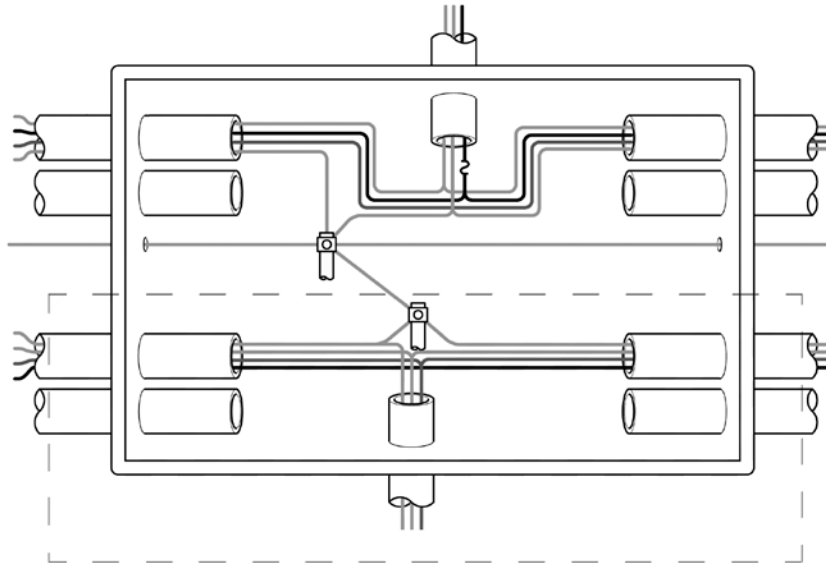


SHARED STREETLIGHT AND TRAFFIC CONTROL HANDHOLES**1. Scope**

This standard covers the requirements when Seattle City Light (SCL) and Seattle Department of Transportation (SDOT) agree to share a handhole and trench that services both the SCL street lighting system and the SDOT traffic management system. Industry best practice is to maintain complete physical separation between systems. This standard provides minimum requirements to meet the different safety codes governing the two Departments.

This standard does not cover SDOT means, methods, or materials for designing or installing the SDOT traffic control system.

2. Application

This standard is intended for use by Seattle City Light (SCL) streetlight engineers and crews and SDOT traffic crews when installing systems in which SCL and SDOT agree to share a handhole and trench. Sometimes, sharing a handhole is necessary and can help reduce overall costs to the City. This standard pertains to new construction or major maintenance of existing systems only.

Engineers should be familiar with the City of Seattle Department of Planning and Development's (DPD) current Seattle Electrical Code and should understand if the electrical safety requirements for their designed system are governed by the National Electrical Safety Code (NESC) or the National Electrical Code (NEC).

3. Definitions

Authority Having Jurisdiction (AHJ) – the organization, office or individual responsible for approving equipment, materials, an installation or a procedure.

Service bond – the bond between neutral and ground at the electrical service equipment pedestal or other approved service disconnect.

Major Maintenance – any project that requires excavation.

4. General Requirements and Discussion

The following requirements are needed to ensure safety and adherence to the appropriate codes.

SDOT shall be considered a "third party/customer" and is required to meet with an SCL Service Representative to establish a service point. SCL shall be considered the "service provider."

4. General Requirements and Discussion, continued

When possible, each system should maintain complete physical separation, and shall not interconnect at any location, except for required bonding of grounding electrodes. Trenches and handholes may be shared, but no sharing of conduit is permitted. Handholes with physical barriers are preferred.

Traffic management and streetlight system main overcurrent protective overcurrent devices shall be located separately. SCL streetlight devices shall be in the distribution handhole. SDOT overcurrent devices shall be in the SDOT service equipment pedestal.

Traffic management system circuits may share the same support structure with streetlight circuits as long as all conductors have an insulation rating equal to the highest voltage rating present within the enclosure, cable, or raceway.

Handhole size shall be determined using NEC 314.28 (for under 600V conductors) standard calculations.

