



April 17, 2017
ES-5034

Earth Solutions NW LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Mr. Jack Bumgardner
c/o Polygon Northwest
PO Box 1349
Bellevue, Washington 98009

Attention: Ms. Brenda Fodge

**Subject: Critical Areas Report
11035 Northeast 26th Place
Bellevue, Washington**

Reference: Milbrandt Architects
Site Plan
Bumgardner Residence
Dated November 29, 2016

Dear Ms. Fodge:

In accordance with your request, Earth Solutions NW, LLC (ESNW) has prepared this letter providing recommendations regarding the stability of the slopes on the subject site to satisfy the City of Bellevue critical areas report format as described in LUC 20.25H.140, LUC 20.25H.145, and LUC 20.25H.250.

The site is located on the south side of Northeast 26th Place cul-de-sac and southeast of the intersection with 110th Avenue Northeast in Bellevue, Washington. The site is comprised of a single tax parcel, and is to be re-developed with a single-family residential structure and associated improvements following the demolition of the existing single-family residence occupying the site.

There is a slope on the subject site that meets the criteria for geologic hazard areas based on the City of Bellevue municipal code. The slopes ascend towards the neighboring property to the east from the east side of the residential structure location. The existing residence is sited adjacent to the toe-of-slope. The slope is on the order of up to 30 feet in height in the eastern side of the site, and the entire slope is inclined up to 38 percent. Areas within the slope complex are on the order of 40 percent, and over ten feet in vertical relief.

During our site visit (January 2017) the slopes were vegetated with native deciduous trees, blackberry brambles, and groundcover foliage typical of the region.

The client wishes to demolish the existing residence, and construct a new single-family structure that will mimic the current slope setback.

The undersigned project geologist observed the excavation of test pits on the slope and site. The test pits were sited in such a manner as to formulate a thorough idea of the subsurface conditions present in the sloped region on-site. As such, test pits were located at the top-of-slope, middle-of-slope, and toe-of-slope. The test pits were excavated using hand tools, and were advanced to a depth of a minimum of four feet below the surface elevation at each location. Topsoil on the order of four to six inches was observed to transition to dense silty sand with gravel (Unified Soil Classification, SM) at all of the test pit locations.

The subsurface conditions were observed to be homogeneous in nature, with no indications of interbedding of gravels or silt which would increase the likelihood of slope instability. No groundwater was observed during the subsurface exploration. In our opinion, the slope is stable in its present condition and configuration.

Based on our observation of the subsurface conditions on the slope, throughout the site, and knowledge of the area, the site is underlain by competent glacially consolidated soil consisting of medium dense to dense silty sand with gravel. As a part of the geotechnical assessment of the slopes on the east side of the site ESNW representatives performed a slope reconnaissance. During the reconnaissance, ESNW representatives observed no signs of instability in the form of hummocky terrain, down-sets, surface seeps, or tension cracks which would be indicative of instability in a slope.

In our opinion, the proposed steep slope buffer reduction on the subject site is suitable from a geotechnical standpoint. We base this opinion on the lack of geotechnical evidence of instability on and around the sloped areas on the subject site.

LUC 20.25H.145 Critical areas report - Approval of modification.

Section A: Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified.

Based on our site reconnaissance and subsurface exploration within the sloped areas under concern, it is our opinion that the proposed buffer reduction and construction will not increase the threat of geological hazard to adjacent properties beyond the level of which currently exist.

Section B: Will not adversely impact other critical areas.

The proposed site development will not adversely impact other critical areas, based on our review of the proposed development, available information, and site exploration.

Section C: Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified.

In our opinion, through site reconnaissance, subsurface exploration, and analysis described in this report, the proposed re-development is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the buffers and critical areas were not modified. In our opinion, no increase in instability to the critical slopes on and around the subject site will result from the proposed development.

Section D: Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington.

Based on our analysis of the proposed development, ESNW certifies the planned modifications to the geologic hazard critical area buffers as safe from a geotechnical standpoint.

LUC 20.25H.250 Critical areas report

B1. Identification and classification of all critical areas and critical area buffers on the site.

The client provided a site plan delineating and classifying the geologic critical areas and buffers within the eastern portion of the site.

The City of Bellevue on-line GIS resource describes steep slope hazards and erosion hazards for the slope on the east side of the site. The entirety of the site is described as possessing an erosion hazard, and the slopes to the southeast and northeast of the residence are described as steep slopes (>40%) by the on-line GIS mapping application. However, the portion of the slope located immediately adjacent (uphill) of the proposed structure footprint is not described as a steep slope.

B2. Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site.

ESNW has reviewed the City of Bellevue critical areas on-line resource, and has determined there are not critical areas on the properties immediately adjacent to the subject site that will be affected by the planned modifications to the slopes.

B3. Identification of each regulation or standard of this code proposed to be modified.

The proposed development requires the reduction of the steep slope buffers to approximately ten feet. However, there are no planned modifications to the sloped regions on the site; and the proposed development will mimic the foot print of the existing residence.

B4. An assessment of the probably cumulative impacts to the critical areas resulting from development of the site and the proposed development.

Based on our review of the proposed development, and from a geotechnical standpoint there will be no impact to the sloped regions on the subject site, as modifications are not planned for the slopes.

B5. An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal.

