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November 26, 2008

Via Email
Original via mail

Ms. Erica M. Hamilton
Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

Re: An Application for a Certificate of Public Convenience and Necessity for the Benvoulin Substation Project No. 3698529

Please find enclosed FortisBC Inc.'s (FortisBC) responses to BC Utilities Commission (Commission) Information Request No. 2, and Information Request No. 1 from BCOAPO et al. and Tantalus Vineyards. Twenty copies will be couriered to the Commission.

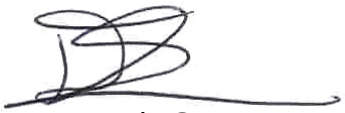
FortisBC is aware that economic conditions both in the Province and the local Kelowna market have changed since the original CPCN Application for this project was filed in September 2008. The nature of the questions in this set of Information Requests indicates that the impact of these trends on the Project is of keen interest to the Commission and Intervenors alike. FortisBC also wants to reflect the most accurate and current information in its planning process.

In response to the above, the Company has revisited the assumptions contained in its forecasts and updated the relevant tables in its IR responses. All developments noted in the original Application have been contacted to determine their status and likelihood of proceeding.

.../2

The net effect of these changes leads FortisBC to the conclusion that the Project need and timing remain unchanged, and the in-service date in the first quarter of 2010 is still required in order to provide an acceptable and uninterrupted level of service to the residents of Kelowna served by the proposed substation.

Sincerely,



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cc: Registered Intervenors

41.0 Reference: Impact on Line Losses of Site 7 Location
Exhibit B-3, BCUC IR 2.2, 2.3, 15.7, 26.1

Q41.1 BCUC Diagram A2.1 illustrates that Benvoulin Feeders 2, 3 and 4 for proposed Site 7 are approximately 1.6 km longer than they would need to be if the substation were located near the junction of Benvoulin and Casorso Roads at Site 2, while the situation is not clear for Feeder 1. For each Feeder, what is the annual amount and value of the additional distribution line losses that will result from this increase in the length of the distribution feeders due to using Site 7 as compared to Site 2? Please show how the values were calculated.

A41.1 BCUC Appendix A41.1 attached shows system losses for each individual feeder with the following assumptions:

- Initial peak kW distribution line loss per feeder was calculated using CYMEDIST v4.5.
- Load factor was assumed to be 40 percent per feeder
- Due to the location of Site2 vs Site 7 the proposed Feeder 1 has a loss saving.

Q41.2 Further to the statement that the typical reach of a 13 kV feeder is approximately 6 km, and noting that the centroid of the load is near the junction of Benvoulin and Carorso Roads, please discuss the extent to which locating the substation 1.6 km away at the gravel pit site impairs the usefulness of the substation.

A41.2 FortisBC does not believe that locating the substation 1.6 kilometres away from the load center impairs the usefulness of the station as the longest projected feeder would be less than 5 kilometres (measured along the distribution route).

42.0 Reference: Installation of Reactors at Hollywood
Exhibit B-3, BCUC IR 5.1

Q42.1 The response to BCUC IR 5.1 states that there is insufficient space within the existing Hollywood Substation property to install the required reactors and cables to permit parallel operation. Please explain the amount of additional space that would be required, and provide a sketch showing the layout with this equipment in place.

A42.1 BCUC Appendix A42.1 attached shows the proposed layout of the reactors. The additional space required is a minimum of 16.5 metres by 26.5 metres for eight reactors and service access including the cable trench. Additionally, a 3 metre buffer space is required on all sides for the ground grid, insulating gravel and fence for a minimum of 22.5 metres by 32.5 metres of space. At a minimum the adjacent property (1160 Hollywood Road) would be required to install the reactors.

Q42.2 Referring to BCUC Appendix A5.1, what are the assessed value and current market value of the property identified as 1160?

A42.2 The assessed and current market values of 1160 Hollywood Road South are $350,000 and $420,000 respectively.

Q42.3 Please discuss whether a practical alternative would be to purchase property in proximity to the Hollywood Substation, so that the station could be expanded and reactors installed. Please address cost, social and aesthetic factors in the response.

A42.3 The ability to expand on the existing site is not seen as a practical alternative for the following reasons:

- Rutland Waterworks District has a water well and submersible pump installation on a registered right of way on the north east corner of the

property.

- Cost for expansion for this station would be greater than the proposed Benvoulin Substation.
- The Hollywood Substation is located adjacent to Mission Creek and from an environmental management perspective, locating additional oil filled equipment at this substation is an unnecessary risk.
- If the adjacent perimeter row(s) of occupied urban housing was purchased to expand the site, the Company would expect as a minimum aesthetic and property value concerns from the closest remaining perimeter row of housing when the current visual buffer (in the form of existing houses) is removed and they now find themselves butting up against the expanded substation.

43.0 Reference: Installation of Reactors at OK Mission
Exhibit B-3, BCUC IR 8.1

Q43.1 Further to BCUC Appendix A8.1, please discuss the ownership, use and zoning of the adjacent properties shown as 3471, 3461, and 3451 on the diagram.

A43.1 The requested information is provided below in BCUC Table A43.1.

BCUC Table A43.1

Address	Owner	Zoning/Use
3471 Lakeshore Road	Private Development Corporation	RU6 (two dwelling house)
3461 Lakeshore Road	Private Development Corporation	C9 (tourist commercial)
3451 Lakeshore Road	Municipality	P3 (parks & open space)

It is not FortisBC's practice to disclose the identity of property owners.

Q43.2 Please provide the assessed value and estimated current market value of each block of land.

A43.2 The requested information if provided below in BCUC Table A43.2

BCUC Table A43.2

Address	Assessed Value (market value as of July 1, 2007)	Estimated Current Market Value
3471 Lakeshore Road	$508,000	$500,000
3461 Lakeshore Road	$910,000	$950,000
3451 Lakeshore Road	$445,000	$400,000

Also, a vacant land sale at 3421 Lakeshore Road in October 2008 was reported at $1,565,000.

It should also be noted that between the existing substation site and the sites mentioned above, is a municipal owned lane allowance (PL3886 of BCUC IR1 Appendix A8.1, Exhibit B-3). If FortisBC was to expand the existing OK Mission Substation site onto these properties, FortisBC would also need to apply to purchase this possible lane allowance from the City of Kelowna. The process to purchase road/lane allowances from a local government can be up to two years due to the various regulatory requirements that need to be met.

Q43.3 Please discuss the feasibility of acquiring sufficient land in this area for the reactors.

A43.3 As discussed in the response to Q43.2 above, the existing site has a municipal lane allowance on the east and west side of the site would make it difficult to acquire land and owing to the upscale developments already completed or

underway in the vicinity, public opposition to the expansion could be high.

Q43.4 Please discuss the alternative of acquiring, if necessary, and using land that is "on-end" from the substation, more or less where the number A917 appears on the diagram, to install the reactors.

A43.4 The "on-end" land from the existing substation forms part of the same parcel that is owned by FortisBC. Currently FortisBC has a lease agreement with the City of Kelowna where the land will be used by the City as a parking lot. While it is possible to use this property, the reactors would have to be installed beneath the existing transmission line which is less desirable than installing them in an open space. As mentioned in the response to Q43.3 above, FortisBC believes there will be strong public opposition to expansion of this land.

44.0 Reference: Parallel Operation at Hollywood and OK Mission
Exhibit B-3, BCUC IR 38.3

Q44.1 Assuming that property adjacent to the Hollywood and OK Mission substations was purchased and reactors installed so that the transformers at these stations could be operated in parallel, when would the next major expansion of the system in the area be needed, and what would be required?

A44.1 Based on the assumption, operating the Hollywood and OK Mission transformers in parallel would mean that the summer peak of the Hollywood Substation would be exceeded in 2013. Please see BCUC Table A48.3 below. The forecast summer loads on Hollywood Transformer 1 and Transformer 3 are 26.57 MVA and 31.76 MVA respectively. This total station load of 58.33 MVA exceeds the station capacity of 56 MVA. The next major expansion of the distribution system would have to address this need and be

commissioned prior to the 2013 summer peak. FortisBC would still require the construction of a new distribution source substation such as the proposed Benvoulin Substation.

Q44.2 Please provide a cost estimate similar to BCUC Table A38.2 for this alternative approach.

A44.2 Cost information for the installation of the reactors at OK Mission and Hollywood is provided below in BCUC Table A44.2. As discussed in the response to Q44.1 above, this approach would only defer substation costs, which are not included in Table A44.2 and would be comparable to the costs of the proposed Benvoulin Substation.

BCUC Table A44.2

	Reactor Banks at Hollywood & OK Mission	TOTAL ($000s)
1	Design and construct reactor bank	**3,806.2**
2	Design and construct connections reactor bank	**289.1**
3	Planning / Pre Engineering / Regulatory Costs	**636.5**
4	Land Acquisition and Assessments	**3,861.6**
5	**SUBTOTAL**	**8,593.4**
6	AFUDC	**-**
7	**TOTAL CAPITAL COST**	**8,593.4**

Q44.3 Please discuss the impact that adopting this approach would have on the reliability of service to customers over the next several years.

A44.3 For existing customers served from Hollywood and OK Mission substations, reliability would be similar to current levels. For customers served from the DG Bell Terminal station reliability could potentially decrease as this approach would result in a further three year delay before the DG Bell Terminal station could be adequately backed up in accordance with FortisBC's back up criteria.

45.0 Reference: Crossing of Mission Creek
Exhibit B-3, BCUC IR 11.3, 12.1, 13.1, 32.1

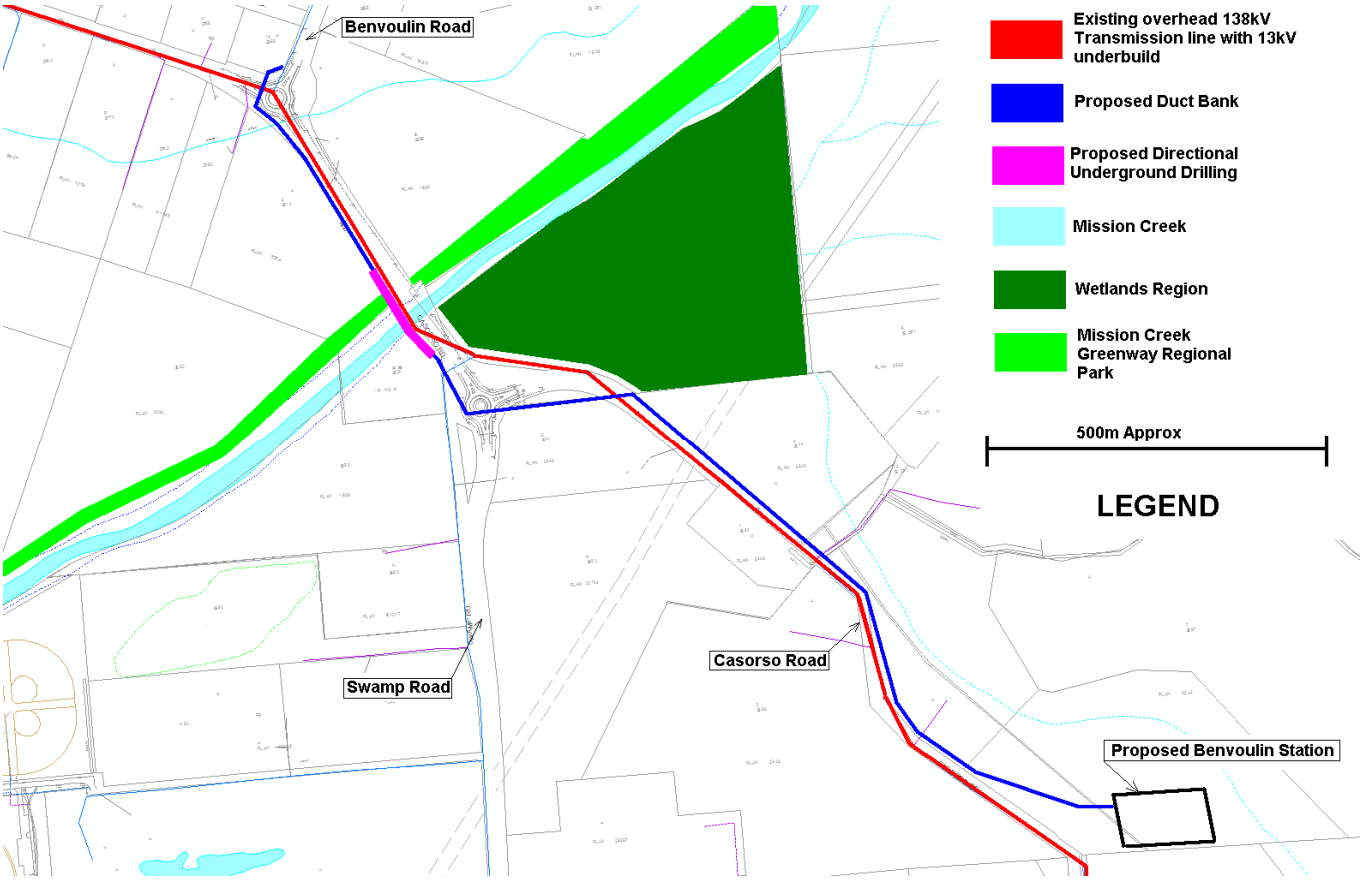
Q45.1 Further to the preliminary environmental overview in BCUC Appendix A13.1, please confirm that the crossing of Mission Creek will be by directional drilling.

