CRITICAL AREA STUDY

FOR

Laban Remodel – 10 Brook Bay Road
City of Mercer Island, WA

Wetland Resources, Inc. Project #21151

Prepared By
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Prepared For
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First Submittal: May 2, 2023

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Executive Summary

Project Name: Laban Remodel – 10 Brook Bay Road

Location: 10 Brook Bay Road. Brook Bay Road is accessed from West Mercer Way.

Client:
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10 Brook Bay Road
Mercer Island, WA 98040

Wetland Resources Staff: Niels Pedersen, PWS (Senior Ecologist)

Critical Areas Determination: Observed critical areas within the subject property include one watercourse (Stream A). Stream A is either Type F or piped within the subject property. Open channel segments require a 120-foot standard buffer. Piped segments require a standard 45-foot setback from the centerline of the pipe. The existing culvert beneath the driveway qualifies for a 10-foot piped watercourse setback due to site conditions that prevent daylighting; inability to meet vehicular access requirements, specifically Mercer Island City Code (MICC) section 19.02.020.G.2.a.

Critical areas in nearby off-site areas include Lake Washington. Lake Washington is at no point closer than 160 feet from the subject property. A portion of the site (within 200 feet of Lake Washington) is within the Shoreline Residential environment designation.

Proposed Project: The applicant proposes to remodel an existing single-family residence within the property. The project will reduce hardscape and lot coverage relative to the existing condition. No work is proposed in the regulatory floodplain. Development in the shoreline includes removal of ~150 square feet of existing hardscape. All redevelopment occurs within the standard 120-foot buffer associated with Stream A and a portion of the work (removal of existing eaves) occurs within the 10-foot pipe setback associated with Stream A.

The proposed reduction in lot coverage and hardscape represents a modest net benefit to ecological functions relative to the existing condition and is therefore considered to be self-mitigating. Best management practices implemented during construction will ensure that temporary impacts do not negatively impact stream functions. No additional mitigation is proposed.

1.0 INTRODUCTION

1.1 PROJECT LOCATION

Basin: Puget Sound
Sub-Basin: Water Resource Inventory Area (WRIA) 8 – Cedar/Sammamish River
Watershed: Lake Washington
Sub-Watershed: Mercer Island

The proposed project occurs within a 0.41-acre parcel at 10 Brook Bay Road. *Wetland Resources, Inc*. (WRI) performed a site investigation on May 26, 2021. The purpose of the site visit was to identify critical areas on and near the property.

Access to the site is from the north via Brook Bay Road. Vegetation within the subject property consists of ornamental landscaping, maintained lawngrass, or native species. The site slopes gently to the northwest. An open channel watercourse (Stream A) flows through the northern portion of the property from east to west, passing through two culverts before draining off-site to the northwest. No wetlands were observed on or near the property. The ordinary high water mark (OHWM) of Lake Washington is approximately 160 feet west of the subject property.

