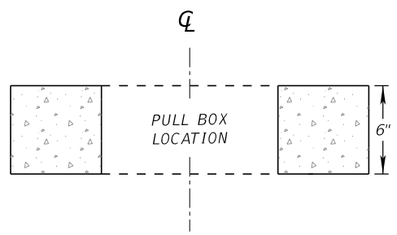
OVERHEAD SIGN LIGHTING DETAIL



CONCRETE APRON (TYP.)



UNDERDECK AND BRIDGE MOUNT



SECTION A-A

NOT TO SCALE

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.

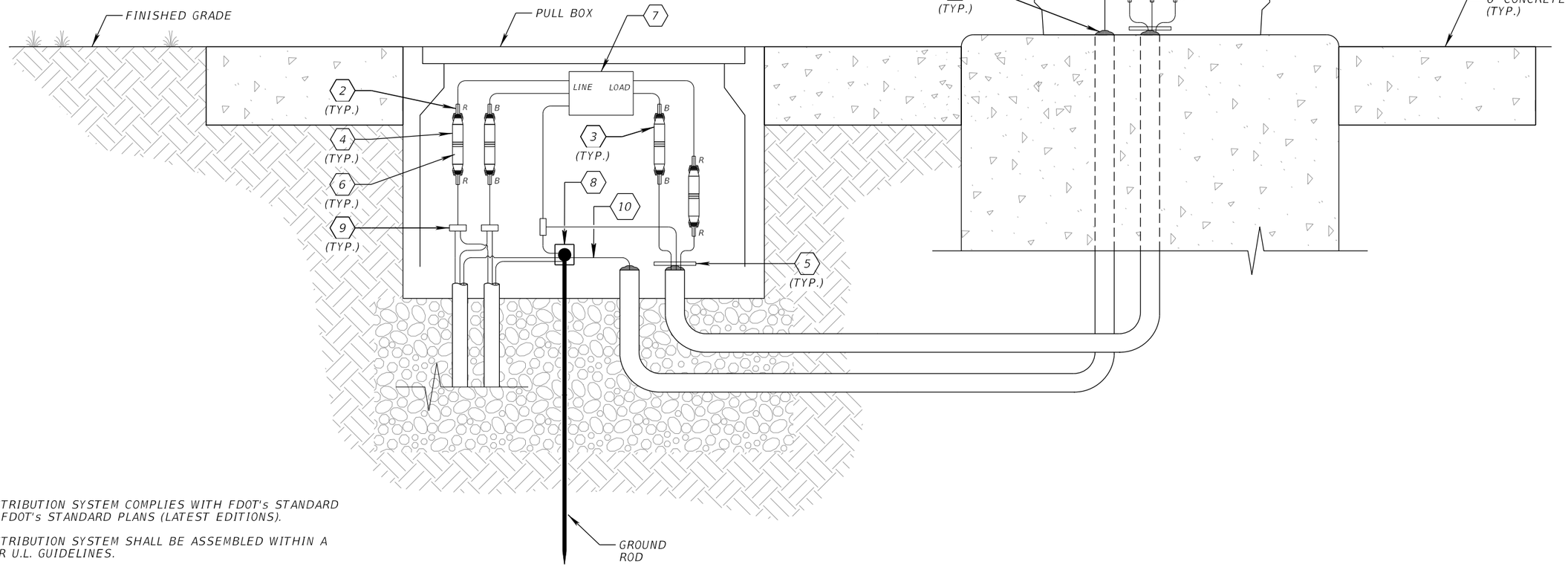
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

PULL BOXES AND CONCRETE APRON DETAIL

SHEET NO. C-1

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:

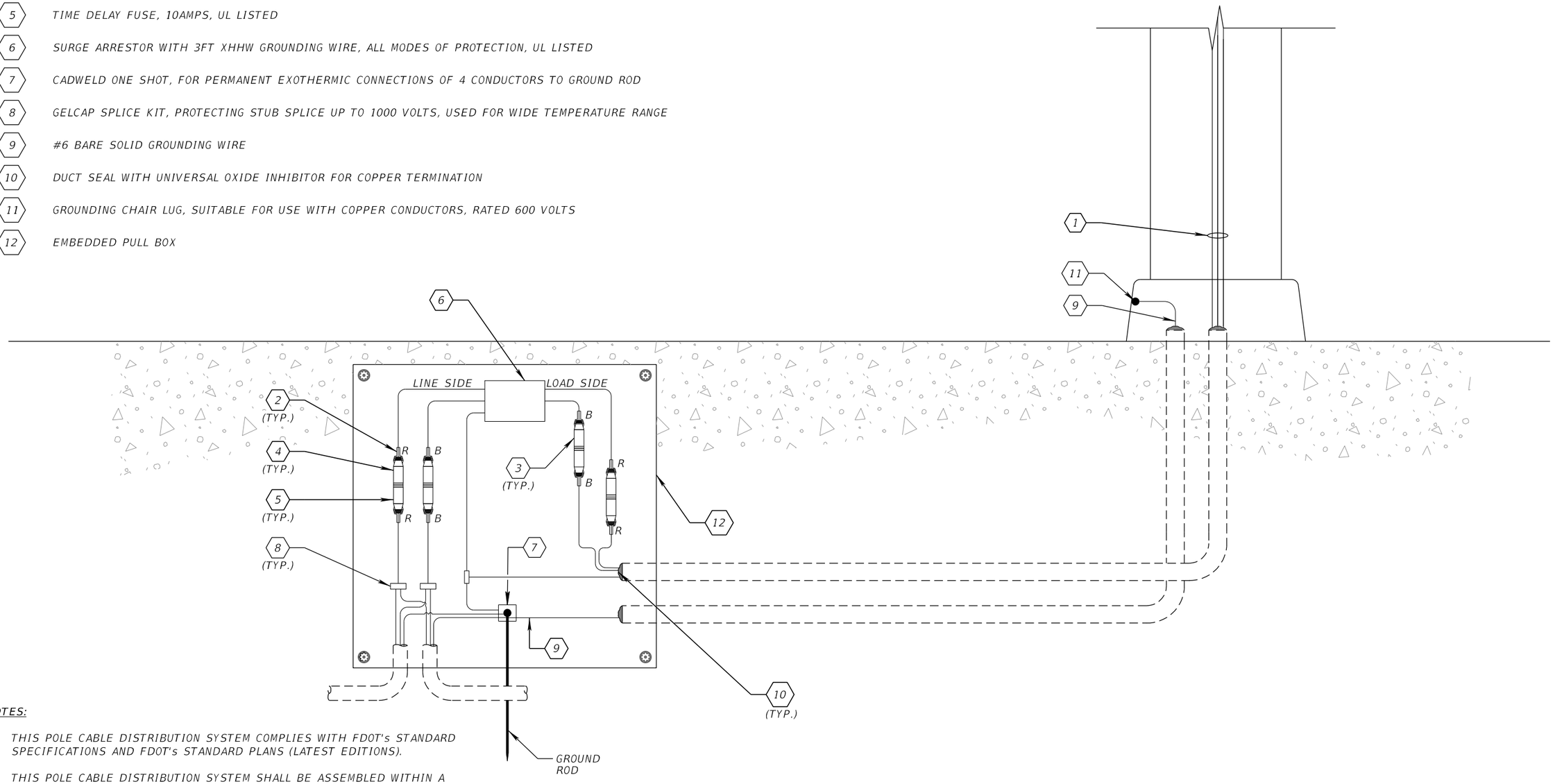
1. THIS POLE CABLE DISTRIBUTION SYSTEM COMPLIES WITH FDOT's STANDARD SPECIFICATIONS AND FDOT's STANDARD PLANS (LATEST EDITIONS).
2. THIS POLE CABLE DISTRIBUTION SYSTEM SHALL BE ASSEMBLED WITHIN A U.L. LISTED SHOP, PER U.L. GUIDELINES.

NOT TO SCALE

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E.	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	GROUND MOUNT POLE CABLE DISTRIBUTION SYSTEM	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	P.E. LICENSE NUMBER 99999	ROAD NO.	PROJECT NO.			D-1
				ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP					

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

REVISIONS			
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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.

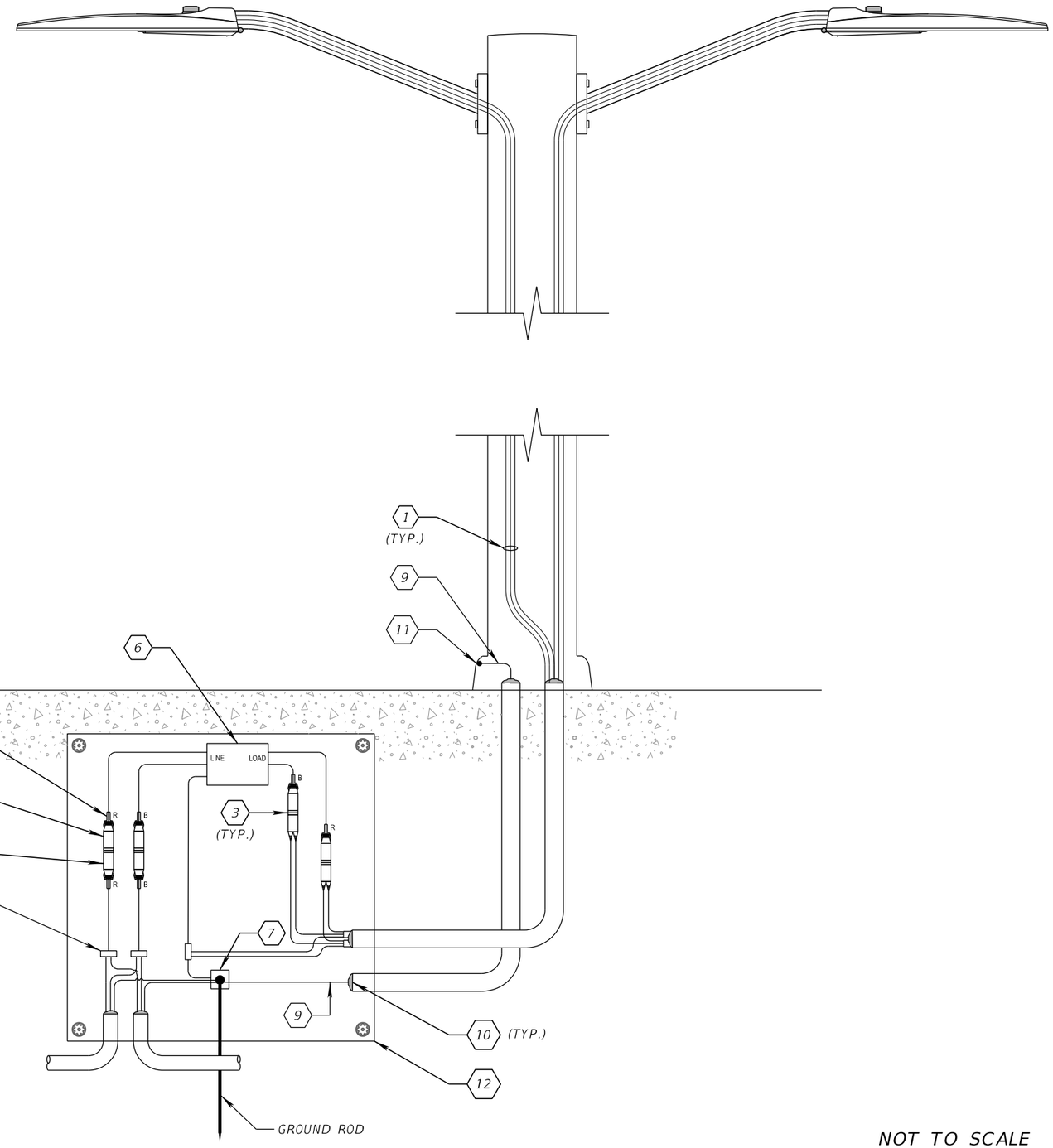
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

WALL MOUNT POLE CABLE DISTRIBUTION SYSTEM

SHEET NO. D-2

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



NOT TO SCALE

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.

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

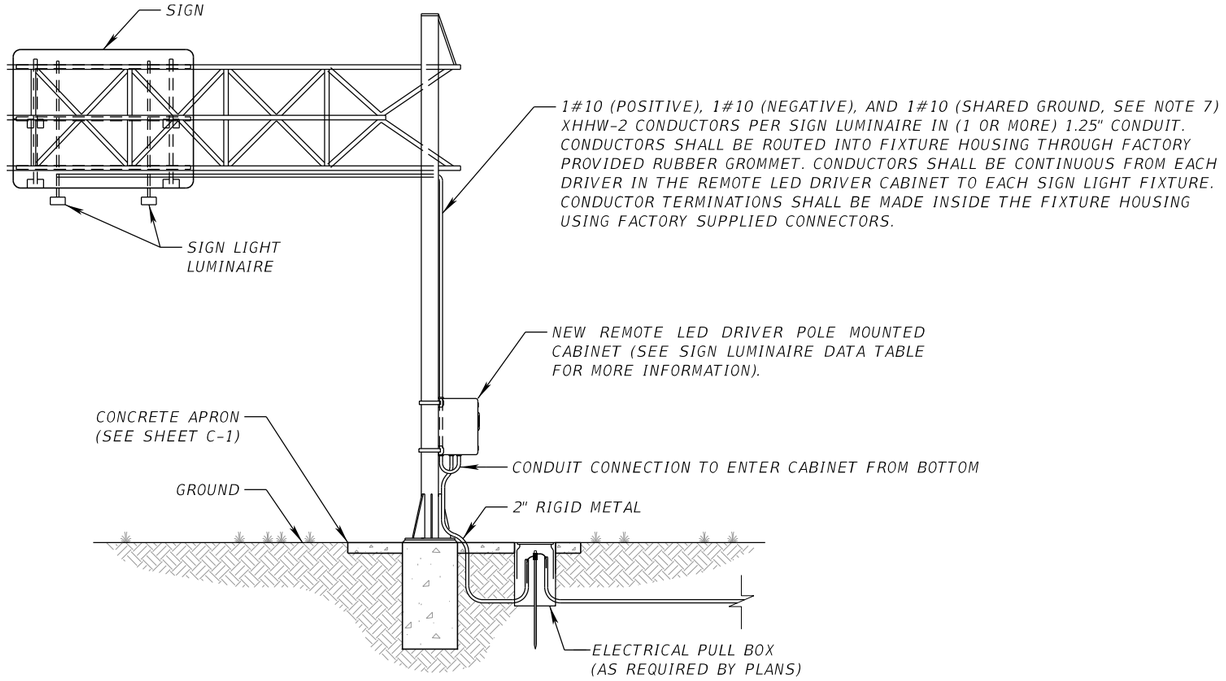
PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

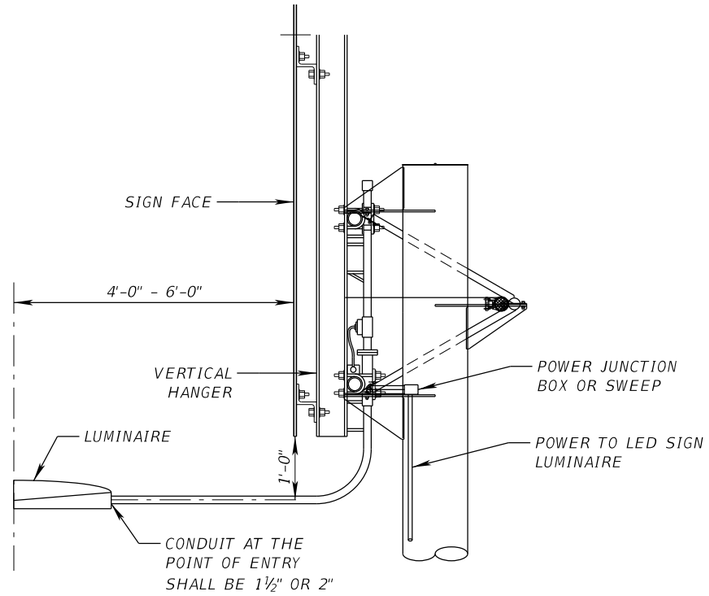
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

WALL MOUNT DOUBLE POLE CABLE DISTRIBUTION SYSTEM

SHEET NO. D-3



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.

