

## Clearances Between SCL Overhead Distribution Assets and Ground Surfaces

### 1. Scope

This standard covers vertical clearance requirements between Seattle City Light (SCL) overhead distribution assets to ground surfaces.

SCL overhead distribution assets include (but are not limited to):

- Conductors (wires, cables)
- Equipment carried on pole

Ground surfaces include (but are not limited to):

- Fields
- Roads
- Rail
- Travel ways
- Water surfaces

For clearance between SCL overhead distribution assets to:

- Non-SCL structures such as buildings, signs, and other objects, except bridges, refer to SCL 0100.03.
- Bridges, refer to SCL 0100.05.
- Trees and vegetation, refer to SCL 0114.07.

For secondary service drops clearances, refer to SCL 0130.30.

For clearances between SCL underground assets and non-SCL structures and objects, see SCL 0214.00.

For working clearances refer to the Washington Administrative Code (WAC):

- WAC 296-155-428 and WAC 296-24-960, for qualified and unqualified workers.
- WAC 296-155-53408, for cranes working near power lines.

Transmission line clearance is outside the scope of this standard. Consult with an SCL transmission engineer for clearances to transmissions lines. These clearances are site specific.

### 2. Application

This standard is for SCL personnel, consultants, and contractors when designing and/or constructing overhead distribution facilities to meet ground clearance requirements.

Other utilities and contractors should also follow these requirements when installing their facilities near any SCL facility.

Standard Coordinator  
Ponet Neuansourinh



Standards Engineering Supervisor  
Brett Hanson



Division Director  
Bob Risch



### 3. Definitions

**Clearance:** The clear distance between two objects measured from surface to surface.

**Guarded:** Covered, fenced, enclosed, or otherwise protected by means of suitable covers or casings, barrier rails or screens, mats, or platforms, designed to limit the likelihood, under normal conditions, of dangerous approach or accidental contact by persons or objects. Note: Wires that are insulated but not otherwise protected are not normally considered to be guarded.

**Highway:** A general term denoting a street, road, or public way for purposes of vehicular travel, including the entire area withing the right of way.

**Secondary Multiplex:** Secondary conductors of voltages of 0 – 750V meeting National Electrical Safety Code (NESC) Rule 230C3. Typically, these are triplex and quadruplex conductors spanning between poles. This does not include the service drops.

**Roadway:** The portion of a highway including shoulders, for vehicular use. A divided highway has two or more roadways.

**Trucks:** Any vehicle exceeding 8-ft in height.

**Working Clearance:** The required amount of unobstructed space between a worker and an object. This clearance may be different for qualified electrical personnel and non-qualified personnel. Consult with State Code.

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### 4. Requirements

The clearances contained within this standard are intended to be not less than those required by the NESC and WAC. Where a conflict exists, the most stringent has been adopted.

Any situation that is not specifically addressed in this standard will require further investigation of the NESC, WAC or other applicable codes.

For vertical clearance of overhead distribution conductors, wires, cables, and equipment to ground, roadway, rail, or water surfaces, see Table 4a.

For vertical clearance of overhead equipment cases, arms, braces and unguarded rigid live parts above ground and water surfaces, see Table 4b.

For vertical clearance of overhead distribution conductors, wires, cables, and equipment or unguarded rigid live parts over swimming pools, see Table 4c.

For vertical clearance of overhead distribution conductors, wires, and cables over State Highways, see Table 4d.

**Table 4a. Vertical clearance of wires, conductors, and cables above ground, roadway, rail, or water surfaces (with final unloaded sag) (Reference: NESC 232, Table 232-1)**

Nature of surface underneath wires, conductors, or cables	Neutral Conductor (NESC 230E1); Insulated Communication Cables and Messengers (ft)	Secondary Multiplex Cables NESC 230C3 (ft)	SCL 26 kV Phase Conductors (ft)
Where wires, conductors, or cables cross over or overhang			
Track rails of railroads (except electrified railroads using overhead trolley conductors <sup>1</sup>	23.5	24.0	26.5
Roads, streets, and other areas subject to truck traffic	15.5	16.0	18.5
Driveways, established parking areas, and alleys	15.5	16.0	18.5
Other areas traversed by vehicles such as cultivated, grazing, forest, orchard lands, industrial sites, commercial sites, etc. <sup>2</sup>	15.5	16.0	18.5
Spaces and ways subject to pedestrians or restricted traffic only	9.5	12.0	14.5
Water areas not suitable for sail boating or where sail boating is prohibited	14.0	14.5	17.0
Water areas suitable for sail boating <sup>3</sup>			
Less than 20 acres	31.5	32.0	34.5
Over 20 to 200 acres	31.5	32.0	34.5
Over 200 to 2000 acres	31.5	32.0	34.5
Over 2000 acres	37.5	38.0	40.5
Established boat ramps and associated rigging areas; areas posted with sign(s) for rigging or launching sail boats	Clearance shall be 5 ft greater than mentioned above for the type of water area served by the launching site		
Where wires, conductors, or cables run along and within the limits of highways or other road right-of-way but do not overhang the roadway			
Roads, streets, or alleys	15.5	16.0	18.5
Roads where it is unlikely that vehicles will cross under the line	13.5	14.0	18.5

## Notes:

<sup>1</sup> Consult with railroad company (Burlington Northern, Union Pacific). Railroad clearances can be in excess of NESC requirements. Clearance shall be measured to the top of the rail.

