

Newlines ADU

Attention: Gabriel Viel-Cotes, Co-Founder
Gabriel.viel.cotes@newlinesadu.com

**RE: Geologic Hazard Assessment
Single-Family Dwelling
37 Bracken Pky, Squamish, BC**

Dear Gabriel Viel-Cotes,

1.0 INTRODUCTION

In accordance with your recent authorization in reference to Kontur's Proposal K-261429-PP, Kontur Geotechnical Consultants Inc. ("Kontur") has completed this *Geologic Hazard Assessment* for the above-referenced project. The purposes of this study were to characterize the site from a geotechnical point-of-view and to provide geotechnical comments and recommendations with respect to the installation of a modular home.

This letter which summarizes the findings of the *Geologic Hazard Assessment*, has been prepared in accordance with standard and widely accepted geotechnical engineering principles and practices for similar projects in this region. This report does not address any archaeological, environmental, or other engineering considerations related to the project.

Kontur's assessment of potential naturally occurring geologic hazard events follow generally accepted guidelines provided by the Engineers and Geoscientists of British Columbia (EGBC) "Landslide Assessments in British Columbia" dated March 1, 2023 and District of Squamish Official Community Plan (OCP).

Review and use of this letter should be completed in accordance with the attached *Interpretation and Use of Study and Report* document. It is included as an integral part of this report and should be read in conjunction with all parts of this report.

2.0 PROJECT DESCRIPTION

Based on discussions with New Lines ADU, it is understood that the project generally consists of replacing an existing mobile home with a 1,000 sq. ft. modular home.

It is understood that the client intends to use helical piles to support the proposed building.

The subject property is located within a zone identified as a Secondary Floodway, and within Zone C5 of the Cheekeye Fan Debris Flow Hazard, as per the Squamish Integrated Flood Hazard Management Plan. As such, preparation of a geologic hazard assessment report and determination of an appropriate Flood Construction Level (FCL) is required for the proposed development.



3.0 METHODOLOGY

The following sources of information were referenced as part of this study:

- Geotechnical exploration completed on June 18, 2026;
- Surficial Geology Map titled *"Surficial Geology and Landslide Inventory of the Middle Sea to Sky Corridor"* open file 5323 prepared by the Geological Survey of Canada;
- Available information obtained from District of Squamish online web-mapping Application;
- Kontur's nearby and relevant experience in the area;
- Guidelines titled *"Landslide Assessments in British Columbia"* Version 4.1 prepared by Engineers and Geoscientists British Columbia dated March 1, 2023;
- Report titled *"Report of the Cheekeye River (Ch'Kay Stakw) and Fan Expert Review Panel"* dated April 23, 2014;
- Report titled *"Integrated Flood Hazard Management Plan"* (IFHMP) prepared by Kerr Wood Leidal (KWL), dated October, 2017;
- District of Squamish Floodplain Management Bylaw No. 2751;
- District of Squamish Official Community Plan Bylaw 2500, 2017 "Schedule A" updated June 2025 (OCP); and,
- Report titled *"Cheekeye Fan Debris-Flow Mitigation - Baseline Risk Assessment (Rev. 2)"* prepared by BGC Engineering Inc. dated December 4, 2020.

On June 18, 2026, geotechnical exploration consisting of two test pits, designated TP26-01 and TP26-02, were advanced to 2.2m and 3.5m depth, respectively. The test pits were completed using an excavator equipped with a smooth-edged bucket.

4.0 SITE DESCRIPTION

4.1 General

The subject property covers an approximate area of about 720sq.m located about 8km north of downtown Squamish. The property is rectangular in shape, with plan dimensions of about 36m (aligned east-west) by 20m (aligned north-south). The property is bordered to the north, south and west by neighbouring single-family residential lots, and to the east by Bracken Parkway.

Existing development within the subject property generally consists of a single-level mobile home and a garden shed.

4.2 Surface Conditions

Topography within the subject property generally consists of flat-lying ground. Vegetation generally consists of well-maintained grass cover covering the northern and western portions of the property, with remaining exterior areas consisting of asphalt surfacing.



4.3 Subsurface Conditions

Interpretation of subsurface soil and groundwater conditions at the site are based on published surficial geology maps of the area, Kontur's nearby and relevant experience, and the site reconnaissance/test pits completed as part of this study.

"*Surficial Geology and Landslide Inventory of the Middle Sea to Sky Corridor*" open file 5323 prepared by the Geological Survey of Canada, the site is underlain by Floodplain Sediments typically comprising sand and silt, commonly including organics underlain, in many places, by gravel. In general, the surficial geology maps of the area and nearby information/experience, are generally consistent with the findings of the geotechnical exploration program completed by Kontur as described in this report.

Conditions encountered within the test pits are summarized in Table 1 below:

Table 1: Test pit excavations

Test Pit ID	Depth (m)		Description
	From	To	
TP26-01	0.0	0.1	(TOPSOIL) ORGANIC SANDY SILT, dark brown-black, moist (loose), surficial grass
	0.1	0.4	SILT, some sand and organics, dark brown, w>PL (Soft)
	0.4	0.8	SILT, some sand to sandy, trace to some organics, brown-grey, w=PL (soft to firm), sand is fine grained, organics consist of rootlets, sand is fine grained - 0.6m: Moisture = 48.4%
	0.8	1.4	SILTY SAND, grey, wet (very loose), sand is fine grained, some brown blotches - 0.9m: Seepage and ongoing sidewall collapse below about 0.9m - 1.1m: Moisture = 41.7%
	1.4	1.8	SAND, some silt and organics, grey, wet (loose), sand is fine grained, organics consist of occasional wood pieces up to 50mm diameter and 300mm length.
	1.8	2.2	GRAVELLY SAND, brown-grey, wet (compact), maximum fragment size of about 100mm - 2.2m: Limit of exploration due to ongoing test pit sidewall collapse
TP26-02	0.0	0.1	(TOPSOIL) ORGANIC SANDY SILT, dark brown-black, moist (loose), surficial grass
	0.1	0.3	(FILL) SILTY SAND, trace organics, brown, moist (loose)



