Snohomish County

Planning and Development Services
3000 Rockefeller Ave
Everett, WA 98201
425-388-3311

LANDSLIDE HAZARD DEVIATION

Dave Somers
County Executive

Applicant:	**BSRE Point Wells, LP** c/o Karr Tuttle Campbell 701 Fifth Avenue, Suite 3300 Seattle WA 98104
Engineers/ Geologist:	**Hart Crowser/N. John Bingham, PE** 3131 Elliot Avenue, Suite 600 Seattle, WA 98121
File No.:	**11-101457 LU, et. al.**
Project:	**Point Wells Urban Center**
Request:	**Landslide Hazard Deviation from SCC 30.62B.340 [2007]**
Date of Decision:	**May 14, 2020**

Director's Decision (Summary): Denial

Exhibit X-2 Landslide Hazard Deviation Decision May 14 2020
PFN: 11-101457 LU

PART I: SUMMARY INFORMATION

LOCATION AND REQUEST: The site is located at Point Wells in the southwest corner of Snohomish County. The Applicant proposes to redevelop the site into a mixed-use project under the vested Urban Center zoning. A portion of the site is in the Landslide Hazard Area. This Landslide Hazard Deviation request relates to three aspects of the project:

1. Construction of **buildings** in the Landslide Hazard Area;
2. Construction of a **commuter rail station** in the Landslide Hazard Area; and
3. Construction of a **secondary access road** in the Landslide Hazard Area.

A portion of the proposed secondary access road is on the project site, but the majority of the road is offsite and under the jurisdiction of the Town of Woodway. Some of the offsite roadway is on land owned by the Applicant and some of it is on land owned by others.

PRESENT LAND USES: The overall project site is presently in industrial use. The portion of the site that is in the Landslide Hazard Area and proposed for buildings is mainly parking, although it does contain a building identified by the Snohomish County Assessor as a 1970 truck repair garage. The proposed second access road would climb the hillside east of the project site through vacant land and across portions of single-family residential lots owned by third parties.

PROCEDURAL BACKGROUND: Per SCC 30.62B.340, actions requiring project permits are not allowed in a Landslide Hazard Area unless a deviation is granted by the PDS director (or their designee) based upon the criteria set forth therein. The Chief Engineering Officer is the designee for the director.

The Chief Engineering Officer reviewed the new materials provided by the Applicant, including:

1. Landslide Hazard Deviation Request dated December 12, 2019 (Exhibit V-15);
2. Subsurface Conditions Report Addendum, dated December 12, 2019 (Exhibit V-16);
3. Architectural Plans, dated December 12, 2019 (Exhibit V-6);
4. Preliminary Short Plat, dated December 12, 2019 (Exhibit V-7);
5. Targeted Stormwater Site Plan Report (for short plat, Exhibit V-8);
6. Targeted Stormwater Site Plan Report (for urban center site plan, Exhibit V-9)
7. Critical Area Report, dated December 2019 (Exhibit V-10); and
8. Second Access Exhibit, dated December 12, 2019 (Exhibit V-13).

The Chief Engineering Officer reviewed prior submittal materials provided by the Applicant, including:

9. Subsurface Conditions Report dated April 20 and received April 27, 2018 (Exhibit C-24);
10. Draft Final Point Wells Subsurface Conditions Report dated August 4, 2016 (Exhibit C-17);
11. Coastal Engineering Assessment dated received April 27, 2018 (Exhibit C-25);
12. Hydrogeologic Report V3 dated April 20 and received April 27, 2018 (Exhibit C-26); and
13. Point Wells Remediation Memo dated April 20 and received April 27, 2018 (Exhibit C-29)

The Chief Engineering Officer also reviewed other supporting documents related to the request in the project record, including other prior submittal information from the Applicant, public comments and applicable code provisions.

PART II: APPLICABLE DECISION CRITERIA

The Chief Engineering Officer is required to review the evidence submitted by the Applicant and to make Conclusions supported by Finding of Fact based on the applicable versions of code. The codes are as follows:

SCC 30.62B.340 [2007] Landslide hazard areas.

(1) Development activities, actions requiring project permits and clearing shall not be allowed in Landslide Hazard Areas or their required setbacks unless there is no alternate location on the subject property.

(2) Structures shall be setback from Landslide Hazard Areas unless the department approves a deviation as provided below.
   - (a) Setbacks shall be established as follows:
     - (i) the minimum top of slope setback shall be equal to the height of the slope divided by three, or 50 feet, whichever is greater;
     - (ii) the minimum toe of slope setback shall be 50 feet or the height divided by two whichever is greater; and
     - (iii) slope setbacks shall be no less than the minimum necessary to ensure that structural shoreline stabilization measures will not be necessary to protect the development.
   - (b) Deviations from setbacks may be allowed when the applicant demonstrates that the following conditions are met:
     - (i) there is no alternate location for the structure on the subject property; and
     - (ii) a geotechnical report demonstrates that:
       - (A) the alternative setbacks provide protection which is equal to that provided by the standard minimum setbacks; and
       - (B) the proposal meets the requirements of SCC 30.62B.320.

(3) In addition to the requirements in SCC 30.62B.320 the following standards and requirements apply to development activities, actions requiring project permits and clearing in Landslide Hazard Areas:
   - (a) Vegetation shall not be removed from a Landslide Hazard Area, except for hazardous trees based on review by a qualified arborist or as otherwise provided for in a vegetation management and restoration plan;
   - (b) The factor of safety for landslide occurrences shall not be decreased below the limits of 1.5 for static conditions or 1.1 for dynamic conditions. Analysis of dynamic conditions shall be based on horizontal acceleration as established by the current version of the International Building Code;
   - (c) Tiered piles or piers shall be used for structural foundations where possible to conform to existing topography;
   - (d) Retaining walls that allow for the maintenance of existing natural slope area shall be used wherever possible instead of graded artificial slopes;
   - (e) Provided there is no practical alternative, utility lines and pipes may be constructed in Landslide Hazard Areas under the following conditions:
     - (i) the line or pipe shall be located above ground and properly anchored or designed so that it will continue to function in the event of an underlying slide; and

(ii) stormwater conveyance systems shall be designed with high-density polyethylene pipe with fuse-welded joints, or similar product that is technically equivalent; or

(iii) alternatively, utilities may be bored below Landslide Hazard Areas provided they are located beneath the depth of potential slope failure.