<sup>2</sup> For oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 14 ft.

<sup>3</sup> All clearance from water surface shall be measured at the high-water mark or the 10-year flood-water mark. The clearance over a canal, river, or stream normally used to provide access for sailboats to a larger body of water shall be the same as that required for the larger body of water.

**Table 4b. Vertical clearance of equipment cases, support arms, platforms, braces and unguarded rigid live parts above ground, roadway, or water surfaces (References: NESC 232, Table 232-2)**

Nature of Surface Below	Nonmetallic or effectively grounded support arms, switch handles, platforms, braces, and equipment cases (ft)	Unguarded rigid live parts of 0 to 750 V and ungrounded cases that contain equipment connected to circuits of not more than 750 V (ft)	Unguarded rigid live parts of over 750 V to 22 kV and ungrounded cases that contain equipment connected to circuits of more than 750 V to 22kV (ft)
<b>Where Rigid Parts Overhang</b>			
Roads, Streets, and other areas subject to truck traffic	15.0	16.0	18.0
Driveways, established parking areas, alleys	15.0	16.0	18.0
Other areas traversed by vehicles such as cultivated grazing, forest, orchard lands, industrial areas, commercial areas, etc.	15.0	16.0	18.0
Spaces and ways subject to persons on foot or restricted traffic only	9.0	12.0	14.0
<b>Where rigid parts are along and within the limits of highways or other road rights-of-way but do not overhang the roadway</b>			
Roads, streets, and alleys	15.0	16.0	18.0
Roads where it is unlikely that vehicles will be crossing under the lines	13.0	14.0	16.0

**Table 4c. Vertical clearance of wires, conductors, cables, or unguarded rigid live parts over or near swimming pools (with final unloaded sag) (Reference: NESC 234, Table 234-3)**

	Insulated communication conductors, neutral conductors (ft)	Secondary Multiplex Cables; Unguarded rigid live parts 0 to 750 V (ft)	Unguarded rigid live parts 750 V to 22 kV (ft)	(SCL) 26 kV Phase Conductors (ft)
Clearance in any direction from the water level, edge of pool, base of diving platform, or anchored raft	22.0	22.5	24.5	25.0
Clearance in any direction to the diving platform, tower, water slide, or other fixed pool-related structures	14.0	14.5	16.5	17.0
Vertical clearance over adjacent land	Clearance shall be per Table 4a and Table 4b.			

**Table 4d. Vertical Clearances over State Highways (Reference: WAC 468-34-290)**

Type of utility line	(WAC) Crossing of Highways (ft) <sup>1</sup>	(WAC) Longitudinal of Highways (ft) <sup>2</sup>
Communications and cable televisions	24	20
Communications and/or cable television joint usage with electrical	20	20
<b>Electrical</b>		
0 V – 750 V	24	24
751 V – 15,000 V	30	27
15,001 V – 50,000 V (SCL 26 kV & 34 kV, Phase-Phase)	32	32
50,001 V and over	34	32

Notes:

<sup>1</sup> State Highway clearances shall be measured from the point of the roadway or ground directly under the span.

<sup>2</sup> Longitudinal lines shall be measured from ground line.

<sup>3</sup> All clearances shall be at State Electrical Construction Code temperature and loading standards and comply with all other requirements of this code.

## 5. References

**National Electrical Safety Code (NESC); C2-2023 Edition**; Institute of Electrical and Electronics Engineers (IEEE) Inc., New York, NY, 2011

**SCL Construction Standard 0100.03**; Clearances Between SCL Overhead Distribution Assets and Buildings, Signs, and Other Installations Except Bridge

**SCL Construction Standard 0100.05**; Clearances Between SCL Overhead Distribution Assets and Bridges

**SCL Construction Standard 0114.07**; Distribution System Vegetation Management, Overhead, Clearances and Methods

**SCL Construction Standard 0130.30**; Secondary Service Drops

**SCL Construction Standard 0214.00**; Clearances Between SCL Underground Assets and Non-SCL Structures and Objects

**Washington Administrative Code (WAC) 296-155-428**; “General requirements”

**Washington Administrative Code (WAC) 296-24-960**; “Working on or near exposed energized parts”

**Washington Administrative Code (WAC) 296-155-53408**; “Power line safety”

**Washington Administrative Code (WAC) 468-34-290**; “Vertical Clearance”

## 6. Sources

**Lu, Curtis**; SCL Standards Engineer and Subject Matter Expert for 0100.02

**Neuansourinh, Ponet**; SCL Standards Engineer and Originator of 0100.02

**Occupational Safety and Health Administration (OSHA) 3433**; “Cranes and Derricks in Construction”

**Washington Administrative Code (WAC) 296-45-045**; “NESC Applicable”

**Washington Administrative Code (WAC) 296-45-325**; “Working on or near exposed energized parts”

**Washington Administrative Code (WAC) 468-34-110**; “Definition of Terms”