INFORMATION BULLETIN

ELECTRICAL SAFETY REGULATION APPLICATION TO PUBLIC UTILITIES

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This information bulletin is being issued by a provincial safety manager pursuant to section 30 of the *Safety Standards Act*.

Scope

This information bulletin provides guidance on the interpretation and application of the Electrical Safety Regulation (ESR) in respect to the electric power utilities' customer service connections. This information bulletin applies only to equipment owned by public utilities as defined under the *Utilities Commission Act*.

Introduction

The exemption under Section 3(1) of the Electrical Safety Regulation does not specifically cover varying scopes of electrical installations on private property associated with evolving configurations of customer utility supply service connections. Historically, electric utilities in British Columbia have required utility customers to supply, install, and maintain all material and equipment as customer owned infrastructure for customer service connection. Accordingly, this work has historically not been considered as being exempted under ESR, s. 3(1).

Changes to utility practices and requirements for utility connections have often resulted in confusion among designers, installers, and inspection authorities. There was a lack of clarity regarding the allocation between regulated and exempted electrical work; and the appropriate design and installation standard to be applied.

These conditions resulted in a review with respect to this work and its relationship to the exemption. Directive D-EL 2017-01 and this bulletin clarify the demarcation point separating regulated electrical work requiring a permit and work on customer owned infrastructure for the purpose of utility distribution of electrical energy that comprise utility exemption per Electrical Safety Regulation Section 3.

Utility requirements

Based on applicable utility standards, the customer shall supply all ducting for the utility supply conductors, pull boxes and cable pull pits. In the past few decades, utilities required customers to provide highly prepared switchgear rooms and transformer alcoves to facilitate the installation of utility owned equipment inside customer owned buildings. This requirement evolved in response to certain zoning bylaw changes, which allowed zero clearance building development to the property line.

Electrical utilities have recently been implementing engineered grounding standards, which require equipotential bonding for exposed pad-mounted equipment, as the most effective means for ensuring public safety. Accordingly, the utility requires its customers to supply, install and maintain customer owned grounding, bonding and gradient control conductors associated with the utility high voltage distribution equipment placed on private property andinside customer owned buildings.

Electrical utility infrastructures (including utility owned and customer owned and maintained) do not fall within the jurisdiction of Technical Safety BC. Therefore, Technical Safety BC assumes no responsibility regarding design, installation, operation, or public safety. Utility customers are encouraged to work with the utility to understand the applicable standards and inspection requirements.

The confines and demarcation of Section 3(1) utility exempt infrastructure are defined by utility civil and electrical drawings associated with specific site installations and are restricted to infrastructure directly related to the exercise of its function as a utility with respect to the generation, transmission, and distribution of electrical energy.

A. For illustration purposes, examples of typical exempted utility service connections are provided in Appendix A.

Provincial Safety Manager

References:
Electrical Safety Regulation
Directive D-EL 2017-01 Exemptions to Public Utilities

TABLE A.1

Utility Service	Service Type	Electrical work exempted under ESR, s. 3(1) and built to utility standard(s).	Electrical work requiring a permit, and compliance with BC Electrical Code.
Primary Services - Overhead Utility Supply	**Utility O/H line supply to customer owned O/H primary service line**	Utility point of connection: Utility cable terminations (typically at customer's first pole or H-Frame pole). Utility work: O/H line utility supply to customer first pole.	Private O/H line construction, load-break switch at first pole, HV grounding, and transformers. Operating permit required upon completion and connection to utility supply, with Class A or Class LI field safety representative. Subject to inspection by Technical Safety BC or local government inspection authority.
	Utility O/H line pole dip to customer owned pad-mounted primary service kiosk	Utility point of connection: Utility cable terminations in cable compartment at customer kiosk. Utility work: O/H line pole dip and ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property.	Installation of customer owned service kiosk, HV grounding, all transformers, equipment and wiring after utility point of connection. Operating permit required upon completion and connection to utility supply, with Class A or Class LI field safety representative. Subject to inspection by Technical Safety BC or local government inspection authority.
	Utility O/H line pole dip to U/G primary service inside customer owned building	Utility point of connection: Utility cable terminations in compartment at customer owned primary service. Utility work: O/H line pole dip and ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property and inside customer building.	Installation of customer owned building HV service, HV grounding, all equipment and wiring after utility point of connection. Operating permit required upon completion and connection to utility supply, with Class A or Class LI field safety representative. Subject to inspection by Technical Safety BC or local government inspection authority.

