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October 5, 2022

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RE: 5637 Mercer Way – *Revised* Critical Areas Report  
SWC Job#14-206

## **1.0 INTRODUCTION**

This report describes our observations of any jurisdictional wetlands, streams and buffers on or within 200' of the proposed single family home located at 5637 East Mercer Way in the City of Mercer Island, Washington (the "site").

The site is an irregular shaped 0.88 acre parcel (Parcel #192405-9312) consisting of an east sloping site located within the SE  $\frac{1}{4}$  of Section 19 Township 24 North, Range 5 East of the W.M.

## **METHODOLOGY**

Ed Sewall of Sewall Wetland Consulting, Inc. inspected the site November 6, 2014 as well as in August of 2020. The site was reviewed using delineation methodology described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), and the *Western Mountains, Valleys and Coast region Supplement* (Version 2.0) dated June 24, 2010, as required by the US Army Corps of Engineers.

Wetland Ratings were determined using the *Washington State Wetlands Rating System for Western Washington* Publication #04-06-025 dated August 2004 as well as the associated rating forms revised in 2006 & 2008.



*Above and below: Vicinity map of the site.*



Soil colors were identified using the 1990 Edited and Revised Edition of the ***Munsell Soil Color Charts*** (Kollmorgen Instruments Corp. 1990).

The *Washington State Wetlands Identification and Delineation Manual* and the *Corps of Engineers Wetlands Delineation Manual/Regional Supplement* all require the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas.