	0.3	0.9	(FILL) GRAVELLY SAND, some cobbles, trace silt, pale brown, moist (compact), maximum fragment size of about 200mm, cobbles are sub-rounded to sub-angular
	0.9	1.3	SILTY SAND, trace to some organics, grey, moist (loose to compact), some silt in areas, sand is fine grained, organics consist of rootlets, roots and decomposed organic clumps - 1.2m: Moisture = 27.2% - 1.3m: Seepage observed from sidewalls
	1.3	1.7	SILT, some sand to sandy, brown-grey, w<PL (firm), trace to some organics/rootlets - 1.5m: Moisture = 41.3%
	1.7	3.3	SILTY SAND, grey, wet (loose), some silt in areas, sand is fine grained
	3.3	3.5	(Inferred description based on machine feedback and mixed/saturated spoils) GRAVELLY SAND, compact, maximum fragment size of about 150mm

Groundwater seepage was encountered between 0.9 to 1.3m depth during test pit excavation. Fluctuations in groundwater conditions should be anticipated at this site which may be influenced by periods of prolonged and/or intense rainfall, rapid snowmelt, and/or nearby land uses.

4.4 Subsurface Variability

It is important to note that the subsurface conditions described above and encountered in each test pit are representative of the specific conditions in the immediate vicinity of each test pit. Extrapolation and interpretation of the subsurface profile is formulated based on an assumed horizontal continuity of subsurface conditions across the site. Therefore, the conditions or units described above are generalized and based on the available test pit information only. Variation in stratigraphic conditions should always be expected.

5.0 GEOTECHNICAL HAZARD ASSESSMENT

5.1.1 General

Kontur's assessment of potential naturally occurring geologic hazard events follow generally accepted guidelines provided by the Engineers and Geoscientists of British Columbia (EGBC) "Landslide Assessments in British Columbia" dated March 1, 2023 and District of Squamish Official Community Plan (OCP).

Based on a review of the District of Squamish Floodplain Management Bylaw (Bylaw 2751), the subject property is located in an area characterized as the Cheekeye Fan Debris Flow Hazard Area and a Flood Hazard Area.

The above noted items are discussed in detail in the following *Section 5.1.2 and 5.1.3*.



5.1.2 Cheekeye Fan Debris Flow/Debris Flood Hazard

The subject property is located in an area identified as being within the potential influence zone of the Cheekeye Fan Debris Flow Hazard. Specifically, the property is located within Debris Hazard Zone C5 identified in Schedule D-1 of the OCP. As such, Section 11.10.c of the OCP requires submission of a risk assessment by a Qualified Professional that supports the application. Squamish OCP Section 11.10.g indicates that risk tolerance criteria stated in Section 11.2.c shall be achieved to permit new development. Section 11.2.c states that a Quantitative Risk Assessment is required as a minimum acceptable threshold for new developments in areas subject to landslide, debris flow, debris flood or rockfall:

- i. For existing development, the individual risk to loss of life per annum shall not exceed 1:10,000; and
- ii. For new development, the individual risk to loss of life per annum shall not exceed 1:100,000, and
- iii. Societal (group) risk of loss of life per annum shall be within the Broadly acceptable or As Low As Reasonably Practical (ALARP) zones shown in Figure 11-2 (presented below); and
- iv. Where societal risks to life fall within the ALARP zone, the risk assessment report shall explain to the satisfaction of the approving officer why the cost of reducing the risk further is considered grossly disproportional to the benefit gained (as per the definition of ALARP).

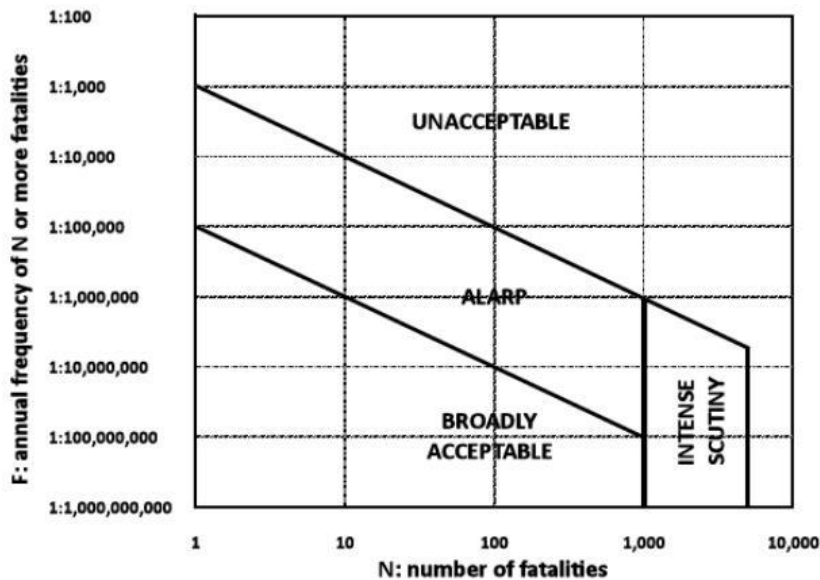


Figure 11-2. Frequency – Number of Fatalities Diagram

Based on a review of the BGC December 2020 report, it is understood that this hazard assessment should be completed in accordance with an individual risk assessment and reviewed against tolerable thresholds for new development (ie. 1:100,000).

