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February 29, 2024

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Patrick Wruck, Commission Secretary

Dear Patrick Wruck:

Re: FortisBC Inc. (FBC)

Application for a Certificate of Public Convenience and Necessity for Approval of the Fruitvale Substation Project (Fruitvale Project or the Project) (Application)

FBC hereby applies to the British Columbia Utilities Commission (BCUC), pursuant to sections 41, 45 and 46 of the *Utilities Commission Act* (UCA) and Order G-135-23, for a Certificate of Public Convenience and Necessity (CPCN) for the Fruitvale Substation Project, as described in the attached Application.

Request for Confidential Treatment of Certain Appendices

FBC requests that certain Appendices to the Application (together, the Confidential Appendices) be filed on a confidential basis and held confidential by the BCUC in perpetuity, pursuant to Section 18 of the BCUC's Rules of Practice and Procedure regarding confidential documents as set out in Order G-72-23. The Confidential Appendices contain information which pertains to private land for which FBC does not have permission to disclose publicly and other information which is commercially sensitive and market competitive information which, if disclosed publicly, could prejudice or influence future negotiations of contracts between FBC and suppliers or counterparties, which could result in higher costs for customers. FBC is unable to foresee a time when the information may no longer be confidential and, therefore, FBC requests that the information remains confidential.

The Appendices for which FBC requests confidential treatment, and the specific reasons for the requested treatment, are as follows:

- Appendices C-1, C-2, C-3, and D: Cost Estimates and Financial Schedules. The capital spending amounts in these Appendices describe the costs of the various and specific Project components. FBC intends to contract the majority of the construction for the Project; providing potential bidders with this information could reasonably be expected

to prejudice FBC's negotiating position when procuring contracts and could result in higher costs for the Project.

- Appendix F-2: Map of all Properties. To ensure privacy for landowners, FBC requests that the map of properties that could not be purchased be held confidential.

FBC requests that the BCUC direct that the Confidential Appendices and any future filings which address confidential information be kept confidential. FBC has no objection to providing the confidential information to its customary and routine intervener groups representing customer interests in this proceeding, upon execution of a Confidentiality Declaration and Undertaking form acceptable to the BCUC, a copy of which is provided in Appendix H-3. FBC will provide electronic access to the confidential appendices to such interveners and will require confirmation at the conclusion of the proceeding that the information has been treated in accordance with Section 24 of the BCUC Rules of Practice and Procedure. Additionally, FBC requests that it be provided the opportunity to file comments on any requests by other registered interveners seeking access to confidential materials should FBC have concerns or objections.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC INC.

Original signed:

Sarah Walsh

Attachments

cc (email only): Registered Interveners in the FBC Annual Review for 2024 Rates proceeding.
Ms. Joette Starchuck, [redacted]

FORTIS BC™

FORTISBC INC.

Application for Approval of a Certificate of Public Convenience and Necessity for the Fruitvale Substation Project

February 29, 2024

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1. EXECUTIVE SUMMARY AND APPROVAL SOUGHT

1.1 *INTRODUCTION AND EXECUTIVE SUMMARY*

In this application (Application) FortisBC Inc. (FBC or the Company) is seeking approval of the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) for the Fruitvale Substation Project (Project).

The Project includes decommissioning the existing Fruitvale (FRU) and Hearns (HER) substations and constructing a new, single substation at 2064 Grieve Road (Grieve Location) in Fruitvale, BC (New FRU Substation). The New FRU Substation will include two new 20 MVA 63/25/13 kV transformers.

The need for the Project is driven by:

- Equipment condition and aging infrastructure at both the Fruitvale and Hearns substations; and
- Risks to the reliability of the electricity supply in Fruitvale and the surrounding area.

The estimated total cost of the Project in as-spent dollars is $18.867 million (AACE Class 4 estimate)[1], which includes Allowance for Funds Used During Construction (AFUDC) and the cost of equipment removal.

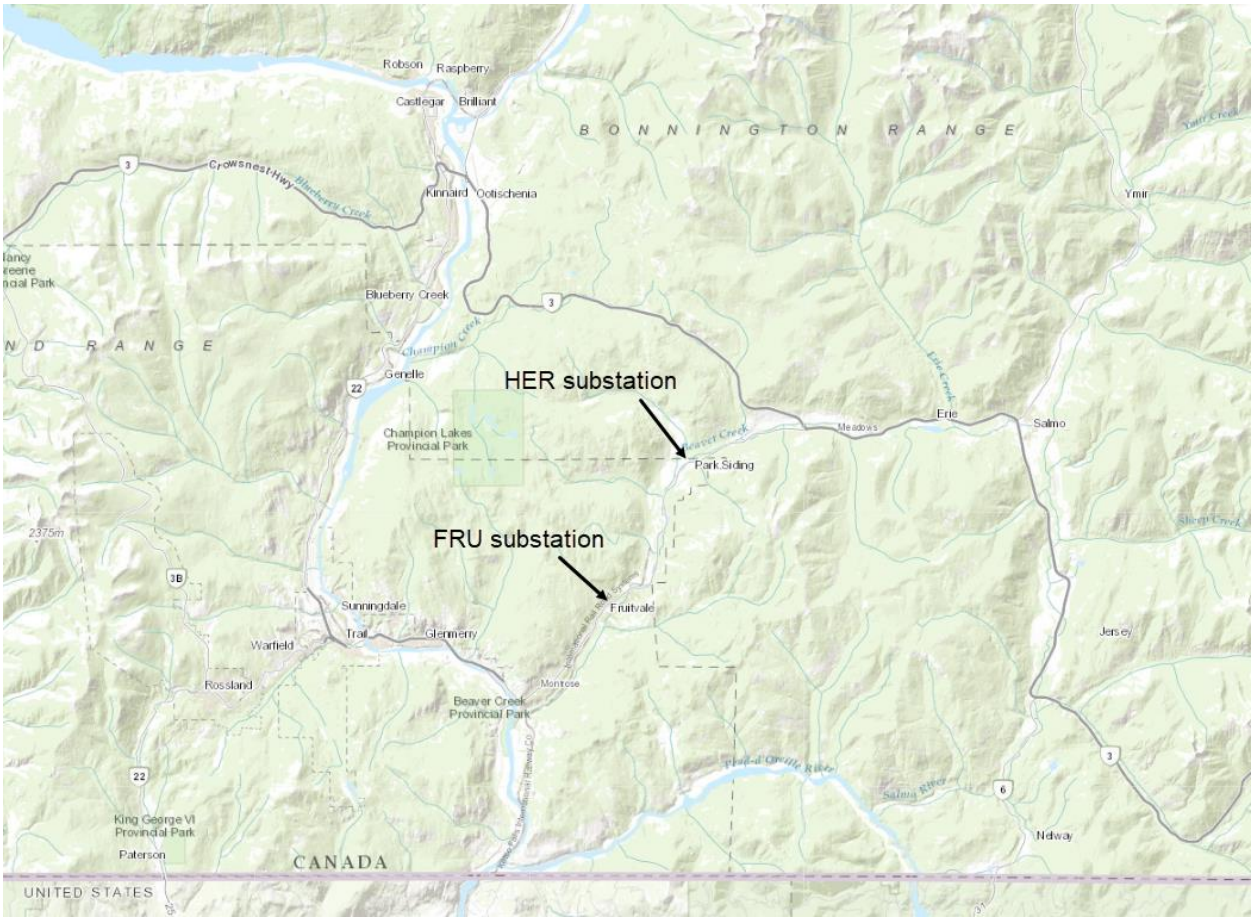
FBC plans to initiate the detailed design, procurement and construction for the Project upon CPCN approval. The Project is expected to be complete by the end of 2026.

1.1.1 Overview of Existing Facilities

The Village of Fruitvale, which is the load centre served by the FRU substation, is located within the Beaver Valley which is east of the City of Trail in the Kootenay Region of British Columbia. The smaller capacity HER substation serves local residential and commercial load in the Park Siding area, located approximately 9 km from the Village of Fruitvale. The FRU and HER substations are normally supplied by 20 Line (20L), which is a 63 kV transmission line.

[1] Please refer to Section 5.2 for the reasons why FBC has filed this Application with a Class 4 level of project definition.

Figure 1-1: Map of Existing Facilities in the Beaver Valley



The FRU substation was constructed in the 1960s and has a footprint of approximately 640 m^2 with an irregular shape. The FRU substation property itself is approximately 1,400 m^2. The FRU substation has a single 63/13 kV transformer, which is nominally rated 6/8 MVA and is referred to as the Fruitvale T1 transformer (FRU T1). The station has two distribution lines: Fruitvale Feeder 1 (FRU1) and Fruitvale Feeder 2 (FRU2). FRU1 primarily supplies residential/commercial customers in the Fruitvale area, and FRU2 primarily supplies a large industrial customer.

The HER substation was constructed in the 1950s to supply an industrial customer adjacent to the property. This industrial customer has since shut down operations at this location. The substation now supplies electricity to 226 residential and irrigation/commercial customers. The HER substation has three single phase 66/13 kV transformers, which are nominally each rated 0.500/0.625 MVA and together are referred to as the Hearns T1 transformer (HER T1). The station has one distribution line, Hearns Feeder 1 (HER1), which supplies customers in the Park Siding area.

1.1.2 Equipment Condition and Aging Infrastructure

1.1.2.1 Fruitvale Substation Conditions Issues

The FRU substation switchgear was manufactured in 1967 and is now 56 years old. The interrupting technology is more than 80 years old, and asbestos was used in the current interruption arc-chutes. Due to the aging of the components, the breakers are operating slowly and show signs of extensive arcing during the fault interruption.

The FRU substation is supplied by the transmission line 20L through high voltage fuses. A station design using high voltage fuses with distribution switchgear creates a higher arc flash hazard, increasing employee safety risk. Due to the arc flash hazard posed by the enclosed switchgear at FRU, crew personnel are required to wear restrictive high level personal protective equipment (PPE) to perform any switching at this station. A fault inside the switchgear equipment can also result in an arc flash explosion that can damage surrounding equipment. To improve safety and reliability, new FBC substation designs replace high voltage fuses with high voltage circuit breakers.

Additional equipment issues found at the FRU substation include hot spots on the 63 kV transmission switches FRU 20-1 and 20-2, which show signs of contact overheating during peak load conditions. The wood structures within the station are also in poor condition.

1.1.2.2 Hearns Substation is at End of Life

HER T1 was manufactured in 1950 and is now 73 years old. Based on a condition assessment completed in 2023, FBC determined that HER T1 has reached the end of its useful life based on the insulation condition. Statistically, given the age of HER T1, the failure probability of this unit is estimated to be extremely high. This means that any transient system disturbance has a reasonable chance of causing a transformer failure. Considering the condition of HER T1, the transformers must be replaced.

Additional equipment issues found at the HER substation include the wood structures within the station, which are in poor condition.

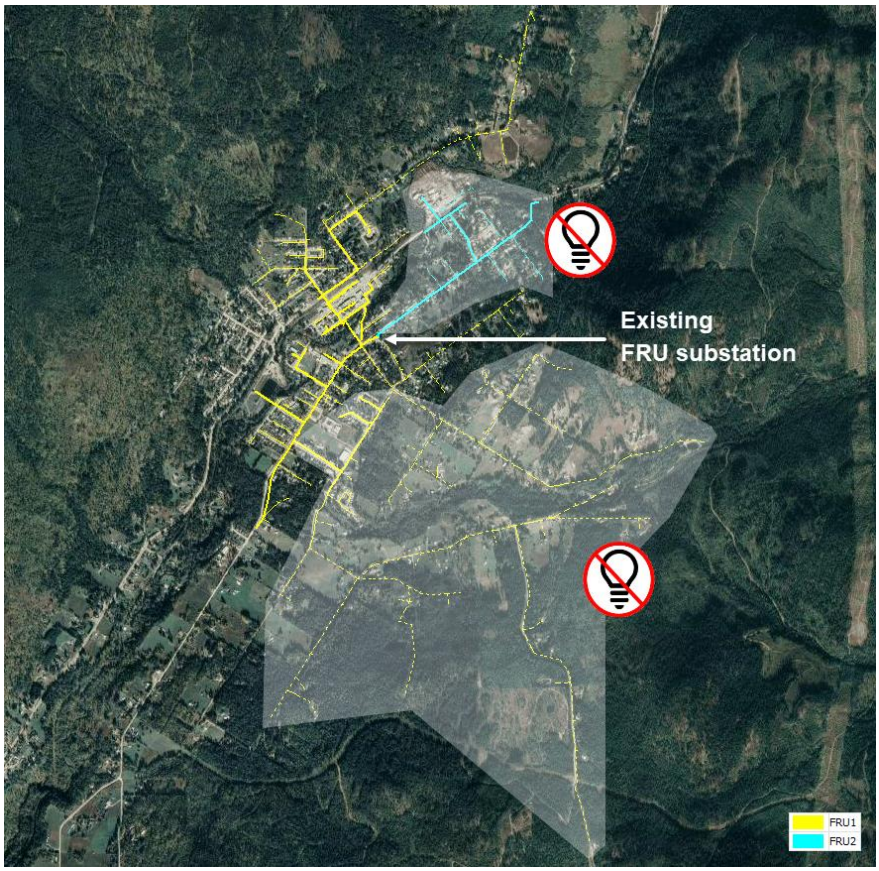
1.1.3 Reliability of Electricity Supply for Fruitvale and Surrounding Area

The single transformer configuration of the existing FRU substation also impacts reliability, which needs to be addressed as part of this Project.

The existing FRU substation has only a single transformer (FRU T1), which supplies the two distribution lines FRU1 and FRU2. In the event of an unplanned FRU T1 outage (including due to a failure of the aging switchgear) during peak load conditions, a portion of customers can be transferred to the neighboring Beaver Park (BEP) substation, but 439 customers (39 percent of customers and 59 percent of load served by the FRU substation) would be without electricity, including an industrial customer. Load cannot be transferred to the HER substation as the HER

T1 capacity is too small. Figure 1-2 shows the FRU customers without service during a FRU T1 unplanned outage assuming historical peak load.

Figure 1-2: Customers Without Service During FRU T1 Unplanned Outage under Peak Load Conditions



The customers without power, identified in the figure above, would have to wait until a mobile transformer is transported to Fruitvale before service could be restored. For these customers, a minimum outage of 24 hours is expected, as this is the minimum amount of time it could take to transport the mobile transformer under optimal conditions from its central storage location in Castlegar, BC, and install it at the FRU substation.

In the event of a HER T1 unplanned transformer outage, HER load can currently be offloaded to FRU2 as HER loading is low due to limited station capacity (1.875 MVA). However, to offload HER T1, field personnel must manually reconfigure the system, so customers must wait until the reconfiguration is complete before restoration can occur. Additionally, given that FRU is a single transformer substation, in the event of an outage of FRU T1, a HER T1 transformer outage at the same time would leave customers served by HER without power until a mobile transformer could be transported to Fruitvale.

1.1.4 Evaluation of Alternatives

FBC investigated four alternatives and, based on its evaluation, determined that the only alternative that meets the Project objectives is for FBC to replace the FRU and HER substations with a single substation with a two-transformer configuration on a new site close to the load centre (i.e., the New FRU Substation).

The process for identifying the appropriate site was lengthy and complex. FBC considered many different properties (including the existing FRU and HER substation sites) and engaged in years of consultation and assessment activities to arrive at the preferred location.

FBC considered bare properties and properties containing structures, as well as properties that were on and off the market. This search identified 18 possible new locations for the New FRU Substation. Of the 18 locations, the landowners of nine properties were not open to selling, and therefore these locations were not further evaluated. A further eight locations were considered but ultimately rejected due to the distance from the load centre and/or flooding/terrain/infrastructure challenges. One location, at 2064 Grieve Road (Grieve Location) was found to be suitable and within proximity to the load centre, and FBC purchased this property in June 2023.

1.1.5 Project Description

FBC developed AACE Class 4 estimates for two sites within the Grieve Location for the New FRU Substation – these sites are referred to as the Highway 3B Option and the Old Salmo Rd Option. After consultation with the surrounding residents and considerations related to environmental impacts and constructability, FBC determined that the Highway 3B Option was the preferred site. The Highway 3B Option is nearest the highway and adjacent to a large industrial customer. The new transmission line alignment will be an overhead design running parallel to the northeast side of the property, and the distribution lines will run underground within the property. Additional offsite upgrades to the existing distribution line infrastructure are required to accommodate the New FRU Substation. The Project therefore includes construction of the new substation, including installing two new 20 MVA dual voltage transformers, replacing the existing metal-clad switchgear with air-insulated busworks, and provision for four distribution lines and a 2.4 MVAR capacitor bank. The New FRU Substation will continue to be supplied by transmission line 20L. Additionally, the existing FRU and HER substation sites will be decommissioned.

The forecast in-service date for the Project is Q4 2026.

1.1.6 Project Costs and Rate Impact

The total estimated Project cost is $18.867 million in as-spent dollars, including cost of removal and AFUDC. As described in Section 6, the Project will result in a levelized rate impact of 0.29 percent over the 53-year analysis period. For an average FBC residential customer consuming

11,000 kWh per year, this is equivalent to an average annual bill impact of approximately $4.56 in 2027.

1.1.7 Environment and Archaeology

FBC conducted a desktop review and on-site assessment of the Grieve Location, which concluded the risk of environmental impacts associated with the Project are Low. The desktop review confirmed that there are no Protected Area or Critical Habitat designations within the property boundaries. As well, the review confirmed no known occurrences of Species at Risk within the property boundaries.

FBC has contracted Professional Archaeologists from Nupqu Resource Limited Partnership (Nupqu) to assist with archaeological support for the Project. While the Grieve Location is within an area modelled as having high archaeological potential, FBC performed a review of the existing heritage conditions within the property utilizing the BC Archaeology Branch Remote Access to Archaeological Data (RAAD) application and confirmed that there are no registered heritage sites on the property. FBC and Nupqu will complete an archaeological impact assessment (AIA) of the selected substation site.

1.1.8 Stakeholder Consultation and Indigenous Engagement

Consultation with stakeholders and engagement with Indigenous communities is an integral component of FBC's project development process. FBC's consultation and engagement activities have been sufficient and FBC has met the requirements of the CPCN Guidelines.

The Project is expected to have minimal impact on the greater community in the Beaver Valley area, with the most impact on the residents immediately adjacent to the proposed location. As a result, FBC's consultation and engagement activities have been primarily targeted towards the customers who live in close proximity to the Project, Indigenous groups, and local governments.

FBC initiated stakeholder engagement for this Project in September 2019 with a presentation to the Village of Fruitvale explaining the need for the Project. Throughout 2020 and 2021, FBC searched for a suitable location for the Project. In July 2021, the Village of Fruitvale suggested that the Village-owned land beside Mazzocchi Park (Mazzocchi Location) was a suitable location for the Project. From July 2021 to April 2022, FBC pursued the Mazzocchi Location which included engaging with landowners adjacent to the location, residents, organizations, community groups, local government, and other interested stakeholders. However, in April 2022, the Fruitvale Council ultimately voted against selling the property to FBC.

Over the next year, April 2022 to April 2023, FBC continued searching for a Project location. During that search, FBC applied the stakeholder feedback garnered over the three and a half years of consultation. In April 2023, FBC became aware of the Grieve Location. After completing a desktop review of the property and considering the stakeholder feedback already received, FBC determined it was a suitable location for the Project. In May 2023, FBC entered

into an agreement to purchase the site and began its consultation with stakeholders adjacent to the property.

FBC has and will continue to seek input from neighbouring residents on the Project, including elements such as aesthetics, greening, and visual screening. FBC is committed to continuing consultation with stakeholders and will continue to work with stakeholders and affected parties to ensure that they are informed and engaged as the Project progresses.

FBC identified 11 Indigenous communities as having asserted interests in the Project area. In September 2023, FBC initiated Project notification and began consultation with these Indigenous communities. To date, the consulted Indigenous communities have not raised substantive concerns regarding the Project. One First Nation has requested to participate in future archaeological and environmental work. FBC will maintain transparency and open channels of communication with these communities throughout the Project.

1.2 *TIMELINE OF PROJECT DEVELOPMENT AND PREVIOUS BCUC DETERMINATIONS*

The Fruitvale Substation Project was initially identified and applied for as part of the FortisBC 2020-2024 Multi-year Rate Plan (MRP) application which was filed with the BCUC in 2019. In the MRP application, FBC sought approval of the Project capital expenditures as part of its regular sustainment capital forecast for 2024. However, as part of the BCUC's decision on the MRP, FBC's regular capital expenditure forecasts were approved for only 2020 through 2022 of the MRP term and FBC was directed to file updated capital forecasts for 2023 and 2024 as part of the Annual Review for 2023 Rates process (2023 Annual Review).

Accordingly, as part of the 2023 Annual Review which was filed on August 5, 2022, FBC filed its updated capital forecasts for 2023 and 2024, including an updated capital forecast and description of the Fruitvale Substation Project.[2] FBC explained that the Project included rebuilding and relocating the Fruitvale substation and decommissioning the Hearns substation, because the existing Fruitvale substation footprint is too small to accommodate the rebuild. There was no opposition to the Project from registered interveners in the 2023 Annual Review, and the BCUC subsequently approved the 2023 and 2024 forecast capital expenditures on December 22, 2022, pursuant to Decision and Order G-382-22.

Following the issuance of the Annual Review for 2023 Rates Decision, FBC proceeded with executing the Project, including purchasing the transformers and a parcel of land. The purchase of the land for the Project followed a multi-year search for suitable locations (as set out in Sections 4 and 8 of the Application) and involved extensive and ongoing consultation and engagement with stakeholders and rights holders (as described in Section 8 of the Application).

[2] Exhibit B-2, FBC Annual Review for 2023 Rates Application, Appendix C2, pp. 9-10.

On June 9, 2023, following complaints regarding the siting of the proposed substation, the BCUC issued Order G-135-23 directing FBC to file a CPCN for the Project.

In response to the BCUC's directive to file a CPCN, FBC commenced developing this CPCN Application, as the Project is needed for FBC to continue to provide safe and reliable service to customers.

1.3 *SUMMARY OF APPROVALS SOUGHT*

FBC applies to the BCUC pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA), for a CPCN for the Fruitvale Substation Project. FBC also applies for permission pursuant to section 41 of the UCA to decommission the existing FRU and HER substations.

A draft Order is attached as Appendix H-2.

1.4 *PROPOSED REGULATORY PROCESS*

As explained in Section 1.2, FBC originally received approval of the Project expenditures as part of the Annual Review for 2023 Rates Decision. While FBC was subsequently directed to file a CPCN (CPCN Order) due to complaints regarding the siting of the proposed substation, in the approximate six-month period between the issuance of the Annual Review for 2023 Rates Decision and the CPCN Order, FBC proceeded with the Project, including purchasing the transformers and a parcel of land.

Given the previous regulatory reviews and approvals for the Fruitvale Substation Project as described in Section 1.2 above, FBC believes that a written hearing process with one round of information requests will provide for an appropriate and efficient review of the Application.

FBC proposes the following regulatory timetable:

Table 1-1: Proposed Preliminary Regulatory Timetable

ACTION	DATE (2024)
Public Notice of Application	Friday, April 5
FBC confirmation of Public Notice	Friday, April 12
Intervener registration deadline	Friday, April 19
BCUC information request (IR) No. 1	Tuesday, April 23
Intervener IR No. 1	Tuesday, April 30
FBC responses to IR No. 1	Wednesday, May 21
Letters of comment deadline	Friday, May 24
FBC written final argument	Tuesday, June 18
Intervener written final argument	Thursday, July 4
FBC written reply argument	Thursday, July 18

1.5 ORGANIZATION OF THE APPLICATION

The Application provides detailed information in support of the Project. The remainder of the Application is organized into the following sections:

- Section 2 provides an overview of the Applicant and provides information on FBC's financial and technical capabilities for the Project;
- Section 3 provides an overview of the existing facilities, equipment and components that supply power to the customers in Fruitvale and the surrounding area, and describes the drivers of the Project need;
- Section 4 evaluates four alternatives for the Project in consideration of the Project objectives, and describes in detail the process for selecting the Grieve Location to construct the New FRU Substation, including FBC's evaluation of the two existing and 18 new locations that were considered for the New FRU Substation;
- Section 5 provides a detailed description of the Project, including construction, design, resource planning and management, and schedule. It includes a risk analysis and discussion of potential Project impacts;
- Section 6 provides the cost estimates, the assumptions upon which the financial analysis is based, and the rate impacts;
- Section 7 discusses and provides the environmental and archaeological impacts of the Project;
- Section 8 discusses FBC's public consultation, Indigenous engagement, and communication efforts regarding the Project;
- Section 9 provides an overview of the BC Provincial Government energy objectives and policy considerations relevant to the Project; and
- Section 10 provides a conclusion.

2. APPLICANT

2.1 NAME, ADDRESS, AND NATURE OF BUSINESS

FortisBC Inc.
Suite 100, 1975 Springfield Road
Kelowna, B.C. V1Y 7V7

FBC is an investor-owned utility engaged in the business of generation, transmission, distribution and bulk sale of electricity in the southern interior of British Columbia. It is an integrated utility serving approximately 190 thousand customers directly and indirectly. FBC was incorporated in 1897 and is regulated by the BCUC pursuant to the UCA.

2.2 FINANCIAL AND TECHNICAL CAPACITY

FBC is capable of financing the Project. FBC has credit ratings for senior unsecured debentures from DBRS and Moody's Investors Service of A (low) and Baa1, respectively.

The Company has a rate base of approximately $1.7 billion, including four hydroelectric generating plants with an aggregate capacity of 225 MW and approximately 7,200 km of transmission and distribution power lines for the delivery of electricity to major load centres and customers in its service area. FBC has approximately 550 full-time and part-time employees.

FBC will provide the necessary resources to manage and complete the Project. FBC has extensive experience in managing the design, construction, operation and maintenance of substations and transmission lines in British Columbia. For example, in recent years FBC has completed, or is in the process of completing, several major projects including the Corra Linn Dam Spillway Gate Replacement project (total value of approximately $80 million), the Beaver Park Substation Upgrade project (total value of approximately $11 million), the Grand Forks Terminal (GFT) Station Reliability project (total value of approximately $9 million), the Playmor Substation Upgrade project (total value of approximately $8 million), and the Kelowna Bulk Transformer Addition (KBTA) project (total value of approximately $23 million).

2.3 COMPANY CONTACT

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3. PROJECT NEED AND JUSTIFICATION

3.1 *INTRODUCTION*

The Fruitvale (FRU) substation was constructed in the 1960s and has a single 63/13 kV transformer. This substation, along with the smaller-capacity Hearns (HER) substation, which was constructed in the 1950s, serve the Village of Fruitvale and the surrounding area. As described in more detail in this section, the age and condition of the equipment at the FRU and HER substations have advanced to a point where replacement of the equipment is required. The Hearns single phase transformer units are approximately 73 years old, and the Fruitvale metal-clad switchgear is approximately 56 years old. This equipment is at risk of failing in the near term. The aging equipment and equipment condition issues at the Hearns and Fruitvale substations need to be addressed to maintain safe and reliable supply of electricity to customers in Fruitvale and the surrounding area.

In the following sections, FBC explains the Project need and justification, as follows:

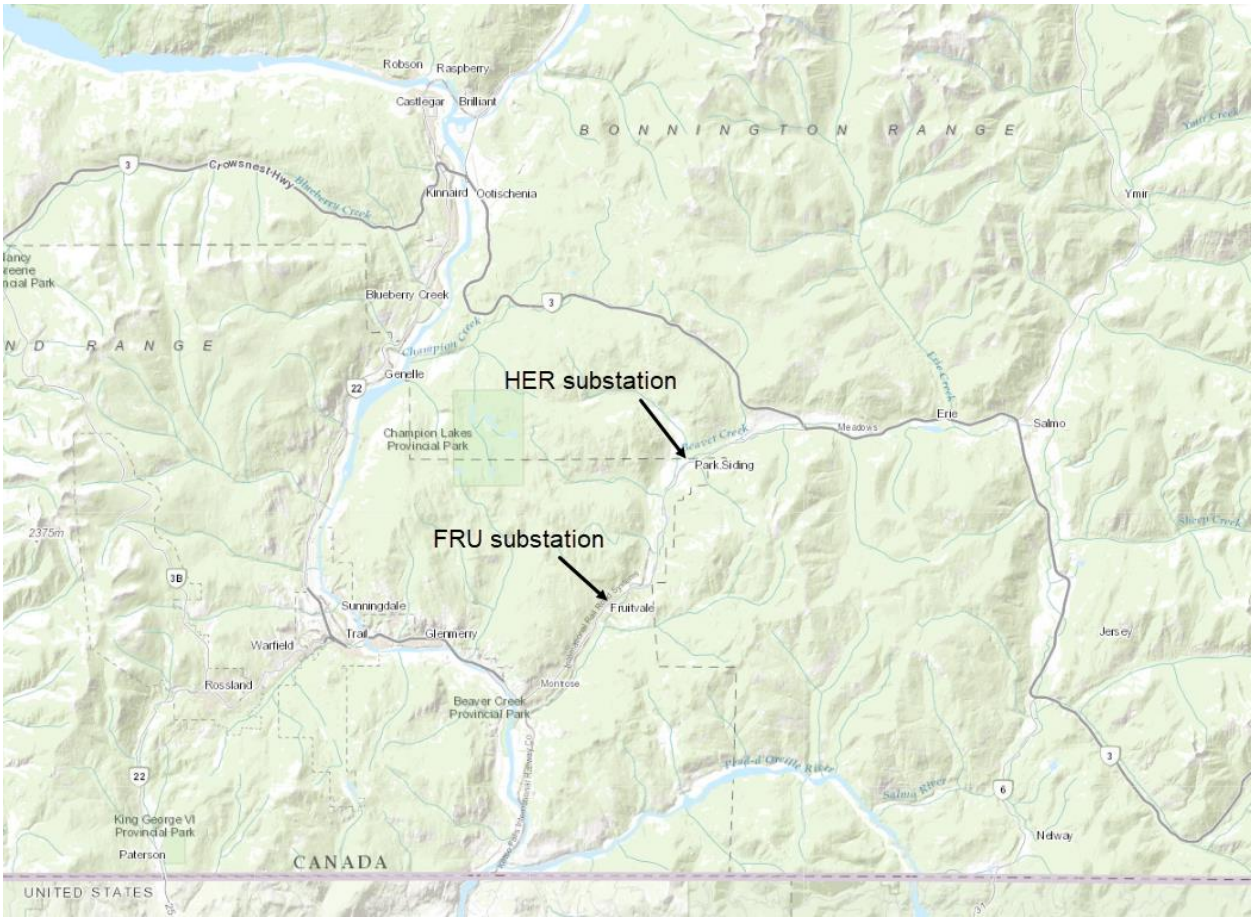
- Section 3.2 provides an overview of the existing facilities, equipment, and components that supply power to the customers in Fruitvale and the surrounding area.
- Section 3.3 describes the drivers of the Project need, including:
    - Equipment condition and aging infrastructure at both the Fruitvale and Hearns substations; and
    - Risks to the reliability of the electricity supply in Fruitvale and the surrounding area.

3.2 *OVERVIEW OF EXISTING FACILITIES*

The Village of Fruitvale, which is the load centre served by the FRU substation, is located within the Beaver Valley which is east of the City of Trail in the Kootenay Region of British Columbia. The smaller capacity HER substation serves local residential and commercial load in the Park Siding area, located approximately 9 km from the Village of Fruitvale. The FRU and HER substations are normally supplied by 20 Line (20L), which is a 63 kV transmission line.

Figure 3-1 below provides a topographical map of the FRU and HER facilities in the Beaver Valley.

Figure 3-1: Map of FRU and HER Facilities in the Beaver Valley



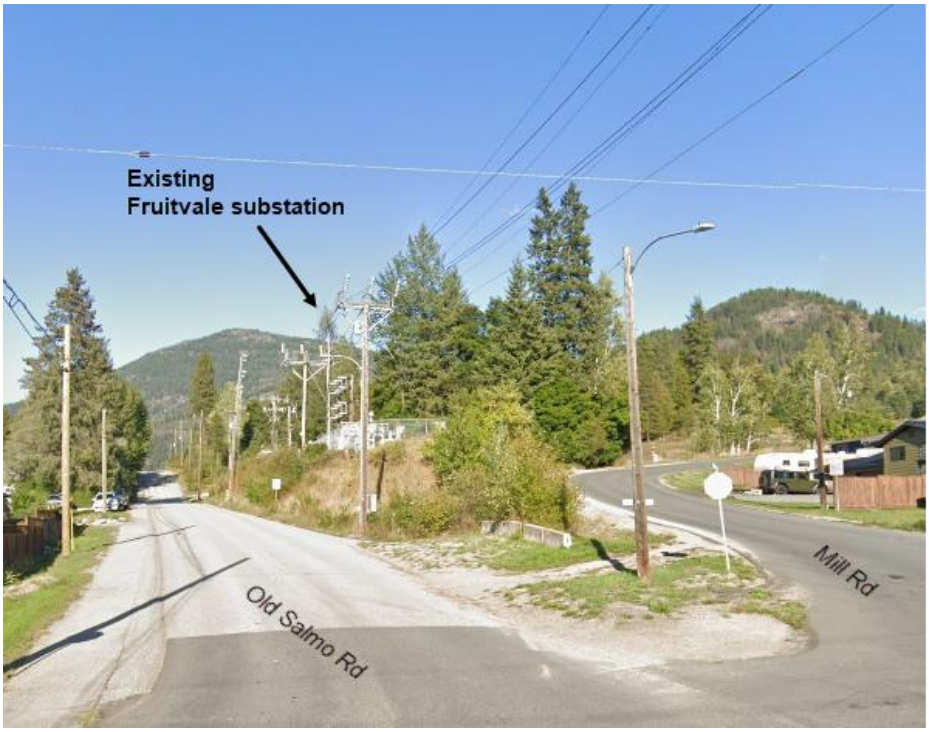
The FRU substation is located at 80 Mill Road in Fruitvale, BC, which is within the load centre, and supplies electricity to 1,140 customers. The station was constructed in the 1960s and has a footprint of approximately 640 m^2 with an irregular shape (the FRU substation property itself is approximately 1,400 m^2), as shown in Figures 3-3 and 3-4 below.

The FRU substation has a single 63/13 kV transformer, which is nominally rated 6/8 MVA and is referred to as the Fruitvale T1 transformer (FRU T1). The station is supplied by 20L through high voltage fuses and disconnects supported by wood framed structures. The station also has a 2.4 megavolt-ampere (MVAR) capacitor bank, metal-clad switchgear, and a small control building. The metal-clad switchgear contains all distribution line breakers and auxiliary equipment and is housed inside the control building. The station has two distribution lines, Fruitvale Feeder 1 (FRU1) and Fruitvale Feeder 2 (FRU2). FRU1 primarily supplies residential and commercial customers in the Fruitvale area, and FRU2 primarily supplies one large industrial customer. A ground level view of the FRU substation is provided in Figure 3-2 below.

Figure 3-2: Existing Fruitvale Substation Ground Level View

Figure 3-3: Existing Fruitvale Substation Aerial View

Figure 3-4: Existing Fruitvale Substation Street Level View

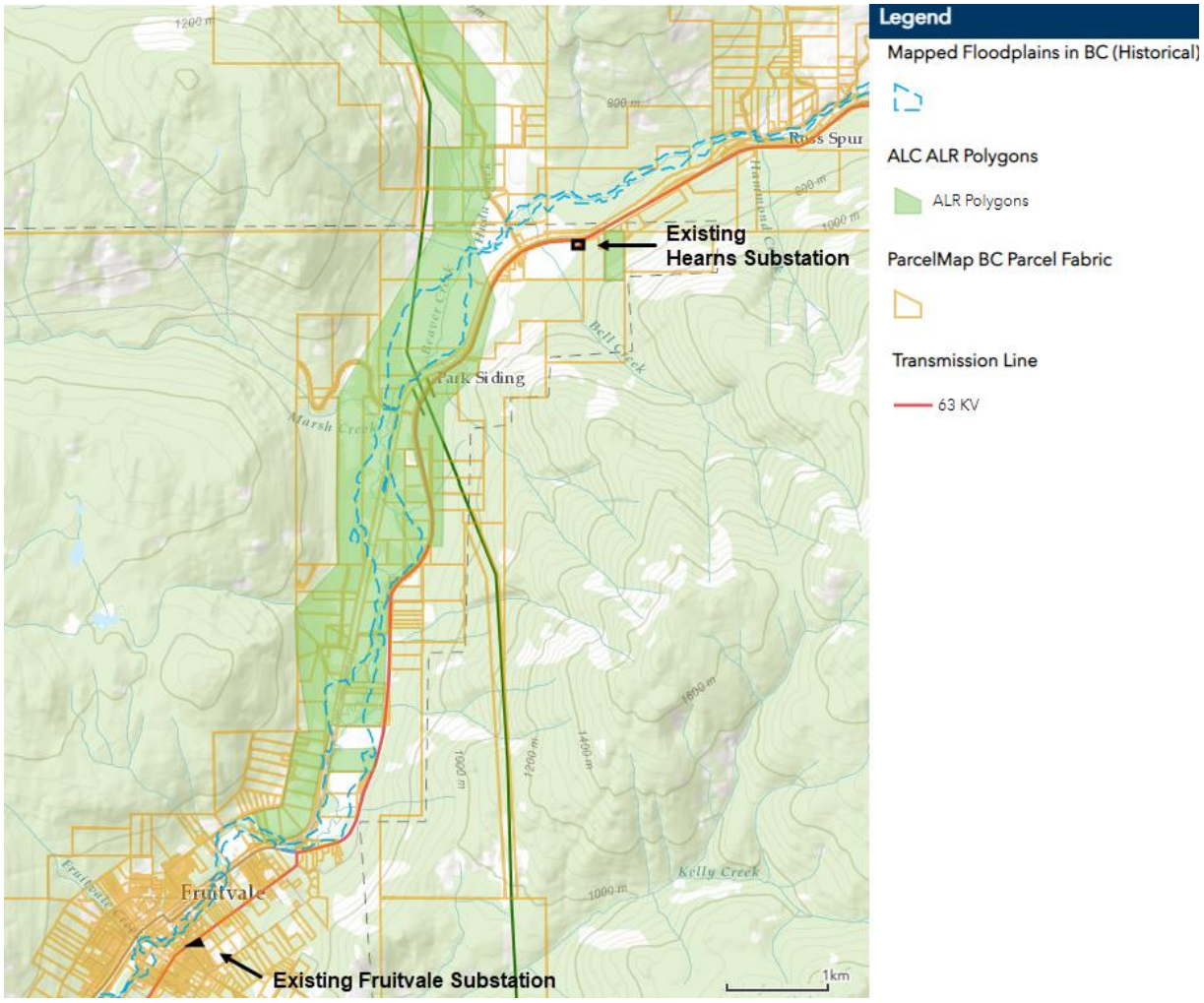


The HER substation is located at 3507 Highway 3B near Park Siding, BC as shown in Figure 3-5 below.

Figure 3-5: Existing Hearns Substation Aerial View

The HER substation was constructed in the 1950s to supply an industrial customer adjacent to the property. This industrial customer has since shut down operations at this location. The substation now supplies electricity to 226 residential, commercial, and irrigation customers in the Park Siding area. As shown in Figure 3-6 below, the HER substation is approximately 9 km from the Village of Fruitvale, which is a significant distance from the load centre compared to the FRU substation.

Figure 3-6: Existing Hearns Substation Location



HER's capacity is very small. It has three single phase 66/13 kV transformers, which are nominally each rated 0.500/0.625 MVA and together are referred to as the Hearns T1 transformer (HER T1). The station is supplied by 20L through high voltage fuses and disconnects supported by wood framed structures. The station also has a voltage regulator and overhead conductors supported by wood framed structures. The station has one distribution line, Hearns Feeder 1 (HER1). A ground level view of the HER substation and transformers is provided in Figures 3-7 and Figure 3-8 below.

Figure 3-7: Existing Hearns Substation Ground Level View Inside Station

Figure 3-8: Existing Hearns Substation Ground Level View of Transformers

3.3 *DRIVERS OF THE PROJECT NEED*

As further explained in the subsections below, the drivers of the Project need are as follows:

- The condition of the equipment and age of infrastructure at both the FRU and HER substations; and
- The need to address the risk to the reliability of the electricity supply for Fruitvale and the surrounding area.

3.3.1 Equipment Condition and Aging Infrastructure

3.3.1.1 Fruitvale Substation Condition Issues

The FRU substation switchgear was manufactured in 1967 and is now 56 years old. The interrupting technology is more than 80 years old, and asbestos was used in the current interruption arc-chutes. A third-party qualified contractor performed a comprehensive condition assessment in 2017 of several stations with metal-clad switchgear on behalf of FBC, which is provided in Appendix A.[3] As shown in Appendix A, at the time of assessment, the FRU substation metal-clad switchgear had a health index of 31.25 percent (considered to be poor), an actual age of 50, and an effective age of 95 years.[4] The effective age represents the advanced/accelerated aging of the asset due to its condition. Based on this analysis, the third-party qualified contractor found that the FRU metal-clad switchgear was in the poorest condition of all stations evaluated and identified it as the highest priority for replacement.

Further, due to the aging of the components, the breakers are operating slowly and show signs of extensive arcing during fault interruption. Slow fault interruption could lead to an arc flash event, resulting in asbestos contamination of the control building. If this equipment were to fail catastrophically, it would be complicated to replace as the technology is now obsolete. Given current lead times, switchgear replacement could take up to one year and replacing the equipment on an urgent basis is likely to be more costly than through a planned upgrade. A failure of the switchgear would result in an outage to customers served by the FRU substation for as long as required to either replace the equipment or to install a mobile transformer. The impacts of an outage and limitations of a mobile transformer are discussed in Section 3.3.2 and shown in Figure 3-10 below.

Additional equipment issues found at the FRU substation include hot spots on the 63 kV transmission switches FRU 20-1 and 20-2, which show signs of contact overheating during peak load conditions. To repair the switches, an outage to the FRU substation is required, and as such a mobile transformer will be needed. This issue continues to be monitored and if required will be addressed outside of the peak load season. The wood structures within the station are also in poor condition, requiring replacement.

[3] As noted in Section 8 of the Application, in response to the need to address the switchgear at FRU substation identified in the comprehensive condition assessment, FBC began searching for a location for its new substation beginning in September 2019.

[4] The report indicates an effective age of "-45 years", meaning that, based on condition, it has exceeded its actual 50-year life by 45 years, appearing 95 years old.

Lastly, as previously discussed, the existing FRU substation is supplied by the transmission line 20L through high voltage fuses. A high voltage fuse is a simple device and relies on the best fuse size and curve that coordinates with the transformer load it is protecting. To coordinate with the transformer load, a large fuse size is typically required, which is slower to operate. Additionally, a fuse does not have SCADA or event recording capabilities, so it can be unclear whether the fuse opened or tripped for a fault. Due to the reasons above, high voltage fuses are slow and do not protect against all station faults, leading to larger transmission outages. Furthermore, a station design using high voltage fuses with distribution switchgear creates a higher arc flash hazard, increasing employee safety risk. Since the high voltage fuses can be slow to interrupt a transformer secondary fault, an arc flash event could destroy the switchgear building, and/or the upstream and downstream equipment. Due to the arc flash hazard posed by the enclosed switchgear at FRU, crew personnel are required to wear restrictive high level personal protective equipment (PPE) to perform any switching at this station. A fault inside the switchgear equipment can also result in an arc flash explosion that can damage surrounding equipment. To improve safety and reliability, new FBC substation designs replace high voltage fuses with high voltage circuit breakers.

3.3.1.2 Hearns Substation is at End of Life

HER T1 was manufactured in 1950 and is now 73 years old. HER T1 is comprised of three single phase units, collectively forming HER T1. Based on a condition assessment completed in 2023, FBC determined that HER T1 has reached the end of its useful life based on the insulation condition. Statistically, given the age of HER T1, the failure probability of this unit is estimated to be extremely high. Considering the condition of HER T1, the transformers must be replaced.

Additional equipment issues found at the HER substation include the wood structures within the station, which are in poor condition, as shown in Figure 3-9 below.

