CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ITS DESIGN STANDARD DETAILS

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

REVISION: NOVEMBER 2015

CENTRAL FLORIDA EXPRESSWAY AUTHORITY
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GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE CENTRAL FLORIDA EXPRESSWAY AUTHORITY 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. 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.

4. CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH ALL OTHER CONTRACTORS OPERATING WITHIN THE PROJECT AREA.

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 ALLOWED 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. CAMERA 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 CONSTRUCTION ENGINEER. THE ENGINEER OF RECORD MUST APPROVE EXTREME LOCATION CHANGES.

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

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

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

13. 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.

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

15. CONTRACTOR SHALL MAKE SURE THAT ALL NECESSARY PROTECTIVE MEASURES ARE TAKEN TO SAFEGUARD EXISTING UTILITIES DURING FIBER/EQUIPMENT INSTALLATIONS.

16. ALL ELECTRICAL WORK SHALL MEET ALL REQUIREMENTS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRIC SAFETY CODE, AND THE STATE OF FLORIDA D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL COMPONENTS SHALL BE PROPERLY GROUNDED AND BONDED PER N.E.C. REQUIREMENTS. IN ADDITION ALL ELECTRICAL CONDUCTOR MATERIALS SHALL MEET THE SPECIFICATIONS FROM SPECIFICATION 639 IN THE LATEST FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

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

18. 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 N.E.C. OR N.E.S.C. FOR CABLE USED.

19. ALL MISCELLANEOUS WORK NECESSARY IN THE SHOULDER AREA TO CONSTRUCT CAMERA 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 CAMERA POLE ASSEMBLY, PULL BOX, ETC. 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 THE CAMERA POLE ASSEMBLY, PULL BOX, ETC.

20. THE CONTRACTOR SHALL ESTABLISH, STAKE AND PAINT CAMERA 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 CAMERA POLE LOCATIONS RE-ESTABLISHED BY A FLORIDA REGISTERED LAND SURVEYOR. NO ADDITIONAL PAYMENT WILL BE ALLOWED.

21. 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 CAMERA POLE.

22. A GROUNDING ELECTRODE IS REQUIRED PER EACH CAMERA POLE, DMS SIGN STRUCTURE, DMS BOX, AND DMS CABINET. INSTALLATION SHALL BE IN ACCORDANCE WITH CFX SPECIFICATIONS 620A, 720 AND 721, WITH A MINIMUM LENGTH OF 20 LINEAR FEET AND A MEASURED RESISTANCE 5 OHMS OR LESS. ALL CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. IF 5 OHMS IS NOT OBTAINED WITH THE INITIAL 20 LINEAR FEET OF GROUNDING ELECTRODE, THEN ADDITIONAL GROUND ELECTRODE OR A GROUND ARRAY SHALL BE INSTALLED UNTIL MEASURED RESISTANCE OF 5 OHMS OR LESS IS ACHIEVED AT NO ADDITIONAL COST TO CFX. ALL DEVICES WITHIN THE HUBS PARAMETER OF INFLUENCE SHALL BE PART OF A SINGLE POINT GROUNDING SYSTEM. CABINET AND POWER SERVICES RECEIVE 40 LINEAR FEET OF GROUNDING ELECTRODES PER FDOT SECTION 620.

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 CONSTRUCTION ACTIVITIES WITHIN TEN FEET OF THE FIBER OPTIC NETWORK SHALL BE PERFORMED ON ONE SIDE OF THE ROAD AT A TIME. THE CONTRACTOR SHALL REVIEW SPECIFICATION 631 FOR OTHER FON PRESERVATION DETAILS.

24. ALL OF THE GENERAL NOTES FOR THE CONTRACT CONSTRUCTION DOCUMENT SET WILL APPLY TO THIS PLAN SET.

25. UPON FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL FORWARD A COMPLETE SET OF AS-BUILT PLANS WITH ALL CHANGES MARKED IN RED TO THE ENGINEER. 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.

26. 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.

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

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. THE CONTRACTOR SHALL REFERENCE SIGNING & MARKING PLANS AND COORDINATE WITH S&PM CONTRACTOR REGARDING LOCATIONS OF PULL BOXES. THE CONTRACTOR SHALL ALSO COORDINATE WITH FIBER OPTIC CONTRACTOR FOR LOCATION OF MANHOLE TIE-INS.

30. ALL SYMBOLS FOR ROADWAY LIGHTING ARE SHOWN FOR REFERENCE ONLY.

31. 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.

32. THE CONTRACTOR SHALL ACQUIRE ALL PERMITS BY OTHER AGENCIES FOR INSTALLATION OF INFRASTRUCTURE NOT ON CFX FACILITIES. NO ADDITIONAL TIME OR MONEY WILL BE ALLOTTED.

33. 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 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) 55 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 451 (WESTERN EXPRESSWAY EXTENSION) 45 MPH TO 65 MPH
   SR 414 (MAITLAND BOULEVARD EXTENSION) 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.

   G. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ALL UNUSED BARRICADES, 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 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 NOT PERMITTED FROM 6:00 A.M. TO 9:00 P.M. (MONDAY THRU SUNDAY) ON THE S.R. 408 (EAST-WEST EXPRESSWAY), S.R.528 (MARTIN ANDERSEN BEACHLINE EXPRESSWAY), S.R. 429 (DANIEL WEBSTER WESTERN BELTWAY), S.R. 451 (WESTERN EXPRESSWAY EXTENSION), AND SR 417 (CENTRAL FLORIDA GREENEWAY) S.R. 414 (MAITLAND BOULEVARD EXTENSION) MAINLINES AND FROM 5:00 A.M. TO 11:00 P.M. ON THE RAMPS. IF THE DIRECTOR OF CONSTRUCTION OR HIS DESIGNEE DETERMINES ANY LANE CLOSURE IS CAUSING EXTENDED TRAFFIC CONGESTION, THE DIRECTOR OF CONSTRUCTION OR HIS DESIGNEE MAY DIRECT THE CONTRACTOR TO OPEN THE LANE CLOSURE UNTIL TRAFFIC RETURNS TO AN ACCEPTABLE FLOW. EITHER THE DIRECTOR OF CONSTRUCTION OR HIS DESIGNEE WILL DETERMINE WHEN THE FLOW OF TRAFFIC IS ACCEPTABLE.

   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.

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GENERAL NOTES (CONTINUED):

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 HIS DESIGNEE, LANE RENTAL FEES WILL NOT BE CHARGED FOR FAILURE TO OPEN TRAFFIC LANES/RAMPS IF SUCH CAUSE IS BEYOND THE CONTROL OF THE CONTRACTOR, I.E. CATASTROPHIC EVENTS, AND ACCIDENTS NOT RELATED OR CAUSED BY THE CONTRACTOR'S OPERATIONS.

K. CONTRACTOR SHALL COORDINATE WITH TOLL PLAZA MANAGERS 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. COST SHALL BE INCIDENTAL TO OTHER CONSTRUCTION.

34. FON UTILITY WORK PROCEDURE:
AN ANS TICKET MUST BE OPENED WITH CAROUSEL INDUSTRIES FOR ALL WORK PERFORMED IN ANY MANHOLE LOCATED ON THE FIBER OPTIC NETWORK (FON)-NO EXCEPTIONS.

A. CALL CAROUSEL INDUSTRIES ANS TO OPEN A NEW TICKET. THE PHONE NUMBER IS 855-303-9119, THEN OPTION 1, THEN OPTION 1.

B. IDENTIFY YOURSELF AS A CONTRACTOR WORKING FOR THE "CENTRAL FLORIDA EXPRESSWAY AUTHORITY" (CFX).

C. PROVIDE YOUR NAME AND CONTACT INFORMATION (INCLUDING PHONE NUMBER).

D. IDENTIFY THE AREA IN WHICH YOU ARE GOING TO BE WORKING AND WHICH SITES YOU ANTICIPATE AN ALARM FOR (IDENTIFY BY THE NEAREST MAINLINE PLAZA OR ON/OFF RAMP OR HEADQUARTERS).

E. ADVISE THE CAROUSEL INDUSTRIES TECHNICIAN OF THE ESTIMATED TIME FRAME OF THE BEGINNING AND ENDING OF YOUR WORK.

F. ASK THE CAROUSEL INDUSTRIES TECHNICIAN FOR A REMEDY TROUBLE TICKET NUMBER.

G. ONCE WORK IS COMPLETE, CALL BACK IN AND REFERENCE THE REMEDY TROUBLE TICKET NUMBER RECEIVED EARLIER AND ADVISE THE CAROUSEL INDUSTRIES TECHNICIAN THAT WORK HAS BEEN COMPLETED. BE SURE TO ASK THE TECHNICIAN IF ALL ALARMS ASSOCIATED WITH THE TICKET ARE CLEAR. IF ALL ALARMS ARE CLEAR, ADVISE THE TECHNICIAN IT IS OK TO CLEAR THE TROUBLE TICKET. IF ALARMS REMAIN, ADVISE CEI IMMEDIATELY AND WORK TO RESOLVE THE ISSUE.

35. 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 PROVIDE A HIGH LEVEL OF METHOD OF PROCEDURE (MOP) AT LEAST ONE (1) WEEK IN ADVANCE OF THE PRE-SPLICING MEETING. THIS MOP MUST BE REVIEWED AND APPROVED PRIOR TO BEGINNING WORK. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO FIBER OPTIC SPLICING PAY ITEMS.

D. A PRE-SPLICE MEETING SHALL BE HELD AT LEAST ONE (1) WEEK 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 THE GEC.

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

H. THE CONTRACTOR SHALL OPEN A TICKET WITH CAROUSEL INDUSTRIES PRIOR TO BEGINNING ANY WORK, AND CONTACT CAROUSEL INDUSTRIES TO CLOSE TICKET AFTER THE WORK IS COMPLETE, AS CURRENTLY INSTRUCTED IN THE FON UTILITY WORK PROCEDURE. IN ADDITION TO THIS PROCEDURE, CAROUSEL INDUSTRIES SHALL VERIFY THAT ALL ROUTER ALARMS HAVE CLEARED.

I. ALL WORK INVOLVING THE SPLICING OR TESTING OF LIVE FIBERS IS TO BE PERFORMED OUTSIDE OF NORMAL BUSINESS HOURS (7AM-6PM MONDAY-FRIDAY) UNLESS APPROVED BY CFX.

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

37. 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'.

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. FIBER OPTIC ROUTE MARKERS ARE NOT REQUIRED WHEN CONDUIT IS PLACED WITHIN A PAVED SHOULDER. ALL FIBER OPTIC CONDUIT SHALL HAVE AN "CFX FIBER OPTIC CABLE BURIED BELOW" WARNING TAPE CONTINUOUSLY RUN IN THE TRENCH 18" BELOW GRADE. IN ADDITION, RAISED 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.

3. CONDUIT RUN SHALL NOT EXCEED 270° OF BENDS BETWEEN MANHOLES OR JUNCTION BOXES.

4. 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. LEAVE MINIMUM OF 100 FEET OF CABLE SLACK INSIDE FOMH BEFORE ENTERING THE EXISTING FIBER OPTIC BACKBONE.

5. ALL HDPE CONDUIT CONNECTIONS SHALL BE JOINED WITH ELECTROFUSION COUPLERS OR CFX APPROVED COUPLERS.

6. ALL EMPTY POWER CONDUITS SHALL BE DUCT SEALANT AND FURNISHED WITH A PULL STRING FOR FUTURE USE. THE YELLOW AND WHITE COMMUNICATIONS CONDUIT SHALL BE FURNISHED WITH A PULL STRING FOR FUTURE USE.

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

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

9. THE TONE WIRE FOR THE CCTV, DCS AND DMS FIBER OPTIC CONDUIT RUNS 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. SPLICING THE TONE WIRE FOR THE CCTV, DCS OR DMS TO THE BACKBONE TONE WIRE WILL NOT BE PERMITTED. THE TONE WIRE SHALL NEVER BE STORED INSIDE THE DEVICE CABINET.

10. ALL NEW UNDERGROUND HDPE CONDUIT SHALL BE PROPERLY SEALED AT BOTH ENDS WITH CFX APPROVED DUCT PLUGS TO PREVENT THE ENTRY OF DUST, DIRT OR MOISTURE.

11. ALL CONDUIT TRENCHES SHALL BE BACKFILLED 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 BACKFILLED IN THE SAME DAY/NIGHT OPERATION.

12. 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 SECTION 2-4 OF THE FDOT SPECIFICATIONS. THE CONTRACTOR SHALL HAND DIG THE FIRST 4' TO VERIFY POSSIBLE UTILITY CONFLICT AT UTILITY CROSSINGS.

13. WHERE THE PLANS INDICATE DIRECTIONAL BORING OR JACK AND BORING IS REQUIRED, THE CONTRACTOR WILL BE PAID FOR THE FIRST CONDUIT UNDER THAT PAY ITEM. ALL ADDITIONAL CONDUITS WILL BE PAID FOR AS UNDERGROUND TRENCH OR PLOW.

14. ALL HARDWARE AND BRACKETS ASSOCIATED WITH BRIDGE-MOUNTED BRFG SHALL BE INCIDENTAL TO THE COST OF BRFG.

15. ALL UNDERGROUND HDPE CONDUIT SHALL BE SMOOTH WALL AND HAVE A RATING OF SDR-11 OR THICKER. ALL PVC CONDUIT SHALL BE RATED SCHEDULE 40 OR THICKER. ABOVE GROUND PVC IS REQUIRED TO BE SCHEDULE 80.

PULL BOX:

1. EACH FIBER OPTIC PULL BOX SHALL INCLUDE A MINIMUM OF 20 LINEAR FEET OF GROUNDING ELECTRODE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS SECTION 620 AND SHALL MEET A MEASURED RESISTANCE OF 25 OHMS OR LESS. IF 25 OHMS OR LESS IS NOT OBTAINED WITH THE INITIAL 20 LINEAR FEET OF GROUNDING ELECTRODE, THEN ADDITIONAL GROUNDING ELECTRODE OR A GROUNDING ARRAY SHALL BE INSTALLED UNTIL MEASURED RESISTANCE OF 25 OHMS OR LESS IS ACHIEVED.

2. ALL FIBER OPTIC PULL BOXES SHALL HAVE "CFX" STAMPED ON THE COVER AND ALL POWER PULL BOXES SHALL HAVE "CFX POWER" STAMPED ON THE COVER.

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

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 EXISTING "AUX" CIRCUIT OUTLET AS SHOWN IN THE BLOCK DIAGRAMS.

4. THE FIBER OPTIC LOCATE WIRE IS NOT TO BE RUN INTO THE CABINET OR DMS HOUSING.

5. CONTRACTOR TO COORDINATE WITH LIGHTING AND SIGNING CONTRACTOR REGARDING FINAL LOCATION OF DMS EQUIPMENT.

6. THE GALVANIZED RIGID STEEL CONDUITS TO BE LOCATED ON EACH OF THE OVERHEAD SIGN SHALL BE 1½" FOR THE COMMUNICATIONS CABLE.

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FIBER OPTIC CABLE:

1. THE FIBER OPTIC CABLE INSTALLATION TECHNIQUES AND PROCEDURES SHALL BE AS SPECIFIED BY THE CABLE MANUFACTURER 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 OUTER TENSILE RATING SHALL BE USED ON ALL PULLS.

2. ALL FIBER OPTIC CABLE INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS.

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

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

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.

3. USE TMS MANUFACTURER CABLE AS REQUIRED FROM SENSOR TO CONTROLLER CABINET.

PAY ITEM NOTES:

1. NO. 603A-100 SEE SECTION 603A OF THE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS.

2. NO. 633-121-3 AND NO. 633-121-4. SEE SECTION 633 OF THE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS.

3. NO. 635-1-11, NO. 635-1-15 AND NO. 635-1-16. SEE SECTION 635 OF THE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS.

4. NO. 638-001-0211, NO. 638-341-0211, NO. 638-361-0811, NO. 638-461-0814 & NO. 4230-1. SEE SECTION 638 OF THE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS.

5. NO. 638-001-0811, NO. 638-001-0812, 638-001-0911, NO. 638-003-0911, NO. 638-161-0811, NO. 638-161-0813, NO. 638-163-0911, NO. 638-361-0811, NO. 638-361-0813, NO. 638-361-0911, NO. 638-461-0814 AND NO. 638-461-0914. PAYMENT FOR THESE ITEMS SHALL INCLUDE FURNISHING AND INSTALLING AN ADDITIONAL 1" HDPE CONDUIT AS A DUCT FOR THE TONE WIRE. HDPE CONDUIT SHALL BE CONNECTED TO FIBER OPTIC MANHOLES ON BOTH ENDS AND SHALL MEET ALL MATERIAL REQUIREMENTS OF HDPE CONDUIT CONTAINED IN SECTION 638 OF THE TECHNICAL SPECIFICATIONS.

6. NO. 639-X-XX . SHALL INCLUDE AND PAY FOR RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE REQUIRED DISCONNECTS AND OTHER COMPONENTS NECESSARY FOR AN ACCEPTABLE INSTALLATION PER THE LATEST DUKE ENERGY AND OUC STANDARDS. THE POWER SERVICE DETAILS IN THESE PLANS SHOULD BE CONSIDERED THE MINIMUM REQUIREMENTS AND DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MEET ALL LOCAL REQUIREMENTS FOR A FULLY FUNCTIONAL INSTALLATION (I.E. CIRCUIT BREAKERS, PHOTO CELLS, ETC.) SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THIS PAY ITEM.

7. NO. 639-1-22. 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.

8. NO. 659-101. SHALL INCLUDE THE COST OF A CLASS I NON-STRUCTURAL CONCRETE FOUNDATION AT ALL CONCRETE POLE LOCATIONS. CONCRETE FOUNDATION SHALL BE FOR THE ENTIRE DEPTH OF THE POLE FOOTING AND A MINIMUM OF 2' IN DIAMETER. IN ADDITION, THIS PAY ITEM SHALL INCLUDE THE COST OF A CLASS I NON-STRUCTURAL CONCRETE APRON AROUND THE POLE THAT EXTENDS OUT 2' IN ALL DIRECTIONS FROM THE CONCRETE POLE.

9. NO. 663-74-IXX. SHALL INCLUDE ALL ADDITIONAL COMPONENTS AND ACCESSORIES NECESSARY TO COMPLETE A FULLY FUNCTIONAL INSTALLATION. THE WIRING DIAGRAMS ARE CONSIDERED THE MINIMUM REQUIRED EQUIPMENT AND DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLETING A FULLY FUNCTIONAL INSTALLATION. ALL REQUIRED EQUIPMENT NOT PAID FOR BY A SEPARATE PAY ITEM NO. SHALL BE INCLUDED IN THIS ITEM.

10. NO. 663-74-147. SHALL INCLUDE TWO (2) FOUR-CHANNEL READER MODULES AND 7 PAIRS OF ANTENNA IN ONE FOR ONE LANE CONFIGURATION TO ACHIEVE 80%COVERAGE AS INDICATED IN THE SECTION 663 OF THE TECHNICAL SPECIFICATIONS.

11. NO. 663-74-343. SHALL INCLUDE THE RELOCATION AND/OR INSTALLATION OF ALL ADDITIONAL COMPONENTS, CABLING AND ACCESSORIES NECESSARY TO COMPLETE A FULLY FUNCTIONAL INSTALLATION AS SHOWN IN THESE PLANS. THE WIRING DIAGRAMS ARE CONSIDERED THE MINIMUM REQUIRED EQUIPMENT AND DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLETING A FULLY FUNCTIONAL INSTALLATION. ALL REQUIRED EQUIPMENT NOT PAID FOR BY A SEPARATE PAY TIME NO. SHALL BE INCLUDED IN THIS ITEM.

12. 664-1-XXX SHALL INCLUDE ALL ADDITIONAL COMPONENTS, CABLING, AND ACCESSORIES NECESSARY TO COMPLETE A FULLY FUNCTIONAL TMS INSTALLATION. THE WIRING DIAGRAMS ARE CONSIDERED THE MINIMUM REQUIRED EQUIPMENT AND DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLETING A FULL FUNCTIONAL INSTALLATION. ALL REQUIRED EQUIPMENT NOT PAID FOR BY A SEPARATE PAY ITEM NO. SHALL BE INCLUDED IN THIS ITEM, THIS INCLUDES THE 4' CANTILEVER ARM AS SHOWN IN THE PLANS. TMS SENSORS SHALL BE MOUNTED PER MANUFACTURER'S USER GUIDE.

13. NO. 700-89-12. THE DYNAMIC MESSAGE SIGN SYSTEMS (LED) (1 LINE) ARE TO BE FURNISHED & INSTALLED AS DESCRIBED IN THE SPECIFICATIONS AND PAID FOR UNDER PAY ITEM 700-89-12, ELECTRICAL POWERED SIGN (CHANGEABLE - LED). THE PAY ITEM IS TO INCLUDE A POLE MOUNTED MAINTENANCE CABINET, STEP-DOWN TRANSFORMER, GALVANIZED CONDUITS U-CHANNELS FOR MOUNTING ELECTRICAL EQUIPMENT, ELECTRICAL SUPPRESSION DEVICES INCLUDING TRANSIENT VOLTAGE SURGE SUPPRESSION, BREAKER PANELS, WIRING, AND A 6' X 6' CONCRETE PAD (F & I) AS SHOWN HEREIN. PER SECTION 4.4 AND 4.5 OF THE DMS SPECIFICATIONS, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ETHERNET SWITCHES, AND TERMINAL SERVICE, FIBER OPTIC JUMPER CABLES AS NECESSARY.

14. NO. 700-89-13C. SHALL INCLUDE THE INSTALLATION OF THE OWNER FURNISHED DMS SIGN WITH ALL ACCOMPANYING AUXILIARIES TO MAKE A FULLY FUNCTIONAL DMS WITH COMMUNICATIONS TO THE CFX DMS SERVER. THIS ITEM SHALL INCLUDE FURNISHING AND INSTALLING THE CONDUIT, CONDUCTORS, FIBER SPLICING, TRANSIENT VOLTAGE SURGE SUPPRESSION, ETC. WITHIN THE SIGN, AND ALL OTHER EQUIPMENT TO MAKE A FULLY FUNCTIONAL DMS ASSEMBLY PER THE PLANS AND SPECIFICATIONS.

15. NO. 715-1-113, NO. 715-1-115. SHALL INCLUDE CONDUCTORS AS INDICATED IN THE PLANS, SPECIFICATIONS, AND THE "ROADWAY AND TRAFFIC DESIGN STANDARDS" PAYMENT SHALL BE MADE BASED ON LINEAR FEET OF SINGLE CONDUCTOR.

16. NO. 638-002-0111 AND NO. 715-2-334. SHALL INCLUDE CONDUIT ELBOWS, SWEEPS, CONNECTING HARDWARE, TRENCHING AND BACK FILL AS INDICATED IN THE PLANS, SPECIFICATIONS, AND THE "DESIGN STANDARDS". THE LINEAR FOOT PRICE FOR CONDUIT SHALL ALSO INCLUDE RESTORING CUT PAVEMENT, SOD, & ETC. TO ITS ORIGINAL CONDITION.

17. NO. 715-7-11. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CONCRETE SERVICE POLE, METER BASE, SERVICE POLE INSULATORS, WEATHER HEADS, FUSES, PANEL BOARD, SURGE ARRESTOR ON THE OUTSIDE OF THE ENCLOSURE, BREAKERS, CONDUIT AND FEEDER CONDUCTORS FROM POWER COMPANY POINT OF SERVICE TO DMS POWER SERVICE, PULL BOX AND OTHER MISCELLANEOUS HARDWARE FOR A COMPLETE INSTALLATION AS PER PLANS AND STANDARD INDEX NO. 17504. THIS LOAD CENTER SHALL NOT INCLUDE A PHOTOCELL SINCE THE POWER SHALL BE CONTINUOUS FOR THE ITS DEVICES. CONTRACTOR TO INCLUDE ALL FEES FOR INSPECTION OF CONNECTION OF THE ELECTRICAL SERVICE. DUKE ENERGY OR O.U.C. WILL PROVIDE THE PAD MOUNTED TRANSFORMER AND METER. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A MINIMUM COVER OF 36 INCHES FOR THE 2" CONDUIT (WITH PULL STRINGS) FOR SECONDARY SERVICE FEEDER. ALSO, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SURE THE CABLE ROUTE AND TRANSFORMER PAD LOCATION ARE AT THE FINAL GRADE & COMPACTION PRIOR TO DUKE ENERGY OR O.U.C. DOING THEIR WORK.

18. NO. 715-2-334. THE 1½" RGS SURFACE MOUNTED CONDUIT WILL HAVE 4 RUNS PER DMS.

19. NO. 4210-11, 4210-12 AND NO. 4210-13. SEE SECTION 636 OF THE TECHNICAL SPECIFICATION FOR REQUIREMENTS.

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 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.

POWER CONNECTIONS:

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.

1. 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.

2. 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.

   CONNECTIONS TO EXISTING POWER METERS TO BE ACCOMPLISHED PER STATE AND LOCAL CODES. 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 639-1-12 AND 639-1-22.

FIBER CABLE AND CONNECTION DISTRIBUTION:

BACKBONE CABLE:

8-1" HDPE CONDUITS WITH 72-STRAND FIBER CABLE IN ORANGE CONDUIT FOR BACKBONE TRUNK CABLE AND 72-STRAND FIBER CABLE IN BLUE CONDUIT FOR FEEDER TRUNK CABLE. 1-1" CONDUIT WITH TONE WIRE INSTALLED WITHIN SHALL BE HOUSED WITHIN A YELLOW OR WHITE CONDUIT..

FEEDER DROP CABLE:

2-1" BLUE AND ORANGE HDPE CONDUITS W/ 1-12 STRAND FIBER CABLE IN BLUE CONDUIT FOR FEEDER CABLE

SECONDARY FEEDER CABLE:

2-1" BLUE AND ORANGE HDPE CONDUITS W/ 1-72 STRAND FIBER CABLE IN BLUE CONDUIT FOR FEEDER

REVISIONS					
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GENERAL NOTES (3 OF 4)

SHEET NO. A-3

MAINTENANCE OF EXISTING FIBER OPTIC NETWORK:

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.

SPECIAL NOTES:

1. SECTION 631 OF THE TECHNICAL SPECIAL PROVISIONS ESTABLISHES THE GENERAL REQUIREMENTS FOR THE PROTECTION AND LOCATION OF THE EXISTING CFX FIBER OPTIC NETWORK (FON) SYSTEM.

2. THE CONTRACTOR SHALL PROCURE THE NECESSARY EQUIPMENT FOR LOCATING THE EXISTING FON. THIS EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING RADIO DETECTION LINE MANAGEMENT SYSTEM (LMS). THE CONTRACTOR SHALL SUBMIT THE NAME, MAKE AND MANUFACTURER FOR THE PROPOSED EQUIPMENT FOR APPROVAL. PAYMENT FOR THIS EQUIPMENT SHALL BE CONSIDERED INCIDENTAL TO ITEM NO. 102-1, MAINTENANCE OF TRAFFIC. THE EQUIPMENT SHALL BE TURNED OVER TO CFX AFTER CONDITIONAL ACCEPTANCE OF THE PROJECT.

3. 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.

4. CONTINUOUS OPERATION OF EXISTING ITS DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, EXCEPT DURING RELOCATION OF DEVICE, AS GOVERNED BY SECTION 603A.

5. SECTION 600 OF THE TECHNICAL SPECIFICATIONS ESTABLISHES THE MINIMUM TECHNICAL QUALIFICATIONS AND CERTIFICATIONS REQUIRED TO WORK ON CFX'S FIBER OPTIC NETWORK.

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TABULATION OF QUANTITIES

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	
101-1	MOBILIZATION	LS																			
102-1	MAINTENANCE OF TRAFFIC	LS																			
603A-100	CONTINUOUS OPERATION OF EXISTING ITS DEVICES	LS																			
612-100	GEOLOCATION OF ITS EQUIPMENT AND INFRASTRUCTURE	LS																			
631-100	FIBER OPTIC CABLE INVENTORY	EA																			
631-101	FIBER OPTIC SPLICE HOUSING INVENTORY	EA																			
633-121-2	FIBER OPTIC CABLE (12-STRAND FIBER) (F&I)	LF																			
633-121-3	FIBER OPTIC CABLE (24-STRAND FIBER) (F&I)	LF																			
633-121-4	FIBER OPTIC CABLE (72-STRAND FIBER) (F&I)	LF																			
633-141-3	FIBER OPTIC SPLICE ENCLOSURE (72 SPLICE) (F&I)	EA																			
633-141-3A	EXISTING FIBER OPTIC SPLICE ENCLOSURE RE-ENTRY	EA																			
633-141-3B	FIBER OPTIC SPLICE ENCLOSURE (144 SPLICE) (F&I)	EA																			
633-141-3C	FIBER OPTIC SPLICE ENCLOSURE (288 SPLICE) (F&I)	EA																			
633-141-4	FIBER OPTIC FUSION SPLICE	EA																			
635-1-11	PULL BOX (F&I)	EA																			
635-1-13	JUNCTION BOX (SURFACE MOUNTED) (F&I)	EA																			
635-1-15	SMALL FIBER OPTIC PULL BOX (F&I)	EA																			
635-1-16	LARGE FIBER OPTIC PULL BOX (F&I)	LF																			
638-001-0211	FIBER OPTIC CONDUIT (2-1" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-001-0411	FIBER OPTIC CONDUIT (4-1" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-001-0811	FIBER OPTIC CONDUIT (8-1" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-001-0812	FIBER OPTIC CONDUIT (8-1" HDPE / SDR 11) TRENCH (IN ASPHALT)	LF																			
638-001-0911	FIBER OPTIC CONDUIT (9-1" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-002-0111	FIBER OPTIC CONDUIT (1-2" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-002-0113	FIBER OPTIC CONDUIT (1-2" HDPE / SDR 11) (DIRECTIONAL BORE)	LF																			
638-003-0911	FIBER OPTIC CONDUIT (8-1" & 1-2"HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-141-0213	FIBER OPTIC CONDUIT, 4" HDPE / SDR 11 OUTER DUCT W/ 2-1" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-160-0011	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 SLEEVE (EMPTY CONDUIT) TRENCH OR PLOW	LF																			
638-161-0413	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 W/4-1" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-161-0811	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 W/8-1" HDPE / SDR 11 (TRENCH OR PLOW)	LF																			
638-161-0813	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 W/8-1" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-162-0213	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 W/2-2" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-163-0811	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 W/8-1" AND 1-2" HDPE / SDR 11 (TRENCH OR PLOW)	LF																			
638-163-0911	FIBER OPTIC CONDUIT, 6" HDPE / SDR 11 W/8-1" AND 1-2" HDPE / SDR 11 (TRENCH OF PLOW)	LF																			
638-260-0011	FIBER OPTIC, 6" SCHEDULE 40 PVC SPLIT SLEEVE (TRENCH OR PLOW)	LF																			
638-261-0811	FIBER OPTIC, 6" SCHEDULE 40 PVC SPLIT OUTER DUCT W/ 8-1" HDPE / SDR 11, TRENCH OR PLOW	LF																			
638-341-0211	FIBER OPTIC 4" PVC OUTER DUCT W/ CONDUIT 2-1" HDPE / SDR 11, TRENCH	LF																			
638-341-0411	FIBER OPTIC 4" PVC OUTER DUCT W/ CONDUIT 4-1" HDPE / SDR 11, TRENCH	LF																			
638-361-0213	FIBER OPTIC 6" PVC OUTER DUCT W/ CONDUIT 2-1" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-361-0811	FIBER OPTIC 6" PVC OUTER DUCT W/ CONDUIT 8-1" HDPE / SDR 11, TRENCH	LF																			
638-361-0813	FIBER OPTIC 6" PVC OUTER DUCT W/ CONDUIT 8-1" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-363-0911	FIBER OPTIC 6" PVC OUTER DUCT W/ CONDUIT 8-1" & 1-2" HDPE / SDR 11, TRENCH	LF																			
638-461-0814	FIBER OPTIC 6" BRFG BULLET-RESISTIVE FIBERGLASS OUTER DUCT	LF																			
	W/ CONDUIT 8-1" HDPE / SDR 11, INSTALL ON BRIDGE																				
638-463-0914	FIBER OPTIC 6" BRFG BULLET-RESISTIVE FIBERGLASS OUTER DUCT	LF																			
	W/ CONDUIT (8-1" & 1-2"HDPE / SDR 11) (INSTALL ON BRIDGE)																				
639-1-22	ELECTRICAL POWER SERVICE ASSEMBLY (F&I)	AS																			
639-3-11	ELECTRICAL SERVICE DISCONNECT (F&I) (POLE)	EA																			
659-109	SYSTEMS AUXILIARIES (F&I) (CONCRETE PEDESTAL, TYPE 11)	EA																			
663-74-143	DCS FIELD EQUIPMENT 3 LANES (F&I)	EA																			
663-74-144	DCS FIELD EQUIPMENT 4 LANES (F&I)	EA																			
663-74-147	DCS FIELD EQUIPMENT 7 LANES (F&I)	EA																			
663-74-244	DCS SPARE PARTS KIT (FURNISH ONLY)	EA																			
663-74-343	DCS FIELD EQUIPMENT 3 LANES (RELOCATE)	EA																			
663-74-344	DCS FIELD EQUIPMENT 4 LANES (RELOCATE)	EA																			
663-74-345	DCS FIELD EQUIPMENT 5 LANES (RELOCATE)	EA																			
663-74-541	DCS FIELD EQUIPMENT, 1 ADDITIONAL LANE OF COVERAGE (F&I)	EA																			
663-74-542	DCS FIELD EQUIPMENT, 2 ADDITIONAL LANES OF COVERAGE (F&I)	EA																			
664-1-140	TRAFFIC MONITORING STATION - POLE MOUNTED (F&I)	EA																			
664-2-140	TRAFFIC MONITORING STATION - TRUSS MOUNTED (F&I)	EA																			
664-3-140	TRAFFIC MONITORING STATION (30' POLE) (F&I)	EA																			
664-3-141	TRAFFIC MONITORING STATION (40' POLE) (F&I)	EA																			
668-13	TYPE 170 CABINET (POLE MOUNTED) (F&I)	EA																			
668-16	TYPE 170 CABINET (BASE MOUNTED) (F&I)	EA																			
683-101	ETHERNET SWITCH (F&I)	EA																			
683-103	TERMINAL SERVER (F&I)	EA																			
683-103A	MEDIA CONVERTER (F&I)	EA																			

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TABULATION OF QUANTITIES (1 OF 3)

SHEET NO. A-5

TABULATION OF QUANTITIES

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	
685-101	UNINTERRUPTIBLE POWER SUPPLY (F&I)	EA																			
685-101A	REMOTE POWER MANAGER / ENVIRONMENTAL SENSOR (F&I)	EA																			
685-102	COMMUNICATION RACK INSTALLATION (F&I)	EA																			
685-201	UNINTERRUPTIBLE POWER SUPPLY (FURNISH)	EA																			
685-201A	REMOTE POWER MANAGER / ENVIRONMENTAL SENSOR (FURNISH)	EA																			
685-202	COMMUNICATION RACK INSTALLATION (FURNISH)	EA																			
686-101	CCTV FIELD ASSEMBLY (F&I)	EA																			
686-103	VIDEO ENCODER (F&I)	EA																			
686-104	CCTV MAINTENANCE UNIT (F&I)	EA																			
686-105	CAMERA LOWERING SYSTEM (50' POLE) (F&I)	EA																			
686-105A	CAMERA LOWERING SYSTEM (80' POLE) (F&I)	EA																			
686-301	CCTV FIELD ASSEMBLY (RELOCATE)	EA																			
686-303	CCTV EQUIPMENT ENCODER (RELOCATE)	EA																			
686-405	SYSTEM AUXILIARIES (RELOCATE) (CCTV CAMERA ASSEMBLY)	EA																			
686-405A	CAMERA LOWERING SYSTEM (80 FOOT POLE) (RELOCATE)	EA																			
700-89-12	DYNAMIC MESSAGE SIGN SYSTEM (LED) (1 LINE) (F&I)	EA																			
700-89-12SP	DYNAMIC MESSAGE SIGN SYSTEM (LED) (1 LINE) (SPARE PARTS KIT)	EA																			
700-89-13C	DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE)	EA																			
700-89-13G	FULL COLOR DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE) (FRONT ACCESS) (F&I)	EA																			
700-89-13G-SP	FULL COLOR DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE) (FRONT ACCESS) (SPARE PARTS KIT)	EA																			
700-89-13H	FULL COLOR DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE) (F&I)	EA																			
700-89-13H-SP	FULL COLOR DYNAMIC MESSAGE SIGN SYSTEM (LED) (3 LINE) (SPARE PARTS KIT)	EA																			
715-1-113	CONDUCTORS (F&I) (INSULATED) (NO. 6)	LF																			
715-1-114	CONDUCTORS (F&I) (INSULATED) (NO. 4)	LF																			
715-1-115	CONDUCTORS (F&I) (INSULATED) (NO. 2)	LF																			
715-1-116	CONDUCTORS (F&I) (INSULATED) (NO. 1)	LF																			
715-2-115	CONDUIT (F&I) (UNDERGROUND) (2" SCH 40 PVC)	LF																			
715-2-116	CONDUIT (F&I) (UNDERGROUND) (3" SCH 40 PVC)	LF																			
715-2-334	CONDUIT (F&I - SURFACE MOUNT) (RGS) (1 ")	LF																			
715-7-11	LOAD CENTER (FURNISH AND INSTALL) (SECONDARY VOLTAGE)	EA																			
783-8-1	TRAFFIC MONITORING STATION COMPOSITE CABLE	LF																			
4210-11	4'X4'X4' CONCRETE MANHOLE (F&I)	EA																			
4210-12	4'X6.5'X6.5' CONCRETE MANHOLE (F&I)	EA																			
4210-13	4'X6.5'X6.5' CONCRETE MANHOLE (DOGHOUSE) (F&I)	EA																			
4210-60	CONCRETE MANHOLE (REMOVE)	EA																			
4230-1A	TUBULAR ROUTE MARKER (FIBER)	EA																			
4230-1B	TUBULAR ROUTE MARKER (POWER)	EA																			
4230-2	RADIODETECTION SIDE LEG TERMINATOR (SLT) PN10/444150322 (F&I)	EA																			

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TABULATION OF QUANTITIES

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	
633-121-2T	TEMPORARY FIBER OPTIC CABLE (SINGLE MODE, 12-STRAND FIBER) (F&I)	LF																			
633-121-4T	TEMPORARY FIBER OPTIC CABLE (SINGLE MODE, 72-STRAND FIBER) (F&I)	LF																			
633-121-5T	TEMPORARY FIBER OPTIC CABLE (SINGLE MODE, 144-STRAND FIBER) (F&I)	LF																			
633-141-3T	TEMPORARY FIBER OPTIC SPLICE ENCLOSURE	EA																			
633-141-4T	TEMPORARY FIBER OPTIC SPLICE	EA																			
635-1-15T	TEMPORARY SMALL FIBER OPTIC PULL BOX (F&I)	EA																			
635-1-16T	TEMPORARY LARGE FIBER OPTIC PULL BOX (F&I)	EA																			
638-001-0111T	TEMPORARY FIBER OPTIC CONDUIT (1-1" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-001-0812	FIBER OPTIC CONDUIT (8-1" HDPE / SDR 11) (IN ASPHALT)	LF																			
638-001-0911	FIBER OPTIC CONDUIT (9-1" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-002-0111T	TEMPORARY FIBER OPTIC CONDUIT (1-2" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-003-0911	FIBER OPTIC CONDUIT (8-1" HDPE / SDR 11 AND 1-2" HDPE / SDR 11) (TRENCH OR PLOW)	LF																			
638-140-0011T	TEMPORARY FIBER OPTIC, 4" HDPE / SDR 11 SLEEEVE (EMPTY CONDUIT) TRENCH OR PLOW	LF																			
638-141-0213T	TEMPORARY FIBER OPTIC CONDUIT, 4" HDPE / SDR 11 W/2-1" HDPE / SDR 11 DIRECTIONAL BORE	LF																			
638-143-0211T	TEMPORARY FO CONDUIT, 4" HDPE / SDR 11 W/ 1-1" AND 1-2" HDPE / SDR 11, TRENCH OR PLOW	LF																			
638-143-0213T	TEMPORARY FO CONDUIT, 4" HDPE / SDR 11 W/ 1-1" AND 1-2" HDPE / SDR 11, DIRECTIONAL BORE	LF																			
638-240-0011T	TEMPORARY FIBER OPTIC, 4" SCHEDULE 40 PVC SPLIT SLEEVE (TRENCH OR PLOW)	LF																			
638-260-0011T	TEMPORARY FIBER OPTIC, 6" SCHEDULE 40 PVC SPLIT SLEEVE (TRENCH OR PLOW)	LF																			
4210-11T	TEMPORARY FIBER OPTIC MANHOLE (4'X4'X4') (F&I)	EA																			
4210-12T	TEMPORARY 4'X6.5'X6.5' CONCRETE MANHOLE (F&I)	EA																			
4210-13T	TEMPORARY DOGHOUSE FIBER OPTIC MANHOLE (4'X6.5'X6.5') (F&I)	EA																			

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UTILITY CONTACTS

UTILITY LOCATES PROVIDED BY NO-CUTS 1-800-432-4770

AT&T CORP. (PEA)	BILL HAMM	407-248-3445
BELL SOUTH TELECOMMUNICATIONS	JIM FARRELL	407-273-5084
BRIGHT HOUSE CABLE	MARVIN USRY	407-532-8509
FLORIDA GAS TRANSMISSION	JOE SANCHEZ	407-838-7171
FLORIDA POWER & LIGHT	NOEL REESE	305-552-3249
MCI WORLDCOM	TIM COLE	407-841-4226
ORANGE COUNTY UTILITIES	ANDRES SALCEDO	407-836-7200
CITY OF ORLANDO WASTEWATER	CHUCK MILLER	407-246-3232
CFX (FIBER)	WILLIAM COLLINS	407-690-5000
ORLANDO UTILITIES COMMISSION - ELECTRIC	VINCENT MONTGOMERY	407-384-4172
ORLANDO UTILITIES COMMISSION - WATER	KEITH BROWNING	407-423-9100
DUKE ENERGY (TRANSMISSION)	JORGE OVIEDO	407-942-9286
DUKE ENERGY (DISTRIBUTION)	JOEL CHATHAM	407-942-9640
SPRINT-FLORIDA, INC.	RICHARD KENNEDY	407-830-3404
TECO-PEOPLES GAS	BRUCE STOUT	407-420-2678

OTHER CONTACTS

ORANGE COUNTY TRAFFIC ENGINEERING 1-407-836-7890

ABBREVIATIONS

BRFG = BULLET RESISTIVE FIBERGLASS OUTER DUCT

BSP = BLACK STEEL PIPE POLYETHYLENE CONDUIT

DCS = DATA COLLECTION SENSOR

DMS = DYNAMIC MESSAGE SIGN

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 FIBER OPTIC TRENCHING DETAILS)

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

TMS = TRAFFIC MONITORING STATION

LEGEND

PROPOSED UNDERGROUND SPARE POWER 2" SCHEDULE 40 P.V.C UNDERGROUND CONDUIT WITH AWG THWN 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.

PROPOSED UNDERGROUND SPARE CONDUIT 2" SCHEDULE 40 PVC UNDERGROUND CONDUIT WITH PULL STRING.

1-4" SCHEDULE 40 PVC WITH PROPOSED 2-1" FIBER OPTIC HDPE CONDUIT - SDR 11.

POLE MOUNTED CABINET AND ANCILLARY ELECTRICAL EQUIPMENT. SEE FO-XX AND FO-XX FOR DETAILS. CABINET TO BE SIZED BY CONTRACTOR.

PROPOSED POINT OF ELECTRICAL SERVICE

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

PROPOSED PULL BOX (SEE INDEX 17503 DESIGN STANDARDS BOOKLET) PULL BOX COVER SHALL HAVE DMS LOGO.

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.

PROPOSED TMS

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

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

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

EXISTING FIBER OPTIC LARGE PULL BOX (OPENING 36", BASE 44"x24" DEEP)

PROPOSED FIBER OPTIC LARGE PULL BOX (OPENING 36", BASE 44"x24" DEEP)

EXISTING PULL BOX (13"x24"x12"D)

PULL BOX (13"x24"x12"D)

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

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

EXISTING CONCRETE PEDESTAL FOR POWER SERVICE.

PROPOSED CONCRETE PEDESTAL FOR POWER SERVICE. SEE FO-67 FOR DETAILS

EXISTING FIBER OPTIC MANHOLE

FIBER OPTIC MANHOLE (4'x4'x4')

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

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

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

6" BLACK STEEL PIPE (BSP) E/W 9-1" HDPE CONDUITS

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

2-1" HDPE CONDUITS (FEEDER)

9-1" HDPE CONDUITS (BACKBONE)

EXISTING BLACK STEEL PIPE (BSP)

EXISTING 9-1" HDPE CONDUITS

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

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LEGEND AND UTILITY CONTACTS

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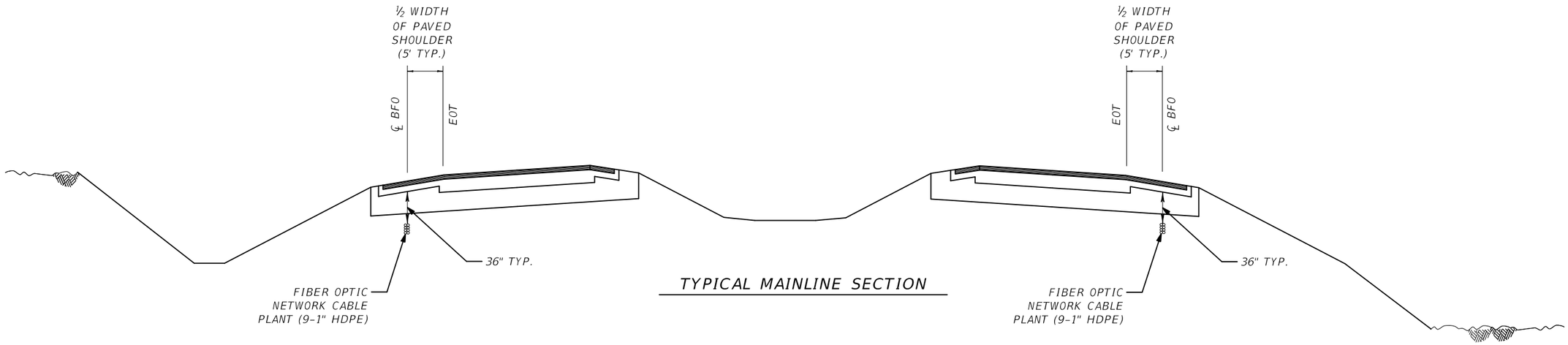
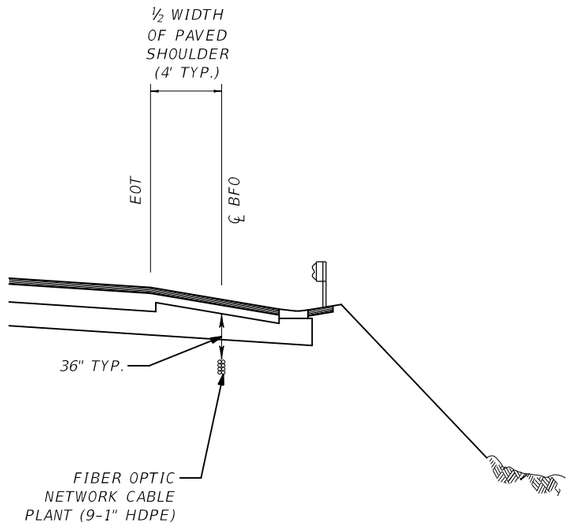
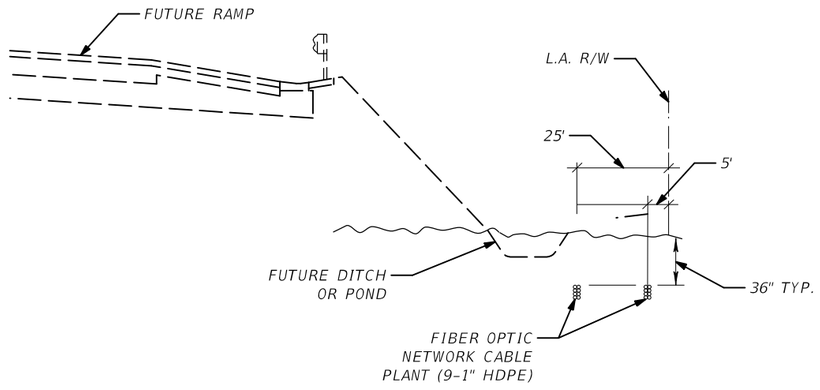


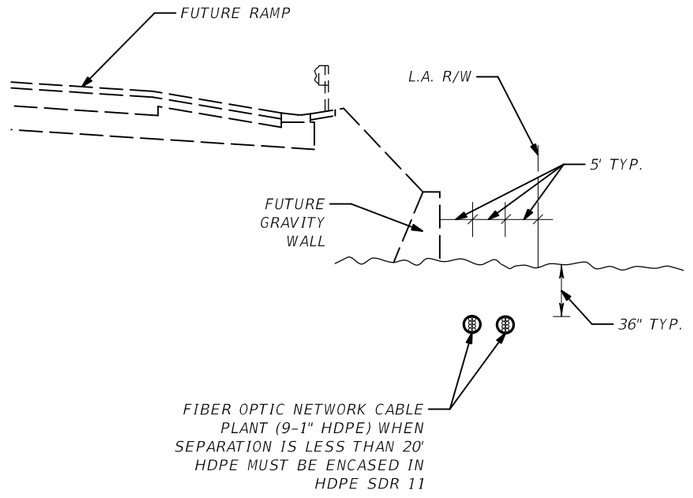
TYPICAL MAINLINE SECTION



TYPICAL MAINLINE/RAMP SECTION WITH GUARDRAIL



TYPICAL FUTURE RAMP SECTION WITH FIBER OPTIC NETWORK NEAR L.A. R/W

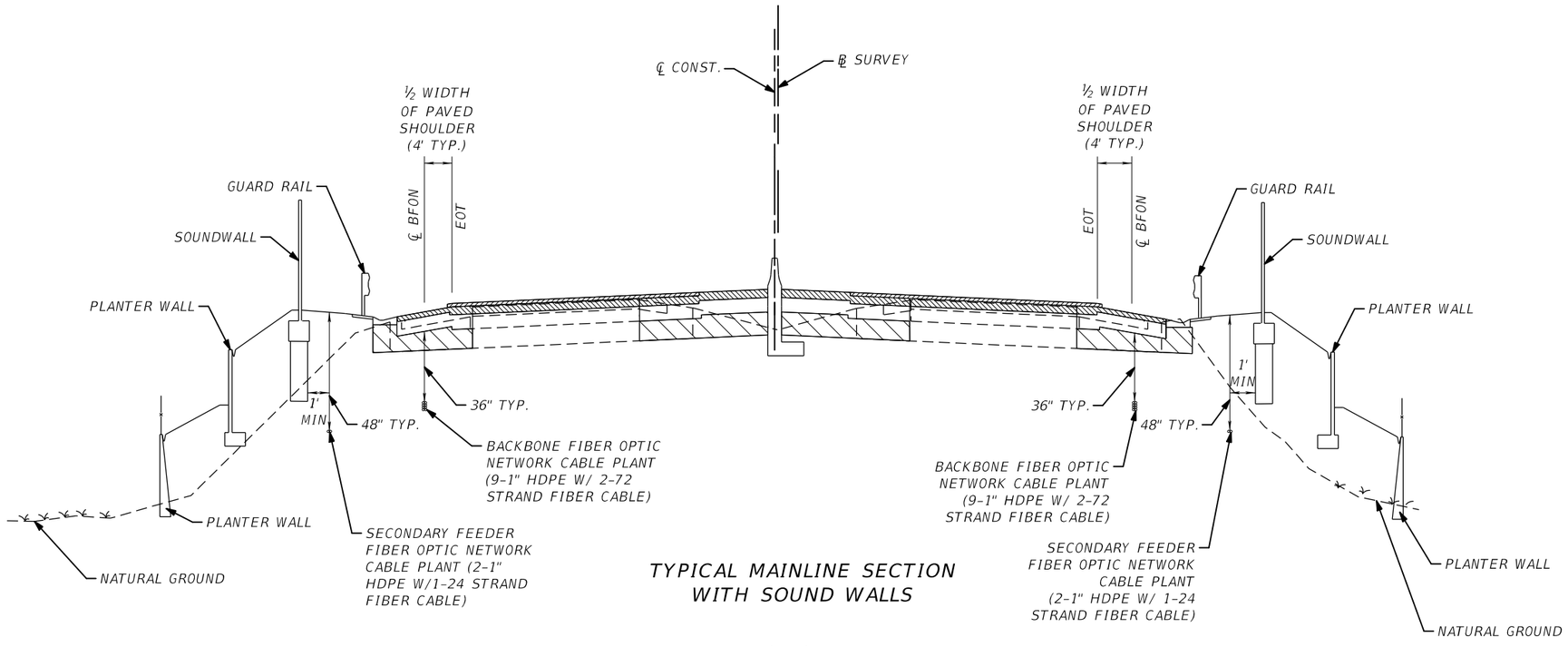


TYPICAL FUTURE RAMP SECTION WITH GRAVITY WALL & FIBER OPTIC NETWORK NEAR L.A. R/W

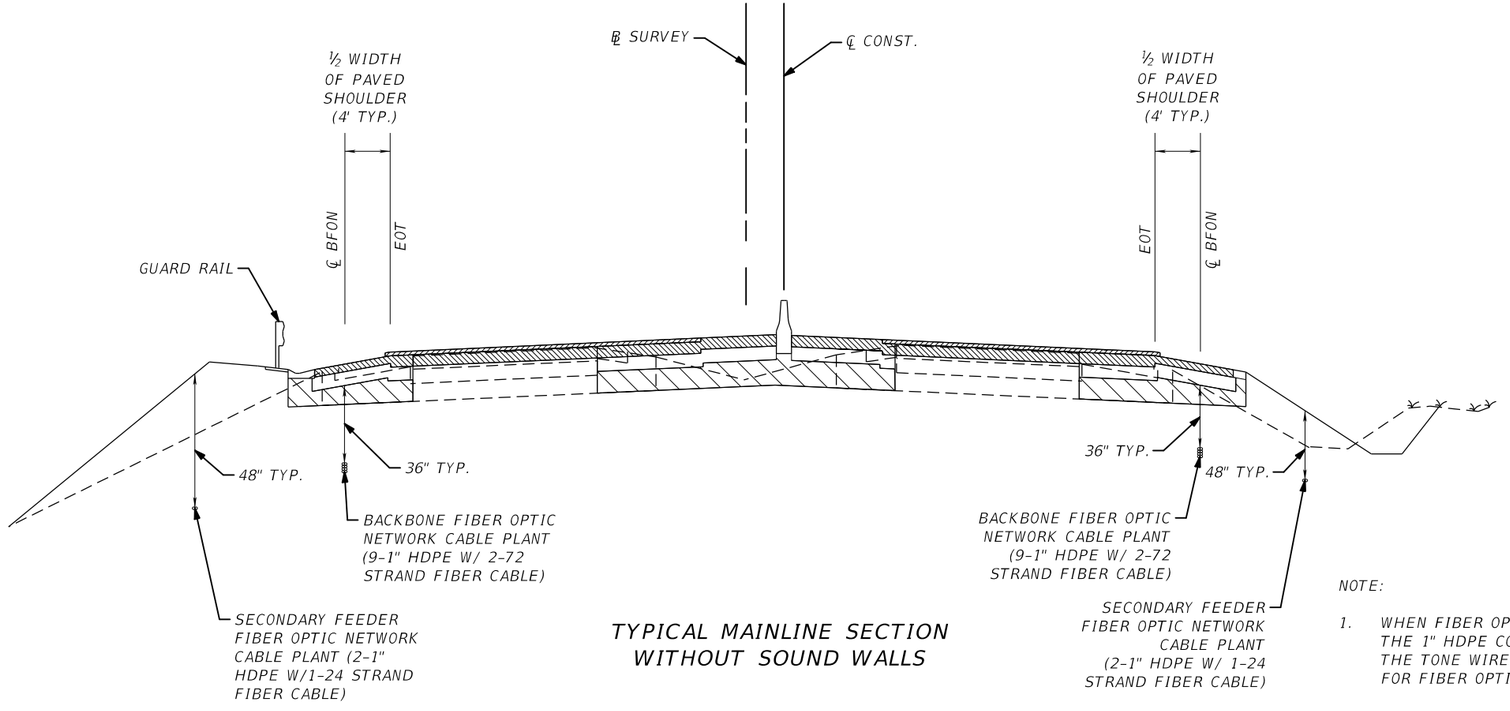
NOTE:

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						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC NETWORK RAMP CROSS SECTIONS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					A-9
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION.								



TYPICAL MAINLINE SECTION
WITH SOUND WALLS

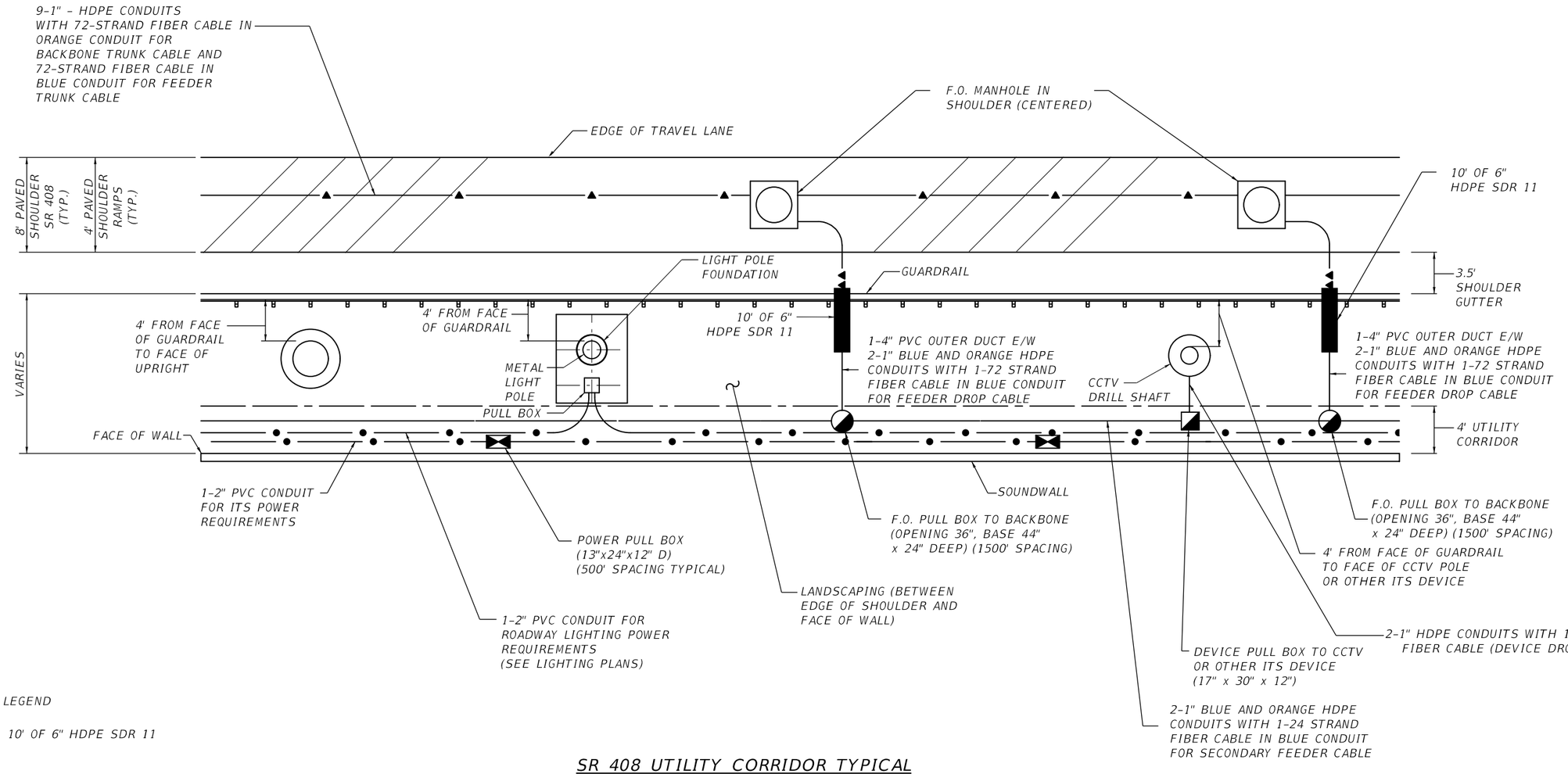


TYPICAL MAINLINE SECTION
WITHOUT SOUND WALLS

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						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC NETWORK TYPICAL MAINLINE SECTION WITH SECONDARY FEEDER	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					A-10
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION.								



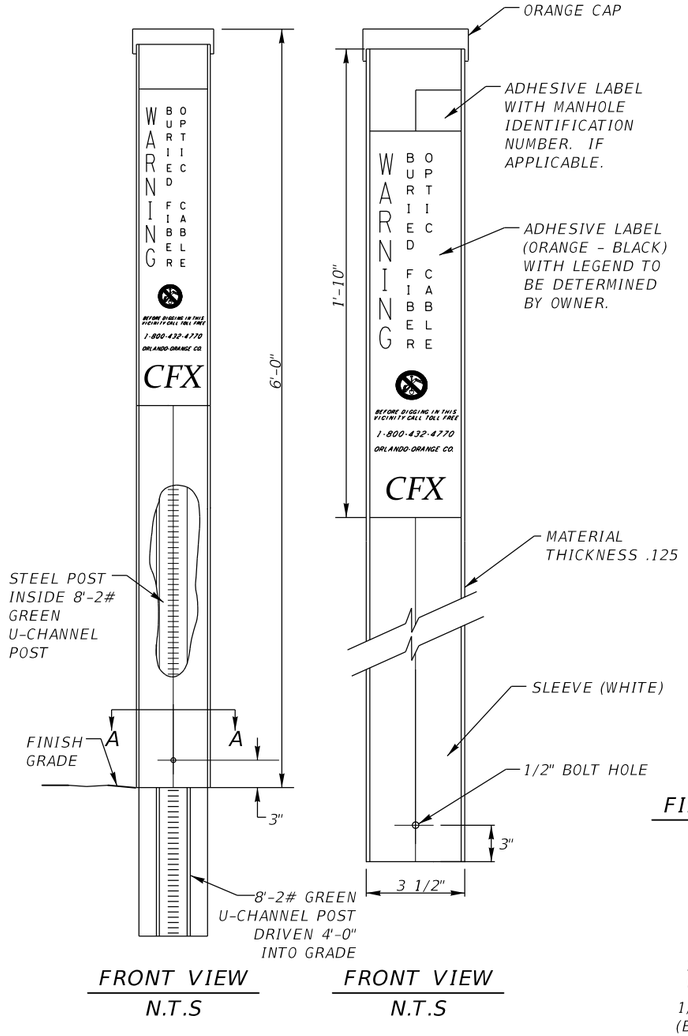
SR 408 UTILITY CORRIDOR TYPICAL

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT THE BACKBONE AND FEEDER FON ARE AT THE PROPER DEPTHS AS SPECIFIED IN THIS TYPICAL DETAIL. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE TO INSTALL THE BACKBONE AND SECONDARY FEEDER IN CONFLICT AREAS (DRAINAGE, ETC) PER UTILITY CROSSING DETAIL SHEETS.

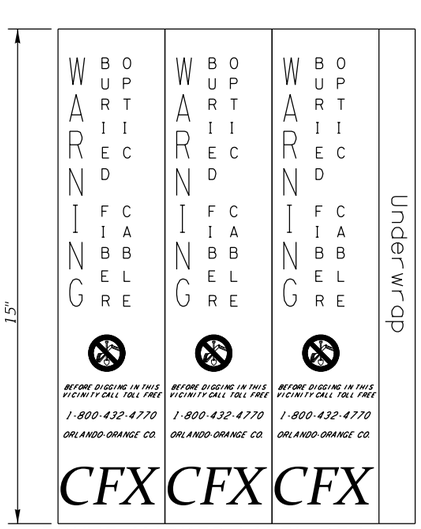
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TYPICAL SR 408 UTILITY CORRIDOR	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTIONS 633, 635, 636, AND 638 FOR ADDITIONAL INFORMATION.								A-11

FIBER OPTIC ROUTE MARKER



FRONT VIEW
N.T.S

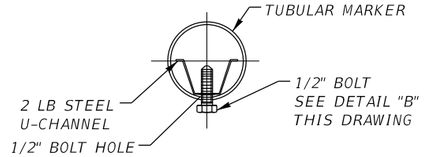
FRONT VIEW
N.T.S



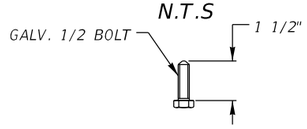
ROUTE MARKER LABEL DETAIL
N.T.S

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

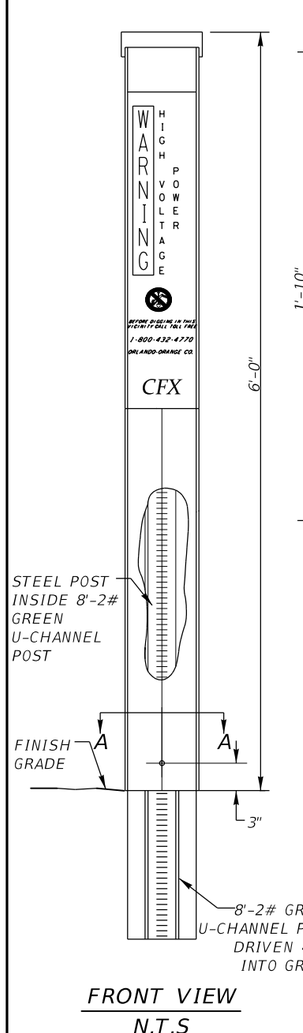


DETAIL B
N.T.S

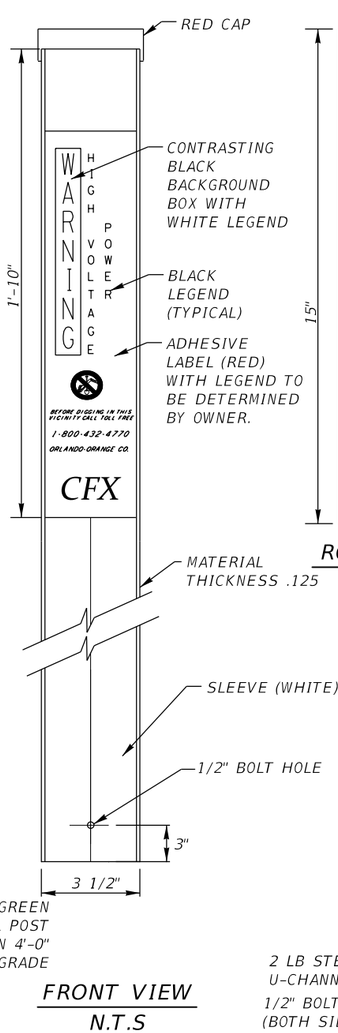
NOTES:

1. 8'-2#/FT. GREEN STEEL U-CHANNEL POST VULCAN UTILITY SIGNS & PRODUCTS PN 0550145 OR CFX APPROVED EQUAL.
2. 72" H-41-RF TUBULAR ROUTE MARKER VULCAN UTILITY SIGNS & PRODUCTS PN 0300876 OR CFX APPROVED EQUAL.
3. ROUTE MARKER WRAP DECAL, BLACK TEXT ON ORANGE BACKGROUND, VULCAN UTILITY SIGNS & PRODUCTS PN 0900466 OR CFX APPROVED EQUAL.

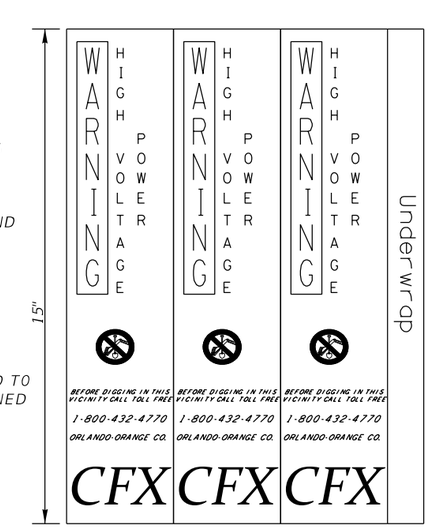
POWER ROUTE MARKER



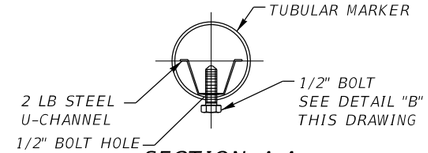
FRONT VIEW
N.T.S



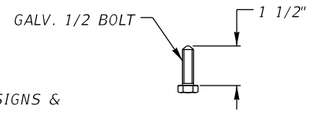
FRONT VIEW
N.T.S



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 OR CFX APPROVED EQUAL.
2. 72" H-41-RF TUBULAR ROUTE MARKER VULCAN UTILITY SIGNS & PRODUCTS PN 0300876 OR CFX APPROVED EQUAL.
3. ROUTE MARKER WRAP DECAL, BLACK TEXT ON RED BACKGROUND, VULCAN UTILITY SIGNS & PRODUCTS PN 0900466 OR CFX APPROVED EQUAL.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 633 FOR ADDITIONAL INFORMATION.			

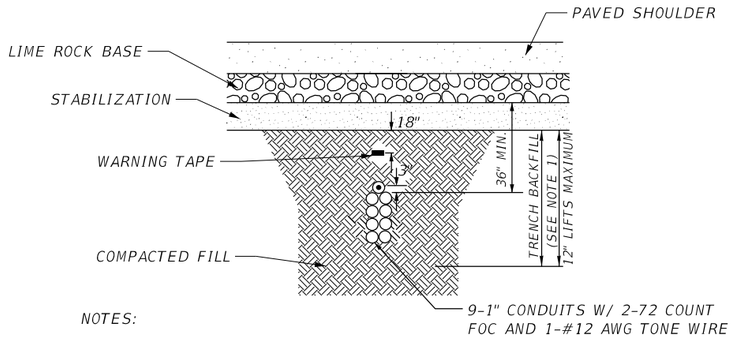
FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

FIBER OPTIC CABLE ROUTE MARKER DETAIL

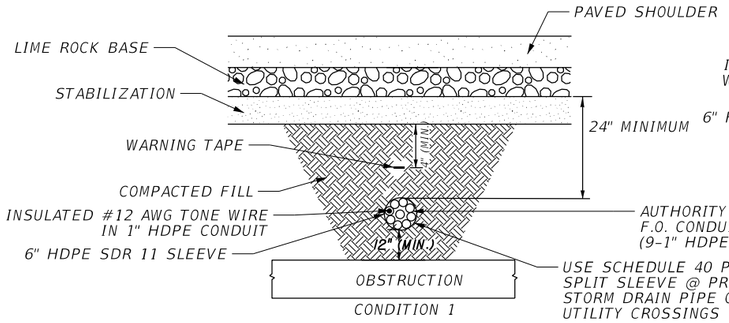
SHEET NO. A-12



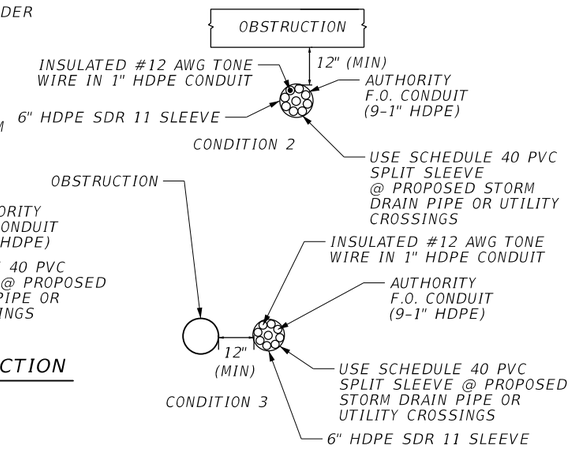
NOTES:

1. TRENCH BACKFILL: COMPACTED TO 100% OF THE MAXIMUM DENSITY AS PER AASHTO T-99.
2. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION
3. 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.

DETAIL "A"
TYPICAL BEDDING AND TRENCHING DETAIL
NTS

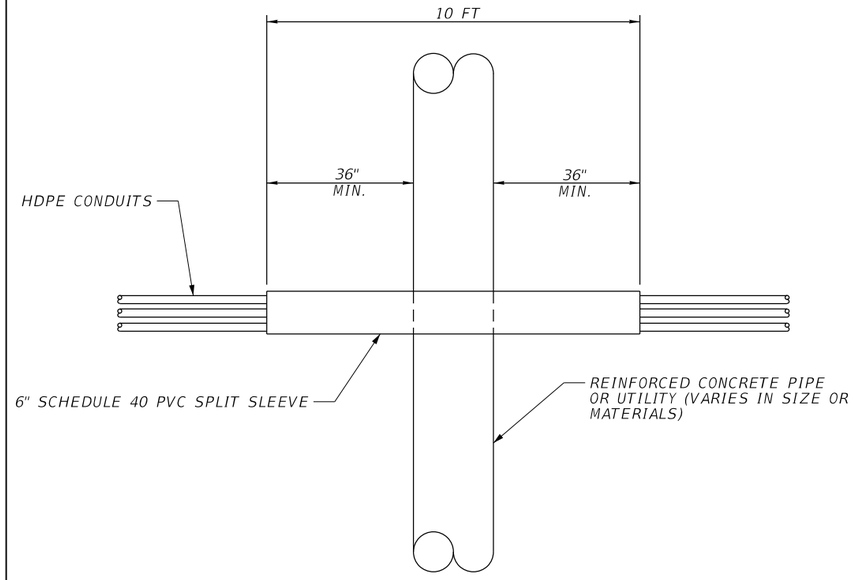


DETAIL "B"
TYPICAL STEEL SLEEVE TRENCH DETAIL TO CROSS OBSTRUCTION
NTS



NOTES:

1. TRENCH BACKFILL: COMPACTED TO 100% OF THE MAXIMUM DENSITY AS PER AASHTO T-99.
2. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION
3. HDPE SDR 11 SLEEVE TO EXTEND A MIN. OF 3' PAST ENDS OF OBSTRUCTION.
4. 6" HDPE SDR 11 SLEEVE SHALL BE SEALED AT BOTH ENDS WITH THE F.O. CONDUITS TO PREVENT THE INFILTRATION OF SURROUNDING FILL. METHOD AND MATERIALS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
5. 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.
6. PROPOSED OBSTRUCTION CROSSING PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
7. OBSTRUCTION CROSSINGS ARE LABELED ON THE PLAN SHEETS AS COND. 1 FOR A CONDITION 1 CROSSING, COND. 2 FOR A CONDITION 2 CROSSING, OR COND. 3 FOR A CONDITION 3 CROSSING.
8. DURING ALL HDPE INTERDUCT INSTALLATION INSIDE PVC, HDPE SDR 11, 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.
9. TONE WIRE ONLY INSTALLED IN DEDICATED 1" HDPE CONDUIT WHEN FON CONDUIT BANK IS INSTALLED UNDER PAVEMENT.

