

I. APPLICATION

THE 2” HDPE CABLE–IN–DUCT SHALL BE INSTALLED IN AREAS WHERE LIGHTER TRAFFIC VOLUMES ARE PREVALENT SUCH AS UNDER ACCESS DRIVEWAYS, TREE LAWNS, SHARED USE PATHS, OR SIDEWALKS. THE 2” HDPE CABLE–IN–DUCT SHALL NOT BE INSTALLED FOR ROADWAY CROSSINGS.

II. MATERIALS

- A. THE (2) # 4 AWG CABLES SHALL BE FAA SPECIFICATION L–824C, SINGLE CONDUCTOR SUITABLE FOR DIRECT BURIAL INSTALLATION. EACH CABLE SHALL CONSIST OF NO. 4 AWG SOFT ANNEALED 7 STRAND COPPER CONDUCTOR.

THE INSULATION SHALL BE RATED AT 90 DEGREES CELSIUS CONTINUOUS, 130 DEGREES CELSIUS EMERGENCY AND 250 DEGREES CELSIUS SHORT CIRCUIT OPERATION.

THE INSULATION SHALL NOT BE LESS THAN 0.110 INCHES OF LIGHT AND HEAT STABILIZED CHEMICALLY CROSS–LINKED POLYETHYLENE AND SHALL MEET ICEA S–96–659 SPECIFICATIONS FOR 5000 VOLTS. THE MINIMUM AT POINT WALL THICKNESS SHALL NOT BE LESS THAN 0.099 INCHES

THE IPCEA (2 CABLES PER CONDUIT, 40 DEGREES CELSIUS AMBIENT, 90 DEGREES CELSIUS CONDUCTOR TEMPERATURE) AMPACITY SHALL NOT BE LESS THAN 107 AMPERES. THE OUTSIDE DIAMETER OF THE CABLE SHALL BE NO LESS THAN 0.445 INCHES.

THE CABLE SHALL BE 5KV # 4 AWG – PRYSMIAN GROUP 321468 / 20368209, CME# AIRPTFAA42LPYK77 MT50 CABLE, NEHRING XLP INSULATED, OR APPROVED EQUAL. IDENTIFICATION OF CONDUCTORS SHALL BE ACCOMPLISHED BY LONGITUDINALLY COLOR STRIPING BLACK CONDUCTORS. THE NEUTRAL CONDUCTOR SHALL BE IDENTIFIED WITH WHITE STRIPE. THE DATE OF MANUFACTURE SHALL BE INCLUDED ON ALL COMDUCTORS.

- B. THE DUCT SHALL BE CONSTRUCTED FROM BLACK POLYETHYLENE, NEMA TC–7, COMPLYING WITH ASTM DESIGNATION D1248 AS TYPE III. THE DUCT SHALL BE HIGH DENSITY, CLASS C, GRADE P34, CATEGORY 5, AND HAVE A NOMINAL OUTSIDE DIAMETER OF 2.375”. THE INSIDE OF THE DUCT SHALL BE SMOOTH FOR EASE OF CABLE INSTALLATION.

THE DUCT SHALL BE PERMANENTLY MARKED ON THE OUTSIDE SURFACE AT REGULAR 5’ INTERVALS WITH THE MANUFACTURER’S NAME, TRADEMARK, NOMINAL DUCT DIAMETER, TYPE III, AND YEAR OF MANUFACTURE.

THE 2” CABLE–IN–DUCT SHALL BE MANUFACTURED BY PRYSMIAN GROUP, CME, NEHRING OR APPROVED EQUAL.

- C. THE INLINE AND ”C” TAP COMPRESSION CONNECTORS SHALL BE BURNDY YC2C4 OR APPROVED EQUAL.
- D. THE TAP & INLINE SPLICING KIT SHALL BE DESIGNED FOR USE IN DIRECT BURIAL OR SUBMERGED LOCATIONS. THE KIT SHALL BE 3M SCOTCHCAST PRODUCT NO. 82–A1 (SINGLE SPLICE), 3M SCOTCHCAST PRODUCT NO. 82–B1 (3–WAY SPLICES) OR APPROVED EQUAL.
- E. THE EXPOSED CABLE ENDS SHALL BE PROTECTED WITH A PROTECTIVE CAP TO PROTECT THE CABLE FROM MOISTURE. AT NO TIME SHALL THE EXPOSED CABLE ENDS BE LEFT UNPROTECTED.
- F. THE CABLE END CAPS SHALL BE CROSS–LINKED HEAT SHRINKABLE POLYOLEFIN CAPS SUPPLIED WITH A FACTORY–APPLIED SEALANT THAT RECOVERS TO A PREDETERMINED DIAMETER UPON THE APPLICATION OF HEAT. THE CABLE END CAPS SHALL HAVE AN EXPANDED/RECOVERY ID OF 0.80/0.36 IN. THE END CAPS SHALL BE 3–M PRODUCTS #ICEC–201–A OR APPROVED EQUAL.
- G. IN CASES WHERE THE 2” CABLE–IN–DUCT IS TO BE ATTACHED TO 2” PVC CONDUIT, THE HDPE TO PVC CONDUIT COUPLER SHALL BE DURA–LINE SHUR–LOCK II # 2000123 OR APPROVED EQUAL.

