

**TERMS OF THE INSTRUMENT - PART 2**

THIS AGREEMENT dated the \_\_\_\_ day of \_\_\_\_, 200\_\_.

BETWEEN

LAST NAME OF OWNER, First Names

Street Address

City, Province

Postal Code

(hereinafter called the "Grantor")

AND:

FRASER VALLEY REGIONAL DISTRICT, a body corporate duly  
incorporated under the laws of the Province of British Columbia, and having an office at:

45950 Cheam Avenue

Chilliwack, British Columbia

V2P 1N6

(hereinafter called the "Regional District")

WHEREAS

- A. Pursuant to Section 219 of the Land Title Act there may be registered as a charge against the title to land that is being or has been registered a condition or covenant in favour of the Crown or of a Crown Corporation or agency or of a municipality or a regional district;
- B. The Grantor is the registered owner of ALL AND SINGULAR that certain parcel or tract of land and premises situated in the Fraser Valley Regional District in the Province of British Columbia, and legally described as:

PARCEL IDENTIFIER: (enter P.I.D. here)

LEGAL DESCRIPTION: (enter legal description here)

(hereinafter called the "Lands")

- C. The Grantor has applied to the Regional District for a building permit for the construction of BP012132;
- D. The Grantor has submitted the Geotechnical Report (as herein defined) in accordance with section 56 of the Community Charter, S.B.C. 2003, c.26, and has offered a covenant to be registered pursuant to section 56(5) of the Community Charter; and

- E. The building inspector of the Fraser Valley Regional District intends to issue the permit in accordance with Section 56(4) of the Community Charter:

NOW THEREFORE THIS COVENANT WITNESSETH that in consideration of the premises, the sum of ONE (\$1.00) DOLLAR of lawful money of Canada paid by the Regional District to the Grantor and other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged by the Grantor), the Grantor for itself and its successors and assigns, hereby covenants, promises and agrees, pursuant to Section 219 of the Land Title Act, R.S.B.C. 1996, c. 250 and amendments thereto (it being the intention of the Grantor that the covenant herein contained shall be annexed to and run with the Lands), that:

#### Definitions

1. In this Agreement:
  - (a) "Building" means that certain carport and placement of mobile home, the construction of which is to be authorized by the Building Permit;
  - (b) "Building Permit" means Fraser Valley Regional District Building Permit No. 012132 issued for the construction of the Building; and
  - (c) "Geotechnical Report" means that certain document entitled "Hydrological Hazard and Flood Level Assessment 14770 Sylvester Road, Hatzic Prairie, Electoral Area F" dated December 5, 2016 prepared by Statlu Environmental Consulting, copies of which are attached to this covenant as Schedule A.

#### Construction and Use

2. The Grantor will not build on the Lands, use the Lands, build the Building or use the Building except for the purposes and in the manner described in the Geotechnical Report.
3. The structures specified in the Geotechnical Report as necessary for safe use of the Lands and of the Building shall be constructed and maintained as set out in the Geotechnical Report until the removal of the Building.

#### Enforcement

4. The Grantor will reimburse the Regional District for any and all expenses that may be incurred by the Regional District as a result of the breach of this covenant, including all legal and administrative costs related thereto, and all costs of a professional engineer with experience in geotechnical engineering. The Grantor shall make payment in full to the Regional District within 30 days of the receipt of a demand in writing from the Regional District.

**No Representations**

5. The Grantor acknowledges that the Regional District does not represent to the Grantor or any person that the Lands, the Building or any users of the Lands or the Building will not be damaged by geotechnical hazards or otherwise, whether or not the actions specified in the geotechnical Report are carried out.

**Release and Indemnity**

6. The Grantor hereby:

- (a) releases, and covenants and agrees to release;
- (b) indemnifies, protects and saves harmless, and covenants and agrees to indemnify, protect and save harmless;

the Regional District from and against any action, cause of action, claim and demand of every kind, description and nature whatsoever arising out of or in any way due to or in any way related to:

- (c) the issuance of the Building Permit, or
- (d) the construction authorized by the Building Permit, or
- (e) the existence of this covenant, or
- (f) any breach of this covenant, or
- (g) the use of the Lands or of the Building, or
- (h) any combination of the above.

**Runs with the Lands**

7. The covenants set forth herein shall charge the Lands pursuant to Section 219 of the Land Title Act and shall be covenants the burden of which shall run with the Lands and bind the Lands and every part or parts thereof and shall attach to and run with the Lands and each and every part to which the Lands may be divided or subdivided whether by subdivision plan, strata plan or otherwise howsoever. The covenants set forth herein shall not terminate if and when a purchaser becomes the owner in fee-simple of the Lands but shall charge the whole of the interest of such purchaser and

shall continue to run with the Lands and bind the Lands and all future owners of the lands or any portion thereof.

#### Registration

8. Following execution of this covenant, the Grantor will do all that is necessary to ensure that this covenant is registered against title to the Lands, with priority over all financial charges, at the Grantor's expense. Following registration of this covenant, the Grantor shall provide the Regional District with registration particulars in due course.

#### Discharge of Covenant

9. Pursuant to Section 219 of the Land Title Act, the Regional District may authorize the discharge of the covenant and the Grantor shall be responsible for preparing and registering the discharge documents at the Grantor's sole expense.

#### Municipal Power

10. Nothing contained or implied herein shall prejudice or affect the Regional District's rights and powers in the exercise of its functions pursuant to the Community Charter or the Local Government Act or its rights and powers under all private and public statutes, bylaws, orders and regulations, all of which may be fully and effectively exercised in relation to the Lands as if this covenant had not been executed and delivered by the Grantor. Nothing in this covenant shall be taken as in any way limiting or abrogating the duty of the Grantor to comply with the Regional District's zoning, charging and all other bylaws.

#### Waiver

11. Waiver of any default by either party shall not be deemed to be a waiver of any subsequent default by that party. Waivers shall be set forth in writing and duly executed by each of the parties hereto.

#### Miscellaneous

12. Whenever the singular or masculine is used in this covenant, the same is deemed to include the plural or the feminine or the body politic or corporate as the context so requires. Every reference to each party is deemed to include the heirs, executors, administrators, elected officials, successors, assigns, employees, agents, officers, and invitees of such party. If any section, subsection, sentence, clause or phrase of this covenant is for any reason held to be invalid by the decision of a court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remainder of this covenant. This covenant shall enure to the benefit of and be binding upon the parties hereto and their respective successors and

**assigns notwithstanding any rule or law or equity to the contrary. This covenant shall be governed and construed in accordance with the laws of the Province of British Columbia.**

**IN WITNESS WHEREOF the parties hereto have executed this covenant by executing, and by causing their respective seals to be affixed personally or under the hands of their proper officers duly authorized in that behalf, on the Form C which forms and constitutes a part hereof. (or Forms C and D if more than one page)**

**SCHEDULE A**  
**GEOTECHNICAL REPORT**

**END OF DOCUMENT**

**LAND TITLE ACT  
FORM C (Section 233) CHARGE  
GENERAL INSTRUMENT - PART 1 Province of British Columbia**

PAGE 1 OF 1 PAGES

Your electronic signature is a representation that you are a subscriber as defined by the Land Title Act, R.S.B.C. 1996 c.250, and that you have applied your electronic signature in accordance with Section 168.3, and a true copy, or a copy of that true copy, is in your possession.

1. APPLICATION: (Name, address, phone number of applicant, applicant's solicitor or agent)

Sheila Elizabeth Ogilvie

14770 Sylvester Road  
Mission

BC V2V 0B9

Registration of Community Charter  
section 56(5) covenant

Deduct LTSA Fees? Yes ☒

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:  
[PID] [LEGAL DESCRIPTION]

009-341-498

LOT B PLAN NWP10524 SECTION 4 TOWSHIP 4 RANGE 2 MERIDIAN LAND  
DISTRICT 36 EXCEPT PLAN 44451 MANUFACTURED HOME REG. # 70444

STC? YES ☐

3. NATURE OF INTEREST CHARGE NO. ADDITIONAL INFORMATION

Covenant

4. TERMS: Part 2 of this instrument consists of (select one only)  
(a) ☐ Filed Standard Charge Terms D.F. No.

(b) ☒ Express Charge Terms Annexed as Part 2

A selection of (a) includes any additional or modified terms referred to in Item 7 or in a schedule annexed to this instrument.

5. TRANSFEROR(S):

SHEILA ELIZABETH OGILVIE

6. TRANSFEREE(S): (including postal address(es) and postal code(s))

THE FRASER VALLEY REGIONAL DISTRICT, A BODY CORPORATE DULY  
INCORPORATED UNDER THE LAWS OF THE PROVINCE OF BRITISH COLUMBIA  
45950 CHEAM AVENUE  
CHILLIWACK

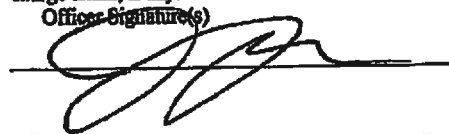
V2P 1N6

BRITISH COLUMBIA  
CANADA

7. ADDITIONAL OR MODIFIED TERMS:

8. EXECUTION(S): This instrument creates, assigns, modifies, enlarges, discharges or governs the priority of the interest(s) described in Item 3 and the Transferor(s) and every other signatory agree to be bound by this instrument, and acknowledge(s) receipt of a true copy of the filed standard charge terms, if any.

Officer Signature(s)



**JUSTIN MORGAN**  
Barrister & Solicitor  
#2-32540 Logan Ave.  
Mission, B.C. V2V 6G3

Execution Date

Y	M	D
18	07	18

Transferor(s) Signature(s)



Sheila Elizabeth Ogilvie

**OFFICER CERTIFICATION:**

Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the Evidence Act, R.S.B.C. 1996, c.124, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the Land Title Act as they pertain to the execution of this instrument.