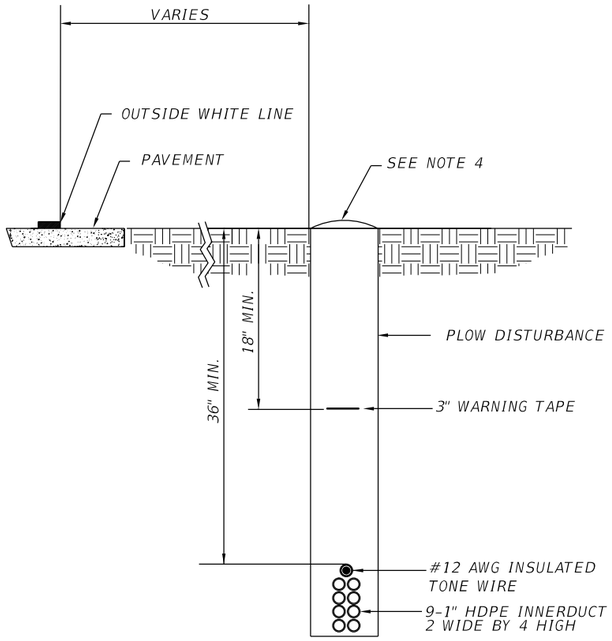


DETAIL "C"
SPLIT SLEEVE PLAN DETAIL AT STORM DRAIN PIPE OR UTILITY CROSSINGS
NTS

ABBREVIATIONS

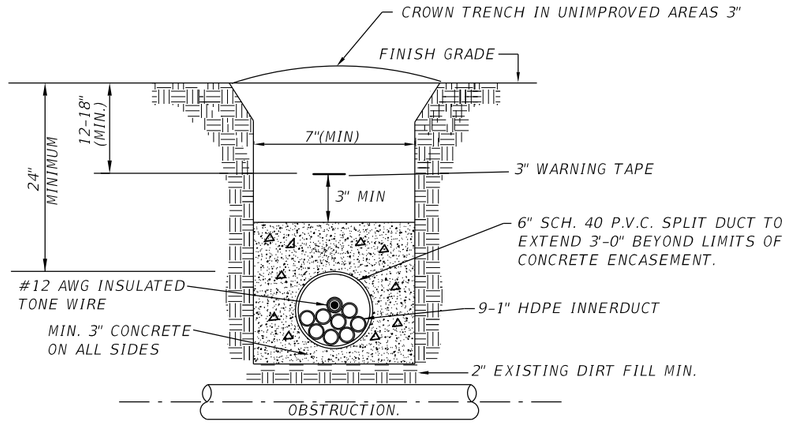
BRFG= BULLET RESISTIVE FIBERGLASS OUTER DUCT
HDPE= HIGH DENSITY POLYETHYLENE CONDUIT
FO= FIBER OPTIC
FOMH= FIBER OPTIC MANHOLE
PVC= POLYVINYL CHLORIDE OUTER DUCT
E/W= EQUIPPED WITH
SDR= SIZE DIMENSION RATIO
COND.1= CONDITION 1 CROSSING (SEE DETAIL 'B")
COND.2= CONDITION 2 CROSSING (SEE DETAIL 'B")
COND.3=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

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRENCHING AND UTILITY CROSSING DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					B-1
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION.								



STANDARD CROSS SECTION OF PLOWED CONDUIT

N.T.S.



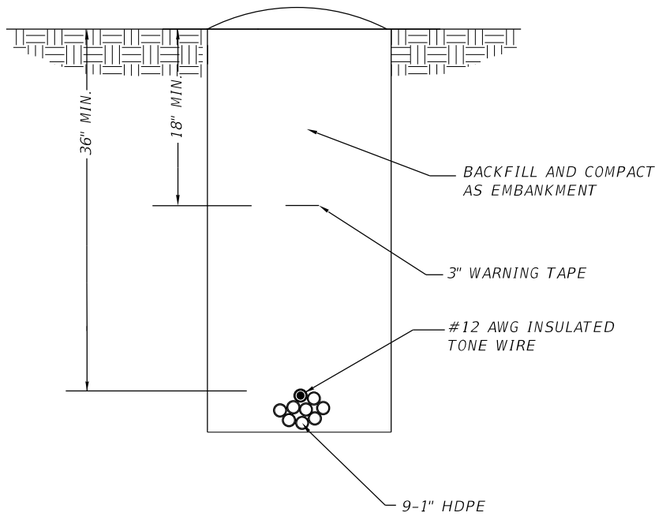
TYPICAL CROSSING WHERE OBSTRUCTION IS 35" TO 44" IN DEPTH.

N.T.S.

NOTES:

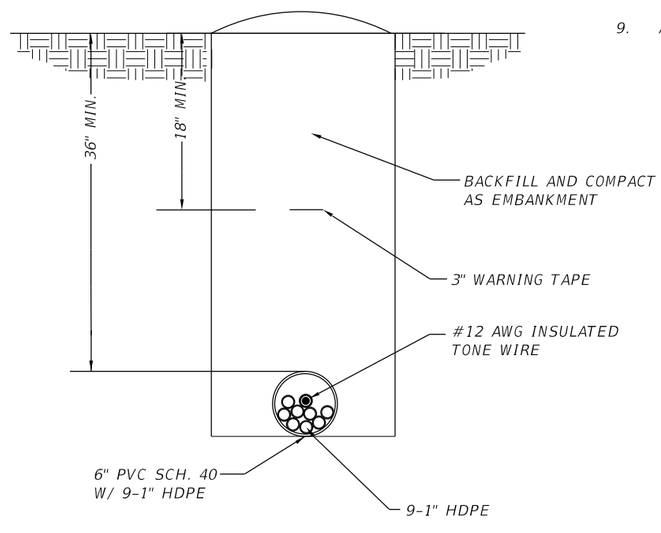
1. TRAFFIC CONTROL FOR LONGITUDINAL INSTALLATION SHALL BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD INDEX SERIES 600.
2. A MINIMUM OF 2'- 0" SHALL BE MAINTAINED FROM EXISTING LANDSCAPE FEATURES. LANDSCAPE REPLACEMENT SHALL BE IN KIND AND SUBJECT TO THE APPROVAL OF THE OWNER.
3. REPLACEMENT OF FILL, BASE, SURFACE (ASPHALT), CURB AND DRAINAGE STRUCTURES WILL BE IN ACCORDANCE WITH ORANGE COUNTY UTILITY AND PUBLIC WORKS STANDARDS FOR COUNTY ROADS AND THE LATEST FDOT UTILITY ACCOMMODATION MANUAL.
4. CONSTRUCTION CORRIDOR SHALL BE RESTORED TO ORIGINAL OR IMPROVED CONDITION.
5. ALL TRENCH WIDTHS SHALL BE WIDE ENOUGH TO ACCOMMODATE MECHANICAL COMPACTION EQUIPMENT FOR PROPER COMPACTION IN ACCORDANCE WITH FDOT STANDARD SPECS.
6. ALL TRENCHES SHALL BE BACKFILLED & COMPACTED BY THE END OF EACH WORK DAY.
7. JOINT COUPLINGS WILL BE USED AS NECESSARY.
8. 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.
   - B. IF A CANNOT BE ACCOMPLISHED, CONDUIT ROUTING WILL BE MADE UNDER THE OBSTRUCTION.
   - C. IF A OR B 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.

   PRIOR TO COMMENCING DETAIL A OR B, OWNERS APPROVAL MUST BE OBTAINED. DETAIL A IS THE PREFERRED METHOD.
9. ALL CONCRETE SHALL BE FDOT APPROVED CLASS 1.



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

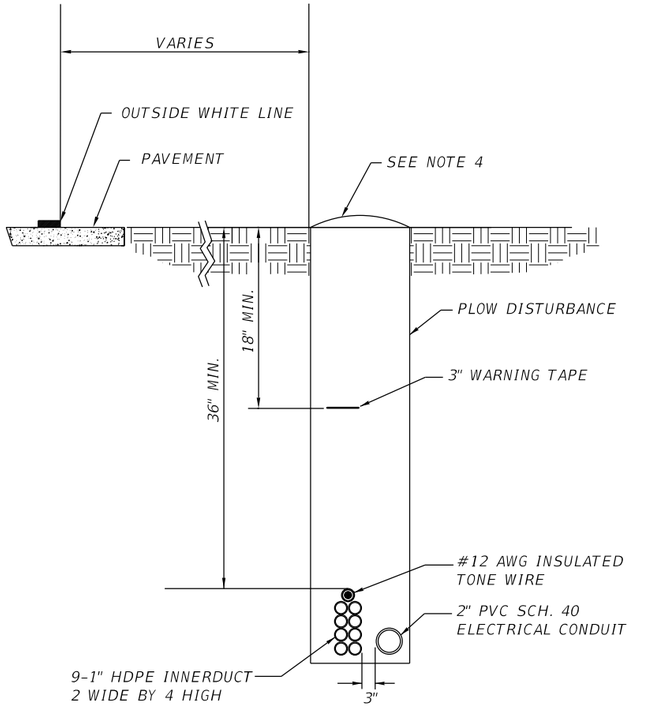
N.T.S.



STANDARD CROSS SECTION OF OPEN TRENCH CONDUIT (IN CASING)

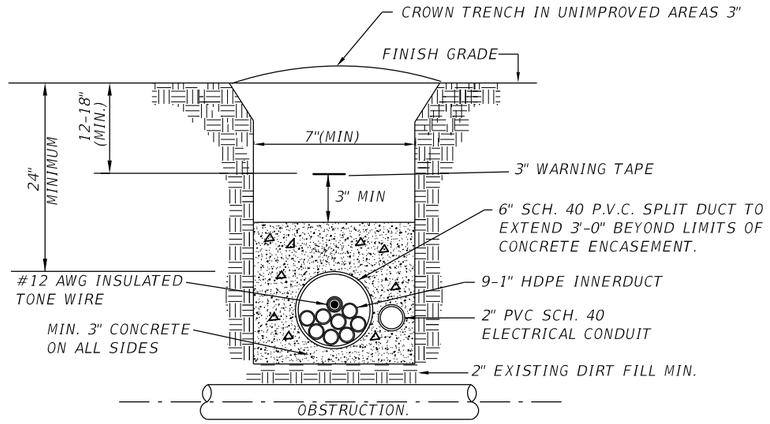
N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRENCHING AND PLOWING DETAILS SINGLE CONDUIT BANK (1 OF 2)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					B-2
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION.								



STANDARD CROSS SECTION OF PLOWED CONDUIT

N.T.S.



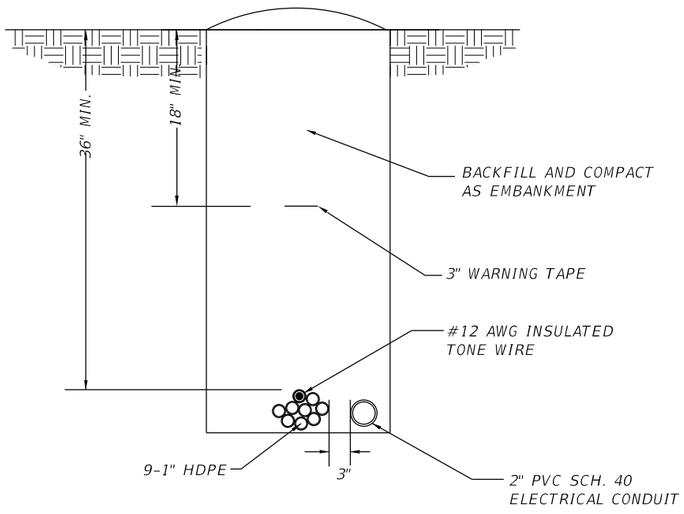
TYPICAL CROSSING WHERE OBSTRUCTION IS 35" TO 44" IN DEPTH.

N.T.S.

NOTES:

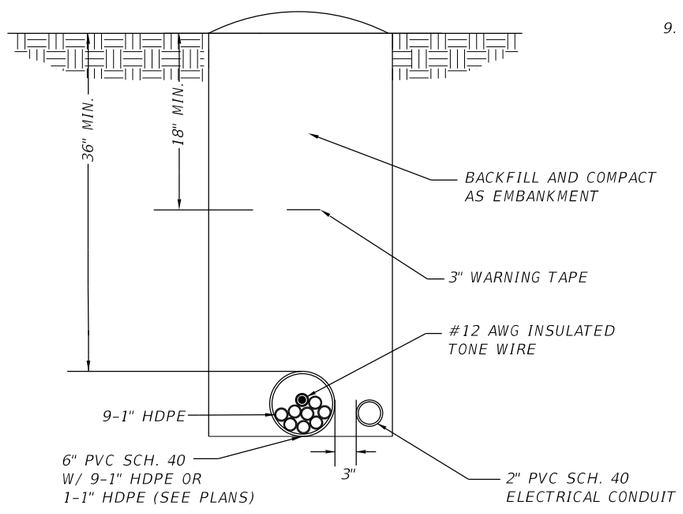
1. TRAFFIC CONTROL FOR LONGITUDINAL INSTALLATION SHALL BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD INDEX SERIES 600.
2. A MINIMUM OF 2'- 0" SHALL BE MAINTAINED FROM EXISTING LANDSCAPE FEATURES. LANDSCAPE REPLACEMENT SHALL BE IN KIND AND SUBJECT TO THE APPROVAL OF THE OWNER.
3. REPLACEMENT OF FILL, BASE, SURFACE (ASPHALT), CURB AND DRAINAGE STRUCTURES WILL BE IN ACCORDANCE WITH ORANGE COUNTY UTILITY AND PUBLIC WORKS STANDARDS FOR COUNTY ROADS AND THE LATEST FDOT UTILITY ACCOMMODATION MANUAL.
4. CONSTRUCTION CORRIDOR SHALL BE RESTORED TO ORIGINAL OR IMPROVED CONDITION.
5. ALL TRENCH WIDTHS SHALL BE WIDE ENOUGH TO ACCOMMODATE MECHANICAL COMPACTION EQUIPMENT FOR PROPER COMPACTION IN ACCORDANCE WITH FDOT STANDARD SPECS.
6. ALL TRENCHES SHALL BE BACKFILLED & COMPACTED BY THE END OF EACH WORK DAY.
7. JOINT COUPLINGS WILL BE USED AS NECESSARY.
8. 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.
   - B. IF A CANNOT BE ACCOMPLISHED, CONDUIT ROUTING WILL BE MADE UNDER THE OBSTRUCTION.
   - C. IF A OR B 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.

   PRIOR TO COMMENCING DETAIL A OR B, OWNERS APPROVAL MUST BE OBTAINED. DETAIL A IS THE PREFERRED METHOD.
9. ALL CONCRETE SHALL BE FDOT APPROVED CLASS 1.



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

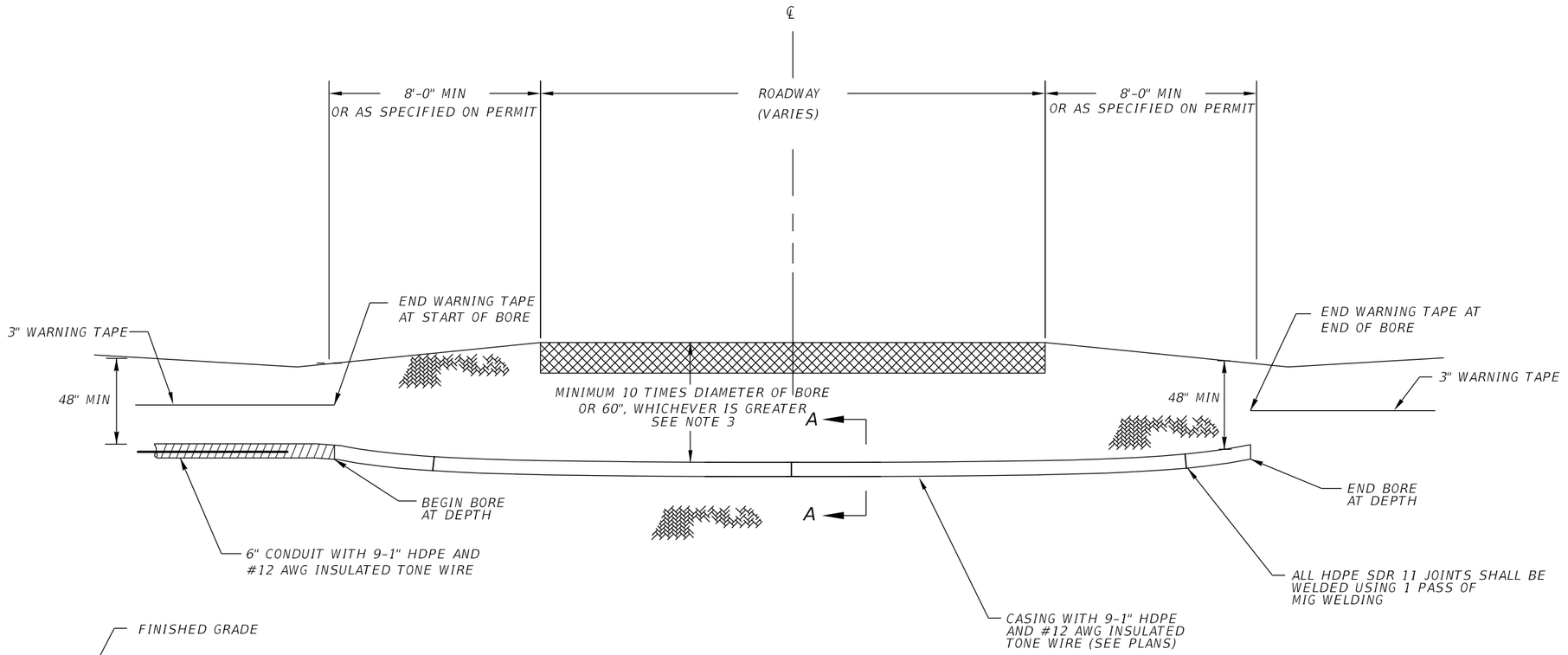
N.T.S.



STANDARD CROSS SECTION OF OPEN TRENCH CONDUIT (IN CASING)

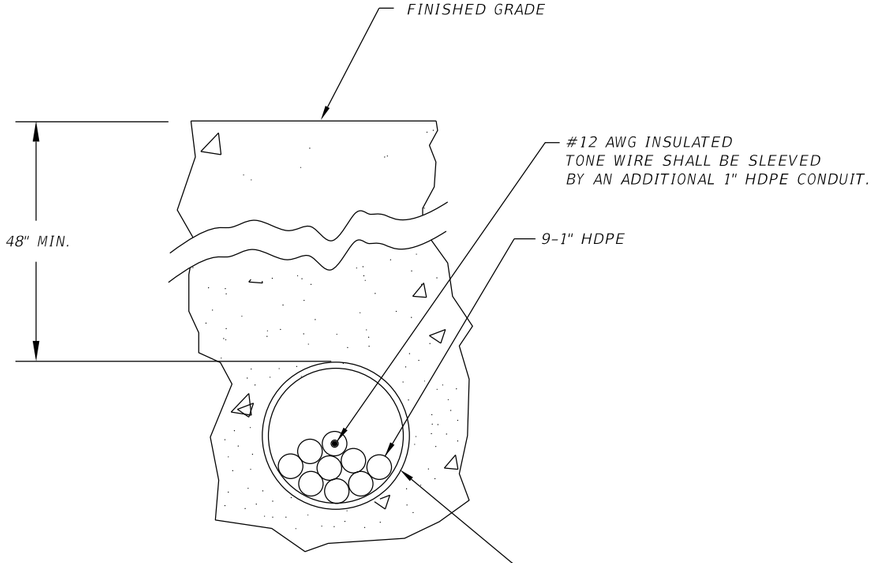
N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRENCHING AND PLOWING DETAILS SINGLE CONDUIT BANK (2 OF 2)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					B-3
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION.								



TYPICAL DIRECTIONAL BORE

N.T.S.



SECTION A-A

N.T.S.

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 GROUT.
3. HORIZONTAL DEPTH SHALL BE IN ACCORDANCE WITH FDOT UTILITY ACCOMMODATION MANUAL SECTION 9.3 AND 12.3.
4. A SEPARATE BORE FOR 2" CONDUIT WILL BE REQUIRED WHEN ELECTRICAL SERVICE WIRE EXCEEDS AWG #3.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 555, 633 AND 638 FOR ADDITIONAL INFORMATION.			

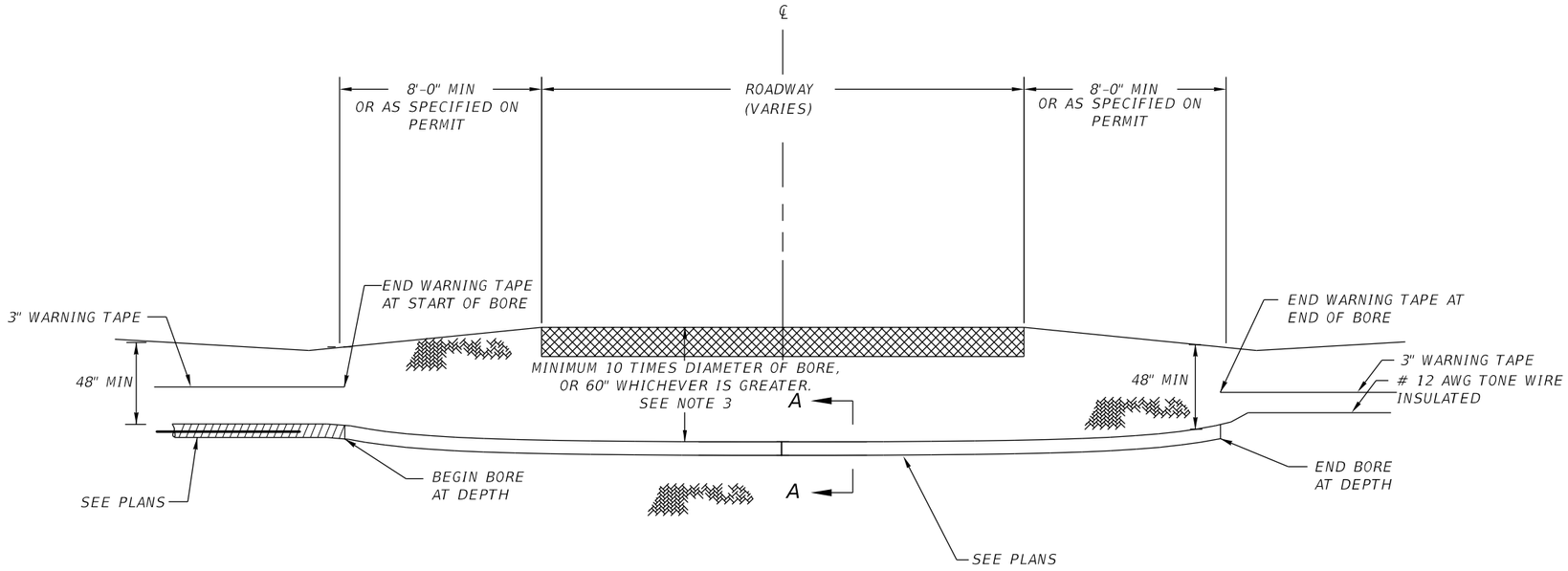
FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

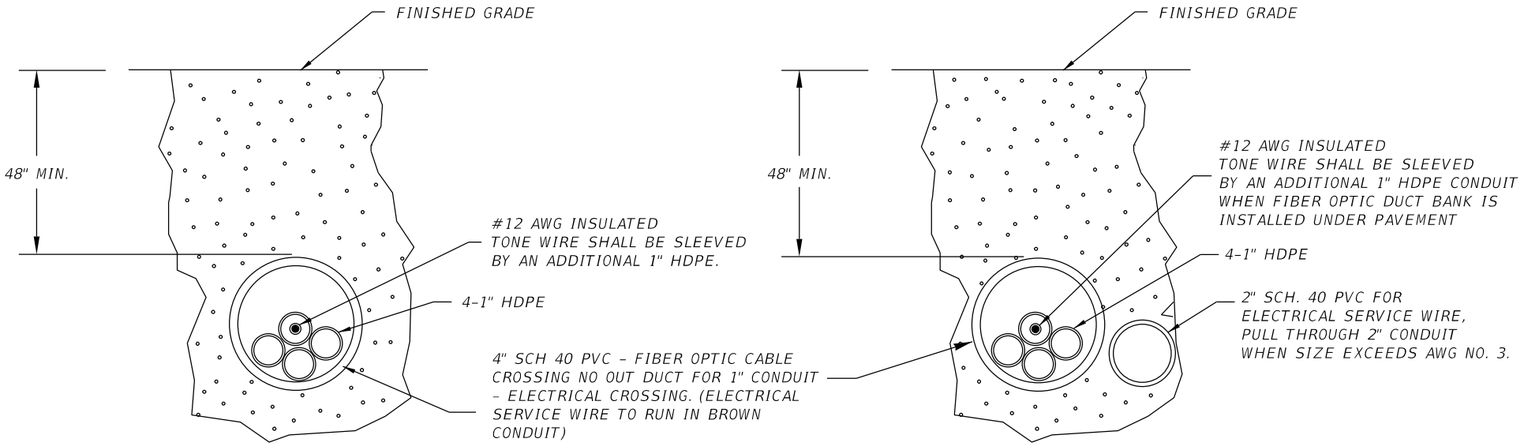
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DIRECTIONAL BORE DETAIL FIBER OPTIC BACKBONE CONDUIT

SHEET NO. B-4



TYPICAL DIRECTIONAL BORE
N.T.S.



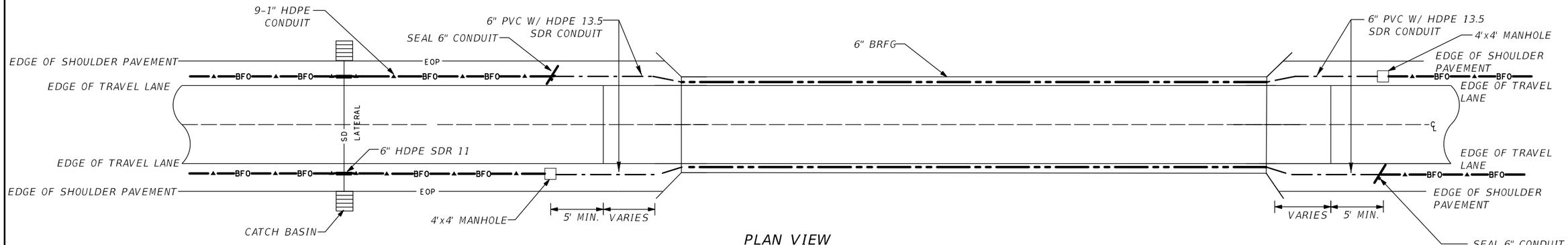
SECTION A-A
N.T.S.

NOTES:

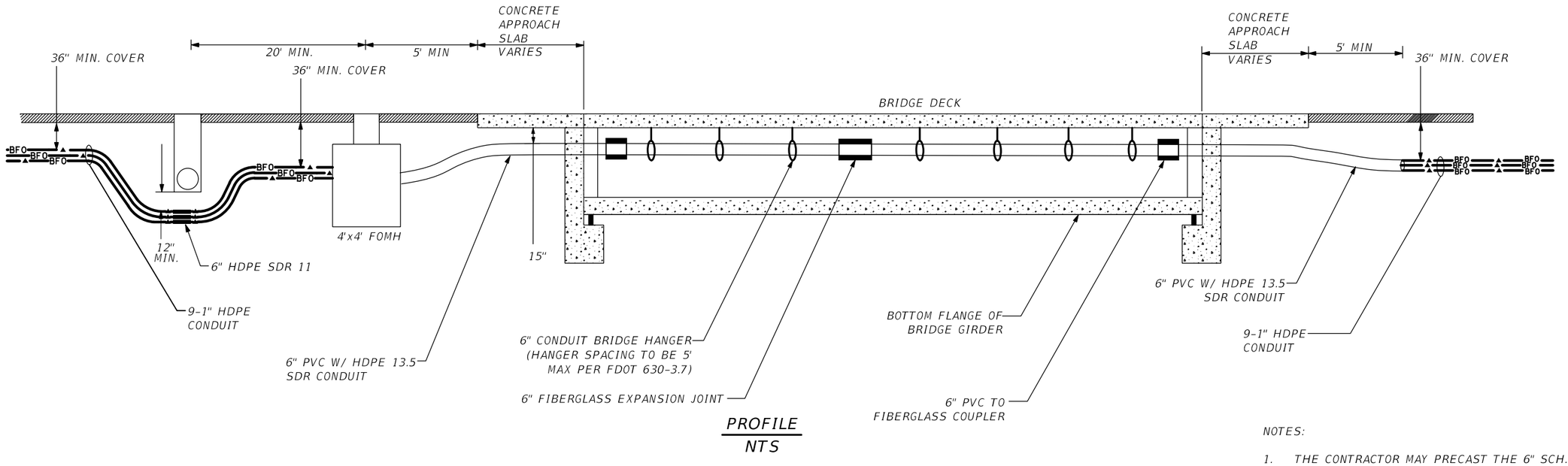
1. UTILITY IN THE PATH OF THE BORE SHALL BE LOCATED AND THE DEPTH OF THE BORE CROSSING SHALL BE DELINEATED TO CROSS UNDER OR OVER UTILITY WITH 12" MINIMUM SEPARATION.
2. ALL ENDS OF BORES SHALL BE SEALED WITH GROUT.
3. HORIZONTAL DEPTH SHALL BE IN ACCORDANCE WITH FDOT UTILITY ACCOMMODATION MANUAL SECTION 9.3 AND 12.3.
4. A SEPARATE BORE FOR 2" CONDUIT WILL BE REQUIRED WHEN ELECTRICAL SERVICE WIRE SIZE EXCEEDS AWG NO. 3.

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					
		REFER TO CFX SPECIFICATIONS 555, 633 AND 638 FOR ADDITIONAL INFORMATION.								B-5

TYPICAL BRIDGE APPROACH ATTACHMENT DETAIL



PLAN VIEW
NTS



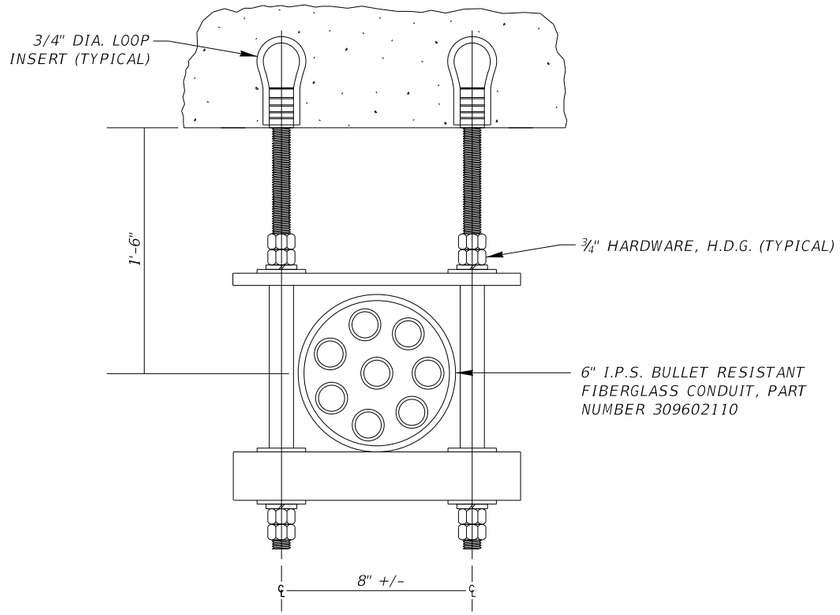
PROFILE
NTS

NOTES:

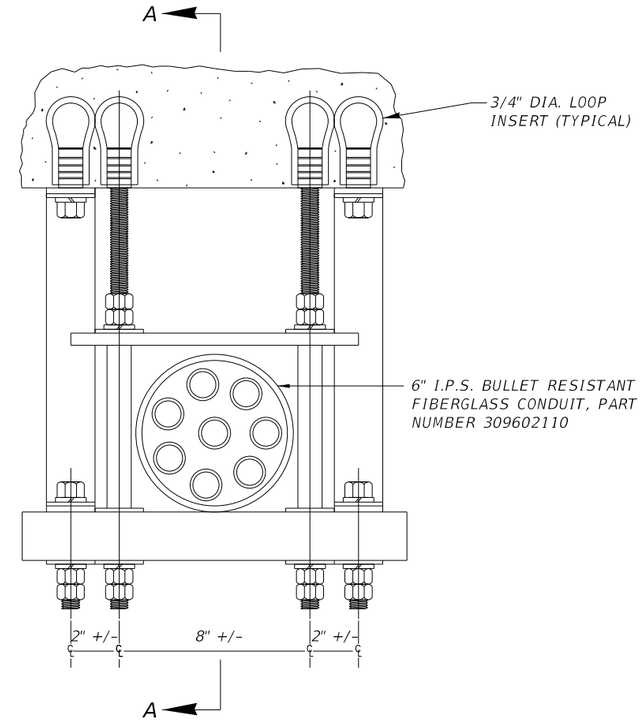
1. THE CONTRACTOR MAY PRECAST THE 6" SCH. 40 PVC CONDUIT THROUGH END BENT END WALL.

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
		REFER TO CFX SPECIFICATION SECTIONS 633, 635, 636 AND 638 FOR ADDITIONAL INFORMATION.								

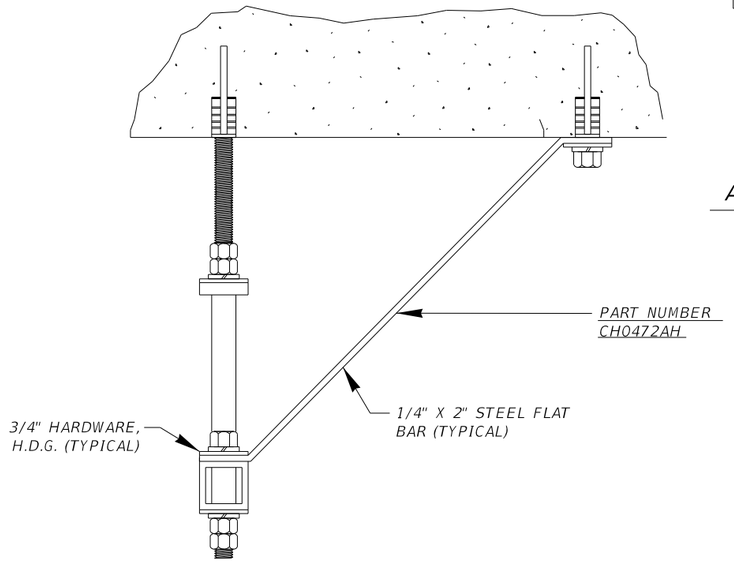
6" FIBERGLASS BRIDGE HANGERS



INTERMEDIATE SUPPORT HANGER
PART NUMBER CHO472AG



ANCHOR POINT SUPPORT HANGER
PART NUMBER CHO472AH
FRONT VIEW



SECTION A-A

NOTES:

1. THE FIBER OPTIC CABLE (FOC) SHALL BE 6" DIAMETER I.P.S.BULLET RESISTANT FIBERGLASS CONDUIT AS MANUFACTURED BY OPTI-COM MANUFACTURING NETWORK, INC. (OMNI), PART NUMBER 309602110 OR APPROVED EQUAL.
2. THE HANGER SUPPORT ASSEMBLIES SHALL BE OMNI PART NUMBER CH0472AG. THE HANGER ANCHOR ASSEMBLY SHALL BE OMNI PART NUMBER CH0472AH OR APPROVED EQUAL.
3. THE MAXIMUM HANGER SPACING SHALL NOT EXCEED 10'-0" AND THE ANCHORING HANGERS SHALL BE PLACED AT EVERY 120 FT. MAXIMUM, OR WITHIN 5 FT. OF A PIER OR ABUTMENT.
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 CALCULATIONS FOR THE HANGER SYSTEM AND SHOP DRAWINGS SIGNED AND SEALED BY A FLORIDA PROFESSIONAL ENGINEER 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.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION			

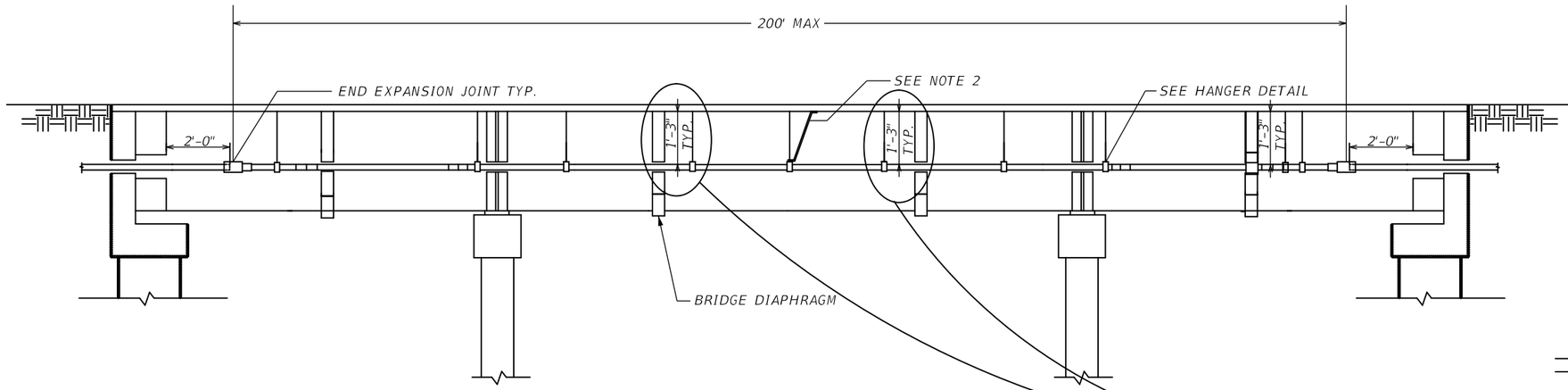
FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

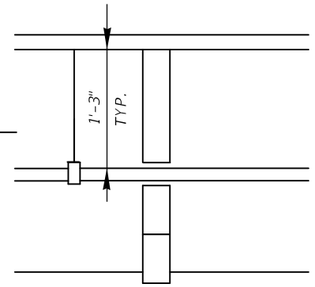
BRIDGE HANGER DETAIL

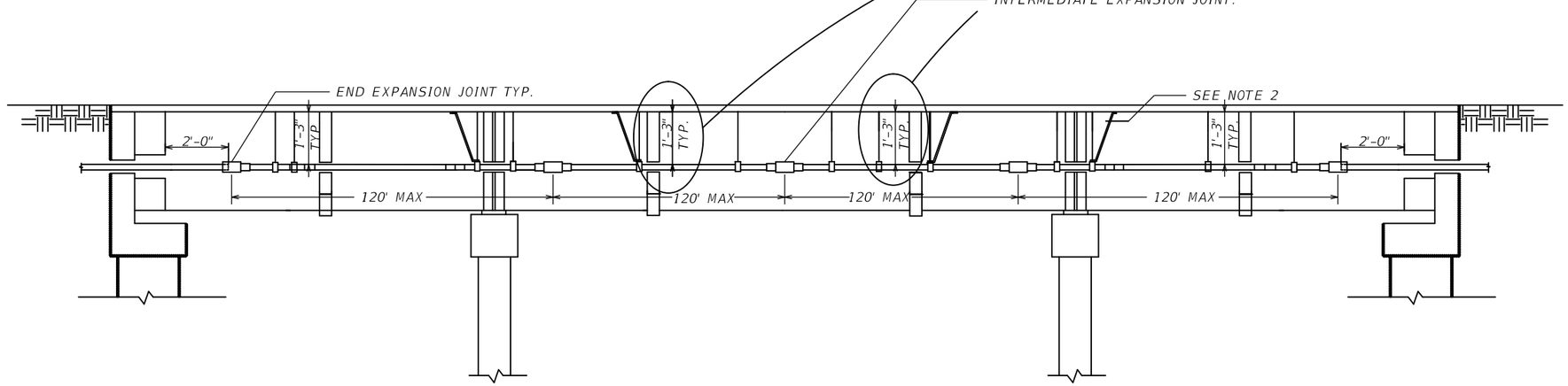
SHEET NO. C-2



TYPICAL BRIDGE SECTION FOR BRIDGES 120' OR SHORTER

N.T.S.





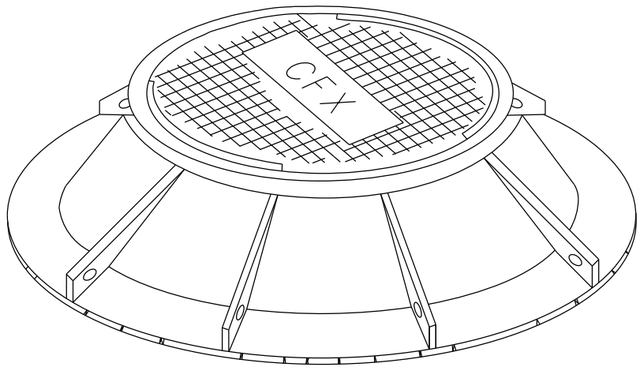
TYPICAL BRIDGE SECTION FOR BRIDGES 200' OR LONGER

N.T.S.

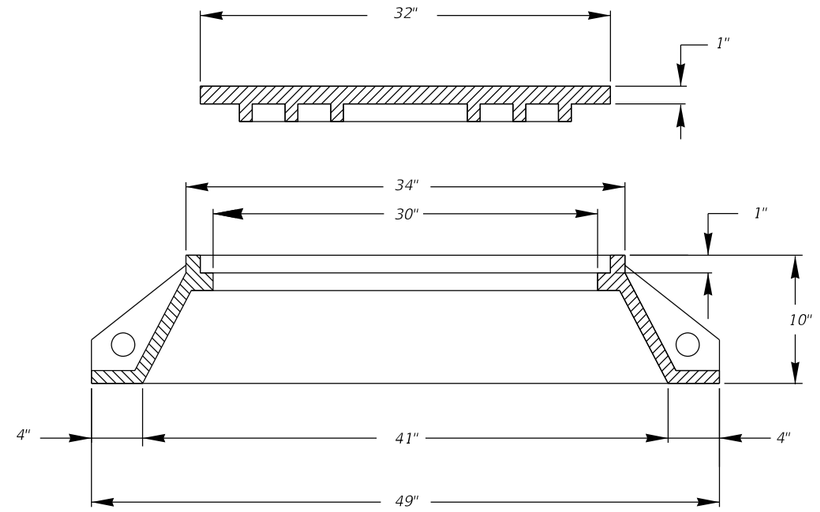
NOTES:

1. SPACING BETWEEN EXPANSION JOINTS SHALL BE NO GREATER THAN 120 FEET.
2. LATERAL MOVEMENT IS FIXED AT MID SPAN BETWEEN EXPANSION JOINT BY USE OF HANGER BRACE.
3. ALL FIBERGLASS CONDUIT HANGERS WILL BE SPACED NO MORE THAN 5' MAX PER FDOT 630-3.7.

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					
		REFER TO CFX SPECIFICATION SECTIONS 633 AND 638 FOR ADDITIONAL INFORMATION.								C-3



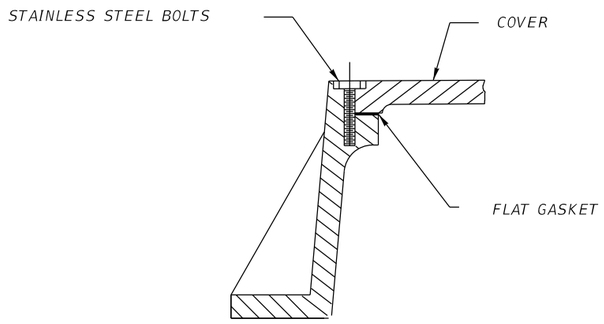
MANHOLE COVER
N.T.S.



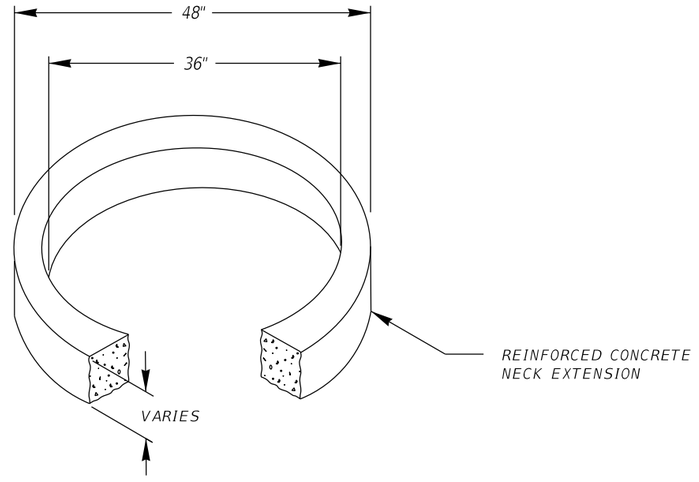
RING AND COVER DETAIL
N.T.S.

NOTES:

1. EACH COVER TO HAVE (4) PICK SLOTS FOR REMOVING.
2. "CFX" IN COVER.
3. ACCESS HOLE: 30".
4. PENTABOLTS
5. MANHOLE RING AND COVER SHALL CONFORM TO HS20 TRAFFIC RATED-HEAVY DUTY LOAD RATING.
6. ANCHOR RING TO MANHOLE TOP USING ½" GALVANIZED BOLTS.
7. MANHOLE RING AND COVER TO BE WATERTIGHT AND GROUNDED TO COMMON GROUND.
8. MATERIAL: ASTM-A48 CLASS 35B GRAY IRON.

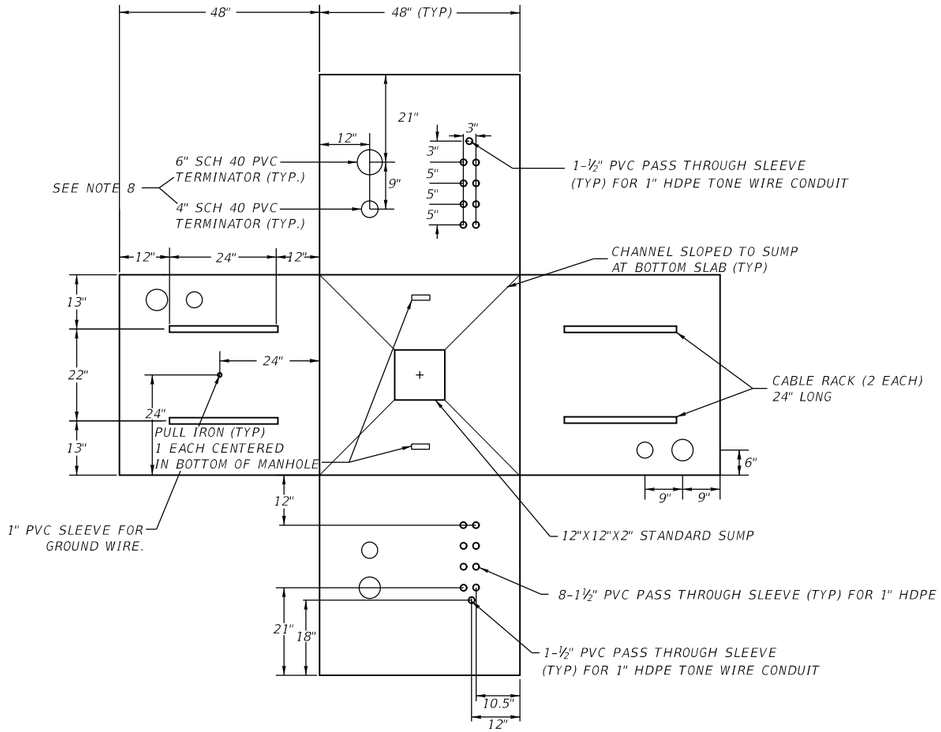


BOLTED WATERTIGHT DETAIL
N.T.S.

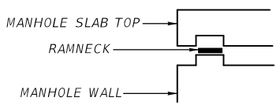


TYPICAL NECK EXTENSION DETAIL
N.T.S.

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					
		REFER TO CFX SPECIFICATION SECTION 636 FOR ADDITIONAL INFORMATION.								D-1



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



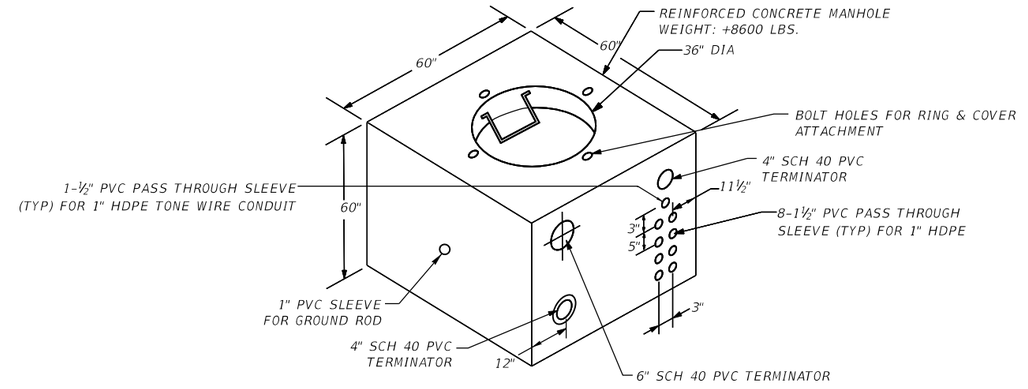
MANHOLE JOINT CONFIGURATION
N.T.S.

RING & COVER GENERAL NOTES

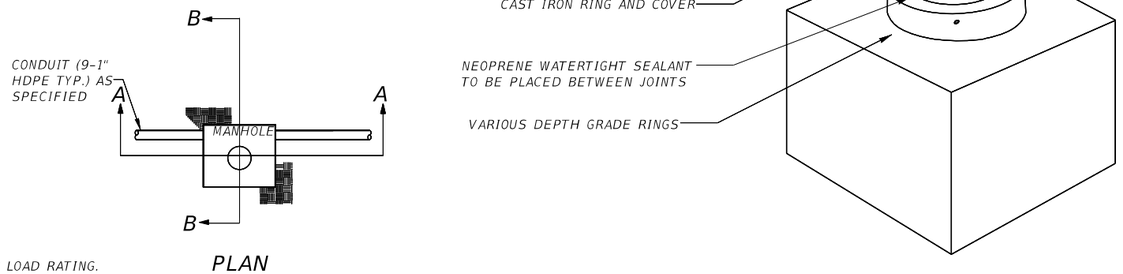
1. EACH COVER TO HAVE (4) PICK SLOTS FOR REMOVING.
2. "CFX" IN COVER.
3. ACCESS HOLE: 30".
4. PENTABOLTS
5. MANHOLE RING AND COVER SHALL CONFORM TO HS20 TRAFFIC RATED-HEAVY DUTY LOAD RATING.
6. ANCHOR RING TO MANHOLE TOP USING ½" GALVANIZED BOLTS.
7. MANHOLE RING AND COVER TO BE WATERTIGHT AND GROUNDED TO COMMON GROUND.
8. MATERIAL: ASTM-A48 CLASS 35B GRAY IRON.

NOTES:

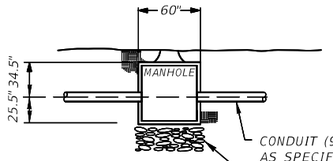
1. CONTRACTOR SHALL SUBMIT PRECAST CONCRETE MANHOLE AND RING WEIR CUT SHEETS AND CAPACITIES VERIFICATIONS FOR ENGINEER'S REVIEW AND APPROVAL
2. MANHOLE SHALL CONFORM TO HL93 FULL VEHICULAR LOADING.
3. ALL MANHOLES SHALL BE PROVIDED WITH AN INWESCO SERIES I-3600 OR EQUIVALENT LADDER THAT EXTENDS TO THE FLOOR.
4. ALL UNUSED ACCESS POINT SHALL BE EQUIPPED WITH COMPRESSION TYPE SNUG PLUGS.
5. ALL MANHOLES SHALL BE PLACED WITH COVER FLUSH WITH FINISHED GRADE ON PAVED SHOULDER. MANHOLE COVERS SHALL BE BOLTED IN PLACE.
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 TO PREVENT WATER INGRESS TO THE SATISFACTION OF THE ENGINEER.
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 ½" x 2½" GALVANIZED MACHINE BOLTS AND GALVANIZED ANCHORS CAST INTO THE WALLS.



60" OD SQUARE MANHOLE



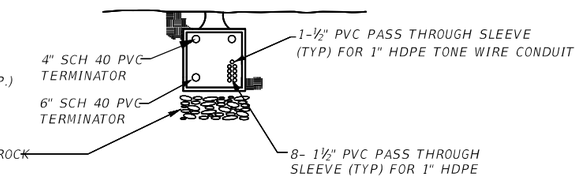
PLAN



A-A PROFILE

TYPICAL MANHOLE

1. ALL MANHOLES SHALL HAVE 12" OF ¾" CRUSHED ROCK PLACED UNDER MANHOLES.

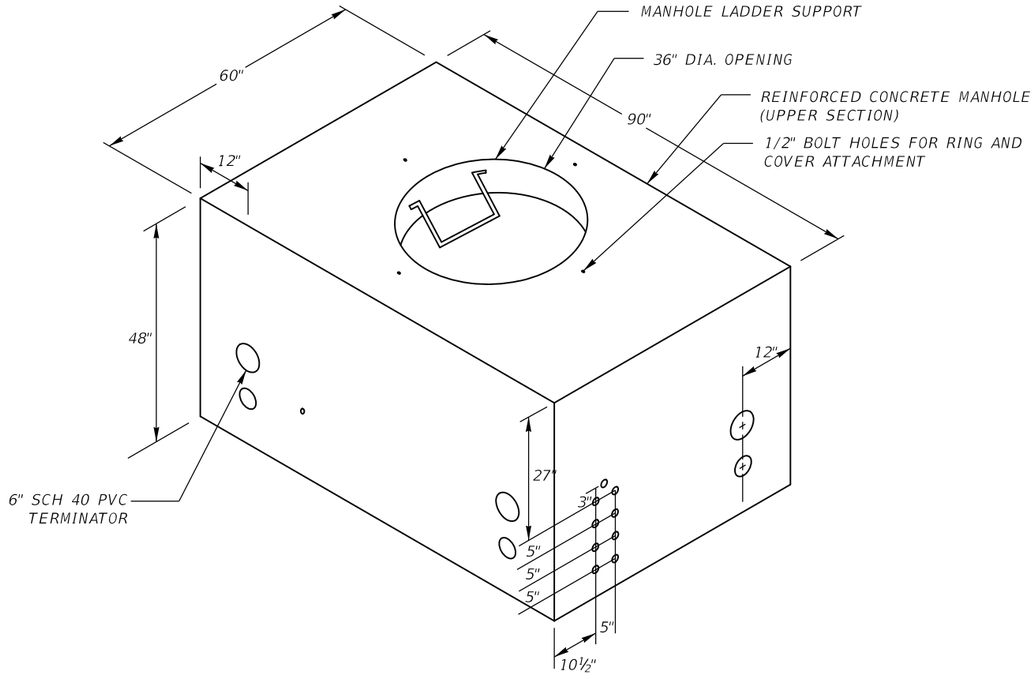


B-B PROFILE

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTION 636 FOR ADDITIONAL INFORMATION.						

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

SHEET NO. D-2

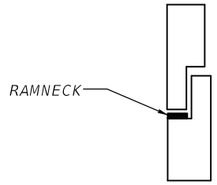


4' X 6.5' X 6.5' MANHOLE

N.T.S.

78" HEADROOM

6" WALLS

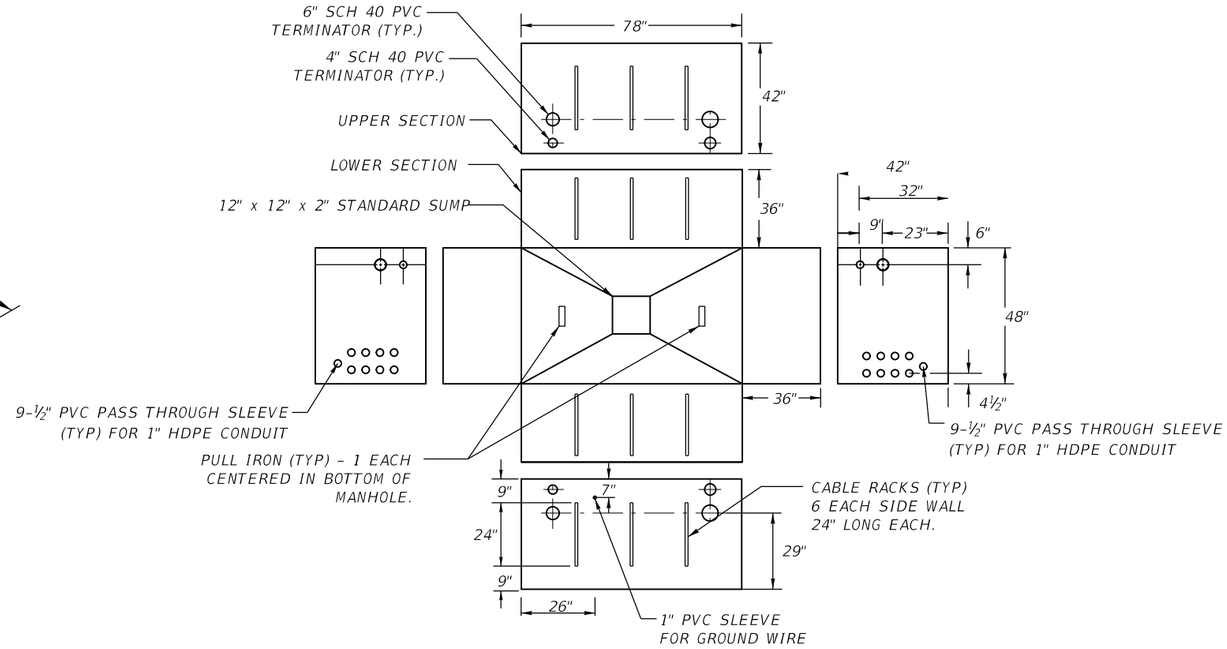


MANHOLE JOINT CONFIGURATION

N.T.S.

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.
5. ALL MANHOLES SHALL BE PLACED WITH COVER FLUSH WITH FINISHED GRADE ON PAVED SHOULDER. MANHOLE COVERS SHALL BE BOLTED IN PLACE.
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 1/2" CRUSHED ROCK PLACED UNDER MANHOLES.
8. ALL MANHOLE PENETRATIONS SHALL BE SEALED TO PREVENT WATER INGRESS TO THE SATISFACTION OF THE ENGINEER.
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 2" GALVANIZED MACHINE BOLTS AND GALVANIZED ANCHORS CAST INTO THE WALLS.



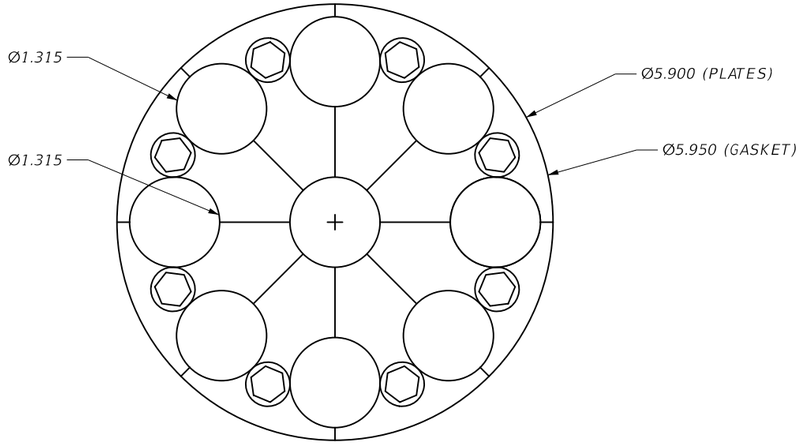
MANHOLE 4' L x 6.5' W x 6.5' H

2 SECTIONS

N.T.S.

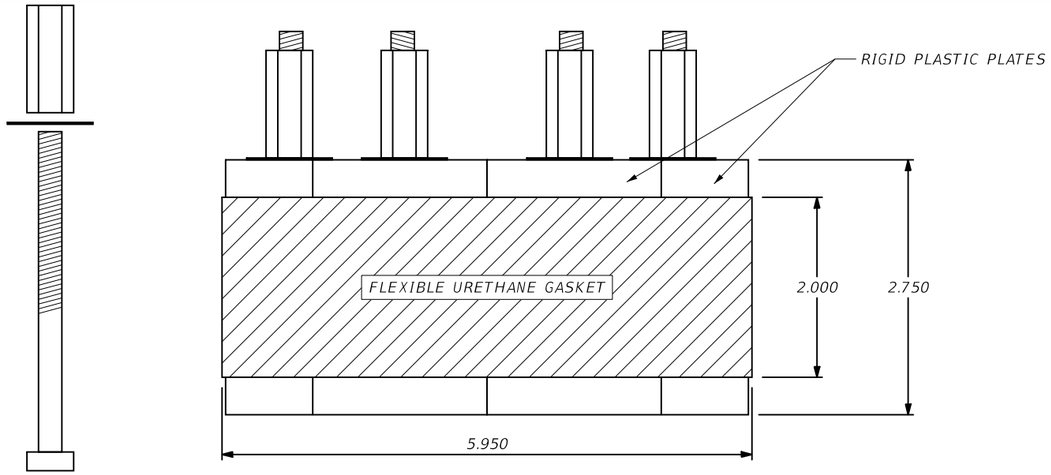
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC MANHOLE DETAIL 4' X 6.5' X 6.5'	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 636 FOR ADDITIONAL INFORMATION.								D-3

TOP VIEW



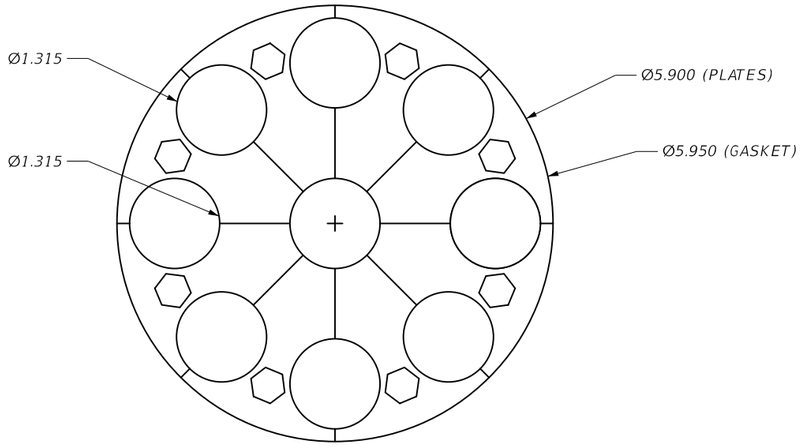
PLUG USES 8-3.5" X ¼" STAINLESS STEEL BOLTS WITH COUPLER NUTS TO BOTH HOLD THE PIECE TOGETHER AND PROVIDE COMPRESSION WHEN INSTALLED.

SIDE VIEW



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

BOTTOM VIEW



NINE HOLES THROUGH THE GASKET CAN BE FORMED TO ANY SIZE UP TO 1.32".

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 636 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

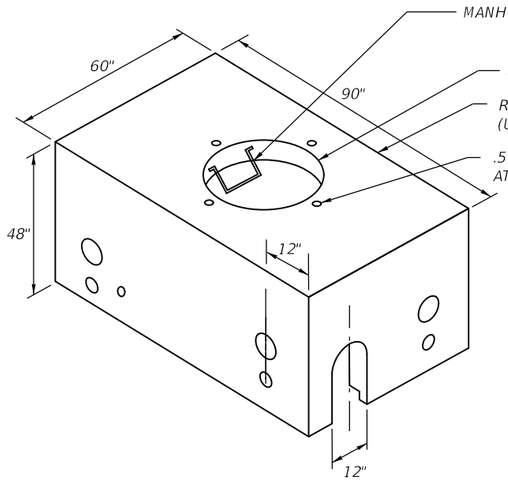
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

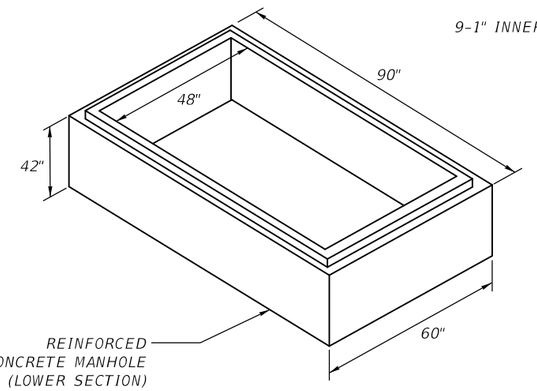
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

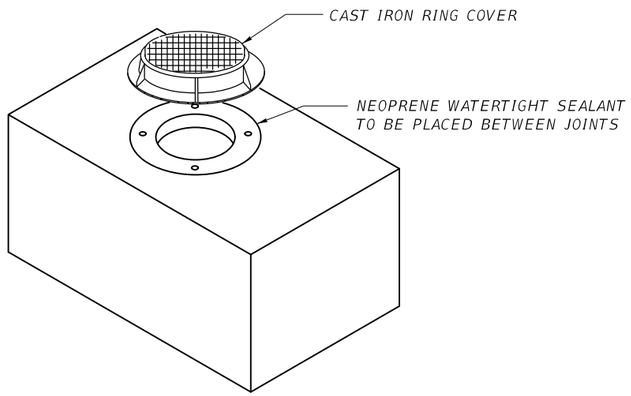
FIBER OPTIC MANHOLE INNERDUCT ORGANIZER

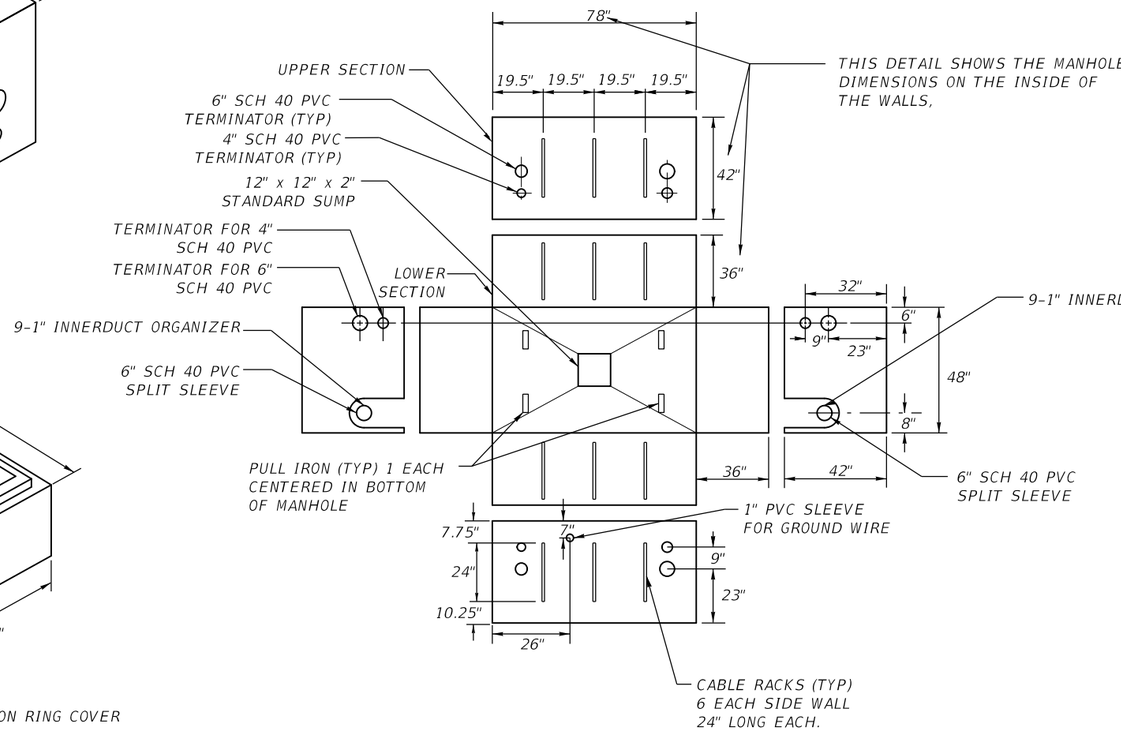
SHEET NO. D-4

4'W X 6.5'L X 6.5'H MANHOLE DETAIL









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 A 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.
5. ALL MANHOLES SHALL BE PLACED WITH COVER FLUSH WITH FINISHED GRADE ON PAVED SHOULDER. MANHOLE COVERS SHALL BE BOLTED IN PLACE.
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 1/2" CRUSHED ROCK PLACED UNDER MANHOLES.
8. ALL MANHOLE PENETRATIONS SHALL BE SEALED TO PREVENT WATER INGRESS TO THE SATISFACTION OF THE ENGINEER.
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 2" GALVANIZED MACHINE BOLTS AND GALVANIZED ANCHORS CAST INTO THE WALLS.
12. THE CONTRACTOR SHALL INSTALL THE TONE WIRE IN 6" SCH 40 PVC SPLIT SLEEVE 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 TO EXTEND A MINIMUM OF 12" FROM THE INNERDUCT ORGANIZER.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 636 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

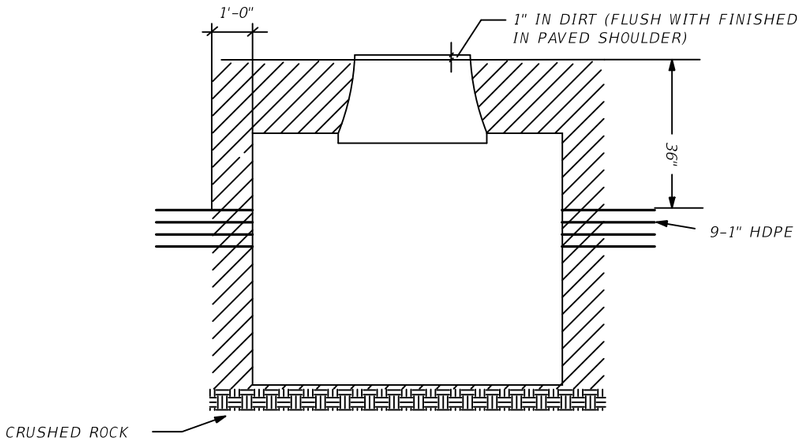
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

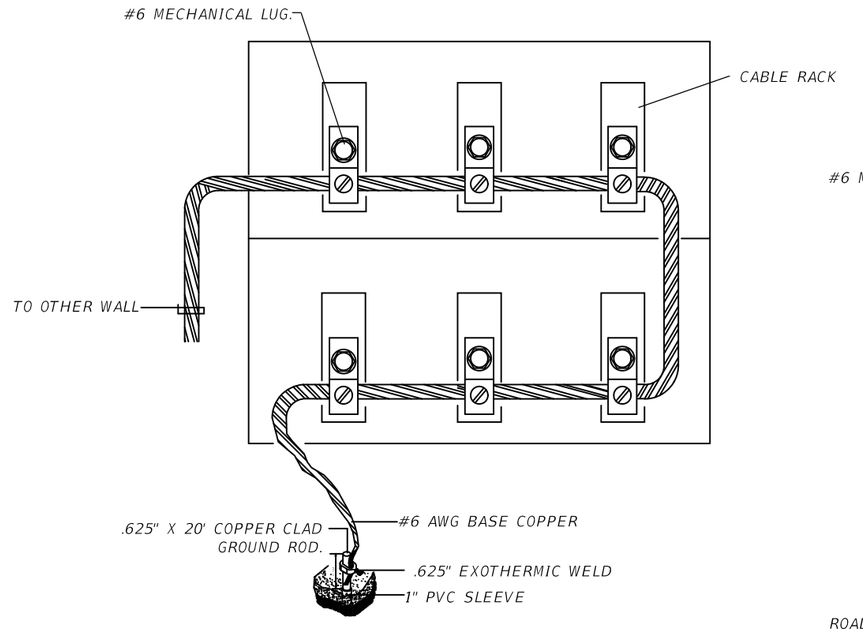
FIBER OPTIC MANHOLE DETAIL 4' X 6.5' X 6.5' (DOGHOUSE)

SHEET NO. D-5

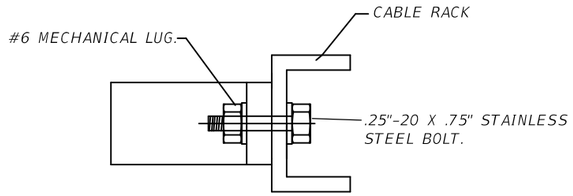
BONDING & GROUNDING DETAIL



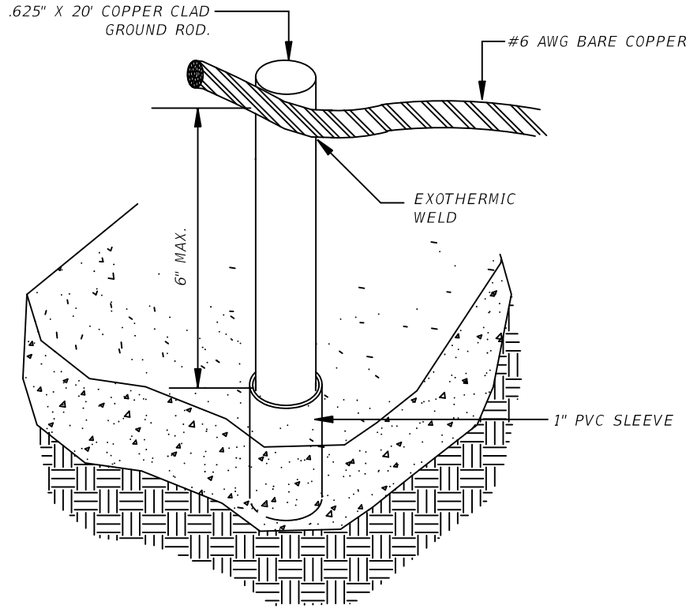
MANHOLE PROFILE
N.T.S.



