Coast Geotechnical
250-978-0704 | 101–4226 Commerce Circle, Victoria, BC

1086336 BC LTD. [redacted] May 20, 2025 [redacted]

Attn: Maria Kyle & Donna Ash

Re: Geotechnical Design Report for Proposed Single Family Residence Located at 276 Tal Road, Lake Cowichan, BC

1.0 INTRODUCTION

As requested, Coast Geotechnical Consulting Ltd. (Coast Geotechnical) conducted a geotechnical investigation for the proposed single-family residence located at 276 Tal Road, Lake Cowichan, BC. The purpose of this report is to summarize our geotechnical investigation of the site and subsurface conditions and to provide geotechnical recommendations for design and construction of the proposed building. The authority having jurisdiction (Town of Lake Cowichan) may rely on this report for issuing a building permit.

1.1 Building & Site Description

Design Plans by McNeill Building Designs Ltd dated Apr 2025 indicate that all work in the drawings is to conform to Part 9 of the *2024 BC Building Code* (*BCBC 2024*). This includes foundation excavations, backfill, and drainage.

According to the *Design Plans*, the building site is located in the middle of the subject lot that is trapezoidal in shape, 1238 m^2 in area, and bound by undeveloped forested land to the south (before South Shore Rd), Tal development greenspace (creek) to the west, and Tal Road to the north, where it is to be accessed via driveway.

Specific details of the building include a footprint that is 178 m^2 in area, including a 56 m^2 garage, with a second floor above the middle section. Foundations are comprised of 16-in. (400-mm) wide by 8-in. (200 mm) thick strip footings around the perimeter and dividing the interior and separating the garage, and two square pad footings measuring 32 in. by 32 in. (800 mm by 800 mm) to support roof trusses located at the main entrance. A crawlspace with a 2-in. (50 mm) thick concrete seal coat over 4 in. (100 mm; min.) thickness of compacted granular fill is to be located 2 ft. (0.6 m; min.) underside of joists in the livable space, whereas the garage is to be finished with a 4-in. (100 mm) thick concrete slab on grade over 5 in. (125 mm; min.) thickness of compacted granular fill. The main floor is to be elevated 6 in. (150 mm) above average finished grade, which implies that the strip footing grade is to be approximately 0.9 m minimum below average finished grade.

1.2 Background Information

Prior to conducting fieldwork, we reviewed available geological mapping, well records, and other publicly accessible data to better understand the expected subsurface conditions.
Geology in the Cowichan Lake area is comprised of glacial till and poorly sorted alluvium of the Quaternary Period overlying sedimentary bedrock from the Nanaimo Group of the Upper Cretaceous Period (Massey,

1991).

Groundwater in the surrounding area includes several soil and bedrock aquifers with many wells, but no aquifers mapped below the site (Province of British Columbia, 2013). A log of the nearest well (WTN 64962; located approx. 200 m ENE) indicated a lithology of 1.2 m thickness of silty sand & gravel, overlying 23 m of clay & silt, 1.8 m of silty sand, and 3 m of "soupy" silt, with a static water level at 15.5 m below ground surface.

2.0 SITE & SUBSURFACE INVESTIGATION

Coast Geotechnical investigated the site on May 15, 2025, to determine site characteristics and subsurface conditions. The four corners of the proposed 64-ft. by 35 ft. building footprint were laid out and marked by Preston at Green Initiative Developments for our test pit investigation. Four test pits (TP-01 to -04) were excavated at the corners (SE, SW, NW, NE, respectively) using a mid-sized excavator operated by Spade Excavating. The test pits were generally advanced to practical equipment refusal in dense/hard soils. The relative ground surface elevations adjacent to the test pits were also surveyed using an auto laser level and sight stick in real time by Preston Partridge of Green Initiative Developments.

2.1 Site Topography

The site topography consisted of a ridge, elevated approximately 3 m above and sloping moderately down to the road frontage and surrounding creek. The proposed building footprint is situated on the north face near the top of this ridge.

