TACOMA POWER
TACOMA PUBLIC UTILITIES

Customer Requirements
Splice Vault Installation

C-UG-1550

Application

Installation requirements of precast concrete splice vaults and associated conduit installations. All excavation work required by this standard shall conform to the safety requirements of WAC 296-155 Part N (Excavation, Trenching, and Shoring) and any other applicable regulations.

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Terms

Term	Definition
Construction Inspector	Representative from Tacoma Power T&D Construction Staff. **A pre-construction meeting with the Construction Inspector must happen prior to any construction. Call 253-381-3023.**
New Services Engineer	Tacoma Power engineering staff that provide design, cost estimates, and coordination of the commercial project.

Inspection Requirements

The Construction Inspector will inspect all electrical contractor construction of splice vaults and associated conduit installations.

Vault and Cover Requirements

The **New Services Engineer** will determine the type of vault and cover (see table below) to be installed depending on location.

Location	Precast Concrete Vault and Cover	MID #
Off-street/incidental (unintentional) traffic	• 684 Base • 684 Cover, standard • 684 Cover, nonskid	21169 63355 21171
Traffic	• 687 Base • 687 Cover with 36 in. manhole access • Manhole frame and cover, 36 in. • Riser, 4 in.	39978 63356 20558 39976

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Installation of Vault and Cover

Foundation and Backfill for Vault

The foundation shall be prepared as follows, as directed by the **Construction Inspector**. See Figures 1 and 2.

<table>
<tr><th>Issue</th><th>Action</th></tr>
<tr><td>Excavation for Vault</td><td>The Construction Inspector will direct the excavation requirements.</td></tr>
<tr><td>Vault Foundation</td><td>Vault foundation shall be minimum of 9 in. of 5/8 in. minus crushed rock, well compacted, extending a minimum of 12 in. beyond the edge of the vault in all directions.</td></tr>
<tr><td>Backfill Material</td><td>Clean fill or better as directed by the Construction Inspector.</td></tr>
<tr><td>Compaction at Subgrade</td><td>Compaction requirements will be determined by the Construction Inspector.</td></tr>
<tr><td>Final Grade</td><td>The elevation difference between the top of the 684 vault cover and final grade shall be:
<table>
<tr><th>Type of Vault</th><th>Type of final surface</th><th>Difference (inches)</th></tr>
<tr><td rowspan="2">684</td><td>Landscaped</td><td>6</td></tr>
<tr><td>Paved surface</td><td>flush</td></tr>
</table>
The elevation difference between the top of the 687 vault and final grade shall be approximately 8.5 inches or as directed by the Construction Inspector. (This is so that the top of the manhole cover will be flush with the final grade of the paved surface). See Figure 2.

Depth of manhole frame/cover = 4.5 in.
Depth of 4 in. riser = 4 in.
Total depth of manhole frame/cover and riser = 8.5 in.

Note: vault depth must be increased if a taller riser ring is used.</td></tr>
</table>