Section 2.4 of the BGC December 2020 report indicates that individual risk, also known as annual Probability of Death of an Individual (PDI), is calculated as follows:



$$PDI_j = \sum_{i=1}^n P(H)_i P(S:H)_{i,j} P(T:S)_{i,j} V_{i,j}$$

Equation 2-1

Where:

- PDI_j is the PDI at a given parcel (j)
- $P(H)_i$ is the annual probability of a geohazard scenario¹ (i)
- $P(S:H)_{i,j}$ is the spatial probability of impact of geohazard scenario (i) at a given parcel (j)
- $P(T:S)_{i,j}$ is the temporal probability of a person occupying a building at parcel (j)
- $V_{i,j}$ is the probability of fatality (vulnerability) given impact by the estimated hazard intensity²

Section 3 of the BGC December 2020 report outlines methods used to assess debris-flow hazard and risk assessment. A total of seven (7) volume classes of debris-flow scenarios were modelled with return periods between 10 to 10,000 years, with total event volumes ranging between 0.2Mm³ to 5.5Mm³ and peak discharge ranging from 800m³/s to 33,000m³/s. Based on a review of Drawings 2 to 9 of the BGC December 2020 report, it is anticipated that:

- A volume class 1 debris flow event (0.4Mm³ event volume, 1,600m³/s peak discharge) would not impact the subject property;
- A volume class 2 and 3 debris-flow events (max 0.8Mm³ event volume, 3,400m³/s peak discharge) would have less than 10% probability of influencing the subject property, with debris flow intensities of less than 1m³/s²;
- A volume class 4 debris-flow event (1.4Mm³ event volume, 6,600m³/s peak discharge) has a 10 – 20% probability of impacting the subject property, with debris flow intensities of less than 1m³/s²;
- A volume class 5 and 6 debris-flow event (max 2.8Mm³ event volume, 15,000m³/s peak discharge) has a 20 – 40% probability of impacting the subject property, with debris flow intensities of less than 1m³/s²; and,
- A volume class 7 debris-flow event (5.5Mm³ event volume, 33,000m³/s peak discharge) has a 20 – 40% probability of impacting the subject property, with debris flow intensities between 1 to 3m³/s².

Based on the above discussion and reference to section 3 of the BGC 2020 report, the following values for the Landslide Risk have been developed regarding the risk of one fatality for the volume class 3 event.

$P(H) = 0.0067$ based on Table 3-2 of the BGC December 2020 report

$P(S:H) = 0.1$ based on the upper bound values outlined above as shown in Drawing 5 of the BGC December 2020 report which indicate that the subject property has a less than 10% probability of impact from a volume class 3 event.

$P(T:S) = 0.9$ based on Table 3-7 of the BGC December 2020 report

$V = 0$ based on Table 3-8 of the BGC December 2020 report with a hazard intensity index of less than 1m³/s².



Hence, for a volume class 3 debris flow event, $PDI = 0.0067 \times 0.1 \times 0.9 \times 0 = 0$ (due to debris flow hazard intensity of less than $1\text{m}^3/\text{s}^2$ where life loss vulnerability is considered to be 0%).

A sensitivity analysis was completed for the subject property in consideration of hazard intensities between other volume class events with the potential to influence the subject property, considering a maximum of 4 occupants within the building at the time of the event:

Volume Class of Debris Flow Event	Return Period (Years)	P(H)	P(T:S)	V	P(S:H)	Occupants	PDI x Occupants	
							Mathematical Result	1:"X" Year Risk (approximate)
4	300 to 1000	0.0023	0.9	0	0.2	4	0	NA
5	1000 to 3000	0.00067	0.9	0	0.4	4	0	NA
6	3000 to 10,000	0.00023	0.9	0	0.4	4	0	NA
6	10,000 – best estimate	0.000092	0.9	0	0.4	4	0	NA
7	10,000 – best estimate	0.000092	0.9	0.04	0.4	4	5.3×10^{-6}	188707
7	10,000 – upper bound	0.000008	0.9	0.04	0.4	4	4.6×10^{-7}	2170139

As such, the annual probability of death of an individual (individual risk to loss of life per annum) as a result of a debris flow event impacting the subject property is not expected to be less than 1:100,000.

A Landslide Hazard Assurance Statement is attached to this report.

5.1.3 Flood Hazard Area

Based on a review of the District of Squamish Floodplain Management Bylaw (Bylaw 2751), the subject property is located in a flood hazard area defined as:

1. Overland Flow Hazard area
2. Secondary Floodway



Based on a review of Schedule A1 of the Flood Hazard Management Plan (IFHMP) final report dated October 2017, a Flood Construction Level (FCL) of **14.0m is deemed appropriate.**

Areas below recommended FCL may be used for parking, as is not considered to be habitable space by provincial guidelines. If such space is to be developed there must be unobstructed pedestrian ingress and egress to area above FCL as indicated in the "Flood Hazard Area Land Use Management Guidelines" 2004. Signage should be installed which clearly indicates that the parking area is subject to flooding if below FCL. No storage of goods damageable by floodwaters should be permitted in the below FCL parking areas. Electrical and mechanical equipment must be located above FCL. Any parts of the building constructed below FCL should be constructed with "flood resistant" materials not easily damaged by floodwater.

Schedule A2 of the IFHMP indicates a simplified design velocity of 0.81 to 2.8 m/s during the design flood event. As such, backfill surrounding proposed foundations must be protected from scour and erosion (refer to attached Schedule F - *Standard Erosion and Scour Protection Details*). Scour protection for deep foundations (helical piles) would require the upper helix to be at least 2m below finished grade.

Section 35.8 of the OCP (DPA 2) indicates the following requirements for new developments within a secondary floodway:

1. New structures within a secondary floodway should maximize floodway conveyance and minimize potential increase in flood levels in adjacent or upstream areas.
2. Fill placed within any property line setback should remain below a line projecting up at 5H:1V from existing grades at the property line.
3. Any fences, hedgerows or other potential "linear flow obstructions" should be designed to allow flood conveyance.

Based on a discussion with the client, the building will be structurally elevated above existing grades to achieve FCL. Grade increases are not proposed within the subject property.

Based on the discussions above and provided items 2 and 3 are implemented, guidelines set out in Section 35.8 of DPA 2 would be considered met.

A Flood Hazard Assurance Statement is attached to this report.

6.0 CLOSURE

The comments and recommendations presented in this letter are based on the referenced information and Kontur's understanding of the project as described herein. If site conditions or project parameters differ from those described in this letter report, Kontur should be notified promptly to review geotechnical aspects of the project and provide additional or modified comments and recommendations, as deemed appropriate. Contractors should make their own assessments of subsurface conditions at this site and select the construction means and methods that are most appropriate for encountered site conditions.