A45.1 Yes, the crossing of Mission Creek will be directional drilling.

Q45.2 Further to BCUC Diagram A12.1, please provide a diagram that shows the area covered by the Mission Creek Greenway Regional Park and the wetlands area near the junction of Benvoulin and Casorso Roads. The diagram should also show the existing 138/13 kV routing, the proposed underground routing, and the section that will be installed using directional drilling.

A45.2 The requested information is shown below in BCUC Diagram A45.2.

BCUC Diagram A45.2



Q45.3 Please describe any restrictions that the Regional Park and the wetlands place on the construction of overhead lines, and on the method of installing underground lines.

A45.3 FortisBC has consulted with the City of Kelowna, Regional District of Central Okanagan and Friends of Mission Creek and no restrictions have been identified. FortisBC expects to install the underground section on either side of Mission Creek in the same manner as described in the response to Q45.6 below. The section under the creek will be terminated at each end in a pull box converting the section to the typical duct array. In particularly wet areas the duct banks will be assembled at grade, placed in a prepared trench and

weighed down while the trench is back filled. FortisBC will complete an environmental assessment as part of the detailed design minimizing the environmental impact. FortisBC is anticipating crossing Mission Creek south of the existing bridge thereby avoiding the wetlands area and Priest Creek. FortisBC expects this will meet with the approval of the Regional Park authority.

Q45.4 What are the expected length, depth, and cost of the directional drilling section?

A45.4 Please see BCUC Diagram A45.4 below. The section under the creek is approximately 70 metres with a target depth of 2 metres below the creek bed. The estimated cost for this work is $715,000, as per BCUC Table A45.7 below.

BCUC Diagram A45.4

Q45.5 Please outline the subsurface geotechnical work that FortisBC has carried out, summarize the results and explain why FortisBC believes that directional drilling at this location will be successful.

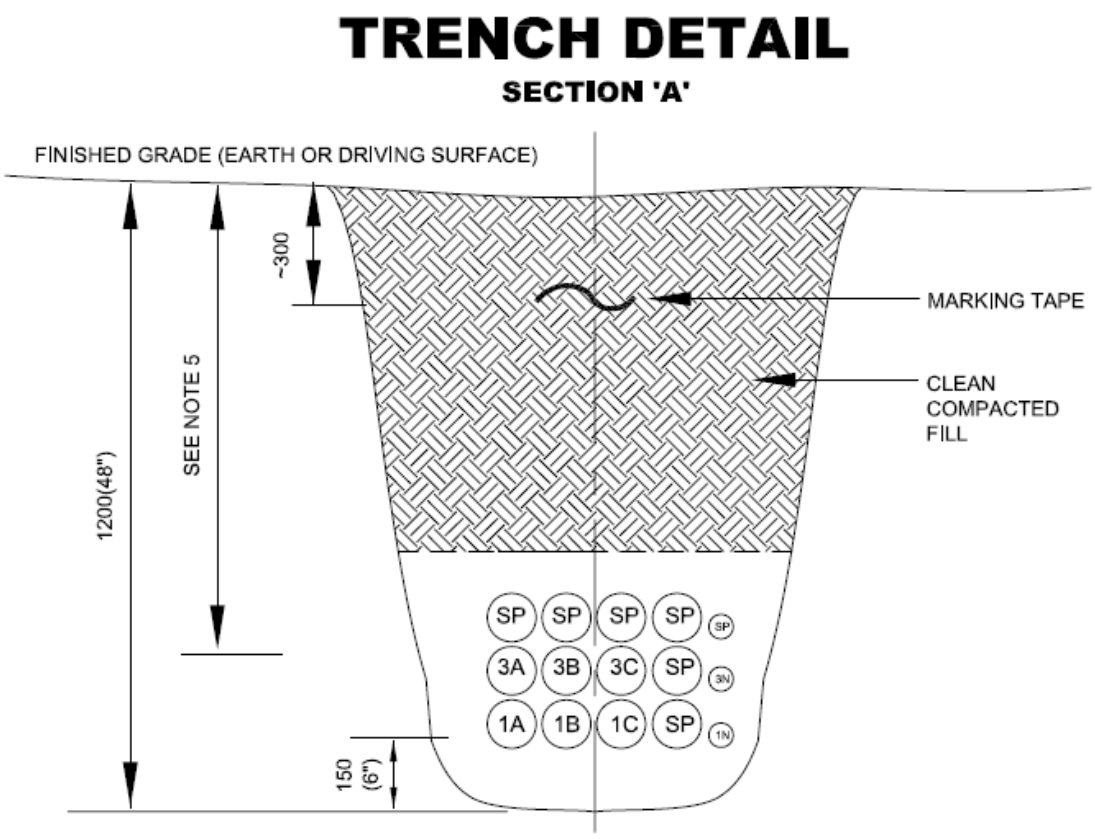
A45.5 A preliminary geotechnical study was completed on a nearby property 3770 Casorso Road, Site 2. The results of the investigation and the experience of the geotechnical consultant with the area indicate the subsurface conditions underlying Site 2 consists of a variable thickness of loose or soft

compressible sand, silt and clay deposits that extend to depths of at least 15 metres below the existing ground surface. The areas tested are approximately 550 metres from the proposed creek crossing. A visual comparison of the immediate area suggests the subsurface conditions would be similar.

Q45.6 Please describe the method(s) of construction that will be used to install the other sections of the underground ducting.

A45.6 Conventional open trench construction will be employed. A typical cross section is shown below in BCUC Diagram A45.6

BCUC Diagram A45.6



Q45.7 Please provide a detailed cost estimate for the underground ducting and two distribution lines initially installed in the duct.

A45.7 The requested information is provided in BCUC Table A45.7 below.

BCUC Table A45.7

	Total ($000s)
Additional duct for future expansion	162.9
Underground Section - Mission Creek	715.1
Duct Bank Civil	1,191.8
Cable U/G Section	802.5
Above ground	52.4
Total	2,924.8

Note: The cost identified in the response to BCUC IR1 Q11.3 at $2.7 million was in error.

Q45.8 Please confirm that two of the four distribution feeders from Benvoulin Substation will run overhead along Casorso Road and two will be in the duct bank, with one overhead distribution feeder more or less paralleling the duct bank. Please confirm that this feeder is an underbuild on the 138 kV line, or explain how it will run. What reconstruction, if any, of this feeder that parallels the duct will be required and what will this reconstruction cost?

A45.8 It is confirmed that two of the four distribution feeders from Benvoulin Substation will run overhead along Casorso Road. Feeder 1 will exit the substation and run south, occupying the same poles as the 138 kV transmission line. Feeder 4 will exit the substation and run north, occupying the same poles as the 138 kV transmission line. Feeder 2 and Feeder 3 will be in the duct bank, following Casorso Road north. No reconstruction of the circuits

underbuilt on the transmission line is required under the option proposed in the CPCN Application. If however, Feeder 2 and Feeder 3 to be constructed overhead as discussed in the response to Q45.10 below, extensive reconstruction of the existing transmission line would be required.

Q45.9 Please explain how the two feeders that are proposed to be in the duct bank could be routed overhead, and outline the additional right-of-way that would be required. Please provide a to-scale diagram showing the visual appearance of the existing 138/13 kV lines and the two new lines. If the two new lines would not be built as a double circuit, please explain.

A45.9 The two feeders would require a new double circuit overhead line running the full distance from the proposed substation to the intersection of Benvoulin and Casorso Roads. The existing transmission line and distribution underbuild would have to be relocated and rebuilt as a consequence. Please see BCUC Appendix A45.9 and also refer to the response to Q45.11 below.

Q45.10 Please provide a detailed cost estimate for building these two new distribution lines as overhead lines over the section that the duct bank is proposed.

A45.10 The requested information is provided below in BCUC Table A45.10.

BCUC Table A45.10

Line Work	**($000s)**
Conductor	208.5
Poles	523.1
Other Material	216.8
Site Services	131.1
Engineering	168.6
Labour	503.7
Project Management	102.9
	1,854.6

Q45.11 Please discuss whether routing all the distribution feeders overhead (except possibly for a very short section where they exit the substation) is a fully satisfactory design for the four feeders that are included in the applied-for Benvoulin project.

A45.11 FortisBC does not believe this is a fully satisfactory design for the following reasons:

- Future distribution feeders would have to be underground which would necessitate the construction of an underground duct bank as per the original Application. The Application as written provides for additional duct to be installed that could accommodate future expansion.
- Based on the need for three distribution feeders and one transmission line to run down Casorso Road this would entail having distribution circuits on both sides of the road. This would increase the risk of motor vehicle incidents in the area.
- Casorso Road, between Mission Creek and the proposed substation location is steep and windy with marshy sections on either side near the creek. This would make anchoring difficult and specific engineering solutions would be needed in some instances (i.e. self supporting structures, overhead guys, etc.).
- Casorso Road will be widened at some point in the future as per the City of Kelowna's Official Community Plan and since the ultimate road alignment is not known, relocation of the circuits could be a possibility.

46.0 Reference: Overhead Feeders from Hollywood and OK Mission
Exhibit B-3, BCUC IR 15.2

Q46.1 Please confirm that it was recognized at the time of the 2005 SDP that additional feeders would be required, and explain why detailed engineering was necessary to know that "all overhead routes were full and that undergrounding would be required".

A46.1 Route selection for distribution feeders was not examined in the 2005 SDP, which is a high-level planning document.

Q46.2 What changed from the 2005 SDP to the present time, with regard to FortisBC's ability to run additional feeders overhead or to increase the capacity of existing feeders?

A46.2 As explained in the response to Q46.1 above, route selection for distribution feeders was not examined in the 2005 SDP.

Q46.3 What determines the number and capacity of overhead feeders that can exit each of Hollywood and OK Mission substations?

A46.3 The conductor size, circuit length and load density all contribute to establishing line capacity. The availability of line routes, overhead and underground, along with the associated costs of establishing these routes, determine the number of feeders.

47.0 Reference: Project Need: Expected Growth

Exhibit B-3, BCUC IR#1, 20.5 and Exhibit B-1, Table 3.2a

"The growth is based on known and proposed residential and commercial growth at this time (BCUC IR#1, 20.5)".

Q47.1 In reference to Table 3.2a from Exhibit B-1, please provide an updated table, showing each project's status in terms of the following characteristics:

Sector: Public vs. private

Permits: Granted vs. Pending

Construction Status: Underway vs. Pending.

A47.1 The information requested is provided in BCUC Table A47.1 below. FortisBC has confirmed the project list shown in Table 3.2a (Exhibit B-1) with all the developers listed, as of November 21, 2008. All projects have been confirmed as proceeding with the exception of:

- Stellar Booster Pumps – load requirement of 400 kVA for 2008 no longer required.
- Mission Creek Towers – this phase of development is complete and no further phases are planned.

Residential developers have confirmed that due to current market trends there will be a slowdown in new residential subdivisions, however, this is considered in the revised load forecast and does not affect the need or timing for the Benvoulin Substation Project in a material way. Please also see the response to Q48.3 below.

REQUESTOR NAME: BC Utilities Commission
INFORMATION REQUEST NO: 2
TO: FortisBC Inc.
DATE: November 12, 2008
PROJECT NO: 3698529
APPLICATION NAME: CPCN Application for the Benvoulin Substation Project

BCUC Table A47.1

Sector	Permits	Construction Status	PROJECT BASIS NEW LOAD INFORMATION AS ON JULY 2008	YEARLY LOAD GROWTH FOR NEW PROJECTS (KVA)														NEW LOAD TO BE SERVED BY (PRESENT CONFIGURATION)		
Public/ Private	Granted/ Pending	Underway/ Pending		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	>2020	HOLLYWOOD	OK MISSION	DG BELL
Public	Granted	Underway	Mission Sports/Pool	1000		500													Feeder 3	
Public	Granted	Underway	Cedar Creek Water Pumps	700					1400								400			Feeder 2
Public	Granted	Underway	Kettle Valley Water Treatment	600					600								200			Feeder 3
Public	Pending	Stopped	Stellar Booster Pumps	400					1100					500			400			Feeder 2
Private	Granted	Underway	Marshall Feedlot - Commercial	1500	1500	1500	1500											Feeder 4*		
Private	Pending	Pending	4-5 MFU's / Pandosy Area	1000	1000	1000	1000												Various	
Private	Granted	Underway	1 MFU / Rutland Commercial Area	700														Feeder 3		
Private	Granted	Underway	Playa Del Sol	1000	1500														Feeder 3	
Private	Pending	Pending	Rutland Commercial			500	500	500	500	500	500							Feeder 3		
Private	Pending	Pending	Pandosy Commercial		250	250	250	250	250										Feeder 5	
Private	Pending	Stopped	Mission Creek Towers		250	250												Feeder 2		
Private	Pending	Pending	Icon Tower (Tapestry)		750	750												Feeder 7		
			New Wastewater Treatment Facility														6000		Feeder 4	
Private	Granted	Underway	South Mission - Residential	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	17650			Feeder 2/3
Private	Granted	Underway	Lower Mission - Residential	227	227	227	227	227	227	227	227	227	227	227	227	227				Feeder 1
Private	Granted	Underway	SE Mission - Residential	167.9	167.9	167.9	167.9	167.9	167.9	167.9	167.9	167.9	167.9	167.9	167.9	167.9				Feeder 1/2
Private	Granted	Underway	Pandosy Area - Residential	149	149	149	149	149	149	149	149	149	149	149	149	149	8047		Feeder 5	
Private	Granted	Underway	Central Kelowna - Residential	524	524	524	524	524	524	524	524	524	524	524	524	524			Various	
Private	Granted	Underway	Rutland Area - Residential	558	558	558	558	558	558	558	558	558	558	558	558	558	5103	Various		
			Total (kVA)	10138	8488	7988	6488	3988	7088	3738	3738	3238	3238	3738	3238	3238	37800			

Note: Residential load numbers in Table A47.1 have not been updated from the CPCN Application, however the total residential load has been adjusted in the response to Q48.3.