Figure 3-9: Wood Pole Condition at the Existing Hearns Substation

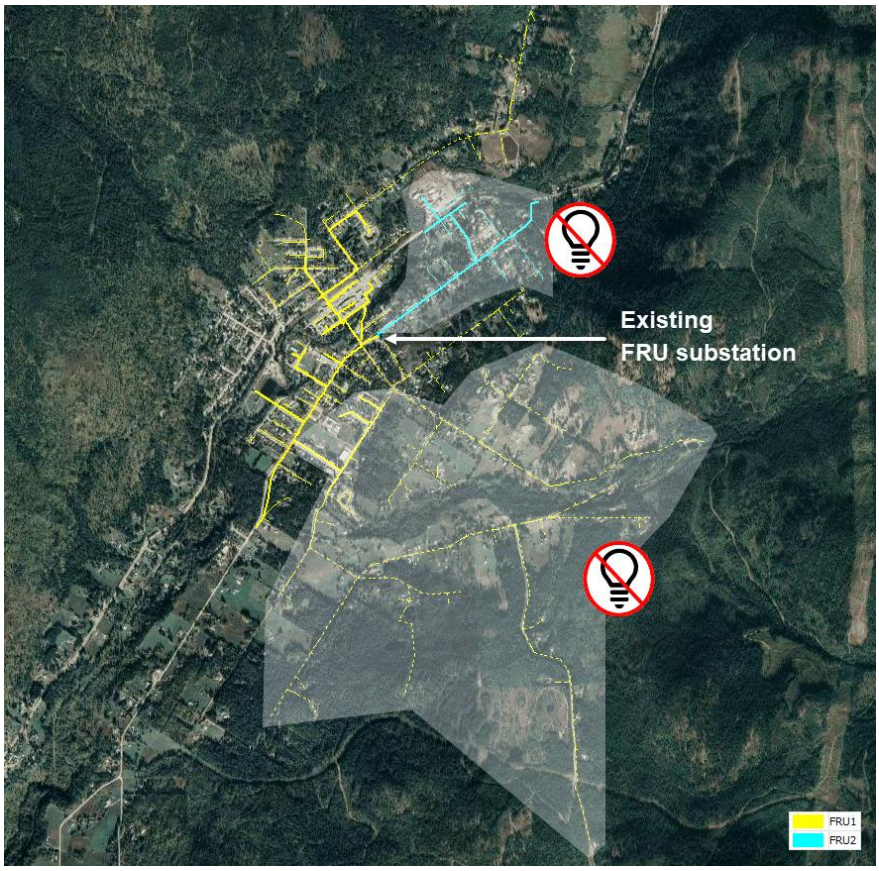
3.3.2 Reliability of Electricity Supply for Fruitvale and Surrounding Area

Reliability in the Fruitvale area is also impacted by the single transformer configuration of the existing FRU substation and this issue needs to be addressed as part of this Project.

The existing FRU substation has only a single transformer (FRU T1), which supplies the two distribution lines FRU1 and FRU2. In the event of an unplanned FRU T1 outage (including due to a failure of the aging switchgear) during peak load conditions, a portion of customers can be transferred to the neighboring Beaver Park (BEP) substation, but 439 customers (39 percent of customers and 59 percent of load served by the FRU substation) would be without electricity, including an industrial customer. Load cannot be transferred to the HER substation as the HER T1 capacity is too small.

Figure 3-10 shows the FRU customers that would be without service during a FRU T1 unplanned outage assuming historical peak load.

Figure 3-10: Customers Without Service During FRU T1 Unplanned Outage under Peak Load Conditions



The customers without power, identified in the figure above, would have to wait until a mobile transformer is transported to Fruitvale before service could be restored. For these customers, a minimum outage of 24 hours is expected, as this is the minimum amount of time it could take to transport the mobile transformer under optimal conditions from its central storage location in Castlegar, BC, and install it at the FRU substation. However, this outage duration could be extended to several days due to severe storm conditions or road restrictions, limiting FBC's ability to transport the mobile transformer when needed. Furthermore, if the mobile transformer was installed at another substation, FBC would either need to complete restoration at the other substation, which could take several days to several months depending on the circumstances, or, if available and not in use, a mobile transformer from the Okanagan region could be transported to the FRU substation, which is subject to many variables (road restrictions, environmental conditions, etc.) as the mobile transformer would need to travel over the Kootenay Pass and a distance of up to 340 km. Lastly, if an alternate mobile transformer had to be used at the FRU substation, the mobile transformer configuration may require modification before it could be installed, further impacting restoration of power to the community and the industrial customer.

Mobile transformers are typically used for emergency or maintenance purposes and would not be an acceptable solution to supply customers for a long period if a transformer fails catastrophically. One drawback of a mobile transformer is that it does not have automatic voltage control and could result in power quality issues for customers. Also, the use of a mobile transformer for a long period of time at one location would affect other substations which may require it for emergency or maintenance purposes, impacting other customers and communities. When a mobile transformer is installed at a substation, it impacts FBC's overall restoration and planning for the remainder of the FBC system.

In the event of a HER T1 unplanned transformer outage, HER load can currently be offloaded to FRU2 as HER loading is low due to limited station capacity (1.875 MVA). However, to offload HER T1, field personnel must manually reconfigure the system, so customers must wait until the reconfiguration is complete before restoration can occur. Additionally, given that FRU is a single transformer substation, in the event of an outage of FRU T1, a HER T1 transformer outage at the same time would leave customers served by HER without power until a mobile transformer could be transported to Fruitvale.

3.4 *CONCLUSION*

As described above, the FRU and HER substation equipment require replacement due to their condition and ages. The Hearns single phase transformer units are approximately 73 years old, and the Fruitvale metal-clad switchgear is approximately 56 years old. This equipment is at risk of failing in the near term. The aging equipment and equipment condition issues at the FRU and HER substations need to be addressed to maintain safe and reliable supply of electricity to customers in Fruitvale and the surrounding area.

An outage to the single transformer at the existing FRU substation greatly impacts reliability to the Fruitvale area. FRU T1 cannot be entirely offloaded and currently relies on a mobile transformer as a backup supply. In the event of an unplanned FRU T1 outage during peak load conditions, 439 customers (39 percent of customers and 59 percent of load served by the FRU substation) would be without power for a minimum of 24 hours, which includes an industrial customer. This outage duration could extend several days depending on severe storm conditions, road restrictions, or availability of the mobile transformer at the time of the event.

Accordingly, to ensure that FBC is able to continue to provide safe and reliable service to Fruitvale and the surrounding area, the equipment must be replaced.

4. DESCRIPTION AND EVALUATION OF ALTERNATIVES

4.1 *INTRODUCTION*

As outlined in Section 3, aging equipment and equipment condition issues at the FRU and HER substations need to be addressed to maintain a safe and reliable supply of electricity to customers in Fruitvale and the surrounding area. Additionally, reliability is currently impacted by the single transformer configuration at the FRU and HER substations. The Project therefore has the following two objectives:

1. Address the equipment condition issues and aging infrastructure at the Fruitvale and Hearns substations; and

2. Address the risk to the reliability of the electricity supply for Fruitvale and the surrounding area.

Based on an evaluation of the alternatives as set out below, the alternative that best meets the above objectives is to build a single new substation on a new property close to the load centre, and there is only one suitable property on which to construct the new substation of the 18 new properties evaluated.

In the following sections, FBC provides a description and evaluation of the alternatives considered for the Project, including FBC's proposed alternative, as follows:

- Section 4.2 describes the four alternatives that FBC investigated;
- Section 4.3 describes FBC's analysis of the four alternatives, and how the most reasonable alternative is to build a new substation at a new property close to the load centre;
- Section 4.4 describes the process undertaken by FBC to assess the property options for the new substation;
- Section 4.5 describes how there is only one suitable property for the new substation; and
- Section 4.6 provides FBC's conclusion on the proposed alternative.

4.2 *DESCRIPTION OF ALTERNATIVES*

The following four alternatives were identified and considered for the Project:

- **Alternative 1: Status Quo.** Under this alternative, FBC would continue to operate and maintain the existing FRU and HER substations.
- **Alternative 2: Replace both the FRU and HER Substations at Existing Locations.** Under this alternative, FBC would replace the equipment at the FRU and HER substations with functionally equivalent equipment meeting current design standards.

- **Alternative 3: Replace the FRU and HER Substations with a New Substation on Either the Existing FRU Site or the Existing HER Site.** Under this alternative, FBC would replace the FRU and HER substations with one new substation with two similarly sized transformers on either the existing FRU or HER substation sites.
- **Alternative 4: Replace the FRU and HER Substations with a New Substation on a New Property.** Under this alternative, FBC would replace the FRU and HER substations with a single substation with a two-transformer configuration on a new property close to the load centre.

FBC describes each of these alternatives in this section below, including an explanation of how alternatives 1, 2 and 3 were rejected at an early screening stage as they did not meet the required objectives for the Project or were not feasible.

4.3 *ANALYSIS OF ALTERNATIVES*

In this section, FBC describes its analysis of the four alternatives described in Section 4.2 above. Table 4-1 below summarizes the results of the alternatives analysis, showing that only Alternative 4 meets the Project objectives.

Table 4-1: Summary of Alternatives Analysis

Alternative	Project Objectives	
	Equipment Condition and Aging Infrastructure	Reliability
Alternative 1: Status Quo	x	x
Alternative 2: Replace FRU and HER at Existing Locations	x	x
Alternative 3: New Substation at FRU or HER Sites	✓	x
Alternative 4: New Substation on New Property Close to Load Centre	✓	✓

4.3.1 Alternative 1: Status Quo

If the status quo were maintained, FBC would continue to operate and maintain the existing FRU and HER substations. The status quo is not a feasible alternative because it does not meet the Project objectives. The status quo does not address the high probability of failure due to the age and condition of the FRU and HER equipment, nor does it address the reliability risks.

4.3.2 Alternative 2: Replace both the FRU and HER Substations at Existing Locations

Under this alternative, FBC considered replacing the equipment at both the FRU and HER substations with functionally equivalent equipment meeting current design standards. This

alternative relies on the operation of both substations in their current configuration and therefore requires the rebuilding of both substations.

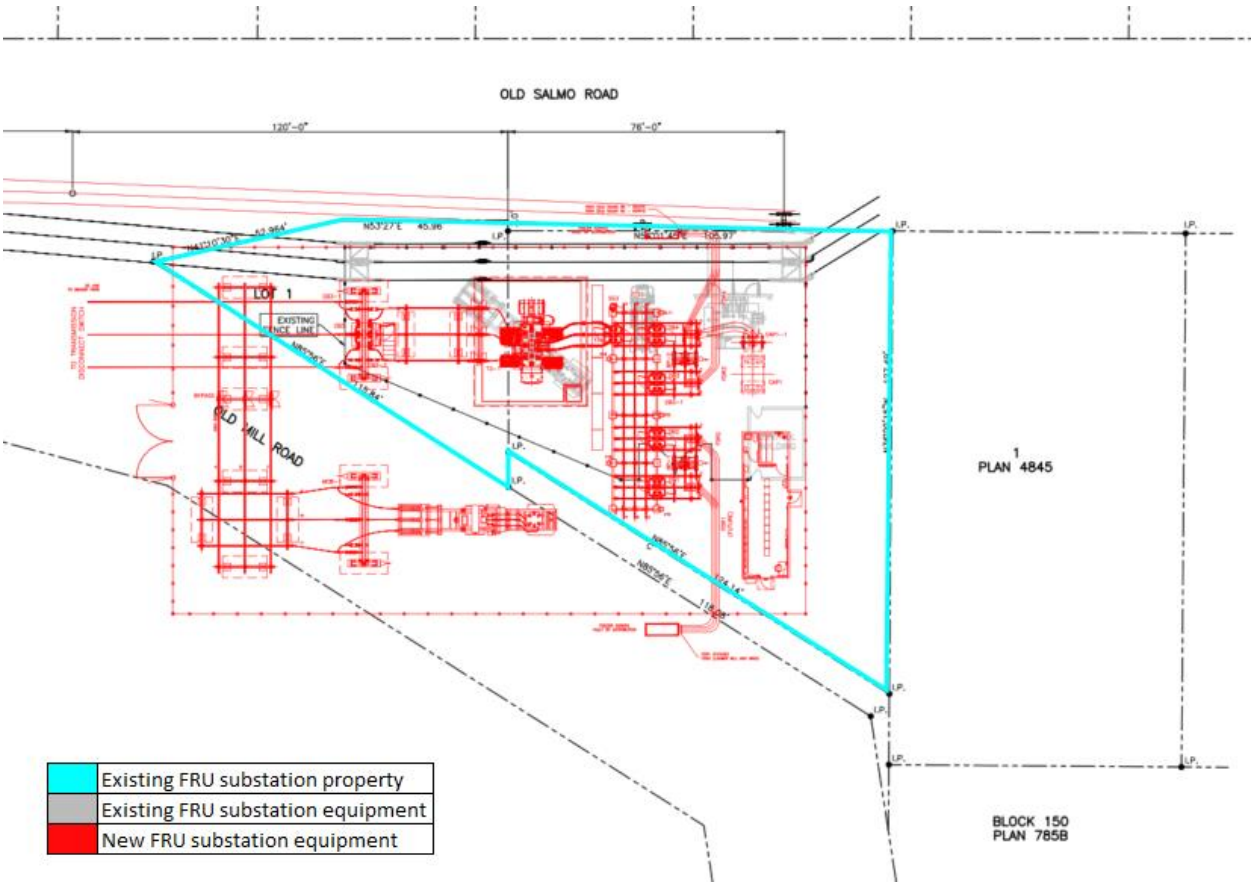
4.3.2.1 Replacing FRU Substation at Current Location Not Feasible

Replacing the switchgear and other equipment (including the transformer) at the FRU substation site is not a feasible alternative as the FRU substation would continue to have only one transformer. Therefore, this alternative does not meet Project objective #2 to address the risk of the reliability of electricity supply for Fruitvale and the surrounding area.

Further, even if replacing the FRU substation with only one transformer were an acceptable option, undertaking the required upgrades and replacements to address the equipment condition issues is not possible at the existing FRU substation site. The existing site is too small to accommodate a one-transformer substation that meets FBC's current design standards. The standard station footprint size for a typical 63 kV radial substation with either a single or two-transformer configuration is 4,736 m^2 (or 61.5 m by 77 m) with a minimum typical size of 2,500 m^2 (or 50 m by 50 m). In contrast, as discussed in Section 3.2, the existing FRU substation footprint is approximately 640 m^2 with an irregular shape (the FRU substation property itself is approximately 1,400 m^2); as a result, the existing location is too small to accommodate upgrades to the station equipment.

Figure 4-1 below shows how the footprint of a one-transformer substation that meets FBC's current design standards will not fit within the existing FRU substation property.

Figure 4-1: One-Transformer Substation Compared to Existing FRU Substation Size[5]



In addition to the technical constraint related to station footprint sizing, using the existing property presents a constructability challenge. If the existing site were used, the entire substation would need to be demolished prior to constructing the new substation. During construction, electricity supply must be maintained to customers served by the existing FRU substation. After demolishing the substation, a mobile transformer could be used to supply these customers during construction. However, given land constraints, siting the mobile transformer at the property during construction would not be possible, introducing an additional land challenge to find a temporary location for the mobile transformer. Assuming a temporary location could be acquired, distribution and transmission line upgrades may also be required depending on the temporary location selected for the mobile transformer.

4.3.2.2 Replacing HER Substation at Current Location is Inefficient and Uneconomical

Replacing the HER substation with the required upgrades to address the equipment condition issues would be inefficient and uneconomical. As described in Section 3.2, the HER substation

[5] Figure 4-1 shows the substation design with one transformer and space for a mobile transformer in accordance with FBC's current design standards.

was originally built in the 1950s to supply an industrial customer adjacent to the property; however, this customer has since shut down their operations at this location. Therefore, a substation at the existing HER site is no longer required to support an industrial load. Furthermore, as described in Section 3.3.2, in the event of a HER T1 outage, the existing HER load can currently be offloaded to FRU. Therefore, rebuilding the HER substation at its existing location would not be efficient or economical, as the HER load can be permanently transferred to FRU, avoiding the costs associated with rebuilding the substation.

Therefore, Alternative 2 is not feasible as the FRU substation cannot be replaced at its current location, and a replacement of the HER substation, while possible, is not efficient or economical.

4.3.3 Alternative 3: Replace the FRU and HER Substations with a New Substation on Either the Existing FRU or HER Sites

Under this alternative, FBC would replace the FRU and HER substations with one new substation with two similarly sized transformers on either the existing FRU or HER substation sites. This new two-transformer substation (New FRU Substation) would meet both Project objectives and is a more cost-effective solution than replacing two separate substations.

4.3.3.1 New Substation at FRU Location Not Feasible

As described in Section 3.3.2, an outage to the single transformer at the FRU substation would greatly impact reliability to the Fruitvale area. A two-transformer configuration at the existing FRU site would allow all station load to be carried by the remaining transformer in the event of an outage to one of the transformers. Transferring load to the remaining transformer would be completed remotely by the System Control Centre (SCC), resulting in minimal customer outages, if any.

Since the FRU substation cannot be entirely offloaded to neighbouring substations and given the challenges described in Section 3.3.2 of relying on a mobile transformer, a second transformer at the FRU substation ensures a redundant supply for FRU customers. Therefore, building a single new substation with a two-transformer configuration meets both Project objectives.

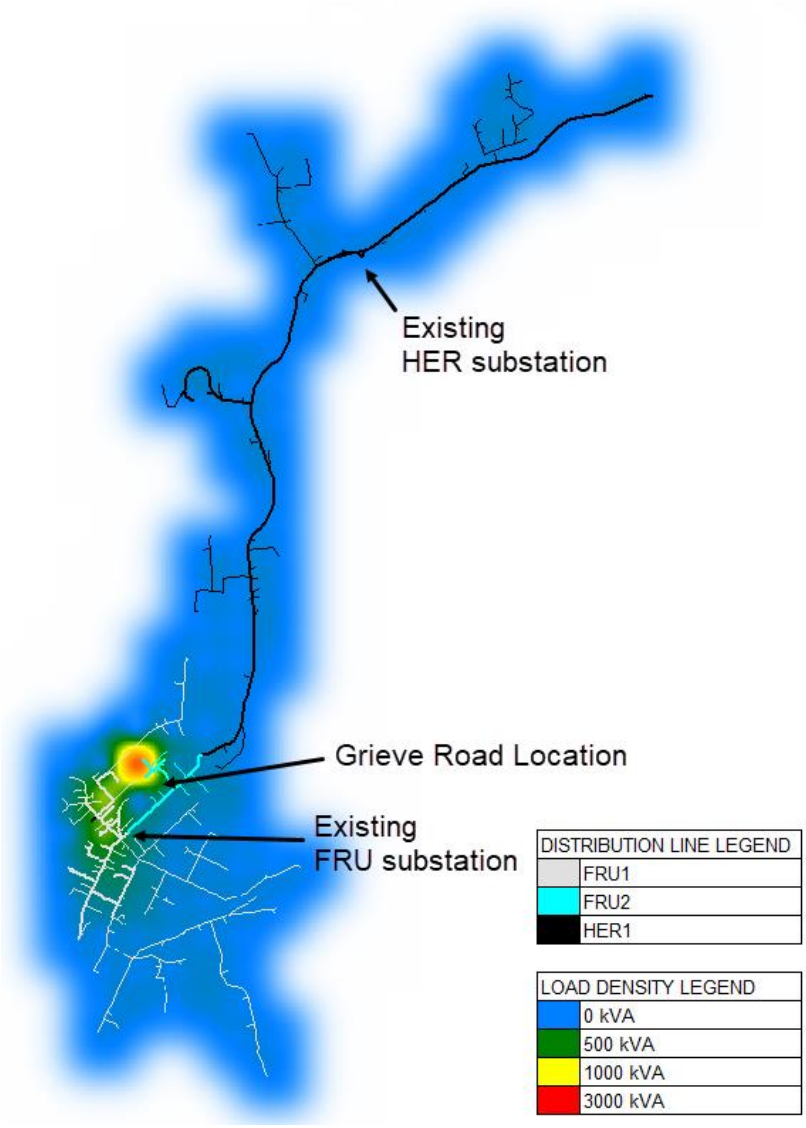
Regarding the siting of the new two-transformer substation, FBC first considered utilizing the existing FRU substation land at 80 Mill Road in Fruitvale, as this site is close to the load centre. However, as explained in Alternative 2, the current footprint is too small to accommodate a station design meeting current FBC standards; therefore, an expansion of the existing site would be required. However, even if the adjacent neighbouring parcel was acquired, the property would still not meet the minimum station footprint requirement.

Finally, even despite the technical constraint related to station footprint sizing, using the existing property presents the same constructability challenge described above in Section 4.3.2.1. The entire substation would need to be demolished prior to constructing the new substation and a mobile transformer would need to be used to supply these customers during construction.

4.3.3.2 New Substation at HER Location Not Practical

While the HER substation site near Park Siding is large enough to accommodate a new two-transformer substation, FBC rejected this option due to the HER substation's distance from the load centre. The load density of Fruitvale and the surrounding area is provided in Figure 4-2 below and shows that the load centre is located within the Village of Fruitvale.

Figure 4-2: Load Density of Fruitvale and Surrounding Area



Under the existing system configuration, there is a single distribution line tying the existing FRU and HER substations. The amount of load that can be supplied by any distribution line is constrained by both voltage and thermal limits.

Voltage drop is a natural occurrence in electrical systems. Voltage drop refers to the gradual decline in voltage as electricity travels away from its source (i.e., the substation) to its

destination (i.e., the customer load) along a distribution line, with customers at the end of the line experiencing the lowest voltage. There are three key factors influencing voltage drop: (i) the distance between the source and the load; (ii) the conductor size; and (iii) the customer load size. Load centres located further from the electricity source (i.e., substation) result in a greater voltage drop, and may require additional voltage support upgrades to ensure customer voltage limits are maintained.

The Canadian Standards Association (CSA) has established voltage standards for AC systems in Canada: CSA Standard C235-95, *Preferred Voltage Levels for AC Systems 0 to 50,000V*. This guideline states the recommended steady state service voltage limits to be maintained and FBC has adopted this guideline. To ensure customer voltage remains within the CSA voltage limits, additional voltage support upgrades may be required and can include, but are not limited to, installing voltage regulators, installing reactive resources, and/or reconductoring existing distribution lines to a larger conductor size. Siting a substation within or nearby the load centre can minimize or eliminate the need for additional voltage support upgrades to existing line infrastructure while still ensuring customer voltage meets CSA voltage limits. The further the substation is sited from the load centre, the more voltage support upgrades are required to ensure customer voltage meets CSA voltage limits.

Apart from voltage limits, FBC must also adhere to the thermal limits of the equipment. Equipment (conductor, cable, etc.) is rated to carry a maximum amount of current; this is referred to as the thermal capacity of the infrastructure. FBC must ensure the equipment does not overload and exceed its thermal capacity, or the infrastructure can fail. Therefore, thermal limits are also considered when determining the amount of load that can be supplied by a distribution line. The larger the load centre, the more distribution lines required to ensure thermal limits are maintained.

Relocating the New FRU Substation further from the load centre to the existing HER site would require a complete rebuild of the line infrastructure between the HER site and the load centre (Village of Fruitvale). This work would be required to ensure FBC adheres to the voltage and thermal limits discussed above. The rebuild would consist of two underbuilt distribution circuits beneath the 63 kV transmission line 20L and would require upgrades to the transmission line structures from wood to steel, as this material is stronger, more durable and requires fewer structures to accommodate the double circuit underbuild configuration. This work would significantly increase the Project costs (estimated to increase costs by as much as $10 million). This required infrastructure would be much larger and more visually impactful than the existing infrastructure, and would require additional statutory rights of way (SRW). A portion of the line rebuild would fall within the Agricultural Land Reserve (ALR), which could introduce additional project cost and schedule risk.

In addition, the further a substation is sited from the load centre, the lower the customer reliability, as the electricity needs to travel through longer distribution lines to reach the end user, increasing exposure to outages for a significant number of customers. Distribution lines can experience outages due to various causes, such as vegetation, adverse weather, motor

vehicle accidents, and other factors. If the substation were sited at the HER location, any outage to the line infrastructure between this location and the load centre would result in a power outage to the entire Village of Fruitvale. During this outage, only a small portion of customers could be transferred to FBC's Beaver Park (BEP) substation. The remaining customers would need to wait for the damaged lines to be repaired before power could be restored. To minimize the number of customers impacted by distribution line outages, the substation needs to be sited nearby or within the load centre, minimizing the distance between the substation and the majority of the customers.

As shown in Figure 4-2 above, the HER substation location is far from the load centre; therefore, building the New FRU Substation on the existing HER property would not meet the objective of addressing reliability risks for the reasons set out above.

4.3.4 Alternative 4: Replace the FRU and HER Substations with a New Substation on a New Property (Proposed Alternative)

Under this alternative, FBC would replace the FRU and HER substations with a single substation with a two-transformer configuration on a new property close to the load centre (i.e., New FRU Substation).

As explained in Section 4.3.3, building one new substation with a two-transformer configuration addresses both of the Project objectives; however, neither of the existing sites are feasible locations for the new substation. FBC accordingly determined that it was necessary to build the new two-transformer substation on a new property that is reasonably close to the load centre.

The process for identifying the appropriate site was lengthy and complex. FBC considered many different properties and engaged in years of consultation and assessment activities to arrive at the preferred location. The following section describes this process in detail.

4.4 *SITE SELECTION PROCESS AND PROPOSED LOCATION FOR NEW SUBSTATION*

FBC identified and evaluated an extensive list of potential properties for the New FRU Substation. FBC considered bare properties and properties containing structures, as well as properties that were on and off the market. This search identified 18 possible locations for the New FRU Substation. FBC provides a detailed explanation in Section 8 of the timeline of its efforts to locate a suitable property for the Project, including the extensive consultation efforts that were undertaken.

The following table summarizes the properties evaluated and the primary reason why each property was eliminated. To ensure privacy for landowners, FBC has not listed the addresses of properties that could not be purchased. The properties not available for purchase have been labelled as Properties A through I, with the exception of Property A, which is the Mazzocchi

Location (which is further discussed in Section 8). A map outlining the locations of all the properties listed in Table 4-2 is provided confidentially in Appendix F-2.

Table 4-2: Summary of Properties Evaluated

Property Name	Primary Reason for Elimination
Existing FRU Substation	Size
Existing HER Substation	Distance from load centre
Property A (Mazzocchi Location)	Not available for purchase
Property B	Not available for purchase
Property C	Not available for purchase
Property D	Not available for purchase
Property E	Not available for purchase
Property F	Not available for purchase
Property G	Not available for purchase
Property H	Not available for purchase
Property I	Not available for purchase
Atco Wood Products Property A (Property #1)	Distance from load centre
Former Atco Wood Products Property (Property #2)	Distance from load centre
Hepburn Road (Property #3)	Flooding
Atco Wood Products Property B (Property #4)	Flooding
Old Salmo Road (Property #5)	Terrain and Size
Atco Wood Products Property C (Property #6)	Terrain
Highway 3B Property A (Property #7)	Terrain
Highway 3B Property B (Property #8)	Flooding
2064 Grieve Road (Proposed Location)	Selected – see Section 4.5

Of the 18 new locations, the landowners for nine of the locations were not open to selling their property, and therefore these locations were discarded from further evaluation. The process of investigating the nine discarded locations (i.e., Properties A through I in Table 4-2) is described in detail in Section 8.

A further eight locations were considered but ultimately rejected due to the distance from the load centre and/or flooding/terrain/infrastructure challenges, as further explained in the following subsections. One location was found to be suitable and within proximity to the load centre, as explained in Section 4.5.

FBC considered a number of criteria in evaluating each of the locations. These categories and each of the criterion are shown in Figure 4-3 below.

Figure 4-3: Property Evaluation Criteria

FBC has further consolidated the categories in Figure 4-3 to encompass the aspects of the criteria which rendered eight of the available locations unsuitable and has further described these issues in the following subsections.

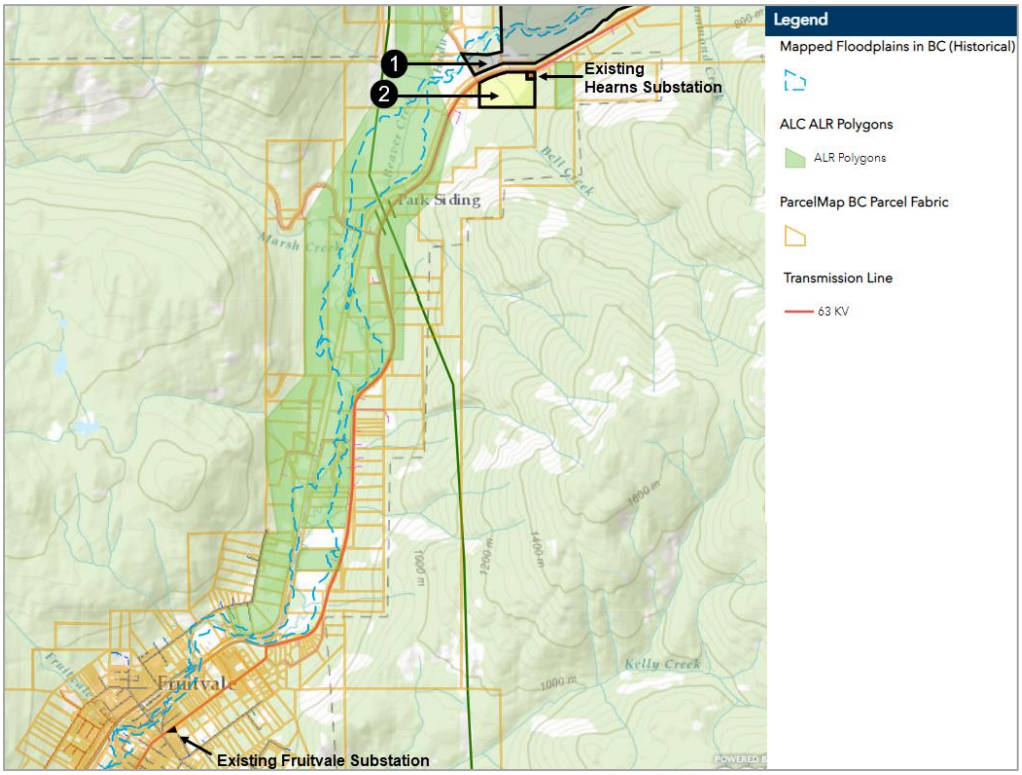
The detailed scoring for the nine available locations (i.e., the eight locations determined to be unsuitable and the selected location) is included in Appendix B.

4.4.1 Distance from the Load Centre in the Village of Fruitvale

Distance from the load centre was a key factor in FBC's evaluation and is reflected in several of the criteria in Figure 4-3, including the distribution reconfiguration complexity, constructability complexity, customer reliability impact and relative capital cost criteria.

As shown in Figure 4-4, two of the locations – Atco Wood Products Property A (#1) and the Former Atco Wood Products Property (#2) – are in close proximity to the existing HER substation. The Atco Wood Products Property A is north of Highway 3B and the Former Atco Wood Products Property is south of Highway 3B. Similar to the location of the HER substation discussed in Section 4.3.3.2, these two locations were rejected due to their distance from the load centre (Village of Fruitvale).

Figure 4-4: Locations Rejected due to Distance from Load Centre



As described in Section 4.3.3.2, the amount of load that can be supplied by a distribution line is constrained by both voltage limits and thermal limits. Voltage drops as electricity travels further away from a substation, with the customers at the end of a distribution line experiencing the lowest voltage. The further a substation is sited from the load centre, the more voltage support upgrades are required on a distribution line to ensure customer voltage meets CSA voltage limits. Also as discussed in Section 4.3.3.2, thermal limits of the distribution line infrastructure also impact the amount of load that can be carried by a single distribution line. The larger the load centre, the more distribution lines required.

Siting the substation at either of these locations (#1 or #2), which are further from the load centre, would require completely rebuilding the line infrastructure between these sites and the load centre (Village of Fruitvale), ensuring FBC adheres to the voltage and thermal limits discussed above. The line work required between these locations and the Village of Fruitvale would be similar to the work described in Section 4.3.3.2. The cost of this line work would be significant (as much as $10 million dollars). A portion of the line rebuild would also fall within the ALR, which could introduce additional project cost and schedule risk.

Furthermore, and as also described in Section 4.3.3.2, the further the substation is sited from the load centre, the lower the customer reliability, as the electricity needs to travel through longer distribution lines to reach the end user, increasing exposure to outages for a significant number of customers. If the substation were sited at either location #1 or #2, any outage to the

line infrastructure between these locations and the load centre would result in a power outage to the entire Village of Fruitvale and also to customers in the Park Siding area previously served by the HER substation. During this outage, a portion of customers could be transferred to FBC's BEP substation, but the remaining customers, including an industrial customer, would need to wait for the line infrastructure to be repaired before power could be restored.

4.4.2 Flooding, Terrain and/or Infrastructure Factors

A number of the available sites considered by FBC were ultimately rejected because the potential for flooding, challenging terrain, and/or the need to reconfigure transmission and distribution line infrastructure resulted in the sites being unfeasible.

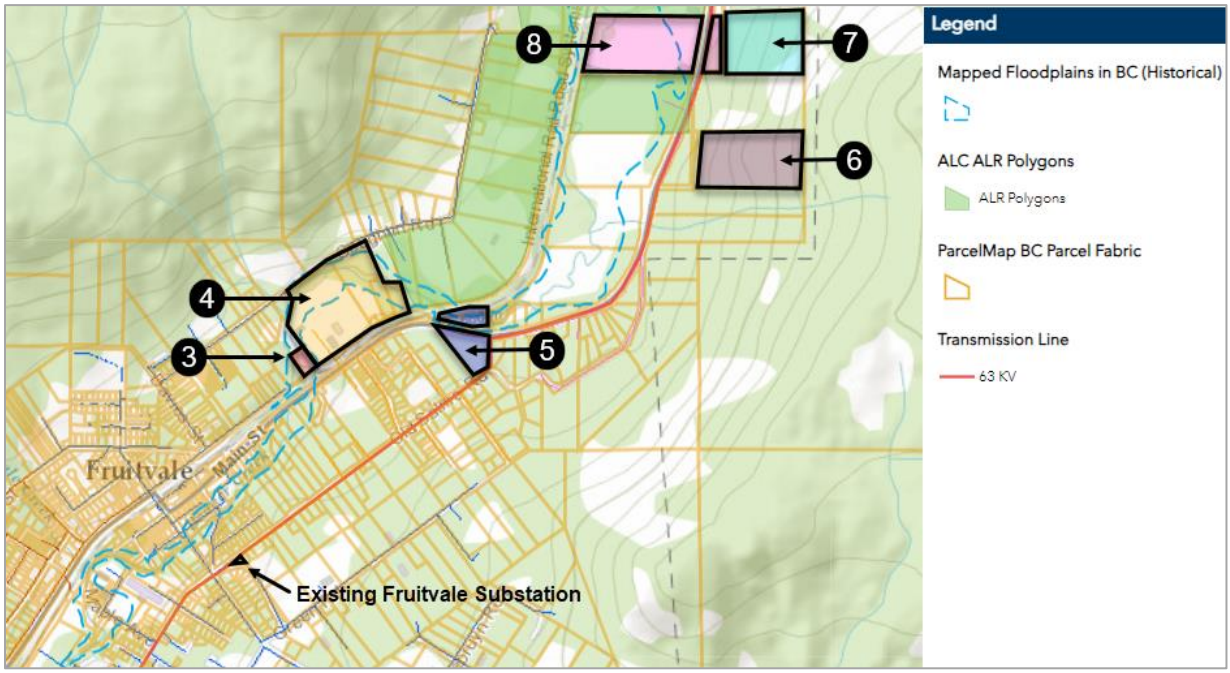
FBC considers it unacceptable to relocate an existing substation that does not currently reside within a floodplain into a floodplain or area where overland flooding is a known issue. Given the changing climate, the intensity, frequency, and area flooded may also increase. The existing FRU substation is not impacted by flooding and does not reside in a floodplain. While substations can be designed to mitigate flood risk by raising the substation, constructing culverts, etc., this can significantly increase project costs and could still result in station outages due to flooding.

Constructability of a property is impacted by its terrain. Properties with extreme elevation profiles (i.e., locations on a mountainside) or geographical features (i.e., ravines) are reviewed on a case-by-case basis and may be considered unacceptable due to inability to construct the substation on these terrains.

Finally, the location of a new substation requires changes to the transmission and distribution line infrastructure. There is complexity and risk associated with reconfiguring transmission line infrastructure to supply the new substation and reconfiguring distribution line infrastructure to supply the end users. Factors considered include line routing and high-level design implications for new line assets, line asset upgrades, relocation or disturbance of existing line assets, and requirements for acquisition of temporary and/or permanent land rights/ownership. The further a substation is sited from the existing 63 kV 20L transmission line and the existing Fruitvale substation, the more line infrastructure upgrades are required, increasing project costs.

Figure 4-5 below shows the locations of the six properties that were eliminated for flooding, terrain, and/or infrastructure challenges. Each location is further discussed below.

Figure 4-5: Locations Rejected due to Flooding, Terrain and/or Infrastructure Challenges



- **Hepburn Road (#3):** This location was initially identified because the property is vacant; however, the entire property is located within a floodplain, as shown in Figure 4-5.
- **Atco Wood Products Property B (#4):** This location, which was proposed by Atco Wood Products, is the existing mill site. They proposed a potential opportunity at the east end of the property where the substation would not interfere with their operations. However, as shown in Figure 4-5, a large portion of the mill site is within a floodplain, including the vacant land on the east end.
- **Old Salmo Road (#5):** The landowner approached FBC to subdivide a portion of forested property between their home and Highway 3B for the new substation. FBC performed a preliminary site visit and found a deep ravine within the forested area proposed by the landowner. The available land was too small to accommodate the substation given these terrain challenges. Constructing the substation at this location would not be possible due to the size of available land and the challenging terrain (ravine). Please refer to Figure 4-6 below.

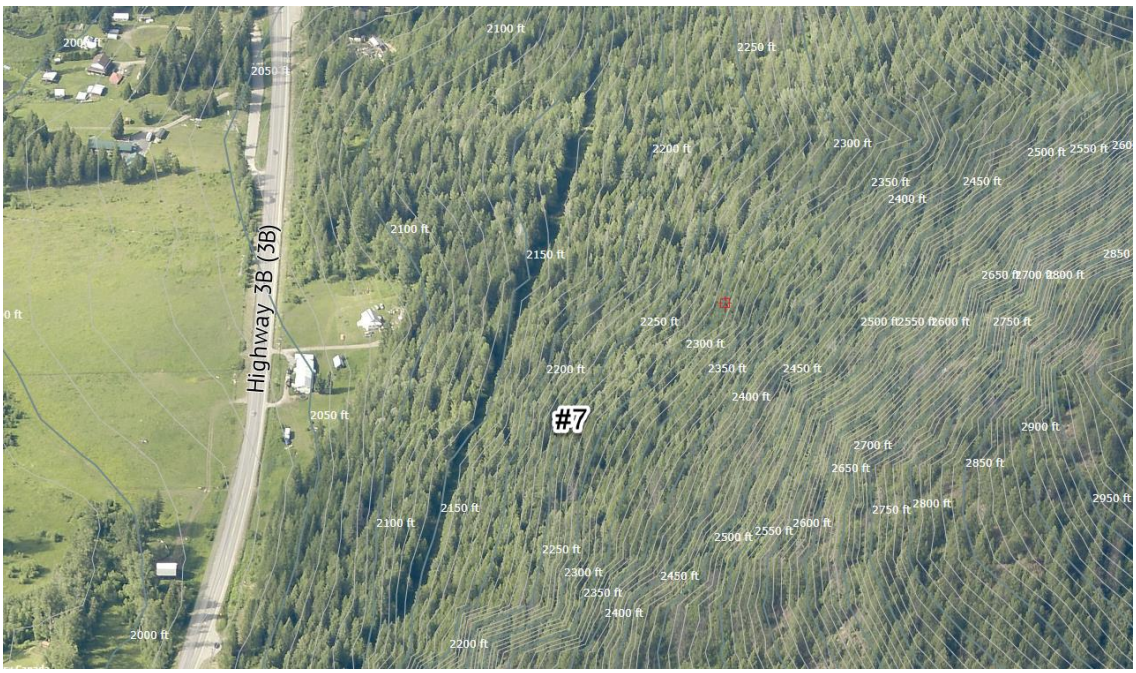
Figure 4-6: Old Salmo Road Terrain

- **Atco Wood Products Property C (#6):** This location was also proposed by Atco Wood Products and is a vacant site near Highway 3B. However, the property has an extreme elevation profile as it is situated on the side of a mountain, as shown in Figure 4-7 below. Constructing at this location would be extremely challenging and very costly. The station could also be impacted by falling trees during adverse weather events given the elevation profile.

Figure 4-7: Atco Wood Products Property C Terrain

- **Highway 3B Property A (#7):** This location was initially identified because the property is vacant. However, the property has an extreme elevation profile as it is situated on the side of a mountain, as shown in Figure 4-8 below. Constructing at this location would be extremely challenging and very costly. The station could also be impacted by falling trees during adverse weather events given the elevation profile. A portion of the required line infrastructure upgrades would also fall within the ALR, which could introduce additional project cost and schedule risk.

Figure 4-8: Highway 3B Property A Property Terrain



- **Highway 3B Property B (#8):** This location was identified because the property was for sale. The property straddles Highway 3B, with a creek on one end and a mountain on the other, as shown in Figures 4-5 and 4-9. There are two dwellings on the mountain side of the property. During a site visit, FBC determined that the mountain side of the property was not suitable given the elevation profile, as the station could be impacted by falling trees during adverse weather events. Although a portion of the creek side of the property does not fall within the floodplain (as shown in Figure 4-5), during spring run off this area is inundated by water flowing down the mountain and underneath the highway. This property is also further from the load centre (Village of Fruitvale). Any outage to the distribution lines between this location and the load centre would result in a power outage to the entire Village of Fruitvale, including an industrial customer. Upgrades to existing line assets and new line infrastructure would be required to adhere to voltage and thermal limits, resulting in line infrastructure challenges, and increasing project costs. A portion of the line infrastructure upgrades would also fall within the ALR, which could introduce additional project cost and schedule risk.

Figure 4-9: Highway 3B Property B Terrain

4.5 THE GRIEVE ROAD LOCATION IS THE ONLY SUITABLE OPTION AVAILABLE

Of the four alternatives evaluated, the only alternative that meets the Project objectives is to replace the existing FRU and HER substations with a new substation on a new property (the New FRU Substation). Accordingly, FBC evaluated 18 new locations for the New FRU Substation and determined that the only location that is available, close to the load centre, and does not present flooding, terrain and other constructability challenges, is the 2064 Grieve Road location (Grieve Location). The Grieve Location is shown in Figure 4-10 below.

Figure 4-10: 2064 Grieve Road (Map View)

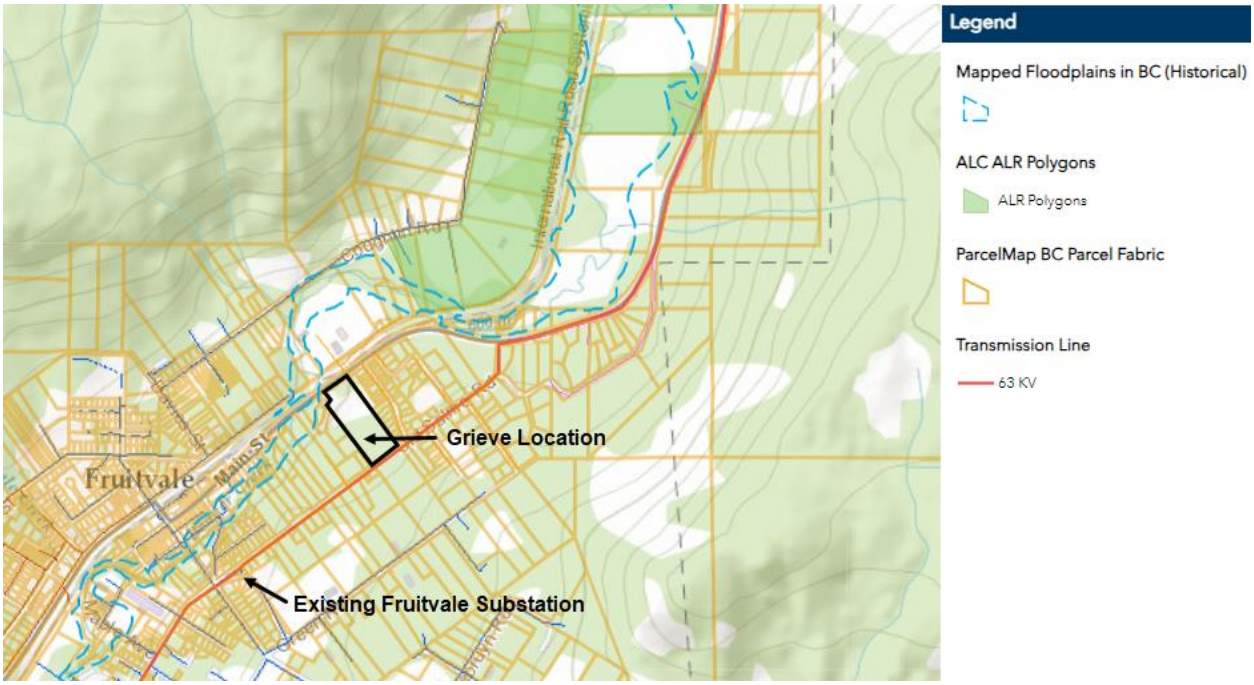


Figure 4-11 below shows a satellite view of the Grieve Location, including its proximity to the existing FRU substation and to the existing transmission line 20L.

Figure 4-11: 2064 Grieve Road (Satellite View)

The Grieve Location is large enough to accommodate the New FRU Substation (9.61 acres in size) and does not have flooding or mountainous terrain challenges. The property is adjacent to transmission line 20L, which runs parallel to Old Salmo Road, and is approximately 750 m from the existing FRU substation, minimizing transmission and distribution line reconfiguration. The required line work is not impacted by the ALR. Given the size of the property, the substation can be sited to mitigate constructability challenges and impact to the surrounding residents.

