

**1 Scope**

This document is intended to assist underground primary customers in understanding the requirements for locating a BC Hydro-owned switchgear on private property. Customers will need to consider these requirements when it is likely a BC Hydro-owned switchgear will be positioned on private property, especially in urban areas. Additional BC Hydro equipment may also be needed to provide electric service. This will be addressed in a project’s detailed requirements review and is outside of the scope of this document. This document does not replace the existing processes in place.

If there is a conflict between this standard and applicable BC Hydro ES53, and ES54 construction standards, the construction standards with the latest issue date take precedence.

BC Hydro will, at its sole discretion, determine the type of customer supply and need for BC Hydro-owned switchgear based on factors including, but not limited to, reliability, capacity, and operational and system design considerations.

This document focuses on BC Hydro-owned switchgear requirements on private property. It does not address additional building requirements such as those in the BC Building Code and Canadian Electrical Code, which are the responsibility of the customer to consider and incorporate.




See the *Requirements for Customer-Owned Primary Services Supplied at 4 kV to 35 kV (Primary Guide)* for detailed information regarding primary voltage connection obligations. Submitting a design that adheres to the established standards (options 1 through 7 described in section 3 below) can lead to timely completion.

The supply point and BC Hydro-owned switchgear requirements may change throughout the design and construction of the electrical connection if:

- a. The project is delayed;
- b. Site conditions require a design revision;
- c. Changes are made to the original design;
- d. Electrical room location changes;
- e. Electrical load requirements change;
- f. Utility coordination changes; and
- g. Any non-standard element changes.

The proposed service configuration, including the supply point and BC Hydro-owned switchgear, is subject to change based on electrical system safety and reliability priorities. These changes may be influenced by other customer developments or broader system considerations, whether known or unknown. BC Hydro assumes no liability for any project impacts or delays resulting from such changes.

The final configuration will be confirmed during the detailed requirements review of the electrical service connection process.

Designed: K. Middleton, P.Eng		Professional of Record	<p><b>Customer Guide:</b>  <b>BC Hydro-Owned Switchgear                  Placement and Requirements</b></p> <p>Engineering Guide</p>	
Checked: K. Middleton, P.Eng	Not required	Not required – no engineering content		
Reviewed: H. Giesbrecht, P.Eng	Not required			
Approved: H. Giesbrecht, P.Eng		Issued: 2025-08-14 Effective: 2025-08-14	DISTRIBUTION STANDARDS 	<b>ES55 B2-05 R2</b>

BC Hydro will provide timely notification if revisions to the proposed configuration are required. Customers are expected to promptly notify BC Hydro of any changes to the submitted design or electrical load. Early communication will support timely coordination and help minimize delays related to adjustments in the supply point or switchgear location.

## 2 BC Hydro-Owned Switchgear

Switchgear is essential for both system reliability and customer service. It enables BC Hydro to manage, protect, and control electricity flow across the grid, supporting fault isolation, load balancing, and operational flexibility.

Switchgear helps ensure safe and reliable integration with the distribution system for medium and large customer loads. Switchgear installation is based on overall system needs and customer requirements—it is not solely driven by customer demand.

Engage with BC Hydro in the early stages of the building development planning process by contacting [www.bchydro.com/getconnected](http://www.bchydro.com/getconnected).

BC Hydro prefers to install switchgear on public land. It is the customers responsibility to find space for the BC Hydro-owned switchgear. Options for BC Hydro-owned switchgear on public property can be found in ES54 section E.

Customers requesting BC Hydro-owned switchgear be installed on their private property in urban and suburban settings must plan for the switchgear installation per section 3 of this document.

BC Hydro-owned switchgear may be required in the following situations:

- a. Development requirement to underground three-phase overhead lines;
- b. Transformer size is 2 MVA or greater in 12 kV areas or 4 MVA or greater in 25 kV areas;
  - i. Where customer owned transformer inrush current levels do not coordinate with an 100T fuse
- c. Canadian Electrical Code total calculated loads of 1.5 MW or greater in 12 kV areas or 3 MW or greater in 25 kV areas;
- d. Development of large-scale, multi-phase underground utility infrastructure to support master-planned residential or industrial communities; and
- e. The electrical distribution layout in high-density urban environments such as city centres or transit-oriented developments may require a BC Hydro-owned switchgear to comply with BC Hydro infrastructure requirements and to ensure a stable and efficient distribution system.

Some configurations may require more than one BC Hydro-owned switchgear. BC Hydro will assess each case individually to determine the appropriate setup. Contact BC Hydro early in the project planning phase if the development includes:

- a. Dual supply (see the *Primary Guide*); or
- b. Two or more primary services to the property.

