

February 16, 2022

Lauren Anderson
Planner
Community Planning and Development (CPD)
City of Mercer Island

Re: Koneru Short Plat (SUB 21-008)
6610 East Mercer Way
Mercer Island, Washington

This letter is provided at your request to address whether the proposed subdivision complies with the following Mercer Island City Codes (MICC).

- MICC 19.07.160 Geologically hazardous areas.
- MICC 19.09.090 Building pad. (Specifically, 19.09.090(A)(1)(b) and (c) as well as 19.09.090(A)(2)(c).
- MICC 19.07.180(C)(6)(d) Watercourses

MICC 19.07.160 Geologically hazardous areas

A review of the geotechnical report provided for the proposed development (Geotech Consultants, June 8, 2021) and the Mercer Island geologic map (Troost and Wisher, 2006) indicates that the project site is underlain by loose alluvial soils over medium dense to dense sand. Groundwater was encountered at depths of 5 to 8 feet below existing ground surface.

The geotechnical engineer of record, Geotech Consultants, Inc. indicates that the alluvial soils have a moderate to high potential for liquefaction under earthquake loading.

Additional information is required regarding the seismic hazards at this site:

1. To what depths will the liquefaction occur?
2. What will be the impact of this liquefaction? What magnitude post-liquefaction settlement is estimated? Provide calculations to support estimated settlement.
3. How is this settlement taken into account in the design of the deep foundations? Provide calculation of estimated downdrag loads on the piles.
4. Provide stability analyses of potential flow failure or lateral spreading at the site due to seismic loading and/or liquefaction. Show cross section of stability analyses with results, soil stratigraphy, soil properties, etc.
5. How is this flow failure and/or lateral spreading incorporated into the site development? Provide calculations of estimated deformations. Will the proposed pipe piles have sufficient structural integrity to preclude a slenderness ratio issue or lateral failure under these seismic conditions?
6. What soil improvement techniques are recommended to reduce the potential for liquefaction or to mitigate the impacts of flow failure or lateral spreading at this site? If soil improvement techniques or mitigation measures are not recommended, provide a discussion as to why they are not being considered.

The geotechnical engineer of record, Geotech Consultants, Inc., has provided a risk statement in their June 8, 2021 report that conforms to MICC 19.07.160.(B)(3)(c).

Until the additional information requested above is provided and reviewed, the proposed development does not currently meet the requirements of MICC 19.07.160.

MICC 19.09.090 Building pad. Specifically, 19.09.090(A)(1)(b) and (c) as well as 19.09.090(A)(2)(c)

- 19.09.090(A)(1)(b). Disturbance of the existing, natural topography as a result of anticipated development within the building pad shall be minimized;
- 19.09.090(A)(1)(c). Impacts to critical areas and critical area buffers shall be minimized, consistent with the provisions of Chapter 19.07 MICC; and

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- 19.09.090(A)(2)(c). Building pads shall not be located within:
(c) Critical areas, buffers or critical area setbacks; provided building pads may be located within geohazard hazard areas and associated buffers and setbacks when all of the following are met:
 - i. A qualified professional determines that the criteria of MICC 19.07.160(B)(2) and (3), Site Development, are satisfied;
 - ii. Building pads are sited to minimize impacts to the extent feasible; and
 - iii. Building pads are not located in steep slopes or within 10 feet from the top of a steep slope, unless such slopes, as determined by a qualified professional, consist of soil types determined not to be landslide prone.

In my opinion, the proposed development meets the requirements of MICC 19.09.090(A)(1)(b) and (c) as well as 19.09.090(A)(2)(c)

MICC 19.07.180(C)(6)(d) Piped Watercourses

- Piped watercourse setback widths shall be reduced to: (i) ten feet on lots with a lot width of 50 feet or more, and (ii) five feet on lots with a width of less than 50 feet, when daylighting is determined by qualified professional(s) to result in one or more of the following outcomes:
 - i. Increased risk of landslide or other potential hazard that cannot be mitigated;
 - ii. Increased risk of environmental damage (e.g., erosion, diminished water quality) that cannot be mitigated;
 - iii. The inability of a legally established existing lot to meet the vehicular access requirements of this title; or
 - iv. The inability of a legally established existing lot to meet the building pad standards in section 19.09.090.

Geotech Consultants, Inc., provided a letter dated August 24, 2021, discussing the geotechnical feasibility of watercourse restoration across the northwest corner of the property.

We generally agree with the conclusions provided in their letter which would, at a minimum, meet the requirement stated in MICC 19.07.180.(C)(6)(d)(ii).

Summary

The outstanding issues are associated with meeting the requirements of MICC19.07.160.

Should further information be required, feel free to contact me.

Sincerely,

City of Mercer Island – CPD



Michele Lorilla, P.E.
Geotechnical Peer Reviewer