48.0 Reference: Current Economic Conditions
Exhibit B-3, BCUC IR 20.5

Q48.1 Further to the response to BCUC IR 20.5, economic conditions and projections have continued to decline. Please provide current forecasts of economic growth and construction activity for Canada, BC and Kelowna as available.

A48.1 The economic forecasts for Canada and British Columbia from a variety of sources, as represented by real GDP, can be found in BCUC Table A48.1a below. In general, most sources forecast a slowdown for 2009 followed by a recovery in 2010. Only the Toronto Dominion (TD) Bank and the BC Ministry of Finance offer numbers for 2010, however most comment on the trend. The conference Board of Canada notes in its Autumn 2008 report, "*After slowing to a mere 1.2 per cent in 2008, real GDP will expand by only 1.8 per cent in 2009 before rebounding in 2010.*"

BCUC Table A48.1a Growth in Real GDP (%)

	Canada				British Columbia			
Source	**2007**	**2008**	**2009**	**2010**	**2007**	**2008**	**2009**	**2010**
Conference Board of Canada	2.7	0.7	1.5	3.4	3.1	1.2	1.8	3.3
Bank of Montreal		0.7	0.0	-		1.6	0.5	-
BC Real Estate Assn.		-	-	-		1.4	1.6	-
TD Bank Financial		0.8	1.3	2.7		1.5	1.5	3.6
Royal Bank of Canada		0.9	1.5	-		1.2	2.1	-
BC Ministry of Finance		0.9	1.6	-		1.7	2.3	2.9

Construction activity, as represented by Housing Starts can be found in BCUC Table A48.1b below. The forecasts are similar to the trends seen in the GDP projections. Activity declines markedly in 2009 and slows more softly in 2010. It should be noted that while the numbers decline from the previous year, they still represent a significant number of units being added both provincially and in the local Kelowna market.

BCUC Table A48.1b Housing Starts (000s of Units)

	Canada			British Columbia			Kelowna		
Source	**2008**	**2009**	**2010**	**2008**	**2009**	**2010**	**2008**	**2009**	**2010**
Conference Board Of Canada	-	-	-	36.6	31.3	31.5	-	-	-
Bank of Montreal	214	180	-	36.4	30		-	-	-
BC Real Estate Assn	-	-	-	38.5	29		2.8	2	-
TD Bank Financial	215	185	192.5	35.4	28.7	30.5	-	-	-
Royal Bank of Canada	209	183	-	34.8	26		-	-	-
BC Ministry of Finance	-	-	-	37	33	31.5	-	-	-
Canada Housing and Mortgage Corporation (CMHC)	212	178	178	36.8	29.2	28.2	-	-	-

Q48.2 Please explain why FortisBC expects the high level of growth and construction activity over recent years is likely to continue over the next few years.

A48.2 Please see the response to Q48.1 above. Based on independent forecasts, FortisBC expects that activity rates will decline slightly while actual units will remain at fairly high levels.

Q48.3 Based on current projections of economic growth, please revisit and revise as necessary the load forecast that supports the need for a new Benvoulin substation and clarify when the revisited information indicates the substation will be required.

A48.3 BCUC Table A48.3 below is a revised version of Table 3.1.1 from Exhibit B-1. FortisBC has considered current economic conditions in order to examine the impact of any new information on the need or timing of the Project. FortisBC's load forecast is based on known load requirements at this time. Known load additions are detailed and updated in the response to Q47.1 above. The in-service date requirement for the proposed Benvoulin Substation remains unchanged.

The following should be noted:

- The load in the Kelowna region is sensitive to temperature. Temperature extremes in the form of a hot summer or cold winter may have a greater impact on loads than the current economic slowdown (see BCUC Figure A85.6 below showing the Kelowna/Penticton region extracted from the Okanagan Transmission Reinforcement (OTR) Project BCUC IR2.)
- Tourism in Kelowna has a significant impact on overall occupancy in Kelowna and gas prices were at record highs over the 2008 summer season. In contrast current gas prices are significantly lower and combined with the fact that the Canadian dollar has devalued against the US dollar, tourism in the Kelowna area may experience an upturn.
- In it's 2009 Revenue Requirements, FortisBC reduced its load forecast, however, the reduction was attributable to a decrease in industrial load which does not have an impact on this Project

FortisBC does not believe it to be prudent to delay the proposed project as the points mentioned above may offset any load reductions associated with the economic slowdown.

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INFORMATION REQUEST NO: 2
TO: FortisBC Inc.
DATE: November 12, 2008
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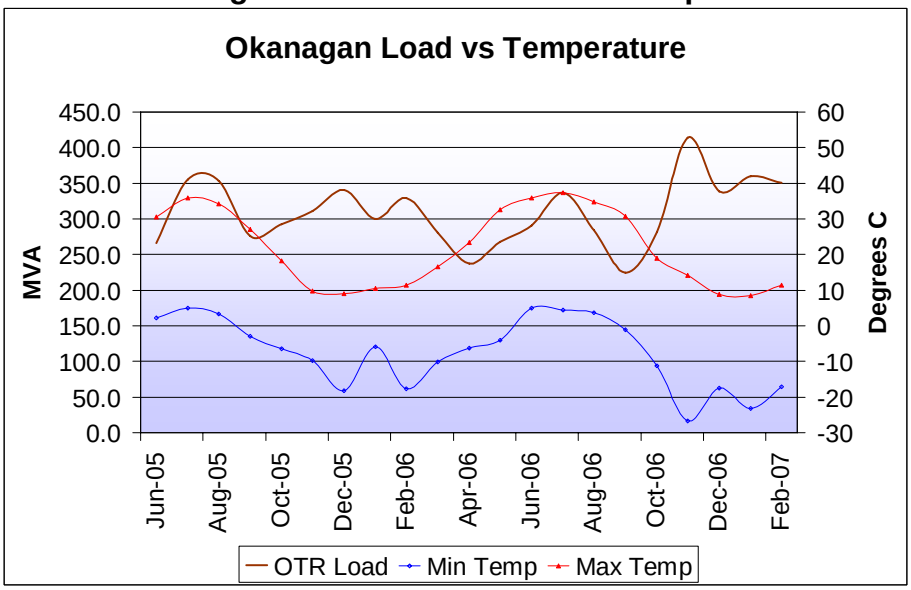
BCUC Table A48.3 – Revised Load Forecast

Name	Transformer	MVA	Winter/ Summer	2006/2007 MVA	2007/2008 MVA	2008/2009 MVA	2009/2010 MVA	2010/2011 MVA	2011/2012 MVA	2012/2013 MVA	2013/2014 MVA	2014/2015 MVA	2015/2016 MVA	2016/2017 MVA	2017/2018 MVA	2018/2019 MVA	2019/2020 MVA
Hollywood	T1	28	Summer	20.05	20.75	22.09	22.74	23.46	24.18	24.91	26.57	26.97	27.37	27.78	28.20	28.62	29.05
Hollywood	T1	31.8	Winter	24.67	27.90	27.14	28.54	29.41	30.27	31.13	32.96	33.45	33.95	34.46	34.98	35.50	36.04
Hollywood	T3	28	Summer	25.97	27.34	28.18	29.79	30.38	30.16	30.92	31.76	32.24	32.72	33.22	33.71	34.22	34.73
Hollywood	T3	32	Winter	23.48	26.47	28.77	30.21	30.76	31.46	32.16	33.04	33.53	34.04	34.55	35.07	35.59	36.13
Okanagan	T1	28	Summer	23.36	22.41	23.22	26.73	28.31	30.64	31.40	32.51	33.13	33.76	34.40	35.05	35.72	36.40
Okanagan	T1	31.5	Winter	25.93	25.41	26.30	29.46	31.18	33.77	34.63	35.85	36.53	37.22	37.93	38.65	39.39	40.13
Okanagan	T2	28	Summer	13.57	13.11	17.08	17.53	17.97	18.42	18.87	19.50	19.84	20.19	20.54	20.90	21.26	21.64
Okanagan	T2	32	Winter	13.75	11.87	19.33	19.89	20.45	21.01	21.57	22.28	22.67	23.07	23.47	23.89	24.30	24.73
DG Bell	T1	28	Summer	17.42	19.77	15.19	17.59	18.73	19.88	21.02	22.07	22.97	23.92	24.90	25.92	26.98	28.09
DG Bell	T1	32	Winter	19.77	19.64	17.93	20.28	21.34	22.39	23.45	24.62	25.63	26.68	27.78	28.92	30.10	31.34
Total Summer				**100.38**	**103.38**	**105.76**	**114.38**	**118.87**	**123.29**	**127.11**	**132.41**	**135.15**	**137.95**	**140.83**	**143.78**	**146.80**	**149.90**
Total Winter				**107.60**	**111.29**	**119.47**	**128.38**	**133.13**	**138.90**	**142.93**	**148.75**	**151.82**	**154.97**	**158.19**	**161.50**	**164.89**	**168.36**

Extracted from OTR Project BCUC IR2

BCUC Figure A85.6: OTR Load vs Temperature



49.0 Reference: Cost estimates for Sites 2 and 7
Exhibit B-3, BCUC IR 29.2

Q49.1 Comparing BCUC Tables A29.2a for Site 7 and A29.26 for Site 2, please explain the projected higher costs for Site 2 for each of items la, 1b, 1c, 1d and 1e, in terms of materials costs, construction labour costs, other direct costs, and indirect costs.

A49.1 Site 2 backs on to Wilson Creek in an area of high water and as noted in the geotechnical survey, the subsurface conditions underlying site consist of a variable thickness of loose or soft compressible sand, silt and clay deposits that extend to a depth of at least 15 metres below the ground surface. In preparing the cost estimates for this project additional site and civil work was estimated at approximately $487,000. Soil conditions and the proximity to Wilson Creek FortisBC increased the contingency amount.

Q49.2 Please state the lengths of Feeders 1, 2, 3 and 4 to be newly constructed for each of sites 2 and 7, and provide a comparison of the 13 kV feeder costs, in terms of materials, labour, other direct, and indirect costs.

A49.2 For both Site 2 and Site 7 Feeder 4 would not require any rebuild as it would form part of the existing system.

	Site 2		Site 7	
	Overhead	Underground	Overhead	Underground
	(kilometres)			
Feeder 1	3.1	-	2.3	-
Feeder 2	1.6	-	1.6	1.6
Feeder 3	1.6	-	1.6	1.6
Feeder 4	-	-	-	-

	Site 7	Site 2
	($000s)	
Rebuild new 477 circuit on DeHart Road	922.2	1,587.1
Rebuild double circuit 477 along Benvoulin Road	1,594.1	993.0
Underground duct bank from Site 7 to Benvoulin and Casorso circle	2,924.8	-
Total	**5,441.2**	**2,580.1**

Q49.3 Please repeat the previous question, on the basis that all four distribution feeders that exit Site 7 initially are overhead lines.

A49.3 The requested information is provided below.

	Site 2	**Site 7**
	Overhead (kilometres)	
Feeder 1	3.1	2.3
Feeder 2	1.6	3.2
Feeder 3	1.6	3.2
Feeder 4	-	-

	Total ($000s)
Rebuild new 477 circuit on DeHart Road	922.2
Rebuild double circuit 477 along Benvoulin	1,594.1
Overhead from Site 7 to Benvoulin and Casorso circle	1,854.6
Total	**4,370.9**

Q49.4 Please explain the difference in the estimate for the Environmental costs for the two sites, and confirm that the estimate for Site 7 includes costs related to the underground crossing of Mission Creek.

A49.4 The costs for Site 7 reflect the costs of crossing under Mission Creek. The costs for Site 2 reflect the proximity of Wilson Creek and the high water table in the area. The local residents expressed concerns regarding potential changes to ground water flow patterns at Site 2. In both cases the contingency numbers reflect the requirement for underdetermined remediation work.

Q49.5 Please provide a breakout of Land Acquisition and Assessments costs between Substation site, transmission and distribution rights-of-way for Site 7 and Site 2.

A49.5 The requested information is provided below in BCUC Table A49.5.

BCUC Table A49.5

	Site 7	Site 2
Transmission	13	6
Distribution	0	0
Station	989	1,663
Total	1,002	1,669

Q49.6 Please confirm that the Site 7 substation site cost is based on the option price, and provide the size of the Site 2 substation site and the basis for its cost estimate.

A49.6 Site 7 and Site 2 land costs are both based on option prices. Site 2 is approximately 3 acres (133 metres x 91 metres).