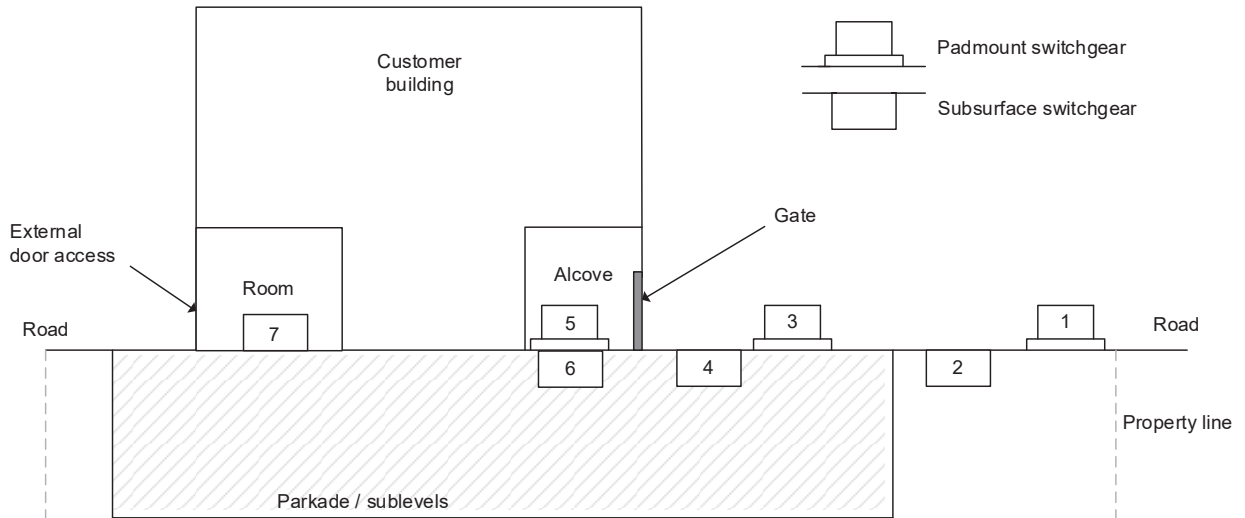
## 3 BC Hydro-Owned Switchgear Installation Options on Private Property

There are seven available options for installing BC Hydro-owned switchgear on private property. These are summarized in Figure 1 and Table 1. See the BC Hydro standards available at [bchydro.com/distributionstandards](http://bchydro.com/distributionstandards) for detailed information on each option. A BC Hydro representative will work with customers to select the best option for BC Hydro while considering the building development needs and to determine the supply point location.

BC Hydro-owned switchgear should be located as close as practical to the BC Hydro supply and property line to:

- a. Minimize cable pulling tensions;
- b. Allow a BC Hydro cable trailer to be parked on the road or lane for cable pulling; and
- c. Provide access to the equipment.

Locating equipment further from the BC Hydro supply point and property line may require a more complicated design. Drivable surfaces and parking areas must be rated to support a gross vehicle weight rating (GVWR) of 12,700 kg.



**Figure 1** – Seven options for BC Hydro-owned switchgear on private property

**Table 1** – Seven options to install BC Hydro-owned switchgear on private property

No.	Name	Drawing reference
Outdoors on suitable backfill		
1	Above ground switchgear	Appendix A Figure 2
2	Below ground switchgear	Appendix A Figure 5
Outdoors above building sublevels		
3	Above ground switchgear	Appendix A Figure 2 and 3
4	Below ground switchgear	Appendix A Figure 5 and 6
Within the building envelope		
5	Alcove above ground switchgear	Appendix A Figure 2 and 4
6	Alcove below ground switchgear	Appendix A Figure 5 and 7
7	Switchgear in room at grade with direct external access	Appendix A Figure 8 and 9

Use the plan views of BC Hydro-owned private property switchgear options shown in Appendix A for space planning. Appendix A dimensions are the maximum area that will be needed for BC Hydro-owned switchgear. Final space requirements will be determined during the detailed requirements review, where BC Hydro supply and duct locations can be finalized. Unused space confirmed by BC Hydro can be repurposed by the customer.

### 3.1 BC Hydro Switchgear Vault Accessible Through Parkade

BC Hydro-owned switchgear located inside a customer building with access through a parkade may be considered if:

- a. The location is in a dense urban area with zero lot line construction;
- b. The above ground building takes up the entire property; and
- c. Options 1 through 7 are demonstrated to not be feasible.

BC Hydro discourages the use of the switchgear accessible through a parkade. There are strict accessibility and cable installation requirements for the acceptance of this uncommon installation type. Approval is subject to a formal variance process, and acceptance is not guaranteed.

BC Hydro approval must be obtained before proceeding with plans to place BC Hydro-owned switchgear in a parkade to ensure alignment with safety and operational standards.

Design of the switchgear location, connection to the BC Hydro system, and connection to the customer's electrical room must be approved by BC Hydro.

