



**PRELIMINARY GEOTECHNICAL ASSESSMENT
MULTI-FAMILY RESIDENTIAL
2039 Main St,
Lot B, District Lot 209, Lillooet District Plan 35172 and
Block A (Plan B4086) Southwest ¼ District Lot 209 Lillooet District
Except Plans 5959, 7170, 8847 and 9639
Mount Currie, BC**

Document Type: Final

Date: April 28, 2020

Project No.: **K-201144-00**

Submitted to:

Tom Lavoillette
Lil'Wat First Nation
321 No. 10 IR Road
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V0N 2L0

Attention: Tom Lavoillette, Director of Infrastructure
Tom.lavoillette@lilwat.ca

Submitted by:

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Reviewed by: J.Y. (Yoshi) Tanaka, P.Eng.
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1.0 INTRODUCTION

In accordance with your recent authorization, Kontur Geotechnical Consultants Inc. (Kontur) has completed this preliminary geotechnical assessment for the above-referenced project. The purposes of this preliminary assessment were to characterize the site from a geotechnical point-of-view and to provide comments and recommendations with respect to potential site development and possible foundation design concepts.

This letter, which summarizes the findings of the assessment, has been prepared in accordance with standard and widely accepted geotechnical engineering principles and practices for similar projects in this region. This letter does not address any environmental issues or considerations related to the proposed project.

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 letter and should be read in conjunction with all parts of this letter.

2.0 SOURCES OF INFORMATION

The following sources of information were also reviewed as part of the desktop component of this study:

- Kontur's nearby experience in the area;
- Geotechnical reconnaissance and exploration program completed by Kontur;
- Preliminary architectural drawings prepared by S.R. McEwen Architect;
- Published surficial geology maps of the area; and,
- Relevant information obtained from the Squamish-Lillooet Regional District (SLRD) online web-mapping application.

3.0 GEOTECHNICAL EXPLORATION

A geotechnical exploration program consisting of a total of five (5) test pits excavated to depths between about 1.3m and 2.8m. The test pits were excavated with a backhoe supplied by the Lil'Wat Nation. The geotechnical exploration program was supervised, located, logged and sampled by Kontur personnel with samples being returned to Kontur's laboratory for further visual classification and moisture content determination. Test pit locations are shown on the attached Site Plan and Test Pit Logs are attached to this report.

4.0 PROJECT DESCRIPTION

Based on a review of the provided preliminary architectural drawings the proposed development generally consists of the construction of a mixed commercial and multi-family residential building (Phase 1) with a possible Phase 2 construction of an additional mixed commercial and multi-family residential building. The proposed multi-family residential building(s) consist of a lower level of commercial/ retail units with two upper levels of residential units. A total of five (5) commercial/ retail units and about 36 residential units are proposed. The proposed building(s) would have a buried storage level.



The proposed development would also include installation of services and construction of an access driveway and parking areas.

5.0 SITE DESCRIPTION

5.1 General

The subject property, 2039 Main St. (legal description Lot B District Lot 209 Lillooet District Plan 35172 and Block A (Plan B4086 Southwest ¼ District Lot 209 Lillooet District Except Plans 5959, 7170, 8847 and 9639), Mount Currie, BC was located on the west side of Main St. about 90m north of the intersection of Highway 99 (Sea to Sky Highway) and Main St. The property is roughly triangular in shape with the east boundary having a curve defined by Main St. The property had a dimension of about 180m in the north-south direction and about 85m along the southern boundary. The property was bounded by Main Street to the east, a largely undeveloped light industrial property to the south and agricultural property with limited residential and commercial development.

Two single family residential were located near the central portion of the eastern property boundary and a multi-family residential building was located near the central portion of the southern property boundary; however, the buildings were abandoned at the time of site reconnaissance.

Topography within the subject property was generally flat lying with an increase in surface elevation of about 0.5m about 20m west of the back of the single-family residential buildings. A slope along the up to about 1.5m in height and inclined at about 1.3H: 1V (Horizontal: Vertical) was located along the western property boundary.