50.0 Reference: Rate Impacts
Exhibit B-1, Appendix E; Exhibit B-3, BCUC IR 33.2

Q50.1 For each of the Preferred Solution (Site 7) and Site 2, please provide a schedule that shows the Yearly Annual Revenue Requirement in Line 5 (e.g., $1.920 million for Site 7 in 2011) as both the dollar amounts and a percentage rate impact for FortisBC customers (or refile the schedules in Appendix E with a line added to show the rate impact)

A50.1 The annual (incremental) rate impact is shown on line 12 of Appendix E for the Site 7 and Site 2 options. (Note that page 2 of Appendix E should be labeled

"Site 2" instead of "Alternative 1" as identified in Errata No. 1.)

Q50.2 In response to BCUC IR 33.2, FortisBC states that an additional transformer at the Benvoulin substation will be required in 2016/17. Please confirm that no additional distribution feeders will be added to the substation until the additional transformer is installed, or explain when a fifth feeder from the substation will be needed.

A50.2 Feeders will only be added once the additional transformer is installed.

Q50.3 Assuming that the Benvoulin substation is built as proposed, but that the underground duct bank is not installed and all four distribution feeders are overhead lines (except perhaps for very short underground sections where they exit the substation), please provide a schedule of the expected capital expenditures for the Benvoulin substation, a schedule showing revenue requirements similar to those in Appendix E, and include the percentage rate impact for each year.

A50.3 The requested information attached as BCUC Appendix A50.3.

51.0 Reference: Substation Location Relative to Load Centre
Exhibit B-3, BCUC IR 26.1, 35.4

Q51.1 Further to BCUC Diagram A26.1, please clarify if the distances in the response to BCUC IR 35.4 are measured "as the crow files", or along distribution feeders from the substation site.

A51.1 The distances measured are "as the crow flies" and not along the distribution feeders.

Q51.2 If the distance from the mean radius of the load served is not measured along the distribution feeders, please provide a response that is on this basis.

A51.2 Using distances measured along the distribution feeders, Site 7 is approximately 1.9 kilometres from the electrical load center and the alternative Site 2 is approximately 0.8 kilometres from the electrical load center.

52.0 Reference: Alternative 1
Exhibit B-3, BCUC IR 38.3

Q52.1 If a transformer is added at each of the Hollywood and OK Mission substations and distribution feeders are added as set out in Alternative 1, when would the next major system expansion in this part of Kelowna be needed? What additions would be needed at that time?

A52.1 Based on the load forecasts known at this time, FortisBC believes the next major expansion needed in this region of Kelowna would be beyond 2020, however, in 2009/10 FortisBC will be conducting an area study of the Kelowna region which will form part of the next System Development Plan and all major expansions to the distribution system will be identified.

Q52.2 In BCUC Table A38.3, Line 1 includes "egress for four feeders". For each substation, please identify the current number of feeders, the number after the expansion and how many of these new feeders will be underground.

A52.2 Hollywood Substation currently has six feeders and OK Mission currently has five feeders. After the expansion Hollywood Substation would have eight feeders and OK Mission would have seven feeders. All the new feeders would egress underground.

Q52.3 Line 3 in the same table is for "Design and construction connections to local 13 kV distribution feeders". Please explain the work at each station that this refers to, and how it differs from the work that is included in Line 1.

A52.3 Line 3 refers to the construction of the new distribution feeders (primarily underground) and the work involved in connecting them to the existing distribution system. The work described in Line 1 refers to the underground component of egressing the feeders from the distribution breakers to the outside of the substation.

Q52.4 Please compare the estimated cost of undergrounding feeders from the Hollywood and OK Mission substations to the estimated cost of the underground duct and distribution feeders for the Benvoulin substation, and explain any significant differences.

A52.4 The cost was estimated at $1,750 per metre for eight kilometers of underground feeders. A factor for inflation and a contingency was added resulting in a cost of about $2,400 per metre. By comparison the Benvoulin costs are approximately $1,700 per metre. The key difference is the Benvoulin costs are based on installation adjacent to a rural road with two feeders in one trench whereas the feeders for Hollywood and OK Mission substations were estimated based on independent installation under existing urban roads.

Q52.5 Please explain the basis for the cost of Land Acquisition and Assessments for Alternative 1.

A52.5 The estimate was based on acquiring the adjacent properties to provide space for the required transformer and ancillary equipment. In the case of Hollywood

two adjacent properties and the Rutland Irrigation District water well relocation were required. In the case of OK Mission the four properties immediately east of the site were required.

53.0 Reference: Project Costs; Assumptions
Exhibit No. B-3, A28.2

Q53.1 Please provide a list of all assumptions.

A53.1 The financial assumptions made in the cost estimate such as the inflation rate, methods of calculating AFUDC, etc are consistent with other CPCN applications and are described in the response to Q54.1 below.

The cost engineering assumptions include:

1. Site preparation and civil work scope and cost will be consistent with prior experience based on preliminary geotechnical work;
2. Side slopes in area of station are naturally occurring and will require no remedial work;
3. From an aesthetic point of view conventional station construction is acceptable in this location; no screening requirements;
4. Transmission ingress and egress will fit within proposed property boundary and no unusual structures will be required;
5. Distribution duct bank can be installed parallel to Casorso Road without encountering unexpected conditions such as large areas of solid rock;
6. The existing irrigation lines in the vicinity of the proposed duct bank can be dealt with using conventional practice;
7. Availability of labour and materials will not affect the project schedule nor will premiums be required to contract the required labour;
8. Timely response to various approval processes.

54.0 Reference: Project Costs; MMK Report, 16 May 2008
Exhibit No. B-3, A28.5

Q54.1 Considering the current global economic conditions, does FortisBC still consider the inflation rate will be about 5% and if so why?

A54.1 FortisBC does not believe that an adjustment to the inflation rate is required at this time. The rate is composed of both the general rate of inflation and the impact of escalation in material and equipment prices for construction and utility projects. The general inflation rate is forecast to soften only slightly in the near term, while materials escalation is based on current high commodity values which will be reflected in prices beyond the period during which this project will be commissioned. Electric utility projects are subject to very strong demand-driven price pressures. As well, the drop in the Canadian dollar will tend to offset decreases in the commodity prices. As mentioned in the response to Q54.2 below, the MMK consulting report continues to recommend escalation values of 4%-6% for 2008 to 2010. The BC Government is predicting that the BC CPI will drop from 2.2 percent in 2008 to 2.0 percent in 2009 before rebounding to 2.1 percent in 2010.

Q54.2 When will MMK update its inflation rate forecast?

A54.2 The fall 2008 MMK update was released in October 2008. Although FortisBC is not an owner of the report and cannot provide it, FortisBC understands that the recommended construction cost allowances remain unchanged from the previous release.

55.0 Reference: Project Costs; Contingency Analysis
Exhibit No. B-3, A28.1, A28.6

Q55.1 FortisBC states in BCUC Table A28.1 that the contingency is $1.4385 million dollars. FortisBC refers to A30.1 for the contingency analysis but the discussion in A30.1 is about accuracy. Please provide a table of the items and amounts that make up the contingency amount of $1.4385 million dollars.

A55.1 The requested information is provided in BCUC Table A55.1 below.

BCUC Table A55.1 - Site 7

	CONTINGENCY
	($000s)
Land	-
Substation	655.6
Transmission	36.1
Distribution	646.8
Environmental	100.0
Total	**1,438.5**

56.0 Reference: Project Reliability
Exhibit No. B-3, A29.1

Q56.1 Please explain why Site 7 has a different reliability rating than either of Site 2 or Alternative 1. Does a rating of 4 indicate better or poorer reliability than 5?

A56.1 In the CPCN application (Exhibit B-1) Site 7 was given a reliability rating of 4, a lower value than Site 2, because of the length of the underground distribution duct and the time to repair in the event of a problem. By comparison Site 2 and Alternative 1 were given a higher rating of 5 because in the case of Site 2 there is minimal underground distribution and for Alternative 1 the reliability is enhanced by virtue of two separate facilities.

57.0 Reference: Substation
Exhibit No. B-3, Appendix A33.5
Control Building

Q57.1 Please provide a drawing scale or dimensions for drawing no. 317-GA(mod), Rev. 0.

A57.1 The drawing is attached as BCUC Appendix A57.1.

58.0 Reference: Cost Effective/ Least cost
Exhibit No. B-3, A39.1

Q58.1 The response assumed that economic changes occurring after a Commission decision on the Project should have been known in advance by FortisBC. The question did not intend to presume prior knowledge, only that FortisBC may discover that circumstances (i.e., major economic slowdown affecting the need for the project) might change after an Order has been issued to the point where it is no longer prudent to proceed with the project. Please address this issue.

A58.1 The question posed contains an important assumption in the phrase, ***"to the point where it is no longer prudent to proceed with the project".*** If FortisBC were to accept that this assumption was indeed true, and the project was proven to be unnecessary, with assent of the Commission it would not proceed as scheduled. The ability of existing area substations to provide back-up is insufficient at current loadings, and while the economy is forecast to slow in year over year percentage terms, growth is still positive and contributing to an imminent overload of Hollywood Transformer 3. Please see the response to Q58.2 below.

Q58.2 Please outline typical sets of circumstances where FortisBC would defer or not proceed with a project that has CPCN approval.

A58.2 FortisBC is of the opinion that approval of a CPCN Application by the Commission validates the assumptions underpinning the Project need. Typically, Application submissions are timed to meet an emerging need at the time of it materializing. The decision to defer or not proceed with a project could only be predicated upon a situation or event that would conclusively invalidate the need for the project in the year planned. An example of such an occurrence would be the loss of a single major industrial customer that comprised a large portion of an area load.

59.0 Reference: Public Consultation: First Nations
Exhibit B-3, BCUC IR #1, 18.1, 18.2, 18.3, and 28.1

"Consultation with the Westbank First Nation is ongoing. FortisBC does not have official communication at this time but through discussions understands that no objections have been encountered (BCUC IR#1 18.1)"

"FortisBC believes that the consultation with the Westbank First Nation is adequate (BCUC IR#1, 18.2)".

Q59.1 Please provide a list of communications between FortisBC and the Westbank First Nation regarding the Benvoulin Substation, and a summary of any concerns, issues or other positions on the Substation and its siting that were expressed by the Westbank First Nation.

A59.1 Prior to the proposed Benvoulin Substation Project becoming public FortisBC discussed the Project with the Band Councillor and Lands and Titles personnel from the Westbank First Nation. The Westbank First Nation was invited to the Benvoulin Project open houses. Prior to filing the CPCN Application with the BCUC another direct meeting to discuss the project was held with Westbank

First Nation personnel. Upon the release of draft engineering drawings for the creek crossing another meeting was held with Westbank First Nation personnel to review the draft drawings. FortisBC does not believe that there are any concerns from the Westbank First Nation regarding this project.

"Consultation with the Okanagan Nation Alliance would only be required if a portion of the project was on Crown Land. FortisBC has confirmed that no part of any option presented in the CPCN Application is on Crown land and therefore, consultation is not required (BCUC IR#1, 18.3)"

Q59.2 Please explain whether the Westbank First Nation is a member of the Okanagan Nation Alliance.

A59.2 The Westbank First Nation is a member of the Okanagan Nation Alliance.

Exhibit B-3, Table A28.1 shows an amount of $19,500 for "First Nations Consultation and Accommodation Costs."

Q59.3 Please explain whether the First Nations costs shown in Table A28.1 are monies that have already been spent, monies that will be spent, or have been partially spent already.

A59.3 These costs are for consultation and accommodation some of which have been spent to date. There will be additional budget considerations for the actual work contemplated on the Reserve which is only in the area of the Mission Creek crossing.

Year	Distribution Losses	
2010	$	7,429.65
2011	$	7,805.78
2012	$	8,200.94
2013	$	8,616.12
2014	$	9,052.31
2015	$	9,510.58
2016	$	9,992.05
2017	$	10,497.90
2018	$	11,029.36
2019	$	11,587.72
2020	$	12,174.35
TOTAL 2010-2020	$	105,896.75

Feeder 1

Year	Capacity ($/MW)	Energy($/GWh)	Capacity ($/kW)	Energy($/kWh)	Loss at Peak (kW)	Average Loss (kW)	Capacity Cost	Energy Cost	Total annual value
2010	$ 71,442.50	$ 42,025.00	$ 71.44	$ 0.04	-8.00	-1.28	$ (571.54)	$ (471.22)	$ (1,042.76)
2011	$ 73,228.56	$ 43,075.63	$ 73.23	$ 0.04	-8.20	-1.31	$ (600.47)	$ (495.07)	$ (1,095.55)
2012	$ 75,059.28	$ 44,152.52	$ 75.06	$ 0.04	-8.41	-1.34	$ (630.87)	$ (520.14)	$ (1,151.01)
2013	$ 76,935.76	$ 45,256.33	$ 76.94	$ 0.05	-8.62	-1.38	$ (662.81)	$ (546.47)	$ (1,209.28)
2014	$ 78,859.15	$ 46,387.74	$ 78.86	$ 0.05	-8.83	-1.41	$ (696.37)	$ (574.13)	$ (1,270.50)
2015	$ 80,830.63	$ 47,547.43	$ 80.83	$ 0.05	-9.05	-1.45	$ (731.62)	$ (603.20)	$ (1,334.82)
2016	$ 82,851.40	$ 48,736.12	$ 82.85	$ 0.05	-9.28	-1.48	$ (768.66)	$ (633.74)	$ (1,402.39)
2017	$ 84,922.68	$ 49,954.52	$ 84.92	$ 0.05	-9.51	-1.52	$ (807.57)	$ (665.82)	$ (1,473.39)
2018	$ 87,045.75	$ 51,203.38	$ 87.05	$ 0.05	-9.75	-1.56	$ (848.45)	$ (699.53)	$ (1,547.98)
2019	$ 89,221.89	$ 52,483.47	$ 89.22	$ 0.05	-9.99	-1.60	$ (891.41)	$ (734.94)	$ (1,626.35)
2020	$ 91,452.44	$ 53,795.55	$ 91.45	$ 0.05	-10.24	-1.64	$ (936.53)	$ (772.15)	$ (1,708.68)

