CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY

ITS DESIGN DETAILS

FOR DESIGN, CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS ON THE STATE HIGHWAY SYSTEM

MARCH 2026

CENTRAL FLORIDA EXPRESSWAY AUTHORITY
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GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE CENTRAL FLORIDA EXPRESSWAY AUTHORITY (CFX) 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

2. 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, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND PRIOR TO ANY FURTHER WORK ACTIVITY.

3. IN ORDER TO MINIMIZE IMPACT TO LANDSCAPING MATERIAL, THE CONTRACTOR SHALL EXERCISE CAUTION THROUGH LANDSCAPING LIMITS DURING ALL PHASES OF CONSTRUCTION ACTIVITY. BEFORE IMPACTING ANY EXISTING LANDSCAPING, THE CONTRACTOR SHALL BRING ATTENTION TO THE CEI TO DETERMINE THE EXTENT OF THE IMPACTS. ANY LANDSCAPE MATERIAL DAMAGED DURING THE CONSTRUCTION PROCESS SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL AVOID AND/OR PROTECT ALL TREES AND ROOTS BY HAND DIGGING AS NECESSARY. ANY TREES, SHRUBS OR VEGETATION DAMAGED BY THE CONTRACTOR SHALL BE REPLACED IN KIND AT NO COST TO CFX. COORDINATION IS REQUIRED IN ADVANCE OF ACTIVITES TO ENSURE THE IMPACTS ARE MINIMAL AND ACCEPTABLE. ANY WORK COMPLETED PRIOR TO THIS COORDINATION WILL BE AT THE RISK OF THE CONTRACTOR AND ANY LANDSCAPE IMPACTS IDENTIFIED BE RESTORED TO PREVIOUS CONDITIONS AT THE CONTRACTOR'S EXPENSE.

4. CONTRACTOR SHALL COORDINATE THEIR ACTIVITIES WITH ALL OTHER CONTRACTORS OPERATING WITHIN THE PROJECT AREA AND ADJACENT PROJECTS.

5. THE CONTRACTOR SHALL EXERCISE ALL APPROPRIATE SAFETY MEASURES WHEN WORKING IN OR AROUND AREAS OF OVERHEAD ELECTRICAL/TRANSMISSION LINES OR UNDERGROUND UTILITIES. HAND DIGGING SHALL BE USED AROUND ALL KNOWN AND LOCATED UTILITIES.

6. FLORIDA STATUTE 556 REQUIRES CONTRACTORS TO 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.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CITY OF ORLANDO NOISE ORDINANCE CHAPTER 42.

8. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL TOLLS INCURRED FROM USING CFX'S SYSTEM IN TRANSPORTING WORKERS, EQUIPMENT OR MATERIALS TO AND FROM THE SITE OF WORK AT NO ADDITIONAL COST TO CFX. CONTRACTOR SHALL ACCESS THE PROJECT BY EXISTING RAMPS. NO ACCESS WILL BE ALLOWED THROUGH THE RIGHT-OF-WAY FENCE UNLESS APPROVED BY CFX. NO U-TURNS SHALL BE PERMITTED IN THE MEDIAN.

9. VIBRATORY ROLLERS SHALL NOT BE PERMITTED FOR COMPACTION OPERATIONS OF PAVEMENT, SOILS, ETC. ABOVE FIBER OPTIC CABLES (AT&T, MCI WORLD COM, CFX FIBER OPTIC, ETC). THE LOCATION OF ALL PROPOSED EQUIPMENT TO BE INSTALLED SHALL BE CONSIDERED TO BE APPROXIMATE.

10. POLE LOCATIONS SHOWN ON PLANS WHICH ARE IN CONFLICT WITH LIGHTING, UTILITIES, DRIVEWAYS, WHEELCHAIR RAMP, ETC. MAY BE ADJUSTED SLIGHTLY(+/- 5') AS DIRECTED BY THE CEI ENGINEER. THE ENGINEER OF RECORD SHALL APPROVE ALL LOCATION CHANGESE OVER 5' FROM PLANNED LOCATION.

11. THE WORK CORRIDOR SHALL BE RESTORED TO PRE-WORK CONDITIONS.

12. ALL CONCRETE GUTTERS SHALL BE MAINTAINED OR RESTORED TO PRE-WORK CONDITIONS.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATIONS OF EXISTING ROADWAY LIGHTING CONDUIT PRIOR TO INSTALLATION OF POLE FOUNDATIONS.

14. FOR ALL OVERHEAD SIGN STRUCTURES, THE CONTRACTOR SHALL 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, WHICH INCLUDES BUT IS NOT LIMITED TO, TOUCH UP PAINT ON ANY STRUCTURES WHERE INFRASTRUCTURE IS BEING REMOVED AND FILL IN THE HOLES FOR ANY REMOVED INFRASTRUCTURE ON STRUCTURES.

15. THE CONTRACTOR SHALL HAND DIG THE FIRST 4' AT EACH POLE INSTALLATION LOCATION. BACKFILLING AROUND POLE SHALL CONFORM TO SECTION 125 OF THE LATEST FDOT STANDARD SPECIFICATIONS.

16. CONTRACTOR SHALL TAKE ALL NECESSARY PROTECTIVE MEASURES ARE TAKEN TO SAFEGUARD EXISTING UTILITIES DURING FIBER/EQUIPMENT INSTALLATIONS.

17. ALL ELECTRICAL WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRIC SAFETY CODE, AND THE STATE OF FLORIDA DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. IN ADDITION ALL ELECTRICAL MATERIALS SHALL MEET CFX DESIGN DETAILS AND CFX SPECIFICATION 639A.

18. ALL APPLICABLE PROVISIONS OF EXISTING UTILITY EASEMENTS WILL BE ADHERED TO BY THE CONTRACTOR.

19. PULLING INSTRUCTIONS FOR POWER CONDUCTORS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO JACKET AND MEET MANUFACTURERS REQUIREMENTS. USE PULLING COMPOUND PER MANUFACTURES REQUIREMENTS. ALL BENDS SHALL NOT BE LESS THAN RECOMMENDED BY NEC OR NESC FOR CABLE USED.

20. ALL MISCELLANEOUS WORK NECESSARY IN THE SHOULDER AREA TO CONSTRUCT ITS POLES, PULL BOXES, 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 SODDED. THE CONTRACTOR SHALL HAUL ALL EXCESS EXCAVATION AND WASTE MATERIALS OFF-SITE. REMOVAL OF THESE MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF RELATED WORK.

21. THE CONTRACTOR SHALL ESTABLISH, STAKE AND PAINT POLE LOCATIONS WITH THE USE OF A FLORIDA REGISTERED LAND SURVEYOR. IF, DURING THE CONSTRUCTION PROCESS, THE STAKES AND/OR PAINTED MARKS ARE OBLITERATED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE THE POLE LOCATIONS RE-ESTABLISHED BY A FLORIDA REGISTERED LAND SURVEYOR. NO ADDITIONAL PAYMENT WILL BE ALLOWED.

22. VEGETATION SHALL BE REMOVED OR CUT BACK AS DIRECTED BY THE CONSTRUCTION ENGINEER TO PROVIDE ADEQUATE SIGHT DISTANCE FOR ALL CAMERA LOCATIONS. VEGETATION REMOVAL AND TRIMMING SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE OF THE POLE.

23. THE CONTRACTOR SHALL MAINTAIN THE EXISTING FIBER OPTIC NETWORK WITHIN THE LIMITS OF CONSTRUCTION. AT NO TIME SHALL THERE BE ANY LOSS OF COMMUNICATIONS OR DATA ALONG THE CFX FIBER OPTIC NETWORK. ANY UNDERGROUND CONSTRUCTION ACTIVITIES WITHIN TEN FEET OF THE FIBER OPTIC AND ITS UNDERGROUND NETWORK SHALL BE PERFORMED ON ONE SIDE OF THE ROAD AT A TIME. THE CONTRACTOR SHALL REVIEW CFX SPECIFICATIONS 603A & 631 FOR OTHER FON PRESERVATION DETAILS.

24. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF AS-BUILT PLANS WITH ALL CHANGES MARKED IN RED ALONG WITH THE REQUIRED GEOLOCATE DATA AS SPECIFIED IN SECTION 612 TO CFX FOR REVIEW 60 DAYS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. THE AS-BUILTS SHALL CONTAIN ACCURATELY DIMENSIONED LOCATIONS FOR FIBER OPTIC CABLE, PULL BOXES, POWER SERVICES, CONDUITS, STRUCTURES, AND FIELD COMPONENTS. THE AS-BUILT PLANS SHALL INCLUDE A RECORD OF THE COLOR DESIGNATIONS OF ALL HDPE CONDUIT USED, AS WELL AS FIBER SPLICING AND PORT ASSIGNMENTS. THIS SUBMITTAL SHALL BE IN BOTH ELECTRONIC AND PAPER FORMAT. THE CONTRACTOR SHALL REVIEW CFX SPECIFICATION 612 FOR ALL GEOLOCATION AND DOCUMENTATION REQUIEMENTS.

25. ALL ELECTRICAL EQUIPMENT SHALL BE WEATHERPROOF. ANY OPENINGS WHICH MAY ALLOW WATER TO ENTER, SHALL BE SEALED INSIDE AND OUT WITH SILICONE. PLACE SILICONE SEALANT AROUND THE OUTSIDE EDGE OF THE DISCONNECT WHERE THE ENCLOSURE COMES INTO CONTACT WITH THE CONCRETE PEDESTAL. SEAL AROUND THE TOP AND SIDES OF THE DISCONNECT AND LEAVE THE BOTTOM EDGE UNSEALED. SILICONE SEAL-INSIDE AND OUT- ANY SMALL HOLES (LESS THAN 1/10TH OF INCH) TO INHIBIT WATER AND PEST INTRUSION.

26. THE MIXING OF LINE (SUPPLY SIDE) AND LOAD (EQUIPMENT SIDE) SHALL NOT OCCUR IN EITHER THE CONDUITS OR PULL BOXES.

27. IN ACCORDANCE WITH N.E.C. IDENTIFY ALL CIRCUITS AND EQUIPMENT WITH "LAMICOID TAGS".

28. THE LOCATION OF THE CONDUCTORS, CONDUITS, JUNCTION BOXES, SERVICE POINTS, AND CONTROLLER BOXES ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE LOCAL CONDITIONS AND EXISTING UTILITY LOCATIONS. CONDUIT SHALL BE PLACED WITHIN EXISTING RIGHT-OF-WAY.

29. ALL SYMBOLS FOR ROADWAY LIGHTING AND OTHER NON SURVEY GRADE REFERERNCES ARE SHOWN FOR REFERENCE ONLY.

30. AERIAL PHOTOGRAPHY IN THESE PLANS MAY NOT REPRESENT CURRENT SITE CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE PROJECT SITE PRIOR TO BIDDING.

31. MAINTENANCE OF TRAFFIC:

A. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO CFX FOR APPROVAL WHICH CONSISTS OF UNMODIFIED FDOT DESIGN STANDARDS (600 SERIES); OTHERWISE THE CONTRACTOR MUST PROVIDE A TRAFFIC CONTROL PLAN WHICH IS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF FLORIDA. ONCE APPROVED BY CFX, THE TRAFFIC CONTROL PLAN MUST BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. ALL COSTS ASSOCIATED WITH THE MAINTENANCE OF TRAFFIC SHALL BE INCLUDED IN PAY ITEM 102-1 MAINTENANCE OF TRAFFIC (LUMP SUM).

B. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH FDOT DESIGN STANDARDS, INDEX 102-600 SERIES.

C. LANE WIDTH SHALL NOT BE LESS THAN 11 FEET. LANES SHALL BE PROPERLY DELINEATED DURING ALL PHASES OF CONSTRUCTION.

D. THE FOLLOWING REGULATORY SPEED LIMITS SHALL BE MAINTAINED DURING CONSTRUCTION:
SR 408 (EAST-WEST EXPRESSWAY) 60 MPH TO 65 MPH
SR 528 (MARTIN ANDERSEN BEACHLINE EXPRESSWAY) 55 MPH TO 70 MPH
SR 417 (CENTRAL FLORIDA GREENEWAY) 70 MPH
SR 429 (DANIEL WEBSTER WESTERN BELTWAY) 70 MPH
SR 429 (WEKIVA PARKWAY) 70 MPH
SR 451 (WESTERN EXPRESSWAY EXTENSION) 45 MPH TO 65 MPH
SR 414 (MAITLAND BOULEVARD EXTENSION) 65 MPH
SR 538 (POINCIANA PARKWAY) 45 MPH TO 65 MPH

E. FOR ADDITIONAL SIGN INFORMATION, INCLUDING SIZES, REFER TO STANDARD HIGHWAY SIGNS MANUAL SPECIFIED IN THE MUTCD

F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A LAW ENFORCEMENT OFFICER DURING ALL LANE CLOSURE OPERATIONS AND DURING ALL NIGHT OPERATIONS. PAYMENT FOR THE LAW ENFORCEMENT OFFICER SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM 102-1 MAINTENANCE OF TRAFFIC (LUMP SUM).

G. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ALL UNUSED BARRICADES, TEMPORARY SIGNS, AND/OR WARNING DEVICES TO THE APPROPRIATE STORAGE FACILITY UPON COMPLETION OF THEIR USE FOR THE DESIGNED TRAFFIC CONTROL OPERATION. DURING RESTRICTED HOURS OF OPERATION, UNUSED PERMANENT MOUNTED MOT SIGNS MAY REMAIN IN PLACE, BUT SHALL NOT FACE TRAFFIC AND SHALL BE COMPLETELY COVERED SO AS NOT TO BE READABLE.

H. THE CONTRACTOR IS ADVISED THAT LANE CLOSURES ARE PERMITTED AT THE FOLLOWING TIMES:
SR 408 – FLORIDA TURNPIKE TO I-4: 9 PM TO 6 AM
SR 408 – I-4 TO SR 417: 10 PM TO 6 AM
SR 408 – SR 417 TO SR 50: 11 PM TO 6 AM
SR 417 – I-DRIVE TO FLORIDA'S TURNPIKE : 11 PM TO 6 AM
SR 417 – FLORIDA'S TURNPIKE TO ORANGE/SEMINOLE COUNTY LINE: 10 PM TO 6 AM
SR 429 – SEIDEL RD SR 46: 10 PM TO 6 AM
SR 414 – SR 429/ 414 SYSTEMS INTERCHANGE TO US 441: 9 PM TO 6 AM
SR 451 – SR 429 TO US 441: 9 PM TO 6 AM
SR 453 – SR 429 TO SR 46: 9 PM TO 6 AM
SR 528 – BOGGY CREEK RD TO SR 417: 11 PM TO 6 AM
SR 528 – SR 417 TO SR 520: 10 PM TO 6 AM
THE CONTRACTOR IS ADVISED THAT LANE CLOSURES ARE NOT PERMITTED FROM 5:00 A.M. TO 11:00 P.M. ON THE RAMPS. IF THE DIRECTOR OF CONSTRUCTION OR CFX DESIGNEE DETERMINES ANY LANE CLOSURE IS CAUSING EXTENDED TRAFFIC CONGESTION, THE DIRECTOR OF CONSTRUCTION OR CFX DESIGNEE MAY DIRECT THE CONTRACTOR TO OPEN THE LANE CLOSURE UNTIL TRAFFIC RETURNS TO AN ACCEPTABLE FLOW. EITHER THE DIRECTOR OF CONSTRUCTION OR CFX DESIGNEE WILL DETERMINE WHEN THE FLOW OF TRAFFIC IS ACCEPTABLE.

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GENERAL NOTES (1 OF 3)

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GENERAL NOTES (CONTINUED):

I. DELAY COSTS TO THE CONTRACTOR WILL RESULT IF ALL TRAVEL LANES AND RAMPS ARE NOT OPEN TO TRAFFIC DURING THE TIMES OUTSIDE OF THE PERMITTED LANE CLOSURE HOURS. THE CONTRACTOR SHALL PLAN OPERATIONS SUCH THAT ALL EQUIPMENT AND MATERIALS INSTALLED BY THE CONTRACTOR FOR LANE CLOSURES ARE REMOVED FROM THE CLEAR ZONE AND TRAVEL LANES ARE REOPENED TO TRAFFIC. FOR MAINLINE AND RAMP CLOSURES THAT OCCUR OUTSIDE THE PERMITTED LANE CLOSURE HOURS, A LANE RENTAL FEE WILL BE ASSESSED TO THE CONTRACTOR IN THE AMOUNT OF $1,000 PER LANE/RAMP FOR EACH MINUTE THAT ANY LANE/RAMP IS NOT OPEN TO TRAFFIC.

J. LANE RENTAL FEES WILL BE ASSESSED AND WILL CONTINUE TO ACCRUE UNTIL SUBJECT LANE/RAMP IS OPEN TO A TRAFFIC FLOW AS RECORDED BY CFX. CFX SHALL HAVE THE RIGHT TO APPLY AS PAYMENT ON SUCH FEES ANY MONEY THAT IS DUE TO THE CONTRACTOR BY CFX. AT THE DISCRETION OF THE DIRECTOR OF CONSTRUCTION AND/OR CFX DESIGNEE.

K. CONTRACTOR SHALL COORDINATE WITH CFX TOLLS (CFXTOLLSNOTIFICATION@CFXWAY.COM) 72 HOURS PRIOR TO PERFORMING ANY WORK WITHIN 2,000 FEET OF A TOLL PLAZA.

L. CFX PROPERTY AFFECTED BY THE CONSTRUCTION WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING PRE-CONSTRUCTION CONDITION UNLESS SPECIFICALLY EXEMPT IN THE PLANS. ALL COST SHALL BE INCIDENTAL TO EXISTING PAY ITEMS.

32. FON UTILITY WORK GUIDELINES:

A. NO CONTRACTOR SHALL BE PERMITTED TO ENTER THE MAINLINE OR RAMP PLAZAS WITHOUT PRIOR APPROVAL FROM CFX.

B. NO CONTRACTOR SHALL BE PERMITTED TO MOVE ANY PATCH PANEL CONNECTIONS UNLESS INDICATED ON THE PLANS AND WITHOUT PRIOR APPROVAL. ANY PATCH PANEL CHANGES SHALL BE DOCUMENTED IN WRITING.

C. FOR ALL WORK INVOLVING THE DISRUPTION OF LIVE NETWORK TRAFFIC, THE CONTRACTOR SHALL SUBMIT FOR CFX APPROVAL A HIGH LEVEL METHOD OF PROCEDURE (MOP). ONCE CFX HAS APPROVED THE MOP PLAN, A PRE-SPLICE MEETING CAN BE SCHEDULED FOR NO EARLIER THAN TWO (2) WEEKS FROM THE APPROVAL. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO FIBER OPTIC SPLICING PAY ITEMS.

D. A PRE-SPLICE MEETING SHALL BE HELD AT LEAST TWO (2) WEEKS IN ADVANCE OF THE PROPOSED SPLICING DATE.

E. A PRIMARY AND BACKUP EMERGENCY CONTACT SHALL BE PROVIDED AS WELL AS AN ESCALATION CONTACT BEFORE BEGINNING WORK.

F. THE CONTRACTOR SHALL VERIFY WITH THE CEI THAT THEY ARE IN POSSESSION OF THE MOST RECENT PLAN UPDATES BEFORE BEGINNING ANY WORK. ALL REQUESTS SHALL BE MADE THROUGH THE CEI TO CFX.

G. A CFX REPRESENTATIVE SHALL BE PRESENT ON-SITE WHEN SPLICING LIVE FIBER, OR "HOT CUTS", ARE TAKING PLACE.

I. ALL WORK INVOLVING THE SPLICING OR TESTING OF LIVE FIBERS IS TO BE PERFORMED OUTSIDE OF PEAK TRAFFIC PERIODS (6AM TO 9AM) AND (4PM TO 6PM) UNLESS APPROVED BY CFX.

33. CABINET EQUIPMENT IS NOT TO BE STACKED. THE WIRING DIAGRAMS SHOW BLOCKS ON TOP OF ONE ANOTHER FOR CLARITY ONLY.

34. ALL EQUIPMENT ASSOCIATED WITH WRONG WAY DRIVING (WWD) SHALL REMAIN OPERATIONAL AND SENDING INFORMATION TO THE RTMC ONE HUNDRED PERCENT OF THE TIME. THERE SHALL BE NO DOWN TIME ALLOWED FOR THE WWD SYSTEM WHILE THE RAMP IS OPEN TO TRAFFIC UNLESS APPROVED IN WRITING BY THE DIRECTOR OF INTELLIGENT TRANSPORTATION SYSTEMS.

35. CONTACT MANAGER OF ITS MAINTENANCE AND FON MAINTENANCE PROJECT MANAGER PRIOR TO ENTERING ANY FIBER OPTIC MANHOLE.

NOTE TO EOR:

THE ENGINEER SHALL WORK TO OBTAIN ALL PERMITS BY OTHER AGENCIES FOR INSTALLATION OF INFRASTRUCTURE NOT ON CFX FACILITIES, WHERE POSSIBLE, DURING THE DESIGN PHASE OF THE PROJECT. ANY SPECIFIC PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR SHOULD BE IDENTIFIED AND SPECIFIED BY THE EOR IN THE CONTRACT DOCUMENTS.

CONDUIT:

1. THE BACKBONE FIBER OPTIC CONDUIT NETWORK SHALL BE MAINTAINED AT A CONSTANT HORIZONTAL AND VERTICAL LOCATION AS SHOWN IN THE ROADWAY CROSS SECTIONS OF THE ROADWAY PLANS, DRAINAGE PLANS, STRUCTURE PLANS AND OTHER PLAN COMPONENTS OF THIS PROJECT.

2. ALL FIBER OPTIC CONDUIT SHALL HAVE A "CFX FIBER OPTIC CABLE BURIED BELOW" WARNING TAPE CONTINUOUSLY RUN IN THE TRENCH 18" BELOW GRADE. IN ADDITION, ROUTE MARKERS INDICATING F.O. CABLE BURIED BELOW SHALL BE INSTALLED AT EACH MANHOLE ALONG THE FIBER ROUTE AND AT ANY TURNS IN THE CONDUIT RUN. FIBER OPTIC ROUTE MARKERS ARE NOT REQUIRED WHEN CONDUIT IS PLACED WITHIN A PAVED SHOULDER.

3. THE BLUE HDPE CONDUIT ENTERING A PROPOSED FIBER OPTIC MANHOLE (FOMH) SHOULD CONNECT TO THE BLUE 1" CONDUITS LOCATED INSIDE THE 4" STUBOUT. A 4" DUCT ORGANIZER IS REQUIRED FOR CONDUIT ENTRY INTO THE MANHOLES.

4. ALL 1" HDPE CONDUITS SHALL BE SEALED AT BOTH ENDS WITH DUCT PLUGS. ALL POWER AND COMMUNICATION CONDUITS SHALL BE PROPERLY SEALED AT BOTH ENDS WITH DUCT SEALANT. ALL SPARE POWER CONDUITS SHALL BE FURNISHED WITH A PULL STRING FOR FUTURE USE. THE CONTRACTOR SHALL REMOVE OR CAP UNUSED CONDUITS ON ANY OVERHEAD WORK.

5. MINIMUM REQUIRED CONDUIT BURY DEPTHS SHALL BE MAINTAINED WHERE CONFLICTS OCCUR WITH DRAINAGE OR OTHER UTILITIES PER THESE PLANS.

6. THE TONE WIRE FOR ALL ITS DEVICE LOCATIONS SHALL BE CONNECTED TO THE GROUNDING SYSTEM IN THE FIBER OPTIC MANHOLE AND 10 FEET OF TONE WIRE SHALL BE COILED IN THE FIBER OPTIC PULL BOX AT THE DEVICE LOCATION. THE TONE WIRE FOR THE 9-1" BACKBONE FON CONDUIT SHALL BE SPLICED CONTINUOUS IN THE FIBER OPTIC MANHOLES WITH 20 FEET OF SLACK (10 FEET ON EACH SIDE OF SPLICE) COILED WITHIN THE MANHOLE. SPLICING THE TONE WIRE FOR ALL ITS DEVICE LOCATIONS TO THE BACKBONE TONE WIRE WILL NOT BE PERMITTED. THE TONE WIRE SHALL NEVER BE STORED INSIDE THE DEVICE CABINET. THE CONTRATRACTOR SHALL REMOVE OR CAP UNUSED CONDUITS ON ANY OVERHEAD WORK.

7. ALL CONDUIT TRENCHES SHALL BE BACK FILLED COMPLETELY TO PROVIDE SAFE CROSSING BY THE END OF EACH WORKING DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE. THE CONTRACTOR SHALL NOT OPEN ANY AREA THAT CANNOT BE BACK FILLED IN THE SAME DAY/NIGHT OPERATION.

8. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING OR TRENCHING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS IN ACCORDANCE WITH CFX INSTRUCTIONS TO BIDDERS, SECTION 4.0 EXAMINATION OF CONTRACT DOCUMENTS AND SITE. THE CONTRACTOR SHALL HAND DIG THE FIRST FOUR (4) FEET TO VERIFY POSSIBLE UTILITY CONFLICT AT UTILITY CROSSINGS.

9. AT DIRECTIONAL BORE LOCATIONS WHICH ARE CROSSING UTILITIES, THE CONTRACTOR IS REQUIRED TO LOCATE THE UTILITIES BY VVH METHODS IN ORDER TO AVOID CONFLICTS WITH EXISTING UTILITIES.

10. PROVIDE A MINIMUM OF 5 FOOT SEPARATION BETWEEN EXISTING AND PROPOSED CONDUIT.

11. ANY REMOVAL AND RESTORATION OF CONCRETE, ASPHALT, OR GROUND COVER THAT MAY BE REQUIRED TO INSTALL THE PROPOSED CONDUIT INTO EXISTING PULL BOXES SHALL BE INCIDENTAL TO THE RESPECTIVE CONDUIT PAY ITEM.

12. ALL MANHOLES SHALL BE FREE OF WATER, MUD, DEBRIS AND FIBER OPTIC CABLE SHALL BE NEATLY COILED AND PLACED ON FIBER J-HOOKS LOCATED WITHIN THE MANHOLE PRIOR TO FINAL CONDUIT PROOFING.

PULL BOX:

1. FIBER OPTIC PULL BOXES AT EACH END OF THE TONE WIRE RUN SHALL INCLUDE A MINIMUM OF 10 LF OF GROUNDING ELECTRODES.

2. ALL FIBER OPTIC PULL BOXES SHALL HAVE "CFX FIBER" STAMPED ON THE COVER, ALL POWER PULL BOXES SHALL HAVE "CFX POWER" STAMPED ON THE COVER AND ALL GROUNDING PULL BOXES SHALL HAVE "CFX GROUNDING" ON THE COVER. ALL NON-FIBER OPTIC COMMUNICATIONS PULL BOXES SHALL HAVE "CFX COMM" ON THE COVER.

3. MAXIMUM PULL BOX SPACING FOR POWER SERVICE ELECTRICAL WIRE SHALL BE 500'.

4. THE CONTRACTOR SHALL ENSURE THAT NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS (TOTALING 270 DEGREES) ARE INSTALLED BETWEEN BOXES.

DMS:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATIONS OF EXISTING ROADWAY LIGHTING AND OTHER CFX CONDUIT PRIOR TO INSTALLATION OF DMS STRUCTURE FOUNDATIONS.

2. IN AREAS WHERE DIMENSIONS ARE NOT PROVIDED ON THE PLANS OR WHERE THE EXISTING MONUMENTS HAVE BEEN OBLITERATED THE CONTRACTOR SHALL ESTABLISH, STAKE AND PAINT DMS LOCATIONS WITH THE USE OF A FLORIDA REGISTERED LAND SURVEYOR. IF, DURING THE CONSTRUCTION PROCESS, THE STAKES AND/OR PAINTED MARKS ARE OBLITERATED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE THE DMS LOCATIONS RE-ESTABLISHED BY A FLORIDA REGISTERED LAND SURVEYOR. NO ADDITIONAL PAYMENT WILL BE ALLOWED.

3. DCS EQUIPMENT IS NOT TO UTILIZE THE GFCI RECEPTACLE FOR POWERING EQUIPMENT. THE CONTRACTOR SHALL POWER THE DCS EQUIPMENT FROM A CONTRACTOR FURNISHED UPS CONNECTED TO THE EXSITING "AUX" CIRCUIT OUTLET AS SHOWN IN THE BLOCK DIAGRAMS.

4. THE 3-LINE DMS SHALL BE POWERED BY A DEDICATED 120/240V CIRCUIT ORIGINATING FROM THE SAFETY DISCONNECT PANEL. THE DMS CONTROLLER SHALL BE POWERED FROM THE REMOTE POWER MANAGER LOCATED IN THE ITS CABINET.

5. THE FIBER OPTIC LOCATE WIRE SHALL NOT BE INSTALLED IN THE CABINET OR DMS HOUSING.

6. THE GALVANIZED RIGID STEEL CONDUITS TO BE LOCATED ON EACH OF THE OVERHEAD SIGN SHALL BE 2" FOR THE COMMUNICATIONS CABLE.

FIBER OPTIC CABLE:

1. THE FIBER OPTIC CABLE INSTALLATION TECHNIQUES AND PROCEDURES SHALL BE AS SPECIFIED BY THE CABLE MANUFACTURER & INDUSTRY STANDARDS AND SHALL BE SUCH THAT THE OPTICAL AND MECHANICAL CHARACTERISTICS OF THE CABLES ARE NOT DEGRADED AT THE TIME OF INSTALLATION. THE CENTRAL STRENGTH MEMBER AND ARAMID YARN SHALL BE ATTACHED DIRECTLY TO THE PULLING EYE DURING CABLE PULLING. "BASKET GRIP" OR "CHINESE FINGER" TYPE ATTACHMENTS TO THE CABLE SHALL NOT EXCEED THE CABLES OUTSIDE TENSILE RATING ON ALL PULLS.

2. CONTRACTOR SHALL COORDINATE WITH CFX REPRESENTATIVE PRIOR TO DISCONNECTING ANY FIBERS AND ALL FIBER SPLICING.

3. UNDER NO CIRCUMSTANCES SHALL ENERGIZED CABLE BE PLACED IN THE SAME CONDUIT OR PULL BOX AS FIBER OPTIC CABLE.

ELECTRICAL CONDUCTORS:

1. EACH ELECTRICAL CONDUCTOR SHALL HAVE 2 FEET OF SLACK INSTALLED IN EACH ELECTRICAL PULL BOX.

NOTE TO EOR:

1. ADD 8 LF OF SLACK FOR EACH ELECTRICAL CONDUCTOR IN EACH ELECTRICAL PULL BOX FOR THE PURPOSE OF CALCULATING CONDUIT SLACK, BENDS, AND VERTICAL LENGTHS.

2. FIBER OPTIC MANHOLE SPACING:
THE SPACING BETWEEN FIBER OPTIC MANHOLES (FOMH) INSTALLED IN A PAVED SHOULDER SHALL NOT EXCEED 1500'. SPACING BETWEEN FOMH INSTALLED IN AN UNPAVED SHOULDER SHALL NOT EXCEED 4000'.

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GENERAL NOTES (2 OF 3)

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FIBER CABLE AND CONNECTION DISTRIBUTION:

BACKBONE CABLE:

EXISTING 9-1" HDPE CONDUITS WITH 72 SM FOC IN ORANGE CONDUIT FOR BACKBONE TRUNK CABLE AND 72 SM FOC IN BLUE CONDUIT FOR FEEDER TRUNK CABLE. THE TONE WIRE SHALL BE INSTALLED WITHIN YELLOW CONDUIT.

PROPOSED 9-1" HDPE CONDUITS WITH 72 SM FOC IN ORANGE CONDUIT FOR BACKBONE TRUNK CABLE AND 72 SM FOC IN BLUE CONDUIT FOR FEEDER TRUNK CABLE. THE TONE WIRE SHALL BE INSTALLED WITHIN BLACK CONDUIT W/RED STRIPES.

FEEDER DROP CABLE:

3-1" BLUE AND ORANGE HDPE CONDUITS W/ 1-12 SM DROP FOC IN BLUE CONDUIT. THE TONE WIRE SHALL BE INSTALLED WITHIN BLACK CONDUIT W/RED STRIPES.

TMS:

1. EACH TMS SENSOR SHALL READ ONE DIRECTION OF TRAVEL AS INDICATED IN THE PLANS. THIS SHALL INCLUDE ALL LANES IN THE DIRECTION, THROUGH LANES AND RAMP LANES (IF APPLICABLE).

2. WHEN MOUNTING MORE THAN ONE SENSOR PER LOCATION, ENSURE THAT THEY ARE ON DIFFERENT CHANNELS TO AVOID INTERFERENCE.

POWER CONNECTIONS:

1. POWER SUPPLY LOCATIONS HAVE BEEN COORDINATED WITH DUKE ENERGY AND ORLANDO UTILITIES COMMISSION. IT IS RECOMMENDED THAT THE CONTRACTOR CONTACT EACH RESPECTIVE POWER COMPANY CONTACT PERSON AS SOON AS POSSIBLE TO ENSURE ALL POWER SOURCES CAN BE INSTALLED AS SHOWN IN THE PLANS OR IN THE EVENT A PROPOSED POWER SOURCE IS NOT READILY AVAILABLE.

   a. OUC SERVICE: CONTRACTOR TO RUN UNDERGROUND CONDUIT TO THE BASE OF OUC POWER POLE AND SET A PULL BOX WITH APPROX. 30' OF ELECTRICAL SERVICE WIRE COILED INSIDE. THEN INSTALL RIGID CONDUIT UP THE OUC POLE TO A HEIGHT OF 25' WITH A WEATHER HEAD. CONTRACTOR TO PULL SERVICE WIRE THROUGH CONDUIT AND COIL EXCESS AROUND WEATHER HEAD. CONTACT OUC CUSTOMER SERVICE AT 407-423-9018 TO REQUEST FINAL CONNECTION.

   b. DUKE ENERGY SERVICE: CONTRACTOR TO RUN UNDERGROUND CONDUIT TO THE BASE OF PEDESTAL THAT EXISTS OR CONTRACTOR INSTALLS AND SET A PULL BOX WITH APPROX. 10' OF ELECTRICAL SERVICE WIRE COILED INSIDE. CONTACT DUKE ENERGY NEW CONSTRUCTION AT 800-700-8744 FOR FINAL CONNECTION BY DUKE ENERGY PERSONNEL.

2. 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. CONTRACTOR'S ELECTRICIAN 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. ALL MATERIALS, EQUIPMENT AND LABOR TO BE SUPPLIED FOR A COMPLETE CONNECTION AND IS TO BE PAID UNDER PAY ITEM NUMBER 639A-001-011 AND 639A-001-012.

3. UTILITY METERS SHALL MEET THE LATEST UTILITY PROVIDERS STANDARDS.

UTILITIES:

1. THE CONTRACTOR SHALL NOTIFY THE POWER COMPANY AT LEAST 48 HOURS PRIOR TO ANY INSTALLATION THAT IS WITHIN 10 FEET OF ENERGIZED ELECTRICAL CONDUCTORS. THE POWER COMPANY, AT ITS OPTION, SHALL ASSIST THE CFX CONTRACTOR. COVER UP ENERGIZED CONDUCTORS AT THE INSTALLATION SITE, OR TAKE OTHER SAFETY PRECAUTIONS AS NECESSARY. EXTREME CAUTION SHALL BE EXERCISED AT ALL TIMES IN PERFORMANCE OF WORK AROUND THE PRIMARY HIGH VOLTAGE COMPONENTS. CONTRACTOR SHALL OBSERVE OSHA CLEARANCE REGULATIONS WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD POWER LINES.

2. 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 TO THE CONTRACTOR THAT UNDERGROUND UTILITIES EXIST. BEFORE EXCAVATING THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANY OWNER(S) AND REQUEST THEM TO LOCATE AND STAKE THEIR UNDERGROUND FACILITIES. UTILITIES ARE TO BE ADJUSTED BY OTHERS AS DIRECTED BY THE ENGINEER.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING UNDERGROUND UTILITIES VERTICALLY AND HORIZONTALLY (VVH) FOR ALL CONDUIT INSTALLATIONS. THE COST FOR THE VVH'S SHALL BE INCLUDED IN THE COST OF THE CONDUIT. WHEN BORING UNDER PAVEMENT, THE CONTRACTOR SHALL VERIFY DEPTH BY POT HOLING PRIOR TO SHOOTING THE BORE. ANY OTHER METHOD MUST BE APPROVED BY THE ENGINEER.

4. CONTRACTOR SHALL STAKE ALL POLE LOCATIONS AND REQUEST UTILITY COMPANIES TO LOCATE AND STAKE UNDERGROUND UTILITIES PRIOR TO EXCAVATING.

5. CONTRACTOR SHALL LOCATE AND PROTECT EXISTING CFX OWNER FIBER OPTIC CABLES AND BURIED ELECTRICAL LINES DURING THE INSTALLATION OF NEW CONDUIT AND PULL BOXES.

MAINTENANCE OF COMMUNICATIONS:

1. THE CONSTRUCTION CONFLICTS SHOWN IN THE PLANS SHALL BE CONSIDERED THE MINIMUM NUMBER OF CONFLICTS WHICH CAN BE EXPECTED WITH THE EXISTING FON. THE CONTRACTOR SHALL DEVELOP A PLAN TO AVOID SUCH CONFLICTS AND MAINTAIN COMMUNICATIONS AT ALL TIMES. THIS PLAN SHALL BE SUBMITTED TO CFX FOR APPROVAL. THE PLAN SHALL INCLUDE SPECIFIC MEANS, METHODS AND QUANTITIES FOR ALL CONFLICT LOCATIONS.

2. THE CONTRACTOR SHALL KEEP ALL DMS WITHIN THE PROJECT LIMITS OPERATIONAL AND COMMUNICATING TO THE RTMC THROUGHOUT THE PROJECT DURATION UNLESS APPROVED BY THE DIRECTOR OF ITS OR AN APPROVED DELEGATE.

SPECIAL NOTES:

1. THE CONTRACTOR SHALL IDENTIFY AN INDIVIDUAL FROM THE CONTRACTOR'S STAFF OR SUBCONTRACTOR'S STAFF TO BE RESPONSIBLE FOR THE PROTECTION AND LOCATING OF THE EXISTING FON DURING THIS CONSTRUCTION PROJECT. QUALIFICATIONS OF THIS INDIVIDUAL SHALL BE SUBMITTED FOR CFX APPROVAL.

2. A CFX SPECIFIC SCRIPT SHALL BE UPLOADED TO EACH NEW DCS READER DURING CONFIGURATION. A REQUEST SHALL BE SUBMITTED TO CFX AND CFX WILL INSTALL THE SCRIPT ON THE REQUESTED DEVICE.

PAY ITEM NOTES:

NOTE TO EOR:
PAY ITEMS THAT DEVIATE FROM THE TSP'S AND SUMMARY OF PAY ITEMS AS STATED IN SECTION A OF THESE ITS DESIGN DETAILS SHALL BE PROVIDED HERE AS A PAY ITEM NOTE. ALL PAY ITEM NOTES SHALL INCLUDE ALL WORK THE CONTRACTOR SHALL PERFORM, INCLUDING INCIDENTALS SO THAT NO ADDITIONAL COMPENSATION OR TIME CAN BE REQUESTED BY THE CONTRACTOR.

NOTE TO EOR:
ANY NOTE REMOVED FROM THESE SHEETS SHALL HAVE A PLACE HOLDER "NOTE REMOVED". NOTE NUMBERING SHALL NOT CHANGE.

NOTE TO EOR:
THE ITS DEVICE NAMEING CONVENTION SHOULD BE BASED ON THE STATIC MILE MARKER SIGNS (E.G., MILE 5.0, MILE 5.5) FROM THE SIGNING & PAVEMENT MARKING COMPONENT SET.

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PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS																TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
0600-100-000	TRAINING FOR TRAFFIC MONITORING STATION	EA																					
0600-101-000	TRAINING FOR DATA COLLECTION SENSORS	EA																					
0600-102-000	TRAINING FOR CLOSED CIRCUIT TELEVISION SYSTEM AND CAMERA LOWERING DEVICE	EA																					
0600-103-000	TRAINING FOR DYNAMIC MESSAGE SIGNS	EA																					
0600-104-000	TRAINING FOR FIBER OPTIC NETWORK	EA																					
0600-106-000	TRAINING FOR LOCATE SYSTEM AND EQUIPMENT	EA																					
603A-100-000	CONTINUOUS OPERATION OF EXISTING ITS DEVICES	LS																					
0612-100-000	GEOLOCATION OF ITS EQUIPMENT AND INFRASTRUCTURE	LS																					
0631-100-000	FIBER OPTIC CABLE INVENTORY	EA																					
0631-101-000	FIBER OPTIC SPLICE HOUSING INVENTORY	EA																					
0631-102-000	RADIODETECTION™ LOCATION DEVICE	EA																					
0631-103-000	RADIODETECTION™ TRANSMITTER UNIT	EA																					
633A-121-002	FIBER OPTIC CABLE (12 SM FIBER) (F&I)	LF																					
633A-121-003	FIBER OPTIC CABLE (24 SM FIBER) (F&I)	LF																					
633A-121-004	FIBER OPTIC CABLE (72 SM FIBER) (F&I)	LF																					
633A-121-005	FIBER OPTIC CABLE (12 SM FIBER) (F&I) (ABOVEGROUND INSTALLATION)	LF																					
633A-121-006	FIBER OPTIC CABLE (EXISTING) (WITHDRAW AND RELOCATE)	LF																					
633A-131-002	FIBER OPTIC CABLE (12 MM FIBER) (F&I)	LF																					
633A-131-003	FIBER OPTIC CABLE (24 MM FIBER) (F&I)	LF																					
633A-141-004	FIBER OPTIC SPLICE ENCLOSURE (72 SPLICE) (F&I)	EA																					
633A-141-005	FIBER OPTIC SPLICE ENCLOSURE (144 SPLICE) (F&I)	EA																					
633A-141-006	FIBER OPTIC SPLICE ENCLOSURE (288 SPLICE) (F&I)	EA																					
633A-141-007	FIBER OPTIC FUSION SPLICE	EA																					
633A-141-008	EXISTING FIBER OPTIC SPLICE ENCLOSURE RE-ENTRY	EA																					
635A-001-011	PULL BOX (F&I)	EA																					
635A-001-012	SMALL FIBER OPTIC PULL BOX, 24" DIA, (F&I)	EA																					
635A-001-013	LARGE FIBER OPTIC PULL BOX, 36" DIA, (F&I)	EA																					
635A-001-014	JUNCTION BOX (SURFACE MOUNTED) (F&I)	EA																					
635A-001-030	PULL BOX (ADJUST - ALL TYPES)	EA																					
635A-001-060	PULL BOX (REMOVE - ALL TYPES)	EA																					
0636-011-000	4 X 4 X 4 CONCRETE MANHOLE (F&I)	EA																					
0636-012-000	4 X 6.5 X 6.5 CONCRETE MANHOLE (F&I)	EA																					
0636-013-000	4 X 6.5 X 6.5 CONCRETE MANHOLE (DOGHOUSE) (F&I)	EA																					
0636-021-000	CONCRETE MANHOLE FIBER OPTIC STUBOUT (F&I)	EA																					
0636-022-000	CONCRETE MANHOLE FIBER OPTIC STUBOUT WITH BSP (F&I)	EA																					
0636-040-000	CONCRETE MANHOLE (ADJUST)	EA																					
0636-060-000	CONCRETE MANHOLE (REMOVE)	EA																					
0638-001-031	FIBER OPTIC CONDUIT, 3-1" HDPE SDR 11, TRENCH OR PLOW (F&I)	LF																					
0638-001-041	FIBER OPTIC CONDUIT, 4-1" HDPE SDR 11, TRENCH OR PLOW (F&I)	LF																					
0638-001-091	FIBER OPTIC CONDUIT, 9-1" HDPE SDR 11, TRENCH OR PLOW (F&I)	LF																					
0638-001-092	FIBER OPTIC CONDUIT, 9-1" HDPE SDR 11, DIRECTIONAL BORE (F&I)	LF																					
0638-002-021	ELECTRICAL CONDUIT, 2-2" HDPE SDR 11, TRENCH OR PLOW (F&I)	LF																					
0638-002-022	ELECTRICAL CONDUIT, 2-2" HDPE SDR 11, DIRECTIONAL BORE (F&I)	LF																					
0638-004-XX5	CONDUIT, ABOVEGROUND, 1" RGS (F&I)	LF																					
0638-005-XX5	CONDUIT, ABOVEGROUND, 2" RGS (F&I)	LF																					
0638-006-XX5	CONDUIT, ABOVEGROUND, 4" RGS (F&I)	LF																					
0638-161-002	FIBER OPTIC CONDUIT, 6" HDPE SDR 11 OUTER DUCT, DIRECTIONAL BORE (F&I)	LF																					
0638-261-093	CONDUIT, 6" BULLET-RESISTIVE FIBERGLASS OUTER DUCT W/ 9-1" HDPE SDR 11, BRIDGE MOUNTED (F&I)	LF																					
0638-561-093	CONDUIT, 6" PVC OUTER DUCT W/ 9-1" HDPE SDR 11, BRIDGE MOUNTED (F&I)	LF																					
0638-3XX-XXX	BSP OR SBSP OUTER DUCT W/ XX HDPE AND/OR XX PVC INNER DUCTS (F&I)	LF																					
639A-001-011	ELECTRICAL POWER SERVICE ASSEMBLY (FURNISH AND INSTALL) (UNDERGROUND)	AS																					

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TABULATION OF QUANTITIES (1 OF 4)

SHEET NO. A-4

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PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS																TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
639A-001-012	ELECTRICAL POWER SERVICE ASSEMBLY (FURNISH AND INSTALL) (OVERHEAD)	AS																					
639A-001-013	ELECTRICAL POWER SERVICE ASSEMBLY (ADJUST)	AS																					
639A-001-014	ELECTRICAL POWER SERVICE ASSEMBLY (REMOVE)	AS																					
639A-002-011	ELECTRICAL SERVICE DISCONNECT (FURNISH AND INSTALL)	EA																					
639A-002-11A	ELECTRICAL MANUAL TRANSFER SWITCH (FURNISH AND INSTALL)	EA																					
639A-002-012	ELECTRICAL SERVICE DISCONNECT (ADJUST)	EA																					
639A-002-013	ELECTRICAL SERVICE DISCONNECT (REMOVE)	EA																					
639A-002-014	ELECTRICAL POWER TRANSFORMER (FURNISH AND INSTALL)	EA																					
639A-002-015	SMART POWER MONITOR (FURNISH AND INSTALL)	EA																					
639A-003-001	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 1)	LF																					
639A-003-002	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 2)	LF																					
639A-003-003	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 3)	LF																					
639A-003-004	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 4)	LF																					
639A-003-006	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 6)	LF																					
639A-003-008	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 8)	LF																					
639A-003-010	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 10)	LF																					
639A-003-012	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 12)	LF																					
639A-003-100	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 1/0)	LF																					
639A-003-200	ELECTRICAL CONDUCTORS (FURNISH AND INSTALL) (INSULATED) (NO. 2/0)	LF																					
639A-003-400	ELECTRICAL CONDUCTORS (REMOVE)	LF																					
663A-074-141	DCS FIELD EQUIPMENT (1 LANE) (F&I)	EA																					
663A-074-142	DCS FIELD EQUIPMENT (2 LANES) (F&I)	EA																					
663A-074-143	DCS FIELD EQUIPMENT (3 LANES) (F&I)	EA																					
663A-074-144	DCS FIELD EQUIPMENT (4 LANES) (F&I)	EA																					
663A-074-145	DCS FIELD EQUIPMENT (5 LANES) (F&I)	EA																					
663A-074-241	DCS FIELD EQUIPMENT (UP TO 3 ADDITIONAL LANE OF COVERAGE) (F&I)	EA																					
663A-074-440	DCS FIELD EQUIPMENT (RELOCATE)	EA																					
663A-074-640	DCS FIELD EQUIPMENT (REMOVE)	EA																					
663A-074-0SP	DATA COLLECTION SENSORS SPARE PARTS KIT (FURNISH ONLY)	EA																					
663A-074-W00	DATA COLLECTION SENSORS WARRANTY (6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0664-001-040	TMS – POLE MOUNTED (F&I)	EA																					
0664-001-041	TMS – TRUSS MOUNTED (F&I)	EA																					
0664-002-042	TMS POLE – 30' POLE (F&I)	EA																					
0664-002-043	TMS POLE – 40' POLE (F&I)	EA																					
0664-002-044	TMS POLE – 50' POLE (F&I)	EA																					
0664-003-144	TMS COMPOSITE CABLE (F&I)	LF																					
0664-004-144	TMS ASSEMBLY REMOVAL	EA																					
0664-004-145	TMS POLE REMOVAL SHALLOW	EA																					
0664-004-146	TMS POLE REMOVAL DEEP	EA																					
0664-004-147	TMS ASSEMBLY (ADJUST)	EA																					
0664-001-0SP	TRAFFIC MONITORING STATION SPARE PARTS KIT – (FURNISH ONLY)	EA																					
0664-001-W00	TRAFFIC MONITORING STATION WARRANTY (6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0668-011-000	ITS DEVICE CABINET (POLE MOUNTED) (HEAT SHIELD) (F&I)	EA																					
0668-012-000	ITS DEVICE CABINET (BASE MOUNTED) (HEAT SHIELD) (334) (F&I)	EA																					
0668-013-000	ITS NEMA 3R INTERMEDIATE / REMOTE CABINET (POLE MOUNTED) (F&I)	EA																					
0668-13A-000	ITS NEMA 3R DCS READER CABINET (POLE MOUNTED) (F&I)	EA																					
0668-13B-000	ITS NEMA 3R FLEX LANES CABINET (POLE MOUNTED) (F&I)	EA																					
0668-014-000	ITS DEVICE CABINET (BASE MOUNTED) (HEAT SHIELD) (332D) (F&I)	EA																					
0668-021-000	FULLY OPERABLE CYBERLOCK ASSEMBLY (PER CABINET DOOR) (FURNISH ONLY)	EA																					
0668-022-000	CORBIN LOCKS (PER CABINET) (REMOVE)	EA																					
0668-040-000	ITS DEVICE CABINET (RELOCATE – ALL TYPES)	EA																					

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TABULATION OF QUANTITIES (2 OF 4)

SHEET NO. A-5

MARCH 2026

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PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS																TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
0668-060-000	ITS DEVICE CABINET (REMOVE - ALL TYPES)	EA																					
0683-101-000	GIGABIT ETHERNET FIELD SWITCH (F&I)	EA																					
0683-101-00W	GIGABIT ETHERNET FIELD SWITCH (F&I) (6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0683-101-0SP	GIGABIT ETHERNET FIELD SWITCH (SPARE PARTS) (FURNISH ONLY)	EA																					
0683-103-000	ETHERNET MEDIA CONVERTER SINGLE MODE (1-PORT) (F&I)	EA																					
0683-103-00W	ETHERNET MEDIA CONVERTER (SINGLE MODE)(1-PORT)(6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0683-103-0SP	ETHERNET MEDIA CONVERTER (SPARE PARTS) (FURNISH ONLY) (SINGLE MODE)(1-PORT)	EA																					
0683-103-A00	ETHERNET MEDIA CONVERTER MULTIMODE (F&I)	EA																					
0683-103-A0W	ETHERNET MEDIA CONVERTER (MULTI-MODE)(6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0683-103-ASP	ETHERNET MEDIA CONVERTER (SPARE PARTS) (FURNISH ONLY) (MULTI-MODE)	EA																					
0683-103-B00	ETHERNET MEDIA CONVERTER SINGLE MODE (2-PORT) (F&I)	EA																					
0683-103-B0W	ETHERNET MEDIA CONVERTER (SINGLE MODE)(2-PORT)(6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0683-103-BSP	ETHERNET MEDIA CONVERTER (SPARE PARTS) (FURNISH ONLY) (SINGLE MODE)(2-PORT)	EA																					
0683-104-000	FIBER OPTIC PATCH PANEL - 12 PORT (SM) (F&I)	EA																					
0683-105-000	FIBER OPTIC PATCH PANEL - 72 PORT (F&I)	EA																					
0683-106-000	CUT-TO-LENGTH DUPLEX FIBER OPTIC JUMPER (SM) (F&I)	EA																					
0683-114-000	FIBER OPTIC PATCH PANEL - 24 PORT (MULTIMODE) (F&I)	EA																					
0683-114-A00	FIBER OPTIC PATCH PANEL - 24 PORT (MULTIMODE) (WALLMOUNT) (F&I)	EA																					
0683-116-000	CUT-TO-LENGTH DUPLEX FIBER OPTIC JUMPER (MULTIMODE) (F&I)	EA																					
0683-201-000	UNINTERRUPTIBLE POWER SUPPLY (F&I) (650 W)	EA																					
0683-201-00W	UNINTERRUPTIBLE POWER SUPPLY (650W) (5 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0683-201-0SP	UNINTERRUPTIBLE POWER SUPPLY W/ TWO (2) BATTERIES (SPARE PARTS) (FURNISH ONLY) (650 W)	EA																					
0683-201-A00	UNINTERRUPTIBLE POWER SUPPLY (F&I) (2000 W)	EA																					
0683-201-A0W	UNINTERRUPTIBLE POWER SUPPLY (2000 W)(5 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0683-201-ASP	UNINTERRUPTIBLE POWER SUPPLY W/ FOUR (4) BATTERIES (SPARE PARTS) (FURNISH ONLY) (2000 W)	EA																					
0683-202-000	REMOTE POWER MANAGER/ENVIRONMENTAL SENSOR (F&I)	EA																					
0683-202-0SP	REMOTE POWER MANAGER/ENVIRONMENTAL SENSOR (SPARE PARTS) (FURNISH ONLY)	EA																					
0683-202-A00	REMOTE POWER MANAGER/ENVIRONMENTAL SENSOR - REMOTE (F&I)	EA																					
0683-203-000	COMMUNICATION RACK INSTALLATION (F&I)	EA																					
0686-101-000	CCTV FIELD ASSEMBLY (F&I)	EA																					
0686-102-000	CCTV FIELD ASSEMBLY (FURNISH)	EA																					
0686-103-000	CCTV FIELD ASSEMBLY (RELOCATE)	EA																					
0686-104-000	CCTV FIELD ASSEMBLY (REMOVE)	EA																					
0686-001-0SP	CCTV SPARE PARTS KIT (FURNISH ONLY)	EA																					
0686-001-W00	CCTV WARRANTY (6 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0686-201-000	CAMERA LOWERING SYSTEM & (25 FOOT POLE) (F&I)	EA																					
0686-202-000	CAMERA LOWERING SYSTEM & (40 FOOT POLE) (F&I)	EA																					
0686-203-000	CAMERA LOWERING SYSTEM & (50 FOOT POLE) (F&I)	EA																					
0686-204-000	CAMERA LOWERING SYSTEM & (60 FOOT POLE) (F&I)	EA																					
0686-205-000	CAMERA LOWERING SYSTEM & (80 FOOT POLE) (F&I)	EA																					
0686-206-000	CAMERA LOWERING SYSTEM & (130 FOOT POLE) (F&I)	EA																					
0686-207-000	DUAL CAMERA LOWERING SYSTEM & (XX FOOT POLE PER PLANS) (F&I)	EA																					
0686-301-000	CAMERA LOWERING SYSTEM (25 FOOT POLE) (RELOCATE)	EA																					
0686-302-000	CAMERA LOWERING SYSTEM (40 FOOT POLE) (RELOCATE)	EA																					
0686-303-000	CAMERA LOWERING SYSTEM (50 FOOT POLE) (RELOCATE)	EA																					
0686-304-000	CAMERA LOWERING SYSTEM (60 FOOT POLE) (RELOCATE)	EA																					
0686-305-000	CAMERA LOWERING SYSTEM (80 FOOT POLE) (RELOCATE)	EA																					
0686-306-000	CAMERA LOWERING SYSTEM (130 FOOT POLE) (RELOCATE)	EA																					
0686-307-000	CAMERA LOWERING SYSTEM POLE REMOVAL SHALLOW	EA																					
0686-308-000	CAMERA LOWERING SYSTEM POLE REMOVAL DEEP	EA																					
0686-309-000	DUAL CAMERA LOWERING SYSTEM & (XX FOOT POLE PER PLANS) (RELOCATE)	EA																					

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TABULATION OF QUANTITIES (3 OF 4)

SHEET NO. A-6

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PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS																TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
0686-309-000	DUAL CAMERA LOWERING SYSTEM & (XX FOOT POLE PER PLANS) (RELOCATE)	EA																					
0729-011-000	DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE) (F&I)	EA																					
0729-011-0SP	DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE), SPARE PARTS KIT	EA																					
0729-011-W00	DYNAMIC MESSAGE SIGN SYSTEM WARRANTY (LED) (3 LINE) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0730-011-000	DYNAMIC MESSAGE SIGN SYSTEM (FLEX LANES INCIDENT MANAGEMENT) (LED) (3-LINE) (FRONT ACCESS) (F & I)	EA																					
0730-011-0SP	DYNAMIC MESSAGE SIGN SYSTEM (FLEX LANES INCIDENT MANAGEMENT) (LED) (3-LINE) (FRONT ACCESS) (SPARE PARTS KIT)	EA																					
0730-011-W00	DYNAMIC MESSAGE SIGN SYSTEM WARRANTY (FLEX LANES INCIDENT MANAGEMENT)(3 LINE) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0730-012-000	DYNAMIC MESSAGE SIGN SYSTEM (FLEX LANES INCIDENT MANAGEMENT) (LED) (3-LINE) (FRONT ACCESS)(INSTALL ONLY)	EA																					
0731-011-000	DYNAMIC MESSAGE SIGN SYSTEM (FLEX LANES LCS) (FRONT ACCESS) (F & I)	EA																					
0731-011-0SP	DYNAMIC MESSAGE SIGN SYSTEM (FLEX LANES LCS) (FRONT ACCESS) (SPARE PARTS KIT)	EA																					
0731-011-W00	DYNAMIC MESSAGE SIGN SYSTEM WARRANTY (FLEX LANES LCS) (FRONT ACCESS) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0731-012-000	DYNAMIC MESSAGE SIGN SYSTEM (FLEX LANES LCS) (FRONT ACCESS) (INSTALL ONLY)	EA																					
0732-011-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (1 LINE) (FRONT ACCESS) (F&I)	EA																					
0732-011-0SP	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (1 LINE) (FRONT ACCESS) (SPARE PARTS KIT)	EA																					
0732-011-W00	FULL COLOR DYNAMIC MESSAGE SIGN WARRANTY (LED) (1 LINE) (FRONT ACCESS) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0732-012-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (1 LINE) (FRONT ACCESS) (INSTALL ONLY)	EA																					
0733-011-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (2 LINE) (FRONT ACCESS) (F&I)	EA																					
0733-011-0SP	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (2 LINE) (FRONT ACCESS) (SPARE PARTS KIT)	EA																					
0733-011-W00	FULL COLOR DYNAMIC MESSAGE SIGN WARRANTY (LED) (2 LINE EPASS) (FRONT ACCESS) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0733-012-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (2 LINE) (FRONT ACCESS) (INSTALL ONLY)	EA																					
0734-011-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (2-LINE) (FRONT ACCESS) (F&I)	EA																					
0734-011-0SP	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (2-LINE) (FRONT ACCESS) (SPARE PARTS KIT)	EA																					
0734-011-W00	FULL COLOR DYNAMIC MESSAGE SIGN WARRANTY (LED) (2 LINE) (FRONT ACCESS) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0734-012-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (2-LINE) (FRONT ACCESS) (INSTALL ONLY)	EA																					
0735-011-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (TOLL PLAZA) (FRONT ACCESS) (F&I)	EA																					
0735-011-0SP	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (TOLL PLAZA) (FRONT ACCESS) (SPARE PARTS KIT)	EA																					
0735-011-W00	FULL COLOR DYNAMIC MESSAGE SIGN WARRANTY (LED) (TOLL PLAZA) (FRONT ACCESS) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0735-012-000	FULL COLOR DYNAMIC MESSAGE SIGN (LED) (TOLL PLAZA) (FRONT ACCESS) (INSTALL ONLY)	EA																					
0736-011-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (GROUND MOUNT) (36X48) (F&I)	EA																					
0736-011-W00	VARIABLE SPEED LIMIT SIGN WARRANTY (EMBEDDED DMS) (10 YEAR WARRANTY) (FURNISH ONLY)	EA																					
0736-012-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (GROUND MOUNT) (48X60) (F&I)	EA																					
0736-021-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (STRUCTURE MOUNT) (36X48) (F&I)	EA																					
0736-022-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (STRUCTURE MOUNT) (48X60) (F&I)	EA																					
0736-031-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (BARRIER MOUNT) (36X48) (F&I)	EA																					
0736-032-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (BARRIER MOUNT) (48X60) (F&I)	EA																					
0736-0SP-000	VARIABLE SPEED LIMIT SIGN (EMBEDDED DMS) (SPARE PARTS) (F&I)	EA																					
0740-089-021	ENHANCED WWD SIGN (F&I)	EA																					
0740-089-12A	WWDS COMPLETE (RADAR) (A/C POWER) (INSTALL)	EA																					
0740-089-12C	WWDS COMPLETE (RADAR) (A/C POWER), BLACK POWDER COAT FINISH (F&I)	EA																					
0740-089-12E	WWDS COMPLETE (RADAR) (A/C POWER), ALUMINUM FINISH (F&I)	EA																					
0740-089-12G	WWDS COMPLETE (RELOCATE)	EA																					
0740-089-12H	WWDS COMPLETE (THERMAL) (A/C POWER), ALUMINUM FINISH (F&I) (RAMP)	EA																					
0740-089-12J	WWDS COMPLETE (THERMAL) (A/C POWER), ALUMINUM FINISH (F&I) (MAINLINE)	EA																					
0740-089-12L	WWDS COMPLETE (LIDAR) (A/C POWER), ALUMINUM FINISH (F&I) (RAMP)	EA																					
0740-089-12M	WWDS COMPLETE (LIDAR) (A/C POWER), ALUMINUM FINISH (F&I) (MULTI-RAMP)	EA																					
0740-089-0SP	WWDS SPARE PARTS KIT (FURNISH ONLY)	EA																					
0740-089-SPB	WWDS POLE SPARE PARTS (FURNISH ONLY)	EA																					
0740-089-0SP	WWDS (SPARE PARTS KIT) (FURNISH ONLY)	EA																					

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TABULATION OF QUANTITIES (4 OF 4)

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UTILITY CONTACTS

UTILITY LOCATES FOR ITS INFRASTRUCTURE ARE COORDINATED THROUGH SUNSHINE ONE CALL:
1-800-432-4770 / SUNSHINE811.COM

CFX (FIBER)	WILLIAM COLLINS	407-690-5000
CFX FACILITIES MAINTENANCE	ICA	407-730-8923
CFX ROADWAY MAINTENANCE (SR429,SR414,SR451)	ICA	407-730-8923
CFX ROADWAY MAINTENANCE (SR408,SR417,SR528)	JCS	407-249-9122

ALL OTHER PROJECT SPECIFIC CONTACTS
SHALL BE COMPLETED BY THE DESIGNER

DISRUPTION OF COMMUNICATIONS OR ELECTRICAL TO TOLL PLAZA: IN THE EVENT COMMUNICATION OR POWER LOSS TO ANY TOLL PLAZA(S) SYSTEM WIDE, THE CONTRACTOR SHALL CONTACT THE FOLLOWING PERSONNEL.

DAVID WYNNE	David.Wynne@CFXway.com	407-690-5000
RAFAEL MILLAN	Rafael.Millan@CFXway.com	407-690-5000
BRENT POOLE	Brent.Poole@CFXway.com	407-690-5000

OTHER CONTACTS

CITY OF APOPKA PUBLIC SERVICES-DESIGN ENGINEERING	407-703-1731
CITY OF OCOEE PUBLIC WORKS	407-905-3170
CITY OF ORLANDO TRANSPORTATION ENGINEERING	407-246-2281
CITY OF WINTER GARDEN PUBLIC SERVICES	407-656-2256
ORANGE COUNTY TRAFFIC ENGINEERING	407-836-7890

ABBREVIATIONS

BRFG = BULLET RESISTIVE FIBERGLASS OUTER DUCT

BSP = BLACK STEEL PIPE (USE W/PROPOSED CONDUITS)

SBSP = SPLIT BLACK STEEL PIPE (USE W/EXISITNG CONDUITS)

DCS = DATA COLLECTION SENSOR

DMS = DYNAMIC MESSAGE SIGN

FO = FIBER OPTIC

FOMH = FIBER OPTIC MANHOLE (SECTION J)

PVC = POLYVINYL CHLORIDE OUTER DUCT

E/W = EQUIPPED WITH

SDR = SIZE DIMENSION RATIO

COND.1 = CONDITION 1 CROSSING (SEE FIBER OPTIC TRENCHING DETAILS)

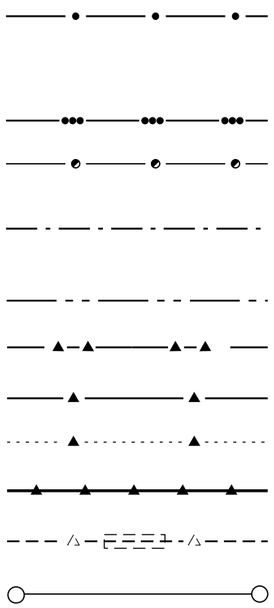
COND.2 = CONDITION 2 CROSSING (SEE FIBER OPTIC TRENCHING DETAILS)

TMS = TRAFFIC MONITORING STATION

VSL = VARIABLE SPEED LIMIT

CPB = COMPOSITE PULL BOX

LEGEND



PROPOSED UNDERGROUND POWER 2" SCHEDULE 40 P.V.C UNDERGROUND CONDUIT WITH AWG XHHW STRANDED COPPER CIRCUIT INSULATED CONDUCTORS INSIDE (CONDUCTOR AND GROUND WIRE SIZES SHOWN ON DETAIL SHEETS) AND INSULATED GREEN STRANDED CU BOND WIRE CONNECTING ALL ITEMS.

DIRECTIONAL BORE CONDUIT

BRIDGE MOUNT CONDUIT

1-6" BULLET RESISTIVE FIBERGLASS (BRFG) CONDUIT ATTACHED TO BRIDGE E/W HDPE 9-1" CONDUITS

6" PVC, SCHEDULE 40 E/W 9-1" HDPE

3-1" HDPE CONDUITS (FEEDER)

9-1" HDPE CONDUITS (BACKBONE)

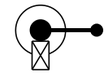
EXISTING 9-1" HDPE CONDUITS

PROPOSED BLACK STEEL PIPE (BSP) OR PROPOSED SPLIT BLACK STEEL PIPE (SBSP)

EXISTING BLACK STEEL PIPE (BSP) OR EXISTING SPLIT BLACK STEEL PIPE (SBSP)

OVERHEAD SIGN TRUSS AND STATIC SIGN PANELS TO BE INSTALLED BY SIGNING AND MARKING CONTRACTOR AS PART OF THE SIGNING AND PAVEMENT MARKING PLAN SET.

EXISTING POLE MOUNTED CABINET & CAMERA W/ LOWERING SYSTEM ON STEEL POLE W/ FOUNDATION



PROPOSED POLE MOUNTED CABINET & CAMERA W/ LOWERING SYSTEM ON STEEL POLE W/ NEW FOUNDATION

EXISTING FIBER OPTIC ROUND PULL BOX (OPENING 24" OR 36")

PROPOSED FIBER OPTIC ROUND PULL BOX (OPENING 24" OR 36")

EXISTING ELECTRIC OR GROUNDING PULL BOX (13"x24"x12"D)

PROPOSED ELECTRIC OR GROUNDING PULL BOX (13"x24"x12"D)

EXISTING FIBER OPTIC PULL BOX (17"x30"x12"D)

PROPOSED CONCRETE PEDESTAL FOR POWER SERVICE

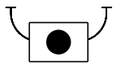
EXISTING CONCRETE PEDESTAL FOR POWER SERVICE

EXISTING FIBER OPTIC MANHOLE

PROPOSED FIBER OPTIC MANHOLE (4'x4'x4')

PROPOSED FIBER OPTIC MANHOLE (4'x6.5'x6.5')

PROPOSED FIBER OPTIC MANHOLE WITH STUB-OUT (4'x4'x4')



PROPOSED FIBER OPTIC MANHOLE WITH STUB-OUT (4'x6.5'x6.5')

PROPOSED POLE MOUNTED CABINET TYPE 336S / NEMA 3R

PROPOSED GROUND MOUNTED CABINET TYPE 334

EXISTING POINT OF ELECTRICAL SERVICE

PROPOSED POINT OF ELECTRICAL SERVICE

PROPOSED DMS ELECTRICAL SERVICE EQUIPMENT ON H-FRAME SUPPORT WITH CONCRETE PAD.

PROPOSED TMS

PROPOSED TMS DETECTION ZONES (SYMBOL SHOULD BE PLACED OVER EACH LANE DETECTED)

DATA COLLECTION SENSOR ANTENNA SITE (# INDICATES NUMBER OF LANES READ, ARROW POINTS IN DIRECTION OF TRAVEL)

VARIABLE SPEED LIMIT SIGN

TUBULAR ROUTE MARKER (FIBER)

TUBULAR ROUTE MARKER (POWER)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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LEGEND AND UTILITY CONTACTS

SHEET NO. A-8

MARCH 2026

3/10/2026 12:01:12 PM

ITS DEVICE DATA SHEET

DEVICE NAME	LHUB	SHEET NUMBER	ROADWAY	DESIGN GPS COORDINATES		CONTRACTOR GPS COORDINATES		POLE HEIGHT	MOUNTING HEIGHT	EXISTING / PROPOSED	MAINTENANCE OWNERSHIP
				LATITUDE	LONGITUDE	LATITUDE	LONGITUDE				
CCTV XXX-X.XX EB	LHUB XXX-X.XX EB	IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			50'	50'	PROPOSED	CONTRACTOR
TMS XXX-X.XX EB		IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			50'	40'	PROPOSED	CONTRACTOR
DCS XXX-X.XX EB		IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			-	24'	PROPOSED	CONTRACTOR
CCTV XXX-X.XX WB	LHUB XXX-X.XX WB	IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			50'	50'	EXISTING	CFX
TMS XXX-X.XX WB		IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			50'	40'	EXISTING	CFX
WWD XXX-X.XX EB	LHUB XXX-X.XX EB	IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			22'	18'	EXISTING	CFX
WWD XXX-X.XX EB		IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			22'	18'	EXISTING	CFX
WWD XXX-X.XX EB		IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			22'	18'	EXISTING	CFX
WWD XXX-X.XX EB		IT-XX	SR XXX	XX.XXXXXXXXX	-XX.XXXXXXXXX			22'	18'	EXISTING	CFX

NOTES TO EOR:

1. EOR MUST COMPLETE THE TABLE FOR ALL DEVICES ON THE PROJECT AND ENSURE ALL APPLICABLE COLUMNS ARE FULLY AND ACCURATELY POPULATED.
2. PLEASE NOTE THAT THE TABLE CONTAINS SAMPLE VALUES. THE DESIGNER MUST ENSURE THAT THE FINAL INFORMATION ENTERED IS CORRECT AND COMPLETE.
3. EOR TO DETERMINE POTENTIAL IMPACTS TO EXISTING ITS DEVICES DURING THE DESIGN PROCESS. IF THE DESIGN/CONTRACTOR WILL BE MODIFYING/IMPACTING A DEVICE OR IF THE DEVICE IS INCLUDED WITHIN THE PROJECT LIMITS OF A ROADWAY WIDENING PROJECT, THE MAINTENANCE RESPONSIBILITY WILL BE ASSIGNED TO THE CONTRACTOR.

NOTES TO EOR (CONT.):

4. CFX TO BE LISTED AS MAINTAINENANCE OWNERSHIP FOR ALL EXISTING WWD LOCATIONS UNLESS THE FOLLOWING IS OCCURING AS A PART OF THE PROJECT:
   A. IF THE DESIGN/CONTRACTOR IMPACTS THE POWER TO THE WWD SITE THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING ALL POWER RELATED ITEMS FOR THE WWD SITE. THE EOR SHALL BE EXPLICIT IN COMMUNICATING THIS DEMARK BY LISTING THE MAINTENANCE RESPONSIBILITY AS "CONTRACTOR WWD POWER ONLY" AND PROVIDE A GENERAL NOTE CLARIFYING THE INTENT.
   B. IF THE DESIGN/CONTRACTOR IS MODIFYING AN EXISTING WWD SITE (TO INCLUDE MODIFICATIONS TO THE WWD CONTROLLER OR DETECTION DEVICES) THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL COMPONENTS OF THE WWD SITE ONCE WORK COMMENCES AT THE LOCATION. AFTER THE SITE IS COMMISSIONED, TESTED AND ACCEPTED BY CFX, THE LOCATION CAN BE TURNED BACK OVER TO CFX ITS MAINTENANCE.

REVISIONS

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MARCH 2026

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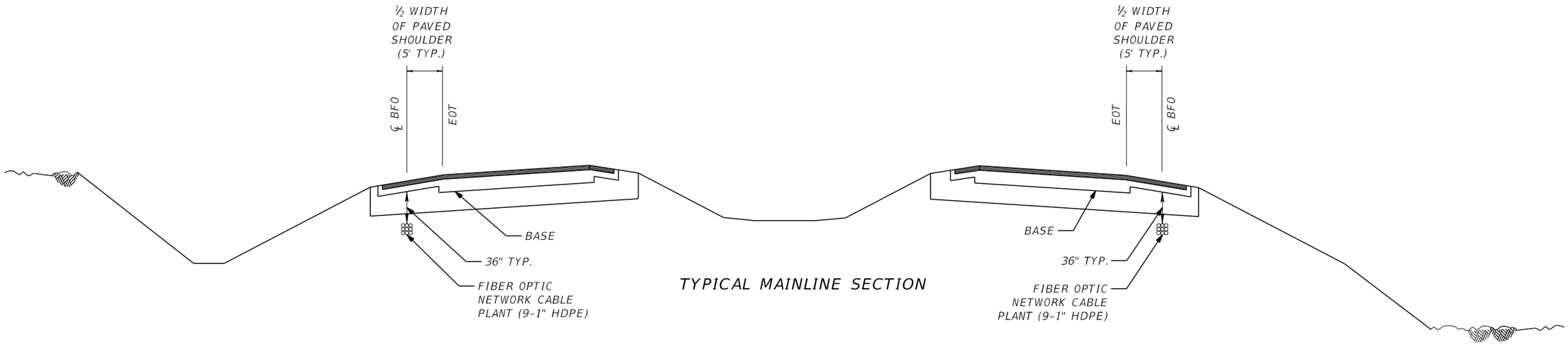
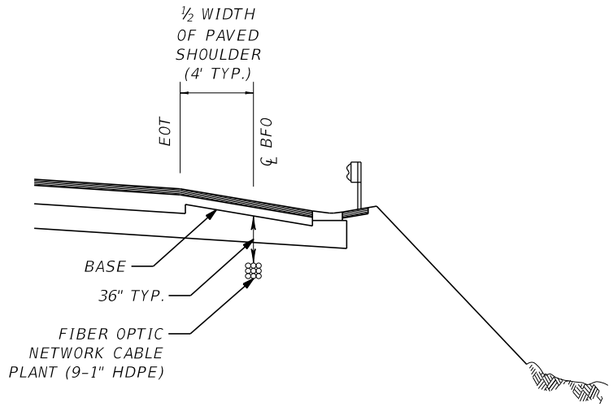
AUTHORITY

ITS DEVICE DATA SHEET

SHEET NO.
A-9



TYPICAL MAINLINE SECTION



TYPICAL MAINLINE/RAMP SECTION
WITH GUARDRAIL

NOTE:

1. WHEN FIBER OPTIC CONDUIT BANK IS INSTALLED, ONE OF THE 1" HDPE CONDUIT SHALL BE INSTALLED TO SLEEVE THE TONE WIRE. 8 HDPE CONDUITS SHALL BE RESERVED FOR FIBER OPTIC CABLE.

REVISIONS								
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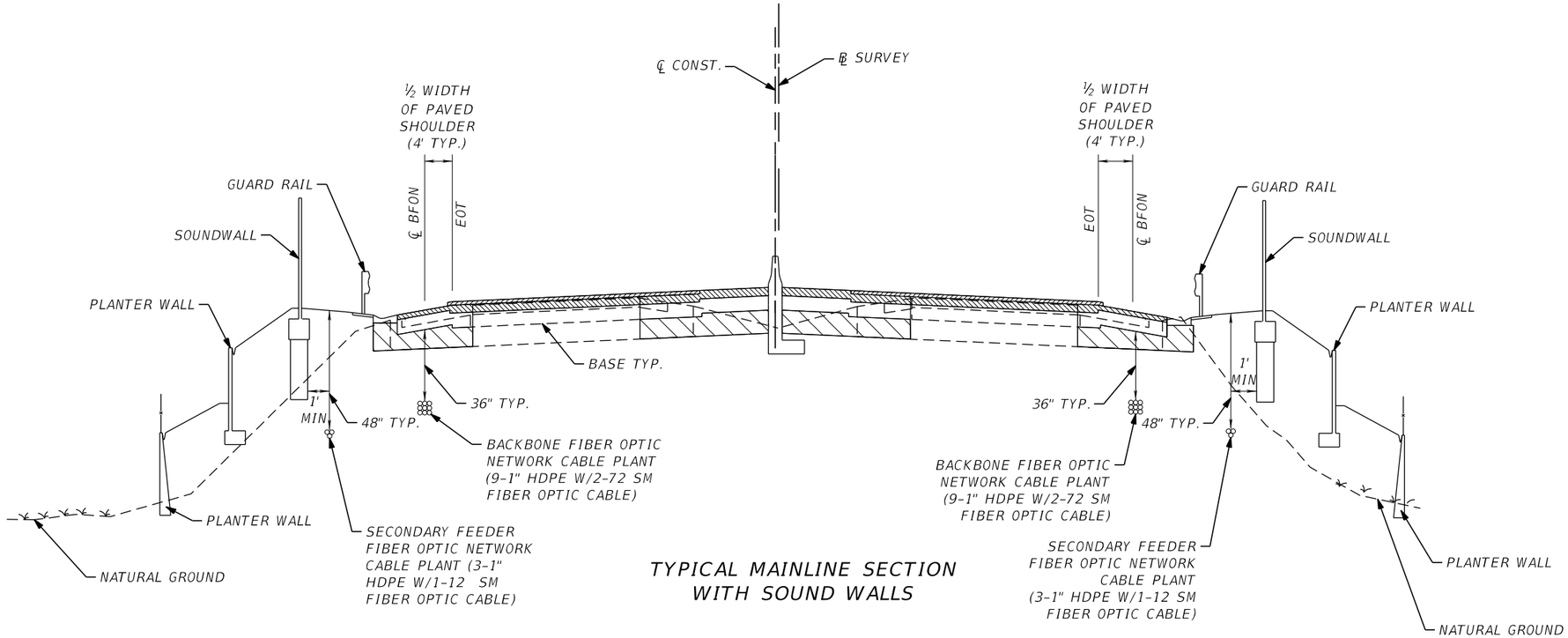
FIBER OPTIC NETWORK TYPICAL MAINLINE AND RAMP CROSS SECTION

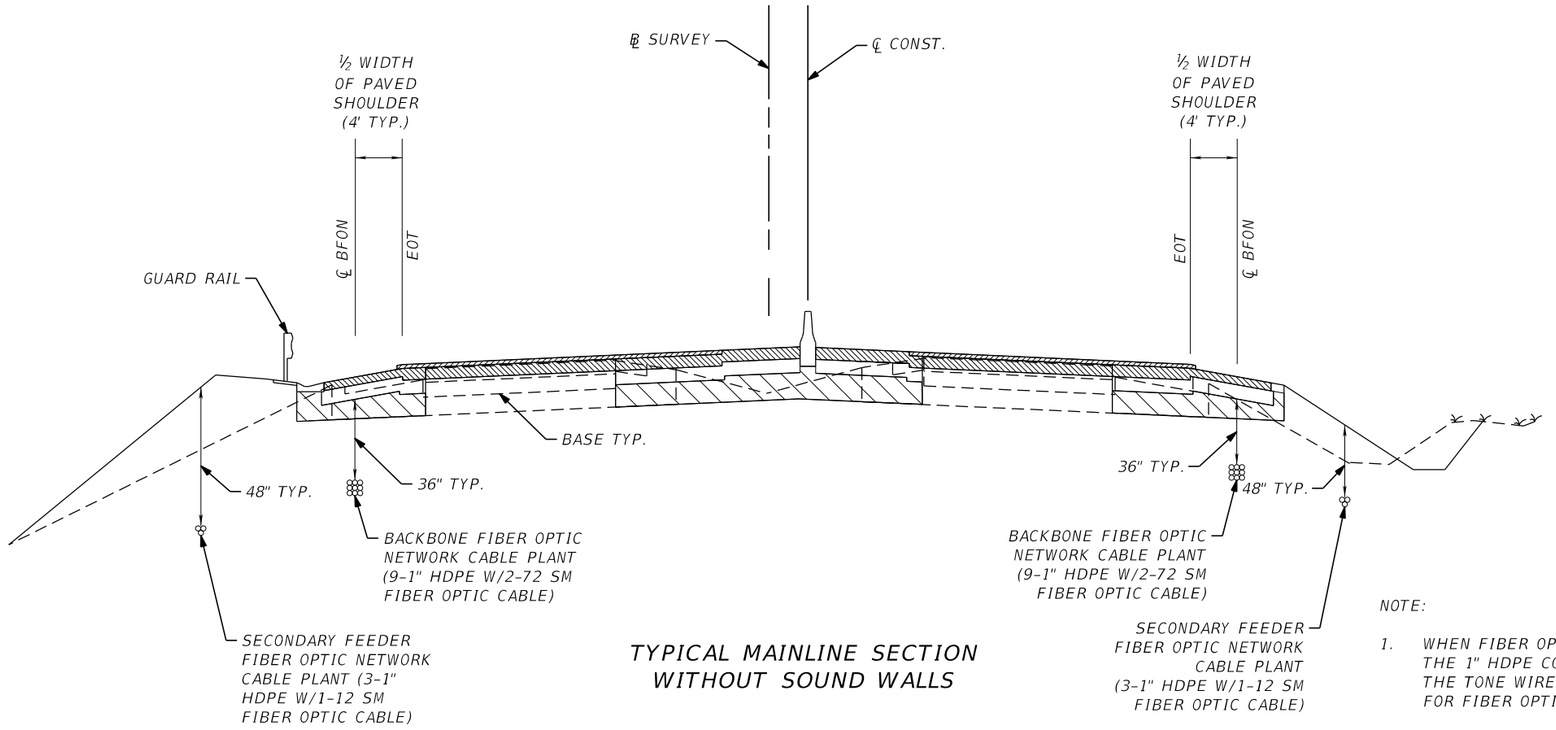
SHEET NO. A-10

MARCH 2026

2/27/2026 10:23:29 AM



TYPICAL MAINLINE SECTION
WITH SOUND WALLS



TYPICAL MAINLINE SECTION
WITHOUT SOUND WALLS

NOTE:

1. WHEN FIBER OPTIC CONDUIT BANK IS INSTALLED, ONE OF THE 1" HDPE CONDUIT SHALL BE INSTALLED TO SLEEVE THE TONE WIRE. 8 HDPE CONDUITS SHALL BE RESERVED FOR FIBER OPTIC CABLE.

REVISIONS					
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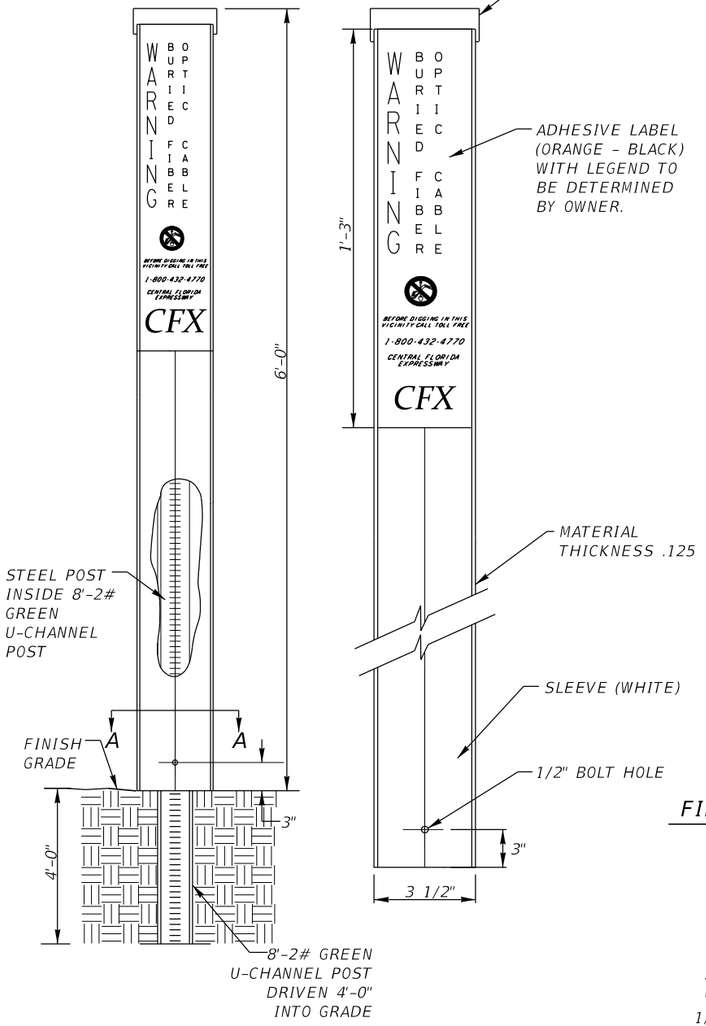
FIBER OPTIC NETWORK TYPICAL MAINLINE SECTION WITH SECONDARY FEEDER

SHEET NO. A-11

MARCH 2026

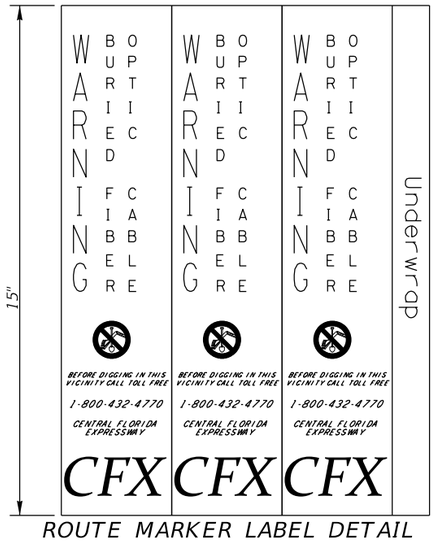
2/27/2026 10:23:29 AM

FIBER OPTIC ROUTE MARKER



FRONT VIEW
N.T.S

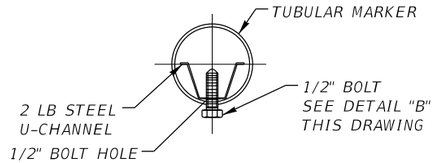
FRONT VIEW
N.T.S



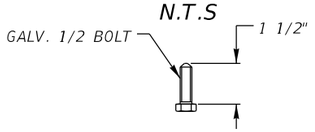
ROUTE MARKER LABEL DETAIL
N.T.S

NOTES:
1. ORANGE TAPE WITH BLACK LETTERS
2. TAPE TO READ: "CFX FIBER OPTIC CABLE BURIED BELOW"

FIBER OPTIC WARNING TAPE DETAIL
N.T.S



SECTION A-A
N.T.S

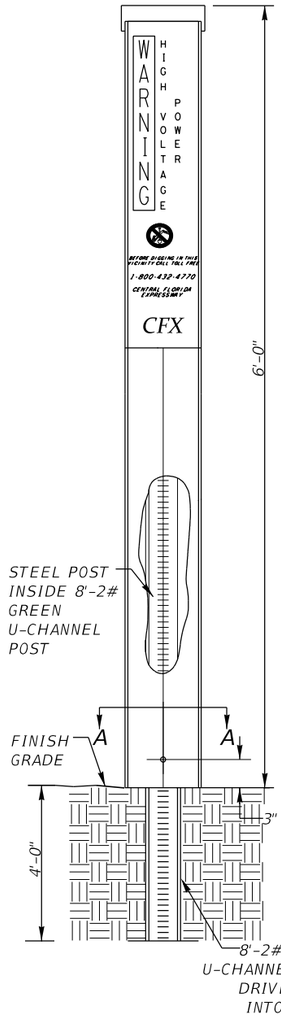


DETAIL B
N.T.S

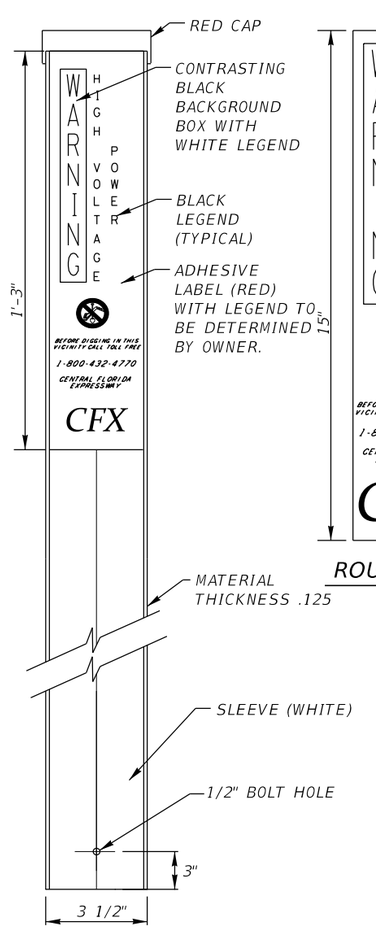
NOTES:

1. 8'-2#/FT. GREEN STEEL U-CHANNEL POST VULCAN UTILITY SIGNS & PRODUCTS PN 0550145.
2. 72" H-41-RF TUBULAR ROUTE MARKER VULCAN UTILITY SIGNS & PRODUCTS FIBER PN 0303381.
3. ROUTE MARKER WRAP DECAL, BLACK TEXT ON ORANGE BACKGROUND, VULCAN UTILITY SIGNS & PRODUCTS PN 0906529.

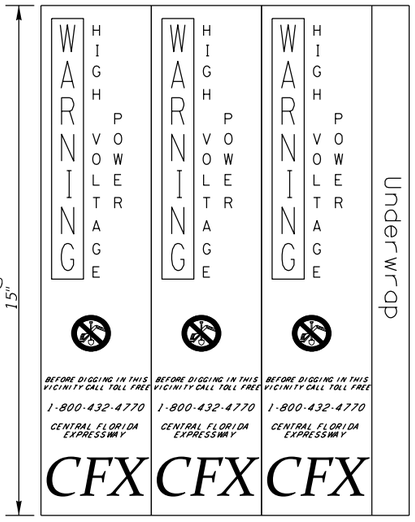
POWER ROUTE MARKER



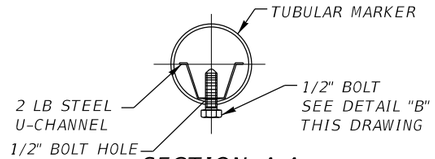
FRONT VIEW
N.T.S



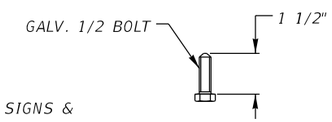
FRONT VIEW
N.T.S



ROUTE MARKER LABEL DETAIL
N.T.S



SECTION A-A
N.T.S



DETAIL B
N.T.S

NOTES:

1. 8'-2#/FT. GREEN STEEL U-CHANNEL POST VULCAN UTILITY SIGNS & PRODUCTS PN 0550145.
2. 72" H-41-RF TUBULAR ROUTE MARKER VULCAN UTILITY SIGNS & PRODUCTS PN 0303382.
3. ROUTE MARKER WRAP DECAL, BLACK TEXT ON RED BACKGROUND, VULCAN UTILITY SIGNS & PRODUCTS PN 0906530.

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FIBER OPTIC / POWER CABLE ROUTE MARKER DETAIL

SHEET NO. A-12

MARCH 2026

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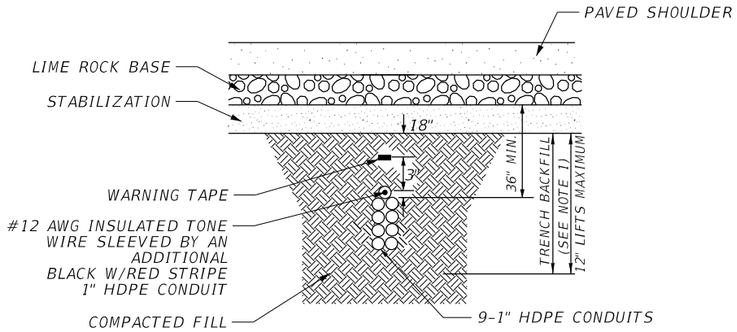
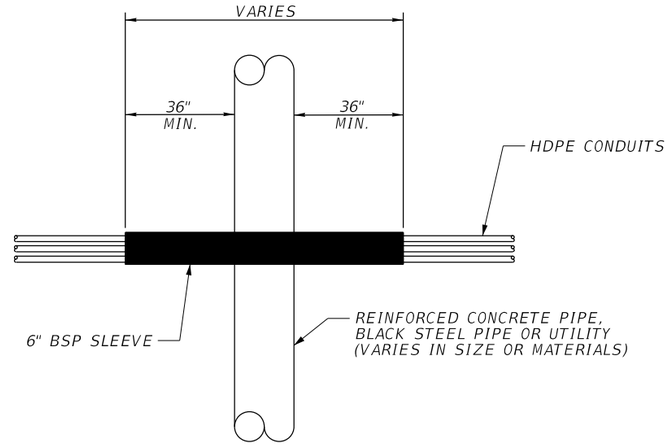


DETAIL "A"
TYPICAL BEDDING AND TRENCHING DETAIL

NOTE TO EOR:
FOR EXISTING INFRASTRUCTURE USE SBSP.
FOR NEW INFRASTRUCTURE USE BSP.

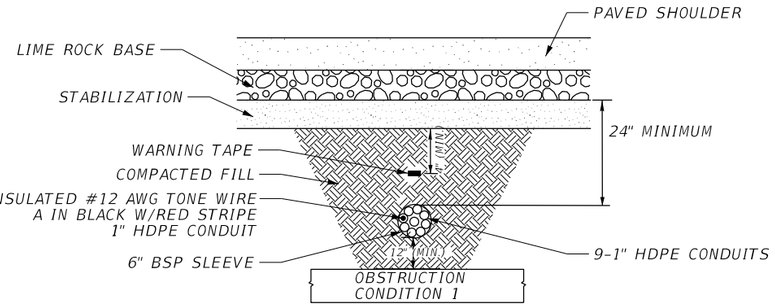
NOTES:

1. THE F.O. CONDUIT SHALL BE INSTALLED SUCH THAT IT MAINTAINS A SUBSTANTIALLY UNIFORM ALIGNMENT (+/- 4 INCHES) BOTH HORIZONTALLY AND VERTICALLY RELATIVE TO THE PAVED SHOULDER AS DETAILED IN THE TYPICAL MAINLINE SECTION.

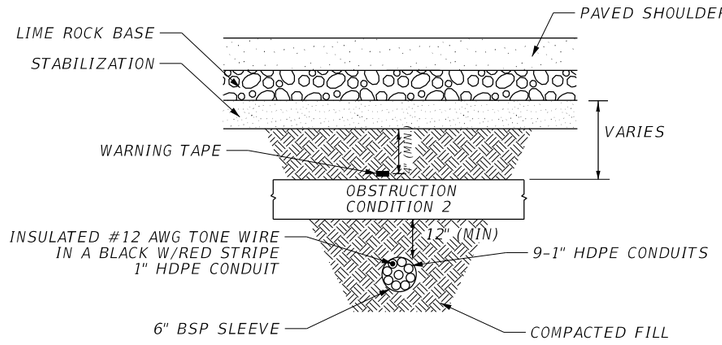


APPLIES FOR ABOVE AND BELOW OBSTRUCTION DETAILS

DETAIL "D"
PLAN DETAIL AT STORM DRAIN PIPE OR UTILITY CROSSINGS



DETAIL "B"
TYPICAL BSP SLEEVE TRENCH
DETAIL TO ABOVE CROSS OBSTRUCTION



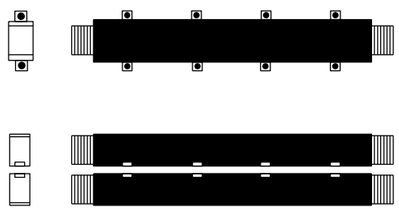
DETAIL "C"
TYPICAL BSP SLEEVE TRENCH
DETAIL TO BELOW CROSS OBSTRUCTION

NOTES:

1. BSP SLEEVE TO EXTEND A MIN. OF 3' PAST ENDS OF OBSTRUCTION.
2. 6" BSP SLEEVE SHALL BE SEALED AT BOTH ENDS WITH A NON SHRINK GROUT OR FOAM SEALANT AND WITH THE F.O. CONDUITS TO PREVENT THE INFILTRATION OF SURROUNDING FILL. METHOD AND MATERIALS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. F.O. CONDUITS MAY ALSO BE ROUTED UNDER OBSTRUCTIONS AS SHOWN IN CONDITION 2, IF MINIMUM COVERS SHOWN IN CONDITION 1 CAN NOT BE MET.
4. PROPOSED OBSTRUCTION CROSSING PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
5. OBSTRUCTION CROSSINGS ARE LABELED ON THE PLAN SHEETS AS COND. 1 FOR A CONDITION 1 CROSSING & COND. 2 FOR A CONDITION 2 CROSSING.
6. DURING ALL HDPE INTERDUCT INSTALLATION INSIDE PVC, BSP OR PVC SCH 80, BRFG CONDUIT THE CONTRACTOR SHALL USE POLYWATER FRONT END PACKS, PART NUMBERS J-27 OR J-55, AS APPROPRIATE, OR APPROVED EQUIVALENT AS PULLING LUBRICANT.
7. A MINIMUM HORIZONTAL CLEARANCE OF 12" SHALL BE MAINTAINED FROM ANY OBSTRUCTION.

ABBREVIATIONS

BRFG= BULLET RESISTIVE FIBERGLASS OUTER DUCT
BSP= BLACK STEEL PIPE
SBSP= SPLIT BLACK STEEL PIPE
HDPE= HIGH DENSITY POLYETHYLENE CONDUIT
FO= FIBER OPTIC
FOMH= FIBER OPTIC MANHOLE
PVC= POLYVINYL CHLORIDE OUTER DUCT
E/W= EQUIPPED WITH
SDR= SIZE DIMENSION RATIO
COND.1= CONDITION 1 CROSSING (SEE DETAIL 'B")
COND.2= CONDITION 2 CROSSING (SEE DETAIL 'B")
COND.3= CONDITION 3 CROSSING (SEE DETAIL 'B")



DETAIL "E"
SPLIT BLACK STEEL PIPE (SBSP) DETAIL

NOTES:

1. SCHEDULE 80 SPLIT BLACK STEEL PIPE IN 10' UNIFORM LENGTHS.
2. BLACK CONDUIT COUPLING.
3. PIPE SPLIT LONGITUDINALLY WITH PLASMA CUTTER IN ORDER TO PREVENT WARPING.
4. STEEL TABS WELDED AT APPROX. 2.5' CENTERS.
5. GALVANIZED NUTS AND BOLTS.

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					B-1

MARCH 2026

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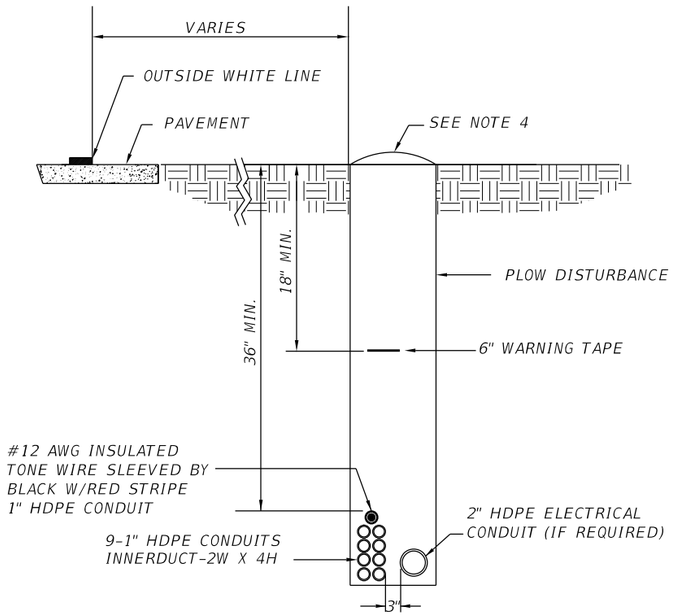
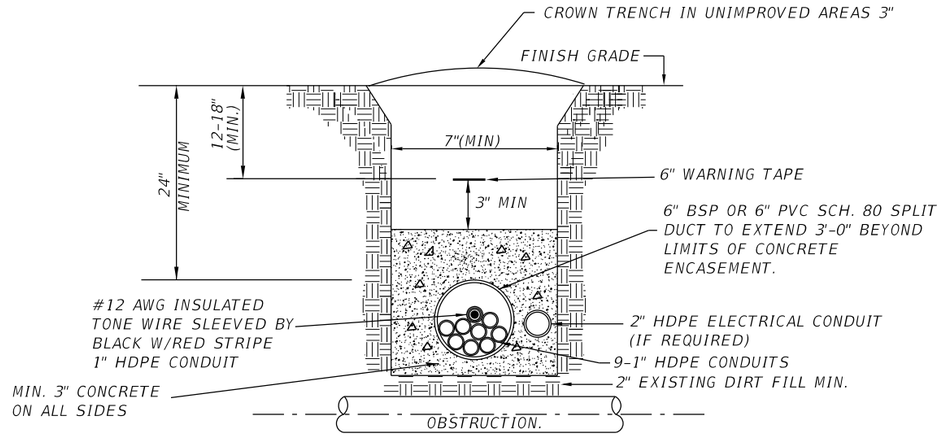


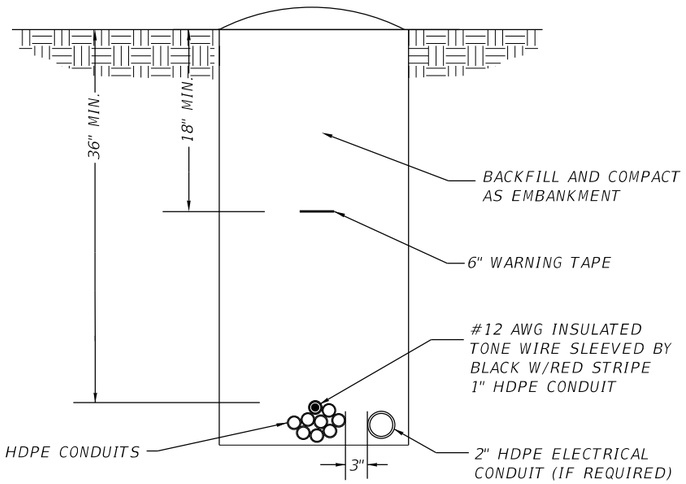
STANDARD CROSS SECTION OF PLOWED CONDUIT



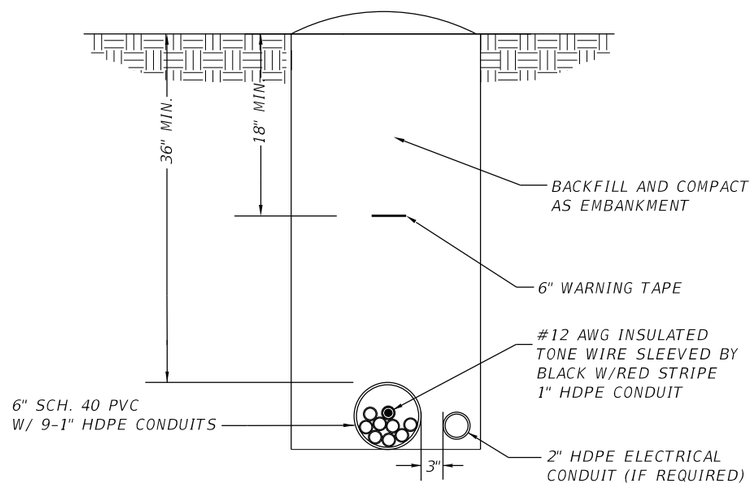
TYPICAL CROSSING WHERE OBSTRUCTION IS 35" TO 44" IN DEPTH.

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 AND PUBLIC WORKS STANDARDS FOR COUNTY ROADS AND THE LATEST FDOT UTILITY ACCOMMODATION MANUAL.
3. CONSTRUCTION CORRIDOR SHALL BE RESTORED TO ORIGINAL OR IMPROVED CONDITION AND VERIFIED BY CFX OR THEIR APPROVED AGENTS.
4. ALL TRENCH WIDTHS SHALL BE WIDE ENOUGH TO ACCOMMODATE MECHANICAL COMPACTION EQUIPMENT FOR PROPER COMPACTION IN ACCORDANCE WITH FDOT STANDARD SPECS.
5. ALL TRENCHES SHALL BE BACKFILLED & COMPACTED BY THE END OF EACH WORK DAY.
6. CFX APPROVED JOINT COUPLINGS SHALL BE USED.
7. CONDUIT PATH WILL BE ROUTED TO AVOID ANY OBSTRUCTIONS SHOULD OBSTRUCTIONS BE ENCOUNTERED, THE FOLLOWING HIERARCHY WILL BE STRICTLY ADHERED TO:
   A. ROUTE CONDUIT AROUND OBSTRUCTION USING SWEEPING BENDS. IF THIS CANNOT BE ACCOMPLISHED, CONDUIT ROUTING WILL BE MADE UNDER THE OBSTRUCTION.
   B. IF THE ABOVE CANNOT BE ACCOMPLISHED, THEN USE OF ONE OF THE OBSTRUCTION DETAILS WILL BE ALLOWED. PRIOR TO COMMENCING DETAIL A OR B, OWNERS APPROVAL MUST BE OBTAINED. DETAIL A IS THE PREFERRED METHOD.
8. ALL CONCRETE SHALL BE IN ACCORDANCE WITH FDOT SPECIFICATION 347.