4.5.1 Siting of the Substation on the Grieve Location

As noted above, the Grieve Location is 9.61 acres. The size of the property has enabled FBC to consider various sites for the substation and, as described in more detail in Section 8, FBC has undertaken extensive consultation with the adjacent landowners to obtain feedback on the impacts of building the New FRU Substation on various sites on the property.

In addition to stakeholder feedback, a key consideration when assessing siting was constructability impacts. In the forested area, a wetland was identified, and the elevation profile is more pronounced.

Subsequent to the BCUC's Order to file a CPCN application, and in consideration of stakeholder feedback and constructability impacts, FBC proceeded with completing Class 4 estimates for two siting options. Please refer to Confidential Appendix C for the engineering assessments. For ease of reference, FBC refers to these options as the "Highway 3B" option and the "Old Salmo Road" option based on their relative proximity and access to those roads[6]. Please refer to Figure 4-12 for an aerial view of these areas within the Grieve Location.

Figure 4-12: Highway 3B Option and Old Salmo Road Option within Grieve Location

Table 4-3 below provides a summary of the financial analysis of the Highway 3B Option and the Old Salmo Road Option over a 53-year analysis period at an AACE Class 4 level estimate. The financial evaluation considered the levelized rate impact resulting from each site over the 53-

[6] In Appendix C, the Highway 3B option is referred to as "Option 1A" and the Old Salmo Road option is referred to as "Option 3".

year analysis period. The 53-year analysis period is based on a 50-year post-Project analysis period from 2027 (all assets estimated to enter FBC's rate base in 2027) plus three years for the estimated construction schedule from 2024 to 2026. The 50-year post-Project analysis period is based on the Average Service Life (ASL) of the station equipment in the transmission plant category (i.e., asset class 353 Station Equipment).[7]

Table 4-3: Financial Evaluation Summary of Highway 3B and Old Salmo Road

	Highway 3B Option	Old Salmo Road Option
Project Capital Cost, 2023 $ ($ millions)	16.472	18.800
Escalation Applied from 2024 to 2026, As-Spent ($ millions)	0.860	0.985
AFUDC, As-Spent ($ millions)	1.535	1.743
Total Project Cost, incl. Escalation and AFUDC, AACE Class 4, As-spent ($ millions)	**18.867**	**21.528**
Incremental O&M Expense in 2027, As-Spent ($ millions)	(0.013)	(0.016)
Total PV of Incremental Revenue Requirement over 53 years ($ millions)	20.795	23.324
Levelized Rate Impact over 53 years (%)	0.29%	0.32%

As the above table shows, the Class 4 estimates for the Highway 3B Option and the Old Salmo Road Option are similar, with Highway 3B (the preferred option) approximately $2.661 million less than the Old Salmo Road Option.

While the financial results of the two options are similar, FBC determined through the completion of the Class 4 estimates that the Old Salmo Road Option had significantly higher impacts and challenges, including the following:

- Greater visual impact to the surrounding residents and the public passing by along the roadway (Old Salmo Road);
- Greater amount of civil and site preparation, likely resulting in retaining walls and extensive clearing of the forested area of the property;
- Greater risk for cost escalation due to civil and site preparation; and
- Accessibility challenges.

For these reasons, FBC selected the Highway 3B Option as the location for the New FRU Substation.

4.6 *CONCLUSION*

FBC evaluated four alternatives to determine whether they would meet the Project objectives of (1) addressing the equipment condition issues and aging infrastructure at the Fruitvale and

[7] ASL of 50 years per FBC's 2017 Depreciation Study approved as part of the 2020-2024 MRP Decision and Order G-166-20.

Hearns substations, and (2) addressing the reliability of electricity supply risk for Fruitvale and the surrounding area.

Based on FBC's analysis, the only alternative that meets both Project objectives is to build one new substation with two transformers on a new property. A two-transformer configuration will improve reliability, and it is more cost-effective and practical to build one new substation (as opposed to rebuilding both existing substations). Due to sizing constraints with the existing FRU site and the existing HER site's distance from the load centre, a new location was acquired for the New FRU Substation.

FBC underwent a lengthy and detailed search for a suitable new location, which included evaluating 18 new locations for the New FRU Substation. Nine of the evaluated locations were not available for purchase, and a further eight of the locations were determined to be unsuitable due to the distance from the load centre and/or flooding/terrain/infrastructure challenges.

FBC accordingly selected 2064 Grieve Road as the location for the Project and has purchased the 9.61-acre parcel of land. Based on FBC's analysis of the potential site options at the Grieve Location, FBC has selected the Highway 3B Option as the preferred location for the New FRU Substation.

5. PROJECT DESCRIPTION

5.1 *INTRODUCTION*

In this section, FBC provides a detailed description of the Project based on the preferred alternative. As set out in Section 4, the only practical alternative is to replace the existing FRU and HER substations with a single, two-transformer substation on a new site close to the load centre (New FRU Substation). Based on FBC's lengthy and complex search for an appropriate property for the New FRU Substation, FBC determined that the Grieve Location was the only suitable property. Further, and after consideration of constructability, stakeholder feedback and environmental impacts, FBC determined that the Highway 3B Option at the Grieve Location is the preferred site for the substation.

The Project includes construction of the New FRU Substation, including installing two new 20 MVA dual voltage transformers, air-insulated busworks, three distribution lines (with accommodations for a fourth line), and a 2.4 MVAR capacitor bank. The New FRU Substation will continue to be supplied by transmission line 20L. Additionally, FBC will decommission the existing FRU and HER substations.

This section is organized as follows:

- Section 5.2 explains why FBC was reasonable to file the Application with a Class 4 cost estimate;
- Section 5.3 provides an overview of the Project components;
- Section 5.4 discusses the Project engineering and design;
- Section 5.5 describes the Project management and resources that FBC has dedicated to the Project;
- Section 5.6 sets out the Project schedule;
- Section 5.7 describes FBC's planned risk mitigation activities; and
- Section 5.8 concludes this section.

5.2 *PROCEEDING WITH CLASS 4 COST ESTIMATE*

FBC's cost estimate for the Project is based on an AACE Class 4 level of definition. FBC recognizes that the BCUC's CPCN Guidelines contemplate the inclusion of a cost estimate at an AACE Class 3 level of definition. However, FBC has not undertaken a Class 3 cost estimate at the time of filing this Application, as a Class 3 estimate first required FBC to determine where on the Grieve Location that the station would be sited. FBC did not decide on station siting within the Grieve Location until early in February 2024. Further, as the Class 3 cost estimate cannot be completed during winter conditions (i.e., snow-free conditions are required) in

Fruitvale, the earliest FBC anticipates that it could have a Class 3 estimate completed is July 2024.

Rather than wait until the summer of 2024 to file this Application, FBC determined that it should proceed with the filing of this Application based on a Class 4 estimate for three primary reasons:

- **Need to Address Reliability of Supply to Fruitvale:** As set out in Section 3 of the Application, the Project is needed to address the condition of the aging assets in the HER and FRU substations and to address reliability risk to FBC's service to the community of Fruitvale and the surrounding area. The Project has already been materially delayed due to the extensive amount of time required to locate the property for the New FRU Substation and the added complexity and time required to prepare and undergo a CPCN application review process. As the risk of reliance on the existing FRU and HER substations increases over time, FBC is concerned with any further delays to the Project in-service date. In these circumstances, it is prudent for FBC to take reasonable steps to complete the Project as soon as reasonably possible. In FBCs view, filing this Application with a Class 4 estimate is a reasonable step that is warranted given the reliability risk to customers of any further delay.
- **Issue of Consultation and Site Selection Ready for BCUC's Review**: The key issue before the BCUC in the review of this Project is the property selection for the New FRU Substation, on which FBC has been consulting for several years. Indeed, complaints from members of the public regarding the location of the Project gave rise to the BCUC's direction to FBC to file a CPCN for the Project. These topics are well documented in the Application and ready for the BCUC's consideration. FBC considers that there is a material benefit to filing at this time so that these topics can begin to be reviewed by the BCUC. While FBC continues to actively engage with stakeholders, ultimately, FBC does not anticipate that it will be able to change the minds of those residents who continue to oppose the Project, and that it is time for their complaints to be heard and adjudicated by the BCUC. Further, FBC continues to receive detailed requests for information from members of the public. While FBC is endeavouring to be as responsive as possible, FBC considers that providing such detailed responses would be of greater benefit within a public hearing process where the information can be filed transparently and be publicly examined by all stakeholders and the BCUC. To ensure that the public inquiries are being responded to in a timely manner, FBC considers it most efficient to commence the regulatory process as soon as practicable.
- **Ample Evidence on Which to Determine the Public Interest of the Project**: In the circumstances of this Project, FBC considers that there is ample evidence on which the BCUC can determine the public interest without a Class 3 cost estimate. The Project need is clear and not controversial and, in any case, is not impacted by the lack of a Class 3 cost estimate. Regarding the alternatives analysis, consistent with the CPCN Guidelines, FBC completed Class 4 estimates for two siting options at the Grieve Location to compare the capital costs, constructability and environmental impacts for

each option and to aid in determining final siting, together with the input from adjacent landowners. Given the relatively narrow scope of and limited risks to this Project, FBC submits that the need for a more accurate Class 3 cost estimate is low. Additionally, FBC has recently completed two substation projects – the Playmor Substation Upgrade project and Beaver Park Substation Upgrade project – and was able to use these recent projects to help inform the Class 4 estimate for the current Project. This provides FBC with a reasonably high level of confidence regarding its Class 4 cost estimate. The BCUC will ultimately have the opportunity to review the prudence of expenditures once FBC files its final report on the Project and through its ongoing regulatory oversight of FBC.

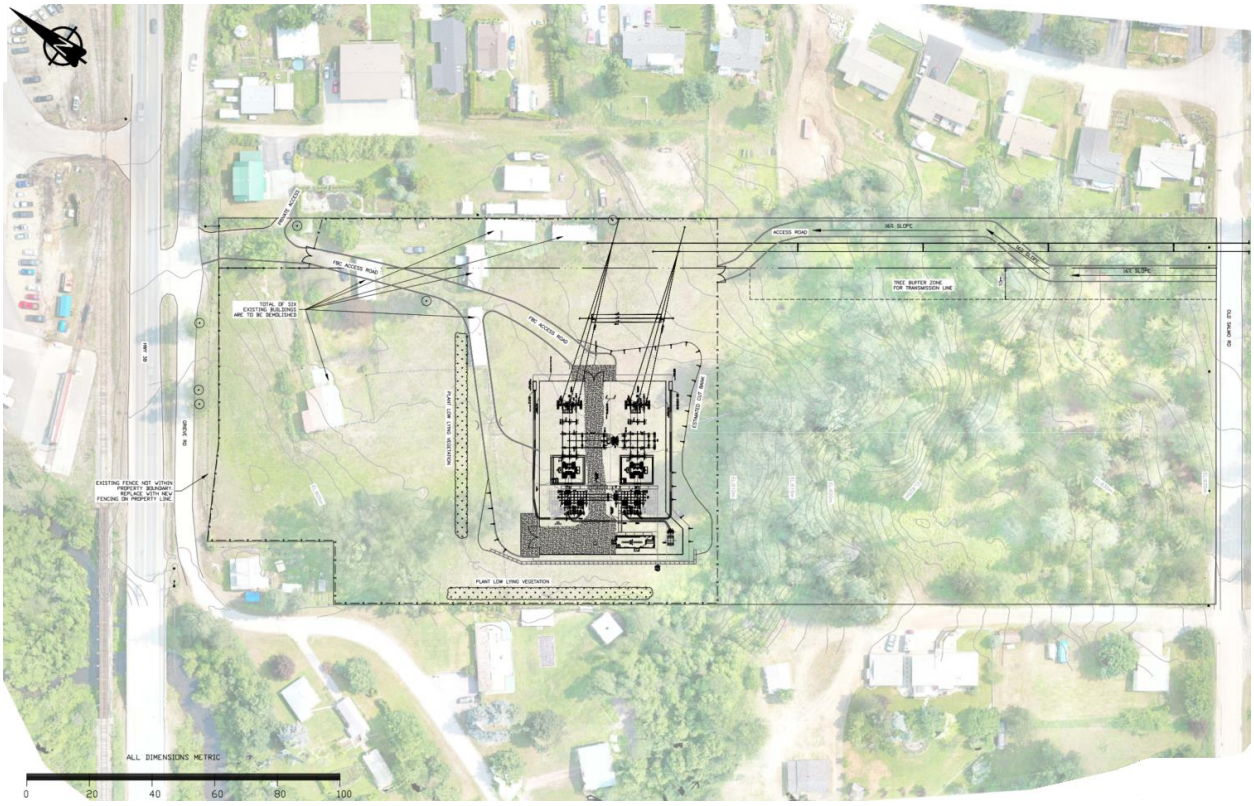
In summary, considering the need to complete the Project, the delays in undertaking the Project to date, and the additional time that it would take to complete a Class 3 estimate for the preferred siting option at the Grieve Location (a minimum of approximately three months once weather conditions allow for access to the site), FBC concluded that it was reasonable to file the Application with a Class 4 level estimate for the Project.

5.3 *OVERVIEW OF PROJECT COMPONENTS*

The New FRU Substation will be built on the Highway 3B side of the Grieve Location, which is just outside of the forested area and abuts the same main road (i.e., Highway 3B) as a large industrial customer, as shown in Figure 5-1 below. FBC expects that as part of the substation construction it will demolish the vacant house and potentially the outbuildings. The new transmission line alignment will be an overhead design running parallel to the north-east side of the property, and the distribution lines will run underground within the property. Additional offsite upgrades and reconfiguration of the existing distribution line infrastructure is required to accommodate the New FRU Substation and the decommissioning of the existing FRU and HER substations.

FBC has completed preliminary station engineering to support Project definition work and evaluate the station configuration. The design will be further defined as part of the development of the detailed design, which FBC will undertake subsequent to receiving CPCN approval. The preliminary site plan drawing is provided in Confidential Appendix C-1 and shown below in Figure 5-1. The final location for the substation may shift approximately 20 meters in any direction subject to final design and engineering/operational considerations.

Figure 5-1: Site Plan Drawing for the New FRU Substation



In the subsections below, FBC describes the station, transmission line, distribution line, and decommissioning scopes of work for the Project.

5.3.1 Station Scope of Work

The New FRU Substation will be built to accommodate two 20 MVA dual voltage transformers[8] with air-insulated bus works and four distribution lines, as well as a 2.4 MVAR capacitor bank. Three distribution lines will be fully installed at the time of construction, leaving space for a fourth distribution line when needed. The existing FRU and HER substations will also be decommissioned as part of this Project, as further described in Section 5.3.4.

A summary of the station work required for the New FRU Substation at the Grieve Location is set out below and provides for:

- Three 63 kV circuit breakers and isolation switches for 20L egress into the station.
- Two 20 MVA 63 kV / 13 / 26 kV auto transformers with secondary oil containment with oil-water separation and fire quenching stone.
- Seven 25 kV breakers.

[8] 20 MVA is the smallest FBC standard transformer size.

- One 25 kV 2.4 MVAR capacitor bank.
- Three 25 kV distribution feeders (to be operated at 13 kV) leaving the station via underground cables.
- Station will contain all necessary isolation and bypass switches, surge arrestors, support structures, conduit, grounding, connectors, and buswork.
- All necessary protection, control, metering, and telecom equipment will be housed in a control building.
- A concrete or screening fence.

Further details of the Project's station scope are included in Confidential Appendix C-1.

5.3.2 Transmission Line Scope of Work

Preliminary transmission line engineering was completed to support project definition work, and to evaluate structure types and configurations. Transmission system modifications identified for the Project are associated with 20 Line.

The transmission work aims to install a 260 m in-and-out overhead transmission line configuration to supply the New FRU Substation. Transmission line work related to the decommissioning of the existing FRU and HER substations is further described in Section 5.3.4.

A summary of the transmission work required to supply the New FRU Substation at the Grieve Location is set out below:

- Clearing of trees for an approximately 26 m wide corridor along the north-east side of the property for the new transmission line alignment.
- Approximately 520 m of new 63 kV transmission line (260 m in and 260 m out).
- Replacement of one existing single circuit wood pole structure.
- Installation of nine new single circuit wood pole structures.
- Installation of two new double circuit composite pole structures.
- Installation of inline jumpers between the in and out alignments near Old Salmo Road.

Preliminary drawings showing the Site Plan for the New FRU Substation are included in Confidential Appendix C-1. Further details of the Project's transmission scope are included in Confidential Appendix C-2.

5.3.3 Distribution Line Modifications

The distribution work includes the installation of three distribution lines, leaving space for a fourth distribution line when needed, and includes installing two gang-operated airbreak

switches. Additionally, the existing Hearns feeder (HER1) will be permanently offloaded to the New FRU Substation. Distribution line work related to the decommissioning of the existing FRU and HER substations is further described in Section 5.3.4.

A summary of the distribution work required for constructing the New FRU Substation is set out below:

- Install feeder egress cables from three new FRU station breakers (fourth station breaker provisioned for future distribution line when needed).
- Install three 750 KCMIL risers with solid disconnects.
- Install two gang-operated airbreak switches acting as new feeder ties.
- Trenching and conduit installation along Old Salmo Road as well as on the Grieve Location property.
- Reconfigure existing line infrastructure as required to accommodate substation location.

Further details of the Project's distribution scope are included in Confidential Appendix C-3.

5.3.4 Decommissioning of the Existing FRU and HER Substations

Following the construction of the New FRU Substation, the existing FRU and HER substations will be decommissioned, which includes:

- Salvaging existing equipment;
- Demolishing existing bus works, connections and bus supports;
- Removing all field cabling; and
- Abandoning station foundations (after cutting off anchor bolts), conduits, ground grid, and control building (where applicable).

A summary of the transmission and distribution work required to accommodate the decommissioning of the existing FRU substation is as follows:

- Replace existing distribution pole (Asset Tag 304056) with a 63 kV double deadend structure with distribution underbuild.
- Transfer the conductor from 20L174 to the new structure.
- Replace 20L176 with a 63 kV double deadend structure with distribution underbuild.
- String a span of 2/0 ACSR Quail between the two deadend structures.
- Salvage existing FRU feeder egress cables.
- Salvage two 350 KCMIL risers with solid disconnects (60B1 and 60B2).

- Salvage one gang-operated airbreak (60G3).

A summary of the transmission and distribution work required to accommodate the decommissioning of the existing HER substation is as follows:

- Replace structure 20L293 with a 63 kV deadend structure with distribution underbuild and salvage the 63 kV switch HER 20-1.
- Replace structure 20L294 with a 63 kV light angle structure with distribution underbuild.
- Replace structure 20L295 with a 63 kV deadend structure with distribution underbuild and salvage the 63 kV switch HER 20-2.
- Splice and transfer the existing 2/0 ACSR Quail between the two deadend structures.
- Salvage structure 20L294A.
- Salvage existing HER1 distribution line tying into HER substation.

FBC intends to retain the FRU and HER sites as they will be used for various purposes in the future and, as exemplified by the search for a location for the New FRU Substation, acquiring new land can be very challenging. At this time, FBC is intending to use the FRU and HER sites as lay down yards, however, additional uses are likely to arise in the future for these sites. For instance, FBC is considering installing reactive compensation at the HER site to support transmission line voltage when needed.

5.4 *PROJECT ENGINEERING AND DESIGN*

FBC plans to start engineering and detailed design immediately upon receiving CPCN approval. Activities will encompass all required engineering calculations, validations, specifications, and drawings. FBC will organize engineering activities in order of priority, in relation to the fabrication and procurement lead times and schedule date for each component to be on the work site.

The engineering packages to be completed include, in no particular order:

- New FRU Substation site preparation scope;
- New FRU Substation civil/physical scope;
- New FRU Substation electrical scope;
- Transmission line 20L re-alignment scope;
- Distribution line re-alignment scope; and
- Existing FRU and HER substation decommissioning scope.

Engineering will be completed either by FBC or by an FBC pre-qualified external engineering firm. Each engineering package completed by external resources will be reviewed and accepted by FBC.

FBC will initiate the application processes for permits and approvals in detailed design. This will include but is not limited to Environmental, Archaeological, Ministry of Transportation and Infrastructure (MOTI), and any/all other permits, approvals, and authorizations.

5.5 *PROJECT MANAGEMENT AND RESOURCES*

An FBC Project Manager/Owner's Representative is responsible for overseeing all Project activities and will manage all aspects of the Project including, but not limited to, permitting, engineering, procurement, and construction. The Project Manager will be supported by other members of the FBC Project Management Office as required, such as Project Schedulers, Cost Analysts, and Administration.

Additionally, FBC will have a Construction Manager on site who will manage the construction activities and resources (both contracted resources and internal resources). The Construction Manager is responsible for all health and safety, quality, environment, schedule, outage staging and planning, and cost controls on site.

The Project will also be supported by other FBC departments including Occupational Health and Safety, Operations/Network Services, Environment, and Lands.

5.6 *PROJECT SCHEDULE*

The Project schedule in Table 5-1 below, which will be adjusted as required, has been compiled to meet an in-service target of Q4 2026 with an assumption of BCUC approval in Q4 2024. The Project schedule considered engineering, procurement, construction, and project close-out.

Engineering and procurement for the Project will begin immediately upon BCUC approval. FBC has standard equipment specifications for equipment relevant to the Project scope, which reduces risk for ordering long-lead material. Further, the selection of the Grieve Location allows for a "Green Field" construction site, reducing Project staging and outage risks.

Table 5-1: Project Schedule

Task Name	Duration	Start	Finish
FRU Station Upgrade			
Stations			
BCUC Approval	0 days	October 2024	October 2024
Major material procurement	105 days	October 2024	February 2025
Engineering/design	210 days	October 2024	July 2025
Engineering IFC drawings- site prep	0 days	February 2025	February 2025
Engineering IFC drawings-civil/physical	0 days	March 2025	March 2025
Engineering IFC drawings-electrical	1 day	July 2025	July 2025
RFP tender processes	140 days	February 2025	August 2025
Site preparation	60 days	April 2025	June 2025
Civil construction/underground electrical	140 days	May 2025	November 2025
Physical construction	125 days	August 2025	January 2026
Electrical construction	115 days	October 2025	March 2026
Transformer delivery and assembly	23 days	August 2025	September 2025
Commissioning	100 days	February 2026	June 2026
Energization	5 days	July 2026	July 2026
Demo existing station/equipment	40 days	July 2026	September 2026
Project close-outs/As- builts	110 days	July 2026	December 2026
Transmission/Distribution			
Engineering/design	125 days	October 2024	March 2025
Material procurement	90 days	October 2024	February 2025
Construction	100 days	June 2025	October 2025
Station H/V connection	20 days	May 2026	May 2026

5.7 *RISK MITIGATION ACTIVITIES*

FBC has assessed the risk to the Project and has planned risk mitigation activities in place to keep overall risk to the Project manageable. The identified risks, mitigating actions, and likelihood of occurrence for each risk are provided in the following table.

Table 5-2: Project Risks

Type of Risk	Risk Description	Mitigating Actions	Likelihood of Occurrence (Low/Medium/High)
Environment & Archaeological	Contaminated soils on site	Confirm soil contamination during geotechnical testing and visual inspections.	Low

Type of Risk	Risk Description	Mitigating Actions	Likelihood of Occurrence (Low/Medium/High)
	Ground water issues may cause construction delays	In depth planning and scheduling work outside of the peak spring runoff times. Review of station environmental ground water survey.	Low
	Unforeseen environmental or archaeological discoveries during construction	Early consultation and exploration of unforeseen archaeological sites in the area of construction. Chance finds training.	Medium
	Wildfire risk during transmission work and site excavation	The Transmission and Distribution portion of the project will be scheduled outside of wildfire season, when possible. The work is confined to the substation property which has limited vegetation.	Low
Schedule	Availability of resources	External contractors will be used with support from internal FBC crews. FBC anticipates availability of qualified external resources.	Low
	Availability of services and materials	Schedule and order long lead-time materials in the early stages of the design to allow for ample time for delivery to site before required.	Medium
	Project completion delayed	Insert milestones in the contract with contractor and consider implementing liquidated damages or bonus structure to achieve schedule.	Low
Scope	Scope creep due to engineering and construction issues during construction	Change Management policies/standards to be implemented during project execution.	Low
	Geotechnical testing reveals unsuitable soil conditions for construction	Complete Geotechnical testing in the area of construction early in the project.	Medium
Safety	Contractors not familiar with FBC safe work practices resulting in injury or violation	FBC will select a contractor with FBC substation experience or train the selected contractor prior to work commencing. FBC will provide on-site qualified personnel during construction staging.	Low

Type of Risk	Risk Description	Mitigating Actions	Likelihood of Occurrence (Low/Medium/High)
Quality	Poor quality installations	FBC will have dedicated resources monitoring construction activities as scheduled by the Construction Manager. An Inspection & Test plan will be implemented with the installation contractor.	Low
Cost	Raw material costs increase due to inflation/market value	Purchase all equipment from established suppliers and, where possible, with agreed purchase prices. Competitive tendering will be used to ensure lowest cost at best value products. Contingency may be used in the case of higher than anticipated foreign exchange or raw material escalation.	Medium
	Actual costs of construction are higher than estimated	FBC will carefully monitor and control the budget via change management processes and competitive pricing.	Medium

5.8 *CONCLUSION*

In this section, FBC has described the Project in detail, including information on Project components, engineering and design, management and resources, schedule, and risks. The Project schedule incorporates required staging of station, transmission and distribution line work and considers seasonal windows for load transfers. Planned risk mitigation activities are in place to keep overall risk to the Project manageable.

6. PROJECT COSTS, FINANCIAL ANALYSIS, ACCOUNTING TREATMENT AND RATE IMPACT

6.1 *INTRODUCTION*

The total Project cost estimate is $18.867 million in as-spent dollars, including cost of removal and AFUDC. This section provides a breakdown of the total Project cost estimate, summarizes the financial analysis performed, details the accounting treatment of the capital costs, and sets out the rate impact of the Project.

6.2 *SUMMARY OF PROJECT COSTS*

Table 6-1 below summarizes the total estimated Project capital costs in both 2023 and as-spent dollars.

Table 6-1: Breakdown of the Project Cost Estimate ($ millions)

Line	Particular	2023 $	As-Spent $	Reference
1	Land Costs	0.794	0.818	Section 4.5
2	Station Construction Costs	11.162	11.746	Section 5.3.1
3	Transmission and Distribution Construction Costs	1.604	1.690	Sections 5.3.2 and 5.3.3
4	Removal Costs	0.439	0.468	Section 5.3.4
5	Project Management and Owner's Costs	0.555	0.586	Section 5.5
6	**Subtotal Project Capital Cost**	**14.554**	**15.308**	**Sum of Line 1 to 5**
7	Contingency	1.759	1.864	Section 6.2
8	**Subtotal Project Capital Cost with Contingency**	**16.312**	**17.172**	**Sum of Line 6 to 7**
9	CPCN & Preliminary Engineering Costs	0.160	0.160	Section 6.2 and 6.4.1
10	AFUDC	-	1.535	Conf. App. D, Sch 6, Ln 29 + 34 (2024-2026)
11	**Total Project Cost**	**16.472**	**18.867**	**Sum of Line 8 to 10**

The Project cost estimate, as provided in Table 6-1 above, is based on the following:

- A base capital cost estimate of $14.554 million (excluding contingency) in 2023 dollars developed by FBC, with support from Breton, Banville and Associates (BBA) for the station estimate and Primary Engineering for the distribution estimate. As discussed in Section 5.2, the base capital cost estimate was developed to the AACE Estimate Class 4 in accordance with the International Recommended Practices 18R-97 and 97R-18. Please refer to Section 5.3.1 for details related to the station component of the Project, and Confidential Appendix C-1 for the basis of estimate. With respect to the details of the Project related to transmission and distribution components, please refer to Sections 5.3.2 and 5.3.3, respectively, as well as Confidential Appendices C-2 and C-3 for the basis of estimates.
- A total contingency estimate of $1.759 million in 2023 dollars (approximately 12 percent of the base capital cost estimate of $14.554 million in 2023 dollars). This includes a

contingency of 13 percent applied to the station construction and removal costs[9] (as detailed in Confidential Appendix C-1), a contingency of 20 percent applied to the transmission components (as detailed in Confidential Appendix C-2), and a contingency of 40 percent applied to the distribution components (as detailed in Confidential Appendix C-3). A 40 percent contingency was used for the distribution component due to the uncertainty regarding civil trenching costs and completeness of design. FBC notes that while the level of contingency for the distribution component is high, the cost for this component is small relative to the overall Project cost, thereby limiting the impact of the higher contingency. Please refer to Section 5.7 for the identified Project risks and mitigations.

- To convert the base capital cost estimate and contingency from 2023 dollars to as-spent dollars over the period from 2024 to 2026,[10] a total escalation of $0.860 million was applied to the Project cost estimate. Of the total escalation of $0.860 million, $0.755 million corresponds to the escalation on the base capital cost estimate and $0.105 million corresponds to contingency. The escalation uses 3 percent for 2024 and an annual inflation of 2 percent for 2025 and beyond, which is aligned with the Bank of Canada inflation projection for 2024 and anticipated return to target by 2025.[11]

- CPCN & Project Preliminary Engineering costs of $0.160 million have been incurred in 2023. Consistent with the approved treatment[12] for CPCN and project preliminary engineering costs, these costs, which are related to the development of the Project and include regulatory costs for the purpose of obtaining approval for the CPCN, are captured in the existing CPCN & Project Preliminary Engineering non-rate base deferral account as discussed in Section 6.4.1 below.

- AFUDC, calculated using FBC's 2024 approved AFUDC rate of 6.01 percent[13], which is equal to FBC's after-tax weighted average cost of capital, and added to the total Project cost.

6.2.1 Comparison to Forecast Cost in the 2023 Annual Review

As part of the FBC Annual Review for 2023 Rates application (2023 Annual Review), FBC provided updated sustainment and growth capital forecasts for 2023 and 2024, which included forecast capital expenditures for the Fruitvale Substation Project of approximately $12.5 million. The forecast capital expenditures were approved as part of the FBC Annual Review for 2023 Rates Decision and Order G-382-22. However, as explained in Section 1, subsequent to the 2023 Annual Review Decision, FBC was directed by Order G-135-23 to file a CPCN application for the Fruitvale Substation Project.

[9] Before material handling and PST on material costs.
[10] No escalation applied on actual costs incurred by FBC prior to the end of 2023.
[11] Bank of Canada Monetary Policy Report – January 2024: https://www.bankofcanada.ca/2024/01/mpr-2024-01-24/
[12] Decision and Order G-139-14.
[13] Approved by Decision and Order G-340-23 (FBC Annual Review for 2024 Rates Decision). Actual AFUDC will be calculated based on the approved AFUDC rate at the time of construction.

Table 6-2 below provides a comparison of the capital cost estimate from the 2023 Annual Review and the current capital cost estimate based on the Class 4 estimate prepared as part of this CPCN Application. At the time of the 2023 Annual Review, the forecast $12.471 million project cost (rounded to $12.5 million) was provided in 2021 dollars and did not include cost escalation during the construction period or AFUDC. Therefore, to provide an accurate comparison in Table 6-2, the project cost in 2021 dollars from the 2023 Annual Review is escalated by 6.9 percent in 2022 and 3.9 percent in 2023 based on actual BC Consumer Price Index (CPI) annual averages,[14] which is equivalent to a total project cost of $13.851 million in 2023 dollars.

As shown in Table 6-2 below, once accounting for escalation, the current Project cost estimate is approximately $2.621 million (in 2023 dollars) higher than the forecast provided in the 2023 Annual Review.

Table 6-2: 2023 Annual Review and CPCN Application Capital Cost Comparison ($ millions)

	2023 Annual Review Capital Cost Estimate (2021 $)	2023 Annual Review Capital Cost Estimate (2023 $)	CPCN Capital Cost Estimate (2023 $)	Difference (2023$)
Land Costs	0.344	0.382	0.794	0.412
Station Construction Costs (incl. Removal Costs)	8.500	9.441	11.981	2.540
Transmission and Distribution Construction Costs (incl. Removal Costs)	2.000	2.221	1.779	(0.442)
Subtotal Project Capital Cost	**10.844**	**12.044**	**14.554**	**2.510**
Contingency	1.627	1.807	1.759	(0.048)
Subtotal Project Capital Cost with Contingency	**12.471**	**13.851**	**16.312**	**2.461**
CPCN & Preliminary Engineering Costs	-	-	0.160	0.160
Total Project Cost	**12.471**	**13.851**	**16.472**	**2.621**

The increase of $2.621 million is primarily due to land costs and station construction costs:

- The increase in the forecast Lands cost of $0.412 million is due to the original cost estimate provided in the 2023 Annual Review being based on the Mazzocchi location (please refer to Section 8 for further details on the Mazzocchi location). The Grieve Location Lands cost estimate is higher due to the larger size of the property. Furthermore, property values have increased significantly in the Kootenay area since 2021.
- The Station cost estimate has increased by approximately $2.540 million. The key drivers of the increase are: (i) material cost escalation for all equipment, with the majority of the increase due to the power transformers and circuit breakers; and (ii) higher site preparation costs associated with civil work required to make the land suitable for the new substation and line infrastructure in/out of the substation (since the Mazzocchi location was more level, less site preparation would have been required).

[14] BC CPI for 2022 and 2023: https://www2.gov.bc.ca/assets/gov/data/statistics/economy/cpi/cpi_annual_averages.pdf

6.3 *FINANCIAL EVALUATION*

FBC has performed a financial evaluation of the Project based on the PV of the incremental revenue requirement and the levelized rate impact to its customers over a 53-year analysis period. The 53-year analysis period is based on an estimated three-year construction period (from 2024 to 2026) plus a 50-year post-Project period commencing in 2027 (with all assets forecast to enter rate base in 2027). 50 years is the average service life (ASL) of the station equipment in FBC's transmission plant[15] based on FBC's most recently approved depreciation study[16], and station equipment represents over 82 percent of the total capital costs entering rate base.

Table 6-3 below summarizes the financial analysis, based on the total Project cost of $18.867 million (as discussed in Section 6.2 above and reflected on Line 3 in Table 6-3 below) plus future incremental O&M, property tax and sustainment capital costs over the 53-year analysis period, all of which are discussed further below and included in the financial analysis as part of the incremental revenue requirement due to the Project (as reflected on Line 8 in Table 6-3 below). For further details on the financial evaluation of the Project, please refer to the financial schedules included in Confidential Appendix D.

The PV of the incremental revenue requirement of the Project is approximately $20.795 million and the levelized rate impact is 0.29 percent over the 53-year analysis period.

Table 6-3: Financial Analysis of the Project

Line	Particular	Total	Reference (Conf. App. D)
1	Total Capital Costs to Electric Plant in Service ($ millions)	18.302	Schedule 6, Line 37
2	Total Removal Costs to Accumulated Depreciation ($ millions)	0.565	Schedule 6, Sum of Line 38 - Line 37
3	**Total Project Cost ($ millions)**	**18.867**	**Line 1 + Line 2**
4	Incremental Sustainment Capital	5.336	Schedule 6, Sum of Line 30 (2027-2076)
5	**Total Incremental Capital Costs over 53 years ($ millions)**	**24.203**	**Line 3 + Line 4**
6			
7	Incremental Rate Base in 2027 ($ millions)	18.446	Schedule 5, Line 11 (2027)
8	Incremental Revenue Requirement in 2027 ($millions)	1.440	Schedule 1, Line 9 (2027)
9	**PV of Incremental Revenue Requirement 53 years ($ millions)**	**20.795**	**Schedule 9, Line 25**
10			
11	Rate Impact in 2027, compared to 2024 Approved (%)	0.31%	Schedule 9, Line 28 (2027)
12	**Levelized Rate Impact 53 years (%)**	**0.29%**	**Schedule 9, Line 32**
13	Levelized Rate Impact 53 years ($/MWh)	0.376	Schedule 9, Line 45

The financial evaluation of the Project includes the following assumptions:

- **Project Capital and Removal Costs:** Base capital cost estimate of $18.867 million in as-spent dollars, as discussed in Section 6.2.
- **Future Incremental Sustainment Capital:** The financial evaluation over the 53-year period includes proxies for the future replacement cost of the poles, towers and fixtures,

[15] Asset class 353 Station Equipment.
[16] FBC's 2017 Depreciation Study, approved as part of the 2020-2024 MRP Decision and Order G-166-20.

and conductors and devices of the Project. The timing of these replacement costs is assumed to be based on the approved depreciation rate of 39 years for the transmission poles, towers and fixtures, and conductors and devices, and 42 years for the distribution conductors and devices, as detailed in FBC's most recently approved depreciation study (for example, the 50-year post-Project analysis period includes the one-time replacement of the transmission poles, tower and fixtures, and conductors and devices in 2065, as well as the distribution conductors and devices in 2068).

- **Incremental O&M:** FBC expects that ongoing maintenance spending will be reduced by eliminating the O&M expenditures associated the existing HER and FRU substations, which will be decommissioned and replaced with the New FRU Substation. The incremental Project O&M in 2027 (i.e., when all assets enter rate base) is estimated to be a savings of $13.444 thousand in as-spent dollars, relating to substation equipment, plus annual inflation as discussed below. Over a 12-year O&M window (based on switch and transformer maintenance that occurs every 12 years), the average incremental O&M savings is approximately $5.842 thousand per year. The incremental O&M can be found in Confidential Appendix D, Schedule 2.
- **Property Tax:** Incremental property tax of $0.130 million, in as-spent dollars, is estimated to be incurred from 2027 onwards because of new infrastructure. This incremental amount will be partially offset by the removal of the existing FRU and HER substations.
- **Inflation:** From 2027 onward, annual inflation of 2 percent is applied to the incremental O&M, property tax and future sustainment capital costs during the post-Project analysis period, which is in line with the Bank of Canada inflation target of 2 percent.

6.4 *ACCOUNTING TREATMENT*

In the subsections below, FBC describes the proposed treatment of the CPCN & Preliminary Engineering costs, the Project capital costs, the retirement of the existing assets, and the cost of removal.

6.4.1 CPCN & Project Preliminary Engineering Costs

As previously explained, preliminary and investigative engineering costs, including regulatory costs incurred for the purpose of receiving approval of the Application, are captured in the approved CPCN & Project Preliminary Engineering non-rate base deferral account[17]. Upon BCUC approval of the Application, these costs will be transferred to FBC's construction work-in-progress and included in the total Project capital cost.

[17] Page 230 of Decision and Order G-139-14.

6.4.2 Treatment of Capital Costs

Consistent with FBC's treatment of Major Project capital costs, including CPCNs:

- As the capital costs of the Project (i.e., $18.302 million in as-spent dollars as set out in Line 1 of Table 6-3 above) are incurred, they will be recorded in construction work-in-progress, attracting AFUDC;
- Once the assets are placed into service (estimated to be in 2026), the associated capital cost will enter rate base as part of the opening balance in the appropriate plant asset accounts, for inclusion in FBC's rate base in the following year (estimated to be January 1, 2027). The amount and timing of the transfer to rate base in 2027 is shown in the opening balance of FBC's Gross Plant in Service in Confidential Appendix D, Schedule 7; and
- Depreciation of the assets will begin on January 1 of the year that they enter FBC's rate base (i.e., January 1, 2027).

6.4.3 Retirement of Existing Assets

As discussed in Section 5.3.4 of the Application, the Project includes the demolition of the existing FRU and HER substations, and the salvaging of existing equipment as required, with the total book value of the decommissioned assets estimated to be $0.846 million[18] by the end of 2026. These decommissioned assets will be retired from FBC's rate base by crediting the original value of $1.735 million to FBC's plant-in-service and debiting the same amount in accumulated depreciation, which is reflected in the opening balance of 2027 at the same time when all new assets enter FBC's rate base, as shown in Confidential Appendix D, Schedule 7.

6.4.4 Cost of Removal

The total Project cost estimate includes approximately $0.565 million (including AFUDC) of removal costs in as-spent dollars. Consistent with FBC's existing regulatory treatment, removal costs will be charged to Accumulated Depreciation. Additionally, FBC's approved depreciation rates include a provision[19] for recovering the removal costs of assets in each asset class. These costs are identified in Confidential Appendix D, Schedule 8.

6.5 *RATE IMPACT*

All new assets related to the Project are expected to be in-service in 2026 and will be transferred to rate base on January 1, 2027, resulting in an incremental revenue requirement of $1.440 million and a rate impact of approximately 0.31 percent in 2027 compared to the

[18] Based on the original acquisition value of $1.735 million and accumulated depreciation of $0.889 million estimated at the end of 2026.
[19] Page 12 of Decision and Order G-202-15.

approved 2024 rates, when all construction and salvage activities are complete, and all capital costs have entered FBC's rate base.

This rate impact is equivalent to approximately $0.415 per MWh when compared to FBC's 2024 approved rates, and for an average FBC residential customer consuming 11,000 kWh per year, this would equate to a total annual bill impact of approximately $4.56 in 2027.

6.6 *CONCLUSION*

The total Project cost is $18.867 million in as-spent dollars and will result in an estimated rate impact of 0.31 percent in 2027 when all construction is complete and after all assets are placed in service. For an average FBC residential customer consuming 11,000 kWh per year, this equates to a bill impact of approximately $4.56 in 2027.

7. ENVIRONMENT AND ARCHAEOLOGY

7.1 *ENVIRONMENT*

FBC conducted a desktop review and on-site assessment of the Grieve Location which concluded the risk of environmental impacts associated with the Project are Low. The desktop review confirmed that there are no Protected Area or Critical Habitat designations within the property boundaries. As well, the review confirmed no known occurrences of Species at Risk within the property boundaries.

Qualified Environmental Professionals (QEPs) from both FBC and Seepanee Ecological Consulting completed an on-site habitat assessment of the Grieve Location during July and August 2023. The assessment included identification of vegetation cover, wildlife present and possible wildlife features, bird species present and other environmental features (i.e., wetlands) pertinent to the substation location planning. The assessment completed by Seepanee Ecological Consulting is included as Appendix E.

The results of both the desktop review and the on-site assessment confirmed that the risk of environmental impact is Low at the Highway 3B Option (i.e., the proposed site for the Project). The review and assessment determined that the abandoned barns located within the Highway 3B Option would create a suitable bat habitat. Accordingly, prior to construction, a QEP bat biologist will be hired to collect all (if any) bats for relocation.

To ensure appropriate controls are in place to manage the environmental risks of the Project, a comprehensive Environmental Management Plan (EMP) will be prepared with site specific environmental mitigations. The mitigations will help guide construction practices in order to minimize environmental risks. Under the EMP, a QEP monitor will be on site during construction to ensure environmental controls are implemented, such as working outside of bird nesting windows and breeding periods for ungulate and other wildlife populations. The QEP monitor will have the authority to stop work should there arise an environmental risk not previously identified. The QEP monitor will work with the Project team to develop additional controls as required.

A Phase I site assessment will be completed by a QEP to confirm the presence or absence of any activities on the property which would fall under the Contaminated Sites Regulation. Based on the information known to date, FBC does not expect to encounter contamination.

7.2 *ARCHAEOLOGY*

FBC has contracted Professional Archaeologists from Nupqu Resource Limited Partnership (Nupqu) to assist with archaeological support for the Project.

While the Grieve Location is within an area modelled as having high archaeological potential (see Figure 7-1 below), FBC performed a review of the existing heritage conditions within the

property utilizing the BC Archaeology Branch Remote Access to Archaeological Data (RAAD) application and confirmed that there are no registered heritage sites on the property (see Figure 7-2 below). Much of Fruitvale is classified in the BC Archaeology Branch approved predictive model (Arrow Forest District – Archaeological Overview Assessment (1995-1999)) that is available in the RAAD application as having high archaeological potential resulting from the positive correlation of the area with one or more indicators of high archaeological site potential. These indicators include alluvial terraces, glaciolacustrine terraces, glaciofluvial terraces, kame terraces, concentrations of previously recorded archaeological sites, contemporary aboriginal transportation corridors, and landforms associated with known aboriginal use. The Grieve Location's overall slope of the property and its proximity to Beaver Creek present an easily traversed transportation corridor with readily available access to potable water; accordingly, FBC considers the classification by the Arrow Forest District – Archaeological Overview Assessment predictive model of high archaeological potential to be appropriate.