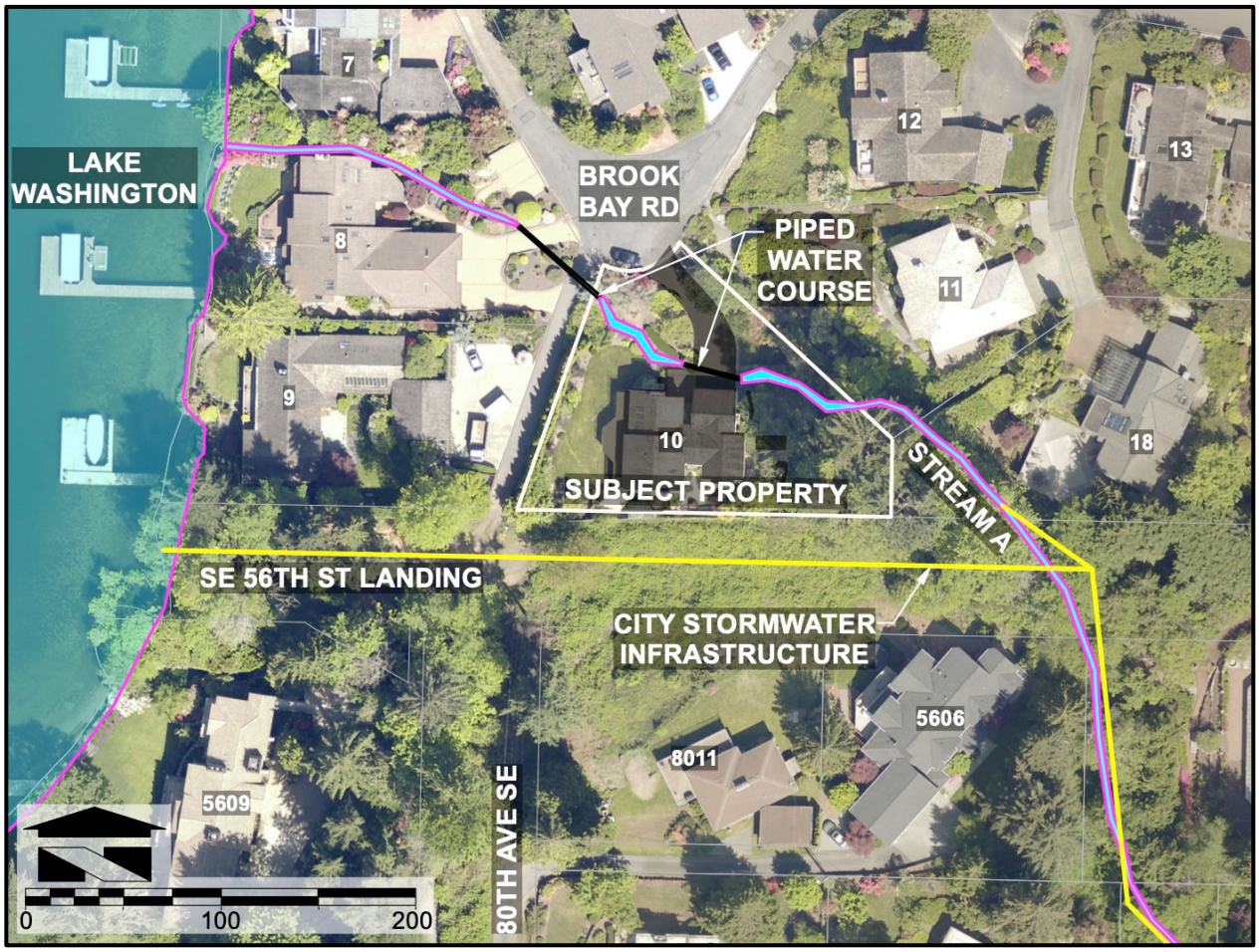

Figure 1: Aerial Overview Map (Image Source: King County)

1.2 PROJECT DESCRIPTION

The applicant proposes to remodel the existing single-family residence at 10 Brook Bay Road. The project includes remodeling the existing lower level, exterior alterations, raising and rebuilding the main level and roof, converting existing covered entry into interior space, and rebuilding existing patios and uncovered decks. Some existing hardscape will be eliminated and replaced with mulch.

No work is proposed in the regulatory floodplain. Removal of existing hardscape totaling ~150 square feet is proposed in shoreline jurisdiction. All redevelopment occurs within the standard 120-foot buffer associated with Stream A and a portion of the work occurs within the 10-foot piped watercourse setback associated with Stream A. Some of the work occurs in the inner 75 percent of the standard buffer.

The project is an allowed activity in the stream buffer because the modification is not considered an "addition" pursuant to Development Code Interpretation (DCI) #22-003. See Section 2.1 below. The project is an allowed activity in the 10-foot piped watercourse because proposed development will either reduce non-conformity (by removing roof eaves in the setback) or maintain legal non-conformity (existing structure area in the setback). The development does not require a shoreline substantial development permit because it meets Washington Administrative Code (WAC) exemption criteria. See Section 2.3 below.

Project construction will not temporarily impact critical areas or buffers due to the absence of vegetation impacts and through implementation of appropriate erosion control best management practices. The project does not require mitigation because it will not result in temporary impacts, and because the proposed reduction in lot coverage and hardscape represents a modest benefit to critical area function relative to the existing condition.

2.0 REGULATORY SETTING

2.1 ALLOWED ACTIVITIES – WATERCOURSE BUFFER

The project is an allowed activity in the buffer associated with Stream A because the modification is not considered an "addition" pursuant to Development Code Interpretation (DCI) #22-003. The DCI (*E. Findings* - page 4/7) states that "addition" means enlargement of a building footprint, other structures, or site improvements. Proposed development in the inner 75% of the buffer is allowed because the project will not expand the footprint of the existing building, and because it will reduce total hardscape and lot coverage relative to the existing condition despite the increase in gross floor area. See *Code Diagrams* prepared by Floisand Studio for a detailed analysis of existing and proposed lot coverage and hardscape.