STANDARD CROSS SECTION OF OPEN TRENCH CONDUIT (NOT IN CASING)



STANDARD CROSS SECTION OF OPEN TRENCH CONDUIT (IN CASING)

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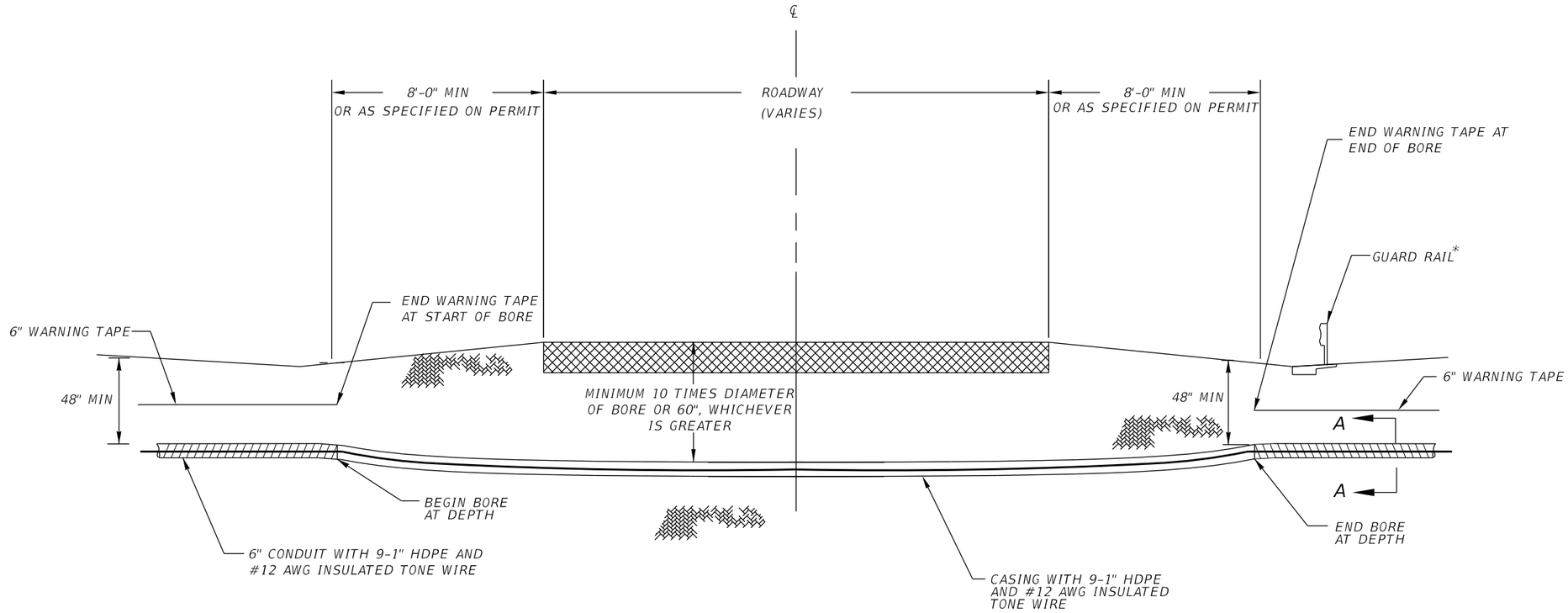
TRENCHING AND PLOWING DETAILS SINGLE CONDUIT BANK

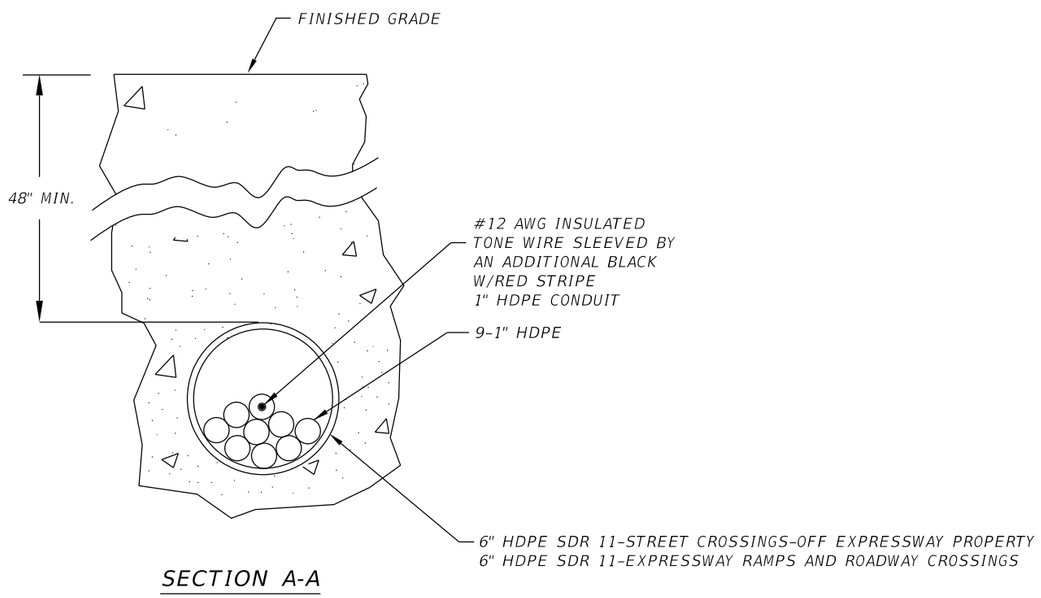
SHEET NO. B-2

MARCH 2026

2/27/2026 10:23:30 AM



TYPICAL DIRECTIONAL BORE



SECTION A-A

NOTES:

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. ALL ENDS OF BORES SHALL BE SEALED WITH NON-SHRINK GROUT OR FOAM SEALANT.
3. * IN CASES OF NEW OR EXISTING GUARD RAILS, SEE SHEET E-4.

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DIRECTIONAL BORE DETAIL FIBER OPTIC BACKBONE CONDUIT	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					B-3

MARCH 2026

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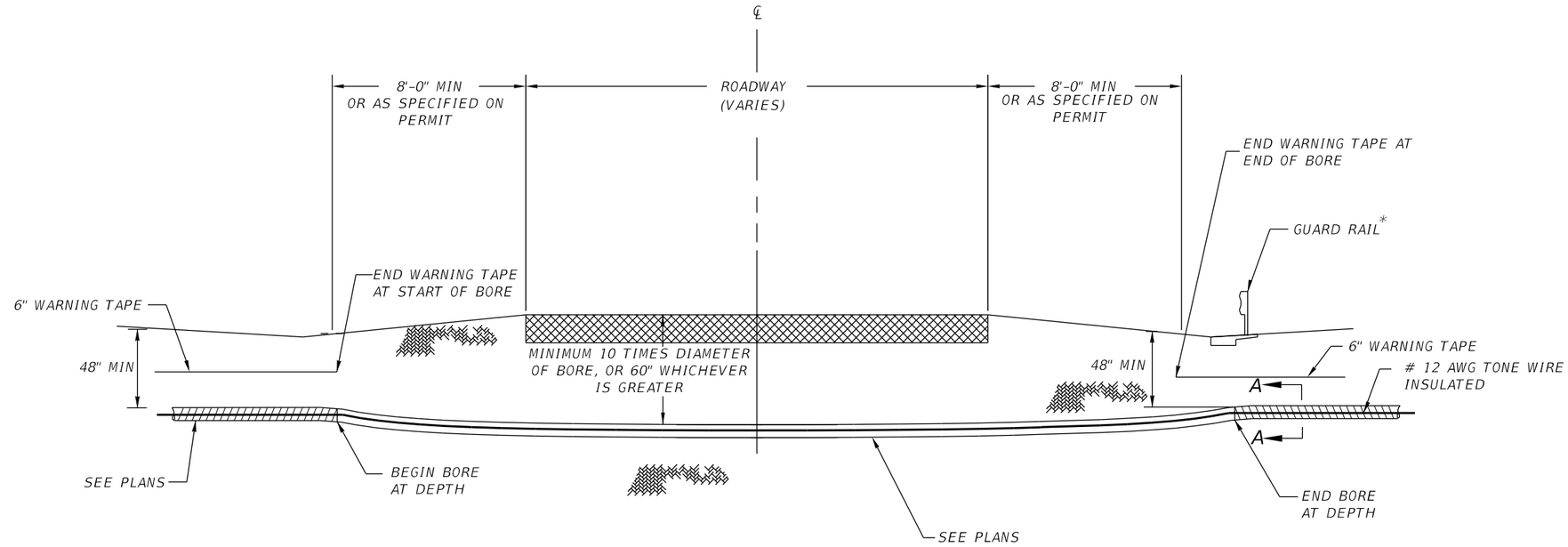


TYPICAL DIRECTIONAL BORE
N.T.S.

SECTION A-A

NOTES:

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. ALL ENDS OF BORES SHALL BE SEALED WITH NON-SHRINK GROUT OR FOAM SEALANT.
3. * IN CASES OF NEW OR EXISTING GUARD RAILS, SEE SHEET E-4.

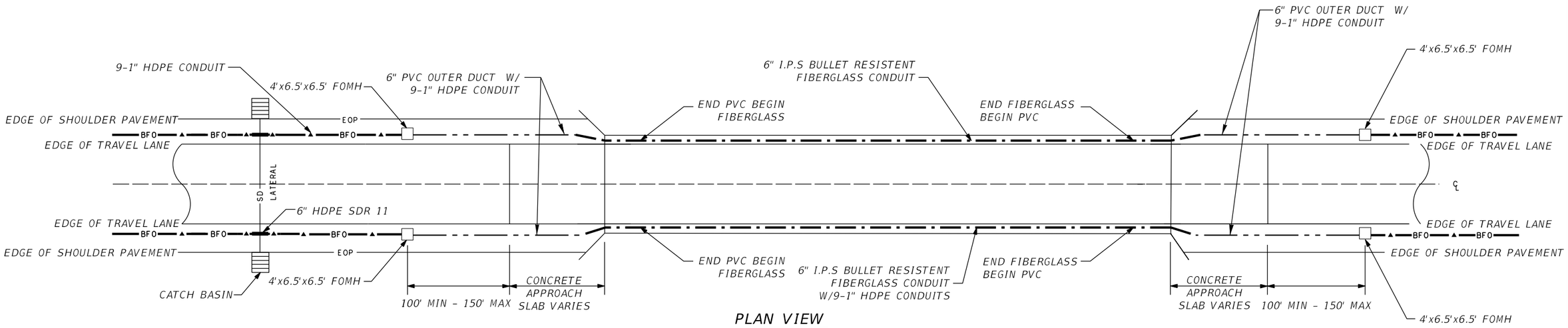
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DIRECTIONAL BORE DETAIL ITS DEVICE DROP	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					B-4

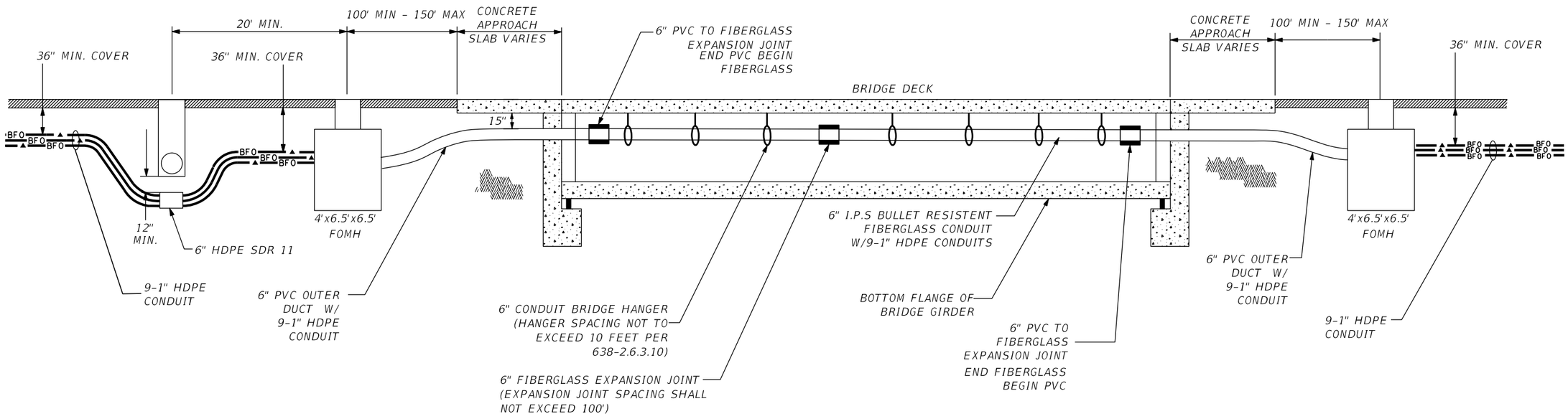
MARCH 2026

2/27/2026 10:23:31 AM

TYPICAL BRIDGE APPROACH ATTACHMENT DETAIL



PLAN VIEW



PROFILE

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TYPICAL BRIDGE APPROACH DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					C-1

MARCH 2026

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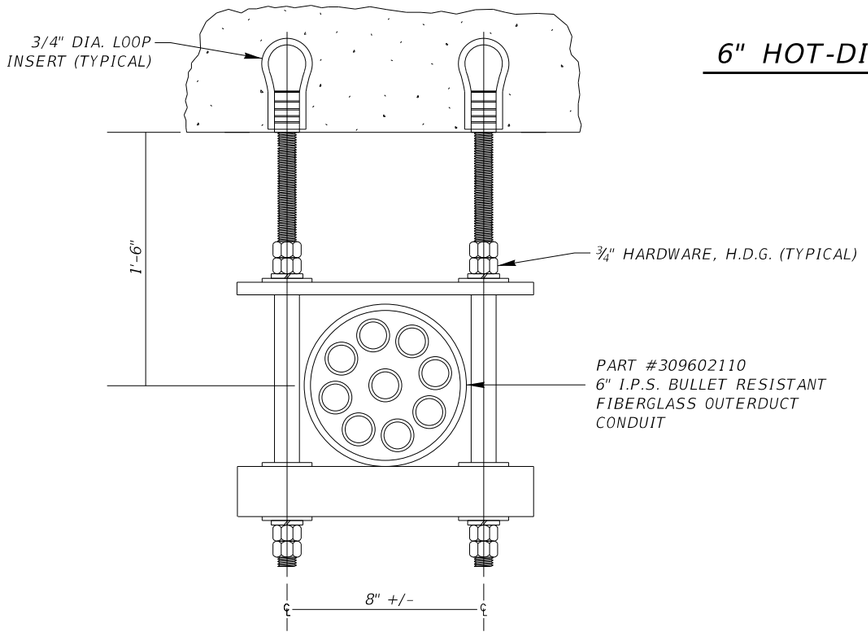
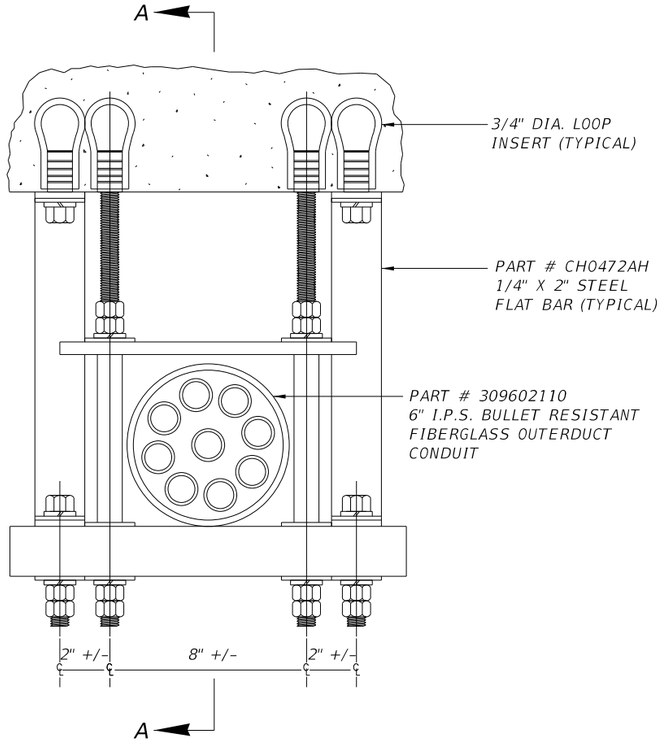
6" HOT-DIPPED GALVANIZED UNISTRUT BRIDGE HANGERS



INTERMEDIATE SUPPORT HANGER
PART #CHO472AG



ANCHOR POINT SUPPORT HANGER
PART #CHO472AH
FRONT VIEW

NOTES:

1. THE FIBER OPTIC CABLE (FOC) SHALL BE CONTAINED WITHIN A 6" DIAMETER I.P.S. BULLET RESISTANT FIBERGLASS OUTERDUCT CONDUIT AS MANUFACTURED BY OPTI-COM MANUFACTURING NETWORK, INC. (OMNI), PART #309602110 OR APPROVED EQUAL.

2. THE HANGER SUPPORT ASSEMBLIES SHALL BE OMNI PART #CHO472AG. THE HANGER ANCHOR ASSEMBLY SHALL BE OMNI PART #CHO472AH OR APPROVED EQUAL.

3. THE MAXIMUM ANCHORING HANGER SPACING SHALL NOT EXCEED 10 FEET AND THE EXPANSION JOINT SHALL BE PLACED AT EVERY 100 FEET MAXIMUM, OR WITHIN 5 FEET OF A PIER OR ABUTMENT PER SPECFICATION 638-2.6.3.10.

4. HANGER INSERTS SHALL BE 3/4" HOT DIP GALVANIZED LOOP INSERTS, HAVING A SAFE WORKING LOAD OF 1.5 KIP TENSION AND 2.7 KIP SHEAR MINIMUM. AT CONTRACTORS OPTION, OTHER METHODS OF SECURING HANGERS TO DECK UNDERSIDE MAY BE ACCEPTABLE PROVIDED THAT:

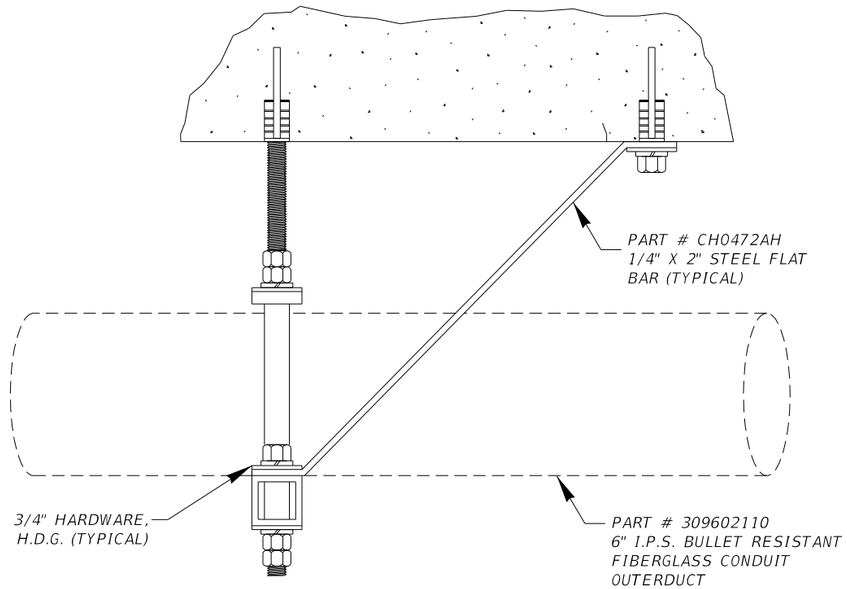
   A. CALCULATIONS FOR THE HANGER SYSTEM ARE INCLUDED.
   B. SHOP DRAWINGS ARE SIGNED AND SEALED BY A FLORIDA PROFESSIONAL ENGINEER AND ARE SUBMITTED FOR APPROVAL BY THE ENGINEER OF RECORD.

5. THE INSTALLATION OF HANGER INSERTS SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

6. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE FOLLOWING ITEMS:

   A. INSERT AND HANGER LAYOUT
   B. CATALOG CUTS FOR HANGER AND ANCHOR ASSEMBLIES.

7. INSERTS AND THREADED RODS ARE INCLUDED IN BRIDGE CONSTRUCTION. PAYMENT SHALL BE INCLUDED IN THE PRICE BID FOR SUPERSTRUCTURE CONCRETE FOR THE INDIVIDUAL BRIDGES. LOCATION OF INSERTS TO BE DETERMINED BY CONTRACTOR.



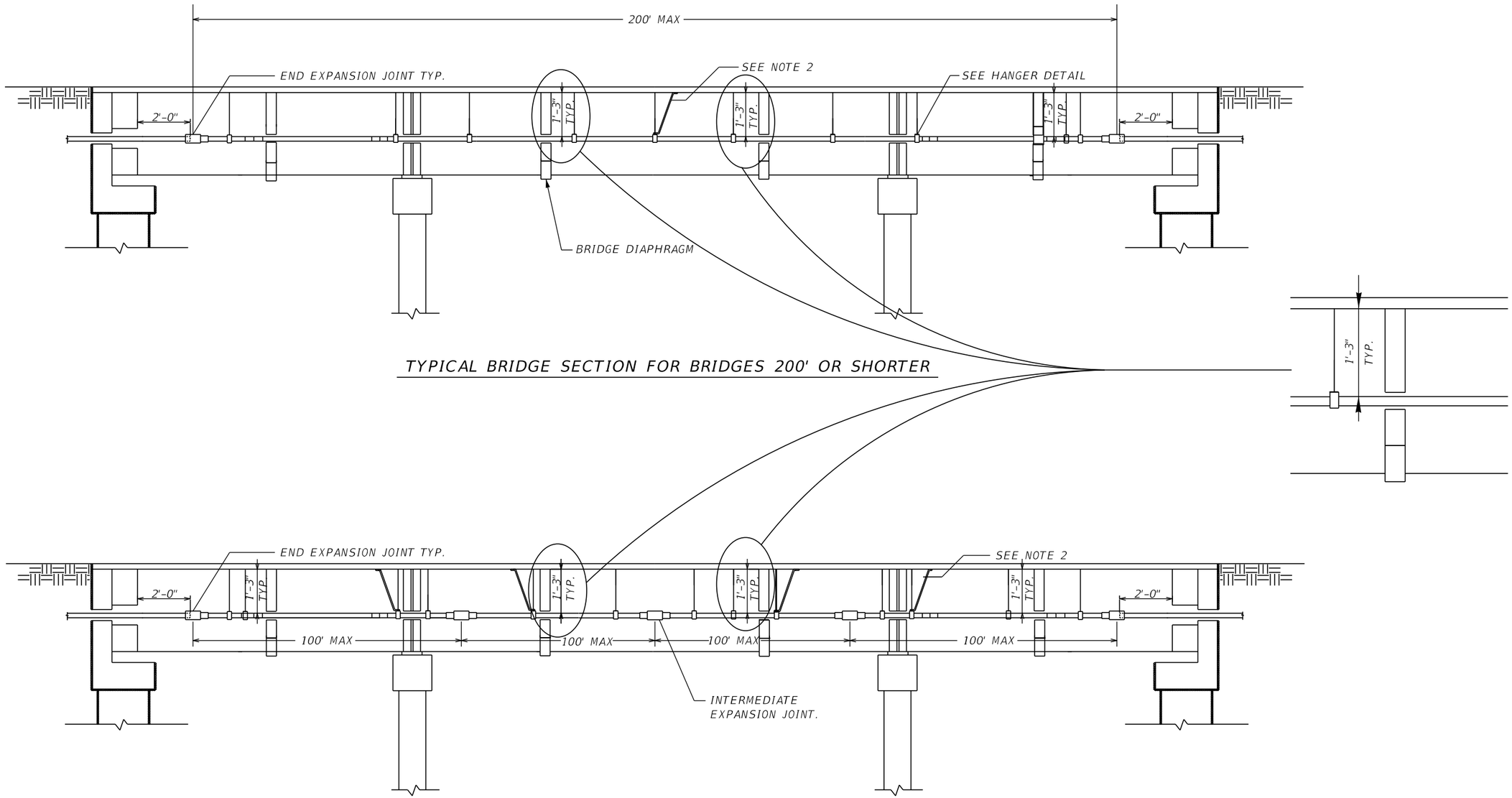
SECTION A-A

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	BRIDGE HANGER DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					C-2

MARCH 2026

2/27/2026 10:23:31 AM



TYPICAL BRIDGE SECTION FOR BRIDGES 200' OR SHORTER

TYPICAL BRIDGE SECTION FOR BRIDGES 200' OR LONGER

NOTES:

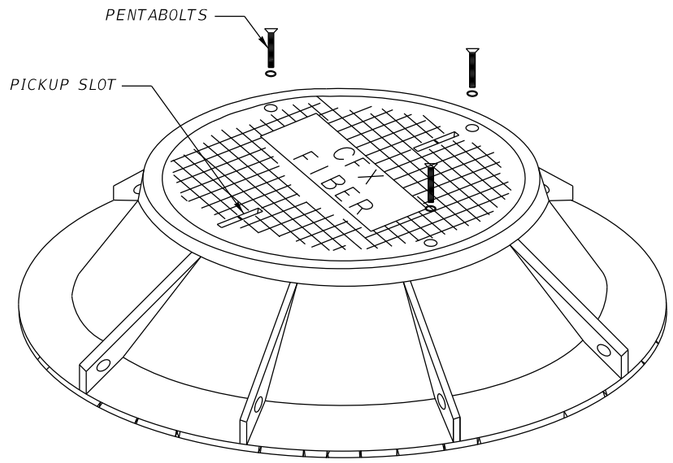
1. SEE BRIDGE HANGER DETAIL SHEET FOR ANCHORING HANGER AND EXPANSION JOINT SPACING.
2. LATERAL MOVEMENT IS FIXED AT MID SPAN BETWEEN EXPANSION JOINT BY USE OF HANGER BRACE.

NTS

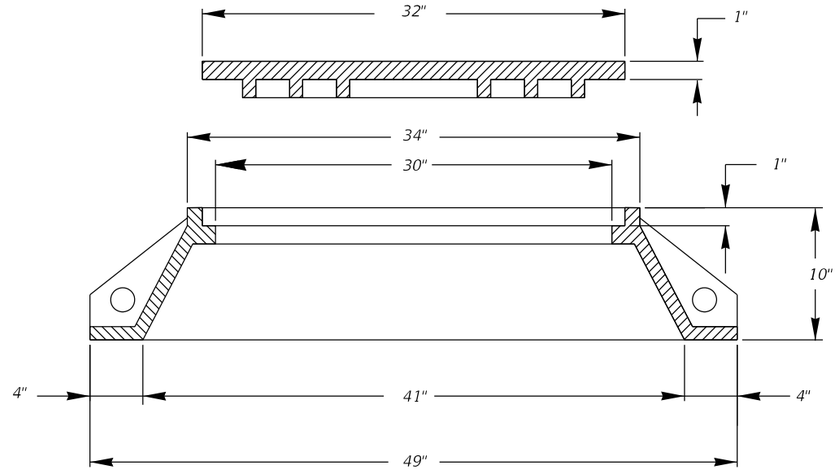
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBERGLASS EXPANSION JOINT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					C-3

MARCH 2026

2/27/2026 10:23:32 AM



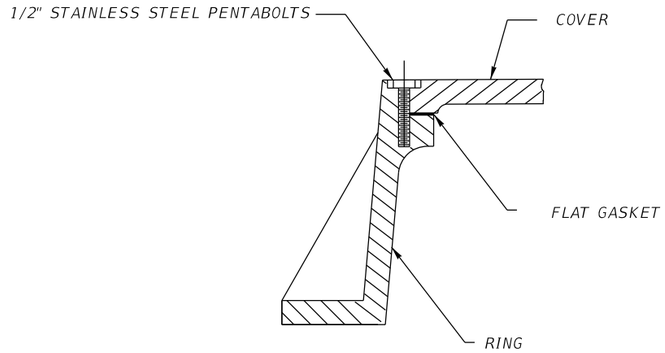
MANHOLE RING AND COVER



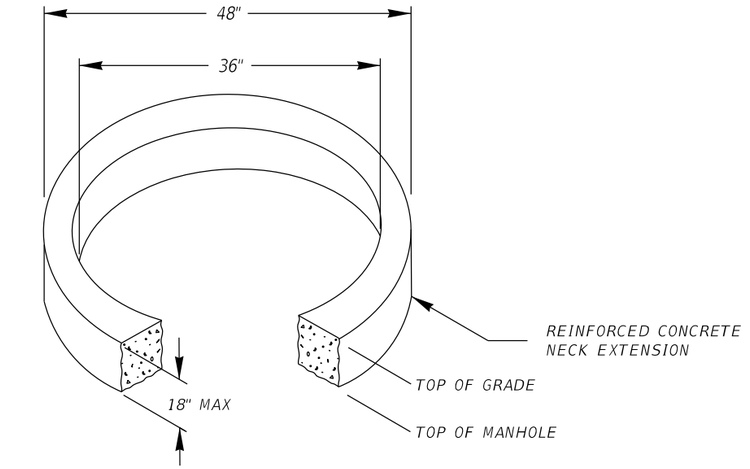
RING AND COVER DETAIL

NOTES:

1. EACH COVER TO HAVE (2) PICKUP SLOTS FOR REMOVING.
2. THE LETTERS "CFX FIBER" SHALL BE STAMPED ON COVER.
3. ACCESS HOLE: 30".
4. MANHOLE RING AND COVER SHALL CONFORM TO HS-20-44 TRAFFIC RATED-HEAVY DUTY LOAD RATING.
5. ANCHOR RING TO MANHOLE TOP SHALL BE SECURED BY 1/2" GALVANIZED BOLTS.
6. MANHOLE RING AND COVER TO BE WATERTIGHT AND GROUNDED TO COMMON GROUND.
7. ALL MATERIAL SHALL CONFORM TO ASTM-A48 CLASS 35B GRAY IRON.
8. CEMENT BRICK AND MORTAR MAY BE USED WHERE NEEDED TO ADJUST THE MANHOLE RING AND COVER TOT HE PROPER SLOPE AND GRADE WHEN INSTALLED IN THE PAVED SHOULDER.



BOLTED WATERTIGHT DETAIL



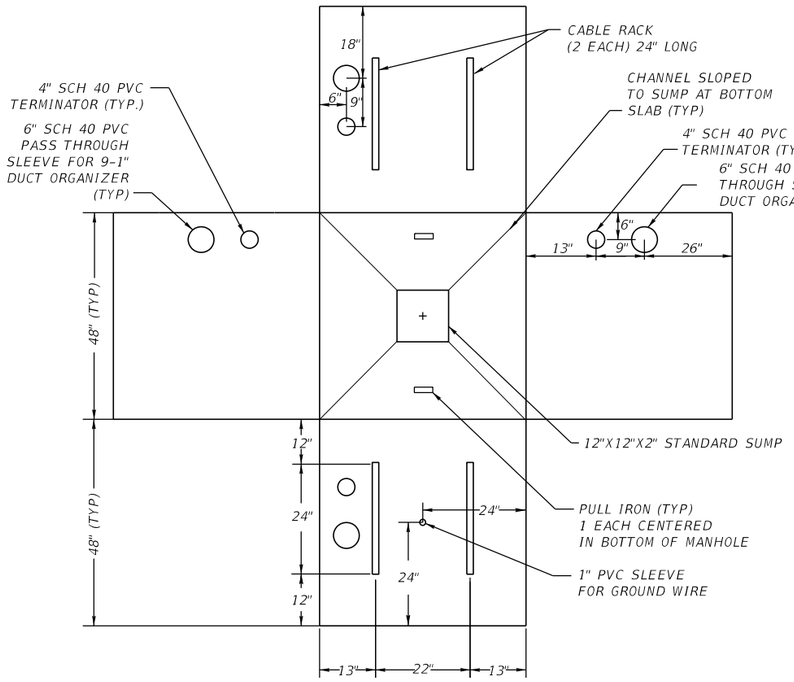
TYPICAL NECK EXTENSION DETAIL

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC MANHOLE COVER DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					D-1

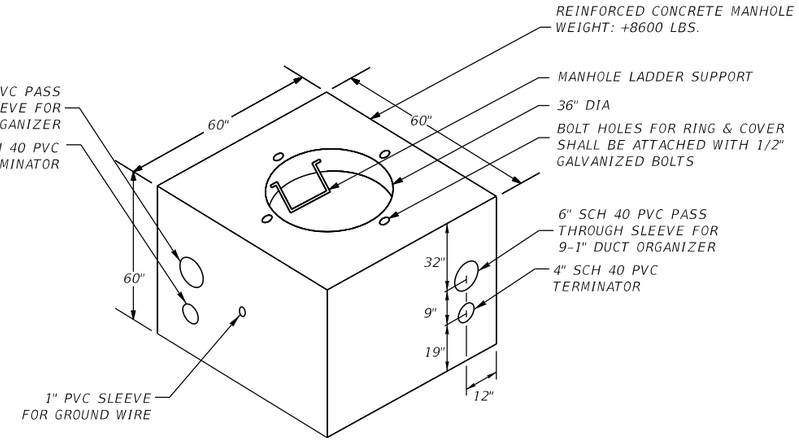
MARCH 2026

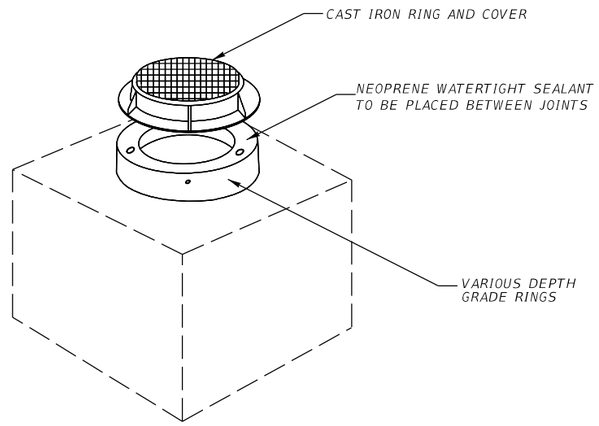
2/27/2026 10:23:32 AM



4'X4'X4' MANHOLE
6" WALLS, TOP AND FLOOR
48" HEADROOM

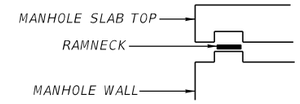
DIMENSIONS SHOWN ARE INNER DIMENSIONS





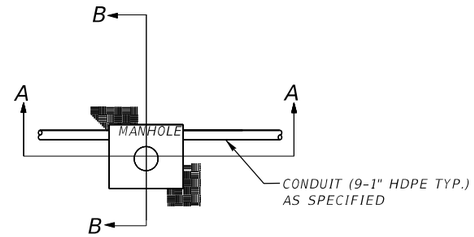
60" OD SQUARE MANHOLE

DIMENSIONS SHOWN ARE OUTER DIMENSIONS

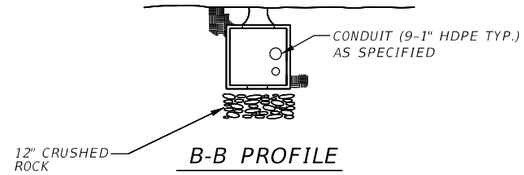


RING & COVER GENERAL NOTES - SEE SHEET D-1

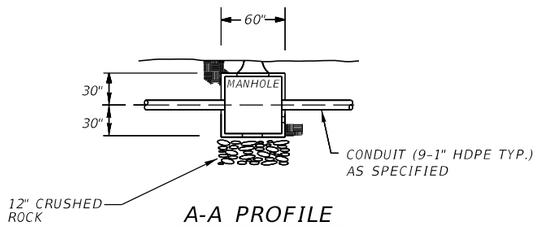
MANHOLE JOINT CONFIGURATION



PLAN



B-B PROFILE



A-A PROFILE

NOTES:

1. CONTRACTOR SHALL SUBMIT PRECAST CONCRETE MANHOLE AND RING WEIR CUT SHEETS AND CAPACITIES VERIFICATIONS FOR ENGINEER'S REVIEW AND APPROVAL
2. MANHOLE SHALL CONFORM TO HL93 FULL VEHICULAR LOADING.
3. ALL MANHOLES SHALL BE PROVIDED WITH AN INWESCO SERIES I-3600 OR EQUIVALENT LADDER THAT EXTENDS TO THE FLOOR.
4. ALL UNUSED ACCESS POINT SHALL BE EQUIPPED WITH COMPRESSION TYPE SNUG PLUGS OR PRECAST TERMINATORS.
5. ALL MANHOLES SHALL BE PLACED WITH COVER FLUSH WITH FINISHED GRADE ON PAVED SHOULDER. MANHOLE COVERS SHALL BE BOLTED IN PLACE WITH STAINLESS STEEL TAMPER-RESISTANT PENTABOLTS.
6. GROUND RODS SHALL BE INSTALLED OUTSIDE OF MANHOLE AND #6 BARE WIRE SHALL BE BROUGHT INTO MANHOLE THROUGH THE 1" PVC SLEEVE ON SIDE OF MANHOLE.
7. ALL MANHOLES SHALL HAVE 12" OF ½" CRUSHED ROCK PLACED UNDER MANHOLES.
8. ALL MANHOLE PENETRATIONS SHALL BE SEALED WITH NON SHRINK GROUT TO PREVENT WATER INGRESS.
9. MANHOLE WALL THICKNESS SHALL BE A MINIMUM OF 6".
10. RAMNECK SHALL BE USED TO SEAL ALL MANHOLE JOINTS.
11. CABLE RACKS SHALL BE INSTALLED USING 1/2" x 2½" GALVANIZED MACHINE BOLTS AND GALVANIZED ANCHORS CAST INTO THE WALLS. A MINIMUM OF EIGHT (8) CABLE RACK HOOKS FOR THE 4' X 4' X 4' MANHOLE AND A MINIMUM OF TWELVE (12) CABLE RACK HOOKS FOR THE 4' X 6.5' X 6.5' MANHOLE SHALL BE PROVIDED IN ACCORDANCE WITH 636-2.3.1.9.1. FIBER OPTIC CABLES SHALL BE STORED ON CABLE RACK HOOKS.
12. THE CONTRACTOR SHALL INSTALL THE TONE WIRE AND COIL 20' OF SLACK IN THE MANHOLE. THE CONTRACTOR SHALL ENSURE THAT NO DAMAGE OCCURS TO THE TONE WIRE DURING THE INSTALLATION PROCESS.
13. ALL CONDUITS ENTERING A MANHOLE SHALL EXTEND A MINIMUM OF 18" INTO THE MANHOLE TO ALLOW FOR CONTRACTION. NO CONDUIT SHALL BE CUT BACK TO THE EDGE OF THE MANHOLE.

NTS

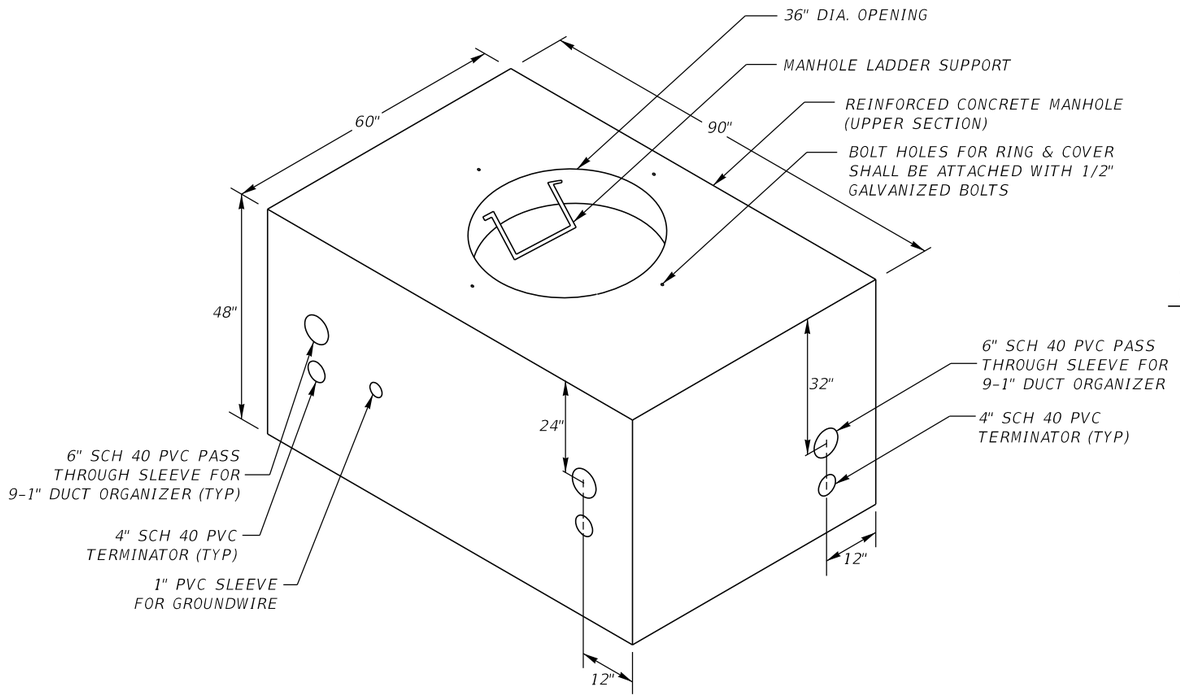
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

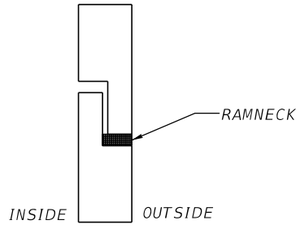
FIBER OPTIC MANHOLE DETAIL 4' X 4' X 4'

SHEET NO. D-2

MARCH 2026

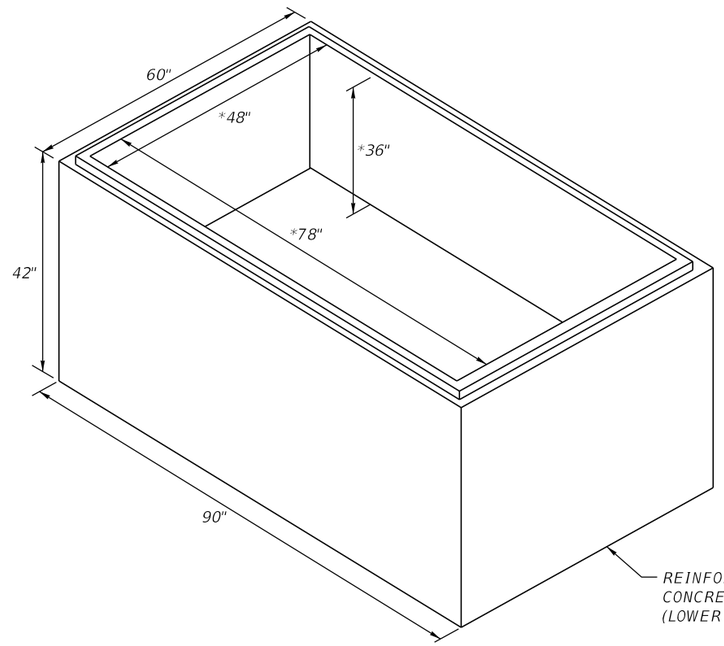
2/27/2026 10:23:32 AM

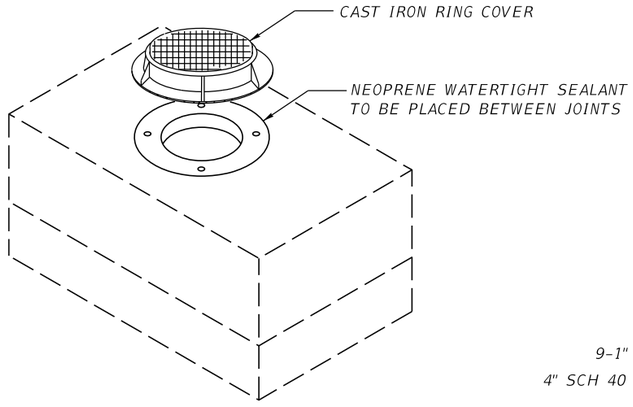




MANHOLE JOINT CONFIGURATION

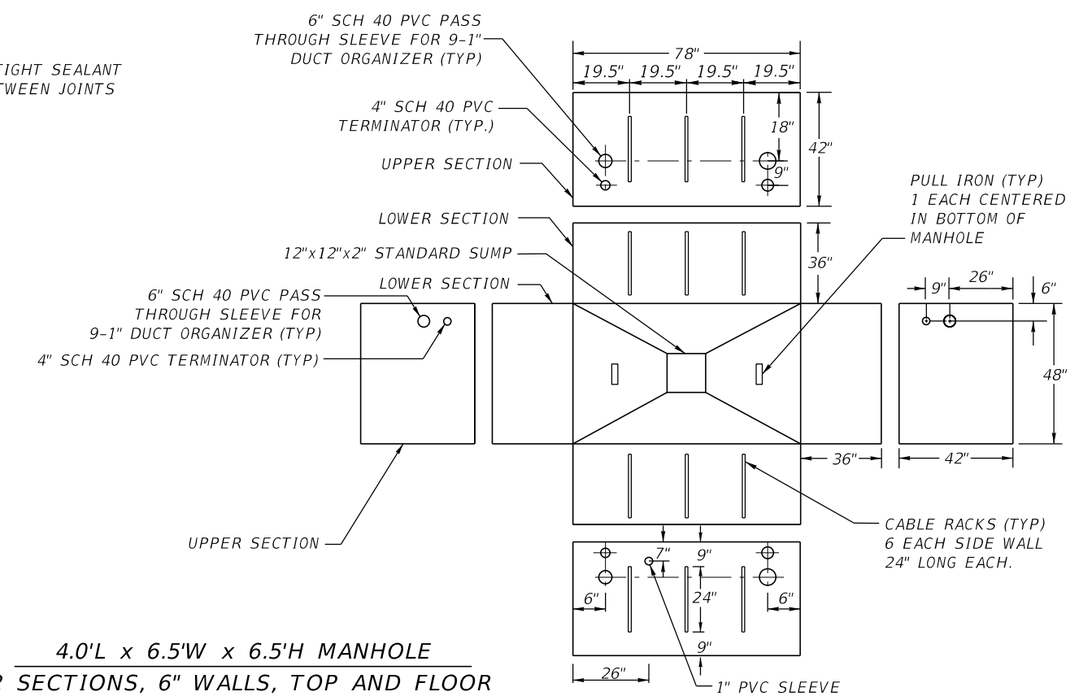
NOTES:
ADD NOTES FROM SHEET D-2





60"L X 90"W X 90"H OD RECTANGULAR MANHOLE
42"H LOWER & 48"H UPPER SECTION

DIMENSIONS SHOWN ARE OUTER DIMENSIONS
(*) INNER DIMENSIONS



4.0'L x 6.5'W x 6.5'H MANHOLE
2 SECTIONS, 6" WALLS, TOP AND FLOOR
78" HEADROOM
DIMENSIONS SHOWN ARE INNER DIMENSIONS

NTS

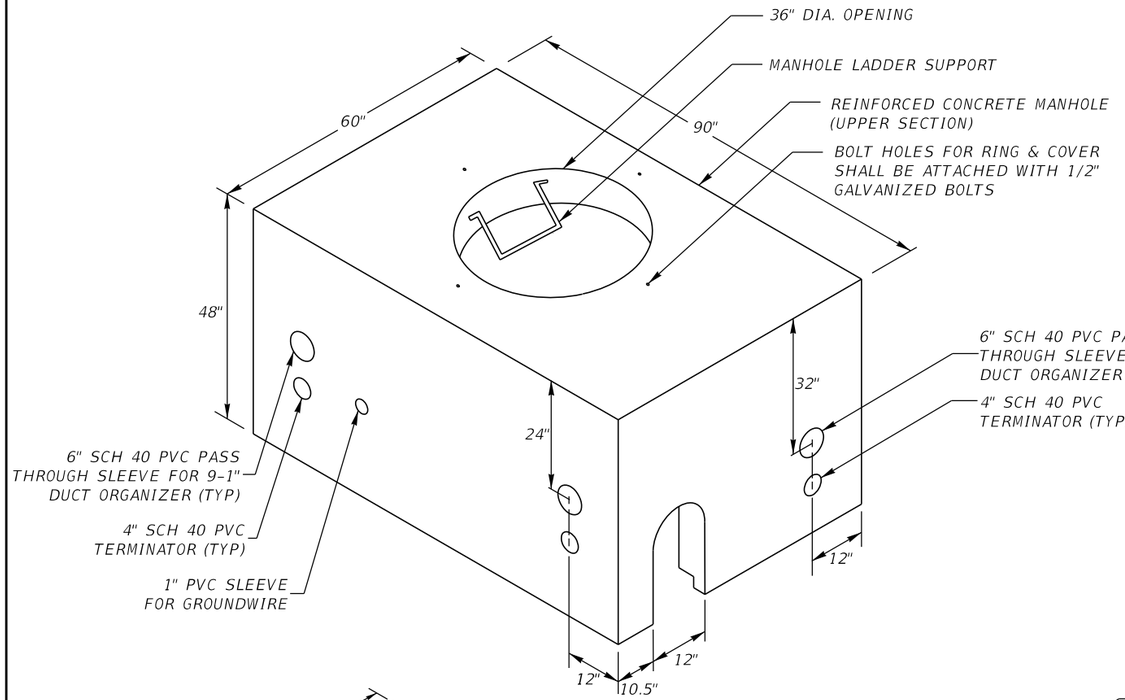
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

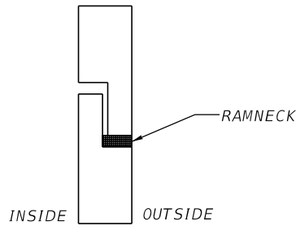
FIBER OPTIC MANHOLE DETAIL 4.0' X 6.5' X 6.5'

SHEET NO. D-3

MARCH 2026

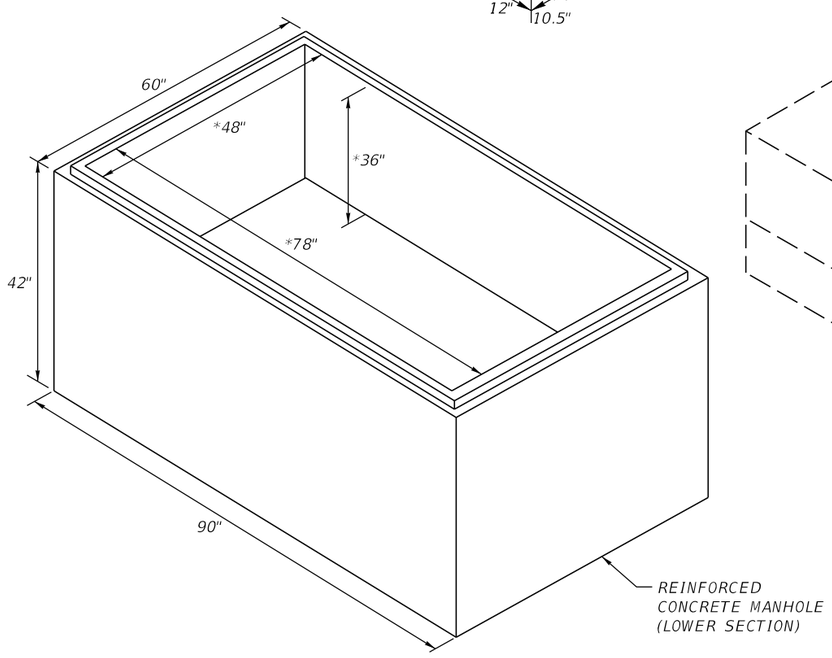
2/27/2026 10:23:33 AM





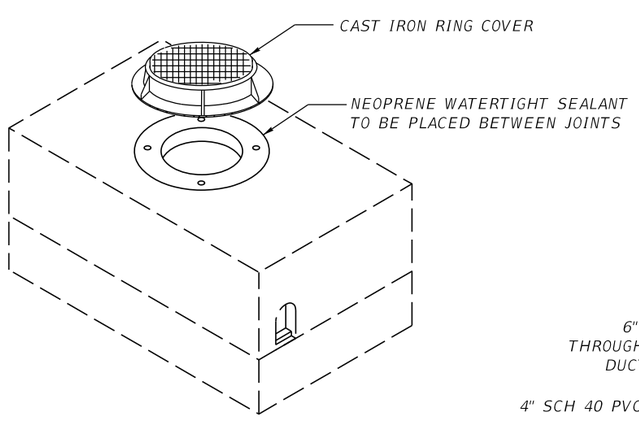
MANHOLE JOINT CONFIGURATION

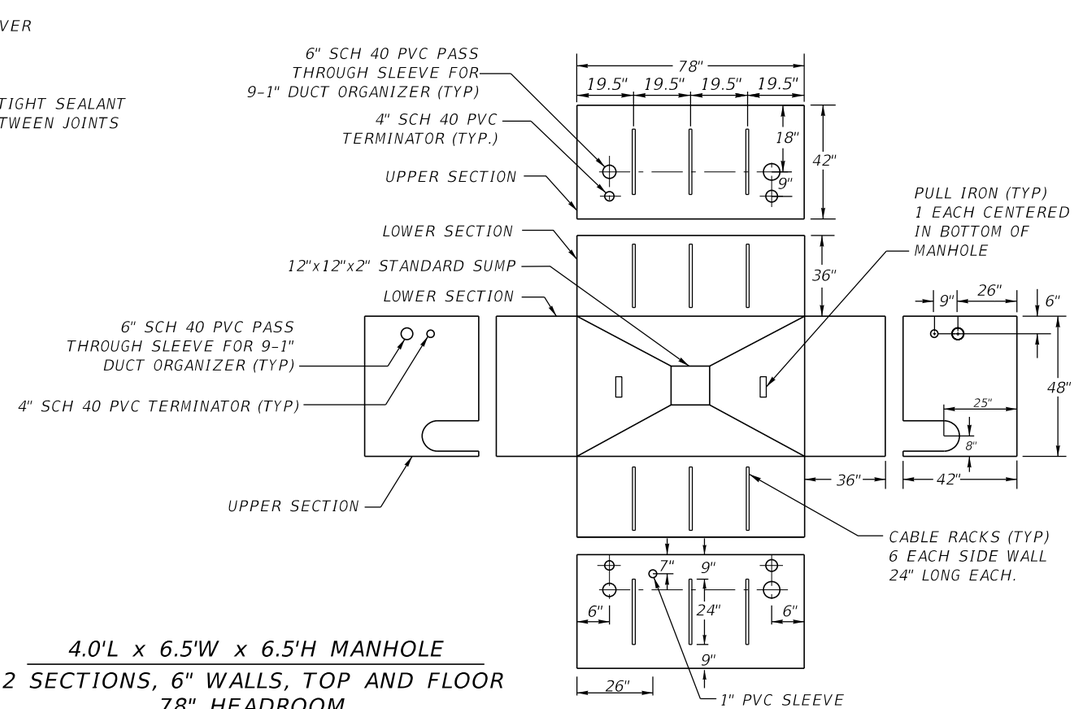
NOTES:
ADD NOTES FROM SHEET D-2
14. FIBER OPTIC MANHOLE INNER DUCT ORGANIZER SHOULD BE ROUTED THROUGH THE DOGHOUSE.



60"L X 90"W X 90"H OD RECTANGULAR MANHOLE
42"H LOWER & 48"H UPPER SECTION

DIMENSIONS SHOWN ARE OUTER DIMENSIONS
(*) INNER DIMENSIONS





4.0'L x 6.5'W x 6.5'H MANHOLE
2 SECTIONS, 6" WALLS, TOP AND FLOOR
78" HEADROOM
DIMENSIONS SHOWN ARE INNER DIMENSIONS

NTS

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

FIBER OPTIC MANHOLE DETAIL 4.0' X 6.5' X 6.5' (DOGHOUSE)

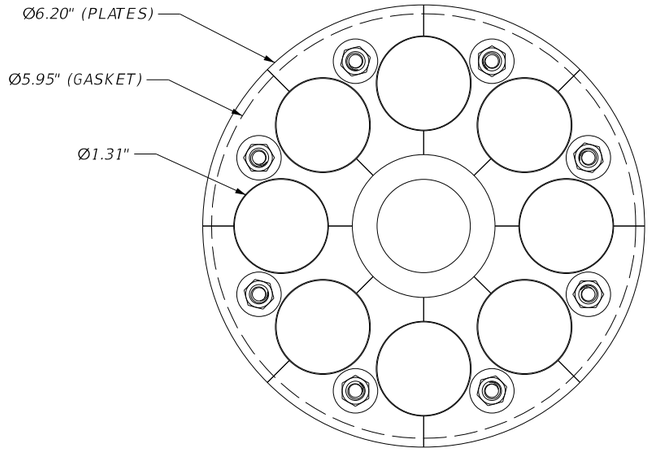
SHEET NO. D-4

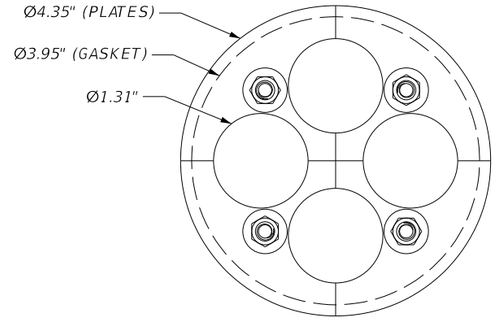
MARCH 2026

2/27/2026 10:23:33 AM

TOP VIEW

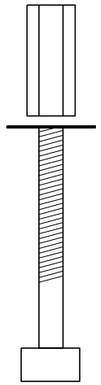
PLUG USES 8-3½" X ¼" STAINLESS STEEL BOLTS WITH COUPLER NUTS TO BOTH HOLD THE PIECE TOGETHER AND PROVIDE COMPRESSION WHEN INSTALLED.



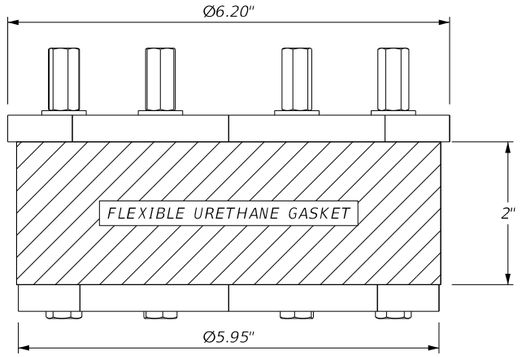


SIDE VIEW

GASKET IS SLIT AND PLATES ARE IN SECTIONS TO ALLOW UNFOLDING OF THE ENTIRE PLUG AND WRAPPING AROUND THE INNER CONDUITS.

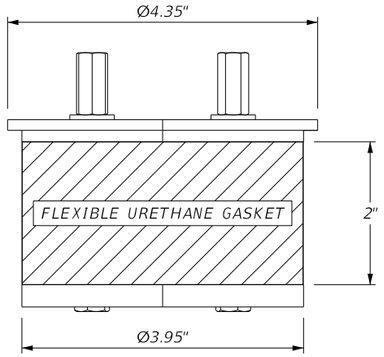


SZ-595-9131L



6"- 9(1") DUCT ORGANIZER

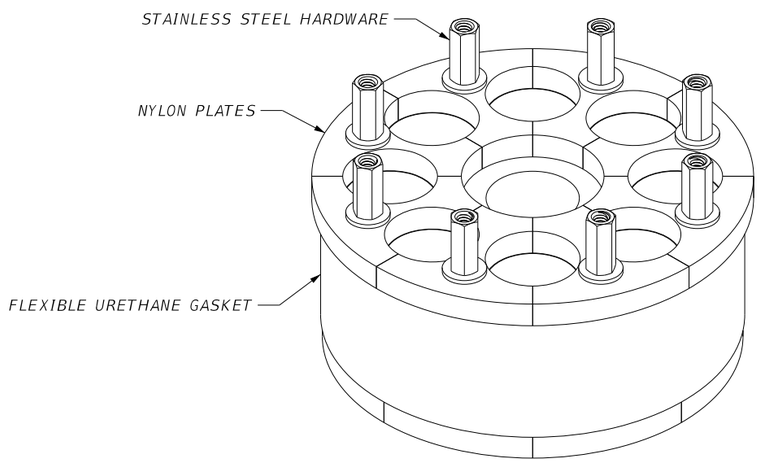
SZ-395-4131

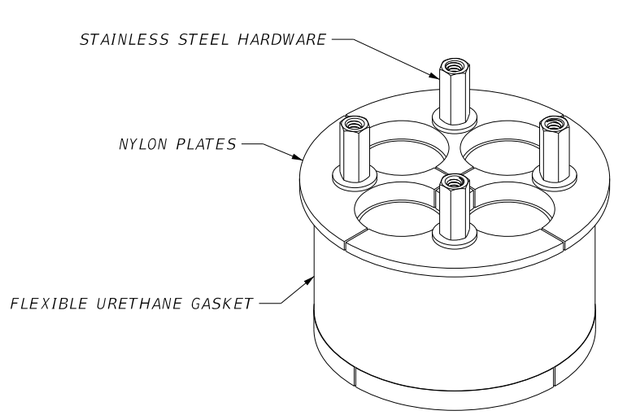


4"- 4(1") DUCT ORGANIZER

ISOMETRIC VIEW

HOLES THROUGH THE GASKET CAN BE FORMED TO ANY SIZE UP TO 1.315" DIAMETER.





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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC MANHOLE INNERDUCT ORGANIZER	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					D-5

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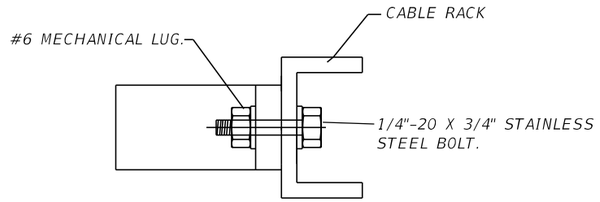
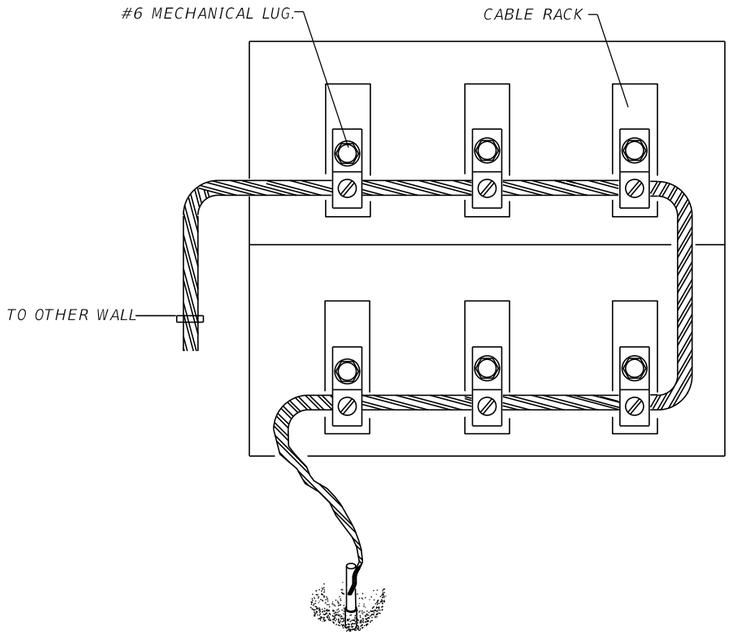
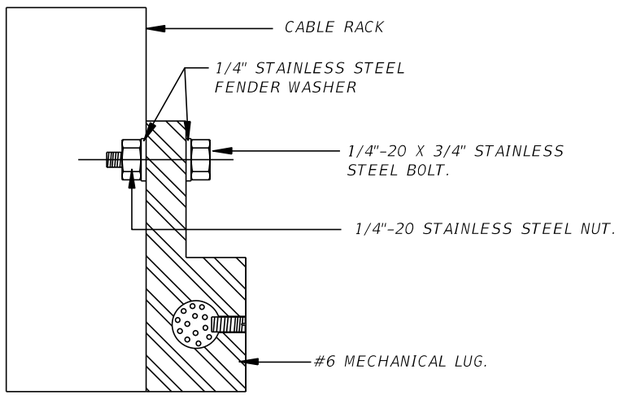
BONDING & GROUNDING DETAIL



MECHANICAL LUG
PLAN VIEW



MANHOLE GROUNDING
TYPICAL WALL



MECHANICAL LUG
PROFILE VIEW

NOTES:

1. GROUND RODS SHALL HAVE A RESISTANCE TO GROUND NOT TO EXCEED 25 OHM.
2. ALL CONNECTIONS BETWEEN BARE COPPER GROUNDING WIRE AND GROUND ROD SHALL BE EXOTHERMIC WELD PER MANUFACTURER STANDARDS.
3. #6 AWG GROUND WIRE TO BE ROUTED THROUGH 1" PVC SLEEVE IN SIDEWALL OF MANHOLE AND EXOTHERMICALLY WELDED TO THE GROUNDING ELECTRODE.
4. THE #6 BARE COPPER GROUNDING WIRE SHALL BE ROUTED ALONG THE INSIDE PERIMETER WALL OF THE MANHOLE CONNECTING TO EACH CABLE RACK AND SHALL BE SECURELY ATTACHED ON EACH END OF THE MANHOLE WITH A MECHANICAL LUG. THE GROUNDING WIRE SHALL NOT BE ROUTED ACROSS THE MANHOLE OR IN ANY OTHER FASHION THAT WOULD IMPEDE THE INGRESS OR EGRESS OF THE MANHOLE OR THE INSTALLATION AND STORAGE OF THE FIBER OPTIC CABLE.

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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC MANHOLE GROUNDING DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					D-6

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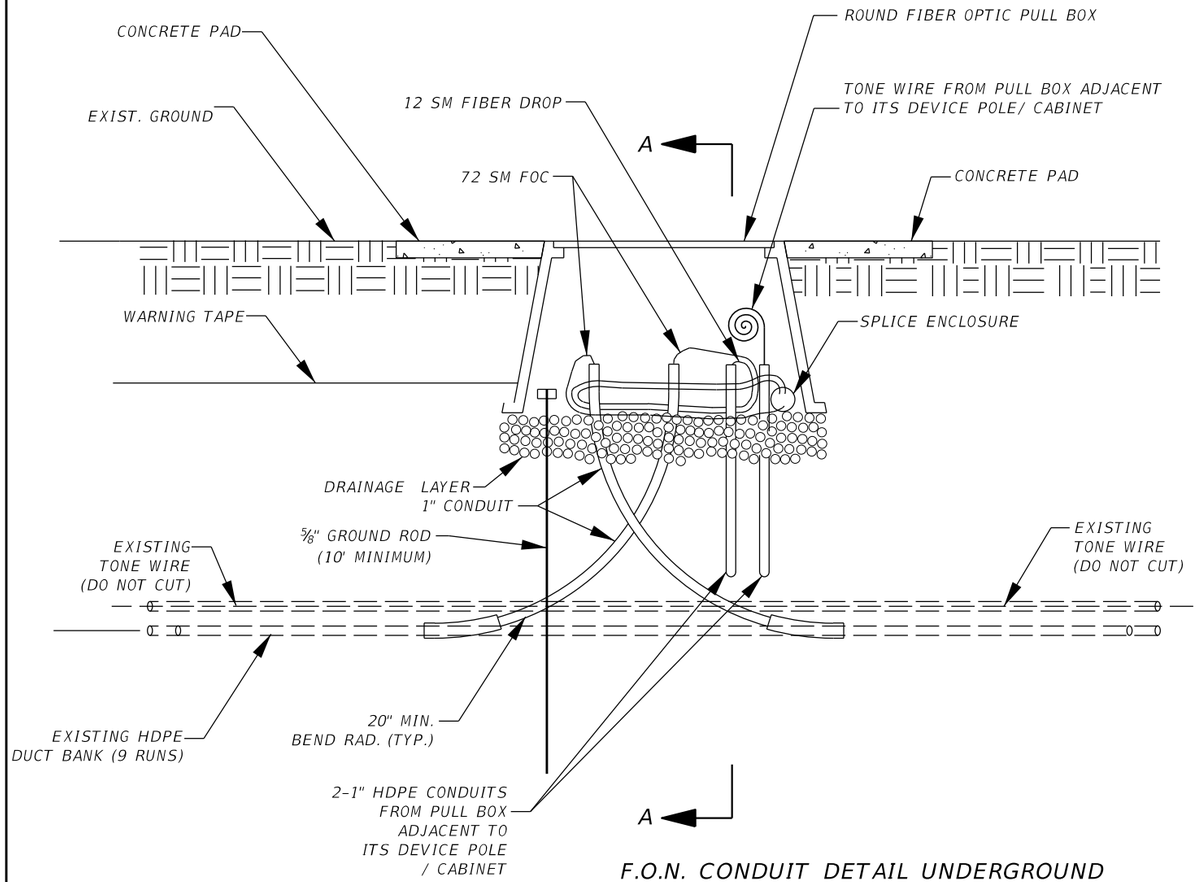
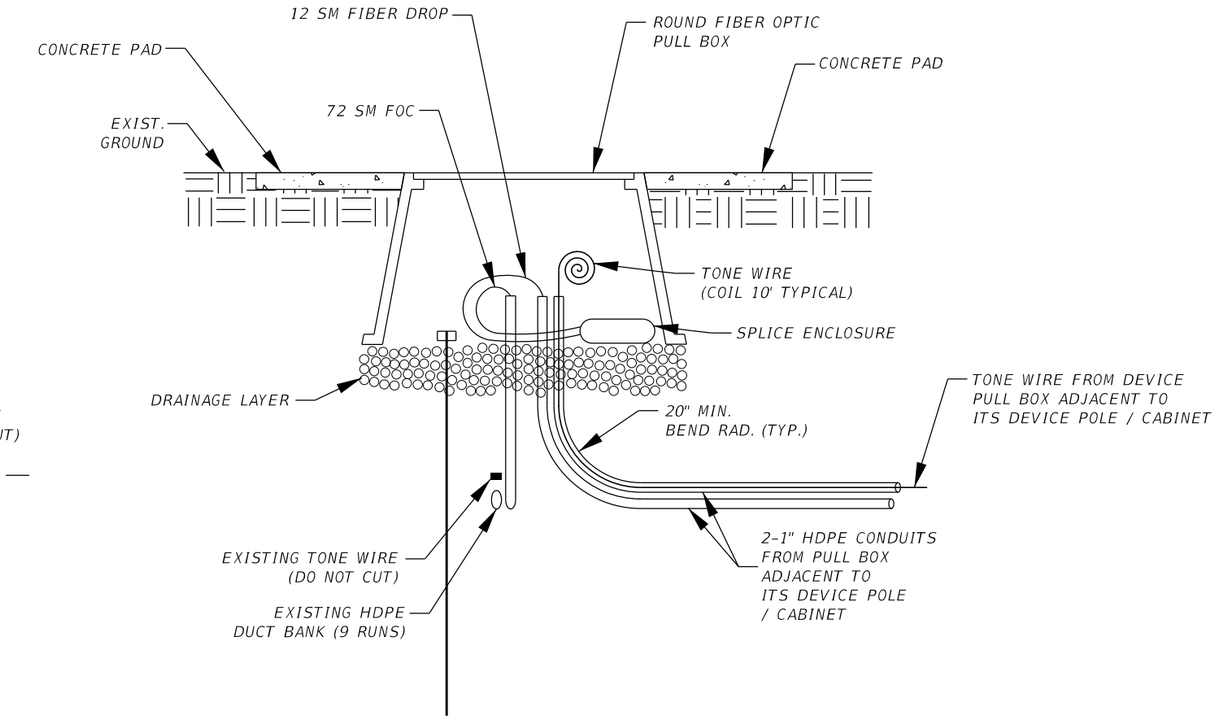


F.O.N. CONDUIT DETAIL UNDERGROUND



SECTION A-A

NOTES:

1. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE EXISTING CONDUIT OR F.O.N. CABLE AND TONE WIRE. ANY DAMAGE SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
2. EXTEND THE FEEDER BLUE CONDUIT INTO THE PULL BOX FOR THE 72 SM FIBER OPTIC CABLE.
3. INSTALLATION OF PULL BOX, ASSOCIATED EQUIPMENT AND MATERIALS SHALL BE PAID UNDER THE PULL BOX PAY ITEM.
4. EXTEND AND COIL TONE WIRE INTO PULL BOX. DO NOT SPLICE INTO EXISTING TONE WIRE.
5. FIBER GLASS LIDS SHALL BE 20,000 LB RATED.
6. TONE WIRE SHALL BE CONTINUOUS RUN FROM PULL BOX TO PULL BOX ADJACENT TO ITS DEVICE POLE/CABINET.
7. FIBER OPTIC PULL BOXES AT EACH END OF THE TONE WIRE RUN SHALL INCLUDE A MINIMUM OF 10 LF OF GROUNDING ELECTRODES.
8. THE TONE WIRE SHALL NOT ENTER INTO THE ITS CABINET BUT TERMINATE IN THE PULL BOX ADJACENT TO THE ITS DEVICE CABINET WITH A COIL OF 10 FEET.
9. CONTRACTOR SHALL CUT WARNING TAPE, IF NECESSARY, 18" FROM THE SURFACE.
10. CONDUIT ENTERING A PULL BOX SHALL EXTEND A MINIMUM OF 2" BUT NO MORE THAN 4" ABOVE THE TOP OF THE DRAINAGE LAYER.
11. THE CONTRACTOR SHALL ENSURE THAT NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS (TOTALING 270 DEGREES) ARE INSTALLED BETWEEN BOXES.

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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC PULL BOX DETAIL TO DEVICE PULL BOX	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					E-1

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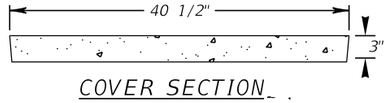
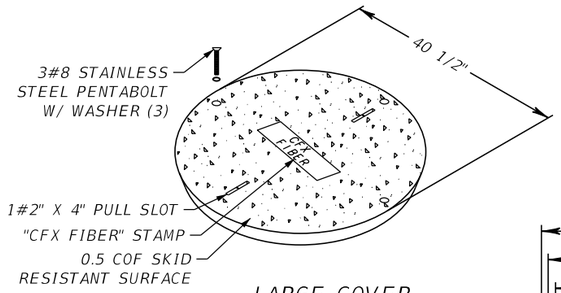
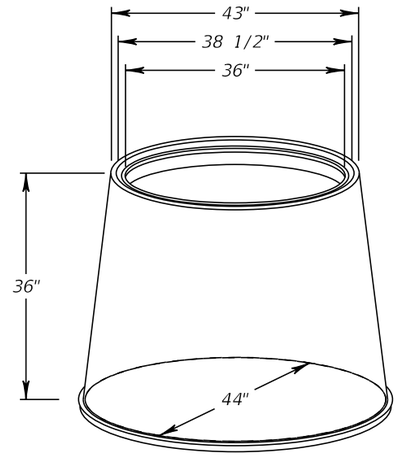
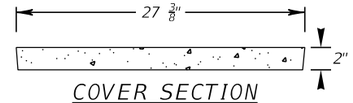


COVER SECTION

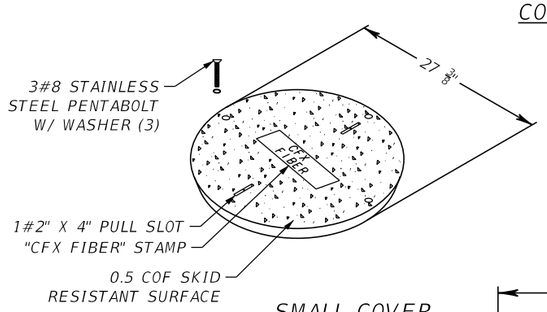


LARGE COVER

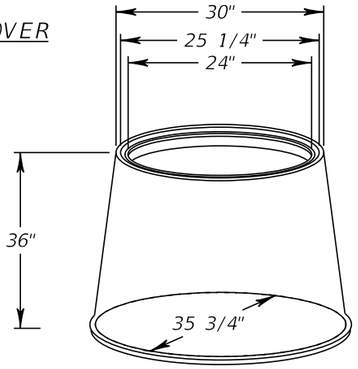




COVER SECTION

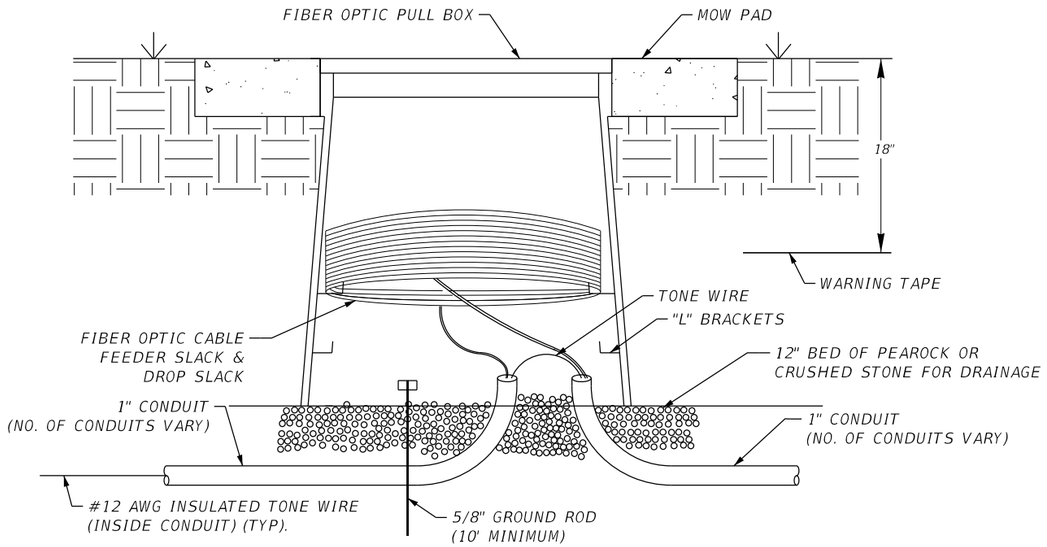


SMALL COVER

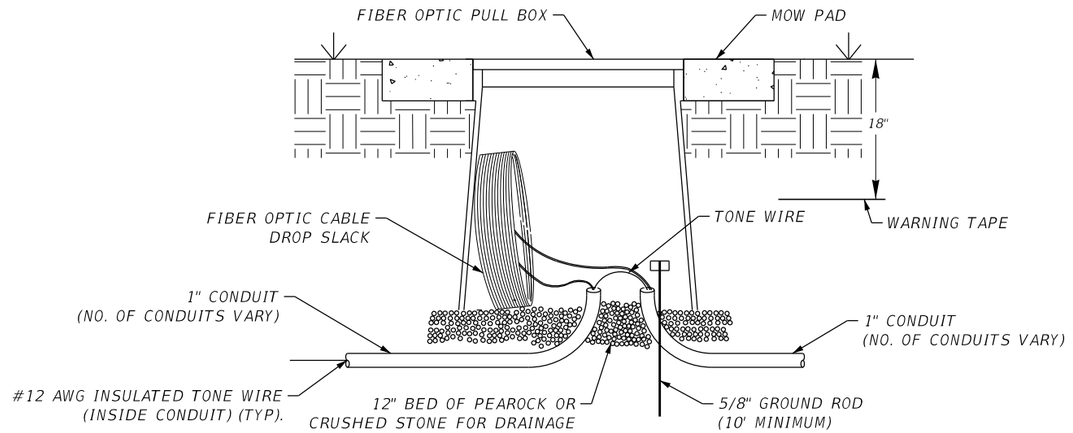


FIBER OPTIC PULL BOX NOTES:

1. *SPARE FIBER OPTIC CABLE IS TO BE WOUND NEATLY AND CAREFULLY, AS NOT TO EXCEED THE MAXIMUM BENDING RADIUS OF THE FIBER OPTIC CABLE.*
2. *FIBER OPTIC PULL BOXES AT EACH END OF THE TONE WIRE RUN SHALL INCLUDE A MINIMUM OF 10 LF OF GROUNDING ELECTRODES.*
3. *CONDUIT ENTERING A PULL BOX SHALL EXTEND A MINIMUM OF 2" BUT NO MORE THAN 4" ABOVE THE TOP OF THE DRAINAGE LAYER.*



FIBER OPTIC LARGE PULL BOX



FIBER OPTIC SMALL PULL BOX
(DEVICE PULL BOX)

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

FIBER OPTIC PULL BOX DETAILS

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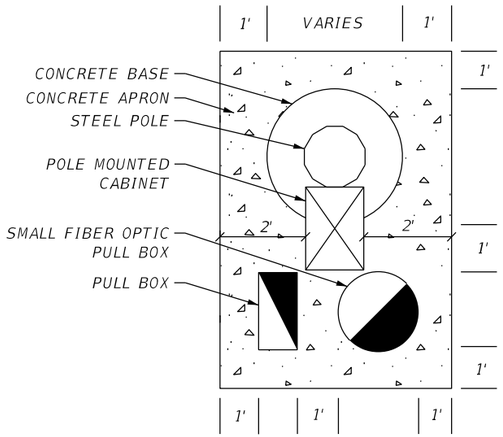
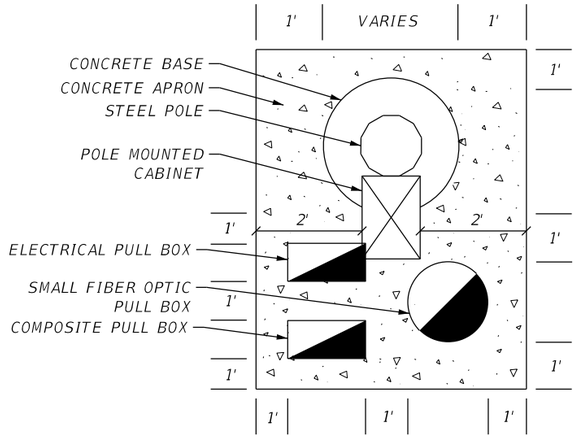
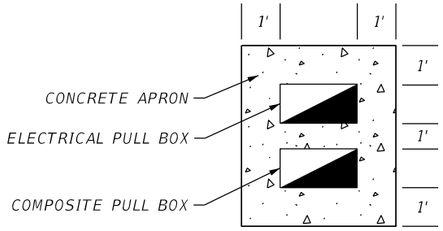
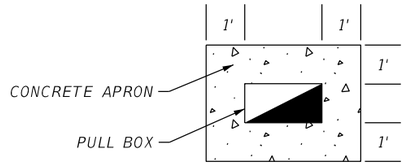
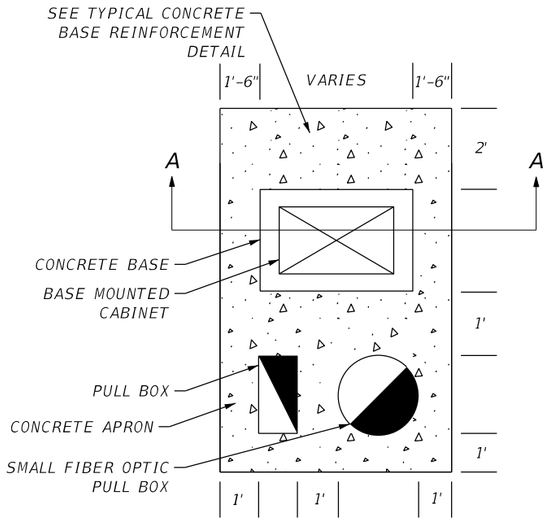
CONCRETE MOW PAD DETAILS

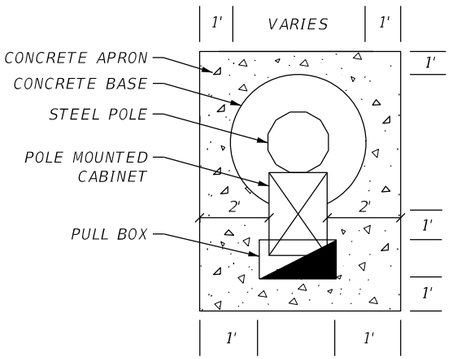


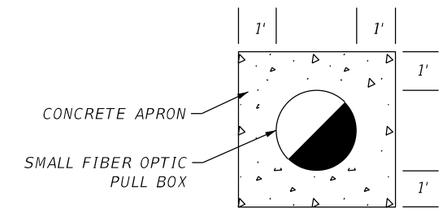


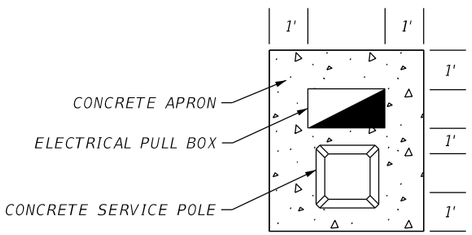


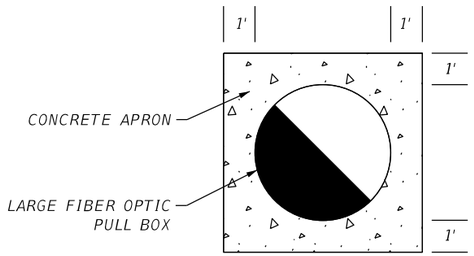




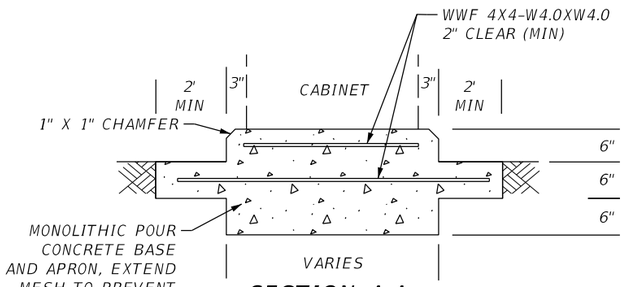




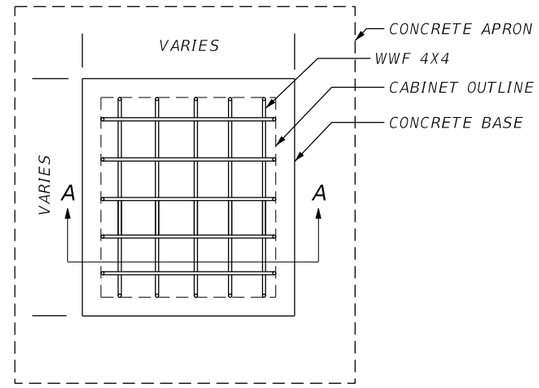




NOTES:
1. ALL DIMENSIONS ARE MINIMUM REQUIRED SEPARATION.
2. ALL CONCRETE MOW PADS SHALL BE SIX (6) INCHES THICK. CABINET BASE SHALL EXTEND SIX (6) INCHES ABOVE GRADE.
3. MOW PADS SHALL BE SLOPED AWAY FROM THE CENTER OF CABINET, PULL BOXES AND POLES WITH A SLOPE 1/4" TO 1".
4. CONDUIT SWEEPS SHALL BE CAST IN PLACE FOR THE CABINET BASE AND POLE BASE. CONDUITS NOT SHOWN.



SECTION A-A



PLAN VIEW

TYPICAL CONCRETE BASE REINFORCEMENT DETAILS

NOTE:
1. REINFORCEMENT STEEL SHALL BE ASTM A615, GRADE 60.

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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TYPICAL CONCRETE PULL BOX MOW PAD DETAILS

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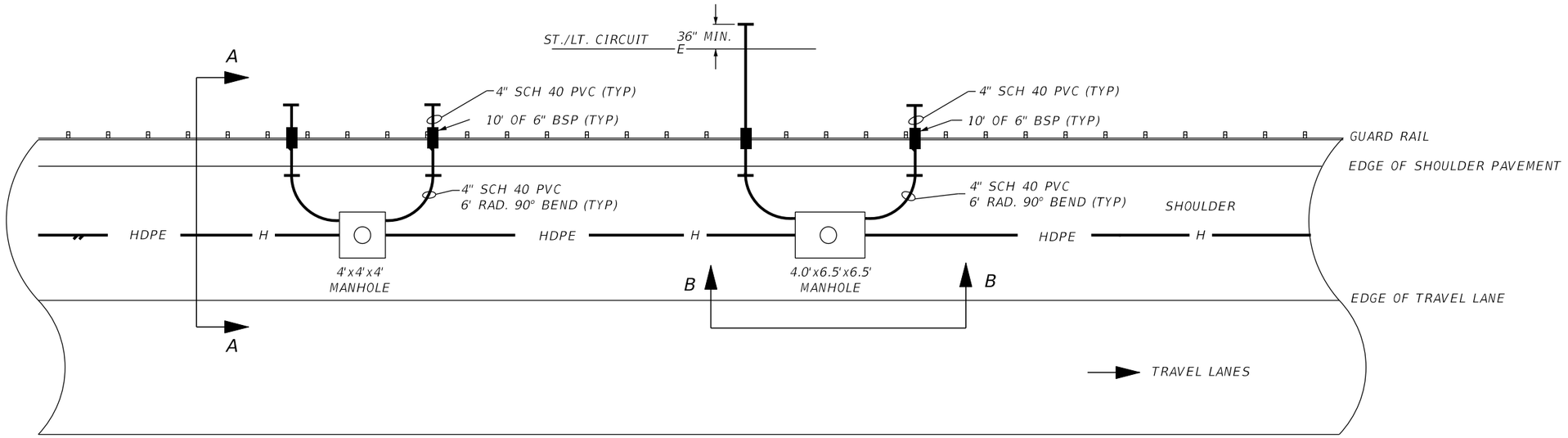
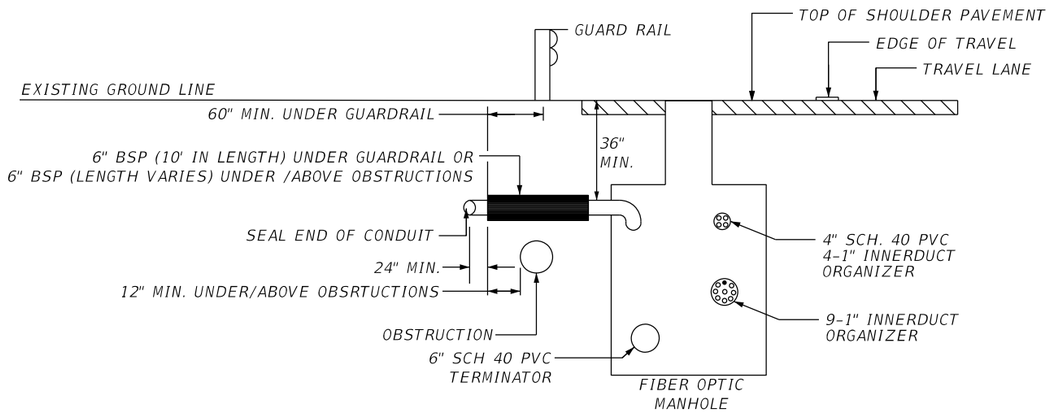
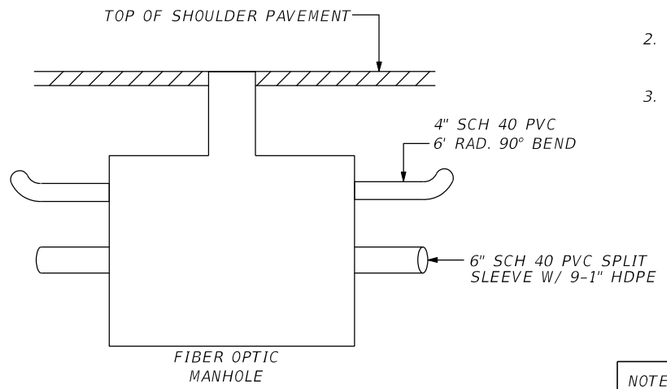
LATERAL CONDUIT FROM MANHOLE DETAIL



PLAN VIEW



SECTION A-A



SECTION B-B

NOTES:

1. ALL MANHOLES INSTALLED UNDER THE PAVED SHOULDER REQUIRE 4" LATERAL CONDUIT AS SHOWN IN DETAILS ABOVE.
2. THE 4" LATERAL CONDUIT SHALL BE EQUIPPED WITH 4-1" HDPE AND SHALL EXTEND A MINIMUM OF 24" BEYOND BSP.
3. LATERAL CONDUITS SHALL BE SEALED IN MANHOLE AND AT END OF CONDUIT.

NOTE TO EOR:
1. FOR EXISTING INFRASTRUCTURE USE SBSP. FOR NEW INFRASTRUCTURE USE BSP.
2. EOR IS TO PLACE APPLICABLE PAY ITEM ON EACH MANHOLE LOCATED WITHIN THE SHOULDER.

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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC MANHOLE STUBOUT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					E-4

MARCH 2026

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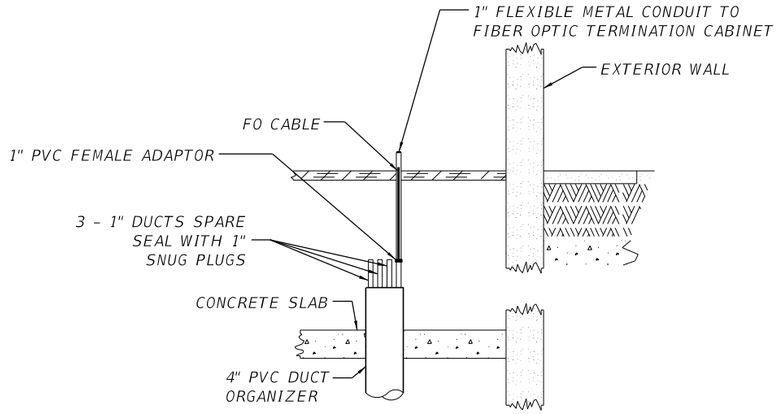
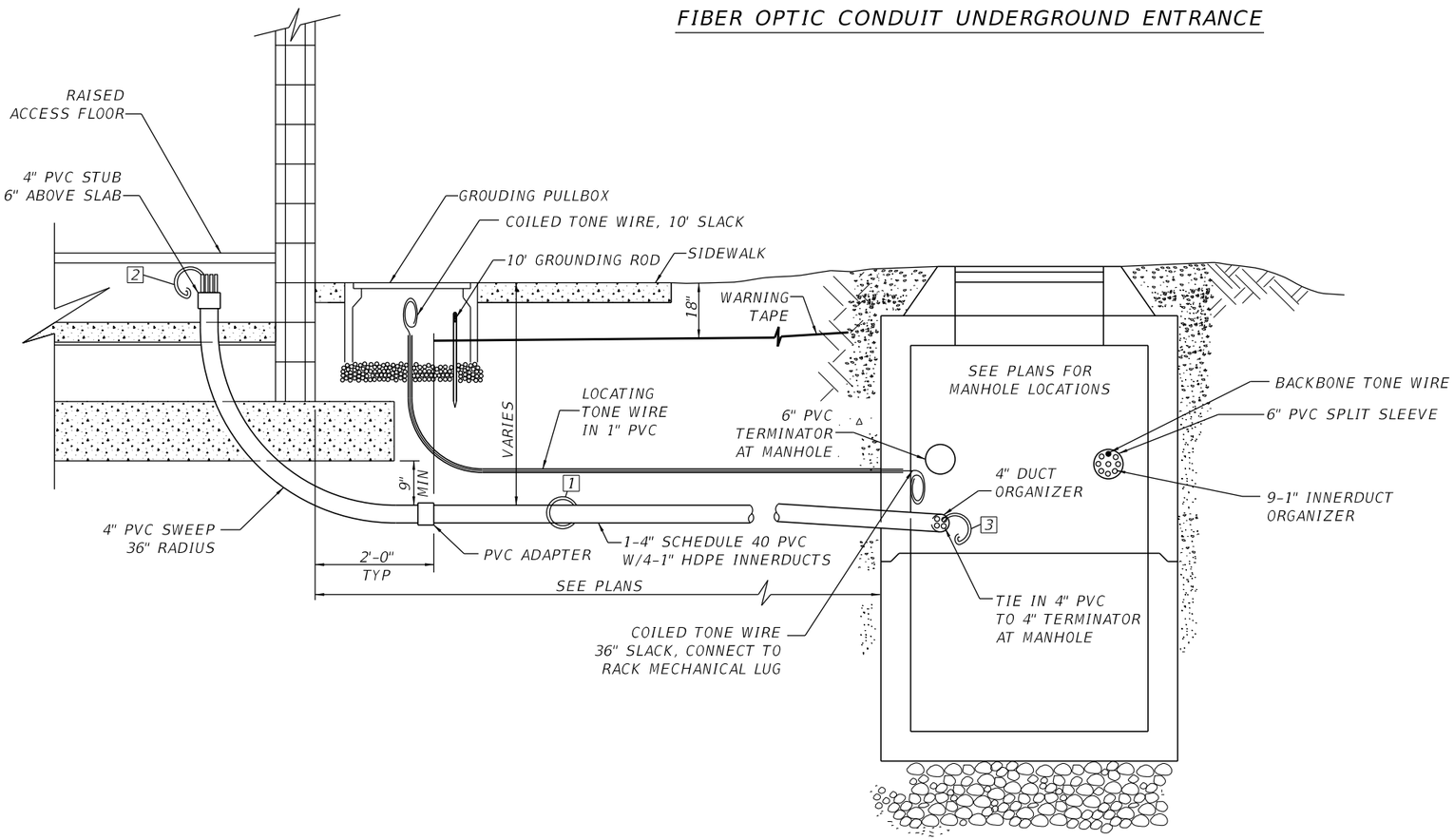


FIBER OPTIC CONDUIT UNDERGROUND ENTRANCE

NOTES:

1. HAND DIG AS NEEDED TO EXPOSE ANY EXISTING UTILITIES.
2. ALL CONDUITS TO EXTEND A MINIMUM OF 12" FROM THE INNERDUCT ORGANIZER.
3. IF CONDUIT TO BE INSTALLED IS LESS THAN 36" DEEP:
   A. USE RGC OR
   B. CONCRETE ENCASED WITH 3" OF 3000 PSI CONCRETE
4. ALL CONCRETE PENETRATIONS AROUND CONDUITS SHALL BE WATERPROOF.
5. PAYMENT FOR THE 9-1" INNERDUCT ORGANIZER SHALL BE CONSIDERED INCIDENTAL TO THE COST OF FON SYSTEM INSTALLATION.
6. LATERAL TONE WIRE SHALL BE LOCATED IN THE 1" PVC CONDUIT BETWEEN THE MANHOLE AND THE GROUNDING PULL BOX.



FIBER OPTIC CONDUIT JUNCTION BOX ENTRANCE AT TOLL PLAZA

REFERENCE NOTES:

[1] INSTALL FIBER OPTIC CABLE 72 SINGLE MODE.

[2] LEAVE 100' OF SLACK FIBER OPTIC CABLE COILED UNDER RAISED FLOOR.

[3] LEAVE 100' OF SLACK FIBER OPTIC CABLE COILED IN UTILITY VAULT.

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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC NETWORK TOLL PLAZA ENTRANCE DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					E-5

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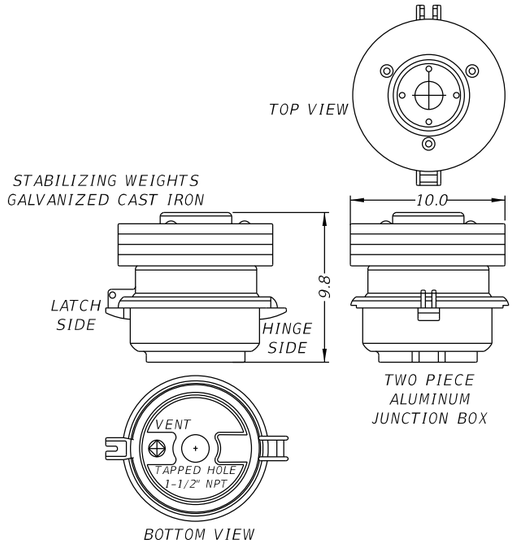
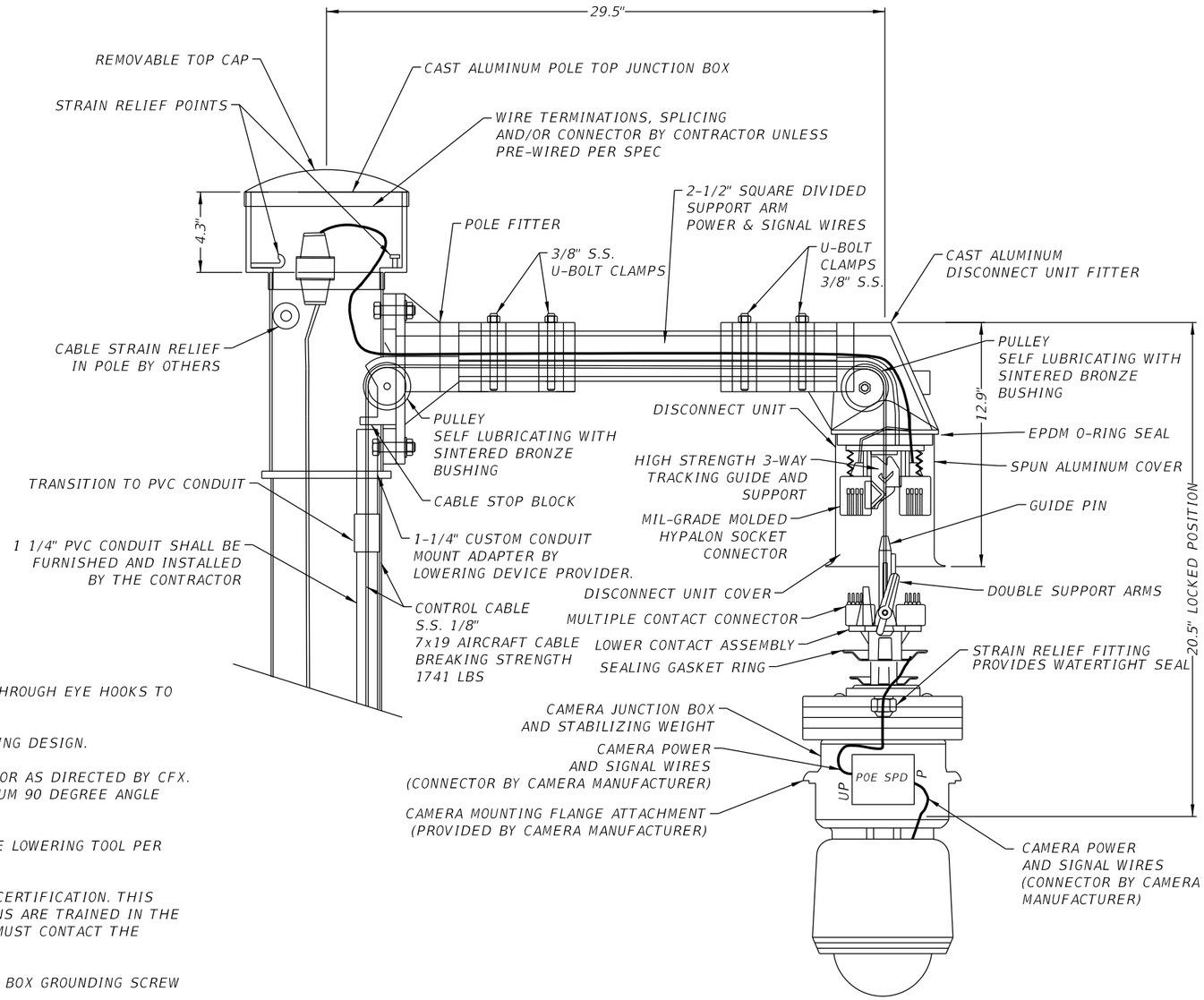


CAMERA JUNCTION BOX



NOTES:

1. INTERNAL CAMERA SUPPLY CABLES RUN THROUGH THE INSIDE OF THE POLE SHALL BE INSTALLED THROUGH EYE HOOKS TO PREVENT INTERFERENCE WITH LOWERING MECHANISM CABLE, UNLESS OTHERWISE NOTED.
2. CAMERA LOWERING DEVICE DETAILS ARE REPRESENTATIVE AND DO NOT REFLECT ACTUAL ENGINEERING DESIGN.
3. LOWERING ARM SHALL BE MOUNTED PERPENDICULAR TO THE ROADWAY OR AS SHOWN IN THE PLANS OR AS DIRECTED BY CFX. THE CCTV POLE SHALL BE POSITIONED SO THAT THE CAMERA CAN BE SAFELY LOWERED AT A MINIMUM 90 DEGREE ANGLE AWAY FOMR THE HAND HOLE.
4. [MG]2 INC. PART NO. MG2-LWR-6 FOR THE PORTABLE LOWERING TOOL WITH MANUAL HAND CRANK. ONE LOWERING TOOL PER EVERY 10 POLES IS REQUIRED.
5. [MG]2 INC. PART NO. CLDMG2-ON SITE IS FOR ON SITE INSTALLATION/OPERATION INSTRUCTION AND CERTIFICATION. THIS ENSURES THE PRODUCT IS ASSEMBLED CORRECTLY AND MORE IMPORTANTLY ALL NECESSARY PERSONS ARE TRAINED IN THE PROPER SAFE OPERATION OF THE SYSTEM. PRIOR TO ERECTING THE FIRST POLE THE CONTRACTOR MUST CONTACT THE LOWERING DEVICE SUPPLIER AND SCHEDULE FOR A FACTORY REPRESENTATIVE TO BE ON SITE.
6. THE SPD WITHIN THE CAMERA JUNCTION BOX SHALL BE ELECTRICALLY GROUNDED TO THE JUNCTION BOX GROUNDING SCREW BY A #10 GREEN INSULATED WIRE.
7. CAMERA LOWERING SYSTEM, [MG]2 INC. MODEL NOS. (DESIGNER TO ENTER MODEL # BASED OFF CFX SPECIFICATIONS) TO INCLUDE POLE TOP J-BOX, MOUNTING HARDWARE, LOWERING CABLE, MOLDED HYPALON CONTACT BLOCK, CAMERA J-BOX AND HOUSING.
8. CAMERA LOWERING DEVICE TO BE SHIPPED READY FOR POLE ATTACHMENT TO INCLUDE ADEQUATE CAT6 CABLE PRE-WIRED TO LOWERING DEVICE AT THE FACTORY. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADEQUATE CABLE LENGTH BETWEEN EACH CCTV LOWERING DEVICE ASSEMBLY.
9. CAMERA LOWERING DEVICE TO BE POWDER COATED FLAT BLACK BY MANUFACTURER.