Installation of Vault and Cover *(continued)*

Figure 1 684 Vault Foundation and Backfill

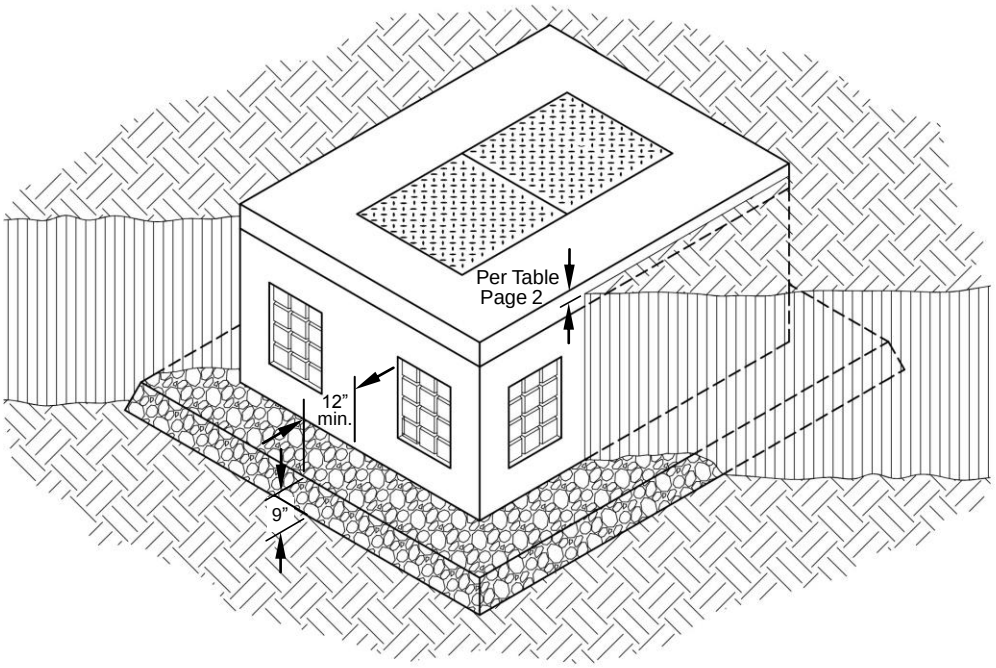
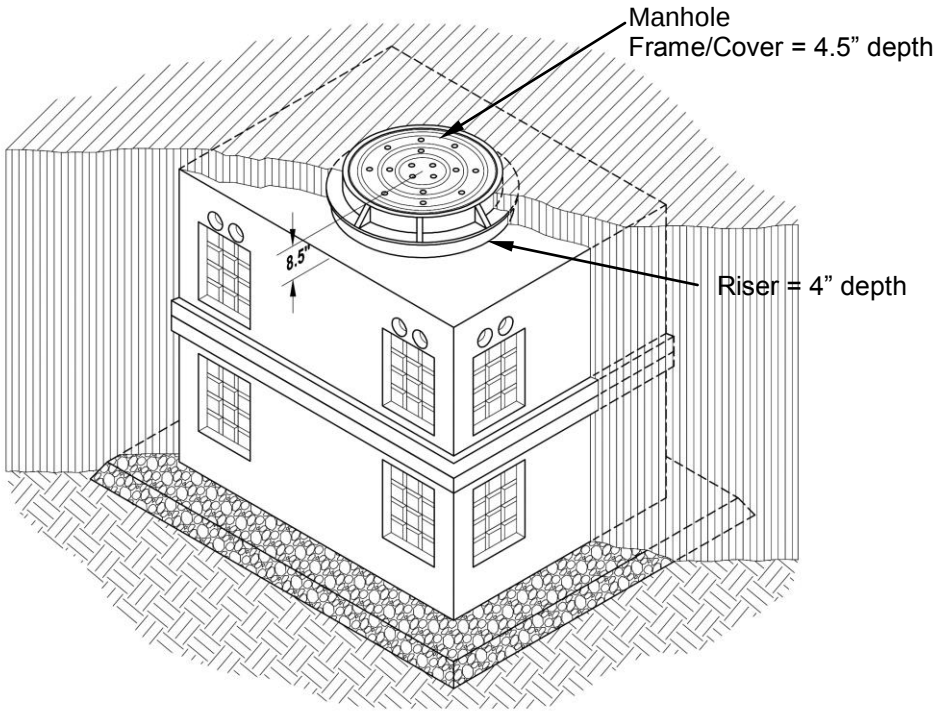


