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|  | Utility Standards Engineering | Standard | |
| | Small Cell Wireless on Co-Location Metal Poles | | |
| Document ID#: LC11570-PUB | Effective On: 7/22/2024 | Rev. 4 | Page 1 of 11 |
| Verify revision is current prior to use. | | | |

1. Purpose

This standard covers requirements for the installation of small wireless facilities co-located on PGE owned metal streetlight poles.

2. Safety

Safety is a foremost concern in all of our work. To ensure that you work safely, make sure that you are familiar with the [PGE Safety Manual](#); follow PGE's [Six Safety Rules to Live By](#) and safe work practices; and understand applicable PGE standards.

3. References

- [LC11550](#) Streetlight Underground Installations
- [LC21001](#) Transformer Vault Designs: Transformers and Equipment In or On Vaults

4. General Information

This standard is intended for use by PGE Design Project Managers (DPMs), Wireless Construction Managers, Lighting Services, engineers, line crews, and contractors installing co-located small wireless facilities on underground-fed metal streetlight poles. The construction objective is to replace the existing PGE streetlight poles with specialty poles that are designed and manufactured for the additional equipment and the associated load. Once installed, the new pole will become the property of PGE. Where conflict exists between requirements, PGE standards will always take priority. This standard will be used in conjunction with [LC11550](#).

NOTE: Wireless streetlight poles are custom made and are NOT a PGE stock item.


5. Installation

5.1. Service to Streetlight Poles with Small Cell Antennas

Two types of metal/fiberglass streetlights allow small cell antennas in PGE service territory.

NOTE: Should a carrier wish to co-locate on an existing Option B pole, the respective municipality will be required to decide if the pole will be converted to an Option A or an Option C.

- **Option A Streetlights:** These are owned and maintained by PGE. Service requirements for Option A streetlights are listed in the Service to Aluminum or Decorative Streetlight Poles section in [LC11550](#). Customers must provide certain items for these antennas; see [Customer-Provided Items for Small Cell Antennas on Option A Streetlights](#).

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- Option C Streetlights:** These are installed, owned, and maintained by the customer. Service requirements for Option C streetlights are listed in the Service to Customer-Owned Streetlights section in [LC11550](#). Customers must provide certain items for these antennas; see [Customer-Provided Items for Small Cell Antennas on Option C Streetlights](#).

A 1-inch duct must be used for all service to small cell equipment. See the Duct Requirements section in [LC11550](#) for additional information.

NOTE: [Figure 1](#) and [Figure 2](#) show how small cell antennas and streetlights will receive electrical service. Infrastructure ownership for each option is also displayed.

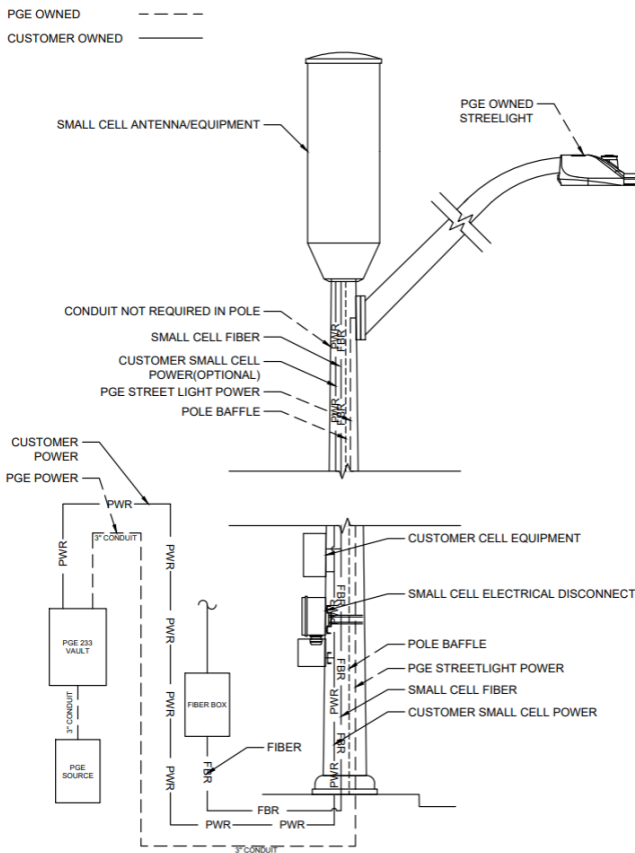


Figure 1. Electrical Service for Option A (PGE-Owned Small Cell Metal/Composite Streetlight Poles) (STD-D-1170)