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REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV CAMERA LOWERING DEVICE DETAIL	SHEET NO. F-1

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DUAL CAMERA LOWERING SYSTEM

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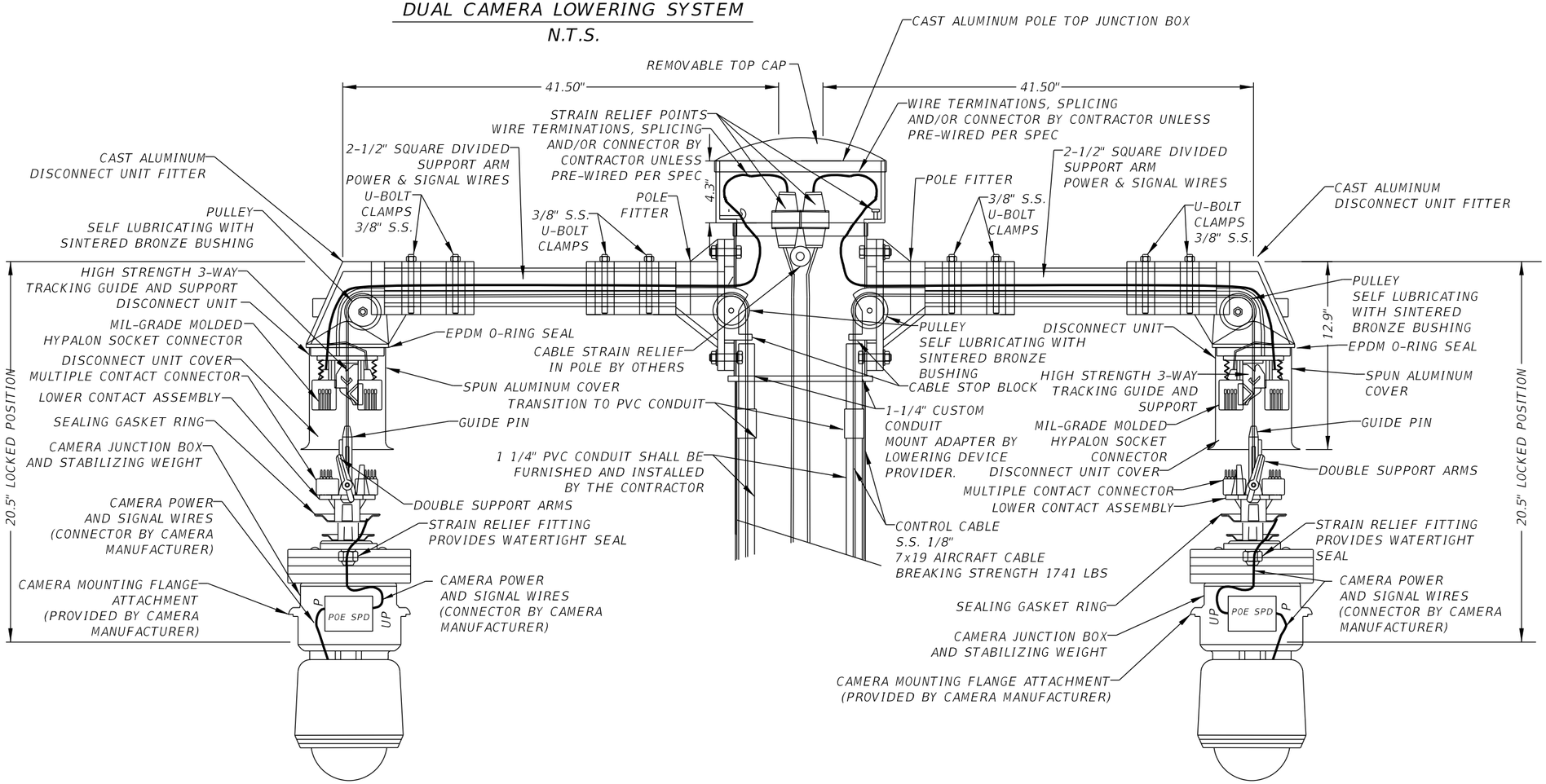

NOTES:

1. CAMERA LOWERING SYSTEM, [MG]2 INC. MODEL NOS. TO BE ENTERED BY DESIGNER BASED OFF CFX SPECIFICATIONS (DUAL) TO INCLUDE POLE TOP J-BOX, MOUNTING HARDWARE, LOWERING CABLE, MOLDED HYPALON CONTACT BLOCK, CAMERA J-BOX, HOUSING, CUSTOM XX FT AS INDICATED IN THE PLANS.

2. SEE SHEET F-1 FOR ADDITIONAL NOTES.

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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DUAL CCTV CAMERA LOWERING DEVICE DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					F-2

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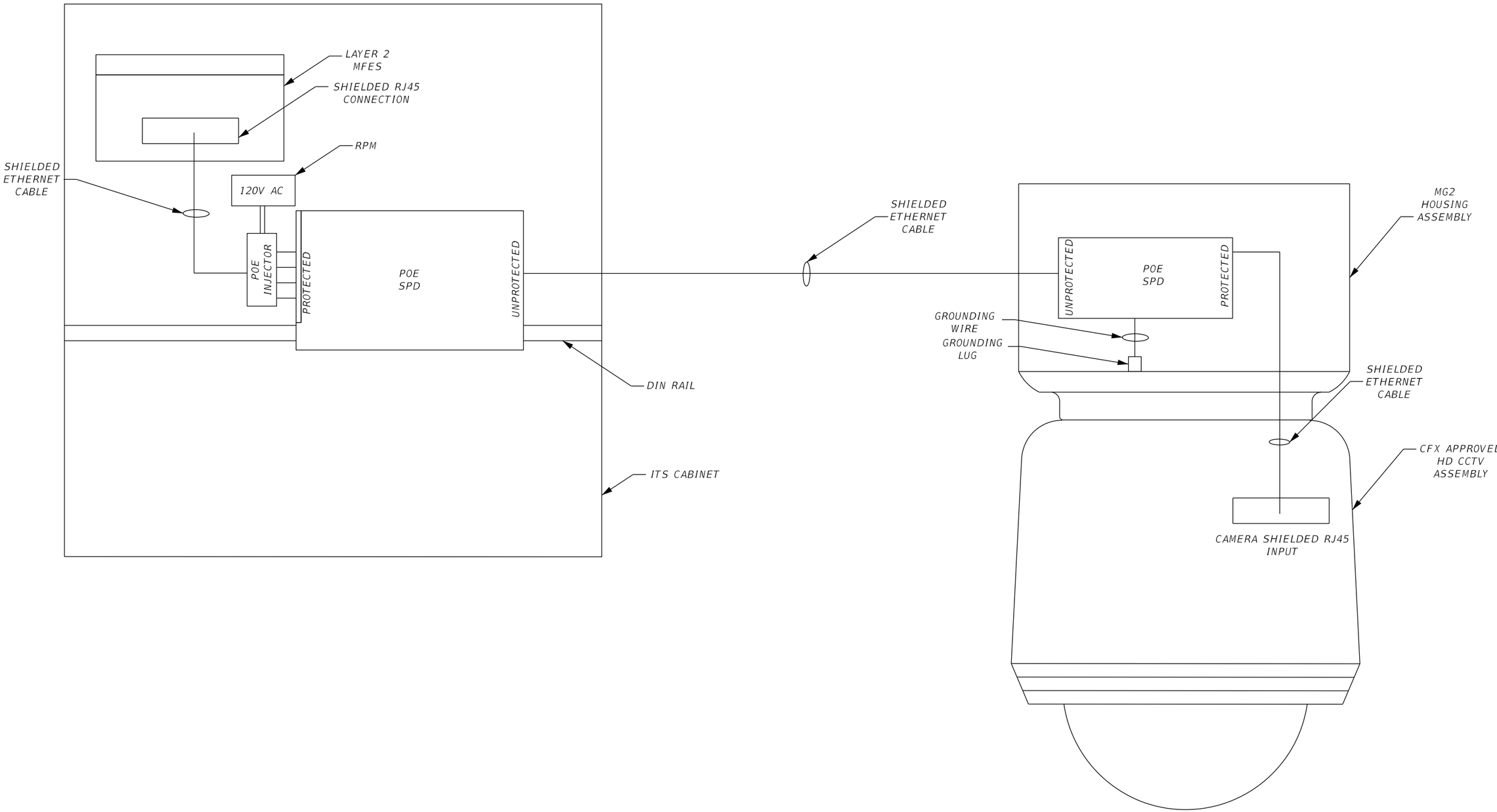
ITS CABINET TO CAMERA JUNCTION BOX WIRING DIAGRAM



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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS CABINET TO CAMERA JUNCTION BOX WIRING DIAGRAM	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					F-3

MARCH 2026

2/27/2026 10:23:36 AM

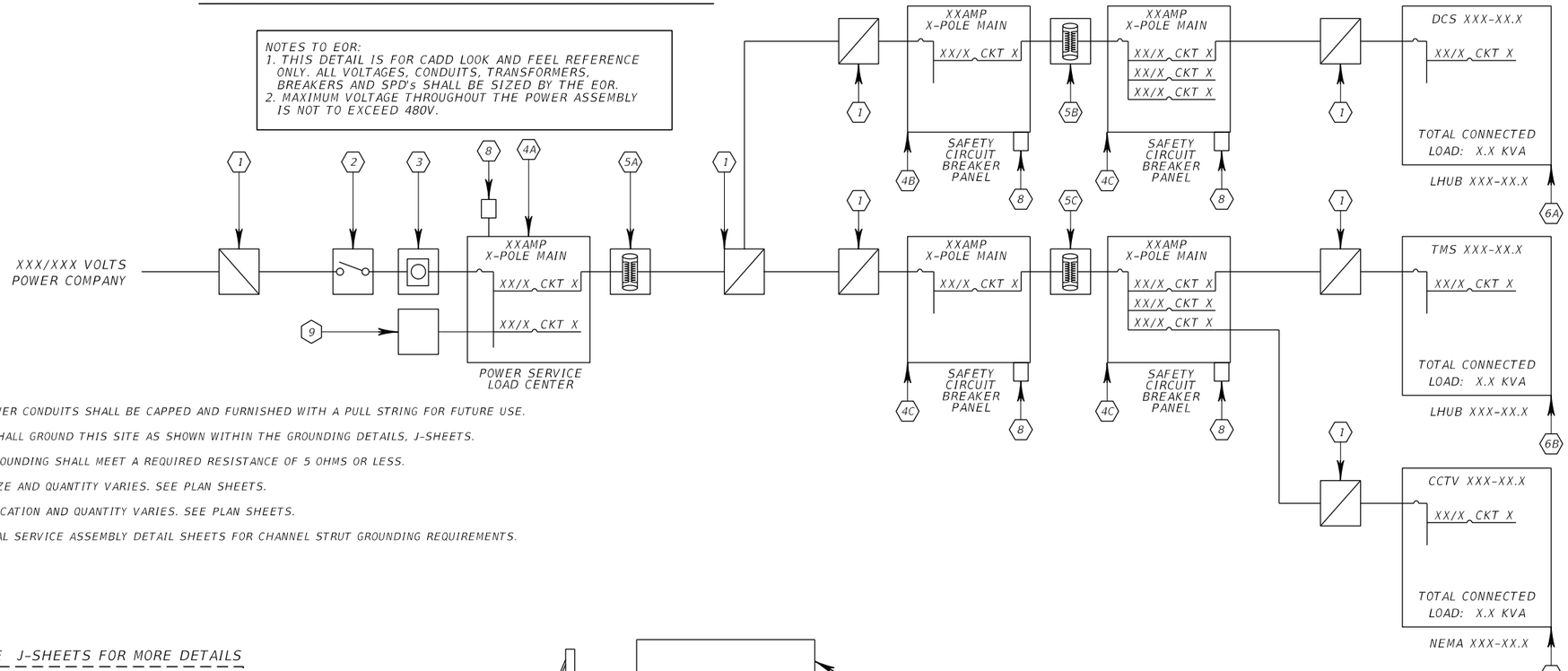
SERVICE POINT DETAIL

KEYED NOTES:

1. PULL BOX
2. XX AMP, XXX/XXXV NON-FUSED DISCONNECT (IF REQUIRED BY SERVICE PROVIDER).
3. METER SOCKET BY CONTRACTOR, METER BY POWER COMPANY (IF REQUIRED)
4A. XX AMP, XXX/XXXV MAIN CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
4B. XX AMP, XXX/XXXV SAFETY CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
4C. XX AMP, XXX/XXXV SAFETY CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
4D. XX AMP, XXX/XXXV SAFETY CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
5A. XFMR (X KVA) (XXX/XXXV PRIMARY, XXX/XXXV SECONDARY) (IF REQUIRED)
5B. XFMR (X KVA) (XXX/XXXV PRIMARY, XXX/XXXV SECONDARY) (IF REQUIRED)
5C. XFMR (X KVA) (XXX/XXXV PRIMARY, XXX/XXXV SECONDARY) (IF REQUIRED)
5D. XFMR (X KVA) (XXX/XXXV PRIMARY, XXX/XXXV SECONDARY) (IF REQUIRED)
6A. TYPE XXXX CABINET W/CIRCUIT BREAKER
6B. TYPE XXXX CABINET W/CIRCUIT BREAKER
6C. TYPE XXXX CABINET W/CIRCUIT BREAKER
7A. X'-X" CONDUIT TYPE XX
8. SURGE PROTECTION DEVICE
9. POWER MONITOR

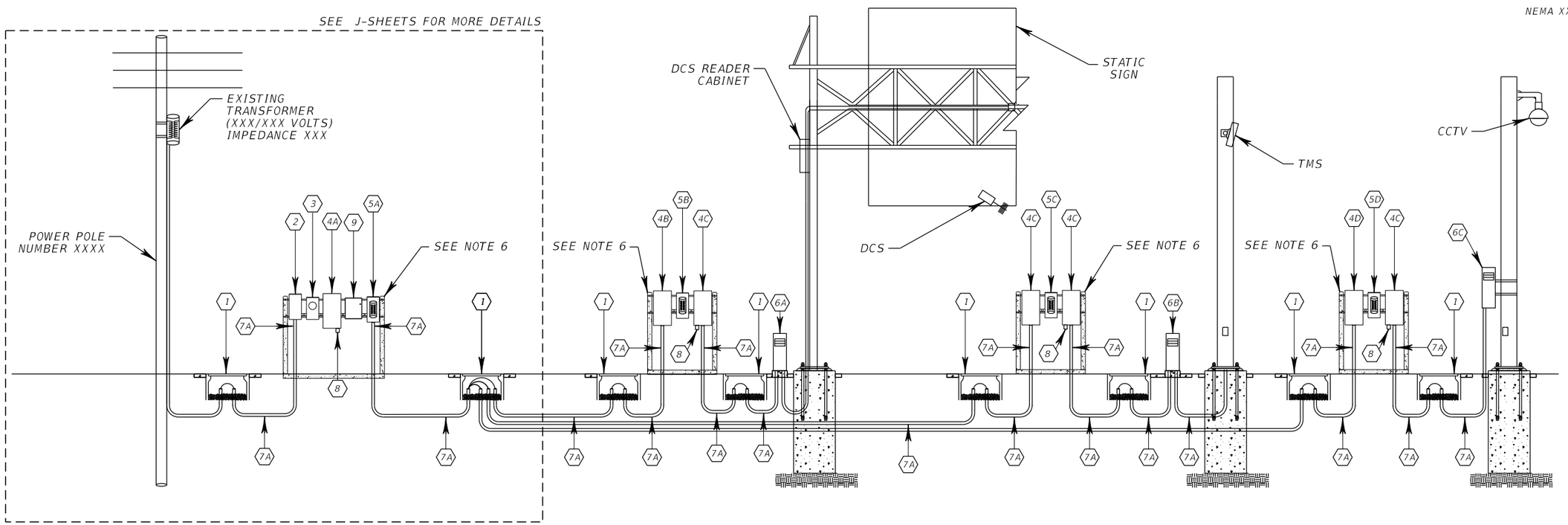
NOTES TO EOR:
1. THIS DETAIL IS FOR CADD LOOK AND FEEL REFERENCE ONLY. ALL VOLTAGES, CONDUITS, TRANSFORMERS, BREAKERS AND SPD's SHALL BE SIZED BY THE EOR.
2. MAXIMUM VOLTAGE THROUGHOUT THE POWER ASSEMBLY IS NOT TO EXCEED 480V.

ONE LINE DIAGRAM



NOTES:

1. ALL EMPTY POWER CONDUITS SHALL BE CAPPED AND FURNISHED WITH A PULL STRING FOR FUTURE USE.
2. CONTRACTOR SHALL GROUND THIS SITE AS SHOWN WITHIN THE GROUNDING DETAILS, J-SHEETS.
3. ELECTRICAL GROUNDING SHALL MEET A REQUIRED RESISTANCE OF 5 OHMS OR LESS.
4. CONDUCTOR SIZE AND QUANTITY VARIES. SEE PLAN SHEETS.
5. PULL BOXES LOCATION AND QUANTITY VARIES. SEE PLAN SHEETS.
6. SEE ELECTRICAL SERVICE ASSEMBLY DETAIL SHEETS FOR CHANNEL STRUT GROUNDING REQUIREMENTS.



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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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SERVICE POINT DETAIL

SHEET NO. G-1

MARCH 2026

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DMS SERVICE POINT DETAIL

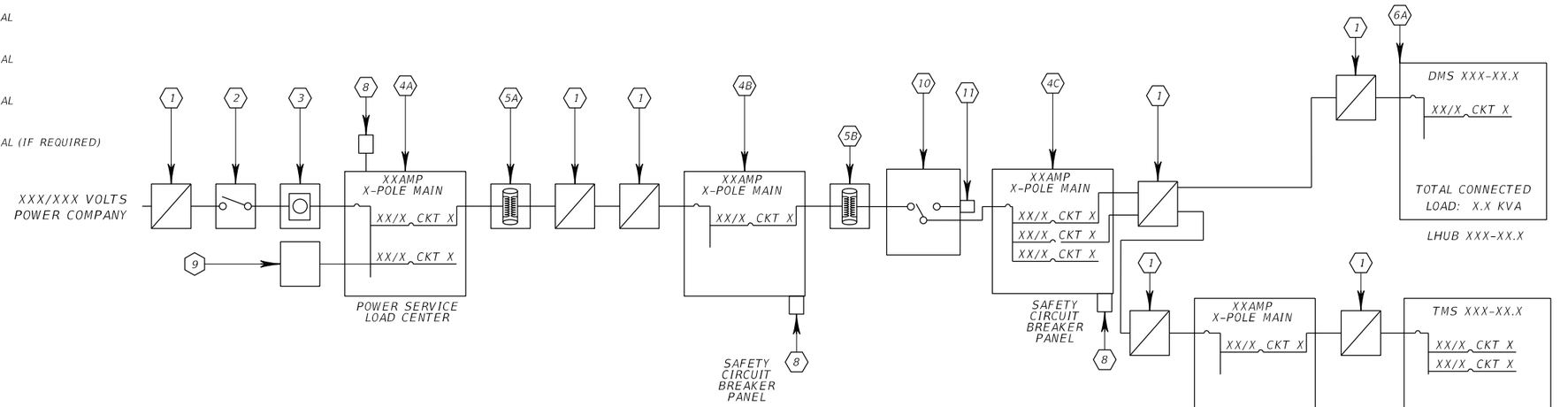
KEYED NOTES:

1. PULL BOX
2. XX AMP, XXX/XXXV NON-FUSED DISCONNECT (IF REQUIRED BY SERVICE PROVIDER).
3. METER SOCKET BY CONTRACTOR, METER BY POWER COMPANY (IF REQUIRED)
4A. XX AMP, XXX/XXXV MAIN CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
4B. XX AMP, XXX/XXXV SAFETY CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
4C. XX AMP, XXX/XXXV SAFETY CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL
4D. XX AMP, XXX/XXXV SAFETY CIRCUIT BREAKER PANEL (MODEL #XXXXXXXX)
CONTRACTOR SHALL SUBMIT SQUARE-D MODEL NUMBER TO CFX FOR APPROVAL (IF REQUIRED)
5A. XFMR (X KVA) (XXX/XXXV PRIMARY, XXX/XXXV SECONDARY) (IF REQUIRED)
5B. XFMR (X KVA) (XXX/XXXV PRIMARY, XXX/XXXV SECONDARY) (IF REQUIRED)
6A. TYPE XXXX CABINET W/CIRCUIT BREAKER
6B. TYPE XXXX CABINET W/CIRCUIT BREAKER
7A. X'-X" CONDUIT TYPE XX
8. SURGE PROTECTION DEVICE
9. POWER MONITOR
10. MANUAL TRANSFER SWITCH
11. PORTABLE GENERATOR RECEPTACLE

NOTES:

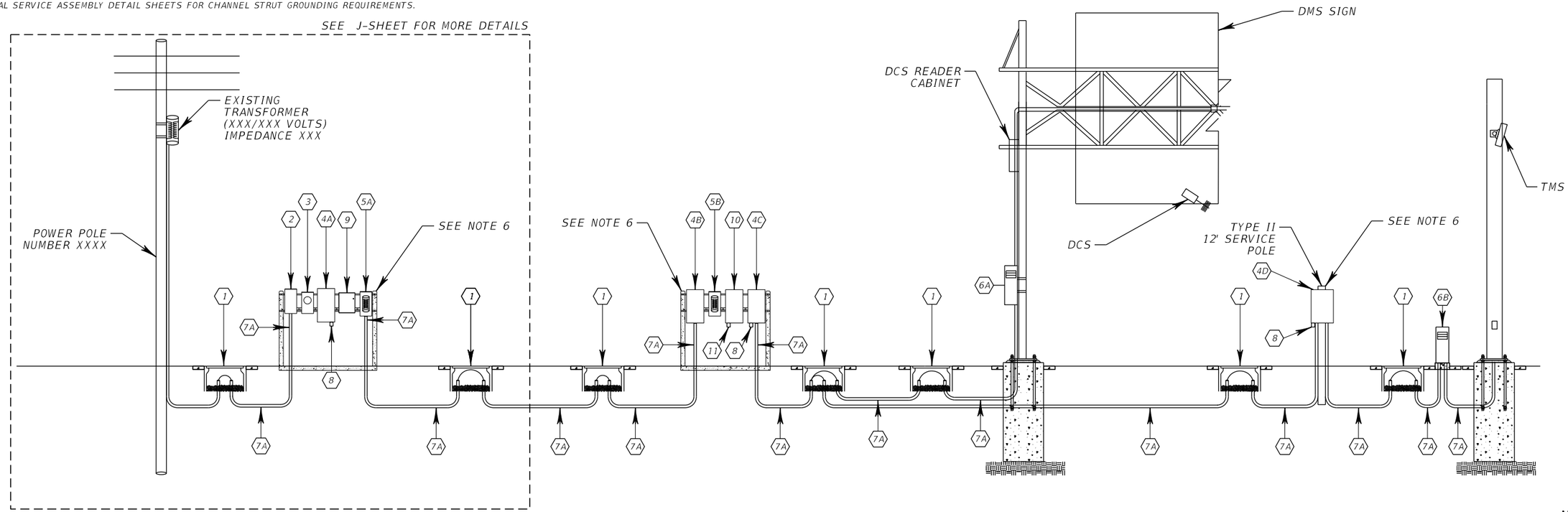
1. ALL EMPTY POWER CONDUITS SHALL BE CAPPED AND FURNISHED WITH A PULL STRING FOR FUTURE USE.
2. CONTRACTOR SHALL GROUND THIS SITE AS SHOWN WITHIN THE GROUNDING DETAILS, J-SHEETS.
3. ELECTRICAL GROUNDING SHALL MEET A REQUIRED RESISTANCE OF 5 OHMS OR LESS.
4. CONDUCTOR SIZE AND QUANTITY VARIES. SEE PLAN SHEETS.
5. PULL BOXES LOCATION AND QUANTITY VARIES. SEE PLAN SHEETS.
6. SEE ELECTRICAL SERVICE ASSEMBLY DETAIL SHEETS FOR CHANNEL STRUT GROUNDING REQUIREMENTS.

ONE LINE DIAGRAM



NOTES TO EOR:
1. THIS DETAIL IS FOR CADD LOOK AND FEEL REFERENCE ONLY. ALL VOLTAGES, CONDUITS, TRANSFORMERS, BREAKERS AND SPD's SHALL BE SIZED BY THE EOR.
2. MAXIMUM VOLTAGE THROUGHOUT THE POWER ASSEMBLY IS NOT TO EXCEED 480V.

SEE J-SHEET FOR MORE DETAILS



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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					G-2

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VOLTAGE: XXX — PHASE: X — WIRES: X

PANEL SCHEDULE

MAIN TYPE: BREAKER — MAIN CB: XXXA — AIC: XX,XXX A

CKT	CKT NAME	CONNECTED EQUIP.	TRIP	POLES	A (KVA)	B (KVA)	POLES	TRIP	CKT NAME	CONNECTED EQUIP.	CKT
				LOAD PER LEG (KVA):							

VOLTAGE: XXX — PHASE: X — WIRES: X

PANEL SCHEDULE

MAIN TYPE: BREAKER — MAIN CB: XXXA — AIC: XX,XXX A

CKT	CKT NAME	CONNECTED EQUIP.	TRIP	POLES	A (KVA)	B (KVA)	POLES	TRIP	CKT NAME	CONNECTED EQUIP.	CKT
				LOAD PER LEG (KVA):							

VOLTAGE: XXX — PHASE: X — WIRES: X

PANEL SCHEDULE

MAIN TYPE: BREAKER — MAIN CB: XXXA — AIC: XX,XXX A

CKT	CKT NAME	CONNECTED EQUIP.	TRIP	POLES	A (KVA)	B (KVA)	POLES	TRIP	CKT NAME	CONNECTED EQUIP.	CKT
				LOAD PER LEG (KVA):							

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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PANEL BOARD SCHEDULE

SHEET NO. G-3

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.
6. PROVIDE ARC FLASH LABEL FOR ALL NEW AND EXISTING EQUIPMENT.

⚠WARNING

Arc Flash and Shock Hazard Present
Appropriate PPE Required

Arc Flash Boundary X'X" **ft-in**
Incident Energy X.XX **cal/cm²**
Working Distance XX" **in**

Shock Hazard Exposure XXX **VAC**

Limited Approach Boundary X'X" **ft-in**
Restricted Approach Boundary X'X" **ft-in**

Equipment LC XXXXX
Service Point Location #XX

Date: XX/X/XXXX

Energy Level X

Minimum PPE:
- Required PPE:
- Required Face and Head Protection:
- As Needed:
- Required Hand Protection:
- Additional PPE:
- Footwear:

ARC FLASH AND SHOCK HAZARD DATA

SERVICE POINT #	EQUIPMENT ID	ENERGY LEVEL	SHOCK HAZARD VOLTAGE	WORKING DISTANCE	LIMITED APPROACH BOUNDARY (FT-IN)	RESTRICTED APPROACH BOUNDARY (FT-IN)	TOTAL ENERGY CAL/CM2	ARC FLASH BOUNDARY (FT-IN)	WORKING DISTANCE
X	XXXXX	X	XXX VAC	XX	XX	XX	XX	XX	XX
X	XXXXX	X	XXX VAC	XX	XX	XX	XX	XX	XX
X	XXXXX	X	XXX VAC	XX	XX	XX	XX	XX	XX
X	XXXXX	X	XXX VAC	XX	XX	XX	XX	XX	XX
X	XXXXX	X	XXX VAC	XX	XX	XX	XX	XX	XX

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ARC FLASH AND SHOCK RISK LABELING DETAILS	SHEET NO. G-4

MARCH 2026

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ITS DEVICE AND CCTV CAMERA POLE, LOWERING SYSTEM & FOUNDATION GENERAL NOTES

1. DESIGN CRITERIA: DESIGNED IN ACCORDANCE WITH AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" 1ST EDITION, 2015. THE DESIGN WIND SPEED OF 150 MPH AND 170 MPH (BREVARD COUNTY) IS IN CONFORMANCE WITH THE FDOT "FDOT DESIGN MANUAL" AND "STRUCTURES MANUAL" (CURRENT EDITION).

   THE STRUCTURE SHALL NOT EXCEED 1" DEFLECTION IN A 30 MPH (NON-GUST) WIND.

   FOUNDATION DESIGN PARAMETERS:
   (DETERMINED BY GEOTECHNICAL ENGINEER BASED ON SITE SPECIFIC BORINGS)

SOIL TYPE:C	XXXXX
SOIL LAYER THICKNESS:	XX FEET
SOIL FRICTION ANGLE:	XX DEGREES
SOIL WEIGHT (ASSUME SATURATED):	XX.X PCF
SLOPE (V:H)	X:X MAX

2. POLE SHAFT: THE POLE SHAFT SHALL BE 12 SIDED WITH A 4" CORNER RADIUS, HAVE A CONSTANT LINEAR TAPER OF 0.14 IN/FT, AND CONTAIN ONLY ONE LONGITUDINAL SEAM WELD. CIRCUMFERENTIAL WELDED TUBE BUTT SPLICES AND LAMINATED TUBES ARE NOT PERMITTED. LONGITUDINAL SEAM WELDS WITHIN 6" OF COMPLETE PENETRATION POLE TO BASE PLATE WELDS SHALL BE COMPLETE PENETRATION WELDS.

3. HAND HOLES: SEE DETAILS

4. CABLE SUPPORTS: ELECTRICAL CABLE GUIDES AND PARKING STAND (EYEBOLTS): TOP AND BOTTOM ELECTRICAL CABLE GUIDES SHALL BE LOCATED WITHIN THE POLE ALIGNED WITH EACH OTHER. ONE CABLE GUIDE SHALL BE POSITIONED 2" BELOW THE HANDHOLE AND THE OTHER SHALL BE POSITIONED 1" DIRECTLY BELOW THE TOP OF TENON. PARKING STANDS SHALL BE POSITIONED 2" BELOW THE TOP OF THE HANDHOLE.

5. ITS DEVICE AND CCTV POLE STRUCTURE MATERIALS SHALL BE AS FOLLOWS:

POLES	-> ASTM A1011 GRADE 50, 55, 60 OR 65 (LESS THAN ¼"), OR ASTM A572 GRADE 50, 55, 60 OR 65 (GREATER THAN OR EQUAL TO ¼"), OR ASTM A595 GRADE A (55 KSI YIELD) OR GRADE B (60 KSI YIELD)
STEEL PLATES & POLE CAP	-> ASTM A709 GRADE 50 OR ASTM A36
WELD METAL	-> E70XX
ANCHOR BOLTS	->ASTM F1554 GRADE 55 (MEETING THE REQUIREMENTS OF SUPPLEMENT S1)
NUTS FOR ANCHOR BOLTS	-> ASTM A563 GRADE A HEAVY HEX
WASHERS FOR ANCHOR BOLTS	-> ASTM F436 TYPE 1
HANDHOLE FRAME	-> ASTM A709 GRADE 36 OR ASTM A36
HANDHOLE COVER	-> ASTM A1011 GRADE 50, 55, 60 OR 65
STAINLESS STEEL SCREWS	-> AISI TYPE 316
NUT COVERS	-> ASTM B26 (319-F) OR PLASTIC COVERS
BOLTS	-> ASTM F3125, GRADE A325, TYPE 1
NUTS	-> ASTM A563 GRADE DH
WASHERS	-> ASTM F436, TYPE 1

6. ALL STEEL ITEMS SHALL BE HOT DIP GALVANIZED AS FOLLOWS:

ALL NUTS, BOLTS AND WASHERS	-> ASTM F2329
ALL OTHER STEEL ITEMS	-> ASTM A123

7. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

8. CONCRETE SHALL BE CLASS IV (DRILLED SHAFT) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4 KSI FOR ALL ENVIRONMENTAL CLASSIFICATIONS.

9. INSTALL WIRE SCREEN AT THE BASE PLATE PER FDOT SPECIFCIATION 649-8. WIRE SCREEN SHALL BE PAINTED TO MATCH POLE COLOR.

10. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (STEEL) ANSI/AWS D1.1 (CURRENT EDITION). FOR ADDITIONAL WELDING REQUIREMENTS SEE AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES AND TRAFFIC SIGNALS, SECTION 5.14, WELDED CONNECTIONS."

11. SHOP DRAWINGS FOR THIS STRUCTURE ARE REQUIRED AND ARE TO INCLUDE POLE AND TENON DESIGN CALCULATIONS AND DETAIL DRAWINGS SIGNED AND SEALED BY A FLORIDA REGISTERED P.E. FABRICATION SHALL NOT BEGIN UNTIL THESE SHOP DRAWINGS ARE APPROVED.

12. THE FOUNDATION FOR THE CCTV STRUCTURE SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT SPECIFICATION SECTION 455 OF THE SPECIFICATIONS EXCEPT THAT NO PAYMENT FOR THE FOUNDATION SHALL BE MADE UNDER FDOT SPECIFICATIONS SECTION 455. (THE COST OF PROVIDING THE FOUNDATION SHALL BE INCLUDED IN THE PAY ITEM 686-XXX ITS POLE (FURNISH & INSTALL XX FT STEEL POLE WITH LOWERING DEVICE) AND 686-XXX ITS POLE FURNISH & INSTALL XX FT STEEL POLE WITH LOWERING DEVICE), THESE PAY ITEMS SHALL ALSO INCLUDE ANY INCIDENTAL ITEMS INCURRED IN FURNISHING AND INSTALLING THIS CCTV STRUCTURE.

13. EXCEPT FOR ANCHOR BOLTS, ALL BOLT HOLE DIAMETERS SHALL BE EQUAL TO THE BOLT DIAMETER PLUS 1/16", PRIOR TO GALVANIZING. HOLE DIAMETERS FOR ANCHOR BOLTS SHALL NOT EXCEED THE BOLT DIAMETER PLUS ½".

14. THE STRUCTURE SHALL BE INSTALLED PLUMB.

15. THE STRUCTURE SHALL NOT BE ERECTED UNTIL THE FOUNDATION CONCRETE HAS ACHIEVED A MINIMUM OF 70% OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

16. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE EXISTING CONDUIT OR FIBER OPTIC CABLE AND TONE WIRE. ANY DAMAGE SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

17. POLE SHALL BE GALVANIZED ACCORDING TO SPECIFICATION 962 AND POWDER COATED FLAT BLACK OVER GALVANIZATION BY THE MANUFACTURER.

18. CONTRACTOR SHALL CONTACT UTILITY COMPANIES PRIOR TO FOUNDATION CONSTRUCTION AND FIELD VERIFY ADJACENT UTILITIES PRIOR TO DRILLING.

19. 100% OF FULL-PENETRATION GROOVE WELDS AND A RANDOM 25% OF PARTIAL PENETRATION GROOVE SHALL BE INSPECTED. FULL PENETRATION GROOVE WELDS SHALL BE PERFORMED BY RADIOGRAPHY OR ULTRASONICS.

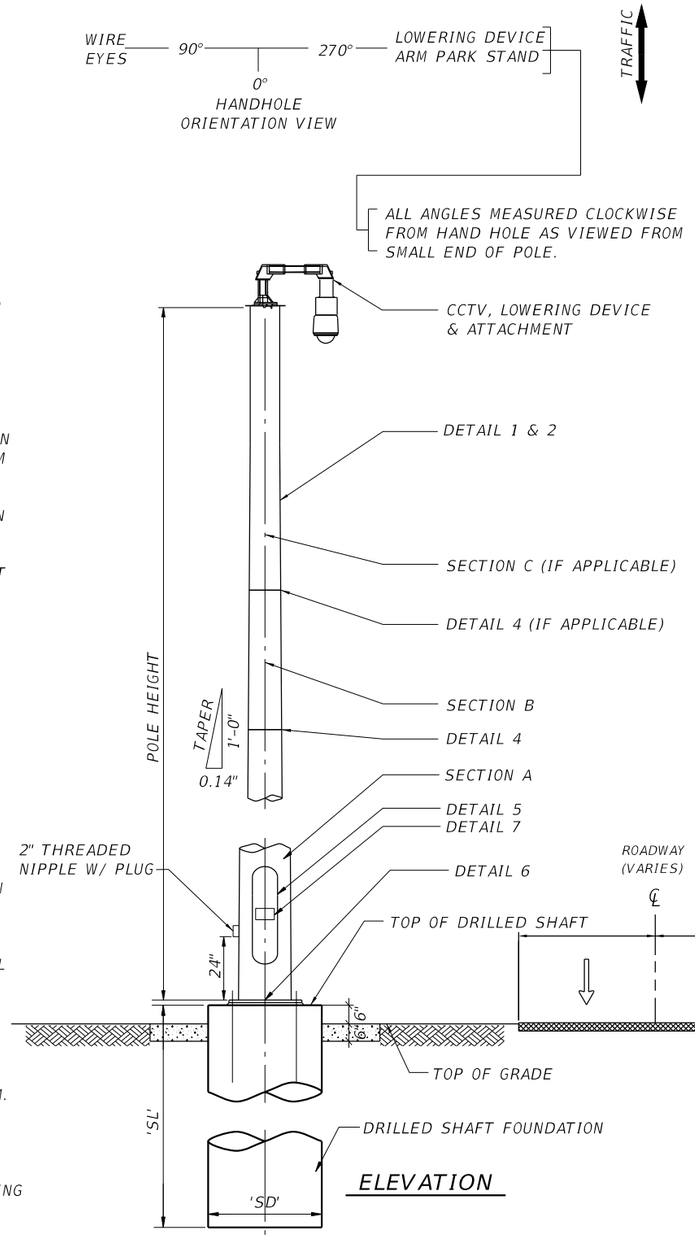
LOWERING DEVICE:

1. POLE TOP TENON: A TENON SHALL BE ATTACHED TO THE POLE TOP WITH MOUNTING HOLES AND SLOT AS REQUIRED FOR THE MOUNTING OF THE CAMERA-LOWERING SYSTEM. THE TENON SHALL BE OF DIMENSIONS NECESSARY TO FACILITATE CAMERA LOWERING DEVICE COMPONENT INSTALLATION. EACH SLOT SHALL BE PARALLEL TO THE POLE CENTERLINE FOR MOUNTING THE LOWERING DEVICE.

2. ALL CABLES SHALL BE SECURED IN A MANNER THAT PREVENTS THEM FROM INTERFERING WITH OR BEING DAMAGED BY THE LOWERING CABLE THAT MOVES WITHIN THE POLE.

3. SET ORIENTATION OF POLE SUCH THAT THE CAMERA LOWERING DEVICE ARM IS ORIENTED PERPENDICULAR TO THE ROADWAY OR AS DIRECTED BY THE ENGINEER. THE CCTV POLE SHALL BE POSITIONED SO THAT THE CAMERA CAN BE SAFELY LOWERED WITHOUT REQUIRING LANE CLOSURES. THE LOWERING DEVICE ARM MUST BE POSITIONED AT A MINIMUIM 90 DEGREE ANGLE AWAY FROM THE HANDHOLE FOR SAFETY.

4. POLE SHALL INCLUDE LOWERING DEVICE WHICH INCLUDES TOP J-BOX, MOUNTING HARDWARE, LOWERING CABLE, CONTACT BLOCK, WATERPROOF ELECTRICAL CONNECTORS, CAMERA J-BOX, HOUSING AND STEEL POLE.



NOTE TO EOR:

1. THESE SHEETS ARE PROVIDED FOR REFERENCE ONLY. PROJECT SPECIFIC CONDITIONS SHALL BE CONSIDERED IN DESIGN.
2. SOIL BORING DATA SHALL BE PROVIDED WITH THE SUBMITTAL.

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ITS DEVICE & CCTV POLE STRUCTURE AND FOUNDATION (SHEET 1 OF 3)

SHEET NO. H-1

MARCH 2026

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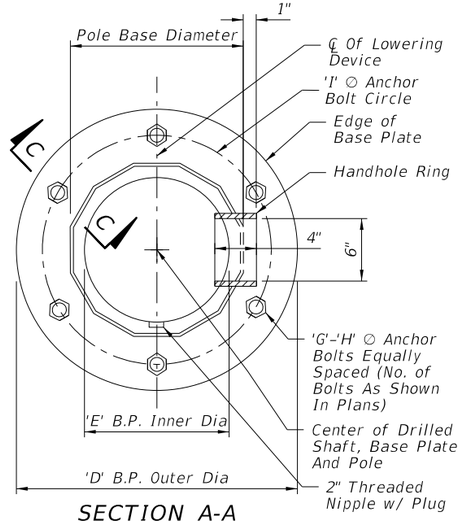
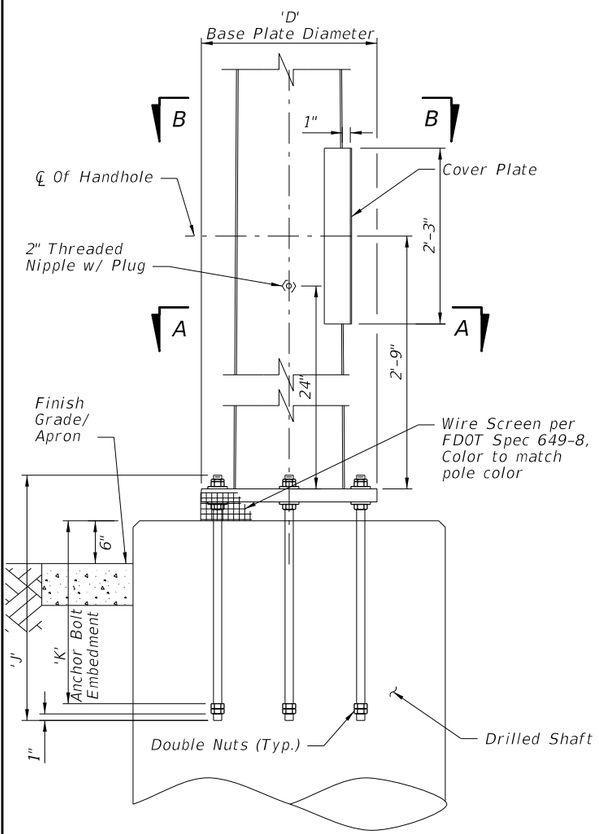
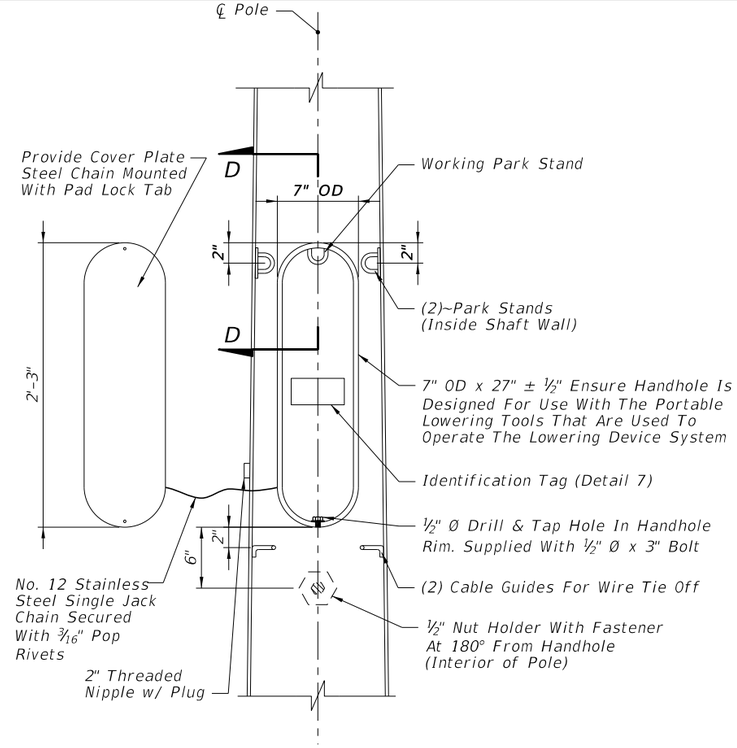


SECTION A-A

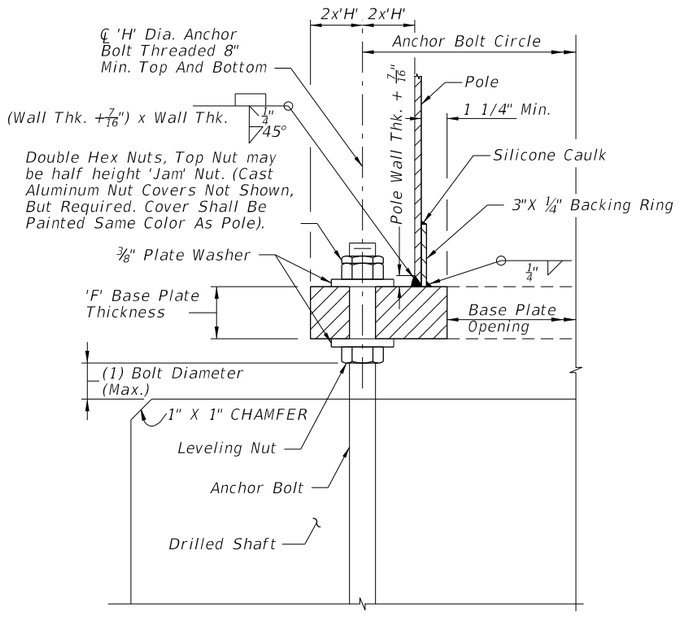


BASE PLATE AND ANCHORAGE ELEVATION
DETAIL 6

(Conduits, Reinforcement, and CSL Tubes Not Shown)

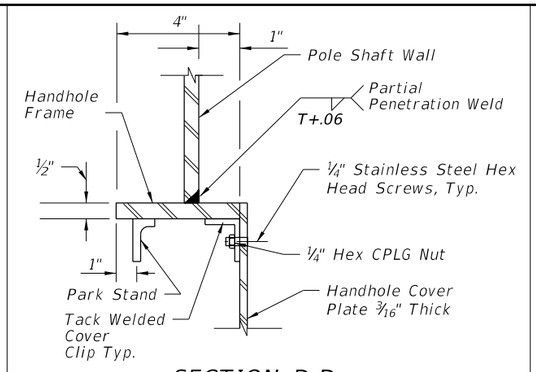


HANDHOLE DETAIL 5

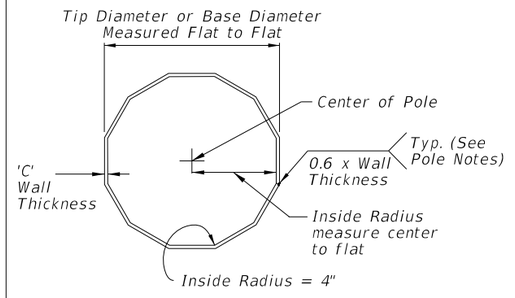


SECTION C-C

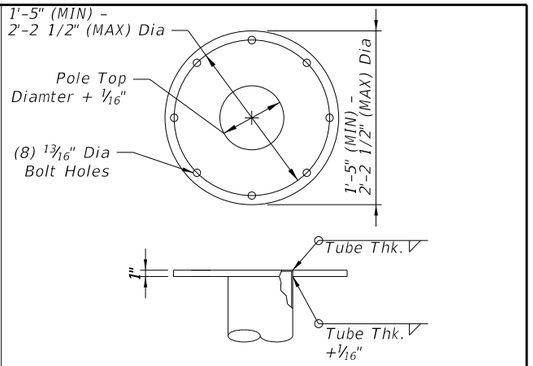
Note: Install all handhole and opening covers prior to shipping. For Poles with Lowering Device, install Pole Cap Plate when Tenon Assembly is not installed.



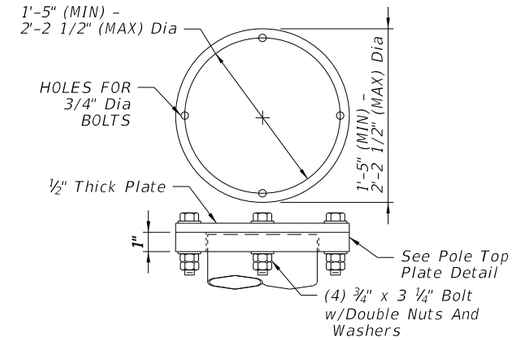
SECTION D-D



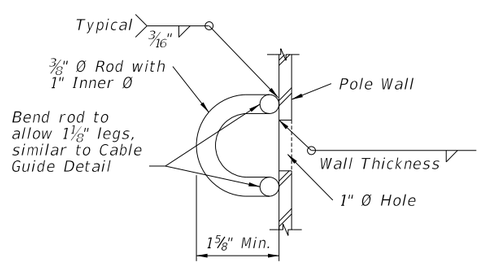
SECTION B-B



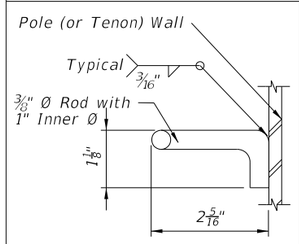
POLE TOP PLATE DETAIL 1



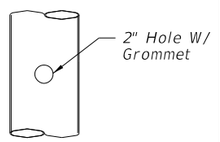
POLE CAP PLATE DETAIL 2
(POLE WITHOUT LOWERING DEVICE)



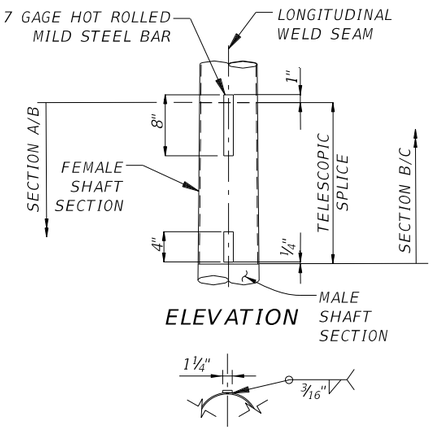
PARK STAND DETAIL



CABLE GUIDE DETAIL



DRILLED HOLE DETAIL 3



ELEVATION

PLAN

WELD REINFORCEMENT DETAIL 4

NOTE TO EOR:
THIS SHEET IS FOR REFERENCE ONLY

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ITS DEVICE & CCTV POLE STRUCTURE AND FOUNDATION (SHEET 2 OF 3)

SHEET NO. H-2

MARCH 2026

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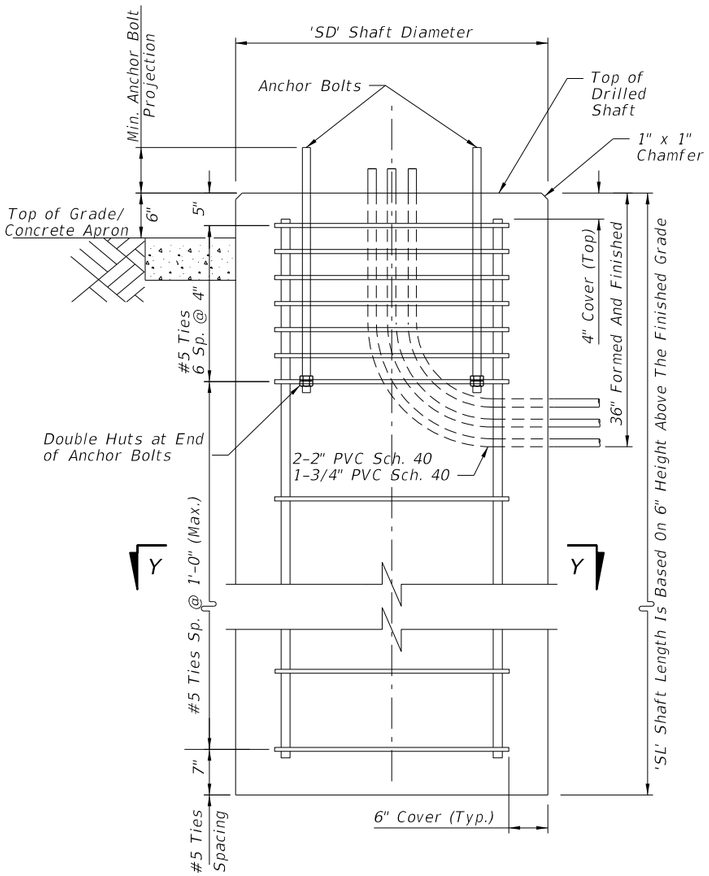
NOTE:
1. MINIMUM POLE WALL THICKNESS 'C' SHALL NOT BE LESS THAN 3/16".
2. MINIMUM NUMBER OF ANCHOR BOLTS 'G' SHALL NOT BE LESS THAN 6.
3. MINIMUM ANCHOR BOLT DIAMETER 'H' SHALL NOT BE LESS THAN 1".
4. BASE PLATE THICKNESS 'F' SHALL NOT BE LESS THAN 2" INCHES FOR 30 OR 40 FOOT POLES AND 2 1/2" INCHES FOR LARGER POLES.
5. MINIMUM DIAMETER OF DRILLED SHAFT 'SD' SHALL NOT BE LESS THAN 3'-6".

POLE VARIABLES

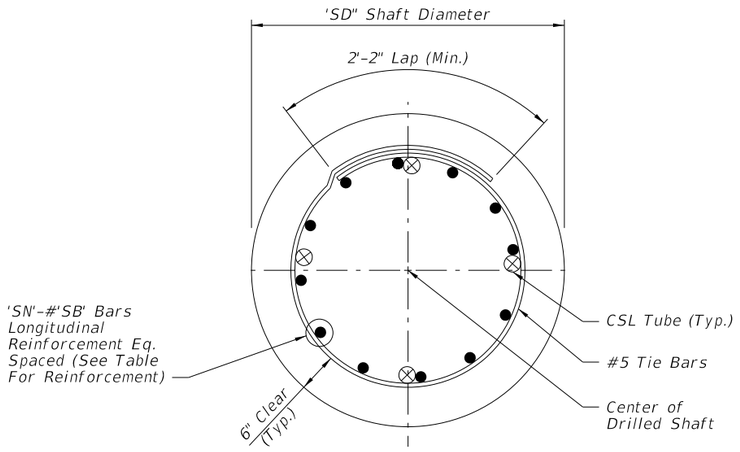
CCTV NO.	STATION	POLE HEIGHT	SECTION A TUBE				SECTION B TUBE				SECTION C TUBE				BASE PLATE						
			LENGTH	BASE DIAMETER	TIP DIAMETER	THICK	LENGTH	BASE DIAMETER	TIP DIAMETER	THICK	LENGTH	BASE DIAMETER	TIP DIAMETER	THICK	OUTSIDE DIAMETER	INSIDE DIAMETER	PLATE THICKNESS	NUMBER OF BOLTS	BOLT DIAMETER	BOLT CIRCLE DIAMETER	BOLT LENGTH
		(FT.)	(FT.)	(IN.)	(IN.)	C (IN.)	(FT.)	(IN.)	(IN.)	C (IN.)	(FT.)	(IN.)	(IN.)	C (IN.)	D (IN.)	E (IN.)	F (IN.)	G	H (IN.)	I (IN.)	J (IN.)
XXX-XX	XXX+XX	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTE: THE MINIMUM LENGTH OF ANY TELESCOPIC FIELD SPLICE FOR POLES SHALL BE 1.5 TIMES THE INSIDE DIAMETER OF THE EXPOSED END OF THE FEMALE SECTION. ADDITIONALLY, THE MINIMUM POLE SPLICE IS 2'-3" AT SECTION B FOR 80 FT HIGH POLE.



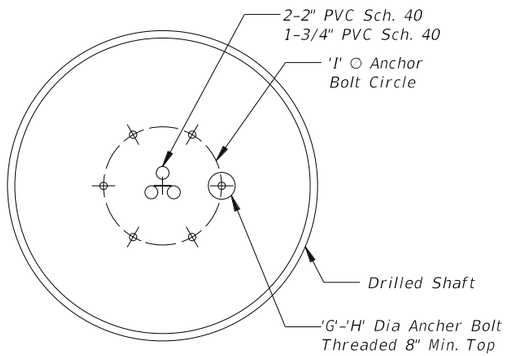
FOUNDATION ELEVATION

(CSL Tubes Not Shown)



SECTION Y-Y

(Anchor Bolts and Conduits Not Shown)



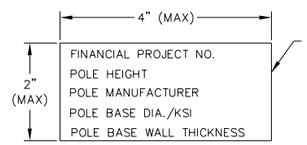
PLAN

DRILLED SHAFT VARIABLES

CCTV NO.	STATION	SHAFT LENGTH	SHAFT DIAMETER	BAR SIZE	NUMBER OF BARS	BOLT EMBEDMENT
		SL (FT.)	SD (FT.)	SB	SN	K (IN.)
XXX-XX	XXX+XX	--	--	--	--	XX.X

FOUNDATION DESIGN ASSUMPTIONS

REACTION ON FOUNDATION	POLE HEIGHT	
	XX (FT)	XX (FT)
OVERTURN	XX.XX kip-ft	XX.XX kip-ft
HORIZONTAL LOAD	X.XX kip	X.XX kip
AXIAL LOAD	X.XX kip	X.XX kip



IDENTIFICATION TAG DETAIL 7

NOTES TO EOR:
1. THIS SHEET IS FOR REFERENCE ONLY.
2. DESIGNERS SHALL COORDINATE DIRECTLY WITH VENDORS TO ENSURE POLE IS NOT OVERDESIGNED.

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE & CCTV POLE STRUCTURE AND FOUNDATION (SHEET 3 OF 3)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					H-3

MARCH 2026

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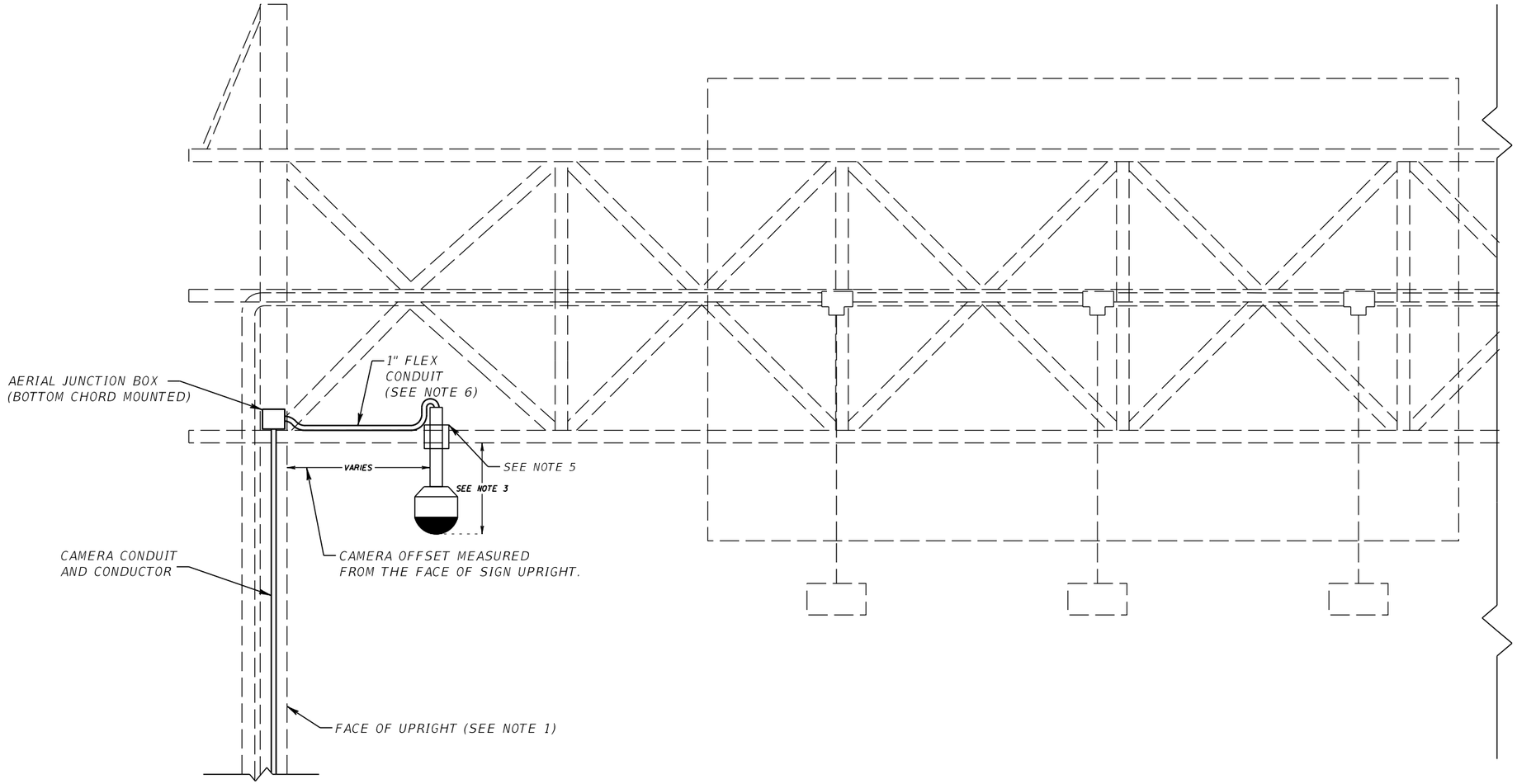

NOTES:

1. FOR PURPOSES OF THIS DETAIL, THE FACE OF UPRIGHT SHALL BE CONSIDERED THE SURFACE OF THE UPRIGHT NEAREST THE EDGE OF TRAVEL

2. AERIAL MOUNTED JUNCTION BOX FOR CAMERA CABLE SHALL BE 8"W X 8"H X 3"D (MIN.). JUNCTION BOX SHALL BE ATTACHED TO SIGN UPRIGHT IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.

3. ENSURE THE BOTTOM OF THE DOME OF THE CAMERA EXTENDS BENEATH THE CHORD TO WHICH IT IS MOUNTED BY A MINIMUM OF 1 FOOT AND NO MORE THAN 3 FEET.

4. GRAPHICAL REPRESENTATION OF BACK CHORD MOUNTING. FOR REFERENCE ONLY.

5. PTM01: PIPE THREAD ADAPTER-TYPE MOUNTING BRACKET. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

6. HORIZONTAL FLEXIBLE CONDUIT SHALL BE SECURED TO THE STRUCTURE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.

NOTE TO EOR:
TYPE OF CABINET SHALL BE DETERMINED BY THE DESIGNER.

CAMERA OFFSET SHALL BE SHOWN ON THE PLAN SHEET OR WITHIN A TABLE FORMAT.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

EXISTING SIGN STRUCTURE CAMERA MOUNTING DETAIL

SHEET NO. H-4

MARCH 2026

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GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS MADE BETWEEN THE STRUCTURE AND GROUND RODS SHALL BE MADE USING #2 AWG SOLID CONDUCTOR TINNED BARE COPPER WIRE. THE CONNECTING WIRE SHALL BE BURIED PER CFX SPECIFICATIONS 620A-4.1 AND SHALL BE ATTACHED TO GROUND RODS USING EXOTHERMIC WELDS.

2. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY. BASE-MOUNTED CABINETS WHICH SUPPORT ITS DEVICES ON THE STRUCTURE SHALL ALSO BE GROUNDED TO THE COMMON GROUNDING ARRAY IF THE CABINETS ARE WITHIN 60 FEET OF THE STRUCTURE.

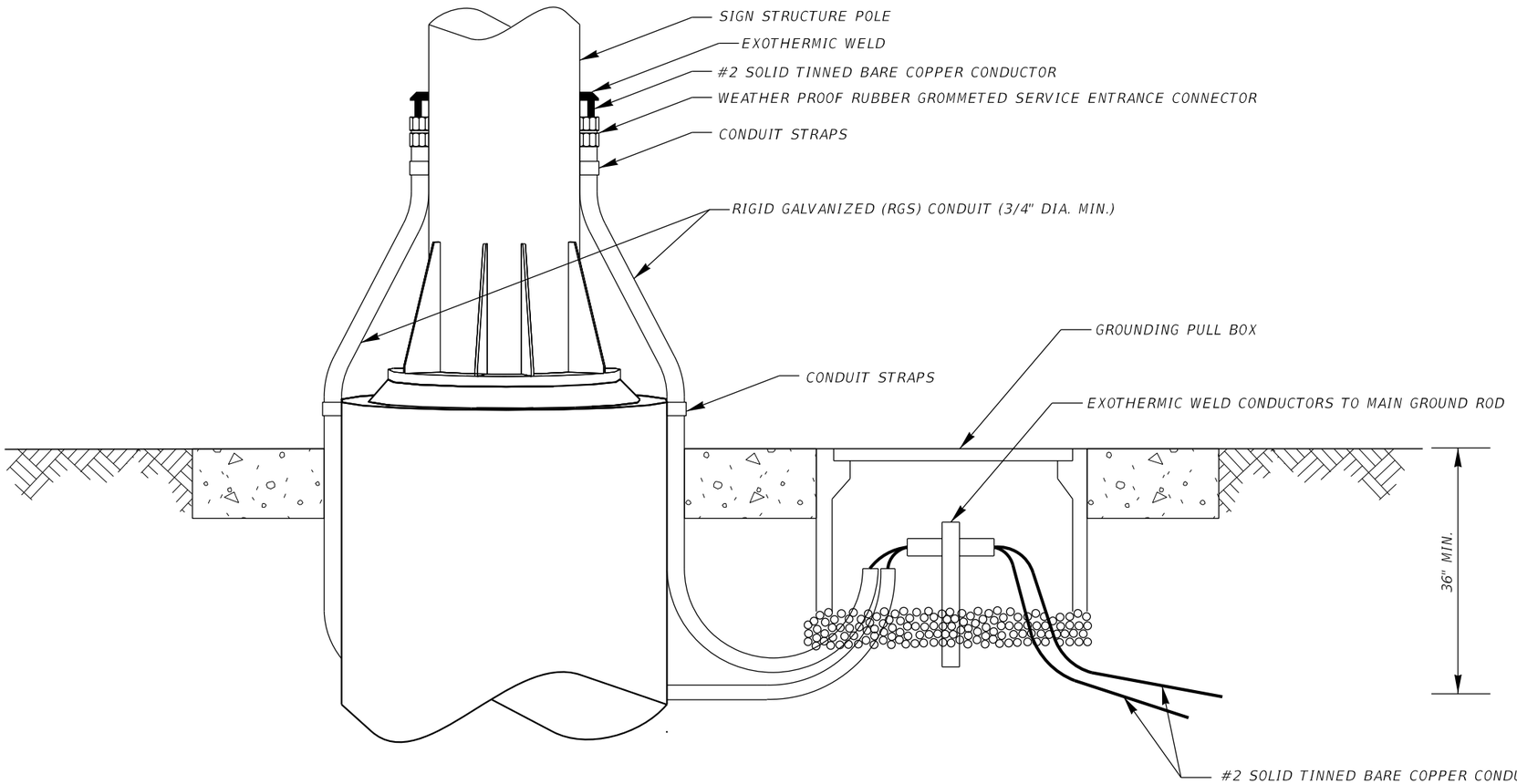
3. THE DMS ENCLOSURE SHALL BE GROUNDED TO THE SIGN STRUCTURE WITH A GROUNDING CONDUCTOR PER MANUFACTURER'S RECOMMENDATIONS.

4. FOR EXISTING STRUCTURES, GROUND WIRE LEADS SHALL BE EXOTHERMICALLY WELDED TO THE STRUCTURAL POLES. WELDS SHALL BE LOCATED ON THE SIDE OF THE STRUCTURAL POLE AT LEAST 1 FOOT ABOVE THE BOLT FLANGE. GRIND THROUGH GALVANIZED COATING TO EXPOSE BARE STEEL. ONCE BARE STEEL IS EXPOSED, WORK CALLED FOR IN THE REMAINDER OF THIS NOTE SHALL BE COMPLETED WITHOUT INTERRUPTION. HEAT BARE STEEL WITH TORCH FOR SEVERAL MINUTES AND MAKE WELD WHILE BARE STEEL IS WARM. AFTER WELD IS COMPLETE, COAT WELD AND ASSOCIATED STEEL WITH COLD GALVANIZING SPRAY WHILE WELD IS STILL WARM.

5. HALF-SPAN OR FULL-SPAN STRUCTURES SHALL BE EQUIPPED WITH COMPLETE GROUNDING ARRAYS ATTACHED TO EACH UPRIGHTS.

6. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS.

7. GROUNDING SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A.



NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STRUCTURE GROUNDING	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-1

MARCH 2026

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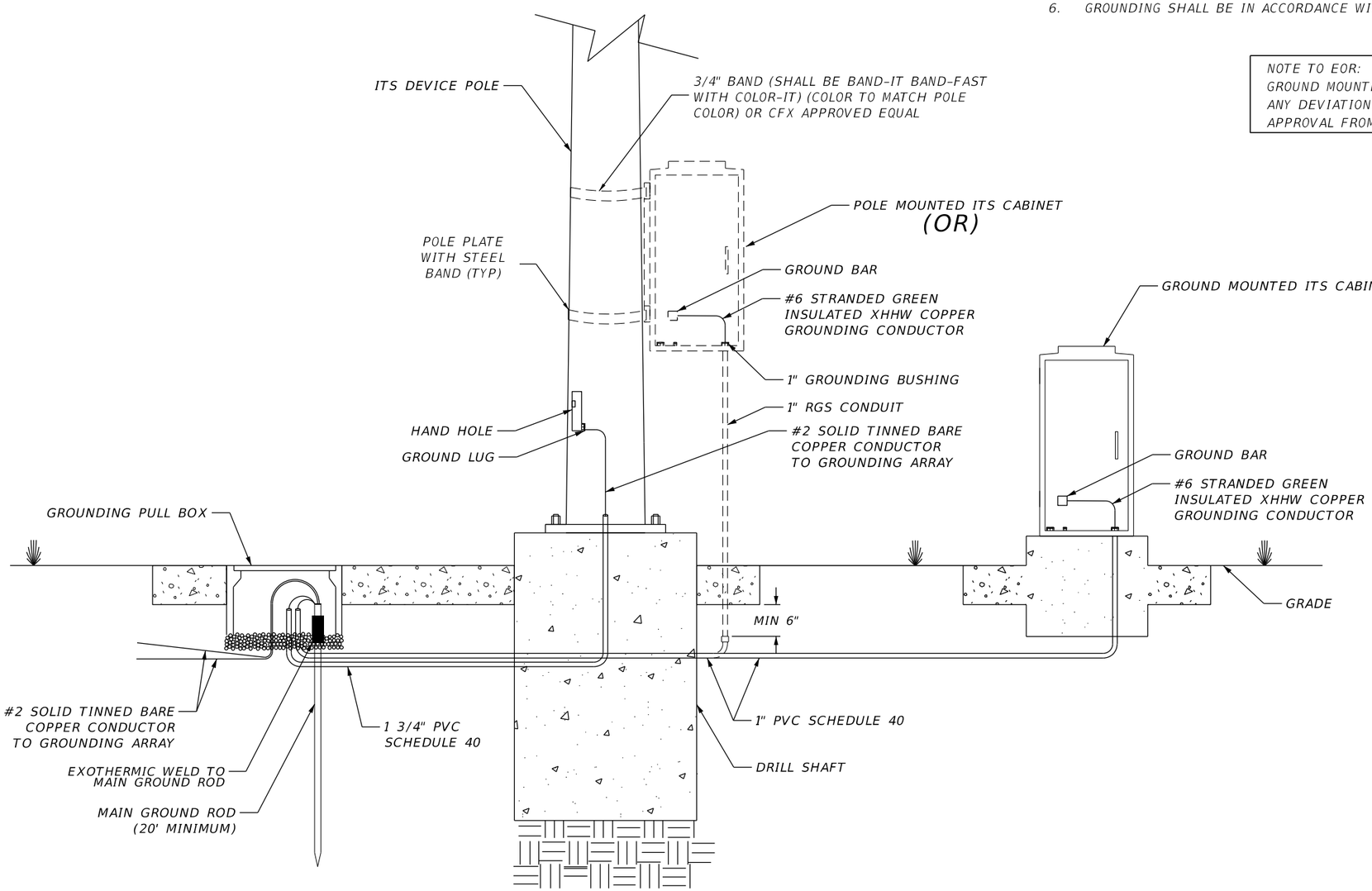
GROUNDING NOTES:

1. ALL GROUNDING CONNECTIONS MADE BETWEEN THE STRUCTURE AND GROUND RODS SHALL BE MADE USING #2 AWG SOLID CONDUCTOR TINNED BARE COPPER WIRE. THE CONNECTING WIRE SHALL BE BURIED PER CFX SPECIFICATIONS 620A-4.1 AND SHALL BE ATTACHED TO GROUND RODS USING EXOTHERMIC WELDS.
2. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY. BASE-MOUNTED CABINETS WHICH SUPPORT ITS DEVICES ON THE STRUCTURE SHALL ALSO BE GROUNDED TO THE COMMON GROUNDING ARRAY IF THE CABINETS ARE WITHIN 60 FEET OF THE STRUCTURE.
3. FOR ITS DEVICE POLES, THE BOND WIRE SHALL BE AFFIXED TO THE POLE VIA A MECHANICAL CONNECTION USING A LUG, WHICH IS TO BE LOCATED INSIDE THE POLE WITHIN CLOSE PROXIMITY TO THE HAND HOLE.
4. GROUNDING PULL BOXES SHALL BE STAMPED WITH "CFX GROUNDING" ON TOP OF THE LID.
5. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS.
6. GROUNDING SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A.

NOTE TO EOR:
GROUND MOUNTED CABINETS SHALL BE INSTALLED. ANY DEVIATION TO POLE MOUNTED SHALL REQUIRE APPROVAL FROM CFX.



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REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE POLE & ITS CABINET GROUNDING	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-2

MARCH 2026

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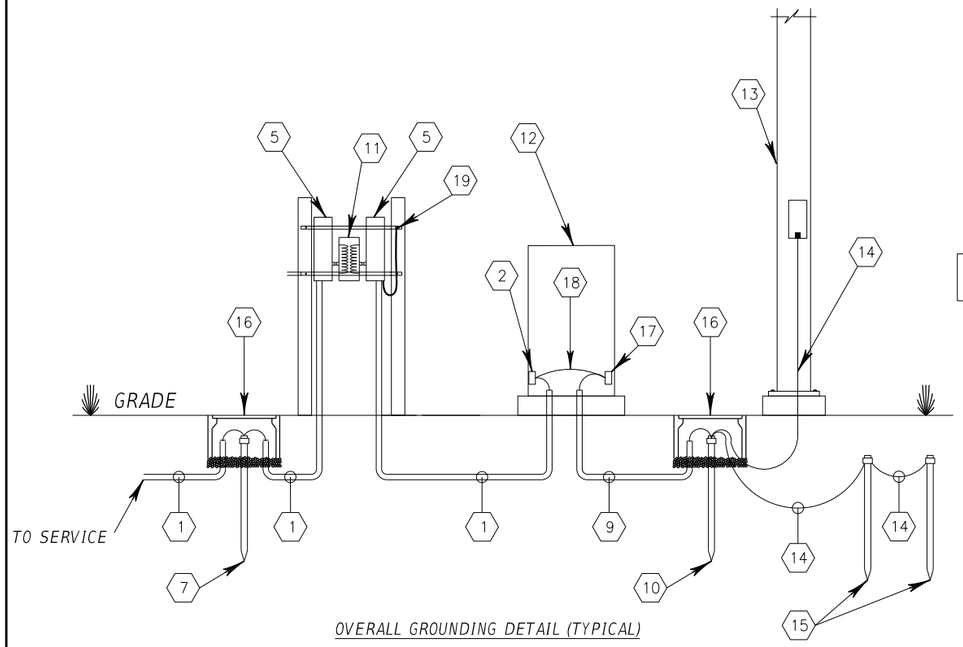
GENERAL NOTES

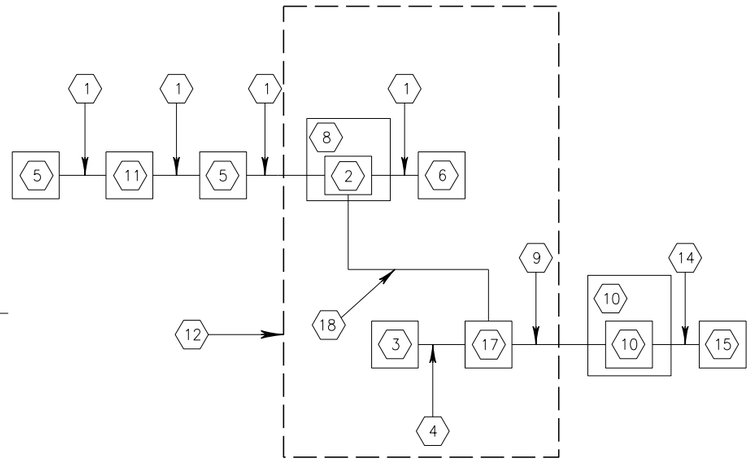
1. DESIGN INTENT OF THIS DRAWING IS TO PROVIDE AN OVERALL GROUNDING CONCEPT THAT SHOWS ALL GROUNDS FOR CABINETS, POLES, AND SERVICE.
2. THE POWER PANEL (SERVICE) GROUND BUS BAR SHALL BE BONDED TO THE CABINET (CHASSIS) GROUND BUS BAR WITH A #6 AWG GREEN INSULATED XHHW COPPER GROUND CONDUCTOR (BONDING JUMPER).
3. SYSTEM SHOWN IS TO CLARIFY AND MEET THE INTENT OF NEC ARTICLE 250.
4. REFER TO THE OTHER SECTION-J SHEETS FOR ADDITIONAL GROUNDING DETAILS
5. NUMBER OF GROUND RODS WILL VARY DEPENDING ON SITE CONDITION. CONTRACTOR TO PROVIDE PROPER NUMBER OF GROUND RODS IN ORDER TO OBTAIN THE 5 OHM REQUIREMENT PER SPECIFICATION.
6. ALLOW 2 FEET OF SLACK FOR THE EQUIPMENT AND LIGHTNING GROUND CONDUCTOR, SO A CLAMP ON MEGGER CAN BE ATTACHED BETWEEN THE CABINET GROUND BAR AND MAIN GROUND ROD FOR THE GROUNDING ARRAY.

KEYED NOTES

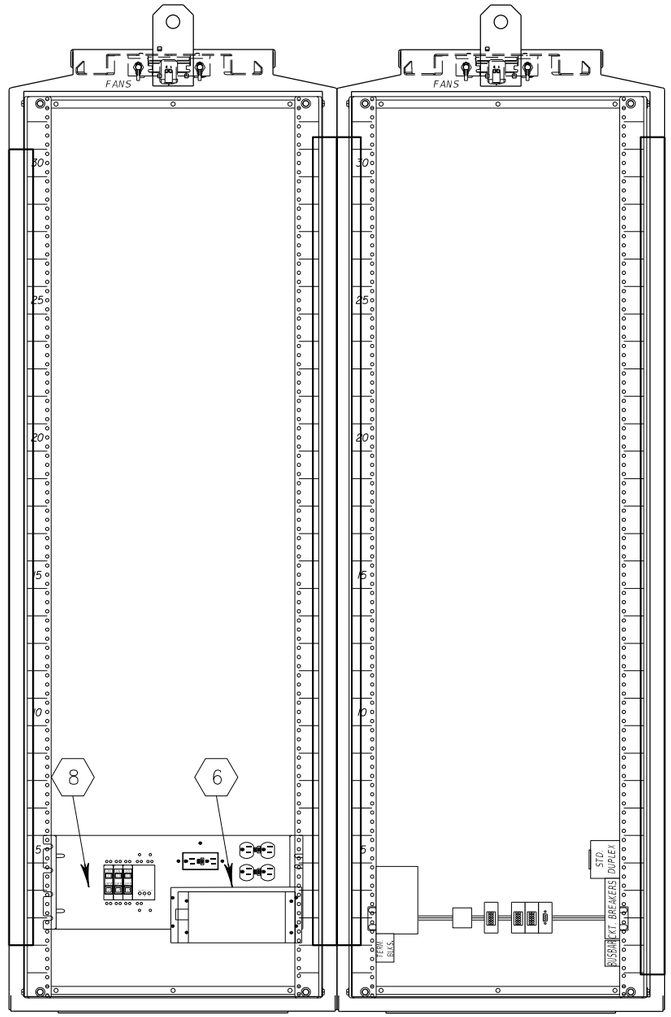
1. #6 GREEN INSULATED XHHW COPPER SERVICE GROUND CONDUCTOR.
2. POWER PANEL GROUND BAR.
3. SURGE PROTECTION DEVICE DIN RAIL MOUNTED INSIDE CABINET.
4. #10 GREEN INSULATED XHHW COPPER CONDUCTOR FROM DIN RAIL TO CABINET GROUND BAR.
5. SAFETY CIRCUIT BREAKER PANEL FOR AC POWER TO CABINET WITH SPD (IF REQUIRED).
6. CABINET MAIN POWER SPD (SURGE SUPPRESSION DEVICE).
7. SAFETY CIRCUIT BREAKER PANEL GROUND ROD.
8. POWER PANEL FOR ELECTRICAL OUTLETS, FANS, AND LIGHTS.
9. #6 GREEN INSULATED XHHW COPPER CABINET GROUND CONDUCTOR (EQUIPMENT/LIGHTNING).
10. GROUNDING ARRAY MAIN GROUND ROD.
11. STEP UP/STEP DOWN TRANSFORMER ASSEMBLY, GROUND PER NEC (IF REQUIRED). N-G BONDING SHALL OCCUR INSIDE THE TRANSFORMER.
12. ITS CABINET.
13. ITS DEVICE POLE.
14. #2 SOLID TINNED BARE COPPER GROUND CONDUCTOR.
15. GROUND RODS, SEE ITS DEVICE GROUNDING ARRAYS.
16. GROUNDING PULL BOX.
17. CABINET GROUND BAR (EQUIPMENT/LIGHTNING).
18. #6 AWG GREEN INSULATED XHHW COPPER GROUND CONDUCTOR (BONDING JUMPER).
19. SEE ELECTRICAL SERVICE ASSEMBLY DETAIL SHEETS FOR CHANNEL STRUT GROUNDING REQUIREMENTS.



OVERALL GROUNDING DETAIL (TYPICAL)



CABINET GROUNDING COMPONENT AND WIRING DETAIL



CABINET EQUIPMENT LAYOUT

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ITS DEVICE GROUNDING ARRAY (1 OF 5)

SHEET NO. J-3

MARCH 2026

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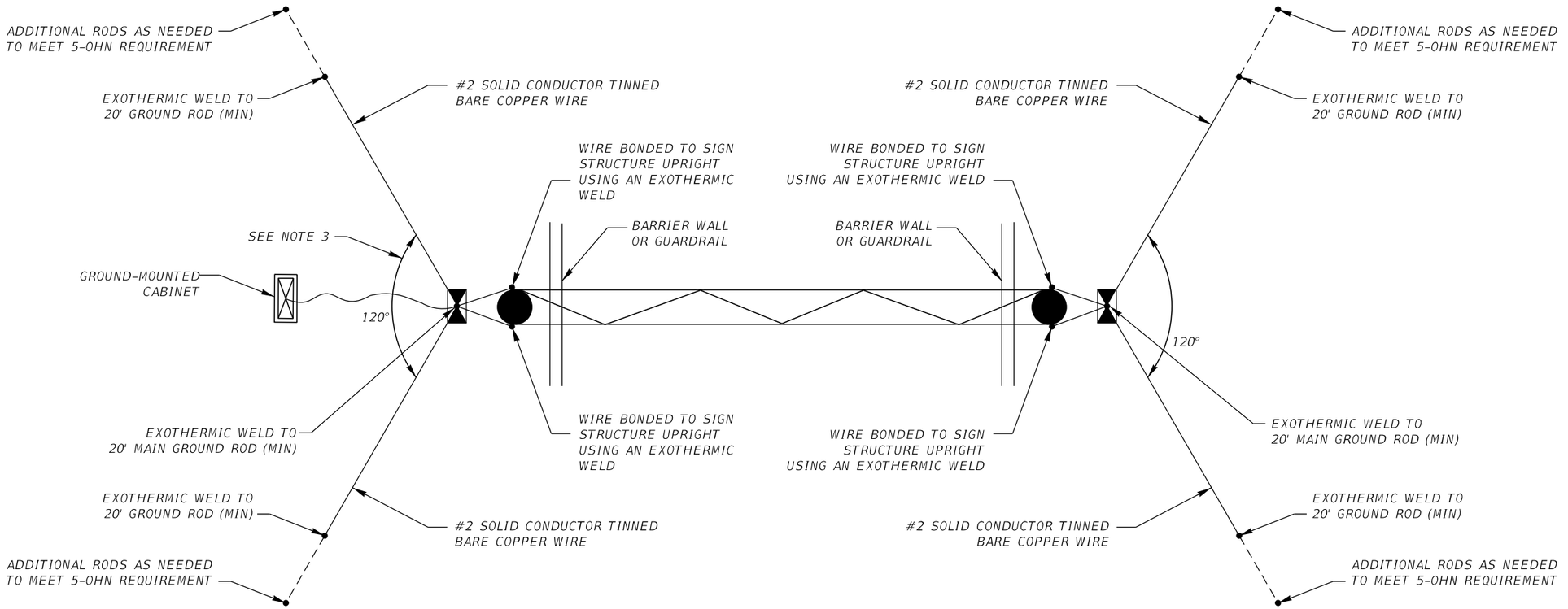

NOTES:

1. MAINTAIN FORTY FEET SPACING BETWEEN ALL GROUNDING RODS WITHIN ARRAY.
2. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY. BASE-MOUNTED CABINETS WHICH SUPPORT ITS DEVICES ON THE STRUCTURE SHALL ALSO BE GROUNDED TO THE COMMON GROUNDING ARRAY IF THE CABINETS ARE WITHIN 10 FEET OF THE STRUCTURE PER CFX SPECIFICATIONS 620A.
3. IF 120 DEGREES IS NOT ACHEIVABLE, BRING TO THE ATTENTION OF THE CEI AND THE EOR FOR CONSIDERATION OF USING 180 DEGREE ANGLE FOR THE RADIAL GROUND RODS RELATIVE TO THE MAIN GROUND ROD.

ROADWAY SPAN STRUCTURE WITH SINGLE-POLE UPRIGHTS

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING ARRAY (2 OF 5)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-4

MARCH 2026

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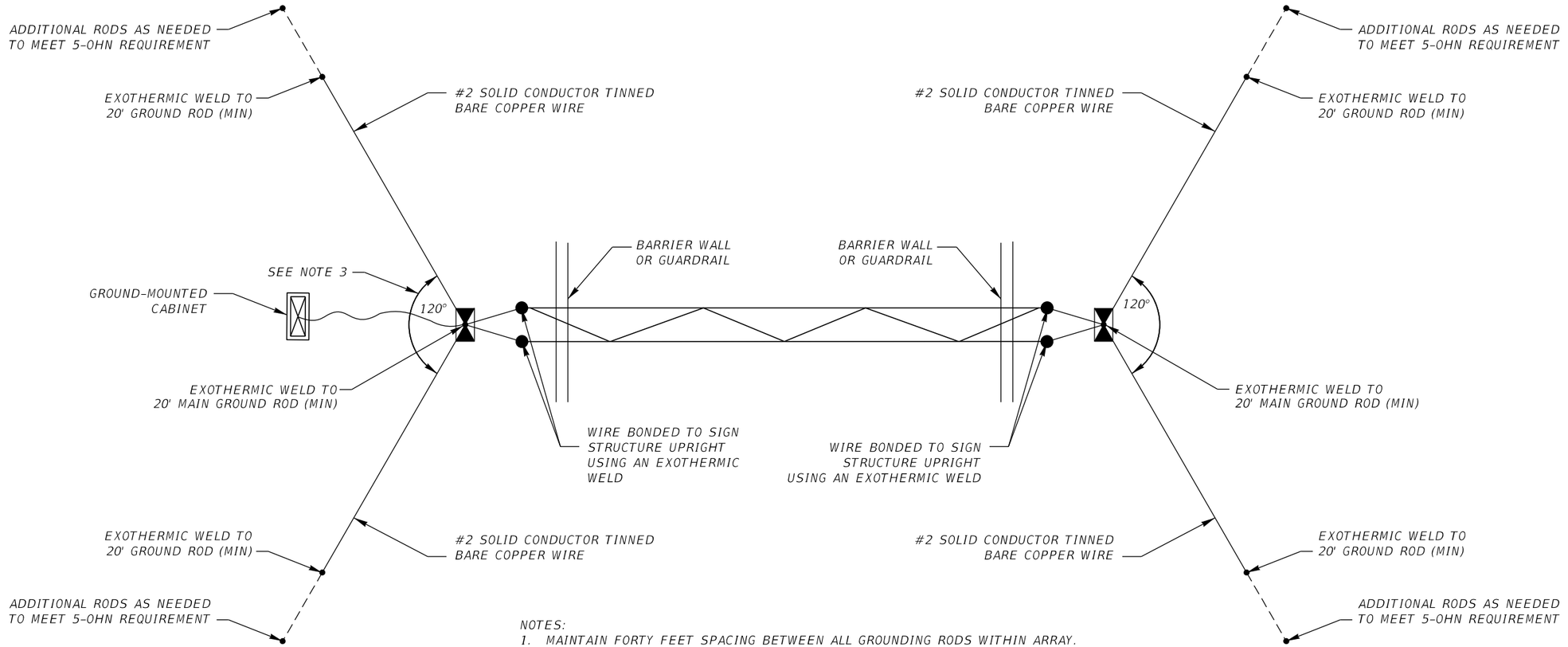

NOTES:

1. MAINTAIN FORTY FEET SPACING BETWEEN ALL GROUNDING RODS WITHIN ARRAY.
2. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY. BASE-MOUNTED CABINETS WHICH SUPPORT ITS DEVICES ON THE STRUCTURE SHALL ALSO BE GROUNDED TO THE COMMON GROUNDING ARRAY IF THE CABINETS ARE WITHIN 10 FEET OF THE STRUCTURE PER CFX SPECIFICATIONS 620A.
3. IF 120 DEGREES IS NOT ACHEIVABLE, BRING TO THE ATTENTION OF THE CEI AND THE EOR FOR CONSIDERATION OF USING 180 DEGREE ANGLE FOR THE RADIAL GROUND RODS RELATIVE TO THE MAIN GROUND ROD.

ROADWAY SPAN STRUCTURE WITH DUAL-POLE UPRIGHTS

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING ARRAY (3 OF 5)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-5

MARCH 2026

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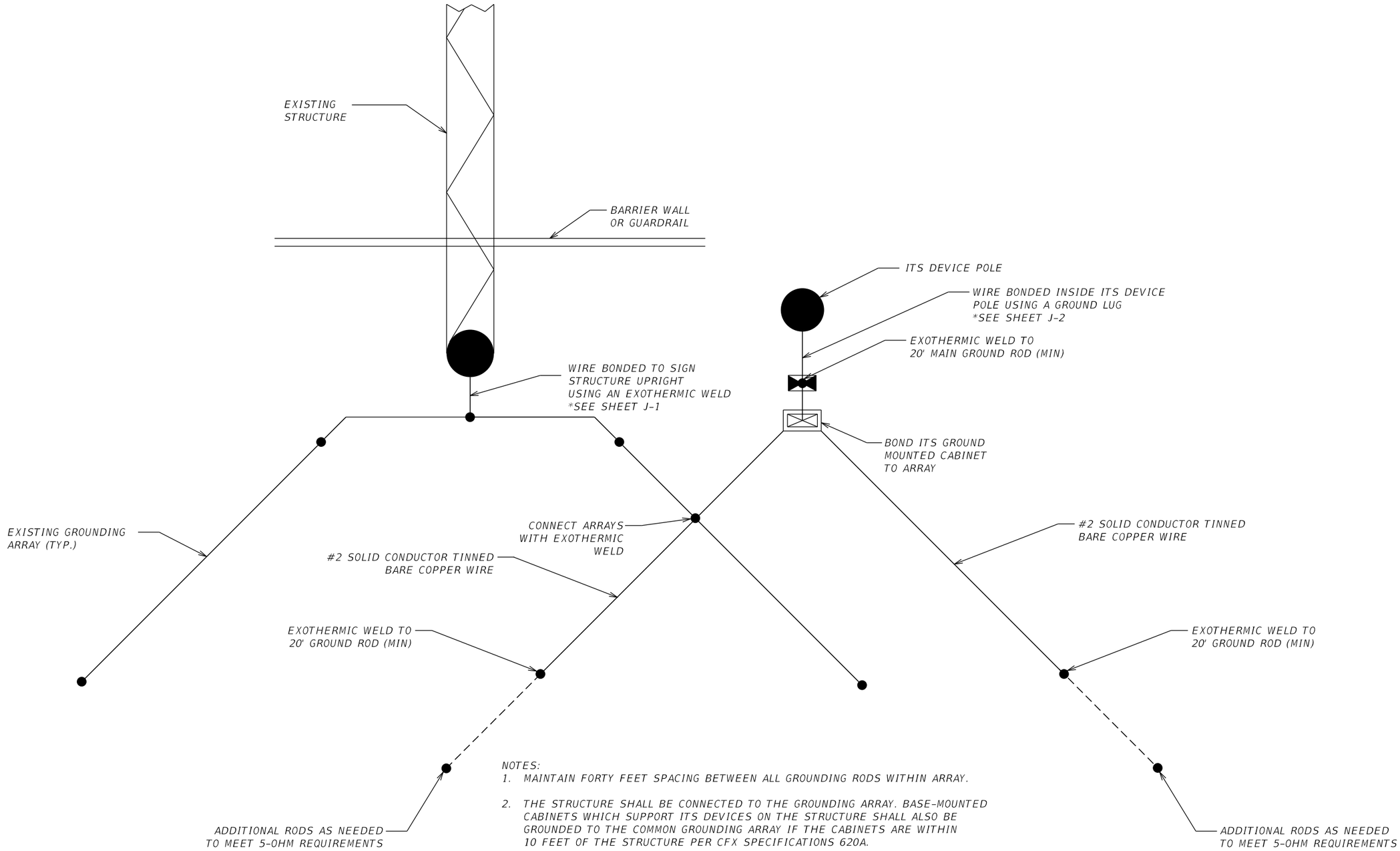

NOTES:

1. MAINTAIN FORTY FEET SPACING BETWEEN ALL GROUNDING RODS WITHIN ARRAY.
2. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY. BASE-MOUNTED CABINETS WHICH SUPPORT ITS DEVICES ON THE STRUCTURE SHALL ALSO BE GROUNDED TO THE COMMON GROUNDING ARRAY IF THE CABINETS ARE WITHIN 10 FEET OF THE STRUCTURE PER CFX SPECIFICATIONS 620A.

GROUNDING DETAIL IN PROXIMITY TO ITS SIGN STRUCTURE

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING ARRAY (4 OF 5)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-6

MARCH 2026

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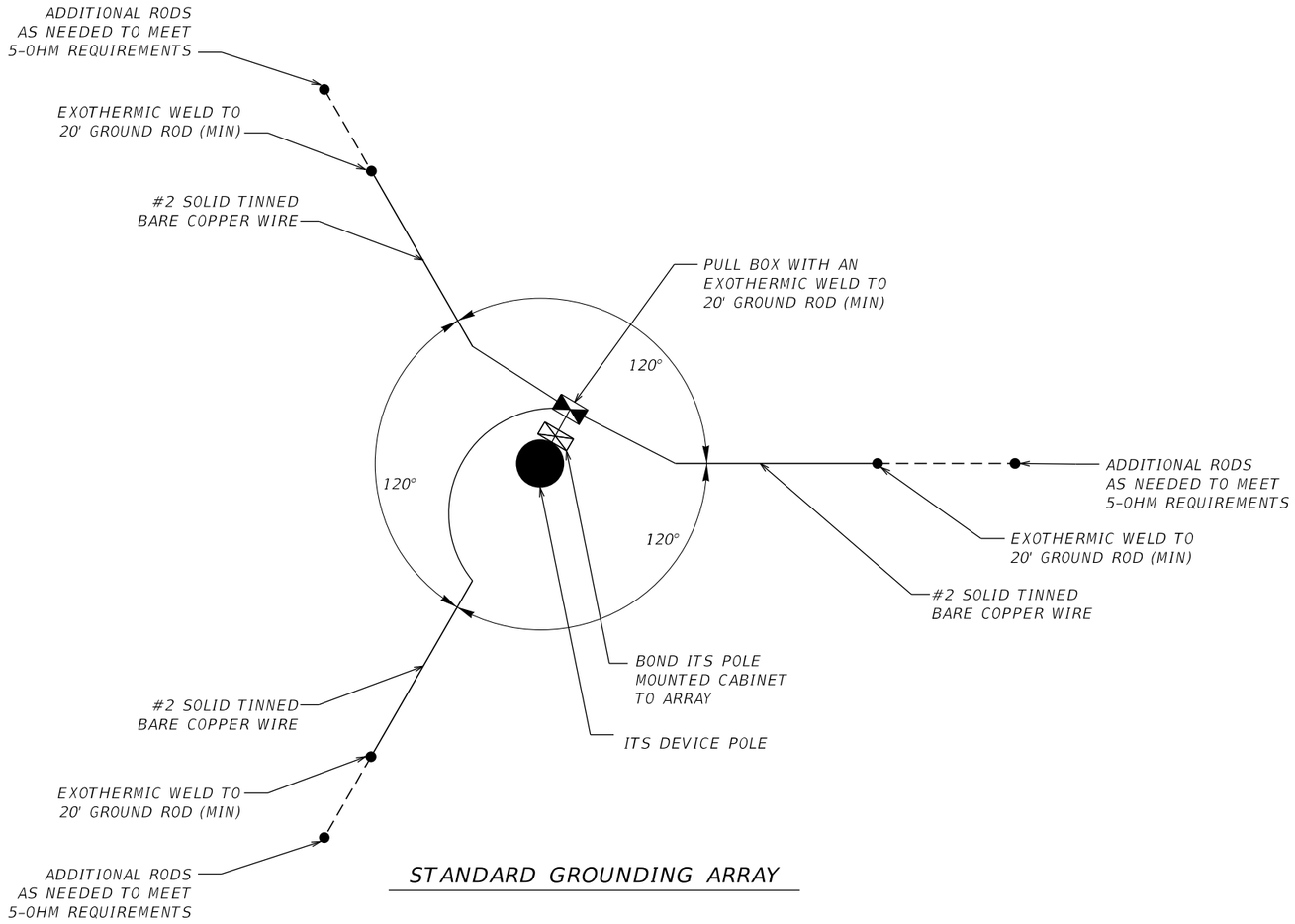
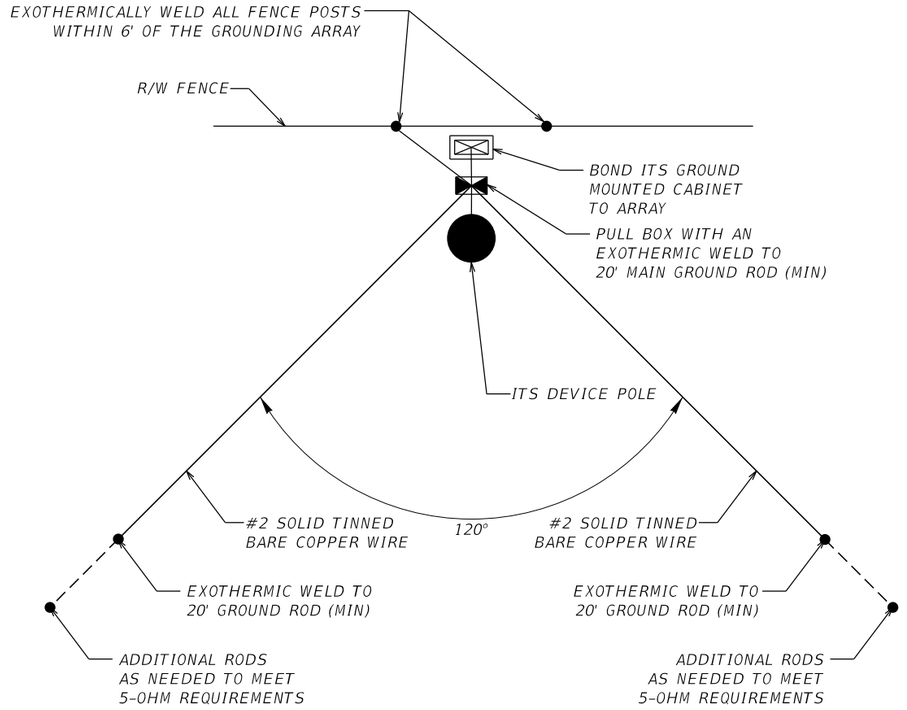
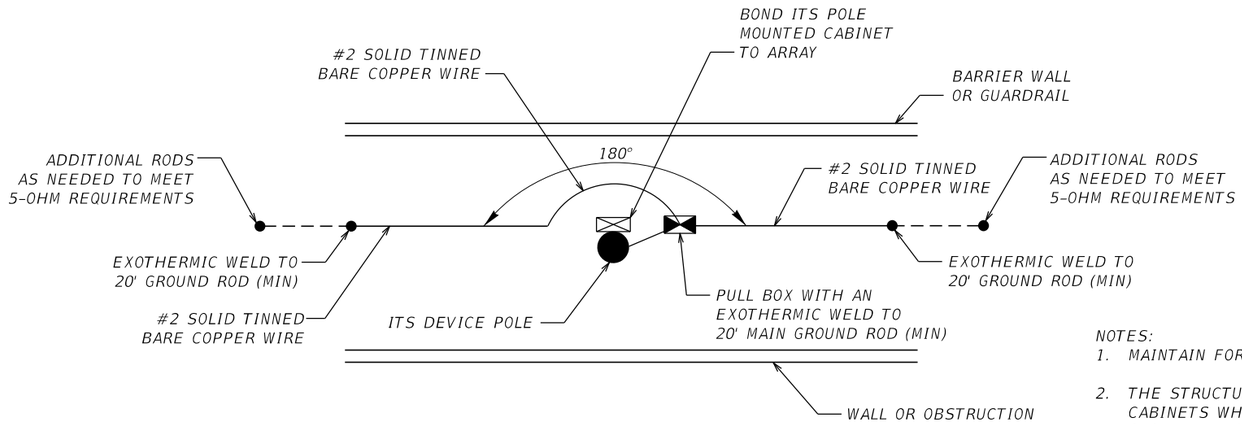


STANDARD GROUNDING ARRAY



GROUNDING ARRAY - LIMITED R/W



GROUNDING ARRAY - LIMITED R/W

NOTES:

1. MAINTAIN FORTY FEET SPACING BETWEEN ALL GROUNDING RODS WITHIN ARRAY.
2. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY. BASE-MOUNTED CABINETS WHICH SUPPORT ITS DEVICES ON THE STRUCTURE SHALL ALSO BE GROUNDED TO THE COMMON GROUNDING ARRAY IF THE CABINETS ARE WITHIN 10 FEET OF THE STRUCTURE PER CFX SPECIFICATIONS 620A.

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING ARRAY (5 OF 5)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-7

MARCH 2026

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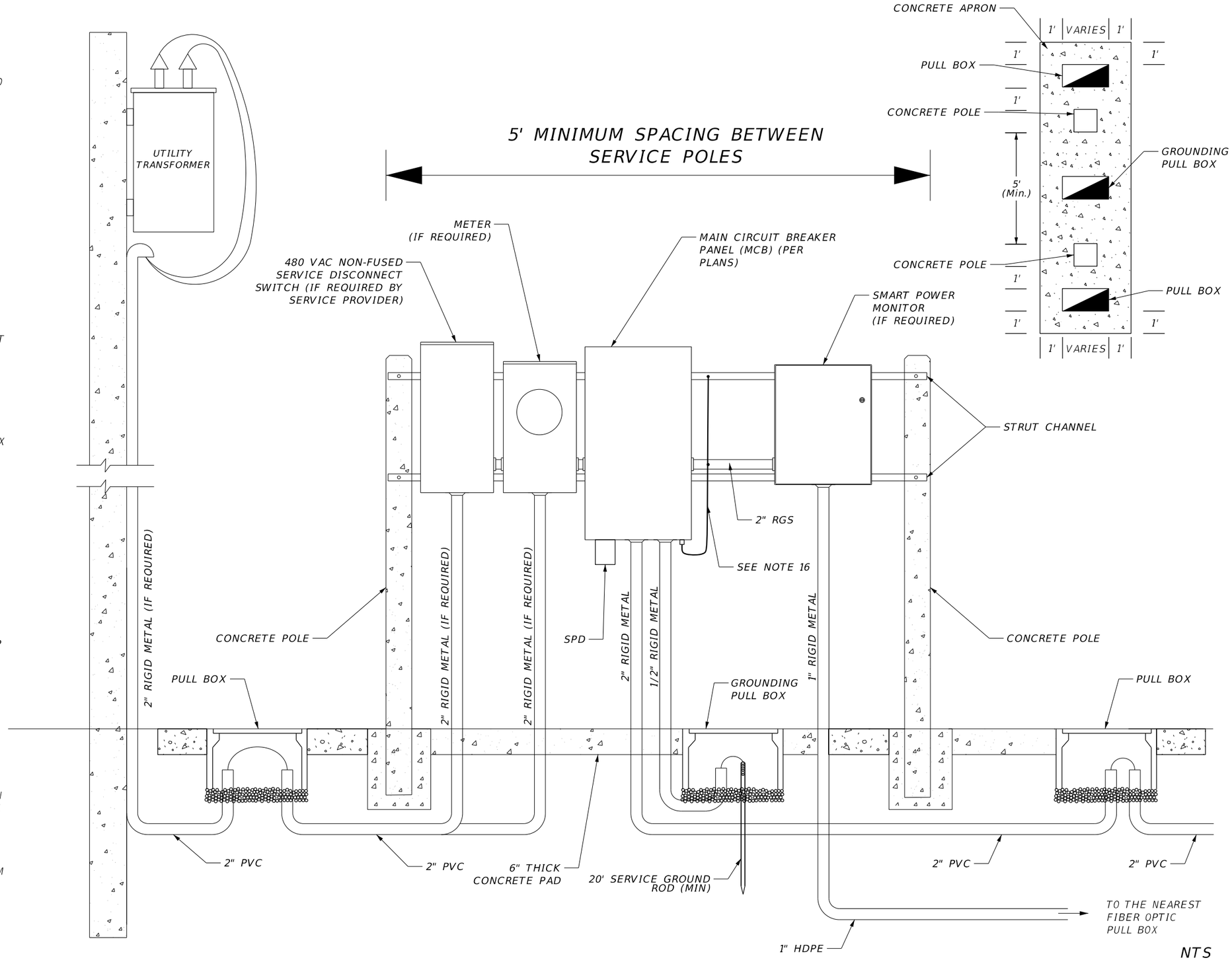
NOTES:

1. THE ENCLOSURES SHALL BE NEMA 3R. 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. THE SPD SHALL HAVE A PROTECTION STATUS INDICATOR LED.
4. A MAIN BREAKER IS REQUIRED IN ALL MAIN CIRCUIT BREAKER PANELS.
5. ALL SERVICE EQUIPMENT SHALL BE U.L. APPROVED.
6. ALL EDGES TO HAVE ½" CHAMFER.
7. DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
8. MOUNT STRUT CHANNEL USING ½" BOLT THROUGH POST OR LEAD ANCHOR AND BOLT. DO NOT USE POWER GUN TO SHOOT FASTENERS INTO POST. DO NOT USE PLASTIC ANCHORS.
9. STRUT CHANNEL IS NOT TO EXTEND PAST THE OUTER SIDES OF THE H-FRAME CONCRETE POSTS.
10. CONCRETE POLES SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 639A-3.10.
11. RGS SHALL TRANSITION TO PVC NO LESS THAN 6" BELOW GRADE. A CFX APPROVED RGS TO PVC CONNECTOR MUST BE USED.
12. 6" THICK CONCRETE PAD SHALL BE A MINIMUM OF CLASS I NON -STRUCTURAL 2500 PSI CONCRETE AND SHALL BE INCIDENTAL TO THE PULL BOX AND CONCRETE POLE PAY ITEMS.
13. GROUNDING SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A-2.2.
14. CONDUIT ENTERING A PULL BOX SHALL EXTEND A MINIMUM OF 2" BUT NO MORE THAN 4" ABOVE THE TOP OF THE DRAINAGE LAYER.
15. THE METER ENCLOSURE SHALL BE GROUNDED IN ACCORDANCE WITH THE SERVICE PROVIDER'S REQUIREMENTS.
16. BOND GROUNDING BONDING JUMPER 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 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.
17. MIN. #10 AWG XHHW WIRE SHALL BE INSTALLED FROM MAIN CIRCUIT PANEL TO POWER MONITOR.