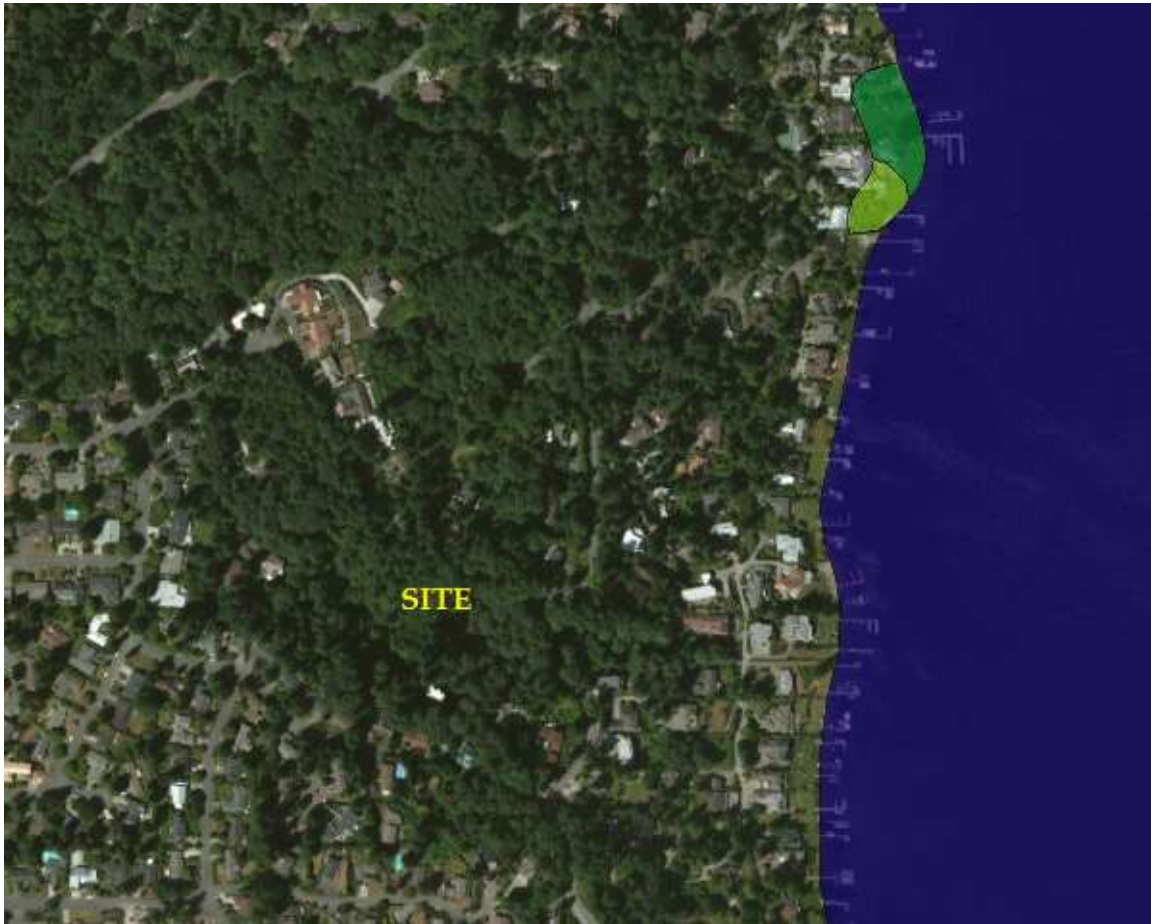
## **OBSERVATIONS**

### *Existing Site Documentation.*

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included the National Wetland Inventory Map and the NRCS Soil Survey online mapping and Data and the King County iMap website with wetland and stream layers activated.

## **National Wetlands Inventory (NWI)**

There are no wetlands mapped on or near the site on the NWI mapping for area of the site.



*Above: NWI Map of the study area*

## **Soil Survey**

According to data on file with the NRCS Soil Survey, the site as mapped as Kitsap silt loam 15%-30% slopes. Kitsap soils are a moderately well-drained soils formed in lacustrine deposits. Kitsap soils are not considered "hydric" soils according to the publication Hydric Soils of the United States (USDA NTCHS Pub No.1491, 1991).



*Above: NRCS Soil map of the study area.*

### **City of Mercer Island Water Inventoried Watercourses**

The City of Mercer Island stream inventory shows a perennial flowing non-fish bearing stream also known as a Type 2 watercourse with a 50' buffer.



*Above: Mercer Island Stream Inventory of the site*

## **Field observations**

The site consists of a bowl shaped parcel sloping to the east with a stream and associated slope type wetlands associated with the stream. The site is generally forested, although a quarry spill driveway accesses the site off an existing paved driveway which passes through the site.

The site has steep slopes to the south as well as an undulating topography in the vicinity of the stream. The site is covered by a mix of red alder, western hemlock and some big leaf maple. Understory species include sword fern, red huckleberry, salmonberry and some stinging nettle.

Soil pits excavated in the upland portion of the site were found to have dry, gravelly loam soils with soil colors of 10YR 3/3-3/4. Soils were found to be dry within the upper 16" during our wet season observations.

### *Wetlands*

As previously mentioned, a slope type wetland covers most of the site outside the steep slopes. Below is a description of these wetlands;

### **Wetland A**

Wetland A consists of a forested slope type wetland that covers most of the site. This wetland was previously flagged by Wetland resources in 2004 and the delineation was found to still be accurate in 2014 and in August of 2020.

This slope-type wetland is vegetated with a mix of red alder, salmonberry, lady fern, skunk cabbage and some creeping buttercup. red-osier dogwood and lady fern.

Soil pits excavated within the wetland revealed a silt loam with a soil color of 2.5Y 2.5/1 with few, fine faint redoximorphic concentrations. Soils within the wetland were saturated at the surface during our wet season observation period.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), this wetland contains areas that would be classified as PFO1C.

Using the 2014 WADOE Wetland Rating system and rating the wetland as a slope wetland, this wetland scored a total of 16 points with 5 for habitat. This indicates a Category III wetland. According to City of Mercer Island Municipal Code (MIMC) Chapter 19.07.080.C.1, Category III wetlands have a 60' standard buffer.

Wetland Category	Standard Buffer	
	With 3 – 5 habitat points	With 6 – 7 habitat points
<a href="#">Category I</a>	75 ft	110 ft
<a href="#">Category II</a>	75 ft	110 ft
<a href="#">Category III</a>	60 ft	110 ft
<a href="#">Category IV</a>	40 ft	

**Stream A**

As previously mentioned, a small perennial stream flows easterly along the north side of the site. This stream originates in seeps from the bordering slope wetlands and flows somewhat steeply to the east where it cascades over a bank into a catch basin and then a culvert under Mercer Way. The stream flows in a 100' long culvert which is a barrier to any fish migration up through the culvert. As a result, this small channel has been mapped as the City as a Type 2 watercourse. Based upon MIMC Chapter 19.07.070.B.1, Type 2 watercourses have a 50' standard buffer.

