Grounding Electrodes for Overhead Ground Wire (OHGW)

1. Scope

This standard covers the installation of grounding electrodes for overhead ground wire (OHGW) applications and assemblies for the 115 kV transmission system on wood poles.

2. Application

This standard provides direction to Seattle City Light (SCL) engineers, crews, and contractors for the installation of grounding electrodes for OHGW.

For installation of grounding electrodes for distribution poles see SCL 0451.01.

3. Definitions

Overhead ground wire (OHGW): Wire(s) placed above the phase conductors for intercepting direct lightning strokes to protect the phase conductors. Syn: earth wire, shield wire, skywire, static wire.

Ground rod: A metal rod or pipe which is driven into the ground to provide an electrical connection to the earth.

Grounding wire: A wire connecting the OHGW to the ground rod to establish an electrical connection to the earth.

4. Requirements

4.1 Ground Rod

The ground rod for the OHGW grounding shall be driven into firm and undisturbed earth, 8 ft from the pole.

The ground rod shall be driven into the earth to achieve a minimum of 12 inches of cover below the ground line. See Figure 4a.

4.2 Grounding Wire

The grounding wire shall be one continuous length between the ground rod and the OHGW.

The grounding wire shall be installed as straight as possible to avoid sharp or unnecessary bending between the ground rod and the OHGW.

The grounding wire shall be installed in the quadrant of the pole between the pole face and the road side of the pole, outside the climbing space. See Figure 4b.

In cases where both the distribution pole grounding wire and the OHGW grounding wire exist on the same quadrant of the pole, they shall be bonded and grounded together. The OHGW grounding wire shall be connected to its own ground rod.

The ground wire shall be inserted into the clamp from the bottom of the ground clamp and bent over the clamp before tightening.

The ground wire shall be stapled to the pole every 4 inches for the first 8 ft above ground, and every 6 inches for the final 2 ft at the pole top. Elsewhere on the pole, ground wire shall be stapled at 2-ft intervals.

4.3 Ground Wire Molding

Molding shall be installed over the entire length of the ground wire, where it is connected to the pole surface.

The molding shall start two inches below the ground line and continue up the pole to the static wire.

Molding staples shall be installed 18 inches apart for the entire length of the molding.

Figure 4a. OHGW Pole Ground and Ground Rod Installation

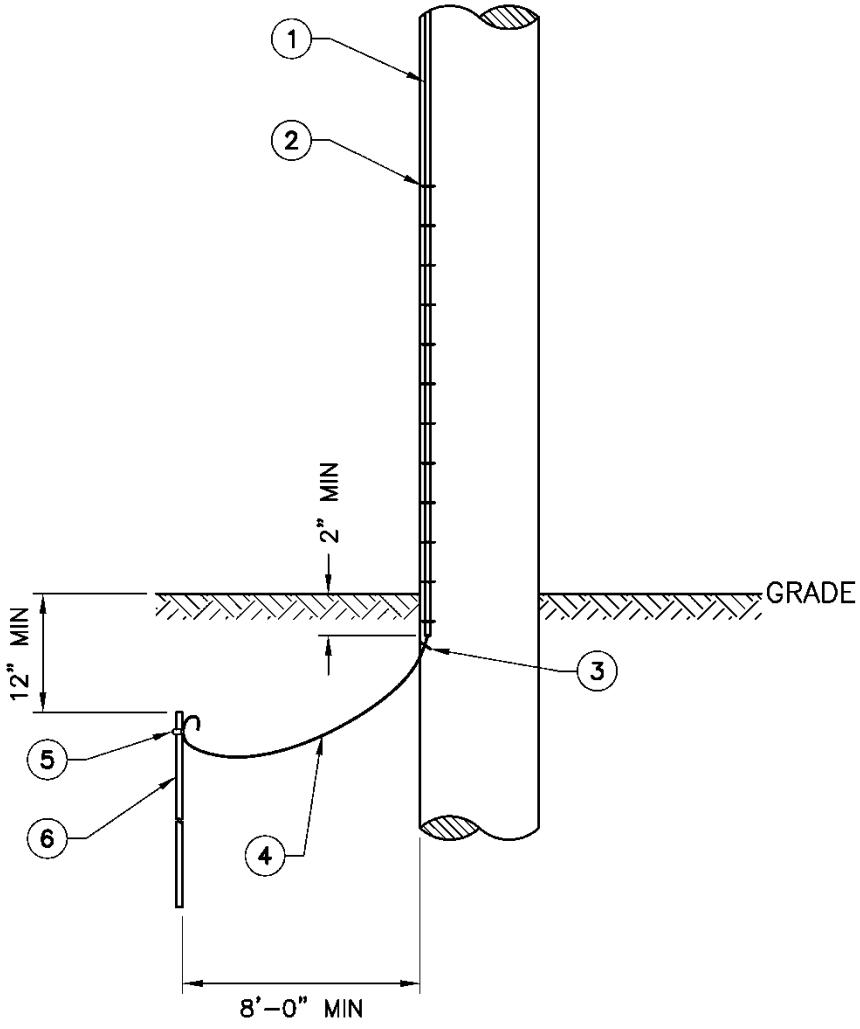
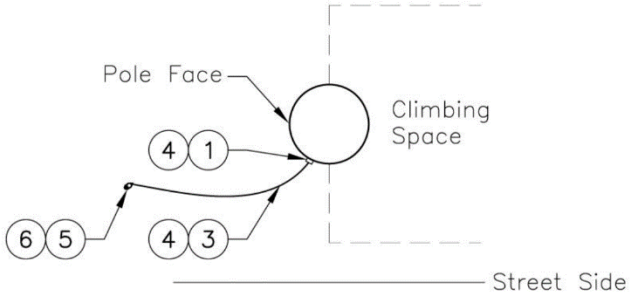


Figure 4b. OHGW Pole Ground Orientation with Climbing Space



5. Construction Notes

The material listed below reflects typical OHGW sizes for Alumoweld 7-#6 AWG and the 7/16-in Aluminum covered 20M.

For other OHGW sizes, the appropriate size connector wedge will need to be verified and selected.

6. Material Lists

Table 6. Materials for Grounding Electrode Installation

Fig	Compatible Unit	ID	Qty
4a	OHGW pole ground	GRND-PL-ROD-T	
#	**Material Description**	**ID**	
1	Plastic molding, 3/4" x 8'	012980	10
2	Molding staples, 2" x 1/2"	583200	40
3	Wire staples, 1-1/2" x 1/4"	583180	50
4	2/0, bare copper (ft)	610425	100
5	Clamp, ground rod, 3/4"	013283	1
6	Ground rod, 5/8" x 8'	564238	1

7. References

SCL Construction Standard 0451.01; “Grounding Electrodes for Distribution Poles”

8. Sources

Allen, Skip; SCL Crew Supervisor and subject matter expert for 0462.10 (skip.allen@seattle.gov)

Hanson, Brett; SCL Standards Engineer and subject matter expert for 0462.10 (brett.hanson@seattle.gov)

Neuansourinh, Ponet; SCL Standards Engineer, originator, and subject matter expert for 0462.10 (ponet.neuansourinh@seattle.gov)