## 4 Requirements for BC Hydro-Owned Switchgear on Private Property

BC Hydro-owned switchgear on private property must follow ES54 construction standards and meet the requirements for primary service outlined in the Primary Guide.

The following requirements also apply:

- a. Options 1 through 7 (described in Table 1) require BC Hydro-owned switchgear and associated equipment to be placed near a drivable surface to allow BC Hydro vehicles to install and access the equipment throughout the life of the building:
  - i. The customer shall consult the local municipality to determine ownership, maintenance, and repair responsibilities for drivable surfaces located on public property. BC Hydro does not take responsibility for damage that may occur to the drivable surface during delivery, installation, or replacement of the BC Hydro-owned equipment.
- b. Alcove options 3 through 6 require vehicle access for a BC Hydro cable trailer over sublevels (instead of on a road or lane) be designed to support a GVWR of 12,700 kg (see section 3);
- c. Indoor switchgear rooms at grade with direct external access (option 7) require the customer's primary electrical room be in proximity to the BC Hydro-owned switchgear to limit the cable run to 10 m (see *Primary Guide*);
- d. Alcove options 5 and 6 must be designed for easy access by a BC Hydro cable trailer. If this is not possible, the cable run between the switchgear and electrical room must not exceed 10 m;
- e. Unrestricted 24/7 access for BC Hydro crews is required. The means of access is subject to review by BC Hydro;
- f. Direct vehicle access with no barriers (i.e. parking stalls, structures, and other obstructions) is required at all times for BC Hydro crews to access the equipment;
- g. BC Hydro vehicles must have unobstructed access to at least one side of the building via a street, yard, or designated lane; and
- h. Access routes and equipment location must be planned to avoid interference with regular traffic and pedestrian pathways, ensuring safety and accessibility for all users.

### 4.1 Civil Infrastructure Customer Scope of Supply

See the "Customer Scope of Supply" section in ES54 S0-02 for details about the ownership of civil infrastructure (such as ducts, conduits, vaults, pads, and lids) on private property.

See ES54 S0-05 for details on foundation wall penetration of primary ducts.

## 4.2 Statutory Rights of Way

BC Hydro requires unrestricted access for BC Hydro personnel, granted through formal registration of a legal statutory right-of-way (SRW) in the land title office appropriate for the switchgear location, for the delivery, installation, and emergency safety isolation of BC Hydro-owned equipment on private property.

A blanket SRW is also required for primary service conductors and related infrastructure from the property line to the switchgear vault.

## 5 Contact

A design file needs to be started to get certainty on servicing requirements. See [www.bchydro.com/getconnected](http://www.bchydro.com/getconnected). Select “Large load connections” for loads greater than 2.5 MW in 12 kV areas and loads greater than 5 MW in 25 kV areas.

See [www.bchydro.com/getconnected](http://www.bchydro.com/getconnected) or contact the local BC Hydro design representative assigned to your project if you have any questions regarding BC Hydro requirements or recommendations.

## 6 Revision Notes

Retitled and rewrote entire standard to provide customers with BC Hydro requirements for switchgear on private property. This standard released concurrently with Standards and Equipment Advisory Information Bulletin 2025-037 *Revised ES55 B2-05 BC Hydro-Owned Switchgear Placement and Requirements*.

## 7 References

Distribution technical standards and guides at [bchydro.com/distributionstandards](http://bchydro.com/distributionstandards), including:

- a. Requirements for Customer-Owned Primary Services Supplied at 4 kV to 35 kV – Primary Guide
- b. ES54 section E *Switchgear Vaults and Pads*
- c. ES54 S0-02 *Services General Notes*
- d. ES54 S0-05 *General Notes Service Ducts and Trenches*

8 Appendix A

The figures in this appendix are for space planning purposes. Layout orientation will be determined by BC Hydro and site conditions in the project detailed requirements review.

LVE is the low-voltage enclosure containing switchgear controls.