Vegetation generally consisted of grasses.

5.2 Subsurface Soil Conditions

A review of the Open File 5324 "*Surficial Soils and Landslide Inventory of the Upper Sea to Sky Corridor*" obtained for the Geologic Survey of Canada indicates the subject property is underlain by Floodplain Sediments consisting of sand and silt, commonly including organic materials and underlain in many places by gravel; 1 to 3m thick, occurring as flat surfaces close to river level.

Test pits within the southern portion of the property (TP20-01 and TP20-02) encountered fill soils about 0.9m thick, consisting of compact to dense Gravelly Sand in TP20-01 and random soils with assorted debris in TP20-02, overlying soft to firm silt.

Test pits in the northern portion of the property (TP20-03, TP20-04 and TP20-05) encountered fill soils consisting of sand with some silt, trace gravel and occasional cobbles up to about 1.4m thick. Test pits TP20-03 and TP20-05 were located on the west (upslope) side of the 0.5m high slope behind the houses and TP20-04 on the east (downslope) side. All three of the test pits encountered a layer of fill consisting of sand with some silt, trace gravel and occasional cobbles up to about 1.4m depth. In test pits TP20-03 and TP20-05 the fill material was very dense and discussions with locals indicated that area west of the small slope the grade was increased with fill material thoroughly compacted with a ride-on vibratory roller. Underlying the fill soils in TP20-04 and TP20-05 (TP20-03 encountered refusal within the fill soils)



was a layer of sand with trace to some silt and a silt layer, respectively. A layer of loose sand was encountered in TP20-04 and TP20-05 at depths of about 1.9m and 1.7m, respectively.

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

5.3 Groundwater Conditions

Groundwater was encountered in TP20-04 and TP20-05 at depths of about 2.6m and 2.5m, respectively. Seepage was encountered in TP20-01 at a depth of about 2.5m.

Groundwater levels are expected to vary (fluctuate) and are influenced by periods of prolonged rainfall, rapid snowmelt and/or nearby developments.

6.0 COMMENTS AND RECOMMENDATIONS

6.1 General

It is Kontur's opinion that the significant geotechnical challenges associated with this site are related to:

- Settlement considerations (due to site development and potential long-term consolidation of silt soils beneath the site); and/or,
- Seismic considerations (potential liquefaction and/or lateral spreading) due to the design earthquake; and/or,
- Excavation support and groundwater control.

Based on observations, information, and findings presented above, the following sections outline the geotechnical comments and recommendations with respect to site development and foundation design for the proposed development.

6.2 Special Considerations

6.2.1 Settlement

As discussed above, a layer of soft to firm silt was encountered in the southern test pits (TP20-01 and TP20-02). Due to limitations with regards to depths of exploration with test pits the thickness of the silt layer, or the presence of additional compressible layers is unknown at this time. Typically, post construction settlement can be mitigated with preloading of the site prior to construction and supporting the proposed structure on conventional shallow foundations. If preloading is not considered suitable, the proposed structure may be supported on a deep foundations system (i.e. piles). It is considered that preloading of the site is likely more economical than deep foundations; however, preloading works can take substantial time for the preload surcharge to consolidate the underlying compressible soils. Further geotechnical exploration and analysis should be completed to determine the extent of the compressible soils and provided additional input with respect to preload requirements.



6.2.2 Seismic Considerations and Liquefaction Potential

Test pits in the northern portion of the property (TP20-04 and TP20-05) encountered loose sand at depths of about 1.9m and 1.7m, respectively. A water table was encountered in both test pits at a depth of about 2.5m, within the loose sand unit. Based on Kontur's review, the encountered loose sand below the water table elevation are susceptible to liquefaction during a design earthquake. Liquefaction can result in significant vertical and horizontal ground displacements.

Mitigation for this issue may include deep foundations to transfer building loads to below the liquefiable layer, raft type foundations or ground improvements. Further geotechnical explorations and analysis would be required to evaluate the extent of liquefaction and evaluate a suitable remedial approach.