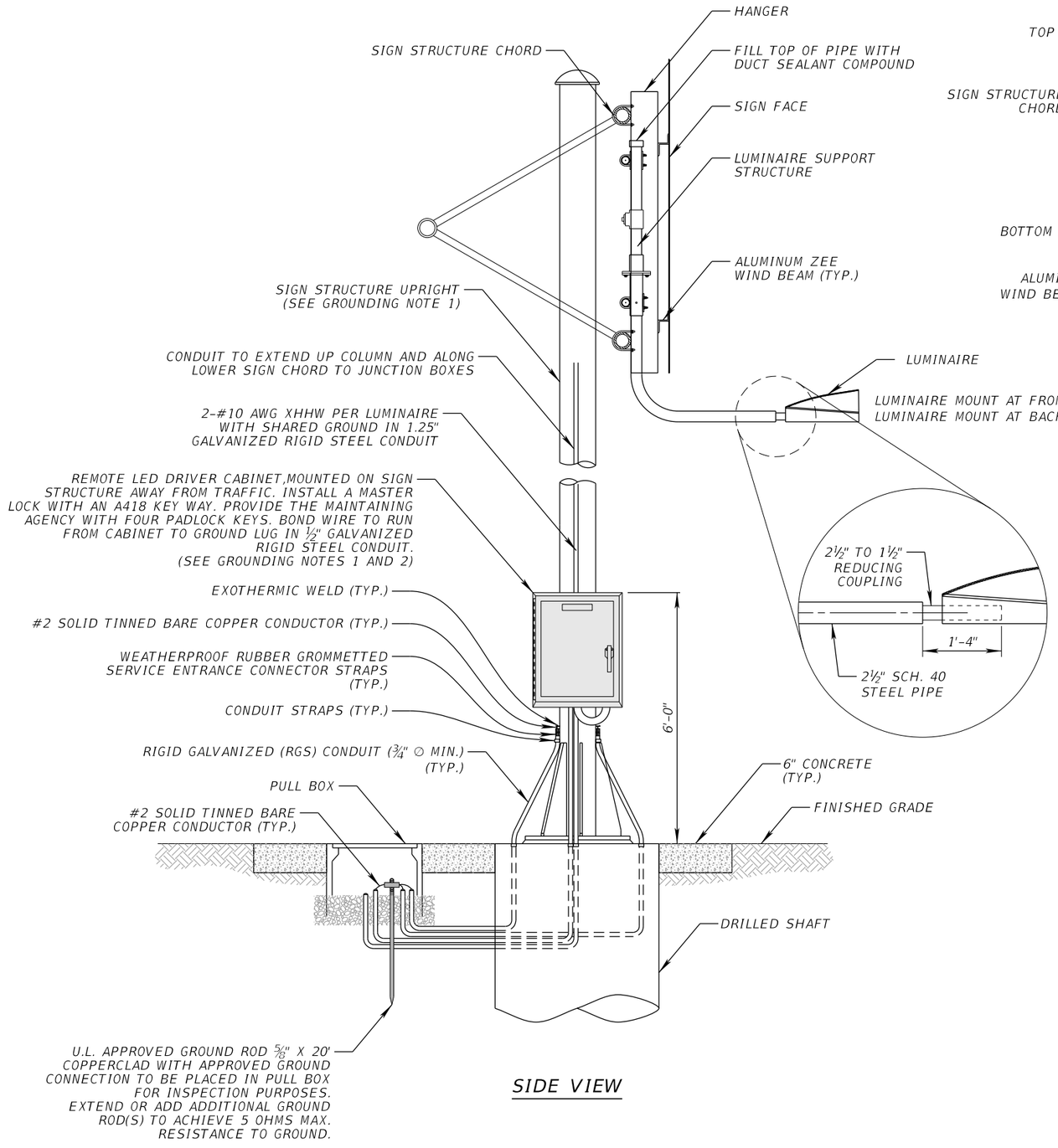
5. SIGN STRUCTURES CONTAINING LUMINAIRES WITH ONE LUMINAIRE PER DRIVER UP TO THREE LED DRIVERS MUST USE (1) SMALL LED REMOTE DRIVER CABINET; BETWEEN FOUR AND SIX LED DRIVERS MUST USE (1) MEDIUM SIZE LED REMOTE DRIVER CABINET; AND BETWEEN SEVEN AND NINE LED DRIVERS MUST USE (1) LARGE LED REMOTE DRIVER 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.

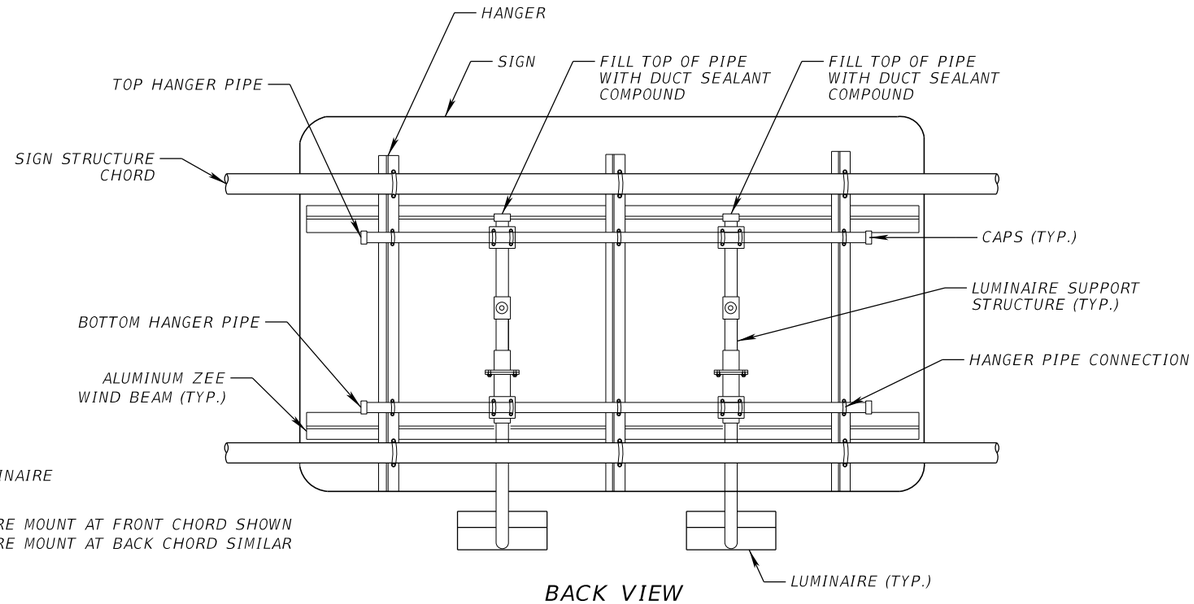
7. #10 SHARED GROUNDING CONDUCTOR SHALL BE DAISY-CHAINED BETWEEN SIGN LIGHT FIXTURES AND TERMINATE TO THE MAIN GROUNDING BUS IN THE REMOTE LED DRIVER CABINET.

NOT TO SCALE

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) ROAD NO. / PROJECT NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LED SIGN LIGHTING DETAILS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					E-1



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.

REMOTE LED DRIVER CABINET

1. INSTALL A MASTER LOCK WITH AN A418 KEY WAY.
2. PROVIDE 4 - A418 KEYS TO CFX MAINTENANCE FOR THE ENTIRE PROJECT.

GROUNDING

1. PROVIDE A SINGLE #6 AWG COPPER CONTINUOUS EQUIPMENT BONDING GROUNDING JUMPER FROM THE SIGN STRUCTURE UPRIGHT TO THE GROUNDING BUS BAR WITHIN THE REMOTE LED DRIVER CABINET. BOND JUMPER TO THE SIGN STRUCTURE USING AN EXOTHERMIC WELD. ROUTE THE SAME BONDING JUMPER TO BOND THE CABINET MOUNTING HARDWARE (CHANNEL STRUT OR MOUNTING BRACKET) AND TERMINATE ON THE CABINET GROUNDING BUS BAR. ALL BONDING CONNECTIONS SHALL PROVIDE AN EFFECTIVE GROUND-FAULT CURRENT PATH AND SHALL NOT RELY ON EARTH OR GROUNDING ELECTRODES (GROUND RODS) AS THE SOLE BONDING MEANS. SIZE GROUNDING BONDING JUMPER PER NEC.
2. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE REMOTE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND. SEE LED DRIVER CABINET DETAILS FOR ADDITIONAL INFORMATION.

NOT TO SCALE

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ENGINEER OF RECORD CITY, STATE AND ZIP

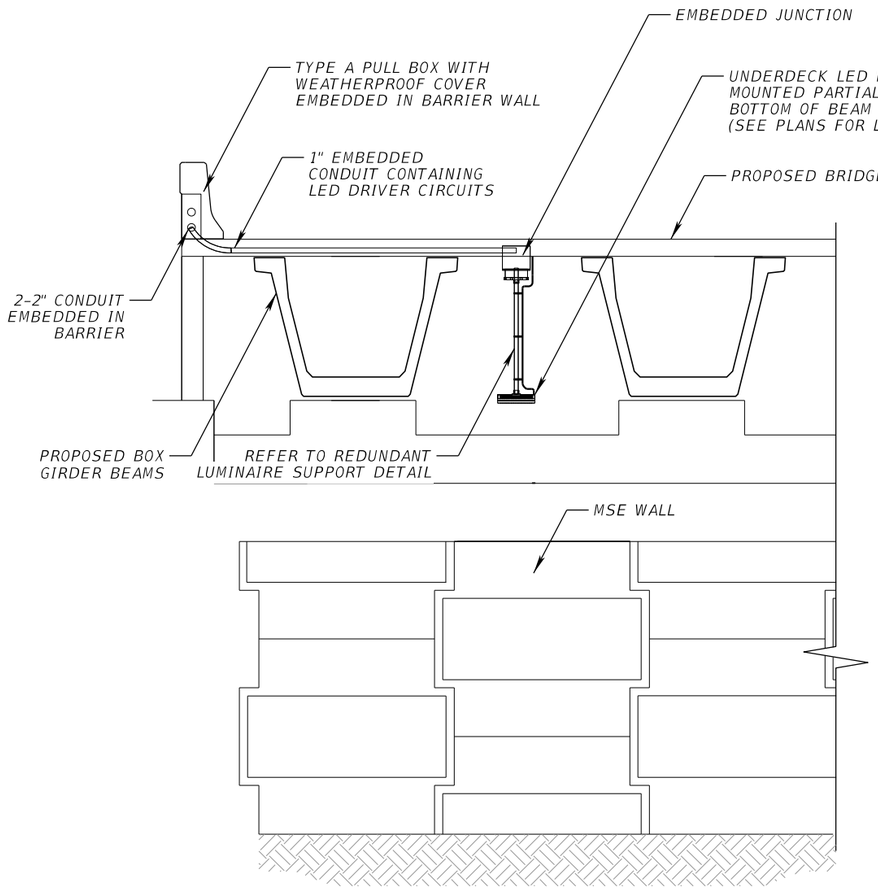
PROJECT NAME (1 to 3 LINES)

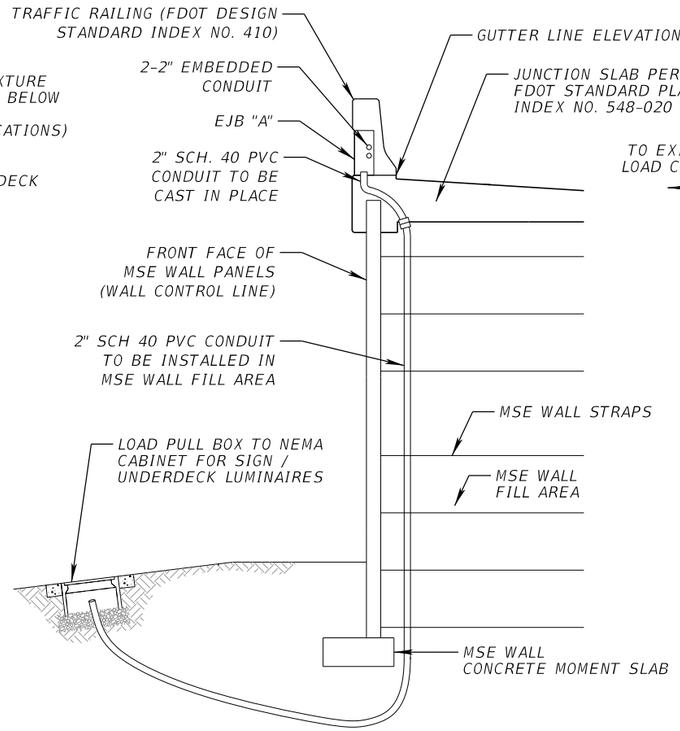
ROAD NO.	PROJECT NO.

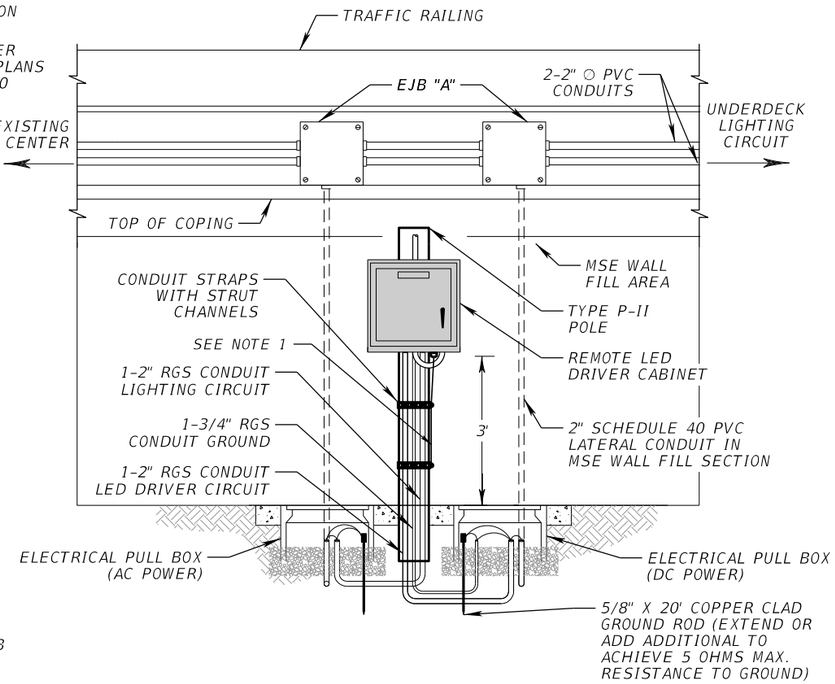
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LED SIGN LIGHTING DETAILS

SHEET NO. E-2



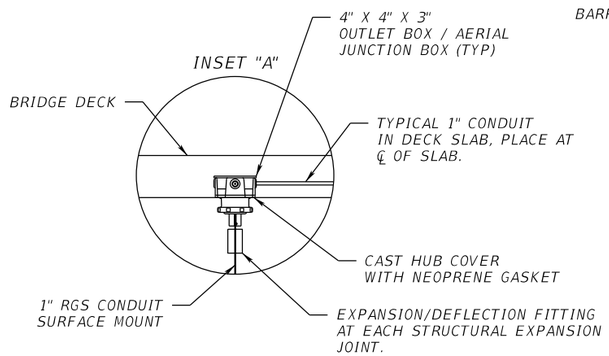


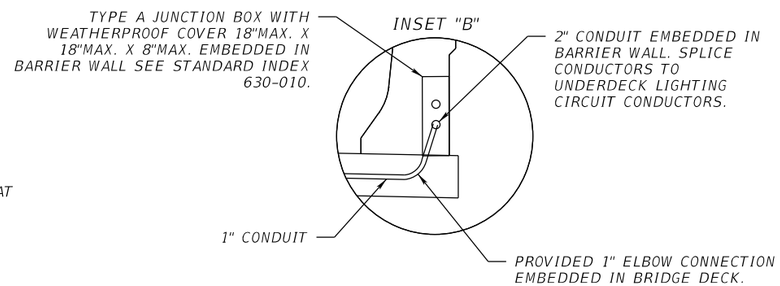


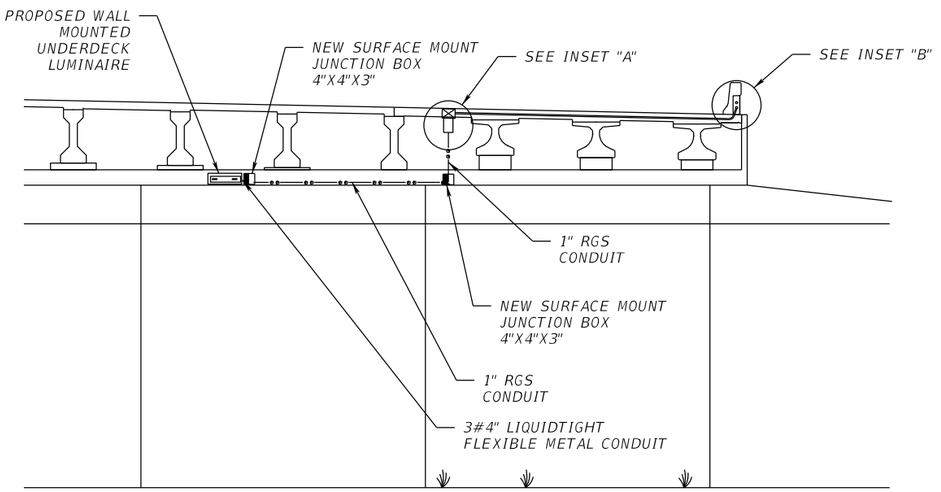
NOTE:

1. BOND GROUNDING BONDING JUMPER TO STRUT CHANNEL(S) WITH MECHANICAL GROUND LUG(S), AND BOND TO GROUND BUS BAR IN THE LED DRIVER CABINET. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE THE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.

