

Appendix 2: Geotechnical Report



RYZUK GEOTECHNICAL
ENGINEERING & MATERIALS TESTING

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Geotechnical Field Review / Site Instruction

Project No: [REDACTED]

Project: Deck Foundation Assessment - 6890 Mark Lane, Victoria, BC

Client: [REDACTED]

Email / Fax No: [REDACTED]

Date: June 1, 2018

Copy to:

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☒ Robert Gutierrez - CRD Chief Building Inspector rgutierrez@crd.bc.ca
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As requested, we have visually assessed the condition of the foundation supports for the deck extension, which we understand the CRD Building Inspector has asked to have reviewed, as it was not completed under a building permit. Our work in this regard is completed in accordance with, and is subject to, the attached Term of Engagement.

We understand that the deck extension was completed by the previous owner, and that you have owned the property for some 5 years. Based on the condition of the deck, it is estimated that the extension is likely in the order of 8 years old, give or take a few years.

The deck extension is supported in three principal areas. The outermost deck columns (nearer shoreline) are supported on relatively short concrete pads, formed by sono-tube, directly on bedrock. It is evident that these column supports have been pinned to the bedrock, however, the details of the pinning are unknown. We noted that the concrete is still in full contact with the intact bedrock, and such has not moved or delaminated from the bedrock since construction. A photo of one of the lower pads is shown below. The rebar sticking out is believed to have been for support of the sono-tube formwork.



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The second area of the deck extension support is roughly midway, supporting both the stairs and the midspan. In this area, the timber columns are supported by a narrow concrete strip footing, which bears directly on the hard till soils. While the footing is not embedded into the till for frost protection, we do not deem that such is needed. We found no evidence of erosion or degradation of the till slope close to the footing. In conjunction with this strip footing, an additional sono-tube formed footing was present on the steep rock slope to the west. As with the others, it appeared in good condition, and the concrete configuration suggested it was also pinned to the rock slope.

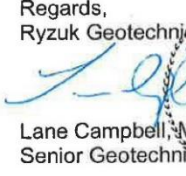
In summary, we see no evidence of pass movement in the deck supports which in itself would indicate less than favourable bearing support. While the pinning detail of the sono-tube formed concrete pad supports on the bedrock slope are not known, the visible condition of the concrete and the concrete/bedrock interface suggests that they are pinned. Given the relatively low compressive static loads on the footings, as well as relatively minor seismic loads during a design earthquake, we would consider the deck foundations adequate for support of the deck, considering a design seismic event of 2% probability of exceedance in 50 years.

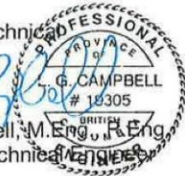
The CRD is considered an approved user of this report and can rely on its contents.

We trust the above is suitable for your purposes at present. If you have any questions, or require further clarification, please call.

Regards,

Ryzuk Geotechnical


Lane Campbell, M. Eng., P. Eng.
Senior Geotechnical Engineer



Attachment: Terms of Engagement

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TERMS OF ENGAGEMENT

GENERAL

Ryzuk Geotechnical (the Consultant) shall render the Services, as specified in the agreed Scope of Services, to the Client for this Project in accordance with the following terms of engagement. The Services, and any other associated documents, records or data, shall be carried out and/or prepared in accordance with generally accepted engineering practices in the location where the Services were performed. No other warranty, expressed or implied is made. The Consultant may, at its discretion and at any stage, engage sub-consultants to perform all or any part of the Services.

Ryzuk Geotechnical is a wholly owned subsidiary of C. N. Ryzuk & Associates Ltd.

COMPENSATION

All charges will be payable in Canadian Dollars. Invoices will be due and payable by the Client on receipt of the invoice without hold back. Interest on overdue accounts is 24% per annum.

REPRESENTATIVES

Each party shall designate a representative who is authorized to act on behalf of that party and receive notices under this Agreement.

TERMINATION

Either party may terminate this engagement without cause upon thirty (30) days' notice in writing. On termination by either party under this paragraph, the Client shall forthwith pay to the Consultant its Charges for the Services performed, including all expenses and other charges incurred by the Consultant for this Project.

If either party breaches this engagement, the non-defaulting party may terminate this engagement after giving seven (7) days' notice to remedy the breach. On termination by the Consultant under this paragraph, the Client shall forthwith pay to the Consultant its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

ENVIRONMENTAL

The Consultant's field investigation, laboratory testing and engineering recommendations will not address or evaluate pollution of soil or pollution of groundwater. The Consultant will cooperate with the Client's environmental consultant during the field work phase of the investigation.