The British Columbia Building Code (BCBC 2018) provides guidelines and parameters for seismic design. The design earthquake corresponds to a 2% probability of exceedance min 50 years which is equivalent to a 1 in 2475-year return period. The Natural Resources Canada website provides interpolated site-specific seismic hazard values and indicates a peak horizontal firm ground acceleration of 0.17g for the subject property.

Based on the characterization of anticipated subsurface conditions within the subject property provided in this report, compact to dense granular soils, liquefaction of subsurface soil layers during the design earthquake is not considered likely. A preliminary Site Classification of Site Class F for Seismic Response Table 4.1.8.4.A is considered appropriate for the subject site based the potentially liquefiable soils encountered during geotechnical exploration. It should be noted that the National Building Code of Canada (2015) indicates that structures with a fundamental period of vibration equal to or less than 0.5s, that are built on liquefiable soils, Site Class and the corresponding values of F(T) may be determined as described by assuming that the soils are not liquefiable. If the building should have a fundamental period of vibration equal to or less than 0.5s or further geotechnical exploration determines the liquefiable soils are not below the footprint of a proposed building the Site Class could be revised.

6.3 Foundation Design

Foundation design would be dependant on the presence and extents of liquefiable and compressible soils. It is recommended that at this stage raft slabs or foundations tied together in two directions with grade beams be considered to mitigate both liquefiable soils and compressible soils. Preliminary geotechnical design values for foundations are provided below:

Foundation Material	Factored Ultimate Bearing Resistance	Allowable Bearing Pressure
Structural fill placed on native granular soils	75 to 150 kPa	50 to 100 kPa

The bearing capacities provide above are subject to the following conditions:



- Footings are setback a suitable distance from finished fill or cut slopes with locations approved by the geotechnical engineer;
- Strip and pad footings have minimum widths of 450mm and 600mm, respectively;
- Footings are founded at least 600mm below adjacent finished grade for confinement and frost protection purposes;
- Site preparations have been completed as described in Section 6.4.2 "Site Preparation" and load bearing surfaces have been reviewed by the geotechnical engineer.

A Modulus of Subgrade Reaction in the order of about 5000 to 10,000 kN/m³ may be used for preliminary design purposes.

6.4 Site Development

6.4.1 Temporary Excavation and Groundwater Control

Excavation may be required to facilitate construction of the proposed building and for installation of services. Organic and deleterious soils should be removed to expose firm silt or granular soils. Temporary excavations should be planned for inclinations no steeper than 1H: 1V (Horizontal: Vertical). If significant seepage is encountered during excavation flatter slopes inclinations may be required. Excavation guidelines provided by WorkSafeBC must be followed.

An initial review of temporary cut slopes greater than 1.2m in height should be conducted by the Geotechnical Engineer. Temporary slopes should be continually reviewed by the contractor, who will be on site on a full-time basis and will be able to observe changes in slope profile and monitor the performance of the cut slope. Kontur should be notified immediately of any significant changes in the condition of temporary cut slopes.

Temporary construction dewatering of the excavations should be carried out as required to facilitate the excavations and placement of structural fill in the dry. Based on seepage volumes encountered during geotechnical exploration, conventional ditch and pumped sump methods would likely be sufficient for construction dewatering. However, the contractor would need to select a dewatering system in response to actual seepage volumes encountered during construction.

6.4.2 Site Preparation

Assuming preloading is undertaken and the proposed structure is supported on a shallow foundation system, subgrade preparations for the proposed foundations should consist of removal of organics, topsoil and other deleterious material to expose native firm silt or granular soils. Exposed granular soils should be compacted with a ride-on type vibratory roller to achieve 95% Modified Proctor Maximum Dry Density (MPMDD) in the upper 300mm. Grade restoration or increases should be achieved with the placement of structural fill consisting of 75mm minus pit run sand and gravel or 150mm minus shot rock. Structural fill should contain less than 5% fines passing the 0.075mm sieve. The structural fill should be placed on subgrade, reviewed and approved by the geotechnical engineer, in lifts with a loose thickness no greater than 300mm, compacted with several passes of a heavy ride-on type vibratory drum roller to achieve at least 95% MPMDD.