PENDANT HUNG UNDERDECK LIGHTING DETAIL
PROPOSED BRIDGE TYPICAL







WALL PACK UNDERDECK LIGHTING DETAIL
PROPOSED BRIDGE TYPICAL

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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P.E. LICENSE NUMBER 99999
ENGINEER OF RECORD COMPANY NAME
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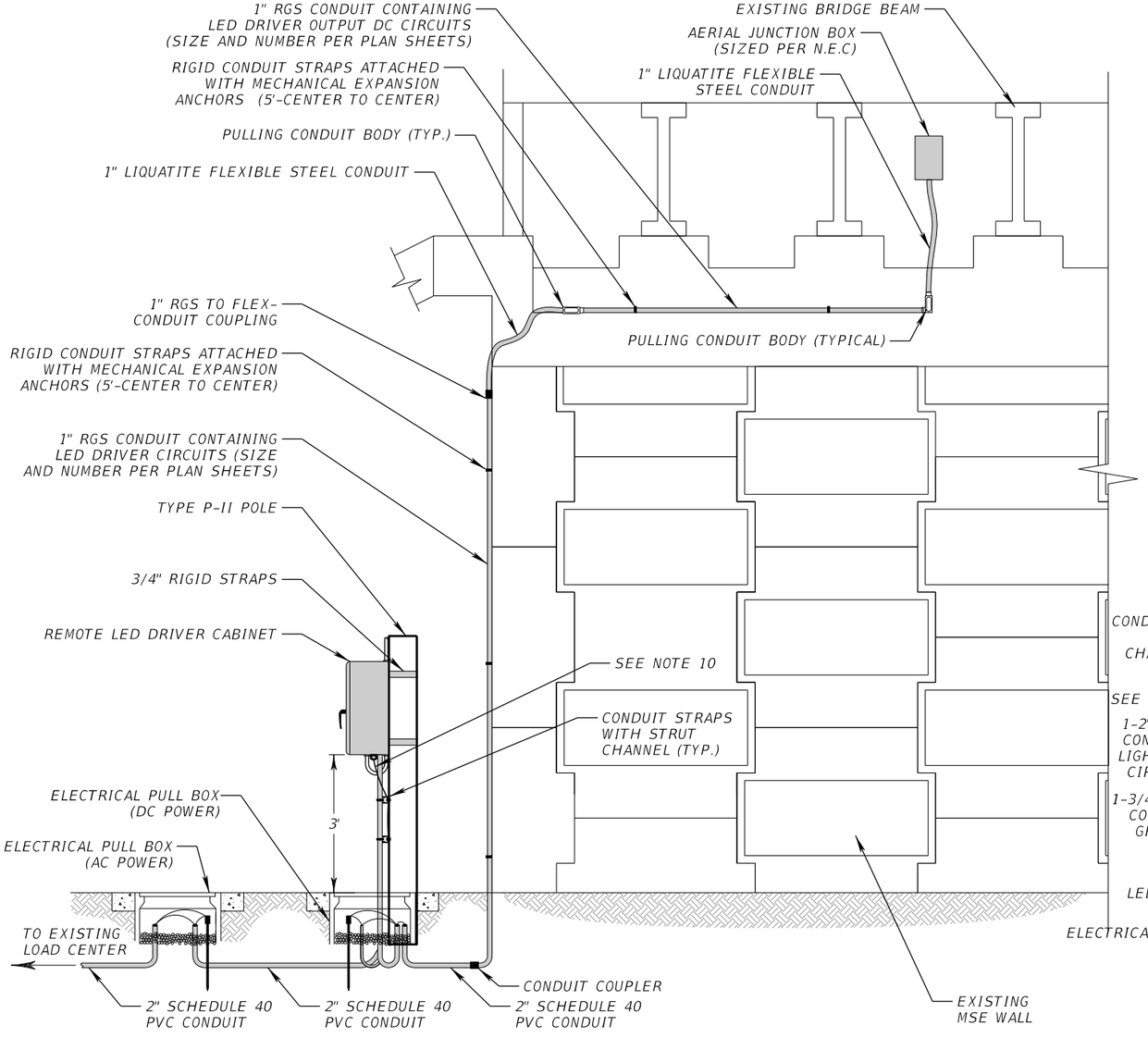
PROJECT NAME (1 to 3 LINES)

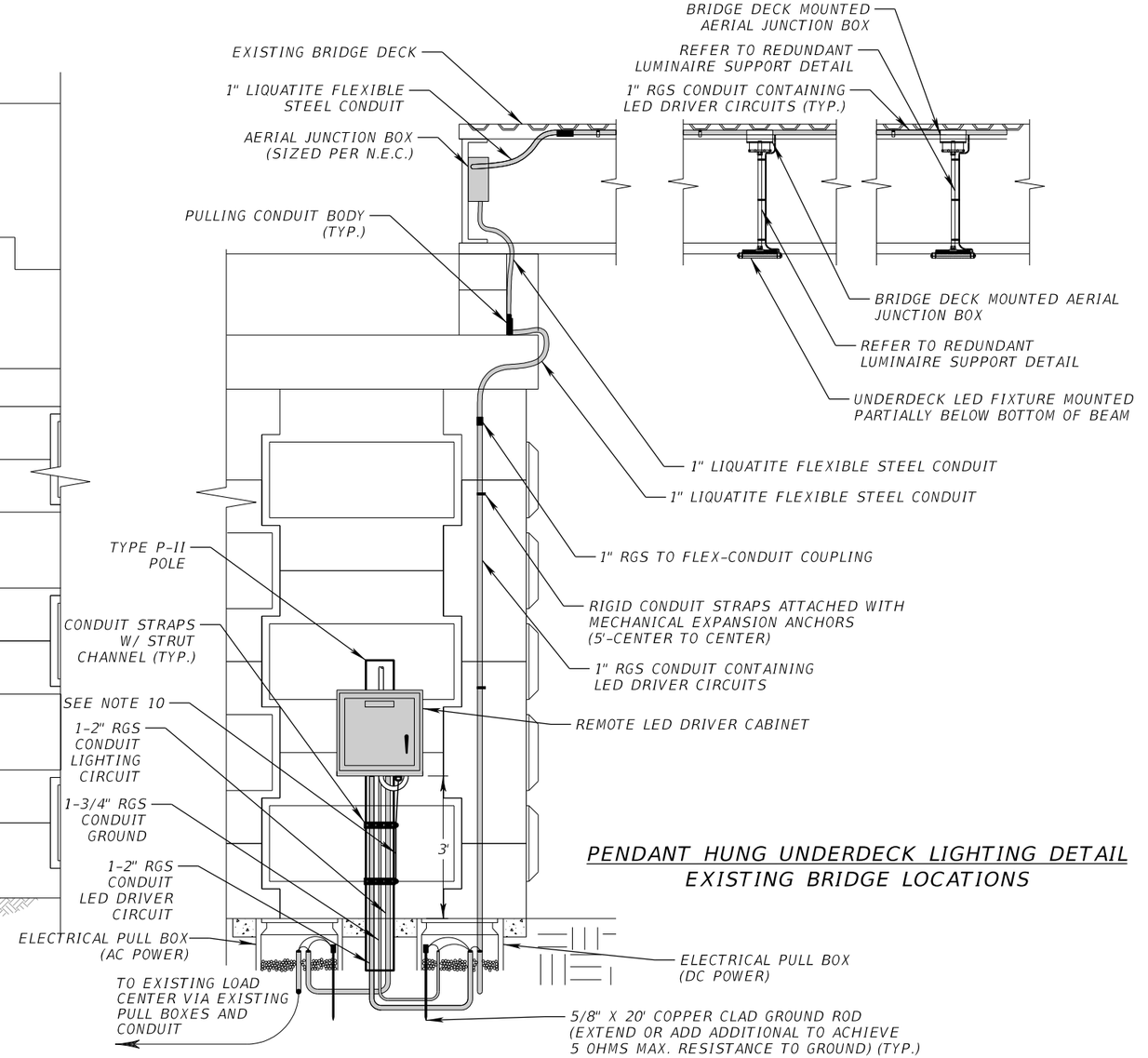
ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

UNDERDECK LIGHTING MOUNTING DETAILS

SHEET NO. F-1





PENDANT HUNG UNDERDECK LIGHTING DETAIL
EXISTING BRIDGE LOCATIONS

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.
9. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO CFX FOR APPROVAL A SURFACE MOUNT CONDUIT SCHEMATIC FOR ALL LOCATIONS. THE SCHEMATIC SHALL DETAIL THE PROPOSED TYPE AND ROUTING OF SURFACE MOUNT CONDUIT INCLUDING LOCATIONS OF JUNCTION BOXES, EXPANSION JOINTS, AND ANY ANCILLARY COMPONENT NEEDED FOR A COMPLETE INSTALLATION.
10. BOND GROUNDING BONDING JUMPER TO STRUT CHANNEL(S) WITH MECHANICAL GROUND LUG(S), AND BOND TO GROUND BUS BAR IN THE LED DRIVER CABINET. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.

NOT TO SCALE

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

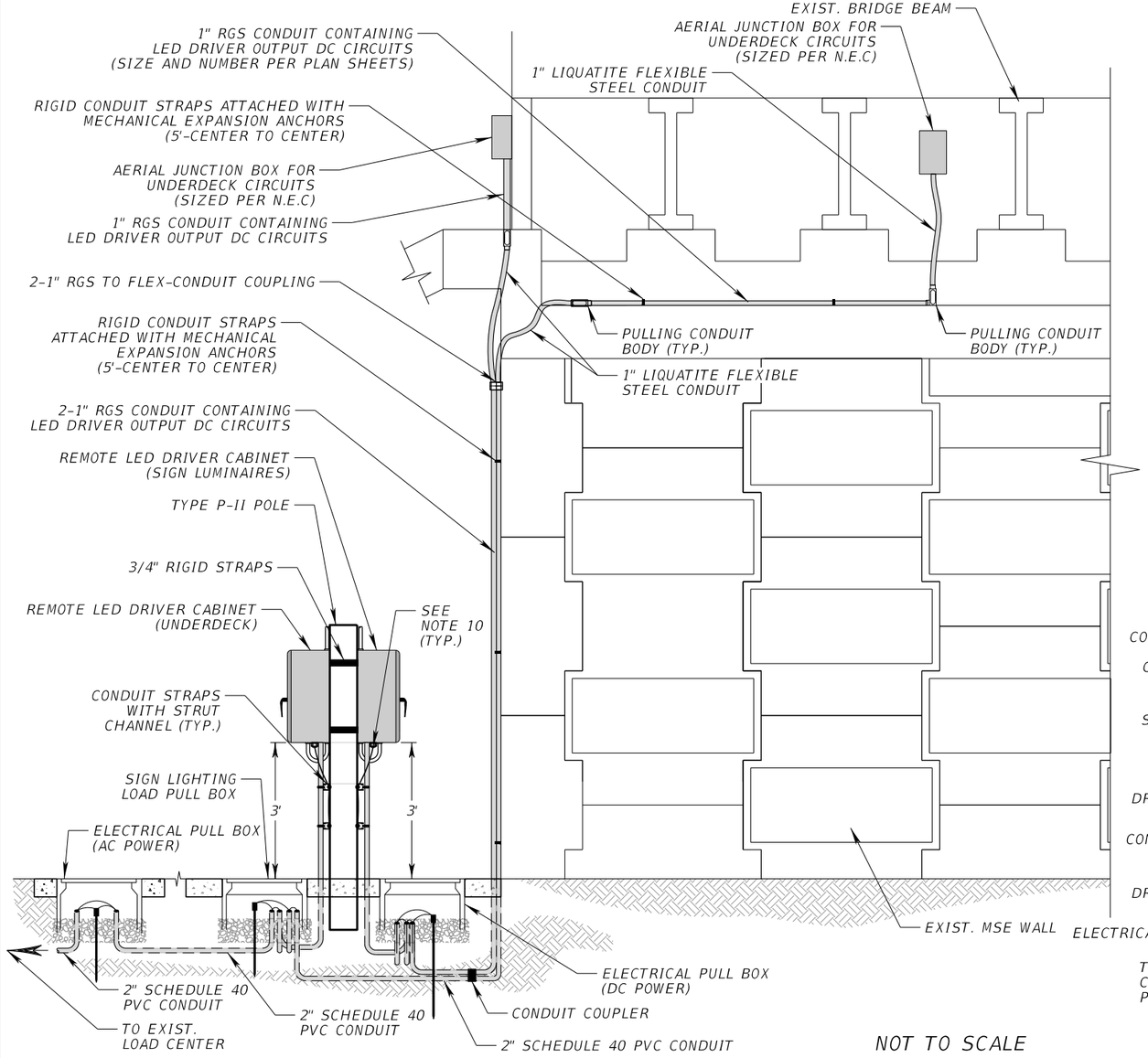
PROJECT NAME (1 to 3 LINES)

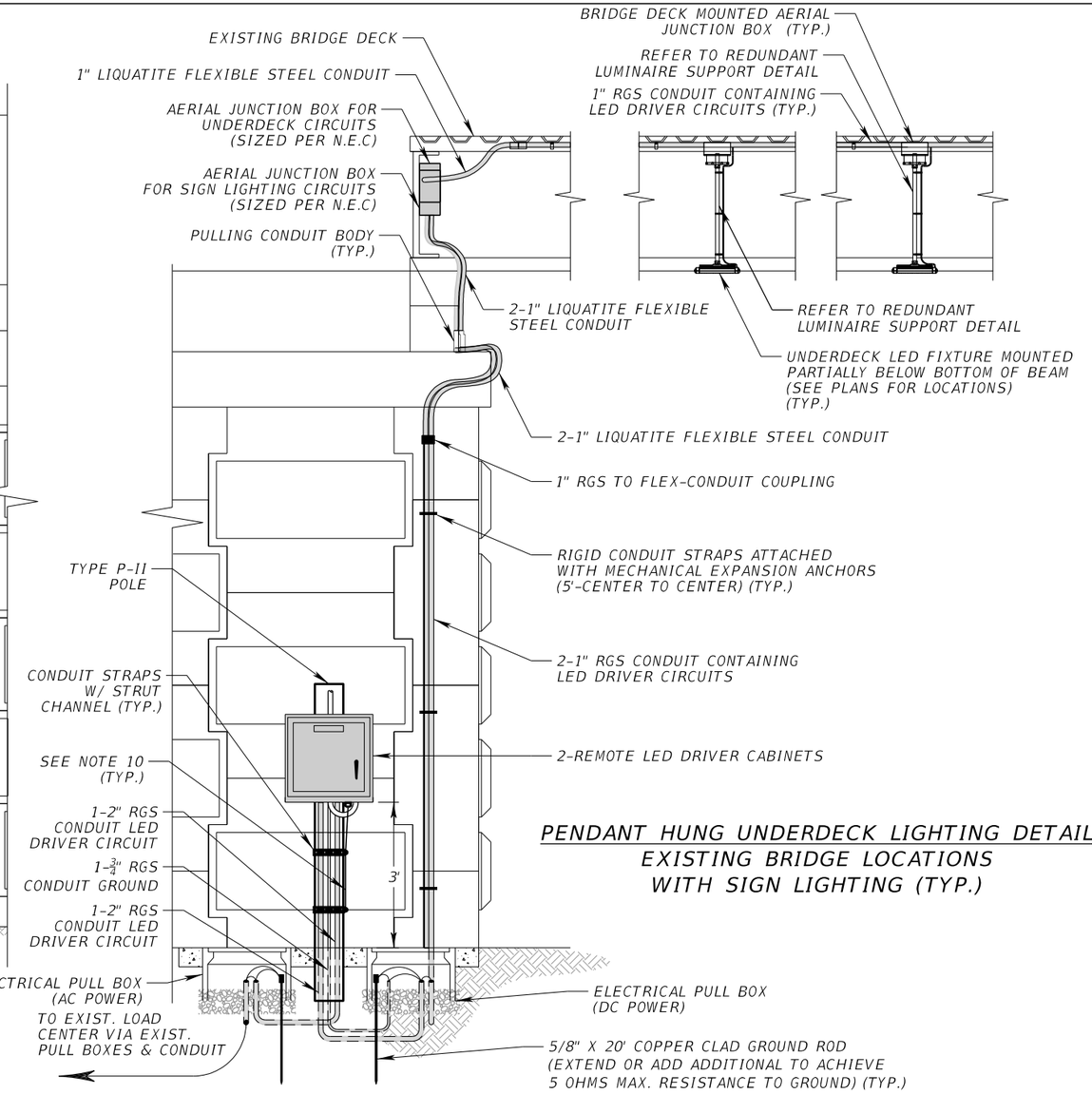
ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

UNDERDECK LIGHTING MOUNTING DETAILS

SHEET NO. F-2





PENDANT HUNG UNDERDECK LIGHTING DETAIL EXISTING BRIDGE LOCATIONS WITH SIGN LIGHTING (TYP.)

NOT TO SCALE

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.
9. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO CFX FOR APPROVAL A SURFACE MOUNT CONDUIT SCHEMATIC FOR ALL LOCATIONS. THE SCHEMATIC SHALL DETAIL THE PROPOSED TYPE AND ROUTING OF SURFACE MOUNT CONDUIT, INCLUDING LOCATIONS OF JUNCTION BOXES, EXPANSION JOINTS, AND ANY ANCILLARY COMPONENTS NEEDED FOR A COMPLETE INSTALLATION.
10. BOND GROUNDING BONDING JUMPER TO STRUT CHANNEL(S) WITH MECHANICAL GROUND LUG(S), AND BOND TO GROUND BUS BAR IN THE LED DRIVER CABINET. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.

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

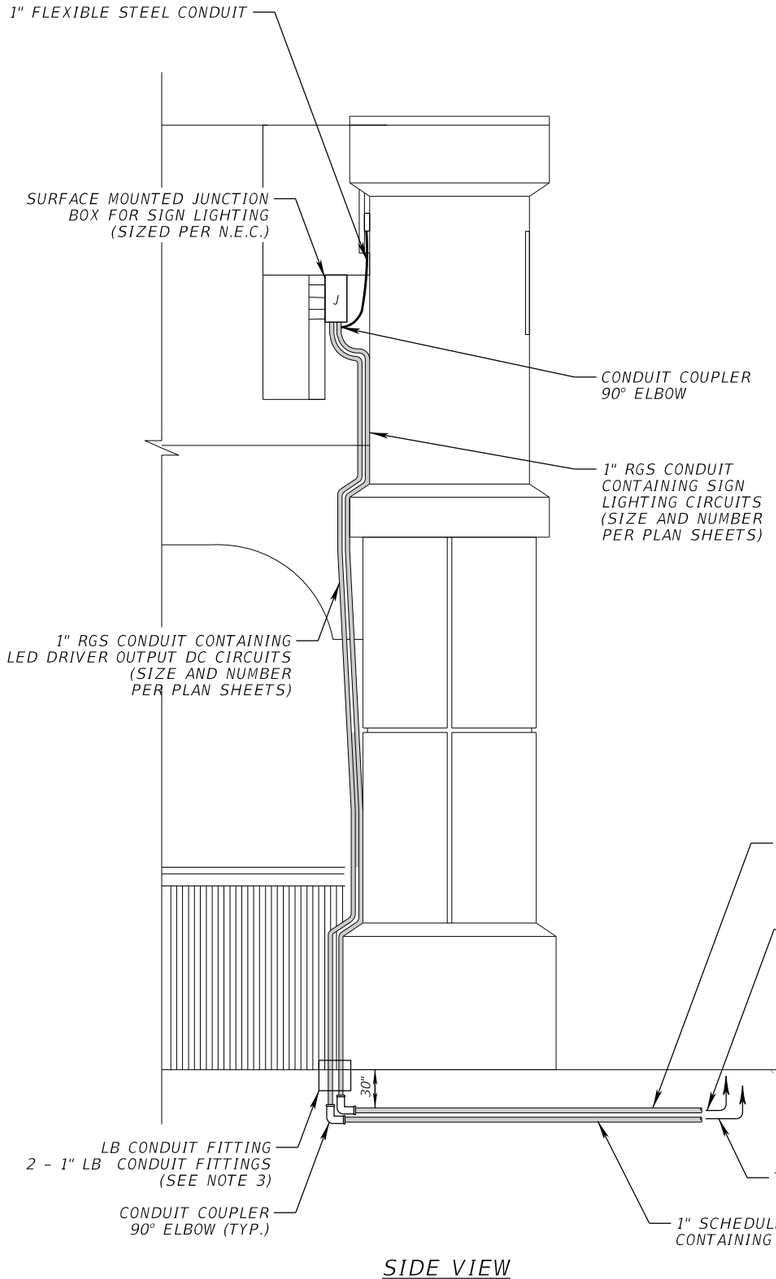
PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