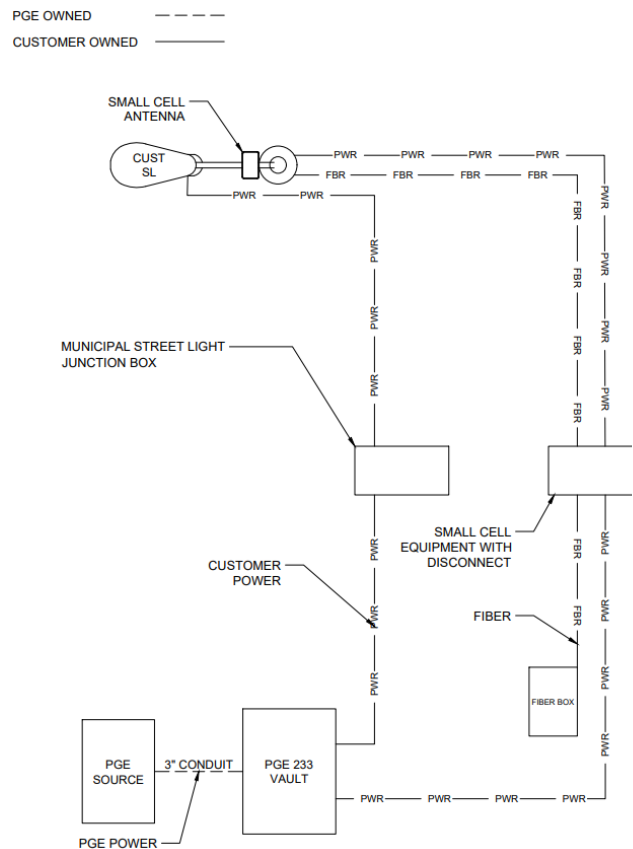



Figure 2. Electrical Service for Option C (Customer-Owned Poles) (STD-D-1172)

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5.2. Customer-Provided Items for Small Cell Antennas on Option A Streetlights

The customer must provide and install the following for a small cell antenna on an Option A streetlight:

- A PGE-approved 233 vault, if required. The vault must be installed 4 to 8 feet from the pole and have a lid labeled ELECTRIC. The vault will be owned and maintained by PGE.
- If the secondary conductor powering the proposed cell site is buried cable, the carrier will be responsible for the expense of bringing the conductor to current standards.
- A 1-inch SCH 40 PVC duct between the 233 vault and the streetlight luminaire.
- All additional ducts needed for secondary cables.
- PVC, rigid steel, or approved fiberglass sweeps, with a minimum 36-inch radius. Rigid steel or approved fiberglass sweeps are required for runs of 150 feet or longer, or for a run of any length that has more than 180 degrees in bends. When all the bends in a conduit are added up, the sum must not exceed 270 degrees.
- A 500-pound-rated pull line in the customer's duct for use with PGE-owned conductors.
- A physical barrier (a.k.a. baffle) between the PGE electrical service and the customer electrical service.


5.3. Customer-Provided Items for Small Cell Antennas on Option C Streetlights

The customer must provide and install the following for a small cell antenna on an Option C streetlight:

- A PGE-approved 233 vault, if required. The vault must be installed 4 to 8 feet from the pole and have a lid labeled ELECTRIC. The vault will be owned and maintained by PGE.

5.4. Service to Customer-Owned Streetlights

For more information about energy service to customer-owned streetlights, see [LC11550](#).

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5.5. Service for Option A with Co-located Streetlight System AT BEGINNING of Streetlight Run