**EXECUTIONS CONTINUED**

**Transferor/Borrower/Party  
Signature(s)**

[illegible]

**Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the Evidence Act, R.S.B.C. 1996, c. 124, to take affidavits for use in British Columbia and certified the matters set out in Part 5 of the Land Title Act as they pertain to the execution of this instrument.**

## **TERMS OF THE INSTRUMENT - PART 2**

**THIS AGREEMENT** dated the 18 day of July, 2018.

### **BETWEEN**

Sheila Elizabeth Ogilvie  
14770 Sylvester Road  
Mission, B.C.  
V2V 0B9

(the "Grantor")

### **AND:**

The Fraser Valley Regional District, a body corporate duly  
incorporated under the laws of the Province of British Columbia,  
and having an office at:

45950 Cheam Avenue  
Chilliwack, British Columbia  
V2P 1N6

(the "Regional District")

### **WHEREAS:**

- A. Pursuant to Section 219 of the *Land Title Act* [RSBC 1996] Chapter 250 and amendments thereto, there may be registered as a charge against the title to land that is being or has been registered a condition or covenant in favour of the Crown or of a Crown Corporation or agency or of a municipality or a Regional District;
- B. The Grantor is the registered owner of ALL AND SINGULAR that certain parcel or tract of land and premises situated in the Fraser Valley Regional District in the Province of British Columbia, and legally described as:

PARCEL IDENTIFIER: 009-341-498

LEGAL DESCRIPTION: LOT B PLAN NWP10524 SECTION 4  
TOWNSHIP 4 RANGE 2 MERIDIAN  
LAND DISTRICT 36 EXCEPT PLAN 44451  
MANUFACTURED HOME REG. # 70444  
(the "Lands")

- C. The Grantor wishes to apply to the Regional District for a building permit for the construction of BP012132;

- D. The Grantor has submitted the Statlu Geotechnical Report (as herein defined) in accordance with section 56 of the *Community Charter* [SBC 2003] Chapter 26 and amendments thereto, and is required to offer a covenant to be registered pursuant to section 56(5) of the aforesaid Act; and
- E. The building inspector of the Fraser Valley Regional District intends to issue permits in accordance with Section 56(4) of the *Community Charter* [SBC 2003] Chapter 26 and amendments thereto.

NOW THEREFORE THIS COVENANT WITNESSETH that in consideration of the premises, the sum of ONE (\$1.00) DOLLAR of lawful money of Canada paid by the Regional District to the Grantor and other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged by the Grantor), the Grantor for herself and her successors and assigns, hereby covenants, promises and agrees, pursuant to Section 219 of the *Land Title Act* [RSBC 1996] Chapter 250 and amendments thereto (it being the intention of the Grantor that the covenant herein contained shall be annexed to and run with the Lands), that:

#### **DEFINITIONS**

- 1. In this Agreement:
  - (a) "Building" means those certain buildings and structures, the construction of which is to be authorized by the issuance of a Building Permit;
  - (b) "Building Permit" means Fraser Valley Regional District Building Permit BP012132, issued for the construction of Buildings; and
  - (c) "Statlu Geotechnical Report" means that certain document entitled *Hydrological Hazard and Flood Level Assessment 14770 Sylvester Road, Hatzic Prairie, Electoral Area F dated December 5, 2016* prepared by Statlu Environmental Consulting, copies of which are attached to this covenant as Schedule A.

#### **CONSTRUCTION AND USE**

- 2. The Grantor will not build on the Lands, use the Lands, build Buildings or use the Buildings except for the purposes and in the manner described in the Statlu Geotechnical Report.

#### **ENFORCEMENT**

- 3. The Grantor will reimburse the Regional District for expenses that may be incurred by the Regional District as a result of the breach of this covenant, with the amount to be determined by Court order.

## **NO REPRESENTATIONS**

4. The Grantor acknowledges that the Regional District does not represent to the Grantor or any person that the Lands, the Building or any users of the Lands or the Building will not be damaged by geotechnical hazards or otherwise, whether or not the actions specified in the Statlu Geotechnical Report are carried out.

## **RELEASE AND INDEMNITY**

5. The Grantor hereby:

- (a) releases, and covenants and agrees to release;
- (b) indemnifies, protects and saves harmless, and covenants and agrees to indemnify, protect and save harmless;

the Regional District from and against any action, cause of action, claim and demand of every kind, description and nature whatsoever arising out of or in any way due to or in any way related to:

- (c) the issuance of the Building Permit, or
- (d) the construction authorized by the Building Permit, or
- (e) the existence of this covenant, or
- (f) any breach of this covenant by the Grantor, her successors and assigns; or
- (g) the use of the Lands or of the Building in connection with the issuance of the Building Permit, or
- (h) any combination of the above,

but the Grantor does not release, indemnify, protect or save harmless the Regional District with respect to its responsibilities set out in the Statlu Geotechnical Report.

## **RUNS WITH THE LANDS**

6. The covenants set forth herein shall charge the Lands pursuant to Section 219 of the *Land Title Act* [RSBC 1996] Chapter 250 and amendments thereto and shall be covenants the burden of which shall run with the Lands and bind the Lands and every part or parts thereof and shall attach to and run with the Lands and each and every part to which the Lands may be divided or subdivided whether by subdivision plan, strata plan or otherwise howsoever. The covenants set forth herein shall not terminate if and when a purchaser becomes the owner in fee-simple of the Lands but shall charge the whole of the interest of such

purchaser and shall continue to run with the Lands and bind the Lands and all future owners of the lands or any portion thereof.

7. Following execution of this covenant, the Grantor will do everything reasonably necessary to assist the Regional District registering the covenant against title to the Lands.
8. Notwithstanding paragraph 7, the Regional District agrees to pay the required fees for registration of the covenant against title to the Lands.

#### **DISCHARGE OF COVENANT**

9. Pursuant to Section 219 of the *Land Title Act*, the Regional District may authorize the discharge of the covenant and the Grantor shall be responsible for preparing and registering the discharge documents at the Grantor's sole expense.

#### **MUNICIPAL POWER**

10. Nothing contained or implied herein shall prejudice or affect the Regional District's rights and powers in the exercise of its functions pursuant to the *Community Charter* [SBC 2003] Chapter 26 and amendments thereto or the *Local Government Act* [RSBC 2015] Chapter 1 and amendments thereto or its rights and powers under all private and public statutes, bylaws, orders and regulations, all of which may be fully and effectively exercised in relation to the Lands as if this covenant had not been executed and delivered by the Grantor. Nothing in this covenant shall be taken as in any way limiting or abrogating the duty of the Grantor to comply with the Regional District's zoning, charging and all other bylaws.

#### **WAIVER**

11. Waiver of any default by either party shall not be deemed to be a waiver of any subsequent default by that party. Waivers shall be set forth in writing and duly executed by each of the parties hereto.

#### **MISCELLANEOUS**

12. Whenever the singular or masculine is used in this covenant, the same is deemed to include the plural or the feminine or the body politic or corporate as the context so requires. Every reference to each party is deemed to include the heirs, executors, administrators, elected officials, successors, assigns, employees, agents, officers, and invitees of such party. If any section, subsection, sentence, clause or phrase of this covenant is for any reason held to be invalid by the decision of a court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remainder of this covenant. This covenant shall enure to the benefit of and be binding upon the parties hereto and their respective successors and assigns notwithstanding any rule or law or equity to the contrary. This covenant shall be governed and construed in accordance with the laws of the Province of British Columbia.

**IN WITNESS WHEREOF** the parties hereto have executed this covenant by executing, and by causing their respective seals to be affixed personally or under the hands of their proper officers duly authorized in that behalf, on the Form C and Form D which form and constitutes a part hereof.

**SCHEDULE A**

**STATLU GEOTECHNICAL REPORT**



## HYDROLOGICAL HAZARD AND FLOOD LEVEL ASSESSMENT

14770 Sylvester Road, Hatzic Prairie, Electoral Area F

Project Number: 16-176  
December 5, 2016

*Client:*  
Sheila Ogilvie  
14770 Sylvester Road  
Electoral Area F, FVRD, V2V 0B9

Joanna Borzecki, B. Sc.  
STATLU ENVIRONMENTAL CONSULTING LTD.  
1-45950 Cheam Avenue  
Chilliwack, BC V2P 1N6

[www.statlu.ca](http://www.statlu.ca)

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EARTH WATER LAND

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## RECOMMENDATIONS SUMMARY

The Client proposes to construct several vacation cottages and/or a new primary residence on her property at 14770 Sylvester Road. She plans to construct the buildings on the western side of the property, within 150 m of Sylvester Road. There are no plans for the development of the eastern portion of the property near the Cascade Creek dike. The Client also expressed interest in possibly subdividing the property in the future.

The FVRD, as well as the provincial *Local Government Act* and *Environmental Management Act*, specify the 1-in-200 year flood as the design flood for determining hazards and mitigation measures for proposed development and a 1-in-500 year flood for proposed subdivisions.

Using the regional analysis method, we determined that the 1-in-200 year ( $Q_{200}$ ) and 1-in-500 year ( $Q_{500}$ ) flood magnitudes in Cascade Creek are  $169 \text{ m}^3/\text{s}$  and  $182 \text{ m}^3/\text{s}$ , respectively. Based on our calculations, a  $Q_{200}$  discharge will result in a water level of 1.1 m with 2.4 m of freeboard from the top of the dike at a location immediately upstream of the property. A  $Q_{500}$  will result in a water level of 1.2 m with 2.3 m of freeboard at the same location. Based on these estimates, we conclude that at this cross section the dike has the capacity to withstand the designated floods.

The current FVRD bylaw for flood construction levels (FCL) on the Cascade Creek floodplain is 60 m set back from and 3.0 m above the natural boundary of the creek. After simulating a breach in the dike upstream of the property during a  $Q_{200}$  event, we determined the flood water depth at the proposed building sites will be less than 0.5 m. We recommend using a FCL of 0.5 m above the present ground surface at the proposed building sites rather than the general Cascade Creek FCL prescribed in the FVRD bylaw. This recommendation provides a freeboard allowance above the expected water depth and therefore accounts for potential waves, transported wood, and sediment deposition. This FCL is specific to the identified building areas located at the west end of the property and is not uniform across the entire property.

Based on the above calculations and recommendations, the proposed development and subdivision is safe for the use intended as defined by the BC Community Charter.