8.1 Above Ground Switchgear (Options 1, 3, and 5)

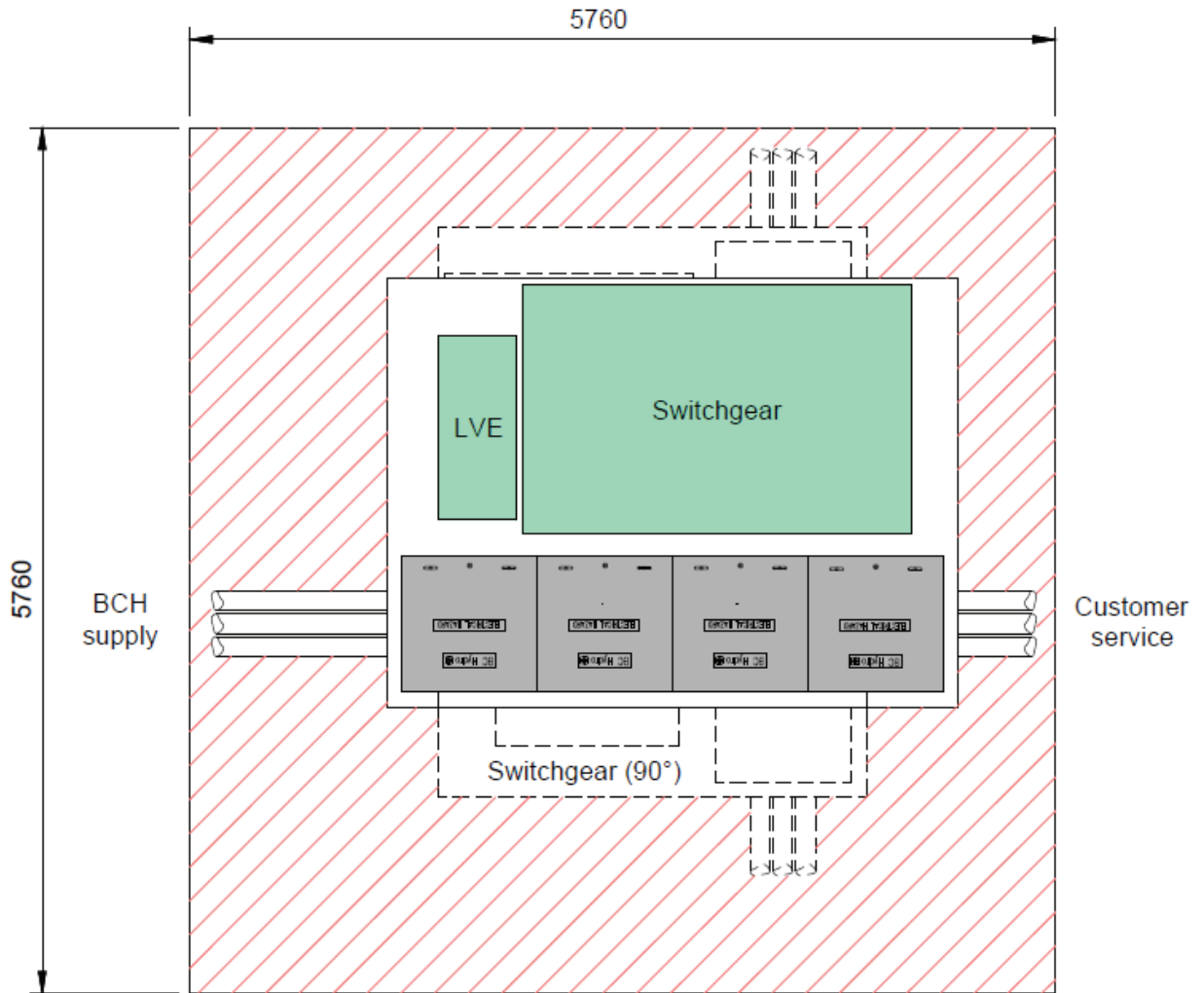


Figure 2 –Above ground switchgear (options 1, 3, and 5) plan view

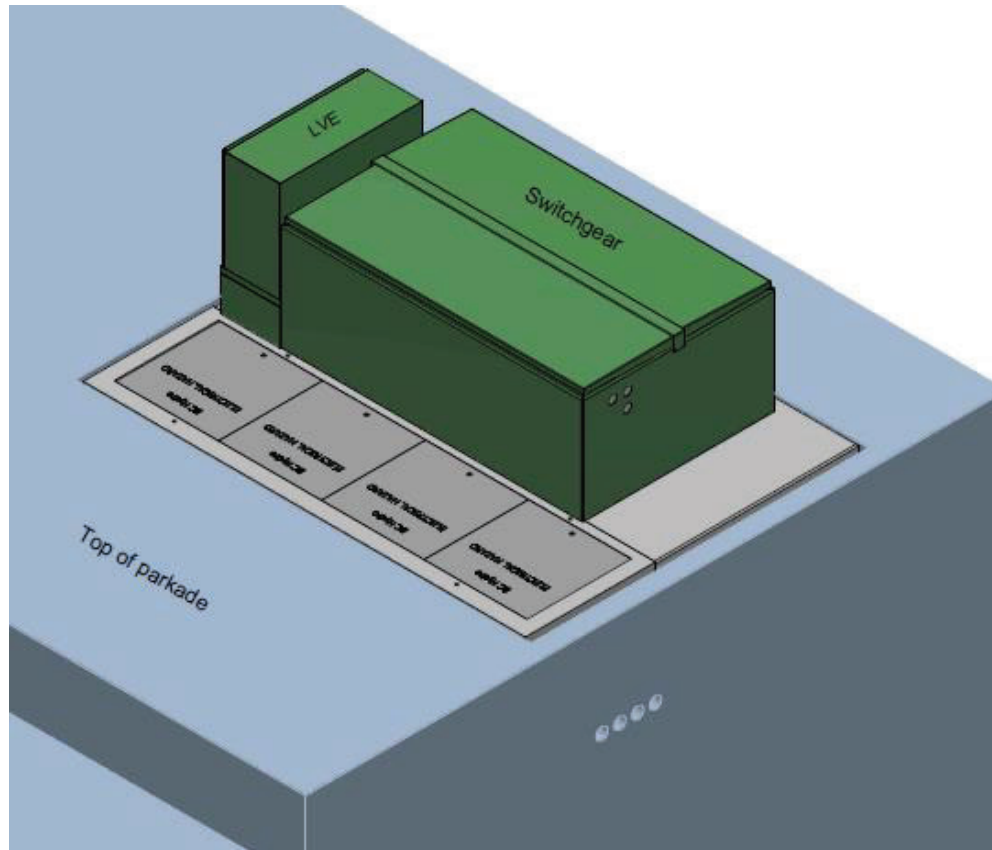