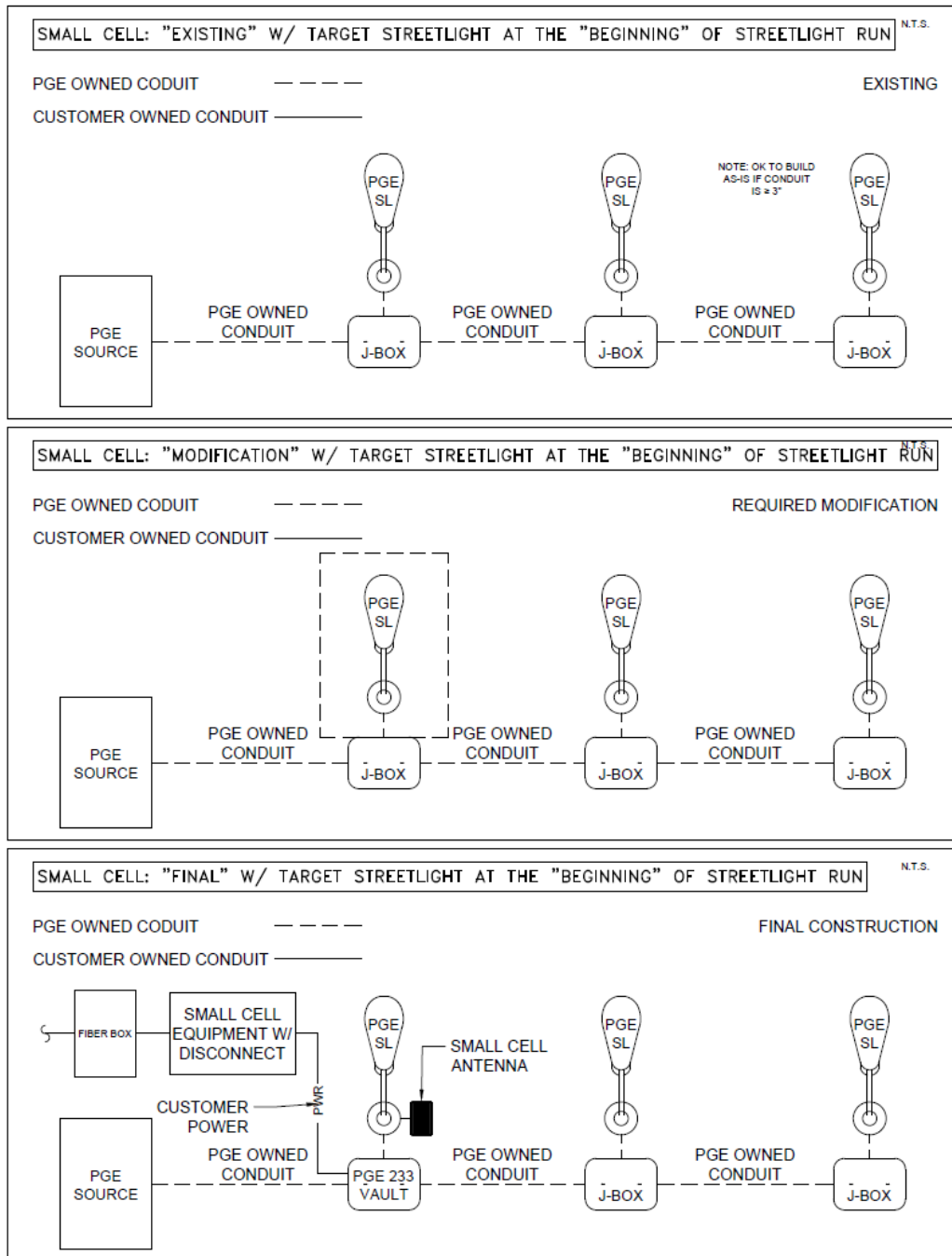



Figure 3. Electrical Service for Option A with Co-located Streetlight System AT BEGINNING of Streetlight Run (STD-D-1174)

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5.6. Service for Option A with Co-located Streetlight System IN Streetlight Run