PROFESSIONAL RESPONSIBILITY

In performing the Services, the Consultant will provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures normally provided in the performance of the Services contemplated in this engagement at the time when and the location in which the Services were performed.

INSURANCE

Ryzuk Geotechnical is covered by Professional Indemnity Insurance as follows:

1. \$ 2,000,000 each and every claim
2. \$ 4,000,000 aggregate
3. \$ 5,000,000 commercial/general liability coverage

LIMITATION OF LIABILITY

The Consultant shall not be responsible for:

1. the failure of a contractor, retained by the Client, to perform the work required for the Project in accordance with the applicable contract documents;
2. the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
3. any cross-contamination resulting from subsurface investigations;
4. any Project decisions made by the Client if the decisions were made without the advice of the Consultant or contrary to or inconsistent with the Consultant's advice;
5. any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption;
6. the unauthorized distribution of any confidential document or report prepared by or on behalf of the consultant for the exclusive use of the Client
7. Subsurface structures and utilities

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The Consultant will make all reasonable efforts prior to and during subsurface site investigations to minimize the risk of damaging any subsurface utilities/mains. If, in the unlikely event that damage is incurred where utilities were unmarked and/or undetected, the Consultant will not be held responsible for damages to the site or surrounding areas, utilities/mains or drilling equipment or the cost of any repairs.

The total amount of all claims the Client may have against the Consultant or any present or former partner, executive officer, director, stockholder or employee thereof under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the amount of any professional liability insurance the Consultant may have available for such claims.

No claim may be brought against the Consultant in contract or tort more than two (2) years after the date of discovery of such defect.

DOCUMENTS AND REPORTING

All of the documents prepared by the Consultant or on behalf of the Consultant in connection with the Project are instruments of service for the execution of the Project. The Consultant retains the property and copyright in these documents, whether the Project is executed or not. These documents may not be used on any other project without the prior written agreement of the Consultant.

The documents have been prepared specifically for the Project, and are applicable only in the case where there has been no physical alteration to, or deviation from any of the information provided to the Consultant by the Client or agents of the Client. The Client may, in light of such alterations or deviations, request that the Consultant review and revise these documents.

The identification and classification as to the extent, properties or type of soils or other materials at the Project site has been based upon investigation and interpretation consistent with the accepted standard of care in the engineering consulting practice in the location where the Services were performed. Due to the nature of geotechnical engineering, there is an inherent risk that some conditions will not be detected at the Project site, and that actual subsurface conditions may vary considerably from investigation points. The Client must be aware of, and accept this risk, as must any other party making use of any documents prepared by the Consultant regarding the Project.

Any conclusions and recommendations provided within any document prepared by the Consultant for the Client has been based on the investigative information undertaken by the Consultant, and any additional information provided to the Consultant by the Client or agents of the Client. The Consultant accepts no responsibility for any associated deficiency or inaccuracy as the result of a miss-statement or receipt of fraudulent information.

JOBSITE SAFETY AND CONTROL

The Client acknowledges that control of the jobsite lies solely with the Client, his agents or contractors. The presence of the Consultant's personnel on the site does not relieve the Client, his agents or contractors from their responsibilities for site safety. Accordingly, the Client must endeavor to inform the Consultant of all hazardous or otherwise dangerous conditions at the Project site of which the Client is aware.

The client must acknowledge that during the course of a geotechnical investigation, it is possible that a previously unknown hazard may be discovered. In this event, the Client recognizes that such a hazard may result in the necessity to undertake procedures which ensure the safety and protection of personnel and/or the environment. The Client shall be responsible for payment of any additional expenses incurred as a result of such discoveries, and recognizes that under certain circumstances, discovery of hazardous conditions or elements requires that regulatory agencies must be informed. The Client shall not bring about any action or dispute against the Consultant as a result of such notification.

FIELD SERVICES

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of the Consultant, to observe whether the work or a contractor retained by the Client is being carried out in general conformity with the intent of the Services. Any reduction from the level of services recommended will result in the Consultant providing qualified certifications for the work.

DISPUTE RESOLUTION

If requested in writing by either the Client or the Consultant, the Client and the Consultant shall attempt to resolve any dispute between them arising out of or in connection with this Agreement by entering into structured non-binding negotiations with the assistance of a mediator on a without prejudice basis. The mediator shall be appointed by agreement of the parties. If a dispute cannot be settled within a period of thirty (30) calendar days with the mediator, the dispute shall be referred to and finally resolved by arbitration under the rules of the arbitrator appointed by agreement of the parties or by reference to a Judge of the British Columbia Court.

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