2.2 MITIGATION SEQUENCING

MICC 19.07.100 requires applicants to consider how sequencing measures have been considered through project design. Redevelopment within the existing footprint and the proposed reduction in hardscape/lot coverage inherently meets mitigation sequencing criteria because it avoids impacts to critical areas and buffers.

2.3 SHORELINE SUBSTANTIAL DEVELOPMENT PERMIT DISCUSSION

Proposed development in shoreline jurisdiction is limited to removal of ~150 square feet of existing hardscape and replacement with mulch. The shoreline environment designation is Shoreline Residential. All elements of the project are correctly classified as "normal appurtenances" to the development of a single-family residence, as defined by WAC. Based on the WAC classification, the proposed development is exempt from shoreline substantial development permit requirements. More detailed discussion is provided below.

WAC Shoreline Exemption Discussion

WAC 173-27-040 provides narrowly construed exemption criteria for shoreline substantial development permits. WAC 173-27-040(2)(g) specifically relates to this project, and reads as follows:

> *Construction on shorelands by an owner, lessee or contract purchaser of a single-family residence for their own use or for the use of their family, which residence does not exceed a height of thirty-five feet above average grade level and which meets all the requirements of the state agency or local government having jurisdiction thereof, other than requirements imposed pursuant to chapter 90.58 RCW. "Single-family residence" means a detached dwelling designed for and occupied by one family including those structures and developments within a contiguous ownership which are a normal appurtenance. An "appurtenance" is necessarily connected to the use and enjoyment of a single-family residence and is located landward of the ordinary high water mark and the perimeter of a wetland. On a statewide basis, normal appurtenances include a garage; deck; driveway; utilities; fences; installation of a septic tank and drainfield and grading which does not exceed two hundred fifty cubic yards and which does not involve placement or fill in any wetland or waterward of the ordinary high water mark. Local circumstances may dictate additional interpretations of normal appurtenances which shall be set forth and regulated within the applicable master program. Construction authorized under this exemption shall be located landward of the ordinary high water mark;*

The applicant asserts that the project meets all exemption criteria provided in WAC 173-27-040(2)(g), specifically:

- height above grade (less than thirty-five feet),
- local jurisdiction requirements (MICC exemption criteria),
- the definition of single-family residence (detached dwelling for use by one family),
- location relative to the OHWM (landward) and wetlands (outside the perimeter),
- the definition of normal appurtenance (including utilities), and
- the absence of fill placement in wetlands or waterward of the OHWM.

3.0 CRITICAL AREAS DELINEATION METHODOLOGY

3.1 LIMIT OF STUDY

The proposed project occurs within one tax parcel. Lack of legal access to nearby parcels prevents Wetland Resources, Inc. (WRI) staff from performing routine wetland and ordinary high water mark (OHWM) determinations in off-site areas. Critical area boundaries depicted outside of the subject property/right-of-way are estimated using best professional judgment, visual observation from the edge of legal access, and review of aerial photographs overlaid with fine-scale elevation contours.

3.2 General Critical Areas Classification

Critical areas were classified in accordance with the standards set forth in MICC 19.07.180 for watercourses, section 19.07.190 for wetlands, 19.07.170 for fish and wildlife habitat conservation areas, and 19.13 for shoreline areas. Identification of geologic hazard areas is beyond the scope of this report. Buffers are measured horizontally in a landward direction from the critical area boundary.

3.3 Wetland Delineation Methodology

Wetland boundaries were determined using the routine determination approach described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (U.S. Army Corps of Engineers 2010), as required by MICC 19.07.080(A). Under the routine methodology, the process for making a wetland determination is based on three steps:

1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
2.) Examination of the site for hydric soils;
3.) Determining the presence of wetland hydrology

The following criteria must be met to make a positive wetland determination.

Vegetation Criteria

The Corps Manual and 2010 Regional Supplement define hydrophytic vegetation as "*the assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.*" Field indicators are used to determine whether the hydrophytic vegetation criteria have been met. Examples of these indicators include, but are not limited to, the rapid test for hydrophytic vegetation, a dominance test result of greater than 50%, and/or a prevalence index score less than or equal to 3.0.