All cables in joint handholes shall be labeled with utility name and type of cable per SCL Construction Standard U4-3.3 and NESC Rule 341B3.

Shared handholes shall be accessible to both SCL and SDOT at all times.

Handhole lid shall be labeled with "SL" and "TC" per City of Seattle Standard Specification 9-34.6.

See Figure 6a, "Basic infrastructure of a shared handhole system" and Figure 6b, "Codes in effect throughout a shared handhole system."

5. Detailed SCL Requirements

SCL equipment including the streetlight distribution handhole is covered by the NESC.

All streetlight grounding outside the shared handhole system shall be per SCL Construction Standard 1710.50.

All conductive components in distribution and streetlight handholes shall be bonded to the grounding electrode.

Connections to the grounding electrode shall be made by irreversible means. Above grade

connections may be irreversibly bolted or exothermically welded. Below grade connections shall be exothermically welded. SCL shall designate service points for SDOT electrical services from a distribution source. Streetlight circuits shall not be tapped for SDOT equipment or loads.

An SCL electrical reviewer shall inspect and test streetlight systems before service connections are made.

See Figure 6c, "Example - SCL Distribution Handhole Interior Ahead of Shared Handhole System."

6. Detailed SDOT Requirements

SDOT shall install a pedestal-mounted, external service disconnect or other approved service disconnect. The pedestal shall be above grade.

The service equipment pedestal or other approved service disconnect shall be located after the service point (streetlight distribution handhole) and before entering the first handhole, enclosure or pole. See Figure 6a.

Meter requirements shall be determined by SCL Customer Care.

The Authority Having Jurisdiction (AHJ) shall inspect each SDOT electrical installation from the defined service point before service connections are made.

SDOT shall determine if service overcurrent protection will be either fuses or a circuit breaker.

SDOT shall furnish conductors sized per code from the SCL distribution handhole to SDOT service pedestal. SCL shall install conductors and make all connections.

SDOT equipment from the SDOT conductors in the streetlight distribution handhole and downstream is covered by the Seattle Electrical Code according to Article 80, and the NEC.