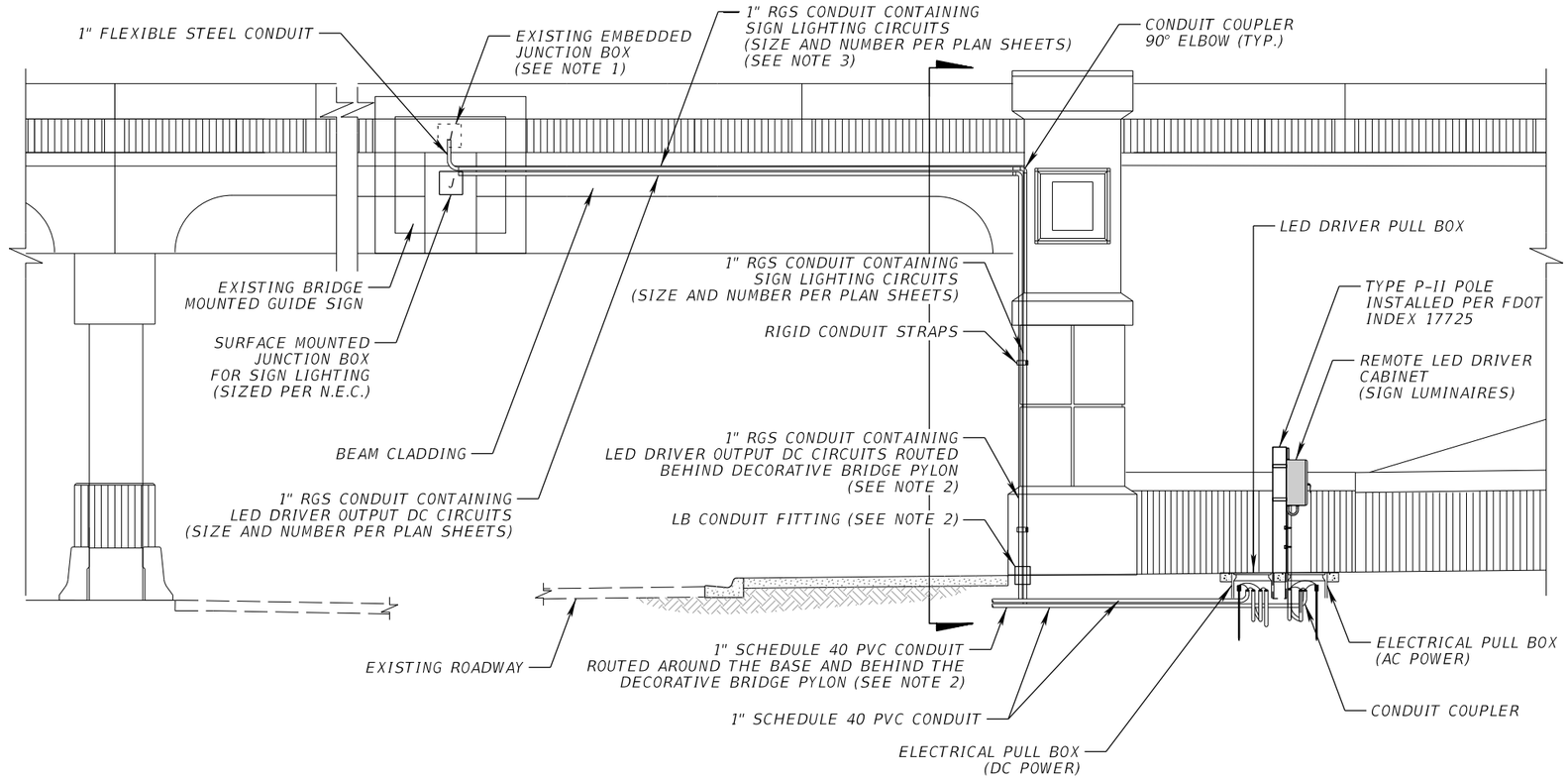
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

UNDERDECK & SIGN LIGHTING MOUNTING DETAILS

SHEET NO. F-3



SIDE VIEW



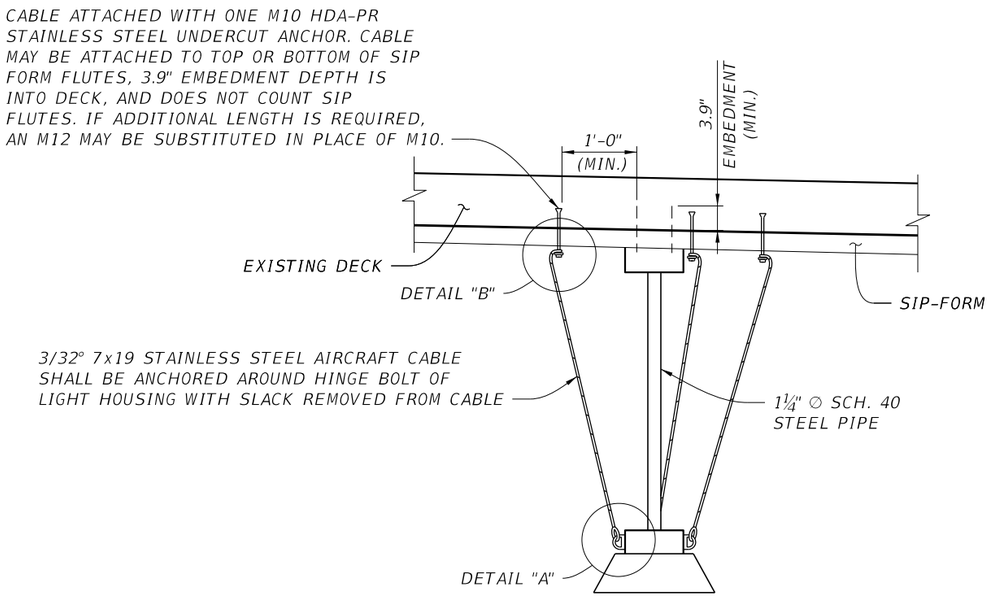
PROFILE VIEW

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.
4. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT TO CFX FOR APPROVAL A SURFACE MOUNT CONDUIT SCHEMATIC FOR ALL LOCATIONS. THE SCHEMATIC SHALL DETAIL THE PROPOSED TYPE AND ROUTING OF SURFACE MOUNT CONDUIT, INCLUDING LOCATIONS OF JUNCTION BOXES, EXPANSION JOINTS, AND ANY ANCILLARY COMPONENTS NEEDED FOR A COMPLETE INSTALLATION.

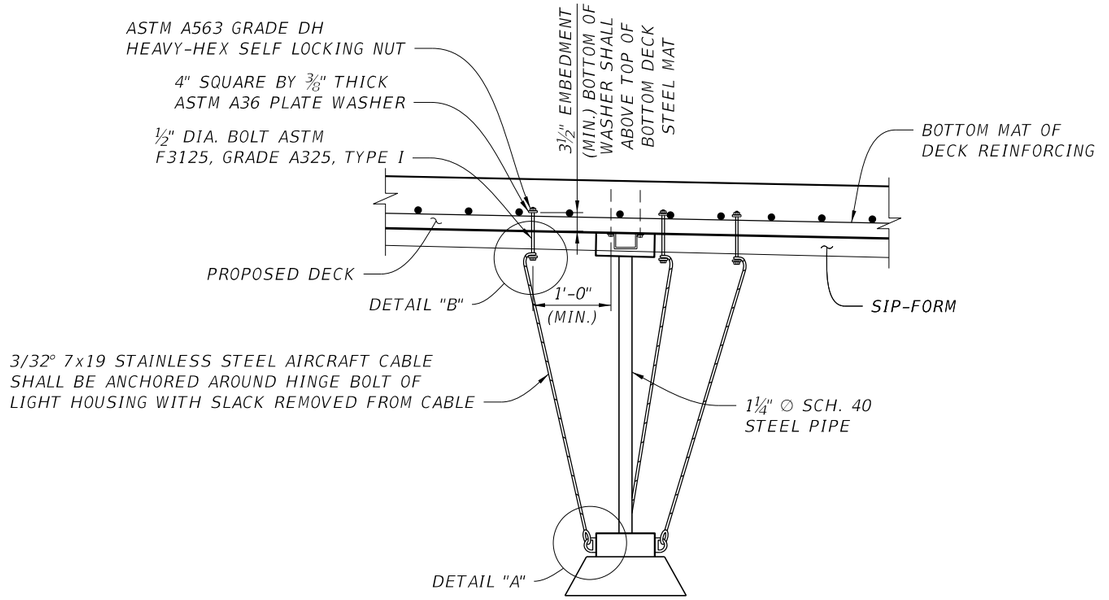
NOT TO SCALE

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	BRIDGE MOUNTED SIGN LIGHTING MOUNTING DETAIL	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			F-4



REDUNDANT LUMINAIRE SUPPORT DETAIL

(EXISTING BRIDGE DECK)
(DECK REINFORCING AND GIRDER NOT SHOWN FOR CLARITY)



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.

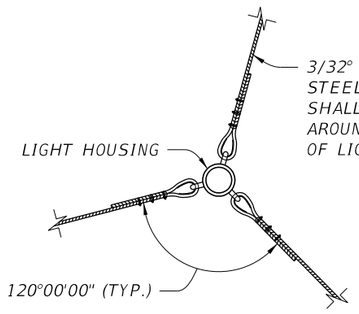
   C. FIRMLY CONSOLIDATE GROUT AND RESTORE TO ORIGINAL SHAPE.

GENERAL NOTES

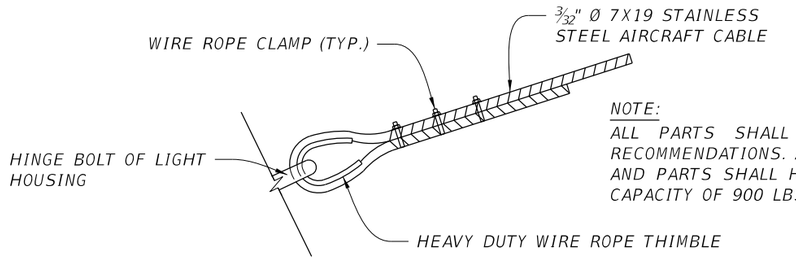
1. PRIOR TO MATERIAL ORDER, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL MATERIAL SPECIFICATIONS AND DESIGN DATA FOR ALL MATERIALS PROPOSED FOR THE PROJECT. THESE MUST INCLUDE:
   A. LUMINAIRE MANUFACTURER AND CUT SHEET.
   B. ELECTRICAL MATERIAL INCLUDING JUNCTION BOX AND PENDANT BRACKET. JUNCTION BOX AND PENDANT BRACKETSHALL 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 ½" 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 fy=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 6½".

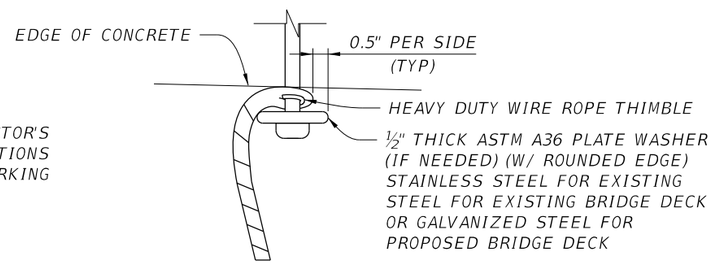


PLAN VIEW



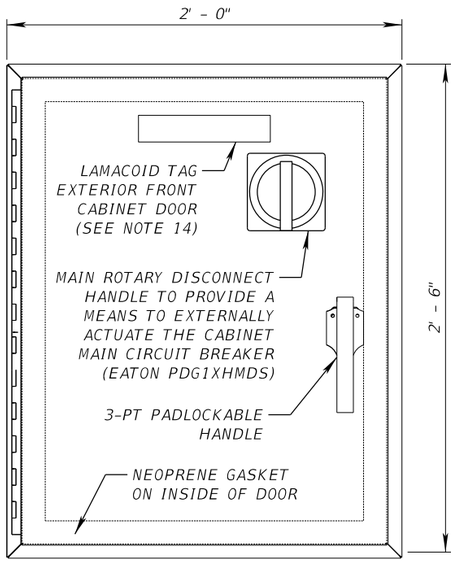
NOTE:
ALL PARTS SHALL BE PER MANUFACTOR'S RECOMMENDATIONS. ALL CABLES, CONNECTIONS AND PARTS SHALL HAVE A MINIMUM WORKING CAPACITY OF 900 LBS.

DETAIL "A"

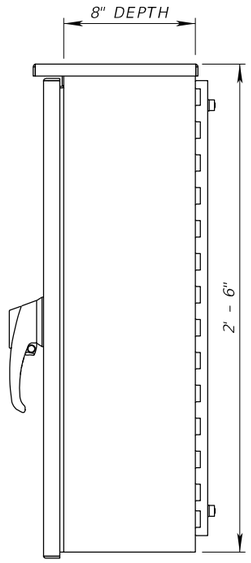


DETAIL "B"

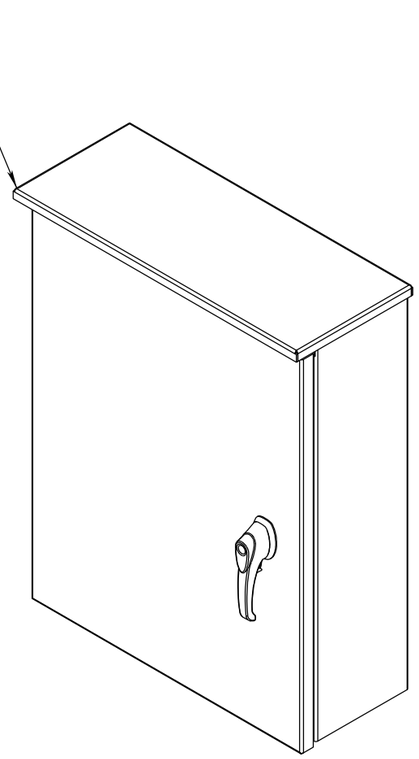
REVISIONS				ENGINEER OF RECORD FULL NAME, P.E.	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	REDUNDANT LUMINAIRE SUPPORT DETAIL	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	P.E. LICENSE NUMBER 99999	ROAD NO.	PROJECT NO.			F-5
				ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD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

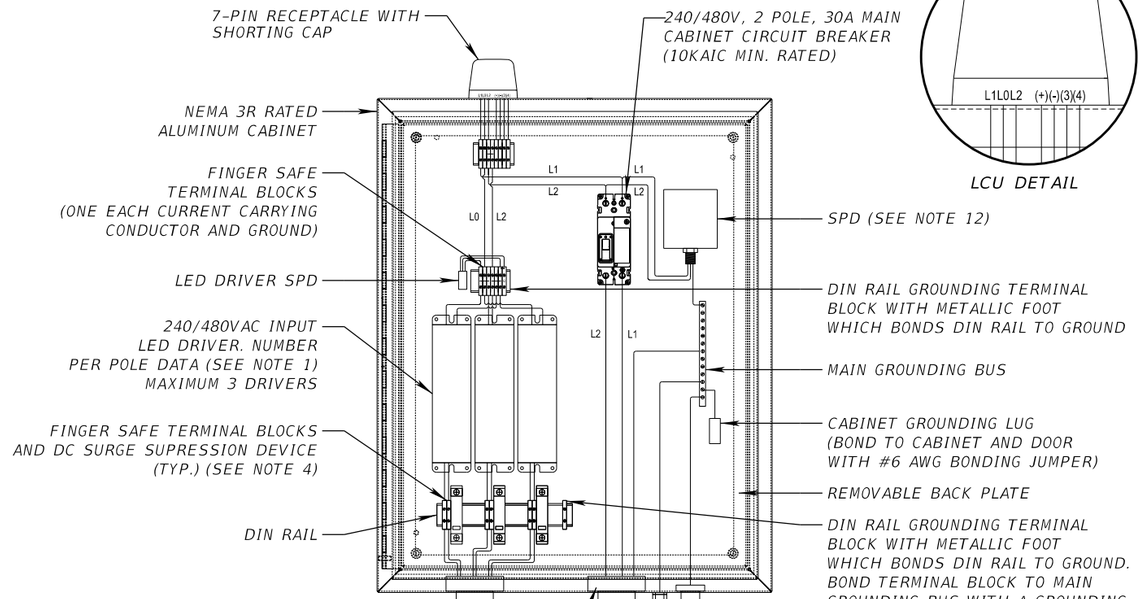


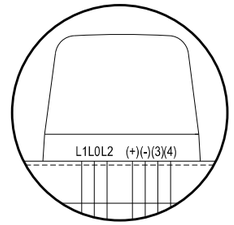
FRONT VIEW



RIGHT VIEW







LCU DETAIL

NOTES:

1. 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.

2. 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.

3. INTERNAL WIRING OF CABINET SHALL BE XHHW-2 (XLPE) INSULATION TYPE.

4. 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). GROUND THE SPD'S TO CABINET GROUND EITHER THROUGH THE DIN RAIL OR WITH A GROUNDING BONDING JUMPER BONDED TO THE MAIN GROUNDING BUS (PER SPD MODEL MANUFACTURER REQUIRMENTS).

5. MANUFACTURED TO NEMA 3R SPECIFICATIONS, POLE MOUNT INSTALLATION, (2) BANDING STYLE BRACKETS.

6. 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.

7. CABINET SHELL SHALL BE CONSTRUCTED USING UNPAINTED SHEET ALUMINUM ALLOY 5052-H32 WITH A MINIMUM THICKNESS OF 0.125 INCH.

8. 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.

9. ALL CONDUITS SHALL BE INSTALLED FROM BOTTOM OF CABINET AND SHALL BE SEALED.

10. CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.

11. 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.

12. 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.

13. 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.