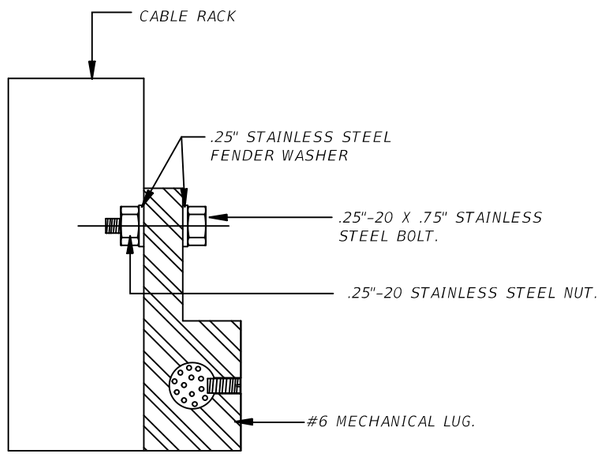
MANHOLE GROUNDING
TYPICAL WALL
N.T.S.



MECHANICAL LUG
PLAN VIEW
N.T.S.



GROUND ROD CLAMP
N.T.S.



MECHANICAL LUG
PROFILE VIEW
N.T.S.

ROADWAY AND TRAFFIC DESIGN CALL FOR THE FOLLOWING GENERAL NOTES:

1. GROUND RODS SHALL HAVE A RESISTANCE TO GROUND NOT TO EXCEED 25 OHM. WHERE THE RESISTANCE IS NOT AS LOW AS 25 OHMS, TWO OR MORE ROUND RODS CONNECTED IN PARALLEL SHALL BE USED. CONTRACTOR SHALL HAVE NECESSARY TEST EQUIPMENT (CURRENT CALIBRATION CERTIFICATE REQUIRED) AT FINAL INSPECTION TO INSURE ACCEPTABILITY OF GROUNDING SYSTEM. TOTAL GROUNDING SYSTEM NOT TO EXCEED 10 OHMS.
2. ALL CONNECTIONS BETWEEN BARE COPPER GROUNDING WIRE AND GROUND ROD SHALL BE EXOTHERMIC WELD PER MANUFACTURER STANDARDS.
3. 20' COPPER CLAD GROUND ROD SHALL BE ACHIEVED BY GROUND ROD THREADED COUPLINGS OF THE SAME MATERIAL USED AND ALLOWED PER THE SPECIFICATIONS.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 636 FOR ADDITIONAL INFORMATION.			

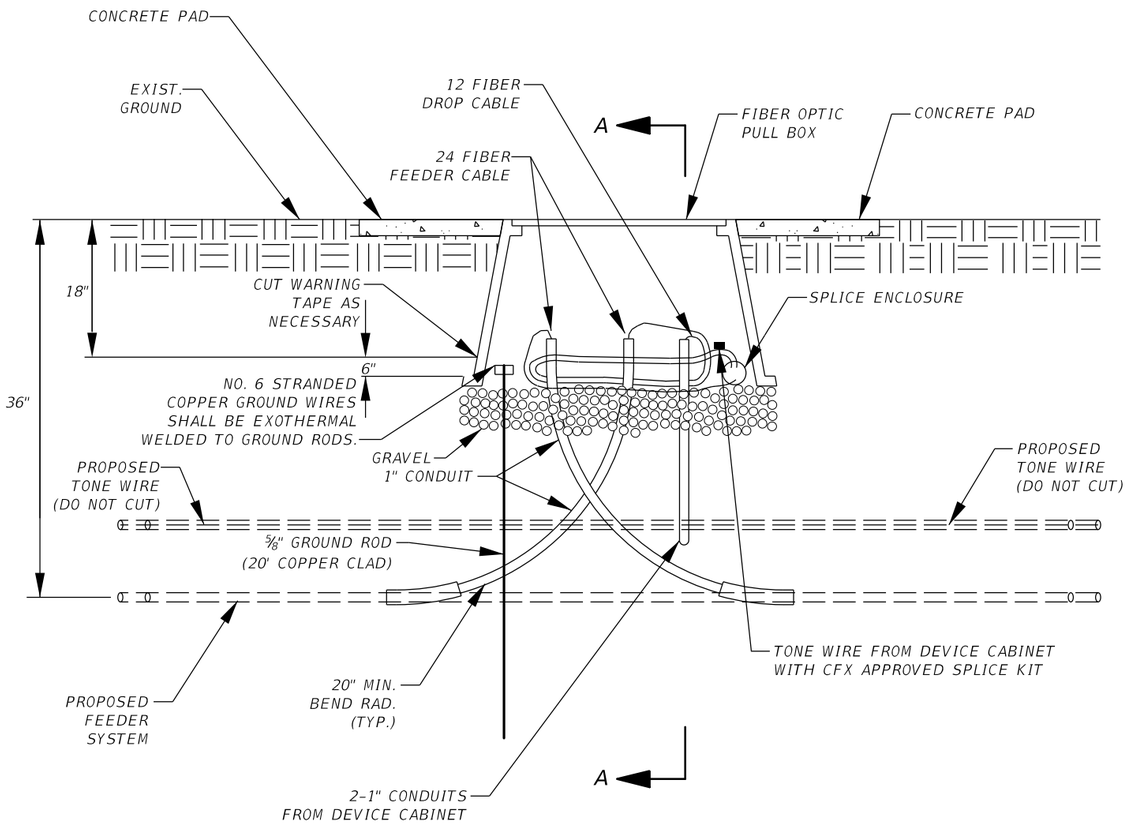
FOR INFORMATIONAL PURPOSES ONLY

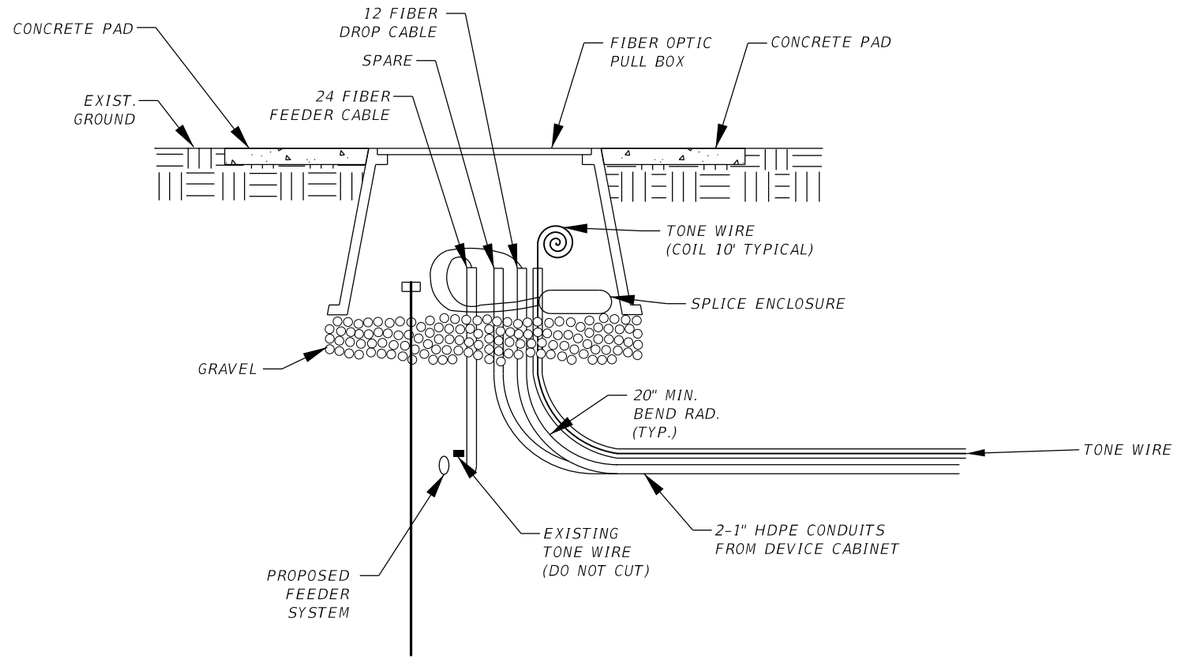
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

FIBER OPTIC MANHOLE GROUNDING DETAILS

SHEET NO. D-6





SECTION A-A

NOTES:

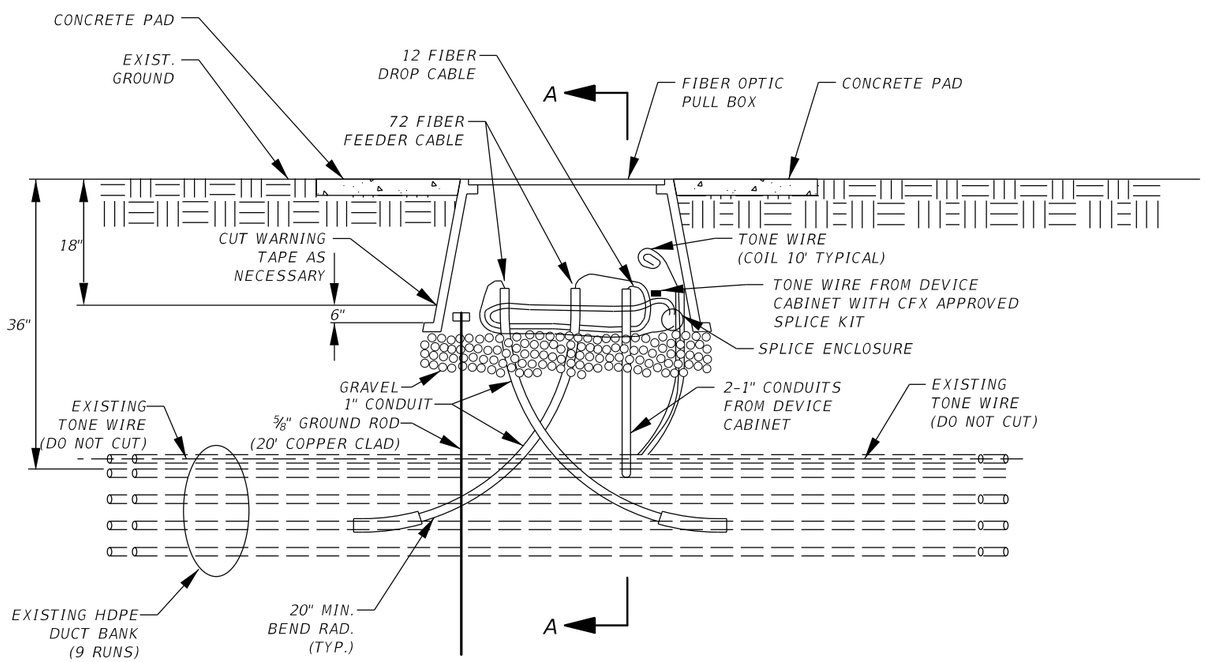
1. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE EXISTING CONDUIT OR F.O.N. CABLE AND TONE WIRE. ANY DAMAGE SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
2. EXTEND THE BLUE CONDUIT INTO THE PULL BOX FOR THE FEEDER CABLE.
3. INSTALLATION OF PULL BOX, ASSOCIATED EQUIPMENT AND MATERIALS SHALL BE PAID UNDER PAY ITEM 635-1-15.
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. ALL TONE WIRE SPLICING SHALL BE MADE INSIDE THE PULL BOX OR MANHOLE.
7. ALL ELECTRICAL SPLICING SHALL BE COMPLETED WITH A CFX APPROVED SPLICE KIT.

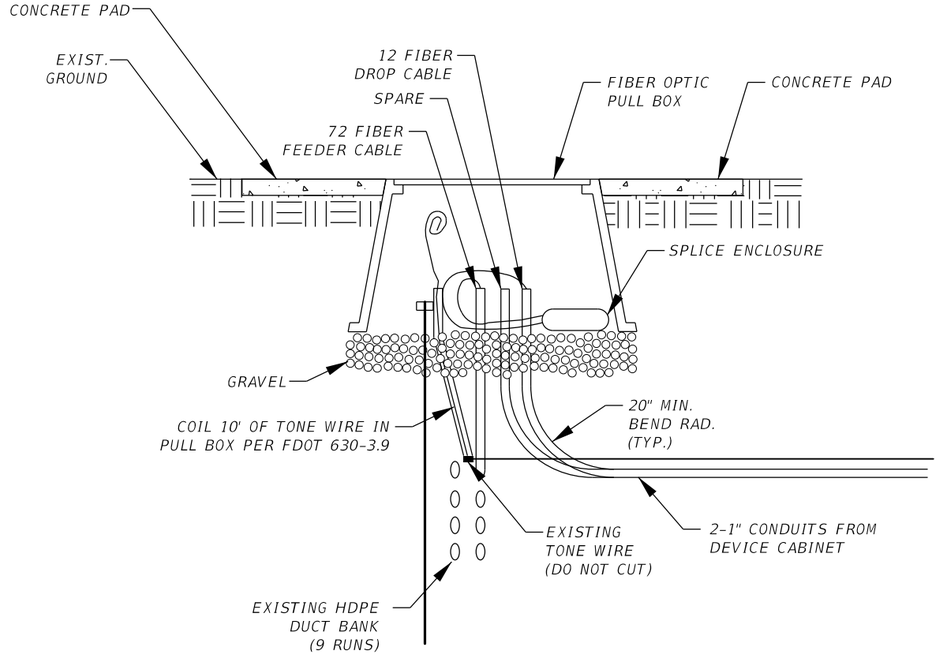
F.O.N. CONDUIT DETAIL UNDERGROUND
N.T.S.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTIONS 633, 635, AND 638 FOR ADDITIONAL INFORMATION.						

FIBER OPTIC PULL BOX DETAILS (AUXILIARY FEEDER TO DEVICE)

SHEET NO. E-1





SECTION A-A

F.O.N. CONDUIT BREAK-IN DETAIL UNDERGROUND
N.T.S.

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 BLUE CONDUIT INTO THE PULL BOX FOR THE FEEDER CABLE.
3. INSTALLATION OF PULL BOX, ASSOCIATED EQUIPMENT AND MATERIALS SHALL BE PAID UNDER PAY ITEM 635-1-15.
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. ALL TONE WIRE SPLICING SHALL BE MADE INSIDE THE PULL BOX OR MANHOLE.
7. ALL ELECTRICAL SPLICING SHALL BE COMPLETED WITH A CFX APPROVED SPLICE KIT.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 633, 635, AND 638 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

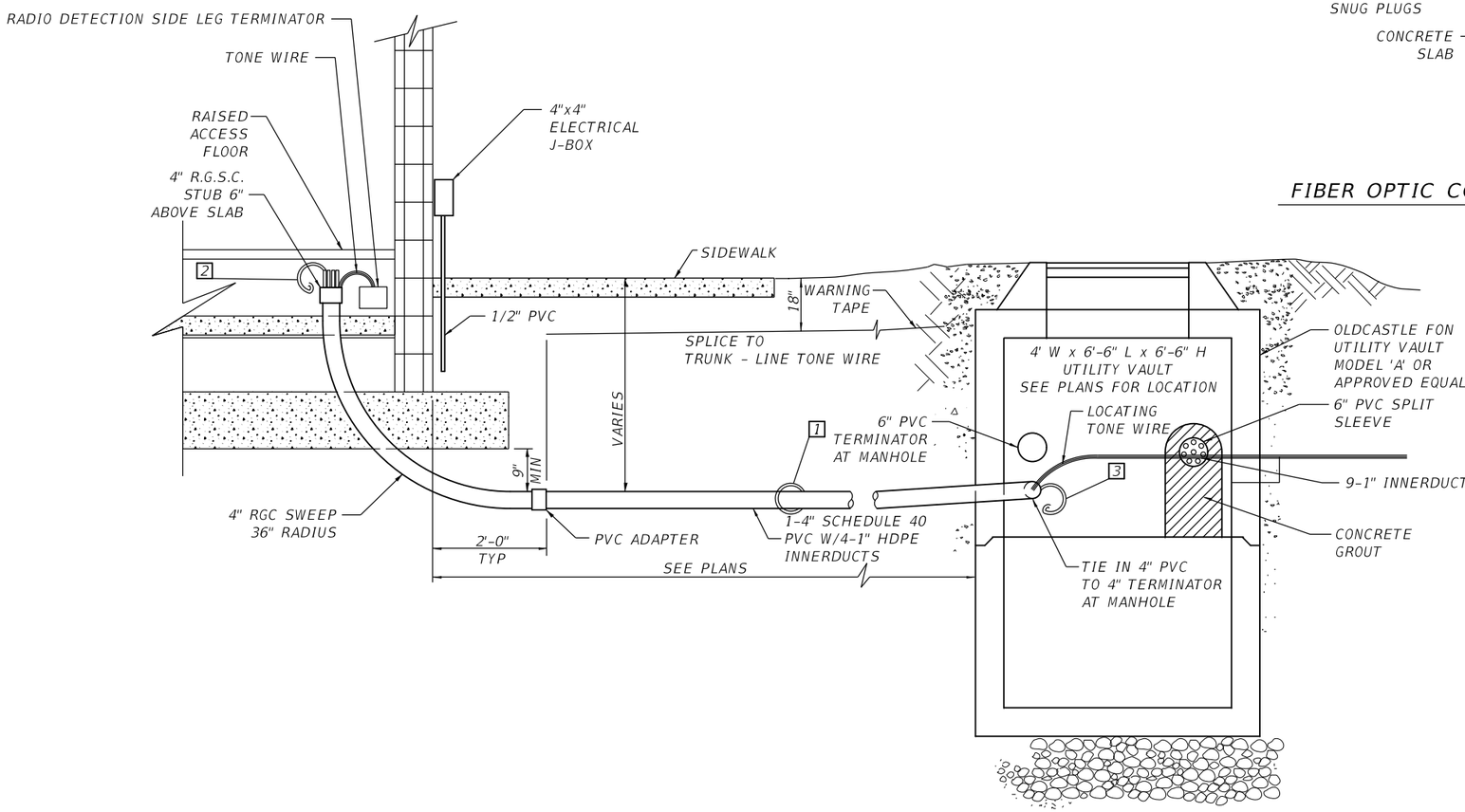
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

FIBER OPTIC PULL BOX DETAILS (BACKBONE TO DEVICE)

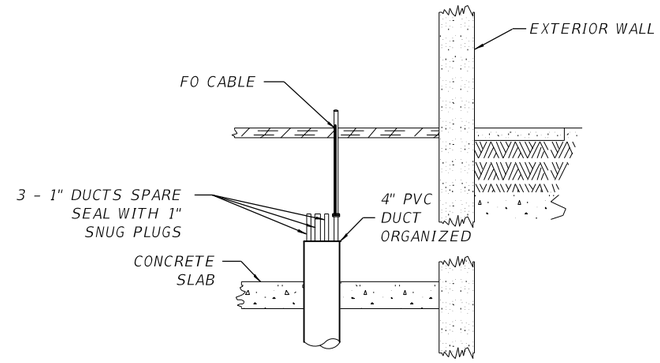
SHEET NO. E-2

REFERENCE NOTES:

1. INSTALL FIBER OPTIC CABLE OWENS-CORNING 72-ROUND 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.



FIBER OPTIC CONDUIT JUNCTION BOX ENTRANCE
N.T.S



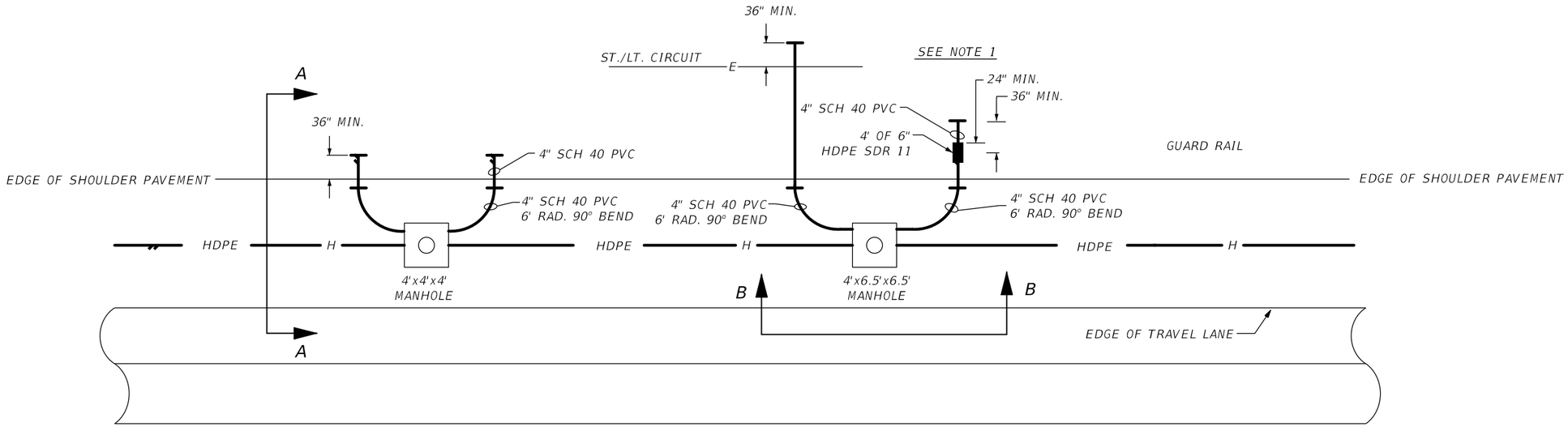
FIBER OPTIC CONDUIT UNDERGROUND ENTRANCE
N.T.S

NOTES:

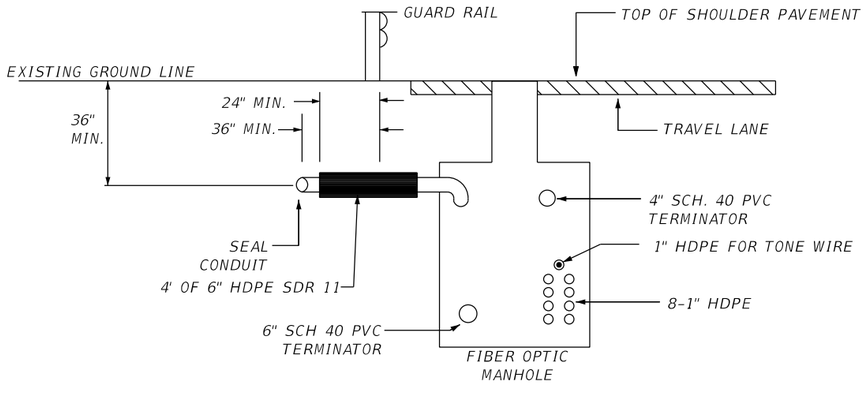
1. HAND DIG AS NEEDED TO EXPOSE ANY EXISTING UTILITIES.
2. PVC AT 36" DEPTH MINIMUM.
3. IF CONDUIT TO BE INSTALLED IS LESS THAN 36" DEEP: USE HDPE SDR 11.
4. ALL CONCRETE PENETRATIONS AROUND CONDUITS SHALL BE WATERPROOF.
5. LATERAL TONE WIRE SHALL BE LOCATED IN 4" CONDUIT BETWEEN THE MANHOLE AND THE FIBER OPTIC PULL BOX (SEE DETAIL). LATERAL TONE WIRE SHALL BE SPLICED TO BACKBONE TONE WIRE.
6. 100' OF FIBER OPTIC CABLE SLACK SHALL BE COILED AND PLACED ON A RACK SHELF WITHIN EACH MANHOLE VAULT.
7. TERM "UTILITY VAULT" AND "MANHOLE" ARE THE SAME FOR THE AUTHORITY.
8. REFER TO CFX'S SPECIFICATION #636 AND #638 FOR FIBER OPTIC DUCT INSTALLATION.
9. THE CFX FON O&M CONTRACTOR SHALL PERFORM ALL NECESSARY RACK AND EQUIPMENT INSTALLATION INSIDE RAMP TOLL PLAZA.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	FIBER OPTIC CONDUIT JUNCTION BOX DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTIONS 633, 635, 636, AND 638 FOR ADDITIONAL INFORMATION.								E-3

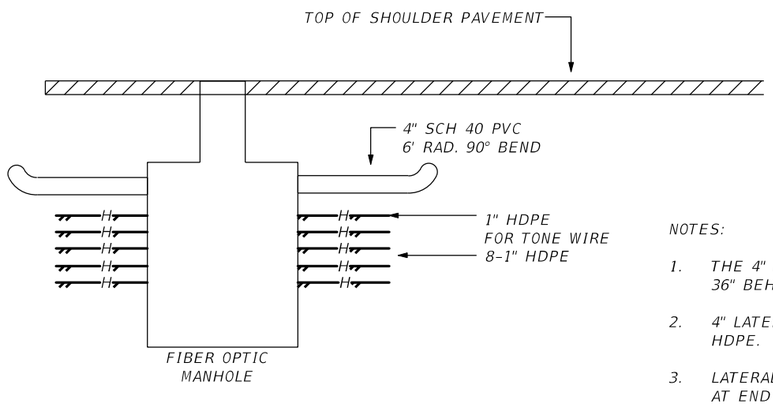
LATERAL CONDUIT FROM MANHOLE DETAIL



PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

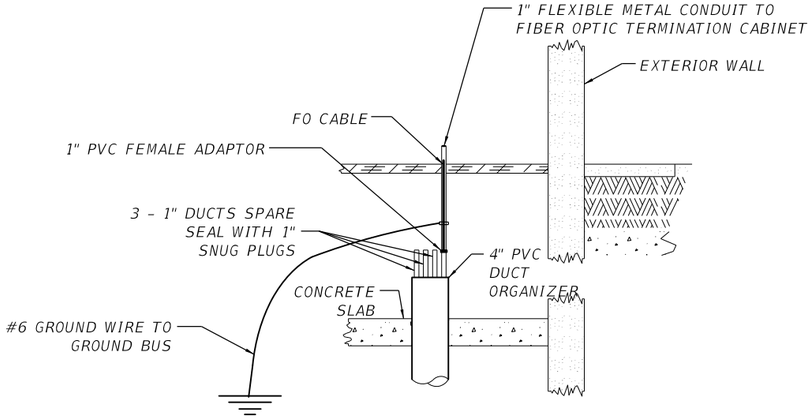


SECTION B-B
N.T.S.

NOTES:

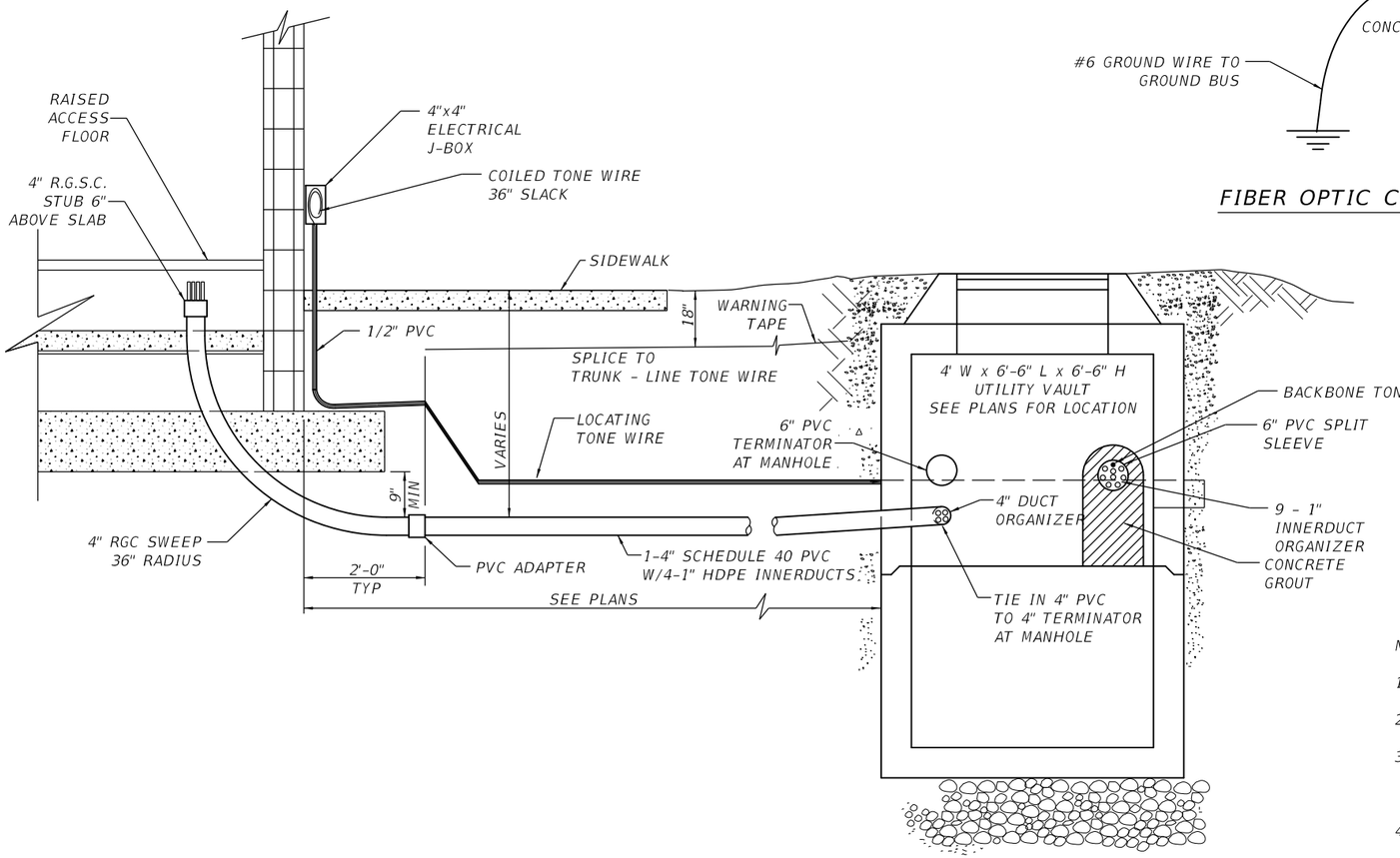
1. THE 4" LATERAL CONDUIT SHALL EXTEND A MINIMUM OF 36" BEHIND ANY ABOVE OR BELOW GROUND OBSTRUCTION.
2. 4" LATERAL CONDUIT SHALL BE EQUIPPED WITH 2-1" HDPE.
3. LATERAL CONDUITS SHALL BE SEALED IN MANHOLE AND AT END OF CONDUIT.
4. ALL MANHOLES INSTALLED UNDER THE PAVED SHOULDER REQUIRE 4" LATERAL CONDUIT AS SHOWN IN DETAILS ABOVE.
5. PAYMENT FOR THE 4" SCH. 40 PVC 90° SWEEP LATERAL CONDUIT & 6" HDPE SDR 11 SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE MANHOLE AND SHALL BE INCLUDED IN THE COST OF THE MANHOLES.

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					
		REFER TO CFX SPECIFICATION SECTIONS 633, 636 AND 638 FOR ADDITIONAL INFORMATION.								E-4



FIBER OPTIC CONDUIT UNDERGROUND ENTRANCE

N.T.S



FIBER OPTIC CONDUIT JUNCTION BOX ENTRANCE

N.T.S

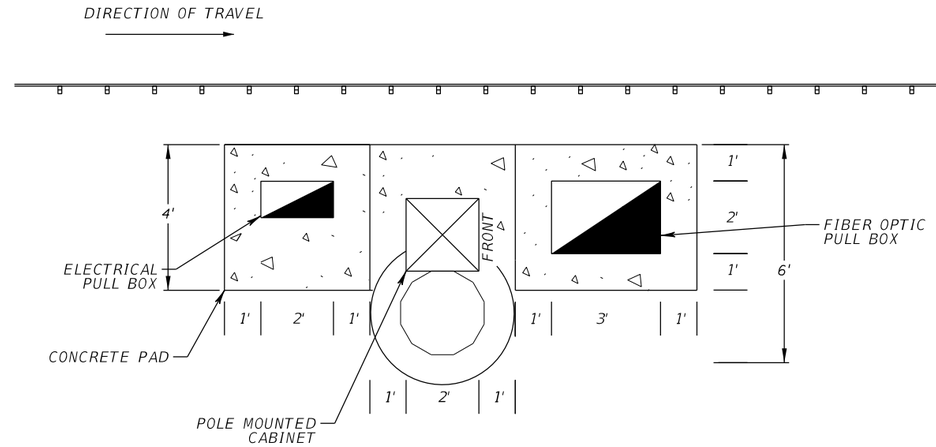
NOTES:

1. HAND DIG AS NEEDED TO EXPOSE ANY EXISTING UTILITIES.
2. PVC AT 36" DEPTH MINIMUM.
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 4" CONDUIT BETWEEN THE MANHOLE AND THE FIBER OPTIC PULL BOX. SEE DETAIL. LATERAL TONE WIRE SHALL BE PULLED WITH THE INTERDUCT AND SHALL BE SPLICED TO THE BACKBONE TONE WIRE.
7. ALL CONDUITS TO EXTEND A MINIMUM OF 12" FROM THE INNERDUCT ORGANIZER.

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					
		REFER TO CFX SPECIFICATION SECTIONS 633, 635, 636, AND 638 FOR ADDITIONAL INFORMATION.								E-5

TYPICAL CONCRETE PAD DETAIL ON SLOPES

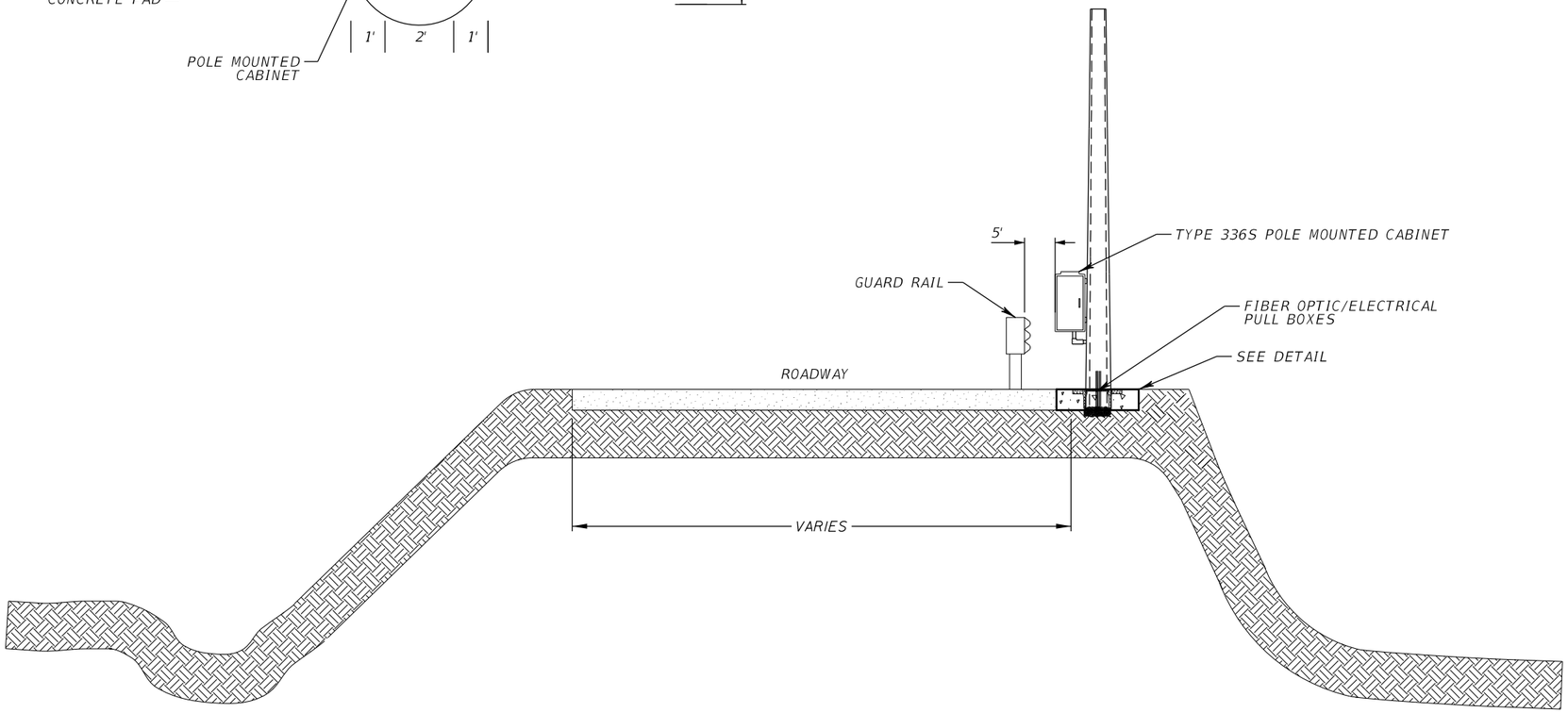
N.T.S.



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.

*VARIES: TO TIE INTO MISC. ASPHALT



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 635 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

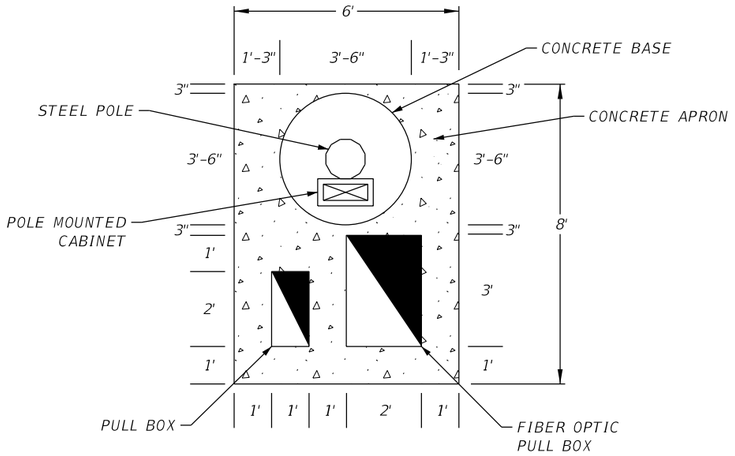
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

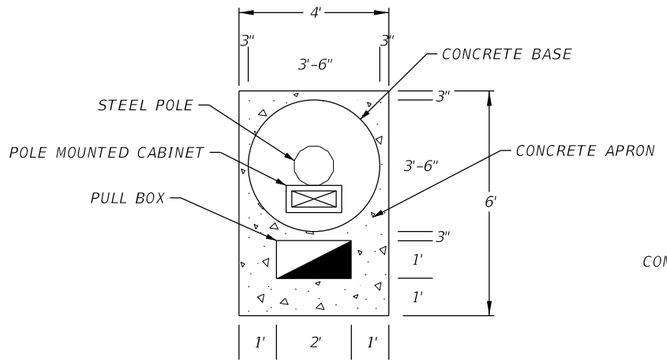
TYPICAL CONCRETE PAD DETAIL FOR SLOPES

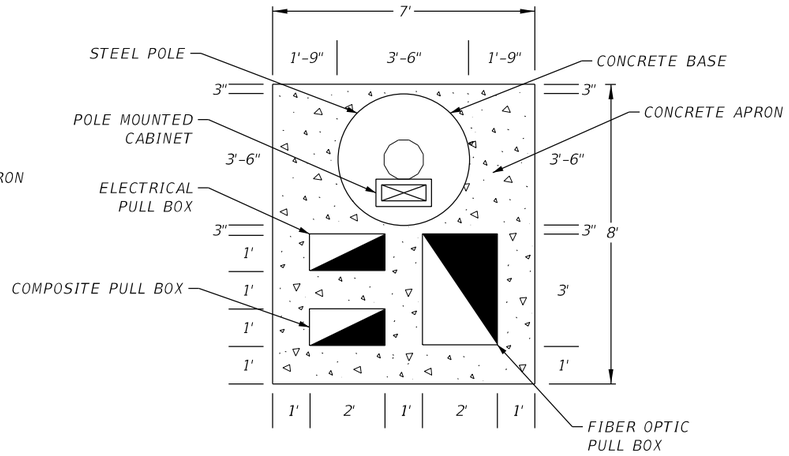
SHEET NO. E-6

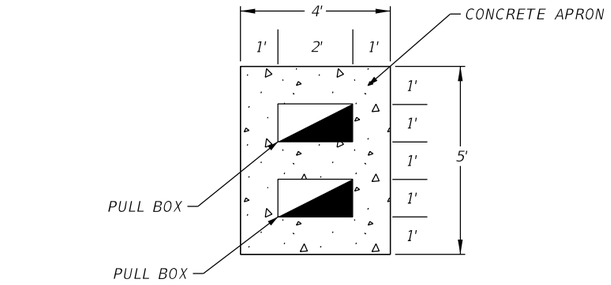
CONCRETE MOW PAD DETAILS

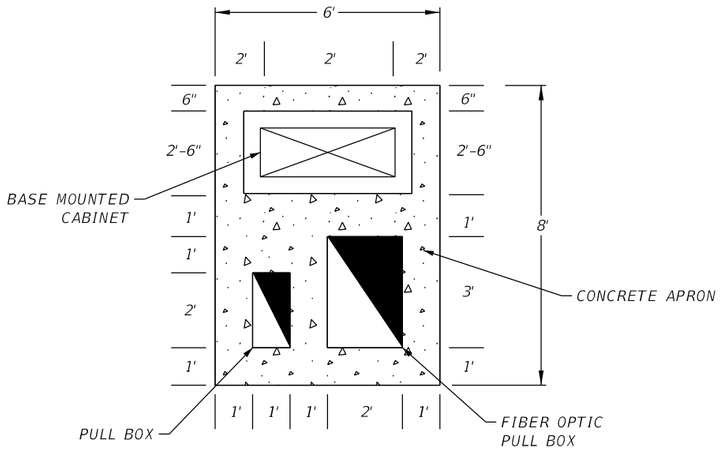
N.T.S.

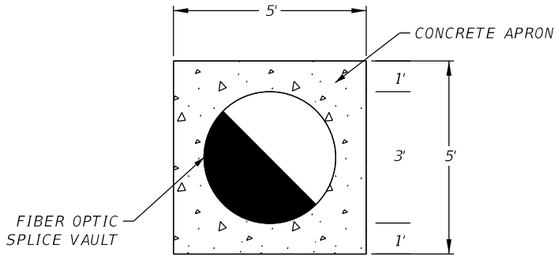


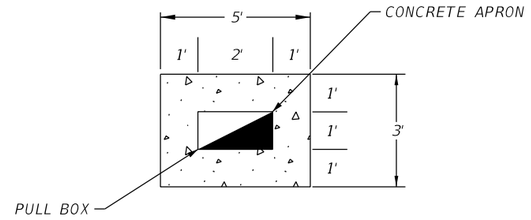


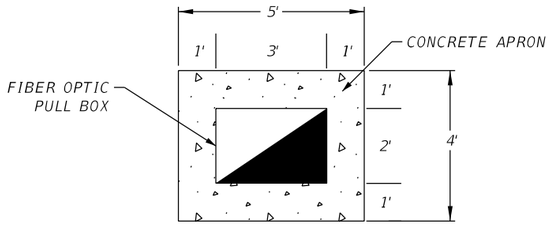








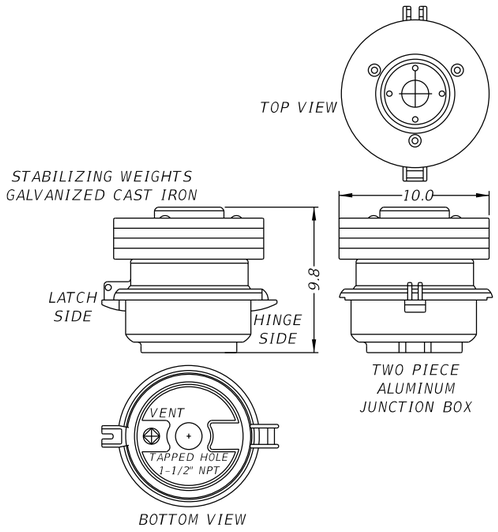




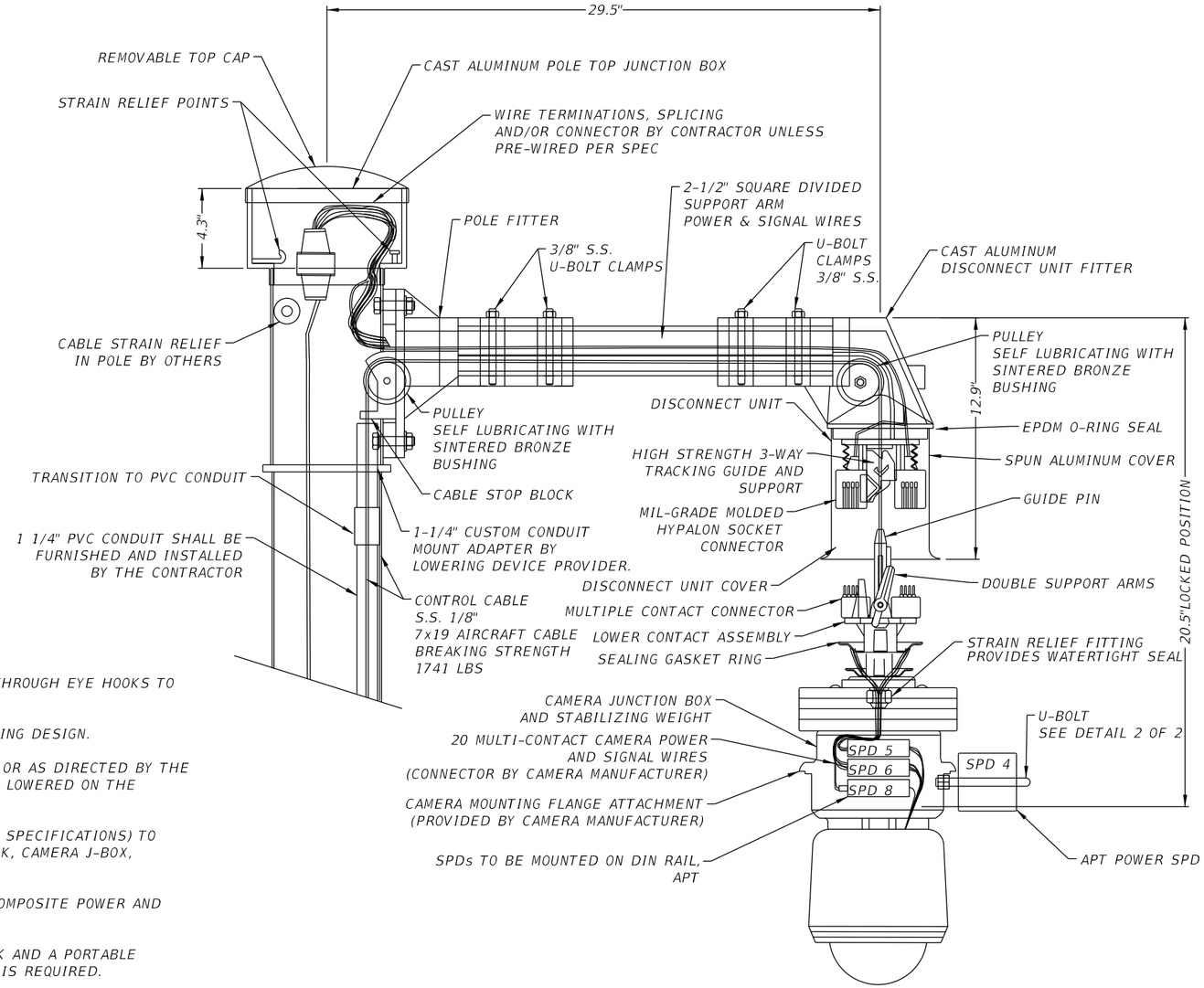
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTION 635 FOR ADDITIONAL INFORMATION.						

TYPICAL CONCRETE PULL BOX MOW PAD DETAILS

SHEET NO. E-7



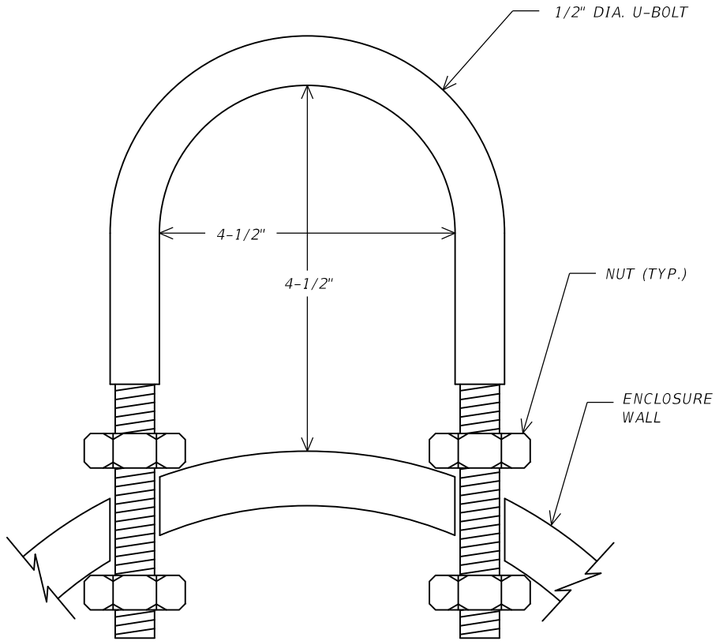
CAMERA JUNCTION BOX



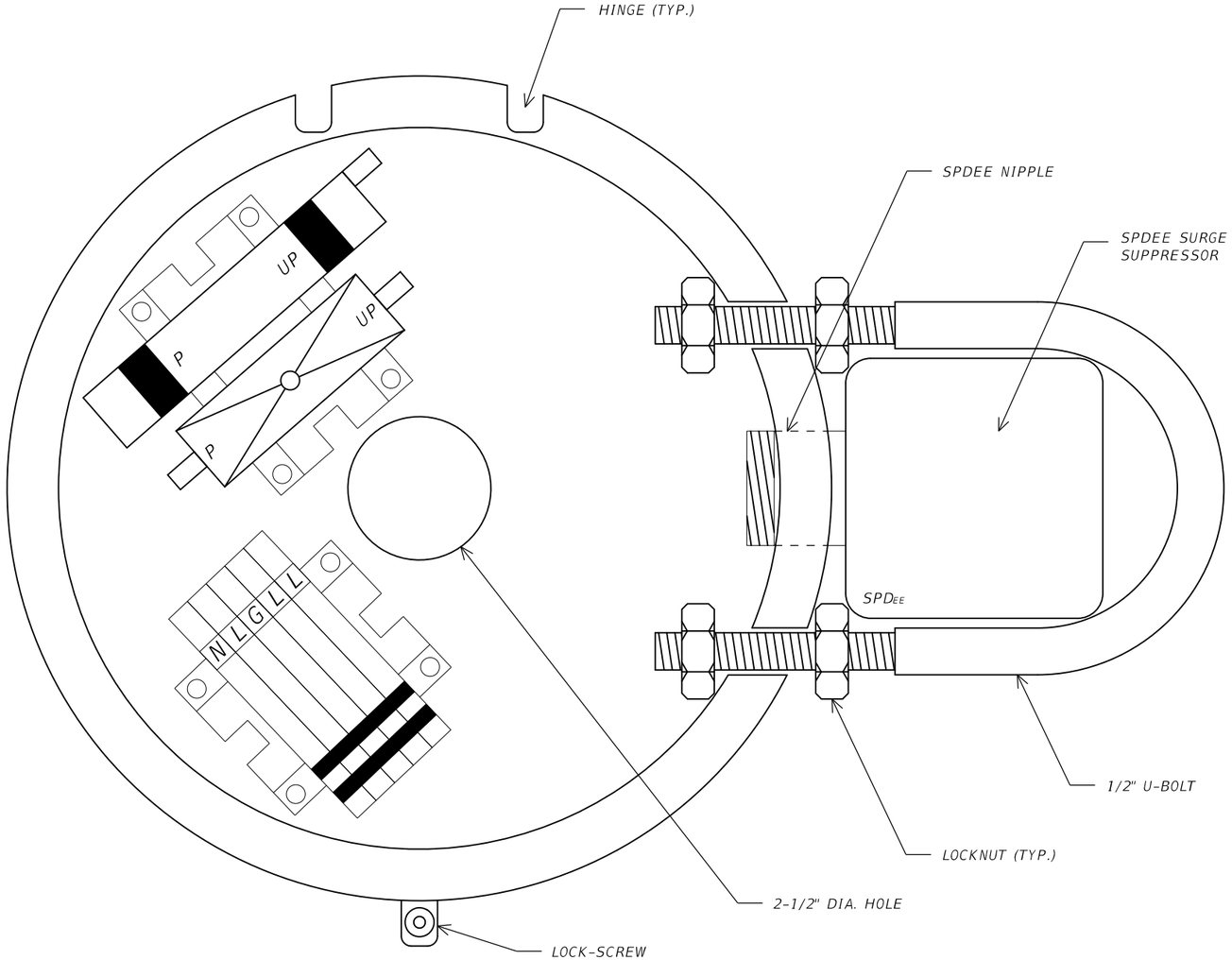
NOTES:

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 THE AUTHORITY. THE CCTV POLE SHALL BE POSITIONED SO THAT THE DOME ENCLOSURE CAN BE SAFELY LOWERED ON THE OPPOSITE SIDE OF THE HAND CRANK.
4. 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, HOUSING, CUSTOM 50 FT.
5. CAMERA LOWERING DEVICE TO BE SHIPPED READY FOR POLE ATTACHMENT TO INCLUDE 50 FT. OF COMPOSITE POWER AND SIGNAL CABLE PRE WIRED TO LOWERING DEVICE AT THE FACTORY.
6. [MG]2 INC. PART NO. LWR5-100 FOR THE PORTABLE LOWERING TOOL WITH BOTH MANUAL HAND CRANK AND A PORTABLE ELECTRIC DRILL MOTOR WITH CUSTOM CLUTCH ADAPTER. ONE LOWERING TOOL PER EVERY 10 POLES IS REQUIRED.
7. [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.
8. SPD DEVICES SHALL BE MANUFACTURED BY APT (ADVANCED PROTECTION TECHNOLOGIES). FOR SPD 4, SPD 5, SPD 6, AND SPD 8 ARE LISTED ON THE CAMERA JUNCTION BOX WIRING DETAIL.
9. DIN RAIL #21608 SHOULD BE ELECTRICALLY GROUNDED TO THE STABILIZING WEIGHT BY A #6 WIRE FROM THE END OF THE DIN RAIL TO A RING TERMINAL TO THE WEIGHT VIA SCREW.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV CAMERA LOWERING DEVICE DETAIL (1 OF 2)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					F-1
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.								

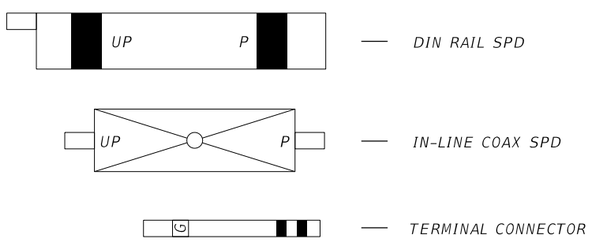


U-BOLT DETAIL
TOP VIEW
N.T.S.



LOWER PORTION OF ENCLOSURE
9-1/2" DIAMETER
TOP VIEW
N.T.S.

LEGEND



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CCTV CAMERA LOWERING DEVICE DETAIL (2 OF 2)

SHEET NO. F-2

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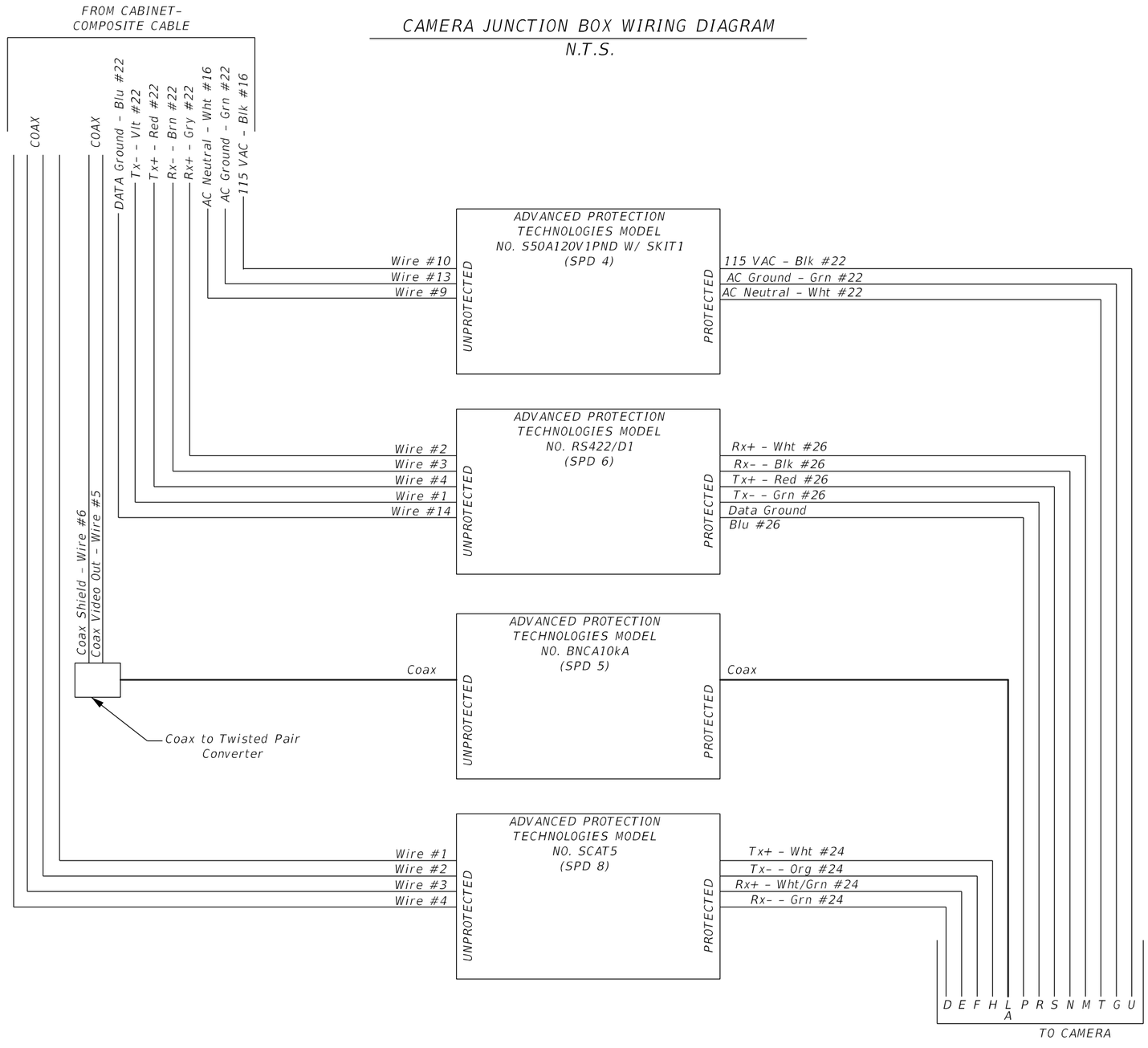
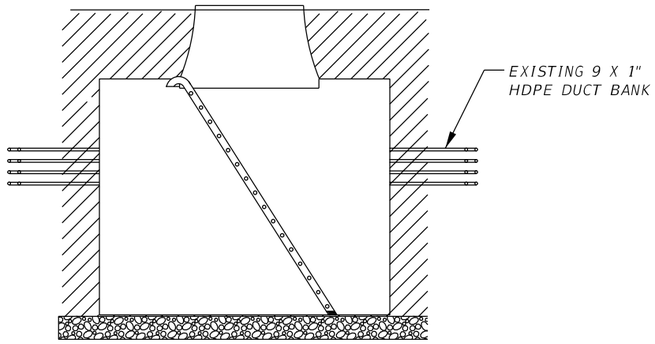
CAMERA JUNCTION BOX WIRING DIAGRAM

N.T.S.

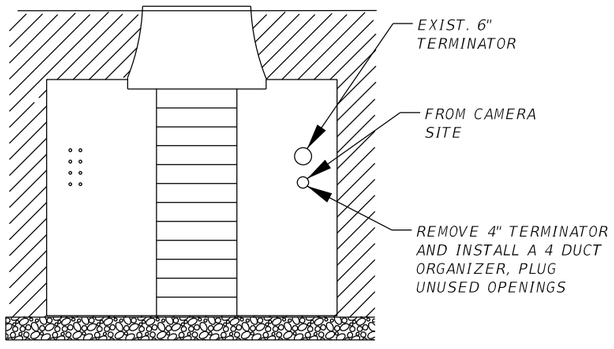


REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV CAMERA JUNCTION BOX WIRING DETAIL	SHEET NO.
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION								F-3

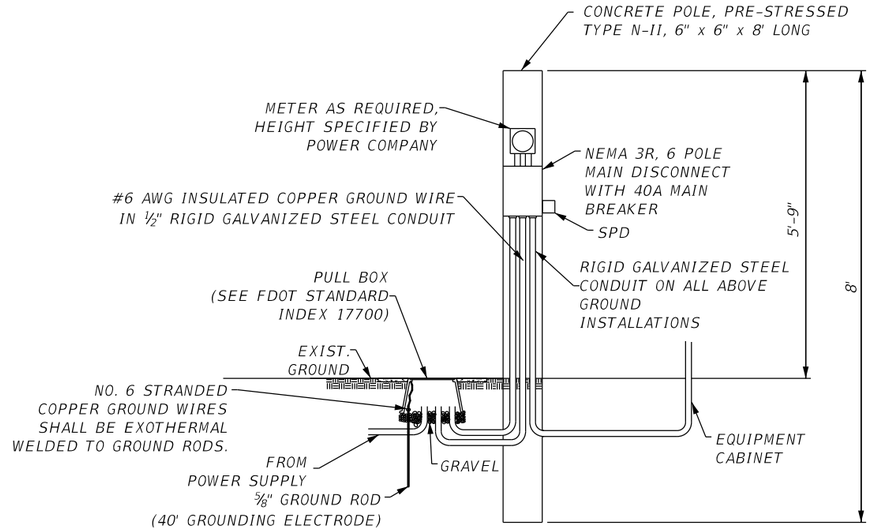


NOTES:

1. ALL OPENINGS SHALL BE SEALED TO PREVENT WATER PENETRATION INTO MANHOLE.
2. A FOUR DUCT ORGANIZER SHALL BE INSTALLED WHERE REQUIRED. COST SHALL BE INCLUDED WITH PAY ITEM 638-001-0411. IF CORING FOR THE 4" TERMINATOR IS REQUIRED, IT SHALL ALSO BE INCLUDED WITH PAY ITEM 638-001-0411.



MANHOLE BREAK-IN DETAIL
N.T.S.



NOTES:

1. THE ENCLOSURE SHALL BE NEMA 3R, POLE MOUNTED, RAIN-TIGHT. THE SIDES AND TOP OF ALL EQUIPMENT MOUNTED TO THE CONCRETE PEDESTAL SHALL BE SILICONE SEALED. ANY OPENING WHICH MAY ALLOW WATER TO ENTER, SHALL BE SEALED INSIDE AND OUT WITH SILICONE. HOLES SMALLER THAN 1/8" SHALL BE SEALED WITH SILICONE SEALANT. DO NOT PLACE SILICONE AROUND THE BOTTOM OF THE DEVICE.
2. THE ENCLOSURE DOOR SHALL BE LOCKABLE BY PADLOCK AND FOUR KEYS SHALL BE PROVIDED TO THE MAINTAINING AGENCY. THE DOOR SHALL HAVE A MINIMUM OF THREE HINGES AND BE LATCH ABLE. SCREWS SHALL NOT BE USED TO ATTACH DOOR.
3. 480 V MINIMUM RATING BOLT-IN TYPE BREAKERS SHALL BE USED.
4. BUSBAR TO BE COPPER COATED AND HAVE A MINIMUM RATING OF 100 AMPS. WHEN THE BREAKER EXCEEDS 100 AMPS BUSBAR TO MATCH BREAKER AMPERAGE.
5. THE ENCLOSURE TO BE RIGIDLY ATTACHED TO POLE FACE.
6. A 600 V SPD SHALL BE WIRED INSIDE THE ENCLOSURE MOUNTED ACCORDING TO INDEX 17736. THE SPD SHALL HAVE A LED INDICATOR AND BE LIT TO SHOW PROTECTION.
7. A MAIN BREAKER IS REQUIRED IN ALL SERVICE PANELS WITH TWO OR MORE BRANCH BREAKERS.
8. ALL SERVICE EQUIPMENT SHALL BE U.L. APPROVED.
9. ALL EDGES TO HAVE ½" CHAMFER.
10. TOP HOLE WILL BE 7/16" 9/16" CAST OR DRILLED THROUGH POST 4" FROM END.
11. MOUNT METER BASE ON 1" X ½" KINDORF CHANNEL OR EQUAL. DO NOT DRILL OR PUNCH HOLES IN METER BASE. USE PROVIDED KNOCKOUTS.
12. 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.
13. VERTICAL DIMENSION BETWEEN KINDORF CHANNEL TO MATCH MOUNTING BOLTS IN METER BASE.
14. KINDORF CHANNEL IS NOT TO EXTEND PAST SIDES OF METER BASE.
15. WHEN MANUFACTURING POST, SECOND MOUNTING HOLE AND KINDORF CHANNEL INFORMATION DOES NOT APPLY.
16. USE 4500 PSI CONCRETE WITH (4) #4 REBARS SPACED IN A 4" X 4" SQUARE CENTERED IN THE POST.

SERVICE POINT DETAIL
N.T.S.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 635, 636, AND 638 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SERVICE POINT DETAIL (1 OF 3)

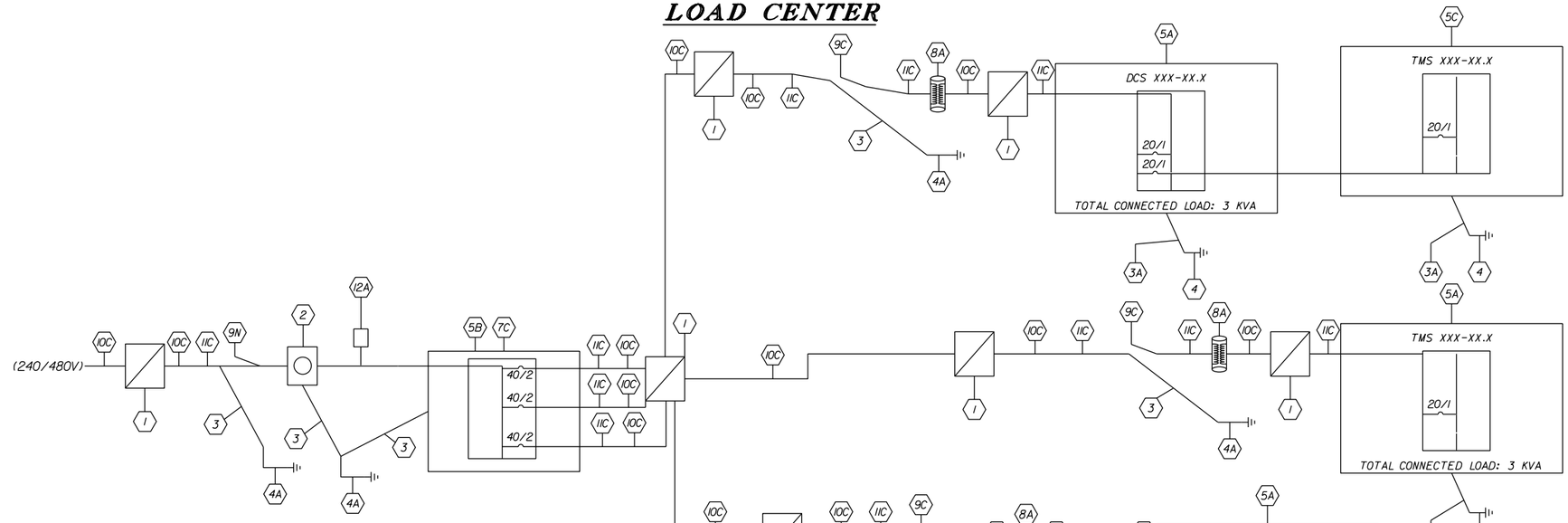
SHEET NO. F-4

KEYED NOTES:

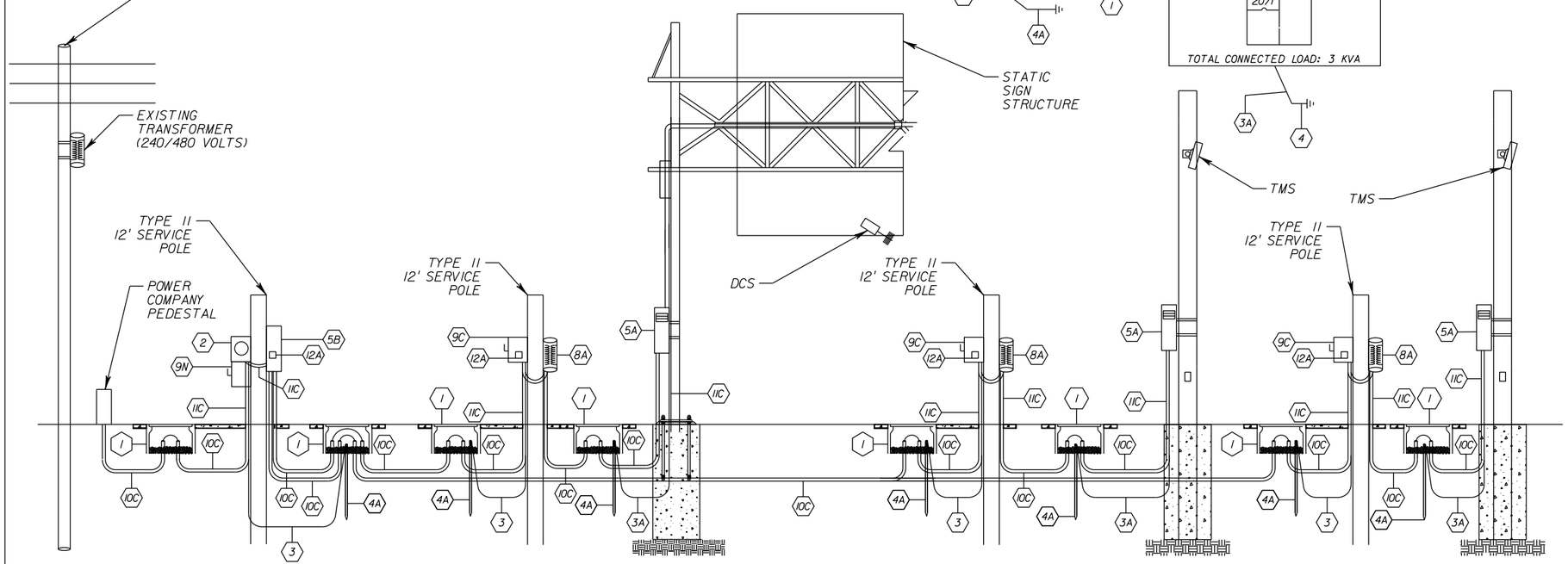
1. PULL BOX.
2. METER SOCKET BY CONTRACTOR METER BY POWER COMPANY
3. #6 INSULATED COPPER GROUND WIRE IN 1/2" RIGID GALVANIZED STEEL
3A. #2 INSULATED COPPER GROUND WIRE IN 1/2" RIGID GALVANIZED STEEL
4. COPPER CLAD GROUND ROD 5/8" DIA. MEETING REQUIREMENTS PER ITS DETAILS, THIS SHEET AND THE SPECS.
4A. COPPER CLAD GROUND ROD 5/8" DIA. 40' LONG
5A. TYPE 336S CABINET W/CIRCUIT BREAKER
5B. SERVICE PANELBOARD (TO INCLUDE BREAKERS PER PLANS)
5C. NEMA 3R ENCLOSURE
6. LIGHTNING ARRESTOR
7A. MAIN CIRCUIT BREAKER 100A, TWO POLE, 120/240 VAC.
7B. MAIN CIRCUIT BREAKER 200A, TWO POLE, 120/240 VAC.
7C. MAIN CIRCUIT BREAKER 100A, TWO POLE 240/480 VAC.
7D. MAIN CIRCUIT BREAKER 200A, TWO POLE 240/480 VAC.
7E. MAIN CIRCUIT BREAKER 100A, ONE POLE 480/GND VAC.
7F. MAIN CIRCUIT BREAKER 200A, ONE POLE 480/GND VAC.
8A. XFMR (5 KVA), STEP-DOWN, 480 PRIMARY, 120 SECONDARY
8B. XFMR (7.5 KVA)
8C. XFMR (10 KVA)
8D. XFMR (15 KVA)
8E. XFMR (25 KVA)
9A. 15A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9B. 15A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9C. 20A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9D. 20A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9E. 25A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9F. 25A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9G. 30A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9H. 30A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9I. 35A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9J. 35A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9K. 40A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9L. 60A, 120VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9M. 15A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9N. 30A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9O. 60A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9P. 100A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
10A. 1" SCHEDULE 40 PVC CONDUIT
10B. 1.25" SCHEDULE 40 PVC CONDUIT
10C. 2" SCHEDULE 40 PVC CONDUIT
11A. 1" RIGID GALVANIZED STEEL CONDUIT
11B. 1.25" RIGID GALVANIZED STEEL CONDUIT
11C. 2" RIGID GALVANIZED STEEL CONDUIT
12A. 120/240VAC TVSS MODEL 11214
12B. 240/480VAC TVSS MODEL 11229

NOTES:
1. CONDUCTOR SIZE AND QUANTITY VARIES. SEE PLAN SHEETS.
2. FIBER CONDUIT & PULL BOXES NOT SHOWN FOR CLARITY.
3. POWER SERVICE DETAILS PROVIDED FOR ALL NEW POWER SERVICE LOCATIONS AND LOCATIONS REQUIRING NEW TRANSFORMERS.

POWER SERVICE DETAIL LOAD CENTER



ONE LINE DIAGRAM



SERVICE DETAIL

REVISIONS						
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	
		REFER TO FDOT SPECIFICATION SECTION 639 FOR ADDITIONAL INFORMATION.				

