

Transmission & Distribution
Material & Installation Specification

Overhead Distribution Circuit Grounding

I. Quantity

The base bid shall include the indicated number of overhead circuit ground units furnished and installed as hereinafter specified.

II. Material

- A. Ground Rod - The ground rod shall be 1/2" diameter x 10' long copperweld. ERICO, Joslyn, Chance or approved equal.
- B. Ground Rod Connectors - The ground rod connectors shall be ERICO #CC12F compression coupling or approved equal for connection between ground rods and shall be type GR exothermic welding for connection between ground wire and ground rod.
- C. Ground Wire Molding - The ground wire molding shall be treated wood, 8' long, 1" wide, Joslyn #EE-1/2 or approved equal.
- D. Ground Wire - The pole ground wire shall be #4 solid soft drawn bare copper. The ground wire jumpers from soft drawn pole ground to fixed apparatus shall be #4 soft drawn copper. The ground wire jumpers from pole ground to vibrating conductors (line conductors) shall be #4 stranded soft drawn.
- E. Staples - The staples used to secure the molding and ground wire to the pole shall be rolled diamond point copper coated.

III. Installation

- A. The installation shall be as shown on drawing TDMIS-7.
- B. The ground wire shall be connected to the messenger, neutral, and/or down guy wire using a compression "H-Tap" type connector.

- C. Grounding electrodes - Refer to TDMIS-7 and TDMIS-1607.
- D. Connector shall be compatible with the conductors being connected, i.e., a copper to copper connection shall use a Blackburn type "CF", aluminum to aluminum or copper to aluminum shall use a Blackburn type "WR" connector. Connectors shall be installed using manufacturers recommended tools and dies.
- E. The ground wire shall be connected to the ground rod, fastened to the pole with staples.
- F. The top of the ground rod shall be installed not less than 12" below grade, and at least 24" from pole excavation in undisturbed soil.
- G. The staples shall be spaced 2' apart except from the ground line to a distance of 8' above the ground line and 4' below lowest apparatus to the top of pole where the staples shall be spaced 6" apart. Staples shall alternate angle to ground wire to resist pull out in fault conditions.
- H. The molding shall be installed over the ground wire, flush with the grade.
- I. All equipment mounted on pole shall be connected to pole ground wire.