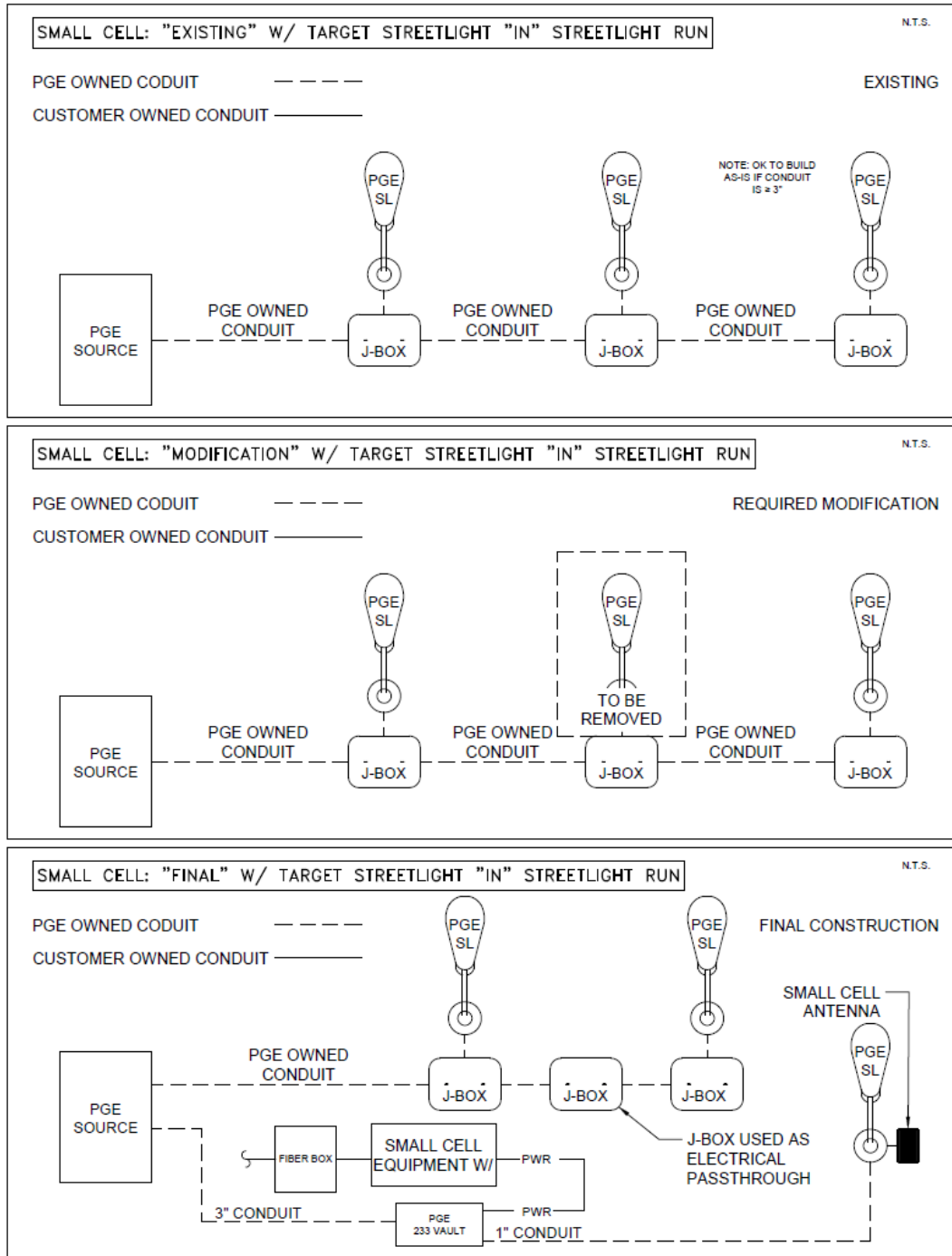



Figure 4. Electrical Service for Option A with Co-located Streetlight System IN Streetlight Run (STD-D-1176)

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5.7. Service for Option A with Co-located Streetlight System AT END of Streetlight Run