Figure 3 –Above ground switchgear (options 1 and 3) isometric view

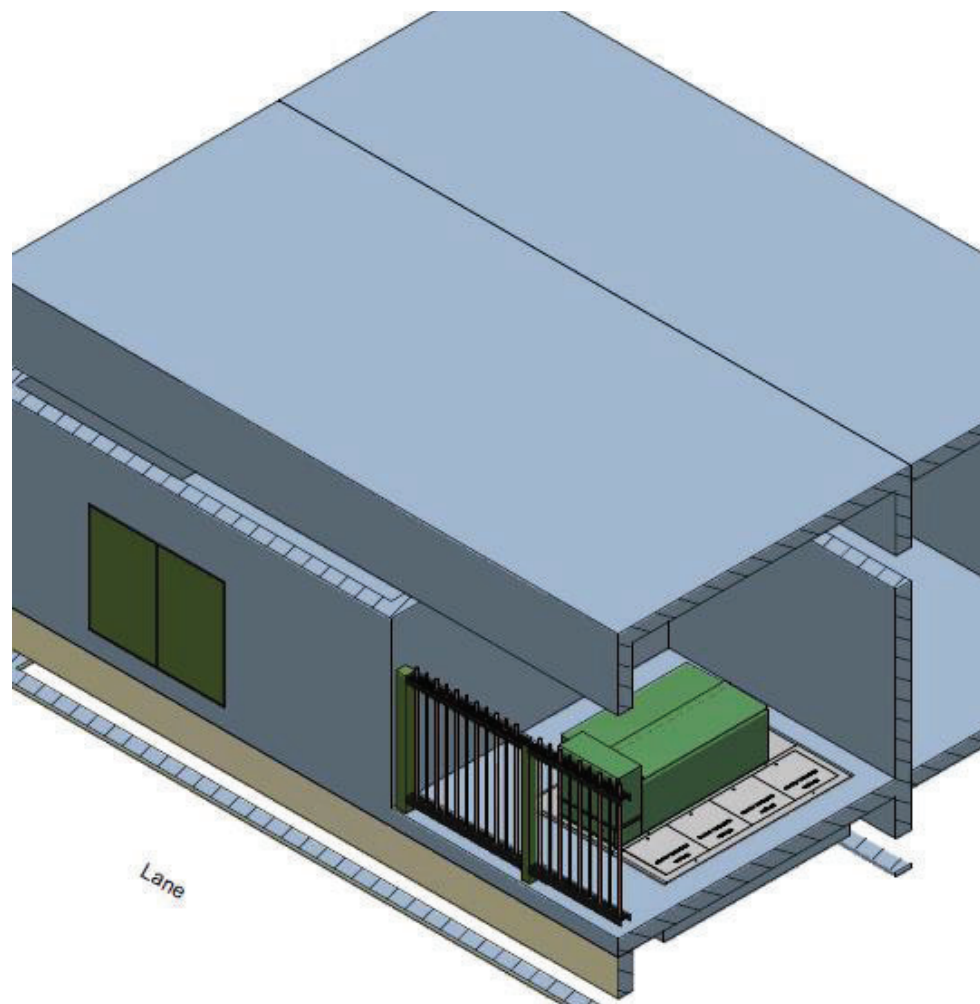


Figure 4 –Alcove (option 5) isometric view

8.2 Subsurface Switchgear (Options 2, 4, and 6)