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ELECTRICAL SERVICE ASSEMBLY WITHOUT A TRANSFORMER

SHEET NO. J-8

MARCH 2026

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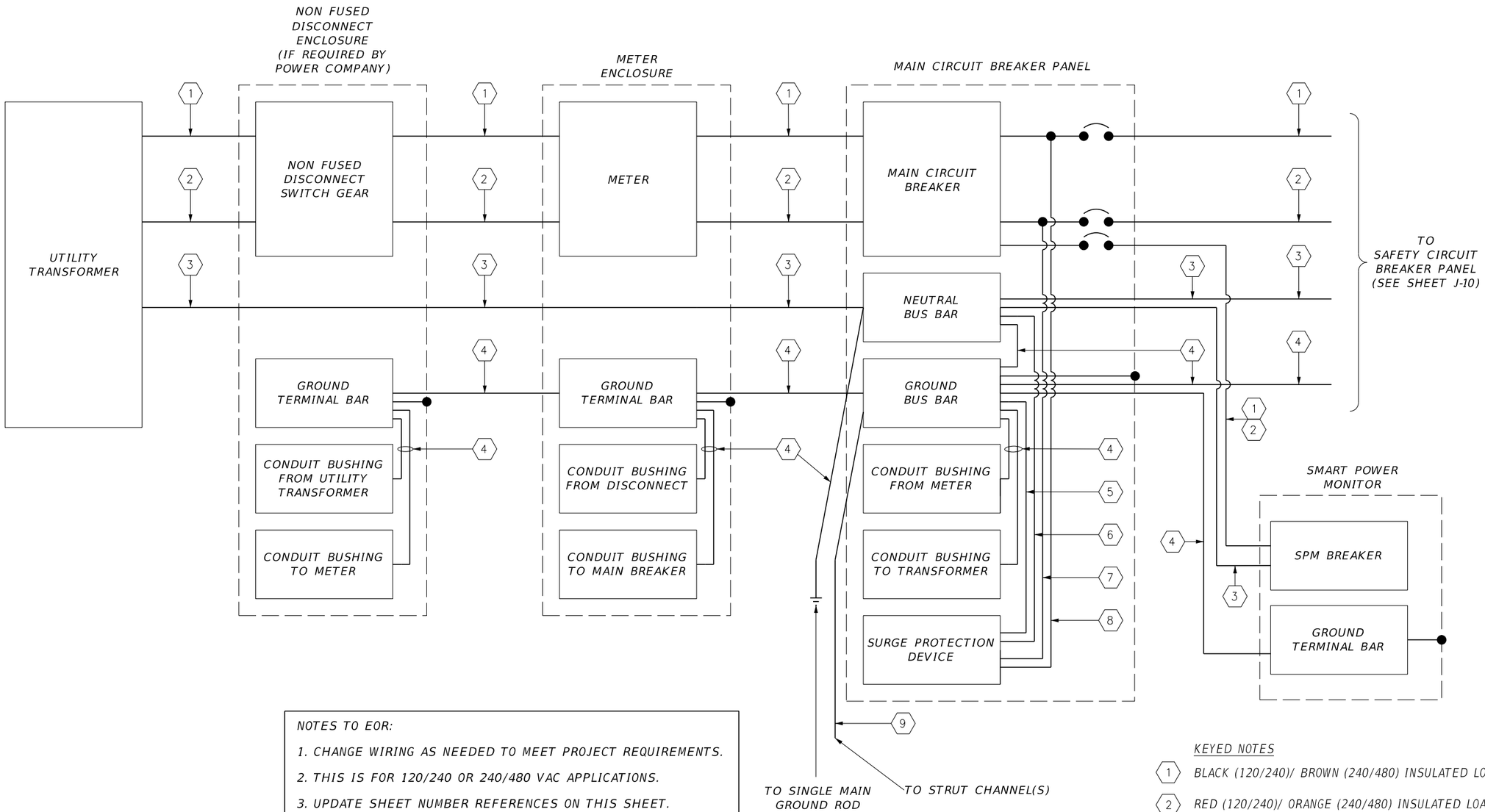

NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR 120/240 OR 240/480 VAC APPLICATIONS.
3. UPDATE SHEET NUMBER REFERENCES ON THIS SHEET.

KEYED NOTES

1. BLACK (120/240)/ BROWN (240/480) INSULATED LOAD CONDUCTOR A
2. RED (120/240)/ ORANGE (240/480) INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
3. WHITE (120/240)/ GRAY (240/480) 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. BARE GROUNDING BONDING JUMPER

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.
2. THE METER ENCLOSURE SHALL BE GROUNDED IN ACCORDANCE WITH THE SERVICE PROVIDER'S REQUIREMENTS.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ELECTRICAL SERVICE ASSEMBLY WITHOUT A STEP-UP TRANSFORMER WIRING DIAGRAM	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-9

MARCH 2026

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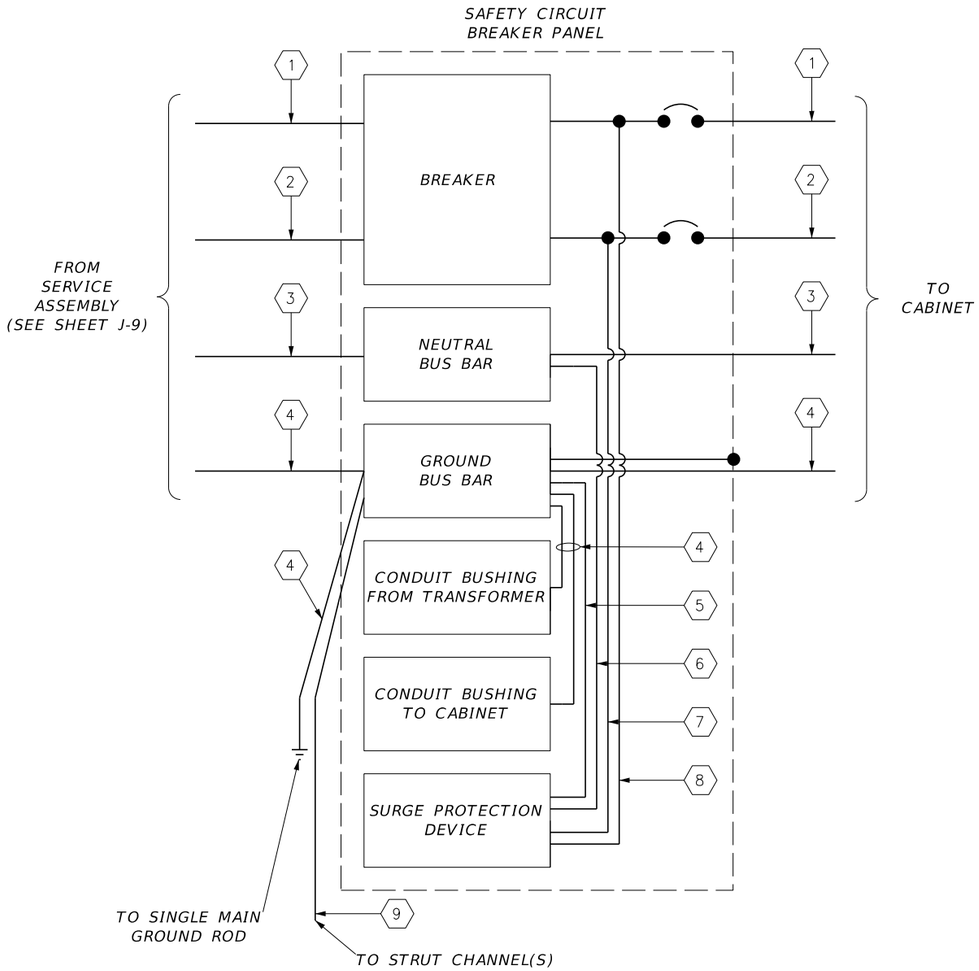


NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR 120/240 OR 240/480 VAC APPLICATIONS.
3. UPDATE SHEET NUMBER REFERENCES ON THIS SHEET.

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 SAFTEY DISCONNECT ASSEMBLY IS #6 AWG COPPER XHHW.
2. NO NEUTRAL TO GROUND BOND IS MADE IN THIS PANEL.

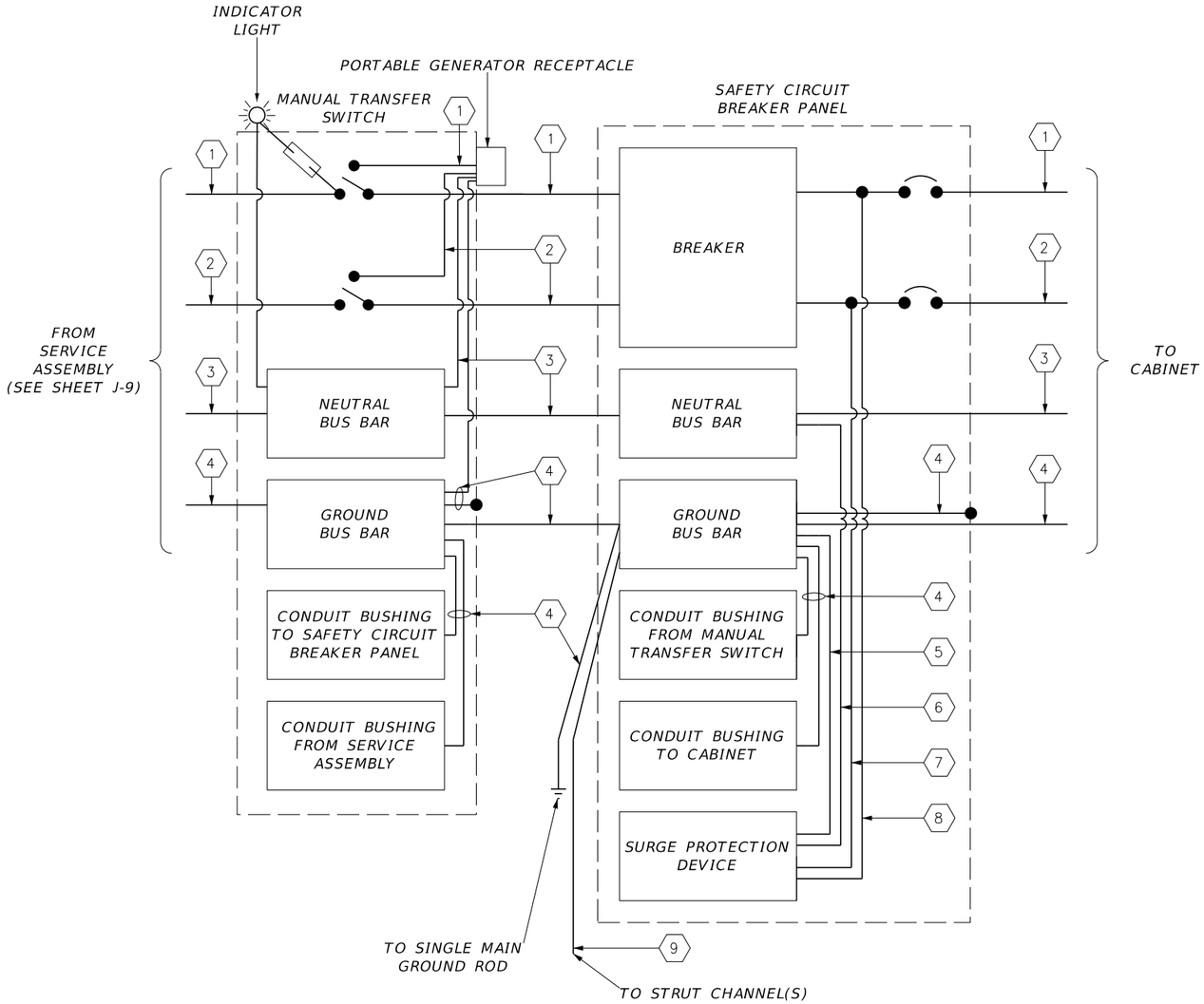
KEYED NOTES

1. BLACK (120/240)/ BROWN (240/480) INSULATED LOAD CONDUCTOR A
2. RED (120/240)/ ORANGE (240/480) INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
3. WHITE (120/240)/ GRAY (240/480) 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. BARE GROUNDING BONDING JUMPER

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	SAFETY PANEL WITHOUT A STEP-DOWN TRANSFROMER WIRING DIAGRAM	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-10

MARCH 2026

2/27/2026 10:23:42 AM



NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR 120/240 OR 240/480 VAC APPLICATIONS.
3. UPDATE SHEET NUMBER REFERENCES ON THIS SHEET.

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 SAFTEY DISCONNECT ASSEMBLY IS #6 AWG COPPER XHHW.
2. NO NEUTRAL TO GROUND BOND IS MADE IN THIS PANEL.

KEYED NOTES

1. BLACK (120/240)/ BROWN (240/480) INSULATED LOAD CONDUCTOR A
2. RED (120/240)/ ORANGE (240/480) INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
3. WHITE (120/240)/ GRAY (240/480) 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. BARE GROUNDING BONDING JUMPER

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	SAFETY PANEL WITHOUT A STEP-DOWN TRANSFROMER WITH MANUAL TRANSFER SWITCH	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-10A

MARCH 2026

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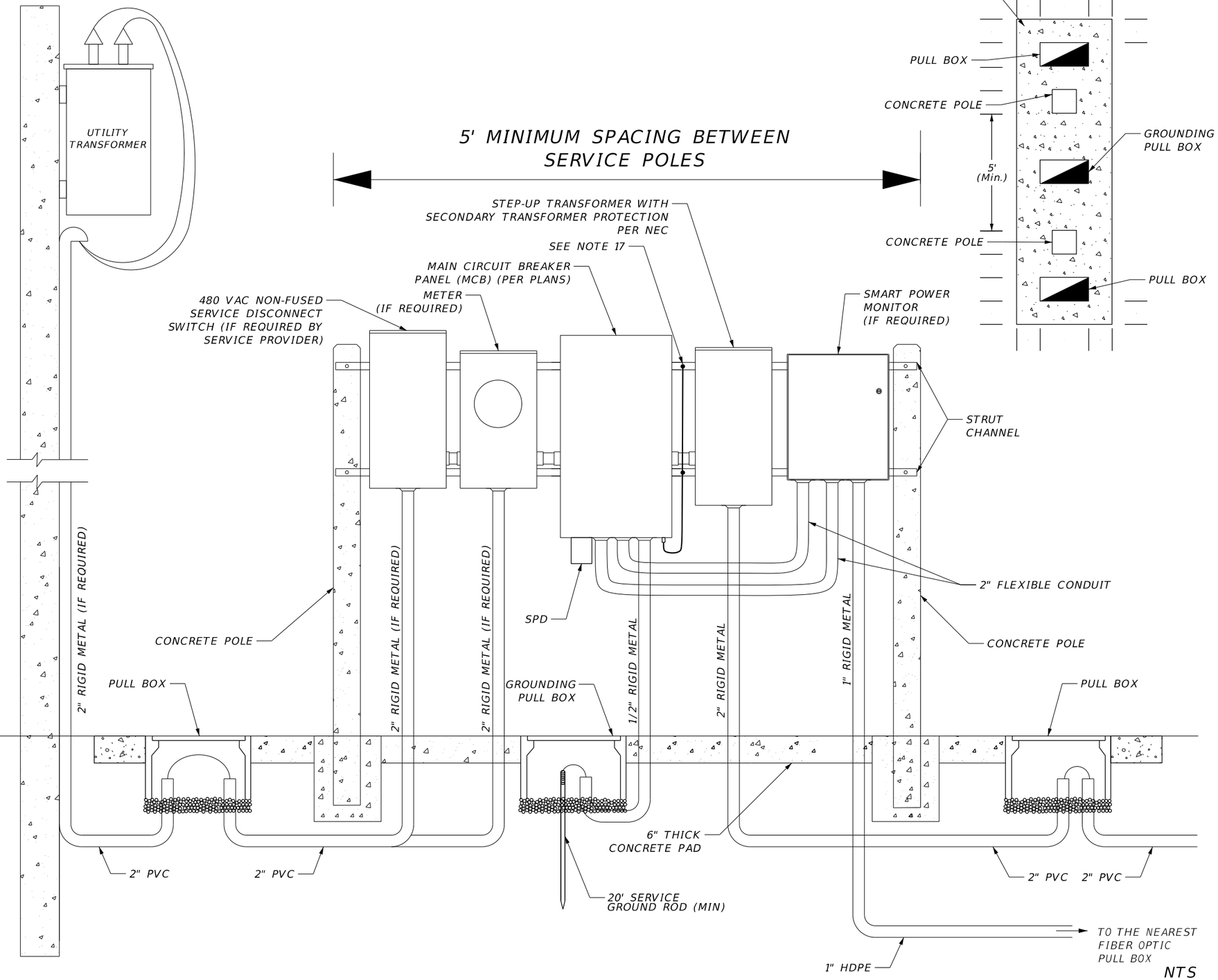
NOTES:

1. THE ENCLOSURES SHALL BE NEMA 3R. 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. THE SPD SHALL HAVE A LED INDICATOR AND BE LIT TO SHOW PROTECTION.
4. A MAIN CIRCUIT BREAKER IS REQUIRED IN ALL SERVICE PANELS WITH TWO OR MORE BRANCH BREAKERS.
5. ALL SERVICE EQUIPMENT SHALL BE U.L. APPROVED.
6. ALL EDGES TO HAVE ½" CHAMFER.
7. DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
8. MOUNT KINDORF CHANNEL USING ½" BOLT THROUGH POST OR LEAD ANCHOR AND BOLT. DO NOT USE POWER GUN TO SHOOT FASTENERS INTO POST. DO NOT USE PLASTIC ANCHORS.
9. KINDORF CHANNEL IS NOT TO EXTEND PAST THE OUTER SIDES OF THE H-FRAME CONCRETE POSTS.
10. CONCRETE POLES SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 639A-3.10.
11. RGS SHALL TRANSITION TO PVC NO LESS THAN 6" BELOW GRADE. A CFX APPROVED RGS TO PVC CONNECTOR MUST BE USED.
12. 6" THICK CONCRETE PAD SHALL BE A MINIMUM OF CLASS I NON -STRUCTURAL 2500 PSI CONCRETE AND SHALL BE INCIDENTAL TO THE PULL BOX AND CONCRETE POLE PAY ITEMS.
13. GROUNDING SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A-2.2.
14. PROVIDE OVERCURRENT PROTECTION FOR THE SECONDARY WIRES OF THE TRANSFORMER AS REQUIRED BY N.E.C.
15. CONDUIT ENTERING A PULL BOX SHALL EXTEND A MINIMUM OF 2" BUT NO MORE THAN 4" ABOVE THE TOP OF THE DRAINAGE LAYER.
16. THE METER ENCLOSURE SHALL BE GROUNDED IN ACCORDANCE WITH THE SERVICE PROVIDER'S REQUIREMENTS.
17. BOND GROUNDING BONDING JUMPER 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.
18. MIN. #10 AWG XHHW WIRE SHALL BE INSTALLED FROM MAIN CIRCUIT BREAKER PANEL TO POWER MONITOR.



NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

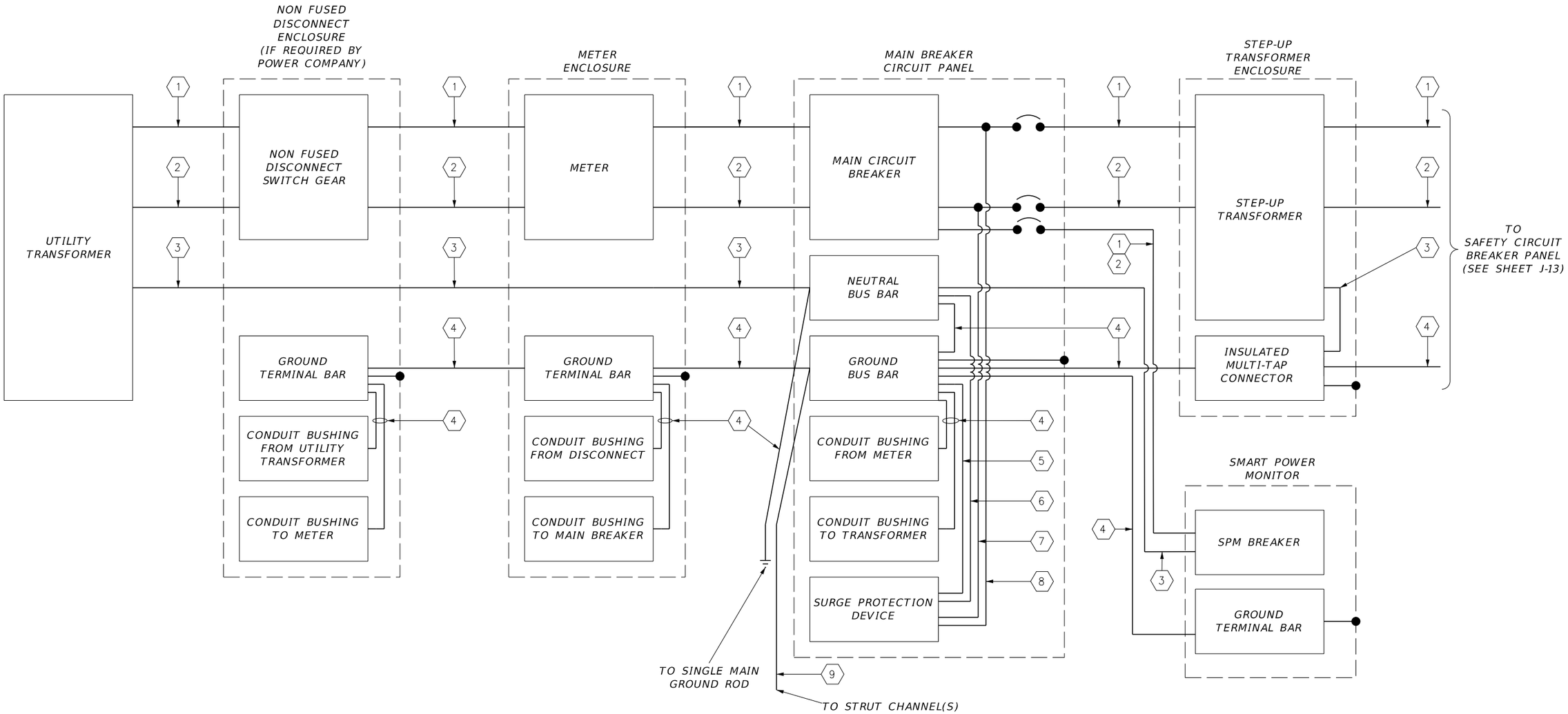
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ELECTRICAL SERVICE ASSEMBLY WITH A STEP-UP TRANSFOMER

SHEET NO. J-11

MARCH 2026

2/27/2026 10:23:42 AM



NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR 120/240 AND 240/480 VAC APPLICATIONS.
3. UPDATE SHEET NUMBER REFERENCES ON THIS SHEET.

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.
2. THE METER ENCLOSURE SHALL BE GROUNDED IN ACCORDANCE WITH THE SERVICE PROVIDER'S REQUIREMENTS.

KEYED NOTES

1. BLACK (120/240)/ BROWN (240/480) INSULATED LOAD CONDUCTOR A
2. RED (120/240)/ ORANGE (240/480) INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
3. WHITE (120/240)/ GRAY (240/480) INSULATED NEUTRAL CONDUCTOR
4. GREEN INSULATED GROUND CONDUCTOR
5. SURGE PROTECTION DEVICE GROUND WIRE
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7. SURGE PROTECTION DEVICE LOAD WIRE B
8. SURGE PROTECTION DEVICE LOAD WIRE A
9. BARE GROUNDING BONDING JUMPER

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

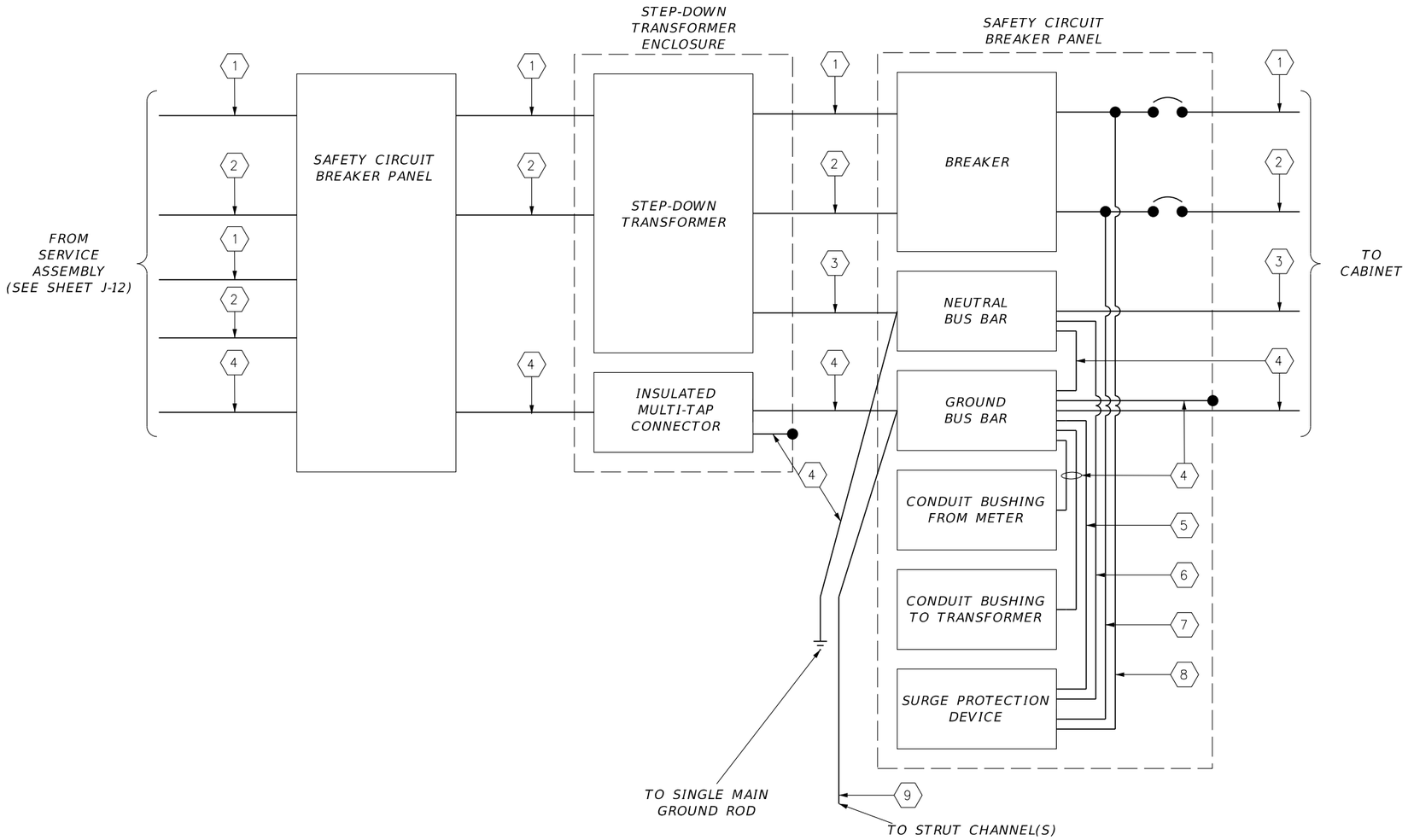
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ELECTRICAL SERVICE ASSEMBLY WITH A STEP-UP TRANSFORMER WIRING DIAGRAM

SHEET NO. J-12

MARCH 2026

2/27/2026 10:23:43 AM



NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR 120/240 AND 240/480 VAC APPLICATIONS.
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KEYED NOTES

1. BLACK (120/240)/ BROWN (240/480) INSULATED LOAD CONDUCTOR A
2. RED (120/240)/ ORANGE (240/480) INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
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4. GREEN INSULATED GROUND CONDUCTOR
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7. SURGE PROTECTION DEVICE LOAD WIRE B
8. SURGE PROTECTION DEVICE LOAD WIRE A
9. BARE GROUNDING BONDING JUMPER

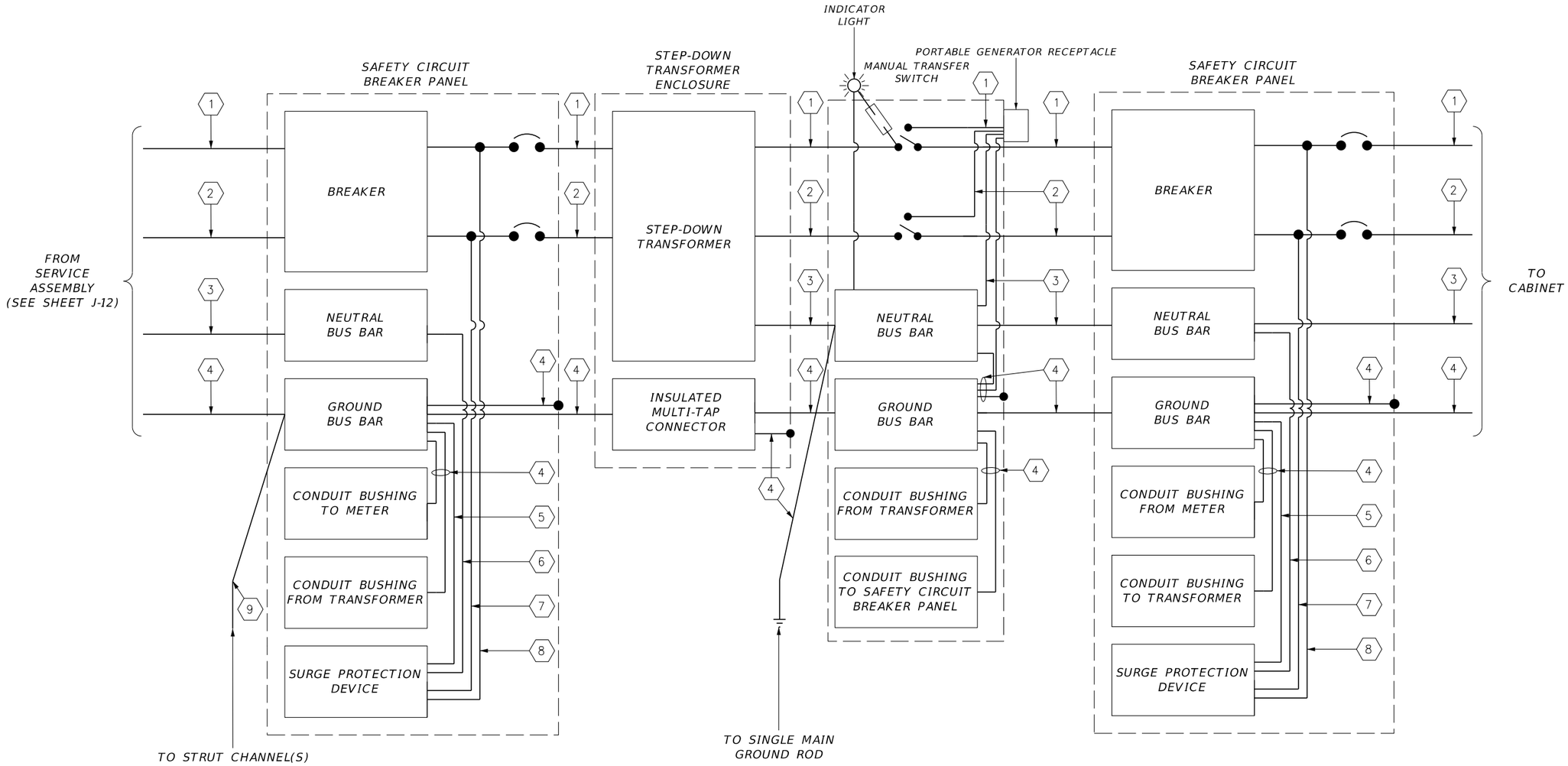
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SAFETY PANEL WITH A STEP-DOWN TRANSFORMER WIRING DIAGRAM

SHEET NO. J-13

MARCH 2026

2/27/2026 10:23:43 AM



NOTES TO EOR:

1. CHANGE WIRING AS NEEDED TO MEET PROJECT REQUIREMENTS.
2. THIS IS FOR 120/240 AND 240/480 VAC APPLICATIONS.
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KEYED NOTES

1. BLACK (120/240)/ BROWN (240/480) INSULATED LOAD CONDUCTOR A
2. RED (120/240)/ ORANGE (240/480) INSULATED LOAD CONDUCTOR B WHEN PROVIDED/REQUIRED
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

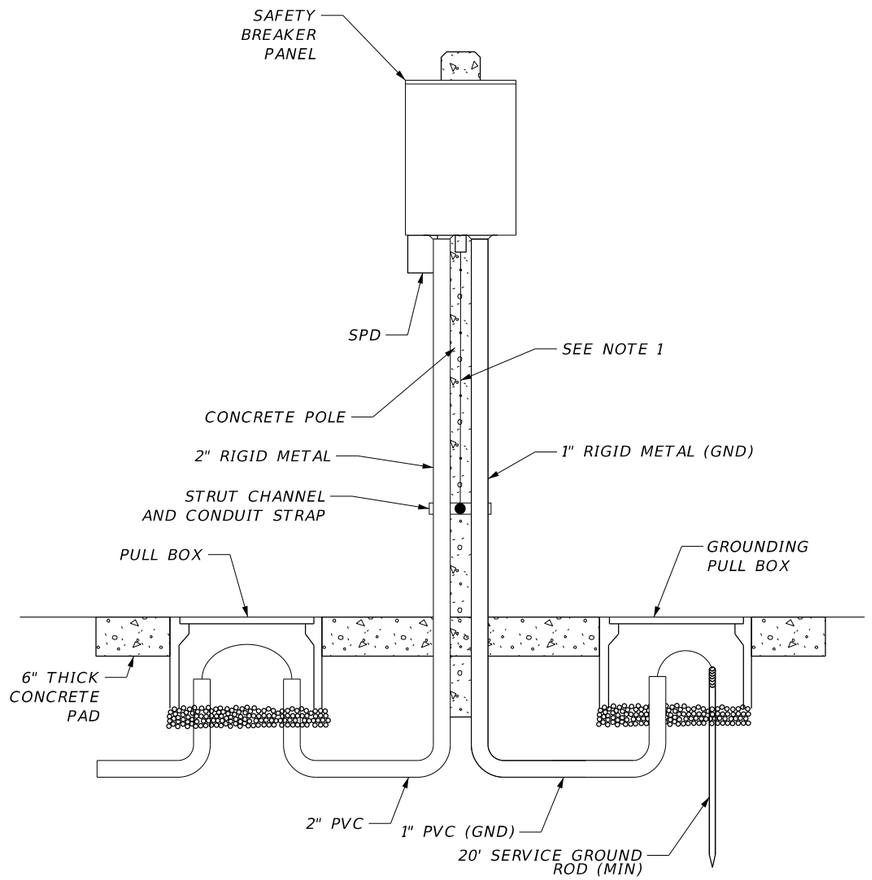
SAFETY PANEL WITH A STEP-DOWN TRANSFORMER AND MANUAL TRANSFER SWITCH

SHEET NO. J-13A

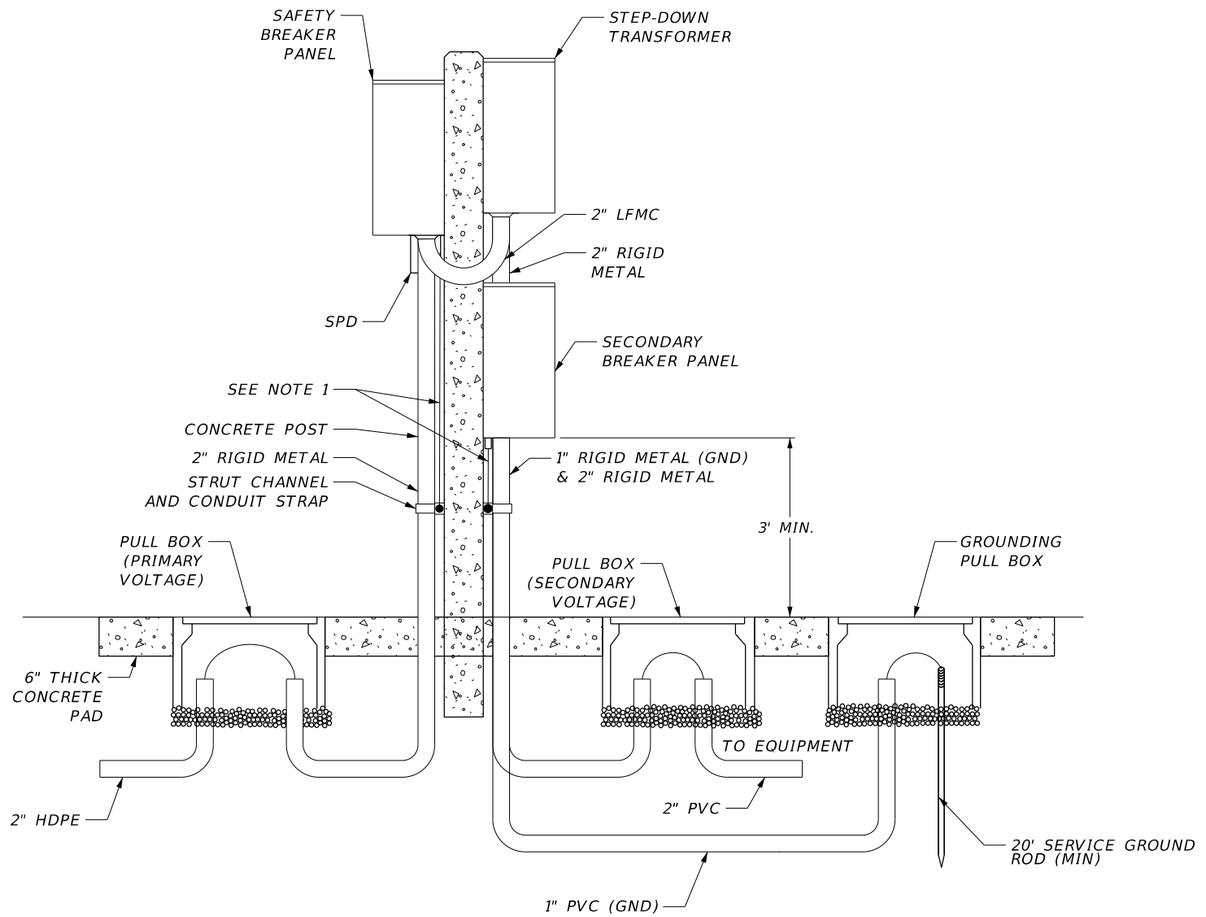
MARCH 2026

2/27/2026 10:23:43 AM

LOCAL HUB SERVICE POINT WITHOUT A TRANSFORMER



LOCAL HUB SERVICE POINT WITH STEP-DOWN TRANSFORMER AND SECONDARY BREAKER PANEL



NOTES:

1. BOND GROUNDING BONDING JUMPER 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 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.

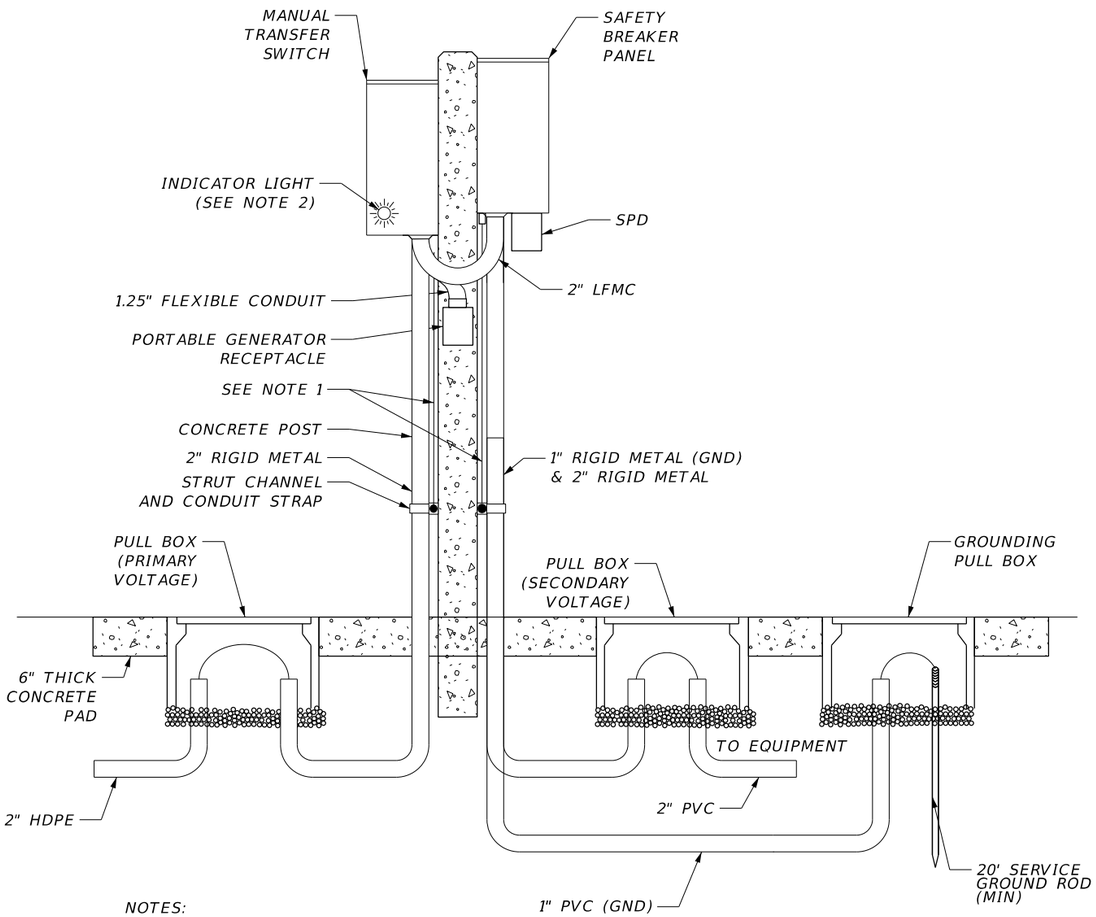
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LOCAL HUB ELETRICAL SERVICE ASSEMBLIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-14

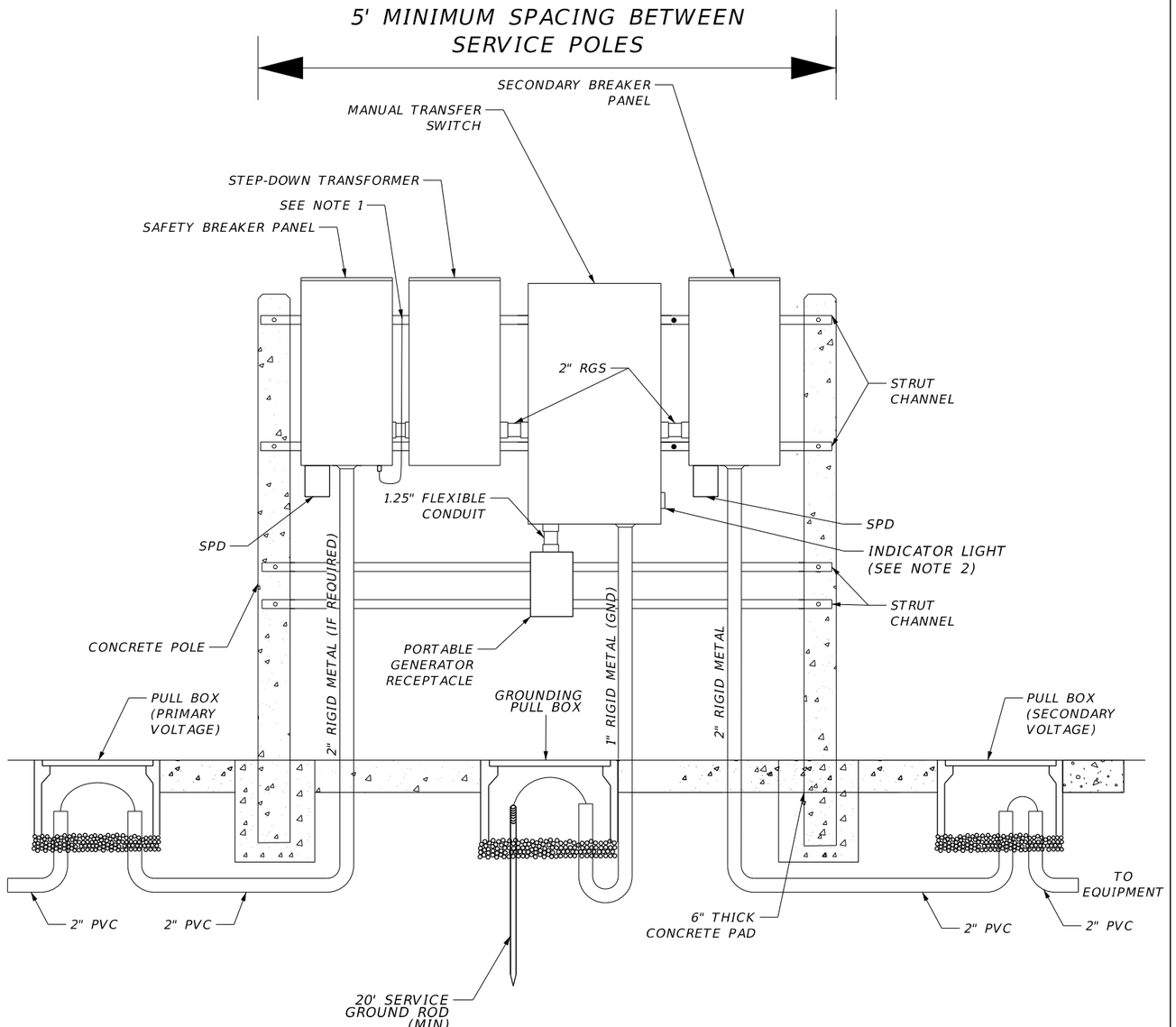
MARCH 2026

2/27/2026 10:23:44 AM

LOCAL HUB SERVICE POINT WITHOUT A TRANSFORMER



LOCAL HUB SERVICE POINT WITH A STEP-DOWN TRANSFORMER AND SECONDARY BREAKER PANEL



NOTES:

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2. INDICATOR LIGHT SHALL BE VIEWABLE FROM THE APPROACH DIRECTION OF TRAVEL ON THE MAINLINE.

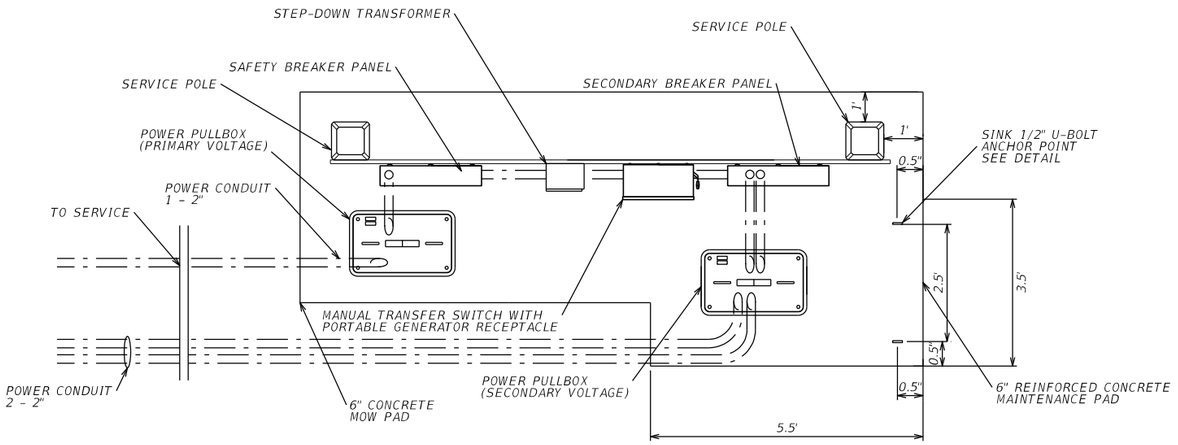
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LOCAL HUB WITH DMS ELECTRICAL SERVICE ASSEMBLIES (1 OF 2)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-15

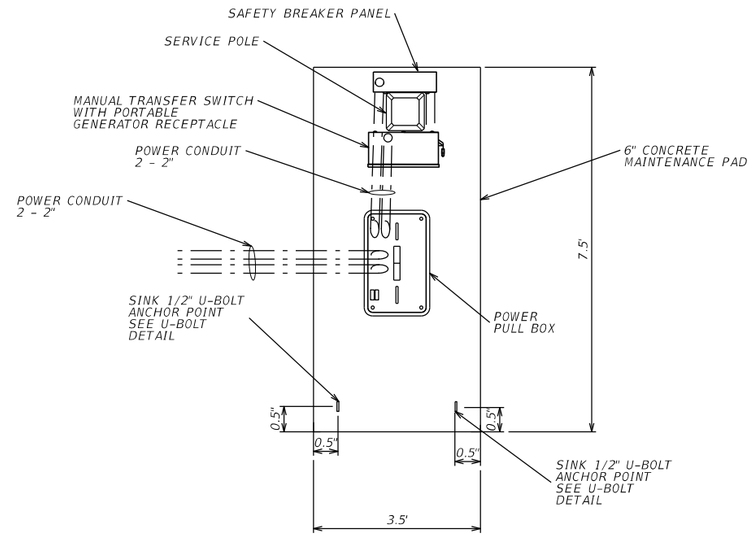
MARCH 2026

2/27/2026 10:23:44 AM

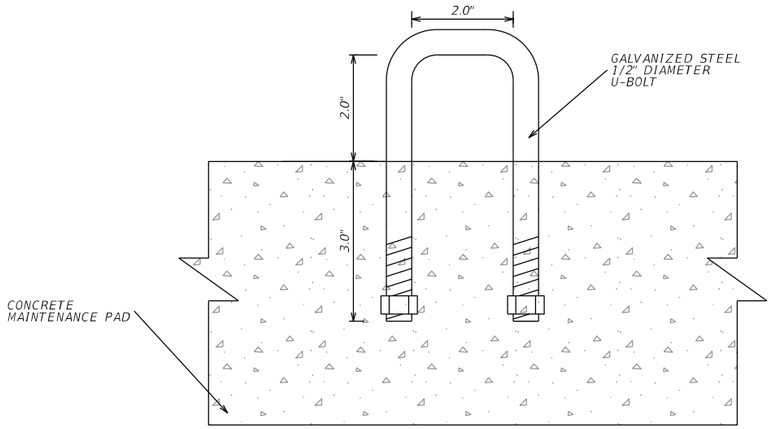
LOCAL HUB SERVICE POINT WITH STEP-DOWN TRANSFORMER AND SECONDARY BREAKER PANEL



LOCAL HUB SERVICE POINT WITHOUT A TRANSFORMER



U-BOLT DETAIL



N.T.S.

NOTE: SEE TYPICAL CONCRETE PULL BOX MOW PAD DETAILS FOR DIMENSIONING.

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

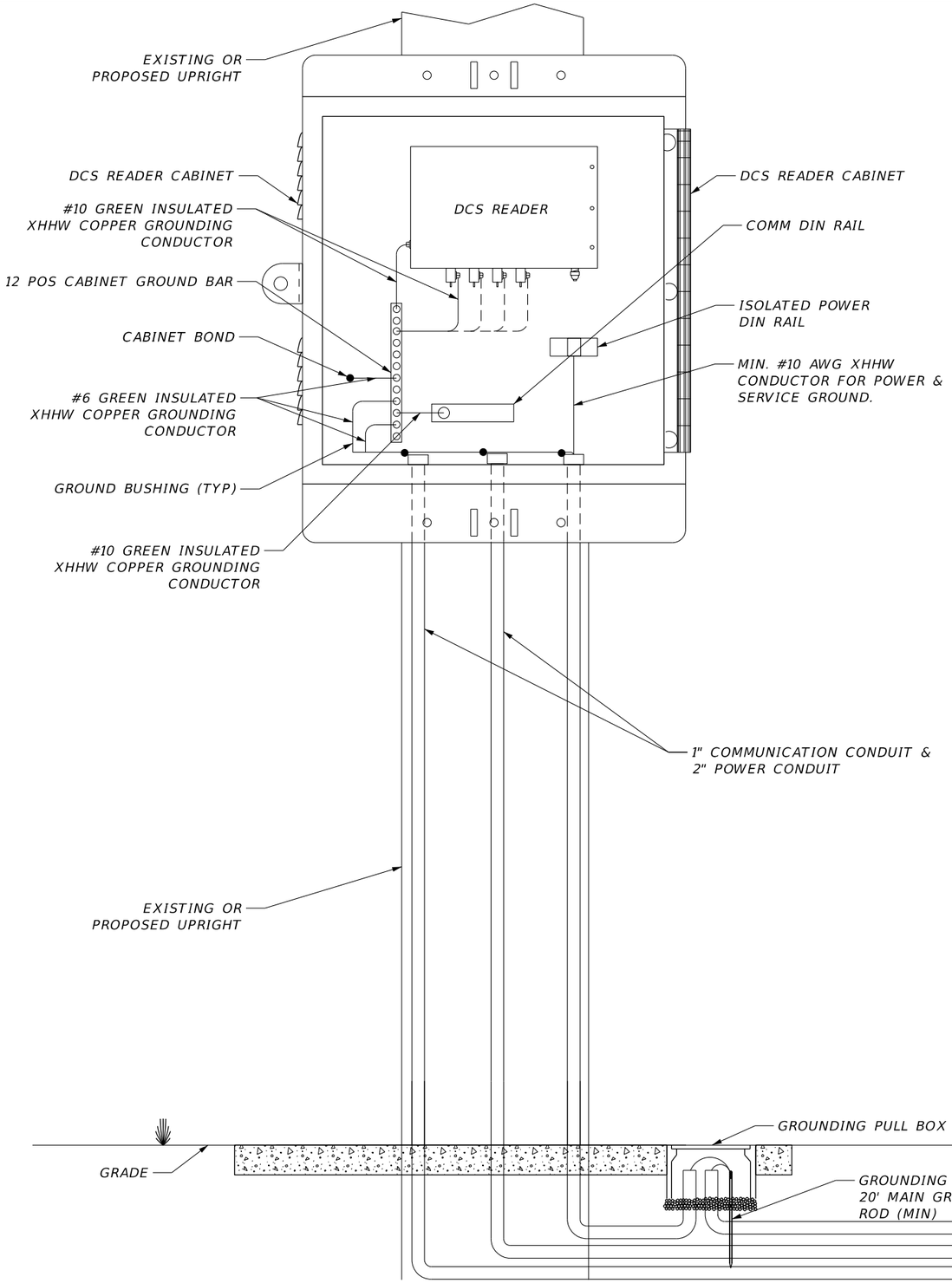
LOCAL HUB WITH DMS ELECTRICAL SERVICE ASSEMBLIES (2 OF 2)

SHEET NO.

J-16

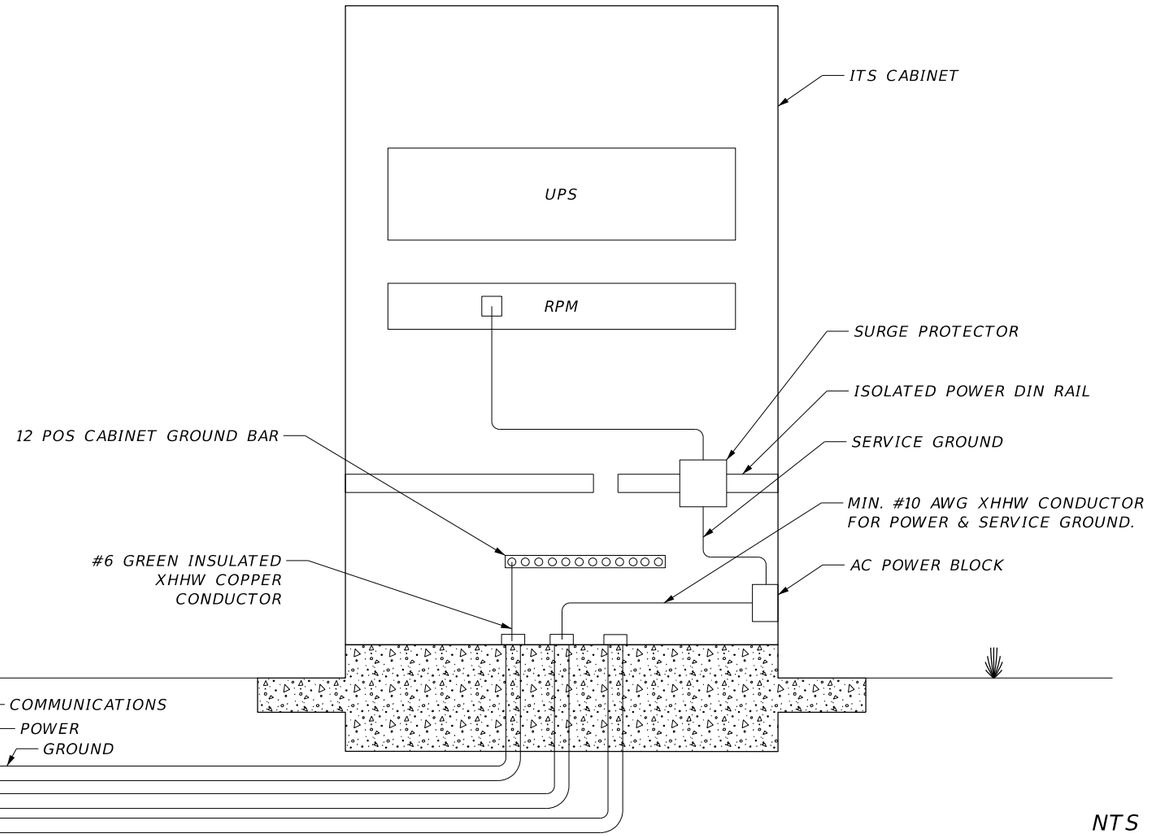
MARCH 2026

2/27/2026 10:23:44 AM



NOTES:

1. ALL STEEL PIPES SHALL BE GROUNDED.
2. NO NEUTRAL TO GROUND BONDS ARE TO BE MADE INSIDE THE CABINETS.
3. GROUNDING SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A.
4. MIN. #10 AWG XHHW CONDUCTOR SHALL BE INSTALLED FROM THE ITS CABINET RPM TO THE DCS READER CABINET FOR POWER AND SERVICE GROUND.
5. DISTANCE FROM LHUB CABINET TO DCS READER CABINET SHALL NOT EXCEED 275'. IF DISTANCE EXCEEDS 275', USE REMOTE INSTALLATION DCS READER CABINET DETAIL (J-18).



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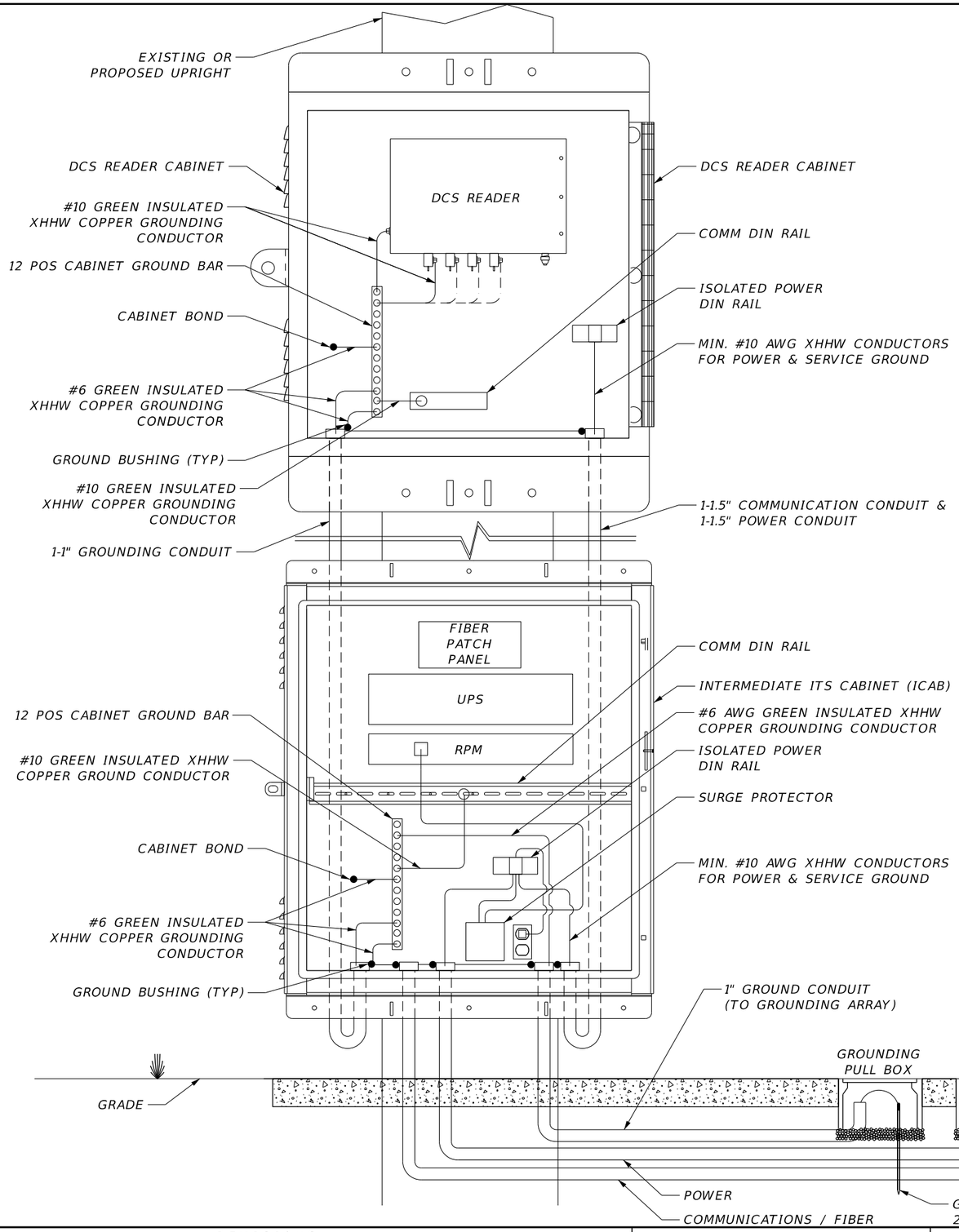
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS READER CABINET (1 OF 2) LOCAL INSTALLATION	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-17

MARCH 2026

2/27/2026 10:23:44 AM



NOTES:

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3. GROUNDING SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A.
4. MIN. #10 AWG XHHW CONDUCTOR SHALL BE INSTALLED FROM THE RPM TO THE DCS READER CABINET FOR POWER AND SERVICE GROUND.

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS READER CABINET (2 OF 2) REMOTE INSTALLATION

SHEET NO. J-18

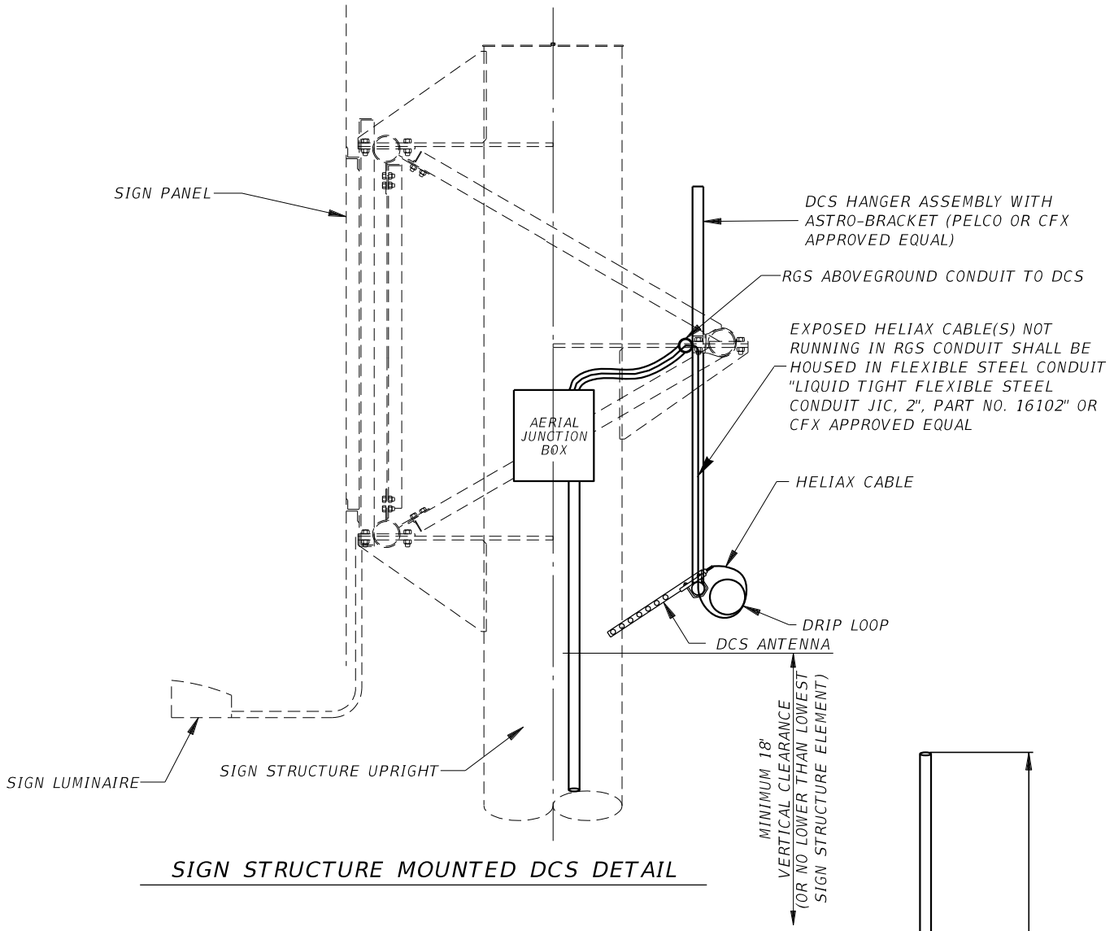
MARCH 2026

2/27/2026 10:23:45 AM

NOTES:

1. ANTENNA SHOWN MOUNTED TO BACK CORD, FRONT INSTALLATION MAY BE USED WHEN APPROVED BY CFX.

2. THE FLEX CONDUIT SHALL BE MECHANICALLY ATTACHED TO THE DCS HANGER ASSEMBLY. PLASTIC TIE-WRAPS ARE NOT ACCEPTABLE.

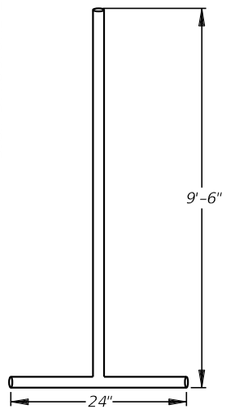


SIGN STRUCTURE MOUNTED DCS DETAIL

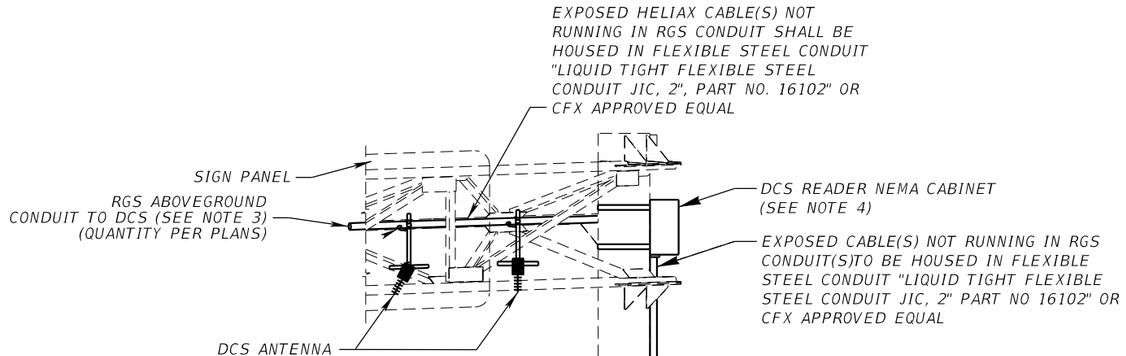
NOTES:

THE DCS HANGER ASSEMBLY SHALL INCLUDE AN ALUMINUM "T" OR "L" SHAPED DOWN ROD WITH THE FOLLOWING SPECIFICATIONS:

- CONSTRUCTED OF 1.5" TRADE SIZE 6063-T52 SERIES ALUMINUM ALLOY
- OVERALL LENGTH 9'-6" AND WIDTH OF 24"
- TUBE O.D. 1.9" AND TUBE WALL THICKNESS 0.138"
- MAY BE FIELD CUT TO SITE SPECIFIC LENGTHS
- TOP OF TUBE SHALL BE CAPPED TO PREVENT WATER ENTRUSION
- EACH ANTENNA SHALL BE ATTACHED TO A SINGLE HANGER ASSEMBLY



DCS HANGER ASSEMBLY



NOTES:

1. DCS CABINET TO BE MOUNTED TO STRUCTURE UPRIGHT WITH 2 STAINLESS STEEL BANDS.

2. WHEN INSTALLING DCS EQUIPMENT TO EXISTING STRUCTURE, CARE SHALL BE TAKEN AS TO NOT DAMAGE ANY EXISTING EQUIPMENT ATTACHED TO THE SIGN STRUCTURE. ANY DAMAGED EQUIPMENT SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

3. WHEN INSTALLING ABOVEGROUND CONDUIT ON SIGN STRUCTURES, THE CONDUIT SHALL BE ATTACHED TO THE BACK TRUSS CHORD TO MINIMIZE VISUAL IMPACT.

4. STAINLESS STEEL BANDS SHALL BE SIZED TO SUPPORT 3 TIMES THE WEIGHT OF THE CABINETS AND ITS CONTENTS.

5. SHOP DRAWINGS FOR THE DCS MOUNT WILL BE REQUIRED FOR ENGINEER'S REVIEW AND APPROVAL PRIOR TO FABRICATION. THE MOUNTING HARDWARE OF THE DSC SHALL BE SIZED TO SUPPORT 3 TIMES THE WEIGHT OF THE DCS, AND TO RESIST 3 TIMES THE WIND LOAD ON THE DCS DUE TO DESIGN WIND SPEED OF 150 MPH.

6. ANTENNA COLOR SHALL BE SUBMITTED TO CFX FOR APPROVAL.

7. CONDUIT SHALL ENTER THE POLE MOUNTED CABINET FROM THE BOTTOM.

8. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS.

NOTE:
SEE SHEETS J-1, L-4 AND L-5 FOR ADDITIONAL CABINET, CONDUIT AND GROUNDING DETAILS

SIGN STRUCTURE MOUNTED DCS

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

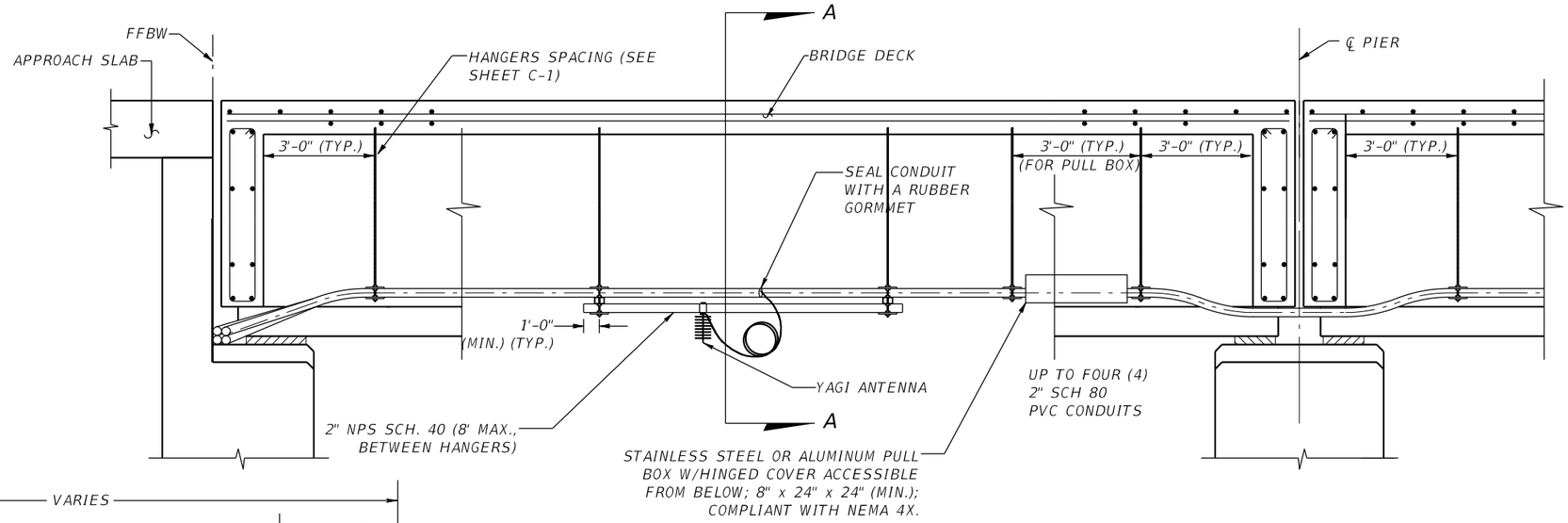
DCS INSTALLATION ON SIGN STRUCTURES MOUNTING DETAIL

SHEET NO.

K-1

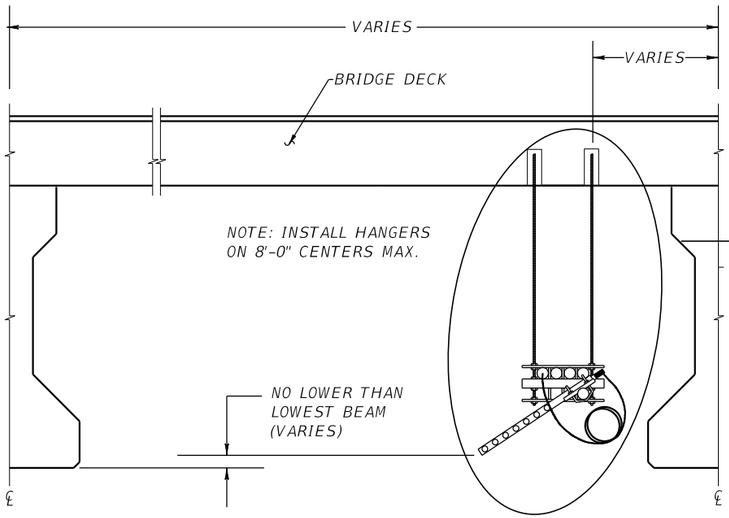
MARCH 2026

2/27/2026 10:23:45 AM



SECTION (THRU PIERS AND END BENTS) WITH ANTENNA HANGER

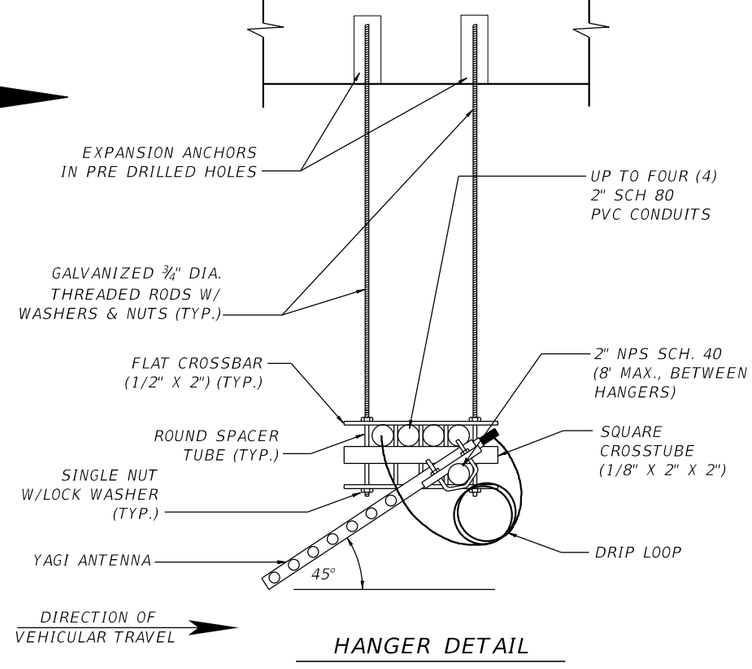
SEE HANGER DETAIL FOR UNDER BRIDGE DECK INSTALLATION



SECTION A-A

NOTES:

1. THE MECHANICAL EXPANSION ANCHORS INSTALLED IN PRE-DRILLED HOLES IN THE EXISTING BRIDGE DECK SHALL BE SIZED WITH A MINIMUM FACTOR OF SAFETY OF FOUR.
2. THE EXPANSION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. THE THREADED RODS SHALL BE IN ACCORDANCE WITH ASTM A36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
4. 2" RDS SCH. 40 STRUCTURAL PIPE SHALL BE IN ACCORDANCE WITH ASTM A53 FOR STANDARD WEIGHT PIPE (SCHEDULE 40) AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THE PIPE SHALL BE SECURED TO THE HANGERS WITH U-BOLTS TO AVOID MOVEMENT AND ROTATION.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE HANGER SYSTEM FOR APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE, AT A MINIMUM, HANGER LAYOUT AND HANGER DETAILS. LOCATIONS OF EXPANSION JOINTS AND ANCHOR POINTS, MOUNTING DETAILS OF ANTENNA TO PIPE AND ALL OTHER DETAILS REQUIRED FOR INSTALLATION OF ANTENNAS, CONDUITS AND HANGERS.
6. THE FURNISHING AND INSTALLATION OF THE HANGER SYSTEM, CONDUITS, ANTENNAS AND RELATED HARDWARE SHALL BE PAID UNDER PAY ITEM SERIES 663-74-14X.
7. IF OTHER TYPE OF ANTENNA IS TO BE INSTALLED, THE CONTRACTOR SHALL SUBMIT DESIGN, SHOP DRAWINGS, AND DESIGN CALCULATIONS FOR APPROVAL BY CFX.



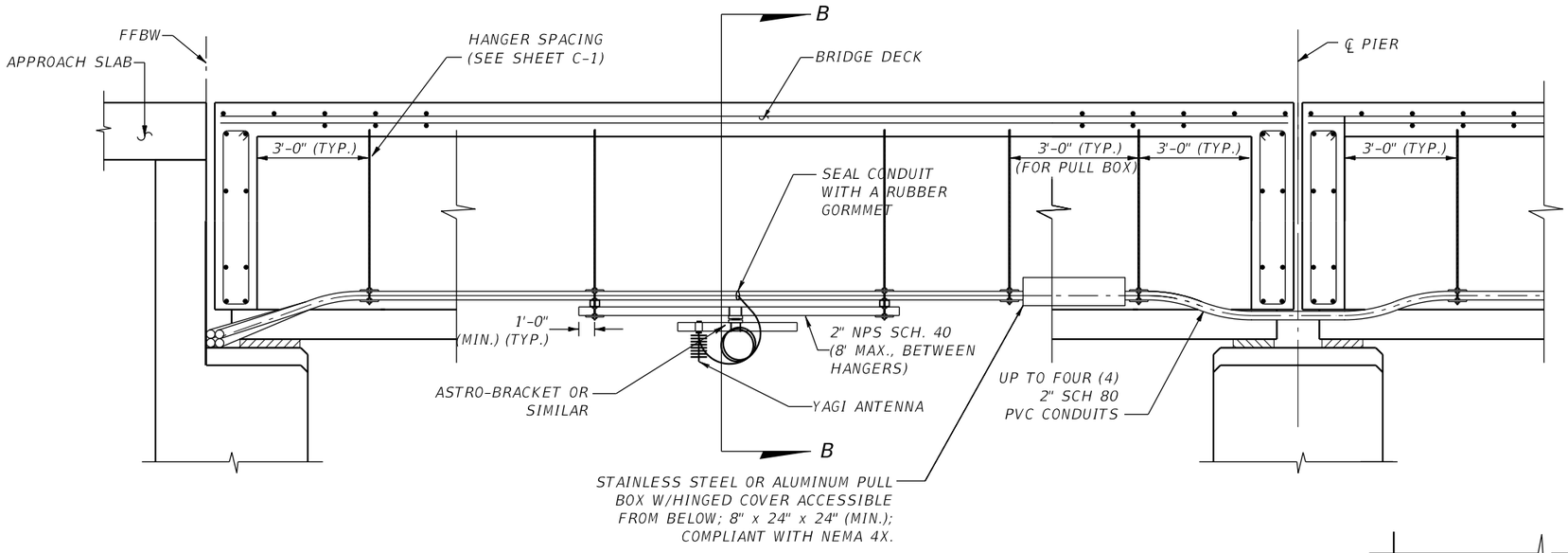
HANGER DETAIL

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS BRIDGE MOUNTING DETAIL (STRAIGHT BRIDGE)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-2

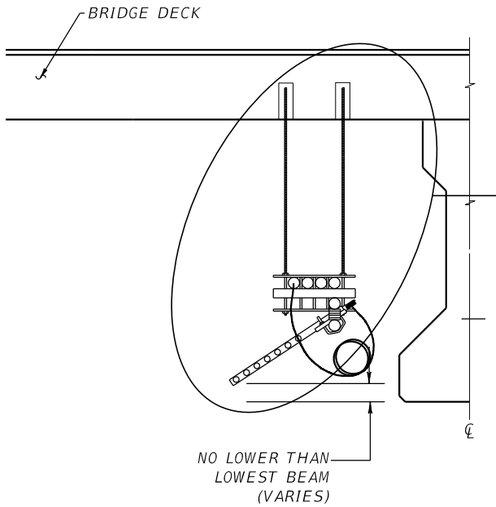
MARCH 2026

2/27/2026 10:23:45 AM



SECTION (THRU PIERS AND END BENTS)
WITH ANTENNA HANGER FOR SKEWED BRIDGES

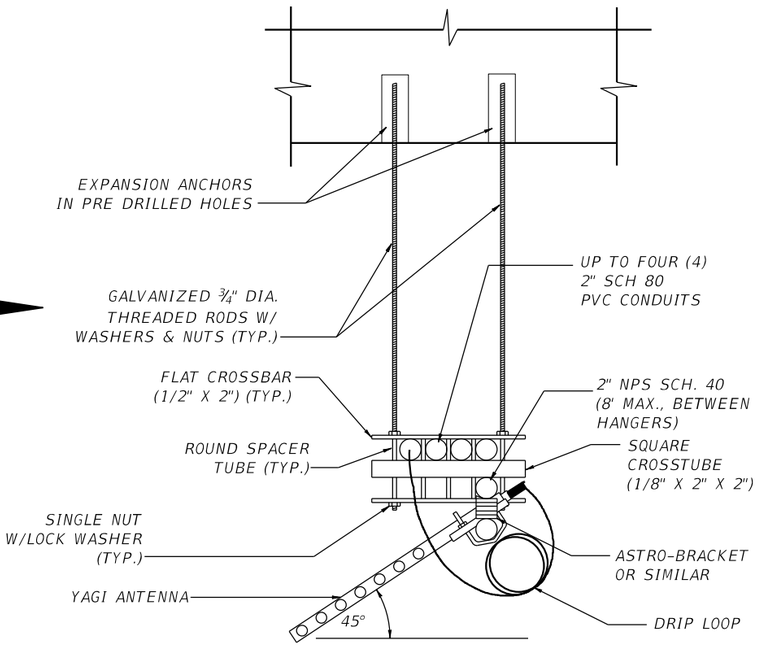
SEE HANGER DETAIL FOR UNDER BRIDGE DECK INSTALLATION



SECTION B-B
(SKEWED BRIDGE)

NOTES:

1. THE MECHANICAL EXPANSION ANCHORS INSTALLED IN PRE-DRILLED HOLES IN THE EXISTING BRIDGE DECK SHALL BE SIZED WITH A MINIMUM FACTOR OF SAFETY OF FOUR.
2. THE EXPANSION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. THE THREADED RODS SHALL BE IN ACCORDANCE WITH ASTM A36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
4. 2" RDS SCH. 40 STRUCTURAL PIPE SHALL BE IN ACCORDANCE WITH ASTM A53 FOR STANDARD WEIGHT PIPE (SCHEDULE 40) AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THE PIPE SHALL BE SECURED TO THE HANGERS WITH U-BOLTS TO AVOID MOVEMENT AND ROTATION.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE HANGER SYSTEM FOR APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE, AT A MINIMUM, HANGER LAYOUT AND HANGER DETAILS. LOCATIONS OF EXPANSION JOINTS AND ANCHOR POINTS, MOUNTING DETAILS OF ANTENNA TO PIPE AND ALL OTHER DETAILS REQUIRED FOR INSTALLATION OF ANTENNAS, CONDUITS AND HANGERS.
6. THE FURNISHING AND INSTALLATION OF THE HANGER SYSTEM, CONDUITS, ANTENNAS AND RELATED HARDWARE SHALL BE PAID UNDER PAY ITEM SERIES 663-74-14X.
7. IF OTHER TYPE OF ANTENNA IS TO BE INSTALLED, THE CONTRACTOR SHALL SUBMIT DESIGN, SHOP DRAWINGS, AND DESIGN CALCULATIONS FOR APPROVAL BY CFX.



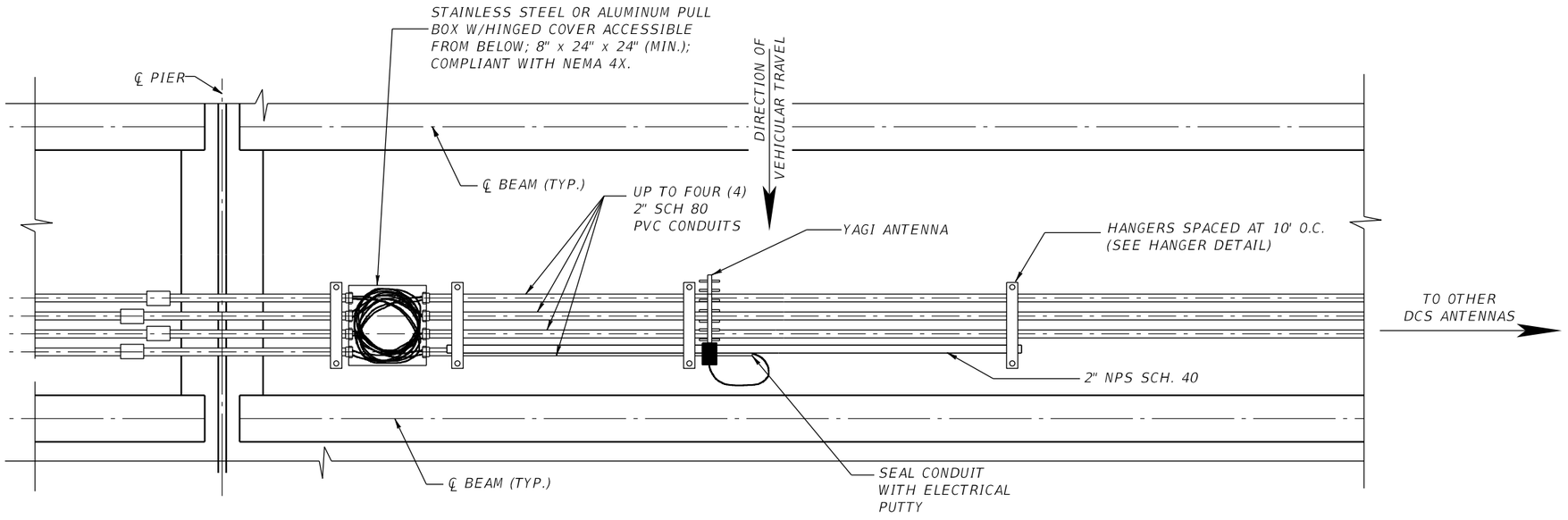
HANGER DETAIL
(SKEWED BRIDGE)

NTS

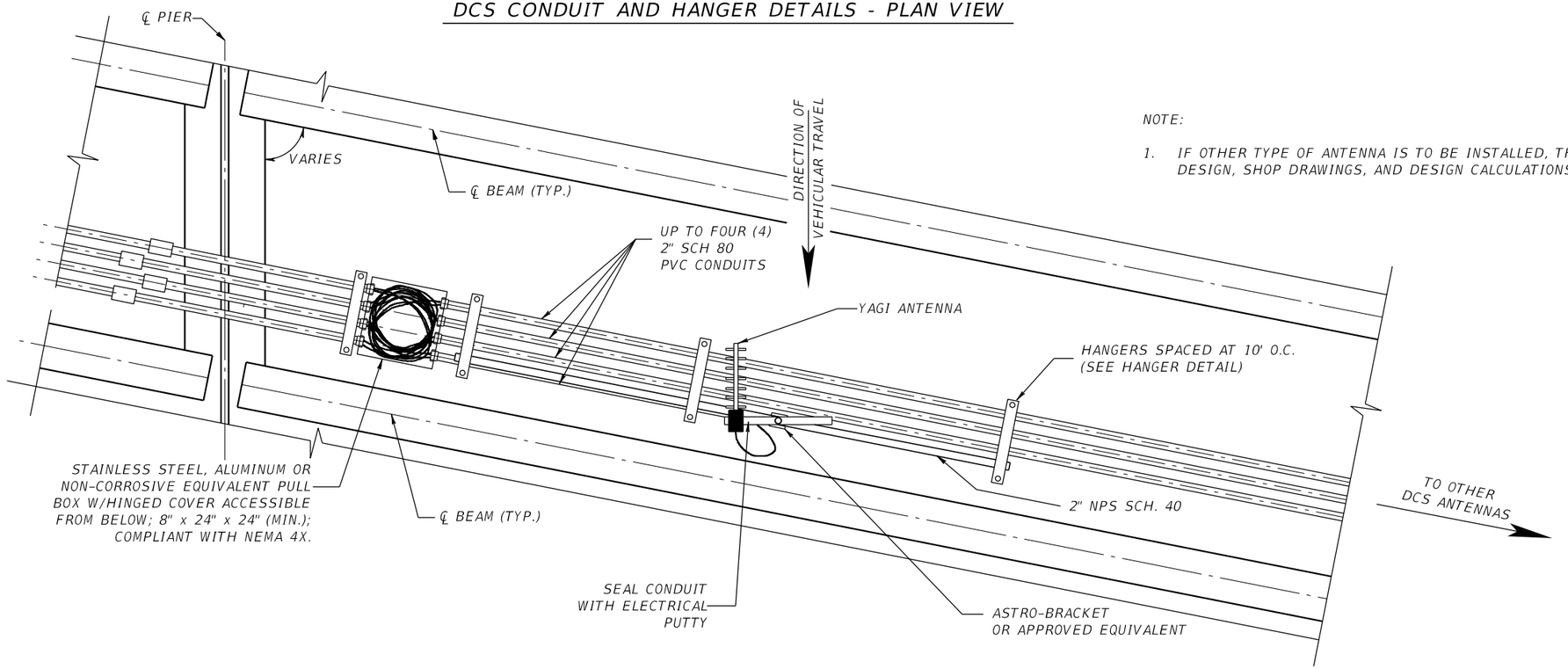
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS BRIDGE MOUNTING DETAIL (SKEWED BRIDGE)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-3

MARCH 2026

2/27/2026 10:23:46 AM



DCS CONDUIT AND HANGER DETAILS - PLAN VIEW



NOTE:

1. IF OTHER TYPE OF ANTENNA IS TO BE INSTALLED, THE CONTRACTOR SHALL SUBMIT DESIGN, SHOP DRAWINGS, AND DESIGN CALCULATIONS FOR APPROVAL BY CFX.

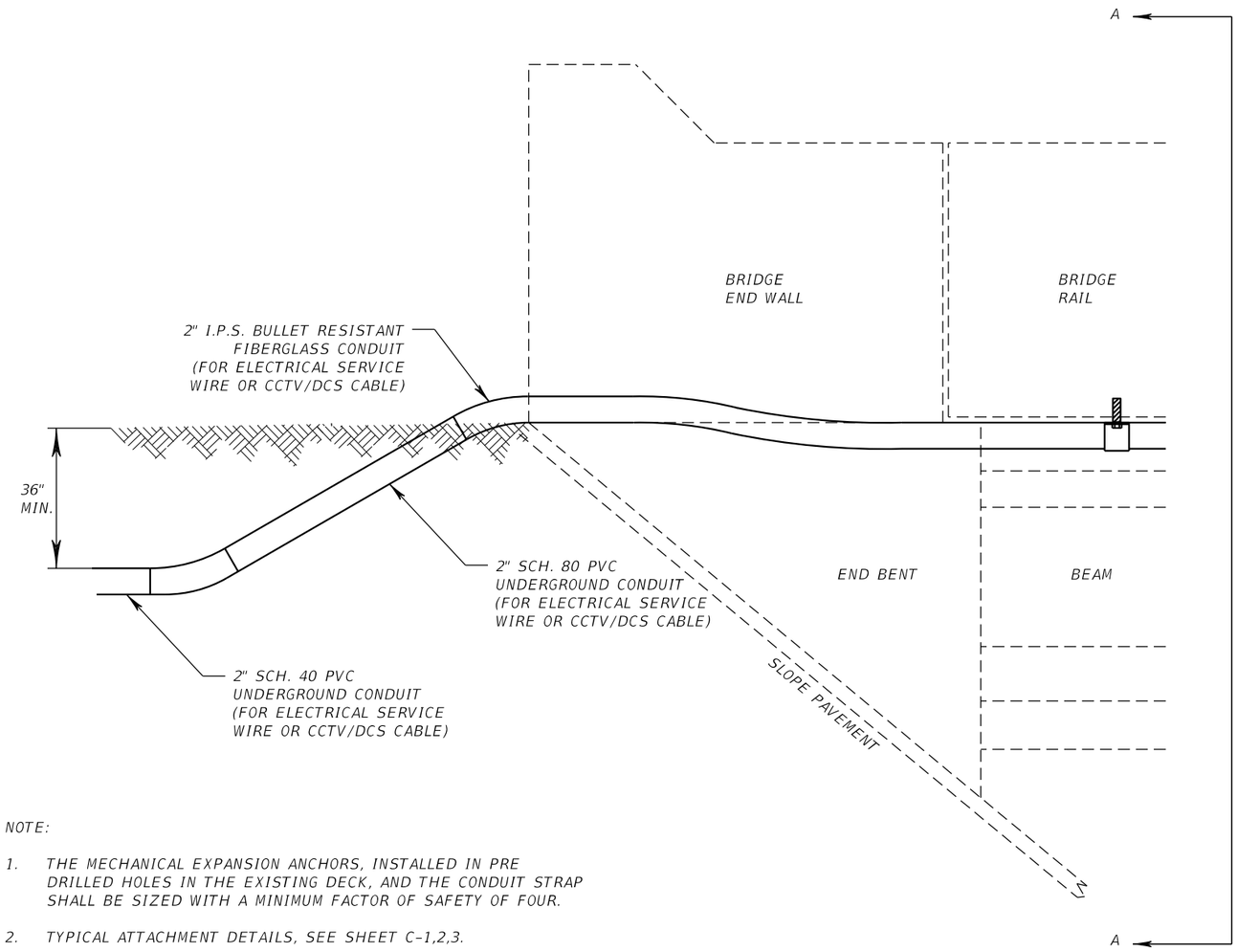
DCS CONDUIT AND HANGER DETAILS - PLAN VIEW
SKEWED BRIDGE

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS BRIDGE MOUNTED CONDUIT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-4

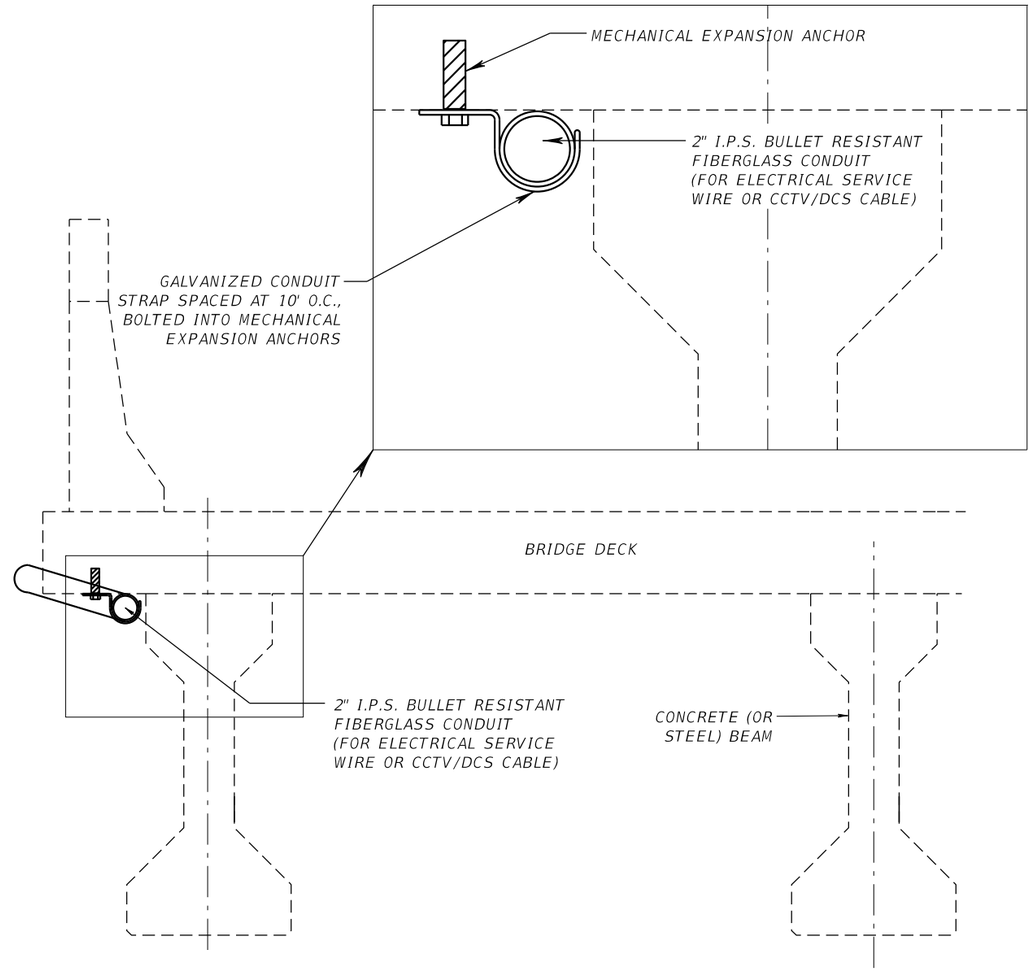
MARCH 2026

2/27/2026 10:23:46 AM



NOTE:

1. THE MECHANICAL EXPANSION ANCHORS, INSTALLED IN PRE DRILLED HOLES IN THE EXISTING DECK, AND THE CONDUIT STRAP SHALL BE SIZED WITH A MINIMUM FACTOR OF SAFETY OF FOUR.
2. TYPICAL ATTACHMENT DETAILS, SEE SHEET C-1,2,3.



