



STATEMENT OF STREETLIGHT INSTALLATION RESPONSIBILITIES

JANUARY 04, 2021

This letter states the installation service requirements for Option A and B streetlights in the Portland General Electric (PGE) service territory. Its purpose is to clarify streetlight design and installation procedures. This update supersedes all previous publications.

Ownership Options under Streetlight Tariff Schedules 91 and 95.

- ◆ Option A is for luminaires owned, maintained and supplied with electric energy by PGE. PGE to supply and install the streetlight pole and fixture. Developer/customer is responsible to install any streetlight footings and grounding material (may include the ground rod & copper wire) for the streetlight pole and/or junction box.
- ◆ Option B is for maintenance and energy supplied to equipment owned by the customer. Developer/customer to purchase, supply and install streetlight materials (includes circuit in the pole, see section 5 for clarification). Materials must be from PGE's most current version of the approved material list.

DESIGN RESPONSIBILITIES

1. Design Layout for Option B Streetlights (Owned by Municipality)

For Option B streetlights (owned by the municipality/city), the developer/project is responsible to provide the PGE Lighting Design Project Manager with the **streetlight photometric design layout stamped approved by the municipality/city** under whose jurisdiction it falls, which includes complete streetlight design details (pole and fixture specifications). This approved photometric design is to be submitted simultaneously with any projects needing power plans, to avoid delays with the PGE electrical plans. Designs for Option B street lighting materials need to be specified from PGE's approved street lighting equipment list.

2. Design Layout for Option A Streetlights (Owned by PGE)

For Option A streetlights, the developer/project is responsible to provide the PGE Lighting Design Project Manager with the streetlight design layout that was submitted to the municipality/city for review, which includes complete streetlight design details (pole and fixture specifications). Designs for Option A streetlights require materials to be specified from PGE's approved street lighting equipment list. PGE Lighting Design Project Managers are available to assist with pole and fixture information needed on the project, this information will be based on municipality direction. The final lighting design layout requires the municipality/city stamped approval or an email from the municipality/city with their approval. The lighting design layout will need to meet the recommended maintained illuminance values in the current revision of *ANSI/IES RP-8 American National Standard Practice for Roadway Lighting*, or the appropriate standard adopted by the municipality/city with jurisdiction over the project. A municipality/city has the option to accept & authorize streetlight designs that do not meet ANSI/IES RP-8 guidelines, PGE will put a notation on the letter of authorization that is signed by the municipality/city as well as the sketch. The municipality is responsible to define road classifications.

3. Bioswale / Rain Gardens & Trees

PGE does not allow any facilities (conduit, junction box, streetlight pole, etc) in bioswale / rain gardens. PGE does not have the resources to construct the bioswale / rain garden back to original design if a streetlight infrastructure needed replaced. The bioswale / rain garden infrastructure may not adequately support the installation of a streetlight pole. (Exceptions may be granted. The engineer for the project must provide PGE with a design for the proposed streetlight pole location. All exceptions need to be approved by the Lighting Project Manager prior to PGE finalizing design.)

Suggestions for exceptions:

- ◆ Need a 4' section of the bioswale/rain garden dedicated to the streetlight pole location. This area would need to be separated by a concrete wall and compacted with $\frac{3}{4}$ minus rock for the streetlight pole foundation. This section cannot be considered part of the bioswale/rain garden.

There are no exceptions for the infrastructure (junction box/conduits).

A streetlight pole cannot occupy the same space with a tree in a tree well. PGE recommends streetlights to be a minimum of 15' from any tree location.

4. Design Alterations

In order to meet customer needs in a timely manner PGE must have adequate notice of design changes. If PGE is not given adequate notification of design changes including phasing of projects PGE reserves the right to bill the developer, the municipality, or the designated contractor, responsible for the installation, for any costs to PGE associated with the changes. This billing may include, but is not limited to, the cost of additional trips, corrective trenching, conduit work, and alterations to PGE design sketches.

5. Approved Materials

Street lighting designs can only use materials that are listed on PGE's approved streetlight equipment list. A list of approved streetlight luminaires, lamps, photo controls, poles, pole bases, mast arms, wire, and junction boxes is available upon request. **No substitutions are allowed.** Materials installed must also meet the standards of the local municipality in whose jurisdiction the development exists.

TRENCH AND INSTALLATION REQUIREMENTS

1. Trench Excavation

- ◆ **Only PGE-approved excavation contractors and contractors who have made special arrangements with PGE will be allowed to work under a PGE street right-of-way permit. The contractor must notify the local jurisdiction 48 hours before the work is to begin. A copy of the permit must be on site.**
- ◆ The developer/contractor is responsible for all trench excavation and backfilling, compaction, road crossings, conduits, elbows, vaults, junction boxes, landscape restoration, associated permits and any other requirements to complete the construction for streetlight service.
- ◆ PGE requires the developer/contractor to install the bottom piece of streetlight pole and/or concrete footing for the streetlight pole while their trench is open. PGE will provide the pole footing for Option A streetlights, they are to be installed with $\frac{3}{4}$ minus gravel tamped around the base.
 - 2-piece fiberglass pole bases are to be installed with the yellow line at grade with 1 foot below final grade open so the top piece can be placed during installation, contractor is to provide extra gravel to backfill to grade
 - Concrete footings for streetlight poles are to be installed flush with grade
- ◆ Trenches are to be 48 inches deep when shared with other utilities, and otherwise at least 36 inches in depth.
- ◆ An on-site preconstruction meeting is required for all projects with the PGE's Field Construction Inspector.