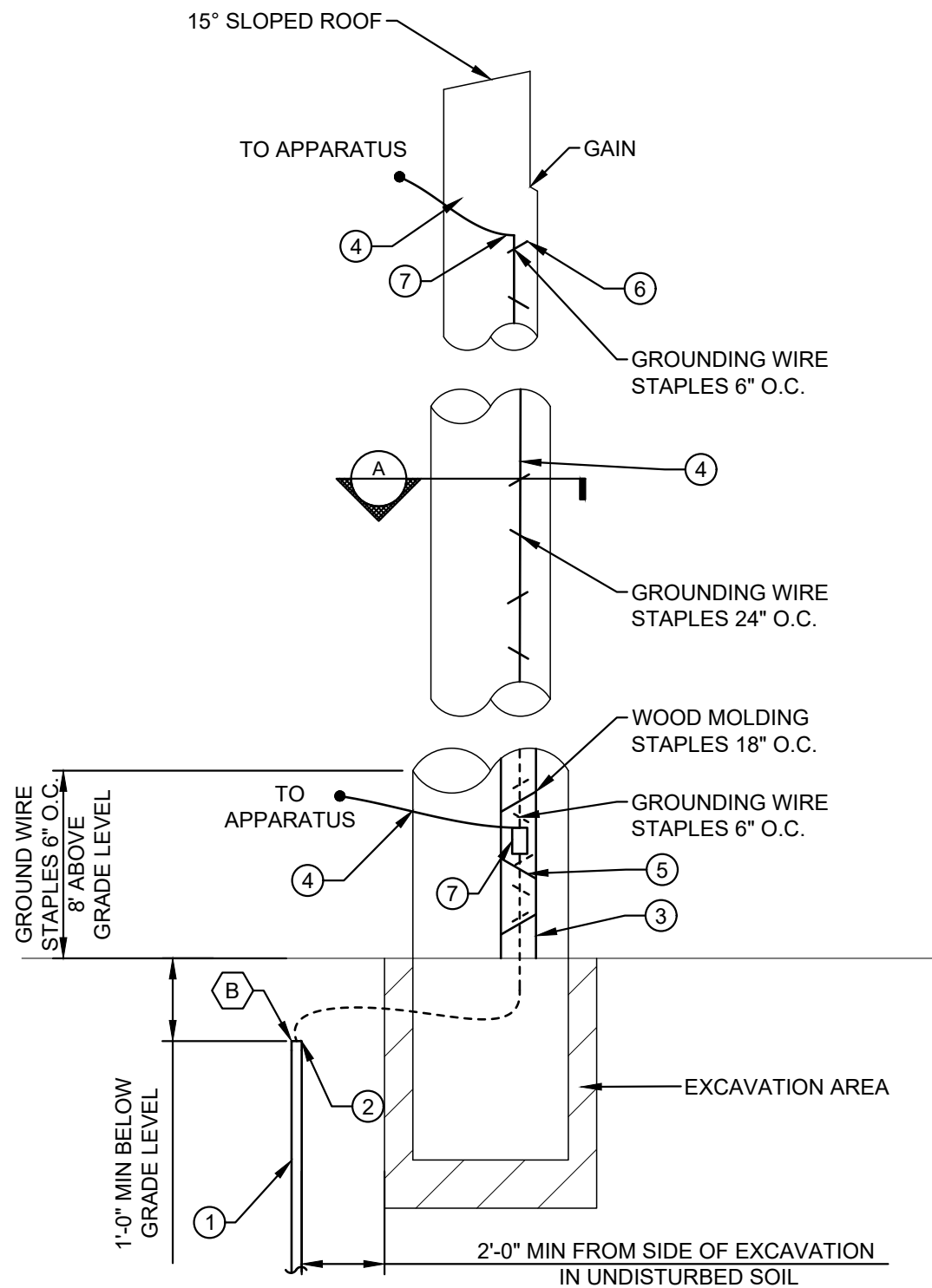
IV. Method of measurement

Shall include all conductor, hardware, electrode, welds, labor, testing (TDMIS-1607) and documentation.

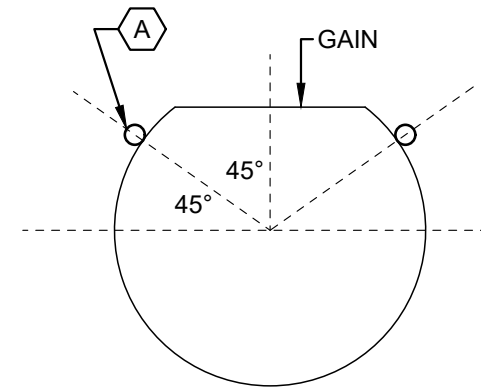
V. Basis of payment

Items	Unit	Description
TDMIS-7	Each	Complete grounding system module
TDMIS-7	Each	Additional ground rod to conform the requirement in TDMIS-1607

CITY OF COLUMBUS DEPT. OF PUBLIC UTILITIES – DIVISION OF POWER OVERHEAD DISTRIBUTION CIRCUIT GROUNDING		
DRAWN BY: AEC	DATE: 11/01/2019	TDMIS-7
APPROVED: R. SPRITE		
SHEET 1 of 3		



DETAIL 1
TYPICAL POLE GROUNDING - GROUNDED WYE PRIMARY



SECTION A
GROUND LOCATION

CODED NOTES:

- A** POLE GROUND SHALL BE INSTALLED AT 45° OFF THE GAIN ON THE LEAST CONTESTED SIDE, I.E., OPPOSITE TO TRANSFORMER OR OTHER APPARATUS, ALSO OPPOSITE TO FLOW OF TRAFFIC IF POSSIBLE.
- B** IF GROUND RESISTANCE IS ABOVE 25Ω THEN ADDITIONAL GROUND ROD ARE TO BE ADDED AS DETAILED AND DRIVEN TO A DEPTH THAT ACHIEVES LESS THAN 25Ω.