14. PROVIDE ACRYLIC LAMACOID TAG ON OUTSIDE OF CABINET DOOR. SPECIFICS AND LABELING CONVENTION SHALL BE AS FOLLOWS:
    - A. COLOR: WHITE LETTERS ON BLACK.
    - B. DIMENSIONS: 5"W X 3"H.
    - C. MOUNTING TYPE: ADHESIVE BACKING.
    - D. MESSAGE:
        1. 1ST LINE (VOLTAGE)
        2. 2ND LINE (SIGN LIGHTING/UNDERDECK LIGHTING)
        3. 3RD LINE (ROADWAY) (DIRECTION) (MP XX.X)

(VOLTAGE)
(SIGN LIGHTING/UNDERDECK LIGHTING)
(ROADWAY) (DIRECTION) (MP XX.X)

15. BOND GROUNDING BONDING JUMPER TO GROUND BUS BAR IN THE LED DRIVER CABINET. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

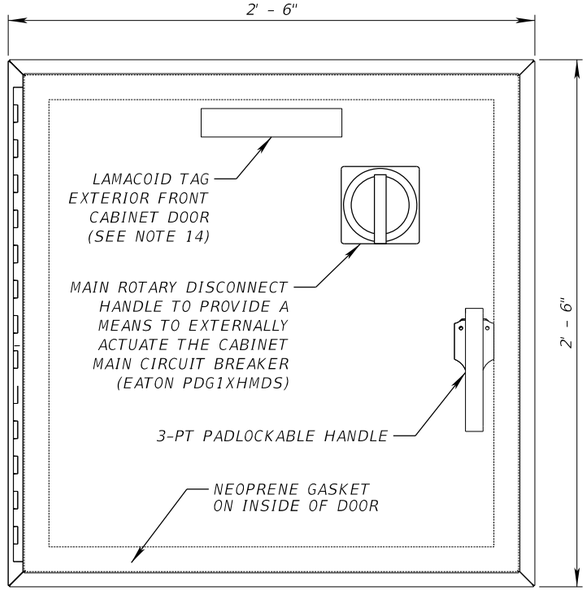
ENGINEER OF RECORD FULL NAME, P.E.
P.E. LICENSE NUMBER 99999
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP

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

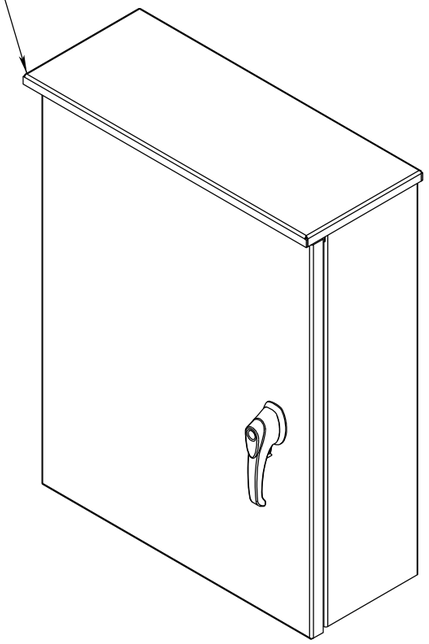
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

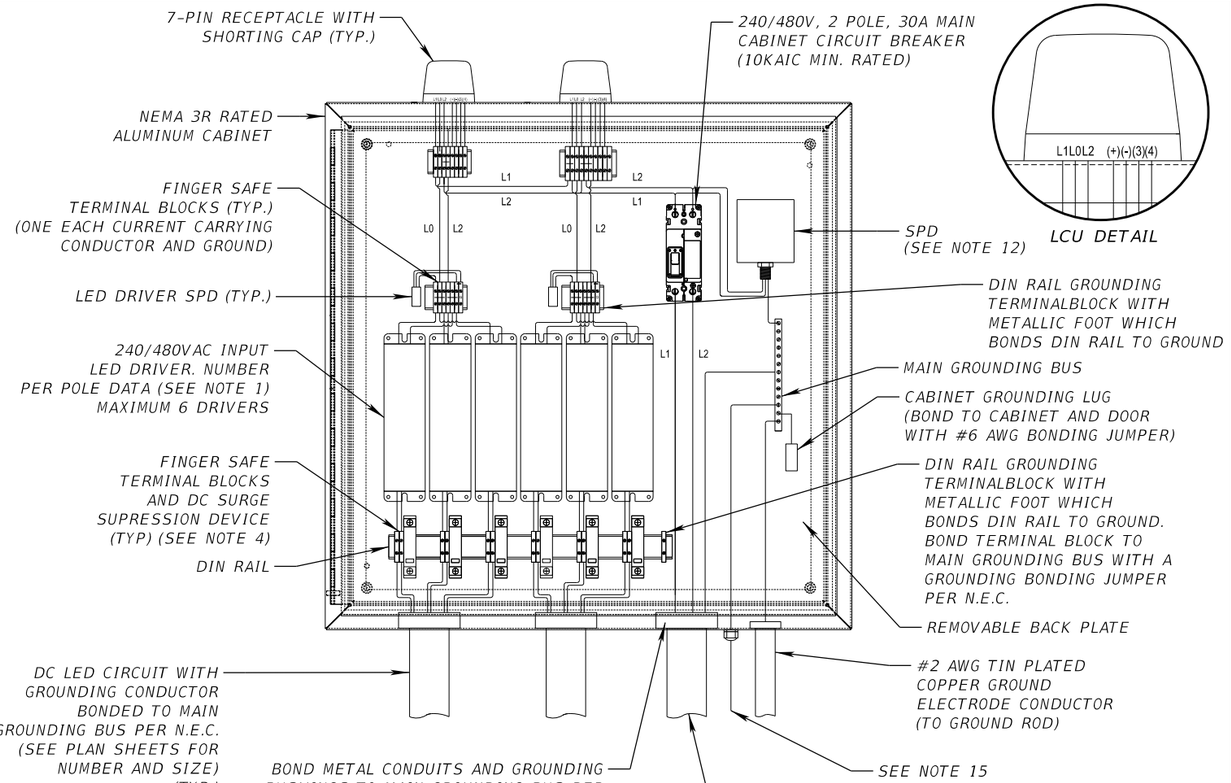
SMALL SIZE REMOTE LED DRIVER CABINET DETAILS

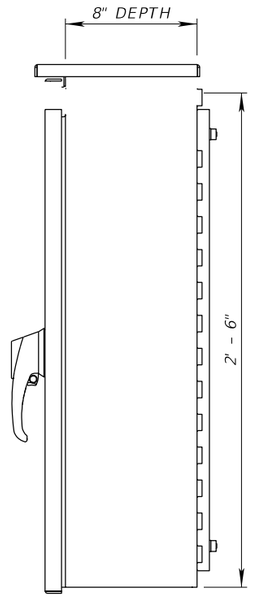
SHEET NO. G-1



FRONT VIEW







RIGHT VIEW

NOTES:

1. 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.
2. 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.
3. INTERNAL WIRING OF CABINET SHALL BE XHHW-2 (XLPE) INSULATION TYPE.
4. 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). GROUND THE SPD'S TO CABINET GROUND EITHER THROUGH THE DIN RAIL OR WITH A GROUNDING BONDING JUMPER BONDED TO THE MAIN GROUNDING BUS (PER SPD MODEL MANUFACTURER REQUIRMENTS).
5. MANUFACTURED TO NEMA 3R SPECIFICATIONS, POLE MOUNT INSTALLATION, (2) BANDING STYLE BRACKETS.
6. 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.
7. CABINET SHELL SHALL BE CONSTRUCTED USING UNPAINTED SHEET ALUMINUM ALLOY 5052-H32 WITH A MINIMUM THICKNESS OF 0.125 INCH.
8. 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.
9. ALL CONDUITS SHALL BE INSTALLED FROM BOTTOM OF CABINET AND SHALL BE SEALED.
10. CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.
11. 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.
12. 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.
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14. PROVIDE ACRYLIC LAMACOID TAG ON OUTSIDE OF CABINET DOOR. SPECIFICS AND LABELING CONVENTION SHALL BE AS FOLLOWS:
    A. COLOR: WHITE LETTERS ON BLACK.
    B. DIMENSIONS: 5"W X 3"H.
    C. MOUNTING TYPE: ADHESIVE BACKING.
    D. MESSAGE:
        1. 1ST LINE (VOLTAGE)
        2. 2ND LINE (SIGN LIGHTING/UNDERDECK LIGHTING)
        3. 3RD LINE (ROADWAY) (DIRECTION) (MP XX.X)

(VOLTAGE)
(SIGN LIGHTING/UNDERDECK LIGHTING)
(ROADWAY) (DIRECTION) (MP XX.X)

15. BOND GROUNDING BONDING JUMPER TO GROUND BUS BAR IN THE LED DRIVER CABINET. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.

NOT TO SCALE

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

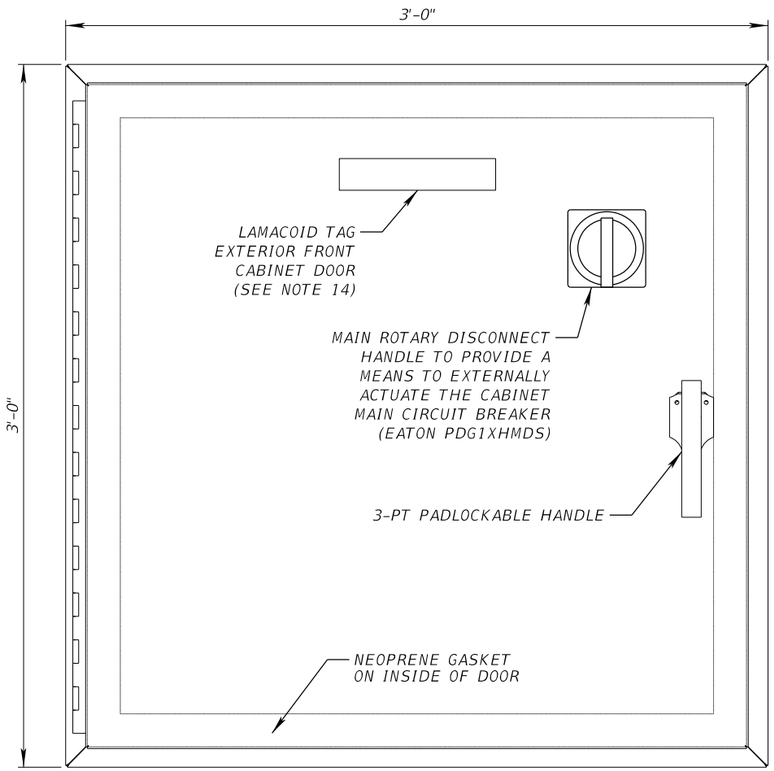
PROJECT NAME (1 to 3 LINES)	
ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

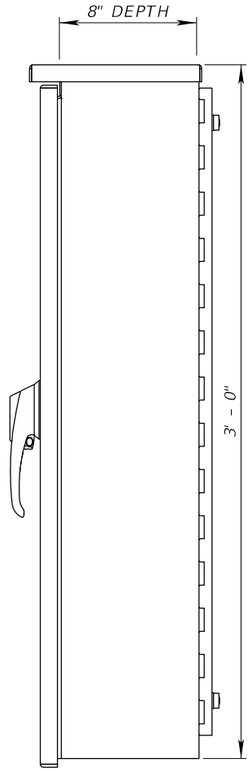
MEDIUM SIZE REMOTE LED DRIVER CABINET DETAILS

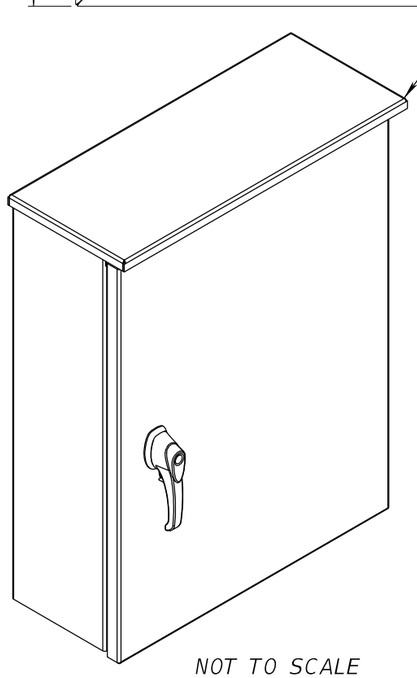
SHEET NO. G-2

FRONT VIEW

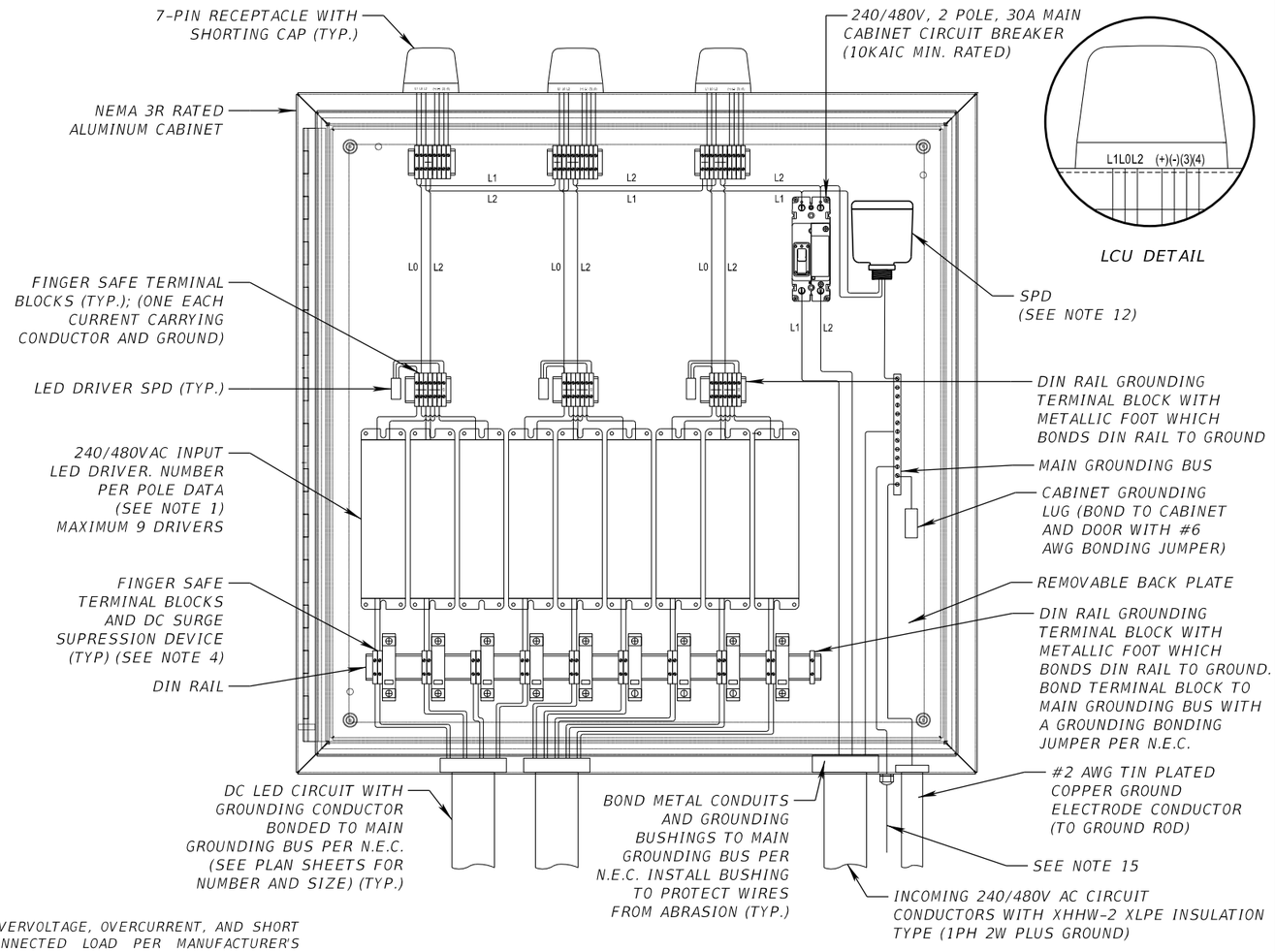


RIGHT VIEW





NOT TO SCALE



NOTES:

1. 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.
2. 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.
3. INTERNAL WIRING OF CABINET SHALL BE XHHW-2 (XLPE) INSULATION TYPE.
4. 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). GROUND THE SPD'S TO CABINET GROUND EITHER THROUGH THE DIN RAIL OR WITH A GROUNDING BONDING JUMPER BONDED TO THE MAIN GROUNDING BUS (PER SPD MODEL MANUFACTURER REQUIREMENTS).
5. MANUFACTURED TO NEMA 3R SPECIFICATIONS, POLE MOUNT INSTALLATION, (2) BANDING STYLE BRACKETS.
6. 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.
7. CABINET SHELL SHALL BE CONSTRUCTED USING UNPAINTED SHEET ALUMINUM ALLOY 5052-H32 WITH A MINIMUM THICKNESS OF 0.125 INCH.
8. 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.
9. ALL CONDUITS SHALL BE INSTALLED FROM BOTTOM OF CABINET AND SHALL BE SEALED.
10. CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.
11. 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.
12. 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.
13. 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.
14. PROVIDE ACRYLIC LAMACOID TAG ON OUTSIDE OF CABINET DOOR. SPECIFICS AND LABELING CONVENTION SHALL BE AS FOLLOWS:
    A. COLOR: WHITE LETTERS ON BLACK.
    B. DIMENSIONS: 5"W X 3"H.
    C. MOUNTING TYPE: ADHESIVE BACKING.
    D. MESSAGE:
    1. 1ST LINE (VOLTAGE)
    2. 2ND LINE (SIGN LIGHTING/UNDERDECK LIGHTING)
    3. 3RD LINE (ROADWAY) (DIRECTION) (MP XX.X)

    (VOLTAGE)
    (SIGN LIGHTING/UNDERDECK LIGHTING)
    (ROADWAY) (DIRECTION) (MP XX.X)
15. BOND GROUNDING BONDING JUMPER TO GROUND BUS BAR IN THE LED DRIVER CABINET. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE LED DRIVER CABINET UTILIZING A WATERPROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.