- ◆ Finished grade must be established prior to trench excavation to ensure that minimum cover requirements for cables and conduits are attained. Minimum cover requirements for cables are measured from the trench surface to the top of the cable or conduit.

2. **Conduits and Elbows**

- ◆ All conduit routes must be approved by PGE prior to installation by the Customer, customer-installed conduit must be inspected by PGE before backfill.
- ◆ All conductors are to be installed in conduit. Conduits are to be sized for the required conductor, as determined by PGE.
 - Three-inch and/or two-inch diameter conduit is required for all runs over 100 feet and for all runs serving more than one light.
 - One-inch diameter conduits may be used for runs not exceeding 100 feet in length and serving only one light
- ◆ HDPE duct may be used for horizontal directional boring applications. The duct must meet the requirements of PGE specification L22501 (available upon request of your PGE project manager).
 - For safety reasons, the duct must be black with three equally spaced extruded red stripes, which is a specification requirement. Aluminum couplings with barbed threads on both ends must be used to join HDPE duct sections, and straight couplings with barbed threads on one end and NPT on the other end must be used for connecting to PVC duct.
- ◆ All conduits must be gray electrical grade schedule 40 PVC, flex conduit is not allowed.
- ◆ All conduits are to contain a 500-pound test non-conductive pull string with 6 feet of pull string extending beyond each end of the conduit.
- ◆ Bends are to be rigid steel or PGE approved fiberglass as noted in PGE's Electrical Service Requirements book: For conduit runs longer than 151 feet, or for any length run with more than 180 degrees in bends. No more than 3-90 degree elbows or a total of 270 degrees of bends in any conduit run;
- ◆ 36-inch radius elbows are required for all conduit runs longer than 6 feet. 24-inch radius elbows are allowed for 1-inch Sch 40, PVC conduit runs of 6 feet or less, while still maintaining a 36-in minimum depth with prior PGE approval.
- ◆ For three-inch and two-inch conduit, sweeps must be separated by a minimum 5-foot straight section. There must be a 3-foot minimum straight section from a vault.
- ◆ All elbow bends must be factory made and all conduit and elbow ends shall be smooth and free of burrs and rough edges.
- ◆ If the power source is at a utility pole, the terminal elbow is to be installed eight inches from the pole, and attached to a PGE installed standoff bracket, at the quadrant specified by PGE.
- ◆ When a new conduit and/or pull line will be entering an existing PGE secondary vault or transformer, the installer is required to contact PGE prior to installation. A PGE crew will be scheduled to meet the installer at the site to assist with the installation. **To schedule a PGE stand-by crew, please call PGE Service Coordinators at (503) 323-6700 or toll-free (800) 542-8818.**
- ◆ **Oregon Utility Notification Center at, (800) 332-2344, 811, or online at www.callbeforeyoudig.org, must be called to locate any underground facilities at least two business days (48 business hours) prior to any digging.**
- ◆ The Customer is responsible for duct proofing all ducts installed for PGE jobs before the job is completed and before the installation of PGE conductors.

3. **Junction Boxes:**

- ◆ All junction boxes are to be PGE-approved (available upon request of your PGE project manager), the lid must be secured with five sided Penta-head bolts.
- ◆ Minimum 6 inches of 3/4-inch minus well-compacted backfill under and around the outside of the junction box
- ◆ Customer to install a PGE-provided ground rod inside the junction box, a maximum of 3 inches of ground rod must be showing inside the junction box.
- ◆ Junction box must be set 2 inches above final grade or on the highside of the slope. Junction boxes set on a sidewalk must be set to grade. Junction boxes cannot be covered by landscape materials. If PGE locates a hidden junction box within 6 months of PGE taking ownership, PGE will bill the developer for the cost to locate and make any additional repairs to bring the junction box to grade.
- ◆ Junction boxes are required at each streetlight location where:
 - conduit runs serve more than one light, or
 - conduit runs exceed 100 feet in length, or
 - conduit sizes are greater than one-inch diameter.
- ◆ A minimum of twelve inches working space is to be provided between the top of elbows and the junction box lid to allow bending wire without damage to the wire.
- ◆ The elbows are to be clustered at one end of the junction box.
- ◆ Where multiple lights are served from a run of wire, three-inch or two-inch conduit and junction boxes are always required.