Figure 7-1: Modelled Archaeological Potential at 2064 Grieve Road, Fruitvale and Surrounding Area

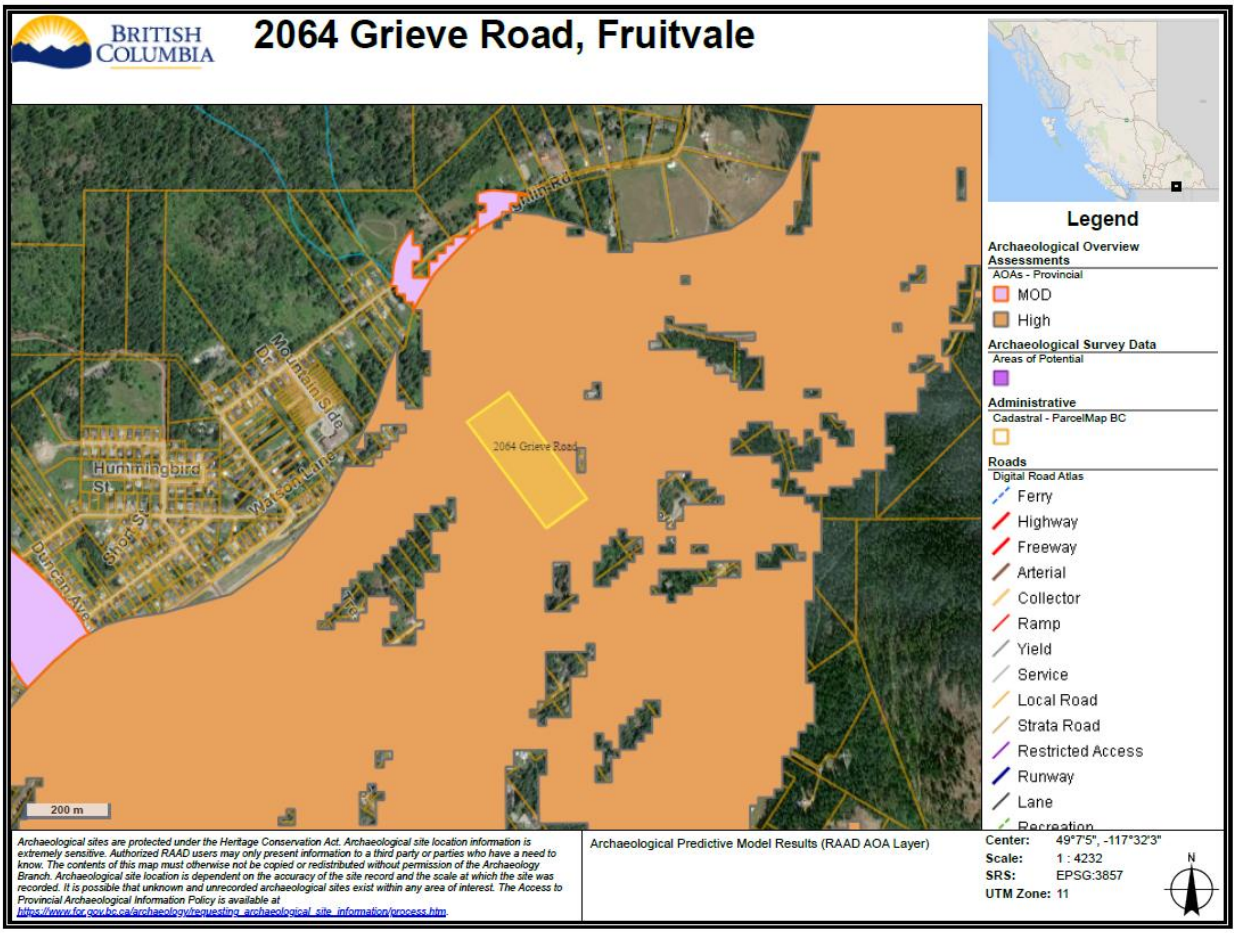
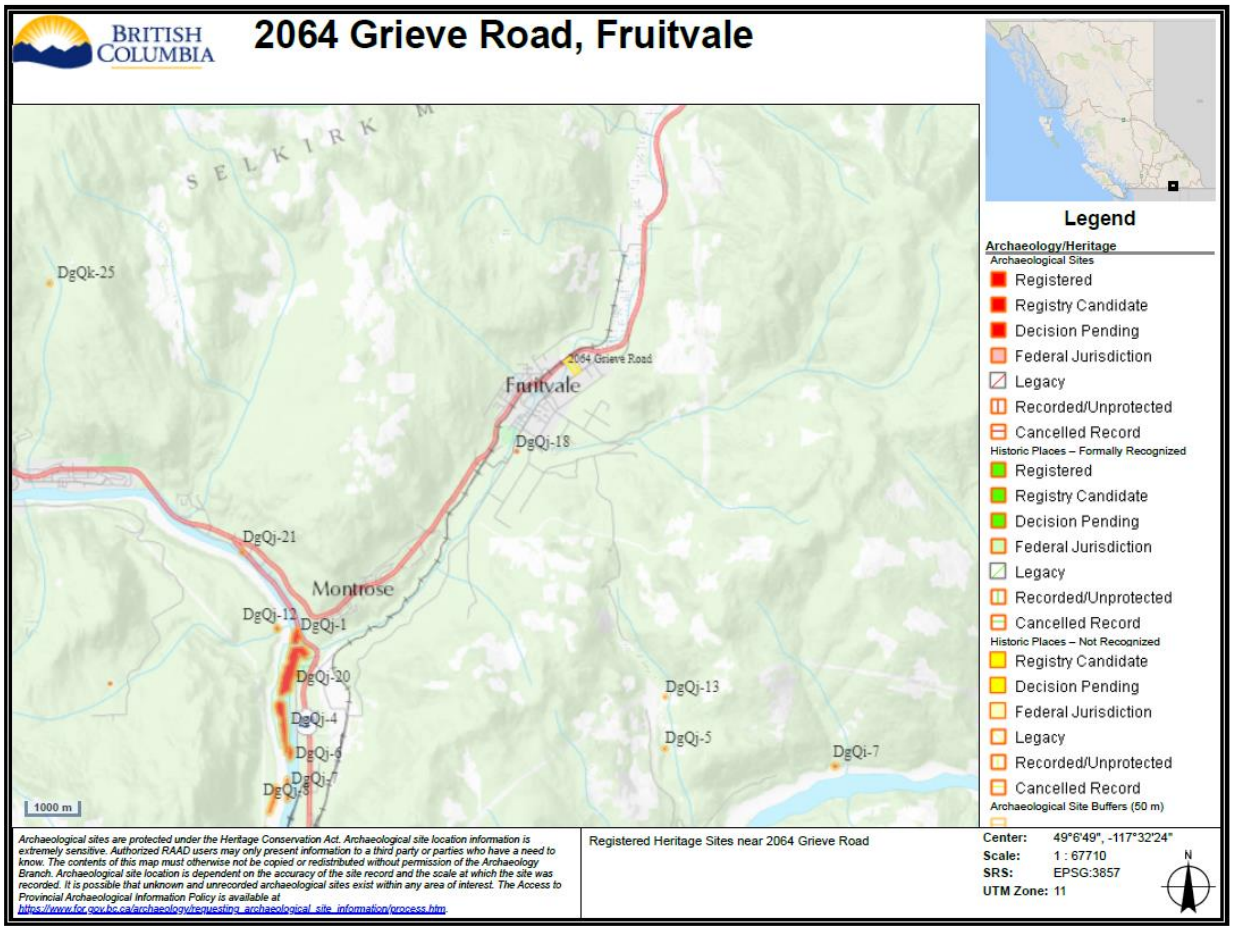


Figure 7-2: Registered Heritage Sites Near Grieve Location



FBC and Nupqu will complete an archaeological impact assessment (AIA) of the selected substation site. The AIA will be conducted under a *Heritage Conservation Act* Section 12.2 Inspection Permit and be designed to identify and evaluate any archaeological resources within the selected substation site and provide recommendations on the management of archaeological resources during Project activities.

FBC has developed a Heritage Resource Management (Chance Finds) Procedure that provides guidance in the event that a heritage resource or a possible heritage resource is encountered during any FBC activity (e.g., a chance find). If a chance find is encountered during Project activities, FBC's work in proximity to the chance find will stop and a professional archaeologist will be contacted to provide further direction.

8. CONSULTATION AND ENGAGEMENT

Consultation with stakeholders and engagement with Indigenous communities is an integral component of FBC's project development process. FBC's consultation and engagement activities have been sufficient and FBC has met the requirements of the CPCN Guidelines.

FBC's consultation and engagement activities for the Project provide stakeholders and rights holders, including residents, landowners, businesses, organizations, local governments, and Indigenous communities, a meaningful opportunity to learn about the Project, provide feedback, and provide input to FBC to inform decision making. Engagement with stakeholders and rights holders is ongoing and will continue throughout the duration of the Project.

FBC initiated stakeholder engagement for this Project in September 2019 with a presentation to the Village of Fruitvale explaining the need for the Project and next steps, including finding a suitable location. Throughout 2020 and 2021, FBC searched for a location for the Project, but no suitable locations were found. In July 2021, the Village of Fruitvale offered the Village-owned land beside Mazzocchi Park (Mazzocchi Location). FBC determined the location was feasible and, if an agreement with an adjacent landowner could be reached, the location would meet the Project needs. From July 2021 to April 2022, FBC pursued the Mazzocchi Location, which included engaging with landowners adjacent to the location, residents, organizations, community groups, local government, and other interested stakeholders. However, in April 2022, the Fruitvale Council voted against selling the property to FBC due to opposition from residents.

Over the next year, from April 2022 to April 2023, FBC continued searching for a Project location. In doing so, FBC incorporated the feedback garnered over the three and a half years of consultation with stakeholders in the Fruitvale area. In April 2023, FBC became aware of the Grieve Location. After completing a desktop review of the property and considering the stakeholder feedback already received, FBC determined the location was suitable. In May 2023, FBC entered into an agreement to purchase the site and began consultation with stakeholders adjacent to the property. In September 2023, FBC began engagement with Indigenous communities.

Further details of FBC's consultation with stakeholders and engagement with Indigenous communities are provided in Sections 8.2 and 8.3, respectively. FBC's activities are also recorded in the Stakeholder Engagement Log (Appendix F-1) and Indigenous Engagement Log (Appendix G-1).

8.1 *FBC IS UNDERTAKING APPROPRIATE CONSULTATION WITH STAKEHOLDERS*

FBC's goal throughout consultation with stakeholders has been to ensure they are informed about the Project, are encouraged to offer feedback, and have an opportunity to provide input to inform FBC's decision-making.

Throughout this four-year process, FBC has engaged with stakeholders, including the Village of Fruitvale, the Regional District of Kootenay Boundary (RDKB), Scouts Canada, Beaver Valley Minor Soccer, Beaver Valley Concerned Citizens (BVCC), area residents, landowners, industry, and businesses.

The focus of FBC's interactions with stakeholders has been to create a dialogue with interested parties, explain the need for the Project, present FBC's preferred location for the Project, and listen to stakeholder feedback. Additionally, FBC has provided information on other locations considered, including the reasons they are not suitable, and ensured that interested parties have been made aware of other considerations including reliability, constructability, and rate impacts resulting from the Project in making a final decision.

Section 4.3 of the Application describes why FBC is unable to utilize the existing FRU and HER substation locations for the New FRU Substation. Section 4.4 of the Application discusses the 18 new properties FBC investigated. As described in Section 4.4, nine of the properties investigated were eliminated because the landowners were not open to selling the properties. Although FBC was not able to purchase any of these nine properties for the Project, FBC did undergo substantial discussions with the landowners of three of these properties, and one involved significant consultation with stakeholders.

Table 8-1 lists the properties pursued broken into two periods of consultation which are described in more detail in the following sections. To ensure privacy for landowners, FBC has not listed the addresses of properties that could not be purchased. The properties not available for sale have been labelled as Properties A through I in Table 8-1, with the exception of Property A, which is the Mazzocchi Location and has been identified by name. A map outlining the locations of all the properties listed in Table 8-1, as well as the Grieve Location, is provided confidentially in Appendix F-2.

Table 8-1: Properties Pursued but Eliminated

Period	Location	Primary Reason for Elimination
Consultation Period 1	Existing FRU Substation	Size
	Existing HER Substation	Distance from load centre
	Property A (Mazzocchi Location)	Not available for purchase
	Property B	Not available for purchase
	Property C	Not available for purchase
	Property D	Not available for purchase
	Property E	Not available for purchase
	Property F	Not available for purchase
	Old Salmo Road (labeled as property #5 in Section 4.4.2)	Terrain and size
	Atco Wood Products Property C (labeled as property #6 in Section 4.4.2)	Terrain

Period	Location	Primary Reason for Elimination
	Hepburn Road (labeled as property #3 in Section 4.4.2)	Flooding
Consultation Period 2	Property G	Not available for purchase
	Property H	Not available for purchase
	Highway 3B Property A (labeled as property #7 in Section 4.4.2)	Terrain
	Atco Wood Products Property B (labeled as property #4 in Section 4.4.2)	Flooding
	Atco Wood Products Property A (labeled as property #1 in Section 4.4.1)	Distance from load centre
	Former Atco Wood Products Property (labeled as property #2 in Section 4.4.1)	Distance from load centre
	Property I	Not available for purchase (easement unavailable)
	Highway 3B Property B (labeled as property #8 in Section 4.4.2)	Flooding

8.1.1 FBC Consulted with Stakeholders During Period 1

Consultation Period 1 in Table 8-1 ran from September 2019 to April 2022. FBC initiated engagement for the Project with a presentation to the Fruitvale Mayor and Council outlining the Project. In September 2020, FBC reviewed the Project need with the Village and shared that a suitable location had not been secured to date.

FBC's investigations into Properties B, C and F were brief, as landowners were not willing to sell or, in the case of Property B, the property was recently sold. After approaching the owner of Property D and engaging in discussions, the land was determined to be unavailable for purchase.

Three more sites were investigated but did not meet FBC's property evaluation criteria, as further described in Section 4.4.

FBC then identified Property E as a potential location; however, on July 12, 2021, the Village of Fruitvale offered Property A (Mazzocchi Location) as an option. The Mazzocchi Location is located on Columbia Gardens Road and is owned by the Village of Fruitvale. FBC determined it was a suitable location and began work to enter into an agreement with the Village of Fruitvale and an adjacent landowner to meet the station footprint requirements. After entering into agreements with the property owners, FBC engaged with neighbouring landowners on November 3, 2021 by hand-delivering Project notification letters (Appendix F-3). FBC delivered 31 letters that day and spoke with 16 residents.

The Mazzocchi Location required rezoning by the Village of Fruitvale before it could be used for the Project. On December 1, 2021, FBC held a public open house to answer questions and hear feedback from the community about the Project.

On March 8, 2022, FBC attended a public zoning meeting held by the Village of Fruitvale with approximately 80 people in attendance. The meeting was cancelled due to the Village of Fruitvale failing to notify one of the required stakeholders; however, FBC staff remained on site to engage informally with stakeholders about the Project.

In April 2022, FBC invited stakeholders with an asserted interest in the Project to an upcoming design workshop to discuss the property characteristics needed for siting, review the Project locations FBC had investigated, solicit ideas for other locations, share substation design and layout information, address Project safety, and learn about general stakeholder interests for the Project that would apply to any location (Appendix F-4). The meeting occurred on April 6, 2022, and included participants from Scouts BC and BC Minor Soccer, the Fruitvale Mayor and Council and Fruitvale Chief Administrative Officer, the RDKB Area A Director, and area residents. The design workshop resulted in six new site recommendations brought forward by stakeholders and investigated by FBC. The six sites were as follows:

- Property G
- Property H
- Highway 3B Property A (property #7 in Section 4.4.2)
- Atco Wood Products Property B (property #4 in Section 4.4.2)
- Atco Wood Products Property A (property #1 in Section 4.4.1)
- Former Atco Wood Products Property (property #2 in Section 4.4.1)

On April 11, 2022, after public opposition during the rezoning process, the Village of Fruitvale voted not to sell the Mazzocchi Location land to FBC.

8.1.2 FBC Incorporated Stakeholder Feedback Gathered Through Consultation Period 1

From 2019 to 2022, FBC received valuable feedback from stakeholders about their interests in the Project. After the Village of Fruitvale voted against selling the Mazzocchi Location, the feedback collected to date was used to guide FBC's subsequent property search and, ultimately, the decision to build at the Grieve Location. Table 8-2 provides a summary of stakeholder feedback gathered through Consultation Period 1. The most common higher areas of concern were electromagnetic fields, parking, proximity to community infrastructure, and visual/station aesthetics.

Early in the consultation process, the community emphasized the need to ensure the privacy of individual comments from stakeholders. FBC is committed to ensuring confidentiality of all

correspondence from residents as requested. Accordingly, stakeholder interests have been grouped and summarized in the following table. FBC's response to these interests, in specific reference to the Grieve Location, are included in Table 8-3 in Section 8.2.5.

Table 8-2: Stakeholder Feedback Gathered Through Consultation – Period 1

Interest	Description of Interest
EMF	There was concern over EMF levels due to the Project. There was concern regarding EMF exposure to children using the park.
Parking	The Project should avoid impacting any community parking locations.
Proximity to Community Infrastructure	The Project should avoid being built next to community infrastructure.
Visual/Station Aesthetics	Stakeholders find the Project visually unappealing and it is within their sightline. Trees should be planted to help conceal the substation. Additional overhead powerlines will be visible to area residents (the 60 kV line).
Property Values	There was concern that the Project could decrease property values.
Noise	There was concern over increased noise from the transformers once the Project becomes operational.
Location	There was concern that FBC is looking for the cheapest location as opposed to one that balances interests.
Zoning	There were questions on how the Project aligns with zoning bylaws and the Official Community Plan.
Safety	There was concern over how pedestrian safety and sidewalks will be impacted during construction of the Project.

8.1.3 FBC Consulted with Stakeholders During Period 2

Consultation Period 2 in Table 8-1 ran from May 2022 to April 2023. During this period, FBC investigated the six new potential locations that were brought forward by the public during the design workshop on April 6, 2022, as well as Properties E and I. FBC also re-engaged with the landowner of Property D. FBC reviewed the sites against the Project objectives and its property evaluation criteria (described in Section 4.4 and Appendix B), alongside the stakeholder feedback gathered through Consultation Period 1. All of the sites were ultimately eliminated for the following reasons:

- FBC was not able to purchase Properties G or H, as the landowners were not receptive to selling.
- The remaining four sites identified in the design workshop did not meet FBC's property evaluation criteria, as further described in Section 4.4.
- The owner of Property I approached FBC and was willing to sell a portion of their property. However, after further review of the site during negotiations, FBC identified that an easement for transmission was likely required from several additional properties to

make this a feasible location. The parties did not agree to the easement, and Property I was eliminated.

- FBC approached the landowner of Property E several times. A variety of scenarios were discussed, including FBC purchasing the whole property, a portion of the property, or right-of-way access through the property. The landowner was ultimately not receptive to any of the options presented.
- Discussions with the landowner of Property D recommenced in April 2023. FBC anticipated the Project at this location would face similar opposition to that encountered at the Mazzocchi Location that would ultimately make it unavailable for purchase. Concurrent to this discussion, FBC became aware of the Grieve location and determined it to be a more suitable property, as further described below.

8.1.4 FBC has Consulted with Stakeholders regarding the Grieve Location

In April 2023, FBC became aware that the property at the Grieve Location was on the market and available for purchase. By May 2023, FBC determined that the Grieve Location met the Project objectives described in Section 3 and had assessed the property against the property evaluation criteria described in Section 4.4. FBC found that the site is suitably sized and appropriately zoned for the Project. Further, the Grieve Location is close to the load centre and transmission line 20L, and does not have flooding, or mountainous terrain challenges.

FBC also considered the Grieve Location based on the input previously received from stakeholders throughout more than three years of engagement. The Grieve Location is not close to public infrastructure, and development would not impact public parking. FBC determined it could work with stakeholders to address their remaining interests raised during the engagement process (e.g., safety, station aesthetics, siting, and noise interests). After the Grieve Location was determined to be suitable, FBC entered the process to secure the site and inform neighbouring residents.

On May 4, 2023, FBC hand delivered 37 Project notification letters (Appendix F-5) to neighbouring property owners to provide notice of FBC's intent to purchase the land and construct the substation. The notification letter also included an invitation to attend an in-person meeting to discuss the Project on June 1, 2023. Contact information for FBC's Community and Indigenous Relations team was included in the letter to provide residents with a point of contact for the Project.

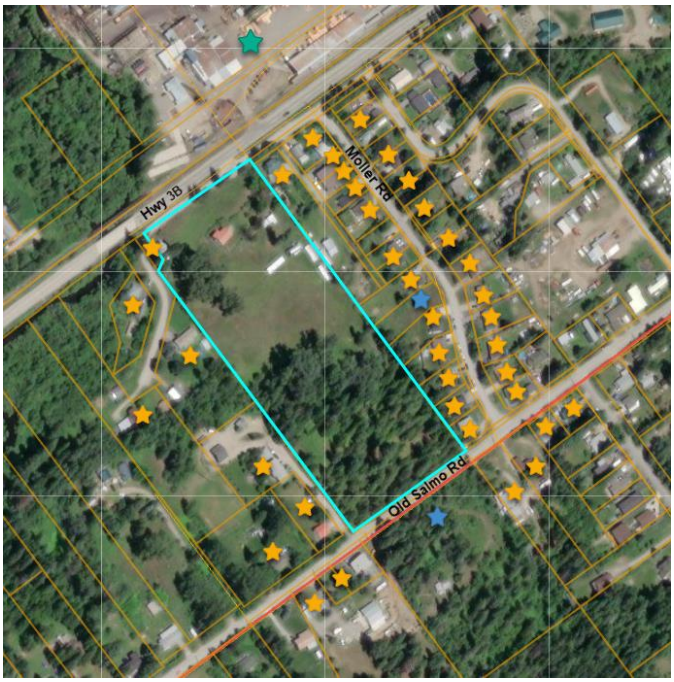
On May 4, 2023, 16 residents spoke to FBC directly, stating they had no concerns. Nine additional residents indicated concerns focused on tree removal, loss of agricultural land, impact to wildlife, EMF, zoning, and the future of the existing house and outbuildings on the property. There were also questions about why FBC chose the Grieve Location, with several residents stating they would prefer the Project to be located further outside of town.

Two of the neighbouring properties were vacant land that did not have a mailbox to receive a letter; however, FBC has subsequently been in contact with these two property owners.

One industrial customer, ATCO Wood Products Ltd. (ATCO), was informed about the Project via a phone call. They stated overall support for the Project.

The stars in Figure 8-1 below show the properties that were notified about the Project. Yellow stars indicate residential properties with occupants, blue stars indicate vacant properties, and the green star indicates an industrial property.

Figure 8-1: Properties that Received Notification of the Project



After providing notice of the Project to neighbouring residents on May 4, 2023, FBC responded to further questions from property owners and from the Beaver Valley community.

Feedback from the surrounding property owners acknowledged the need for the Project but questioned why FBC chose the Grieve Location over the other properties that had been previously suggested. Several residents also asked where the substation would be situated on the property. FBC representatives answered these emails directly and incorporated a thorough review of the locations considered for the Project, as well as a more detailed mock up of the substation on the Grieve Location in the materials for the June 1, 2023 presentation. In response to concerns from some residents that they could not attend the June 1, 2023 meeting, FBC set up an option to attend virtually.

One community group that contacted FBC to provide feedback was the Beaver Valley Concerned Citizens (BVCC)[20]. The BVCC had previously opposed the Mazzocchi Location for the Project. The BVCC acknowledged the general need for the Project, but raised concerns about tree removal, loss of agricultural land, and impact to wildlife at the Grieve Location. BVCC

[20] The Beaver Valley Concerned Citizens is a group that formed in opposition to the Project.

also requested that the June 1, 2023 meeting be opened to the broader public and for FBC to share information about its property search to date, including the cost for each location. FBC emailed the BVCC twice with an offer to meet to discuss their concerns but did not receive a response. While BVCC expressed interest in attending the June 1, 2023 meeting, discussed further below, the purpose of that meeting was to engage directly with neighbouring residents. Accordingly, FBC kept the June 1, 2023 meeting as an invitation-only event. Prior to the June 1st meeting FBC also received a series of questions from the BVCC about the existing infrastructure age, capacity, set up, and historical load data. The responses to those questions, as well as a specific question from a resident about the Beaver Park substation, are provided in Appendix F-6.

On May 10, 2023, FBC responded to an email from MLA Katrine Conroy's office regarding permitting for the Project. In addition, FBC sent notification of the Project to MLA Brittny Anderson and MP Richard Cannings.

On May 15, 2023, FBC representatives visited the neighbouring properties identified in Figure 8-1 to deliver a second notification letter and to remind residents of the upcoming meeting on June 1, 2023 (please refer to Appendix F-7).

8.1.4.1 FBC Held a Meeting with Stakeholders on June 1, 2023

On June 1, 2023, FBC held a meeting (in person and virtual) with 45 residents. FBC staff from Community and Indigenous Relations, Engineering, Project Management, and Communications were in attendance. FBC's presentation covered the history of the Project, the Project need, the property search from 2019 to date, and the reasons why the Grieve Location was selected as FBC's preferred location (Appendix F-8).

During FBC's presentation on Project need, some residents asked questions about the need for a two-transformer configuration and whether the existing infrastructure was at the end of life. FBC responded to these questions with information consistent with Section 3 of this Application.

While discussing the Project locations that were considered, FBC received a number of questions relating to sites that it determined to be unsuitable. FBC responded to these questions, providing detailed responses consistent with the information contained in Section 4 of the Application. FBC also confirmed to neighbouring residents that all of the recommended locations had been reviewed and considered. Much of the conversation centered around the opinion that the substation should be sited in a more rural location, further away from residential areas. FBC's presentation addressed these concerns through discussion of the reliability and cost benefits of siting the Project closer to the load centre. Finally, FBC responded to direct questions regarding alternative sites, stating that it did not have another suitable location for the Project.

During FBC's in-depth discussion of the Grieve Location, FBC stated its intention to take possession of the property on June 7, 2023, with the expectation that the Project would be constructed at this location. FBC was asked about the zoning of the property and alignment with

the area's Official Community Plan (OCP). A representative from the RDKB in attendance at the meeting confirmed that the property was suitably zoned for the Project.

The community requested that FBC undertake environmental and archaeological studies at the Grieve Location and requested that this information be shared publicly. FBC confirmed that it would be undertaking these studies and would consider what information could be shared publicly.

There were also questions about the use of the remaining land and EMF. FBC stated that plans for any remaining land were not yet known and input from the community on possible uses would be welcomed. Questions about EMF were answered by referencing information from Health Canada, the World Health Organization, and the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

Finally, FBC presented two potential substation location mock-ups at the Grieve Location to gather feedback (Appendix F-8). FBC received feedback on station aesthetics, greening and visual screening options, and impacts during construction. FBC committed to work with neighboring residents on these issues once a specific Project location was chosen. FBC offered to meet with landowners on their property to view sightlines and discuss individual impacts. A summary of these meetings is included in the next section.

8.1.4.2 Consultation Following the Meeting on June 1, 2023

On June 2, 2023, FBC received a letter of support for the Project from ATCO (Appendix F-9). ATCO stated:

> The federal and provincial government policies and legislation that are decarbonizing Canada's energy systems will result in a significant increase in demand for electricity in the near future…
>
> …We [ATCO] believe that the age and limited capacity of the current substation cannot support the Beaver Valley's future electricity demand, including ATCO Wood Products Ltd, and thus expanded electrical capacity in the Beaver Valley is critical to the future health of the Community and the future viability of ATCO Wood Products Ltd.

The letter also noted that FBC needs to work with the community and within the OCP and zoning regulations to site the Project.

On June 7, 2023, FBC completed the purchase and took possession of the Grieve Location. On June 8, 2023, FBC sent an email notification advising neighbouring residents that it had taken possession of the property and would be sending out a summary copy of the June 1st presentation as well as a request to visit properties to view sightlines (Appendix F-10).

On June 30, 2023, FBC sent an email notifying neighbouring residents that its engineering team had been on site and that preliminary station and transmission line location mock-ups were being drafted. FBC also indicated it would send out the full June 1st presentation, as requested by the meeting attendees (Appendix F-11).

On July 13, 2023, FBC shared the June 1st presentation slide deck and three preliminary draft mock-ups of substation locations via email and mail to neighbouring residents and the Regional District of Kootenay Boundary (Appendix F-12). FBC's email also invited residents to contact FBC to schedule individual site visits during the month of August.

To date, FBC has conducted eight in-depth site visits with property owners that border the Grieve Location and received email correspondence from nine residents stating their preferred substation site on the property. The feedback results are a near even distribution in location preference between the Highway 3B Option and the Old Salmo Road Option, including three residents stating support for both sites. The invitation for feedback went out to 39 residents, comprised of 16 who share a border with the Grieve Location and 23 who are one or more houses away. Of the 17 residents who shared their preferred location, 11 were from residents who share a border with the Grieve Location.

During consultation, some residents bordering the property also brought up benefits that could occur as a result of the Project while keeping the majority of interests associated with the upper treed area. These benefits would include better access to their properties and improved sun exposure.

8.1.5 FBC Incorporated Stakeholder Interests Gained Through Consultation for the Grieve Location

FBC has responded to questions from stakeholders by email, phone, and through in-person conversations. Some information about the Project has advanced significantly since May 2023; however, some information cannot be fully known until the Project progresses to the next stage of development after CPCN approval.

As discussed above, FBC is committed to ensuring confidentiality of all correspondence from residents as requested and has summarized the feedback received about the Grieve Location in Table 8-3 below. The majority of the concerns were raised by a small number of directly impacted residents. FBC's responses below contain the most up-to-date information available prior to filing the Application and additional information will be shared with stakeholders as the Project progresses.

Stakeholders raised several interests that were common throughout the four-year consultation process: station aesthetics, location, noise, EMF, zoning, visual, and property values. These are common interests that FBC expects would be brought forward regarding any location chosen for the Project.

The most common areas of interest regarding the Grieve Location specifically were location, site selection, zoning, visual impact, wildlife values, and loss of agricultural land. Other interests included the loss of trees, EMF, lighting, proximity to residential area, and property values.

Table 8-3: Interests Learned Through Public Consultation on Grieve Location and FBC's Response

Interest	Description of Interest	FBC Response
Location	• Concern there are other viable locations for this infrastructure. • The Project should be further out of town in a less residential area. • 2064 Grieve Road is historically significant to some residents.	• FBC has been searching for land for the Project since 2019 and has investigated all locations brought forward by the public or internally. • At the June 1, 2023 meeting, FBC shared a detailed review of each of the 20 properties investigated, the reasons why 19 were considered unsuitable, and why the Grieve Location was selected. Further details, including the importance of siting the Project close to the load centre, are provided in Section 4.
Zoning	• Concerns if this property is zoned for utilities. • Concern over whether the OCP supports utility use at this location.	• The Grieve Location is within the RDKB and zoned for utilities. At the June 1, 2023 meeting, a representative from the RDKB confirmed that this property is zoned for utilities.
Site Selection	• Concern over impacts to residents based on their proximity to the specific site location.	• Based on FBC's analysis of the potential site options at the Grieve Location, and after consulting with landowners adjacent to the property and assessing environmental impacts, FBC has selected the Highway 3B Option as the preferred location for the New FRU Substation, as shown in Figure 5-1.
Visual	• Concern that the Project will be visually unappealing and that vegetation should be used to screen the Project.	• FBC recognizes that residents would prefer to see as little electrical infrastructure as possible. • FBC continues to seek input from residents on individual greening and screening suggestions for their property and sightlines. • FBC will implement reasonable measures to mitigate visual impacts through the use of fencing, shrubs, or trees, provided that FBC's safety standards and operational needs are met.

Interest	Description of Interest	FBC Response
Wildlife	• Concern over the removal of wildlife habitat/safe zone and corridors.	• Qualified Environmental Professionals (QEPs) from both Seepanee Ecological Consulting and FBC completed an on-site habitat assessment of the Grieve Location with suggestions for next steps once site selection is completed. This assessment has been shared with individuals that have requested a copy. • In addition, a comprehensive EMP will be prepared with site specific environmental mitigations to ensure that appropriate controls are in place to manage the environmental risks of the Project. The mitigations will help guide construction practices to minimize environmental risks. Under the EMP, a QEP monitor will be on site during construction to ensure implementation of environmental controls, such as working outside of bird nesting windows and breeding periods for ungulate and other wildlife populations.
Agricultural land	• Concern over the change in land use and whether the land should be in the agricultural land reserve (ALR).	• The Grieve Location is not designated as ALR land and utilities are permitted in the zoning. Currently, the Grieve Location is not being used for agriculture.
Trees	• Concern that the trees should be protected for habitat.	• FBC will work to preserve as many trees as safely possible when developing the substation footprint and setbacks while also balancing the rate impact of Project costs. In addition, a comprehensive EMP will be prepared with site specific environmental mitigations to ensure appropriate controls are in place to manage the environmental risks of the Project.
Noise	• Concern over noise during construction and in operation.	• FBC's standard transformers are designed to a 69/71/72 dBA decibel rating for ONAN/ONAF/ONAN. However, the transformers for this Project are designed to an even lower rating. The transformers will be designed to a guaranteed 65/67/68 decibel rating for ONAN/ONAF/ONAN21. • FBC will ensure that Project working hours adhere to local bylaws.

[21] The ONAN/ONAF/ONAN categories capture the different stages of operation of a transformer, which is why there are three levels provided.

Interest	Description of Interest	FBC Response
EMF	• Concern over EMF due to the Project.	• FBC relies on Health Canada as its source for information about EMF. The following statement is on Health Canada's website:[22] • "Common sources of extremely low frequency EMF are power lines, transformer boxes and electrical substations. • These fields are strongest at their source. As you move away, your level of exposure rapidly decreases. When you are inside your home, the electric fields from transformer boxes and high voltage power lines are often weaker than the fields from household electrical appliances. • The potential health effects of extremely low frequency EMF has been studied extensively. While some people are concerned that long term exposure to extremely low frequency EMF may cause cancer, the scientific evidence does not support such claims. • Extremely low frequency EMF exposures in Canadian homes, schools and offices are far below the limits recommended in the International Commission on Non-Ionizing Radiation Protection guidelines. You don't need to take precautions to protect yourself from these kinds of exposures."
Lighting	• Concern over substation lighting impacts.	• To allow safe access to the station and control room, a porch light on the control building will be on a photocell. This very low-level light is not expected to impact neighbors. The remaining station lighting is on a switch and will only be turned on in an emergency situation.
Property values	• Concern about whether the Project will decrease property values.	• FBC is unaware of any evidence that there is a correlation between property values and proximity to electrical infrastructure (including substations) or any reports or summaries to support property value changes as the result of the installation of an electrical substructure.
Project need	• Concern whether a two-transformer substation is needed and whether existing infrastructure is still usable.	• During the design workshop and the June 1st meeting, FBC presented information explaining the Project need and evaluation of alternatives that is consistent with Sections 3 and 4 of the Application. This information was also shared with stakeholders via email and letter on July 13, 2023.
Backyard access	• Whether the Project can improve backyard access.	• FBC will consider requests to provide temporary access.

[22] Health Canada - Power lines and electrical products: Extremely low frequency electric and magnetic fields. https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/everyday-things-emit-radiation/power-lines-electrical-appliances.html

Interest	Description of Interest	FBC Response
Sun exposure	• Whether the Project can improve my yard's sun exposure which is important to me.	• The Project requires a portion of trees to be cleared which may result in improved sun exposure for some residents.
Existing house	• Concerns that the Project will result in the existing buildings being demolished.	• FBC expects to remove all existing structures for construction of the Highway 3B Option.
Surface water	• Concerns that surface water flow patterns will change and should be managed.	• Surface water management is part of all FBC substation construction plans.
Groundwater contamination	• Concern over FBC's transformer spill containment processes.	• The New FRU Substation will be designed and managed in accordance with the Petroleum Storage and Distribution Facilities Storm Water Regulation, B.C. Reg. 168/94.
Weed mitigation	• Concerns over the use of pesticides and herbicides around the infrastructure.	• FBC's use of pesticides and herbicides is in compliance with all applicable federal, provincial and regional laws and regulations. This includes the responsible use of pesticides, and ongoing research into alternative methods. The herbicides that are used are low residual, they break down quickly, and they are closely monitored to ensure the quantities used are the smallest amounts in order to be effective.
Unfair purchase process	• Concern that FBC outbid another potential buyer.	• The Grieve Location was a property on the market and available for purchase. The property was purchased through an arms-length transaction, typical for a property on the market. FBC submitted a competitive bid during negotiation and was successful in acquiring the property.
Use of remaining land	• Concerns about property being subdivided, which may reduce privacy. • Concern that the development and sale of unused land will bring unwanted traffic to the area.	• At this time, FBC has no plans to subdivide and sell any of the property.
Transparency	• Concern over transparency during this process and that the Environmental Assessment report and the Archaeological report to residents should be made public.	• FBC has been transparent in sharing information about the Project as shown in the one-on-one correspondence with residents, workshops, meetings, and other activities noted in the Stakeholder Engagement Log (Appendix F-1). FBC is committed to the on-going disclosure of information to stakeholders as the Project evolves and advances.

Interest	Description of Interest	FBC Response
Collaboration and consultation	• Concern over collaboration with the Beaver Valley community, and whether FBC sufficiently consulted with the community before buying the Grieve Location.	• FBC has appropriately collaborated and consulted with stakeholders about the Project. Since September 2019, FBC has collaborated and consulted with the community and impacted residents on elements of the Project, such as community interests in the Project, impacted residents' preferred site at the Grieve Location, greening and screening options from backyard sightline visits, and station aesthetics.

8.1.6 The Highway 3B Option Preserves the Majority of Stakeholder Interests

FBC has considered the interests specific to the Project siting that have been brought up by stakeholders throughout consultation as well as the constructability interests identified internally. For the reasons discussed in Section 4.5.1, FBC has selected the Highway 3B Option to construct the Project and on February 23, 2024, FBC notified neighbouring residents of this decision via letter and email.

8.1.7 Stakeholder Consultation Going Forward

Consultation and communication with stakeholders has been useful and productive, and has been incorporated into FBC's plans for the Project, including through FBC's ongoing collaboration on station aesthetics. FBC will maintain open communication with residents, landowners, businesses, and other stakeholders through all phases of the Project. Specifically, FBC is committed to:

- Continuing to respond directly to email, telephone, and in-person questions received;
- Sharing stakeholder interests with FBC's Project Planning Team;
- Working with residents on greening, screening, and station aesthetics; and
- Notifying residents of the Regulatory timetable.

FBC is committed to continuing consultation with stakeholders and to ensure they are informed as the Project progresses. The Community and Indigenous Relations team will continue to be a contact and communication point for stakeholders beyond the Project's completion.

8.2 *ENGAGEMENT WITH INDIGENOUS COMMUNITIES*

FBC is guided by its Statement of Indigenous Principles (Appendix G-2) and seeks to build and maintain relationships with Indigenous communities across the Province. This approach to engagement ensures that the potential impacts of the Project on the title, rights and interests of affected Indigenous communities are documented and considered. In keeping with these principles, the Project team has, and will continue to:

- Practice thorough, timely and meaningful engagement with potentially affected Indigenous communities, throughout the Project lifecycle; and
- Identify potential opportunities for Indigenous participation, ensuring local Indigenous individuals and groups are offered access to opportunities throughout the development of the Project.

FBC considers its Indigenous engagement activities and engagement plan to be appropriate for the Project. FBC will maintain transparency and open channels of communication with the Indigenous communities throughout all phases of the Project.

In the subsections below, FBC provides detail about the rightsholder identification and notification process undertaken, followed by the feedback received to date.

8.2.1 FBC has Identified Indigenous Groups Potentially Affected

FBC used the BC Government's Consultative Areas Database (CAD) and Nations Connect to generate a list of Indigenous Communities with asserted interests in the Project area, resulting in 11 communities being identified. The results of the CAD search as per the Spatial Overview Engine (SOE) Reports queried on September 5, 2023 are shown in Appendix G-3. FBC also recognizes that the Sinixt have an interest in the area and have engaged them through the Coville Confederated Tribes. A list of the Indigenous communities identified are summarized in Table 8-4 below.

Table 8-4: Indigenous Communities Identified in CAD

Indigenous Communities	
Adams Lake	Osoyoos Indian Band
Colville Confederated Tribes	Penticton Indian Band
Ktunaxa Nation Council	Shuswap Indian Band
Lower Similkameen Indian Band	Splatsin
Okanagan Indian Band	Upper Nicola Indian Band
Okanagan Nation Alliance	

8.2.2 FBC's Approach to Indigenous Engagement and Procurement

Following the purchase of the Grieve Location, on September 5, 2023, FBC initiated engagement with each of the Indigenous communities identified in Table 8-4 above specific to the Grieve Location. The notification package included a Project description and map of the Fruitvale area with the Grieve Location identified (please refer to Appendix G-4). FBC received limited feedback after sending the initial Project notification, as discussed in Section 8.3.3 below.

In January 2024, FBC shared the Habitat Assessment Workplan for the Grieve Location.

FBC has contracted professional archaeologists from Nupqu to assist with archaeological support for the Project, as described in Section 7.2. Alongside initiating that engagement with the Ktunaxa Nation, FBC has continuing discussions with the Tobacco Plains Indian Band and the Lower Kootenay Band of the Ktunaxa Nation on contract opportunities for the Project. Engagement with local Indigenous communities regarding business opportunities will continue during the Project.

8.2.3 Feedback Received Through Indigenous Engagement

As of the date of filing this Application, FBC has received replies from three Indigenous communities. All replies have been recorded in FBC's Fruitvale Indigenous Engagement Log (Appendix G-1), and are summarized as follows:

- The Penticton Indian Band requested any further consultation and engagement be deferred to the Osoyoos Indian Band.
- The Okanagan Indian Band requested any further consultation and engagement be deferred to the Osoyoos Indian Band and Lower Similkameen Indian Band. They also asked to be informed of any major changes to the Project in the event it changes their initial assessment and view on the need for further consultation.
- The Sinixt reviewed the Project and requested participation in the archaeological and environmental work.

FBC will accommodate the above noted requests and will continue to track and respond to any future requests.

8.2.4 Indigenous Engagement Going Forward

In addition to fulfilling the individual requests which are noted above, FBC will continue providing Project information to all Indigenous communities identified in Table 8-4, for their consideration and comment. This will include:

- Notifying Indigenous communities once the Application is filed with the BCUC; and
- Engaging with Indigenous communities during the procurement process to identify employment and contract opportunities.

As the Project progresses, FBC will continue to address any concerns that are raised through ongoing engagement efforts, and to track and respond to any new inquiries received during the life of the Project. The Community and Indigenous Relations team will continue as a contact and communication point for rights holders beyond the Project's completion.

8.3 *CONCLUSION*

In FBC's view, consultation and engagement activities to date have been sufficient, appropriate and reasonable and meet the requirements of the CPCN Guidelines.

FBC has worked to find a location that meets the Project objectives while also considering feedback received from stakeholders and rights holders as well as the rate impact to FBC customers.

FBC will continue to consider feedback from stakeholders and rights holders and will seek to mitigate localized development concerns while balancing the need to deliver safe, reliable and cost-effective energy to all customers.

FBC will continue to maintain open lines of communication with stakeholders and Indigenous communities, addressing interests or concerns brought forward throughout the duration of the Project, including planning, construction, and site restoration.

9. PROVINCIAL GOVERNMENT ENERGY OBJECTIVES

9.1 INTRODUCTION

Section 46 (3.1) of the UCA states that, in deciding whether to issue a CPCN, the BCUC must consider:

> the applicable of British Columbia's energy objectives,
>
> the most recent long-term resource plan filed by the public utility under section 44.1, if any, and
>
> the extent to which the application for the certificate is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act* (CEA).

FBC addresses these requirements below.

9.2 BRITISH COLUMBIA'S ENERGY OBJECTIVES

The Project is consistent with British Columbia's energy objectives set out in section 2 of the CEA.

Table 9-1 below sets out each of British Columbia's energy objectives and their applicability to the Project, and describes how the Project is aligned with the objectives in subsections 2 (c), (h), (k), and (m) of the CEA.

Table 9-1: British Columbia's Energy Objectives[23]

Item	Objective	Comments
(a)	to achieve electricity self-sufficiency;	The Project does not affect the generation or acquisition of electricity.
(b)	to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;	The load served by the Project is net of demand side measure savings (and the 66% reduction in demand applies to BC Hydro and is not applicable to FBC).
(c)	by 2030, to ensure that 100% of the electricity generated in British Columbia and supplied to the integrated grid is generated from clean or renewable resources, and to ensure that the infrastructure necessary to transmit that electricity is built;	The Project is aligned with this energy objective, as the infrastructure involved is for the purpose of transmitting electricity within the Province.

[23] As set out in section 2 of the CEA, as amended on February 15, 2024.

Item	Objective	Comments
(d)	to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;	The load served by the Project is net of demand side measure savings. The Project does not affect the generation or acquisition of electricity.
(e)	to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract Act* continue to accrue to the authority's ratepayers;	This objective applies to BC Hydro and is not applicable to FBC.
(f)	to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;	This objective applies to BC Hydro and is not applicable to FBC.
(f.1)	to ensure that changes to the authority's rates (i) are reasonably predictable, and (ii) are reasonably consistent from year to year;	This objective applies to BC Hydro and is not applicable to FBC.
(f.2)	to ensure that increases to the authority's rates do not exceed cumulative inflation;	This objective applies to BC Hydro and is not applicable to FBC.
(g)	to reduce BC greenhouse gas emissions: (i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007, (ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007, (iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007, (iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and (v) by such other amounts as determined under the *Climate Change Accountability Act*;	The Project advances this objective as it increases reliability to the area and accommodates incremental load switching from higher emitting sources of energy to electricity.
(g.1)	to ensure that the authority holds rights to a sufficient amount of clean or renewable electricity to enable British Columbia to meet the objective set out in paragraph (g);	This objective applies to BC Hydro and is not applicable to FBC.
(h)	to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;	The Project increases reliability in the Beaver Valley, which is necessary to accommodate incremental load switching from higher emitting sources of energy to electricity.
(i)	to encourage communities to reduce greenhouse gas emissions and use energy efficiently;	The Project does not directly affect communities' energy use or GHG emissions.

