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# memorandum

date April 3, 2017

to Lauren Anderson, Assistant Planner; City of Mercer Island  
Evan Maxim, Planning Manager; City of Mercer Island

from Aaron Booy, Natural Resources Specialist -ESA  
Christina Hersum, Wetland and Wildlife Ecologist – ESA

subject Proposed NFH Single Family Residence (CA016-002) – Environmental Review

Environmental Science Associates (ESA) has prepared this memorandum on behalf of the City of Mercer Island. The purpose of the memo is to ensure that the revised *Critical Areas Study and Mitigation Plan* (prepared by Wetland Resources, Inc. [WRI] February 13, 2017) for the NFH Single Family Residence are consistent with the requirements of the Mercer Island City Code (MICC), focused on MICC Chapter 19.07 (Environment regulations for critical areas and shorelines). The site is located at 8000 SE 20<sup>th</sup> Street along Mercer Island's northern Lake Washington shoreline (Parcel # 545230-2218).

ESA previously completed a review of the *Critical Areas Study and Mitigation Plan* (WRI, 2016) and included recommendations in a memo dated December 7, 2016. This memo provided direction regarding additional wetland investigation, potential updates to proposed mitigation plans, and revisions to the project's proposed mitigation approach. The focus of this review is on the applicant's response to recommendations from our December 2016 memo.

## Review and Conclusions

Based on our review, the CAS & Mitigation Plan has been updated to address previous recommendations. Supplemental information provided in the 2017 Critical Areas Study (CAS) & Mitigation Plan, including established sample points with data sheets, precipitation data and soil photos, provides adequate documentation to support WRI's determination that wetland conditions are absent from the NFH property. Precipitation data for the month prior to ESA's site visit on November 23, 2016 was substantially above average and likely accounted for our observations of hydrology (high water table, saturation to the surface) in lawn areas of the property at the time. While soils at all three sample points met hydric soil indicator F3-Depleted Matrix (and two of the sample points also met indicator F6-Redox Dark Surface), WRI concluded that these hydric soil indicators are present due to historic conditions along the Lake Washington shoreline (lake level previously higher before construction of the Lake Washington Ship Canal and the Chittenden Locks). WRI further assessed hydrologic conditions at and surrounding sample points on December 15, 2016, and notes that while sample points were moist in the upper 4-8 inches, soils were dryer below this level. Observations of hydrologic conditions at sample points and review of rainfall in the preceding days supports WRI's conclusion that wetland hydrology is not present on the subject property, and that hydric soils are present due to historic conditions.

The Mitigation Plan Map included as the final page of the CAS & Mitigation Plan shows all proposed enhancements, at a conceptual level, to meet City requirements (MICC Chapter 19.07). Mitigation for reduction of the piped stream buffer from 25 feet to zero feet now includes proposed bulkhead removal and beach restoration. Concrete / rockery bulkhead removal will occur on the subject property (14 linear feet) and on the adjoining property to the west (75 linear feet). In total, bulkhead removal and proposed shoreline restoration will result in 570 square feet of new sandy beach along the Lake Washington shoreline. Shoreline restoration will be provided along with a green roof on the new residence, and use of pervious pavement, as well as installation of native plants between 0 and 20 feet from OHWM of Lake Washington. Shoreline plantings in this area are required by the SMP (MICC 19.07.110) to mitigate the increase in footprint of the new home.

We generally agree that this conceptual approach will provide sufficient additional mitigation consistent with MICC 19.070.070.B.2.b. While the approach will not result in direct enhancement to the piped stream, we believe that the proposed bulkhead removal and beach restoration along the Lake Washington shoreline will provide a similar functional benefit compared to daylighting the downstream-most portion of the piped stream. In either case, the primary functional improvement would be to habitat available for juvenile salmon and other wildlife using the lake shoreline. In fact, proposed restoration of the shoreline will likely provide higher habitat functions than would be provided by daylighting of a small segment of the piped watercourse.

The proposed use of pervious pavement and a green roof will additionally provide some water quality benefit, further compensating for the lost opportunity for functional improvement that would be maintained with a 25-foot standard buffer corridor around the piped stream. As such, we believe that the current proposal is consistent with the buffer reduction mitigation options provided by MICC 19.07.070.B.2., specifically subsections vi., vii., and vi. Additionally, invasive/noxious species control along the lake shoreline that will occur for the 20-foot shoreline planting area, will meet MICC 19.07.070.B.2 subsection iii. where occurring around the outfall of the piped stream.

We do recognize that the City's intent of maintaining a buffer around piped streams is to allow for future daylighting. Given this intent, we recommend that the applicant consider opportunities to provide a 5-foot minimum buffer (free from new fill and structures) to the west of the on-site piped stream alignment. At minimum, this should include realignment of the proposed rockery and southeast corner of the proposed motor court, or consideration of an alternative structure or design approach in this area of the site.

We have the following recommendations for the final Mitigation Plan / Landscaping Plan to ensure full compliance with MICC Chapter 19.07:

- The areas established as sandy beaches should include analysis of the slope that will be created, with assurance that the slope is as close to 7:1 as possible (and not steeper than a 4:1 slope).
- Plans for bulkhead removal and shoreline restoration should include specifications on construction BMPs, materials, and placement intended to minimize any short term impact to Lake Washington and maximize the long-term success of the enhancement. The City should ensure that the applicant has received all necessary permits and approvals from the U.S. Army Corps of Engineers and the Washington Department of Fish and Wildlife, including seasonal limits for in-water work to protect fish.
- Emergent aquatic plantings intended to stabilize the shoreline from wave erosion should be included in the design for the established sandy beach areas. Appropriate native shrub and tree plantings (potentially including willow and dogwood livenstakes and/or fascines) and large wood (logs) should be considered for use in the rockery / large stone placement design.
- The final Mitigation Plan / Landscaping Plan should specify plant species, quantities, spacing, and planting details for the shoreline planting area and the bulkhead removal / shoreline restoration areas.
- The final Mitigation Plan / Landscaping Plan should include specifications for invasive species removal (English ivy currently growing along the shoreline, including over the bulkhead, and other invasive) during initial and final installation.

- The final Mitigation Plan / Landscaping Plan should include performance standards for the bulkhead removal / shoreline restoration area (as well as the shoreline planting area), including a 100% survival standard for year one, and percent cover standards for native plants (and for control of invasive species) in subsequent years. Annual assessment of the beach area extent should be included as a performance standard, with potential adaptive management strategies listed if monitoring shows that the new sand beach areas are eroding.
- The final Mitigation Plan / Landscaping Plan should include specifications for maintenance and monitoring through a five-year period, assuring that performance standards are achieved.

With modifications to the site plans that achieve a minimum 5-foot corridor to the west of the piped stream, and with implementation of recommendations for the final Mitigation Plan / Landscape Plan, we agree that the proposal is consistent with the requirements of MICC Chapter 19.07. If you have any questions, please call me at (206) 789-9658.