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## 1.0 INTRODUCTION

Sheila Ogilvie (the Client) retained Statlu Environmental Consulting Ltd. (Statlu) to conduct a hydrological hazard and flood level assessment to determine the 1-in-200 year flood magnitude and the associated flood construction level (FCL) for the property located at 14770 Sylvester Road in the Fraser Valley Regional District's Electoral Area F, northeast of Mission, BC. The property is located between Cascade Creek and Sylvester Road, with a dike along Cascade Creek crossing through the east end of the lot (Figure 1). The Client wishes to construct a series of cottages and/or a permanent primary residence in addition to the existing mobile home already on the property. The Client also expressed interest in possibly subdividing the property in the future.

This report was produced in accordance with the guidelines for geotechnical hazard assessments adopted by the FVRD (Cave, 1993). The provincial Community Charter and the Fraser Valley Regional District require that any new development on a property subject to, or likely to be subject to geotechnical hazards obtain a geotechnical hazard assessment to characterize the hazards, estimate their probability of occurrence, and certify that the development is safe for the use intended. Statlu determined that the property is only exposed to geotechnical hazards associated with Cascade Creek and this assessment focuses on those hydrologic hazards.

## 2.0 LOCATION AND SITE DESCRIPTION

The subject property, located at 14770 Sylvester Road, is situated on the east side of the Hatzic Valley adjacent to Cascade Creek (Figure 1). The BC property identification number (PID) is 009-341-498 and the lot encompasses an area of 9.03 hectares. Most of the property is forested and undeveloped. Currently there is one mobile home, located at the west end of the property within 35 m of Sylvester road. The Cascade Creek dike runs north-south through the east end of the property, approximately 600 m east of Sylvester Road.



Cascade Creek drains a catchment area of 19 km<sup>2</sup> located east of the property (Figure 2). The creek runs through Cascade Falls Regional Park, where it flows over a 30 m waterfall and through a short canyon before flowing onto its alluvial fan. From the parking lot at the regional park to the bridge at Sylvester Road, the creek is confined by a dike on its west side that was constructed in 1984 following a severe flood. This dike runs north-south through the east end of the properties that back onto Cascade Creek, including 14770 Sylvester Road. This dike is considered a 'Standard' dike (Schedule A, FVRD Bylaw 681 2005) and the FVRD has a right-of-way over the dike to perform annual maintenance. The east side of Cascade Creek is confined by a dike that begins south of the Client's property and continues downstream past Sylvester Road.

The reaches downstream of the regional park generally experience significant sediment deposition due to low gradient and confinement of the channel on the fan by dikes, and periodic gravel extraction has been performed over the years to ensure the channel capacity remains suitable to convey a 1-in-200 year flood event. Gravel extraction and channel maintenance of Cascade Creek last occurred in 2006 (Golder, 2006).

## 2.1 Climate and Weather

The nearest Environment Canada weather station with a long-term record is at Mission, 13 km southwest of 14770 Sylvester Road, at an elevation of 197 m above mean sea level (Environment Canada, 2016). Based on the 1981 to 2010 climate normal data, the mean annual precipitation is 1883 mm, with about 68% of that falling from October through the end of March. Mean annual snowfall is 75 cm and extreme precipitation rate is 123 mm/24 h. I expect that this will be a fairly accurate representation of the climate at 14770 Sylvester Road located at 110 m above mean sea level, but the property may experience higher total precipitation as a result of orographic effects caused by the mountains directly to the north and east of the property. The mean conditions and extreme events relate to observation periods in the recent past, and may not represent conditions in the immediate future.

ClimateWNA is a climate model that uses data from western North America to predict climate characteristics for locations distant from weather stations (Wang et al., 2012). For the subject property, a mean annual precipitation was calculated at 2544 mm with 93 cm of snowfall. Approximately 78% of total precipitation arrives between October and May. When comparing the two estimates of climate, I expect that the ClimateWNA estimate is probably better at characterizing the orographic effects on precipitation in the area.

### 3.0 REVIEW OF EXISTING REPORTS

I reviewed the Ministry of Water, Land and Air Protection's Dike Design and Construction Guide (2003), along with the Fraser Valley Regional District's (FVRD) Floodplain Management Bylaw 0681, 2005. The east side of Cascade Creek is confined by a dike that begins south of the Client's property and continues downstream past Sylvester Road. The west side of Cascade Creek is contained by a 1.7 km long dike ('Standard Dike' in the Bylaw) from its valley outlet in Cascade Regional Park to the bridge at Sylvester Road and the FVRD owns two properties at either end. The FVRD has a right-of-way over the dike for maintenance purposes.

A comprehensive study to determine the capacity of the Cascade Creek dike was conducted by Sigma Engineering in 1999 following extensive channel excavation the previous year. The study concluded that the dike was generally found to be in adequate protection against a 200 year flood, with the exception of a 40 metre section just upstream of Sylvester Road that needed to be raised (Sigma, 1999). The FVRD currently preforms annual maintenance on the dike.

Other flood protection works include gravel removal from Cascade Creek to ensure the channel capacity remains suitable to convey a 1-in-200 year flood event. The impact of the extraction on downslope resources was assessed by Golder Associates (2006) where they concluded there would be no negative impacts on stream avulsion downstream of the Sylvester Bridge.

The current floodplain specifications that apply to 14770 Sylvester Road as outlined by the Floodplain Management Bylaw 0681, 2005 are that residential structures must be:

- i. 3.0 m above the natural boundary of Cascade Creek
- ii. Set back 60 m from the natural boundary of Cascade Creek and,
- iii. 7.5 m from the inboard toe of any dike or dike right of way structure for flood protection or seepage.

I also reviewed Tom Millard's 2013 overview assessment of the hydrology and watershed stability in the Hatzic region in addition to QCD Geotechnics' 2008 overview geotechnical hazard assessment of Electoral Area F, where both studies suggest that the main hazards associated with Cascade Creek are debris floods, and flood water inundation.

## 4.0 METHODOLOGY

The FVRD uses the Cave (1993) report to specify acceptable hazard thresholds for development approvals. Cave (1993), as well as the provincial *Local Government Act* and *Environmental Management Act*, specify the 1-in-200 year flood as the design flood for determining hazards and mitigation measures for proposed development and a 1-in-500 year flood for proposed subdivisions. The Association of Professional Engineers and Geoscientists of British Columbia's (APEGBC) 2012 *Guidelines for Legislated Flood Assessments in a Changing Climate in BC* follows this current outlined framework.

Several steps are necessary to evaluate the hydrologic hazards associated floods of these estimated magnitudes. The first step included a field assessment of the dike, the property, and of the creek channel. During the assessment I made observations regarding the condition of dike and made cross sectional measurements at representative locations to determine its dimensions. I assessed the terrain on the property to identify any microscale topography that might convey water towards proposed building sites, and lastly I made observations on the current conditions of the Cascade Creek channel.

Next, to determine the magnitude of the 1-in-200 year and 1-in-500 year flood events of Cascade Creek in  $m^3/s$ , (the  $Q_{200}$  and  $Q_{500}$ ), we established the boundary and area of the

catchment basin draining into the creek using a topographic map (Figure 2). Using the area of the catchment basin, the climate and precipitation records from local weather stations, and long-term streamflow records from adjacent gauged streams, we performed a regional analysis to define the  $Q_{200}$  and  $Q_{500}$  discharge in Cascade Creek. We then used WinXSPRO Version 3.0, a hydrologic modeling program, to determine the expected flood water level during these flood events.

In the cases where the dike has sufficient capacity for the projected discharge and therefore would not be overtopped, we simulated a dike breach during a flood of the same magnitude to determine the resultant flood water level on 14770 Sylvester Road for the proposed development.

## 5.0 SITE INSPECTION AND OBSERVATIONS

Joanna Borzecki, B. Sc. of Statlu conducted a field assessment on October 18, 2016 with Sheila Ogilvie. Approximately two hours were spent on site. Weather conditions during the site assessment were cool and rainy with no limitations to visibility. I met the Client on site and we discussed her development plans for the property. We then drove to Cascade Falls Regional Park to access the dike that runs through her property and borders Cascade Creek. I inspected the condition of the dike, took two cross sectional measurements of the dike upstream of and at the property and made observations of Cascade Creek at both sites. We then returned to the property and walked to the east end where I made observations of any significant topographic features that may affect or convey flood waters.

### 5.1 Cascade Creek Dike

The Cascade Creek dike was constructed in 1984 following a large flood of uncertain magnitude. It is approximately 1.7 km long and is set back between 30 m and 150 m from the edge of the active channel between Cascade Falls Regional Park and Sylvester Road. The dike is built on the natural alluvial fan of the creek.

I took two measurements of the dike, one upstream of the Client's property, and one at the property. The observations consisted of measuring the width of the top of the dike, the length and slope gradient of its channel-facing sidewall, and examining the dike's structure for any observation of erosion or subsidence. I took photographs and characteristic observations of Cascade Creek at the locations where I conducted the measurements.

The top of the dike was measured to be an average of 10 m across with sideslope gradient of 37% to 40% for a length of 10 m to 13 m to its base. Near the regional park, the sideslope material is composed of riprap with some boulders up to 1 m in diameter and transitions to cobbles and gravels near 14770 Sylvester Road. The entire length of the dike from the regional park to the bridge at Sylvester Road has fully vegetated sidewalls consisting of trees and brush. The vegetation made assessing the dike's condition difficult but I did not observe any obvious points of weakness in the dike's sidewalls or evidence of erosion or subsidence during the assessment.

Cascade Creek upstream of and at the property is braided with multiple channels with a total bankfull channel width, including bars between channels, of 50 m to 60 m. The substrate within the creek consists of cobble to boulder-sized substrate. Sediment is periodically removed from the channel as a response to aggradation to ensure the dike has enough freeboard to withstand a 1-in-200 year flooding event.

## 5.2 14770 Sylvester Road

The Cascade Creek dike runs in a north-south direction through the east end of the property. The proposed building sites for a new primary residence as well as vacation cottages are located on the western end of the property, within 150 m of Sylvester Road. Development is not planned for the eastern end of the property.