**Stream B**

Stream B is a small perennial stream flows easterly along the south side of the site just north of the existing as well as proposed driveway. This stream originates in seeps from the bordering slope wetlands and flows in a small defined swale. An old pipe lays in the bed of the stream and may have been a drain or waterline, it is of unknown origin. This stream flows to the east where it cascades over a bank into a catch basin and

then a culvert under Mercer Way. The stream flows in a 100' long culvert which is a barrier to any fish migration up through the culvert. As a result, this small channel has been mapped as the City as a Type 2 watercourse. Based upon MIMC Chapter 19.07.070.B.1, Type 2 watercourses have a 50' standard buffer. This buffer is located entirely within other critical areas and buffers.

### ***Wildlife Habitat Conservation Areas***

A review of the site revealed no state or federally listed species on or near the site. A review of the Washington State Department of Fish and Wildlife Priority Mapping system was conducted for the site. This mapping identifies state listed species as well as areas considered by WDFW to be "priority habitats". The mapping of the area of the site revealed no listed state or federal species utilizing the site. It does show an area to the north of the site as part of a "biodiversity corridor" (*purple shading*), which is a densely forested area with some steep slopes.

### **Functions and Values**

Wetland A is a forested wetland and as such provides habitat to numerous species that tolerate being within close proximity to humans. The wetland main function is as a groundwater discharge point, which allows groundwater to reach the surface and provide hydrological support to the Type 2 watercourse passing through the site.





*Above: WDFW Priority Habitat mapping of the area of the site.*

## **PROPOSED PROJECT**

The proposed project is the construction of a single family residence as current zoning allows. As previously described, the site is highly encumbered by critical areas including a stream, associated wetland, buffers and steep slopes. There is no part of the site located outside of these critical areas. As a result, in order to build a home on this site the application of MIMC Chapter 19.07.040. “*Allowed alterations and reasonable use exception*” must be utilized. As described in this section of Code;

*A. If the application of this chapter will deny all reasonable use of the owner’s property, then the applicant may apply to the community planning and development department for an exception from the requirements of this chapter in accordance with the provisions for Type IV reviews in Chapter 19.15 MIMC. The hearing examiner may approve the application for a reasonable use exception only if the development proposal meets all of the following criteria:*

*1. The application of this chapter would deny all reasonable use of the property;*

Response: The application of the standard regulations regarding wetlands, streams, steep slopes and buffers would not allow construction of a home on the site. The only feasible location to build a home will impact some wetland and buffer.

*2. There is no other reasonable use with less impact on the critical area;*

Response: The site is zoned for a single family home use and there is no other alternative reasonable use of the site.

*3. Any alteration to critical areas and associated buffers is the minimum necessary to allow for reasonable use of the property;*

Response: The proposed impacts to wetlands and buffers are the minimum that can be accomplished and still get a single family home on the site.

*4. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;*

Response: The proposed use does not propose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site.

*5. The proposal is consistent with the purpose of this chapter and the public interest; and*

Response: The proposal is consistent with all applicable portions of this chapter for development of a single family home.

*6. The inability of the applicant to derive reasonable use of the property is not the result of actions by the current or prior property owner.*

Response: The inability of the applicant to derive reasonable use of the property is not the result of current or prior owners, but that of the presence of critical areas.

The following mitigation sequencing was conducted to determine the most appropriate impacts and mitigation;

This sequencing requires addressing the following criteria;

*a. Avoid any disturbances to the wetland or buffer;*

The entire site is wetland and buffer. There is no way to develop the site under any reasonable scenario without impacting both wetlands and buffers.

*b. Minimize any wetland or buffer impacts;*

In order to minimize impacts, the site plan has been designed to utilize the existing driveway access point/driveway and has pushed the reasonable size home foot print as far away from the stream as is possible. Buffer impacts have been minimized by having no lawn or landscaped areas, and having just the bare essentials, being the driveway and the home structure itself. The new site plan has moved the home location east and south to reduce the amount of wetland impact to 3,075 sf and buffer impact to 3,078sf.