Feeder 2

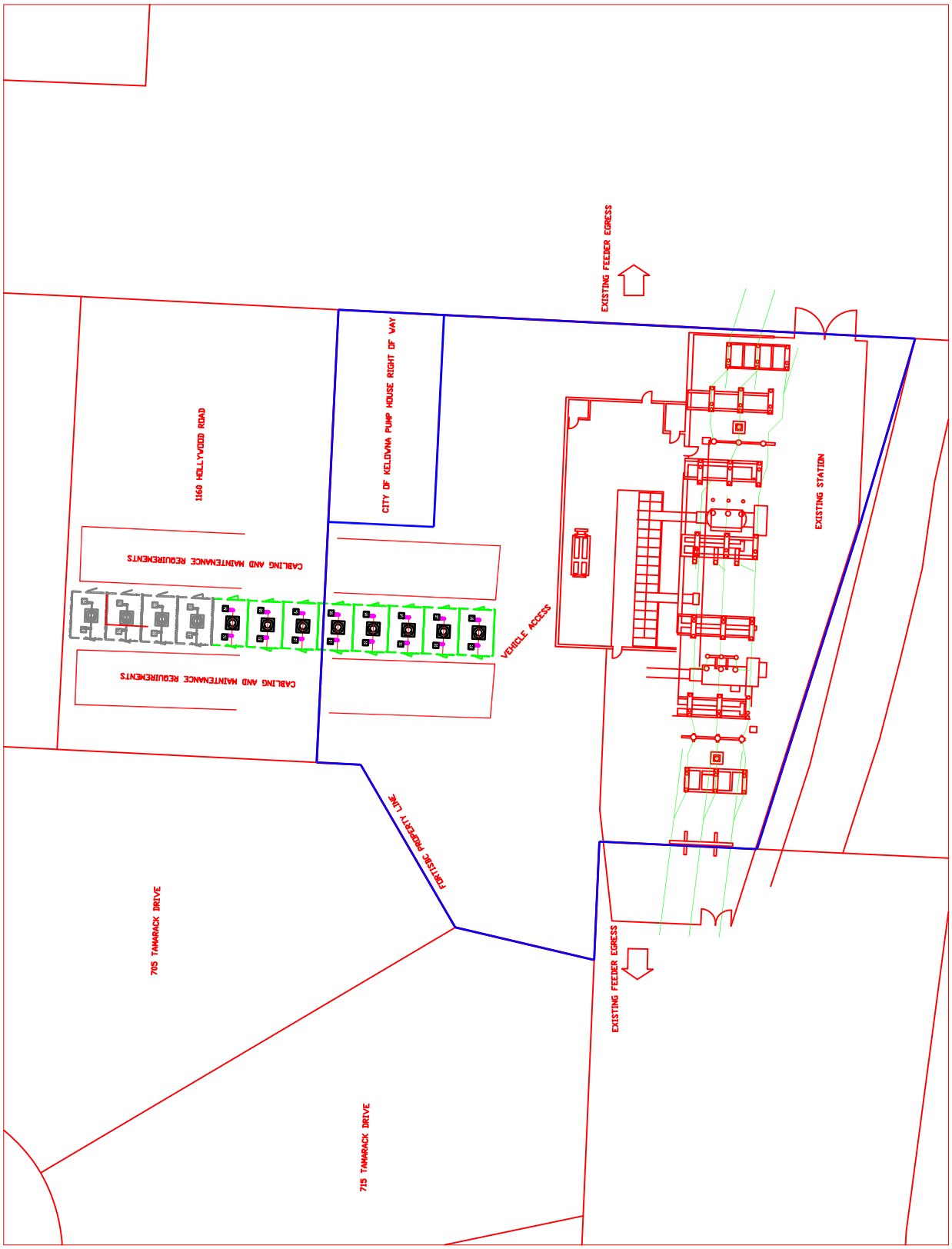
Year	Capacity ($/MW)	Energy($/GWh)	Capacity ($/kW)	Energy($/kWh)	Loss at Peak (kW)	Average Loss (kW)	Capacity Cost	Energy Cost	Total annual value
2010	$ 71,442.50	$ 42,025.00	$ 71.44	$ 0.04	16.00	2.56	$ 1,143.08	$ 942.44	$ 2,085.52
2011	$ 73,228.56	$ 43,075.63	$ 73.23	$ 0.04	16.40	2.62	$ 1,200.95	$ 990.15	$ 2,191.10
2012	$ 75,059.28	$ 44,152.52	$ 75.06	$ 0.04	16.81	2.69	$ 1,261.75	$ 1,040.27	$ 2,302.02
2013	$ 76,935.76	$ 45,256.33	$ 76.94	$ 0.05	17.23	2.76	$ 1,325.62	$ 1,092.94	$ 2,418.56
2014	$ 78,859.15	$ 46,387.74	$ 78.86	$ 0.05	17.66	2.83	$ 1,392.73	$ 1,148.27	$ 2,541.00
2015	$ 80,830.63	$ 47,547.43	$ 80.83	$ 0.05	18.10	2.90	$ 1,463.24	$ 1,206.40	$ 2,669.64
2016	$ 82,851.40	$ 48,736.12	$ 82.85	$ 0.05	18.56	2.97	$ 1,537.32	$ 1,267.47	$ 2,804.79
2017	$ 84,922.68	$ 49,954.52	$ 84.92	$ 0.05	19.02	3.04	$ 1,615.14	$ 1,331.64	$ 2,946.78
2018	$ 87,045.75	$ 51,203.38	$ 87.05	$ 0.05	19.49	3.12	$ 1,696.91	$ 1,399.05	$ 3,095.96
2019	$ 89,221.89	$ 52,483.47	$ 89.22	$ 0.05	19.98	3.20	$ 1,782.81	$ 1,469.88	$ 3,252.69
2020	$ 91,452.44	$ 53,795.55	$ 91.45	$ 0.05	20.48	3.28	$ 1,873.07	$ 1,544.29	$ 3,417.36

Feeder 3

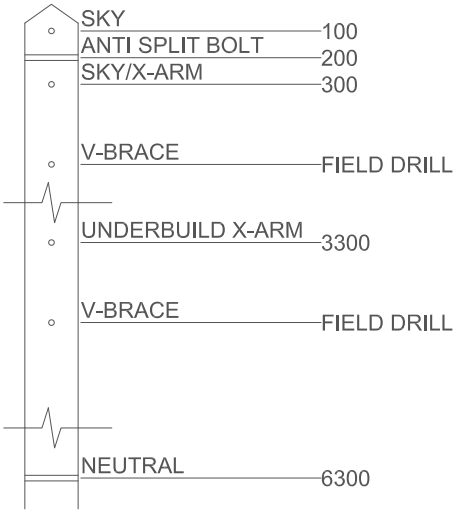
Year	Capacity ($/MW)	Energy($/GWh)	Capacity ($/kW)	Energy($/kWh)	Loss at Peak (kW)	Average Loss (kW)	Capacity Cost	Energy Cost	Total annual value
2010	$ 71,442.50	$ 42,025.00	$ 71.44	$ 0.04	4.00	0.64	$ 285.77	$ 235.61	$ 521.38
2011	$ 73,228.56	$ 43,075.63	$ 73.23	$ 0.04	4.10	0.66	$ 300.24	$ 247.54	$ 547.77
2012	$ 75,059.28	$ 44,152.52	$ 75.06	$ 0.04	4.20	0.67	$ 315.44	$ 260.07	$ 575.50
2013	$ 76,935.76	$ 45,256.33	$ 76.94	$ 0.05	4.31	0.69	$ 331.41	$ 273.23	$ 604.64
2014	$ 78,859.15	$ 46,387.74	$ 78.86	$ 0.05	4.42	0.71	$ 348.18	$ 287.07	$ 635.25
2015	$ 80,830.63	$ 47,547.43	$ 80.83	$ 0.05	4.53	0.72	$ 365.81	$ 301.60	$ 667.41
2016	$ 82,851.40	$ 48,736.12	$ 82.85	$ 0.05	4.64	0.74	$ 384.33	$ 316.87	$ 701.20
2017	$ 84,922.68	$ 49,954.52	$ 84.92	$ 0.05	4.75	0.76	$ 403.79	$ 332.91	$ 736.69
2018	$ 87,045.75	$ 51,203.38	$ 87.05	$ 0.05	4.87	0.78	$ 424.23	$ 349.76	$ 773.99
2019	$ 89,221.89	$ 52,483.47	$ 89.22	$ 0.05	5.00	0.80	$ 445.70	$ 367.47	$ 813.17
2020	$ 91,452.44	$ 53,795.55	$ 91.45	$ 0.05	5.12	0.82	$ 468.27	$ 386.07	$ 854.34

Feeder 4

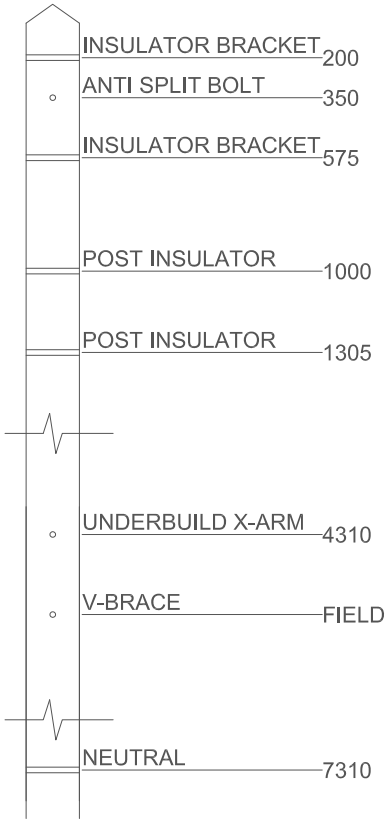
Year	Capacity ($/MW)	Energy($/GWh)	Capacity ($/kW)	Energy($/kWh)	Loss at Peak (kW)	Average Loss (kW)	Capacity Cost	Energy Cost	Total annual value
2010	$ 71,442.50	$ 42,025.00	$ 71.44	$ 0.04	45.00	7.20	$ 3,214.91	$,650.60	$ 5,865.51
2011	$ 73,228.56	$ 43,075.63	$ 73.23	$ 0.04	46.13	7.38	$ 3,377.67	$ 2,784.79	$ 6,162.45
2012	$ 75,059.28	$ 44,152.52	$ 75.06	$ 0.04	47.28	7.56	$ 3,548.66	$ 2,925.77	$ 6,474.43
2013	$ 76,935.76	$ 45,256.33	$ 76.94	$ 0.05	48.46	7.75	$ 3,728.31	$ 3,073.88	$ 6,802.20
2014	$ 78,859.15	$ 46,387.74	$ 78.86	$ 0.05	49.67	7.95	$ 3,917.06	$ 3,229.50	$ 7,146.56
2015	$ 80,830.63	$ 47,547.43	$ 80.83	$ 0.05	50.91	8.15	$ 4,115.36	$ 3,392.99	$ 7,508.35
2016	$ 82,851.40	$ 48,736.12	$ 82.85	$ 0.05	52.19	8.35	$ 4,323.70	$ 3,564.76	$ 7,888.46
2017	$ 84,922.68	$ 49,954.52	$ 84.92	$ 0.05	53.49	8.56	$ 4,542.59	$ 3,745.23	$ 8,287.82
2018	$ 87,045.75	$ 51,203.38	$ 87.05	$ 0.05	54.83	8.77	$ 4,772.56	$ 3,934.83	$ 8,707.39
2019	$ 89,221.89	$ 52,483.47	$ 89.22	$ 0.05	56.20	8.99	$ 5,014.17	$ 4,134.03	$ 9,148.20
2020	$ 91,452.44	$ 53,795.55	$ 91.45	$ 0.05	57.60	9.22	$ 5,268.01	$ 4,343.32	$ 9,611.33

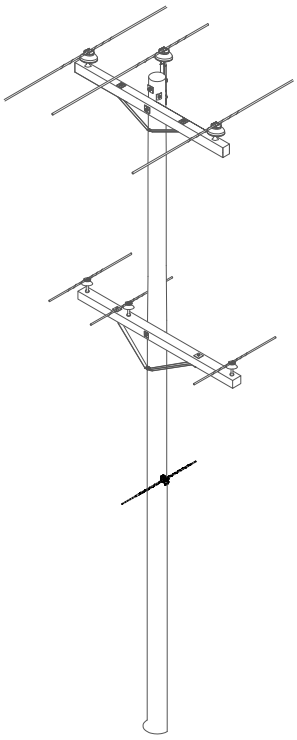

EXISTING FEEDER EGRESS
CITY OF KELOWNA PUMP HOUSE RIGHT OF WAY
1160 HOLLYWOOD ROAD
EXISTING STATION
CABLING AND MAINTENANCE REQUIREMENTS
CABLING AND MAINTENANCE REQUIREMENTS
VEHICLE ACCESS
FORTISBC PROPERTY LINE
705 TAMARACK DRIVE
715 TAMARACK DRIVE
EXISTING FEEDER EGRESS