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SERVICE POINT DETAIL (2 OF 3)

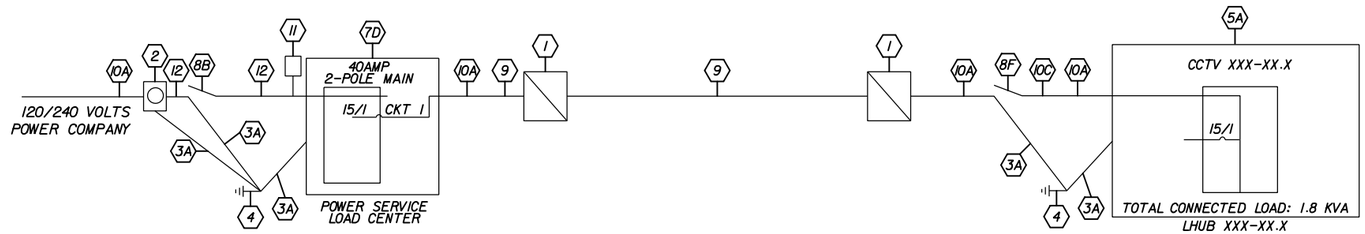
SHEET NO. F-5

KEYED NOTES:

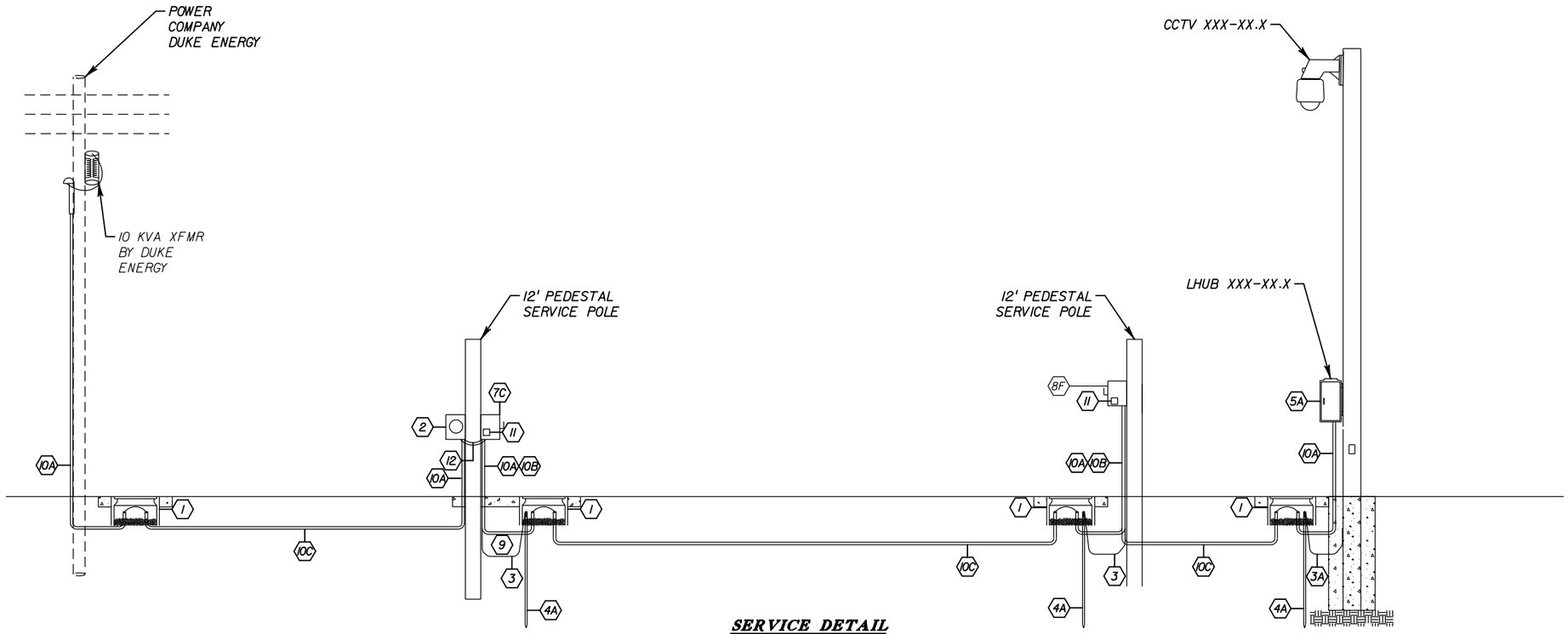
1. PULL BOX
2. METER SOCKET BY CONTRACTOR
3. #6 INSULATED COPPER GROUND WIRE IN ½" RIGID GALVANIZED STEEL
3A. #2 TIN-PLATED BARE SOLID COPPER GROUNDING WIRE
4. COPPER CLAD GROUND ROD 5/8 " DIA. MEETING REQUIREMENTS PER ITS DETAILS, THIS SHEET AND THE SPECS.
4A. COPPER CLAD GROUND ROD 5/8 " DIA. 40' LONG
5A. TYPE 336S CABINET W/CIRCUIT BREAKER
5B. NEMA ENCLOSURE
6A. XFMR (5 KVA) (120/240V PRIMARY, 240/480V SECONDARY)
6B. XFMR (5 KVA) (120/240V PRIMARY, 480V/GND SECONDARY)
6C. XFMR (5 KVA) (120/240V PRIMARY, 600V/GND SECONDARY)
6D. XFMR (7.5 KVA) (120/240V PRIMARY, 240/480V SECONDARY)
6E. XFMR (7.5 KVA) (120/240V PRIMARY, 480V/GND SECONDARY)
6F. XFMR (7.5 KVA) (120/240V PRIMARY, 600V/GND SECONDARY)
6G. XFMR (5 KVA) (120/240V SECONDARY, 240/480V PRIMARY)
6H. XFMR (5 KVA) (120/240V SECONDARY, 480V/GND PRIMARY)
6I. XFMR (5 KVA) (120/240V SECONDARY, 600V/GND PRIMARY)
6J. XFMR (7.5 KVA) (120/240V SECONDARY, 240/480V PRIMARY)
6K. XFMR (7.5 KVA) (120/240V SECONDARY, 480V/GND PRIMARY)
6L. XFMR (7.5 KVA) (120/240V SECONDARY, 600V/GND PRIMARY)
7A. 20 AMP-2 POLE, 120/240V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7B. 30 AMP-2 POLE, 120/240V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7C. 40 AMP-2 POLE, 120/240V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7D. 50 AMP-2 POLE, 120/240V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7E. 60 AMP-2 POLE, 120/240V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7F. 20 AMP-2 POLE, 600V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7G. 30 AMP-2 POLE, 600V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
7H. 40 AMP-2 POLE, 600V MAIN CIRCUIT BREAKER METALLIC ENCLOSURE
8A. 40 AMP, 120/240V NON-FUSED DISCONNECT
8B. 50 AMP, 120/240V NON-FUSED DISCONNECT
8C. 60 AMP, 120/240V NON-FUSED DISCONNECT
8D. 80 AMP, 120/240V NON-FUSED DISCONNECT
8E. 100 AMP, 120/240V NON-FUSED DISCONNECT
8F. 40 AMP, 120V NON-FUSED DISCONNECT
8G. 20 AMP, 600V NON-FUSED DISCONNECT
9. 2" HDPE CONDUIT
10A. 2" RIGID GALVANIZED STEEL CONDUIT
10B. 1.5" RIGID GALVANIZED STEEL CONDUIT
10C. 2" SCHEDULE 40 PVC CONDUIT
11. SURGE ARRESTOR
12. 1" FLEX CONDUIT

NOTES:
1. CONDUCTOR SIZE AND QUANTITY VARIES. SEE PLAN SHEETS.
2. DISCONNECT MAY NOT BE VISIBLE ON SERVICE DETAIL IF MOUNTED ON THE BACK OF THE POLE.
3. PULL BOXES LOCATION AND QUANTITY VARIES. SEE PLAN SHEETS.

POWER SERVICE DETAIL
LOAD CENTER



ONE LINE DIAGRAM



SERVICE DETAIL

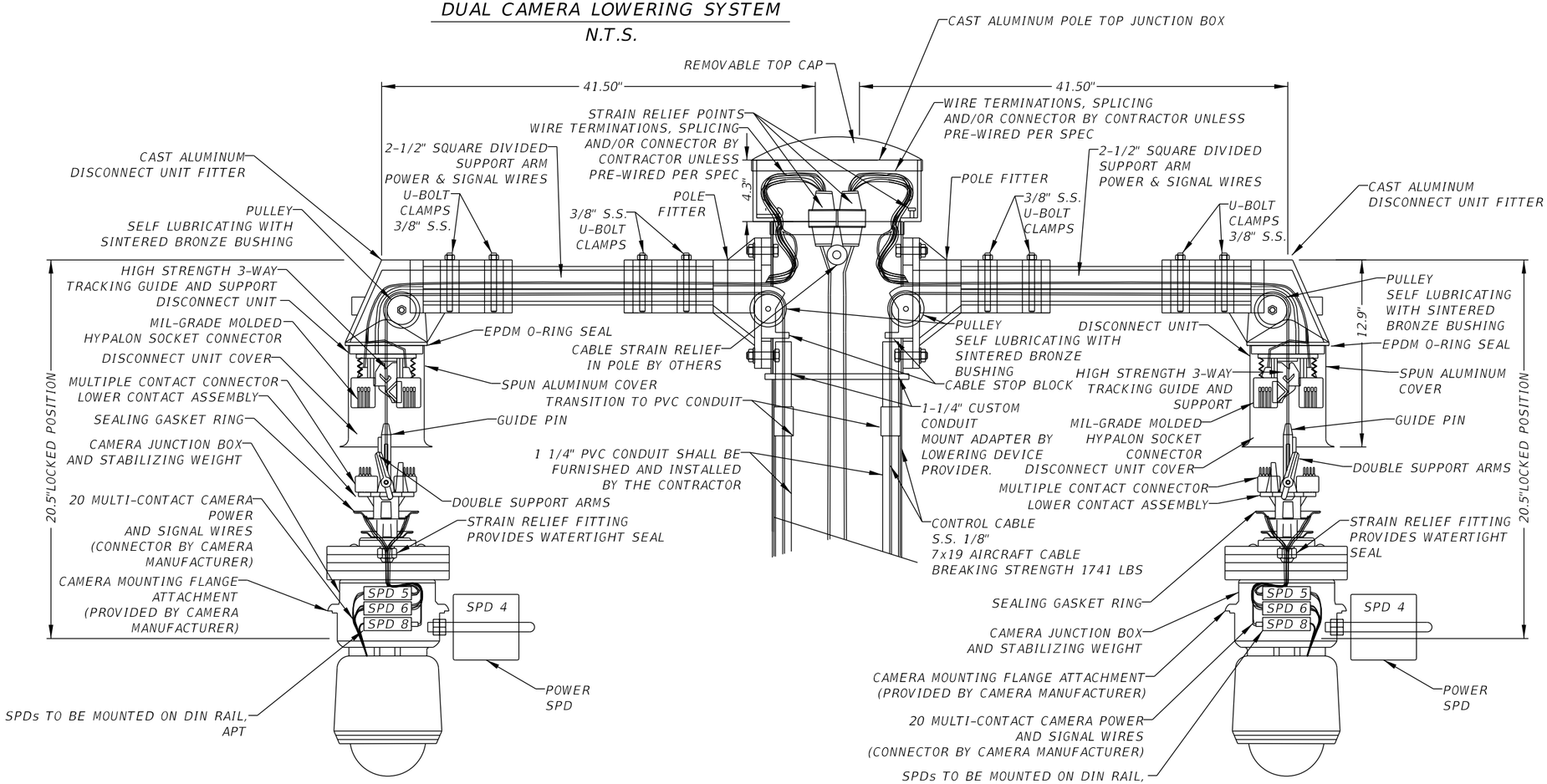
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO FDOT SPECIFICATION SECTION 639 FOR ADDITIONAL INFORMATION.						

SERVICE POINT DETAIL (3 OF 3)

SHEET NO. F-6

DUAL CAMERA LOWERING SYSTEM

N.T.S.



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 THE AUTHORITY. THE CCTV POLE SHALL BE POSITIONED SO THAT THE DOME ENCLOSURE CAN BE SAFELY LOWERED ON THE OPPOSITE SIDE OF THE HAND CRANK.
4. 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 130 FT.
5. CAMERA LOWERING DEVICE TO BE SHIPPED READY FOR POLE ATTACHMENT TO INCLUDE 130 FT. OF COMPOSITE POWER AND SIGNAL CABLE PRE WIRED TO LOWERING DEVICE AT THE FACTORY.
6. [MG]2 INC. PART NO. LWR5-100 FOR THE PORTABLE LOWERING TOOL WITH BOTH MANUAL HAND CRANK AND A PORTABLE ELECTRIC DRILL MOTOR WITH CUSTOM CLUTCH ADAPTER. ONE LOWERING TOOL PER EVERY 10 POLES IS REQUIRED.
7. [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.
8. SPD DEVICES SHALL BE MANUFACTURED BY APT FOR SPD 4, SPD 5, SPD 6, AND SPD 8 ARE LISTED ON THE CAMERA JUNCTION BOX WIRING DETAIL.
9. CAMERA LOWERING DEVICE TO BE POWDER COATED FLAT BLACK BY MANUFACTURER.
10. DIN RAIL #21608 SHOULD BE ELECTRICALLY GROUNDED TO THE STABILIZING WEIGHT BY A #6 WIRE FROM THE END OF THE DIN RAIL TO A RING TERMINAL TO THE WEIGHT VIA SCREW.

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-7
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION. ALSO SEE SHEET F-2.								

NOTES:

1. EXISTING CAMERA POLES SHALL BE RELOCATED. ACTUAL HEIGHT OF POLE MAY BE SITE DEPENDENT.

2. *POLE DIMENSIONS ARE ASSUMED VALUES TO DETERMINE DESIGN LOADS FOR FOUNDATION (SEE FOUNDATION DETAIL).

3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE CCTV CAMERA STEEL POLE. THE DESIGN AND DRAWINGS SHALL BE PREPARED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

4. DESIGN SPECIFICATIONS:
AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (6TH EDITION, 2013) WITH APPLICABLE INTERIMS.

5. POLE SHALL BE DESIGNED FOR A DESIGN WIND SPEED EQUAL TO 130 MPH.

6. THE POLE SHAFT MAY BE JOINTED OR SINGLE PIECE, POLYGON OR ROUND AND SHALL BE OF STEEL WITH A MINIMUM YIELD STRENGTH OF 50 ksi. ALL MATERIAL SHALL BE SINGLE THICKNESS STEEL PLATE WITH NO LAMINATIONS.

7. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (STEEL) ANSI/AWS D1.1 (CURRENT EDITION).

8. POLE SHALL BE GALVANIZED ACCORDING TO SPECIFICATION 962 AND PAINTED FLAT BLACK BY THE MANUFACTURER.

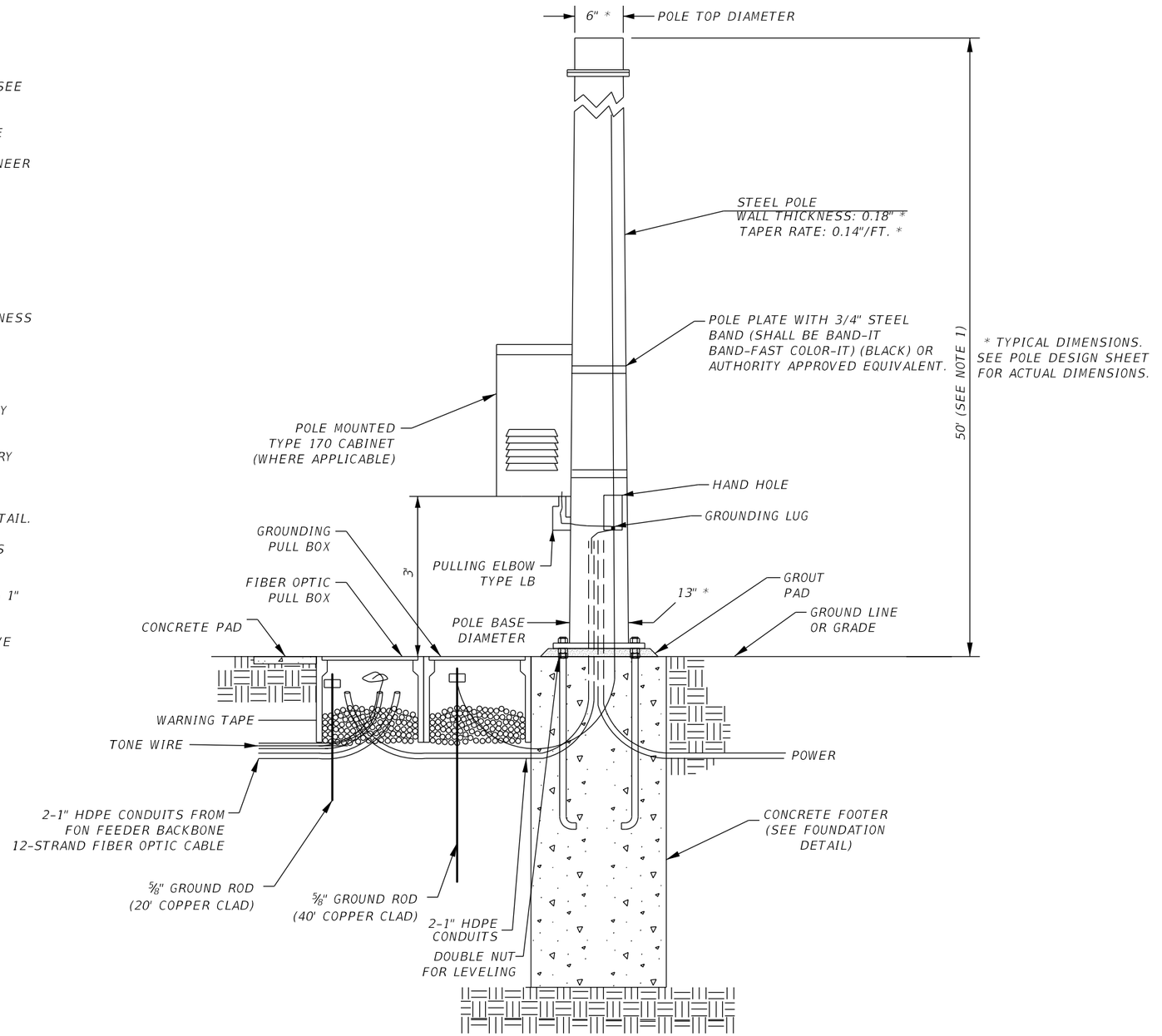
9. ADJUST THE POLE TO A PLUMB LINE AFTER ERECTION AND USE LEVELING NUTS IF NECESSARY TO OBTAIN PRECISE ALIGNMENT.

10. BAND TYPE 170 CABINET AT BACK OF POLE (SIDE OPPOSITE OF CAMERA AND ROADWAY). RUN FIBER OPTIC CABLE AND POWER SUPPLY THRU CONDUITS AS SHOWN IN THE ABOVE POLE DETAIL.

11. STEEL BANDS SHALL BE SIZED TO SUPPORT 3 TIMES THE WEIGHT OF THE CABINET AND ITS CONTENTS.

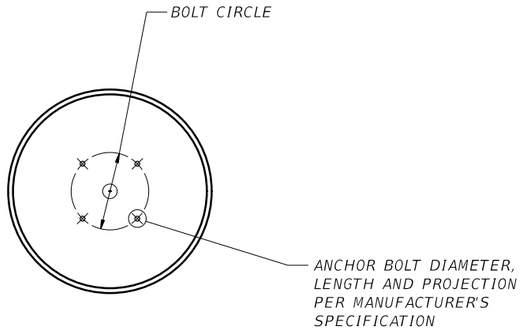
12. POLE SHALL BE DESIGNED AND FABRICATED SUCH THAT IT SHALL NOT DEFLECT MORE THAN 1" IN A 30 MPH WIND.

13. TO PREVENT THE CAMERA LOWERING SYSTEM FROM JAMMING, THE CONTRACTOR SHALL REMOVE THE LOWERING SYSTEM BEFORE RELOCATING CAMERA POLE TO ITS NEW LOCATION. THE CONTRACTOR SHALL RE-INSTALL AND TEST LOWERING SYSTEM IN THE PRESENCE OF AN AUTHORITY REPRESENTATIVE AFTER CAMERA POLE IS INSTALLED IN ITS NEW LOCATION.



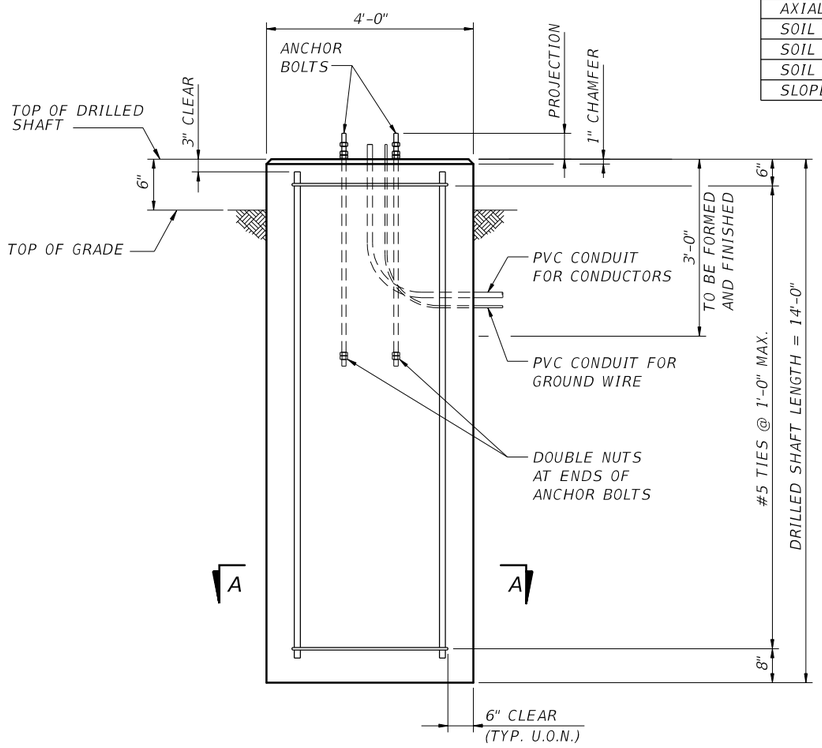
CCTV CAMERA STEEL POLE
N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV CAMERA STEEL POLE DETAIL (RELOCATED SITE)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTIONS 635, 638, 668, AND 686 FOR ADDITIONAL INFORMATION.								G-1

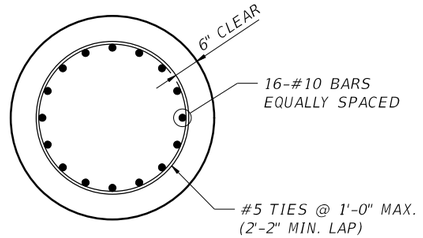


PLAN

FOUNDATION DESIGN ASSUMPTIONS			
POLE HEIGHT	UNIT	50 FEET	80 FEET
OVERTURNING MOMENT	FT-KIPS	41.7	125.8
HORIZONTAL LOAD	KIPS	1.6	3.3
AXIAL LOAD	KIPS	1.0	1.9
SOIL TYPE		COHESIONLESS (FINE SAND)	
SOIL FRICTION ANGLE	DEGREES	28	28
SOIL WEIGHT	PCF	42.6 (ASSUMED SATURATED)	
SLOPE (MAX.)	V: H	1: 2	1: 6



ELEVATION



SECTION A-A

NOTES:

1. GENERAL SPECIFICATIONS:

   FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2014 EDITION) AND SUPPLEMENTS THERETO.

2. DESIGN SPECIFICATIONS:

   AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (17TH EDITION, 2002) AND APPLICABLE INTERIMS THROUGH 2014.

   STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (6TH EDITION, 2013) WITH APPLICABLE INTERIMS THROUGH 2014.

   FDOT STRUCTURES DESIGN GUIDELINES (2014 EDITION).

   FDOT PLANS PREPARATION MANUAL (2014 EDITION).

3. DESIGN WIND SPEED EQUALS 130 MPH

4. MATERIAL STRESSES:
   ALL ALLOWABLE STRESSES ARE IN ACCORDANCE WITH CURRENT AASHTO STANDARD SPECIFICATIONS FOR ALL THE MATERIALS SHOWN IN THE PLANS.

5. CONCRETE FOR DRILLED SHAFT FOUNDATION SHALL BE CLASS IV (4000 PSI MIN.) ACCORDING TO SPECIFICATION SECTION 346. GROUT SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 5000 PSI AND SHALL MEET THE REQUIREMENTS OF SPECIFICATIONS SECTION 934. GROUT TO BE NON-SHRINK AND NON-METALLIC PER SPECIFICATIONS SECTION 934 WITH MINIMUM THICKNESS OF 2 INCHES.

6. ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

7. ANCHOR BOLTS:
   ANCHOR BOLTS SHALL BE DESIGNED TO EFFECTIVELY TRANSMIT THE REQUIRED FORCES TO THE DRILLED SHAFT AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

   THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT THE ANCHOR BOLTS FIT WITHIN THE REINFORCING CAGE OF THE DRILLED SHAFT.

   THE CONTRACTOR MAY INCREASE THE DRILLED SHAFT FOUNDATION DIAMETER AND MAINTAIN 6" CONCRETE COVER IF REQUIRED BY THE ANCHOR BOLT DESIGN, AT NO ADDITIONAL COST TO THE AUTHORITY.

8. SHOP DRAWINGS FOR THE CCTV STEEL POLE AND ANCHOR BOLTS ARE REQUIRED.

9. THE DRILLED SHAFT IS DESIGNED FOR THE SERVICE LOADS, AS SHOWN IN THE TABLE, APPLIED BY THE POLE TO THE TOP OF THE DRILLED SHAFT. IF THE CCTV STEEL POLE APPLIES LOADS THAT ARE IN EXCESS OF THOSE SHOWN, THE CONTRACTOR SHALL REDESIGN THE DRILLED SHAFT FOUNDATION AND SUBMIT HIS DESIGN TO THE ENGINEER FOR REVIEW. THE CONTRACTOR'S REDESIGN SHALL BE PREPARED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA AND SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL SHOWING THAT THESE REQUIREMENTS HAVE BEEN MET PRIOR TO CONSTRUCTION. IF THE SERVICE LOADS DO NOT EXCEED THOSE SHOWN, THE CONTRACTOR SHALL USE THE FOUNDATION DESIGN SHOWN IN THE PLANS. THE SIZE SHOWN HEREIN IS THE MINIMUM REQUIREMENT AND WILL NOT BE ALLOWED TO BE REDUCED BY A REDESIGN.

10. THE FOUNDATION SHALL BE PREPARED IN ACCORDANCE WITH SPECIFICATION SECTION 455. THE CONTRACTOR SHALL CONTACT UTILITY COMPANIES AND FIELD VERIFY ADJACENT UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO CONSTRUCTION.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 638 AND 686 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CCTV FOUNDATION DETAIL (RELOCATED SITE)

SHEET NO. G-2

CCTV CAMERA POLE, LOWERING SYSTEM & FOUNDATION GENERAL NOTES

CCTV CAMERA POLE:

1. DESIGN CRITERIA: DESIGNED IN ACCORDANCE WITH THE 6TH EDITION, 2013 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", WITH CURRENT ADDENDA. THE DESIGN WIND SPEED OF 130 MPH IS IN CONFORMANCE WITH THE FDOT " PLANS PREPARATION MANUAL " (CURRENT EDITION).

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

   FOUNDATION DESIGN PARAMETERS: 50'

SOIL TYPE:	COHESIONLESS (FINE SAND)
SOIL LAYER THICKNESS:	20 FT.
SOIL FRICTION ANGLE:	26 DEGREES
SOIL WEIGHT (ASSUME SATURATED):	42.6 PCF
SLOPE (V:H):	1:2

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. 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. A PARKING STAND SHALL BE POSITIONED 21" BELOW THE TOP OF THE HANDHOLE.

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

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

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. THE STRUCTURE MUST BE ASSEMBLED AFTER GALVANIZING AND PRIOR TO SHIPMENT TO THE SITE TO ASSURE FIT UP. IT MUST BE DISASSEMBLED FOR SHIPPING.

3. 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.

4. 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

5. 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.

CCTV STRUCTURE AND FOUNDATION REFERENCE DETAILS:

1. THE FOLLOWING SHEETS (H-2 THROUGH H-7) PROVIDE EXAMPLES OF CCTV STRUCTURE AND FOUNDATION DETAILS FROM PREVIOUS CFX PROJECTS. THESE SHEETS ARE PROVIDED FOR REFERENCE ONLY. PROJECT SPECIFIC CONDITIONS SHALL BE CONSIDERED IN DESIGN.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.						

CCTV CAMERA STRUCTURES AND FOUNDATIONS (NEW SITE)

SHEET NO. H-1

FOR REFERENCE ONLY

CCTV CAMERA POLE, LOWERING SYSTEM & FOUNDATION GENERAL NOTES

1. DESIGN CRITERIA: DESIGNED IN ACCORDANCE WITH THE 6TH EDITION, 2013 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", WITH CURRENT ADDENDA. THE DESIGN WIND SPEED OF 130 MPH IS IN CONFORMANCE WITH THE FDOT " PLANS PREPARATION MANUAL " (CURRENT EDITION).

   FOUNDATION DESIGN PARAMETERS:

   SOIL TYPE: COHESIONLESS (FINE SAND)
   SOIL LAYER THICKNESS: 20 FT.
   SOIL FRICTION ANGLE: 26 DEGREES
   SOIL WEIGHT (ASSUME SATURATED): 42.6 PCF
   SLOPE (V:H): SEE DRILLED SHAFT TABLE OF VARIABLES ON SHEET (3 OF 3)

2. EXISTING POLE SHAFTS: EXISTING POLE SHAFTS ARE 12 SIDED WITH A MINIMUM CORNER RADIUS OF 3.375" AND A CONSTANT TAPER OF 0.14 IN/FT.

3. CCTV STRUCTURE MATERIALS SHALL BE AS FOLLOWS:

   STEEL PLATES & POLE CAP -> ASTM A709 GRADE 36 OR ASTM A36

   WELD METAL -> E70XX

   ANCHOR BOLTS -> ASTM F1554 GRADE 55

   NUTS FOR ANCHOR BOLTS -> ASTM A563 GRADE A HEAVY HEX

   WASHERS FOR ANCHOR BOLTS -> ASTM F436 TYPE 1

   STAINLESS STEEL SCREWS -> AISI TYPE 316

   NUT COVERS -> ASTM B26 (319-F)

4. ALL STEEL ITEMS SHALL BE GALVANIZED AS FOLLOWS:

   ALL NUTS, BOLTS AND WASHERS -> ASTM A153 CLASS C OR D DEPENDING ON SIZE

   ALL OTHER STEEL ITEMS -> ASTM A123

5. REINFORCING STEEL SHALL BE ASTM A615-96, GRADE 60.

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

7. GROUT SHALL HAVE A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 5 KSI AND SHALL MEET THE REQUIREMENTS OF SECTION 934. GROUT AFTER POLE IS SET AND PROPERLY PLUMBED.

8. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (STEEL) ANSI/AWS D1.1 (CURRENT EDITION).

9. THE FOUNDATIONS FOR THE CCTV STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 455 OF THE SPECIFICATIONS EXCEPT THAT NO PAYMENT FOR THE FOUNDATION SHALL BE MADE UNDER SECTION 455. THE COST OF PROVIDING THE FOUNDATION SHALL BE INCLUDED IN THE PAY ITEM FOR PROVIDING THE COMPLETE CCTV STRUCTURE. PAYMENT FOR ANY INCIDENTAL ITEMS INCURRED IN FURNISHING AND INSTALLING THIS CCTV STRUCTURE SHALL BE INCLUDED IN THE PAY ITEM FOR PROVIDING THE COMPLETE CCTV STRUCTURE.

10. ANCHOR BOLT HOLE DIAMETERS SHALL NOT EXCEED THE BOLT DIAMETER PLUS ½".

11. THE STRUCTURE SHALL BE INSTALLED PLUMB.

12. THE STRUCTURE SHALL NOT BE ERECTED UNTIL THE FOUNDATION CONCRETE HAS BEEN ALLOWED TO CURE FOR A MINIMUM OF SEVEN DAYS.

13. 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.

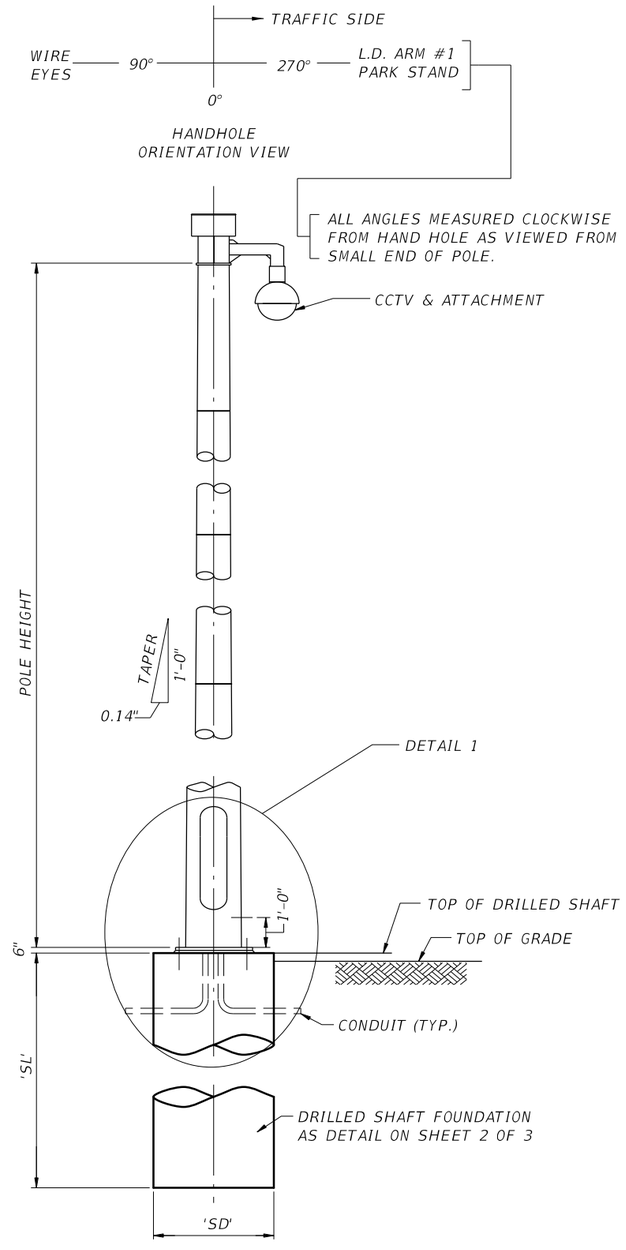
14. NEW BASE PLATE SHALL BE GALVANIZED ACCORDING TO SPECIFICATION 962 AND POWDER COATED FLAT BLACK OVER GALVANIZATION BY THE MANUFACTURER.

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.



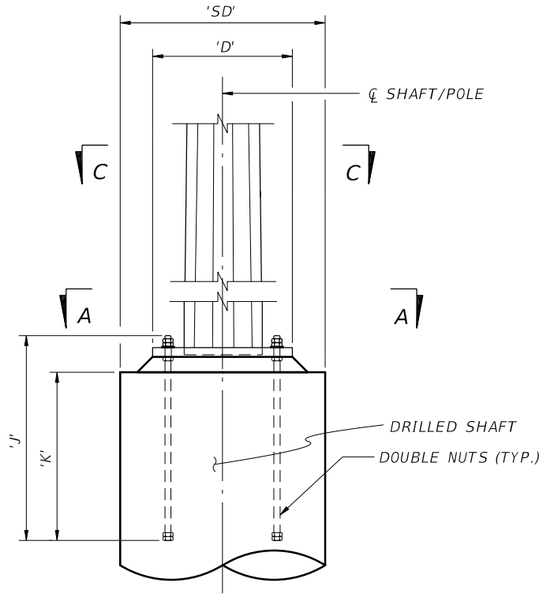
ELEVATION

NOTES:

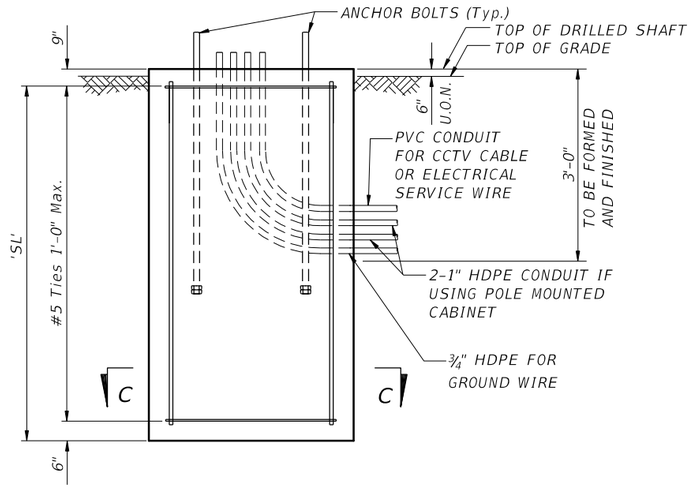
1. FOR DETAILS, SEE SHEET 2 OF 3.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV SYSTEM PHASE I EXPRESSWAY MANAGEMENT SYSTEM CCTV POLE STRUCTURE DETAILS (1 OF 3)	SHEET NO. H-2
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.								

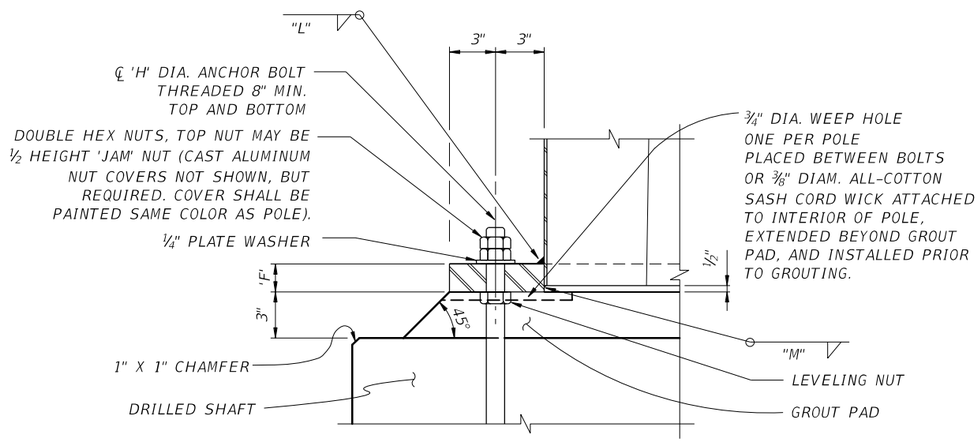
FOR REFERENCE ONLY



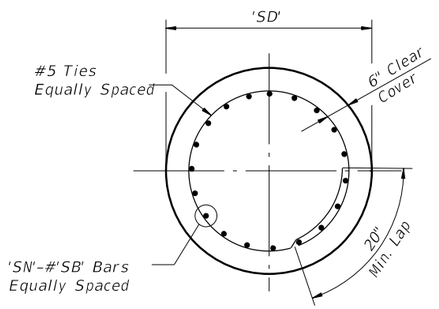
DETAIL 1



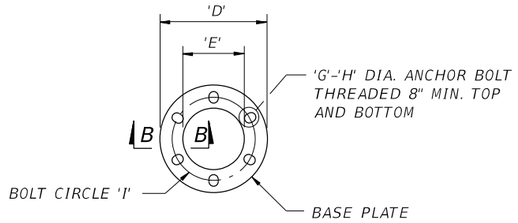
ELEVATION
DRILLED SHAFT



SECTION B-B



SECTION C-C



SECTION A-A

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV SYSTEM PHASE I EXPRESSWAY MANAGEMENT SYSTEM CCTV POLE STRUCTURE DETAILS (2 OF 3)	SHEET NO. H-3
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.								

FOR REFERENCE ONLY

POLE VARIABLES

CAMERA / POLE NUMBER	STATION	POLE HEIGHT (FT.)	SECTION A TUBE				SECTION B TUBE				SECTION C TUBE				SECTION D TUBE				BASE VARIABLES								
			LENGTH (FT.)	BASE DIAMETER (IN.)	TIP DIAMETER (IN.)	"C" THICK (IN.)	LENGTH (FT.)	BASE DIAMETER (IN.)	TIP DIAMETER (IN.)	"C" THICK	LENGTH (FT.)	BASE DIAMETER (IN.)	TIP DIAMETER (IN.)	"C" THICK	LENGTH (FT.)	BASE DIAMETER (IN.)	TIP DIAMETER (IN.)	"C" THICK	"D" OUTSIDE DIAMETER (IN.)	"E" INSIDE DIAMETER (IN.)	"F" PLATE THICKNESS (IN.)	"G" NUMBER OF ANCHOR BOLTS	"H" BOLT DIAMETER (IN.)	"I" BOLT CIRCLE DIAMETER (IN.)	"J" BOLT LENGTH (IN.)	"L" BASE PLATE TOP WELD	"M" BASE PLATE BOT. WELD
* 408-25	138+00	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	13	1.5	6	1.5	19	38	1/4"	3/16"
* 417-09	518+35	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	13	1.5	6	1.5	19	38	1/4"	3/16"
* 417-10	501+65	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	13	1.5	6	1.5	21	38	1/4"	3/16"
* 417-11	482+62	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	13	1.5	6	1.5	19	38	1/4"	3/16"

* EXISTING POLE TO BE RELOCATED. SEE EXISTING POLE NOTE ON THIS SHEET.

DRILLED SHAFT VARIABLES

CAMERA / POLE NUMBER	STATION	"SL" SHAFT LENGTH (FT.)	"SD" SHAFT DIAMETER (FT.)	"SN" NUMBER OF BARS	"SB" BAR SIZE	"K" BOLT EMBEDMENT (IN.)	SLOPING GRADE (V: H:)	REMARKS
408-25	138+00	9	4	15	10	30	1:4	
417-09	518+35	10	4	15	10	30	1:3	
417-10	501+65	10	4	15	10	30	1:3	
417-11	482+62	12	4	15	10	30	1:2	

EXISTING POLE NOTE:

1. IN ORDER TO COMPLY WITH CURRENT DESIGN LOAD CRITERIA, EXISTING POLES 408-25, 417-09, 417-10 AND 417-11 ARE TO BE RETROFITTED WITH NEW BASE AND ANCHORAGE REQUIREMENTS AS INDICATED IN THE TABLE OF VARIABLES ON THIS SHEET. EXISTING BASE PLATES SHALL BE TORCH-CUT FROM EXISTING POLES TO ALLOW FOR ATTACHMENT OF NEW BASE PLATE AS PER DETAIL 1 ON SHEET IT-127. ALL POLES SHALL BE MILLED TO BEAR AND PREPPED FOR WELDING. POLES SHALL BE INSPECTED AFTER THE BASE PLATE HAS BEEN REMOVED AND SURFACES PREPARED. GALVANIZED SURFACES DAMAGED DURING THE RETROFIT PROCEDURE SHALL BE REPAIRED IN ACCORDANCE WITH SECTION 562 OF THE SPECIFICATIONS. ENTIRE POLE PLUS NEW GALVANIZED BASE PLATE SHALL BE PAINTED FLAT BLACK. FIELD WELDING WILL NOT BE PERMITTED AND CONTRACTOR SHALL SUBMIT TORCH-CUTTING AND WELDING PROCEDURES FOR EOR REVIEW AND APPROVAL.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV SYSTEM PHASE I EXPRESSWAY MANAGEMENT SYSTEM CCTV POLE STRUCTURE DETAILS (3 OF 3)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.								H-4

FOR REFERENCE ONLY

CCTV CAMERA POLE, LOWERING SYSTEM & FOUNDATION GENERAL NOTES

1. DESIGN CRITERIA: DESIGNED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" 6TH EDITION, 2013 WITH INTERIMS. THE DESIGN WIND SPEED OF 130 MPH IS IN CONFORMANCE WITH THE FDOT " PLANS PREPARATION MANUAL " AND "STRUCTURES MANUAL"(CURRENT EDITION).

   FOUNDATION DESIGN PARAMETERS:

SOIL TYPE:	COHESIONLESS (FINE SAND)
SOIL FRICTION ANGLE:	30 DEGREES
SOIL WEIGHT (ASSUME SATURATED):	50 PCF

2. POLE SHAFT: THE POLE SHAFT SHALL BE 12 SIDED WITH A MAXIMUM 3⅜" 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. A PARKING STAND SHALL BE
5. CCTV STRUCTURE MATERIALS SHALL BE AS FOLLOWS:

POLES	->	ASTM A1011 GRADE 50 (LESS THAN ¼"), ASTM A572 GRADE 50 (¼" AND OVER)
STEEL PLATES & POLE CAP	->	ASTM A709 GRADE 36 OR ASTM A36
WELD METAL	->	E70XX
BOLTS (EXCEPT ANCHOR BOLTS)	->	ASTM A325, TYPE 1
ANCHOR BOLTS	->	ASTM F1554 GRADE 55
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 KSI
STAINLESS STEEL SCREWS	->	AISI TYPE 316
NUT COVERS	->	ASTM B26 (319-F)

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 A615-96, GRADE 60.

8. CONCRETE SHALL BE CLASS IV (DRILLED SHAFT) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4 KSI FOR ALL ENVIRONMENTAL CLASSIFICATIONS. CONTRACTOR MAY INCREASE DRILLED SHAFT DIAMETER AND MAINTAIN 6" MINIMUM CLEAR COVER AT NO COST TO THE AUTHORITY IF THE ANCHOR BOLT DESIGN REQUIRES.

9. GROUT SHALL HAVE A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 5 KSI AND SHALL MEET THE REQUIREMENTS OF SECTION 934. GROUT UNDER BASE PLATE AFTER POLE IS SET AND PROPERLY PLUMBED.

10. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (STEEL) ANSI/AWS D1.1 (CURRENT EDITION).

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 SECTION 455 OF THE SPECIFICATIONS EXCEPT THAT NO PAYMENT FOR THE FOUNDATION SHALL BE MADE UNDER SECTION 455. THE COST OF PROVIDING THE FOUNDATION SHALL BE INCLUDED IN THE PAY ITEM 686-105 ITS POLE (FURNISH & INSTALL 50 FT STEEL POLE WITH LOWERING DEVICE) AND 686-105A ITS POLE FURNISH & INSTALL 80 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'S CONCRETE HAS ACHIEVED A MINIMUM OF 70% OF THE SPECIFIED 28-DAY CONCRETE STRENGTH.

16. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE EXISTING CONDUIT OR FON 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:

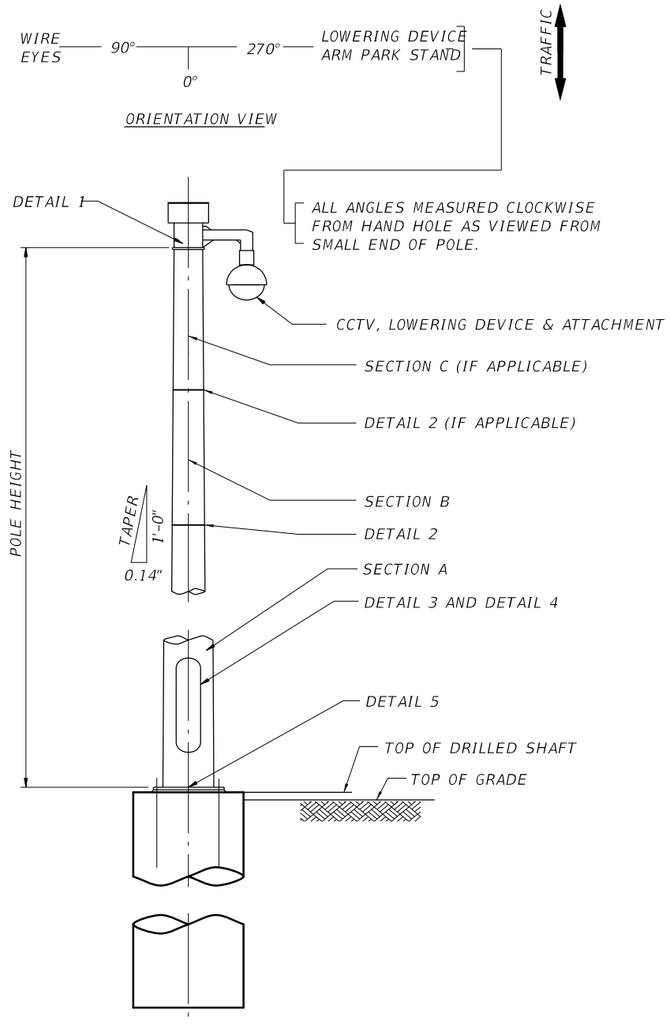
1. POLE TOP TENON: A TENON SHALL BE ATTACHED TO THE POLE TOP WITH MOUNTING HOLES AND SLOT AS REQUIRED FOR THE MOUNTING OF THE CAMERA-LOWERING SYSTEM. THE TENON SHALL BE OF DIMENSIONS NECESSARY TO FACILITATE CAMERA LOWERING DEVICE COMPONENT INSTALLATION. EACH SLOT SHALL BE PARALLEL TO THE POLE CENTERLINE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

2. THE STRUCTURE MUST BE ASSEMBLED AFTER GALVANIZING AND PRIOR TO SHIPMENT TO THE SITE TO ASSURE FIT UP. IT MUST BE DISASSEMBLED FOR SHIPPING.

3. 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.

4. 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

5. 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.



ELEVATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

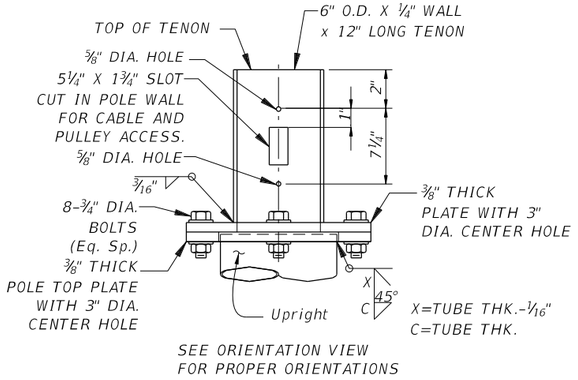
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

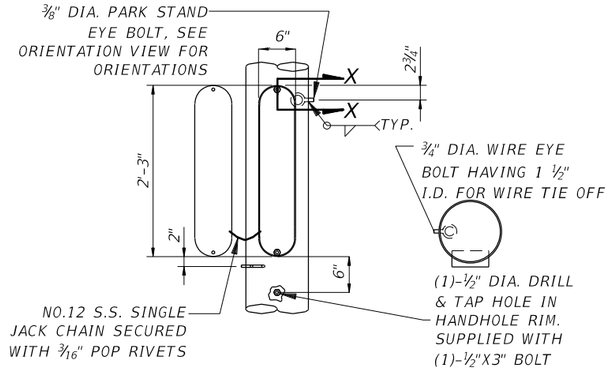
CCTV STRUCTURES AND FOUNDATIONS (SHEET 1 OF 3)

SHEET NO. H-5

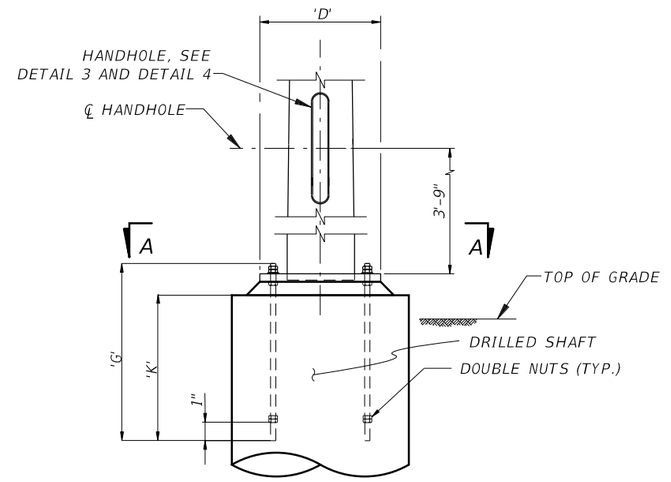
FOR REFERENCE ONLY



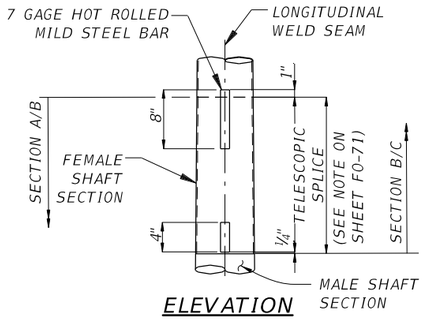
DETAIL 1 - POLE TENON



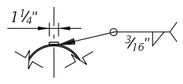
DETAIL 3 - HANDHOLE & EYE BOLT



DETAIL 5

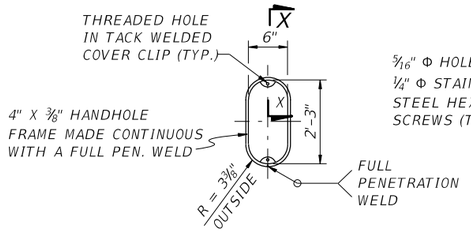


ELEVATION

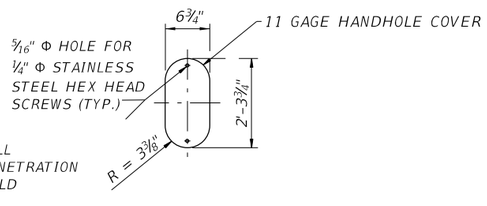


PLAN

DETAIL 2 - WELD REINFORCEMENT

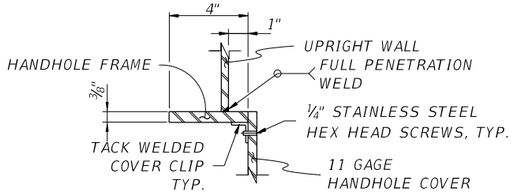


HANDHOLE FRAME

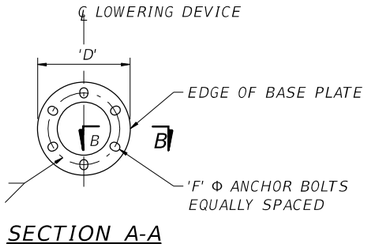


HANDHOLE COVER

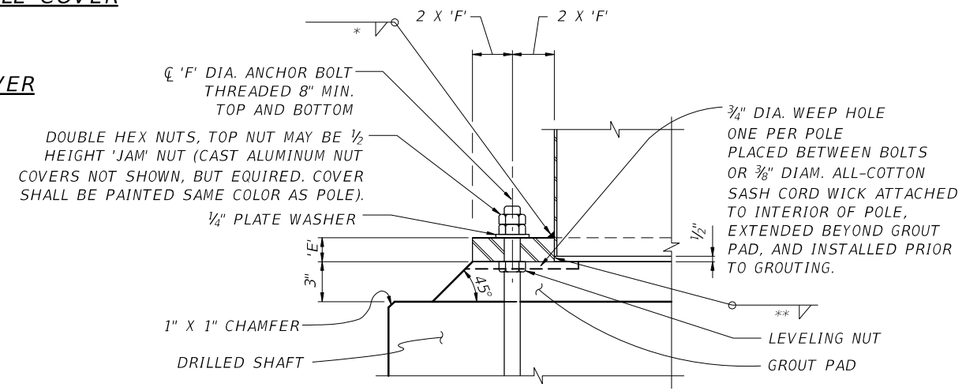
DETAIL 4 - HANDHOLE FRAME AND COVER



SECTION X-X



SECTION A-A



SECTION B-B

* ¼" – 50 ft Poles, ⅜" – 80 ft Poles
** 3/16" – 50 ft Poles, 5/16" – 80 ft Poles

NOTE: DETAILS AND SECTIONS NOT TO SCALE.

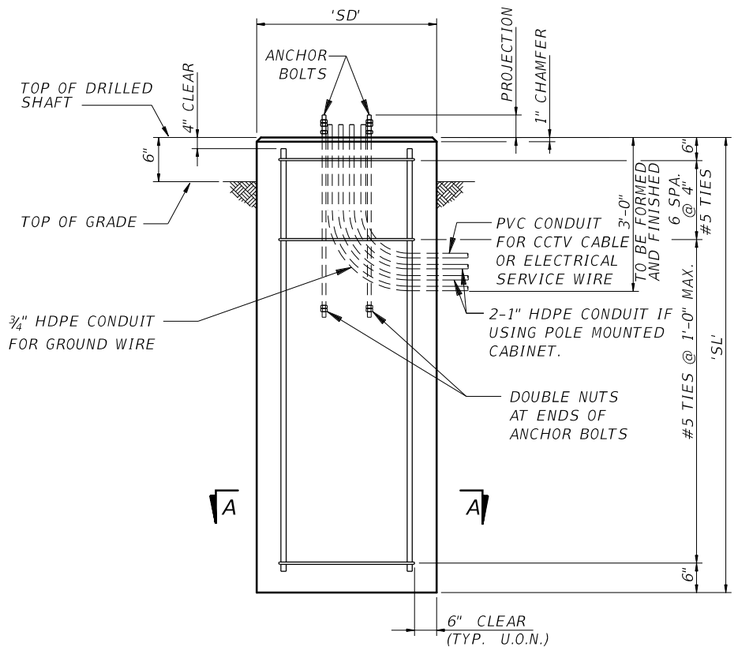
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CCTV STRUCTURES AND FOUNDATIONS (SHEET 2 OF 3)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.								H-6

FOR REFERENCE ONLY

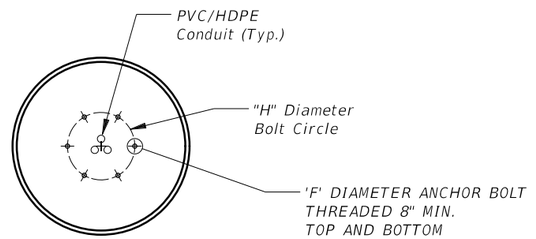
POLE VARIABLES

CCTV NO.	STATION	POLE HEIGHT	SECTION A TUBE				SECTION B TUBE				SECTION B 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.)	(IN.)	E (IN.)	QUAN.	F (IN.)	H (IN.)	G (IN.)
CCTV 414-01	151+75	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-02	182+85	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-03	207+05	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-04	231+85	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-05	257+80	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-06	276+85	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-07	302+75	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-08	332+85	80	50.0	20	13.00	0.375	32.25	13.813	9.281	0.2391	--	--	--	--	36	20	1.625	12	2.0	28	50
CCTV 414-09	362+45	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-10	394+45	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	39
CCTV 414-11	411+40	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38
CCTV 414-12	434+30	50	50.0	15	8.00	0.2391	--	--	--	--	--	--	--	--	27	15	1.625	6	1.5	21	38

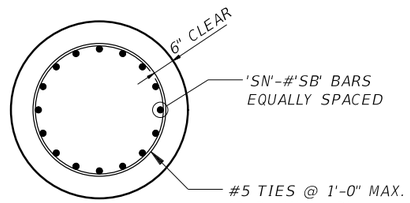
NOTE: POLE SPLICE IS 2'-3" AT SECTION B FOR 80 FT HIGH POLE.



ELEVATION



PLAN



SECTION A-A

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.)
CCTV 414-01	151+75	11	4.0	11	12	30.4
CCTV 414-02	182+85	11	4.0	11	12	30.2
CCTV 414-03	207+05	9	4.0	11	12	30.0
CCTV 414-04	231+85	11	4.0	11	12	30.2
CCTV 414-05	257+80	11	4.0	11	12	30.4
CCTV 414-06	276+85	10	4.0	11	12	30.6
CCTV 414-07	302+75	11	4.0	11	12	30.0
CCTV 414-08	332+85	13	4.5	11	15	40.0
CCTV 414-09	362+45	11	4.0	11	12	30.5
CCTV 414-10	394+45	11	4.0	11	12	30.9
CCTV 414-11	411+40	9	4.0	11	12	30.0
CCTV 414-12	433+25	9	4.0	11	12	30.0

FOUNDATION DESIGN ASSUMPTIONS

REACTION ON FOUNDATION	POLE HIGH	
	50 (FT)	80 (FT)
OVERTURN	63.87 kip-ft	178 kip-ft
HORIZONTAL LOAD	2.46 kip	4.57 kip
AXIAL LOAD	1.98 kip	4.34 kip

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 686 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CCTV STRUCTURES AND FOUNDATIONS (SHEET 3 OF 3)

SHEET NO. H-7

GROUNDING NOTES:

1. GROUND RODS SHALL BE 5/8" COPPER CLAD AND SHALL BE THE MINIMUM LENGTH SPECIFIED IN GENERAL NOTES.

2. THE CONTRACTOR SHALL USE EXOTHERMIC WELD MOLDS RECOMMENDED BY THE MANUFACTURER SPECIFIC TO EACH WELD APPLICATION. MOLDS SHALL BE APPROVED BY THE MANUFACTURER FOR #2 AWG SOLID CONDUCTOR WIRE.

3. FOR STRUCTURAL POLES, FLAT-MOUNT VERTICAL WELD EQUIVALENT TO CADWELD TYPE VB, VS, OR VV SHALL BE USED , UNLESS OTHERWISE APPROVED BY THE AUTHORITY. IN ADDITION TO THE PREVIOUS REQUIREMENT, FOR H-FRAME PIPE SUPPORTS THE CONTRACTOR SHALL SELECT A MOLD SIZED TO THE PIPE.

4. ALL GROUNDING CONNECTIONS MADE BETWEEN THE STRUCTURE, GROUND RODS, CABINETS, POWER DISCONNECTS, AND ANY OTHER ITEM SHALL BE MADE USING #2 AWG SOLID CONDUCTOR TINNED BARE COPPER WIRE. THE CONNECTING WIRE SHALL BE BURIED PER N.E.C. AND SHALL BE ATTACHED TO GROUND RODS USING EXOTHERMIC WELDS.

5. THE STRUCTURE AND POWER DISCONNECT 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.

6. THE DMS ENCLOSURE SHALL BE GROUNDED TO THE SIGN STRUCTURE WITH A GROUND STRAP PER MANUFACTURER'S RECOMMENDATIONS.

7. GROUND WIRE LEADS SHALL BE EXOTHERMICALLY WELDED TO THE STRUCTURAL POLES. WELD 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.

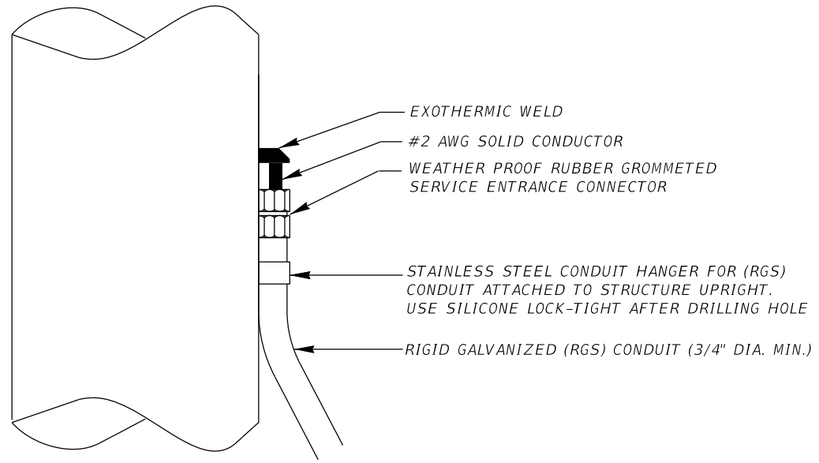
8. GROUNDING WIRE SHALL BE CONNECTED INTO THE GROUNDING BUS BAR LOCATED WITHIN THE ELECTRICAL SERVICE DISCONNECT.

9. THE GROUNDING SYSTEM SHALL MEET THE REQUIREMENT OF 5 OHMS OR LESS AS MEASURED FROM THE SIGN STRUCTURE USING THE THREE-POINT GROUND MEASUREMENT TECHNIQUE. IF THE 5-OHM REQUIREMENT IS NOT MET, LONGER GROUND RODS MAY BE DRIVEN OR THE GROUNDING ARRAY MAY BE EXTENDED AT NO ADDITIONAL COST TO THE AUTHORITY UNTIL THE 5-OHM REQUIREMENT IS MET.

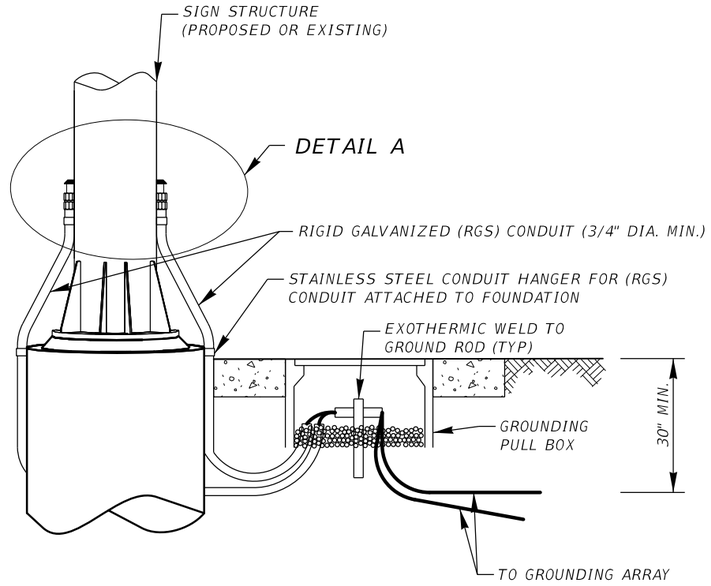
10. HALF-SPAN OR FULL-SPAN STRUCTURES SHALL BE EQUIPPED WITH COMPLETE GROUNDING ARRAYS ATTACHED TO BOTH UPRIGHTS.

11. IF EXISTING STRUCTURE IS PAINTED, CONTRACTOR SHALL PAINT CONDUIT AND WELD TO MATCH EXISTING COLOR. CAMERA POLES ARE PAINTED FLAT BLACK. SIGN STRUCTURES, IF PAINTED, SHALL BE PAINTED IN ACCORDANCE WITH CFX TECHNICAL SPECIFICATIONS SECTIONS 562 AND 975. THE COLOR OF THE SIGN STRUCTURE SHALL BE FEDERAL STANDARD 595B, COLOR NUMBER 26314 UNLESS OTHERWISE DIRECTED BY THE AUTHORITY.

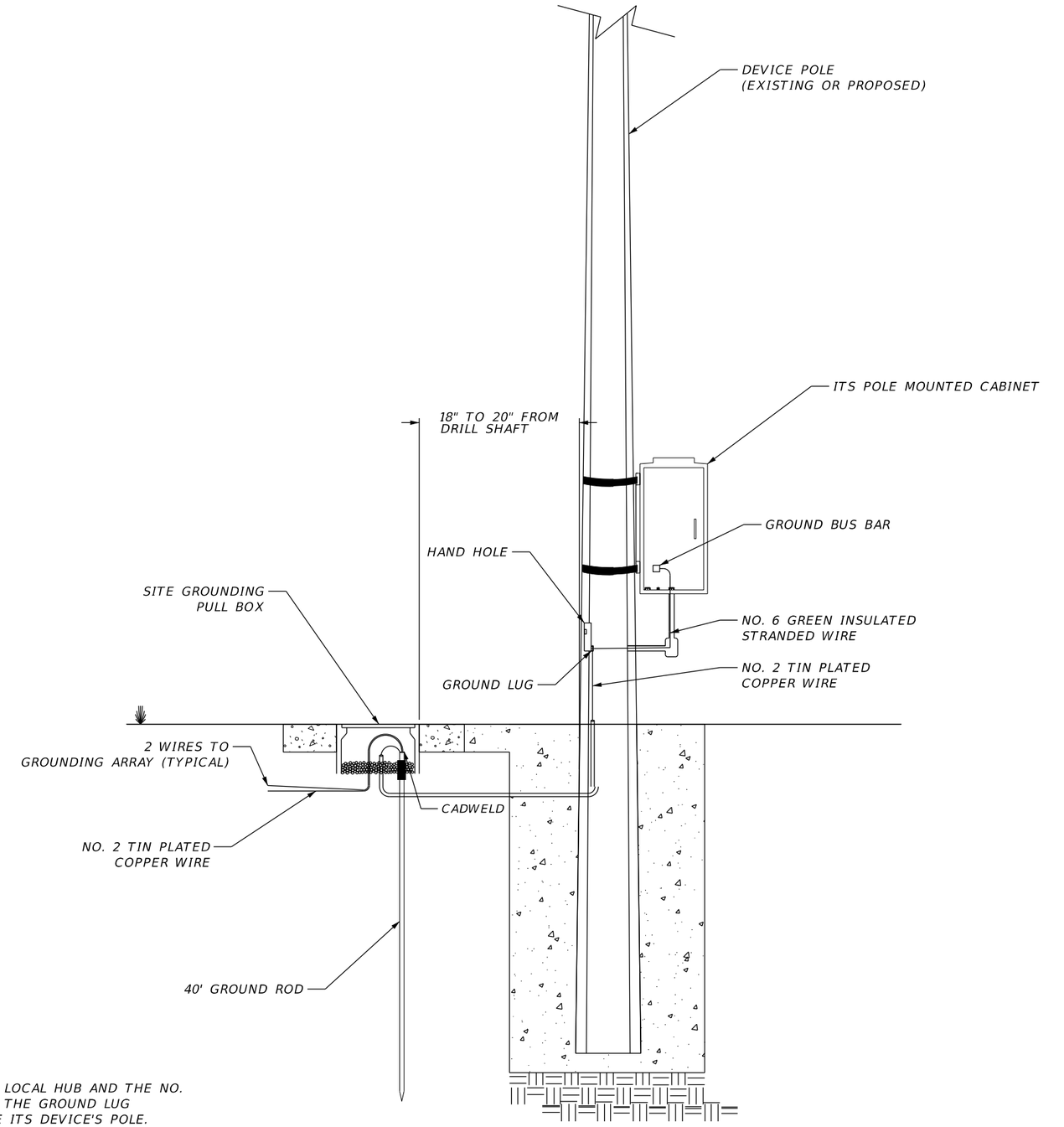
12. THE ENDS OF ALL METAL CONDUIT SHALL BE PROPERLY GROUNDED WITH AN APPROVED GROUND BUSHING.



DETAIL A
NTS



REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-1
		REFER TO FDOT SPECIFICATION SECTION 785 FOR ADDITIONAL INFORMATION.								



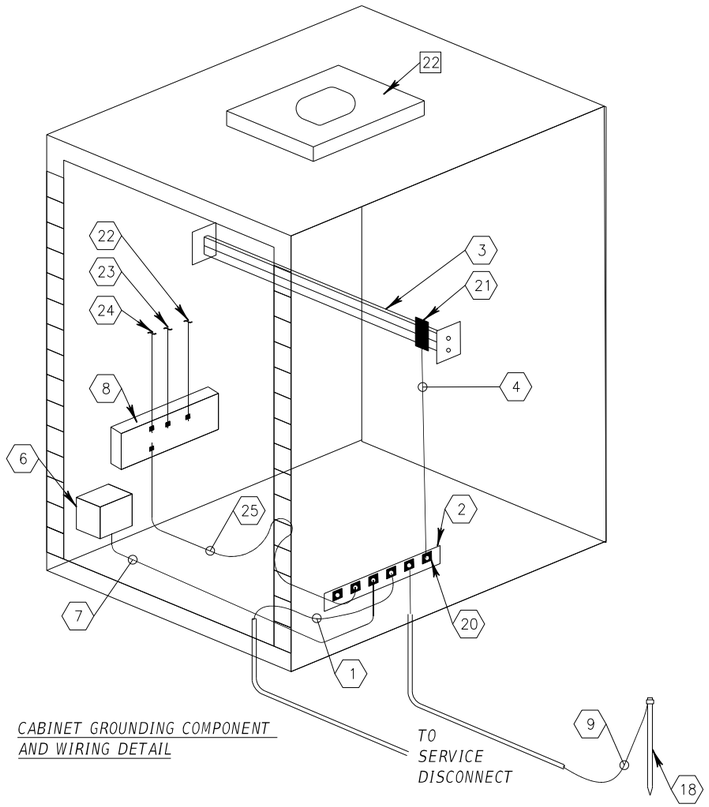
N.T.S.

NOTES:

1. TIE THE NO. 6 GROUND WIRE FROM THE LOCAL HUB AND THE NO. 2 GROUND WIRE FROM THE PULLBOX TO THE GROUND LUG LOCATED INSIDE THE HANDHOLE ON THE ITS DEVICE'S POLE.

