



memorandum

date October 17, 2018

to Evan Maxim, Interim Development Service Director

from Scott Olmsted, ESA

subject Review of 5637 Mercer Way – August 23, 2018 *Revised* Critical Areas Report

Environmental Science Associates (ESA) has prepared this memorandum on behalf of the City of Mercer Island (City). The purpose of this memo is to verify the accuracy of the findings within the revised critical areas study submitted with the application for CAO15-001 and to confirm whether the proposed project complies with Mercer Island City Code (MICC) Chapter 19.07 – *Environment*. The memo also assesses the potential effects on drainage patterns near the site and the potential for cumulative impacts resulting from insufficient mitigation for impacts to critical areas within the same drainage sub-basin or on Mercer Island. The site is located at 5637 Mercer Way (Parcel 1924050312).

ESA previously reviewed submittals of the Revised Critical Areas Report (CAR) for the property dated March 5, 2015 and December 11, 2015. These documents were prepared by Sewall Wetland Consulting, Inc. (Sewall). In addition, ESA conducted a site visit on June 8, 2015 with senior wetland ecologist, Ed Sewall. Besides the CAR, a Reasonable Use Exception application, State Environmental Policy Act (SEPA) Checklist, and geotechnical engineering study were also submitted to the City; however, ESA’s previous review focused on the CAR. In addition, Sewall submitted a March 8, 2018 revised CAR, which is the focus of this letter, as well as a brief memo and updated site plans dated August 23, 2018. This memo assesses changes made in the March 2018 Revised CAR and August 2018 memo based on ESA’s previous comments provided to Mercer Island staff.

Documents reviewed by ESA for the current submittal include the following:

- *Technical Memorandum – RUE CAO 15-001 (MI Treehouse Project) Supplemental Evaluation (Core Design, March 23, 2018);*
- *Critical Areas Report – 5637 Mercer Way—Revised Critical Areas Report (Sewall Wetland Consulting, March 8, 2018);*
- *Update Memorandum – 5637 East Mercer Way – Parcel #1924059312 City of Mercer Island, Washington and Associated Design Sheets (Sewall Wetland Consulting, August 23, 2018);*
- *Downstream Drainage Analysis – Mercer Island Treehouse – Revised Level 1 Downstream Analysis (Triad, October 5, 2015); and*

- *Site Plans – MI Treehouse, LLC, 5637 East Mercer Way, Mercer Island – 2015 and 2018 Site Plan Wetland & Buffer Disturbance* (The Healey Alliance AZ, 2015 Site Plan dated August 22 2018, 2018 Site Plan dated August 9, 2018).

A summary list of recommendations is provided at the end of the letter.

Plan Summary

Site plans prepared by Healey Alliance AZ that illustrate 2015 wetland and buffer disturbances (dated August 22, 2018) and 2018 wetland and buffer disturbances (dated August 9, 2018) accurately depict the location of the two Type II streams located onsite in addition to a Category III wetland. The project proposes to construct the single family residential building within Wetland A and south of the two streams, resulting in direct wetland impacts (i.e., fill) and impacts to both wetland and stream buffers. Buffer impacts are grouped together for accounting purposes. To minimize direct wetland impacts, the 2018 design shifted the house approximately 15 feet to the east resulting in a portion of the building footprint located outside of the wetland boundary.

Review and Recommendations

Consistency with MICC Chapter 19.07 – Environment

Impact numbers presented in the March 8, 2018 CAR were updated in the August 23, 2018 memo provided by Sewall. The August 2018 memo does not compare the updated impact numbers to those presented in the March 2018 CAR, but does compare them to impacts resulting from the original design proposal submitted in 2015. Permanent wetland impacts were reduced from 2,064 SF (proposed in 2015) to 1,484 SF (proposed in August 2018). Permanent wetland impacts are associated with proposed fill for the building footprint, a portion of the front entrance and driveway, and a landing and stairs connected to the deck located at on the north side of the building. The impact plan sheet indicates northeastern portion of the house footprint is designated as temporary wetland impact; the CAR should indicate why this area is considered temporary and not permanent wetland impact. In addition, both the entrance deck and northern deck are designated as temporary wetland impact as opposed to permanent impact or indirect impact; the applicant should provide rationale for this determination since the decks may permanently impair wetland vegetation establishment and growth. The entire square footage of the northern deck should be considered as impact, including the northern-most extent; this will require recalculation of impact numbers. The applicant should also ensure, for comparison reasons, that 2015 impact calculations were based on the entire square footage of the northern deck; if they were not, impacts should be recalculated.

The August 2018 memo indicates temporary wetland impacts were increased to 1,711 SF compared to 907 SF as proposed in 2015. The August 2018 memo states that temporary impacts are associated with house construction and site grading. Based on the 2018 Site Plan, it appears that excavation/grading will occur along the 186-foot, 188-foot, and 190-foot elevation contours, in the vicinity of the southwest portion of the proposed building. It is unclear if this area will only be excavated or if grading will also occur. In addition, it is unclear if the wetland will be graded adjacent to the building footprint to facilitate construction. The applicant should provide detailed discussion and associated impact calculations, if applicable, of the proposed excavation and grading activities. It is ESA understanding that Corps of Engineers considers grading within wetland boundaries as regulated fill, which results in a permanent wetland impact. ESA recommends that Mercer Island consider following the same interpretation to be consistent with the federal regulatory agency and have the applicant determine the area of grading and designate it as permanent wetland impact. Temporary impacts typically entail vegetation clearing and activities of that nature, which do not significantly affect grade contours. On the design plan sheet, temporary wetland impacts are bounded by a fence or wall that is not discussed in the March 8, 2018 CAR, August 2018 memo, or called out on the design sheets; information should be added about this feature. If the area encompassed

by this feature will be permanently disturbed (e.g., landscaped or modified from natural conditions) then appropriate mitigation should be implemented based on the impact area. If this area is to remain unaltered, the applicant should consider the maintenance area and additional offset or paper buffer discussion below.