(f) Point source discharge of stormwater may be allowed in Landslide Hazard Areas under the following conditions:

(i) the stormwater is conveyed via continuous storm pipe downslope to a point where it does not increase risk to Landslide Hazard Areas or other properties downstream from the discharge;

(ii) the stormwater is discharged at flow durations matching predeveloped conditions with adequate energy dissipation into existing channels; or

(iii) discharge upslope of the Landslide Hazard Area may only occur if:

(A) it is dispersed onto a low-gradient undisturbed setback adequate to infiltrate all surface and stormwater runoff; and

(B) the discharge will not decrease the stability of the slope.

SCC 30.62B.320 [2007] General standards and requirements for erosion and Landslide Hazard Areas.

(1) Any development activity, action requiring a project permit or clearing occurring in an erosion or Landslide Hazard Area:

(a) Shall be designed to:

(i) Comply with the requirements in an approved geotechnical report when required pursuant to SCC 30.62B.140;

(ii) Utilize best management practices (BMPs) adopted by the department pursuant to chapter 30.63A SCC and all known and available reasonable technology (AKART) appropriate for compliance with this chapter;

(iii) Prevent collection, concentration or discharge of stormwater or groundwater within an erosion or Landslide Hazard Area, except as otherwise provided in this chapter;

(iv) Minimize impervious surfaces and retain vegetation to minimize risk of erosion or landslide hazards; and

(b) Shall not:

(i) result in increased risk of property damage, death or injury;

(ii) cause or increase erosion or landslide hazard risk;

(iii) increase surface water discharge, sedimentation, slope instability, erosion or landslide potential to adjacent or downstream and down-drift properties beyond pre-development conditions; or

(iv) adversely impact wetlands, fish and wildlife habitat conservation areas or their buffers.

(2) For shoreline and bank stabilization and flood protection measures proposed in erosion or Landslide Hazard Areas, the project proponent shall make all reasonable efforts to avoid and minimize impacts to wetlands and fish and wildlife habitat conservation areas and their buffers pursuant to the requirements of chapter 30.62A SCC, in the following sequential order of preference:

(a) Utilize setbacks sufficient to ensure that shoreline stabilization or flood hazard reduction measures will not be necessary to protect development for its projected design life, or;

(b) When sufficient setbacks are not possible, utilize other non-structural measures unless the applicant demonstrates through a geotechnical report required pursuant to SCC 30.62B.120 that new or enlarged structural stabilization or flood protection is necessary to protect:
   (i) existing primary structures, utilities, roads and bridges;
   (ii) new utilities or public bridges and transportation structures allowed pursuant to 30.62B.330(3);
   (iii) agricultural land; or
   (iv) projects where the sole purpose is to protect or restore wetlands, fish and wildlife habitat conservation areas or their buffers.

PART III: FINDINGS OF FACT AND CONCLUSIONS

Based on the applicable decision criteria, the Chief Engineering Officer makes the following findings and conclusions on the three components of the project that the Applicant has proposed to locate in the Landslide Hazard Area:

A. Construction of **Urban Plaza buildings** in the Landslide Hazard Area;
B. Construction of a **Sounder station** in the Landslide Hazard Area; and
C. Construction of a **secondary access road** in the Landslide Hazard Area.

Part III.A: Defining Landslide Hazard Areas and Determining Setback (SCC 30.62B.340(2)(a) [2007])

Finding No. 1: The Point Wells site is at the toe of a steep slope that SCC 30.62B.340(2)(a) [2007] regulates as a Landslide Hazard Area. Subsection (2)(a)(ii) establishes that "the minimum toe of slope setback shall be 50 feet or the height divided by two whichever is greater." If the slope is more than 100 feet tall, then the setback is half of the height of the slope. Setbacks from slopes less than 100 feet are 50 feet.

Finding No. 2: The Applicant's depiction of the Landslide Hazard Area appears to be based on an assumption of a uniform slope height of 200 feet for the entire length pf the slope east of the project site (Exhibit C.24, page 25). However, the Applicant has not provided any elevation contour information to show how this height was determined. The Applicant has also not demonstrated that the height of the slope above the site is uniform for the length of the site. For instance, there is no contour elevation provided to support the asserted slope height on the Geologic Hazard Areas mapping provided by the Applicant (Exhibit C.24, Figure 10). Contour information provided by the Applicant on the site plan (Exhibit V-6) and on the Second Access Road design (Exhibit V-13) are incomplete and therefore do not support the asserted maximum slope height of 200 feet.

Finding No. 3: Based on the Applicant's assumption that the maximum slope height is uniformly 200 feet above the toe of the slope, the Applicant has provided plans (Exhibit V-6, Sheet A-051, Note 7) that uniformly depicts the landslide setback as being 100 feet (half the assumed height) from the toe of the slope. The current plans (Exhibit V-6) depict the toe of the slope as generally following the eastern edge of the BNSF right-of-way (Sheet A-051, Note 6).[1]

Finding No. 4: Publicly available contour data, such as used in Snohomish County's Geographic Information System (GIS), shows that the slope height at the north end of the site is 225 feet, or the difference between the top of the slope (250') and the toe (25'). See **Figure 1** below. Based on this height, the landslide setback in this area should be 112.5 feet.