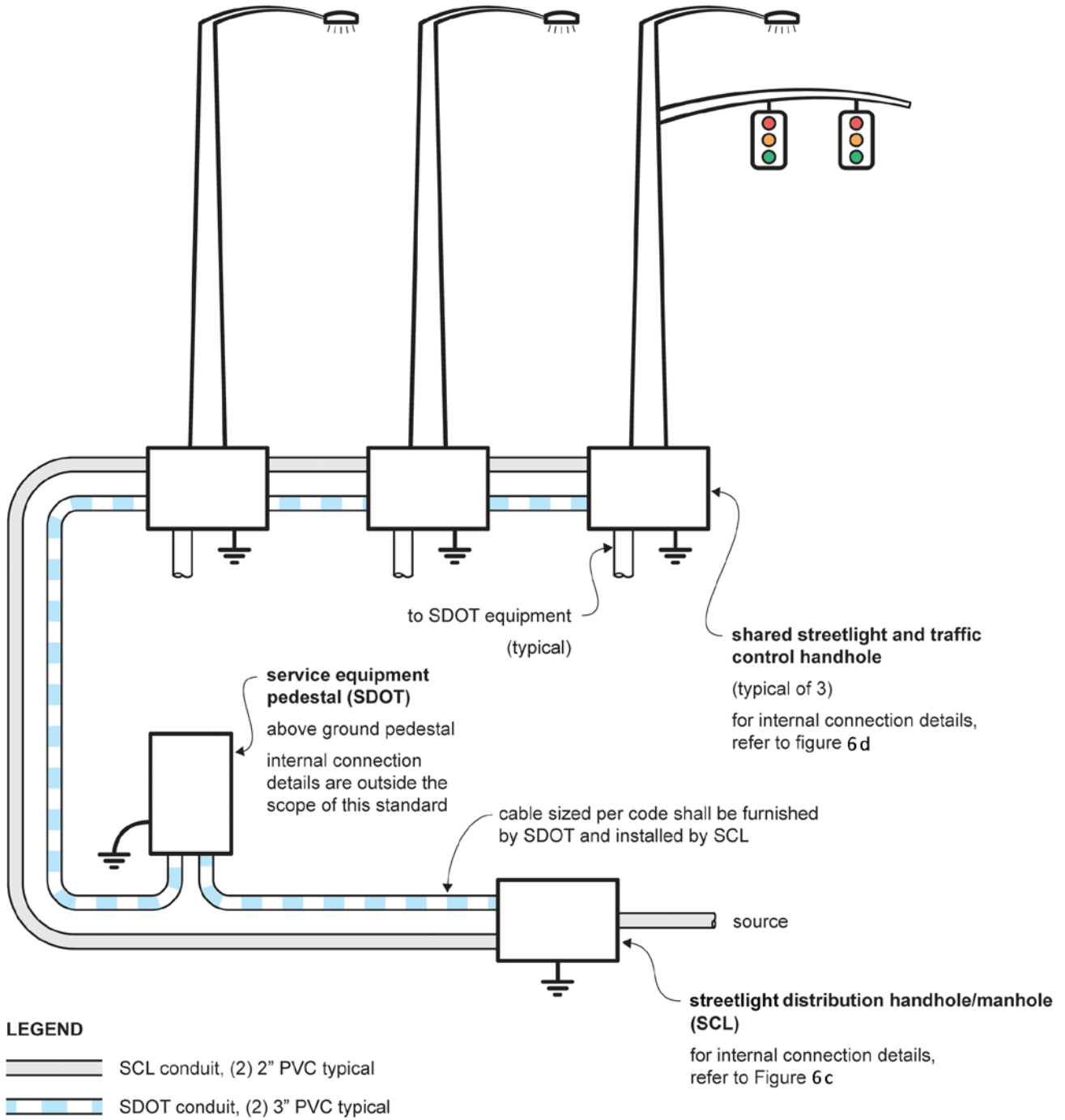
SDOT Service Bond shall be located at the SDOT service equipment pedestal or other approved disconnect.

SDOT shall contact SCL to disconnect streetlight circuits.

See Figure 6d, "Example - Shared Use Handhole Interior."