TABLE A.2

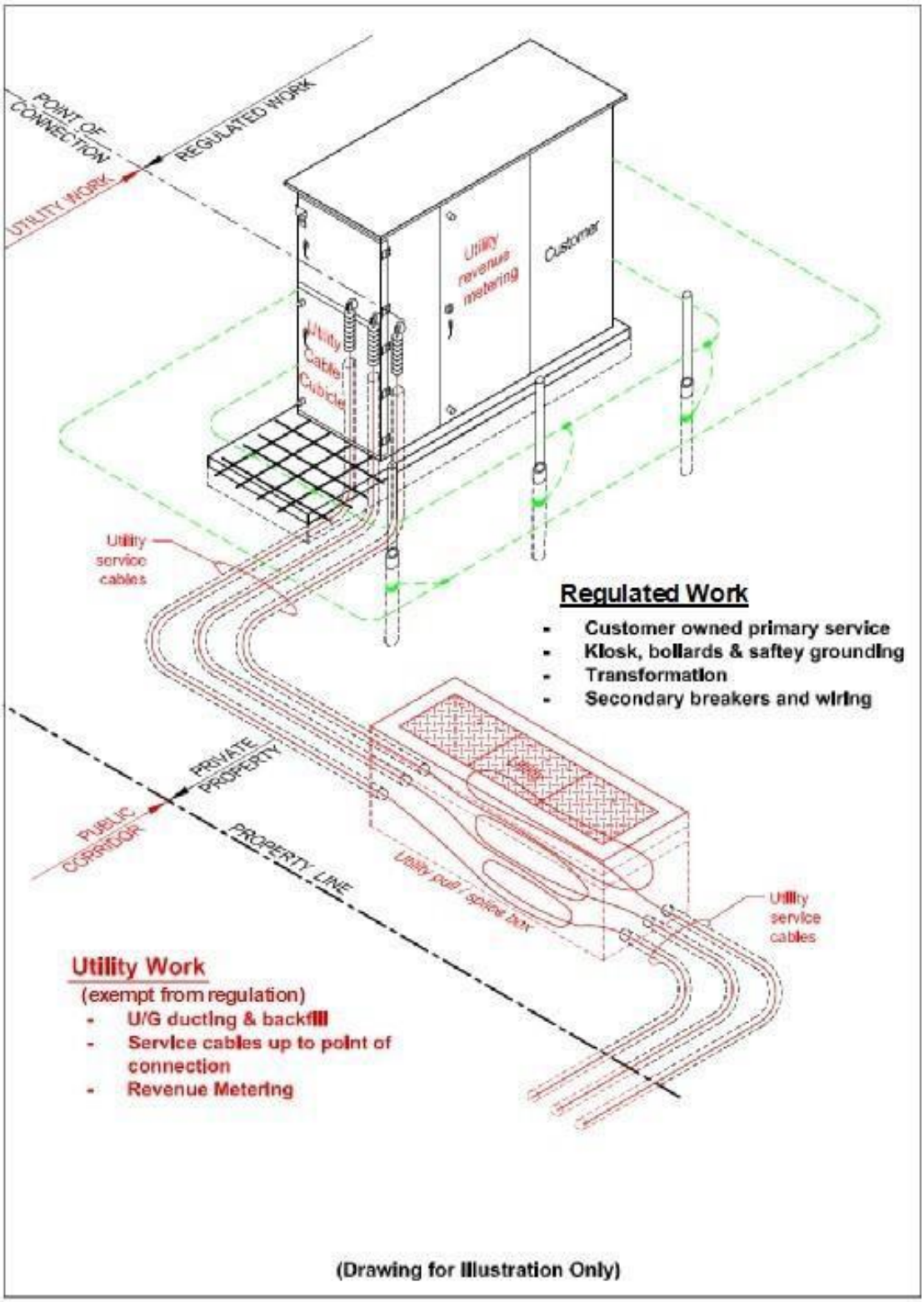
Utility Service	Service Type	Electrical work exempted under ESR, s. 3(1) and built to utility standard(s).	Electrical work requiring a permit, and compliance with BC Electrical Code.
Primary Services - Underground Utility Supply	**Utility U/G supply to customer owned pad-mounted primary service kiosk**	Utility point of connection: Utility cable terminations in compartment at customer kiosk. Utility work: U/G ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property.	Installation of customer owned primary service kiosk, HV grounding, allequipment and wiring after utility point of connection Operating permit required upon completion and connection to utility supply, with Class A or Class LI field safety representative. Subject to inspection by Technical Safety BC or local government inspection authority.
	Utility U/G supply to customer primary service inside building - Single and Dual Radial Supply	Utility point of connection: Utility cable terminations in compartment at customer building primary service box. Utility work: U/G ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property, customer owned dual radial switches and HV gradient control conductors around dual radial switches.	Installation of customer owned building primary service, dual radial switches for utility use, all HV grounding inside customer building, all equipment and wiring after utility point of connection. Operating permit required upon completion and connection to utility supply, with Class A or Class LI field safety representative. Subject to inspection by Technical Safety BC or local government inspection authority.
	U/G supply to customer primary service inside building – Open Loop Supply	Utility point of connection: Utility cable terminations in compartment at customer building primary service. Utility work: U/G ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property, Open Loop Supply switchgear, HV grounding and precast concrete vaults on public corridors and private property, Switchgear Room inside customer building (customer owned and maintained for utility exclusive access) including customer owned HV grounding and bonding and cable pull pit.	Installation of customer owned building primary service equipment, HV service grounding, Switchgear Room ancillary equipment, all equipment and wiring after utility point of connection. Operating permit required upon completion and connection to utility supply, with Class A or Class LI field safety representative. Subject to inspection by Technical Safety BC or local government inspection authority.

