



# DEVELOPMENT PERMIT

NO. **DP- 2018-27** (Geotech)

TO: **Marion Shaw**

ADDRESS: **4196 W. 14<sup>th</sup> Avenue  
Vancouver, B.C. V6R 2X5**

- 1) This Development Permit is issued subject to compliance with all of the Bylaws of the Town of Gibsons applicable thereto, except those specifically varied or supplemented by this Permit.
- 2) The Development Permit applies to those "lands" within the Town of Gibsons described below:  
**Parcel Identifier: 011-290-412**  
**Legal Description: Lot E, Block 33, District Lot 685, Plan 4856**  
**Civic Address: 741 Franklin Road**
- 3) These lands are within Development Permit Area('s) of the Town of Gibsons Official Community Plan (Bylaw 985, 2005). This permit applies to the following Development Permit Area:
  - Development Permit Area No. 1 (Geotechnical Hazard Area) for the purpose of protection of development from hazardous conditions.
- 4) The "land" described herein shall be developed strictly in accordance with the terms and conditions and provisions of this Permit, and any plans and specifications attached to this Permit which shall form a part thereof; specifically:
  - *Geotechnical Site Report by Lewkowich Engineering Associates Ltd, dated November 19, 2018.*
- 5) All requirements of the plan(s) are to be followed.
- 6) Minor changes to the aforesaid drawings that do not affect the intent of this Development Permit are permitted only with the approval of the Town of Gibsons and Geotechnical Engineer
- 7) If the Permittee does not commence the development permitted by this Permit within twenty four months of the date of this Permit, this Permit shall lapse.
- 8) Upon completion of the works, a letter from a qualified environmental professional is required to confirm all conditions of this permit were met.

9) This Permit is NOT a Building Permit.

ISSUED THIS 20<sup>th</sup> DAY OF December, 2018.



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Lesley-Ann Staats, MCIP, RPP  
Director of Planning

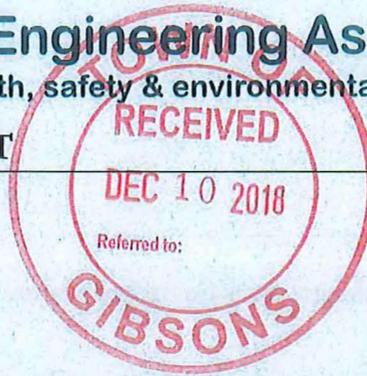
Copy of permit to the Geotechnical Engineer



**GEOTECHNICAL SITE REPORT**

Marion Shaw  
741 Franklin Road  
Roberts Creek, B.C.  
V0N 2W1

File: F6276.01  
November 19, 2018



**ATTENTION:** Ms. Marion Shaw

**PROJECT:** FORESHORE PROTECTION, 741 FRANKLIN ROAD, GIBSONS, BC

**SUBJECT:** GEOTECHNICAL SITE OBSERVATIONS – FORESHORE HAZARD ASSESSMENT

1. As requested, Lewkovich Engineering Associates Ltd. (LEA) conducted a site visit to observe the foreshore conditions on September 13, 2018 at the above noted addresses. We understand that foreshore protection installation will require a development permit from the Town of Gibsons to be granted prior to commencing work, as the works are located within a development permit area. We also understand the works will require a building permit based on the scope of the installation.
2. This report represents the geotechnical and coastal engineering component of the permit requirements, in concert with the environment report by Mr. Dave Bates that will address the impact of the development activities on the foreshore ecology abutting and within the vicinity of the subject parcel. Gordons Survey will provide survey information (offset stakes) to ensure works do not encroach onto crown land.
3. Our assessment, as summarized within this report, is intended to meet the following objective:
  - a. Determine whether the land is considered safe for the use intended (defined for the purposes of this report as Foreshore Protection), with the probability of a geotechnical failure resulting in property damage of less than 10 percent (10%) in 50 years, with the exception of geohazards due to a seismic event which are to be based on a 2 percent (2%) probability of exceedance in 50 years, provided the recommendations in this report are followed.
  - b. Provide a foreshore assessment and revetment design to help protect the existing steep slope from the effects of shoreline erosion.
  - c. Acknowledge that Approving and/or Building Inspection Officers may rely on this

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report when making a decision on application for the development of the land.

4. The visit revealed a high bank foreshore of approximately 8.0m high with a relatively flat intertidal zone facing the open waters of the Strait of Georgia. The subject property is bordered by existing residential properties on both sides, by Franklin Road to the north, and the foreshore to the south. The high water mark inundates the 1.5m to 2.0m high foreshore bank during the high tide and storm season from January to March. The property owners have noted that previous storms caused a significant change to the foreshore bank by removing a significant amount of topsoil, beach grasses, small trees and other low lying vegetation. This change is now impacting the underlying soils of the steep bank which has little or no protection from high tides and storm surges, which typically include large waves and woody debris (logs) material. In general, the property foreshore is not protected and has eroded significantly in the last few years due to higher than historic water levels. While the current cover of vegetation is dense, the underlying soils are eroded and the vegetation is primarily invasive berry vines.
5. It is our opinion that the foreshore erosion has undermined the surficial soils on the property, damaging the integrity of the toe of the foreshore slope that supports the steep embankment. We recommend that the foreshore protection be undertaken this season, as continued erosion will cause a significant acceleration to the bank erosion, because of the eddying effects of a non-protected foreshore, increased tidal levels (including Future Sea Level Rise (FSLR)) and storm frequency. Figure 1a and 1b below shows the current condition of the foreshore.
6. The recommended type of repair is the placement of a matrix of igneous boulders and infill gravels in the configuration shown on the attached drawing, Figure 2. The installation will help prevent further removal of site soils and vegetation, including native species such as sea grass, etc. We have studied the effects of this typical protection on adjacent properties and found that it provides a significant ability to dissipate wave energy without destructive reflection. The design will provide safe and suitable protection against shoreline erosion with a stable matrix of suitably sized igneous boulders and gravels to a maximum height of 2.0m from current surface

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with the first course buried a minimum of 0.9m below current surface. We understand that it is the owner's intention to landscape the top of the small wall with vegetation to "soften" the foreshore protection installation.

