

February 14, 2025
Project No. 23-017

Mr. David Do
4649 Forest Ave SE
Mercer Island, WA 98040

Subject: Geotechnical Services Report Addendum – Mitigation Sequencing
Beachfront DADU
4649 Forest Ave SE
Mercer Island, Washington

This letter address the city requirement for mitigation sequencing for your project as per MCC 19.07.100. This code section requires an evaluation of a series of mitigation measures to minimize impacts to critical areas on the site or adjacent properties. Each mitigation measure must be addressed before considering and incorporating the next measure in the sequence.

Background/Existing Conditions

The area of the subject property where a new DADU is proposed is currently developed with a decades old small beach cottage/shed. According to the Mercer Island geological hazard maps the property is classified as a critical area due to landslide, erosion and seismic hazards. Based on the current plans the existing beach cottage/shed will be demolished and a new 864 square foot DADU will be constructed on the site. Access to the property is via a trail and stairs down the slope to the beach.

The subject building site is located at beach level on the far western portion of the overall property. The property begins along the west side of the Forest Ave SE right of way and extends approximately 425 to the west, well beyond the existing shoreline. The upper portion of the property is 85 feet wide in the north-south direction. In the midportion of the site the width slims down to about 20 feet and then near beach level extends back out to about 60 feet wide.

An existing residence is located on the upper portion of the property. Landscaping and stairs and a portion of a steep concrete driveway occupy the midportion of the parcel. Near beach level the parcel is nearly flat and contains the old cottage/shed and a boat dock. The shoreline is protected from erosion with a rockery. The steep concrete driveway leads to the existing residence that is on the adjacent property to the south. This house is located just above beach level and is well down the slope from the existing house on the subject site.

The entire slope area between Forest Avenue SE at the top and the flat beach area at the bottom is either heavily landscaped with multiple small rockeries and wood walls or covered by the winding concrete driveway. At the toe of the slope, just beyond the concrete driveway, is an approximate 6 foot tall rockery that separates the slope from the level beach area.

Mitigation Sequencing

A. Avoiding the impact altogether by not taking a certain action or parts of an action. The applicant shall consider reasonable, affirmative steps and make best efforts to avoid critical area impacts. However, avoidance shall not be construed to mean mandatory withdrawal or denial of the development proposal or activity if the proposal or activity is an allowed, permitted, or conditional use in this title. In determining the extent to which the proposal should be redesigned to avoid the impact, the code official may consider the purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal and identified changes to the proposal. Development proposals should seek to avoid, minimize and mitigate overall impacts based on the functions and values of all of the relevant critical areas and based on the recommendations of a critical area study. If impacts cannot be avoided through redesign, use of a setback deviation pursuant to section [19.06.110\(C\)](#), or because of site conditions or project requirements, the applicant shall then proceed with the sequence of steps in subsections B through E of this section;

The proposed development is a replacement of an existing, dilapidated structure. The ground surface is level in the development area and there is little planned grading beyond excavation for the building footings. The new structure will be set back against the east property line such that the front edge will be no closer to the lake edge than the existing building. Due to extremely limited site access, all excavation for the new foundation system will be hand excavated and all building materials will be hand carried onto the site. There is no way to avoid building the structure within the geologic hazard areas or their buffers. As detailed in our geotechnical report for the project, and fully incorporated into the building plans, all applicable measures have been included to mitigate any impacts to the structure, or to adjacent properties, due to the nature of the geologic hazards. No further redesign of the structure should be required.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, using a setback deviation pursuant to section [19.06.110\(C\)](#), using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

The magnitude of this project is small – an 864 sf structure. And it is replacing an existing structure that has been in place on the site for decades and is badly in need of replacement. The existing structure is, and the replacement structure will be, located within the geologic hazards and their buffers. Other than cancelling the project there is no way to alter the location. The existing structure is uninhabitable and must be eventually replaced. The proposed new structure will be set as far away from the edge of the lake as is possible and is no closer than the existing structure. Both are well outside of a 25 foot buffer line from the edge

of the lake. Due to access issues only hand operated equipment will be used on the project. There will be no impacts to the geologic hazards or to adjacent properties.

C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

The environment will not be adversely impacted. Removing a dilapidated structure and replacing it with another small, but slightly larger structure, all with small power or hand equipment only, will not be detrimental to the existing environment. The existing landscaping is nil, consisting only of some poorly maintained lawn grass. New, city approved landscaping will significantly enhance the overall environment of the area.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

The existing structure is badly deteriorated and requires full replacement. The new structure will be constructed to all existing codes and should have a lifespan of many decades. Grading for the new structure is minimal with less than 25 cy of soil disturbance. Existing landscaping is nearly nonexistent with only some poor quality lawn grass. Planned new landscaping will significantly improve the environment and increase protection against future erosion of sediment to the lake. During construction all best management practices will be implemented to protect the adjacent lake from any detrimental impacts such as erosion of sediment into the lake.

E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;

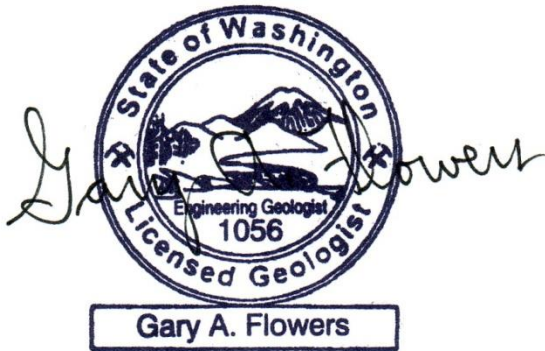
Construction of the new planned structure will have no significant adverse impact to the environment or to adjacent properties. Construction by hand will reduce impacts to the lowest achievable level. Significant city approved landscaping will enhance the local environment over existing conditions.

F. Monitoring the impact and taking appropriate corrective measures to maintain the integrity of compensating measures.

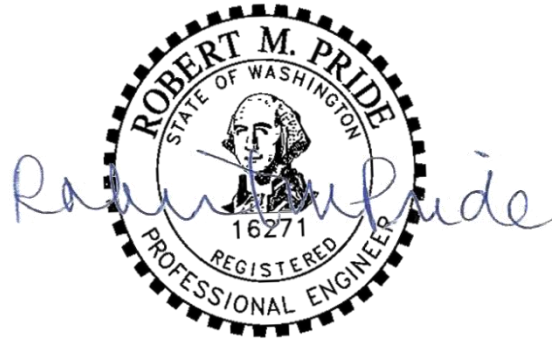
Monitoring for both soil bearing and erosion control should be provided during construction and improved, if required, to mitigate any adverse conditions. All new and improved landscaping should be carefully maintained to assure viability.

Our findings and recommendations provided in this report were prepared in accordance with generally accepted principles of engineering geology and geotechnical engineering as practiced in the Puget Sound area at the time this report was submitted. We make no other warranty, either express or implied.

Respectfully submitted,



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