Soils Criteria

The 2010 Regional Supplement (per the National Technical Committee for Hydric Soils) defines hydric soils as soils *"that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part."* Field indicators are used to determine whether a given soil meets the definition for hydric soils. Indicators are numerous and include, but are not limited to, presence of a histosol or histic epipedon, a sandy gleyed matrix, depleted matrix, and redoximorphic depressions.

Hydrology Criteria

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively. The strongest indicators include the presence of surface water, a high water table, and/or soil saturation within at least 12 inches of the soil surface.

3.4 Wetland Determination Discussion

No wetlands were observed on or near the subject property during the May site visit.

3.5 OHWM Delineation Methodology

The OHWM of Stream A was determined based on the Ecology guidance document titled *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State*. Stream boundaries in off-site areas are based on mapping provided in the City of Mercer Island GIS Portal and refined using geo-referenced aerials and elevation contours made using the Digital Elevation Model (DEM).

3.6 Wildlife Habitat Conservation Area Discussion

Areas used by bald eagles for nesting, breeding, feeding and survival are designated by the City of Mercer Island as wildlife habitat conservation areas. No known bald eagle nests are located on or near the subject property based on visual inspection during the May site visit.

4.0 Wetland and Stream Delineation Report

WRI was contracted to delineate and catalogue regulated features on and near the subject property. No wetlands were observed in the study area. Two regulated features were observed. One Type F watercourse (Stream A) was identified on the subject property, and Lake Washington was observed approximately 160 feet west of the parcel. These features are depicted in the attached critical area study map (See Appendix A). Lake Washington is a shoreline of statewide significance that requires a 25-foot structure setback from the OHWM. Stream A is a Type F stream. Open channel sections require 120-foot protective buffers and piped sections require a 45-foot setback.

4.1 Review of Existing Information

Prior to conducting the on-site investigations, public resources information was reviewed to gather background information on the project study area and surrounding areas regarding wetlands, streams, and other critical areas.

USFWS National Wetlands Inventory

The National Wetlands Inventory (NWI) identifies a riverine wetland in the location where Stream A was observed on the site. An additional off-site stream is mapped approximately 350 feet north of the site.

King County Soils

The Natural Resources Conservation Service (NRCS) web soil survey and the national hydric soil list were used to identify soil types in the project area. Kitsap silt loam is the only mapped soil type in the project area. The following table describes the hydric component percentage found in the mapped soil type. The likelihood of wetland occurrence is correlated with the percentage of hydric components found in a soil type.

Map Unit Name	Hydric Component	Component Percentage
Kitsap silt loam	Bellingham	3
	Tukwila	1
	Seattle	1

Table 1: Mapped Soils in the Project Area

Fish Presence

The Washington Department of Fish and Wildlife (WDFW), Pacific States Marine Fisheries Commission (PSMFC), and the Washington Dept. of Natural Resources (WADNR) are the primary agencies that provide publicly available information used for making fish presence determinations consistent with the water typing rules set forth in WAC 222-16-030. The following information represents the findings from each source.

WDFW SalmonScape Map Tool

SalmonScape is an online GIS database that contains publicly available resource information for fish population studies and general species distribution (both documented and modeled presence). SalmonScape identifies Stream A as a seasonal non-fish bearing stream that outlets to Lake Washington. Within Lake Washington, the following species are depicted:

- fall chinook (documented presence),
- coho salmon (documented presence),
- winter steelhead trout (documented presence),
- sockeye salmon (documented presence),
- bull trout (documented rearing),
- kokanee salmon (documented presence),

PSMFC StreamNet Map Tool

StreamNet is a fish distribution database maintained by the PSMFC as a regional clearinghouse for fish data. In the vicinity of the project area, fish presence is only depicted within Lake Washington. StreamNet states the presence of the following species:

- fall chinook (migration only)
- summer chinook (spawning and rearing)
- coho salmon (migration only)
- chum salmon (migration only)
- pink salmon (migration only)
- sockeye salmon (migration only)
- summer steelhead trout (migration only)
- winter steelhead trout (migration only)
- bull trout (migration only)

WDNR Forest Practices Activity Mapping Tool (FPAMT)

FPAMT is an online GIS database that aids the process of submitting a Forest Practices Permit application. The tool is useful for the purposes of this study because WADNR models fish presence. Stream A is depicted by FPAMT as an untyped watercourse.

