



**NELSON GEOTECHNICAL
ASSOCIATES, INC.**

**17311-135th Ave. N.E. Suite A-500
Woodinville, WA 98072
(425) 486-1669
www.nelsongeotech.com**

September 25, 2024

Chiara Maggiore
Pelletier & Schaar
Via Email: cmaggiore@pelletierscharr.com

c/o Jeffrey Rudd
Via Email: jeff@peakbuildersinc.com

Geotechnical Plan Review Letter
Rudd Residential Addition
8032 SE 57th Street
Mercer Island, Washington
NGA File No. 1482723

Dear Chiara:

This letter presents the results of our geotechnical engineering review of the plans for the proposed residence addition project located at **8032 SE 57th St on Mercer Island, Washington**.

INTRODUCTION

We understand you wish to construct a main floor and upper-level addition onto the existing residence. We previously prepared a geotechnical evaluation of the site dated March 27, 2024. In general, we concluded that the proposed additions were feasible from a geotechnical standpoint and provided geotechnical recommendations pertinent to the development of the proposed addition.

For our use in preparing this plan review letter, we have been provided with the following documents:

- ***Architectural plans dated May 28, 2024, prepared by Pelletier and Schaar Architecture.***
- ***Topographic survey dated September 8, 2023, prepared by Terrane.***
- ***Structural plans dated May 21, 2024, prepared by Custom Design Engineering, Inc.***

We understand that the City of Mercer Island has requested our review of the provided plans. In the following sections, we summarize the results of our geotechnical plan review.

PLAN REVIEW

We have reviewed the geotechnical aspects of the provided plans and found the plans to be in general compliance with our recommendations as presented in our previous geotechnical report. Plans indicate that the addition is maintaining a setback of at least 30 feet from the top of the slope as mentioned in our previous report.

Our report provided recommendations for foundations which are summarized here. We recommended an allowable design bearing pressure of no more than 2000 pounds per square foot (psf) when founded on medium dense or better native soils. We also provided a coefficient of friction of 0.35 along with a passive resistance of 200 Pounds per cubic foot (pcf) for footings founded on a level ground surface. The provided plans indicate that the new footings will be installed a minimum of 18-inches for frost protection and utilize a soil bearing pressure of 1,500 psf. The plans also state a passive resistance of 350 pcf and a coefficient of friction of 0.35. We recommend the passive pressure provided in our report be used for the development. NGA should observe and approve foundation excavations to ensure ample embedment into competent native soils. Additionally, the plans utilize the lateral earth pressures we provided in our previous report. Plans also indicate that any areas to receive structural fill should be placed in accordance with ASTM-D1557 and therefore, be tested by NGA to verify compaction. Footing drains were also shown to be installed around the new footings and connected to the existing drainage system. It should be noted that the material enclosing the 4-inch perforated footing drainpipe should consist of clean rock (i.e. pea gravel or clean crushed rock). Minus gravel should not be used to embed the footing drain as the minus material (i.e. silt and sand) prevents drainage and could build up in the footing drain.

The plans also show parameters for retaining walls associated with the proposed crawl space. The plans indicate an active and at rest earth pressure of 35 pcf and 60 pcf, respectively. It is our opinion that these values are feasible from a geotechnical standpoint and should support the planned loads. These lateral earth pressures are for a drained granular backfill and are based on the assumption of a horizontal ground surface behind the wall for a distance of at least the height of the wall, and do not account for surcharge loads. Additional lateral earth pressures should be considered for surcharge loads acting adjacent to walls and within a distance equal to the height of the wall. This would include the effects of surcharges such as traffic loads, floor slab loads, slopes, or other surface loads.

A stormwater pollution prevention plan had been created for the proposed project. We observed that a silt fence is shown to be placed around the development area and maintains a setback of approximately 20 feet from the top of slope as recommended in our report. Erosion control should be implemented prior to any ground disturbance and should consist of silt fencing placed on the downhill side of the work area, with compost socks (or straw wattles) staked to surface of the slope uphill of the silt fence. Depending on when construction is to begin, rock spalls may be necessary to protect the exposed subgrade soils from becoming disturbed from traffic. If construction takes place during the rainy months, additional expenses and delays should be expected. Additional expenses could include the need for placing erosion control and temporary drainage measures, the need for placing a blanket of rock spalls on exposed subgrades and construction traffic areas prior to placing structural fill, and the need for importing all-weather material for structural fill.

Once grading and earthwork measures are completed, the disturbed area should be replanted with native vegetation. We recommend leaving a 20-foot buffer from top of slope to not be disturbed during construction. If any vegetation is removed from the northern slope, or if the soils on the slope are disturbed, we recommend that jute netting be staked to the surface in all disturbed areas, as described in our geotechnical report. In our opinion, these measures should provide adequate erosion control for this site. Erosion control measures and plants should be maintained to ensure continued functionality.

MINIMUM RISK STATEMENT

We have reviewed the most recent plans submitted to the City of Mercer Island and have determined that they mostly conform to the recommendations found in the geotechnical evaluation and this letter. We recommend that the foundation recommendations listed in this letter and our original report be implemented into the approved plans. Provided conditions and recommendations are satisfied, the construction and development should not increase the potential for soil movement, and the risk of damage or soil instability to the proposed development or development of adjacent properties, should be minimal.

0-0-0

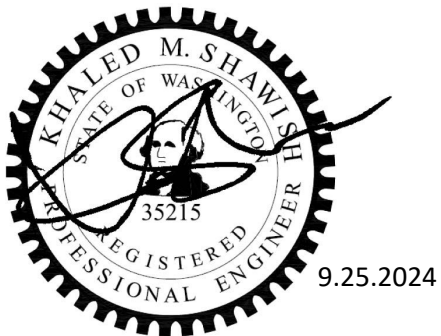
We appreciate the opportunity to provide service to you on this project. Please contact us if you have any questions regarding this letter or require further information.

Sincerely,

NELSON GEOTECHNICAL ASSOCIATES, INC.



Daniel J. O'Dell
Project Geologist



Khaled M. Shawish, PE
Principal

DJO:KMS:dy