SECTION A-A

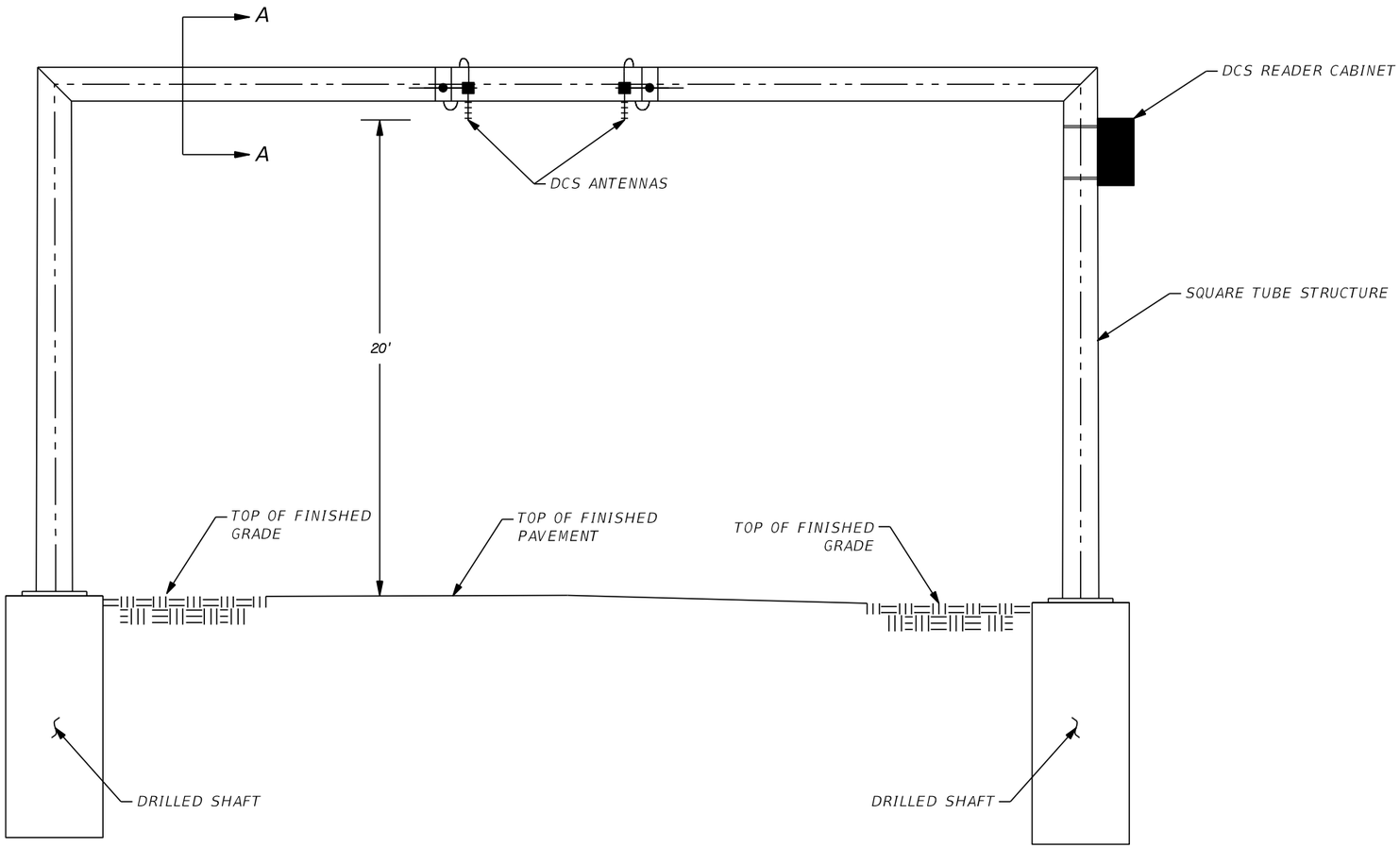
BRIDGE STRUCTURE MOUNTED CONDUIT FOR ELECTRICAL AND CCTV/DCS CABLES (TYPICAL)

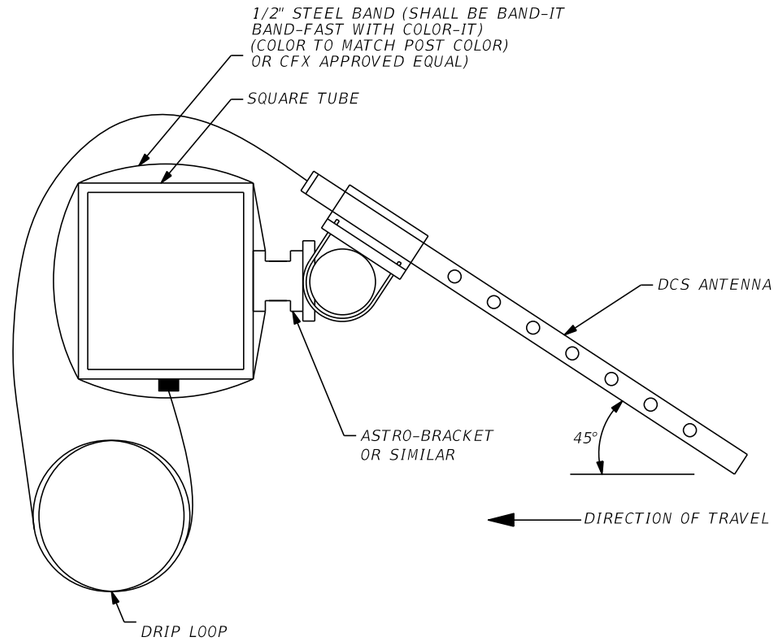
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS BRIDGE MOUNTED CONDUIT TRANSITION DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-5

MARCH 2026

2/27/2026 10:23:46 AM





SECTION A-A

DCS ON STEEL TUBE STRUCTURE MOUNTING DETAIL

NTS

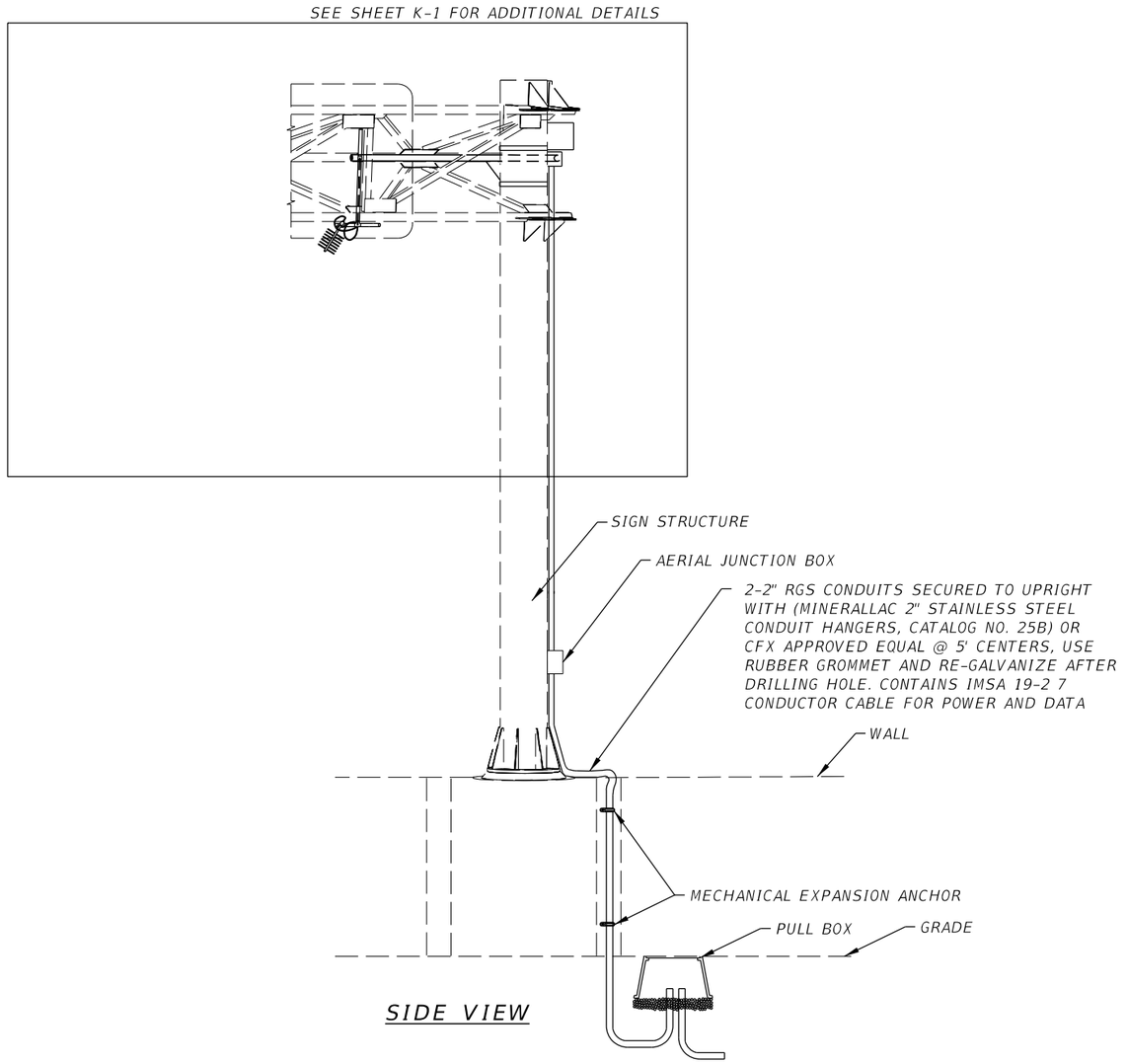
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS STEEL TUBE STRUCTURE ANTENNA DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-6

MARCH 2026

2/27/2026 10:23:47 AM

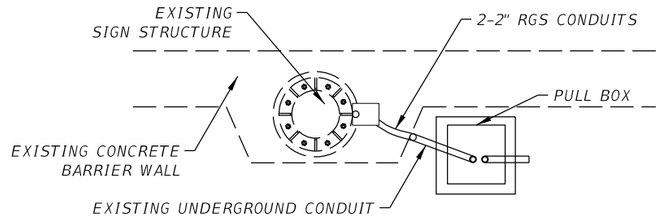
DCS MOUNTING DETAIL

SEE SHEET K-1 FOR ADDITIONAL DETAILS



SIDE VIEW

TOP VIEW



SIGN STRUCTURE MOUNTED DCS

NOTES:

1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MECHANICAL STABILIZED EARTH (MSE) WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO CFX FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

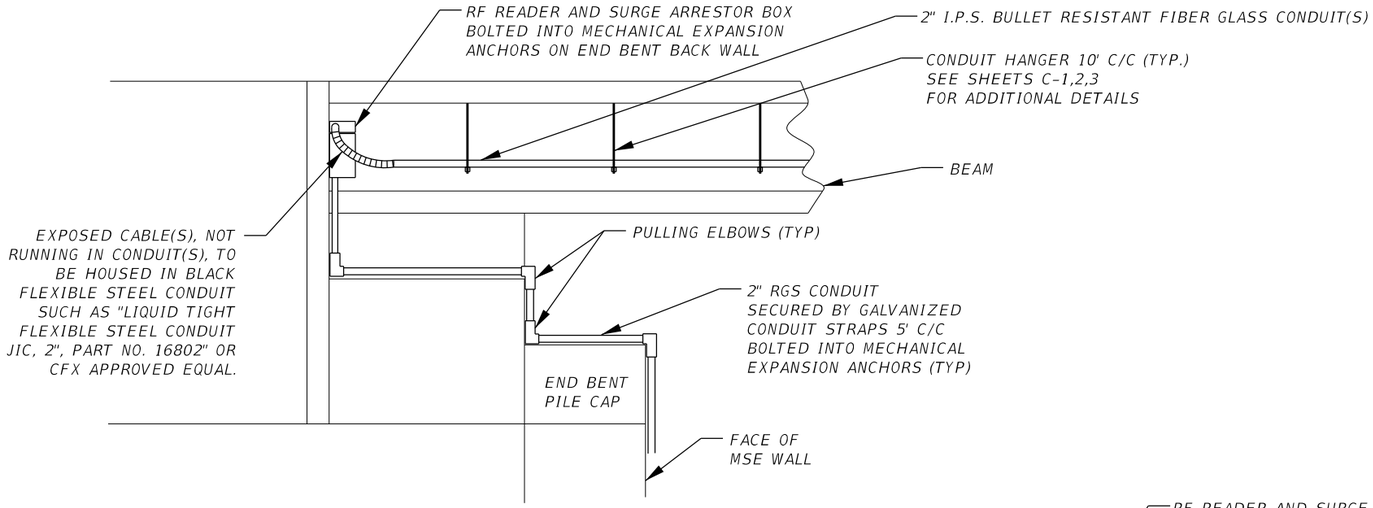
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	MSE WALL DCS MOUNTING DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-7

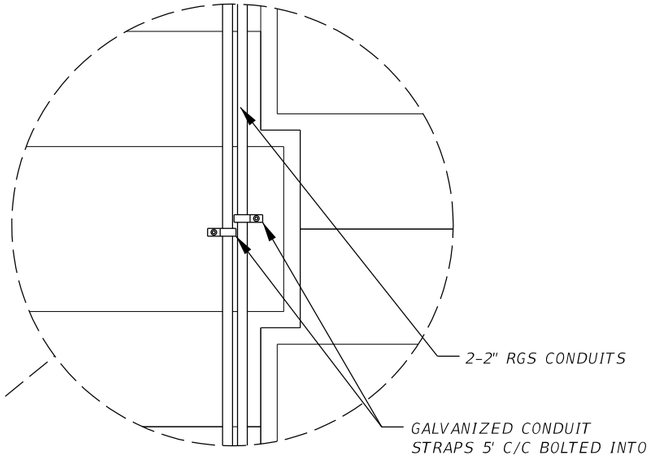
MARCH 2026

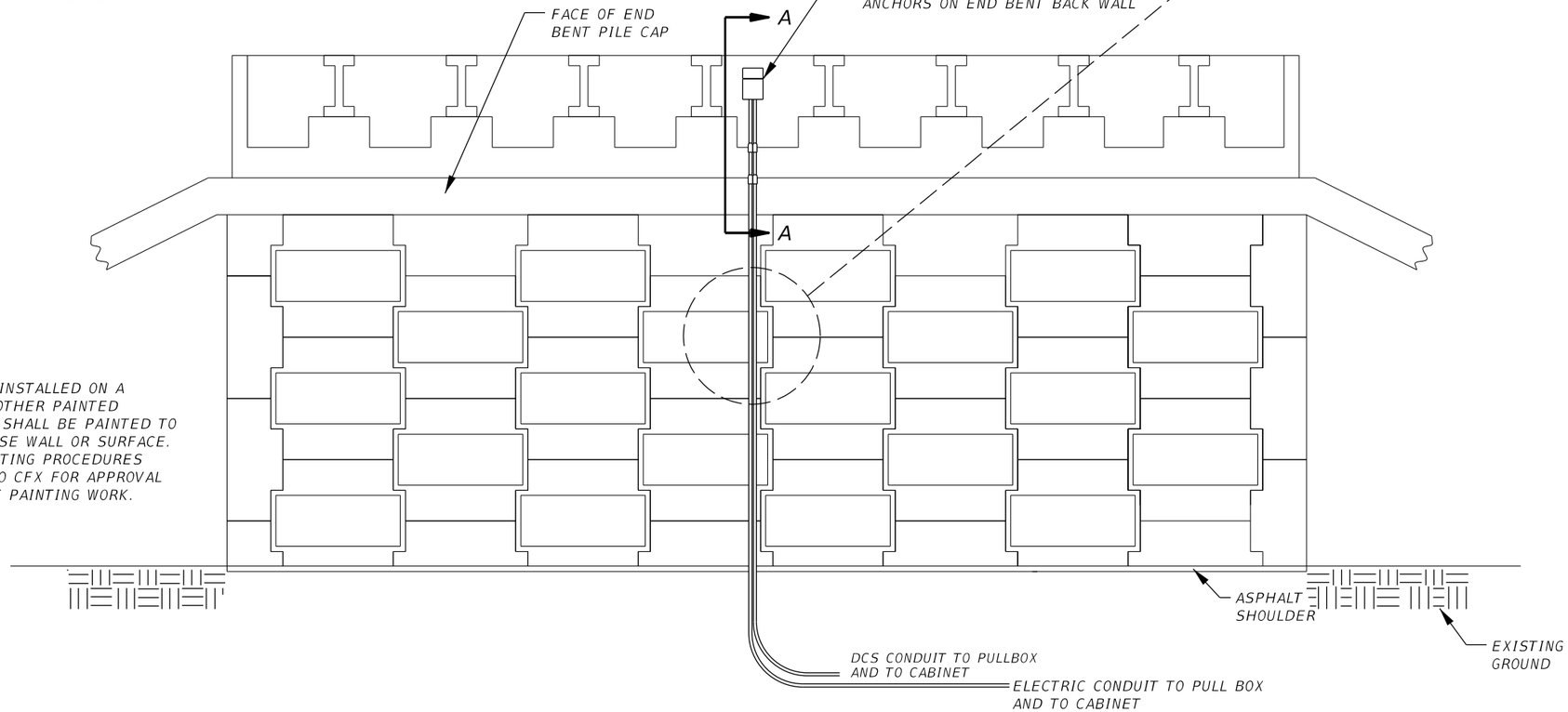
2/27/2026 10:23:47 AM

BRIDGE STRUCTURE MOUNTED DCS EQUIPMENT AND CONDUIT FOR ELECTRICAL AND DCS CABLES



SECTION A-A





NOTE:

1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MSE WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO CFX FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

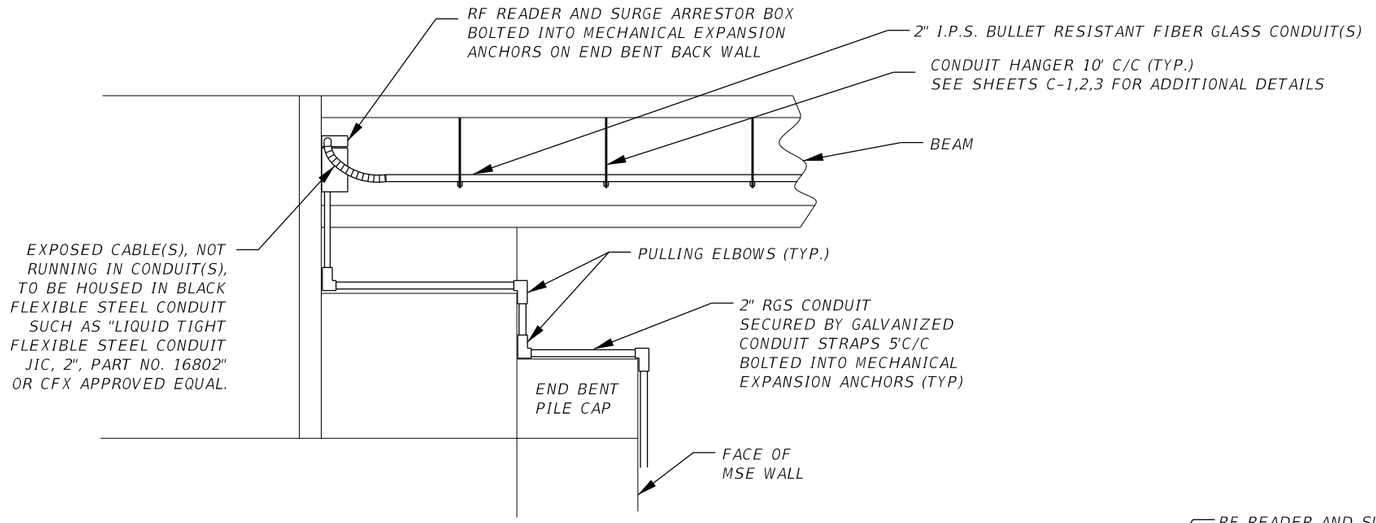
DCS DETAILS FOR BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT (1 OF 4)

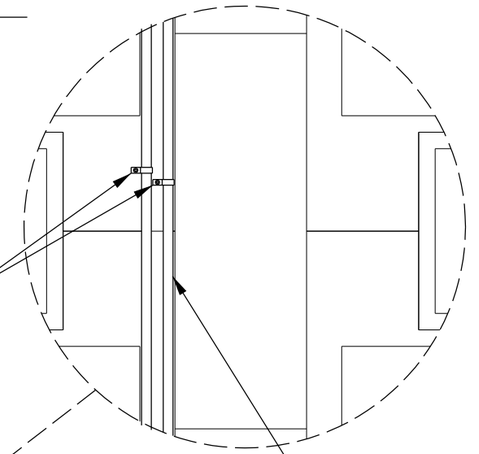
SHEET NO. K-8

MARCH 2026

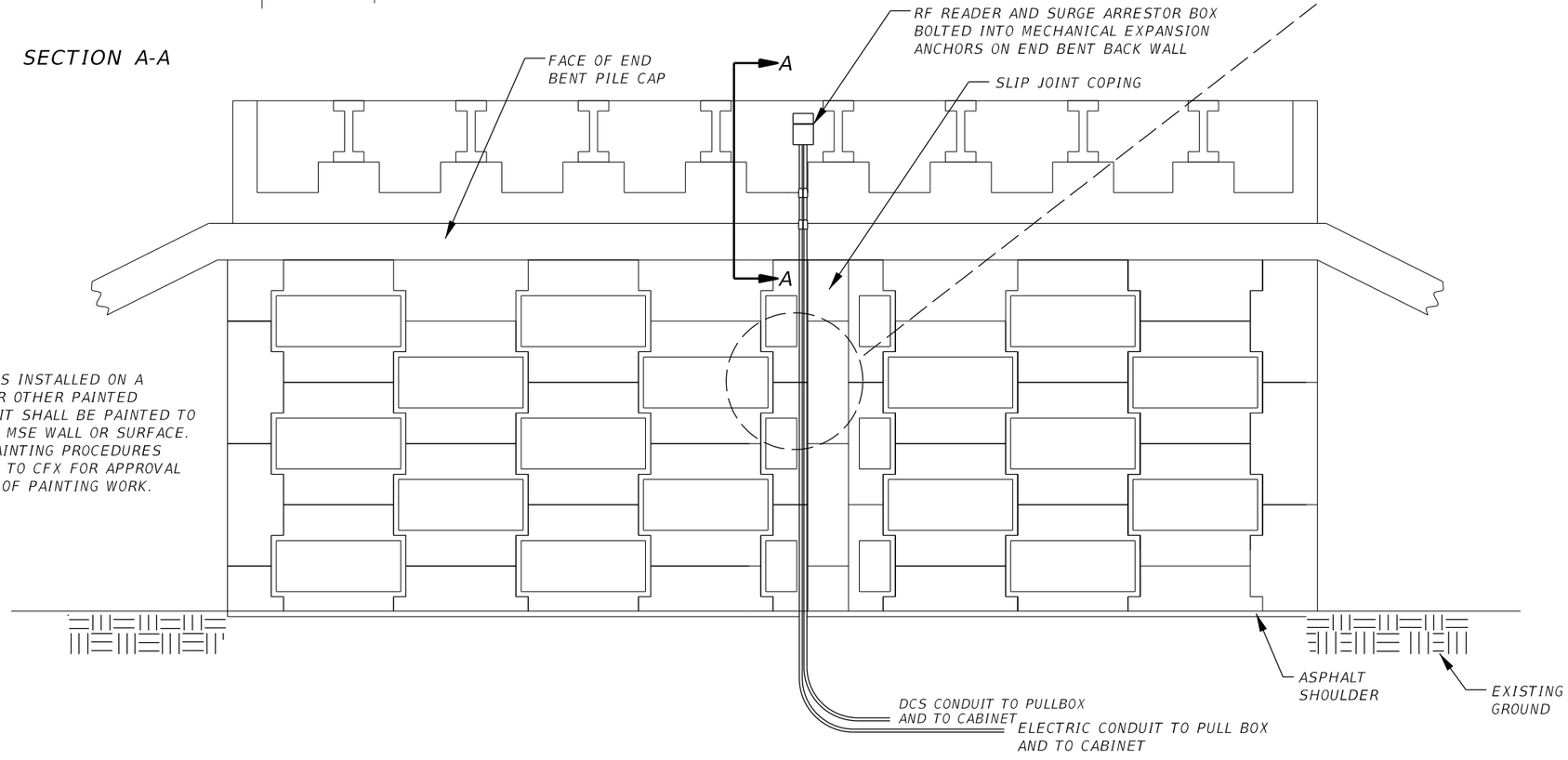
2/27/2026 10:23:47 AM

BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT FOR ELECTRICAL AND DCS CABLES





SECTION A-A



NOTE:

1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MSE WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO CFX FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

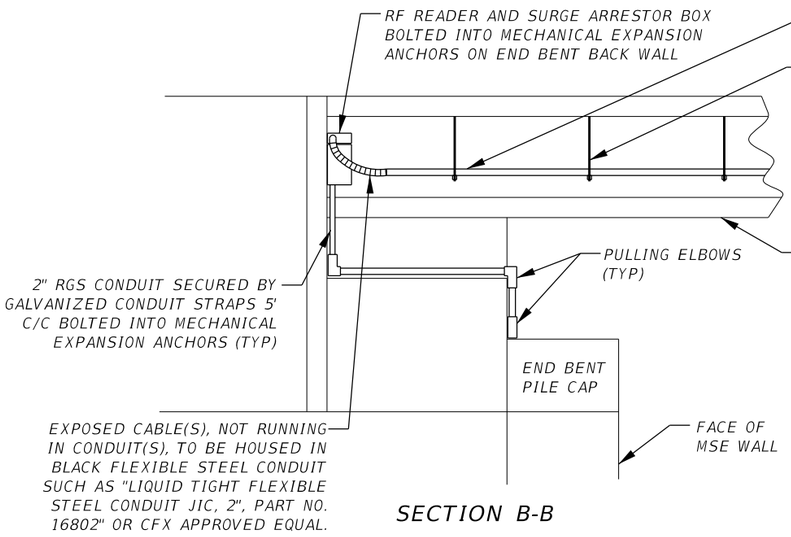
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS DETAILS FOR BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT (2 OF 4)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-9

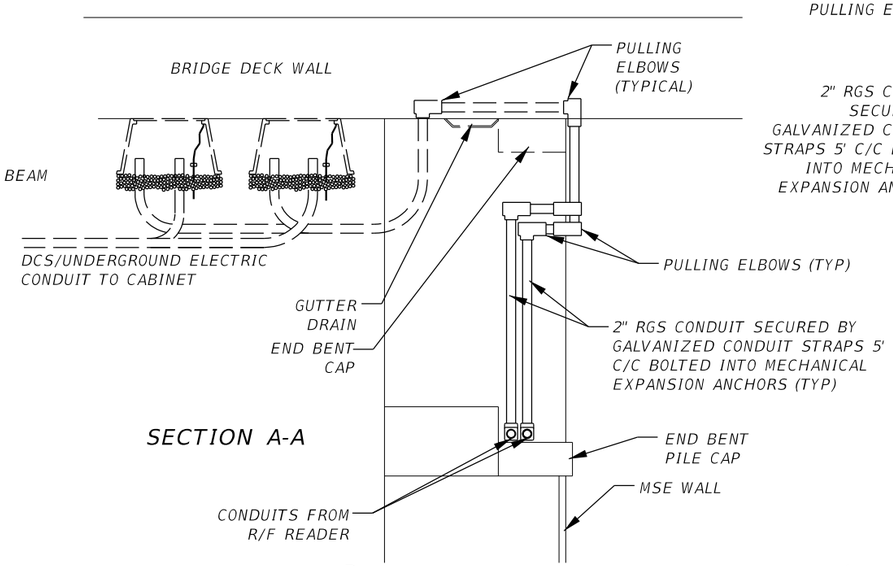
MARCH 2026

2/27/2026 10:23:48 AM

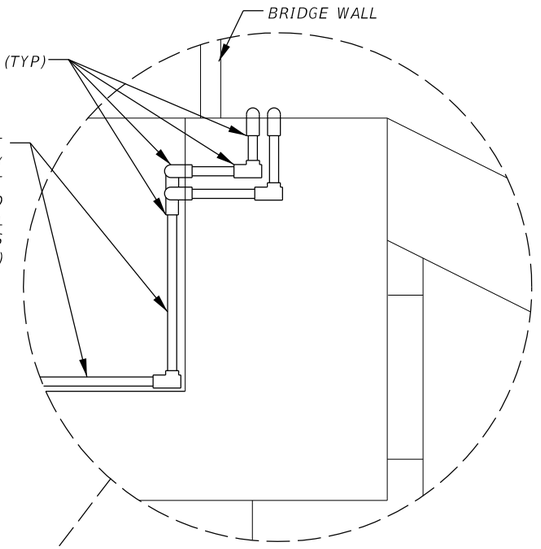
BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT FOR ELECTRICAL AND DCS CABLES

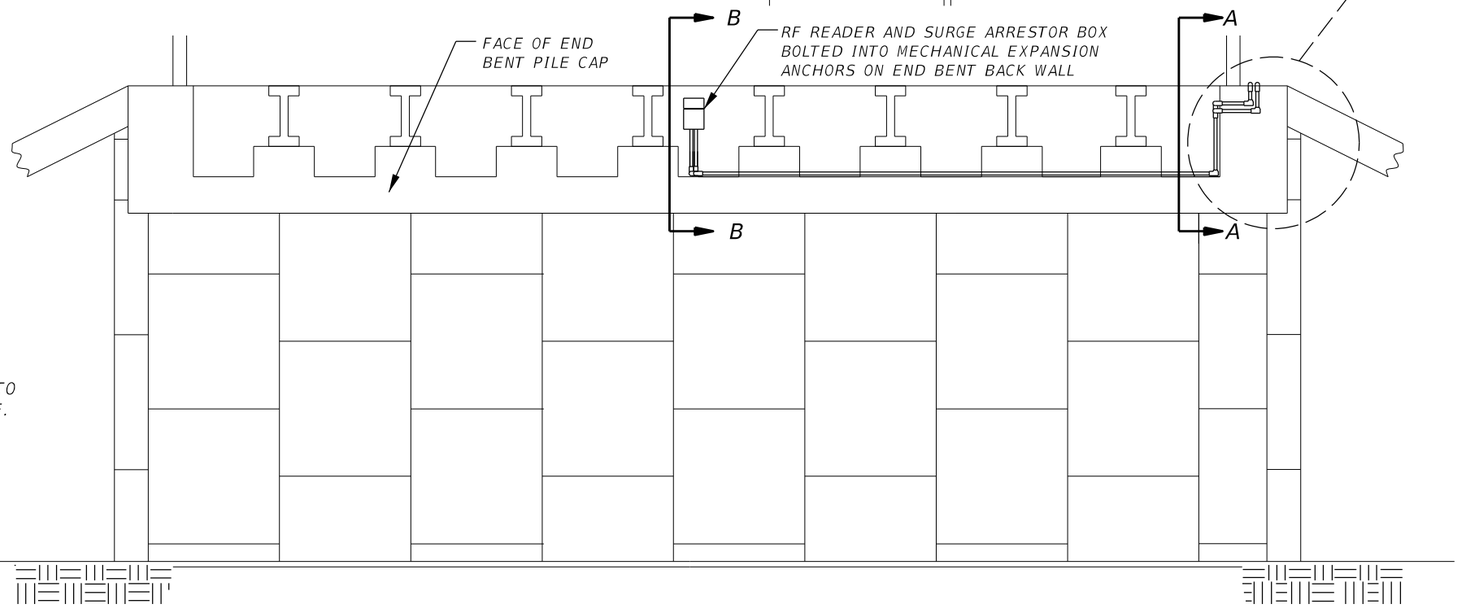


SECTION B-B



SECTION A-A





NOTE:

1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MSE WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO CFX FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

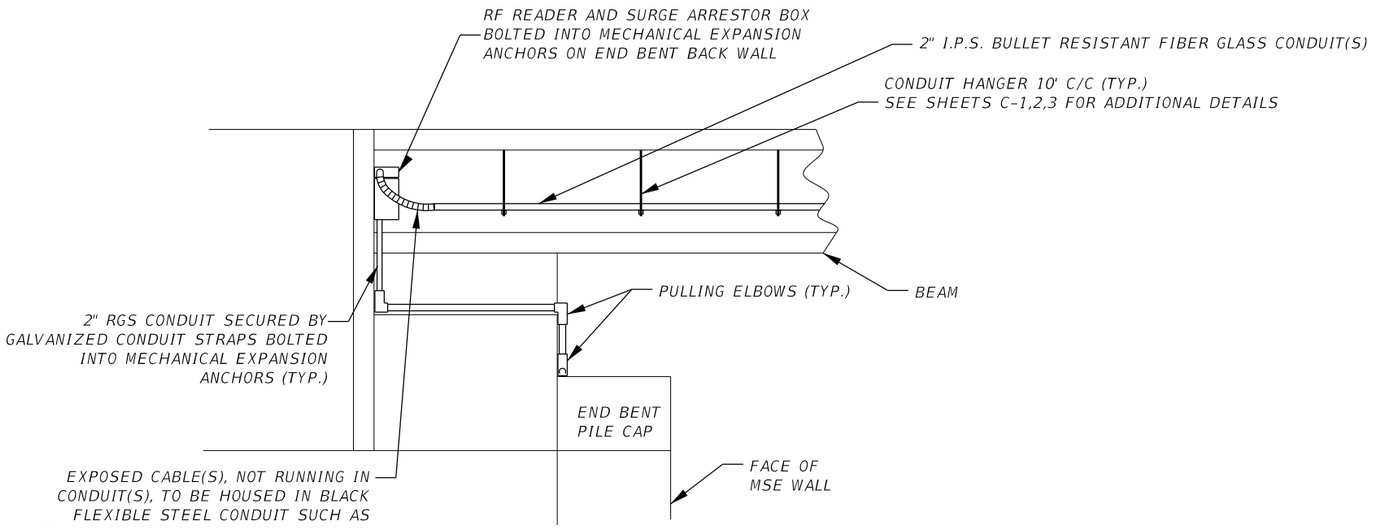
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS DETAILS FOR BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT (3 OF 4)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-10

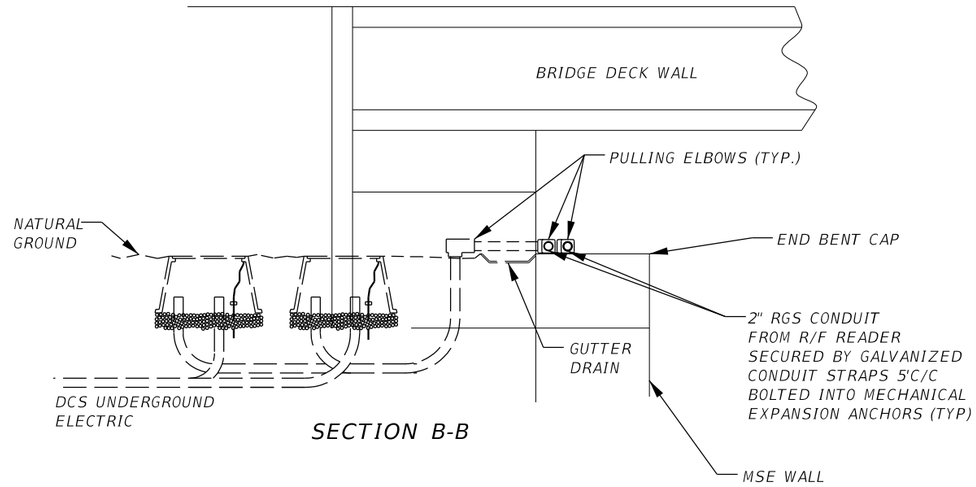
MARCH 2026

2/27/2026 10:23:48 AM

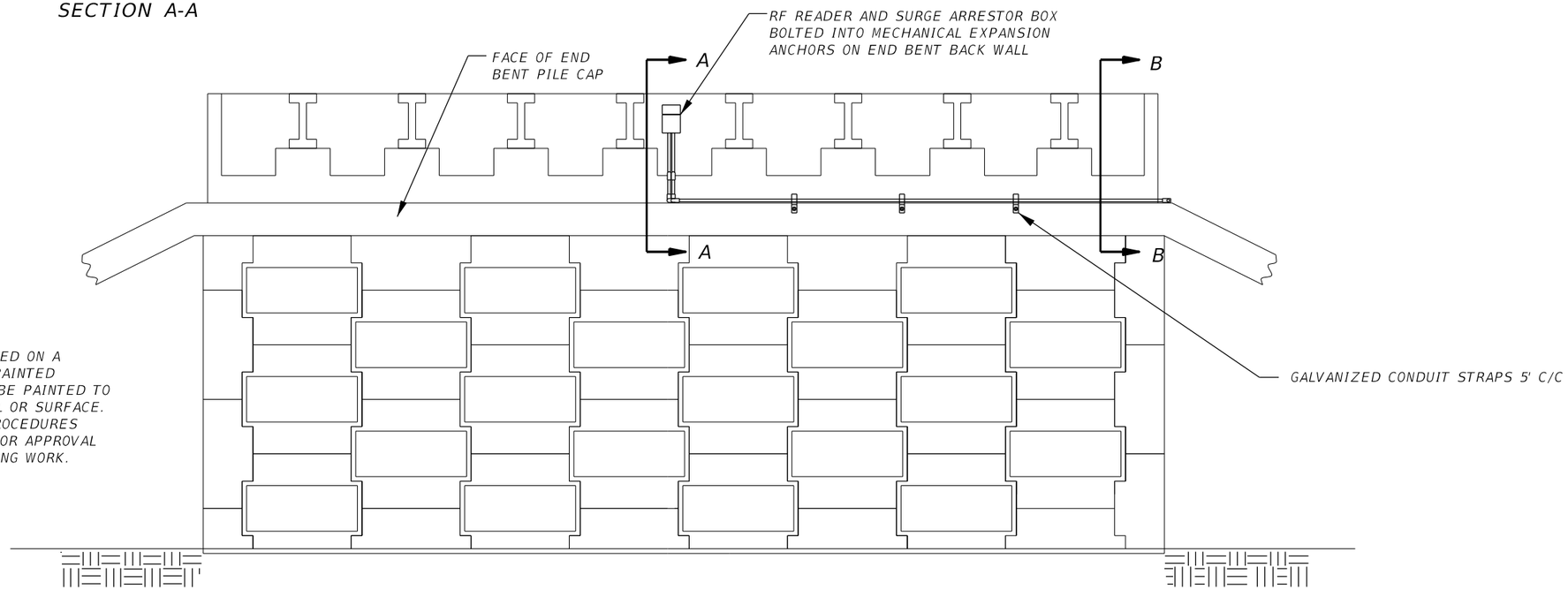
BRIDGE STRUCTURE MOUNTED DCS EQUIPMENT AND CONDUIT FOR ELECTRICAL AND DCS CABLES



SECTION A-A



SECTION B-B



NOTE:

1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MSE WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO CFX FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

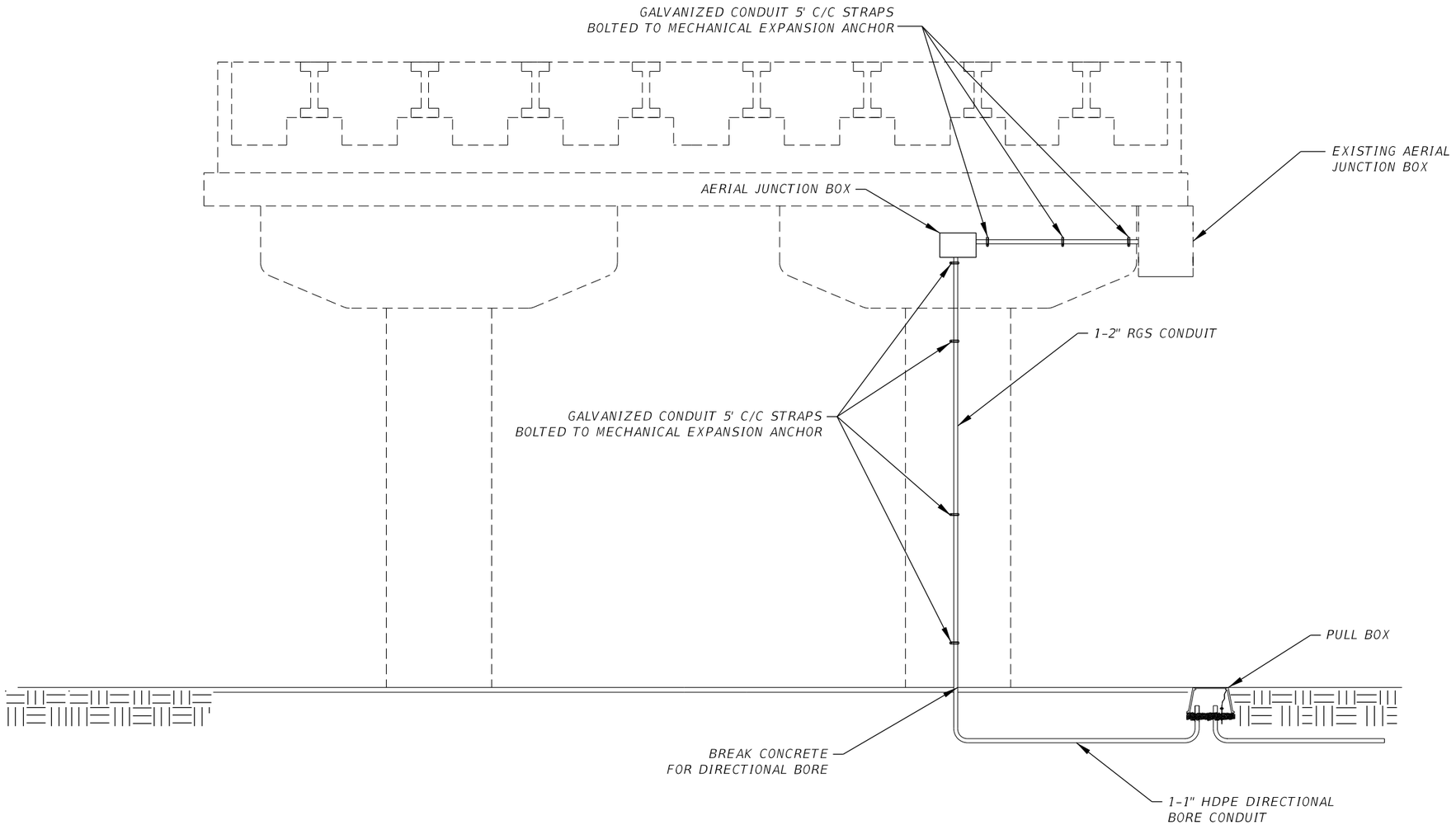
DCS DETAILS FOR BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT (4 OF 4)

SHEET NO. K-11

MARCH 2026

2/27/2026 10:23:48 AM

BRIDGE STRUCTURE MOUNTED CONDUIT FOR FIBER OPTIC CABLE



NOTES:

1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MSE WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO CFX FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

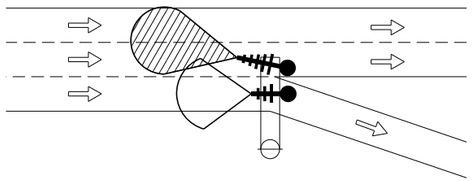
BRIDGE MOUNTED FIBER OPTIC CONDUIT DROP

SHEET NO. K-12

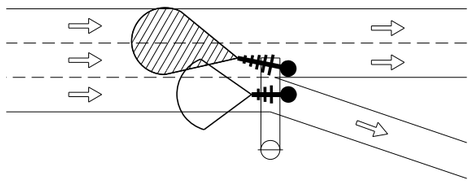
MARCH 2026

2/27/2026 10:23:48 AM

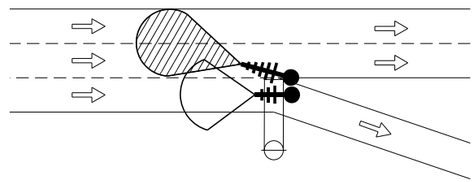
OPTION 1



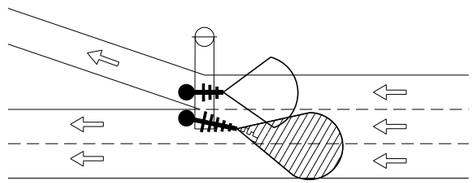
OPTION 2



OPTION 3



OPTION 4



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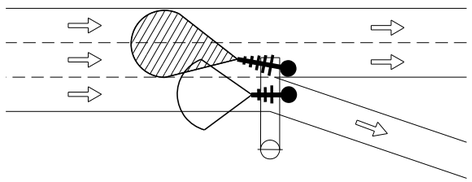

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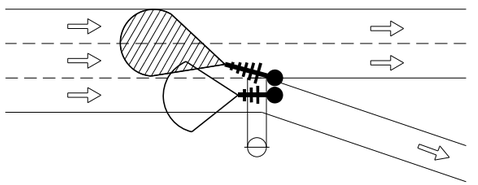
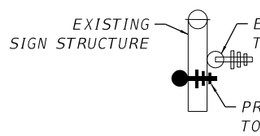


LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA



NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

NTS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (1 OF 11)

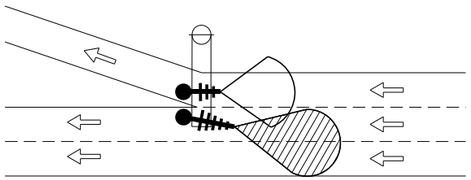
SHEET NO.

K-13

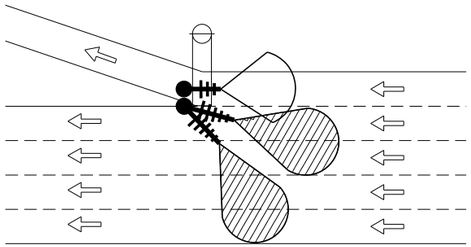
MARCH 2026

2/27/2026 10:23:49 AM

OPTION 7



OPTION 8



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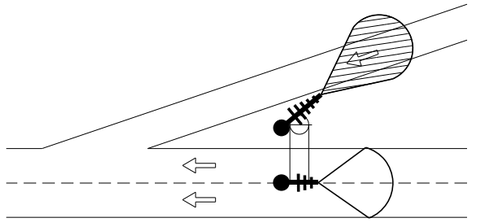

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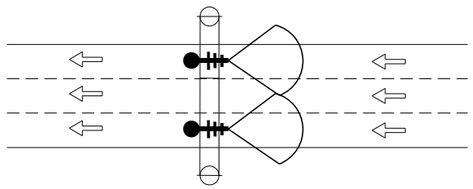

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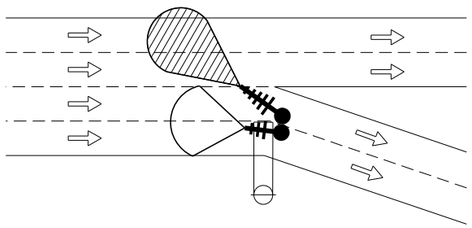
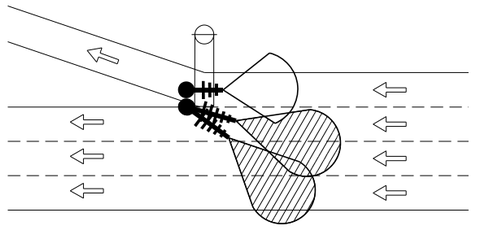


OPTION 12



LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA

EXISTING SIGN STRUCTURE

EXISTING ANTENNA MOUNTED TO FRONT CORD

PROPOSED ANTENNA MOUNTED TO BACK CORD

NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (2 OF 11)

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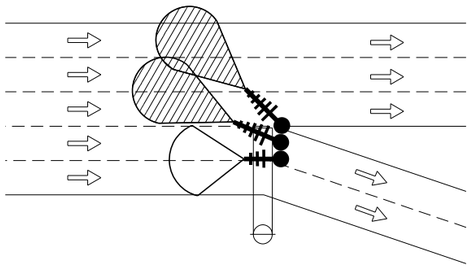
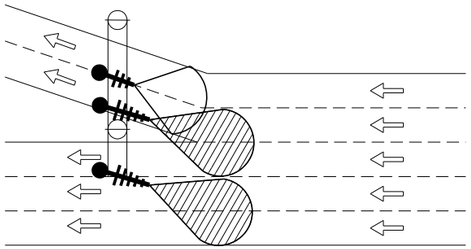
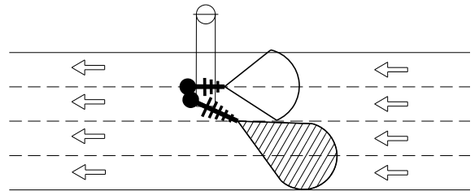
OPTION 13



OPTION 14



OPTION 15



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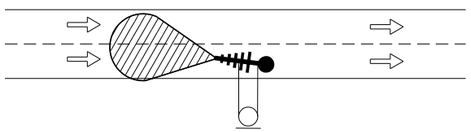

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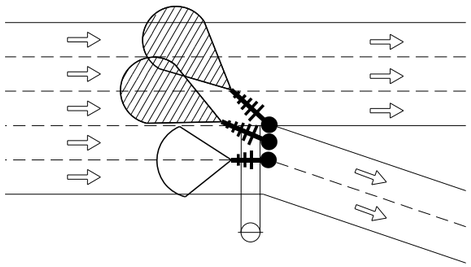

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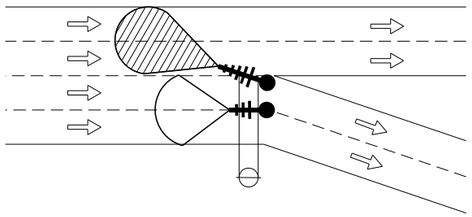

LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA

EXISTING SIGN STRUCTURE

EXISTING ANTENNA MOUNTED TO FRONT CORD

PROPOSED ANTENNA MOUNTED TO BACK CORD

NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (3 OF 11)

SHEET NO. K-15

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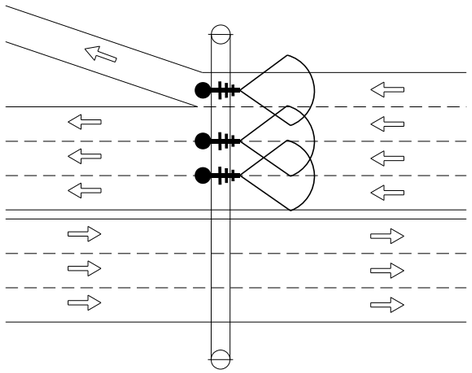
OPTION 19



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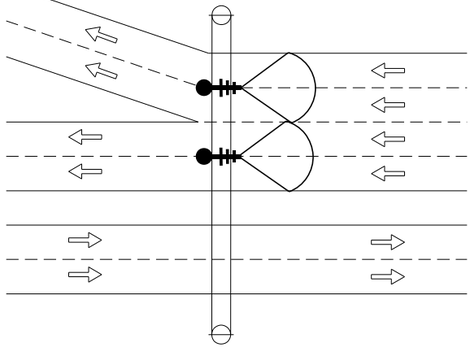

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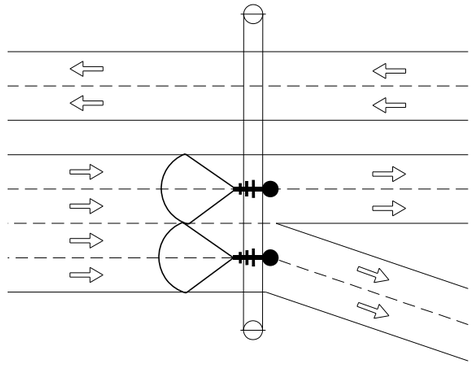

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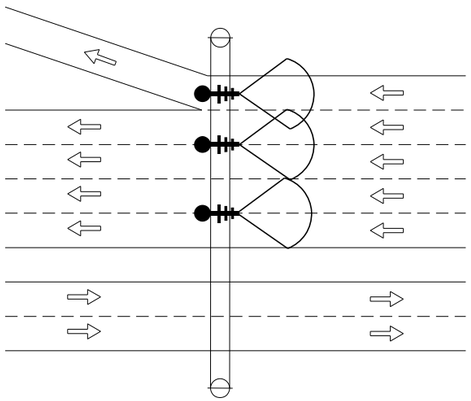
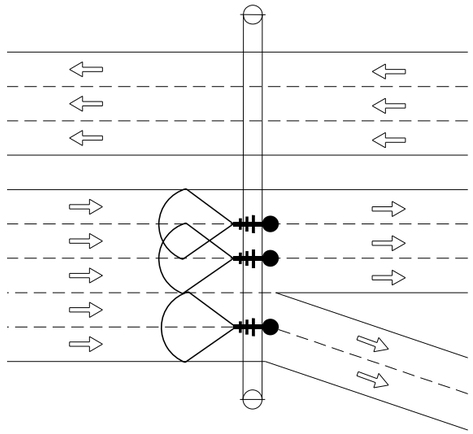


OPTION 23



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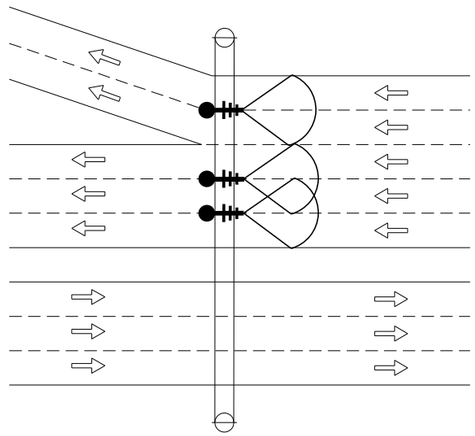

LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA

EXISTING SIGN STRUCTURE

EXISTING ANTENNA MOUNTED TO FRONT CORD

PROPOSED ANTENNA MOUNTED TO BACK CORD

NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (4 OF 11)

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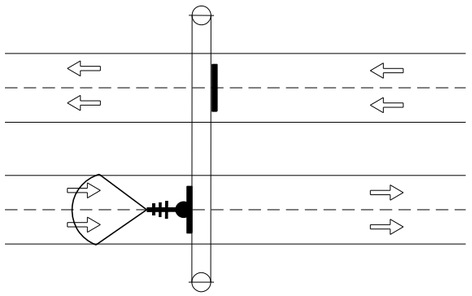
OPTION 25



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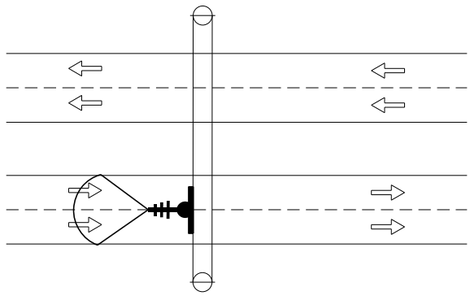

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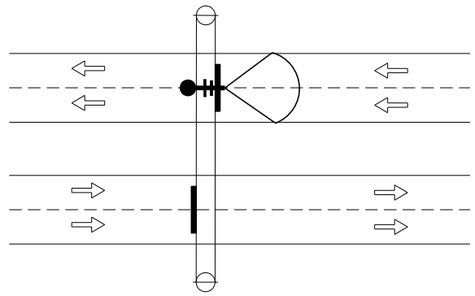

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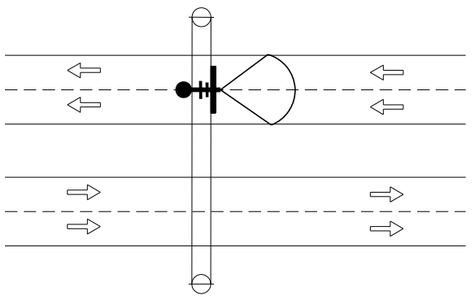

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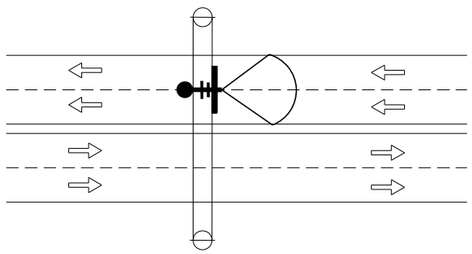

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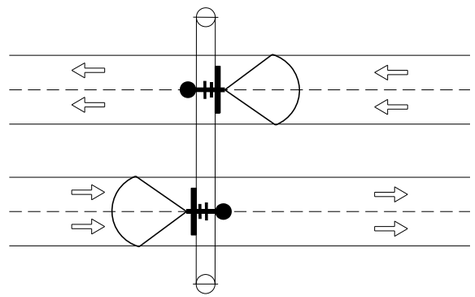

LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA

EXISTING SIGN STRUCTURE

EXISTING ANTENNA MOUNTED TO FRONT CORD

PROPOSED ANTENNA MOUNTED TO BACK CORD

NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (5 OF 11)

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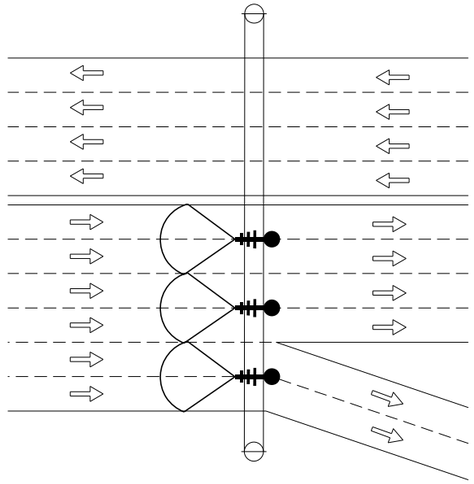
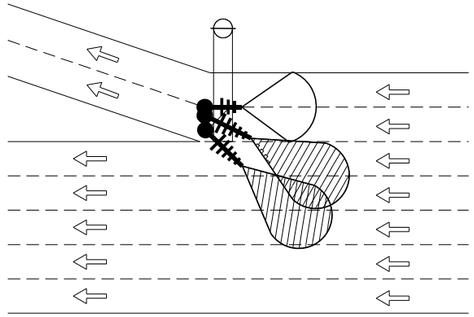
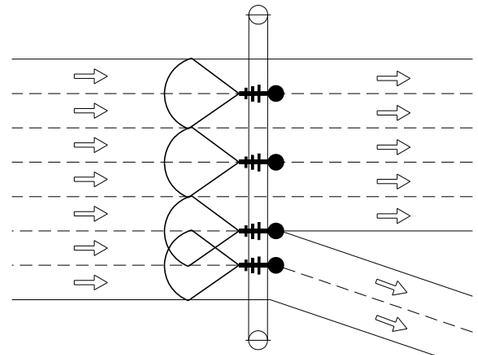
OPTION 31



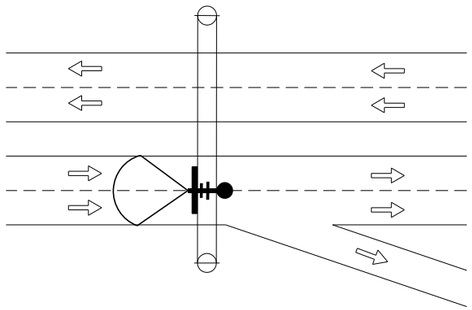
OPTION 32



OPTION 33



OPTION 34



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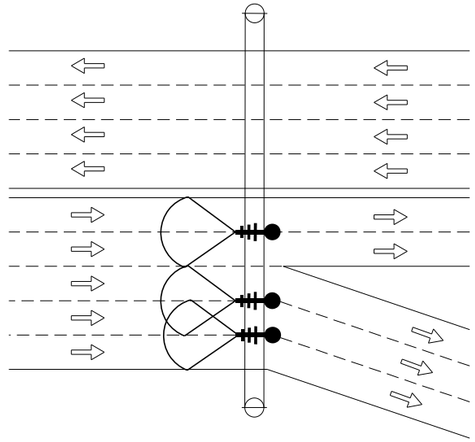
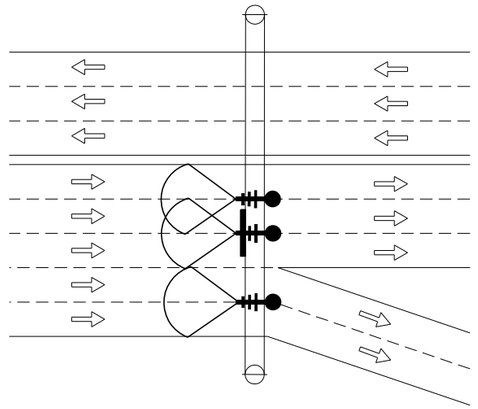


OPTION 36

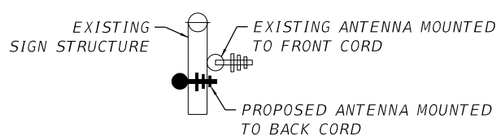


LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR - COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR - COVERAGE AREA FOR 14 dBi ANTENNA



NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (6 OF 11)

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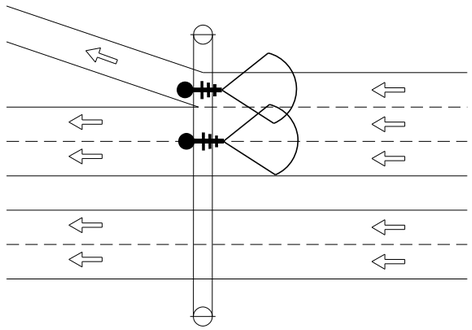
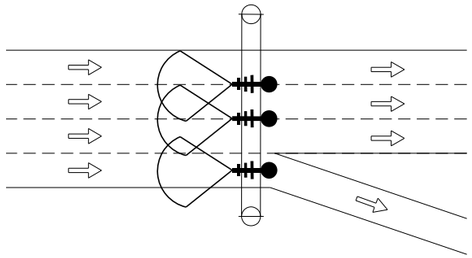
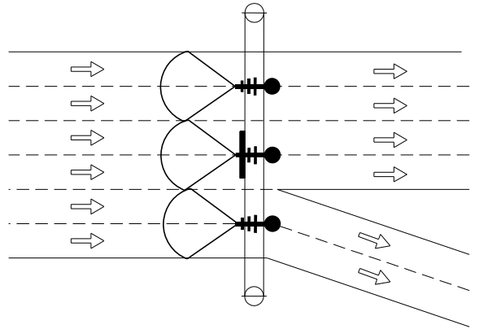
OPTION 37



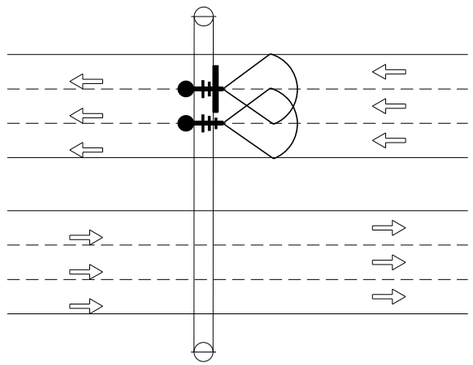
OPTION 38



OPTION 39



OPTION 40



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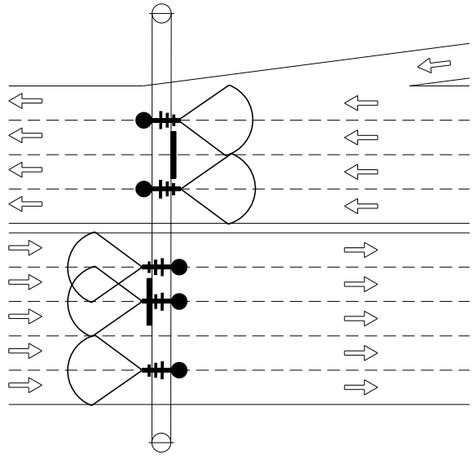
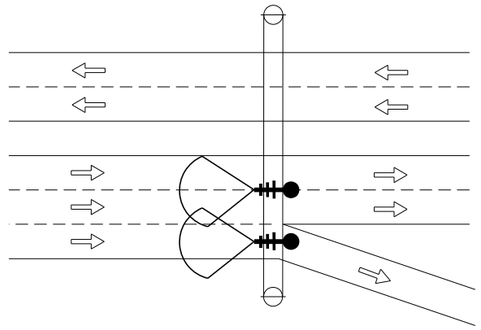


OPTION 42

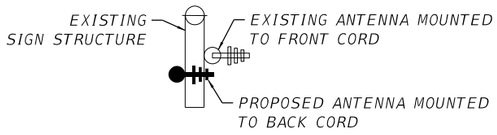


LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA



NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (7 OF 11)

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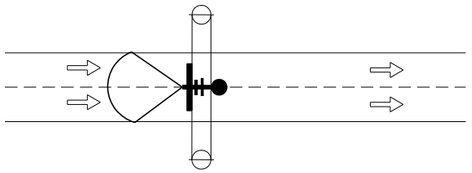
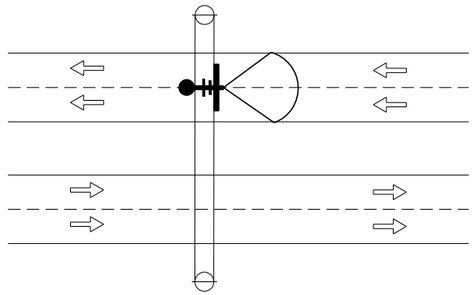
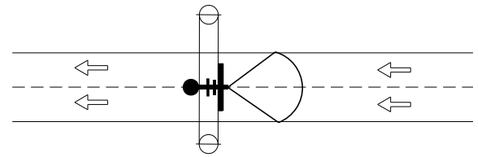
OPTION 43



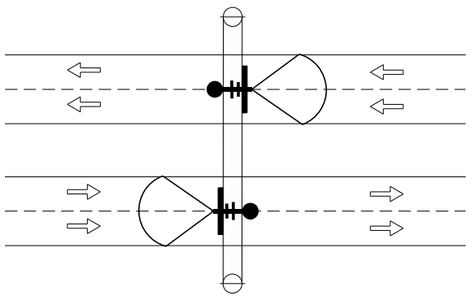
OPTION 44



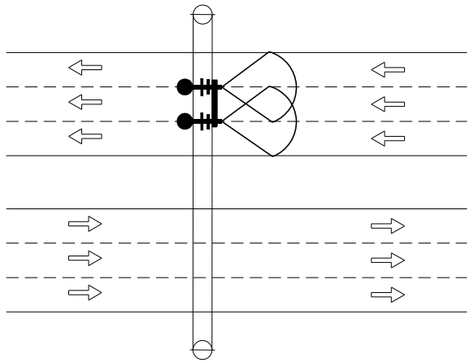
OPTION 45



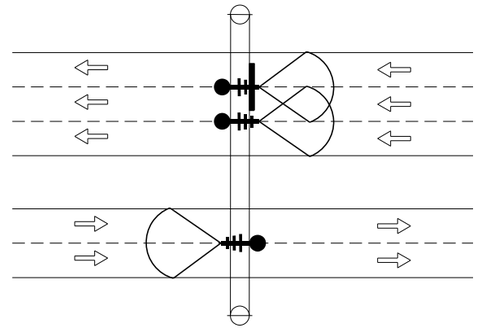
OPTION 46



OPTION 47



OPTION 48



LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA

EXISTING SIGN STRUCTURE

- EXISTING ANTENNA MOUNTED TO FRONT CORD
- PROPOSED ANTENNA MOUNTED TO BACK CORD

NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

NTS

REVISIONS

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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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DCS COVERAGE AREA (8 OF 11)

SHEET NO.

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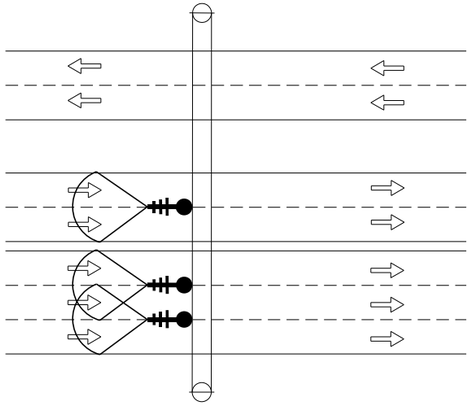
OPTION 49



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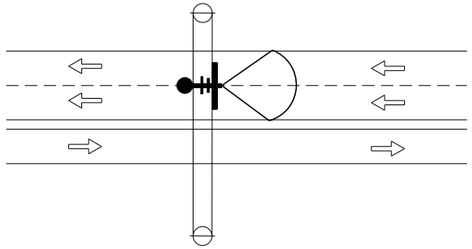

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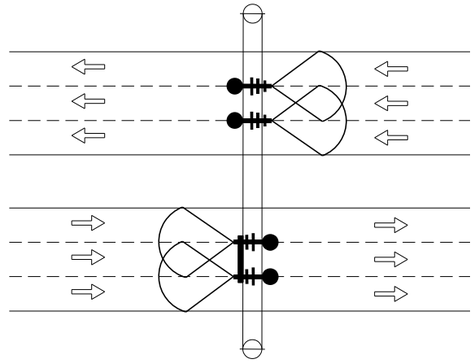

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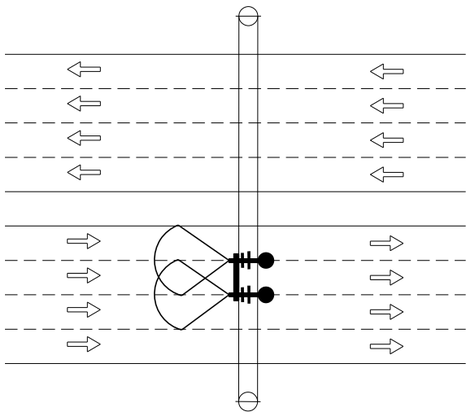

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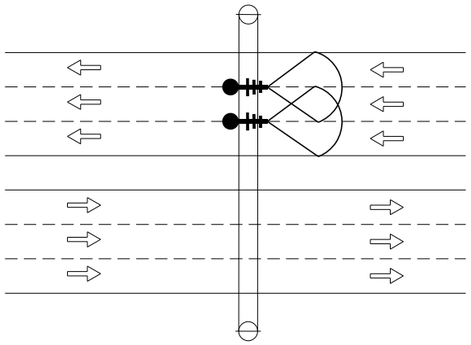

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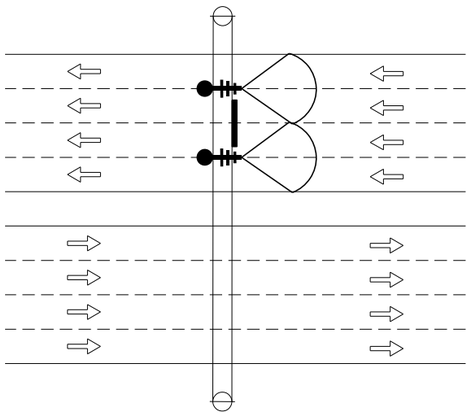

LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA

EXISTING SIGN STRUCTURE

EXISTING ANTENNA MOUNTED TO FRONT CORD

PROPOSED ANTENNA MOUNTED TO BACK CORD

NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (9 OF 11)

SHEET NO.

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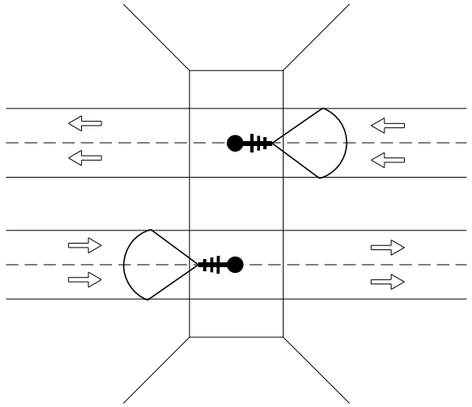
OPTION 55



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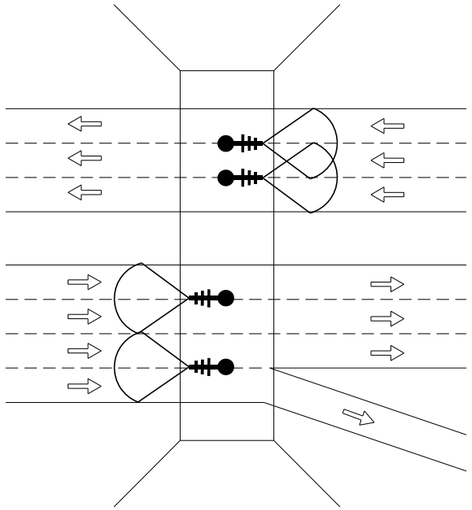

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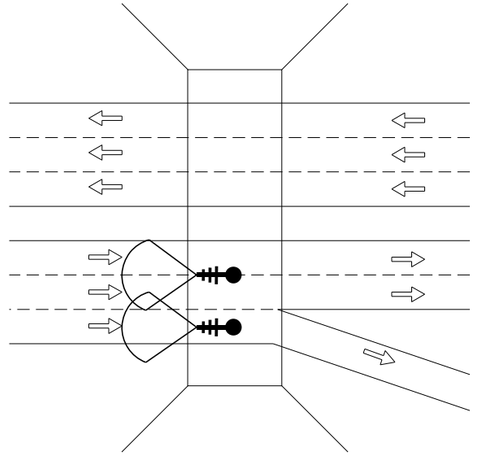

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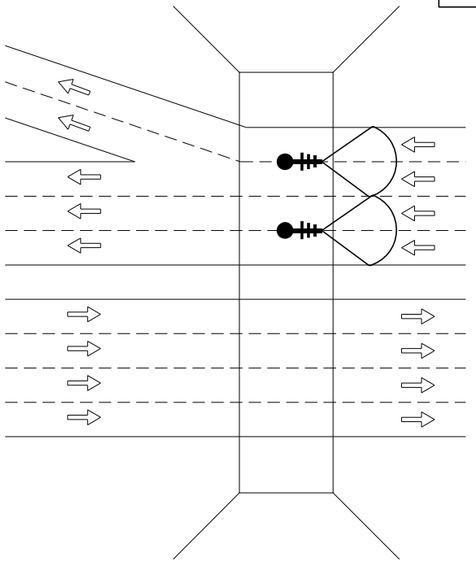

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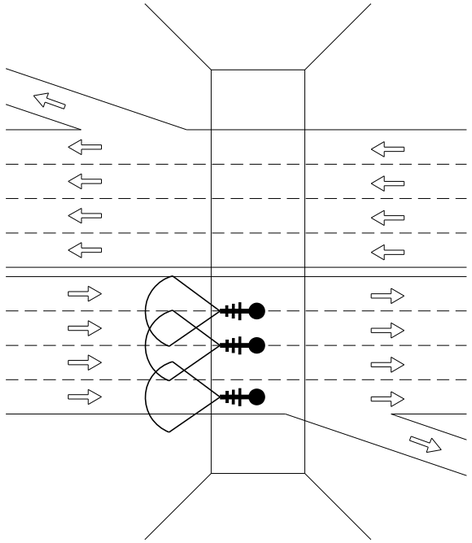
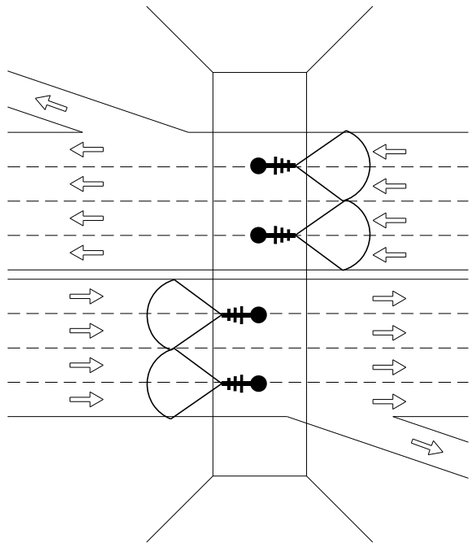


OPTION 60

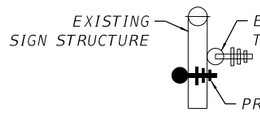


LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC

DATA COLLECTION SENSOR - COVERAGE AREA FOR 12 dBi ANTENNA

DATA COLLECTION SENSOR - COVERAGE AREA FOR 14 dBi ANTENNA



NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (10 OF 11)

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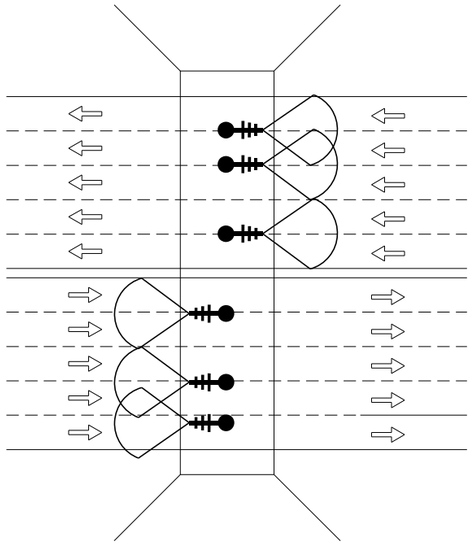
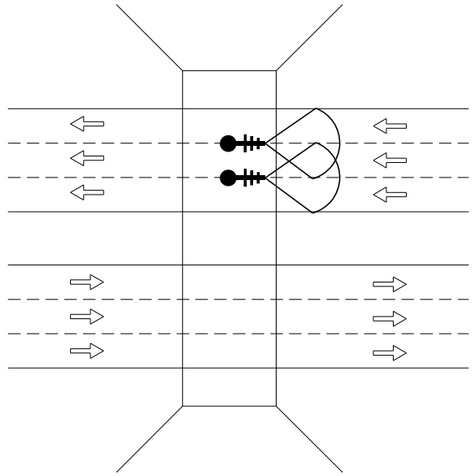
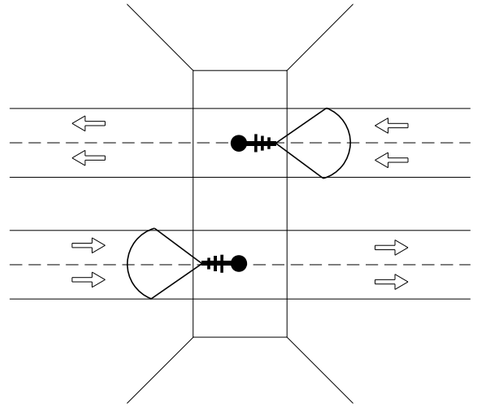
OPTION 61



OPTION 62

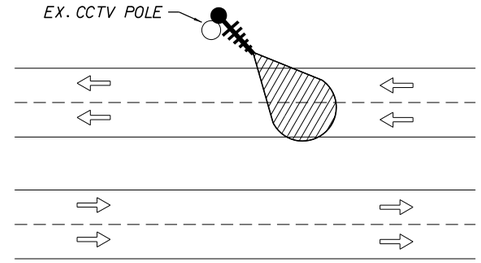


OPTION 63



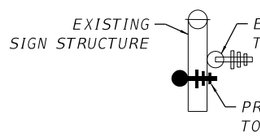
OPTION 64

OPTION 65



LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 12 dBi
- PROPOSED 14 dBi
- DMS
- DIRECTION OF TRAFFIC
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 12 dBi ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 14 dBi ANTENNA



NOTES:

1. EXISTING ANTENNA REPLACEMENT MAY VARY. CONTRACTOR TO ENSURE PROPOSED ANTENNA IS INSTALLED ON BACK CORD OF SIGN STRUCTURE POINTING OPPOSITE THE DIRECTION OF TRAFFIC.
2. CONTRACTOR SHALL INSTALL DCS ANTENNAS OVER LANE STRIPE WHERE POSSIBLE. WHEN INSTALLATION OVER TRAVEL LANES IS NOT POSSIBLE DUE TO THE LENGTH OF THE STRUCTURE A HIGH GAIN 14 dBi ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN CFX SPECIFICATIONS 663.

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DCS COVERAGE AREA (11 OF 11)

SHEET NO. K-23

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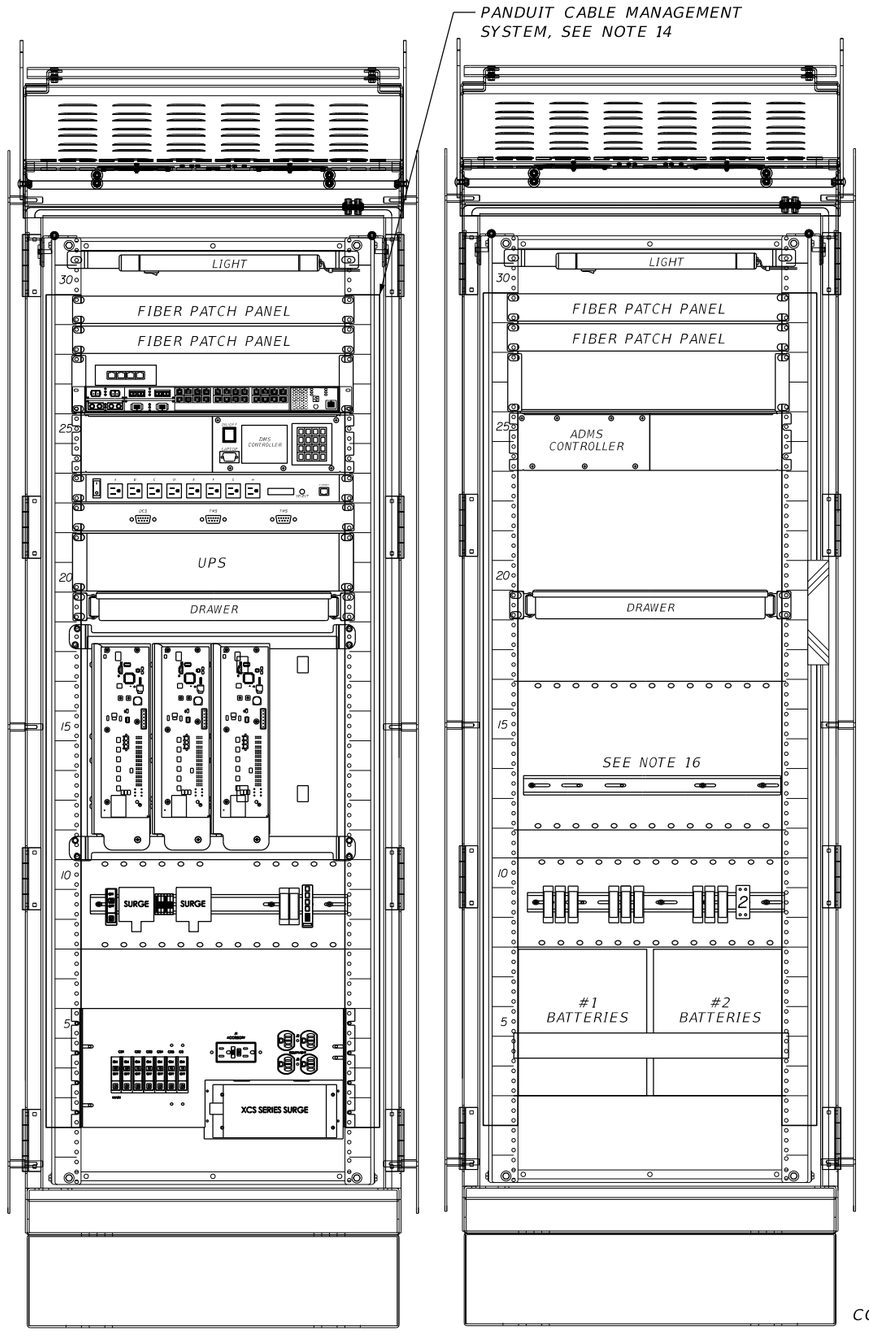


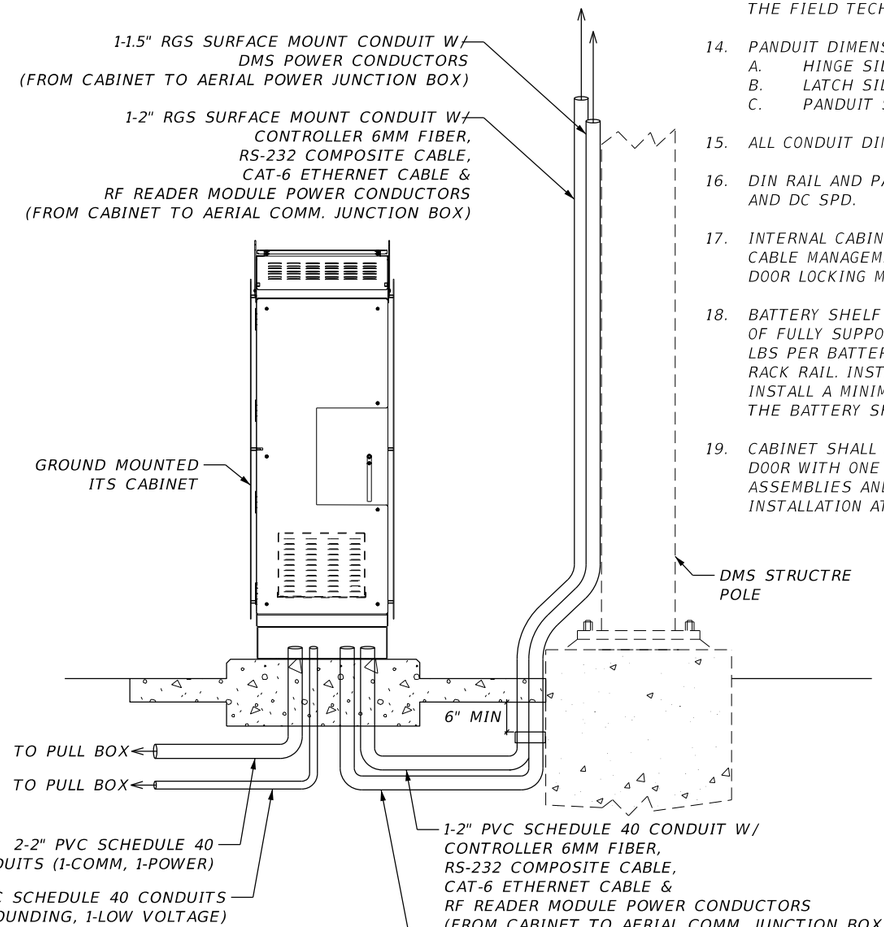
FRONT VIEW BACK VIEW

TYPE 334
GROUND MOUNTED ADMS CABINET LAYOUT

NOTES:

1. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
2. CABINETS SHALL BE TYPE 334 AND FABRICATED IN ACCORDANCE TO SECTION 668 OF CFX SPECIFICATIONS.
3. (SM) = SHELF MOUNT, (RM) = RACK MOUNT
4. BUS RATING SHALL BE A MINIMUM OF THE FULL ELECTRICAL LOAD WHEN ALL CABINET AND EXTERNAL POLE MOUNTED DEVICES ARE ACTIVE.
5. CABINET SPD MODELS SHALL BE AS FOLLOWS OR A CFX APPROVED EQUIVALENT:

   SPD 1 - ASCO # 107D046S15KXN4D0
   SPD 2 - ASCO # 420120NP05NWAJ10 + APT SKIT1 IN-LINE SERIES KIT
   SPD 3 - ADVANCED PROTECTION TECHNOLOGIES (APT) - APT SCAT5
   SPD 4 - ASCO # 420120NP05NWAJ10 + APT SKIT1 IN-LINE SERIES KIT
   SPD 5 - ASCO # 425120SP10AWAJ10



TYPE 334
GROUND MOUNTED ADMS CABINET DETAIL

6. CONDUIT RADIUS SHALL BE GREATER THAN FIBER OPTIC CABLE MINIMUM BENDING RADIUS.
7. 19" DOUBLE DIN RAIL SHALL BE GROUNDED PER MANUFACTURER'S RECOMMENDATIONS.
8. CONTRACTOR SHALL SUBMIT A CABINET LAYOUT/WIRING DIAGRAM FOR CFX APPROVAL.
9. FRONT FACE OF EQUIPMENT SHALL BE INSTALLED WITHIN THE CABINET FACING THE OPPOSITE DIRECTIONAL OF TRAVEL.
10. THE DIN RAIL MOUNTED RS-232 CONNECTOR SHALL BE CLEARLY LABELED AS "DCS READER MAINTENANCE PORT - RS-232". SUGGESTED VENDOR/PART NUMBER FOR THE RS-232 CONNECTOR: B&B ELECTRONIC DB9 MTB OR CFX APPROVED EQUAL.
11. GROUND MOUNTED DMS CABINETS SHALL BE PLACED ON A MONOLITHIC POUR CONCRETE EXTENDING SIX (6) INCHES ABOVE THE GRADE.
12. SLIDE OUT TRAY SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
13. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS.
14. PANDUIT DIMENSIONS ARE AS FOLLOWS:
    A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
    B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
    C. PANDUIT SHALL VERTICALLY COVER RU's AS SHOWN
15. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
16. DIN RAIL AND PANEL PROVIDED BY DAKTRONICS FOR DC BREAKERS, GROUND BUS AND DC SPD.
17. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
18. BATTERY SHELF SHALL BE 5052 ALUMINUM WITH FINE BRUSH FINISH AND CAPABLE OF FULLY SUPPORTING THE WEIGHT OF 2 BATTERIES (APPROXIMATE WEIGHT OF 75 LBS PER BATTERY). PANEL SHALL BE STANDARD 19" (1 RU). MOUNT SHELF BEHIND RACK RAIL. INSTALL RACK SCREWS FRONT TO BACK WITH LOCK WASHERS AND NUTS. INSTALL A MINIMUM OF SIX RACK SCREWS, 4 TOP HOLES AND 2 BOTTOM HOLES. THE BATTERY SHELF SHALL BE ATTACHED TO THE FRONT AND BACK RACK RAILS.
19. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1)CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.

NTS

LEGEND:

- PORT SERVER
- BATTERY VOLTAGE SENSOR
- SURGE — CCTV NEMA ENCLOSURE SPD
- MEDIA CONVERTER
- CLICK 202
- LAYER 2 ETHERNET SWITCH
- RS 232 DB9 MAINT. PORT
- REMOTE POWER MANAGER

REVISIONS					
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ADMS CABINET LAYOUT DETAIL

SHEET NO. L-1

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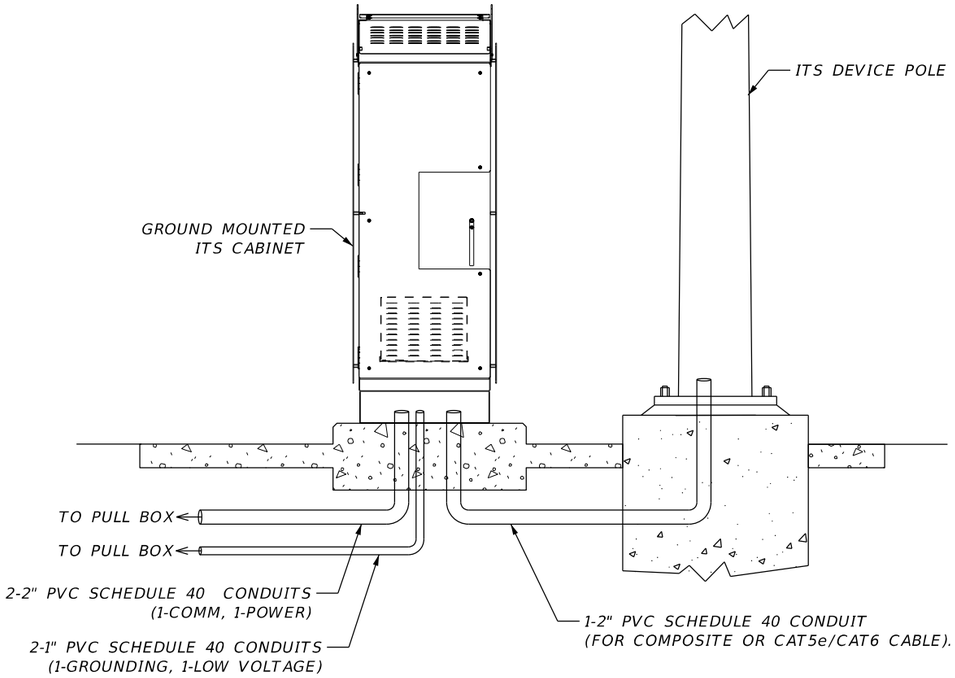
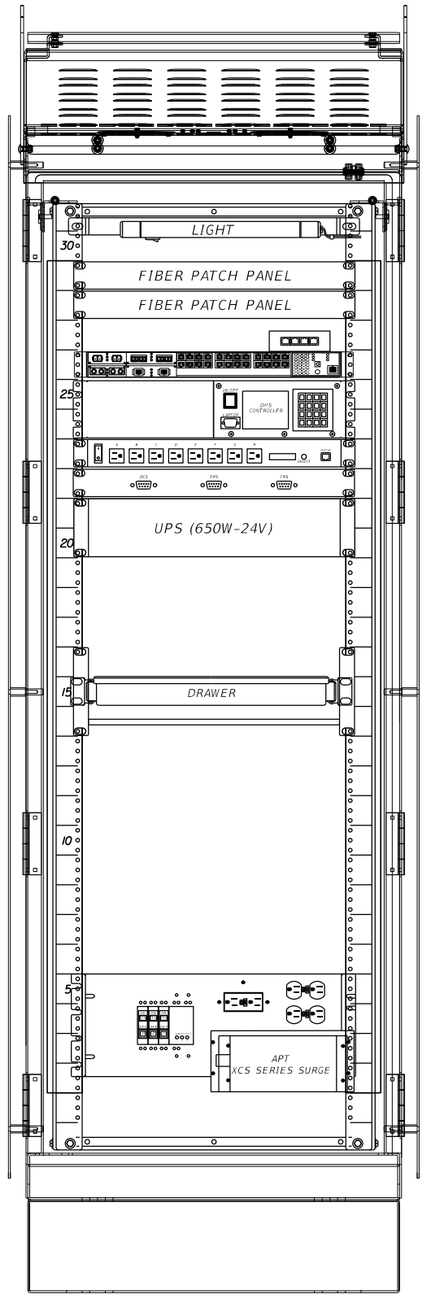


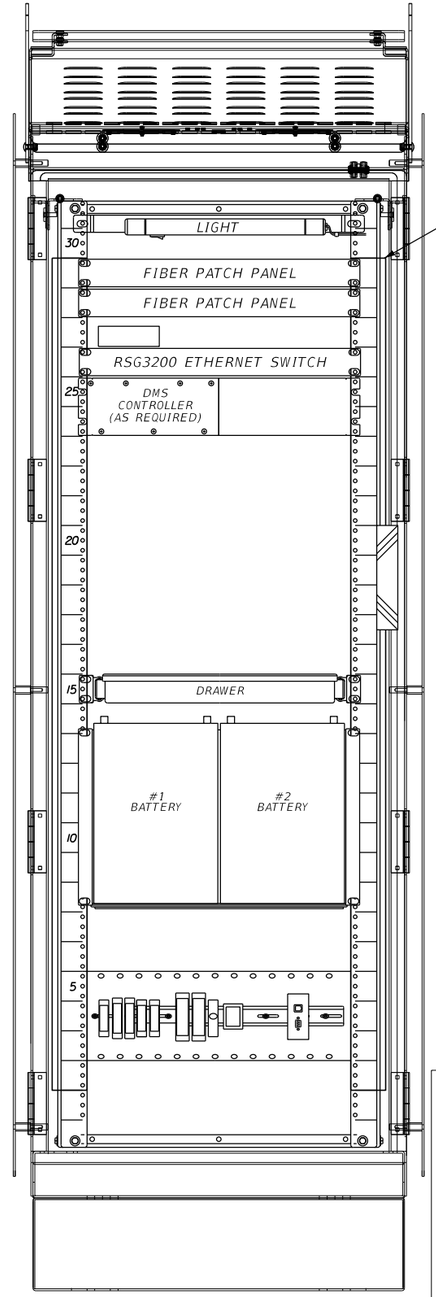
TYPE 334
GROUND MOUNTED ITS CABINET DETAIL

NOTES:

1. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
2. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
3. ALL ITS CABINETS SHALL MEET CFX SPECIFICATION 668.
4. GROUND MOUNT CABINETS SHALL BE PLACED ON A MONOLITHIC CONCRETE BASE 6" ABOVE GRADE.
5. ALL ITS CABINETS SLIDE OUT TRAYS SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
6. ALL ITS CABINETS SHALL NEVER BE MOUNTED ON THE APPROACHING SIDE OF TRAFFIC.
7. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS AT ALL ITS CABINET LOCATIONS.
8. PANDUIT DIMENSIONS ARE AS FOLLOWS:
   A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
   B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
   C. PANDUIT SHALL VERTICALLY COVER 28 RU's AS SHOWN.
9. POE SHALL BE GROUNDED TO DIN RAIL.
10. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
11. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1)CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.
12. BATTERY SHELF SHALL BE 5052 ALUMINUM WITH FINE BRUSH FINISH AND CAPABLE OF FULLY SUPPORTING THE WEIGHT OF 2 BATTERIES (APPROXIMATE WEIGHT OF 75 LBS PER BATTERY). PANEL SHALL BE STANDARD 19" (1 RU). MOUNT SHELF BEHIND RACK RAIL. INSTALL RACK SCREWS FRONT TO BACK WITH LOCK WASHERS AND NUTS. INSTALL A MINIMUM OF SIX RACK SCREWS, 4 TOP HOLES AND 2 BOTTOM HOLES. THE BATTERY SHELF SHALL BE ATTACHED TO THE FRONT AND BACK RACK RAILS.



FRONT VIEW



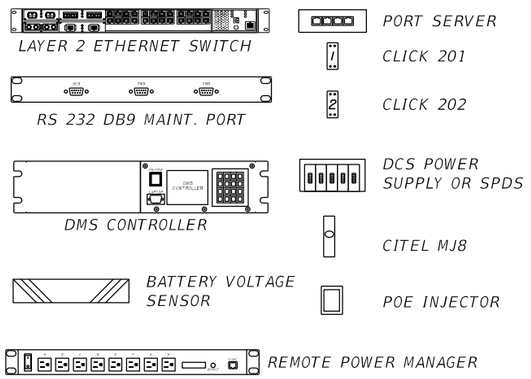
BACK VIEW

TYPE 334
ITS CABINET LAYOUT

NTS

NOTE TO EOR:
TYPE 334 ITS CABINET IS THE PREFERRED DEFAULT CABINET UNLESS OTHERWISE STATED IN THE PLANS. CFX APPROVAL IS REQUIRED FOR OTHER ALTERNATIVES.

LEGEND:



REVISIONS					
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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPE 334
ITS CABINET LAYOUT DETAIL

SHEET NO.
L-2

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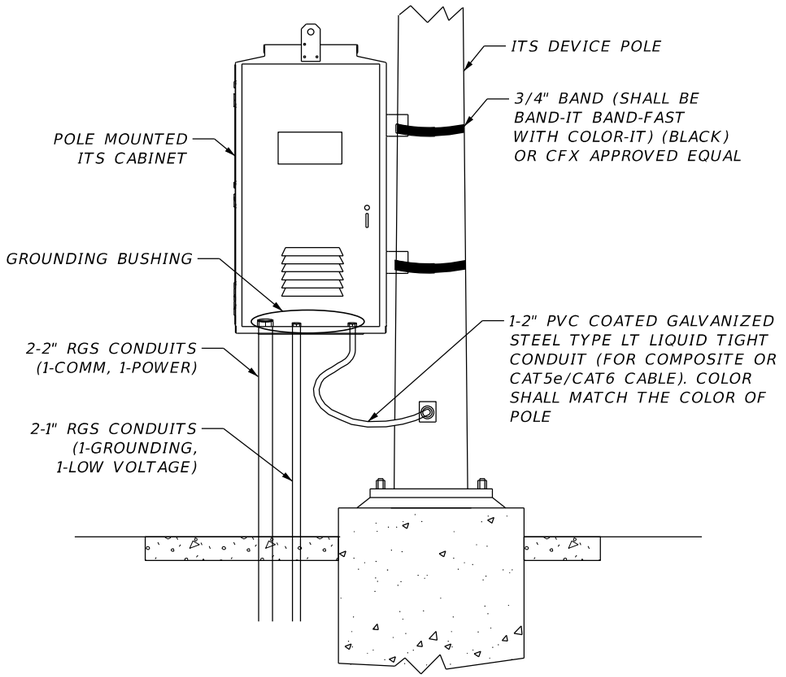
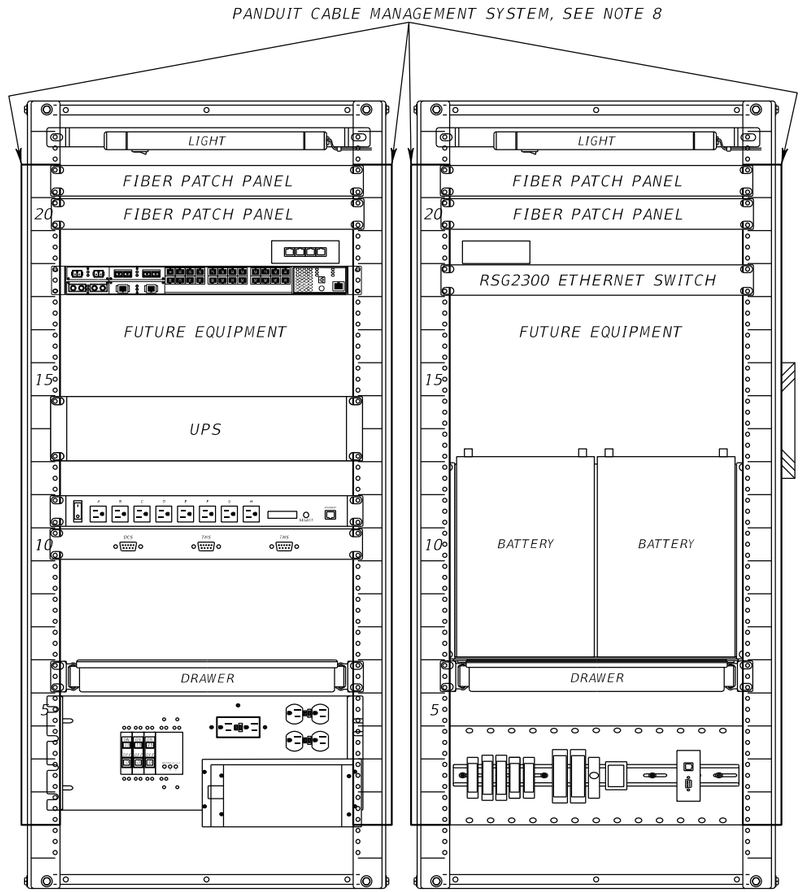


TYPE 336S
POLE MOUNTED ITS CABINET DETAIL

NOTES:

1. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
2. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
3. ALL ITS CABINETS SHALL MEET CFX SPECIFICATION 668.
4. POLE MOUNTED 336S CABINETS SHALL BE PLACED AS SHOWN THREE (3) FEET FROM BOTTOM OF CABINET TO GRADE. IF IMPRACTICAL DUE TO SITE GEOMETRICS, AN ALTERNATE LOCATION ADJACENT TO THE STRUCTURE SHALL BE DESIGNED FOR A CABINET PLACEMENT ON A TYPE II POLE WITH THE BOTTOM OF THE CABINET THREE (3) FEET FROM GRADE.
5. ALL ITS CABINETS SLIDE OUT TRAYS SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
6. ALL ITS CABINETS SHALL NEVER BE MOUNTED ON THE APPROACHING SIDE OF TRAFFIC.
7. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS AT ALL ITS CABINET LOCATIONS.
8. PANDUIT DIMENSIONS ARE AS FOLLOWS:
   A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
   B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
   C. PANDUIT SHALL VERTICALLY COVER RU's AS SHOWN
9. POE SHALL BE GROUNDED TO DIN RAIL.
10. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
11. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1)CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.
12. BATTERY SHELF SHALL BE 5052 ALUMINUM WITH FINE BRUSH FINISH AND CAPABLE OF FULLY SUPPORTING THE WEIGHT OF 2 BATTERIES (APPROXIMATE WEIGHT OF 75 LBS PER BATTERY). PANEL SHALL BE STANDARD 19" (1 RU). MOUNT SHELF BEHIND RACK RAIL. INSTALL RACK SCREWS FRONT TO BACK WITH LOCK WASHERS AND NUTS. INSTALL A MINIMUM OF SIX RACK SCREWS, 4 TOP HOLES AND 2 BOTTOM HOLES. THE BATTERY SHELF SHALL BE ATTACHED TO THE FRONT AND BACK RACK RAILS.



TYPE 336S
ITS CABINET LAYOUT

NOTE TO EOR:
TYPE 334 ITS CABINET IS THE PREFERRED DEFAULT CABINET UNLESS OTHERWISE STATED IN THE PLANS. CFX APPROVAL IS REQUIRED FOR OTHER ALTERNATIVES.

NTS

LEGEND:

- LAYER 2 ETHERNET SWITCH
- PORT SERVER
- CLICK 201
- CLICK 202
- RS 232 DB9 MAINT. PORT
- DCS POWER SUPPLY OR SPDS
- BATTERY VOLTAGE SENSOR
- CITEL MJ8
- POE INJECTOR
- REMOTE POWER MANAGER

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

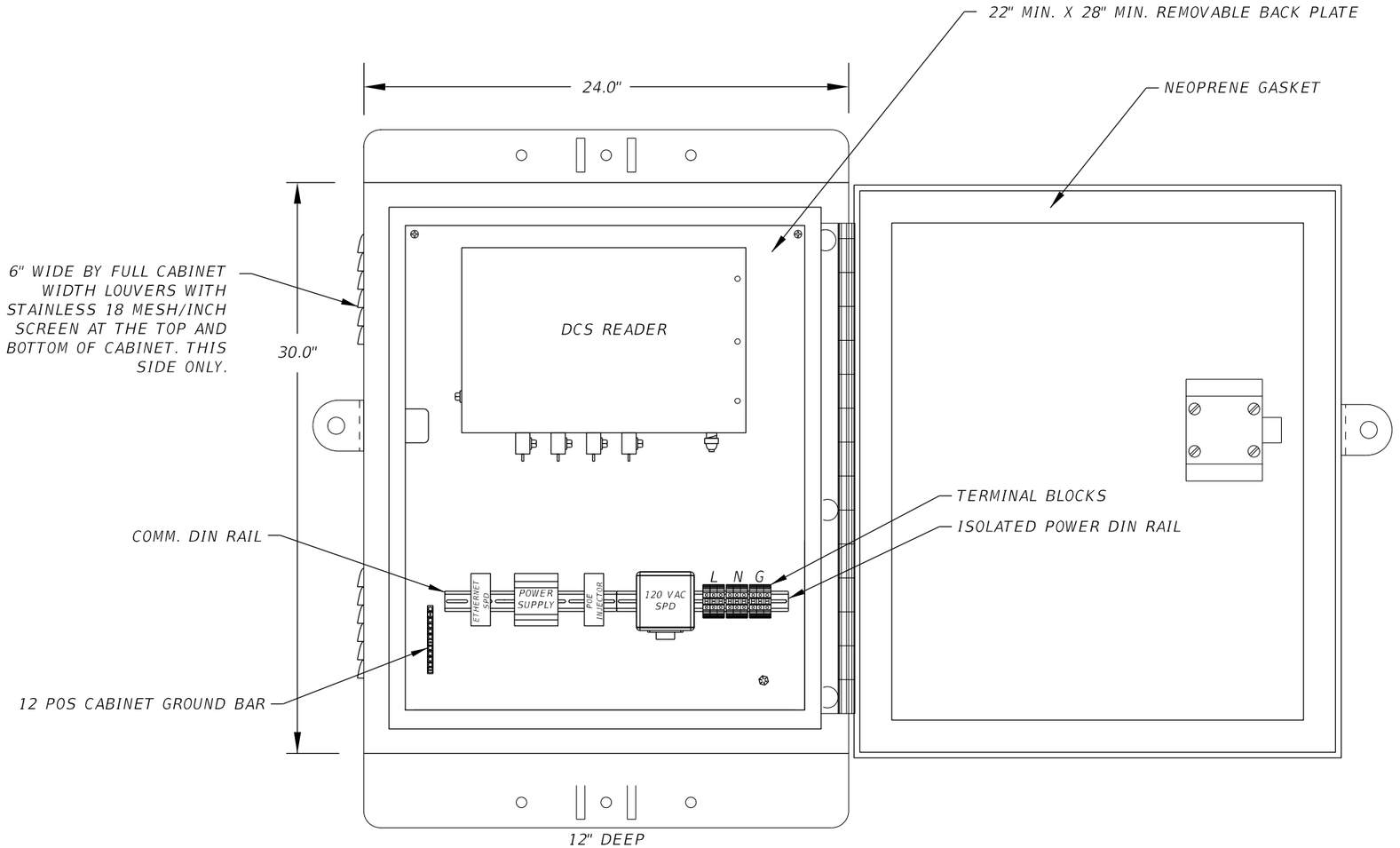
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPE 336S
ITS CABINET LAYOUT DETAIL

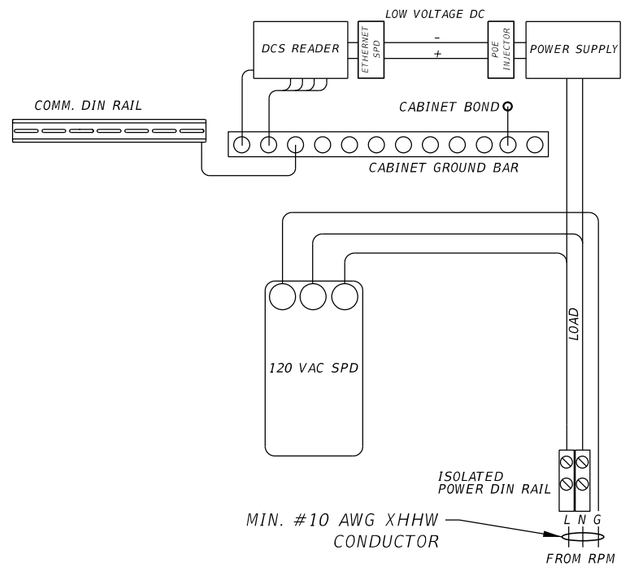
SHEET NO. L-3

MARCH 2026

2/27/2026 10:23:53 AM



POLE / WALL MOUNTED CABINET (RF READER MODULE)



POWER WIRING DIAGRAM

NOTES:

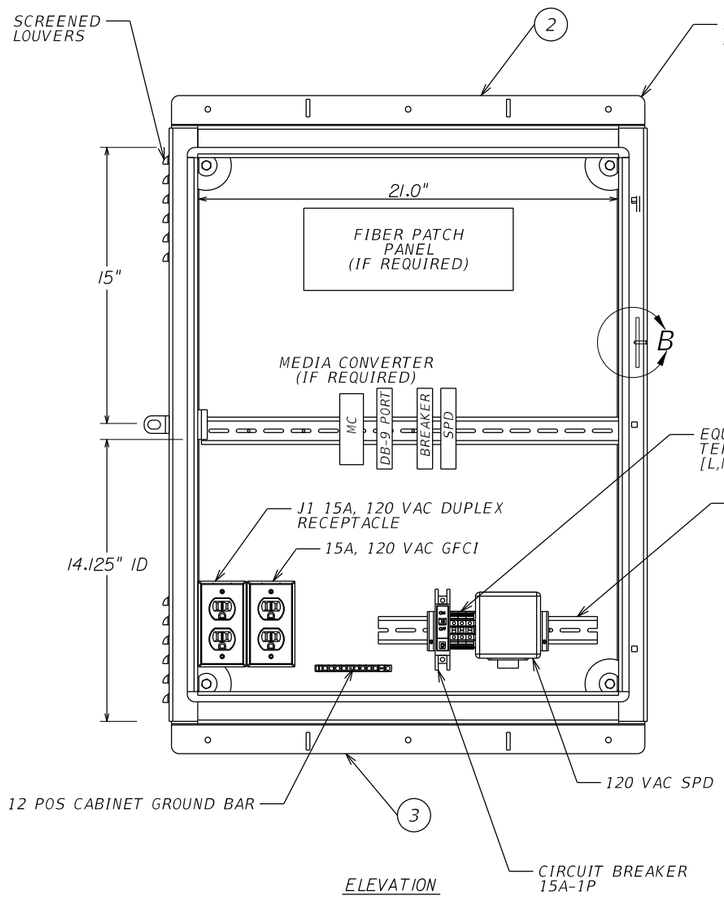
1. CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR CFX APPROVAL PRIOR TO PROCUREMENT.
2. SEE WIRING DIAGRAM FOR EQUIPMENT TO BE INSTALLED IN THE CABINET.
3. DCS READER PORT ASSIGNMENT SHALL CONFIGURE LANE 1 TO PORT 1 FOR RIGHT MOST LANE OF TRAVEL.
4. DCS READER CAN ACCOMMODATE UP TO FOUR ANTENNAS.
5. NO NEUTRAL TO GROUND BOND SHALL OCCUR IN THE CABINET.
6. DCS READER CABINET SHALL BE POWERED BY THE RPM. REFER TO WIRING DIAGRAMS.
7. MIN. #10 AWG XHHW CONDUCTOR SHALL BE INSTALLED FROM THE RPM TO THE DCS READER CABINET FOR POWER AND SERVICE GROUND.