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)

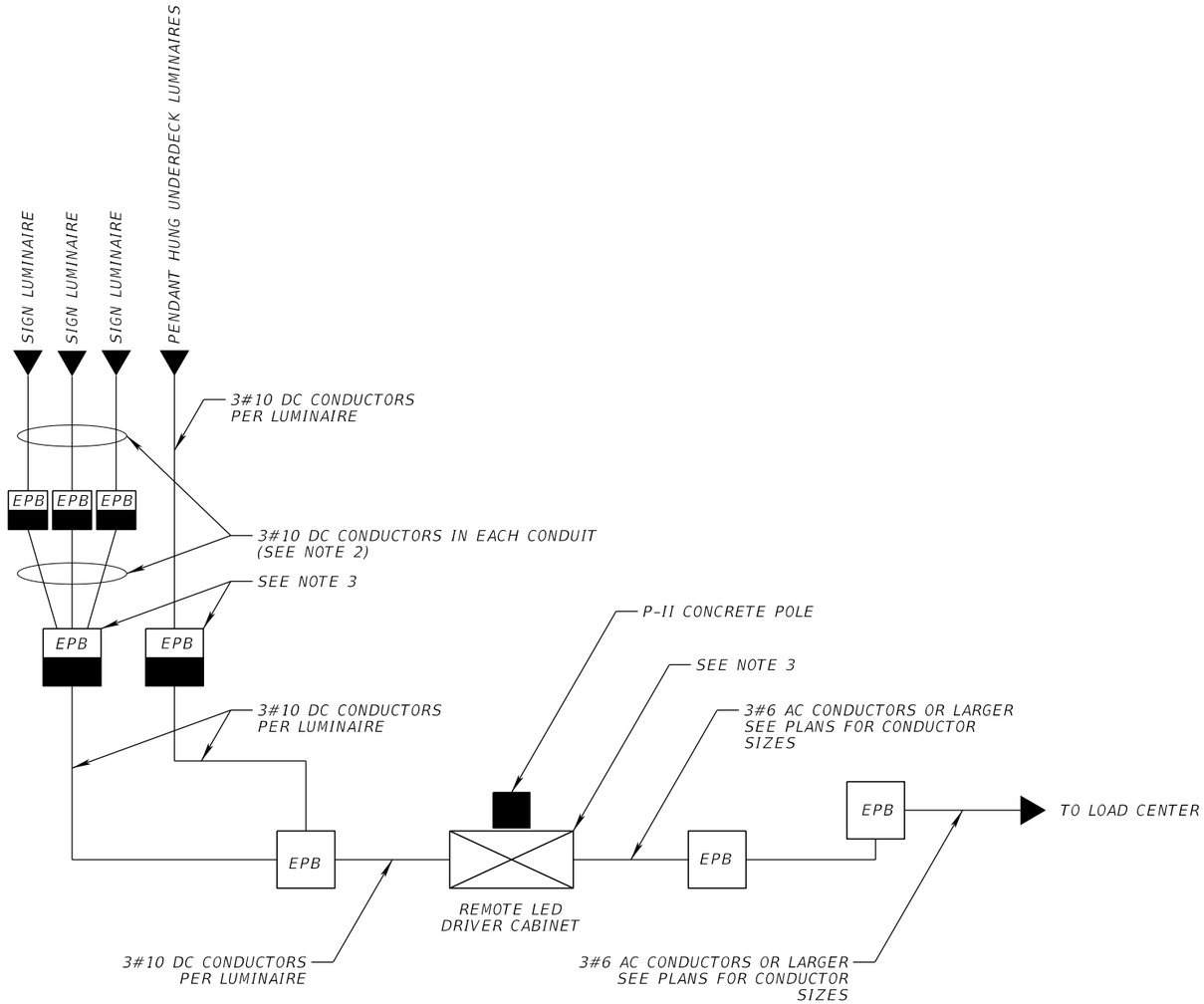
ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

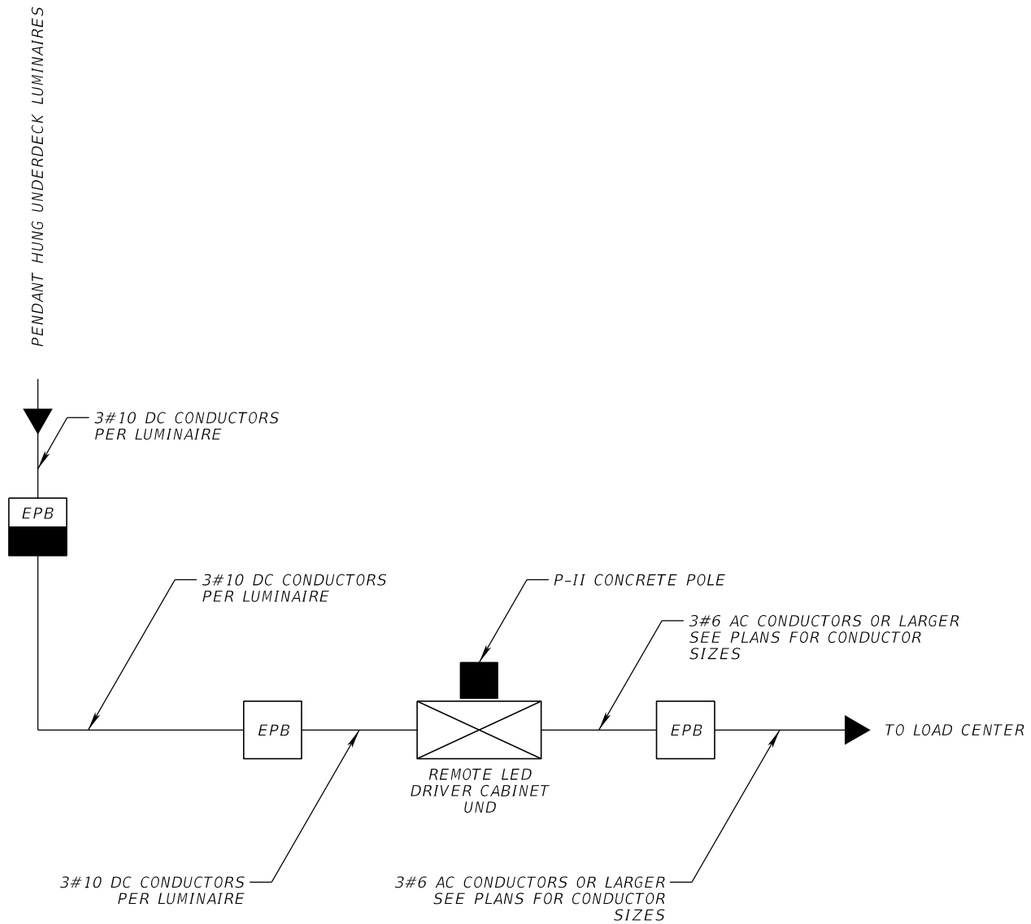
LARGE SIZE REMOTE LED DRIVER CABINET DETAILS

SHEET NO. G-3

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



PENDANT HUNG UNDERDECK ONLY (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.

EPB — SHOULDER MOUNTED ELECTRICAL PULL BOX

EPB — SURFACE MOUNTED ELECTRICAL PULL BOX

REVISIONS			
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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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

REMOTE LED DRIVER CABINET DETAILS

SHEET NO. H-1

BOX GIRDER MAINTENANCE LIGHTING NOTES:

1. SUBMIT SHOP DRAWINGS TO THE ENGINEER DETAILING THE LAYOUT OF THE MAINTENANCE LIGHTING SYSTEM FOR THE ENTIRE STRUCTURE. THE SHOP DRAWINGS MUST INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING ITEMS:
   A. CONDUIT LAYOUT AND INSTALLATION DETAILS THROUGH DIAPHRAGMS, AROUND POST-TENSIONING (PT) DUCTS, LATERAL BRACING AND CROSS FRAMES AS NECESSARY.
   B. CONDUIT ACCESS THROUGH BOX GIRDER END DIAPHRAGMS WITH MINIMUM 1" CLEARANCE IN ALL DIRECTIONS.
   C. CONDUIT EXPANSION FITTING DETAILS.
   D. FASTENER DETAILS FOR THE INTERIOR ELECTRICAL SYSTEM.
   E. SINGLE LINE DIAGRAM SHOWING MINI POWER CENTERS, SWITCHES, CONTACTORS, TIMERS, ETC.
   F. MINI POWER CENTER DETAILS INCLUDING CIRCUIT BREAKER DETAILS.
   G. MINI POWER CENTER MOUNTING DETAILS IF REQUIRED.
   H. FEEDER SCHEDULE.

2. ENSURE INSTALLATION MEETS ALL REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES. INSTALL GROUNDING IN ACCORDANCE WITH NEC ARTICLE 250. MAINTAIN PHYSICAL SEPARATION BETWEEN ALL 480V AND 120V BOX GIRDER MAINTENANCE LIGHTING CIRCUITS, INCLUDING CONDUCTORS, CONDUITS, JUNCTION BOXES, AND PULL BOXES, THROUGHOUT.

3. FURNISH ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION.

4. USE ONLY NEW, UNUSED AND UNDERWRITERS LABORATORIES (UL) LISTED EQUIPMENT AND MATERIALS FOR OUTDOOR USE.

5. FURNISH AND INSTALL POLYVINYL CHLORIDE (PVC) CONDUIT IN CONFORMANCE WITH UL SECTION 651, NEC SECTION 347 AND NEMA TC-2, UV-RESISTANT AND SCHEDULE 80. BEND CONDUITS AS NECESSARY TO CONNECT TO LOADS.

6. PROVIDE PVC SLEEVE 2" LARGER IN DIAMETER THAN CONDUIT TO ACCOMMODATE CONSTRUCTION TOLERANCE.

7. INSTALL A UL LABELED EXPANSION FITTING FOR SPECIFIED PVC CONDUIT AT ALL STRUCTURE EXPANSION JOINTS. PROVIDE CERTIFICATION THAT THE EXPANSION FITTING MEETS THE FOLLOWING MINIMUM REQUIREMENTS: COMPATIBILITY WITH THE CONNECTED CONDUITS, WATERPROOF, UV PROTECTED AND ALLOWS LONGITUDINAL MOVEMENT EQUAL TO THAT OF THE EXPANSION JOINT.

8. USE ONLY ALLOY 316 STAINLESS STEEL SUPPORTING HARDWARE. PROVIDE MINIMUM $\frac{1}{16}$" Ø FASTENERS. FOR CONCRETE OR SIP FORM MOUNTING, PROVIDE ANCHOR BOLTS (EXPANSION, DROP-IN OR ADHESIVE) SUITABLE FOR DYNAMIC LOADING (DUE TO VIBRATION CAUSED BY TRAFFIC). INSTALL FASTENERS TO AVOID CONFLICTS WITH REINFORCING STEEL AND PT DUCTS. FOR STRUCTURAL STEEL MOUNTING, DO NOT ATTACH FASTENERS TO MAIN MEMBERS, I.E. WEBS AND FLANGES.

9. FURNISH POWER DISTRIBUTION AT 480V AC, 1 PHASE, WITH STEP DOWN TRANSFORMERS AT REGULAR INTERVALS. FURNISH 7.5 KVA MINI POWER CENTER WITH EIGHT 20A BREAKERS AS THE STEP DOWN TRANSFORMER, FEEDING A MAXIMUM OF 20 LAMPS AND 20 RECEPTACLES. EACH MINI POWER CENTER WILL PROVIDE POWER TO NO MORE THAN 1000' OF BRIDGE, PREFERABLY 500' ON EACH SIDE OF THE MINI POWER CENTER. 480V TOP FEED, 120V BOTTOM FEED TO MAINTAIN SEPARATION.

10. FURNISH AND INSTALL LIGHTING CONTACTORS TO SWITCH THE 480V AC FEEDING THE MINI POWER CENTERS.

11. FURNISH AND INSTALL COPPER CONDUCTORS, TYPE XHHW. DO NOT USE ANY CONDUCTOR LARGER THAN #4 AWG.

12. PROVIDE ENOUGH SLACK IN ALL INTERIOR CABLE TERMINATIONS TO ALLOW FOR MINOR SHIFTING OF THE STRUCTURE.

13. FURNISH AND INSTALL NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION (NEMA) TYPE 4X (NON-METALLIC) SURFACE MOUNTED BOXES SIZED IN CONFORMANCE WITH THE NEC.

14. FURNISH AND INSTALL 120V DUPLEX RECEPTACLES (GFI, NEMA TYPE 5-20R), IN NON-METALLIC OUTLET BOXES AT 50' MAXIMUM ON CENTERS. PROVIDE EACH RECEPTACLE WITH A GASKETED WEATHER-PROTECTIVE OUTDOOR PLATE. MAXIMUM WIRE SIZE TO CONNECT TO RECEPTACLES IS #12 AWG.

15. FURNISH AND INSTALL SURFACE MOUNTED, FULLY ENCLOSED, 14 WATT LED LIGHT FIXTURES WITH GASKETED CLEAR GLOBES AND WIRE GUARDS AT 50' MAXIMUM ON CENTERS. SIGNIFY VWCL-14-NW-G1-8 OR APPROVED EQUAL.

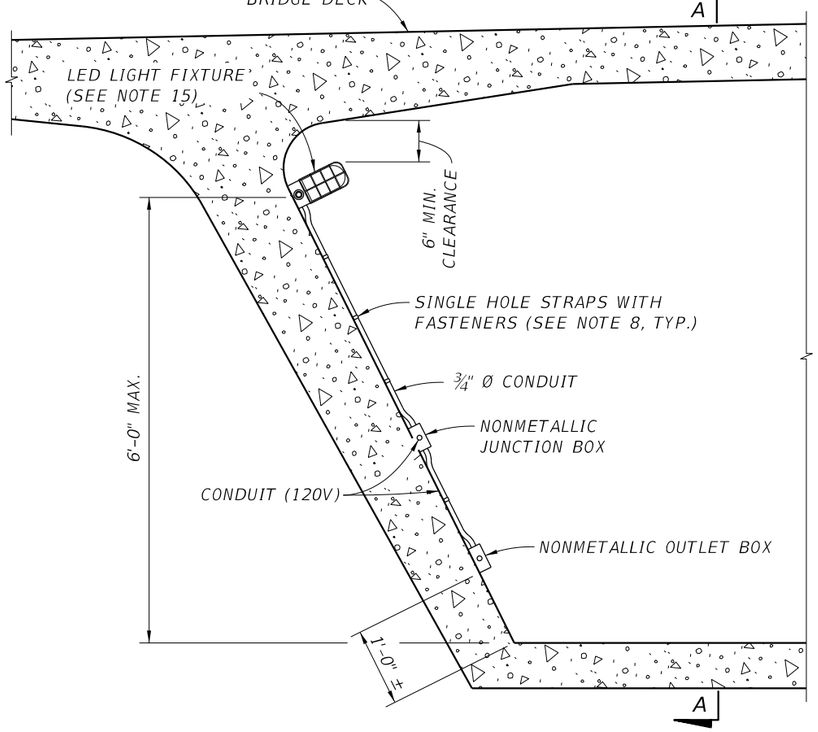
16. PROVIDE SIX HOUR RESET TIMERS FOR EACH CIRCUIT TO TURN OFF THE LIGHTING SYSTEM AUTOMATICALLY.

17. DO NOT ROUTE BOX GIRDER MAINTENANCE LIGHTING CIRCUITS IN THE SAME CONDUITS, JUNCTION BOXES, OR PULL BOXES AS ROADWAY LIGHTING CIRCUITS.

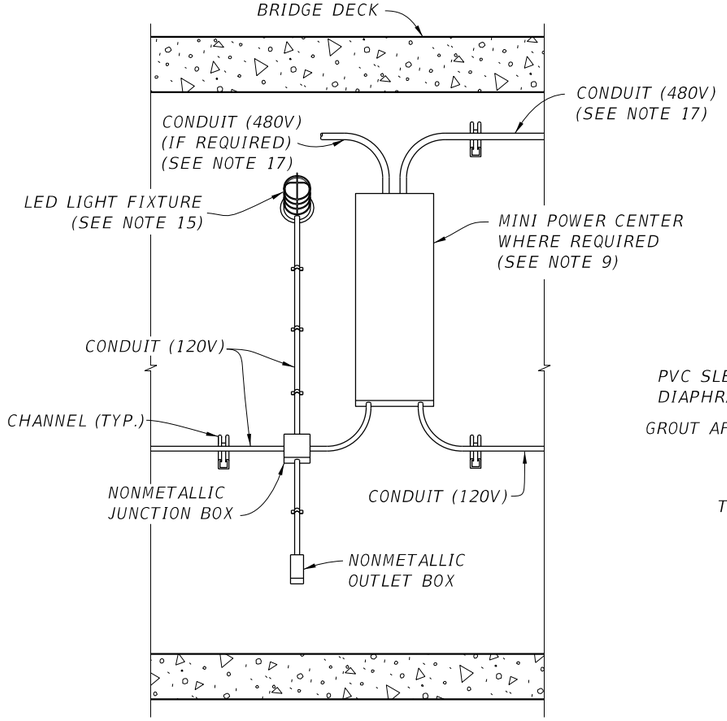
CROSS REFERENCES:

1. FOR BOX GIRDER INFORMATION, REFER TO STRUCTURES PLANS.

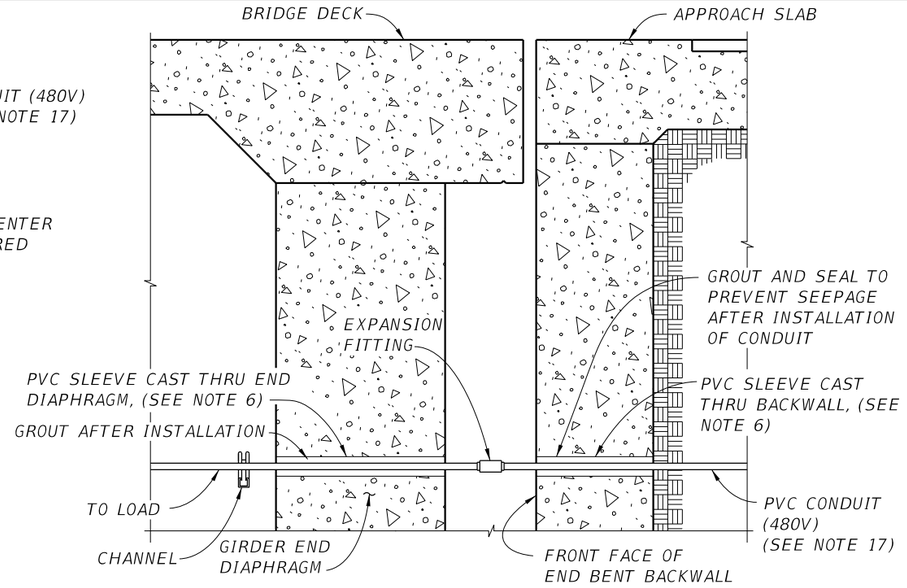
REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	MAINTENANCE LIGHTING FOR BOX GIRDERS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			J-1