The house is proposed to be built within a wetland, resulting in no functional buffer or protection of the wetland in proximity of the building. In addition, the future home-owner will need access around the structure to perform maintenance and other activities (likely 5-foot offset from the building footprint). This house maintenance area should be calculated and mitigated because native wetland vegetation will likely be disturbed with some frequency. The applicant should also apply an offset or paper buffer from the maintenance area footprint and partially mitigate for this area since wetland functions will be partially impacted by the adjacent house and associated maintenance area. An additional offset or paper buffer of 5 feet from the maintenance area is appropriate; however, the applicant may apply a shorter distance with supporting rationale. Mitigation for paper buffer area is typically conducted at a less than 1:1 ratio, with rationale supporting the proposed ratio.

According to Sewall reports, both the permanent and temporary buffer impacts have been reduced based on comparison of the 2015 project design to August 2018 design; however, the wetland buffer has not been applied in the 2018 submittal. The applicant should recalculate buffer impacts applying the 50-foot wetland buffer.

Wetland and buffer impacts do not include what appears to be a retaining wall located on the north side of the driveway; this area should be included in the impact calculations.

Project Effect on Drainage Patterns

In 2015, Triad conducted a Level 1 downstream analysis of the site and proposed development based on design at that time, which included more impervious surfaces than the current proposal.

According to the report, “The [hydrologic] model showed that a flow control facility could be implement into the project design and could reduce flow rates and durations to pre-development/forested levels.” Flow control for the project would occur via a stormwater detention facility located under the proposed driveway that would eventually discharge to the same catchment located where the two onsite streams and wetland discharge.

The Level 1 report determined that downstream (i.e., offsite) flow rates and duration could be mitigated by installing a detention facility; however, the report does not assess the potential impact of grading and building construction on wetland and stream located in the immediate vicinity, down-gradient from the house. The applicant should investigate the feasibility of installing a surface/groundwater collection system in the vicinity of the proposed grading area located at the southwestern portion of the development and route water around the house, discharging and spreading flow north and northwest of the house to provide hydrology to the down-gradient wetland and stream. Should groundwater flow be interrupted to the down-gradient wetland and stream, the proposed stormwater facility could cause additional permanent impacts that would need to be addressed in the mitigation plan.

In addition, Core Design determined in their March 23, 2018 memo that additional best management practices (BMPs) should be employed to minimize temporary construction impacts (i.e., primarily siltation) to the onsite streams.

Ability to Fully Mitigate Impacts

The “Reasonable Use Exception” portion of the March 8, 2018 CAR indicates that only temporary wetland and buffer impacts will be mitigated onsite by planting native vegetation, and that it is not possible to mitigate for

permanent impacts onsite. The “US Army Corps permit” section of the CAR indicates both onsite mitigation and purchase of King County ILF credits will be used to offset project impacts. The type of onsite mitigation should be clarified in this section of text (e.g., only temporary wetland impacts).

ESA recommends that in addition to purchasing credits from the King County ILF program, that the applicant mitigate onsite to compensate for permanent buffer impacts. In the March 5, 2015 CAR submittal, Sewall proposed coniferous underplantings; however, it is unclear if this mitigation is still proposed because no mitigation plan was included with the March 8, 2018 CAR and the mitigation discussion in the March CAR is inconsistent.

Summary of Recommendations

In summary from our findings above, we have the following recommendations (in addition to those provide in previous reviews, as applicable) to ensure project consistency with the requirements of MIMC 19.07, provide continued hydrology to an onsite stream and wetland, and implement sufficient mitigation to functionally compensate for project impacts:

1. The March 8th CAR should indicate why the northeast corner of the building footprint is considered temporary and not permanent wetland impact.
2. Provide rationale to support the determination that decks will result in temporary, rather than permanent, wetland impacts.
3. The entire square footage of the northern deck should be considered as impact.
4. For comparison reasons, the applicant should ensure that 2015 impact calculations were based on the entire square footage of the northern deck.
5. The applicant should provide detailed discussion and associated impact calculations, if applicable, of the proposed excavation and grading activities. Grading should be designated as permanent wetland impact and mitigated appropriately.
6. Provide detailed information about the fence or wall that surrounds the development.
7. If the area encompassed by the perimeter fence or wall will be permanently disturbed, then appropriate mitigation should be implemented based on the impact area.
8. A house maintenance area should be calculated and mitigated.
9. An additional offset or paper buffer of 5 feet from the maintenance area is appropriate; impacts should be calculated and mitigation implemented.
10. Recalculate buffer impacts applying the 50-foot wetland buffer.
11. Include the northern retaining wall in the impact area calculation.
12. Consider installing conveyance from the proposed grading area located at the southwestern portion of the development to route water around the house and discharge and spread flow north and northwest of the



house to provide continued hydrology to the down-gradient wetland and stream. Provide discussion as to how the proposed stormwater facility affects the delivery of groundwater and surface waters to the down-gradient wetland and stream.

13. Apply Core Design BMPs to the proposed project.
14. Mitigation discussion within the CAR should clarify the type of onsite mitigation.
15. Mitigate onsite to compensate for permanent buffer impacts.

If you have any questions, please call me at (206) 789-9658 or via email at solmsted@esassoc.com.