*c. Restore any wetlands or buffer impacted or lost temporarily; and*

Temporarily impacted wetland from grading around the structure will be replanted with native vegetation. This area amounts to 578sf and in addition to being restored, is part of the calculation for mitigation credits.

*d. Compensate for any permanent wetland or buffer impacts by one of the following methods:*

*i. Restoring a former wetland and provide buffers at a site once exhibiting wetland characteristics to compensate for wetlands lost;*

This is not possible as there are no “former” wetlands on the site.

*ii. Creating new wetlands and buffers for those lost; and*

This is not possible as there is no room to create new wetlands, or buffers on the site.

*iii. Enhancing wetlands that have reduced function;*

The wetlands on-site are generally in good shape and cannot be functionally improved with any enhancements.

Other factors to consider in this Reasonable Use review are;

1. Although zoned to permit two single family residences, only one is proposed.
2. The square footage of the proposed residence is only 2,117 square feet (approx.), which is 49% of the 4,300 square foot average size of a new single family residence built on Mercer Island in 2020.
3. The house is sited on the most level portion of the property, This is within the applicable 50 foot watercourse buffer of Stream B.
4. Excavation will be limited to the extent necessary to build the house and related driveway.
5. The property's impervious surfaces have been restricted to a total of Approximately 3,812 square feet, 10% of which are existing.
6. Only 10% of the lot will be covered, which represents less than 42% permitted by code.

In addition to the fill of wetland for the foundation, a minor amount of fill will occur from the proposed driveway. The driveway will be located over the current location of the quarry spall driveway that exists on the site, further reducing impacts.

*d. Impacts to critical areas are mitigated to the greatest extent reasonably feasible consistent with best available science;*

In order to mitigate for the minimal impacts to the sites wetlands from the project, we are proposing using credits from the King County Mitigation Reserves program.

*e. The proposal does not pose an unreasonable threat to the public health, safety, or welfare; and*

The proposed construction of a home on the site will not impact public health or safety and will utilize the latest construction techniques to minimize impacts to critical areas.

*f. The inability of the applicant to derive reasonable use of the property is not the result of actions by the applicant after the effective date of this chapter.*

The ability of the owner to derive reasonable use of the property is not the result of any action at any time by the owner, and solely the fact that the site is covered by critical areas.

### **Stormwater**

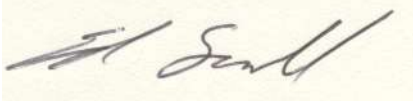
Stormwater from the new impervious surfaces on-site will be collected in a stormwater vault under the driveway and discharged to an existing culvert along the east end of the driveway. This water will then drain through the existing roadside ditch to the stream. This should mimic existing drainage patterns on the site.

### **US Army Corps permit**

A revised application for fill of .070 acres of wetlands is being submitted to the US Army Corps of Engineers to update the current application. The Corps requires the use of a bank like this if it is available. As a result we will be purchasing credits from the bank to satisfy the Corps request. As a result the combination of the proposed on-site mitigation as well as purchase of credits from the King County Mitigation reserves program will fully mitigate the proposed impacts on the site.

If you have any questions in regards to this report or need additional information, please feel free to contact me at (253) 859-0515 or at [esewall@sewallwc.com](mailto:esewall@sewallwc.com) .

Sincerely,  
Sewall Wetland Consulting, Inc.



Ed Sewall  
Senior Wetlands Ecologist PWS #212

## **REFERENCES**

City of Mercer Island Municipal Code

Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79-31, Washington, D. C.

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USDA NRCS & National Technical Committee for Hydric Soils, September 1995. Field Indicators of Hydric Soils in the United States - Version 2.1

Western Mountains, Valleys and Coast Regional Supplement (Version 2.0) dated June 24, 2010. USACOE

Washington State Wetlands Rating System for Western Washington Publication #04-06-025 dated August 2004, Revised 2008.



**Above: Site as viewed from Mercer Way**

**Below: looking north across site near existing driveway entrance**





**Above: Existing quarry spill access driveway which leads to proposed building site**