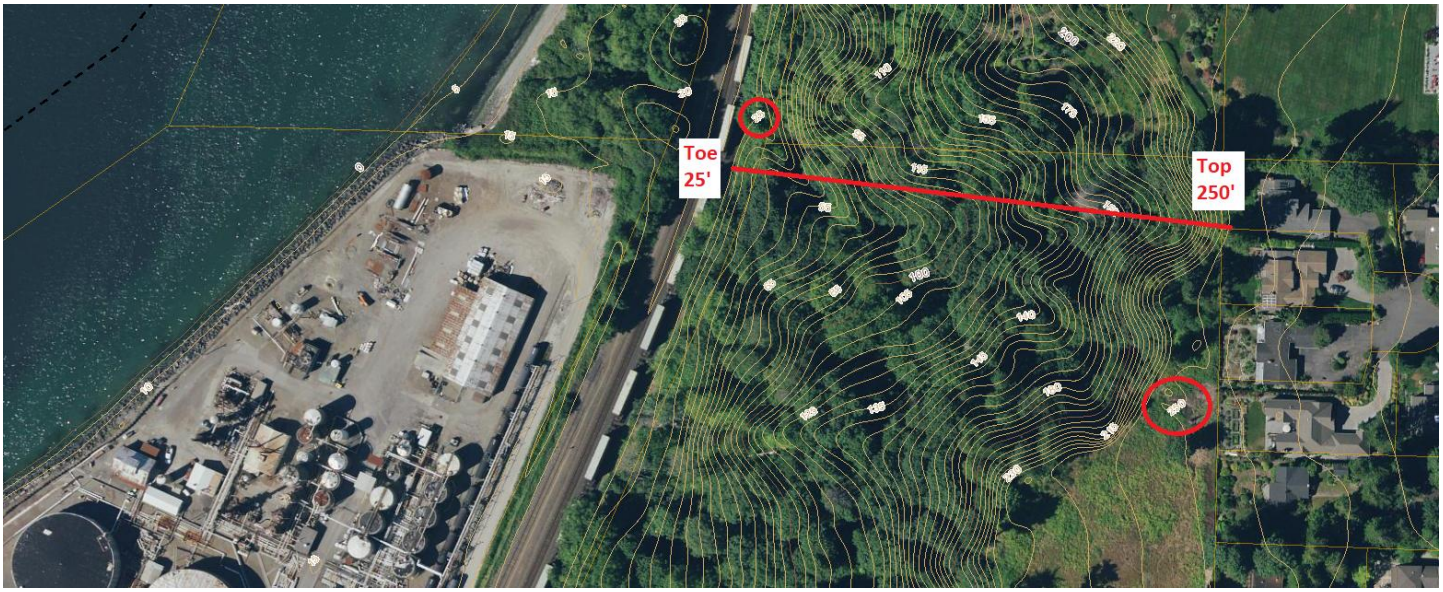

Figure 1 – Slope Height above North End of Point Wells Site (Snohomish County GIS)

Conclusion No. 1: For the purposes of SCC 30.62B.340(2)(a) [2007], the Applicant has **failed to accurately demonstrate the height of the slope** above the Point Wells site.

Conclusion No. 2: For the purposes of SCC 30.62B.340(2)(a) [2007], the Applicant's assumption of a uniform 200-foot slope above the project site and proposed uniform 100-foot setback from the toe of the slope below does not accurately identify the Landslide Hazard Area. For at least the north part of the site, the height of the slope is greater than that assumed by the Applicant; therefore, the required landslide hazard setback is greater in this area than that depicted in the materials provided by the Applicant. The Applicant has **failed to depict the Landslide Hazard Area accurately** as it extends onto the Point Wells site.

[1] The Applicant has not always depicted the toe in this location. See Finding No. 10 and Figure 2 on page 8.

Part III.B: Avoidance Unless there is No Alternative Location (SCC 30.62B.340(1) [2007] and SCC 30.62B.340(2)(b)(i) 2007)

Finding No. 6: The Landslide Hazard Area is depicted by the Applicant in Exhibit V-6, Sheet A-051, Note 7. Only a portion of the project site is a Landslide Hazard Area, approximately 5 of the 61 acres, although the Applicant has not provided precise figures for the total size of the Landslide Hazard Area on its plans or in any report. Neither of these figures (5 acres or 61 acres) accounts for the proposed Sounder station that would be on rail right-of-way owned by Burlington Northern Santa Fe (BNSF). As depicted on Exhibit V-6, Sheet A-051, the BNSF right-of-way is also located within the Landslide Hazard Area.

Finding No. 7: The entire Urban Plaza portion of the Applicant's development is located in the area depicted as Landslide Hazard Area, including buildings UP-T1, Service Buildings 1 and 2, and building UP-Commercial. The Landslide Hazard Deviation Request Letter from Hart Crowser, Exhibit V-15, page 7, fails to demonstrate that there is "no alternative location," and instead relies on Attachment 1 from Perkins & Will, Exhibit V-15, page 10. The Perkins & Will letter provides only a conclusory statement that alternatives were reviewed and no alternatives to locating building components were found. The letter cites code required setbacks, required minimum project density, and project site ingress/egress paths as general reasons, but the deviation request and application materials provide no evidence or verifiable means of demonstrating that other alternative locations on the site are not available. In addition, Perkins & Will staff previously testified that the Applicant chose to locate buildings in the Urban Plaza and Landslide Hazard Area based on design preferences, not because there are no alternative locations (Amended Hearing Examiner Decision dated August 4, 2018, (Exhibit R-4, Conclusions C.54 and C.62). The new explanation from Perkins & Will (Exhibit V-15) does not adequately address or respond to either conclusion made by the Hearing Examiner regarding alternative locations for the Urban Plaza buildings in the Landslide Hazard Area.

Finding No. 8: With regard to the Sounder station, the deviation request is completely silent as to demonstrating "no alternative location." The Hart Crowser geotechnical letter seem to imply that the Sounder station part of the request is included together with the Urban Plaza landslide deviation request, but this relies on the Perkins and Will letter for demonstrating that the "no alternative location" criterion has been satisfied (Exhibit V-15, page 7). However, the Perkins and Will letter makes no reference to the Sounder station, only the four buildings in the Urban Plaza (Exhibit V-15, Attachment 1). The Chief Engineering Officer notes that the Sounder station is on right-of-way owned by BNSF and therefore would not be physically located as part of the Urban Plaza. It is distinct.