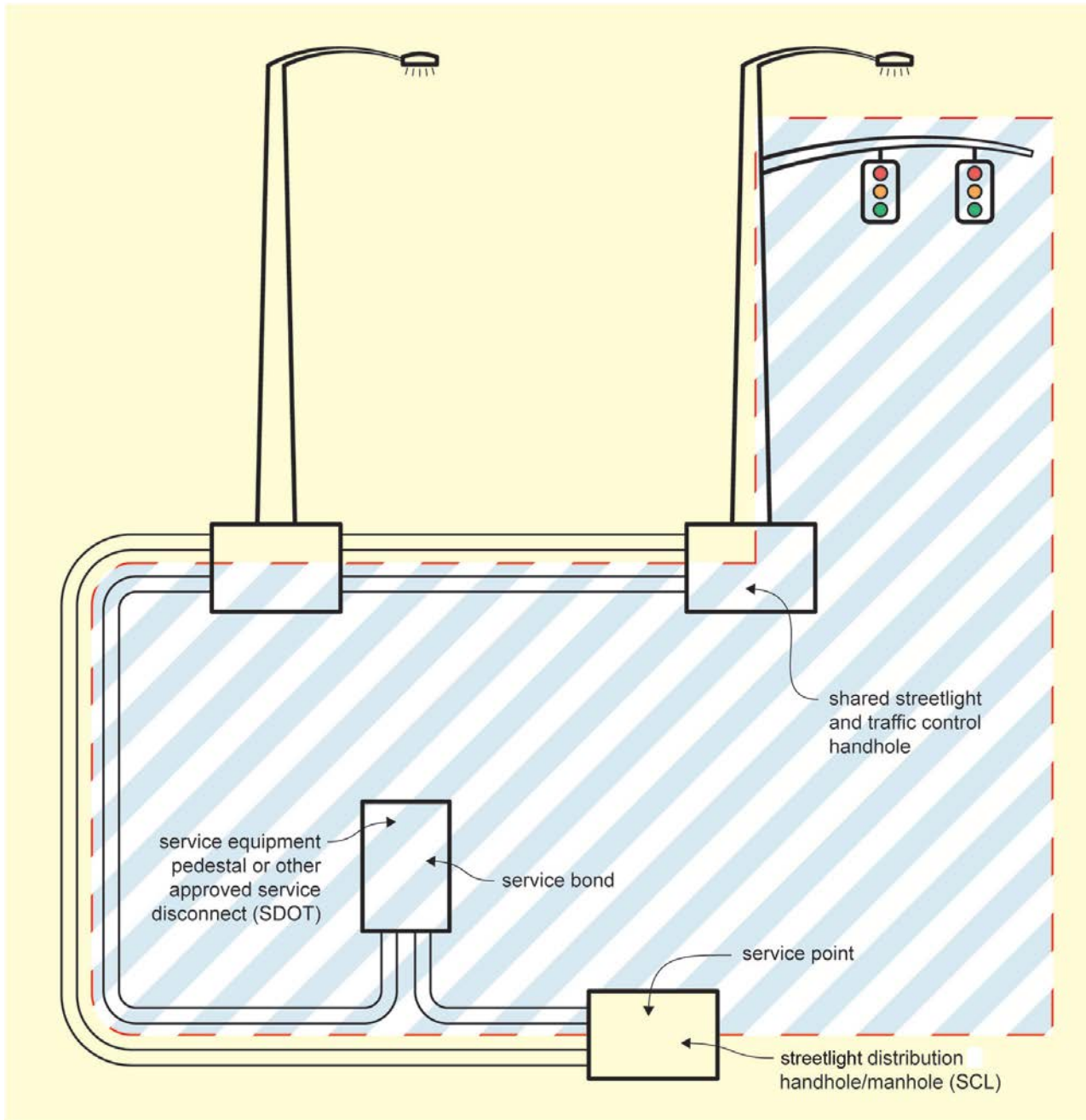
6. Detailed SDOT Requirements, continued