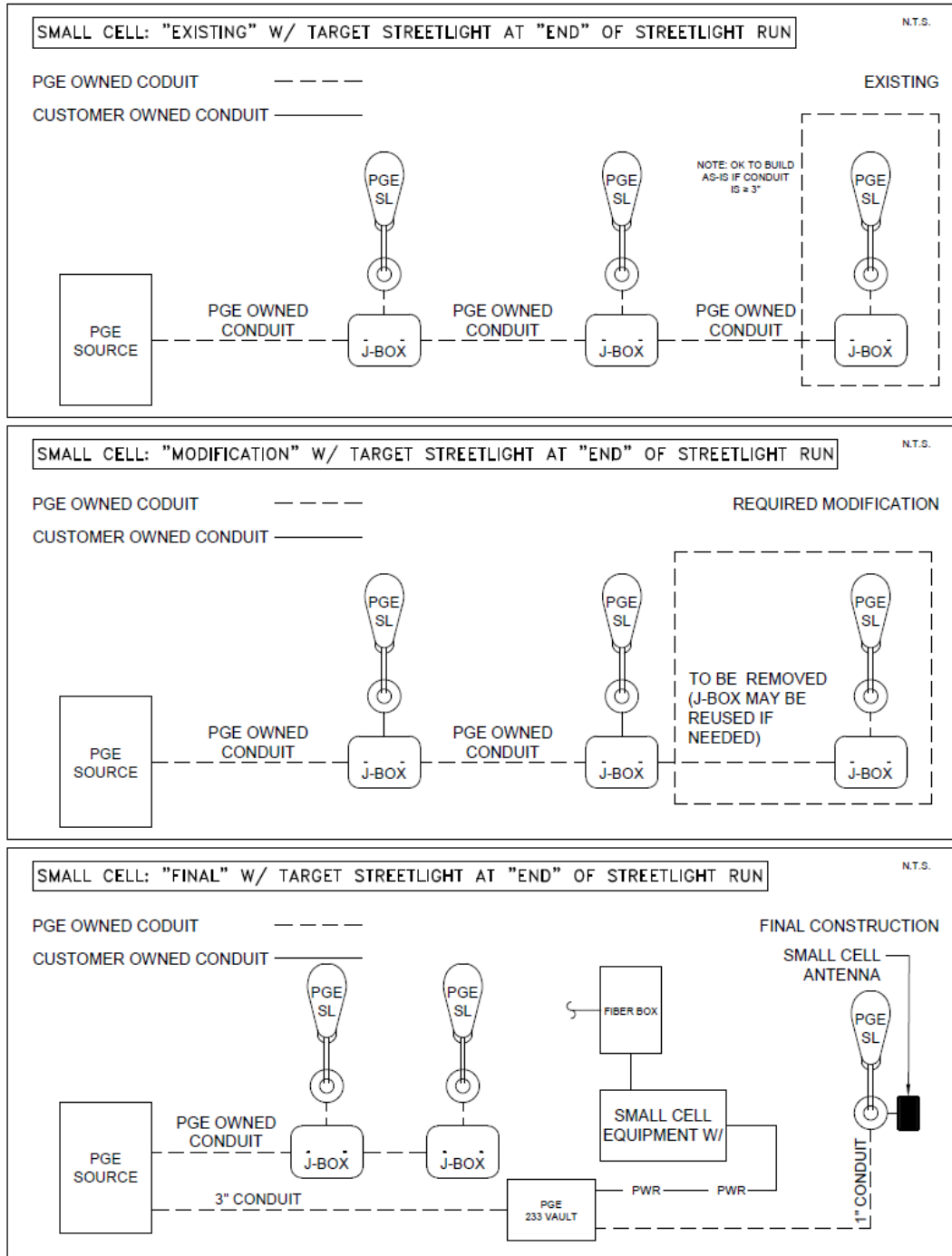



Figure 5. Electrical Service for Option A with Co-located Streetlight System AT END of Streetlight Run (STD-D-1178)

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5.1. Responsibility Matrix

[Figure 6](#) and [Table 1](#) below describes responsibility for the various points of construction, inspection, maintenance, and removal of unused facilities.

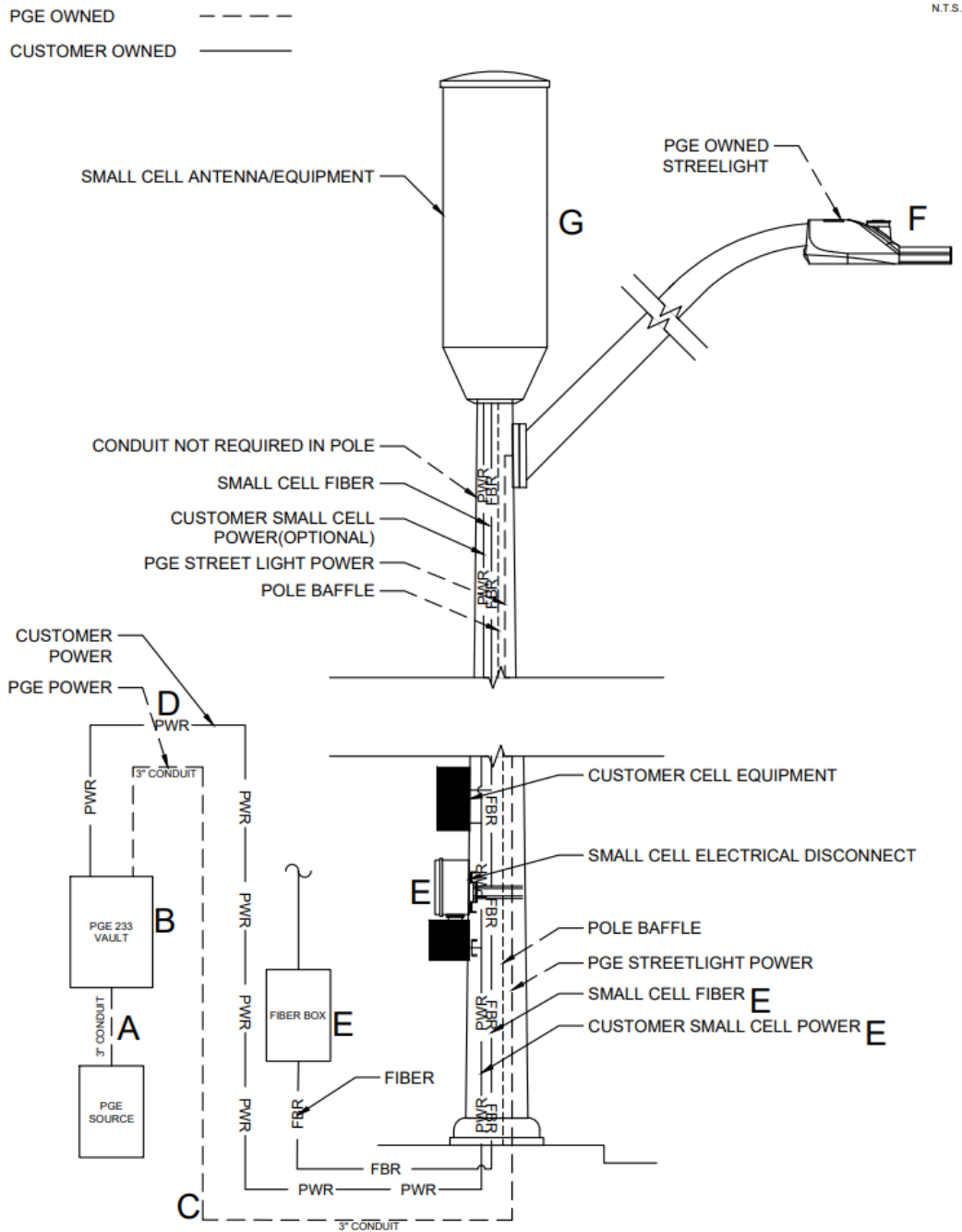


Figure 6. Responsibility Matrix for PGE-Owned Small Cell Streetlights (STD-L-1180)


