December 5, 2023

City of Puyallup
333 South Meridian
Puyallup, WA 98371

Attn: Mr. Chris Beale, AICP, Senior Planner

Transmitted via email to: cbeale@puyallupwa.gov

Re: Geotechnical Peer Review
Wesley Homes Senior Living Expansion – Phase 2
Civil Construction Permit No. PRCCP20231028-CV1
Puyallup, Washington
Project No. 2124006.010

Dear Mr. Beale:

An applicant proposes to construct two new buildings with associated parking, walkways, and utilities at 707 39th Avenue Southeast in Puyallup, Washington (site). The site contains Potential Landslide Hazard Areas (City of Puyallup Public Data Viewer).

Landau has completed a geotechnical peer review of the permit submittal documents in accordance with the scope of services outlined in an email dated November 8, 2023. Notice to proceed was provided by the City via email on November 8, 2023.

Landau understands that the City has requested Terra Associates, Inc. (Terra Associates) provide additional information regarding the Landslide Hazard Area after reviewing the December 29, 2022 Geotechnical Report Addendum. Specifically, the City has requested that Sections 21.06.1230 (2) (A-F) and 21.06.1230 (11) of the Puyallup Municipal Code (PMC), pier design foundations, and the presence of seeps on the site be addressed in detail. The City has communicated to Landau that buffering requirements from the off-site 40 percent slope (PMC 21.06.1240) will be waived if the geotechnical report addendum response to comments letter and supplemental site exploration letter satisfies the requirements of PMC 21.06.1230 (2) (A-F) and 21.06.1230 (Landau 2023).

Landau reviewed geotechnical portions of the following documents for compliance with PMC 21.06.1230 (2) (A-F) and 21.06.1230 (11):

- Barghausen Consulting Engineers, Inc. 2023. Civil Plans. July 11.
- Terra Associates, Inc. 2023. Supplemental Site Exploration Letter. July 11.
- Terra Associates, Inc. 2023. Geotechnical Report Addendum Response to Comments Letter. May 22.
- Terra Associates, Inc. 2022. Geotechnical Report Addendum. December 29.

Landau submits the following review comments:

- Terra Associates' geotechnical engineering letter includes a seismic stability analysis cross section for the proposed building and the slope that supports it at the northwest area of the parcel. The seismic stability analysis result shows a factor of safety less than 1.2 for dynamic conditions. Additional dynamic analysis completed by Terra Associates resulted in lateral slope displacements of less than 2 inches along the edge of the proposed building and less than one-half-inch towards the mid-point of the structure. Per Section 21.06.1230 (2) (A) of the PMC, proposed development shall not decrease the factor of safety for landslide occurrence below the limits of 1.5 for static conditions and 1.2 for dynamic conditions. This is a basic development design standard that must be met per the PMC, unless it can be demonstrated that an alternative design that deviates from this design standard provides greater long-term slope stability while meeting all other provisions of Chapter 21.06.
- Per Section 21.06.1230 (2) (B) of the PMC, the alteration shall not increase the threat of geological hazard to the project site or adjacent properties beyond predevelopment conditions, nor shall it result in a need for increased buffers on neighboring properties. In its geotechnical engineering letter, Terra Associates provides seismic stability analysis resulting in a factor of safety of 0.975, and states that the proposed development will actually decrease the potential for slope movements than what currently exists. To be in accordance with the PMC, Terra Associates should provide a pseudo-static slope stability analysis of the current existing slope for comparison.
- Per Section 21.06.1230 (11) of the PMC, a monitoring program shall be prepared and implemented for construction activities permitted in landslide and erosion hazard areas. In its geotechnical engineering letter, Terra Associates recommends adding a note to the project drawings specifying bi-weekly slope reconnaissance during construction and quarterly slope reconnaissance post building construction. To be in accordance with the PMC, a slope monitoring plan should be included in the project documents and approved by the owner.
- In its Geotechnical Report Addendum Response to Comments letter, Terra Associates recommends Rammed Aggregate Piers (RAPs) for mitigating unsuitable fill soils, however the extent of RAPs required is unclear. If RAPs are to be used, a recommended minimum replacement ratio to achieve suitable foundation support and/or site slope stability should be provided. Terra Associates should specify performance criteria for design of RAPs for slope stability improvement.

This letter has been prepared to facilitate the City of Puyallup's evaluation of permit submittal documents for the proposed development at 707 39th Avenue Southeast in Puyallup, Washington. Landau Associates reviewed geotechnical portions of the documents for compliance with portions of Chapter 21.06 of the Puyallup Municipal Code and for conformance with standard geotechnical engineering practices. Review of non-geotechnical documents was completed for the sole purpose of verifying compliance with the recommendations in Terra Associates' geotechnical engineering letters. Landau Associates' peer review does not diminish the responsibility of the applicant's geotechnical consultant to serve as the project's geotechnical engineer of record. Furthermore, the applicant's consultants are responsible for preparing a design suitable for site conditions.

If you have questions or comments, or if we can be of further service, please contact Amy Power at 831.345.4339 or at apower@landauinc.com.

LANDAU ASSOCIATES, INC.

Amy Power, PE
Senior Engineer

Sean Gertz, PE
Associate Engineer

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References

City of Puyallup. Puyallup Municipal Code, Chapter 21.06.1230 Critical Areas – Performance Standards – Alteration of landslide and erosion hazard areas. Current through Ordinance 3283, passed September 26, 2023.

City of Puyallup. City of Puyallup Public Data Viewer. Accessed November 20, 2023. https://experience.arcgis.com/experience/b08dc977077e45a0af032d675ca4df5c/

Landau. 2023. Email correspondence between the City and Landau. November 3.