Item	Objective	Comments
(j)	to reduce waste by encouraging the use of waste heat, biogas, and biomass;	The Project does not affect the generation of electricity.
(k)	to encourage economic development and the creation and retention of jobs;	The Project will benefit the local economy during the construction phase and will ensure adequate distribution capacity is available to support future economic growth.
(l)	to foster the development of first nation and rural communities through the use and development of clean or renewable resources;	The Project does not affect the generation of electricity.
(m)	to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;	The Project increases available distribution capacity for the benefit of FBC's customers, which are located within the Province.
(n)	to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;	The Project does not affect the generation or export of electricity.
(o)	to achieve British Columbia's energy objectives without the use of nuclear power;	The Project does not affect the generation of electricity.

Section 4 of the CEA indicates that the objectives in section 2 (f.2) and (g) of the CEA have priority, as follows:

> 4 The energy objectives set out in section 2 (f.2) and (g) of the Act have priority over the other energy objectives set out in that section.

The objective in section 2 (f.2) applies only to BC Hydro and is therefore not applicable to the Project. As noted in Table 9-1 above, the Project advances the objective in section (g) to reduce GHG emission reductions, as it increases reliability to the area and accommodates incremental load switching from higher emitting sources of energy to electricity. As the Project's advancement of this objective is not in conflict with the achievement of any of the other objectives in the CEA, the priority to be given to the objective in section (g) of the CEA has no bearing on the Project.

9.3 *LONG TERM ELECTRIC RESOURCE PLAN*

FBC's most recent Long Term Electric Resource Plan (2021 LTERP) was filed pursuant to section 44.1 of the UCA on August 4, 2021 and was accepted by the BCUC in Order G-380-22 on December 21, 2022. Section 6.4 of the 2021 LTERP identified a number of system

reinforcement (i.e., transmission) projects planned for the 2021 to 2029 timeframe. The 2021 LTERP explained that its system reinforcement projects were identified based on load forecasting, transmission planning criteria and power flow, and other transmission planning studies. As the LTERP only identifies projects at the transmission level, and the FRU and HER substations are part of FBC's distribution infrastructure, the Project was not specifically discussed in the 2021 LTERP. However, the Project is consistent with the 2021 LTERP objectives of ensuring cost-effective, secure, and reliable power for customers.

9.4 *SECTIONS 6 AND 19 OF THE CLEAN ENERGY ACT*

Sections 6 and 19 of the CEA concern, respectively, electricity self-sufficiency and clean or renewable resources. While sections 6 and 19 of the CEA apply largely to BC Hydro, the following portions have relevance to FBC:

> 6(4) A public utility, in planning in accordance with section 44.1 of the *Utilities Commission Act* for
>
> (a) the construction or extension of generation facilities, and
>
> (b) energy purchases,
>
> must consider British Columbia's energy objective to achieve electricity self-sufficiency.
>
> …
>
> 19(1) To facilitate the achievement of British Columbia's energy objective set out in section 2 (c), a person to whom this subsection applies
>
> (a) must pursue actions to meet the prescribed targets in relation to clean or renewable resources, and
>
> (b) must use the prescribed guidelines in planning for
>
> (i) the construction or extension of generation facilities, and
>
> (ii) energy purchases.
>
> (2) Subsection (1) applies to
>
> (a) the authority, and
>
> (b) a prescribed public utility, if any, and a public utility in a class of prescribed public utilities, if any.

The Project does not involve either the construction or extension of generation facilities, nor is FBC a prescribed public utility for the purpose of section 19 of the CEA. Accordingly, sections 6 and 19 of the CEA are not applicable to the Project.

9.5 *CONCLUSION*

In summary, the Project is consistent with British Columbia's energy objectives and is consistent with the 2021 LTERP objective of ensuring cost-effective, secure, and reliable power for customers.

10. CONCLUSION

FBC respectfully submits that the Project is necessary to address the equipment condition and aging infrastructure at the FRU and HER substations, and to address risks to the reliability of the electricity supply in the Village of Fruitvale and surrounding area. The age and condition of equipment at the FRU substation and the smaller-capacity HER substation have advanced to a point where replacement of the equipment is required. The HER single phase transformer units are approximately 73 years old, and the FRU metal-clad switchgear is approximately 56 years old. This equipment is at risk of failing in the near term.

The only solution that meets the objectives of the Project is for FBC to build a single new substation with two transformers on a new site close to the load centre. The process for identifying the appropriate site was lengthy and complex. FBC considered many different sites and engaged in years of consultation and assessment activities to arrive at the preferred location. FBC selected 2064 Grieve Road as the location for the Project and has purchased the 9.61-acre parcel of land. Based on FBC's analysis of the potential site options at the Grieve Location, and after consulting with landowners adjacent to the property and assessing environmental impacts, FBC has selected the Highway 3B Option as the preferred site for the New FRU Substation.

The Project includes construction of the New FRU Substation at the Grieve Location, including installing two new 20 MVA dual voltage transformers, replacing the existing metal-clad switchgear with air-insulated busworks, and provisions for four distribution lines and a 2.4 MVAR capacitor bank. The New FRU Substation will continue to be supplied by transmission line 20L and the existing FRU and HER substation sites will be decommissioned.

FBC respectfully submits that consultation and engagement activities to date have been sufficient, appropriate and reasonable, and meet the requirements of the CPCN Guidelines. FBC will continue to maintain open lines of communication with stakeholders and Indigenous communities, addressing interests or concerns brought forward throughout the duration of the Project, including planning, construction, and site restoration.

FBC requests that the BCUC approve the Project as set out in the Application. FBC plans to initiate the detailed design, remaining procurement, and construction for the Project upon CPCN approval. FBC has plans in place to mitigate Project risks and mitigate potential impacts to the environment and heritage resources. The Project is expected to be completed by the end of 2026.

Appendix A

2017 COMPREHENSIVE CONDITION ASSESSMENT

2017 FORTIS BC-METALCLAD MV SWITCHGEAR STRATEGIC PLAN

FBC Stations Asset Management

Draft Report: P-17-199-R0

Date: November 24, 2017

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INTRODUCTION

In response to Paul Gheorghe of Fortis BC, METSCO Energy Solutions Inc implemented a state-of-the-art asset strategic plan framework for twenty Fortis BC metal-clad switchgear assemblies.

Fortis BC has in service 20 pieces of MS, installed at various substations on its distribution network, operating at voltages ranging from 8 kV to 25 kV. The FBC MS fleet is located in the Okanagan and West Kootenay regions of British Columbia. The FBC MS was originally manufactured between 1969 and 1995 and in some cases, the cell breakers were replaced with newer retrofit units.

With the FBC MS fleet either built or purchased at different times, the diversity includes:

- Vacuum, Air magnetic and SF6 breakers
- Obsolete switchgear equipment manufacturers
- Unit substation switchgear
- Indoor and outdoor installations
- Old switchgear incorporating new retrofit breakers
- Switchgear with aluminum bus
- Tie links made using switches

The objective of this report is to provide a valuation of a representative sample of FBC's fleet of MS to support investment decisions about whether the equipment under various groups of age, health, and condition should be repaired, refurbished or replaced. Also, a comprehensive risk-based investment strategy and the 40-year plan are presented for each asset class in order to make an informed investment decision.

The consulting assignment utilized accessible historical and health condition data for the switchgear assemblies as provided by FBC including the following:

- Information from visual inspections and pictures
- Contact resistance results
- Contact timing information
- Insulation resistance test results
- Nameplate data
- Operating counter information

The following table details the project scope and nomenclature of the MV switchgear assets:

Station	CB Manufacturer	Year in service	Model	Type	Number of Feeders	System Voltage (kV)	Ampacity (A)
DGB	Toshiba	1995	HVK-10M25A 2-BB	Vacuum	4	13.2	1200
DUC	Toshiba	1996	HVK-10M25A 2-VV	Vacuum	2	13.2	1200
SAL	Merlin Gering	2002	FG-2	SF6	2	13.2	1200
BEP	Merlin Gering	1996	FG-2	SF6	2	13.2	1200
BLU	Merlin Gering	1996	FG-2	SF6	2	13.2	1200
CAS	Merlin Gering	1993	FG-2	SF6	3	13.2	1200
CRA	Westinghouse	1978	15 DH-P 500	Air magnetic	4	13.2	1200
CRE	Canadian GE	1961	A2M	Air magnetic	2	13.2	1200
FRU	Westinghouse	1967	DH-P	Air magnetic	2	13.2	1200
HOL	ITE	1986	15HK	Air magnetic	8	13.2	2000
JOR	Merlin Gering	1992	FG-4	SF6	2	13.2	1200
OKM	ITE	1969	15-HKS 500	Air magnetic	6	13.2	2000
PIN 1	ABB	2010	VD4	Vacuum	2	13.2	1250
PIN 2	Siemens	1995	3AF	Vacuum	2	13.2	1200
SAU 1	BBC	1987	15-HV-500	Air magnetic	0	13.2	2000
SAU 2	ABB	1985	15-HKS 500	SF6	10	13.2	1200
SEX	Westinghouse	1989	VCP-W	Vacuum	4	13.2	2000
TRC	Fed Specific	1969	DST-2-15-500	Air magnetic	US	13.2	1200
GLM	Toshiba	1995	HVK	Vacuum	4	13.2	1200
PLA	Fed Specific	1969	DST-2-15-500	Air magnetic	3	13.2	1200

Table 1. Fortis BC Metal-Clad MV Switchgear Nomenclature

1. Risk-Based Planning Framework Implementation

1.1 Asset Registry and Condition Data Analysis

The first step is to develop the asset registry which will be utilized in the further stages of the asset assessment. The asset registry contains information detailing every asset along with categorizing the associated characteristics of each. The condition data of each switchgear assembly was obtained from the operational and maintenance records, as provided by Fortis BC.

1.2 Asset Health Index Formulation

A Health Index (HI) is an indicator of the asset remaining life, given as a percentage. An asset in excellent condition has a health index of 100% and an asset with a very poor condition has a health index value below 30%.

The following table presents the health index ranges and the corresponding asset condition:

Health Index	Condition	Description	Requirements
85–100	Very Good	Some aging or minor deterioration of a limited number of components	Normal maintenance
70–85	Good	Significant deterioration of some components	Normal maintenance
50–70	Fair	Widespread significant deterioration or serious deterioration of specific components	Increase diagnostic testing; possible remedial work or replacement needed depending on criticality
30–50	Poor	Widespread serious deterioration	Start planning process to replace or rehabilitate considering risk and consequences of failure
0–30	Very Poor	Extensive serious deterioration	Asset has reached its end-of-life; immediately assess risk; replace or refurbish based on assessment

Table 2. Asset Condition based on Health Index

To determine the health index for the MV switchgear, formulations are developed based on conditions that lead to the asset failure. A weight is assigned to each condition to indicate the amount of influence the condition has on the overall asset health.

The following table gives an example of how an asset condition translates into a numerical grade as a part of the HI computation:

S.No	Condition	Weight	Ranking	Numerical Grade	Max Grade
1	Condition example 1	4	A,B,C,D,E	4,3,2,1,0	16
2	Condition example 2	6	A,C,E	4,2,0	24
3	Condition example 3	6	A,B,C,D,E	4,3,2,1,0	24
Total Score					**64**

Table 3. Health Index Condition Analysis Example

Each condition is ranked from A to E and each rank corresponds to a numerical grade, the conversion from ranking to numerical grade is as shown:

A – 4 Best Condition
B – 3 Normal Wear
C – 2 Requires Remediation
D – 1 Rapidly Deteriorating
E – 0 Beyond Repair

The Health Index is then calculated as follows:

$$HI = \left(\frac{\sum_{i=1} Weight_i * Numerical\ Grade_i}{Total\ Score}\right) x\ 100$$

Where i corresponds to the condition number and the health index is a percentage representing the remaining life of the asset.

Based on the data provided by Fortis BC and in general the following nine conditions were utilized as a part of the HI formulation for the Metalclad MV switchgear assemblies:

Condition	Circuit Breaker Type	Weight	Ranking	Numerical Grade	Max Grade
Overall CB condition	All	4	A,B,C,D,E	4,3,2,1,0	16
Age	All	2	A,B,C,D,E	4,3,2,1,0	8
Control & Operating Mechanism Components	All	2	A,B,C,D,E	4,3,2,1,0	8
Breaker Truck Condition	All	3	A,B,C,D,E	4,3,2,1,0	12
Contact Resistance Tests	All	4	A,B,C,D,E	4,3,2,1,0	16
Breaker Timing Tests	All	3	A,B,C,D,E	4,3,2,1,0	12
Insulation Resistance Tests	All	5	A,B,C,D,E	4,3,2,1,0	20
Operating Counter	All	2	A,B,C,D,E	4,3,2,1,0	8
Metal Cubicle and components	All	3	A,B,C,D,E	4,3,2,1,0	12

Table 4. Metal-Clad MV Switchgear HI formulation conditions

In the table above the equivalent numerical grade of A is 4 while that of E is 0.

1.2.1 Overall Circuit Breaker Condition

Grade	Corresponding Condition
A	OK (The breaker is externally clean, corrosion free. All primary and secondary connections are in good condition. No external evidence of overheating or re-striking. Number of breaker operations on the counter is in the below average range for the age of breaker. Appears to be well maintained with service records readily available.)
E	Not OK

Table 5. Metal-Clad MV Switchgear overall circuit breaker condition grading

1.2.2 Age

Grade	Corresponding Condition
A	0-19 years
B	20-39 years
C	40-49 years
D	50-59 years
E	>=60 years

Table 6. Metal-Clad MV Switchgear age condition grading

1.2.3 Control and Operating Mechanism Components

Grade	Corresponding Condition
A	OK (Wiring, terminal blocks, relays, contactors, and switches all in good condition. Trip and close coils, relays, auxiliary switches, motors, springs are all in good condition. Linkages, shafts, rods, trip latches are clean, free from cracks, distortion, abrasion, or obstruction. No visible evidence of poor mechanism settings, looseness, loss of adjustment, excess bearing wear, or other out of tolerance operation. No sign of overheating or deterioration.)
E	Not OK

Table 7. Metal-Clad MV Switchgear control and operating mechanism components condition grading

1.2.4 Breaker Truck Condition

Grade	Corresponding Condition
A	OK (The floor is level, Support steel and anchor bolts tight and free from corrosion. Ground connections free of damage and corrosion. Breaker truck moves freely without obstructions.)
E	Not OK

Table 8. Metal-Clad MV Switchgear breaker truck condition grading

1.2.5 Contact Resistance Tests

Contact Resistance Specification Limit (in micro-ohms)	50

Grade	Corresponding Condition
A	Values well within the contact resistance specification limit
E	Values outside of the contact resistance specification limit

Table 9. Metal-Clad MV Switchgear contact resistance tests condition grading

1.2.6 Breaker Timing Tests

Specification limits for circuit breaker timing (in ms):

CB Type	Opening Time	Closing Time
Vacuum	42	140
Air Magnetic	42	140
SF6	42	250

Table 10. Circuit Breaker timing specification limits

Grade	Corresponding Condition
A	Measurement <= 80% Specification limit
B	80% < Measurement <= 100% specification limit
D	100% < Measurement <= 120% specification limit
E	Measurement > 120% specification limit

Table 11. Metal-Clad MV Switchgear breaker timing tests condition grading

1.2.7 Insulation Resistance Tests

Recommended minimum insulation resistance across open contacts (in Megohms)	5000

Grade	Corresponding Condition
A	Values above the minimum insulation resistance limit
E	Values below the minimum insulation resistance limit

Table 12. Metal-Clad MV Switchgear insulation resistance tests condition grading

1.2.8 Operating Counter

CB Type	Maximum Limit
Vacuum	20000
Air Magnetic	5000
SF6	10000

Table 13. Operating Counter maximum specification limits

Grade	Corresponding Condition
A	Measurement <= 80% Specification limit
B	80% < Measurement <= 100% specification limit
D	100% < Measurement <= 120% specification limit
E	Measurement > 120% specification limit

Table 14. Metal-Clad MV Switchgear operating counter condition grading

1.2.9 Metal Clad Cubicle and Components

Grade	Corresponding Condition
A	OK (Bus insulation, MegaOhm readings are well within limits. Cubicle doors, hinges, and latches are free from damage and operated properly. Bus shutters and interlocks work properly. Installation protected from dust, high humidity, and high temperatures.)
E	Not OK

Table 15. Metal-Clad MV Switchgear metal clad cubicle and components condition grading

1.3 Failure Curve Development and Effective Age Computation

Failure curves are the underlying statistical probabilities, unique to each asset class and sub-asset class, which reveal the current and future probabilities of the asset failure. The existing industry standard failure curves for common asset classes like switchgear were utilized for the failure curve analysis. These failure curves were individually adjusted based on the associated Health Index value.

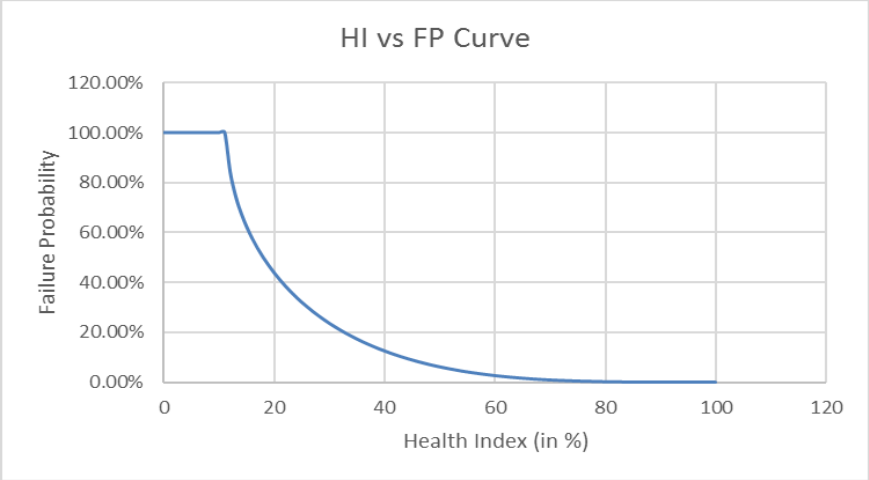

Figure 1. HI-based Failure Probability Curve

The curve in figure 1 gives the probability of failure based on the HI of the particular asset, utilized as a part of the effective age computation. An HI value of 100% gives a probability of failure of 0.00 % while the minimum HI value gives a failure probability of 100%.

Effective age represents the advanced/accelerated aging of the asset due to its condition. Effective age utilizes the health index – which uses local degradation factors specific to each asset in order to account for the accelerated aging due to the asset condition. By using the health index and effective age, we can differentiate the failure probability of assets of the same age within the same asset class.

The Accelerated age of the asset is determined directly from the relationship between HI and failure probability. An adjustment factor is designed to limit the “range of accelerated aging”, where the range represents the difference between the accelerated age and the installed age.

The effective age is derived using the accelerated age, the installed age as well as an adjustment factor which is designed to limit the range of accelerated aging depending on the HI result.

Effective Age - It is the effective age of the switchgear based on the actual age (or Installed Age) and accelerated age, weighted using the following formula:

Effective Age = [(Accelerated Age – Installed Age) * (100 - HI) / 100] + Installed Age

The acceleration factor is defined as below:

Acceleration factor = Effective Age / Installed Age

1.4 Establishment of Risk Values and Associated Consequence Costs

The consequence cost framework is composed of both direct and indirect consequence costs. Specifics such as labor costs, vehicle costs, material, and equipment costs for regular and emergency replacements were assessed on an asset class level. In addition to direct costs, indirect costs encompass customer interruption costs (“CIC”), safety, environmental, and brand image costs which have become increasingly important to customer and stakeholder values.

The consequence costs framework establishes key inputs using client data as well as customer interruption cost valuation studies to determine suitable interruption and duration costs (two core components of CIC). Assets can also be associated with customer counts and loading using the geospatial and connectivity data for the consideration of customer interruption costs, thus the assessment will be an accurate representation of asset criticality as it relates to potential impacts. There was a lack of loading history data, thereby not making it possible to do this part of the analysis.

1.5 Asset Risk Profile Assessment

The switchgear asset risk profile assessment incorporates the asset condition information, health index values, calibrated failure curves, failure modes, and consequence costs for all of the switchgear assemblies. Asset risk is the product of current failure probability and consequence of statistical failure. Failure probabilities are supplied using asset condition information, health index values, and calibrated failure curves developed earlier on in the methodology. Likewise, consequence costs were developed using specific failure modes for each asset class.

The result is a complete risk profile for each asset within the system, including safety, environmental, reliability, and brand image risk costs, and financial risk costs. Each asset can then be assigned a risk index within the system. An overview was also calculated for each asset class and for the system as a whole, to assess the system condition.

1.6 Risk-Based Total Life Cycle Cost Calculations

Comprehensive risk-based life-cycle calculations were done for each switchgear asset unit. The life-cycle calculations incorporate the risk profile for each asset in the system, along with the cost of new assets and maintenance annualized over the life-cycle period. The resulting output provides a detailed analysis of the cost/benefit ratio, total and individual risk, and optimal

intervention timing of each individual asset. Asset criticality was incorporated when considering asset failure consequence costs associated with both asset and non-asset related failures.
The results were then integrated with the asset risk-based planning framework which takes into account broader impacts and will be used for corporate risk reporting.

2. Summary of Switchgear Asset Condition

Station	Health Index (in %)	Actual Age (in years)	Effective Age (in years)
DGB	94.18	22	21
DUC	87.5	21	19
SAL	100	15	15
BEP	73	21	20
BLU	90.18	21	19
CAS	87.5	24	22
CRA	92.98	39	36
CRE	93.3	56	52
FRU	31.25	50	95
HOL	94.33	31	29
JOR	85.05	25	22
OKM	75	48	40
PIN 1	100	7	7
PIN 2	87.5	22	20
SAU 1	92.75	30	28
SAU 2	81.35	32	28
SEX	89.77	28	25
TRC	57.95	48	47
GLM	96.15	22	21
PLA	75	48	40

Table 16. HI and Effective Age summary for the metal-clad MV switchgear assets

The table above gives the overall HI and effective age values for each of the switchgear assemblies. The detailed values for each of the conditions under each switchgear asset are available in the spreadsheet utilized for arriving at the final HI and effective age values. Data inadequacy was an issue with some switchgear units in arriving at the HI values, and only those data available for each asset was included as a part of the HI computation. It is recommended in the future to document and maintain inspection and maintenance data pertinent to the conditions utilized for the asset management analysis of the switchgear asset as presented in this report.

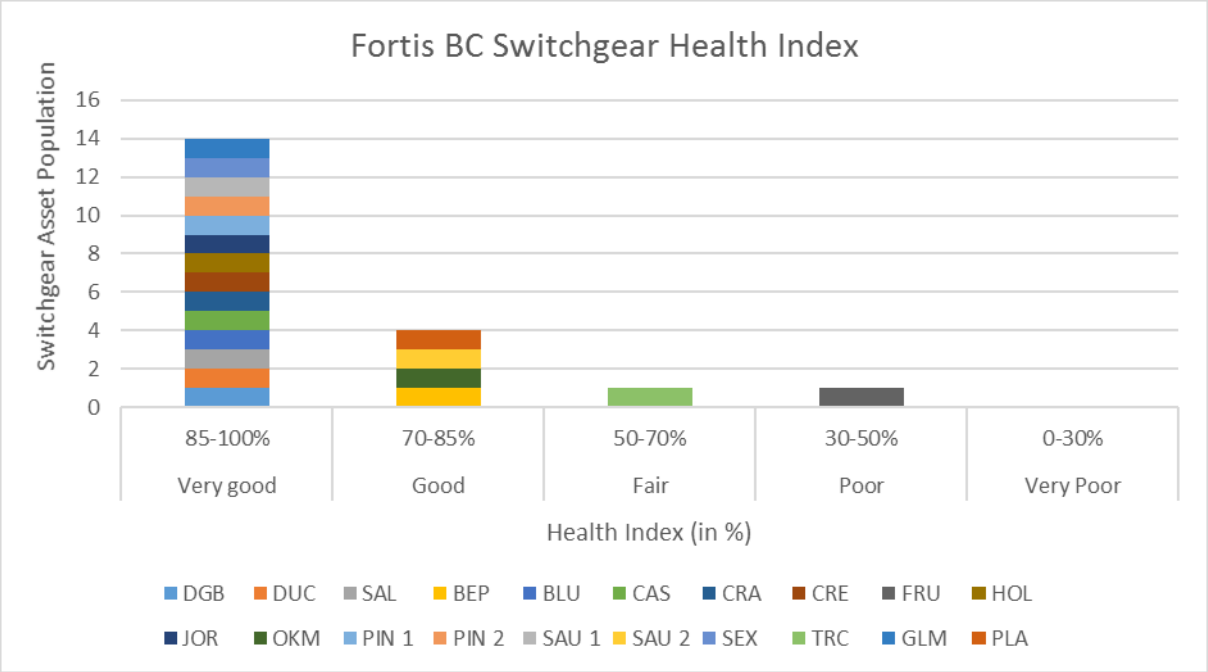

Figure 2. Overall Fortis BC metal-clad MV Switchgear Health Index Values

Figure 2. classifies the switchgear asset population based on the final HI value for each of the unit. A majority of the assets (14) are in the “Very good” range, with 4 of them in the “Good” range and one each under the “Fair” and “Poor” ranges respectively.

3. Overall Switchgear Asset Costing Analysis

The main objective of the condition assessment of the switchgear assets is to arrive at a useful investment decision while understanding the nature of action plan required (either replacement or refurbishment) with the intended timeframe.

The useful remaining life of the switchgear asset is computed based on the median life of switchgear assets. 50 years has been found out as the median life of the switchgear here, by performing a parametric analysis for each of the switchgear, such that failure curve parameters could be derived which best align to the observed asset life data. The Maximum Likelihood Estimation (MLE) method is applied in order to derive the distribution function parameters that best describe the observed data. METSCO has worked with several utilities investigating in detail the failure probability curves for switchgear and has developed the baseline for switchgear asset analysis.

This limit forms the base for arriving at either the replacement or refurbishment mode for each switchgear asset. The replacement strategy is proposed for those switchgear assets that have exceeded 50 years in service, thereby yielding a negative useful remaining life.

The following are the assumptions in computing the cost associated with either the replacement or refurbishment process:

1. The cost of 1200 A breakers, with bottom entry and 8 breaker cells along with associated relaying was CAD 120 K in 2007.
2. Installation and ancillaries will double the project price.
3. The inflation rate is an average of 2.5% per year.
4. The currency exchange will add a 25% to the original cost.
5. The 2000 A rated switchgear cost is 25% more than that of the 1200 A rated one.
6. Labor Cost and Vehicle Cost have been categorized as the installation and ancillaries.

The remaining useful life is utilized as the time for computing the projected replacement/ refurbishment costs inclusive of the aforementioned inflation rate. The sum of the annualized operating and capital costs gives the annualized life-cycle cost for the switchgear asset. It is equal to the annual cost which will be incurred for an asset which exists in the system for that length of time.

The following table summarizes the cost associated with dealing with the switchgear assets in either replacing or refurbishing them:

Station	Useful Remaining Life based on Effective Age	Mode	Current Replacement/ Refurbishment Cost	Annual Life Cycle Cost	Projected Replacement/ Refurbishment Cost
DGB	29	Refurbishment	$378,025	$46,971	$773,593
DUC	31	Refurbishment	$162,011	$20,840	$348,325
SAL	35	Refurbishment	$108,007	$15,282	$256,323
BEP	30	Refurbishment	$108,007	$13,644	$226,552
BLU	31	Refurbishment	$108,007	$13,894	$232,216
CAS	28	Refurbishment	$162,011	$19,834	$323,454
CRA	14	Refurbishment	$378,025	$41,318	$534,139
CRE	-2	Replacement	$144,010	$14,134	$147,610
FRU	-45	Replacement	$144,010	$13,899	$147,610
HOL	21	Refurbishment	$556,912	$62,881	$935,379
JOR	28	Refurbishment	$216,014	$26,445	$431,271
OKM	10	Refurbishment	$445,529	$47,613	$570,315
PIN 1	43	Refurbishment	$162,011	$35,150	$468,458
PIN 2	30	Refurbishment	$270,018	$34,107	$566,381
SAU 1	22	Refurbishment	$111,382	$12,679	$191,752
SAU 2	22	Refurbishment	$702,046	$80,499	$1,208,622
SEX	25	Refurbishment	$389,838	$45,652	$722,738
TRC	3	Refurbishment	$54,004	$5,726	$58,156
GLM	29	Refurbishment	$324,021	$40,261	$663,079
PLA	10	Refurbishment	$216,014	$23,272	$276,516

Table 17. Metal-clad MV switchgear Asset Costing Data

The table above lists the proposed mode for each switchgear asset based on the useful remaining life based on the effective age. The current replacement/ refurbishment costs indicate the expenditure it would incur in 2017, while the projected costs are relevant for the future at the end of the useful remaining life, taking the inflation rate into account.

4. Semaphore Ranking Probability

A “semaphore” ranking probability / likelihood of failure criteria was developed to highlight the priorities, in helping with the replacement/ refurbishment procedure.

This semaphore ranking probability lists the order of priorities from highest (Priority 1) to lowest (Priority 5) for the switchgear assemblies.

The legend on the right of the graph gives the precedence of switchgear within each category from bottom to top.

This ranking is based on the culmination of useful remaining life based on Effective Age and the associated consequence costs of each of the switchgear assemblies.

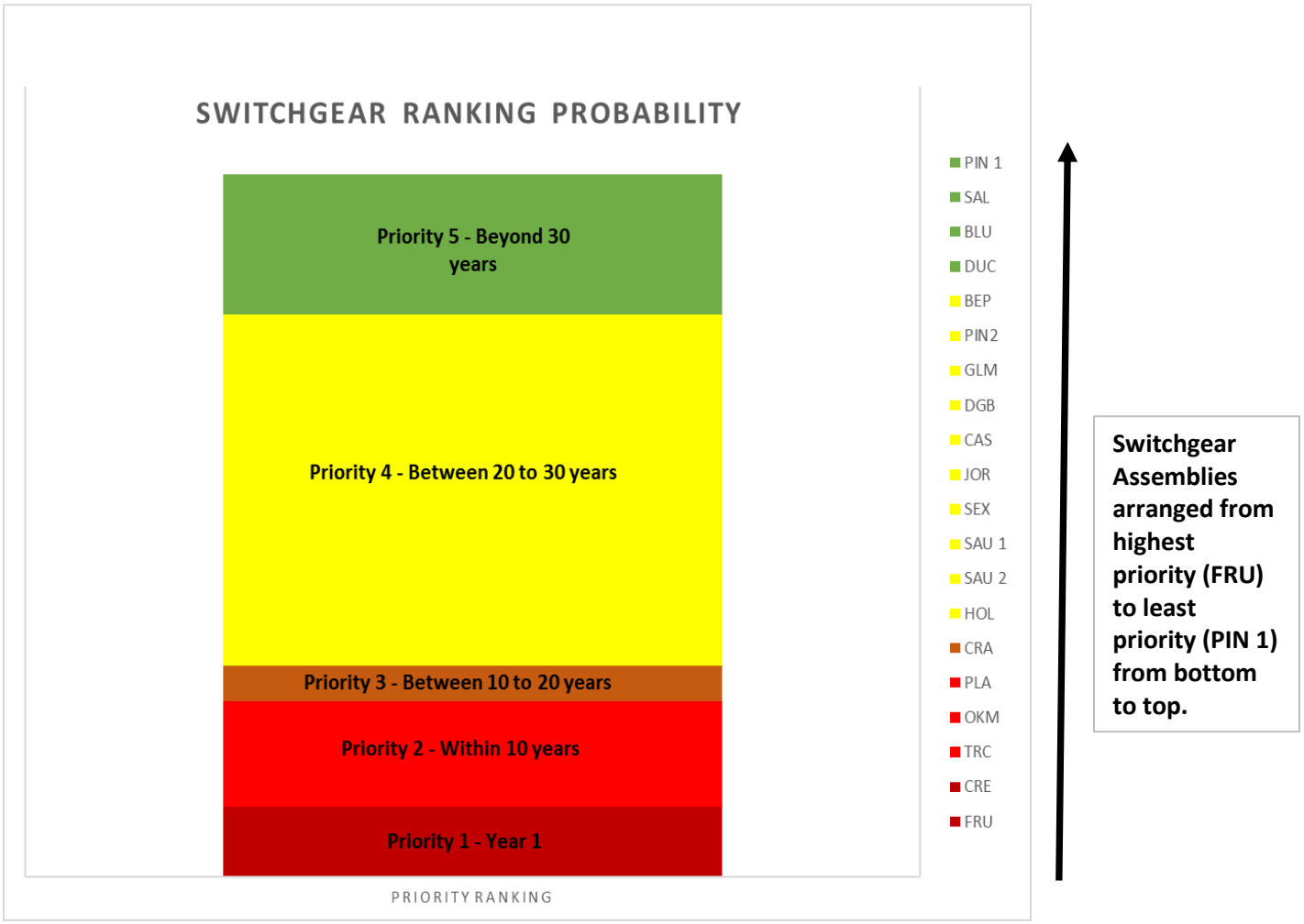

Figure 3. Metal-clad MV switchgear Semaphore Ranking Probability

The figure above shows the semaphore ranking probability of the switchgear assemblies. The overall scope of the project has been divided into 5 priorities with the highest priority allotted to FRU and CRE in replacing them in the first year. Subsequent priorities necessitate action within 10 years, between 10 to 20 years, between 20 to 30 years and beyond 30 years. The following table summarizes the switchgear assemblies based on their priorities:

Station	Useful Remaining Life based on Effective Age	Consequence Costs	Action Plan
FRU	-45	$13,286	Replace in the first year
CRE	-2	$13,286	
TRC	3	$5,785	Refurbish within 10 years
OKM	10	$46,288	
PLA	10	$19,286	
CRA	14	$32,787	Refurbish after 10 to 20 years
HOL	21	$57,539	Refurbish after 20 to 30 years
SAU 2	22	$59,788	
SAU 1	22	$12,536	
SEX	25	$40,662	
JOR	28	$19,286	
CAS	28	$14,786	
DGB	29	$32,787	
GLM	29	$28,287	
PIN2	30	$23,786	
BEP	30	$10,285	
DUC	31	$14,786	Refurbish beyond 30 years
BLU	31	$10,285	
SAL	35	$10,285	
PIN 1	43	$14,786	

Table 18. Metal-clad MV switchgear upgrade prioritization

5. CAPEX Planning

The total estimated CAPEX to perform either replacement or refurbishment of Fortis BC metal-clad MV switchgear is $ 9.08 M. This expenditure is spread over a period of 40 years in performing the recommended upgrade for each station as mentioned in Table 19. The summary of the yearly distribution of CAPEX is also visually presented in Figure 4.

Year	Station	CAPEX
1	FRU	$147,610
1	CRE	$147,610
3	TRC	$58,156
10	OKM	$570,315
10	PLA	$276,516
14	CRA	$534,139
21	HOL	$935,379
22	SAU 2	$1,208,622
22	SAU 1	$191,752
25	SEX	$722,738
28	JOR	$431,271
28	CAS	$323,454
29	DGB	$773,593
29	GLM	$663,079
30	PIN2	$566,381
30	BEP	$226,552
31	DUC	$348,325
31	BLU	$232,216
35	SAL	$256,323
43	PIN 1	$468,458
Total CAPEX		**$9,082,490**

Table 19. Yearly distribution of CAPEX for metal-clad MV switchgear upgrade

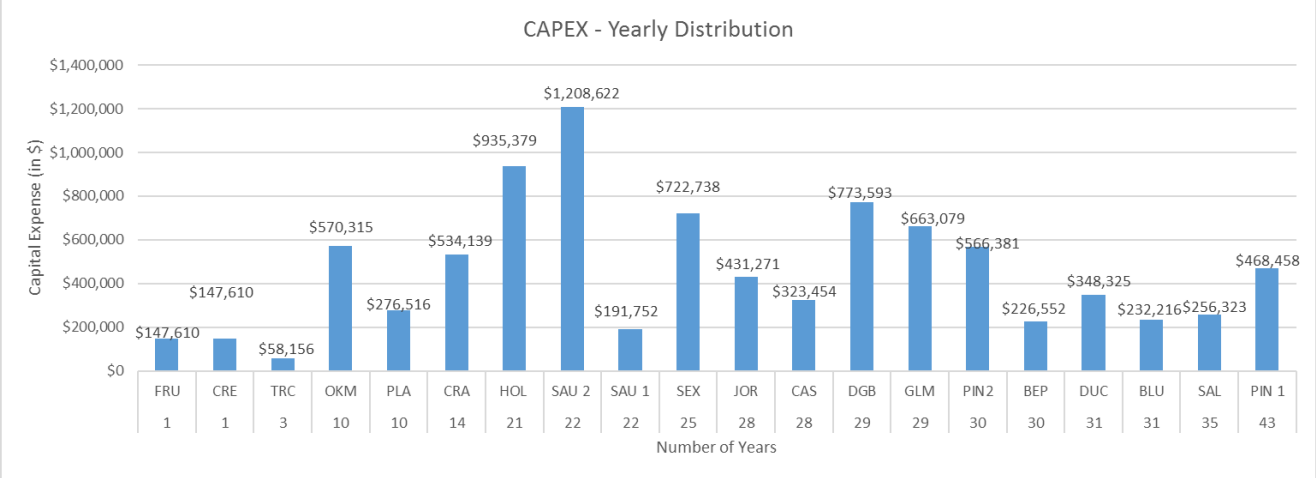

Figure 4. 40-Year CAPEX distribution for metal-clad MV switchgear upgrade

The following table shows the CAPEX distribution for performing MV switchgear upgrade by grouping the switchgear assets based on their priority. A visual representation of the same is indicated in Figure 5.

Station	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
FRU	$147,610				
CRE	$147,610				
TRC		$58,156			
OKM		$570,315			
PLA		$276,516			
CRA			$534,139		
HOL				$935,379	
SAU 2				$1,208,622	
SAU 1				$191,752	
SEX				$722,738	
JOR				$431,271	
CAS				$323,454	
DGB				$773,593	
GLM				$663,079	
PIN2				$566,381	
BEP				$226,552	
DUC					$348,325
BLU					$232,216
SAL					$256,323
PIN 1					$468,458
Total	**$295,221**	**$904,987**	**$534,139**	**$6,042,822**	**$1,305,321**

Table 20. CAPEX based on priority for metal-clad MV switchgear upgrade

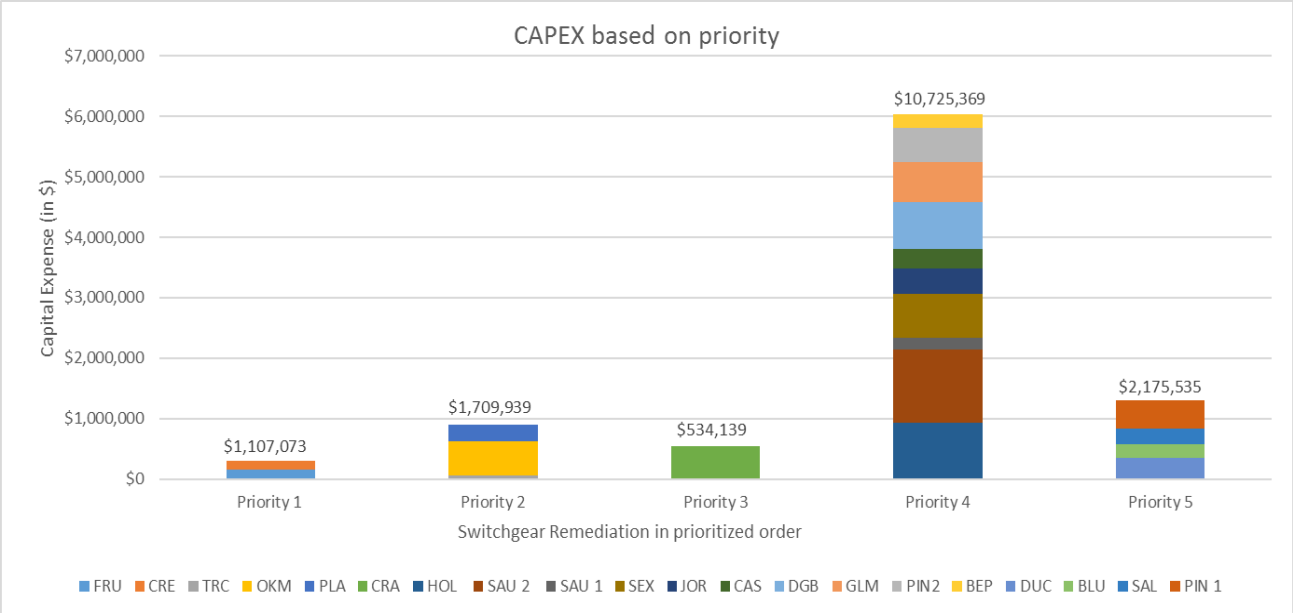

Figure 5. CAPEX distribution based on priority

6. Summary Hazard Analysis

Job/Task: Performing Metalclad MV Switchgear Upgrade

Prepared For: Fortis BC

Completed By: METSCO Energy Solutions

Hazard Category	Possible Plan of Action for hazard control or elimination
Equipment design or construction - Risk of electric shock - Hazards from malfunctioning - Hazards from fields or gases - Mechanical or fire hazards	- Ensure that the relevant switchgear elements adhere to international electrical standards such as IEC, ANSI, CENELEC, and JIS. - Follow the safety instruction manual for equipment handling - Ensure proper earthing procedures in handling switchgear equipment - Label and provide proper demarcation of gas compartments - Use of fire resisting barriers or compartments and availability of extinguishers / proper ventilation
Human Error	- Restrict access to trained personnel - Prepare a safety and protection plan with clear listing of roles and responsibilities - Adequate training for working safely along with emergency response capability - Pay adequate attention to manual operations when the switchgear is energized
Control and Protective devices	- Provide adequate means to access and check interlocking systems - Use remote control and ensure the interlocking system functioning as intended - Coordinate protection system with the associated properties (e.g. not reclosing on internal faults) - Ensure control system capability to withstand operating stresses and external influences
Information Signs / Indications	- Mark emergency exits and keep passages clear of obstructions - Provide appropriate information related to the design of the surrounding region, ventilation/exhaust, and gas detection.

7. Results and Recommendations

A comprehensive condition assessment of the Fortis BC metal-clad MV switchgear was performed based on the available data, in order to arrive at the estimated investment required and the recommendation pertinent to each switchgear assembly. Based on a 40-year strategic plan, the overall CAPEX was estimated to be $ 9.08 M. It is highly recommended to perform regular annual maintenance in the interim period of performing the planned upgrade for each switchgear asset. Also, maintaining a consistent maintenance and loading history record for each switchgear unit will be more helpful in revealing the actual condition of the asset, keeping the future in mind. Also, a summary hazard analysis was presented to eliminate any potential hazards associated with the intended upgrade procedure of the switchgear assets. The following table gives an overview of the results and recommendations with regard to each Fortis BC metal-clad MV switchgear, as a part of the strategic plan in upgrading the assets.