Finding No. 9: With regard to potentially locating the Sounder station at an alternative location outside of the Landslide Hazard Area, the Applicant has not evaluated its own contour data for the southern portion of the site. Sheet A-050 of the Architectural plans (Exhibit V-6) includes contour lines that show the Urban Plaza area as creating a bench which then gently slopes up to the east until approximately the 50-foot contour line where the slope begins to steepen beyond the area depicted in its plans. The Second Access Road figure (Exhibit V-13) includes contours for this same area and extends them further east. Based on Exhibit V-13, the top of the slope greater than 33% in this area is at approximately the

185-foot contour. Subject to verification, these contour lines would imply a slope height of 135 feet (185 minus 50). This would equate to a 67.5-foot landslide hazard setback in this area (or one half the height of the slope per SCC 30.62B.340(2)(a)(ii) [2007]), measured from a toe location located farther eastward than the one shown on Sheet A-050 of Exhibit V-6.

Finding No. 10: Also with regard to the potential to locate the Sounder station at an alternate location outside of the Landslide Hazard Area, the Applicant has not provided information to ascertain what lessor setback might be appropriate in the southern portion of its project site. The County provided the Applicant prior notification of this deficiency (see for example, Exhibit K-16). Image 1 in Exhibit K-16 represents the County's Illustration, through a marked up version the Applicant's original 2011 plans (specifically, Sheet A-051 of Exhibit B-2) of a code compliant setback based on publicly available contours. **Figure 2** reproduces Image 1 of Exhibit K-16 below, with the addition of yellow highlighting on what was the Applicant's previously-proposed location of the Sounder station. Comparing Sheet A-051 of the original plans (Exhibit B-2/Figure 2) to the same sheet in the most recent 2019 plans (Exhibit V-6), the Chief Engineering Officer notes that the secondary bridge and proposed Sounder station have moved northward (left), which is placing the development further into the Landslide Hazard Area. The location of the southern bridge across the tracks has not materially changed between iterations of the project and, based on **Figure 2**, this location may be outside the Landslide Hazard Area. The Applicant has provided no evaluation or explanation why the Sounder station could not be located under the southern bridge and potentially outside, or at least partially outside, the Landslide Hazard Area as required by SCC 30.62B.340(2)(b)(i) [2007].

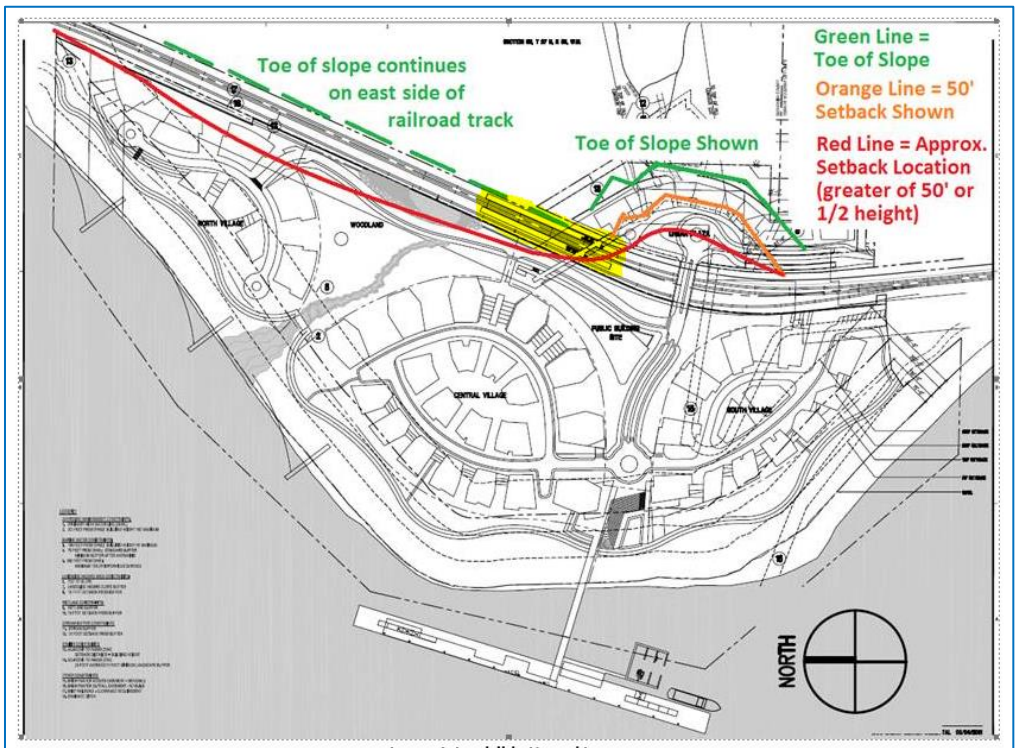

Figure 2 – Image 1 of Exhibit K-16 (Highlighting of Sounder Station Added)

Finding No. 11: The proposed second access road would be partially onsite and partially on property owned by third parties (see, for example, Exhibit V-15, Figure 2A; Exhibit V-6, Sheet C-300; and Exhibit V-13). The Hart Crowser Deviation Request outlines the alternative routes considered by the Applicant (Exhibit V-16, page 4). The Applicant documents that an alternative route, designated as the northeast route, for the second access road also would have to be located in the Landslide Hazard Area. The Applicant demonstrates that the alternative northeast route is less desirable due to increased risks associated with geological hazards and instability. According to the Hart Crowser Letter (Exhibit V-15), the second access route proposed by the Applicant would encounter fewer geological critical areas and flatter average slopes. See also Exhibit C-24.

Conclusion No. 3: For the purposes of SCC 30.62B.340(1) [2007] and SCC 30.62B.340(2)(b)(i) [2007], the Applicant has **failed to demonstrate** that there is no alternate location on the subject property for the four buildings (UP-T1, Service Buildings 1 and 2, and UP-Commercial) located in the **Urban Plaza**.

Conclusion No. 4: For the purposes of SCC 30.62B.340(1) [2007] and SCC 30.62B.340(2)(b)(i) [2007], the Applicant has **failed to demonstrate** that there is no alternate location for the **Sounder Station**.

Conclusion No. 5: For the purposes of SCC 30.62B.340(1) [2007] and SCC 30.62B.340(2)(b)(i) [2007], the Applicant has **adequately demonstrated** that there is no alternate location for the **second access road** that avoids Landslide Hazard Areas.