Figure 6a Basic Infrastructure of a Shared Handhole System



6. Detailed SDOT Requirements, continued

Figure 6b Codes in Effect Throughout a Shared Handhole System

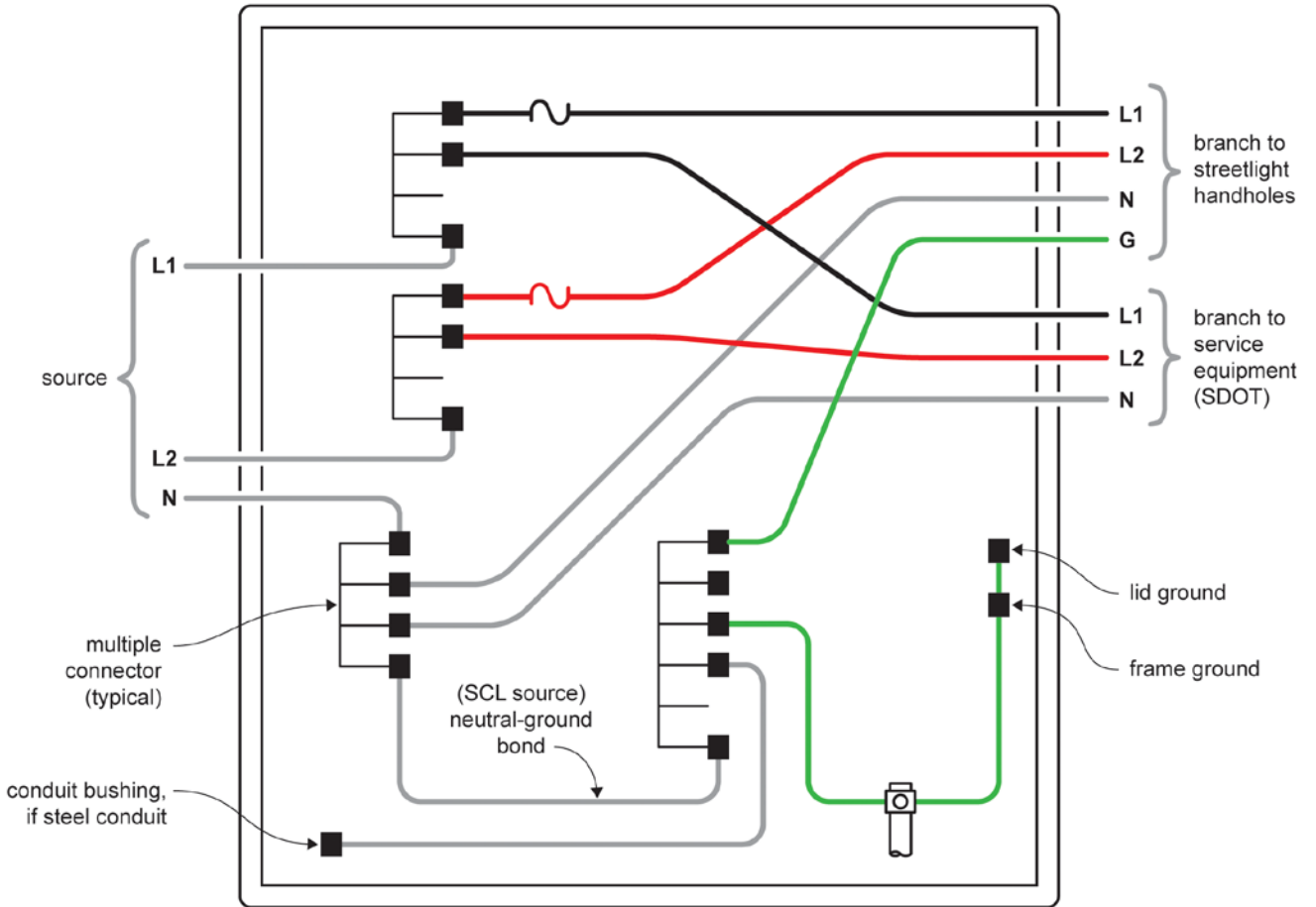


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6. Detailed SDOT Requirements, continued

Figure 6c, Example – SCL Streetlight Distribution Handhole Interior (Ahead of Shared Handhole System)