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Table 1. Responsibility Matrix for PGE-Owned Small Cell Streetlights

| Point | Conduit/ Junction Box Installation | Conductor/ Fiber Installation | Inspection | Streetlight/ Small Cell Installation | Removal of Unused Facilities | Maintenance |
|-------|---|---|---|--|---|-------------|
| A | Customer | PGE | PGE Service Inspector/FCC (Inspected on CMDEV WO*) | N/A | PGE removes conductor, Customer removes conduit | PGE |
| B | Customer | PGE | PGE Service Inspector/FCC (Inspected on CMDEV WO*) | N/A | PGE | PGE |
| C | Customer | PGE | PGE Service Inspector/FCC (Inspected on CMDEV WO*) | N/A | PGE removes conductor, Customer removes conduit | PGE |
| D | Customer | Customer (PGE crew to connect inside 233 vault) | PGE Service Inspector/FCC (Inspected on CMDEV WO*) | N/A | Customer | Customer |
| E | Customer | Customer | PGE Wireless PM/ Possible municipal inspector depending on municipality | N/A | Customer | Customer |
| F | N/A | PGE | PGE Wireless PM/ Possible municipal inspector depending on municipality | PGE/PGE Contractor | PGE/PGE Contractor | PGE |
| G | N/A | N/A | PGE Wireless PM/ Possible municipal inspector depending on municipality | Customer | Customer | Customer |

* Commercial development work order.

