

**- INTERIOR -  
TESTING SERVICES  
- LTD. -**

MATERIALS TESTING • SOILS  
CONCRETE • ASPHALT • CORING  
GEOTECHNICAL ENGINEERING

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GTA Architecture Ltd.  
243 – 1889 Springfield Road  
Kelowna, B.C. V1Y 5V5

October 10, 2019  
Job 19.192

Attention: Mr. Zachariah White, Project Manager

Dear Sir:

Re: **Geotechnical Considerations  
Proposed Addition  
1310 Green Bay Road  
West Kelowna, B.C.**

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As requested, Interior Testing Services Ltd. (ITSL) has reviewed the above noted property with respect to potential flood hazards as they pertain to an addition to the existing residence. Please find attached a site plan with topographic spot elevations of the existing main floor of the house as provided by Oasis Design and a copy of our two page "Terms of Engagement", which has been previously signed and accepted. This letter is intended to replace our earlier letter of July 12, 2019.

1. We understand that you desire to construct an addition to the existing house, with new construction predominately towards the south and west, away from Okanagan Lake. We have reviewed a letter dated September 17, 2018 prepared by the City of West Kelowna which requires an engineering report to comment on the proposed Floodplain Exemption.
2. The site was visited on July 11, 2019 and the interior of the house was viewed on September 30, 2019. We understand that the existing house has a main floor at roughly geodetic elevation of 343.55 m. There is a sunken living room that we understand is to be raised to the same elevation, 343.55 m as the remainder of the main floor.
3. There is an existing basement area that was constructed during original house construction along the east side of the house, estimated to be roughly 1.2 m lower than the main floor, or approximately 342.4 m. We understand that very minor flooding of the basement, roughly 10 mm of water, occurred during 2017 when Okanagan Lake levels rose to record levels of 343.25 m. We understand that since that time, the basement area has been waterproofed, and two additional sump pump locations have been installed.

While the basement area will remain below the typical flood elevations desired, we understand that the addition is planned to move bedroom space to the new addition area and that the basement area will be repurposed as a recreation room. We understand that the

flooring will be tile and that repurposing of the basement will be based on the understanding/acceptance that flooding could occur, and impacts will be minimized as much as possible by design methods.

4. The general site topography does not suggest that flooding at the proposed house location is a significant risk; especially given the main habitable floor elevation is so close to the required floodplain elevation of 343.66 m. The basement is intended to be repurposed to a use that should have less damage if flooding occurs, and the owner is understanding/accepting of the potential for flooding of the basement. Additionally, the basement is a pre-existing condition on the opposite side of the house than the proposed addition, so that it appears reasonable to consider this area as "grand-fathered" with respect to current floodplain bylaws that were not in place at the time of original construction.
5. Based on engineering judgement, ITSL estimates the likelihood of flooding of the main floor of the residence to be low, for a main floor elevation of 0.11 m below 343.66 m, which is defined as having a probability of than less 10% in 50 years. It is reasonable, in our opinion, to conclude that the land may be used safely for the proposed residential addition.
6. However, this is not to say that the risk of flooding is non-existent, and tolerance/acceptance to flooding should be understood. As noted, we understand that several sumps are located within the basement area of the existing house and that damp proofing has been completed since the recent minor flooding to further reduce the potential for flooding of the house during extreme events. Additionally, repurposing the basement area from a bedroom to a recreation room with floor coverings, baseboards, etc., that will be tolerable of damage should flooding occur, appears to be reasonable and possibly an improvement on current conditions.
7. It is anticipated that construction of the addition will not require any further geotechnical guidance as the natural soils are expected to be competent. However, if required, ITSL can provide further assistance at the time of construction.
8. Our comments above are entirely related to our surface observations and no subsurface soils investigations were carried out. In addition, our comments are centered on observations of the current conditions. If our understandings are not correct, or if conditions change significantly, ITSL should be given the opportunity to review the site and provide additional comments at that time.

We trust this meets your current needs. Please call if you have any questions.

Yours truly  
Interior Testing Services Ltd.



Peter Hahnenburg, P.Eng.