2.2 Soil & Rock Conditions

The following is a generalized description of the stratigraphy encountered within the test pits (with observed depths in metres below ground surface (m bgs)):

FILL / ORGANIC SOIL (0.3–1.2 m bgs)
The surficial soil in each of the test pits generally consisted of fill and organic soil. Where fill was present (on the east side), they were overlying the organic soil layer and were likely derived from previous regrading of the property.

SAND with Silt and Gravel and Cobbles (TILL) (0.6–2.0 m bgs)
Below the organic soil, we identified a layer of poorly to well-graded sand with silt, gravel, and cobbles, interpreted as glacial till. Where it reached practical machine refusal, we tested its compactness condition with a 38-mm by 38-mm square picket and classified it as dense. We noted that the surface of this layer in dense condition sloped towards the road frontage (north) and the creek (west), dropping by 1.8 m over 10.6 m and 1.4 m over 19.5 m, respectively.

We encountered no bedrock within the test pits or elsewhere on site.

2.3 Groundwater Conditions

We encountered no groundwater within the test pits. It should be noted that the test pits were excavated during a period of relatively dry weather, and a seasonal perched water table may be present.

3.0 GEOTECHNICAL PARAMETERS FOR STRUCTURAL DESIGN

Our investigation confirms that the site is suitable for development of the proposed residence, provided the following geotechnical recommendations are incorporated into the design and construction.

3.1 Bearing Capacity of Soils (Shallow Foundations)

Shallow foundations are suitable for the proposed building, provided they bear on dense glacial till or on engineered fill placed over dense glacial till, and the site is prepared as recommended below. For structural design, an **Allowable Bearing Capacity of 200 kPa** may be used, with total settlement expected to be less than 25 mm. All footings to be founded at least 500 mm below finished ground surface for frost protection.

3.2 Seismic Site Designation

Based on our desktop study and test pit investigation, the building site founding material is glacial till in a dense condition, and we assume that the subsurface profile maintains an equivalent compactness / consistency within 30 m depth. Therefore, in our engineering judgement, **Site Class C** is a suitable seismic site designation.

4.0 RECOMMENDATIONS FOR CONSTRUCTION & FIELD REVIEWS

The following presents our initial recommendations for geotechnical aspects of the building construction, including site preparation, temporary excavations, engineered fill, and underslab fill. This report is to be provided to the contractors completing the work. The recommendations below are based on our observations and assumptions, which we should be given the opportunity to confirm or advise otherwise during construction.

BC Building Code Letters of Assurance for geotechnical aspects of the proposed building may be required by the authority having jurisdiction (Town of Lake Cowichan) for permitting. If required, then the undersigned can take responsibility as the Geotechnical Engineer of Record (GER), issuing a Schedule B and conducting field reviews to ascertain whether the geotechnical aspects of the building project are substantially compliant with the design given in this report and supporting documents.

We anticipate that field reviews may be needed to address the following geotechnical items:

1. **Foundation Bearing Capacity:** Review of prepared foundation subgrade prior to placement of engineered fill or construction of foundations.
2. **Engineered Fill:** Review of placement and compaction of engineered fill that is to support the building foundations.
3. **Engineered Fill (underslab):** Review of placement and compaction of engineered fill that is to support any floor slab-on-grade.

Please notify us whether the Letters of Assurance are required and then we can proceed accordingly.

4.1 Site Preparation & Excavation

To achieve the design foundation elevations and proposed driveway, we anticipate that site re-grading (cut and fill) will be necessary. Within the proposed building area, all surficial fill, organic soil, and any deleterious material must be stripped to expose the underlying dense glacial till.

The excavated native soil, including the local glacial till, is not suitable for use as engineered fill beneath foundations or floor slabs. Although dense in place, this material typically contains 15–20% fines and is difficult to rework and compact to specification without specialized equipment (e.g., sheepsfoot roller) and precise moisture control. Given these practical challenges, we recommend that all engineered fill used for structural support be imported. Where engineered fill is required to support footings or slabs, it should consist of imported, well-graded gravel or sand and gravel with less than 8% fines (passing the No. 200 sieve).

If the building foundation excavation does not meet the prescriptive requirements of the Occupational Health and Safety Regulation (a.k.a. WorkSafeBC), then compliance can be achieved if done according to our **Requirements for Safe Excavations** (attached).