During the assessment, we walked from the current residential structure east towards the dike along or near the southern property line, then trended northeast towards the end of the property, reaching the dike. The terrain on the property has gentle slope gradients averaging between 0% and 5% and is fully forested. I did not observe any channels or swales in the western portion of the property where the development is planned. At the eastern end of the property, I observed a swale that is 5 m to 10 m wide and incised approximately 1 m, oriented in a northeast to southwest direction. There are a few smaller discontinuous swales directly adjacent and to the south. At the northeast end of the property I observed undulating terrain with no definitive swales or channels but some depressions that extend for 3 m to 4 m are present and they are incised up to a meter.

The channels and swales may be old branches of the braided Cascade Creek that occasionally conveyed water before the construction of the dike. In the event of a flood or dike breach these channels could again convey water, but in a direction away from the proposed development site.

The trail that runs along the south boundary and provides access to the west end of the property has been slightly excavated by machinery in sections, resulting in approximately 1 m of fill on either side of the trail. In the event of a flood this trail would convey water towards the west end of the property but south of the proposed building sites.

## 6.0 CALCULATIONS

### 6.1 Peak Flow Estimation from Regional Data

I used three methods to determine the 1-in-200 year flood event using regional data. The first method (Brayshaw, 2012) consisted of an eight-station regional hydrologic analysis based on small Water Survey of Canada gauged streams with long periods of record from southwestern BC to estimate expected peak flows in Cascade Creek based on its watershed area. I examined the 1-in-200 year expected peak flows. I was able to obtain good fits against the observed data, fitting power law equations of the form  $Q=aA^b$  where  $Q$  is expected discharge and  $A$  is watershed area; the r-squared values for the calculated regression equations ranged from 0.85 to 0.87. Based on the historic regional data, I estimate that the 1-in-200 year expected peak discharge ( $Q_{200}$ ) for Cascade Creek is  $87 \text{ m}^3/\text{s}$ .

I used a secondary method to determine the 200-year peak flow in Cascade Creek by determining the ratio of watershed size to the expected  $Q_{200}$  discharge of Norrish Creek, the nearest gauged stream to Cascade Creek. Using the ratio and the watershed size of Cascade Creek, I calculated the 200-year peak flow to be  $61 \text{ m}^3/\text{s}$ .

Lastly, I used the regional data analysis outlined by Obedkoff (2003) which consists of data from multiple streams along the western South Coast mountains including drainage area and annual maximum instantaneous discharge for a 1-in-10 year flood event. Using a 10-year peak flow curve, I plotted the drainage area of Cascade Creek and determined the 1-in-10 year peak flow, and then used the provided ratio between the 10 year and 200 year reoccurrence intervals to obtain the  $Q_{200}$  for the creek. Using this data set, I estimate that the 1-in-200 year peak discharge is  $169 \text{ m}^3/\text{s}$ .

To determine the 1-in-500 year flood magnitude, I used the data based on small Water Survey of Canada gauged streams and calculated a  $Q_{200}$  of  $96 \text{ m}^3/\text{s}$ . I then compared the  $Q_{200}$  of  $87 \text{ m}^3/\text{s}$  from the same data set to the  $Q_{200}$  obtained from Obedkoff's (2003) analysis and found Obedkoff's  $Q_{200}$  was about 1.89 times the calculated  $Q_{200}$ , giving a maximum predicted 1-in-500 year peak discharge of  $182 \text{ m}^3/\text{s}$ . Obedkoff (2003) uses a simple scaling relationship between watershed area and peak discharge which does not account for the observed multiscaling relationships between area and discharge for small and large streams; accordingly, the flood magnitude estimate derived from this method for Cascade Creek is significantly larger than the other two estimates.

During a previous study of the Cascade Creek, Sigma Engineering (1999) conducted a peak flow analysis using regional peak flow mapping data completed by BC Environment in 1998 to determine the  $Q_{200}$  discharge. They found that in 1999, Cascade Creek had an expected 1-in-200 year instantaneous peak flow of  $157 \text{ m}^3/\text{s}$ .

#### 6.1.1 Increased Peak Flow Hazard from Climate Change

APEGBC's 2012 *Guidelines for Legislated Flood Assessments in a Changing Climate in BC* specify that in response to expected climatic changes, flood assessments should incorporate expected effects of climate change when evaluating flood hazard. Climate change can affect flood hazard in two ways. For a given flood magnitude, climate change is expected to make floods more frequent; for a given flood frequency, climate change is expected to lead to floods of larger magnitude.

Ongoing climate change is expected to lead to changes in hydrologic processes across British Columbia. Understanding and anticipating these changes can be used to develop adaptive management strategies for land owners and developers. I used the ClimateWNA model (Wang et al., 2012) to evaluate potential climatic changes in 2085 for the Cascade Creek watershed at 1000 m above mean sea level. The model downscales and applies results from three separate global climate models – the CanESM2, CNRM-CM5, and HADGM ES-2 models – to evaluate potential future climate scenarios.

I used the ClimateWNA model (Wang et al., 2012) to evaluate potential climatic changes in 2085 for the study area. Compared to present conditions, the models predict that by 2085 the climate at the property will have roughly the same annual precipitation amounts, but with less precipitation falling in the summer months and more falling in the winter months. All three models predict a significant decrease in snowfall. Total annual precipitation is expected to remain within 6% of its current value, mean summer precipitation is predicted to decrease between 9% and 26%, mean winter precipitation is predicted to increase by 6% to 9%, and total snowfall is projected to decrease between 71% and 86%.

Currently, the Cascade Creek watershed has peak flow generating processes that are dominated by rain on snow events. As the climate changes, the watershed will transition from a mixed (snow and rain) flood regime to a more pluvial (rain dominated) regime. The results of such a transition in this watershed will include a decreased importance of rain-on-snow events and increased importance of rainfall events resulting in smaller magnitude snowmelt influenced floods, but an increase in frequency of smaller flood events. Early peaking mixed systems show shifts towards earlier flood occurrences but since the runoff is not concentrated into a single peak, there generally are not changes in regularity. (Burn et al., 2016). The occurrence of the spring freshet is also decreased as flood regimes shift from mixed to pluvial in addition to decreased mid-summer low flows.

Based on the regional data, the estimated  $Q_{200}$  flood magnitude for Cascade Creek could lie between  $61 \text{ m}^3/\text{s}$  and  $169 \text{ m}^3/\text{s}$ . It is likely that the true value lies between these magnitudes, and is probably less than  $100 \text{ m}^3/\text{s}$ . To account for climate change I chose to use the maximum estimated  $Q_{200}$  value of  $169 \text{ m}^3/\text{s}$  for the flood level calculations, as this almost certainly overestimates the likely flood magnitude even after accounting for the effects of climate change, and a flood construction level derived from this estimate of magnitude will therefore include a significant factor of safety.

### 6.1.2 Changes In Flood Magnitude from Watershed Land Use

Historically, Cascade Creek floods have been affected by land use in the watershed upstream of the fan. Specifically, in the period between 1950 and the mid-1970s, approximately half of the total drainage area of Cascade Creek's headwaters was logged, resulting in a peak effective clearcut area (ECA) near 50% of watershed area, indicative of high hydrologic hazard. High hydrologic hazards are associated with both increased frequency and magnitude of floods, and Cascade Creek experienced its largest and most destructive floods during and immediately after this pass of logging, with the 1984 flood especially notable. Ongoing afforestation by second-growth plantations following the end of extensive logging in Cascade Creek has reduced the hydrologic hazard, with a recent assessment (Millard, 2013) finding that presently, the hydrologic hazard is low for Cascade Creek. The Ministry of Forests, Lands and Natural Resource Operations (MoFLNRO) has committed to manage future harvesting in Cascade Creek to maintain this low hazard. The flood magnitude estimate we present here incorporates this understanding.

## 6.2 Cascade Creek Dike Capacity

Using a combination of satellite imagery verified with measurements obtained during the field assessment, I determined the capacity of the Cascade Creek dike at one cross section located near the upstream end of the property using WinXSPRO Version 3.0. The results are approximate as I did not use a total station to survey the cross section. To account for this, I chose representative but conservative numbers for the modeling program.

I started by determining the channel gradient of Cascade Creek using satellite imagery, where I measured an elevation difference of 5 m over a channel length of 200 m and calculated an average channel gradient of 2.5% (0.025 m/m). At the cross-section, the creek is braided with a primary and secondary channel and intermitted gravel bars between the flows. Inclusive of the deeper thalweg and the exposed gravel bars, I estimated an average bankfull depth of 0.5 m across the 52 m wide channel. Additionally, in the modeling program I chose the Jarrett resistance equation to estimate the potential bankfull capacity of the channel and the dike because as the method suggests, Cascade Creek has a channel gradient between 0.002 m/m and 0.05 m/m, the channel is fairly stable because the dikes have restricted its ability to move, and the creek predominately experiences floods and debris floods rather than debris flows or mudflows (Jarrett, 1985).

During the assessment, I measured a dike sidewall length of 10 m to 13 m and a slope gradient of 37% to 40%. I selected the conservative measurements of 10 m and 37% for the hydrologic model. Using these dimensions, I determined that the height of the dike is approximately 3.5 m tall near the upstream boundary of the property and I verified this figure in the modeling program.

Next, I used a  $Q_{200}$  of 169 m<sup>3</sup>/s to determine the capacity of the Cascade Creek channel at the chosen cross section. The model predicted that during an event of this magnitude the water level will reach 1.1 m, resulting in 2.4 m of freeboard between the height of flood water level and the top of the dike at the chosen cross section. For a 1-in-500 year flood discharge of 182 m<sup>3</sup>/s, the model predicted a water level of 1.2 m, resulting in 2.3 m of freeboard at the cross section.

A comprehensive study of the Cascade Creek dike was conducted by Sigma Engineering in 1999 following extensive channel excavation the previous year. 12 cross-sections were measured to determine the capacity of the dike. I reviewed the data from the cross-section nearest to the location that I selected (XS-3) and found that in 1999, with a calculated  $Q_{200}$  of 157 m<sup>3</sup>/s, they estimated the dike would be able to withstand a flood event of the given magnitude with 2.2 m of freeboard (Sigma Engineering, 1999).