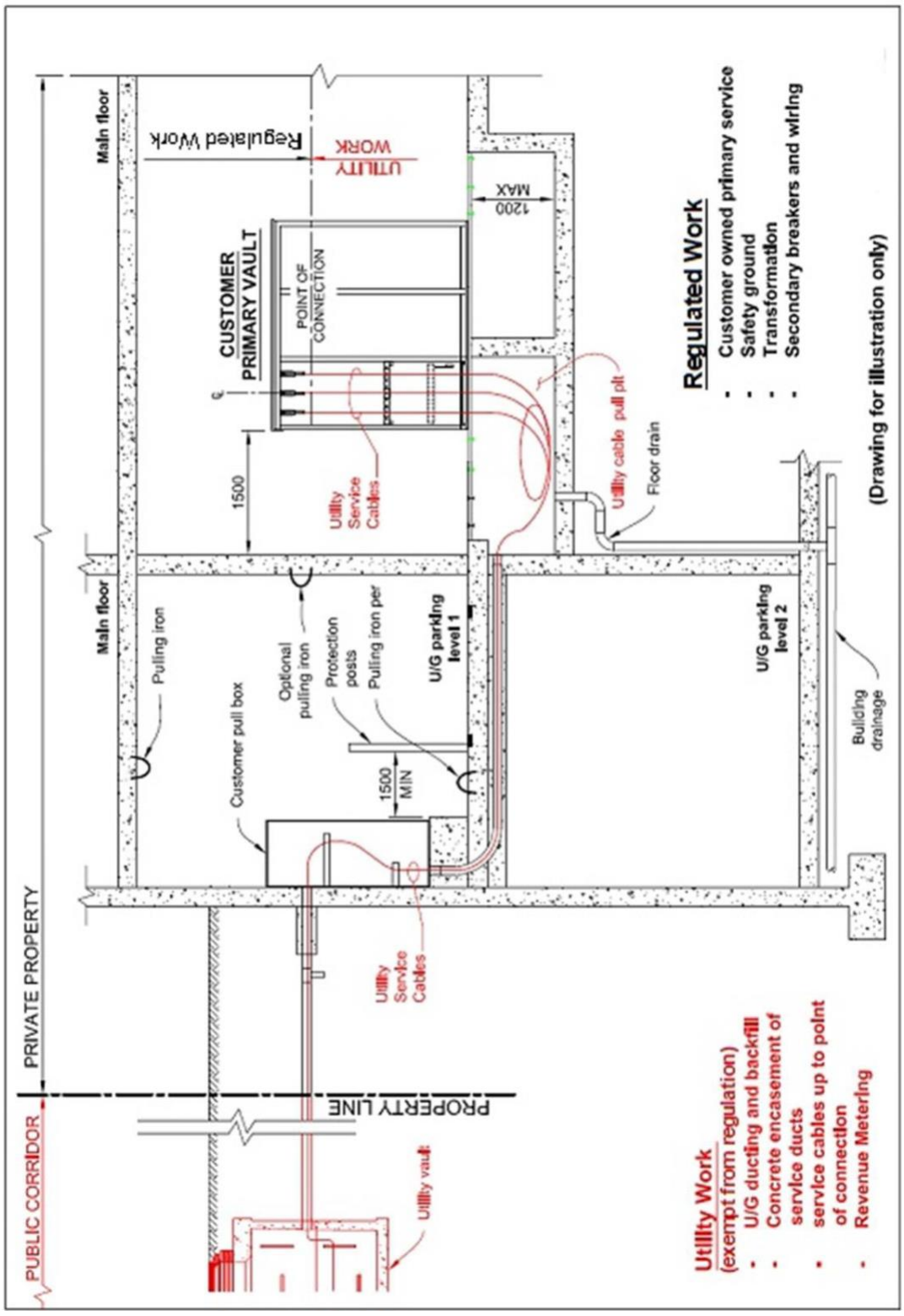
TABLE A.3

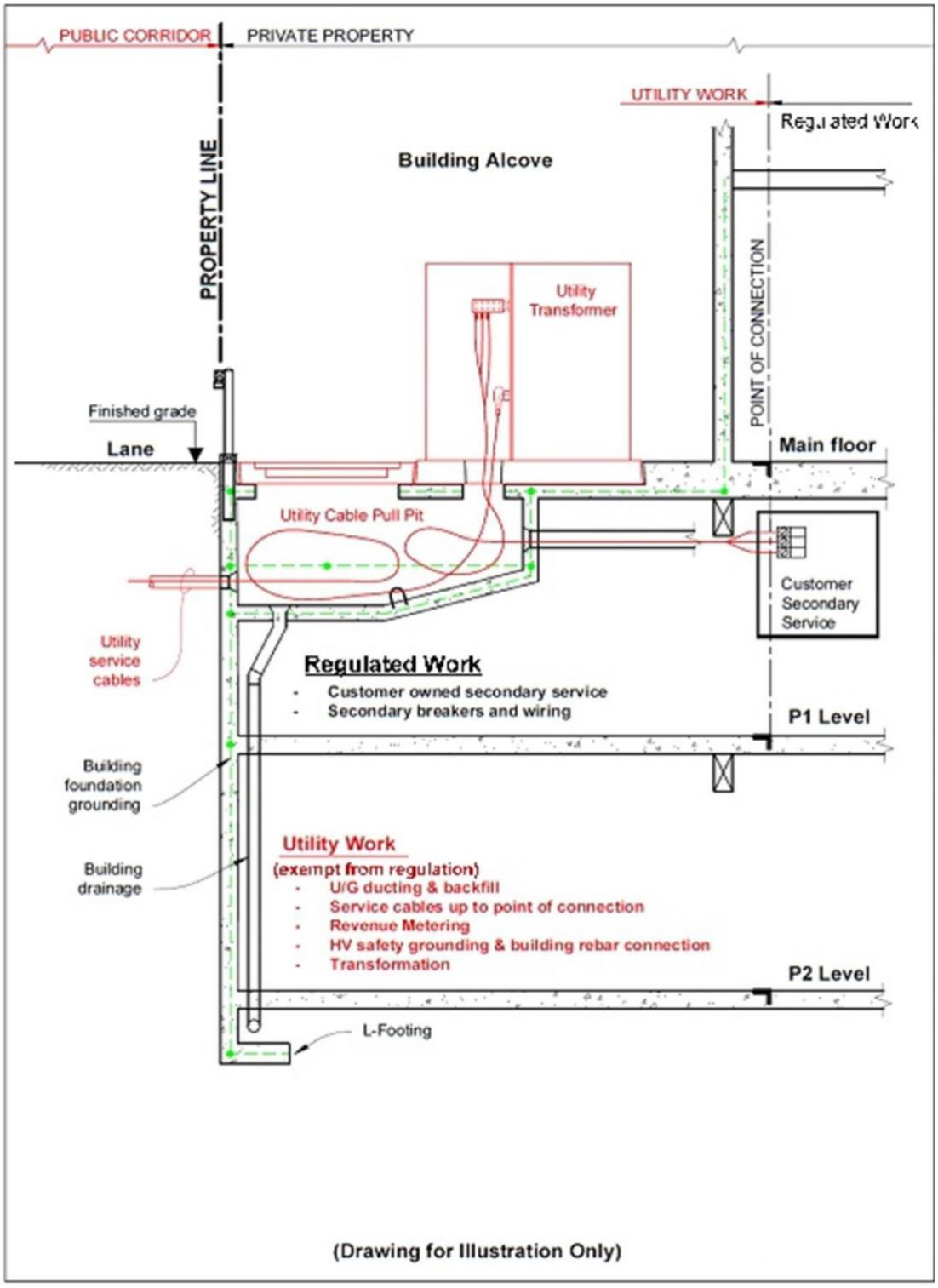
Utility Service	Service Type	Electrical work exempted under ESR, s. 3(1) and built to utility standard(s).	Electrical work requiring a permit, and compliance with BC Electrical Code.
Secondary Services - Overhead Utility Supply	**Single phase 120/240 V secondary service**	Utility point of connection: Utility conductor terminations. Typically, at customer owned mast(s) O/H drip loops. Utility work: O/H line utility supply to customer owned service mast(s).	Service mast, meter socket and all wiring after utility point of connection, including service grounding and bonding. Operating permit: See directive. Subject to inspection by Technical Safety BC or local government inspection authority.
	Three phase 120/208 V and 347/600 V secondary services	Utility point of connection: Utility conductor terminations. Typically, at customer owned mast(s) O/H drip loops. Utility work: O/H line utility supply to customer owned service mast(s).	Service mast, meter socket and all wiring after utility point of connection, including service grounding and bonding. Operating permit: See directive. Subject to inspection by Technical Safety BC or local government inspection authority.