Station	Mode	Annual Life Cycle Cost	Refurbishment/Replacement Cost	Recommendation
DGB	Refurbishment	$46,971	$773,593	Perform annual maintenance. Plan to refurbish within 30 years.
DUC	Refurbishment	$20,840	$348,325	Perform annual maintenance. Plan to refurbish beyond 30 years
SAL	Refurbishment	$15,282	$256,323	Perform annual maintenance. Plan to refurbish beyond 30 years
BEP	Refurbishment	$13,644	$226,552	Perform annual maintenance. Plan to refurbish within 30 years
BLU	Refurbishment	$13,894	$232,216	Perform annual maintenance. Plan to refurbish beyond 30 years
CAS	Refurbishment	$19,834	$323,454	Perform annual maintenance. Plan to refurbish within 30 years
CRA	Refurbishment	$41,318	$534,139	Perform regular maintenance. Plan to refurbish within 20 years
CRE	Replacement	$14,134	$147,610	Plan to replace soon

FRU	Replacement	$13,899	$147,610	Plan to replace soon
HOL	Refurbishment	$62,881	$935,379	Perform annual maintenance. Plan to refurbish within 30 years
JOR	Refurbishment	$26,445	$431,271	Perform annual maintenance. Plan to refurbish within 30 years
OKM	Refurbishment	$47,613	$570,315	Perform regular maintenance. Plan to refurbish within 10 years
PIN 1	Refurbishment	$35,150	$468,458	Perform annual maintenance. Plan to refurbish beyond 30 years
PIN 2	Refurbishment	$34,107	$566,381	Perform annual maintenance. Plan to refurbish within 30 years
SAU 1	Refurbishment	$12,679	$191,752	Perform annual maintenance. Plan to refurbish within 30 years
SAU 2	Refurbishment	$80,499	$1,208,622	Perform annual maintenance. Plan to refurbish within 30 years
SEX	Refurbishment	$45,652	$722,738	Perform annual maintenance. Plan to refurbish within 30 years
TRC	Refurbishment	$5,726	$58,156	Perform regular maintenance. Plan to refurbish within 10 years
GLM	Refurbishment	$40,261	$663,079	Perform annual maintenance. Plan to refurbish within 30 years
PLA	Refurbishment	$23,272	$276,516	Perform regular maintenance. Plan to refurbish within 10 years

Table 21. Results and Recommendations for metal-clad MV switchgear upgrade

Appendix B
LAND EVALUATION CRITERIA AND SCORING

New Fruitvale Substation Land Evaluation Criteria and Scoring

Impact Evaluation

- Low and/or meets criteria
- Medium
- High
- Highest

Site	Location Name	Landownership & Use					Environmental, Archeological, and Hazards				Technical					Community & Stakeholder Relations				Relative Capital Cost[14]
		Landowner Receptive to Sell	Land Vacant[1]	Property Rezoning[2]	Indigenous Reserve Lands[3]	Agricultural Land Reserve[3]	Floodplain[3,4]	Critical Habit for Species at Risk[3]	Archaeological Site within 250m[3,5]	EMF Impact[6]	Parcel Size (m^2)[7]	Transmission Extension Complexity	Distribution Reconfiguration Complexity	Constructability Complexity[8]	Operations Accessibility[9]	Visual & Noise Impact[10]	Community Land Use Impact[11]	Indigenous Consultation Requirements[12]	Customer Reliability Impact[13]	
1	Atco Wood Products – Property A	Yes	Yes	Utilities permitted	No	Partially	Partially	No	No	Low	679,720	Low	Highest	Highest	Low	Low	Low	Low	High	Highest
2	Former Atco Wood Products Property	Landowner not approached	Yes	Utilities permitted	No	Partially	No	No	No	Low	198,164	Low	Highest	Highest	Low	Low	Low	Low	High	Highest
3	Hepburn Road	Landowner not approached	Yes	Utilities permitted	No	No	Entirely within floodplain	No	No	Low	5,934	Medium	Medium	Medium	Low	Medium	Low	Low	Low	Medium
4	Atco Wood Products – Property B	Yes	Yes	Utilities permitted	No	No	Vacant land within floodplain	No	No	Low	121,083	Medium	Medium	Medium	Low	Low	Low	Low	Low	Medium
5	Old Salmo Road	Yes	Partially	Utilities permitted	No	No	Partially	No	No	Low	29,075 (portion of property offered by landowner too small given ravine)	Medium	Medium	Highest	Medium	Low	Low	Low	Low	Not scored due to unresolvable land constraint
6	Highway 3B – Property A	Landowner not approached	Yes	Utilities permitted	No	No	No	No	No	Low	89,904	High	High	Highest	High	Medium	Low	High	Medium	High
7	Atco Wood Products – Property C	Yes	Yes	Utilities permitted	No	No	No	No	No	Low	72,600	High	High	Highest	High	Medium	Low	Low	Medium	High
8	Highway 3B – Property B	Yes	Partially	Utilities permitted	No	No	Partially within floodplain and impacted by spring runoff	No	No	Low	72,600	Low	High	Medium	Low	Low	Low	Low	Medium	Medium
9	2064 Grieve Rd	Yes	Partially	Utilities permitted	No	No	No	No	No	Low	40,510	Medium	Low	Medium	Low	Medium	Low	Low	Low	Low

NOTES

1 - Land that is not vacant may require structure(s) to be demolished potentially adding liability to the project.
2 - Considers potential impact related to rezoning parcel to allow for utility use.
3 - Considers impact to new station, transmission, and/or distribution infrastructure.
4 - Identifies whether a property is entirely within the floodplain, partially within the floodplain, or entirely outside of the floodplain. It also considers whether property is within areas where overland flooding is a known issue.
5 - A distance of 250m from an archaeological site based on review conducted 2 February 2024. The distance of 250m was used to identify at a screening level if there were known resources that could require management if the site was chosen.
6 - Considers the impact of electric and magnetic fields from substation and transmission lines.
7 - The standard station footprint for a two transformer station is typically 4736 m^2 (61.5m x 77m), the minimum size is typically 2500 m^2 (50m x 50m).
8 - Considers aggregate challenges of terrain, subsurface conditions, available construction footprint, requirement of specialized crews and equipment, construction related outages, underground facilities, etc.
9 - Considers the accessibility of the facilities during construction and afterwards by FBC employees and contractors.
10 - Considers the visual and noise impact on the community from the new station, transmission, and/or distribution infrastructure.
11 - Considers the impact of the proposed facilities on the current land use by the community (i.e. community activities, parking lot, etc.).
12 - Indigenous consultation requirements as per internal and external guidelines.
13 - Options located further from the load centre are considered to have a lower reliability benefit.
14 - Relative to the other alternative locations, and considers the Transmission Extension Complexity, Distribution Reconfiguration Complexity and Constructability Complexity. No estimating completed.

Appendix C

HIGHWAY 3B AND OLD SALMO ROAD ENGINEERING ASSESSMENTS

FILED CONFIDENTIALLY

Appendix C-1
STATIONS ESTIMATE

FILED CONFIDENTIALLY

Appendix C-2
TRANSMISSION ESTIMATE

FILED CONFIDENTIALLY

Appendix C-3
DISTRIBUTION ESTIMATE

FILED CONFIDENTIALLY

Appendix D
FINANCIAL EVALUATION

FILED CONFIDENTIALLY

Appendix E

SEEPANEE ECOLOGICAL CONSULTING HABITAT ASSESSMENT

FORTIS BC Proposed Substation- Fruitvale

Date Created: July 24, 2023

Doris Hausleitner, MSc, RP.Bio
Seepanee Ecological Consulting
2880 Granite Road
Nelson, BC V1L 6Y5
Dorishaus78@gmail.com

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1. Introduction

A FORTIS substation is proposed for a parcel of land northeast of the main town of Fruitvale, across Highway 3b and southwest of ATCO timber supply. The property is bordered by Greive Road to the northwest and the Old Salmo Road to the southeast (Figure 1). Private residences lie on the other two boundaries. Beaver Creek runs past the northwest corner of the property. The northwestern part of the property consists of a home and farm outbuildings and fields (Figure 2, Figure 3).

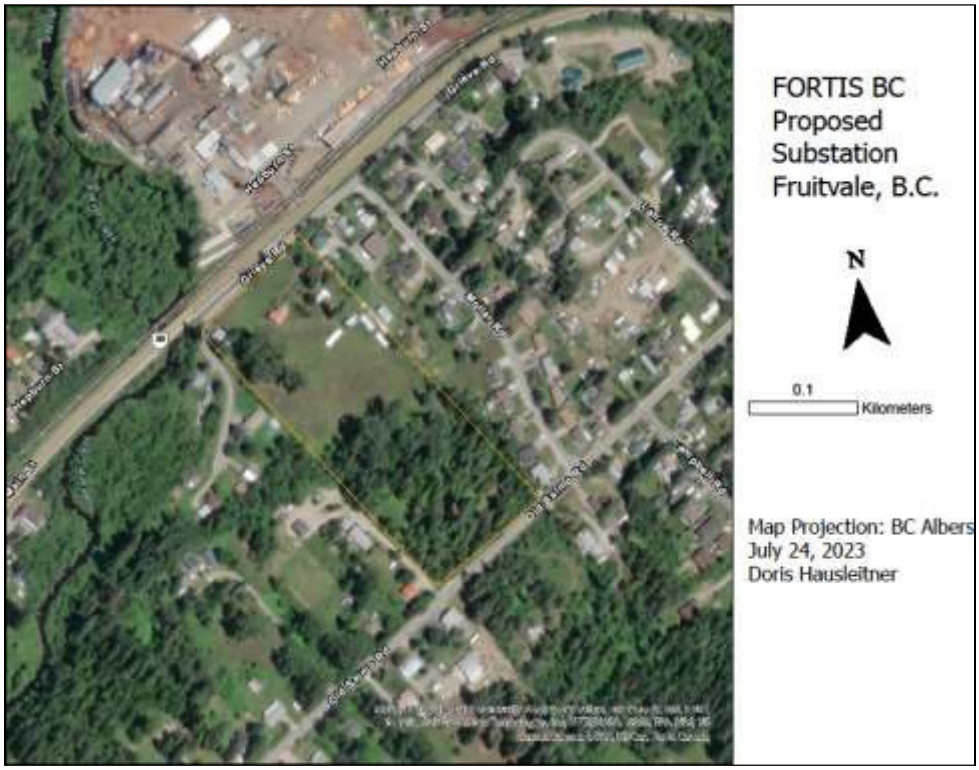


Figure 1. The site of interest is located northeast of Fruitvale. Map includes an approximation of the property boundaries.

1.1. Purpose/Objectives and Scope

The purpose of the initial assessment was to look at property values to help define a work plan. The site was visited on 24 July 2023 from 930-1200.

The objectives of this report is to:

- Describe the property and habitat values
- Assess wildlife species use and potential users.

Figure 2. Fields and outbuildings. Photo taken looking southeast July 24, 2023.

Figure 3. Field with mature black cottonwood/ western red cedar forest. Photo taken looking southwest July 24, 2023.

2. Habitat Assessment

2.1. Habitat Description

The fields were composed primarily of domestic grasses, yellow salsify (*Tragapogon dubius*), and invasive weeds spotted knapweed (*Centaurea stroebe*) and hoary allysum (*Berteroa incana*). Surrounding the house were dead willows and fruit trees. A row of mature black cottonwood (*Populus trichocarpa*) trees flanked the northwest corner of the property. At the edge of the fields mature black cottonwood, trembling aspen (*Populus tremuloides*) and paper birch (*Betula payrifera*) gave way to a blend of mature black cottonwood, black cottonwood snags and western redcedar (*Thuja plicata; Figure 3*). Douglas maple (*Acer glabrum*) was an understory tree. A small wetland was found near the toe of the slope in the cedar-cottonwood complex. Periwinkle (*Catharanthus roseus*) and either a domestic iris or yellow flag iris (*Iris pseudocorus*) was found surrounding the wetland (Figure 4). Large snags, including those with Pileated woodpecker (*Dryocopus pileatus*) roosting and nesting cavities were found adjacent to the wetland.

Figure 4. Small wetland which appeared to be ground fed water source in the black-cottonwood-western red cedar stand. Photo taken July 24, 2023.

The forest transitioned midslope and at the crest of the slope towards the boundary with Old Salmo Road with a mix of western larch (*Larix occidentalis*), Douglas fir (*Pseudotsuga menziesii*) and Ponderosa pine (*Pinus ponderosa; Figure 5*). Beaked hazelnut (*Corylus cornuta*) and bracken fern (*Pteridium aquilinum*) were main species in the understory as was an invasive hawkweed (*Hieracium* spp.)

Figure 5. Forest at the crest of the slope near Old Salmo Road. Photo taken July 24, 2023.

2.2. Wildlife

Evidence of ungulate use was throughout the property with deer (*Odecoileus* spp.) trails, beds, browse and scat throughout (Figure 6, Figure 7). Black bear (*Ursus americanus*) scat was also found throughout the cedar-black cottonwood complex. Vole (*Microtus* spp) diggings were throughout the fields and American red squirrel (Tamiasciurus) was in the forest. Birds present at the time of visit included Northern Flicker (*Colaptes auratus*), Western Wood-Pewee (*Contopus sordidulus*), American Crow (*Corvus brachyrhynchos*), and Black-capped Chickadee (*Poecile atricapillus*).

Figure 6. Ungulate bed in the field at the forest edge. Photo July 24, 2023.

Figure 7. Deer scat in the field adjacent to the house. Photo July 24, 2023.

2.3. Habitat potential for wildlife species at risk

The mix of western redcedar and mature black cottonwood with cavities is suitable for breeding Western Screech-owls (Hausleitner et al. 2017). The species is found nearby and two pairs of breeding owls were identified in the Hudu Creek drainage. Additional cavity nesting species that may use the area are the blue-listed Lewis's Woodpecker. They occur in riparian habitat and adjacent uplands < 1100m and select open cottonwood stands or burned mixed conifer stands (ECCC 2017).

The property contains many old barns and wildlife trees suitable for bats and blue-listed barn swallows (*Hirunda rustica*). The wetland habitat and adjacent Beaver Creek riparian zone is suitable for amphibians. The Northern rubber boa (*Charina bottae*) occurs in riparian habitat in the ICH (COSEWIC 2016). Inventory for species of value in addition to species at risk can occur simultaneously (Table 1). Bat inventory using a bat detector or acoustic monitor should also be considered at the out buildings.

Table 1. Inventory Timing for species at risk.

Common Name	Latin Name	Provincial Status	Federal Status	Inventory timing	Inventory strategy
Anaxyrys boreas	Western Toad	Yellow	SC (2012)	May- July	Dip netting, visual encounter surveys. Search for egg masses, tadpoles, young of year and adults.
Barn swallow	*Hirundo rustica*	Blue	Threatened	June	Search from 0500-0900. Ten-minute point counts will be conducted along the transmission line at nesting structures and 500 m on either side of nesting structures (caves, holes, ledges, bridges, barns) near streams or wetlands. 4 hours after surise.
Western Screech-owl	*Megascops kennicottii macfarlanei*	Blue	T (2012)	Nest checks (mid April-mid May) One rep can be done in September	15 min call playback inventory. Sample station at focal zone and 500m in either direction. Identify all potential nest cavities in Cottonwood and aspen on property.
Northern rubber boa	*Charina bottae*	Yellow	Special Concern	May/June	Search from 900-1500 for basking individuals and overturn rocks/coarse woody debris. Record transect length and search time.

3. Literature Cited

COSEWIC. 2016. COSEWIC assessment and status report on the Northern Rubber Boa Charina bottae in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 38 pp. (http://www.registrelep-sararegistry.gc.ca/default_e.cfm).

[ECCC] Environment and Climate Change Canada. 2017. Recovery Strategy for the Lewis's Woodpecker (Melanerpes lewis) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. vi + 40 pp.

Hausleitner, D., J.Dulisse, I. Manley and A. Waterhouse. Nest habitat Selection of Western Screech-Owls (Megascops kennicottii macfalanei) at multiple spatial scales in southeast British Columbia.

Appendix F
STAKEHOLDER CONSULTATION AND ENGAGEMENT

Appendix F-1
STAKEHOLDER ENGAGEMENT LOG

Governments and Community

Interested Party	Stakeholder Type	Contact Type	Date	Who was involved	Purpose of Communication/Event	Community interest / Concern / Question / Comment
Village of Fruitvale	Municipal Government	Meeting in camera	September 2019	Mayor and Council Blair Weston Lisa Ruchkall	Discuss upcoming substation upgrade project and the need to find land.	
Village of Fruitvale	Municipal Government	Meeting in camera	September 14 2020	Mayor and Council Blair Weston Lisa Ruchkall	Discuss upcoming substation upgrade project and the need to find land.	
Village of Fruitvale	Municipal Government	Meeting in camera	July 12 2021	Mayor and Council Blair Weston Aimee Montpellier Lisa Ruchkall	Discuss around Mazzochi Park location.	Concerns are fence height, sidewalks, lighting, overhead lines into the substation, vegetation.
Mazzochi Park Area Residents	Resident	In person	November 3 2021	Blair Weston Aimee Montpellier Walnut Ave Residents		Concerns are electromagnetic fields, parking, general aesthetics, property values, proximity to community infrastructure.
Village of Fruitvale	Municipal Government	Meeting	November 8 2021	Mayor and Council Blair Weston Aimee Montpellier	Discuss upcoming substation upgrade project and the public's concerns.	Community concerns are property values, vegetation, visual/aesthetics, noise, safety.
Fruitvale Public	Resident	Public Meeting	December 1 2021	Blair Weston Aimee Montpellier Lisa Ruchkall D'Arcy Caron Area Residents	Open house information session put on by FBC.	Concerns are parking, electromagnetic fields, aesthetics, proximity to community infrastructure.
Village of Fruitvale Fruitvale Public	Municipal Government Resident	Public Meeting	March 8 2022	Mayor and Council Blair Weston Aimee Montpellier Lisa Ruchkall D'Arcy Caron Area Residents	Rezoning open house put on by the Village of Fruitvale.	Meeting was cancelled on site by the Village of Fruitvale. A resident was not given proper notice of the meeting by the Village.
Beaver Valley Concerned Citizens (BVCC)	Community Group	Email	March 29 2022	Blair Weston Aimee Montpellier BVCC	Invitation to Design Workshop	Declined invitation
Beaver Valley Minor Soccer	Community Group	Email	March 29 2022	Blair Weston Aimee Montpellier Beaver Valley Minor Soccer	Invitation to Design Workshop	Accepted invitation
Village of Fruitvale	Municipal Government	Email	March 29 2022	Mayor and Council Village of Fruitvale CAO Blair Weston Aimee Montpellier	Invitation to Design Workshop	Accepted invitation
Area A Director (RDKB) Mayor of Montrose	Regional District of Kootenay Boundary (RDKB) Municipal Government	Email	March 29 2022	Blair Weston Aimee Montpellier Ali Grieve Mike Walsh	Invitation to Design Workshop	Accepted invitation
Village of Fruitvale Beaver Valley Minor Soccer Mazzochi Park Area Residents Scouts BC Area A Director (RDKB)	Municipal Government Community Group Resident RDKB	Meeting	April 6 2022	Mayor and Council Fruitvale CAO Beaver Valley Minor Soccer Area Residents Scouts BC Area A Director Ali Grieve Aimee Montpellier Blair Weston D'Arcy Caron Lisa Ruchkall	Design Workshop- to discuss properties, importance of the project, Substation design	Concerns are parking, electromagnetic fields, visual/aesthetics, proximity to community infrastructure, noise, property values, zoning.
Village of Fruitvale	Municipal Government	Email	April 14 2022	Mayor and Council Blair Weston Aimee Montpellier	Voting notification from the Village of Fruitvale Council.	The Village of Fruitvale Council voted to not sell the Village owned lands at 1705 Columbia Garden Road to FBC.

Area A Director (RDKB)	RDKB	Email	January 9 2023	Blair Weston Ali Grieve	Invitation to an in person meeting regarding updates on the project	
Mayor of Fruitvale CAO of Fruitvale	Municipal Government	Email	January 9 2023	Blair Weston Aimee Montpellier Steve Morisette Prab Lashar	Invitation to an in person meeting regarding updates on the project	
Mayor of Fruitvale CAO of Fruitvale	Municipal Government	Meeting	January 16 2023	Blair Weston Steve Morisette Prab Lashar	Discuss project updates and need for land.	
Area A Director (RDKB)	Municipal Government	Meeting	January 17 2023	Blair Weston Ali Grieve	Discuss project updates and need for land.	
Village of Fruitvale Area A Director (RDKB)	Municipal Government RCKB	Meeting in camera	April 17 2023	Mayor and Council Ali Grieve Blair Weston Jennifer Datchkoff Lisa Ruchkall	Reminder of project need. Review of FBC's property search to date.	
ATCO Wood Products Ltd.	Business	Phone	May 9 2023	Blair Weston Scott Weatherford	Notification that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	In support of the Project.
MLA Katrine Conroy	Provincial Government	Email	May 10 2023	Corey Sinclair Blair Weston MLA Conroy's Office	MLA's office inquired if any permits were needed for the Fruitvale substation.	No rezoning required. Standard building permit would be required.
MLA Brittny Anderson	Provincial Government	Phone	May 10 2023	Blair Weston Brittny Anderson	Notice of property purchase.	
MP Richard Canning	Provincial Government	Phone	May 10 2023	Blair Weston Richard Canning	Notice of property purchase.	
Beaver Valley Concerned Citizens (BVCC)	Community Group	Letter	May 12 2023	Blair Weston BVCC	Letter of concerns from the BVCC.	The BVCC stated general support for Project and acknowledgement of the need to increase the electrical capacity for the area. Concerns about the Project location are FBC out bid other buyers, agricultural land, trees, wildlife, there are other viable property options (property #8), transparency, consultation, collaboration. BVCC requested to discuss FBCs property search to date and see the show cost comparison for each property.
Kirby Epp	Previous Chair of OCP Committee	Letter	May 14 2023	Blair Weston Kirby Epp		Zoning

Beaver Valley Concerned Citizens (BVCC)	Community Group	Email	May 19 2023	Blair Weston BVCC	List of capacity questions from BVCC.	Capacity questions: -Provide a historic list of issues with the existing sub that would require it's replacement. -Provide existing transformer capacity and peak loads for the last 5 years. -Provide the current number of feeders. -Provide the cost estimate to rebuild/replace existing station. -Provide a list of normal winter/summer loads on each feeder as well as proposed emg. transfer to adjacent stations. -Provide existing conductor sizes. -Provide projected load growths for the next 10 years. -Show proposed 60 kV line relocations required. -Indicate the number of planned feeders and what their capacities are. -Show proposed new feeder routes (and future) necessary to get the power out and provide cost estimates. The feeder costs must be added to the overall cost of the station. -Show the comparison of the other 19 sites that have been evaluated, specifically the Z ranch which the community favors as a location. -Provie the overall cost of the project.
Trail Wildlife Association BVCC	Community Group	Letter	May 23 2023	Blair Weston BVCC on behalf of Trail Wildlife Association	Letter of concerns from the Trail Wildlife Association.	Concerns are wildlife, trees, other viable property options (property #8).
Grieve Rd Area Residents	Resident	Meeting	June 1 2023	Jennifer Datchkoff Blair Weston Lisa Ruchkall Neal Pobran Devin Krenz D'Arcy Caron Nicole Brown Area Residents	In person meeting to discuss the project need, land evaluation criteria, all 20 sites investigated and their evaluation, 2064 Grieve Rd as our preferred choice, FBC's response to EMF, wildlife impact, agricultural land impact, noise/lighting.	Concerns brought forward are substation noise and lighting, wildlife, trees, agricultural land, property values, electromagnetic field, siting of infrastructure, other viable property options.
ATCO Wood Products Ltd.	Business	Email	June 2 2023	Blair Weston Scott Weatherford	ATOC's perspective on the substation Project.	ATCO understands the infrastructure is aging and needs replacement, and understands the need for the project. ATCO recommends the site selection process consider all viable locations and be transparent, the community be consulted widely, transparently, and often during the planning process.
Grieve Rd Area Residents	Resident	Email	June 8 2023	Blair Weston Area Residents	Follow up to June 1 meeting.	FBC communicated a timeline and expectations for next steps.
Grieve Rd Area Residents	Resident	Email	June 30 2023	Blair Weston Area Residents	Follow up to June 8 email.	FBC communicated an update to timelines and next steps, confirmed the June 1 presentation slide deck will be included in the upcoming information package, and invited residents to request backyard site visits with FBC staff that would be planned for early Aug.
Grieve Rd Area Residents RDKB	Resident RDKB	Email Letter	July 13 2023	Blair Weston Area Residents Mark Andison Donna Dean	Information package following the June 1 meeting.	FBC's package included the June 1 presentation slide deck, drafts of 3 station location mock-ups, invitation to scheduled backyard site visits, notice FBC has been directed by the BCUC to file a CPC, notice Nupqu Development has been hires to conduct an Environmental Assessment, notice the archaeological study will not be completed until the infrastructure site within the property was chosen.
Grieve Rd Area Residents	Resident	Email	February 9 2024	Jennifer Datchkoff Area Residents	Notification from FBC.	FBC communicated that a Project update with site selection information would be sent in the coming weeks.

Grieve Rd Area Residents RDKB Mayor of Fruitvale Fruitvale CAO Atco Wood Products Ltd. MLA Katrine Conroy MLA Brittny Anderson MP Richard Canning	Resident Municipal Government RDKB Provincial Government Business	Email	February 23 2024	Blair Weston	Project update and site selection notification to stakeholders.	The Project update contained notification that FBC has selected a location for the station on 2064 Grieve Rd and a map of the site was provided. Information on how to participate in the Proceeding and FBC's intent to continue discussions around station aesthetics was also included.
Individuals						
Interested Party	**Stakeholder Type**	**Contact Type**	**Date**	**Who was involved**	**Purpose of Communication/Event**	**Community interest / Concern / Question / Comment**
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	The resident stated they were not very happy about the substation. Concerns are: visual impact, feels FBC is looking for the cheapest option.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	The resident stated they were open to hearing FBC perspective. They also said a petition had started because residents had not heard about the Project from FBC or the Village of Fruitvale to date.

[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, resident said they were not upset but also not excited about the Project.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Discussed the Project with the resident. They mentioned they were already planning to sell their home prior to hearing about the Project.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.

[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	No concerns.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.

[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2021	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2022	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered and interaction was friendly. No Project comments from resident.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	No concerns. The resident asked if we could take down some of their trees during the Project.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered and Project discussed with the resident.

[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered and interaction was friendly. No Project comments from resident.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Not home, left letter at door.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Concerns: EMF exposure for field users, specifically children.
[redacted]	Resident	In person	Nov 3 2023	Blair Weston Aimee Montpellier	Notification to residents of FBC intent to purchase land on Columbia Gardens Rd, adjacent to Mazzocchi Park, to build a substation including expectations around noise and disruption during construction as well as station aesthetics and fencing.	Letter delivered, no comments from resident.
[redacted]	Resident	Email	March 29 2022	Blair Weston Aimee Montpellier	Invitation to Design Workshop	Accepted invitation
[redacted]	Resident	Email	March 29 2022	Blair Weston Aimee Montpellier	Invitation to Design Workshop	Accepted invitation
[redacted]	Resident	Email	March 29 2022	Blair Weston Aimee Montpellier	Invitation to Design Workshop	Accepted invitation
[redacted]	Resident	Email	March 29 2022	Blair Weston Aimee Montpellier	Invitation to Design Workshop	Accepted invitation
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.

[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Concerns are: trees, substation in a residential area, visibility of infrastructure.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Concerns are: electromagnetic field, and proximity to infrastructure.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Concerns are: electromagnetic field, and proximity to infrastructure.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Concerns are: agricultural land, historical significance of property, property values, wildlife.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns. [redacted]
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.

[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Concerned about property values.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns. The resident asked about the opportunity to gain more land for their property.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Vacant property, no where to leave a letter.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Vacant property, no where to leave a letter.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	The resident was aware of the purchase. Concerns: does not want to see the infrastructure.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	The resident is familiar with this type of project and understands the need. Question: can access to the back of their property be built during construction?
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	The resident has a negative emotional response to the notification. They commented they would like if we could improved the internet service from Rogers.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Concerned about electromagnetic fields.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.

[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	The resident has a negative emotion response to the notification. Question: will the house be demolished? [redacted]
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	The resident was understanding of the development and appreciative of the notification. Questions are: will the home be demolished and can windows/wood and other items from the existing structures be salvaged for residents?
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns. Question: can trees on their land be removed during construction? Suggestion: a sheep mural for the station fence as an acknowledgment to the previous owner.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	No concerns.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.

[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	In person	May 4 2023	Blair Weston Jennifer Datchkoff	Notification to residents that FBC is purchasing 2064 Grieve Rd with the intent to build a substation and an invitation to participate in a meeting June 1 2023.	Not home, left letter at door.
[redacted]	Resident	Letter	May 9 2023	Blair Weston	Concerns and request from resident.	Concerns are: wildlife, trees, noise, agricultural land, other viable property options (property #8). They asked FBC to discuss our property search at the June 1 meeting.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Concerns are electromagnetic field, wildlife, agricultural land, visibility of infrastructure, proximity to infrastructure, historical significance of the property, noise, lighting.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	No concerns.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	No concerns.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	No concerns.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Concerns are electromagnetic field, wildlife, agricultural land, visibility of infrastructure, proximity to infrastructure.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.

[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	No concerns.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	No concerns.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Concerned about property values.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	May require a virtual option to attend the June 1st meeting.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Planning to attend June 1st meeting.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	No concerns.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Planning to attend June 1st meeting.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Planning to attend June 1st meeting.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	In person	May 15 2023	Jennifer Datchkoff Aimee Montpellier	Reminder of June 1st meeting and ways to attend.	Not home, left letter at door.
[redacted]	Resident	Email	May 15 2023	Blair Weston	Reminder of June 1st meeting and ways to attend.	Requested to attend the June 1 meeting virtually.

[redacted]	Resident	Email	May 16 2023	Blair Weston	Email of concerns from resident.	Concerns are property values, out bid other buyers, proximity to infrastructure, historical significance of property, wildlife, electromagnetic field, noise, visibility of infrastructure, agricultural land, other viable property options (property #8).
[redacted]	Resident	Email	May 17 2023	Blair Weston	Email of concerns and questions from resident.	Resident confirmed they will attend the meeting June 1st and they understand the Project need. Concerns are: visibility of infrastructure, wildlife, house removal, agricultural land, property values, other viable property options (property #8). At the June 1st meeting they would like to understand the cost of the substation, why buried lines are not part of our design, the cost of running the lines a little further.
[redacted]	Resident	Email	May 19 2023	Blair Weston	Virtual meeting request	Resident requested to attend June 1 meeting virtually.
[redacted]	Resident	Email	May 19 2023	Blair Weston	List of concerns and capacity questions from resident.	Concerns about zoning and the June 1st invitation going only to residents that neighbour the property. Capacity questions: -Provide a historic list of issues with the existing sub that would require it's replacement. -Provide existing transformer capacity and peak loads for the last 5 years. -Provide the current number of feeders. -Provide the cost estimate to rebuild/replace existing station. -Provide a list of normal winter/summer loads on each feeder as well as proposed emg. transfer to adjacent stations. -Provide existing conductor sizes. -Provide projected load growths for the next 10 years. -Show proposed 60 kV line relocations required. -Indicate the number of planned feeders and what their capacities are. -Show proposed new feeder routes (and future) necessary to get the power out and provide cost estimates. The feeder costs must be added to the overall cost of the station. -Show the comparison of the other 19 sites that have been evaluated, specifically Z Ranch (property #8) which the community favors as a location. -Provie the overall cost of the project.
[redacted]	Resident	Email	May 23 2023	Blair Weston	June 1st meeting request from resident.	Request to bring a technical support person, who understands the capacity questions previously sent, to June 1 meeting.
[redacted]	Resident	Email	May 25 2023	Blair Weston	Question from resident.	Has FBC finalized the purchase of 2064 Grieve Rd before Regional District of Kootenay Boundary approval?
[redacted]	Resident	Email	May 27 2023	Blair Weston	Question from resident.	What are FBCs plans for the remaining land?
[redacted]	Resident	Email	May 30 2023	Blair Weston	BCUC complaint	BCUC complained filed by a resident on May 30th that included all capacity questions previous logged and 18 additional questions to the BCUC.
[redacted]	Resident		May 31 2023	Blair Weston	Virtual meeting request from resident.	Resident requested to attend June 1 meeting virtually.
[redacted]	Resident	Letter	May 31 2023	Blair Weston	BCUC complaint	BCUC complaint filed by a resident on May 31st listing the following concerns: wildlife, agricultural land, proximity to infrastructure, historical significance of property, trees, property values, noise, lighting, other viable property options (property #8), out bid other buyers.

[redacted]	Resident	Email	June 2 2023	Blair Weston	Concerns, suggestion, and preferences from resident.	Concerns are privacy, and increased traffic. Suggestion to replant as many trees as possible to block infrastructure and support wildlife. [redacted]
[redacted]	Resident	Email	June 5 2023	Blair Weston	List of capacity questions from resident.	Capacity questions: -Provide a historic list of issues with the existing sub that would require it's replacement. -Provide existing transformer capacity and peak loads for the last 5 years. -Provide the current number of feeders. -Provide the cost estimate to rebuild/replace existing station. -Provide a list of normal winter/summer loads on each feeder as well as proposed emg. transfer to adjacent stations. -Provide existing conductor sizes. -Provide projected load growths for the next 10 years. -Show proposed 60 kV line relocations required. -Indicate the number of planned feeders and what their capacities are. -Show proposed new feeder routes (and future) necessary to get the power out and provide cost estimates. The feeder costs must be added to the overall cost of the station. -Provide overall cost estimate for the job. -Provide maintenance records for current equipment.
[redacted]	Resident	Email	June 7 2023	Blair Weston	List of project concerns and suggestions for the information package.	Suggestion to share a hard copy of the June 1 meeting presentation slide desk and scale mock-ups of the substation. Concerns are noise, dust, visibility of infrastructure.
[redacted]	Resident	Email	June 7 2023	Blair Weston	Suggestions from resident about use of remaining land and preferences.	Question from resident as to why non-neighbours allowed into the June 1 meeting. [redacted] Suggestions for use of remaining property are retention of farmland at bottom by donating it to a group/person, subdivide and sell but with restrictive covenant to keep the remaining property as one piece, use remaining land for walking park, dog park, parking for students/bus, or EV charge station.
[redacted]	Resident	Email	June 9 2023	Blair Weston	Project support and preferences from resident.	Resident supports for the overall Project, agrees FBC will be a quiet neighbour, prefers no subdivision development, and feels some tree removal could be beneficial. Suggestion to use remaining land for a park.

[redacted]	Resident	Email	June 19 2023	Blair Weston	Concerns, suggestions, preferences, and questions from resident.	Concern are noise, lighting, other viable property options (property #8). Preferences are to remove the house, to have input into the infrastructure location, and to be notified of any opportunity to purchase the remaining land. Suggestions are to hide/ bury lines, to zone the remaining land as a wildlife area or name after local family. Questions are how will the location be chosen, will the final decision making data be publicized, can the Environment and Archaeological reports be shared, has construction at 2064 Grieve Rd been approved by BCUC?
[redacted]	Resident	Email	June 19 2023	Blair Weston	Concerns, suggestions, preferences, and questions from resident.	Concern are zoning, noise, lighting, other viable property options (property #8). Preferences are to remove the house, to have input into the infrastructure location, and to be notified of any opportunity to purchase the remaining land. Suggestions are to hide/ bury lines, to zone the remaining land as a wildlife area or name after local family. Questions are how will the location be chosen, will the final decision making data be publicized, can the Environment and Archaeological reports be shared?
[redacted]	Resident	Email	June 21 2023	Blair Weston	Preference and suggestion from resident.	Preferences are backyard access, and removal of trees. Suggestion to have a drainage path included with construction.
[redacted]	Resident	Letter	June 23 2023	Blair Weston	Concerns, suggestion, and question from resident.	Resident understands the Project need. Concerns are wildlife, agricultural land, groundwater contamination, weed control chemicals, changes in surface water flow after construction, other viable property options (property #8). Suggests choosing the smallest footprint in the least impactful location. Question: will the Environmental report be shared?
[redacted]	Resident	Email	June 27 2023	Blair Weston	Request for information from resident.	The resident requests a summary of the June 1 presentation, the key reasons the other 19 sites were not selected, the key reasons why 2064 Grieve Rd is the preferred location, a copy of the PowerPoint presentation slide deck, the date they will receive a list of the studies planned and the name of who will be conducting those studies.
[redacted]	Resident	Email	July 14 2023	Blair Weston	Questions and information request from resident.	Questions are: is there large scale screening planned (bigger than low growth veg) to hide the infrastructure, and why FBC not shared its preferred location? Request for FBC's privacy office contact information.
[redacted]	Resident	Email	July 16 2023	Blair Weston	Request for site visit from resident.	Request to schedule a backyard sightlines meeting.
[redacted]	Resident	Email	July 23 2023	Blair Weston	Preference and suggestions from resident.	[redacted] Suggests moving the existing 60kv line to another path and upgrading the existing lines to tie into it.

[redacted]	Resident	Email	July 28 2023	Blair Weston	Request for site visit from resident.	Request for a backyard sightlines meeting.
[redacted]	Resident	Email	July 29 2023	Blair Weston	Request for site visit from resident.	Request for a backyard sightlines meeting.
[redacted]	Resident	Email	July 31 2023	Blair Weston	Request for site visit from resident.	Request for a backyard sightlines meeting. Also provided photos from the deck.
[redacted]	Resident	In person	August 3 2023	Blair Weston Jennifer Datchkoff	Site visit with resident.	Concerned about property values, and the need for the Project. Suggestions are: to disguise the infrastructure by constructing it inside a building, use the remaining land as a dog park. Preferences are: backyard access, keep as many trees as possible, removal of their large trees, [redacted]
[redacted]	Resident	In person	August 3 2023	Blair Weston Jennifer Datchkoff	Site visit with resident.	Concerns about dust from the transmission line access road, an increase in traffic if a public space is established on the remaining unused land, trees. Suggestions are: to plant new trees after construction, a restrictive covenant to keep the remaining land undeveloped or for a single dwelling only. Preferences are: hide the infrastructure with trees, [redacted].
[redacted]	Resident	Email	August 3 2023	Blair Weston	Questions from resident.	Electromagnetic field questions: -Is electric and magnetic field dependent on the mW used by the substation ie Would electric/magnetic field be greater operating at 35mW as compared to 7mW? What is the maximum electric field and magnetic field of the proposed substation at operating capacity? -Present load winter/summer categorized as residential, commercial, industrial. -Projected load growth winter/summer categorized as residential, commercial, industrial. -There is an EMF associated with a 63kV line. The magnetic field is relational to current flow. Is it correct that the greater the demand for electricity the greater the current flow and therefore the greater the magnetic field? -Is the EMF additive with the number of 63kV lines? would four 63vV lines produce twice the EMF as compared to two 63kV lines operating at maximum capacity? -Is the EMF affected by how close the proximity of the 63kV lines are to each other? -Will the two extra 63kV lines be put on the same pole, or on a heightened pole? -What is the EMF graph of the proposed four 63kV lines at full capacity? At normal capacity? I'm outside all the time in the area where the proposed lines are shown. -Is the EMF of the 63kV lines greater in proximity to the substation? How far do these high voltage towers have to be from property lines, from buildings, from people? Kelowna says 30 meters. -Having gone to Salmo to listen to the substation, which is loud and humming 24/7, what is the decibel level of the substation operating at

[redacted]	Resident	Email	August 5 2023	Blair Weston	Concerns from resident.	The resident supports increasing the electrical capacity for the area. Concerns are: historical significance of property, noise, lighting, electromagnetic field, proximity to infrastructure, property values, increased traffic, visibility of infrastructure, wildlife, groundwater, agricultural land, other viable property options (existing Hearns station).
[redacted]	Resident	In person	August 8 2023	Blair Weston Jennifer Datchkoff	Site visit with resident.	Preferences are: [redacted], to be notified if the land is subdivided, to bury/hide lines, [redacted] to be notified when FBC files its application.
[redacted]	Resident	Email	August 8 2023	Blair Weston	Suggestion from resident.	Bury the overhead lines to reduce the number of tree removed.
[redacted]	Resident	In person	August 16 2023	Blair Weston Jennifer Datchkoff	Site visit with resident.	Preferences are: [redacted] power lines through the middle of the property keeping a tree buffer on each side. Concerns about property values.
[redacted]	Resident	Email	August 23 2023	Blair Weston	Concerns from resident.	The resident is unsatisfied with FBC directed them to the World Heath Organization and Health Canada in response to the previous questions received about electromagnetic fields. Question: what is the maximum electric field and magnetic field (EMF)of the proposed Fortis substation at operating capacity?
[redacted]	Resident	Email	September 11 2023	Blair Weston Jennifer Datchkoff	Request for updates from resident.	The resident asked if any new information had been released over the last two months. FBC reply referenced the information package sent July 13th and the offer to schedule a site visit to view backyard sightlines.
[redacted]	Resident	Email	September 11 2023	Blair Weston	Request for information from resident.	Resident asked for information on the A.S. Mawdsley Project.
[redacted]	Resident	Email	September 28 2023	Jennifer Datchkoff	Request for site visit from resident.	Request for a backyard sightlines meeting.
[redacted]	Resident	Email	October 12 2023	Blair Weston	Inquiry from resident.	A resident inquired about parking a trailer in one of the outbuildings.
[redacted]	Resident	Email	October 23 2023	Blair Weston	Request for information from resident.	Resident asked for the status of environmental reports and site location.
[redacted]	Resident	Email	November 9 2023	Jennifer Datchkoff	Request for site visit from FBC.	FBC contacted the resident asking to schedule a site visit.
[redacted]	Resident	Email	November 9 2023	Jennifer Datchkoff	Request for site visit from FBC.	FBC contacted the resident asking to schedule a site visit.
[redacted]	Resident	Email	November 14 2023	Jennifer Datchkoff	Request for site visit from FBC.	FBC contacted the resident asking to schedule a site visit.
[redacted]	Resident	In person	November 16 2023	Blair Weston Jennifer Datchkoff	Site visit with resident.	The resident supports the Project. Preferences are: backyard access, removal of trees on their property, [redacted]
[redacted]	Resident	In person	November 16 2023	Blair Weston Jennifer Datchkoff	Site visit with resident.	The resident is in support of the Project. Preferences are: removal of a tree on their property, fence replacement, [redacted]
[redacted]	Resident	In person	November 16 2023	Blair Weston Jennifer Datchkoff	Concerns from resident.	Concerns are: visibility of infrastructure, proximity to infrastructure, access roads. Preference: [redacted]

[redacted]	Resident	Email	November 20 2023	Blair Weston	Preferences and questions from resident.	Preferences are: [redacted] electromagnetic field proximity limits as per an independent website, recovery of costs by selling the remaining land and house. Questions: can FBC provide copies of the cost analysis, and what are the liability implications of a shared access road?
[redacted]	Resident	Email	November 23 2023	Blair Weston	Inquiry from resident.	Inquiring if Blair is still the contact person for the Project.
[redacted]	Resident	Email	December 7 2023	Blair Weston	Request for updates from resident.	A resident asked for updates on site selection, environmental reports, and estimated CPCN filing date.
[redacted]	Resident	Email	December 13 2023	Blair Weston	Request for information from resident.	Resident requested addresses to existing substations in the area.
[redacted]	Resident	Email	December 17 2023	Blair Weston	Capacity questions from resident.	The resident resent a list of capacity questions FBC answered in May 2023. FBC responded with the answers previously provided.
[redacted]	Resident	Email	January 5 2024	Blair Weston	Questions from resident.	1. How many months and at what expense to Fortis was the First Nations consultation for the Beaver Creek Park substation? 2. Has there been any consultation with First Nations regarding the Lively property (2064 Grieve Rd)? 3. If there has yet been no consultation as per question 2, when does Fortis expect to consult with First Nations and how long the process could reasonably take? Another interest to residents is the underground water flow which feeds into and out of the year round pond that is located near the middle of the property. 1. Has an environmental assessment been done on the property to determine depth, flow rate (especially during spring runoff) and its underground route through the property? 2. Has an environmental assessment of the property been done? If so, what is the scope of this assessment and is this assessment available to the public?
[redacted]	Resident	Email	January 5 2024	Blair Weston	Inquiry from resident.	Resident requested a copy of the substation presentation.
[redacted]	Resident	Email	January 8 2024	Blair Weston	Inquiry from resident.	Resident requested information on the size of the A.S. Mawdsley Project substation.
[redacted]	Resident	Email	January 8 2024	Blair Weston	Inquiry from resident.	Resident asked about the companies preforming environmental work after receiving the Lot Habitat Assessment report.
[redacted]	Resident	Email	January 9 2024	Blair Weston	Inquiry from resident.	Resident asked about additional environmental work after receiving the Lot Habitat Assessment report.

[redacted]	Resident	Email	January 10 2024	Blair Weston	Inquiry from resident.	The resident sent excerpts from the Fisheries Act and Water Sustainability Act followed by these questions: 1. What is the size/area that will be cleared for constructing the substation? 2. What steps will be taken to ensure debris from the construction site will not impact Beaver Creek? 3. What is the size/area of the substation? 4. What herbicides and pesticides will be used and how often? 5. How is Fortis BC going to ensure that debris from soil below and around the substation will not seep into the surface and how will Fortis BC ensure the runoff will not pollute the ecosystems and Beaver Creek? How often and where will soil samples be taken and analyzed for contaminants on the substation property and by whom? Preferably this will be done by an accredited laboratory at different times of the year. 6. How often and what tests will be undertaken to analyze the water quality of Beaver Creek and by whom? Preferably this will be done by an accredited laboratory at different times of the year. 7. What will the cumulative affect of herbicides and pesticides have on the water quality of Beaver Creek? 8. As per the federal Fisheries Act, has FortisBC received authorization from the Minister of Fisheries and Oceans Canada to construct the substation; if yes please provide a copy of the written correspondence. 9. As per the BC Water Sustainability Act, what authorization and from whom has FortisBC received that will allow FortisBC to introduce debris into Beaver Creek? If authorization has been received, please provide a copy of the correspondence.
[redacted]	Resident	Email	January 28 2024	Jennifer Datchkoff	Notification of the Project and the CPCN requirement.	
[redacted]	Resident	Phone	February 1 2024	Jennifer Datchkoff	Project information inquiry from resident.	The resident is aware of the Project and does not have any concerns. Preference: backyard access. The 3 substation mock-ups were sent via email and a site visit was arranged.
[redacted]	Resident	Email	February 2 2024	Blair Weston	Inquiry from resident.	Resident requested information about the status of the recommended work suggested in the Habitat Assessment Workplan.
[redacted]	Resident	In person	February 6 2024	Jennifer Datchkoff	Site Visit with resident.	The resident is in support of the Project. Preferences are: backyard access, [redacted]
[redacted]	Resident	Email	February 5 2024	Jennifer Datchkoff	Inquiry from resident.	The resident requested an update on the Project and site selection.
[redacted]	Resident	Email	February 6 2024	Jennifer Datchkoff	Inquiry from resident.	The resident asked if FBC was continuing with the Project at the Grieve location and if the property was available to be purchased from FBC.
[redacted]	Resident	Email	February 12 2024	Jennifer Datchkoff	Inquiry from resident.	The resident asked for FBCs application filing date, how to file concerns, and the filing notification process.
[redacted]	Resident	Email	February 15 2024	Jennifer Datchkoff	Inquiry from resident.	The resident requested information about the voltage of the transmission lines and EMF.
[redacted]	Resident	Email	February 16 2024	Jennifer Datchkoff	Inquiry from resident.	The resident asked if FBC had information about changes in property values as a result of the Project.
[redacted]	Resident	Email	February 20 2024	Blair Weston	Inquiry from resident.	The resident requested information about FBC's herbicide use.
[redacted]	Resident	In person	February 22 2024	Blair Weston Jennifer Datchkoff	Notification of site selection.	