Part III.C: Equal Protection, Geotechnical Reports and Factors of Safety (SCC 30.62B.340(2)(b)(ii) [2007], SCC 30.62B.320 [2007], and SCC 30.62B.340(3) [2007])

Finding No. 12: SCC 30.62B.340(2)(b)(ii) [2007] requires that an applicant conducting development activities or actions requiring project permits in a Landslide Hazard Area must demonstrate that the protections provided by the alternative setbacks are equal to the s standard minimum setbacks. Since the standard minimum setback would not allow any development activities in the Landslide Hazard Area, the Applicant must demonstrate that equal protection has been achieved through providing a geotechnical report in compliance with SCC 30.62B.320 [2007]. Demonstrating equal protection also requires complying with the additional standards and requirements in SCC 30.62B.340(3) [2007] in both the geotechnical report and other submittal documents.

Finding No. 13. The Applicant has provided a Subsurface Conditions Report (Exhibit C-33) and a more recent addendum (Exhibits V-16) that together comprise the response to SCC 30.62B.320 [2007] for the purpose of this landslide deviation request evaluation.[2]

[2] On page 9 of the landslide hazard deviation request (Exhibit V-15), the Applicant also refers to the Coastal Engineering Assessment (Exhibit C-25) as a supporting geotechnical report for this request. The Chief Engineering

Finding No. 14: Findings 2, 3, 4, 9 and 11 and Conclusions 1 and 2, establish that the setbacks described in the geotechnical reports (Exhibits V-16 and C-33) and depicted on Sheet A-051 of the architectural plans (Exhibit V-6) are not correct. This significant deficiency in the Applicant's materials complicates the task of determining where additional standards and requirements in SCC 30.62B.340(3) [2007] are applicable and necessary to demonstrate equal protection. Despite this deficiency, the Chief Engineering Officer is able to evaluate the setbacks based on applicant materials provided by the Applicant.

Finding No. 15: For the purposes of SCC 30.62B.340(2)(b)(ii) [2007], the geotechnical reports (Exhibits V-16 and C-33) must meet the requirements of SCC 30.62B.320 [2007]. These reports fail to demonstrate compliance. This failure is in part attributable to the Applicant's proposed site plan, geotechnical report, and recommendations, which are not reflected consistently on the site civil plans, see 2 sheets labeled C-300 one for the Urban Plaza and the other labeled Grading and Drainage (both stamped and dated 12-10-2019). Horizontal location of proposed storm infrastructure is not consistent and the vertical elevations suggested could cause a backup of groundwater behind the proposed wall systems at the base of the excavation resulting in a small dam at the foot of a Landslide Hazard Area. There is inadequate space shown to install the storm and groundwater lines to drain the Underground Parking Garage at Elevation 25 to meet the 10-foot building setback to these lines as shown on sheet C-300 Urban Plaza. This is also at odds with SCC 30.62B.320(1)(a)(i) [2007] since the Applicant has not applied for a variance with regard to this setback issue. SCC 30.62B.320(1)(a)(iii) [2007] requires the Applicant to prevent the collection and concentration of stormwater or groundwater within a Landslide Hazard Area. The plans and reports do not demonstrate compliance with this provision.

Finding No. 16: Failure to address SCC 30.63A.520(2) [2010] is another reason that for the purposes of SCC 30.62B.340(2)(b)(ii) [2007], the geotechnical reports (Exhibits V-16 and C-33) fail to meet the requirements of SCC 30.62B.320 [2007]. SCC 30.62B.320(1)(a)(ii) [2007] specifically requires an applicant to "Utilize best management practices (BMPs) adopted by the department pursuant to chapter 30.63A.SCC," one of which is the provision of off-site mitigation (SCC 30.63A.520(2) [2010]). As discussed in Finding No. 15 above, the plans and reports fail to prevent collection and concentration of groundwater within a Landslide Hazard Area. The location where this ground water would be concentrated is along property lines, creating a situation where offsite mitigation is necessary and conflicting with SCC 30.63A.520(2) [2010]. Specifically, the systems described in Figure 2A of Exhibit V-16 are not adequately shown on the civil plans (C-series sheets of Exhibits V-6). These systems would need to be on the Point Wells site as well as on adjacent properties if designed as proposed by the Applicant in Figure 2A of Exhibit V-16. Moreover, there is no indication that the proposed design concepts would protect adjoining properties from landslide hazard prior to wall placement, or during dewatering of the slope and up until installation of the wall systems. During construction, inadequate life safety measures are proposed in the limited space available (approximate 7 feet

---

Officer has reviewed this document and found it to be important to other aspects of the project, but not relevant to the Landslide Hazard Deviation request.

to install the necessary tie backs, and footing drains for an excavation likely in excess of 25 feet). This is in conflict with SCC 30.63A.820(2)(b) [2010] which requires detailed engineering and design information when public health, safety, and welfare are of concern due to site-specific conditions.

Finding No. 17: SCC 30.62B.340(3)(a) [2007] requires that "Vegetation shall not be removed from a Landslide Hazard Area, except for hazardous trees based on review by a qualified arborist or as otherwise provided for in a vegetation management and restoration plan." The area shown on Sheet A-050 of the project plans (Exhibit V-6) as the "area of existing significant trees to be removed" underrepresents the area would be necessary for grading and construction of both the Urban Plaza buildings and the road. The Applicant has not provided an arborist report, or a vegetation management or restoration plan addressing areas of tree removal for areas to be graded but not built upon. Besides failing to provide the required plans and documents, the Applicant would be required to revise the plan set in Exhibit V-6 to be internally consistent. The Applicant's materials would require further revision to match corrections that are required on other documents (such as corrections to the second access road design that would result in changes to the proposed grading in the Landslide Hazard Area and removal of additional existing vegetation areas beyond that which the current plans identify).

Finding No. 18: Regarding the additional requirement in SCC 30.62B.340(3)(a) [2007] and the proposed Sounder station, there is no vegetation in the rail right-of-way so this requirement does not apply to the proposed commuter platform.