5.2. Damaged Pole Process

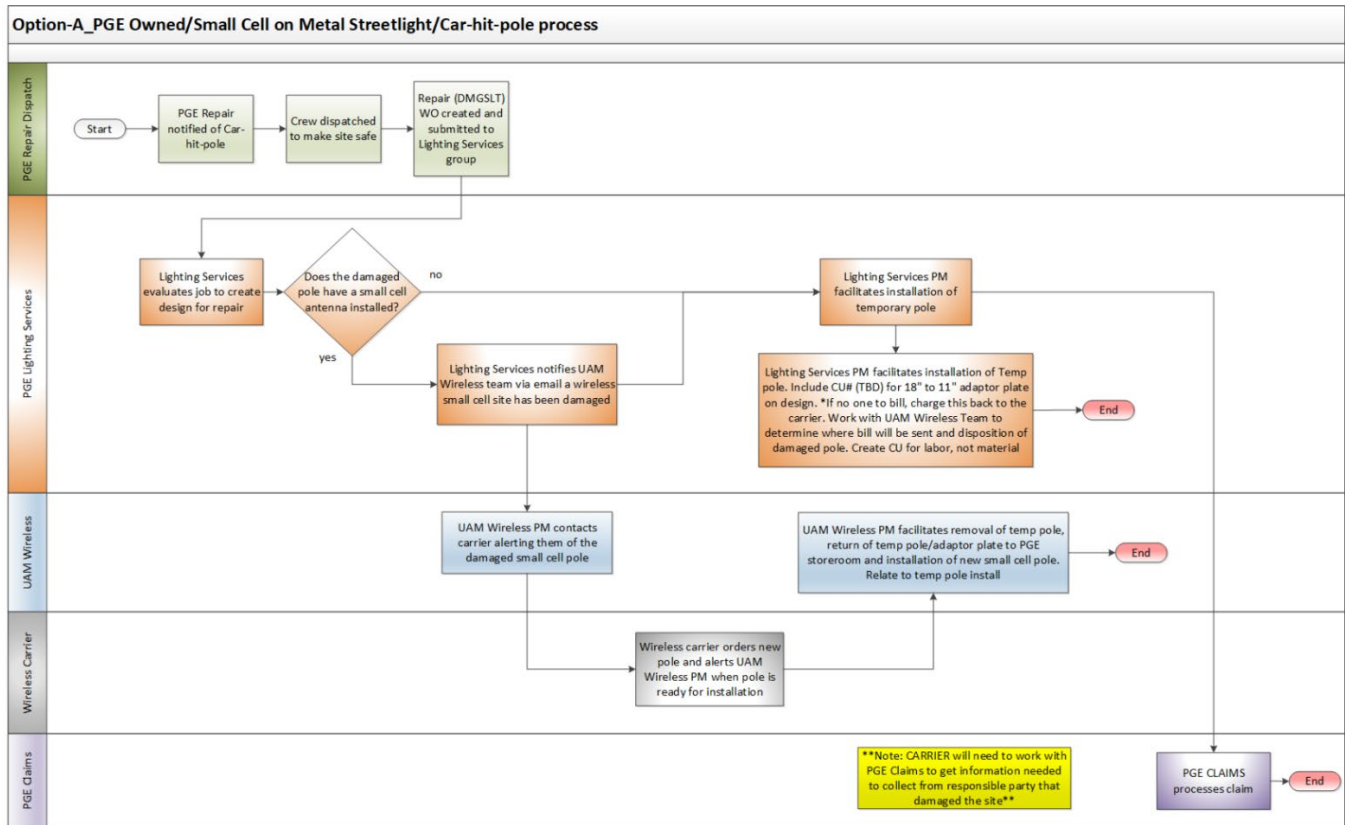


Figure 7. Damaged Pole Process Chart

5.3. Additional Installation Notes

- Pole design shall be approved and stamped by an Oregon state-licensed Professional Engineer. This design will also include a passing structural analysis report.
- All bases will be prefab, no pour-in-place.
- An optional 18" to 11" Bolt-Circle Adaptor Plate may be installed. Designed for situations where a small-cell wireless pole is damaged, and there is an existing base with an 18" bolt-circle. This adaptor plate facilitates the temporary installation of a standard 11" bolt-circle PGE streetlight pole, enabling continued streetlight operation while the cell carrier arranges for a replacement pole. See [Figure 8](#), [Figure 9](#), and [Figure 10](#) for images, engineered drawings, and application guidelines.