ITEM LIST

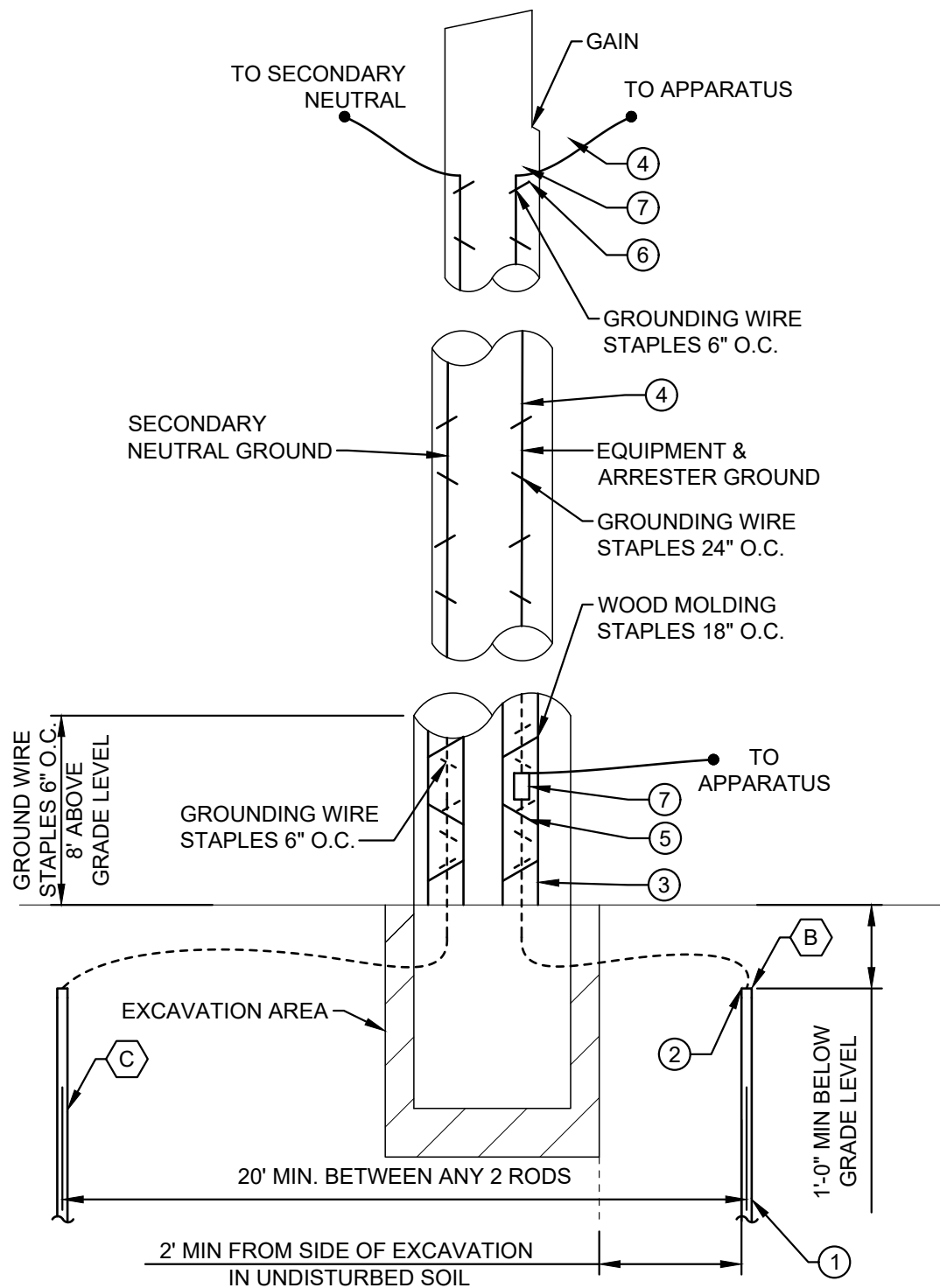
ITEM #	DESCRIPTION	PART #	QTY.
①	ROD, GROUND 1/2"X10" COPPERWELD	20341	1
②	TYPE GR EXOTHERMIC WELD	*	1
③	MOLDING, GROUND WIRE, 8' LENGTH, WOOD	20411	1
④	CONDUCTOR, #4, COPPER, SOLID, SOFT DRAWN	78850	AS REQ.
⑤	STAPLE, 1-1/16"X3" LENGTH	20342	AS REQ.
⑥	STAPLE, 3/8"X1-3/4" LENGTH	20343	AS REQ.
⑦	CONNECTOR, COMPRESSION, COPPER H-TAP - SIZE AS REQUIRED	*	AS REQ.

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 DEPT. OF PUBLIC UTILITIES - DIVISION OF POWER

OVERHEAD DISTRIBUTION CIRCUIT
 GROUNDING DETAILS
 MCG6

DRAWN BY: AEC DATE: 11/01/2019
 APPROVED: R. SPRITE
 SCALE: NTS SHEET: 2 OF 3

TDMIS-7



DETAIL 2
TYPICAL POLE GROUNDING - DELTA PRIMARY

CODED NOTES:

- A** POLE GROUND SHALL BE INSTALLED AT 45° OFF THE GAIN ON THE LEAST CONTESTED SIDE, I.E., OPPOSITE TO TRANSFORMER OR OTHER APPARATUS, ALSO OPPOSITE TO FLOW OF TRAFFIC IF POSSIBLE.
- B** IF GROUND RESISTANCE IS ABOVE 25Ω THEN ADDITIONAL GROUND ROD ARE TO BE ADDED AS DETAILED AND DRIVEN TO A DEPTH THAT ACHIEVES LESS THAN 25Ω.
- C** A NEUTRAL CAN BE EXTENDED TO AN ADJACENT POLE AND A DOWN GROUND CONNECTED THERE TO SATISFY THE 20' REQUIREMENT.

ITEM LIST

ITEM #	DESCRIPTION	PART #	QTY.
①	ROD, GROUND 1/2"X10" COPPERWELD	20341	2
②	TYPE GR EXOTHERMIC WELD	*	2
③	MOLDING, GROUND WIRE, 8' LENGTH, WOOD	20411	2
④	CONDUCTOR, #4, COPPER, SOLID, SOFT DRAWN	78850	AS REQ.
⑤	STAPLE, 1-1/16"X3" LENGTH	20342	AS REQ.
⑥	STAPLE, 3/8"X1-3/4" LENGTH	20343	AS REQ.
⑦	CONNECTOR, COMPRESSION, COPPER H-TAP - SIZE AS REQUIRED	*	AS REQ.

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APPROVED: R. SPRITE

SCALE: NTS SHEET: 3 OF 3

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