Figure 2 687 Vault Foundation and Backfill

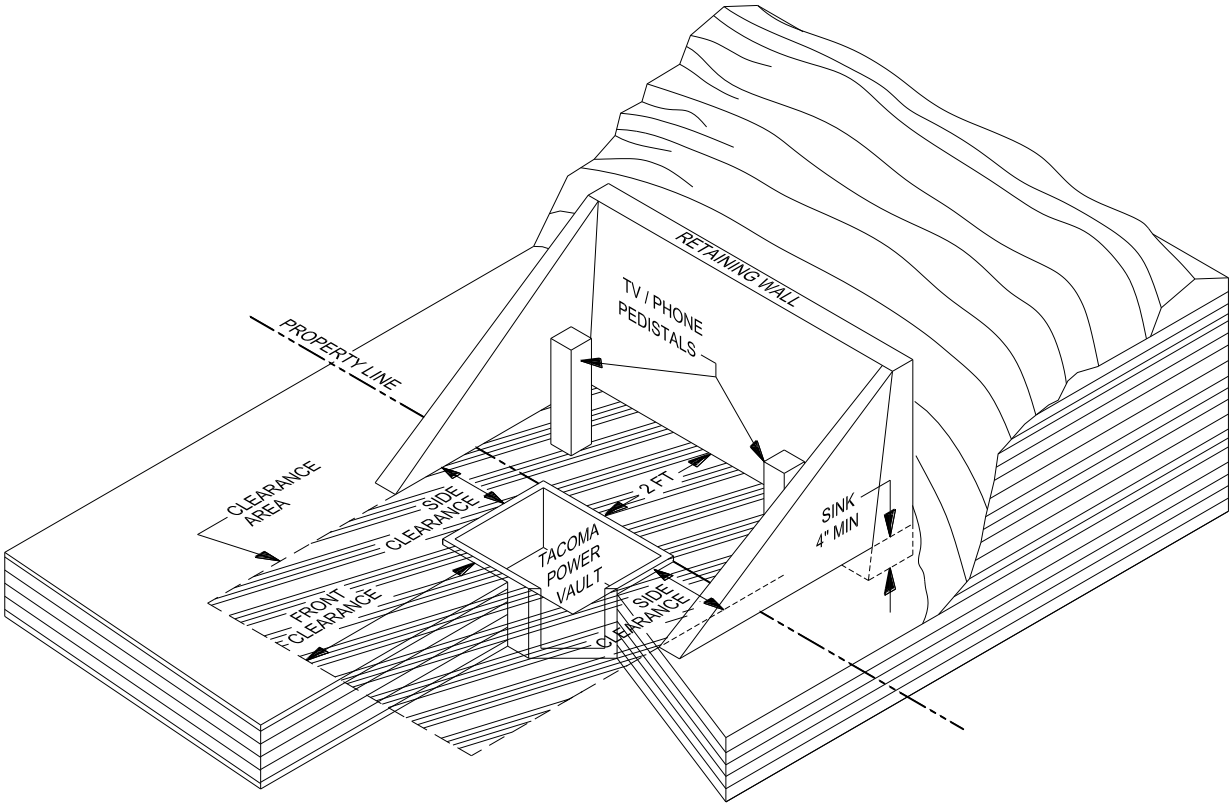


Installation of Vault and Cover *(continued)*

Figure 3 Sloping Installations

For splice vaults installed on a slope, the ***minimum*** dimensions for clearances are:

- Front clearance = **8 ft.**
- Side clearance = **8 ft.**



Construction Notes

- ***The vault should be installed approximately 26 in. into the trench so that conduit entering the vault will not have any bends (see Figure 4).***
- The splice vault must be kept clear of any ***obstructions***, such as:
  - fences, mail boxes, rockeries, berms, and vegetation.
  - bark, sod, ground cover mulch, and rocks, etc., on any part of the structure.
  - trees and bushes extending into the clearance area.
- Phone and TV pedestals must be installed behind the vault on back corners as shown above.
- The clearance area grade shall be level and a retaining wall shall be provided when required by the Tacoma Power Engineer.
  - A wooden, concrete or rockery wall shall have 1 to 4 maximum allowable slope to the property line.
- Typical structures are located in a utility easement, or on a public right-of-way, ***not*** on private property.

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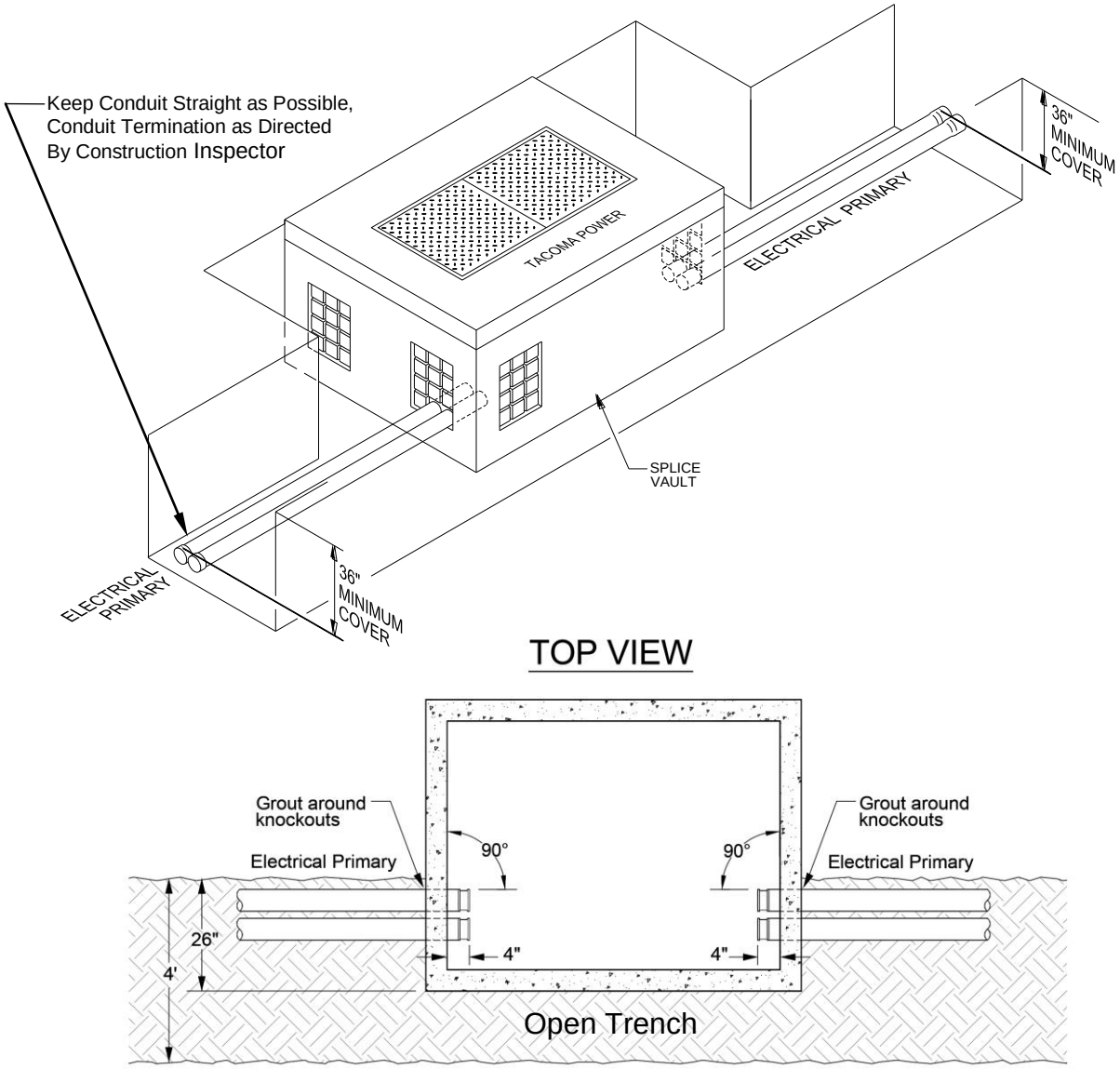
Installation of Conduit