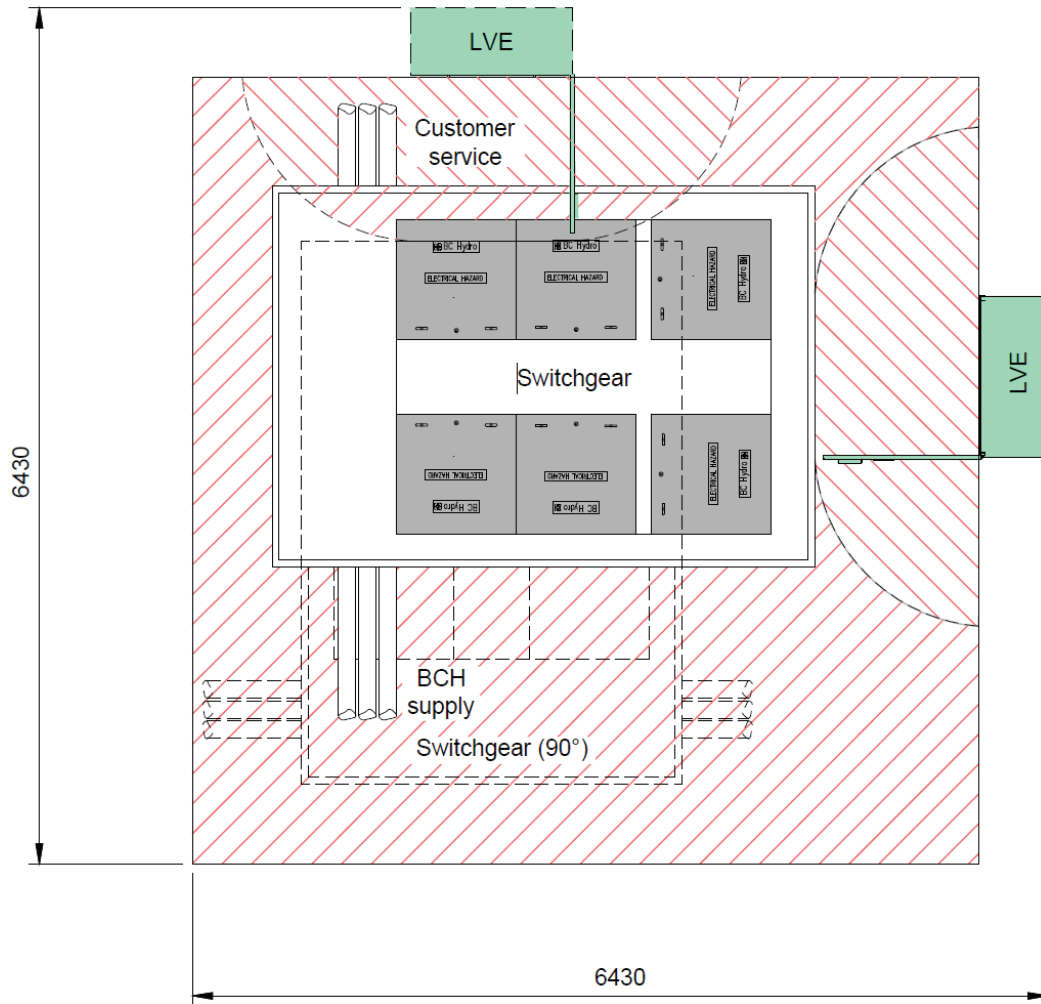


Figure 5 –Subsurface switchgear (options 2, 4, and 6) plan view

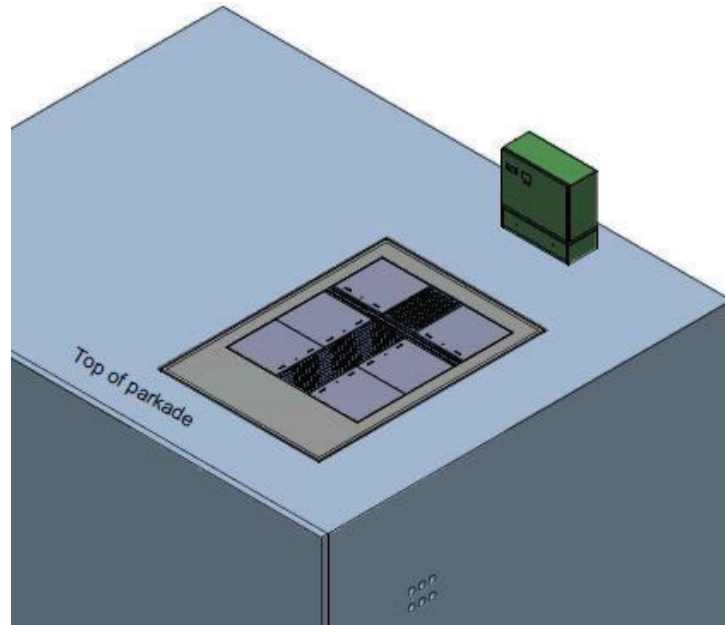


Figure 6 –Subsurface switchgear (options 2, and 4) isometric view