City of Mercer Island Critical Areas

The City of Mercer Island depicts the on-site stream as a Type Np watercourse. Lake Washington is mapped approximately 160 feet west of the site.

WDFW Priority Habitat and Species (PHS) Maps

WDFW PHS does not identify Stream A. No other priority habitats or species are shown in the vicinity of the subject property.

4.2 WATERCOURSE DETERMINATION FINDINGS

Stream A
Jurisdiction: City of Mercer Island
Cowardin Class: Riverine, Intermittent, Streambed
Watercourse Type (MICC): F
City of Mercer Island Standard Buffer Requirement: 120 feet

Stream A originates at approximately the 5800 block of 84th Ave SE. An open channel meanders northwest to a crossing beneath West Mercer Way at approximately the 5700 block. City mapping indicates the presence of both a piped watercourse and an open watercourse flowing along the bottom of a ravine to the common boundary between 18 Brook Bay Road and SE 56th Street (unopened right-of-way). Stormwater collected by municipal infrastructure reaches a diverter valve in the unopened right-of-way. The valve either directs stormwater west to Lake Washington within SE 56th Street Landing or allows stormwater flows to pass through the Brook Bay neighborhood before reaching Lake Washington in the northwest corner of 8 Brook Bay Road.

City of Mercer Island Public Works controls the diverter valve with input from the Brook Bay community. Typically, the valve diverts winter flows through SE 56th Street Landing and is opened to allow summer flows through 8, 10, 11, and 18 Brook Bay Road before draining to Lake Washington.

Stream A enters the subject property from 11 Brook Bay Road in as an open channel flowing through a moderately steep and narrow ravine. The channel enters a pipe beneath the access driveway to 10 Brook Bay Road, then continues to flow as an open channel through the subject property. Stream A enters a culvert inlet in the northwest corner of 10 Brook Bay Road that discharges in the northeast portion of 8 Brook Bay Road and flows directly to Lake Washington.

Stream classification is described in MICC 19.07.180 as either: Type S, F, Np, Ns, or piped. MICC 19.16.010 provides a specific definition for each of the aforementioned types. To meet criteria for designation as a Type F watercourse, a "natural channel" must "contain fish habitat." Fish habitat is defined in MICC 19.16.010 as follows:

> *Habitat which is used by any fish at any life stage at any time of the year, including potential habitat likely to be used by fish which could be recovered by restoration or management and includes off-channel habitat.*

Due to proximity to Lake Washington and channel width/gradient, Stream A meets criteria for designation as a Type F watercourse because it could be used by fish. It is not known whether the culvert between 8 and 10 Brook Bay Road represents an impassable barrier, but in any case it is presumed that it could be recovered by restoration or management.

Lake Washington
Jurisdiction: USACE, City of Mercer Island, WDFW, Ecology, DNR
Cowardin Class: Lacustrine, Limnetic, Unconsolidated Bottom
Classification: Shoreline of Statewide Significance
City of Mercer Island Setback Requirement: 25 feet

The shore of Lake Washington is located approximately 160 feet west of the site. Lake Washington is a 21,600-acre waterbody that drains much of WRIA 8. Waterbodies that exceed 1,000 acres in total size are recognized as shorelines of statewide significance (WAC 173-20). The area extending 200 feet from the ordinary high water mark of Lake Washington is considered the shoreland area, and development within this zone is subject to the provisions of the Mercer Island Shoreline Master Program (MICC 17.09.110). In Mercer Island, Lake Washington requires a 25-foot structure setback. A portion of the subject property is located within shoreline jurisdiction. See Appendix A.

Lake Washington provides habitat for many aquatic species, including bull trout, pink salmon, sockeye salmon, summer steelhead, winter steelhead, chum salmon, coho salmon, fall Chinook, and summer Chinook. Lake Washington is a primary association area for federally listed threatened and endangered species (chinook, steelhead, and bull trout).

5.0 USE OF THIS REPORT

This Critical Area Study is supplied to Mina and Balsa Laban as a means of determining critical area conditions, as required by the City of Mercer Island during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.

