

February 2, 2016

Riverbrook Estates Ltd.
c/o Kerkhoff Construction
202 – 45389 Luckakuck Way
Chilliwack, BC V2R 3V1

ISSUED FOR USE
FILE: 704-V13103408-01
Via Email: leonard@kerkhoff.ca

Attention: Mr. Leonard Kerkhoff

Subject: Preloading at Riverbrook Estates, 210 Dyke Boulevard, Kitimat, B.C.

1.0 INTRODUCTION

The purpose of this letter is to discuss the preloading that is currently being undertaken at the Riverbrook Estates development located at 210 Dyke Boulevard in Kitimat, B.C. Tetra Tech EBA Inc. (Tetra Tech EBA) previously completed a geotechnical exploration at the site which consisted of several excavator dug test pits and Cone Penetration Tests (CPT).

2.0 SUBSURFACE CONDITIONS AND PRELOADING

The results of the exploration indicated that the site is underlain by discrete, continuous layers of fine-grained soils (silts and clays) and coarse-grained soils (sands and gravels). Furthermore, the local groundwater level at the site was measured at approximately 2 m below the original site grade within the test pits and CPTs, which is similar in elevation to the nearby Kitimat River. A more detailed summary of the subsurface conditions is provided in our geotechnical report dated April 14, 2015.

The preloading of the site included stripping the topsoil and organic material that was present at the site prior to development and then placing approximately 2 m of preload material (granular soil) over the proposed Riverbrook Estates building areas. The purpose of the preload is to consolidate the near-surface, fine-grained soils by applying the preload surcharge prior to constructing the buildings, thereby reducing the long-term, post-construction settlement of the buildings.

While the preloading process will consolidate and reduce the permeability of the fine grained soils, the preload will have no discernable effect on the density or permeability of the coarse-grained soils. Based on the presence of continuous, high permeability coarse-grained soil layers, and considering the limited preloading area, it is our opinion that the preload will not affect the local groundwater elevation.

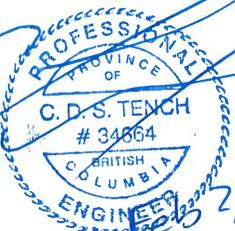
3.0 LIMITATIONS

This letter and its contents are intended for the sole use of Riverbrook Estates Ltd. and their agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the letter when the letter is used or relied upon by any Party other than Riverbrook Estates Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this letter is at the sole risk of the user. Use of this letter is subject to the terms and conditions stated in Tetra Tech EBA's Services Agreement. Tetra Tech EBA's General Conditions are attached to this letter.

4.0 CLOSURE

We trust this letter meets your present requirements. If you have any questions or comments, please contact the undersigned.

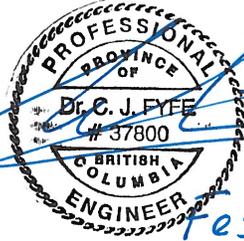
Respectfully submitted,
Tetra Tech EBA Inc.



A circular professional engineer seal for the Province of British Columbia. The seal contains the text: "PROFESSIONAL ENGINEER", "PROVINCE OF BRITISH COLUMBIA", "C. D. S. TENCH", and "# 34864". A blue signature is written over the seal, and the date "Feb 2, 2016" is handwritten in blue ink below it.

Prepared by:
Conrad Tench, P.Eng.
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CDT/CJF/ct



A circular professional engineer seal for the Province of British Columbia. The seal contains the text: "PROFESSIONAL ENGINEER", "PROVINCE OF BRITISH COLUMBIA", "Dr. C. J. FYFE", and "# 37800". A blue signature is written over the seal, and the date "Feb 2, 2016" is handwritten in blue ink below it.

Reviewed by:
Colin Fyfe Ph.D., P.Eng.
Principal Specialist - Hydrogeology
Direct: 778.945.5786
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GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. Tetra Tech EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. Tetra Tech EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

13.0 SAMPLES

Tetra Tech EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.