2. GROUNDING PULL BOXES SHALL BE STAMPED WITH "CFX GROUNDING" ON TOP OF THE LID.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-2
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								



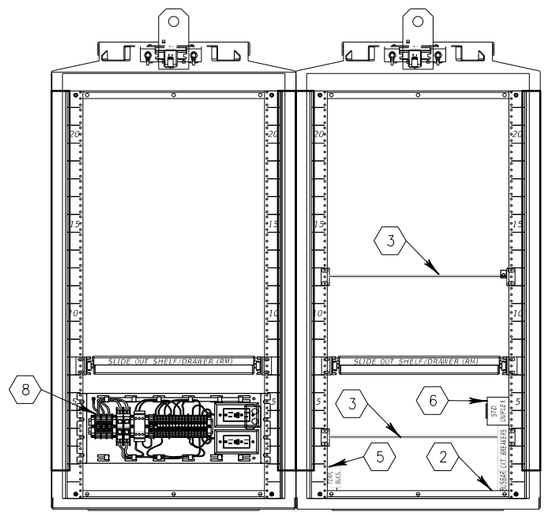
CABINET GROUNDING COMPONENT AND WIRING DETAIL

GENERAL NOTES

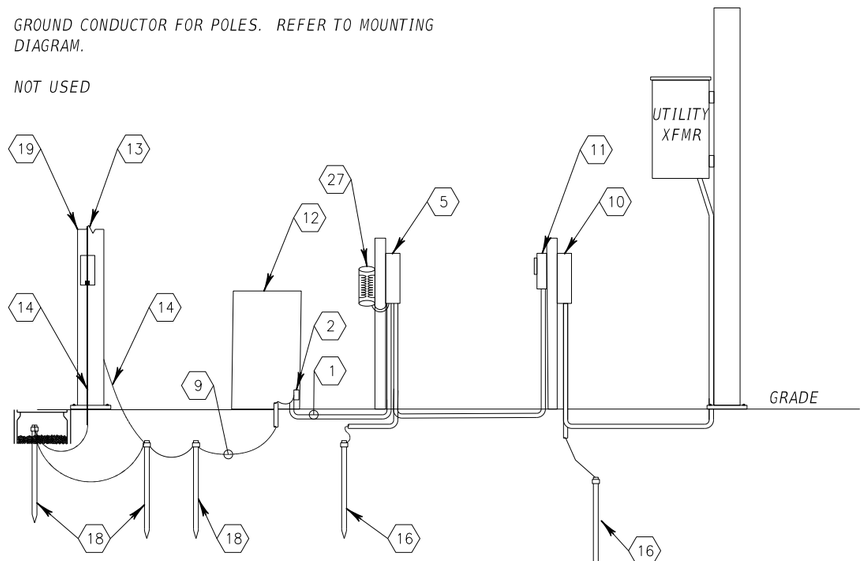
1. DESIGN INTENT OF THIS DRAWING IS TO PROVIDE AN OVERALL GROUNDING CONCEPT THAT SHOWS ALL GROUNDS FOR CABINETS, POLES, AND SERVICE ARE REQUIRED TO BE CONNECTED TOGETHER AS A COMMON GROUND.
2. THE CABINET IS TO HAVE A SINGLE POINT GROUND FOR ALL EQUIPMENT INTERCONNECTED VIA THE USE OF A MAIN GROUND BUS. THE GROUNDING COMPONENT AND WIRING DETAILS SHOWS THE INTERCONNECTION REQUIRED TO PERFORM A SINGLE POINT CONNECTION.
3. SYSTEM SHOWN IS TO CLARIFY AND MEET THE INTENT OF NEC ARTICLE 250.
4. REFER TO 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. ALL EQUIPMENT AND STRUCTURES AT THE SITE ARE TO BE CONNECTED TO THE MAIN GROUND BUS IN THE CABINET PROVIDING A SINGLE EQUI-POTENTIAL GROUNDING SYSTEM.
7. ALLOW 2 FEET OF SLACK FOR THE CONDUCTOR WIRE SO A CLAMP ON MEGGER CAN BE ATTACHED.

KEYED NOTES

(1) SERVICE GROUND #6 AWG CONDUCTOR FROM SERVICE MAIN DISCONNECT SWITCH.
(2) MAIN GROUND BUS MOUNTED INSIDE OF CABINET.
(3) CABINET DIN RAIL MOUNTED INSIDE WITH SURGE PROTECTION.
(4) #10 STRANDED GROUND CONDUCTOR FROM DIN RAIL TO MAIN GROUND BUS.
(5) SAFETY DISCONNECT SWITCH OR ENCLOSED BREAKER FOR AC POWER TO CABINET. IF A STEP-DOWN TRANSFORMER IS INSTALLED AT THE CONCRETE PEDESTAL THEN N-G SHALL OCCUR INSIDE THE BREAKER PANEL.
(6) SPD (SURGE SUPPRESSION DEVICE) FOR DIN RAIL.
(7) SURGE SUPPRESSION GROUND WIRE.
(8) GROUND TERMINAL BLOCK FOR ELECTRICAL OUTLETS, FANS, LIGHTS. COMMON GROUND TO BE CONNECTED TO MAIN GROUND BUS.
(9) GROUND CONDUCTOR
(10) MAIN SERVICE DISCONNECT SWITCH FOR AC POWER. THE SERVICE DISCONNECT IS REQUIRED TO HAVE A NEUTRAL TO GROUND BOND.
(11) UTILITY METER. CONNECT GROUND TO COMMON SERVICE GROUND.
(12) ITS CABINET 336S
(13) CCTV STRUCTURE POLE.
(14) GROUND CONDUCTOR FOR POLES. REFER TO MOUNTING DIAGRAM.
(15) NOT USED
(16) SERVICE GROUND RODS.
(17) NOT USED
(18) GROUND RODS SEE ITS DEVICE GROUNDING ARRAY (2 OF 2) SHEET F0-26.
(19) EXOTHERMIC WELD CONNECTION AT POLE TO GROUND CONDUCTOR.
(20) GROUND CLAMP USED AT GROUND BUS.
(21) GROUND CLAMP USED AT DIN RAIL.
(22) FANS FOR CABINET CONNECTED TO MAIN GROUND BUS OR VIA GROUND TERMINAL BLOCK.
(23) RECEPTACLE GROUND WIRE CONNECTION TO GROUND TERMINAL BLOCK.
(24) LIGHTING FIXTURE GROUND WIRE CONNECTION TO GROUND TERMINAL BLOCK.
(25) #6 GROUND CONDUCTOR FROM GROUND TERMINAL BLOCK TO MAIN GROUND BUS BAR.
(26) NOT USED
(27) STEP UP/STEP DOWN TRANSFORMER ASSEMBLY

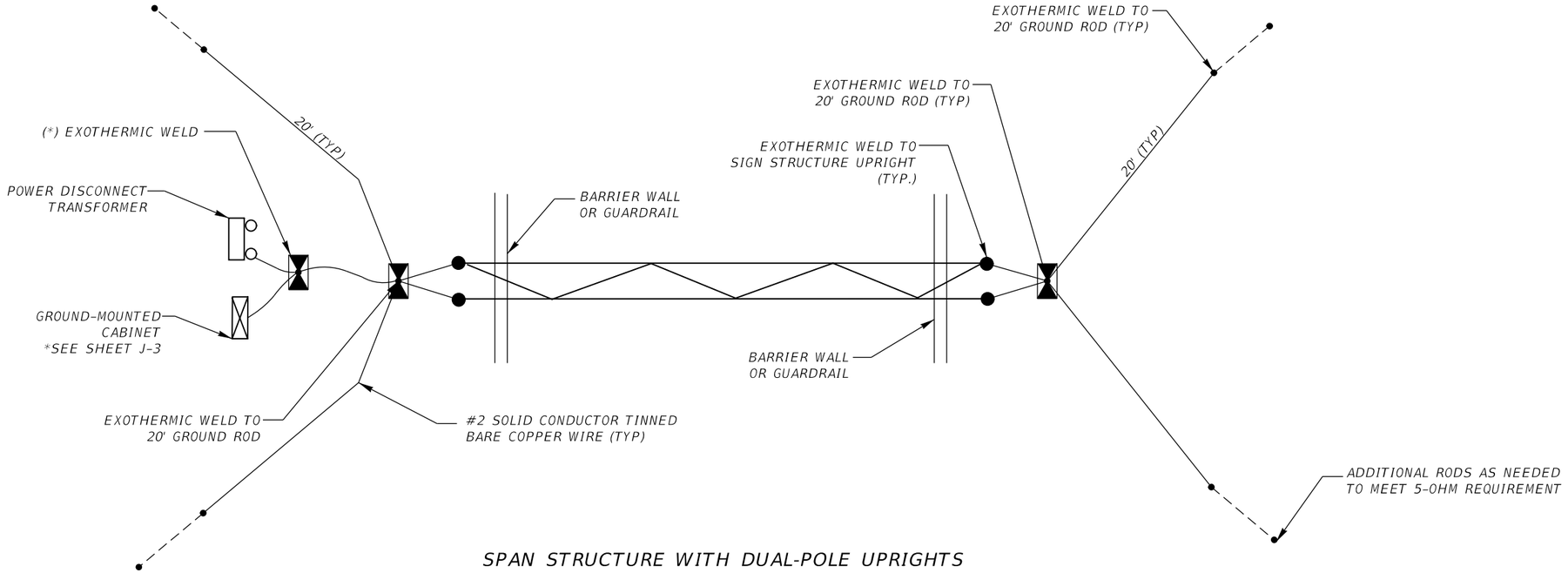


CABINET 336S EQUIPMENT LAYOUT

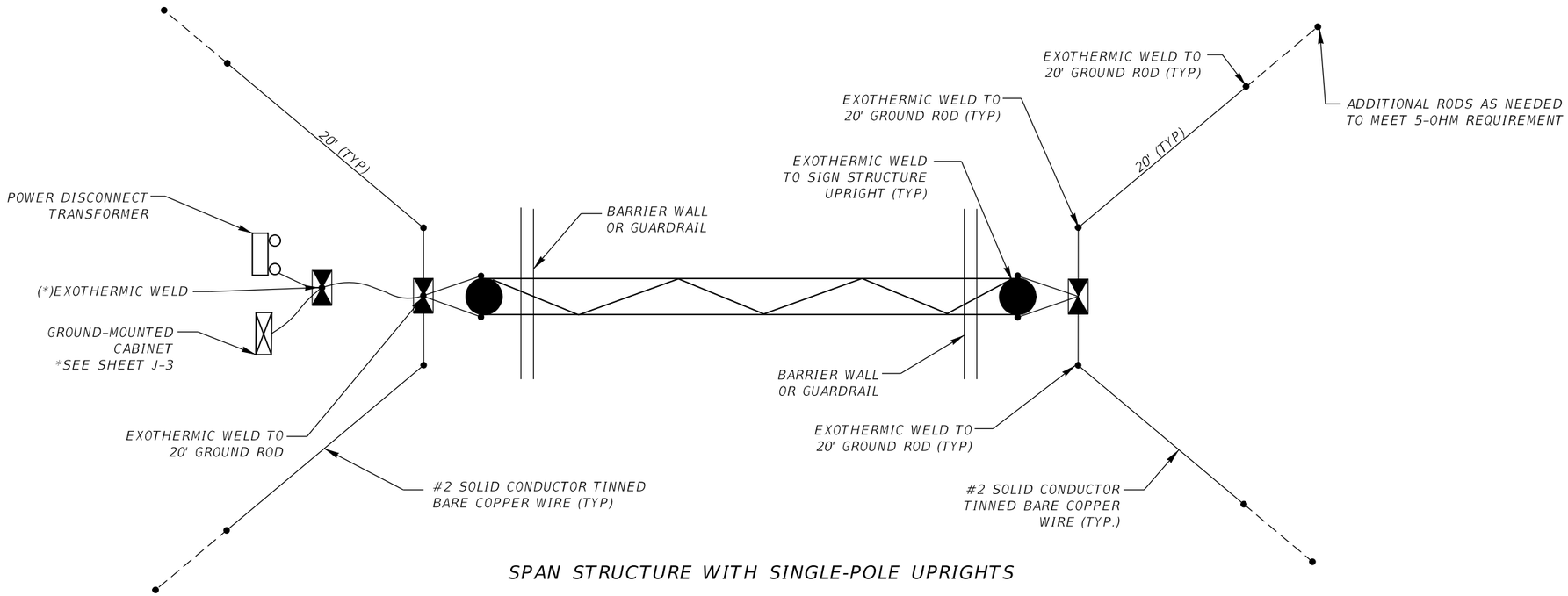


OVERALL GROUNDING DETAIL (TYPICAL)

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING ARRAY (1 OF 4)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 668 FOR ADDITIONAL INFORMATION.								J-3



SPAN STRUCTURE WITH DUAL-POLE UPRIGHTS

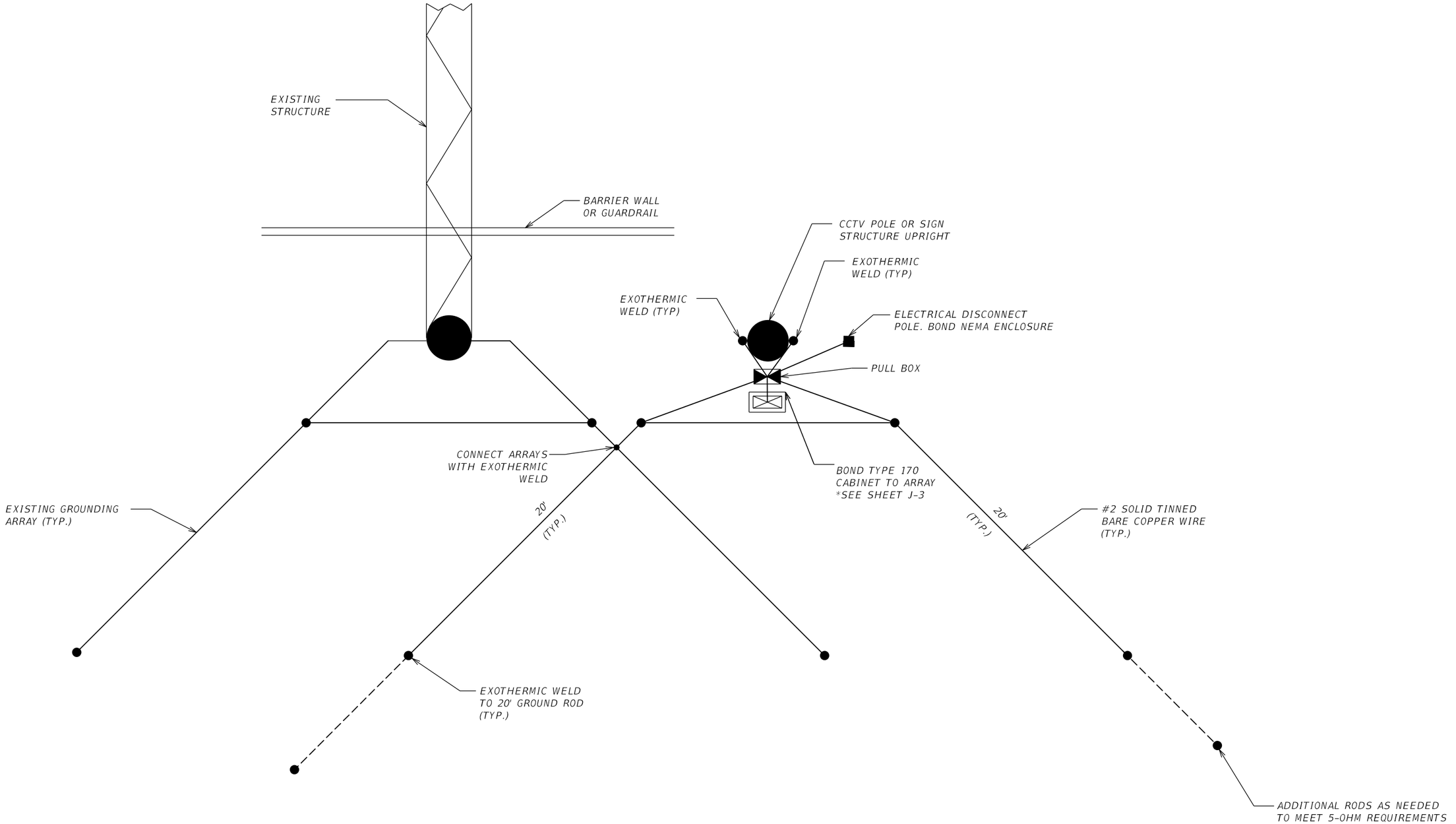


SPAN STRUCTURE WITH SINGLE-POLE UPRIGHTS

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO FDOT SPECIFICATION SECTION 785 FOR ADDITIONAL INFORMATION.						

ITS DEVICE GROUNDING ARRAY (2 OF 4)

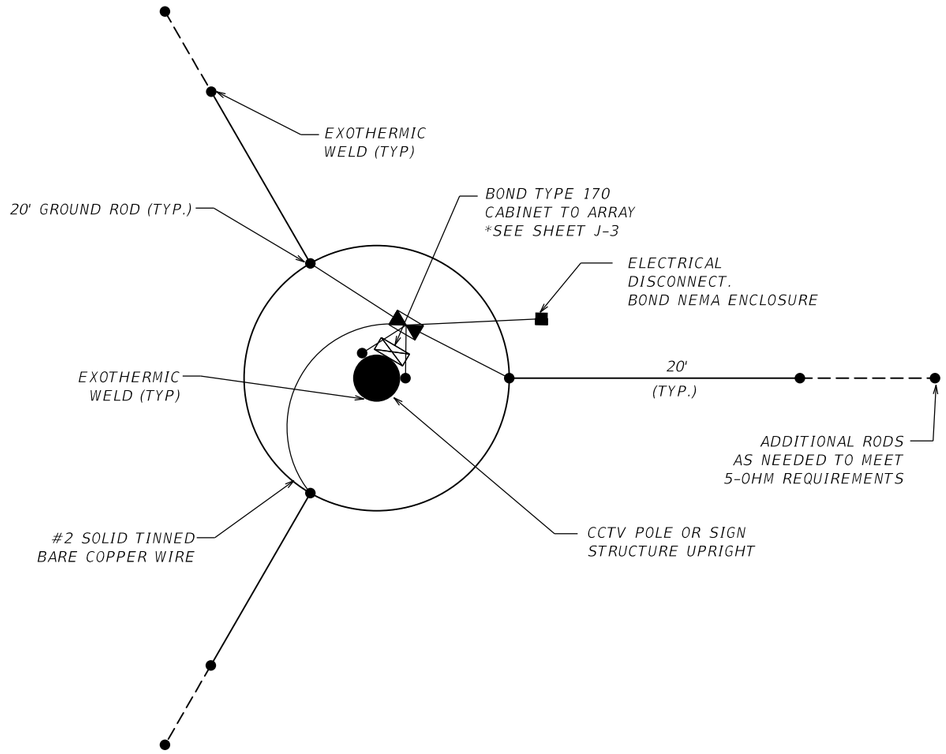
SHEET NO. J-4



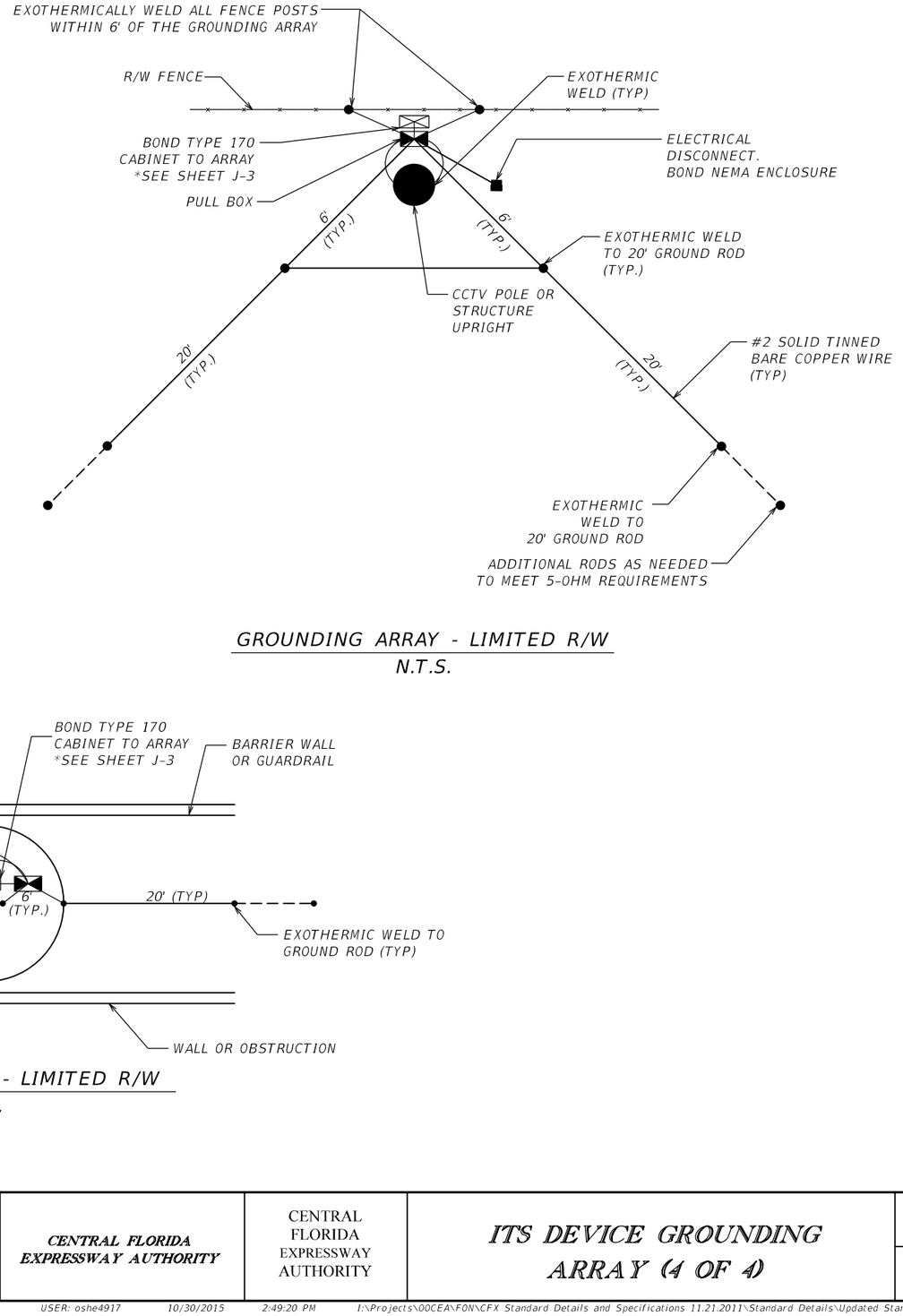
GROUNDING DETAIL IN PROXIMITY TO EXISTING ITS SIGN STRUCTURE

N.T.S.

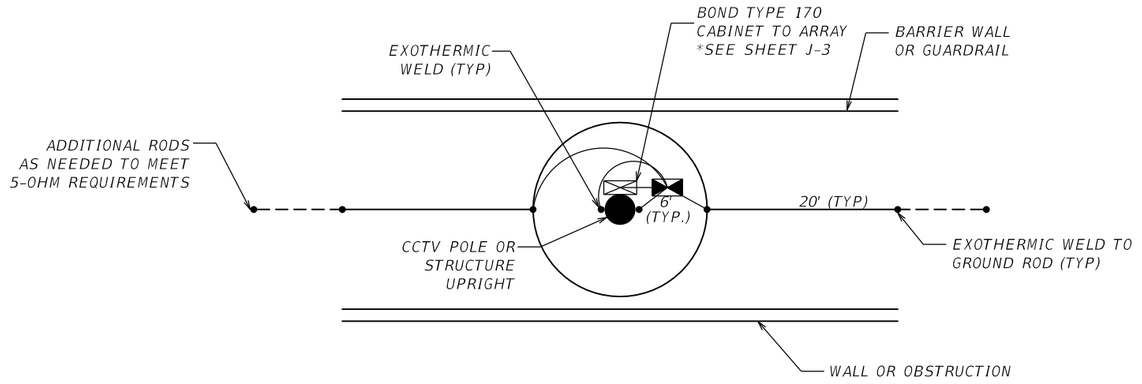
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ITS DEVICE GROUNDING ARRAY (3 OF 4)	SHEET NO. J-5
		REFER TO FDOT SPECIFICATION SECTION 785 FOR ADDITIONAL INFORMATION.								



STANDARD GROUNDING ARRAY
N.T.S.



GROUNDING ARRAY - LIMITED R/W
N.T.S.

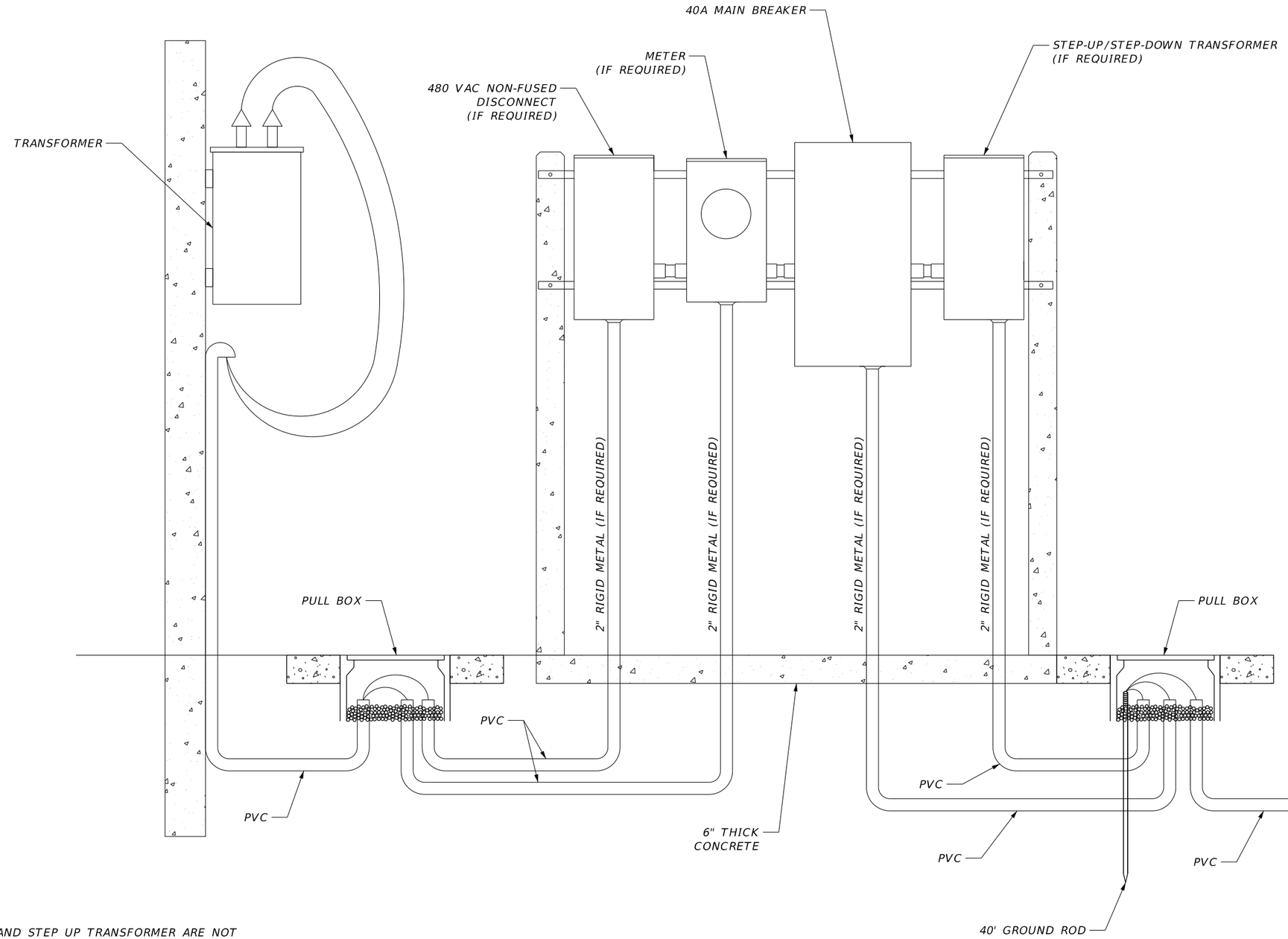


GROUNDING ARRAY - LIMITED R/W
N.T.S.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO FDOT SPECIFICATION SECTION 785 FOR ADDITIONAL INFORMATION.						

ITS DEVICE GROUNDING ARRAY (4 OF 4)

SHEET NO. J-6

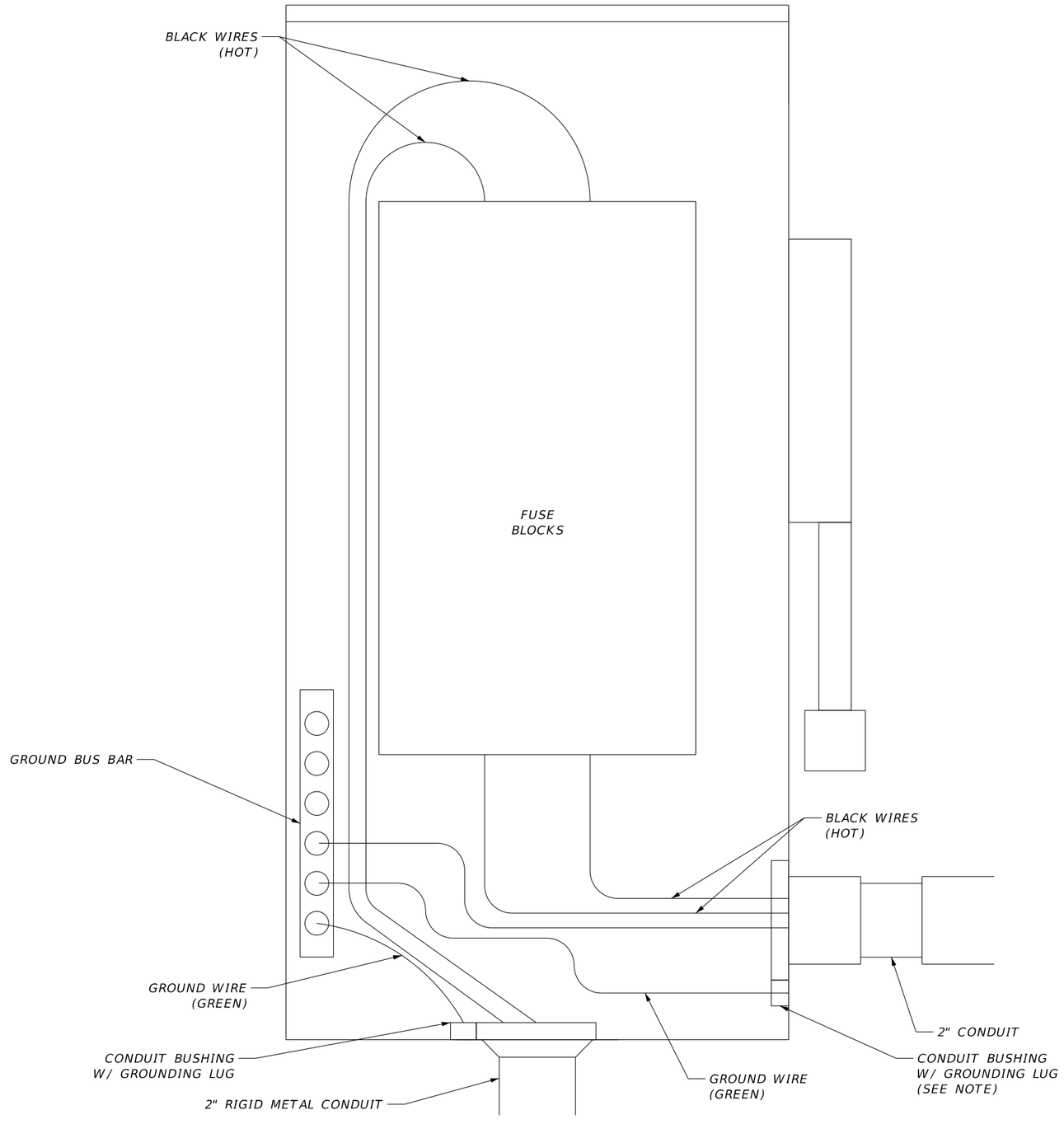


NOTE:

1. IF THE DISCONNECT AND STEP UP TRANSFORMER ARE NOT REQUIRED, A SINGLE POLE CAN BE USED.

N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ELECTRICAL SERVICES ASSEMBLY	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								J-7

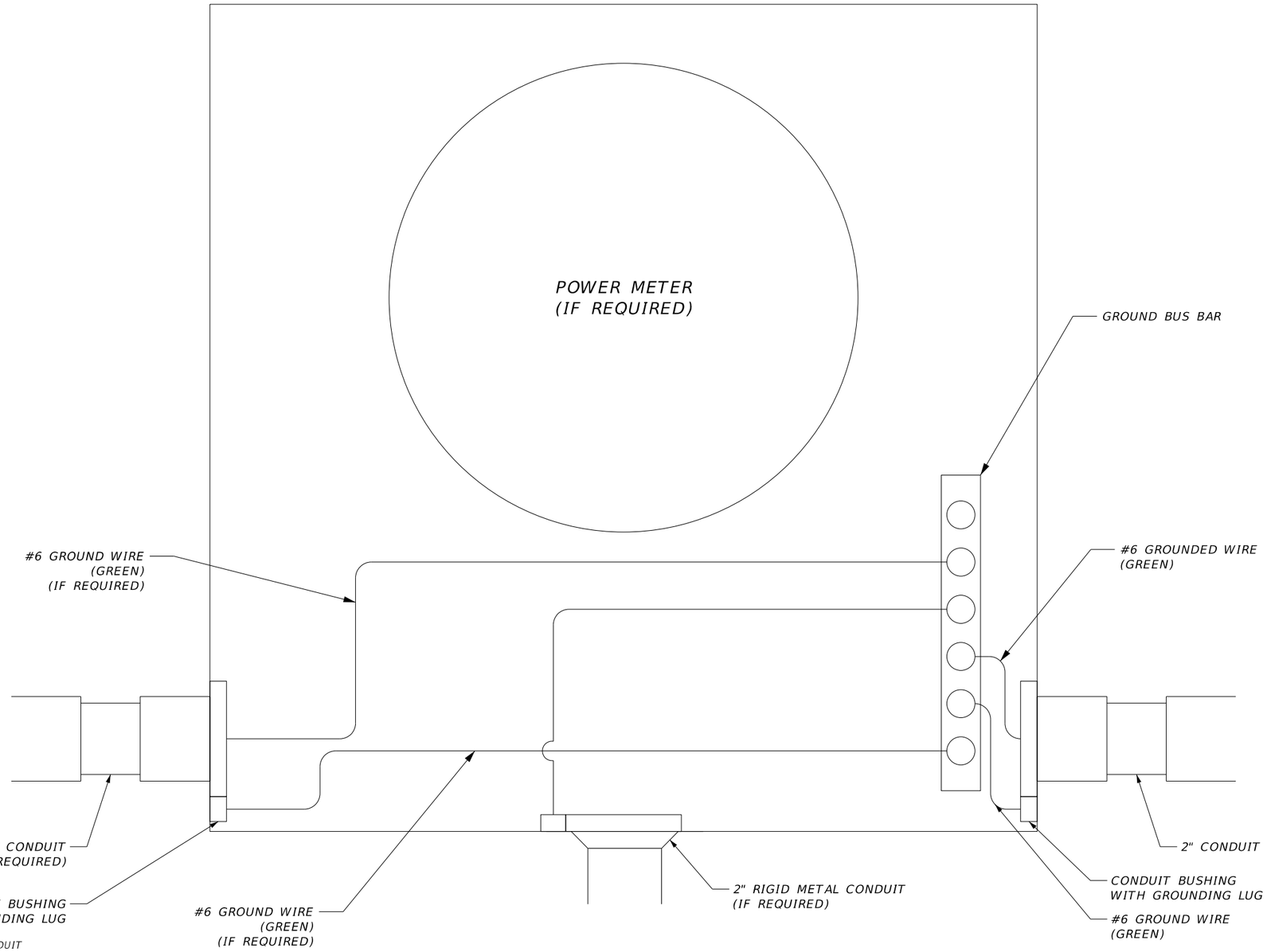


DETAIL TO BE USED IF LINE SIDE DISCONNECT IS REQUIRED.

NOTE:
1. FIT THE TERMINATING ENDS OF ALL METAL CONDUIT WITH AN CFX APPROVED CONDUIT BUSHING.

N.T.S.

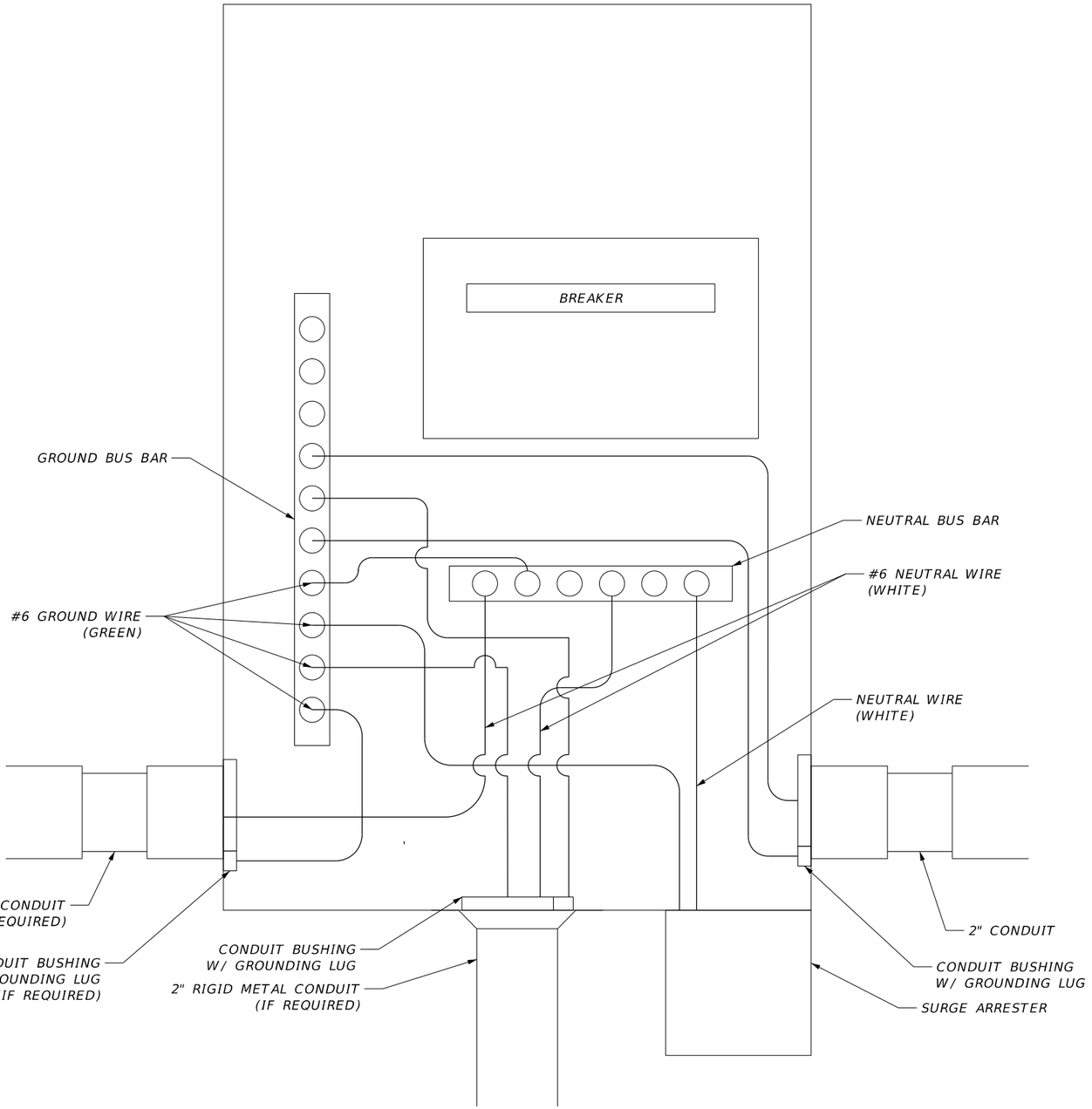
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ELECTRICAL SERVICE ASSEMBLIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								J-8



NOTE:
1. FIT THE TERMINATING ENDS OF ALL METAL CONDUIT WITH AN CFX APPROVED CONDUIT BUSHING.

N.T.S.

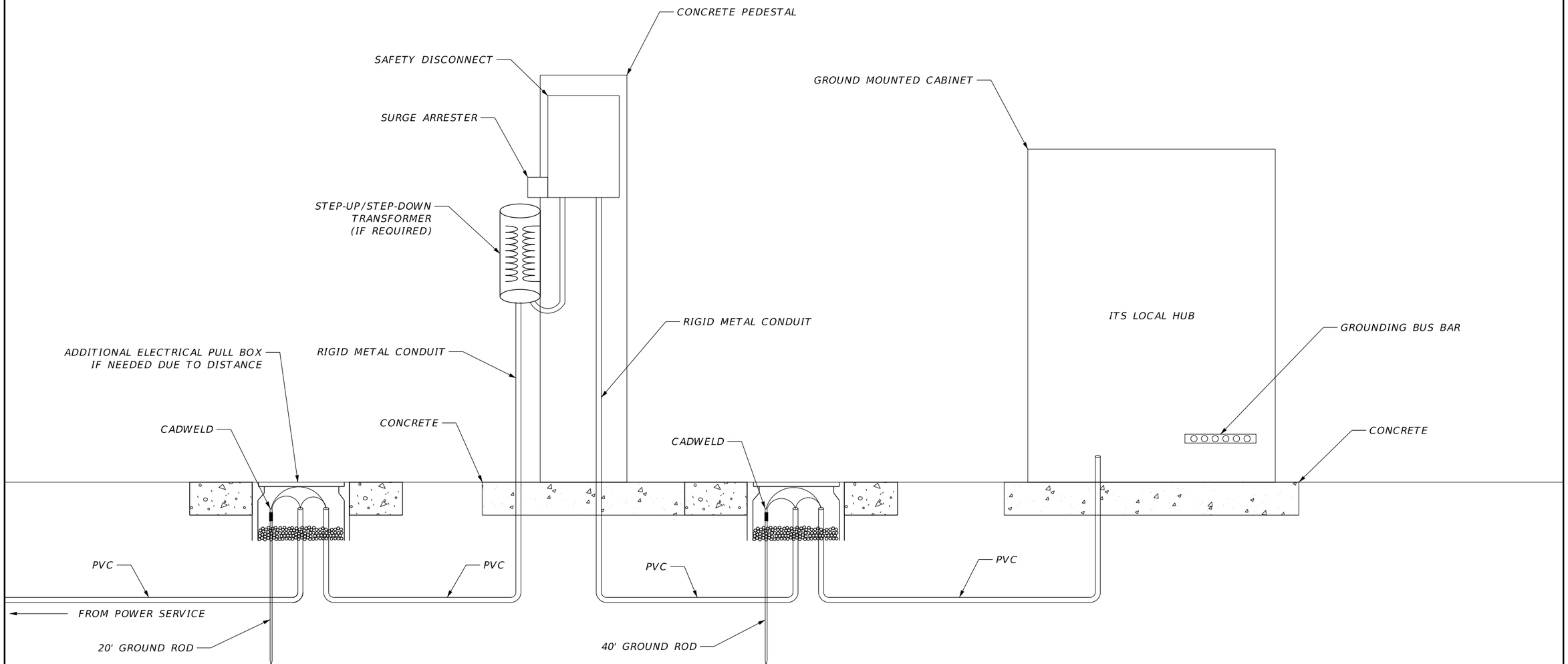
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ELECTRICAL SERVICE DISCONNECT	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								J-9



NOTE:
1. FIT THE TERMINATING ENDS OF ALL METAL CONDUIT WITH AN CFX APPROVED CONDUIT BUSHING.

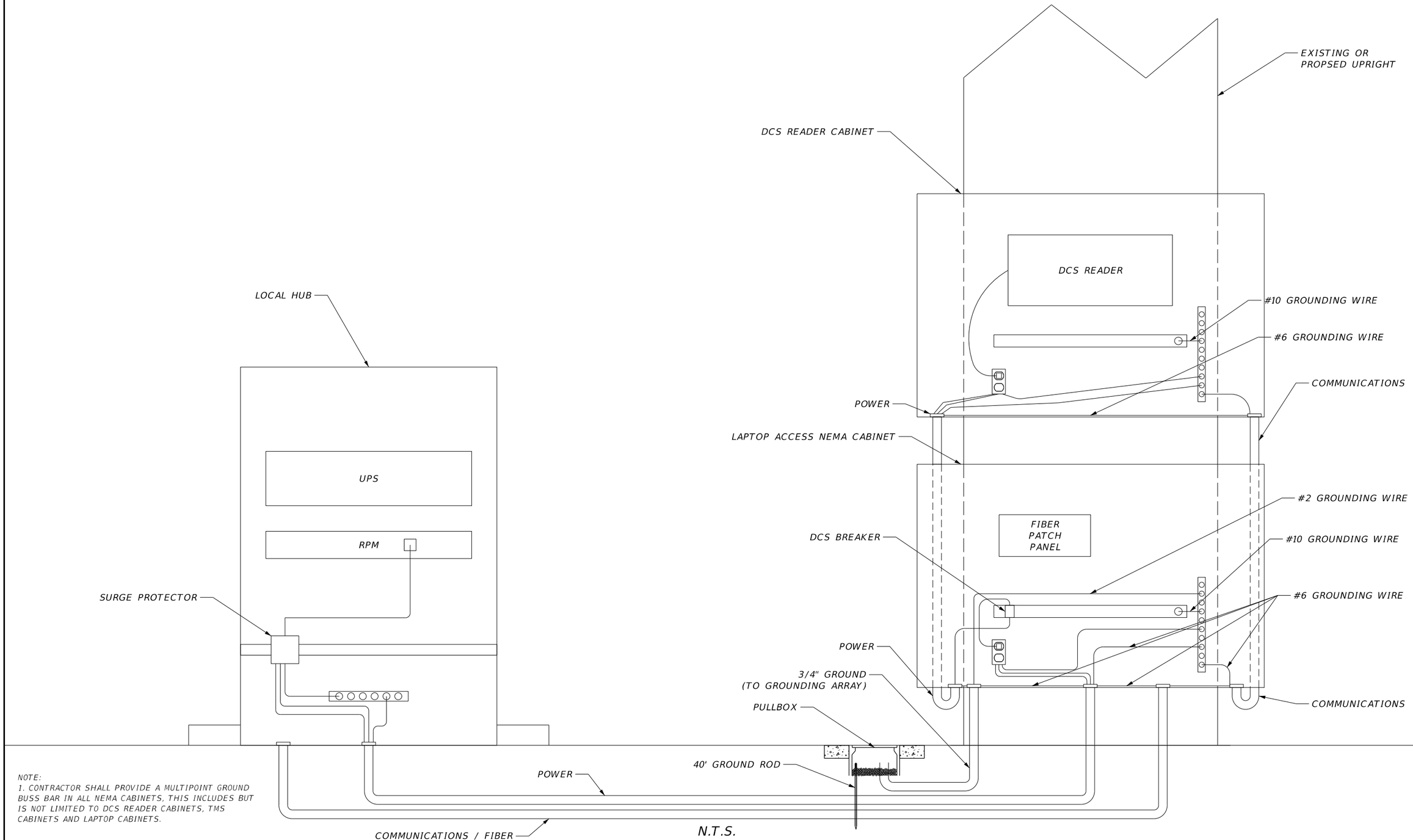
N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ELECTRICAL SERVICE DISCONNECT	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-10
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								



N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	GROUND MOUNTED GROUNDING	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					J-11
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								



NOTE:
1. CONTRACTOR SHALL PROVIDE A MULTIPOINT GROUND BUSS BAR IN ALL NEMA CABINETS, THIS INCLUDES BUT IS NOT LIMITED TO DCS READER CABINETS, TMS CABINETS AND LAPTOP CABINETS.

N.T.S.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.			

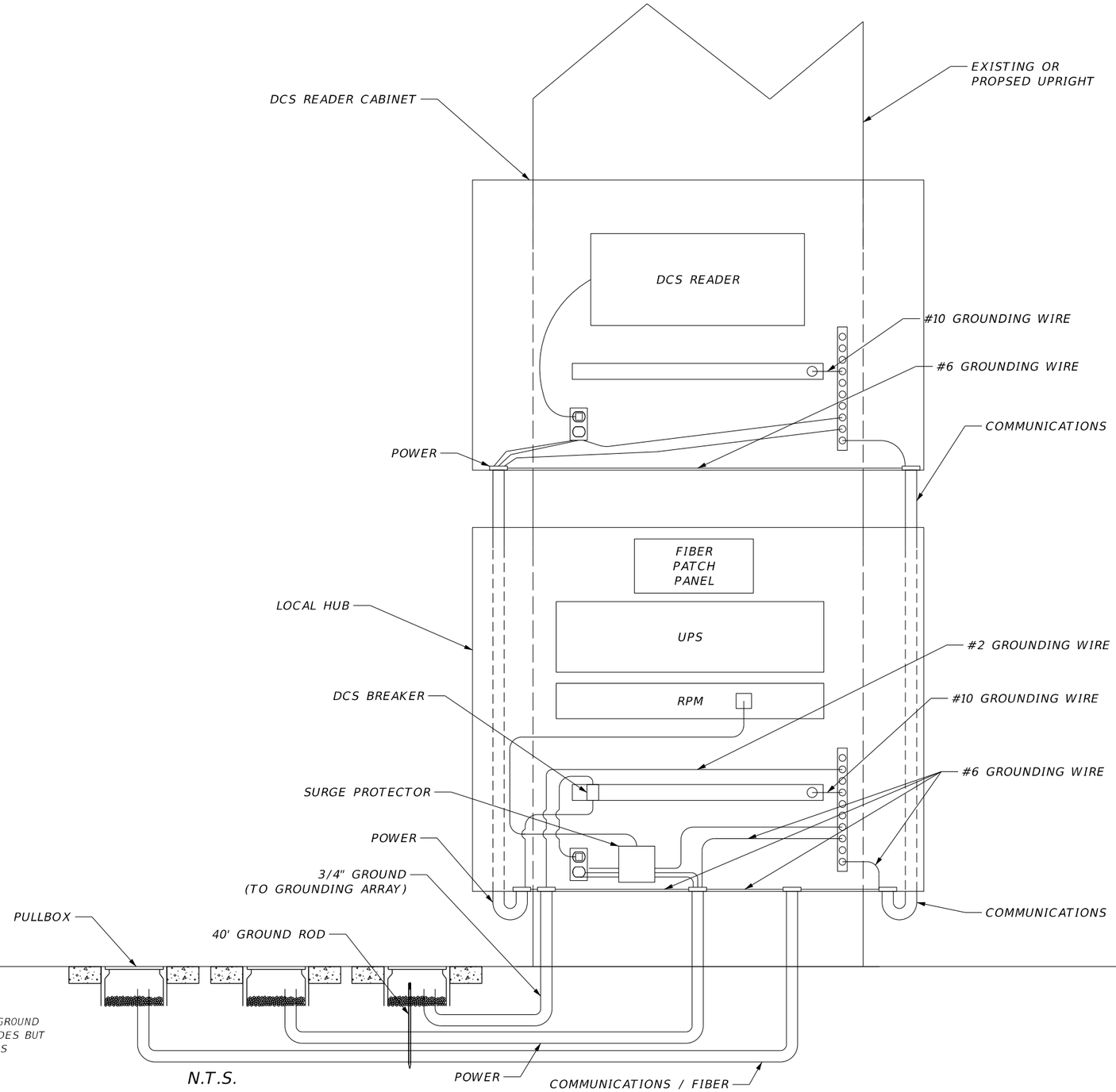
FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS READER CABINET

SHEET NO. J-12



N.T.S.

NOTE:
1. CONTRACTOR SHALL PROVIDE A MULTIPOINT GROUND BUSS BAR IN ALL NEMA CABINETS, THIS INCLUDES BUT IS NOT LIMITED TO DCS READER CABINETS, TMS CABINETS AND LAPTOP CABINETS.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.			

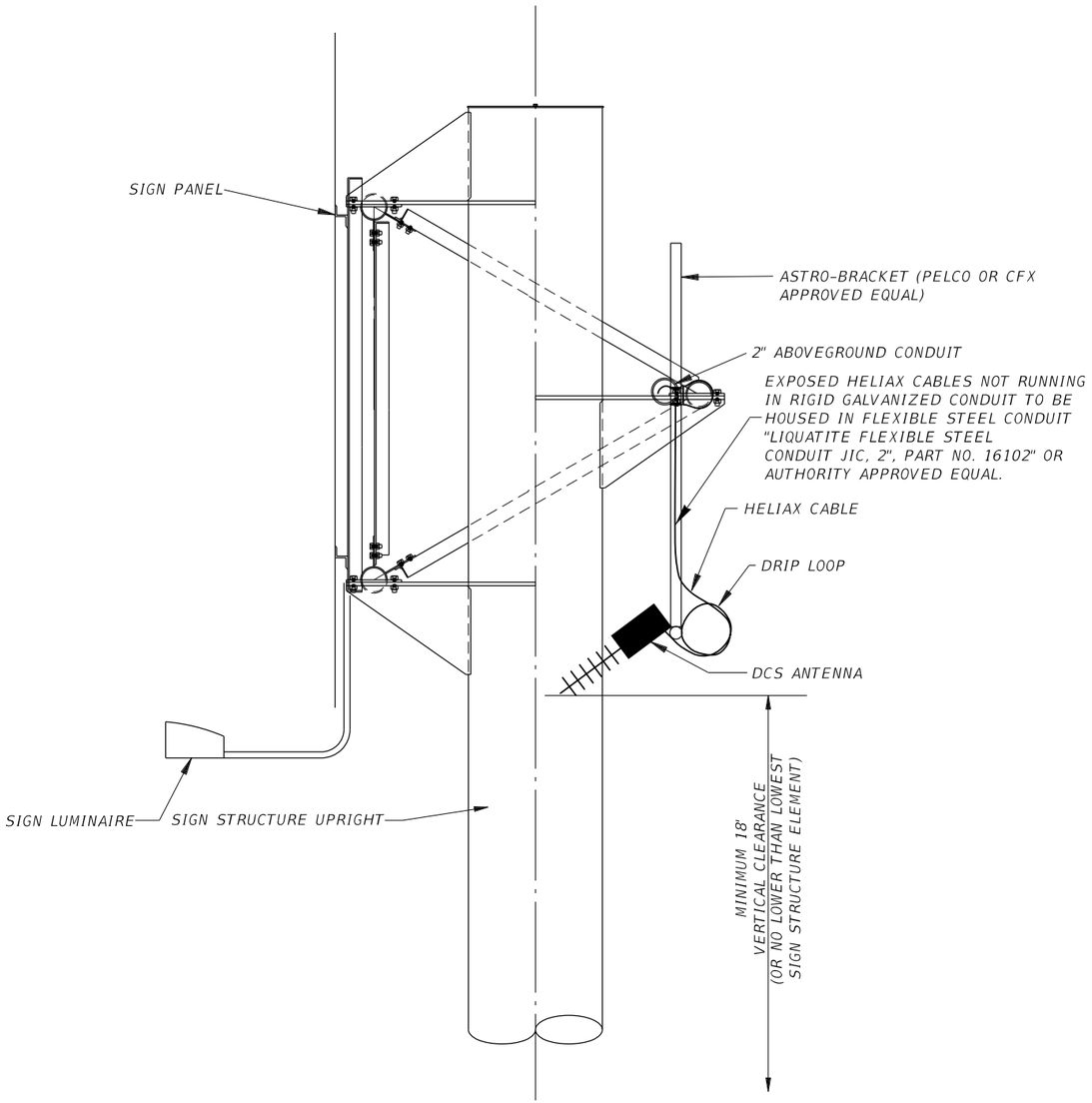
FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS READER CABINET

SHEET NO. J-13

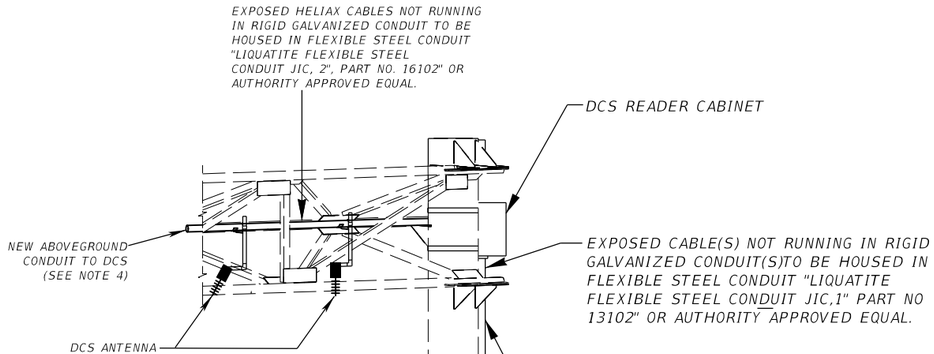


NOTES:

ANTENNA SHOWN MOUNTED TO BACK CORD, FRONT INSTALLATION MAY BE USED WHEN APPROVED BY CENTRAL FLORIDA EXPRESSWAY AUTHORITY.

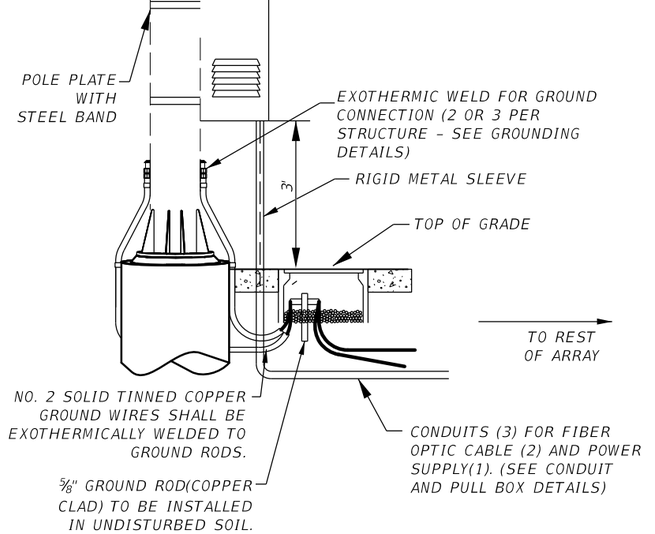
SIGN STRUCTURE MOUNTED DCS (PROFILE)

N.T.S.



NOTES:

1. DCS CABINET TO BE MOUNTED TO STRUCTURE UPRIGHT WITH 2 STAINLESS STEEL BANDS.
2. BAND TYPE 170 CABINET TO UPRIGHT AT BACK OF POLE. RUN FIBER OPTIC CABLE AND POWER SUPPLY TO BOTTOM OF CABINET IN RIGID CONDUIT. CONTINUE SINGLE RUN OF RIGID CONDUIT FROM BASE OF CABINET TO BASE OF CABINET. RUN CABLE INTO BOTTOM OF "J" HOOK AND INTO DCS READER CABINET.
3. 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.
4. WHEN INSTALLING ABOVEGROUND CONDUIT ON EXISTING SIGN STRUCTURES, THE CONDUIT SHALL BE ATTACHED TO THE BACK TRUSS CHORD TO MINIMIZE VISUAL IMPACT.
5. STAINLESS STEEL BANDS SHALL BE SIZED TO SUPPORT 3 TIMES THE WEIGHT OF THE CABINETS AND ITS CONTENTS.
6. 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 130 MPH.
7. ANTENNA COLOR SHALL BE SUBMITTED TO CFX FOR APPROVAL.
8. CONDUIT SHALL ENTER THE POLE MOUNTED CABINET FROM THE BOTTOM.
9. TYPE 170 CABINETS SHALL BE PLACED AS SHOWN 3' 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 3' FROM GRADE.
10. SLIDE OUT TRAY SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
11. CABINET SHALL NEVER BE MOUNTED ON THE APPROACHING SIDE OF TRAFFIC.
12. IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS.



SIGN STRUCTURE MOUNTED DCS

N.T.S.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 633, 635, 638, 663, AND 668 FOR ADDITIONAL INFORMATION.			

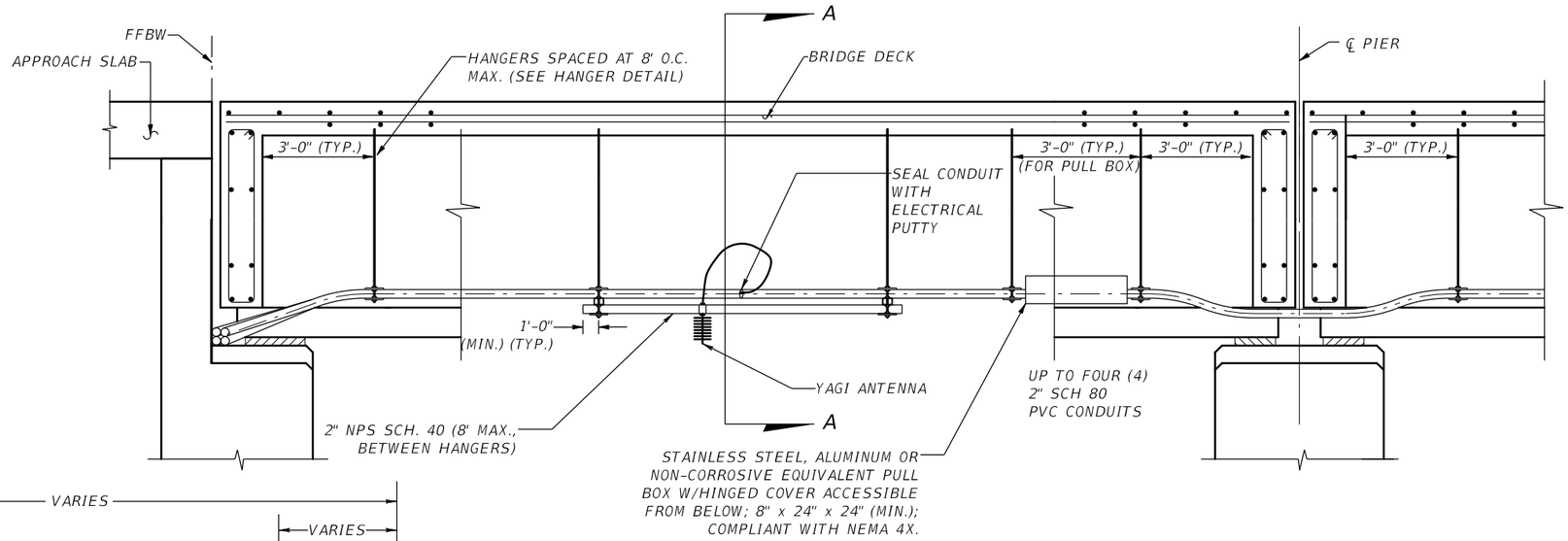
FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS SIGN STRUCTURE MOUNTING DETAIL

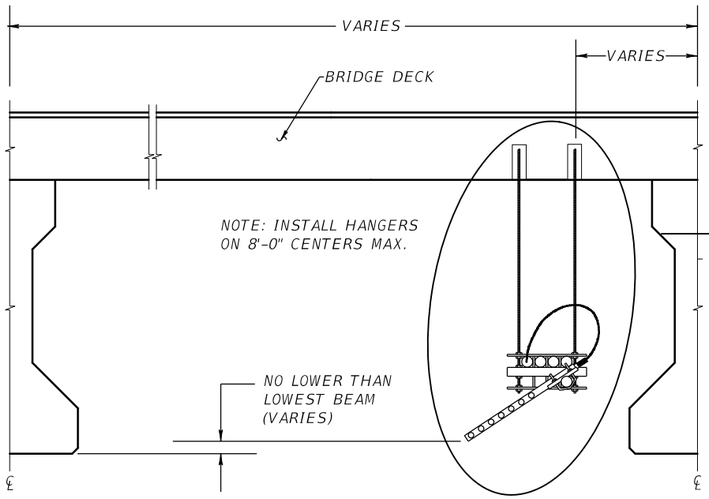
SHEET NO. K-1



SECTION (THRU PIERS AND END BENTS) WITH ANTENNA HANGER

SEE HANGER DETAIL FOR UNDER BRIDGE DECK INSTALLATION

N.T.S.

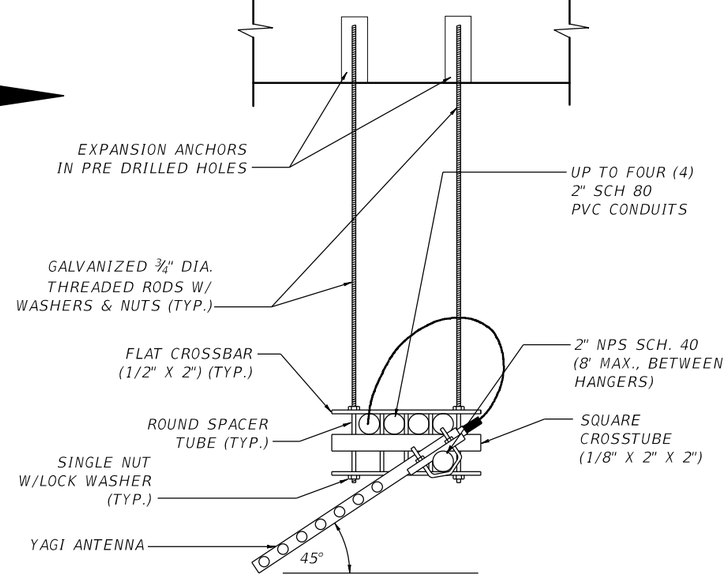


SECTION A-A

N.T.S.

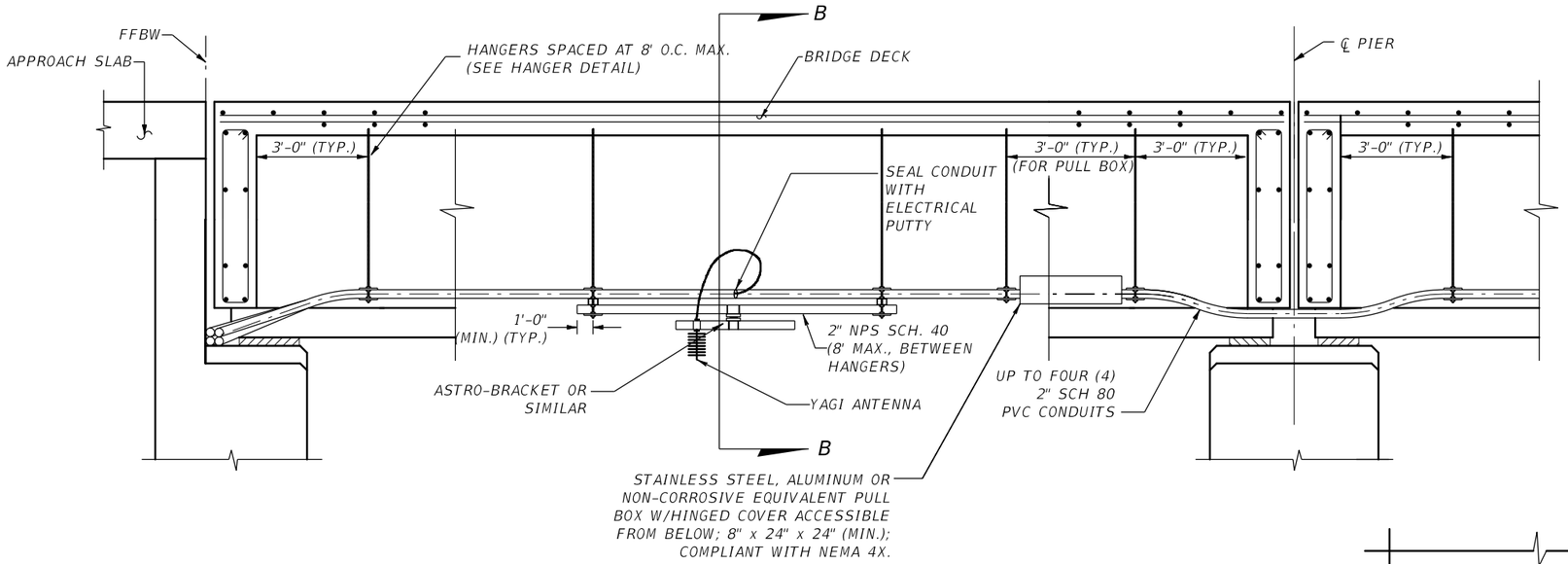
NOTES:

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" NPS SCH. 40 STRUCTURAL PIPE SHALL BE IN ACCORDANCE WITH ASTM A53 GRADE B 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

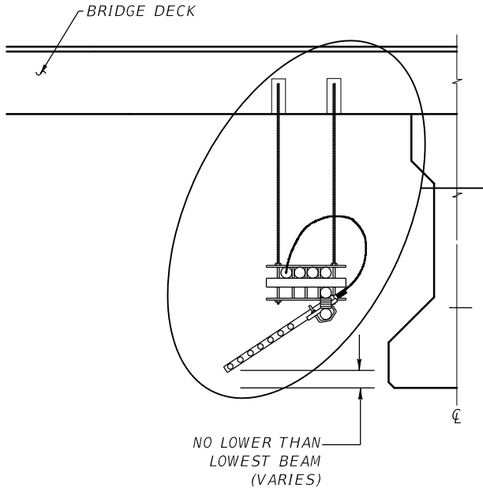
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS BRIDGE MOUNTING DETAIL (STRAIGHT BRIDGE)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTIONS 638 AND 663 FOR ADDITIONAL INFORMATION.								K-2



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

SEE HANGER DETAIL FOR UNDER BRIDGE DECK INSTALLATION

N.T.S.

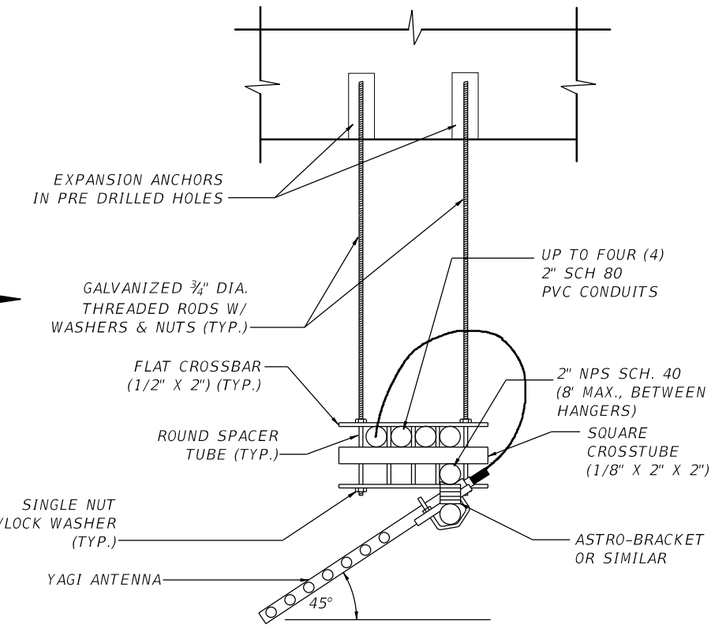


SECTION B-B (SKEWED BRIDGE)

N.T.S.

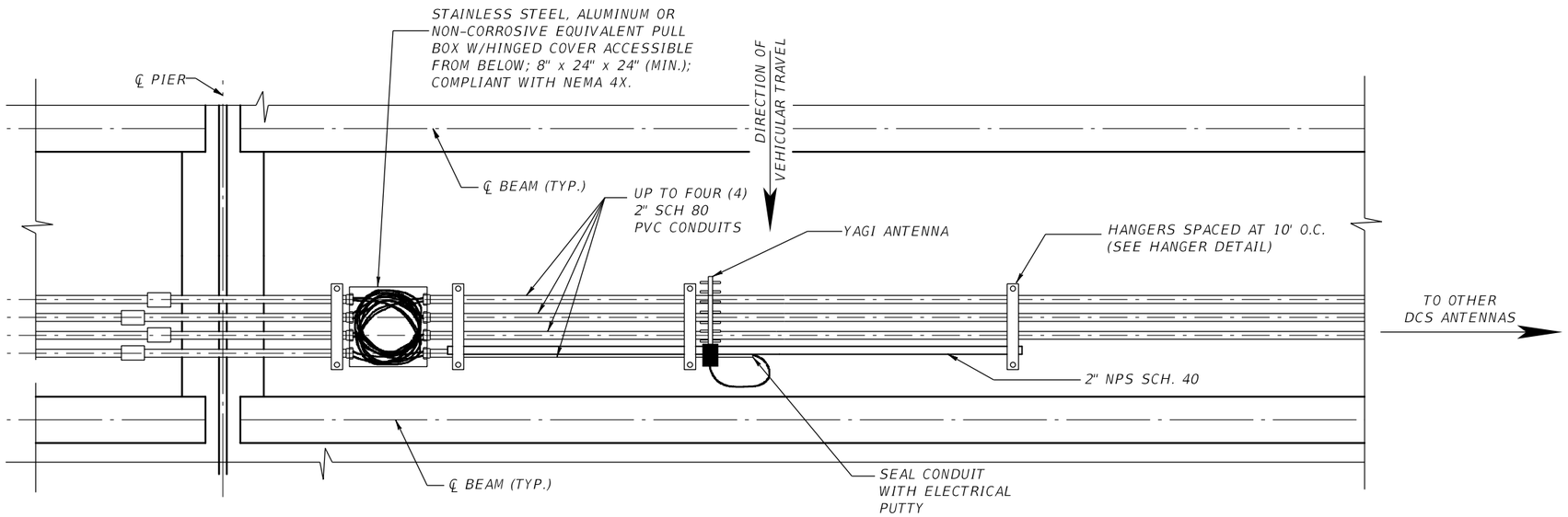
NOTES:

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" NPS SCH. 40 STRUCTURAL PIPE SHALL BE IN ACCORDANCE WITH ASTM A53 GRADE B 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.

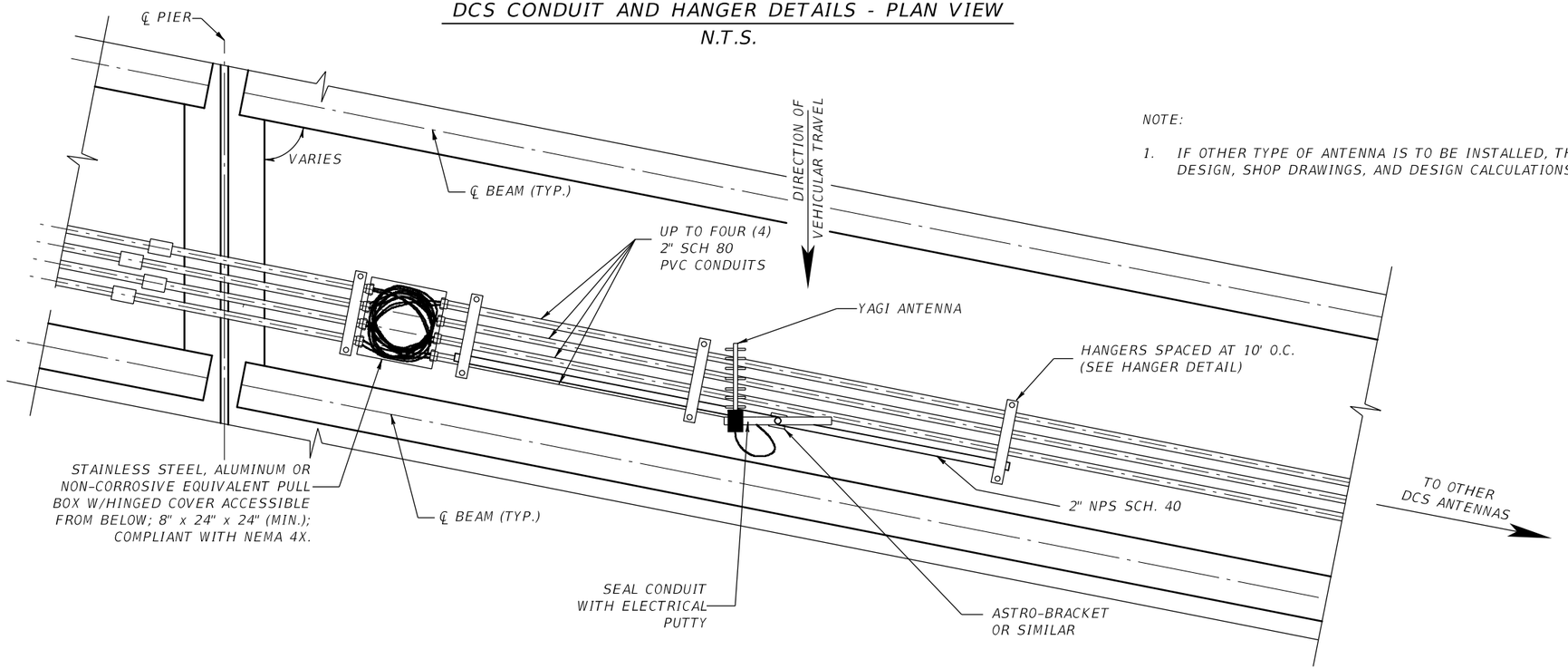


HANGER DETAIL (SKEWED BRIDGE)

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					
		REFER TO CFX SPECIFICATION SECTIONS 638 AND 663 FOR ADDITIONAL INFORMATION.								K-3



DCS CONDUIT AND HANGER DETAILS - PLAN VIEW
N.T.S.