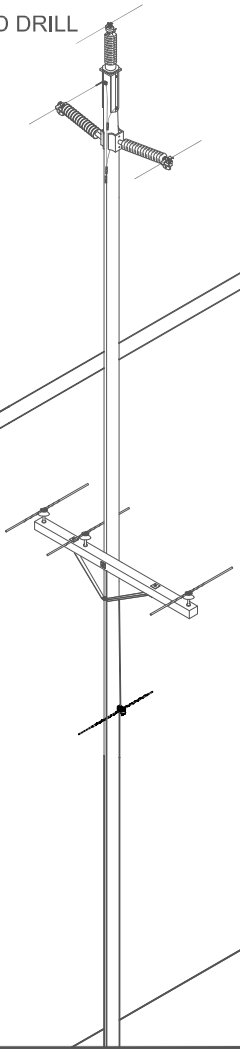
DRILLING DETAIL
FOR DISTRIBUTION STRUCTURE



DRILLING DETAIL
FOR TRANSMISSION STRUCTURE







NOTES:
1. ALL DIMENSIONS IN MM

No.	BY	DATE	DESCRIPTION
4			
3			
2			
1			

DRAWN BY	AR	NOV 08	KOOTENAY/OKANAGAN TRANSMISSION–DISTRIBUTION
CHECKED BY			
APPROVED BY			

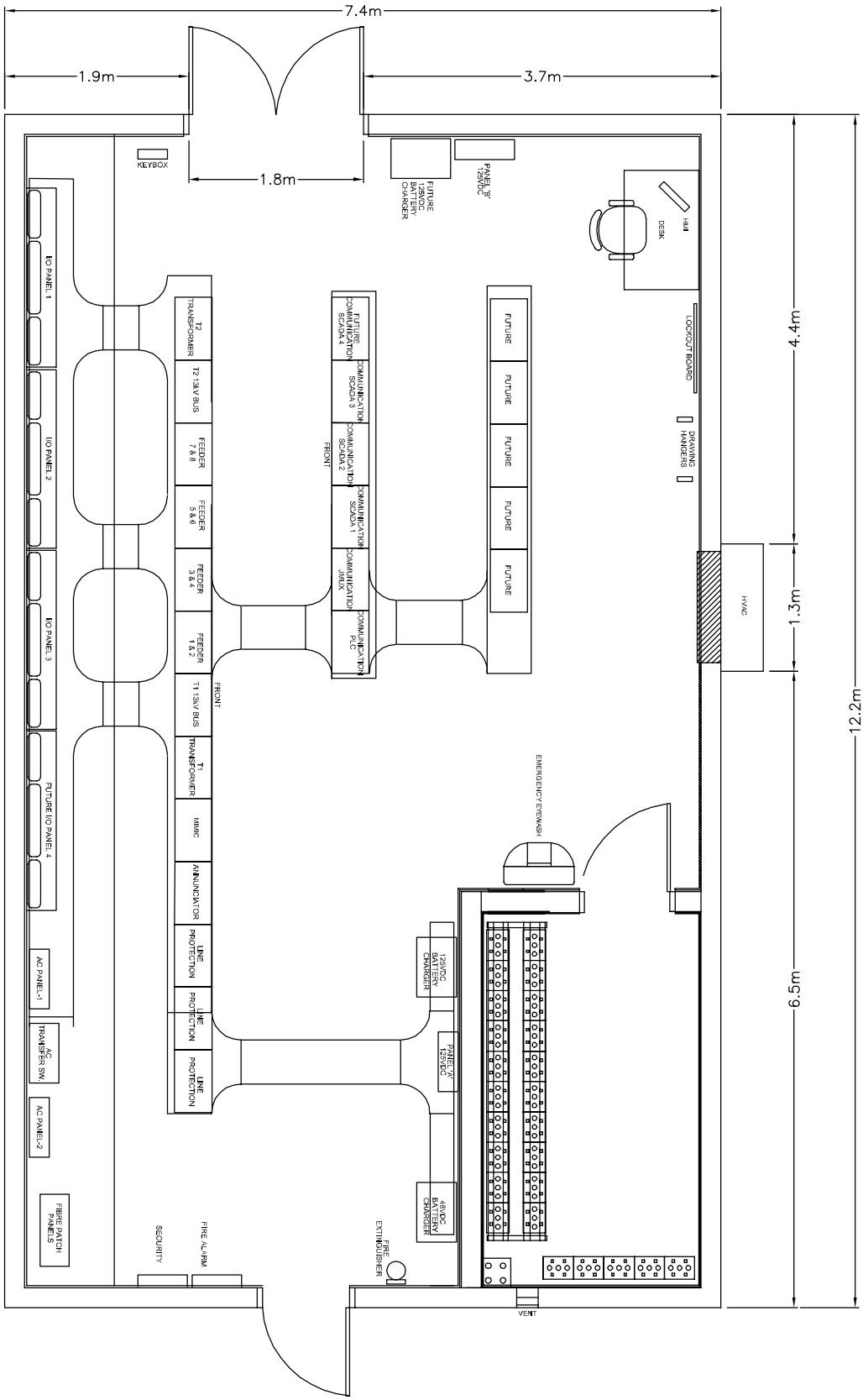
FORTISBC

DRAWING No.	REV.
	0

Benvoulin Project

Line No.		Dec-08	0 Dec-09	1 Dec-10	2 Dec-11	3 Dec-12	4 Dec-13	5 Dec-14	6 Dec-15	7 Dec-16	8 Dec-17	9 Dec-18	10 Dec-19	11 Dec-20	12 Dec-21	13 Dec-22	14 Dec-23	15 Dec-24	16 Dec-25	17 Dec-26	18 Dec-27	19 Dec-28	20 Dec-29	21 Dec-30	22 Dec-31	23 Dec-32	24 Dec-33	25 Dec-34	26 Dec-35	27 Dec-36	28 Dec-37	29 Dec-38	30 Dec-39	31 Dec-40	32 Dec-41	33 Dec-42
	Summary																																		
	Revenue Requirements																																		
1	Annual Operating Expense	0	0	20	141	144	147	150	153	157	160	163	167	170	174	178	182	186	190	194	198	202	206	211	215	220	225	229	234	239	245	250	255	261	266	272
2	Depreciation Expense	0	0	0	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471
3	Carrying Costs	0	0	614	1,211	1,176	1,142	1,107	1,072	1,037	1,002	968	933	898	863	828	794	759	724	689	654	620	585	550	515	480	446	411	376	341	306	272	237	202	167	132
4	Income Tax	0	(61)	(355)	(15)	11	34	54	72	88	102	115	126	136	145	152	159	164	168	172	175	177	179	180	180	180	180	179	177	175	173	171	168	165	162	159
5	Yearly Revenue Requirement for Project	0	(61)	279	1,808	1,802	1,793	1,781	1,768	1,752	1,735	1,717	1,697	1,675	1,653	1,629	1,604	1,579	1,553	1,526	1,498	1,470	1,441	1,411	1,381	1,351	1,320	1,289	1,258	1,227	1,195	1,163	1,131	1,099	1,066	1,034
6	Net Present Value of Revenue Requirements at		**1,239**																																	
	Rate Impact																																			
8	Load Growth	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
9	Cummulative Load Growth	2.00%	4.04%	6.12%	8.24%	10.41%	12.62%	14.87%	17.17%	19.51%	21.90%	24.34%	26.82%	29.36%	31.95%	34.59%	37.28%	40.02%	42.82%	45.68%	48.59%	51.57%	54.60%	57.69%	60.84%	64.06%	67.34%	70.69%	74.10%	77.58%	81.14%	84.76%	88.45%	92.22%	96.07%	99.99%
10	Forecast Revenue Requirements ($2008)	**220,950**	229,876	234,413	239,442	245,755	250,628	255,595	260,659	265,823	271,089	276,459	281,935	287,519	293,214	299,022	304,946	310,988	317,150	323,435	329,846	336,384	343,054	349,857	356,795	363,873	371,093	378,457	385,969	393,631	401,447	409,420	417,552	425,848	434,310	442,942
11	Incremental Revenue Requirements	0	(61)	340	1,529	(6)	(9)	(12)	(14)	(15)	(17)	(19)	(20)	(21)	(23)	(24)	(25)	(25)	(26)	(27)	(28)	(28)	(29)	(29)	(30)	(30)	(31)	(31)	(31)	(32)	(32)	(32)	(32)	(32)	(32)	(32)
12	**Rate Impact**	0.0%	0.0%	0.1%	**0.6%**	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
13	Cummulative Rate Impact	0.00%	-0.03%	0.12%	0.76%	0.76%	0.75%	0.75%	0.74%	0.74%	0.73%	0.72%	0.72%	0.71%	0.70%	0.69%	0.68%	0.68%	0.67%	0.66%	0.65%	0.64%	0.63%	0.63%	0.62%	0.61%	0.60%	0.59%	0.58%	0.58%	0.57%	0.56%	0.55%	0.54%	0.54%	0.53%
14	Discounted Yearly Revenue Requirement for Project		(61)	309	1,264	(4)	(6)	(7)	(8)	(8)	(8)	(8)	(8)	(7)	(7)	(7)	(6)	(6)	(6)	(5)	(5)	(5)	(4)	(4)	(4)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(1)
15	**NPV of Project / Total Revenue Requirements at**		**0.04%**																																	