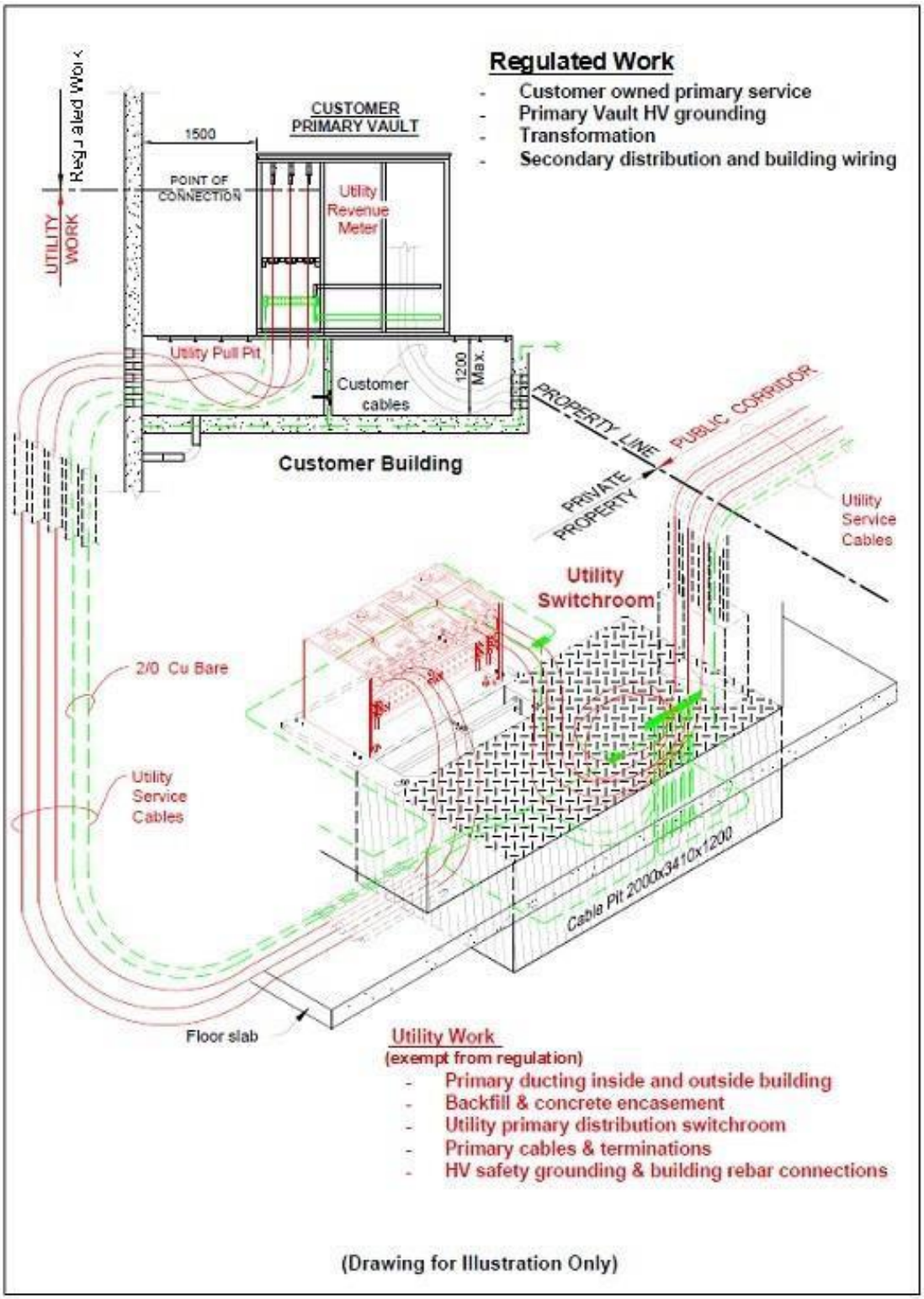
TABLE A.4

Utility Service	Service Type	Electrical work exempted under ESR, s. 3(1) and built to utility standard(s).	Electrical work requiring a permit, and compliance with BC Electrical Code.
Secondary Services - Underground Utility Supply	**Single phase 120/240 V service fed from utility pad-mounted transformer**	Utility point of connection: Customer owned meter socket. Utility work: U/G ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property, utility owned transformer, concrete pad, bollards and grounding, customer owned bonding; concrete encasement of duct below meter socket.	Installation of customer owned meter socket, LV service grounding, all LV equipment and wiring after utility point of connection. Operating permit: See directive. Subject to inspection by Technical Safety BC or local government inspection authority.
	Three phase 120/208 V and 347/600 V secondary service fed from utility pad-mounted transformer	Utility point of connection: Utility cable compartment in customer service box. Utility work: U/G ducting on public corridor, customer owned and maintained U/G utility supply ducting on private property, utility service ducting inside building, utility owned transformer, concrete pad, bollards and HV grounding, customer owned grounding and bonding; concrete encasement of secondary service ducts inside customer building.	Installation of customer owned secondary service box, secondary service grounding, all LV equipment and wiring after utility point of connection by electrical contractor with a minimum Class B FSR. Operating permit: See directive Subject to inspection by Technical Safety BC or local government inspection authority.


POINT OF CONNECTION
REGULATED WORK
UTILITY WORK
Utility revenue metering
Customer
Utility Cable Cubicle
Utility service cables
Regulated Work
- Customer owned primary service
- Kiosk, bollards & saftey grounding
- Transformation
- Secondary breakers and wiring
PRIVATE PROPERTY
PUBLIC CORRIDOR
PROPERTY LINE
Utility pull / splice box
Utility service cables
Utility Work
(exempt from regulation)
- U/G ducting & backfill