In areas underlain by compressible soils preloading may be required to mitigate long term post construction settlement. Details regarding preload requirements can be provided following further geotechnical exploration to delineate areas susceptible to post construction settlement and loading of the proposed structures is determined.

In areas susceptible to liquefaction during the design earthquake, ground improvements such as densification may be required. Details regarding preload requirements can be provided following further geotechnical exploration to delineate areas susceptible to liquefaction and the fundamental period of vibration of the proposed structures is determined.

6.5 Retaining Walls and Permanent Slopes

It is anticipated that some increases in grade may be required for flood mitigation purposes. Guidelines for permanent slope inclinations are as follows:

- Blast rock fill placed and compacted as described in Section 6.4.2 "Site Preparation" above should be no steeper than 1.5H: 1V.
- Compacted structural fill placed and compacted as described in Section 6.4.2 "Site Preparation" above should be no steeper than 2H: 1V with planted vegetation to protect against erosion.

Slope inclinations may be steepened with the use of retaining walls. Retaining walls may include, but are not limited to, rock stack, concrete lock block or Allen Block. Design for retaining walls may be provided by Kontur as landscape design advances.

6.6 Backfill

Backfill for perimeter areas or for support of driveway, walkways or other hard landscape features should consist 75mm minus pit run sand and gravel or 150mm minus shot rock with less than 5% fines. The backfill should be placed in lifts with a maximum loose thickness of 300mm compacted to a minimum of 95% MPMDD. Placed pit run structural fill should be density tested to confirm adequate compaction with shot rock being visually confirmed by the Geotechnical Engineer.

6.7 Perimeter Drainage

A perimeter drain should be installed for areas of the building where the floor slab is less than 150mm above adjacent grade. The perimeter drain should consist of a 100mm diameter perforated PVC pipe surrounded by at least 150mm of 19mm clear crushed gravel separated from the remaining backfill with a non-woven filter fabric. The perimeter drain should be installed no deeper the adjacent footing base and at least 200mm below adjacent floor slabs. The perimeter drain should be connected to a suitable outlet. Roof drains should not discharge into the perimeter drain system.

The perimeter drain should be hydraulically connected to a 19mm clear crushed gravel chimney drain at least 450mm wide adjacent to any below grade wall.



6.8 Lateral Earth Pressures

Retaining and basement walls should be provided with adequate drainage to prevent the build-up of hydrostatic pressure behind the wall. A chimney drain, at least 450mm wide, comprised of clear crushed gravel placed directly against the below grade walls, hydraulically connected to a perimeter drain. The wall backfill should be compacted to at least 85% MPMDD in non-structural areas and at least 95% MPMDD in areas where pavement or other hard landscape is proposed.

Retaining and below grade walls less than 3m in height should be designed with a uniform lateral earth pressure of 20kPa, for compaction efforts adjacent to the wall and static plus seismic lateral earth pressures.

6.9 Slab-on-Grade

Slab-on-grade should be supported on suitably prepared subgrades as described in Section 6.4.2 "Site Preparation". A 100mm thick layer of 19mm clear crushed gravel, compacted with a vibratory compactor should be placed beneath the concrete slabs to provide a bedding and drainage layer for potential seepage zones. The clear crushed gravel layer should have an outlet to the perimeter drains via weep holes through the foundation walls of the building. A layer of 6 mil poly vapour barrier should also be placed over the clear crushed gravel to protect it from concrete contamination and to limit dampness of the slab from capillary moisture which could damage floor coverings.

7.0 ADDITIONAL STUDY

Due to the presence of potentially compressible and/or liquefiable soils in the subgrade within the subject property further geotechnical exploration is recommended to advance design. The additional geotechnical exploration should consist of drill holes (solid or hollow stem auger holes) with Standard Penetration Tests (SPT's) and/or Dynamic Cone Penetration Tests (DCPT's) to depth of up to 30m to assess soil types, consistency and density of those soil. In addition, Seismic Cone Penetration Tests (SCPT) should be completed to assess liquefaction potential of the subgrade soils.