NTS

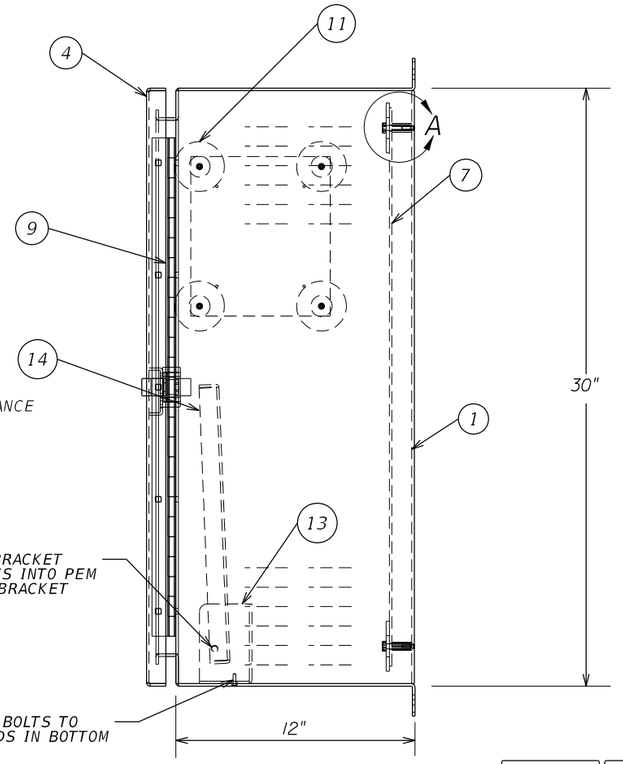
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS READER NEMA CABINET LAYOUT DETAIL	SHEET NO. L-4

MARCH 2026

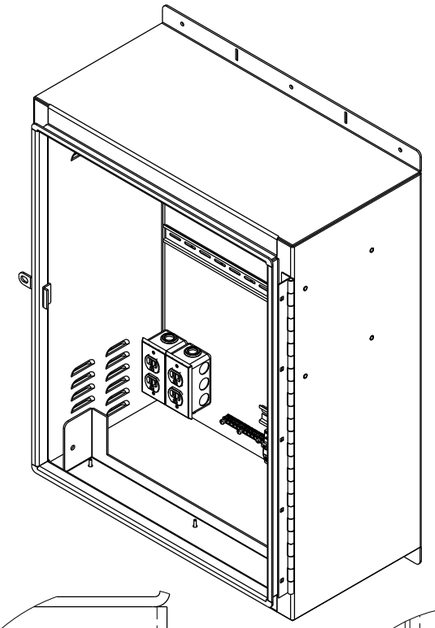
2/27/2026 10:23:54 AM

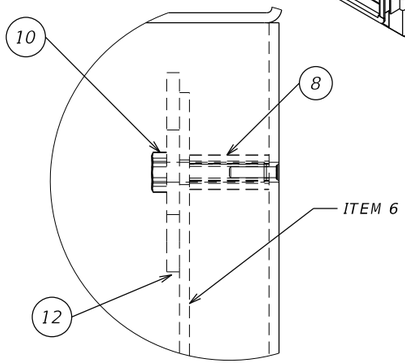


ELEVATION

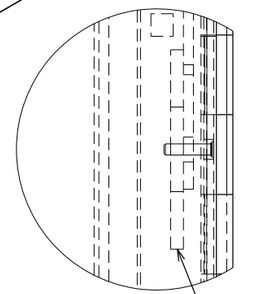


SIDEVIEW

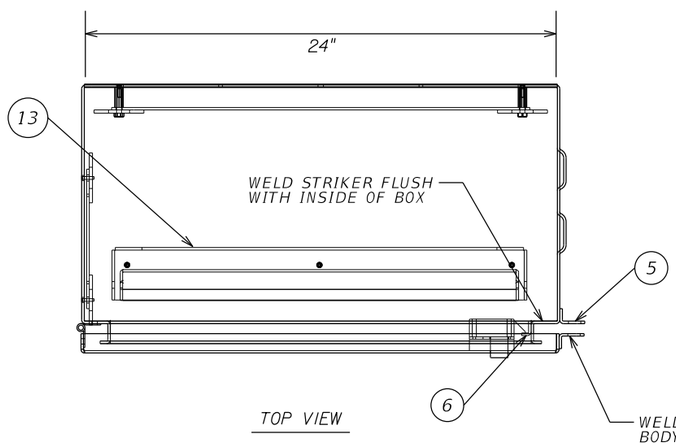




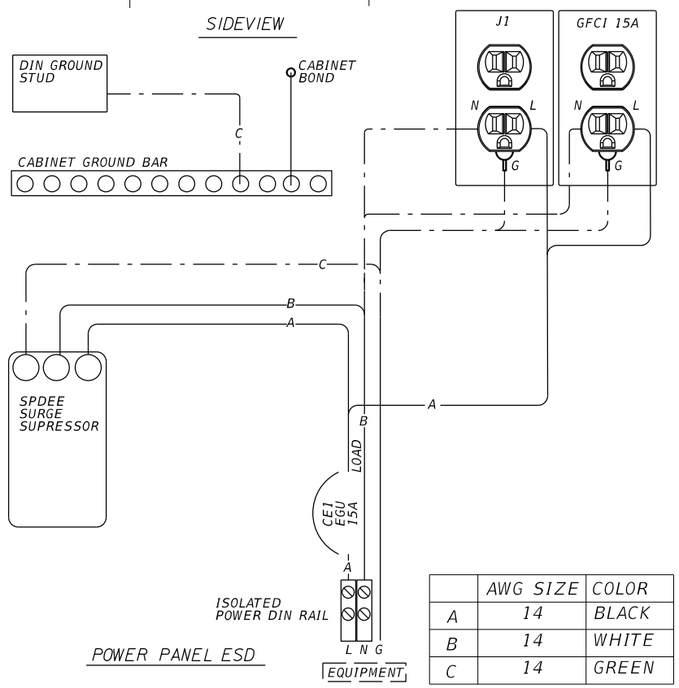
DETAIL A



DETAIL B



TOP VIEW



POWER PANEL ESD

	AWG SIZE	COLOR
A	14	BLACK
B	14	WHITE
C	14	GREEN

ITEM NO.	DESCRIPTION
1	BODY
2	END CAP
3	BOT-END-CAP
4	DOOR-ASSY
5	BDY-HASP
6	STRIKER
7	BACKPLATE-1
8	STANDOFF
9	HINGE-ASSY
10	HEX BOLT
11	BACK PLATE-2
12	FLAT WASHER TYPE B
13	FOLD-DN SHELF BRACKET
14	FOLD DOWN SHELF

NOTES:
1. ADD TERMINAL BLOCK IF REQUIRED.
2. TERMINATE EACH WIRE IN ITS OWN BLOCK.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

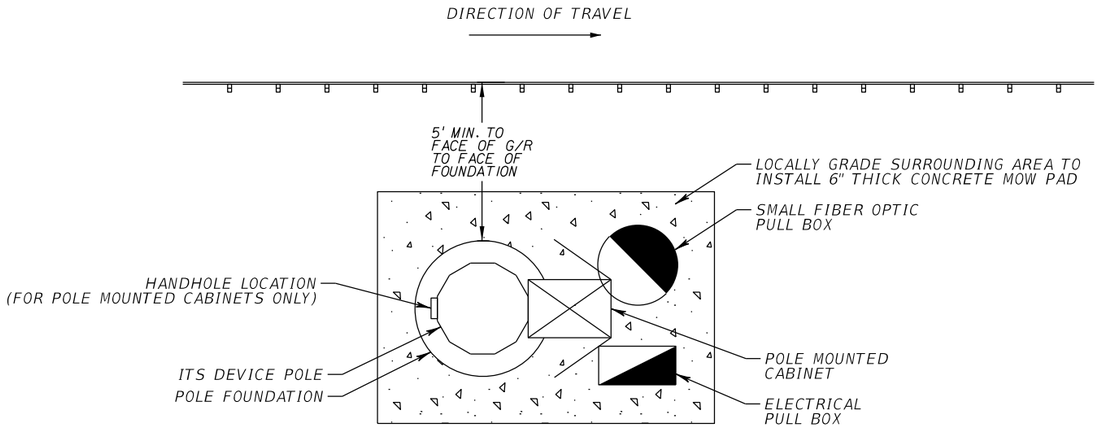
INTERMEDIATE NEMA 3R CABINET

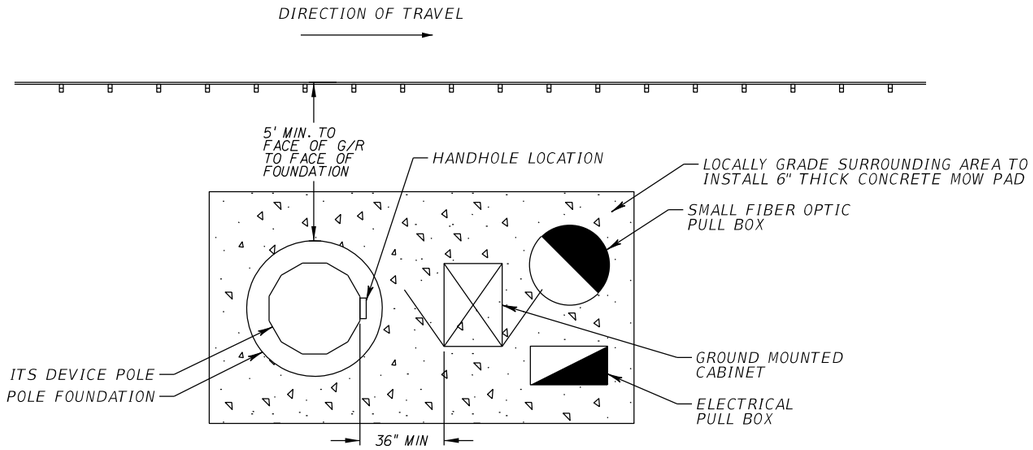
SHEET NO. L-5

MARCH 2026

2/27/2026 10:23:54 AM

TYPICAL CABINET LOCATION DETAIL FOR SLOPES

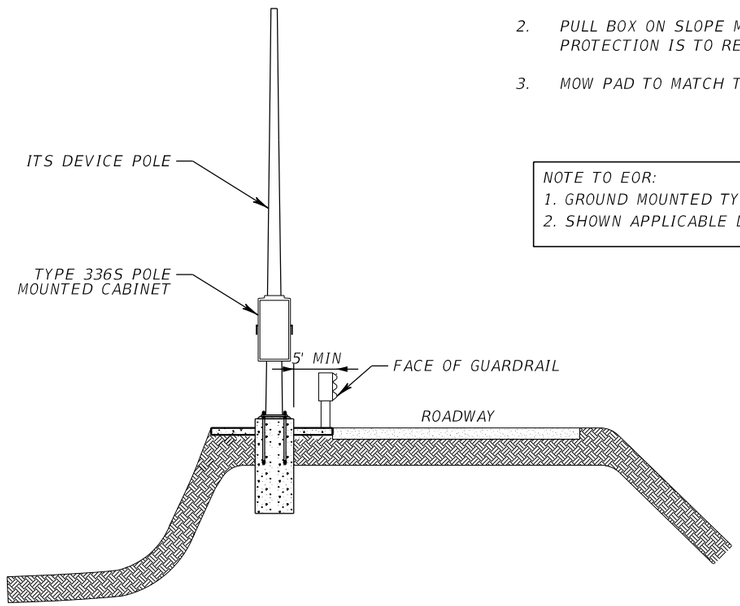


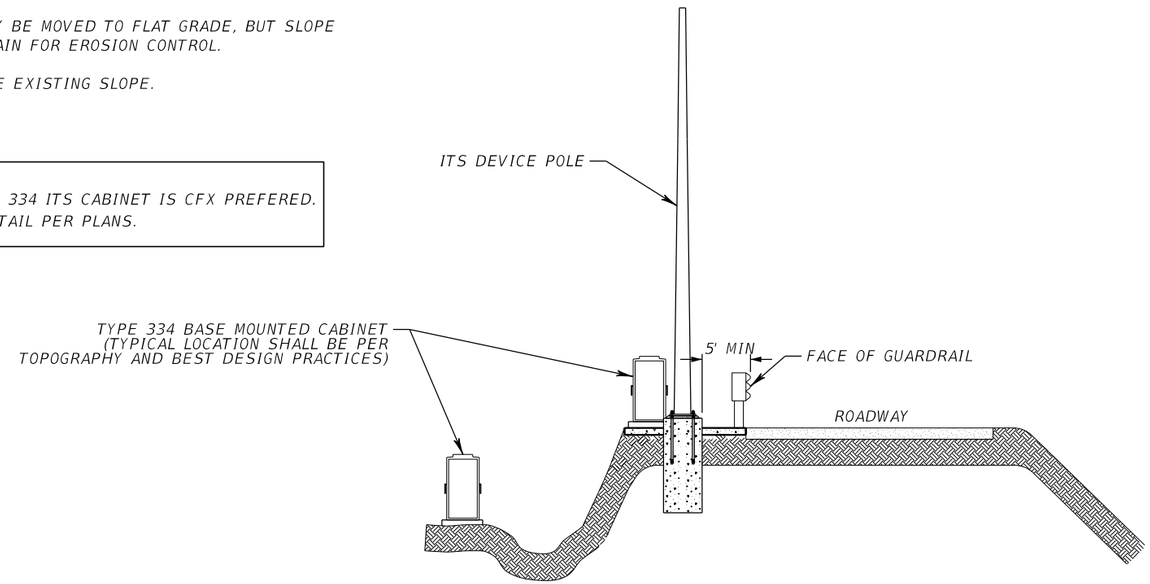


NOTES:

1. NUMBER OF PULL BOXES AND CONFIGURATION TO BE PER PLANS. MINIMUM SPACING IS TO BE MAINTAINED AS SHOWN.
2. PULL BOX ON SLOPE MAY BE MOVED TO FLAT GRADE, BUT SLOPE PROTECTION IS TO REMAIN FOR EROSION CONTROL.
3. MOW PAD TO MATCH THE EXISTING SLOPE.

NOTE TO EOR:
1. GROUND MOUNTED TYPE 334 ITS CABINET IS CFX PREFERED.
2. SHOWN APPLICABLE DETAIL PER PLANS.





NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TYPICAL CABINET LOCATION DETAIL FOR SLOPES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-6

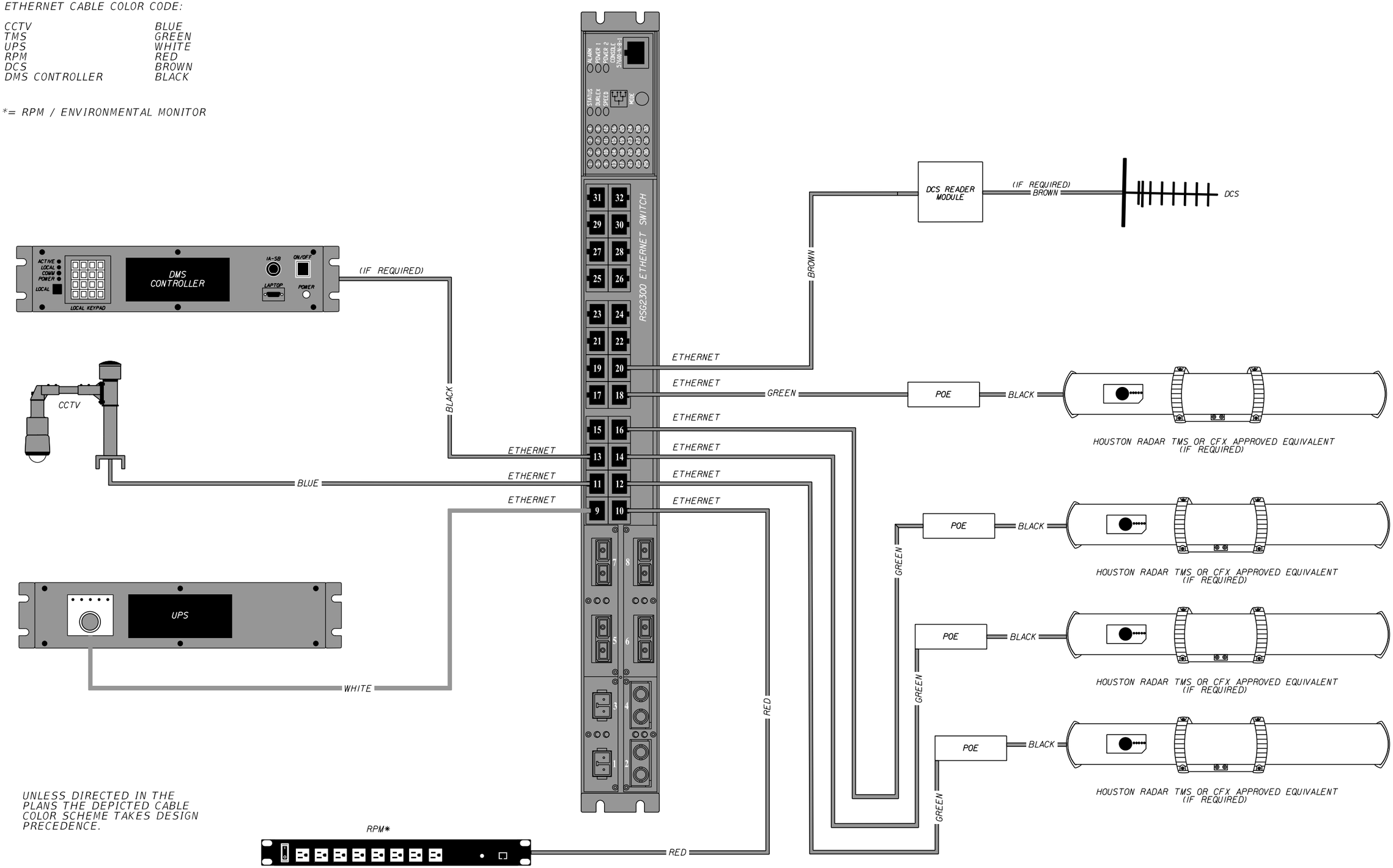
MARCH 2026

2/27/2026 10:23:54 AM

ETHERNET CABLE COLOR CODE:

CCTV	BLUE
TMS	GREEN
UPS	WHITE
RPM	RED
DCS	BROWN
DMS CONTROLLER	BLACK

*= RPM / ENVIRONMENTAL MONITOR



UNLESS DIRECTED IN THE PLANS THE DEPICTED CABLE COLOR SCHEME TAKES DESIGN PRECEDENCE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ETHERNET SWITCH DETAIL

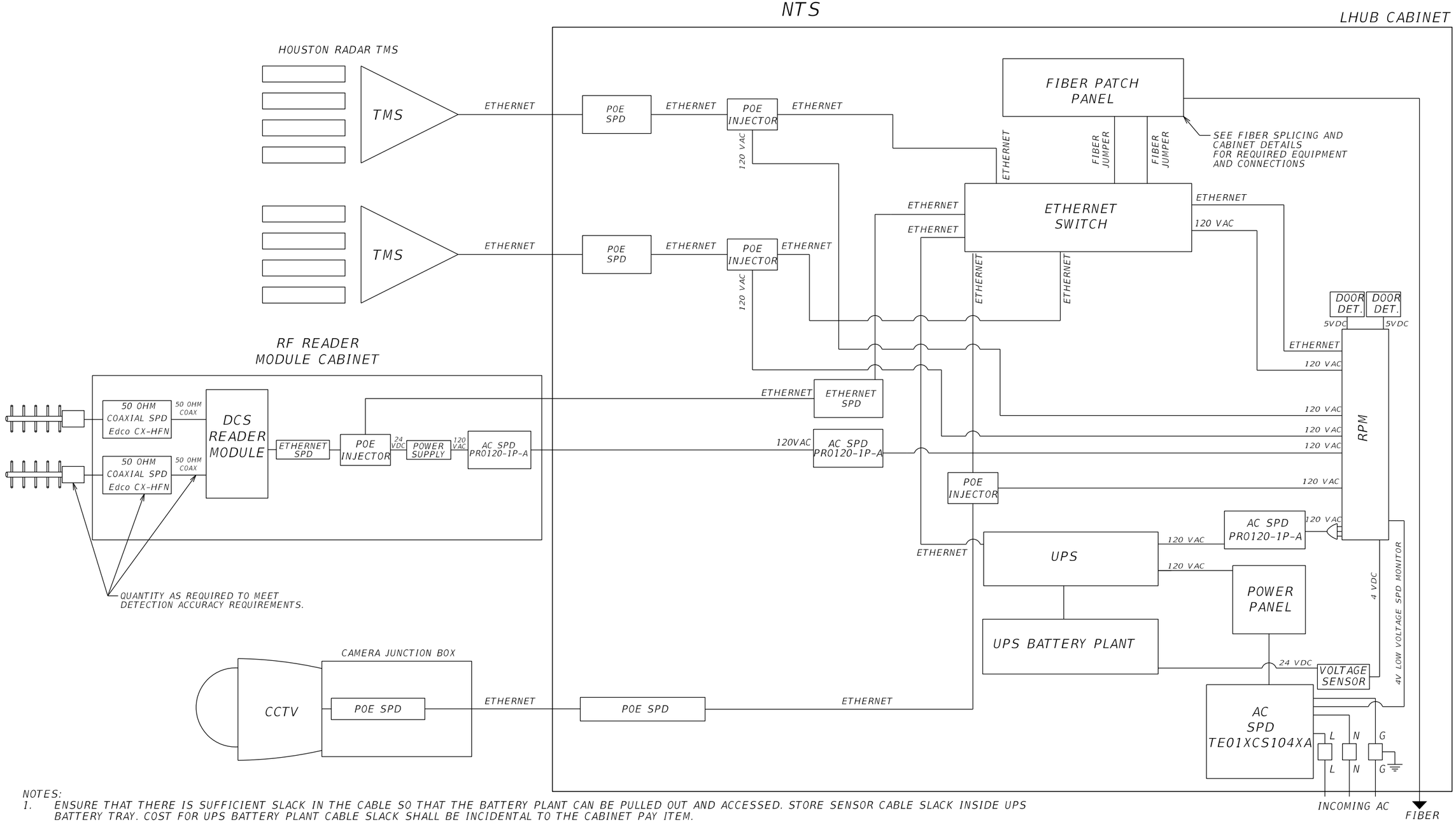
SHEET NO. L-7

MARCH 2026

2/27/2026 10:23:55 AM

PROPOSED CCTV, DCS & 2 TMS CONNECTION DIAGRAM

NTS



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. COST FOR UPS BATTERY PLANT CABLE SLACK SHALL BE INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL WIRING DIAGRAMS (1 OF 4)

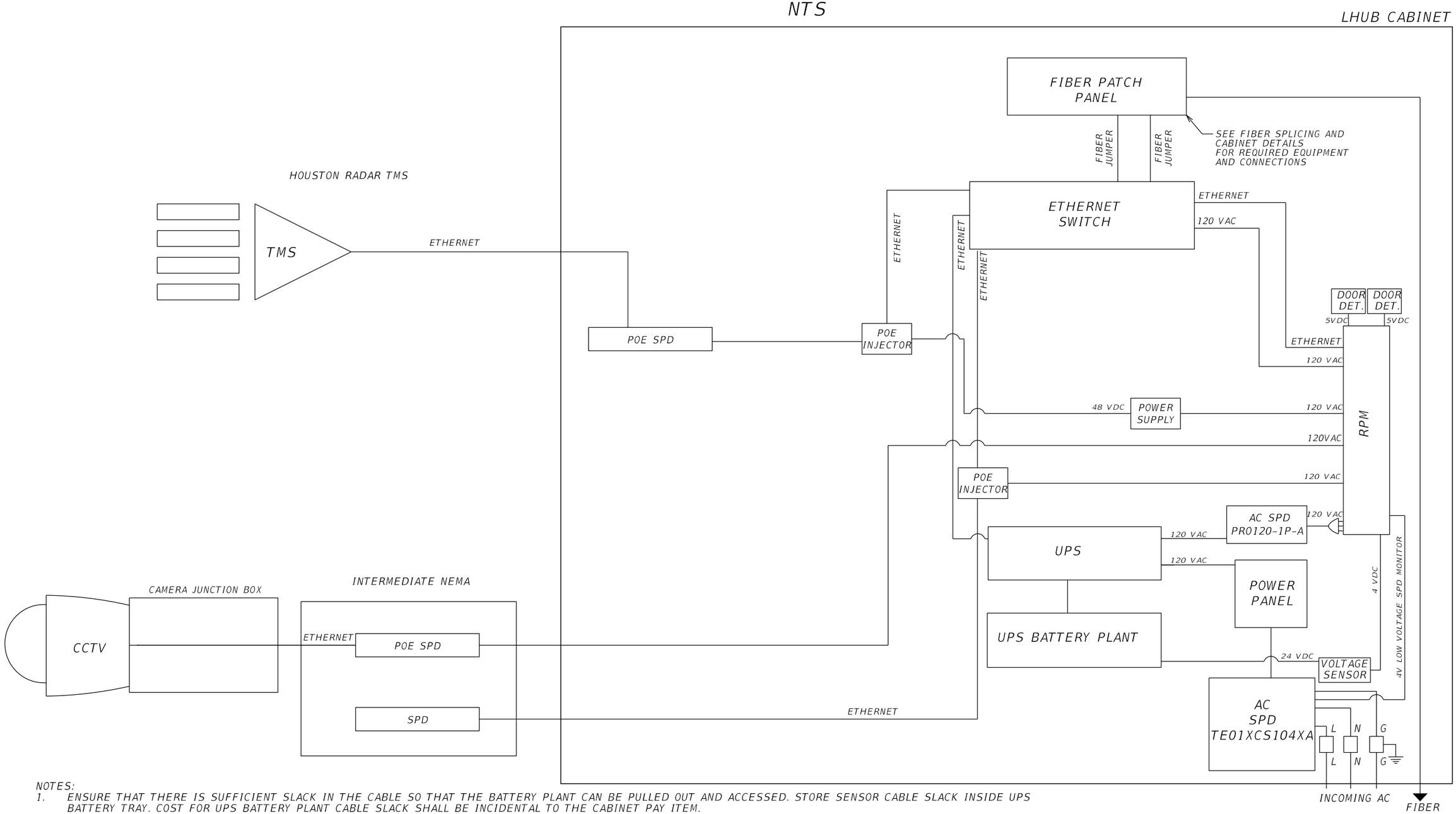
SHEET NO. L-8

MARCH 2026

2/27/2026 10:23:55 AM

PROPOSED CCTV & TMS CONNECTION DIAGRAM

NTS



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. COST FOR UPS BATTERY PLANT CABLE SLACK SHALL BE INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL WIRING DIAGRAMS (2 OF 4)

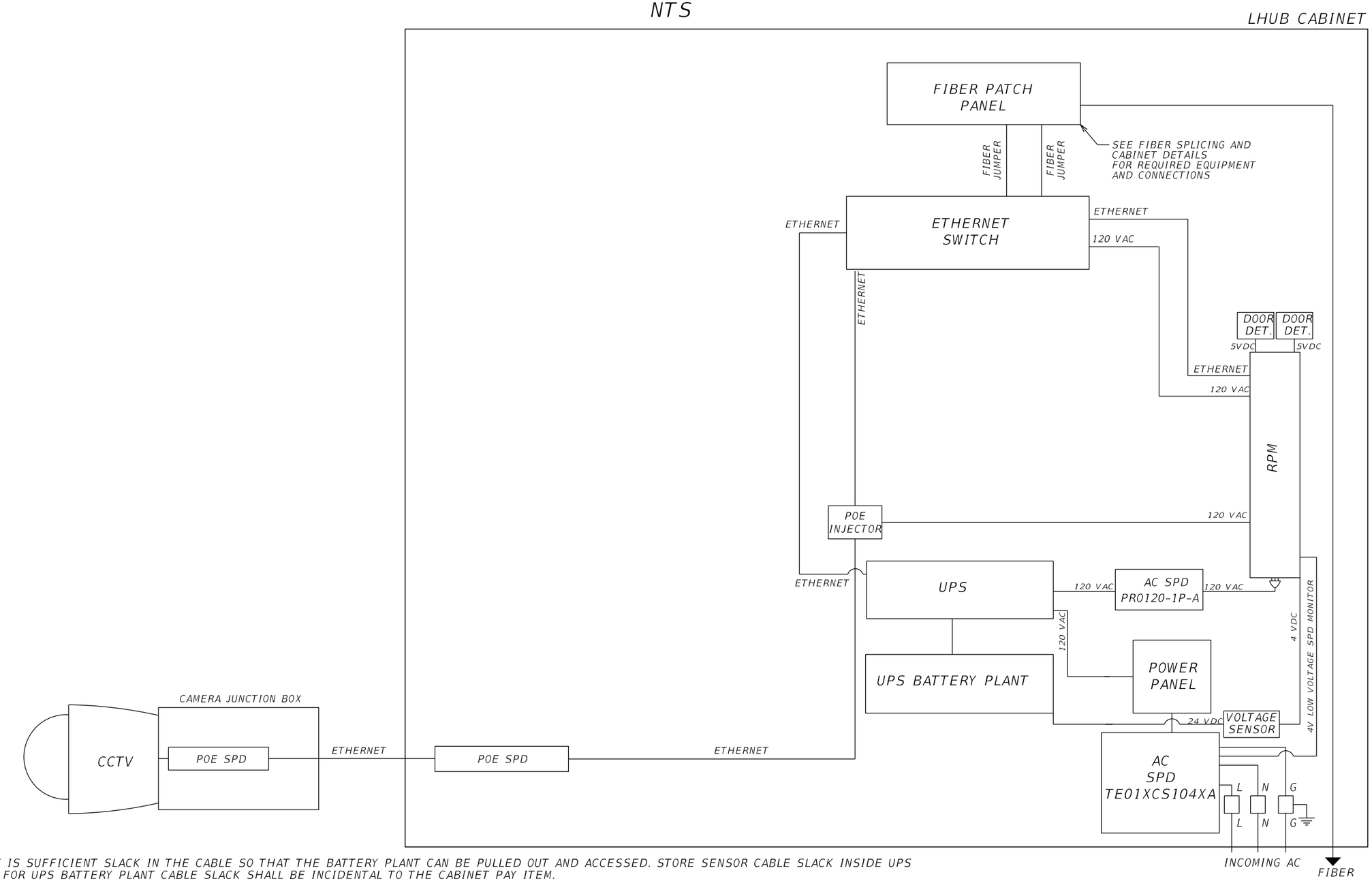
SHEET NO. L-9

MARCH 2026

2/27/2026 10:23:55 AM

PROPOSED CCTV CONNECTION DIAGRAM

NTS



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. COST FOR UPS BATTERY PLANT CABLE SLACK SHALL BE INCIDENTAL TO THE CABINET PAY ITEM.

2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

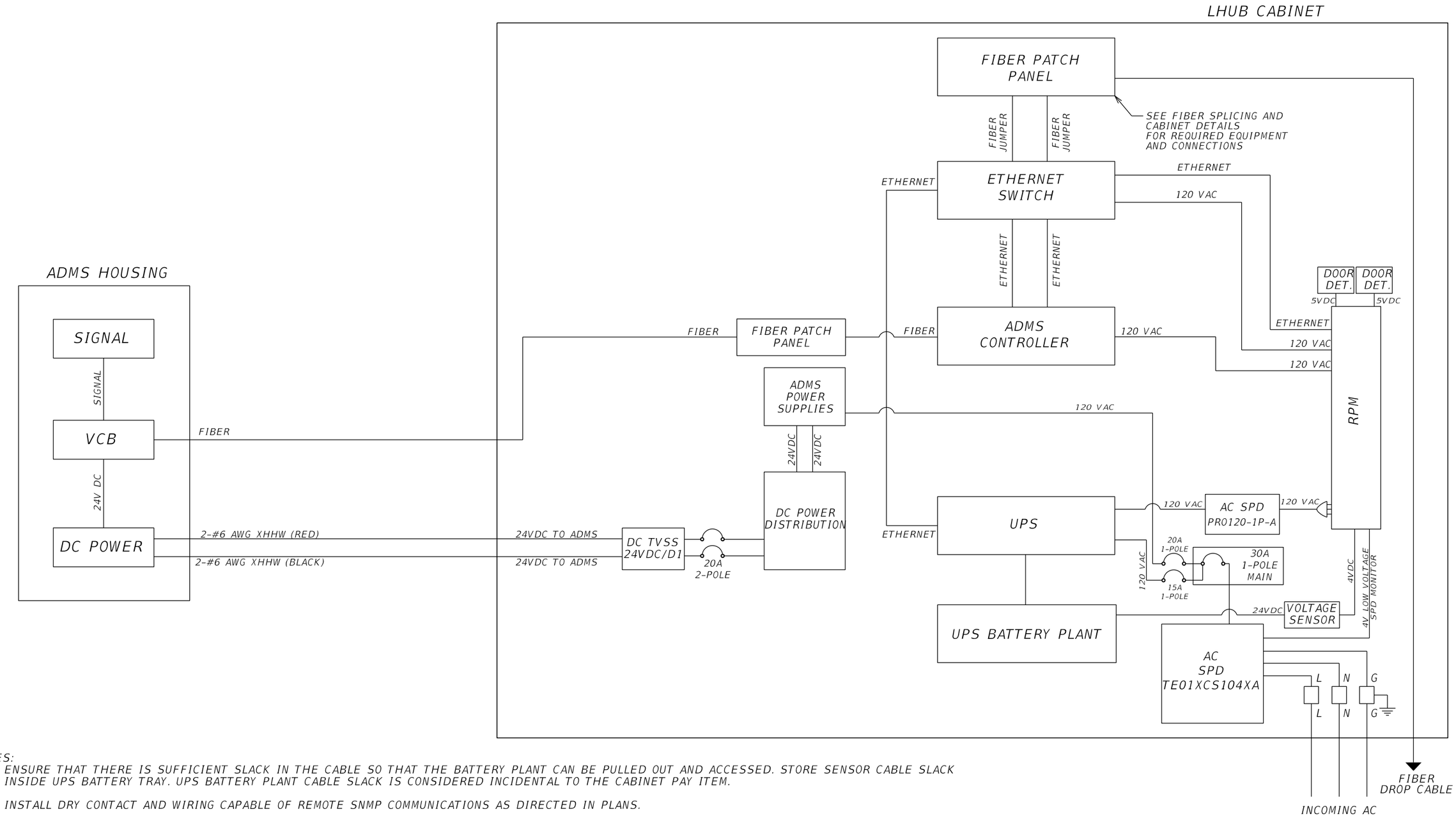
TYPICAL WIRING DIAGRAMS (3 OF 4)

SHEET NO. L-10

MARCH 2026

2/27/2026 10:23:56 AM

PROPOSED 1-LINE ADMS CONNECTION DIAGRAM



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. UPS BATTERY PLANT CABLE SLACK IS CONSIDERED INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.
3. GROUND SHIELDED CABLE PER MANUFACTURER'S REQUIREMENTS.

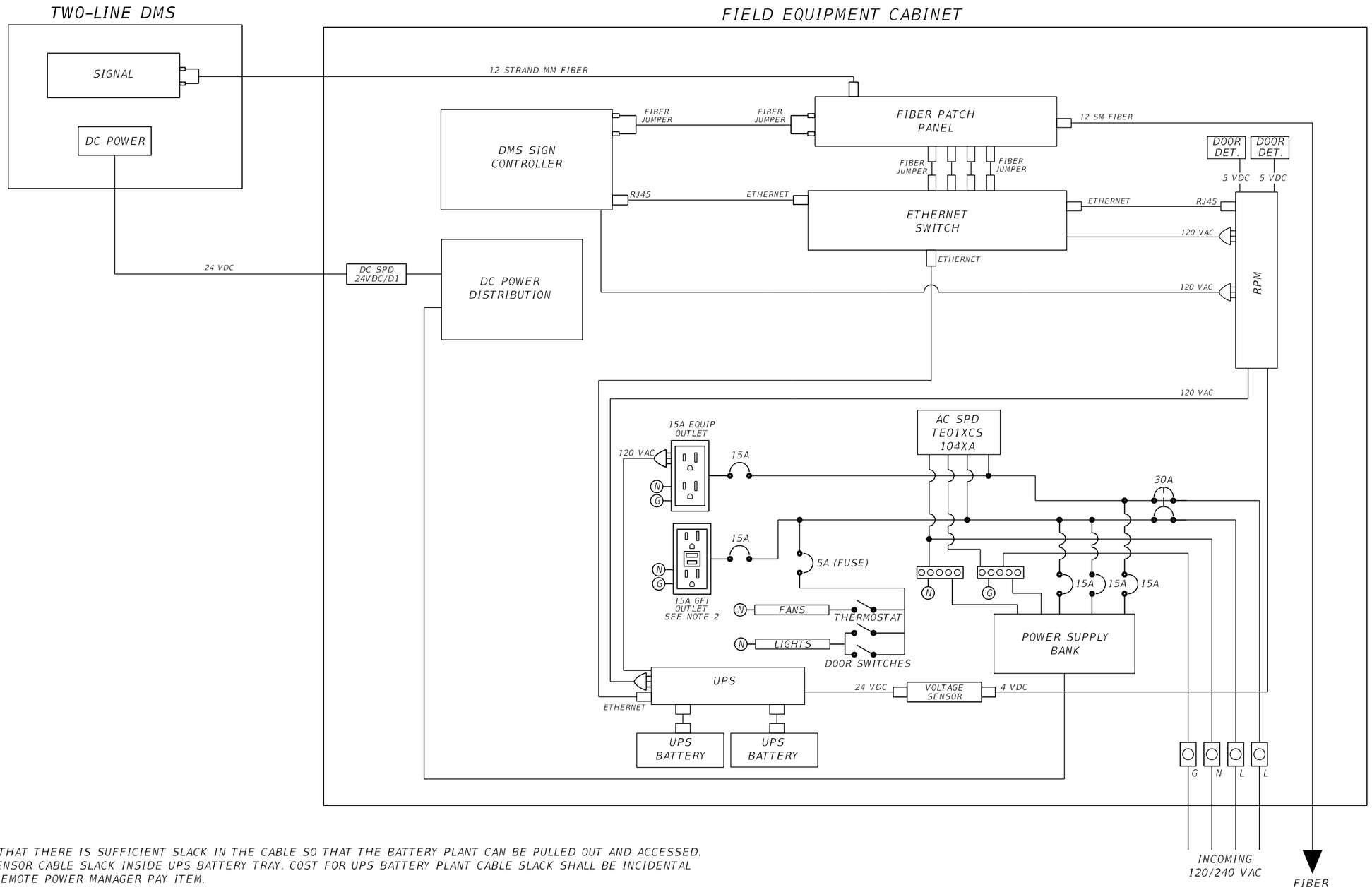
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TYPICAL WIRING DIAGRAM 1 - LINE ADMS (4 OF 4)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-11

MARCH 2026

2/27/2026 10:23:56 AM

DUAL LINE DMS BLOCK DIAGRAM



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. COST FOR UPS BATTERY PLANT CABLE SLACK SHALL BE INCIDENTAL TO THE REMOTE POWER MANAGER PAY ITEM.

2. ADD 'MAX 1000W' LABEL TO OUTLET.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

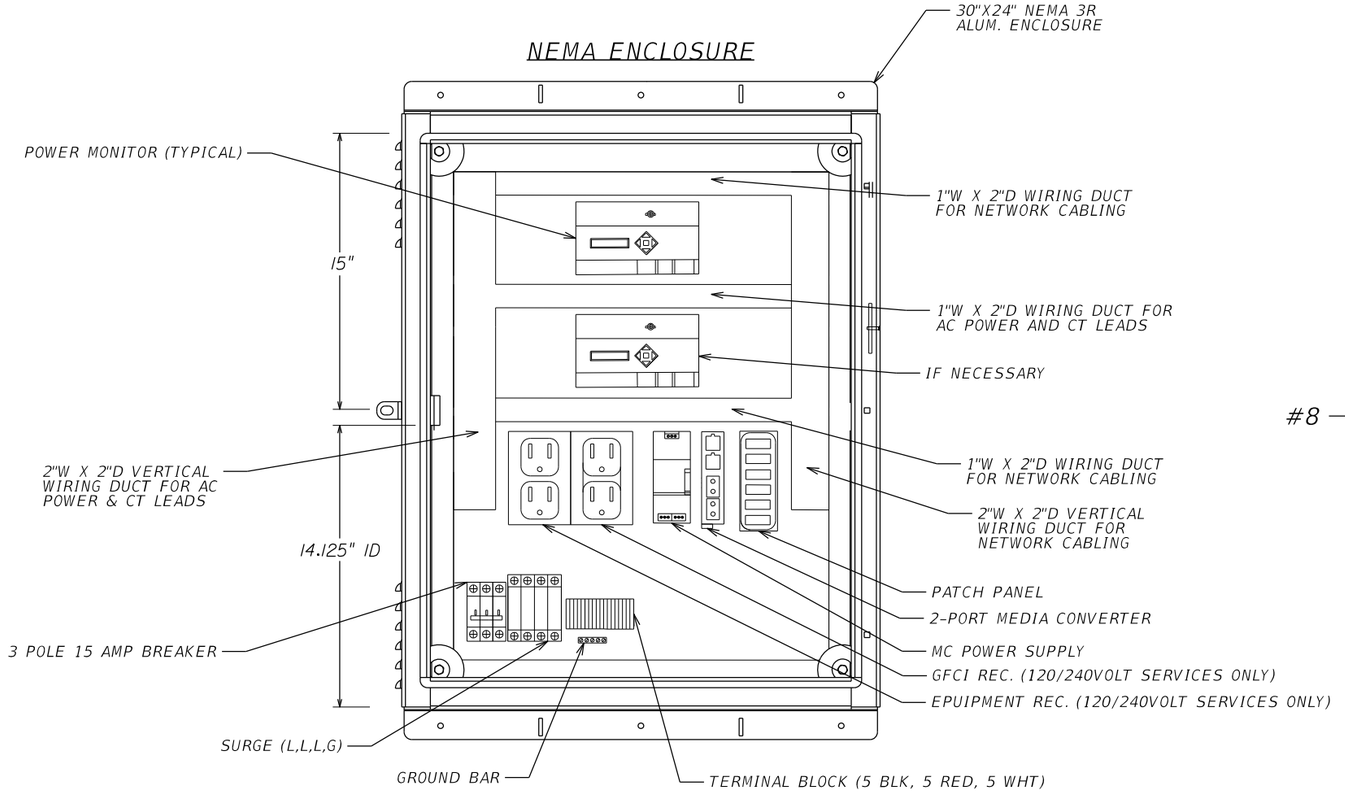
DUAL LINE DMS BLOCK DIAGRAM

SHEET NO. L-12

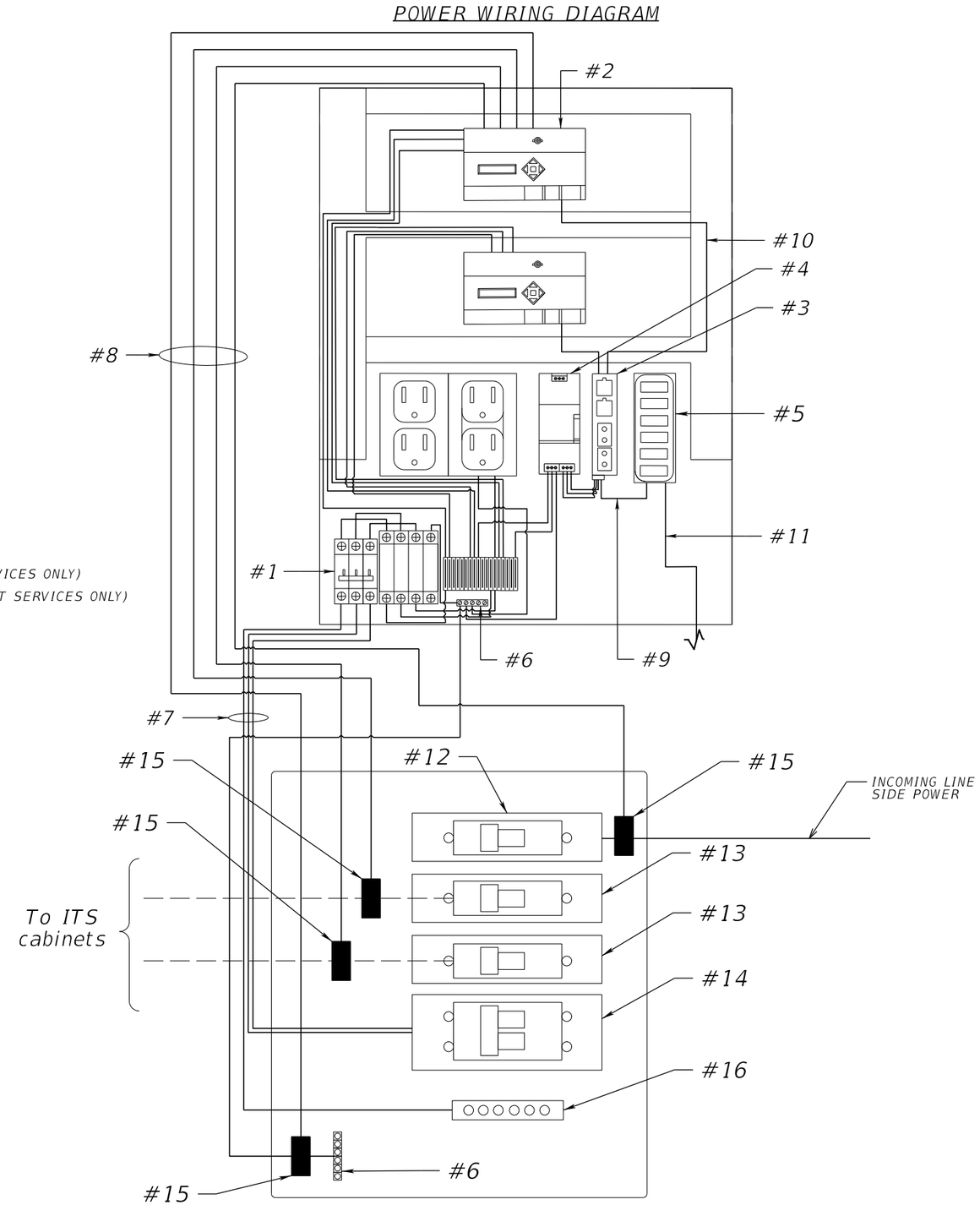
MARCH 2026

3/4/2026 9:34:21 AM

NEMA ENCLOSURE



POWER WIRING DIAGRAM



Load Center Panel Board

KEYED NOTES

#1 - 3 POLE 15 AMP CIRCUIT BREAKER
#2 - POWER MONITOR
#3 - FIBER TO ETHERNET 2-PORT MEDIA CONVERTER
#4 - 24V DC POWER SUPPLY
#5 - DIN-RAIL MOUNTED FIBER PATCH PANEL
#6 - GROUND BAR
#7 - BLACK, RED, WHITE AND GREEN WIRES COMING FROM THE LOAD CENTER PANEL BOARD TO THE POWER MONITOR CABINET. (MIN. #10 AWG XHHW CONDUCTOR)
#8 - BLACK AND WHITE TWISTED PAIR WIRES LEADING FROM THE POWER MONITOR TO THE CT'S. HINGED CT'S TO BE CLIPPED OVER THE BRANCH CIRCUIT WIRING WITHIN THE LOAD CENTER PANEL BOARD. ONE PAIR FOR EACH CT
#9 - FIBER OPTIC JUMPERS
#10 - ETHERNET CABLE
#11 - INCOMING 12 STRAND SINGLE MODE FIBER OPTIC CABLE
#12 - MAIN BREAKER (LINE SIDE FROM METER)
#13 - BRANCH CIRCUIT BREAKER. SEE NOTE 2
#14 - 15A 2-POLE BREAKER (MIN. #10 AWG XHHW CONDUCTOR TO SPM)
#15 - CURRENT TRANSFORMER (CT) (SIZED FOR APPROPRIATE BREAKERS)
#16 - ELECTRICAL PANEL NEUTRAL BAR

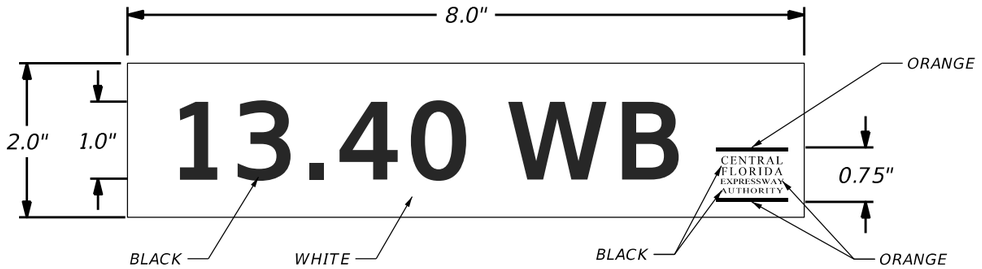
GENERAL NOTES

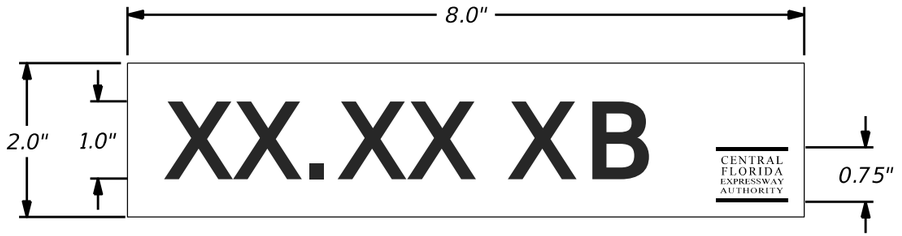
1. GROUND THE DIN-RAIL.
2. BRANCH BREAKER QUANTITY AND TYPE VARIES. SEE SERVICE POINT DETAILS.
3. LOAD CENTER PANEL BOARD VARIES. SEE SERVICE POINT DETAILS FOR MORE INFORMATION.
4. WIRE BETWEEN PANEL BOARD AND MONITOR TO BE DETERMINED BY SINGLE PHASE OR THREE PHASE LOCATIONS.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	POWER MONITOR NEMA CABINET LAYOUT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-13

MARCH 2026

2/27/2026 10:23:57 AM

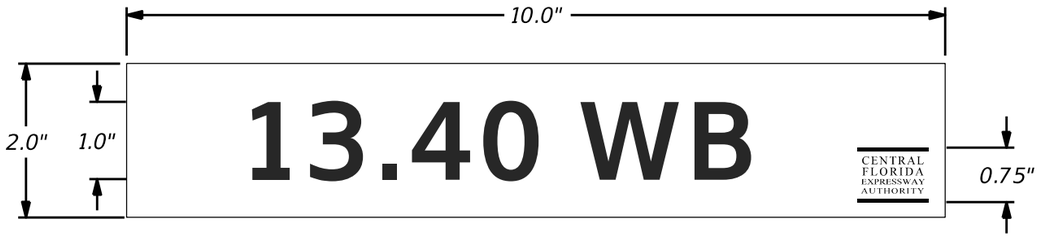


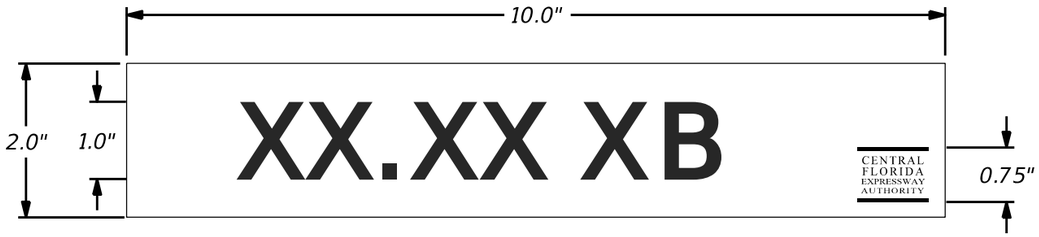


NOTES:

1. D10-1A MODIFIED STICKER DETAILS ARE AS FOLLOWS:
   A. DIMENSIONS: 2" X 8"
   B. COLOR: WHITE BACKGROUND WITH BLACK LETTERS
   C. GRADE / MATERIAL: 3M AEG 7310
   D. SIDES: 1 (SINGLE SIDED)

2. STICKER INSTALLATION PROCEDURE AND LOCATION SHALL BE COORDINATED WITH CFX AND THE MANUFACTURER PRIOR TO INSTALLATION.





NOTES:

1. D10-1A MODIFIED STICKER DETAILS ARE AS FOLLOWS:
   A. DIMENSIONS: 2" X 10"
   B. COLOR: WHITE BACKGROUND WITH BLACK LETTERS
   C. GRADE / MATERIAL: 3M AEG 7310
   D. SIDES: 1 (SINGLE SIDED)

2. STICKER INSTALLATION PROCEDURE AND LOCATION SHALL BE COORDINATED WITH CFX AND THE MANUFACTURER PRIOR TO INSTALLATION.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

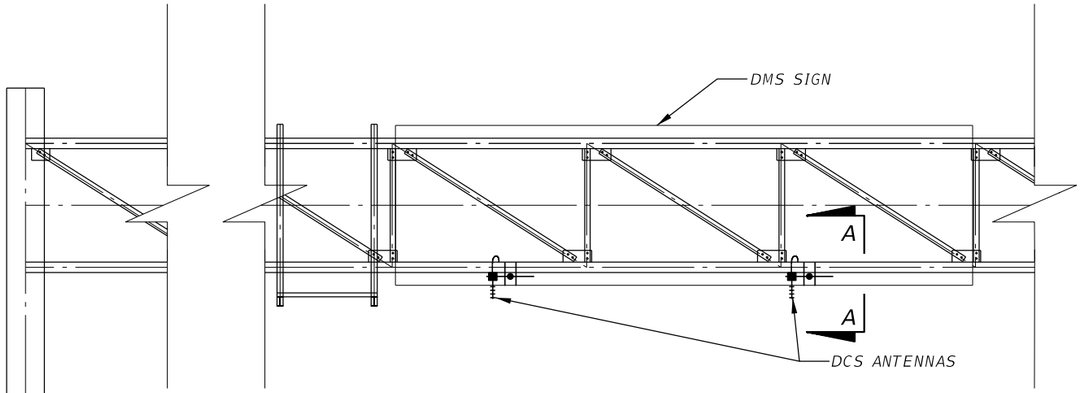
CABINET STICKER DETAIL

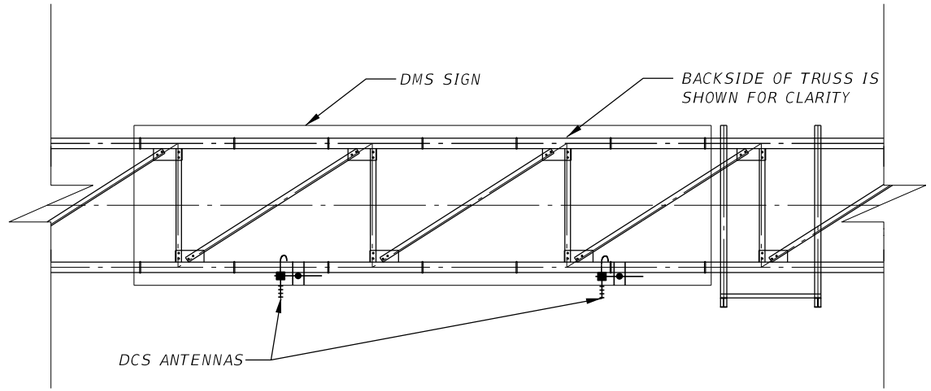
SHEET NO. L-14

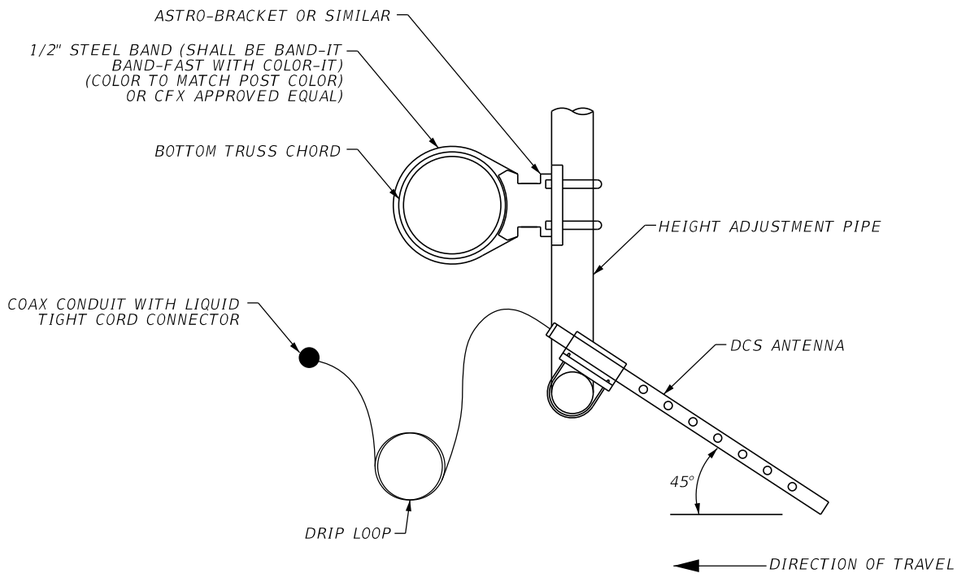
MARCH 2026

2/27/2026 10:24:04 AM

FULL SPAN BOX TRUSS DMS SIGN STRUCTURE DETAIL







SECTION A-A

NOTES:

1. THE DCS SHALL BE MOUNTED OVER LANE STRIPES PER DCS COVERAGE DETAILS.
2. CONTRACTOR SHALL ACHIEVE LANE ACCURACY REQUIREMENTS DEFINED IN SPECIFICATION 663.

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

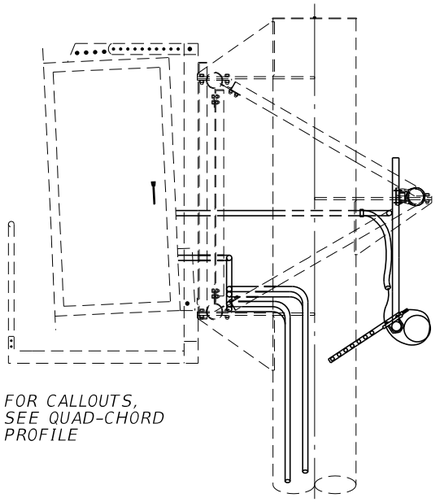
DCS ANTENNA ON DMS TRUSS DETAIL SHEET

SHEET NO.

M-1

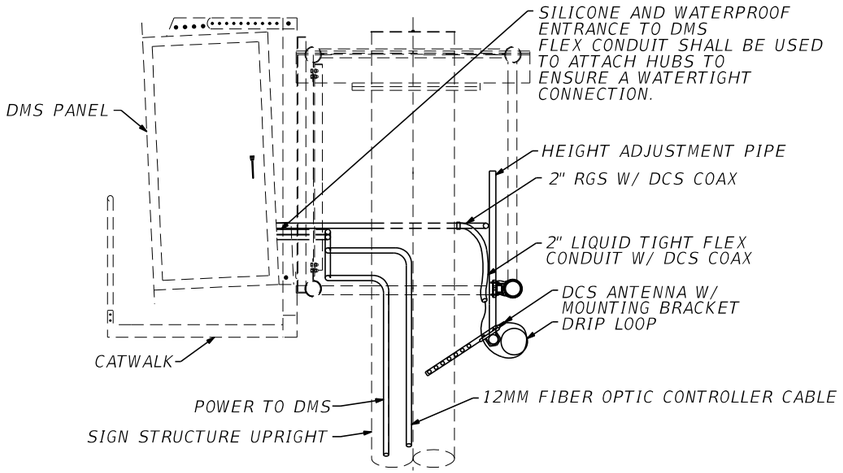
MARCH 2026

2/27/2026 10:24:04 AM

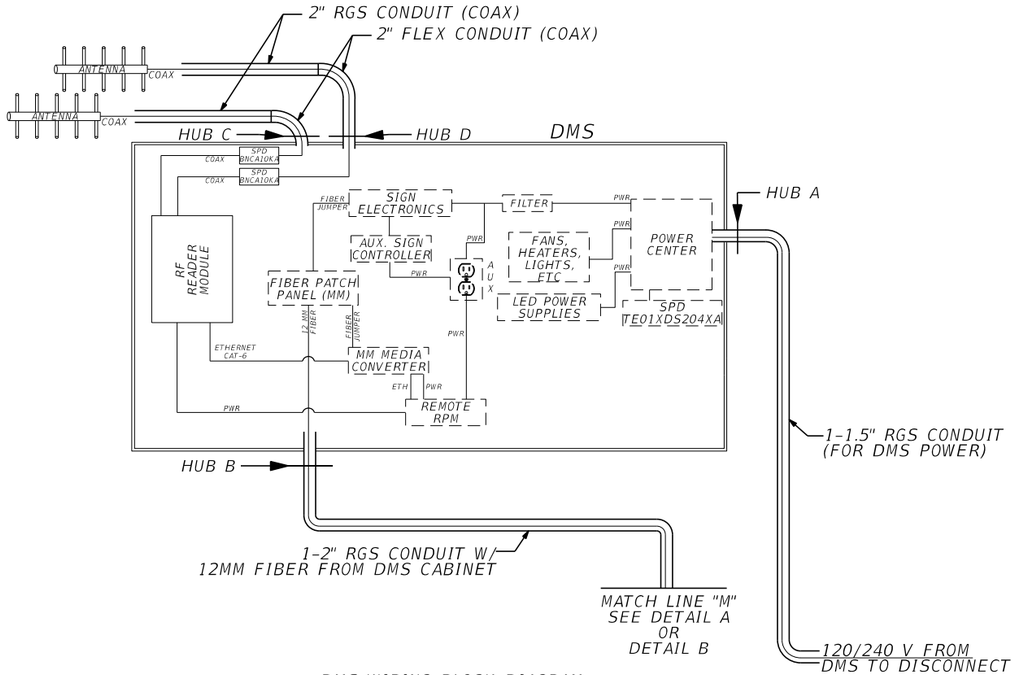


FOR CALLOUTS,
SEE QUAD-CHORD
PROFILE

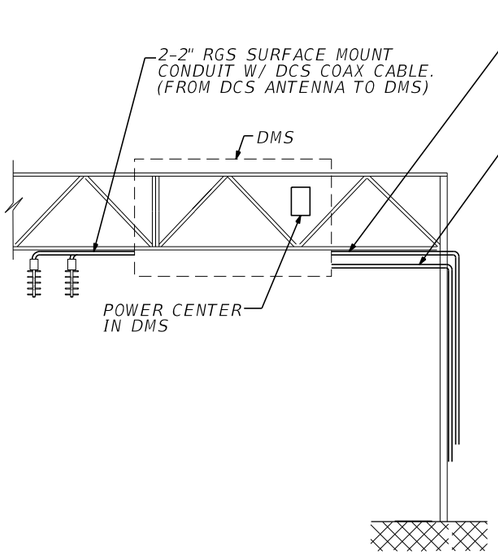
STRUCTURE POLE - TRI CHORD MOUNTED DMS (PROFILE)
SEE SHEET K-1 FOR ADDITIONAL DCM MOUNTING DETAILS



STRUCTURE POLE - QUAD CHORD MOUNTED DMS (PROFILE)
SEE SHEET K-1 FOR ADDITIONAL DCM MOUNTING DETAILS

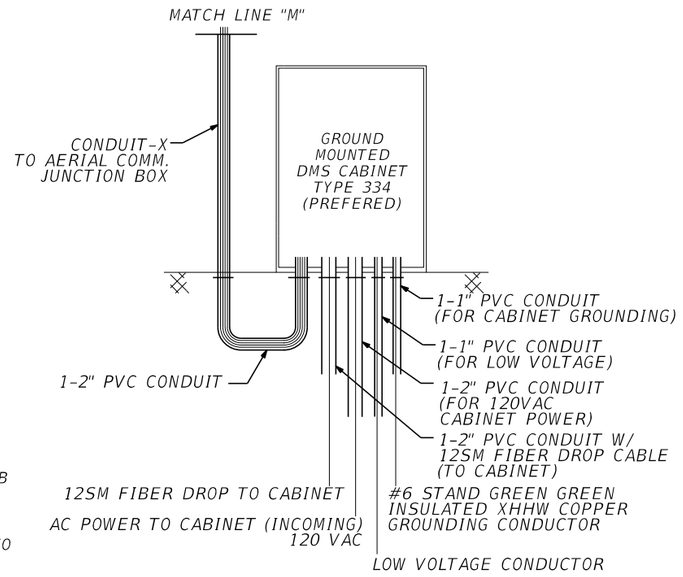


DMS WIRING BLOCK DIAGRAM

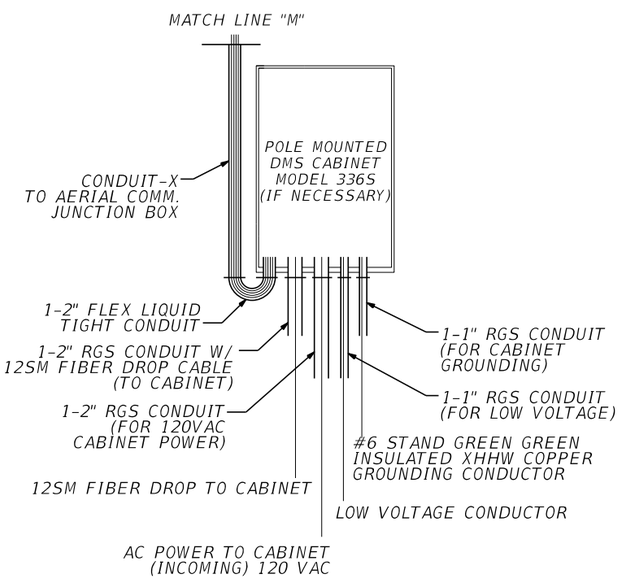


NOTE TO EOR:
1. GROUND MOUNTED TYPE 334 ITS CABINET IS CFX PREFERED.
2. SHOWN APPLICABLE DETAIL PER PLANS.

NOTES:
1. THE SPD MODEL NUMBERS THAT ARE SHOWN ARE APT PRODUCTS.
2. ALL SPD ARE TO BE MOUNTED ON A DIN RAIL. DIN RAIL SHALL BE GROUNDED PER SPD MANUFACTURER'S RECOMMENDATIONS.
3. PLAN REQUIREMENTS WILL VARY PER INSTALLATION. THE CONTRACTOR IS TO UTILIZE THIS DETAIL FOR CONSTRUCTION REQUIREMENTS BUT MUST BID EACH INSTALLATION AS REQUIRED BY THE PLAN SHEETS. NO ADDITIONAL COMPENSATION WILL BE GIVEN.
4. THE CONTRACTOR SHALL SUBMIT A DETAILED WIRE-BY-WIRE DIAGRAM FOR REVIEW AND APPROVAL BY CFX PRIOR TO INSTALLATION.
5. CONTRACTOR SHALL FURNISH RF READER PER SPECIFICATION 663.
6. CONDUIT SHALL BE SECURED TO SIGN STRUCTURE WITH "MINERALLAC CONDUIT CLAMPS AT 5' CENTERS (CATALOG NO. 2SB (1"), 4SB (2"), 5SB (2") OR CFX APPROVED EQUAL). USE SILICONE LOCK TIGHT AFTER DRILLING HOLE.
7. POLE MOUNTED CABINET GROUNDING SHALL BE PER DCS SIGN STRUCTURE MOUNTING DETAIL AND OTHER APPLICABLE GROUNDING DETAILS.
8. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED BETWEEN RGS CONDUIT TO JUNCTION BOX AND RGS CONDUIT TO DMS. ENTRANCE TO CONDUIT TO BE SEALED WITH A SIZED LIQUID TIGHT CORD CONNECTOR.
9. ANY POLE DRILLING FOR CABLE ENTRY SHALL BE SEALED USING RUBBER GROMMET. RE-GALVANIZE AND PAINT AFTER DRILLING.



DETAIL-A



DETAIL-B

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS AND THREE LINE DMS DEVICE CO-LOCATION DETAIL

SHEET NO. M-2

MARCH 2026

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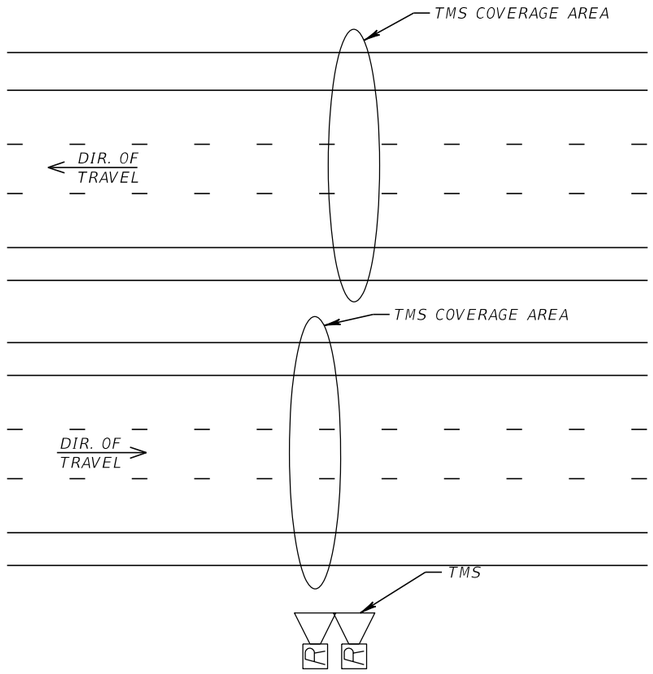
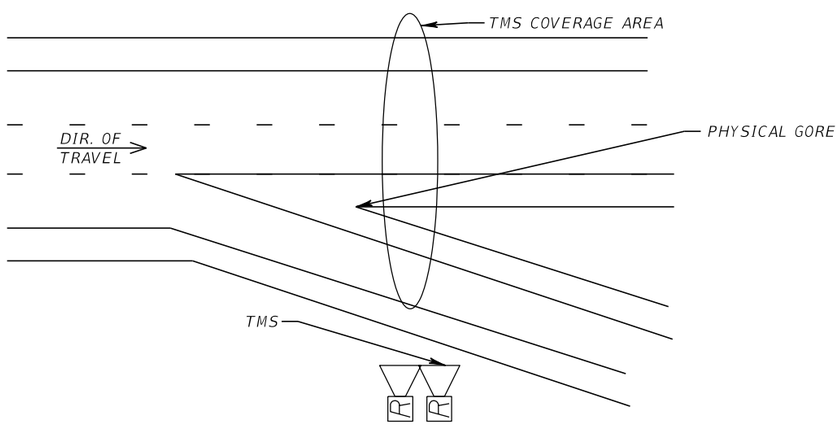
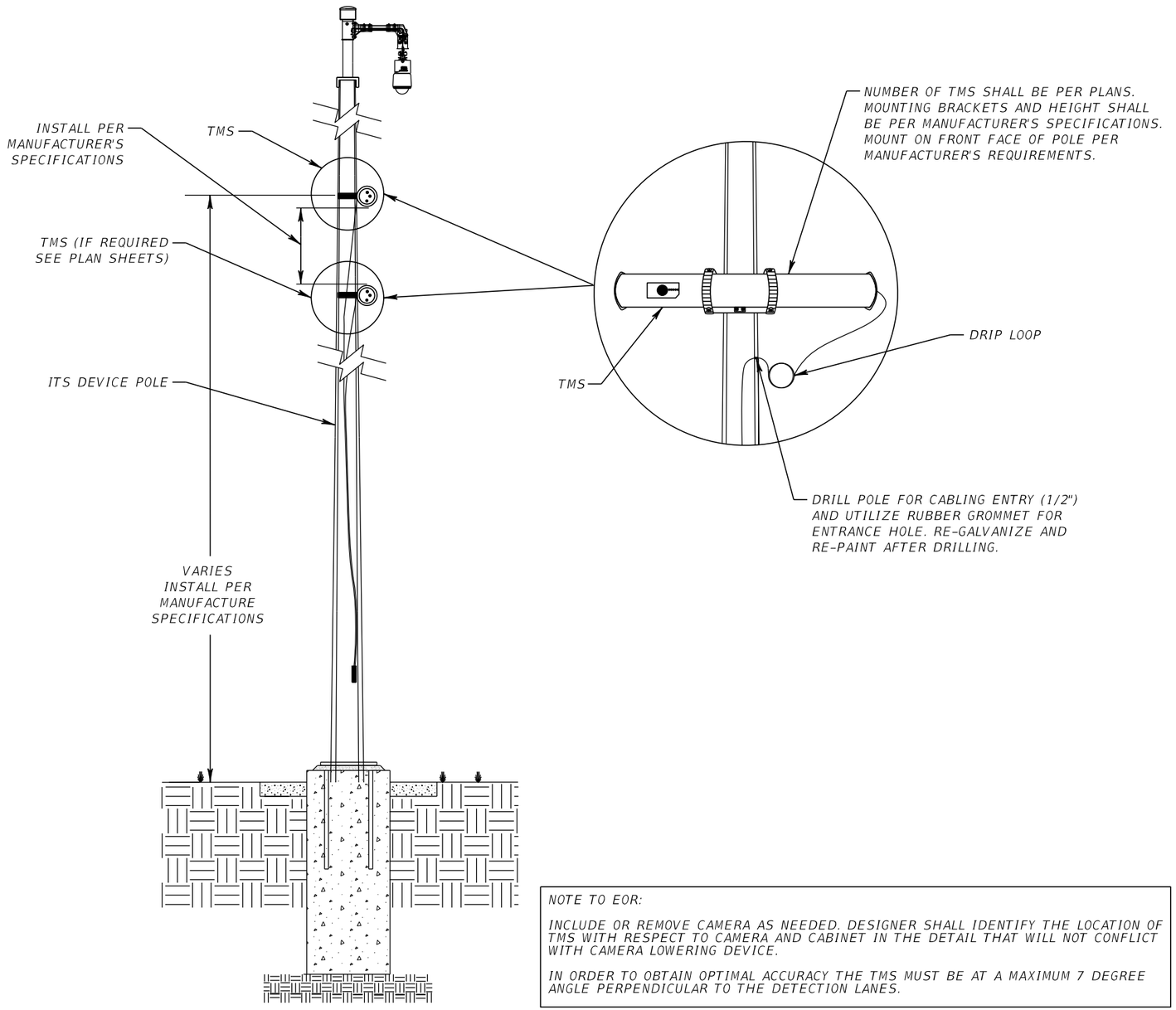
TYPICAL 4 & 6 LANE DIVIDED HIGHWAY



TYPICAL RAMP





TYPICAL TMS INSTALLATION DETAILS SIDE VIEW

NOTE TO EOR:

INCLUDE OR REMOVE CAMERA AS NEEDED. DESIGNER SHALL IDENTIFY THE LOCATION OF TMS WITH RESPECT TO CAMERA AND CABINET IN THE DETAIL THAT WILL NOT CONFLICT WITH CAMERA LOWERING DEVICE.

IN ORDER TO OBTAIN OPTIMAL ACCURACY THE TMS MUST BE AT A MAXIMUM 7 DEGREE ANGLE PERPENDICULAR TO THE DETECTION LANES.

NOTES:

1. ONLY MANUFACTURER CABLE SHALL BE USED FROM TMS DEVICE CABINET TO SURGE PROTECTORS IN CABINET.
2. POLE MOUNTED CABINET TO BE ORIENTED PER THE PLAN SHEETS.
3. SEE SHEETS J-SHEETS & L-SHEETS FOR ADDITIONAL CABINET, CONDUITS AND GROUNDING DETAILS

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRAFFIC MONITORING STATIONS INSTALLATION DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					N-1

MARCH 2026

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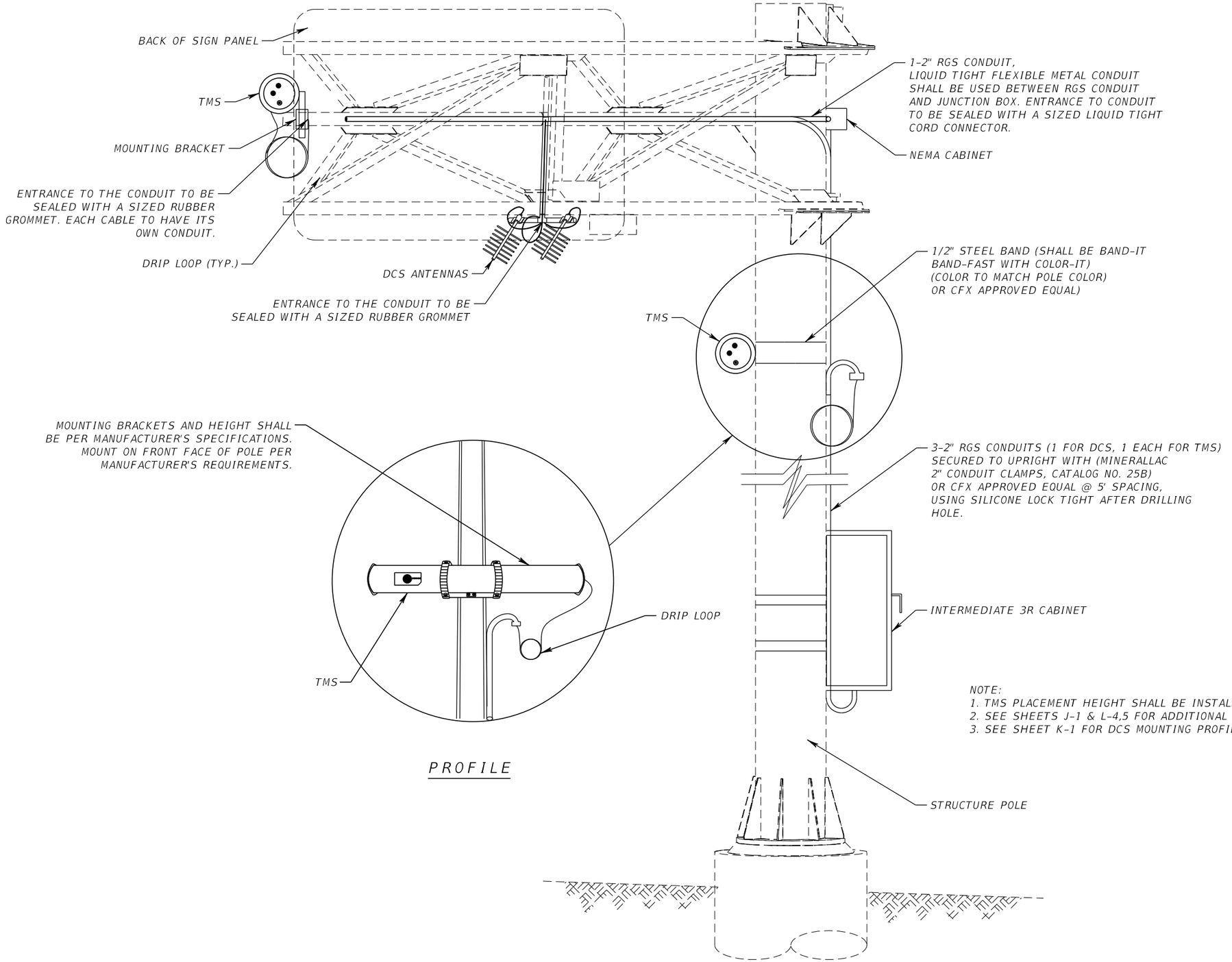

NOTE:
1. TMS PLACEMENT HEIGHT SHALL BE INSTALLED PER MANUFACTURE SPECIFICATIONS.
2. SEE SHEETS J-1 & L-4,5 FOR ADDITIONAL CABINET, CONDUIT AND GROUNDING DETAILS.
3. SEE SHEET K-1 FOR DCS MOUNTING PROFILE.

TYPICAL SIGN STRUCTURES WITH TMS & DCS INSTALLATION DETAILS

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRAFFIC MONITORING STATIONS, DCS AND SIGN CO-LOCATION DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					N-2

MARCH 2026

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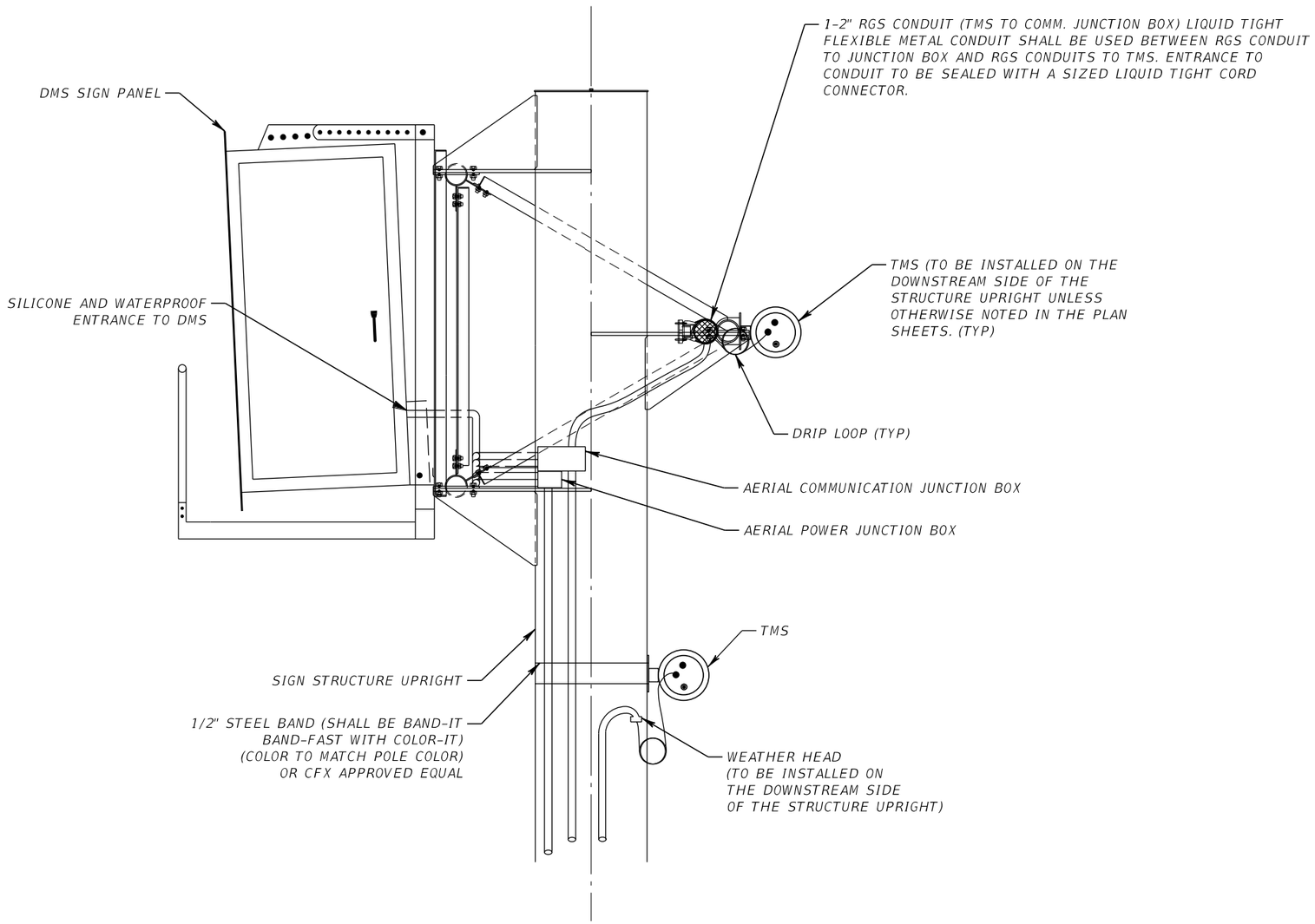

SIGN STRUCTURE MOUNTED TMS (PROFILE)

NOTES:
1. SENSOR SHOWN MOUNTED TO BACK CORD.
2. SEE SHEET M-2 FOR DMS WIRING DIAGRAM.

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRAFFIC MONITORING STATIONS SIGN STRUCTURE MOUNTING DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					N-3

MARCH 2026

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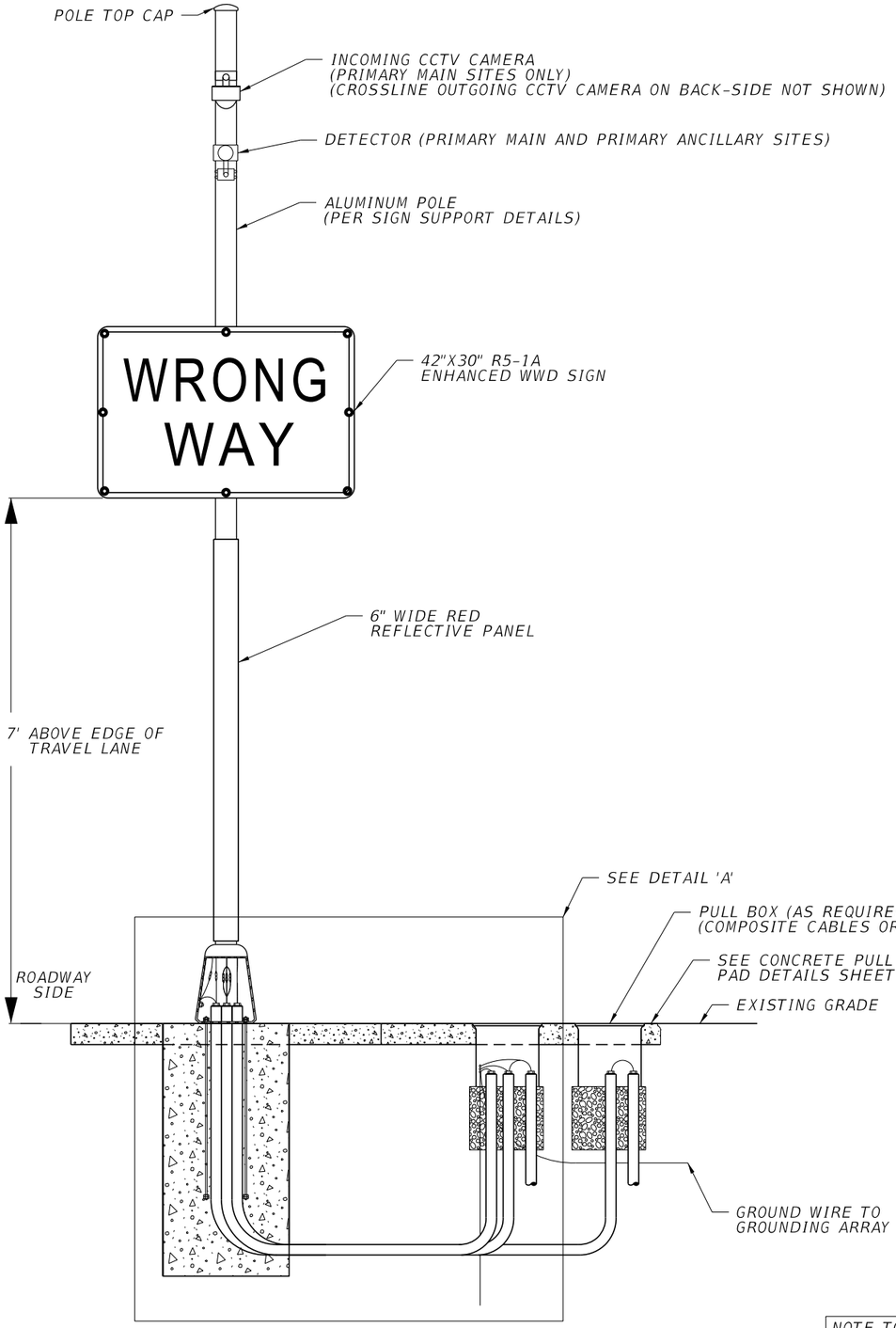
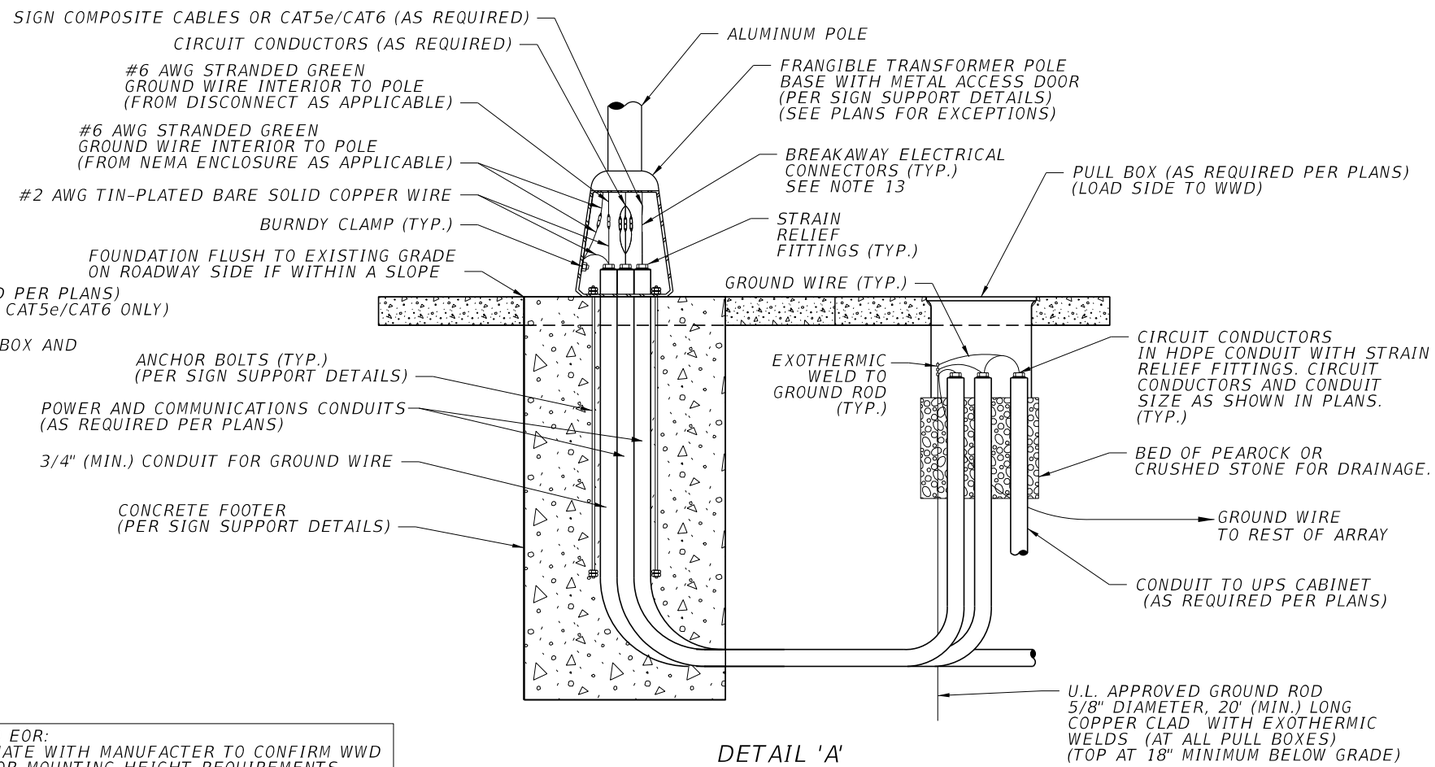


CONVENTIONAL AC POWERED WWD SIGN

NOTES

1. ALUMINUM POLES AND TRANSFORMER BASES SHALL MEET THE REQUIREMENTS OF SECTION 646 OF THE FDOT SPECIFICATIONS AND THE SIGN SUPPORT DETAILS SHEETS.
2. SIGN PANEL, WIND BEAM, FOOTER AND COLUMN (POLE) SHALL BE INSTALLED IN ACCORDANCE WITH FDOT INDEX 700-010 AND SECTION 700 OF THE FDOT SPECIFICATIONS. FINISH SHALL BE PER PLANS.
3. HEIGHT AND OFFSET TO SIGN COLUMN SHALL BE IN ACCORDANCE WITH FDOT INDEX 700-101 AND PER PLANS.
4. WHEN ALUMINUM COLUMN (POSTS) ARE INSTALLED WITH A FRANGIBLE PEDESTAL POLE BASES, ENGAGE ALL THREADS ON THE PEDESTAL POLE BASE AND PIPE UNLESS THE PIPE IS FULLY SEATED INTO BASE. CONTRACTOR SHALL PROVIDE A POLE, TRANSFORMER BASE AND ANCHOR BOLTS MEETING THE EQUIREMENTS SHOWN ON THE SIGN SUPPORT DETAILS SHEETS.
5. MECHANICAL FASTENERS USED TO ATTACH SIGN PANELS TO WIND BEAMS, BRACKETS AND SPLICE PLATES FOR ALL PANELS SHALL BE COUNTERSUNK SCREWS. PATCH ALL COUNTERSUNK SCREWS ON ALL NEW SIGN FACES. SEE SPECIAL PROVISIONS.
6. A CONCRETE SLAB SHALL BE INSTALLED AROUND ALL FLASHING SIGNS ASSEMBLIES AND CONSIDERED INCIDENTAL TO POLE. IN AREAS WHERE SPACE IS LIMITED SLAB DIMENSIONS MAY BE ADJUSTED AS SHOWN IN THE PLANS AND APPROVED BY THE ENGINEER. SEE CONCRETE PULL BOX AND PAD DETAILS SHEET FOR ADDITIONAL INFORMATION.
7. A CONCRETE SLAB SHALL BE INSTALLED AROUND ALL PULL BOXES AND CONSIDERED INCIDENTAL TO PULL BOX. IN AREAS WHERE SPACE IS LIMITED SLAB DIMENSIONS MAY BE ADJUSTED AS SHOWN IN THE PLANS AND APPROVED BY THE ENGINEER.
8. FOR LED ASSEMBLIES CONNECTED TO CONVENTIONAL POWER, PROVIDE SINGLE POLE NON-FUSED WATERTIGHT BREAKAWAY ELECTRICAL CONNECTORS IN THE FRANGIBLE PEDESTAL POLE BASE.
9. CONNECTION OF CONTROLLER CABINET TO THE SIGN COLUMN SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
10. ALL WIRING SHALL RUN INTERNAL TO POLE. HOLES SHALL BE DRILLED AND DEBURRED TO ALLOW WIRE ENTRY FROM DETECTORS, RFB AND NEMA ENCLOSURES.
11. HOLES DRILLED IN SIGN COLUMN FOR WIRE ENTRY SHALL USE A RUBBER GROMMET OR BUSHING AND SILICONE TO PROTECT WIRING AND PROVIDE A WEATHER TIGHT INSTALLATION.
12. SEE MOUNTING DETAILS FOR ADDITIONAL INFORMATION.
13. BREAKAWAY CONNECTORS SHALL BE INSTALLED IN ADJACENT PULL BOX WHEN NO TRANSFORMER BASE IS INSTALLED. STRAIN RELIEF FITTINGS WILL BE OMITTED IN THIS CASE BETWEEN POLE AND PULL BOX ONLY.
14. THE CONTRACTOR SHALL PROVIDE SUFFICIENT SLACK AND NEATLY COIL ETHERNET CABLE WITHIN THE T-BASE OF THE POLE.



DETAIL 'A'
POLE WIRING DETAIL

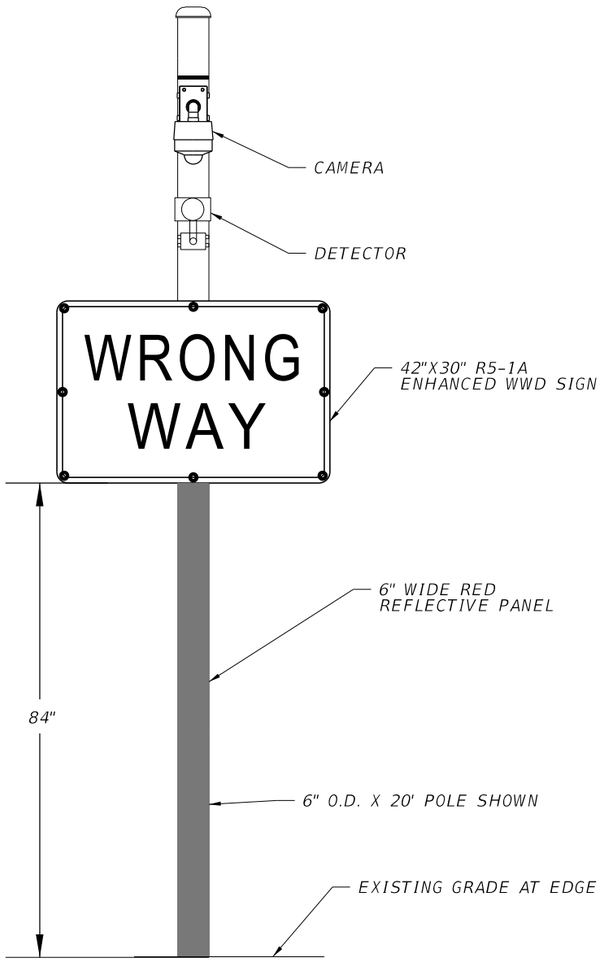
NOTE TO EOR:
COORDINATE WITH MANUFACTER TO CONFIRM WWD DETECTOR MOUNTING HEIGHT REQUIREMENTS.

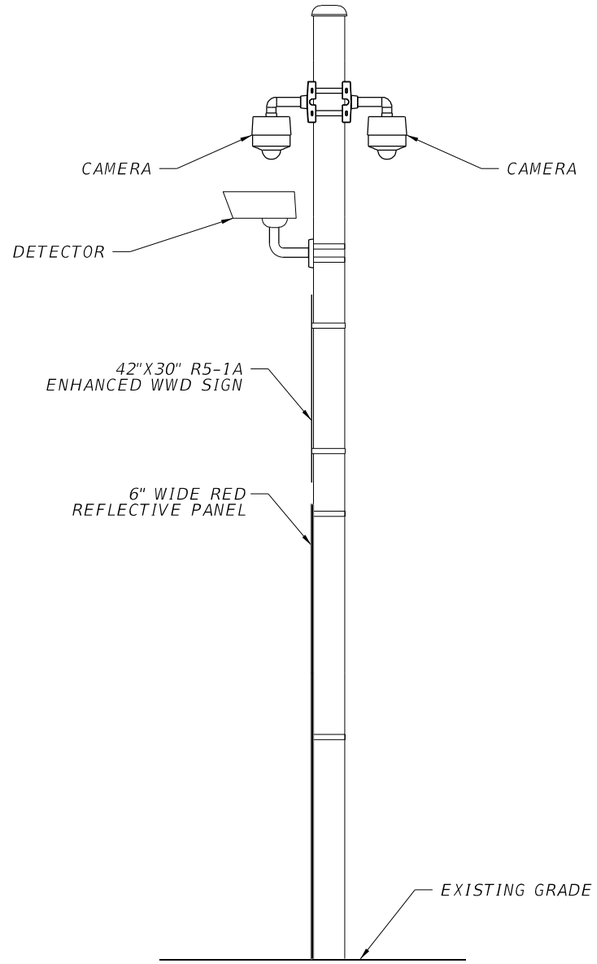
NTS

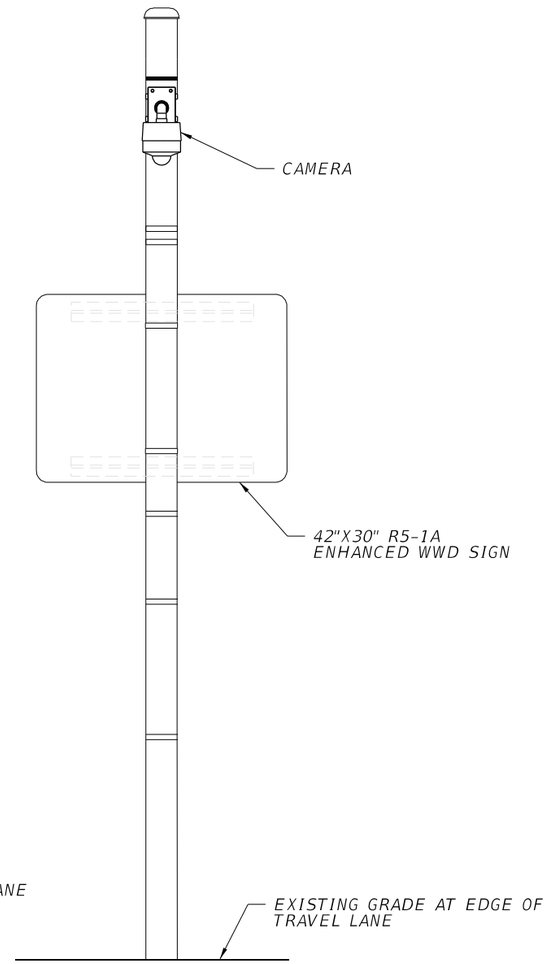
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	WWD POLE INSTALLATION DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-1

MARCH 2026

2/27/2026 10:24:05 AM







NOTES:

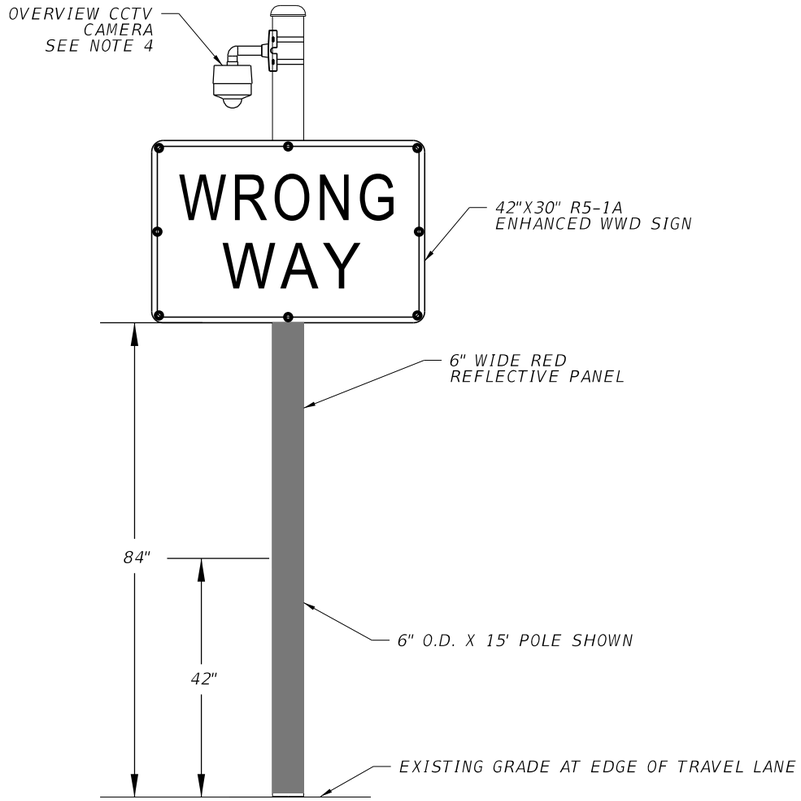
1. SNAP LOCKS ARE PROVIDED, STANDARD 3/4" S/S BANDING IS RECOMMENDED.
2. ALL DIMENSIONS ARE FOR REFERENCE ONLY.
3. MOUNT EQUIPMENT PER VENDOR/MANUFACTURER RECOMMENDATIONS.

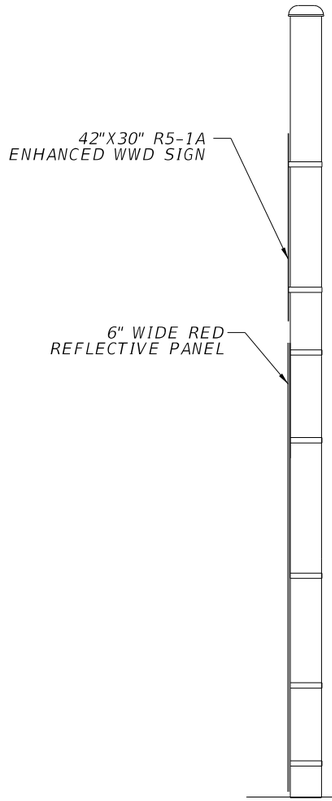
PRIMARY MAIN WWD POLE

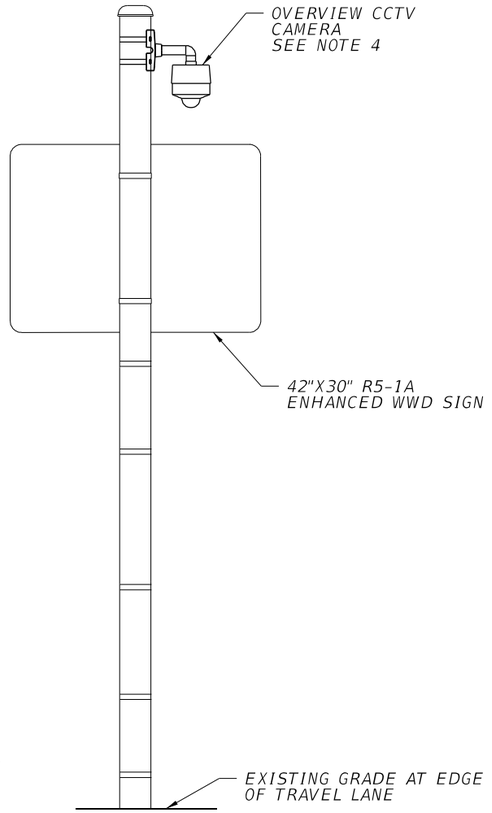
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	WWD MOUNTING DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-2

MARCH 2026

2/27/2026 10:31:30 AM







NOTES:

1. SNAP LOCKS ARE PROVIDED, STANDARD 3/4" S/S BANDING IS RECOMMENDED.
2. ALL DIMENSIONS ARE FOR REFERENCE ONLY.
3. CCTV OVERVIEW CAMERA ORIENTATION SHALL BE COORDINATED WITH VENDOR/MANUFACTURER PRIOR TO INSTALLATION TO ENSURE OPTIMAL VIEW OF THE RAMP.

SECONDARY MAIN WWD POLE

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	WWD MOUNTING DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-3

MARCH 2026

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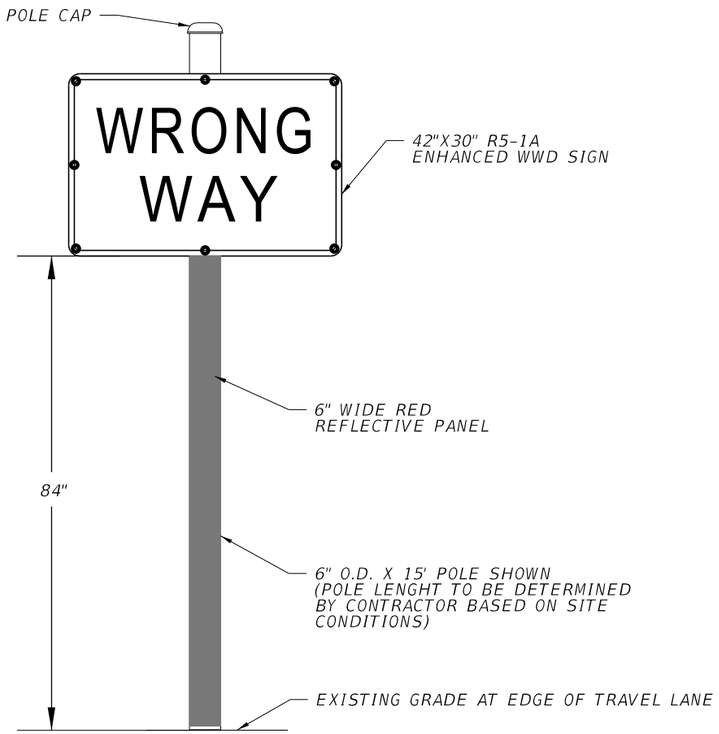

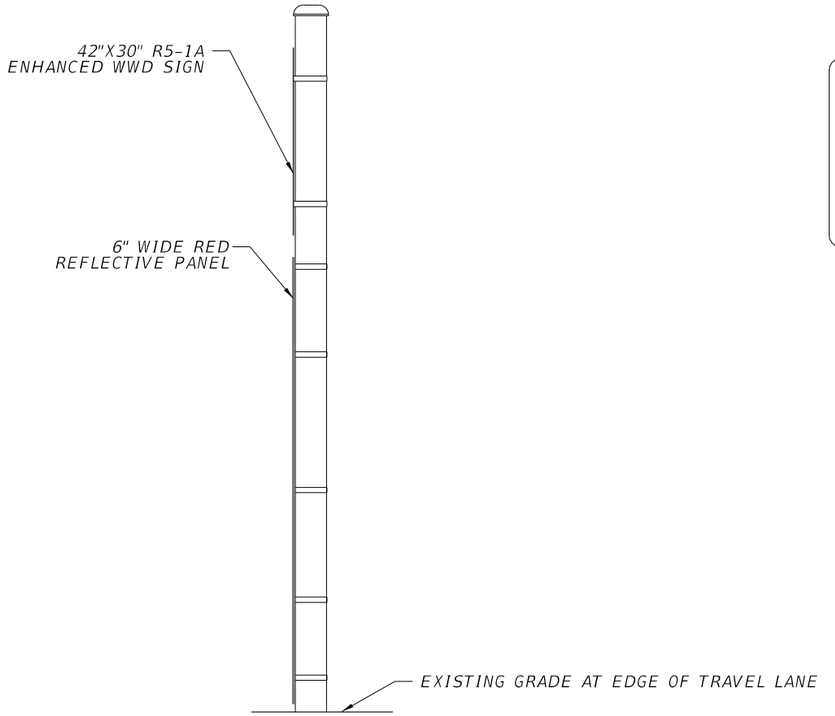

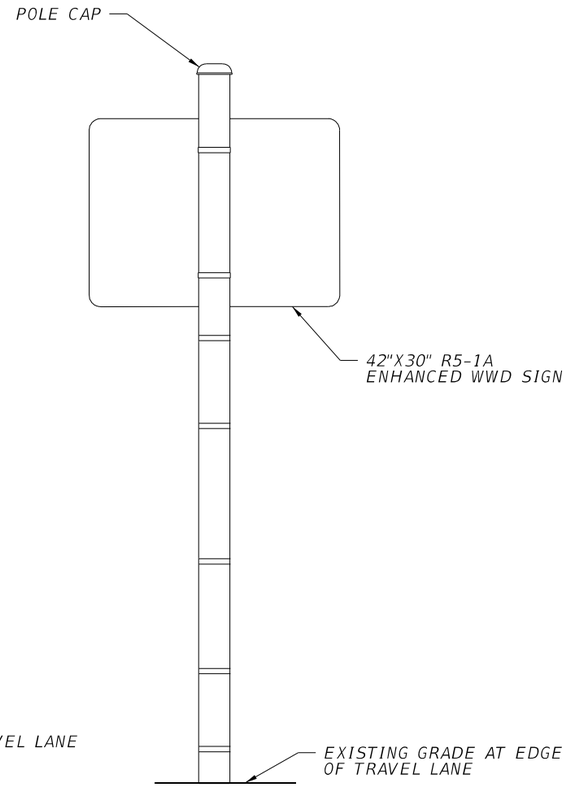

NOTES:

1. SNAP LOCKS ARE PROVIDED, STANDARD 3/4" S/S BANDING IS RECOMMENDED.
2. ALL DIMENSIONS ARE FOR REFERENCE ONLY.
3. MOUNT EQUIPMENT PER VENDOR/MANUFACTURER RECOMMENDATIONS.