II. INSTALLATION

- A. TRENCHLESS INSTALLATION OF CABLE–IN–DUCT SHALL BE ACCOMPLISHED BY USE OF A GUIDED DIRECTIONAL DRILLING DEVICE PER CMS 1001.13. THE CONTRACTOR SHALL PLACE THE DRILL WITH THE LEAST AMOUNT OF DISTURBANCE TO THE EXISTING PAVEMENT, BERM PAVEMENT OR SHOULDERS OF THE ROADWAY
- B. THE CONTRACTOR SHALL EXERCISE CARE NOT TO DAMAGE THE 2” HDPE CABLE–IN–DUCT DURING INSTALLATION. DAMAGED SECTIONS ARE NOT ACCEPTABLE, AND SHALL HAVE NEW CABLE–IN–DUCT RE–DRILLED. THE CONDUIT SHALL BE A MINIMUM 30” DEEP, AND EXTENDED AT LEAST 3’ BEYOND THE PAVEMENT BERM.
- C, THE CABLE–IN–DUCT SHALL BE PUSHED THROUGH EXCAVATION FOR PULL BOXES AND FOUNDATIONS AND SHALL BE IN PLACE PRIOR TO THE INSTALLATION OF PULL BOXES AND POURING OF CONCRETE FOUNDATIONS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- D. THE CABLE–IN–DUCT SHALL BE INSTALLED IN SUFFICIENT LENGTH TO ALLOW FOR SPLICING LOOPS AT LIGHT POLE FOUNDATIONS, PULL BOXES, SPLICE BOXES AND OTHER LOCATIONS INDICATED BY THE ENGINEER.
- E. THE CABLE–IN–DUCT SHALL NOT BE INSTALLED WHEN THE TEMPERATURE OF THE DUCT IS BELOW 32 DEGREES F (0 DEGREES CELSIUS) EXCEPT WITH PERMISSION OF THE ENGINEER.
- F. TERMINAL POINTS AND SPLICE LOCATIONS OF THE CABLE–IN DUCT SHALL BE COMPLETELY SEALED BY THE APPLICATION OF HEAT SHRINKABLE TUBING OR PRE–MOLDED BOOTS. SEALING SHALL BE PERFORMED PROMPTLY UPON COMPLETION OF INSTALLATION.
- G. IN CASES OF REPAIR WHERE THE 2” CABLE–IN DUCT MUST BE ATTACHED TO 2” PVC CONDUIT, THE CONTRACTOR SHALL USE A 2” HDPE TO PVC CONDUIT COUPLER TO CONNECT THE 2” HDPE CONDUIT TO 2” PVC CONDUIT. NEW CABLE MUST BE PULLED THROUGH THE ENTIRE CONDUIT STARTING AT A PULL BOX OR POLE BASE, RUNNING PAST THE CONNECTION POINT(S) INTO EITHER AN ADDITIONAL PULL BOX OR A POLE BASE. NO SPLICES ARE PERMITTED IN THE CABLES THEMSELVES.

III. BASIS OF PAYMENT

ITEM	UNIT	DESCRIPTION
MIS–709	LINEAR FOOT	2” CABLE–IN–DUCT, TRENCHLESS INSTALLATION, 2 WIRE

MIS-709	DEPARTMENT OF PUBLIC UTILITIES - DIVISION OF POWER CITY OF COLUMBUS, OHIO		
	2" HDPE CABLE-IN-DUCT, TRENCHLESS INSTALLATION, 2 - WIRE		
	DRAWN BY: SAW	DATE: 12/11/24	
	SCALE: NONE	SHEET: 1 OF 1	709