SEE PLAN  
2-1 - 2/1

## **TERMS OF ENGAGEMENT**

### **GENERAL**

Interior Testing Services Ltd. (ITSL) shall render the Services performed for the Client on this Project in accordance with the following Terms of Engagement. ITSL may, at its discretion and at any stage, engage subconsultants to perform all or any part of the Services. Unless specifically agreed in writing, these Terms of Engagement shall constitute the entire Contract between ITSL and the Client.

### **COMPENSATION**

Charges for the Services rendered will be made in accordance with ITSL's Schedule of Fees and Disbursements in effect from time to time as the Services are rendered. All Charges will be payable in Canadian Dollars. Invoices will be due and payable by the Client within thirty (30) days of the date of the invoice without hold back. Interest on overdue accounts is 12% 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 ITSL its Charges for the Services performed, including all expenses and other charges incurred by ITSL 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 ITSL under this paragraph, the Client shall forthwith pay to ITSL its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

### **ENVIRONMENTAL**

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

### **PROFESSIONAL RESPONSIBILITY**

In performing the Services, ITSL 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. ITSL makes no warranty, representation or guarantee, either express or implied as to the professional services rendered under this agreement.

### **LIMITATION OF LIABILITY**

ITSL shall not be responsible for:

- (a) the failure of a contractor, retained by the Client, to perform the work required in the Project in accordance with the applicable contract documents;
- (b) the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
- (c) any cross-contamination resulting from subsurface investigations;
- (d) any damage to subsurface structures and utilities;
- (e) any Project decisions made by the Client if the decisions were made without the advice of ITSL or contrary to or inconsistent with ITSL's advice;
- (f) any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption;
- (g) the unauthorized distribution of any confidential document or report prepared by or on behalf of ITSL for the exclusive use of the Client.

The total amount of all claims the Client may have against ITSL under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the lesser of our fees or \$50,000.00.

No claim may be brought against ITSL in contract or tort more than two (2) years after the Services were completed or terminated under this engagement.

### **PERSONAL LIABILITY**

For the purposes of the limitation of liability provisions contained in the Agreement of the parties herein, the Client expressly agrees that it has entered into this Agreement with ITSL, both on its own behalf and as agent on behalf of its employees and principals.

The Client expressly agrees that ITSL's employees and principals shall have no personal liability to the Client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the Client expressly agrees that it will bring no proceedings and take no action in any court of law against any of ITSL's employees or principals in their personal capacity.

### **THIRD PARTY LIABILITY**

This report was prepared by ITSL for the account of the Client. The material in it reflects the judgement and opinion of ITSL in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. ITSL accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report may not be used or relied upon by any other person unless that person is specifically named by us as a beneficiary of the Report. The Client agrees to maintain the confidentiality of the Report and reasonably protect the report from distribution to any other person.

### **INDEMNITY**

The client shall indemnify and hold harmless ITSL from and against any costs, damages, expenses, legal fees and disbursements, expert and investigation costs, claims, liabilities, actions, causes of action and any taxes thereon arising from or related to any claim or threatened claim by any party arising from or related to the performance of the Services.

### **DOCUMENTS**

All of the documents prepared by ITSL or on behalf of ITSL in connection with the Project are instruments of service for the execution of the Project. ITSL 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 ITSL.

### **FIELD SERVICES**

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of ITSL, to observe whether the work of a contractor retained by the Client is being carried out in general conformity with the intent of the Services.

### **DISPUTE RESOLUTION**

If requested in writing by either the Client or ITSL, the Client and ITSL 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 an arbitrator appointed by agreement of the parties.

### **CONFIRMATION OF PROFESSIONAL LIABILITY INSURANCE**

As required by by-laws of the Association of Professional Engineers and Geoscientists of British Columbia, it is required that our firm advises whether or not Professional Liability Insurance is held. It is also required that a space for you to acknowledge this information be provided.

Our professional liability insurance is not project specific for the project and should not be regarded as such. If you require insurance for your project you should purchase a project specific insurance policy directly.

Accordingly, this notice serves to advise you that ITSL carries professional liability insurance. Please sign and return a copy of this form as an indication of acceptance and agreement to the contractual force of these Terms of Engagement.

ACKNOWLEDGEMENT: \_\_\_\_\_