4. **Light and Pole Placements**

- ◆ Where there is a planter strip, streetlights are to be placed a minimum of 2 foot Face of Pole, Face of Curb.
- ◆ Where sidewalk is directly behind curb, streetlight placement is 6 inches behind walk.
- ◆ Conduit and junction boxes are to be placed in the Public Utility Easement (PUE).
- ◆ All other locations must be approved by a PGE Lighting Project Manager.
- ◆ All metal poles must be grounded per NESC 215.C and NESC Section 9, using a 5/8" x 8' galvanized rod, connected to the grounding lug inside the pole using solid #6 Cu BSD wire (stranded wire is not acceptable). PGE will provide the ground rod and copper wire for grounding the metal streetlight pole. Ground rods will be installed a minimum of 6 inches behind the concrete footing and a minimum of 2 inches below grade. The copper wire is to be coiled at both ends for PGE, copper wire will be pulled through one of the flutes in the concrete footing during the footing installation and the other end placed adjacent to the ground rod.

5. **Light and Pole Installation by Contractor (Option B):**

- ◆ Where junction boxes are installed, the contractor shall run continuous #10 Cu 3-conductor streetlight wire from the luminaire to the junction box.
- ◆ Where junction boxes are not installed, the contractor shall run continuous #10 Cu 3-conductor streetlight wire from the luminaire to the hand hole of the pole. PGE will run conductor from the source to the pole hand hole.
- ◆ In both cases, 18" of extra conductor shall be provided for PGE to make the connection.
- ◆ All direct burial type streetlight poles are to be set to the depth specified in PGE standards:
 - five feet for 30 and 35 foot poles,
 - four feet for all shorter poles.
- ◆ **Where anchor-base type poles are installed using precast concrete footings, PGE specifies:**
 - Utility Vault #20R-LB-4-PGE: 20" diameter/4' long round footing with 11" bolt circle for all 14' or 16' decorative aluminum or composite poles.
 - Utility Vault #4-LB-PGE: 18" square/4' long footing with 8" bolt circle for all 16' regular aluminum poles.

- Utility Vault #5CL-LB-PGE: 14" square/5' long footing with 11" bolt circle for all 25' to 35' aluminum poles and composite poles.
- Utility Vault #7LB: 18" top to 24" bottom tapered square/7' long footing with 11" bolt circle for all 40' aluminum poles and composite poles.
- All Concrete Footings are to be installed with top of concrete base flush to curb/sidewalk.
- ◆ Minimum 8 inch tamped $\frac{3}{4}$ -inch minus crushed rock backfill is required around all poles and footings regardless of soil condition to maintain proper pole alignment.
- ◆ All metal poles must be grounded per NESC 215.C and NESC Section 9, using a 5/8" x 8' galvanized rod, connected to the grounding lug inside the pole using solid #6 Cu BSD wire (stranded wire is not acceptable). The ground rod is to be driven into undisturbed soil near the pole.
- ◆ All streetlights are to be connected 240 volts to the black and red hot legs of the conductor, unless other voltage is approved by PGE lighting project manager. The green wire is to be connected to ground.
- ◆ Wire nuts are not allowed by PGE. The contractor may only connect approved wire directly to the terminal block in the luminaire itself. PGE will make all other connections using compression clamps.
- ◆ PGE will make the final connection in the junction box or hand hole to energize the streetlight.
- ◆ Supplying and installing streetlight on Distribution poles is the responsibility of the developer/customer. The contractor must be a qualified worker per NESC and OSHA requirements. The mast arm and streetlight shall have proper bonding equipment attached for PGE to make the connections to energize the streetlight and bond the mast arm to PGE's system. (This includes the fixture, mast arm, streetlight conductor & bonding materials)

NOTE: The contractor is responsible for the correct operation of the street light system for the first year after being energized by PGE. The contractor is also responsible for any poles which go out of plumb within this first year. During this acceptance period any repairs or pole straightening performed on the installed system by PGE will be billed to the developer.

BILLING AND AUTHORIZATION

1. Line Extension Charge:

There will be a cost to install circuitry for all streetlight projects. The line extension cost is the total material and labor cost for PGE to install as necessary the conductors, transformers, pole conduits, anchors and guying, conductor support poles, and related hardware. The line extension charge is the line extension cost less the allowance based on anticipated revenue to PGE, as approved by the Oregon Public Utility Commission in the PGE tariff. Additional line extension cost not eligible for the Line Extension Allowance includes any payments to a third party for easements, permits, discontinuance costs and any additional costs associated with Underground Line Extensions per PGE tariff.

The line extension charge is to be paid in full prior to any streetlight installations. A signed Streetlight Job Cost Agreement needs returned with payment to **PGE, Attn: Line Extensions, PO Box 3340, Portland, OR 97208** with PGE's job number on the check.

2. Authorization to Energize and Initiate Billing:

PGE will request authorization from the municipality/city to install and/or energize the streetlights as installed, and to begin billing for them under provisions of the appropriate streetlight option.

This letter is effective as of January 04, 2021. If you have any questions or if we can be of any assistance, please call your local Outdoor Lighting Project Manager.