Finding No. 19: SCC 30.62B.340(3)(b) [2007] establishes a requirement that the factor of safety for landslide occurrences shall not decrease below 1.5 for static conditions or 1.1 for dynamic conditions. However, the Applicant's recent geotechnical addendum (Exhibits V-16) acknowledges a factor of safety below these levels at 1.04 for dynamic conditions. At page 2, Exhibit V-16, the Applicant's consultant advocates that Snohomish County should use a lower factor of safety. Here the Applicant's engineering consultant report that notes, "Note that certain public agencies have target seismic FS values of 1.05, or do not require seismic FS values". This statement by the Applicant consultant concedes that it does not demonstrate compliance with Snohomish County's requirements. SCC 30.62B.340(3)(b) establishes a factor of safety of 1.1 for dynamic conditions as part of achieving the equal-protection-compared-to-not-building-in-the-landslide-hazard-area requirement in SCC 30.62B.340(2)(a)(iii).

Finding No. 20: Also of concern for the purposes of meeting the factor of safety requirements in SCC 30.62B.340(3)(b) [2007], the geotechnical report suggests that additional mitigation may be necessary to support the factors of safety required by code. Additional buttressing of fill would have to occur within the Town of Woodway jurisdiction. Key to this assessment is the need to construct a permanent retaining wall system that includes a tieback design. Exhibit V-16 provides analysis of the proposed wall systems and information on how far the tiebacks and drainage would need to extend into the hillside. However, comparing this information with the space to place tiebacks and groundwater footing drains up-gradient of the wall system (e.g. Sheet C-300 of Exhibit V-6), it is apparent that tiebacks and drainage would need to extend

offsite onto properties owned by third parties. The site plan in Exhibit V-6 and proposed easements in the preliminary short plat (Exhibit V-7) do not show the offsite easements required by SCC 30.63B.130 [2010] for temporary construction and permanent installation impacts. Absent these easements, revisions to the proposed wall designs to fit in the area provided by the site plan would require new calculations of the factors of safety and further updates to the geotechnical report that the Applicant has not provided.

Finding No. 21: SCC 30.62B.340(3)(c) [2007] requires that "tiered piles or piers shall be used for structural foundations where possible to conform to existing topography" as part of demonstrating equal protection to building outside of the landslide hazard setback. Piles and piers are deeper supports that extend far below structures to reach competent foundation soils or rock. Different types of piles and piers are suitable to different situations. The idea of tiering piles or piers to conform to existing topography is in part to reduce lateral loads on the foundations. Tiering is encouraged but not required because it is not always a suitable solution to a particular site. In Landslide Hazard Areas, construction of structural foundations must make use of piles and/or piers (e.g. construction on flat concrete slabs is not permitted). The specific type of pile or pier foundation system proposed must be sufficient to carry vertical, horizontal and seismic forces for the project. The foundations systems must be consistent and with the recommendations in a geotechnical report developed for the project and reviewed for approval by the Chief Engineering Officer.

Finding No. 22: For purposes of SCC 30.62B.340(3)(c) [2007], the geotechnical report includes both the 2018 Subsurface Conditions Report (Exhibit C-24) and its 2019 Addendum (Exhibit V-16). Figure 10 of Exhibit C-24 (pdf page 65 of 253) shows that the second access road (including the large retaining wall supporting it), the urban plaza phase, and the area with the proposed Sounder station are all three entirely in the setback for the Landslide Hazard Area. Therefore, the geotechnical report must make recommendations regarding pile or pier foundation systems for all three features. In the discussion of landslide hazards (Exhibit C-24, pages 35-36), the Applicant makes recommendations for the road and retaining wall only, proposing "a soldier pile and lagging or secant pile wall with tiebacks." For the road retaining wall, Exhibit V-16 includes modeling of a soldier pile wall with lagging and tiebacks. As discussed in Finding No. 19, the proposed factor of safety for this wall does not comply with the factor of safety requirements of SCC 30.62B.340(3)(b) [2007]. Exhibit C-24 is silent with respect to landslide foundation compliance for the Sounder station and for the buildings in the Urban Plaza.

Finding No. 23: While Exhibit C-24 does not directly address landslide foundation compliance for the Sounder station or for the buildings in the Urban Plaza, it does discuss foundation requirements for these features in the context of liquefaction hazards. Landslide Hazard Deviation decisions do not directly address liquefaction hazards because designing for liquefaction hazards requires only compliance with geotechnical reporting requirements in SCC 30.62B.320 [2007] (and not the additional landslide hazard requirements in SCC 30.62B.340 [2007]). However, information provided regarding foundations and liquefaction requirements may be informative to analysis of landslide hazards as well. Indeed, the addendum (Exhibit V-16) incorporates some of the features proposed in Exhibit C-24 as responses to liquefaction as elements studied in the landslide hazard context. The Applicant must provide a clearer

explanation as to how they are attempting to demonstrate code compliance, but the more important issue is whether the proposed foundation designs demonstrate compliance with SCC 30.62B.320 [2007] and SCC 30.62B.340(3)(c) [2007].

Finding No. 24: Figure 10 of Exhibit C-24 (pdf page 65 of 253) shows that area with the proposed Sounder station is entirely within an area susceptible to liquefaction during an earthquake. It also shows that the west part of the Urban Plaza building and garage structure is in the liquefaction hazard area. The nearest ground monitoring well log indicates an artesian groundwater condition.

Finding No. 25: Exhibits C-24 and V-16 are both silent on specifics for how the Applicant proposes to show compliance with SCC 30.62B.340(3)(c) [2007] with respect to both the proposed Sounder platform and buildings in the Urban Plaza. The only explanation provided by the Applicant is on page 9 of Exhibit V-16 and reads:

> **Geotechnical Feasibility.** In our opinion, as professional geotechnical engineers, our analyses and preliminary recommendations are adequate to demonstrate that the geotechnical engineering aspects of the proposed development (slope stability, foundation support in liquefiable soil, etc.) are feasible to design and construct as discussed in this letter and in our reports. We have indicated items that would require additional geotechnical investigation, analysis, and design recommendations during later final design stages of the project. Such items that we indicate can be completed later are less critical items that, in our professional opinion, are not needed to demonstrate the geotechnical feasibility of the project.