PRIMARY AND SECONDARY ANCILLARY WWD POLE

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	WWD MOUNTING DETAILS	SHEET NO. 0-4

MARCH 2026

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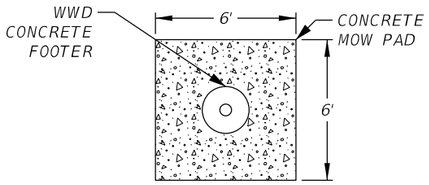
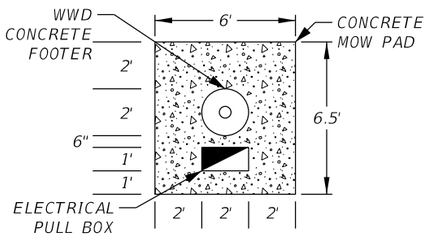
NOTE: CONCRETE PADS MAY REQUIRE FIELD ADJUSTMENTS TO ACCOMMODATE EXISTING CONDITIONS. CONTACT ENGINEER FOR APPROVALS ON PAD ADJUSTMENTS. ALL MOW PADS ARE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE PROPOSED INFRASTRUCTURE. DEPTH OF MOW PAD SHALL BE 6-INCHES.

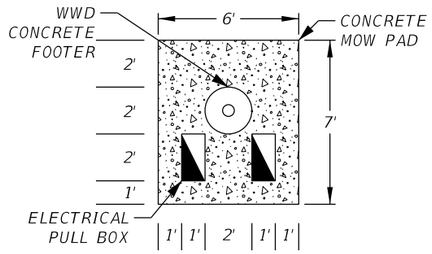
CONCRETE MOW PAD DETAILS



1- WWD



1- WWD & 1-EPB



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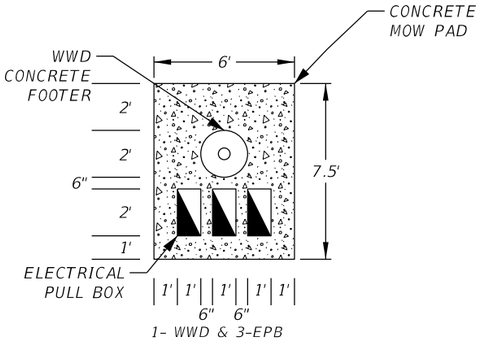
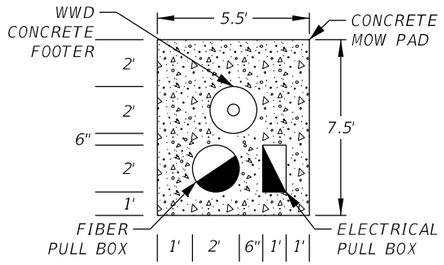
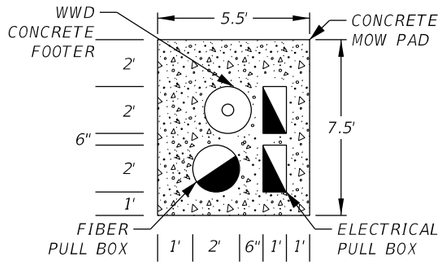


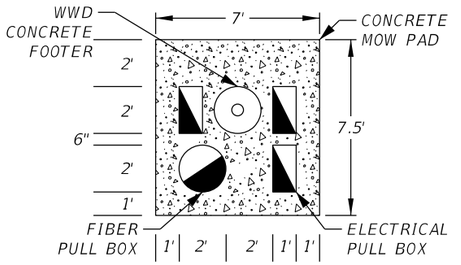
1- WWD & 3-EPB



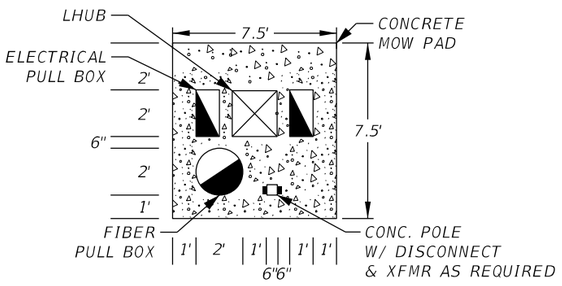
1- WWD & 1-EPB, 1-FPB



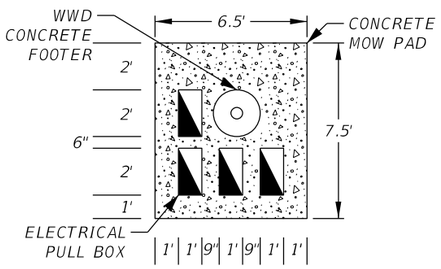
1- WWD & 2-EPB, 1-FPB



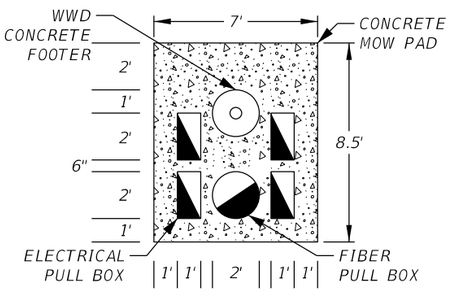
1- WWD & 3-EPB, 1-FPB



1-LHUB & 2-EPB, 1-FPB, 1-DISC. POLE



1- WWD & 4-EPB



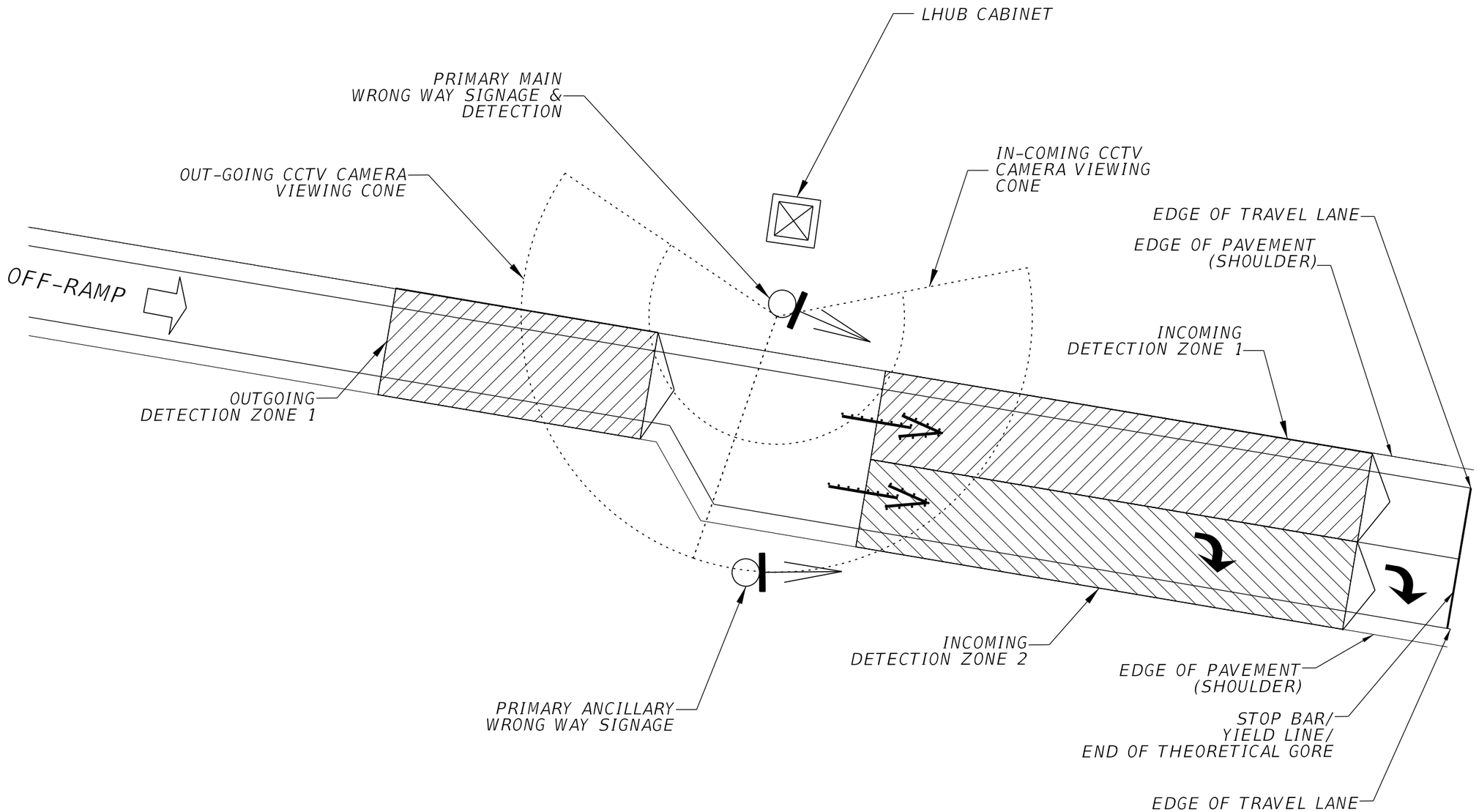
1- WWD & 4-EPB, 1-FPB

N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	WWD CONCRETE PULL BOX & MOW PAD DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-5

MARCH 2026

2/27/2026 10:24:07 AM



TYPICAL CAMERA DETECTION LAYOUT

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH THE MAUFACTURER REPRESENTATIVE TO FIELD-ADJUST EACH INSTALLATION FOR MAXIMUM ACCURACY.

2. DETECTION ZONES SHALL INCLUDE COVERAGE OF THE ROADWAY SHOULDERS.

N.T.S

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL RAMP WWD DETECTION

SHEET NO. 0-6

MARCH 2026

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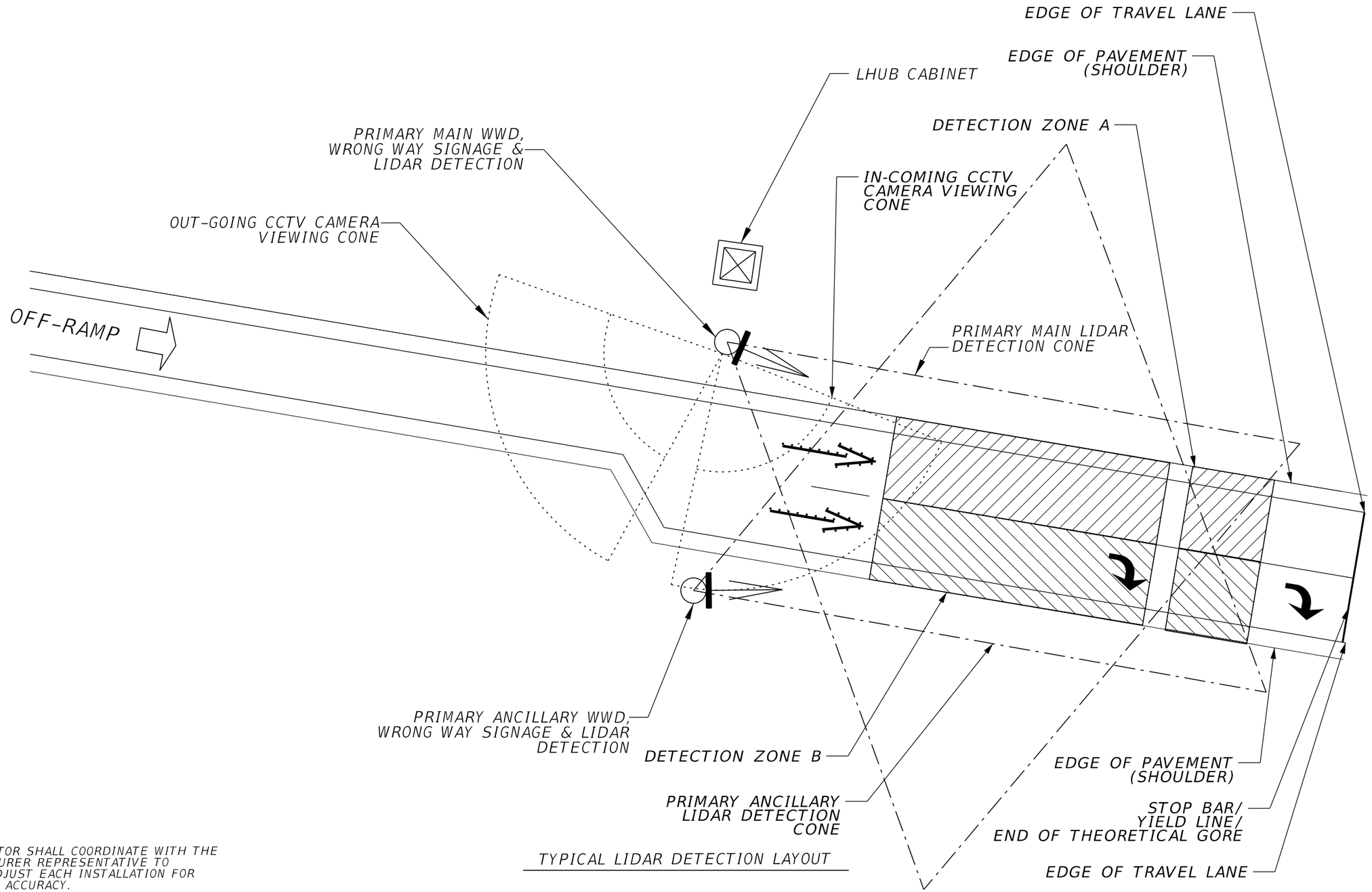

TYPICAL LIDAR DETECTION LAYOUT

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH THE MAUFACTURER REPRESENTATIVE TO FIELD-ADJUST EACH INSTALLATION FOR MAXIMUM ACCURACY.
2. DETECTION ZONES SHALL INCLUDE COVERAGE OF THE ROADWAY SHOULDERS.
3. DETECTION ZONE A ACTIVATES FLASHING ON ALL SIGNS. DETECTION ZONE B ACTIVATES A WRONG WAY EVENT.

N.T.S

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL RAMP WWD LIDAR DETECTION

SHEET NO. 0-7

MARCH 2026

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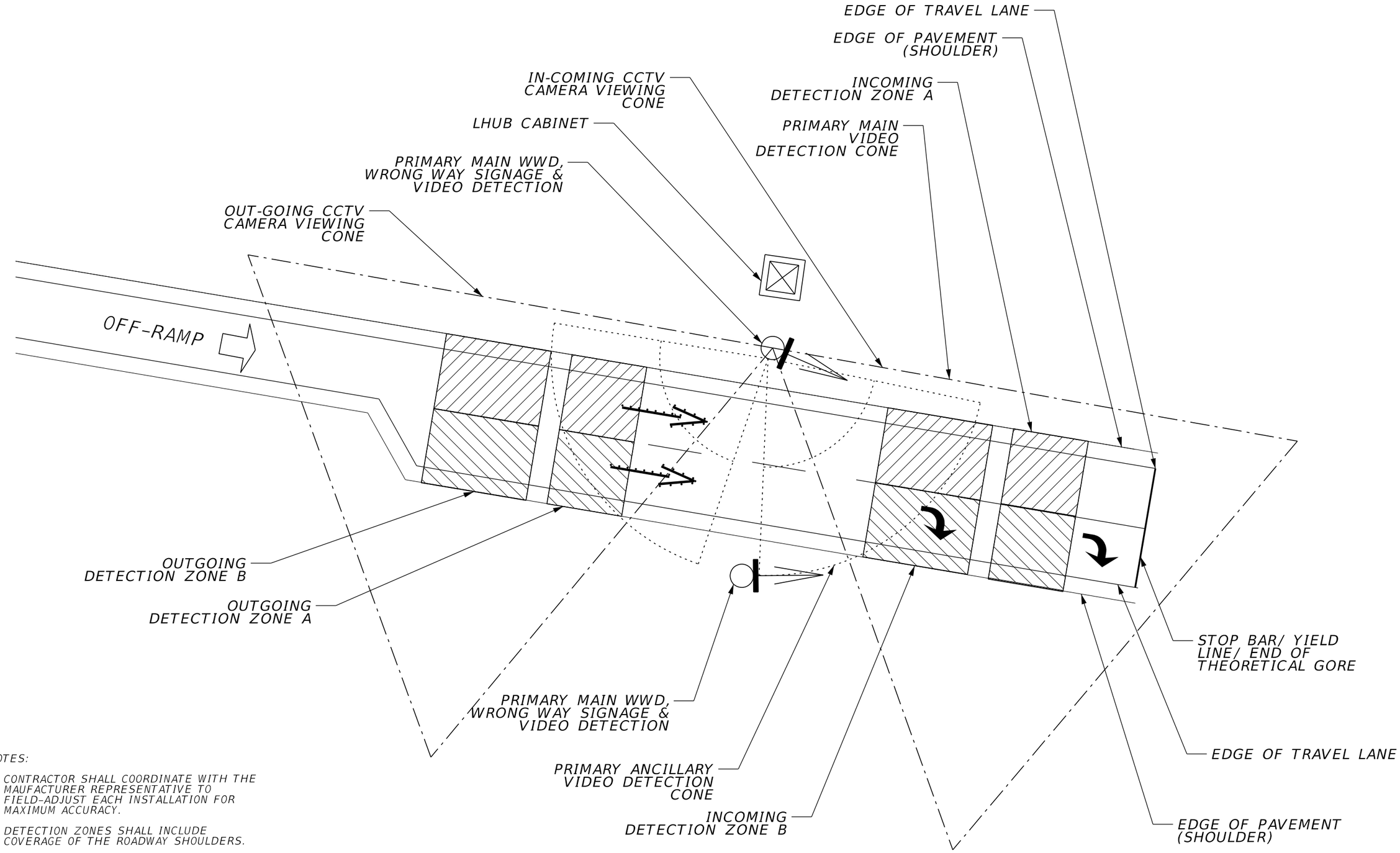


NOTES:

1. CONTRACTOR SHALL COORDINATE WITH THE MAUFACTURER REPRESENTATIVE TO FIELD-ADJUST EACH INSTALLATION FOR MAXIMUM ACCURACY.
2. DETECTION ZONES SHALL INCLUDE COVERAGE OF THE ROADWAY SHOULDERS.
3. DETECTION ZONE A ACTIVATES FLASHING ON ALL SIGNS. DETECTION ZONE B ACTIVATES A WRONG WAY EVENT.

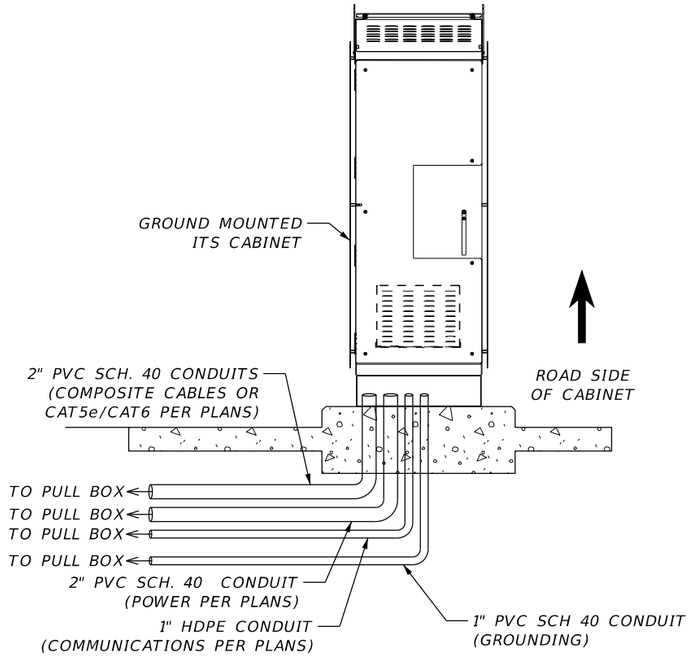
TYPICAL HD VIDEO DETECTION LAYOUT

N.T.S

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	HD VIDEO DETECTION	SHEET NO. 0-8

MARCH 2026

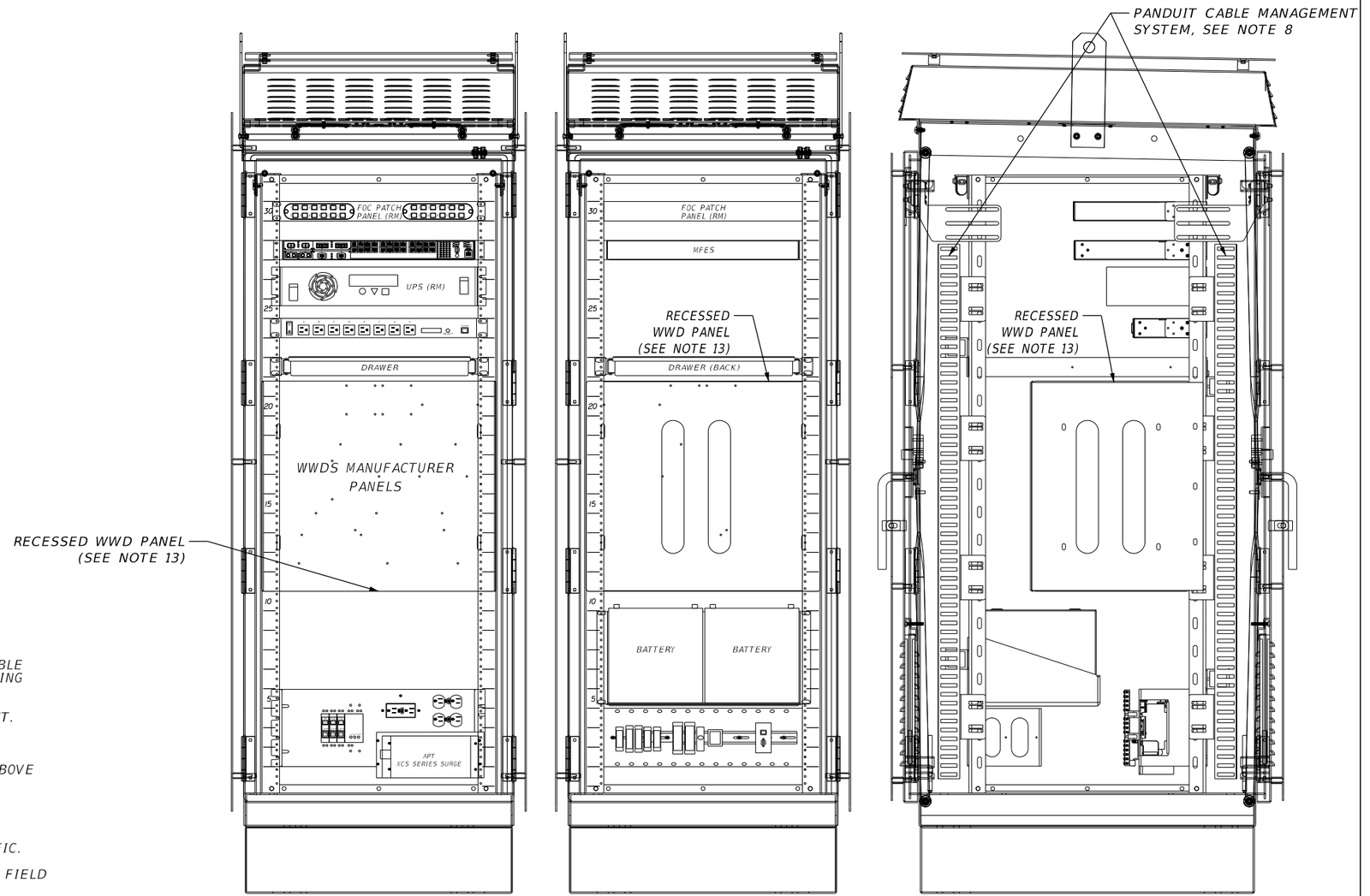
2/27/2026 10:24:08 AM



TYPE 334
GROUND MOUNTED ITS CABINET DETAIL

NOTES:

1. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
2. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
3. ALL ITS CABINETS SHALL MEET CFX SPECIFICATION 668.
4. GROUND MOUNT CABINETS SHALL BE PLACED ON A MONOLITHIC CONCRETE BASE 6" ABOVE GRADE.
5. ALL ITS CABINETS SLIDE OUT TRAYS SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
6. ALL ITS CABINETS SHALL NEVER BE MOUNTED ON THE APPROACHING SIDE OF TRAFFIC.
7. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS AT ALL ITS CABINET LOCATIONS.
8. PANDUIT DIMENSIONS ARE AS FOLLOWS:
   A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
   B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
   C. PANDUIT SHALL VERTICALLY COVER 28 RU'S AS SHOWN.
9. POE SHALL BE GROUNDED TO DIN RAIL.
10. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
11. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1) SPARE CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.
12. REFER TO WIRING DIAGRAMS, THE MANUFACTURER WWD INSTALLATION MANUAL AND PLANS TO DETERMINE CABINET EQUIPMENT REQUIREMENTS FOR EACH SITE. THE WWD CABINET SHALL NOT EXCEED 200 FEET FROM THE PRIMARY MAIN WWD LOCATION.
13. THE MANUFACTURER SHALL FURNISH TO THE CONTRACTOR, THE RECESSED PANEL WITH THE REQUIRED WWD EQUIPMENT PANELS ALREADY MOUNTED. CONTRACTOR SHALL THEN INSTALL THE RECESSED PANEL INSIDE THE CABINET.



FRONT VIEW | REAR VIEW | LEFT SIDE VIEW

TYPE 334
WWD ITS CABINET LAYOUT
(SEE NOTE 12)

NTS

LEGEND:

- LAYER 2 ETHERNET SWITCH
- REMOTE POWER MANAGER
- DCS POWER SUPPLY OR SPDS
- CLICK 201
- CLICK 202
- POE SPD
- POE INJECTOR

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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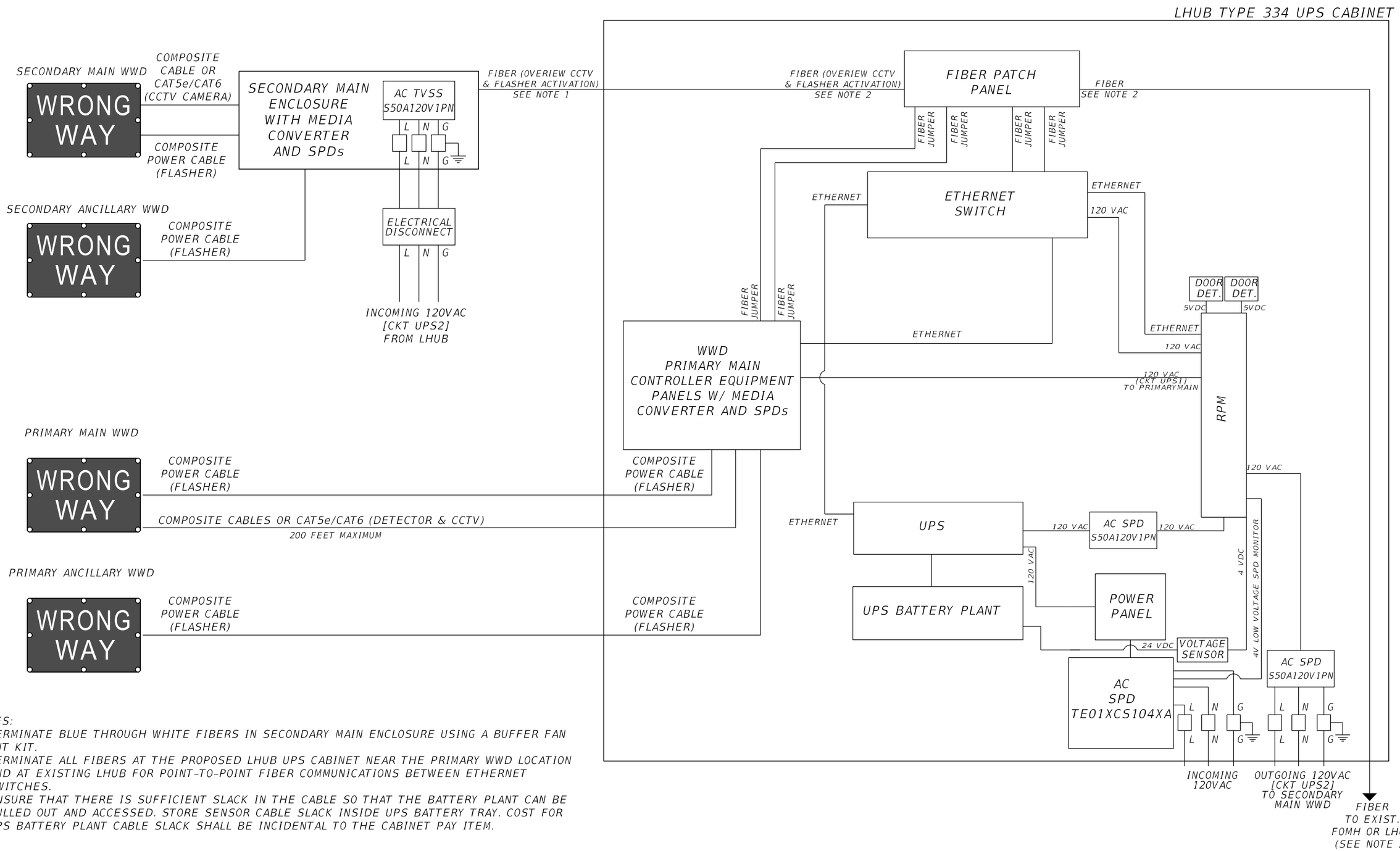
WWD CABINET LAYOUT DETAIL

SHEET NO. 0-9

MARCH 2026

2/27/2026 10:24:08 AM

PROPOSED RAMP WWD CONNECTION DIAGRAM



NOTES:

1. TERMINATE BLUE THROUGH WHITE FIBERS IN SECONDARY MAIN ENCLOSURE USING A BUFFER FAN OUT KIT.
2. TERMINATE ALL FIBERS AT THE PROPOSED LHUB UPS CABINET NEAR THE PRIMARY WWD LOCATION AND AT EXISTING LHUB FOR POINT-TO-POINT FIBER COMMUNICATIONS BETWEEN ETHERNET SWITCHES.
3. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. COST FOR UPS BATTERY PLANT CABLE SLACK SHALL BE INCIDENTAL TO THE CABINET PAY ITEM.

NTS

REVISIONS					
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WWD WIRING DIAGRAM

SHEET NO. 0-10

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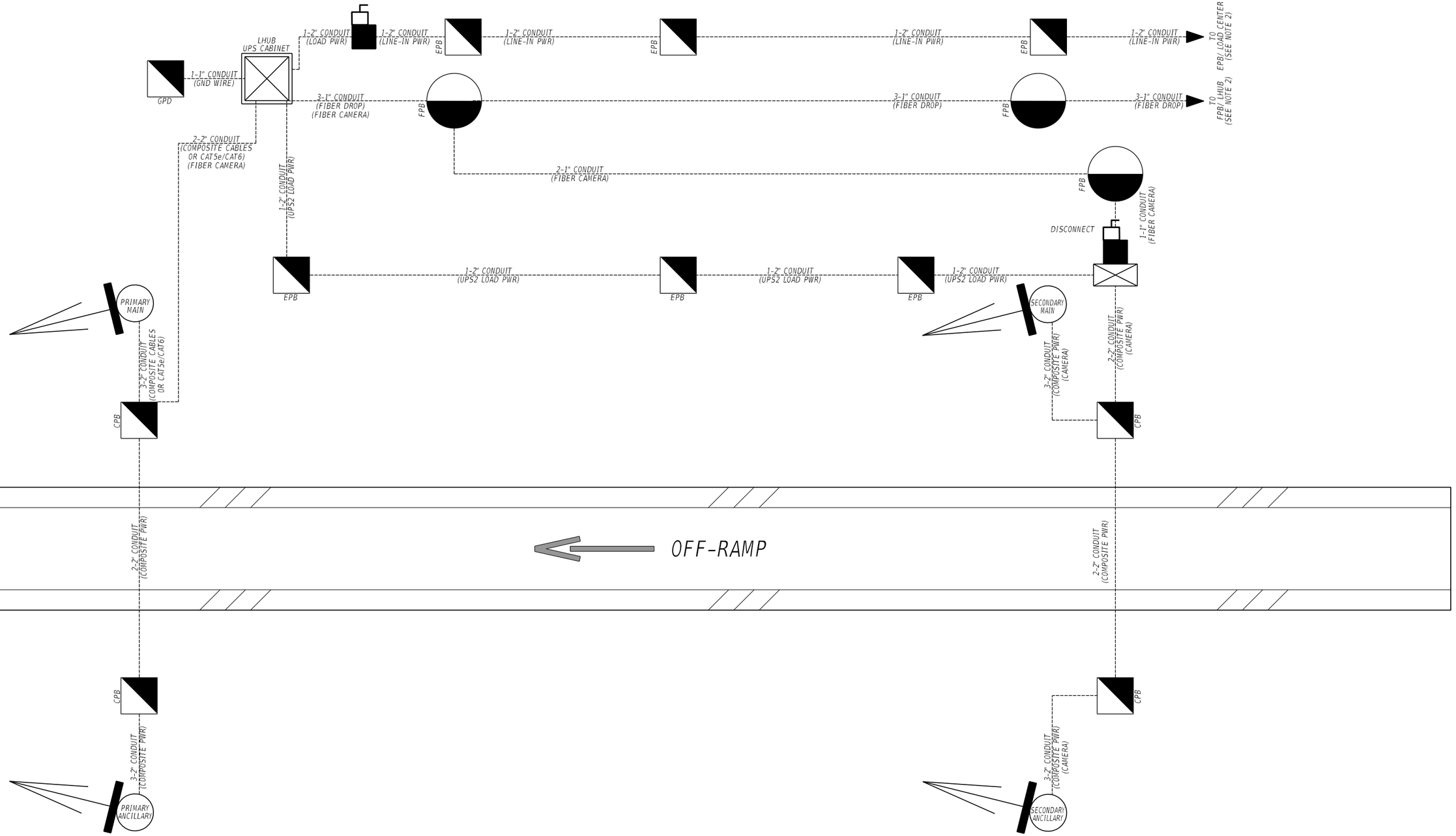
2/27/2026 10:31:31 AM



NOTES:

1. DIRECTIONAL BORE CASINGS NOT SHOWN.
2. NOT ALL CONDUIT ROUTING IS SHOWN FOR FIBER AND POWER CONNECTIONS TO LHUBs, FOMHs, FPBs OR LOAD CENTERS. SEE PLANS FOR ADDITIONAL REQUIREMENTS.
3. VARIATIONS MAY OCCUR DEPENDING ON INCOMING POWER AND FIBER DIRECTION. SEE PLANS FOR ADDITIONAL REQUIREMENTS.

NTS

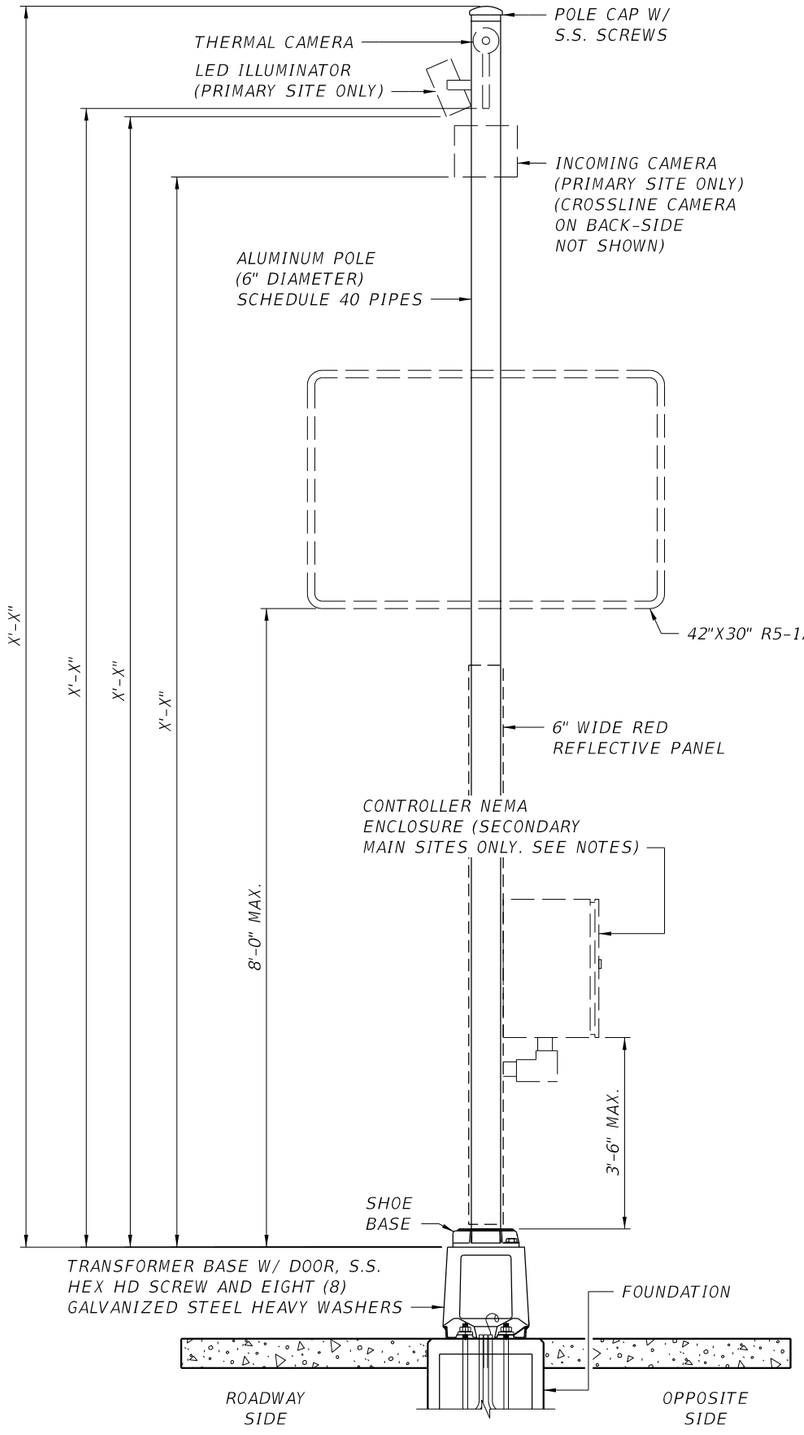
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

WWD TYPICAL CONDUIT ROUTING DETAIL

SHEET NO. 0-11

MARCH 2026

2/27/2026 10:24:09 AM



TYPICAL ELEVATION

WRONG WAY DETECTION DEVICE (WWDD) & FOUNDATION GENERAL NOTES

GN.01. CONSTRUCTION SPECIFICATIONS:

A. FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION JULY 2019 AND SUPPLEMENTS THERETO.

GN.02. DESIGN SPECIFICATIONS:

A. AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, FIRST EDITION 2015 AND INTERIMS THROUGH 2017.
B. FDOT MODIFICATIONS TO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (LRFDLTS-1), JANUARY 2019.

GN.03. DESIGN LOADING:

A. WIND LOADS:
DESIGN WIND SPEED: 140 MPH BASED ON 300 YEAR EXTREME EVENT LIMIT STATE.
B. ASSUMED WIND AREAS & ASSUMED DEAD LOADS:
- CONTROL CABINET: 1.95 SQ. FT. EPA & 68.00 LBS. WEIGHT
- WRONG WAY SIGN (R5-1A) PANEL: 8.75 SQ. FT. EPA & 16.0 LBS. WEIGHT
- CAMERA: 0.40 SQ. FT. EPA & 6.5 LBS. WEIGHT
- THERMAL CAMERA: 0.77 SQ. FT. EPA & 3.0 LBS. WEIGHT

IF AN ATTACHMENT INTENDED FOR USE EXCEEDS THE PROJECTED WIND AREA OR TOTAL WEIGHT, NOTIFY THE ENGINEER OF RECORD FOR DESIGN VERIFICATION PRIOR TO PROCUREMENT OR FABRICATION OF THE WWDD.

GN.04. POLE MATERIALS:

A. POLE AND POLE CONNECTION EXTRUSIONS:
- ALUMINUM ASSOCIATION ALLOY 6061-T6 OR ALLOY 6063-T6 (ASTM B209, B221, B308 OR B429)
B. BARS, PLATES, STIFFENERS:
- ASTM B221, ALLOY 6062-T6
C. CAPS AND COVERS:
- ASTM B-26, ALLOY 319-F
D. ALUMINUM WELD MATERIAL:
- ER 4043
E. TRANSFORMER AND FRANGIBLE BASE MATERIALS:
- ASTM B26 OR ASTM B108, ALLOY 356-T6
F. BOLTS, NUTS AND WASHERS:
- SHOE BASE BOLTS:
ASTM F3125, GRADE A325, TYPE 1
- NUTS:
ASTM A563, GRADE DH HEAVY-HEX
- WASHERS:
ASTM F436, TYPE 1
G. ANCHOR BOLTS, NUTS AND WASHERS:
- ANCHOR BOLTS:
1 IN. DIA ASTM F1554, GRADE 55
- NUTS:
ASTM A563, GRADE A HEAVY-HEX
- PLATE WASHER:
ASTM A36
H. STAINLESS STEEL FASTENERS:
- ASTM F593 ALLOY GROUP 2, CONDITION A, CW1 OR SH1
I. NUT COVERS:
- ASTM B26 (319-F)

GN.05. CONCRETE:

CLASS I CONCRETE, F'C = 3000 PSI (MIN. 28 DAY COMPRESSIVE STRENGTH)

GN.06. REINFORCING STEEL:

REINFORCING STEEL SHALL BE ASTM A 615, GRADE 60

GN.07. FRANGIBLE BASE, BASE SHOE AND CLAMP:

CERTIFY THAT THE CLAMP, TRANSFORMER BASE AND BASE SHOE CONFORM TO THE CURRENT FHWA FRANGIBILITY REQUIREMENTS AND ARE CAPABLE OF PROVIDING THE REQUIRED CAPACITY. ENGAGE ALL THREADS ON THE TRANSFORMER BASE AND POST UNLESS ALUMINUM POLE IS FULLY SEATED INTO BASE.

GN.08. COATINGS/FINISH:

A. ALL NUTS,BOLTS,WASHERS AND THREADED BARS/STUDS:
- ASTM F2329
B. ALL OTHER STEEL ITEMS, PLATES, AND WASHERS:
- ASTM A123

GN.09. WELDING:

ALL ALUMINUM WELDING MUST BE IN ACCORDANCE WITH AWS D1.2.

GN.10: SHOP DRAWINGS:

SUBMIT SHOP DRAWINGS FOR THE POLE ASSEMBLY INCLUDING FRANGIBLE BASE INFORMATION CERTIFICATIONS AND TEST DATA FOR REVIEW AND APPROVAL.

GN.11. PLANS REFERENCES:

FOR LOCATION OF SIGNS AND OTHER ATTACHMENTS TO THE POLE AND POLE HEIGHTS, SEE SIGNING PLANS SHEETS.

INSTALL SIGN PANEL AND WIND BEAM IN ACCORDANCE WITH INDEX 700-010 AND SPECIFICATION 700.

GN.12. ATTACHMENT INSTALLATION:

ORIENTATION OF THE ATTACHMENTS ON THE POLE MAY BE ADJUSTED FROM WHAT IS GRAPHICALLY DEPICTED, AS DIRECTED BY THE ENGINEER DURING PLACEMENT.

NOTE TO EOR:

LAYOUT OF DETECTION DEVICES ARE A WORST-CASE SCENARIO. ENGINEER IS TO VERIFY THE TYPE OF DETECTION THAT IS BEING PROPOSED AND UPDATE THIS SHEET ACCORDINGLY.

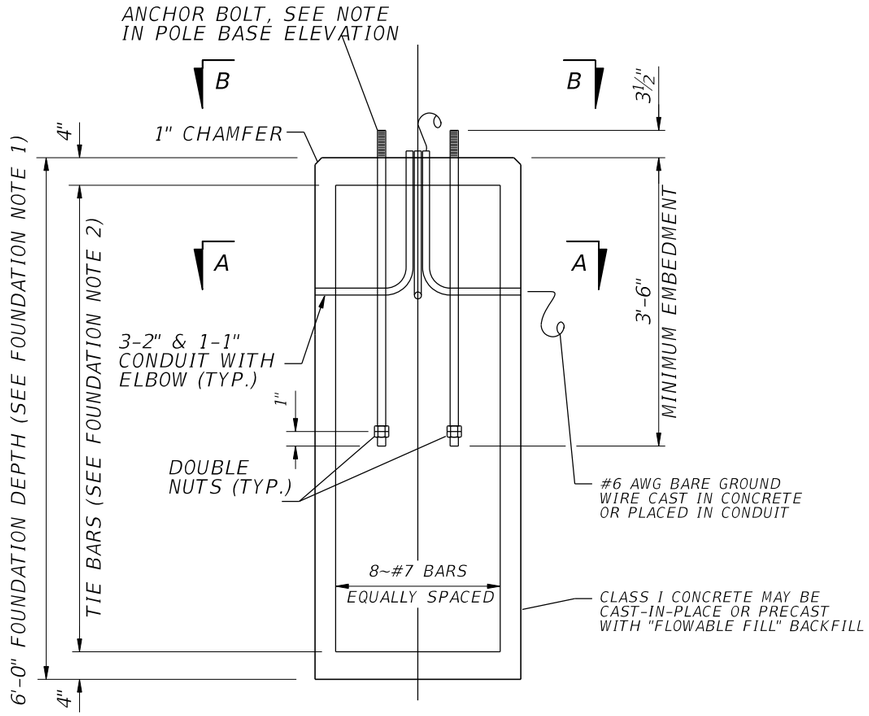
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

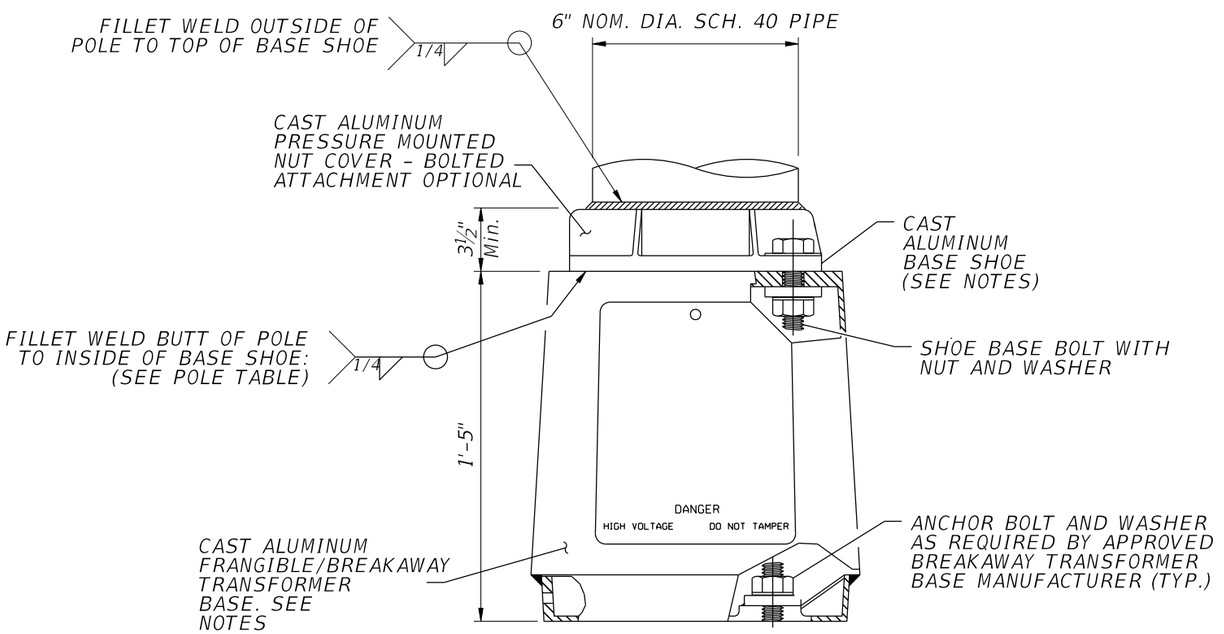
SIGN SUPPORT DETAILS (1 OF 3)
WRONG WAY DETECTION DEVICE

SHEET NO. 0-12

MARCH 2026

2/27/2026 10:24:09 AM



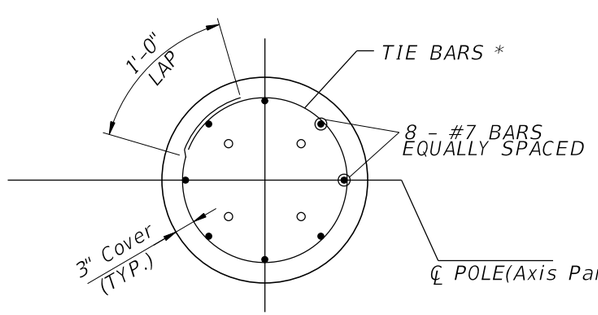


POLE BASE ELEVATION

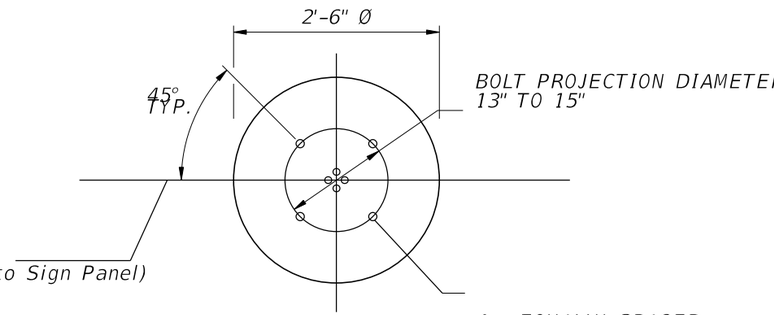
FOUNDATION NOTES:

1. DEPTHS SHOWN ARE FOR SLOPES FLATTER THAN 1:4, FOR SLOPES 1:2 OR FLATTER, ADD 2'-6" TO FOUNDATION DEPTHS SHOWN.
2. FOUNDATION TIE BARS: #4 TIE BARS @ 12" CENTERS (MAX.)
3. STANDARD FOUNDATION CAPACITIES ARE BASED ON THE FOLLOWING CRITERIA:
   - CLASSIFICATION: COHESIONLESS (FINE SAND)
   - FRICTION ANGLE: 30 DEGREE
   - UNIT WEIGHT: 50 PCF(ASSUMED SUBMERGED)
   - N-BLOWCOUNT: 5

FOUNDATION



SECTION A-A

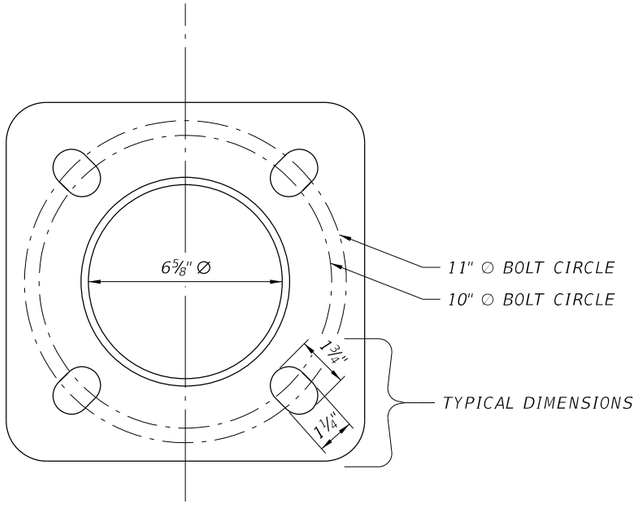


SECTION B-B

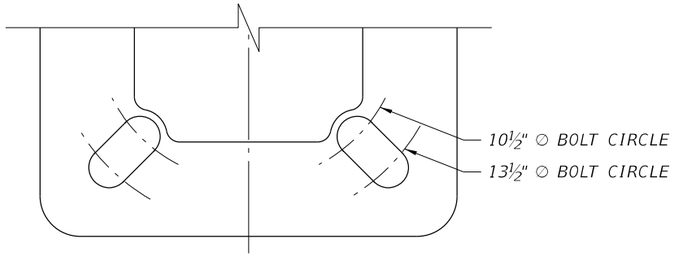
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	SIGN SUPPORT DETAILS (2 OF 3) WRONG WAY DETECTION DEVICE	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-13

MARCH 2026

2/27/2026 10:24:10 AM

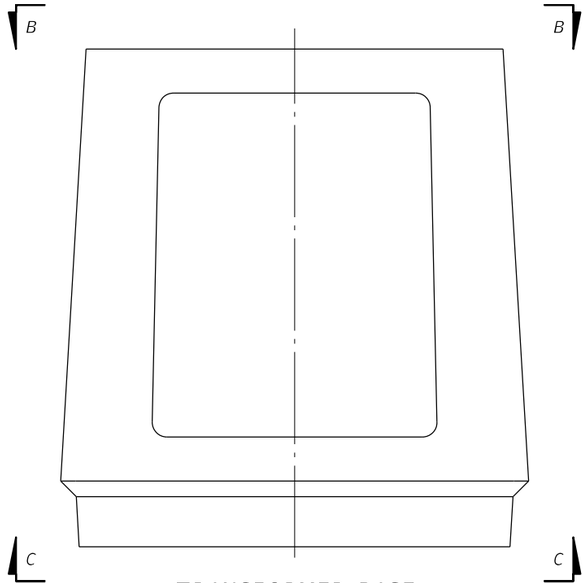


SECTION A-A

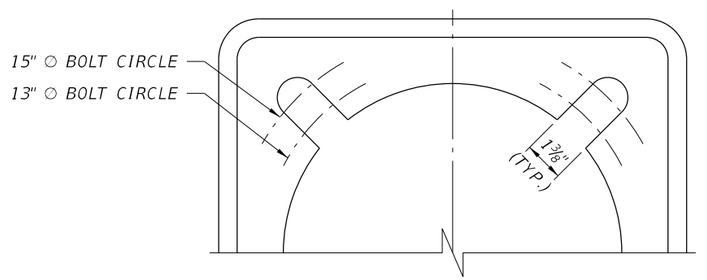


SECTION B-B

SHOE BASE
FOR 6 INCH, SCHEDULE 40 PIPE



TRANSFORMER BASE

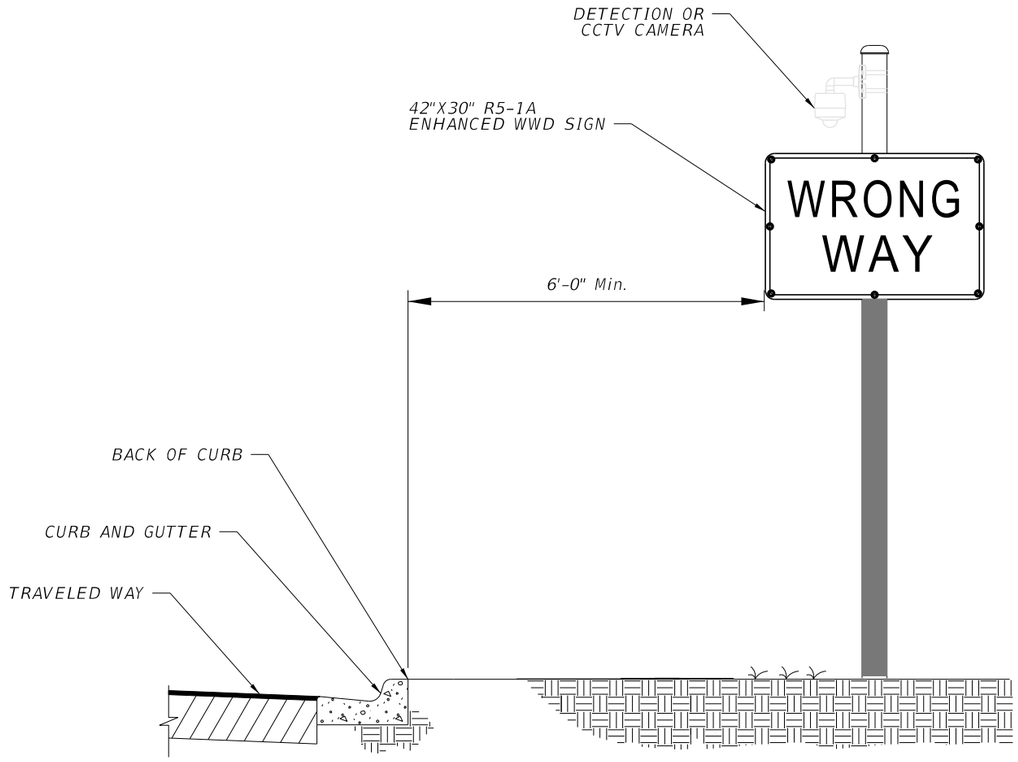


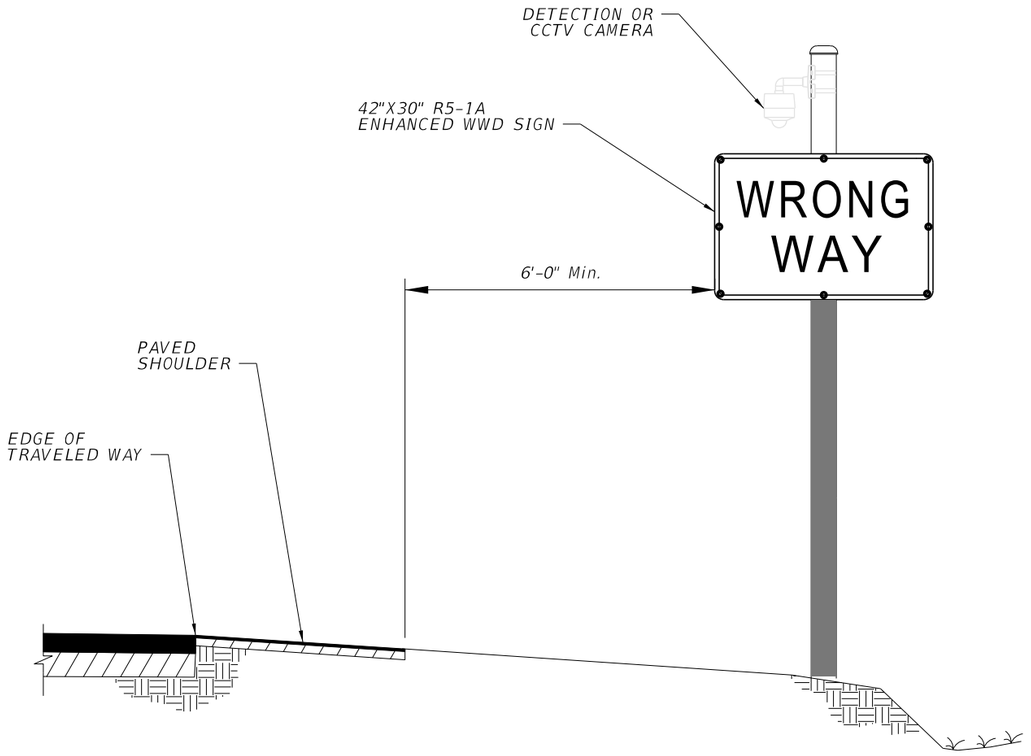
SECTION C-C

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	SIGN SUPPORT DETAILS (3 OF 3) WRONG WAY DETECTION DEVICE	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-14

MARCH 2026

2/27/2026 10:24:10 AM





NOTE TO EOR:

1. THE ENGINEER SHALL REVIEW RAMP ALIGNMENT TO ENSURE WWD SIGN PLACEMENT WILL MEET THE MINIMUM DISTANCE SET.
2. IN THE EVENT THAT THE 6' MINIMUM CAN NOT BE REACHED, THE DESIGNER IS TO COORDINATE LOCATION THAT WOULD TAKE INTO ACCOUNT DEFLECTION AND TRAVELING SAFETY OF THE MOTORIST.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

WWD SIGN PLACEMENT TYPICAL SECTION

SHEET NO. 0-15

MARCH 2026

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WWD DATA SHEET

WWD SITE	WWD POLE NAME	WWD POLE TYPE (PRIMARY OR SECONDARY)	POLE OFFSET	POLE HEIGHT	DEVICE TYPE	DEVICE MOUNTING HEIGHT

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	WWD POLE DATA SHEET	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					0-16

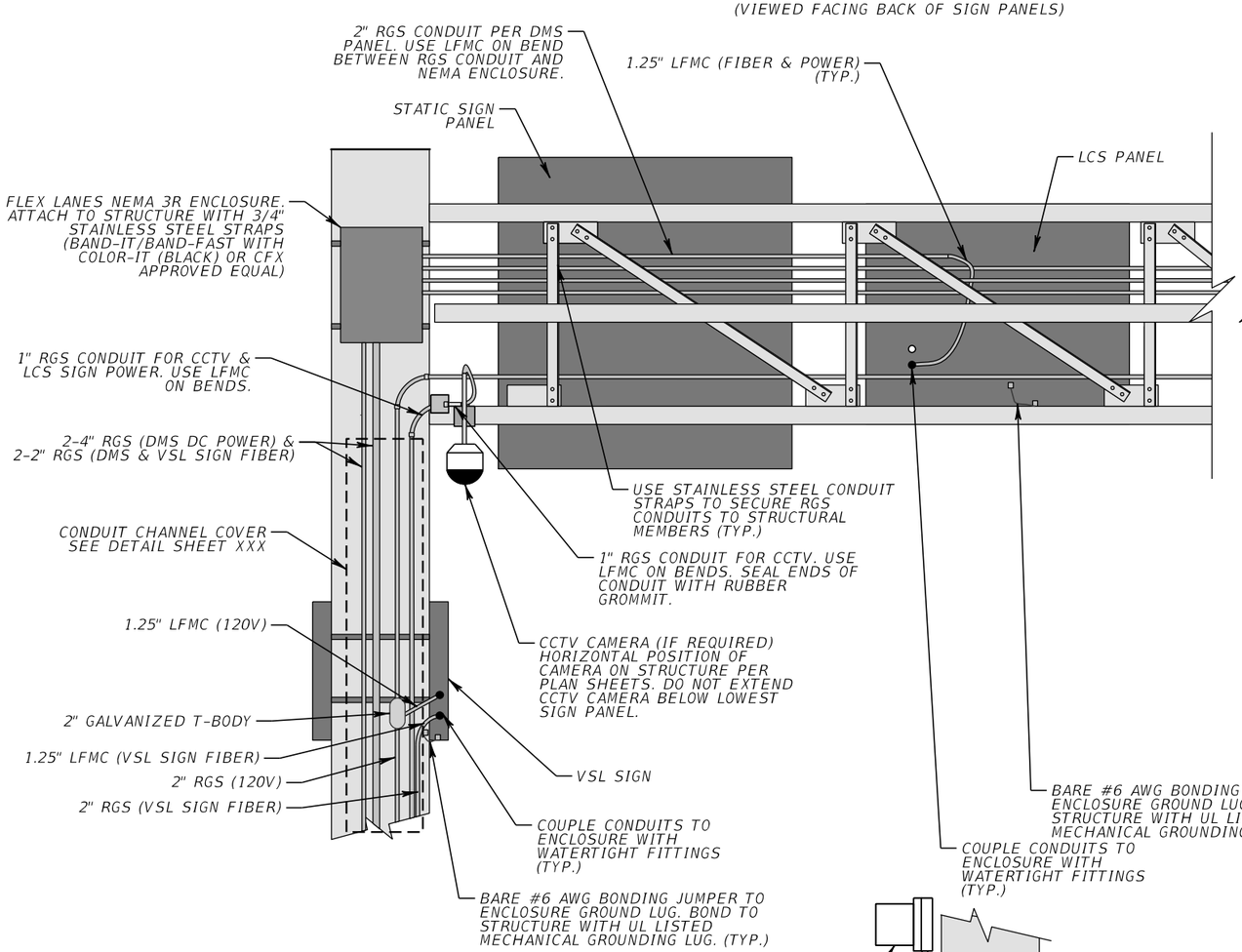
MARCH 2026

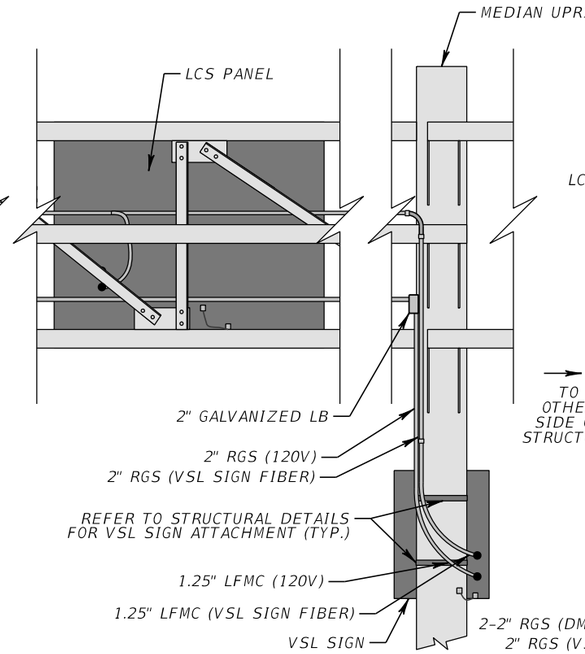
2/27/2026 10:24:11 AM

TYPICAL FLEX LANES TYPE 1 GANTRY WITH STATIC SIGN PANEL AND VSL SIGNS

DETAIL A

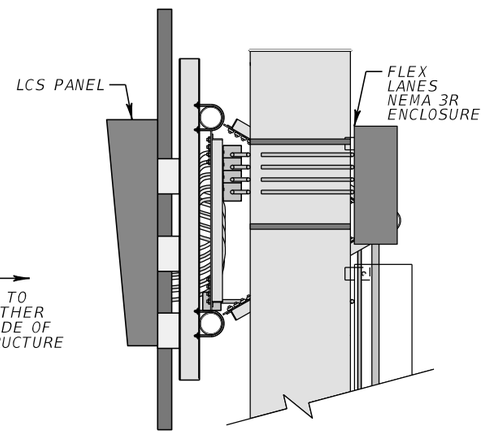
(VIEWED FACING BACK OF SIGN PANELS)





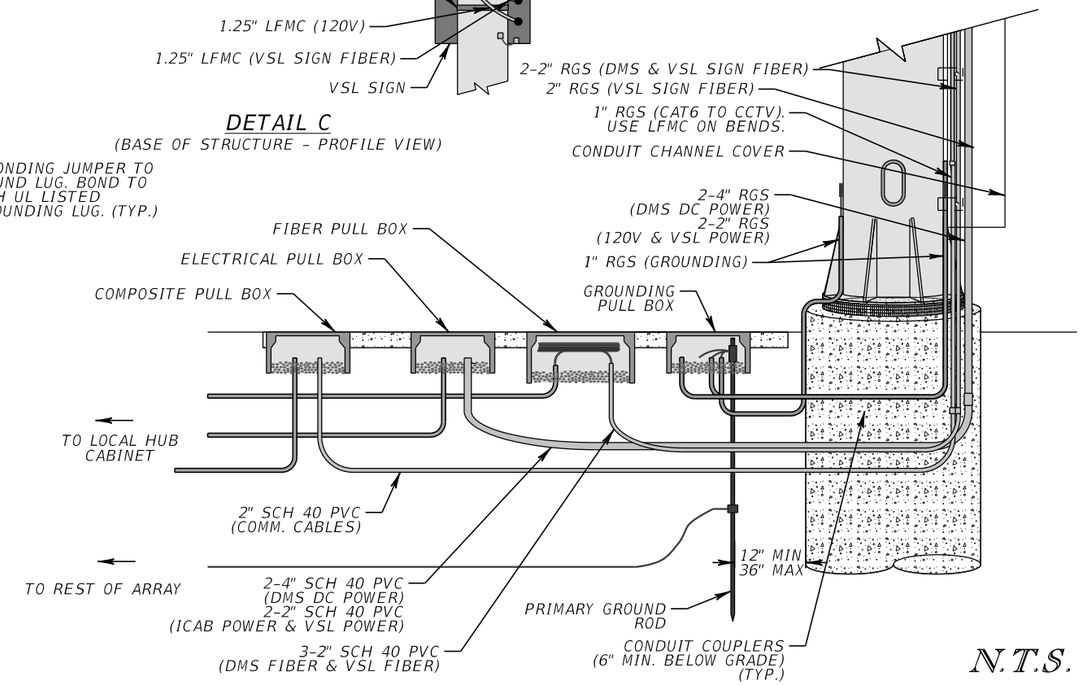
DETAIL B

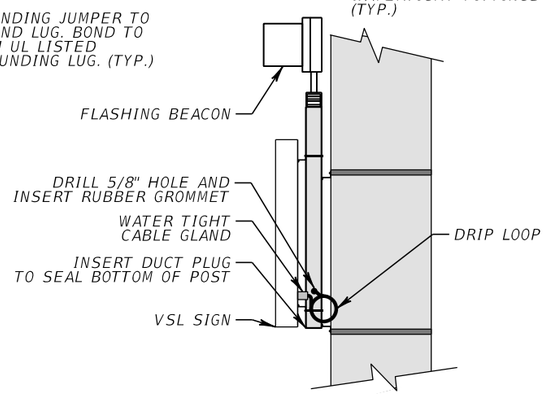
(TOP OF STRUCTURE - PROFILE VIEW)



DETAIL C

(BASE OF STRUCTURE - PROFILE VIEW)





BEACON TO VSL CONDUIT DETAIL

N.T.S.

NOTES:

1. SUPPORT STRUCTURE IS DEPICTED FOR INFORMATIONAL PURPOSES ONLY. REFER TO STRUCTURAL PLAN SHEETS IN SIGNING AND PAVEMENT MARKING PLANS FOR STRUCTURAL DESIGN DETAILS.
2. SEAL ALL EXPOSED RGS CONDUIT OPENINGS WITH SIZED RUBBER GROMMETS.
3. SECURE RGS CONDUITS AND JUNCTION BOXES TO STRUCTURE WITH MINERALLAC CONDUIT CLAMPS, OR CFX APPROVED EQUAL. INSTALL CONDUIT SUPPORTS AT 5' MAXIMUM SPACING. APPLY SILICONE LOCK TIGHT ON SCREWS WHEN TIGHTENING.
4. NUMBER AND SIZE OF UNDERGROUND CONDUITS LEADING TO LOCAL HUB CABINET VARY. SEE PLANS.
5. REFER TO SIGNING PLANS FOR VLS MOUNTING HEIGHTS AND STRUCTURAL DETAILS FOR VSL AND FLASHING BEACON ATTACHMENT INFORMATION.
6. TRANSITION BETWEEN RGS AND LFMC WITH LIQUID TIGHT FITTINGS. USE REDUERS WHERE NECESSARY.
7. CONTRACTOR TO COIL 1' SLACK OF ELECTRICAL CONDUCTORS AND FIBER WITHIN MEDIAN UPRIGHT VSL.
8. THE INSULATION COLOR FOR DC VOLTAGE CONDUCTORS FROM THE LHUB TO THE LCS SHALL BE RED (POSITIVE) AND BLACK (NEGATIVE). PHASING TAPE IS NOT ACCEPTABLE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES TYPE 1 GANTRY INSTALLATION DETAILS

SHEET NO. P-1

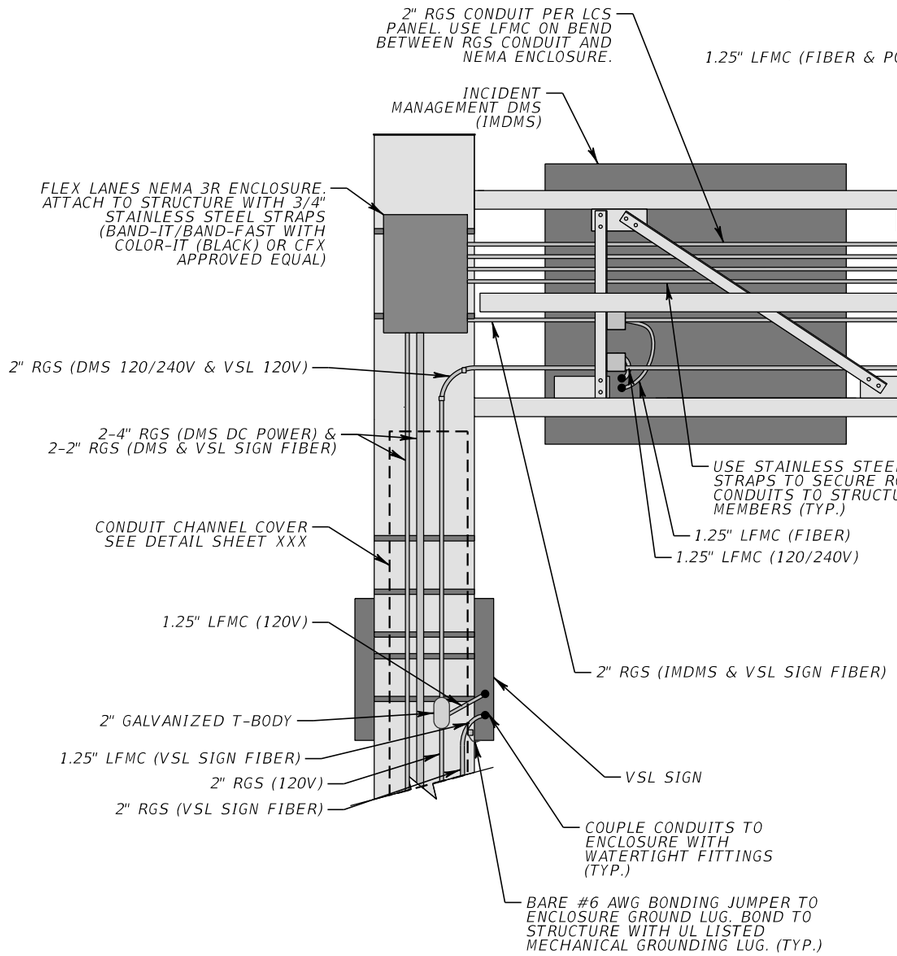
MARCH 2026

2/27/2026 10:31:31 AM

TYPICAL FLEX LANES TYPE 2 GANTRY WITH INCIDENT MANAGEMENT DMS AND VSL SIGNS

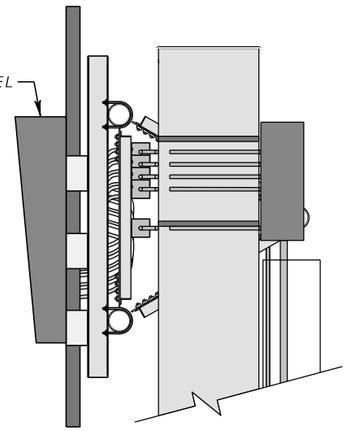
DETAIL A

(VIEWED FACING BACK OF SIGN PANELS)



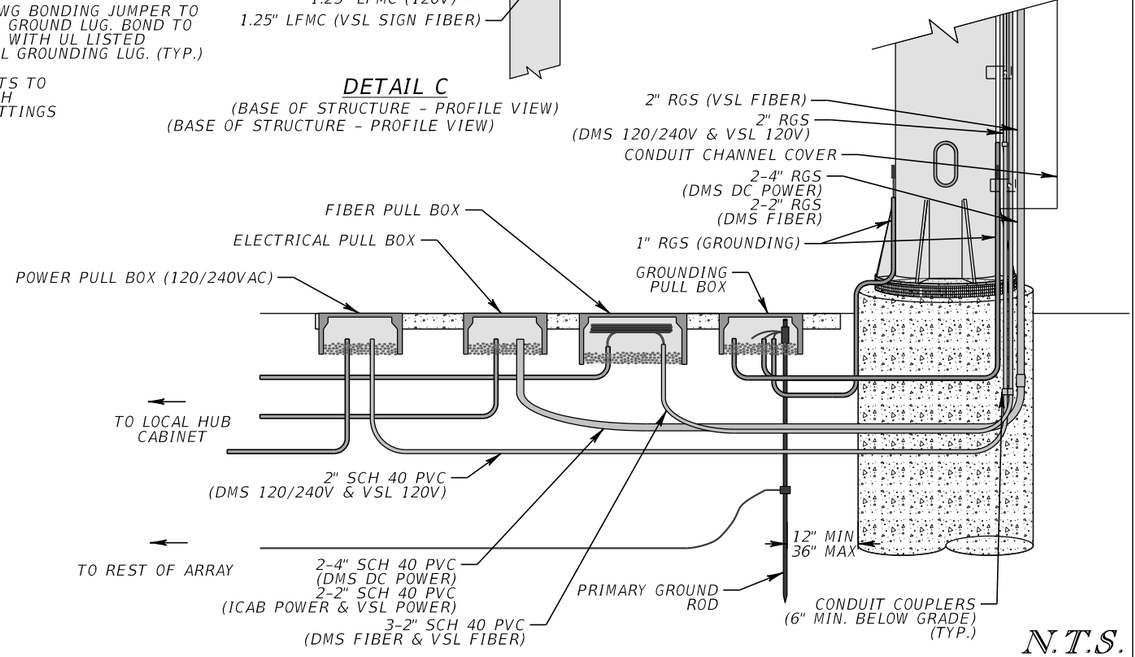
DETAIL B

(TOP OF STRUCTURE - PROFILE VIEW)



DETAIL C

(BASE OF STRUCTURE - PROFILE VIEW)



N.T.S.

NOTES:

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2. SEAL ALL EXPOSED RGS CONDUIT OPENINGS WITH SIZED RUBBER GROMMETS.
3. SECURE RGS CONDUITS AND JUNCTION BOXES TO STRUCTURE WITH MINERALLAC CONDUIT CLAMPS, OR CFX APPROVED EQUAL. INSTALL CONDUIT SUPPORTS AT 5' MAXIMUM SPACING. APPLY SILICONE LOCK TIGHT ON SCREWS WHEN TIGHTENING.
4. NUMBER AND SIZE OF UNDERGROUND CONDUITS LEADING TO LOCAL HUB CABINET VARY. SEE PLANS.
5. REFER TO SIGNING PLANS FOR VLS MOUNTING HEIGHTS AND STRUCTURAL DETAILS FOR VSL AND FLASHING BEACON ATTACHMENT INFORMATION.
6. TRANSITION BETWEEN RGS AND LFMC WITH LIQUIDTIGHT FITTINGS. USE REDUCERS WHERE NECESSARY.
7. CONTRACTOR TO COIL 1' SLACK OF ELECTRICAL CONDUCTORS AND FIBER WITHIN MEDIAN UPRIGHT VSL.
8. THE INSULATION COLOR FOR DC VOLTAGE CONDUCTORS FROM THE LHUB TO THE LCS SHALL BE RED (POSITIVE) AND BLACK (NEGATIVE). PHASING TAPE IS NOT ACCEPTABLE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES TYPE 2 GANTRY INSTALLATION DETAILS

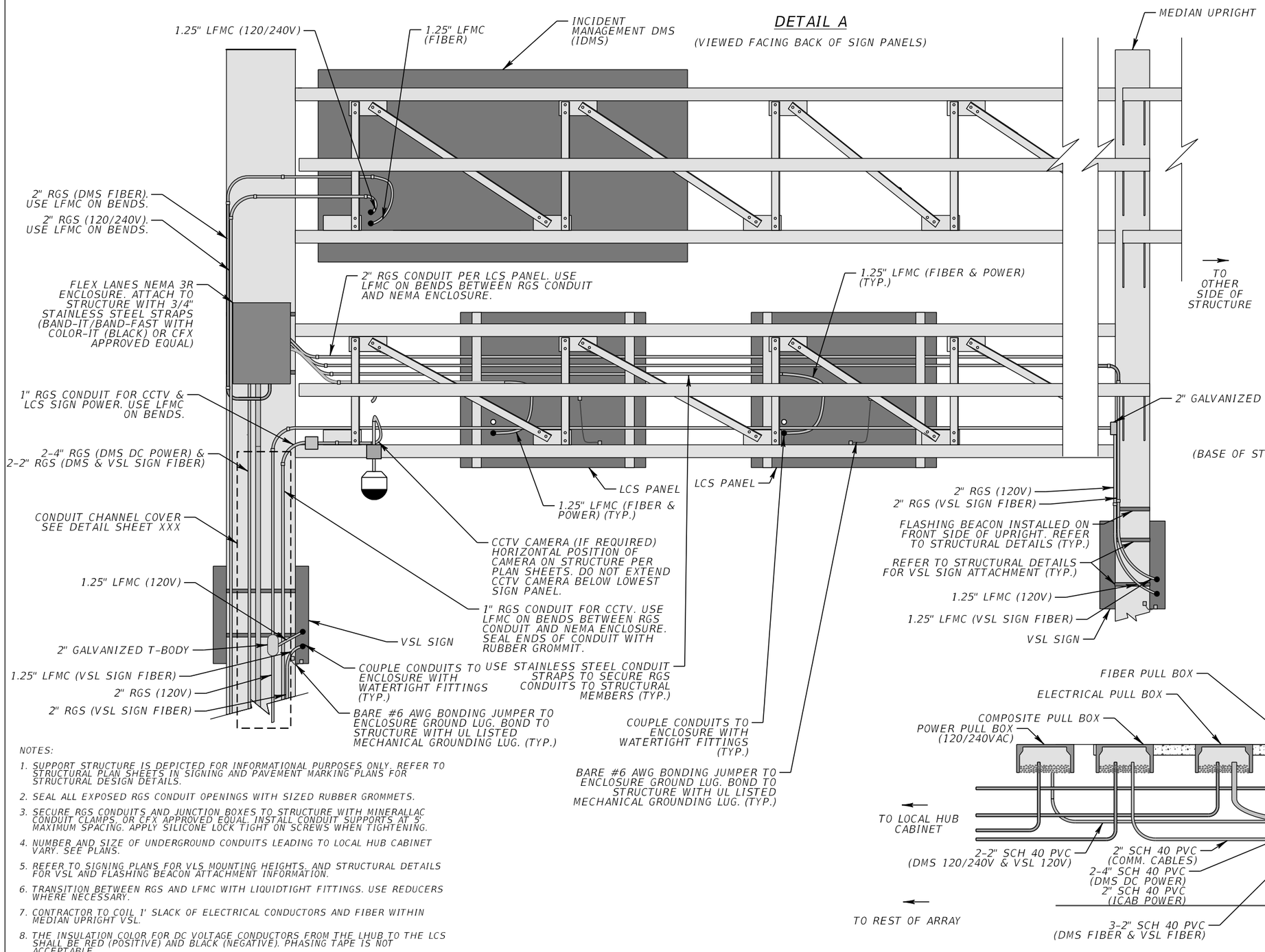
SHEET NO. P-2

MARCH 2026

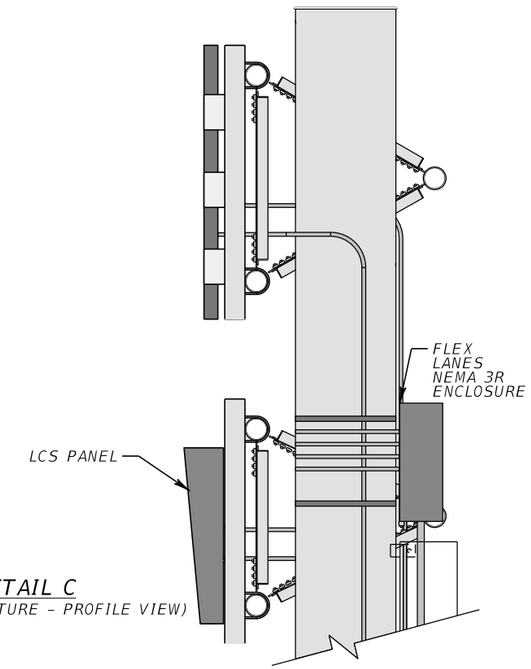
2/27/2026 10:31:32 AM

TYPICAL FLEX LANES TYPE 4 GANTRY WITH INCIDENT MANAGEMENT DMS

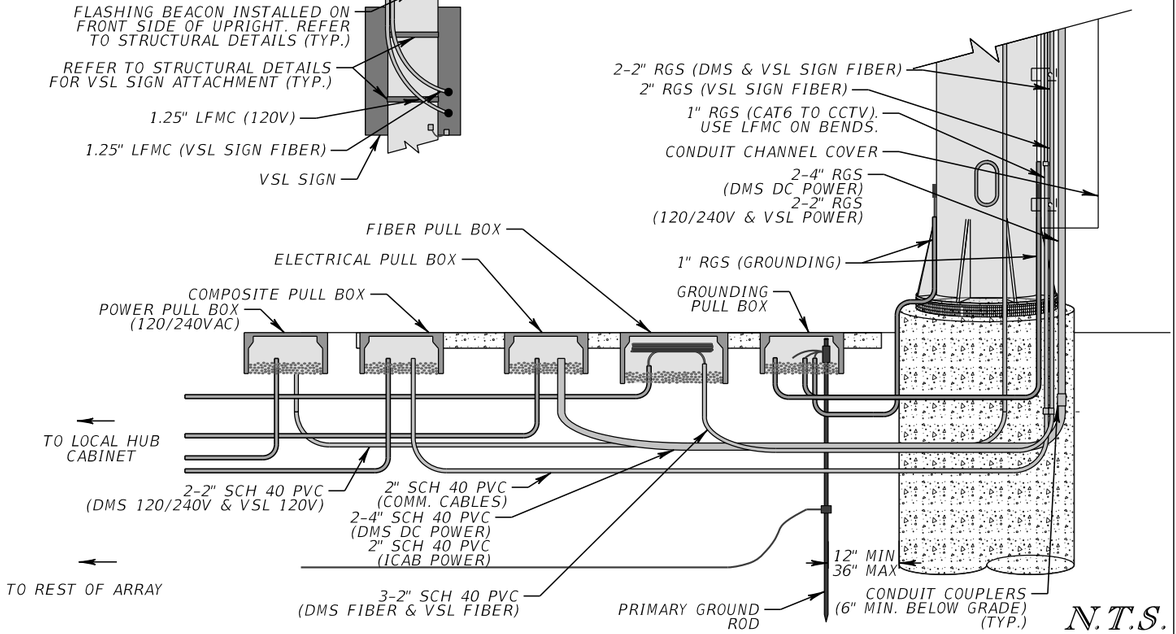
DETAIL A
(VIEWED FACING BACK OF SIGN PANELS)



DETAIL B
(TOP OF STRUCTURE - PROFILE VIEW)



DETAIL C
(BASE OF STRUCTURE - PROFILE VIEW)



N.T.S.

NOTES:

1. SUPPORT STRUCTURE IS DEPICTED FOR INFORMATIONAL PURPOSES ONLY. REFER TO STRUCTURAL PLAN SHEETS IN SIGNING AND PAVEMENT MARKING PLANS FOR STRUCTURAL DESIGN DETAILS.
2. SEAL ALL EXPOSED RGS CONDUIT OPENINGS WITH SIZED RUBBER GROMMETS.
3. SECURE RGS CONDUITS AND JUNCTION BOXES TO STRUCTURE WITH MINERALLAC CONDUIT CLAMPS, OR CFX APPROVED EQUAL. INSTALL CONDUIT SUPPORTS AT 5' MAXIMUM SPACING. APPLY SILICONE LOCK TIGHT ON SCREWS WHEN TIGHTENING.
4. NUMBER AND SIZE OF UNDERGROUND CONDUITS LEADING TO LOCAL HUB CABINET VARY. SEE PLANS.
5. REFER TO SIGNING PLANS FOR VLS MOUNTING HEIGHTS, AND STRUCTURAL DETAILS FOR VSL AND FLASHING BEACON ATTACHMENT INFORMATION.
6. TRANSITION BETWEEN RGS AND LFMC WITH LIQUIDTIGHT FITTINGS. USE REDUCERS WHERE NECESSARY.
7. CONTRACTOR TO COIL 1' SLACK OF ELECTRICAL CONDUCTORS AND FIBER WITHIN MEDIAN UPRIGHT VSL.
8. THE INSULATION COLOR FOR DC VOLTAGE CONDUCTORS FROM THE LHUB TO THE LCS SHALL BE RED (POSITIVE) AND BLACK (NEGATIVE). PHASING TAPE IS NOT ACCEPTABLE.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FLEX LANES TYPE 4 GANTRY INSTALLATION DETAILS	SHEET NO.
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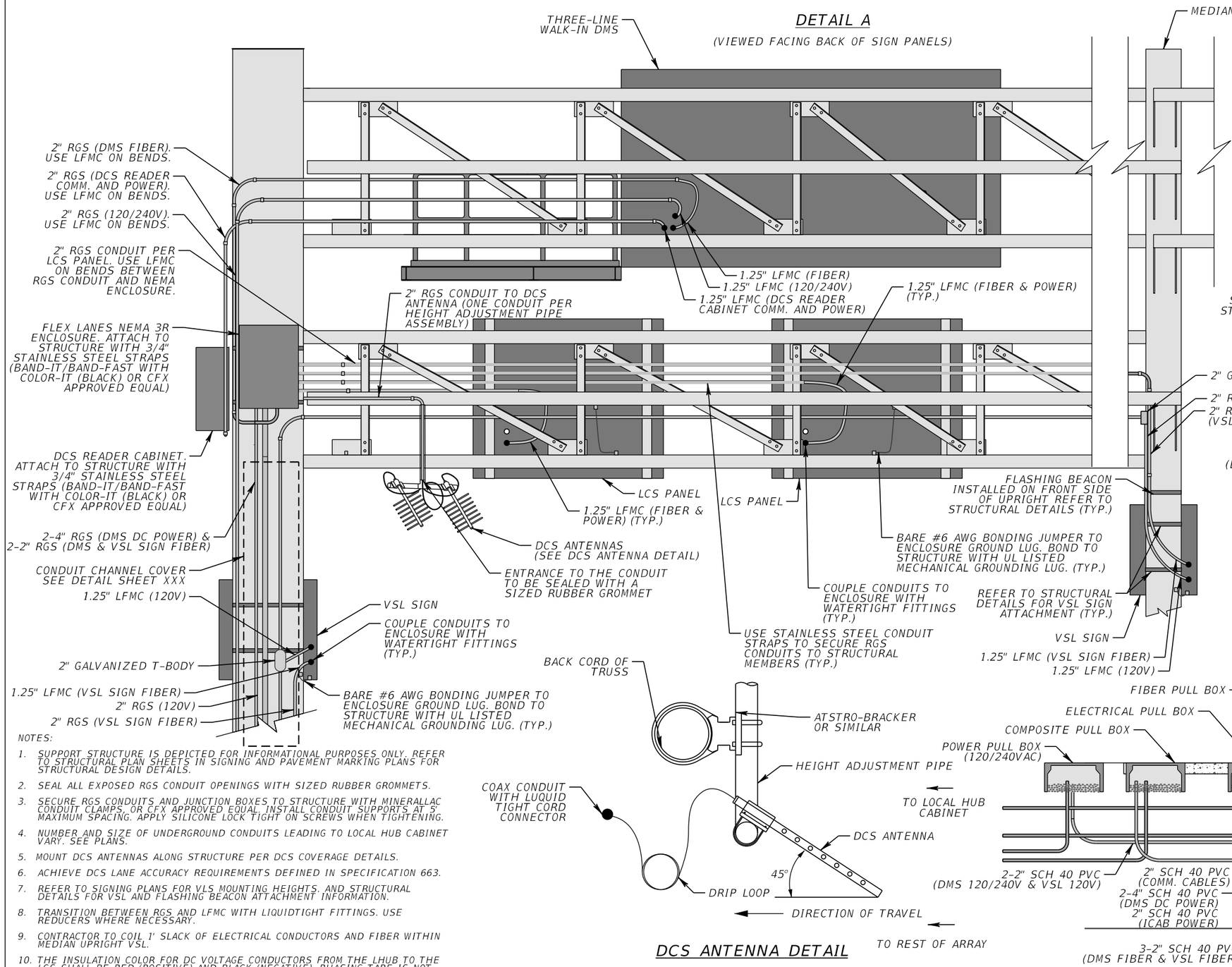
TYPICAL FLEX LANES TYPE 4 GANTRY WITH THREE-LINE WALK-IN DMS AND DCS

DETAIL A
(VIEWED FACING BACK OF SIGN PANELS)

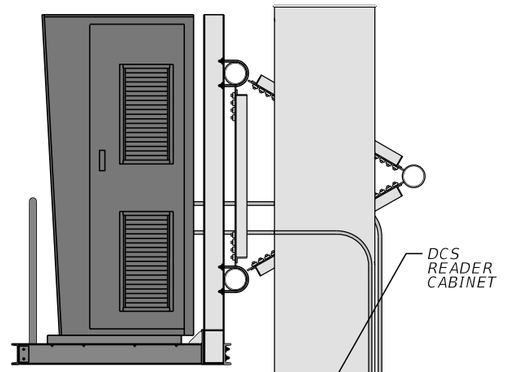


NOTES:

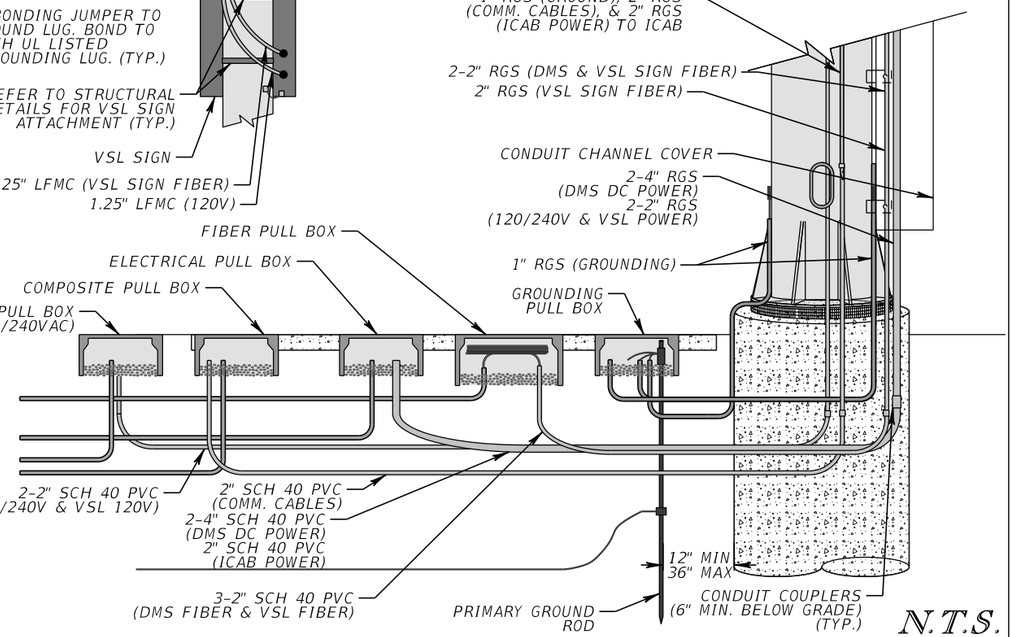
1. SUPPORT STRUCTURE IS DEPICTED FOR INFORMATIONAL PURPOSES ONLY. REFER TO STRUCTURAL PLAN SHEETS IN SIGNING AND PAVEMENT MARKING PLANS FOR STRUCTURAL DESIGN DETAILS.
2. SEAL ALL EXPOSED RGS CONDUIT OPENINGS WITH SIZED RUBBER GROMMETS.
3. SECURE RGS CONDUITS AND JUNCTION BOXES TO STRUCTURE WITH MINERALLAC CONDUIT CLAMPS, OR CFX APPROVED EQUAL. INSTALL CONDUIT SUPPORTS AT 5' MAXIMUM SPACING. APPLY SILICONE LOCK TIGHT ON SCREWS WHEN TIGHTENING.
4. NUMBER AND SIZE OF UNDERGROUND CONDUITS LEADING TO LOCAL HUB CABINET VARY. SEE PLANS.
5. MOUNT DCS ANTENNAS ALONG STRUCTURE PER DCS COVERAGE DETAILS.
6. ACHIEVE DCS LANE ACCURACY REQUIREMENTS DEFINED IN SPECIFICATION 663.
7. REFER TO SIGNING PLANS FOR VLS MOUNTING HEIGHTS, AND STRUCTURAL DETAILS FOR VSL AND FLASHING BEACON ATTACHMENT INFORMATION.
8. TRANSITION BETWEEN RGS AND LFMC WITH LIQUIDTIGHT FITTINGS. USE REDUCERS WHERE NECESSARY.
9. CONTRACTOR TO COIL 1' SLACK OF ELECTRICAL CONDUCTORS AND FIBER WITHIN MEDIAN UPRIGHT VSL.
10. THE INSULATION COLOR FOR DC VOLTAGE CONDUCTORS FROM THE LHUB TO THE LCS SHALL BE RED (POSITIVE) AND BLACK (NEGATIVE). PHASING TAPE IS NOT ACCEPTABLE.

DCS ANTENNA DETAIL

DETAIL B
(TOP OF STRUCTURE - PROFILE VIEW)



DETAIL C
(BASE OF STRUCTURE - PROFILE VIEW)



N.T.S.

REVISIONS					
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FLEX LANES TYPE 4 GANTRY INSTALLATION DETAILS

SHEET NO. P-4

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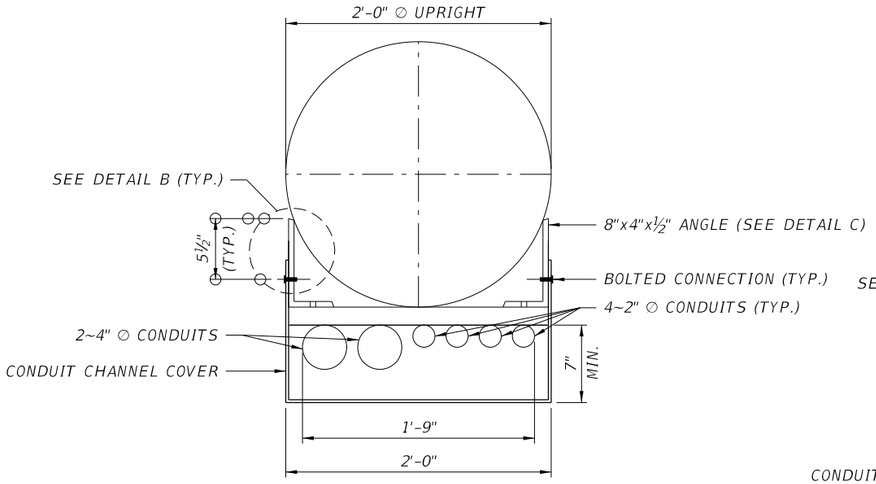
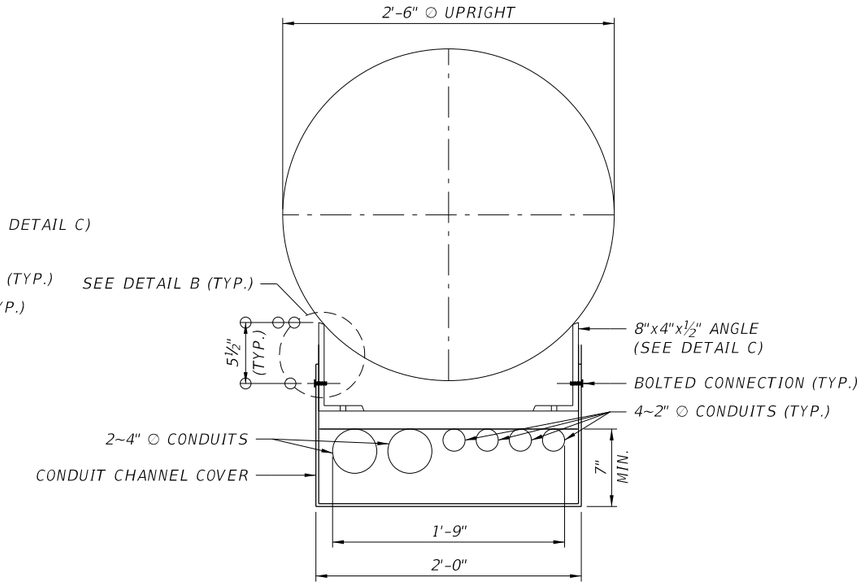
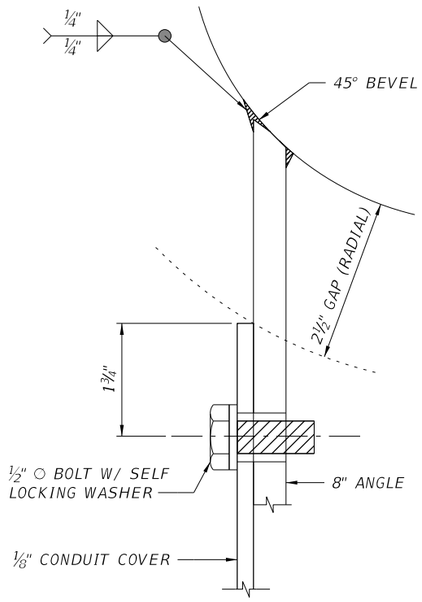


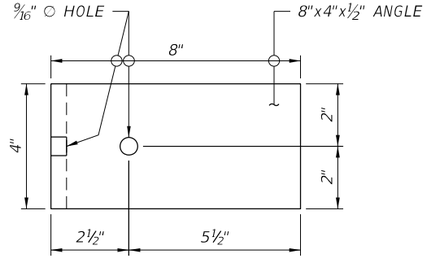
SECTION A-A
(24" ∅ UPRIGHT)



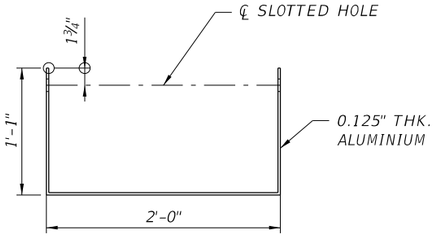
SECTION A-A
(30" ∅ UPRIGHT)



DETAIL B

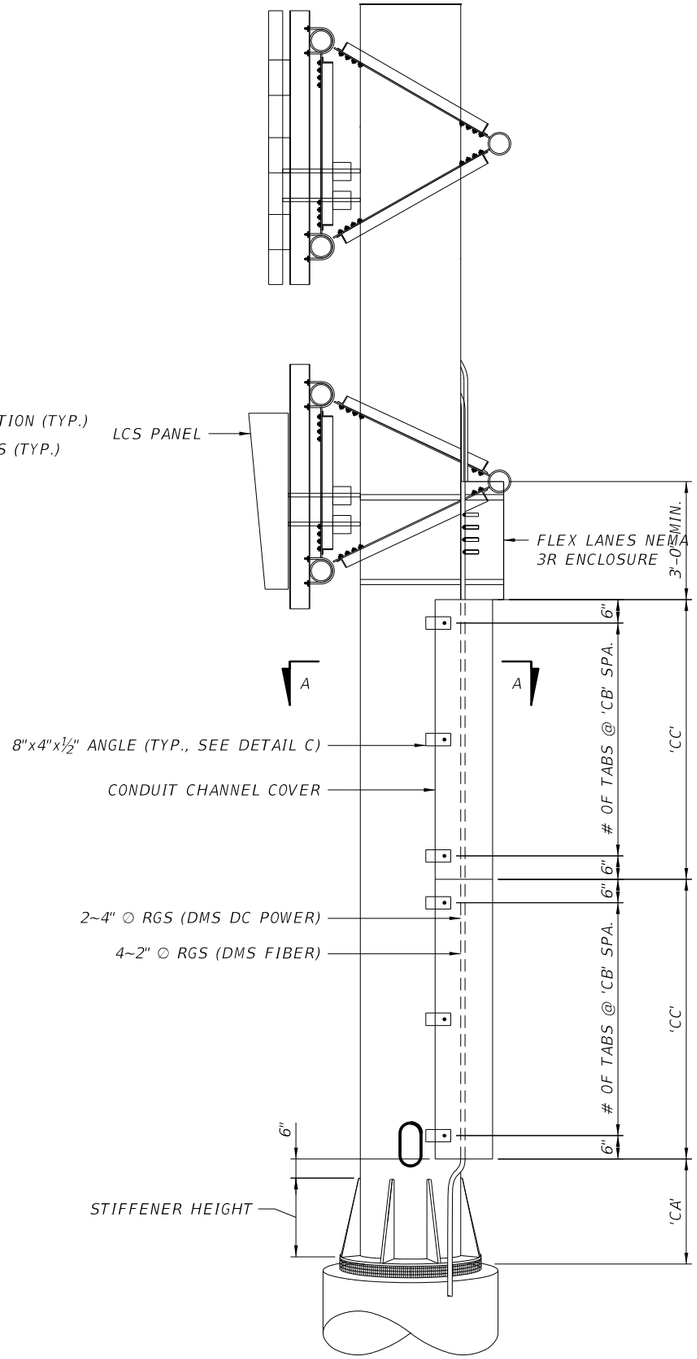


DETAIL C



BUILT UP CHANNEL SECTION

CONDUIT COVER VARIABLES				
SIGN STRUCTURE NUMBER	'CA'	# OF TABS	'CB'	'CC'



UPRIGHT ELEVATION

REVISIONS					
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FLEX LANES CONDUIT COVER
(1 OF 2)

SHEET NO.
P-5

MARCH 2026

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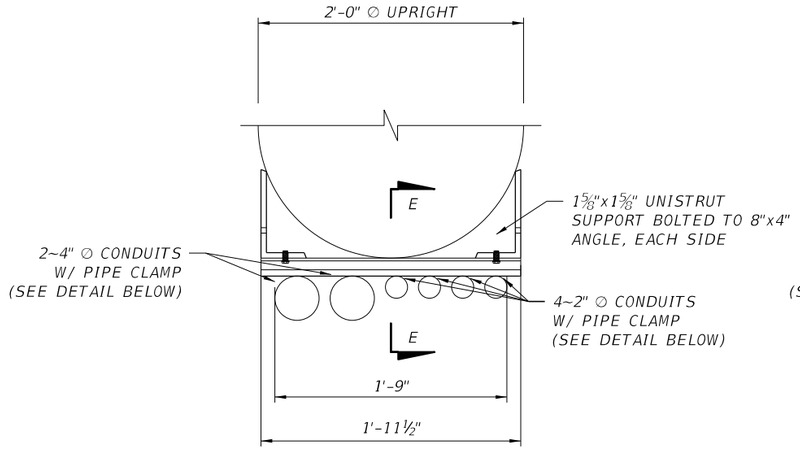
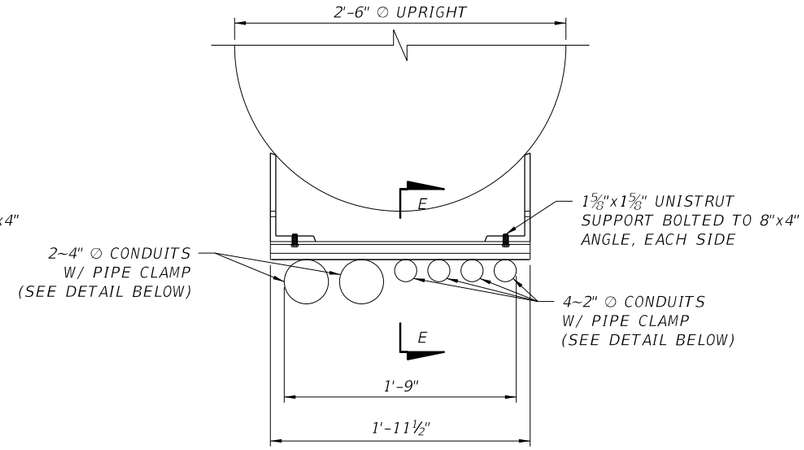


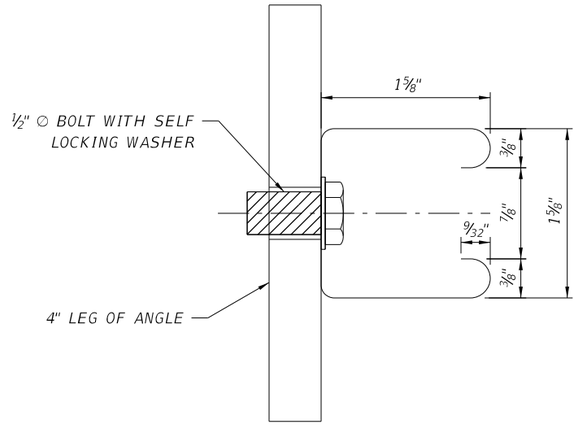
PIPE BRACKET DETAIL (24" ∅ UPRIGHT)

CONDUIT CHANNEL COVER NOT SHOWN FOR CLARITY



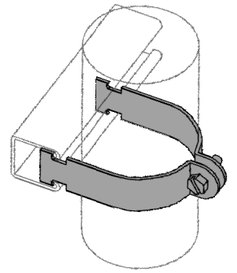
PIPE BRACKET DETAIL (30" ∅ UPRIGHT)

CONDUIT CHANNEL COVER NOT SHOWN FOR CLARITY



SECTION E-E

1⅝"x1⅝" UNISTRUT



PIPE CLAMP-UNISTRUT CONNECTION

(TYPICAL EACH 4" ○ DMS & 2" ○ RGS CONDUIT)
(SEE NOTE 6 FOR APPROPRIATE PART NUMBERS)

NOTES

1. PAINT ALL SURFACES OF CONDUIT ENCLOSURE INCLUDING BOLTS TO MATCH UPRIGHT.
2. ANGLES SHALL BE WELDED TO UPRIGHT IN FABRICATION SHOP. NO FIELD WELDS.
3. MATERIALS:

   CHANNEL SECTION - 5052 ALUMINIUM
   ANGLES: STEEL ASTM A709 GR 36.
   WELDING: SPECIFICATION 460-6.4.
   THREADED STUD: ASTM A307
   NUTS: ASTM A563

4. UNISTRUT SHALL BE 1⅝" x 1⅝", 12 GAGE OR GREATER. ALL UNISTRUST, PIPE CLAMPS AND BOLTED CONNECTIONS SHALL BE GALVANIZED IN ACCORDANCE WITH THE GENERAL NOTES, SHEET S-121. UNISTRUT HOLES CAN BE SLOTTED IF DESIRED TO FACILITATE BOLTED CONNECTION.
5. PIPE CLAMPS SHALL BE COMPATABLE WITH UNISTRUT CONNECTION AS SHOWN IN THE PIPE CLAMP DETAIL.
6. PIPE CLAMPS SHALL BE A MINIMUM 12 GA. THICKNESS AND SHALL BE UNISTRUT-P2038 (2" O.D.) AND UNISTRUT-P1120 (4" O.D.) OR EQUAL.