4.2 Engineered Fill

If any structural fill is placed beneath foundations, then it should be engineered fill completed according to our **Requirements for Engineered Fill** (attached).

4.3 Engineered Fill for Floor Slab-On-Grade (Underslab Fill)

Any engineered fill place beneath and supporting floor slab-on-grade should be done according to our **Requirements for Underslab Fill** (attached).

4.4 Site Grading & Retaining Wall Considerations

Based on our topographic observations, the lot slopes approximately 15%, with the proposed building footprint located on the north-facing slope of a ridge. The design plans provided do not specify how the proposed slab-on-grade elevation relates to the existing site grades. It is assumed that the final building platform will be formed through a combination of cut and fill.

To establish level front or rear yards and prevent surface water from flowing toward the rear of the building, retaining walls may be necessary to manage the grade transition. Coast Geotechnical can provide engineered design for retaining walls exceeding 1.2 m height or supporting the building upon request and as necessary to meet local bylaws and permitting requirements.

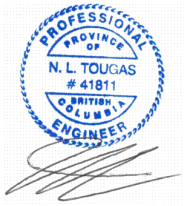
It should be noted that the BC Building Code requires the finished ground surface adjacent to any foundation to slope away from the building at a minimum of 5% (1:20) for at least 3048 mm (10 feet). This helps ensure positive drainage and prevents ponding or infiltration at the foundation wall.

5.0 CLOSURE

Coast Geotechnical has completed this geotechnical report based on our interpretation and evaluation of the findings of the current geotechnical investigation and review of available information. The materials in this report reflect Coast Geotechnical best judgement based on the information that was available at the time of this report.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or require clarification of the above, please contact us.

Prepared By:



2025-05-20

Nathaniel Tougas, PMP, P.Eng.
Geotechnical Project Engineer

Reviewed by:

Ben Schmidt, P.Eng.
Principal Geotechnical Engineer

For:
Coast Geotechnical Consulting Ltd.
Permit to Practice #: 1001639

ATTACHMENTS:

Important Information and Use of this Report
Site Investigation Photos
Guide to Letters of Assurance
Requirements for Safe Excavations
Requirements for Engineered Fill
Requirements for Underslab Fill

IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Standard of Care
Coast Geotechnical Consulting Ltd. (Coast Geotechnical) has prepared this report in a manner consistent with that level of care ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made.

Basis and Use of the Report
This report has been prepared for the specific site, design objective, development and purpose described to Coast Geotechnical by the client. The factual data, interpretations and recommendations pertain to a specific project as described in the report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of this report may alter the validity of the report. Coast Geotechnical cannot be responsible for use of this report, or portions thereof, unless Coast Geotechnical is requested to review and, if necessary, revise the report.

The information, recommendations, and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Coast Geotechnical's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the Client, Coast Geotechnical may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Coast Geotechnical. The report, all plans, data, drawings, and other documents as well as all electronic media prepared by Coast Geotechnical are considered its professional work product and shall remain the copyright property of Coast Geotechnical, who authorizes only the Client and Approved Users to make copies of the report, but 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 available the report or any portion thereof to any other party without the express written permission of Coast Geotechnical. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration, and incompatibility and therefore the Client cannot rely upon the electronic media versions of Coast Geotechnical's report or other products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Coast Geotechnical by the Client, communications between Coast Geotechnical and the Client, and to any other reports prepared by Coast Geotechnical for the Client relative to the specific site described in the report. To properly understand the suggestions, recommendations, and opinions expressed in this report; reference must be made to the whole of the report. Coast Geotechnical cannot be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of boreholes, necessary to determine all the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations as well as their own interpretations of the factual data presented in the report with respect to how subsurface conditions may affect their own work. This includes but is not limited to proposed construction techniques, schedule, safety, and equipment capabilities.

Soil, Rock, and Groundwater Conditions
Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgement, and boundaries between different soil, rock, or geologic types or units may be translational rather than abrupt. Accordingly, Coast Geotechnical does not warrant or guarantee the exactness of the descriptions, associated soil characteristics or parameters.