My estimation suggest that the existing dike has sufficient capacity to transport the expected  $Q_{200}$  and  $Q_{500}$  flood at the representative cross section without being overtopped. I did not conduct a comprehensive analysis of the dike in its entirety; its capacity at other locations may vary. Additionally, as Cascade Creek experiences significant channel aggradation and requires periodic sediment removal, the capacity of the dike will change to reflect this trend, with a decrease in capacity occurring as sediment load increases within the channel. The last excavation of gravel from Cascade Creek occurred in 2006.

### 6.3 Flood Construction Level

Following FVRD's geotechnical hazard assessment guidelines as outlined by Cave (1993), we used the 1-in-200 year flood event to determine the flood construction level at the proposed building sites on 14770 Sylvester Road. Given that the  $Q_{200}$  flood will not overtop the dike at the cross section, we chose to simulate a scenario where the dike is breached during an event of the same magnitude. The flood construction level may vary across the property, and will increase with closer proximity to the dike.

In order to do so, we used the Manning's Equation (Manning, 1891):

$$\frac{Q}{A} = V = \frac{R_h^{2/3} S^{1/2}}{n}$$

where

$Q$  = peak runoff rate ( $m^3/s$ )

$A$  = flow area of channel ( $m^2$ )

$V$  = velocity ( $m/s$ )

$R_h$  = Hydraulic radius ( $m$ )

$S$  = Slope ( $m/m$ )

$n$  = Manning's Roughness Coefficient

To simulate a flow of water that would most likely affect the proposed development area on the Client's property, I chose a breach point in the dike located just upstream of the property's north boundary. Using satellite imagery and elevation contours, I estimated the area of a flood water fan originating at the breach point and extending southwest towards Sylvester Road. I determined that near the western end of the property where development is planned, the distal reaches of the flood water fan would be approximately 600 m wide.

We used the calculated  $Q_{200}$  discharge magnitude for the peak runoff rate, a slope of 0.235 m/m for the property calculated from satellite imagery extending from the dike towards Sylvester Road, and a Manning's roughness coefficient of 0.15, representing a forested flood plain. Because flood waters do not flow in a confined channel during a dike breach, we solved for the channel area ( $A$ ) at a point where the flood water depth ( $R_h$ ) would be 0.5 m.

We determined that during a  $Q_{200}$  event of  $169 \text{ m}^3/\text{s}$ , the flood depth will be 0.5 m and the velocity will be approximately 0.64 m/s where the width of the unconfined flow is approximately 500 m; therefore we estimate that the proposed flood water level will be less than 0.5 m at the west end of the property where the cottages and residential structure are proposed, because the expected width of flow will be significantly greater than 500 m.



## 7.0 CONCLUSION AND RECOMMENDATIONS FOR DEVELOPMENT

The Client proposes to construct several vacation cottages and/or a new primary residence on her property at 14770 Sylvester Road. She plans to construct the buildings on the western side of the property, within 150 m of Sylvester Road. There are no plans for the development of the eastern portion of the property near the Cascade Creek dike. The Client also expressed interest in possibly subdividing the property in the future.

The FVRD, as well as the provincial *Local Government Act* and *Environmental Management Act*, specify the 1-in-200 year flood as the design flood for determining hazards and mitigation measures for proposed development and a 1-in-500 year flood for proposed subdivisions.

Using the regional analysis method, we determined that the 1-in-200 year ( $Q_{200}$ ) and 1-in-500 year ( $Q_{500}$ ) flood magnitudes in Cascade Creek are 169 m<sup>3</sup>/s and 182 m<sup>3</sup>/s, respectively. Based on our calculations, a  $Q_{200}$  discharge will result in a water level of 1.1 m with 2.4 m of freeboard from the top of the dike at a location immediately upstream of the property. A  $Q_{500}$  will result in a water level of 1.2 m with 2.3 m of freeboard at the same location. Based on these estimates, we conclude that at this cross section the dike has the capacity to withstand the designated floods.

The current FVRD bylaw for flood construction levels (FCL) on the Cascade Creek floodplain is 60 m set back from and 3.0 m above the natural boundary of the creek. After simulating a breach in the dike upstream of the property during a  $Q_{200}$  event, we determined the flood water depth at the proposed building sites will be less than 0.5 m. We recommend using a FCL of 0.5 m above the present ground surface at the proposed building sites rather than the general Cascade Creek FCL prescribed in the FVRD bylaw. This recommendation provides a freeboard allowance above the expected water depth and therefore accounts for potential waves, transported wood, and sediment deposition. This FCL is specific to the identified building areas located at the west end of the property and is not uniform across the entire property.

Based on the above calculations and recommendations, the proposed development and subdivision is safe for the use intended as defined by the BC Community Charter.

## 8.0 LIMITATIONS

A geomorphic site investigation can reduce, but not wholly eliminate uncertainty regarding the natural hazards at a site, given reasonable limits of time and cost. Statlu Environmental Consulting Ltd. (Statlu) conducted this investigation and prepared this report in a manner consistent with the level of care normally exercised by environmental professionals currently practicing in the area under similar conditions and budgetary constraints. No other warranties, either expressed or implied, are made. If unexpected environmental conditions are encountered on the site, Statlu must be notified in order that we may determine if modifications to our findings are necessary.

The findings of this investigation and report are based in part on Statlu's visual observations of site conditions. Our opinion cannot be extended to portions of the site that were unavailable for direct observations. We made reasonable efforts to collect information and site observations that are representative of conditions in the relevant portions of the site; however, conditions may vary from place to place and geological conditions may change with the passage of time. Site information pertains specifically to the points and dates of observation.

Statlu has prepared this report for the exclusive use of its client. This report is intended to assist the client in a rezoning, subdivision, and building permit process. This report was prepared considering circumstances applying specifically to the client and applies only to the specific property identified in the report. It is intended only for internal use by the client for the purposes for which it was commissioned and for use by government agencies regulating the specific activities to which it pertains. It is not reasonable for other parties to rely on the observations or conclusions contained herein. The liability of the site, if any, is not transferred to Statlu, and Statlu makes no recommendation regarding the purchase, sale, or investment in the property.

The *Fraser Valley Regional District* may use this report for approval purposes. The report must be considered in its entirety, including appendices, drawings, and figures to understand the recommendations and opinions contained herein.

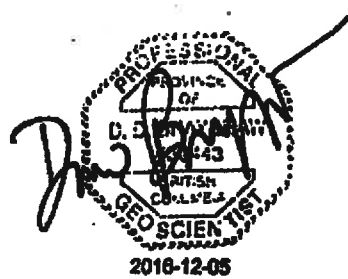
## 9.0 CLOSURE

Please contact me should you have any questions or if you require further clarification.

Prepared by:

Reviewed by:

Statlu Environmental Consulting Ltd.



Joanna Borzecki, B. Sc.  
Hydrologist  
JB/DB

Drew Brayshaw, Ph. D., P. Geo.  
Senior Hydrologist and Geoscientist



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DECEMBER 5, 2016  
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Figure 1: Property Boundary and Flood Construction Level

14770 Sylvester Road, Hatzic Valley

1:4,000



Client: S. Ogilvie  
Project Number: 16-176  
Created by: E. Croquet  
Date Saved: Nov 14, 2016



**Legend**

- ▶ Assessment Route October 18, 2016
- Contours
- Approximate Dyke Location
- 14770 Sylvester Road
- 0.5 m flood construction level

Coordinate System: NAD 1983 UTM Zone 10N Projection: Transverse Mercator Datum: North American 1983



## APPENDIX J: FLOOD HAZARD AND RISK ASSURANCE STATEMENT

**Note:** This Statement is to be read and completed in conjunction with the "APEGBC Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate, March 2012 (APEGBC Guidelines)" and is to be provided for flood assessments for the purposes of the Land Title Act, Community Charter or the Local Government Act. *Italicized words are defined in the APEGBC Guidelines.*

To: The Approving Authority

Date: December 5 2016

Fraser Valley Regional District  
45950 Cleam Ave Chilliwack BC V2P N6

Jurisdiction and address

With reference to (check one):

- ☐ Land Title Act (Section 88) – Subdivision Approval
- ☒ Local Government Act (Sections 919.1 and 920) – Development Permit
- ☒ Community Charter (Section 58) – Building Permit
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Variance
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Exemption

For the Property:

14770 Sylvester Rd, Hatzic Prairie, Electoral Area F PID 009-341-498

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a *Qualified Professional* and is a *Professional Engineer* or *Professional Geoscientist*.

I have signed, sealed and dated, and thereby certified, the attached flood assessment report on the Property in accordance with the APEGBC Guidelines. That report must be read in conjunction with this Statement. In preparing that report I have:

Check to the left of applicable items

- ☒ 1. Collected and reviewed appropriate background information
- ☒ 2. Reviewed the proposed residential development on the Property
- ☒ 3. Conducted field work on and, if required, beyond the Property
- ☒ 4. Reported on the results of the field work on and, if required, beyond the Property
- ☒ 5. Considered any changed conditions on and, if required, beyond the Property
- 6. For a flood hazard analysis or flood risk analysis I have:
  - ☒ 6.1 reviewed and characterized, if appropriate, floods that may affect the Property
  - ☒ 6.2 estimated the flood hazard or flood risk on the property
  - ☒ 6.3 included (if appropriate) the effects of climate change and land use change
  - ☒ 6.4 identified existing and anticipated future elements at risk on and, if required, beyond the Property
  - ☒ 6.5 estimated the potential consequences to those elements at risk
- 7. Where the Approving Authority has adopted a specific level of flood hazard or flood risk tolerance or return period that is different from the standard 200-year return period design criteria<sup>(1)</sup>, I have
  - ☒ 7.1 compared the level of flood hazard or flood risk tolerance adopted by the Approving Authority with the findings of my investigation
  - ☒ 7.2 made a finding on the level of flood hazard or flood risk tolerance on the Property based on the comparison
  - ☒ 7.3 made recommendations to reduce the flood hazard or flood risk on the Property

<sup>(1)</sup> Flood Hazard Area Land Use Management Guidelines published by the BC Ministry of Forests, Lands, and Natural Resource Operations and the 2009 publication Subdivision Preliminary Layout Review – Natural Hazard Risk published by the Ministry of Transportation and Public Infrastructure. It should be noted that the 200-year return period is a standard used typically for rivers and purely fluvial processes. For small creeks subject to debris floods and debris flows return periods are commonly applied that exceed 200 years. For life-threatening events including debris flows, the Ministry of Transportation and Public Infrastructure stipulates in their 2009 publication Subdivision Preliminary Layout Review – Natural Hazard Risk that a 10,000-year return period needs to be considered.