8.0 CLOSURE

The comments and recommendations presented in this report 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 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.

This report has been prepared for the exclusive use of the Lil'Wat Nation and/or the Squamish Lillooet Regional District and/or their designated agents or consultants. Any use of the information contained in this letter 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.



April 28, 2020
Project No.: K-201144-00

Preliminary Geotechnical Assessment
Multi-Family Residential
2039 Main St, Mount Currie, BC

The subject property is underlain by potentially compressible soils which may result in long-term post-construction differential settlement and potentially liquefiable soils that may result in significant lateral and vertical soil displacement during the design earthquake. Both of the potential issues are considered to be mitigatable with relatively common practices including but not limited to raft slabs, preloading, densification and piles supported foundations. Provided suitable measures are implemented the subject property is considered to be safe for the intended use, that being the construction of multi-family residential buildings. The term "safe" specifically refers to adequate global slope stability for static and seismic conditions and for the subgrade soils to provide adequate bearing with post construction settlement being within typically tolerable levels for the proposed building.

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.

Per:

April 28, 2020

Evan Sykes, P.Eng.
Principal Geotechnical Engineer

Reviewed by:

J.Y. (Yoshi) Tanaka, M.Eng., P.Eng.
Principal Geotechnical Engineer



APPENDIX A
Interpretation and Use of Study and Report Document





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.