The Chief Engineering Officer notes here that compliance with the specific standards in SCC 30.62B.340(3)(c) [2007] and SCC 30.62B.320 [2007] is what the Applicant must demonstrate compliance with to receive approval of a landslide hazard deviation request. “Geotechnical feasibility” is an undefined term proposed by the Applicant that does not demonstrate compliance with applicable Snohomish County Code.

Finding No. 26: The additional structural foundation requirements in SCC 30.62B.340(3)(c) [2007] apply to the proposed Sounder station in the Landslide Hazard Area. The Applicant would need to address additional design considerations since this is also in a liquefaction hazard area. Since this proposed development activity is in BNSF right-of-way, BSRE “must demonstrate to the department that a crossing permit (license) has been granted by the railroad company.” (SCC 30.24.050 [2009]). The Applicant has not demonstrated that its designs have been reviewed by BNSF or that it has have even applied with the railroad company for the appropriate permit(s) or license(s).

Finding No. 27: The additional requirement in SCC 30.62B.340(3)(d) [2007], “Retaining walls that allow for the maintenance of existing natural slope area shall be used wherever possible to conform to existing topography” appears to be part of what the Applicant has proposed. See the Civil Plans, particularly the C-series sheets in Exhibit V-6). However, as discussed in Findings 20 and 22 above, the Applicant has not provided sufficient detail on the proposed wall systems to demonstrate feasibility and compliance. This is because the materials provided by the Applicant regarding the walls fail to account for drainage at the base of the walls, subsurface

structural tiebacks, how wall designs would interact with the site plan, and off-site easements for tiebacks. The materials provided by the Applicant also do not consistently demonstrate the drainage and grading that would be necessary to perform the proposed development activities. If the Applicant were to redesign the wall systems to fit with the site plan, despite the lack of offsite easements, then the Applicant could potentially satisfy this requirement. However, the Applicant has not submitted materials supporting such a proposal.

Finding No. 28: The additional requirement in SCC 30.62B.340(3)(e) [2007] relates to conditions when construction of utilities in Landslide Hazard Areas is permissible. The civil construction plans provided by the Applicant as part of Exhibit V-6 fail to comply with these conditions. Of particular concern are the proposed wall-mounted storm conveyance for Chevron Creek and the re-routing of an existing conveyance serving the offsite Woodway Highlands development, both of which appear on Sheet C-300 of Exhibit V-6. The wall-mounted system does not comply with the Snohomish County Engineering Design and Development Standards (EDDS) in part because the curved nature of the proposed pipe and lack of cleanouts (EDDS requires cleanouts with a line of sight between along the entire length of the system). The wall itself is an integral component of an underground parking garage system and that requires a separate building permit and a 10-foot minimum setback is required for all major conveyance systems to a building (SCC 30.23.110(21)(b) [2010] and SCC 30.62B.320(1) [2007]). This requirement is in place in the event future maintenance or replacement of the conveyance line is necessary without damaging or impacting the structure at some future date. Comparing Sheets A-100, C-100, C-200 and C-300 in Exhibit V-6, the proposed new conveyance for Woodway Highlands appears to conflict with the clearance at the proposed service drive, parking garage, retail building, and access ramps to the Urban Plaza. No vertical grades or invert elevations were provided for the individual storm lines or groundwater conveyance lines in this vicinity to demonstrate that these structures can function as designed.

Finding No. 29: The additional requirement in SCC 30.62B.340(3)(e) [2007] relates to conditions when construction of utilities in Landslide Hazard Areas is permissible. However, the civil construction plans provided by the Applicant as part of Exhibit V-6 fail to address any utilities necessary for the construction of the Sounder platform. For example, on Sheet C-300 of Exhibit V-6, Snohomish County would expect to see a plan for handling the drainage from the additional impervious surface created by the rail platform. Instead, Sheet C-300 has a note saying “Rail Station Under Separate Permit”. While it is correct that the station would need a separate permit, the drainage for the station must go through the Point Wells site and tie into the utility plans in the civil plans for the Point Wells project. Additionally, per SCC 30.63A.595(3), any such private drainage easement on the Point Well site “shall be depicted on the face of the plat” for the preliminary short plat submitted to phase the project (Exhibit V-7). However, Exhibit V-7 does not show the required private drainage easement.

Finding No. 30: Until such time as the retaining walls are constructed and especially during the unsupported excavation prior to wall installation, no measures have been shown on any plans that describe or confirm that shoring would be necessary for the project as the geotechnical engineer seems to suggest or that the suggested footing drains as depicted on Figure 2A

(Exhibit V-16) by the geotechnical engineer actually drain to a system which is at an elevation low enough to collect the groundwater. This represents a failure to use Best Management Practices per SCC 30.62.320(1)(a)(ii) [2007] and temporary concentration of stormwater and groundwater during construction (1)(a)(iii). The civil plans, Sheet C-300 series of Exhibit V-6, are missing the required details necessary to show compliance.

Finding No. 31: The additional requirement in SCC 30.62B.340(3)(e) [2007] relates to conditions when construction of utilities in Landslide Hazard Areas is permissible. The Applicant's materials conflict with SCC 30.62B.340(3)(e) [2007] requirements for construction of utilities in Landslide Hazard Areas, in part, based on utility construction details that conflict with EDDS. In addition to these conflicts, there are many further drafting errors of concern. Both of the catch basins from in **Figure 3**, below, are from Sheet C-300 of Exhibit V-6 and illustrate these issues. First is a drafting error that applies to both catch basins. For the highlighted catch basin, the plans give a rim (top) elevation of 71.00' and an invert (bottom) elevation of 77.61'. Top elevations should always be higher than bottom elevations, but of these catch basins are in reverse. Several other catch basins in the C-series plan sheets also appear with bottoms higher than the tops, all of these would require correction. Second, is a conflict with EDDS 5-07(B)(2) which requires cleanouts deeper than five feet to be either a Type-2 catch basin (or a manhole) rather than a standard Type-1 catch basin. Plans must depict Type-2 catch basins as "Storm Drain Maintenance Holes" (or SDMH's) rather than as simple "Catch Basins." Assuming the elevations on the highlighted catch basin were merely backwards, then it should have been depicted as an SDMH (a rim of 77.61' and an invert of 71.00' = a 6.71' deep cleanout that should appear as an SDMH). The C-series plan sheets show many other catch basins deeper than five feet. All of these should appear as SDMH's. The figure also shows an SDMH with similar (and also reversed) elevations as the highlighted catch basin, but with the correct symbol. Also, note that the rim elevation shown for the sedimentation vault is not clear. However, a nearby label shows the rim higher than the invert, which would be correct. Finally, the pipe between the two catch basins has a reverse slope causing water backup and failing to comply with EDDS requirements.