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a

comprehensive investigation, assessment, sampling, and testing program may fail to detect all subsurface conditions. The environmental, geological, geotechnical, geochemical, and hydrogeological conditions that Coast Geotechnical interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal, and meteorological conditions. The condition of the soil, rock, and groundwater may be significantly altered by construction activities (traffic, groundwater level lowering, pile driving, blasting etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying, or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

Follow-Up and Construction Services

The details known at the time of submission are included in Coast Geotechnical's report. Coast Geotechnical should be retained to review the any changes to the final design, project plans, and documents prior to construction – to confirm that they are consistent with the intent of Coast Geotechnical's report.

During construction, Coast Geotechnical should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Coast Geotechnical's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations, and opinions contained in Coast Geotechnical's report. Adequate field review, observation, and testing during construction are necessary for Coast Geotechnical to be able to provide letters of assurance, in accordance with requirements of many regulatory authorities. In cases where this recommendation is not followed, Coast Geotechnical's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

Changed Conditions and Drainage

Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Coast Geotechnical be notified of any changes and be provided with the opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that Coast Geotechnical be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water commonly requires either temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Coast Geotechnical takes no responsibility for the aspects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

Photo 1:	
Photo 2:	

Photo 3:		
Photo 4:		

Photo 5:		
Photo 6:		

Photo 7:		
Photo 8:		

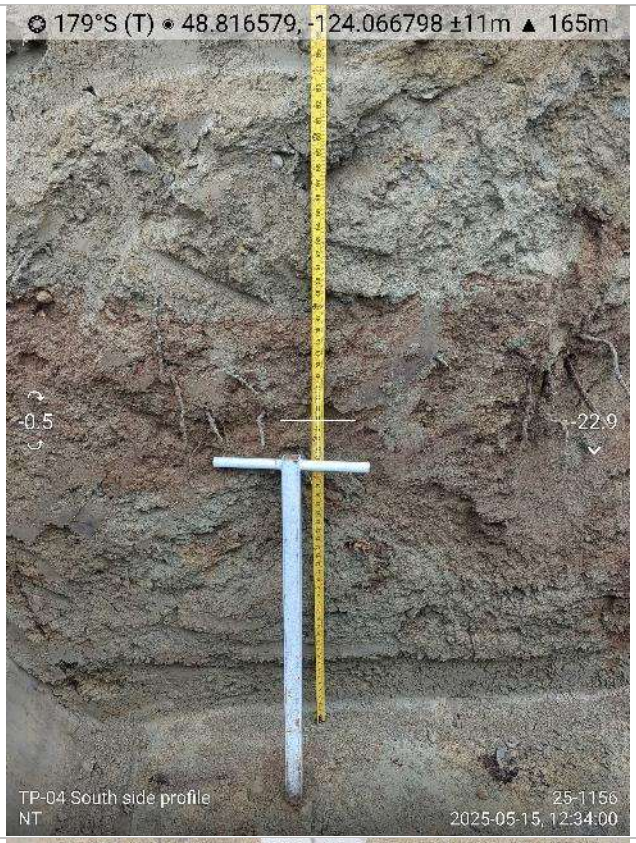
Photo 9:		
Photo 10:		

Photo 11:	
Photo 12:	

GUIDE TO GEOTECHNICAL LETTERS OF ASSURANCE

WHAT ARE SCHEDULE B AND SCHEDULE C-B'S?

Letters of assurance are legal documents to clearly identify the responsibilities of professionals in a construction project. The professionals are responsible for design and field review of construction to confirm the design and work substantially complies with the BC Building Code and safety requirements.

Schedule B: Is provided at the start of the project and serves to document the specific geotechnical aspects for which the engineer will be undertaking design, field reviews and testing.

Schedule C-B: Is provided at the end of the project and confirms that the geotechnical aspects of the project comply with the design and project recommendations.

WHAT NEEDS TO BE INSPECTED?