[redacted]	Resident	In person	February 22 2024	Blair Weston Jennifer Datchkoff	Notification of site selection.	
[redacted]	Resident	In person	February 22 2024	Blair Weston Jennifer Datchkoff	Notification of site selection.	
[redacted]	Resident	In person	February 22 2024	Blair Weston Jennifer Datchkoff	Notification of site selection.	

Appendix F-2
MAP OF ALL PROPERTIES

FILED CONFIDENTIALLY

Appendix F-3
PROJECT NOTIFICATION LETTERS

Blair Weston
Community and Indigenous
Relations Manager
FortisBC

FortisBC Inc.
5643 Taghum Frontage Road,
Taghum BC, V0G 6Y2
250-231-0176
blair.weston@fortisbc.com
www.fortisbc.com

November 3rd, 2021

We are planning work in your neighborhood

FortisBC is in the planning stages of constructing a new substation in order to meet the growing needs of our customers. The new substation will replace the Fruitvale substation that is reaching end of life and no longer sufficient to meet the growing electricity needs of the community.

What does this mean for you?

We have identified the vacant lot on Columbia Ave between Mazzocchi Park and Walnut Ave as a potential spot and have been working with the landowners to purchase the lots.

During the planning process, FortisBC has recognized there may be some concerns around the project.

- Project construction will involve preparing the site, constructing a concrete pad, installing equipment within the site, constructing power lines to and from the stations and completing the site landscaping and fencing.

- We anticipate very few disruptions to the community while construction is underway. The majority of the work will take place inside the substation. There may be an increase in traffic and some noise during construction, and some trenching outside of the fenced area.
- An 8-10 feet high concrete fence will be installed around the substation as well as sound walls around the transformers to aid in redirecting the sound away from the residential area.

Construction is scheduled to begin in 2024 and the substation will be up and running in 2025.

If you have any questions regarding this project, please contact me directly at 1.250.231.0176.

Sincerely,

Blair Weston
Community and Indigenous relations manager

Appendix F-4

FBC DESIGN CHARRETTE INVITATION, MARCH 29, 2022

From:	Montpellier, Aimee
Cc:	Weston, Blair
Subject:	FortisBC design charrette invitation
Date:	Tuesday, March 29, 2022 8:35:00 AM
Attachments:	image001.png

Good morning,

FortisBC will be a hosting a design Charrette on Wednesday April 6th at 5:00-7:30 pm at the Fruitvale hall. This meeting is designed to be a smaller intensive meeting involving selected stakeholders. Dinner will be provided.

The purpose of the charrette is to further discuss questions and concerns that have come forward regarding the FortisBC substation upgrade. We will review areas of possible substation locations in and around Fruitvale that FortisBC has reviewed, and also solicit ideas for any other locations. We will have FortisBC maps and software to review any property brought up during the meeting in detail.

During the charrette we will clarify our goals for the project, solicit your ideas and develop an actionable plan.

Some topics that will be discussed;

- Aesthetics of the substation
- Distribution and transmission upgrades needed by location
- Property characteristics needed for siting
- Safety

We look forward to furthering the discussion with selected stakeholders regarding the FortisBC proposed substation upgrade. If you have any groups or individuals that you think should be invited please contact us to discuss. We have invited mayor and council, the groups that have contacted us about the current proposal and a few others.

If you have any questions about the meeting please feel free to contact Aimee Montpellier at aimee.monpellier@fortisbc.com or (250)-231-5602.

Please RSVP to Aimee Montpellier.

Thank you,

Aimee Montpellier
Community and Indigenous Relations Intern
Kootenay Region
Cell: (250)-231-5602
Aimee.montpellier@fortisbc.com

Appendix F-5

CUSTOMER LETTER- NOTIFICATION OF PROJECT
MAY 4, 2023

Blair Weston
Community and Indigenous
Relations Manager
FortisBC

FortisBC Inc.
5643 Taghum Frontage Road,
Taghum BC, V0G 6Y2
250-231-0176
blair.weston@fortisbc.com
www.fortisbc.com

May 4, 2023

Dear Neighbors,

In 2021 FortisBC began looking to acquire land for a substation to serve the Village of Fruitvale and surrounding area. The current substation in Fruitvale is at its end of life, and the location is not suitable for a new substation. After a long search FortisBC is in the process of purchasing the property at 2026 Grieve Rd and plans to build a substation and associated transmission and distribution lines somewhere on the property. Construction is scheduled to start in spring 2024.

The property is quite large for our needs, and we have different suitable locations and several screening and vegetation options to minimize the visual impacts. We would like to work directly with the neighboring residents to minimize our infrastructure impacts to the community.

To help us make the decisions on where to locate the infrastructure on the property we would like to invite the neighborhood residents that are directly impacted to join us on Thursday June 1st from 5:30 to 7:30 PM at the Beaver Valley Curling Club, 125 Pine Ave in Fruitvale. Food and beverages will be provided.

Kindly RSVP to the meeting with your name and address to blair.weston@fortisbc.com for us to determine how many people are going to come. This is an invite only event as we want to hear directly from the landowners surrounding the property. No final decisions will be made at this meeting so if you cannot make it to this meeting, there will be other opportunities for input.

We understand there will be many questions and as we are just completing the purchase of the land, we would ask that you hold your questions until the June 1st meeting. If you have any questions about the meeting, please feel free to contact Blair Weston at 250.231.0176.

We look forward to furthering the discussion regarding the location of the infrastructure and screening opportunities.

Sincerely,

Blair Weston
Community and Indigenous Relations Manager

Appendix F-6

BVCC EXISTING INFRASTRUCTURE QUESTIONS AND RESPONSE

Existing Infrastructure Questions from BVCC

Question	FBC Response
Provide a historic list of issues with the existing sub that would require it's replacement.	The switchgear in the Fruitvale substation needs to be replaced as it is 56 years old and in poor condition. When the switchgear was assessed in 2017 by Metsco, it had a health index of 31.25% considered poor, an actual age of 50, and effective age of 95 years. The useful remaining life based on effective age was -45 years. As such, it was identified by Metsco as the highest priority to be replaced of the stations assessed at that time. The Hearnes transformer (HER T1) is 73 years old and the Fruitvale transformer (FRU T1) is 37 years old. Given the age and condition of these units, each has been recommended to be replaced within 2-3 years.
Provide existing transformer capacity and peak loads for the last 5 years.	The existing FRU T1 has a nameplate rating of 8 MVA, and the HER T1 transformer has a nameplate rating of 1.875 MVA. As part of this project, the HER T1 transformer will be decommissioned with load transferred to the new Fruitvale substation. The historical loading for FRU T1 is available on the BCUC website in response to an ICG IR1 23.2 from the recent FBC 2023 Annual Review. Historical load data for the Hearns substation is not available. https://docs.bcuc.com/Documents/Proceedings/2022/DOC_68211_B-8-FBC-Resp-ICG-IR1.pdf
Provide the current number of feeders.	Fruitvale substation has two feeders, Fruitvale Feeder 1 (FRU1) and Fruitvale Feeder 2 (FRU2). Hearns substation has one feeder, Hearns Feeder 1 (HER1).
Provide the cost estimate to rebuild/replace existing station.	The recent FBC 2023 Annual Review includes an AACE Class 5 level estimate of $12.5 million for the Fruitvale Station Upgrade project, which includes the decommissioning of Hearns substation. Now that the location has been selected, the estimating process will continue to refine the estimate to an AACE Class 3 level and is therefore subject to change. FBC 2023 Annual Review link: https://docs.bcuc.com/Documents/Proceedings/2022/DOC_67371_B-2-FBC-2023-AnnualReview-Application.pdf
Provide a list of normal winter/summer loads on each feeder as well as proposed emg. transfer to adjacent stations.	The historical loading for Fruitvale Feeder 1 (FRU1) and Fruitvale Feeder 2 (FRU2) over the past 5 years is provided in Table 1 below. Hearn substation does not have metering, as such historical loading has not been provided for Hearns Feeder 1 (HER1). If the existing Fruitvale substation was out of service, some Fruitvale load could be offloaded to the Beaver Park substation but not all. A mobile transformer would be required to supply the remaining Fruitvale load that could not be transferred.

Provide existing conductor sizes.	The conductor and cable sizes on FRU1, FRU2, and HER1 varies. The cable sizes include #2 Cu, #1 Al, #1, Cu, and 350 Al. The overhead conductors sizes include 477 ACSR, 266 ACSR, 2/0 ACSR, #2 Al, 90 kcmil Cu, and #8 Cu.
Provide projected load growths for the next 10 years.	As described in the recent FBC 2023 Annual Review this project is driven by equipment condition issues and aging infrastructure at the Fruitvale and Hearns substations. This project is not driven by load growth.
Show proposed 60 kV line relocations required.	The 63kV transmission line routing will be determined once the site of the substation is selected within the parcel. FBC plans to work closely with the nearby property owners to accommodate their ideas and suggestions to determine a suitable location for the substation within the parcel.
Indicate the number of planned feeders and what their capacities are.	The new Fruitvale substation will be built with three feeders, with the ability to install a fourth feeder in the future when the need materializes. The Hearns substation will be decommissioned, and the load will be transferred to the new Fruitvale substation. The capacity of each feeder will be refined within the Class 3 level estimating process.
Show proposed new feeder routes (and future) necessary to get the power out and provide cost estimates. The feeder costs must be added to the overall cost of the station.	The new feeders will be primarily reconfigured from the existing FRU1, FRU2, and HER1 feeders. The feeders will be routed underground from the substation. Upgrades to the existing feeders will include reconductoring, the installation of a three-phase voltage regulator, and the installation of lines switches. High level costs related to the distribution upgrades were considered in the $12.5 million Class 5 level estimate in the FBC 2023 Annual Review. With a location now selected, these costs will be refined as part of the AACE Class 3 level estimate.
Show the comparison of the other 19 sites that have been evaluated, specifically the Z ranch which the community favors as a location.	A comparison of the other 19 locations will be provided at the June 1 community engagement meeting.
Provie the overall cost of the project.	Please refer to response to Question 1D for the total project costs which consider station, transmission, and distribution related costs.

Response to Resident regarding Beaver Park Substation

Question	**FBC Response**
Beaver Crk serves montrose, Beaver Falls and Some of Fvale and always will? What is the further point from that substn to the furthest point of that service area?	Beaver Park substation currently supplies Montrose, Beaver Falls, Waneta Junction, Columbia Gardens, and a portion of Fruitvale. As the Beaver Park substation was recently upgraded, it will continue to supply a similar service area for the foreseeable future. Given the current system configuration, the furthest three-phase customer supplied by the Beaver Park substation is a single customer approximately 10 km away, and the furthest single-phase customer supplied by the Beaver Park substation is a single customer approximately 12 km away.

Appendix F-7

CONFIRMATION OF JUNE 1 MEETING NOTIFICATIONS
MAY 15, 2023

Blair Weston
Community and Indigenous
Relations Manager
FortisBC

FortisBC Inc.
5643 Taghum Frontage Road,
Taghum BC, V0G 6Y2
250-231-0176
blair.weston@fortisbc.com
www.fortisbc.com

May 15, 2023

Dear Neighbours,

We appreciate the feedback received after meeting many of you over the last couple of weeks. Thank you for expressing your ideas and we look forward to continued collaboration with the landowners adjacent to the property purchased by FortisBC at 2026 Grieve Rd.

The project is needed in order to continue to deliver safe and reliable electricity for our customers in and around Fruitvale. FortisBC's existing substation in Fruitvale is nearing its end of life and the property is too small to build the size of substation that we need.

As mentioned during our conversations and in our previous letter, we would like to invite the neighborhood residents that are directly impacted to join us on Thursday, June 1st, from 5:30 to 7:30 PM at the Beaver Valley Curling Club 125 Pine Ave in Fruitvale. Food and beverages will be provided. A virtual option will be available for any invitees that cannot attend in person, please email me and we will send you the link.

At this point FortisBC has not begun any planning for the specific location of the infrastructure on the property. FortisBC's first step will be with you, the neighbours, to get your feedback. The property is larger than the expected footprint of the substation, and we hope to focus the majority of the meeting on hearing your suggestions as to where it should be situated. We would like to discuss property sight lines and we will have a variety of maps, digitally and on paper, to mark up.

Members of our engineering, environmental, and project management team will be on hand to answer questions about the project.

Kindly RSVP to the meeting with your name and address to blair.weston@fortisbc.com for us to determine how many people are going to come. This is an invite only event as we want to hear directly from the landowners surrounding the property. There will be many other opportunities for input on the infrastructure and the remainder of the property. During this meeting we will work on setting the time for the next meeting.

We understand there will be many questions and as we are just completing the purchase of the land, we would ask that you hold your questions until the June 1st meeting. If you have any questions about the meeting, please feel free to contact Blair Weston at 250.231.0176 or by the email.

Sincerely,

Blair Weston
Community and Indigenous Relations Manager

Appendix F-8
PRESENTATION - FRUITVALE
JUNE 1, 2023

Topics to Cover Tonight

- Welcome, introductions, safety moment
- History of the project
  - Why the substation is needed
  - Land evaluation criteria matrix
  - Summary of locations reviewed
  - Our preferred option 2064 Grieve Rd
- Discussion: substation placement at 2064 Grieve Rd.
  - FBCs approach to environmental concerns
  - Understanding electromagnetic fields (EMF)
  - Noise and lighting concerns
  - FBCs approach to land use
- Next steps

Fruitvale Substation Upgrade Project

FortisBC External Communications

May 2023

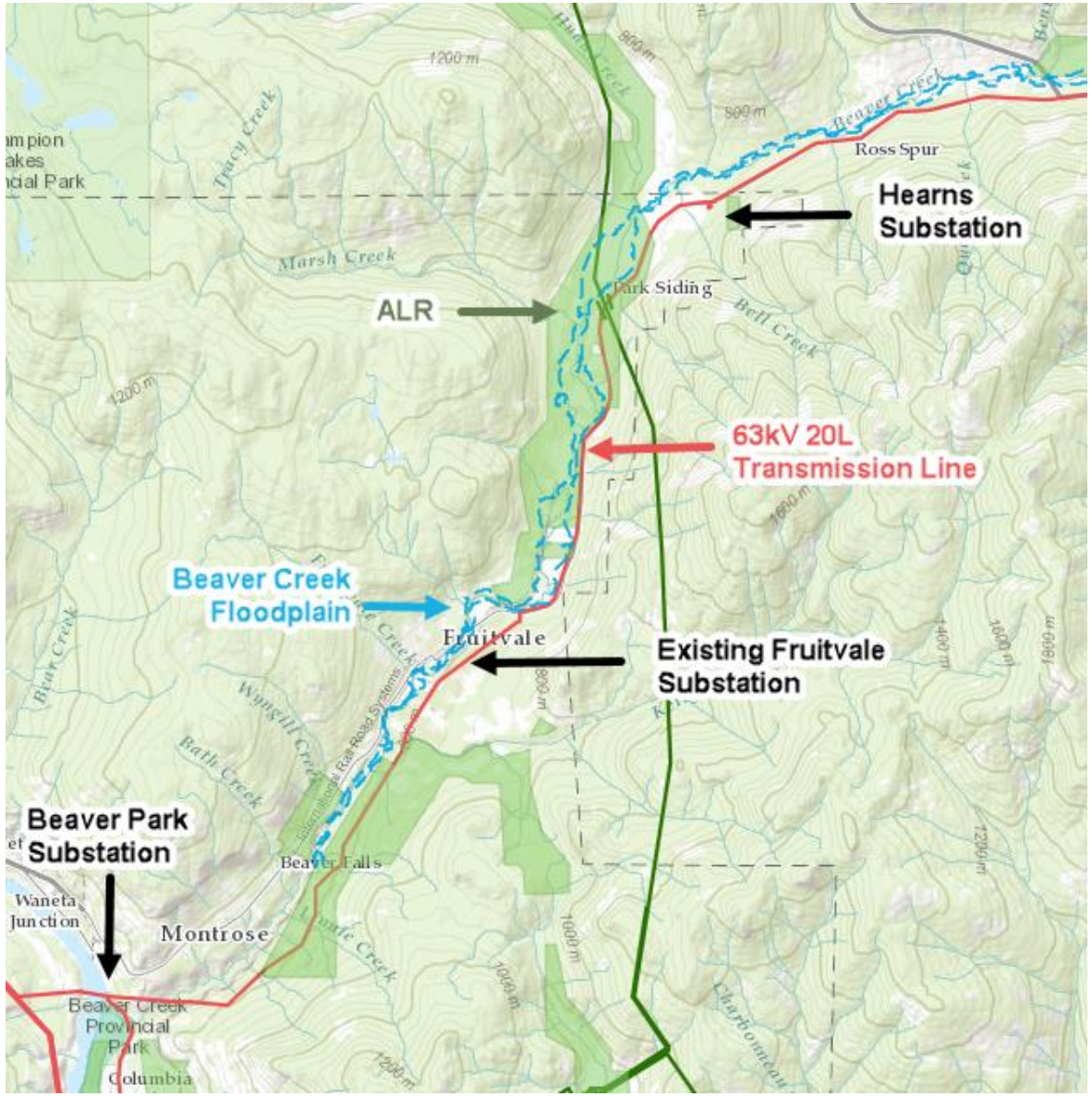
Topics to Cover Tonight

- Why the substation is needed
- Land evaluation criteria
- Review of properties
- 2064 Grieve Rd evaluation
- Discussion: substation placement at 2064 Grieve Rd
- Next steps

Fruitvale Substation

- Existing substation consists of
  - Single 8 MVA transformer
  - Two (2) distribution lines
- Aging infrastructure and equipment condition issues at existing substation
- Project is necessary to continue providing safe and reliable power to the Fruitvale area
- BCUC reviewed and agreed this project was necessary.
- Fruitvale substation planned for rebuild in 2024/25:
  - Relocate FRU substation due to small size of existing parcel
  - Decommission Hearns substation (transfer load to Fruitvale)
  - Install two new 20 MVA transformers
  - Station can accommodate up to four (4) distribution lines

Beaver Valley Area Overview



Proprietary and Confidential 5

Land Evaluation Criteria

Landownership & Use

- Landowner Receptive to Sell
- Land Vacant
- Property Rezoning
- Indigenous Reserve Lands
- Agricultural land Reserve

Community & Stakeholder Relations

- Visual & Noise Impact
- Community Land Use Impact
- Indigenous Consultation Requirements
- Customer Reliability Impact

Environmental, Archeological, and Hazards

- Floodplain
- Critical Habit for Species at Risk
- Archeological Site within 250m
- EMF Impact

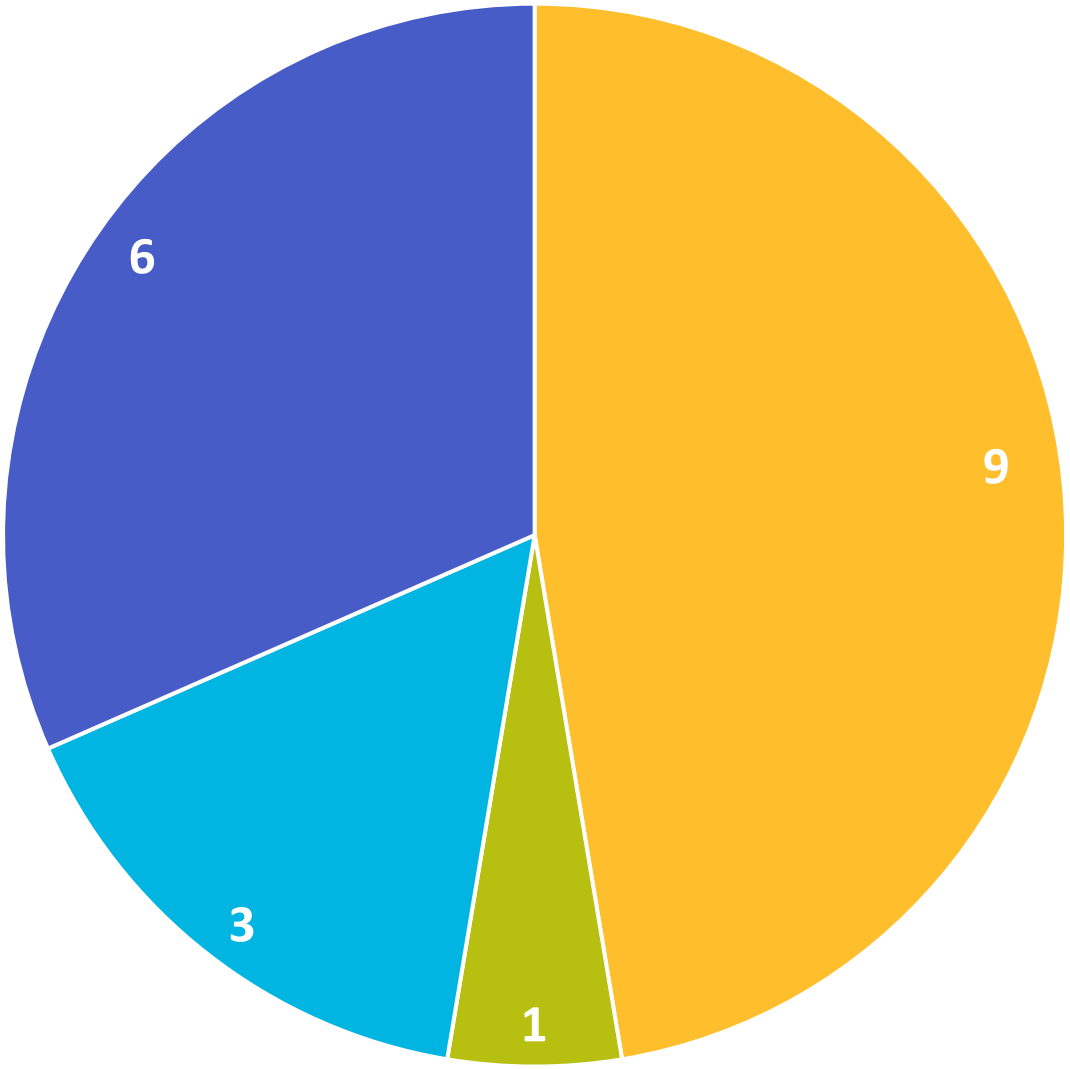
Financial

- Relative Capital Cost

Technical

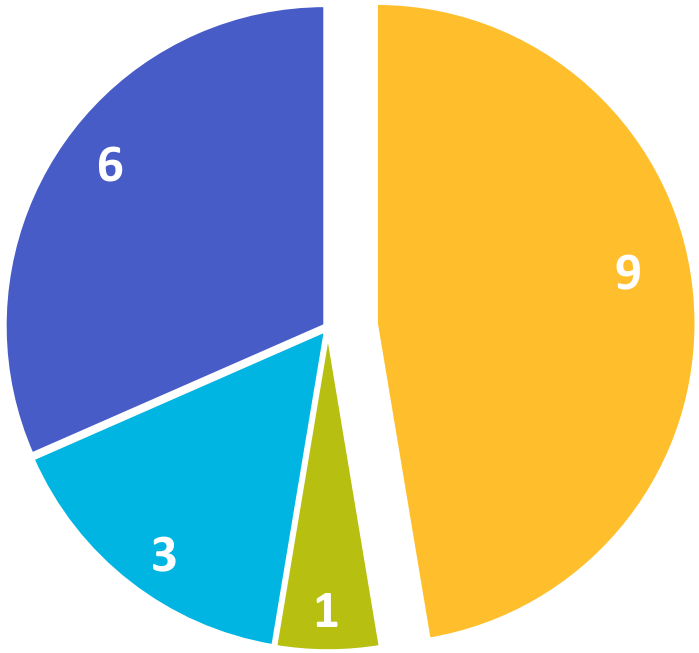
- Parcel Size
- Transmission Extension Complexity
- Distribution Reconfiguration Complexity
- Constructability Complexity
- Operations Accessibility

Property Evaluation – Summary

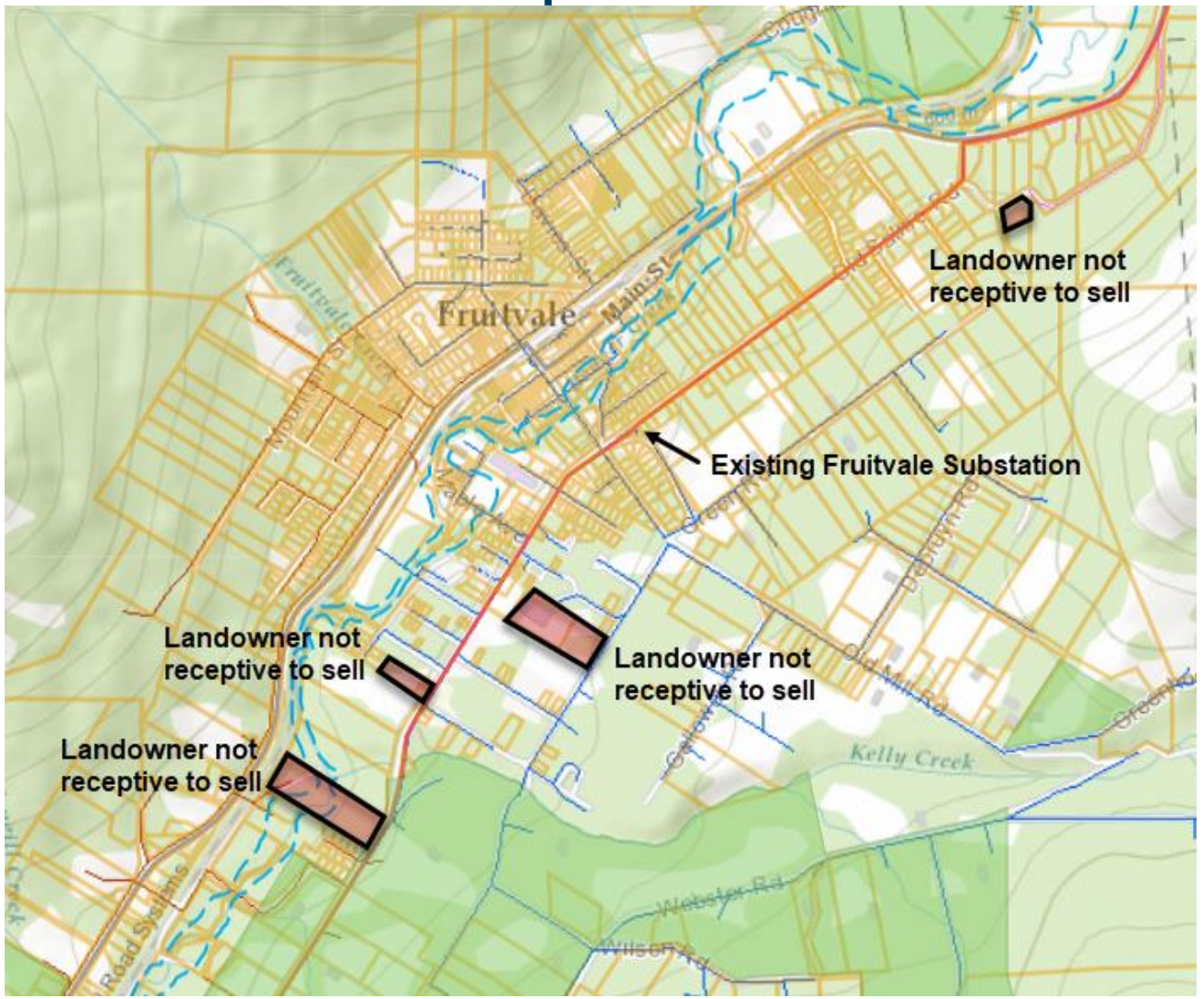


- Landowner not respective to sell property or provide ROW
- Lot too small
- Distance from town unacceptable
- Environmental, terrain, and/or infrastructure challenges

Property Evaluation – Landowner not receptive to sell

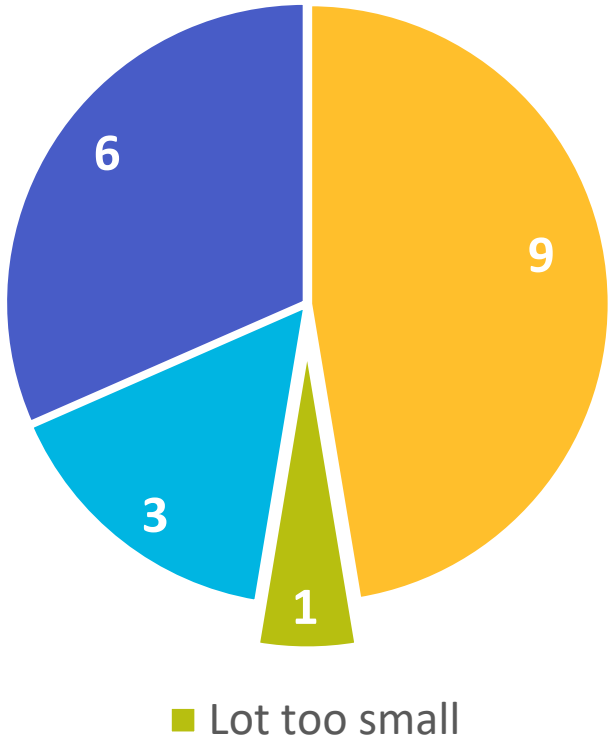


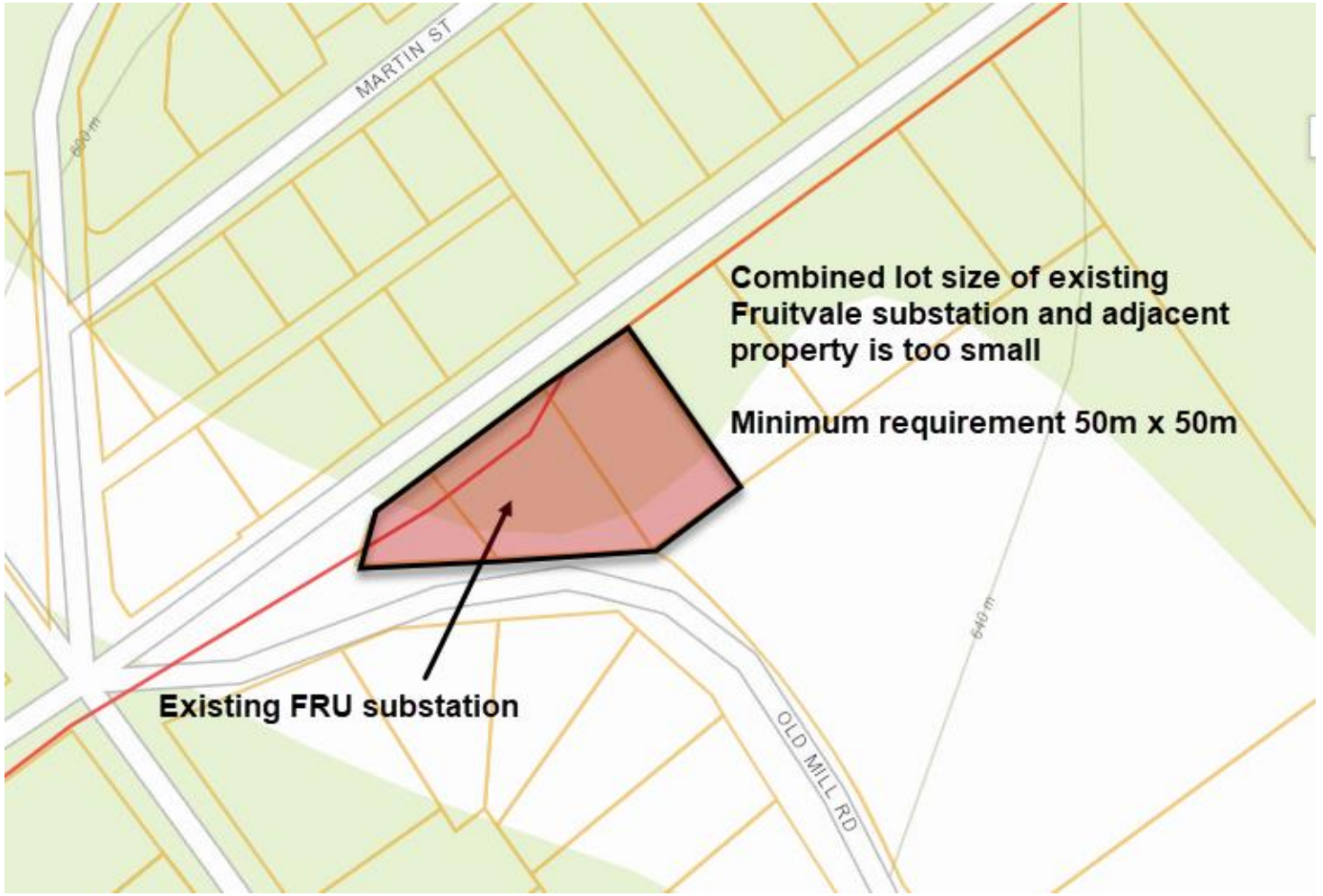
- Landowner not recepective to sell property or provide ROW



Energy at work FORTIS BC™

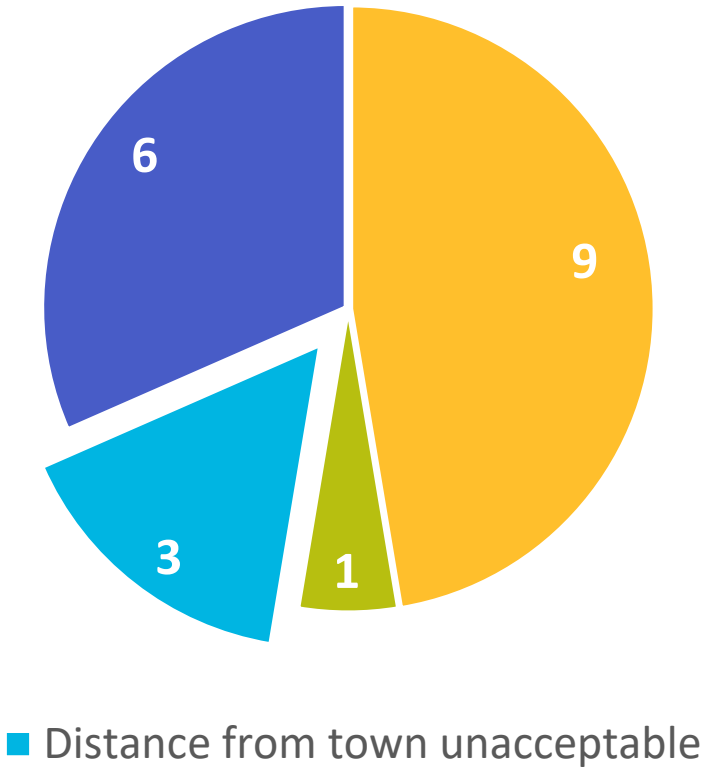
Property Evaluation - Lot size too small

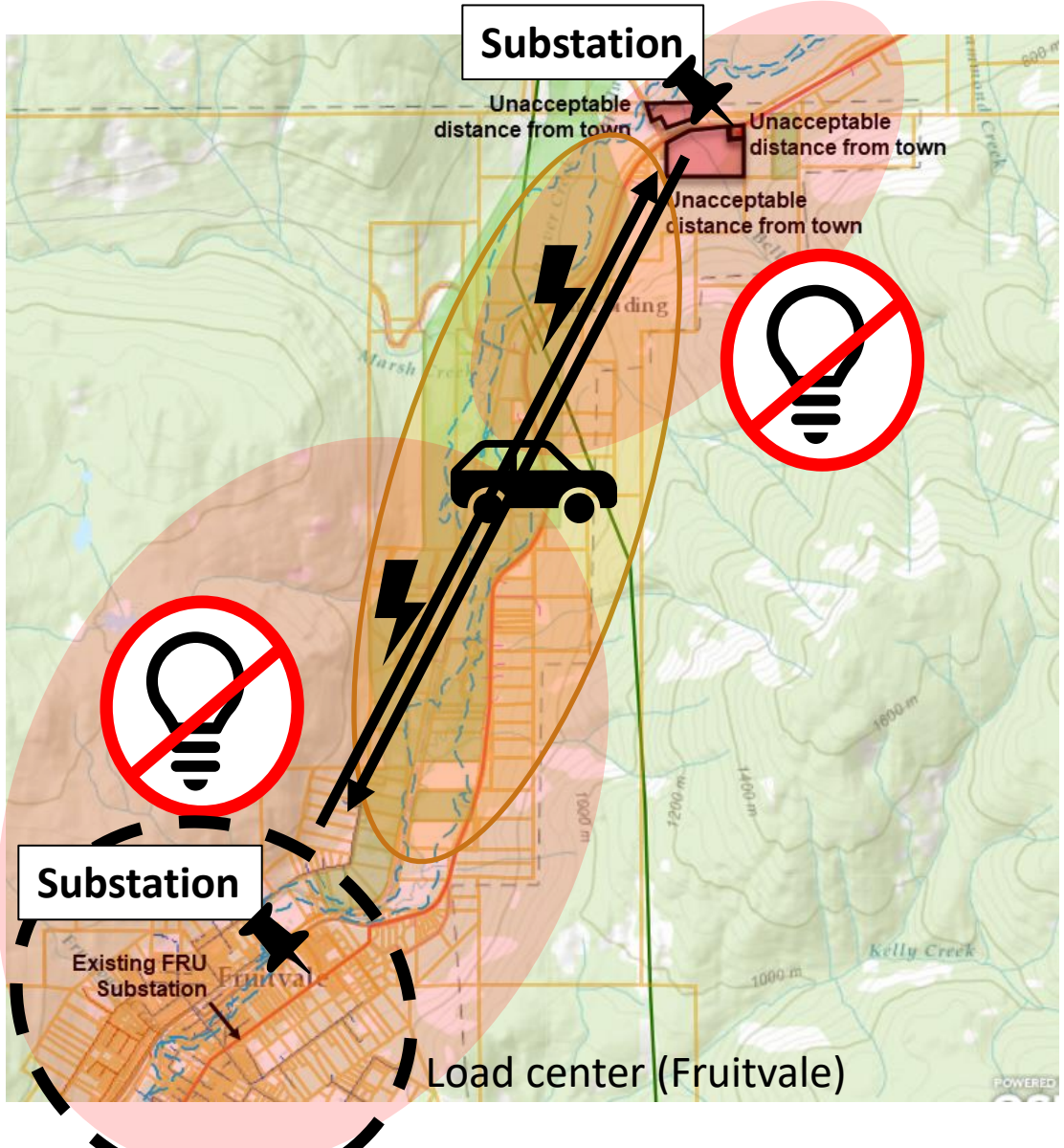




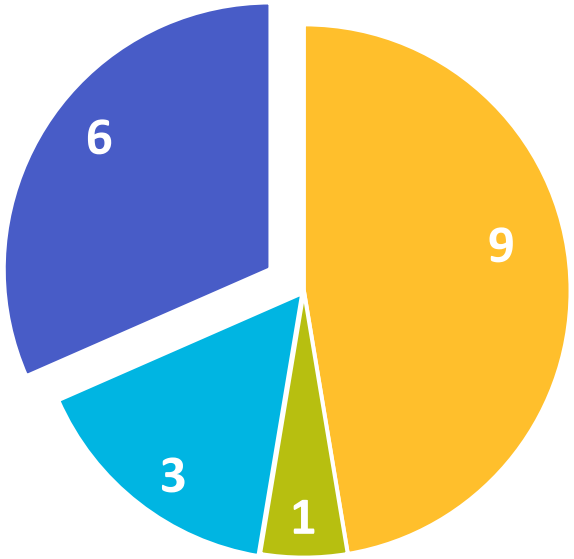
Energy at work FORTIS BC™

Property Evaluation – Unacceptable distance from town

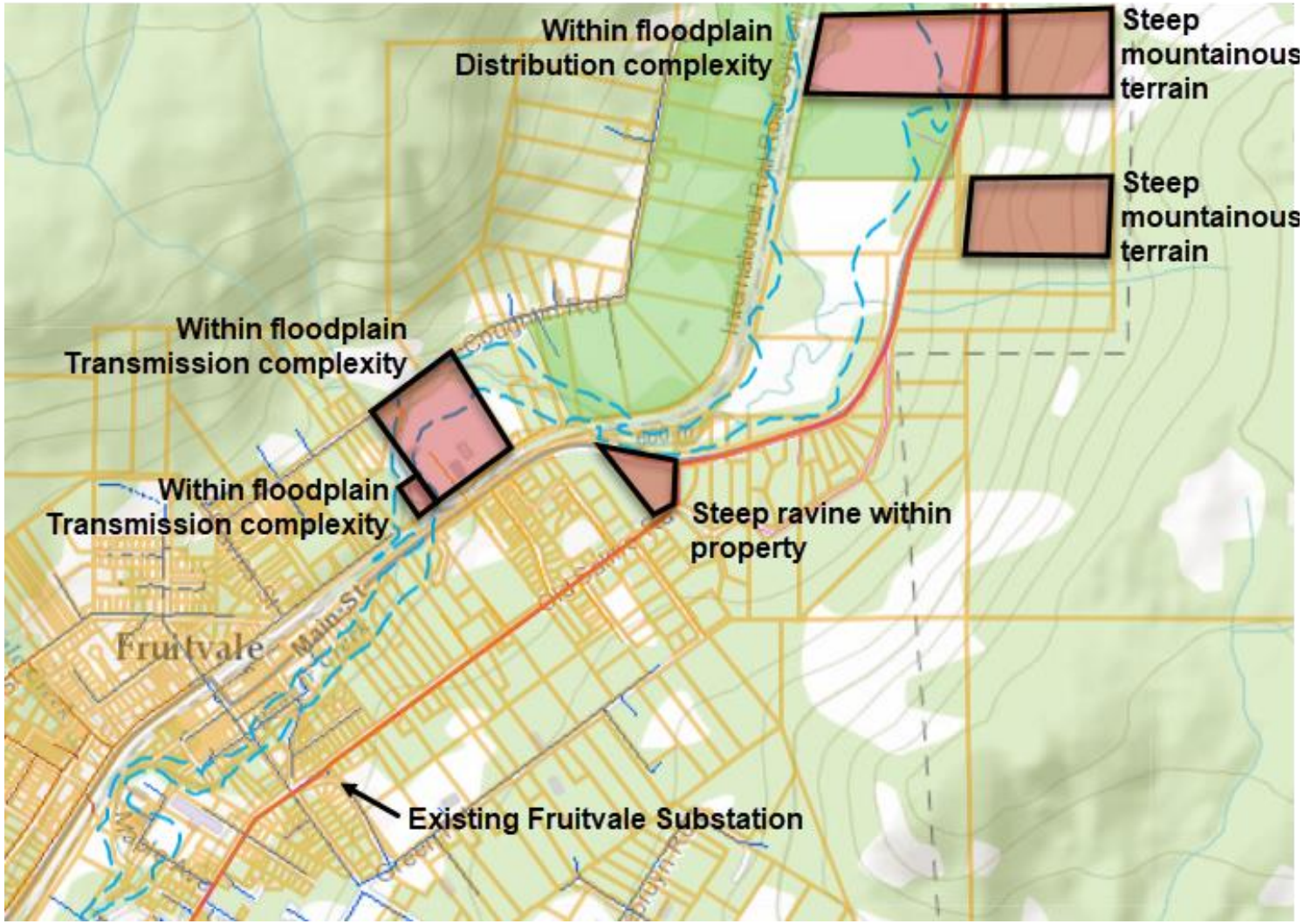




Property Evaluation – Environmental, terrain and/or infrastructure challenges



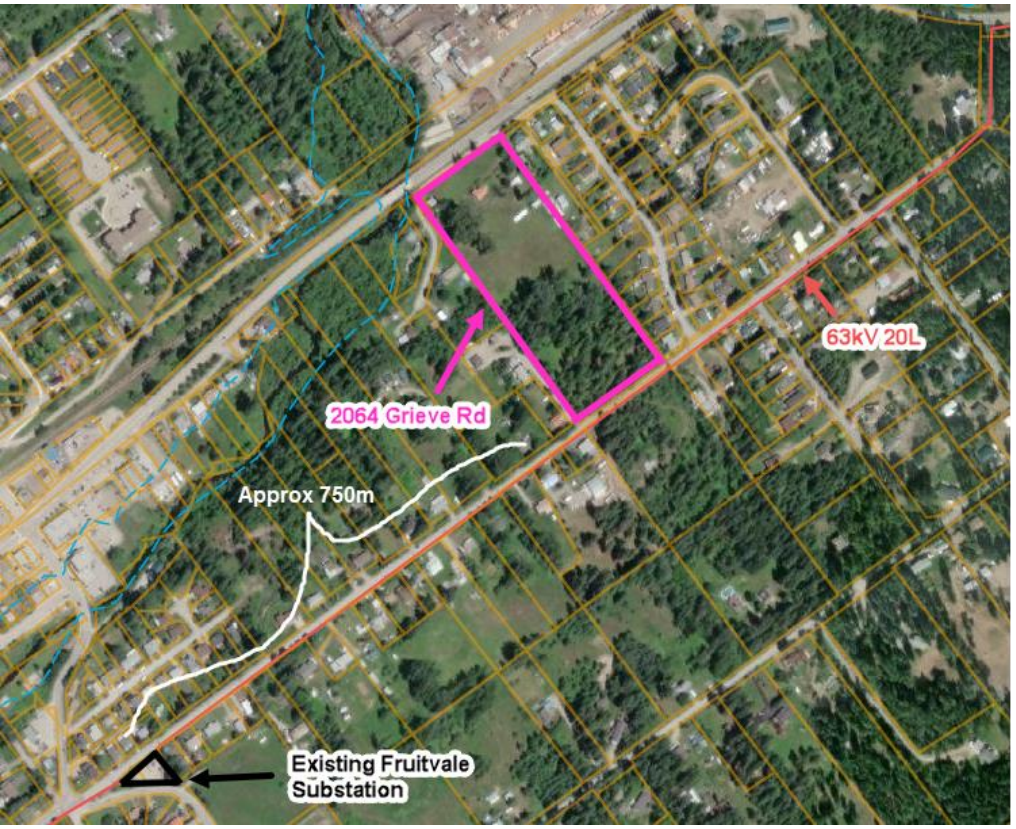
- Environmental, terrain, and/or infrastructure challenges



Energy at work FORTIS BC™

Break and a Stretch

2064 Grieve Rd – Selected Property



Landownership & Use

Environmental, Archeological, and Hazards

Technical

Community & Stakeholder Relations

Financial

Energy at work FORTIS BC™

FBC's Approach to Environmental Concerns

How FBC approaches infrastructure development is different than a typical landowner

- Environmental Management Plan (EMP)
  - Reviews and studies of the site. Pre and post development
- Archaeological assessment
- Geotechnical assessment
- FBC wants to develop a small portion of the property

Understanding Electromagnetic Fields (EMF)

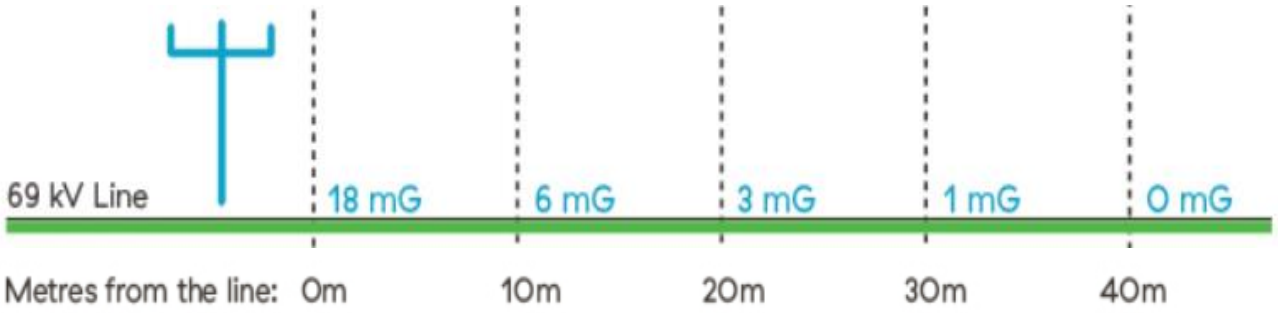
Electric and magnetic fields (EMF) are present everywhere that electricity flows.