The subject property is considered 'safe' for the intended purpose, that being the installation of a modular home. The term safe specifically refers to the ability of the sub surface soils to support the proposed building within typically tolerable settlement for such buildings, global slope stability being adequate for static/ seismic conditions.



The subject property is considered safe, as per the guidelines set out in the District of Squamish Bylaws/OCP, against flooding and landslide hazards with respect to the construction of a duplex (provided the recommendations set out in *Section 5* above are implemented).

This letter has been prepared for the exclusive use of Newlines Contracting and/or their designated agents or consultants for the intended purpose described herein. The District of Squamish may use the information for development and/or building permit purposes. Any use of the information contained in this report for other than its intended purpose or by any other party must first be verified in writing by Kontur. Kontur does not accept any responsibility or damages because of any other party relying on or using the information, interpretations, opinions, comments, and/or recommendations that are contained in this report.

Kontur trusts that the information described above meets your current requirements. If you should have any concerns or questions, please do not hesitate to contact the undersigned.

Sincerely,

Kontur Geotechnical Consultants Inc.
EGBC Permit to Practice #1000925

Per:

Peter Knott EIT
Geotechnical Engineer-In-Training

Per:



Evan Sykes P.Eng 2026-07-09
Principal | Geotechnical Engineer

Attachments: Interpretation and Use of Study and Report
Test Hole Location Plan
Appendix D: Landslide Assurance Statement
Appendix J: Flood Hazard and Risk Assurance Statement
Schedule D1: Flood and Debris Flow Hazard Areas
Schedule F – Scour protection and Erosion Details



INTERPRETATION AND USE OF STUDY AND REPORT DOCUMENT

1.0 STANDARD OF CARE

This study and Report have been prepared in accordance with generally accepted engineering consulting practices in this area. No other warranty, expressed or implied, is made. Engineering studies and reports do not include environmental engineering or consulting.

2.0 COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report which is of a summary nature and is not intended to stand alone without reference to the instructions given to us by the Client, communications between us and the Client, and to any other reports, writings, proposals or documents prepared by us for the Client relative to the specific site described herein, all of which constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WE CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3.0 BASIS OF THE REPORT

The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to us unless we are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4.0 USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN CONSENT. WE WILL CONSENT TO ANY REASONABLE REQUEST BY THE CLIENT TO APPROVE THE USE OF THIS REPORT BY OTHER PARTIES AS "APPROVED USERS". The contents of the Report remain our copyright property and we authorise only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of the Report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make the Report, or any portion thereof, available to any party without our written permission. Any use which a third party makes of the Report, or any portion of the Report, are the sole responsibility of such third parties. We accept no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5.0 INTERPRETATION OF THE REPORT

Nature and Exactness of Descriptions: Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations, or building envelope descriptions, utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.

Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

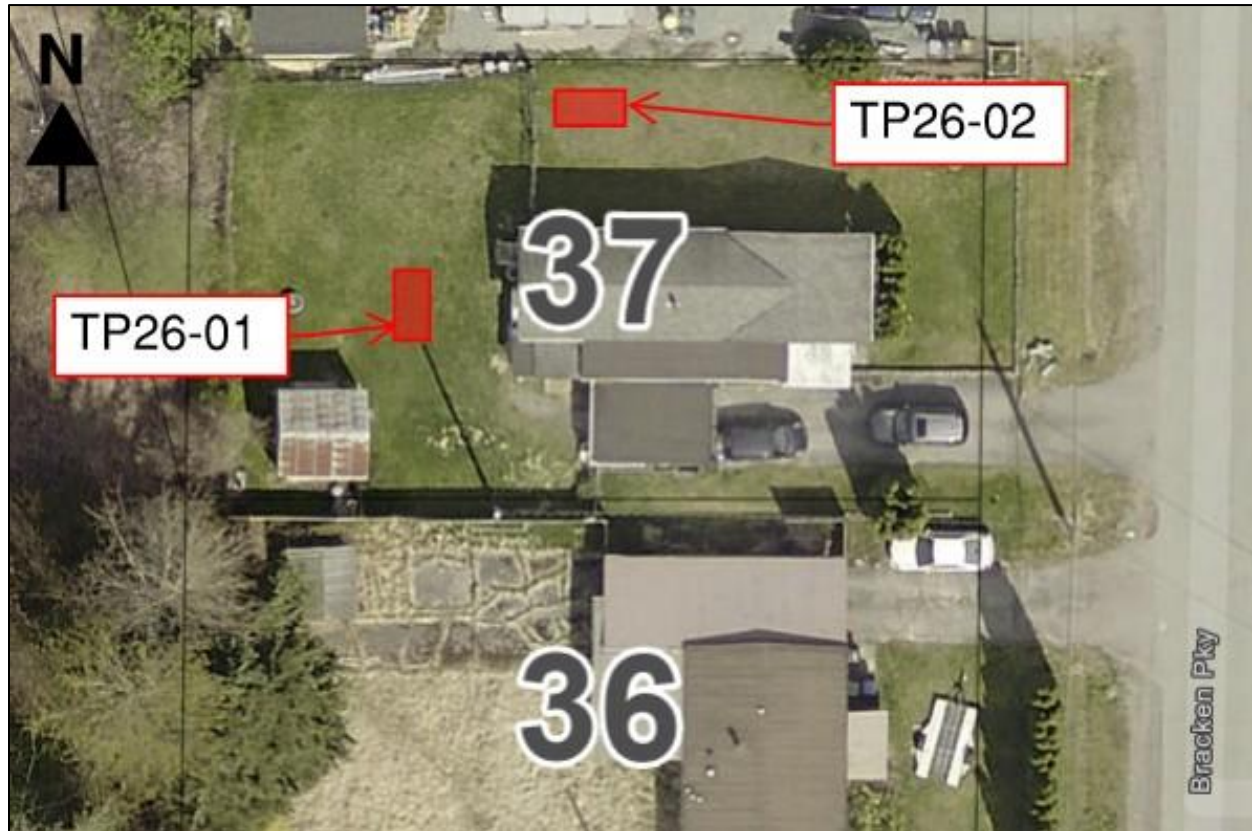
To avoid misunderstandings, KONTUR should be retained to work with the other design professionals to explain relevant engineering findings and to review their plans, drawings, and specifications relative to engineering issues pertaining to consulting services provided by KONTUR. Further, KONTUR should be retained to provide field reviews during the construction, consistent with building codes guidelines and generally accepted practices. Where applicable, the field services recommended for the project are the minimum necessary to ascertain that the Contractor's work is being carried out in general conformity with KONTUR's recommendations. Any reduction from the level of services normally recommended will result in KONTUR providing qualified opinions regarding adequacy of the work.