At the project's outset, we require a comprehensive set of project plans. This will enable us to determine which aspects require our examination and oversight throughout the project's duration. If applicable, site investigations or reconnaissance will be completed at this stage along with associated reporting. The geotechnical engineer will then provide a Schedule B where the engineer will indicate the geotechnical aspects applicable to your project and cross out those items that do not apply. The geotechnical report and/or memorandums prepared for your projects will provide our geotechnical design recommendations. Soil and rock conditions are inherently variable consequently geotechnical recommendations and requirements may be altered or developed during the course of construction, so it is critical each report and memo is read and available onsite to direct the work.

WHAT NEEDS TO BE INSPECTED?

The expectations for timing of field reviews (inspections) are typically included in the final sections of reports/memos and are often written with underlined text. For excavations exceeding 1.2 m that will be sloped steeper than 3H:4V, we must be contacted to assess the excavation before it is advanced below 1.2 m. The base of all excavations (subgrade) must be reviewed prior to the placement of fill, foundations, or other structural elements. We must be contacted to review or test during the compaction of engineered fill.

The owner or their designated contractor holds the responsibility to inform us about the project's progress to facilitate the required inspections. Contact your projects geotechnical engineer, or our office at office@coastgeotechnical.ca or 250-978-0704.

IMPORTANT:

Compliance with Schedule B and Schedule C-B is a critical aspect of construction in BC, ensuring safety, stability, and adherence to design specifications. Please note that we will not be able to complete the Schedule C-B if we do not undertake the required field reviews during construction. This may cause significant rework or jeopardize your ability to obtain final municipal approval and occupancy.

Coast Geotechnical Contact Information | Phone: 250-978-0704 | Email: office@coastgeotechnical.ca

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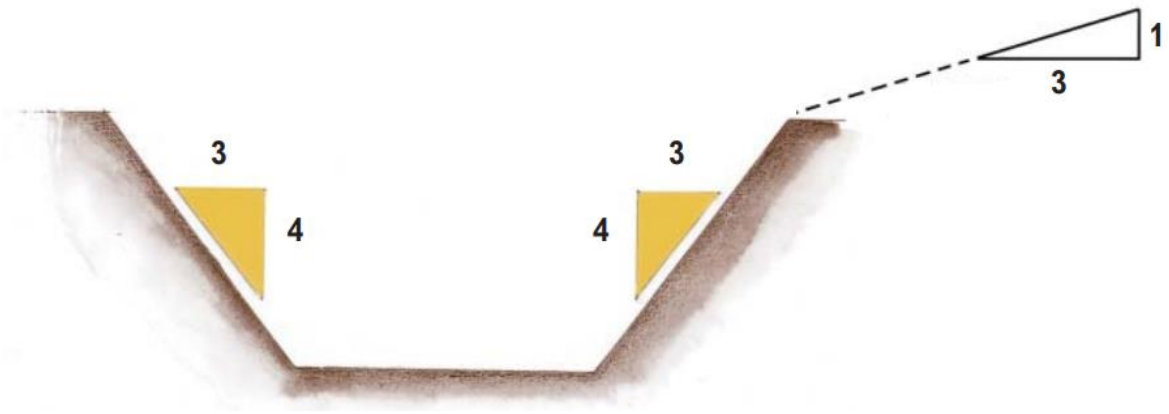
REQUIREMENTS FOR SAFE EXCAVATIONS



As per **WorkSafeBC**, excavations must be carried out in accordance with the written instructions of a professional engineer when or where any of the following conditions exist:

1. Excavations deeper than 1.2 m (4 ft) with sides sloped at an angle steeper than 3/4 horizontal to 1 vertical.
2. Excavations more than 6.1 m (20 ft) deep.
3. Excavations adjacent to structures that apply loads to the soil in the excavated area.
4. Excavations in soil subject to vibration or hydrostatic pressure likely to result in ground movement hazardous to workers.
5. Excavations along natural or human-made side slopes that are steeper than 3 horizontal to 1 vertical.
6. Excavations that are shored in a different fashion from those shown in the tables of Occupational Health and Safety Regulation.

A certification of an excavation involves a design, specifications, and job site inspections at regular intervals by a professional engineer. The engineer is required to assume full responsibility for assessing the stability of the soil for the duration of work being carried out inside, or in the vicinity of, the excavation. The engineer must propose design specifications which, based on professional judgment, provide a reasonable assurance that the excavation will remain stable.