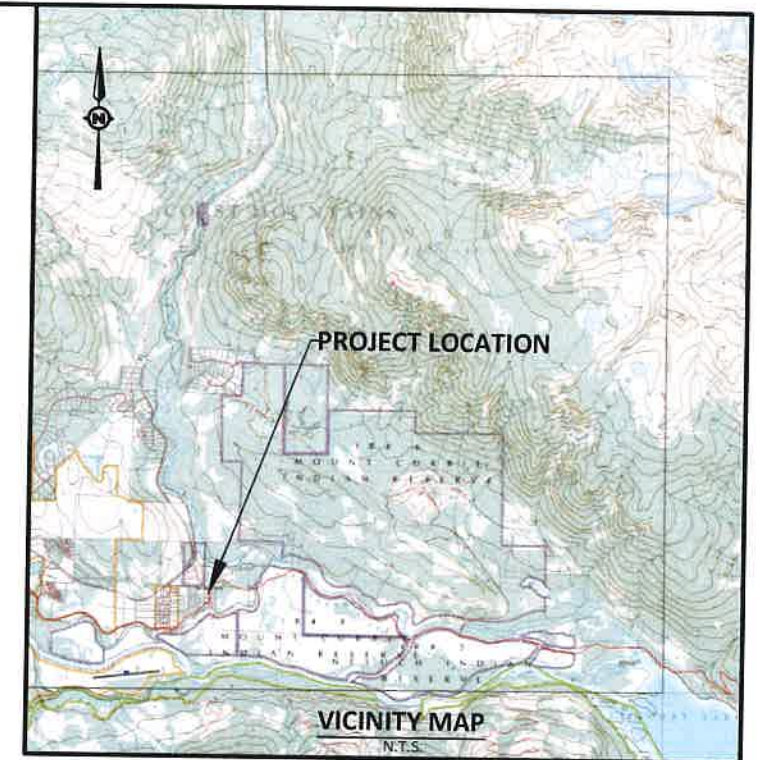
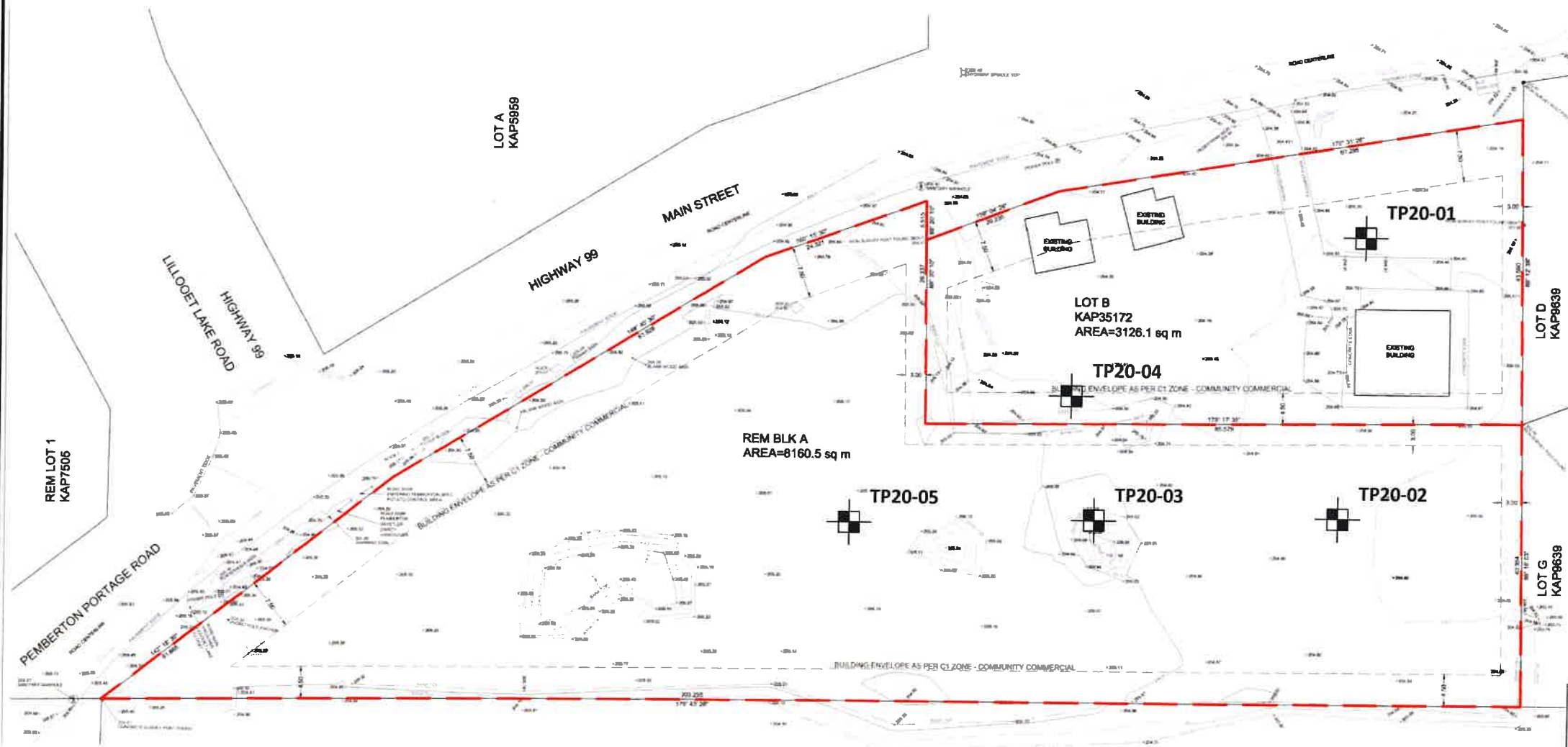


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2039 Main St, Mount Currie, BC

APPENDIX A
Figures



APPENDIX B
Figures



LEGEND

TESTPIT LOCATION

PROPERTY BOUNDARY

REFERENCE: SURVEY "20022D-METRIC" DATED 2020-03-05 BY DOUG BUSH SURVEY SERVICES LTD.