LIGHTING DETAILS FOR CONCRETE BOX GIRDER BRIDGE

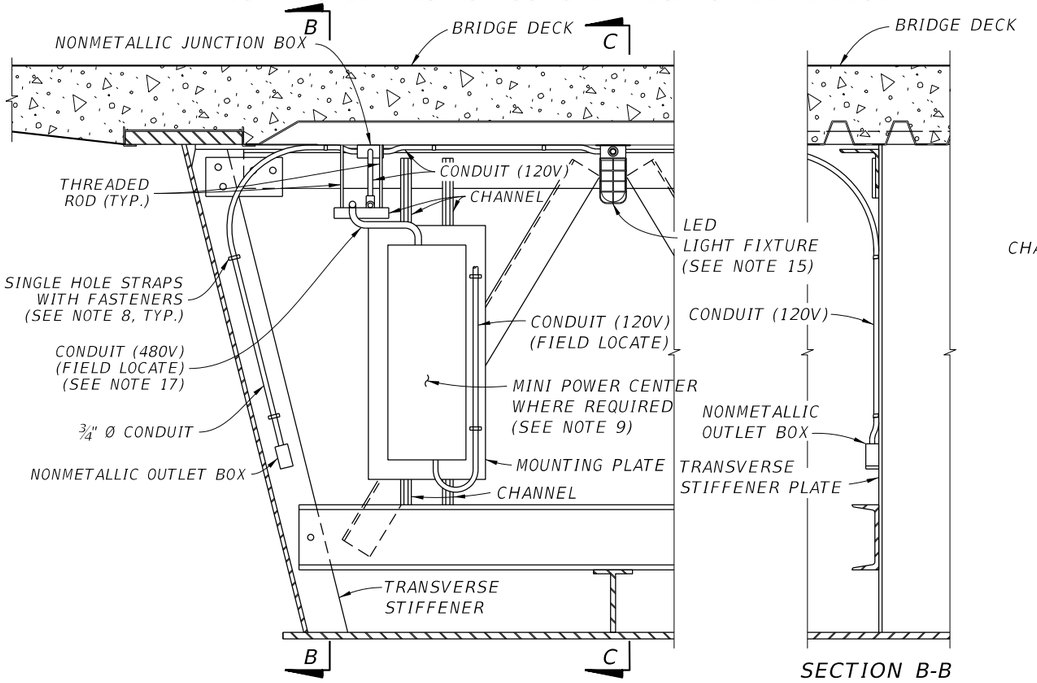


SECTION A-A

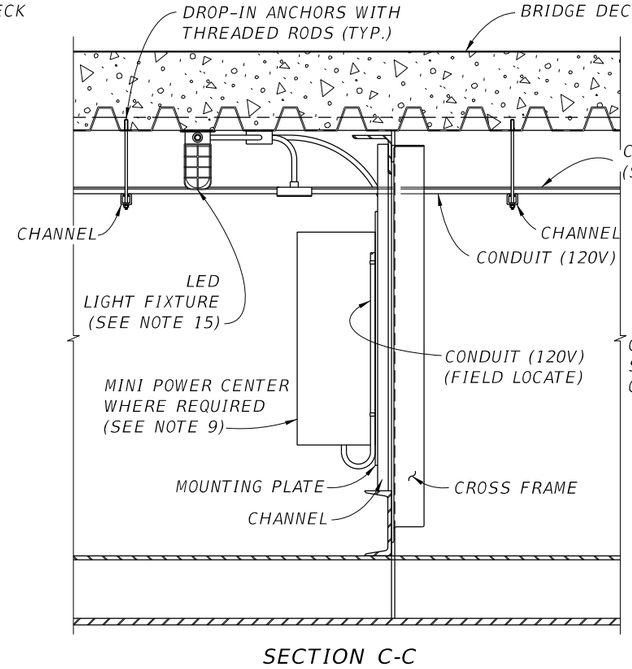


CONCRETE BOX GIRDER BRIDGE SECTION THRU END BENTS

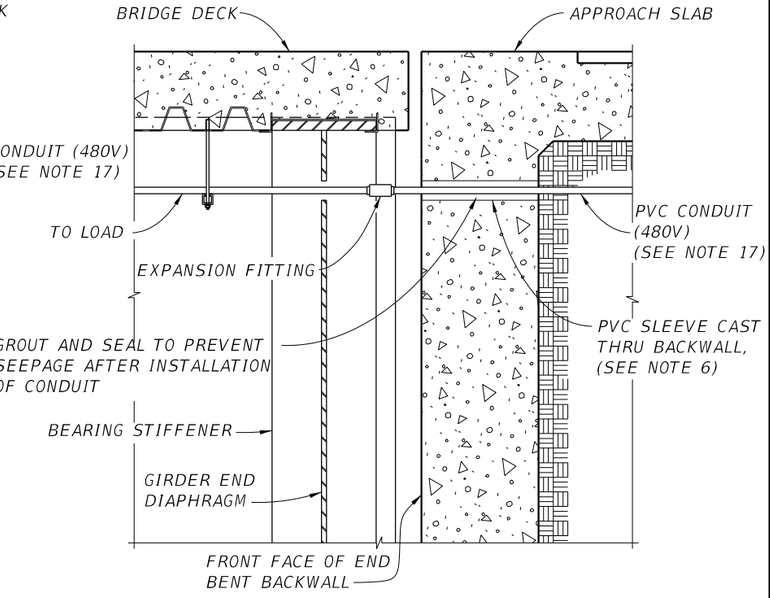
CROSS REFERENCE:
1. FOR BOX GIRDER MAINTENANCE LIGHTING NOTES SEE SHEET 1.



SECTION B-B



SECTION C-C



STEEL BOX GIRDER BRIDGE SECTION THRU END BENTS

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

REVISIONS			
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PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

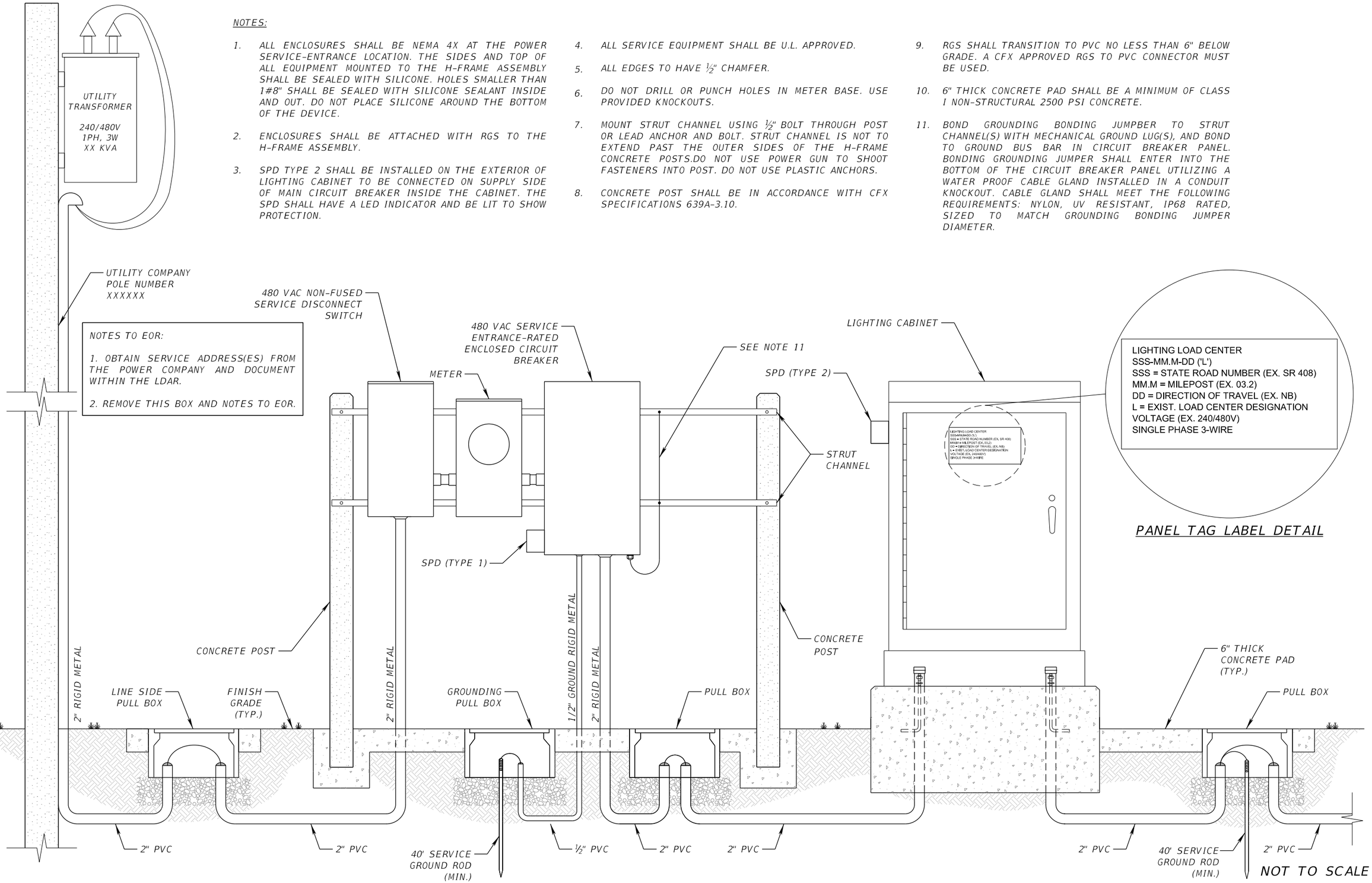
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

MAINTENANCE LIGHTING FOR BOX GIRDERS

SHEET NO. J-2

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 2 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 ½" CHAMFER.
6. DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
7. MOUNT STRUT CHANNEL USING ½" BOLT THROUGH POST OR LEAD ANCHOR AND BOLT. STRUT 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.
11. BOND GROUNDING BONDING JUMPBER TO STRUT CHANNEL(S) WITH MECHANICAL GROUND LUG(S), AND BOND TO GROUND BUS BAR IN CIRCUIT BREAKER PANEL. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF THE CIRCUIT BREAKER PANEL UTILIZING A WATER PROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.



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

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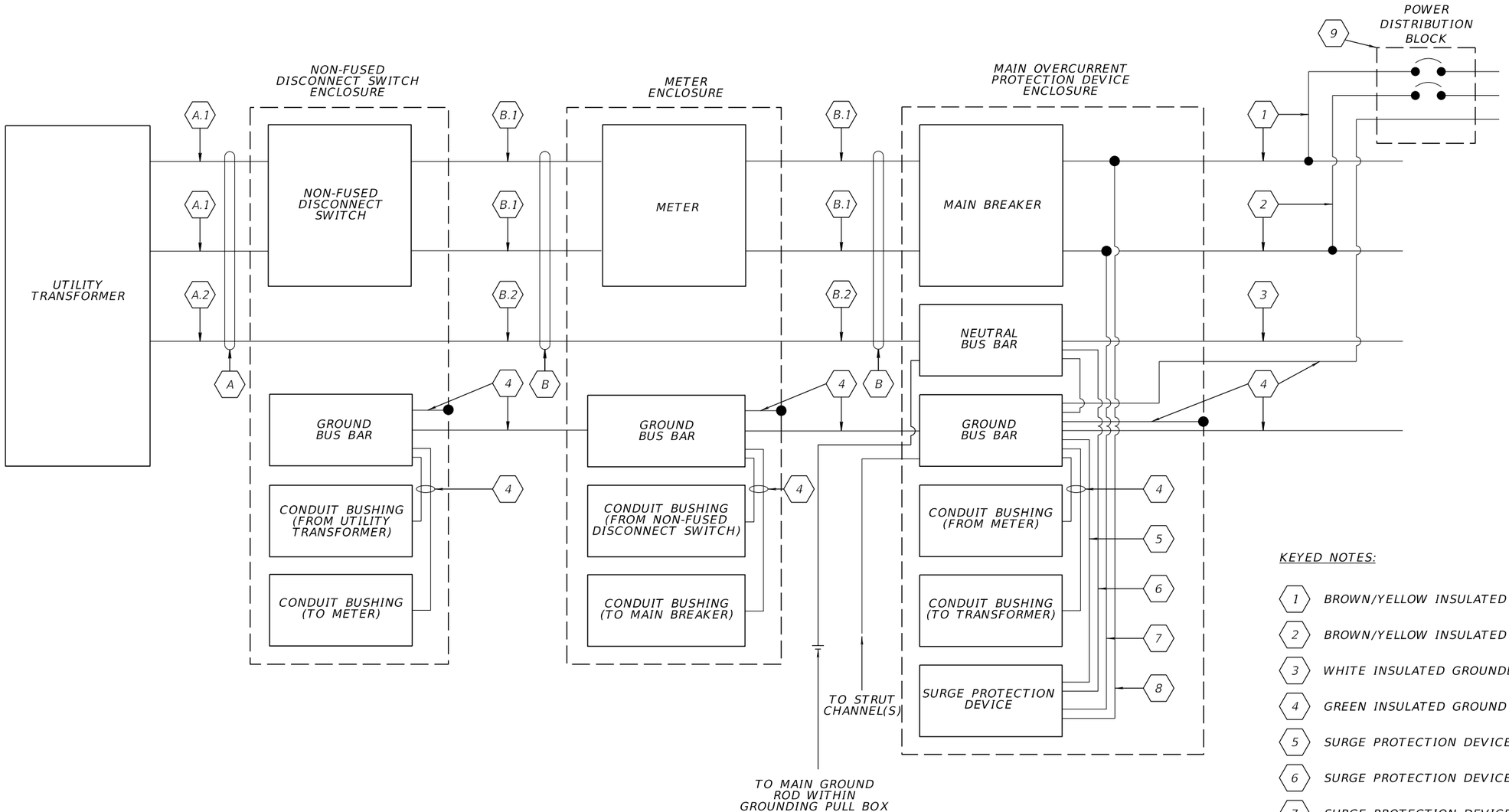
PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ELECTRIC SERVICE ASSEMBLY WITHOUT A TRANSFORMER

SHEET NO. K-1



NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR POWER SERVICE 240/480 VAC APPLICATION.
3. REMOVE POWER DISTRIBUTION BLOCK AND ASSOCIATED WIRING, ALONG WITH KEYED NOTE 9, IF BOX GIRDER MAINTENANCE LIGHTING IS NOT REQUIRED.
4. DELETE THIS BOX AND NOTES TO EOR.

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 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
9. ADD POWER DISTRIBUTION BLOCK WITH XX AMP 2-POLE BRANCH FEEDER BREAKER(S) AS NECESSARY FOR BOX GIRDER MAINTENANCE LIGHTING FEEDS (TYPICAL).
- 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:

1. 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.

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

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 2 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 ½" CHAMFER.
6. DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
7. MOUNT STRUT CHANNEL USING ½" BOLT THROUGH POST OR LEAD ANCHOR AND BOLT. STRUT 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.
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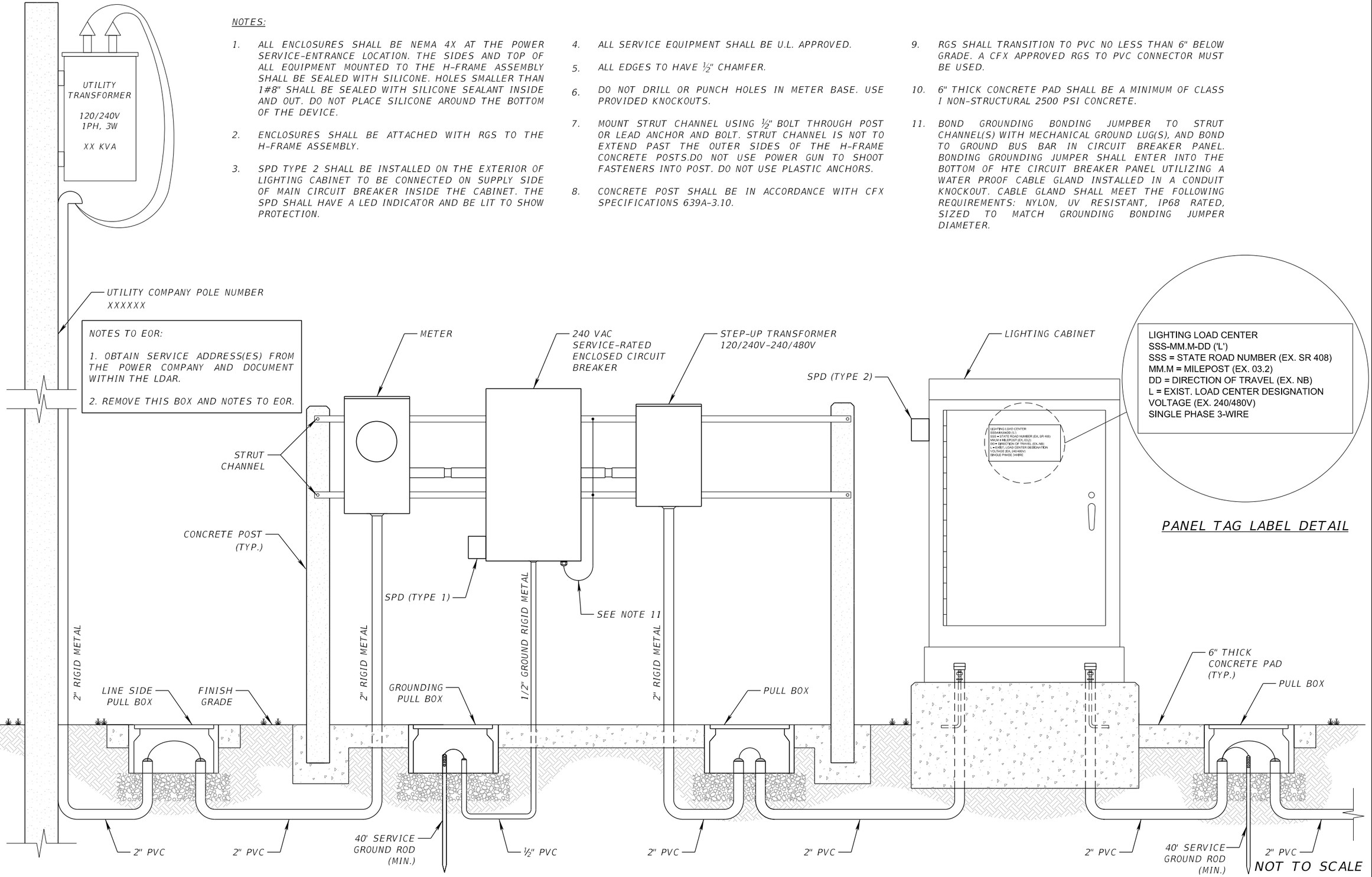
9. RGS SHALL TRANSITION TO PVC NO LESS THAN 6" BELOW GRADE. A CFX APPROVED RGS TO PVC CONNECTOR MUST BE USED.
10. 6" THICK CONCRETE PAD SHALL BE A MINIMUM OF CLASS I NON-STRUCTURAL 2500 PSI CONCRETE.
11. BOND GROUNDING BONDING JUMPBER TO STRUT CHANNEL(S) WITH MECHANICAL GROUND LUG(S), AND BOND TO GROUND BUS BAR IN CIRCUIT BREAKER PANEL. BONDING GROUNDING JUMPER SHALL ENTER INTO THE BOTTOM OF HTE CIRCUIT BREAKER PANEL UTILIZING A WATER PROOF CABLE GLAND INSTALLED IN A CONDUIT KNOCKOUT. CABLE GLAND SHALL MEET THE FOLLOWING REQUIREMENTS: NYLON, UV RESISTANT, IP68 RATED, SIZED TO MATCH GROUNDING BONDING JUMPER DIAMETER.