8. Where the Approving Authority has not adopted a level of flood risk or flood hazard tolerance I have:
- ☐ 8.1 described the method of flood hazard analysis or flood risk analysis used
  - ☐ 8.2 referred to an appropriate and identified provincial or national guideline for level of flood hazard or flood risk
  - ☐ 8.3 compared this guideline with the findings of my investigation
  - ☐ 8.4 made a finding on the level of flood hazard or flood risk tolerance on the Property based on the comparison
  - ☐ 8.5 made recommendations to reduce flood risks
  - ☒ 9. Reported on the requirements for future inspections of the Property and recommended who should conduct those inspections.

Based on my comparison between

- Check one
- ☒ the findings from the investigation and the adopted level of flood hazard or flood risk tolerance (item 7.2 above)
  - ☐ the appropriate and identified provincial or national guideline for level of flood hazard or flood risk tolerance (item 8.4 above)

I hereby give my assurance that, based on the conditions contained in the attached flood assessment report,

- Check one
- ☐ for subdivision approval, as required by the *Land Title Act* (Section 88), "that the land may be used safely for the use intended".
  - Check one
    - ☐ with one or more recommended registered covenants.
    - ☐ without any registered covenant.
  - ☐ for a development permit, as required by the *Local Government Act* (Sections 919.1 and 920), my report will "assist the local government in determining what conditions or requirements under [Section 920] subsection (7.1) it will impose in the permit".
  - ☒ for a building permit, as required by the *Community Charter* (Section 86), "the land may be used safely for the use intended".
  - Check one
    - ☒ with one or more recommended registered covenants.
    - ☐ without any registered covenant.
  - ☐ for flood plain bylaw variance, as required by the *Flood Hazard Area Land Use Management Guidelines* associated with the *Local Government Act* (Section 910), "the development may occur safely".
  - ☐ for flood plain bylaw exemption, as required by the *Local Government Act* (Section 910), "the land may be used safely for the use intended".

Drew Brayshaw  
Name (print)

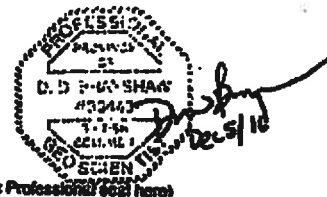
December 5 / 2016  
Date

[Signature]  
Signature

1-45950 Cream Ave  
Address

Chilliwack BC V2P 1N9

604 897 3563  
Telephone



(Affix Professional seal here)

If the Qualified Professional is a member of a firm, complete the following.

I am a member of the firm Statlu Environmental Consulting Ltd.  
and I sign this letter on behalf of the firm.

(Print name of firm)

**END OF DOCUMENT**

**LAND TITLE ACT  
FORM C (Section 233) CHARGE**

**GENERAL INSTRUMENT - PART 1 Province of British Columbia**

**PAGE 1 of 8 pages**

**1. APPLICATION: (Name, address, phone number of applicant, applicant's solicitor or agent)**

Pam Loat, Administration, Fraser Valley Regional District  
45950 Cheam Avenue, Chilliwack, BC V2P 1N6  
Tel: 604-702-5000.

Pam Loat

**2. PARCEL IDENTIFIER(S) AND LEGAL DESCRIPTION OF LAND:\***

[PID]

[legal description]

009-341-498

Lot "B" Except: Part-Subdivided by Plan 44451; Sec 4, Tp 4, Rge 2, W7M.  
NWD Plan 10524

**3. NATURE OF INTEREST\***

Document Reference

PERSON ENTITLED TO INTEREST

Statutory Right-of-Way

Entire Instrument

Transferee

as shown on SRW Plan

and as detailed on Schedule 'A' attached,

**4. TERMS: Part 2 of this instrument consists of (select one only):**

(a) ☐ Filed Standard Charge Terms DF No.

(b) ☒ Express Charge Terms Annexed as Part 2.

A selection of (a) includes any additional or modified terms referred to in Item 7 or in a schedule annexed to this instrument

**5. GRANTOR(S):\***

**SHEILA ELIZABETH OGILVIE AND DALE GEORGE ROBERT SANDS**

**6. GRANTEE(S): (including postal address(es) and postal code(s))**

**FRASER VALLEY REGIONAL DISTRICT**, a corporation duly incorporated under the laws of the Province of British Columbia, and having an office at 45950 Cheam Avenue, Chilliwack, BC V2P 1N6;

**7. ADDITIONAL OR MODIFIED TERMS:\***

N/A

**8. EXECUTION(S): \*\*This instrument creates, assigns, modifies, enlarges, discharges or governs the priority of the interest(s) described in Item 3 and the Transferor(s) and every other signatory agree to be bound by this instrument, and acknowledge(s) receipt of a true copy of the filed standard charge terms, if any.**

Officer Signature(s)

Execution Date

Grantor(s) Signature(s)

Y	M	D

**SHEILA ELIZABETH OGILVIE**

**DALE GEORGE ROBERT SANDS**

**OFFICER CERTIFICATION:**

Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the *Evidence Act*, R.S.B.C. 1996, c. 124, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the *Land Title Act* as they pertain to the execution of this instrument.

\*\* If space insufficient, continue executions on additional page(s) in Form D.

## Page 2 of 8 Pages

**Grantee  
Signature(s)**

Y	M	D
---	---	---

**Name and Title:**

(as to both signatures)

**OFFICER CERTIFICATION:**  
Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the *Evidence Act*, R.S.B.C. 1996, c. 124, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the *Land Title Act* as they pertain to the execution of this instrument.

**TERMS OF THE INSTRUMENT - PART 2**  
**STATUTORY RIGHT-OF-WAY AGREEMENT**

THIS AGREEMENT made the                      day of                      , 2009

**BETWEEN:**

**SHEILA ELIZABETH OGILVIE, and**  
**DALE GEORGE ROBERT SANDS**  
2 – 32540 Logan Avenue  
Mission, BC  
V2V 6G3

( together the "Grantor")

**OF THE FIRST PART**

**AND:**

**FRASER VALLEY REGIONAL DISTRICT** having an office situated at 45950 Cheam  
Avenue, Chilliwack, British Columbia, V2P 1N6

(the "Regional District")

**OF THE SECOND PART**

**AND:**

**HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH**  
**COLUMBIA**, represented by the Ministry of Environment, Parliament Buildings, Victoria,  
British Columbia, V8V 1X5

(the "Province")

**OF THE THIRD PART**

(the Province and Regional District together the "Grantees")

**WHEREAS:**

- A. The Grantor is the registered owner in fee simple of the land and premises described as follows:

Parcel Identifier: 009-341-498

Legal Description: Lot "B" Except: Part Subdivided by Plan 44451; Sec 4, Tp 4, Rge 2,  
W7M, NWD Plan 10524

("the Lands")

- B. The Lands are susceptible to flooding from Cascade Creek ("the Creek") which flows through  
and/or adjacent to the Lands;
- C. The Regional District constructed an offset dike (the "Dike") adjacent to the Creek to mitigate the  
risk of flooding to the Lands;

- D. The Fraser Valley Regional District requires, and the Grantor has agreed to grant a statutory rights of way to the Fraser Valley Regional District (the Diking Authority as defined pursuant to the Dike Maintenance Act) and the Province in order to mitigate the risk of flooding;
- E. The Grantor has agreed to grant and the Regional District and the Province have agreed to accept the statutory rights of way pursuant to S.218 of the Act;
- F. The statutory rights of way are necessary for the operation and maintenance of the Regional District's and the Province's undertaking in accordance with the "Fraser Valley Regional District Cascade/Carratt Creek Flood Mitigation Works Operation and Maintenance Manual" (as hereinafter defined).

NOW THEREFORE THIS AGREEMENT WITNESSETH that pursuant to S.218 of the Act, the Grantor, for good and valuable consideration including the sum of Ten Dollars (\$10) paid by the Regional District and the Province to the Grantor (the receipt and sufficiency whereof is by the Grantor acknowledged), does hereby grant in perpetuity to the Regional District and the Province the full, free and uninterrupted right, liberty and right of way at all times:

- (a) to enter over, on, in and under that portion of the Lands shown outlined in heavy black on Reference Plan of Statutory Right of Way prepared by Darryl Mitchell, B.C.L.S. and certified correct the ( )th day of ( ), 20 (the "Dike SRW"), which plan is deposited concurrently herewith and a reduced copy of which plan is annexed hereto as Schedule "A", to establish, construct, install, operate, maintain, alter, relocate, renew, raise, replace and inspect dikes and incidental appurtenances (the "Dike Works") and for carrying out works as required under the Manual, as amended from time to time, (as hereinafter defined) for the purpose of controlling, containing, conveying and draining flood flows from Cascade Creek; and
- (b) to enter over, on, in and under those portions of the Lands shown outlined in heavy black on Reference Plan of Statutory Right of Way prepared by Darryl Mitchell, B.C.L.S. and certified correct the ( )th day of ( ), 20 and on Explanatory Plan of Statutory Right of Way prepared by Darryl Mitchell, B.C.L.S. and certified correct the ( )th day of ( ), 20 (together called the "Flood Corridor SRW"), which plans are deposited concurrently herewith, and reduced copies of which plans are annexed hereto as Schedule "B" and Schedule "C" respectively, to establish, install, maintain, operate, alter, relocate, renew, replace and inspect a flood corridor and incidental appurtenances (the "Flood Corridor Works") in conjunction with the Dike Works and in accordance to the Manual (as hereinafter defined) for the purpose of controlling, containing, conveying and draining flood flows from Cascade Creek (the Dike SRW and the Flood Corridor SRW are collectively referred to as the "SRW's" and the Dike Works and the Flood Corridor Works together referred to as the "Works"), on the following terms and conditions:
  - 1. The Grantor covenants and agrees that, without limiting the grants of rights of way herein, the Regional District and the Province may in exercising its rights herein:

- (a) conduct surveys and examinations necessary for the Works;
  - (b) dig up, remove and replace soil, debris and other obstructions from the SRW's;
  - (c) establish, construct, install, operate, maintain, alter, relocate, renew, raise, replace and inspect flood protection works and incidental appurtenances
  - (d) remove gravel from the Flood Corridor SRW where in the opinion of the Regional District or the Province removal is necessary to maintain, improve or enhance the operation and effectiveness of the Flood Corridor Works;
  - (e) bring into the SRW's all materials and equipment that the Regional District or the Province may require for the Works;
  - (f) clear the SRW's and keep them clear of anything which in the opinion of the Regional District or the Province constitutes an obstruction or which would or might impair the efficient and effective operation of the works, without compensation of any nature to the Grantor;
  - (g) cross over the Lands, using such areas thereof which are appropriate for access whenever possible, for reasonable access to the SRW's and make reasonable ancillary use of the Lands in or about the SRW's for the purpose of carrying out the Works, and the Regional District and the Province shall carry out the Works in such a manner so as to cause as little damage to the Lands as is reasonably possible;
  - (h) excavate, alter and rip rap the banks of Cascade Creek;
  - (i) trim or if necessary in the opinion of the Regional District or the Province, cut down and remove any tree, vegetation or other growth on the Lands which constitutes or might constitute an obstruction or which might otherwise impair the efficient and effective operation of the Works;
  - (j) do all acts which in the opinion of the Regional District or the Province are incidental to the foregoing;
  - (k) raise the dike in accordance to provincial and municipal standards to conform with changes to flood protection standards.
2. The Grantor and the Regional District hereby agree to obtain any applicable statutory approvals, permits or authorizations with respect to gravel removal.
3. The Grantor shall
- (a) not do or permit, or cause to be done any act or thing which does or might interfere with the exercise by the Regional District or the Province of their rights herein, or which does or might injure, damage or obstruct the Works, or impair the operation of the Works;
  - (b) execute all such further documents and things whatsoever for the better assuring unto the Regional District and the Province of the SRW's herein granted;

- (c) permit the Regional District and the Province to freely, fully and peaceably hold and enjoy the rights herein granted.
4. The Regional District covenants and agrees:
- (a) that in the exercise of any of its rights herein and in carrying out the Works, to cause no unnecessary damage or disturbance to the Lands or any improvement thereon, and to use all reasonable efforts to minimize disturbance and interruption of the use of the Lands by the Grantor;
  - (b) to clean up and remove all rubbish and debris arising from the exercise of its rights hereunder, and to leave the SRW's in a reasonably neat and tidy condition;
  - (c) that in carrying out any repairs and maintenance to the Works to do so in a good and workmanlike manner and in accordance with the terms and conditions of the operations and maintenance manual prepared by Sigma Engineering Ltd. dated January 2001 and approved by the Regional District and Her Majesty the Queen in Right of the Province of British Columbia, as amended from time to time, applicable to the Works (the "Manual") and annexed hereto as Schedule D;
  - (d) that the Grantor may make use of those portions of the Lands within the Training Berm SRW in such a manner that does not:
    - (i) prevent or interfere with the Grantor's compliance with its obligations under this Agreement; nor
    - (ii) interfere with the rights granted to the Regional District and the Province under this Agreement, for example, by the installation of paving stones or other similar improvements, PROVIDED however that the Grantor must obtain the Regional District's and Province's prior consent for such improvements and the Grantor acknowledges that those improvements may be damaged by flooding or they may be removed or damaged by the Regional District during the repair, operation or replacement of the Works and in any case, no compensation is payable to the Grantor.
5. The parties agree that notwithstanding the grant of the SRW's to the Province, the Province shall not be responsible for the inspection, maintenance, repair and restoration of the works located on the flood corridor SRW and the Dike SRW and the Regional District shall have the sole responsibility to undertake such work to the extent specified in the Manual.
6. The parties agree that this Agreement shall not be modified or discharged except in accordance with the provisions of Section 218 of the Land Title Act and with the prior written approval of the Province.
7. The Grantor acknowledges the risk of flooding on the Lands and the Grantor, on behalf of itself and its successors and assigns, acknowledges that the Province and the Regional District do not represent to the Grantor, nor to any other person, that any building, mobile home or unit, improvement, chattel or other structure, including the contents of any of them, built, constructed or placed on the Lands will not be damaged by flooding or erosion, or that the Works constructed on the Lands in exercise of the rights granted hereunder will prevent damage by flooding, and the



Grantor, on behalf of itself and its successors and assigns, with full knowledge of the potential flood or erosion danger:

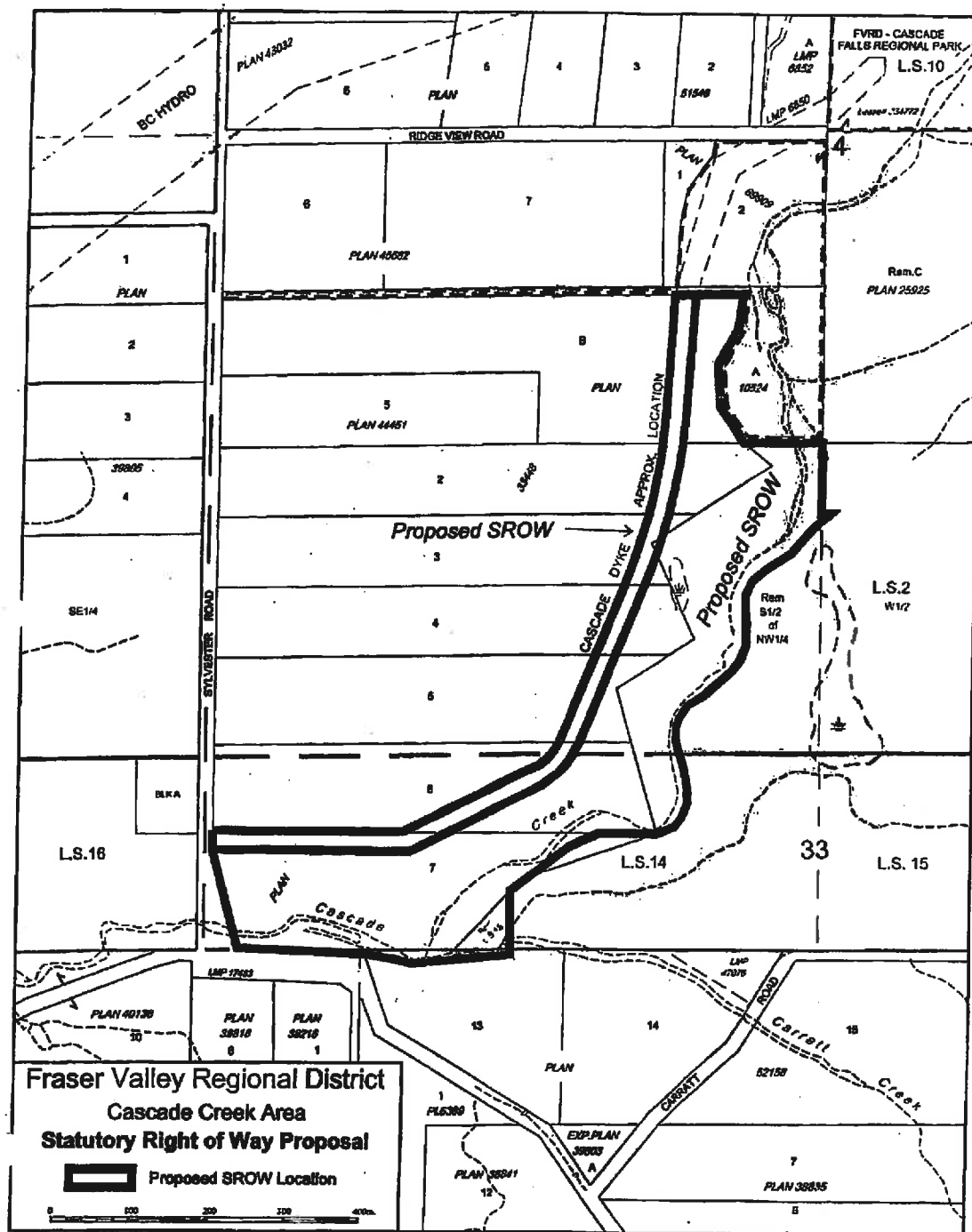
- (a) agrees to indemnify and to save harmless the Regional District and the Province and their officers, employees, servants, contractors and agents from all loss, damages, costs, actions, suits, expenses, debts, accounts, claims and demands which the Regional District or the Province or any of their officers, employees, servants, contractors or agents, may suffer or incur or be put to arising out of or in connection with any breach of any covenants or agreement on the part of the Grantor or its heirs, executors, administrators, successors and assigns contained in this Agreement, or arising out of or in connection with any personal injury, death or loss or damage to the Lands, or to any building, modular home, mobile home or unit, improvement, chattel or other structure, including the contents of any of them, built, constructed or placed on the Lands caused by flooding, erosion or some such similar cause; and
  - (b) does remise, release and forever discharge the Regional District and the Province and their officers, employees, servants, contractors and agents from all manner of actions, causes of actions, suits, debts, accounts, covenants, contracts, claims and demands which the Grantor or any of its heirs, executors, administrators, successors and assigns may have against the Regional District or the Province or their respective officers, employees, servants, contractors or agents for and by reason of any personal injury, death or loss or damage to the Lands, or to any building, modular home, mobile home or unit, improvement, chattel or other structure, including the contents of any of them, built, constructed or placed on the Lands, caused by flooding, erosion or some such similar cause.
8. All chattels and fixtures, if any, installed by or on behalf of the Regional District over, on, in or under the SRW's are and shall remain the property of the Regional District notwithstanding any rule of law or equity to the contrary.
  9. Nothing in this Agreement shall derogate from, prejudice, restrict, limit, reduce or affect the rights, powers and remedies of the Regional District or the Province at law or equity or arising by statute, bylaw or regulation, all which rights, powers and remedies may be fully exercised by the Regional District or the Province as if this Agreement had not been made.
  10. Notwithstanding anything herein contained, the Regional District reserves all rights and powers of expropriation otherwise enjoyed by the Regional District.
  11. Waiver of any default by either party shall not be deemed to be a waiver of any subsequent default by that party.
  12. This Agreement shall be construed as running with the Lands but no part of the fee of the Lands shall pass to the Regional District by this Agreement.
  13. Any notice, document or communication required or permitted to be given shall be in writing and shall be deemed to be satisfactory if and deemed to have occurred when:
    - (a) sent by facsimile transmission or when personally delivered, on the date of delivery; or
    - (b) mailed by prepaid registered mail, on the date received or on the sixth day after receipt of mailing by any Canada post office, whichever is earlier;

**PROVIDED** the notice is sent to the party at the address provided herein or to whatever address the parties from time to time in writing agree to and **PROVIDED** any notice to the Regional District is marked to the attention of the Director of Engineering.