6.0 ALTERNATE REPORT FORMAT

When KONTUR submits both electronic file and hard copies of reports, drawings and other documents and deliverables (KONTUR's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by KONTUR shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by KONTUR shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of KONTUR's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except KONTUR. The Client warrants that KONTUR's instruments of professional service will be used only and exactly as submitted by KONTUR.

The Client recognizes and agrees that electronic files submitted by KONTUR have been prepared and submitted using specific software and hardware systems. KONTUR makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.



Note: Base image extrapolated from District of Squamish online web-mapping application

LANDSLIDE ASSESSMENT ASSURANCE STATEMENT

Notes: This statement is to be read and completed in conjunction with the Engineers and Geoscientists BC *Professional Practice Guidelines – Landslide Assessments in British Columbia* (“the guidelines”) and the current *BC Building Code (BCBC)*, and is to be provided for Landslide Assessments (not floods or flood controls), particularly those produced for the purposes of the *Land Title Act*, *Community Charter*, or *Local Government Act*. Some jurisdictions (e.g., the Fraser Valley Regional District or the Cowichan Valley Regional District) have developed more comprehensive assurance statements in collaboration with Engineers and Geoscientists BC. Where those exist, the Qualified Professional is to fill out the local version only. Defined terms are capitalized; see the Defined Terms section of the guidelines for definitions.

To: The Approving Authority (or Client)

Date: July 8, 2026

District of Squamish

37955 2nd Avenue, Squamish BC V8B 0A3

Jurisdiction/name and address

With reference to (CHECK ONE):

- ☐ A. *Land Title Act* (Section 86) – Subdivision Approval
- ☒ B. *Local Government Act* (Sections 919.1 and 920) – Development Permit
- ☐ C. *Community Charter* (Section 56) – Building Permit
- ☐ D. Non-legislated assessment

For the following property (the “Property”):

37 Bracken Parkway, Squamish BC

Civic address of the Property

The undersigned hereby gives assurance that they are a Qualified Professional and a professional engineer or professional geoscientist who fulfils the education, training, and experience requirements as outlined in the guidelines.

I have signed, authenticated, and dated, and thereby certified, the attached Landslide Assessment Report on the Property in accordance with the guidelines. That report must be read in conjunction 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 or other 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 Landslide Hazard analysis or Landslide Risk analysis, I have:
 - ☒ 6.1 reviewed and characterized, if appropriate, any Landslide that may affect the Property
 - ☒ 6.2 estimated the Landslide Hazard
 - ☒ 6.3 identified existing and anticipated future Elements at Risk on and, if required, beyond the Property
 - ☒ 6.4 estimated the potential Consequences to those Elements at Risk
- 7. Where the Approving Authority has adopted a Level of Landslide Safety, I have:
 - ☒ 7.1 compared the Level of Landslide Safety adopted by the Approving Authority with the findings of my investigation
 - ☒ 7.2 made a finding on the Level of Landslide Safety on the Property based on the comparison
 - ☐ 7.3 made recommendations to reduce Landslide Hazards and/or Landslide Risks

LANDSLIDE ASSESSMENT ASSURANCE STATEMENT

8. Where the Approving Authority has **not** adopted a Level of Landslide Safety, or where the Landslide Assessment is not produced in response to a legislated requirement, I have:
- ☐ 8.1 described the method of Landslide Hazard analysis or Landslide Risk analysis used
 - ☐ 8.2 referred to an appropriate and identified provincial, national, or international guideline for Level of Landslide Safety
 - ☐ 8.3 compared those guidelines (per item 8.2) with the findings of my investigation
 - ☐ 8.4 made a finding on the Level of Landslide Safety on the Property based on the comparison
 - ☐ 8.5 made recommendations to reduce Landslide Hazards and/or Landslide 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 Landslide Safety (item 7.2 above)
- ☐ the appropriate and identified provincial, national, or international guideline for Level of Landslide Safety (item 8.4 above)

Where the Landslide Assessment is not produced in response to a legislated requirement, I hereby give my assurance that, based on the conditions¹ contained in the attached Landslide Assessment Report:

A. SUBDIVISION APPROVAL

- ☐ For subdivision approval, as required by the *Land Title Act* (Section 86), “the land may be used safely for the use intended”
[CHECK ONE]
 - ☐ with one or more recommended additional registered Covenants
 - ☐ without an additional registered Covenant(s)

B. DEVELOPMENT PERMIT

- ☐ For a development permit, as required by the *Local Government Act* (Sections 488 and 491), my report will “assist the local government in determining what conditions or requirements it will impose under subsection (2) of [Section 491]”
[CHECK ONE]
 - ☐ with one or more recommended additional registered Covenants
 - ☐ without an additional registered Covenant(s)

C. BUILDING PERMIT

- ☒ For a building permit, as required by the *Community Charter* (Section 56), “the land may be used safely for the use intended”
[CHECK ONE]
 - ☐ with one or more recommended additional registered Covenants
 - ☒ without any additional registered Covenant(s)

¹ When seismic slope stability assessments are involved, Level of Landslide Safety is considered to be a “life safety” criteria, as described in Commentary JJJ of the *National Building Code of Canada (NBC) 2015*, Structural Commentaries (User’s Guide – NBC 2015: part 4 of division B). This states:

“The primary objective of seismic design is to provide an acceptable level of safety for building occupants and the general public as the building responds to strong ground motion; in other words, to minimize loss of life. This implies that, although there will likely be extensive structural and non-structural damage, during the DGM (design ground motion), there is a reasonable degree of confidence that the building will not collapse, nor will its attachments break off and fall on people near the building. This performance level is termed ‘extensive damage’ because, although the structure may be heavily damaged and may have lost a substantial amount of its initial strength and stiffness, it retains some margin of resistance against collapse.”