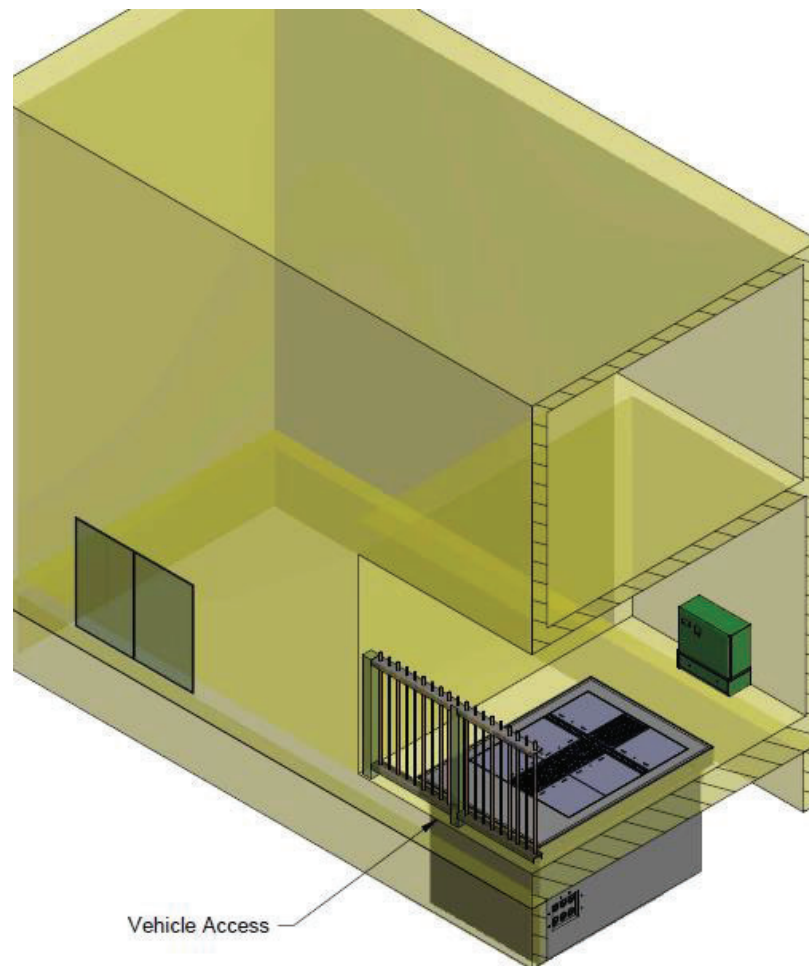


Figure 7 –Alcove (option 6) isometric view

8.3 Switchgear Vault in Room at Grade with Exterior Access (Option 7)

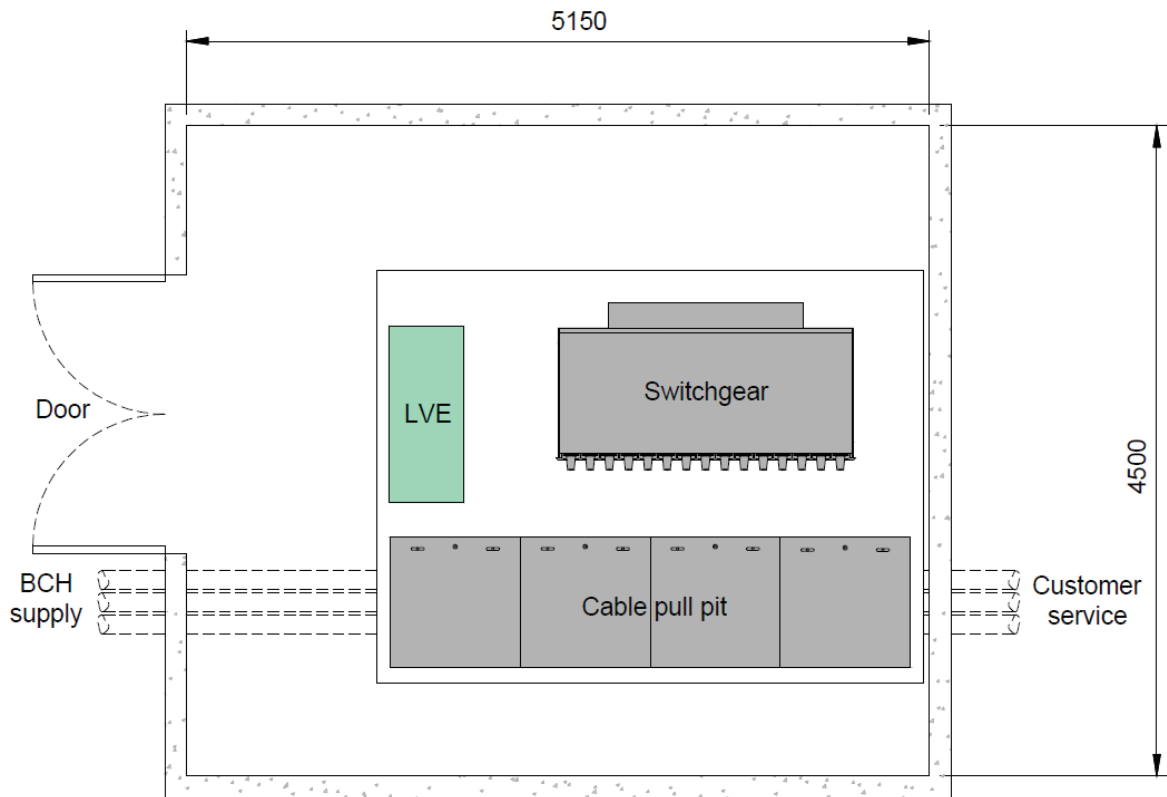


