



April 15, 2020
Project No. 18-0721

Barkley Meadows, LLC
PO Box 31548
Bellingham, Washington 98226

Attn.: David Ebenal

Re: Geotechnical Addendum Letter #2
Geohazard Areas Evaluation – Proposed Barkley Heights Development
3615 Sussex Drive/ Area 2 Barkley Neighborhood
P#380316372176
Bellingham, Washington 98226

Cc: Tony Freeland, P.E., Freeland and Associates

Dear Mr. Ebenal:

As requested, GeoTest Services, Inc. (GeoTest) is pleased to submit this geotechnical addendum letter following the request of the City of Bellingham (COB) Planning and Community Development Department regarding the above addressed property in a letter titled *Notice of Incomplete Application and Request For Information*, dated March 16, 2020. This addendum has been prepared in general accordance with the terms and conditions established in our proposals for services dated September 20, 2018 and October 2, 2018.

This addendum letter follows two GeoTest reports and one addendum letter for the subject property. The initial report was titled *Critical Areas Evaluation – Proposed Barkley Meadows Development* (GeoTest report #18-0750) dated October 9, 2018, that contained an evaluation of geologically hazardous areas for the proposed development on sloping terrain adjacent to Chandler Parkway and Sussex Drive in Bellingham, Washington. A geotechnical engineering report followed that was titled *Geotechnical Engineering Investigation and Report – Proposed Barkley Heights Development* with complete subsurface investigation results and geotechnical engineering recommendations for the above site development (GeoTest report #18-0721) dated February 27, 2019.

Since the writing of the initial two reports, the site plan by Freeland and Associates (Freeland) had been updated and GeoTest was provided with the new site plan, titled *Barkley Heights - Residential Multi-Family Development*, dated January 19, 2019. GeoTest provided an addendum letter, titled *Geotechnical Addendum Letter – Geohazard Areas Evaluation – Proposed Barkley Meadows Development* dated February 8, 2019 addressing COB commentary of geologic hazards.

An additional new site plan was developed by Freeland titled *Plat of Barkley Heights* dated January 6, 2020 that incorporated a revised layout of the project area. GeoTest reviewed the site plan at the request of Freeland and the owner David Ebenal prior to the composition of this letter. The site plan is attached at the end of this letter.

The March 16, 2020 letter from the City of Bellingham to the client denotes additional items that will need to be addressed prior to approval and issuance of permit in relation to the new development. It is our understanding that items related to critical area geologic hazards will need to be addressed by Geotest, while critical areas in other disciplines, such as wetlands, will be addressed by others. Some items within the provided Critical Area Report Checklist will be provided by other members of the project team. The following commentary addresses each request, followed by a response from GeoTest based on Bellingham Municipal Code (BMC) 16.55.440 – 16.55.460.

City of Bellingham Request #1:

A geotechnical report for the geohazards on this site titled, "Geotechnical Engineering Investigation and Report" (Geotechnical Report) (GeoTest, 2/27/19) was submitted in response to the City's request for information for the original applications. The Geotechnical Report reviewed a former development proposal dated 1/9/19, not the current one. BMC 16.55.440 A(1) requires submittal of the site plan for the proposal for evaluation by a licensed geologist.

GeoTest Response #1:

GeoTest has reviewed the new site plan dated 1-6-2020. The proposed development is considered suitable assuming that our geotechnical engineering recommendations from the above addressed reports are incorporated into the project design. We request that when final plans are completed, we be permitted to review the plans to ensure our recommendations are included in the project design and to provide markup and commentary as necessary.

City of Bellingham Request #2:

The Geotechnical Report completed the designation of geohazards. The investigation and report must be done for the current site plan, including the east-west trail. Submit a revised report that is specifically for the proposed subdivision and infill housing proposal and addresses BMC 16.55.440-16.55.460. The project will be required to be analyzed for alterations to geohazards based on the final site plan. This will be a condition of the consolidated permit.

GeoTest Response #2:

According to the referenced *Bellingham Municipal Code (BMC) Chapter 16.55 Critical Areas*, geologically hazardous areas include locations susceptible to erosion, landslide, rock fall, subsidence, earthquake, or other geological events that pose a threat to the health and safety of

citizens when incompatible development is sited in areas of significant hazard. The steep slopes on the eastern portion of the subject property contain slope angles that would present landslide and/or erosion hazard potential according to City of Bellingham's Geologic Hazards Areas Map and current BMC classification standards.