The current value of the critical areas (steep slope) buffer is negligible in our opinion. The state of the slopes during our site visits could be classified as stable, with no evidence of past soil movement. Based on this conclusion, there is no value in maintaining the buffers, given the proposed development will not include construction on the sloped regions, which would present a net increase in the potential for global instability now and in the future.

Limitations

The recommendations and conclusions provided in this letter are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. Our recommendations are based on the information available at the time of this letter preparation. A warranty is not expressed or implied.

We trust this letter meets your current needs. If you have any questions, or if additional information is required, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC



Kyle R. Campbell, P.E.
Principal

Stephen H. Avril
Project Geologist

Attachments: Test Pit Location Plan
Test Pit Logs

Test Pit Logs

ES-5034

TP-1

0'-4" TPSL Topsoil, Loose, Moist

6"-5' SM Brown Silty Sand with Gravel, Medium Dense to Dense, Moist

TP-2

0'-4" TPSL Topsoil, Loose, Moist

4"-4' SM Brown Silty Sand with Gravel, Dense, Moist

TP-3

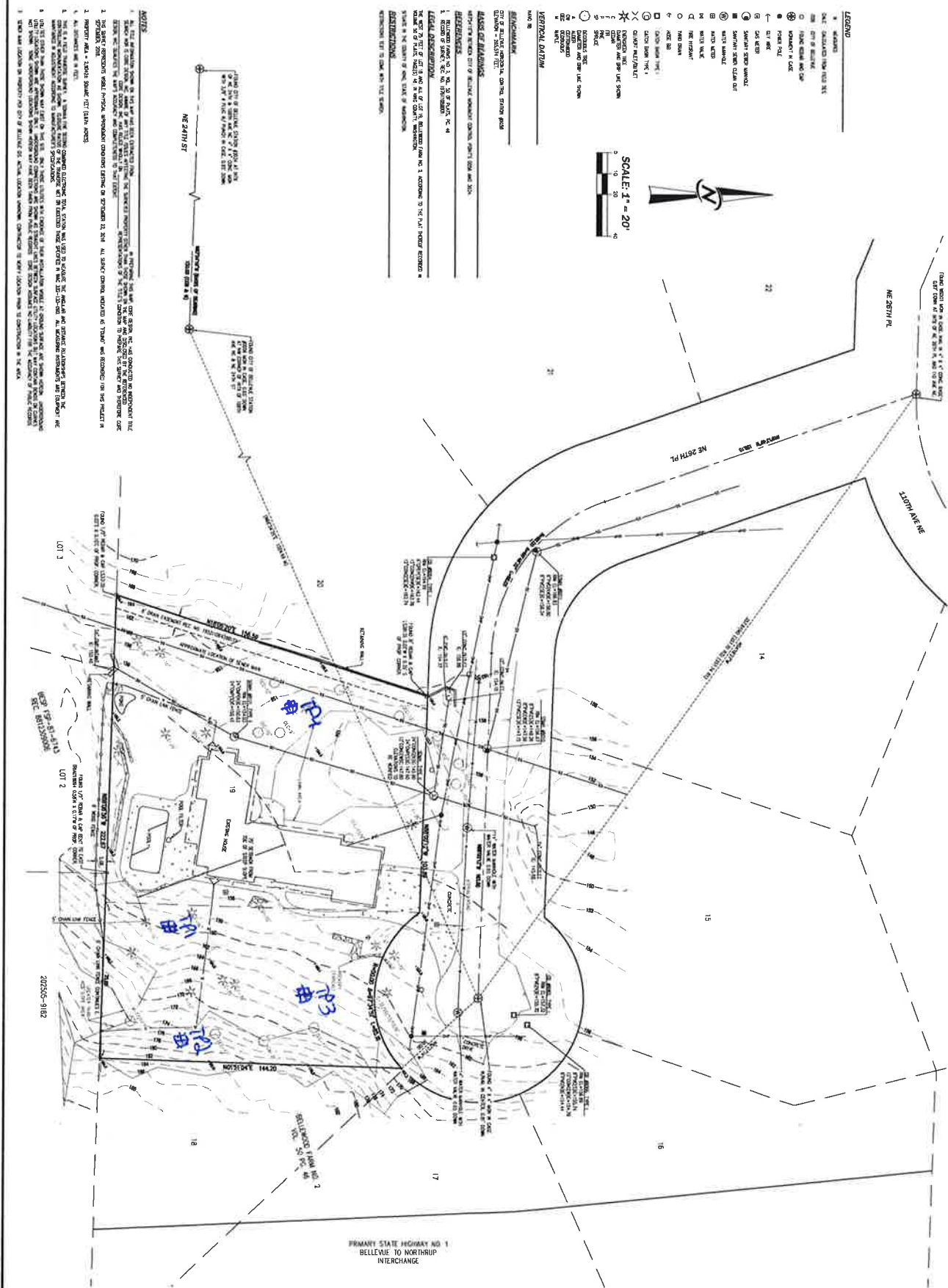
0'-6" TPSL Topsoil, Loose, Moist

6"-5' SM Brown Silty Sand with Gravel, Dense, Moist

TP-4

0'-6" TPSL Topsoil, Loose, Moist

6"-4' SM Brown Silty Sand with Gravel, Medium Dense to Dense, Moist



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