Figure 8 –Switchgear in room at grade with external access (option 7) plan view

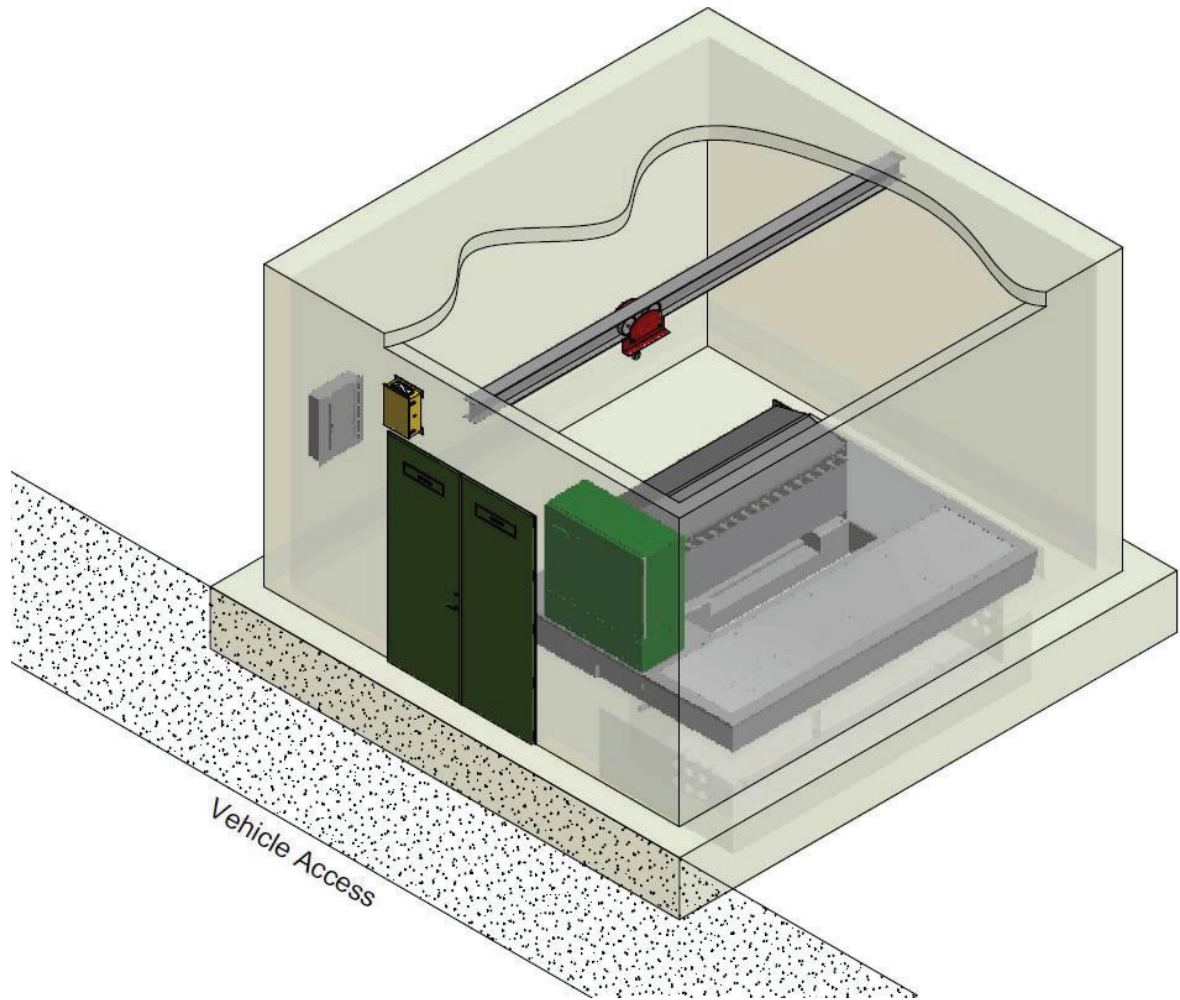


Figure 9 – Switchgear in room at grade with external access (option 7) isometric view