April 28, 2020 11:29:04 AM



Unit 65, 1833 Coast Meridian Road, Port Coquitlam, B.C. V3C 6G5
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SEAL

REVISIONS		
NO	DESCRIPTION	DATE
0	ISSUED FOR REPORT	2020-04-25

TITLE VICINITY MAP AND GENERAL SITE LAYOUT			PROJECT NO.: K-201144-00		
CLIENT LIL'WAT NATION			DATE: 2020-04-25	SCALE: 1:750	DWG NO.: FIGURE 1
PROJECT LOCATION 2039 AND ADJOINING LOTS, MAIN STREET, MOUNT CURRIE, B.C.			DRAFT: JL	DESIGN: -	CHECK: EGS



April 28, 2020
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Preliminary Geotechnical Assessment
Multi-Family Residential
2039 Main St, Mount Currie, BC

APPENDIX C
Test Pit Logs



Kontur Geotechnical Consultants Inc.
Unit 65, 1833 Coast Meridian Road
Port Coquitlam, B.C. V3C 6G5
Telephone: (778) 730 1747

RECORD OF TEST PIT : TP20-01

PAGE 1 OF 1

CLIENT Lil'Wat Nation
PROJECT NAME Multi-Family Residential
EXCAVATION DATE 2020-03-24
EXCAVATION METHOD Test Pit
EXCAVATION CONTRACTOR _____
EQUIPMENT TYPE Excavator

PROJECT NUMBER K-201144-00
PROJECT LOCATION 2039 and Adjoining Lots, Main Street, Mount Currie, B.C.
TEST PIT LOCATION ZONE: 10 N: 5573700 E: 520152
ELEVATION (approximate)
▽ GROUNDWATER DEPTH AT TIME OF EXCAVATION
LOGGED BY EGS CHECKED BY MY

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲	POCKET PEN. (kPa) ⊙	FINES CONTENT (%) □	GROUNDWATER
				NUMBER	TYPE	RECOVERY %	20 40 60 80	100 200 300 400	20 40 60 80	
							DYNAMIC CONE BLOWS/0.3m ■	FIELD VANE SHEAR (kPa) ● ○ Peak Remold	PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL	
		(FILL) Gravelly SAND with cobbles, reddish brown, dry, (compact)					20 40 60 80			
1		Interbed of Silty SAND and fine SAND with trace silt, grey, moist, (compact)	0.8	S1	GB				44 ○	
2		SILT, grey, moist, (soft to firm)	1.2	S2	GB				45 ○	
		- becomes wet, (soft) at 2.4m depth		S3	GB				42 ○	
		- seepage encountered at 2.8m depth								

Bottom of test pit at 2.8m.



Kontur Geotechnical Consultants Inc.
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Telephone: (778) 730 1747

RECORD OF TEST PIT : TP20-02

PAGE 1 OF 1

CLIENT Lil'Wat Nation
PROJECT NAME Multi-Family Residential
EXCAVATION DATE 2020-03-24
EXCAVATION METHOD Test Pit
EXCAVATION CONTRACTOR _____
EQUIPMENT TYPE Excavator

PROJECT NUMBER K-201144-00
PROJECT LOCATION 2039 and Adjoining Lots, Main Street, Mount Currie, B.C.
TEST PIT LOCATION ZONE: 10 N: 5573705 E: 520115
ELEVATION (approximate)
▽ GROUNDWATER DEPTH AT TIME OF EXCAVATION _____
LOGGED BY EGS CHECKED BY MY

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲ 20 40 60 80 DYNAMIC CONE BLOWS/0.3m ■ 20 40 60 80	POCKET PEN. (kPa) ⊙ 100 200 300 400 FIELD VANE SHEAR (kPa) Peak Remold ● ○ 40 80 120 160	FINES CONTENT (%) □ 20 40 60 80 PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL 20 40 60 80	GROUNDWATER
				NUMBER	TYPE	RECOVERY %				
1		(FILL) SAND, some silt, some gravel, occasional cobbles, miscellaneous debris (glass, plastic, etc.) brown, moist, (dense) cobble is up to 200mm diameter	0.9	S1	GB				37	
		SILT, interbedded layers of sand, silty sand, and sand with some silt, grey, moist, (firm to stiff)		S2	GB				46	
2										

Bottom of test pit at 2.8m.