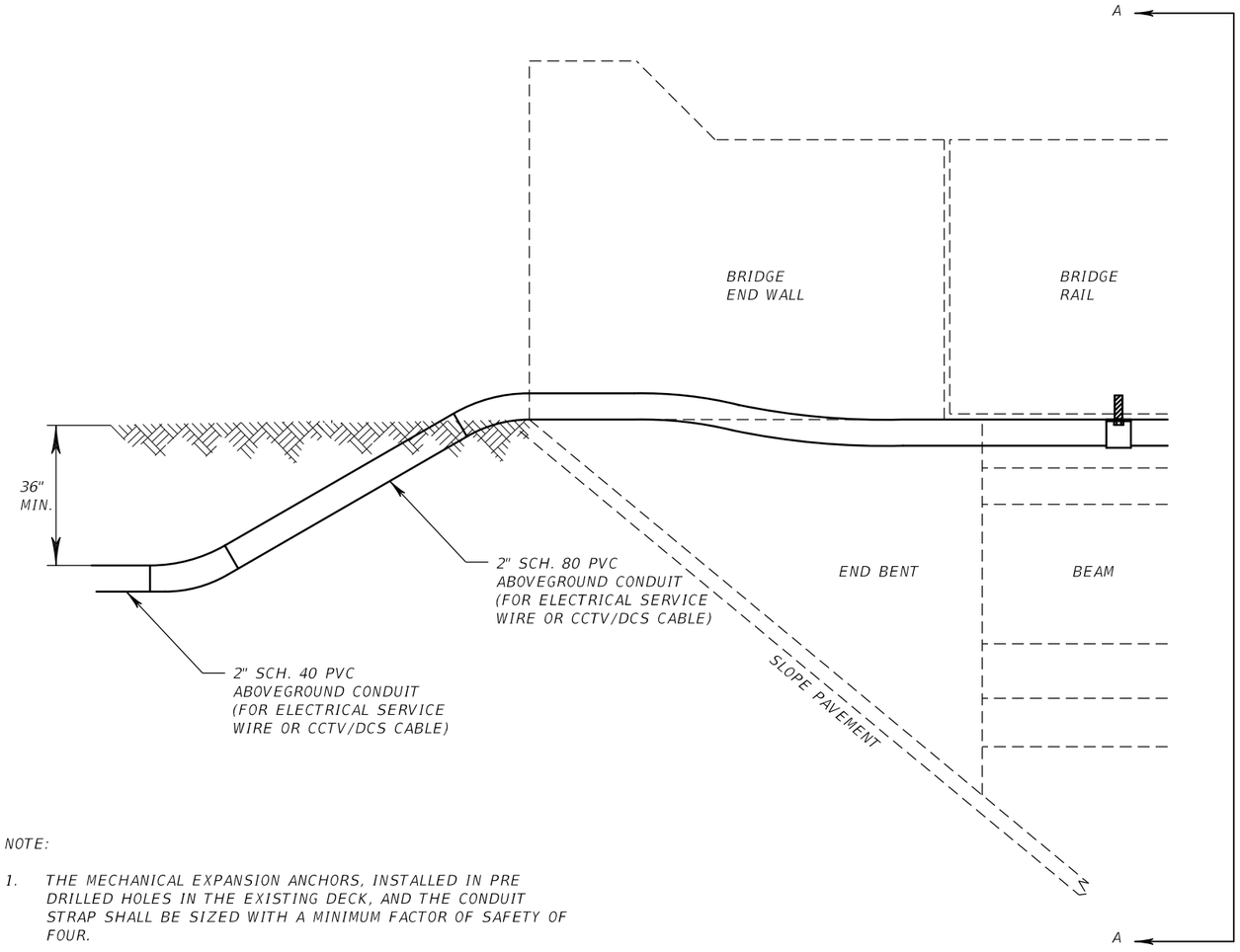


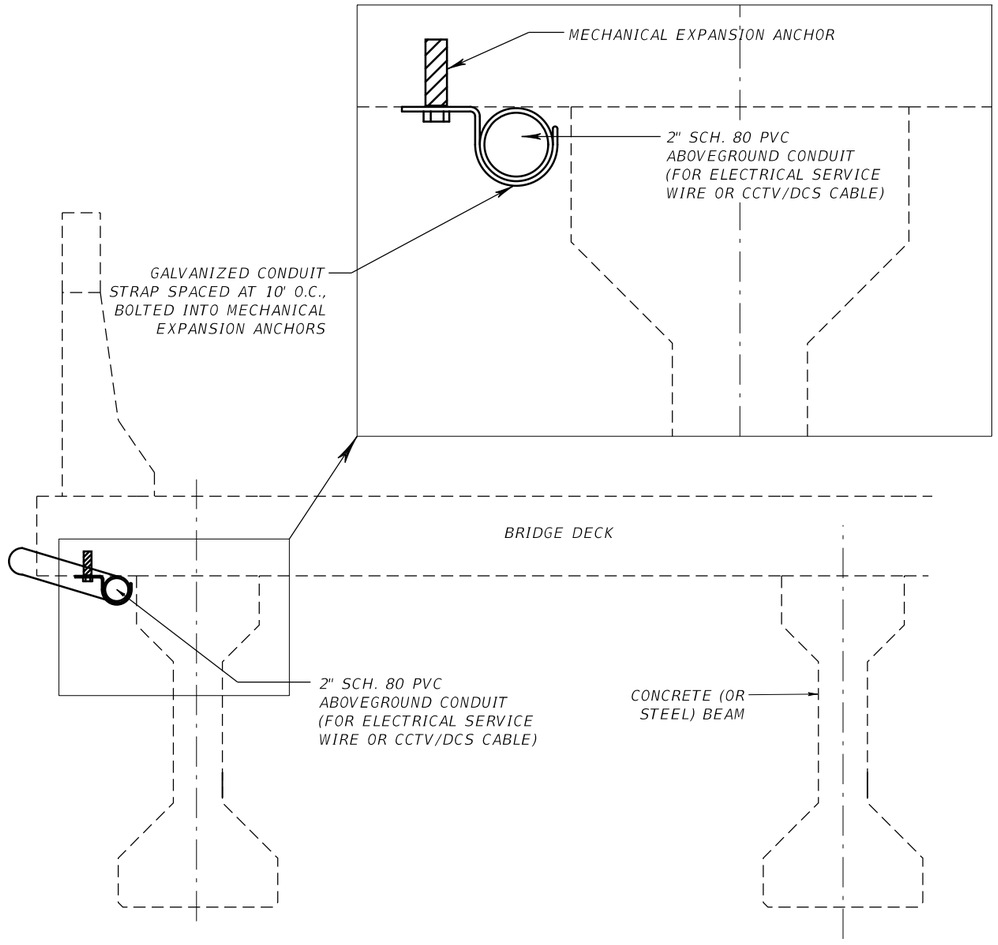
NOTE:

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 - N.T.S.

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					
		REFER TO CFX SPECIFICATION SECTIONS 638 AND 663 FOR ADDITIONAL INFORMATION.								K-4





SECTION A-A

NOTE:

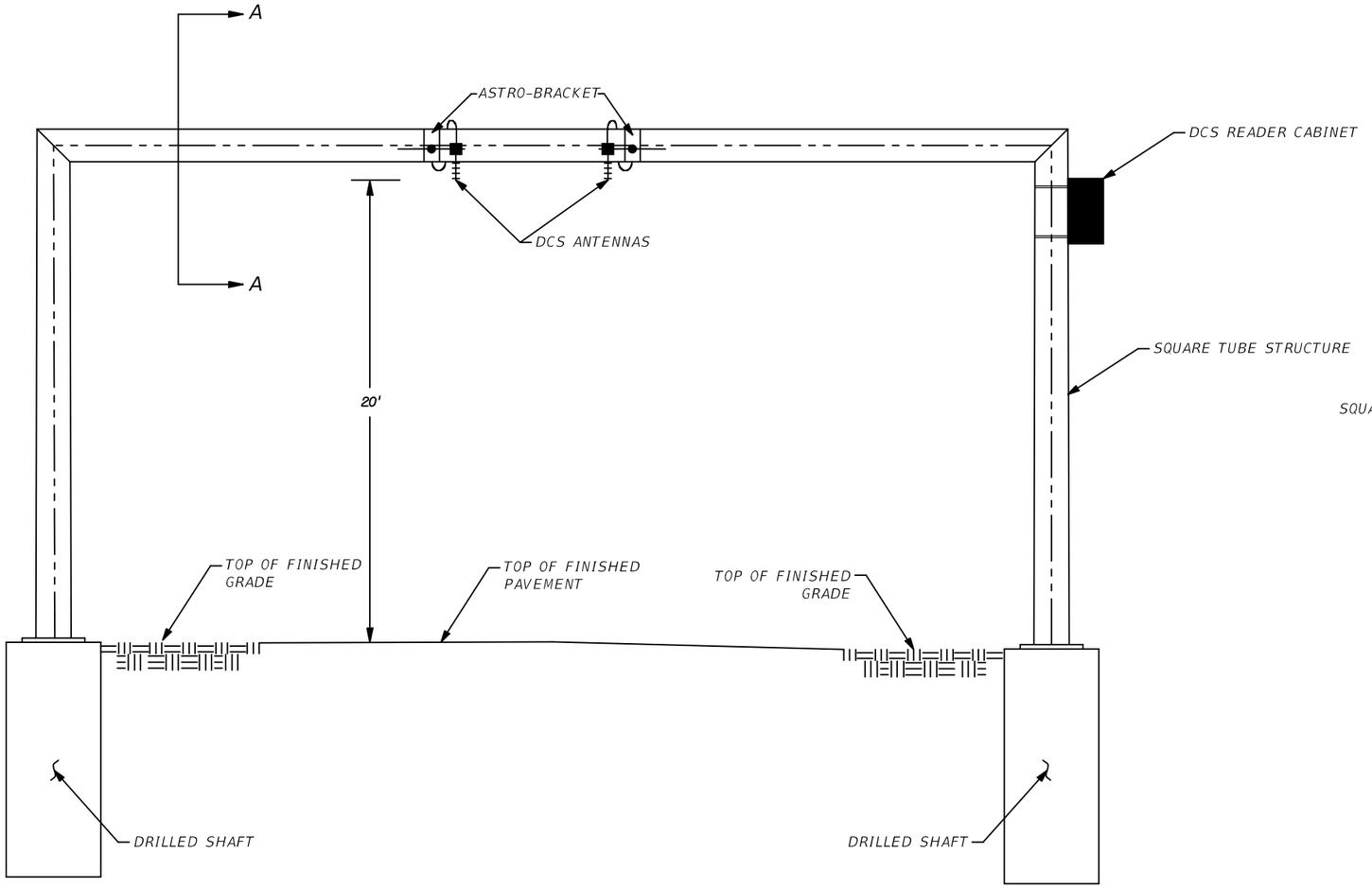
1. THE MECHANICAL EXPANSION ANCHORS, INSTALLED IN PRE DRILLED HOLES IN THE EXISTING DECK, AND THE CONDUIT STRAP SHALL BE SIZED WITH A MINIMUM FACTOR OF SAFETY OF FOUR.

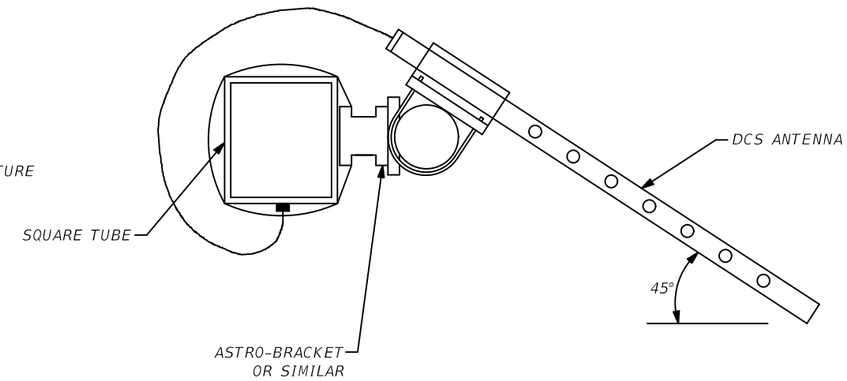
BRIDGE STRUCTURE MOUNTED CONDUIT FOR ELECTRICAL AND CCTV/DCS CABLES (TYPICAL)

N.T.S.

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
		REFER TO CFX SPECIFICATION SECTIONS 638, AND 663, AND 686 FOR ADDITIONAL INFORMATION.								

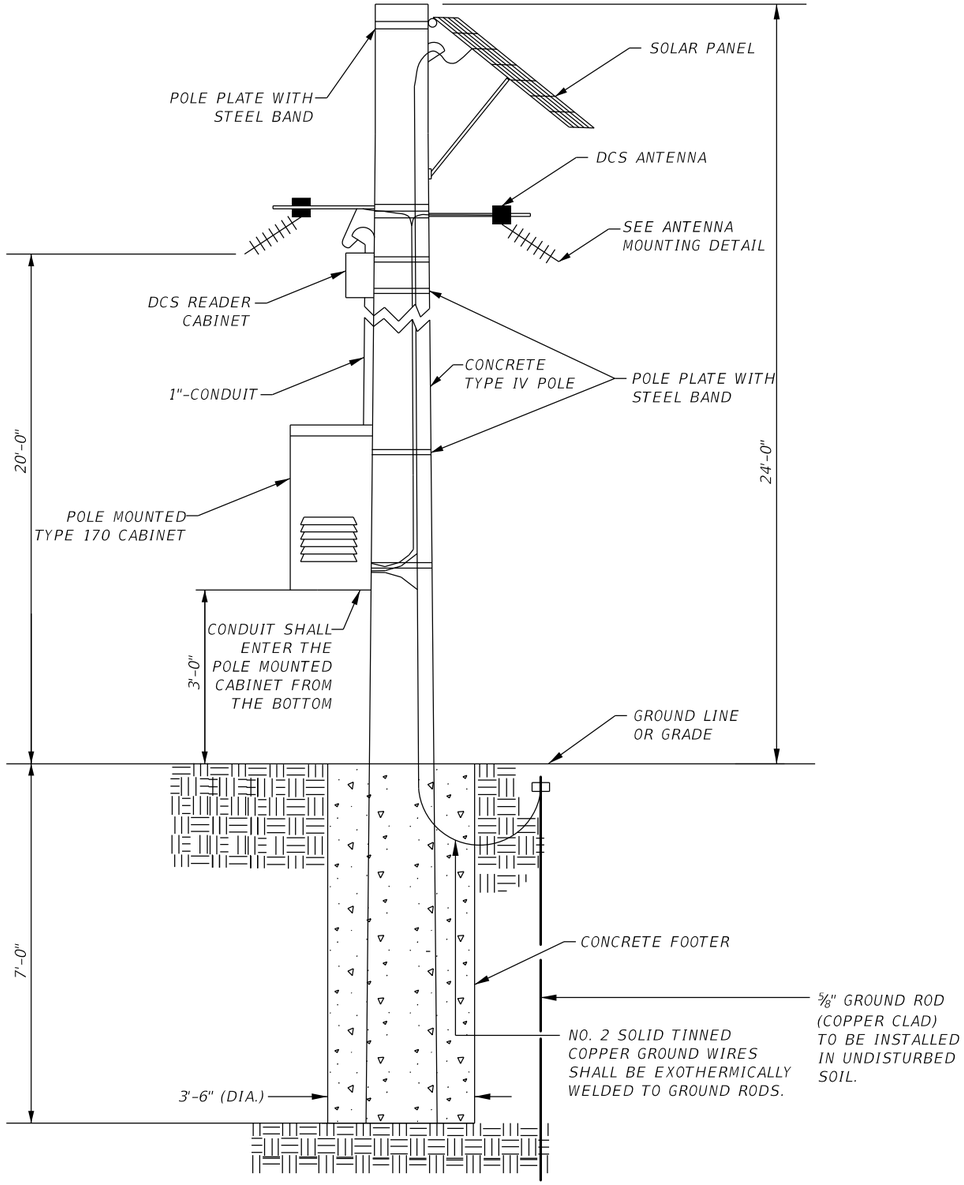
DCS STEEL TUBE STRUCTURE DETAIL



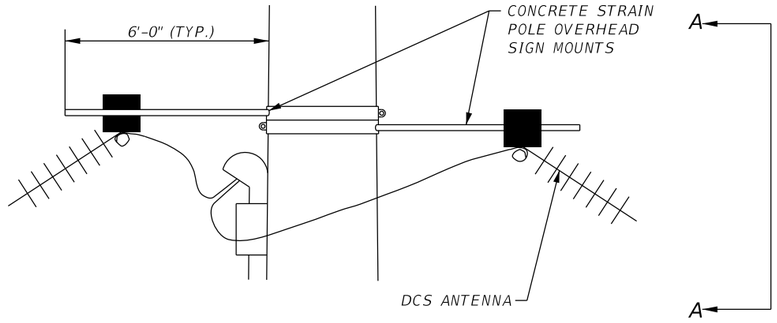


SECTION A-A

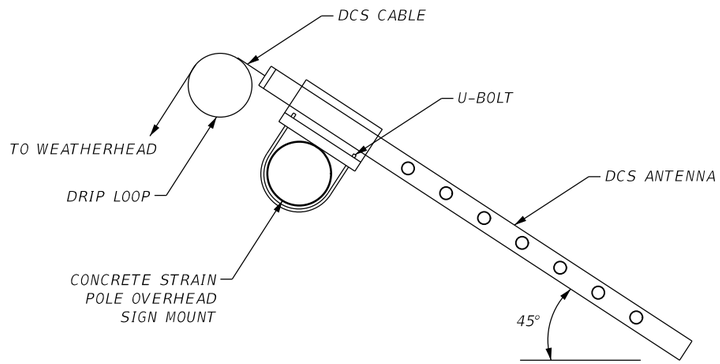
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS STEEL TUBE STRUCTURE ANTENNA DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.								K-6



TEMPORARY DCS POLE
N.T.S.



ANTENNA MOUNTING DETAIL
N.T.S.

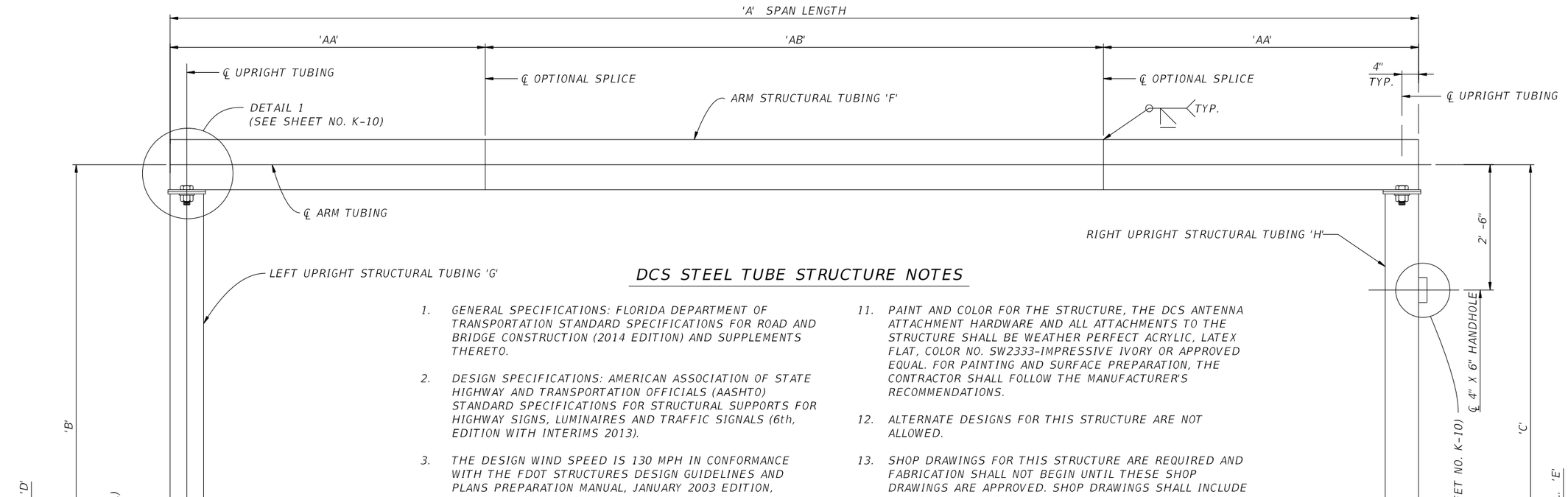


SECTION A-A
N.T.S.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTIONS 663 AND 668 FOR ADDITIONAL INFORMATION.						

INTERIM DCS SITE DETAIL

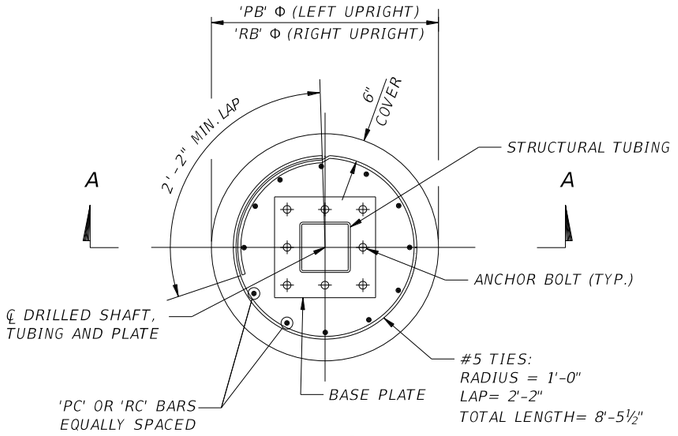
SHEET NO. K-7



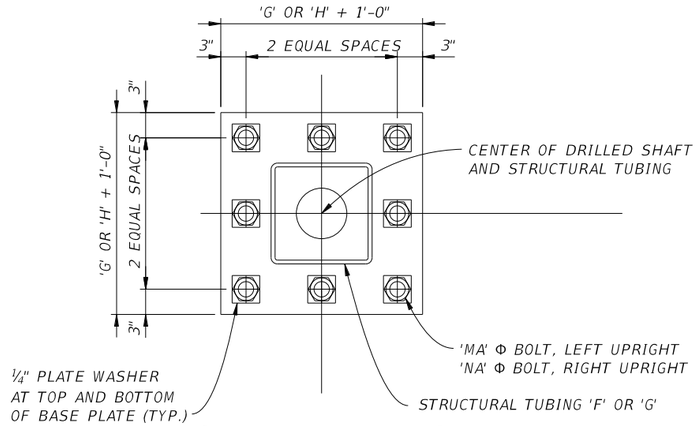
DCS STEEL TUBE STRUCTURE NOTES

1. GENERAL SPECIFICATIONS: FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2014 EDITION) AND SUPPLEMENTS THERETO.
2. DESIGN SPECIFICATIONS: AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (6th, EDITION WITH INTERIMS 2013).
3. THE DESIGN WIND SPEED IS 130 MPH IN CONFORMANCE WITH THE FDOT STRUCTURES DESIGN GUIDELINES AND PLANS PREPARATION MANUAL, JANUARY 2003 EDITION, REVISED JANUARY 2014.
4. STRUCTURE MATERIALS SHALL BE AS FOLLOWS:
   STEEL STRUCTURAL TUBING: ASTM A500, GRADE B.
   STEEL PLATES: ASTM A709, GRADE 36
   WELD METAL: E70XX
   BOLTS (EXCEPT ANCHOR BOLTS): ASTM A307
   ANCHOR BOLTS: ASTM F1554, GRADE 55
   NUTS FOR ANCHOR BOLTS: ASTM A563, GRADE A, HEAVY HEX
5. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.
6. CONCRETE SHALL BE CLASS IV (DRILLED SHAFT) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4 KSI FOR ALL ENVIRONMENTAL CLASSIFICATIONS.
7. GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5 KSI AND SHALL MEET THE REQUIREMENTS OF SECTION 934.
8. HOLE DIAMETERS FOR ANCHOR BOLTS SHALL NOT EXCEED THE BOLT DIAMETER PLUS ½".
9. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (STEEL) ANSI/AWS D1. 1 (CURRENT EDITION). ALL COMPLETE JOINT PENETRATION WELDS SHALL BE RADIOGRAPHICALLY OR ULTRASONICALLY INSPECTED. ALL WELDING PROCEDURES SHALL BE SUBMITTED FOR APPROVAL.
10. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED PER ASTM A153.
11. PAINT AND COLOR FOR THE STRUCTURE, THE DCS ANTENNA ATTACHMENT HARDWARE AND ALL ATTACHMENTS TO THE STRUCTURE SHALL BE WEATHER PERFECT ACRYLIC, LATEX FLAT, COLOR NO. SW2333-IMPRESSIVE IVORY OR APPROVED EQUAL. FOR PAINTING AND SURFACE PREPARATION, THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
12. ALTERNATE DESIGNS FOR THIS STRUCTURE ARE NOT ALLOWED.
13. SHOP DRAWINGS FOR THIS STRUCTURE ARE REQUIRED AND FABRICATION SHALL NOT BEGIN UNTIL THESE SHOP DRAWINGS ARE APPROVED. SHOP DRAWINGS SHALL INCLUDE THE CONTRACTOR'S FIELD VERIFICATION OF ALL UPRIGHT HEIGHTS AND FOUNDATION ELEVATIONS NECESSARY TO INSURE MINIMUM VERTICAL CLEARANCES AS PER THESE PLANS. SHOP DRAWINGS SHALL ALSO INCLUDE ANCHOR BOLT ORIENTATION WITH RESPECT TO ℄ TRUSS AND THE DIRECTION OF TRAFFIC.
14. ALTERNATE SPLICE DETAILS SHALL REQUIRE SHOP DRAWINGS FROM CONTRACTOR, SIGNED AND SEALED BY A FLORIDA PROFESSIONAL ENGINEER, FOR REVIEW AND APPROVAL.
15. THE FOUNDATION FOR THE STRUCTURE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 455 OF THE SPECIFICATIONS EXCEPT THAT NO PAYMENT FOR THE FOUNDATION SHALL BE MADE UNDER SECTION 455. THE COST OF PROVIDING THE FOUNDATION SHALL BE INCLUDED IN THE PAY ITEM FOR PROVIDING THE COMPLETE STRUCTURE. PAYMENT FOR ANY INCIDENTAL ITEMS INCURRED IN FURNISHING AND INSTALLING THIS STRUCTURE SHALL BE INCLUDED IN THE PAY ITEM FOR PROVIDING THE COMPLETE STRUCTURE.
16. PROVIDE CAMBER ON THE ARM WITH THE MIDSPAN CAMBER VALUE AS INDICATED ON THE CAMBER DIAGRAM. SHOP DRAWINGS ARE REQUIRED, DETAILING METHOD TO OBTAIN THE ARM CAMBER, FOR REVIEW AND APPROVAL.
17. THE STRUCTURE MUST BE ASSEMBLED AFTER FIELD SURVEY OF ANCHOR BOLT LOCATIONS AND PRIOR TO PAINTING AND SHIPMENT TO THE SITE TO VERIFY CORRECT ORIENTATION AND ASSURE FIT UP. IT MAY BE DISASSEMBLED FOR SHIPPING. THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER BY PREASSEMBLY OR OTHER APPROVED METHODS THAT THE SPAN LENGTH OF THE STRUCTURE IN THE NO-LOAD CONDITION MATCHES within ½" OF THE FIELD MEASURED SPAN LENGTH BETWEEN FOUNDATIONS.

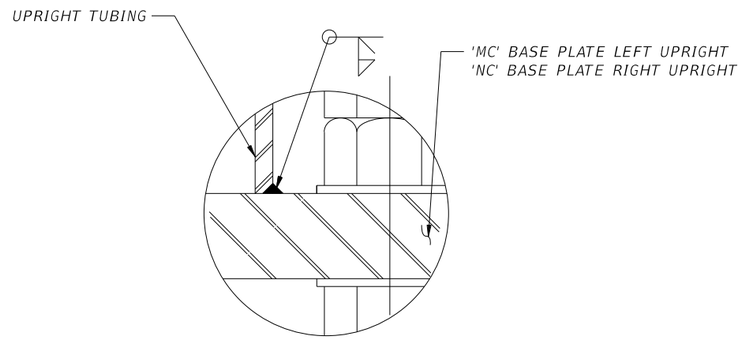
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS STEEL TUBE STRUCTURE NOTES AND ELEVATIONS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-8
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.								



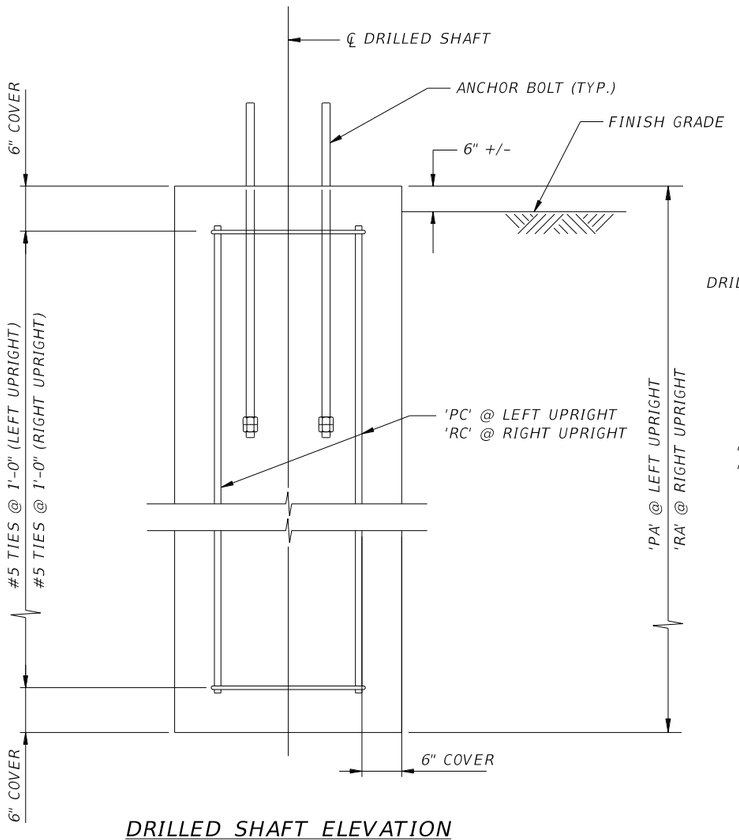
PLAN VIEW



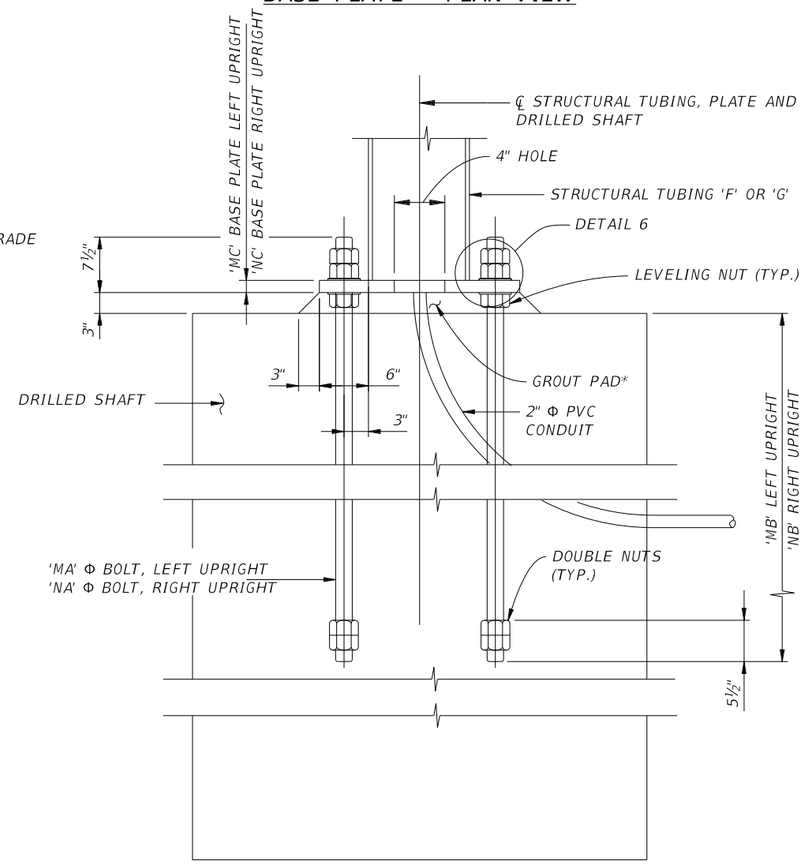
BASE PLATE ~ PLAN VIEW



DETAIL 6



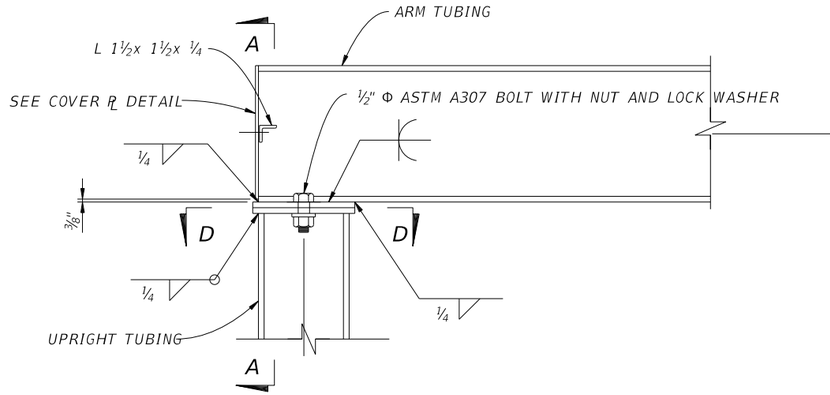
DRILLED SHAFT ELEVATION



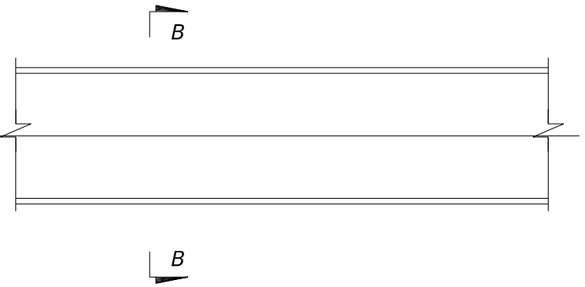
SECTION A-A
DETAIL 4

* PROVIDE ½" DRAINAGE SLOT IN GROUT PAD BETWEEN BOLTS (ONE PER FOUNDATION)

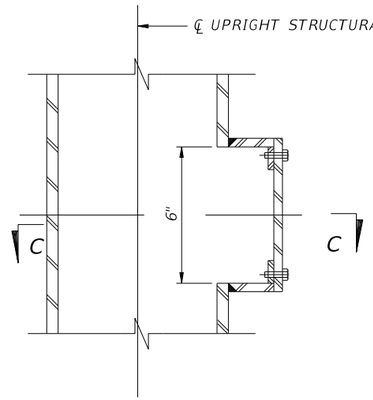
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS STEEL TUBE STRUCTURE FOUNDATION DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-9
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.								



DETAIL 1

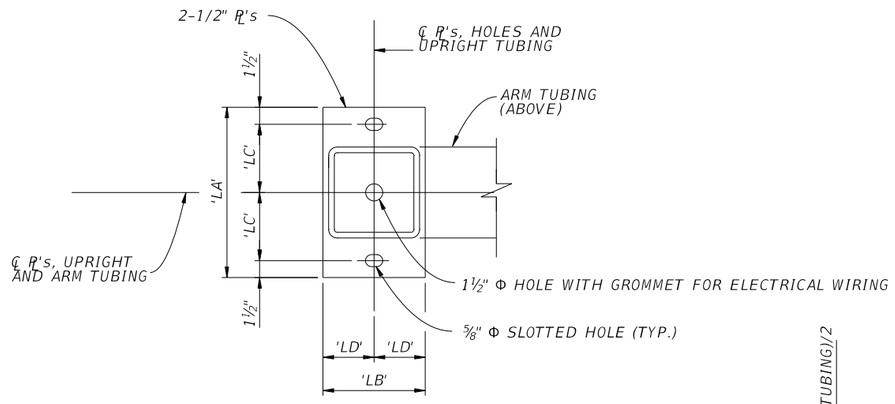


DETAIL 2

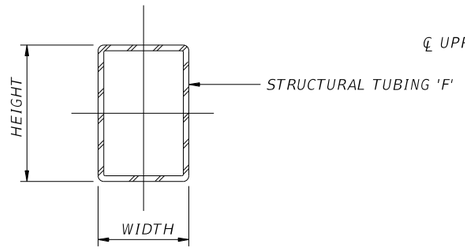


DETAIL 3

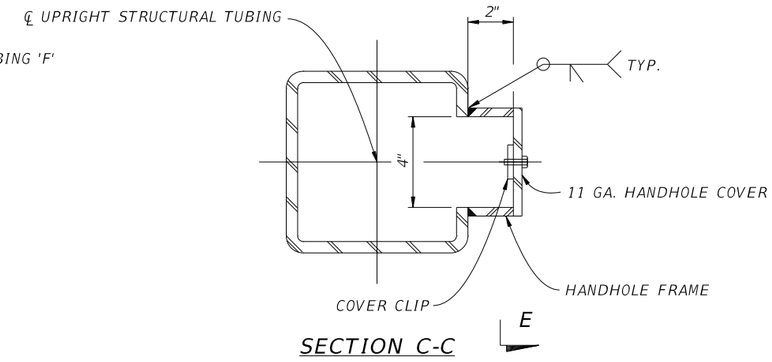
E



SECTION D-D

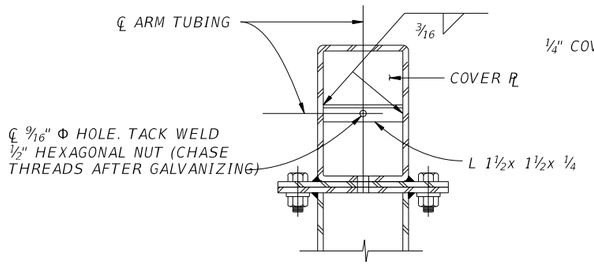


SECTION B-B

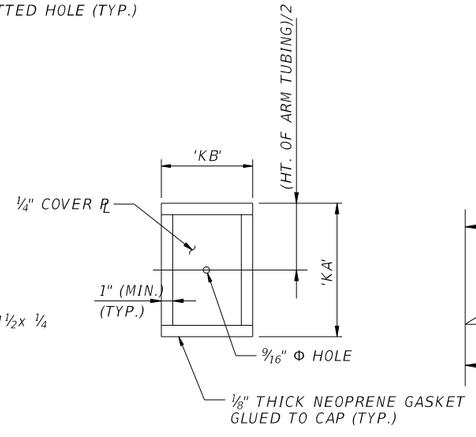


E

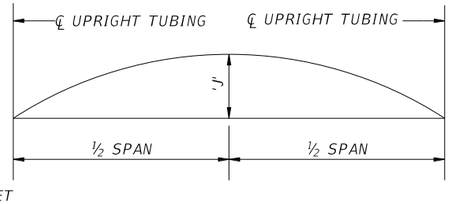
SECTION C-C



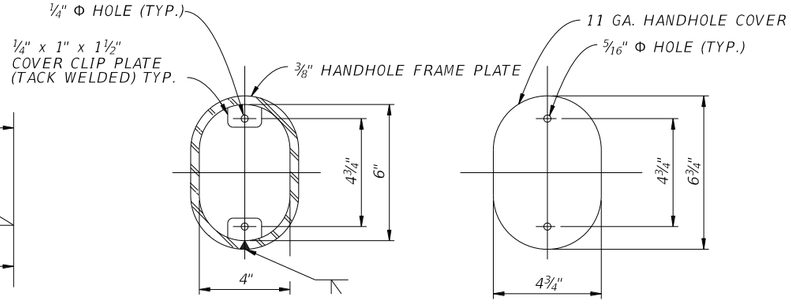
SECTION A-A



COVER ℄ DETAIL



CAMBER DIAGRAM



SECTION E-E HANDHOLE COVER ELEVATION

HANDHOLE DETAILS

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS STEEL TUBE STRUCTURE MISCELLANEOUS DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.								K-10

FOR REFERENCE ONLY

TABLE OF DCS STEEL TUBE STRUCTURE VARIABLES

STRUCTURE NUMBER	STATION	DIMENSIONS					ELEVATIONS		MEMBER SIZES			
		A	AA	AB	B	C	D	E	F (ARM) Width x Ht. x Wall Thk.	G (LEFT UPRIGHT) Width x Ht. x Wall Thk.	H (RIGHT UPRIGHT) Width x Ht. x Wall Thk.	J (CAMBER)
DCS 429-01 SB	233+33.00	72'-2"	18'-0"	36'-2"	23'-6"	22'-3"	115.25	116.50	8" x 10" x ½"	8" x 8" x ½"	8" x 8" x ½"	6"
DCS 429-02 SB	519+50.00	64'-2"	16'-0"	32'-2"	22'-6"	23'-9"	100.25	99.00	8" x 10" x ½"	8" x 8" x ½"	8" x 8" x ½"	4"
DCS 429-05a NB	1461+50.00	71'-8"	18'-0"	35'-8"	22'-9"	23'-3"	99.50	99.00	8" x 10" x ½"	8" x 8" x ½"	8" x 8" x ½"	6"
DCS 429-06 SB	1151+00.00	72'-8"	18'-0"	36'-8"	22'-6"	23'-9"	100.75	99.75	8" x 10" x ½"	8" x 8" x ½"	8" x 8" x ½"	6"
DCS 528-10 WB	1430+50.00	87'-2"	22'-0"	43'-2"	26'-9"	23'-9"	50.50	53.50	10" x 12" x ½"	10" x 10" x ½"	10" x 10" x ½"	9"
DCS 528-11 WB	1803+00.00	82'-2"	21'-0"	40'-2"	25'-6"	23'-0"	45.50	48.00	10" x 12" x ½"	10" x 10" x ½"	10" x 10" x ½"	7"

TABLE OF DCS STEEL TUBE STRUCTURE VARIABLES (CONT.)

STRUCTURE NUMBER	COVER PLATE		UPRIGHT CONNECTION				LEFT BASE CONNECTION			RIGHT BASE CONNECTION		
	KA	KB	LA	LB	LC	LD	MA	MB	MC	NA	NB	NC
DCS 429-01 SB	9⅝"	8"	1'-3"	10"	6"	5"	1"	2'-6"	1¾"	1"	2'-6"	1¾"
DCS 429-02 SB	9⅝"	8"	1'-3"	10"	6"	5"	1"	2'-6"	1¾"	1"	2'-6"	1¾"
DCS 429-05a NB	9⅝"	8"	1'-3"	10"	6"	5"	1"	2'-6"	1¾"	1"	2'-6"	1¾"
DCS 429-06 SB	9⅝"	8"	1'-3"	10"	6"	5"	1"	2'-6"	1¾"	1"	2'-6"	1¾"
DCS 528-10 WB	11⅝"	10"	1'-5"	1'-0"	7"	6"	1"	2'-9"	1¾"	1"	2'-9"	1¾"
DCS 528-11 WB	11⅝"	10"	1'-5"	1'-0"	7"	6"	1"	2'-9"	1¾"	1"	2'-9"	1¾"

TABLE OF DCS STEEL TUBE STRUCTURE VARIABLES (CONT.)

STRUCTURE NUMBER	LEFT DRILLED SHAFT			RIGHT DRILLED SHAFT		
	PA	PB	PC # / size	RA	RB	RC # / size
DCS 429-01 SB	13'-0"	3'-6"	14 / 9	13'-0"	3'-6"	14 / 9
DCS 429-02 SB	13'-0"	3'-6"	14 / 9	13'-0"	3'-6"	14 / 9
DCS 429-05a NB	13'-0"	3'-6"	14 / 9	13'-0"	3'-6"	14 / 9
DCS 429-06 SB	13'-0"	3'-6"	14 / 9	13'-0"	3'-6"	14 / 9
DCS 528-10 WB	15'-0"	3'-6"	14 / 9	15'-0"	3'-6"	14 / 9
DCS 528-11 WB	15'-0"	3'-6"	14 / 9	15'-0"	3'-6"	14 / 9

NOTES:

1. DESIGN WIND SPEED = 130 MPH
2. ERECTION IS THE CONTRACTOR'S RESPONSIBILITY.

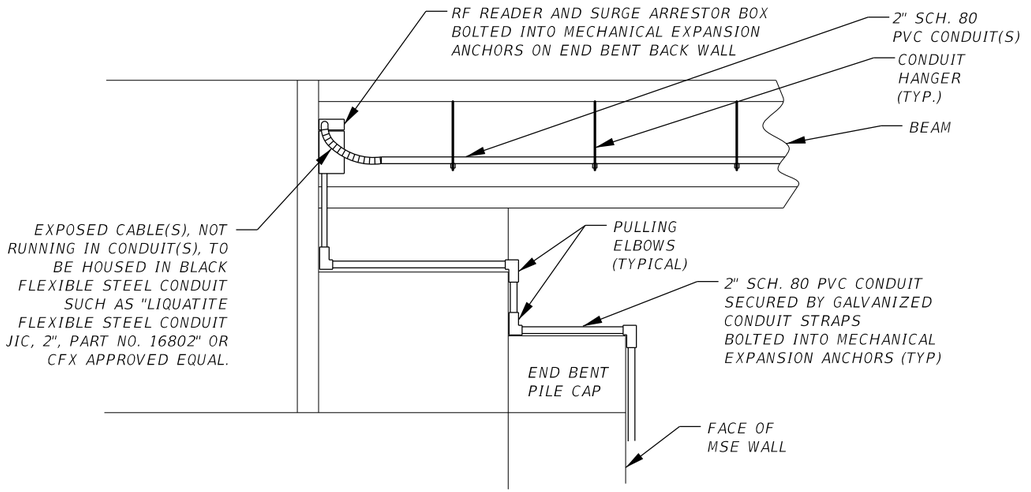
FOUNDATION NOTES:

1. NO BORING DATA IS AVAILABLE AT THE UPRIGHT LOCATIONS.
2. ASSUMPTIONS AND VALUES USED IN DESIGN:
   - SOIL TYPE COHESIONLESS (SAND)
   - SOIL FRICTION ANGLE = 30 DEGREES
   - EFFECTIVE SOIL WEIGHT = 50 PCF
   - DESIGN WATER TABLE IS ASSUMED AT GROUND SURFACE
3. THE ENGINEER SHALL IMMEDIATELY CONTACT THE ENGINEER OF RECORD IF DURING DRILLED SHAFT CONSTRUCTION SOIL CONDITIONS, SUCH AS MUCK OR VERY LOOSE SOIL, ARE ENCOUNTERED.

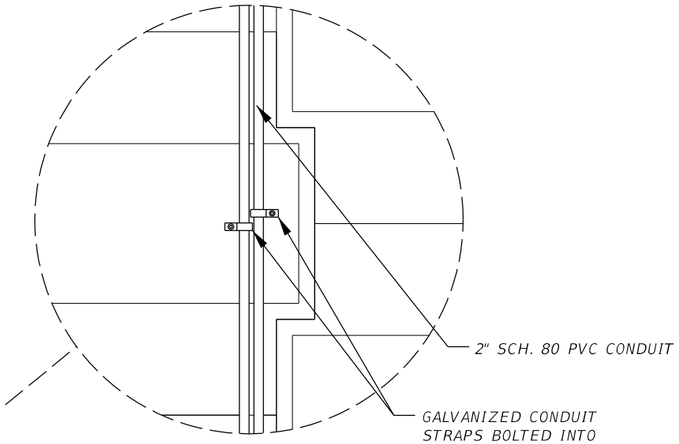
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS STEEL TUBE STRUCTURE TABLE OF VARIABLES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-11

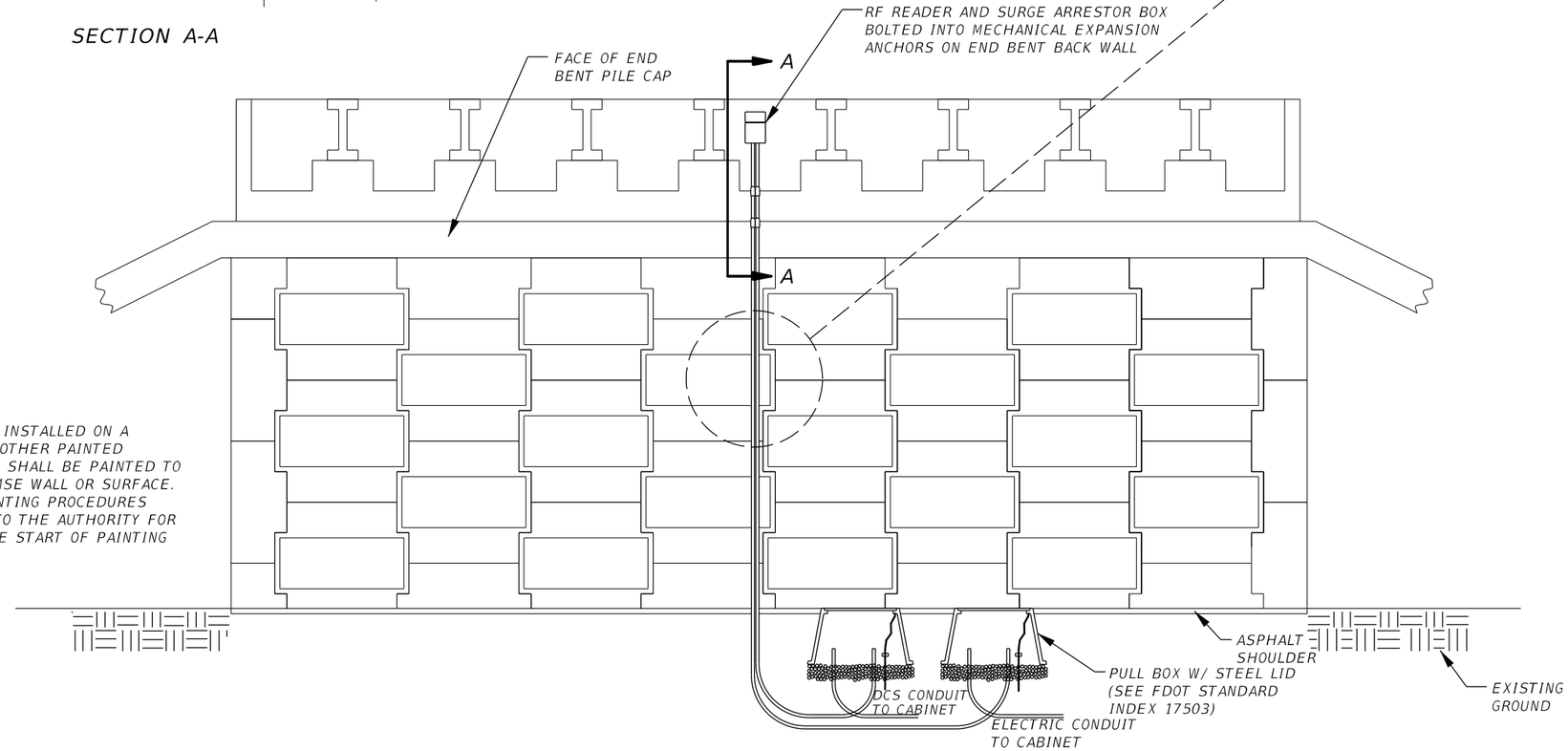
BRIDGE STRUCTURE MOUNTED DCS EQUIPMENT AND CONDUIT FOR ELECTRICAL AND DCS CABLES

N.T.S.



SECTION A-A





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 THE AUTHORITY FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 635, 638, AND 663 FOR ADDITIONAL INFORMATION.			

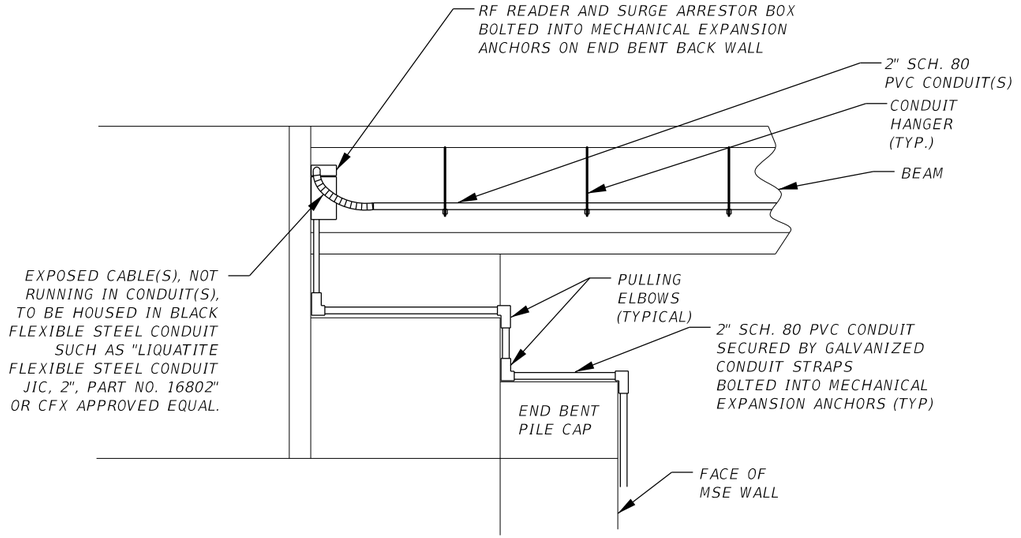
FOR INFORMATIONAL PURPOSES ONLY

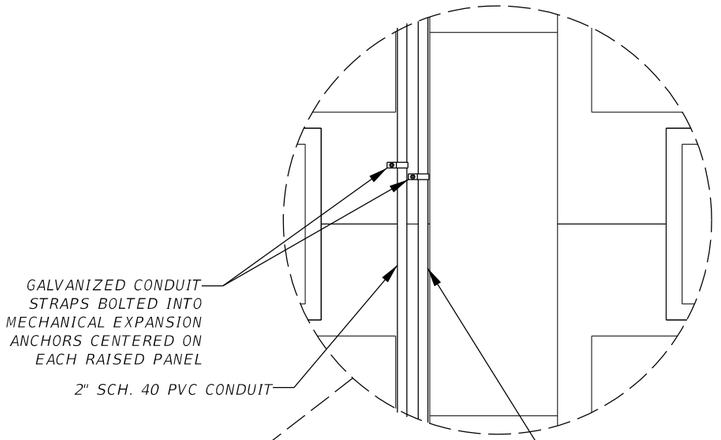
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

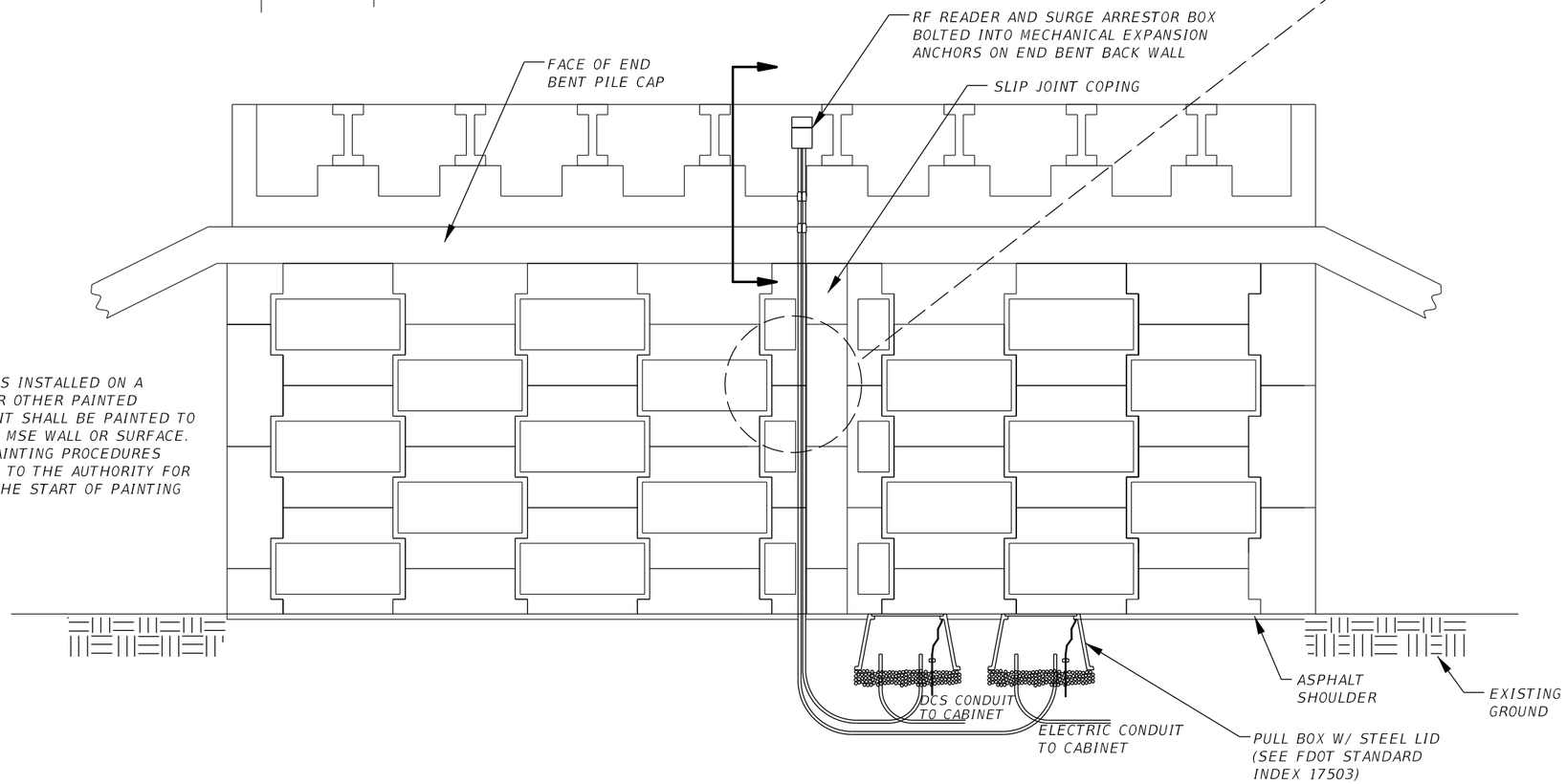
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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

SHEET NO. K-12







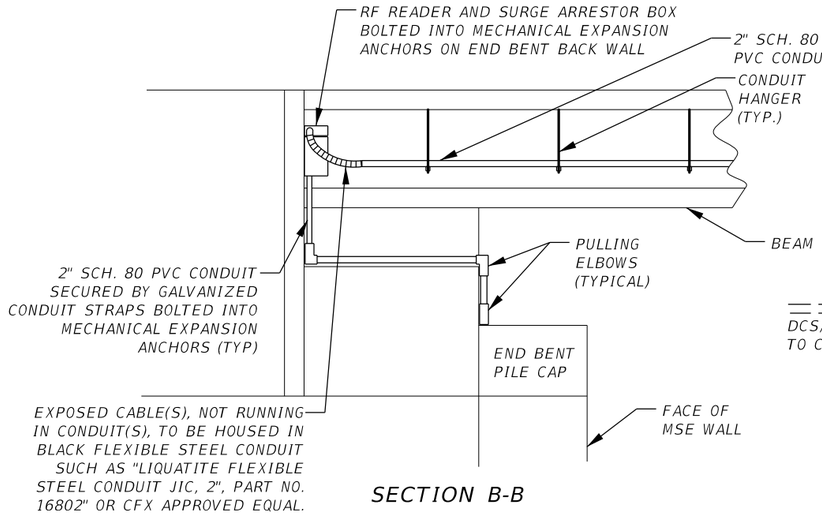
NOTES:

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 THE AUTHORITY FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

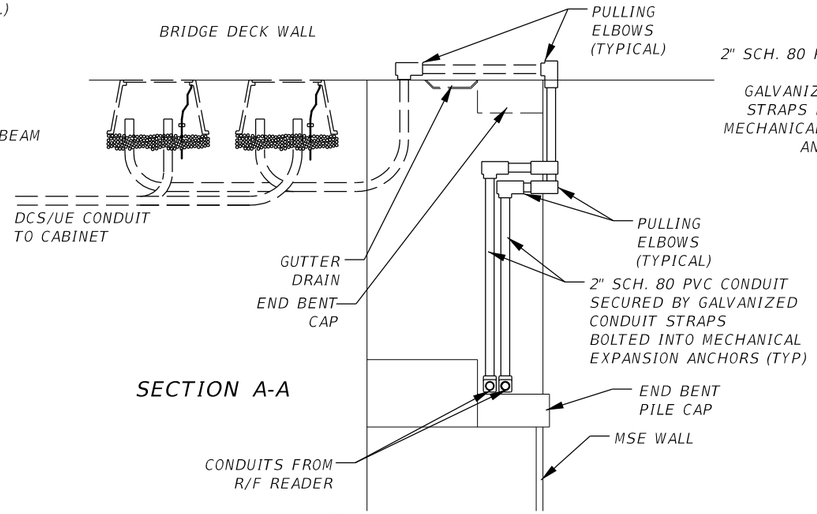
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS DETAILS FOR BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT (2 OF 4)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-13
		REFER TO CFX SPECIFICATION SECTIONS 635, 638, AND 663 FOR ADDITIONAL INFORMATION.								

BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT FOR ELECTRICAL AND DCS CABLES

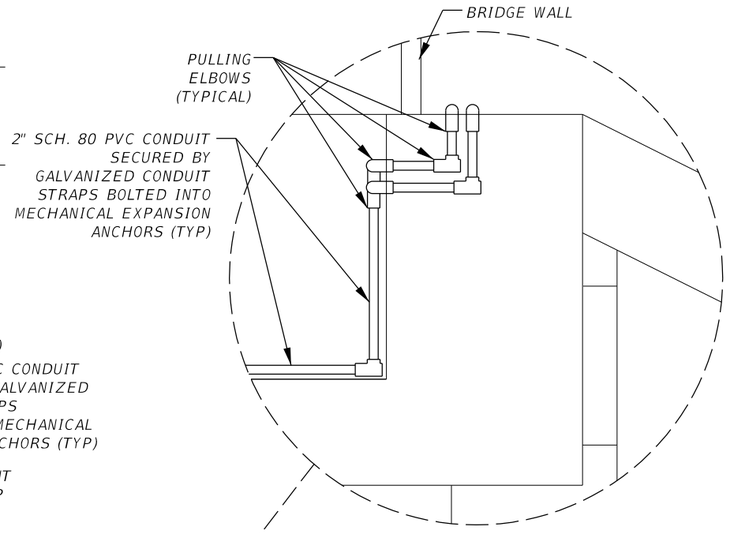
N.T.S.

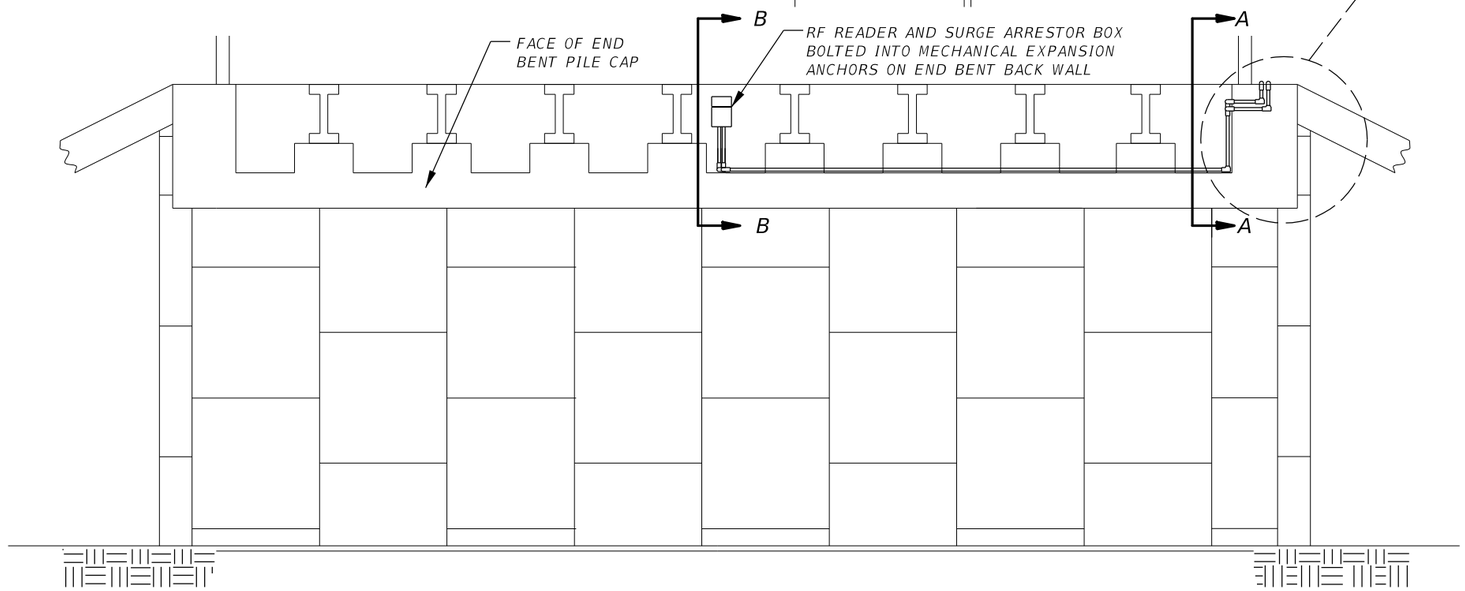


SECTION B-B



SECTION A-A





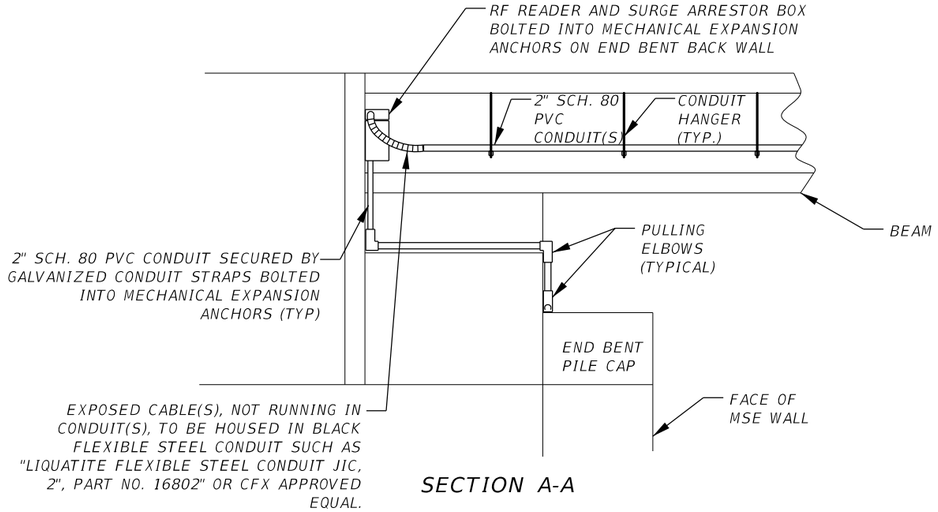
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTIONS 635, 638, AND 663 FOR ADDITIONAL INFORMATION.						

DCS DETAILS FOR BRIDGE STRUCTURE MOUNTED EQUIPMENT AND CONDUIT (3 OF 4)

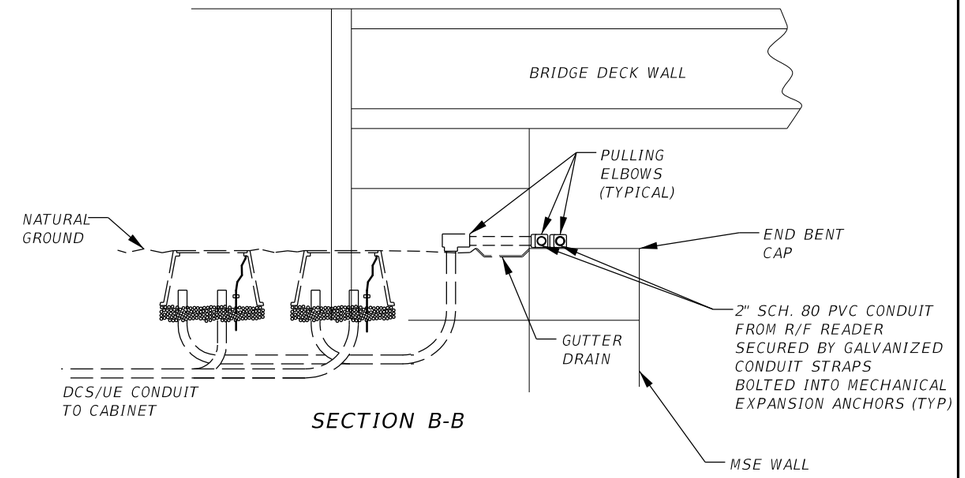
SHEET NO. K-14

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

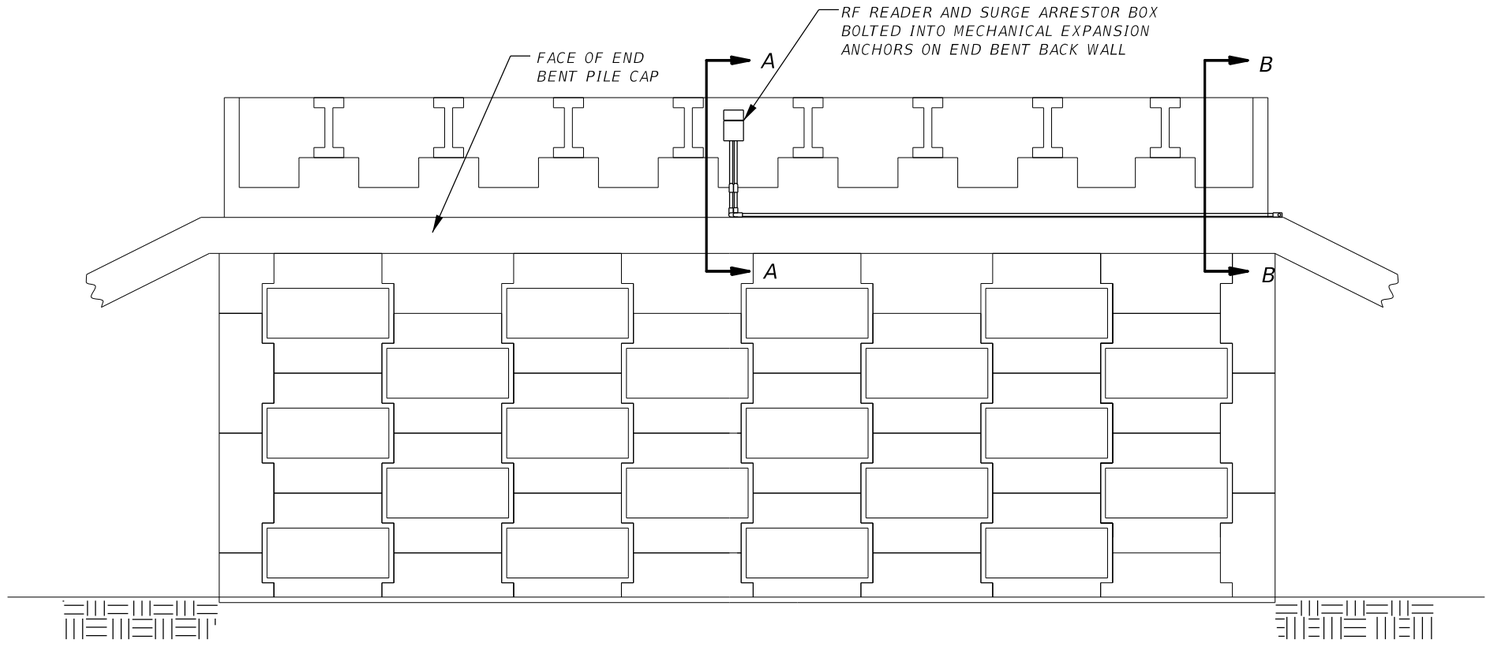
N.T.S.