The contractor must endeavour to carry out the excavation work accurately in accordance with the engineering drawings and specifications. Any deviations from the design must be promptly inspected by the engineer.

WHEN TO CALL US FOR REVIEW:
Coast Geotechnical should be contacted to review the site conditons once the excavation advances to a depth of 1.2 m (4 ft). Review at this stage will allow the engineer to provide timely recommendations for sloping, benching, or shoring, along with applicable requirements. When contacted after the excavation is complete, this may result in shoring requirements, increased costs, and delays.

ONGOING REVIEWS:
In general, the engineer who certifies the excavation must inspect the site at intervals that allow him/her to recognize any change in conditions from the original assessment. Typically, the site is reveiwed at the time of initial excavation, then every 3 weeks until the excavation is backfilled. The engineer will complete and sign an inspection report that describes any changing soil conditions and any action that needs to be taken.

Updated December 2022
**This guide is only be used when provided by Coast Geotechnical personnel for a specific project. Coast Geotechnical accepts no responsibility for any other use of this guide.*

Coast Geotechnical
250-978-0704 | 101-4226 Commerce Circle, Victoria, BC

REQUIREMENTS FOR ENGINEERED FILL

In the context of this guide, Engineered Fill is defined as granular soils, free of organic materials, and having a maximum 75mm nominal particle size. For fill materials with a maximum particle size greater than 75mm, refer to *Coast Geotechnical: Requirements for Rockfill as Engineered Fill*.

Table 1: Requirements for Engineered Fill

Compaction Equipment[2]	10–20-ton vibratory roller	1000-lb plate tamper, < 10 ton roller	Smaller tampers, jumping jack
Max. Lift Thickness	450 mm (1.5 ft)	300 mm (1 ft)	150 mm (6 in)
Min. # Passes	6 passes	6 passes	6 passes
Density Testing Requirements:	1. During compaction of 1st lift to confirm appropriate placement methodology, moisture, and compaction effort. 2. Every 0.6 meters of thickness thereafter (or as specified by engineer).		

1. 'Minus' means all particles must be less than the specified size. Material must be clean, free of contaminants or organics, and have less than 8% fines (silt/clay) passing the No. 200 sieve if placed during wet seasons. Generally, fills with more than 10% fines passing the No. 200 sieve are difficult to compact and not appropriate.
2. Commonly used materials are: 19 mm minus base gravel, 75 mm minus crushed granular sub-base, 75 mm minus Pit Run Sand & Gravel.

Stripping: Prior to placement of any Engineered Fill, all topsoil, fill, weathered, or disturbed soils must be stripped from the proposed building area. We recommend the site be staked or pinned to identify the building extent/width. *Geotechnical Engineer to be contacted to review subgrade prior to placing Engineered Fill*.

Pad Extent: The Engineered Fill pad must be prepared to extend 0.6 m (2 ft) horizontally beyond the outside edge of footings and have a maximum splay of 1H:1V down and away. Larger diameter particles can be used to retain perimeter of fill pad.

Lifts: Engineered Fill to be compacted in lifts appropriate for equipment. Lifts to be prepared level prior to compaction. Track packing will not be accepted as a means of compaction. Track packing is not an appropriate means of achieving compaction, however, it may be used as an initial step to level and eliminate high points.

Compaction: Engineered fill to be compacted to 98% of the materials Standard Proctor Maximum Dry Density (SPMDD) and within 2% of optimum moisture content, or as otherwise specified by the Engineer. Density testing is to be completed to confirm compaction, and results to be provided to Engineer for review. We recommend obtaining the Proctor test on the material prior to transport to site. *In lieu of density testing, upon request, Coast Geotechnical can complete full-time review during placement and compaction.*

Reviews: Contractor/Client is responsible to schedule density testing, or full-time monitoring with Coast Geotechnical during compaction. Final signoff, and/or Letters of Assurance will be withheld if Coast Geotechnical is not provided opportunity to review engineered fill, or density test results are not provided.