WHO: despite extensive research, there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health.

Voluntary ICNIRP residential magnetic field exposure limit of 2,000 milligauss (mG)

Health Canada: EMF levels decrease rapidly the further you are from the source.

Typical magnetic field levels near power lines



Common household appliance EMF

Toaster	2 - 6 mG
Clothes dryer	1 – 24 mG
Electric blanket	3 – 50 mG
Hair dryer	1 -75 mG
Microwave oven	3 – 50 mG

Noise and Lighting

- Minimal noise due to transformer designed to a low decibel rating

- Substation lighting is designed only to be on during an emergency.

- A convenience light will be mounted on the control building for entry purposes.

Use of Land

Next Steps

Next meeting date?
Sightlines?

Thank you

For further information, please contact:
Blair.weston@fortisbc.com

Find FortisBC at:
fortisbc.com

Follow us @**fortisbc**

2064 Grieve Rd – Substation Location Mockup 1

2064 Grieve Rd – Substation Location Mockup 2

Energy at work FORTIS BC™

Appendix F-9
FORTISBC LETTER FROM ATCO
JUNE 1, 2023

ATCO
WOOD PRODUCTS

Fortis BC Inc.
Attn: Blair Weston, Community & Indigenous Relations Manager
Blair.Weston@fortisbc.com

June 2, 2023

Dear Blair,

We understand Fortis continues to be in the planning process for a new substation in the Beaver Valley, and I wanted to share ATCO Wood Products Ltd.'s (AWP) perspectives with you on the proposed substation:

The Beaver Valley needs expanded electrical capacity. The federal and provincial government policies and legislation that are decarbonizing Canada's energy systems will result in a significant increase in demand for electricity in the near future. The CleanBC RoadMap to 2030, the dramatically increasing carbon taxes in BC, and the federal government's ban of fossil fuel car sales in 12 years, are examples of policies that will dramatically increase our society's, and the Beaver Valley's, demand for electricity. An expanded electrical distribution system needs to be in place soon to satisfy the coming increase for electricity demand. At AWP, rising carbon taxes will compel us in future years to shift to electrical systems (from natural gas) for process heating needs, replace our mobile equipment fleet with electric powered options that will need significant charging capacity, and install car charging stations for company and employee vehicles. We believe that the age and limited capacity of the current substation cannot support the Beaver Valley's future electricity demand, including AWP's, and thus expanded electrical capacity in the Beaver Valley is critical to the future health of the Community and the future viability of AWP.

The new substation needs to be in the right location. There are numerous considerations that need to be accounted for when selecting the site for a new substation. While current electrical infrastructure is important to dovetail with, the final location needs to account for future electricity demand, property availability, and land use requirements as outlined in Zoning and OCP bylaws. Equally important considerations for site selection include aesthetics of the substation, impact to neighbors, environmental values, and community health and safety. The site selection process should consider a wide variety of possible locations, and be guided by a thorough and objective analysis of how each site's characteristics fit with each site consideration. The site selection process should be transparent to all Community members.

The Beaver Valley Community needs to be consulted widely, transparently, and often during the planning process for the new substation. This is a major project for the Beaver Valley, and will be an important part of ensuring our community has the energy necessary to thrive for many decades to come. The Beaver Valley's engaged and invested community members need to have the

P.O. Box 460 Fruitvale, BC V0G 1L0
Main Office: P 250 / 367.9441 F 250/367.6210
Forestry Office: P 250 / 367.7771 F 250/367.7746

opportunity to share their perspectives and insights on the project. They should have the opportunity to provide their comments on the location, design, and efforts to ensure this project dovetails well with all of the Beaver Valley's values, needs, and future vision.

We would appreciate any opportunity to engage with Fortis on the new Beaver Valley substation project at any time.

Thank you,

Scott Weatherford
Chief Executive Officer
ATCO Wood Products Ltd.
scottw@atcowood.com

Appendix F-10
NOTIFICATION LETTER
JUNE 8, 2023

From: Weston, Blair <Blair.Weston@fortisbc.com>
Sent: Thursday, June 8, 2023 9:01 AM
Subject: Fruitvale Substation

Hello Neighbours,

Thank you for coming out to our information meeting last Thursday. We know any change is hard and I would like to thank everyone for being respectful. If you were not there at the end of the night we were asked some timelines.

FortisBC has just taken possession of the property and we will begin to determine what studies need to be done. The week of June 19th FBC will send around via email a list of studies planned as well as a request to meet you on your properties as we may wish to take some photos to help determine some sightlines. We will also attach a summary of the presentation we delivered last week.

We have begun to receive some feedback on our project and you can email me anytime if you have any suggestions. I am off for the rest of the week with Grad duties but I will respond to your emails next week.

Regards

Blair Weston

FortisBC

Appendix F-11
NOTIFICATION LETTER
JUNE 30, 2023

From: Weston, Blair <Blair.Weston@fortisbc.com>
Sent: Friday, June 30, 2023 11:26 AM
Subject: FortisBC substation project

Hi all,

Apologies as I promised an information package to you this week but it looks like it will be next week. The engineering team was out on site and are able to provide some more comprehensive details on potential station and transmission line locations but they have not finished their mock ups yet, I feel it is better to email this as a package then trickle it out. On the positive side next week as requested we will also include the presentation from the June 1st meeting, and more information on the studies we are doing and when.

We have been receiving a few emails and calls from residents around the property. Please keep sending us your thoughts and ideas so this information can be shared with our engineering team. We will be scheduling some site/home visits for the first few weeks of August. I will send a separate email to schedule that. If you will be away those weeks please reach out and we can work to schedule an alternate date.

Thank you for your patience.

Blair Weston

Appendix F-12
INFORMATION PACKAGE LETTER AND SITE MOCK-UPS

July 13, 2023

Hello again,

Since we last met, FortisBC has been recently directed by the BC Utilities Commission (BCUC) to file a Certificate of Public Convenience and Necessity (CPCN) for our Fruitvale substation project. This means FortisBC will need the approval of the BCUC before we start construction. FortisBC will be submitting an application naming 2064 Grieve Road as our preferred location. The application will not include a specific location of the substation on the property, since we want to continue our conversations, with you the neighbours, about sightlines, station placement, greening, and screening options.

This also means that FortisBC will be sharing our rationale for choosing the Grieve Road property and our discussions with the community. We will be aggregating these discussions into themes meaning individuals will not be identified. Please continue to share feedback directly with Jennifer and I and we will ensure your comments on the Grieve Road property will be captured and passed onto the BCUC.

More about the BCUC process can be found at www.bcuc.com.

We were asked to share the June presentation and more site details at our last meeting. Included in this envelope you will find the June 1st presentation and 3 mockups of potential substation locations on the property. These mockups are drafts, and subject to change, but are still realistic in size showing potential placement of the substation, lines and roads. Tree buffer zones have also been approximated but are subject to change once detailed design begins. We would appreciate your comments both on the locations of the station but also the locations of the roads and lines.

We will be available August 11th, 12th, and 13th between noon to 7 pm for one-on-one meetings with you either at your house or on the property. If you could please get back to Jennifer or me with the date and time you would like to schedule your meeting that would be appreciated. If those times do not work, please contact us or give us your feedback either by email or phone call.

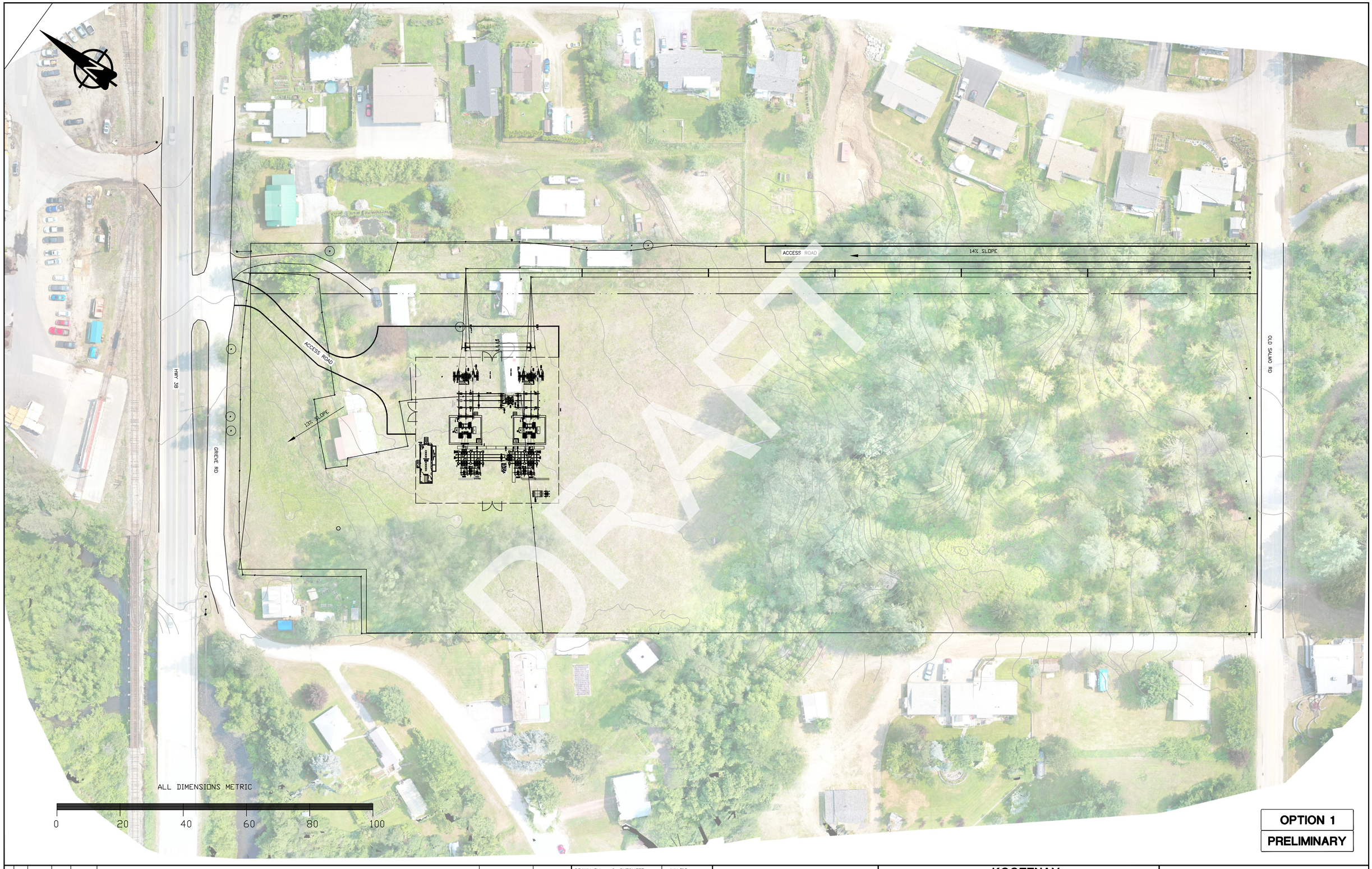
FortisBC has hired Nupqu Development to do an environmental assessment of the property. If you want to find out more about them, please visit Nupqu.com.

Considering the size of the property, FBC has decided not to do the archeological study until a site has been chosen; therefore, the specific substation location on the property may be ruled out if the study finds archeological risks/significance.

We will continue to work with you as we file our CPCN and also site the station on the property. Jennifer and I look forward to meeting you again in person in August.

Regards,

Blair Weston
Community and Indigenous Relations Manager
FortisBC



OPTION 1

PRELIMINARY

REVISIONS							
R6P0	JUN/23	CRS	JM	PRELIMINARY – SUBSTATION UPGRADE	M. KOOZNETSOFF	JUN/23
5	AUG/07	SL		AS BUILT – REISSUED		AUG/07
REV	DATE	BY	CHECKED	DESCRIPTION	REVISION APPROVAL	DATE

DRAWN BY: C. SUTCLIFFE	JUN/23
DESIGNED BY: C. SUTCLIFFE	JUN/23
CHECKED BY: J. MCINTOSH	JUN/23

APPROVALS

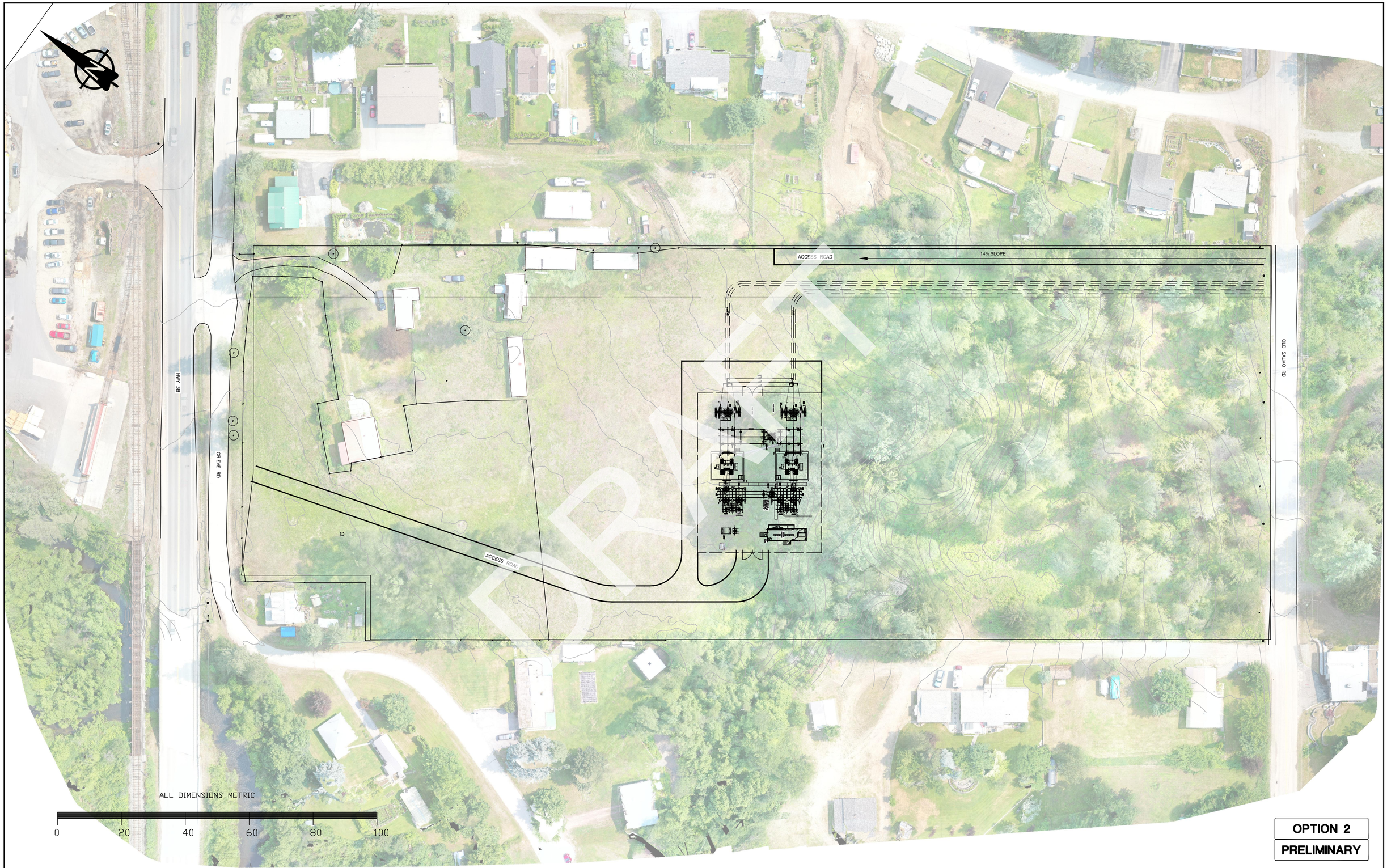
ELECTRICAL	CIVIL	MANAGEMENT

FORTIS BC

DIVISION	KOOTENAY
DEPARTMENT	TRANSMISSION-DISTRIBUTION
LOCATION	FRUITVALE SUBSTATION
TITLE	SITE PLAN

SCALE: NONE SCALE FACTOR: 500

DRAWING NUMBER	REVISION
3-205-0002	R6P0



REVISIONS							
REV	DATE	BY	CHECKED	DESCRIPTION	REVISION APPROVAL	DATE
R6P0	JUN/23	CRS	JM	PRELIMINARY – SUBSTATION UPGRADE	M. KOOZNETSOFF	JUN/23
5	AUG/07	SL		AS BUILT – REISSUED		AUG/07

DRAWN BY: C. SUTCLIFFE	JUN/23	
DESIGNED BY: C. SUTCLIFFE	JUN/23	
CHECKED BY: J. MCINTOSH	JUN/23	
APPROVALS		
ELECTRICAL	CIVIL	MANAGEMENT

FORTIS BC

DIVISION	KOOTENAY
DEPARTMENT	TRANSMISSION-DISTRIBUTION
LOCATION	FRUITVALE SUBSTATION
TITLE	SITE PLAN

SCALE: NONE SCALE FACTOR: 500

DRAWING NUMBER	REVISION
3-205-0002	R6P0

OPTION 3

PRELIMINARY

REV	DATE	BY	CHECKED	DESCRIPTION	REVISION APPROVAL	DATE
R6P0	JUN/23	CRS	JM	PRELIMINARY – SUBSTATION UPGRADE	M. KOOZNETSOFF	JUN/23
5	AUG/07	SL		AS BUILT – REISSUED		AUG/07

DRAWN BY:	C. SUTCLIFFE	JUN/23
DESIGNED BY:	C. SUTCLIFFE	JUN/23
CHECKED BY:	J. MCINTOSH	JUN/23

APPROVALS		
ELECTRICAL	CIVIL	MANAGEMENT

FORTIS BC

DIVISION	KOOTENAY
DEPARTMENT	TRANSMISSION-DISTRIBUTION
LOCATION	FRUITVALE SUBSTATION
TITLE	SITE PLAN

SCALE: NONE SCALE FACTOR: 500

DRAWING NUMBER	REVISION
3-205-0002	R6P0

Appendix G
INDIGENOUS CONSULTATION AND ENGAGEMENT

Appendix G-1
INDIGENOUS ENGAGEMENT LOG

PRE-ENGAGEMENT RECORD

Project Name: Fruitvale Substation Project

ACTIVITY DESCRIPTION: FortisBC is in the planning stages of filing a Certificate of Public Convenience and Necessity (CPCN) with the British Columbia Utilities Commission (BCUC). This project will replace aging infrastructure and equipment near end-of-life to improve FortisBC's system reliability.

FortisBC will submit an application in early 2024. If approved construction is expected to begin in 2024, with the new transformers anticipated to be in service by 2026. FBC is committed to ongoing engagement throughout the duration of the project.

PROPONENT NAME: FortisBC Energy Inc.	**APPLICATION TYPE: Certificate of Public Convenience and Necessity**			
Date	**First Nation**	**Activity**	**First Nations Interests (e.g. values, concerns, objections, etc.)**	**Interests or concerns addressed/resolved (Y/N).**
September 5, 2023	Ktunaxa Nation Council	Uploaded project notification letter and kmz. to Ktunaxa Connect portal.		
September 5, 2023	Colville Confederated Tribes	Emailed project notification letter and kmz. to Shelly Boyd.		
September 5, 2023	Okanagan Nation Alliance	Emailed project notification letter and kmz. to onareception@syilx.org.		
September 5, 2023	Osoyoos Indian Band	Emailed project notification letter and kmz. to referrals@oib.ca.		
September 5, 2023	Adams Lake Indian Band	Uploaded project notification letter and kmz. to Nations Connect portal.		
September 5, 2023	Lower Similkameen Indian Band	Uploaded project notification letter and kmz. to Nations Connect portal.		
September 5, 2023	Okanagan Indian Band	Uploaded project notification letter and kmz. to Nations Connect portal.	Deferred to OIB and LSIB but would still like to receive updates on the project.	Yes
September 5, 2023	Penticton Indian Band	Uploaded project notification letter and kmz. to Nations Connect portal.	Deferring to OIB.	Yes
September 5, 2023	Shuswap Band	Uploaded project notification letter and kmz. to Nations Connect portal.		
September 5, 2023	Splatsin	Uploaded project notification letter and kmz. to Nations Connect portal.		
September 5, 2023	Upper Nicola Indian Band	Uploaded project notification letter and kmz. to Nations Connect portal.		
January 12, 2024	Ktunaxa Nation Council	Habitat Assessment workplan uploaded to Ktunaxa Connect portal.		
January 12, 2024	Colville Confederated Tribes	Habitat Assessment workplan emailed to James Baxter.		
January 12, 2024	Okanagan Nation Alliance	Habitat Assessment workplan emailed to onareception@syilx.org.		
January 12, 2024	Osoyoos Indian Band	Habitat Assessment workplan emailed to referrals@oib.ca.		
January 12, 2024	Adams Lake Indian Band	Habitat Assessment workplan uploaded to Nations Connect portal.		
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January 12, 2024	Okanagan Indian Band	Habitat Assessment workplan uploaded to Nations Connect portal.		
January 12, 2024	Penticton Indian Band	Habitat Assessment workplan uploaded to Nations Connect portal.		
January 12, 2024	Shuswap Band	Habitat Assessment workplan uploaded to Nations Connect portal.		
January 12, 2024	Splatsin	Habitat Assessment workplan uploaded to Nations Connect portal.		
January 12, 2024	Upper Nicola Indian Band	Habitat Assessment workplan uploaded to Nations Connect portal.		
January 16, 2024	Colville Confederated Tribes	Emailed project notification letter and kmz. to James Baxter.		
January 17, 2024	Colville Confederated Tribes	Email and phone conversation with Herb Alex.	Request for Sinixt participation during the archeological work.	Yes
January 17, 2024	Colville Confederated Tribes	Email from James Baxter.	James confirmed reading the Project information and Habitat Assessment report and asked about the ability to participate in the environmental work going forward.	Yes

Appendix G-2
FBC STATEMENT OF INDIGENOUS PRINCIPLES

Statement of Indigenous Principles

FortisBC is committed to building effective Indigenous relationships and to ensuring we have the structure, resources and skills necessary to maintain these relationships.

To meet this commitment, the actions of the company and its employees will be guided by the following principles:

- FortisBC companies acknowledge, respect and understand that Indigenous Peoples have unique histories, cultures, protocols, values, beliefs and governments.
- FortisBC supports fair and equal access to employment and business opportunities within FortisBC companies for Indigenous Peoples.
- FortisBC will develop fair, accessible employment practices and plans that ensure Indigenous Peoples are considered fairly for employment opportunities within FortisBC.
- FortisBC will strive to attract Indigenous employees, consultants and contractors and business partnerships.
- FortisBC is committed to dialogue through clear and open communication with Indigenous communities on an ongoing and timely basis for the mutual interest and benefit of both parties.
- FortisBC encourages awareness and understanding of Indigenous issues within its work force, industry and communities where it operates.
- To achieve better understanding and appreciation of Indigenous culture, values and beliefs, FortisBC is committed to educating its employees regarding Indigenous issues, interests and goals.
- FortisBC will ensure that when interacting with Indigenous Peoples, its employees, consultants and contractors demonstrate respect, and understanding of Indigenous Peoples' culture, values and beliefs.
- To give effect to these principles, each of FortisBC's business units will develop, in dialogue with Indigenous communities, plans specific to their circumstances.

Appendix G-3
INDIGENOUS CONSULTATION SOE REPORT

SOE Report

Report Name: Fruitvale Substation 2064 Grieve Rd
Report Date: Tue Sep 05 10:24:39 PDT 2023
Shape Name: unnamed
Linear Width: 5.0
Adjacency Buffer: 5.0

Contacts for First Nation Consultation Areas contact information for the area that was queried is displayed below. Note that a single First Nation consultation area may have multiple contacts. As a result it is possible for a contact to show up in the list more than once.

Conflicting Features:

Contact Name	Upper Nicola Band
Contact Title	Chief and Council
Contact Organization	Upper Nicola Band (UNB)
Contact Address	P.O. Box 3700
Contact City	MERRITT
Contact Province	BC
Contact Postal Code	V1K 1B8
Contact Phone	2503503342
Contact Fax	2503503311
Contact Email	https://nationsconnect.ca/
Public Contact Comment	

Contact Name	Okanagan Nation Alliance
Contact Title	Tribal Council
Contact Organization	Okanagan Nation Alliance (ONA)
Contact Address	#101, 3535 Old Okanagan Hwy
Contact City	Westbank
Contact Province	BC
Contact Postal Code	V4T 3L7
Contact Phone	2507070095
Contact Fax	2507070166
Contact Email	referrals@syilx.org
Public Contact Comment	

Contact Name	Lower Similkameen Indian Band
Contact Title	Chief and Council
Contact Organization	Lower Similkameen Indian Band
Contact Address	1420 Hwy 3
Contact City	Cawston
Contact Province	BC
Contact Postal Code	V0X 1C3
Contact Phone	2504995528
Contact Fax	2504995538
Contact Email	jkterbasket@lsib.net
Public Contact Comment	

Contact Name	Penticton Indian Band
Contact Title	Referrals Coordinator
Contact Organization	Penticton Indian Band
Contact Address	RR 2 Site 80 Comp 19

Contact City	Penticton
Contact Province	BC
Contact Postal Code	V2A 6J7
Contact Phone	2504930048
Contact Fax	2504932882
Contact Email	https://nationsconnect.ca/
Public Contact Comment	address referrals to https://nationsconnect.ca/

Contact Name	Osoyoos Indian Band
Contact Title	OIB Referrals
Contact Organization	Osoyoos Indian Band
Contact Address	1155 Sen Pok Chin Blvd
Contact City	Oliver
Contact Province	BC
Contact Postal Code	V0H 1T8
Contact Phone	2504983444
Contact Fax	2504986577
Contact Email	aanderson@oib.ca
Public Contact Comment	

Contact Name	x
Contact Title	x
Contact Organization	x
Contact Address	x
Contact City	x
Contact Province	x
Contact Postal Code	V0G 2J0
Contact Phone	
Contact Fax	
Contact Email	test
Public Contact Comment	

Contact Name	Okanagan Indian Band
Contact Title	Chief and Council
Contact Organization	Okanagan Indian Band
Contact Address	12420 Westside Road
Contact City	Vernon
Contact Province	BC
Contact Postal Code	V1H 2A4
Contact Phone	2505424328
Contact Fax	2505424990
Contact Email	https://nationsconnect.ca
Public Contact Comment	

Contact Name	Shuswap Band
Contact Title	Referrals
Contact Organization	Shuswap Band
Contact Address	RR#2 3A - 492 Arrow Rd
Contact City	Invermere
Contact Province	BC
Contact Postal Code	V0A 1K2
Contact Phone	
Contact Fax	
Contact Email	https://nationsconnect.ca
Public Contact Comment	

Contact Name	Ktunaxa Nation Council
Contact Title	Ktunaxa Nation Lands & Resources
Contact Organization	Ktunaxa Nation Council
Contact Address	7468 Mission Rd
Contact City	Cranbrook
Contact Province	BC
Contact Postal Code	V1C 7E5
Contact Phone	2504892464
Contact Fax	2504895760
Contact Email	referrals@ktunaxa.org
Public Contact Comment	Contact information for Ktunaxa Nation Council at the main office in Cranbrook, BC. The office is located at 220 Cranbrook Street North (2nd Street North).

Layers Queried Successfully:

Contacts for First Nation Consultation Areas contact information for the area that was queried is displayed below. Note that a single First Nation consultation area may have multiple contacts. As a result it is possible for a contact to show up in the list more than once.

Disclaimer:

The Contacts for First Nation Consultation Areas Public Map Service Report provides preliminary contact information for First Nations who may have with aboriginal interests identified within the area queried.

These contacts are based on knowledge currently available to the Province. Those choosing to provide information and involve First Nations early in a proposed project have the opportunity to develop mutual understanding of the interests around the project. This can be important to successful business planning and project development. The Contacts for First Nation Consultation Area Public Map Service users are encouraged to explore making this contact prior to submitting an application for government authorization. This approach gives support to the Provincial consultation process and the goals of the New Relationship.

The information provided is not intended to create, recognize, limit or deny any aboriginal or treaty rights, including aboriginal title, that First Nations may have, or impose any obligations on the Province or alter the legal status of resources within the Province or the existing legal authority of British Columbia. The Province makes no warranties or representations regarding the accuracy, timeliness, completeness or fitness for use of any or all data provided in the reports.

Appendix G-4
INDIGENOUS NOTIFICATION LETTER, SEPTEMBER 5, 2023

Blair Weston
Community and Indigenous
Relations Manager
FortisBC

FortisBC Inc.
5643 Taghum Frontage Road,
Taghum BC, V0G 6Y2
250-231-0176
blair.weston@fortisbc.com
www.fortisbc.com

September 5, 2023

RE: <u>FortisBC planned CPCN substation upgrade project Fruitvale BC</u>

FortisBC is in the planning stages of filing a Certificate of Public Convenience and Necessity (CPCN) with the British Columbia Utilities Commission (BCUC). This project will replace aging infrastructure and equipment near end-of-life to improve FortisBC's system reliability.

The specific location for the infrastructure has not been selected on the property FortisBC has recently purchased. Once it has, FBC will complete an Archeological Overview Assessment and an Environmental Assessment. If you would like copies of these reports we will send them to you upon request.

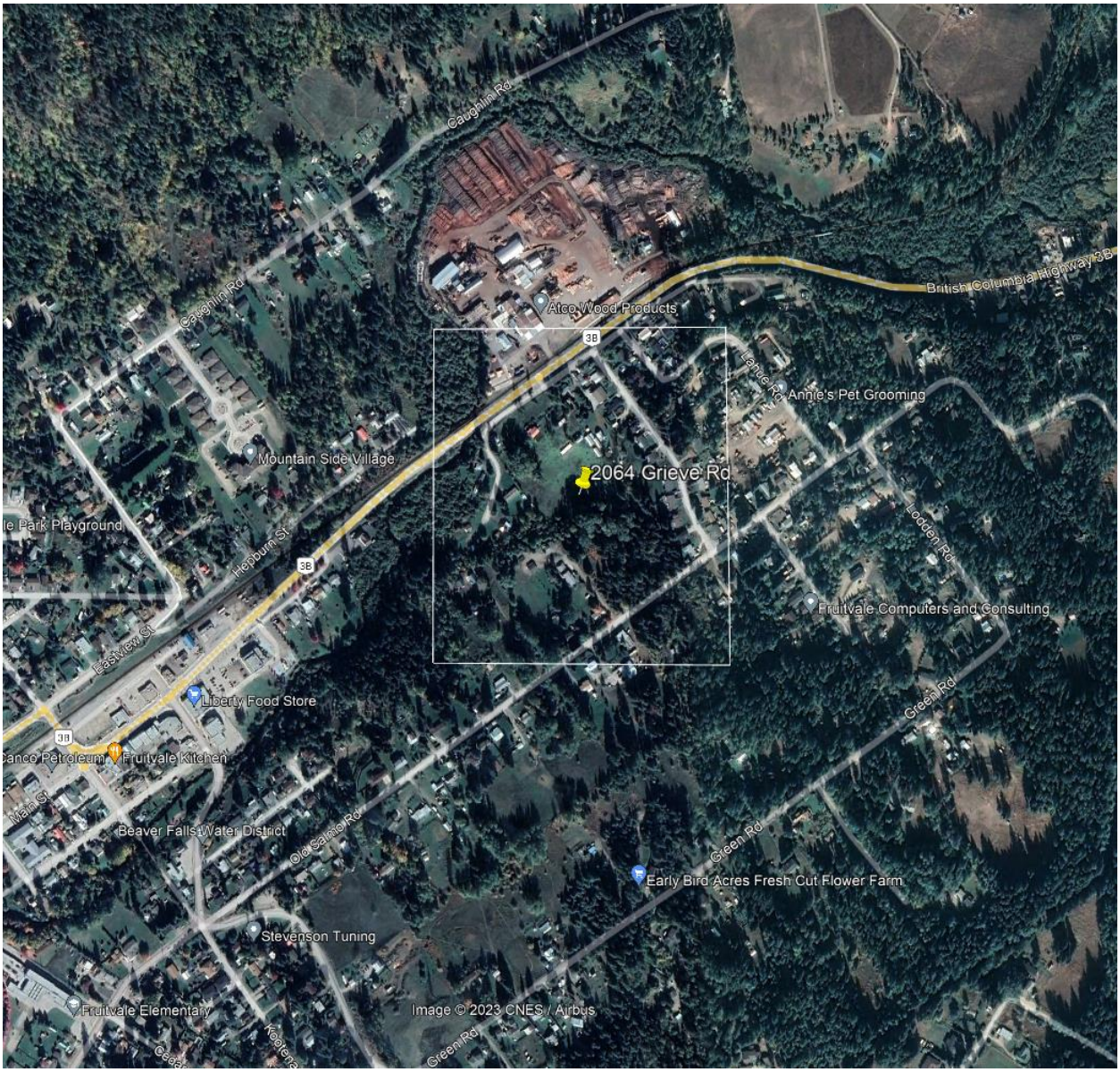
FortisBC will submit an application in late 2023. If approved, construction is expected to take place in in 2024 with the new transformers anticipated to be in service by 2027. We are committed to ongoing engagement throughout the duration of the project.

If you have any questions regarding this project, please contact me at 1-250-231-0176. If you would like to contact the BCUC directly they can be reached at https://www.bcuc.com.

Respectfully;

Blair Weston
Community and Indigenous Relations Manager
FortisBC

FORTIS BC™


Caughlin Rd
Caughlin Rd
British Columbia Highway 3B
Atco Wood Products
3B
Lance Rd
Annie's Pet Grooming
2064 Grieve Rd
Mountain Side Village
Hepburn St
3B
Lodden Rd
Fruitvale Computers and Consulting
Eastview St
Liberty Food Store
Green Rd
3B
Fruitvale Kitchen
Main St
Beaver Falls Water District
Old Salmo Rd
Green Rd
Early Bird Acres Fresh Cut Flower Farm
Stevenson Tuning
Fruitvale Elementary
Image © 2023 CNES / Airbus
Green Rd

Appendix H

DRAFT ORDERS AND UNDERTAKING OF CONFIDENTIALITY

Appendix H-1
PROCEDURAL DRAFT ORDER

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-xx-24

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Inc.
Application for a Certificate of Public Convenience and Necessity for the Fruitvale Substation Project

BEFORE:
[Panel Chair]
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. On February 29, 2024, FortisBC Inc. (FBC) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN), pursuant to sections 41, 45 and 46 of the *Utilities Commission Act* (UCA), for the Fruitvale Substation Station project (Project) (Application);

B. The Project includes the construction of a new substation with two new 20 MVA 63/25/13 kV transformers at 2064 Grieve Road, Trail, BC and the decommissioning of the existing Fruitvale and Hearns substations;

C. FBC requests that Appendices C-1, C-2, C-3, D and F-2 to the Application be held confidential in perpetuity, pursuant to Section 18 of the BCUC's Rules of Practice and Procedure established by Order G-72-23; and

D. The BCUC has commenced its review of the Application and finds that the establishment of a regulatory timetable for the review of the Application is warranted.

NOW THEREFORE the BCUC orders as follows:

1. The regulatory timetable for the review of the Application is established as set out in Appendix A to this order.

2. FBC must provide a copy of this order on or before [Day/Date], electronically where possible, to:

    a. All registered interveners in the FBC Annual Review for 2024 Rates proceeding;

    b. All stakeholders identified in the Application;

c. All municipalities and regional districts located within the Boundary and Similkameen areas that are within FBC's service territory; and

d. All Indigenous groups identified in the Application.

3. FBC must make the Application and this order available on its website at www.fortisbc.com by [Day/Date].

4. FBC must publish notice of this Application on all of its current social media platforms, on or before Day/DATE and publish weekly reminder notices on each platform until the conclusion of the intervener registration period on [Day/DATE].

5. FBC is directed to provide confirmation of compliance with Directives 2, 3, and 4 by [Day/Date]. Such confirmation shall include confirmation of the Public Notice published on FBC's website, a list of the social media platforms on which the Public Notice was posted, as well as a list of all parties notified.

6. Appendices C-1, C-2, C-3, D, and F-2 attached to the Application will be held confidential until the BCUC determines otherwise.

7. In accordance with the BCUC's Rules of Practice and Procedure, parties who wish to actively participate in this proceeding must submit the Request to Intervene Form, available on the BCUC's website at https://www.bcuc.com/GetInvolved/GetInvolvedProceeding, by Day/DATE, as established in the regulatory timetable. Parties may also submit letters of comment by completing a Letter of Comment Form, available on the BCUC's website.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment

FortisBC Inc.
Application for a Certificate of Public Convenience and Necessity for the Fruitvale Substation Project

REGULATORY TIMETABLE

Action	Date (2024)
FBC publishes Notice of Application by	Friday, April 5
FBC confirmation of Public Notice	Friday, April 12
Intervener registration deadline	Friday, April 19
BCUC information request (IR) No. 1	Tuesday, April 23
Intervener IR No. 1	Tuesday, April 30
FBC responses to IR No. 1	Wednesday, May 21
Letters of comment deadline	Friday, May 24
FBC written final argument	Tuesday, June 18
Intervener written final arguments	Thursday, July 4
FBC written reply argument	Thursday, July 18

bcuc
British Columbia Utilities Commission

We want to hear from you

FBC APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR FRUITVALE SUBSTATION PROJECT

On February 29, 2024, FortisBC Inc. (FBC) applied (Application) to the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity for the Fruitvale Substation Project (Project).

In the Application, FBC requests approval to replace the existing Fruitvale and Hearns Substations with the construction of a new Substation at 2064 Grieve Road in Fruitvale, BC which includes two new 20 MVA 63/25/13 kV transformers and the subsequent decommissioning of the existing Fruitvale and Hearns Substations. The Project has an estimated capital cost of approximately $18.867 million.

HOW TO PARTICIPATE

- **Submit a letter of comment**
- **Register as an interested party**
- **Request intervener status**

IMPORTANT DATES

1. **[Day/DATE** – Deadline to register as an intervener with the BCUC

For more information about the Application, please visit the Proceeding Webpage on bcuc.com under "Our Work – Proceedings." To learn more about getting involved, please visit our website (www.bcuc.com/get-involved) or contact us at the information below.

GET MORE INFORMATION

FortisBC Energy Inc. Regulatory Affairs

16705 Fraser Highway
Surrey, BC Canada V4N 0E8

E: gas.regulatory.affairs@fortisbc.com

P: 604.592.7664

British Columbia Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3

E: Commission.Secretary@bcuc.com

P: 604.660.4700

Appendix H-2
DRAFT ORDER

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
C-xx-24

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Inc.
Application for a Certificate of Public Convenience and Necessity for the Fruitvale Substation Project

BEFORE:
[Panel Chair]
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. On February 29, 2024, FortisBC Inc. (FBC) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN), pursuant to sections 41, 45 and 46 of the *Utilities Commission Act* (UCA), for the Fruitvale Substation Station project (Project) (Application);

B. The Project includes the construction of a new substation with two new 20 MVA 63/25/13 kV transformers at 2064 Grieve Road, Trail, BC and the decommissioning of the existing Fruitvale and Hearns substations;

C. By Order G-##-24 dated [Date], the BCUC established a regulatory timetable for the review of the Application; and

D. The BCUC has reviewed the Application, the evidence and submissions in this proceeding and determines that the requested approvals are warranted.

NOW THEREFORE pursuant to sections 41, 45 and 46 of the *Utilities Commission Act*, the BCUC orders as follows:

1. FBC is granted a CPCN to construct and operate the Project.

2. FBC is permitted to decommission the existing Fruitvale and Hearns substations.

3. FBC is directed to file Project reports as outlined in Section X of the Decision.

4. The BCUC will continue to hold confidential Appendices C-1, C-2, C-3, D, and F-2 and associated materials filed in this proceeding until the BCUC determines otherwise.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment

Appendix H-3

CONFIDENTIALITY DECLARATION AND UNDERTAKING FORM

Confidentiality Declaration and Undertaking Form

In accordance with the Commission's Rules of Practice and Procedure, please provide a completed form to the party who filed the confidential document and copy Commission Secretary at commission.secretary@bcuc.com. If email is unavailable, please mail the form to the address above.

Undertaking

I, _____, am representing the party _____ in the matter of

_____FBC Fruitvale Substation Project CPCN Application_____

In this capacity, I request access to the confidential information in the record of this proceeding. I understand that the execution of this undertaking is a condition of an Order of the Commission, and the Commission may enforce this Undertaking pursuant to the provisions of the *Administrative Tribunal Act*.

Description of document:	

I hereby undertake:

(a) to use the information disclosed under the conditions of the Undertaking exclusively for duties performed in respect of this proceeding;

(b) not to divulge information disclosed under the conditions of this Undertaking except to a person granted access to such information or to staff of the Commission;

(c) not to reproduce, in any manner, information disclosed under the conditions of this Undertaking except for purposes of the proceeding;

(d) to keep confidential and to protect the information disclosed under the conditions of this Undertaking;

(e) to return to the applicant, _____,all documents and materials containing information disclosed under the conditions of this Undertaking, including notes and memoranda based on such information, or to destroy such documents and materials within fourteen (14) days of the Commission's final decision in the proceeding; and

(f) to report promptly to the Commission any violation of this Undertaking.

Signed at _____ this _____.

Signature: _____

Name (please print): _____

Email address: _____

Representing (if applicable): _____