LANDSLIDE ASSESSMENT ASSURANCE STATEMENT

Evan Sykes

Name (print)

July 8, 2026

Date

103 - 37768 Second Ave,
Squamish BC, V8B 0S8

Address

778 730 1747

Telephone

esykes@kontur.ca

Email



2026-07-09

(Affix PROFESSIONAL SEAL and signature here)

The Qualified Professional, as a registrant on the roster of a registrant firm, must complete the following:

I am a member of the firm Kontur Geotechnical Consultants Inc

(Print name of firm)

with Permit to Practice Number 1000925

(Print permit to practice number)

and I sign this letter on behalf of the firm.

FLOOD ASSURANCE STATEMENT

Note: This statement is to be read and completed in conjunction with the current Engineers and Geoscientists BC *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC* ("the guidelines") and is to be provided for flood assessments for the purposes of the *Land Title Act*, *Community Charter*, or the *Local Government Act*. Defined terms are capitalized; see the Defined Terms section of the guidelines for definitions.

To: The Approving Authority

Date: July 8 2026

District of Squamish

37955 2nd Avenue, Squamish BC V8B 0A3

Jurisdiction and address

With reference to (CHECK ONE):

- ☐ *Land Title Act* (Section 86) – Subdivision Approval
- ☐ *Local Government Act* (Part 14, Division 7) – Development Permit
- ☐ *Community Charter* (Section 56) – Building Permit
- ☐ *Local Government Act* (Section 524) – Flood Plain Bylaw Variance
- ☐ *Local Government Act* (Section 524) – Flood Plain Bylaw Exemption

For the following property ("the Property"):

LOT 6 BLOCK 30 SOUTH 1/2 OF THE SOUTH EAST 1/4 OF SECTION 22 TOWNSHIP 50 PLAN 14705
37 Bracken Parkway, Squamish BC

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 who fulfils the education, training, and experience requirements as outlined in the guidelines.

I have signed, sealed, and dated, and thereby certified, the attached Flood Assessment Report on the Property in accordance with the guidelines. That report and this statement must be read in conjunction with each other. In preparing that Flood Assessment Report I have:

[CHECK TO THE LEFT OF APPLICABLE ITEMS]

___ 1. Consulted with representatives of the following government organizations:

- ☒ 2. Collected and reviewed appropriate background information
- ☒ 3. Reviewed the Proposed Development on the Property
- ☒ 4. Investigated the presence of Covenants on the Property, and reported any relevant information
- ☒ 5. Conducted field work on and, if required, beyond the Property
- ☒ 6. Reported on the results of the field work on and, if required, beyond the Property
- ☒ 7. Considered any changed conditions on and, if required, beyond the Property

8. For a Flood Hazard analysis I have:

- ☒ 8.1 Reviewed and characterized, if appropriate, Flood Hazard that may affect the Property
- ☒ 8.2 Estimated the Flood Hazard on the Property
- ☒ 8.3 Considered (if appropriate) the effects of climate change and land use change
- ☒ 8.4 Relied on a previous Flood Hazard Assessment (FHA) by others
- ___ 8.5 Identified any potential hazards that are not addressed by the Flood Assessment Report

9. For a Flood Risk analysis I have:

- ☒ 9.1 Estimated the Flood Risk on the Property
- ☒ 9.2 Identified existing and anticipated future Elements at Risk on and, if required, beyond the Property
- ☒ 9.3 Estimated the Consequences to those Elements at Risk

FLOOD ASSURANCE STATEMENT

10. In order to mitigate the estimated Flood Hazard for the Property, the following approach is taken:

- ☒ 10.1 A standard-based approach
- ☐ 10.2 A Risk-based approach
- ☐ 10.3 The approach outlined in the guidelines, Appendix F: Flood Assessment Considerations for Development Approvals
- ☐ 10.4 No mitigation is required because the completed flood assessment determined that the site is not subject to a Flood Hazard

11. Where the Approving Authority has adopted a specific level of Flood Hazard or Flood Risk tolerance, I have:

- ☒ 11.1 Made a finding on the level of Flood Hazard or Flood Risk on the Property
- ☒ 11.2 Compared the level of Flood Hazard or Flood Risk tolerance adopted by the Approving Authority with my findings
- ☒ 11.3 Made recommendations to reduce the Flood Hazard or Flood Risk on the Property

12. Where the Approving Authority has not adopted a level of Flood Hazard or Flood Risk tolerance, I have:

- ☐ 12.1 Described the method of Flood Hazard analysis or Flood Risk analysis used
- ☐ 12.2 Referred to an appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk
- ☐ 12.3 Made a finding on the level of Flood Hazard or Flood Risk tolerance on the Property
- ☐ 12.4 Compared the guidelines with the findings of my flood assessment
- ☐ 12.5 Made recommendations to reduce the Flood Hazard or Flood Risk

☒ 13. Considered the potential for transfer of Flood Risk and the potential impacts to adjacent properties

☒ 14. Reported on the requirements for implementation of the mitigation recommendations, including the need for subsequent professional certifications and future inspections.

Based on my comparison between:

[CHECK ONE]

- ☒ The findings from the flood assessment and the adopted level of Flood Hazard or Flood Risk tolerance (item 11.2 above)
- ☐ The findings from the flood assessment and the appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk tolerance (item 12.4 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 86), "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* (Part 14, Division 7), my Flood Assessment Report will "assist the local government in determining what conditions or requirements it will impose under subsection (2) of this section [Section 491 (4)]".

