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MEMORANDUM

DATE: September 16, 2022

TO: Marie Smith – marieannsmith966@gmail.com

FROM: Khaled M. Shawish, PE
Thor Christensen, PE

RE: Steep Slope Code Memorandum
Proposed Gabion Wall Project
3524 NE 197th Street
Lake Forest Park, Washington
NGA File No. 1311621



We prepared a geotechnical engineering evaluation concerning a proposed retaining wall project located at **3524 NE 197th Street in Lake Forest Park, Washington**, dated December 3, 2021. That report includes recommendations for gabion retaining walls. We were provided with an email from Stephen Bennett, Planning Director with the City of Lake Forest Park, dated September 12, 2022, concerning code requirement for the proposed walls. We were also provided with a topographic survey of the site by ASPI dated February 24, 2022. Additionally, we were provided with a plan showing the layout of several proposed gabion retaining walls at the site.

The provided survey shows that the vast majority of the Smith property has an inclination flatter than 40 percent. However, one area about 50 feet north of the northwest corner of the site residence is steeper than 40 percent and is shown having a height of 10 feet, making it a Steep Slope Hazard Area as defined by City of Lake Forest Park Code.

The proposed gabion retaining walls will have north-south alignments, roughly parallel to the existing slope, and will create flat terraces in the northern yard. Four tiered walls are planned having heights of up to 4 feet and will be spaced 12 feet apart. The three upper walls will be 40-feet-long, but the lower, western wall will be longer, and will extend about 50 feet further to the south. The south end of that lower wall will be within a few feet of the top of the above-described steep slope.

Lake Forest Park Code restricts alteration of slopes steeper than 40 percent and taller than 10 feet and buffer areas immediately surrounding such slopes. However, Code section 16.16.310.C states that alterations of slopes that are 40 percent or steeper with a vertical change of up to 20 feet are allowed, provided that a soils report prepared by a qualified professional satisfies the planning director that no adverse impact will result from the exception.

Code section 16.16.310.D states that when steep slope alterations are allowed by this section, the proposal shall:

- 1. Not decrease slope stability on the site or on adjoining properties; and***
- 2. Be subject to certification by a qualified professional that the landslide hazard area can be modified safely or that the development proposal eliminates or mitigates the landslide hazard risk to the property or adjacent property; and***
- 3. Not adversely impact other critical areas, such as streams; and***
- 4. Not result in an increase in peak surface water flows or sedimentation to adjacent properties.***

In our opinion, construction of the proposed gabion walls is appropriate, provided the recommendations found in our previous report are followed. We note that no walls are proposed to be constructed on slopes inclined steeper than 40 percent, although the end of one wall will be within a few feet of the top of such a slope. To satisfy the City's code requirements, we provide the following statements:

It is our opinion that the proposed gabion walls will not decrease slope stability on the site or on adjoining properties. Further, it is our opinion that the gabion walls, one of which will extend into a Steep Slope Hazard Area buffer and within a few feet of a Steep Slope Hazard Area, can be constructed so that modifications to the critical area and its buffer are done safely. The proposed gabion walls will not adversely impact other critical areas and will not result in an increase in peak surface water flows or sedimentation to adjacent properties.

We trust this memorandum should satisfy your needs at this time. Please contact us if you have any questions or require additional services.

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