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

NOT TO SCALE

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

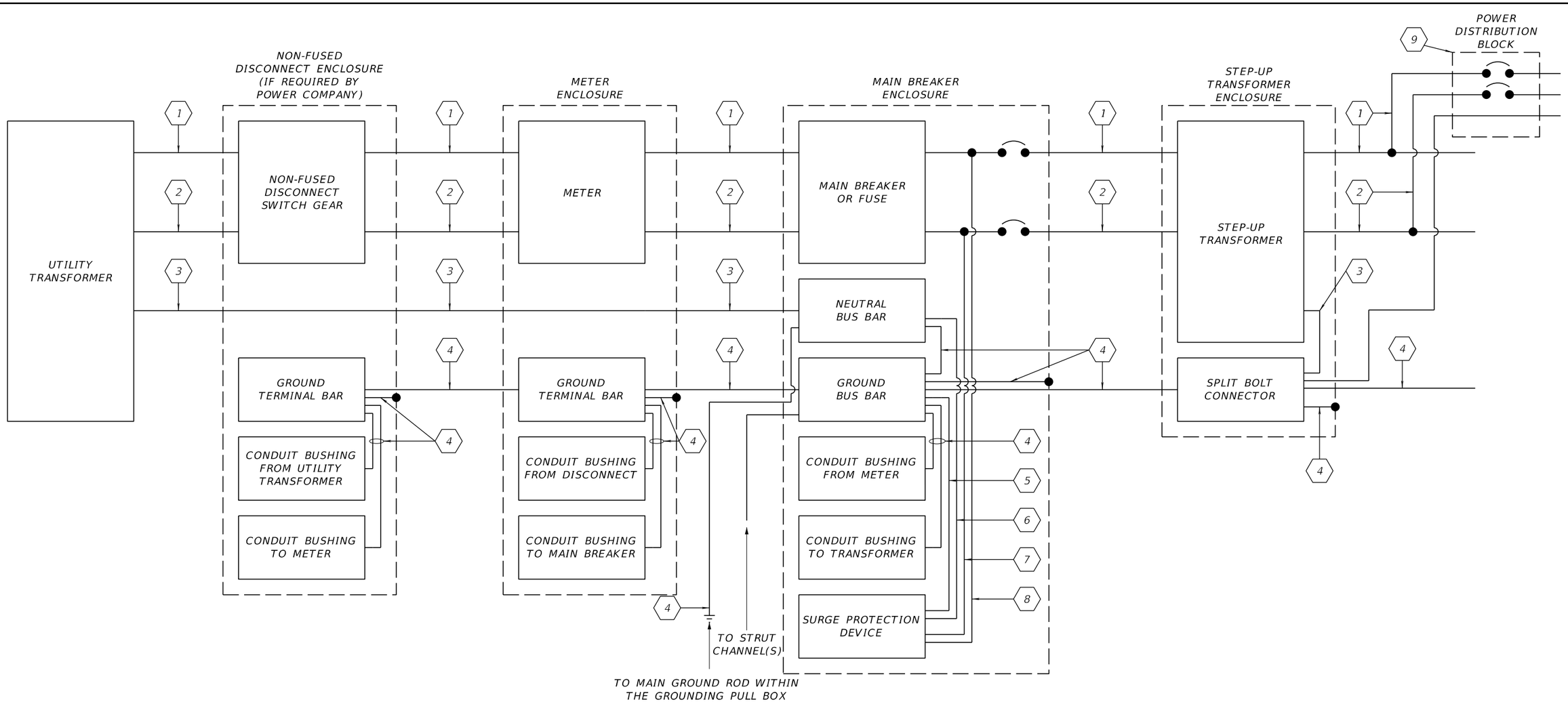
PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ELECTRIC SERVICE ASSEMBLY WITH A TRANSFORMER

SHEET NO. K-3



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.
3. REMOVE POWER DISTRIBUTION BLOCK AND ASSOCIATED WIRING, ALONG WITH KEYED NOTE 9, IF BOX GIRDER MAINTENANCE LIGHTING IS NOT REQUIRED.
4. DELETE THIS BOX AND NOTES TO EOR.

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
9. ADD POWER DISTRIBUTION BLOCK WITH XX AMP 2-POLE BRANCH FEEDER BREAKER(S) AS NECESSARY FOR BOX GIRDER MAINTENANCE LIGHTING FEEDS (TYPICAL).

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.

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.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ELECTRICAL SERVICE ASSEMBLY WIRING DIAGRAM WITH A TRANSFORMER

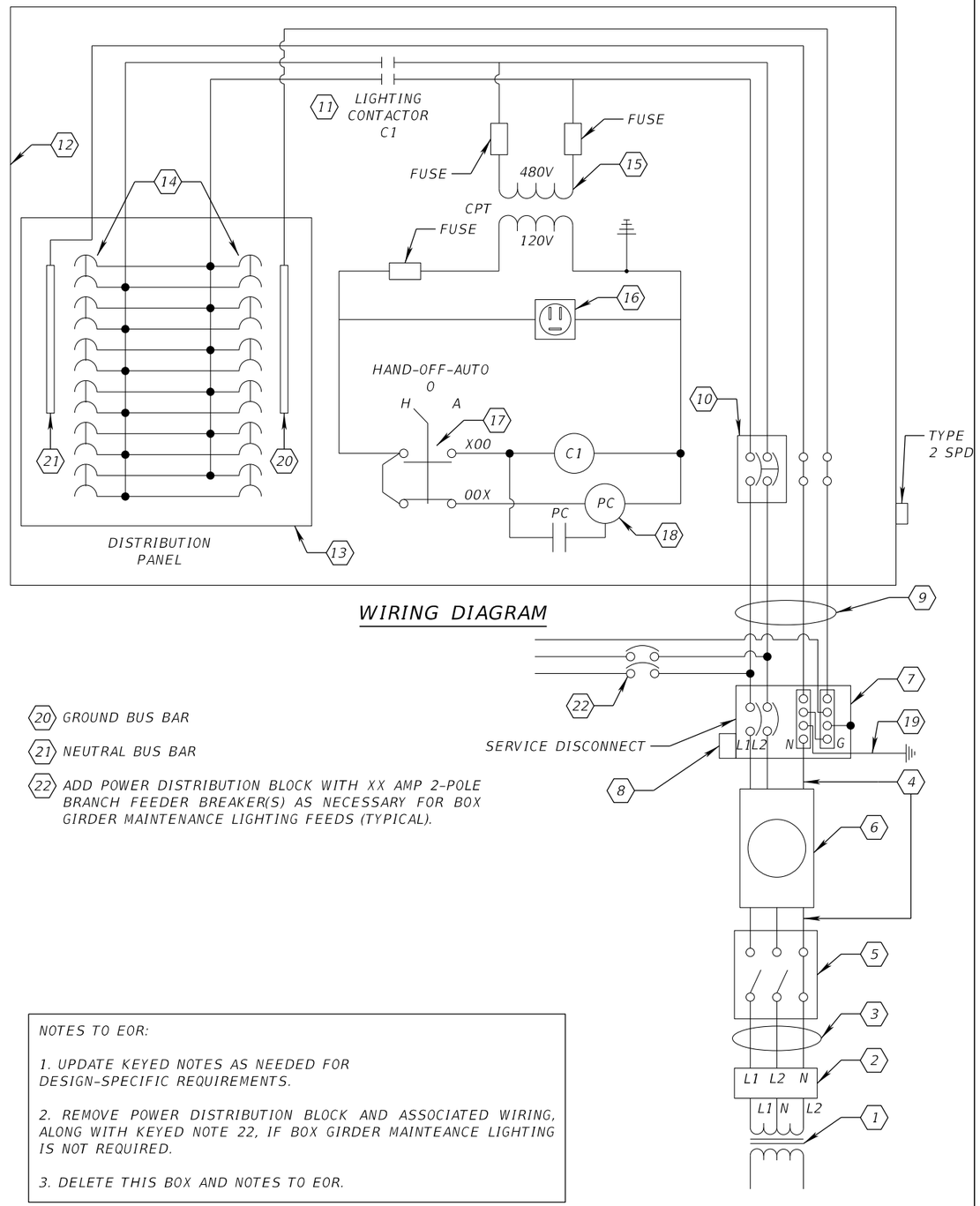
SHEET NO. K-4

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. #XX AWG COPPER GROUNDING CONDUCTOR IN 1/2" RGS CONDUIT WHERE EXPOSED. BOND GROUNDING TO TOP OF GROUND RODS VIA EXOTHERMIC WELDING PROCESS. USE 5/8" COPPER CLAD GROUND RODS 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.



WIRING DIAGRAM

20 GROUND BUS BAR

21 NEUTRAL BUS BAR

22 ADD POWER DISTRIBUTION BLOCK WITH XX AMP 2-POLE BRANCH FEEDER BREAKER(S) AS NECESSARY FOR BOX GIRDER MAINTENANCE LIGHTING FEEDS (TYPICAL).

NOTES TO EOR:

1. UPDATE KEYED NOTES AS NEEDED FOR DESIGN-SPECIFIC REQUIREMENTS.
2. REMOVE POWER DISTRIBUTION BLOCK AND ASSOCIATED WIRING, ALONG WITH KEYED NOTE 22, IF BOX GIRDER MAINTEANCE LIGHTING IS NOT REQUIRED.
3. DELETE THIS BOX AND NOTES TO EOR.

NOT TO SCALE

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

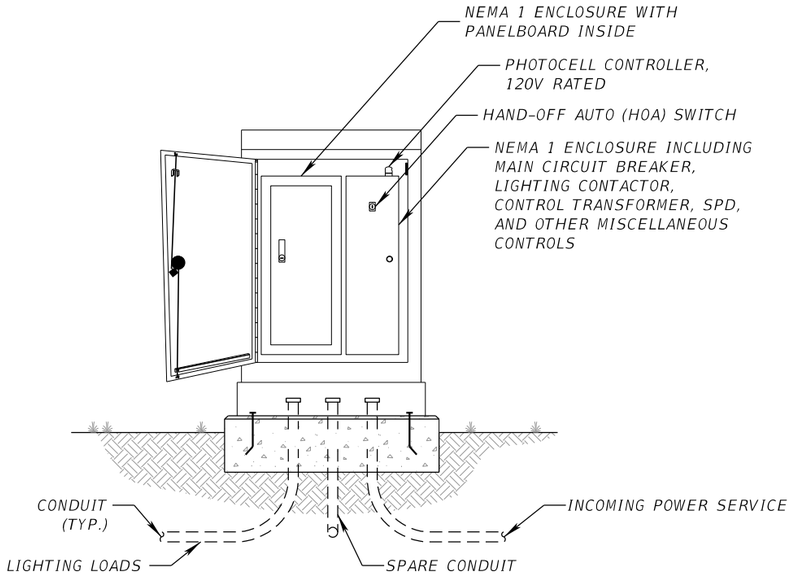
PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

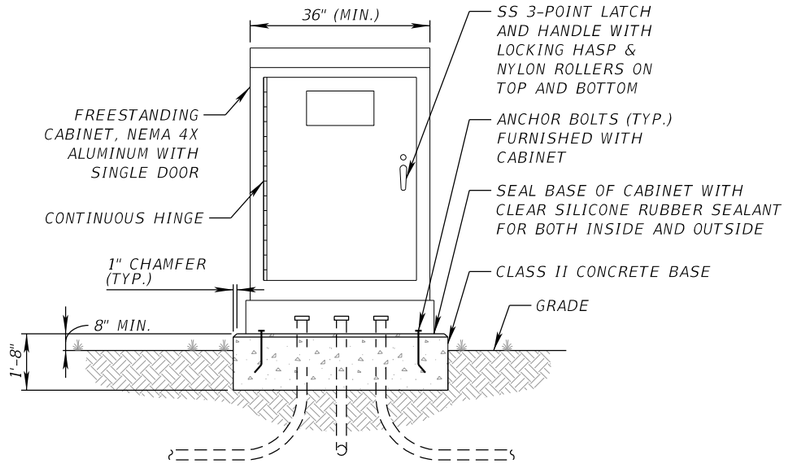
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SERVICE POINT DETAILS

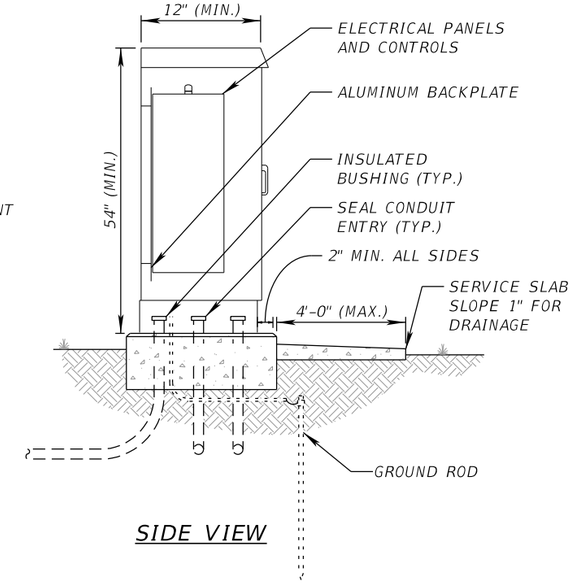
SHEET NO. K-5



FRONT VIEW (CABINET INTERIOR)



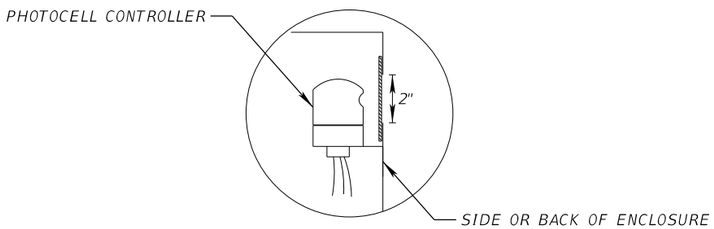
FRONT VIEW (CABINET EXTERIOR)



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.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			K-6

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, __KAIC
WITH GROUND BUS

PANELBOARD SCHEDULE "A"

___AMPS*, MLO
NEMA I 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		-	2	30	SPD
23						24					

TOTAL CONNECTED LOAD:	___ KVA
TOTAL CONNECTED LOAD:	___ AMPS
TOTAL DEMAND LOAD:	___ KVA
TOTAL DEMAND LOAD:	___ AMPS

*MAIN CIRCUIT BREAKER LOCATED WITHIN THE LIGHTING LOAD CENTER CABINET.

240/480V, 1PH, __KAIC
WITH GROUND BUS

PANELBOARD SCHEDULE "B"

___AMPS*, MLO
NEMA I 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		-	2	30	SPD
23						24					

TOTAL CONNECTED LOAD:	___ KVA
TOTAL CONNECTED LOAD:	___ AMPS
TOTAL DEMAND LOAD:	___ KVA
TOTAL DEMAND LOAD:	___ AMPS

*MAIN CIRCUIT BREAKER LOCATED WITHIN THE LIGHTING LOAD CENTER CABINET.

NOTES:

1. ALL BRANCH CIRCUIT BREAKERS SHALL HAVE A MINIMUM OF 14,000 AMPS FULLY RATED INTERRUPTING CAPACITY.
2. 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.
3. THE LEAD LENGTH OF THE SURGE PROTECTION DEVICES (SPD) SHALL BE AS SHORT AND STRAIGHT AS POSSIBLE.
4. 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.
5. 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			
DATE	DESCRIPTION	DATE	DESCRIPTION

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

PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

PANELBOARD SCHEDULES

SHEET NO. K-7

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.

⚠ WARNING

ARC FLASH AND SHOCK RISK
APPROPRIATE PPE REQUIRED

FLASH PROTECTION		SHOCK PROTECTION	
MIN. ARC RATING (cal/cm^2):	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^2)	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			
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ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ARC FLASH WARNING LABEL AND NOTES

SHEET NO.
L-1