Figure 4 General Conduit Layout Into Vault



Trench The depth of trench and backfill for primary conduit is listed below:

Issue	Action
Depth	A minimum of 36 in. of cover is required over the primary conduit. With prior approval, exceptions may be granted by the **New Services Engineer**.
Backfill	The trench shall be backfilled with clean fill or better as directed by the **Construction Inspector**.

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Installation of Conduit *(continued)*

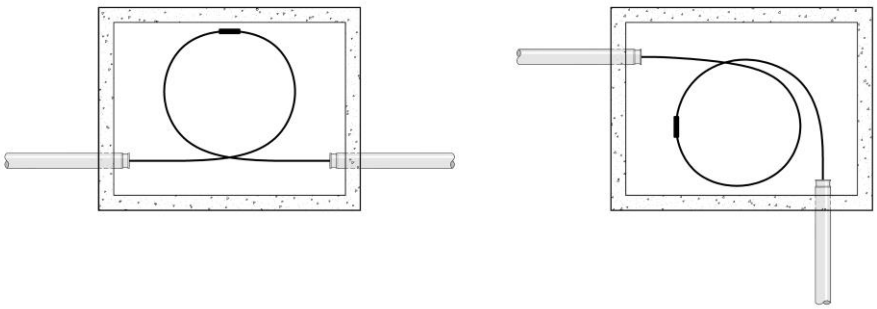
Conduit Size & Type

The conduit shall be installed per the requirements listed below unless otherwise directed by the **New Services Engineer**:

Issue	Action
Size of Conduit	6 in.
Color and Minimum Grade of Acceptable Conduit	Gray, Sch. 40 PVC

Conduit Entry

Conduit entering the vault shall enter in one of two ways as shown below. This is for the training of cable in the vault to be in opposite directions. The **Construction Inspector** may approve exceptions on a site-by-site basis only. **In any case, all conduit entry into the vault shall allow one set of cables to be trained in a clockwise direction and the other set of cables to be trained in a counter-clockwise direction.**



Conduit Terminations

Conduit shall be terminated as detailed below:

Issue	Action
Termination of Conduit ***Inside*** the Vault	The conduit into the splice vault shall: • be perpendicular to the vault wall. • extend 4 in. into the vault. • have bell ends on the conduit ends. Do not glue bell ends. • be sealed into the vault with grout around the knockouts.
Termination of Conduit "stubs" ***Beyond*** the Vault (when required)	The conduit ends shall: • be terminated 5 ft. minimum beyond the vault. • install conduit coupling and cap prior to backfill in order to prevent the backfill material from entering the conduit. • be marked with a length of 2.5 in. Sch. 40 PVC conduit extending vertically a minimum of 4 ft. above grade with a *"Call Before You Dig"* sticker.