CLIENT Lil'Wat Nation

PROJECT NAME Multi-Family Residential

EXCAVATION DATE 2020-03-24

EXCAVATION METHOD Test Pit

EXCAVATION CONTRACTOR _____

EQUIPMENT TYPE Excavator

PROJECT NUMBER K-201144-00

PROJECT LOCATION 2039 and Adjoining Lots, Main Street, Mount Currie, B.C.

TEST PIT LOCATION ZONE: 10 N: 5573740 E: 520108

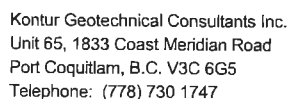
ELEVATION (approximate) _____

▽ GROUNDWATER DEPTH AT TIME OF EXCAVATION _____

LOGGED BY EGS CHECKED BY MY

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT N° VALUE BLOWS/0.3m ▲	POCKET PEN. (kPa) ⊙	FINES CONTENT (%) □	GROUNDWATER
				NUMBER	TYPE	RECOVERY %	20 40 60 80	100 200 300 400	20 40 60 80	
							DYNAMIC CONE BLOWS/0.3m ⬮	FIELD VANE SHEAR (kPa) Peak Remold	PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL	
1		(FILL) SAND, some silt, trace gravel, occassional cobbles and boulders, brown, moist, (very dense)								

Refusal at 1.3m.



PAGE 1 OF 1

CLIENT Lil'Wat Nation
PROJECT NAME Multi-Family Residential
EXCAVATION DATE 2020-03-24
EXCAVATION METHOD Test Pit
EXCAVATION CONTRACTOR _____
EQUIPMENT TYPE Excavator

PROJECT NUMBER K-201144-00
PROJECT LOCATION 2039 and Adjoining Lots, Main Street, Mount Currie, B.C.
TEST PIT LOCATION ZONE: 10 N: 5573743 E: 520126
ELEVATION (approximate)
▽ GROUNDWATER DEPTH AT TIME OF EXCAVATION 2.5m
LOGGED BY EGS CHECKED BY MY

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲	POCKET PEN. (kPa) ⊙	FINES CONTENT (%) □	GROUNDWATER
				NUMBER	TYPE	RECOVERY %	DYNAMIC CONE BLOWS/0.3m ■	FIELD VANE SHEAR (kPa)	PLASTIC & LIQUID LIMIT WATER CONTENT	
							20 40 60 80	100 200 300 400	20 40 60 80	
1	(FILL) SAND, some silt, trace gravel, occasional cobbles, wood debris, brown, moist, (compact)									
2	SAND, trace to some silt, wood debris, light brown, moist, (compact to dense)	1.1								
	SAND, grey, wet, (loose)	1.9								

Bottom of test pit at 2.6m.

CLIENT Lil'Wat Nation

PROJECT NAME Multi-Family Residential

EXCAVATION DATE 2020-03-24

EXCAVATION METHOD Test Pit

EXCAVATION CONTRACTOR _____

EQUIPMENT TYPE ExcavatorPROJECT NUMBER K-201144-00

PROJECT LOCATION 2039 and Adjoining Lots, Main Street, Mount Currie, B.C.

TEST PIT LOCATION ZONE: 10 N: 5573774 E: 520105

ELEVATION (approximate) _____

▽ GROUNDWATER DEPTH AT TIME OF EXCAVATION 2.5m

LOGGED BY EGS CHECKED BY MY

CHECKED BY MY

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲	POCKET PEN. (kPa) ⊙	FINES CONTENT (%) □	GROUNDWATER
				NUMBER	TYPE	RECOVERY %	DYNAMIC CONE BLOWS/0.3m ■	FIELD VANE SHEAR (kPa) Peak ● Remold ○	PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL	
							20 40 60 80	100 200 300 400	20 40 60 80	
1	(FILL) SAND, some silt, trace gravel, occasional cobbles, brown, moist, (compact)									
	SILT, brown, moist, (firm)	1.4								
2	SAND, grey, wet, (loose)	1.7								

Bottom of test pit at 2.6m.