- ☒ For a building permit, as required by the *Community Charter* (Section 56), "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* and the *Amendment Section 3.5 and 3.6* associated with the *Local Government Act* (Section 524), "the development may occur safely".

- ☐ For flood plain bylaw exemption, as required by the *Local Government Act* (Section 524), "the land may be used safely for the use intended".

FLOOD ASSURANCE STATEMENT

I certify that I am a Qualified Professional as defined below.

July 8, 2026

Date

Evan Sykes

Prepared by

Evan Sykes

Name (print)



Signature

103 - 37768 Second Ave,
Squamish BC, V8B 0S8

Address

778 730 1747

Telephone

esykes@kontur.ca

Email

Reviewed by

Brian Mylleville

Name (print)



Signature

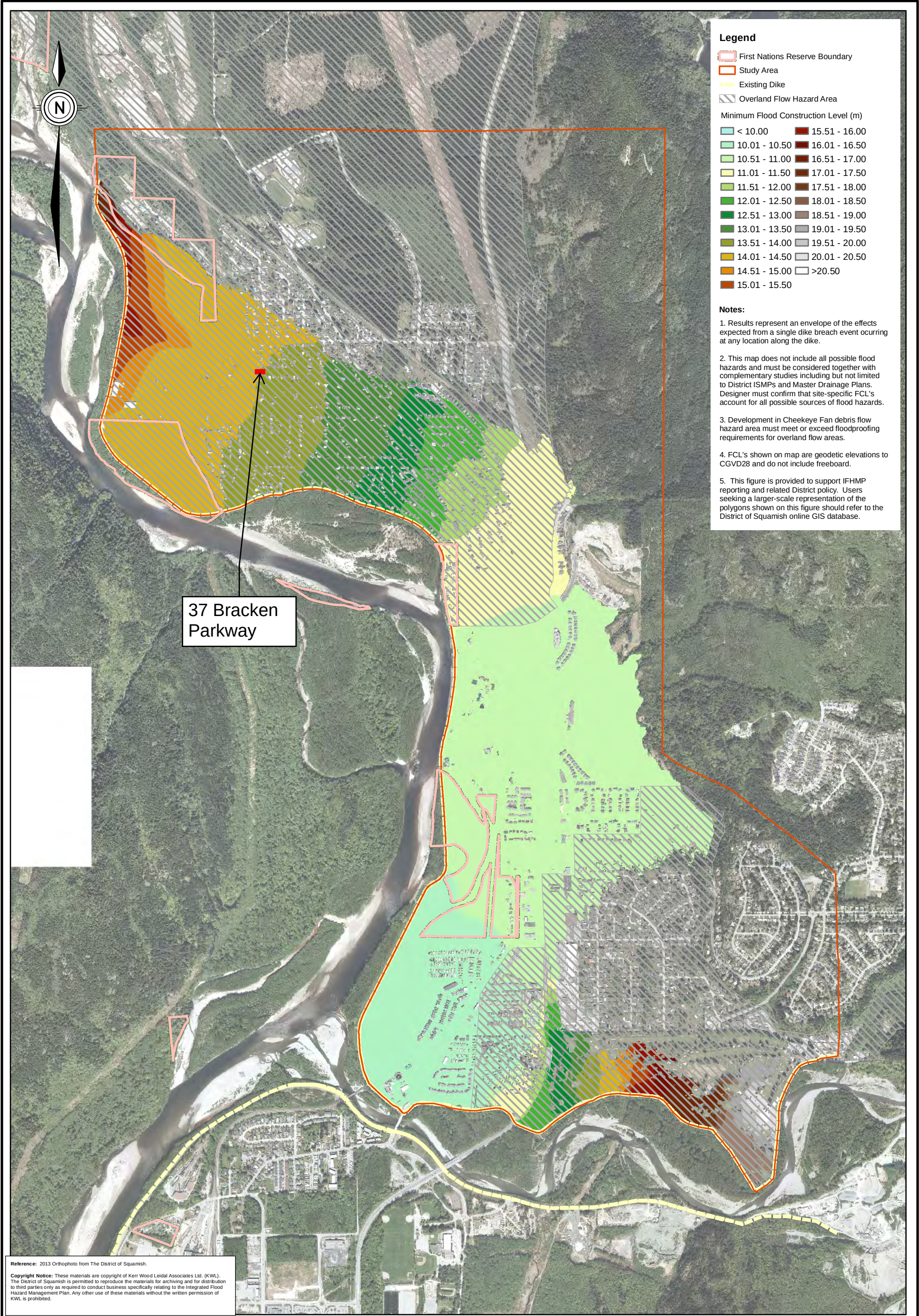


2026-07-09

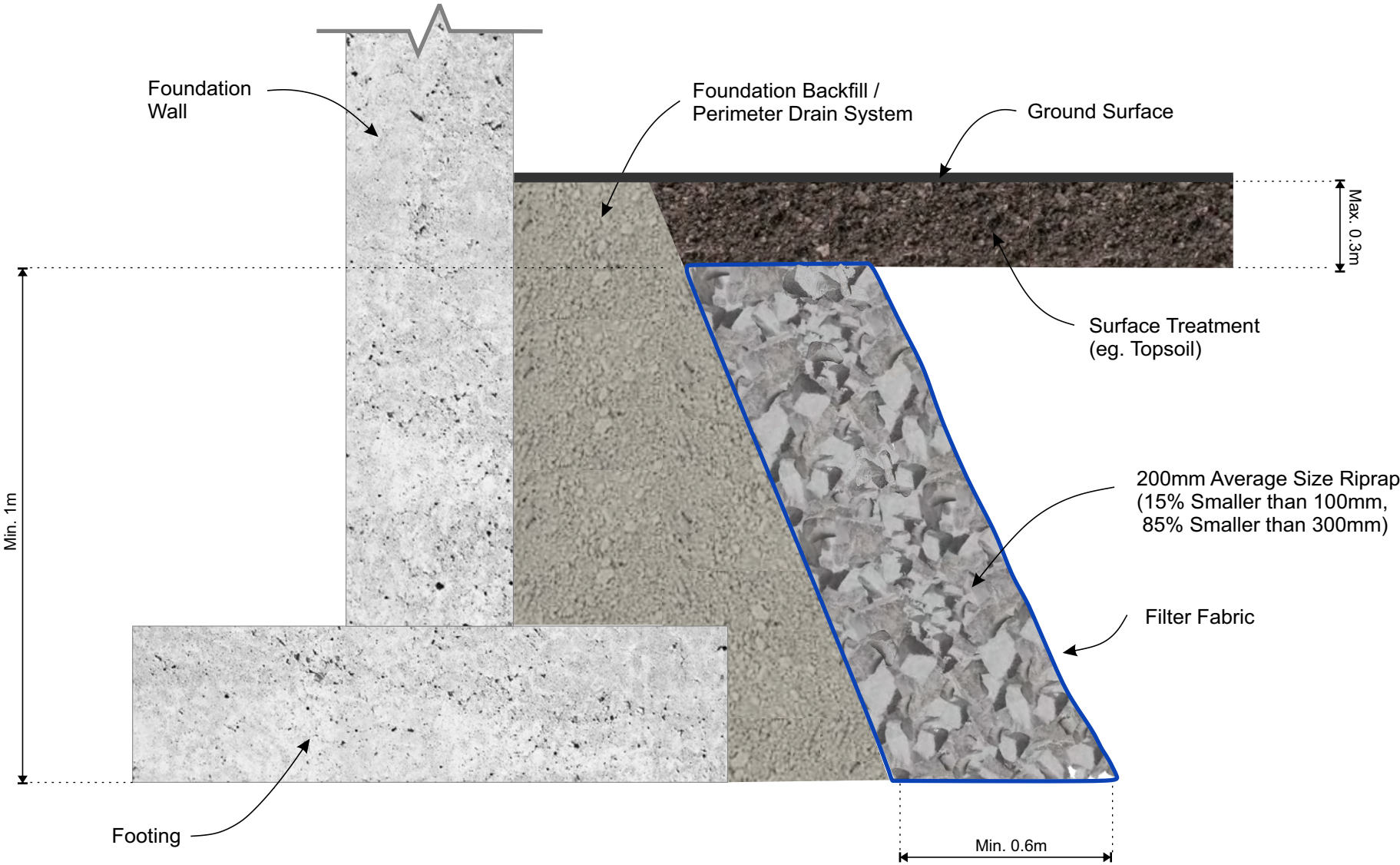
(Affix PROFESSIONAL SEAL here)

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

I am a member of the firm Kontur Geotechnical Consultants Inc
and I sign this letter on behalf of the firm. (Name of firm)



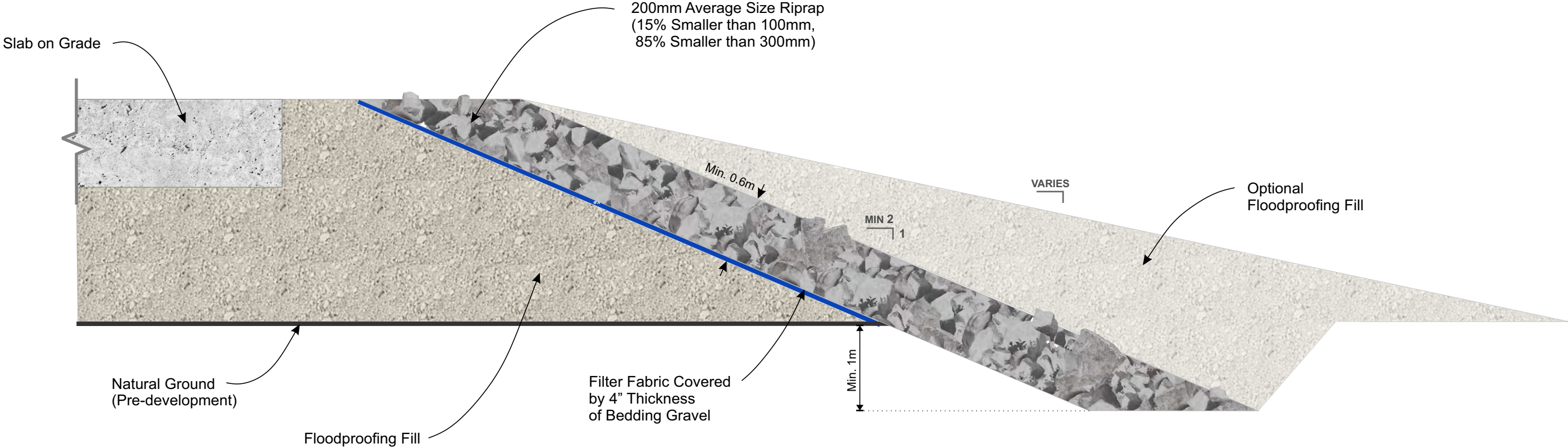
District of Squamish
Dike Breach Erosion Protection



NOTES

1. This conceptual detail illustrates an erosion protection concept that should be incorporated into a foundation design or other aspect of site design. The design should be prepared and field reviewed by a professional engineer.
2. Key aspects of this concept include a minimum 0.6 m thick rock layer located outside the foundation backfill zone and perimeter drain system, starting at or below the base of the footing and extending up to within 0.3 m of the ground surface. The minimum vertical height of the rock layer is 1 m.
3. Riprap and filter fabric are not required if top of footing is at least 2m below natural (pre-development) grade or if confining fill is protected as per Detail B.
4. This detail is intended exclusively for use on lots where District of Squamish simplified velocity mapping indicates a maximum velocity of less than 2.8 m/s.

District of Squamish
Dike Breach Erosion Protection



BASIS

For exclusive use on lots where District of Squamish simplified velocity mapping indicates a maximum velocity of less than 2.8 m/s.