14. Notwithstanding anything to the contrary contained herein, neither the Grantor named herein nor any future owner of the Lands or any portion thereof shall be liable for a breach of a covenant contained herein where such liability arises by reason of an act or omission occurring after the Grantor named herein or any future owner ceases to have any further interest in the Lands.
15. Any opinion which the Regional District is entitled by virtue of this agreement to form may be formed on behalf of the Regional District by the Director of Engineering in which event the opinion of the Director of Engineering shall be deemed to be the opinion of the Regional District for the purposes of this Agreement. The Regional District will not be unreasonable in its opinions herein.
16. If any section, subsection, sentence, clause or phrase in this Agreement is for any reason held to be invalid by the decision of a Court of competent jurisdiction, the invalid portion shall be severed and the decision that such portion is invalid shall not affect the validity of the remainder of the Agreement.
17. This Agreement shall be governed and construed in accordance with the laws of the Province of British Columbia.
18. Whenever the singular or masculine is used in this Agreement, the same is deemed to include the plural or the feminine or the body politic or corporate as the context so requires.
19. Every reference to a party or parties is deemed to include the successors, assigns, employees, agents, officers and contractors of such party wherever the context so requires or allows and wherever the Regional District is entitled to do anything in the exercise of any rights or obligations hereunder it is entitled to cause such things to be done by its agents, contractors or others acting on its behalf.
20. This Agreement shall enure to the benefit of and be binding upon the parties, their successors and assigns.
21. The Grantor will do or cause to be done at its expense all acts reasonably necessary for the Province and the Regional District to gain priority for this Agreement over all liens, charges and encumbrances which are, or may be, registered against the Lands, save and except those in favour of the Province and the Regional District and those specifically approved in writing by the Province and the Regional District.

In witness whereof the parties have executed this Agreement on the Form C to which this Agreement is attached and which forms part of this Agreement as of the date and year first above written.

END OF DOCUMENT



LAND TITLE ACT  
FORM C  
(Section 233)

29 JUN 2012 14 22

BB1492248

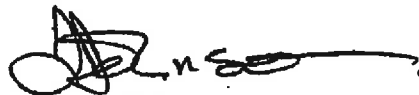
Province of British Columbia

GENERAL INSTRUMENT - PART 1 (This area for Land Title Office use)

PAGE 1 of 3 pages

1. APPLICATION: (Name, address, phone number and signature of applicant, applicant's solicitor or agent)

Dale Sands  
2 - 32540 Logan Avenue  
Mission, BC V2V 6G3 604-820-4086

  
Tina Johnson

2. PARCEL IDENTIFIER(S) AND LEGAL DESCRIPTION(S) OF LAND: \*  
(PID) (LEGAL DESCRIPTION)

009-341-498

Lot B Except: Part Subdivided by Plan 44451; Section 4 Township 4 Range 2  
West of the 7<sup>th</sup> Meridian New Westminster District Plan 10524

Subject to Certificate Of Pending Litigation D.F. #CA2477545

3. NATURE OF INTEREST: \*  
DESCRIPTION

DOCUMENT REFERENCE  
(page and paragraph)

PERSON ENTITLED TO INTEREST

Statutory Right-Of-Way  
As shown on SRW Plan  
EPP7871 and as detailed on  
Schedule 'A' attached.

Entire Instrument

Transferee

4. TERMS: Part 2 of this Instrument consists of (select one only)

(a) ☐ Filed Standard Charge Terms (b) ☒ Express Charge Terms Annexed as Part 2.

A selection of (a) includes any additional or modified terms referred to in Item 7 or in a schedule annexed to this instrument.

5. GRANTORS: \*

**SHEILA ELIZABETH OGILVIE and DALE GEORGE ROBERT SANDS**

6. GRANTEE: (Including occupation(s), postal address(es) and postal code(s)) \*

**FRASER VALLEY REGIONAL DISTRICT**, a corporation duly incorporated under the laws of the Province of  
British Columbia, and having an office at 4590 Cheam Avenue, Chilliwack, B.C. V2P 1N6.

7. ADDITIONAL OR MODIFIED TERMS: \*

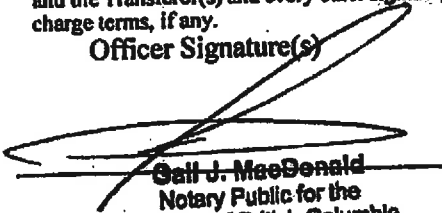
N/A

8. EXECUTION(S): \*\* This instrument creates, assigns, modifies, enlarges, discharges or governs the priority of the interest(s) described in Item 3 and the Transferor(s) and every other signatory agree to be bound by this instrument, and acknowledge(s) receipt of a true copy of the filed standard charge terms, if any.

Officer Signature(s)

Execution Date

Party(ies) Signature(s)

  
Gail J. MacDonald  
Notary Public for the  
Province of British Columbia  
Unit B - 32757 Logan Avenue  
Mission, BC V2V 6K7  
Permanent Commission

As to both signatures

WITNESSED AS TO EXECUTION ONLY  
NO LEGAL ADVICE SOUGHT OR GIVEN

Y	M	D
2012	06	28

  
SHEILA ELIZABETH OGILVIE

  
DALE GEORGE ROBERT SANDS

OFFICER CERTIFICATION:

Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the Evidence Act, R.S.B.C. 1996, c. 124, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the Land Title Act as they pertain to the execution of this instrument.

- \* If space insufficient, enter "SEE SCHEDULE" and attach schedule in Form E.
- \*\* If space insufficient, continue executions on additional page(s) in Form D.

**Part 2 – TERMS OF INSTRUMENT**

**Recitals**

- A. Sheila Elizabeth Ogilvie and Dale George Robert Sands (the "Grantor") are the registered owners in fee simple of the land and premises described as follows:

Parcel Identifier: 009-341-498

Legal Description: Lot B Except: Part Subdivided by Plan 44451;  
Section 4 Township 4 Range 2 West of the 7<sup>th</sup>  
Meridian New Westminster District Plan 10524

("the Lands")

- B. The Lands may be susceptible to flooding from Cascade Creek (the "Creek") which flows adjacent to the Lands.
- C. The Fraser Valley Regional District (the "Regional District") and the Province of British Columbia (the "Province") constructed an offset dike (the "Dike") adjacent to the Creek to mitigate the risk of flooding to the Lands;
- D. Pursuant to section 218 of the *Land Title Act* [RSBC 1996] Chapter 250 and amendments thereto, the Grantor grants a statutory right of way to the Regional District (the Diking Authority as defined pursuant to the *Dike Maintenance Act*) and the Province, necessary for the operation and maintenance of the Regional District's and the Province's undertaking in accordance with the "Fraser Valley Regional District Cascade/Carratt Creek Flood Mitigation Works Operation and Maintenance Manual" (the "Manual"), completed by Sigma Engineering in 1999.

**Grants of Easement**

The Grantor does hereby grant in perpetuity to the Regional District and the Province the full, free and uninterrupted right, liberty and right of way at all times:

1. to enter over, on, in and under that portion of the Lands shown outlined in heavy black on Reference Plan of Statutory Right of Way prepared by Darryl Mitchell, B.C.L.S. and certified correct the 21st day of June, 2010 (the "SRW"), a reduced copy of which plan is annexed hereto as Schedule A, to establish, construct, install, operate, maintain, alter, renew, raise, replace and inspect dikes and incidental appurtenances (the "Works") and for carrying out works as

required under the Manual for the purpose of controlling, containing, conveying and draining flood flows from Cascade Creek, and, without limiting the grants of right of way herein, the Regional District and the Province may in exercising its or their rights herein:

- (a) conduct surveys and examinations necessary for the Works;
  - (b) dig up, remove and replace soil, debris and other obstructions from the SRW;
  - (c) establish, construct, install, operate, maintain, alter, renew, raise, replace and inspect flood protection works and incidental appurtenances;
  - (d) bring into the SRW all materials and equipment that the Regional District or the Province may require for the Works;
  - (e) clear the SRW and keep it clear of anything which in the opinion of the Regional District or the Province constitutes an obstruction or which would or might impair the efficient and effective operation of the Works, without cost or compensation of any nature to the Grantor;
  - (f) make reasonable ancillary use of the Lands in or about the SRW for the purpose of carrying out the Works in such a manner so as to cause as little damage to the Lands as is reasonably possible;
  - (g) excavate, alter and rip rap the banks of Cascade Creek;
  - (h) upon written notice to the Grantors, trim or, if necessary, in the opinion of the Regional District or the Province, cut down and remove any tree, vegetation or other growth on the SRW which constitutes or might constitute an obstruction or which might otherwise impair the efficient and effective operation of the Works, with any such cuttings to be deposited on the Lands as directed by the Grantor;
  - (i) do all acts which, in the opinion of the Regional District or the Province, are incidental to the foregoing; and
  - (j) raise the dike in accordance to provincial and municipal standards to conform with changes to flood protection standards.
2. The grant of easement shall be construed as running with the Lands but no part of the fee of the Lands shall pass to the Regional District or the Province by this Agreement.

**END OF DOCUMENT**

[illegible]

PLAN EPP7871