Niels Pedersen
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6.0 REFERENCES

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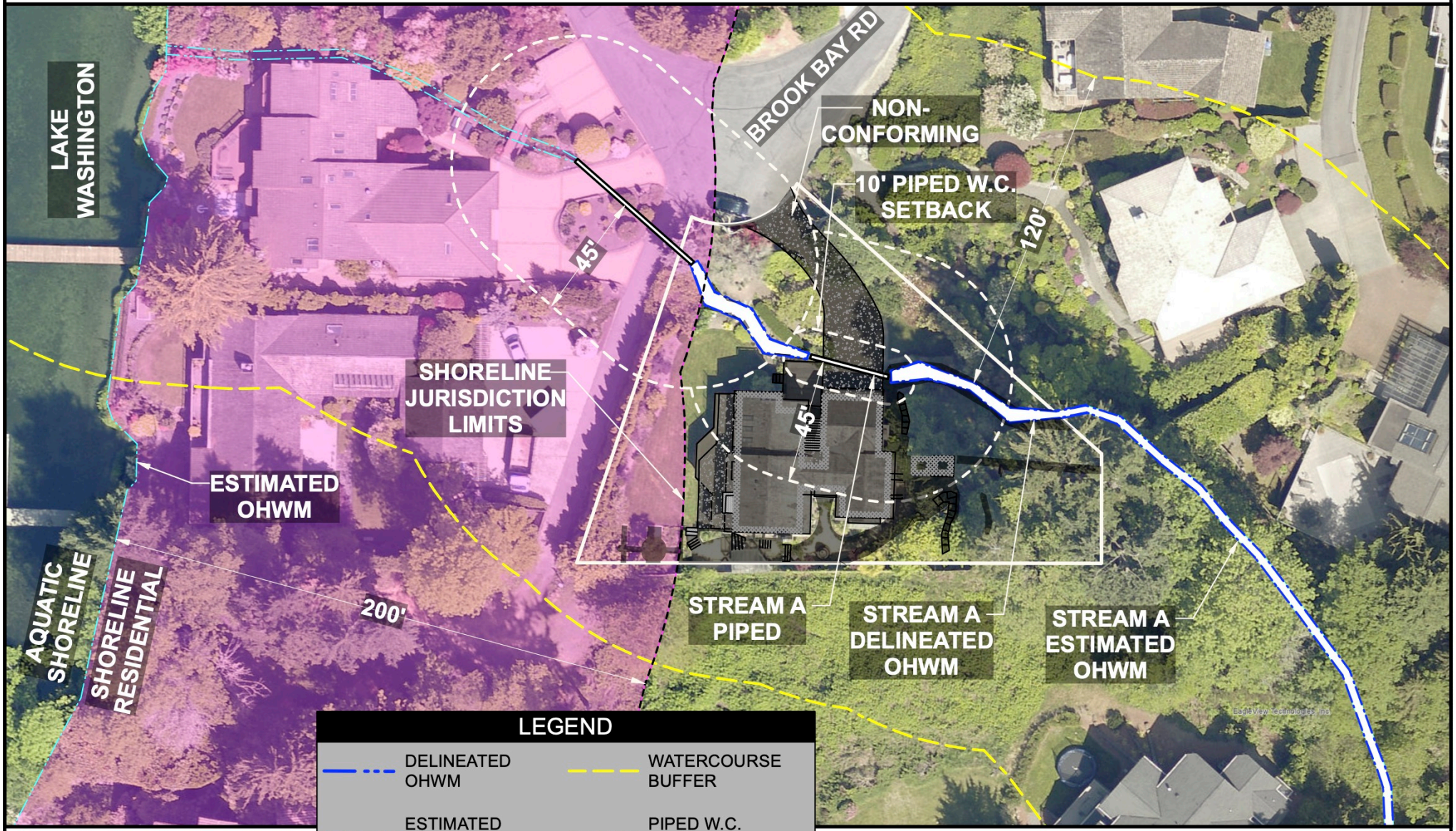
Appendix A

Critical Area Study Map

CRITICAL AREA STUDY MAP

LABAN REMODEL - 10 BROOK BAY RD

EXISTING CONDITIONS



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Critical Area Study Map
Laban Remodel - 10 Brook Bay Road
Existing Conditions

Sheet 1/1
WRI #: 21151
Drawn by: NP
Date: 5/2/2023

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