		0 Dec-08	1 Dec-09	2 Dec-10	3 Dec-11	4 Dec-12	5 Dec-13	6 Dec-14	7 Dec-15	8 Dec-16	9 Dec-17	10 Dec-18	11 Dec-19	12 Dec-20	13 Dec-21	14 Dec-22	15 Dec-18	16 Dec-18	17 Dec-18	18 Dec-18	19 Dec-18	20 Dec-18	21 Dec-18	22 Dec-18	23 Dec-18	24 Dec-18	25 Dec-18	26 Dec-18	27 Dec-18	28 Dec-18	29 Dec-18	30 Dec-18	31 Dec-18	32 Dec-18	33 Dec-18	34 Dec-18
	Discounted Cash Flow																																			
17	Net Power Purchase Expense	0	0	20	141	144	147	150	153	157	160	163	167	170	174	178	182	186	190	194	198	202	206	211	215	220	225	229	234	239	245	250	255	261	266	272
18	Income Tax	0	(61)	(355)	(15)	11	34	54	72	88	102	115	126	136	145	152	159	164	168	172	175	177	179	180	180	180	180	179	177	175	173	171	168	165	162	159
19	Capital Cost	0	0	16,574	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Total Revenue Requirement for Project	0	(61)	16,238	126	155	180	204	225	244	262	278	293	307	319	330	340	350	358	366	373	379	385	391	395	400	404	408	412	415	418	421	423	426	428	431
1	Discounted Cash Flow Net Present Value at 6%		**18,082**																																	
2	Discounted Cash Flow Net Present Value at 8%		**16,616**																																	
21	Discounted Cash Flow Net Present Value at 10%		**15,476**																																	
22	**Regulatory Assumptions**																																			
23	Equity Component	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
24	Debt Component	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
25	Equity Return	9.60%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%	8.91%
26	Debt Return	6.34%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%	6.38%
27	**Capital Cost**																																			
28	Unloaded Capital Cost	732	2,702	10,199																																
29	Capitalized Overhead	94	142	596																																
30	Direct Overhead	0	338	1,106																																
31	AFUDC	3	108	553																																
32	Total Construction Cost in Year (Less Land Cost)	830	2,408	12,453	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Cumulative Construction Cost	830	3,239	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692
34	Land	0	881	0																																
35	Total Capital Cost in Year	830	3,290	12,453	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Cumulative Capital Cost	830	4,120	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574
37	Net Cost of Removal	0	0	46																																
38	Total Construction Cost in Year	830	3,290	12,499	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Additions to Plant in Service	0	0	16,574	0	0	0																													
40	Cummulative Additions to Plant	0	0	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574
41	CWIP	830	4,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	**Annual Operating Costs / (Savings)**																																			
43	Incremental Operating Costs (Savings)				20	20	21	21	22	22	23	23	23	24	24	25	25	26	26	27	27	28	29	29	30	30	31	32	32	33	33	34	35	36	36	37
44	Incremental Property Tax			20	121	123	126	129	132	134	137	140	143	147	150	153	156	160	163	167	170	174	178	182	186	190	194	198	202	207	211	216	220	225	230	235
45	Total Incremental Operating Costs (Savings)	0	0	20	141	144	147	150	153	157	160	163	167	170	174	178	182	186	190	194	198	202	206	211	215	220	225	229	234	239	245	250	255	261	266	272
46	**Depreciation Expense**																																			
47	Opening Cash Outlay	0	0	0	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692
48	Additions in Year (Without Land-Since no Depreciation for Land)	0	0	15,692	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Cumulative Total	0	0	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692	15,692
50	Depreciation Rate - composite average	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
51	Depreciation Expense (Without Land)	0	0	0	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471
52	**Net Book Value**																																			
53	Gross Property **(With land)**	0	0	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574	16,574
54	Accumulated Depreciation	0	0	46	(425)	(896)	(1,367)	(1,837)	(2,308)	(2,779)	(3,250)	(3,720)	(4,191)	(4,662)	(5,133)	(5,603)	(6,074)	(6,545)	(7,016)	(7,487)	(7,957)	(8,428)	(8,899)	(9,370)	(9,840)	(10,311)	(10,782)	(11,253)	(11,723)	(12,194)	(12,665)	(13,136)	(13,607)	(14,077)	(14,548)	(15,019)
		0	0	16,619	16,149	15,678	15,207	14,736	14,265	13,795	13,324	12,853	12,382	11,912	11,441	10,970	10,499	10,029	9,558	9,087	8,616	8,145	7,675	7,204	6,733	6,262	5,792	5,321	4,850	4,379	3,909	3,438	2,967	2,496	2,025	1,555
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Net Book Value	0	0	16,619	16,149	15,678	15,207	14,736	14,265	13,795	13,324	12,853	12,382	11,912	11,441	10,970	10,499	10,029	9,558	9,087	8,616	8,145	7,675	7,204	6,733	6,262	5,792	5,321	4,850	4,379	3,909	3,438	2,967	2,496	2,025	1,555
56	**Carrying Costs on Average NBV**																																			
57	Return on Equity	0	0	296	584	567	550	534	517	500	483	466	450	433	416	399	383	366	349	332	315	299	282	265	248	232	215	198	181	164	148	131	114	97	81	64
58	Interest Expense	0	0	318	627	609	591	573	555	537	519	501	483	465	447	429	411	393	375	357	339	321	303	285	267	249	231	213	195	177	159	141	123	105	87	69
59	**Total Carrying Costs**	0	0	614	1,211	1,176	1,142	1,107	1,072	1,037	1,002	968	933	898	863	828	794	759	724	689	654	620	585	550	515	480	446	411	376	341	306	272	237	202	167	132
60	**Income Tax Expense**																																			
61	Combined Income Tax Rate	31.00%	30.00%	29.00%	27.50%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%	26.00%
62	**Income Tax on Equity Return**																																			
63	Return on Equity	0	0	296	584	567	550	534	517	500	483	466	450	433	416	399	383	366	349	332	315	299	282	265	248	232	215	198	181	164	148	131	114	97	81	64
64	Gross up for revenue (Return / (1- tax rate)	0	0	417	805	766	744	721	698	676	653	630	608	585	562	540	517	494	472	449	426	404	381	358	336	313	290	268	245	222	200	177	154	132	109	86
65	Income tax on Equity Return	0	0	121	221	199	193	187	182	176	170	164	158	152	146	140	134	129	123	117	111	105	99	93	87	81	75	70	64	58	52	46	40	34	28	22
66	**Income Tax on Timing Differences**																																			
67	Depreciation Expense	0	0	0	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471
68	Capitalized OH - 100% deduction	94	142	596	0																															
69	Less: Capital Cost Allowance	0	0	570	1,094	1,006	926	852	784	721	663	610	561	516	475	437	402	370	340	313	288	265	244	224	206	190	175	161	148	136	125	115	106	97	90	82
70	Total Timing Differences	(94)	(142)	(1,166)	(623)	(535)	(455)	(381)	(313)	(250)	(192)	(139)	(91)	(46)	(4)	34	69	101	130	158	183	206	227	246	264	281	296	310	323	335	346	356	365	373	381	388
71	Gross up for tax (Total Timing Differences/(1-tax rate))	(137)	(203)	(1,642)	(859)	(724)	(615)	(515)	(423)	(338)	(260)	(188)	(122)	(62)	(6)	46	93	136	176	213	247	278	307	333	357	380	400	419	436	452	467	481	493	504	515	525
72	Income tax on Timing Differences	(42)	(61)	(476)	(236)	(188)	(160)	(134)	(110)	(88)	(68)	(49)	(32)	(16)	(2)	12	24	35	46	55	64	72	80	87	93	99	104	109	113	118	121	125	128	131	134	136
73	**Total Income Tax**	(42)	(61)	(355)	(15)	11	34	54	72	88	102	115	126	136	145	152	159	164	168	172	175	177	179	180	180	180	180	179	177	175	173	171	168	165	162	159
74	**Capital Cost Allowance**																																			
75	Opening Balance - UCC (Undepreciated Capital Cost)	0	0	0	13,671	12,577	11,571	10,646	9,794	9,010	8,290	7,626	7,016	6,455	5,939	5,464	5,026	4,624	4,254	3,914	3,601	3,313	3,048	2,804	2,580	2,373	2,183	2,009	1,848	1,700	1,564	1,439	1,324	1,218	1,121	1,031
76	Total Cash Outlay (includes salvage, excludes capitalized OH and AFUDC)	0	0	14,241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Subtotal UCC	0	0	14,241	13,671	12,577	11,571	10,646	9,794	9,010	8,290	7,626	7,016	6,455	5,939	5,464	5,026	4,624	4,254	3,914	3,601	3,313	3,048	2,804	2,580	2,373	2,183	2,009	1,848	1,700	1,564	1,439	1,324	1,218	1,121	1,031
78	Capital Cost Allowance Rate	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
79	CCA on Opening Balance	0	0	0	1,094	1,006	926	852	784	721	663	610	561	516	475	437	402	370	340	313	288	265	244	224	206	190	175	161	148	136	125	115	106	97	90	82
80	CCA on Capital Expenditures (1/2 yr rule)	0	0	570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	Total CCA	0	0	570	1,094	1,006	926	852	784	721	663	610	561	516	475	437	402	370	340	313	288	265	244	224	206	190	175	161	148	136	125	115	106	97	90	82
82	Ending Balance UCC	0	0	13,671	12,577	11,571	10,646	9,794	9,010	8,290	7,626	7,016	6,455	5,939	5,464	5,026	4,624	4,254	3,914	3,601	3,313	3,048	2,804	2,580	2,373	2,183	2,009	1,848	1,700	1,564	1,439	1,324	1,218	1,121	1,031	948



REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
6						
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DRAWN BY		CONTROL BUILDING
CHECKED BY		
APPROVED BY		

FORTISBC

DRAWING No.	REV.
317-GA(MOD)	0

1. Reference: Exhibit B-1, page 3, lines 26-27 and page 24, Table 4

Q1.1 The Application states that the proposed substation will "alleviate" the need for individual substation upgrades. With the construction of the substation, Table 4 sets out when the existing stations will be overloaded. What are the expected dates when the Hollywood and OK Mission substations and the DG Bell terminal station would require additional upgrades in order to address FortisBC's back-up planning criteria (per page 21).

A1.1 With the addition of the proposed Benvoulin Substation the ability to back up Hollywood and OK Mission Substations would be possible within FortisBC's current planning outlook (i.e. up to 2020). For the DG Bell Terminal station, FortisBC would be able to meet its current back up criteria of 80 percent until 2017/2018.

Q1.2 What are FortisBC's current plans for addressing the projected capacity shortfalls starting in 2013/14?

A1.2 Assuming the Benvoulin Substation is constructed, the remaining shortfall in capacity on Hollywood Transformer 1 can be managed through incremental load shifting every year to the Black Mountain Substation.

Q1.3 As part of developing the current Application, did FortisBC consider any options that would delay the need for additional capacity even further into the future? If so, what were they and why were they rejected?

A1.3 FortisBC has already considered the available options and has applied them to the extent possible. Other options considered:

- Load transfers between feeders and substations. This option has been exhausted within the limits of existing equipment.
- Utilizing a mobile substation. This is not an acceptable solution since the mobile units are typically used for breakdown and maintenance functions.

2. Reference: Exhibit B-1, page 10, lines 5-7 and page 12, lines 13-14

Q2.1 What limits the transfer of distribution load to the Glenmore Substation to 2.7 MVA?

A2.1 Glenmore Substation feeds a dense commercial region in the Springfield/Enterprise/Spall Road region of Kelowna. Adding additional load to the Glenmore Substation will exceed the operational limits of the feeders and limit the operational flexibility of the distribution network fed from the Glenmore Substation.

3. Reference: Exhibit B-1, page 17, Table 3.2a
Exhibit B-3, Response 1.7.1

Q3.1 With respect to Table 3.2a, do the projects listed account for all of the load growth shown in Table 3.1.1? If not, please explain the difference.

A3.1 No, expected new development does not account for all the load growth. There is also growth attributed to customers already connected to the electrical system. Revised versions of Table 3.2a and Table 3.1.1 of Exhibit B-1 is shown in BCUC IR2 A47.1 and A48.3 respectively. FortisBC has considered current economic conditions in order to examine the impact of any new information on the need or timing of the Project. FortisBC's load forecasts are based on known load

requirements at this time. The in-service date requirement for the proposed Benvoulin Substation remains unchanged.

Q3.2 Please explain the information sources for each of the projects listed in Table 3.2a.

A3.2 The information was obtained from the Kelowna Official Community Plan and through FortisBC's ongoing discussions with regional or municipal planners and local developers.

Q3.3 Given recent economic events, are all of the projects listed in Table 3.2a still proceeding as planned or have any of them been delayed?

A3.3 Please see the response to BCUC IR2 Q47.1.

4. Reference: Exhibit B-1, page 21, Section 3.3

Q4.1 Please explain the back-up arrangements for the Hollywood Substation and why it is currently only 80%.

A4.1 In the event of a single transformer loss at Hollywood Substation, load would be supplied by load from the adjacent transformer through feeder ties, with some load from OK Mission and Glenmore substations as well as load from DG Bell and FA Lee Terminal stations. With the addition of the Black Mountain Substation, backup for Hollywood Substation will fall within FortisBC's backup criteria.

Q4.2 There is no explicit discussion of the backup for the OK Mission Substation. Please outline its available backup.

A4.2 In the event of a single transformer loss at OK Mission Substation, load would be supplied from the adjacent transformer through feeder ties, with the remainder of the load supplied from Glenmore and Hollywood substations and DG Bell Terminal station.

5. Reference: Exhibit B-1, pages 22 & 24

Q5.1 Would the addition of additional transformers and/or feeders at Benvoulin in the future be able to alleviate the forecasted shortfall in capacity at Hollywood Substation starting in 2013/14 (per Table 4.0)?

A5.1 Please refer to the response to Q1.2 above.

6. Reference: Exhibit B-1, page 30

Q6.1 Does the rebuilding of the existing distribution circuits along Benvoulin Road and DeHart Road involve the use of similar or different pole structures than are currently in place? If different, please outline the difference and whether there has been any consultation with stakeholders about the change in the structures to be used.

A6.1 The new pole structures will differ from the existing structures in that a double circuit design will be used along Benvoulin Road. Circuits will be upgraded from single phase to three phase construction along DeHart Road. This was discussed at the Public Open House sessions, however, final pole design cannot be determined until locations are identified during final design.

7. Reference: Exhibit B-1, pages 45, 47 & 49

Q7.1 The non-financial ranking suggests that Site 7 is less desirable than Site 2 in terms of flexibility for future growth. Please comment on whether this reduced flexibility is expected to have a material impact on the cost of future capital projects required to meet growth in the area.

A7.1 Site 7 is ranked lower than Site 2 due to the fact that Site 2 is closer to the electrical load center (please refer to the response to BCUC IR2 Q51.2). For future feeders serving loads in the Casorso/Benvoulin Road area, longer distribution feeders would be required which would have a material impact on the cost of these capital projects, however, it should be noted that for future feeders serving loads in the DeHart/Gordon Road area, Site 7 would have less material impact than if the substation was located at Site 2.

8. Reference: Exhibit B-1, pages 51 & 52
Exhibit B-3, Response 1.29.1

Q8.1 Please indicate what (if any) differences in cost risks exist as between the two sites, apart from inflation due to delays arising from approvals.

A8.1 The difference in risk at these two sites is based on the potential difficulty in securing a non-farm use permit from the Agricultural Land Commission (ALC), and the City of Kelowna re-zoning for Site 2. These costs result from more than just inflation as they are costs that arise from the process itself. For example, if the Company was to propose Site 2 as its preferred location, which stakeholders have indicated would face opposition, there is an increased probability that stakeholder concerns would result in more extensive public proceedings to attain BCUC, ALC, and City of Kelowna approvals. The Company's recent experience

related to re-zoning for its proposed Ellison Substation Project in Kelowna demonstrates the risks associated with such a situation.

9. Reference: Exhibit B-1, page 24
Exhibit B-3, Response 1.16.1

Q9.1 Please reconcile the response to BCUC 1.16.1 which suggests that the next required reinforcement in the area will be to the Benvoulin Substation in 2016/17 with Table 4.0 which suggests the next required reinforcement is to the Hollywood Substation in 2013/14.

A9.1 Table 4.0 shows a residual shortfall in capacity at the Hollywood Substation in 2013/2014, but as discussed in the response to Q1.2 above, this shortfall will be managed through load transfer to the Black Mountain Substation.

10. Reference: Exhibit B-3, Responses 1.7.1 and 1.20.5

Q10.1 Please reconcile the responses to these two questions. The first response suggests that the load forecasts are generally based on linear extrapolations; while the second suggests they are based on known and proposed commercial & residential growth.

A10.1 The load forecasts are initially based on linear projections of recent growth and incorporate known large load additions through the relevant Official Community Plans and through FortisBC's ongoing discussions with regional or municipal planners and local developers.

11. Reference: Exhibit B-3, Responses 1.21.1 and 1.36.1

Q11.1 What degree of operational flexibility is provided by using the nameplate rating of transformers for system planning purposes?

