March 13, 2024
HWA Project No. 2024-042-01 Task Order 02

City of Puyallup
333 S. Meridian
Puyallup, Washington 98371

Attention: Mr. Chris Beale, Senior Planner

Subject: **Geotechnical Peer Review – Response to Comments**
Wesley Homes Senior Living Expansion Phase 2
Civil Construction Permit No. PRCCP20231028-CV1
Puyallup, Washington

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).

Landau Associates, Inc. (Landau) previously reviewed the applicant's permit submittal package and summarized its findings in a letter dated December 5, 2023. The applicant's design consultants have prepared a revised permit submittal to address Landau's review comments.

Effective January 1, 2024, HWA Geosciences Inc. (HWA) has acquired Landau's geotechnical engineering services department. At the request of the City of Puyallup (City), HWA has reviewed the revised permit submittal. The review was completed in accordance with the scope outlined in an email dated March 5, 2024. HWA reviewed geotechnical portions of the following documents for compliance with relevant chapters of the Puyallup Municipal Code (PMC) 21.06:

- Terra Associates, Inc. 2024. Response to Comments, Wesley Homes Senior Living Expansion Phase 2. January 15.
- Terra Associates, Inc. 2023. Care Center Foundation Support Alternative, Wesley Homes Expansion. June 13.
- Landau Associates, Inc. 2023. Geotechnical Peer Review Letter, Wesley Homes Senior Living Expansion Phase 2. December 5.

Comments from Landau's December 2023 review are reproduced below in italics. The comments are followed by a brief assessment of the applicant's response:

- *Review Comment 1: 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.

Response: Terra Associates' June 13, 2023 geotechnical engineering support alternative letter addresses design recommendations for supporting the northwest portion of the proposed building on four-inch diameter pipe piles. Terra Associates has provided a seismic (pseudo-static) stability analysis of the altered slope, which indicates a minimum factor of safety of 1.2. In HWA's opinion, this comment has been adequately addressed.

- *Review Comment 2: 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.*

  Response: Terra Associates has provided a pseudo-static slope stability analysis of the current existing slope, which indicates a factor of safety of 0.908 under seismic loading for the existing condition. Because the proposed design will result in a factor of safety of 0.975, which is greater than that of the existing conditions, the code conditions will have been met. In HWA's opinion, this comment has been adequately addressed.

- *Review Comment 3: Per Section 21.06.1230(2)(B) 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.*

  Response: In its 2024 response letter, Terra Associates states that they understand that their recommendations for slope monitoring, as outlined in their May 22, 2023 response letter, will be included in the civil drawings as approved by the owner. Provided the slope

monitoring recommendations are included in the project documents, HWA will consider this comment to have been addressed.

- *Review Comment 4: 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.*

  Response: In its response letter, Terra Associates states that the western half of the building will be supported by pipe piles, and RAPs will not be used. In HWA's opinion, this comment has been adequately addressed.

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. HWA reviewed geotechnical portions of the referenced documents for compliance with portions of Chapter 21.06 of the Puyallup Municipal Code and for conformance with standard geotechnical engineering practices. HWA's 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 the site conditions.

We appreciate the opportunity to provide geotechnical engineering services on this project. Should you have any questions or comments, or if we may be of further service, please do not hesitate to contact the undersigned at your convenience.

Sincerely,

HWA GEOSCIENCES INC.

Amy Power, P.E.
Geotechnical Engineer

Ralph N. Boirum, P.E.
Principal

Reference

City of Puyallup. Puyallup Municipal Code, Chapter 21.06 Critical Areas. Current through Ordinance 3295, passed January 9, 2024.