7. We have reviewed the adjacent properties as part of our assessment and design to ensure there will be no detrimental effects of the foreshore revetment design on neighboring properties. The installation will be virtually in line with the existing topography of the 745 Franklin neighbor, where a recent revetment installation was completed from a design prepared by our office. The 737 Franklin (east) neighbor has a protruding lock block sea wall and boulders. Our design will provide a smooth transition to help prevent any hazard (eddy's etc.) to the neighbouring property.
8. We have reviewed the site in relation to seismic issues for the proposed works and can conclude that no compressible or liquefiable soils were encountered during the investigation. Based on the 2012 British Columbia Building Code, Division B, Part 4, Table 4.1.8.4.A, 'Site Classification for Seismic Response', the soils and strata encountered would be Site Class B (Rock) and Site Class C (Very Dense Soils).
9. We conclude that the supporting stratum of the proposed works consists of intact igneous bedrock and/or marine sediments of dense to very dense silts, sands and gravels that are considered globally stable and does not indicate any significant risk of landslip hazard to the proposed foreshore revetment as defined by the EGBC guidelines. Therefore, the site soils would only be subjected to surficial creep, leading to surficial sloughing and slumping of loose surficial soils estimated at 0.8m to 1.2m thick, which will be stabilized by the foreshore protection works.
10. From a geotechnical perspective the land is considered safe for the use intended (defined for the purposes of this report as Foreshore Protection), with the probability of a geotechnical failure resulting in property damage of less than 10 percent (10%) in 50 years, with the exception of

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geohazards due to a seismic event which are to be based on a 2 percent (2%) probability of exceedance in 50 years, provided the recommendations in this report are followed.

11. In the event of significant sea level rise (i.e. in 50 years) the revetment will provide a suitable base from which additional armouring could be added. Annual (spring) inspections should be conducted by the owner of the subject land to ensure no significant changes have occurred to compromise the installation. In the event that significant changes have occurred, a Geotechnical Engineer should review the site and make recommendations.
12. We understand that the Contractor, in concert with the Environmental Consultant, will make any required notification to Fisheries and Oceans Canada in accordance to the Species at Risk Act (SARA).
13. Lewkowich Engineering Associates Ltd. appreciates the opportunity to be of service on this project and can provide Engineering Assistance for the installation of the foreshore revetment design on short notice if required. If you have any comments, or if we can be of further assistance, please contact us at your convenience.

Respectfully Submitted,  
**Lewkowich Engineering Associates Ltd.**

A handwritten signature in blue ink, appearing to read 'John Hessels', written over a light blue grid background.

John Hessels, ASCT  
Senior Technologist



Chris Hudec, M.A.Sc., P.Eng.  
Senior Project Engineer

Attachment:

LEA Drawing No. F6276-01: Foreshore Protection

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Figure 1a. Existing Foreshore at 741 / 739 Border Franklin Road, 2m Vertical Scour at Toe

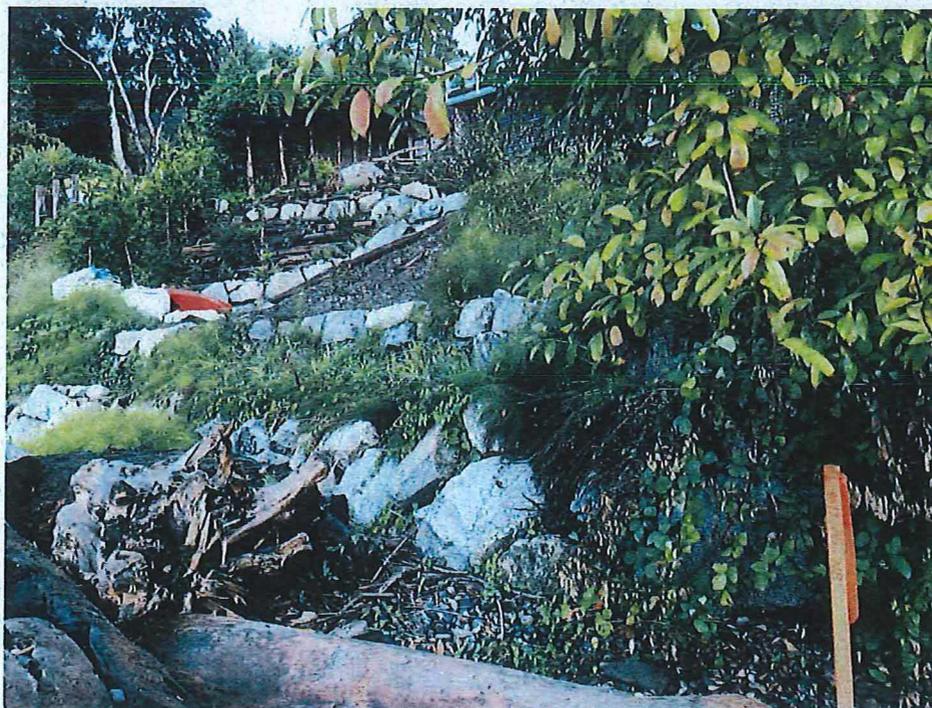


Figure 1b, Existing Foreshore at 741 / 745 Border Franklin Road