A11.1 Transformers which are designed in accordance with IEEE Standard C57 have some additional overload capability (up to approximately 119 percent of nameplate) for temperatures below 25°C down to 0°C. Further increases with declining ambient temperature are not covered by the standard because of variability of the non-linear viscosity characteristics of the various types of transformer oil at low temperatures. Thus, overloading beyond the 119 percent limit requires specific details on the daily load cycle and the expected weather.

The short-time overload rating of a transformer varies depending on a number of factors such as the ambient temperature, the pre-contingency loading, the age/condition of the unit and possible limitations of ancillary equipment such as bushings, tapchangers and current transformers. Decisions regarding the overload capability of transformers during contingency operation are made in real-time during the contingency and take into account many factors including those listed above.

The nameplate ratings of Hollywood Transformer 3 and OK Mission Transformer 3 will be exceeded in the summer of 2009 and summer of 2010 respectively as shown in BCUC Table A48.3. There is no overload capacity to be gained during the summer peak because of the higher ambient temperatures (in fact as temperature exceeds 30°C, the available capacity may fall below nameplate rating).

12. Reference: Exhibit B-3, Response 1.32.8

Exhibit B-1, page 13, Table 3.1.1

Q12.1 Please indicate the amount of load shifting that can occur between the Hollywood and Black Mountain Substations. Please provide a revised version of Table 3.1.1 that accounts for this load shifting.

A12.1 Table 3.1.1 already takes into account a 3.4 MVA load shift to the new Black Mountain Substation, however, this load is offset by a load shifting addition from the FA Lee Terminal station.

Q12.2 Does this potential load shifting alter the required in-service date for the Benvoulin Substation? If yes, please discuss the pros/cons of shifting the construction and in-service date accordingly.

A12.2 Load shifting between these substations only affects Hollywood Transformer 1, and since Transformer 3 is the transformer which will be overloaded first, the in-service date for proposed Benvoulin Substation remains unchanged.

Tantalus' winery operations is located within 600 meters of the proposed Substation site. Tantalus is undergoing extensive changes including the building of a new 30,000 square foot, state of the art winery processing facility and visitor center. Construction will commence in spring 2009 and the final cost at completion will exceed $15,000,000. Tantalus has utilized world renowned Vancouver Architect Bing Thom to design a building that will not only show case Tantalus wines but also act as an integral anchor for agri-tourism in Kelowna and the North Okanagan Valley. Upon completion of the new facility, Tantalus expects to welcome approx. 15,000 visitors per year.

Due to the scope of the new winery and visitor facility, it is most important that site lines and views along access routes to and from the winery be maintained to their current standards. Changes to these routes including the addition of power lines and poles, and loss of trees in the forested buffer between Casorso Road and the proposed Substation building site, constitute a degradation of the overall visitor experience to the area.

With this in mind, Tantalus requests Fortis recognize the potential for negative impact to this marquee agri-tourism business and consider the importance of visual aesthetics during planning and implementation of the proposed Substation. It is imperative that Fortis' site plan include a strong focus on maintaining as much of the natural forests as possible in the buffer area between Casorso Road and the Substation site, as well as along main access routes to and from the winery. A comprehensive site plan satisfying Tantalus' concerns regarding the above mentioned issues would include the following:

1. Fortis' commitment to falling trees only where the tree location is in direct conflict with the placement of a power pole.

2. Topping rather than removing trees under and around transmission lines running to and from the Substation, along main access routes, within 1 km of the proposed Substation building site.

3. Fortis use existing power poles when installing new lines along Casorso and Dehart Roads.

4. Implement a re-forestation plan to mitigate sight line gaps and openings resulting from Fortis' site alterations and or Pine beetle kill along the entire length of the Substation property bordering Casorso Road.

5. Insure Pine trees affected by the Pine beetle will not be removed until they are showing red foliar casting. (confirmed mortality)

In addition to the above comments, Tantalus wishes to submit the following request for information.

Q1. Please provide details of transmission line routing to and from the proposed Substation.

A1. The transmission lines will run up the hill in a vertical configuration, connecting to the existing lines on Casorso Road. The lines will be rolled from a horizontal array to a vertical array at the edge of the substation. This will result in the relocation of two poles, and the addition of one pole along Casorso Road at the top of the hill.

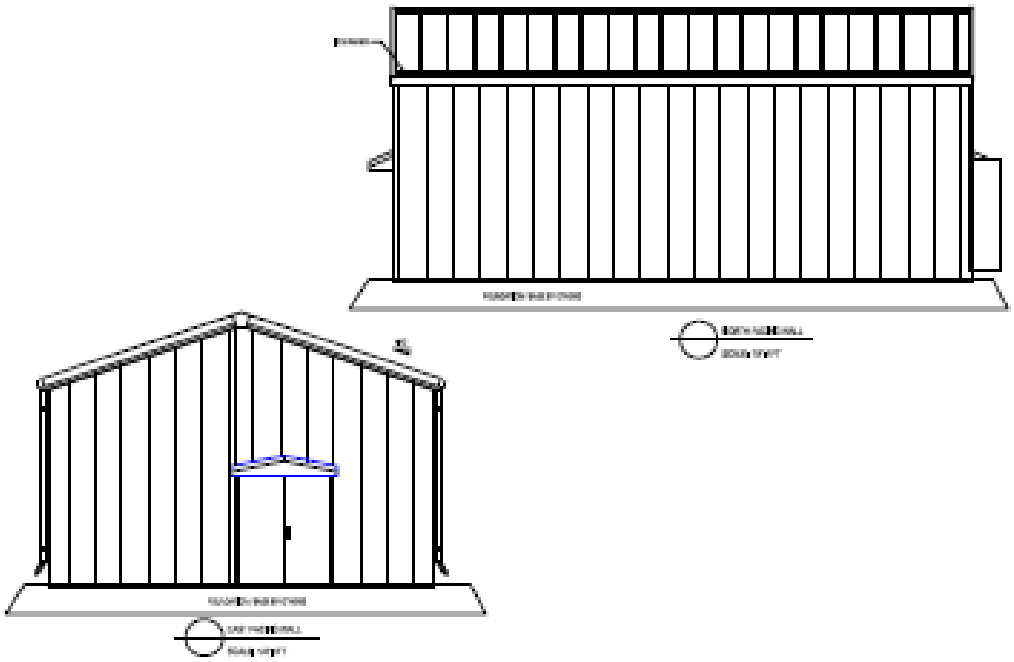
Q2. Please provide a diagram and details of the location and configuration of transmission lines as they enter and exit the Substation property, including pole heights, space tolerances and the number of lines supported on each power pole.

A2. Please see Tantalus Appendix A2. Design to the level of detail requested has not been completed, however the pole heights are expected to be consistent with the existing structures at 70 feet for angle structures and 55 feet for tangent structures. Likewise the number of lines overhead will remain the same as the distribution component is proposed to be underground.

Q3. What are the dimensions and height of the proposed Substation building?

A3. The typical control building is a simple structure. The expected dimensions are approximately 12.2 metres by 7.3 metres with the peak of the roof at about 5 metres. A representative sketch is given below in Tantalus Diagram A3.

Tantalus Diagram A3



1 **Q4. Are there any other accessory buildings proposed for the site?**

2 A4. No additional buildings are proposed for the site.

Q5. Please state what changes will be made to the existing power lines and poles along Casorso, Dehart and Swamp roads i.e. change in power pole heights, power pole frequency and number of lines per power pole.

A5. FortisBC is not planning any changes to pole heights or frequency, however as noted in the response to Q1 above two transmission poles will be relocated and one added at Casorso Road. The number of lines per pole will change along DeHart in the single phase distribution section as it is upgraded to three phase. FortisBC will be adding two lines and cross arms from the Tantalus Vineyard entrance south along DeHart Road to Gordon Drive. The Benvoulin Substation Project does not propose any changes to existing power lines and poles along Swamp Road.

Q6. Why will transmission lines leaving the substation and traveling along Casorso Road towards Swamp Road be buried underground?

A6. The transmission lines (138 kV) will not be underground. FortisBC has proposed that the additional distribution feeders (13 kV) be underground for reasons discussed in the response to BCUC IR2 Q45.11.

Q7. What is the average cost per meter for the installation of underground transmission lines?

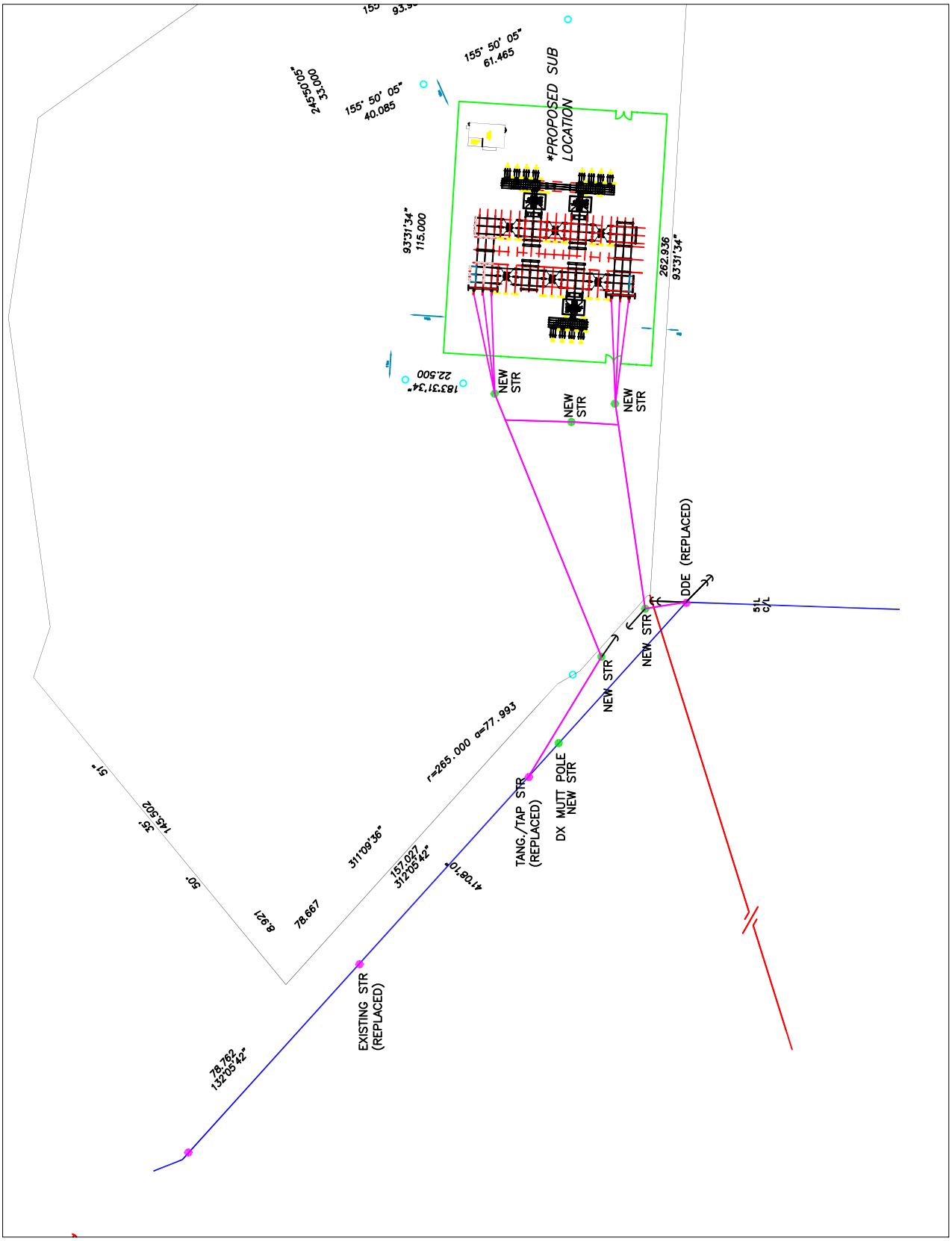
A7. As discussed in the response to Q6 above, FortisBC is not proposing to underground transmission lines.

Q8. Does Fortis intend to alter in any way the access road into the Substation property from Casorso Road?

A8. FortisBC does not intend to change the entrance and is planning to acquire an access easement on the existing access road. The final road layout cannot be known for certain until detailed engineering is complete.

Q9. Is Fortis willing to implement a site plan that will recognize and address Tantalus' concerns regarding the maintenance of current visual aesthetics along Casorso and Dehart Roads? Please provide details.

A9. FortisBC believes that the site plan addresses Tantalus' concerns regarding the maintenance of current visual aesthetics along Casorso and DeHart Roads. The undergrounding of the distribution circuits along Casorso Road will address the visual appearance of these lines. Along DeHart Road, the addition of a three phase circuit in the area where a single phase is currently in place requires only the addition of cross arms on the existing poles. In terms of the station itself one of the reasons the gravel pit was selected is natural visual mitigation. FortisBC is planning to make minimal changes to the transmission circuit along Casorso Road; relocating two poles and introducing a third.


*PROPOSED SUB LOCATION
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155° 50' 05"
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245°50'05"
33.000
93°31'34"
115.000
262.936
93°31'34"
183°31'34"
22.500
NEW STR
NEW STR
NEW STR
DDE (REPLACED)
51L
NEW STR
NEW STR
r=265.000 a=77.993
DX MUTT POLE NEW STR
TANG./TAP STR (REPLACED)
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312°05'42"
41°08'10"
EXISTING STR (REPLACED)
78.762
132°05'42"
78.667
8.921
50'
35'
145.502
57'