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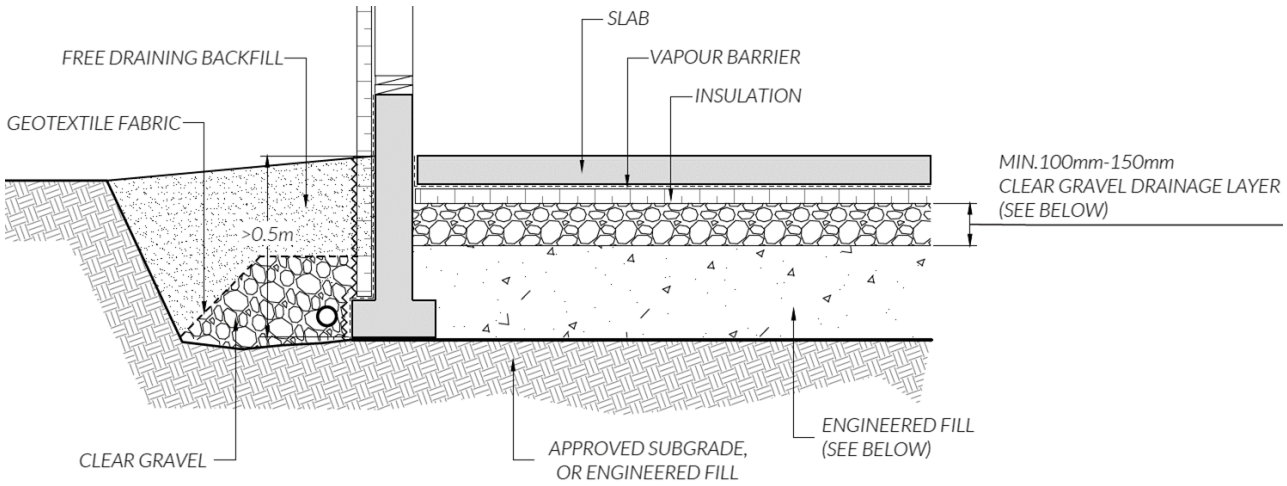
REQUIREMENTS FOR UNDERSLAB FILL



DRAINAGE LAYER

A foundation drainage system relies on a suitable under-slab layer to provide a capillary break. All slab-on-grade floors (except garages, and industrial buildings) are required to have a Drainage Layer as part of 9.16.2.1 of the *BC Building Code*. Sand is not acceptable as it does not provide a suitable capillary break. The drainage layer must be 100 mm to 150 mm thickness and consist of a **clear gravel**, typically, 19 - 25 mm (3/4"–1"). A minimum of 50 mm of clear crushed gravel must be provided on top of footings. The drainage layer is to be compacted in place with a mechanical plate-tamper. Note that polyethylene sheeting is not suitable to provide a capillary break but is required above the gravel to serve as part of the other assembly control layers beneath the slab.

ENGINEERED FILL BENEATH DRAINAGE LAYER

Slab-on-grade floors also rely on the underlying subgrade and Engineered Fill material to provide support and prevent settlement and cracking. Any fills placed beneath the Drainage Layer must be properly placed and compacted. Generally, 300 mm or more of Engineered Fill is required to overlay the native subgrade to support the slab-on-grade. The thickness may vary but must cover footings. All Engineered Fill placed beneath slabs must be compacted to 98% of Standard Proctor Maximum Dry Density (SPMDD), or judged equivalent based on review by the geotechnical engineer. All material must be compacted within 2% of optimum moisture content, which typically requires wetting by hose, or rainfall.

Typical Materials[1,3]	Compaction Equipment[2]	Lift Thicknesses
19 mm minus crushed gravel (road base) 19 mm clear crushed gravel (clear crush) 75 mm minus crushed gravel (road subbase)	200 – 500 lb vibrating plate tamper	< 150 mm
	500 – 1000 lb vibrating plate tamper	< 300 mm

1. Must contain less than 8% fines by weight, defined as all particles by weight passing a No. 200 Sieve.
2. Only used lightweight compaction equipment in proximity to foundation walls.
3. Generally, we do not recommend using sand, or pit run materials due to the potential for migration of fine-grained sand into the voids of coarse gravels. Discuss proposed materials with Engineer prior to import.