The new site plan depicts a 64-lot layout with a central north-south roadway (Sussex Drive) and a parallel alleyway on the western side of the proposed development. We consider our conclusions and recommendations from our above addressed original reports to be valid based on the new site plan and BMC 16.55.440.

GeoTest interprets the above COB commentary to be directly related to landslide, erosion and seismic hazards at the proposed development. Following several field visits to the subject site and vicinity and review of the proposed original and revised plans, probable cumulative impacts to the critical area slopes resulting from development of the site are determined to be minimal. The designated landslide and erosion hazard slopes found on the property were considered in the October 9, 2018 report by GeoTest to be of low risk in their present state, prior to development. The new site plan for the proposed development will not increase the risk of erosion or landslide hazards, assuming the required Best Management Practices (BMP's) are followed during site preparation and construction.

The new proposed Sussex Drive alignment and alleyway that will traverse the site from north to south will likely have concrete or equivalent retaining walls incorporated into the project design supporting the western portion of the new roadways. Additional retaining structures will likely be necessary for support of individual residential lots. GeoTest therefore determines that the risk of landslide or erosion hazard will be reduced from the present undeveloped state to the developed state. GeoTest recommends monitoring of the site and slopes by a qualified professional from our firm during construction.

The subject site is mapped by the Washing State Department of Natural Resources (DNR) *Geologic Information Portal* as bedrock and thus containing no applicable potential for seismic or liquefaction induced settlement. GeoTest therefore recommends no mitigation be deemed necessary for the subject site for this hazard beyond standards put forth by the IBC, IRC and local building codes.

Based on observations made during our site visits and assuming that all of the recommendations are incorporated into project design and construction, as well as expecting that appropriate maintenance is carried out for the life of the project, it is our opinion that site slopes present a low risk hazard in their current condition; this risk may be increased during site clearing and earthworks construction. The site will be mitigated with the choice of season of construction and by the building of retaining walls at down slope areas along the proposed Sussex Drive and alleyway extension. It is also possible to prevent significant erosion from occurring during site grading activities if appropriate BMP's are utilized.

Based upon an evaluation of the data collected during our studies, it is our opinion that the construction of the proposed Barkley Heights development is feasible from a geotechnical standpoint, and such activity per BMC 16.55.450:

- Will not increase the threat of the geological hazard to adjacent properties beyond pre-existing developed conditions
- Will not adversely impact other critical areas
- Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than pre-developed conditions
- Is determined to be suitably safe under anticipated conditions provided proper engineering design is implemented and maintenance is conducted throughout the life of the proposed improvements.

Furthermore, per BMC 16.55.460(2), it is our opinion that the proposed development:

- Will not increase surface water discharge or sedimentation to adjacent properties beyond the existing pre-developed condition
- Will not decrease slope stability on adjacent properties
- Will not adversely impact other critical areas.

The proposed construction will conform to the design standards set forth in BMC 16.55.460(3).

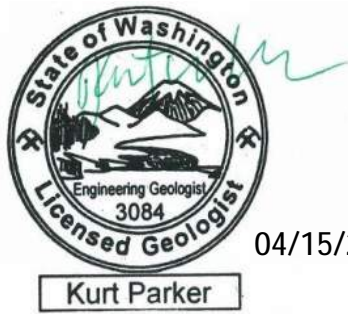
Considerations

Assuming that our recommendations are incorporated into the site plans and followed during construction, we consider the building of the residential Barkley Heights development to be feasible from a geotechnical engineering and geologic hazard perspective per the provided plan sheet. GeoTest would be pleased to review final plans and provide commentary and recommendations as needed. Due to the sloping terrain and the potential complexity of the subsurface conditions, we recommend that GeoTest be present during construction activities to ensure that plans and specifications are followed and to verify actual site conditions during excavation.

The current proposed development does not incorporate an east-west trail. The owner intends to donate the land to the City of Bellingham. The City of Bellingham would then design and construct a new east-west trail on land not under the current ownership for the Barkley Heights development.

We appreciate the opportunity to provide additional geotechnical services for this project and look forward to assisting you further during the design and construction phases. Should you have any further questions regarding the information contained within the letter, or if we may be of service in other regards, please contact the undersigned.

Respectfully,
GeoTest Services, Inc.



04/15/2020

Kurt Parker, L.E.G.
Geotechnical Department Manager

Attachments: Site Plan by Freeland and Associates: *Plat of Barkley Heights* (1-6-2020).