- Service cables up to point of connection
- Revenue Metering
(Drawing for Illustration Only)


Main floor
Regulated Work
UTILITY WORK
MAX 1200
CUSTOMER PRIMARY VAULT
POINT OF CONNECTION
1500
Utility Service Cables
Utility cable pull pit
Floor drain
Regulated Work
- Customer owned primary service
- Safety ground
- Transformation
- Secondary breakers and wiring
(Drawing for illustration only)
Main floor
Pulling iron
Customer pull box
Optional pulling iron
Protection posts
Pulling iron per
U/G parking level 1
1500 MIN
U/G parking level 2
Building drainage
PRIVATE PROPERTY
PROPERTY LINE
PUBLIC CORRIDOR
Utility Service Cables
Utility vault
Utility Work
(exempt from regulation)
- U/G ducting and backfill
- Concrete encasement of service ducts
- service cables up to point of connection
- Revenue Metering


PUBLIC CORRIDOR
PRIVATE PROPERTY
UTILITY WORK
Regulated Work
PROPERTY LINE
Building Alcove
Utility Transformer
POINT OF CONNECTION
Finished grade
Lane
Main floor
Utility Cable Pull Pit
Customer Secondary Service
Utility service cables
Regulated Work
- Customer owned secondary service
- Secondary breakers and wiring
P1 Level
Building foundation grounding
Utility Work
(exempt from regulation)
- U/G ducting & backfill
- Service cables up to point of connection
- Revenue Metering
- HV safety grounding & building rebar connection
- Transformation
Building drainage
P2 Level
L-Footing
(Drawing for Illustration Only)


Regulated Work
- Customer owned primary service
- Primary Vault HV grounding
- Transformation
- Secondary distribution and building wiring
Regulated Work
UTILITY WORK
1500
CUSTOMER PRIMARY VAULT
POINT OF CONNECTION
Utility Revenue Meter
Utility Pull Pit
Customer cables
1200 Max.
Customer Building
PROPERTY LINE
PUBLIC CORRIDOR
PRIVATE PROPERTY
Utility Service Cables
Utility Switchroom
2/0 Cu Bare
Utility Service Cables
Cable Pit 2000x3410x1200
Floor slab
Utility Work
(exempt from regulation)
- Primary ducting inside and outside building
- Backfill & concrete encasement
- Utility primary distribution switchroom
- Primary cables & terminations
- HV safety grounding & building rebar connections
(Drawing for Illustration Only)