SECTION A-A



SECTION B-B



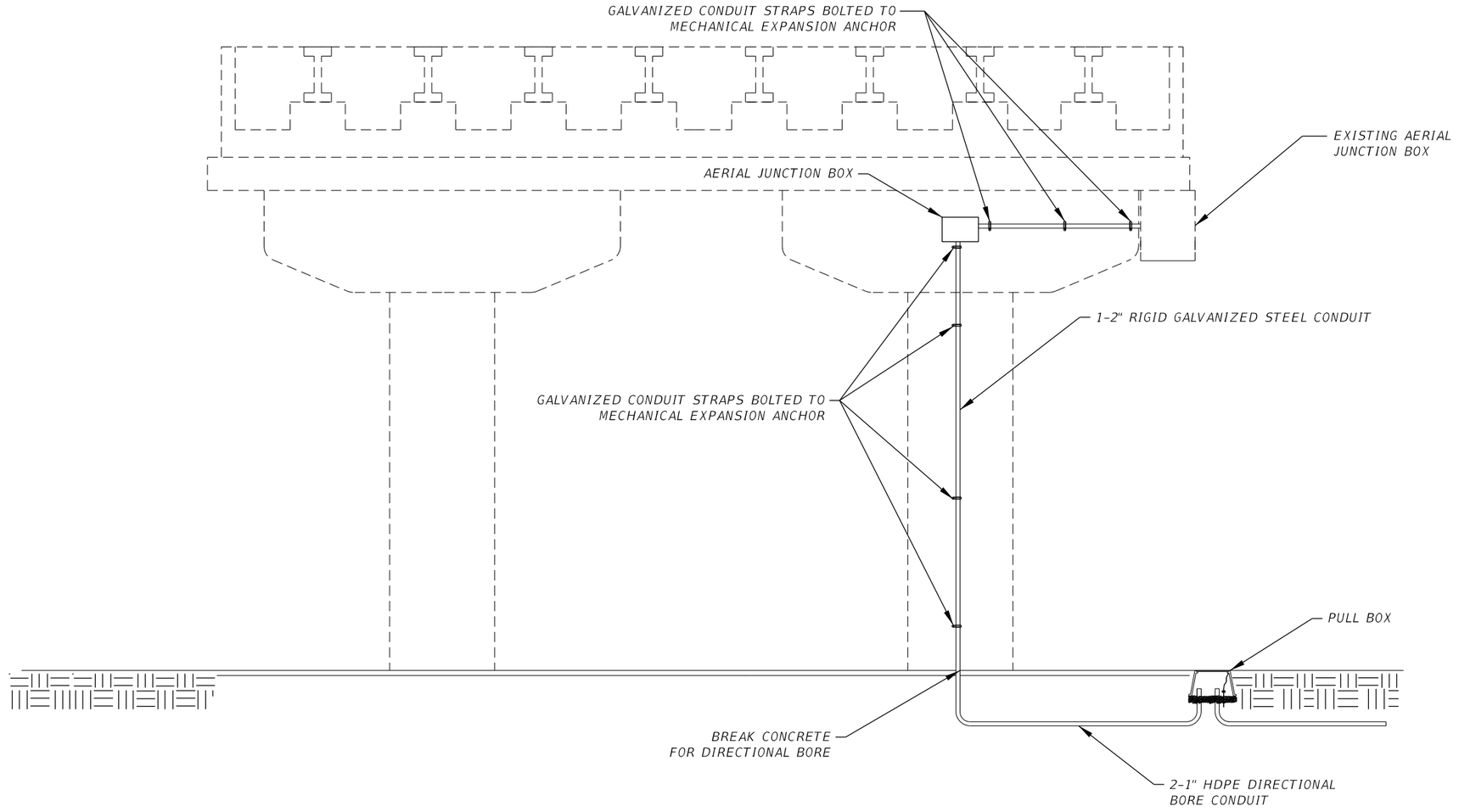
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTIONS 635, 638, AND 663 FOR ADDITIONAL INFORMATION.						

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

SHEET NO. K-15

BRIDGE STRUCTURE MOUNTED CONDUIT FOR FIBER OPTIC CABLE

N.T.S.

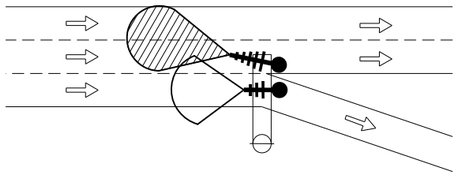


NOTES:

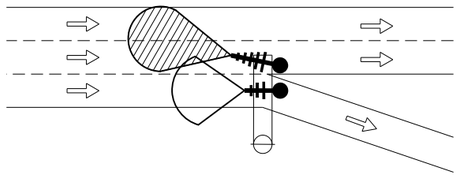
1. WHEN NEW CONDUIT IS INSTALLED ON A PAINTED MSE WALL OR OTHER PAINTED SURFACE, THE CONDUIT SHALL BE PAINTED TO MATCH THE EXISTING MSE WALL OR SURFACE. PAINT COLORS AND PAINTING PROCEDURES SHALL BE SUBMITTED TO THE AUTHORITY FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	BRIDGE MOUNTED FIBER OPTIC CONDUIT DROP	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					K-16
		REFER TO CFX SPECIFICATION SECTIONS 663, 635, AND 638 FOR ADDITIONAL INFORMATION.								

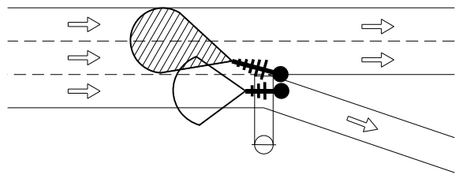
OPTION 1



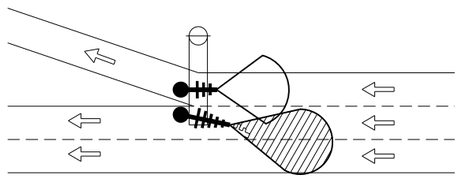
OPTION 2



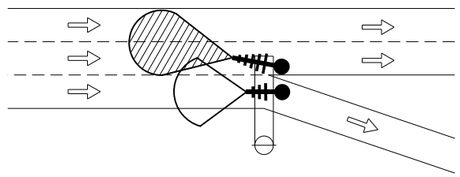
OPTION 3



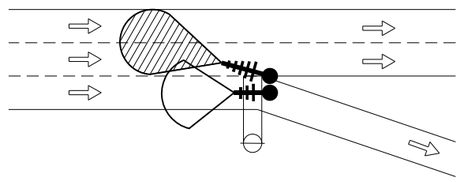
OPTION 4



OPTION 5



OPTION 6

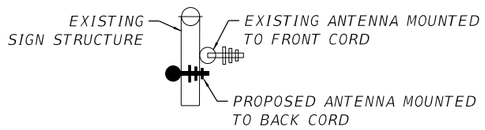


LEGEND:

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

DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

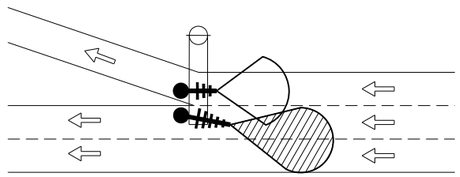
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (1 OF 11)

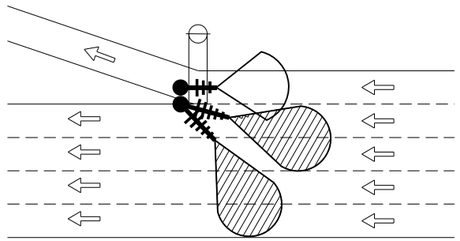
SHEET NO.

K-17

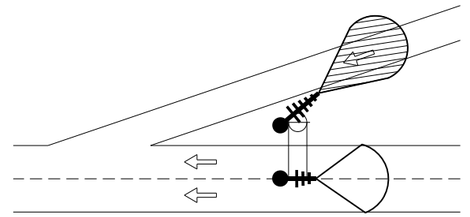
OPTION 7



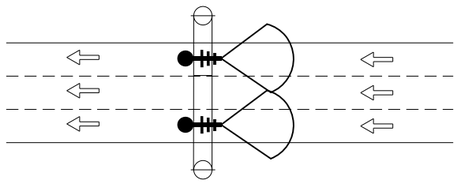
OPTION 8



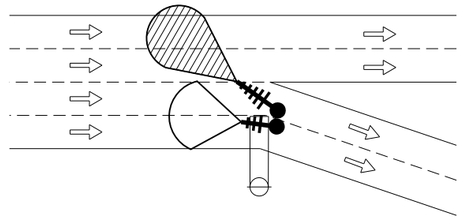
OPTION 9



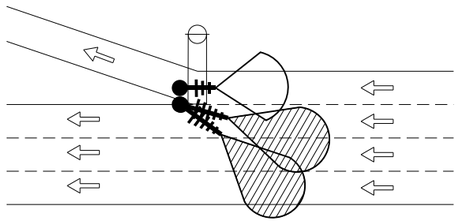
OPTION 10



OPTION 11



OPTION 12

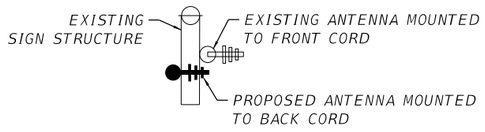


LEGEND:

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

DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

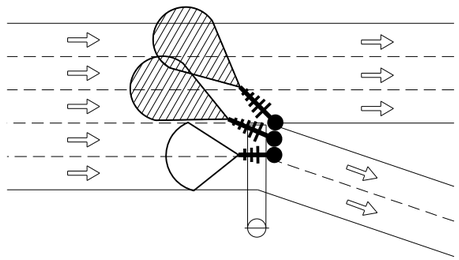
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (2 OF 11)

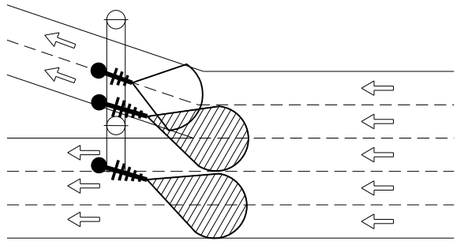
SHEET NO.

K-18

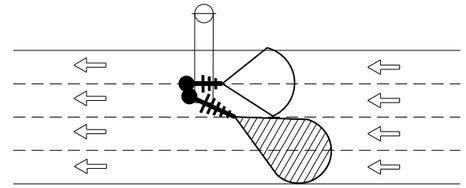
OPTION 13



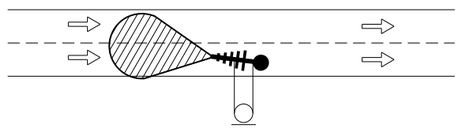
OPTION 14



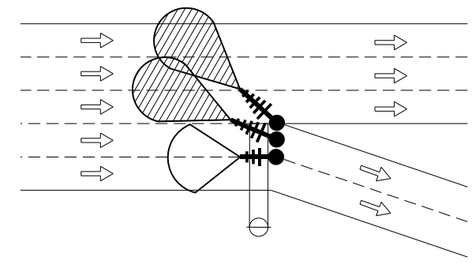
OPTION 15



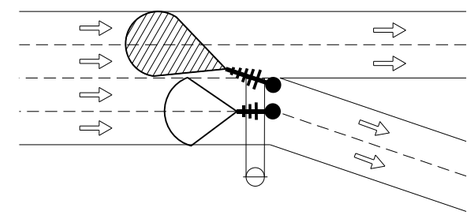
OPTION 16



OPTION 17



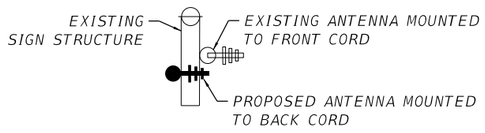
OPTION 18



LEGEND:

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

- DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

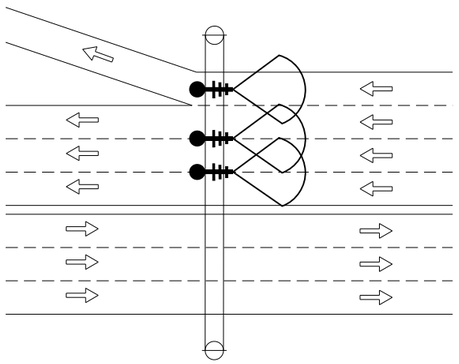
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (3 OF 11)

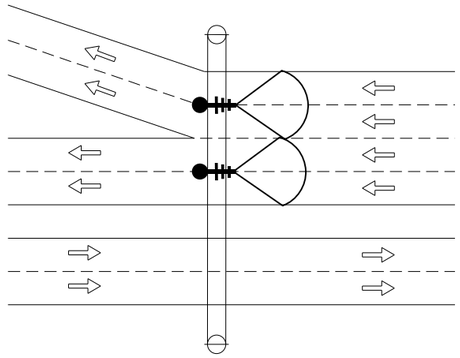
SHEET NO.

K-19

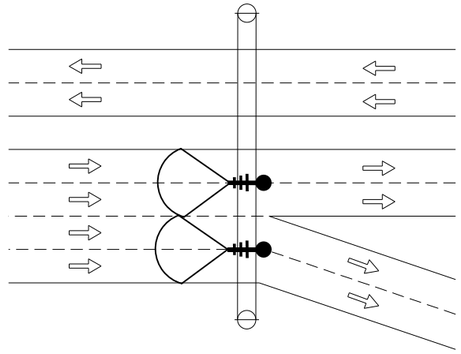
OPTION 19



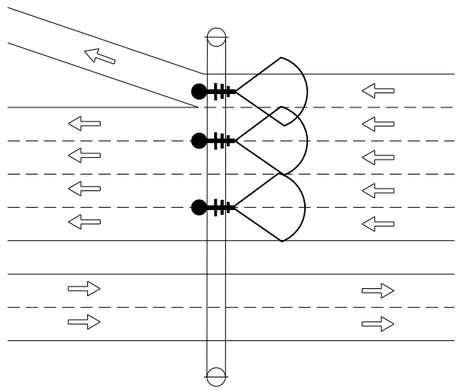
OPTION 20



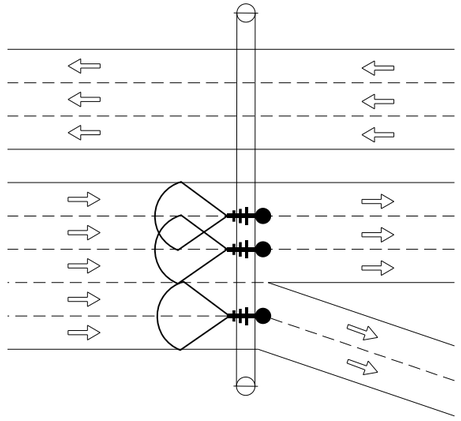
OPTION 21



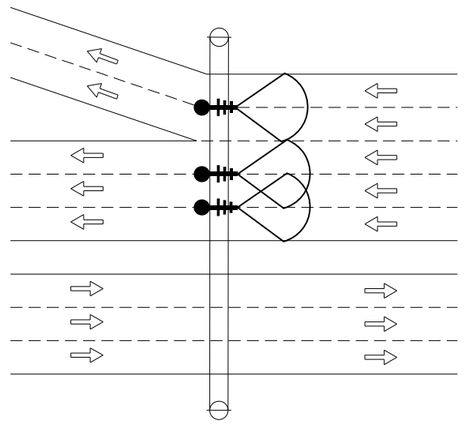
OPTION 22



OPTION 23



OPTION 24

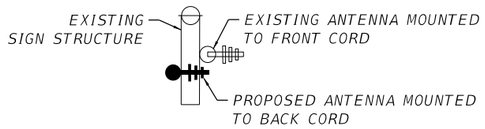


LEGEND:

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

DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

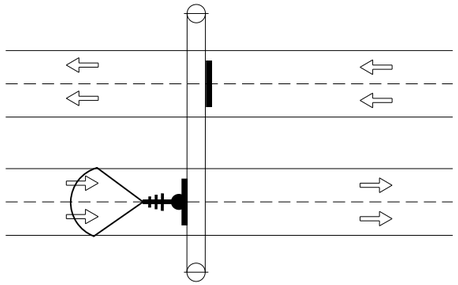
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (4 OF 11)

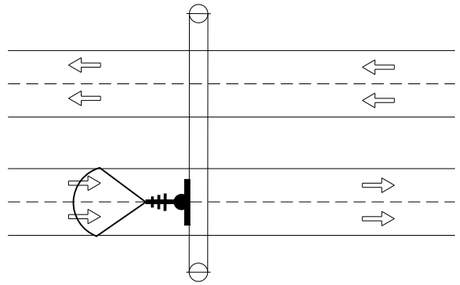
SHEET NO.

K-20

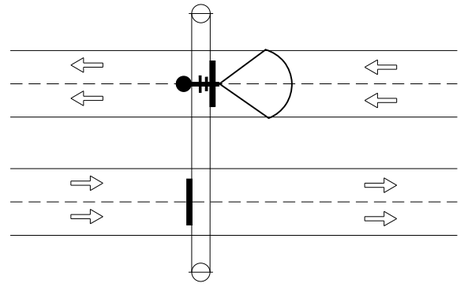
OPTION 25



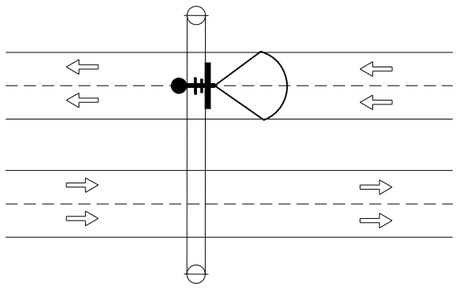
OPTION 26



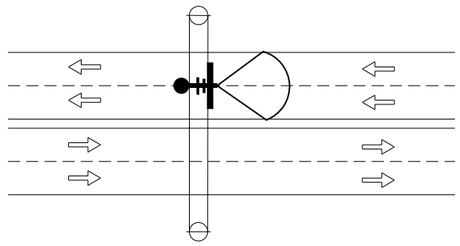
OPTION 27



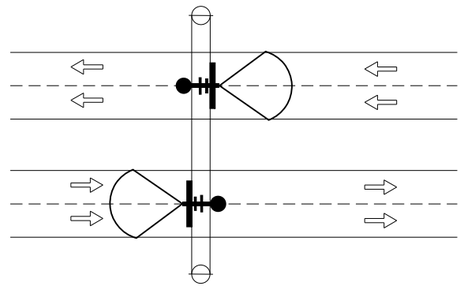
OPTION 28



OPTION 29



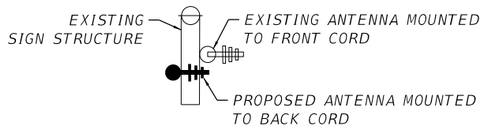
OPTION 30



LEGEND:

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

- DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

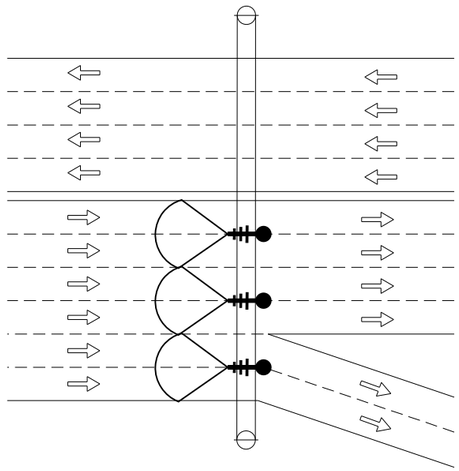
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (5 OF 11)

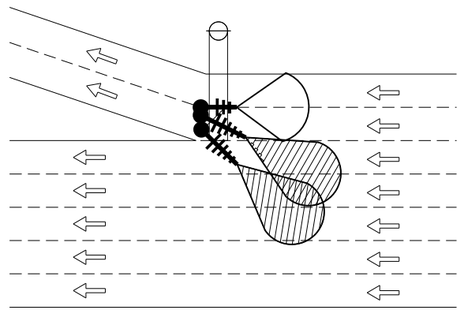
SHEET NO.

K-21

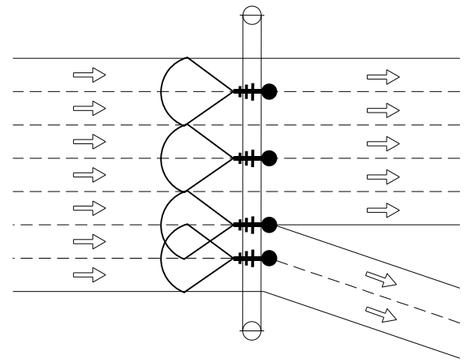
OPTION 31



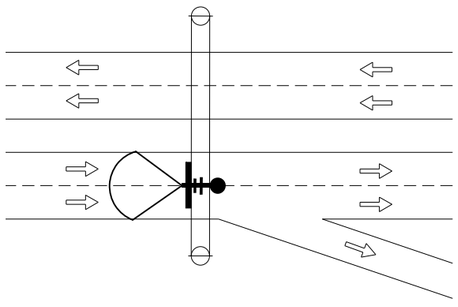
OPTION 32



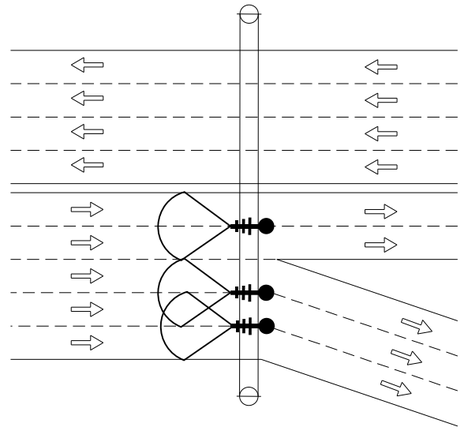
OPTION 33



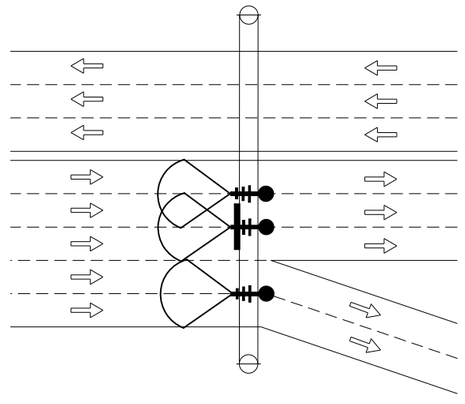
OPTION 34



OPTION 35



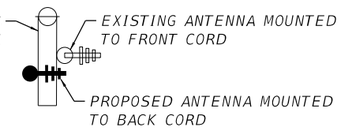
OPTION 36



LEGEND:

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

- DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

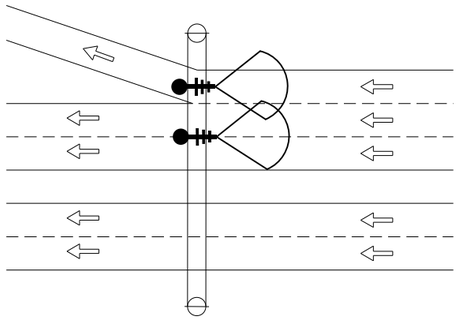
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

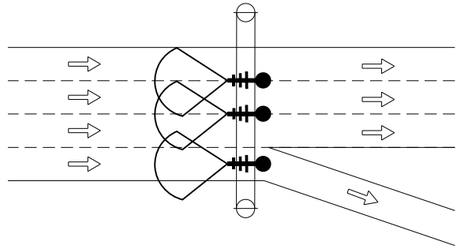
DCS COVERAGE AREA (6 OF 11)

SHEET NO. K-22

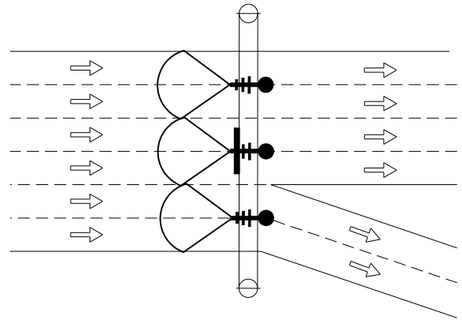
OPTION 37



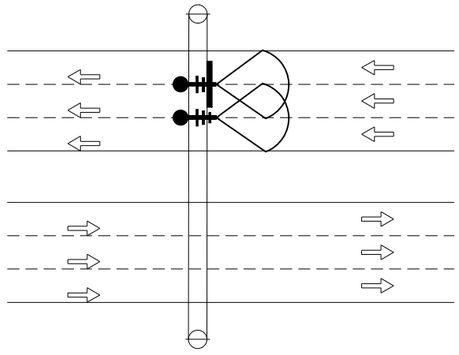
OPTION 38



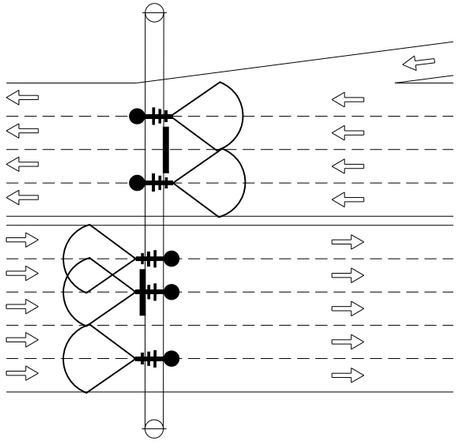
OPTION 39



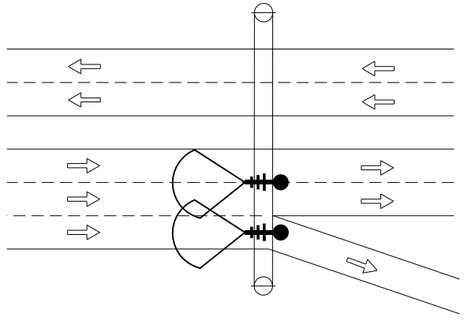
OPTION 40



OPTION 41

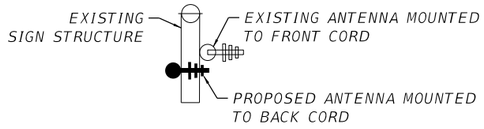


OPTION 42



LEGEND:

- EXISTING 10 or 16 dB (TO BE REMOVED)
- PROPOSED 10 dB
- PROPOSED 16 dB
- DMS
- DIRECTION OF TRAFFIC
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

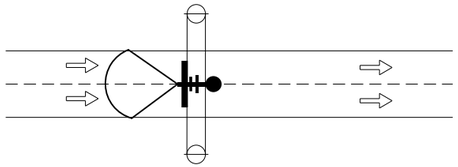
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (7 OF 11)

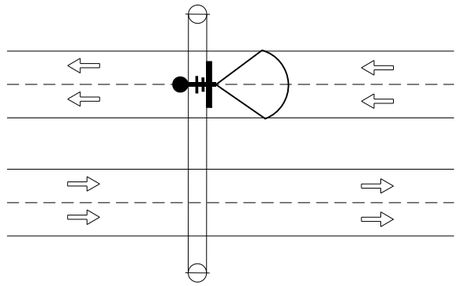
SHEET NO.

K-23

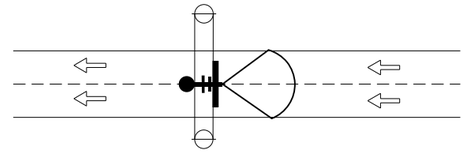
OPTION 43



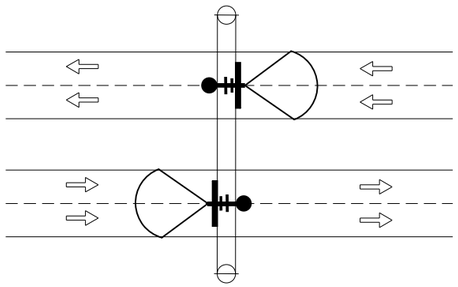
OPTION 44



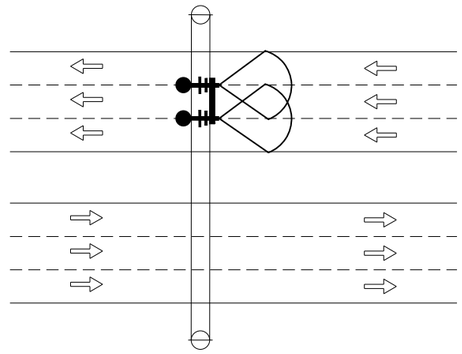
OPTION 45



OPTION 46



OPTION 47



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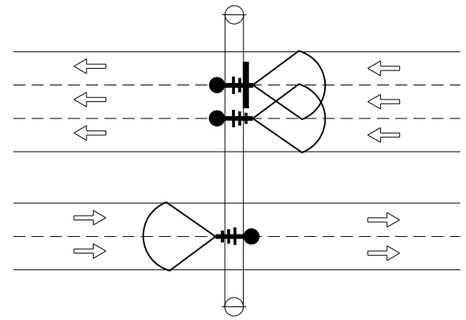
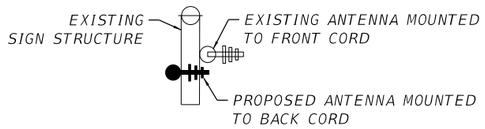


LEGEND:

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

DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

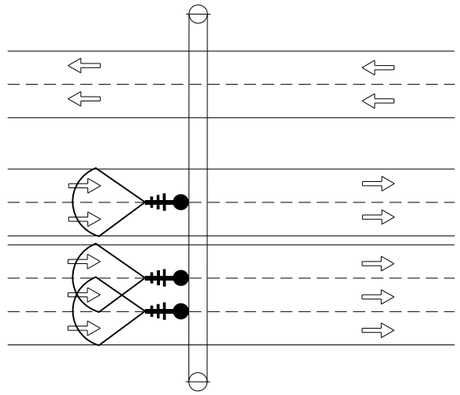
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (8 OF 11)

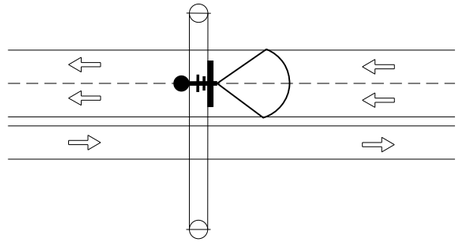
SHEET NO.

K-24

OPTION 49



OPTION 50



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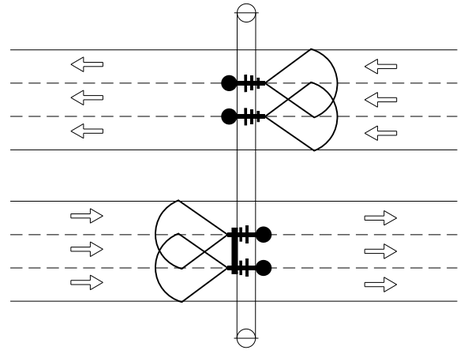

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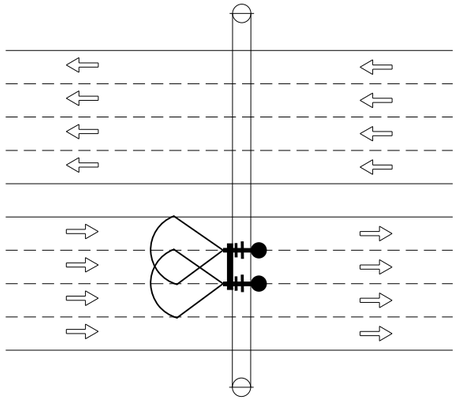

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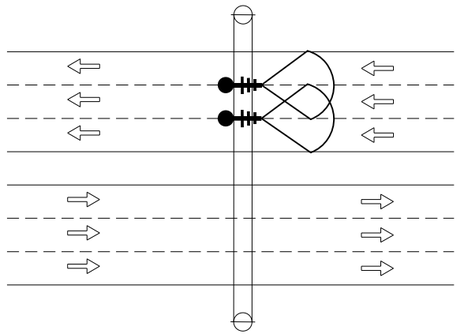
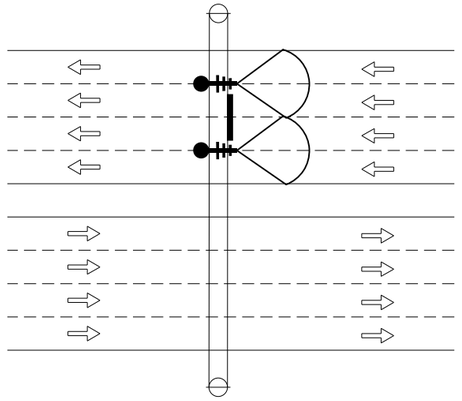


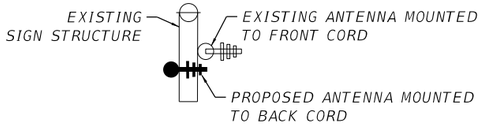
OPTION 54



LEGEND:

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

- DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

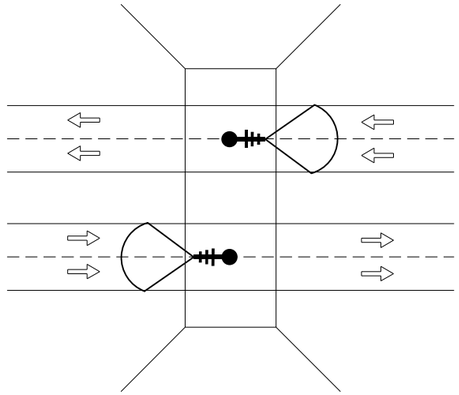
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (9 OF 11)

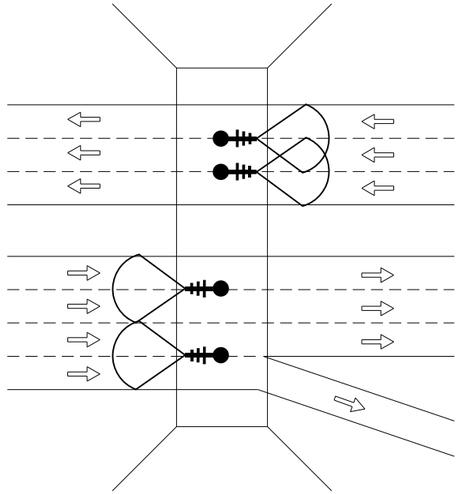
SHEET NO.

K-25

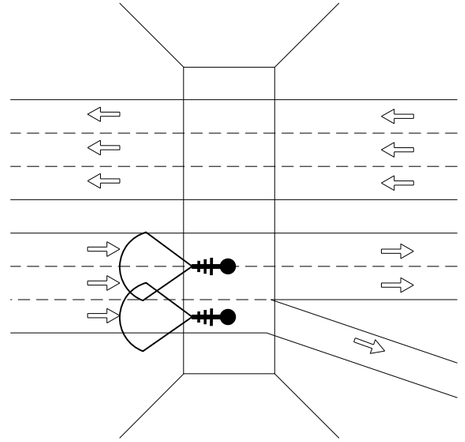
OPTION 55



OPTION 56



OPTION 57



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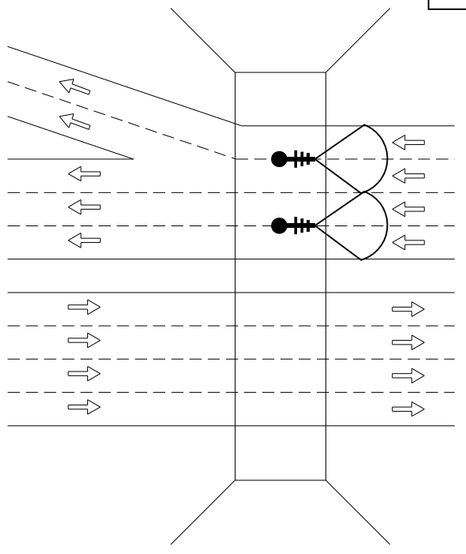
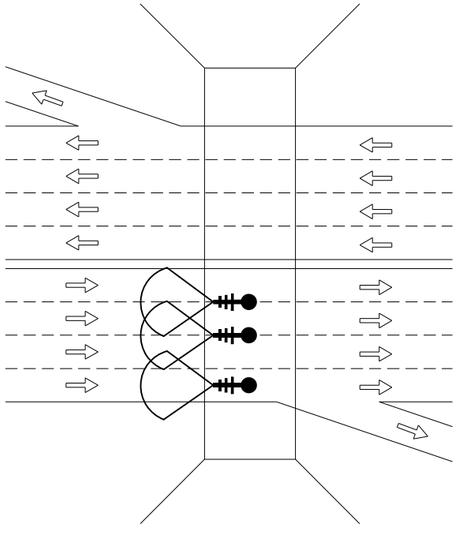
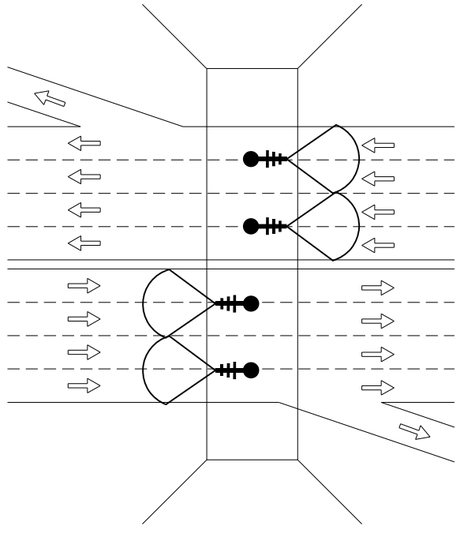


OPTION 59



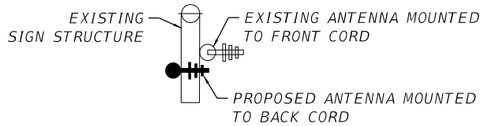
OPTION 60



LEGEND:

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

- DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA
- DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

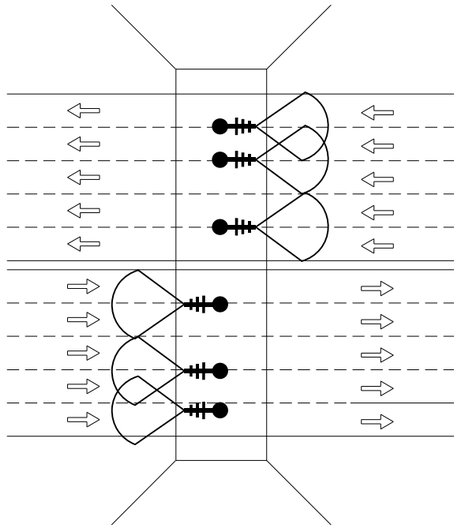
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (10 OF 11)

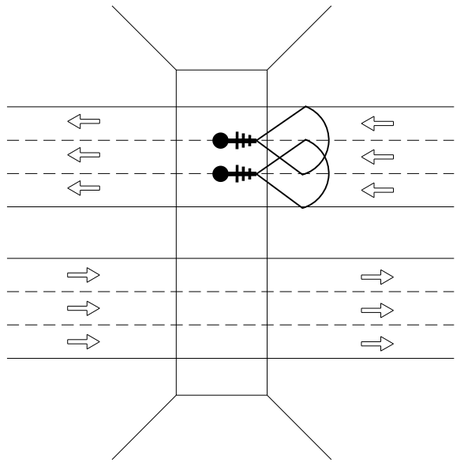
SHEET NO.

K-26

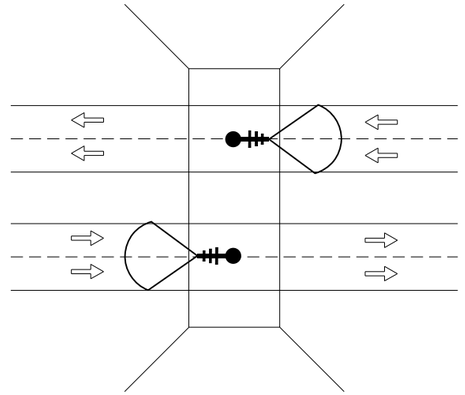
OPTION 61



OPTION 62

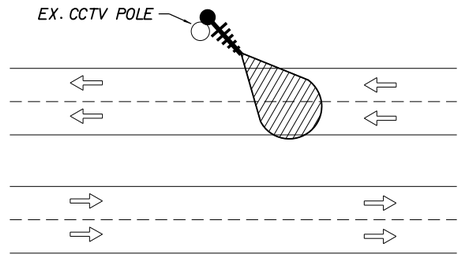


OPTION 63



OPTION 64

OPTION 65

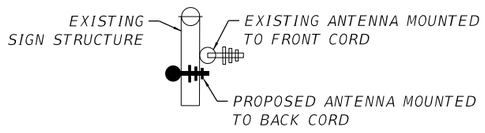


LEGEND:

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

DATA COLLECTION SENSOR – COVERAGE AREA FOR 10db ANTENNA

DATA COLLECTION SENSOR – COVERAGE AREA FOR 16db 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 16 dB ANTENNA SHALL BE USED, TO MEET LANE ACCURACY REQUIREMENTS DEFINED IN SECTION 663.

N.T.S.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

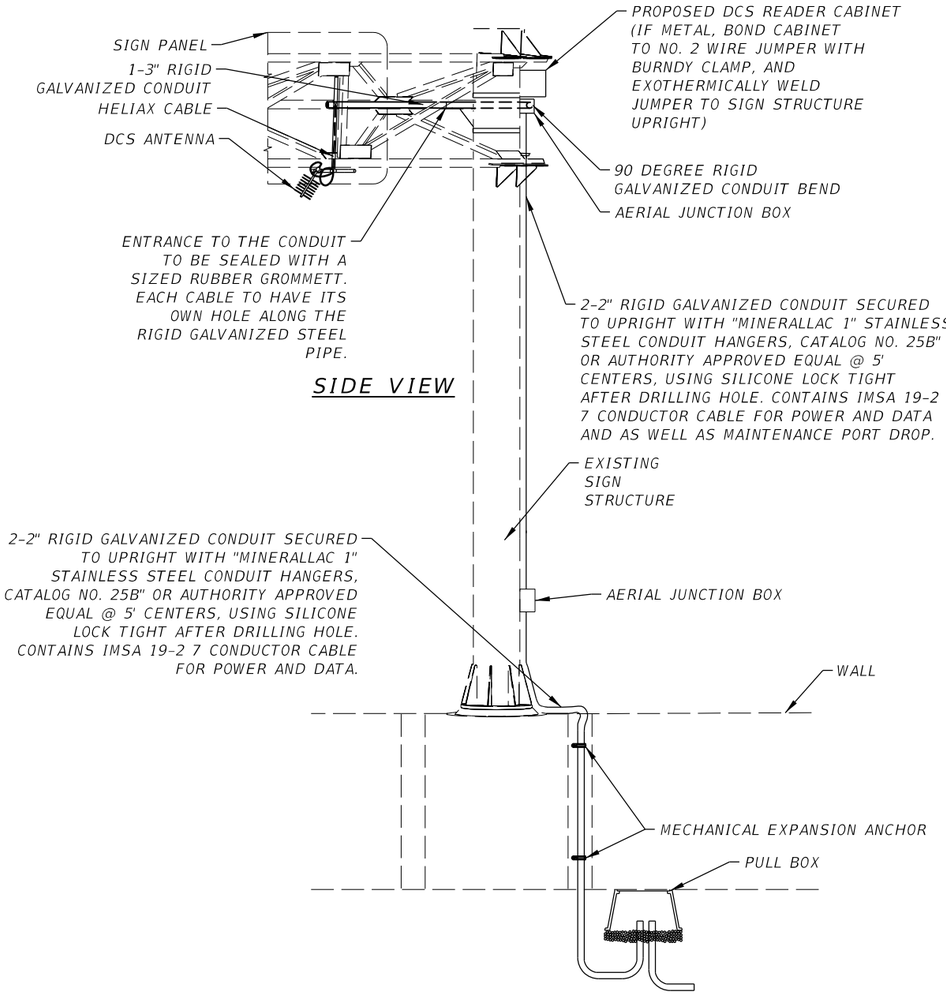
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DCS COVERAGE AREA (11 OF 11)

SHEET NO.

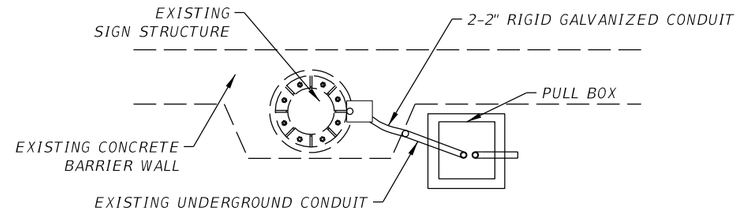
K-27

DCS MOUNTING DETAIL
N.T.S.



SIDE VIEW

TOP VIEW



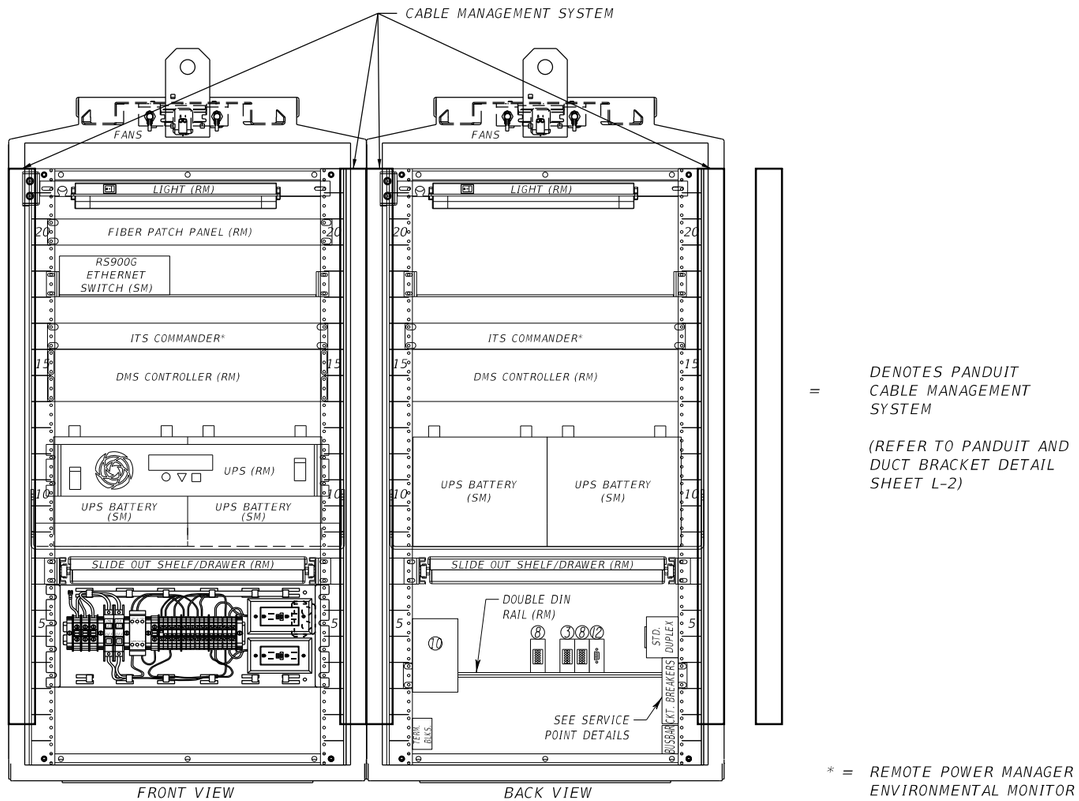
SIGN STRUCTURE MOUNTED DCS

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 THE AUTHORITY FOR APPROVAL PRIOR TO THE START OF PAINTING WORK.

MSE = MECHANICAL STABILIZED EARTH

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					
		REFER TO CFX SPECIFICATION SECTIONS 635, 638, AND 663 FOR ADDITIONAL INFORMATION.								K-28



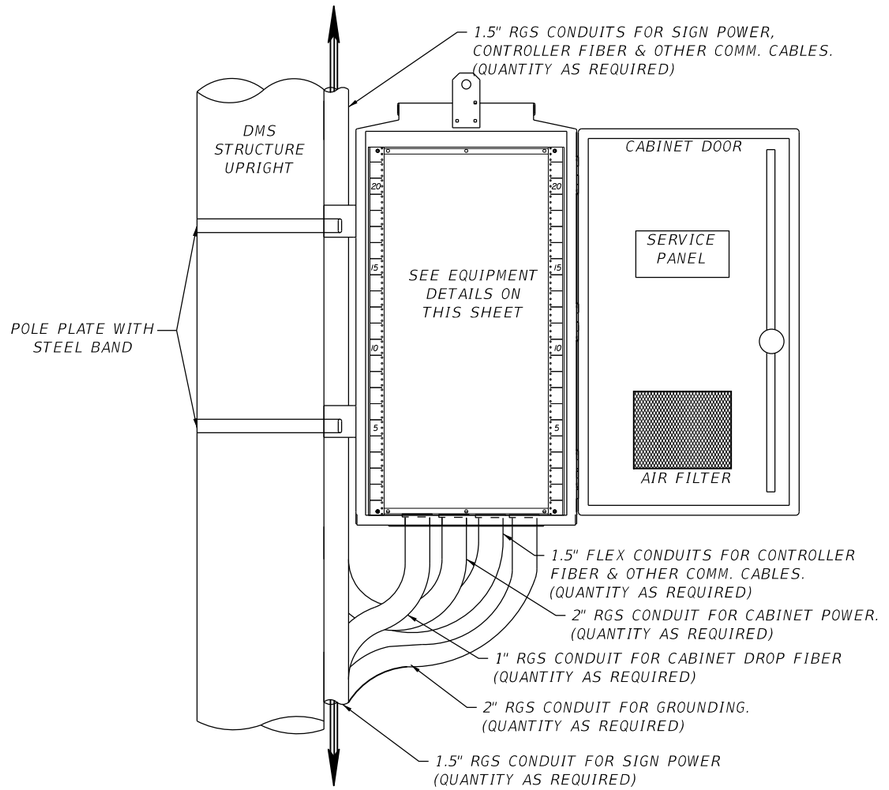
= *DENOTES PANDUIT CABLE MANAGEMENT SYSTEM*

(REFER TO PANDUIT AND DUCT BRACKET DETAIL SHEET L-2)

* = *REMOTE POWER MANAGER W/ ENVIRONMENTAL MONITOR*

TYPE 336S CABINET EQUIPMENT DETAILS

NOT TO SCALE



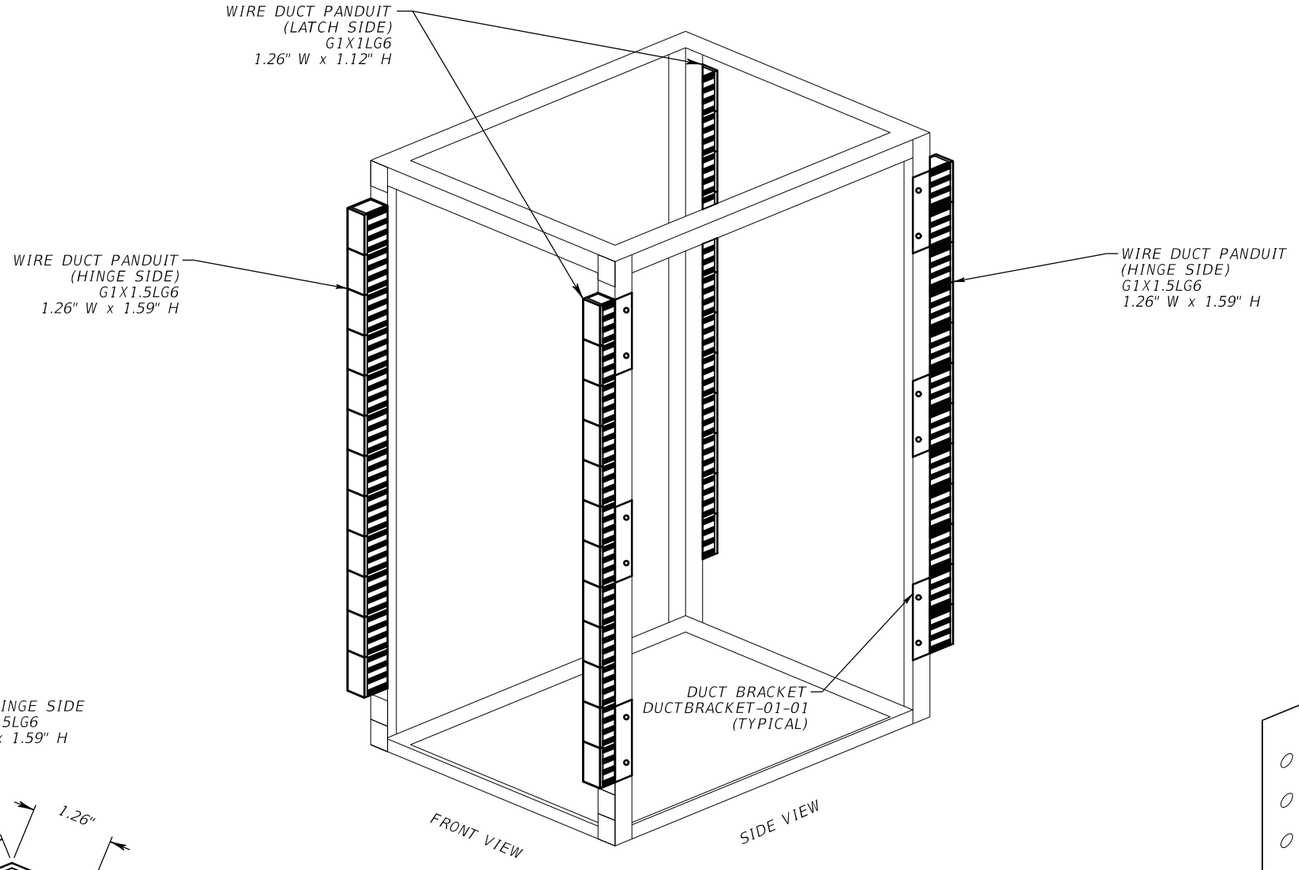
TYPE I70 MODEL 336S DMS POLE MOUNTED CABINET DETAIL

NOT TO SCALE

NOTES:

1. *THE CABINET SHALL PROVIDE FOR RACK MOUNTING AND SHELVING OF ALL EQUIPMENT.*
2. *CABINETS SHALL BE TYPE 170 MODEL 336S AND FABRICATED IN ACCORDANCE TO SECTION 676 OF THE FDOT MINIMUM SPECIFICATIONS FOR TRAFFIC CONTROL SIGNALS AND DEVICES.*
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:*
   - *SPD 1 - NOT USED*
   - *SPD 2 - NOT USED*
   - *SPD 3 - ADVANCED PROTECTION TECHNOLOGIES (APT) - APT RS232/D1*
   - *SPD 4 - ADVANCED PROTECTION TECHNOLOGIES (APT) - S50A120V1PND W/SKIT1*
   - *SPD 5 - NOT USED*
   - *SPD 6 - NOT USED*
   - *SPD 7 - NOT USED*
   - *SPD 8 - ADVANCED PROTECTION TECHNOLOGIES (APT) - APT SCAT5*
   - *SPD 9 - NOT USED*
   - *SPD 10- ADVANCED PROTECTION TECHNOLOGIES (APT) - S50A120V1PND W/SKIT1*
   - *SPD 11- ADVANCED PROTECTION TECHNOLOGIES (APT) - APT TE01XCS104XA*
6. *OTHER CABINET EQUIPMENT:*
   - *12- MAINTENANCE PORT (RS232)*
   - *13- NOT USED*
7. *FLEX CONDUIT RADIUS SHALL BE GREATER THAN FIBER OPTIC CABLE MINIMUM BENDING RADIUS.*
8. *19" DOUBLE DIN RAIL SHALL BE GROUNDED PER MANUFACTURER'S RECOMMENDATIONS.*
9. *REMOTE POWER MANAGER (RPM) SHALL PROVIDE EIGHT (8) INDEPENDENTLY REMOTE CONTROLLED OUTLETS AND SHALL BE FULLY COMPARABLE AND INTEROPERABLE WITH THE UPS UNIT THE POWER MANAGER IS INTEGRATED TO.*
10. *CONTRACTOR SHALL SUBMIT A CABINET LAYOUT/WIRING DIAGRAM FOR AUTHORITY APPROVAL.*
11. *FRONT FACE OF EQUIPMENT SHALL BE INSTALLED WITHIN THE CABINET FACING THE OPPOSITE DIRECTIONAL OF TRAVEL.*
12. *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 AUTHORITY APPROVED EQUAL.*
13. *TYPE 170 CABINETS SHALL BE PLACED AS SHOWN 3' 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 3' FROM GRADE.*
14. *SLIDE OUT TRAY SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.*
15. *CABINET SHALL NEVER BE MOUNTED ON THE APPROACHING SIDE OF TRAFFIC.*
16. *IT IS THE INTENT OF THE ENGINEER TO PROVIDE A SAFE WORKING SPACE FOR THE FIELD TECHNICIANS.*
17. *PANDUIT DIMENSIONS ARE AS FOLOWS:*
    - *A. RIGHT; 1.26" WIDE BY 1.59" DEEP*
    - *B. RIDE SIDE OF CABINET - (LATCH SIDE); 1.26" WIDE BY 1.12" DEEP*

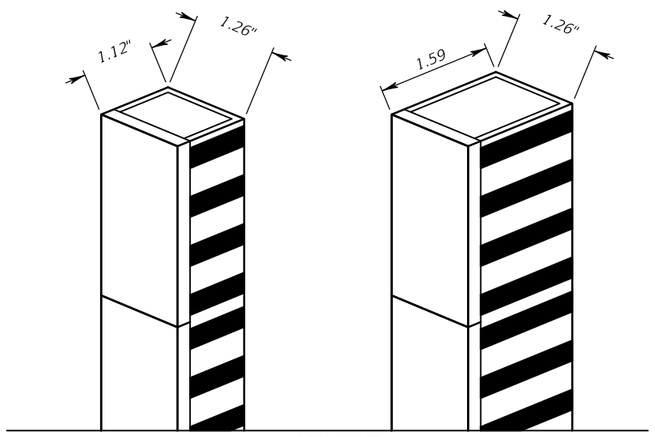
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DMS CABINET LAYOUT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-1
		REFER TO CFX SPECIFICATION SECTIONS 668, 683, AND 685 FOR ADDITIONAL INFORMATION.								



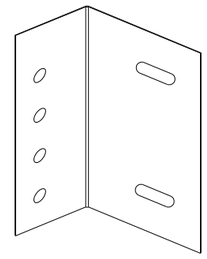
TYPE 336S CABINET (TYPICAL)
N.T.S.

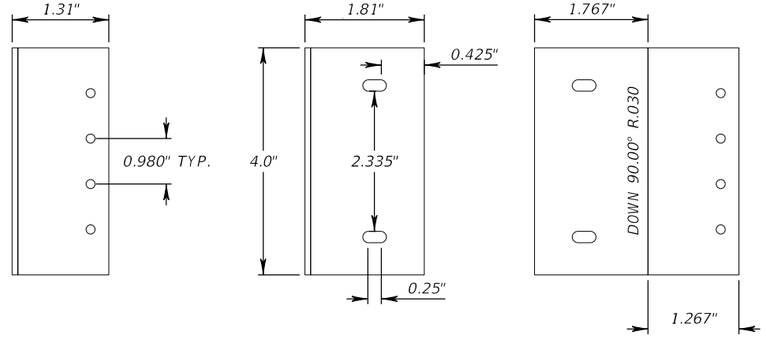
PANDUIT LATCH SIDE
G1X1LG6
1.26" W x 1.12" H

PANDUIT HINGE SIDE
G1X1.5LG6
1.26" W x 1.59" H



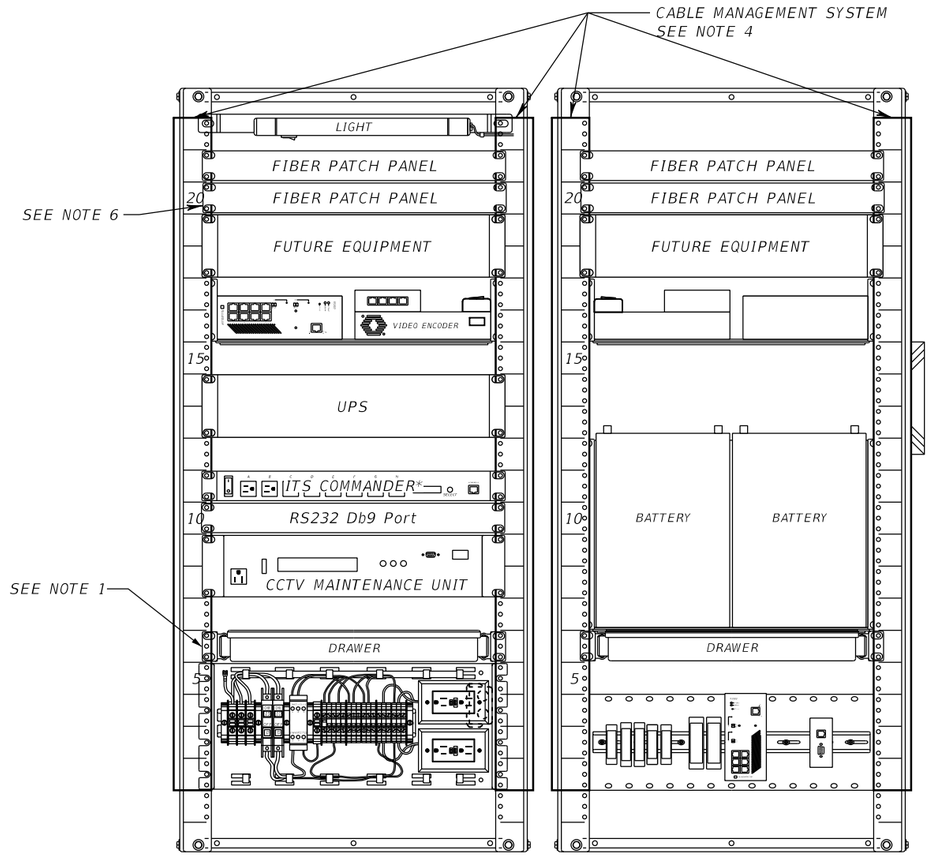
PANDUIT
N.T.S.





DUCT BRACKET
N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	PANDUIT AND BRACKET DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-2
		REFER TO CFX SPECIFICATION SECTIONS 668, 683, AND 685 FOR ADDITIONAL INFORMATION.								



FRONT VIEW BACK VIEW

336S CABINET LAYOUT 2
(EXISTING WITH RECESSED POWER PANEL OR PROPOSED)

= DENOTES PANDUIT CABLE MANAGEMENT SYSTEM

* = REMOTE POWER MANAGER W/ ENVIRONMENTAL MONITOR

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. CABINETS SHALL BE TYPE 170 MODEL 336S AND SHALL MEET CFX SPECIFICATION 668.
4. TYPE 170 CABINETS SHALL BE PLACED AS SHOWN 3' 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 3' FROM GRADE.
5. SLIDE OUT TRAY SHALL BE ORIENTED SUCH THAT THE TECHNICIAN SHALL NEVER HAVE THEIR BACK TO THE DIRECTION OF TRAVEL.
6. CABINET 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.
8. PANDUIT DIMENSIONS ARE AS FOLOWS:
   - A. LEFT SIDE OF CABINET; 2" WIDE BY 1.5" DEEP
   - B. RIDE SIDE OF CABINET – (LATCH SIDE); 2" WIDE BY 1" DEEP

LEGEND:

- OR SPD 1: 24 VDC
- OR SPD 2: RS485
- OR SPD 3: RS232
- POWER STRIP
- RS900G OR ETHERNET SWITCH
- PORT SERVER
- CLICK 201
- CLICK 202
- OR DB9 MAINT. PORT
- BATTERY VOLTAGE SENSOR
- DCS POWER SUPPLY OR SPDS
- ITS COMMANDER

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO CFX SPECIFICATION SECTIONS 668, 683, AND 685 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

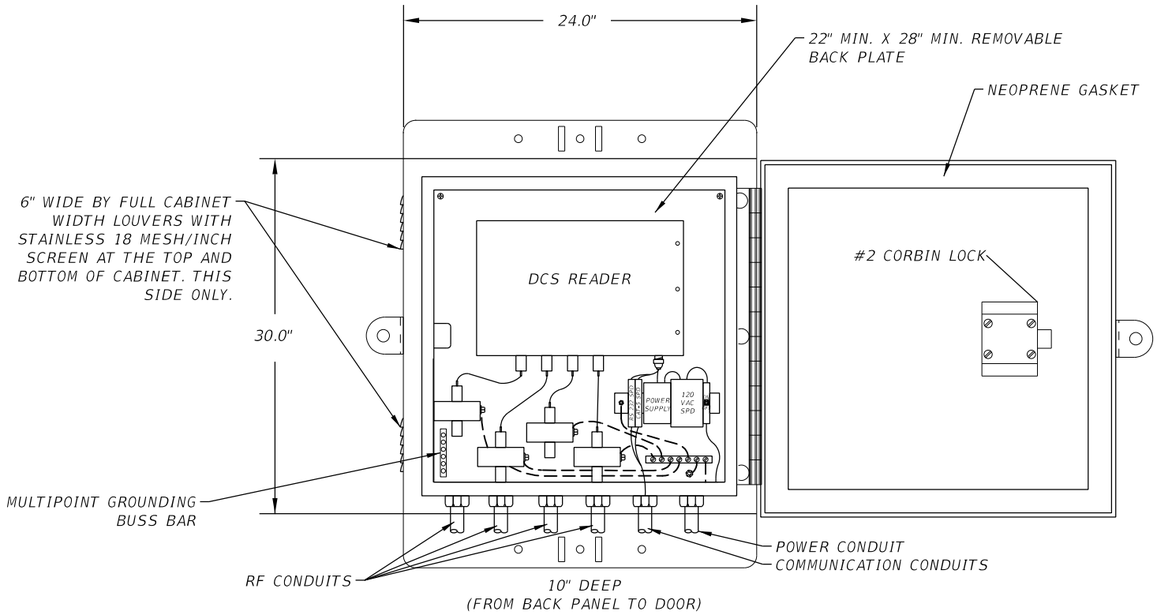
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ITS CABINET LAYOUT DETAIL

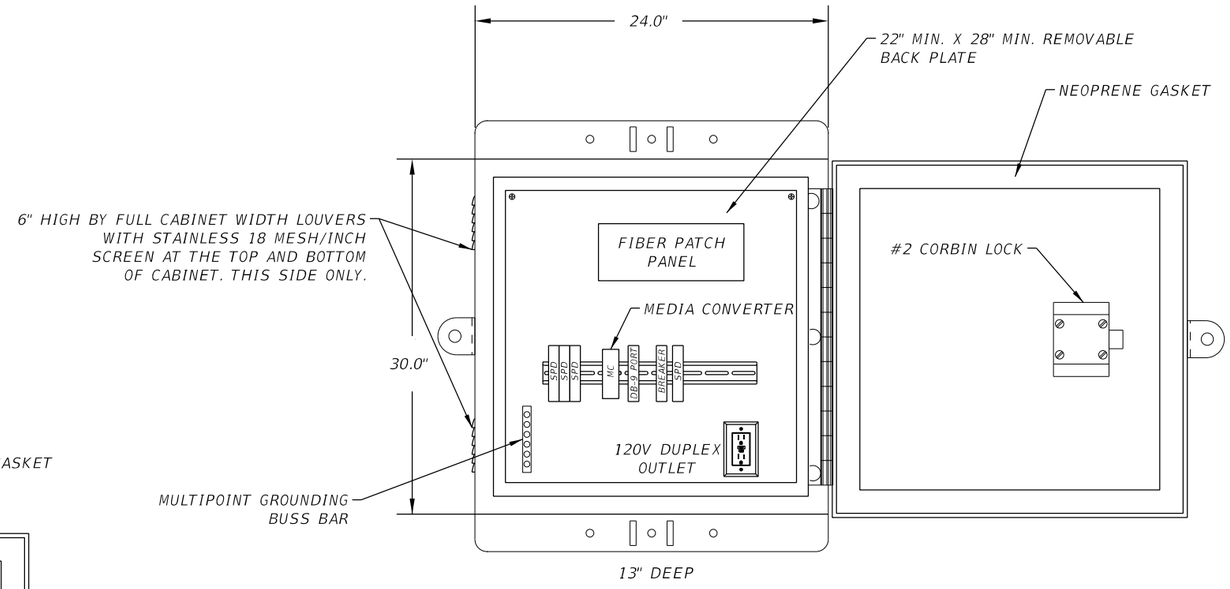
SHEET NO. L-3

DCS READER NEMA CABINET DETAIL

N.T.S.



POLE / WALL MOUNTED CABINET (RF READER MODULE)



POLE / WALL MOUNTED CABINET (NEMA 3R ENCLOSURE)

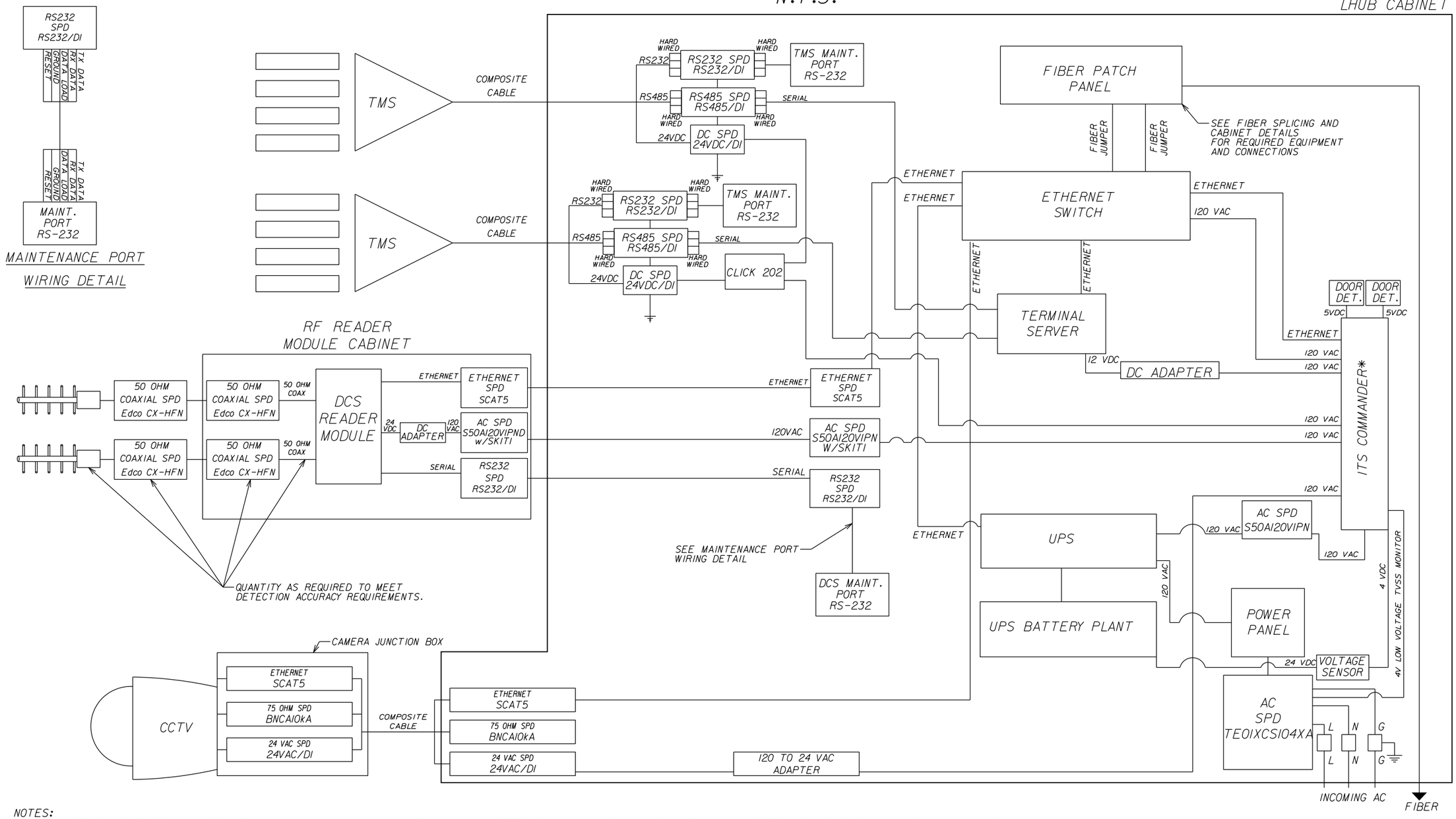
NOTES:

1. CONTRACTOR TO SUBMIT A CABINET WIRING AND LAYOUT DIAGRAM FOR AUTHORITY APPROVAL PRIOR TO PROCUREMENT.
2. CABINET SHALL BE MINIMUM 3/16" THICK 5052 ALUMINUM.
3. CABINET SHALL INCLUDE A FOLD OUT LAPTOP SHELF WITH A MINIMUM 20' (WIDE) X 13' (DEPTH) SIZE AND CAPABLE OF BEARING A 15LB LOAD.
4. SEE WIRING DIAGRAM FOR EQUIPMENT TO BE INSTALLED IN THE CABINET.
5. DCS READER PORT ASSIGNMENT SHALL CONFIGURE LANE 1 TO PORT 1 FOR RIGHT MOST LANE OF TRAVEL.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS READER NEMA CABINET LAYOUT DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 663 FOR ADDITIONAL INFORMATION.								L-4

PROPOSED CCTV, DCS & 2 TMS CONNECTION DIAGRAM

N.T.S.