Figure 8. 18" to 11" Bolt-Circle Adaptor Plate

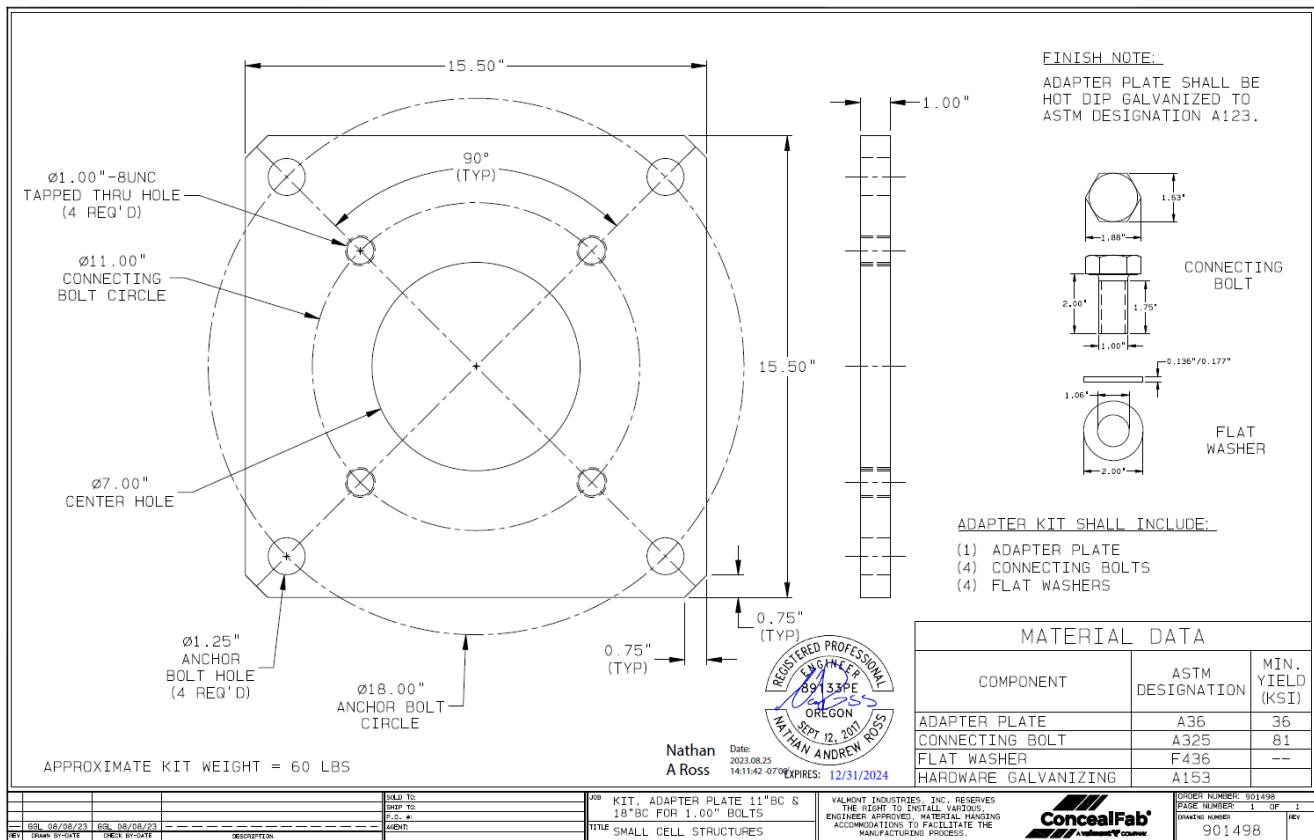



Figure 9. 18" to 11" Adaptor Plate Engineered Drawings

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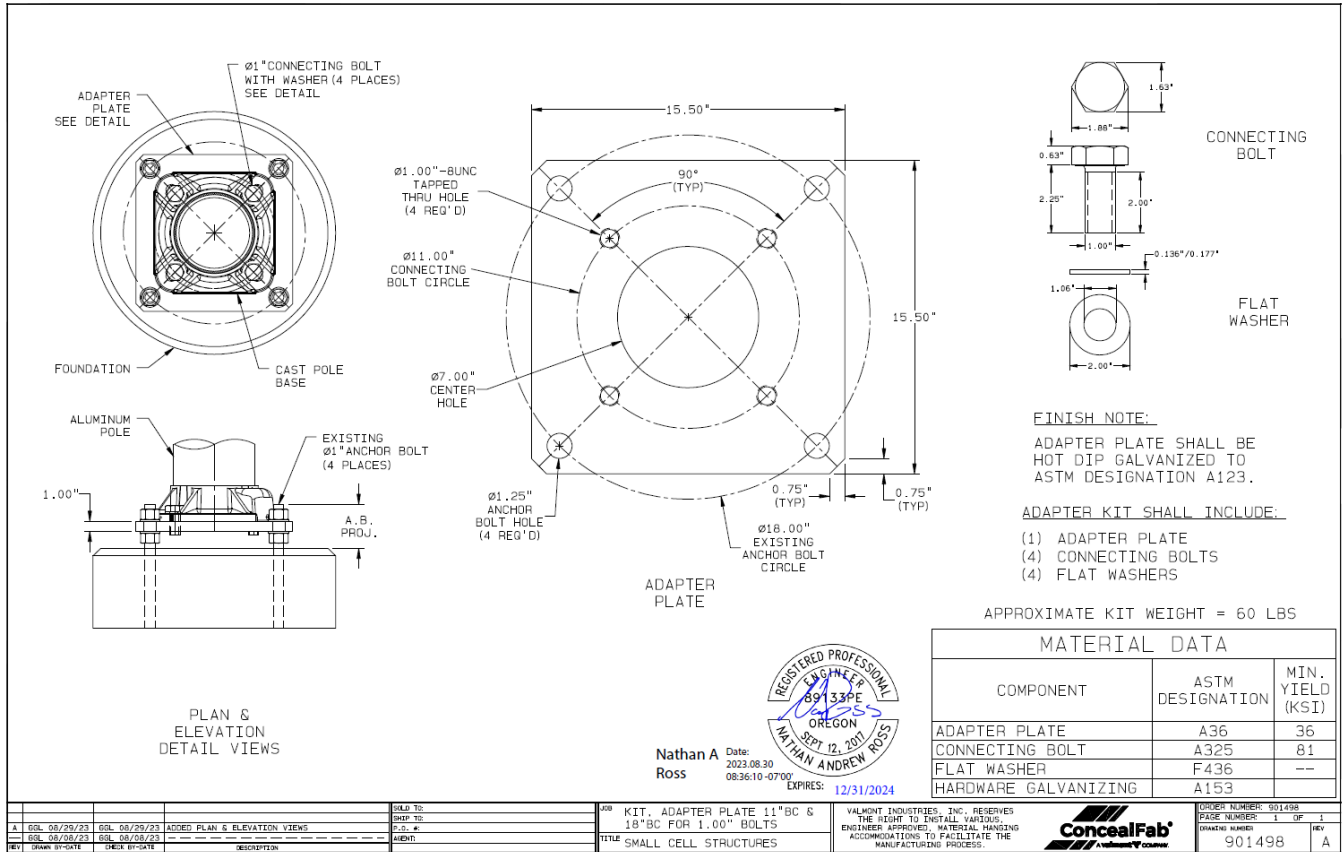


Figure 10. 18" to 11" Adaptor Plate Application Details

6. Revision History

| Rev. No. | Revision Date | Reason for Revision | Affected Pages |
|----------|---------------|---|----------------|
| 0 | 11/29/2023 | Issued for implementation by Utility Standards Engineering. | ALL |
| 1 | 1/11/2024 | Updated figures 1–5 and text from 3" duct to 1" where applicable. | 2–6 |
| 2 | 5/14/2024 | Added figure numbers to Vault drawings. | 2, 4–6 |
| 3 | 6/13/2024 | Clarified PGE-owned conduit in figure 1. | 2 |
| 4 | 7/22/2024 | New format. Title change. | ALL |