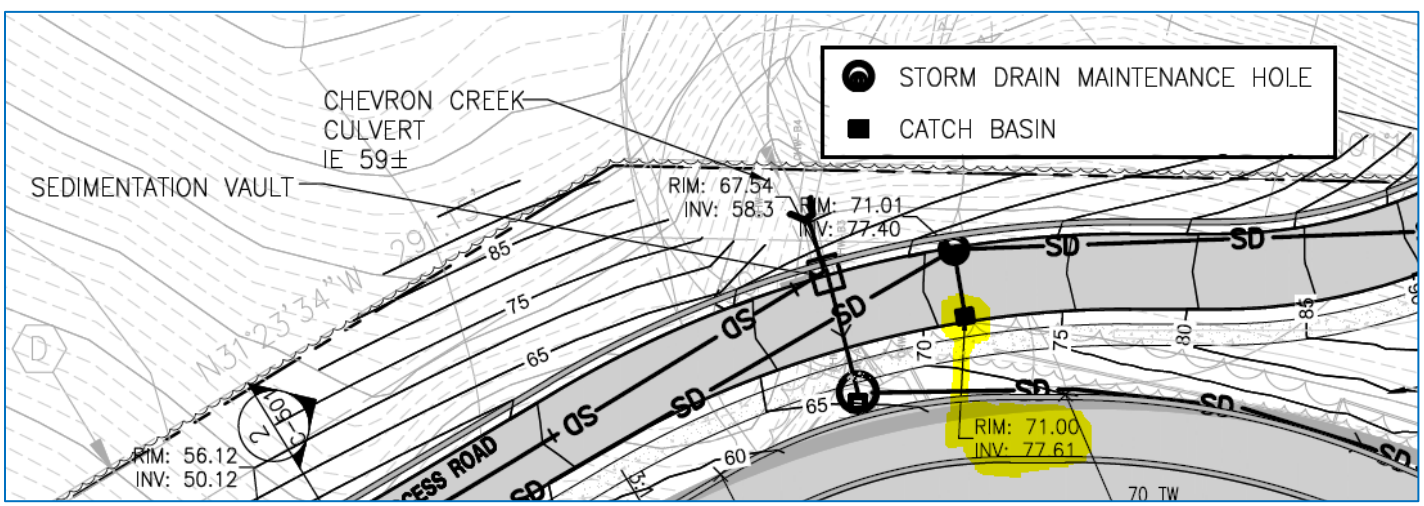

Figure 3 – Highlighted SDMH Shown as a Catch Basin with Reversed Elevations (Adapted from Sheet C-300 of Exhibit V-6)

Finding No. 32: Further conflicts with SCC 30.62B.340(3)(e) [2007] relate to conditions when construction of utilities in Landslide Hazard Areas is permissible. Due, in part, to numerous drafting errors and several conflicts between plans, the Applicant has failed to demonstrate compliance with these conditions. For instance, the drainage plans the civil construction plans provided by the Applicant as part of Exhibit V-6 are in conflict with the road design provided in second road design detail in Exhibit V-13. A drafting error on Exhibit V-13 relates to the retaining wall proposed at the south side of the road. Between elevation contours 170 and 175, the plans show top of the wall and the base of the wall as both being at 178 feet elevation. The base of the wall must be the same or below the road grade in order to hold back the surrounding hillside, which is higher than the road. The other wall points correctly depict the base of the wall as being lower than the top. An example of a conflict between plans is that the road design in Exhibit V-13 proposes a peak in the centerline of the road to shed water to both sides of the roadway, yet Sheet C-300 of Exhibit V-6 shows a storm drainage system only on the south side of the roadway. Undrained water would pond and run along the north side of the roadway, creating an unsafe condition. These examples illustrate design problems that would prevent the proposed storm drainage system from adequately draining the roadway and wall footings. Reliable and accurate information in the application documents and plans is crucial for determining wall design and drainage feasibility under review by the Chief Engineering Officer in this landslide hazard deviation request.

Conclusion No. 6: For the purposes of SCC 30.62B.320 [2007], the **Applicant has failed to provide an adequate Geotechnical Report**, that reflects the existing and proposed site conditions**.**

Conclusion No. 7: For the purposes of SCC 30.62B.340(3), the **Applicant has failed to meet the additional requirements, including factors of safety, for development activities and actions requiring permits in Landslide Hazard Area.**

Conclusion No. 8: For the purposes of SCC 30.62B.340(2)(b)(ii) [2007] the **Applicant has failed to provide protection which is equal to that provided by the minimum setbacks.**

PART IV: GENERAL CONCLUSIONS

Conclusion No. 9: The Chief Engineering Officer has authority to review and decide the administrative deviation request submitted by the Applicant pursuant to SCC 30.62B.340 [2007] by way of delegation from the Director.

Conclusion No. 10: In order for a PDS to grant a Landslide Hazard Deviation, the Applicant must demonstrate compliance with the provisions outlined in Part II, Applicable Decision Criteria. **If an Applicant does not demonstrate that their proposal meets the decision criteria, PDS must deny the request.**

PART V: DISPOSITION

Conclusion No. 11: Based on the Findings of Fact and Conclusions in Part III and the General Conclusions in Part IV, the Chief Engineering Officer has reviewed the subject Landslide Hazard Deviation and concludes that **the Landslide Hazard Deviation requested is in substantial conflict with SCC 30.62B.340 [2007]**.

The Chief Engineering Officer hereby **DENIES** the requested DEVIATION based upon the Findings of Fact in Part III and the Conclusions in Part IV.

Decision issued this May 14, 2020.

Randolph R. Sleight, PE, PLS
Chief Engineering Officer, PDS

Staff Distribution: Ryan Countryman, Paul MacCready