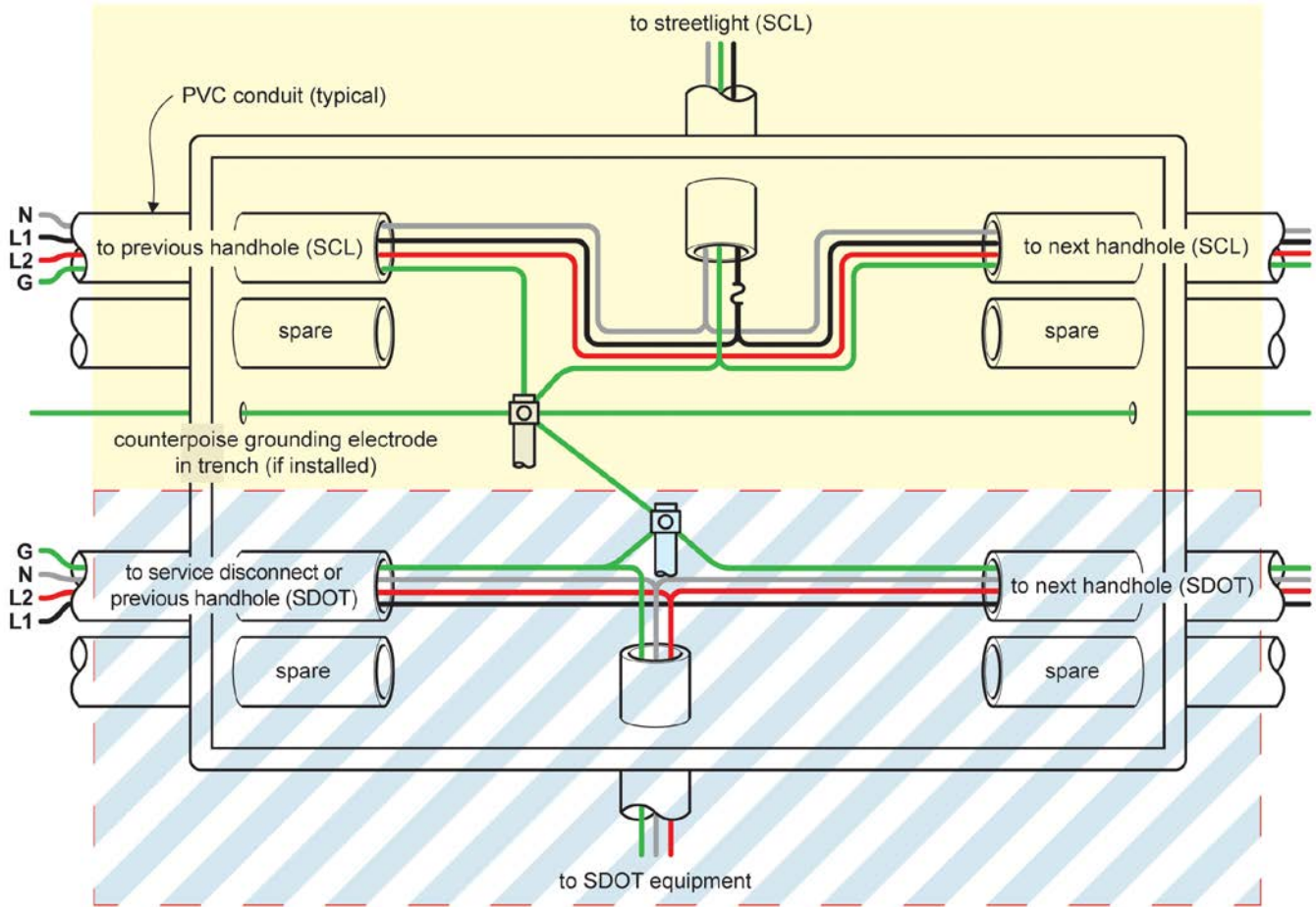
LEGEND

-  fuse
-  ground rod

SCL STREETLIGHT DISTRIBUTION HANDHOLE

6. Detailed SDOT Requirements, continued

Figure 6d, Example - Shared Use Handhole Interior. If cover or frame is conductive, it shall be bonded to the grounding electrode in the handhole.



LEGEND

NESC

NEC

fuse

ground rod

SHARED USE HANDHOLE

7. References

550; "Handholes"; City of Seattle Standard Plans for Municipal Construction

SCL 1710.50; "Streetlight System Grounding and Bonding"; SCL Construction Standard

SCL 9810.05; "Shared Streetlight and Traffic Control Handholes"; SCL Design Standard

SCL 9702.30; "Grounding and Bonding, Fundamentals and Detailed Requirements"; SCL Design Standard

SCL SL 12-1/ NSL-10, "Fusing Schedule Underground Streetlighting"; Construction Standard

Hanson, Brett; SCL Standards Engineer, subject matter expert and originator of 1810.05; brett.hanson@seattle.gov

National Electrical Safety Code, 2012 edition

National Electrical Code, 2011 edition

Seattle Ordinance 122970, "2008 Seattle Electrical Code"; City of Seattle Department of Planning and Development.

SCL/SDOT "Separated Systems & Code Application Whitepaper"; 2012; author Steve Crume

SCL U2-13.1/NVH-50; "Typical Handhole With Conduit"; SCL Construction Guideline

SCL U4-3.3; "Cable Tagging and Phase Markings"; SCL Construction Guideline