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/ ENVIRONMENTAL MONITOR PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

* = REMOTE POWER MANAGER W/ ENVIRONMENTAL MONITOR

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FOR INFORMATIONAL PURPOSES ONLY

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

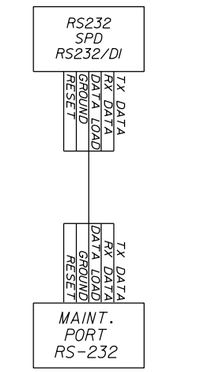
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL WIRING DIAGRAMS (1 OF 4)

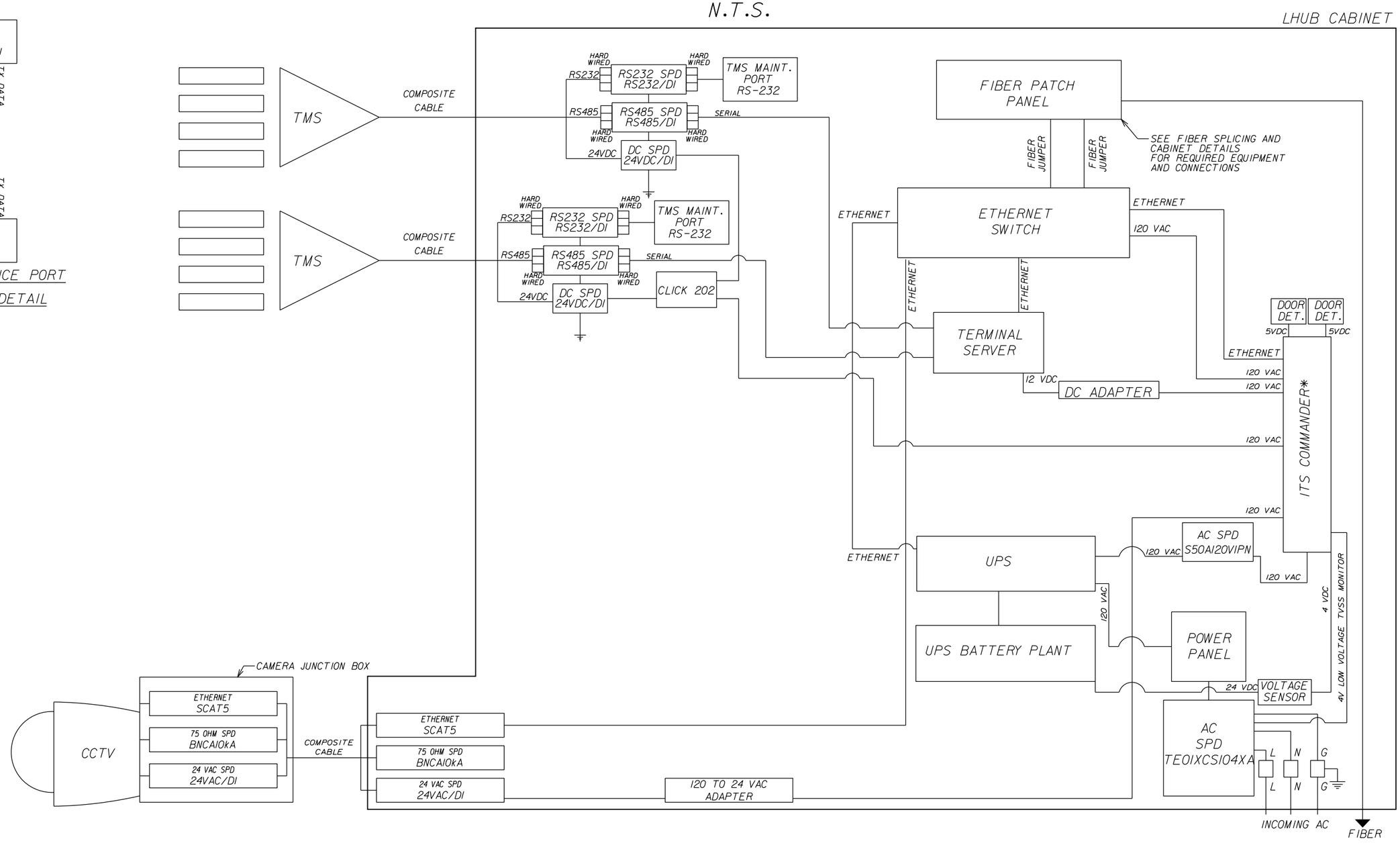
SHEET NO. L-5

PROPOSED CCTV & 2 TMS CONNECTION DIAGRAM

N.T.S.



MAINTENANCE PORT WIRING DETAIL



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/ ENVIRONMENTAL MONITOR PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

* = REMOTE POWER MANAGER W/ ENVIRONMENTAL MONITOR

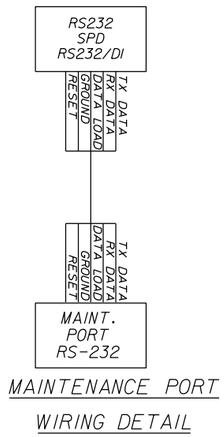
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL WIRING DIAGRAMS (2 OF 4)

SHEET NO. L-6

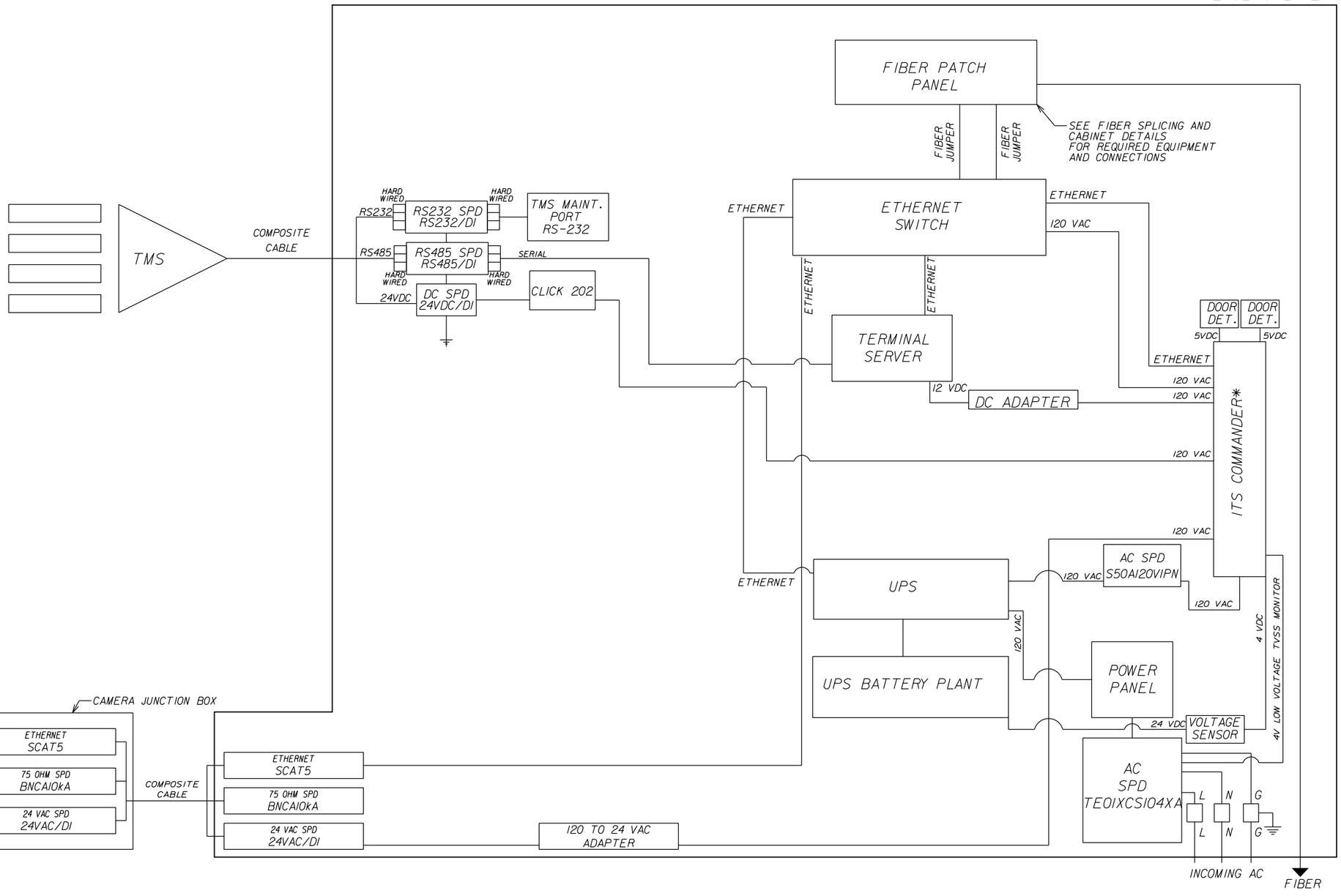
PROPOSED CCTV & TMS CONNECTION DIAGRAM

N.T.S.



MAINTENANCE PORT

WIRING DETAIL



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/ ENVIRONMENTAL MONITOR PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

* = REMOTE POWER MANAGER W/ ENVIRONMENTAL MONITOR

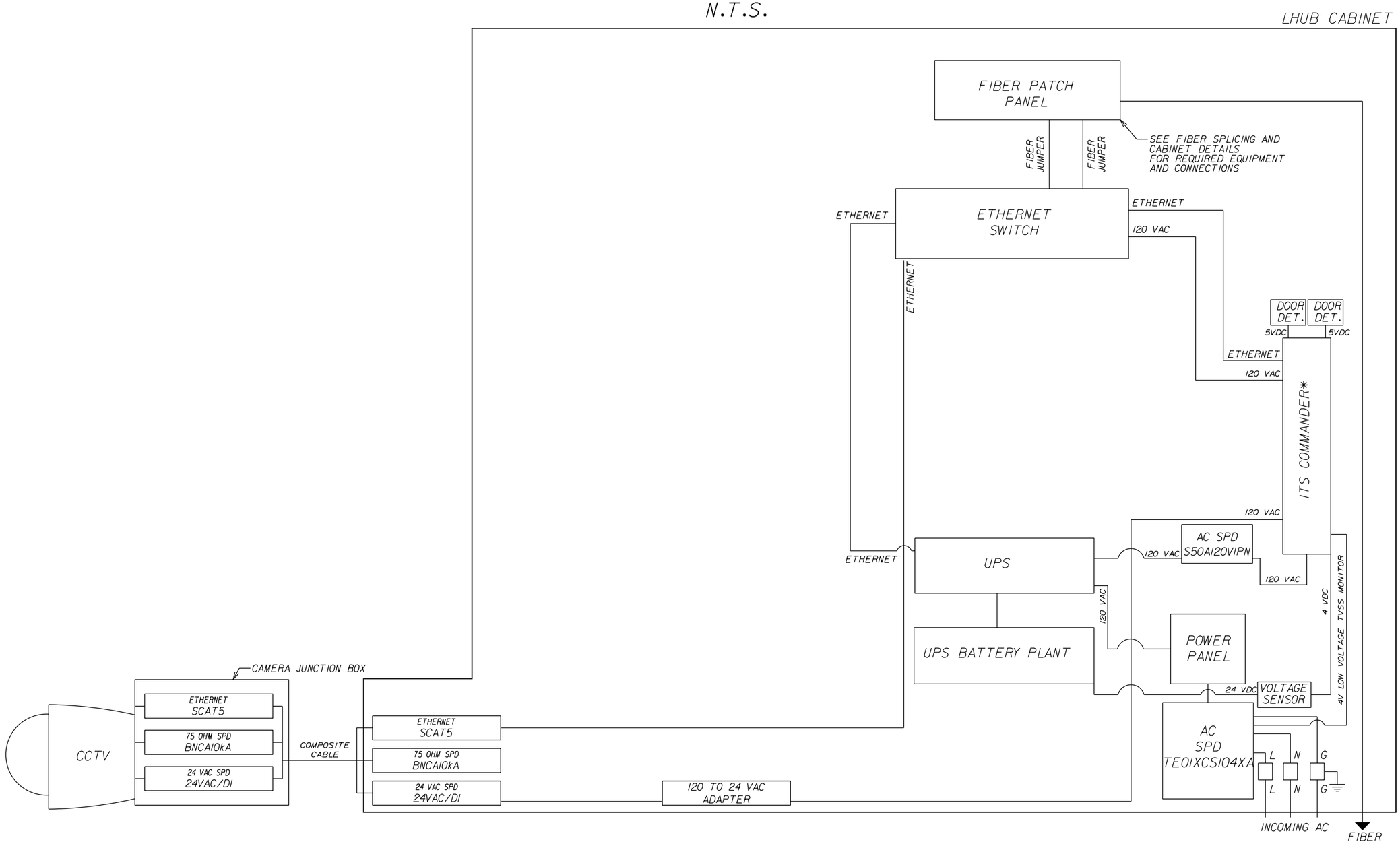
REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TYPICAL WIRING DIAGRAMS (3 OF 4)

SHEET NO. L-7

PROPOSED CCTV CONNECTION DIAGRAM

N.T.S.



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/ ENVIRONMENTAL MONITOR PAY ITEM.
2. INSTALL DRY CONTACT AND WIRING CAPABLE OF REMOTE SNMP COMMUNICATIONS AS DIRECTED IN PLANS.

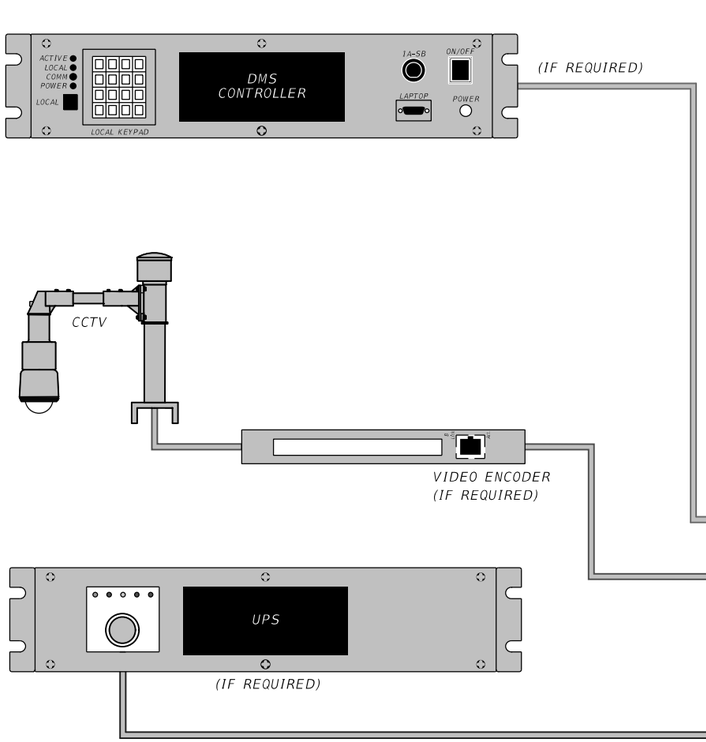
* = REMOTE POWER MANAGER W/ ENVIRONMENTAL MONITOR

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TYPICAL WIRING DIAGRAMS (4 OF 4)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-8

STANDARD PORT ASSIGNMENTS

ETHERNET CABLE COLOR CODE:
ENCODER - BLUE
PORT SERVER - GREEN
UPS - WHITE
ITS COMMANDER - RED
DCS - BROWN
DMS CONTROLLER - BLACK

*= RPM / ENVIRONMENTAL MONITOR



REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	ETHERNET SWITCH DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					L-9
		UNLESS DIRECTED IN THE PLANS THE DEPICTED CABLE COLOR SCHEME TAKES DESIGN PRECEDENCE.								

NOTES:

1. CONTRACTOR TO COORDINATE LOCATION OF DMS SERVICE POINT WITH SIGNING AND MARKING CONTRACTOR PRIOR TO INSTALLATION.

2. CONTRACTOR TO INSTALL ALL CONDUIT AND WIRES USED TO POWER DMS FROM OUC TRANSFORMER TO DMS POWER RISER AND FROM DMS POWER RISER TO DMS CONTROLLER.

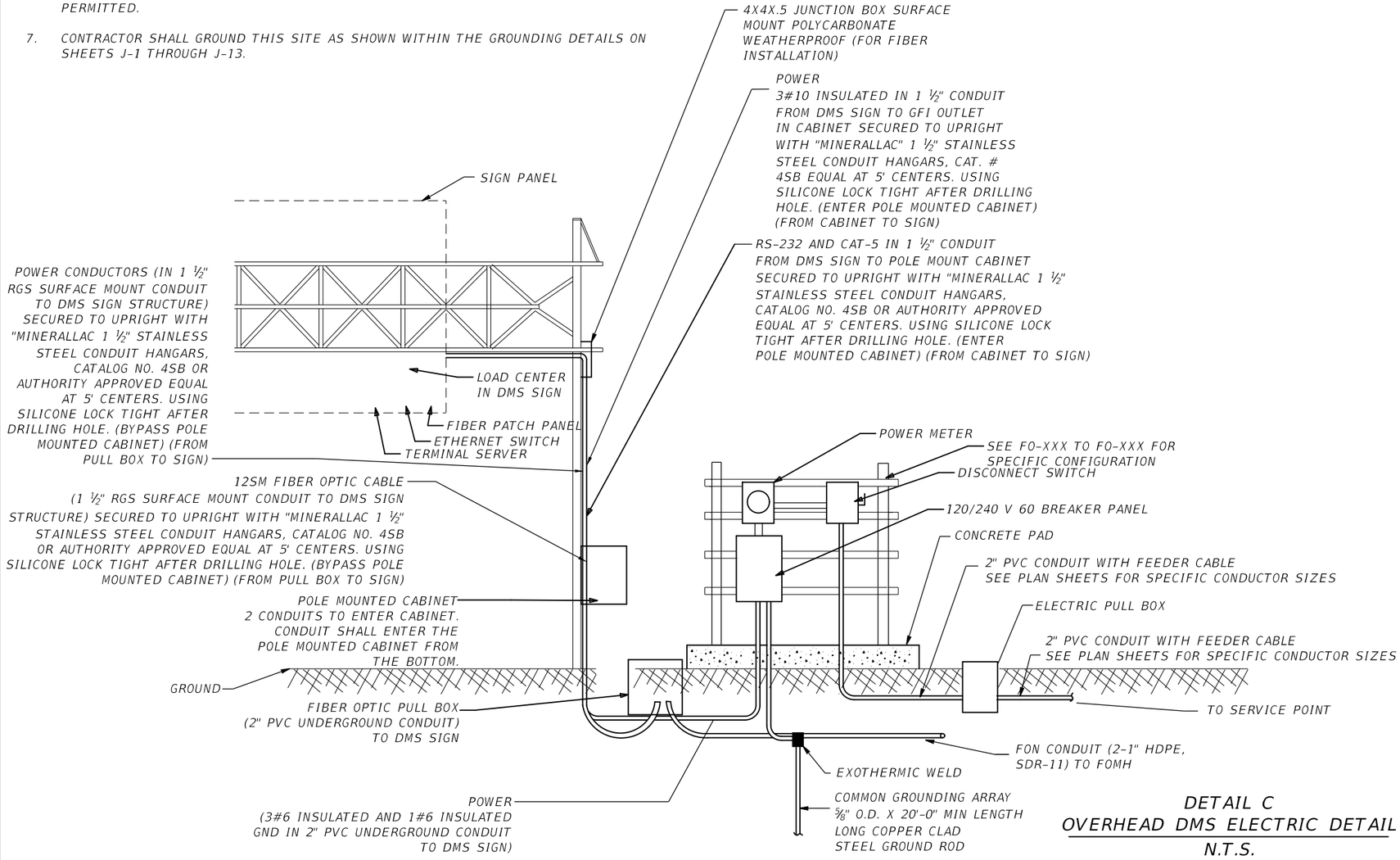
3. ALL EMPTY POWER CONDUITS SHALL BE CAPPED AND FURNISHED WITH A PULL STRING FOR FUTURE USE.

4. FIBER OPTIC CABLE TO BE INSTALLED INSIDE THE 1" HDPE BLUE CONDUIT. CABLE SHALL BE "E/W 12-STRAND, LOOSE TUBE, ALL DIELECTRIC, SINGLE MODE, ALTOS FIBER OPTIC CABLE AS MANUFACTURED BY CORNING, AS SPECIFIED IN SPECIFICATION 633."

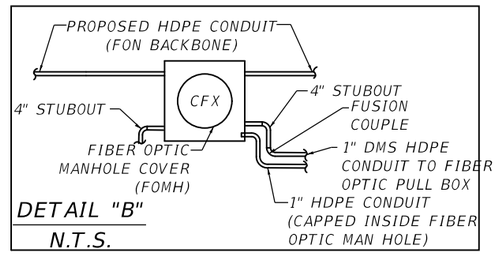
5. GROUNDING SHALL MEET A REQUIRED RESISTANCE OF 5 OHMS OR LESS.

6. CONTRACTOR SHALL UTILIZE EXISTING PENETRATIONS IN DMS ENCLOSURE FOR CABLING ENTRY INTO SIGN. DRILLING OF ADDITIONAL HOLES IN THE SIGN ENCLOSURE SHALL NOT BE PERMITTED.

7. CONTRACTOR SHALL GROUND THIS SITE AS SHOWN WITHIN THE GROUNDING DETAILS ON SHEETS J-1 THROUGH J-13.



DETAIL C
OVERHEAD DMS ELECTRIC DETAIL
N.T.S.



DETAIL "B"
N.T.S.

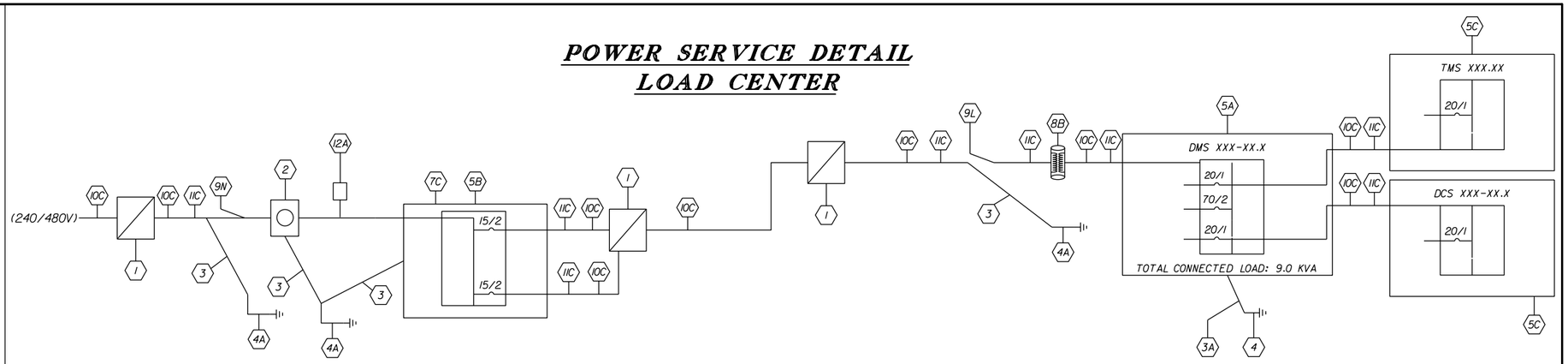
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DMS SERVICE POINT DETAIL SHEET	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO FDOT SPECIFICATION SECTION 785 FOR ADDITIONAL INFORMATION.								M-1

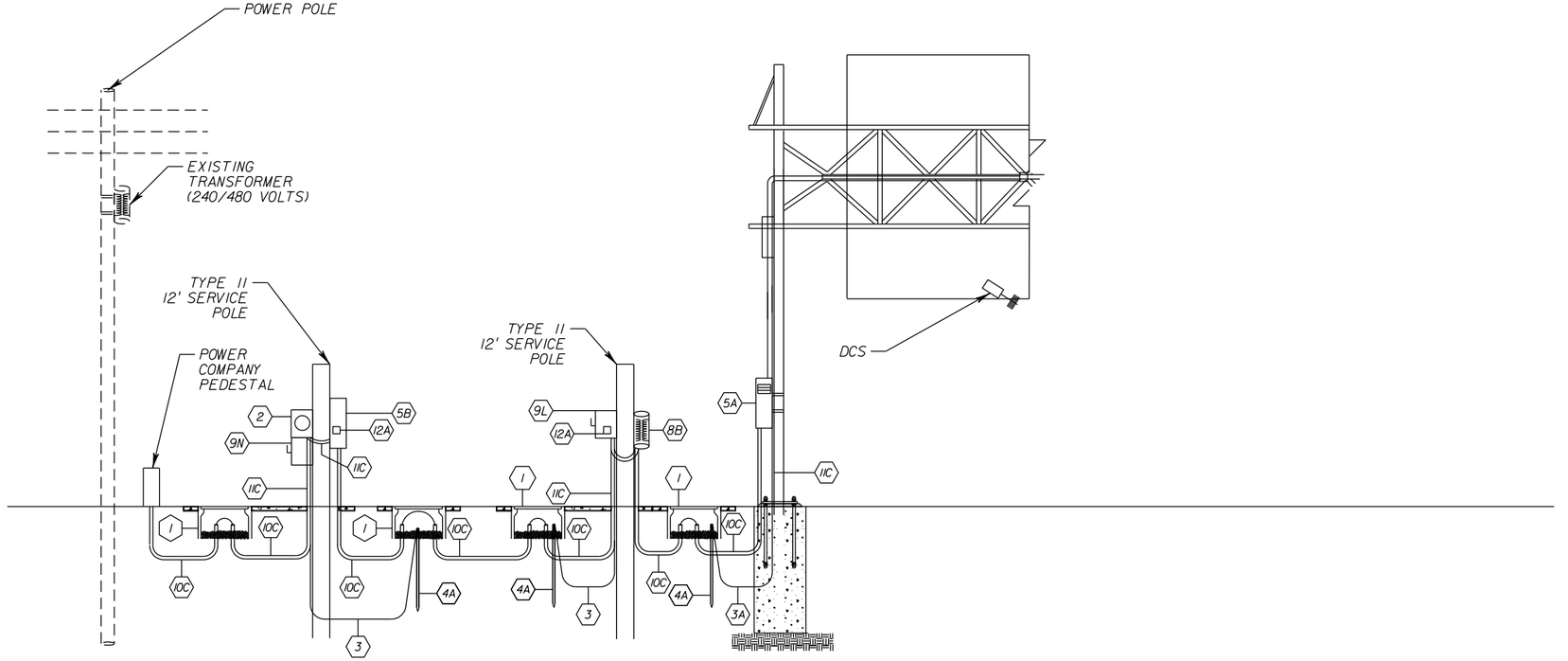
KEYED NOTES:

1. PULL BOX.
2. METER SOCKET BY CONTRACTOR METER BY POWER COMPANY
3. #6 INSULATED COPPER GROUND WIRE IN 1/2" RIGID GALVANIZED STEEL OR BARE WIRE IF UNDERGROUND
3A. #2 INSULATED COPPER GROUND WIRE IN 1/2" RIGID GALVANIZED STEEL OR BARE WIRE IF UNDERGROUND
4. COPPER CLAD GROUND ROD 5/8" DIA. MEETING REQUIREMENTS PER ITS DETAILS, THIS SHEET AND THE SPECS.
4A. COPPER CLAD GROUND ROD 5/8" DIA. 40' LONG
5A. TYPE 336S CABINET W/CIRCUIT BREAKER
5B. SERVICE PANELBOARD (TO INCLUDE BREAKERS PER PLANS)
5C. NEMA 3R ENCLOSURE
6. LIGHTNING ARRESTOR
7A. MAIN CIRCUIT BREAKER 100A, TWO POLE, 120/240 VAC.
7B. MAIN CIRCUIT BREAKER 200A, TWO POLE, 120/240 VAC.
7C. MAIN CIRCUIT BREAKER 100A, TWO POLE 240/480 VAC.
7D. MAIN CIRCUIT BREAKER 200A, TWO POLE 240/480 VAC.
7E. MAIN CIRCUIT BREAKER 100A, ONE POLE 480/GND VAC.
7F. MAIN CIRCUIT BREAKER 200A, ONE POLE 480/GND VAC.
8A. XFMR (5 KVA)
8B. XFMR (7.5 KVA), STEP-DOWN, 480 PRIMARY, 120 SECONDARY
8C. XFMR (10 KVA)
8D. XFMR (15 KVA), STEP-DOWN, 480 PRIMARY, 120 SECONDARY
8E. XFMR (25 KVA)
9A. 15A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9B. 15A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9C. 20A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9D. 20A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9E. 25A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9F. 25A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9G. 30A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9H. 30A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9I. 35A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9J. 35A, 240/480VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9K. 40A, 120VAC, CIRCUIT BREAKER IN NEMA 3R ENCLOSURE.
9L. 20A, 120VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9M. 15A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9N. 30A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9O. 60A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
9P. 100A, 240/480VAC, 3-WIRE NON-FUSED HEAVY DUTY NEMA 3R DISCONNECT.
10A. 1" SCHEDULE 40 PVC CONDUIT
10B. 1.25" SCHEDULE 40 PVC CONDUIT
10C. 2" SCHEDULE 40 PVC CONDUIT
11A. 1" RIGID GALVANIZED STEEL CONDUIT
11B. 1.25" RIGID GALVANIZED STEEL CONDUIT
11C. 2" RIGID GALVANIZED STEEL CONDUIT
12A. 120/240VAC TVSS MODEL 11214
12B. 240/480VAC TVSS MODEL 11229

NOTES:
1. CONDUCTOR SIZE AND QUANTITY VARIES. SEE PLAN SHEETS.
2. FIBER CONDUIT & PULL BOXES NOT SHOWN FOR CLARITY.
3. POWER SERVICE DETAILS PROVIDED FOR ALL NEW POWER SERVICE LOCATIONS AND LOCATIONS REQUIRING NEW TRANSFORMERS.

POWER SERVICE DETAIL LOAD CENTER





SERVICE DETAIL

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		REFER TO FDOT SPECIFICATION SECTION 785 FOR ADDITIONAL INFORMATION.			

FOR INFORMATIONAL PURPOSES ONLY

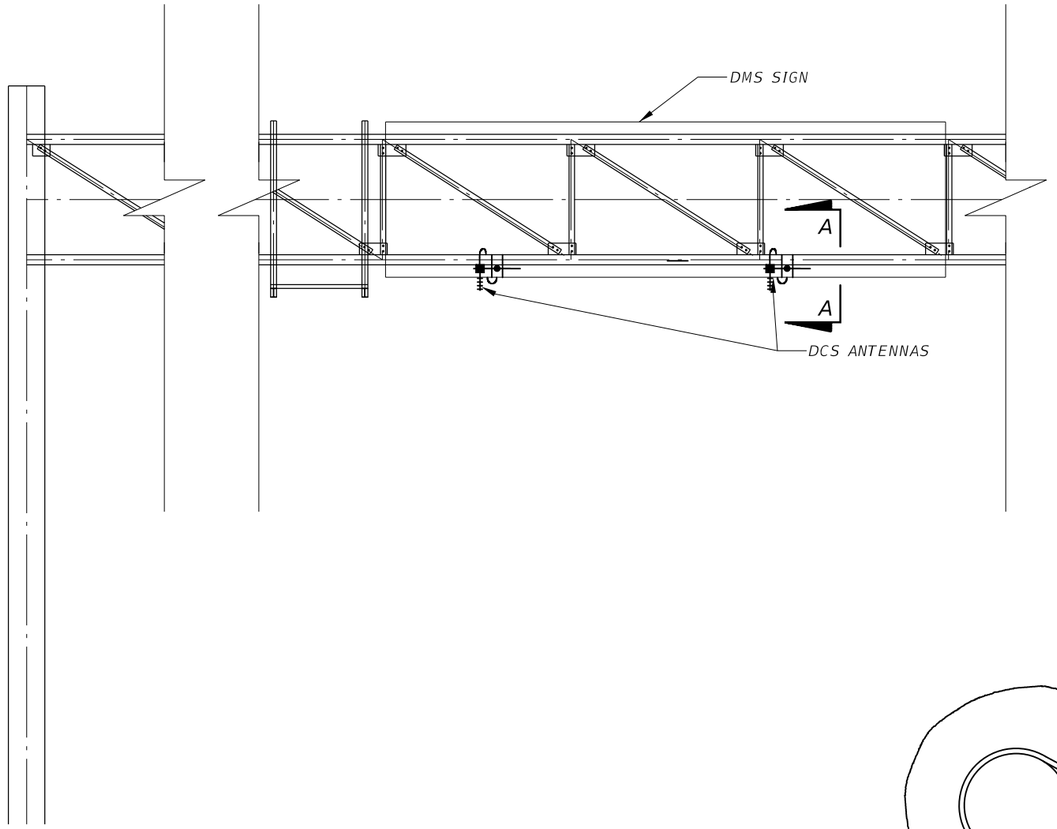
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

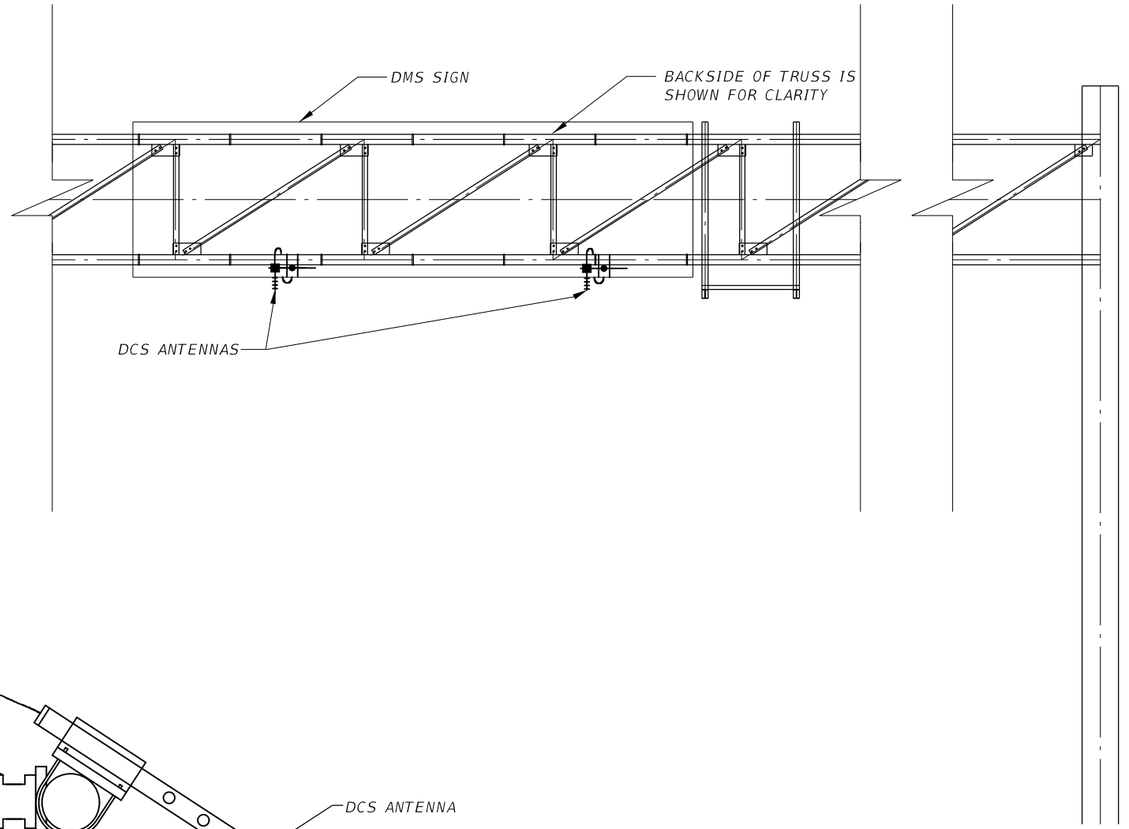
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

DMS SERVICE POINT PANEL DETAIL SHEET

SHEET NO. M-2

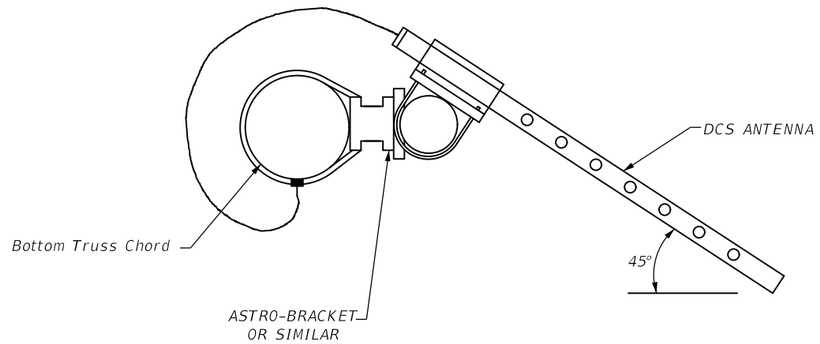
FULL SPAN BOX TRUSS DMS SIGN STRUCTURE DETAIL





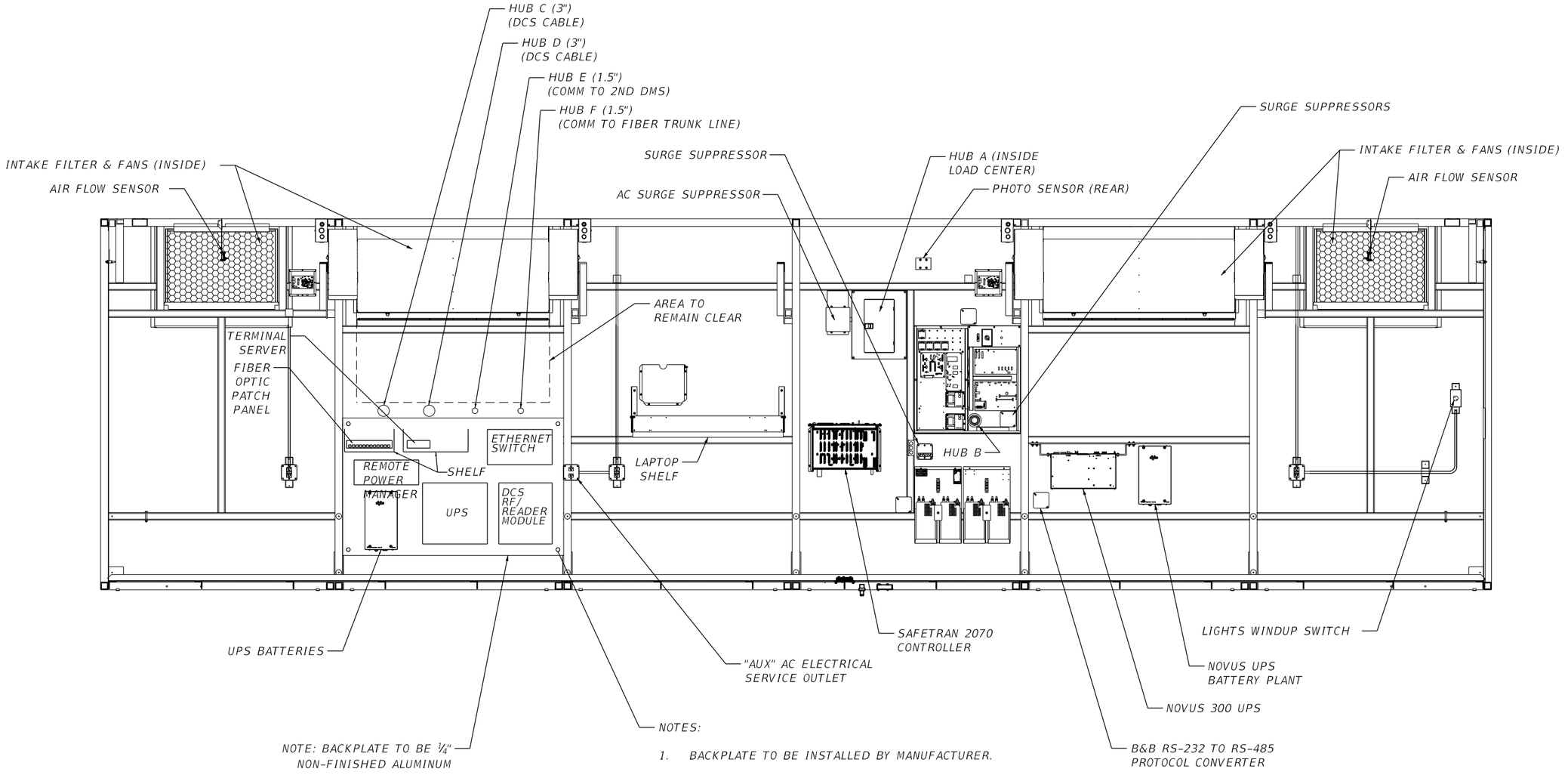
NOTES:

1. THE DCS SHALL BE MOUNTED OVER TRAVEL LANES. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER TO POSITION THE DCS TO MEET THE PERFORMANCE REQUIREMENTS OF SPECIFICATION 663.



SECTION A-A

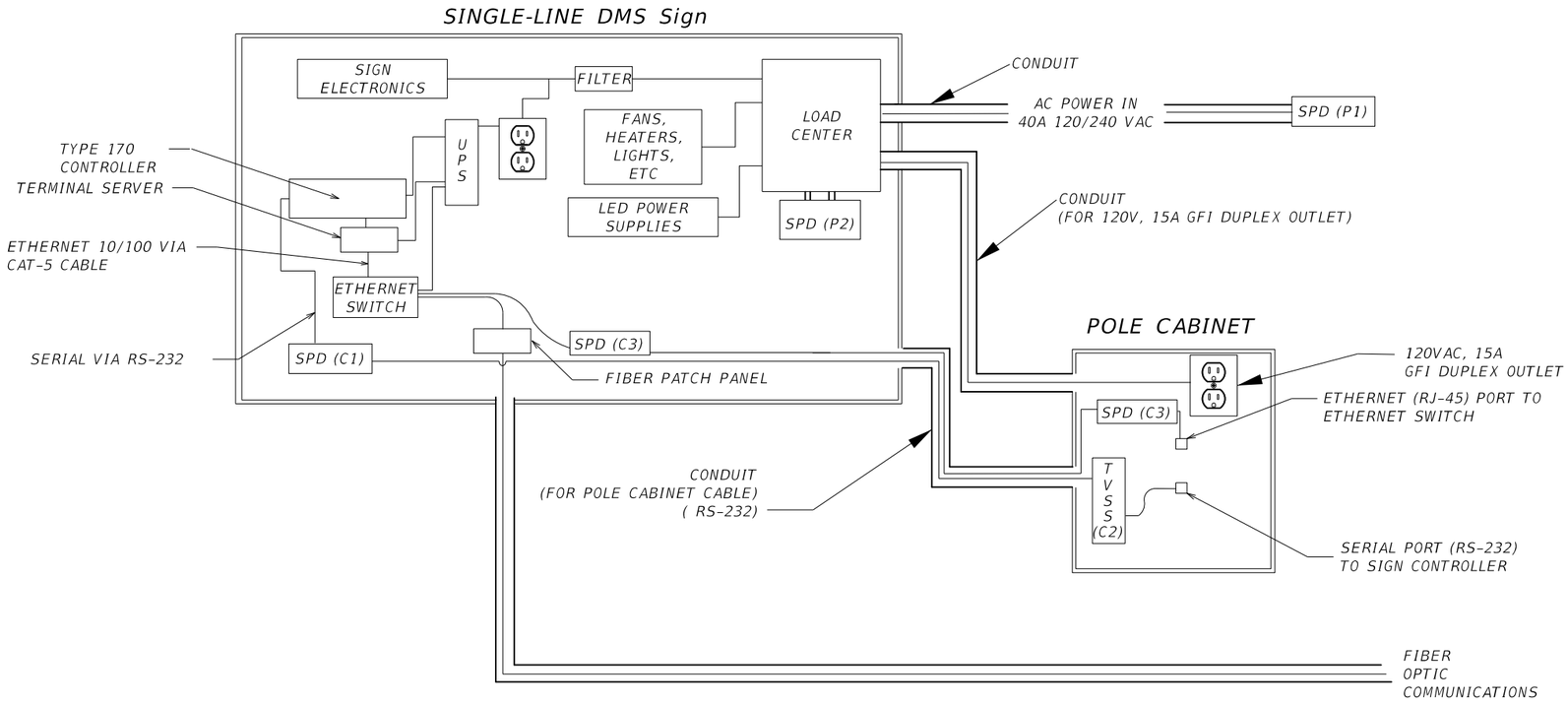
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS ANTENNA ON DMS TRUSS DETAIL SHEET	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					M-3



NOTES:

1. BACKPLATE TO BE INSTALLED BY MANUFACTURER.
2. CONTRACTOR TO REMOVE DCS COMPONENT BACKPLATE FROM DMS PRIOR TO DRILLING.
3. UNUSED MYERS HUBS SHALL BE CAPPED OFF WITH AN AUTHORITY APPROVED METAL SCREW-IN CAP.
4. ETHERNET SWITCH SHALL BE PANEL MOUNT (IF AVAILABLE).
5. EQUIPMENT ON BACKPLATE TO BE INSTALLED BY CONTRACTOR. ALL EQUIPMENT TO BE MOUNTED ON THE BACKPLATE USING STAINLESS STEEL HARDWARE.
6. CONTRACTOR SHALL SUBMIT LAYOUT AND WIRING DIAGRAMS OF ALL CONTRACTOR-INSTALLED EQUIPMENT IN THE DMS ENCLOSURE FOR CFX APPROVAL.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	THREE LINE DMS BACKWALL DETAIL SHEET	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					M-4
		REFER TO CFX SPECIFICATION SECTIONS 720 THROUGH 731 FOR ADDITIONAL INFORMATION.								



SPD DEVICES

P1. ADVANCED PROTECTION TECHNOLOGIES (APT) TE01XCS104XA INSTALLED AT BREAKER PANEL ON POWER PEDESTAL (CONTRACTOR FURNISHED).

P2. APT TE01XCS104XA INSTALLED IN PARALLEL WITH SKYLINE SPD AT LOAD CENTER INSIDE DMS BOX.

C1. APT DATA SPD TO INTERFACE WITH 10-CONDUCTOR POLE CABINET CABLE AT THE COMMUNICATIONS CONTROL BOARD IN THE DMS BOX. SPD PART NUMBERS ARE ONE PN: RS232/D1 AND ONE PN: RS423/D1 AND ONE PN: SCAT5 WHICH WILL RESIDE ON A 5" DIN RAIL PN: 21607 ON EACH END.

C2. APT SPD TO INTERFACE WITH 10- CONDUCTOR POLE CABINET CABLE AT THE COMMUNICATIONS INTERFACE BOARD IN THE POLE-MOUNTED CABINET. SPD PART NUMBERS ARE ONE PN: RS232/D1 AND ONE PN: RS423/D1 AND ONE PN: SCAT5 WHICH WILL RESIDE ON A 5" DIN RAIL PN: 21607 ON EACH END. DIN RAIL SHALL BE GROUNDED PER MANUFACTURER'S RECOMMENDATIONS.

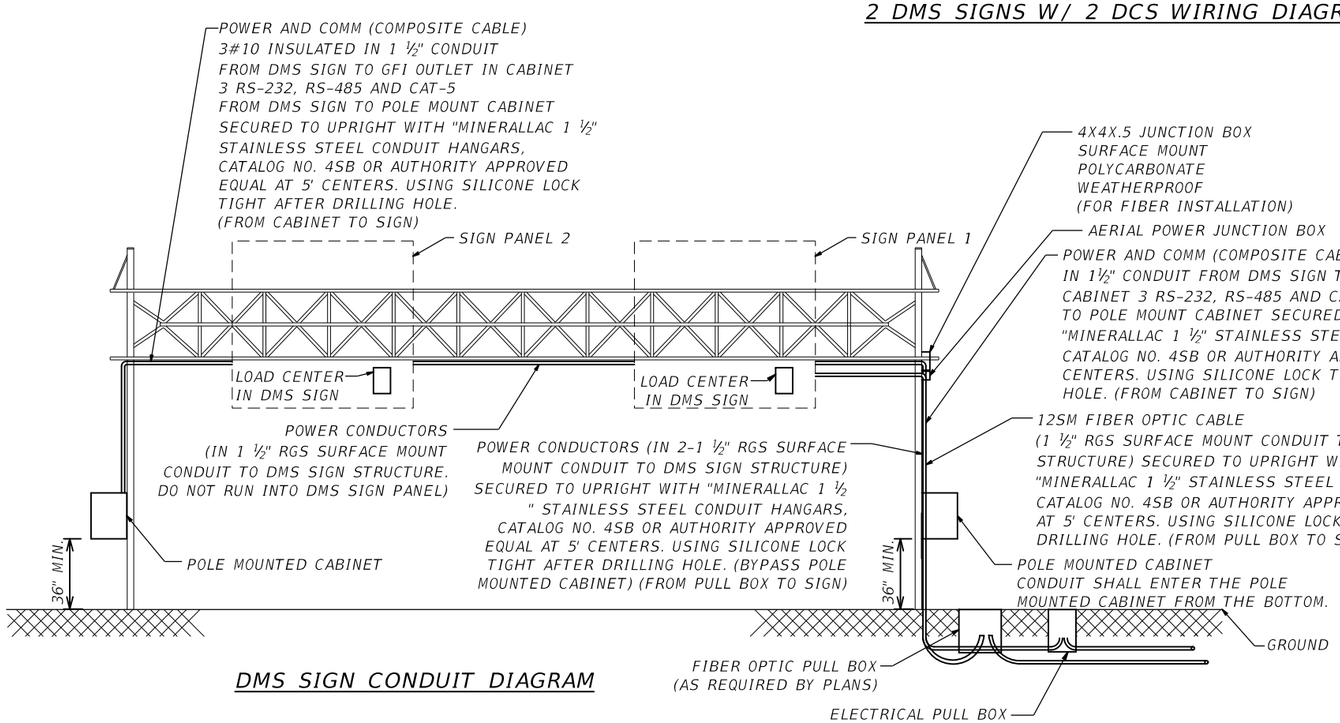
C3. APT SCAT5 TO PROTECT ETHERNET CONNECTION TO POLE-MOUNTED CABINET.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	**FOR INFORMATIONAL PURPOSES ONLY**	**CENTRAL FLORIDA EXPRESSWAY AUTHORITY**	CENTRAL FLORIDA EXPRESSWAY AUTHORITY
		REFER TO CFX SPECIFICATION SECTIONS 720 THROUGH 731 FOR ADDITIONAL INFORMATION.						

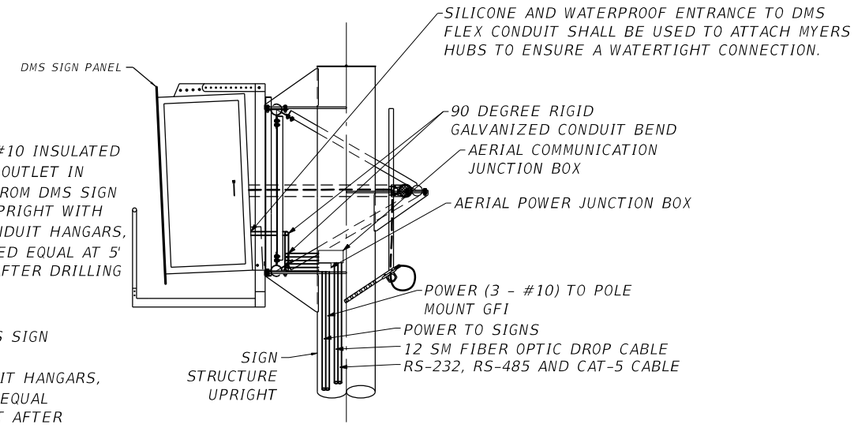
SINGLE LINE DMS BLOCK DIAGRAM

SHEET NO. M-5

2 DMS SIGNS W/ 2 DCS WIRING DIAGRAM



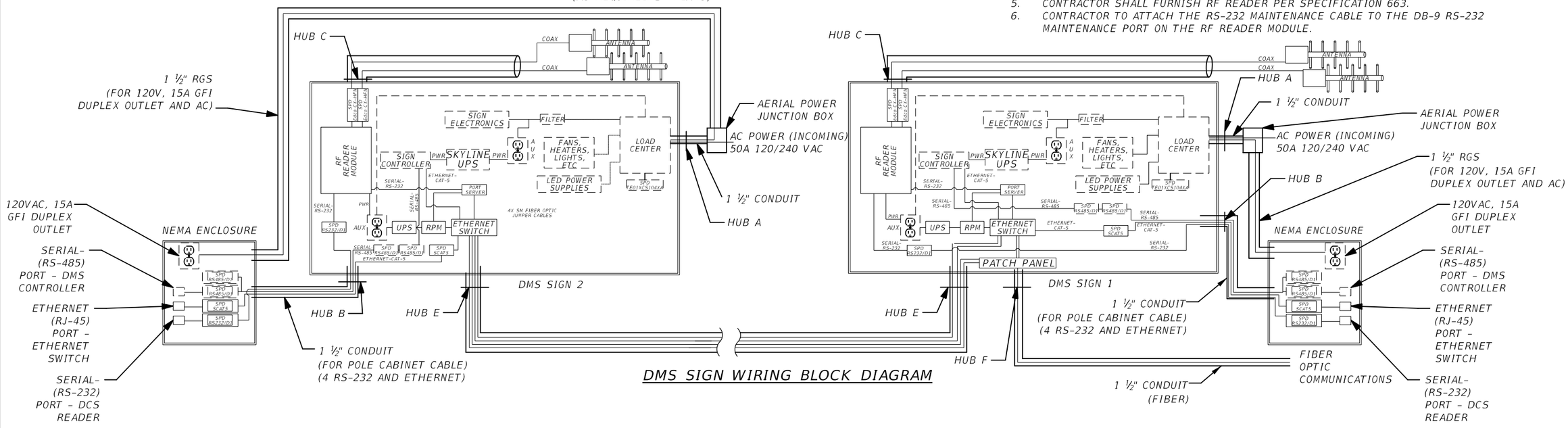
DMS SIGN CONDUIT DIAGRAM



SIGN STRUCTURE MOUNTED DMS (PROFILE)

NOTES:

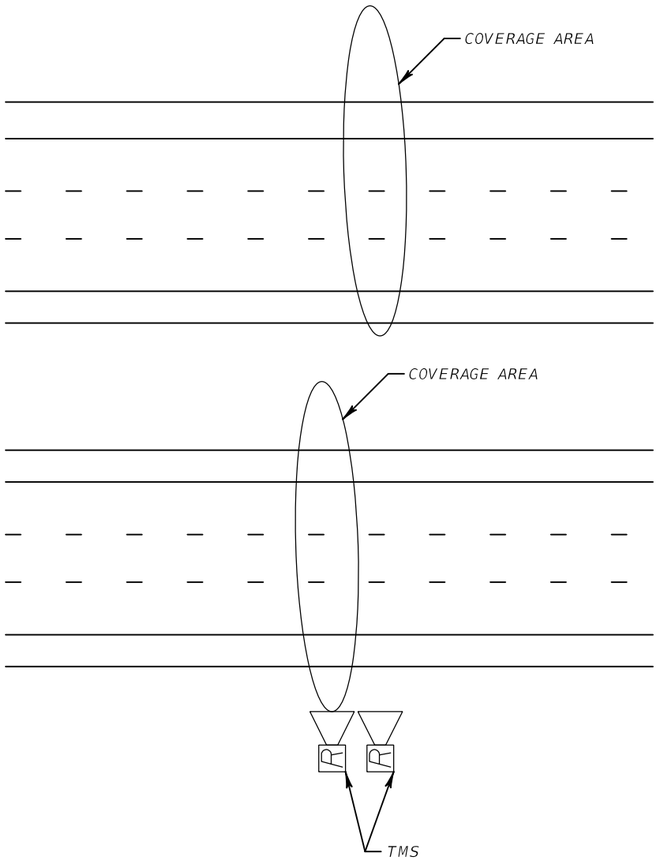
1. THE SPD MODEL NUMBERS THAT ARE SHOWN ARE APT PRODUCTS.
2. ALL SPD ARE TO BE MOUNTED ON A DIN RAIL. DIN RAIL SHALL BE GROUNDED PER SPD MANUFACTURER'S RECOMMENDATIONS.
3. PLAN REQUIREMENTS WILL VARY PER INSTALLATION. THE CONTRACTOR IS TO UTILIZE THIS DETAIL FOR CONSTRUCTION REQUIREMENTS BUT MUST BID 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 THE AUTHORITY PRIOR TO INSTALLATION.
5. CONTRACTOR SHALL FURNISH RF READER PER SPECIFICATION 663.
6. CONTRACTOR TO ATTACH THE RS-232 MAINTENANCE CABLE TO THE DB-9 RS-232 MAINTENANCE PORT ON THE RF READER MODULE.

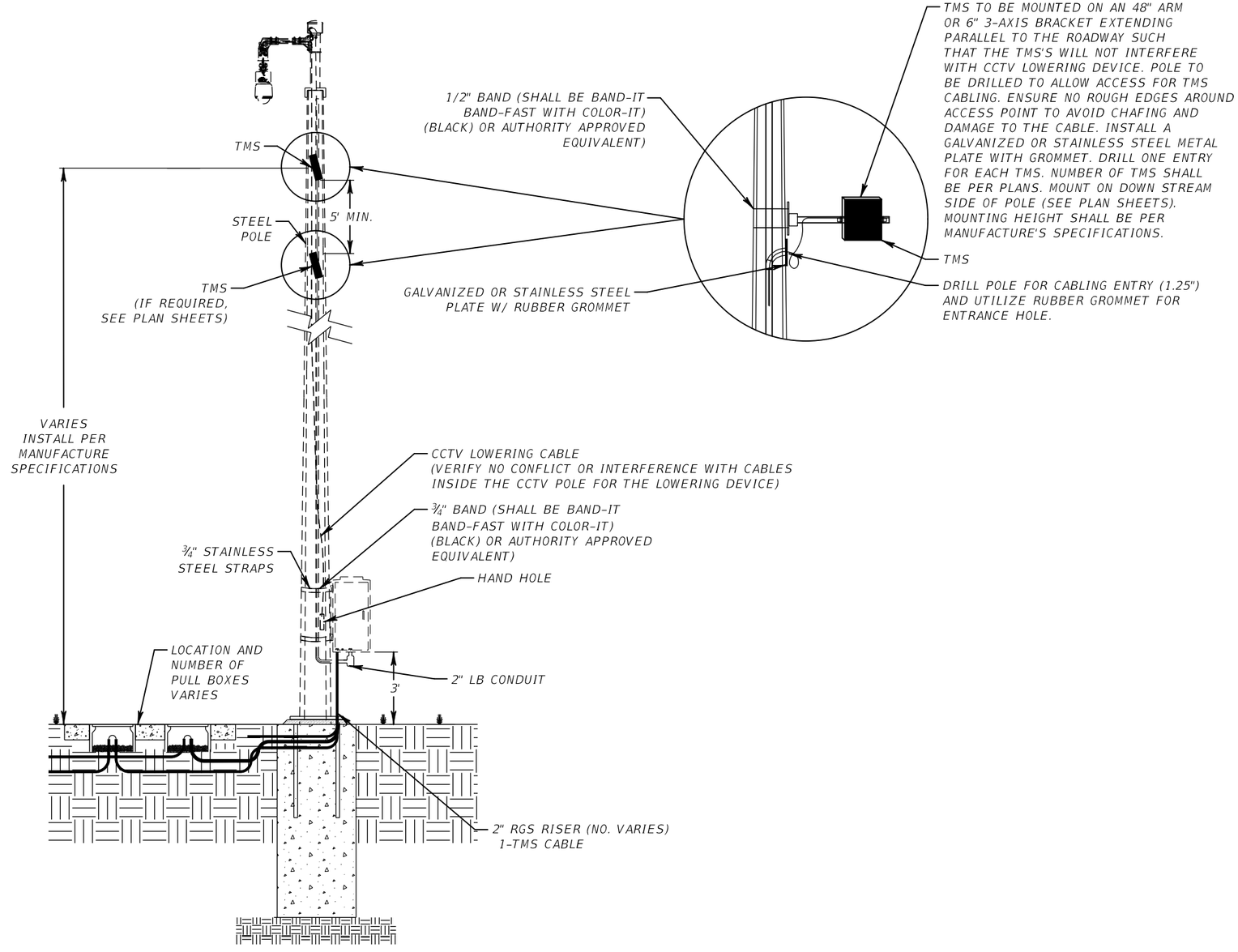


DMS SIGN WIRING BLOCK DIAGRAM

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	DCS AND THREE LINE DMS DEVICE CO-LOCATION DETAIL	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 635, 638, 663, 664, AND 668 FOR ADDITIONAL INFORMATION.								M-6

TYPICAL 4 & 6 LANE DIVIDED HIGHWAY



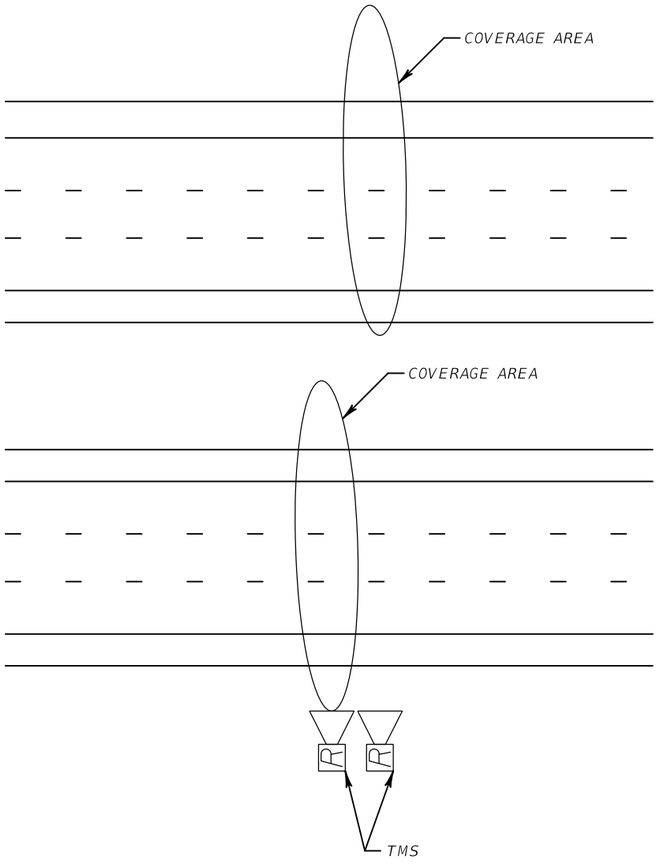


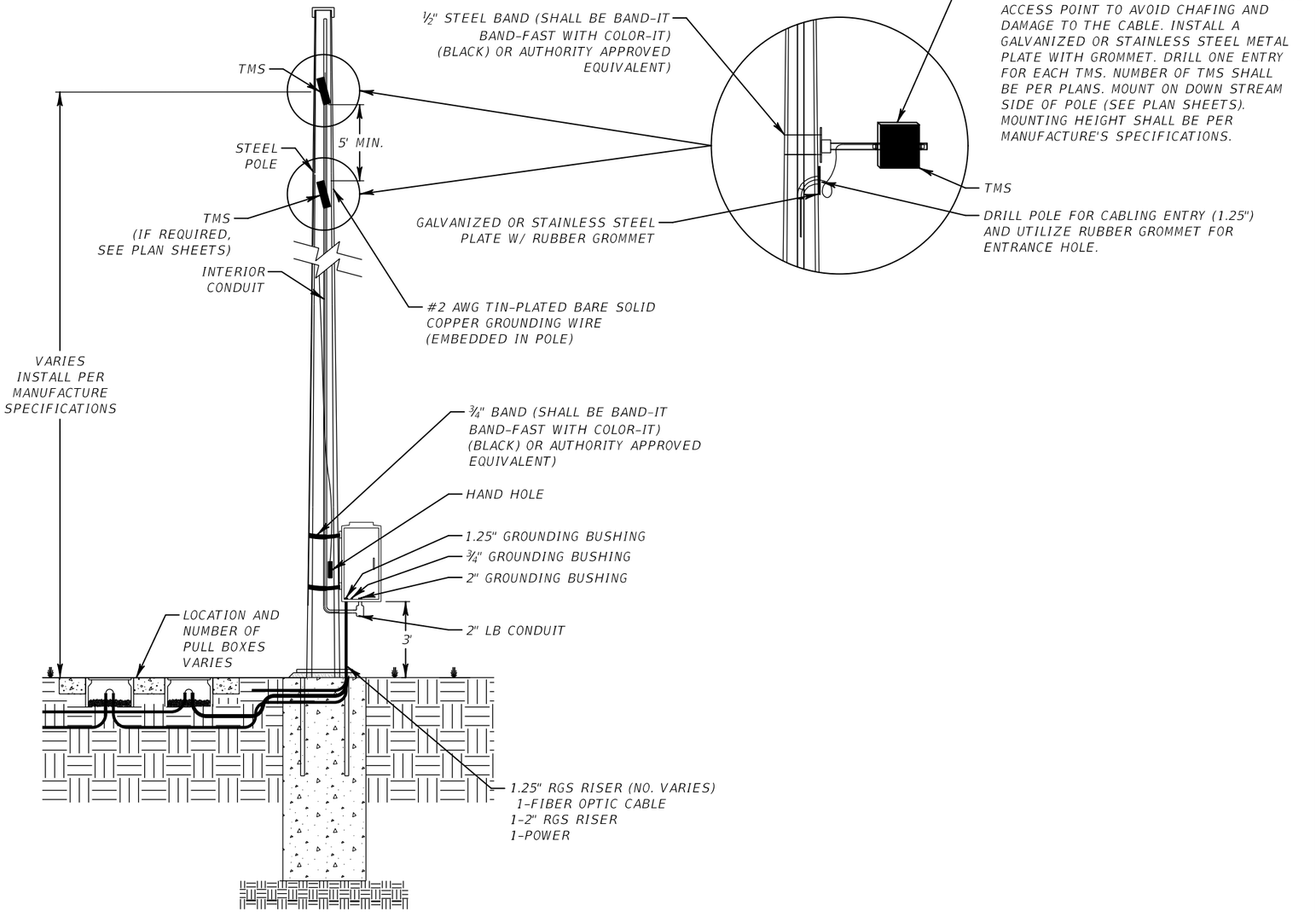
TYPICAL EXISTING CCTV WITH PROPOSED TMS INSTALLATION DETAILS

N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRAFFIC MONITORING STATIONS AND CCTV CO-LOCATION DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 635, 638, 664, AND 668 FOR ADDITIONAL INFORMATION.								N-1

TYPICAL 4 & 6 LANE DIVIDED HIGHWAY





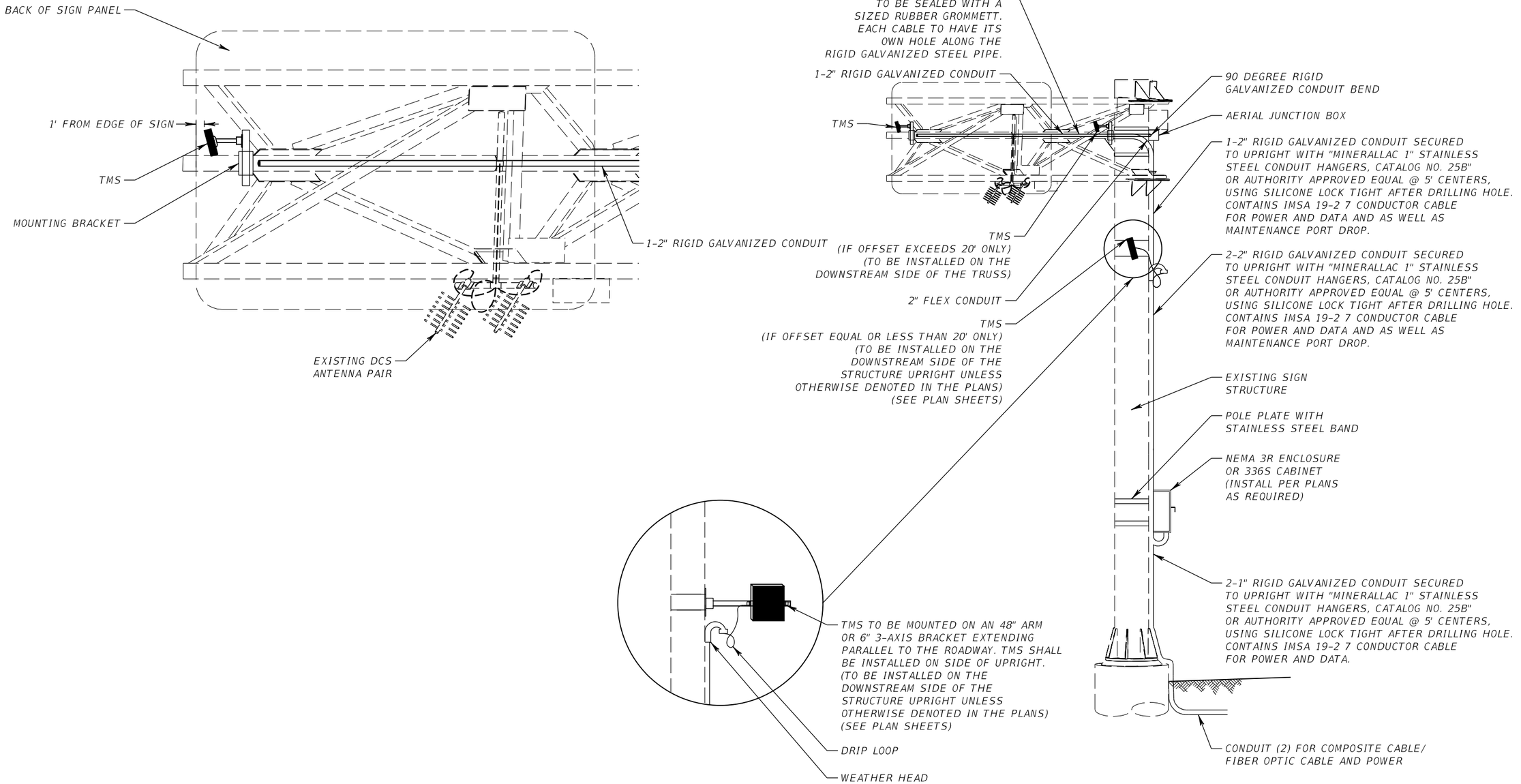
NOTES:

1. POWER CABLE SHALL BE 120 VAC, SINGLE PHASE SERVICE.
2. POLE MOUNTED CABINET TO BE ORIENTED PER THE PLAN SHEETS.
3. SEE GROUNDING DETAILS FOR GROUNDING REQUIREMENTS.

TYPICAL TMS INSTALLATION DETAILS (ROUND STEEL POLE)

N.T.S.

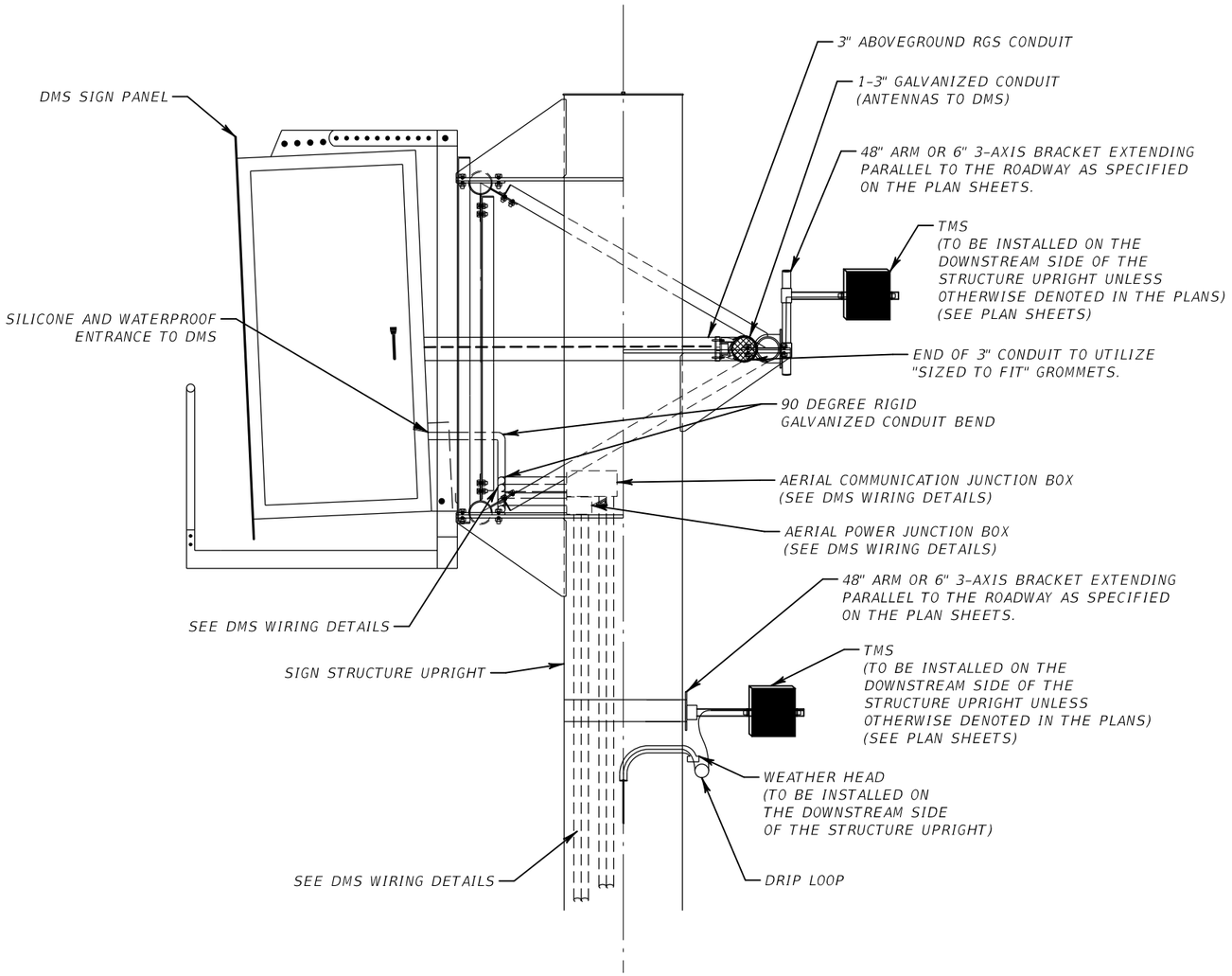
REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRAFFIC MONITORING STATIONS INSTALLATION (ROUND STEEL POLE) DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					
		REFER TO CFX SPECIFICATION SECTION 635, 638, 664, AND 668 FOR ADDITIONAL INFORMATION.								N-2

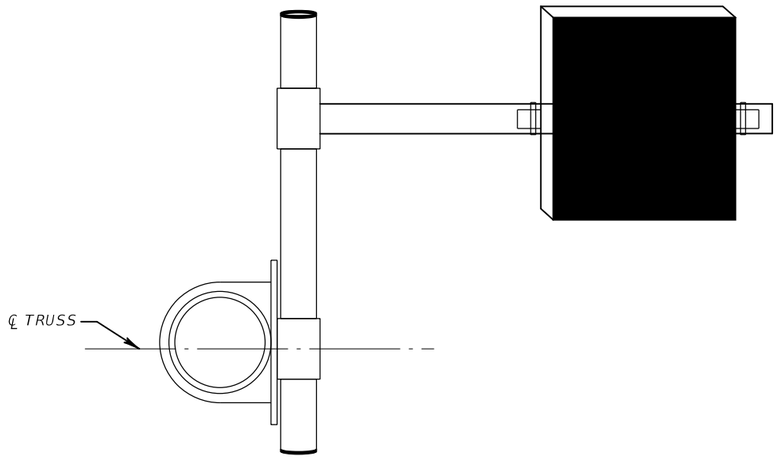


TYPICAL EXISTING SIGN STRUCTURES WITH TMS INSTALLATION DETAILS

N.T.S.

REVISIONS						FOR INFORMATIONAL PURPOSES ONLY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	TRAFFIC MONITORING STATIONS AND EXISTING SIGN CO-LOCATION DETAILS	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					N-3
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								





SIGN STRUCTURE MOUNTED TMS (PROFILE)
N.T.S.

NOTES:

1. SENSOR SHOWN MOUNTED TO BACK CORD.

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					
		REFER TO CFX SPECIFICATION SECTION 664 FOR ADDITIONAL INFORMATION.								N-4