PAINTING NOTES

1. SOLVENT CLEAN SURFACES TO BE PAINTED TO MEET SSPC-SP-1, "SOLVENT CLEANING." DO NOT USE HYDROCARBON SOLVENTS.
2. APPLY ONE FULL COAT OF SHERWIN WILLIAMS PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER OR EQUIVALENT ACCORDING TO THE MANUFACTURER'S WRITTEN RECOMMENDATIONS.
3. APPLY ONE FULL COAT OF SHERWIN WILLIAMS PRO INDUSTRIAL DTM ACRYLIC B66W1100 OR EQUIVALENT ACCORDING TO THE MANUFACTURER'S WRITTEN RECOMMENDATIONS. COLOR SHALL BE FEDERAL STANDARD 595B COLOR 26314.

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FLEX LANES CONDUIT COVER (2 OF 2)

SHEET NO. P-5A

MARCH 2026

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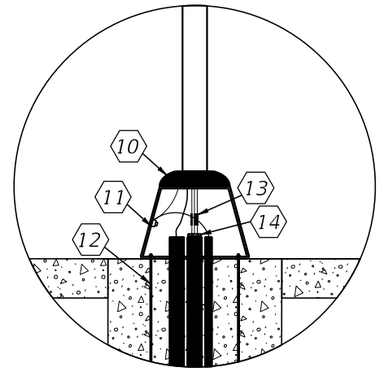
VSL SIGN STANDALONE

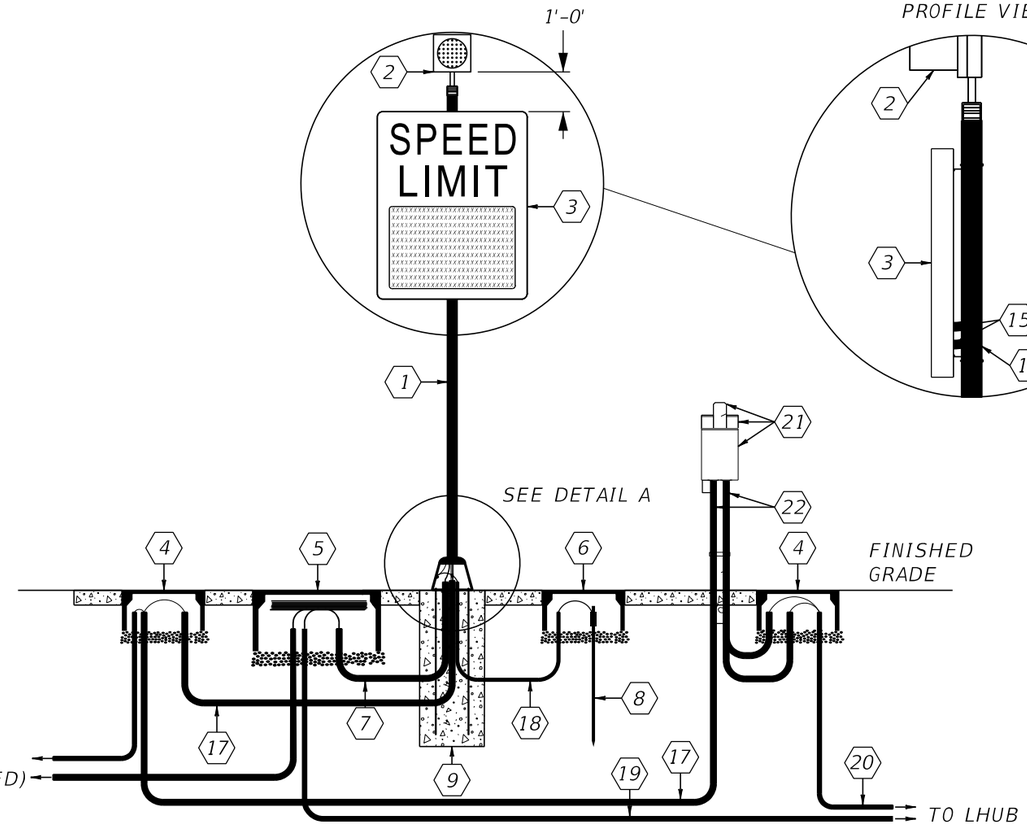
N.T.S.

LEGEND

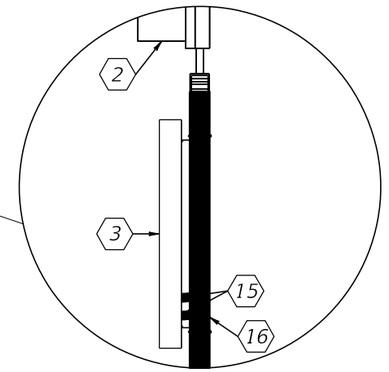
1. ALUMINUM POLE PER VSL STRUCTURAL DETAILS
2. 12" YELLOW FLASHING BEACON
3. 48" X 60" OR 36" X 48" VSL SIGN REFER TO STRUCTURAL DETAILS FOR MOUNTING HEIGHTS
4. ELECTRICAL PULL BOX (120VAC POWER)
5. FIBER OPTIC PULL BOX
6. GROUND PULL BOX
7. 1" SCH 40 PVC FIBER CONDUIT
8. 20' MIN. 5/8" DIA. COPPER CLAD GROUND ROD
9. CONCRETE FOUNDATION PER VSL STRUCTURAL DETAILS
10. FRANGIBLE TRANFORMER BASE PER VSL STRUCTURAL DETAILS
11. GROUND LUG. RUN #6 AWG BARE COPPER FROM LUG TO GROUND ROD AND BOND WITH EXOTHERMIC WELD
12. ANCHOR BOLTS. SEE VSL SIGN SUPPORT DETAILS
13. WATERTIGHT BREAKAWAY ELECTRICAL CONNECTORS FOR ALL CABLES EXCEPT GROUND WIRE AND FIBER
14. STRAIN RELIEF FITTINGS FOR ALL CABLES EXCEPT GROUND WIRE AND FIBER
15. 1.25" LFMC (VSL FIBER) AND 1.25" LFMC (POWER). COUPLE LFMC TO VSL HOUSING WITH WATERTIGHT FITTINGS
16. COUPLE LFMC TO POLE ENTRY HOLE WITH WATERTIGHT FITTINGS
17. 2" SCH 40 PVC CONDUIT FOR POWER
18. 1" SCH 40 PVC CONDUIT FOR GROUNDING
19. FIBER CONDUIT TO LOCAL HUB. SEE PLANS
20. POWER CONDUIT TO LOCAL HUB. SEE PLANS
21. SERVICE POLE WITH TWO CIRCUIT BREAKER ENCLOSURES (WHEN CALLED FOR IN PLANS)
22. 2" RGS POWER CONDUITS

DETAIL A





PROFILE VIEW



NOTES:

1. FLASHING BEACON CONTROLLER EQUIPMENT TO BE INTEGRAL TO VSL CABINET.

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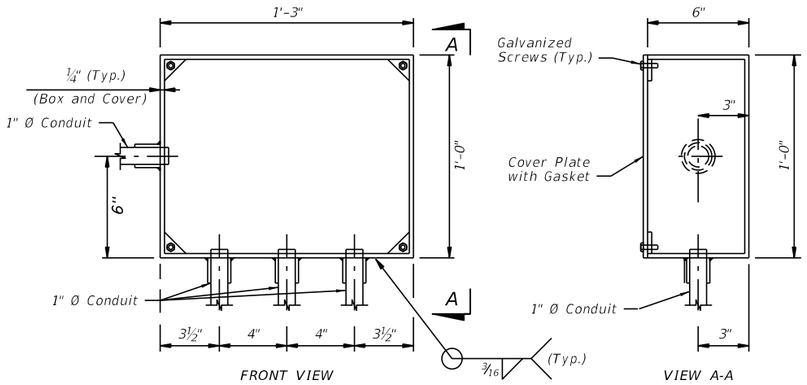
VSL SIGN MEDIAN MOUNTED

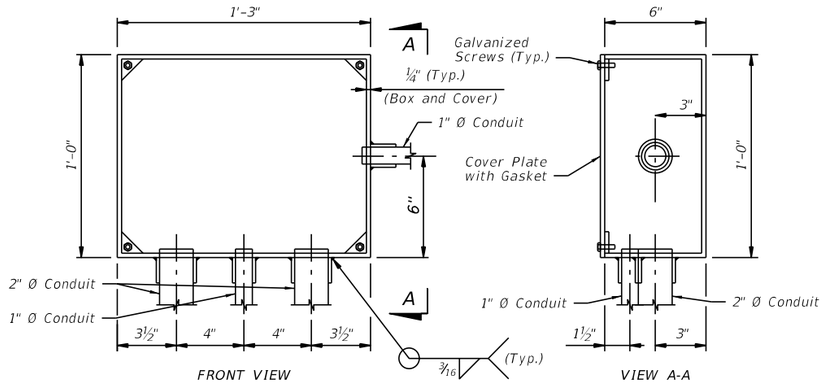
N.T.S.

LEGEND

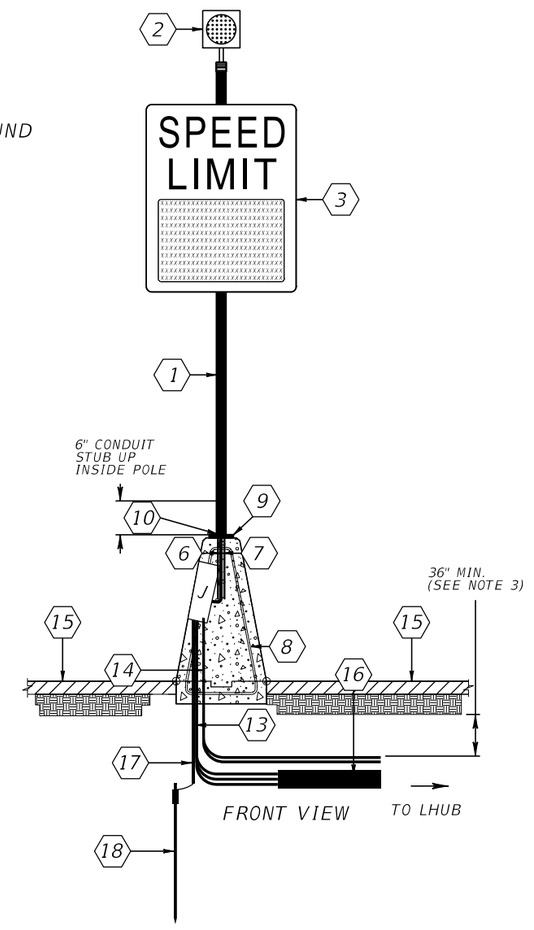
1. ALUMINUM POLE PER VSL STRUCTURAL DETAILS
2. 12" YELLOW FLASHING BEACON
3. 36" X 48" VSL SIGN REFER TO STRUCTURAL DETAILS FOR MOUNTING HEIGHTS
4. ELECTRICAL EMBEDDED JUNCTION BOX
5. FIBER EMBEDDED JUNCTION BOX
6. 1" SCH 80 PVC POWER CONDUIT
7. 1" SCH 80 PVC FIBER CONDUIT
8. CONCRETE MEDIAN BARRIER
9. BASE PLATE PER VSL STRUCTURAL DETAILS
10. ANCHOR BOLTS PER VSL STRUCTURAL DETAILS
11. 1.25" LFMC (VSL FIBER), AND 1.25" LFMC (POWER). COUPLE LFMC TO VSL HOUSING WITH WATERTIGHT FITTINGS
12. COUPLE LFMC TO POLE ENTRY HOLE WITH WATERTIGHT FITTINGS
13. 3-1" FIBER CONDUIT TO LOCAL HUB. SEE PLANS
14. 2" POWER CONDUIT TO LOCAL HUB. SEE PLANS
15. SHOULDER PAVEMENT (TYP.)
16. 4" OUTERDUCT SEAL END AROUND INNERDUCTS WITH DUCT SEALING COMPOUND
17. 1" GROUND CONDUIT
18. 20' MIN. 5/8" DIA. COPPER CLAD GROUND ROD

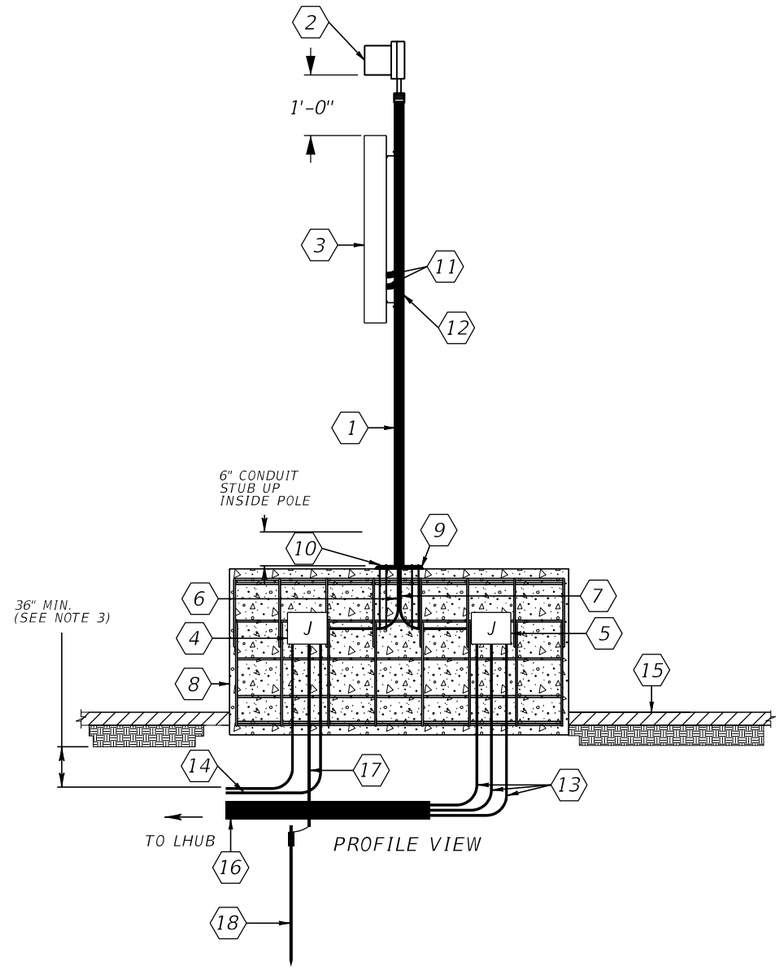


FIBER EMBEDDED JUNCTION BOX DETAILS



ELECTRICAL EMBEDDED JUNCTION BOX DETAILS





NOTES:

1. FLASHING BEACON CONTROLLER EQUIPMENT TO BE INTEGRAL TO VSL CABINET.
2. INCOMING CONDUITS WILL EXTEND 6" INSIDE THE VSL SIGN POLE.
3. PROVIDE 36" OF COVER FOR ALL COUNDUITS BELOW THE LIMEROCK BASE.

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FLEX LANES VSL MEDIAN INSTALLATION DETAILS

SHEET NO. P-7

MARCH 2026

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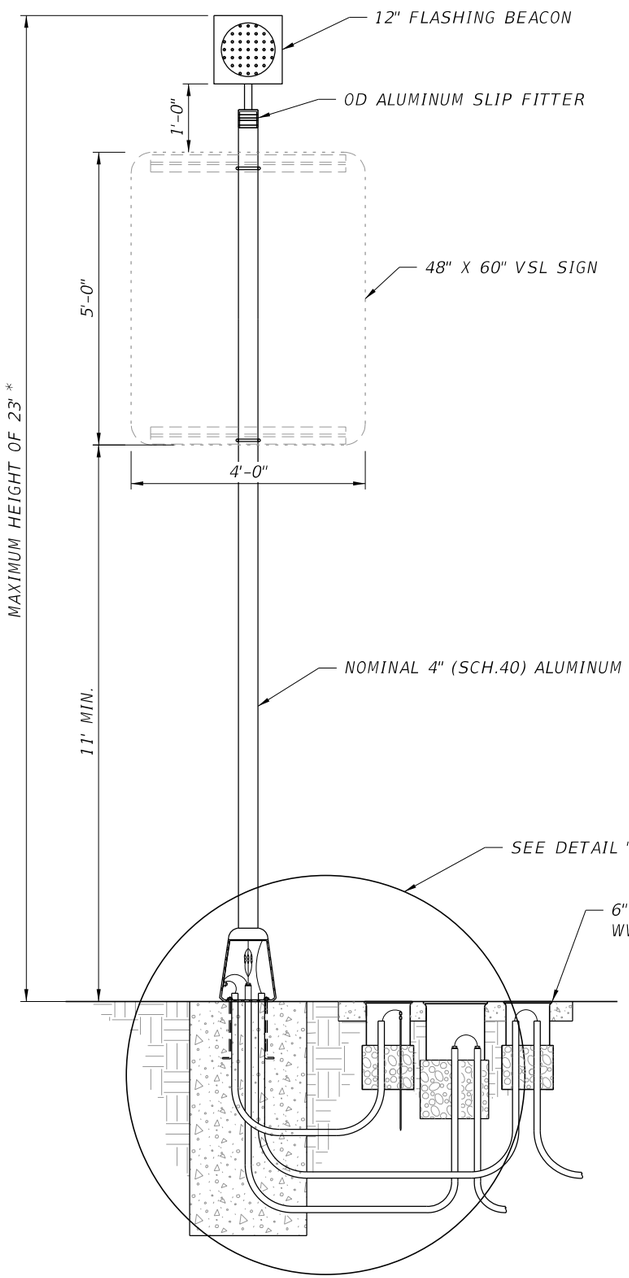
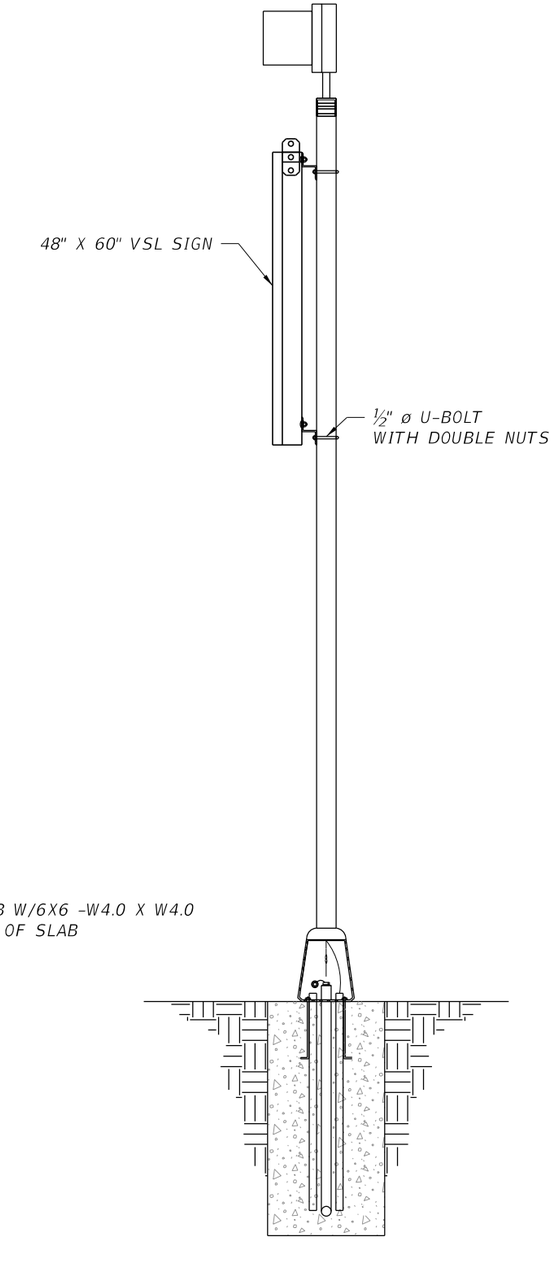


FRONT VIEW



SIDE VIEW

NOTE TO EOR:
1. MAXIMUM POST HEIGHT OF 23' (IF GREATER DESIGNER MUST PROVIDE AN ANALYSIS)
2. EOR IS RESPONSIBLE FOR VERIFYING THE POLE THICKNESS AS PART OF THE DESIGN PROCESS

NOTES:

1. Install sign panel and wind beam in accordance with Index 700-010 and Specification 700.
2. Engage all threads on the transformer base and post unless the aluminum post is fully seated into base.
3. Meet the requirements of Specification 646 for aluminum poles and transformer bases.
4. Install a concrete slab around all roadside assemblies on slopes 6:1 or greater. The minimum slab dimension is 5'-0" by 5'-0".
5. When wire entry holes are drilled in the sign column, use a bushing or rubber grommet to protect conductors.
6. Flashing Beacon controller equipment to be integral to VSL cabinet.
7. Standard foundation (Drilled Shaft) capacities are based on the following soil criteria:

   Classification: Cohesionless (Fine Sand)
   Friction Angle: 30 Degrees
   Unit Weight: 50 pcf (assumed submerged0
   N-blowcount: 15

When the designer considers soil types at the specific site location to be of lesser strength properties than shown above, an analysis is required.

Materials:

1. Aluminum Sign, Wind Beams and Post Materials:
   A. Aluminum Plates: ASTM B209, Alloy 6061-T6
   B. Aluminum Bars and Extruded Shapes: ASTM B221, Alloy 6061-T6
   C. Aluminum Structural Shapes: ASTM B308 Alloy 6061-T6
   D. Cast Aluminum: ASTM B26 Alloy A356-T6
   E. Aluminum Weld Material: ER 5556 or 5356
3. Sign Mounting Bolts, Nuts and Washers:
   A. Aluminum Button Head and Flat Head Bolts: ASTM F468 Alloy 2024-T4
   B. Aluminum Hex Nuts: ASTM F467 Alloy 6061-T6 or 6262-T9
   C. Aluminum Washers: ASTM B221, Alloy 7075-T6
4. Stainless Steel Bolts, Nuts and Washers may be used in lieu of the Aluminum button head and flat head bolts as follows:
   A. Stainless Steel Bolts: ASTM F 593 Alloy Group 2, Condition A, CW1 or SH1
   B. Stainless Steel Nuts: ASTM F594
5. Sign Column (Post) Bolts, Nuts and Washers:
   A. Galvanized U-Bolt (Column): ASTM A449 or ASTM A193 B7 according to ASTM F2329 with double nuts.
   B. Galvanized High Strength Hex Head Bolts (Base Bolts): ASTM F3125, Grade A325, Type 1
   C. Galvanized Hex Nuts: ASTM A563 Grade DH
   D. Galvanized Washers: ASTM F436
6. Coatings:
   A. High Strength Steel Bolts Nuts and Washers: ASTM F2329
   B. All other steel items (excluding stainless steel): Hot-dip Galvanize - ASTM A123
   C. Repair damaged galvanizing in accordance with Specification 562
7. Payment:
   Include the cost of all materials and labor in the cost of the single ground mounted VSL sign assembly pay item. See ITS plans for pay item and quantity.

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FLEX LANES VSL GROUND MOUNTED SIGN STRUCTURE (1 OF 2)

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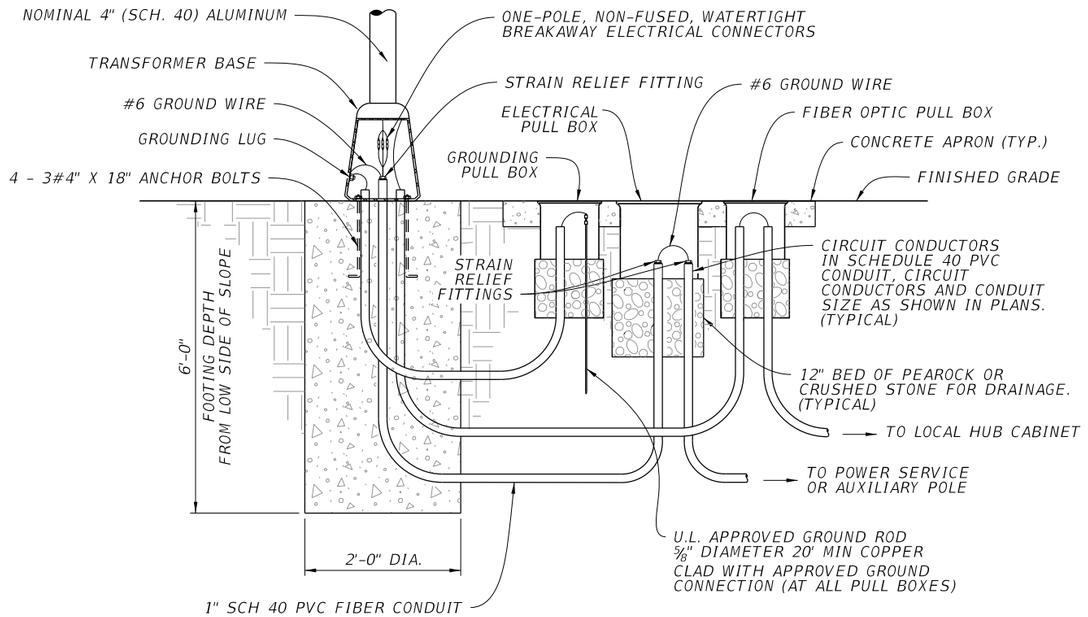
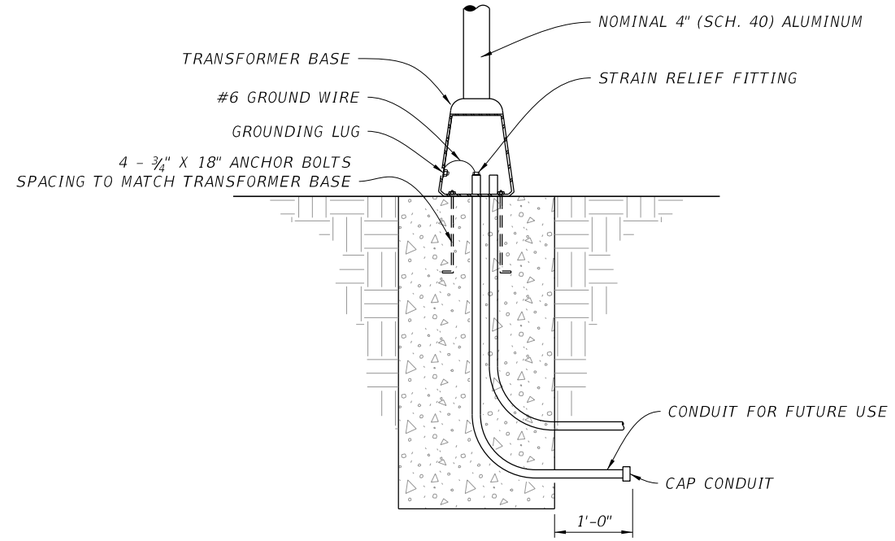


DETAIL "A"



DETAIL "B"

NOTE: FOR FOUNDATION REINFORCING, SEE FDOT STANDARD 700-020

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FLEX LANES VSL GROUND MOUNTED SIGN STRUCTURE (2 OF 2)

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1. Materials:

A. Steel Plate: ASTM A36 or ASTM A709 Grade 36
B. Steel Pipe (Support Post): ASTM A53 Grade B Schedule 40
C. Galvanized Attachment Hardware:
   a. U-Bolts: ASTM A449
   b. Hex Nuts: ASTM A 563 Lock Nuts
   c. Plate Washer: ASTM A 36 or ASTM A709 Grade 36 or 50
D. Galvanized Anchor Bolts, Nuts and Washers:
   a. Anchor Rod: ASTM F1554 Grade 55 fully threaded (for Adhesive Anchors)
   b. Anchor Bolts: ASTM F1554 Grade 55 Grade A Hex
   c. Nuts: ASTM A563 Heavy Hex Locking
   d. Washers: ASTM F436
E. Adhesive Anchor Bonding Material: Specification 937 Type HV Adhesive
F. Weld Material: E70XX
G. Neoprene Pad: Plain or Fiber Reinforced meeting Specification Section 932 for Ancillary Structures.

2. Coating:

A. U-Bolt, Threaded Rods, Nuts and Washers: ASTM F2329
B. Other Steel: ASTM A123

3. Fabrication:

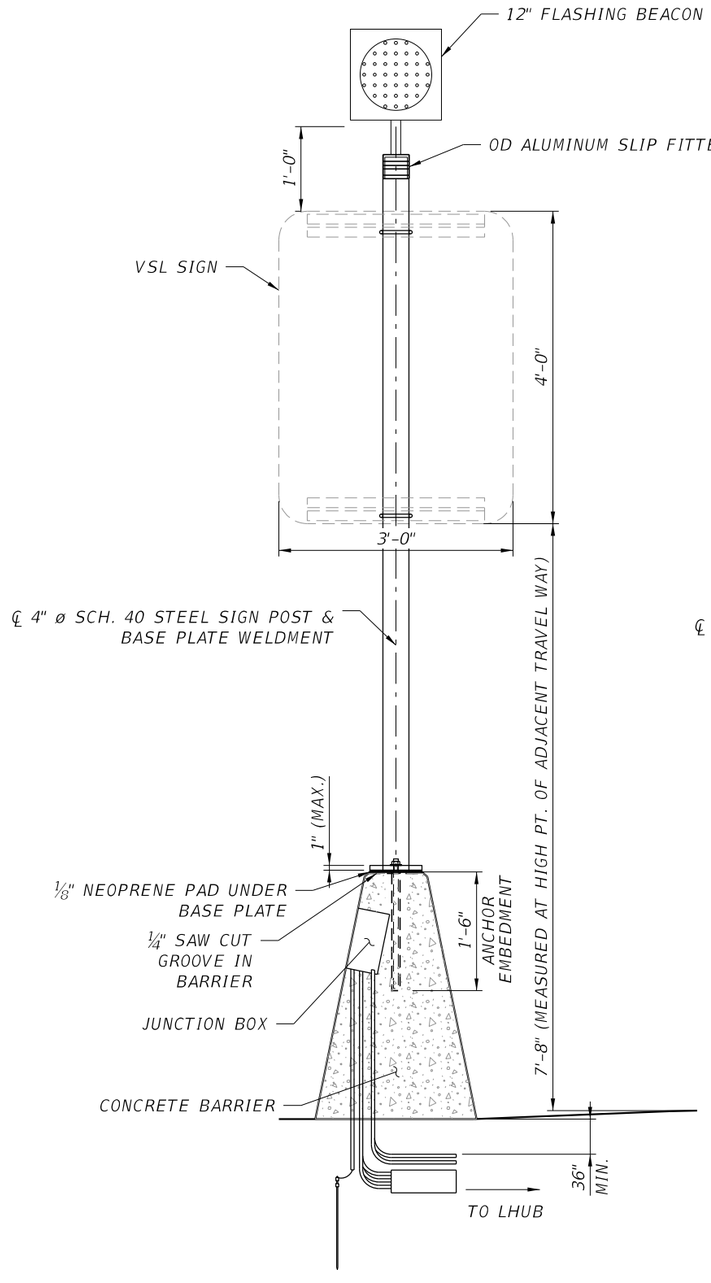
A. Weld: Specification 460-6.4
B. Hot dip galvanize after fabrication

4. Construction:

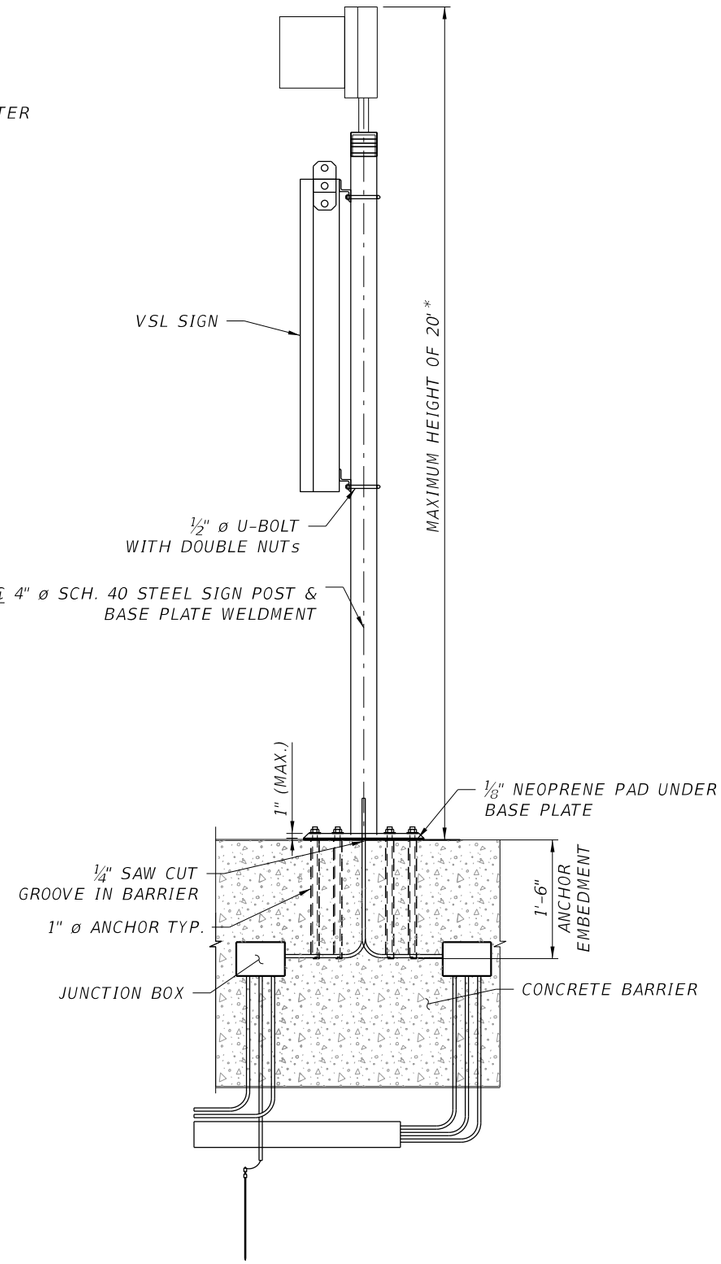
A. Locate Sign Support a minimum of 5 feet from an open joint or transition (sign stationing may be adjusted to accommodate this requirement
B. Base plate must be flush with top of Railing
C. Anchors in Traffic Railings:
   a. Install Adhesive Anchors in accordance with Specification 416 except perform field test on one anchor per sign support location
   b. Use template and tie anchors as necessary to maintain correct placement of C-I-P Embedded Anchors
   c. Do not drill into existing reinforcing
D. Flashing beacon controller equipment to be integral to VSL cabinet.

5. Payment:

A. Include the cost of all materials and labor in the cost of the single median post VSL sign assembly. See ITS plans for pay item and quantity.



PARALLEL TO DIRECTION OF TRAFFIC



PERPENDICULAR TO DIRECTION OF TRAFFIC

ELEVATION

*NOTE TO EOR: Maximum post height of 20' (If greater designer must provide an analysis)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES VSL MEDIAN MOUNTED SIGN STRUCTURE (1 OF 2)

SHEET NO. P-10

MARCH 2026

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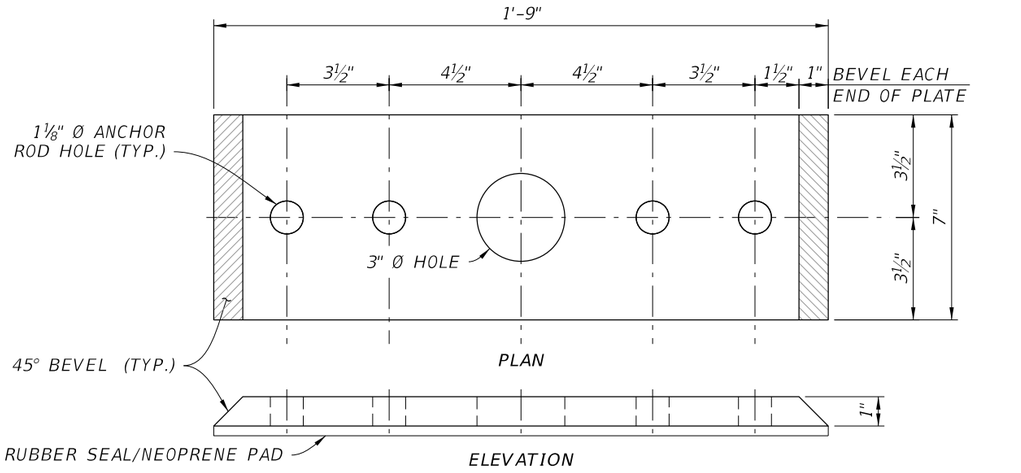
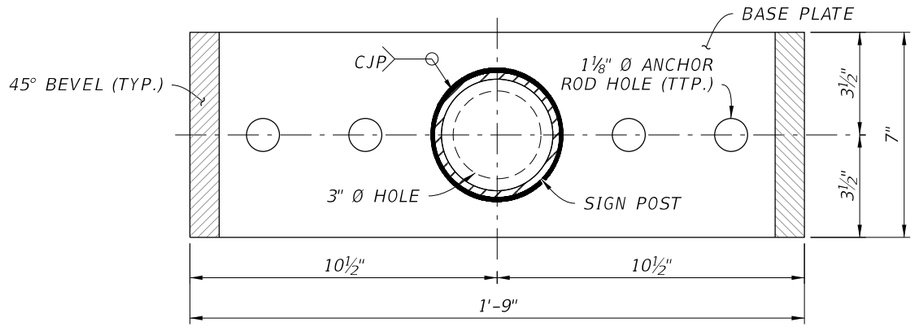
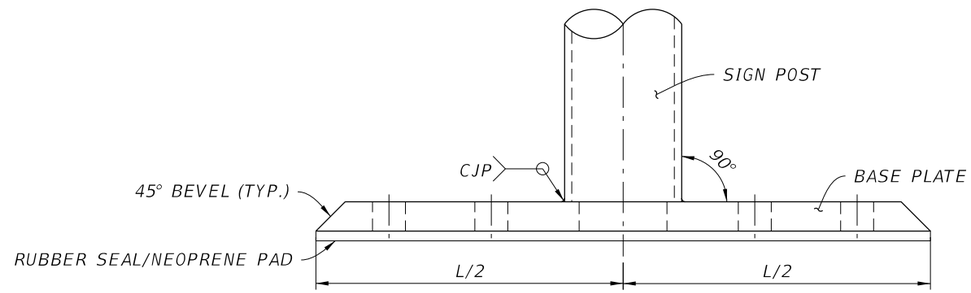


BASE PLATE TYPE



PLAN



ELEVATION

SIGN SUPPORT WELDMENT DETAIL

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FLEX LANES VSL MEDIAN MOUNTED SIGN STRUCTURE (2 OF 2)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					P-11

MARCH 2026

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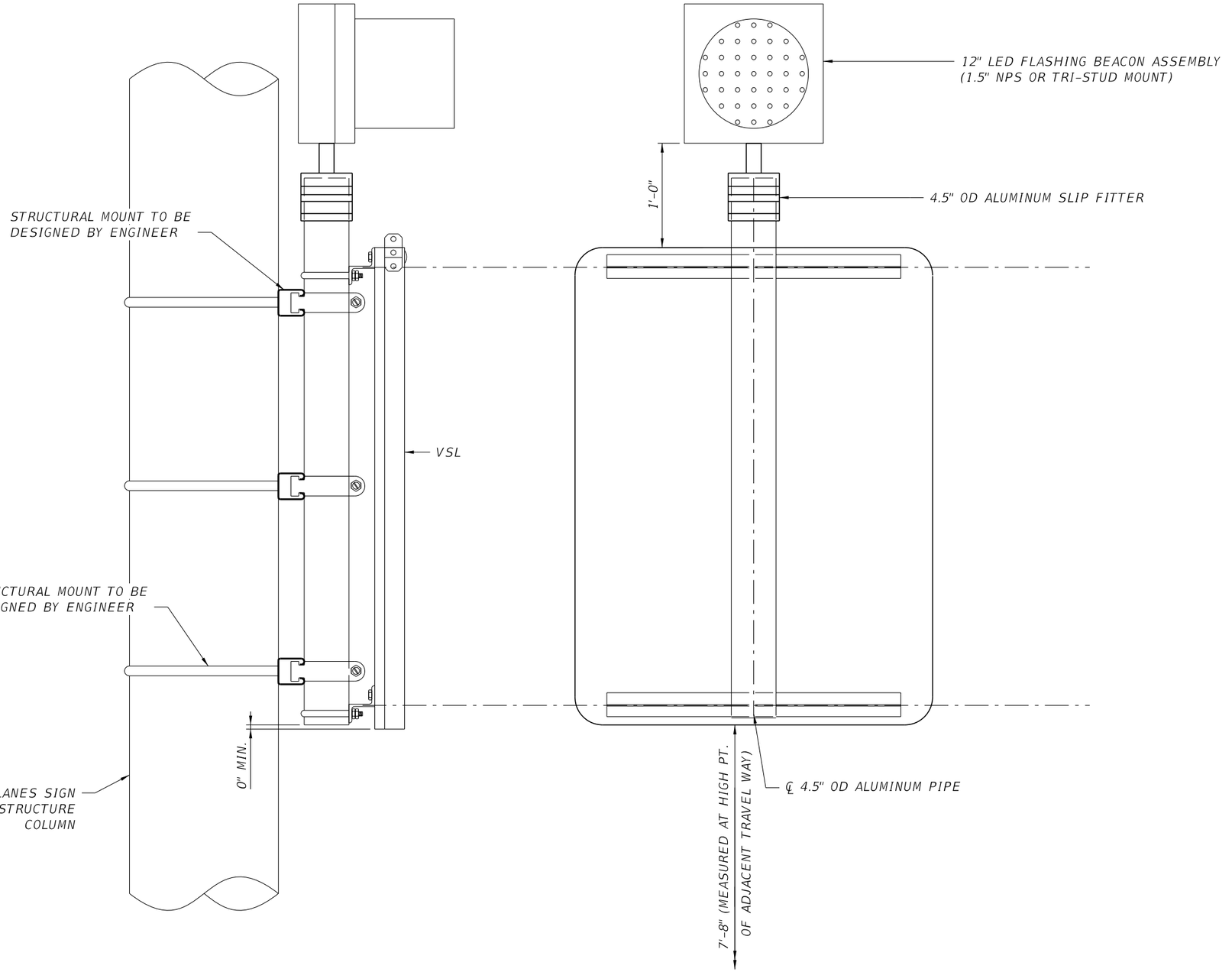

NOTES:

1. Install sign panel and wind beam in accordance with Index 700-010 and Specification 700.

2. When wire entry holes are drilled in the sign column, use a bushing or rubber grommet to protect conductors.

3. Flashing Beacon controller equipment to be integral to VSL cabinet.

MATERIALS

1. Aluminum Sign, Wind Beams and Post Materials:
   A. Aluminum Plates: ASTM B209, Alloy 6061-T6
   B. Aluminum Bars and Extruded Shapes: ASTM B221, Alloy 6061-T6
   C. Aluminum Structural Shapes: ASTM B308 Alloy 6061-T6
   D. Cast Aluminum: ASTM B26 Alloy A356-T6
   E. Aluminum Weld Material: ER 5556 or 5356

3. Sign Mounting Bolts, Nuts and Washers:
   A. Aluminum Button Head and Flat Head Bolts: ASTM F468 Alloy 2024-T4
   B. Aluminum Hex Nuts: ASTM F467 Alloy 6061-T6 or 6262-T9
   C. Aluminum Washers: ASTM B221, Alloy 7075-T6

4. Stainless Steel Bolts, Nuts and Washers may be used in lieu of the Aluminum button head and flat head bolts as follows:
   A. Stainless Steel Bolts: ASTM F 593 Alloy Group 2, Condition A, CW1 or SH1
   B. Stainless Steel Nuts: ASTM F594

5. Column Connection Bolts, Nuts and Washers:
   A. Galvanized Attachment Hardware (Column): ASTM A449 or ASTM A193 B7 according to ASTM F2329 with double nuts.
   B. Galvanized Hex Nuts: ASTM A563 Grade DH
   C. Galvanized Washers: ASTM F436

6. Coatings:
   A. High Strength Steel Bolts Nuts and Washers: ASTM F2329
   B. All other steel items (excluding stainless steel): Hot-dip Galvanize - ASTM A123

7. Payment:
   A. Include the cost of all materials and labor in the cost of the single VSL sign upright mounted assembly. See ITS plans for pay item and quantity.

REVISIONS								
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FLEX LANES MOUNTED VSL SIGN STRUCTURE DETAIL

SHEET NO. P-12

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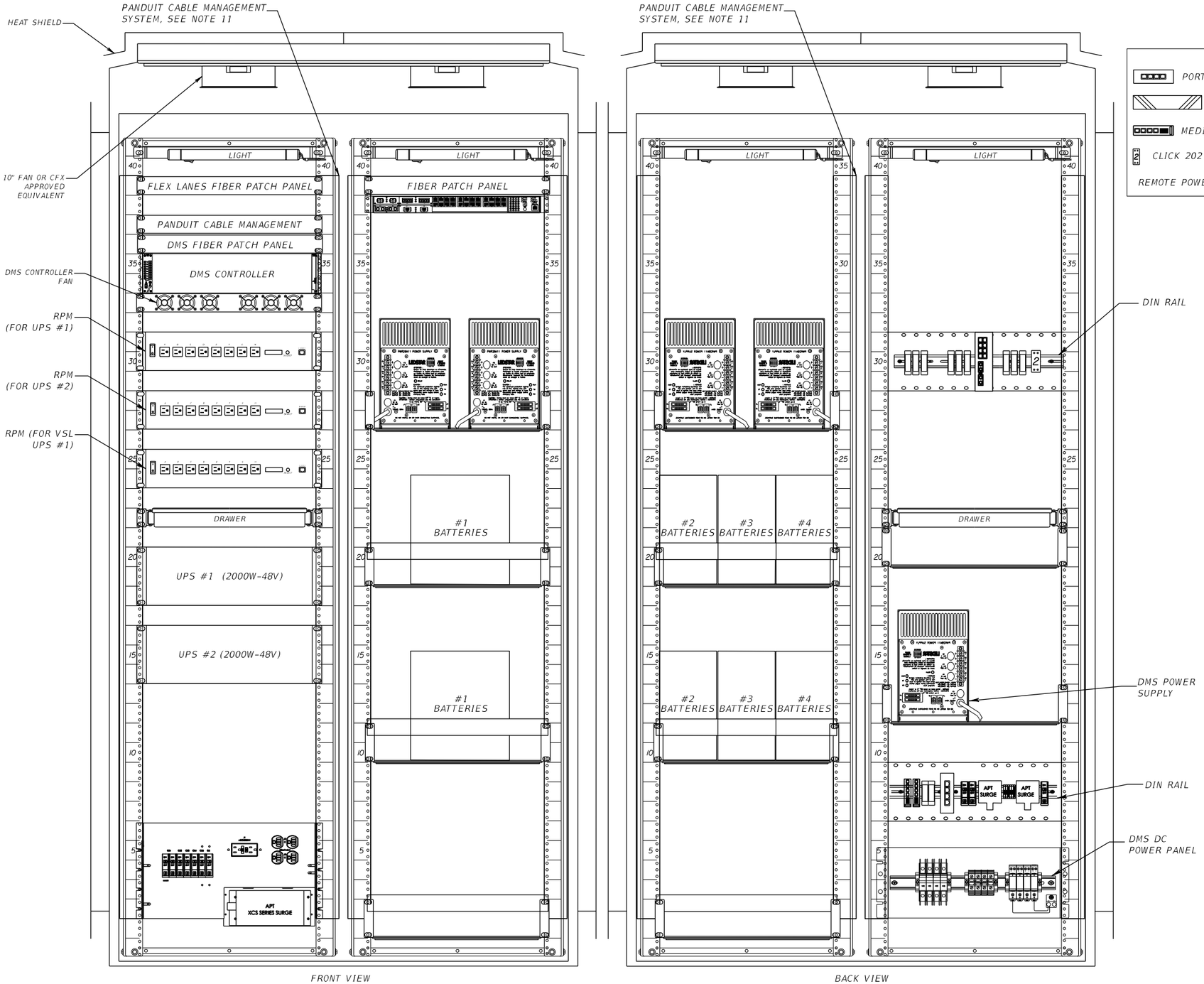

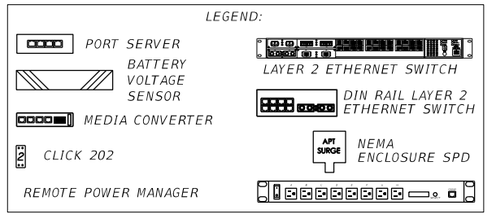

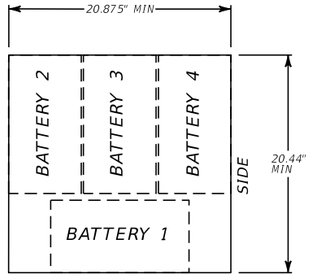

BATTERY SHELF LAYOUT

NOTES:

1. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
2. CABINETS SHALL BE FABRICATED IN ACCORDANCE TO SECTION 668 OF CFX SPECIFICATIONS.
3. (SM) = SHELF MOUNT, (RM) = RACK MOUNT
4. BUS RATING SHALL BE A MINIMUM OF THE FULL ELECTRICAL LOAD WHEN ALL CABINET AND EXTERNAL POLE MOUNTED DEVICES ARE ACTIVE.
5. 19" DOUBLE DIN RAIL SHALL BE GROUNDED PER MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL SUBMIT A CABINET LAYOUT/WIRING DIAGRAM FOR CFX APPROVAL.
7. FRONT FACE OF EQUIPMENT SHALL BE INSTALLED WITHIN THE CABINET FACING THE OPPOSITE DIRECTIONAL OF TRAVEL.
8. GROUND MOUNTED DMS CABINETS SHALL BE PLACED ON A MONOLITHIC POUR CONCRETE EXTENDING SIX (6) INCHES ABOVE THE GRADE.
9. SLIDE OUT TRAY SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
10. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS.
11. PANDUIT DIMENSIONS ARE AS FOLLOWS:
    A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
    B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
    C. PANDUIT SHALL VERTICALLY COVER RU's AS SHOWN
12. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
13. DIN RAIL AND PANEL PROVIDED BY LEDSTAR FOR DC BREAKERS, GROUND BUS AND DC SPD.
14. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
15. BATTERY SHELF SHALL BE 5052 ALUMINUM WITH FINE BRUSH FINISH AND CAPABLE OF FULLY SUPPORTING THE WEIGHT OF 4 BATTERIES (APPROXIMATE WEIGHT OF 75 LBS PER BATTERY). PANEL SHALL BE STANDARD 19" (1 RU). MOUNT SHELF BEHIND RACK RAIL. INSTALL RACK SCREWS FRONT TO BACK WITH LOCK WASHERS AND NUTS. INSTALL A MINIMUM OF SIX RACK SCREWS, 4 TOP HOLES AND 2 BOTTOM HOLES. THE BATTERY SHELF SHALL BE ATTACHED TO THE FRONT AND BACK RACK RAILS.
16. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1)CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.
17. SECOND ETHERNET SWITCH REQUIRED WHEN 3-LINE WALK-IN DMS IS CONNECTED TO A FLEX LANES LOCAL HUB CABINET.
18. THE UPS BATTERY SHALL BE EQUIPPED WITH A QUICK-DISCONNECT HARNESS.

NOTE TO EOR:
THE CABINET SIZE AND DETAILS SHOULD BE COORDINATED WITH THE CFX GSC TO ENSURE THE MOST ACCURATE INFORMATION IS INCLUDED.

GROUND MOUNTED FLEX LANES
CABINET LAYOUT

NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FLEX LANES CABINET LAYOUT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					P-13

MARCH 2026

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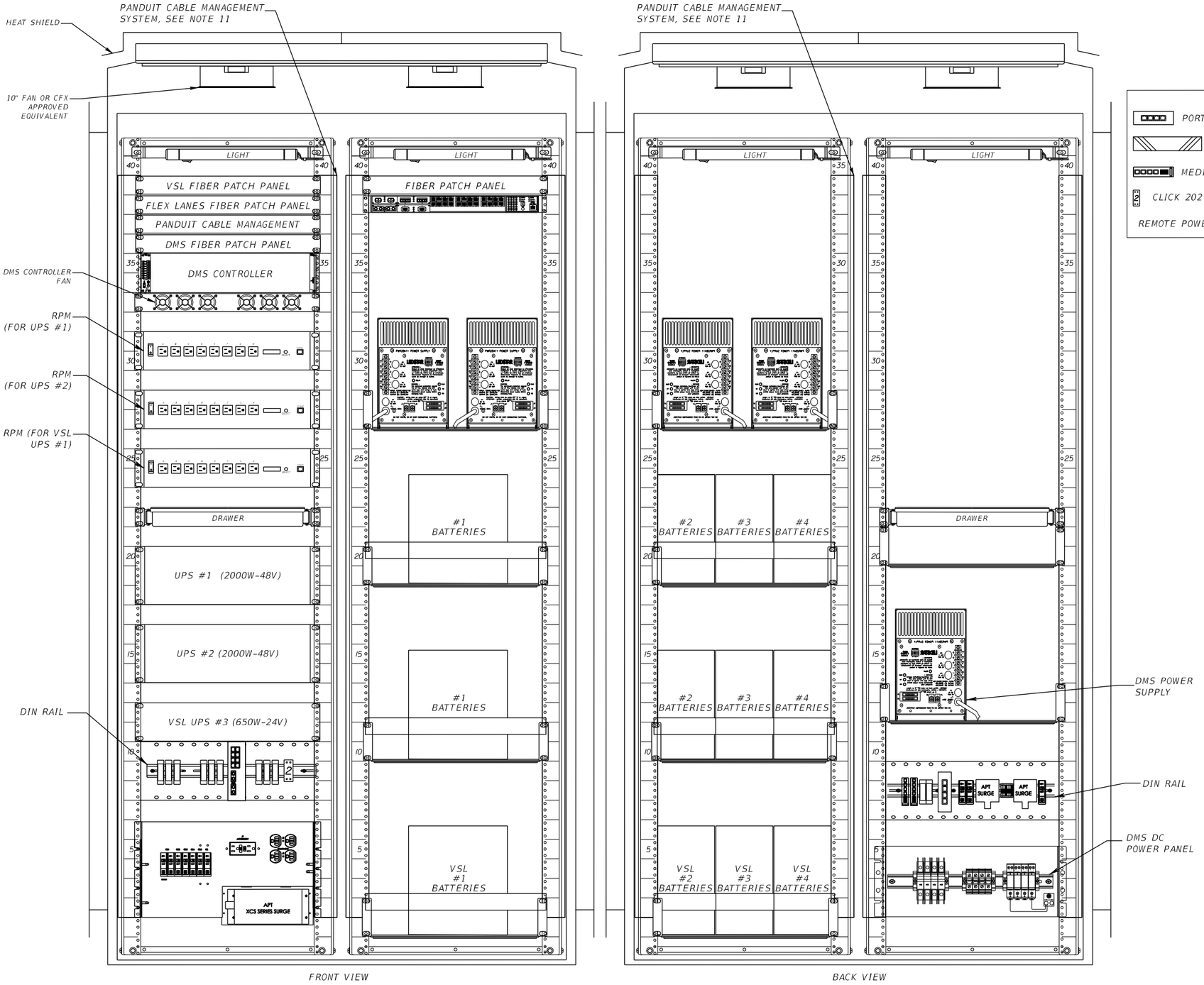
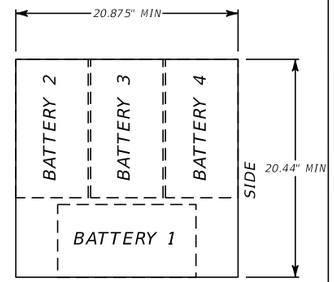


LEGEND:

- PORT SERVER
- BATTERY VOLTAGE SENSOR
- MEDIA CONVERTER
- CLICK 202
- REMOTE POWER MANAGER
- LAYER 2 ETHERNET SWITCH
- DIN RAIL LAYER 2 ETHERNET SWITCH
- NEMA ENCLOSURE SPD



BATTERY SHELF LAYOUT

NOTES:

1. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
2. CABINETS SHALL BE FABRICATED IN ACCORDANCE TO SECTION 668 OF CFX SPECIFICATIONS.
3. (SM) = SHELF MOUNT, (RM) = RACK MOUNT
4. BUS RATING SHALL BE A MINIMUM OF THE FULL ELECTRICAL LOAD WHEN ALL CABINET AND EXTERNAL POLE MOUNTED DEVICES ARE ACTIVE.
5. 19" DOUBLE DIN RAIL SHALL BE GROUNDED PER MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL SUBMIT A CABINET LAYOUT/WIRING DIAGRAM FOR CFX APPROVAL.
7. FRONT FACE OF EQUIPMENT SHALL BE INSTALLED WITHIN THE CABINET FACING THE OPPOSITE DIRECTIONAL OF TRAVEL.
8. GROUND MOUNTED DMS CABINETS SHALL BE PLACED ON A MONOLITHIC POUR CONCRETE EXTENDING SIX (6) INCHES ABOVE THE GRADE.
9. SLIDE OUT TRAY SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
10. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS.
11. PANDUIT DIMENSIONS ARE AS FOLLOWS:
    A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
    B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
    C. PANDUIT SHALL VERTICALLY COVER RU's AS SHOWN
12. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
13. DIN RAIL AND PANEL PROVIDED BY LEDSTAR FOR DC BREAKERS, GROUND BUS AND DC SPD.
14. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
15. BATTERY SHELF SHALL BE 5052 ALUMINUM WITH FINE BRUSH FINISH AND CAPABLE OF FULLY SUPPORTING THE WEIGHT OF 4 BATTERIES (APPROXIMATE WEIGHT OF 75 LBS PER BATTERY). PANEL SHALL BE STANDARD 19" (1 RU). MOUNT SHELF BEHIND RACK RAIL. INSTALL RACK SCREWS FRONT TO BACK WITH LOCK WASHERS AND NUTS. INSTALL A MINIMUM OF SIX RACK SCREWS, 4 TOP HOLES AND 2 BOTTOM HOLES. THE BATTERY SHELF SHALL BE ATTACHED TO THE FRONT AND BACK RACK RAILS.
16. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1)CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.
17. SECOND ETHERNET SWITCH REQUIRED WHEN 3-LINE WALK-IN DMS IS CONNECTED TO A FLEX LANES LOCAL HUB CABINET.
18. THE FOUR (4) BATTERIES FOR THE VSL UPS SHALL BE WIRED IN SERIES/PARALLEL FOR 24 VDC OPERATION
19. THE UPS BATTERY SHALL BE EQUIPPED WITH A QUICK-DISCONNECT HARNESS

GROUND MOUNTED FLEX LANES CABINET LAYOUT (WITH VSL)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES CABINET LAYOUT DETAIL

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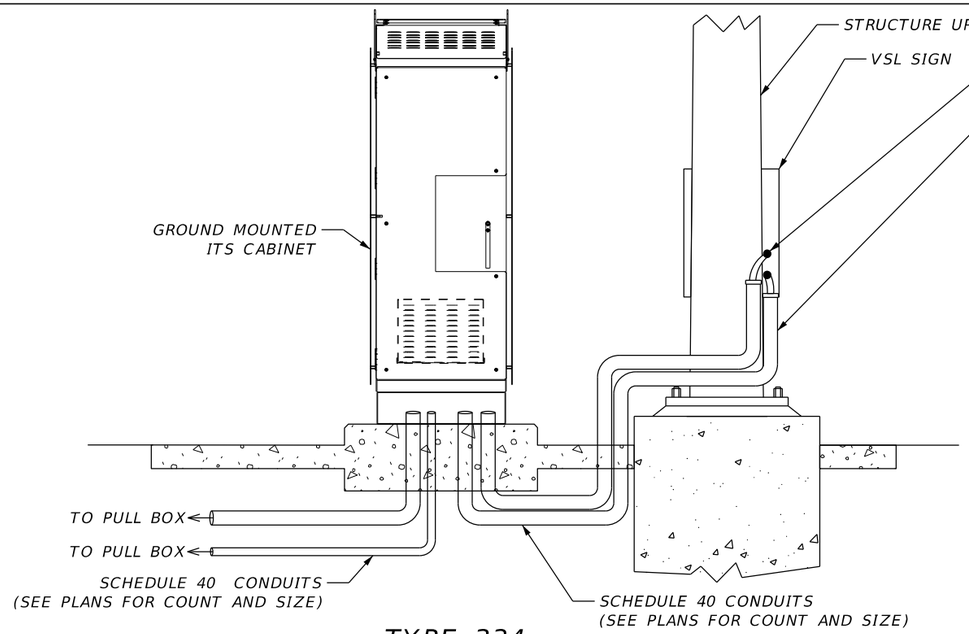
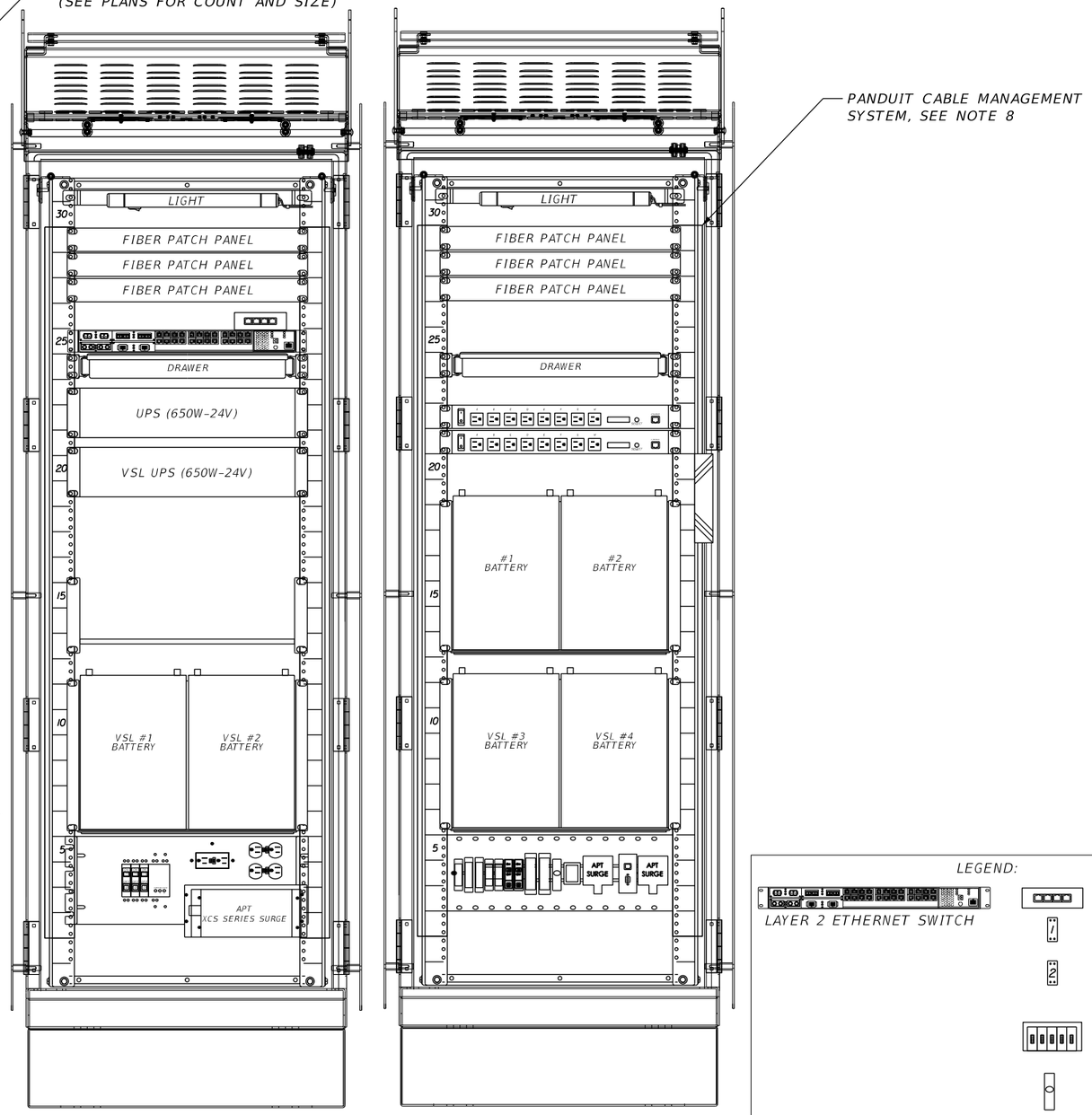


TYPE 334
GROUND MOUNTED ITS CABINET DETAIL

NOTES:

1. INTERNAL CABINET RACK ASSEMBLY SHALL BE ADJUSTED SO THAT THE PANDUIT CABLE MANAGEMENT SYSTEM IS NOT IN CONFLICT WITH THE CABINET INTERNAL DOOR LOCKING MECHANISM.
2. THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.
3. ALL ITS CABINETS SHALL MEET CFX SPECIFICATION 668.
4. GROUND MOUNT CABINETS SHALL BE PLACED ON A MONOLITHIC CONCRETE BASE 6" ABOVE GRADE.
5. ALL ITS CABINETS SLIDE OUT TRAYS SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
6. ALL ITS CABINETS SHALL NEVER BE MOUNTED ON THE APPROACHING SIDE OF TRAFFIC.
7. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS AT ALL ITS CABINET LOCATIONS.
8. PANDUIT DIMENSIONS ARE AS FOLLOWS:
   A. HINGE SIDE OF CABINET; 1.26" WIDE BY 1.59" DEEP
   B. LATCH SIDE OF CABINET; 1.26" WIDE BY 1.12" DEEP
   C. PANDUIT SHALL VERTICALLY COVER 28 RU's AS SHOWN.
9. POE SHALL BE GROUNDED TO DIN RAIL.
10. ALL CONDUIT DIMENSIONS SHOWN ARE MINIMUM.
11. CABINET SHALL BE PROVIDED WITH CYBERLOCK ASSEMBLY FOR EACH CABINET DOOR WITH ONE (1)CYBERLOCK KEY FOR EVERY 10 LOCKS. THE CYBERLOCK ASSEMBLIES AND KEYS SHALL BE PROVIDED TO CFX FOR PROGRAMMING AND INSTALLATION AT THEIR DISCRETION.
12. NUMBER OF CONDUITS AND PULL BOXES VARY FOR EACH CABINET. REFER TO PLAN SHEETS FOR SITE SPECIFIC GUIDANCE.
13. BATTERY SHELF SHALL BE 5052 ALUMINUM WITH FINE BRUSH FINISH AND CAPABLE OF FULLY SUPPORTING THE WEIGHT OF 4 BATTERIES (APPROXIMATE WEIGHT OF 75 LBS PER BATTERY). PANEL SHALL BE STANDARD 19" (1 RU). MOUNT SHELF BEHIND RACK RAIL. INSTALL RACK SCREWS FRONT TO BACK WITH LOCK WASHERS AND NUTS. INSTALL A MINIMUM OF SIX RACK SCREWS, 4 TOP HOLES AND 2 BOTTOM HOLES. THE BATTERY SHELF SHALL BE ATTACHED TO THE FRONT AND BACK RACK RAILS.
14. THE FOUR (4) BATTERIES FOR THE VSL UPS SHALL BE WIRED IN SERIES/PARALLEL FOR 24 VDC OPERATION.



FRONT VIEW BACK VIEW

TYPE 334 (WITH VSL)
ITS CABINET LAYOUT

LEGEND:

- LAYER 2 ETHERNET SWITCH
- PORT SERVER
- CLICK 201
- CLICK 202
- DCS POWER SUPPLY OR SPDS
- CITEL MJ8
- BATTERY VOLTAGE SENSOR
- POE INJECTOR
- APT SURGE — 120V ICAB SPD
- REMOTE POWER MANAGER

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES TYPE 334 CABINET LAYOUT DETAIL

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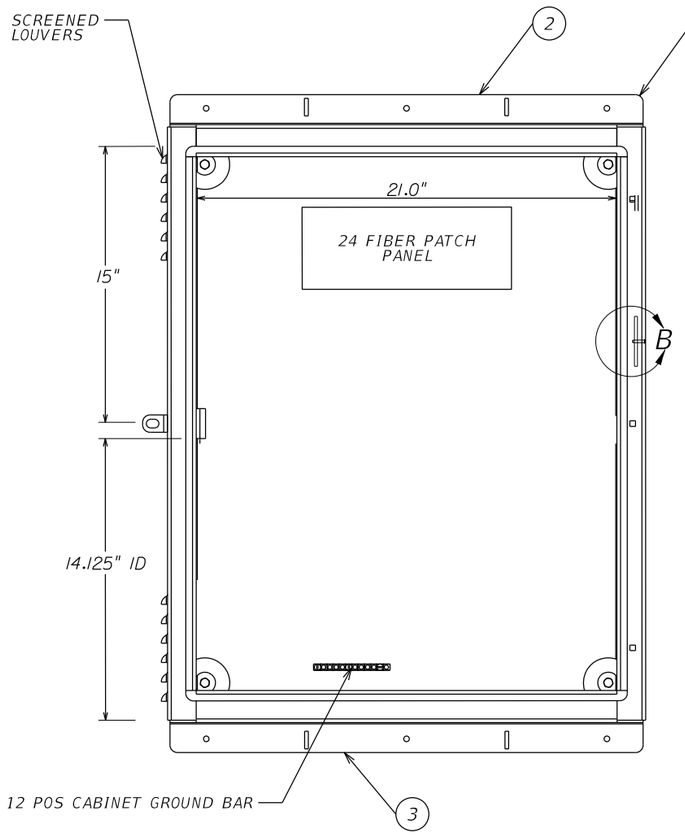
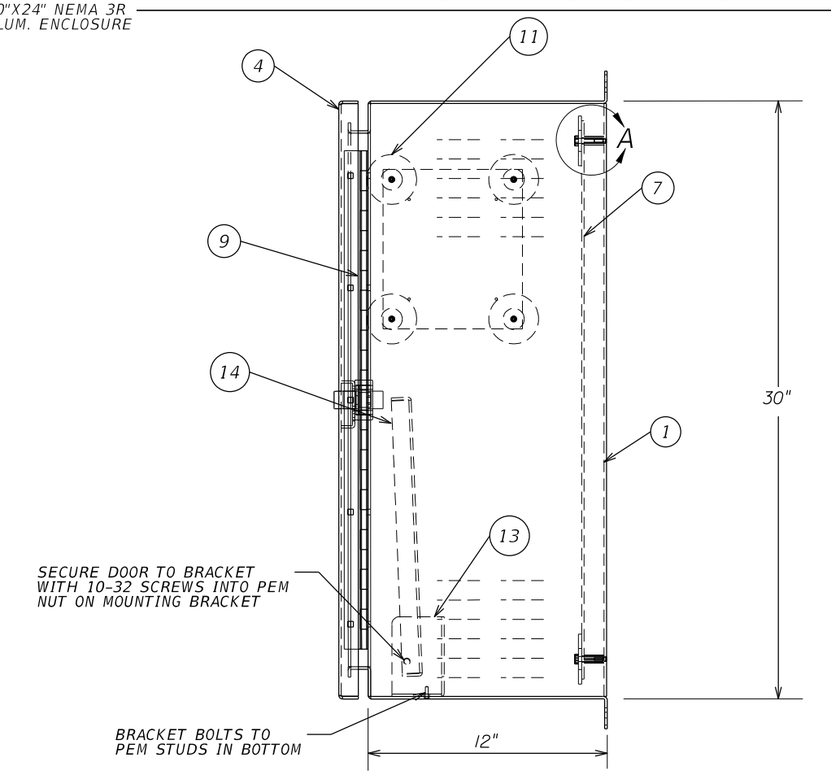
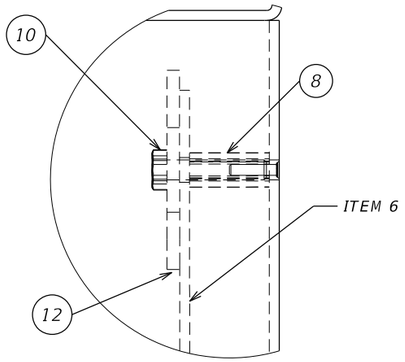
FLEX LANES NEMA 3R ENCLOSURE

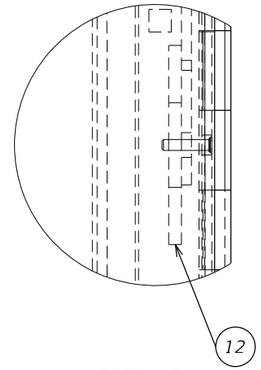


ELEVATION

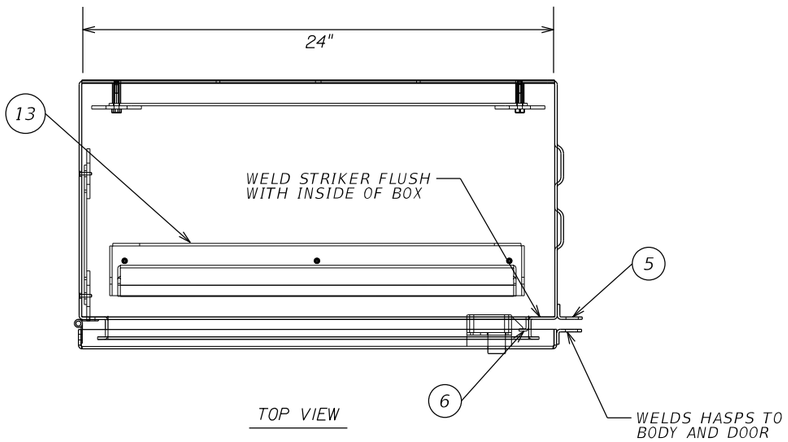




DETAIL A



DETAIL B



TOP VIEW

NOTES:
1. ADD TERMINAL BLOCK IF REQUIRED.

NOTES:

1. THE FLEX LANES NEMA CABINET SHALL BE GROUNDED FROM THE GROUND BUSBAR TO THE ITS GROUNDING ARRAY WITH A #6 AWG XHHW GREEN INSULATED GROUND WIRE.

2. THE FLEX LANES LCS SHALL BE GROUNDED FROM THE GROUND BUSBAR IN THE FLEX LANES NEMA CABINET TO THE GROUND BUSBAR IN THE LCS WITH A #10 AWG XHHW GREEN INSULATED GROUND WIRE.

ITEM NO.	DESCRIPTION
1	BODY
2	END CAP
3	BOT-END-CAP
4	DOOR-ASSY
5	BDY-HASP
6	STRIKER
7	BACKPLATE-1
8	STANDOFF
9	HINGE-ASSY
10	HEX BOLT
11	BACK PLATE-2
12	FLAT WASHER TYPE B
13	FOLD-DN SHELF BRACKET
14	FOLD DOWN SHELF

REVISIONS					
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FLEX LANES TYPE NEMA 3R CABINET LAYOUT DETAIL

SHEET NO.

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ETHERNET CABLE COLOR CODE:

CCTV	BLUE
TMS	GREEN
UPS	WHITE
RPM	RED
DCS	BROWN
DMS CONTROLLER	BLACK

FLEX LANES DMS CONTROLLER (1 PER DMS)

PORT 19 = VSL MEDIA CONVERTER (i802)
PORT 25 = LCS-1
PORT 26 = LCS-2
PORT 27 = LCS-3
PORT 28 = LCS-4
PORT 29 = LCS-5
PORT 30 = LCS-6
PORT 31 = IMDMS
PORT 32 = REDUNDANT PTSU DMS CONTROLLER

UPS 3
UPS 2
UPS 1
WHITE
PORTS 25-32 ALLOCATED FOR FLEX LANES DMS CONTROLLERS
(IF REQUIRED)
BLACK
ETHERNET
RPM 3
RPM 2
RED
RPM 1
VSL MEDIA CONVERTER (IF REQUIRED)
VSL 1 (MEDIAN) PORT 7
VSL 2 (SHOULDER) PORT 8
PORT 1
GREEN
3-LINE WALK-IN DMS (IF REQUIRED)
DMS CONTROLLER
ACTIVE
LOCAL
COMM
POWER
LOCAL KEYPAD
IA-SB
ON/OFF
LAPTOP
POWER
BLUE
CCTV
NETWORK PORT 7
NETWORK PORT 5
PTP PORT 8
PTP PORT 6
RSG2300 ETHERNET SWITCH
DCS READER MODULE
(IF REQUIRED)
BROWN
DCS
POE
HOUSTON RADAR TMS (IF REQUIRED)

UNLESS DIRECTED IN THE PLANS THE DEPICTED CABLE COLOR SCHEME TAKES DESIGN PRECEDENCE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES ETHERNET SWITCH DETAIL

SHEET NO. P-17

MARCH 2026

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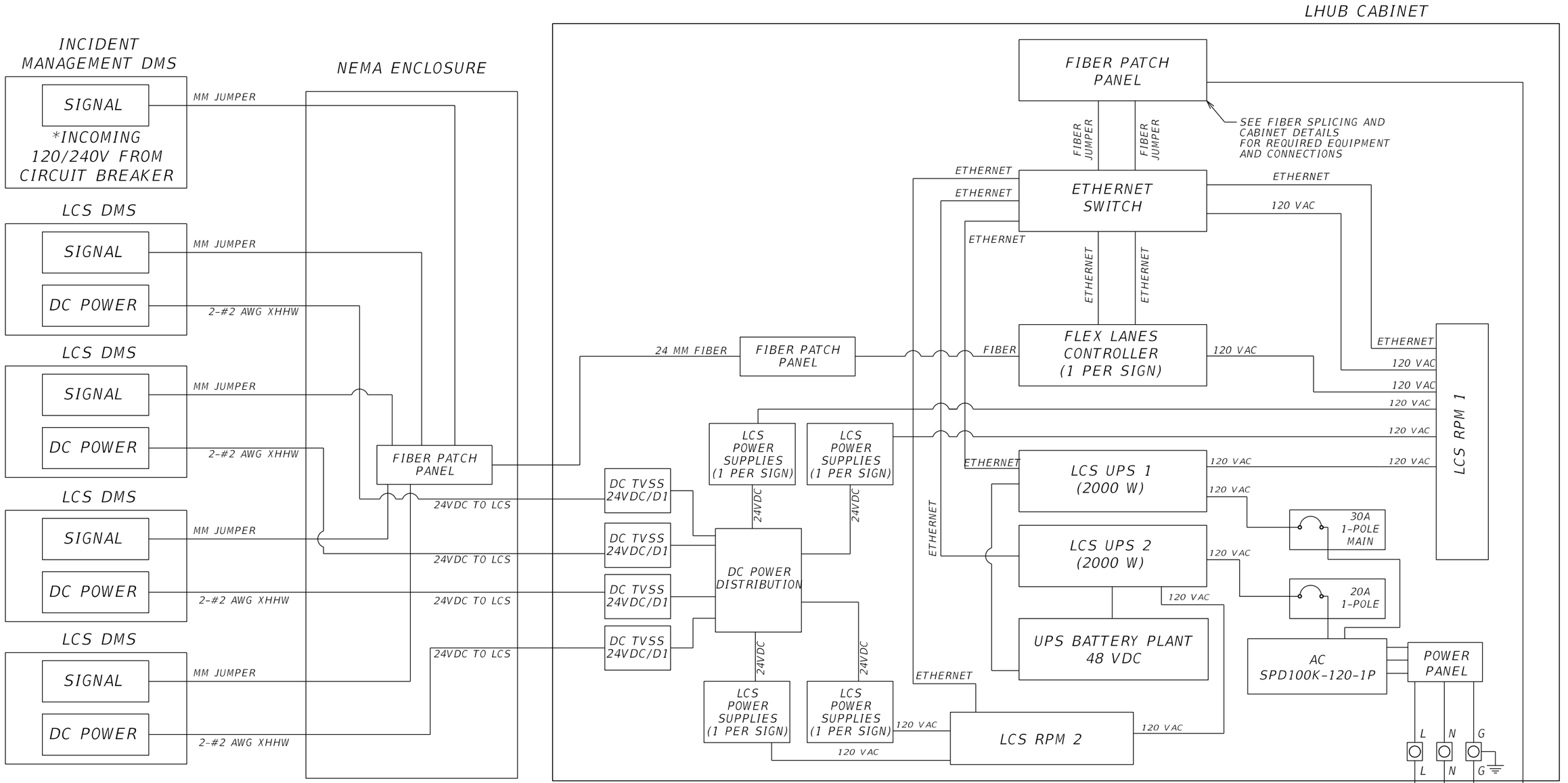
PROPOSED FLEX LANES CONNECTION DIAGRAM WITH BATTERY BACKUP FOR LCS & IMDMS



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. UPS BATTERY PLANT CABLE SLACK IS CONSIDERED INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.
3. GROUND SHIELDED CABLE PER MANUFACTURER'S REQUIREMENTS.

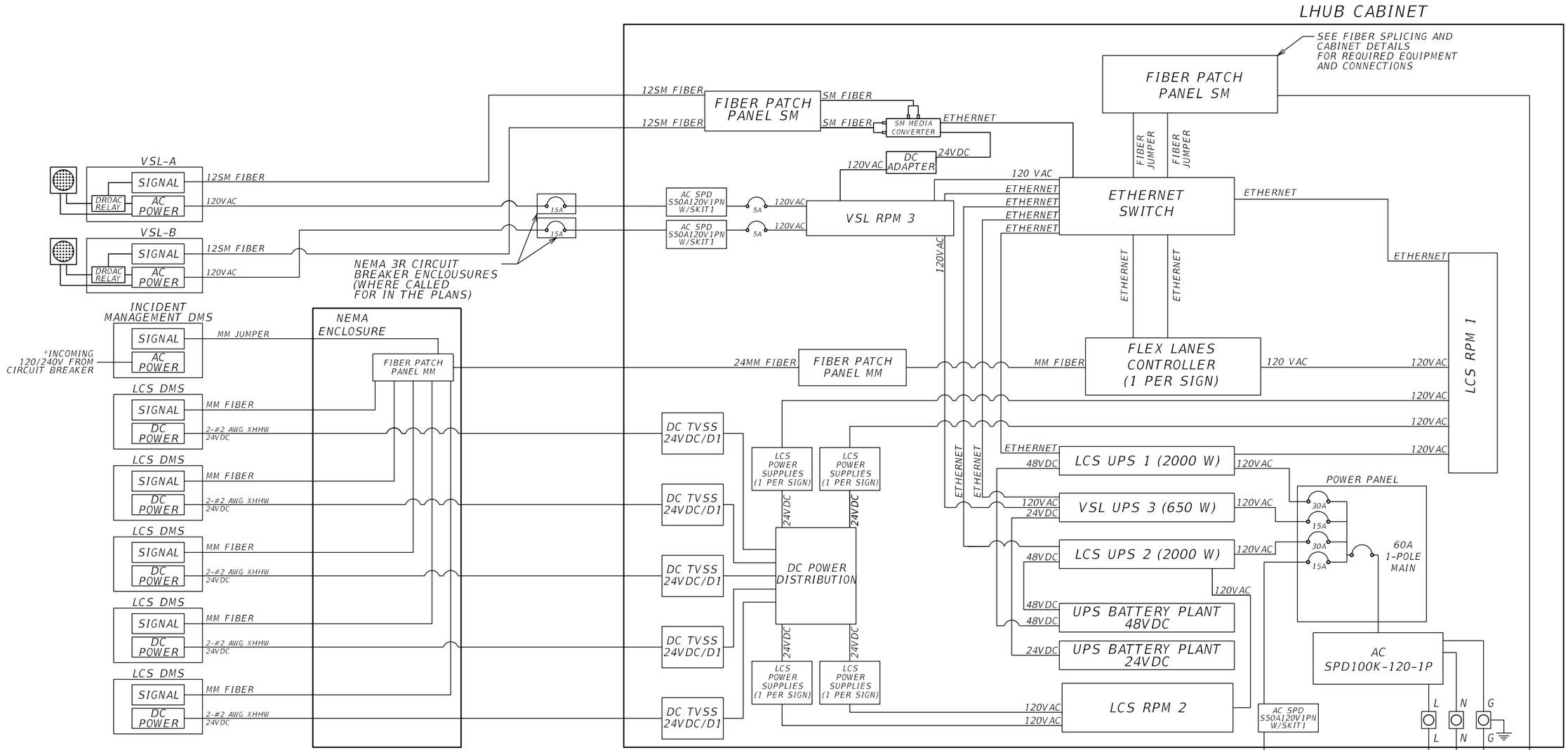
NTS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FLEX LANES TYPICAL WIRING DIAGRAM LCS AND IMDMS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					P-18

MARCH 2026

2/27/2026 10:24:20 AM

IMDMS, VSL SIGNS & FOUR LCS DMS
(TYPE 332D CABINET)



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. UPS BATTERY PLANT CABLE SLACK IS CONSIDERED INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.
3. GROUND SHIELDED CABLE PER MANUFACTURER'S REQUIREMENTS.
4. IN THE CABINET'S POWER PANEL, PROVIDE A 15A BREAKER FOR A TWO-GANG NEMA 5-15R RECEPTACLE AND A 15A BREAKER FOR A ONE-GANG 5-15R GFCI RECEPTACLE. RECEPTACLE BREAKERS NOT SHOWN HERE.

NTS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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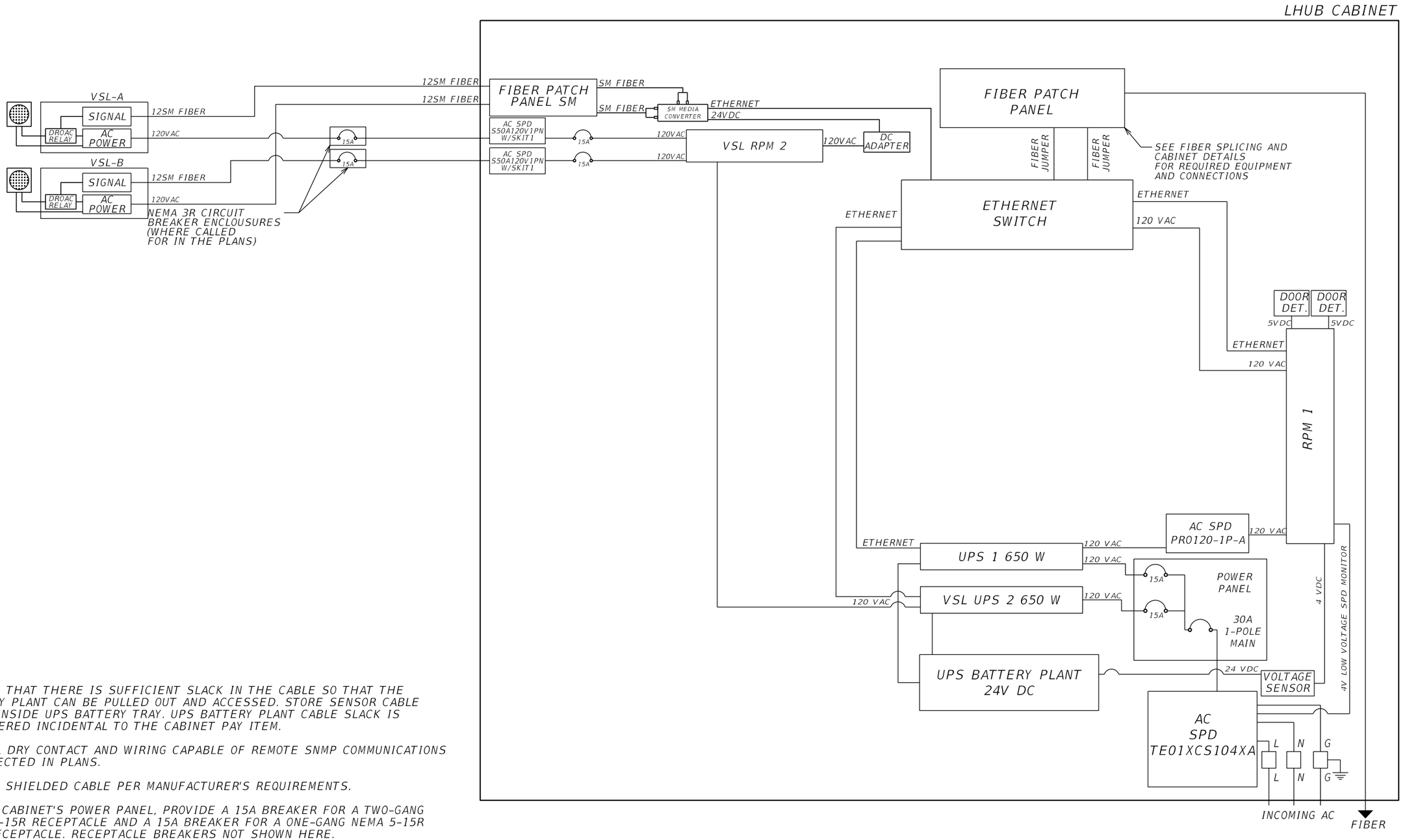
FLEX LANES TYPICAL WIRING VSL LCS AND IMDMS

SHEET NO. P-19

MARCH 2026

2/27/2026 10:24:21 AM

LHUB WITH TWO VSL SIGNS
(TYPE 334 CABINET)



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. UPS BATTERY PLANT CABLE SLACK IS CONSIDERED INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.
3. GROUND SHIELDED CABLE PER MANUFACTURER'S REQUIREMENTS.
4. IN THE CABINET'S POWER PANEL, PROVIDE A 15A BREAKER FOR A TWO-GANG NEMA 5-15R RECEPTACLE AND A 15A BREAKER FOR A ONE-GANG NEMA 5-15R GFCI RECEPTACLE. RECEPTACLE BREAKERS NOT SHOWN HERE.
5. THE FOUR(4) BATTERIES FOR THE VSL UPS SHALL BE WIRED IN SERIES/PARALLEL FOR 24V DC OPERATION.

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FLEX LANES TYPICAL WIRING VSL

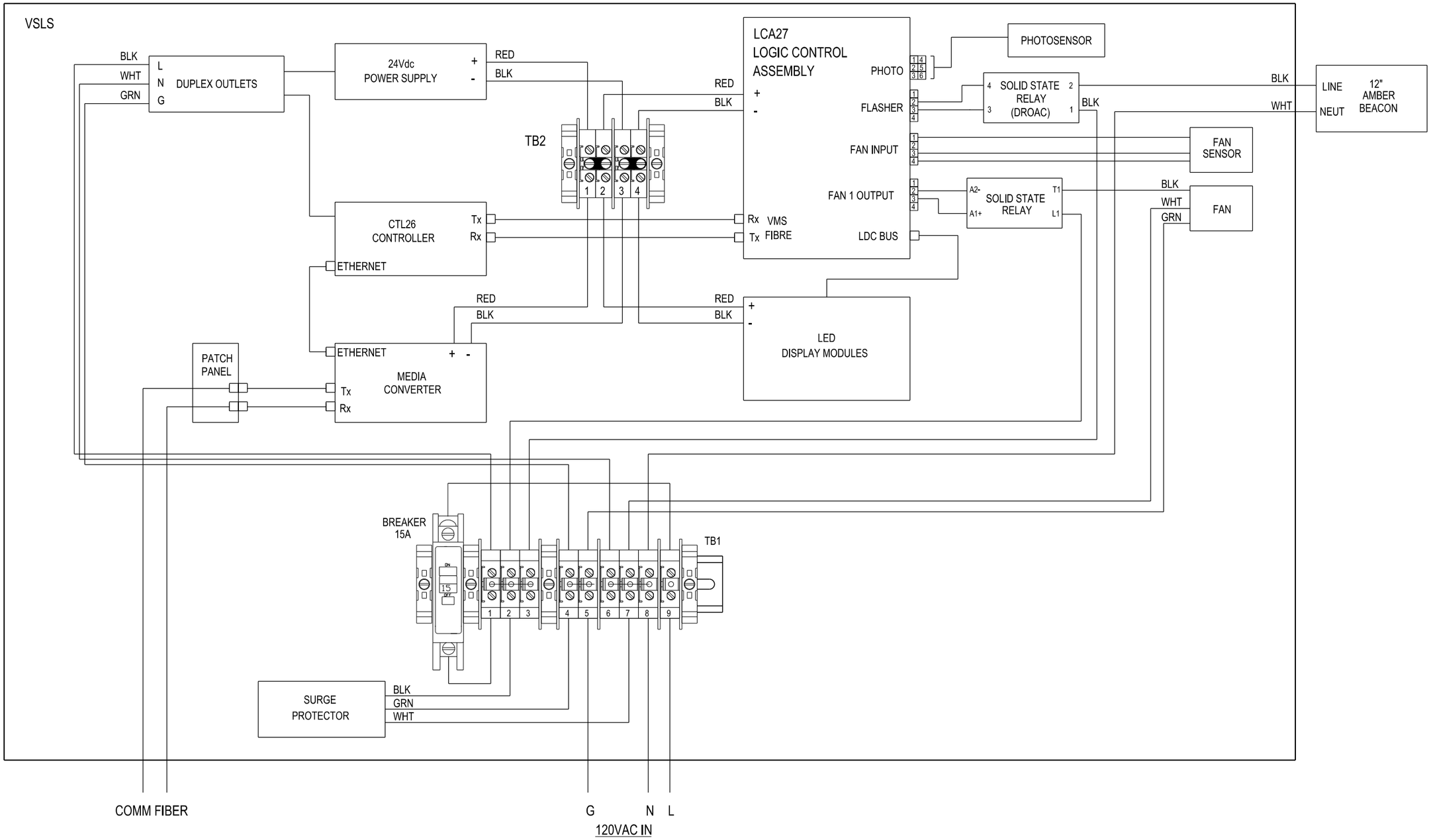
SHEET NO.

P-20

MARCH 2026

2/27/2026 10:24:21 AM

VSL ENCLOSURE WIRING



NTS

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

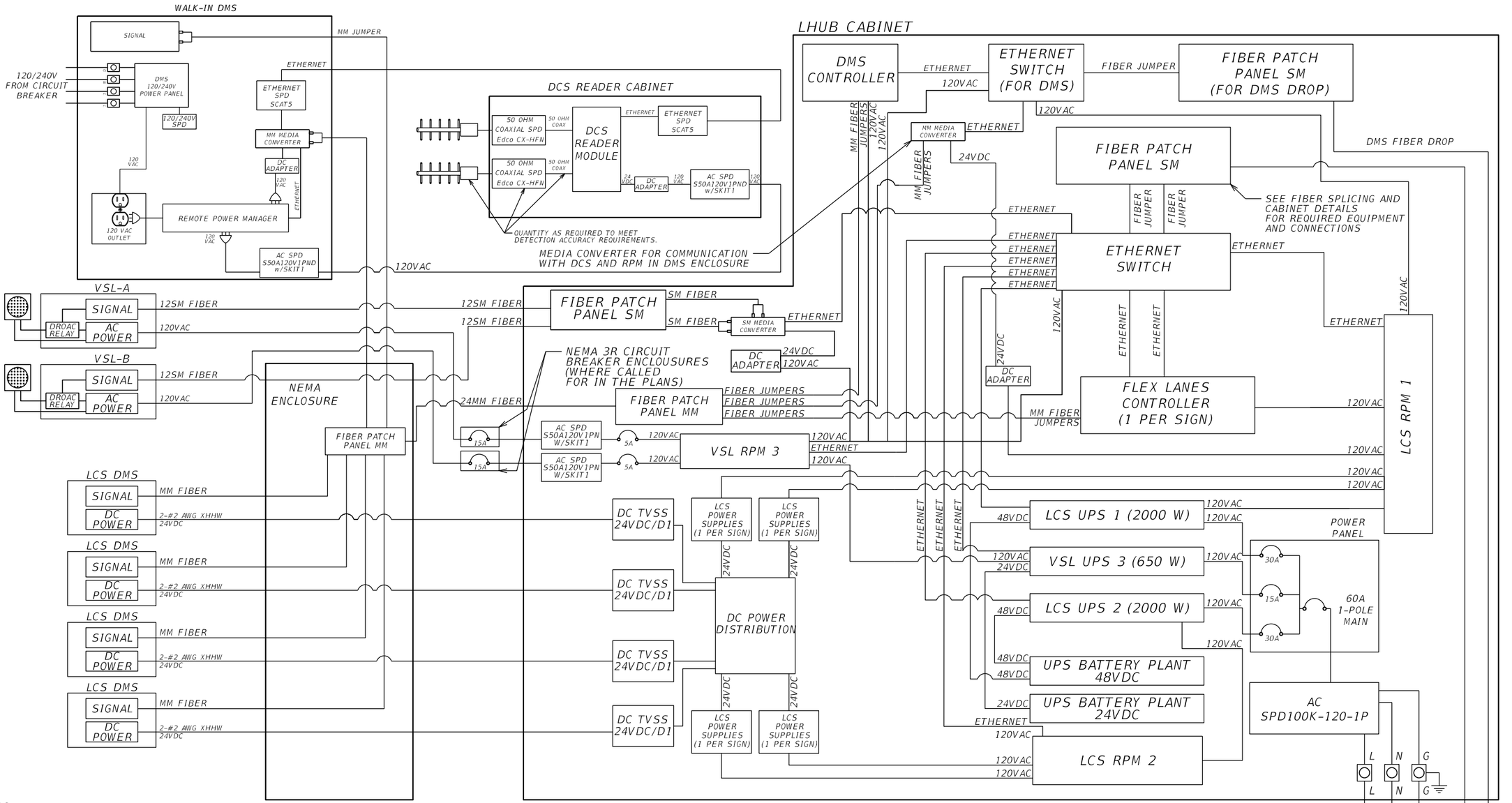
FLEX LANES TYPICAL WIRING DIAGRAM VSL ENCLOSURE

SHEET NO. P-21

MARCH 2026

2/27/2026 10:24:21 AM

DMS, LCS DMS, VSL SIGNS & DCS (TYPE 332D CABINET)



NOTES:

1. ENSURE THAT THERE IS SUFFICIENT SLACK IN THE CABLE SO THAT THE BATTERY PLANT CAN BE PULLED OUT AND ACCESSED. STORE SENSOR CABLE SLACK INSIDE UPS BATTERY TRAY. UPS BATTERY PLANT CABLE SLACK IS CONSIDERED INCIDENTAL TO THE CABINET PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.
3. GROUND SHIELDED CABLE PER MANUFACTURER'S REQUIREMENTS.
4. IN THE CABINET'S POWER PANEL, PROVIDE A 15A BREAKER FOR A TWO-GANG NEMA 5-15R RECEPTACLE AND A 15A BREAKER FOR A ONE-GANG NEMA 5-15R GFCI RECEPTACLE. RECEPTACLE BREAKERS NOT SHOWN HERE.

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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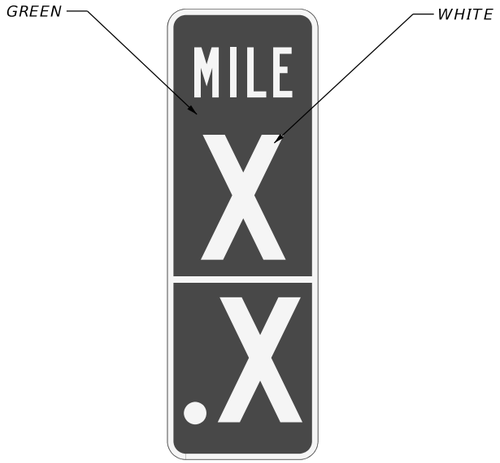
FLEX LANES TYPICAL WIRING DIAGRAM DMS VSL AND LCS

SHEET NO. P-22

MARCH 2026

2/27/2026 10:24:22 AM

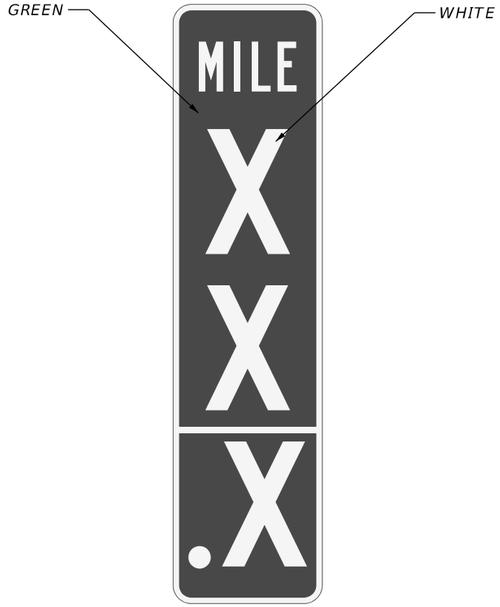


D10-1A MODIFIED STICKER

NOTES:

1. D10-1A MODIFIED STICKER DETAILS ARE AS FOLLOWS:
   A. DIMENSIONS: 9" X 24"
   B. COLOR: GREEN BACKGROUND WITH WHITE LETTERS
   C. GRADE / MATERIAL: 7310 AEG
   D. BORDER: 0.5" WHITE
   E. CORNER: 1.5"
   F. SIDES: 1 (SINGLE SIDED)

2. STICKER INSTALLATION PROCEDURE AND LOCATION SHALL BE COORDINATED WITH CFX AND THE MANUFACTURER PRIOR TO INSTALLATION.



D10-2A MODIFIED STICKER

NOTES:

1. D10-2A MODIFIED STICKER DETAILS ARE AS FOLLOWS:
   A. DIMENSIONS: 9" X 32"
   B. COLOR: GREEN BACKGROUND WITH WHITE LETTERS
   C. GRADE / MATERIAL: 7310 AEG
   D. BORDER: 0.5" WHITE
   E. CORNER: 1.5"
   F. SIDES: 1 (SINGLE SIDED)

2. STICKER INSTALLATION PROCEDURE AND LOCATION SHALL BE COORDINATED WITH CFX AND THE MANUFACTURER PRIOR TO INSTALLATION.

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MILE MARKER STICKER DETAIL

SHEET NO. P-23

MARCH 2026

2/27/2026 10:24:22 AM